

Pantheon Report

Generated at 2018-08-28 08:55:48 (UTC).

Data path: AWS Brazil 1 on `ens5` (*local*) → Brazil on `p4p1` (*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 `gps.ntp.br` and have been applied to correct the timestamps in logs.

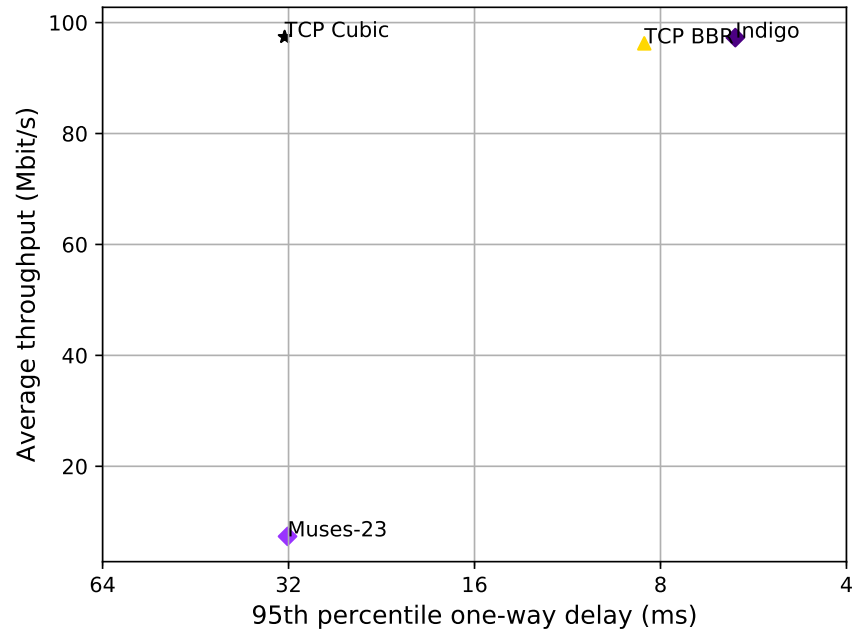
System info:

```
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
```

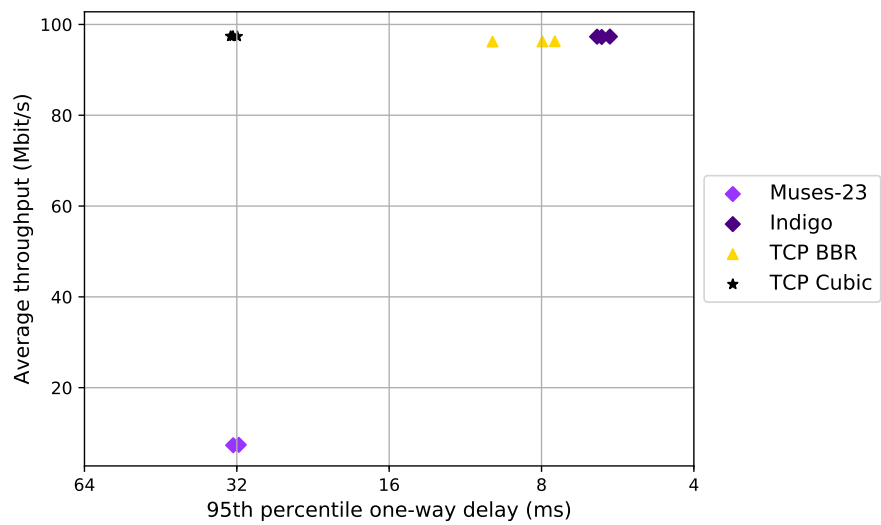
Git summary:

```
branch: muses-23 @ 88af05c5b0b7531637ca401951507a2fde628df6
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ b261c9e99c63be452bc16f94ce0caa99a4c9d39a
third_party/pantheon-tunnel @ cbfce6db5ff5740dafe1771f813cd646339e1952
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 Brazil 1 to Brazil, 3 runs of 30s each per scheme
(mean of all runs by scheme)



test from AWS Brazil 1 to Brazil, 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	96.25	8.50	0.00
TCP Cubic	3	97.41	32.47	0.01
Indigo	3	97.29	6.05	0.00
Muses-23	2	7.37	32.12	33.93

Run 1: Statistics of TCP BBR

Start at: 2018-08-28 08:43:45

End at: 2018-08-28 08:44:15

Local clock offset: -4.532 ms

Remote clock offset: 0.023 ms

Below is generated by plot.py at 2018-08-28 08:55:38

Datalink statistics

-- Total of 1 flow:

Average throughput: 96.22 Mbit/s

95th percentile per-packet one-way delay: 9.997 ms

Loss rate: 0.00%

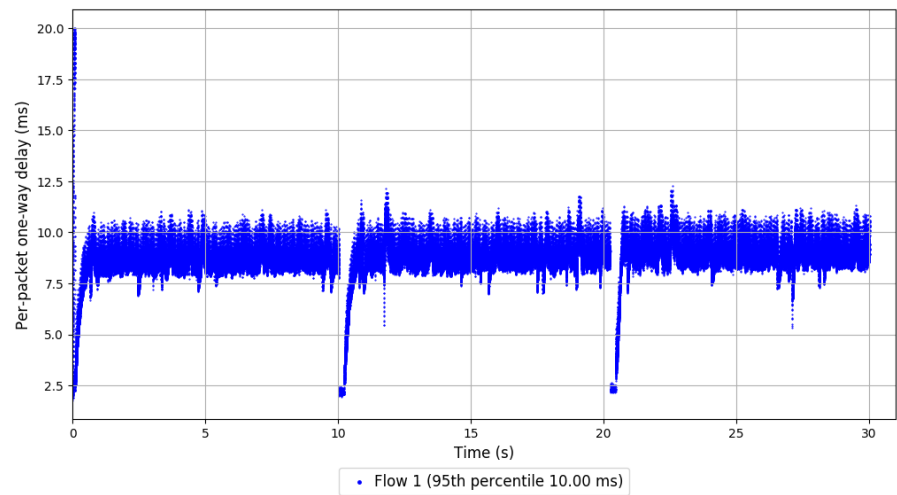
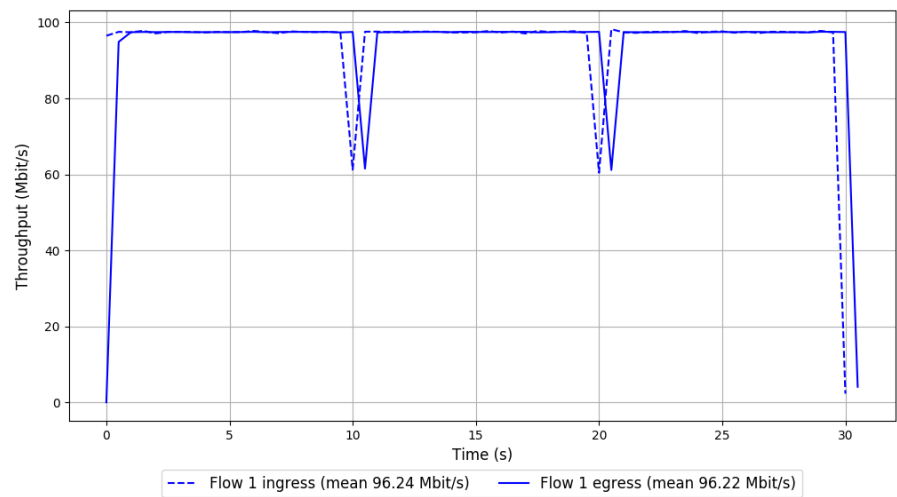
-- Flow 1:

Average throughput: 96.22 Mbit/s

95th percentile per-packet one-way delay: 9.997 ms

Loss rate: 0.00%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-08-28 08:48:11

End at: 2018-08-28 08:48:41

Local clock offset: -2.974 ms

Remote clock offset: 0.082 ms

Below is generated by plot.py at 2018-08-28 08:55:39

Datalink statistics

-- Total of 1 flow:

Average throughput: 96.25 Mbit/s

95th percentile per-packet one-way delay: 7.968 ms

Loss rate: 0.00%

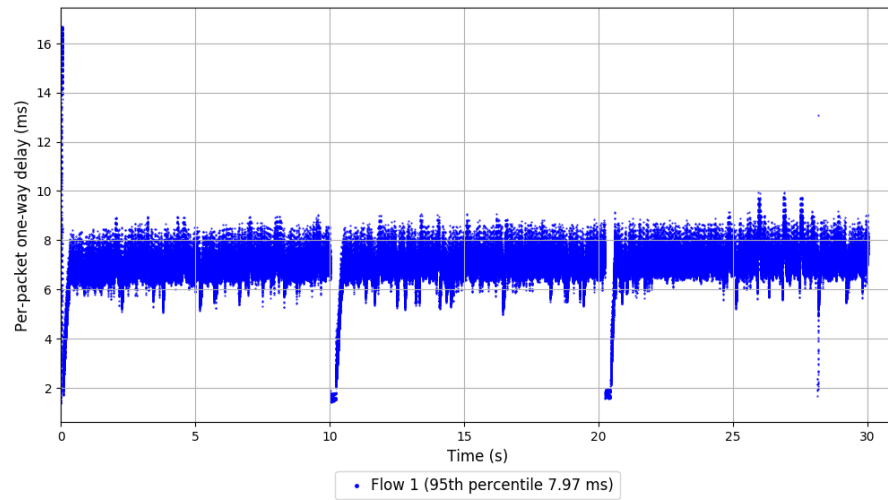
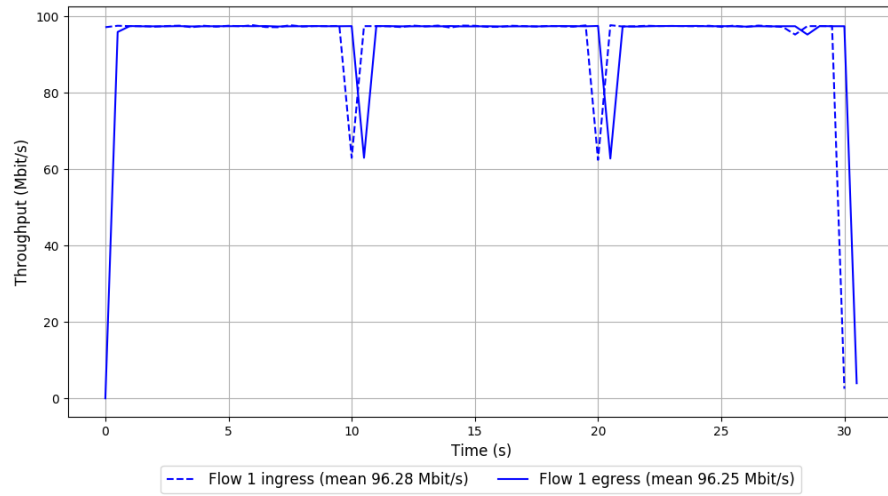
-- Flow 1:

Average throughput: 96.25 Mbit/s

95th percentile per-packet one-way delay: 7.968 ms

Loss rate: 0.00%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-08-28 08:52:38

End at: 2018-08-28 08:53:08

Local clock offset: -0.759 ms

Remote clock offset: 0.094 ms

Below is generated by plot.py at 2018-08-28 08:55:39

Datalink statistics

-- Total of 1 flow:

Average throughput: 96.29 Mbit/s

95th percentile per-packet one-way delay: 7.531 ms

Loss rate: 0.00%

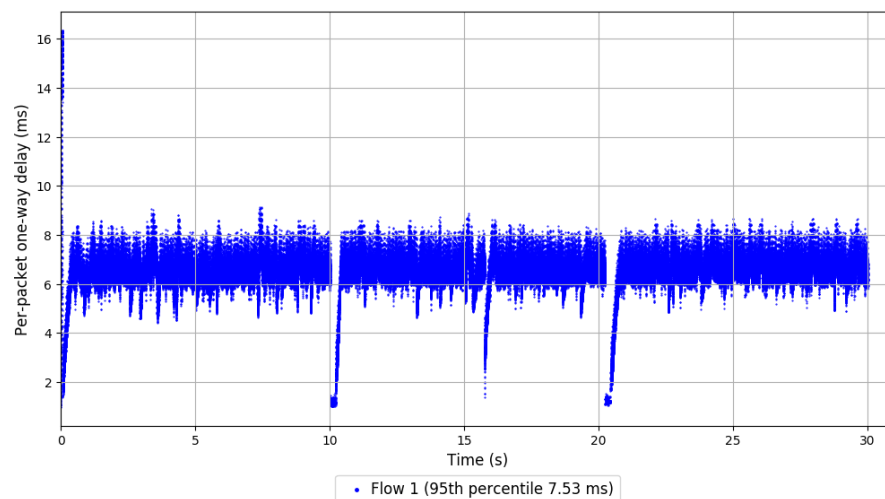
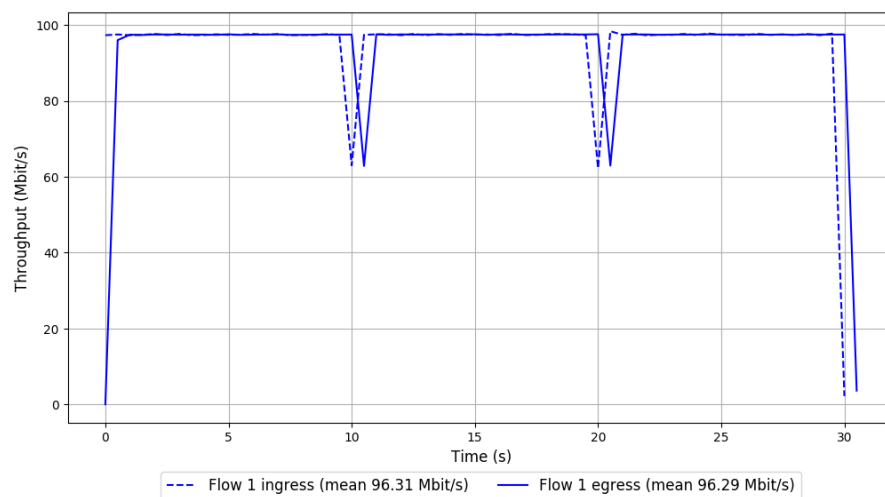
-- Flow 1:

Average throughput: 96.29 Mbit/s

95th percentile per-packet one-way delay: 7.531 ms

Loss rate: 0.00%

Run 3: Report of TCP BBR — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-08-28 08:44:52

End at: 2018-08-28 08:45:22

Local clock offset: -5.312 ms

Remote clock offset: 0.101 ms

Below is generated by plot.py at 2018-08-28 08:55:40

Datalink statistics

-- Total of 1 flow:

Average throughput: 97.38 Mbit/s

95th percentile per-packet one-way delay: 31.926 ms

Loss rate: 0.01%

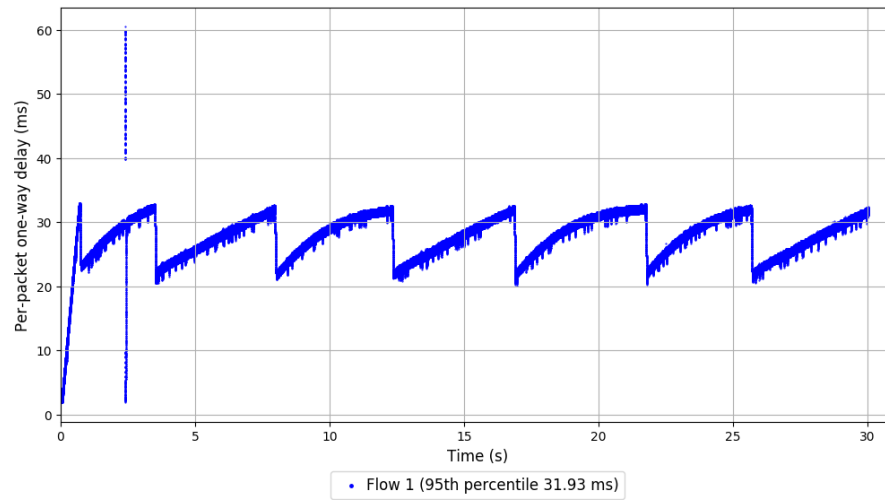
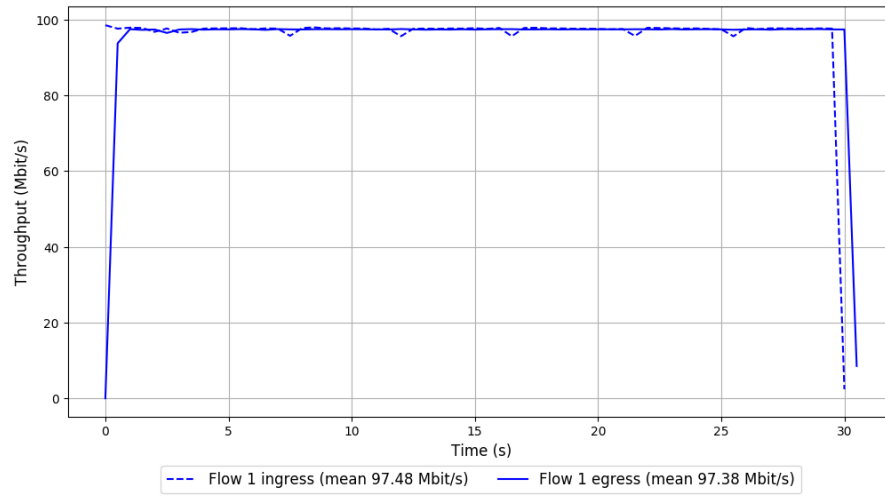
-- Flow 1:

Average throughput: 97.38 Mbit/s

95th percentile per-packet one-way delay: 31.926 ms

Loss rate: 0.01%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2018-08-28 08:49:19

End at: 2018-08-28 08:49:49

Local clock offset: -2.131 ms

Remote clock offset: 0.104 ms

Below is generated by plot.py at 2018-08-28 08:55:40

Datalink statistics

-- Total of 1 flow:

Average throughput: 97.41 Mbit/s

95th percentile per-packet one-way delay: 32.911 ms

Loss rate: 0.01%

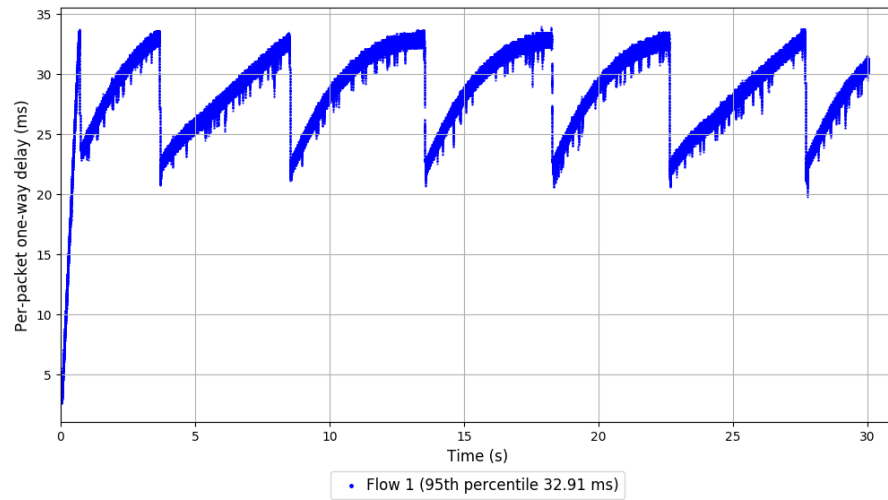
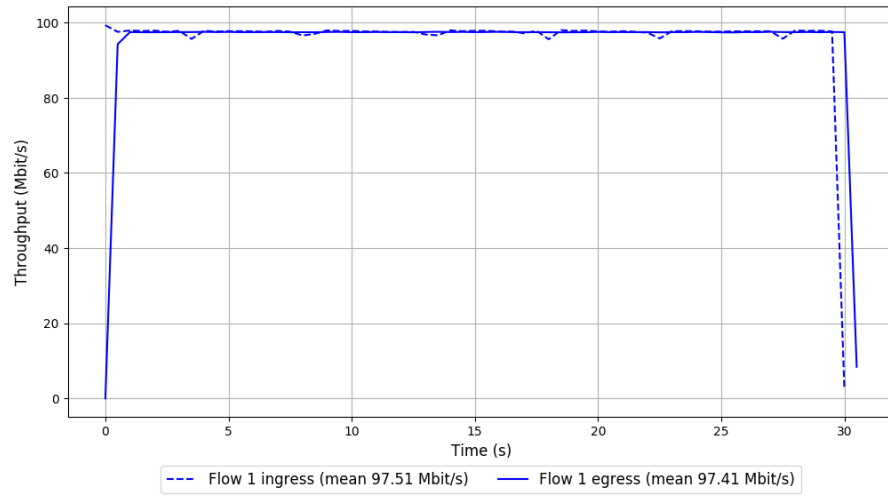
-- Flow 1:

Average throughput: 97.41 Mbit/s

95th percentile per-packet one-way delay: 32.911 ms

Loss rate: 0.01%

Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2018-08-28 08:53:45

End at: 2018-08-28 08:54:15

Local clock offset: -0.482 ms

Remote clock offset: 0.1 ms

Below is generated by plot.py at 2018-08-28 08:55:42

Datalink statistics

-- Total of 1 flow:

Average throughput: 97.43 Mbit/s

95th percentile per-packet one-way delay: 32.564 ms

Loss rate: 0.01%

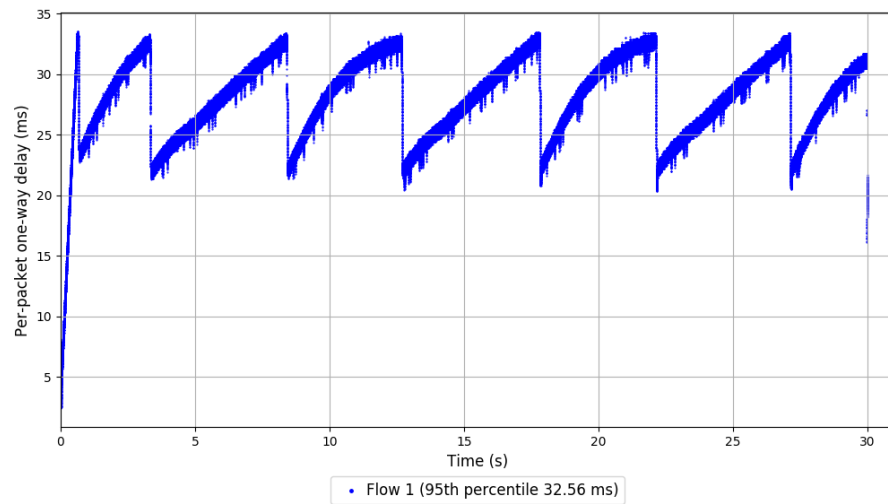
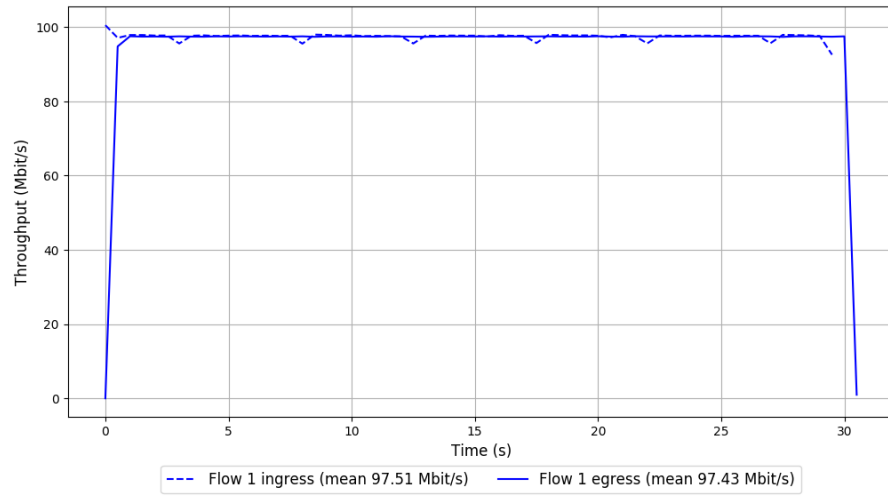
-- Flow 1:

Average throughput: 97.43 Mbit/s

95th percentile per-packet one-way delay: 32.564 ms

Loss rate: 0.01%

Run 3: Report of TCP Cubic — Data Link

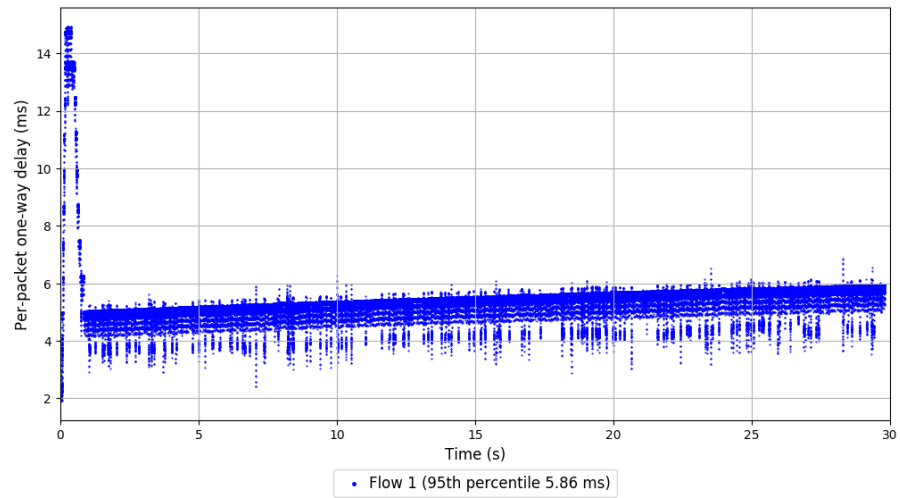
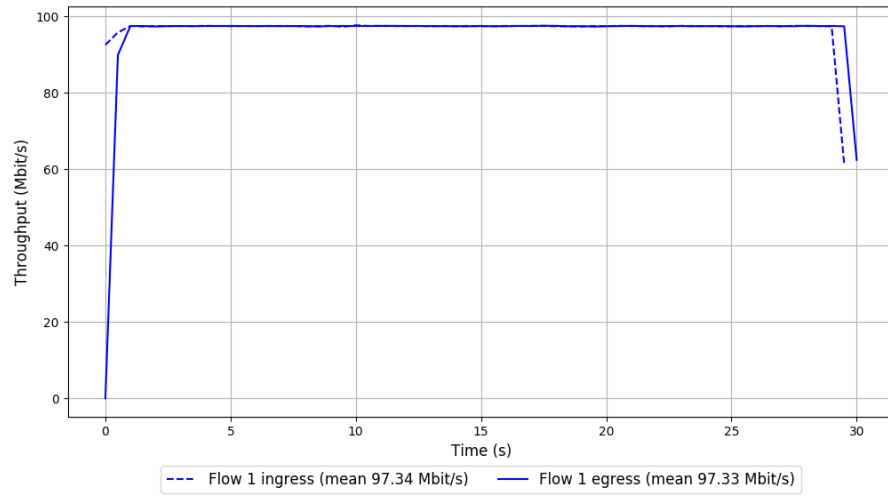


```
Run 1: Statistics of Indigo

Start at: 2018-08-28 08:42:36
End at: 2018-08-28 08:43:07
Local clock offset: -7.652 ms
Remote clock offset: 0.1 ms

# Below is generated by plot.py at 2018-08-28 08:55:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.33 Mbit/s
95th percentile per-packet one-way delay: 5.861 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 97.33 Mbit/s
95th percentile per-packet one-way delay: 5.861 ms
Loss rate: 0.00%
```

Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2018-08-28 08:47:03

End at: 2018-08-28 08:47:33

Local clock offset: -4.037 ms

Remote clock offset: 0.106 ms

Below is generated by plot.py at 2018-08-28 08:55:42

Datalink statistics

-- Total of 1 flow:

Average throughput: 97.24 Mbit/s

95th percentile per-packet one-way delay: 6.084 ms

Loss rate: 0.00%

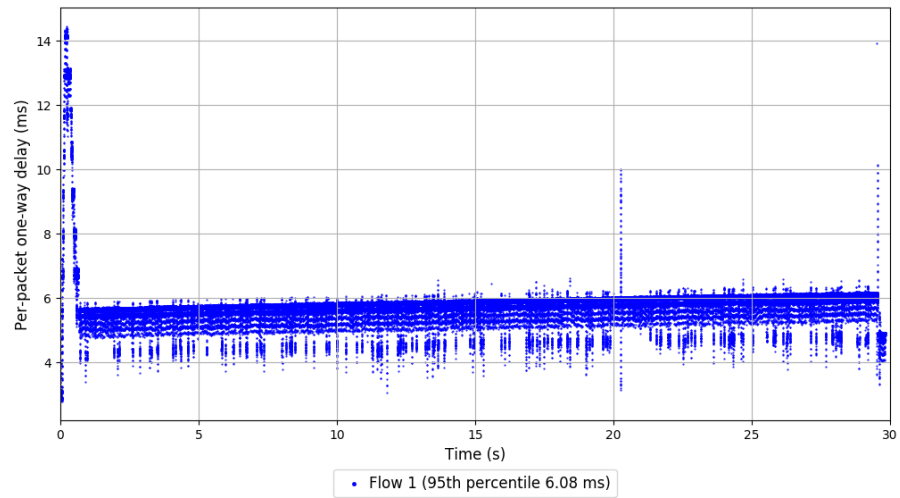
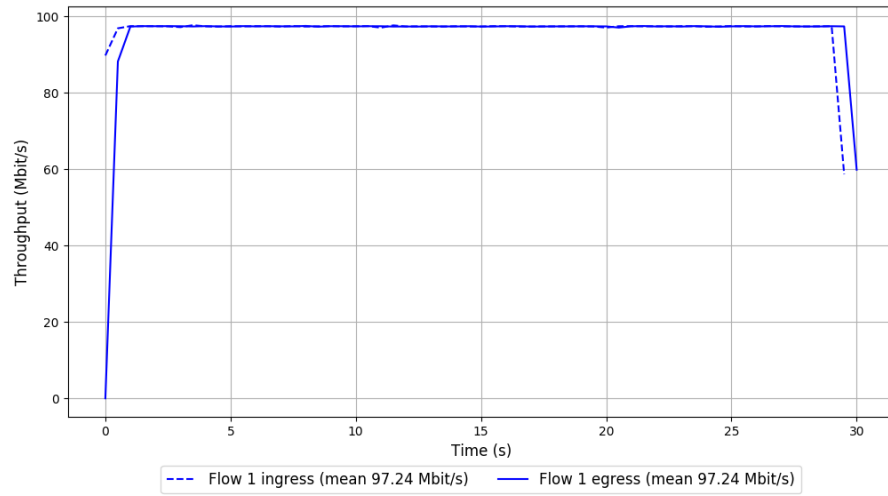
-- Flow 1:

Average throughput: 97.24 Mbit/s

95th percentile per-packet one-way delay: 6.084 ms

Loss rate: 0.00%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-08-28 08:51:29

End at: 2018-08-28 08:52:00

Local clock offset: -1.895 ms

Remote clock offset: 0.099 ms

Below is generated by plot.py at 2018-08-28 08:55:47

Datalink statistics

-- Total of 1 flow:

Average throughput: 97.31 Mbit/s

95th percentile per-packet one-way delay: 6.214 ms

Loss rate: 0.00%

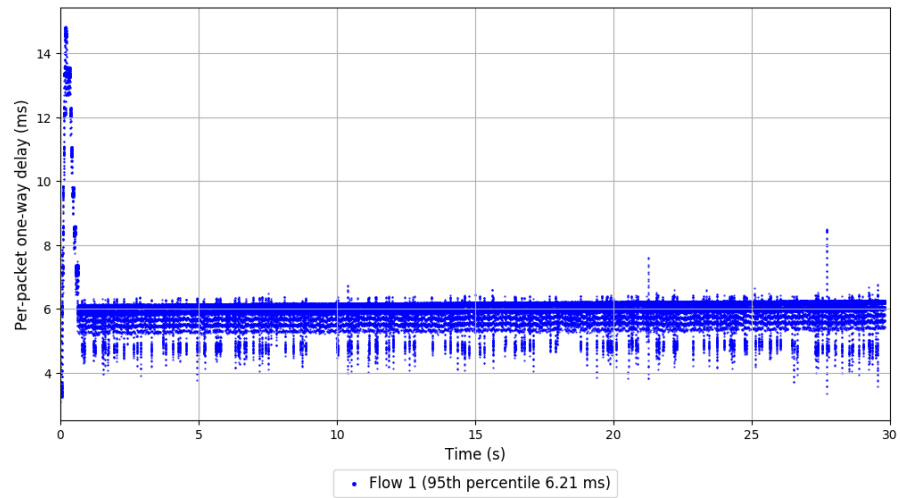
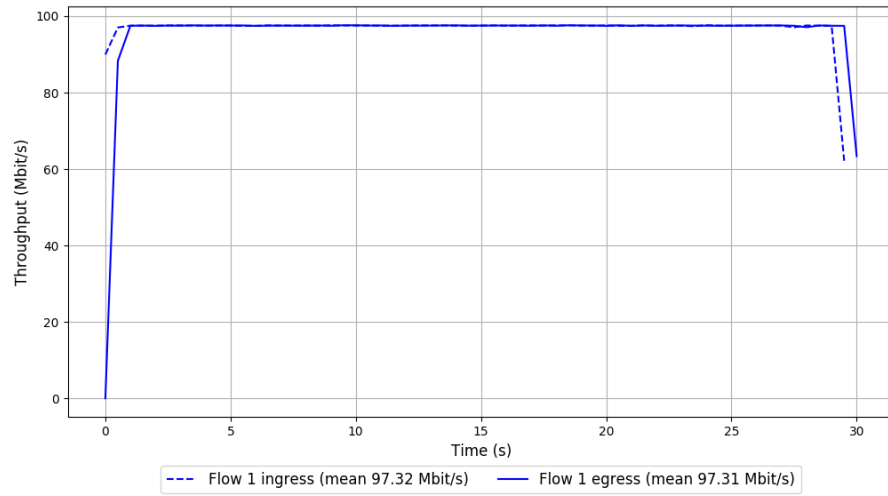
-- Flow 1:

Average throughput: 97.31 Mbit/s

95th percentile per-packet one-way delay: 6.214 ms

Loss rate: 0.00%

Run 3: Report of Indigo — Data Link



Run 1: Statistics of Muses-23

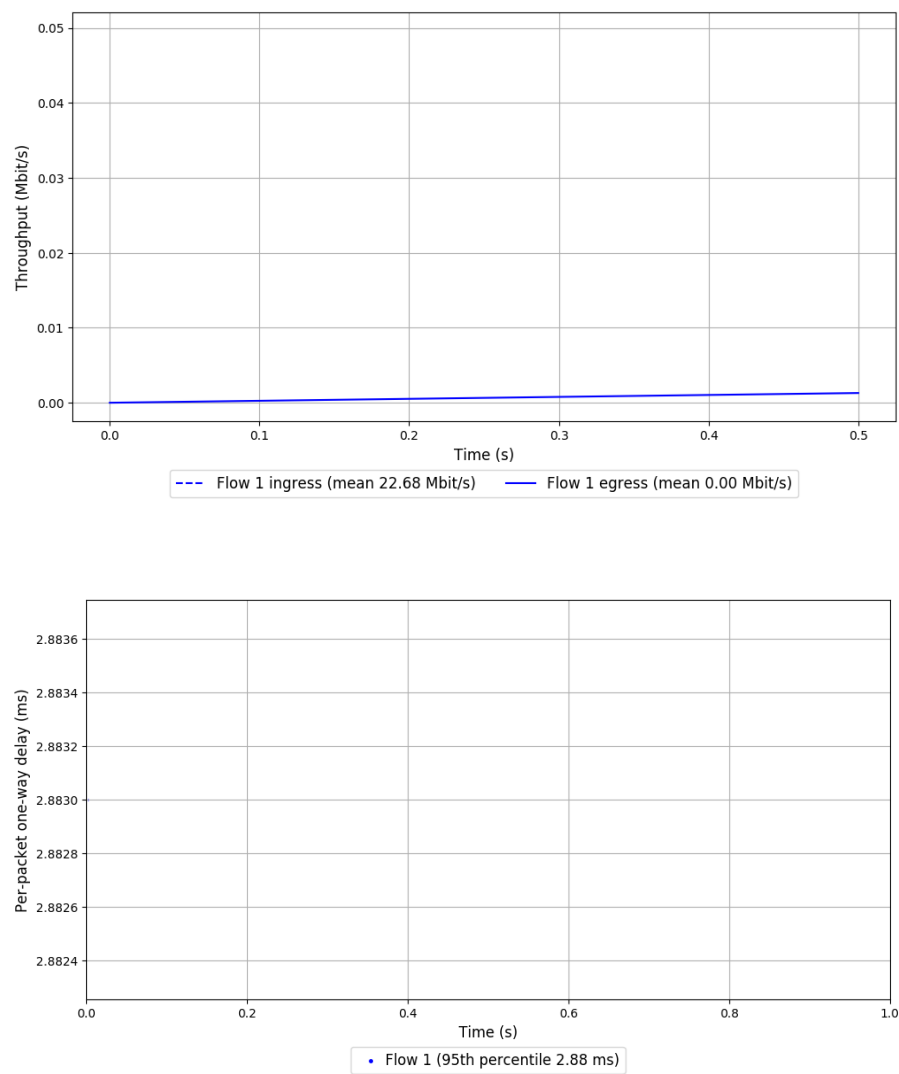
Start at: 2018-08-28 08:41:33

End at: 2018-08-28 08:42:03

Local clock offset: -7.314 ms

Remote clock offset: 0.135 ms

Run 1: Report of Muses-23 — Data Link



Run 2: Statistics of Muses-23

Start at: 2018-08-28 08:45:59

End at: 2018-08-28 08:46:29

Local clock offset: -4.985 ms

Remote clock offset: 0.097 ms

Below is generated by plot.py at 2018-08-28 08:55:47

Datalink statistics

-- Total of 1 flow:

Average throughput: 7.32 Mbit/s

95th percentile per-packet one-way delay: 32.534 ms

Loss rate: 35.54%

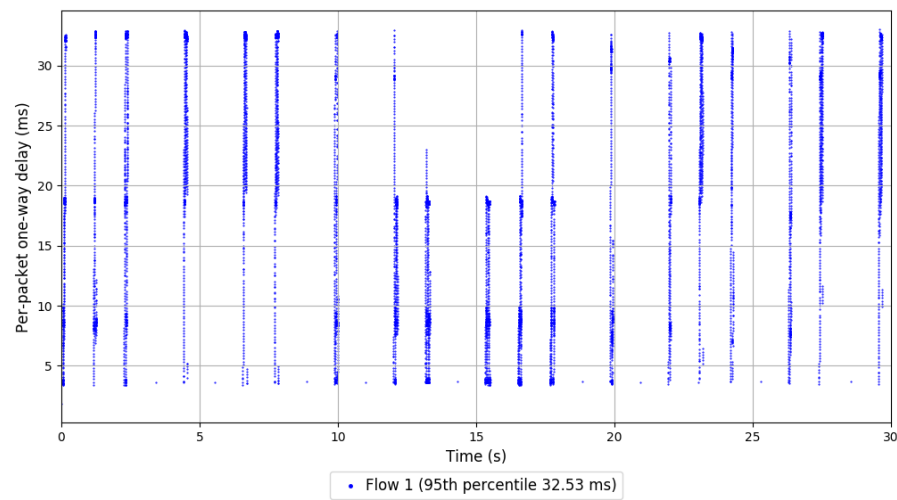
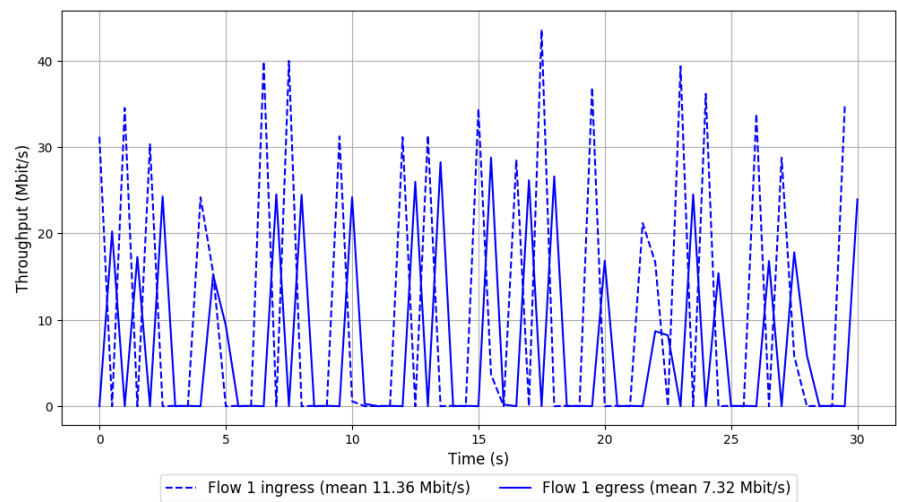
-- Flow 1:

Average throughput: 7.32 Mbit/s

95th percentile per-packet one-way delay: 32.534 ms

Loss rate: 35.54%

Run 2: Report of Muses-23 — Data Link



Run 3: Statistics of Muses-23

Start at: 2018-08-28 08:50:26

End at: 2018-08-28 08:50:56

Local clock offset: -1.559 ms

Remote clock offset: 0.107 ms

Below is generated by plot.py at 2018-08-28 08:55:47

Datalink statistics

-- Total of 1 flow:

Average throughput: 7.41 Mbit/s

95th percentile per-packet one-way delay: 31.712 ms

Loss rate: 32.32%

-- Flow 1:

Average throughput: 7.41 Mbit/s

95th percentile per-packet one-way delay: 31.712 ms

Loss rate: 32.32%

Run 3: Report of Muses-23 — Data Link

