

Pantheon Report

Generated at 2018-08-31 04:34:34 (UTC).

Data path: AWS California 2 on **ens5** (*local*) → Mexico on **em1** (*remote*).

Repeated the test of 4 congestion control schemes 3 times.

Each test lasted for 30 seconds running 1 flow.

NTP offsets were measured against **time.stanford.edu** and have been applied to correct the timestamps in logs.

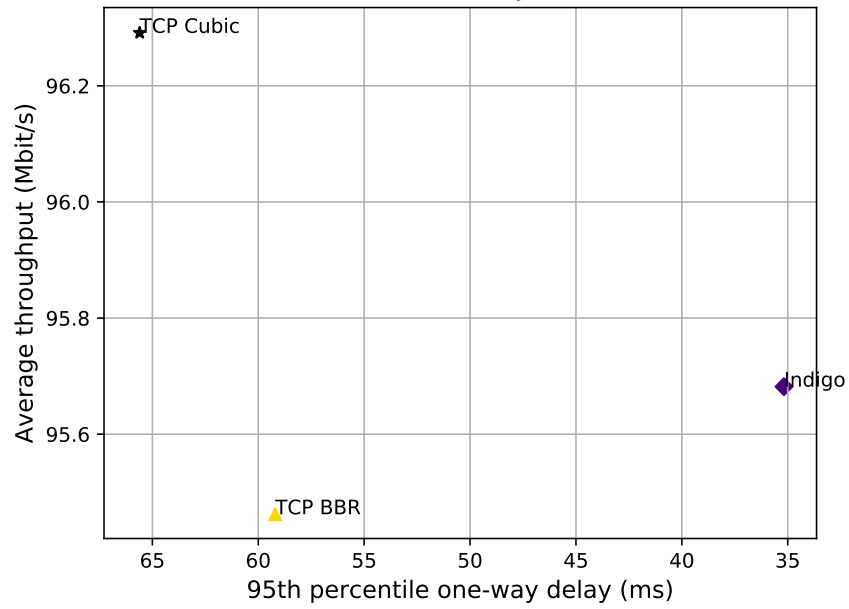
System info:

```
Linux 4.15.0-1020-aws
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
net.ipv4.tcp_mem = 536870912 536870912 536870912
```

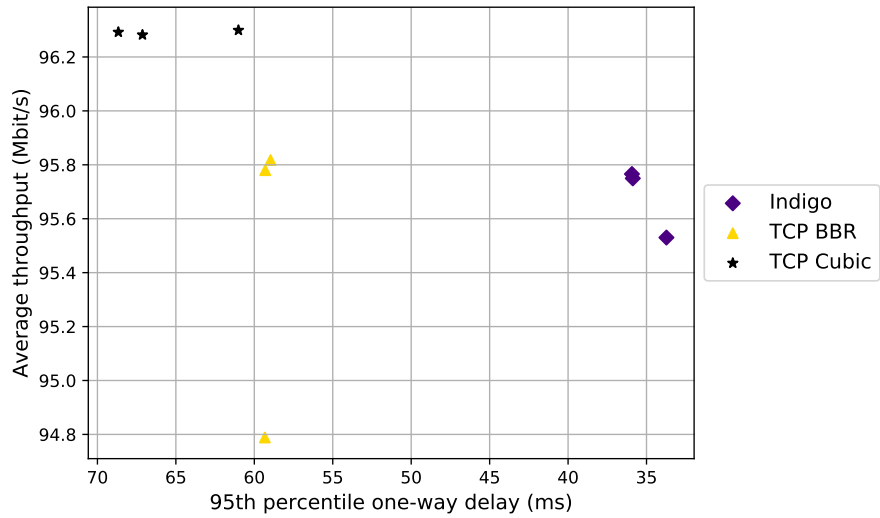
Git summary:

```
branch: muses @ 2de97ca91a065473c29a25fffe63fb137c97a67c
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf5e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecd90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ b59e0d118c50af3579569c462d33045741c85981
third_party/pantheon-tunnel @ cbfce6db5ff5740dafa1771f813cd646339e1952
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
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

test from AWS California 2 to Mexico, 3 runs of 30s each per scheme
(mean of all runs by scheme)



test from AWS California 2 to Mexico, 3 runs of 30s each per scheme



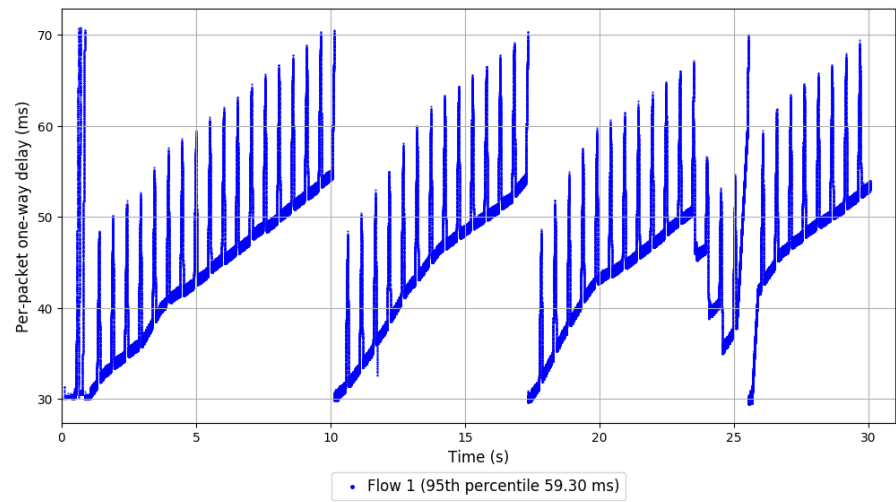
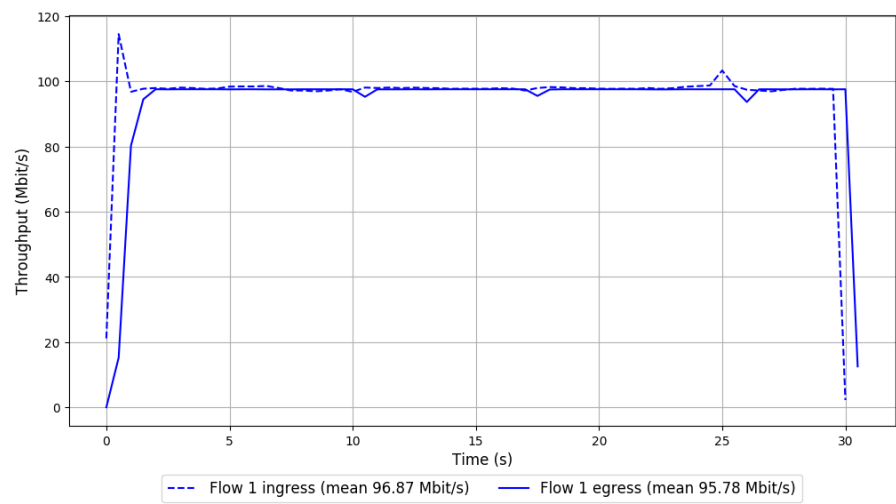
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	95.46	59.20	0.95
TCP Cubic	3	96.29	65.60	0.58
Indigo	3	95.68	35.18	0.00
Muses-25	0	N/A	N/A	N/A

Run 1: Statistics of TCP BBR

Start at: 2018-08-31 04:19:21
End at: 2018-08-31 04:19:51
Local clock offset: -1.653 ms
Remote clock offset: -3.362 ms

Below is generated by plot.py at 2018-08-31 04:34:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 95.78 Mbit/s
95th percentile per-packet one-way delay: 59.304 ms
Loss rate: 1.04%
-- Flow 1:
Average throughput: 95.78 Mbit/s
95th percentile per-packet one-way delay: 59.304 ms
Loss rate: 1.04%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-08-31 04:24:35

End at: 2018-08-31 04:25:05

Local clock offset: -4.74 ms

Remote clock offset: -3.234 ms

Below is generated by plot.py at 2018-08-31 04:34:28

Datalink statistics

-- Total of 1 flow:

Average throughput: 95.82 Mbit/s

95th percentile per-packet one-way delay: 58.966 ms

Loss rate: 0.94%

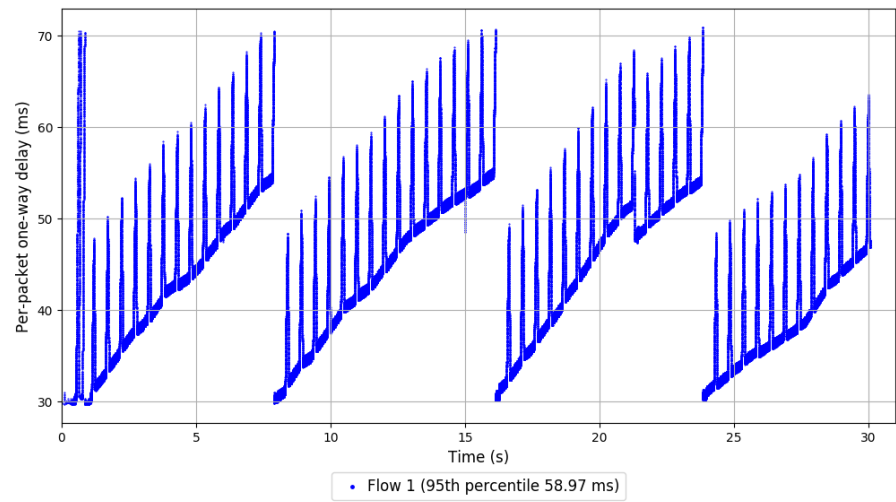
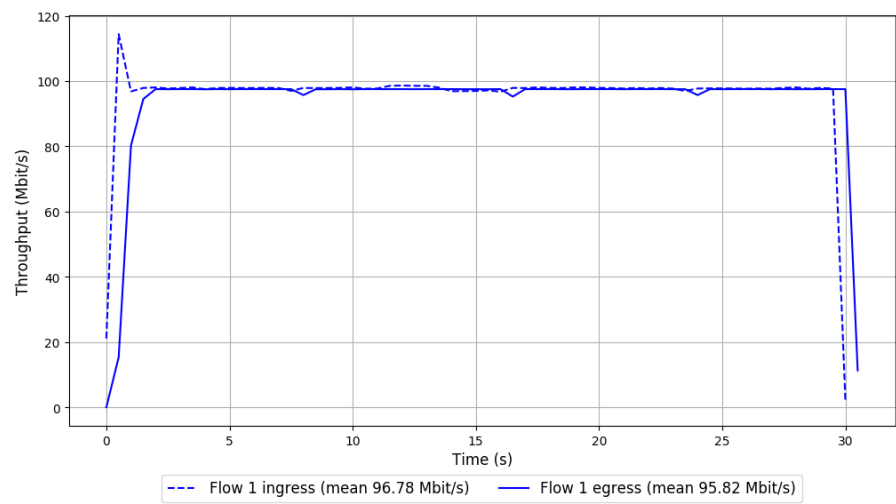
-- Flow 1:

Average throughput: 95.82 Mbit/s

95th percentile per-packet one-way delay: 58.966 ms

Loss rate: 0.94%

Run 2: Report of TCP BBR — Data Link

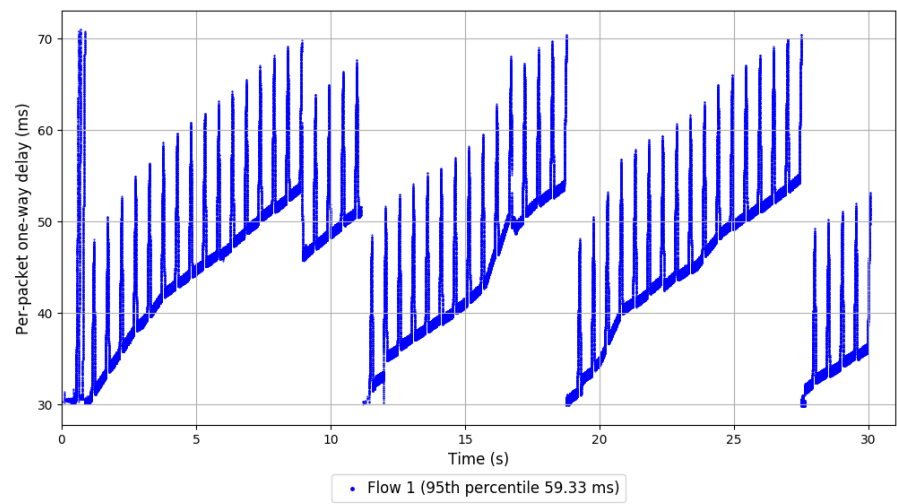
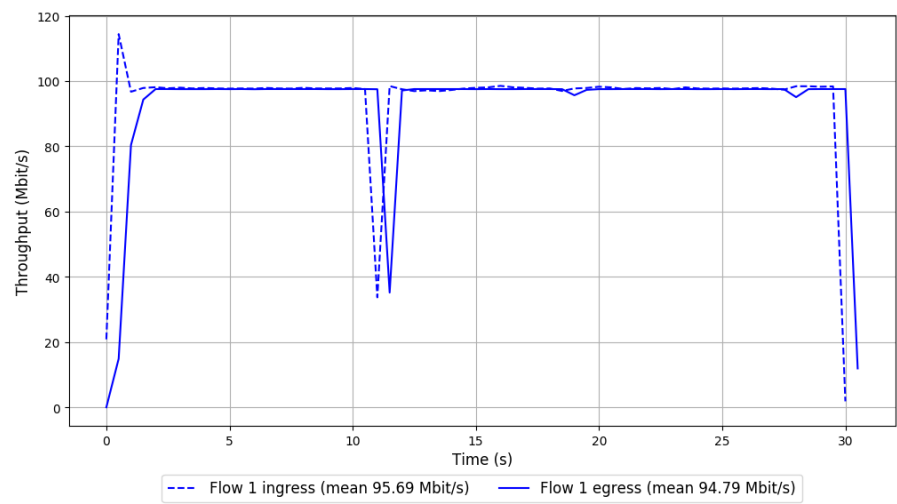


Run 3: Statistics of TCP BBR

Start at: 2018-08-31 04:29:51
End at: 2018-08-31 04:30:21
Local clock offset: -5.063 ms
Remote clock offset: -2.829 ms

Below is generated by plot.py at 2018-08-31 04:34:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 94.79 Mbit/s
95th percentile per-packet one-way delay: 59.328 ms
Loss rate: 0.88%
-- Flow 1:
Average throughput: 94.79 Mbit/s
95th percentile per-packet one-way delay: 59.328 ms
Loss rate: 0.88%

Run 3: Report of TCP BBR — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-08-31 04:18:02

End at: 2018-08-31 04:18:32

Local clock offset: 2.1 ms

Remote clock offset: -3.176 ms

Below is generated by plot.py at 2018-08-31 04:34:28

Datalink statistics

-- Total of 1 flow:

Average throughput: 96.30 Mbit/s

95th percentile per-packet one-way delay: 61.011 ms

Loss rate: 0.57%

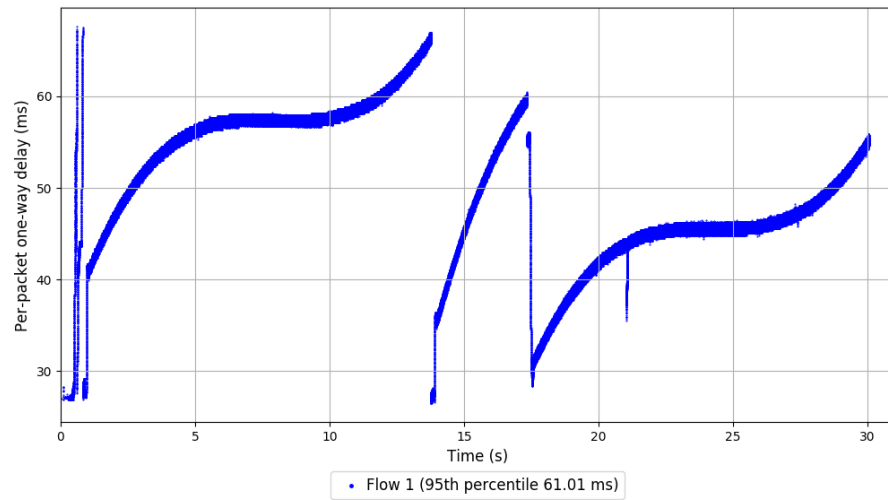
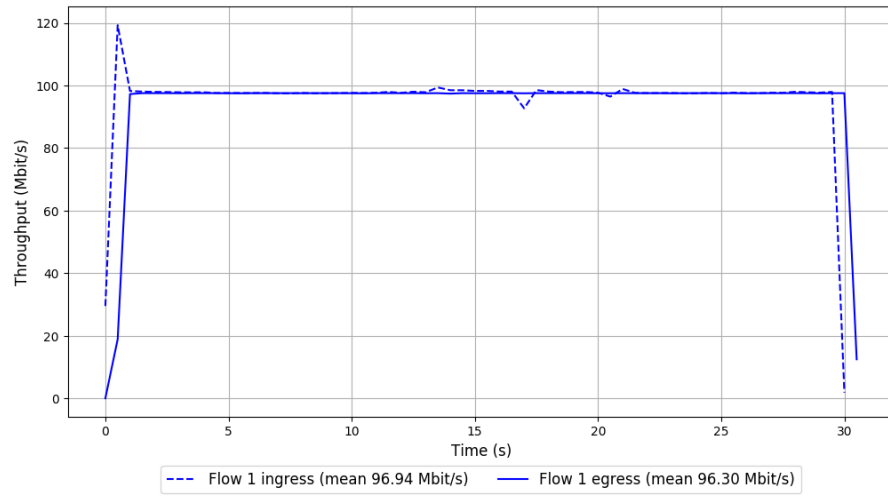
-- Flow 1:

Average throughput: 96.30 Mbit/s

95th percentile per-packet one-way delay: 61.011 ms

Loss rate: 0.57%

Run 1: Report of TCP Cubic — Data Link

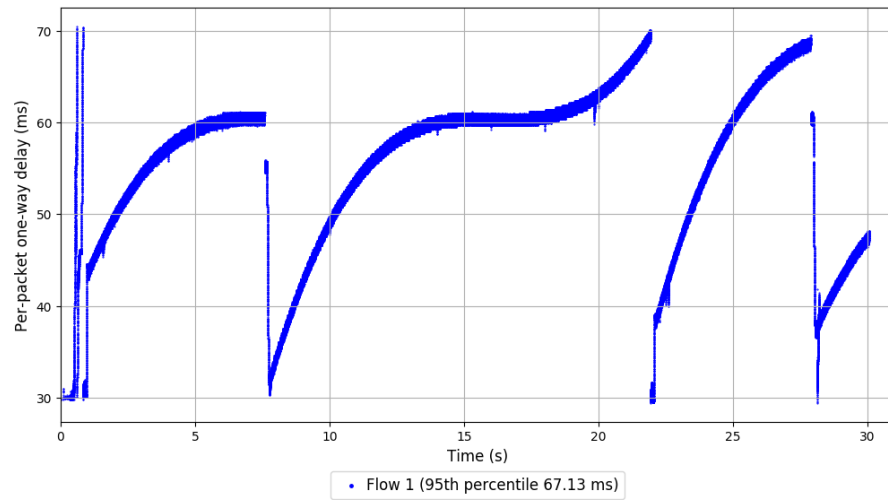
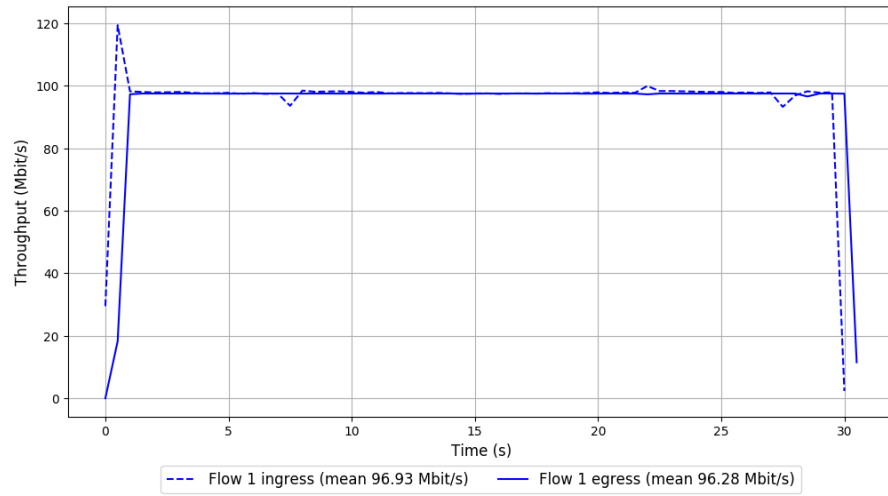


Run 2: Statistics of TCP Cubic

Start at: 2018-08-31 04:23:15
End at: 2018-08-31 04:23:46
Local clock offset: -3.099 ms
Remote clock offset: -3.187 ms

Below is generated by plot.py at 2018-08-31 04:34:29
Datalink statistics
-- Total of 1 flow:
Average throughput: 96.28 Mbit/s
95th percentile per-packet one-way delay: 67.129 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 96.28 Mbit/s
95th percentile per-packet one-way delay: 67.129 ms
Loss rate: 0.61%

Run 2: Report of TCP Cubic — Data Link

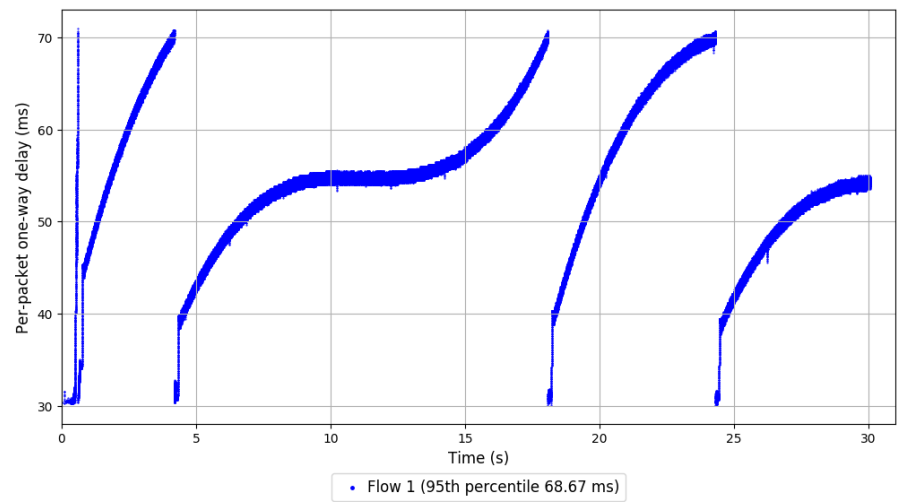
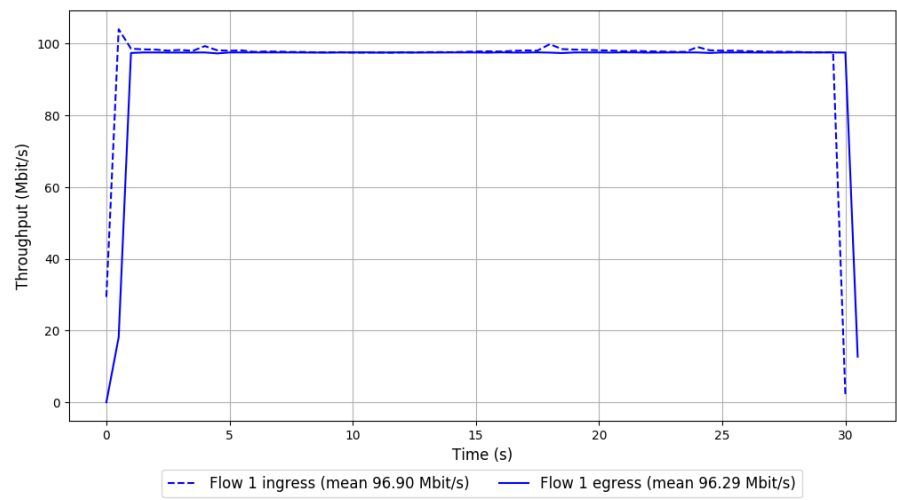


Run 3: Statistics of TCP Cubic

Start at: 2018-08-31 04:28:31
End at: 2018-08-31 04:29:01
Local clock offset: -4.231 ms
Remote clock offset: -2.913 ms

Below is generated by plot.py at 2018-08-31 04:34:29
Datalink statistics
-- Total of 1 flow:
Average throughput: 96.29 Mbit/s
95th percentile per-packet one-way delay: 68.665 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 96.29 Mbit/s
95th percentile per-packet one-way delay: 68.665 ms
Loss rate: 0.55%

Run 3: Report of TCP Cubic — Data Link

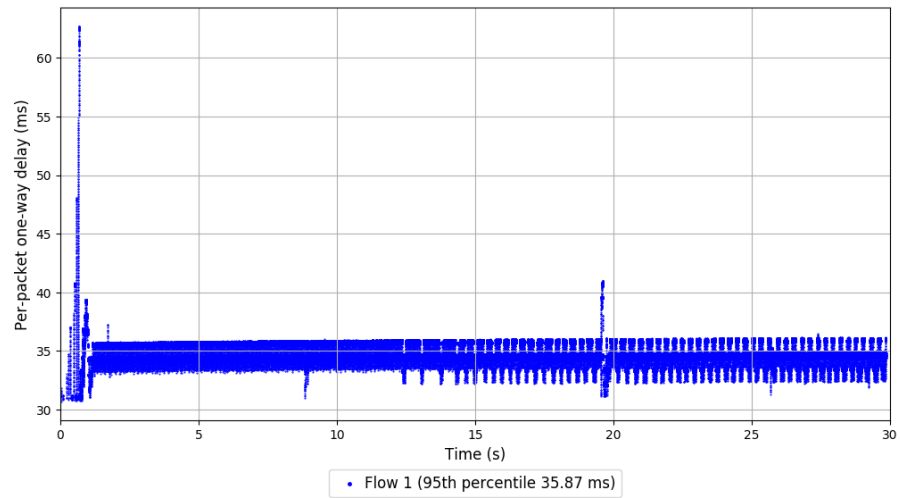
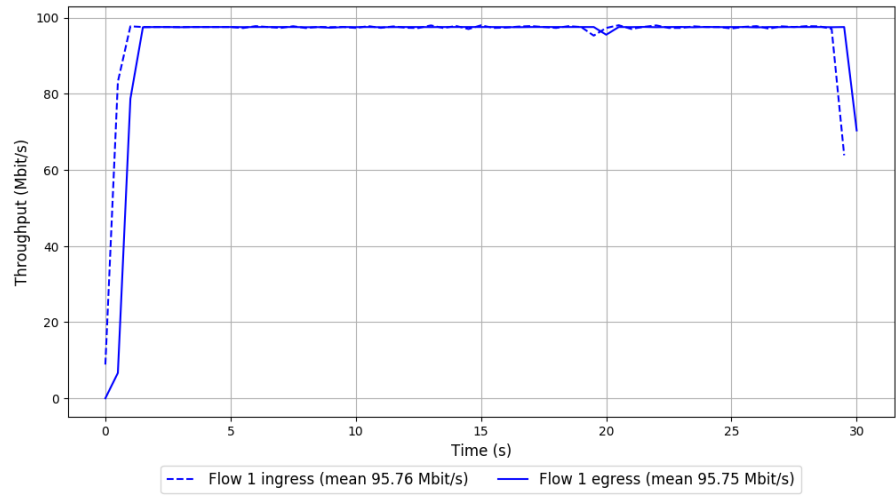


Run 1: Statistics of Indigo

Start at: 2018-08-31 04:20:40
End at: 2018-08-31 04:21:10
Local clock offset: -3.108 ms
Remote clock offset: -3.116 ms

Below is generated by plot.py at 2018-08-31 04:34:29
Datalink statistics
-- Total of 1 flow:
Average throughput: 95.75 Mbit/s
95th percentile per-packet one-way delay: 35.874 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 95.75 Mbit/s
95th percentile per-packet one-way delay: 35.874 ms
Loss rate: 0.00%

Run 1: Report of Indigo — Data Link

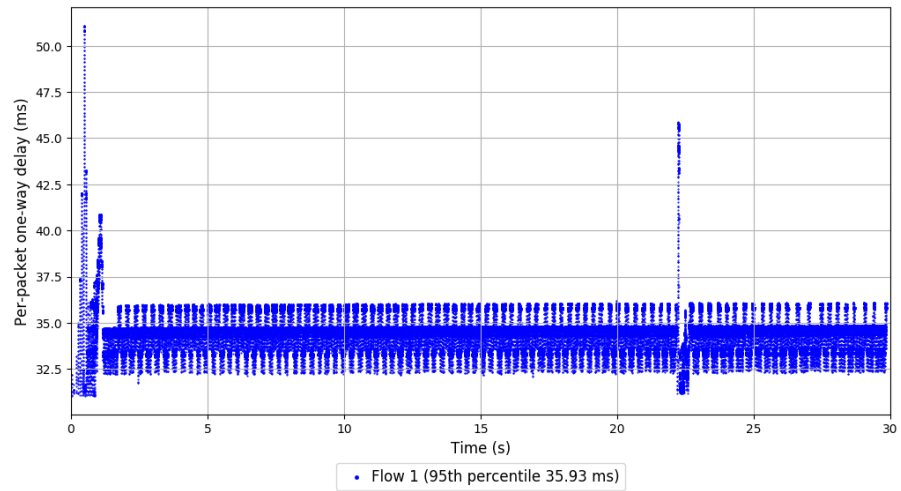
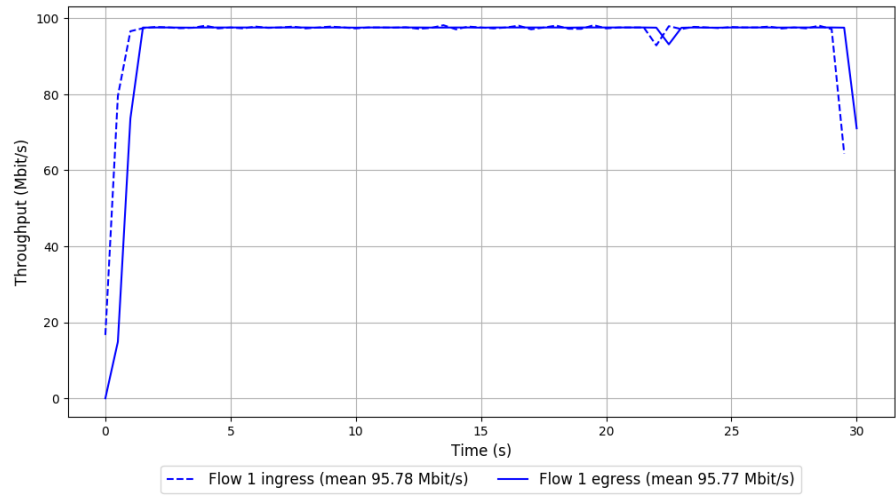


Run 2: Statistics of Indigo

Start at: 2018-08-31 04:25:55
End at: 2018-08-31 04:26:25
Local clock offset: -4.513 ms
Remote clock offset: -3.014 ms

Below is generated by plot.py at 2018-08-31 04:34:29
Datalink statistics
-- Total of 1 flow:
Average throughput: 95.77 Mbit/s
95th percentile per-packet one-way delay: 35.929 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 95.77 Mbit/s
95th percentile per-packet one-way delay: 35.929 ms
Loss rate: 0.00%

Run 2: Report of Indigo — Data Link

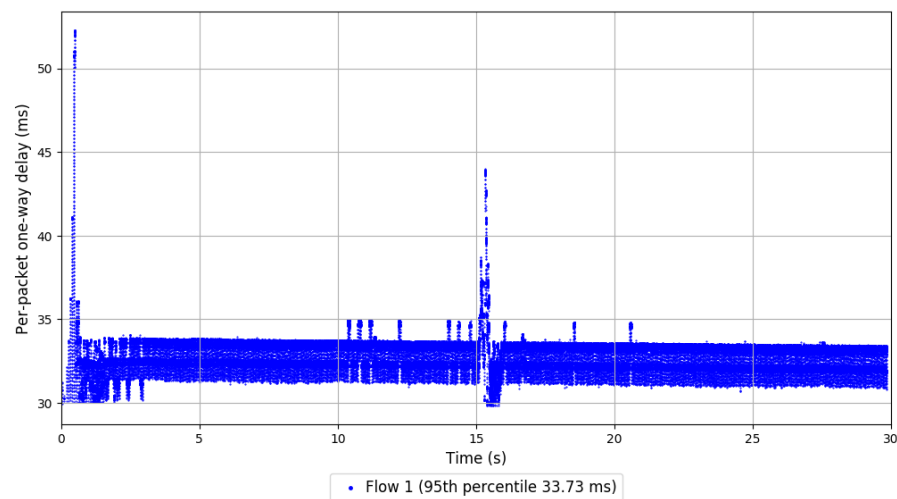
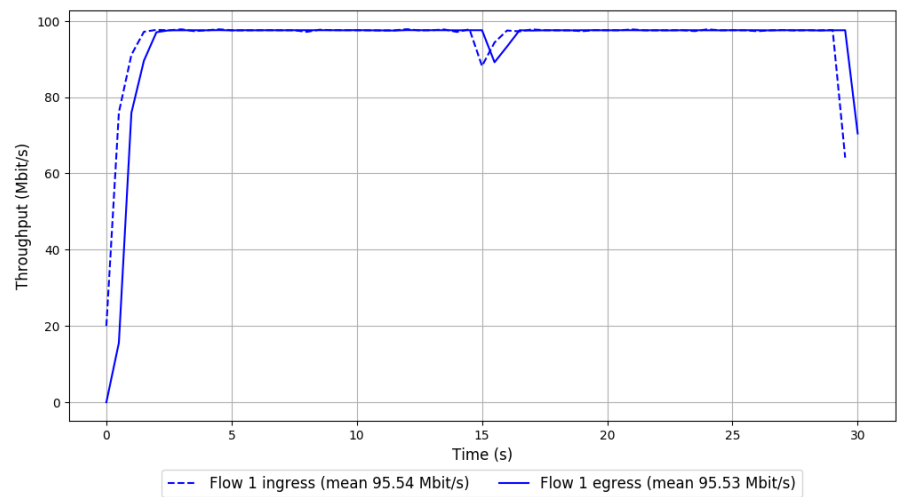


Run 3: Statistics of Indigo

Start at: 2018-08-31 04:31:11
End at: 2018-08-31 04:31:41
Local clock offset: -6.136 ms
Remote clock offset: -2.789 ms

Below is generated by plot.py at 2018-08-31 04:34:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 95.53 Mbit/s
95th percentile per-packet one-way delay: 33.730 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 95.53 Mbit/s
95th percentile per-packet one-way delay: 33.730 ms
Loss rate: 0.00%

Run 3: Report of Indigo — Data Link



Run 1: Statistics of Muses-25

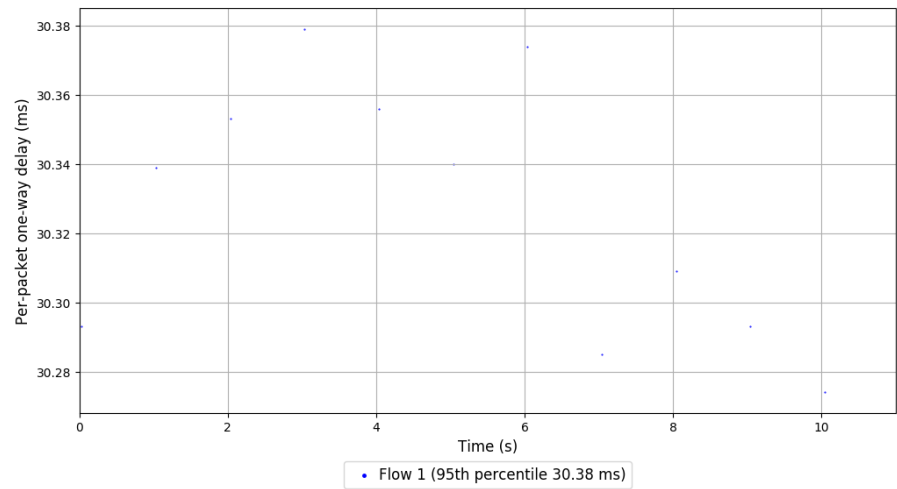
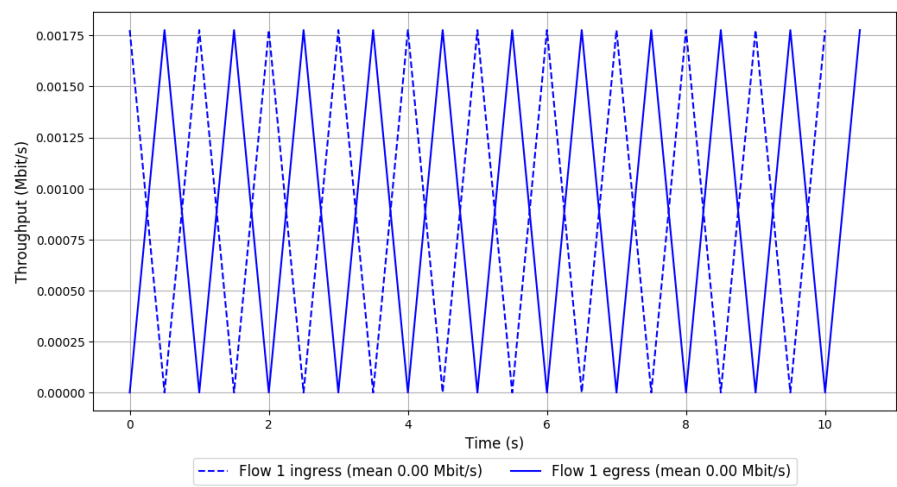
Start at: 2018-08-31 04:22:00

End at: 2018-08-31 04:22:30

Local clock offset: -2.489 ms

Remote clock offset: -3.105 ms

Run 1: Report of Muses-25 — Data Link



Run 2: Statistics of Muses-25

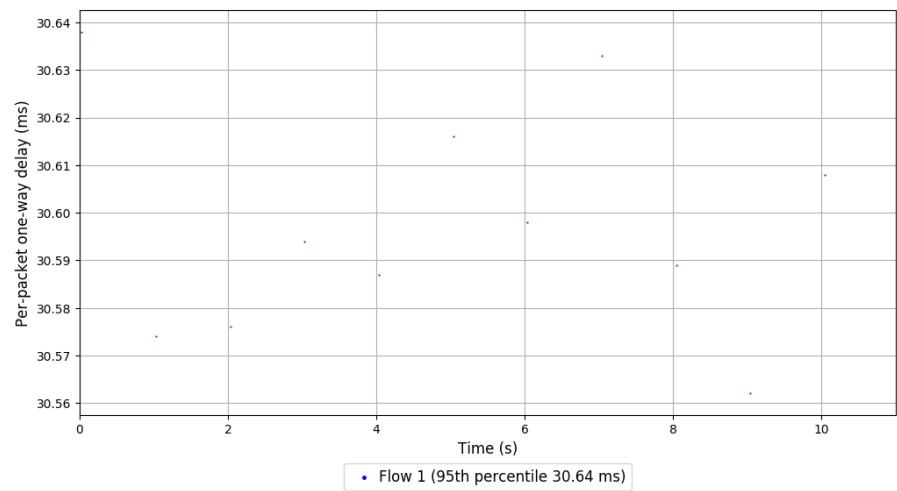
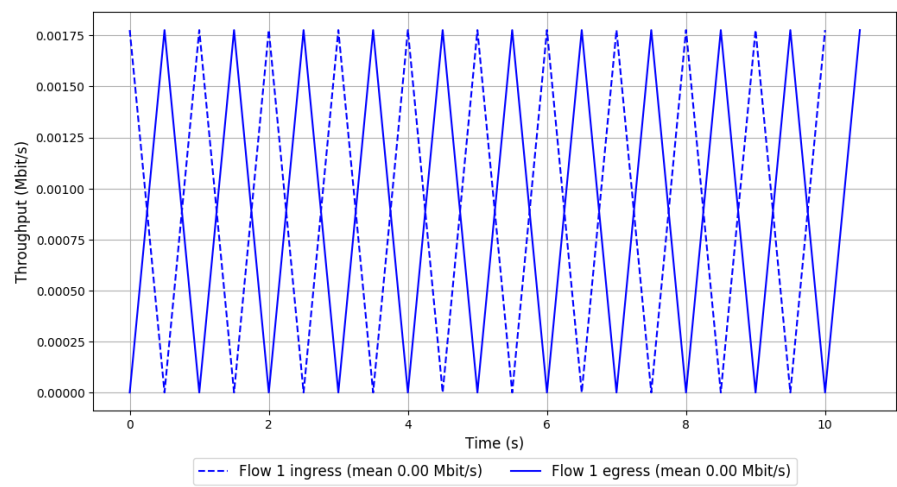
Start at: 2018-08-31 04:27:16

End at: 2018-08-31 04:27:46

Local clock offset: -3.938 ms

Remote clock offset: -2.86 ms

Run 2: Report of Muses-25 — Data Link



Run 3: Statistics of Muses-25

Start at: 2018-08-31 04:32:32

End at: 2018-08-31 04:33:02

Local clock offset: -7.343 ms

Remote clock offset: -2.805 ms

Run 3: Report of Muses-25 — Data Link

