

Pantheon Report

Generated at 2018-08-31 04:35:29 (UTC).

Data path: GCE Sydney 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.

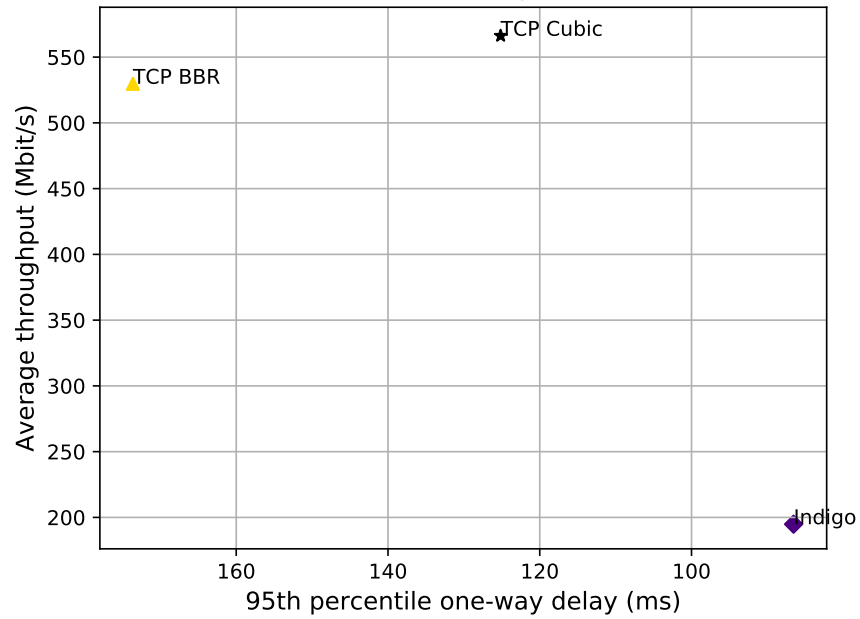
System info:

```
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
```

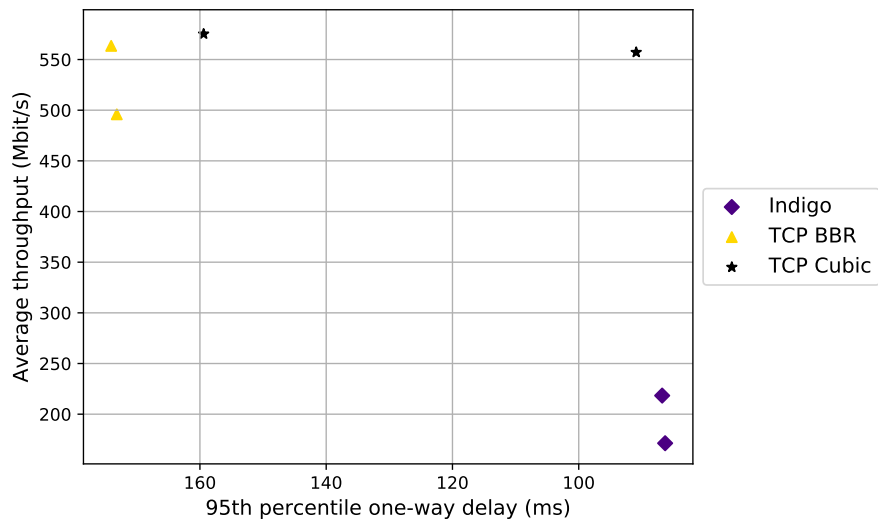
Git summary:

```
branch: muses @ 2de97ca91a065473c29a25fffe63fb137c97a67c
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf5e58e562f4
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 GCE Sydney to GCE Iowa, 2 runs of 30s each per scheme
(mean of all runs by scheme)



test from GCE Sydney 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	529.71	173.61	0.72
TCP Cubic	2	566.19	125.16	0.08
Indigo	2	194.84	86.55	0.00
Muses-25	0	N/A	N/A	N/A

Run 1: Statistics of TCP BBR

Start at: 2018-08-31 04:21:07

End at: 2018-08-31 04:21:37

Local clock offset: 5.964 ms

Remote clock offset: 6.757 ms

Below is generated by plot.py at 2018-08-31 04:35:26

Datalink statistics

-- Total of 1 flow:

Average throughput: 563.49 Mbit/s

95th percentile per-packet one-way delay: 174.057 ms

Loss rate: 0.65%

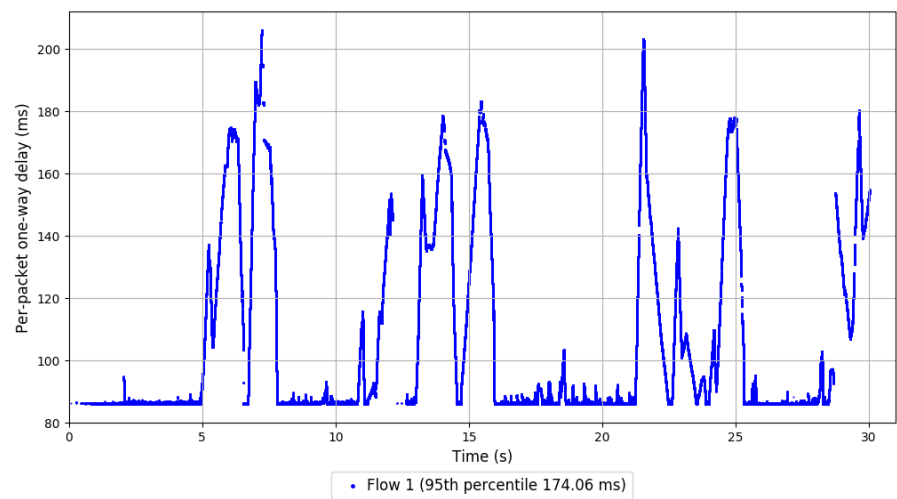
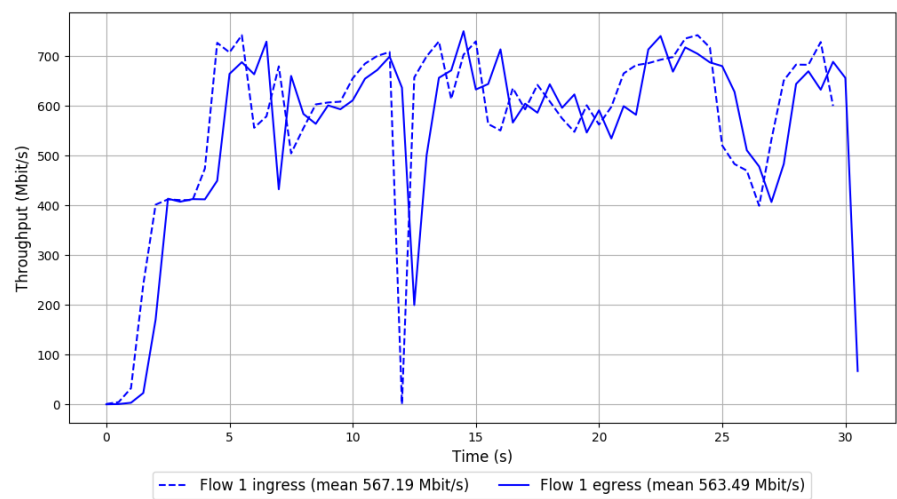
-- Flow 1:

Average throughput: 563.49 Mbit/s

95th percentile per-packet one-way delay: 174.057 ms

Loss rate: 0.65%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-08-31 04:26:54

End at: 2018-08-31 04:27:24

Local clock offset: 8.508 ms

Remote clock offset: 10.058 ms

Below is generated by plot.py at 2018-08-31 04:35:26

Datalink statistics

-- Total of 1 flow:

Average throughput: 495.92 Mbit/s

95th percentile per-packet one-way delay: 173.167 ms

Loss rate: 0.79%

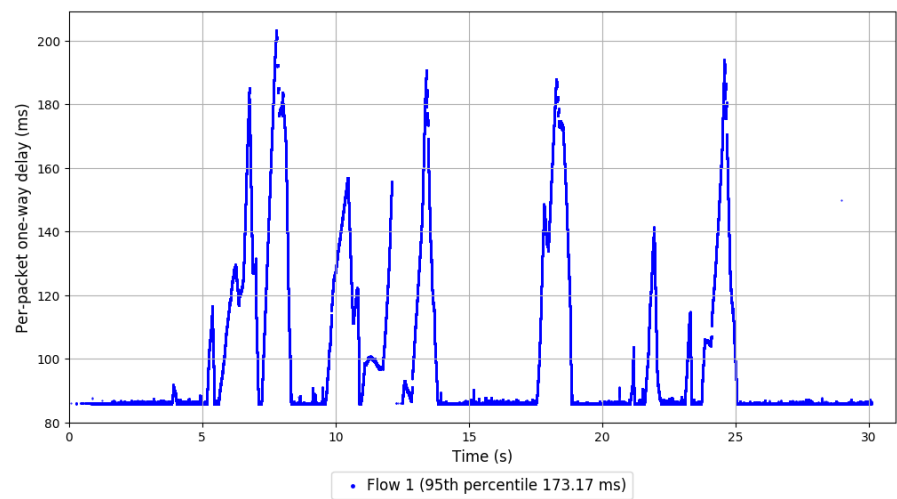
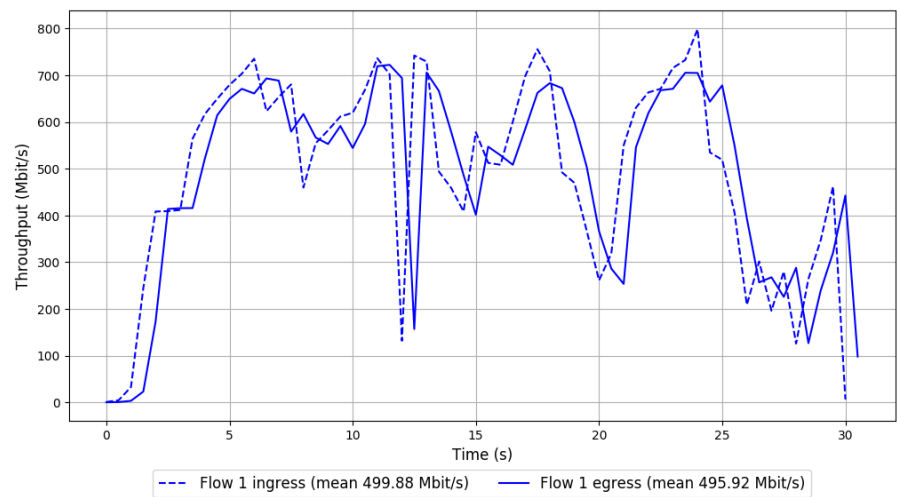
-- Flow 1:

Average throughput: 495.92 Mbit/s

95th percentile per-packet one-way delay: 173.167 ms

Loss rate: 0.79%

Run 2: Report of TCP BBR — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-08-31 04:22:45

End at: 2018-08-31 04:23:15

Local clock offset: 6.934 ms

Remote clock offset: 8.994 ms

Below is generated by plot.py at 2018-08-31 04:35:26

Datalink statistics

-- Total of 1 flow:

Average throughput: 557.13 Mbit/s

95th percentile per-packet one-way delay: 90.895 ms

Loss rate: 0.00%

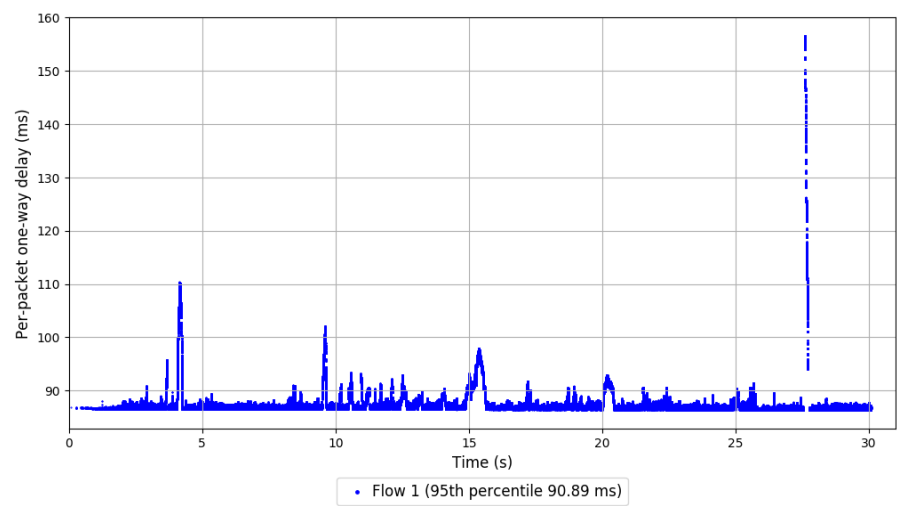
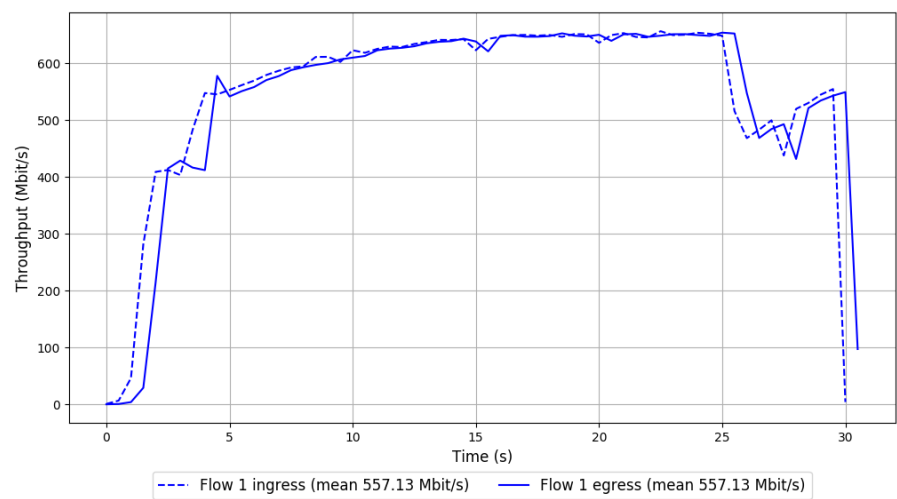
-- Flow 1:

Average throughput: 557.13 Mbit/s

95th percentile per-packet one-way delay: 90.895 ms

Loss rate: 0.00%

Run 1: Report of TCP Cubic — Data Link

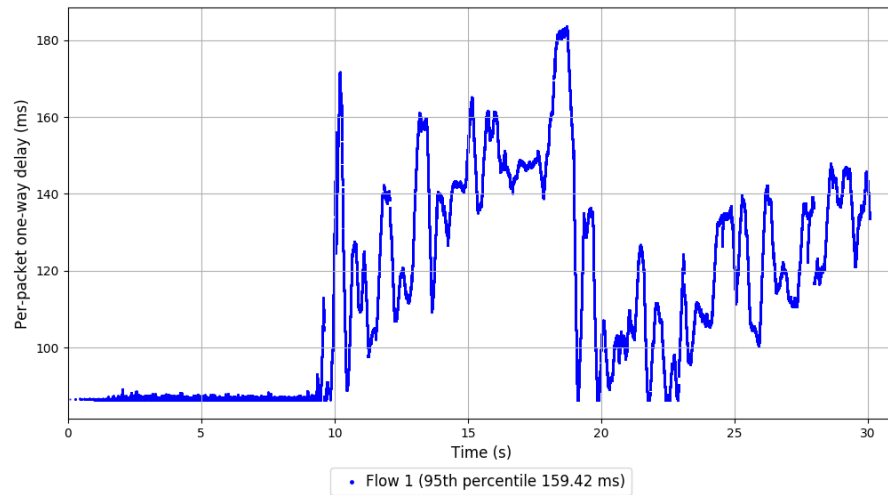
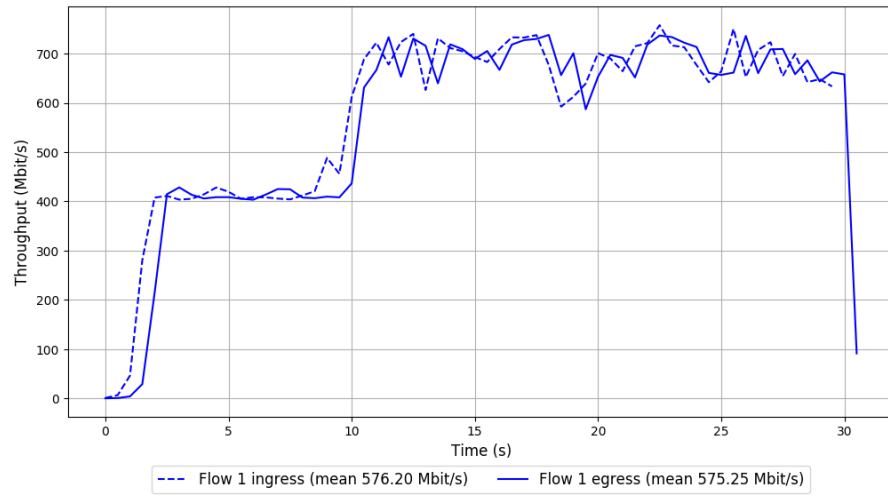


Run 2: Statistics of TCP Cubic

Start at: 2018-08-31 04:28:29
End at: 2018-08-31 04:28:59
Local clock offset: 9.423 ms
Remote clock offset: 11.429 ms

Below is generated by plot.py at 2018-08-31 04:35:27
Datalink statistics
-- Total of 1 flow:
Average throughput: 575.25 Mbit/s
95th percentile per-packet one-way delay: 159.417 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 575.25 Mbit/s
95th percentile per-packet one-way delay: 159.417 ms
Loss rate: 0.16%

Run 2: Report of TCP Cubic — Data Link



Run 1: Statistics of Indigo

Start at: 2018-08-31 04:18:40

End at: 2018-08-31 04:19:10

Local clock offset: 3.831 ms

Remote clock offset: 4.46 ms

Below is generated by plot.py at 2018-08-31 04:35:27

Datalink statistics

-- Total of 1 flow:

Average throughput: 171.33 Mbit/s

95th percentile per-packet one-way delay: 86.316 ms

Loss rate: 0.00%

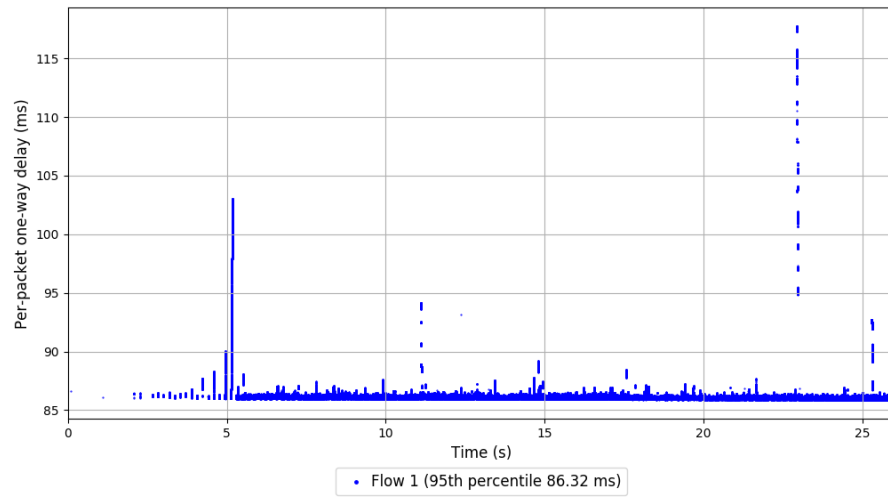
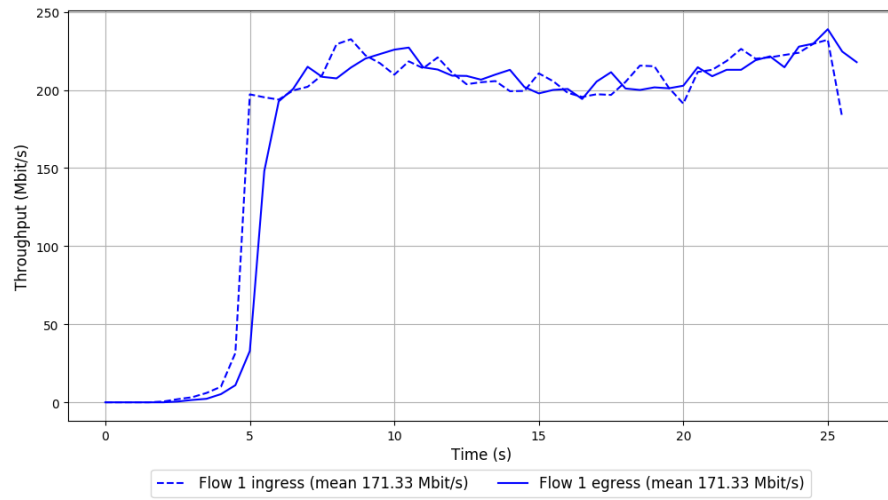
-- Flow 1:

Average throughput: 171.33 Mbit/s

95th percentile per-packet one-way delay: 86.316 ms

Loss rate: 0.00%

Run 1: Report of Indigo — Data Link

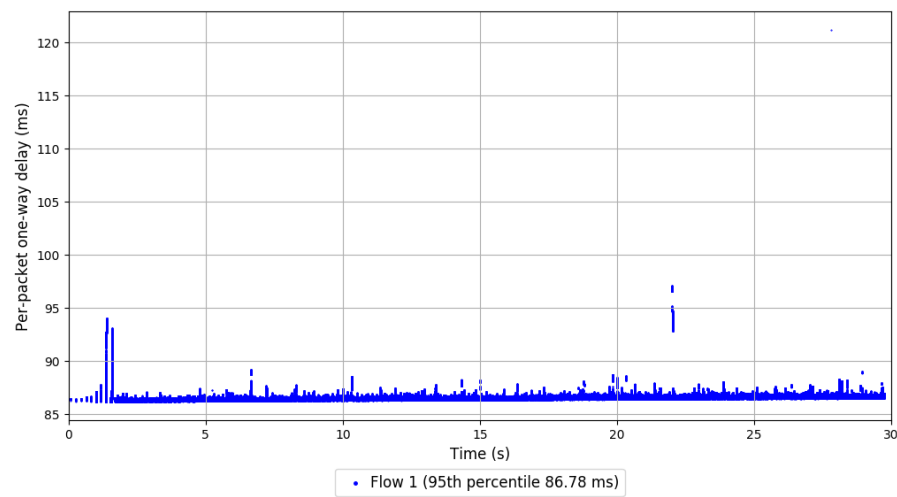
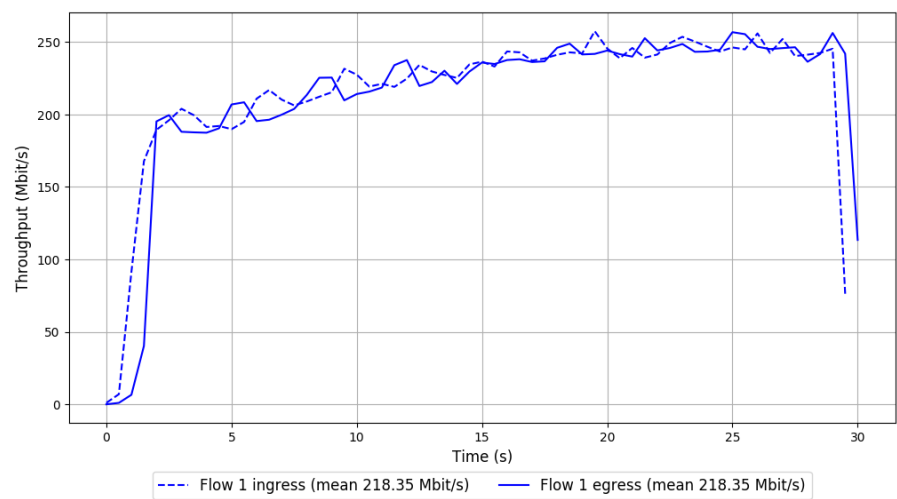


Run 2: Statistics of Indigo

Start at: 2018-08-31 04:24:20
End at: 2018-08-31 04:24:50
Local clock offset: 10.785 ms
Remote clock offset: 13.141 ms

Below is generated by plot.py at 2018-08-31 04:35:27
Datalink statistics
-- Total of 1 flow:
Average throughput: 218.35 Mbit/s
95th percentile per-packet one-way delay: 86.785 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 218.35 Mbit/s
95th percentile per-packet one-way delay: 86.785 ms
Loss rate: 0.00%

Run 2: Report of Indigo — Data Link



Run 1: Statistics of Muses-25

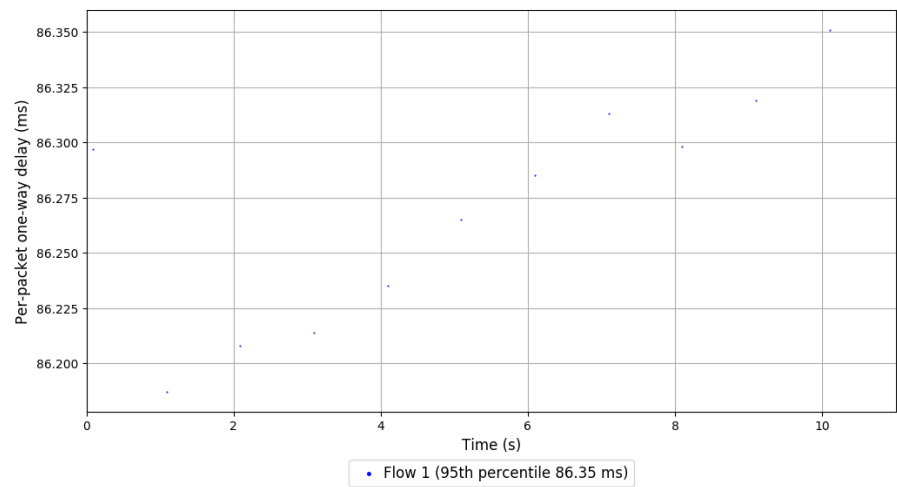
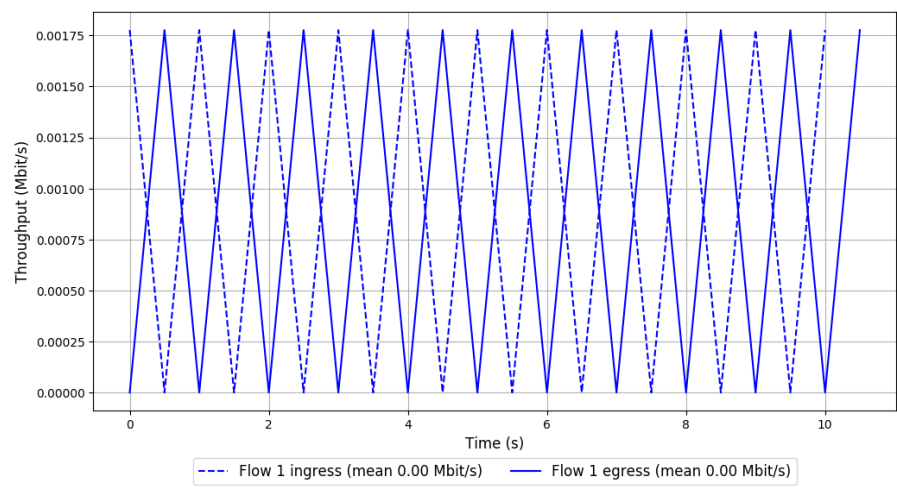
Start at: 2018-08-31 04:20:01

End at: 2018-08-31 04:20:31

Local clock offset: 6.707 ms

Remote clock offset: 8.109 ms

Run 1: Report of Muses-25 — Data Link



Run 2: Statistics of Muses-25

Start at: 2018-08-31 04:25:47

End at: 2018-08-31 04:26:17

Local clock offset: 8.808 ms

Remote clock offset: 10.334 ms

Run 2: Report of Muses-25 — Data Link

