

Pantheon Report

Generated at 2019-02-19 19:46:35 (UTC).

Data path: AWS Brazil 2 on `ens5` (*local*) → Colombia cellular on `ppp0` (*remote*).

Repeated the test of 21 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:

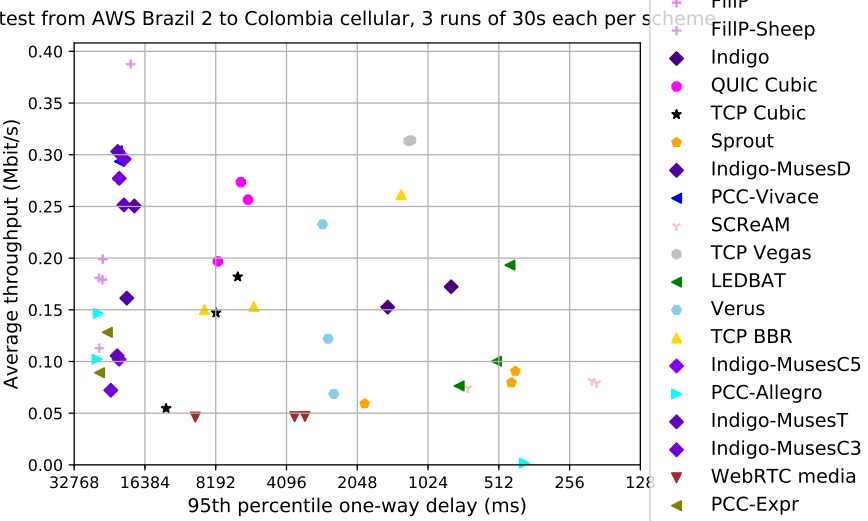
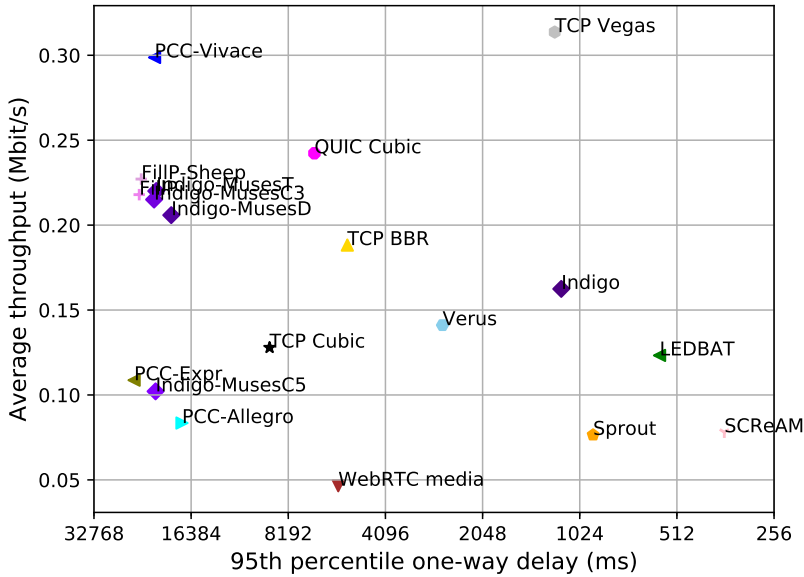
```
Linux 4.15.0-1031-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

Git summary:

```
branch: muses @ 7a686f7c2ed0a333082c0bab1fa5c921ab47e6ee
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecd90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 5ce721187ad823da20955337730c746486ca4966
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
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-quick @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
M src/ScreamClient
M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
M src/examples/cellsim.cc
M src/examples/sproutbt2.cc
M src/network/sproutconn.cc
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 cellular, 3 runs of 30s each per scheme
(mean of all runs by 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	0.19	5374.96	3.02
Copa	0	N/A	N/A	N/A
TCP Cubic	3	0.13	9362.41	24.97
FillP	3	0.22	23724.16	73.56
FillP-Sheep	3	0.23	23385.95	78.27
Indigo	2	0.16	1168.34	0.77
Indigo-MusesC3	3	0.22	21340.80	82.69
Indigo-MusesC5	1	0.10	21117.17	90.74
Indigo-MusesD	2	0.21	18880.19	80.13
Indigo-MusesT	3	0.22	21013.83	81.82
LEDBAT	3	0.12	579.51	0.72
PCC-Allegro	3	0.08	17485.80	66.41
PCC-Expr	2	0.11	24613.23	93.49
QUIC Cubic	3	0.24	6798.53	23.93
SCReAM	3	0.08	365.07	0.13
Sprout	3	0.08	930.99	0.61
TaoVA-100x	0	N/A	N/A	N/A
TCP Vegas	2	0.31	1224.26	0.39
Verus	3	0.14	2726.03	6.11
PCC-Vivace	2	0.29	21269.58	83.67
WebRTC media	3	0.05	5735.41	0.21

Run 1: Statistics of TCP BBR

Start at: 2019-02-19 18:47:35

End at: 2019-02-19 18:48:05

Local clock offset: 0.621 ms

Remote clock offset: -0.743 ms

Below is generated by plot.py at 2019-02-19 19:46:04

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.15 Mbit/s

95th percentile per-packet one-way delay: 5641.821 ms

Loss rate: 4.27%

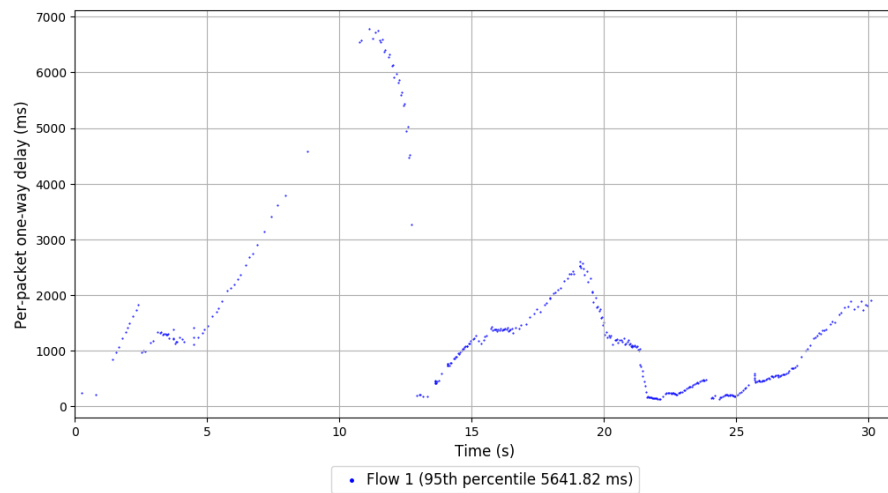
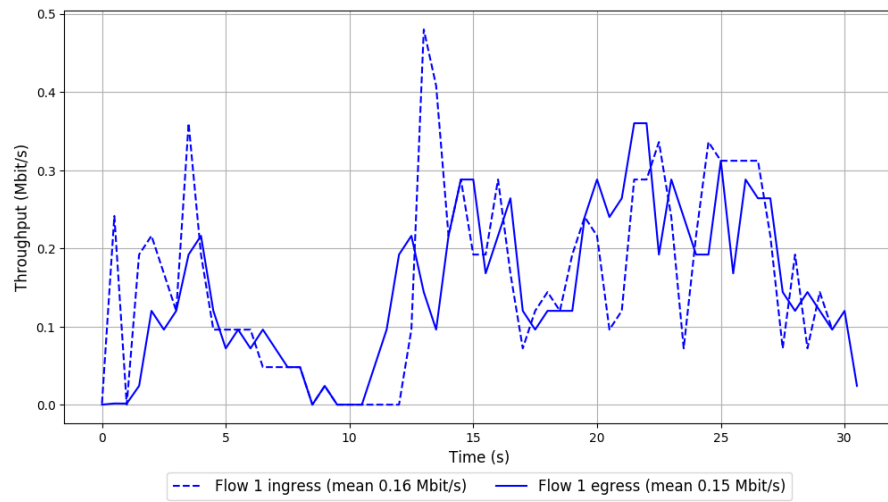
-- Flow 1:

Average throughput: 0.15 Mbit/s

95th percentile per-packet one-way delay: 5641.821 ms

Loss rate: 4.27%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2019-02-19 19:12:14

End at: 2019-02-19 19:12:44

Local clock offset: -0.663 ms

Remote clock offset: 0.016 ms

Below is generated by plot.py at 2019-02-19 19:46:05

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.26 Mbit/s

95th percentile per-packet one-way delay: 1333.311 ms

Loss rate: 2.69%

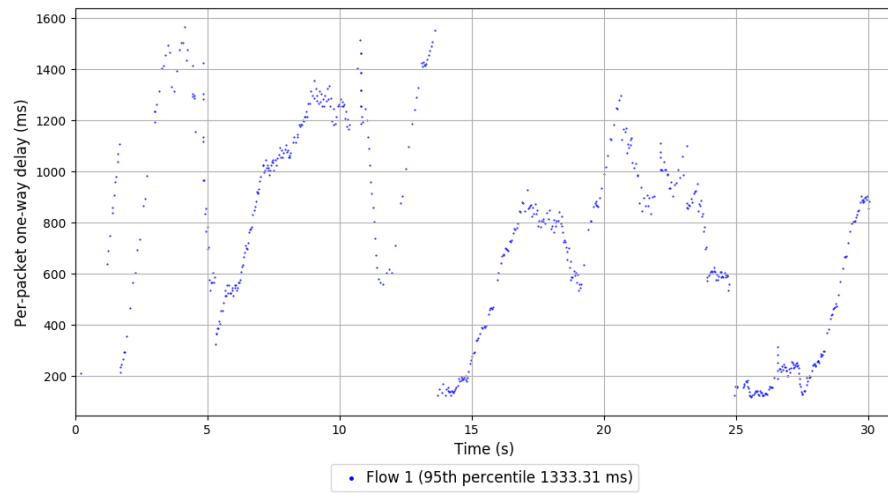
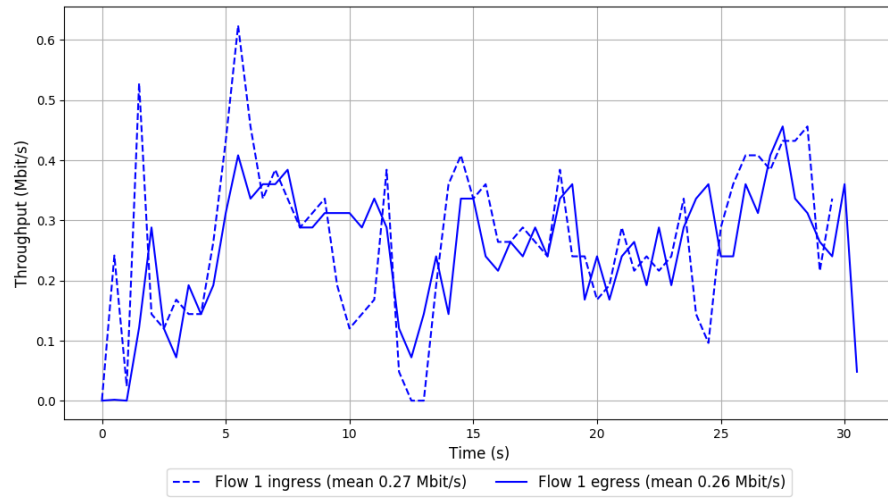
-- Flow 1:

Average throughput: 0.26 Mbit/s

95th percentile per-packet one-way delay: 1333.311 ms

Loss rate: 2.69%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2019-02-19 19:37:01

End at: 2019-02-19 19:37:31

Local clock offset: -0.905 ms

Remote clock offset: 1.613 ms

Below is generated by plot.py at 2019-02-19 19:46:05

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.15 Mbit/s

95th percentile per-packet one-way delay: 9149.748 ms

Loss rate: 2.10%

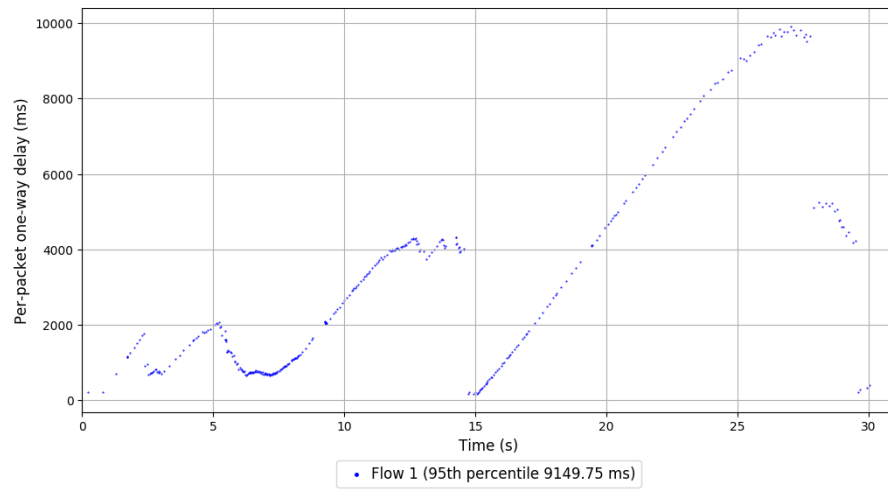
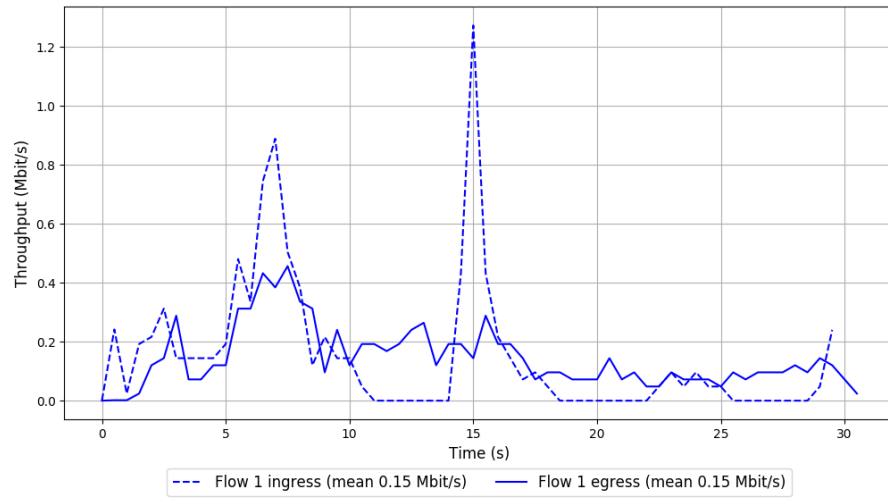
-- Flow 1:

Average throughput: 0.15 Mbit/s

95th percentile per-packet one-way delay: 9149.748 ms

Loss rate: 2.10%

Run 3: Report of TCP BBR — Data Link



Run 1: Statistics of Copa

/home/ubuntu/pantheon/data/2019-02-19T18-31-AWS-Brazil-2-to-Colombia-cellular-3-runs/copa_st

Run 1: Report of Copa — Data Link

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Figure is missing

Run 2: Statistics of Copa

/home/ubuntu/pantheon/data/2019-02-19T18-31-AWS-Brazil-2-to-Colombia-cellular-3-runs/copa_st

Run 2: Report of Copa — Data Link

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Figure is missing

Run 3: Statistics of Copa

/home/ubuntu/pantheon/data/2019-02-19T18-31-AWS-Brazil-2-to-Colombia-cellular-3-runs/copa_st

Run 3: Report of Copa — Data Link

Figure is missing

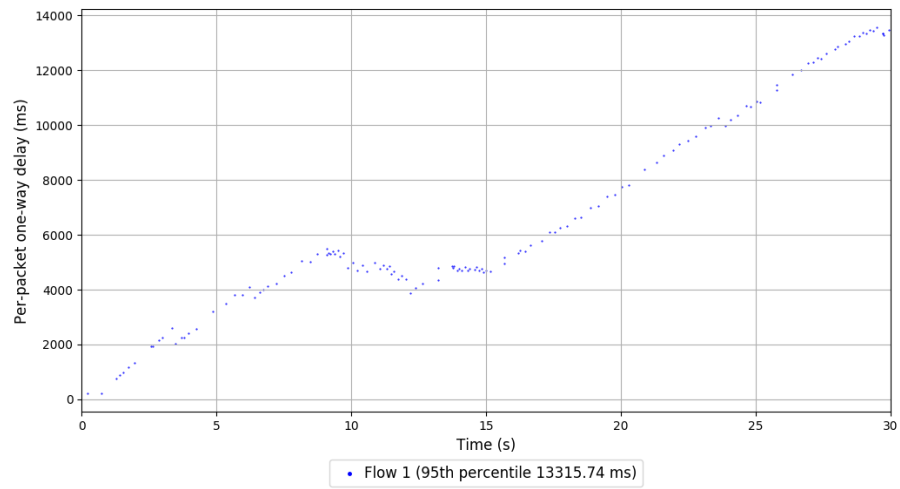
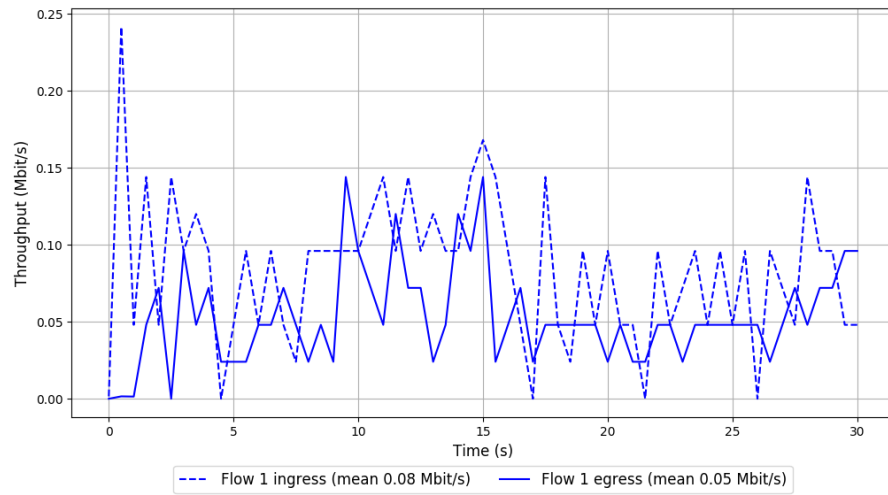
Figure is missing

Run 1: Statistics of TCP Cubic

Start at: 2019-02-19 18:46:27
End at: 2019-02-19 18:46:57
Local clock offset: -0.313 ms
Remote clock offset: -4.427 ms

Below is generated by plot.py at 2019-02-19 19:46:05
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 13315.740 ms
Loss rate: 36.30%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 13315.740 ms
Loss rate: 36.30%

Run 1: Report of TCP Cubic — Data Link

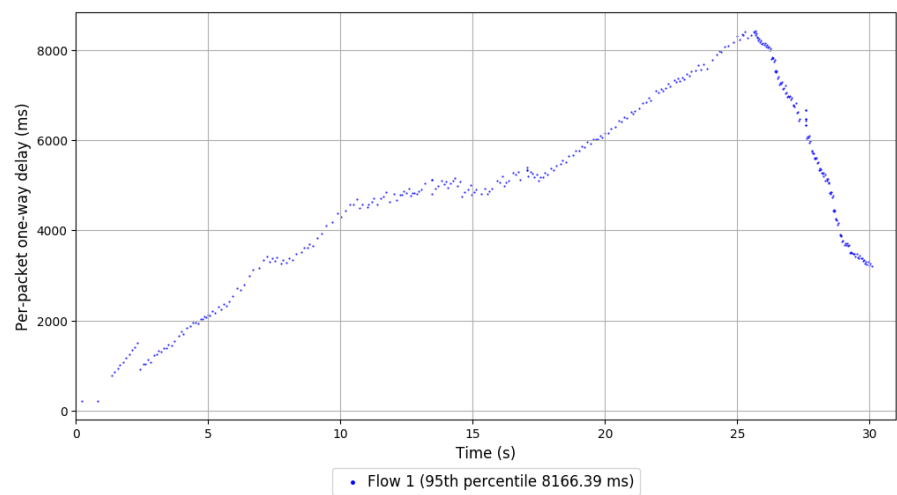
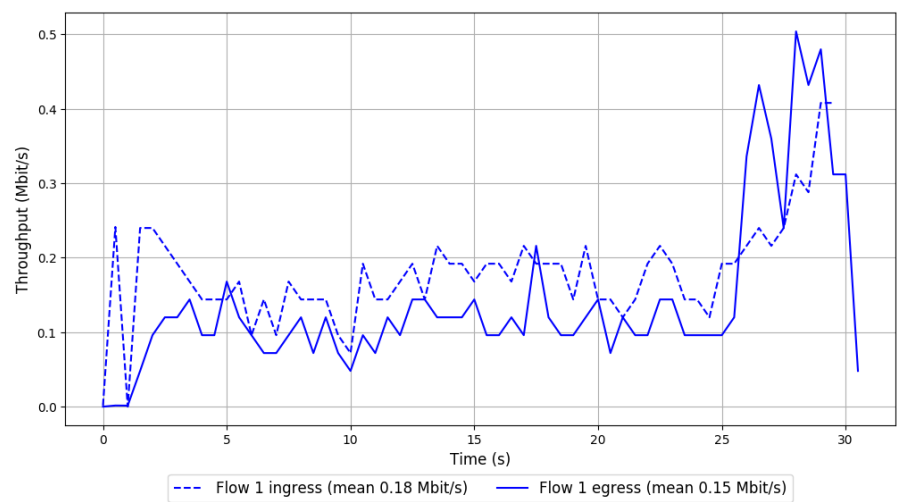


Run 2: Statistics of TCP Cubic

Start at: 2019-02-19 19:11:06
End at: 2019-02-19 19:11:36
Local clock offset: -1.177 ms
Remote clock offset: -5.119 ms

Below is generated by plot.py at 2019-02-19 19:46:05
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 8166.390 ms
Loss rate: 18.12%
-- Flow 1:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 8166.390 ms
Loss rate: 18.12%

Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2019-02-19 19:35:48

End at: 2019-02-19 19:36:18

Local clock offset: -0.072 ms

Remote clock offset: -0.28 ms

Below is generated by plot.py at 2019-02-19 19:46:05

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.18 Mbit/s

95th percentile per-packet one-way delay: 6605.113 ms

Loss rate: 20.49%

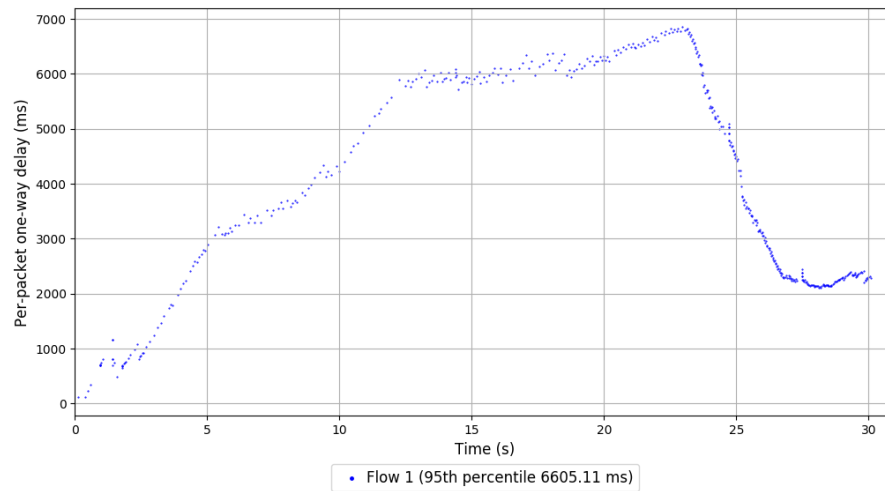
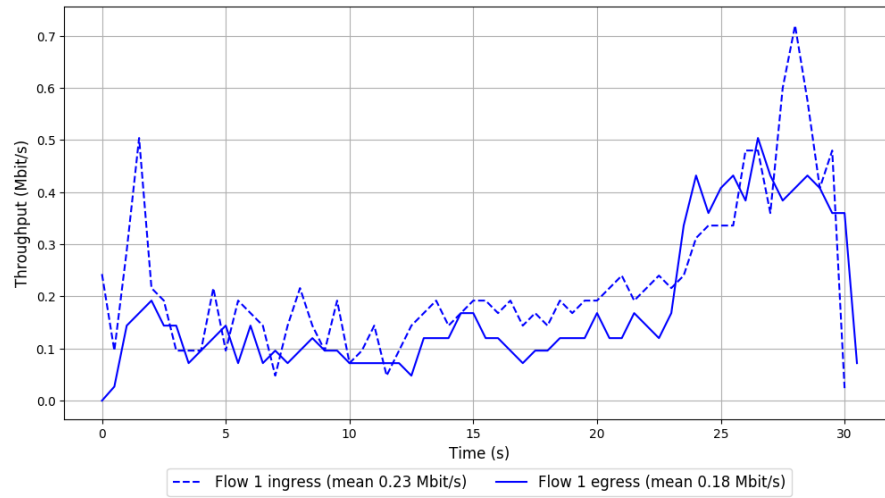
-- Flow 1:

Average throughput: 0.18 Mbit/s

95th percentile per-packet one-way delay: 6605.113 ms

Loss rate: 20.49%

Run 3: Report of TCP Cubic — Data Link



Run 1: Statistics of FillP

Start at: 2019-02-19 18:38:53

End at: 2019-02-19 18:39:23

Local clock offset: 0.916 ms

Remote clock offset: 0.853 ms

Below is generated by plot.py at 2019-02-19 19:46:06

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.18 Mbit/s

95th percentile per-packet one-way delay: 24861.051 ms

Loss rate: 92.79%

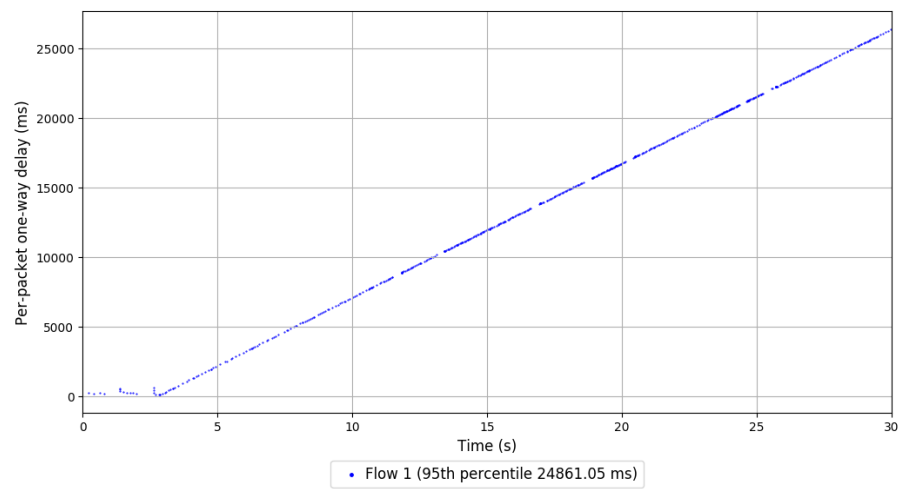
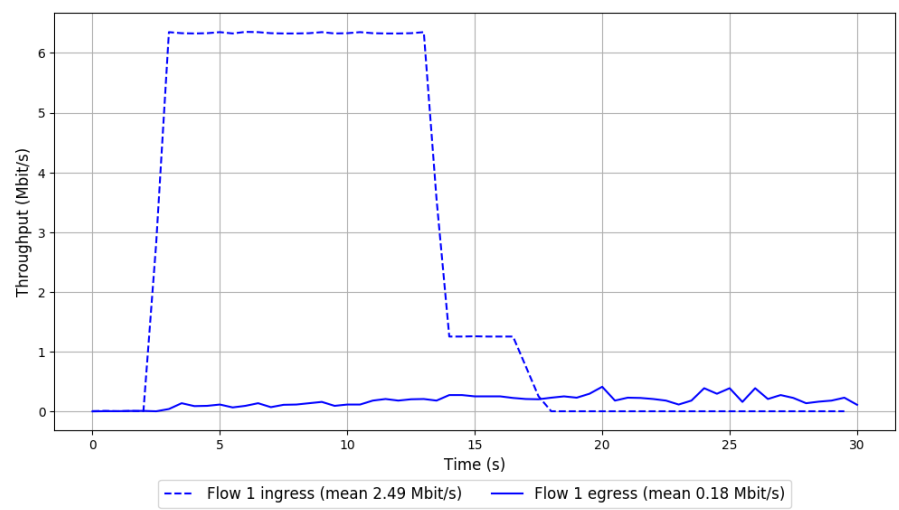
-- Flow 1:

Average throughput: 0.18 Mbit/s

95th percentile per-packet one-way delay: 24861.051 ms

Loss rate: 92.79%

Run 1: Report of FillP — Data Link

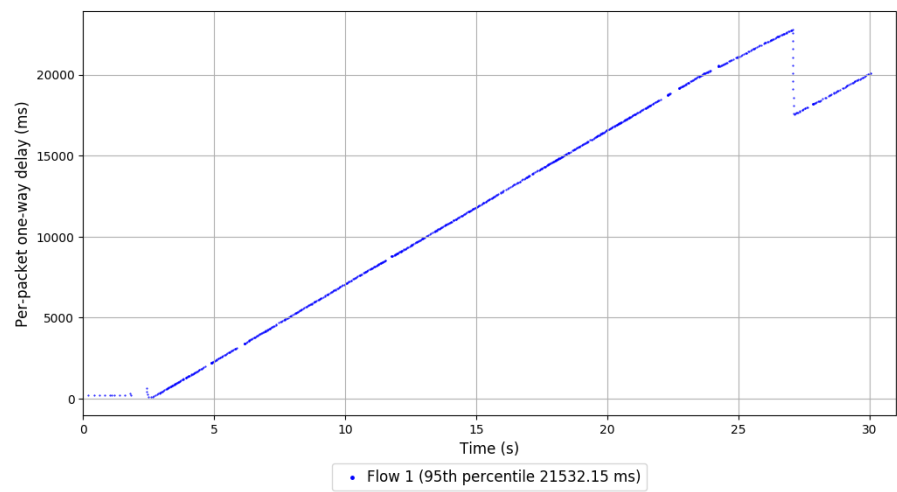
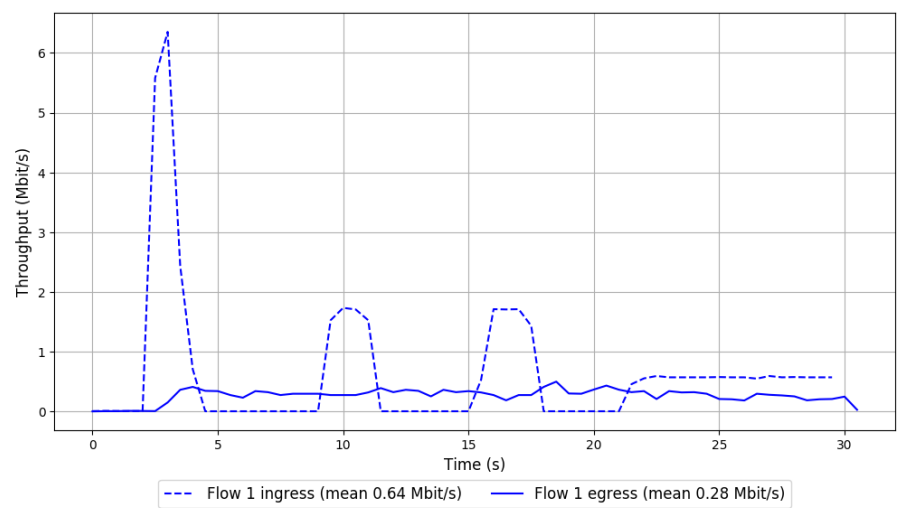


Run 2: Statistics of FillP

Start at: 2019-02-19 19:04:17
End at: 2019-02-19 19:04:47
Local clock offset: -3.572 ms
Remote clock offset: -1.111 ms

Below is generated by plot.py at 2019-02-19 19:46:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.28 Mbit/s
95th percentile per-packet one-way delay: 21532.148 ms
Loss rate: 57.08%
-- Flow 1:
Average throughput: 0.28 Mbit/s
95th percentile per-packet one-way delay: 21532.148 ms
Loss rate: 57.08%

Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2019-02-19 19:28:54

End at: 2019-02-19 19:29:24

Local clock offset: 7.689 ms

Remote clock offset: 0.943 ms

Below is generated by plot.py at 2019-02-19 19:46:08

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.20 Mbit/s

95th percentile per-packet one-way delay: 24779.275 ms

Loss rate: 70.82%

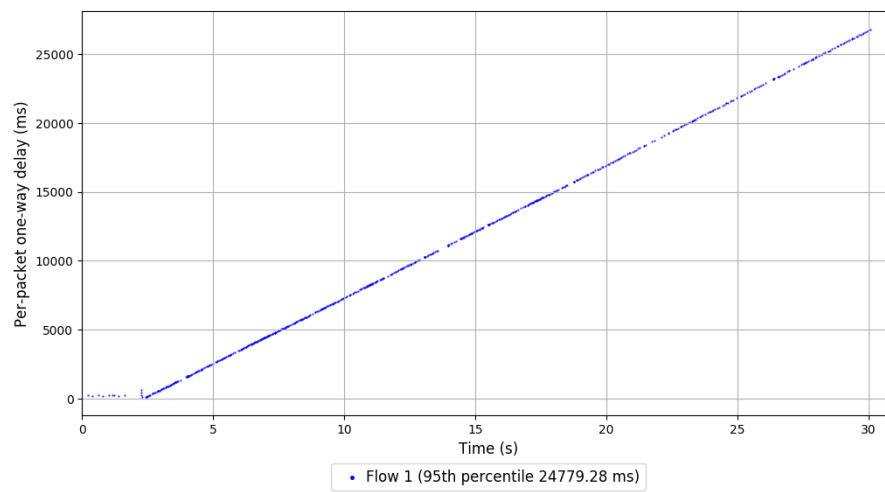
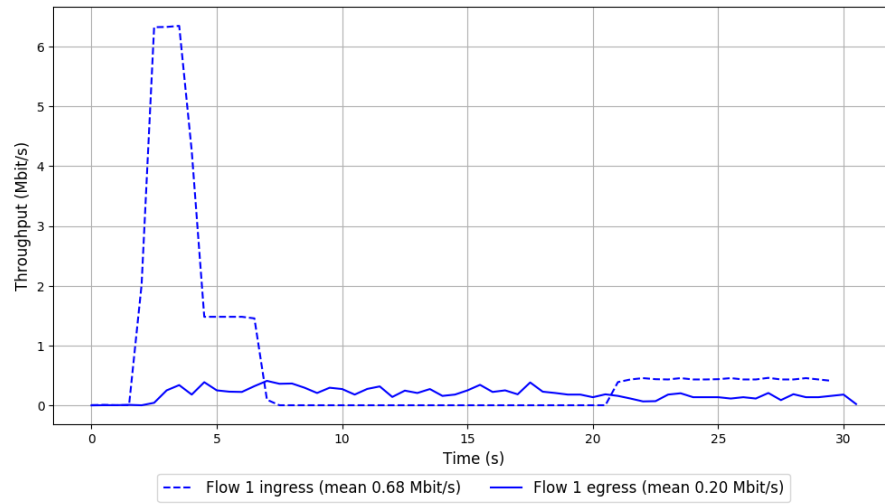
-- Flow 1:

Average throughput: 0.20 Mbit/s

95th percentile per-packet one-way delay: 24779.275 ms

Loss rate: 70.82%

Run 3: Report of FillP — Data Link



Run 1: Statistics of FillP-Sheep

Start at: 2019-02-19 18:48:42

End at: 2019-02-19 18:49:12

Local clock offset: -0.906 ms

Remote clock offset: -4.21 ms

Below is generated by plot.py at 2019-02-19 19:46:11

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.11 Mbit/s

95th percentile per-packet one-way delay: 25617.716 ms

Loss rate: 97.82%

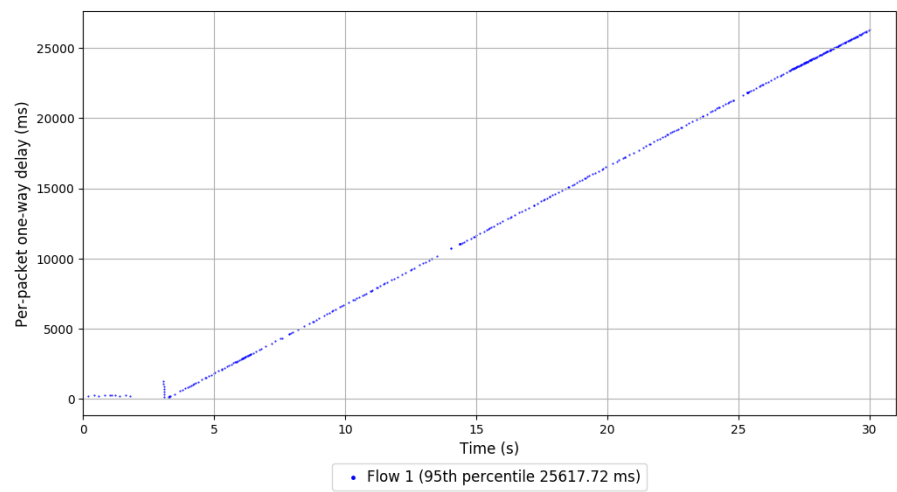
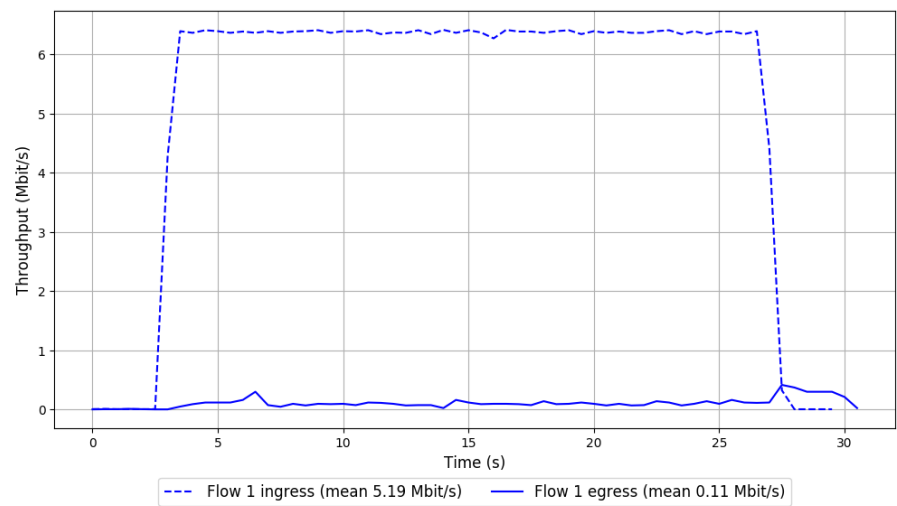
-- Flow 1:

Average throughput: 0.11 Mbit/s

95th percentile per-packet one-way delay: 25617.716 ms

Loss rate: 97.82%

Run 1: Report of FillP-Sheep — Data Link

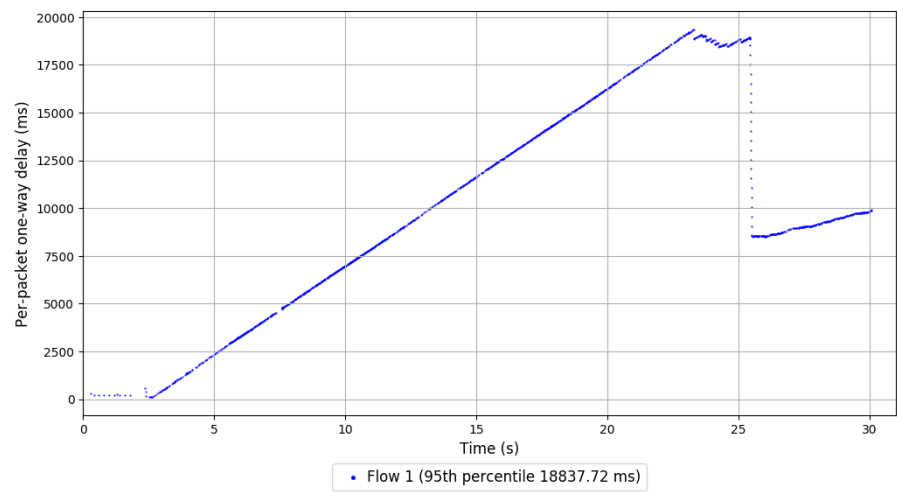
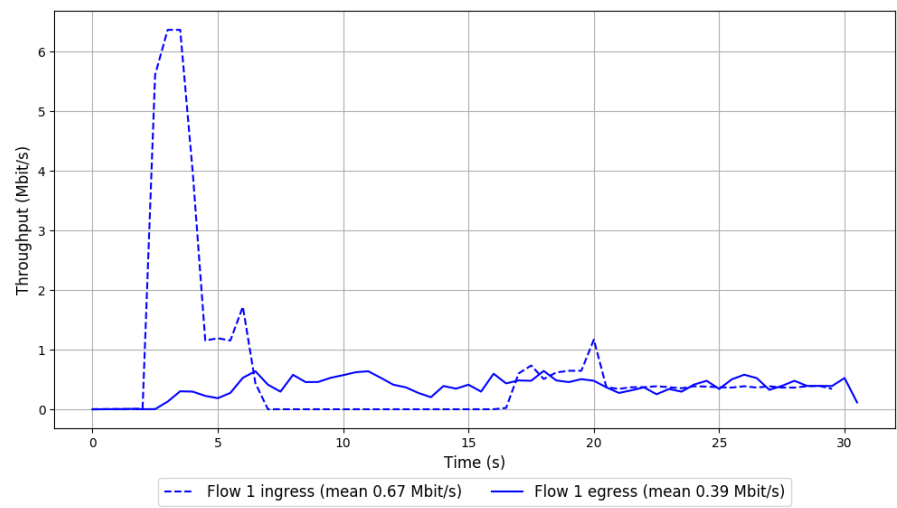


Run 2: Statistics of FillP-Sheep

Start at: 2019-02-19 19:13:22
End at: 2019-02-19 19:13:52
Local clock offset: -0.204 ms
Remote clock offset: -3.001 ms

Below is generated by plot.py at 2019-02-19 19:46:11
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.39 Mbit/s
95th percentile per-packet one-way delay: 18837.719 ms
Loss rate: 42.39%
-- Flow 1:
Average throughput: 0.39 Mbit/s
95th percentile per-packet one-way delay: 18837.719 ms
Loss rate: 42.39%

Run 2: Report of FillP-Sheep — Data Link



Run 3: Statistics of FillP-Sheep

Start at: 2019-02-19 19:38:09

End at: 2019-02-19 19:38:39

Local clock offset: -1.948 ms

Remote clock offset: 0.769 ms

Below is generated by plot.py at 2019-02-19 19:46:11

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.18 Mbit/s

95th percentile per-packet one-way delay: 25702.414 ms

Loss rate: 94.61%

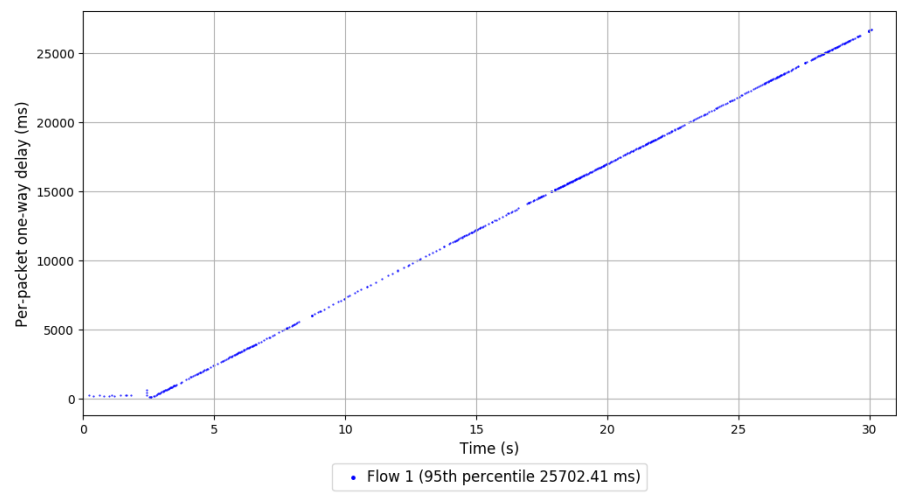
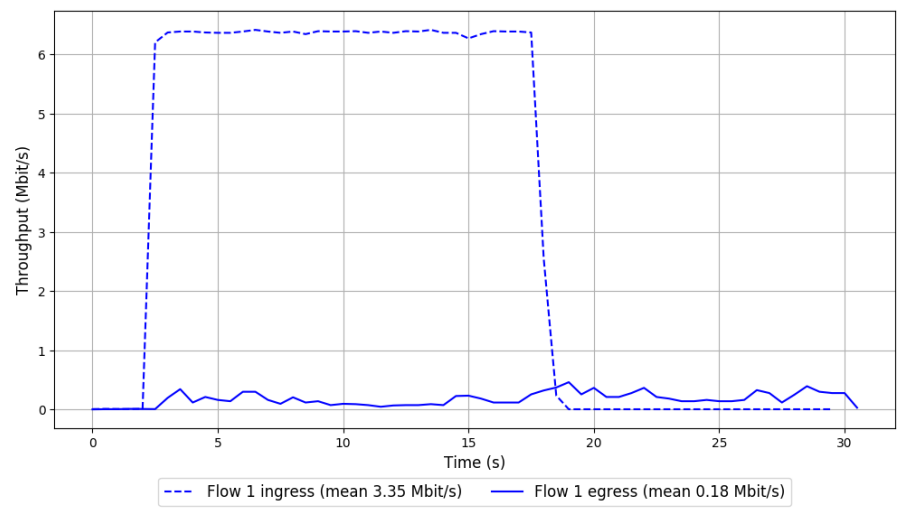
-- Flow 1:

Average throughput: 0.18 Mbit/s

95th percentile per-packet one-way delay: 25702.414 ms

Loss rate: 94.61%

Run 3: Report of FillP-Sheep — Data Link



Run 1: Statistics of Indigo

/home/ubuntu/pantheon/data/2019-02-19T18-31-AWS-Brazil-2-to-Colombia-cellular-3-runs/indigo.

Run 1: Report of Indigo — Data Link

Figure is missing

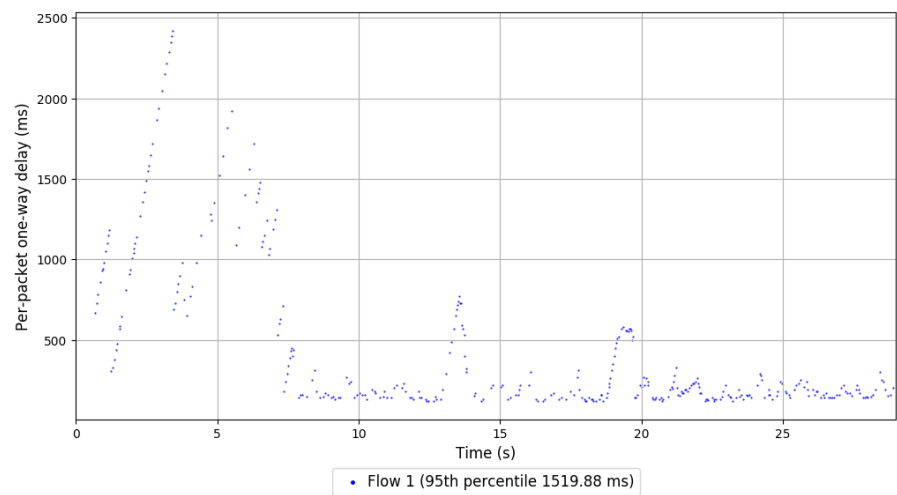
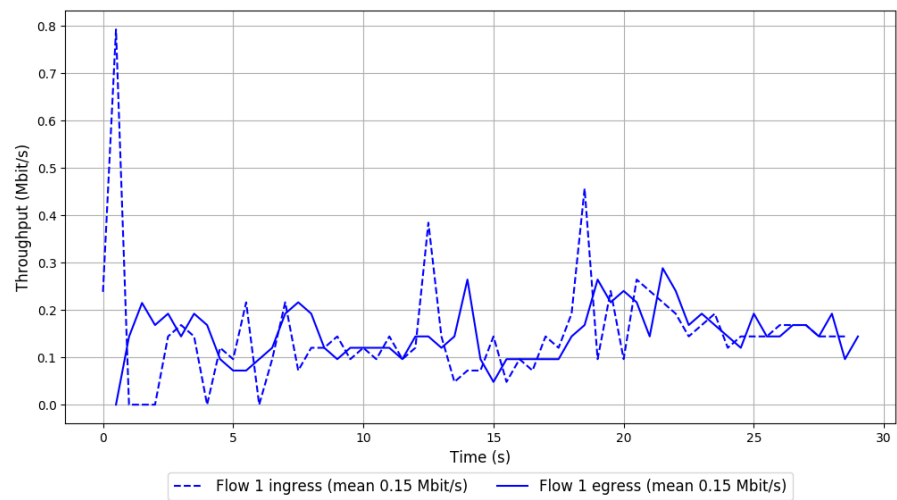
Figure is missing

Run 2: Statistics of Indigo

Start at: 2019-02-19 19:18:18
End at: 2019-02-19 19:18:48
Local clock offset: 2.137 ms
Remote clock offset: -0.259 ms

Below is generated by plot.py at 2019-02-19 19:46:11
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 1519.884 ms
Loss rate: 0.83%
-- Flow 1:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 1519.884 ms
Loss rate: 0.83%

Run 2: Report of Indigo — Data Link

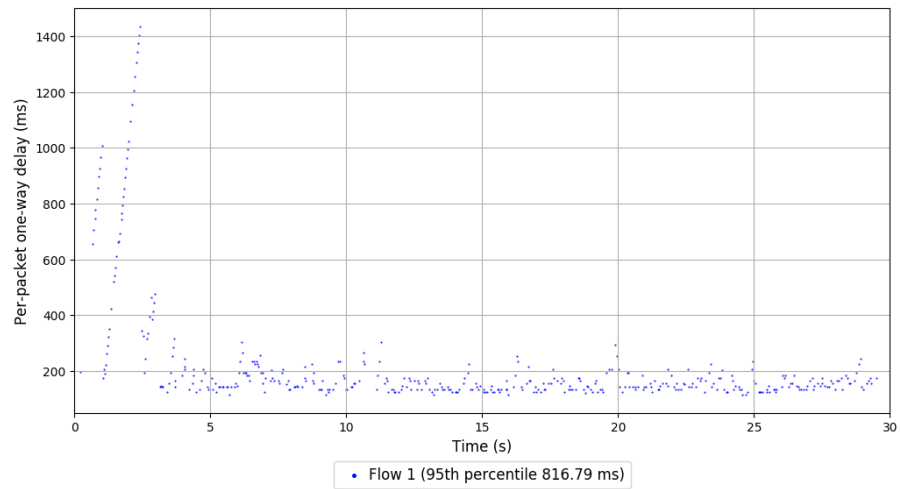
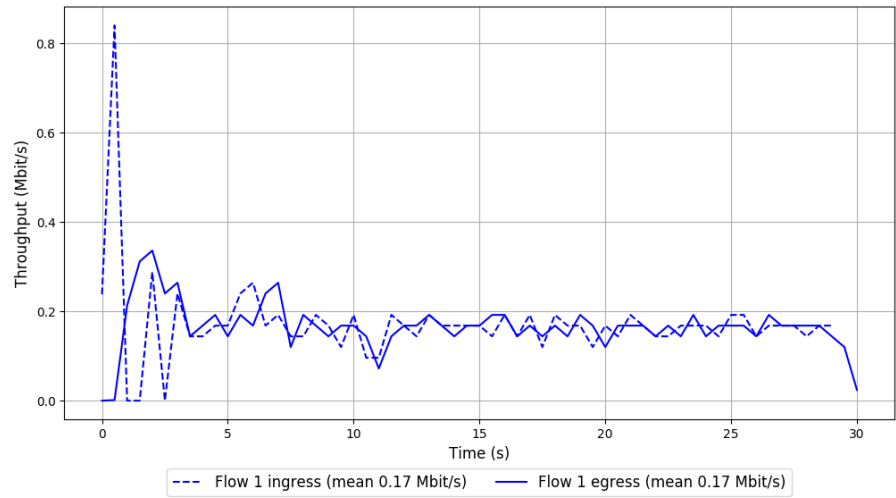


Run 3: Statistics of Indigo

Start at: 2019-02-19 19:42:46
End at: 2019-02-19 19:43:16
Local clock offset: -4.054 ms
Remote clock offset: -5.595 ms

Below is generated by plot.py at 2019-02-19 19:46:11
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 816.793 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 816.793 ms
Loss rate: 0.71%

Run 3: Report of Indigo — Data Link



Run 1: Statistics of Indigo-MusesC3

Start at: 2019-02-19 18:41:08

End at: 2019-02-19 18:41:38

Local clock offset: -2.669 ms

Remote clock offset: 1.132 ms

Below is generated by plot.py at 2019-02-19 19:46:11

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.07 Mbit/s

95th percentile per-packet one-way delay: 22885.906 ms

Loss rate: 93.49%

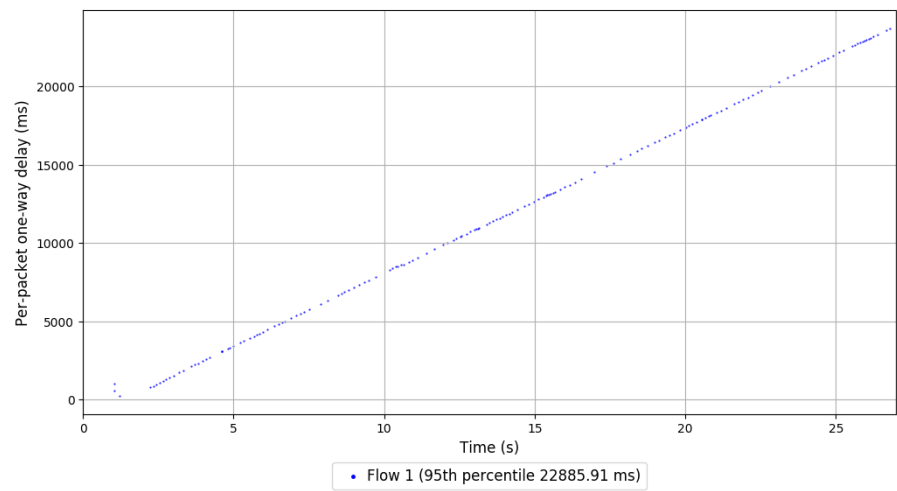
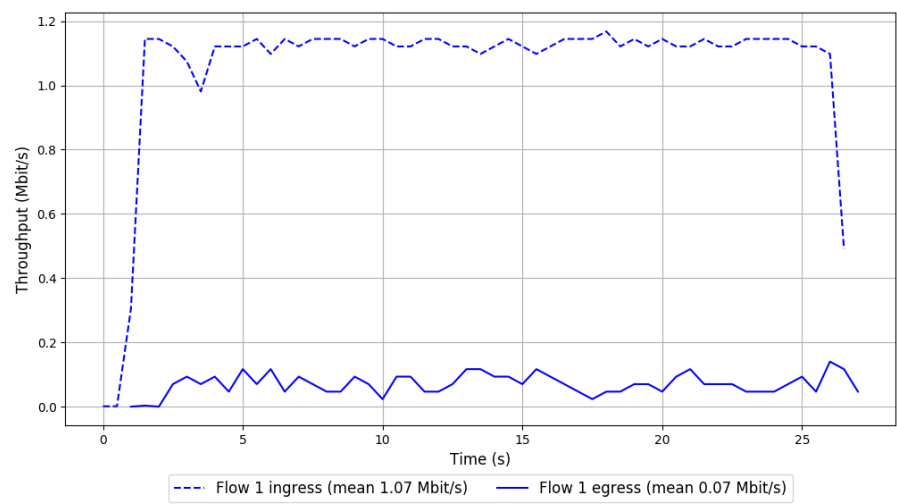
-- Flow 1:

Average throughput: 0.07 Mbit/s

95th percentile per-packet one-way delay: 22885.906 ms

Loss rate: 93.49%

Run 1: Report of Indigo-MusesC3 — Data Link

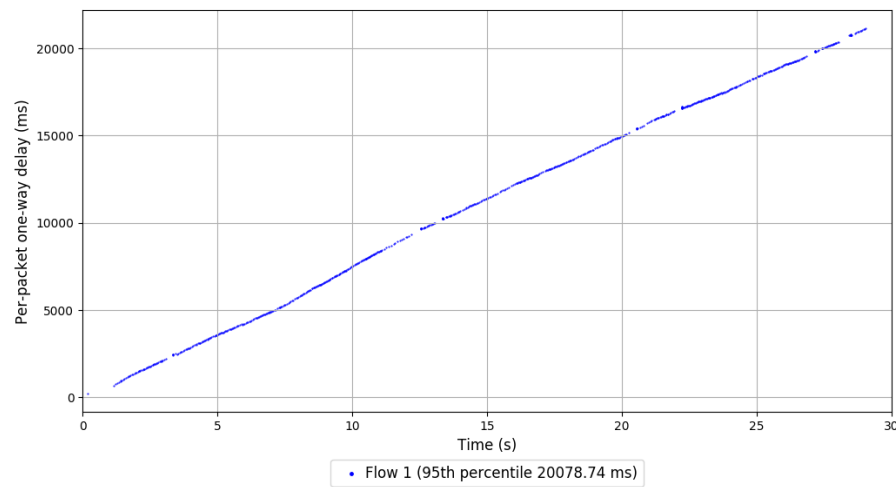
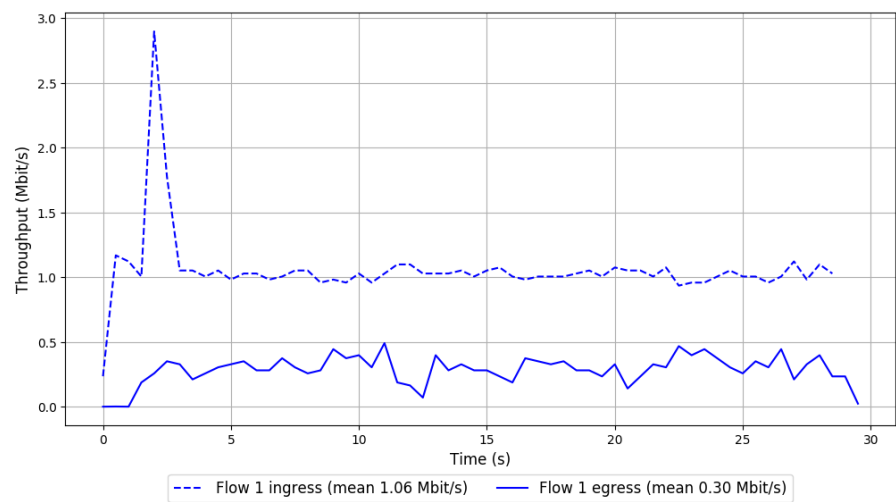


Run 2: Statistics of Indigo-MusesC3

Start at: 2019-02-19 19:06:33
End at: 2019-02-19 19:07:03
Local clock offset: -2.856 ms
Remote clock offset: -4.188 ms

Below is generated by plot.py at 2019-02-19 19:46:11
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 20078.735 ms
Loss rate: 72.18%
-- Flow 1:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 20078.735 ms
Loss rate: 72.18%

Run 2: Report of Indigo-MusesC3 — Data Link



Run 3: Statistics of Indigo-MusesC3

Start at: 2019-02-19 19:31:10

End at: 2019-02-19 19:31:40

Local clock offset: 6.455 ms

Remote clock offset: -0.45 ms

Below is generated by plot.py at 2019-02-19 19:46:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.28 Mbit/s

95th percentile per-packet one-way delay: 21057.767 ms

Loss rate: 82.39%

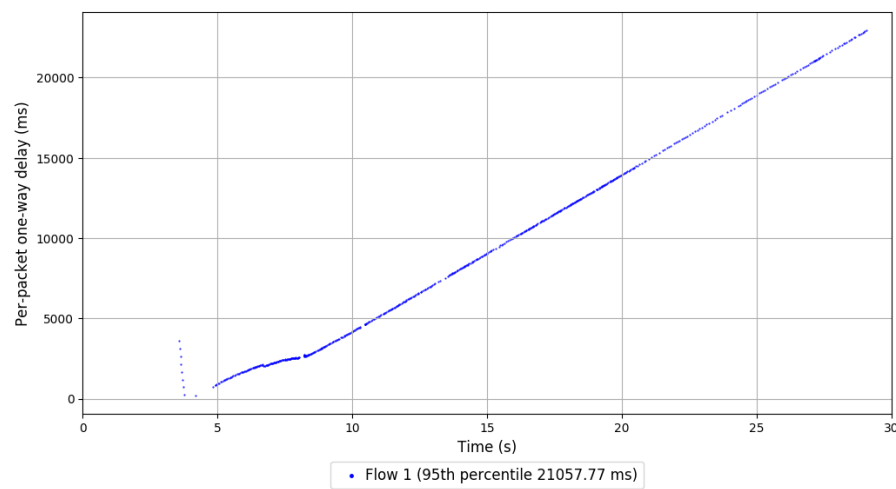
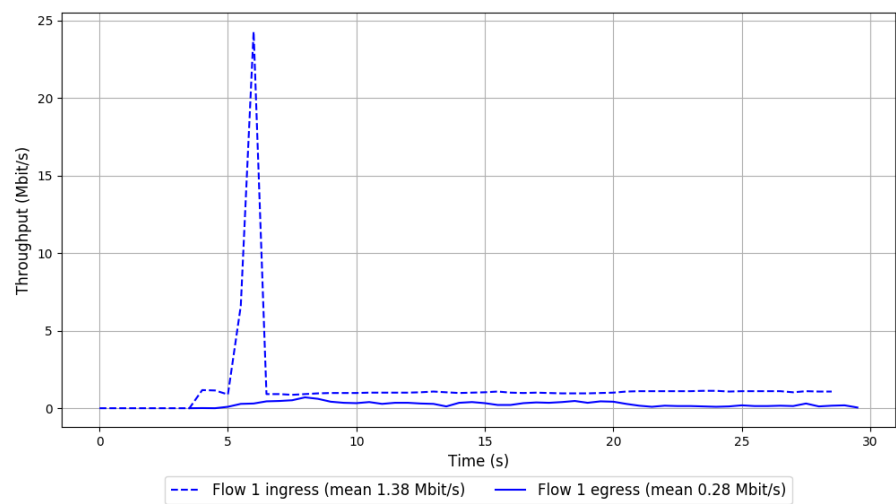
-- Flow 1:

Average throughput: 0.28 Mbit/s

95th percentile per-packet one-way delay: 21057.767 ms

Loss rate: 82.39%

Run 3: Report of Indigo-MusesC3 — Data Link

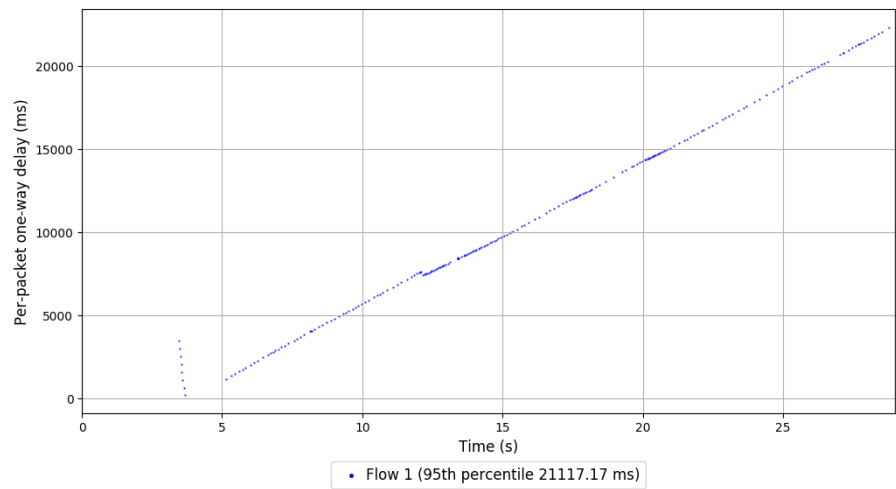
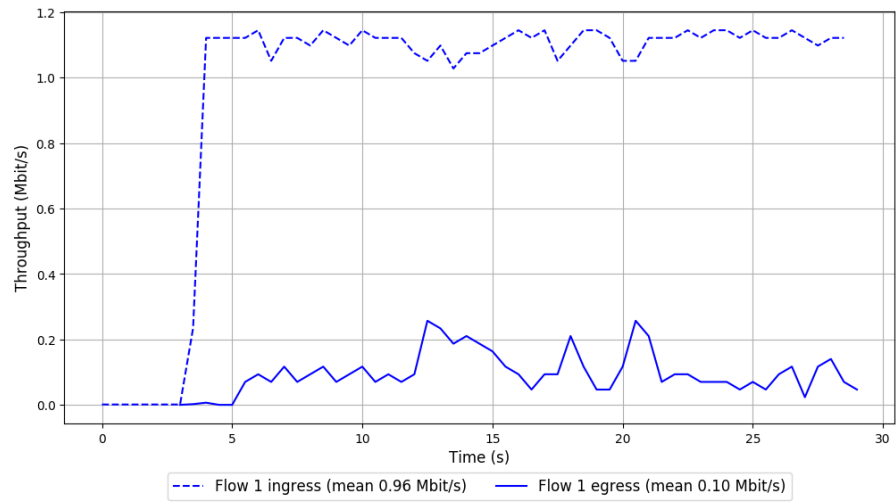


Run 1: Statistics of Indigo-MusesC5

Start at: 2019-02-19 18:54:50
End at: 2019-02-19 18:55:20
Local clock offset: -5.578 ms
Remote clock offset: -3.333 ms

Below is generated by plot.py at 2019-02-19 19:46:13
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 21117.172 ms
Loss rate: 90.74%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 21117.172 ms
Loss rate: 90.74%

Run 1: Report of Indigo-MusesC5 — Data Link



Run 2: Statistics of Indigo-MusesC5

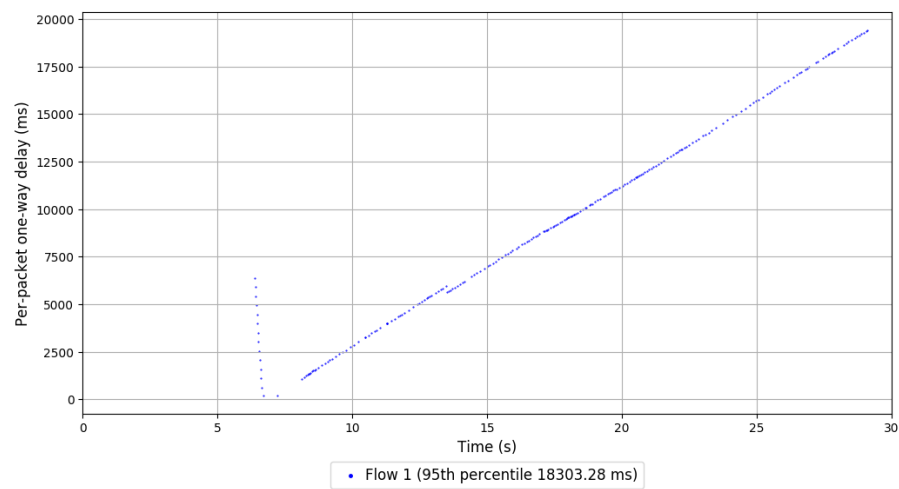
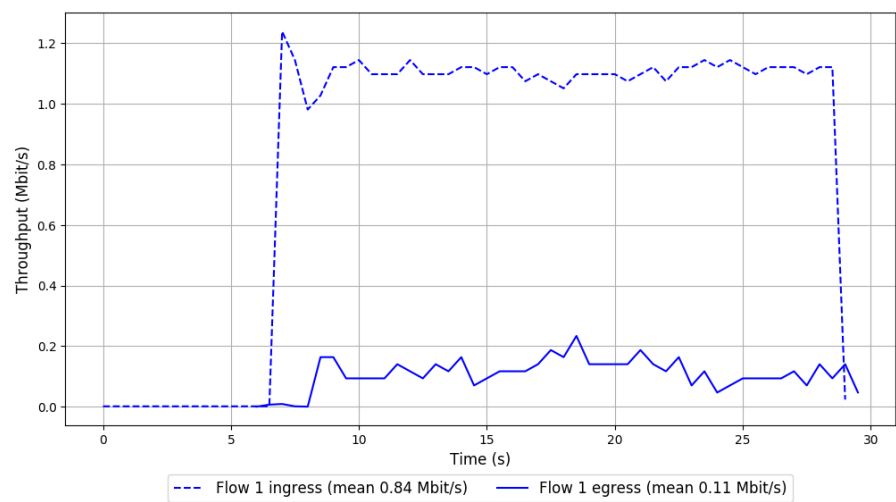
Start at: 2019-02-19 19:19:25

End at: 2019-02-19 19:19:55

Local clock offset: 2.788 ms

Remote clock offset: 0.687 ms

Run 2: Report of Indigo-MusesC5 — Data Link



Run 3: Statistics of Indigo-MusesC5

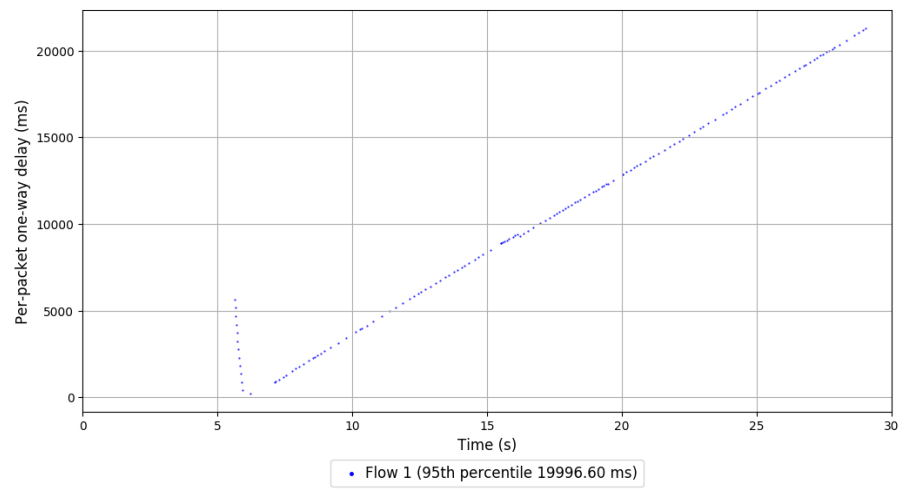
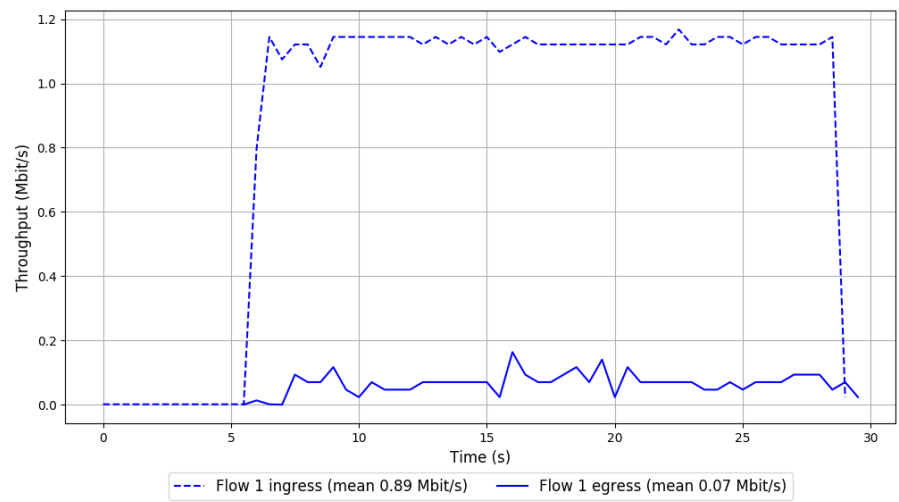
Start at: 2019-02-19 19:43:55

End at: 2019-02-19 19:44:25

Local clock offset: -4.263 ms

Remote clock offset: 0.583 ms

Run 3: Report of Indigo-MusesC5 — Data Link



Run 1: Statistics of Indigo-MusesD

Start at: 2019-02-19 18:52:11

End at: 2019-02-19 18:52:41

Local clock offset: -4.996 ms

Remote clock offset: 0.848 ms

Below is generated by plot.py at 2019-02-19 19:46:13

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.16 Mbit/s

95th percentile per-packet one-way delay: 19577.322 ms

Loss rate: 84.95%

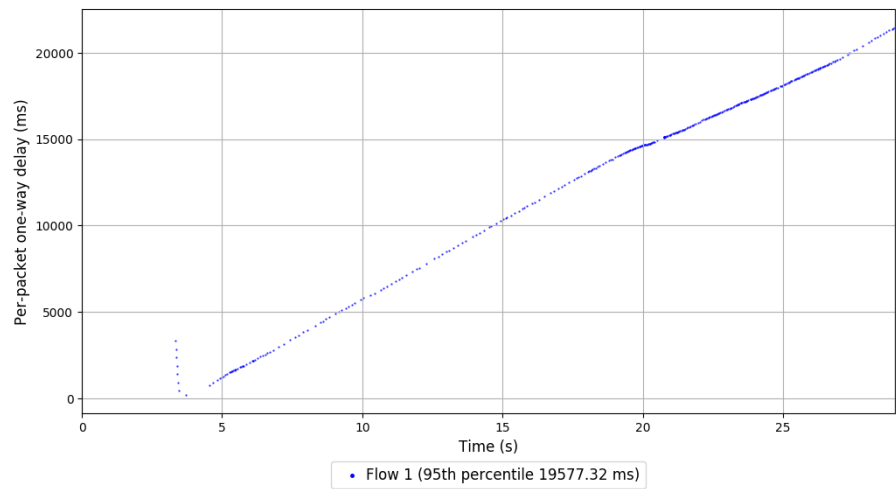
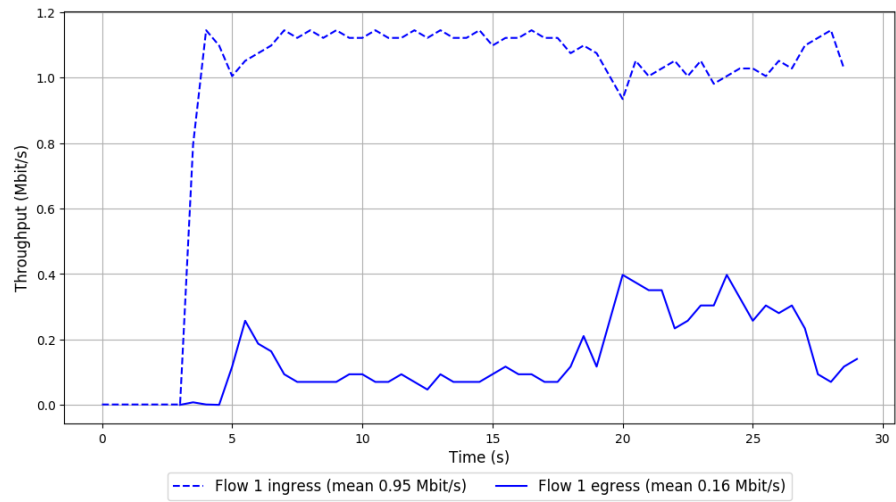
-- Flow 1:

Average throughput: 0.16 Mbit/s

95th percentile per-packet one-way delay: 19577.322 ms

Loss rate: 84.95%

Run 1: Report of Indigo-MusesD — Data Link



Run 2: Statistics of Indigo-MusesD

/home/ubuntu/pantheon/data/2019-02-19T18-31-AWS-Brazil-2-to-Colombia-cellular-3-runs/indigo.

Run 2: Report of Indigo-MusesD — Data Link

Figure is missing

Figure is missing

Run 3: Statistics of Indigo-MusesD

Start at: 2019-02-19 19:41:37

End at: 2019-02-19 19:42:07

Local clock offset: -3.56 ms

Remote clock offset: -5.457 ms

Below is generated by plot.py at 2019-02-19 19:46:14

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.25 Mbit/s

95th percentile per-packet one-way delay: 18183.066 ms

Loss rate: 75.32%

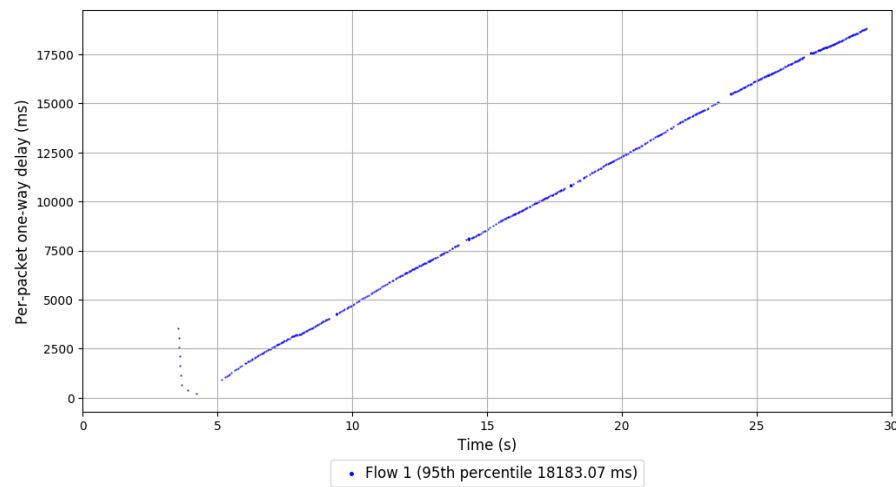
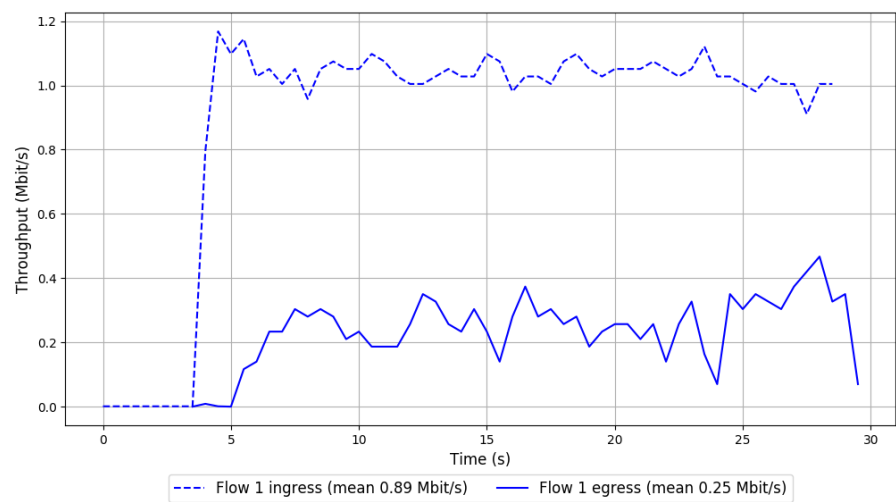
-- Flow 1:

Average throughput: 0.25 Mbit/s

95th percentile per-packet one-way delay: 18183.066 ms

Loss rate: 75.32%

Run 3: Report of Indigo-MusesD — Data Link

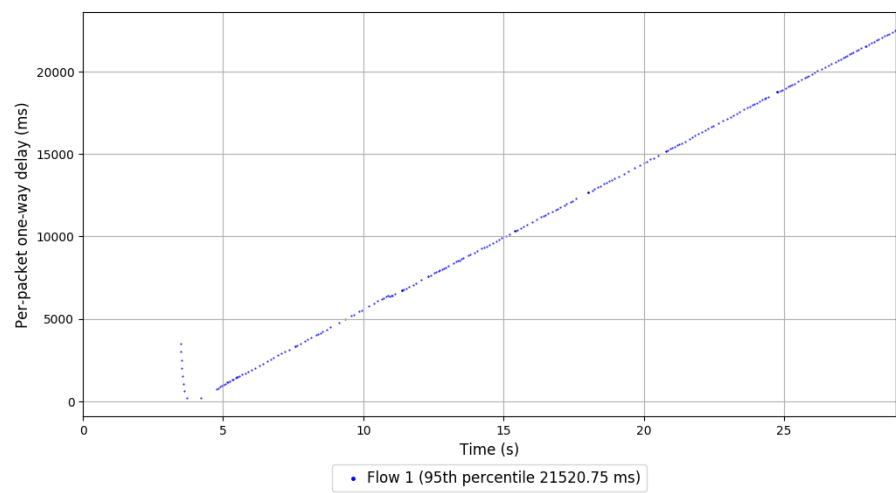
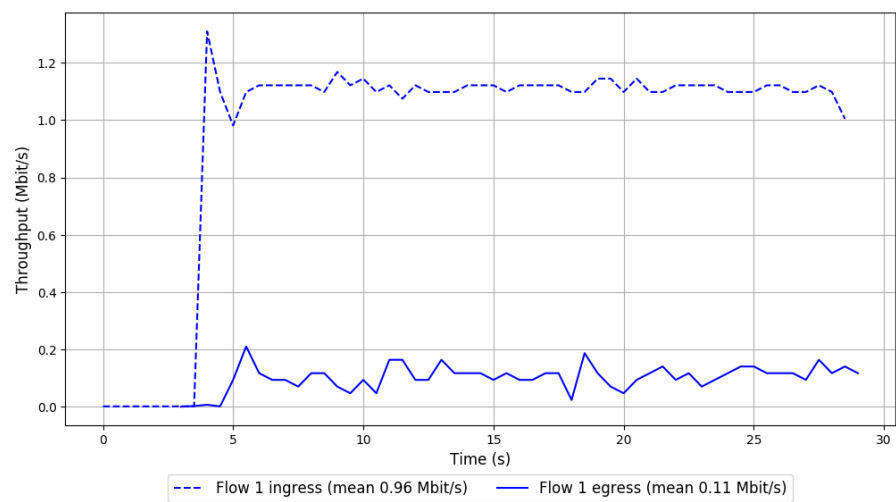


Run 1: Statistics of Indigo-MusesT

Start at: 2019-02-19 18:43:47
End at: 2019-02-19 18:44:17
Local clock offset: -2.276 ms
Remote clock offset: -3.574 ms

Below is generated by plot.py at 2019-02-19 19:46:15
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 21520.751 ms
Loss rate: 90.33%
-- Flow 1:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 21520.751 ms
Loss rate: 90.33%

Run 1: Report of Indigo-MusesT — Data Link

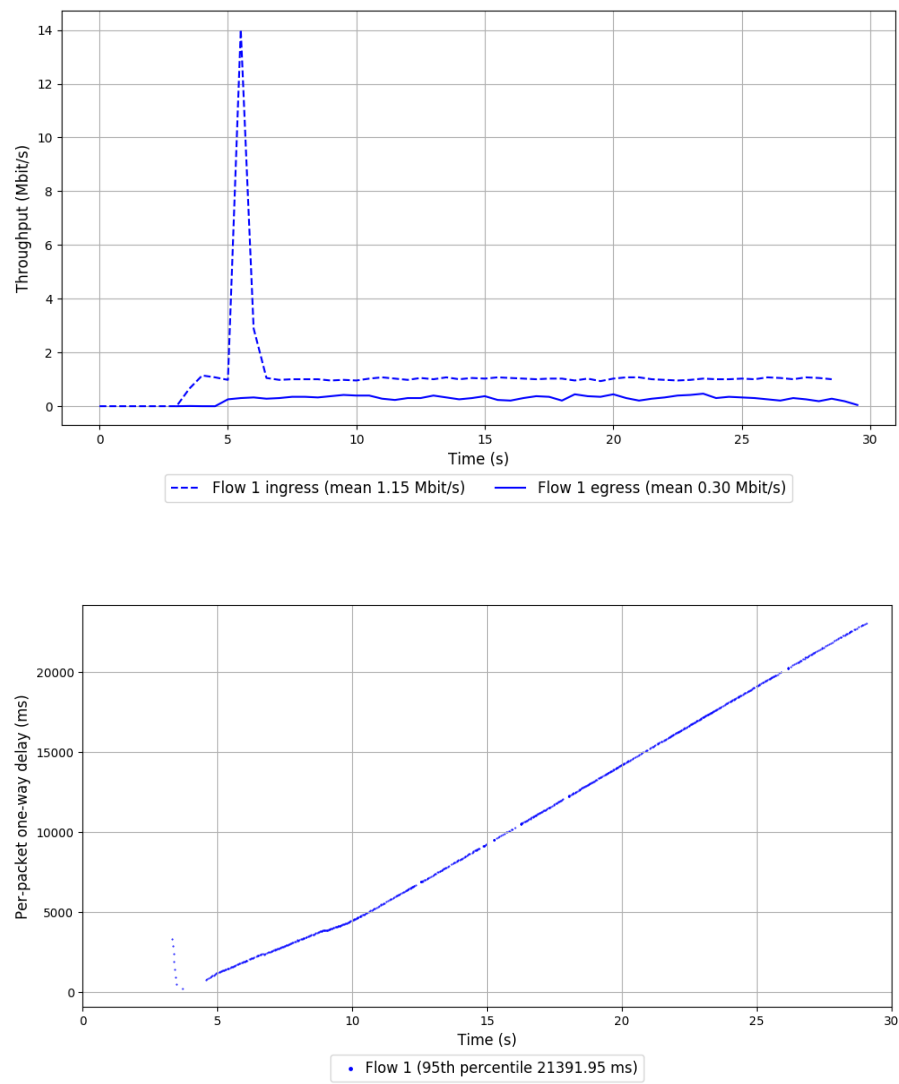


Run 2: Statistics of Indigo-MusesT

Start at: 2019-02-19 19:08:49
End at: 2019-02-19 19:09:19
Local clock offset: -2.065 ms
Remote clock offset: -5.257 ms

Below is generated by plot.py at 2019-02-19 19:46:16
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 21391.951 ms
Loss rate: 76.59%
-- Flow 1:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 21391.951 ms
Loss rate: 76.59%

Run 2: Report of Indigo-MusesT — Data Link



Run 3: Statistics of Indigo-MusesT

Start at: 2019-02-19 19:33:25

End at: 2019-02-19 19:33:55

Local clock offset: 2.915 ms

Remote clock offset: -5.298 ms

Below is generated by plot.py at 2019-02-19 19:46:17

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.25 Mbit/s

95th percentile per-packet one-way delay: 20128.799 ms

Loss rate: 78.55%

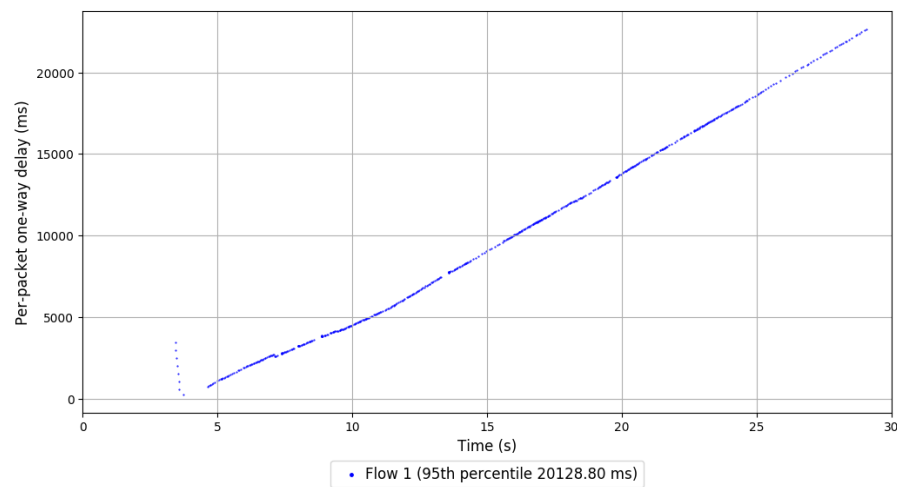
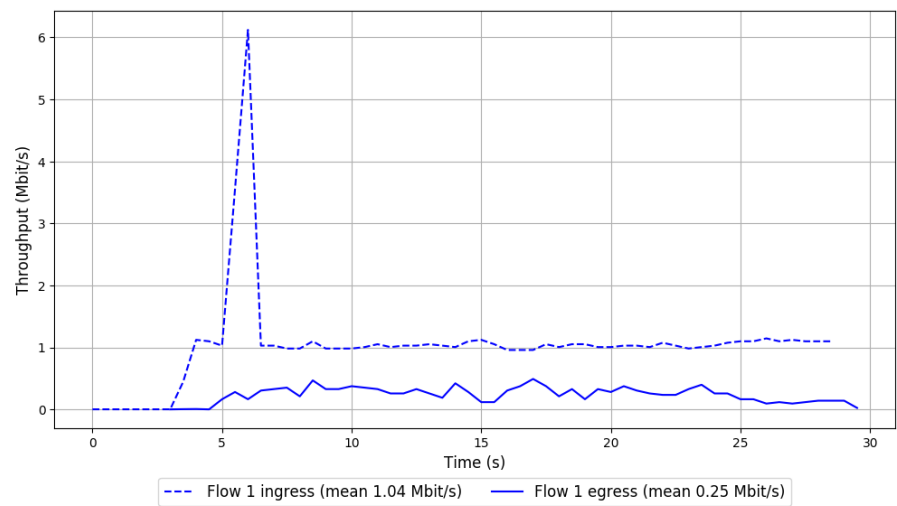
-- Flow 1:

Average throughput: 0.25 Mbit/s

95th percentile per-packet one-way delay: 20128.799 ms

Loss rate: 78.55%

Run 3: Report of Indigo-MusesT — Data Link

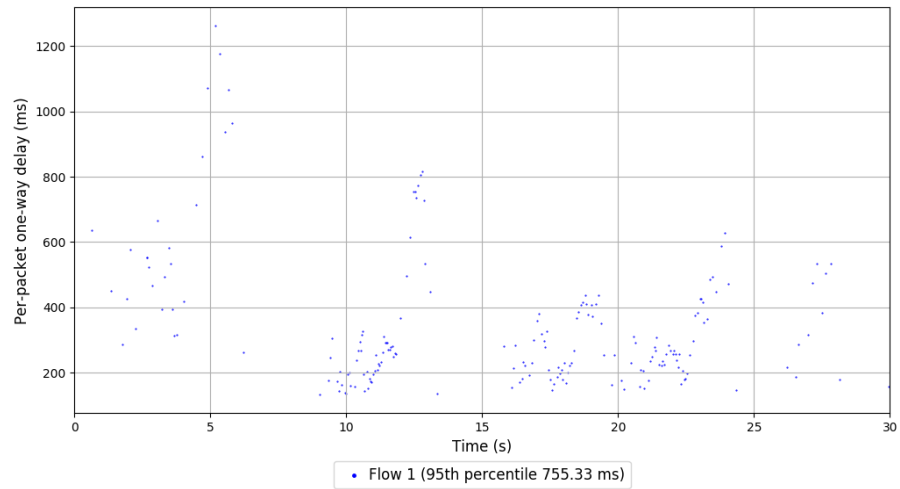
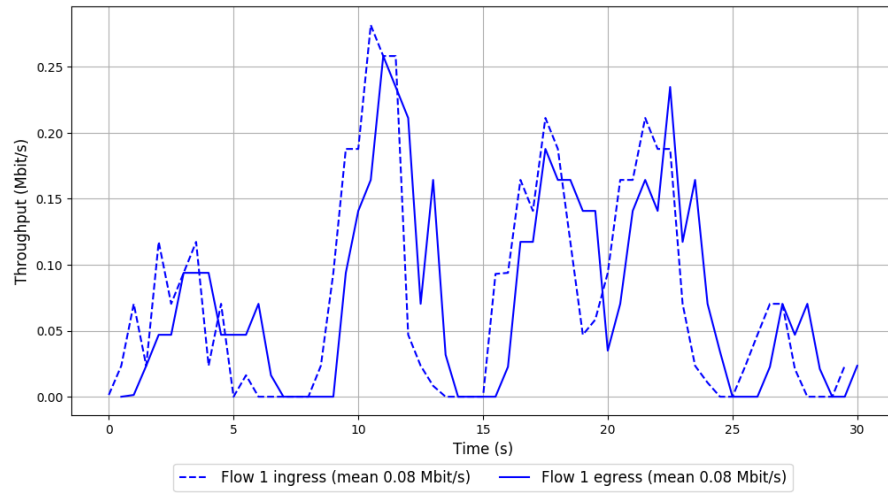


Run 1: Statistics of LEDBAT

Start at: 2019-02-19 18:35:24
End at: 2019-02-19 18:35:54
Local clock offset: -3.507 ms
Remote clock offset: -4.609 ms

Below is generated by plot.py at 2019-02-19 19:46:17
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 755.326 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 755.326 ms
Loss rate: 0.00%

Run 1: Report of LEDBAT — Data Link

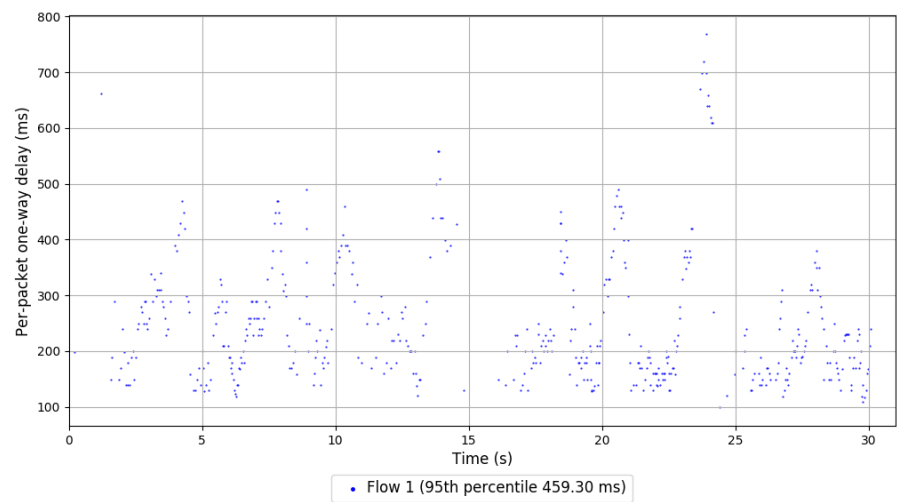
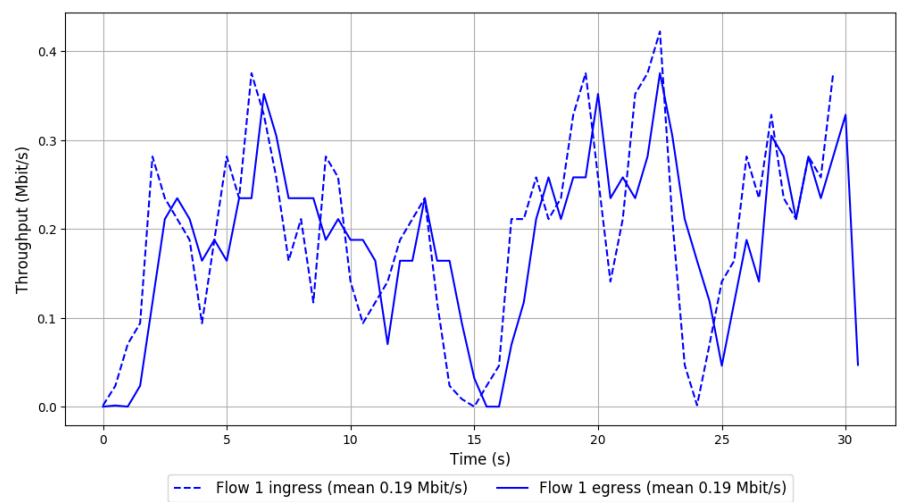


Run 2: Statistics of LEDBAT

Start at: 2019-02-19 19:00:54
End at: 2019-02-19 19:01:24
Local clock offset: -4.102 ms
Remote clock offset: -3.841 ms

Below is generated by plot.py at 2019-02-19 19:46:17
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 459.303 ms
Loss rate: 1.01%
-- Flow 1:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 459.303 ms
Loss rate: 1.01%

Run 2: Report of LEDBAT — Data Link

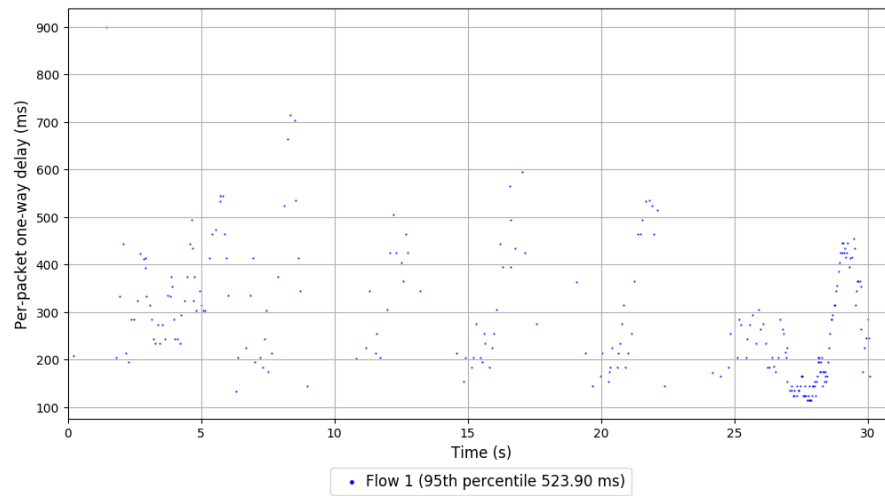
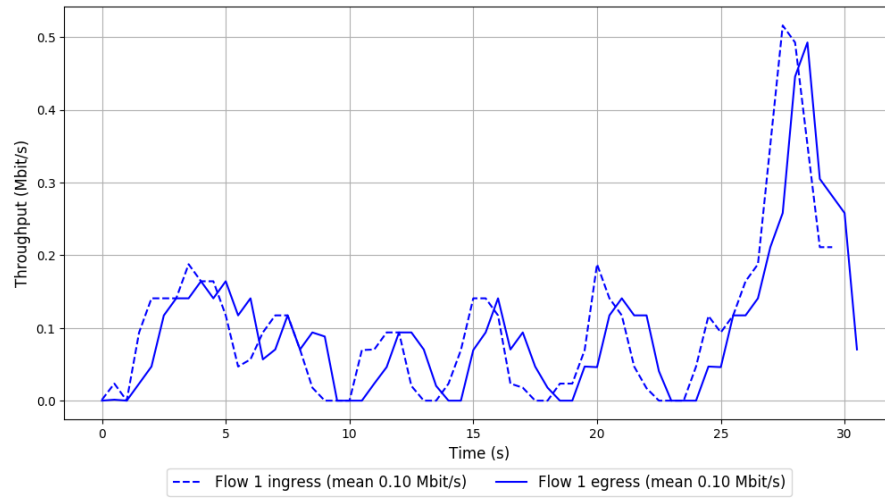


Run 3: Statistics of LEDBAT

Start at: 2019-02-19 19:25:29
End at: 2019-02-19 19:25:59
Local clock offset: 5.9 ms
Remote clock offset: -3.692 ms

Below is generated by plot.py at 2019-02-19 19:46:17
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 523.903 ms
Loss rate: 1.16%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 523.903 ms
Loss rate: 1.16%

Run 3: Report of LEDBAT — Data Link

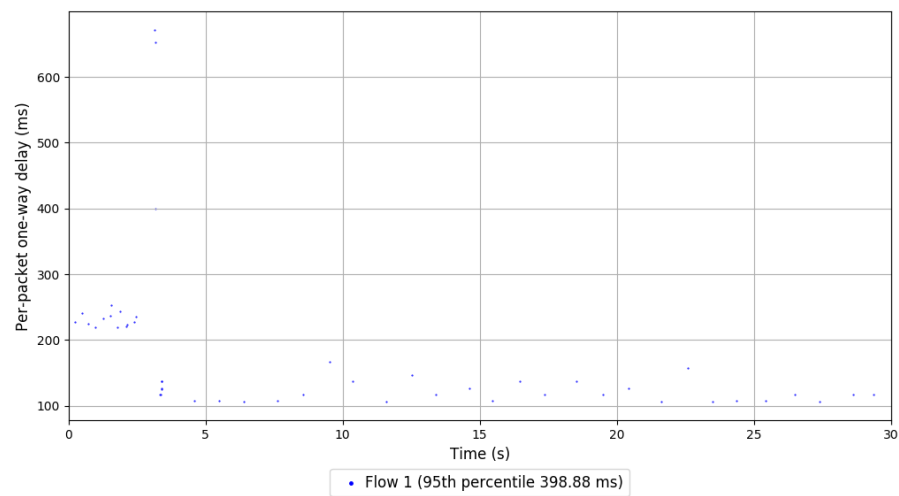
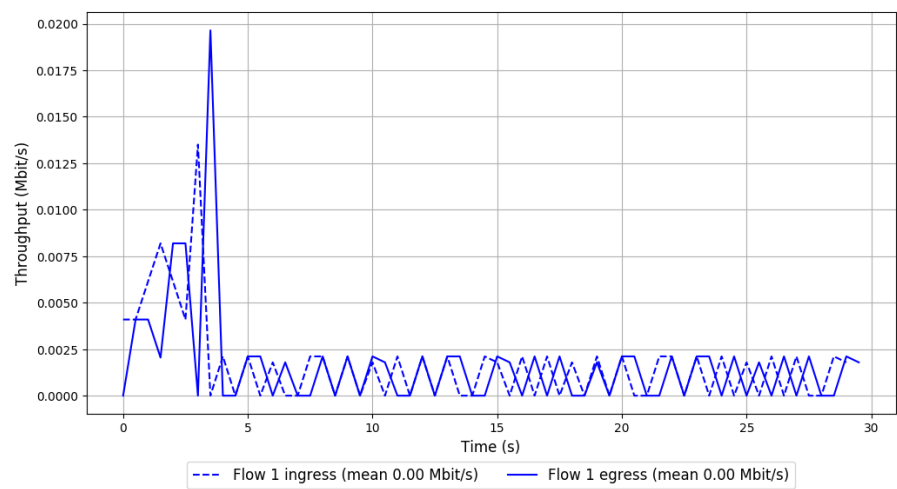


```
Run 1: Statistics of PCC-Allegro

Start at: 2019-02-19 18:51:03
End at: 2019-02-19 18:51:33
Local clock offset: -4.301 ms
Remote clock offset: 2.224 ms

# Below is generated by plot.py at 2019-02-19 19:46:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 398.883 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 398.883 ms
Loss rate: 0.00%
```

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2019-02-19 19:15:38

End at: 2019-02-19 19:16:08

Local clock offset: 0.839 ms

Remote clock offset: 0.974 ms

Below is generated by plot.py at 2019-02-19 19:46:31

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.10 Mbit/s

95th percentile per-packet one-way delay: 26185.488 ms

Loss rate: 99.63%

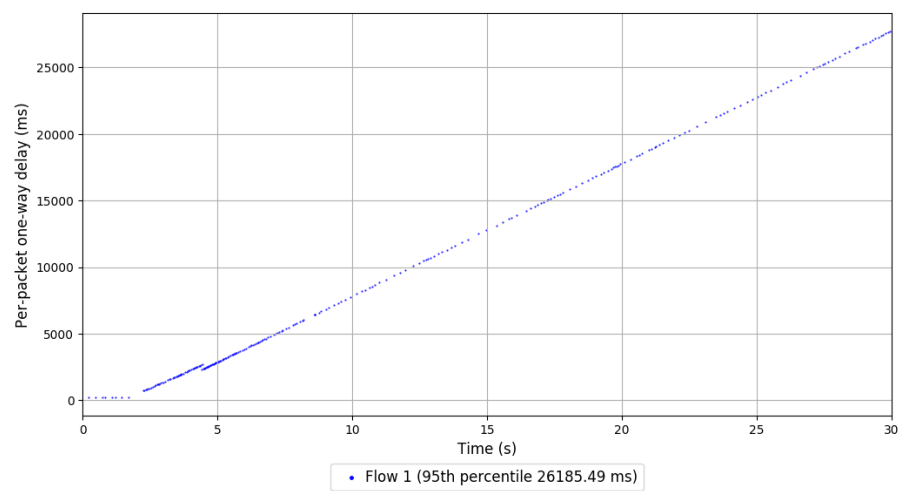
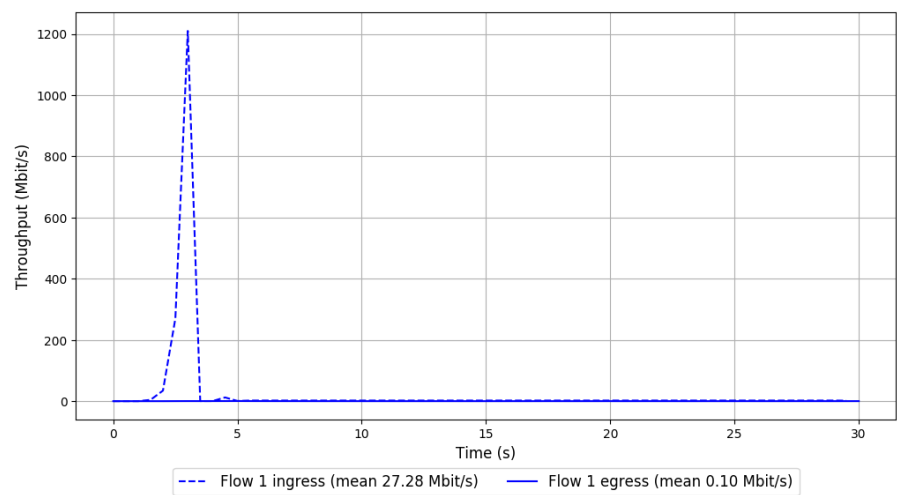
-- Flow 1:

Average throughput: 0.10 Mbit/s

95th percentile per-packet one-way delay: 26185.488 ms

Loss rate: 99.63%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2019-02-19 19:40:25

End at: 2019-02-19 19:40:55

Local clock offset: -3.106 ms

Remote clock offset: -1.753 ms

Below is generated by plot.py at 2019-02-19 19:46:33

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.15 Mbit/s

95th percentile per-packet one-way delay: 25873.014 ms

Loss rate: 99.59%

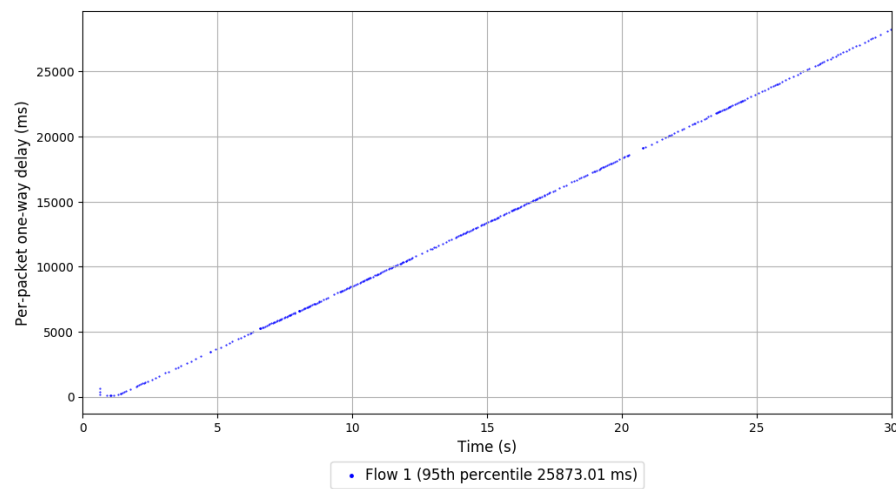
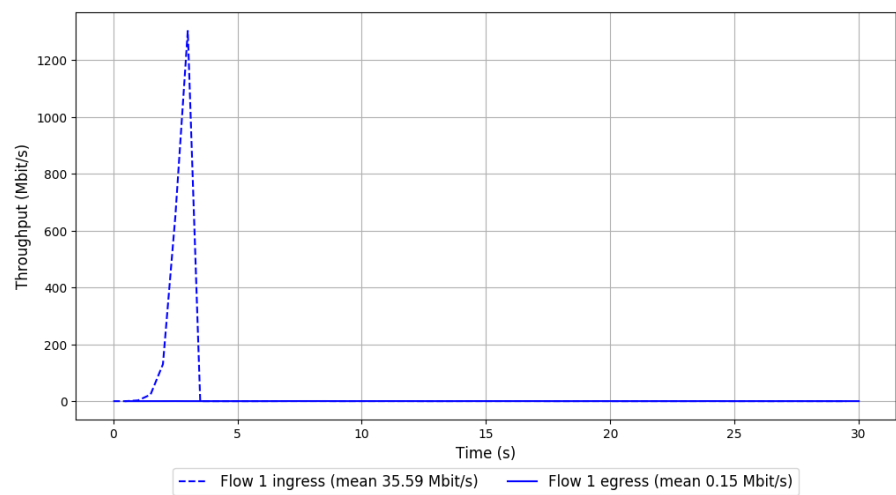
-- Flow 1:

Average throughput: 0.15 Mbit/s

95th percentile per-packet one-way delay: 25873.014 ms

Loss rate: 99.59%

Run 3: Report of PCC-Allegro — Data Link



Run 1: Statistics of PCC-Expr

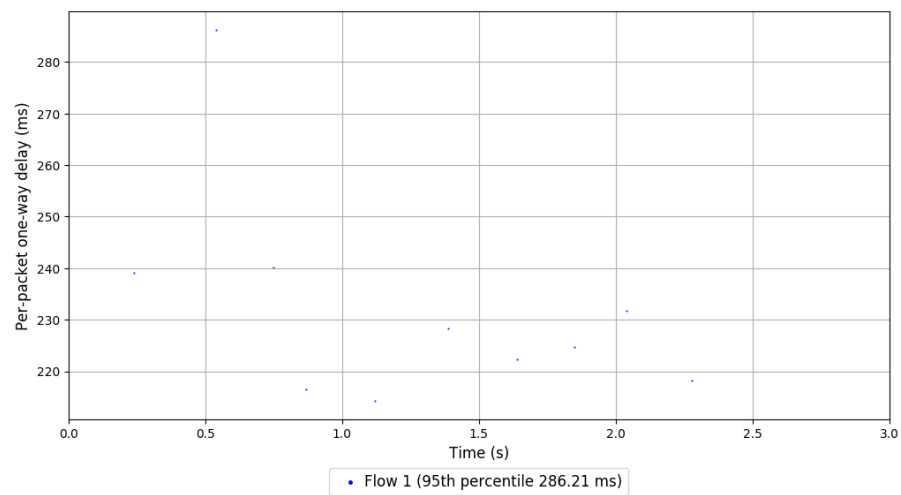
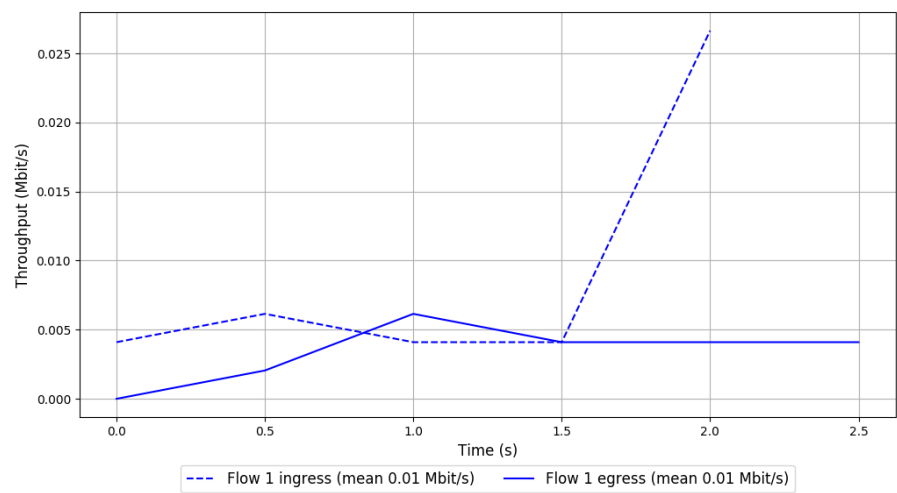
Start at: 2019-02-19 18:34:16

End at: 2019-02-19 18:34:46

Local clock offset: -5.374 ms

Remote clock offset: -0.068 ms

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

Start at: 2019-02-19 18:59:46

End at: 2019-02-19 19:00:16

Local clock offset: -4.363 ms

Remote clock offset: 0.196 ms

Below is generated by plot.py at 2019-02-19 19:46:33

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.13 Mbit/s

95th percentile per-packet one-way delay: 23676.154 ms

Loss rate: 91.80%

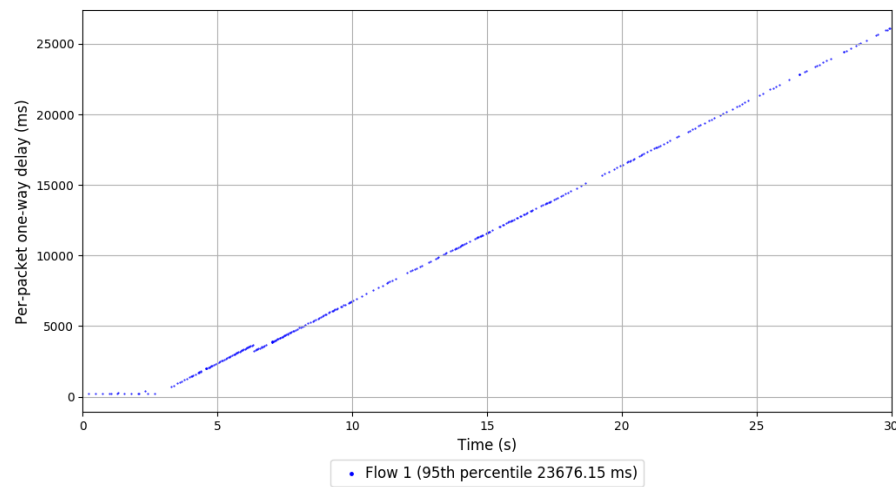
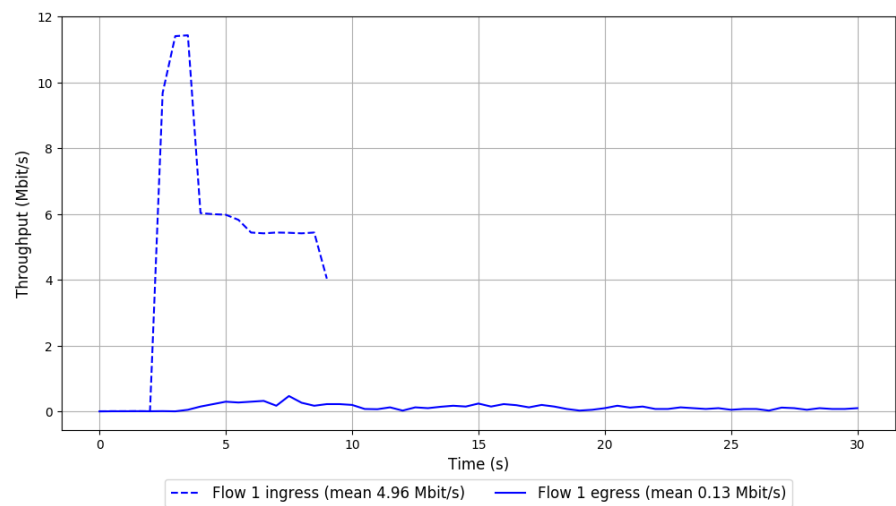
-- Flow 1:

Average throughput: 0.13 Mbit/s

95th percentile per-packet one-way delay: 23676.154 ms

Loss rate: 91.80%

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2019-02-19 19:24:21

End at: 2019-02-19 19:24:51

Local clock offset: 5.368 ms

Remote clock offset: 1.138 ms

Below is generated by plot.py at 2019-02-19 19:46:33

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.09 Mbit/s

95th percentile per-packet one-way delay: 25550.300 ms

Loss rate: 95.18%

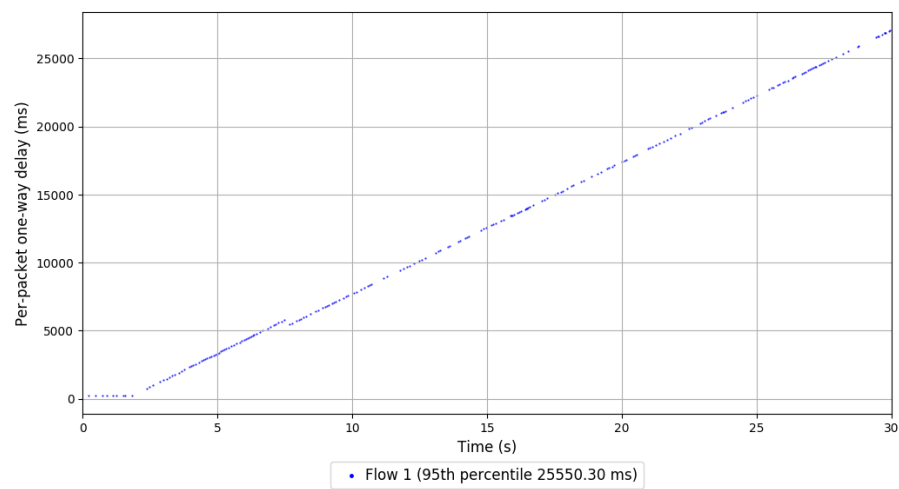
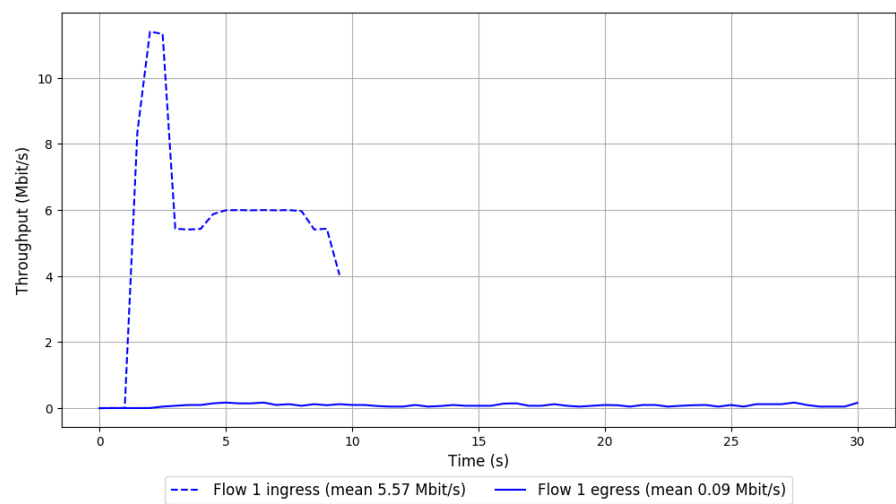
-- Flow 1:

Average throughput: 0.09 Mbit/s

95th percentile per-packet one-way delay: 25550.300 ms

Loss rate: 95.18%

Run 3: Report of PCC-Expr — Data Link

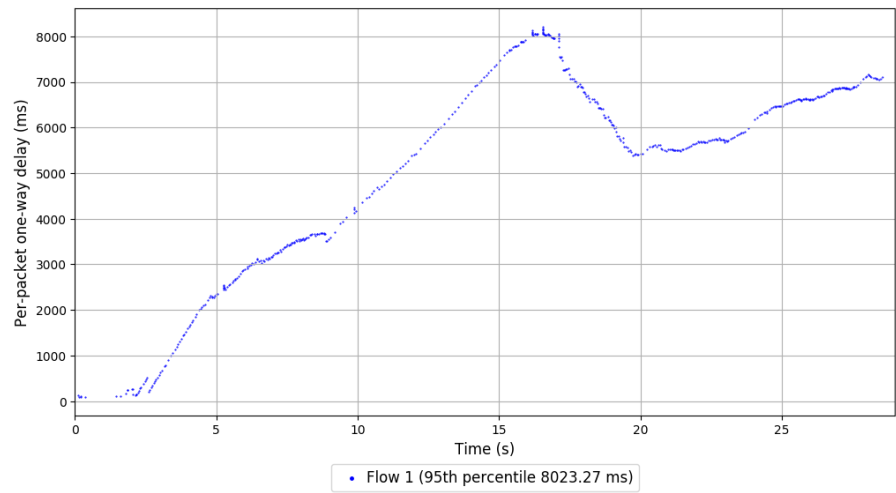
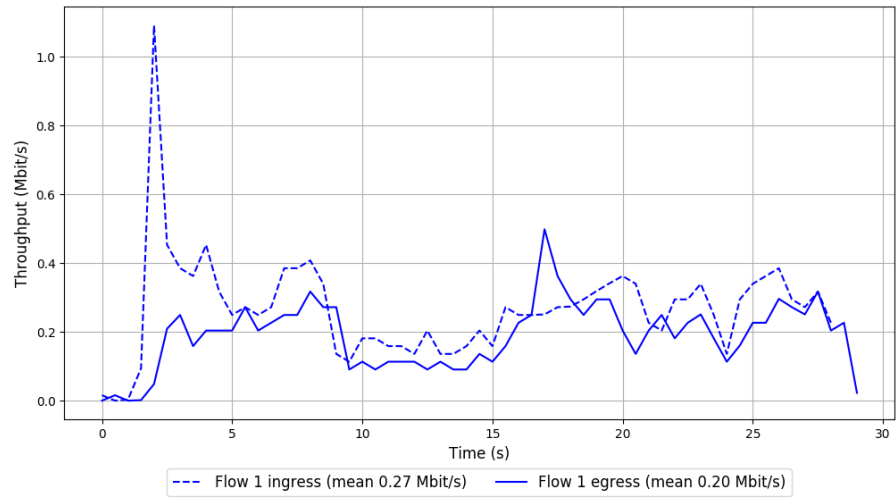


Run 1: Statistics of QUIC Cubic

Start at: 2019-02-19 18:40:01
End at: 2019-02-19 18:40:31
Local clock offset: -1.644 ms
Remote clock offset: -5.227 ms

Below is generated by plot.py at 2019-02-19 19:46:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 8023.273 ms
Loss rate: 26.58%
-- Flow 1:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 8023.273 ms
Loss rate: 26.58%

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2019-02-19 19:05:25

End at: 2019-02-19 19:05:55

Local clock offset: -3.287 ms

Remote clock offset: 1.749 ms

Below is generated by plot.py at 2019-02-19 19:46:33

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.27 Mbit/s

95th percentile per-packet one-way delay: 6401.274 ms

Loss rate: 23.29%

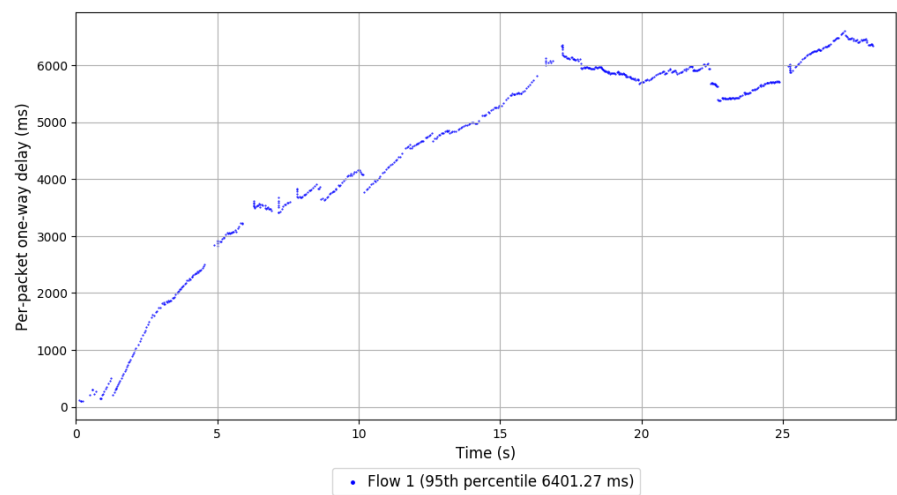
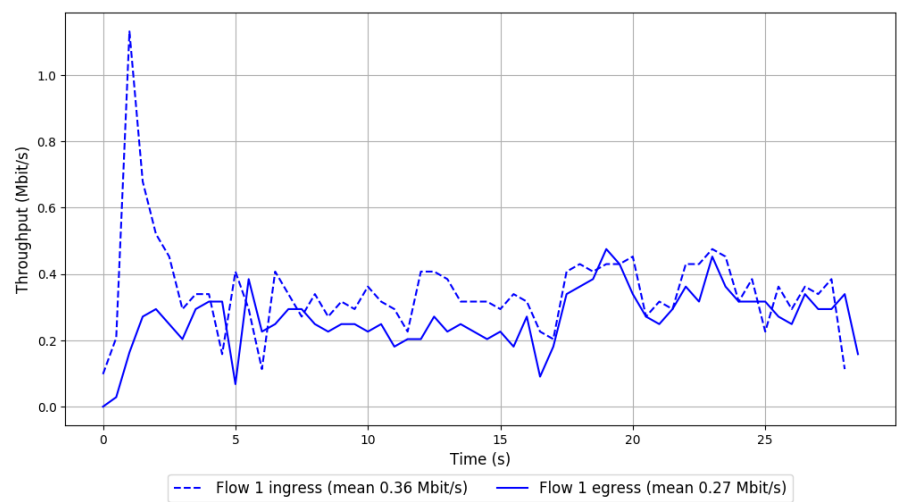
-- Flow 1:

Average throughput: 0.27 Mbit/s

95th percentile per-packet one-way delay: 6401.274 ms

Loss rate: 23.29%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2019-02-19 19:30:01

End at: 2019-02-19 19:30:31

Local clock offset: 8.405 ms

Remote clock offset: -1.16 ms

Below is generated by plot.py at 2019-02-19 19:46:33

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.26 Mbit/s

95th percentile per-packet one-way delay: 5971.053 ms

Loss rate: 21.93%

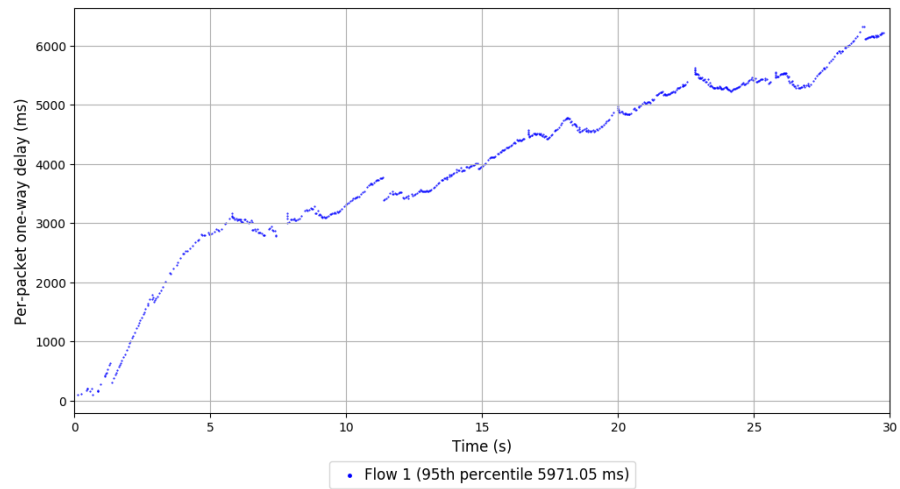
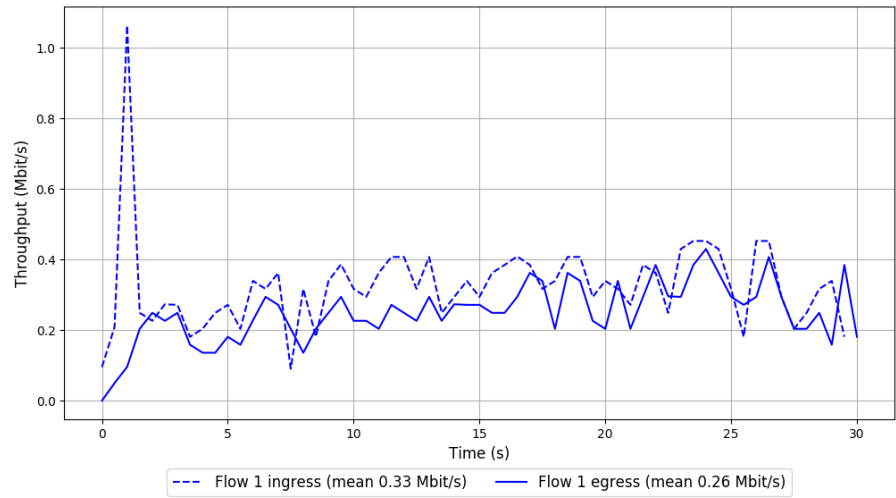
-- Flow 1:

Average throughput: 0.26 Mbit/s

95th percentile per-packet one-way delay: 5971.053 ms

Loss rate: 21.93%

Run 3: Report of QUIC Cubic — Data Link

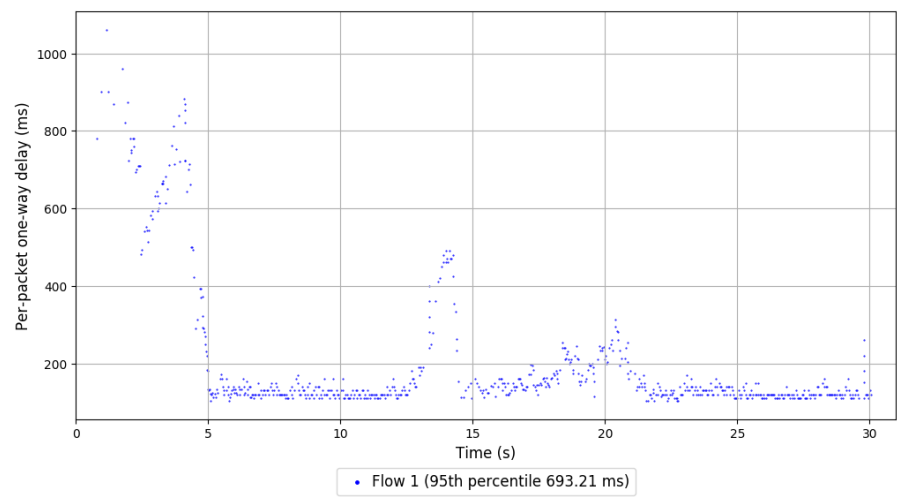
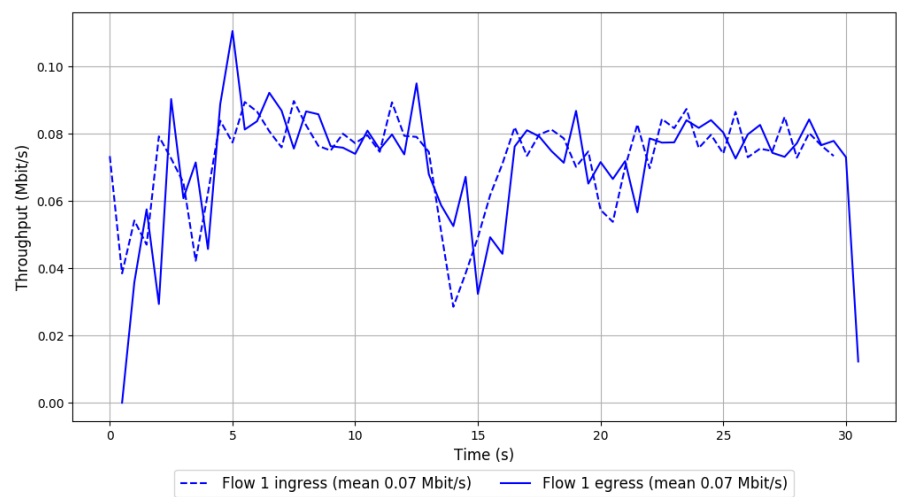


Run 1: Statistics of SCReAM

Start at: 2019-02-19 18:33:08
End at: 2019-02-19 18:33:38
Local clock offset: -8.219 ms
Remote clock offset: -1.452 ms

Below is generated by plot.py at 2019-02-19 19:46:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 693.208 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 693.208 ms
Loss rate: 0.14%

Run 1: Report of SReAM — Data Link

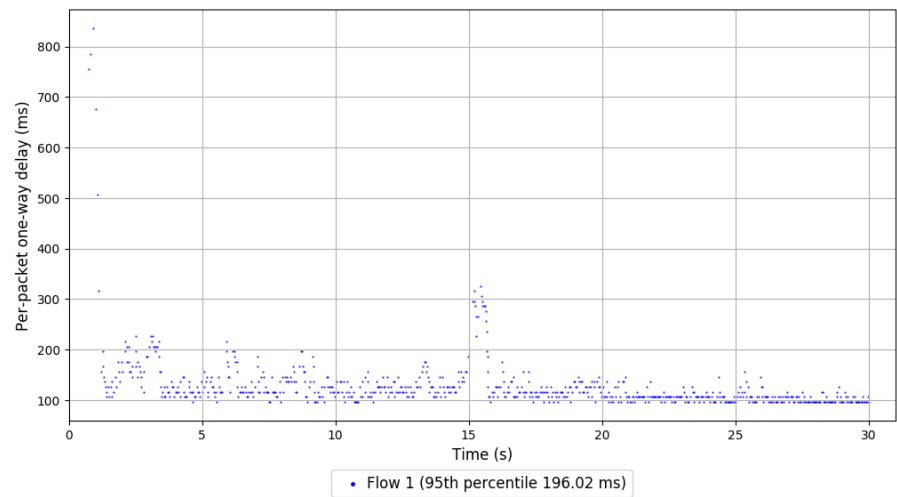
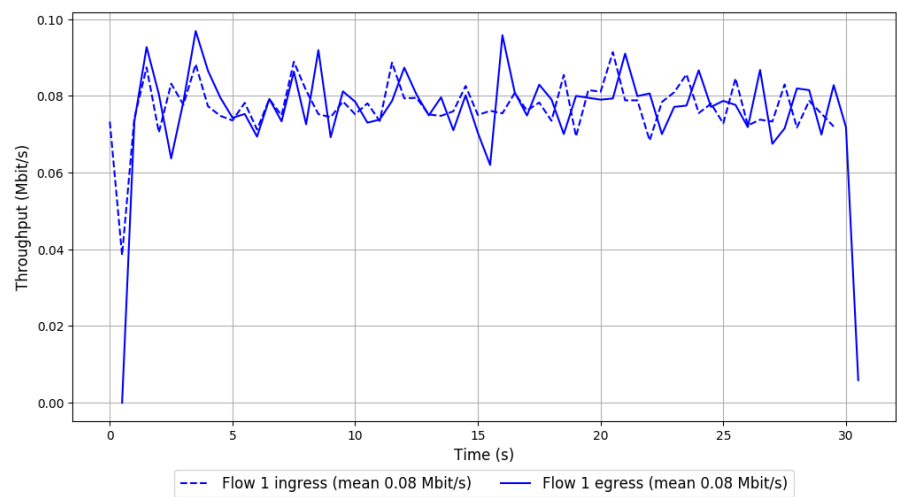


Run 2: Statistics of SCReAM

Start at: 2019-02-19 18:58:38
End at: 2019-02-19 18:59:08
Local clock offset: -4.774 ms
Remote clock offset: -4.773 ms

Below is generated by plot.py at 2019-02-19 19:46:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 196.024 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 196.024 ms
Loss rate: 0.13%

Run 2: Report of SReAM — Data Link

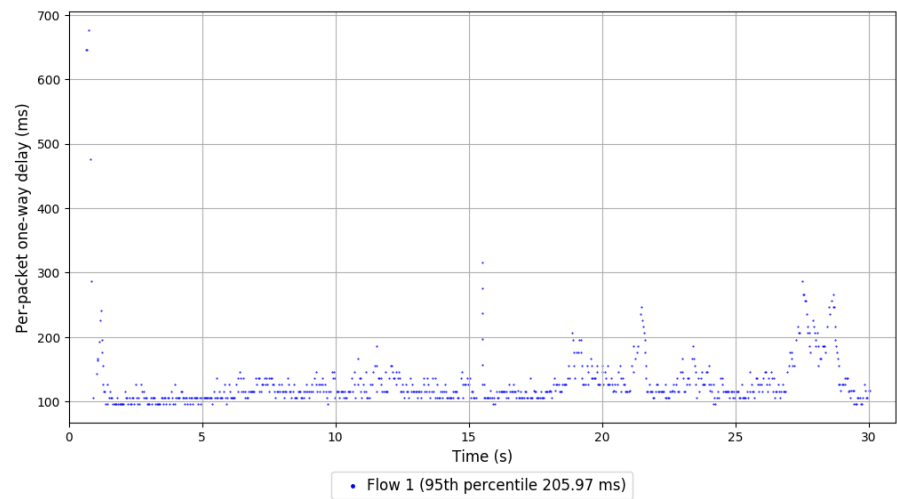
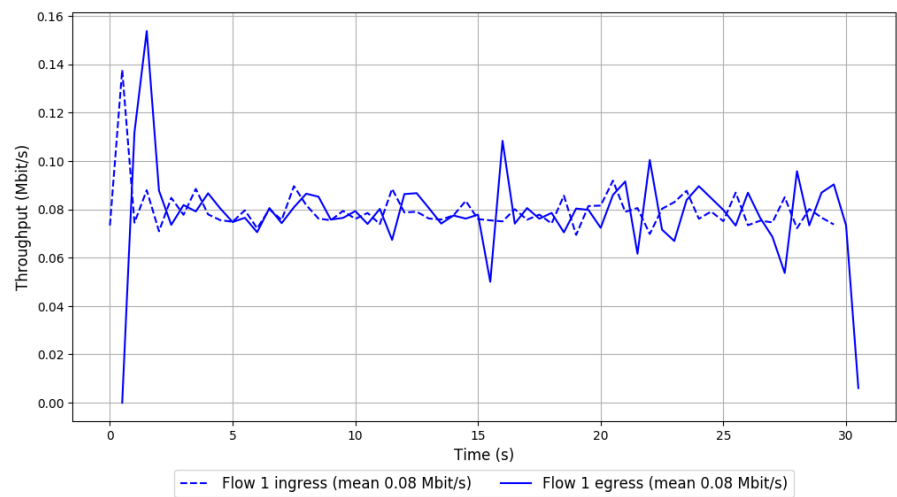


Run 3: Statistics of SCReAM

Start at: 2019-02-19 19:23:13
End at: 2019-02-19 19:23:43
Local clock offset: 4.673 ms
Remote clock offset: -5.093 ms

Below is generated by plot.py at 2019-02-19 19:46:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 205.966 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 205.966 ms
Loss rate: 0.13%

Run 3: Report of SReAM — Data Link

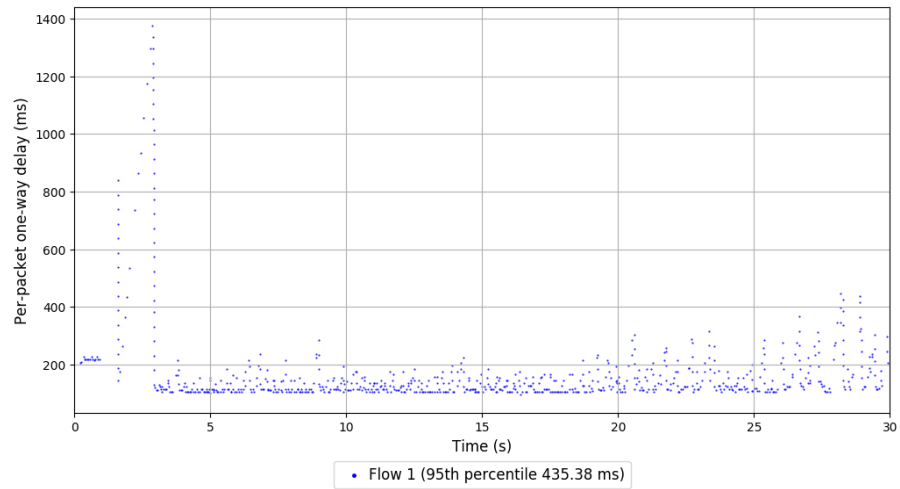
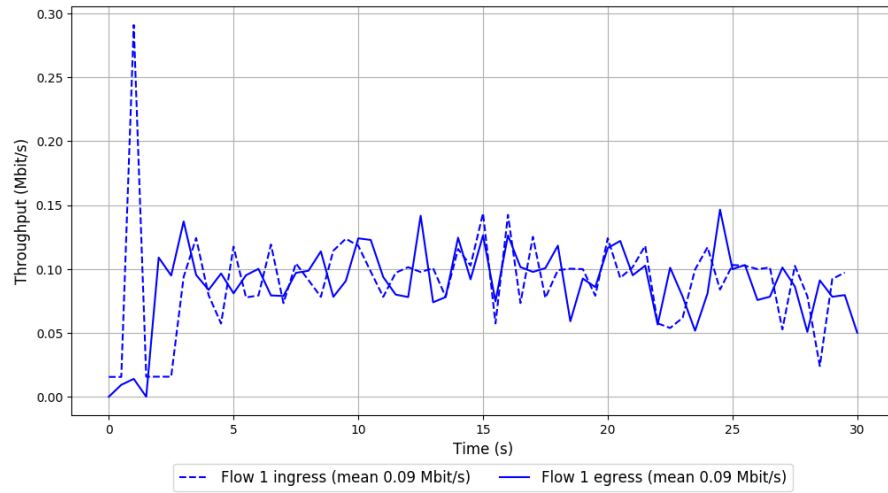


Run 1: Statistics of Sprout

Start at: 2019-02-19 18:31:59
End at: 2019-02-19 18:32:29
Local clock offset: -11.678 ms
Remote clock offset: 0.678 ms

Below is generated by plot.py at 2019-02-19 19:46:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 435.385 ms
Loss rate: 1.15%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 435.385 ms
Loss rate: 1.15%

Run 1: Report of Sprout — Data Link

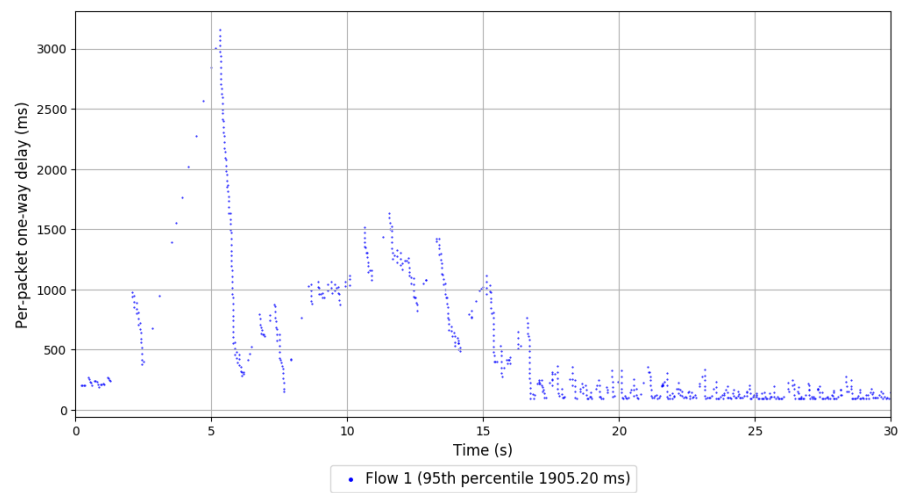
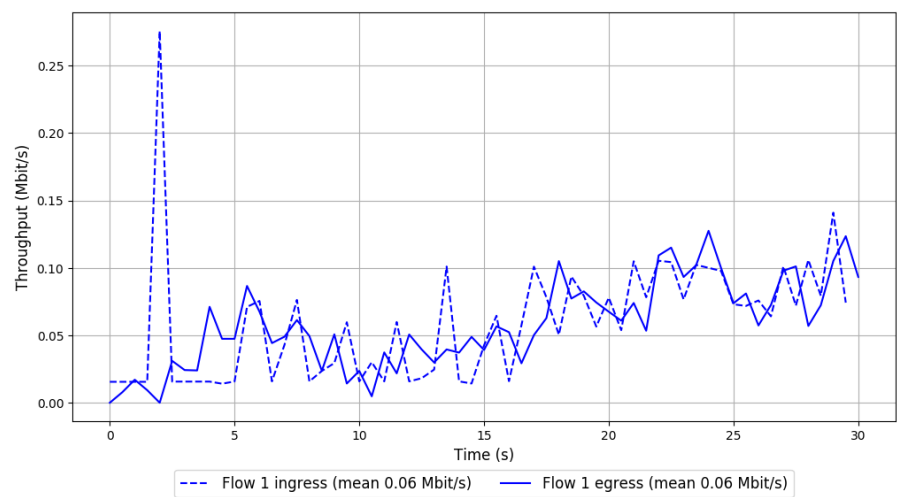


Run 2: Statistics of Sprout

Start at: 2019-02-19 18:57:30
End at: 2019-02-19 18:58:00
Local clock offset: -5.187 ms
Remote clock offset: -3.988 ms

Below is generated by plot.py at 2019-02-19 19:46:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 1905.196 ms
Loss rate: 0.69%
-- Flow 1:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 1905.196 ms
Loss rate: 0.69%

Run 2: Report of Sprout — Data Link



Run 3: Statistics of Sprout

Start at: 2019-02-19 19:22:05

End at: 2019-02-19 19:22:35

Local clock offset: 4.045 ms

Remote clock offset: 1.477 ms

Below is generated by plot.py at 2019-02-19 19:46:33

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 452.382 ms

Loss rate: 0.00%

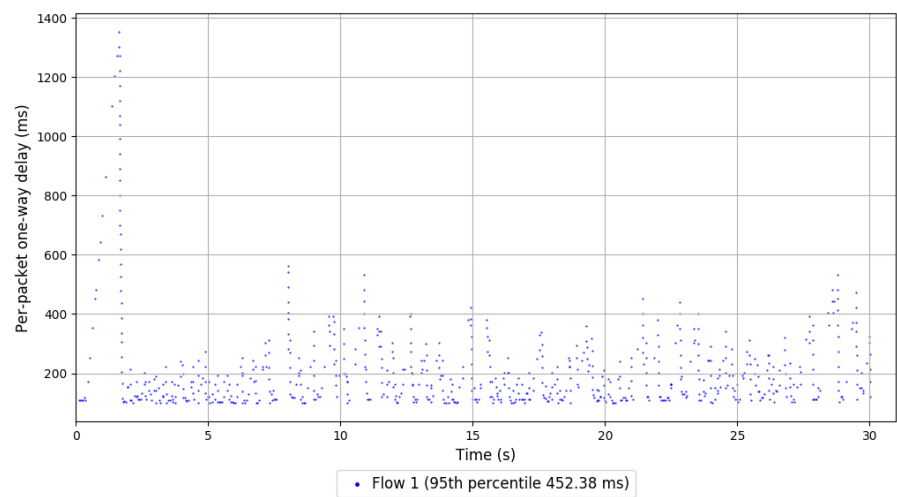
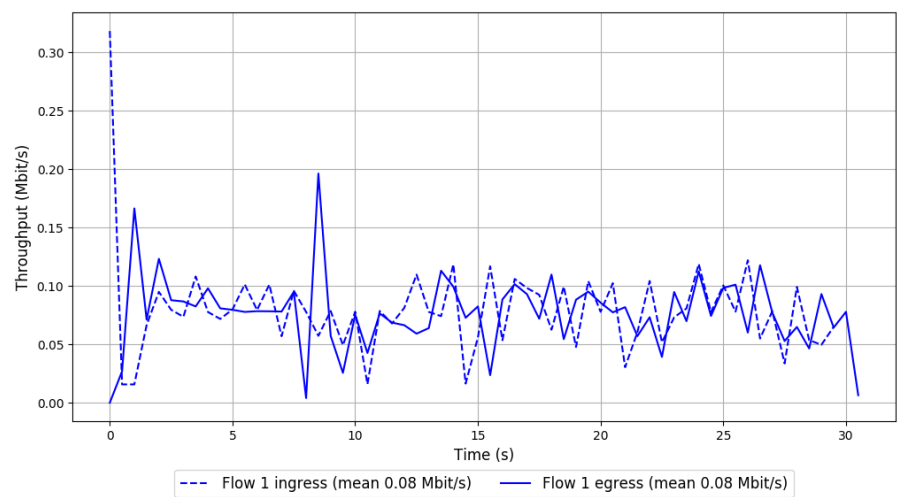
-- Flow 1:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 452.382 ms

Loss rate: 0.00%

Run 3: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

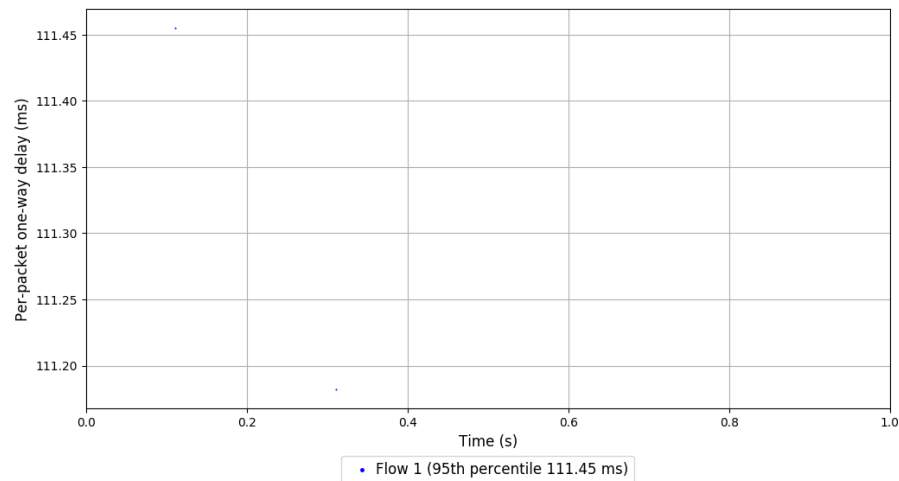
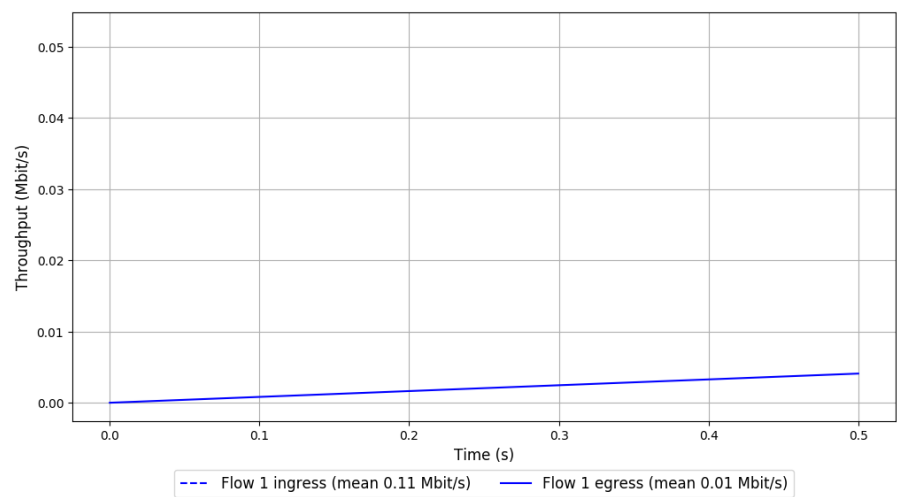
Start at: 2019-02-19 18:49:55

End at: 2019-02-19 18:50:25

Local clock offset: -2.788 ms

Remote clock offset: -2.957 ms

Run 1: Report of TaoVA-100x — Data Link



Run 2: Statistics of TaoVA-100x

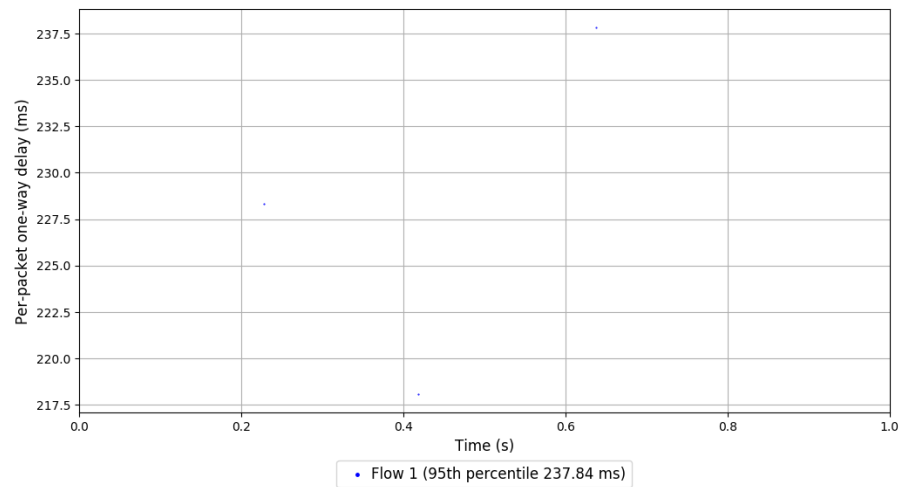
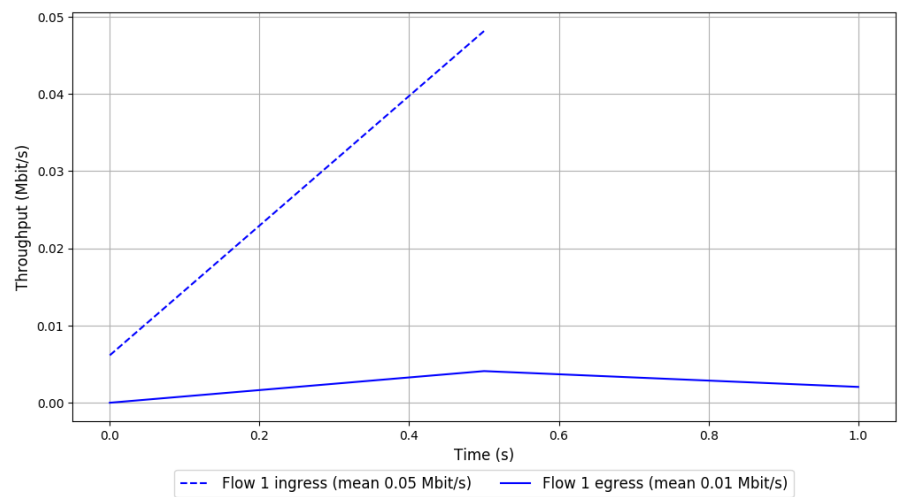
Start at: 2019-02-19 19:14:30

End at: 2019-02-19 19:15:00

Local clock offset: 0.348 ms

Remote clock offset: -0.448 ms

Run 2: Report of TaoVA-100x — Data Link



Run 3: Statistics of TaoVA-100x

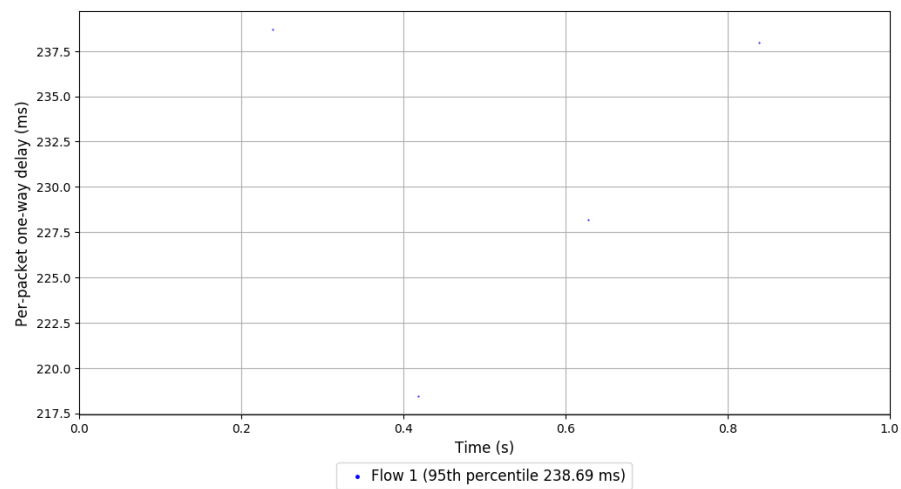
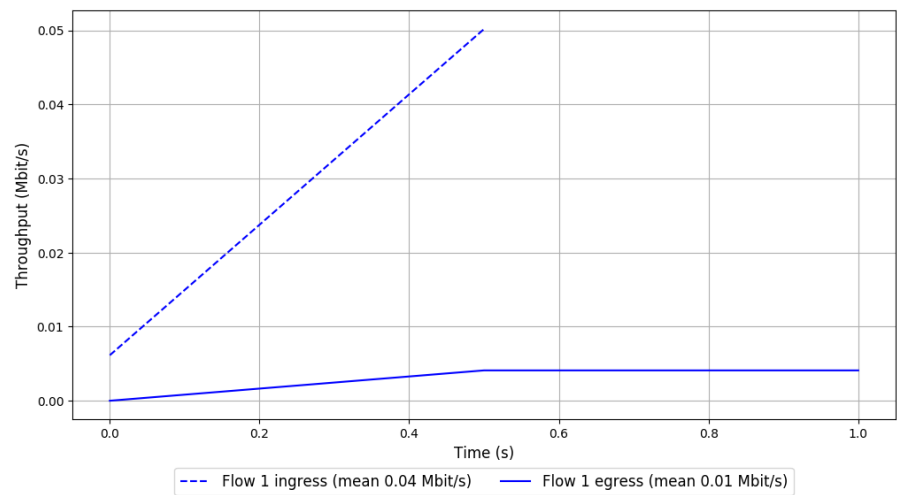
Start at: 2019-02-19 19:39:17

End at: 2019-02-19 19:39:47

Local clock offset: -2.573 ms

Remote clock offset: -0.267 ms

Run 3: Report of TaoVA-100x — Data Link



Run 1: Statistics of TCP Vegas

/home/ubuntu/pantheon/data/2019-02-19T18-31-AWS-Brazil-2-to-Colombia-cellular-3-runs/vegas_s

Run 1: Report of TCP Vegas — Data Link

Figure is missing

Figure is missing

Run 2: Statistics of TCP Vegas

Start at: 2019-02-19 19:07:41

End at: 2019-02-19 19:08:11

Local clock offset: -2.502 ms

Remote clock offset: 1.207 ms

Below is generated by plot.py at 2019-02-19 19:46:33

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.31 Mbit/s

95th percentile per-packet one-way delay: 1206.610 ms

Loss rate: 0.38%

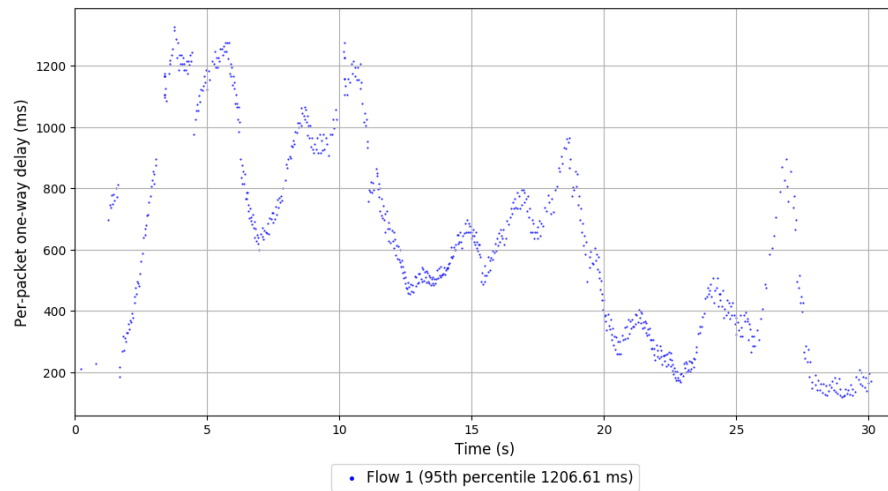
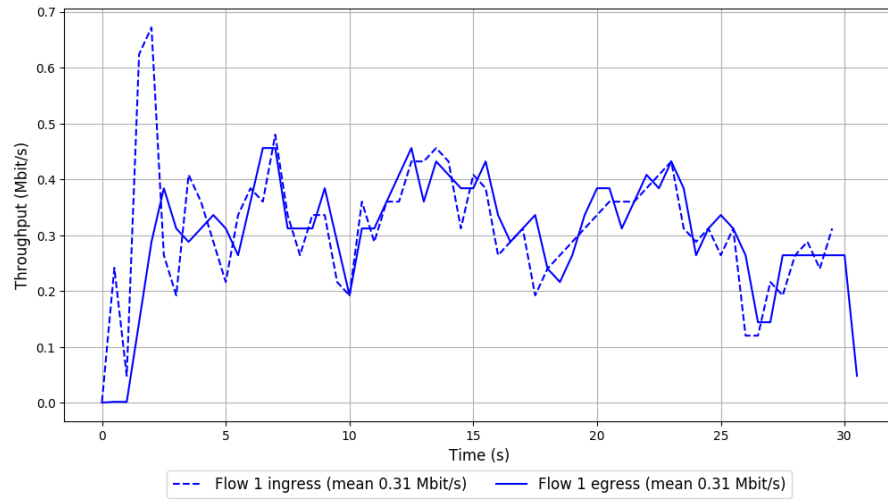
-- Flow 1:

Average throughput: 0.31 Mbit/s

95th percentile per-packet one-way delay: 1206.610 ms

Loss rate: 0.38%

Run 2: Report of TCP Vegas — Data Link

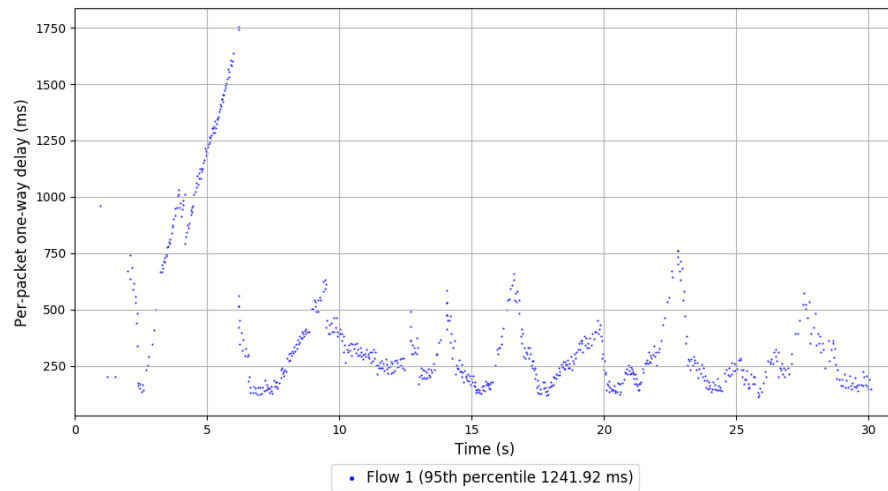
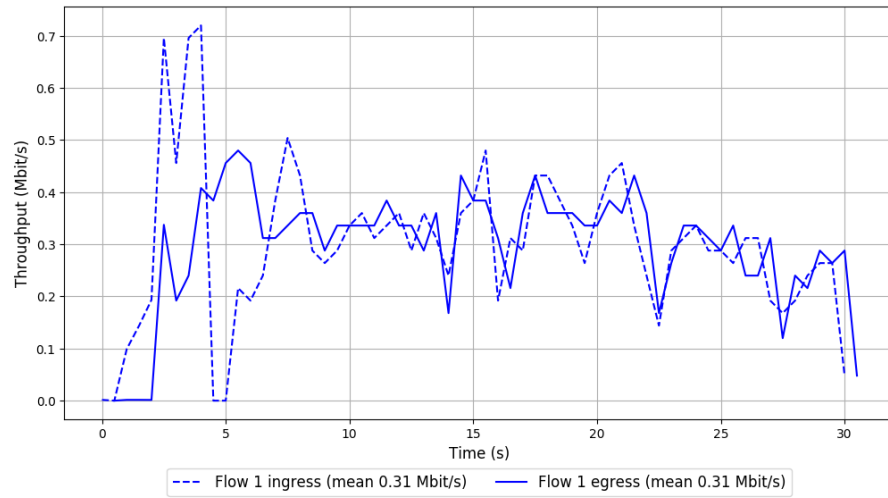


Run 3: Statistics of TCP Vegas

Start at: 2019-02-19 19:32:17
End at: 2019-02-19 19:32:47
Local clock offset: 4.616 ms
Remote clock offset: -0.504 ms

Below is generated by plot.py at 2019-02-19 19:46:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.31 Mbit/s
95th percentile per-packet one-way delay: 1241.919 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 0.31 Mbit/s
95th percentile per-packet one-way delay: 1241.919 ms
Loss rate: 0.39%

Run 3: Report of TCP Vegas — Data Link

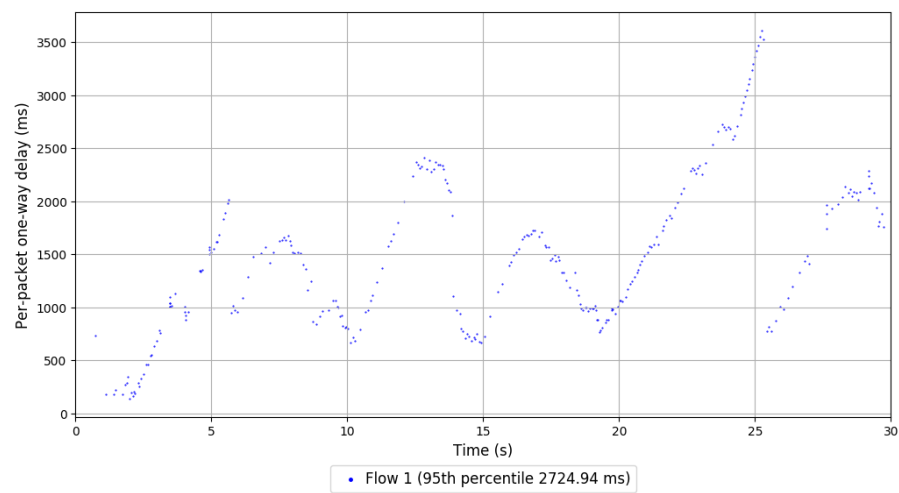
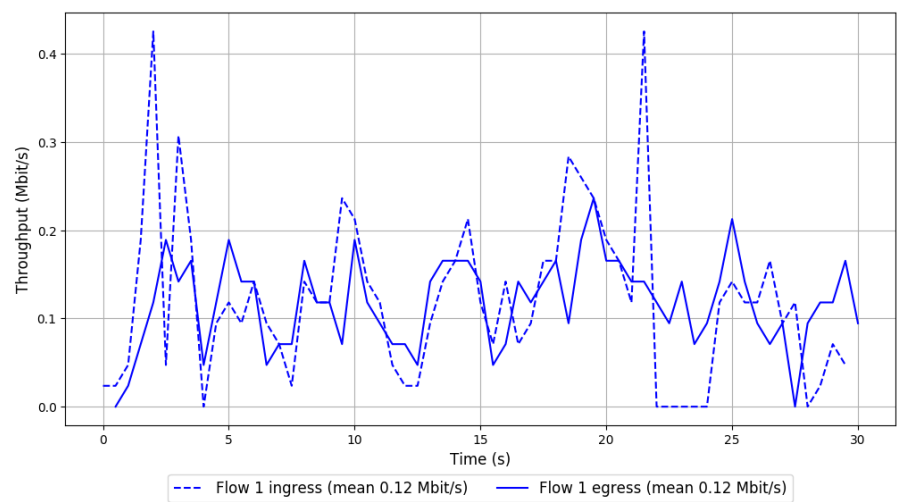


Run 1: Statistics of Verus

Start at: 2019-02-19 18:36:37
End at: 2019-02-19 18:37:07
Local clock offset: -1.833 ms
Remote clock offset: -2.949 ms

Below is generated by plot.py at 2019-02-19 19:46:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.12 Mbit/s
95th percentile per-packet one-way delay: 2724.939 ms
Loss rate: 1.97%
-- Flow 1:
Average throughput: 0.12 Mbit/s
95th percentile per-packet one-way delay: 2724.939 ms
Loss rate: 1.97%

Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

Start at: 2019-02-19 19:02:02

End at: 2019-02-19 19:02:32

Local clock offset: -4.04 ms

Remote clock offset: -3.36 ms

Below is generated by plot.py at 2019-02-19 19:46:33

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.23 Mbit/s

95th percentile per-packet one-way delay: 2876.742 ms

Loss rate: 6.69%

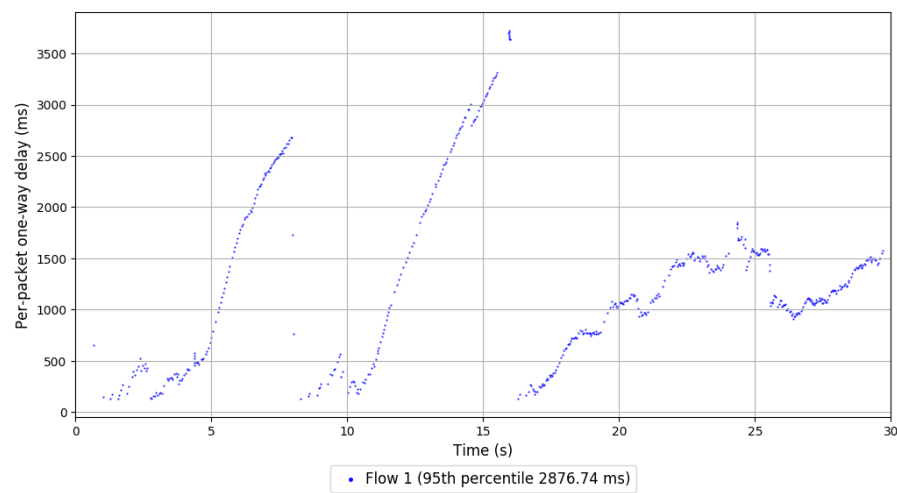
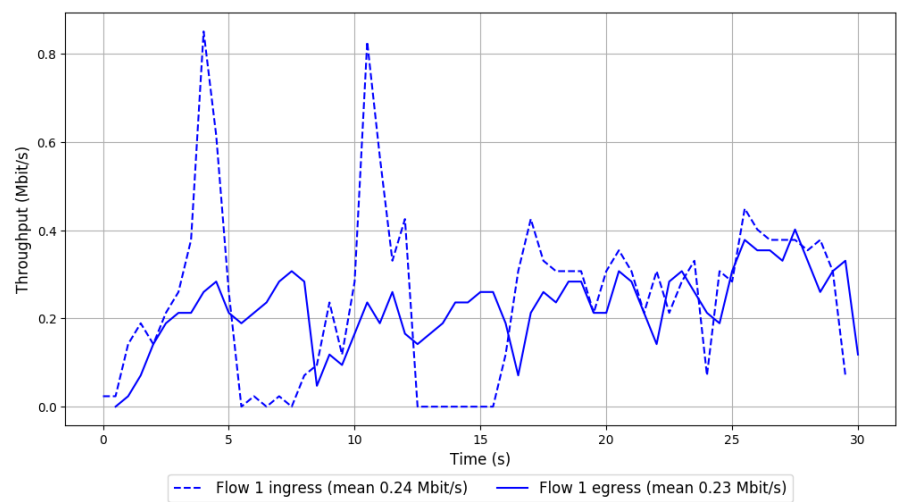
-- Flow 1:

Average throughput: 0.23 Mbit/s

95th percentile per-packet one-way delay: 2876.742 ms

Loss rate: 6.69%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2019-02-19 19:26:37

End at: 2019-02-19 19:27:07

Local clock offset: 6.486 ms

Remote clock offset: 2.091 ms

Below is generated by plot.py at 2019-02-19 19:46:33

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.07 Mbit/s

95th percentile per-packet one-way delay: 2576.394 ms

Loss rate: 9.68%

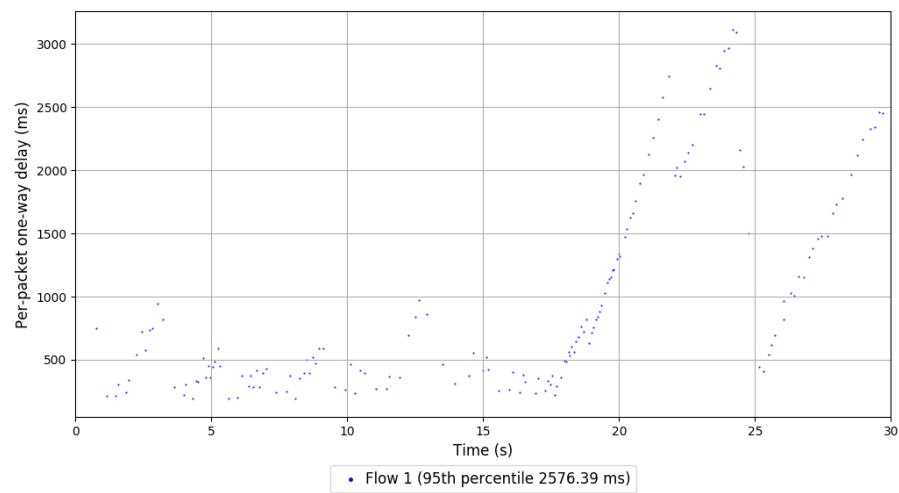
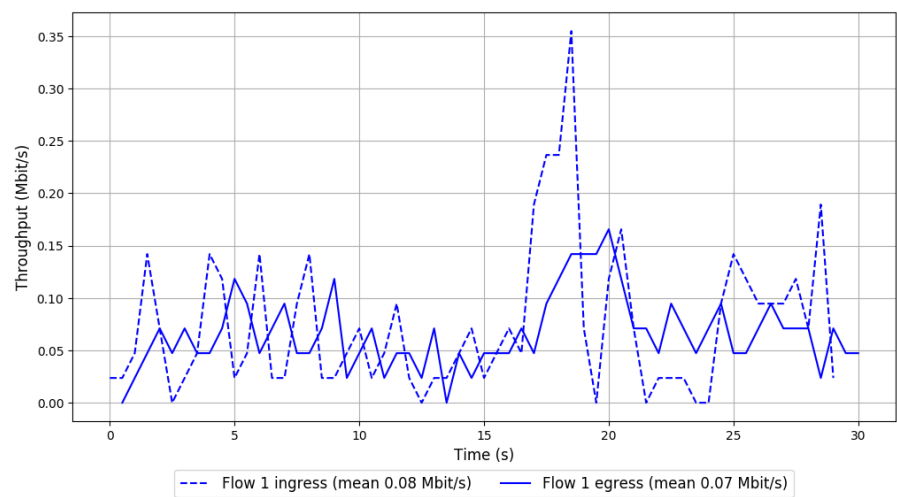
-- Flow 1:

Average throughput: 0.07 Mbit/s

95th percentile per-packet one-way delay: 2576.394 ms

Loss rate: 9.68%

Run 3: Report of Verus — Data Link



Run 1: Statistics of PCC-Vivace

/home/ubuntu/pantheon/data/2019-02-19T18-31-AWS-Brazil-2-to-Colombia-cellular-3-runs/vivace.

Run 1: Report of PCC-Vivace — Data Link

Figure is missing

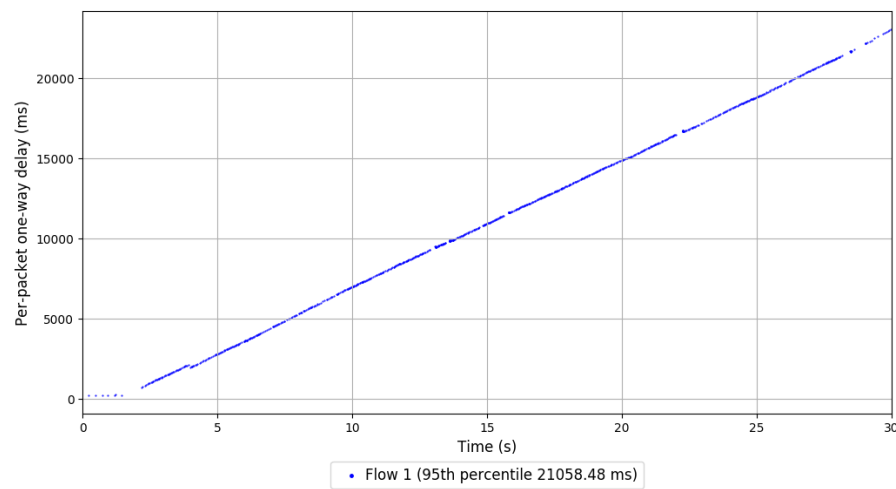
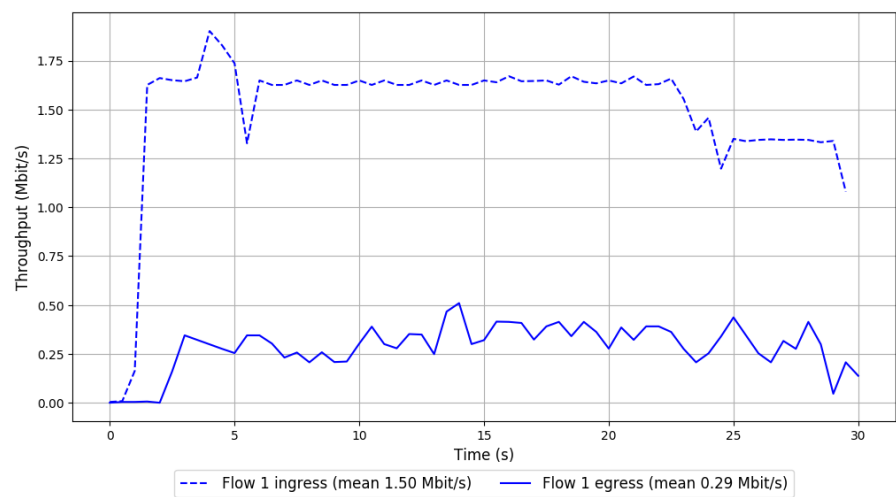
Figure is missing

Run 2: Statistics of PCC-Vivace

Start at: 2019-02-19 19:09:58
End at: 2019-02-19 19:10:28
Local clock offset: -1.688 ms
Remote clock offset: -3.038 ms

Below is generated by plot.py at 2019-02-19 19:46:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.29 Mbit/s
95th percentile per-packet one-way delay: 21058.482 ms
Loss rate: 80.54%
-- Flow 1:
Average throughput: 0.29 Mbit/s
95th percentile per-packet one-way delay: 21058.482 ms
Loss rate: 80.54%

Run 2: Report of PCC-Vivace — Data Link

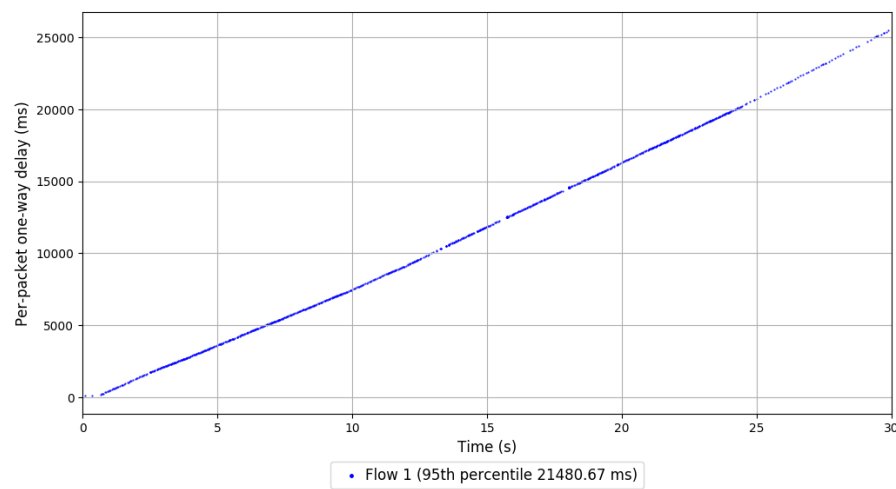
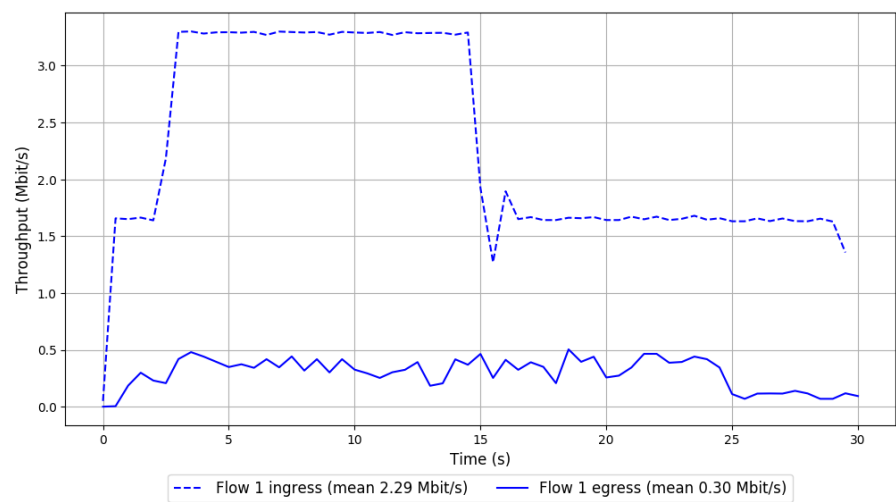


Run 3: Statistics of PCC-Vivace

Start at: 2019-02-19 19:34:37
End at: 2019-02-19 19:35:07
Local clock offset: 1.301 ms
Remote clock offset: -1.402 ms

Below is generated by plot.py at 2019-02-19 19:46:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 21480.671 ms
Loss rate: 86.80%
-- Flow 1:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 21480.671 ms
Loss rate: 86.80%

Run 3: Report of PCC-Vivace — Data Link

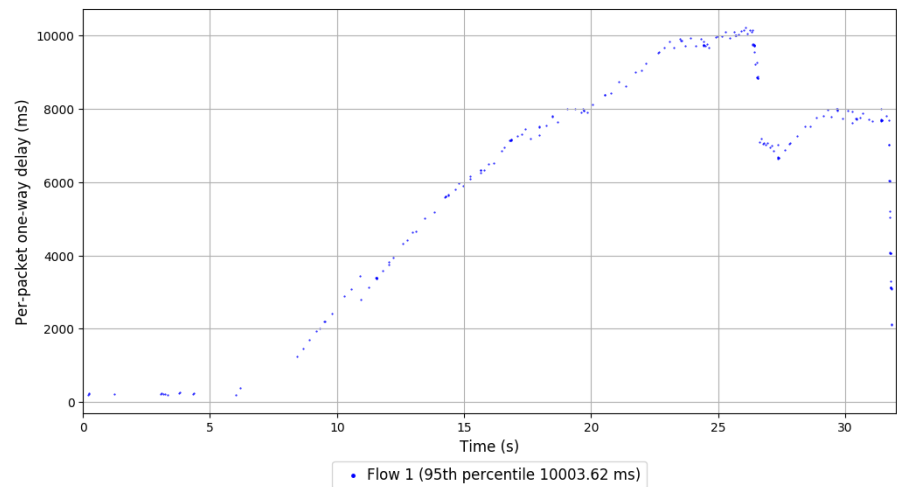
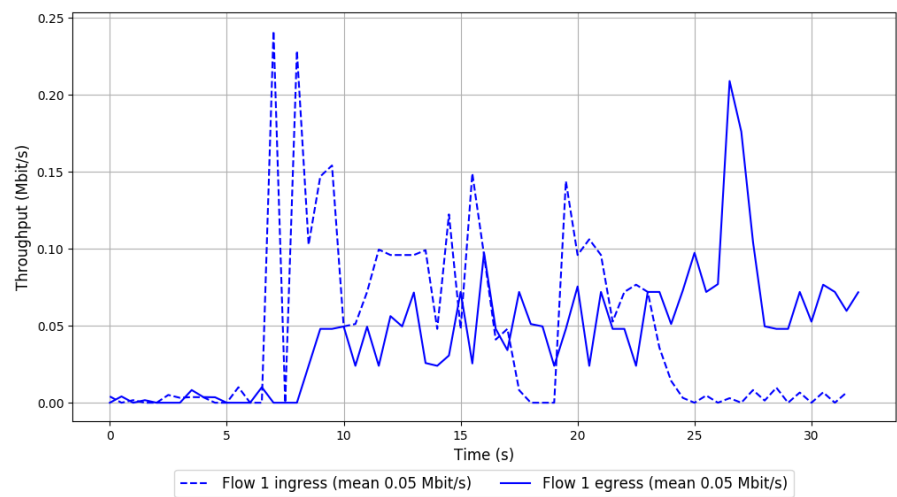


Run 1: Statistics of WebRTC media

Start at: 2019-02-19 18:37:45
End at: 2019-02-19 18:38:15
Local clock offset: 0.388 ms
Remote clock offset: -4.359 ms

Below is generated by plot.py at 2019-02-19 19:46:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 10003.618 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 10003.618 ms
Loss rate: 0.57%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2019-02-19 19:03:10

End at: 2019-02-19 19:03:40

Local clock offset: -3.756 ms

Remote clock offset: 1.168 ms

Below is generated by plot.py at 2019-02-19 19:46:33

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.05 Mbit/s

95th percentile per-packet one-way delay: 3418.722 ms

Loss rate: 0.00%

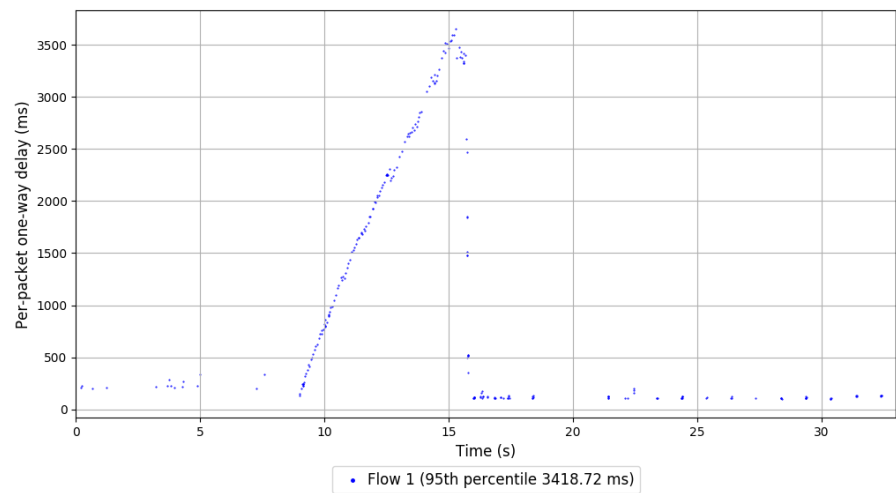
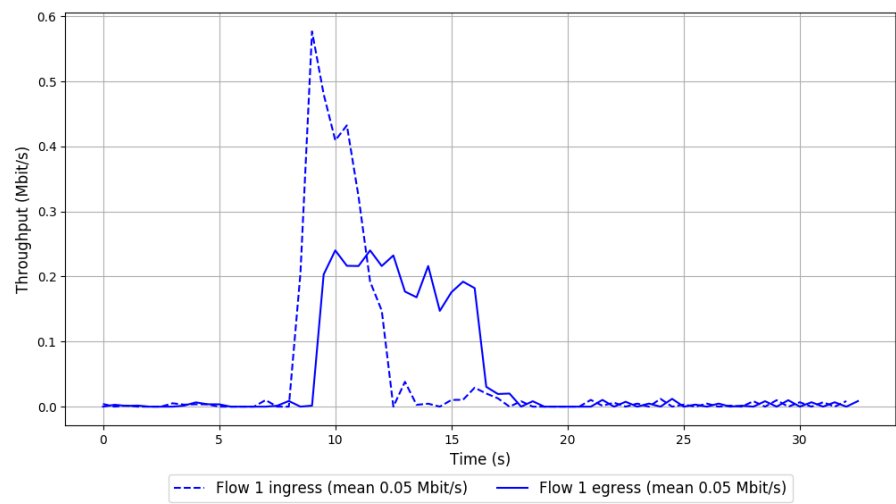
-- Flow 1:

Average throughput: 0.05 Mbit/s

95th percentile per-packet one-way delay: 3418.722 ms

Loss rate: 0.00%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2019-02-19 19:27:45
End at: 2019-02-19 19:28:15
Local clock offset: 7.119 ms
Remote clock offset: -3.109 ms

Below is generated by plot.py at 2019-02-19 19:46:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 3783.888 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 3783.888 ms
Loss rate: 0.06%

Run 3: Report of WebRTC media — Data Link

