

Pantheon Report

Generated at 2018-09-06 01:15:36 (UTC).

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

Repeated the test of 4 congestion control schemes twice.

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.

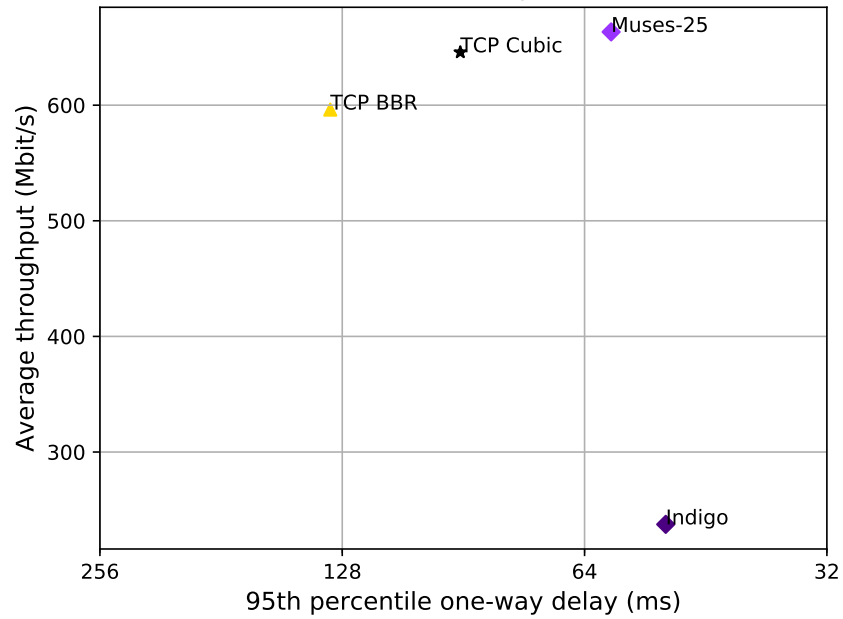
System info:

```
Linux 4.15.0-1018-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
net.ipv4.tcp_mem = 536870912 536870912 536870912
```

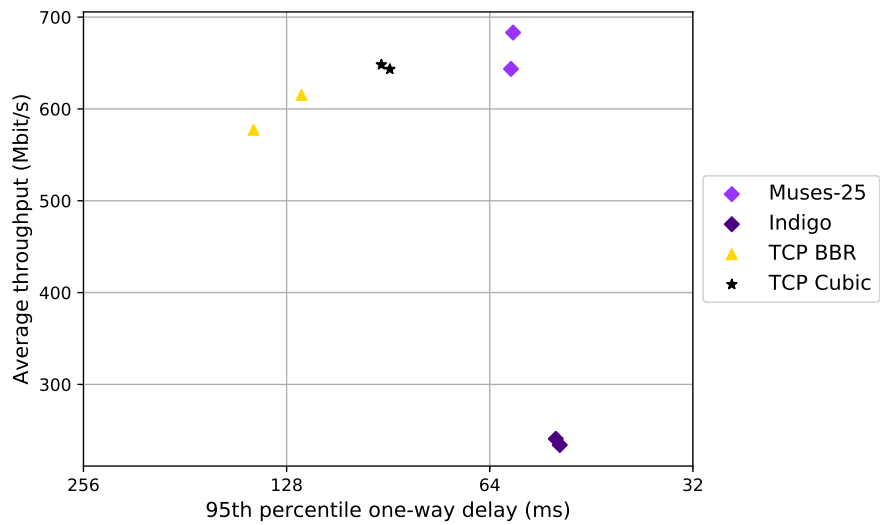
Git summary:

```
branch: muses @ 18b9165265c8ba2915c862e8713fd9ad82c1ac21
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf5e58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecd90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ a28d20fb82a95a965a3da65fd1eb71b8994e9b84
third_party/pantheon-tunnel @ cbfce6db5ff5740d4fe1771f813cd646339e1952
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 GCE London to GCE Iowa, 2 runs of 30s each per scheme
(mean of all runs by scheme)



test from GCE London to GCE Iowa, 2 runs of 30s each per scheme



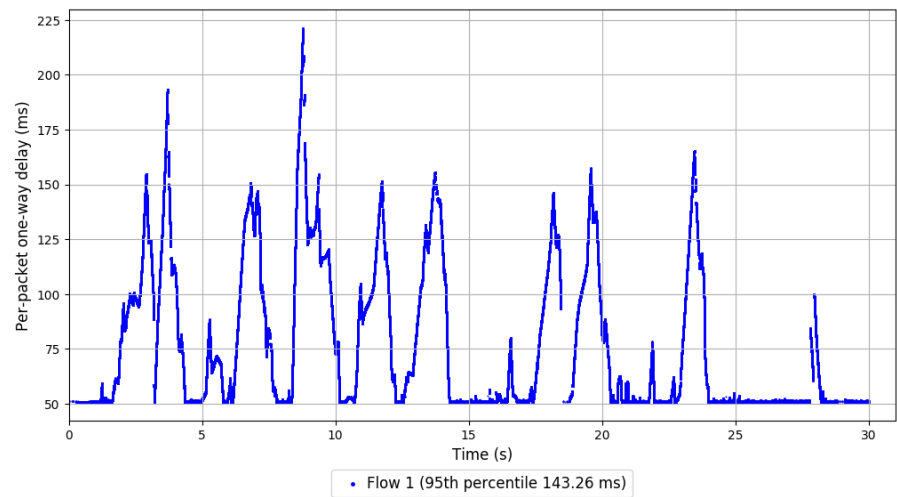
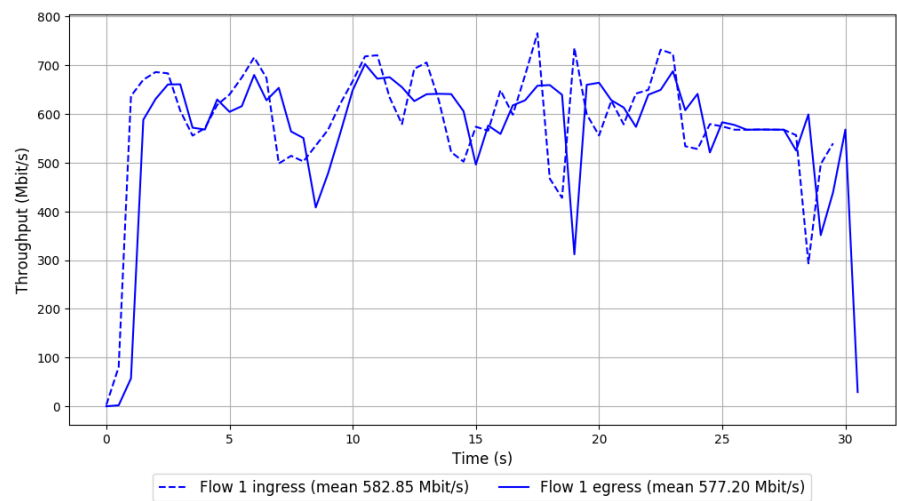
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	2	596.20	132.46	0.77
TCP Cubic	2	645.74	91.32	0.14
Indigo	2	237.43	50.74	0.00
Muses-25	2	663.37	59.32	0.00

Run 1: Statistics of TCP BBR

Start at: 2018-09-06 00:56:20
End at: 2018-09-06 00:56:50
Local clock offset: -0.287 ms
Remote clock offset: -0.086 ms

Below is generated by plot.py at 2018-09-06 01:15:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 577.20 Mbit/s
95th percentile per-packet one-way delay: 143.258 ms
Loss rate: 0.97%
-- Flow 1:
Average throughput: 577.20 Mbit/s
95th percentile per-packet one-way delay: 143.258 ms
Loss rate: 0.97%

Run 1: Report of TCP BBR — Data Link

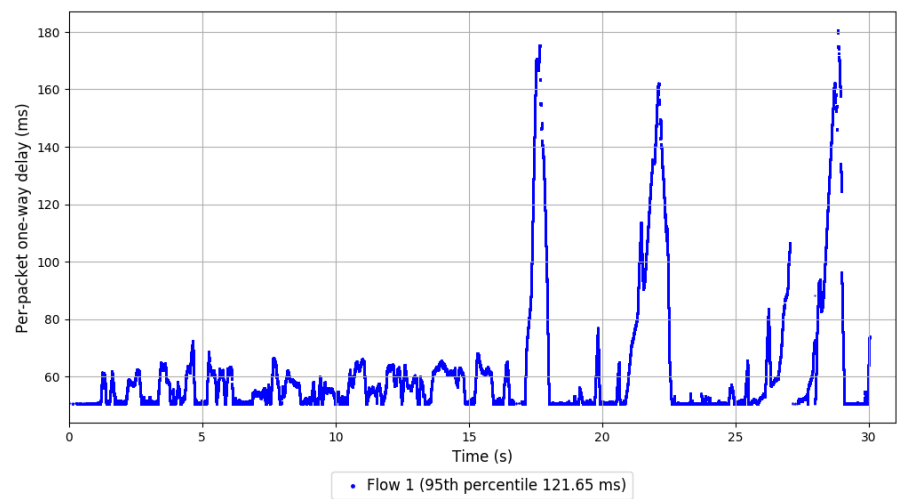
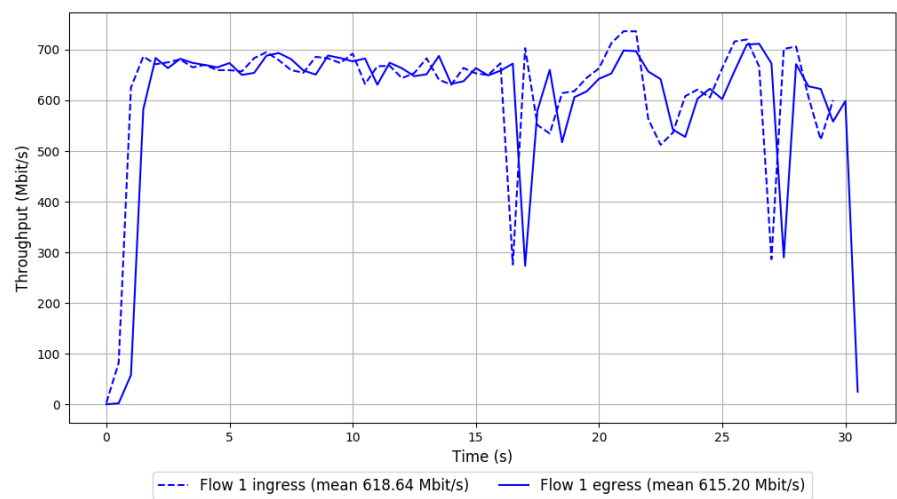


Run 2: Statistics of TCP BBR

Start at: 2018-09-06 01:02:35
End at: 2018-09-06 01:03:05
Local clock offset: 0.063 ms
Remote clock offset: -0.002 ms

Below is generated by plot.py at 2018-09-06 01:15:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 615.20 Mbit/s
95th percentile per-packet one-way delay: 121.652 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 615.20 Mbit/s
95th percentile per-packet one-way delay: 121.652 ms
Loss rate: 0.56%

Run 2: Report of TCP BBR — Data Link

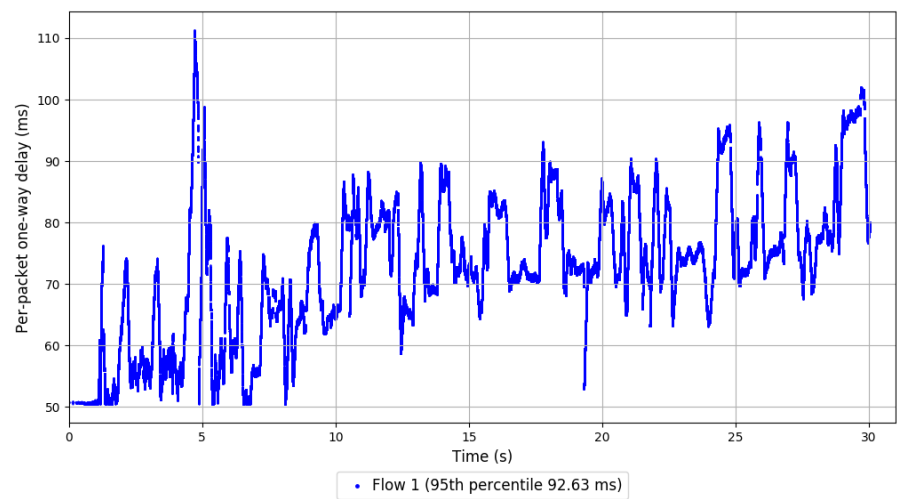
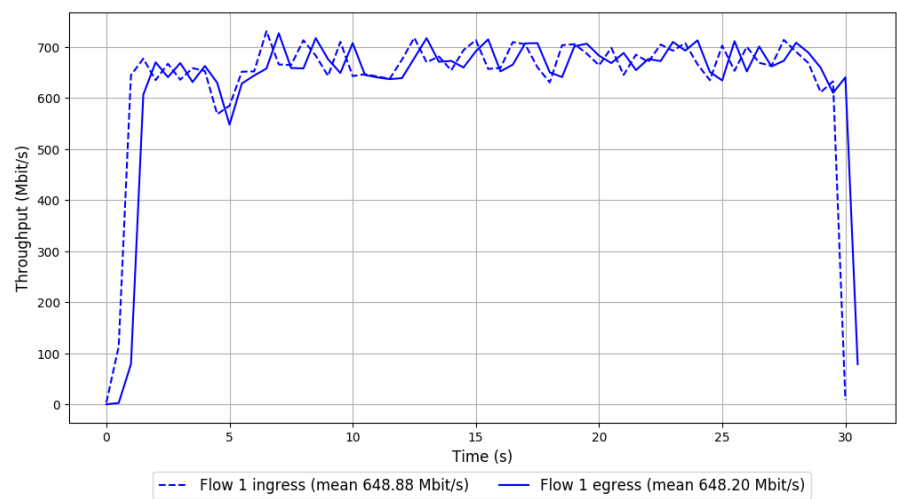


Run 1: Statistics of TCP Cubic

Start at: 2018-09-06 00:54:43
End at: 2018-09-06 00:55:13
Local clock offset: 0.038 ms
Remote clock offset: -0.036 ms

Below is generated by plot.py at 2018-09-06 01:15:32
Datalink statistics
-- Total of 1 flow:
Average throughput: 648.20 Mbit/s
95th percentile per-packet one-way delay: 92.629 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 648.20 Mbit/s
95th percentile per-packet one-way delay: 92.629 ms
Loss rate: 0.11%

Run 1: Report of TCP Cubic — Data Link

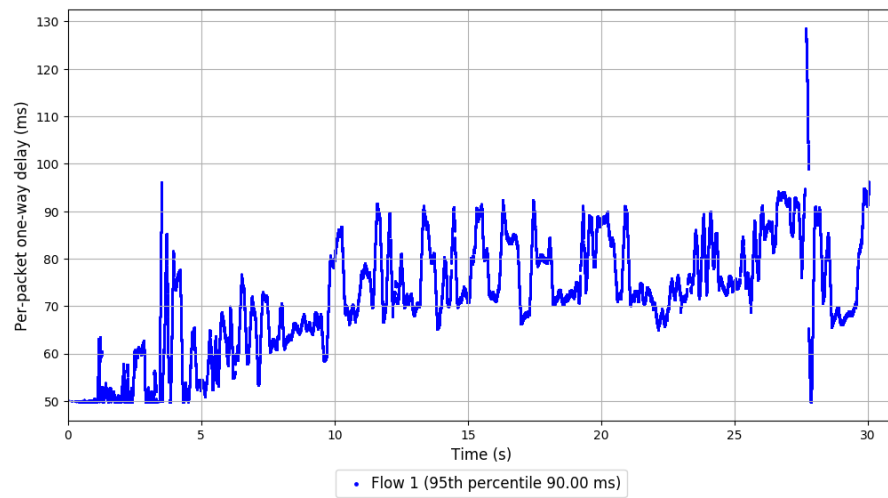
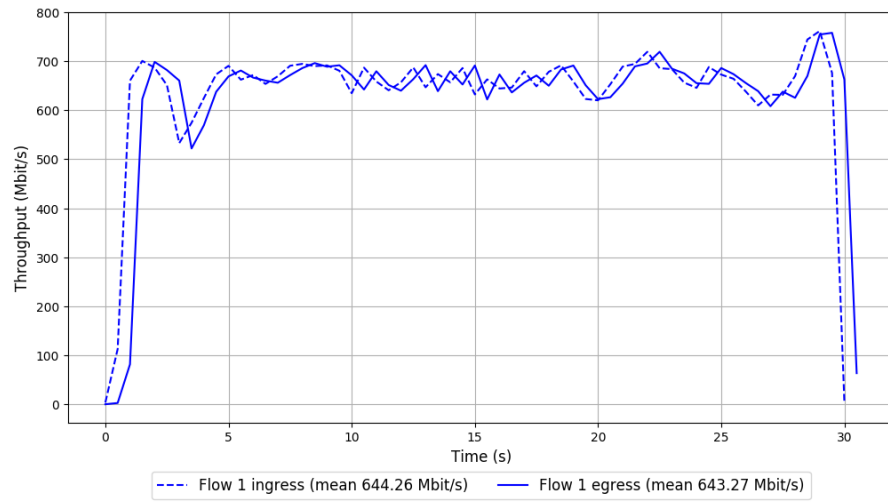


Run 2: Statistics of TCP Cubic

Start at: 2018-09-06 01:00:58
End at: 2018-09-06 01:01:28
Local clock offset: 0.403 ms
Remote clock offset: -0.018 ms

Below is generated by plot.py at 2018-09-06 01:15:32
Datalink statistics
-- Total of 1 flow:
Average throughput: 643.27 Mbit/s
95th percentile per-packet one-way delay: 90.002 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 643.27 Mbit/s
95th percentile per-packet one-way delay: 90.002 ms
Loss rate: 0.16%

Run 2: Report of TCP Cubic — Data Link

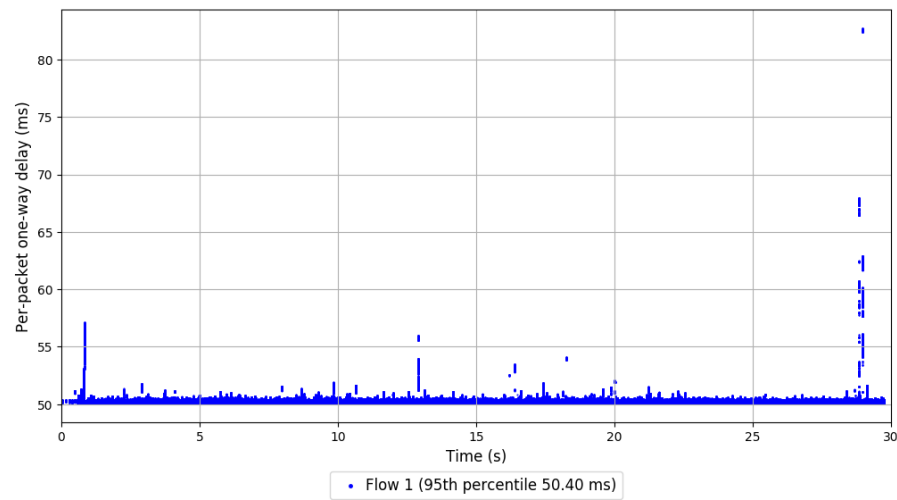
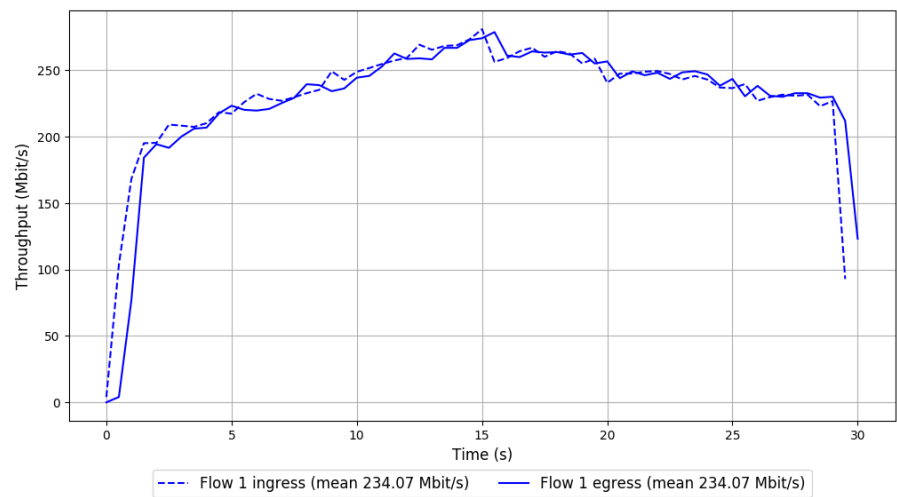


Run 1: Statistics of Indigo

Start at: 2018-09-06 00:57:56
End at: 2018-09-06 00:58:26
Local clock offset: 0.049 ms
Remote clock offset: -0.026 ms

Below is generated by plot.py at 2018-09-06 01:15:32
Datalink statistics
-- Total of 1 flow:
Average throughput: 234.07 Mbit/s
95th percentile per-packet one-way delay: 50.400 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 234.07 Mbit/s
95th percentile per-packet one-way delay: 50.400 ms
Loss rate: 0.00%

Run 1: Report of Indigo — Data Link

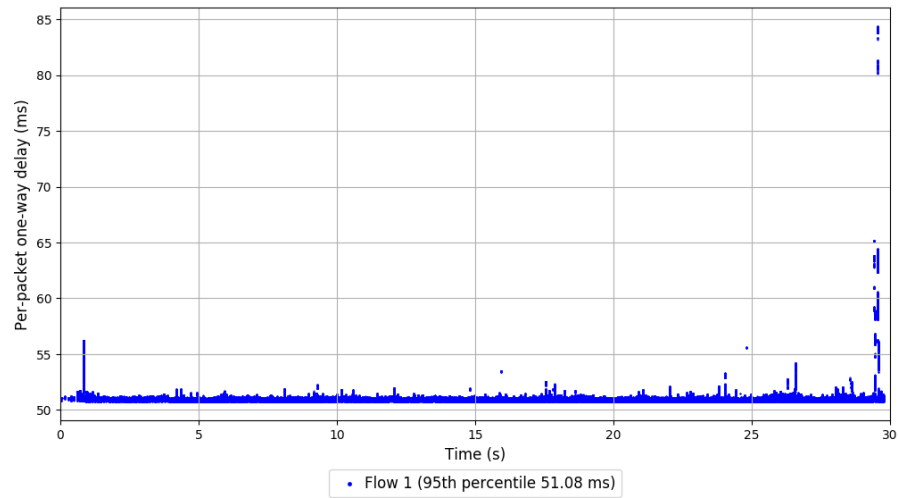
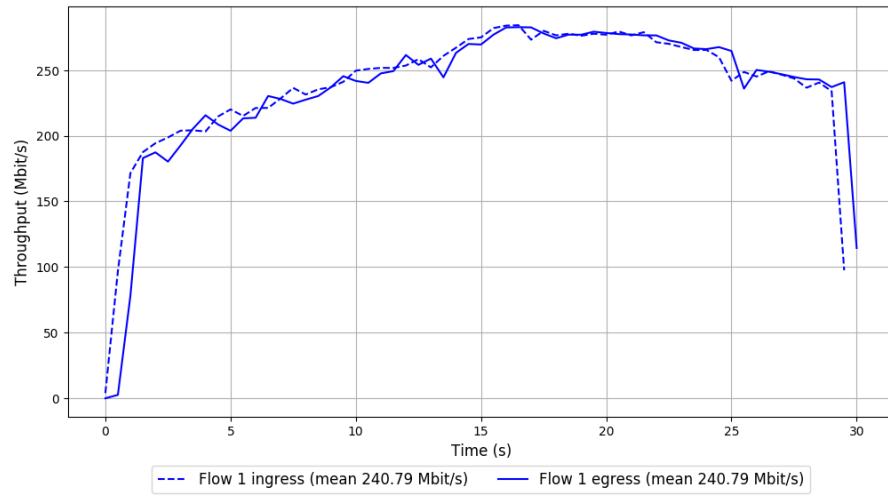


Run 2: Statistics of Indigo

Start at: 2018-09-06 01:04:11
End at: 2018-09-06 01:04:41
Local clock offset: -0.295 ms
Remote clock offset: -0.027 ms

Below is generated by plot.py at 2018-09-06 01:15:32
Datalink statistics
-- Total of 1 flow:
Average throughput: 240.79 Mbit/s
95th percentile per-packet one-way delay: 51.081 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 240.79 Mbit/s
95th percentile per-packet one-way delay: 51.081 ms
Loss rate: 0.00%

Run 2: Report of Indigo — Data Link

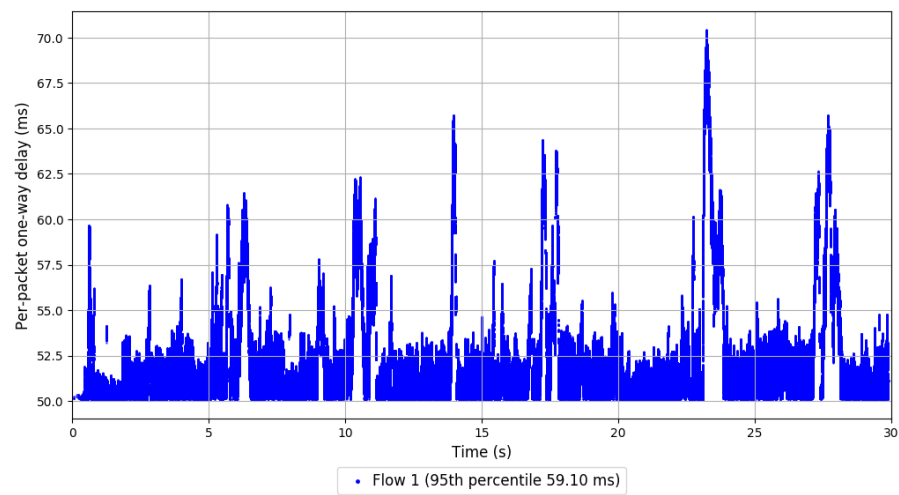
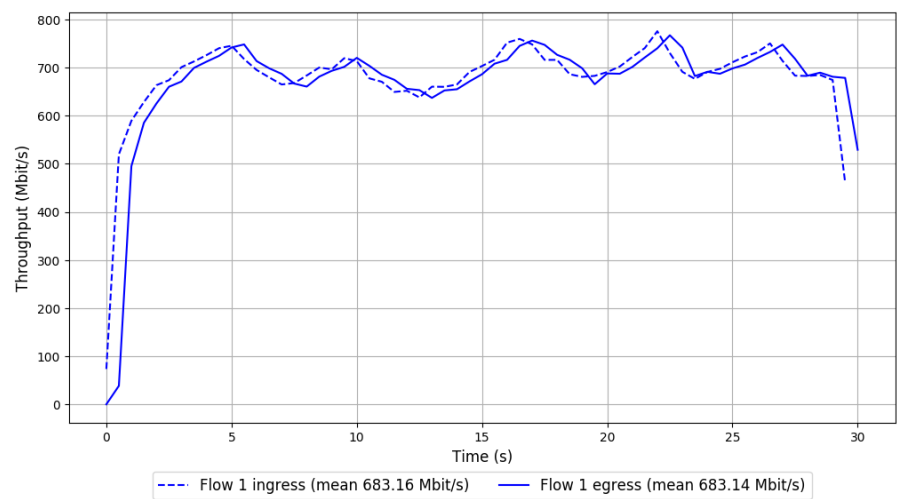


Run 1: Statistics of Muses-25

Start at: 2018-09-06 00:53:05
End at: 2018-09-06 00:53:35
Local clock offset: 0.097 ms
Remote clock offset: -0.016 ms

Below is generated by plot.py at 2018-09-06 01:15:34
Datalink statistics
-- Total of 1 flow:
Average throughput: 683.14 Mbit/s
95th percentile per-packet one-way delay: 59.101 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 683.14 Mbit/s
95th percentile per-packet one-way delay: 59.101 ms
Loss rate: 0.00%

Run 1: Report of Muses-25 — Data Link



Run 2: Statistics of Muses-25

Start at: 2018-09-06 00:59:22
End at: 2018-09-06 00:59:52
Local clock offset: 0.072 ms
Remote clock offset: -0.005 ms

Below is generated by plot.py at 2018-09-06 01:15:34
Datalink statistics
-- Total of 1 flow:
Average throughput: 643.59 Mbit/s
95th percentile per-packet one-way delay: 59.531 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 643.59 Mbit/s
95th percentile per-packet one-way delay: 59.531 ms
Loss rate: 0.00%

Run 2: Report of Muses-25 — Data Link

