

Pantheon Report

Generated at 2018-11-02 21:37:53 (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:

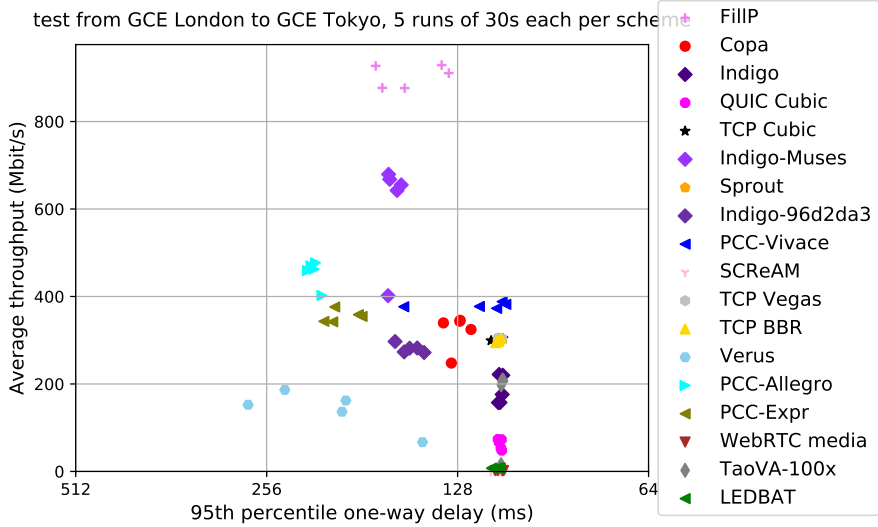
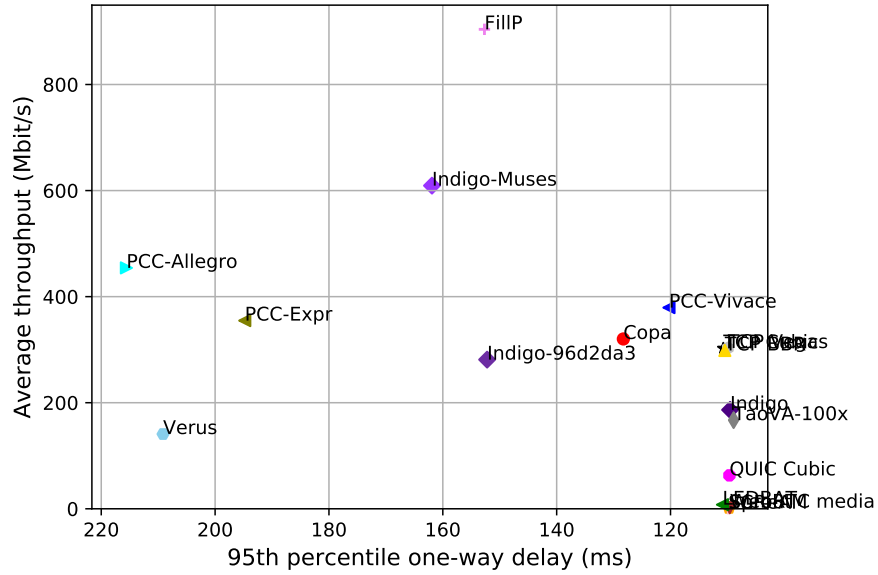
```
Linux 4.15.0-1021-gcp
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

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-quick @ 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	298.55	110.46	0.63
Copa	5	320.20	128.29	0.83
TCP Cubic	5	302.46	110.73	0.78
FillP	5	904.03	152.69	1.67
Indigo	5	186.55	109.54	0.77
Indigo-96d2da3	5	281.25	152.22	0.87
LEDBAT	5	7.73	110.88	1.47
Indigo-Muses	5	609.31	161.90	1.17
PCC-Allegro	5	454.21	215.58	2.71
PCC-Expr	5	354.84	194.79	3.41
QUIC Cubic	5	63.00	109.65	1.12
SCReAM	5	0.22	109.86	0.74
Sprout	5	1.08	109.72	0.84
TaoVA-100x	5	167.13	108.92	0.75
TCP Vegas	5	303.09	109.93	0.78
Verus	5	140.92	209.14	4.97
PCC-Vivace	5	379.36	120.28	0.96
WebRTC media	5	2.01	109.60	0.90

Run 1: Statistics of TCP BBR

Start at: 2018-11-02 18:08:18

End at: 2018-11-02 18:08:48

Local clock offset: 6.07 ms

Remote clock offset: 7.223 ms

Below is generated by plot.py at 2018-11-02 20:29:03

Datalink statistics

-- Total of 1 flow:

Average throughput: 294.63 Mbit/s

95th percentile per-packet one-way delay: 111.431 ms

Loss rate: 0.00%

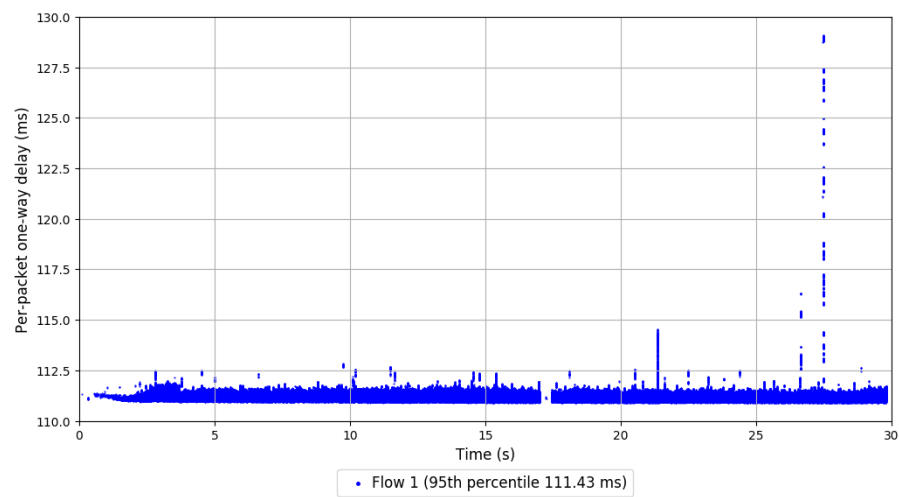
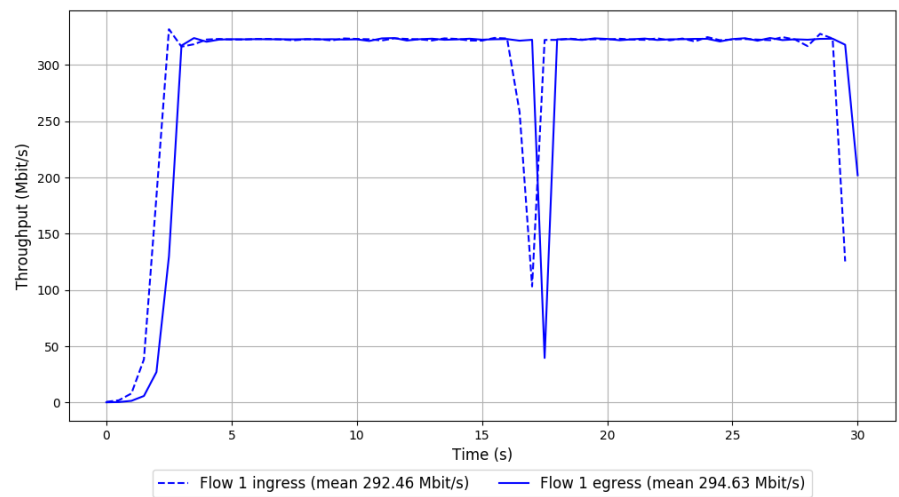
-- Flow 1:

Average throughput: 294.63 Mbit/s

95th percentile per-packet one-way delay: 111.431 ms

Loss rate: 0.00%

Run 1: Report of TCP BBR — Data Link

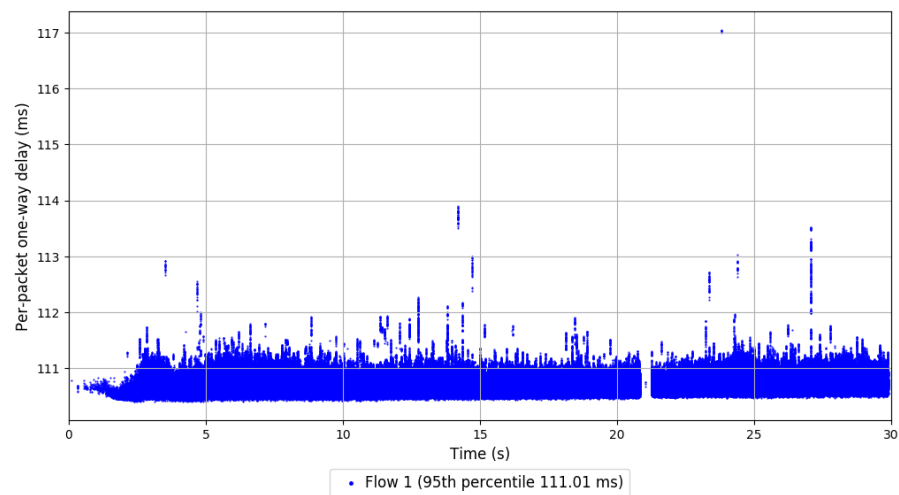
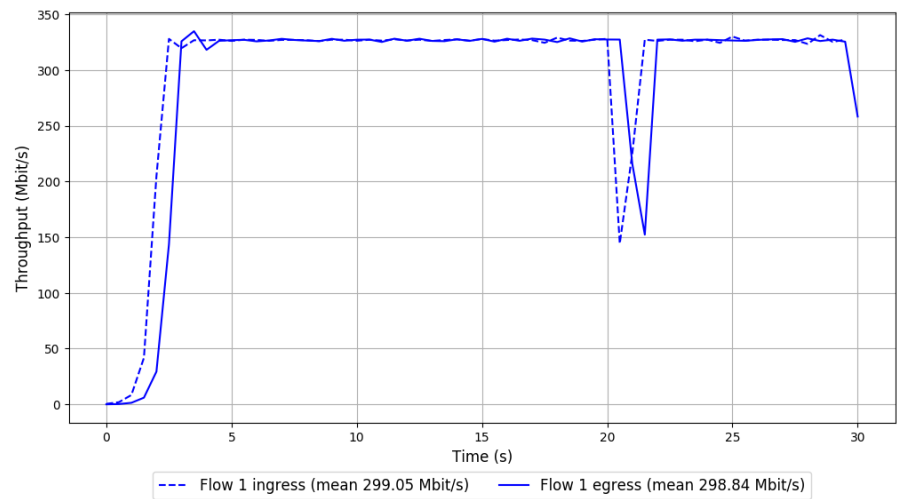


Run 2: Statistics of TCP BBR

Start at: 2018-11-02 18:34:03
End at: 2018-11-02 18:34:33
Local clock offset: 19.396 ms
Remote clock offset: 21.482 ms

Below is generated by plot.py at 2018-11-02 20:29:10
Datalink statistics
-- Total of 1 flow:
Average throughput: 298.84 Mbit/s
95th percentile per-packet one-way delay: 111.010 ms
Loss rate: 0.79%
-- Flow 1:
Average throughput: 298.84 Mbit/s
95th percentile per-packet one-way delay: 111.010 ms
Loss rate: 0.79%

Run 2: Report of TCP BBR — Data Link

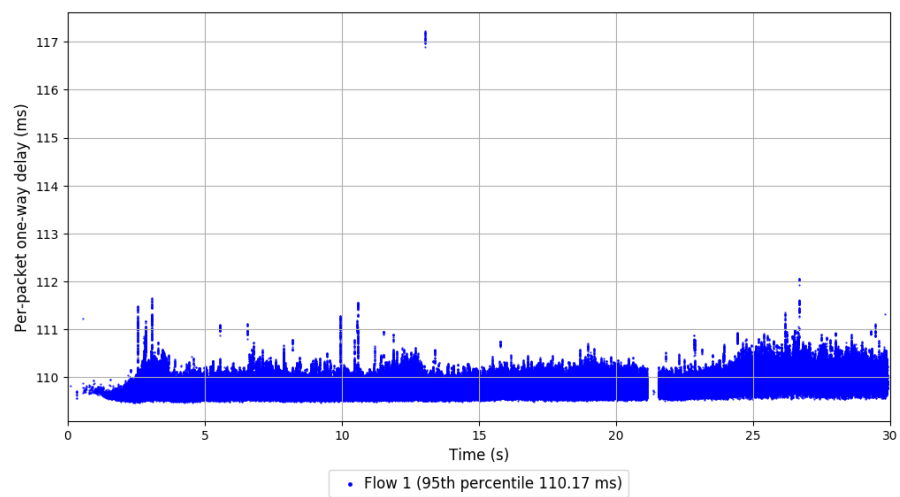
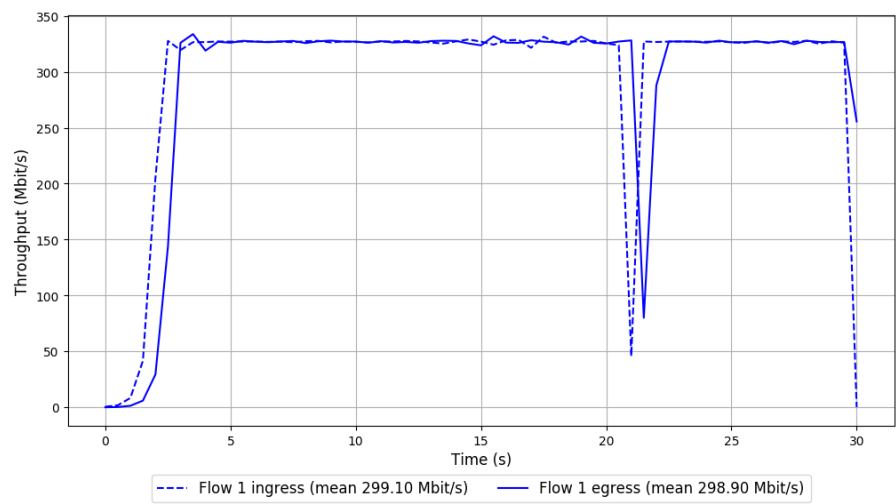


Run 3: Statistics of TCP BBR

Start at: 2018-11-02 19:00:35
End at: 2018-11-02 19:01:05
Local clock offset: 24.174 ms
Remote clock offset: 27.884 ms

Below is generated by plot.py at 2018-11-02 20:29:10
Datalink statistics
-- Total of 1 flow:
Average throughput: 298.90 Mbit/s
95th percentile per-packet one-way delay: 110.173 ms
Loss rate: 0.80%
-- Flow 1:
Average throughput: 298.90 Mbit/s
95th percentile per-packet one-way delay: 110.173 ms
Loss rate: 0.80%

Run 3: Report of TCP BBR — Data Link

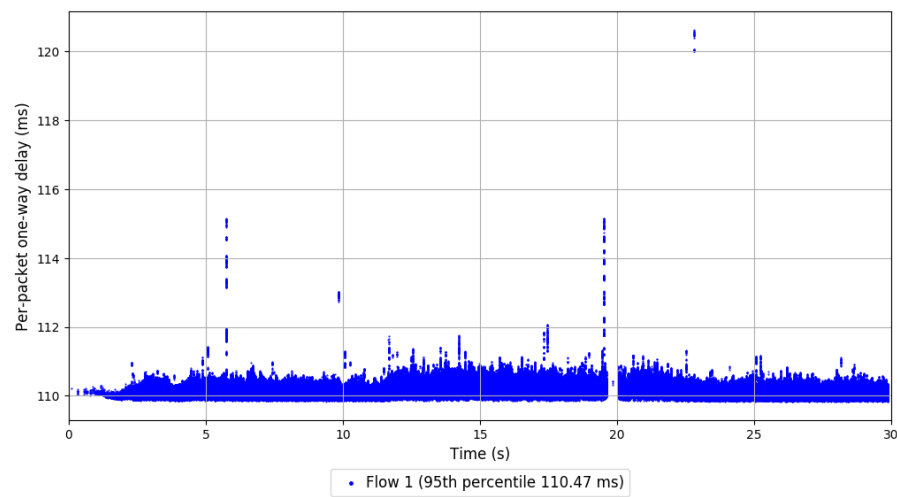
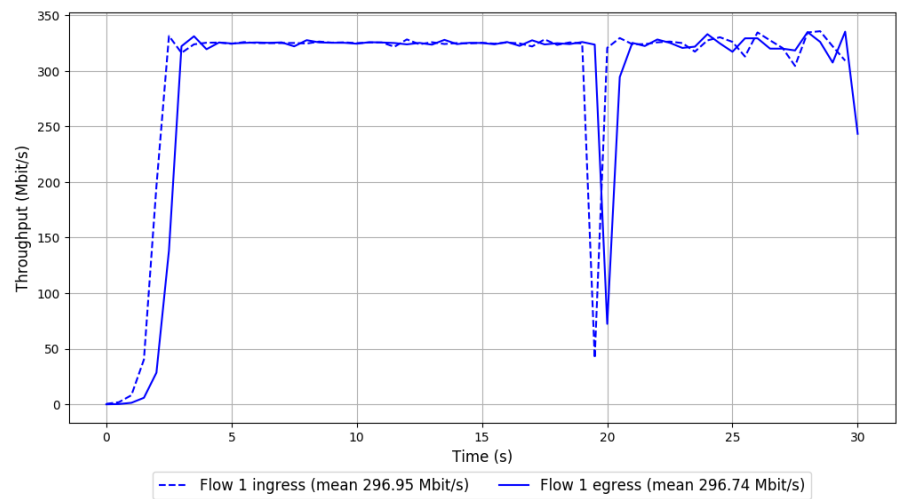


Run 4: Statistics of TCP BBR

Start at: 2018-11-02 19:26:42
End at: 2018-11-02 19:27:12
Local clock offset: 13.813 ms
Remote clock offset: 15.532 ms

Below is generated by plot.py at 2018-11-02 20:29:10
Datalink statistics
-- Total of 1 flow:
Average throughput: 296.74 Mbit/s
95th percentile per-packet one-way delay: 110.466 ms
Loss rate: 0.80%
-- Flow 1:
Average throughput: 296.74 Mbit/s
95th percentile per-packet one-way delay: 110.466 ms
Loss rate: 0.80%

Run 4: Report of TCP BBR — Data Link



Run 5: Statistics of TCP BBR

Start at: 2018-11-02 19:53:04

End at: 2018-11-02 19:53:34

Local clock offset: 9.852 ms

Remote clock offset: 10.977 ms

Below is generated by plot.py at 2018-11-02 20:29:16

Datalink statistics

-- Total of 1 flow:

Average throughput: 303.62 Mbit/s

95th percentile per-packet one-way delay: 109.219 ms

Loss rate: 0.78%

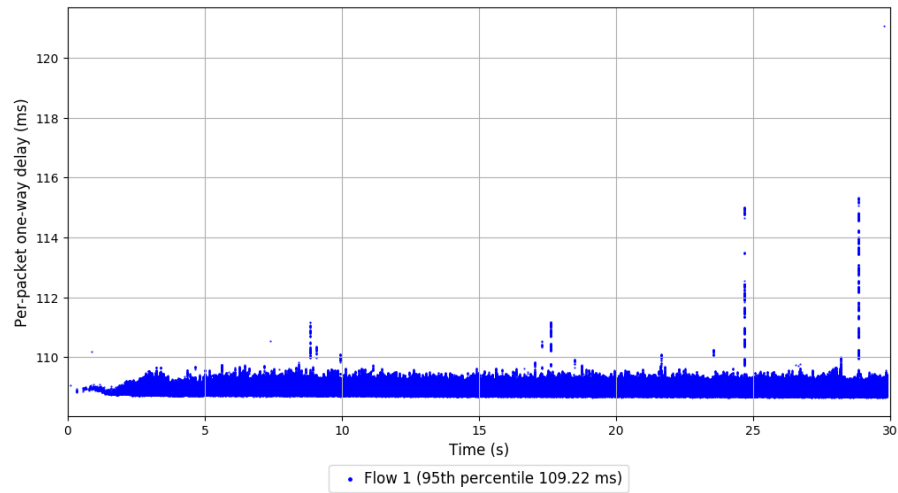
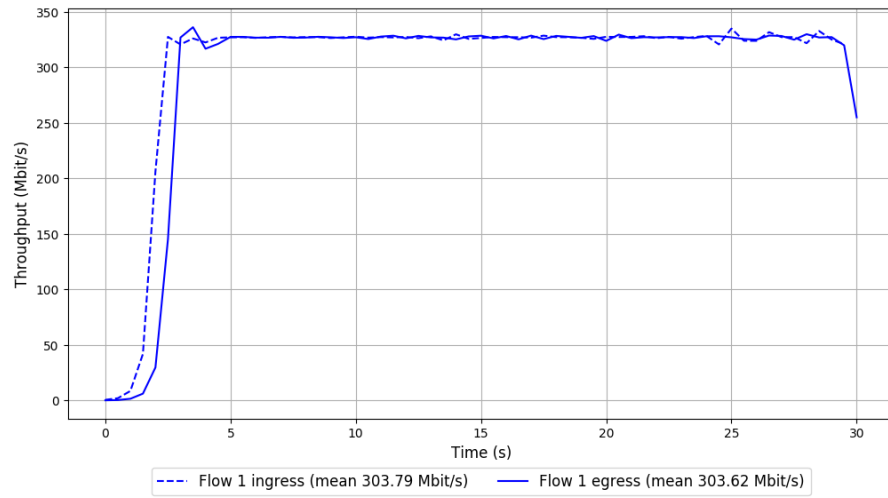
-- Flow 1:

Average throughput: 303.62 Mbit/s

95th percentile per-packet one-way delay: 109.219 ms

Loss rate: 0.78%

Run 5: Report of TCP BBR — Data Link



Run 1: Statistics of Copa

Start at: 2018-11-02 18:05:25

End at: 2018-11-02 18:05:55

Local clock offset: 1.422 ms

Remote clock offset: 3.837 ms

Below is generated by plot.py at 2018-11-02 20:35:56

Datalink statistics

-- Total of 1 flow:

Average throughput: 345.53 Mbit/s

95th percentile per-packet one-way delay: 126.803 ms

Loss rate: 0.90%

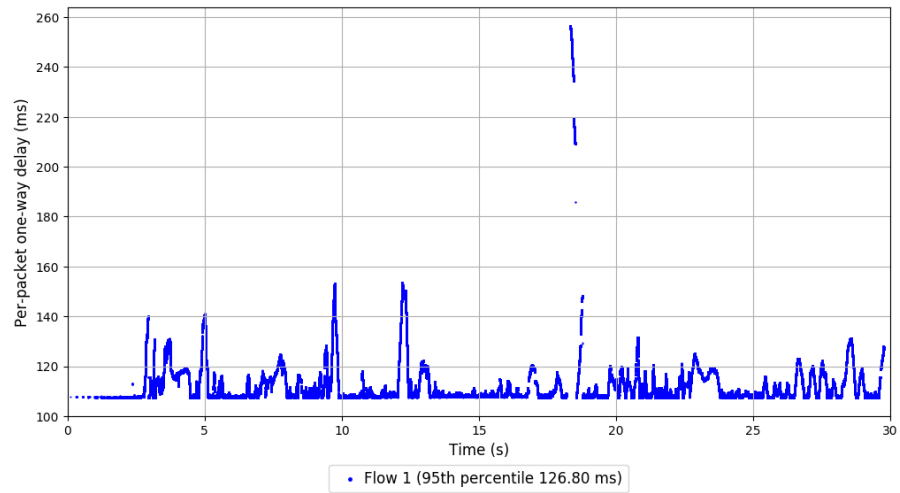
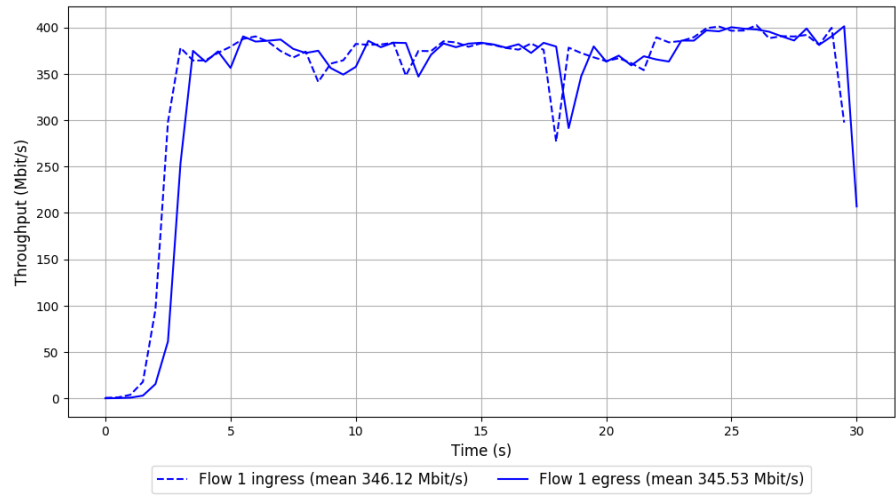
-- Flow 1:

Average throughput: 345.53 Mbit/s

95th percentile per-packet one-way delay: 126.803 ms

Loss rate: 0.90%

Run 1: Report of Copa — Data Link

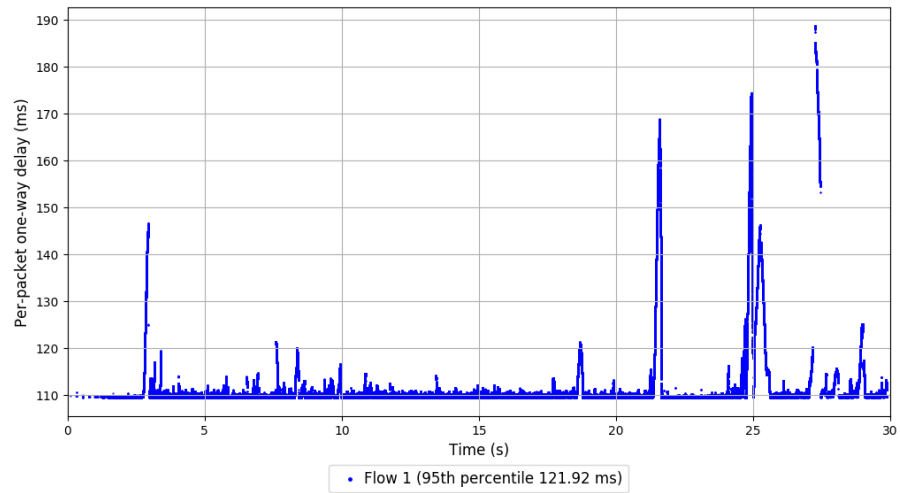
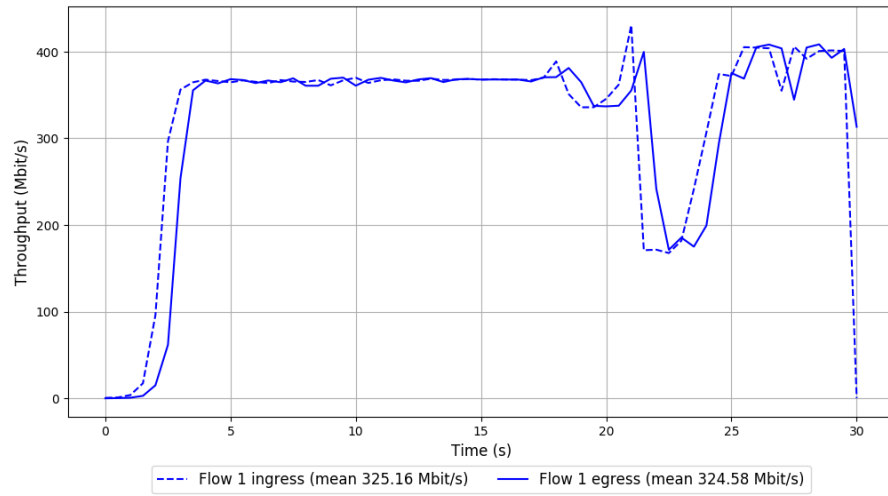


Run 2: Statistics of Copa

Start at: 2018-11-02 18:31:12
End at: 2018-11-02 18:31:42
Local clock offset: 15.305 ms
Remote clock offset: 17.762 ms

Below is generated by plot.py at 2018-11-02 20:35:56
Datalink statistics
-- Total of 1 flow:
Average throughput: 324.58 Mbit/s
95th percentile per-packet one-way delay: 121.924 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 324.58 Mbit/s
95th percentile per-packet one-way delay: 121.924 ms
Loss rate: 0.91%

Run 2: Report of Copa — Data Link

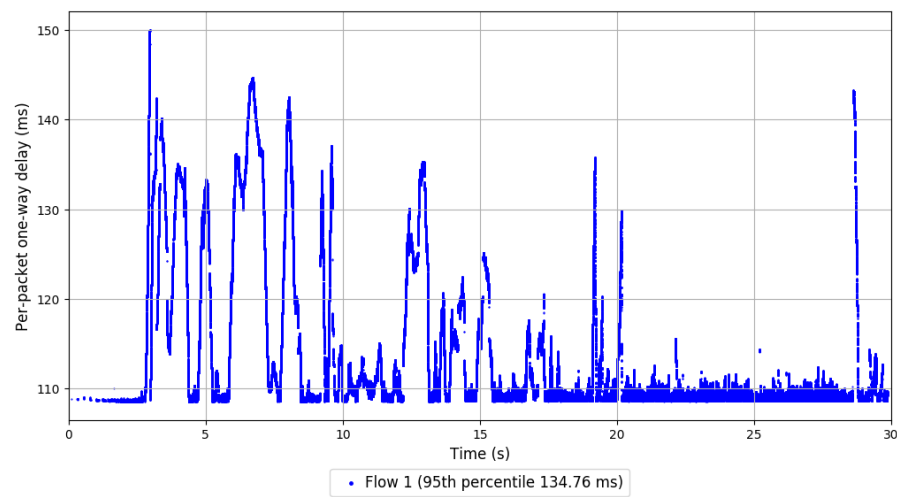
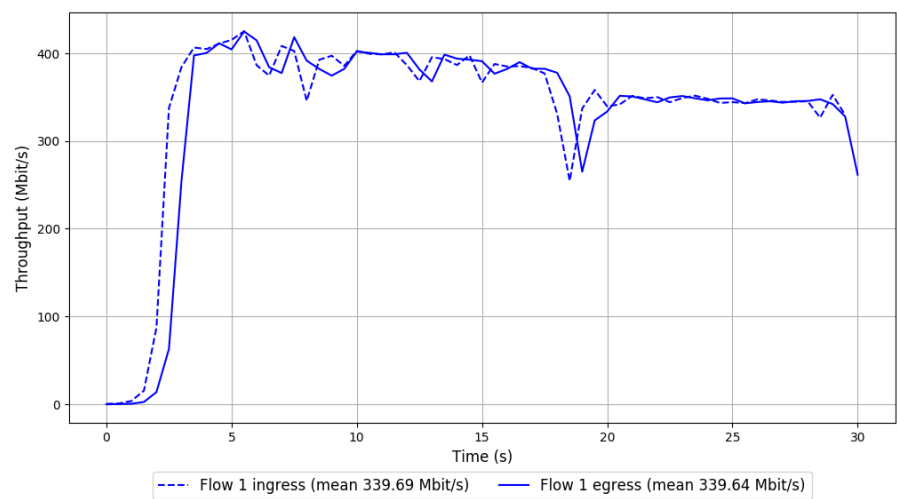


Run 3: Statistics of Copa

Start at: 2018-11-02 18:57:42
End at: 2018-11-02 18:58:12
Local clock offset: 21.665 ms
Remote clock offset: 25.21 ms

Below is generated by plot.py at 2018-11-02 20:35:56
Datalink statistics
-- Total of 1 flow:
Average throughput: 339.64 Mbit/s
95th percentile per-packet one-way delay: 134.756 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 339.64 Mbit/s
95th percentile per-packet one-way delay: 134.756 ms
Loss rate: 0.74%

Run 3: Report of Copa — Data Link

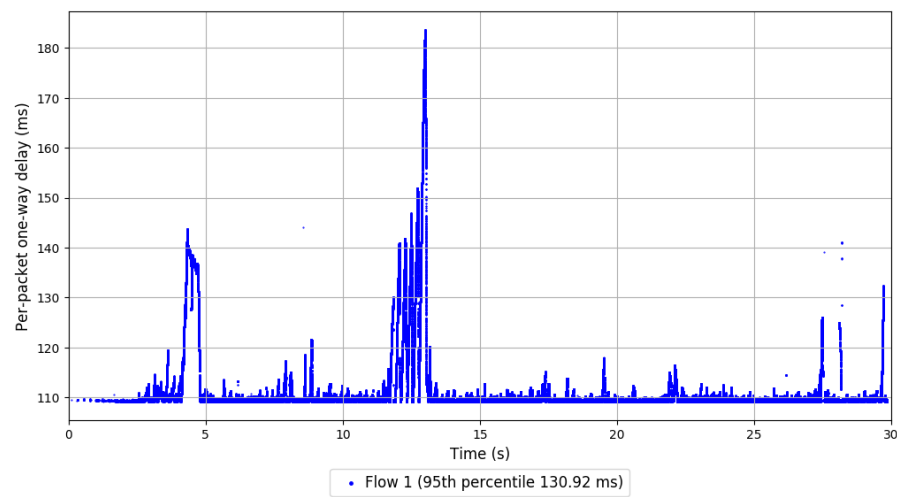
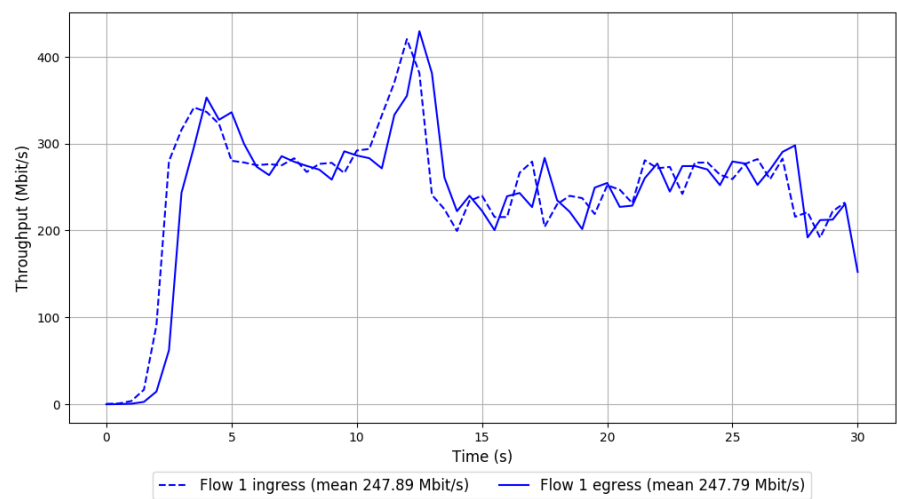


Run 4: Statistics of Copa

Start at: 2018-11-02 19:23:58
End at: 2018-11-02 19:24:28
Local clock offset: 14.306 ms
Remote clock offset: 16.781 ms

Below is generated by plot.py at 2018-11-02 20:37:16
Datalink statistics
-- Total of 1 flow:
Average throughput: 247.79 Mbit/s
95th percentile per-packet one-way delay: 130.923 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 247.79 Mbit/s
95th percentile per-packet one-way delay: 130.923 ms
Loss rate: 0.77%

Run 4: Report of Copa — Data Link

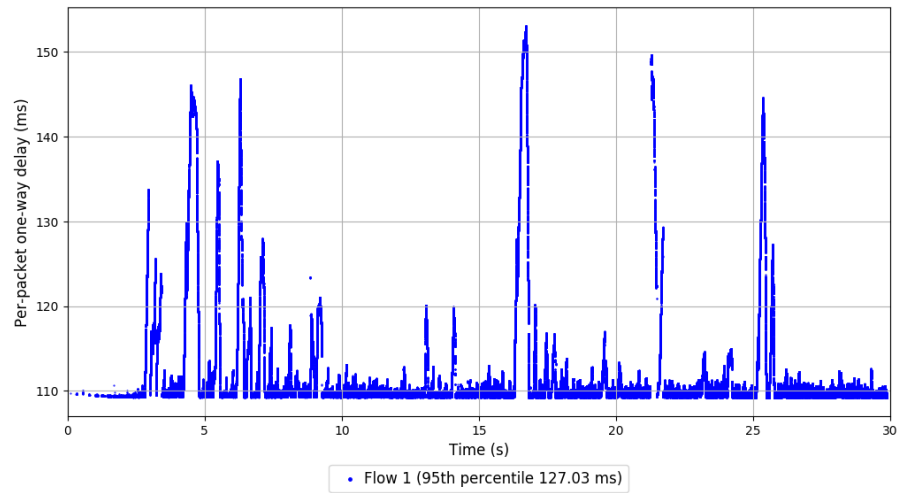
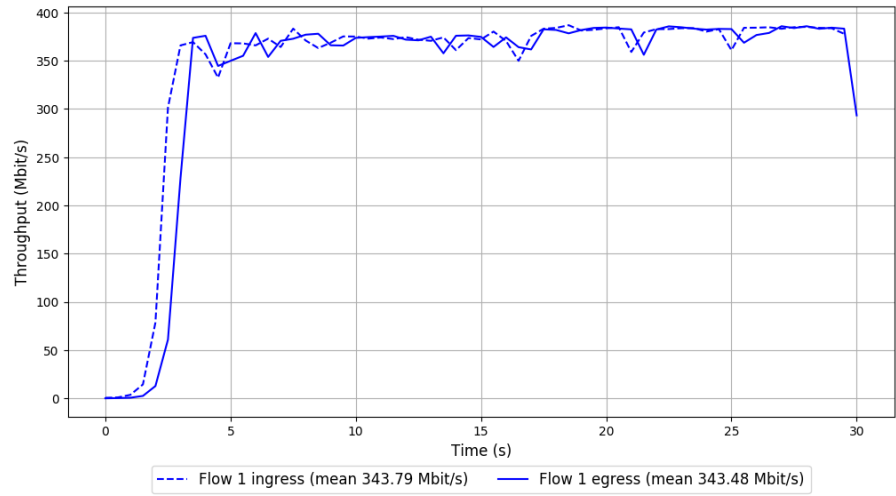


Run 5: Statistics of Copa

Start at: 2018-11-02 19:50:10
End at: 2018-11-02 19:50:40
Local clock offset: 12.108 ms
Remote clock offset: 14.034 ms

Below is generated by plot.py at 2018-11-02 20:40:30
Datalink statistics
-- Total of 1 flow:
Average throughput: 343.48 Mbit/s
95th percentile per-packet one-way delay: 127.028 ms
Loss rate: 0.83%
-- Flow 1:
Average throughput: 343.48 Mbit/s
95th percentile per-packet one-way delay: 127.028 ms
Loss rate: 0.83%

Run 5: Report of Copa — Data Link

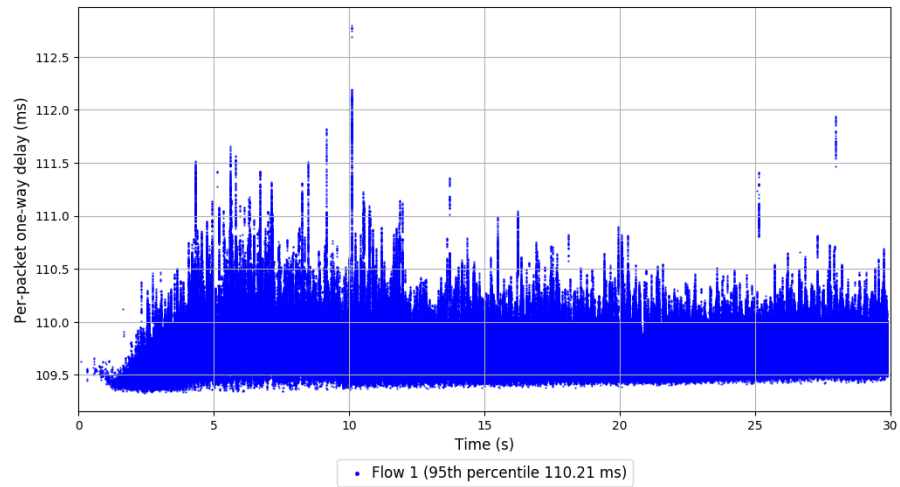
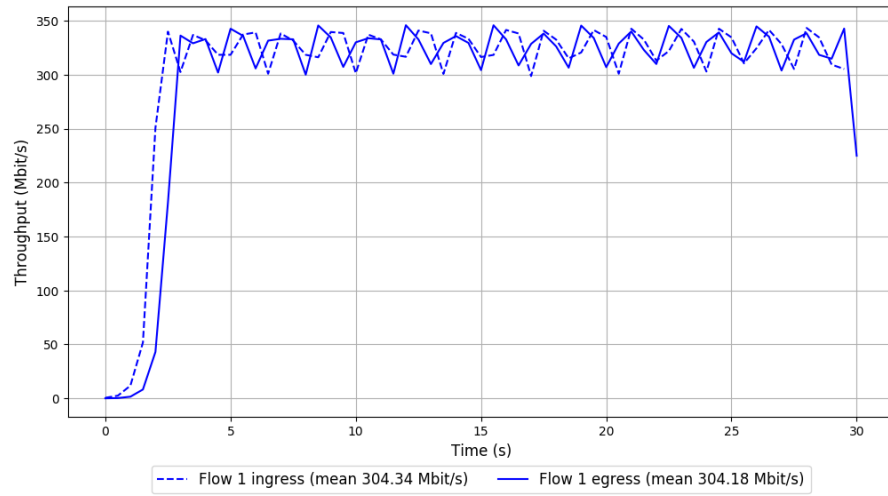


Run 1: Statistics of TCP Cubic

Start at: 2018-11-02 18:18:14
End at: 2018-11-02 18:18:44
Local clock offset: 12.003 ms
Remote clock offset: 13.058 ms

Below is generated by plot.py at 2018-11-02 20:40:30
Datalink statistics
-- Total of 1 flow:
Average throughput: 304.18 Mbit/s
95th percentile per-packet one-way delay: 110.211 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 304.18 Mbit/s
95th percentile per-packet one-way delay: 110.211 ms
Loss rate: 0.78%

Run 1: Report of TCP Cubic — Data Link

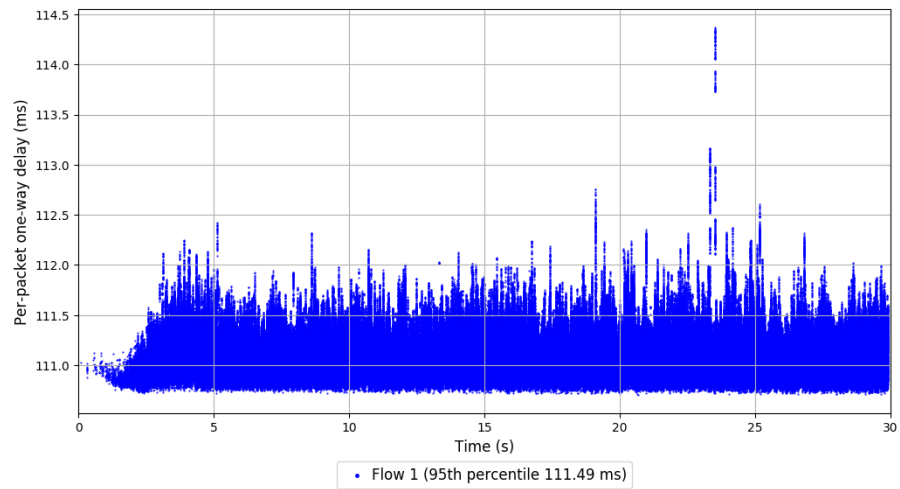
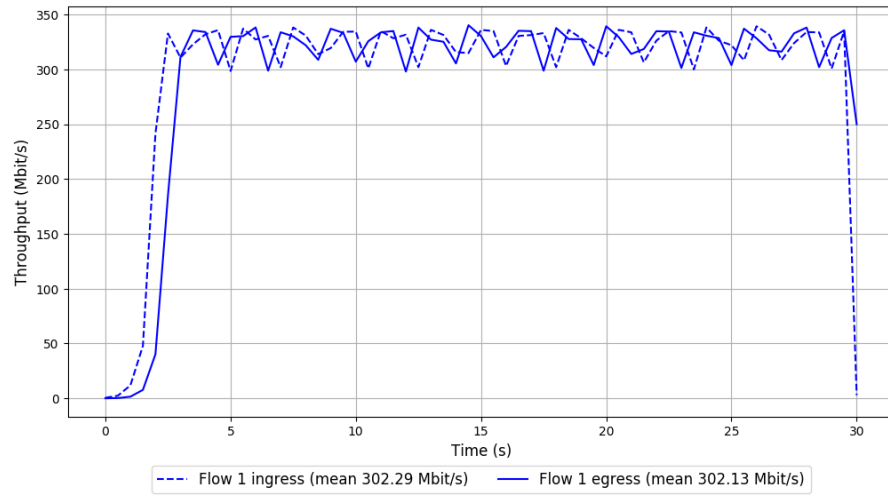


Run 2: Statistics of TCP Cubic

Start at: 2018-11-02 18:44:18
End at: 2018-11-02 18:44:48
Local clock offset: 17.125 ms
Remote clock offset: 20.162 ms

Below is generated by plot.py at 2018-11-02 20:40:30
Datalink statistics
-- Total of 1 flow:
Average throughput: 302.13 Mbit/s
95th percentile per-packet one-way delay: 111.486 ms
Loss rate: 0.79%
-- Flow 1:
Average throughput: 302.13 Mbit/s
95th percentile per-packet one-way delay: 111.486 ms
Loss rate: 0.79%

Run 2: Report of TCP Cubic — Data Link

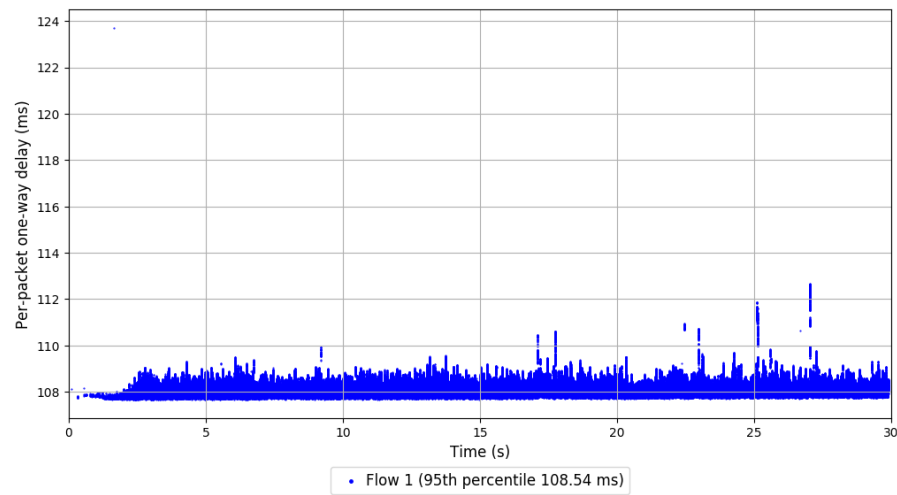
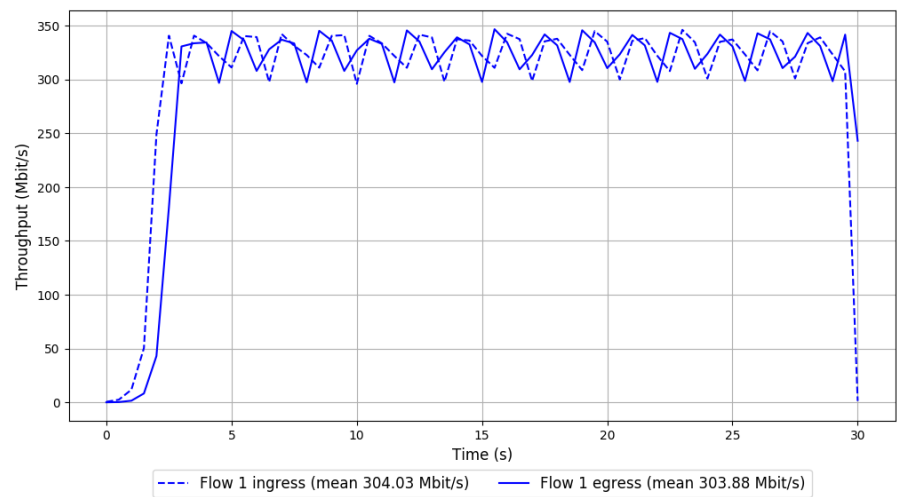


Run 3: Statistics of TCP Cubic

Start at: 2018-11-02 19:10:43
End at: 2018-11-02 19:11:14
Local clock offset: 32.78 ms
Remote clock offset: 39.079 ms

Below is generated by plot.py at 2018-11-02 20:40:30
Datalink statistics
-- Total of 1 flow:
Average throughput: 303.88 Mbit/s
95th percentile per-packet one-way delay: 108.538 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 303.88 Mbit/s
95th percentile per-packet one-way delay: 108.538 ms
Loss rate: 0.77%

Run 3: Report of TCP Cubic — Data Link

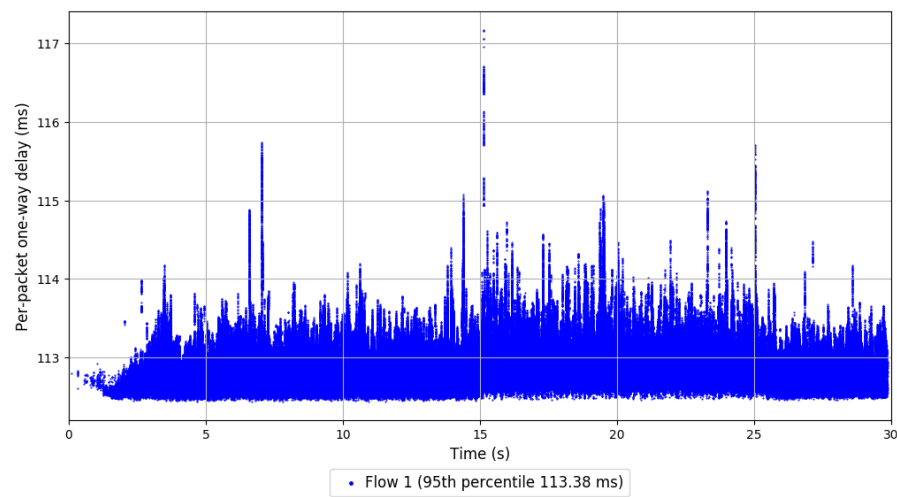
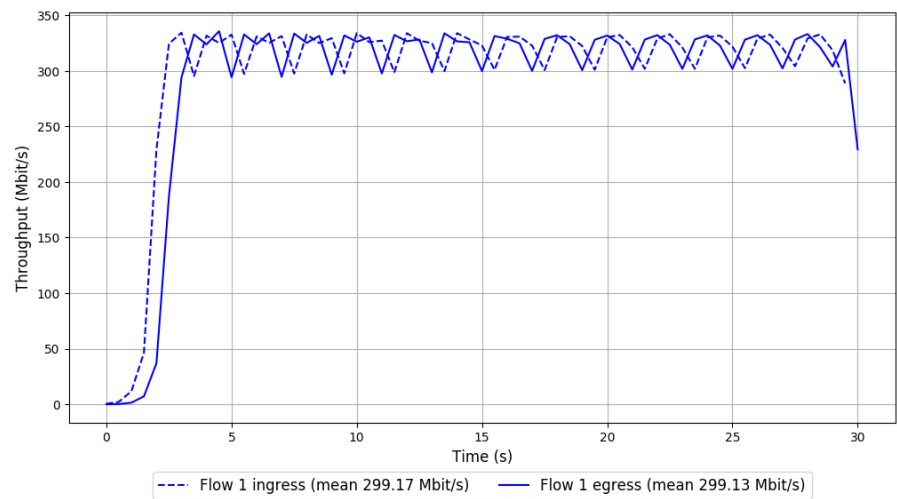


Run 4: Statistics of TCP Cubic

Start at: 2018-11-02 19:37:00
End at: 2018-11-02 19:37:30
Local clock offset: 14.042 ms
Remote clock offset: 16.446 ms

Below is generated by plot.py at 2018-11-02 20:40:30
Datalink statistics
-- Total of 1 flow:
Average throughput: 299.13 Mbit/s
95th percentile per-packet one-way delay: 113.384 ms
Loss rate: 0.79%
-- Flow 1:
Average throughput: 299.13 Mbit/s
95th percentile per-packet one-way delay: 113.384 ms
Loss rate: 0.79%

Run 4: Report of TCP Cubic — Data Link



Run 5: Statistics of TCP Cubic

Start at: 2018-11-02 20:03:18

End at: 2018-11-02 20:03:48

Local clock offset: 6.438 ms

Remote clock offset: 7.453 ms

Below is generated by plot.py at 2018-11-02 20:40:30

Datalink statistics

-- Total of 1 flow:

Average throughput: 302.97 Mbit/s

95th percentile per-packet one-way delay: 110.036 ms

Loss rate: 0.78%

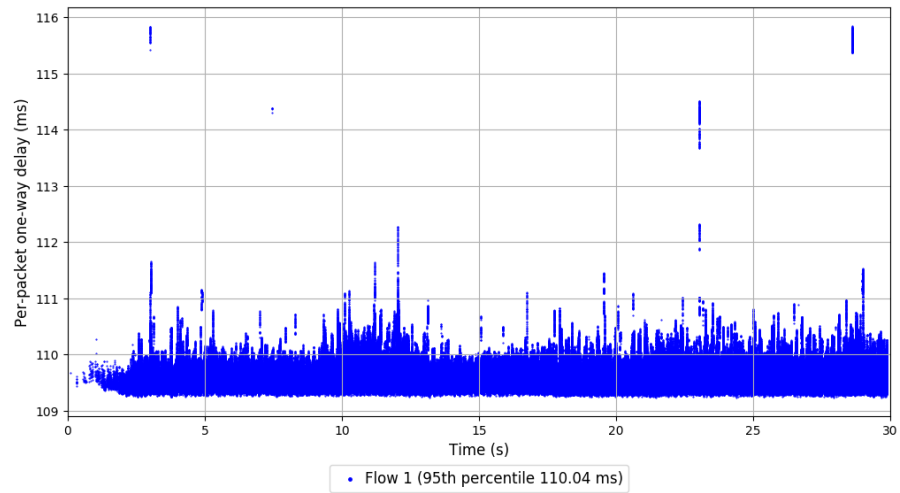
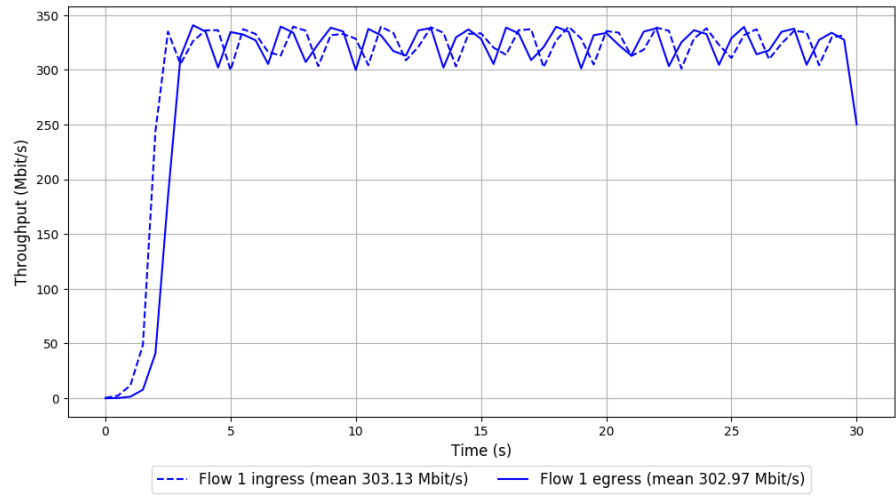
-- Flow 1:

Average throughput: 302.97 Mbit/s

95th percentile per-packet one-way delay: 110.036 ms

Loss rate: 0.78%

Run 5: Report of TCP Cubic — Data Link

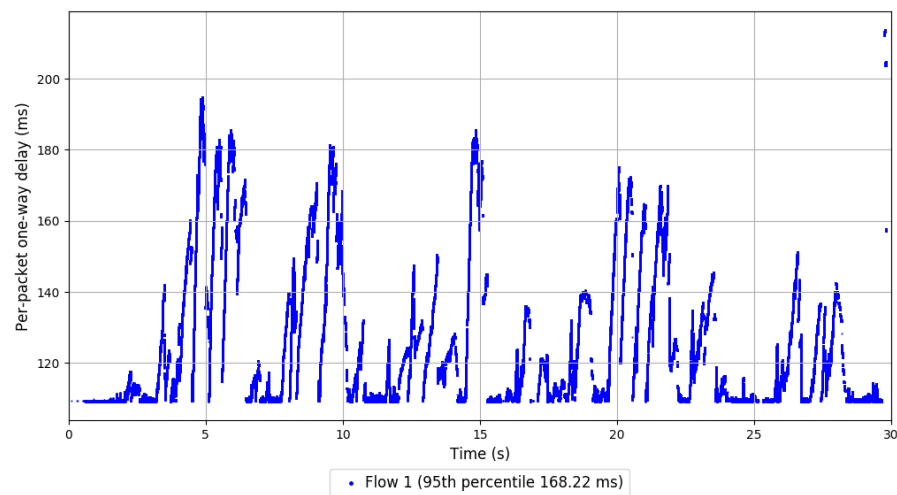
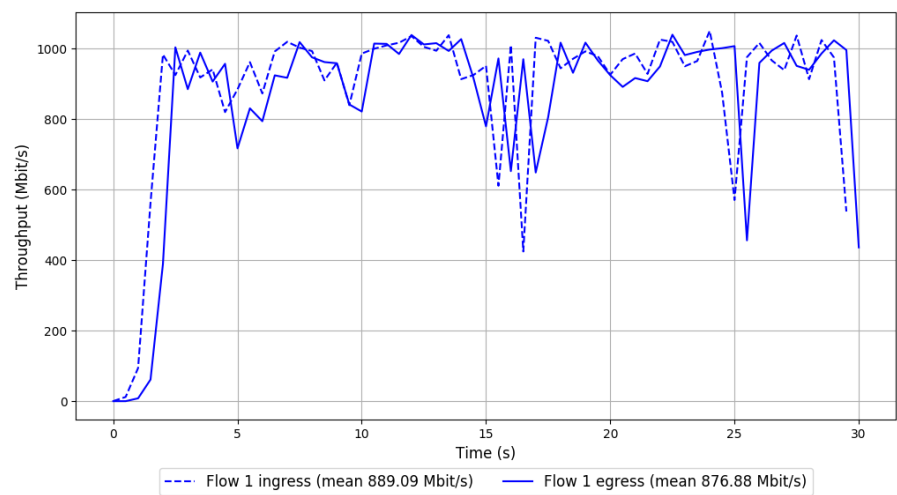


Run 1: Statistics of FillP

Start at: 2018-11-02 18:28:13
End at: 2018-11-02 18:28:43
Local clock offset: 12.381 ms
Remote clock offset: 14.887 ms

Below is generated by plot.py at 2018-11-02 20:54:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 876.88 Mbit/s
95th percentile per-packet one-way delay: 168.216 ms
Loss rate: 2.06%
-- Flow 1:
Average throughput: 876.88 Mbit/s
95th percentile per-packet one-way delay: 168.216 ms
Loss rate: 2.06%

Run 1: Report of FillP — Data Link



Run 2: Statistics of FillP

Start at: 2018-11-02 18:54:40

End at: 2018-11-02 18:55:10

Local clock offset: 19.709 ms

Remote clock offset: 23.18 ms

Below is generated by plot.py at 2018-11-02 20:55:58

Datalink statistics

-- Total of 1 flow:

Average throughput: 929.06 Mbit/s

95th percentile per-packet one-way delay: 135.610 ms

Loss rate: 0.89%

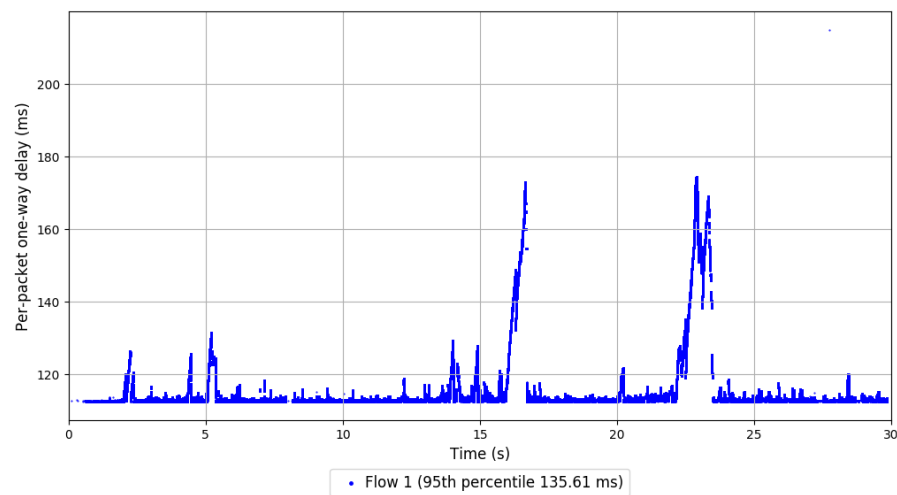
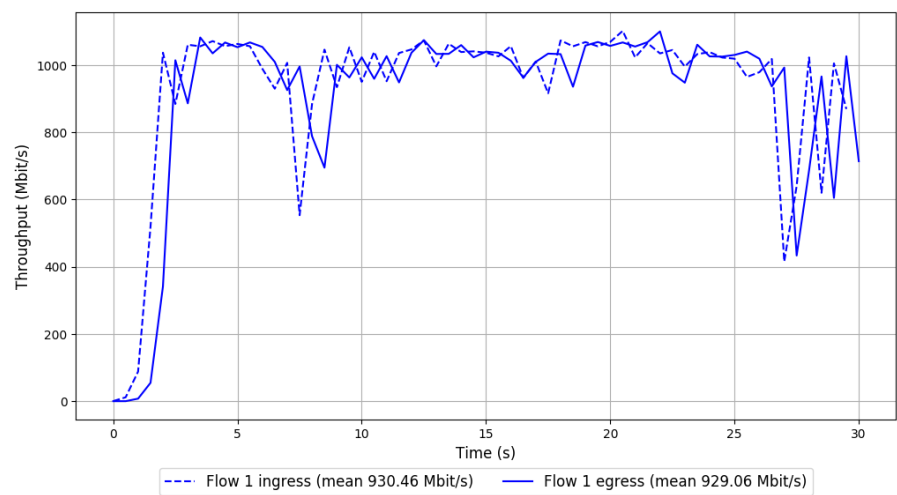
-- Flow 1:

Average throughput: 929.06 Mbit/s

95th percentile per-packet one-way delay: 135.610 ms

Loss rate: 0.89%

Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2018-11-02 19:20:58

End at: 2018-11-02 19:21:28

Local clock offset: 18.065 ms

Remote clock offset: 18.78 ms

Below is generated by plot.py at 2018-11-02 20:55:58

Datalink statistics

-- Total of 1 flow:

Average throughput: 876.40 Mbit/s

95th percentile per-packet one-way delay: 155.109 ms

Loss rate: 1.23%

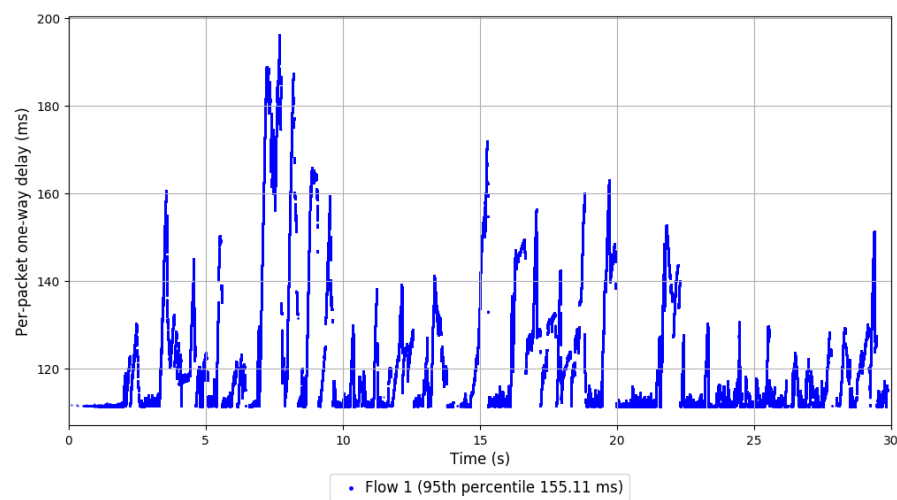
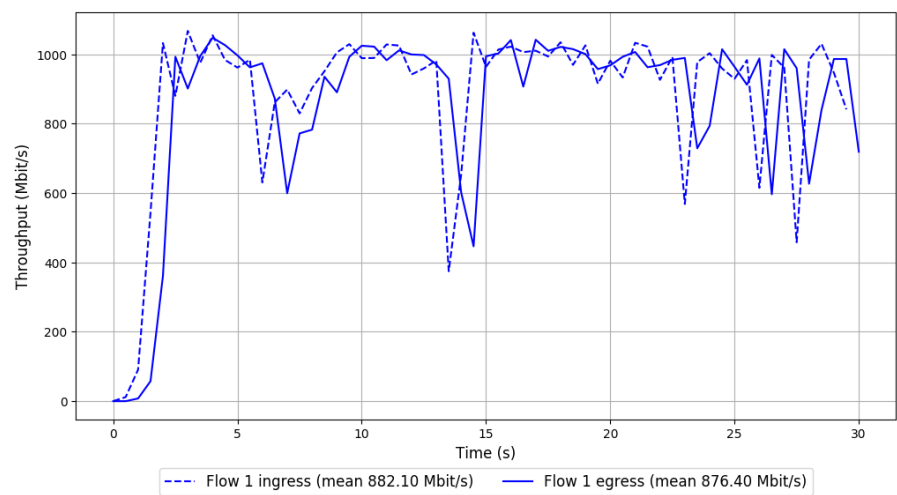
-- Flow 1:

Average throughput: 876.40 Mbit/s

95th percentile per-packet one-way delay: 155.109 ms

Loss rate: 1.23%

Run 3: Report of FillP — Data Link



Run 4: Statistics of FillP

Start at: 2018-11-02 19:47:10

End at: 2018-11-02 19:47:40

Local clock offset: 17.051 ms

Remote clock offset: 18.48 ms

Below is generated by plot.py at 2018-11-02 20:56:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 910.60 Mbit/s

95th percentile per-packet one-way delay: 132.172 ms

Loss rate: 0.98%

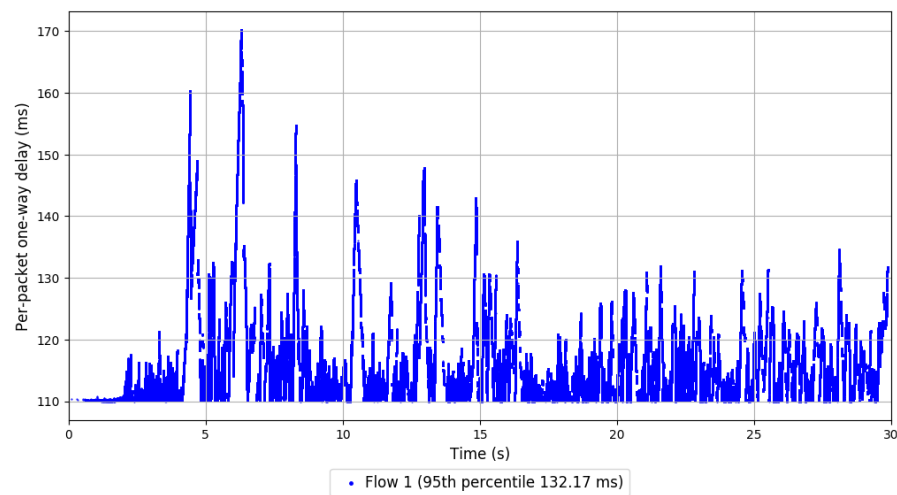
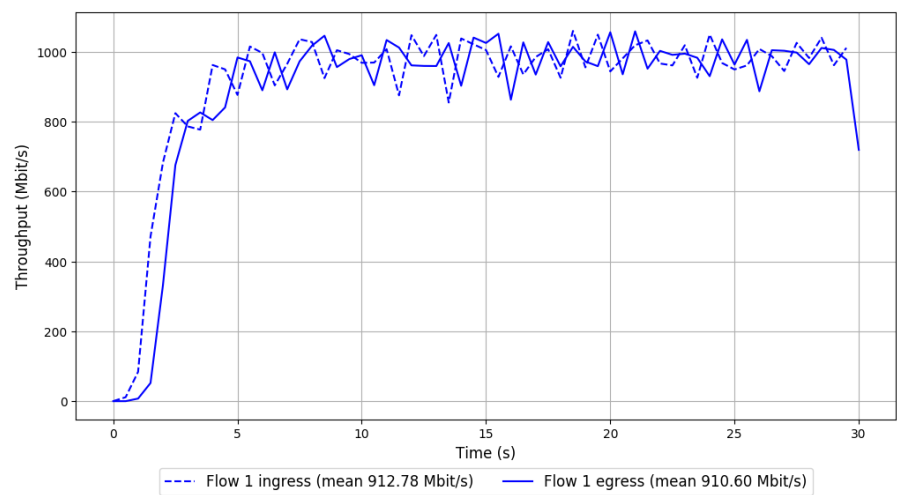
-- Flow 1:

Average throughput: 910.60 Mbit/s

95th percentile per-packet one-way delay: 132.172 ms

Loss rate: 0.98%

Run 4: Report of FillP — Data Link



Run 5: Statistics of FillP

Start at: 2018-11-02 20:13:39

End at: 2018-11-02 20:14:09

Local clock offset: 7.56 ms

Remote clock offset: 8.466 ms

Below is generated by plot.py at 2018-11-02 20:58:30

Datalink statistics

-- Total of 1 flow:

Average throughput: 927.23 Mbit/s

95th percentile per-packet one-way delay: 172.320 ms

Loss rate: 3.17%

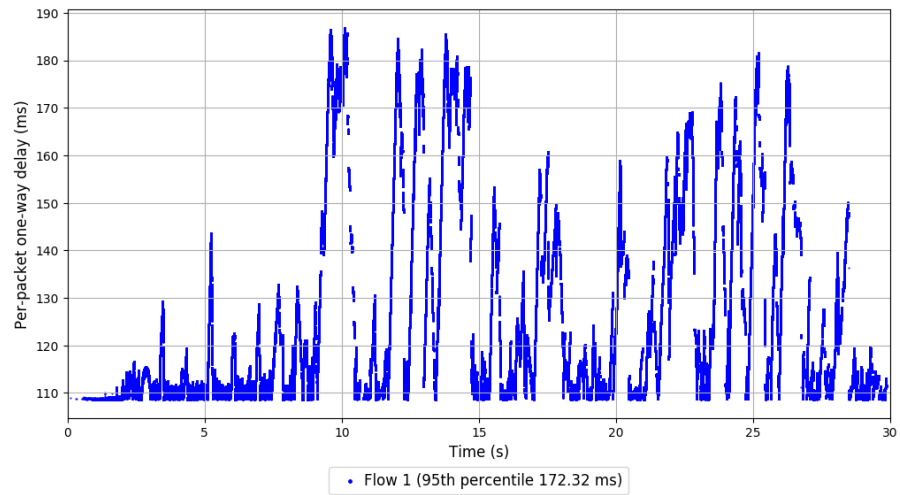
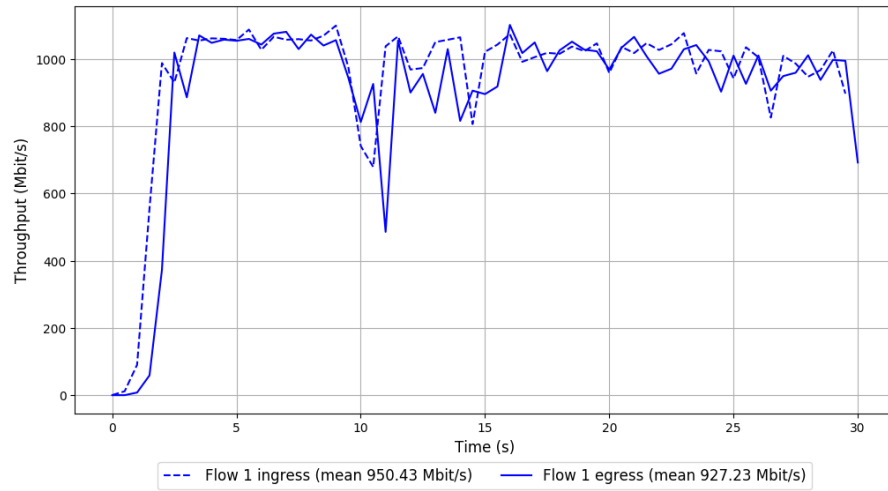
-- Flow 1:

Average throughput: 927.23 Mbit/s

95th percentile per-packet one-way delay: 172.320 ms

Loss rate: 3.17%

Run 5: Report of FillP — Data Link

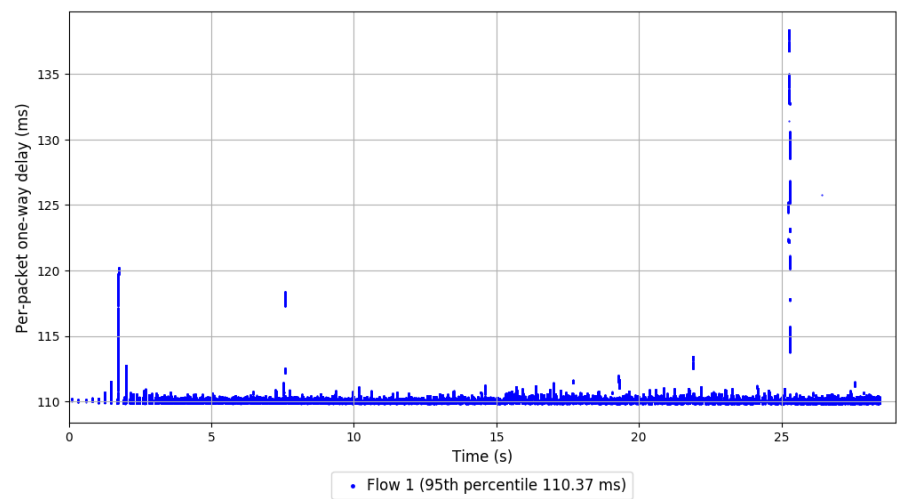
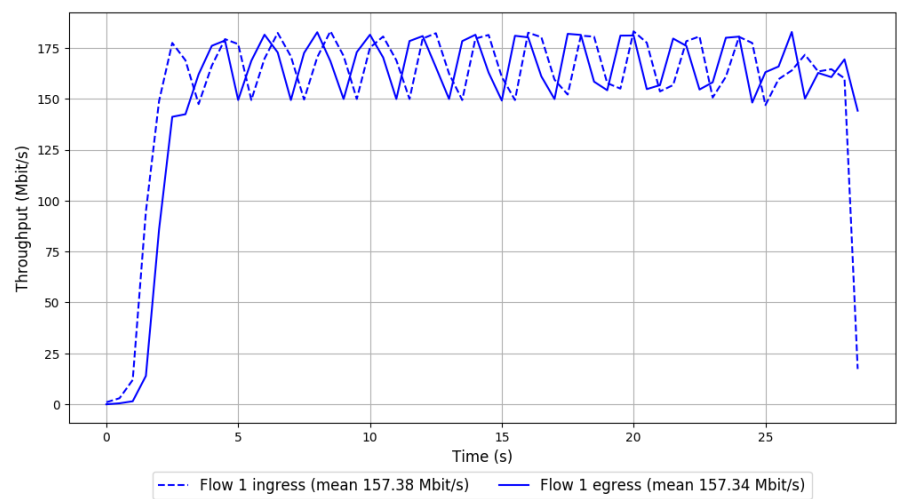


Run 1: Statistics of Indigo

Start at: 2018-11-02 18:22:25
End at: 2018-11-02 18:22:55
Local clock offset: 13.233 ms
Remote clock offset: 14.817 ms

Below is generated by plot.py at 2018-11-02 20:58:30
Datalink statistics
-- Total of 1 flow:
Average throughput: 157.34 Mbit/s
95th percentile per-packet one-way delay: 110.372 ms
Loss rate: 0.79%
-- Flow 1:
Average throughput: 157.34 Mbit/s
95th percentile per-packet one-way delay: 110.372 ms
Loss rate: 0.79%

Run 1: Report of Indigo — Data Link

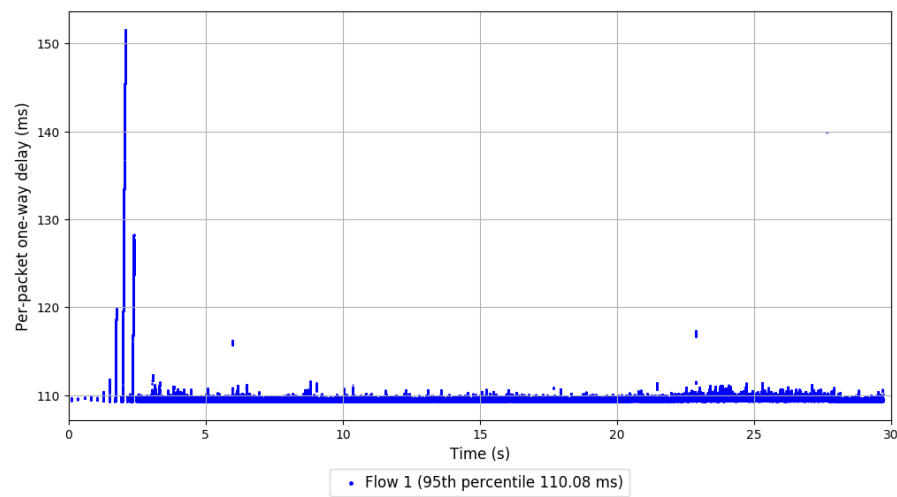
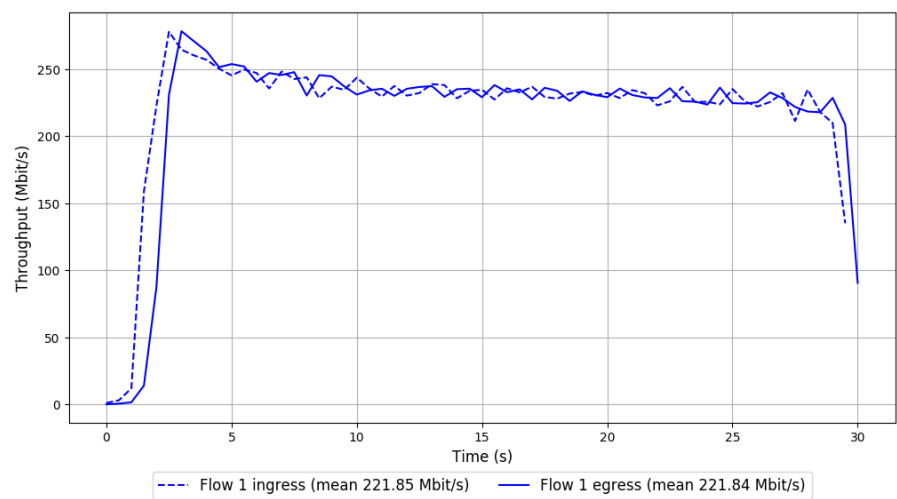


Run 2: Statistics of Indigo

Start at: 2018-11-02 18:48:31
End at: 2018-11-02 18:49:01
Local clock offset: 17.109 ms
Remote clock offset: 20.033 ms

Below is generated by plot.py at 2018-11-02 20:58:30
Datalink statistics
-- Total of 1 flow:
Average throughput: 221.84 Mbit/s
95th percentile per-packet one-way delay: 110.075 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 221.84 Mbit/s
95th percentile per-packet one-way delay: 110.075 ms
Loss rate: 0.74%

Run 2: Report of Indigo — Data Link

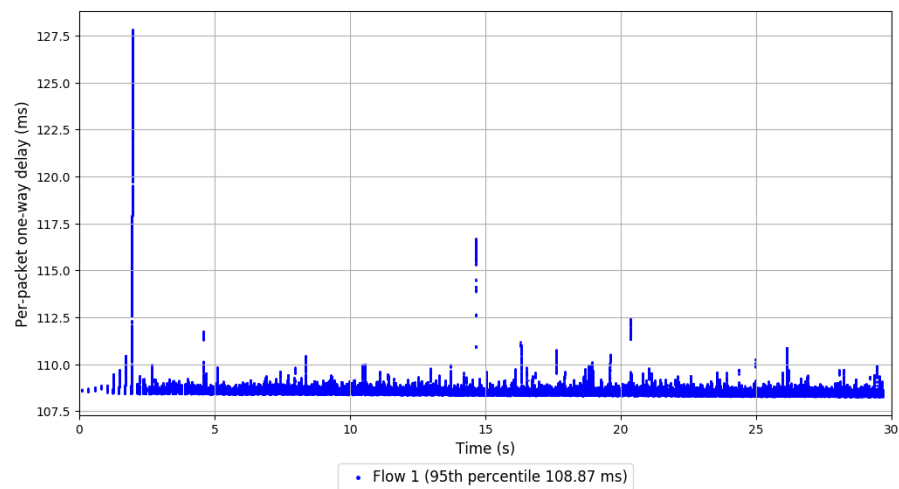
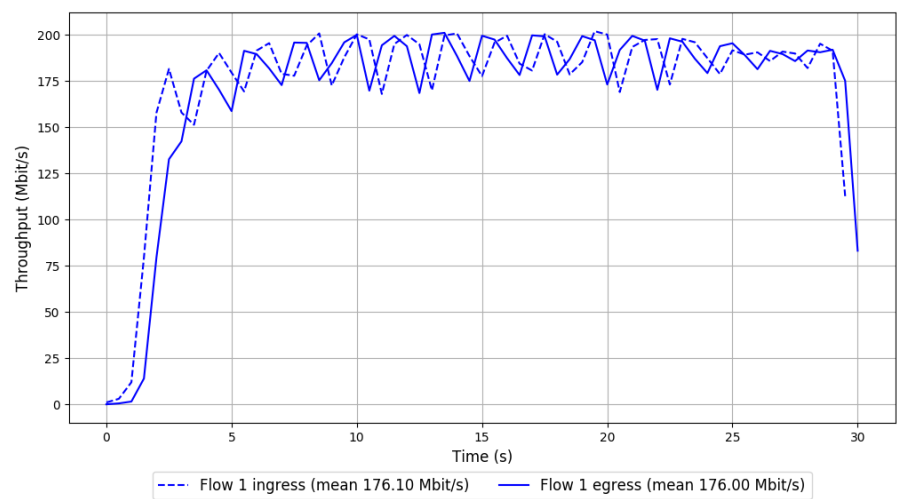


Run 3: Statistics of Indigo

Start at: 2018-11-02 19:14:57
End at: 2018-11-02 19:15:27
Local clock offset: 25.738 ms
Remote clock offset: 29.825 ms

Below is generated by plot.py at 2018-11-02 20:58:30
Datalink statistics
-- Total of 1 flow:
Average throughput: 176.00 Mbit/s
95th percentile per-packet one-way delay: 108.870 ms
Loss rate: 0.79%
-- Flow 1:
Average throughput: 176.00 Mbit/s
95th percentile per-packet one-way delay: 108.870 ms
Loss rate: 0.79%

Run 3: Report of Indigo — Data Link

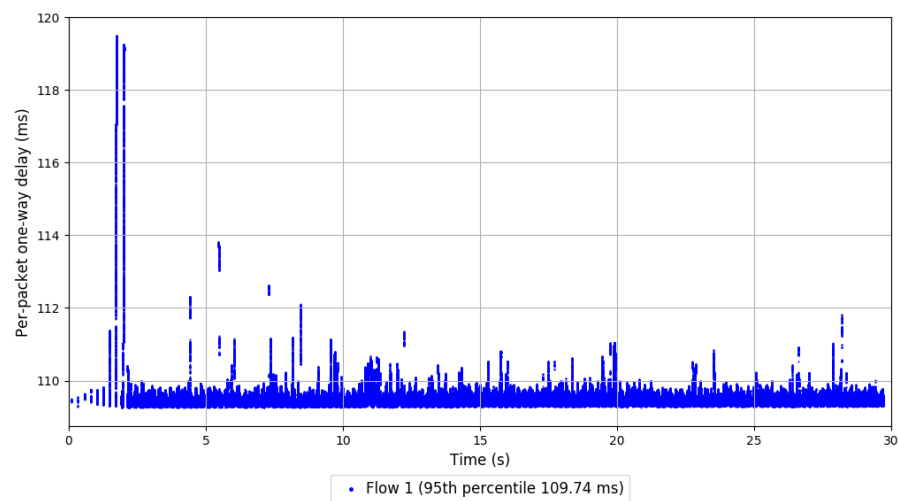
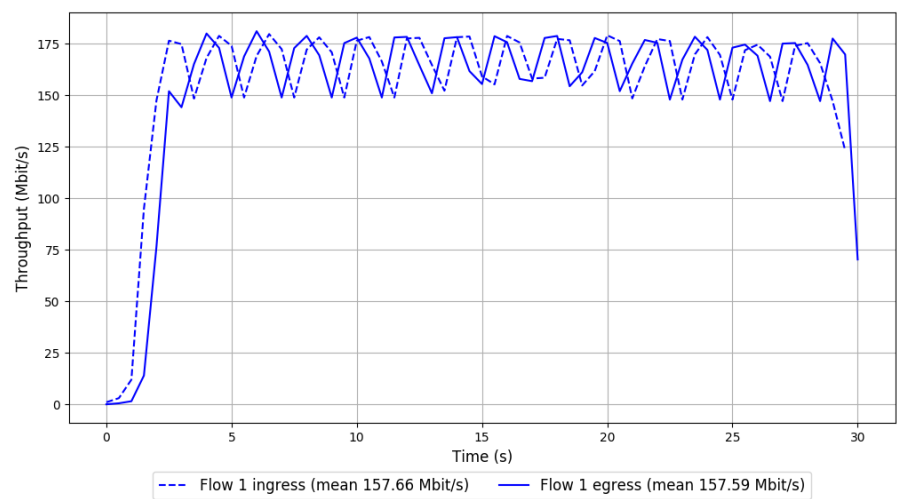


Run 4: Statistics of Indigo

Start at: 2018-11-02 19:41:14
End at: 2018-11-02 19:41:44
Local clock offset: 15.485 ms
Remote clock offset: 18.042 ms

Below is generated by plot.py at 2018-11-02 20:58:30
Datalink statistics
-- Total of 1 flow:
Average throughput: 157.59 Mbit/s
95th percentile per-packet one-way delay: 109.737 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 157.59 Mbit/s
95th percentile per-packet one-way delay: 109.737 ms
Loss rate: 0.78%

Run 4: Report of Indigo — Data Link



Run 5: Statistics of Indigo

Start at: 2018-11-02 20:07:32

End at: 2018-11-02 20:08:02

Local clock offset: 5.866 ms

Remote clock offset: 7.59 ms

Below is generated by plot.py at 2018-11-02 20:58:30

Datalink statistics

-- Total of 1 flow:

Average throughput: 219.99 Mbit/s

95th percentile per-packet one-way delay: 108.642 ms

Loss rate: 0.75%

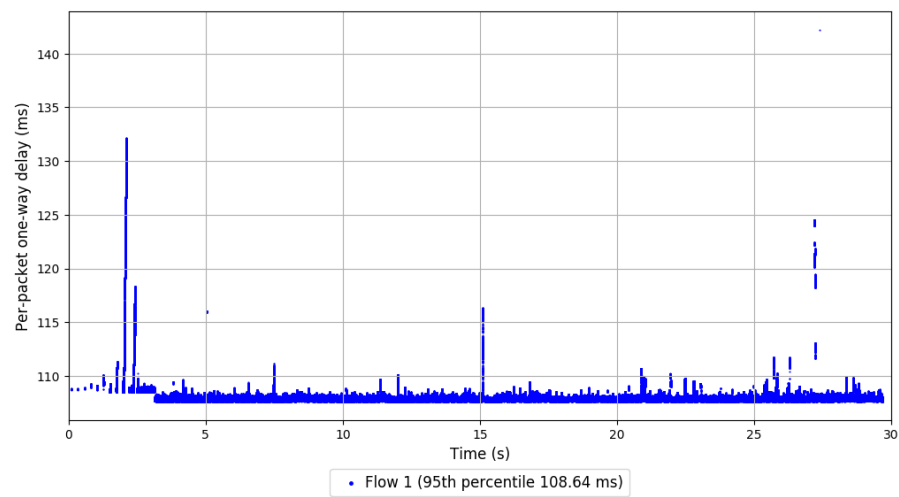
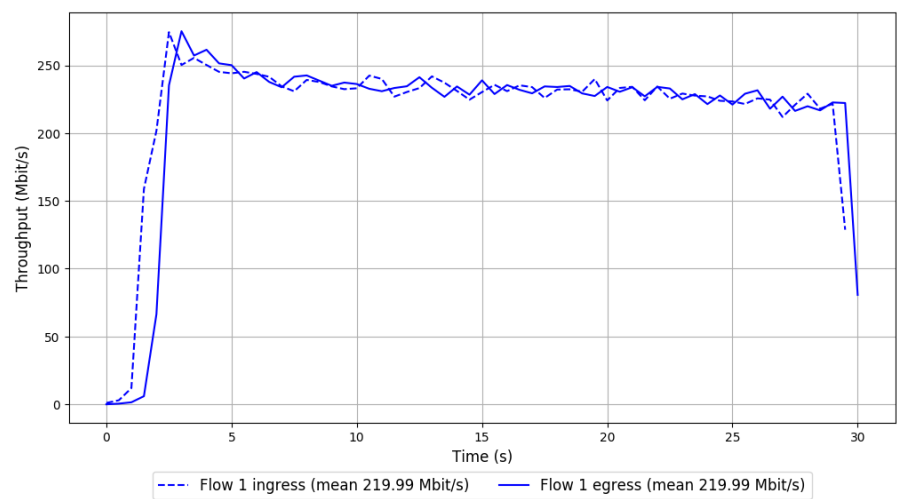
-- Flow 1:

Average throughput: 219.99 Mbit/s

95th percentile per-packet one-way delay: 108.642 ms

Loss rate: 0.75%

Run 5: Report of Indigo — Data Link

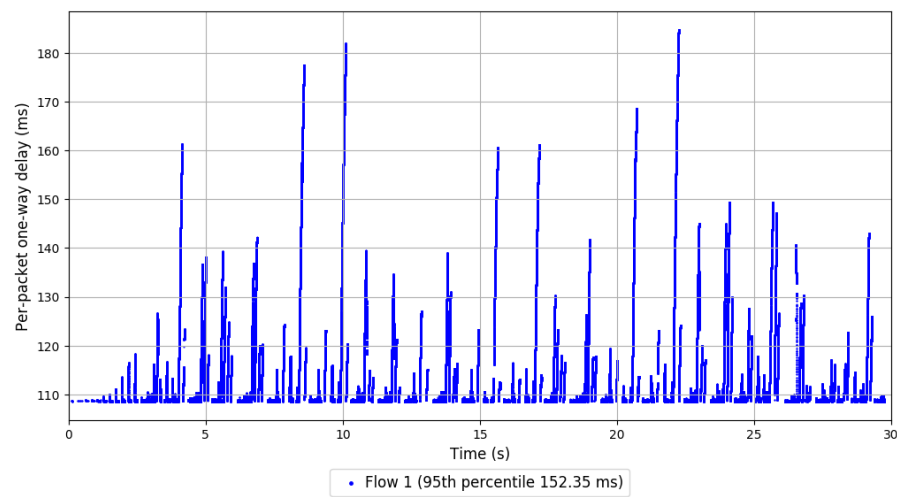
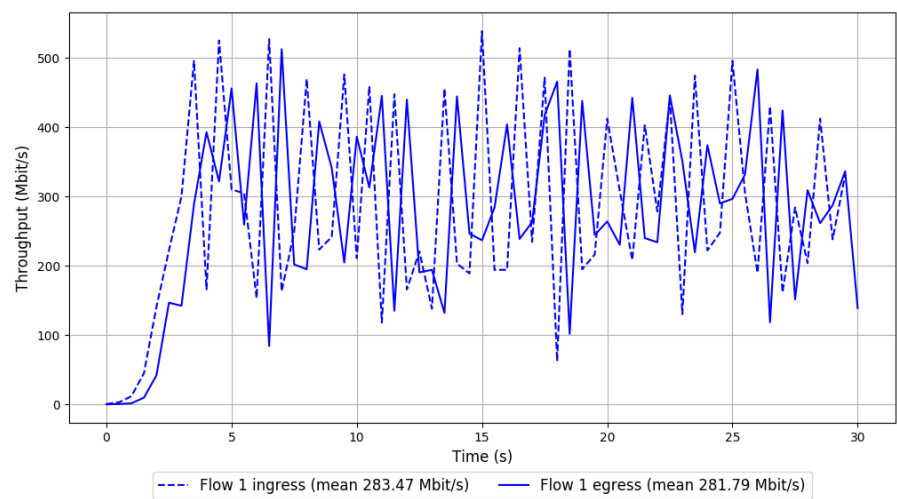


Run 1: Statistics of Indigo-96d2da3

Start at: 2018-11-02 18:25:32
End at: 2018-11-02 18:26:02
Local clock offset: 11.452 ms
Remote clock offset: 13.312 ms

Below is generated by plot.py at 2018-11-02 20:58:30
Datalink statistics
-- Total of 1 flow:
Average throughput: 281.79 Mbit/s
95th percentile per-packet one-way delay: 152.352 ms
Loss rate: 1.32%
-- Flow 1:
Average throughput: 281.79 Mbit/s
95th percentile per-packet one-way delay: 152.352 ms
Loss rate: 1.32%

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

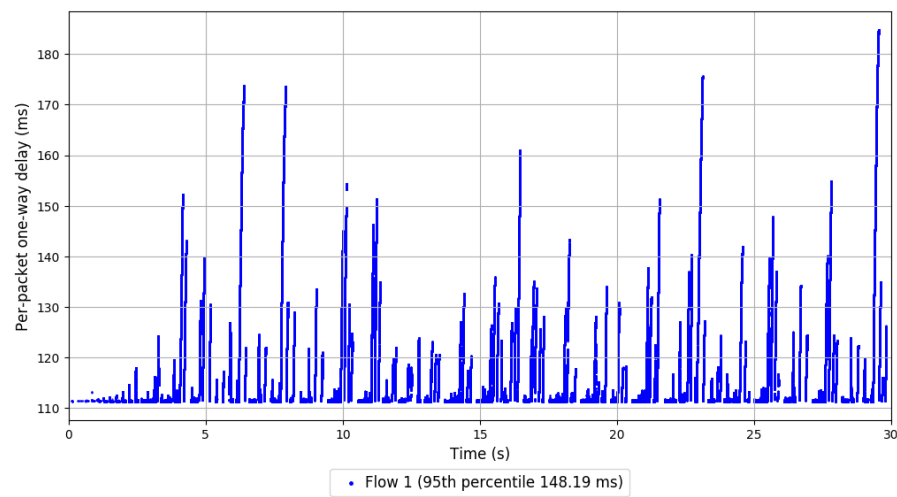
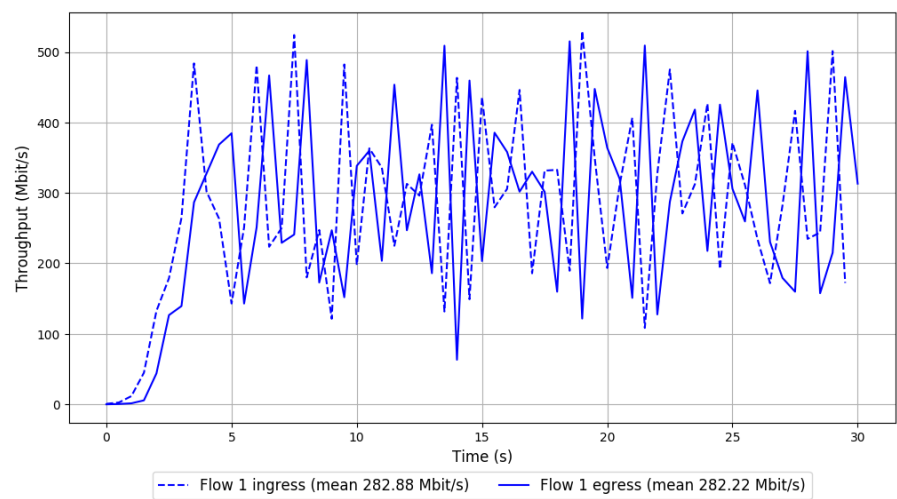


Run 2: Statistics of Indigo-96d2da3

Start at: 2018-11-02 18:51:46
End at: 2018-11-02 18:52:16
Local clock offset: 18.716 ms
Remote clock offset: 21.391 ms

Below is generated by plot.py at 2018-11-02 20:58:30
Datalink statistics
-- Total of 1 flow:
Average throughput: 282.22 Mbit/s
95th percentile per-packet one-way delay: 148.192 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 282.22 Mbit/s
95th percentile per-packet one-way delay: 148.192 ms
Loss rate: 0.24%

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



Run 3: Statistics of Indigo-96d2da3

Start at: 2018-11-02 19:18:07

End at: 2018-11-02 19:18:37

Local clock offset: 20.448 ms

Remote clock offset: 23.09 ms

Below is generated by plot.py at 2018-11-02 20:58:30

Datalink statistics

-- Total of 1 flow:

Average throughput: 271.88 Mbit/s

95th percentile per-packet one-way delay: 144.556 ms

Loss rate: 0.58%

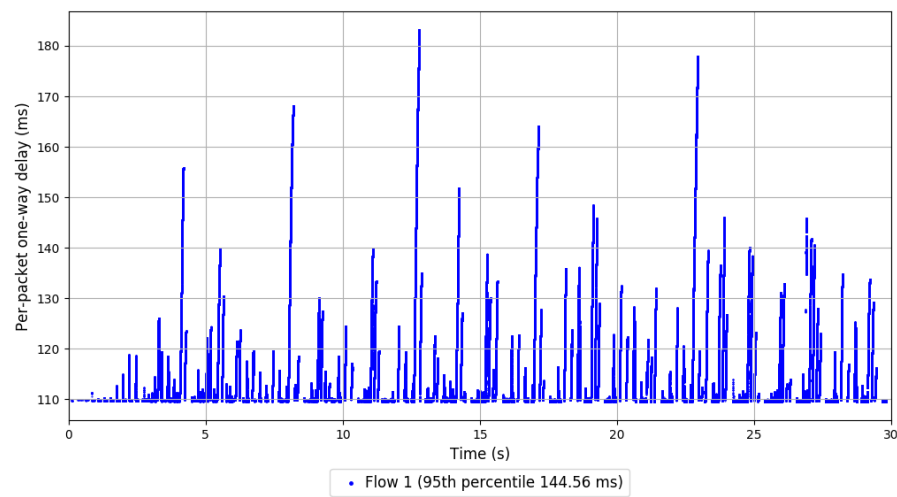
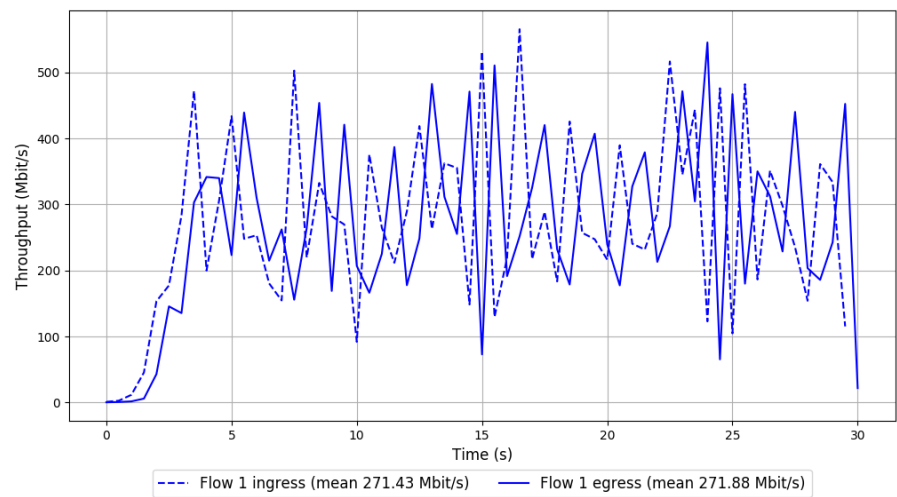
-- Flow 1:

Average throughput: 271.88 Mbit/s

95th percentile per-packet one-way delay: 144.556 ms

Loss rate: 0.58%

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

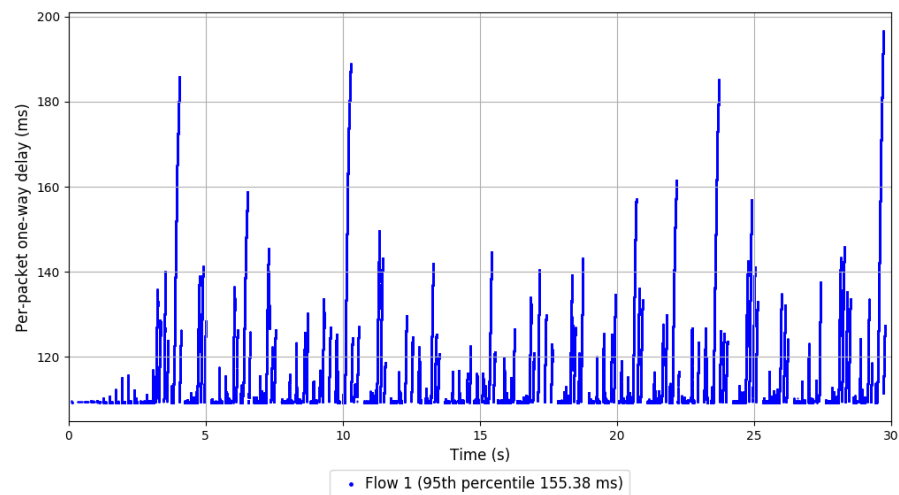
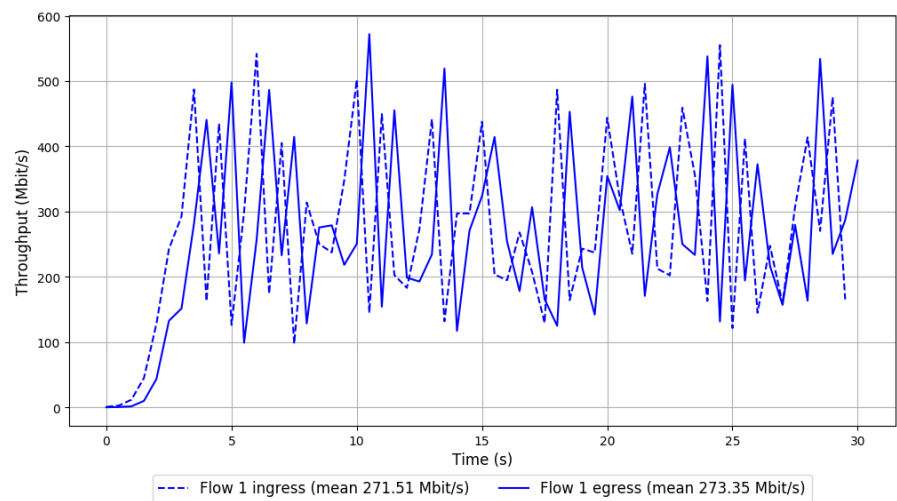


Run 4: Statistics of Indigo-96d2da3

Start at: 2018-11-02 19:44:18
End at: 2018-11-02 19:44:48
Local clock offset: 16.785 ms
Remote clock offset: 19.484 ms

Below is generated by plot.py at 2018-11-02 20:59:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 273.35 Mbit/s
95th percentile per-packet one-way delay: 155.384 ms
Loss rate: 0.22%
-- Flow 1:
Average throughput: 273.35 Mbit/s
95th percentile per-packet one-way delay: 155.384 ms
Loss rate: 0.22%

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



Run 5: Statistics of Indigo-96d2da3

Start at: 2018-11-02 20:10:49

End at: 2018-11-02 20:11:19

Local clock offset: 7.018 ms

Remote clock offset: 8.363 ms

Below is generated by plot.py at 2018-11-02 20:59:48

Datalink statistics

-- Total of 1 flow:

Average throughput: 297.03 Mbit/s

95th percentile per-packet one-way delay: 160.605 ms

Loss rate: 1.97%

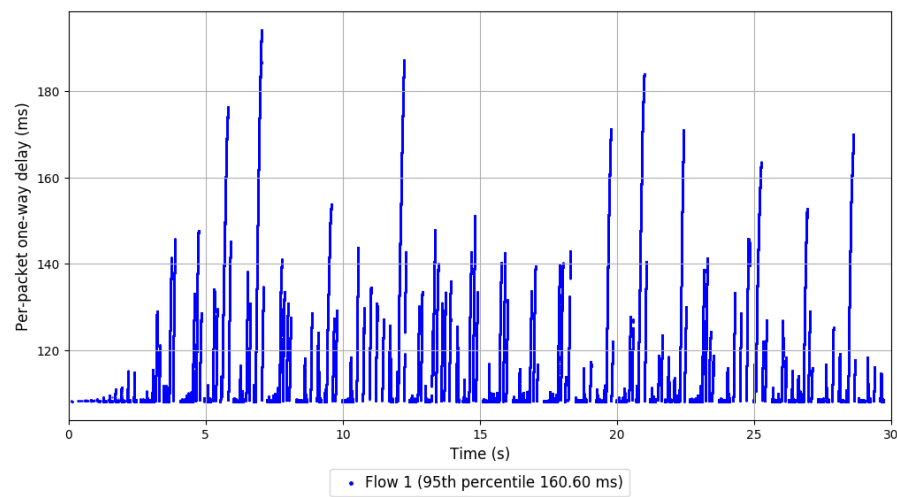
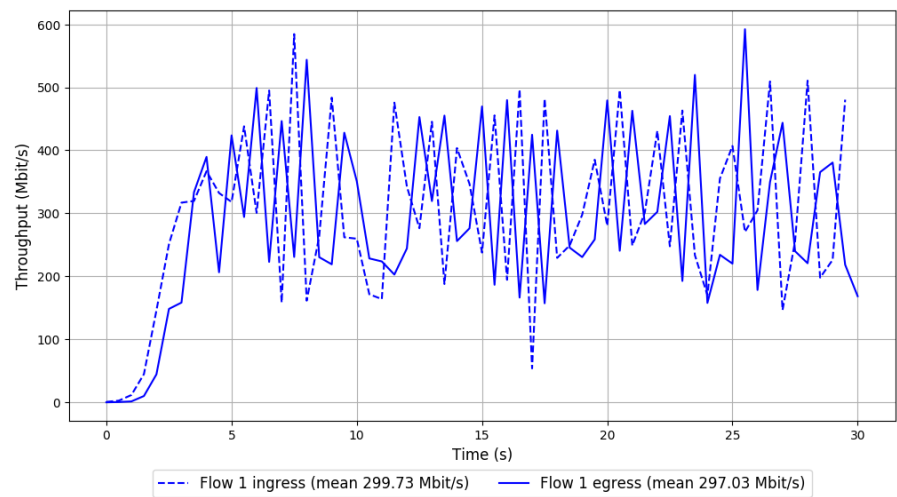
-- Flow 1:

Average throughput: 297.03 Mbit/s

95th percentile per-packet one-way delay: 160.605 ms

Loss rate: 1.97%

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

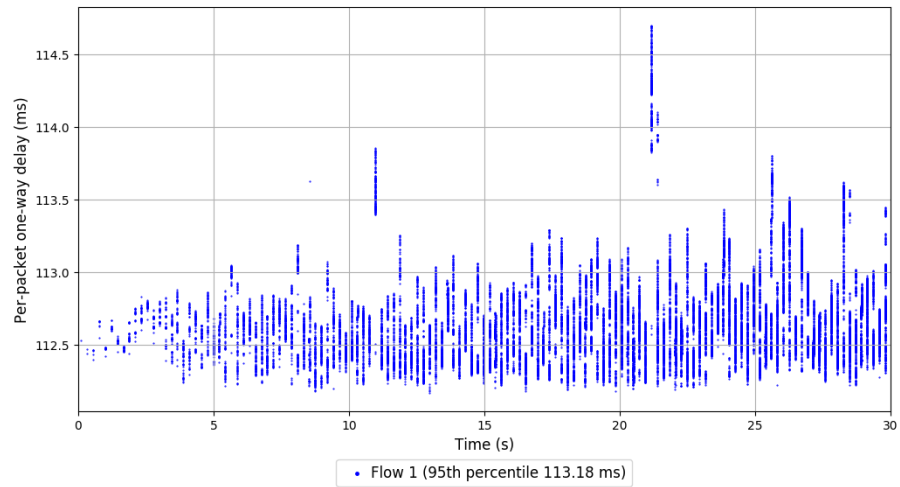
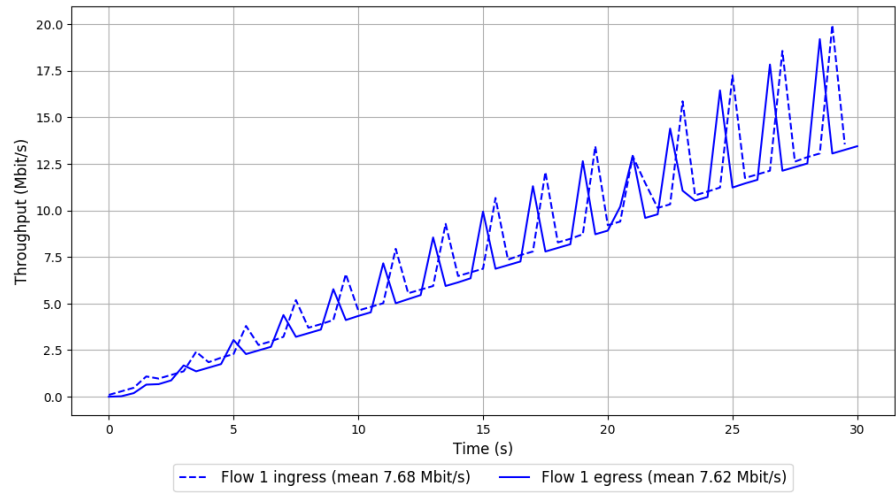



```
Run 1: Statistics of LEDBAT

Start at: 2018-11-02 18:30:01
End at: 2018-11-02 18:30:31
Local clock offset: 13.852 ms
Remote clock offset: 16.541 ms

# Below is generated by plot.py at 2018-11-02 20:59:48
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.62 Mbit/s
95th percentile per-packet one-way delay: 113.184 ms
Loss rate: 1.48%
-- Flow 1:
Average throughput: 7.62 Mbit/s
95th percentile per-packet one-way delay: 113.184 ms
Loss rate: 1.48%
```

Run 1: Report of LEDBAT — Data Link

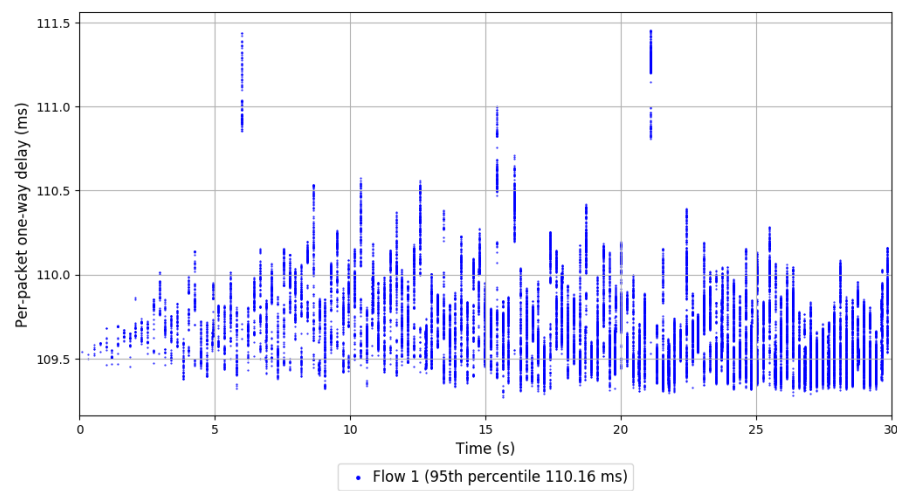
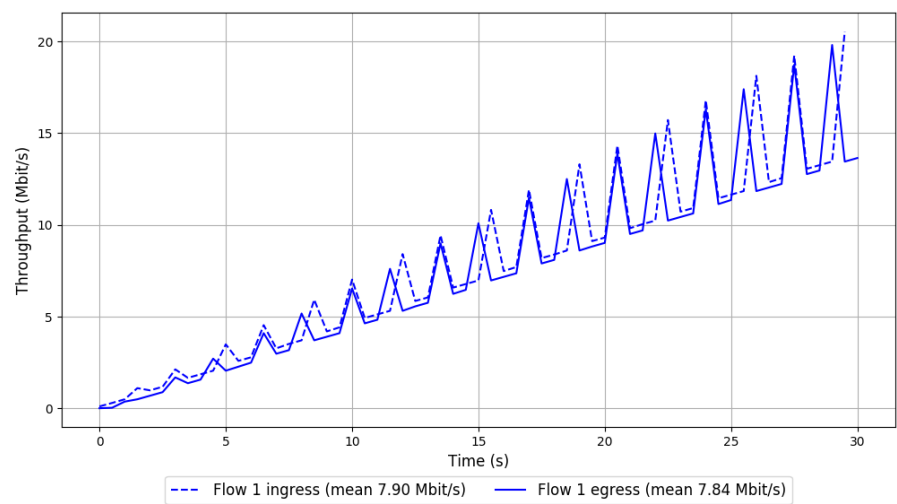


Run 2: Statistics of LEDBAT

Start at: 2018-11-02 18:56:31
End at: 2018-11-02 18:57:01
Local clock offset: 20.933 ms
Remote clock offset: 24.704 ms

Below is generated by plot.py at 2018-11-02 20:59:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.84 Mbit/s
95th percentile per-packet one-way delay: 110.162 ms
Loss rate: 1.46%
-- Flow 1:
Average throughput: 7.84 Mbit/s
95th percentile per-packet one-way delay: 110.162 ms
Loss rate: 1.46%

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2018-11-02 19:22:46

End at: 2018-11-02 19:23:16

Local clock offset: 15.356 ms

Remote clock offset: 17.58 ms

Below is generated by plot.py at 2018-11-02 20:59:48

Datalink statistics

-- Total of 1 flow:

Average throughput: 7.65 Mbit/s

95th percentile per-packet one-way delay: 109.676 ms

Loss rate: 1.48%

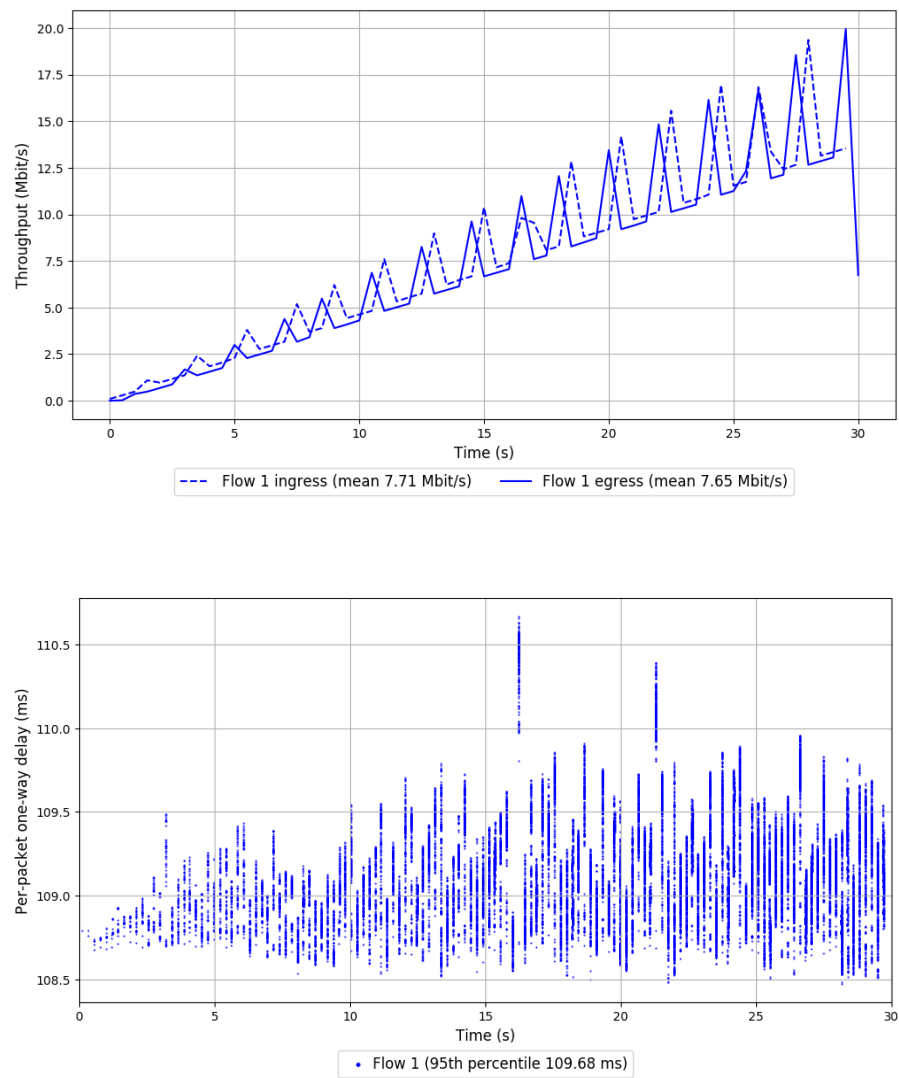
-- Flow 1:

Average throughput: 7.65 Mbit/s

95th percentile per-packet one-way delay: 109.676 ms

Loss rate: 1.48%

Run 3: Report of LEDBAT — Data Link

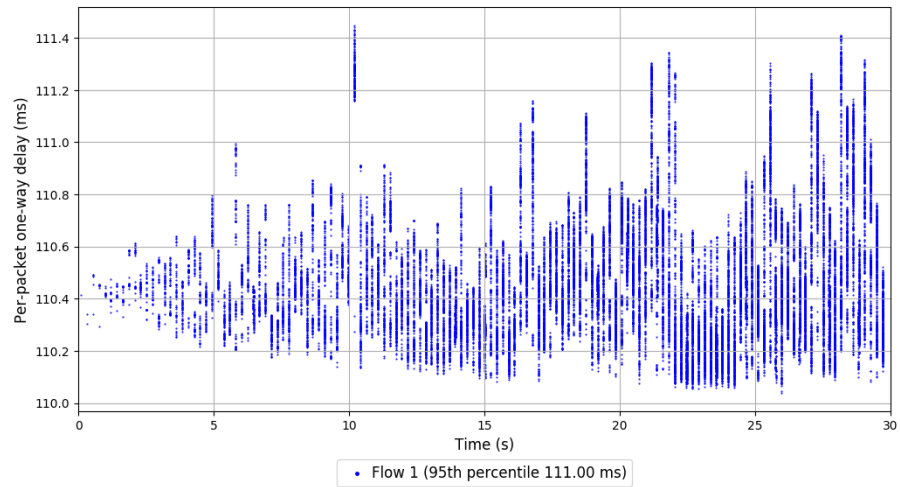
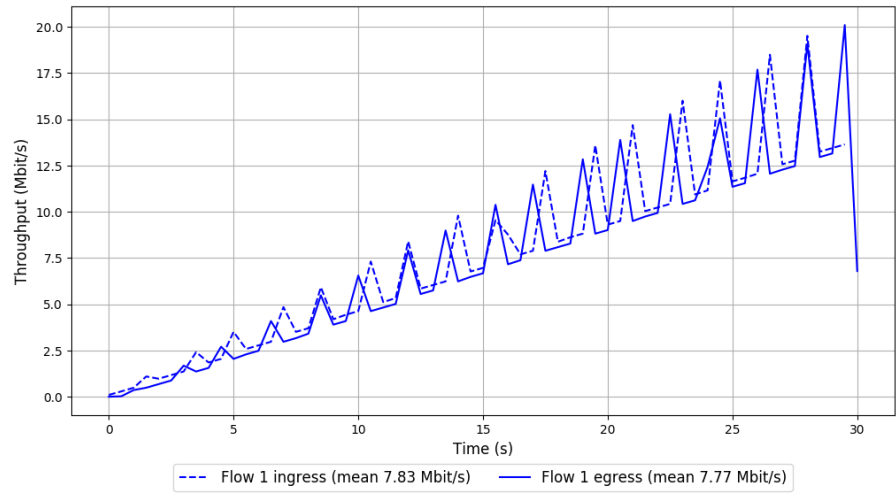


Run 4: Statistics of LEDBAT

Start at: 2018-11-02 19:48:59
End at: 2018-11-02 19:49:29
Local clock offset: 14.188 ms
Remote clock offset: 15.256 ms

Below is generated by plot.py at 2018-11-02 20:59:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.77 Mbit/s
95th percentile per-packet one-way delay: 111.000 ms
Loss rate: 1.47%
-- Flow 1:
Average throughput: 7.77 Mbit/s
95th percentile per-packet one-way delay: 111.000 ms
Loss rate: 1.47%

Run 4: Report of LEDBAT — Data Link



Run 5: Statistics of LEDBAT

Start at: 2018-11-02 20:15:31

End at: 2018-11-02 20:16:01

Local clock offset: 7.669 ms

Remote clock offset: 8.812 ms

Below is generated by plot.py at 2018-11-02 20:59:48

Datalink statistics

-- Total of 1 flow:

Average throughput: 7.76 Mbit/s

95th percentile per-packet one-way delay: 110.356 ms

Loss rate: 1.47%

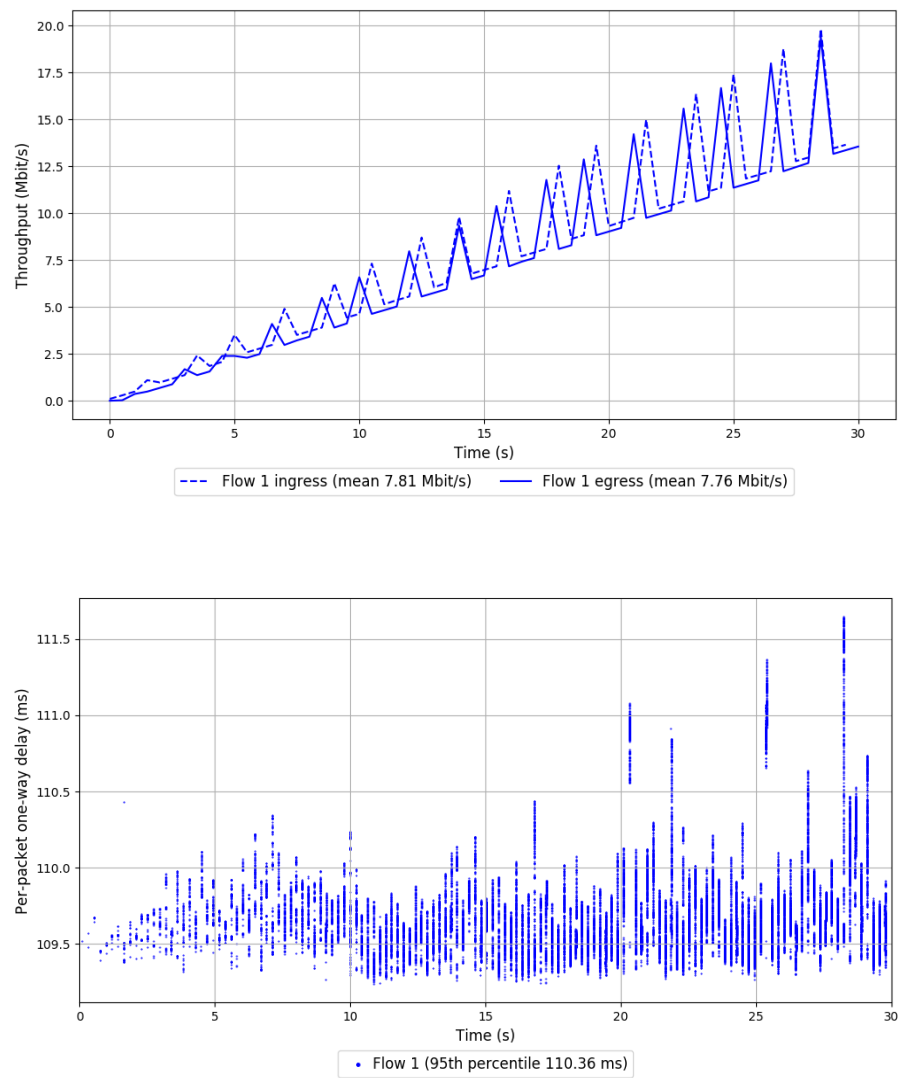
-- Flow 1:

Average throughput: 7.76 Mbit/s

95th percentile per-packet one-way delay: 110.356 ms

Loss rate: 1.47%

Run 5: Report of LEDBAT — Data Link

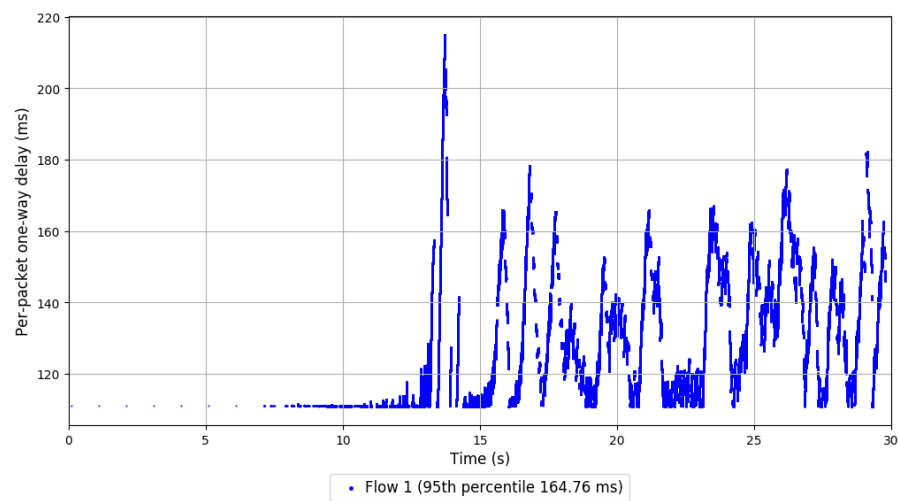
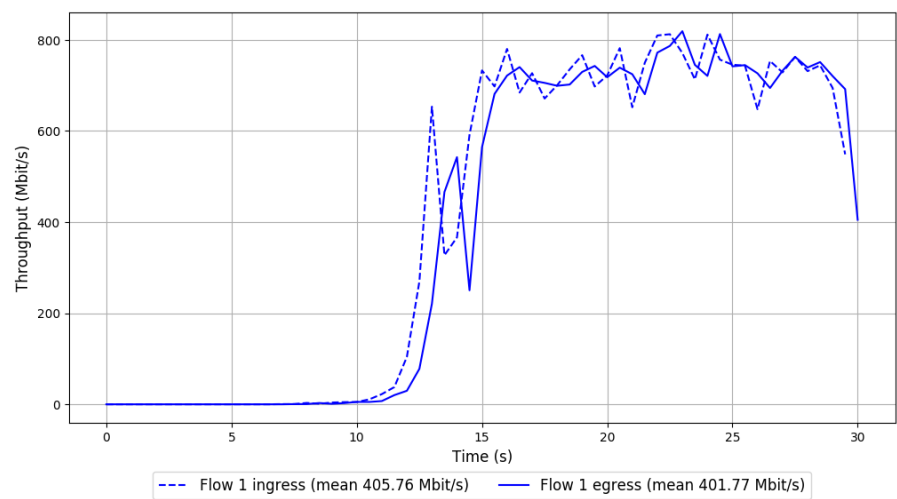


```
Run 1: Statistics of Indigo-Muses

Start at: 2018-11-02 18:12:24
End at: 2018-11-02 18:12:54
Local clock offset: 9.686 ms
Remote clock offset: 11.894 ms

# Below is generated by plot.py at 2018-11-02 21:02:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 401.77 Mbit/s
95th percentile per-packet one-way delay: 164.761 ms
Loss rate: 1.72%
-- Flow 1:
Average throughput: 401.77 Mbit/s
95th percentile per-packet one-way delay: 164.761 ms
Loss rate: 1.72%
```

Run 1: Report of Indigo-Muses — Data Link

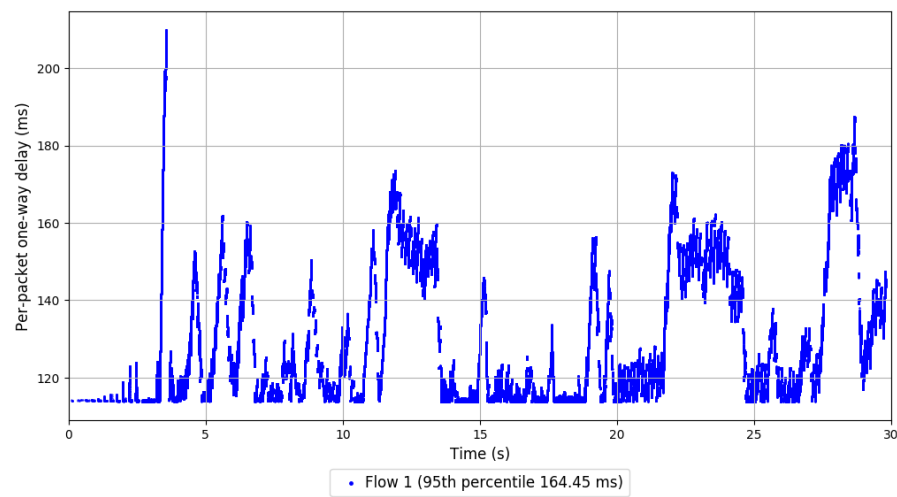
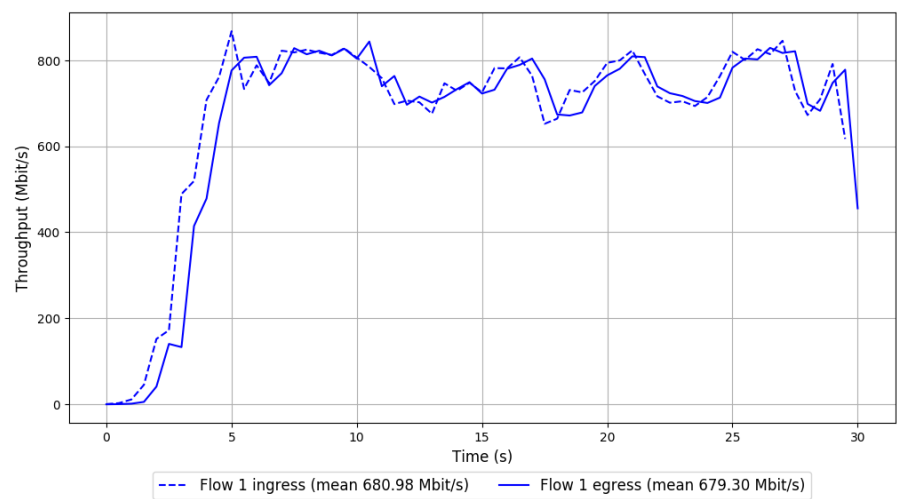


Run 2: Statistics of Indigo-Muses

Start at: 2018-11-02 18:38:14
End at: 2018-11-02 18:38:44
Local clock offset: 23.87 ms
Remote clock offset: 26.351 ms

Below is generated by plot.py at 2018-11-02 21:07:34
Datalink statistics
-- Total of 1 flow:
Average throughput: 679.30 Mbit/s
95th percentile per-packet one-way delay: 164.451 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 679.30 Mbit/s
95th percentile per-packet one-way delay: 164.451 ms
Loss rate: 0.98%

Run 2: Report of Indigo-Muses — Data Link

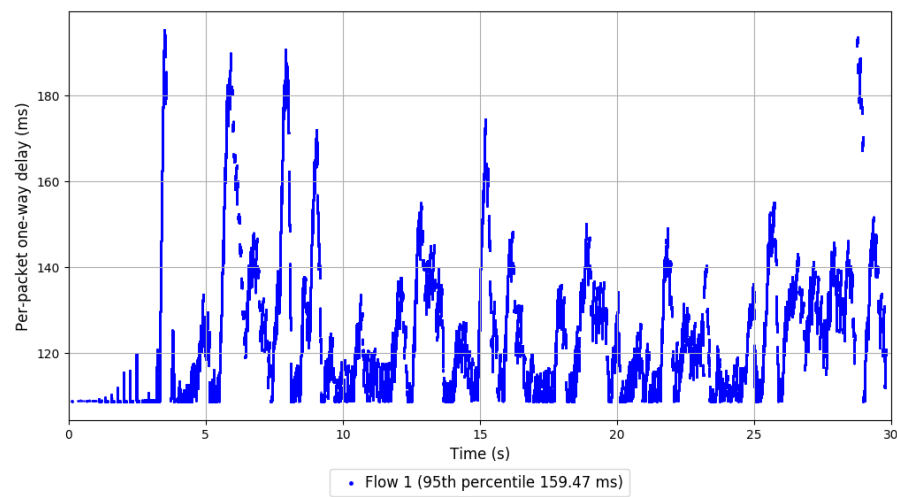
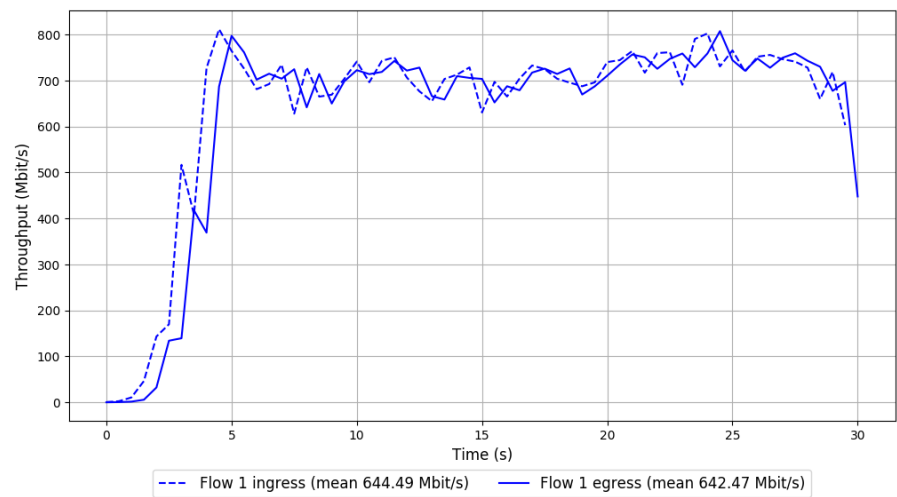


Run 3: Statistics of Indigo-Muses

Start at: 2018-11-02 19:04:39
End at: 2018-11-02 19:05:09
Local clock offset: 26.88 ms
Remote clock offset: 32.178 ms

Below is generated by plot.py at 2018-11-02 21:07:34
Datalink statistics
-- Total of 1 flow:
Average throughput: 642.47 Mbit/s
95th percentile per-packet one-way delay: 159.468 ms
Loss rate: 1.04%
-- Flow 1:
Average throughput: 642.47 Mbit/s
95th percentile per-packet one-way delay: 159.468 ms
Loss rate: 1.04%

Run 3: Report of Indigo-Muses — Data Link

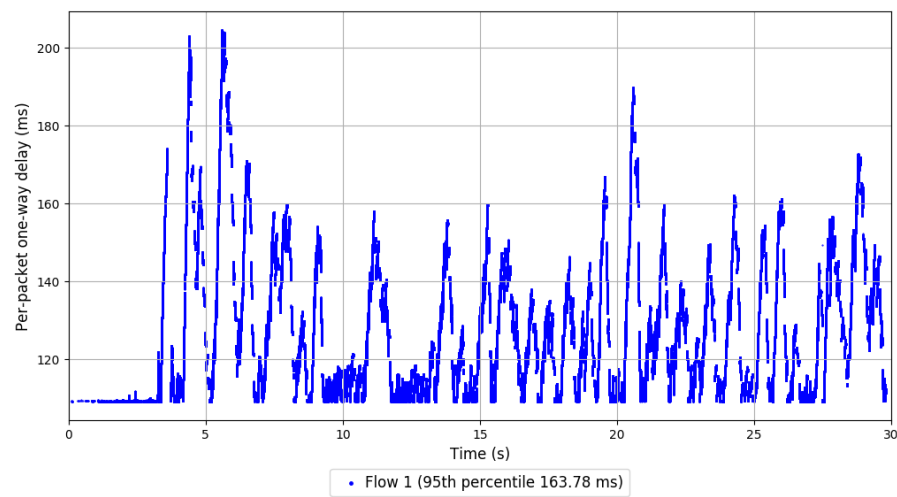
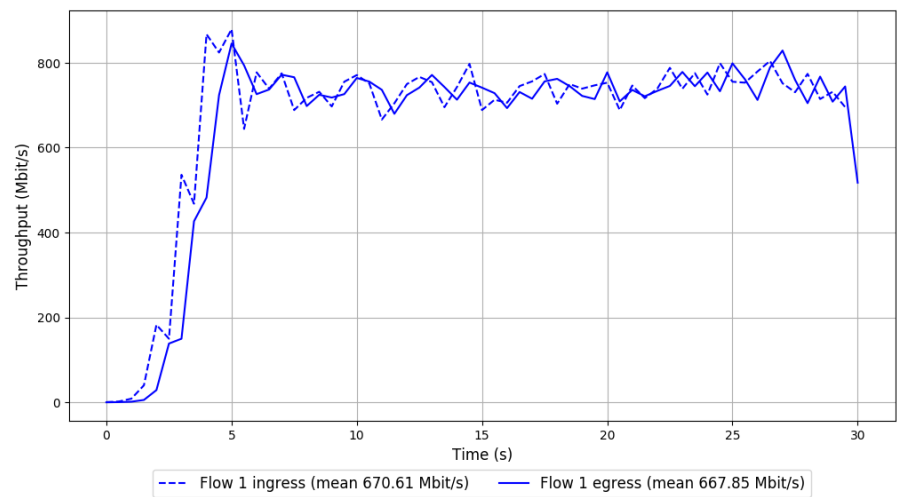


Run 4: Statistics of Indigo-Muses

Start at: 2018-11-02 19:30:52
End at: 2018-11-02 19:31:22
Local clock offset: 13.18 ms
Remote clock offset: 15.219 ms

Below is generated by plot.py at 2018-11-02 21:07:37
Datalink statistics
-- Total of 1 flow:
Average throughput: 667.85 Mbit/s
95th percentile per-packet one-way delay: 163.777 ms
Loss rate: 1.15%
-- Flow 1:
Average throughput: 667.85 Mbit/s
95th percentile per-packet one-way delay: 163.777 ms
Loss rate: 1.15%

Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-11-02 19:57:13

End at: 2018-11-02 19:57:43

Local clock offset: 8.761 ms

Remote clock offset: 8.69 ms

Below is generated by plot.py at 2018-11-02 21:09:38

Datalink statistics

-- Total of 1 flow:

Average throughput: 655.14 Mbit/s

95th percentile per-packet one-way delay: 157.066 ms

Loss rate: 0.98%

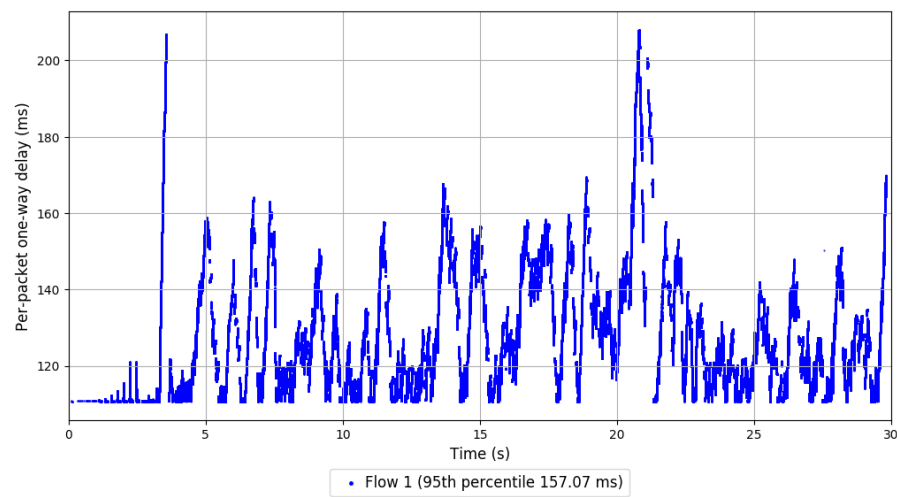
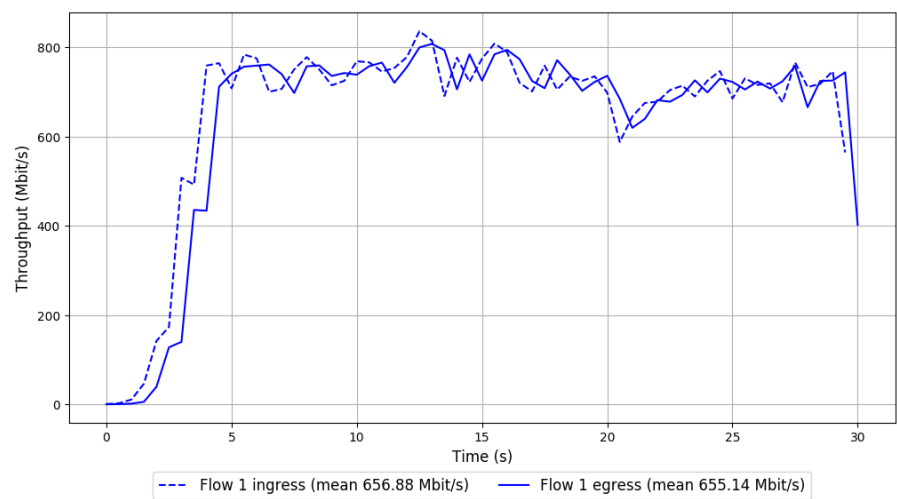
-- Flow 1:

Average throughput: 655.14 Mbit/s

95th percentile per-packet one-way delay: 157.066 ms

Loss rate: 0.98%

Run 5: Report of Indigo-Muses — Data Link

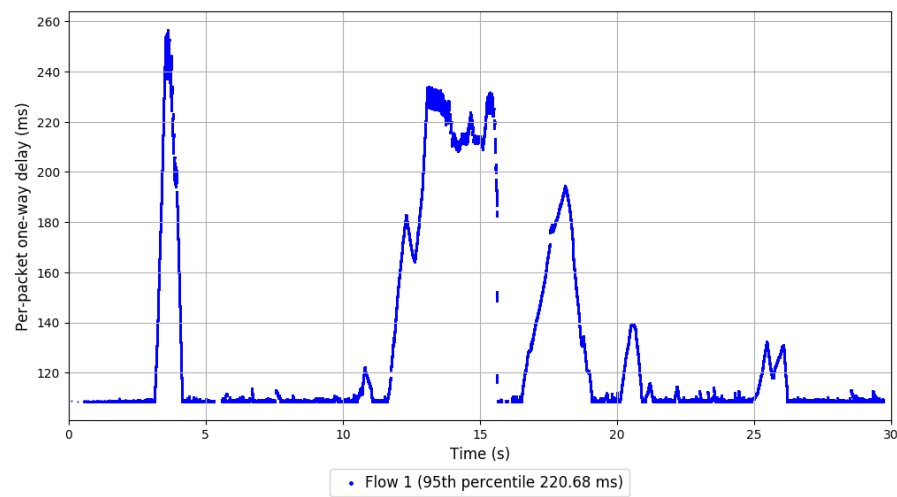
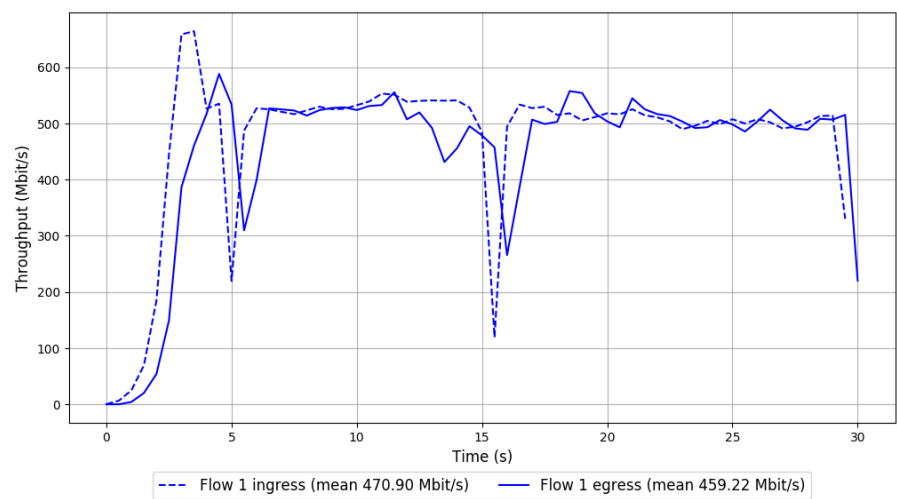


```
Run 1: Statistics of PCC-Allegro

Start at: 2018-11-02 18:23:50
End at: 2018-11-02 18:24:20
Local clock offset: 11.578 ms
Remote clock offset: 13.552 ms

# Below is generated by plot.py at 2018-11-02 21:14:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 459.22 Mbit/s
95th percentile per-packet one-way delay: 220.679 ms
Loss rate: 3.19%
-- Flow 1:
Average throughput: 459.22 Mbit/s
95th percentile per-packet one-way delay: 220.679 ms
Loss rate: 3.19%
```

Run 1: Report of PCC-Allegro — Data Link

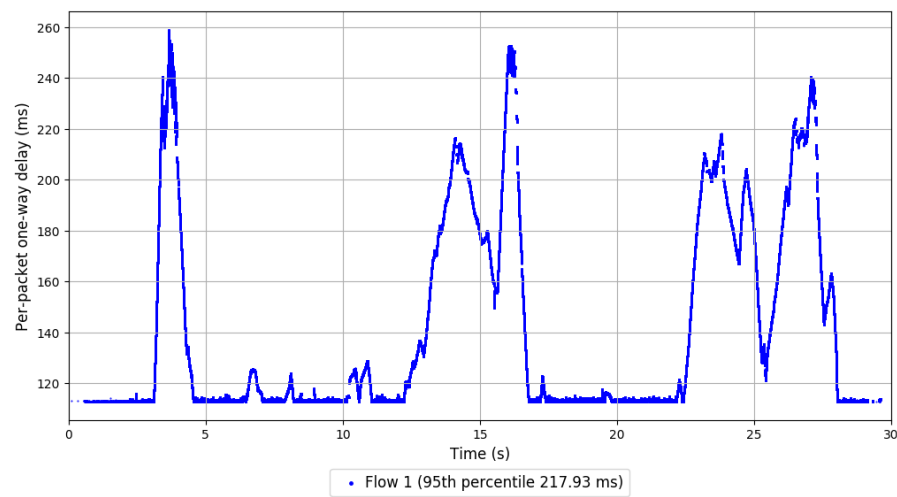
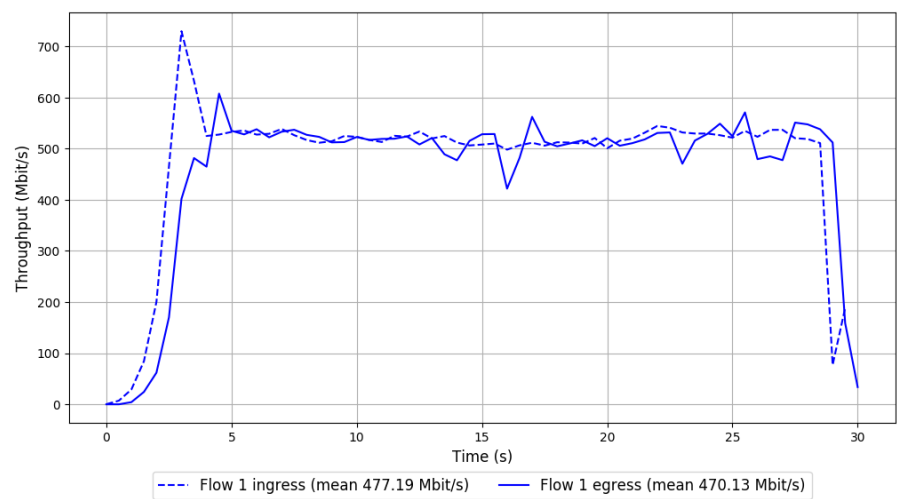


Run 2: Statistics of PCC-Allegro

Start at: 2018-11-02 18:50:03
End at: 2018-11-02 18:50:33
Local clock offset: 18.074 ms
Remote clock offset: 20.542 ms

Below is generated by plot.py at 2018-11-02 21:14:56
Datalink statistics
-- Total of 1 flow:
Average throughput: 470.13 Mbit/s
95th percentile per-packet one-way delay: 217.934 ms
Loss rate: 2.67%
-- Flow 1:
Average throughput: 470.13 Mbit/s
95th percentile per-packet one-way delay: 217.934 ms
Loss rate: 2.67%

Run 2: Report of PCC-Allegro — Data Link

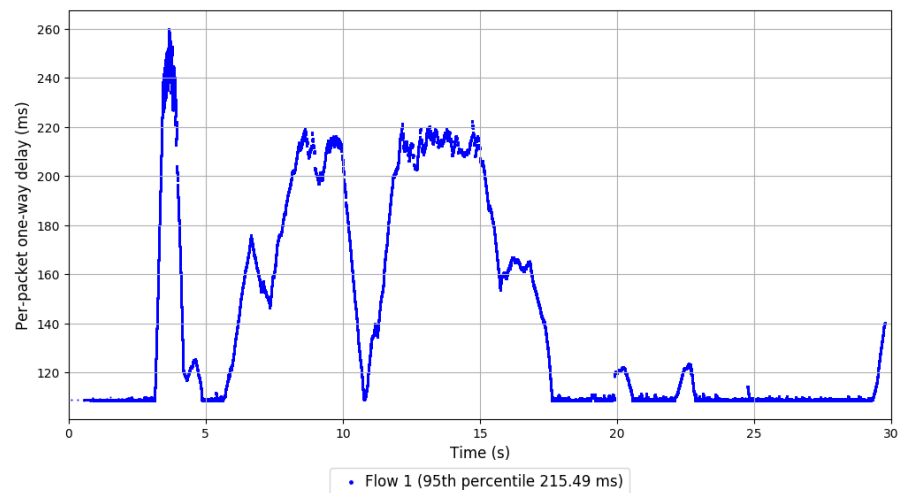
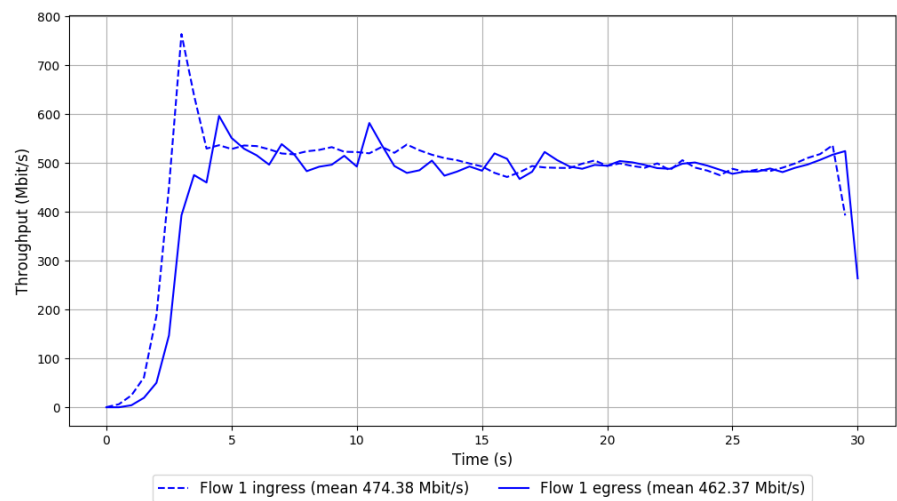


Run 3: Statistics of PCC-Allegro

Start at: 2018-11-02 19:16:25
End at: 2018-11-02 19:16:55
Local clock offset: 23.325 ms
Remote clock offset: 26.702 ms

Below is generated by plot.py at 2018-11-02 21:15:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 462.37 Mbit/s
95th percentile per-packet one-way delay: 215.486 ms
Loss rate: 3.24%
-- Flow 1:
Average throughput: 462.37 Mbit/s
95th percentile per-packet one-way delay: 215.486 ms
Loss rate: 3.24%

Run 3: Report of PCC-Allegro — Data Link

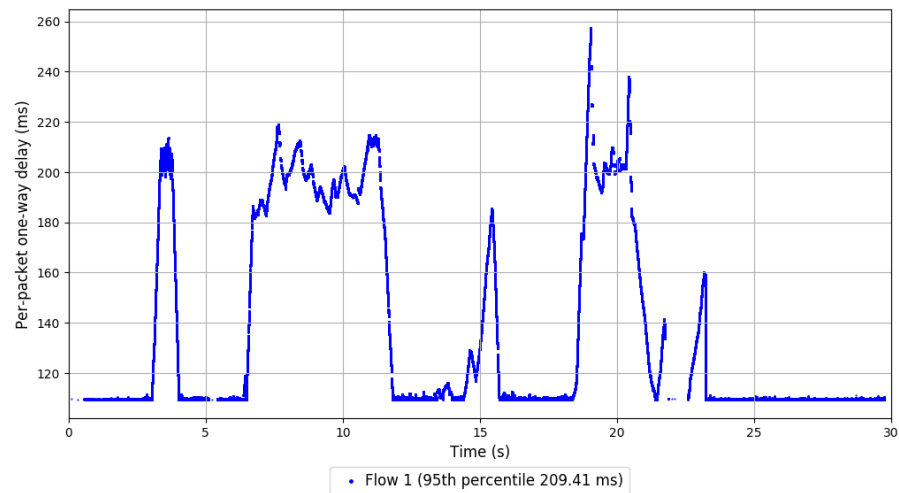
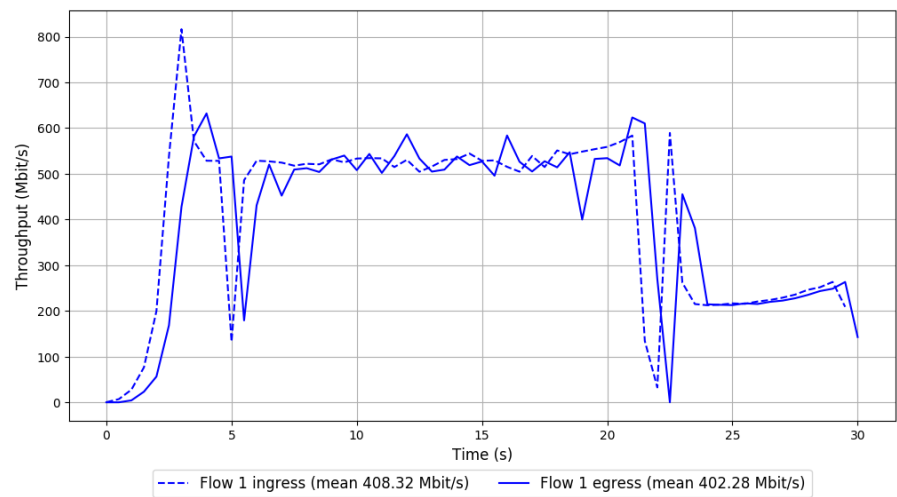


Run 4: Statistics of PCC-Allegro

Start at: 2018-11-02 19:42:40
End at: 2018-11-02 19:43:10
Local clock offset: 16.108 ms
Remote clock offset: 18.768 ms

Below is generated by plot.py at 2018-11-02 21:17:02
Datalink statistics
-- Total of 1 flow:
Average throughput: 402.28 Mbit/s
95th percentile per-packet one-way delay: 209.407 ms
Loss rate: 2.21%
-- Flow 1:
Average throughput: 402.28 Mbit/s
95th percentile per-packet one-way delay: 209.407 ms
Loss rate: 2.21%

Run 4: Report of PCC-Allegro — Data Link



Run 5: Statistics of PCC-Allegro

Start at: 2018-11-02 20:09:05

End at: 2018-11-02 20:09:35

Local clock offset: 7.505 ms

Remote clock offset: 7.373 ms

Below is generated by plot.py at 2018-11-02 21:24:33

Datalink statistics

-- Total of 1 flow:

Average throughput: 477.04 Mbit/s

95th percentile per-packet one-way delay: 214.395 ms

Loss rate: 2.23%

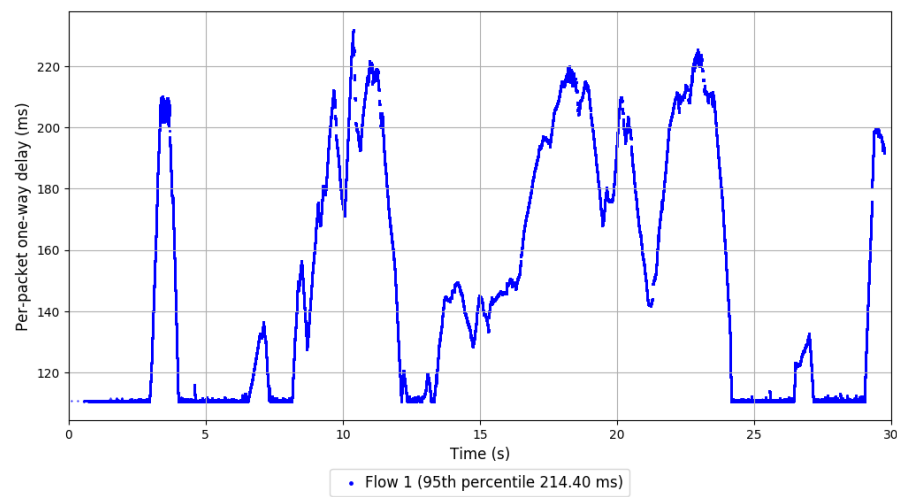
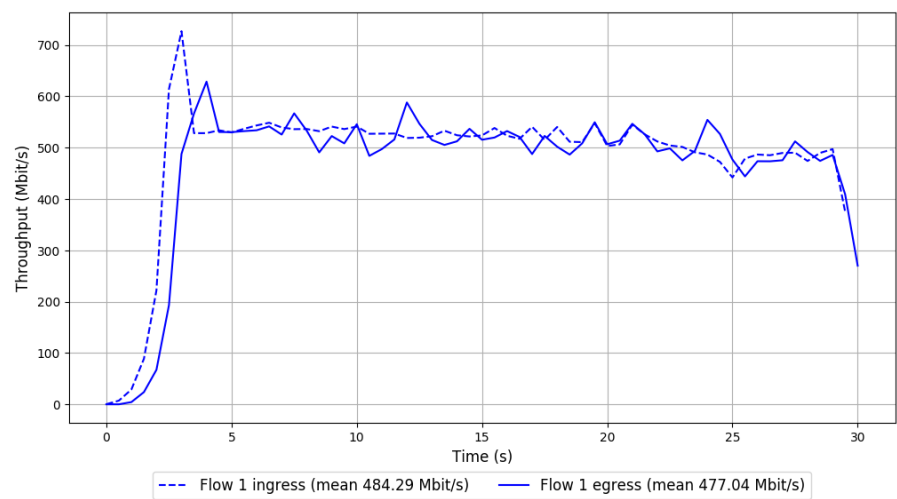
-- Flow 1:

Average throughput: 477.04 Mbit/s

95th percentile per-packet one-way delay: 214.395 ms

Loss rate: 2.23%

Run 5: Report of PCC-Allegro — Data Link

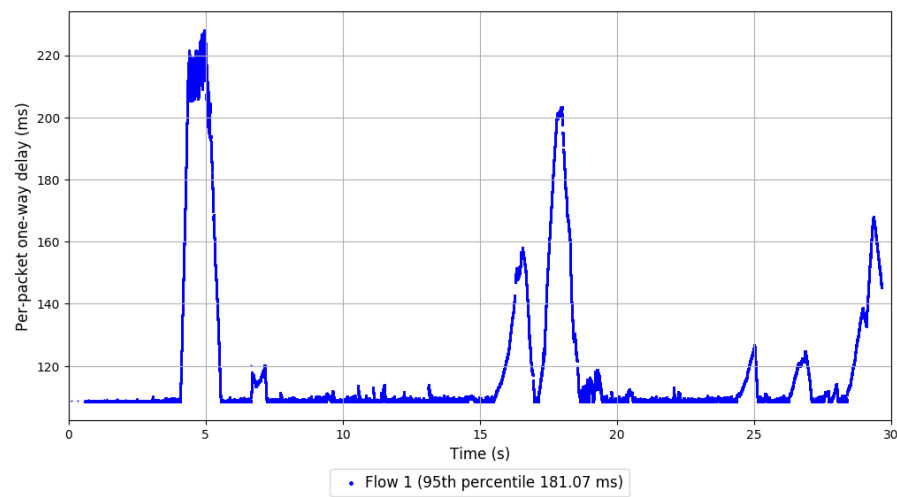
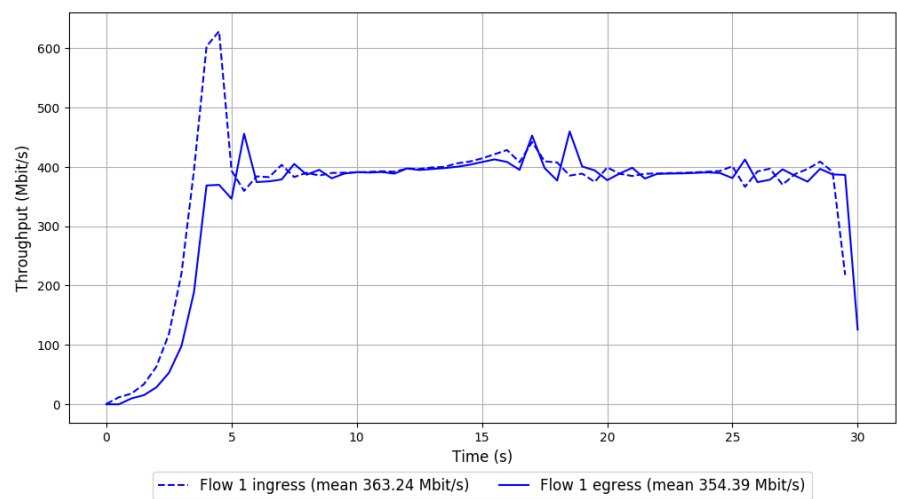


```
Run 1: Statistics of PCC-Expr

Start at: 2018-11-02 18:13:55
End at: 2018-11-02 18:14:25
Local clock offset: 7.76 ms
Remote clock offset: 8.954 ms

# Below is generated by plot.py at 2018-11-02 21:24:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 354.39 Mbit/s
95th percentile per-packet one-way delay: 181.067 ms
Loss rate: 3.16%
-- Flow 1:
Average throughput: 354.39 Mbit/s
95th percentile per-packet one-way delay: 181.067 ms
Loss rate: 3.16%
```

Run 1: Report of PCC-Expr — Data Link

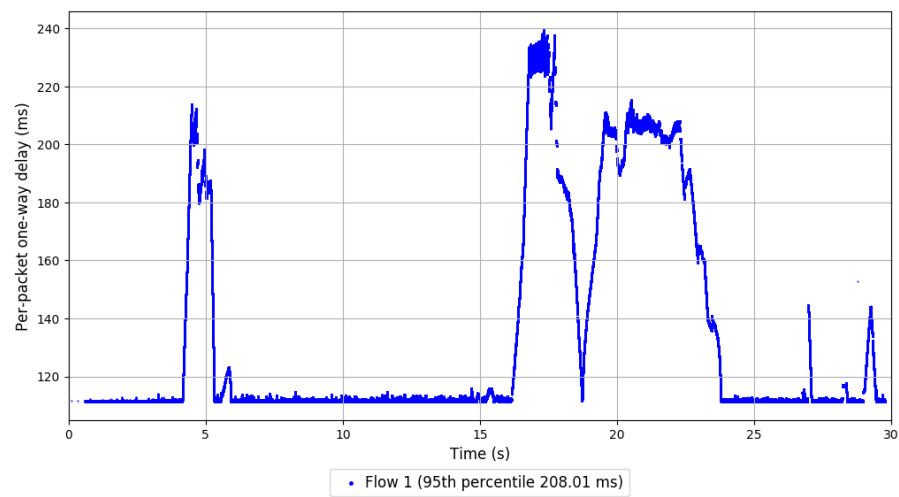
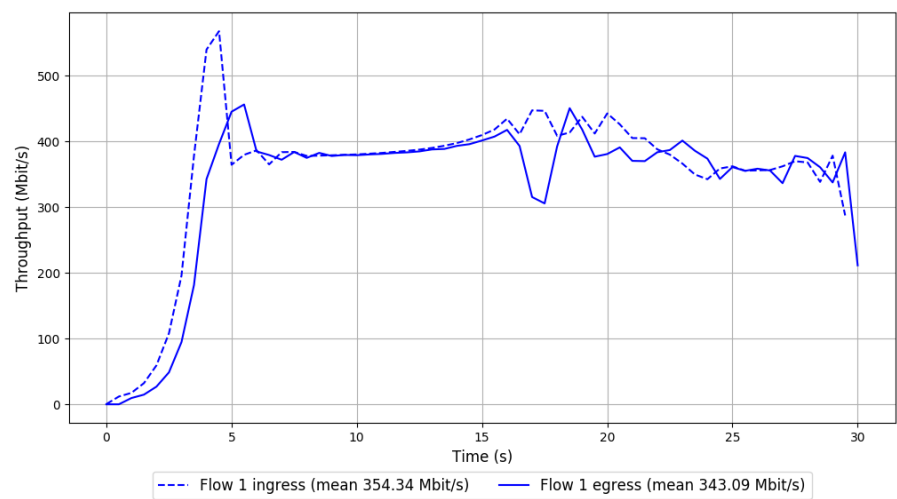


Run 2: Statistics of PCC-Expr

Start at: 2018-11-02 18:39:59
End at: 2018-11-02 18:40:29
Local clock offset: 19.389 ms
Remote clock offset: 23.681 ms

Below is generated by plot.py at 2018-11-02 21:24:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 343.09 Mbit/s
95th percentile per-packet one-way delay: 208.010 ms
Loss rate: 3.89%
-- Flow 1:
Average throughput: 343.09 Mbit/s
95th percentile per-packet one-way delay: 208.010 ms
Loss rate: 3.89%

Run 2: Report of PCC-Expr — Data Link

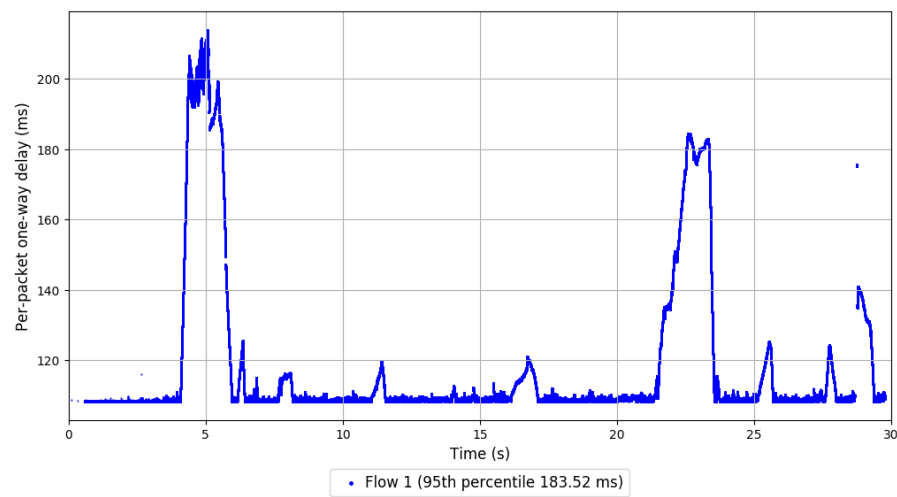
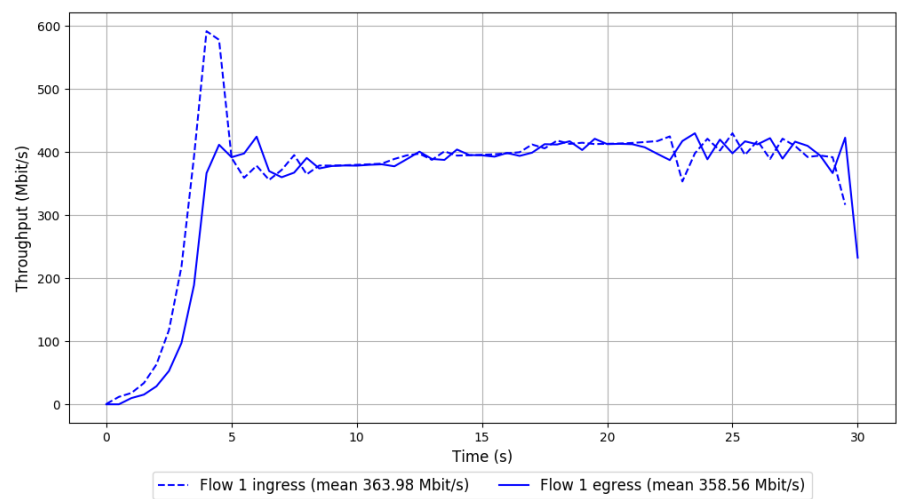


Run 3: Statistics of PCC-Expr

Start at: 2018-11-02 19:06:23
End at: 2018-11-02 19:06:53
Local clock offset: 28.769 ms
Remote clock offset: 34.001 ms

Below is generated by plot.py at 2018-11-02 21:24:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 358.56 Mbit/s
95th percentile per-packet one-way delay: 183.523 ms
Loss rate: 2.21%
-- Flow 1:
Average throughput: 358.56 Mbit/s
95th percentile per-packet one-way delay: 183.523 ms
Loss rate: 2.21%

Run 3: Report of PCC-Expr — Data Link

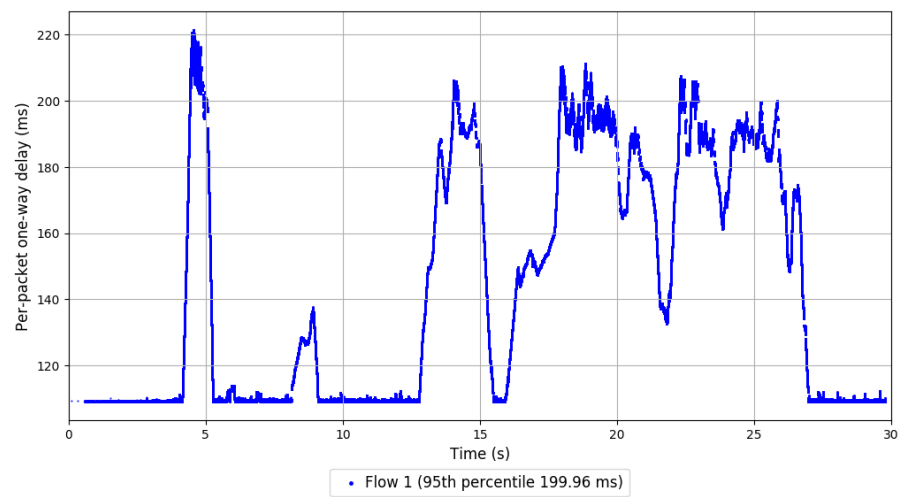
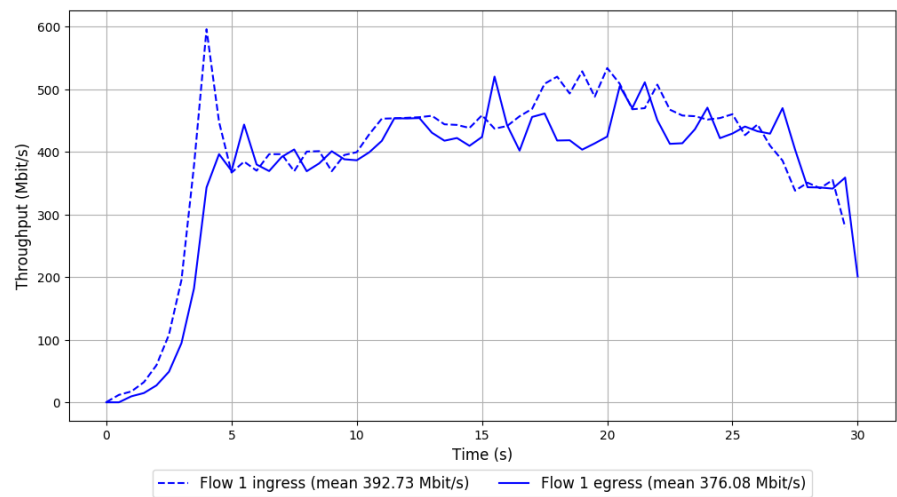


Run 4: Statistics of PCC-Expr

Start at: 2018-11-02 19:32:38
End at: 2018-11-02 19:33:08
Local clock offset: 13.13 ms
Remote clock offset: 15.422 ms

Below is generated by plot.py at 2018-11-02 21:27:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 376.08 Mbit/s
95th percentile per-packet one-way delay: 199.962 ms
Loss rate: 4.95%
-- Flow 1:
Average throughput: 376.08 Mbit/s
95th percentile per-packet one-way delay: 199.962 ms
Loss rate: 4.95%

Run 4: Report of PCC-Expr — Data Link



Run 5: Statistics of PCC-Expr

Start at: 2018-11-02 19:58:59

End at: 2018-11-02 19:59:29

Local clock offset: 7.198 ms

Remote clock offset: 8.026 ms

Below is generated by plot.py at 2018-11-02 21:27:51

Datalink statistics

-- Total of 1 flow:

Average throughput: 342.07 Mbit/s

95th percentile per-packet one-way delay: 201.402 ms

Loss rate: 2.85%

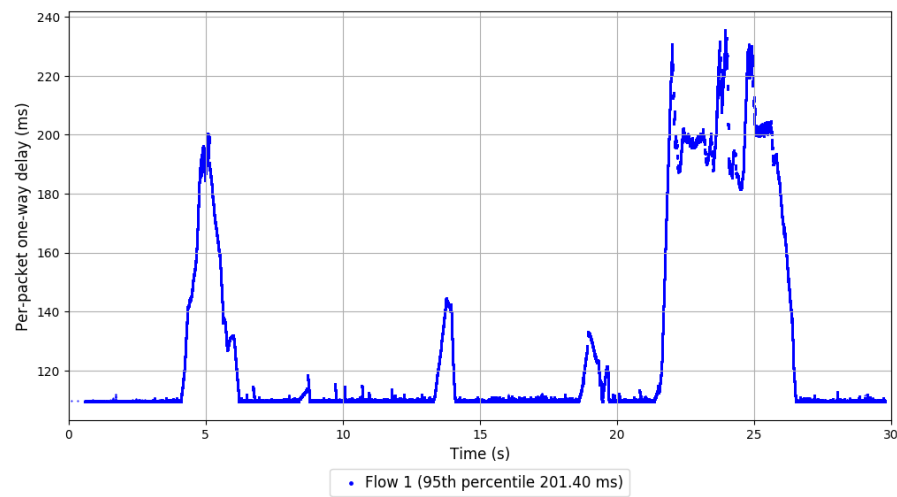
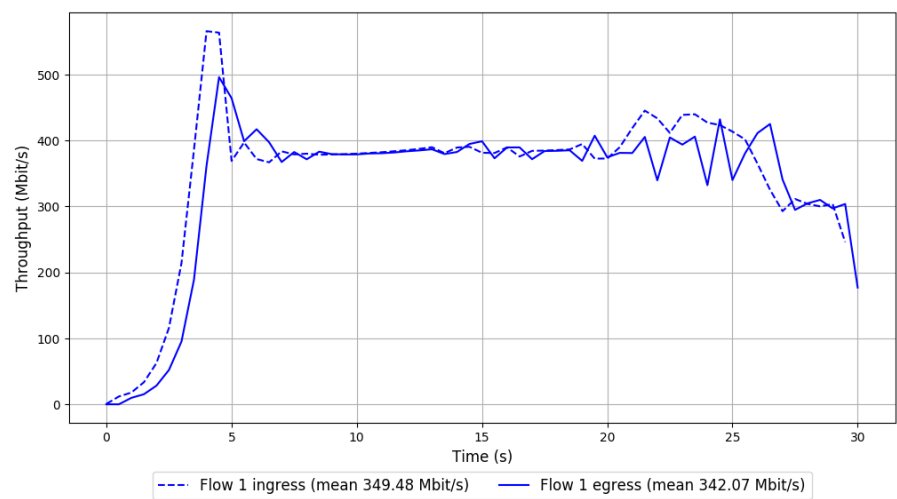
-- Flow 1:

Average throughput: 342.07 Mbit/s

95th percentile per-packet one-way delay: 201.402 ms

Loss rate: 2.85%

Run 5: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2018-11-02 18:09:42

End at: 2018-11-02 18:10:12

Local clock offset: 5.338 ms

Remote clock offset: 6.505 ms

Below is generated by plot.py at 2018-11-02 21:27:51

Datalink statistics

-- Total of 1 flow:

Average throughput: 53.78 Mbit/s

95th percentile per-packet one-way delay: 109.415 ms

Loss rate: 1.33%

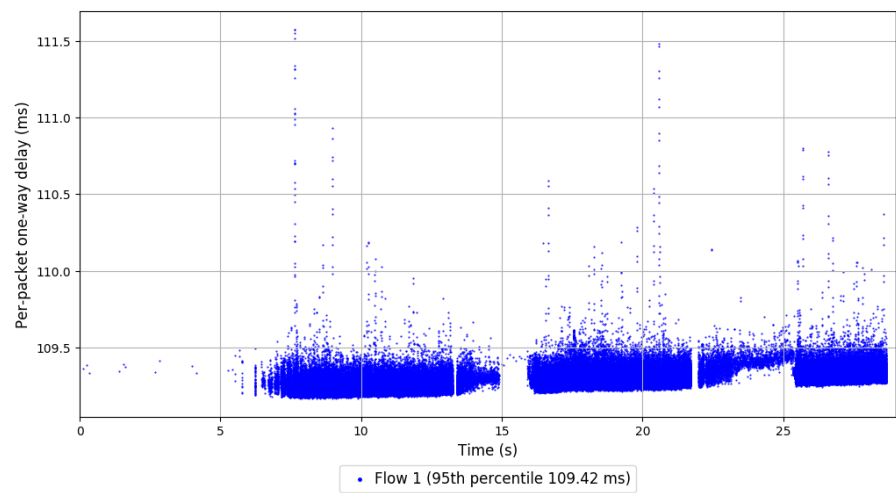
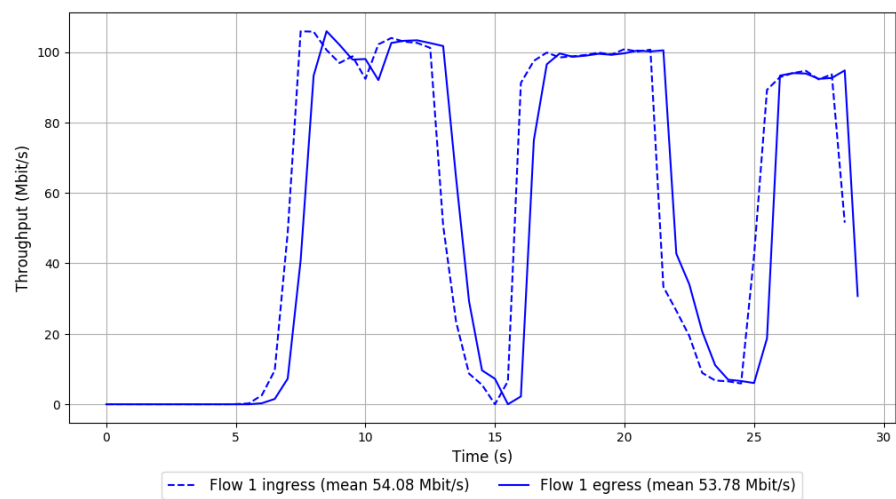
-- Flow 1:

Average throughput: 53.78 Mbit/s

95th percentile per-packet one-way delay: 109.415 ms

Loss rate: 1.33%

Run 1: Report of QUIC Cubic — Data Link

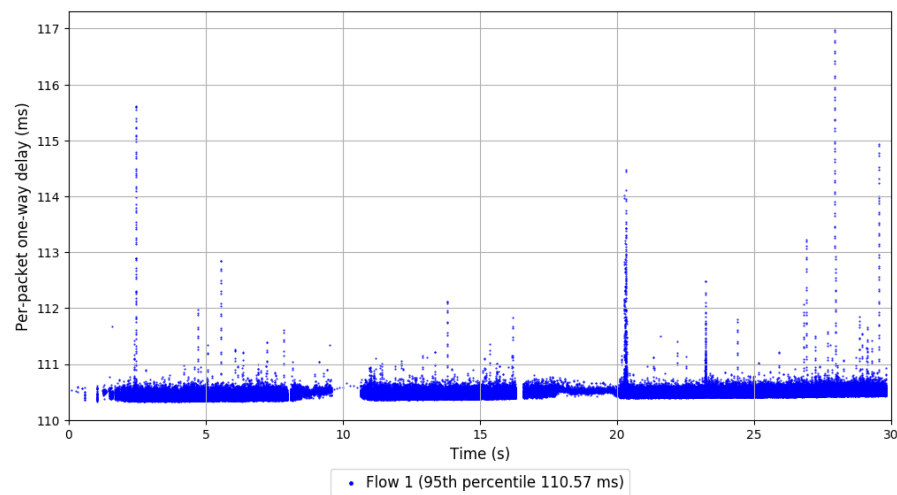
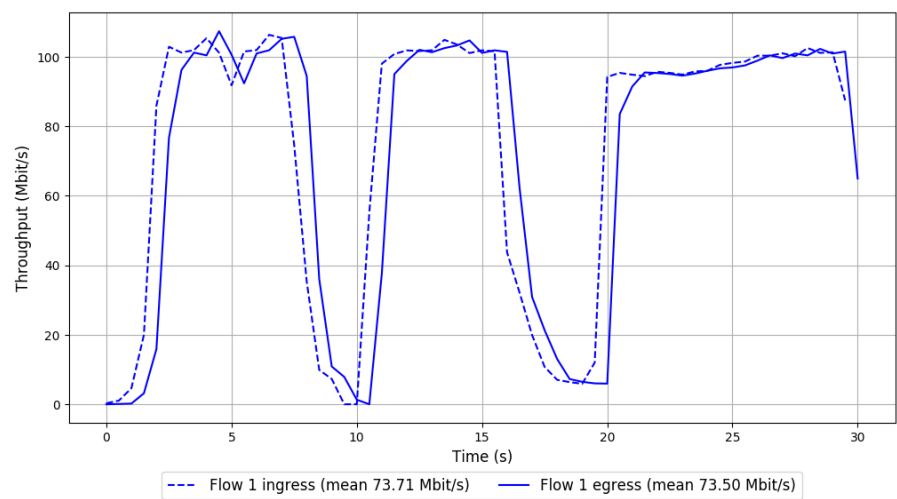


Run 2: Statistics of QUIC Cubic

Start at: 2018-11-02 18:35:29
End at: 2018-11-02 18:35:59
Local clock offset: 20.993 ms
Remote clock offset: 23.433 ms

Below is generated by plot.py at 2018-11-02 21:27:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 73.50 Mbit/s
95th percentile per-packet one-way delay: 110.573 ms
Loss rate: 1.02%
-- Flow 1:
Average throughput: 73.50 Mbit/s
95th percentile per-packet one-way delay: 110.573 ms
Loss rate: 1.02%

Run 2: Report of QUIC Cubic — Data Link

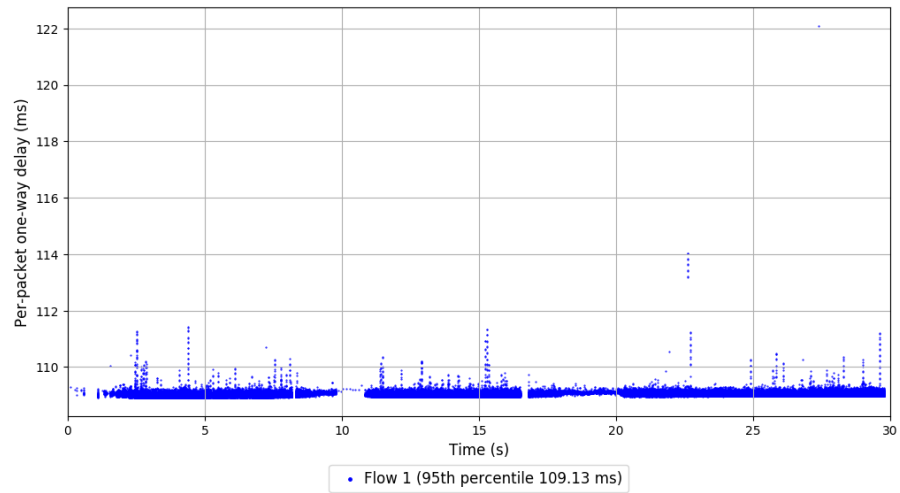
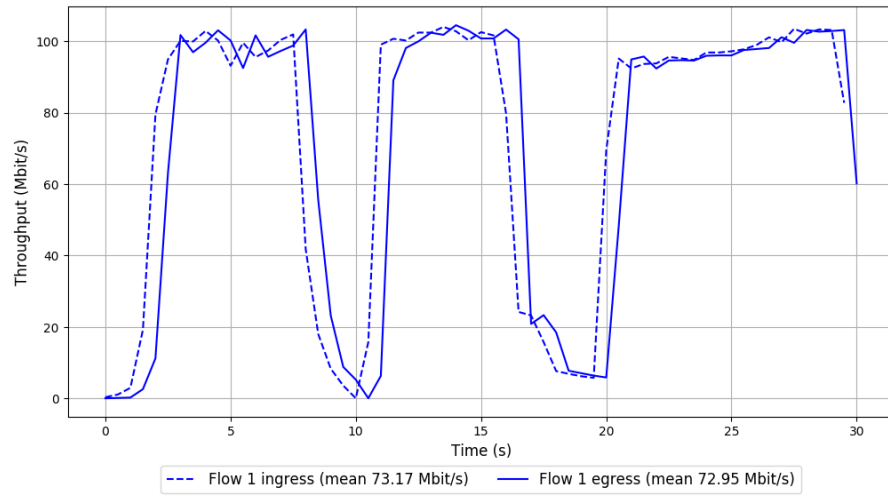


Run 3: Statistics of QUIC Cubic

Start at: 2018-11-02 19:02:12
End at: 2018-11-02 19:02:42
Local clock offset: 25.201 ms
Remote clock offset: 29.804 ms

Below is generated by plot.py at 2018-11-02 21:27:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 72.95 Mbit/s
95th percentile per-packet one-way delay: 109.132 ms
Loss rate: 1.03%
-- Flow 1:
Average throughput: 72.95 Mbit/s
95th percentile per-packet one-way delay: 109.132 ms
Loss rate: 1.03%

Run 3: Report of QUIC Cubic — Data Link

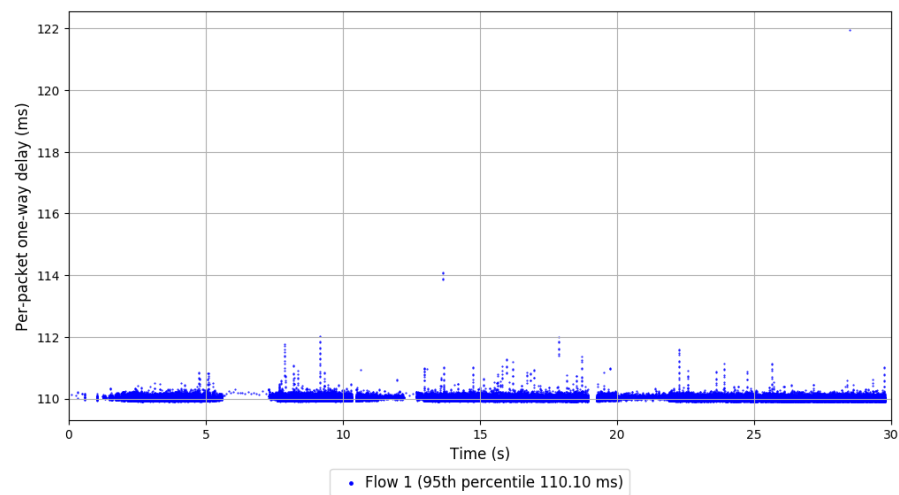
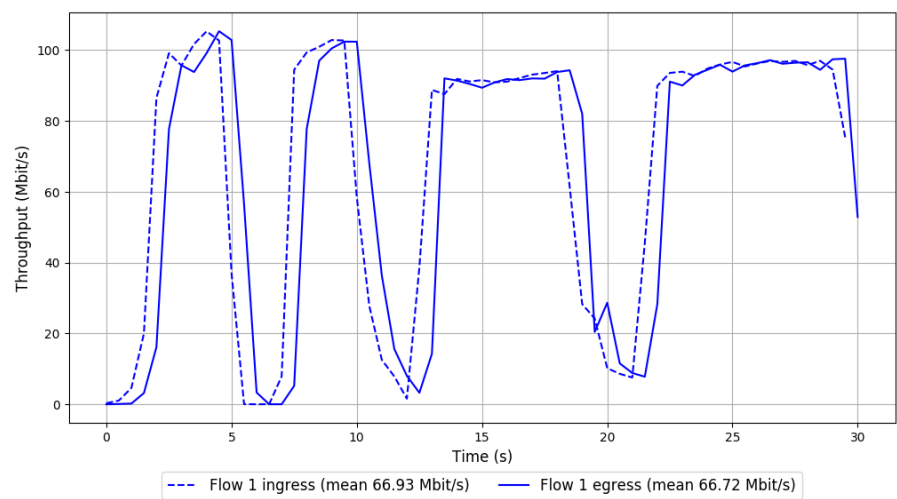


Run 4: Statistics of QUIC Cubic

Start at: 2018-11-02 19:28:08
End at: 2018-11-02 19:28:38
Local clock offset: 13.381 ms
Remote clock offset: 14.941 ms

Below is generated by plot.py at 2018-11-02 21:27:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 66.72 Mbit/s
95th percentile per-packet one-way delay: 110.098 ms
Loss rate: 1.05%
-- Flow 1:
Average throughput: 66.72 Mbit/s
95th percentile per-packet one-way delay: 110.098 ms
Loss rate: 1.05%

Run 4: Report of QUIC Cubic — Data Link

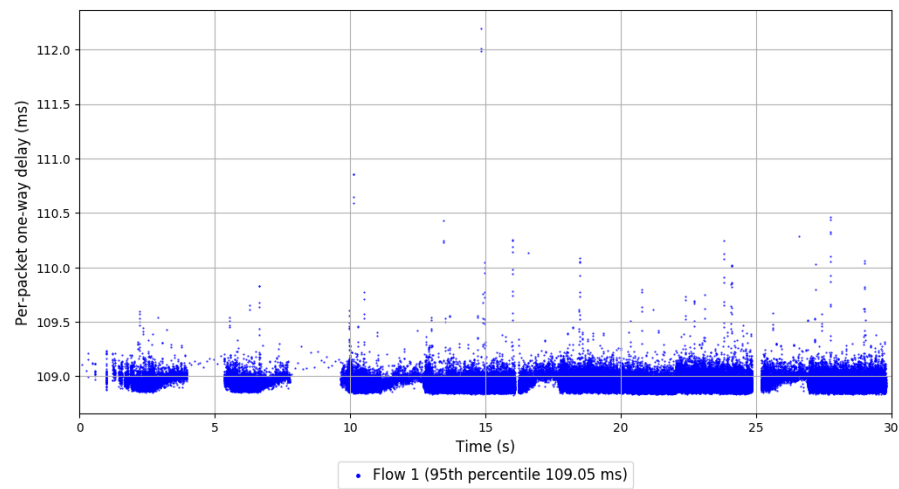
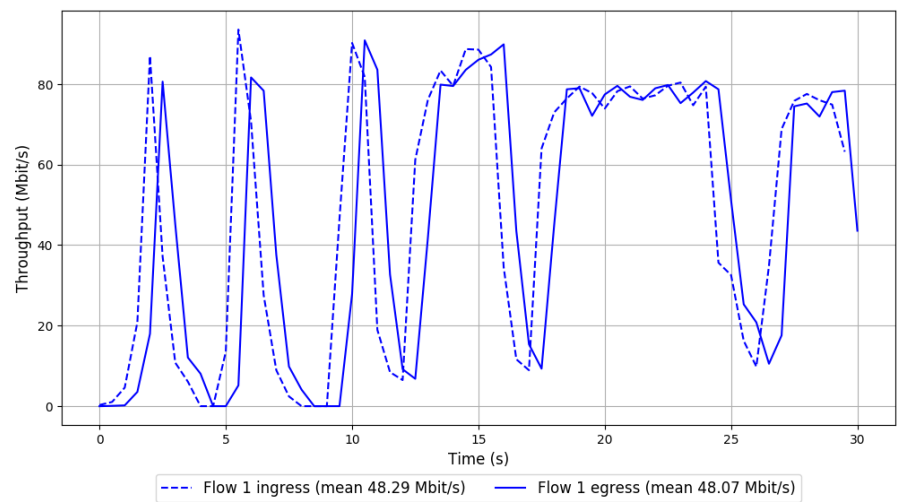


Run 5: Statistics of QUIC Cubic

Start at: 2018-11-02 19:54:30
End at: 2018-11-02 19:55:00
Local clock offset: 8.423 ms
Remote clock offset: 10.017 ms

Below is generated by plot.py at 2018-11-02 21:27:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 48.07 Mbit/s
95th percentile per-packet one-way delay: 109.048 ms
Loss rate: 1.18%
-- Flow 1:
Average throughput: 48.07 Mbit/s
95th percentile per-packet one-way delay: 109.048 ms
Loss rate: 1.18%

Run 5: Report of QUIC Cubic — Data Link

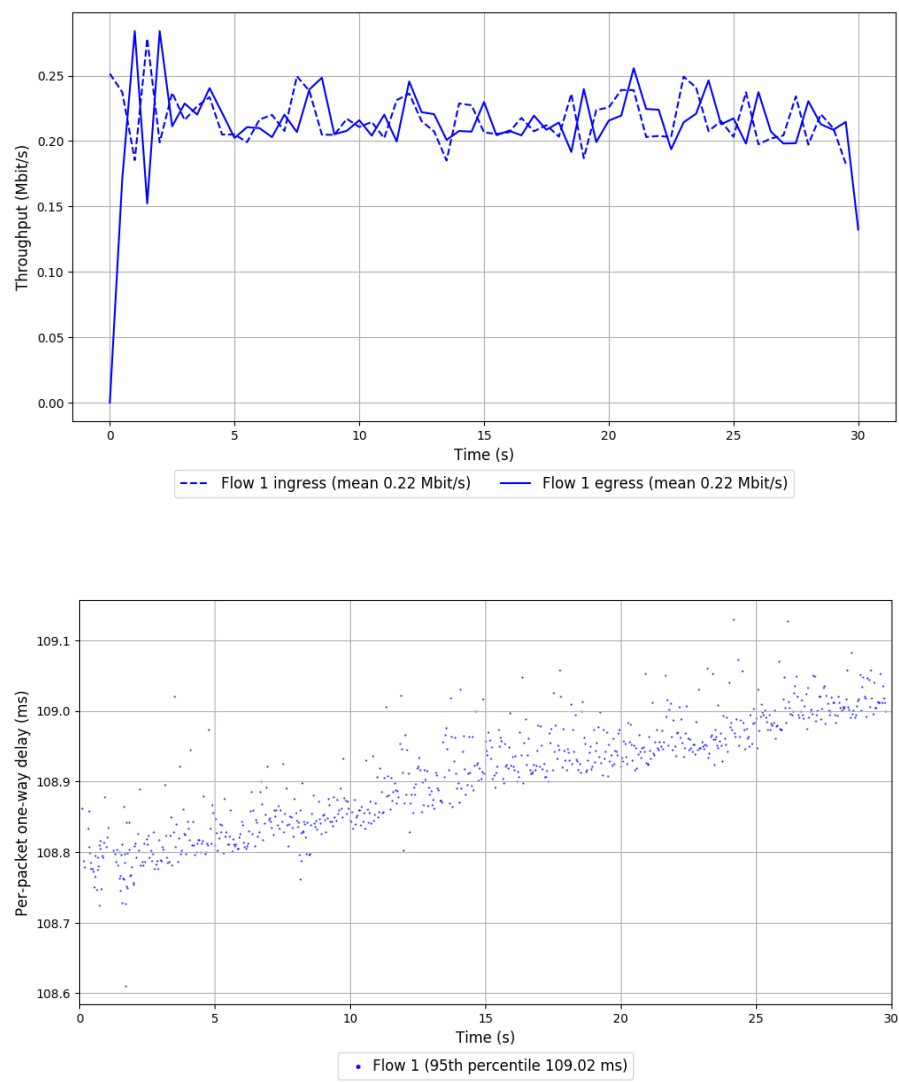


```
Run 1: Statistics of SCReAM

Start at: 2018-11-02 18:07:10
End at: 2018-11-02 18:07:40
Local clock offset: 3.761 ms
Remote clock offset: 5.495 ms

# Below is generated by plot.py at 2018-11-02 21:27:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.022 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.022 ms
Loss rate: 0.77%
```

Run 1: Report of SReAM — Data Link

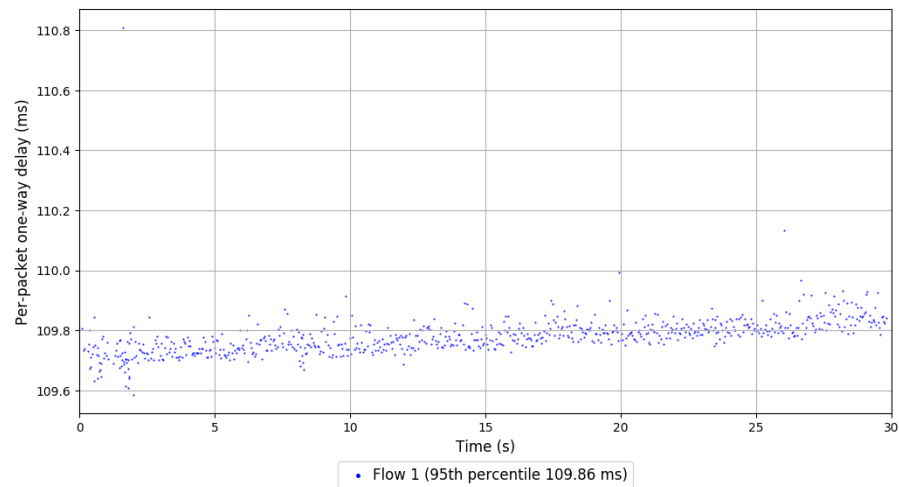
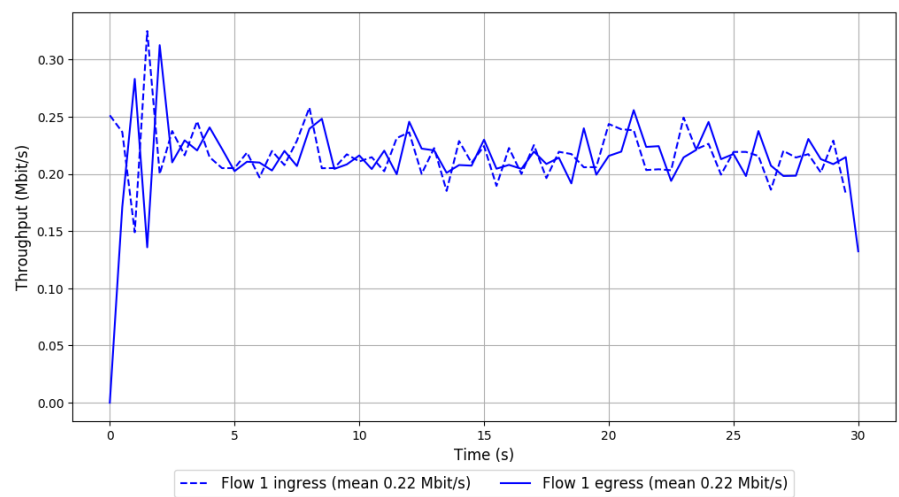


Run 2: Statistics of SCReAM

Start at: 2018-11-02 18:32:53
End at: 2018-11-02 18:33:23
Local clock offset: 18.14 ms
Remote clock offset: 20.029 ms

Below is generated by plot.py at 2018-11-02 21:27:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.862 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.862 ms
Loss rate: 0.77%

Run 2: Report of SReAM — Data Link

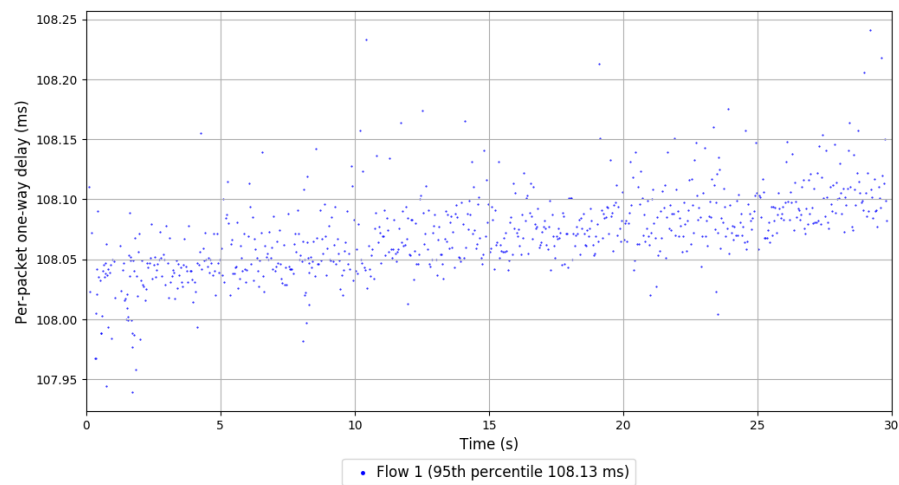
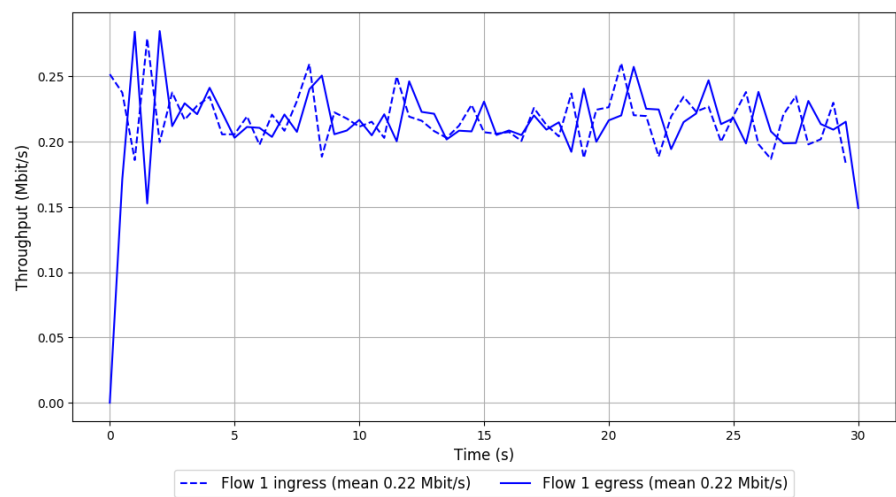


Run 3: Statistics of SCReAM

Start at: 2018-11-02 18:59:25
End at: 2018-11-02 18:59:55
Local clock offset: 21.53 ms
Remote clock offset: 27.135 ms

Below is generated by plot.py at 2018-11-02 21:27:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 108.133 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 108.133 ms
Loss rate: 0.64%

Run 3: Report of SReAM — Data Link

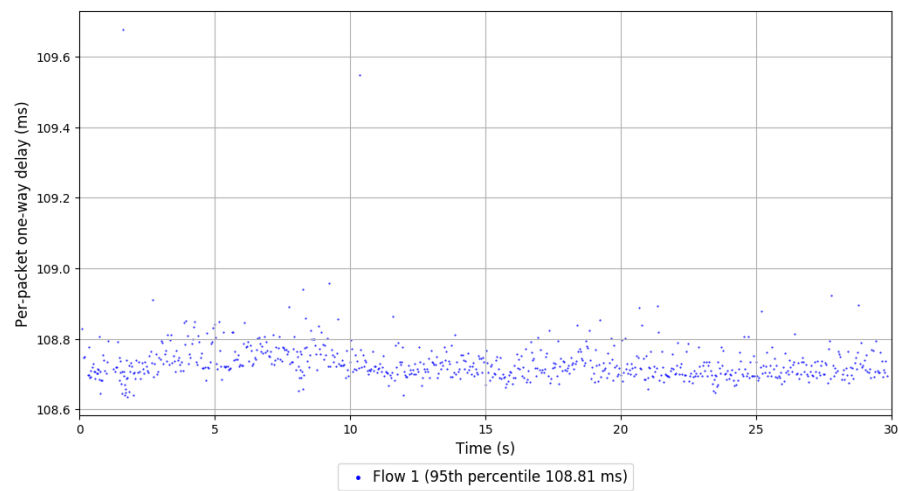
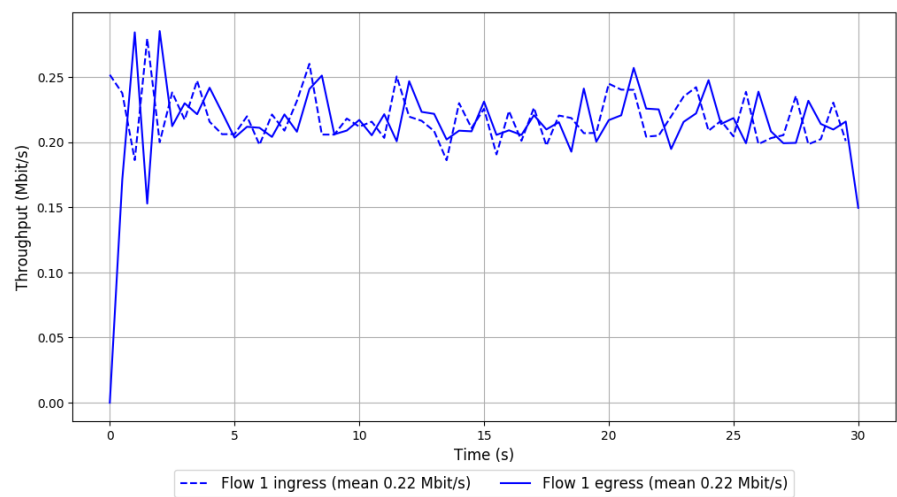


Run 4: Statistics of SCReAM

Start at: 2018-11-02 19:25:32
End at: 2018-11-02 19:26:02
Local clock offset: 13.982 ms
Remote clock offset: 15.998 ms

Below is generated by plot.py at 2018-11-02 21:27:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 108.812 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 108.812 ms
Loss rate: 0.77%

Run 4: Report of SReAM — Data Link

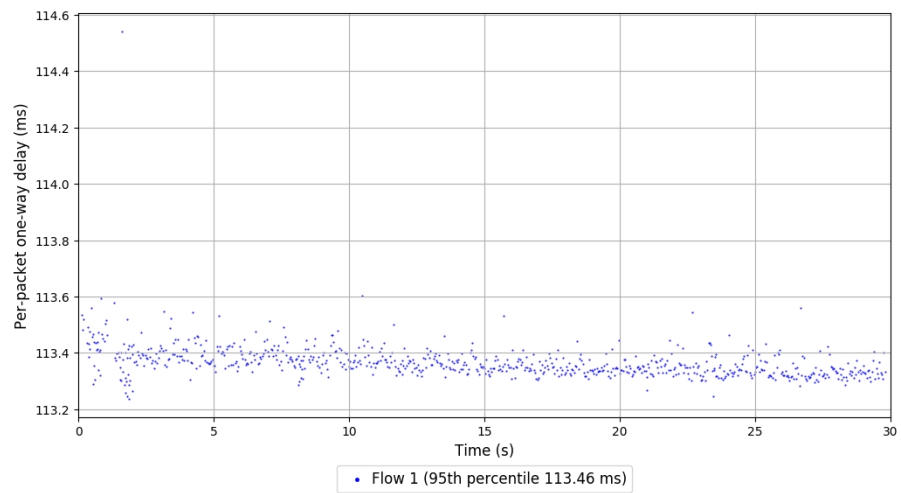
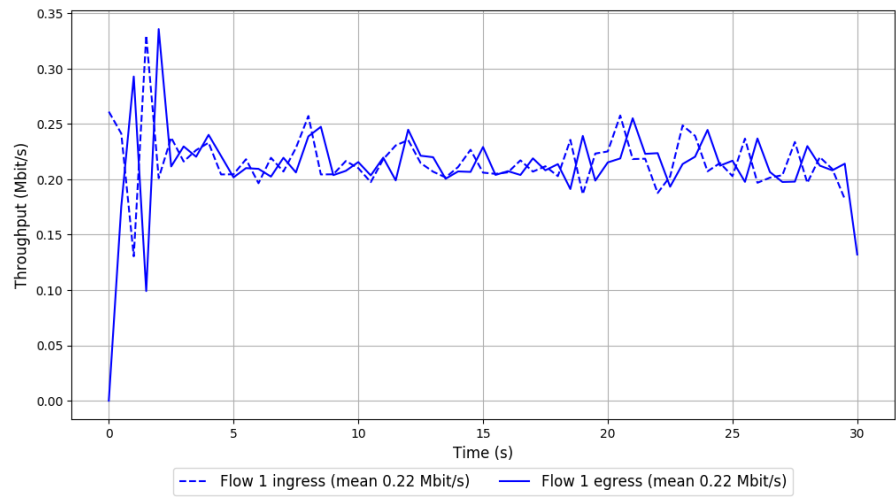


Run 5: Statistics of SCReAM

Start at: 2018-11-02 19:51:54
End at: 2018-11-02 19:52:24
Local clock offset: 11.955 ms
Remote clock offset: 11.849 ms

Below is generated by plot.py at 2018-11-02 21:27:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 113.456 ms
Loss rate: 0.76%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 113.456 ms
Loss rate: 0.76%

Run 5: Report of SReAM — Data Link

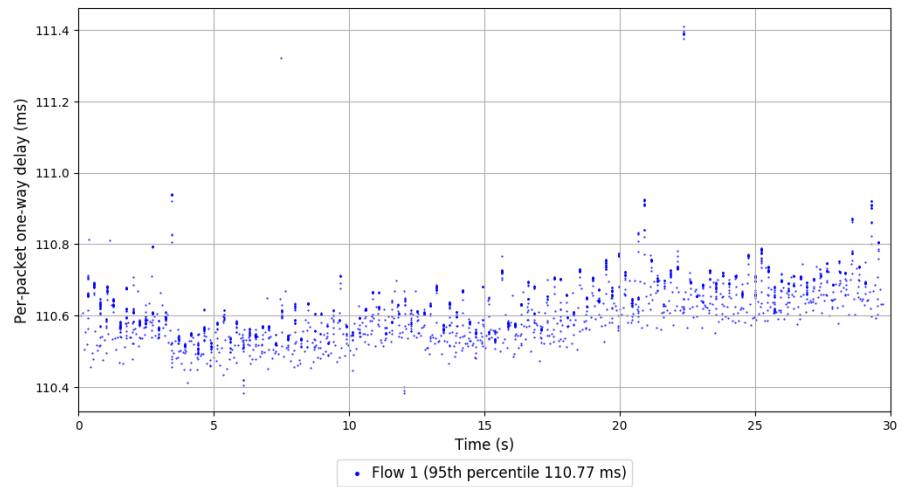
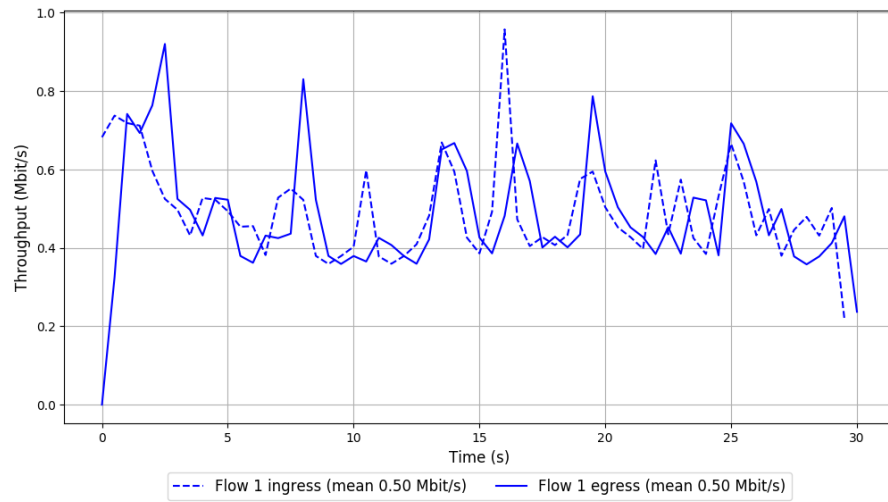


Run 1: Statistics of Sprout

Start at: 2018-11-02 18:19:39
End at: 2018-11-02 18:20:09
Local clock offset: 14.309 ms
Remote clock offset: 15.646 ms

Below is generated by plot.py at 2018-11-02 21:27:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 110.769 ms
Loss rate: 0.73%
-- Flow 1:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 110.769 ms
Loss rate: 0.73%

Run 1: Report of Sprout — Data Link

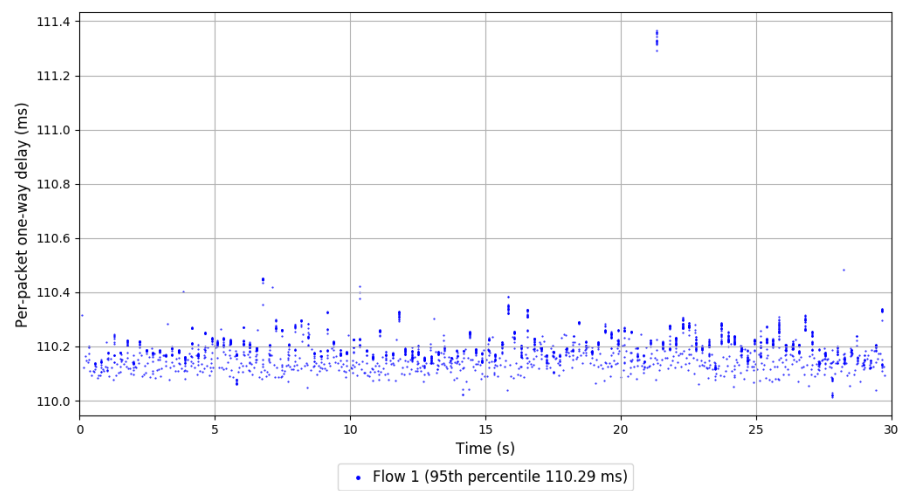
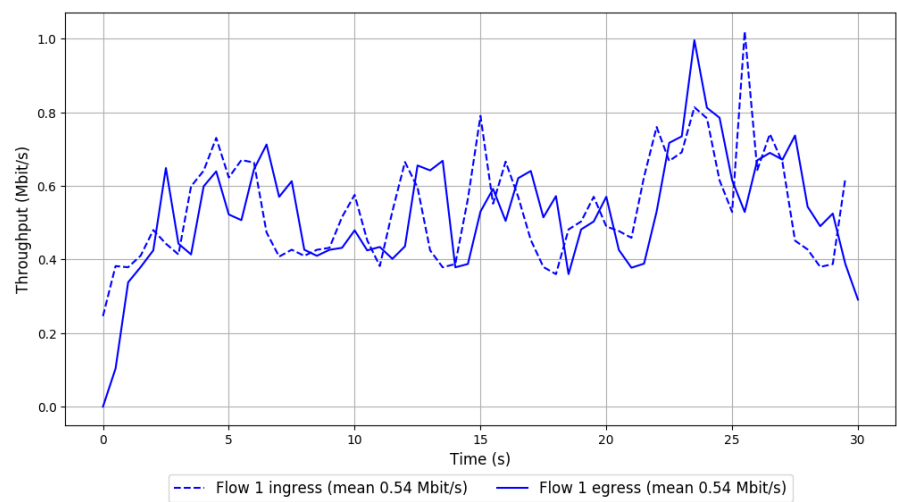


Run 2: Statistics of Sprout

Start at: 2018-11-02 18:45:44
End at: 2018-11-02 18:46:14
Local clock offset: 18.259 ms
Remote clock offset: 19.518 ms

Below is generated by plot.py at 2018-11-02 21:27:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.54 Mbit/s
95th percentile per-packet one-way delay: 110.294 ms
Loss rate: 1.03%
-- Flow 1:
Average throughput: 0.54 Mbit/s
95th percentile per-packet one-way delay: 110.294 ms
Loss rate: 1.03%

Run 2: Report of Sprout — Data Link

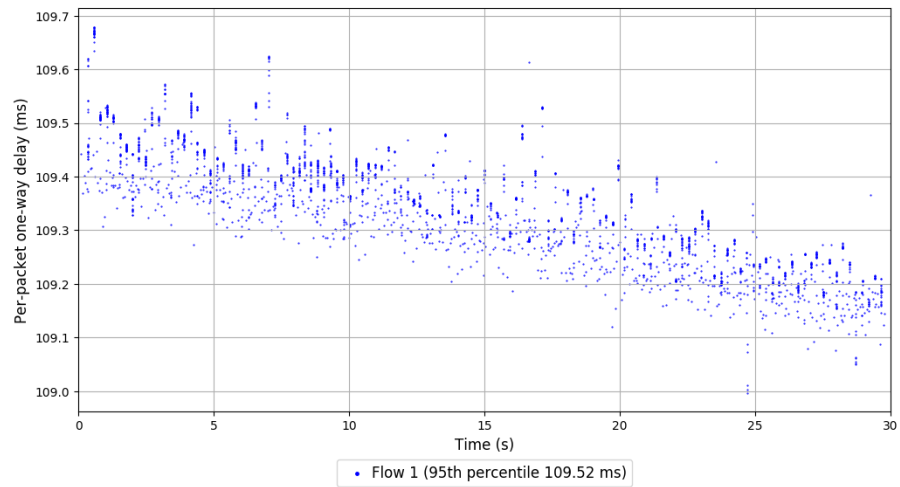
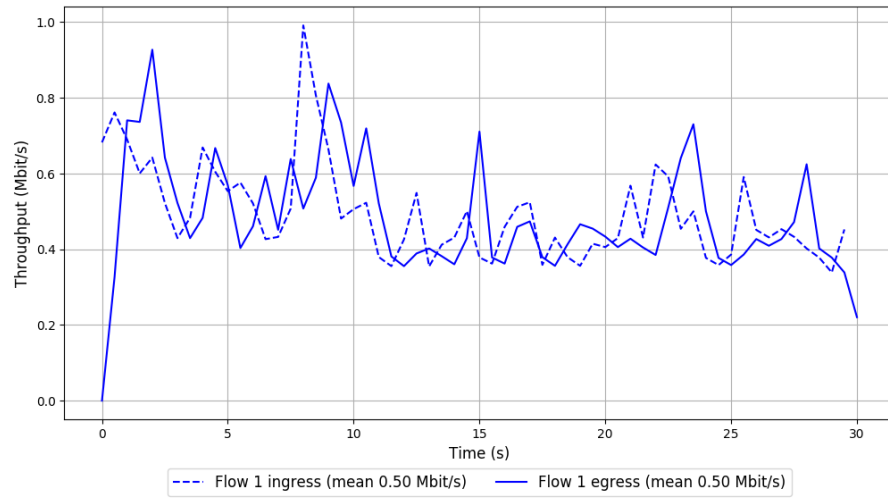


Run 3: Statistics of Sprout

Start at: 2018-11-02 19:12:10
End at: 2018-11-02 19:12:40
Local clock offset: 34.824 ms
Remote clock offset: 39.487 ms

Below is generated by plot.py at 2018-11-02 21:27:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 109.519 ms
Loss rate: 0.79%
-- Flow 1:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 109.519 ms
Loss rate: 0.79%

Run 3: Report of Sprout — Data Link

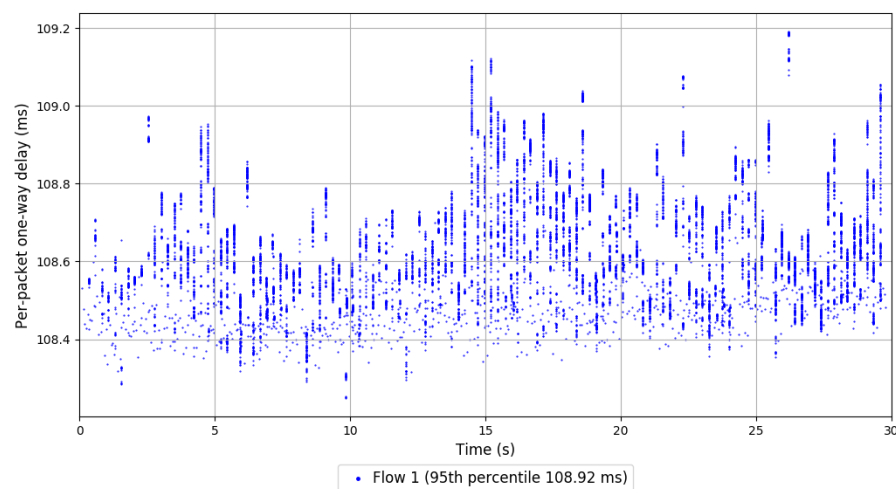
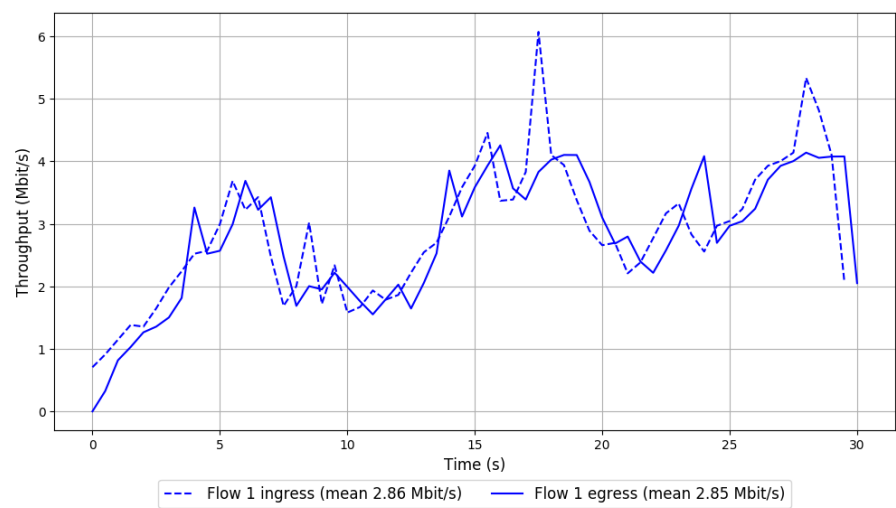


Run 4: Statistics of Sprout

Start at: 2018-11-02 19:38:26
End at: 2018-11-02 19:38:56
Local clock offset: 14.644 ms
Remote clock offset: 16.944 ms

Below is generated by plot.py at 2018-11-02 21:27:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.85 Mbit/s
95th percentile per-packet one-way delay: 108.917 ms
Loss rate: 1.20%
-- Flow 1:
Average throughput: 2.85 Mbit/s
95th percentile per-packet one-way delay: 108.917 ms
Loss rate: 1.20%

Run 4: Report of Sprout — Data Link



Run 5: Statistics of Sprout

Start at: 2018-11-02 20:04:45

End at: 2018-11-02 20:05:15

Local clock offset: 6.644 ms

Remote clock offset: 7.473 ms

Below is generated by plot.py at 2018-11-02 21:27:51

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.01 Mbit/s

95th percentile per-packet one-way delay: 109.125 ms

Loss rate: 0.47%

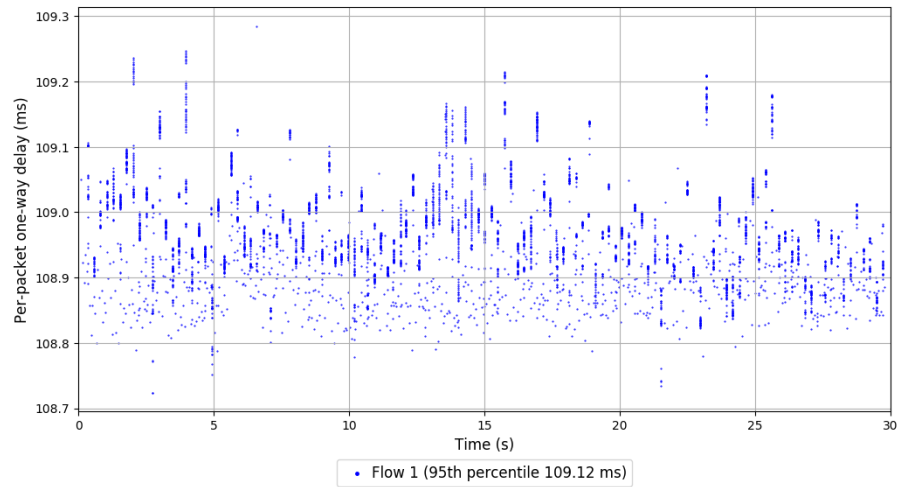
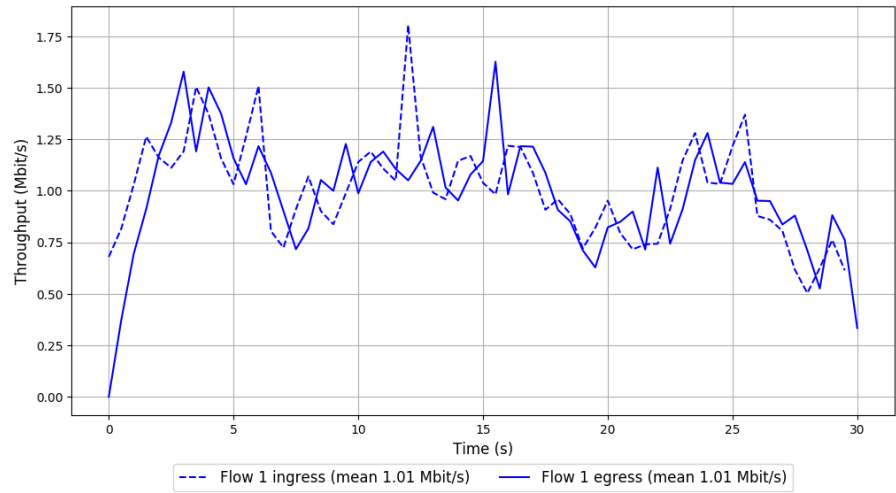
-- Flow 1:

Average throughput: 1.01 Mbit/s

95th percentile per-packet one-way delay: 109.125 ms

Loss rate: 0.47%

Run 5: Report of Sprout — Data Link

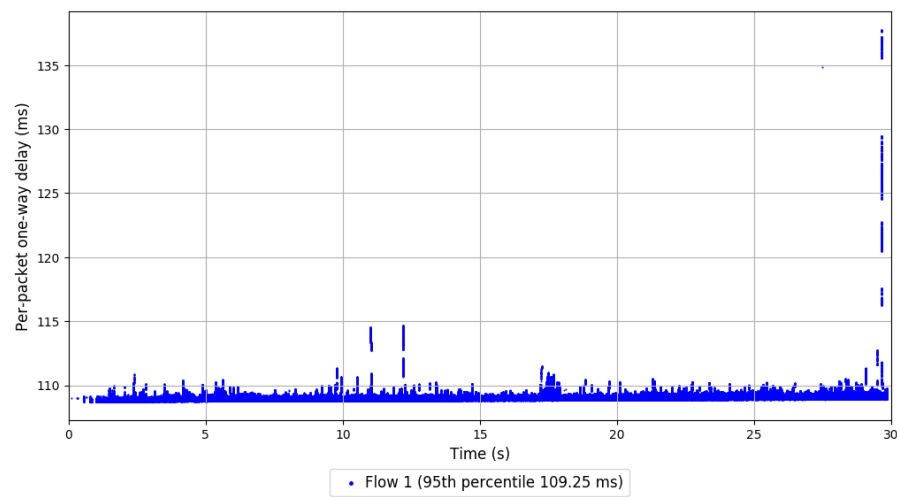
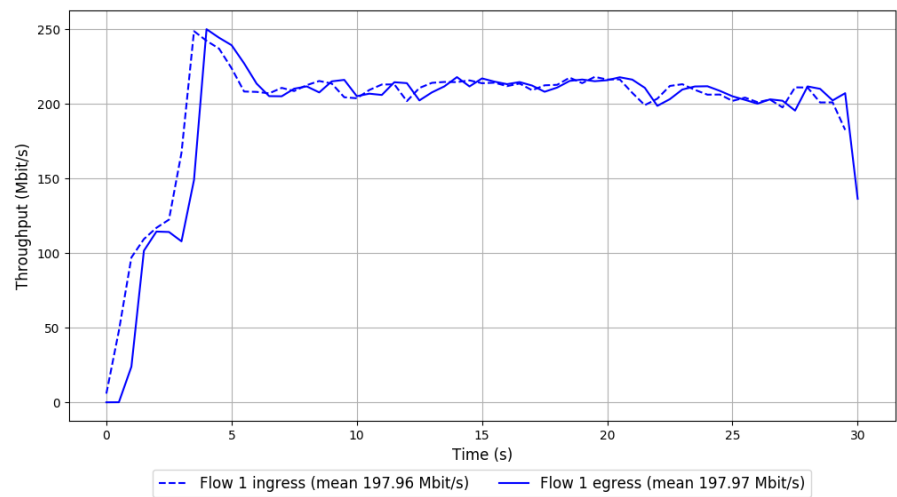


```
Run 1: Statistics of TaoVA-100x

Start at: 2018-11-02 18:10:55
End at: 2018-11-02 18:11:25
Local clock offset: 6.604 ms
Remote clock offset: 8.555 ms

# Below is generated by plot.py at 2018-11-02 21:27:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 197.97 Mbit/s
95th percentile per-packet one-way delay: 109.251 ms
Loss rate: 0.73%
-- Flow 1:
Average throughput: 197.97 Mbit/s
95th percentile per-packet one-way delay: 109.251 ms
Loss rate: 0.73%
```

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

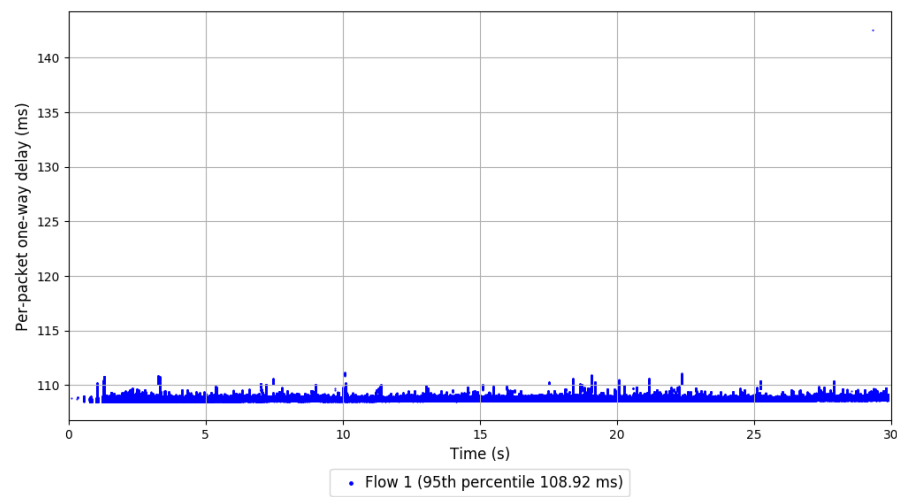
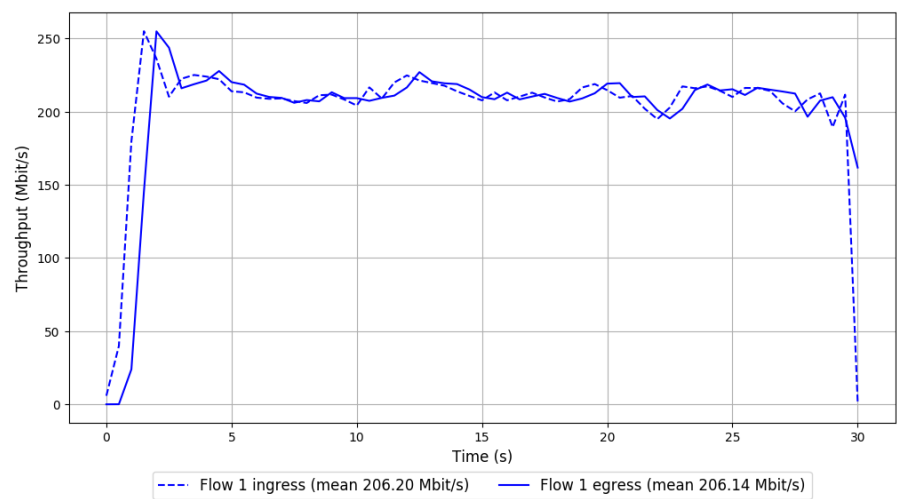


Run 2: Statistics of TaoVA-100x

Start at: 2018-11-02 18:36:43
End at: 2018-11-02 18:37:13
Local clock offset: 21.695 ms
Remote clock offset: 25.267 ms

Below is generated by plot.py at 2018-11-02 21:27:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 206.14 Mbit/s
95th percentile per-packet one-way delay: 108.920 ms
Loss rate: 0.75%
-- Flow 1:
Average throughput: 206.14 Mbit/s
95th percentile per-packet one-way delay: 108.920 ms
Loss rate: 0.75%

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

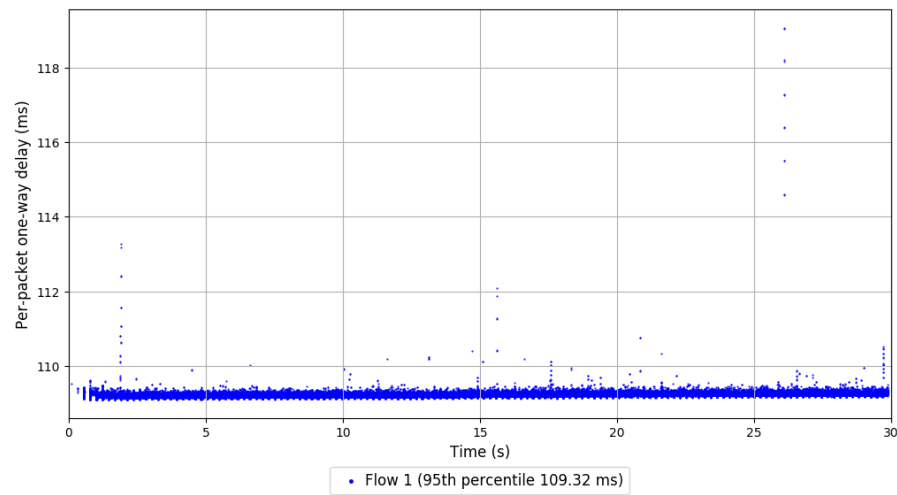
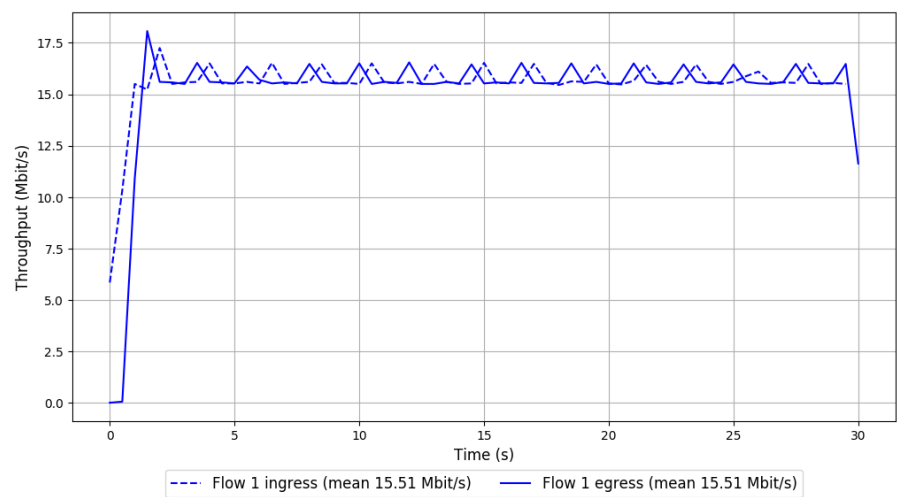


Run 3: Statistics of TaoVA-100x

Start at: 2018-11-02 19:03:27
End at: 2018-11-02 19:03:57
Local clock offset: 26.298 ms
Remote clock offset: 31.158 ms

Below is generated by plot.py at 2018-11-02 21:27:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 15.51 Mbit/s
95th percentile per-packet one-way delay: 109.320 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 15.51 Mbit/s
95th percentile per-packet one-way delay: 109.320 ms
Loss rate: 0.74%

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

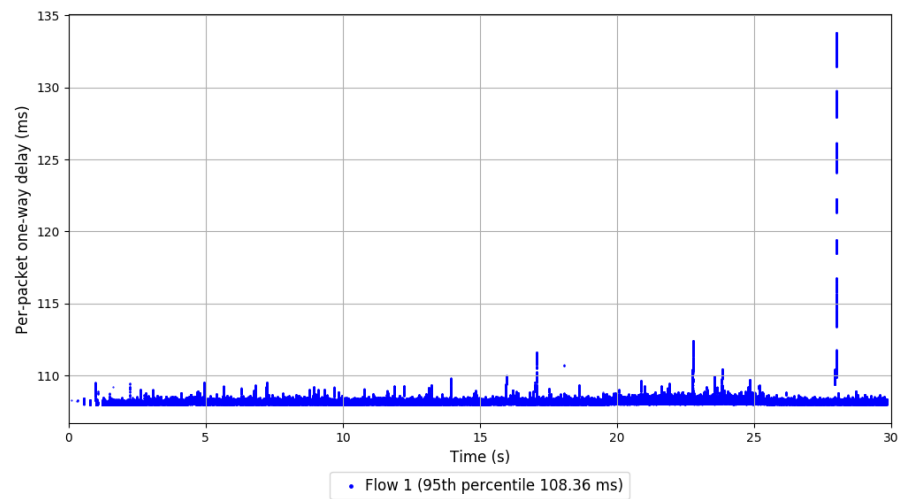
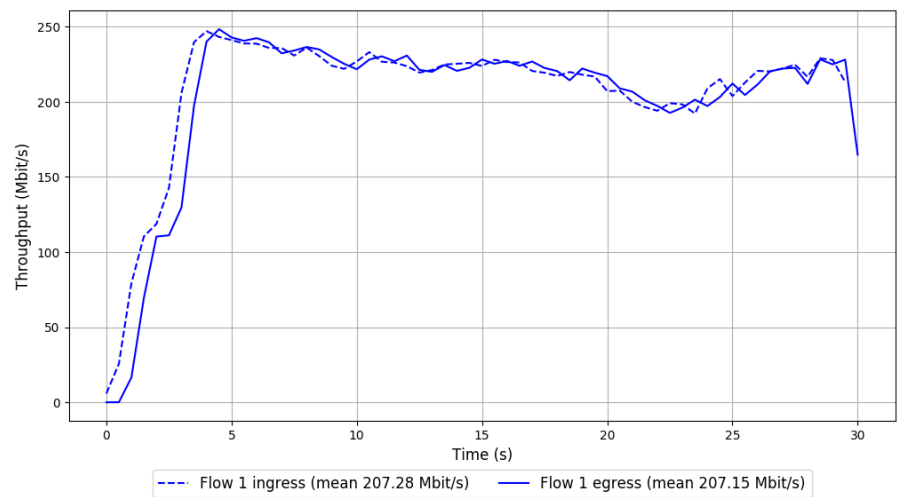


Run 4: Statistics of TaoVA-100x

Start at: 2018-11-02 19:29:22
End at: 2018-11-02 19:29:52
Local clock offset: 11.758 ms
Remote clock offset: 15.196 ms

Below is generated by plot.py at 2018-11-02 21:27:59
Datalink statistics
-- Total of 1 flow:
Average throughput: 207.15 Mbit/s
95th percentile per-packet one-way delay: 108.362 ms
Loss rate: 0.80%
-- Flow 1:
Average throughput: 207.15 Mbit/s
95th percentile per-packet one-way delay: 108.362 ms
Loss rate: 0.80%

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



Run 5: Statistics of TaoVA-100x

Start at: 2018-11-02 19:55:43

End at: 2018-11-02 19:56:13

Local clock offset: 7.36 ms

Remote clock offset: 9.273 ms

Below is generated by plot.py at 2018-11-02 21:28:15

Datalink statistics

-- Total of 1 flow:

Average throughput: 208.89 Mbit/s

95th percentile per-packet one-way delay: 108.732 ms

Loss rate: 0.74%

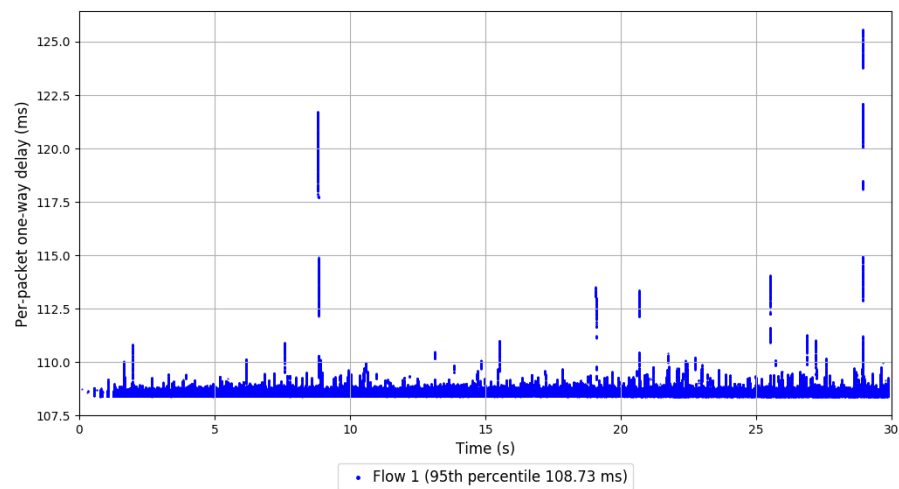
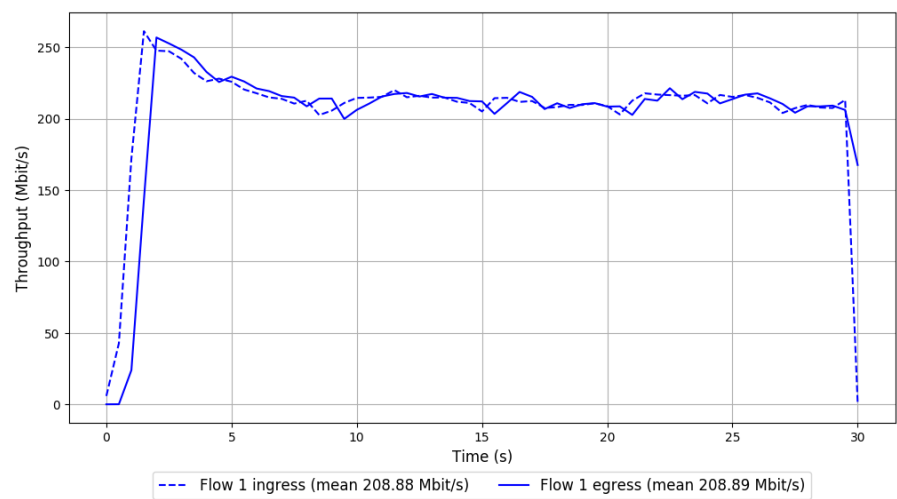
-- Flow 1:

Average throughput: 208.89 Mbit/s

95th percentile per-packet one-way delay: 108.732 ms

Loss rate: 0.74%

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

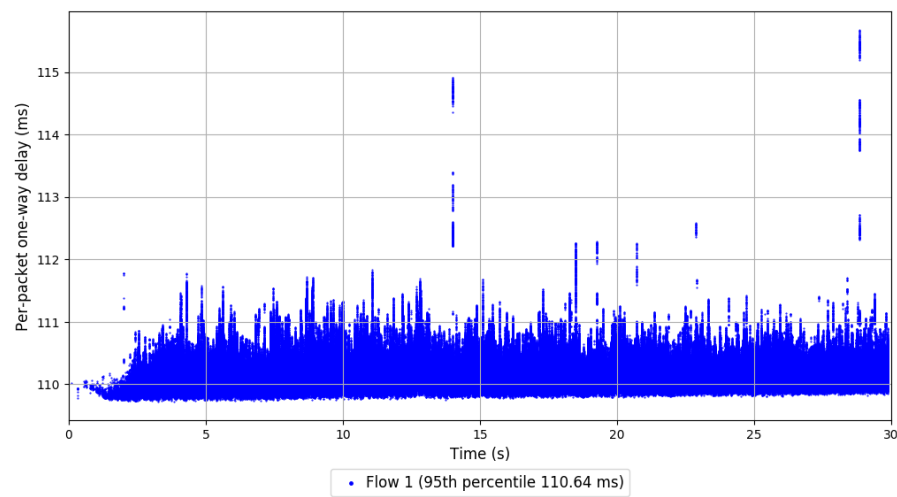
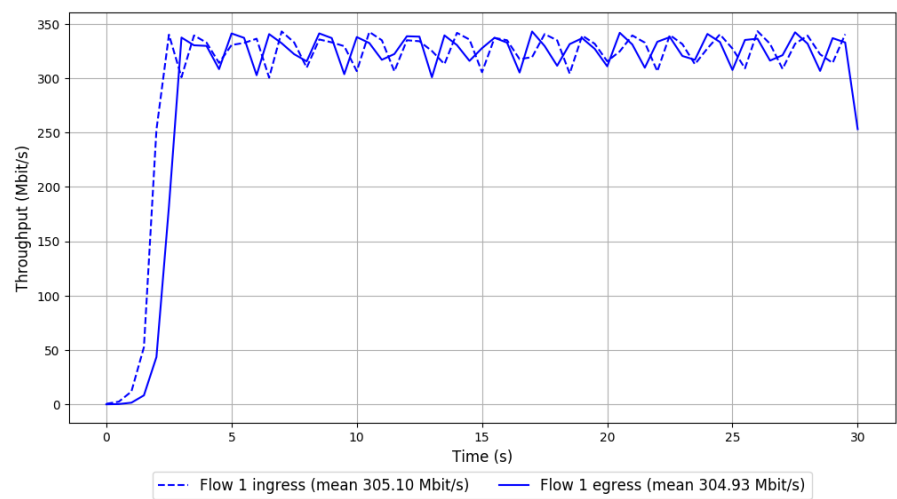


Run 1: Statistics of TCP Vegas

Start at: 2018-11-02 18:16:48
End at: 2018-11-02 18:17:18
Local clock offset: 10.42 ms
Remote clock offset: 11.405 ms

Below is generated by plot.py at 2018-11-02 21:28:30
Datalink statistics
-- Total of 1 flow:
Average throughput: 304.93 Mbit/s
95th percentile per-packet one-way delay: 110.635 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 304.93 Mbit/s
95th percentile per-packet one-way delay: 110.635 ms
Loss rate: 0.78%

Run 1: Report of TCP Vegas — Data Link



Run 2: Statistics of TCP Vegas

Start at: 2018-11-02 18:42:52

End at: 2018-11-02 18:43:22

Local clock offset: 18.366 ms

Remote clock offset: 20.84 ms

Below is generated by plot.py at 2018-11-02 21:30:03

Datalink statistics

-- Total of 1 flow:

Average throughput: 298.58 Mbit/s

95th percentile per-packet one-way delay: 110.616 ms

Loss rate: 0.77%

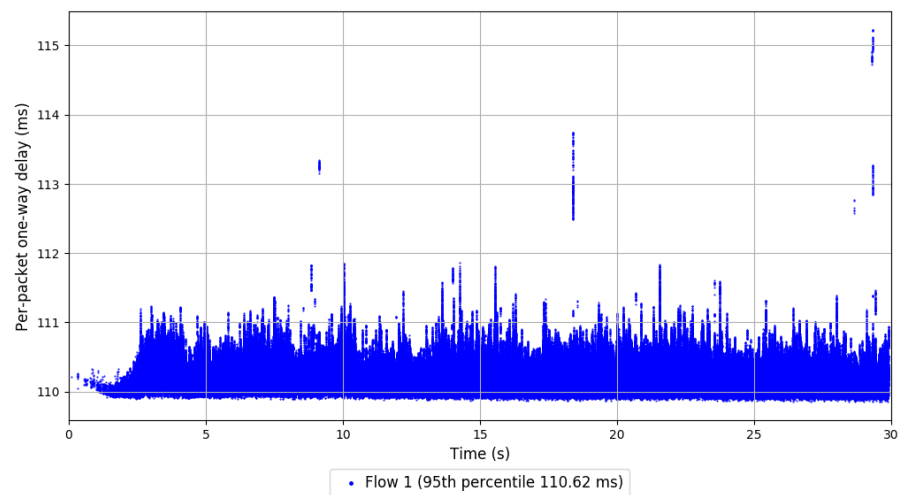
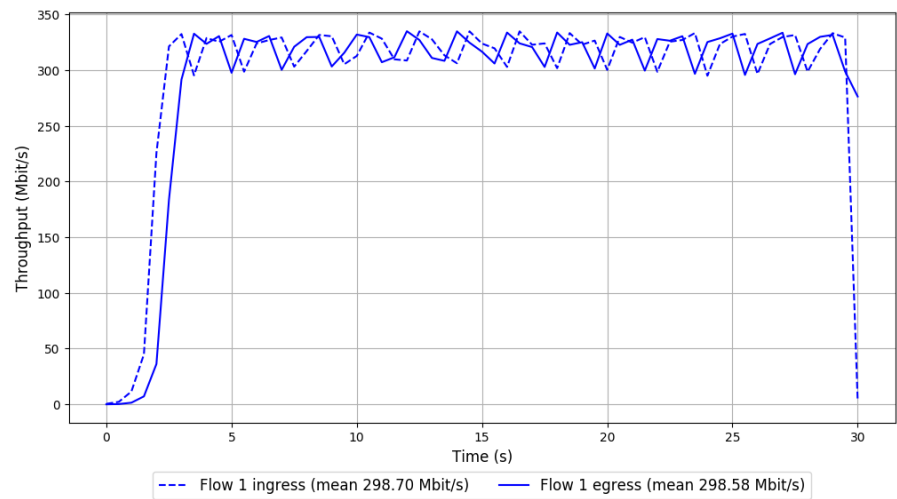
-- Flow 1:

Average throughput: 298.58 Mbit/s

95th percentile per-packet one-way delay: 110.616 ms

Loss rate: 0.77%

Run 2: Report of TCP Vegas — Data Link

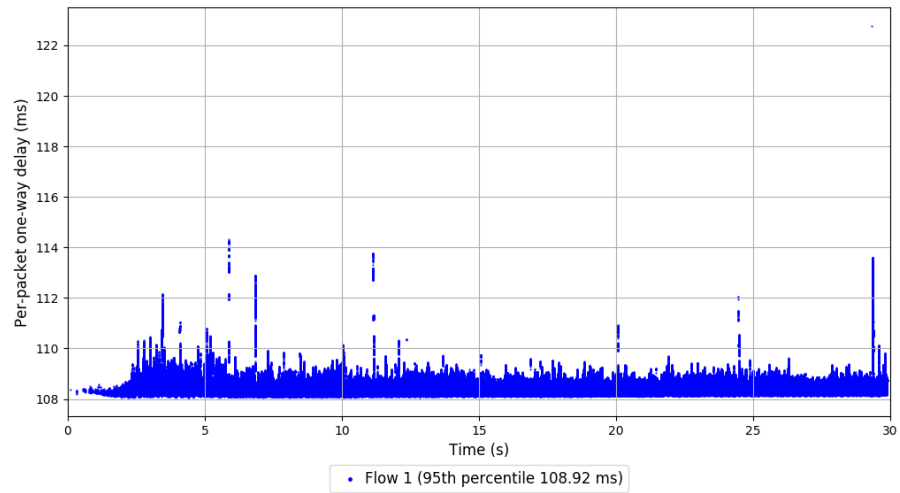
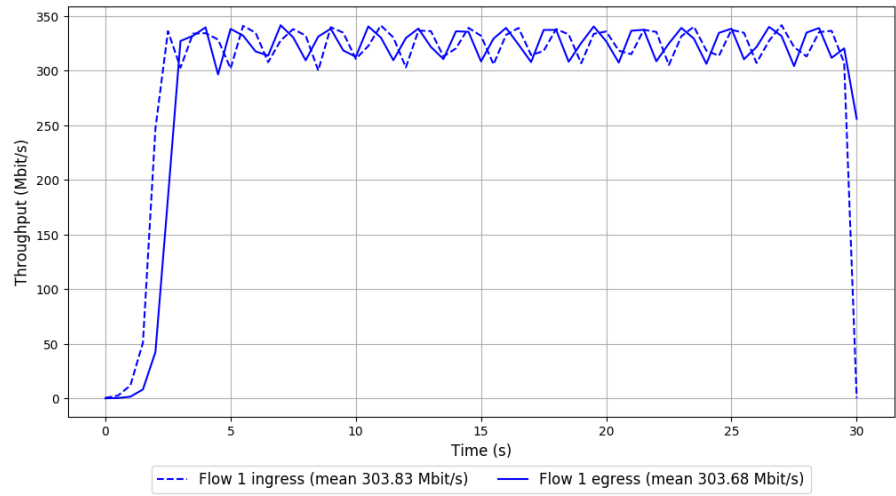


Run 3: Statistics of TCP Vegas

Start at: 2018-11-02 19:09:17
End at: 2018-11-02 19:09:47
Local clock offset: 31.647 ms
Remote clock offset: 37.478 ms

Below is generated by plot.py at 2018-11-02 21:32:45
Datalink statistics
-- Total of 1 flow:
Average throughput: 303.68 Mbit/s
95th percentile per-packet one-way delay: 108.920 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 303.68 Mbit/s
95th percentile per-packet one-way delay: 108.920 ms
Loss rate: 0.78%

Run 3: Report of TCP Vegas — Data Link

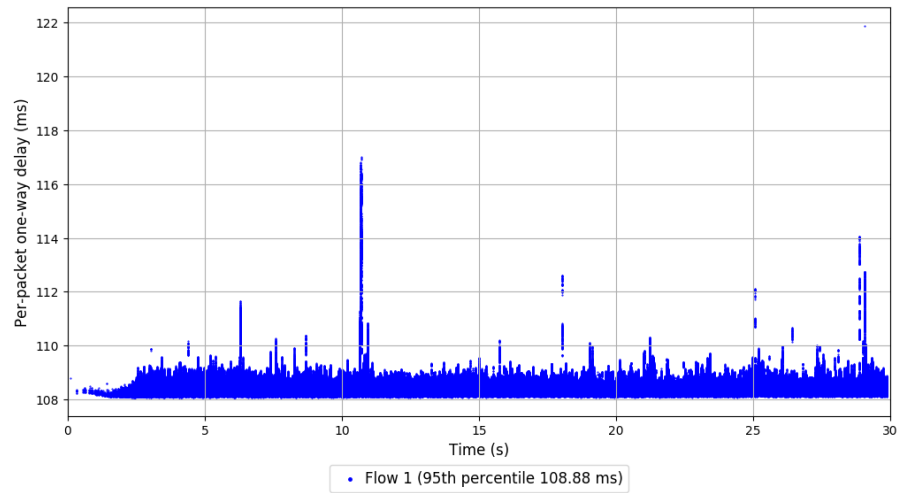
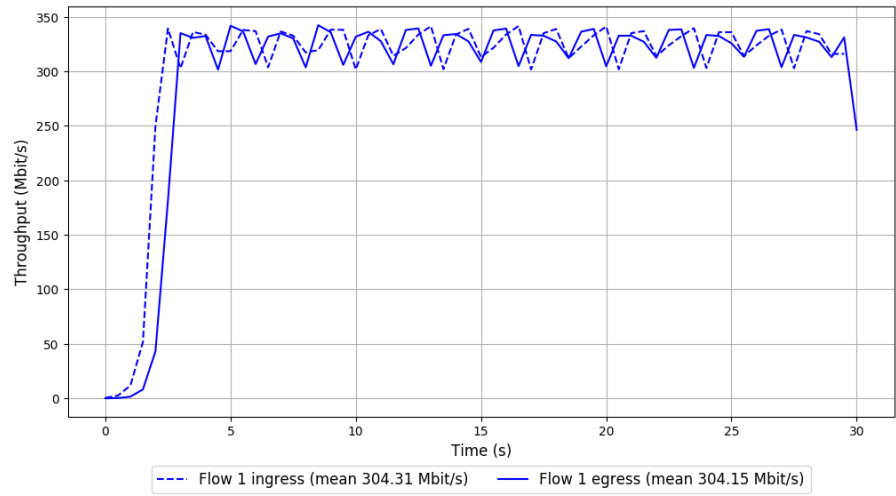


Run 4: Statistics of TCP Vegas

Start at: 2018-11-02 19:35:34
End at: 2018-11-02 19:36:04
Local clock offset: 12.485 ms
Remote clock offset: 16.029 ms

Below is generated by plot.py at 2018-11-02 21:33:13
Datalink statistics
-- Total of 1 flow:
Average throughput: 304.15 Mbit/s
95th percentile per-packet one-way delay: 108.880 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 304.15 Mbit/s
95th percentile per-packet one-way delay: 108.880 ms
Loss rate: 0.78%

Run 4: Report of TCP Vegas — Data Link



Run 5: Statistics of TCP Vegas

Start at: 2018-11-02 20:01:52

End at: 2018-11-02 20:02:22

Local clock offset: 7.992 ms

Remote clock offset: 7.586 ms

Below is generated by plot.py at 2018-11-02 21:33:24

Datalink statistics

-- Total of 1 flow:

Average throughput: 304.11 Mbit/s

95th percentile per-packet one-way delay: 110.579 ms

Loss rate: 0.78%

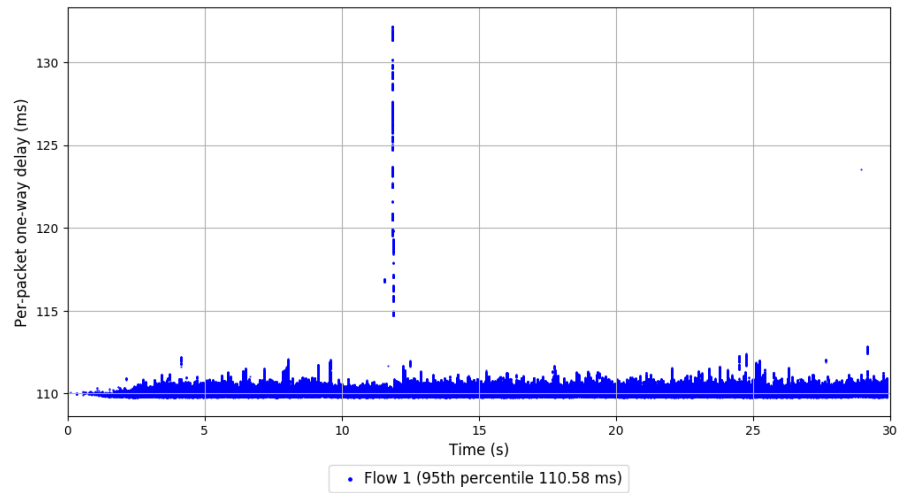
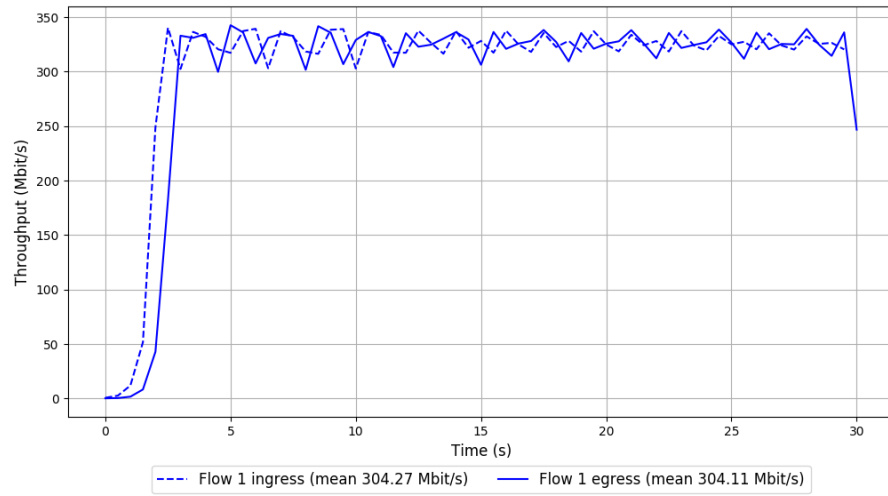
-- Flow 1:

Average throughput: 304.11 Mbit/s

95th percentile per-packet one-way delay: 110.579 ms

Loss rate: 0.78%

Run 5: Report of TCP Vegas — Data Link

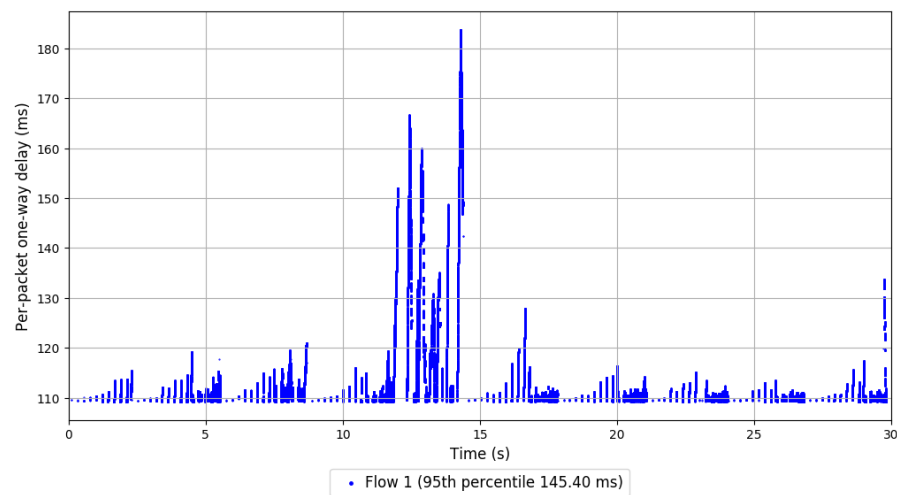
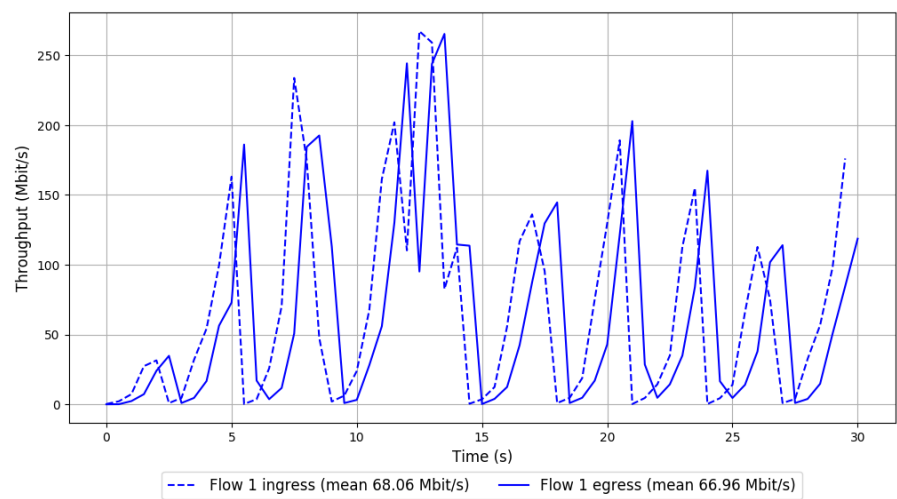


Run 1: Statistics of Verus

Start at: 2018-11-02 18:26:56
End at: 2018-11-02 18:27:26
Local clock offset: 11.646 ms
Remote clock offset: 13.799 ms

Below is generated by plot.py at 2018-11-02 21:33:24
Datalink statistics
-- Total of 1 flow:
Average throughput: 66.96 Mbit/s
95th percentile per-packet one-way delay: 145.395 ms
Loss rate: 2.33%
-- Flow 1:
Average throughput: 66.96 Mbit/s
95th percentile per-packet one-way delay: 145.395 ms
Loss rate: 2.33%

Run 1: Report of Verus — Data Link

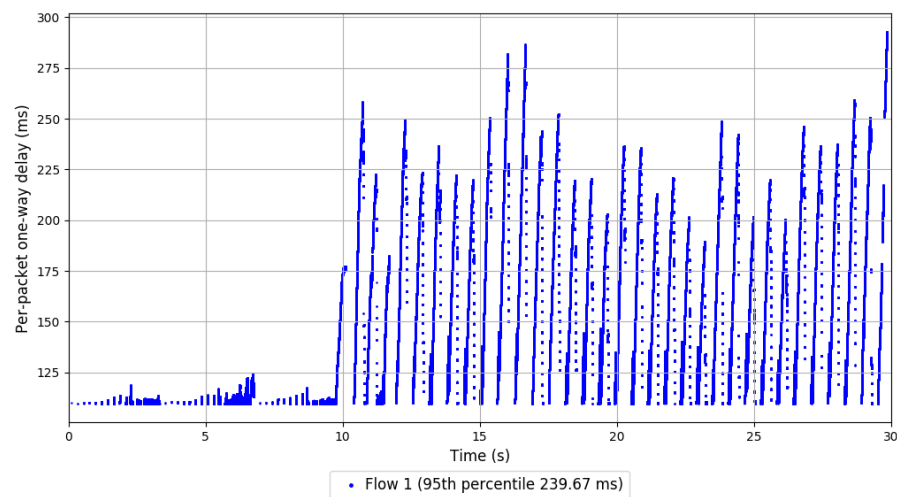
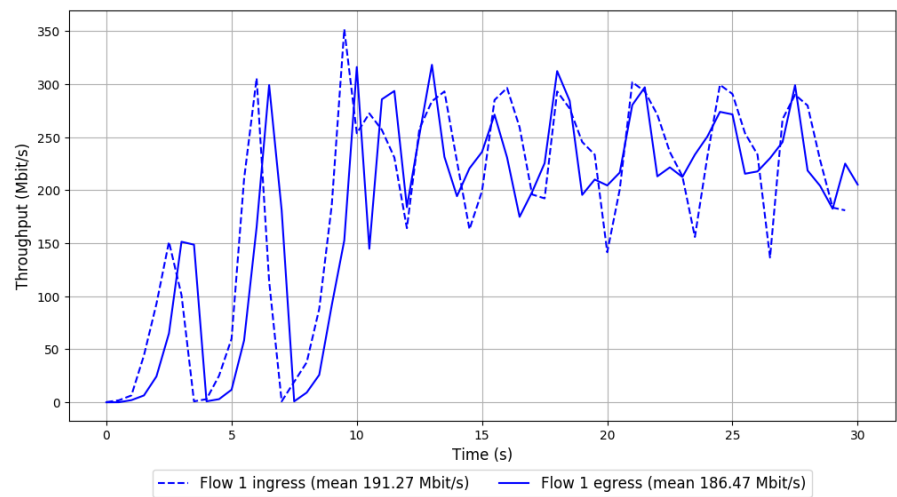


Run 2: Statistics of Verus

Start at: 2018-11-02 18:53:11
End at: 2018-11-02 18:53:41
Local clock offset: 20.089 ms
Remote clock offset: 22.271 ms

Below is generated by plot.py at 2018-11-02 21:34:29
Datalink statistics
-- Total of 1 flow:
Average throughput: 186.47 Mbit/s
95th percentile per-packet one-way delay: 239.671 ms
Loss rate: 2.42%
-- Flow 1:
Average throughput: 186.47 Mbit/s
95th percentile per-packet one-way delay: 239.671 ms
Loss rate: 2.42%

Run 2: Report of Verus — Data Link

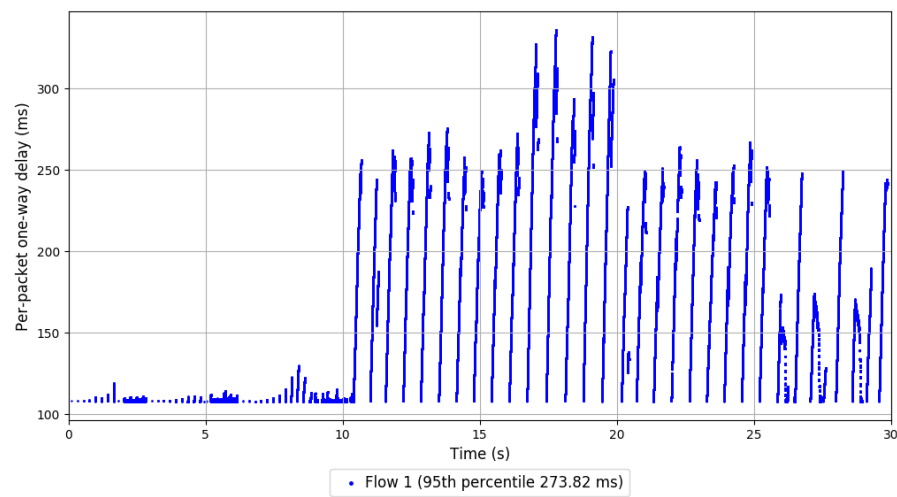
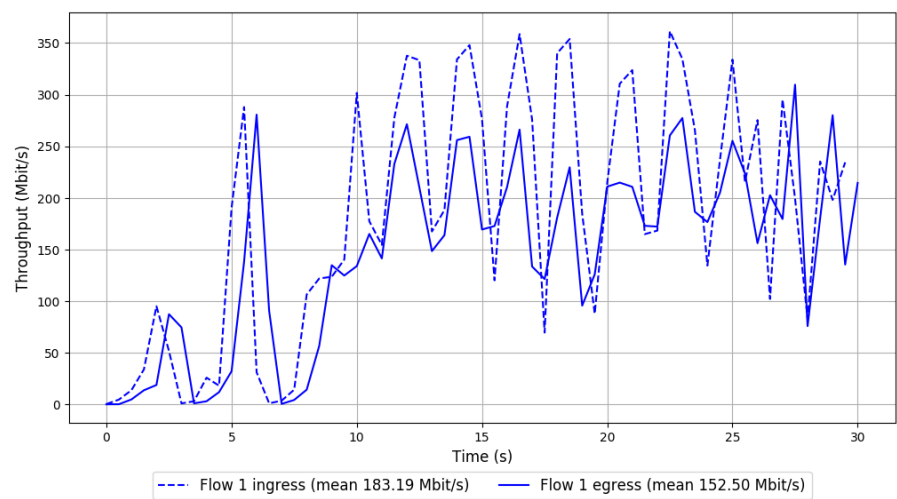


Run 3: Statistics of Verus

Start at: 2018-11-02 19:19:31
End at: 2018-11-02 19:20:01
Local clock offset: 17.372 ms
Remote clock offset: 20.934 ms

Below is generated by plot.py at 2018-11-02 21:34:29
Datalink statistics
-- Total of 1 flow:
Average throughput: 152.50 Mbit/s
95th percentile per-packet one-way delay: 273.824 ms
Loss rate: 16.94%
-- Flow 1:
Average throughput: 152.50 Mbit/s
95th percentile per-packet one-way delay: 273.824 ms
Loss rate: 16.94%

Run 3: Report of Verus — Data Link

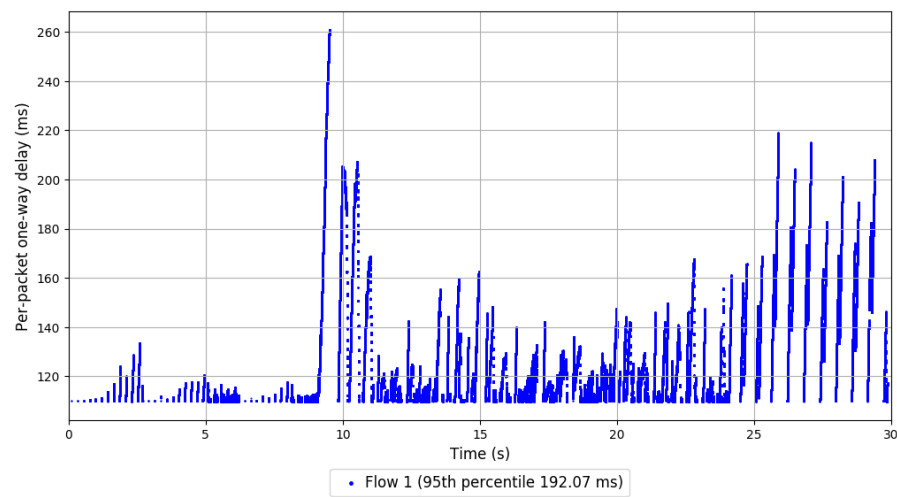
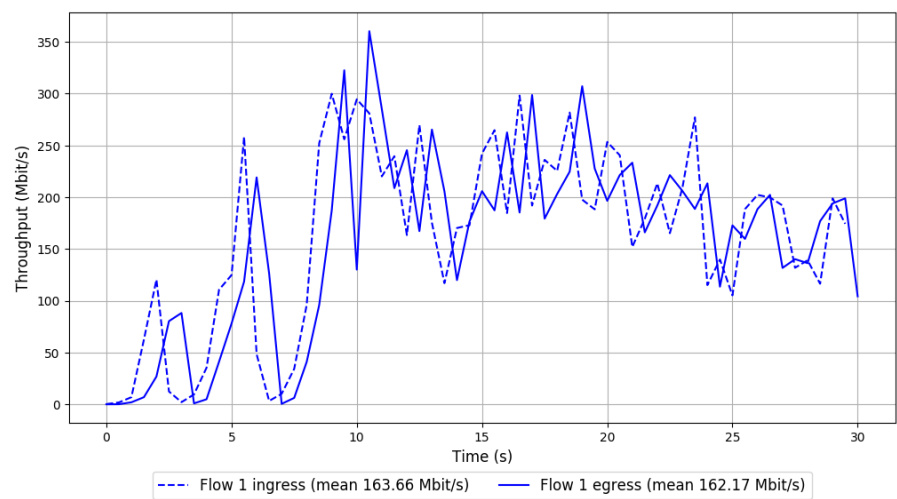


Run 4: Statistics of Verus

Start at: 2018-11-02 19:45:43
End at: 2018-11-02 19:46:13
Local clock offset: 17.853 ms
Remote clock offset: 20.123 ms

Below is generated by plot.py at 2018-11-02 21:34:29
Datalink statistics
-- Total of 1 flow:
Average throughput: 162.17 Mbit/s
95th percentile per-packet one-way delay: 192.074 ms
Loss rate: 1.05%
-- Flow 1:
Average throughput: 162.17 Mbit/s
95th percentile per-packet one-way delay: 192.074 ms
Loss rate: 1.05%

Run 4: Report of Verus — Data Link



Run 5: Statistics of Verus

Start at: 2018-11-02 20:12:15

End at: 2018-11-02 20:12:45

Local clock offset: 7.051 ms

Remote clock offset: 8.216 ms

Below is generated by plot.py at 2018-11-02 21:34:45

Datalink statistics

-- Total of 1 flow:

Average throughput: 136.52 Mbit/s

95th percentile per-packet one-way delay: 194.745 ms

Loss rate: 2.09%

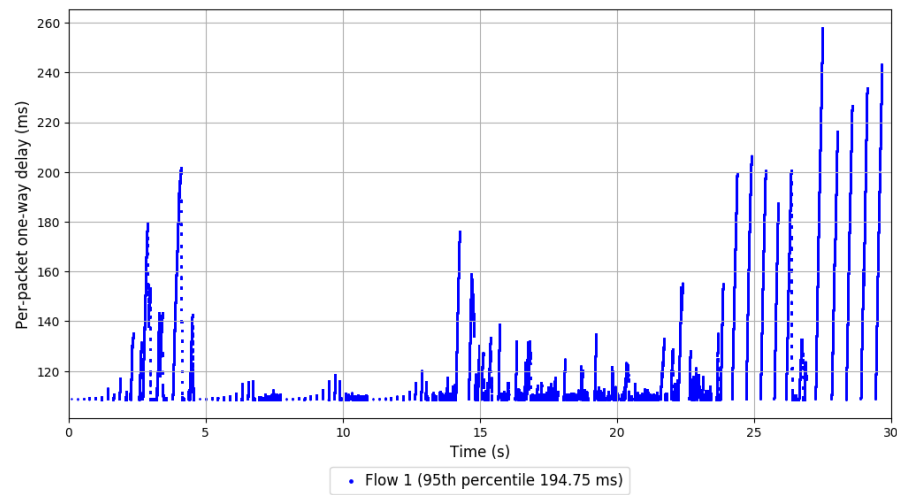
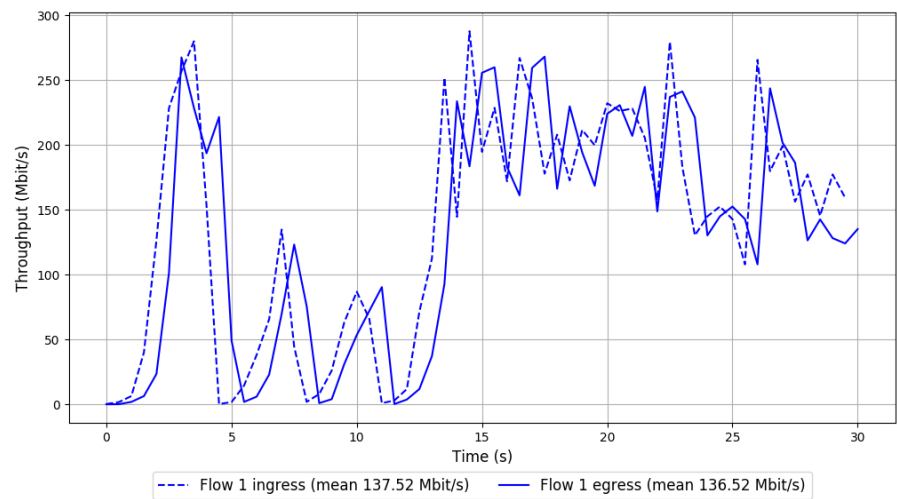
-- Flow 1:

Average throughput: 136.52 Mbit/s

95th percentile per-packet one-way delay: 194.745 ms

Loss rate: 2.09%

Run 5: Report of Verus — Data Link

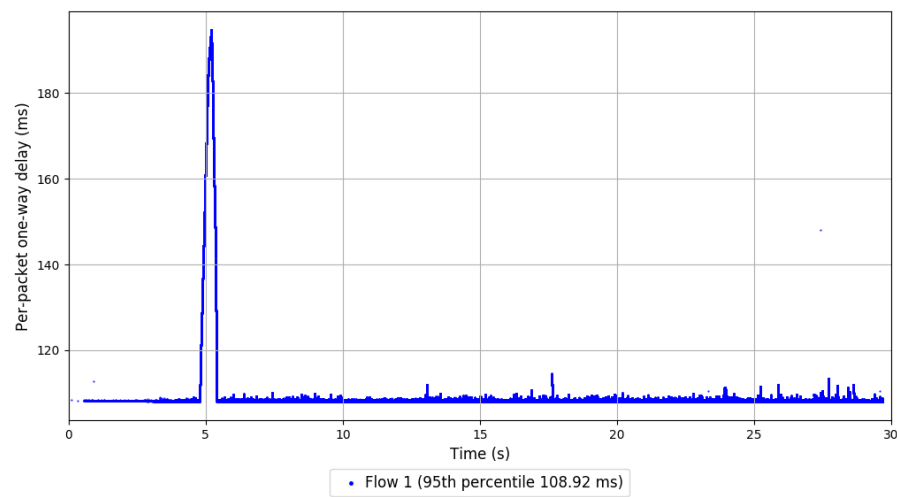
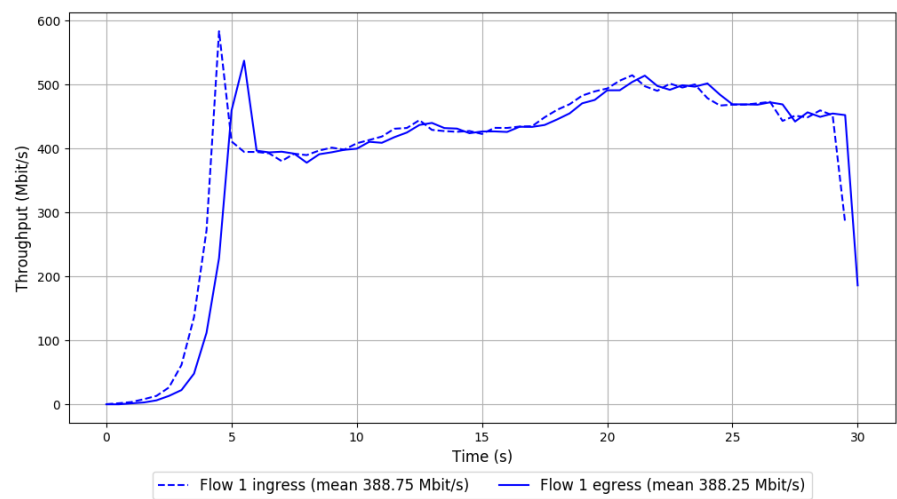


Run 1: Statistics of PCC-Vivace

Start at: 2018-11-02 18:20:48
End at: 2018-11-02 18:21:18
Local clock offset: 15.111 ms
Remote clock offset: 17.889 ms

Below is generated by plot.py at 2018-11-02 21:36:02
Datalink statistics
-- Total of 1 flow:
Average throughput: 388.25 Mbit/s
95th percentile per-packet one-way delay: 108.919 ms
Loss rate: 0.86%
-- Flow 1:
Average throughput: 388.25 Mbit/s
95th percentile per-packet one-way delay: 108.919 ms
Loss rate: 0.86%

Run 1: Report of PCC-Vivace — Data Link



Run 2: Statistics of PCC-Vivace

Start at: 2018-11-02 18:46:54

End at: 2018-11-02 18:47:24

Local clock offset: 16.808 ms

Remote clock offset: 19.851 ms

Below is generated by plot.py at 2018-11-02 21:37:42

Datalink statistics

-- Total of 1 flow:

Average throughput: 376.57 Mbit/s

95th percentile per-packet one-way delay: 155.621 ms

Loss rate: 1.36%

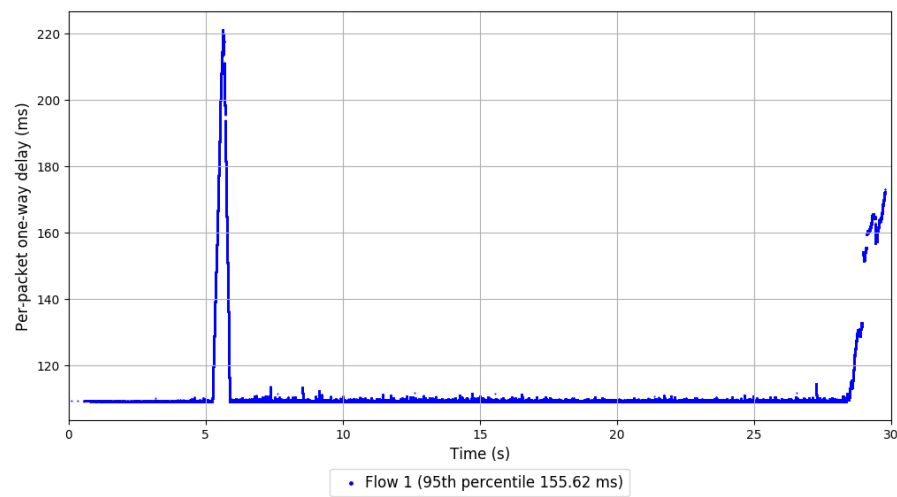
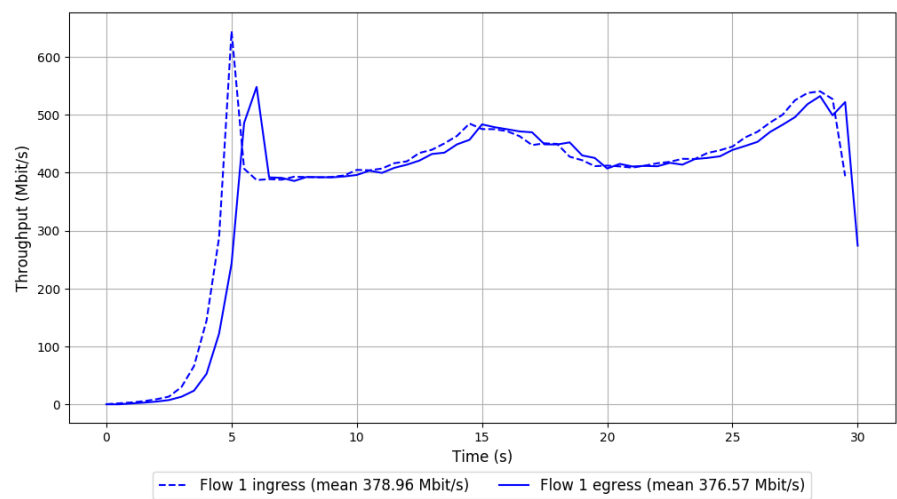
-- Flow 1:

Average throughput: 376.57 Mbit/s

95th percentile per-packet one-way delay: 155.621 ms

Loss rate: 1.36%

Run 2: Report of PCC-Vivace — Data Link

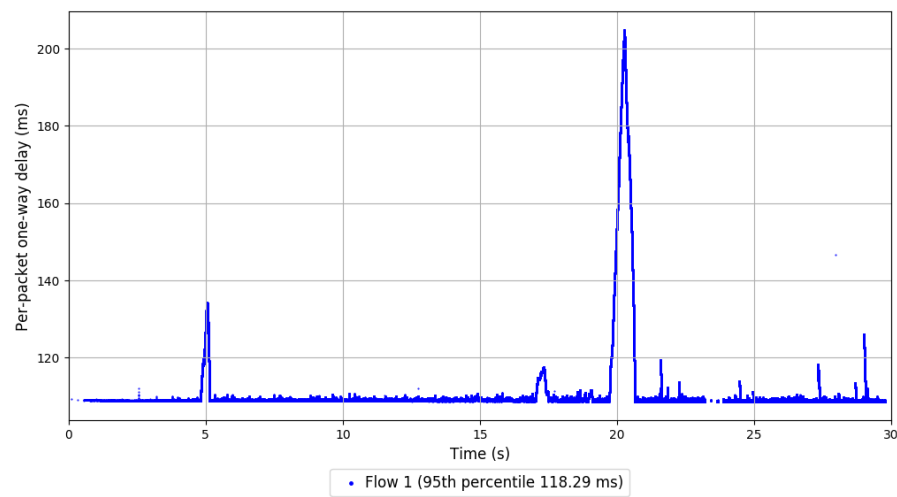
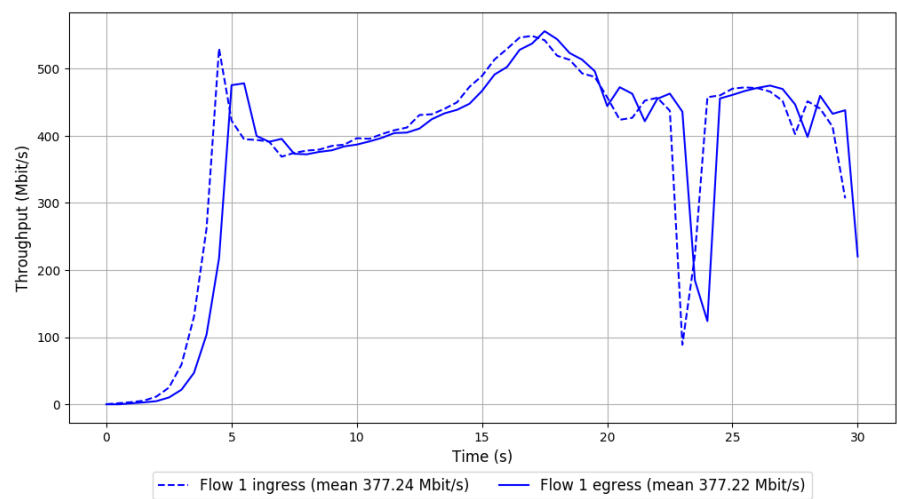


Run 3: Statistics of PCC-Vivace

Start at: 2018-11-02 19:13:20
End at: 2018-11-02 19:13:50
Local clock offset: 29.634 ms
Remote clock offset: 34.809 ms

Below is generated by plot.py at 2018-11-02 21:37:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 377.22 Mbit/s
95th percentile per-packet one-way delay: 118.287 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 377.22 Mbit/s
95th percentile per-packet one-way delay: 118.287 ms
Loss rate: 0.74%

Run 3: Report of PCC-Vivace — Data Link

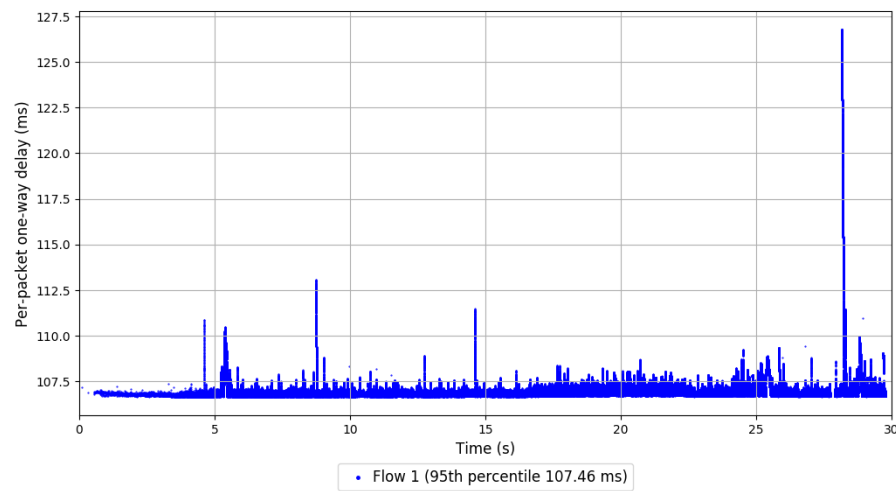
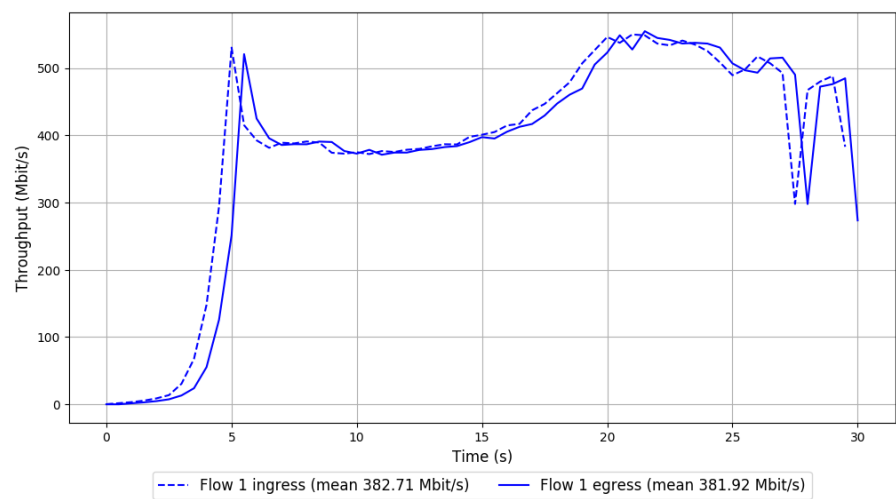


Run 4: Statistics of PCC-Vivace

Start at: 2018-11-02 19:39:37
End at: 2018-11-02 19:40:07
Local clock offset: 13.513 ms
Remote clock offset: 17.452 ms

Below is generated by plot.py at 2018-11-02 21:37:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 381.92 Mbit/s
95th percentile per-packet one-way delay: 107.458 ms
Loss rate: 0.95%
-- Flow 1:
Average throughput: 381.92 Mbit/s
95th percentile per-packet one-way delay: 107.458 ms
Loss rate: 0.95%

Run 4: Report of PCC-Vivace — Data Link



Run 5: Statistics of PCC-Vivace

Start at: 2018-11-02 20:05:55

End at: 2018-11-02 20:06:25

Local clock offset: 6.072 ms

Remote clock offset: 7.454 ms

Below is generated by plot.py at 2018-11-02 21:37:51

Datalink statistics

-- Total of 1 flow:

Average throughput: 372.83 Mbit/s

95th percentile per-packet one-way delay: 111.103 ms

Loss rate: 0.90%

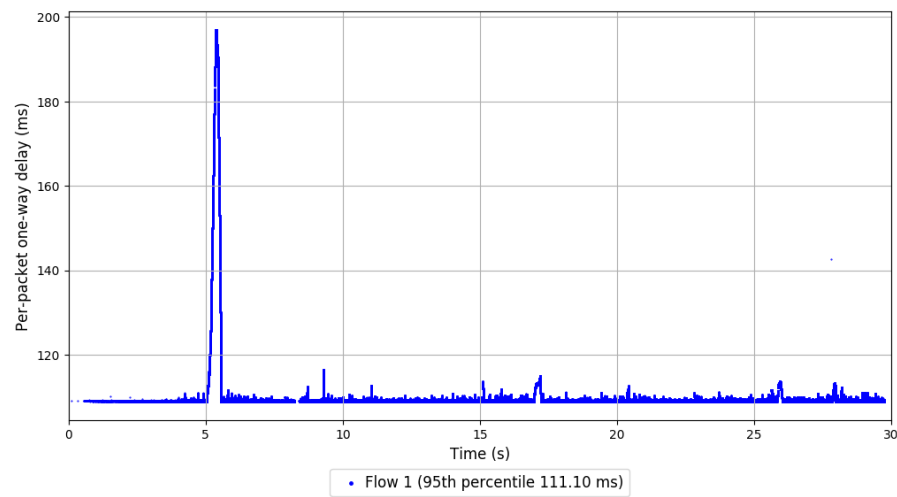
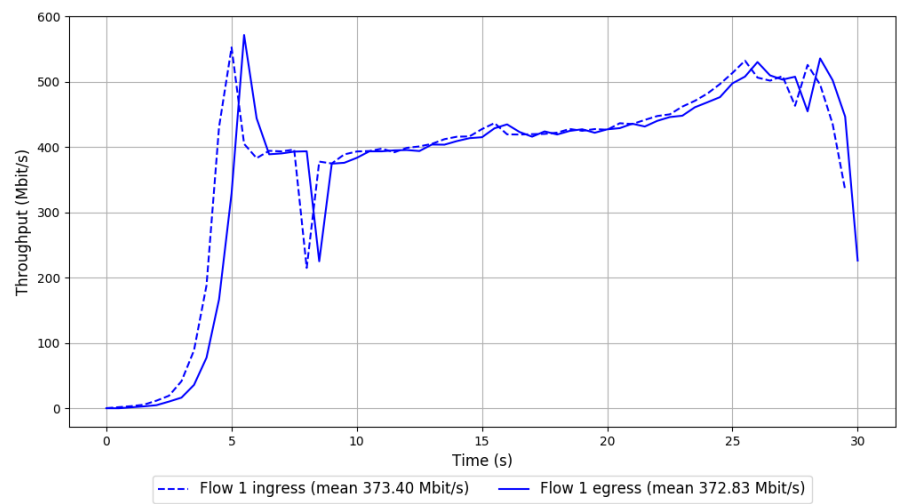
-- Flow 1:

Average throughput: 372.83 Mbit/s

95th percentile per-packet one-way delay: 111.103 ms

Loss rate: 0.90%

Run 5: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-11-02 18:15:39

End at: 2018-11-02 18:16:09

Local clock offset: 7.841 ms

Remote clock offset: 9.201 ms

Below is generated by plot.py at 2018-11-02 21:37:51

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.86 Mbit/s

95th percentile per-packet one-way delay: 108.721 ms

Loss rate: 0.93%

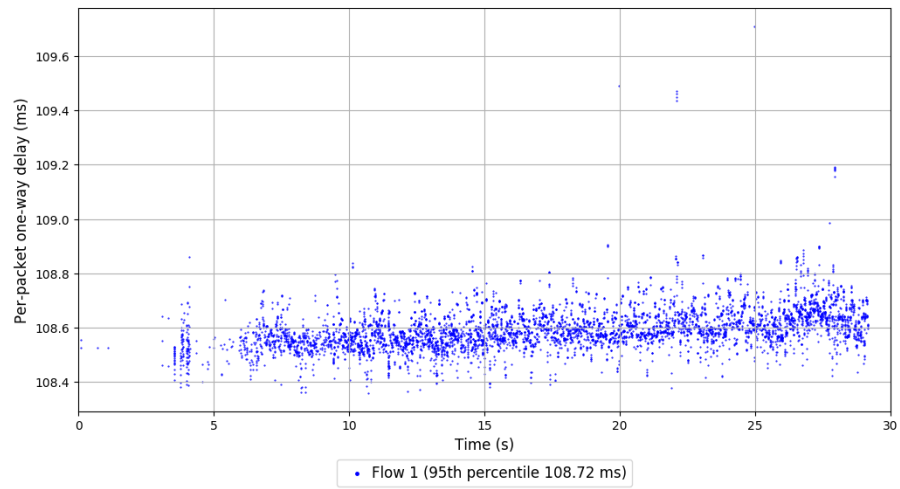
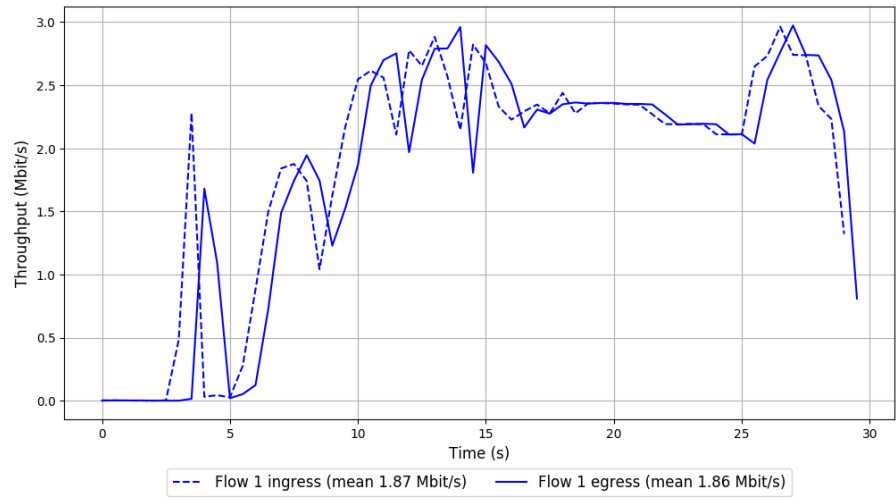
-- Flow 1:

Average throughput: 1.86 Mbit/s

95th percentile per-packet one-way delay: 108.721 ms

Loss rate: 0.93%

Run 1: Report of WebRTC media — Data Link

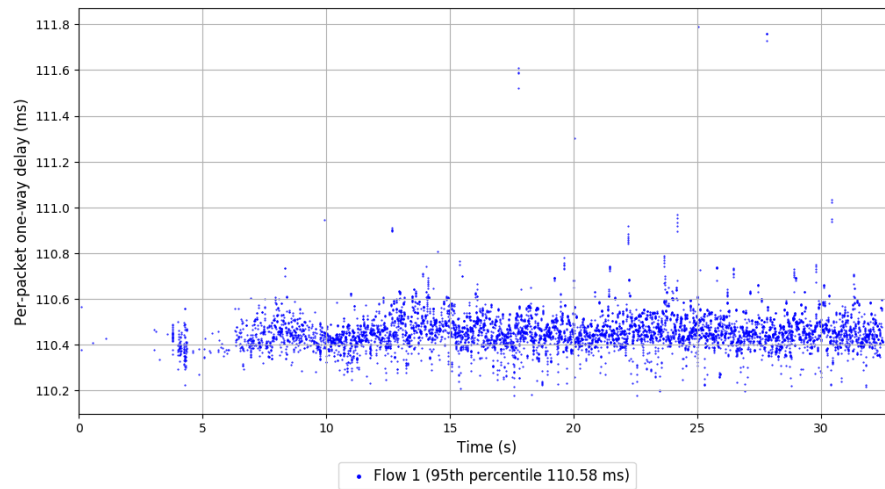
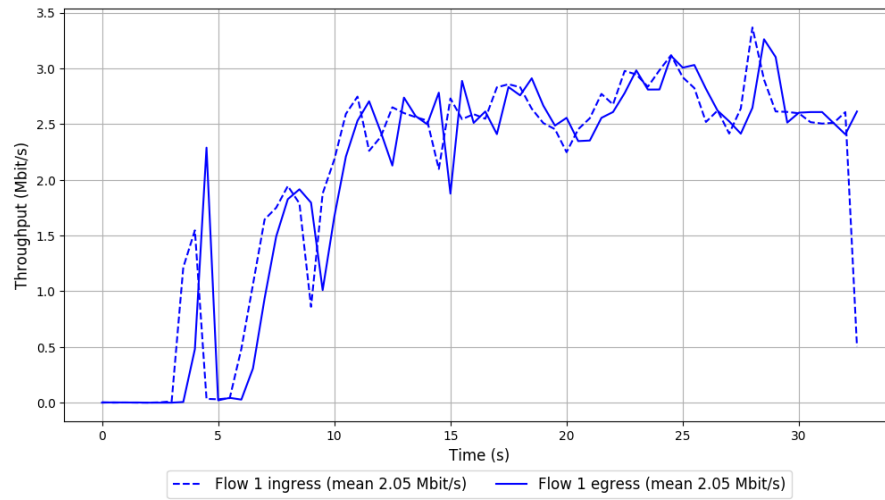


Run 2: Statistics of WebRTC media

Start at: 2018-11-02 18:41:42
End at: 2018-11-02 18:42:12
Local clock offset: 17.982 ms
Remote clock offset: 21.762 ms

Below is generated by plot.py at 2018-11-02 21:37:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.05 Mbit/s
95th percentile per-packet one-way delay: 110.583 ms
Loss rate: 0.83%
-- Flow 1:
Average throughput: 2.05 Mbit/s
95th percentile per-packet one-way delay: 110.583 ms
Loss rate: 0.83%

Run 2: Report of WebRTC media — Data Link

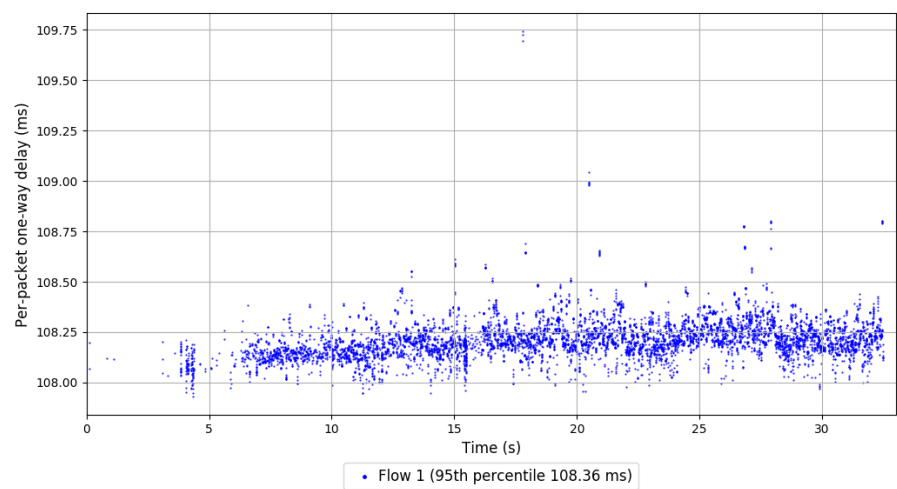
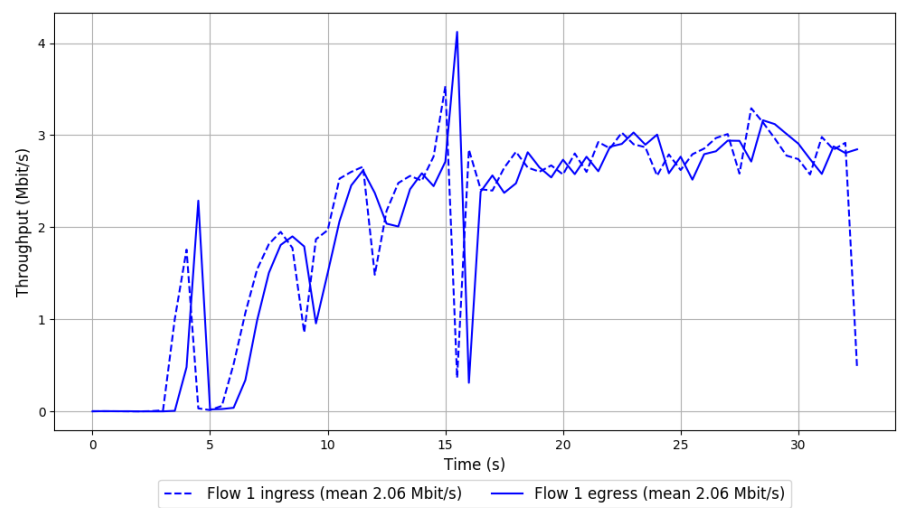


Run 3: Statistics of WebRTC media

Start at: 2018-11-02 19:08:07
End at: 2018-11-02 19:08:37
Local clock offset: 30.448 ms
Remote clock offset: 36.256 ms

Below is generated by plot.py at 2018-11-02 21:37:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.06 Mbit/s
95th percentile per-packet one-way delay: 108.363 ms
Loss rate: 0.92%
-- Flow 1:
Average throughput: 2.06 Mbit/s
95th percentile per-packet one-way delay: 108.363 ms
Loss rate: 0.92%

Run 3: Report of WebRTC media — Data Link

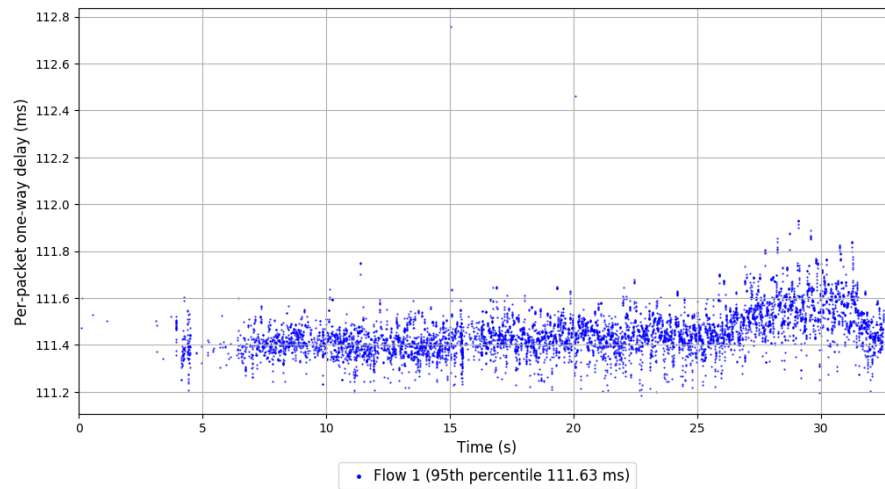
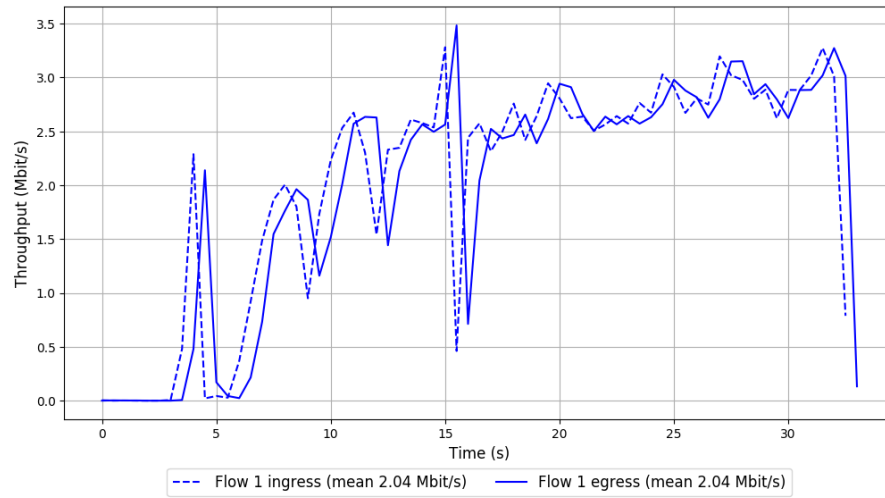


Run 4: Statistics of WebRTC media

Start at: 2018-11-02 19:34:24
End at: 2018-11-02 19:34:54
Local clock offset: 13.557 ms
Remote clock offset: 15.752 ms

Below is generated by plot.py at 2018-11-02 21:37:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.04 Mbit/s
95th percentile per-packet one-way delay: 111.626 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 2.04 Mbit/s
95th percentile per-packet one-way delay: 111.626 ms
Loss rate: 0.98%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-11-02 20:00:42

End at: 2018-11-02 20:01:12

Local clock offset: 6.593 ms

Remote clock offset: 7.706 ms

Below is generated by plot.py at 2018-11-02 21:37:51

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.03 Mbit/s

95th percentile per-packet one-way delay: 108.684 ms

Loss rate: 0.83%

-- Flow 1:

Average throughput: 2.03 Mbit/s

95th percentile per-packet one-way delay: 108.684 ms

Loss rate: 0.83%

Run 5: Report of WebRTC media — Data Link

