

Pantheon Report

Generated at 2018-08-31 06:50:46 (UTC).

Data path: AWS Brazil 2 on `ens5` (*local*) → Colombia 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.

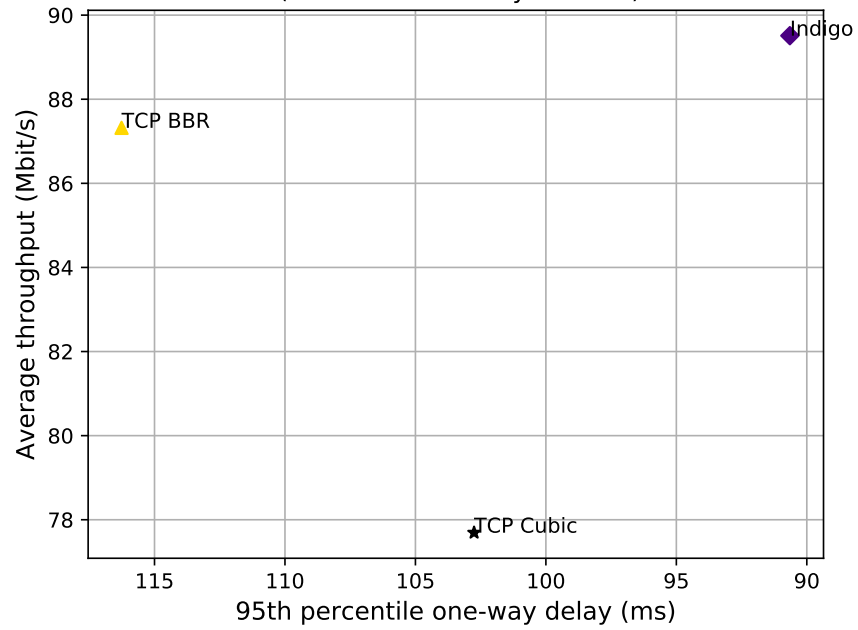
System info:

```
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
net.ipv4.tcp_mem = 536870912 536870912 536870912
```

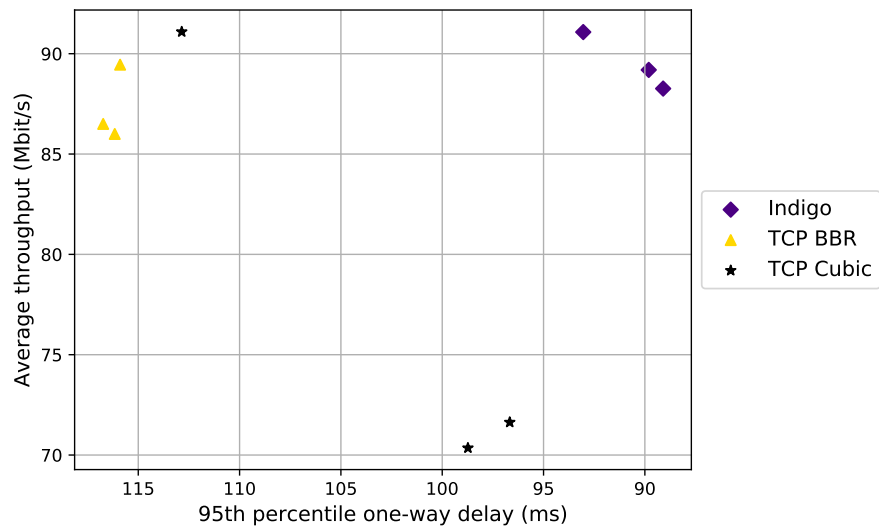
Git summary:

```
branch: muses @ 2de97ca91a065473c29a25fffe63fb137c97a67c
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
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 Brazil 2 to Colombia, 3 runs of 30s each per scheme
(mean of all runs by scheme)



test from AWS Brazil 2 to Colombia, 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	87.32	116.26	3.89
TCP Cubic	3	77.69	102.75	0.95
Indigo	3	89.51	90.65	1.93
Muses-25	0	N/A	N/A	N/A

Run 1: Statistics of TCP BBR

Start at: 2018-08-31 06:37:14

End at: 2018-08-31 06:37:44

Local clock offset: 3.138 ms

Remote clock offset: 0.123 ms

Below is generated by plot.py at 2018-08-31 06:50:39

Datalink statistics

-- Total of 1 flow:

Average throughput: 86.50 Mbit/s

95th percentile per-packet one-way delay: 116.731 ms

Loss rate: 4.75%

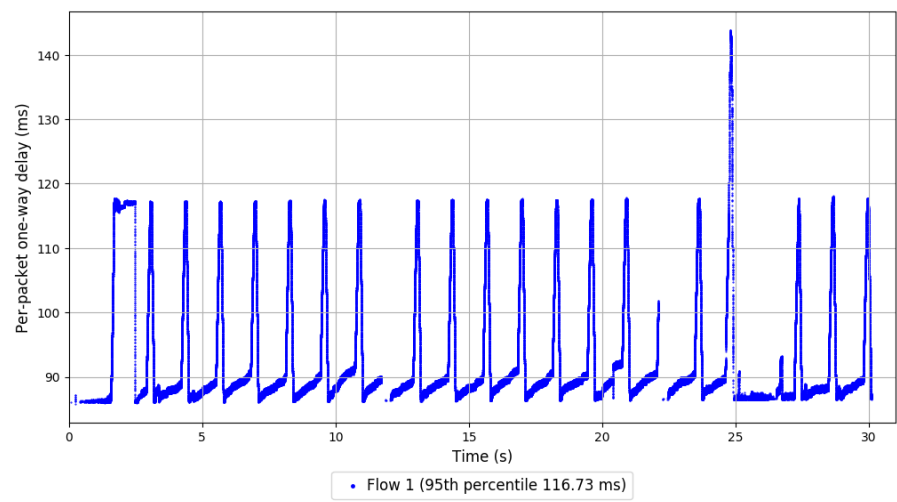
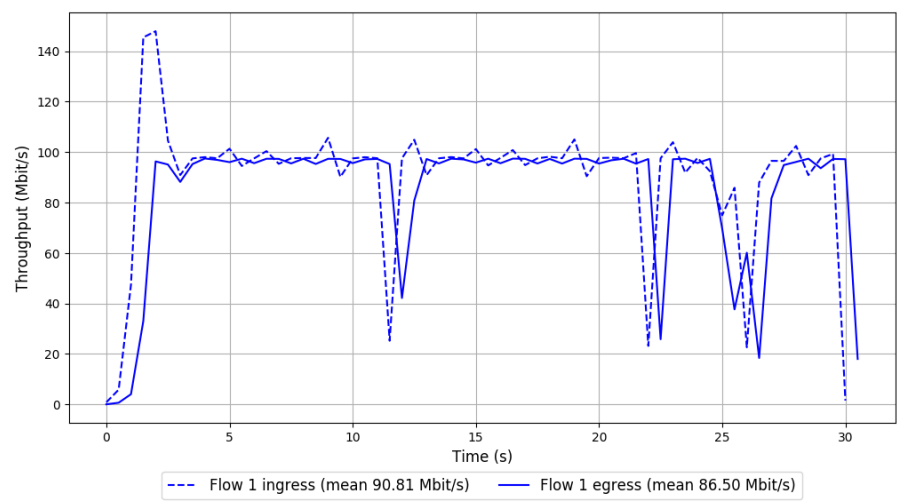
-- Flow 1:

Average throughput: 86.50 Mbit/s

95th percentile per-packet one-way delay: 116.731 ms

Loss rate: 4.75%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-08-31 06:41:53

End at: 2018-08-31 06:42:23

Local clock offset: 6.603 ms

Remote clock offset: -0.284 ms

Below is generated by plot.py at 2018-08-31 06:50:42

Datalink statistics

-- Total of 1 flow:

Average throughput: 89.45 Mbit/s

95th percentile per-packet one-way delay: 115.896 ms

Loss rate: 2.36%

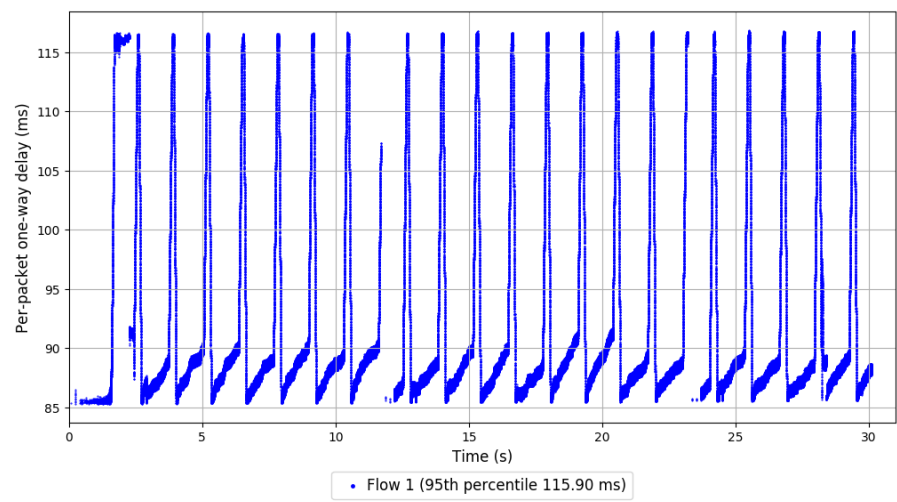
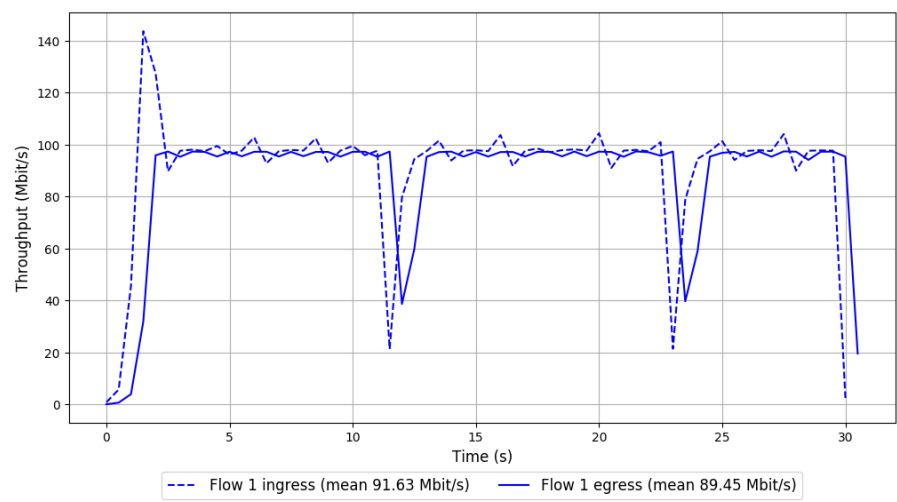
-- Flow 1:

Average throughput: 89.45 Mbit/s

95th percentile per-packet one-way delay: 115.896 ms

Loss rate: 2.36%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-08-31 06:46:32

End at: 2018-08-31 06:47:02

Local clock offset: 8.896 ms

Remote clock offset: -3.805 ms

Below is generated by plot.py at 2018-08-31 06:50:42

Datalink statistics

-- Total of 1 flow:

Average throughput: 86.00 Mbit/s

95th percentile per-packet one-way delay: 116.160 ms

Loss rate: 4.55%

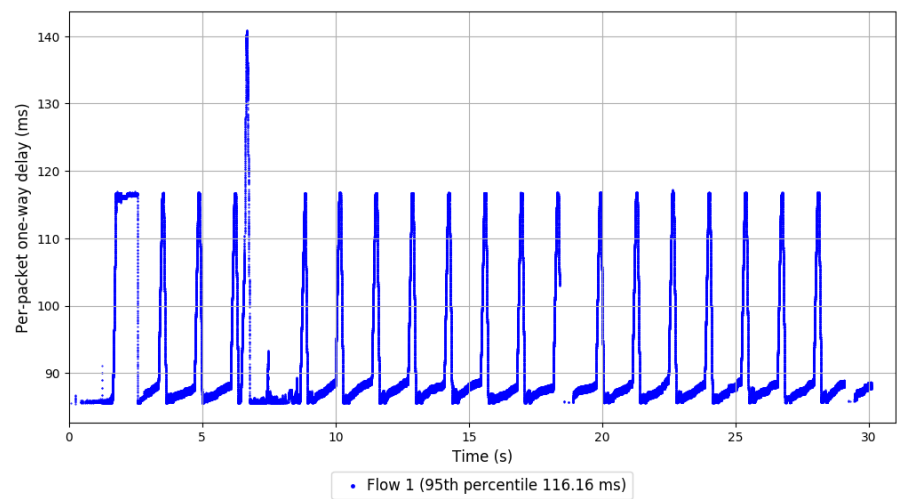
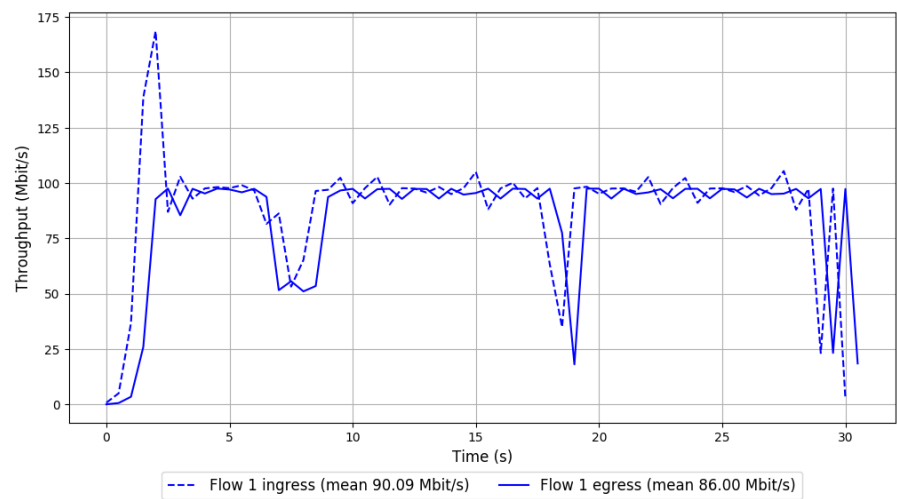
-- Flow 1:

Average throughput: 86.00 Mbit/s

95th percentile per-packet one-way delay: 116.160 ms

Loss rate: 4.55%

Run 3: Report of TCP BBR — Data Link

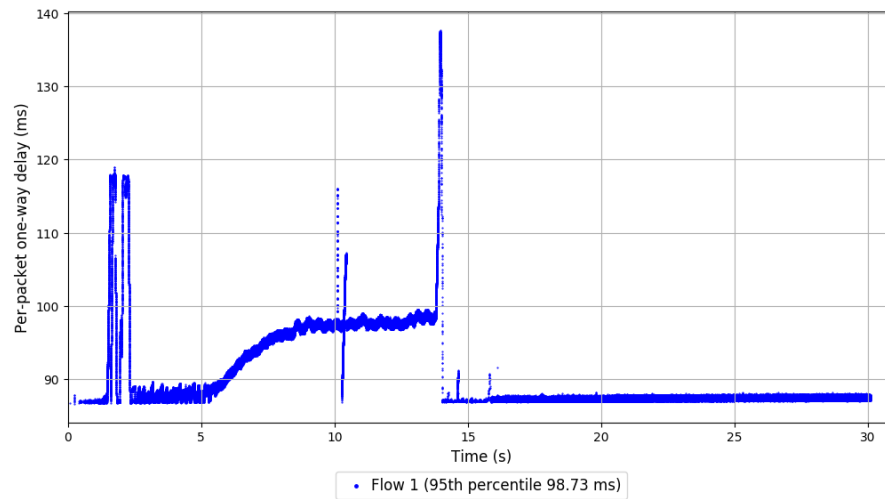
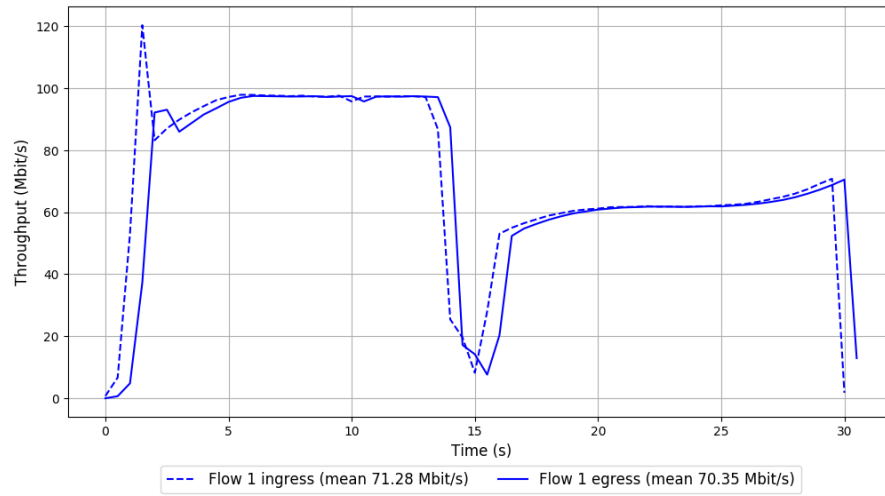


Run 1: Statistics of TCP Cubic

Start at: 2018-08-31 06:38:25
End at: 2018-08-31 06:38:55
Local clock offset: 5.169 ms
Remote clock offset: -0.273 ms

Below is generated by plot.py at 2018-08-31 06:50:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 70.35 Mbit/s
95th percentile per-packet one-way delay: 98.732 ms
Loss rate: 1.30%
-- Flow 1:
Average throughput: 70.35 Mbit/s
95th percentile per-packet one-way delay: 98.732 ms
Loss rate: 1.30%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2018-08-31 06:43:04

End at: 2018-08-31 06:43:34

Local clock offset: 8.069 ms

Remote clock offset: 0.128 ms

Below is generated by plot.py at 2018-08-31 06:50:42

Datalink statistics

-- Total of 1 flow:

Average throughput: 71.63 Mbit/s

95th percentile per-packet one-way delay: 96.669 ms

Loss rate: 1.10%

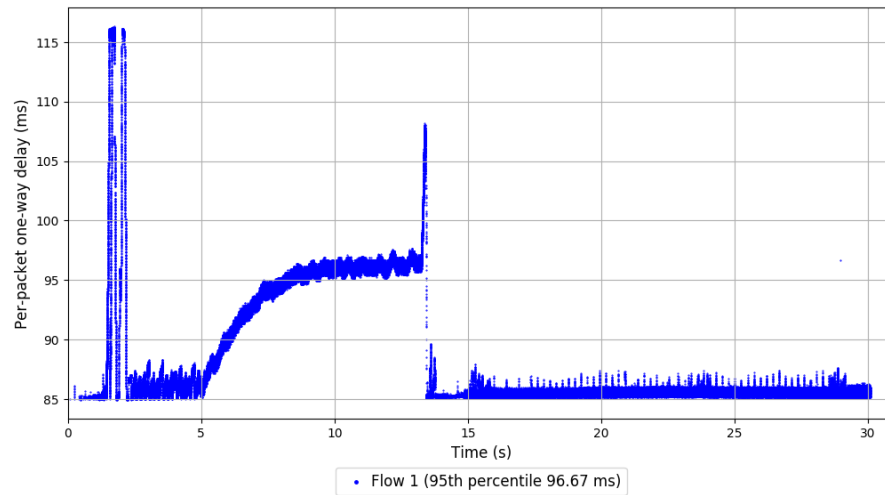
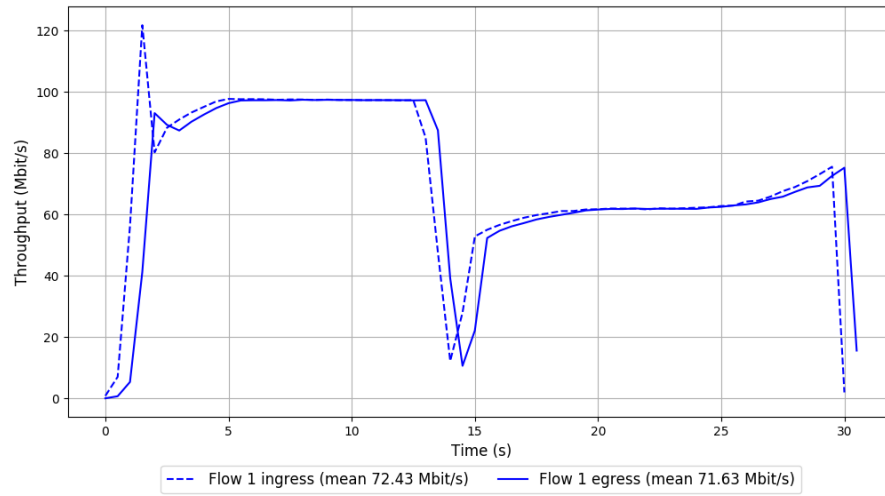
-- Flow 1:

Average throughput: 71.63 Mbit/s

95th percentile per-packet one-way delay: 96.669 ms

Loss rate: 1.10%

Run 2: Report of TCP Cubic — Data Link

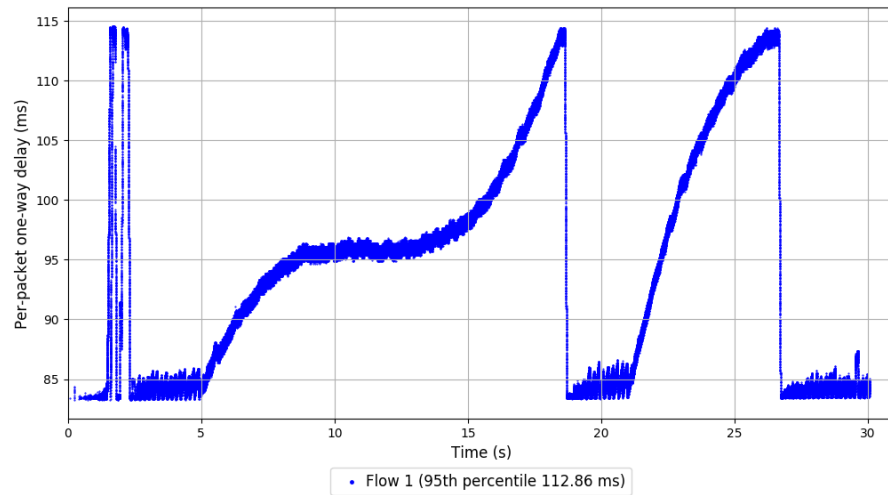
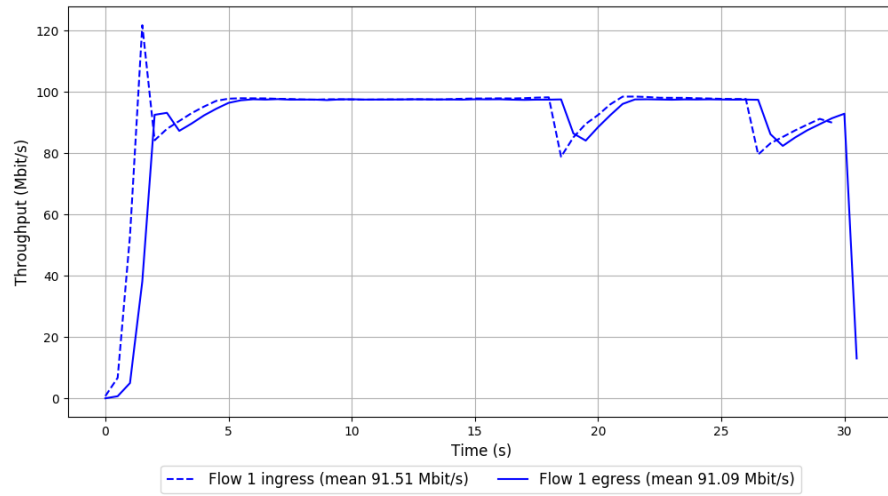


Run 3: Statistics of TCP Cubic

Start at: 2018-08-31 06:47:44
End at: 2018-08-31 06:48:14
Local clock offset: 7.53 ms
Remote clock offset: -3.833 ms

Below is generated by plot.py at 2018-08-31 06:50:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 91.09 Mbit/s
95th percentile per-packet one-way delay: 112.856 ms
Loss rate: 0.45%
-- Flow 1:
Average throughput: 91.09 Mbit/s
95th percentile per-packet one-way delay: 112.856 ms
Loss rate: 0.45%

Run 3: Report of TCP Cubic — Data Link

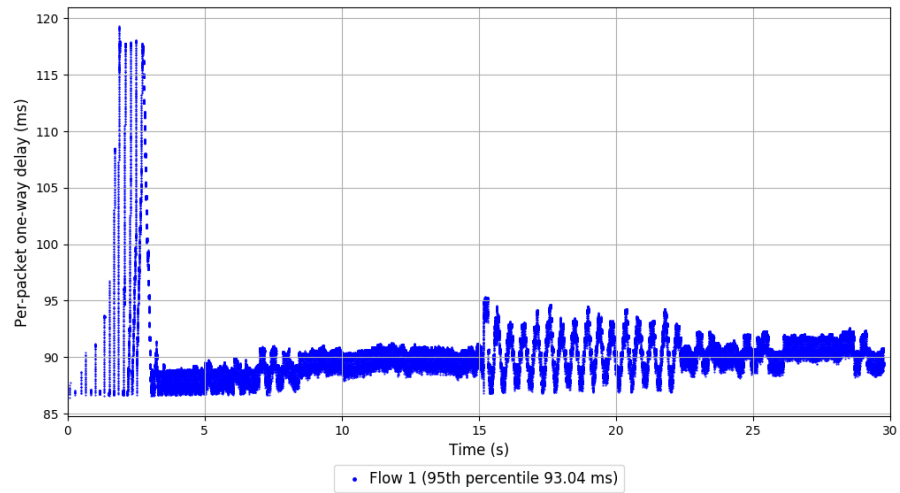
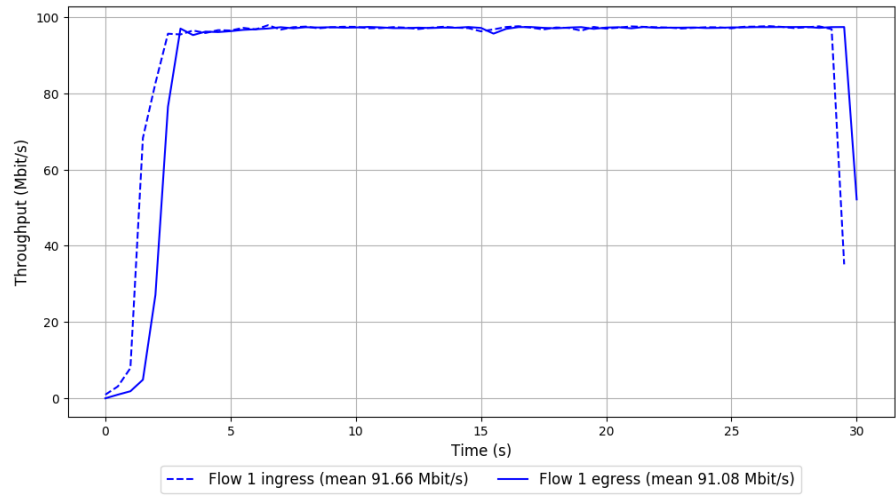


```
Run 1: Statistics of Indigo

Start at: 2018-08-31 06:36:02
End at: 2018-08-31 06:36:32
Local clock offset: 3.076 ms
Remote clock offset: 0.134 ms

# Below is generated by plot.py at 2018-08-31 06:50:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 91.08 Mbit/s
95th percentile per-packet one-way delay: 93.041 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 91.08 Mbit/s
95th percentile per-packet one-way delay: 93.041 ms
Loss rate: 0.63%
```

Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2018-08-31 06:40:41

End at: 2018-08-31 06:41:11

Local clock offset: 6.59 ms

Remote clock offset: -3.37 ms

Below is generated by plot.py at 2018-08-31 06:50:42

Datalink statistics

-- Total of 1 flow:

Average throughput: 88.26 Mbit/s

95th percentile per-packet one-way delay: 89.098 ms

Loss rate: 0.75%

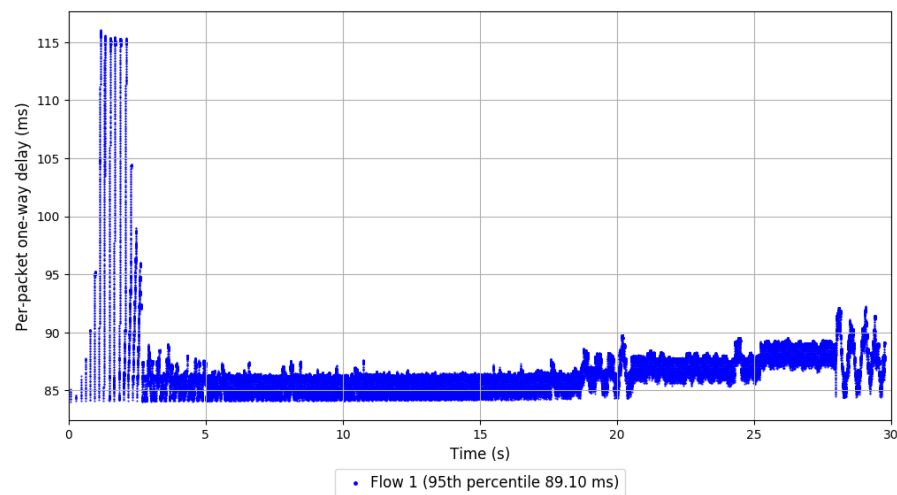
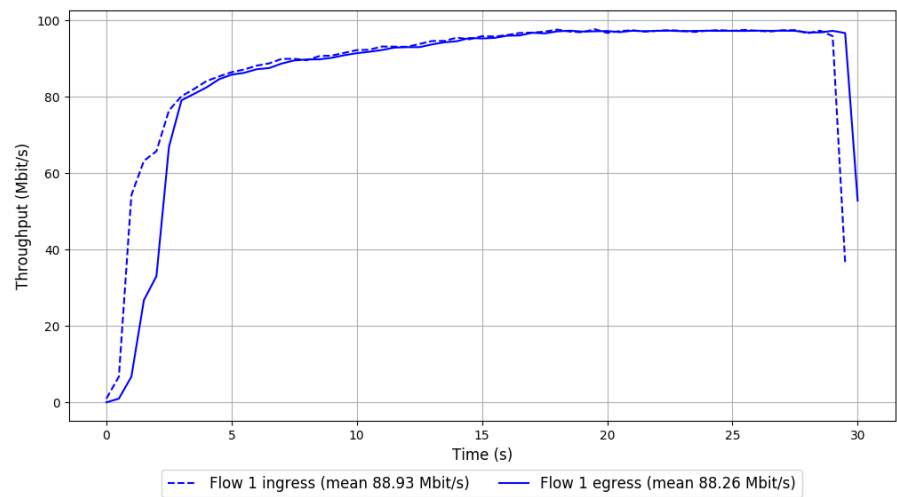
-- Flow 1:

Average throughput: 88.26 Mbit/s

95th percentile per-packet one-way delay: 89.098 ms

Loss rate: 0.75%

Run 2: Report of Indigo — Data Link

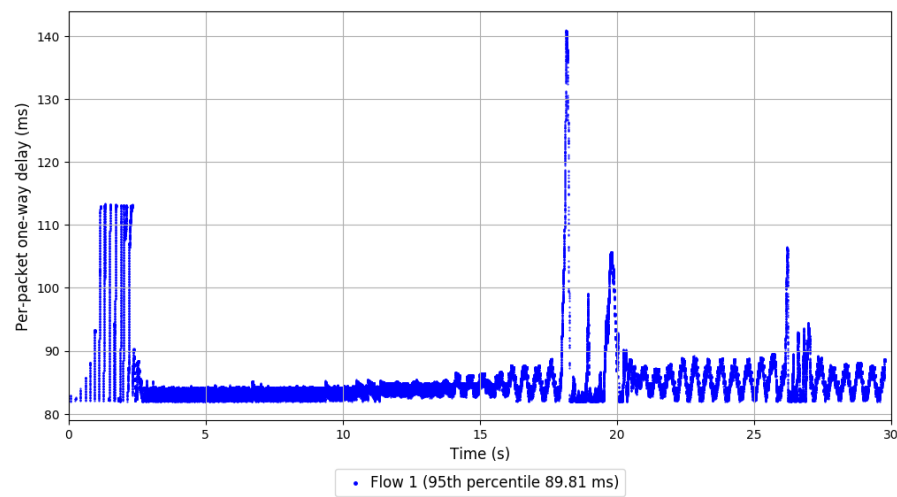
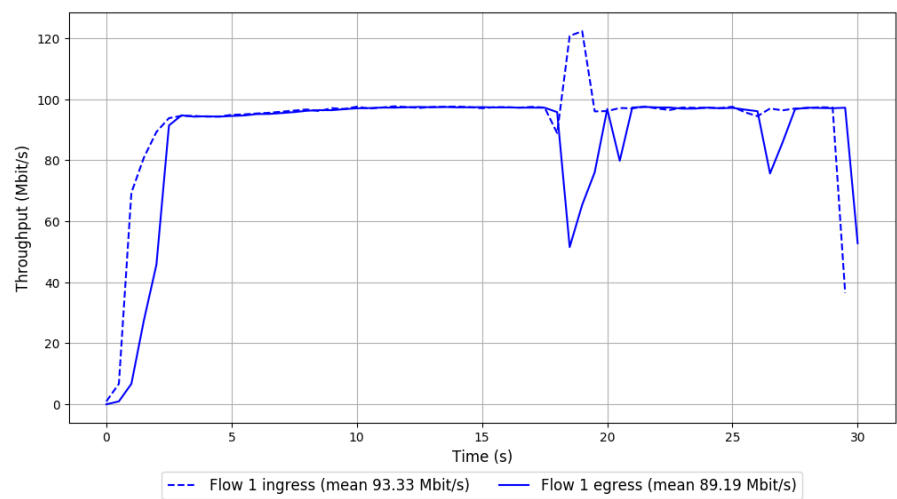


Run 3: Statistics of Indigo

Start at: 2018-08-31 06:45:21
End at: 2018-08-31 06:45:51
Local clock offset: 7.284 ms
Remote clock offset: -3.818 ms

Below is generated by plot.py at 2018-08-31 06:50:45
Datalink statistics
-- Total of 1 flow:
Average throughput: 89.19 Mbit/s
95th percentile per-packet one-way delay: 89.809 ms
Loss rate: 4.42%
-- Flow 1:
Average throughput: 89.19 Mbit/s
95th percentile per-packet one-way delay: 89.809 ms
Loss rate: 4.42%

Run 3: Report of Indigo — Data Link



Run 1: Statistics of Muses-25

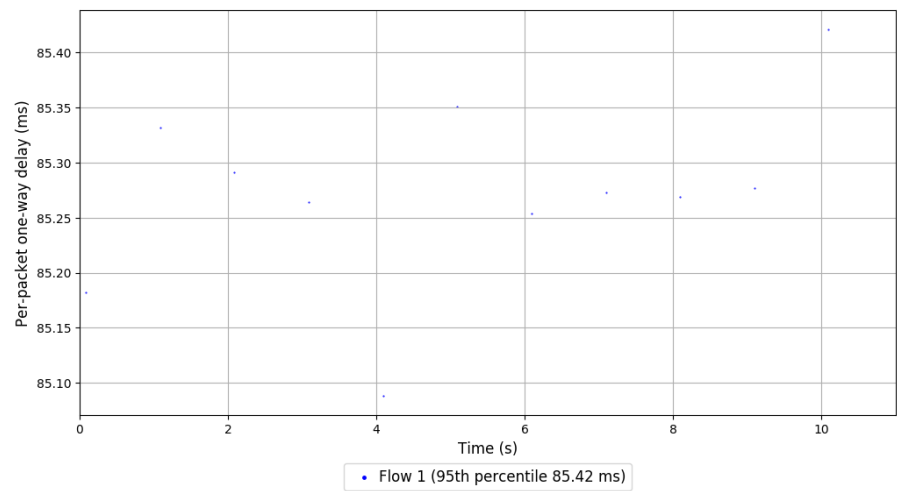
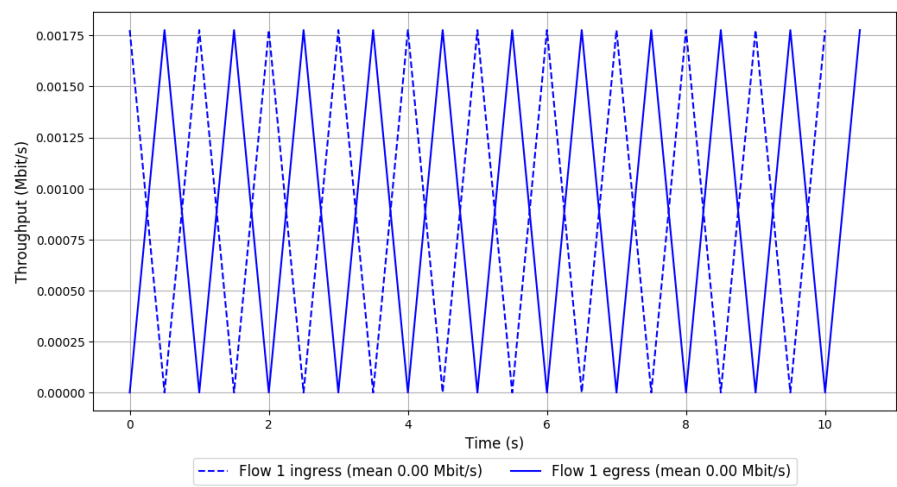
Start at: 2018-08-31 06:39:35

End at: 2018-08-31 06:40:05

Local clock offset: 5.939 ms

Remote clock offset: -0.21 ms

Run 1: Report of Muses-25 — Data Link



Run 2: Statistics of Muses-25

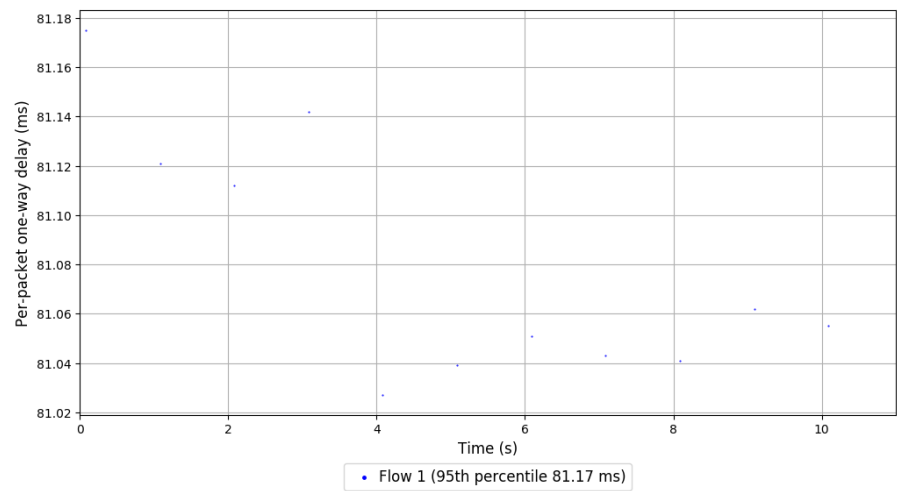
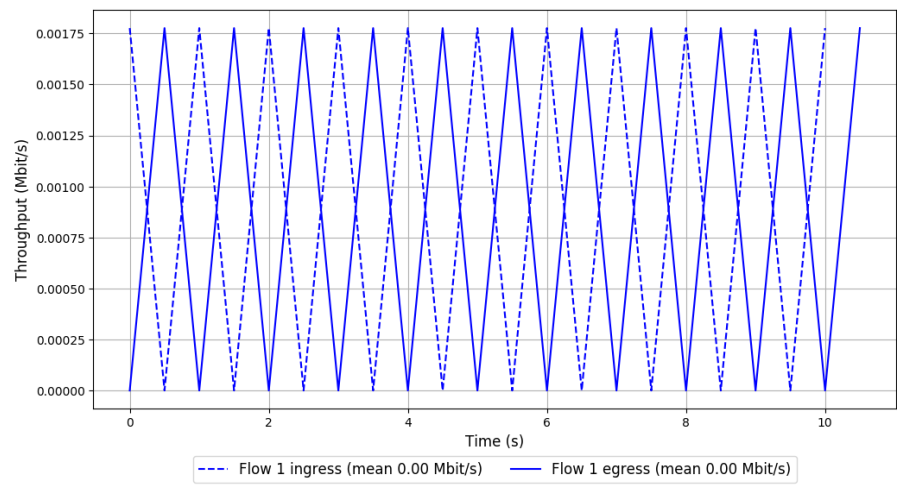
Start at: 2018-08-31 06:44:14

End at: 2018-08-31 06:44:44

Local clock offset: 7.673 ms

Remote clock offset: -3.863 ms

Run 2: Report of Muses-25 — Data Link



Run 3: Statistics of Muses-25

Start at: 2018-08-31 06:48:55

End at: 2018-08-31 06:49:25

Local clock offset: 8.766 ms

Remote clock offset: -3.364 ms

Run 3: Report of Muses-25 — Data Link

