

Pantheon Report

Generated at 2018-08-31 04:32:44 (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.

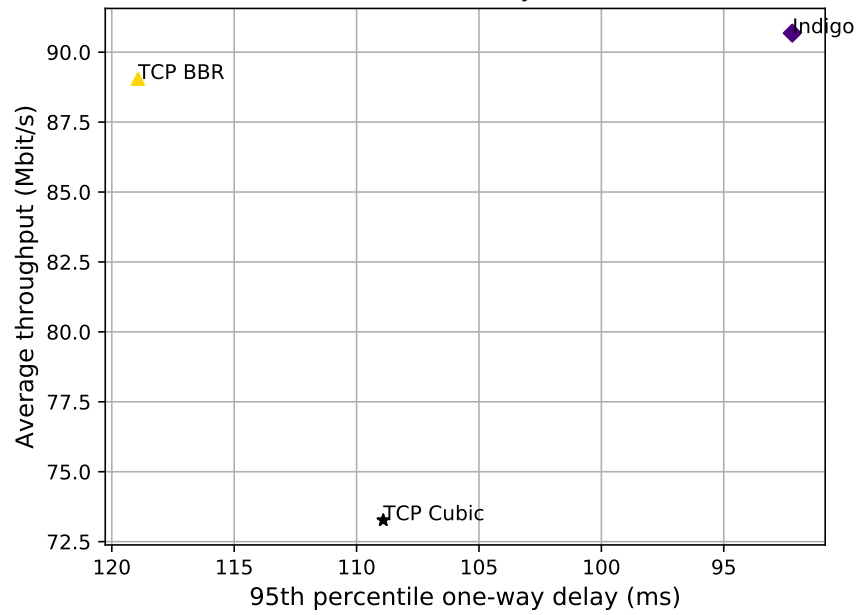
System info:

```
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
```

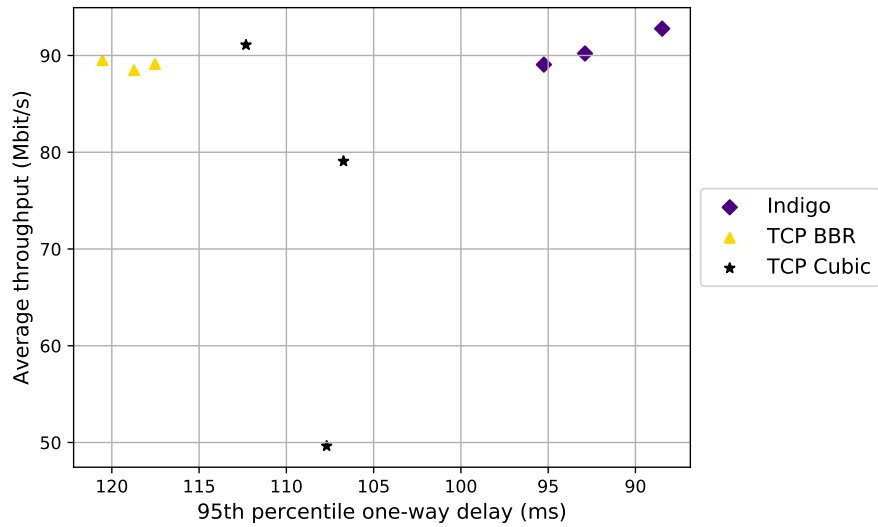
Git summary:

```
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	89.04	118.93	3.50
TCP Cubic	3	73.27	108.91	1.04
Indigo	3	90.68	92.20	2.13
Muses-25	0	N/A	N/A	N/A

Run 1: Statistics of TCP BBR

Start at: 2018-08-31 04:19:05

End at: 2018-08-31 04:19:35

Local clock offset: -10.16 ms

Remote clock offset: 0.713 ms

Below is generated by plot.py at 2018-08-31 04:32:38

Datalink statistics

-- Total of 1 flow:

Average throughput: 89.13 Mbit/s

95th percentile per-packet one-way delay: 117.529 ms

Loss rate: 3.20%

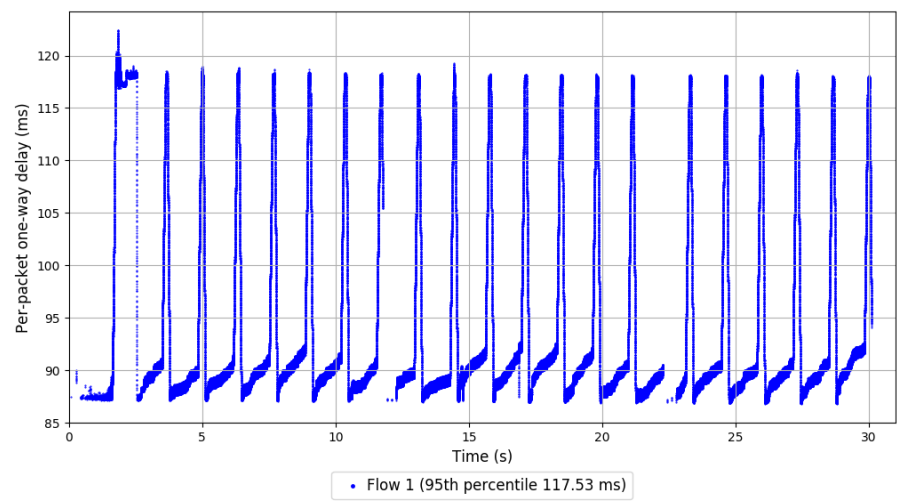
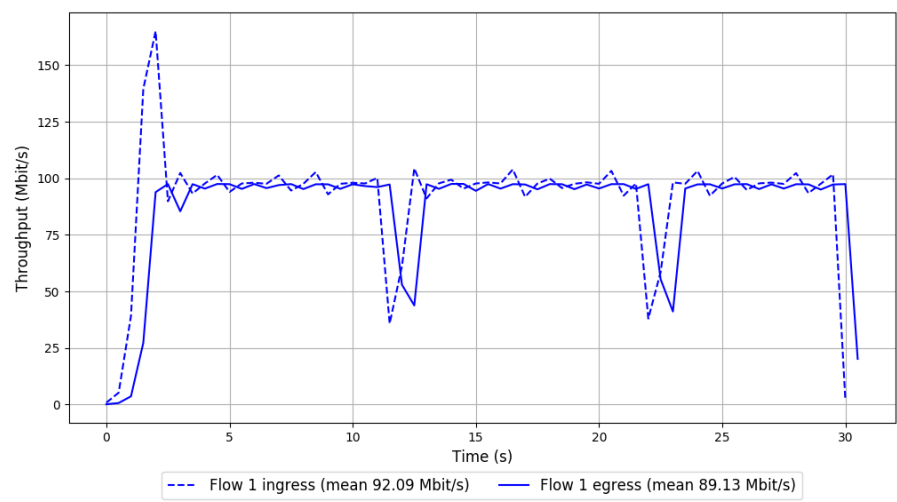
-- Flow 1:

Average throughput: 89.13 Mbit/s

95th percentile per-packet one-way delay: 117.529 ms

Loss rate: 3.20%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-08-31 04:23:48

End at: 2018-08-31 04:24:18

Local clock offset: -8.185 ms

Remote clock offset: 4.643 ms

Below is generated by plot.py at 2018-08-31 04:32:40

Datalink statistics

-- Total of 1 flow:

Average throughput: 89.51 Mbit/s

95th percentile per-packet one-way delay: 120.538 ms

Loss rate: 3.17%

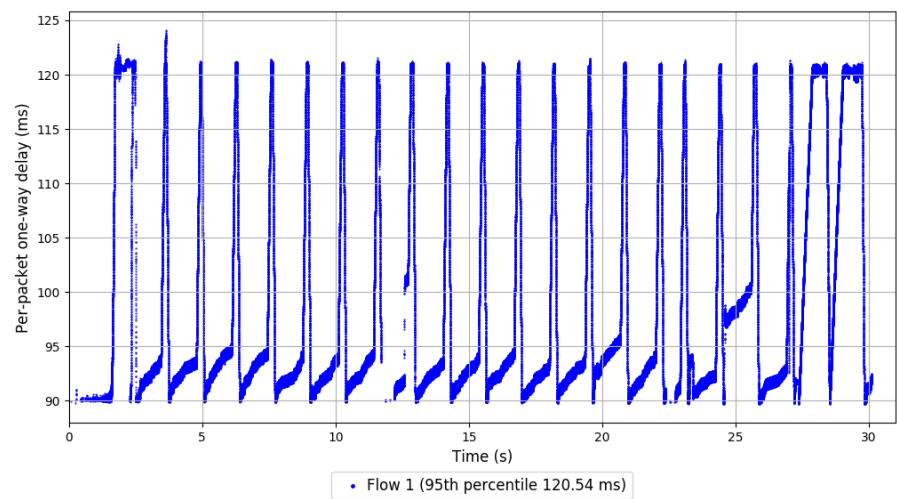
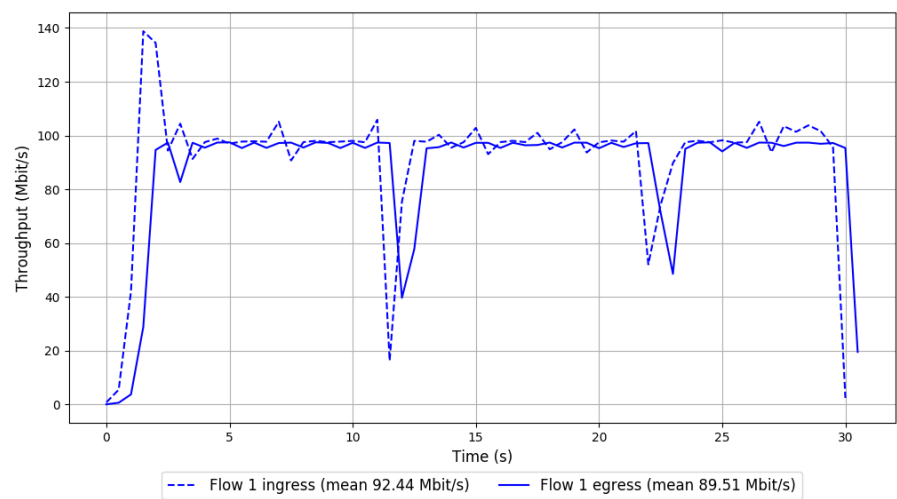
-- Flow 1:

Average throughput: 89.51 Mbit/s

95th percentile per-packet one-way delay: 120.538 ms

Loss rate: 3.17%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-08-31 04:28:28

End at: 2018-08-31 04:28:58

Local clock offset: -6.543 ms

Remote clock offset: 5.708 ms

Below is generated by plot.py at 2018-08-31 04:32:40

Datalink statistics

-- Total of 1 flow:

Average throughput: 88.49 Mbit/s

95th percentile per-packet one-way delay: 118.726 ms

Loss rate: 4.14%

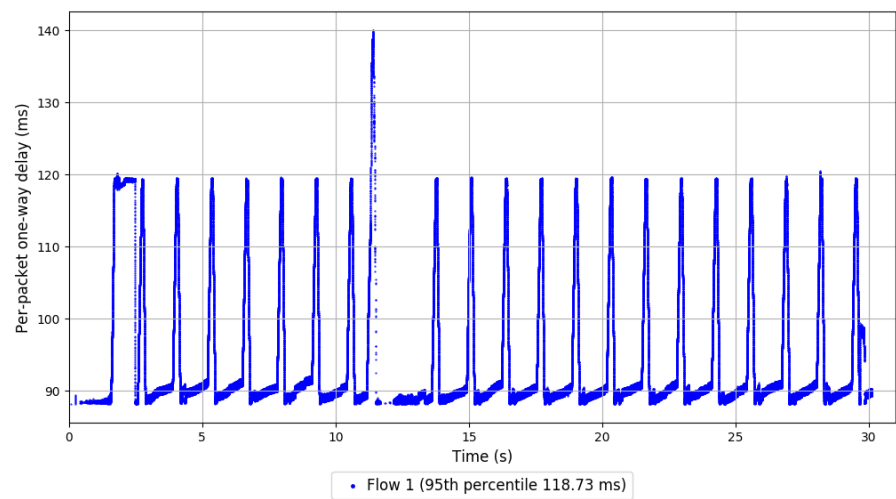
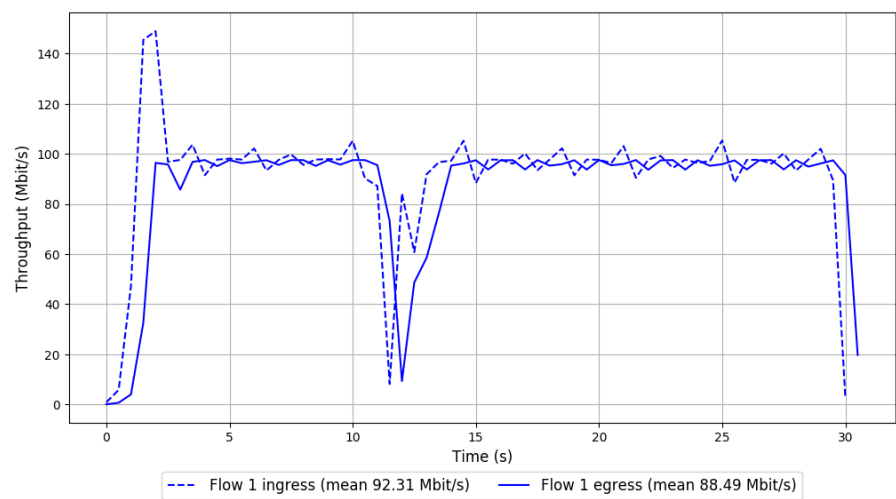
-- Flow 1:

Average throughput: 88.49 Mbit/s

95th percentile per-packet one-way delay: 118.726 ms

Loss rate: 4.14%

Run 3: Report of TCP BBR — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-08-31 04:17:54

End at: 2018-08-31 04:18:24

Local clock offset: -6.951 ms

Remote clock offset: 4.556 ms

Below is generated by plot.py at 2018-08-31 04:32:40

Datalink statistics

-- Total of 1 flow:

Average throughput: 91.09 Mbit/s

95th percentile per-packet one-way delay: 112.312 ms

Loss rate: 0.44%

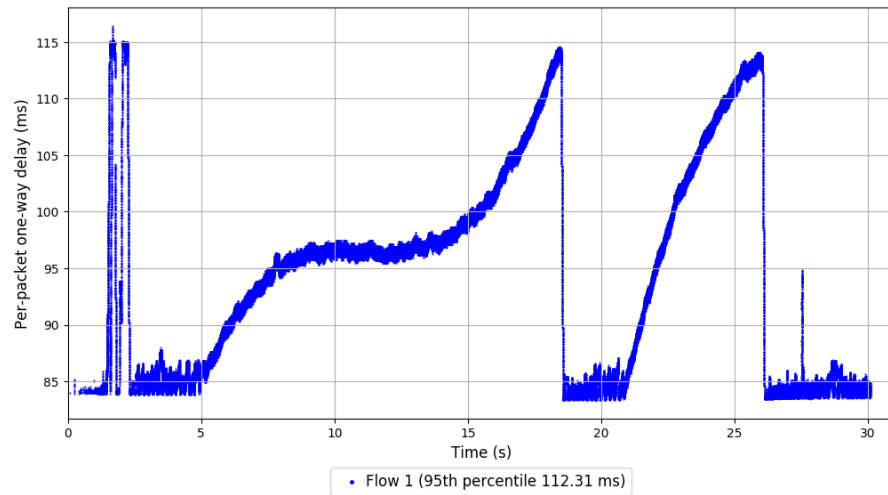
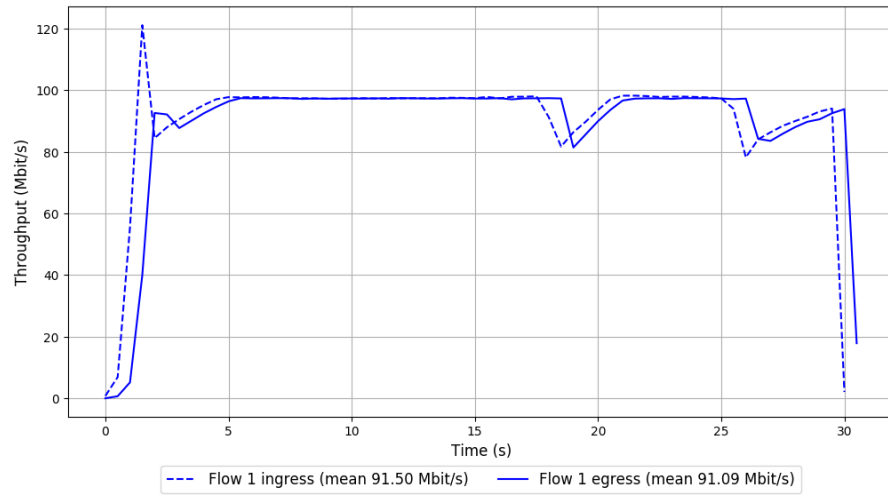
-- Flow 1:

Average throughput: 91.09 Mbit/s

95th percentile per-packet one-way delay: 112.312 ms

Loss rate: 0.44%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2018-08-31 04:22:34

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

Local clock offset: -8.045 ms

Remote clock offset: 4.645 ms

Below is generated by plot.py at 2018-08-31 04:32:40

Datalink statistics

-- Total of 1 flow:

Average throughput: 49.64 Mbit/s

95th percentile per-packet one-way delay: 107.693 ms

Loss rate: 1.61%

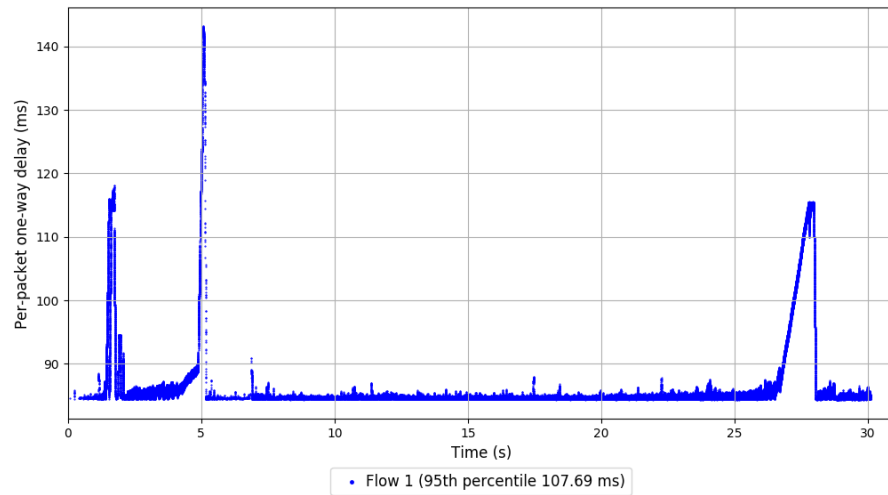
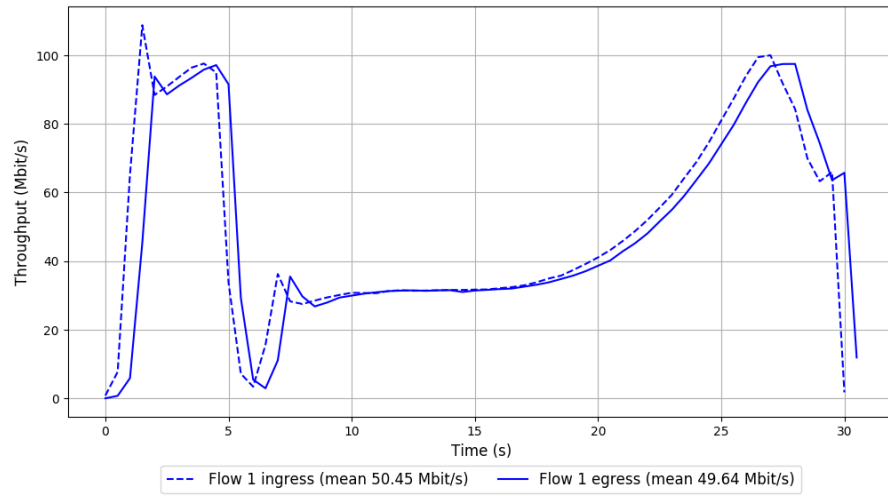
-- Flow 1:

Average throughput: 49.64 Mbit/s

95th percentile per-packet one-way delay: 107.693 ms

Loss rate: 1.61%

Run 2: Report of TCP Cubic — Data Link

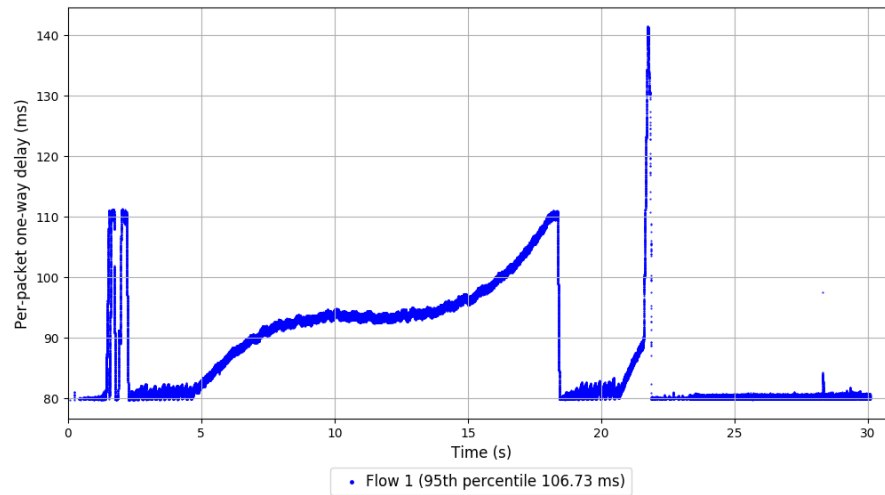
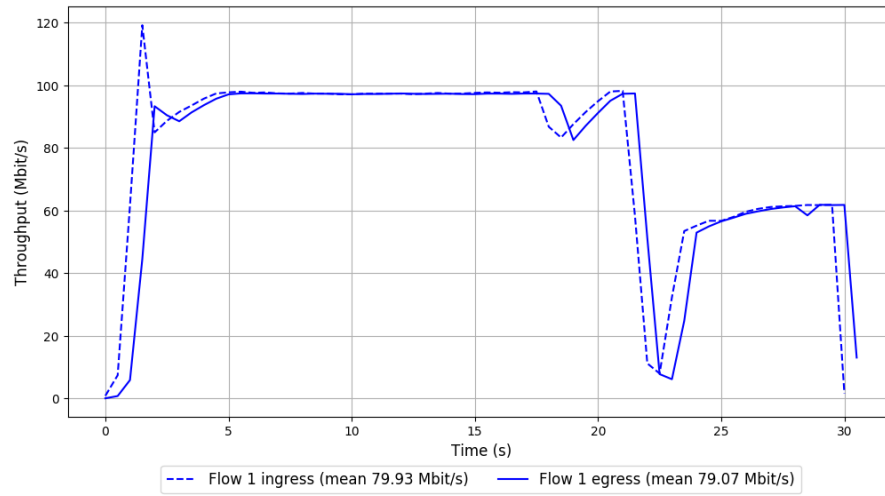


Run 3: Statistics of TCP Cubic

Start at: 2018-08-31 04:27:17
End at: 2018-08-31 04:27:47
Local clock offset: -6.849 ms
Remote clock offset: -0.494 ms

Below is generated by plot.py at 2018-08-31 04:32:40
Datalink statistics
-- Total of 1 flow:
Average throughput: 79.07 Mbit/s
95th percentile per-packet one-way delay: 106.727 ms
Loss rate: 1.07%
-- Flow 1:
Average throughput: 79.07 Mbit/s
95th percentile per-packet one-way delay: 106.727 ms
Loss rate: 1.07%

Run 3: Report of TCP Cubic — Data Link

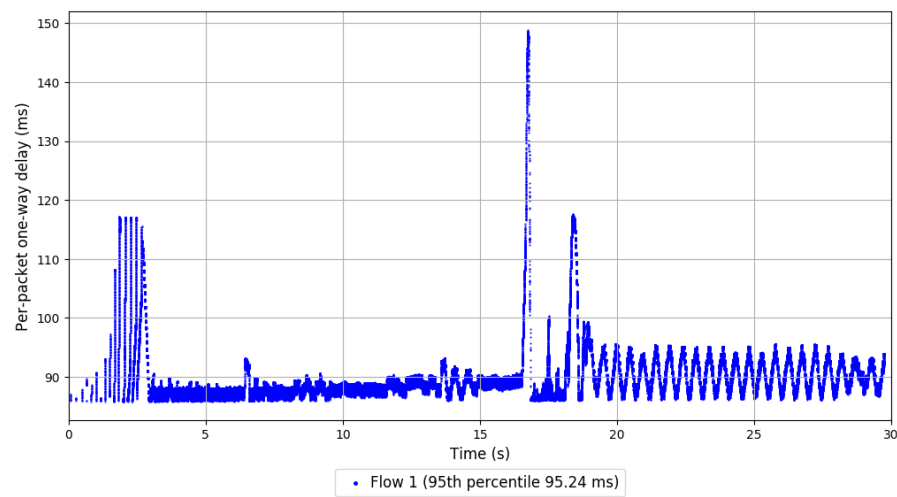
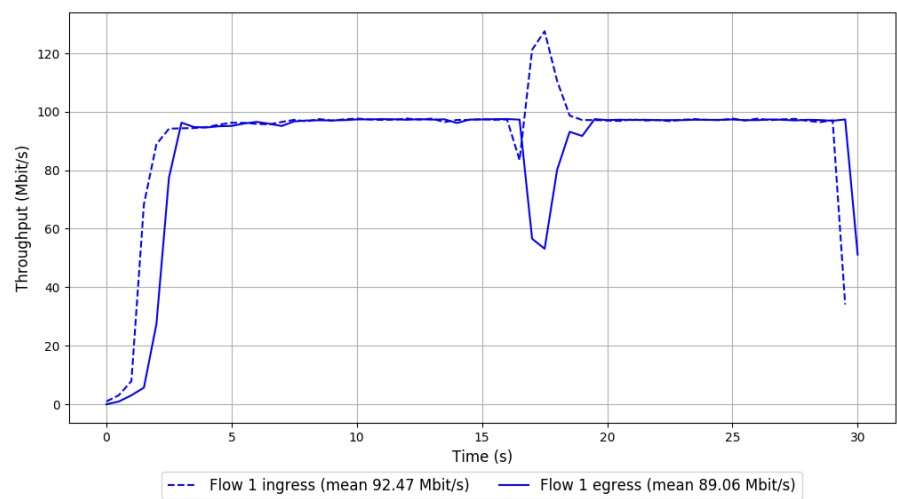


```
Run 1: Statistics of Indigo

Start at: 2018-08-31 04:21:22
End at: 2018-08-31 04:21:52
Local clock offset: -8.459 ms
Remote clock offset: 5.792 ms

# Below is generated by plot.py at 2018-08-31 04:32:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 89.06 Mbit/s
95th percentile per-packet one-way delay: 95.244 ms
Loss rate: 3.66%
-- Flow 1:
Average throughput: 89.06 Mbit/s
95th percentile per-packet one-way delay: 95.244 ms
Loss rate: 3.66%
```

Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2018-08-31 04:26:05

End at: 2018-08-31 04:26:35

Local clock offset: -7.471 ms

Remote clock offset: 5.645 ms

Below is generated by plot.py at 2018-08-31 04:32:40

Datalink statistics

-- Total of 1 flow:

Average throughput: 90.21 Mbit/s

95th percentile per-packet one-way delay: 92.891 ms

Loss rate: 2.05%

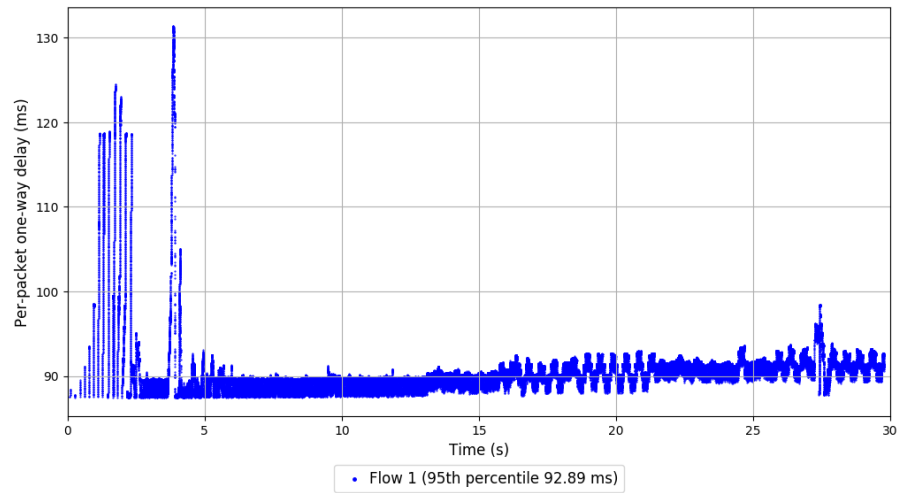
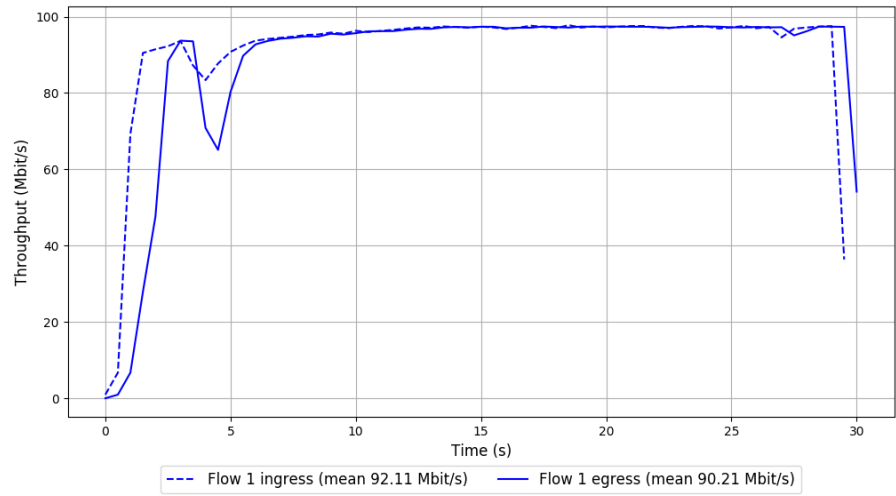
-- Flow 1:

Average throughput: 90.21 Mbit/s

95th percentile per-packet one-way delay: 92.891 ms

Loss rate: 2.05%

Run 2: Report of Indigo — Data Link

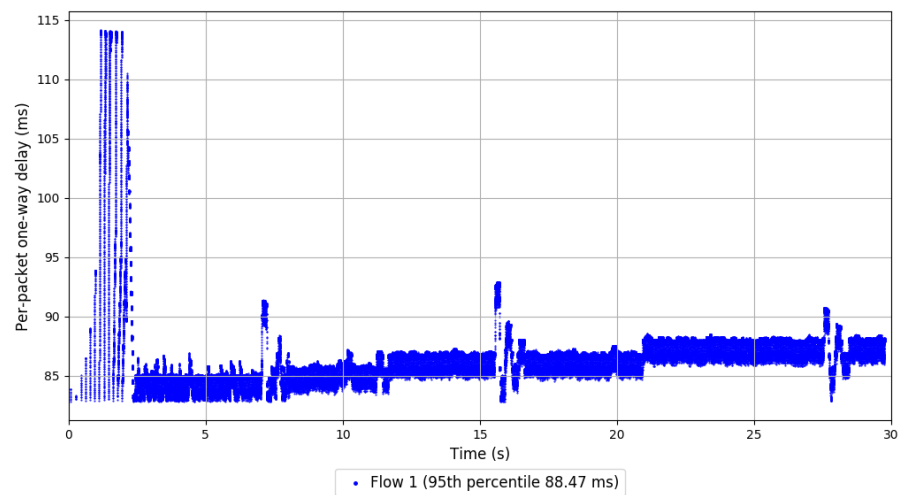
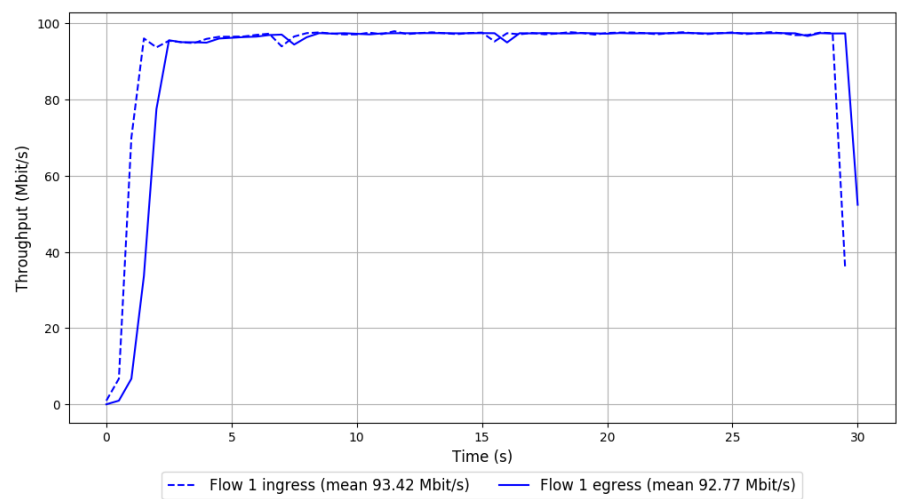


Run 3: Statistics of Indigo

Start at: 2018-08-31 04:30:45
End at: 2018-08-31 04:31:15
Local clock offset: -6.796 ms
Remote clock offset: -0.405 ms

Below is generated by plot.py at 2018-08-31 04:32:43
Datalink statistics
-- Total of 1 flow:
Average throughput: 92.77 Mbit/s
95th percentile per-packet one-way delay: 88.469 ms
Loss rate: 0.68%
-- Flow 1:
Average throughput: 92.77 Mbit/s
95th percentile per-packet one-way delay: 88.469 ms
Loss rate: 0.68%

Run 3: Report of Indigo — Data Link



Run 1: Statistics of Muses-25

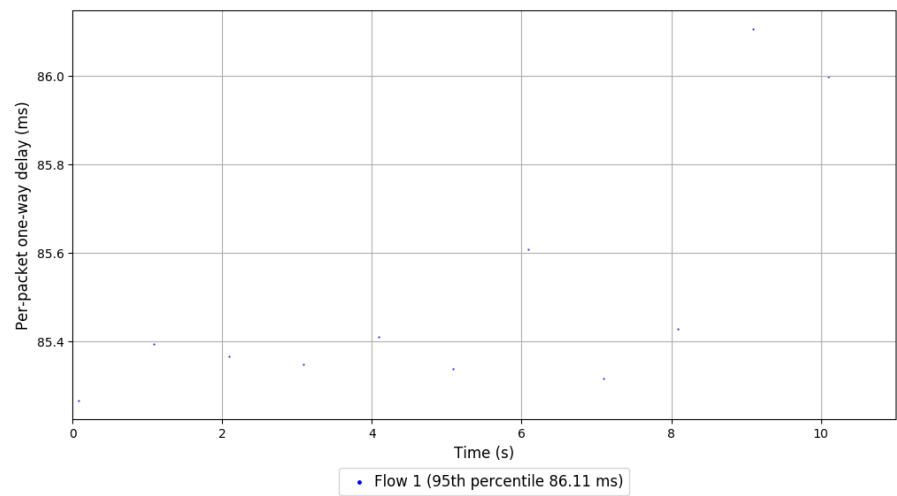
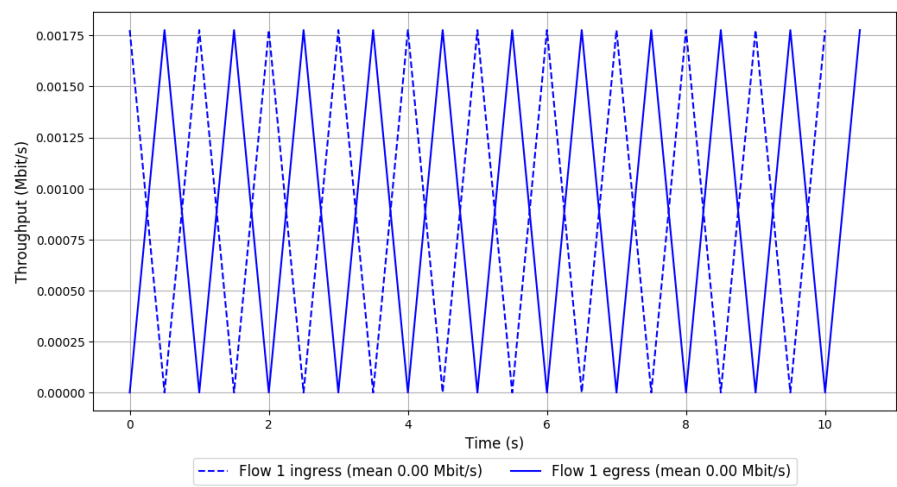
Start at: 2018-08-31 04:20:16

End at: 2018-08-31 04:20:46

Local clock offset: -9.928 ms

Remote clock offset: 5.685 ms

Run 1: Report of Muses-25 — Data Link



Run 2: Statistics of Muses-25

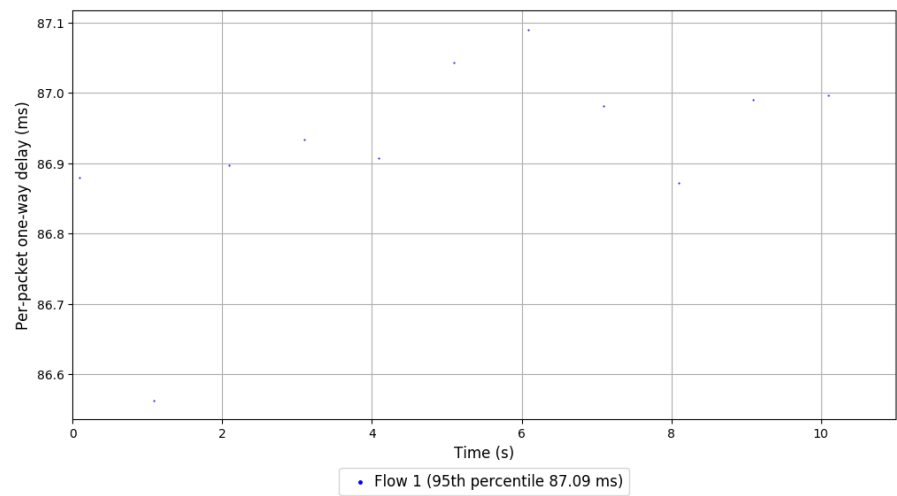
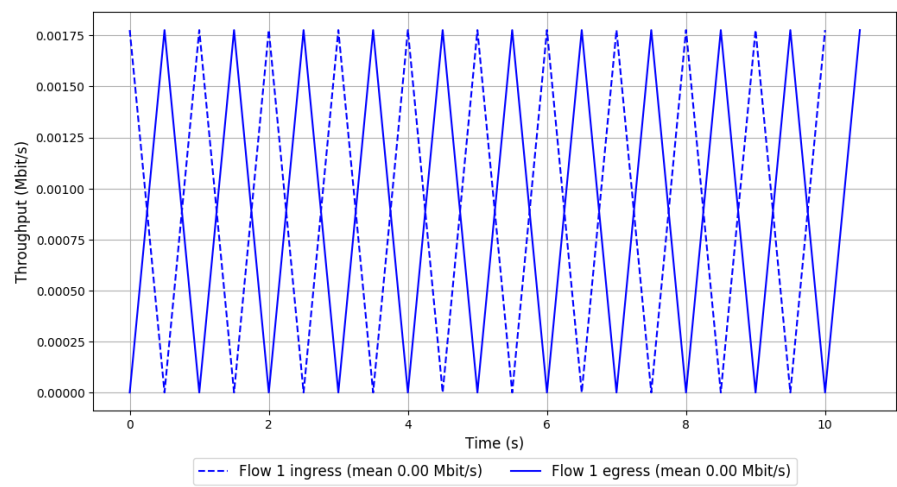
Start at: 2018-08-31 04:24:59

End at: 2018-08-31 04:25:29

Local clock offset: -8.754 ms

Remote clock offset: 4.562 ms

Run 2: Report of Muses-25 — Data Link



Run 3: Statistics of Muses-25

Start at: 2018-08-31 04:29:39

End at: 2018-08-31 04:30:09

Local clock offset: -6.612 ms

Remote clock offset: 4.601 ms

Run 3: Report of Muses-25 — Data Link

