

Pantheon Report

Generated at 2018-08-28 09:48:35 (UTC).

Data path: Colombia on **p4p1** (*remote*) → AWS Brazil 2 on **ens5** (*local*).

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.

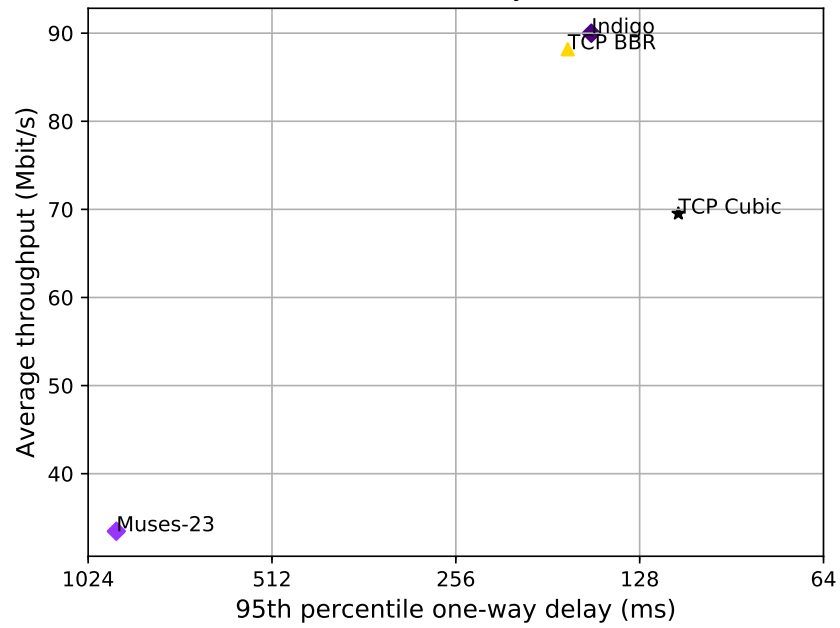
System info:

```
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
```

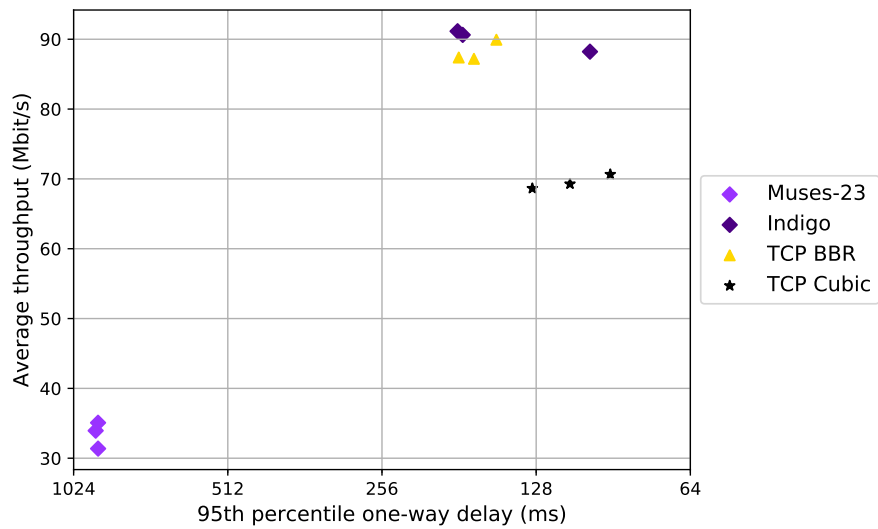
Git summary:

```
branch: muses-23 @ 88af05c5b0b7531637ca401951507a2fde628df6
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ b261c9e99c63be452bc16f94ce0caa99a4c9d39a
third_party/pantheon-tunnel @ cbf6e6db5ff5740dfe1771f813cd646339e1952
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 Colombia to AWS Brazil 2, 3 runs of 30s each per scheme
(mean of all runs by scheme)



test from Colombia to AWS Brazil 2, 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	88.17	167.89	1.88
TCP Cubic	3	69.52	110.63	0.61
Indigo	3	90.00	153.61	0.85
Muses-23	3	33.46	920.71	0.36

Run 1: Statistics of TCP BBR

Start at: 2018-08-28 09:33:33

End at: 2018-08-28 09:34:03

Local clock offset: -1.349 ms

Remote clock offset: -1.308 ms

Below is generated by plot.py at 2018-08-28 09:48:17

Datalink statistics

-- Total of 1 flow:

Average throughput: 87.20 Mbit/s

95th percentile per-packet one-way delay: 169.315 ms

Loss rate: 1.69%

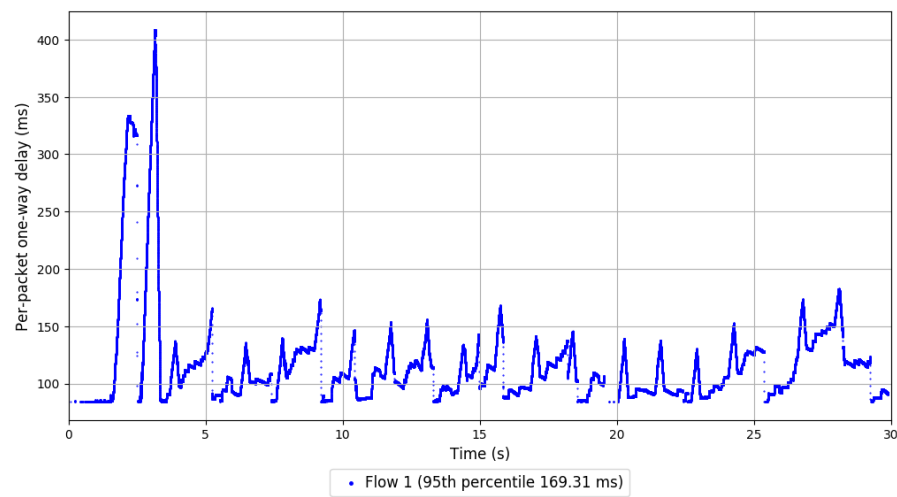
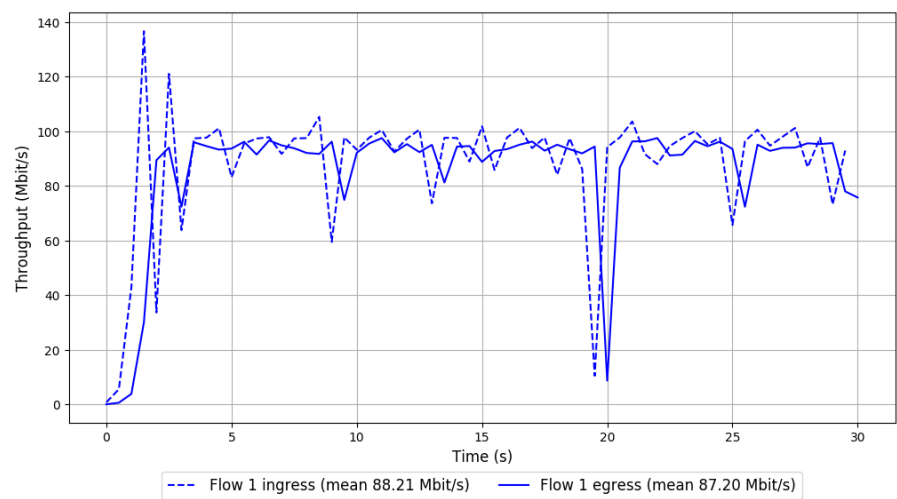
-- Flow 1:

Average throughput: 87.20 Mbit/s

95th percentile per-packet one-way delay: 169.315 ms

Loss rate: 1.69%

Run 1: Report of TCP BBR — Data Link

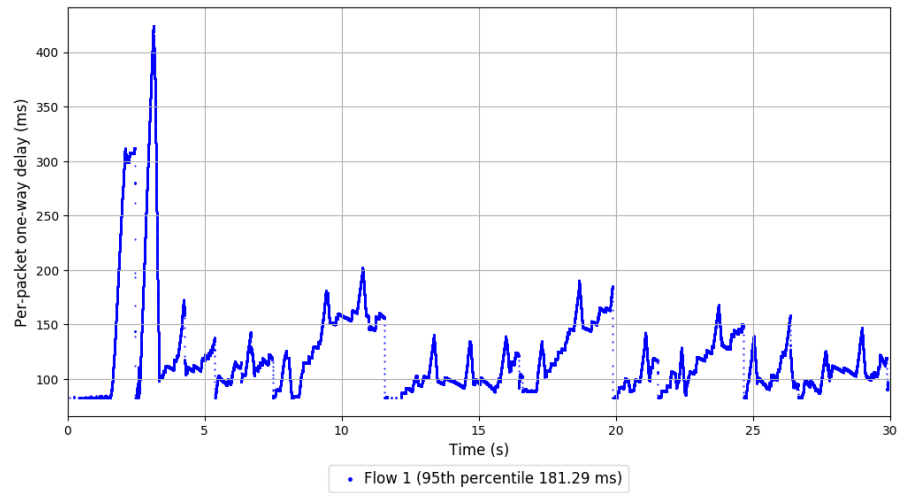
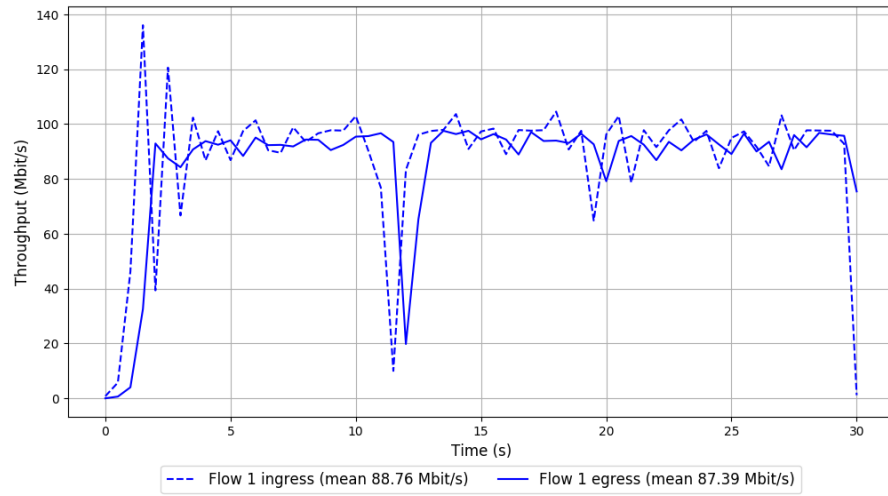


Run 2: Statistics of TCP BBR

Start at: 2018-08-28 09:38:15
End at: 2018-08-28 09:38:45
Local clock offset: -2.788 ms
Remote clock offset: -1.265 ms

Below is generated by plot.py at 2018-08-28 09:48:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 87.39 Mbit/s
95th percentile per-packet one-way delay: 181.290 ms
Loss rate: 2.09%
-- Flow 1:
Average throughput: 87.39 Mbit/s
95th percentile per-packet one-way delay: 181.290 ms
Loss rate: 2.09%

Run 2: Report of TCP BBR — Data Link

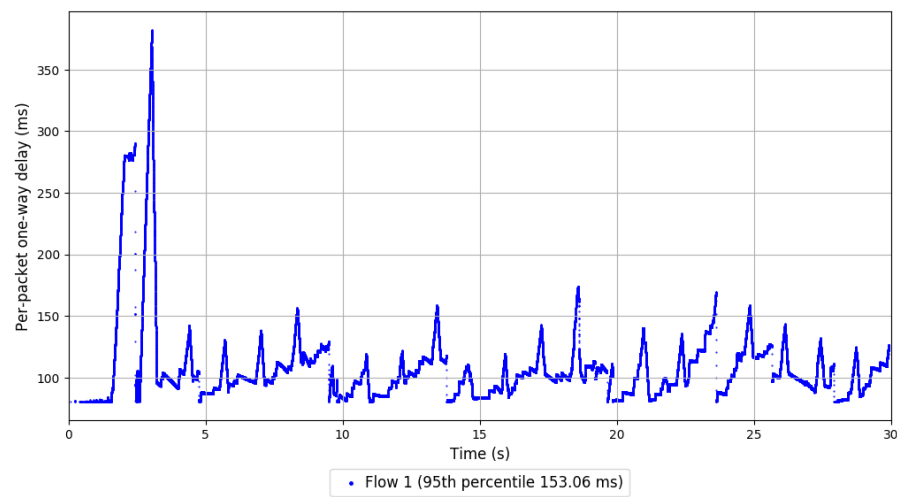
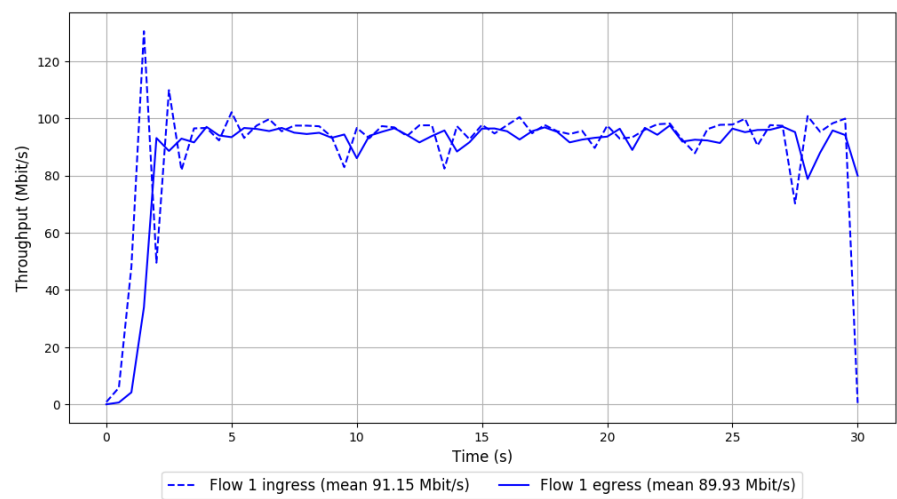


Run 3: Statistics of TCP BBR

Start at: 2018-08-28 09:42:57
End at: 2018-08-28 09:43:27
Local clock offset: -1.184 ms
Remote clock offset: -1.409 ms

Below is generated by plot.py at 2018-08-28 09:48:19
Datalink statistics
-- Total of 1 flow:
Average throughput: 89.93 Mbit/s
95th percentile per-packet one-way delay: 153.064 ms
Loss rate: 1.87%
-- Flow 1:
Average throughput: 89.93 Mbit/s
95th percentile per-packet one-way delay: 153.064 ms
Loss rate: 1.87%

Run 3: Report of TCP BBR — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-08-28 09:37:05

End at: 2018-08-28 09:37:35

Local clock offset: -1.909 ms

Remote clock offset: 3.767 ms

Below is generated by plot.py at 2018-08-28 09:48:19

Datalink statistics

-- Total of 1 flow:

Average throughput: 70.65 Mbit/s

95th percentile per-packet one-way delay: 91.716 ms

Loss rate: 0.62%

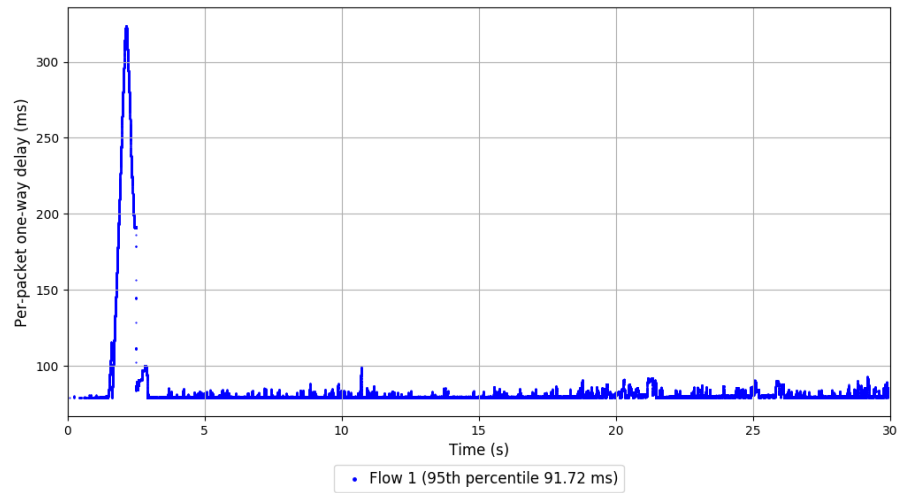
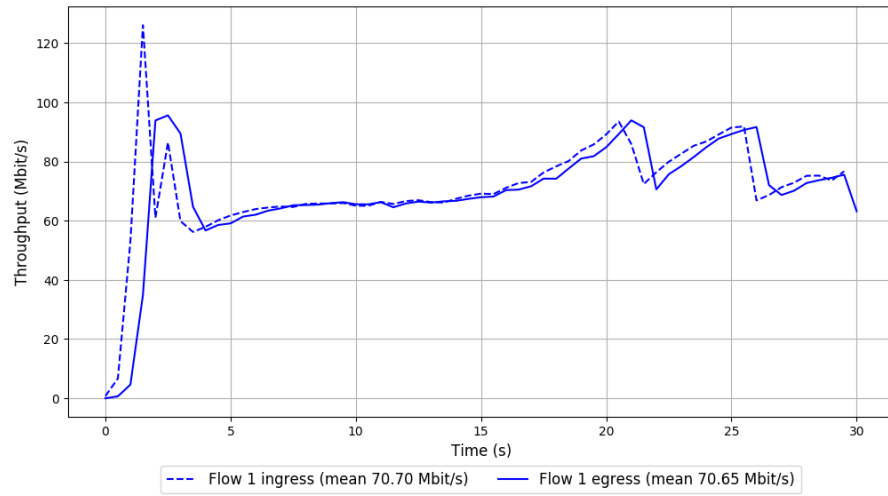
-- Flow 1:

Average throughput: 70.65 Mbit/s

95th percentile per-packet one-way delay: 91.716 ms

Loss rate: 0.62%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2018-08-28 09:41:47

End at: 2018-08-28 09:42:17

Local clock offset: -0.783 ms

Remote clock offset: 3.697 ms

Below is generated by plot.py at 2018-08-28 09:48:19

Datalink statistics

-- Total of 1 flow:

Average throughput: 69.28 Mbit/s

95th percentile per-packet one-way delay: 109.951 ms

Loss rate: 0.61%

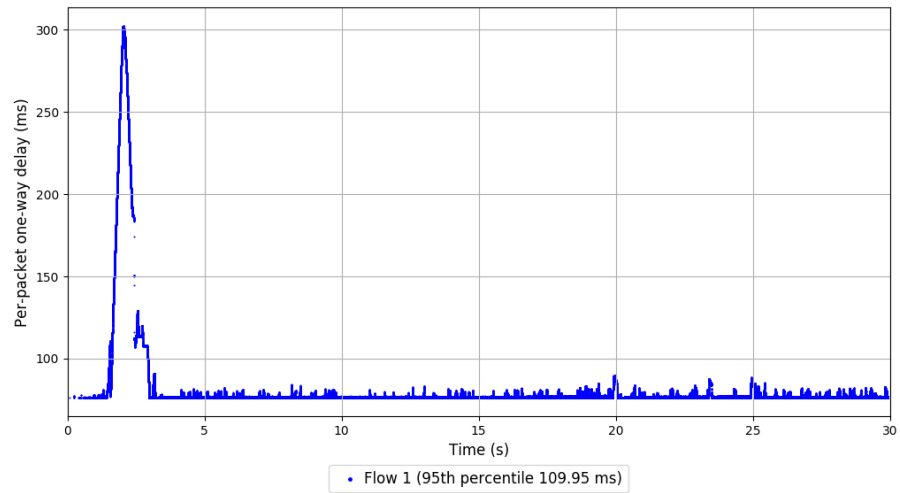
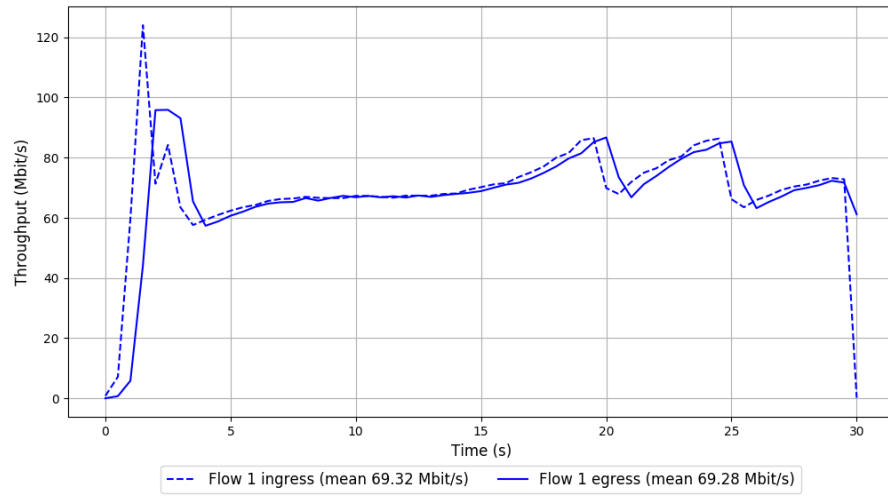
-- Flow 1:

Average throughput: 69.28 Mbit/s

95th percentile per-packet one-way delay: 109.951 ms

Loss rate: 0.61%

Run 2: Report of TCP Cubic — Data Link

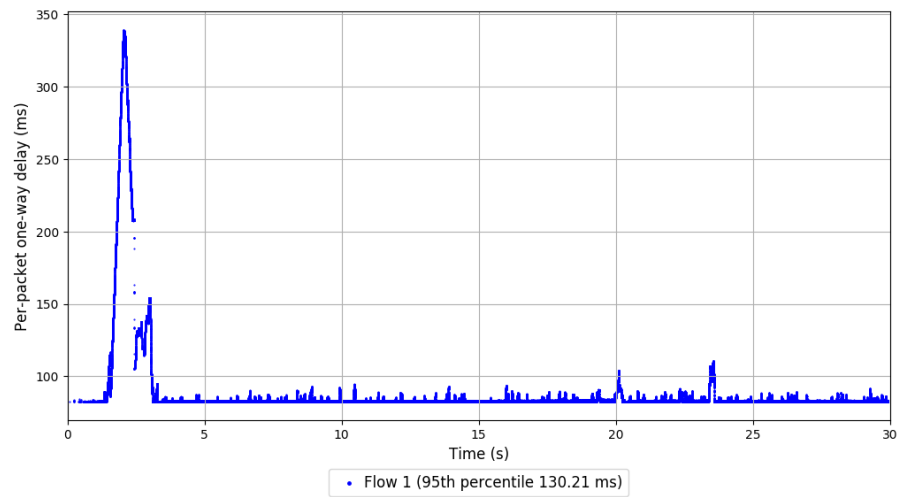
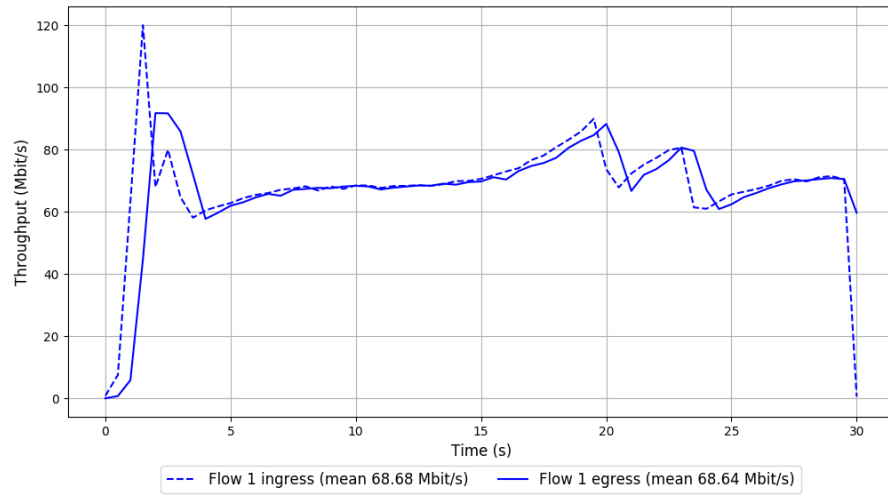


Run 3: Statistics of TCP Cubic

Start at: 2018-08-28 09:46:29
End at: 2018-08-28 09:46:59
Local clock offset: 0.35 ms
Remote clock offset: -2.525 ms

Below is generated by plot.py at 2018-08-28 09:48:19
Datalink statistics
-- Total of 1 flow:
Average throughput: 68.64 Mbit/s
95th percentile per-packet one-way delay: 130.212 ms
Loss rate: 0.60%
-- Flow 1:
Average throughput: 68.64 Mbit/s
95th percentile per-packet one-way delay: 130.212 ms
Loss rate: 0.60%

Run 3: Report of TCP Cubic — Data Link



Run 1: Statistics of Indigo

Start at: 2018-08-28 09:35:53

End at: 2018-08-28 09:36:23

Local clock offset: -1.671 ms

Remote clock offset: 3.799 ms

Below is generated by plot.py at 2018-08-28 09:48:19

Datalink statistics

-- Total of 1 flow:

Average throughput: 88.22 Mbit/s

95th percentile per-packet one-way delay: 100.501 ms

Loss rate: 0.64%

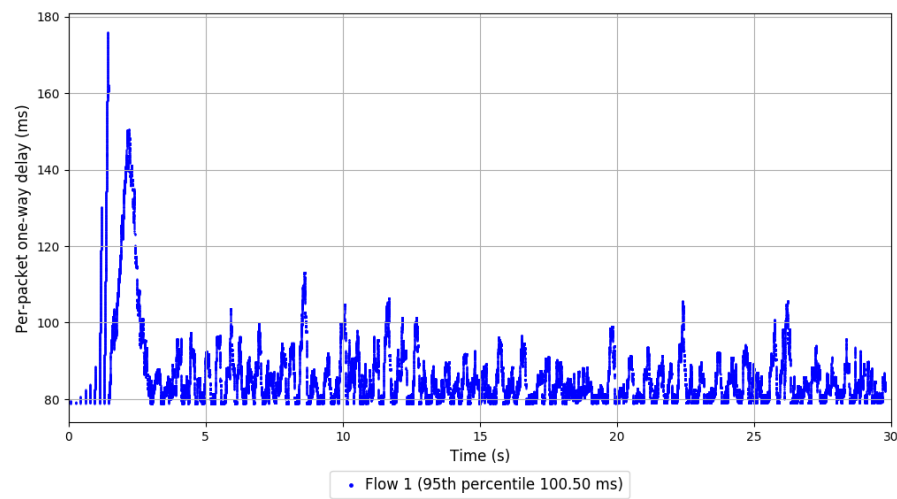
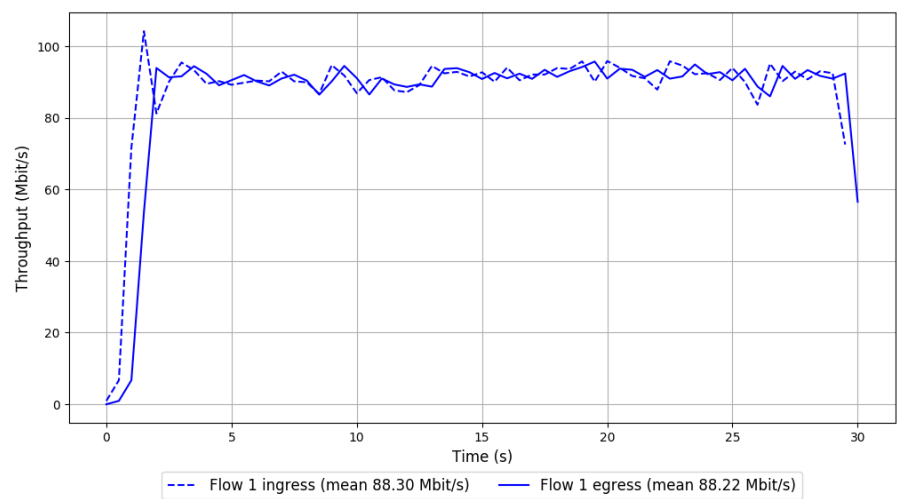
-- Flow 1:

Average throughput: 88.22 Mbit/s

95th percentile per-packet one-way delay: 100.501 ms

Loss rate: 0.64%

Run 1: Report of Indigo — Data Link

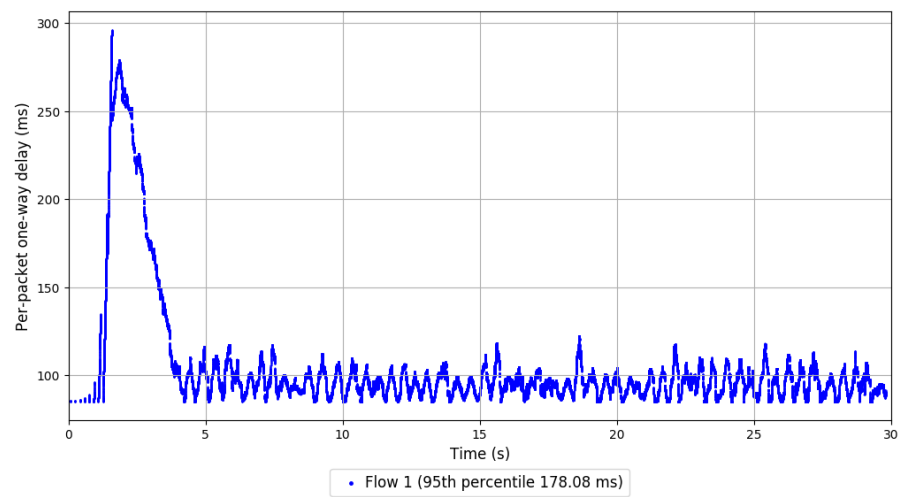
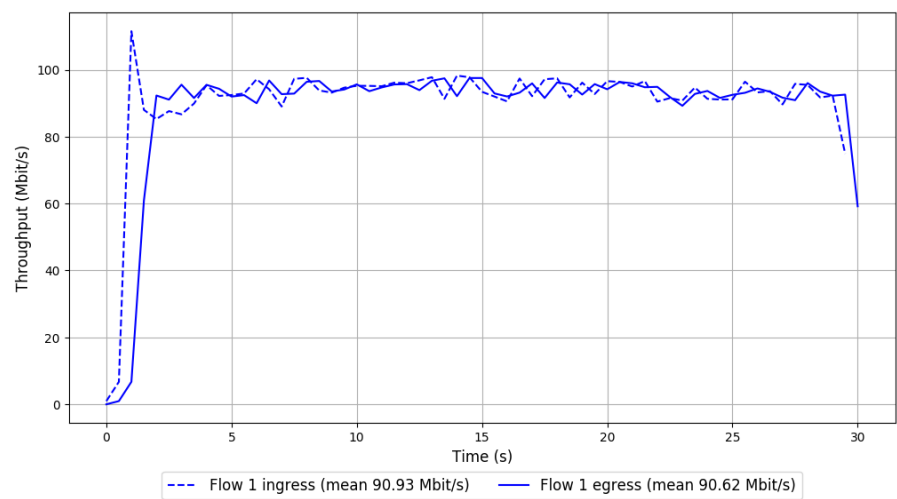


Run 2: Statistics of Indigo

Start at: 2018-08-28 09:40:35
End at: 2018-08-28 09:41:05
Local clock offset: -0.513 ms
Remote clock offset: -2.432 ms

Below is generated by plot.py at 2018-08-28 09:48:20
Datalink statistics
-- Total of 1 flow:
Average throughput: 90.62 Mbit/s
95th percentile per-packet one-way delay: 178.084 ms
Loss rate: 0.88%
-- Flow 1:
Average throughput: 90.62 Mbit/s
95th percentile per-packet one-way delay: 178.084 ms
Loss rate: 0.88%

Run 2: Report of Indigo — Data Link

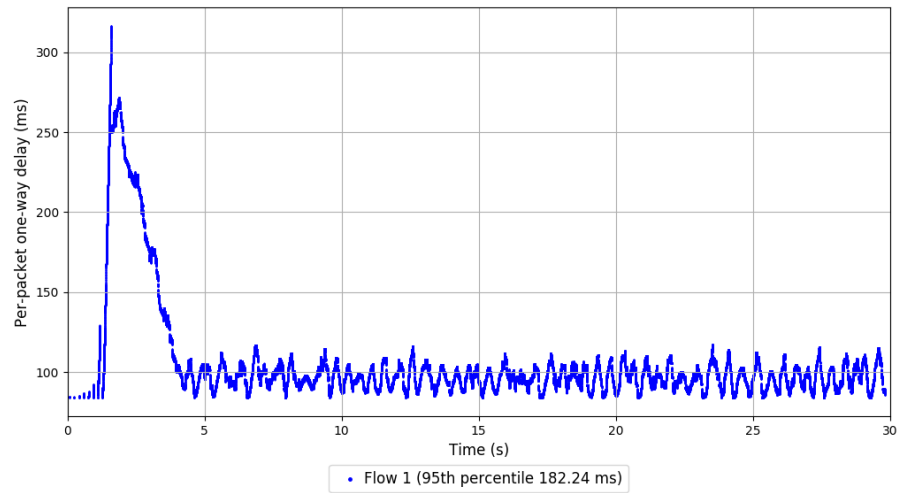
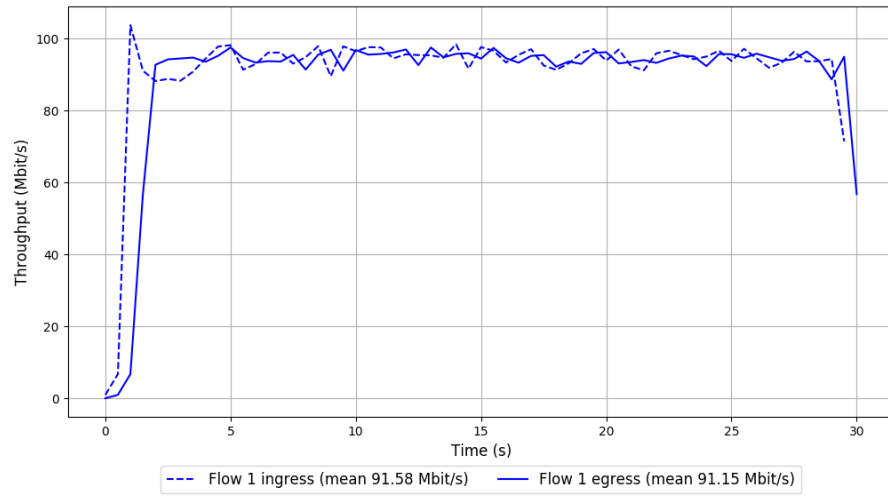


Run 3: Statistics of Indigo

Start at: 2018-08-28 09:45:17
End at: 2018-08-28 09:45:47
Local clock offset: 0.11 ms
Remote clock offset: -1.401 ms

Below is generated by plot.py at 2018-08-28 09:48:34
Datalink statistics
-- Total of 1 flow:
Average throughput: 91.15 Mbit/s
95th percentile per-packet one-way delay: 182.235 ms
Loss rate: 1.03%
-- Flow 1:
Average throughput: 91.15 Mbit/s
95th percentile per-packet one-way delay: 182.235 ms
Loss rate: 1.03%

Run 3: Report of Indigo — Data Link

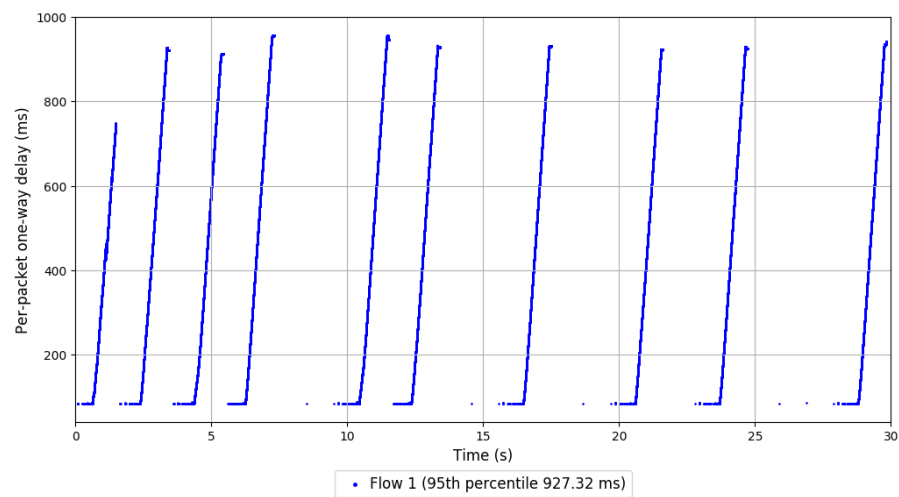
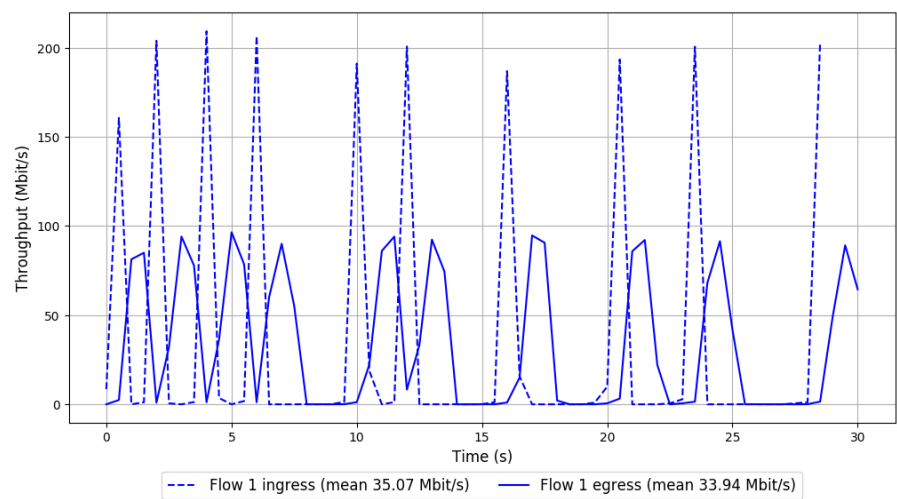


Run 1: Statistics of Muses-23

Start at: 2018-08-28 09:34:44
End at: 2018-08-28 09:35:14
Local clock offset: -0.716 ms
Remote clock offset: -1.239 ms

Below is generated by plot.py at 2018-08-28 09:48:34
Datalink statistics
-- Total of 1 flow:
Average throughput: 33.94 Mbit/s
95th percentile per-packet one-way delay: 927.316 ms
Loss rate: 0.36%
-- Flow 1:
Average throughput: 33.94 Mbit/s
95th percentile per-packet one-way delay: 927.316 ms
Loss rate: 0.36%

Run 1: Report of Muses-23 — Data Link

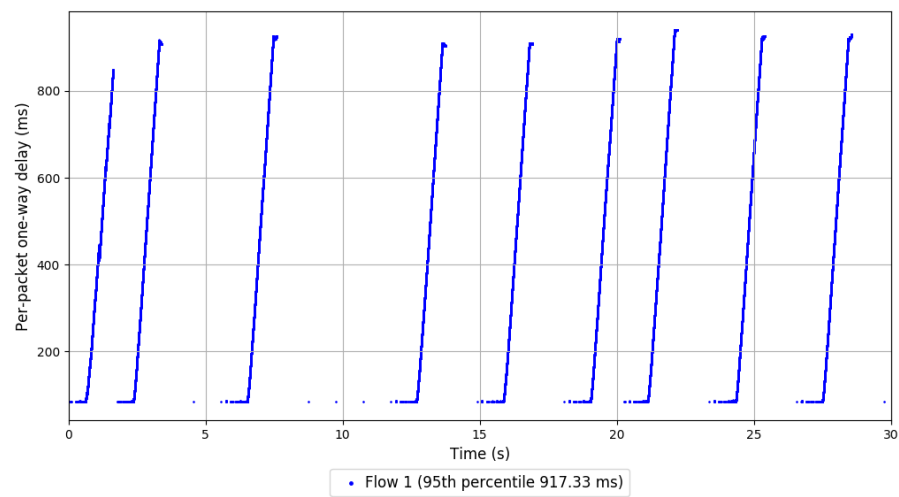
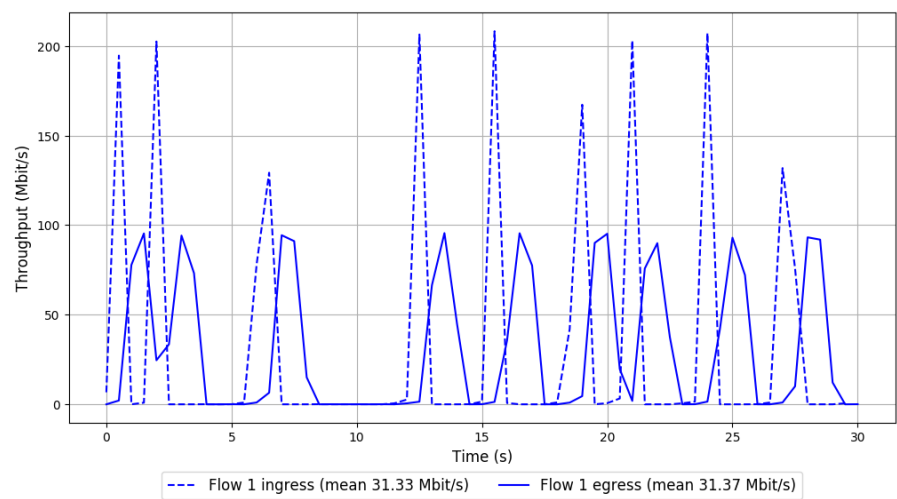


Run 2: Statistics of Muses-23

Start at: 2018-08-28 09:39:26
End at: 2018-08-28 09:39:56
Local clock offset: -2.613 ms
Remote clock offset: -1.313 ms

Below is generated by plot.py at 2018-08-28 09:48:34
Datalink statistics
-- Total of 1 flow:
Average throughput: 31.37 Mbit/s
95th percentile per-packet one-way delay: 917.330 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 31.37 Mbit/s
95th percentile per-packet one-way delay: 917.330 ms
Loss rate: 0.44%

Run 2: Report of Muses-23 — Data Link



Run 3: Statistics of Muses-23

Start at: 2018-08-28 09:44:08

End at: 2018-08-28 09:44:38

Local clock offset: -0.973 ms

Remote clock offset: 3.647 ms

Below is generated by plot.py at 2018-08-28 09:48:34

Datalink statistics

-- Total of 1 flow:

Average throughput: 35.08 Mbit/s

95th percentile per-packet one-way delay: 917.483 ms

Loss rate: 0.28%

-- Flow 1:

Average throughput: 35.08 Mbit/s

95th percentile per-packet one-way delay: 917.483 ms

Loss rate: 0.28%

Run 3: Report of Muses-23 — Data Link

