

Pantheon Report

Generated at 2018-09-05 21:17:23 (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.

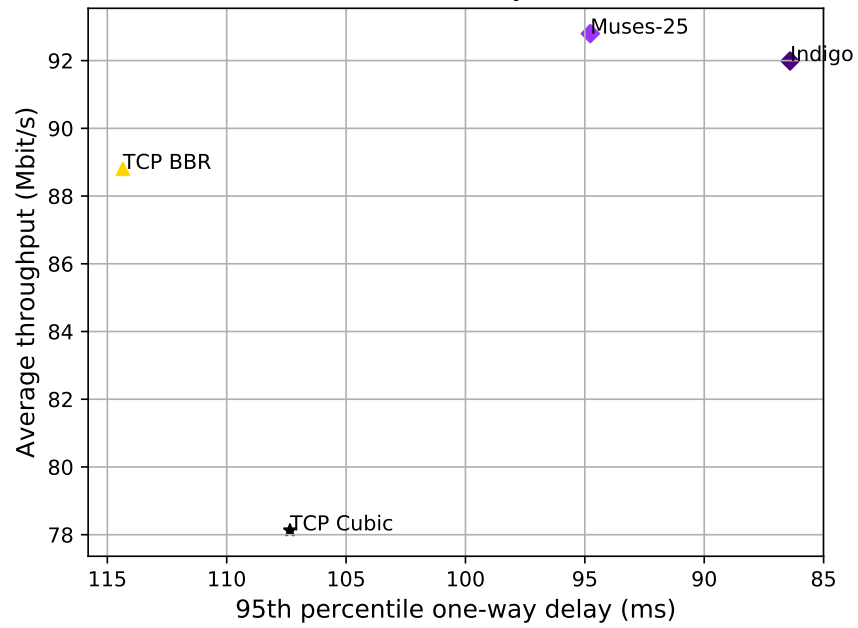
System info:

```
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
```

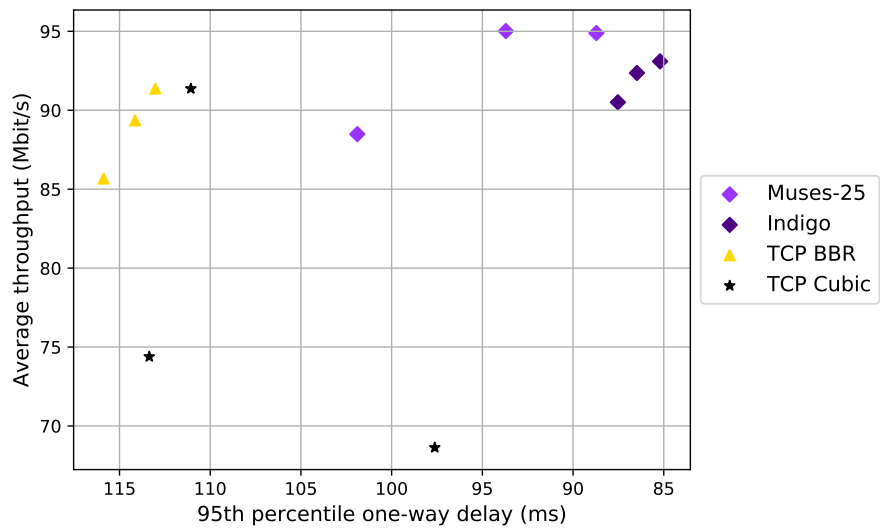
Git summary:

```
branch: muses @ 18b9165265c8ba2915c862e8713fd9ad82c1ac21
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
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 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



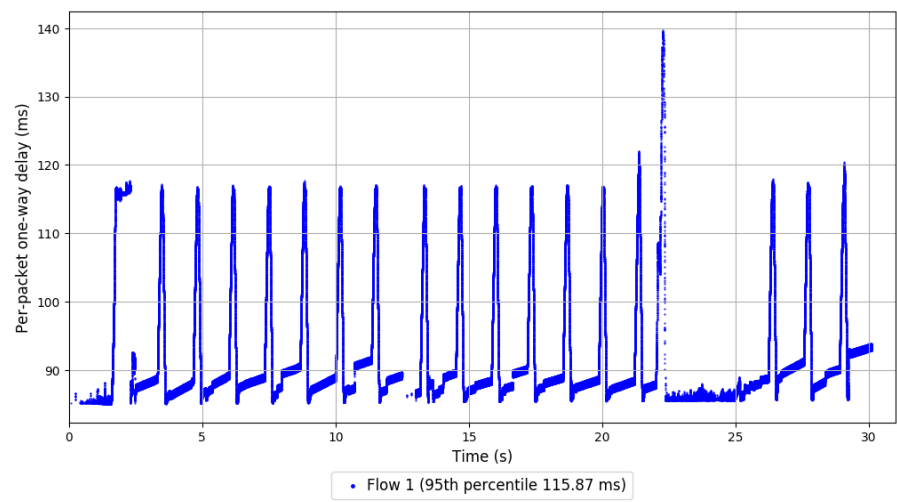
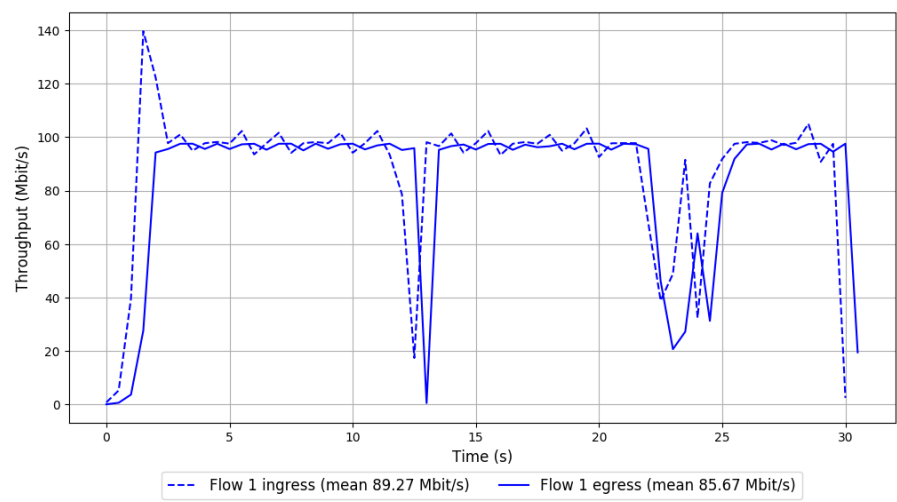
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	88.80	114.35	3.41
TCP Cubic	3	78.13	107.35	0.87
Indigo	3	91.99	86.40	0.93
Muses-25	3	92.80	94.77	1.39

Run 1: Statistics of TCP BBR

Start at: 2018-09-05 21:05:17
End at: 2018-09-05 21:05:47
Local clock offset: 10.363 ms
Remote clock offset: -1.421 ms

Below is generated by plot.py at 2018-09-05 21:16:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 85.67 Mbit/s
95th percentile per-packet one-way delay: 115.873 ms
Loss rate: 4.02%
-- Flow 1:
Average throughput: 85.67 Mbit/s
95th percentile per-packet one-way delay: 115.873 ms
Loss rate: 4.02%

Run 1: Report of TCP BBR — Data Link

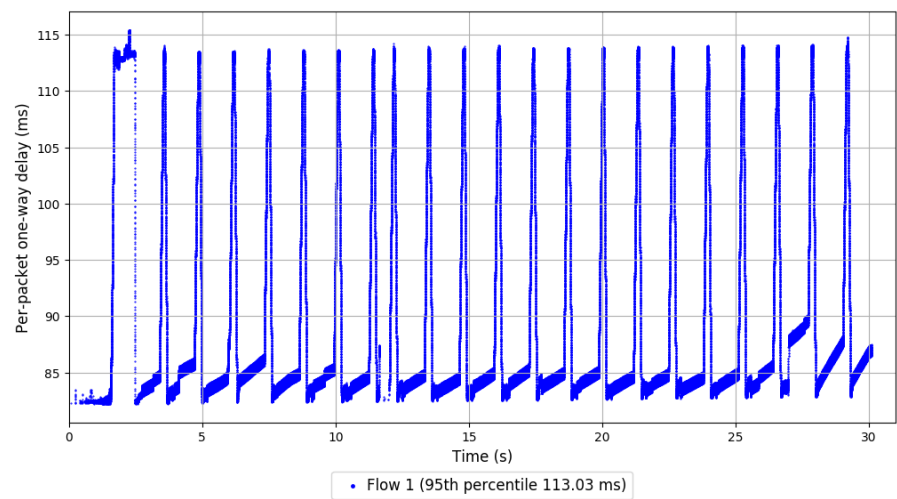
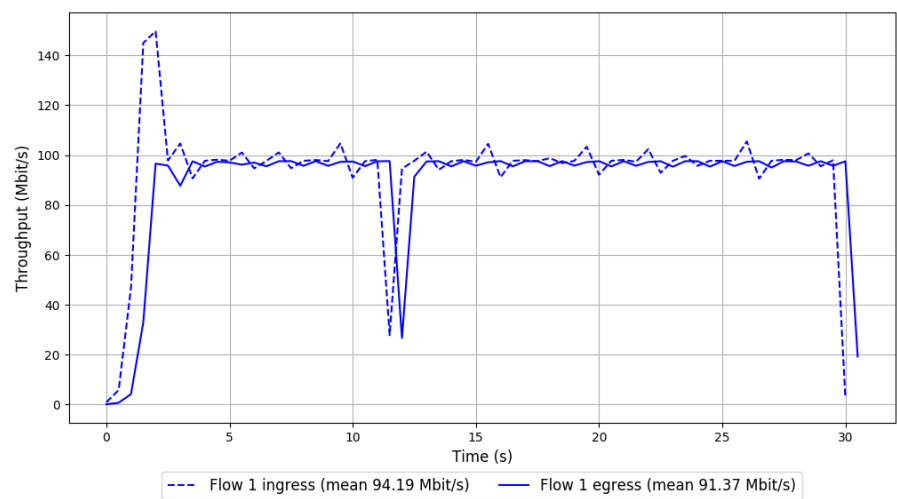


Run 2: Statistics of TCP BBR

Start at: 2018-09-05 21:10:04
End at: 2018-09-05 21:10:34
Local clock offset: 17.174 ms
Remote clock offset: -0.179 ms

Below is generated by plot.py at 2018-09-05 21:16:52
Datalink statistics
-- Total of 1 flow:
Average throughput: 91.37 Mbit/s
95th percentile per-packet one-way delay: 113.026 ms
Loss rate: 2.98%
-- Flow 1:
Average throughput: 91.37 Mbit/s
95th percentile per-packet one-way delay: 113.026 ms
Loss rate: 2.98%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-09-05 21:14:52

End at: 2018-09-05 21:15:22

Local clock offset: 23.665 ms

Remote clock offset: 2.314 ms

Below is generated by plot.py at 2018-09-05 21:16:52

Datalink statistics

-- Total of 1 flow:

Average throughput: 89.36 Mbit/s

95th percentile per-packet one-way delay: 114.143 ms

Loss rate: 3.22%

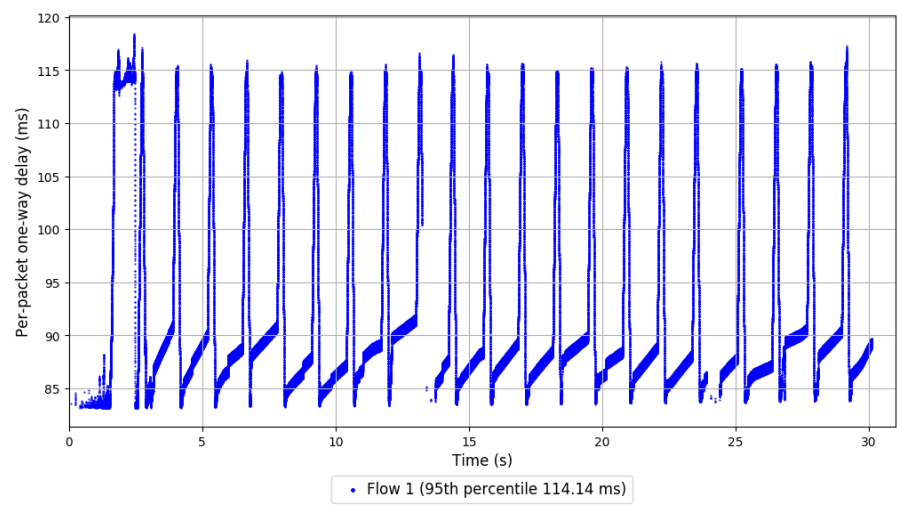
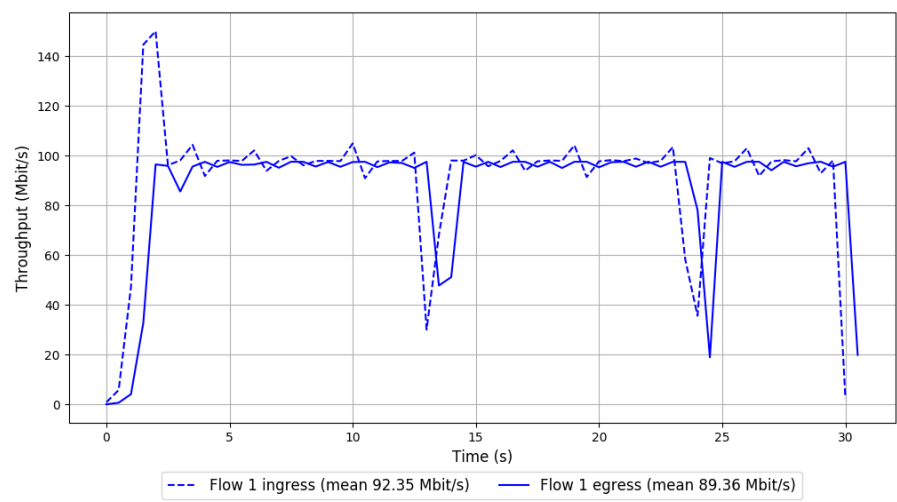
-- Flow 1:

Average throughput: 89.36 Mbit/s

95th percentile per-packet one-way delay: 114.143 ms

Loss rate: 3.22%

Run 3: Report of TCP BBR — Data Link

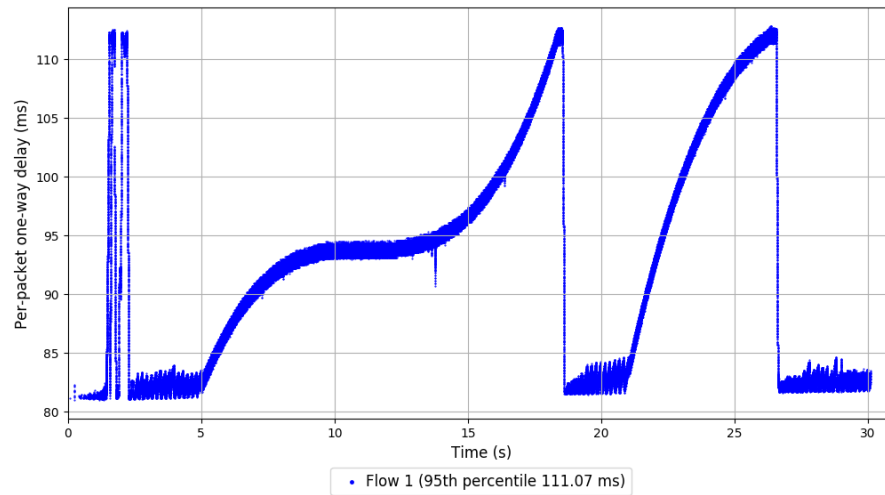
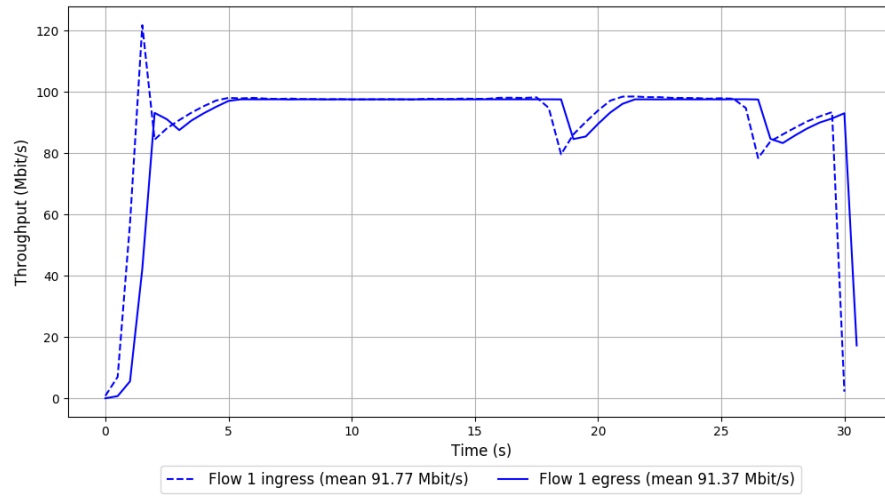


Run 1: Statistics of TCP Cubic

Start at: 2018-09-05 21:01:41
End at: 2018-09-05 21:02:11
Local clock offset: 3.067 ms
Remote clock offset: -0.072 ms

Below is generated by plot.py at 2018-09-05 21:16:52
Datalink statistics
-- Total of 1 flow:
Average throughput: 91.37 Mbit/s
95th percentile per-packet one-way delay: 111.070 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 91.37 Mbit/s
95th percentile per-packet one-way delay: 111.070 ms
Loss rate: 0.44%

Run 1: Report of TCP Cubic — Data Link

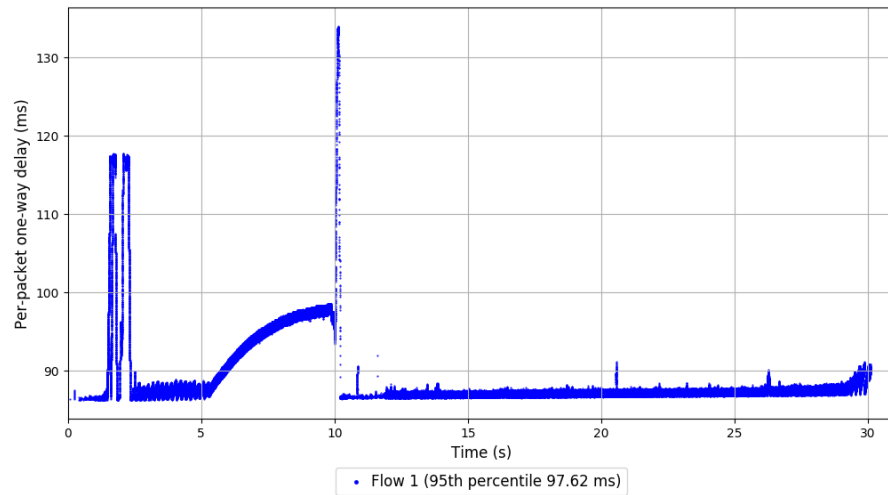
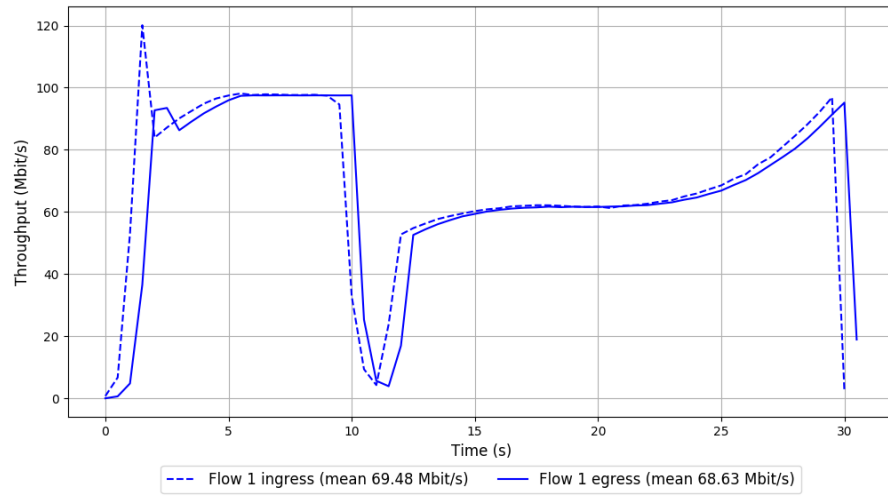


Run 2: Statistics of TCP Cubic

Start at: 2018-09-05 21:06:29
End at: 2018-09-05 21:06:59
Local clock offset: 12.292 ms
Remote clock offset: -0.242 ms

Below is generated by plot.py at 2018-09-05 21:16:52
Datalink statistics
-- Total of 1 flow:
Average throughput: 68.63 Mbit/s
95th percentile per-packet one-way delay: 97.623 ms
Loss rate: 1.23%
-- Flow 1:
Average throughput: 68.63 Mbit/s
95th percentile per-packet one-way delay: 97.623 ms
Loss rate: 1.23%

Run 2: Report of TCP Cubic — Data Link

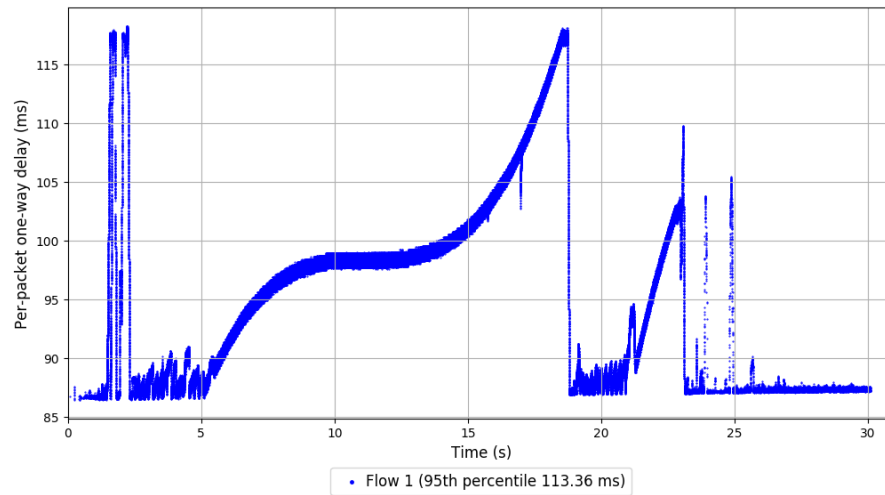
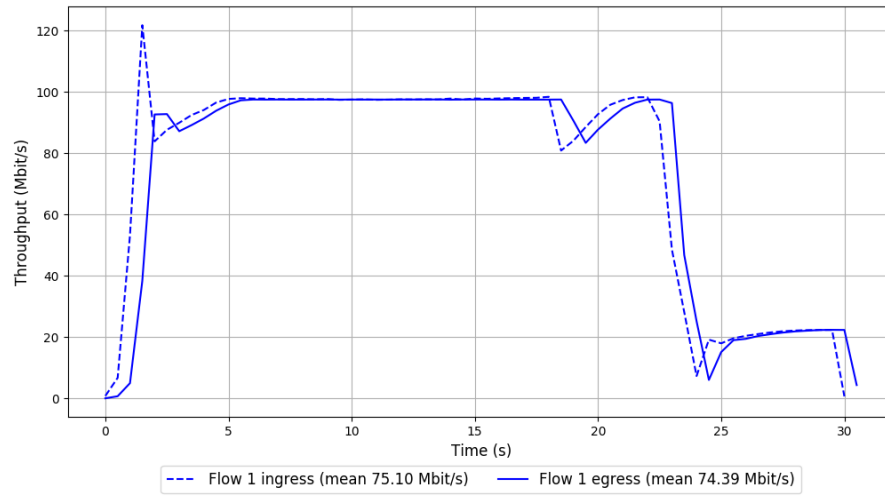


Run 3: Statistics of TCP Cubic

Start at: 2018-09-05 21:11:16
End at: 2018-09-05 21:11:46
Local clock offset: 17.838 ms
Remote clock offset: 2.588 ms

Below is generated by plot.py at 2018-09-05 21:16:52
Datalink statistics
-- Total of 1 flow:
Average throughput: 74.39 Mbit/s
95th percentile per-packet one-way delay: 113.360 ms
Loss rate: 0.95%
-- Flow 1:
Average throughput: 74.39 Mbit/s
95th percentile per-packet one-way delay: 113.360 ms
Loss rate: 0.95%

Run 3: Report of TCP Cubic — Data Link



Run 1: Statistics of Indigo

Start at: 2018-09-05 21:04:04

End at: 2018-09-05 21:04:34

Local clock offset: 7.783 ms

Remote clock offset: -1.301 ms

Below is generated by plot.py at 2018-09-05 21:16:52

Datalink statistics

-- Total of 1 flow:

Average throughput: 90.51 Mbit/s

95th percentile per-packet one-way delay: 87.529 ms

Loss rate: 1.24%

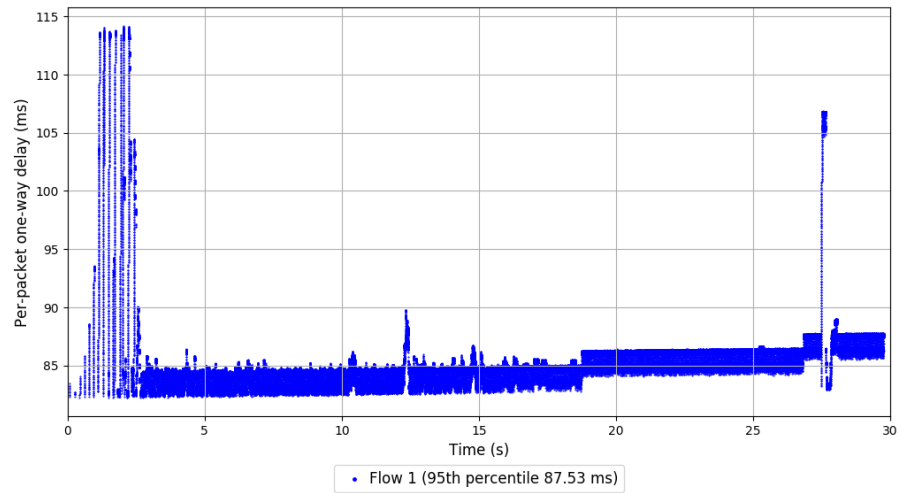
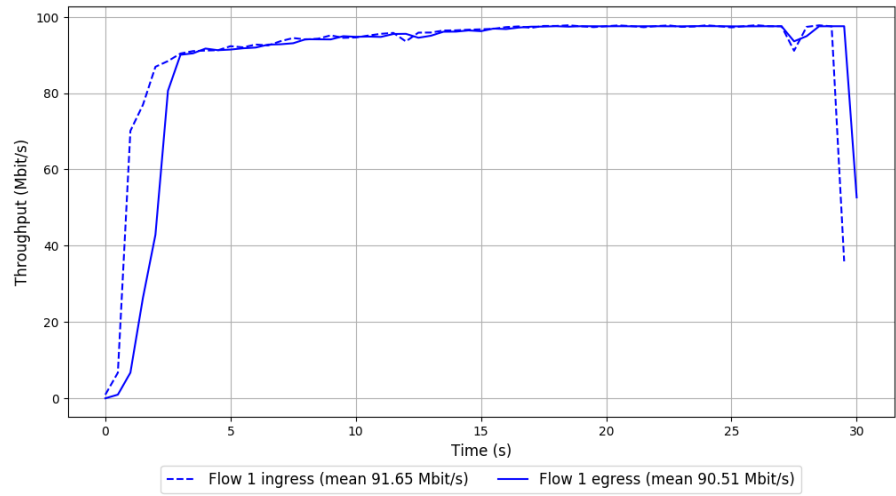
-- Flow 1:

Average throughput: 90.51 Mbit/s

95th percentile per-packet one-way delay: 87.529 ms

Loss rate: 1.24%

Run 1: Report of Indigo — Data Link

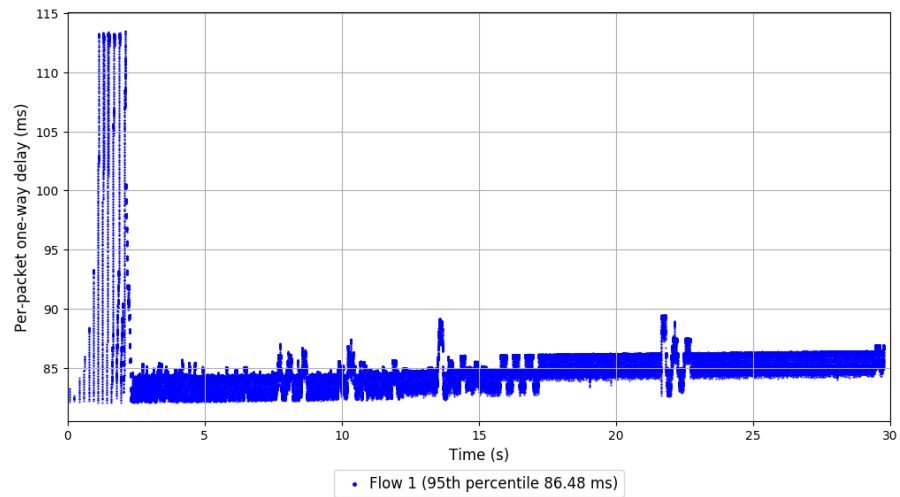
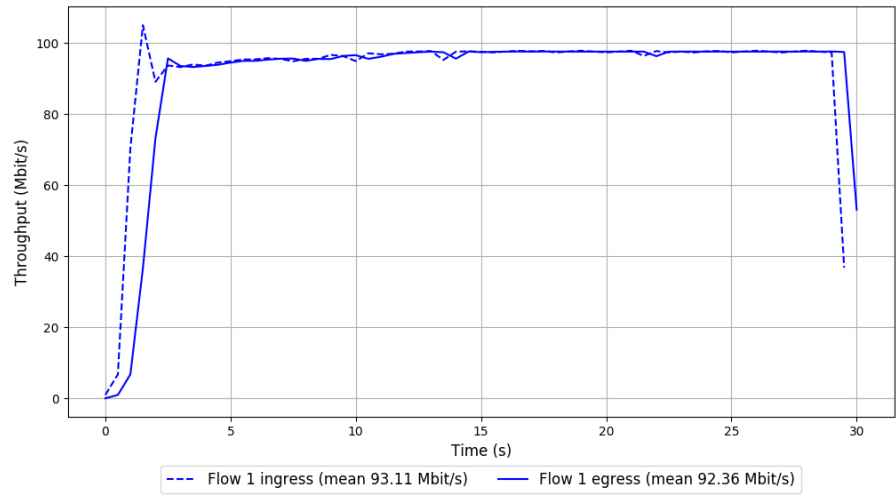


Run 2: Statistics of Indigo

Start at: 2018-09-05 21:08:51
End at: 2018-09-05 21:09:21
Local clock offset: 15.419 ms
Remote clock offset: -0.355 ms

Below is generated by plot.py at 2018-09-05 21:16:52
Datalink statistics
-- Total of 1 flow:
Average throughput: 92.36 Mbit/s
95th percentile per-packet one-way delay: 86.479 ms
Loss rate: 0.80%
-- Flow 1:
Average throughput: 92.36 Mbit/s
95th percentile per-packet one-way delay: 86.479 ms
Loss rate: 0.80%

Run 2: Report of Indigo — Data Link

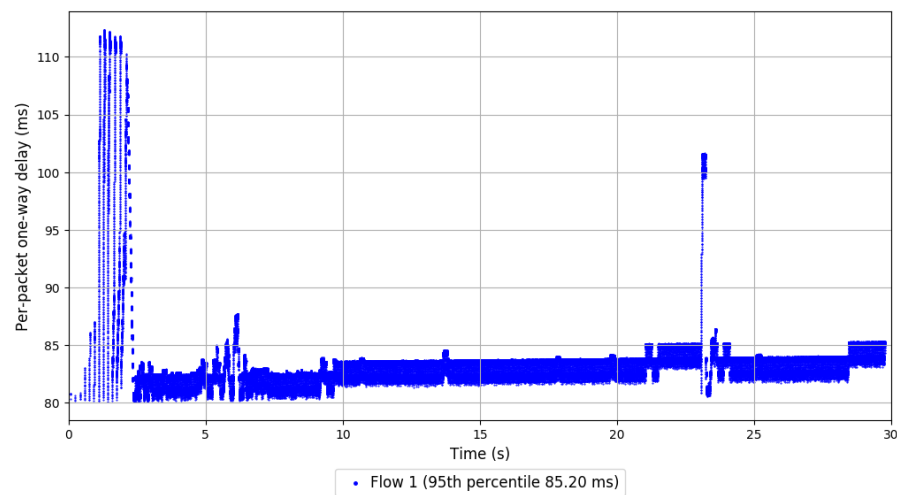
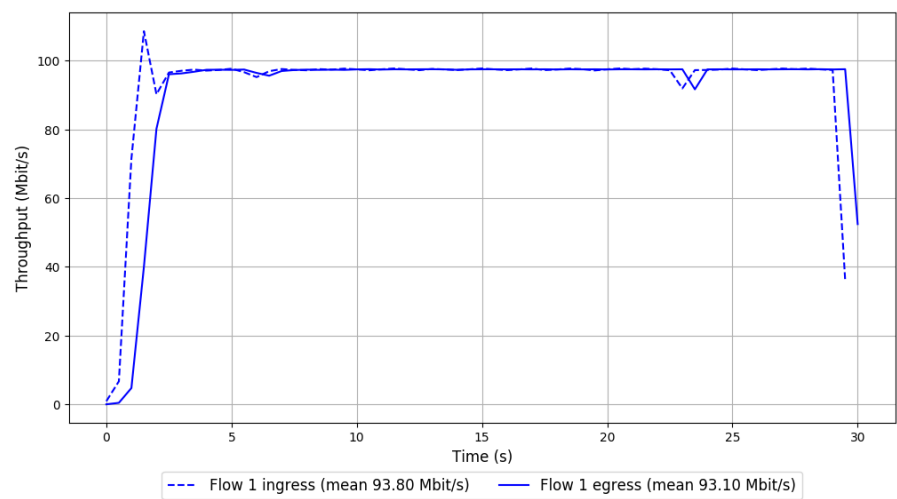


Run 3: Statistics of Indigo

Start at: 2018-09-05 21:13:39
End at: 2018-09-05 21:14:09
Local clock offset: 22.269 ms
Remote clock offset: -1.374 ms

Below is generated by plot.py at 2018-09-05 21:17:20
Datalink statistics
-- Total of 1 flow:
Average throughput: 93.10 Mbit/s
95th percentile per-packet one-way delay: 85.204 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 93.10 Mbit/s
95th percentile per-packet one-way delay: 85.204 ms
Loss rate: 0.74%

Run 3: Report of Indigo — Data Link



Run 1: Statistics of Muses-25

Start at: 2018-09-05 21:02:53

End at: 2018-09-05 21:03:23

Local clock offset: 4.785 ms

Remote clock offset: -1.334 ms

Below is generated by plot.py at 2018-09-05 21:17:21

Datalink statistics

-- Total of 1 flow:

Average throughput: 95.02 Mbit/s

95th percentile per-packet one-way delay: 93.705 ms

Loss rate: 0.96%

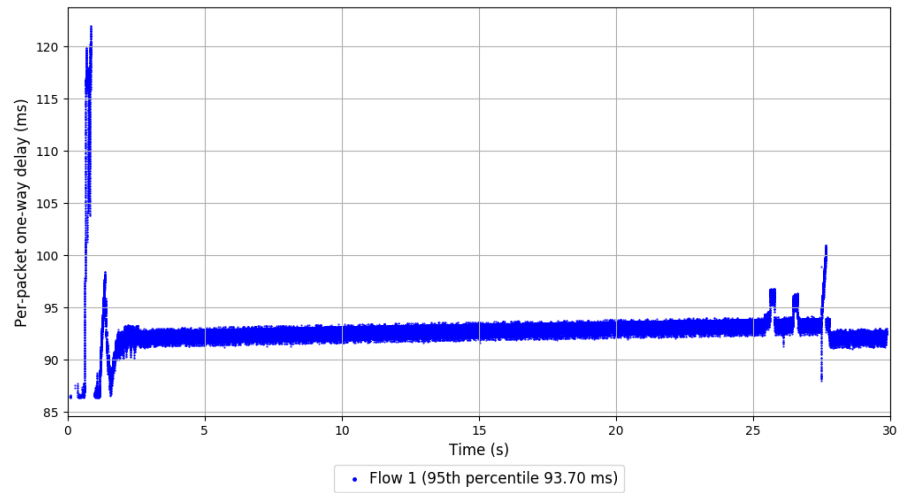
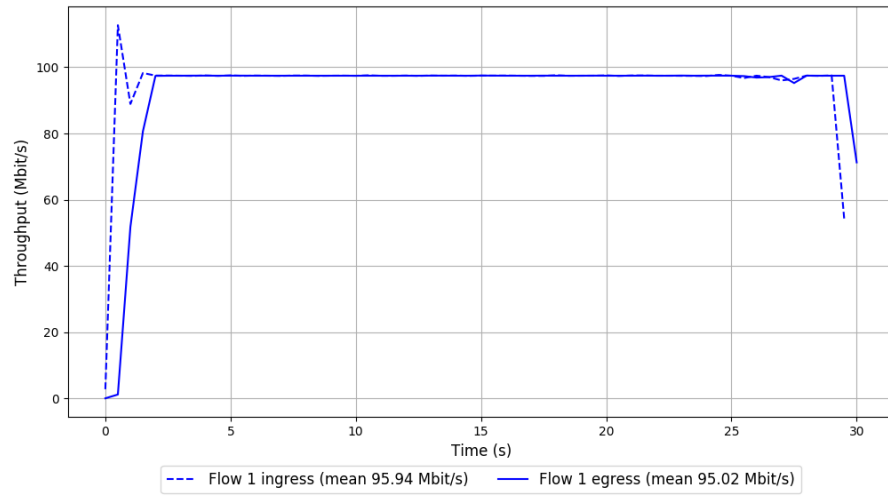
-- Flow 1:

Average throughput: 95.02 Mbit/s

95th percentile per-packet one-way delay: 93.705 ms

Loss rate: 0.96%

Run 1: Report of Muses-25 — Data Link

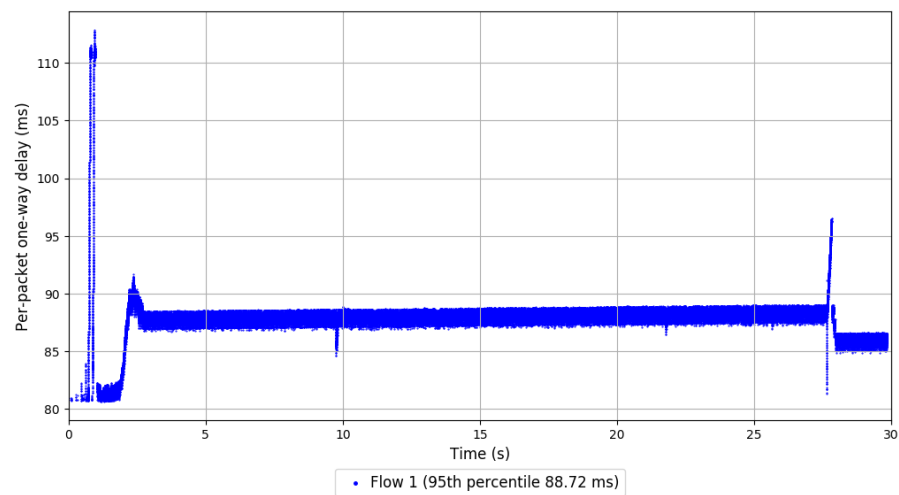
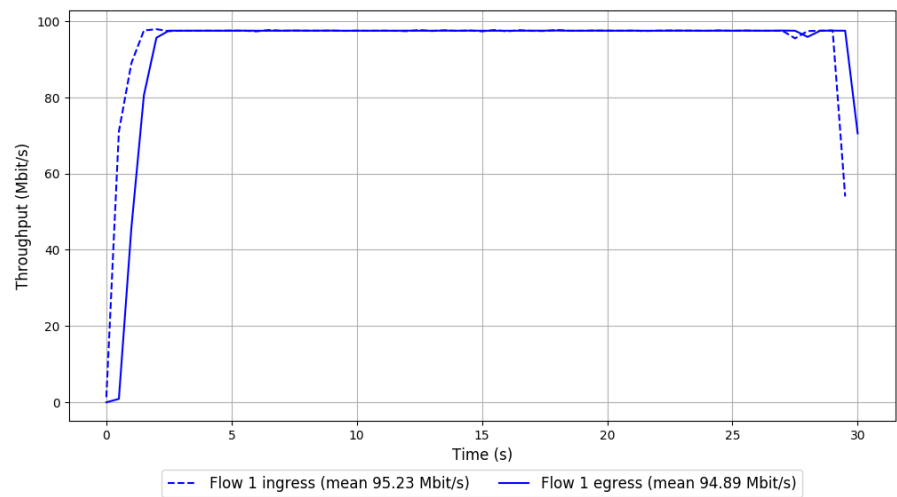


Run 2: Statistics of Muses-25

Start at: 2018-09-05 21:07:40
End at: 2018-09-05 21:08:10
Local clock offset: 13.758 ms
Remote clock offset: -1.383 ms

Below is generated by plot.py at 2018-09-05 21:17:22
Datalink statistics
-- Total of 1 flow:
Average throughput: 94.89 Mbit/s
95th percentile per-packet one-way delay: 88.717 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 94.89 Mbit/s
95th percentile per-packet one-way delay: 88.717 ms
Loss rate: 0.34%

Run 2: Report of Muses-25 — Data Link



Run 3: Statistics of Muses-25

Start at: 2018-09-05 21:12:28

End at: 2018-09-05 21:12:58

Local clock offset: 20.49 ms

Remote clock offset: 3.659 ms

Below is generated by plot.py at 2018-09-05 21:17:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 88.49 Mbit/s

95th percentile per-packet one-way delay: 101.891 ms

Loss rate: 2.86%

-- Flow 1:

Average throughput: 88.49 Mbit/s

95th percentile per-packet one-way delay: 101.891 ms

Loss rate: 2.86%

Run 3: Report of Muses-25 — Data Link

