

Pantheon Report

Generated at 2019-01-21 04:46:10 (UTC).

Data path: AWS India 1 on `ens5` (*local*) → India 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 `nets.org.sg` and have been applied to correct the timestamps in logs.

System info:

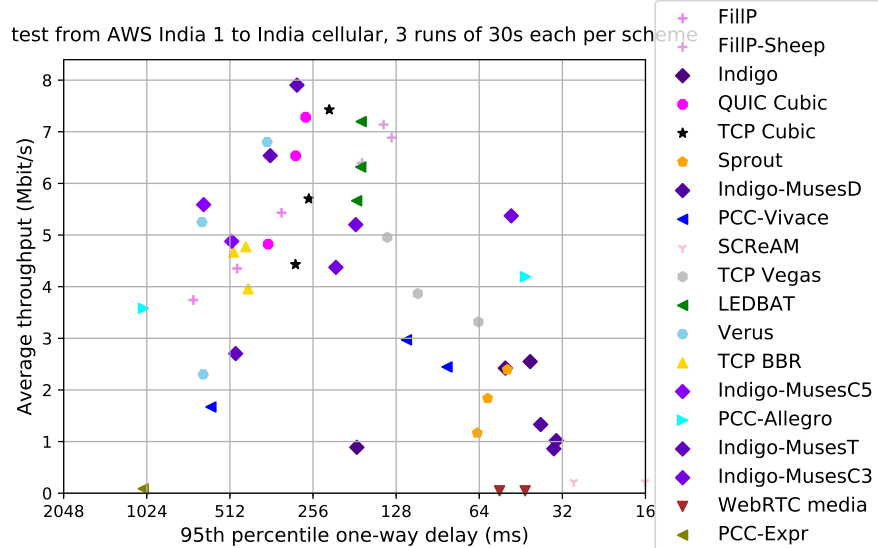
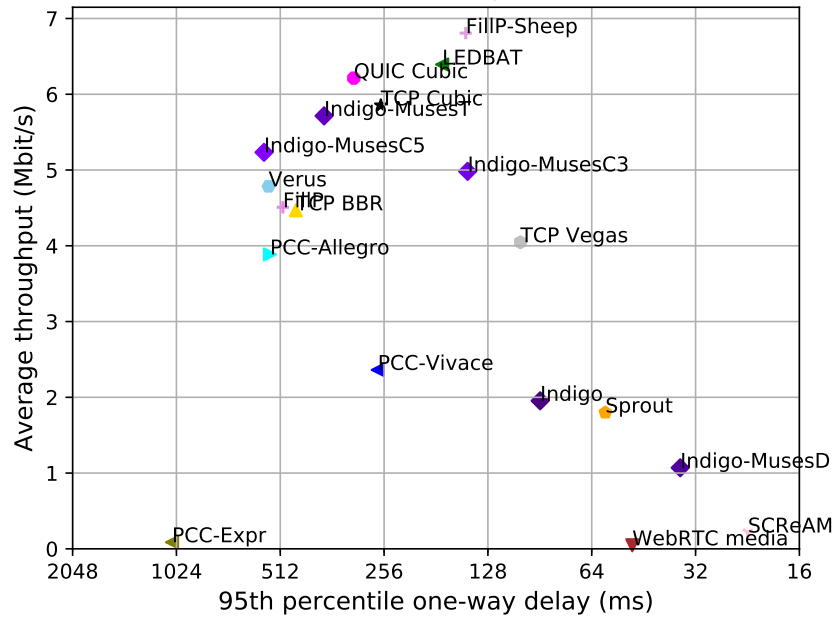
```
Linux 4.15.0-1031-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

Git summary:

```
branch: muses @ 89d24e57783e7fbfec537a619071de937b639e38
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecd90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 1ddcff131048c6962f123bcd22b4d166a422adde
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 India 1 to India 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	4.47	461.37	0.81
Copa	0	N/A	N/A	N/A
TCP Cubic	3	5.85	261.65	0.58
FillP	3	4.51	503.05	1.34
FillP-Sheep	3	6.81	148.42	0.30
Indigo	3	1.95	90.32	0.10
Indigo-MusesC3	3	4.98	146.59	0.27
Indigo-MusesC5	2	5.23	570.62	1.06
Indigo-MusesD	3	1.07	35.45	0.12
Indigo-MusesT	3	5.71	382.09	0.62
LEDBAT	3	6.39	173.75	0.30
PCC-Allegro	2	3.89	548.30	8.66
PCC-Expr	1	0.09	1054.69	98.89
QUIC Cubic	3	6.21	313.45	0.69
SCReAM	2	0.21	22.57	0.13
Sprout	3	1.80	58.45	0.24
TaoVA-100x	0	N/A	N/A	N/A
TCP Vegas	3	4.05	103.05	0.08
Verus	3	4.78	553.73	1.59
PCC-Vivace	3	2.36	267.04	0.30
WebRTC media	2	0.05	48.83	0.00

Run 1: Statistics of TCP BBR

Start at: 2019-01-21 03:46:08

End at: 2019-01-21 03:46:38

Local clock offset: -0.99 ms

Remote clock offset: -5.065 ms

Below is generated by plot.py at 2019-01-21 04:45:24

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.78 Mbit/s

95th percentile per-packet one-way delay: 448.353 ms

Loss rate: 0.53%

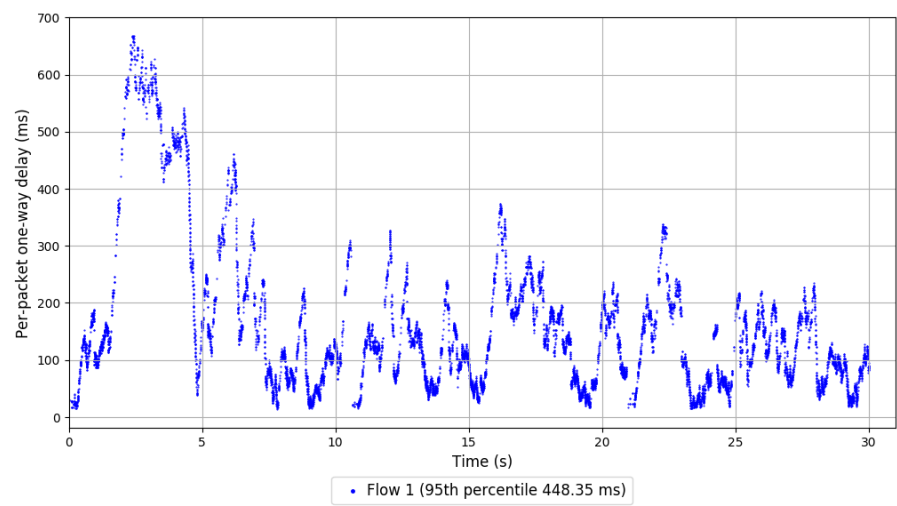
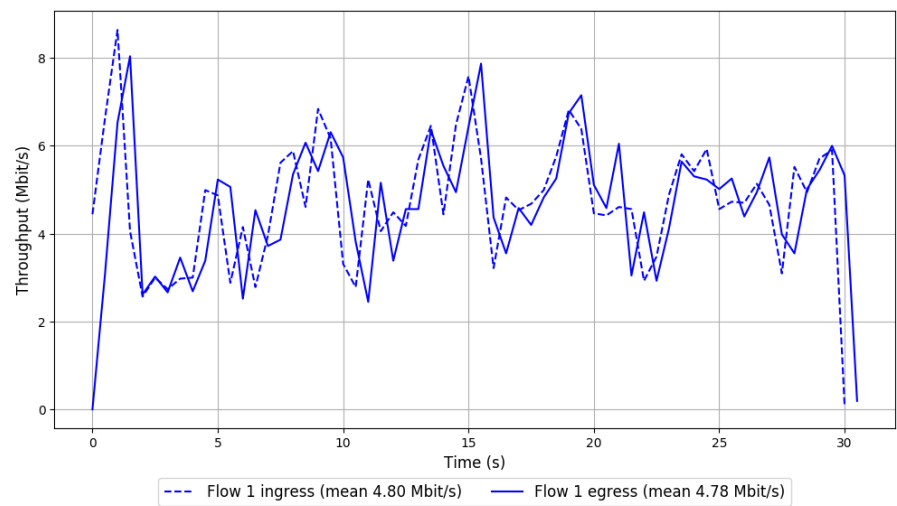
-- Flow 1:

Average throughput: 4.78 Mbit/s

95th percentile per-packet one-way delay: 448.353 ms

Loss rate: 0.53%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2019-01-21 04:10:27

End at: 2019-01-21 04:10:57

Local clock offset: 1.609 ms

Remote clock offset: -6.563 ms

Below is generated by plot.py at 2019-01-21 04:45:24

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.67 Mbit/s

95th percentile per-packet one-way delay: 496.217 ms

Loss rate: 1.32%

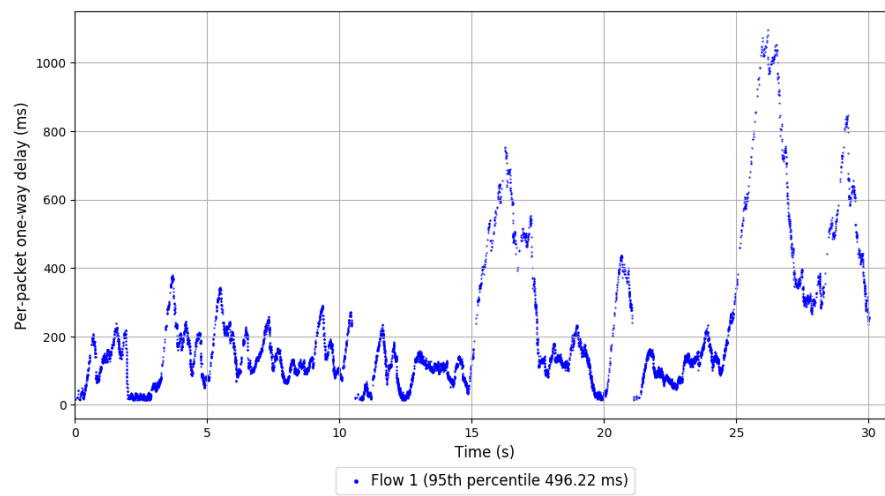
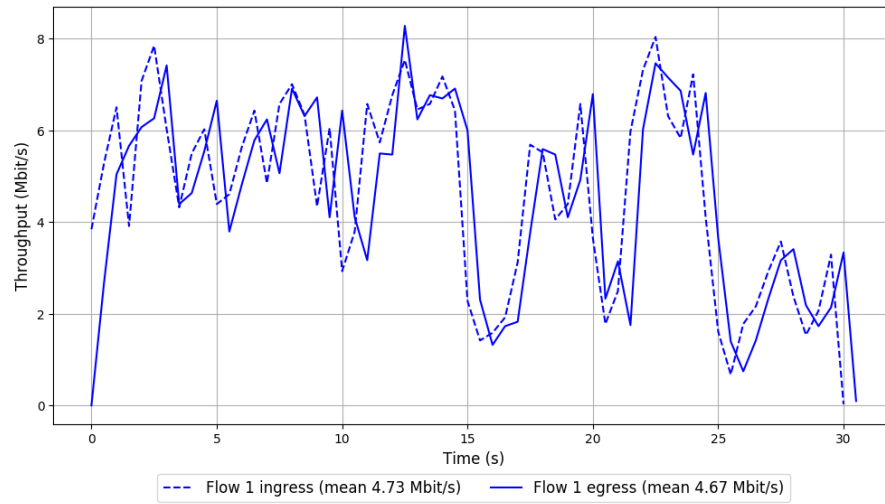
-- Flow 1:

Average throughput: 4.67 Mbit/s

95th percentile per-packet one-way delay: 496.217 ms

Loss rate: 1.32%

Run 2: Report of TCP BBR — Data Link

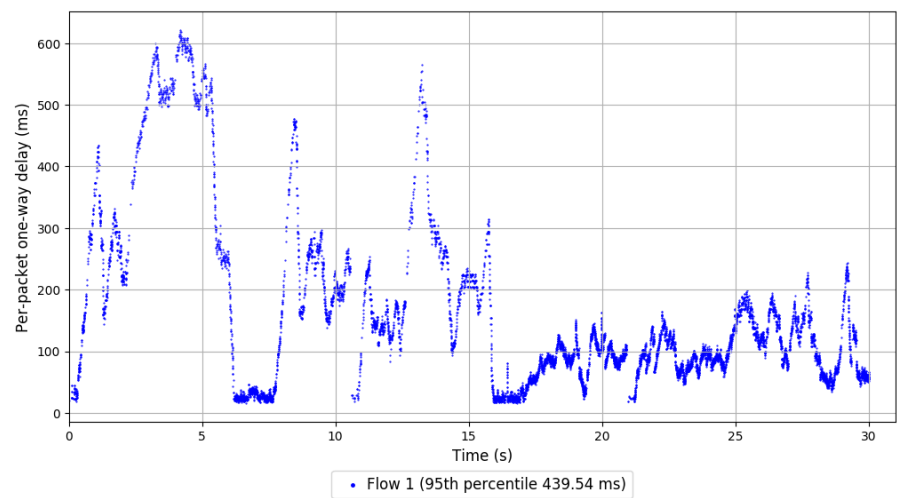
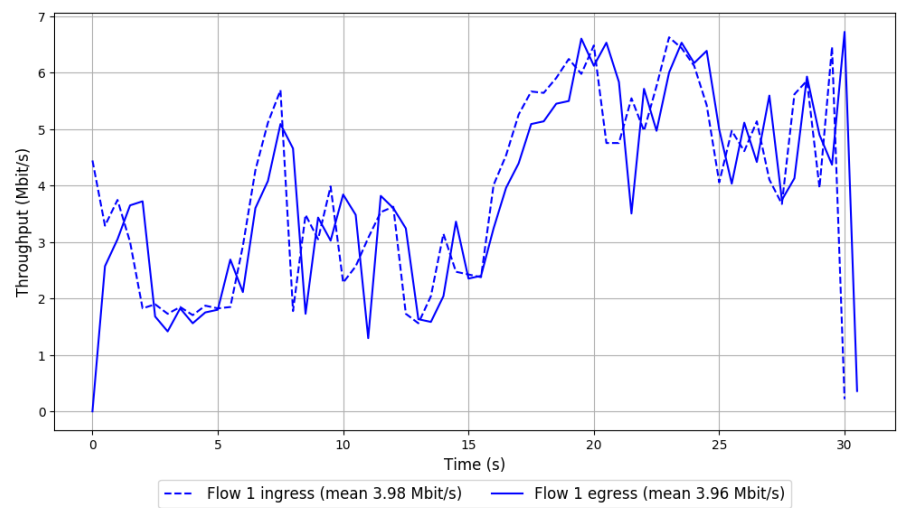


Run 3: Statistics of TCP BBR

Start at: 2019-01-21 04:34:30
End at: 2019-01-21 04:35:00
Local clock offset: -1.027 ms
Remote clock offset: -5.797 ms

Below is generated by plot.py at 2019-01-21 04:45:24
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.96 Mbit/s
95th percentile per-packet one-way delay: 439.540 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 3.96 Mbit/s
95th percentile per-packet one-way delay: 439.540 ms
Loss rate: 0.58%

Run 3: Report of TCP BBR — Data Link



Run 1: Statistics of Copa

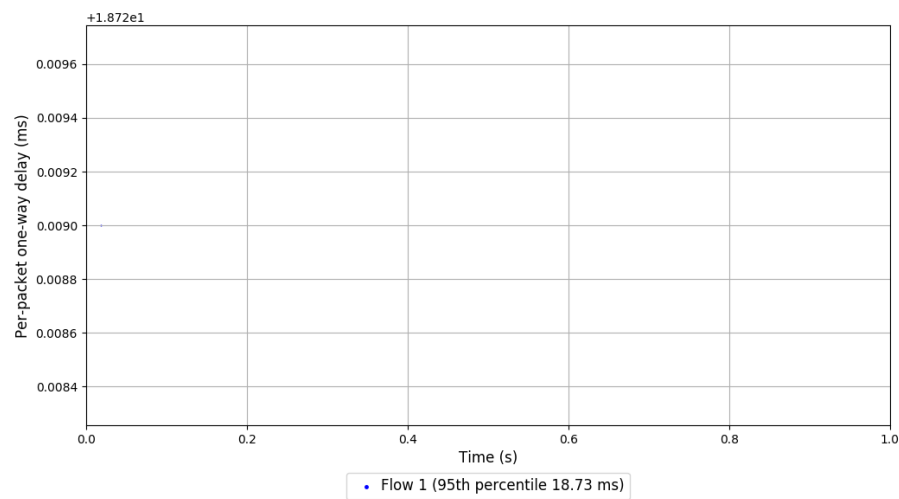
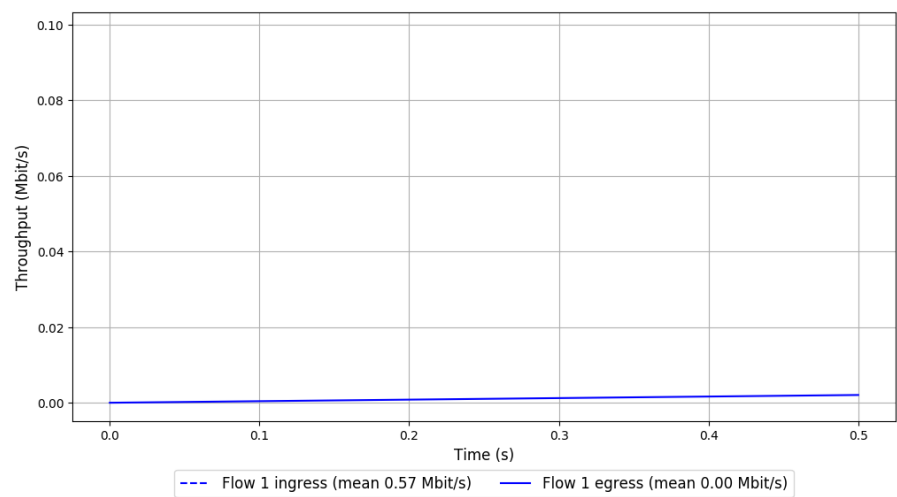
Start at: 2019-01-21 03:37:08

End at: 2019-01-21 03:37:38

Local clock offset: -2.007 ms

Remote clock offset: -4.916 ms

Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

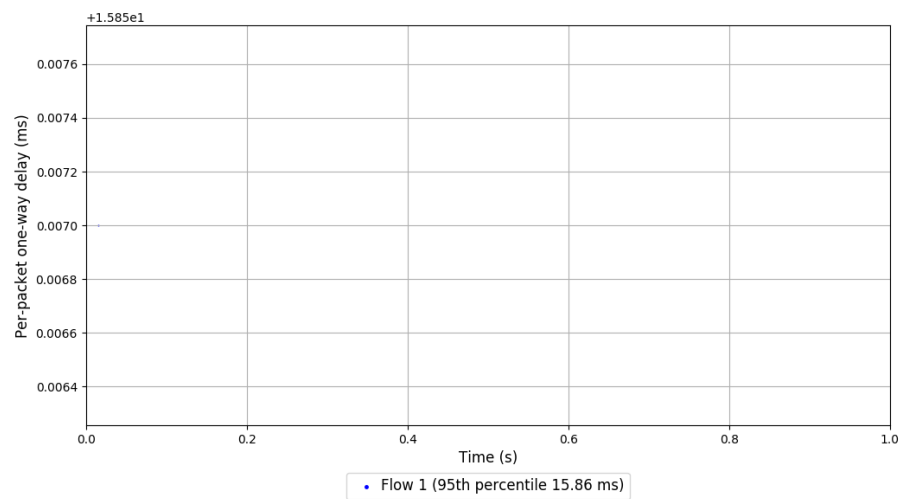
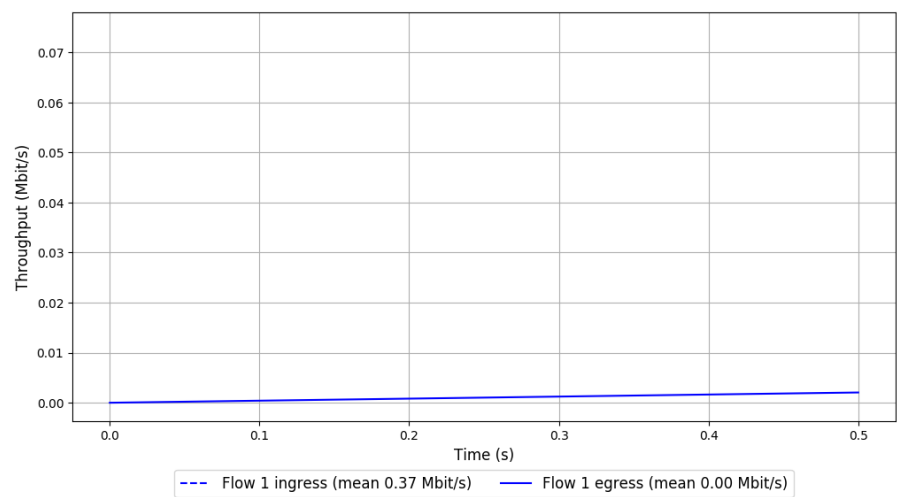
Start at: 2019-01-21 04:01:26

End at: 2019-01-21 04:01:56

Local clock offset: 1.058 ms

Remote clock offset: -6.372 ms

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

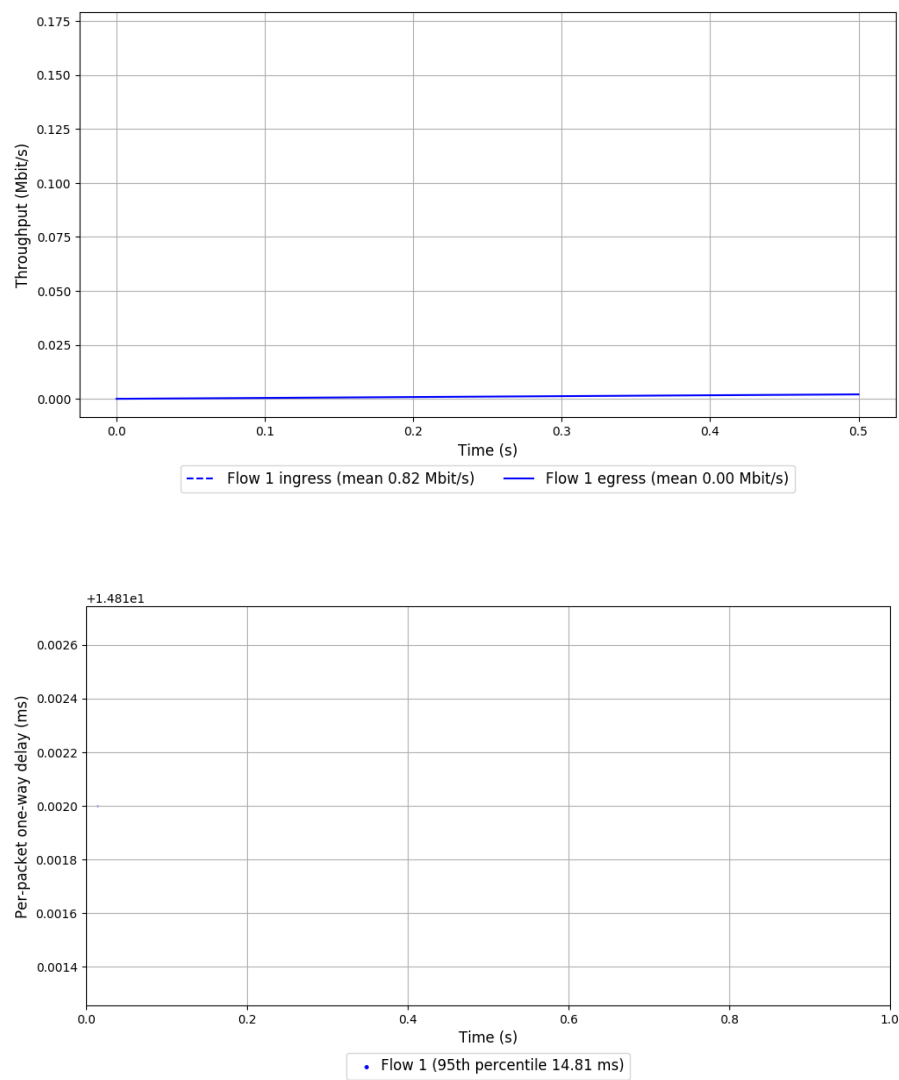
Start at: 2019-01-21 04:25:02

End at: 2019-01-21 04:25:32

Local clock offset: 0.64 ms

Remote clock offset: -7.718 ms

Run 3: Report of Copa — Data Link

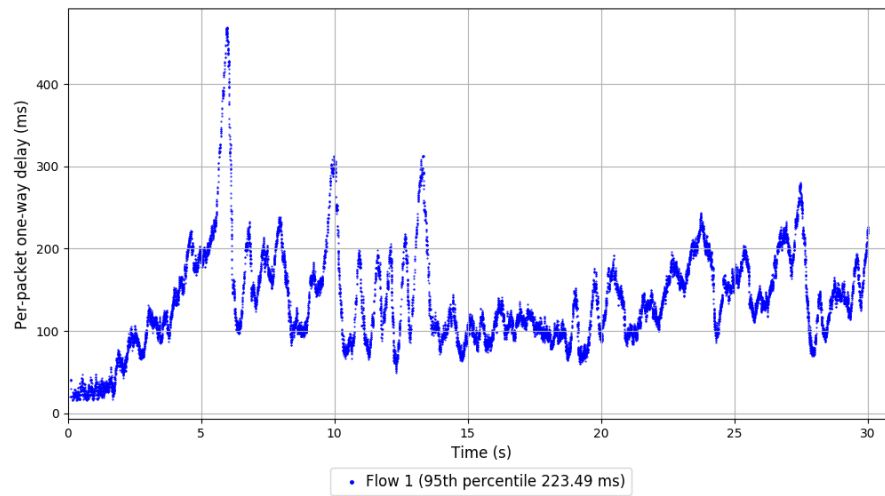
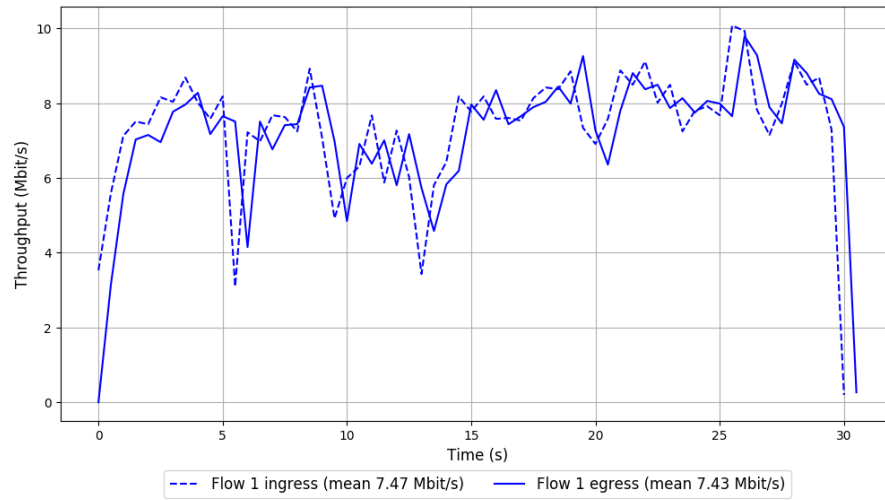


Run 1: Statistics of TCP Cubic

Start at: 2019-01-21 03:33:46
End at: 2019-01-21 03:34:16
Local clock offset: -2.324 ms
Remote clock offset: -6.157 ms

Below is generated by plot.py at 2019-01-21 04:45:27
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.43 Mbit/s
95th percentile per-packet one-way delay: 223.488 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 7.43 Mbit/s
95th percentile per-packet one-way delay: 223.488 ms
Loss rate: 0.66%

Run 1: Report of TCP Cubic — Data Link

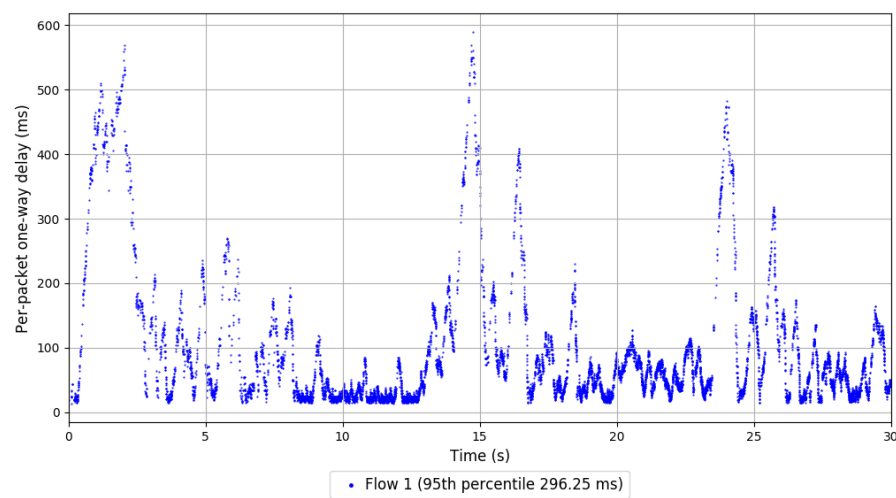
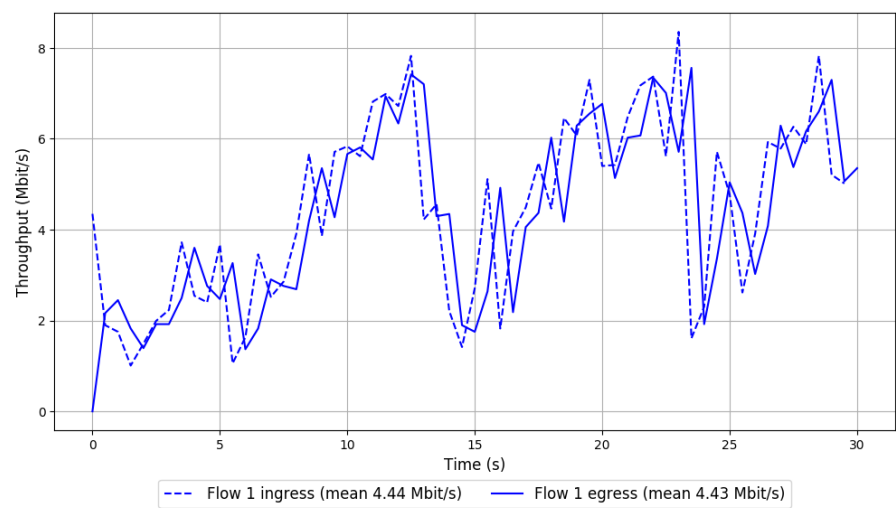


Run 2: Statistics of TCP Cubic

Start at: 2019-01-21 03:57:21
End at: 2019-01-21 03:57:51
Local clock offset: -0.279 ms
Remote clock offset: -7.073 ms

Below is generated by plot.py at 2019-01-21 04:45:27
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.43 Mbit/s
95th percentile per-packet one-way delay: 296.254 ms
Loss rate: 0.32%
-- Flow 1:
Average throughput: 4.43 Mbit/s
95th percentile per-packet one-way delay: 296.254 ms
Loss rate: 0.32%

Run 2: Report of TCP Cubic — Data Link

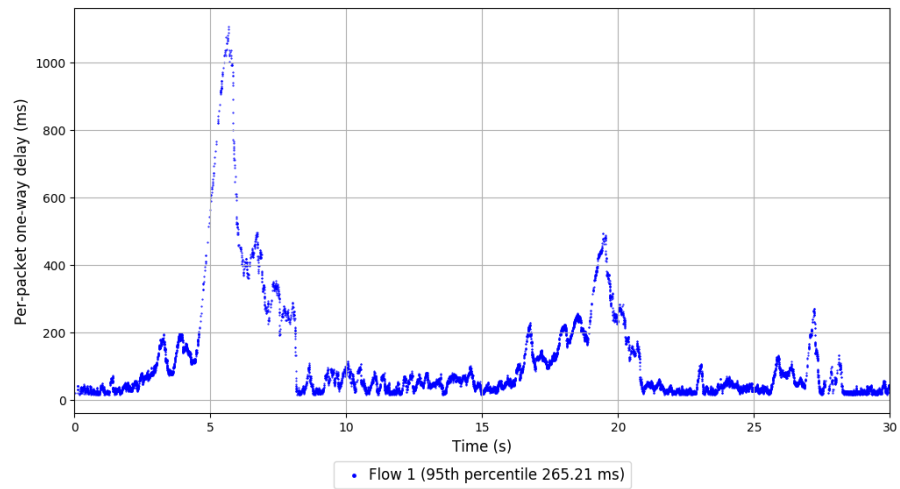
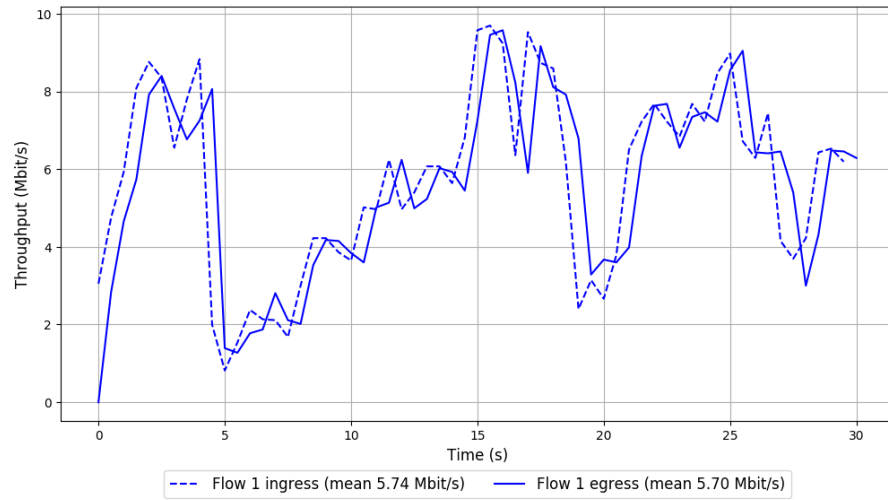


Run 3: Statistics of TCP Cubic

Start at: 2019-01-21 04:21:38
End at: 2019-01-21 04:22:08
Local clock offset: -0.59 ms
Remote clock offset: -5.818 ms

Below is generated by plot.py at 2019-01-21 04:45:27
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.70 Mbit/s
95th percentile per-packet one-way delay: 265.208 ms
Loss rate: 0.75%
-- Flow 1:
Average throughput: 5.70 Mbit/s
95th percentile per-packet one-way delay: 265.208 ms
Loss rate: 0.75%

Run 3: Report of TCP Cubic — Data Link

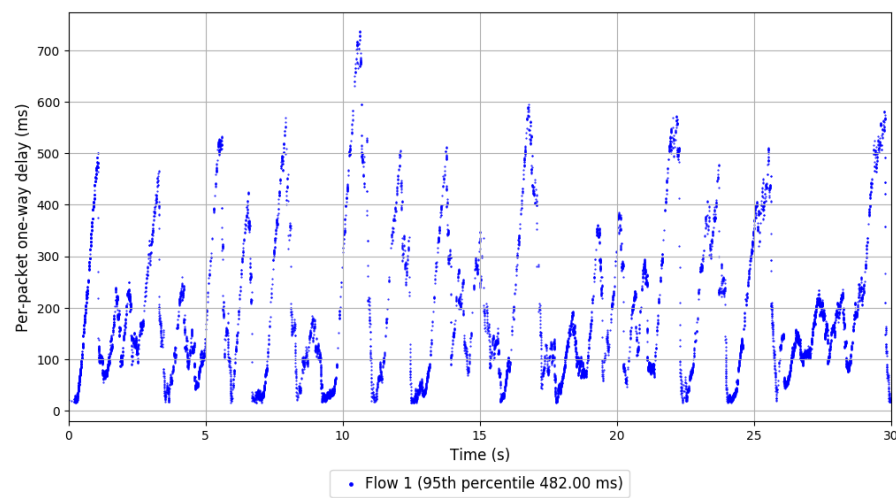
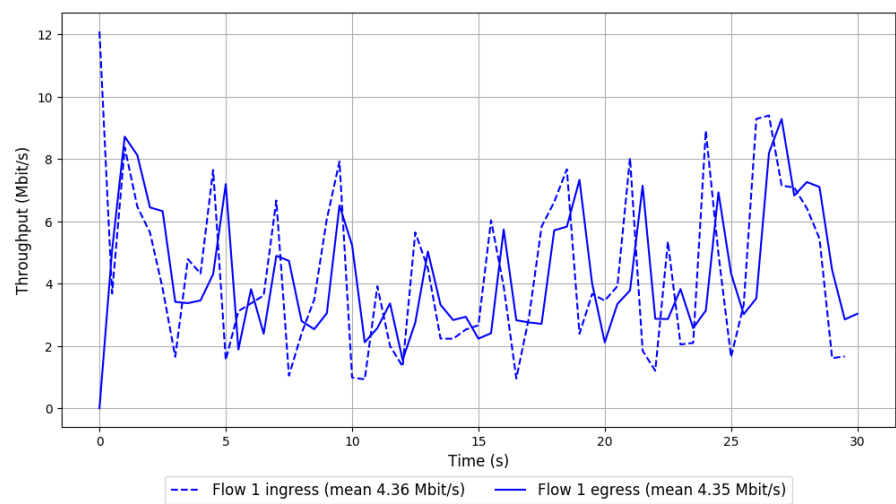


Run 1: Statistics of FillP

Start at: 2019-01-21 03:50:37
End at: 2019-01-21 03:51:07
Local clock offset: -1.062 ms
Remote clock offset: -5.695 ms

Below is generated by plot.py at 2019-01-21 04:45:27
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.35 Mbit/s
95th percentile per-packet one-way delay: 482.000 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 4.35 Mbit/s
95th percentile per-packet one-way delay: 482.000 ms
Loss rate: 0.30%

Run 1: Report of FillP — Data Link

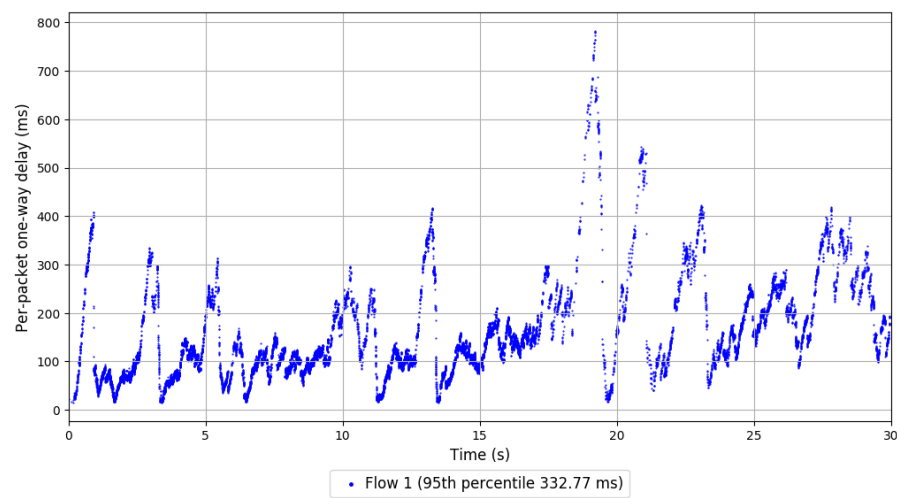
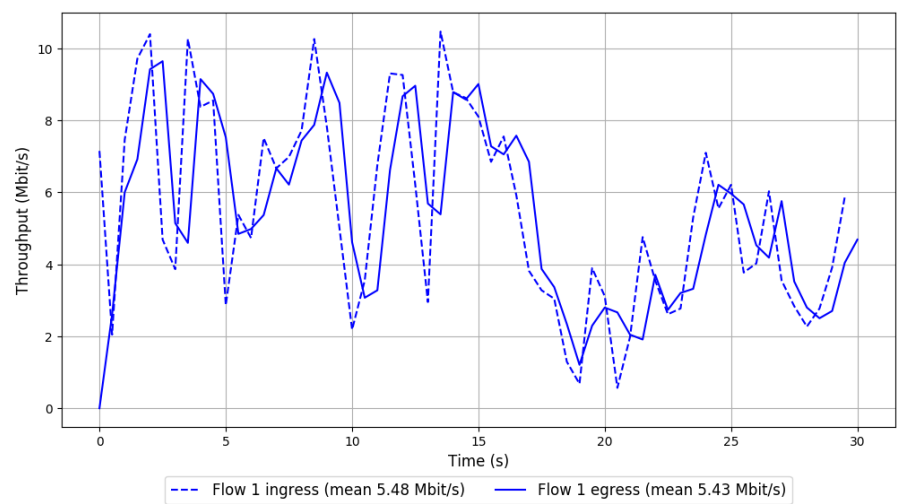


Run 2: Statistics of FillP

Start at: 2019-01-21 04:14:54
End at: 2019-01-21 04:15:24
Local clock offset: -0.397 ms
Remote clock offset: -6.408 ms

Below is generated by plot.py at 2019-01-21 04:45:27
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.43 Mbit/s
95th percentile per-packet one-way delay: 332.766 ms
Loss rate: 1.01%
-- Flow 1:
Average throughput: 5.43 Mbit/s
95th percentile per-packet one-way delay: 332.766 ms
Loss rate: 1.01%

Run 2: Report of FillP — Data Link

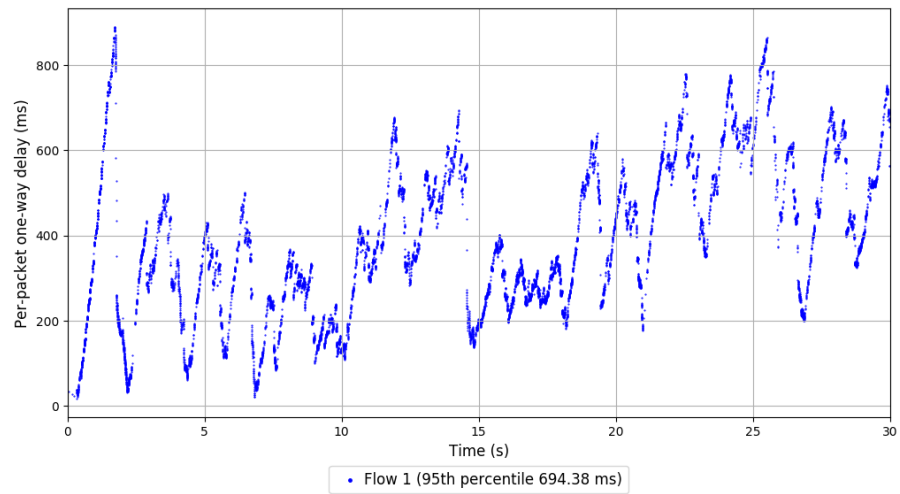
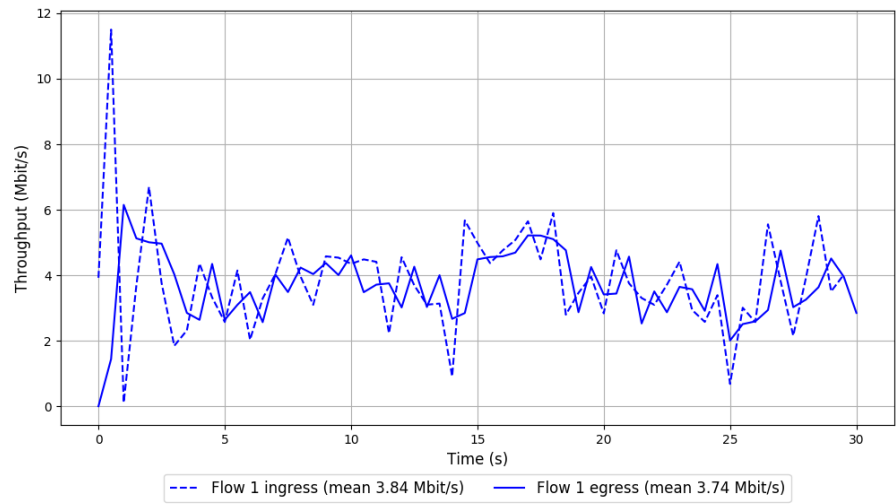


Run 3: Statistics of FillP

Start at: 2019-01-21 04:38:59
End at: 2019-01-21 04:39:29
Local clock offset: -0.148 ms
Remote clock offset: -5.294 ms

Below is generated by plot.py at 2019-01-21 04:45:30
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.74 Mbit/s
95th percentile per-packet one-way delay: 694.377 ms
Loss rate: 2.72%
-- Flow 1:
Average throughput: 3.74 Mbit/s
95th percentile per-packet one-way delay: 694.377 ms
Loss rate: 2.72%

Run 3: Report of FillP — Data Link

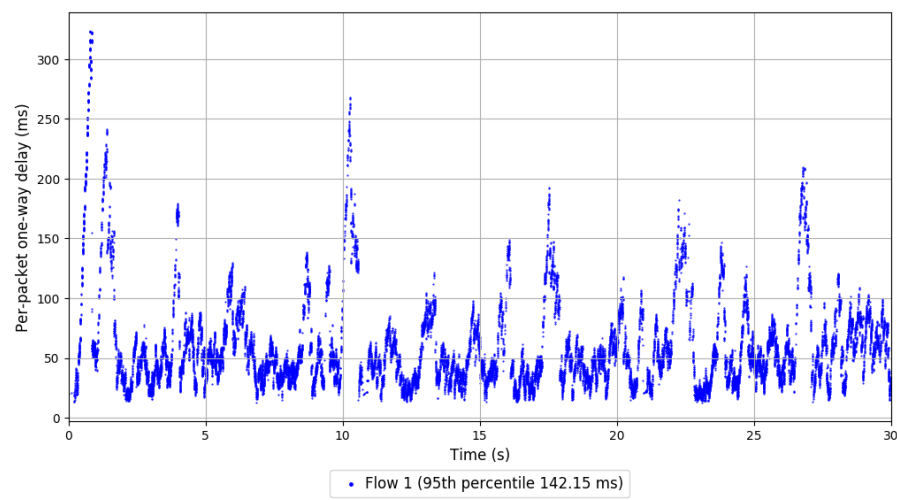
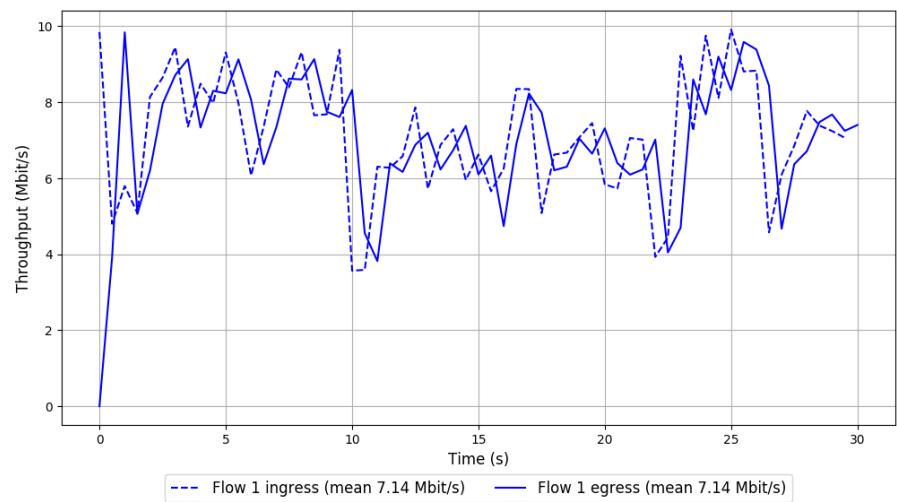


Run 1: Statistics of FillP-Sheep

Start at: 2019-01-21 03:34:55
End at: 2019-01-21 03:35:25
Local clock offset: -1.063 ms
Remote clock offset: -5.993 ms

Below is generated by plot.py at 2019-01-21 04:45:36
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.14 Mbit/s
95th percentile per-packet one-way delay: 142.148 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 7.14 Mbit/s
95th percentile per-packet one-way delay: 142.148 ms
Loss rate: 0.14%

Run 1: Report of FillP-Sheep — Data Link

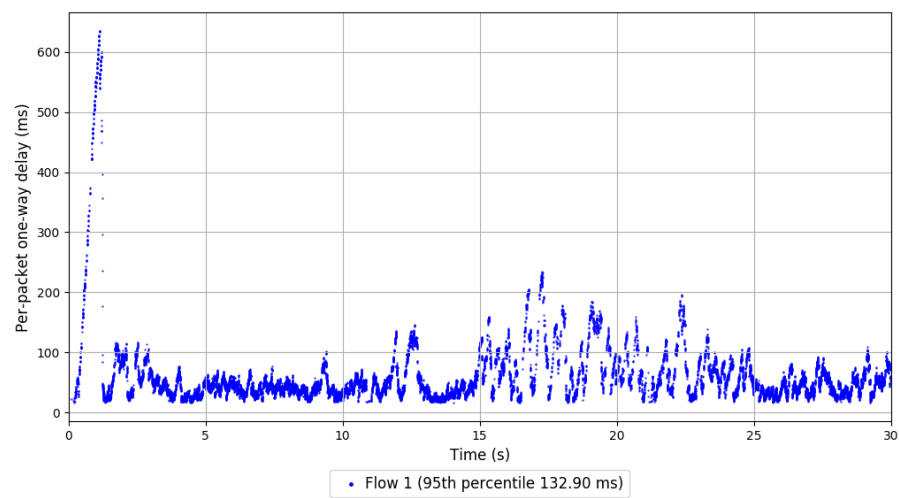
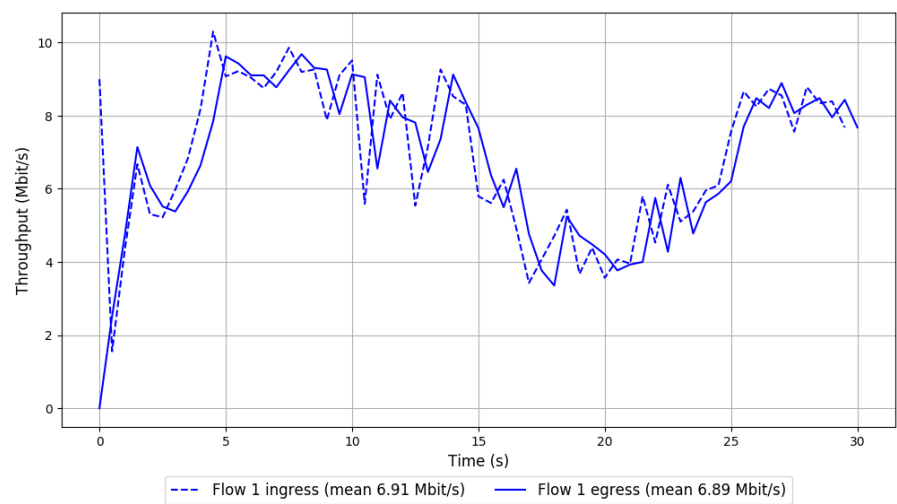


Run 2: Statistics of FillP-Sheep

Start at: 2019-01-21 03:58:28
End at: 2019-01-21 03:58:58
Local clock offset: -0.92 ms
Remote clock offset: -4.422 ms

Below is generated by plot.py at 2019-01-21 04:45:37
Datalink statistics
-- Total of 1 flow:
Average throughput: 6.89 Mbit/s
95th percentile per-packet one-way delay: 132.899 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 6.89 Mbit/s
95th percentile per-packet one-way delay: 132.899 ms
Loss rate: 0.47%

Run 2: Report of FillP-Sheep — Data Link

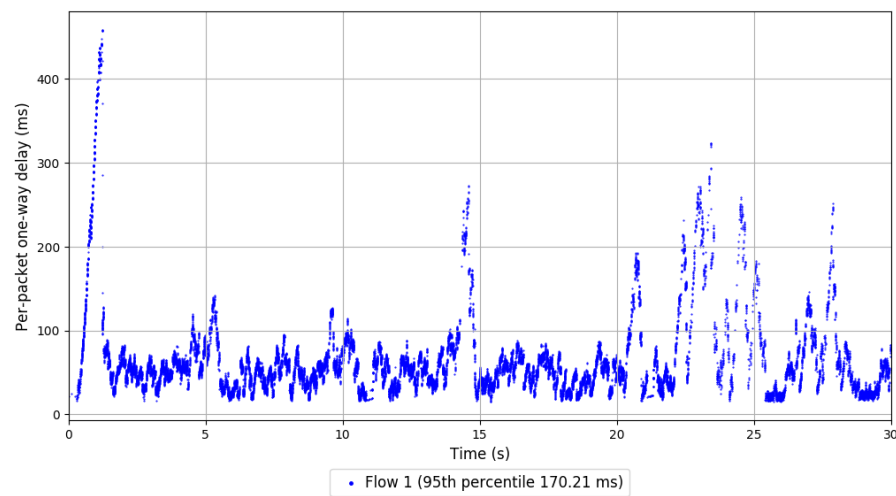
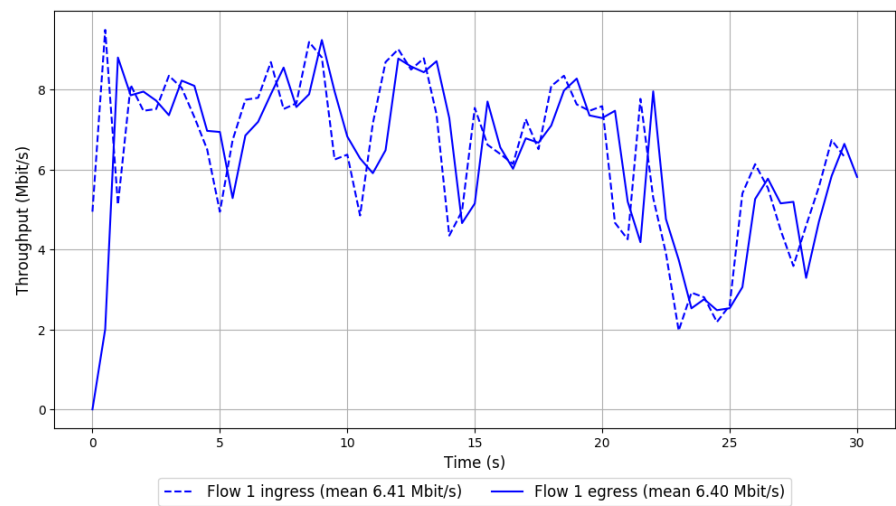


Run 3: Statistics of FillP-Sheep

Start at: 2019-01-21 04:22:48
End at: 2019-01-21 04:23:18
Local clock offset: 0.071 ms
Remote clock offset: -6.022 ms

Below is generated by plot.py at 2019-01-21 04:45:37
Datalink statistics
-- Total of 1 flow:
Average throughput: 6.40 Mbit/s
95th percentile per-packet one-way delay: 170.211 ms
Loss rate: 0.28%
-- Flow 1:
Average throughput: 6.40 Mbit/s
95th percentile per-packet one-way delay: 170.211 ms
Loss rate: 0.28%

Run 3: Report of FillP-Sheep — Data Link

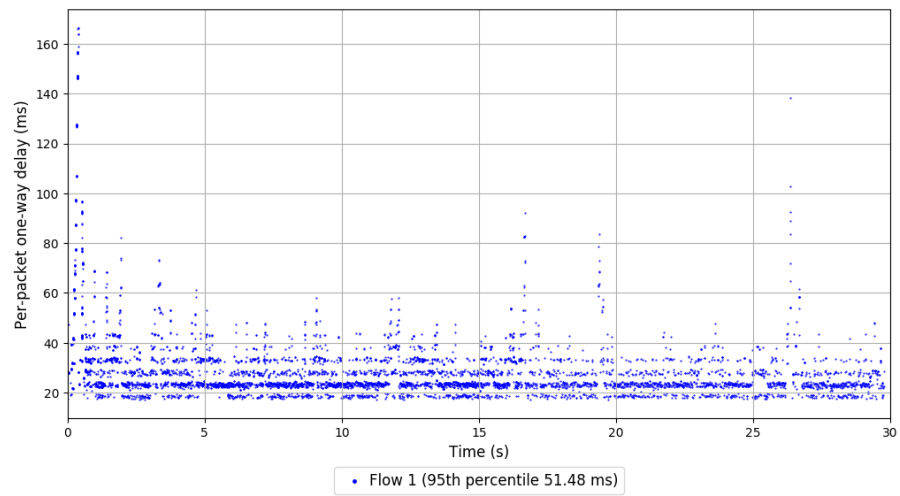
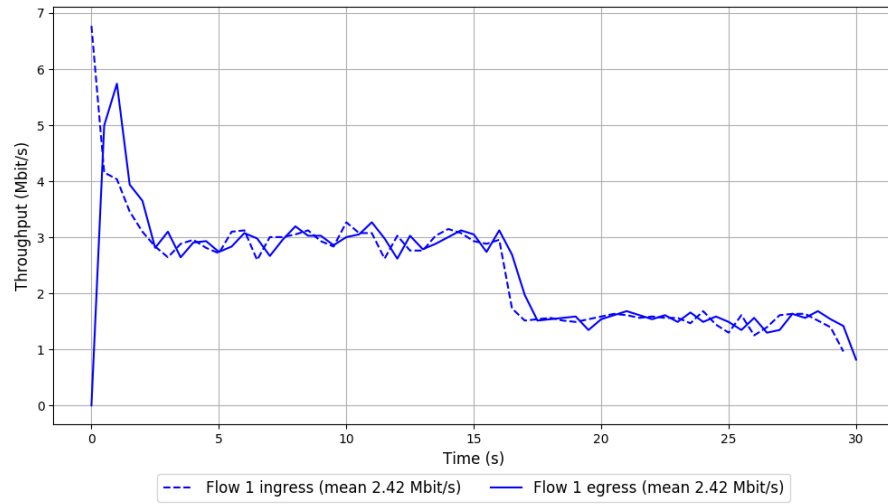


Run 1: Statistics of Indigo

Start at: 2019-01-21 03:56:15
End at: 2019-01-21 03:56:45
Local clock offset: -1.345 ms
Remote clock offset: -4.775 ms

Below is generated by plot.py at 2019-01-21 04:45:37
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.42 Mbit/s
95th percentile per-packet one-way delay: 51.479 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 2.42 Mbit/s
95th percentile per-packet one-way delay: 51.479 ms
Loss rate: 0.12%

Run 1: Report of Indigo — Data Link

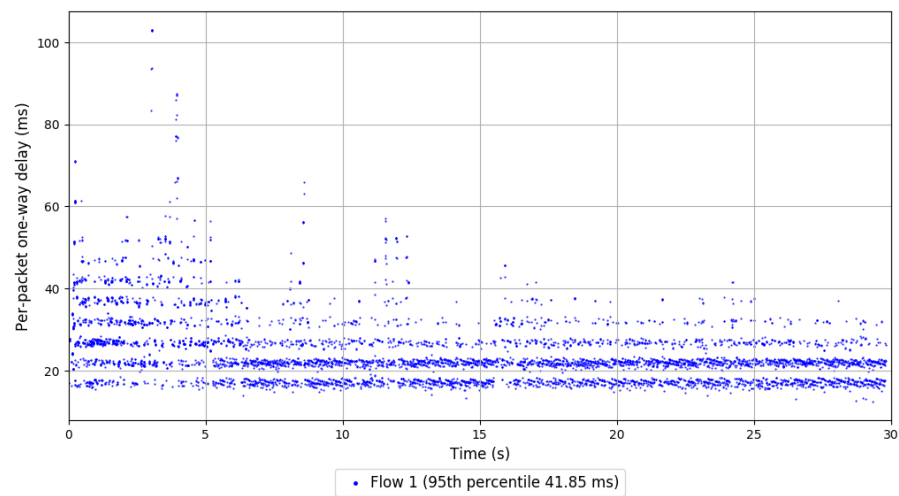
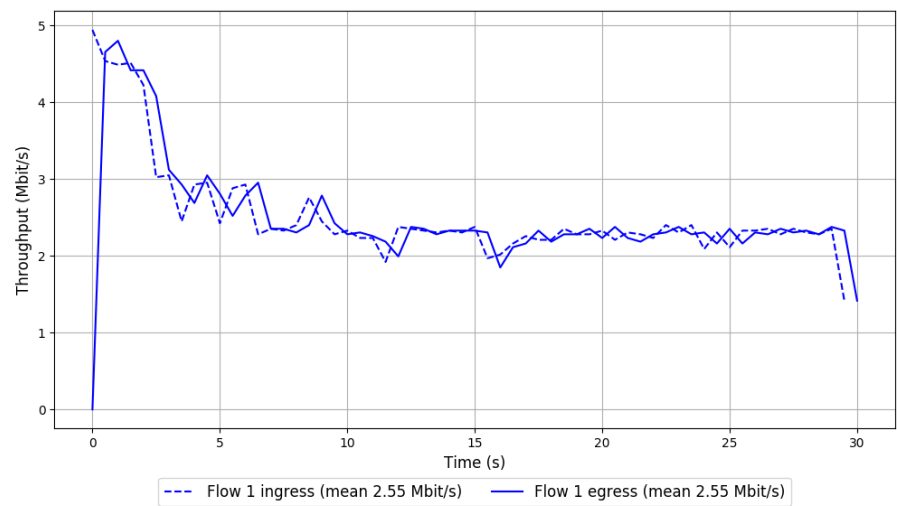


Run 2: Statistics of Indigo

Start at: 2019-01-21 04:20:31
End at: 2019-01-21 04:21:01
Local clock offset: -0.964 ms
Remote clock offset: -7.134 ms

Below is generated by plot.py at 2019-01-21 04:45:37
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.55 Mbit/s
95th percentile per-packet one-way delay: 41.853 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 2.55 Mbit/s
95th percentile per-packet one-way delay: 41.853 ms
Loss rate: 0.03%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2019-01-21 04:44:39

End at: 2019-01-21 04:45:09

Local clock offset: -1.476 ms

Remote clock offset: -8.74 ms

Below is generated by plot.py at 2019-01-21 04:45:37

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.89 Mbit/s

95th percentile per-packet one-way delay: 177.616 ms

Loss rate: 0.14%

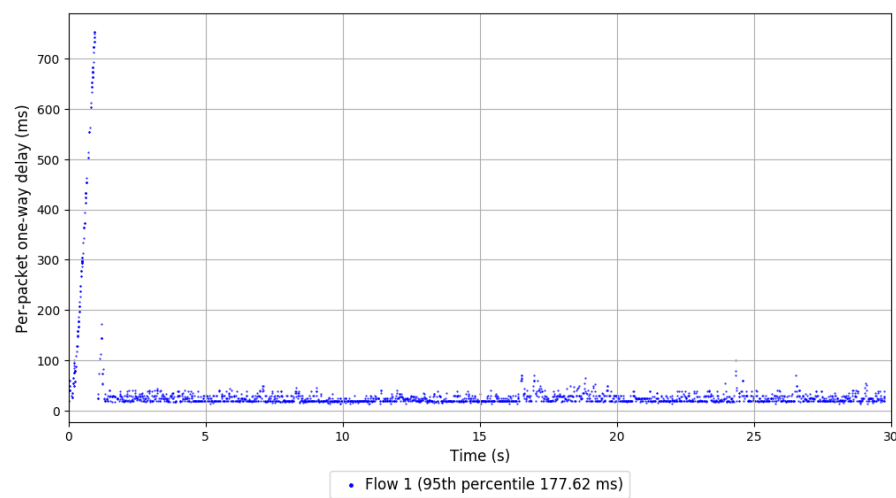
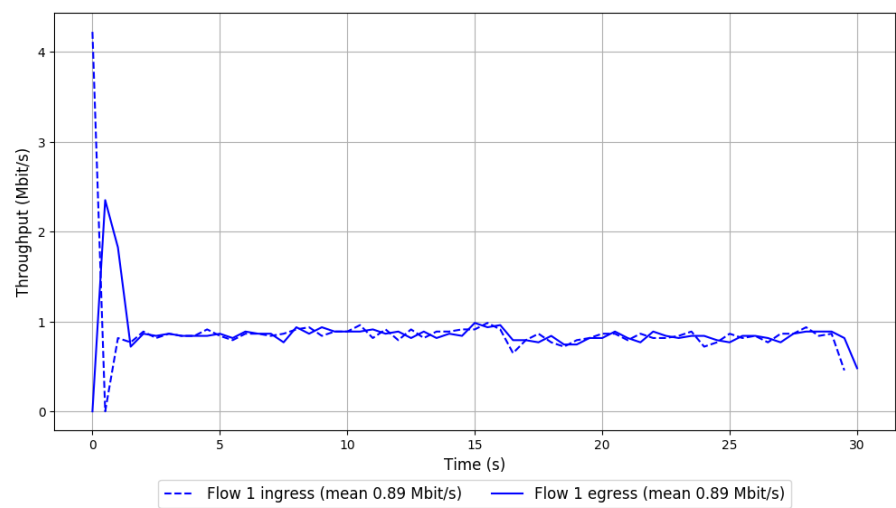
-- Flow 1:

Average throughput: 0.89 Mbit/s

95th percentile per-packet one-way delay: 177.616 ms

Loss rate: 0.14%

Run 3: Report of Indigo — Data Link

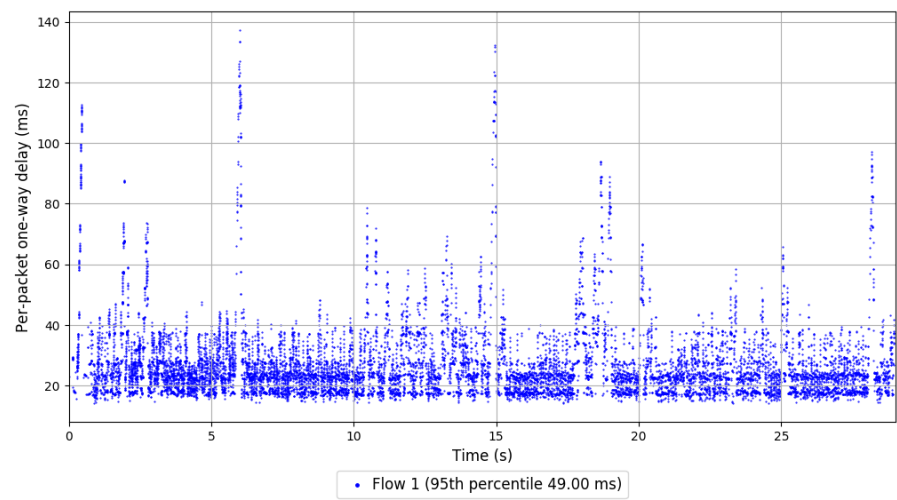
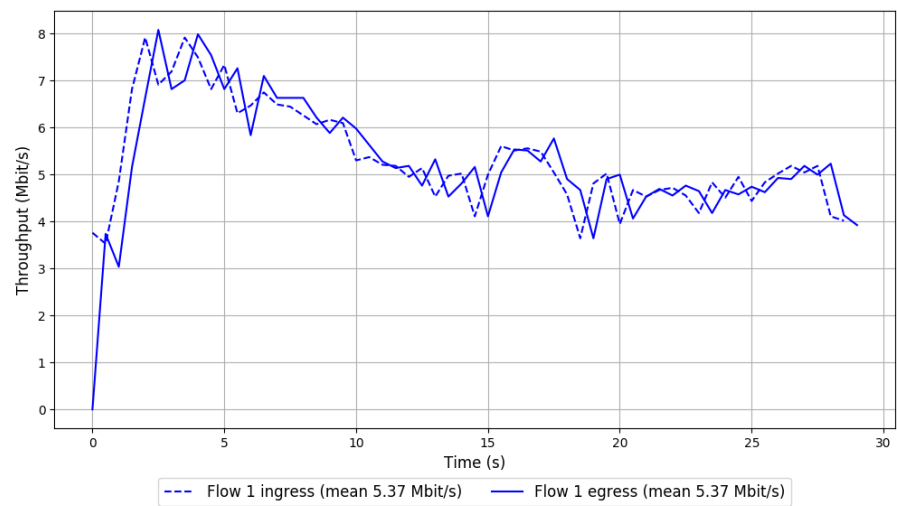


Run 1: Statistics of Indigo-MusesC3

Start at: 2019-01-21 03:39:25
End at: 2019-01-21 03:39:55
Local clock offset: -1.668 ms
Remote clock offset: -5.837 ms

Below is generated by plot.py at 2019-01-21 04:45:37
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.37 Mbit/s
95th percentile per-packet one-way delay: 48.996 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 5.37 Mbit/s
95th percentile per-packet one-way delay: 48.996 ms
Loss rate: 0.10%

Run 1: Report of Indigo-MusesC3 — Data Link

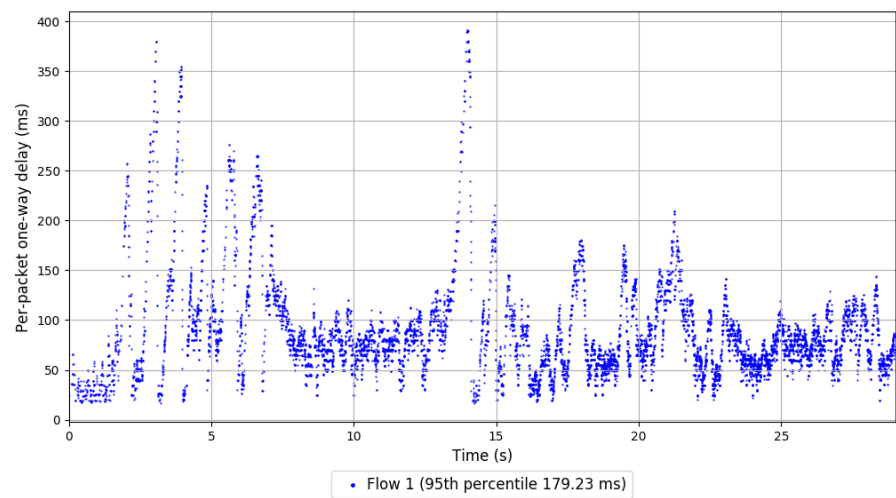
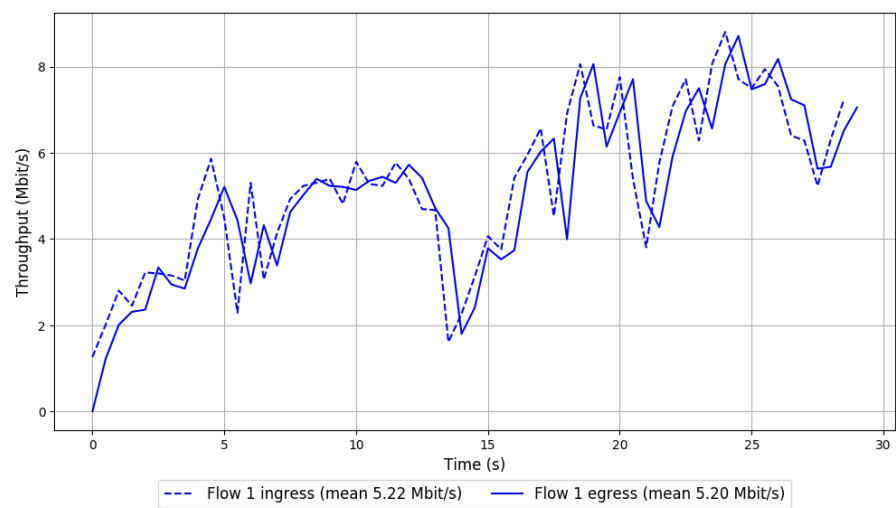


Run 2: Statistics of Indigo-MusesC3

Start at: 2019-01-21 04:03:40
End at: 2019-01-21 04:04:10
Local clock offset: 0.451 ms
Remote clock offset: -6.827 ms

Below is generated by plot.py at 2019-01-21 04:45:38
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.20 Mbit/s
95th percentile per-packet one-way delay: 179.230 ms
Loss rate: 0.32%
-- Flow 1:
Average throughput: 5.20 Mbit/s
95th percentile per-packet one-way delay: 179.230 ms
Loss rate: 0.32%

Run 2: Report of Indigo-MusesC3 — Data Link

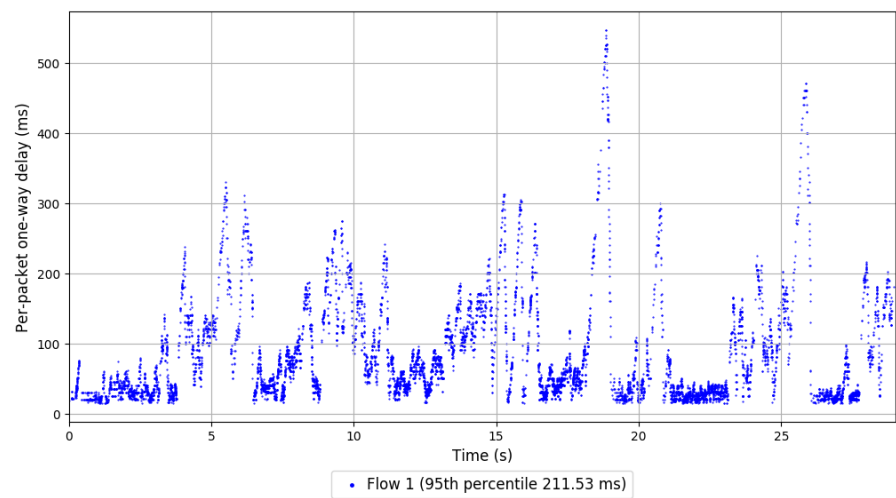
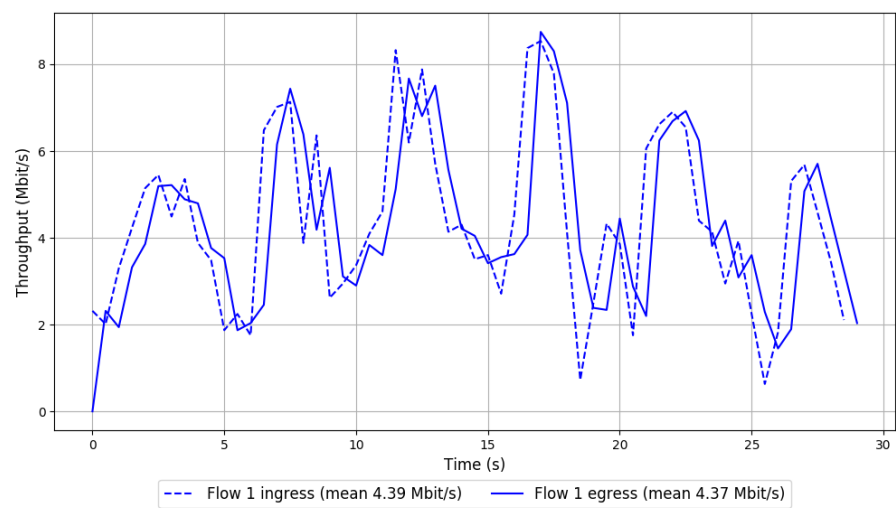


Run 3: Statistics of Indigo-MusesC3

Start at: 2019-01-21 04:27:16
End at: 2019-01-21 04:27:46
Local clock offset: -1.008 ms
Remote clock offset: -6.211 ms

Below is generated by plot.py at 2019-01-21 04:45:38
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.37 Mbit/s
95th percentile per-packet one-way delay: 211.533 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 4.37 Mbit/s
95th percentile per-packet one-way delay: 211.533 ms
Loss rate: 0.40%

Run 3: Report of Indigo-MusesC3 — Data Link



Run 1: Statistics of Indigo-MusesC5

Start at: 2019-01-21 03:47:19

End at: 2019-01-21 03:47:49

Local clock offset: -1.62 ms

Remote clock offset: -5.79 ms

Run 1: Report of Indigo-MusesC5 — Data Link

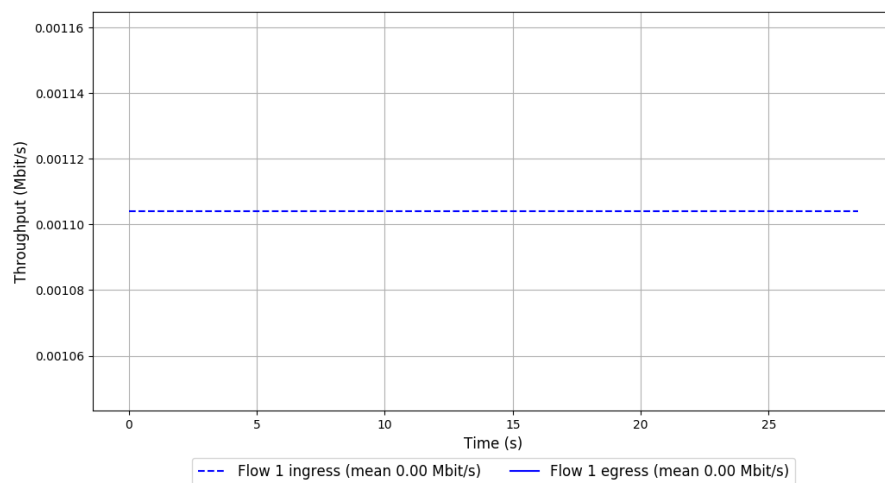


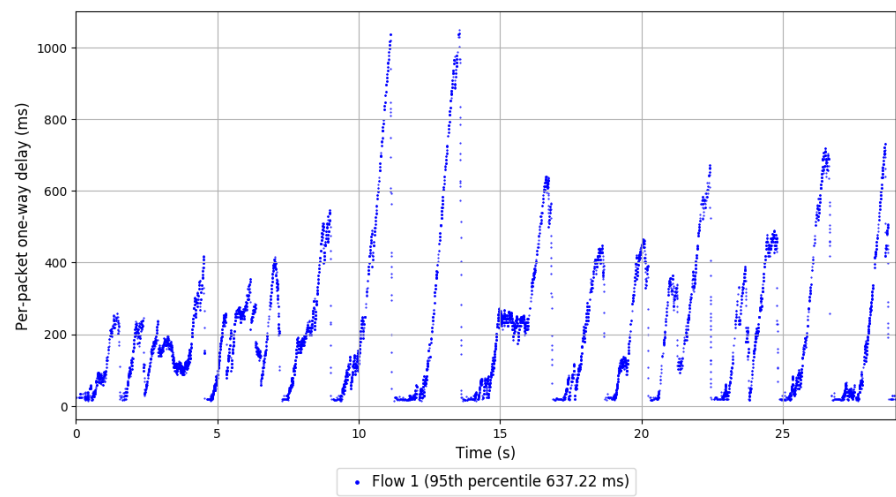
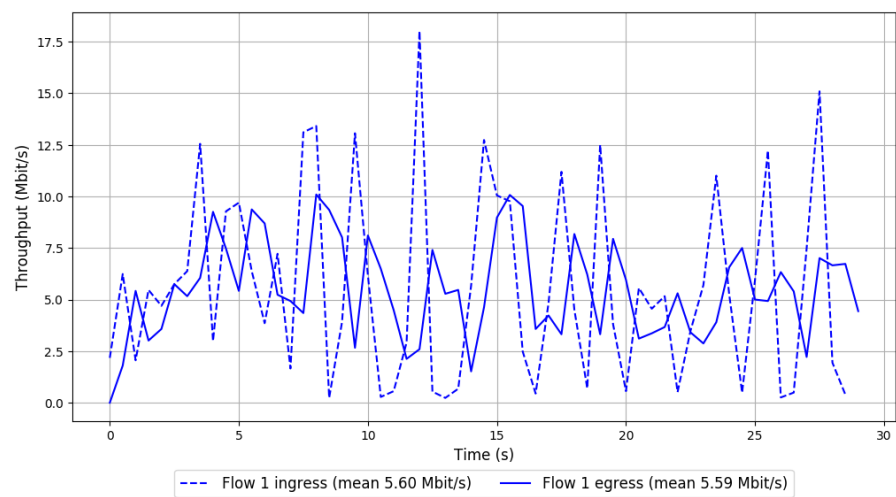
Figure is missing

Run 2: Statistics of Indigo-MusesC5

Start at: 2019-01-21 04:11:35
End at: 2019-01-21 04:12:05
Local clock offset: 0.332 ms
Remote clock offset: -6.291 ms

Below is generated by plot.py at 2019-01-21 04:45:41
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.59 Mbit/s
95th percentile per-packet one-way delay: 637.222 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 5.59 Mbit/s
95th percentile per-packet one-way delay: 637.222 ms
Loss rate: 0.27%

Run 2: Report of Indigo-MusesC5 — Data Link

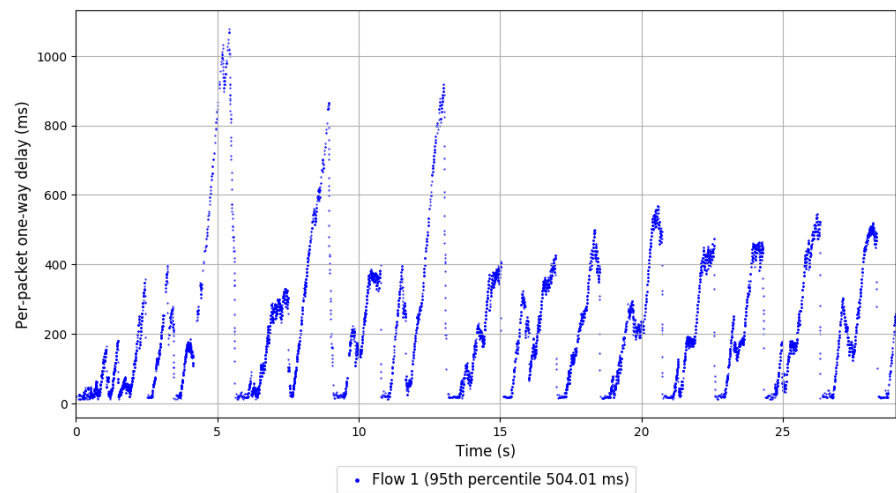
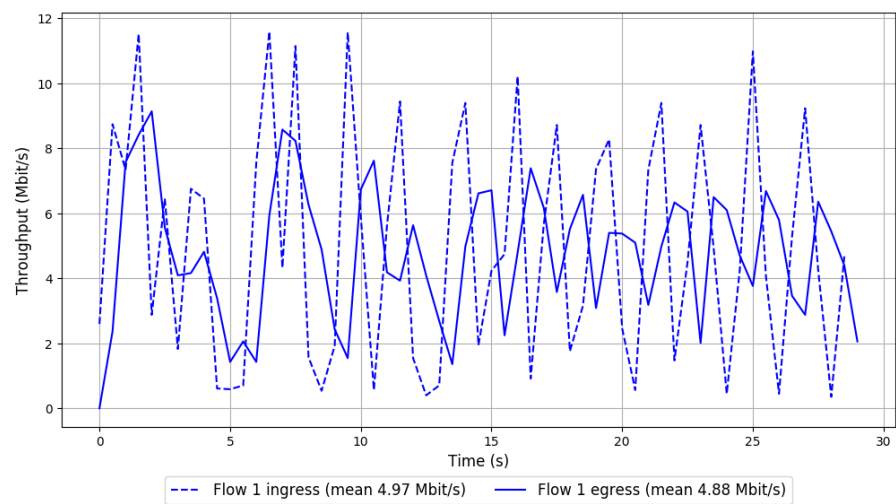


Run 3: Statistics of Indigo-MusesC5

Start at: 2019-01-21 04:35:38
End at: 2019-01-21 04:36:08
Local clock offset: -0.768 ms
Remote clock offset: -7.578 ms

Below is generated by plot.py at 2019-01-21 04:45:41
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.88 Mbit/s
95th percentile per-packet one-way delay: 504.013 ms
Loss rate: 1.86%
-- Flow 1:
Average throughput: 4.88 Mbit/s
95th percentile per-packet one-way delay: 504.013 ms
Loss rate: 1.86%

Run 3: Report of Indigo-MusesC5 — Data Link

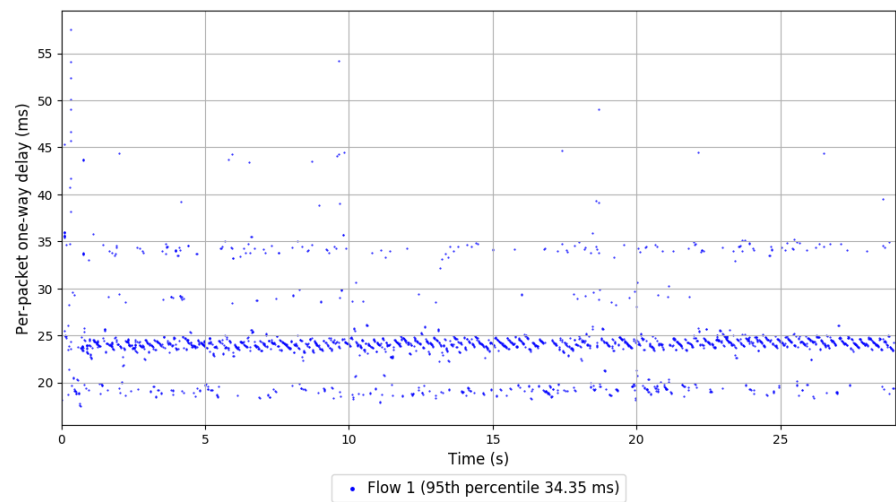
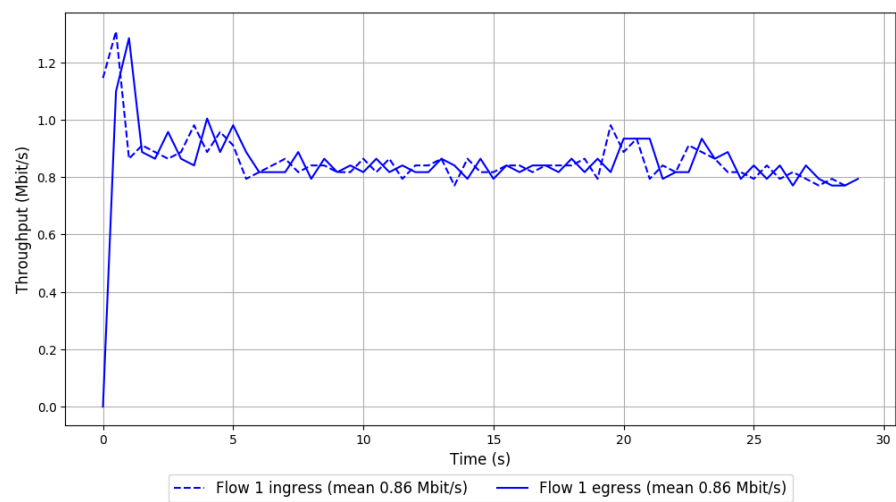


Run 1: Statistics of Indigo-MusesD

Start at: 2019-01-21 03:49:31
End at: 2019-01-21 03:50:01
Local clock offset: -1.976 ms
Remote clock offset: -4.901 ms

Below is generated by plot.py at 2019-01-21 04:45:41
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.86 Mbit/s
95th percentile per-packet one-way delay: 34.352 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 0.86 Mbit/s
95th percentile per-packet one-way delay: 34.352 ms
Loss rate: 0.05%

Run 1: Report of Indigo-MusesD — Data Link



Run 2: Statistics of Indigo-MusesD

Start at: 2019-01-21 04:13:48

End at: 2019-01-21 04:14:18

Local clock offset: -0.379 ms

Remote clock offset: -5.787 ms

Below is generated by plot.py at 2019-01-21 04:45:41

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.02 Mbit/s

95th percentile per-packet one-way delay: 33.654 ms

Loss rate: 0.04%

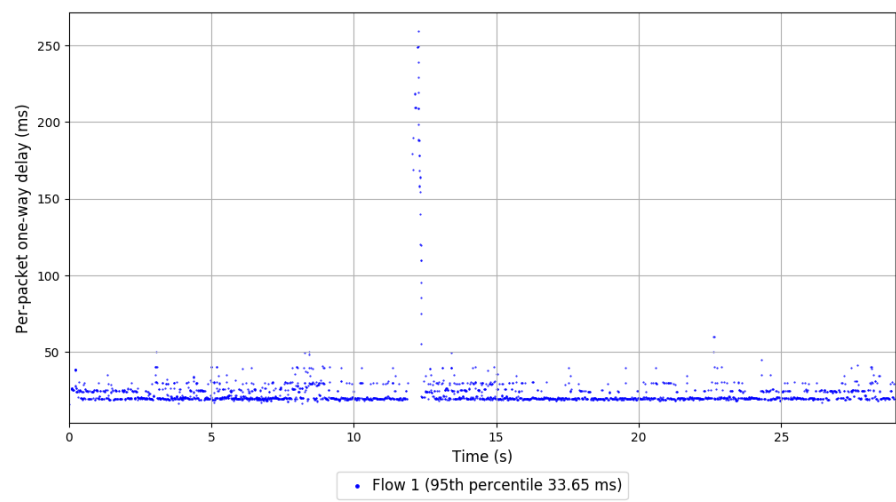
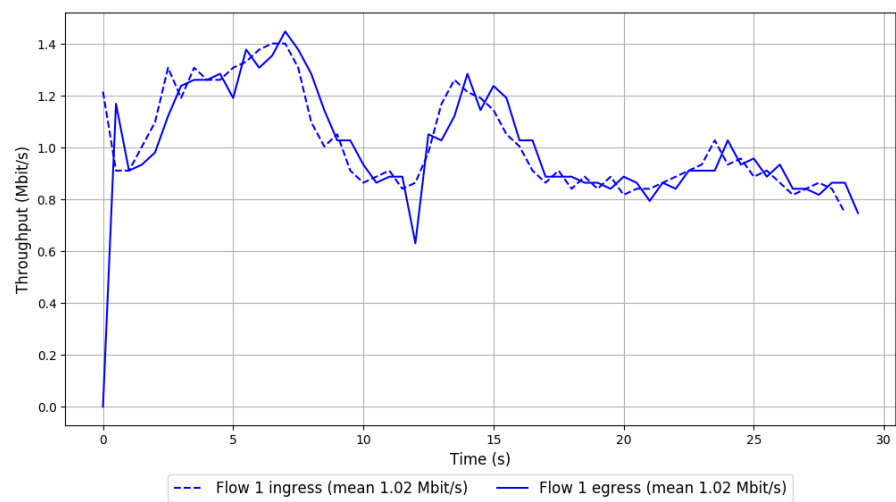
-- Flow 1:

Average throughput: 1.02 Mbit/s

95th percentile per-packet one-way delay: 33.654 ms

Loss rate: 0.04%

Run 2: Report of Indigo-MusesD — Data Link



Run 3: Statistics of Indigo-MusesD

Start at: 2019-01-21 04:37:53

End at: 2019-01-21 04:38:23

Local clock offset: -0.332 ms

Remote clock offset: -8.275 ms

Below is generated by plot.py at 2019-01-21 04:45:41

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.33 Mbit/s

95th percentile per-packet one-way delay: 38.340 ms

Loss rate: 0.27%

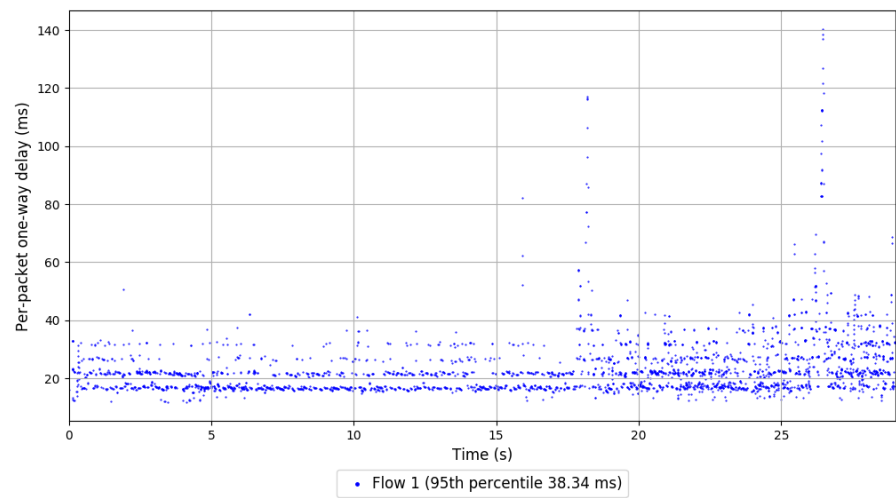
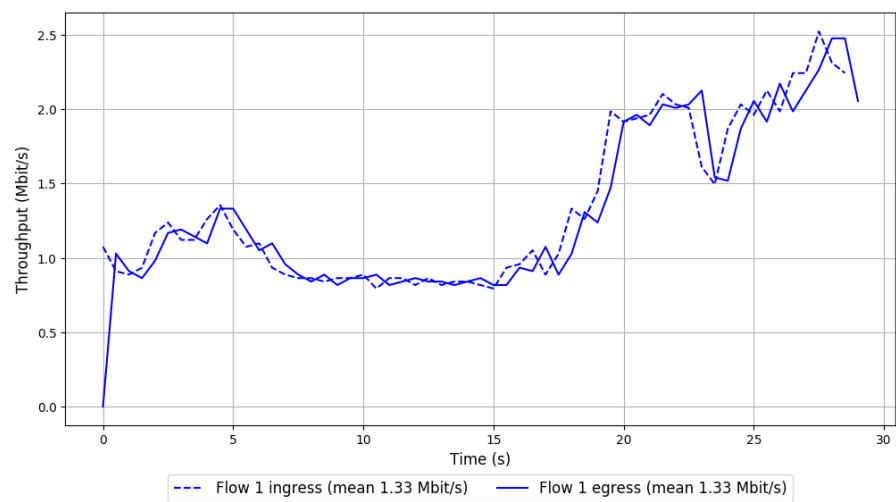
-- Flow 1:

Average throughput: 1.33 Mbit/s

95th percentile per-packet one-way delay: 38.340 ms

Loss rate: 0.27%

Run 3: Report of Indigo-MusesD — Data Link



Run 1: Statistics of Indigo-MusesT

Start at: 2019-01-21 03:54:00

End at: 2019-01-21 03:54:30

Local clock offset: -0.59 ms

Remote clock offset: -6.061 ms

Below is generated by plot.py at 2019-01-21 04:45:48

Datalink statistics

-- Total of 1 flow:

Average throughput: 6.54 Mbit/s

95th percentile per-packet one-way delay: 365.645 ms

Loss rate: 0.27%

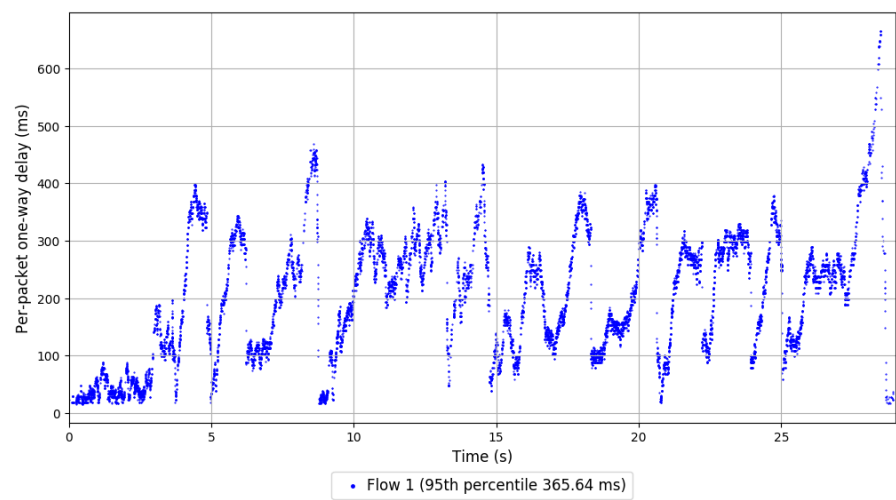
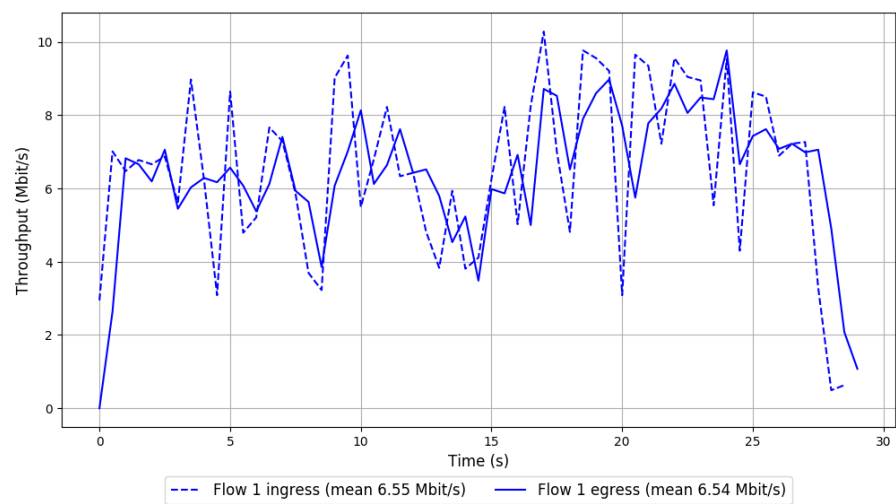
-- Flow 1:

Average throughput: 6.54 Mbit/s

95th percentile per-packet one-way delay: 365.645 ms

Loss rate: 0.27%

Run 1: Report of Indigo-MusesT — Data Link



Run 2: Statistics of Indigo-MusesT

Start at: 2019-01-21 04:18:15

End at: 2019-01-21 04:18:45

Local clock offset: 1.483 ms

Remote clock offset: -4.46 ms

Below is generated by plot.py at 2019-01-21 04:45:51

Datalink statistics

-- Total of 1 flow:

Average throughput: 7.90 Mbit/s

95th percentile per-packet one-way delay: 292.646 ms

Loss rate: 0.84%

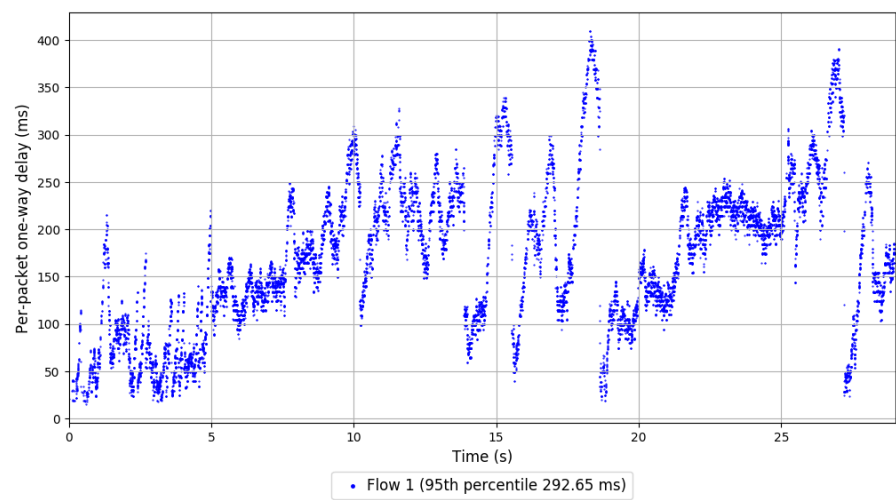
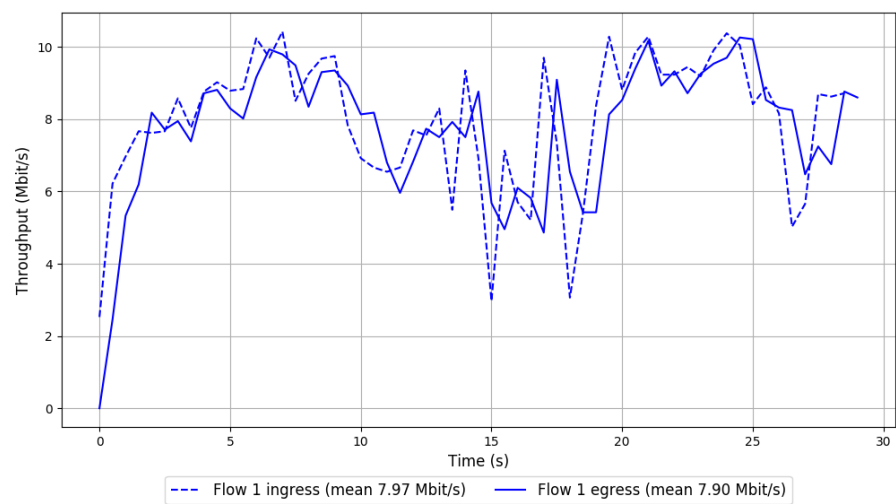
-- Flow 1:

Average throughput: 7.90 Mbit/s

95th percentile per-packet one-way delay: 292.646 ms

Loss rate: 0.84%

Run 2: Report of Indigo-MusesT — Data Link

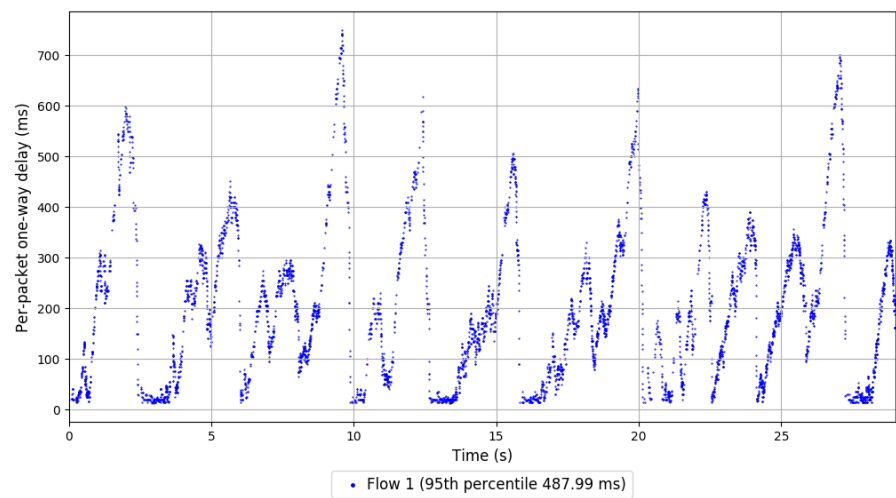
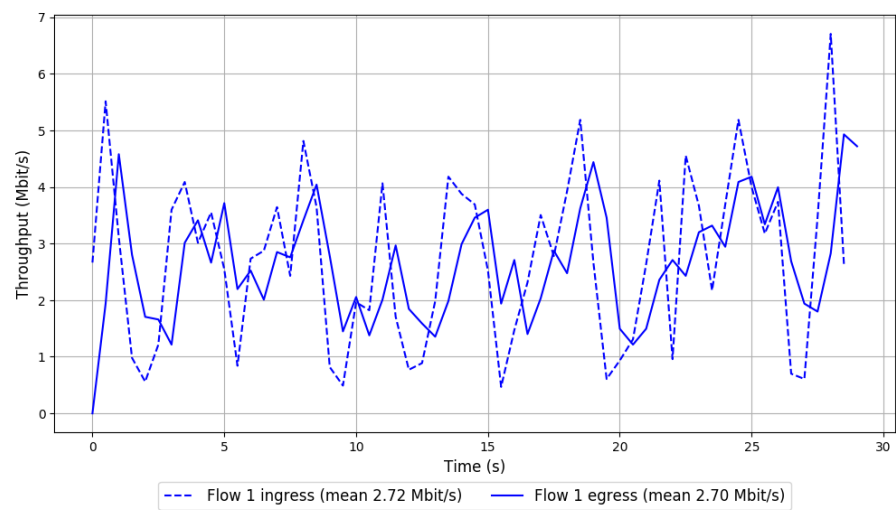


Run 3: Statistics of Indigo-MusesT

Start at: 2019-01-21 04:42:25
End at: 2019-01-21 04:42:55
Local clock offset: 2.536 ms
Remote clock offset: -6.312 ms

Below is generated by plot.py at 2019-01-21 04:45:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.70 Mbit/s
95th percentile per-packet one-way delay: 487.994 ms
Loss rate: 0.76%
-- Flow 1:
Average throughput: 2.70 Mbit/s
95th percentile per-packet one-way delay: 487.994 ms
Loss rate: 0.76%

Run 3: Report of Indigo-MusesT — Data Link

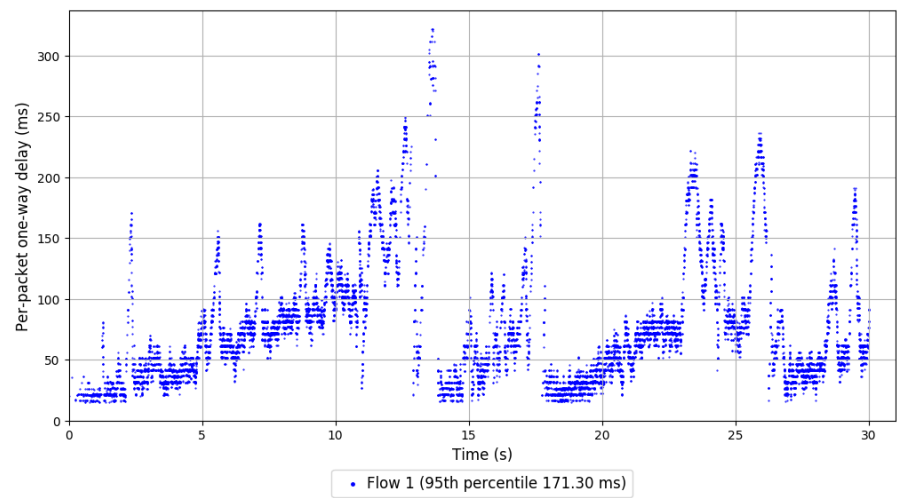
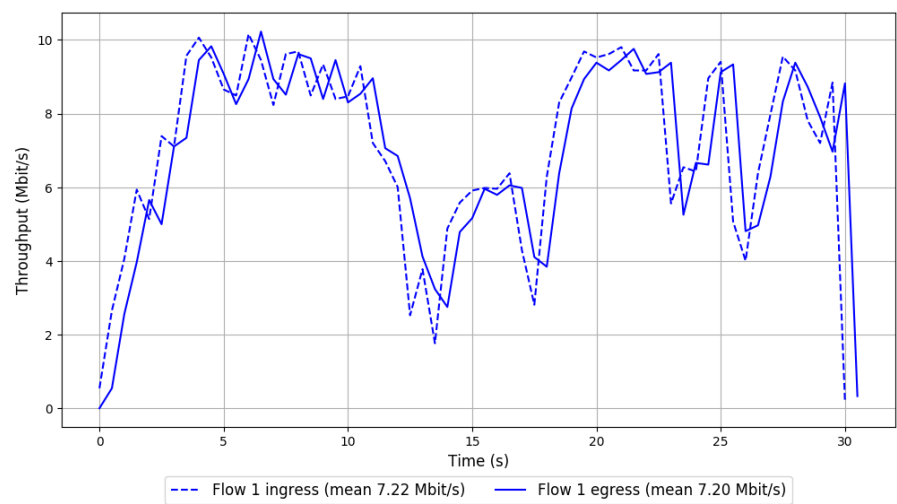


Run 1: Statistics of LEDBAT

Start at: 2019-01-21 03:38:18
End at: 2019-01-21 03:38:48
Local clock offset: -1.243 ms
Remote clock offset: -4.837 ms

Below is generated by plot.py at 2019-01-21 04:45:52
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.20 Mbit/s
95th percentile per-packet one-way delay: 171.299 ms
Loss rate: 0.32%
-- Flow 1:
Average throughput: 7.20 Mbit/s
95th percentile per-packet one-way delay: 171.299 ms
Loss rate: 0.32%

Run 1: Report of LEDBAT — Data Link

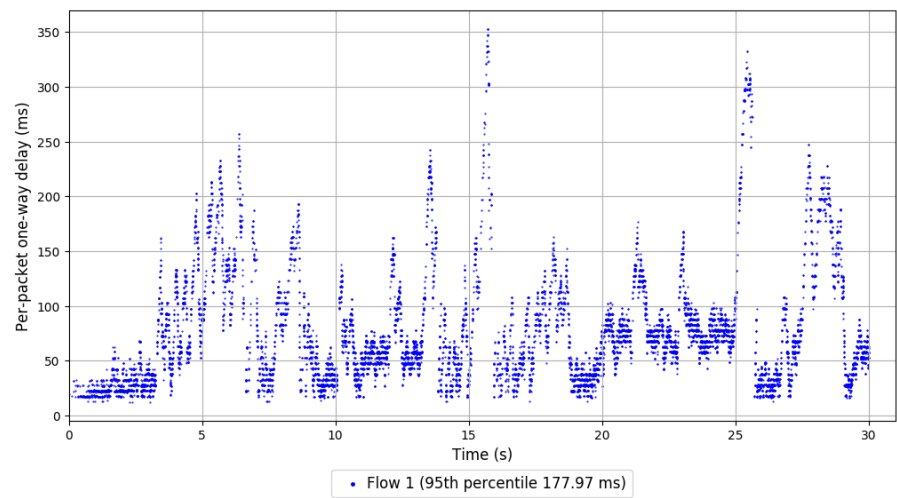
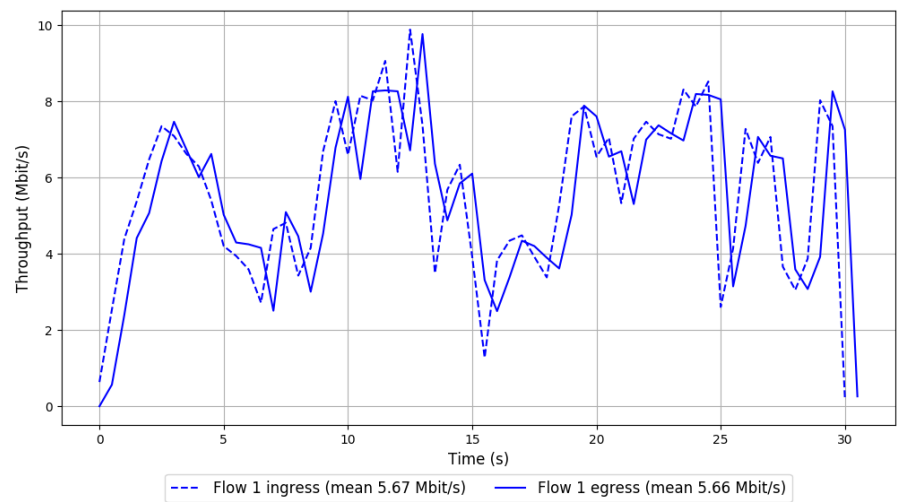


Run 2: Statistics of LEDBAT

Start at: 2019-01-21 04:02:32
End at: 2019-01-21 04:03:02
Local clock offset: -0.281 ms
Remote clock offset: -6.744 ms

Below is generated by plot.py at 2019-01-21 04:45:52
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.66 Mbit/s
95th percentile per-packet one-way delay: 177.967 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 5.66 Mbit/s
95th percentile per-packet one-way delay: 177.967 ms
Loss rate: 0.26%

Run 2: Report of LEDBAT — Data Link

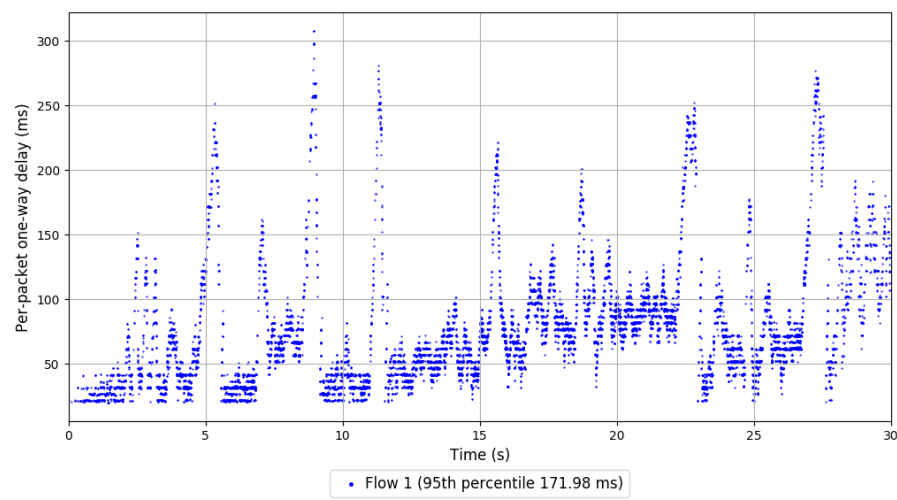
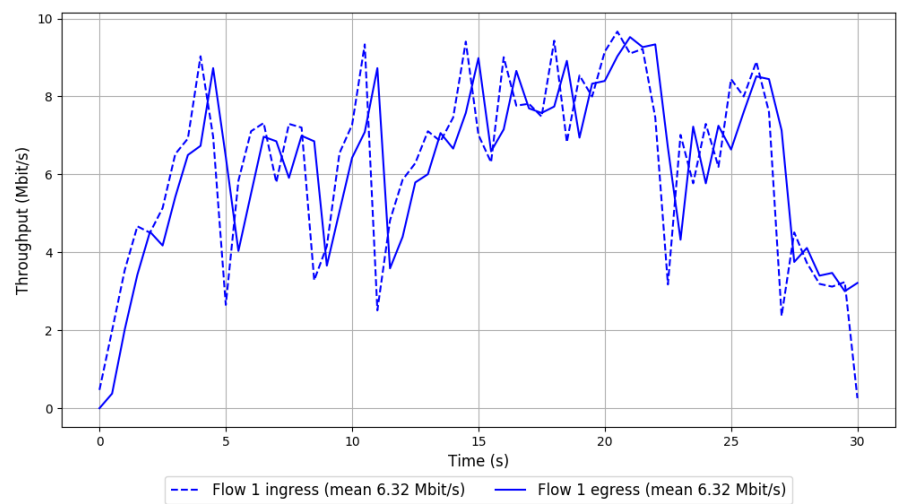


Run 3: Statistics of LEDBAT

Start at: 2019-01-21 04:26:09
End at: 2019-01-21 04:26:39
Local clock offset: -1.804 ms
Remote clock offset: -5.491 ms

Below is generated by plot.py at 2019-01-21 04:45:52
Datalink statistics
-- Total of 1 flow:
Average throughput: 6.32 Mbit/s
95th percentile per-packet one-way delay: 171.982 ms
Loss rate: 0.33%
-- Flow 1:
Average throughput: 6.32 Mbit/s
95th percentile per-packet one-way delay: 171.982 ms
Loss rate: 0.33%

Run 3: Report of LEDBAT — Data Link



Run 1: Statistics of PCC-Allegro

Start at: 2019-01-21 03:40:32

End at: 2019-01-21 03:41:02

Local clock offset: -2.053 ms

Remote clock offset: -4.352 ms

Below is generated by plot.py at 2019-01-21 04:45:52

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.19 Mbit/s

95th percentile per-packet one-way delay: 43.460 ms

Loss rate: 0.12%

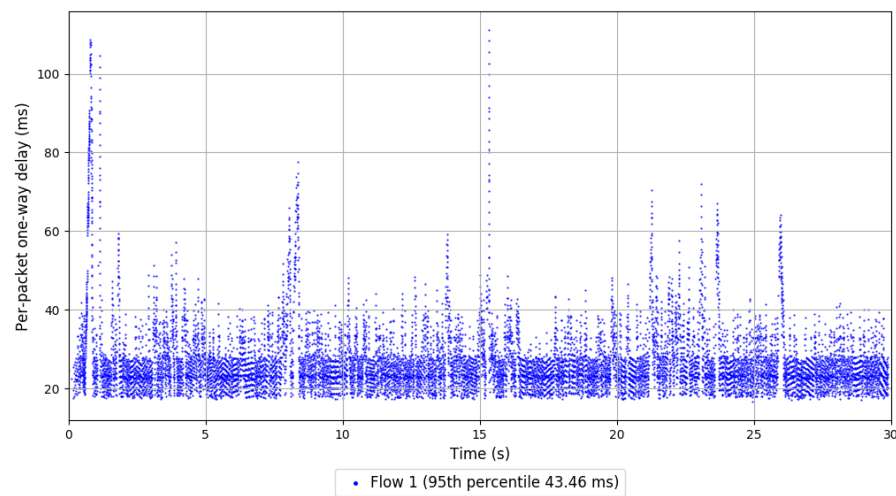
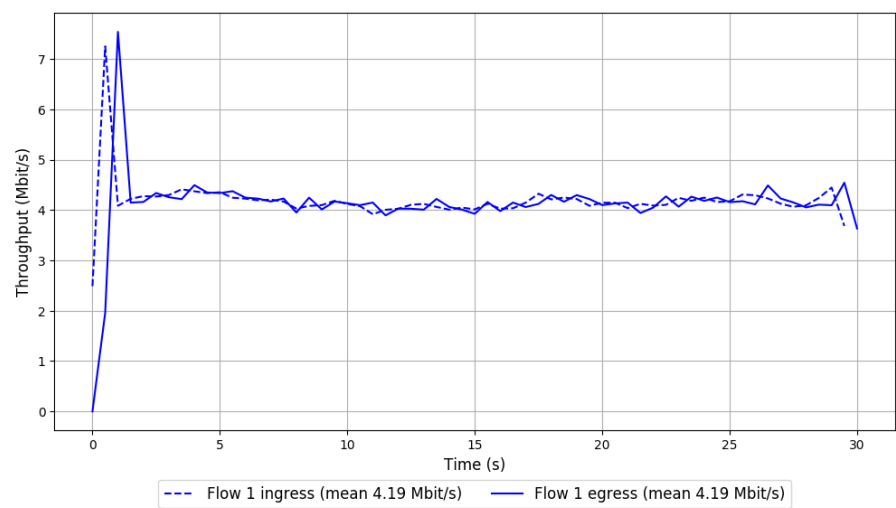
-- Flow 1:

Average throughput: 4.19 Mbit/s

95th percentile per-packet one-way delay: 43.460 ms

Loss rate: 0.12%

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2019-01-21 04:04:48

End at: 2019-01-21 04:05:18

Local clock offset: 1.153 ms

Remote clock offset: -6.673 ms

Below is generated by plot.py at 2019-01-21 04:45:52

Datalink statistics

-- Total of 1 flow:

Average throughput: 3.58 Mbit/s

95th percentile per-packet one-way delay: 1053.130 ms

Loss rate: 17.19%

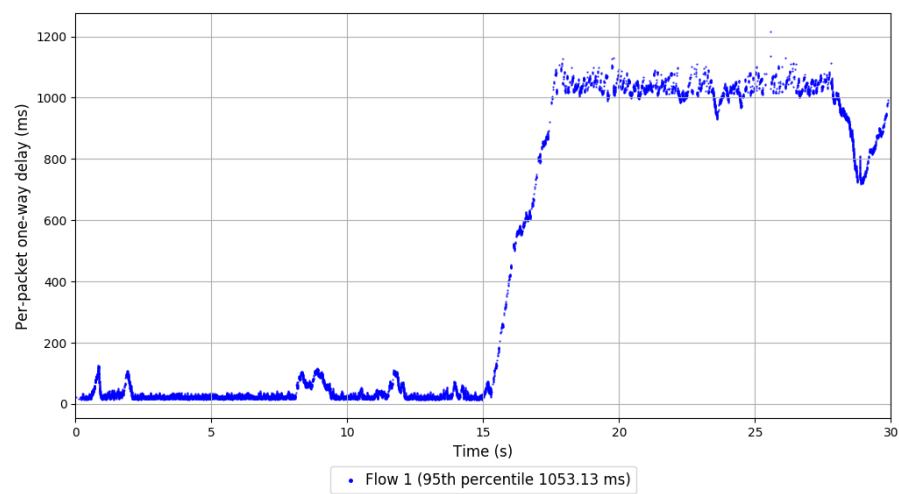
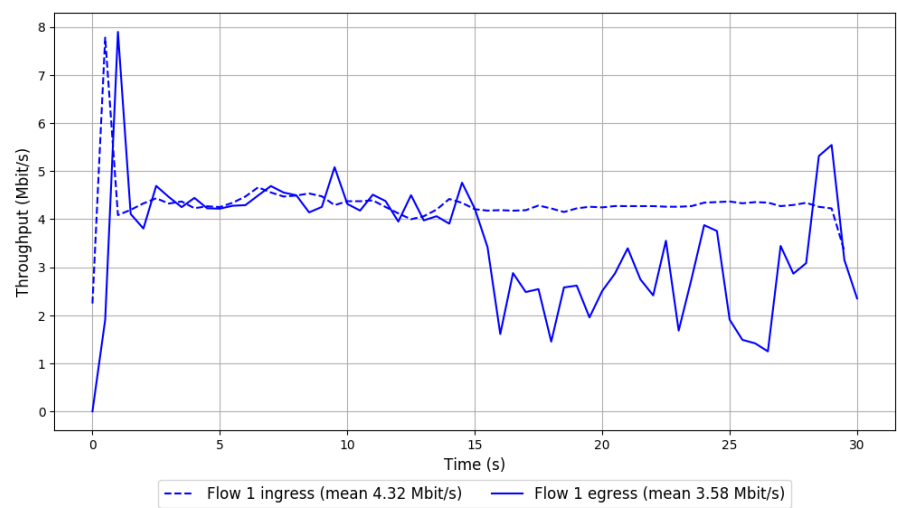
-- Flow 1:

Average throughput: 3.58 Mbit/s

95th percentile per-packet one-way delay: 1053.130 ms

Loss rate: 17.19%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

/home/ubuntu/pantheon/data/2019-01-21T03-33-AWS-India-1-to-India-cellular-3-runs/pcc_stats_1

Run 3: Report of PCC-Allegro — Data Link

Figure is missing

Figure is missing

Run 1: Statistics of PCC-Expr

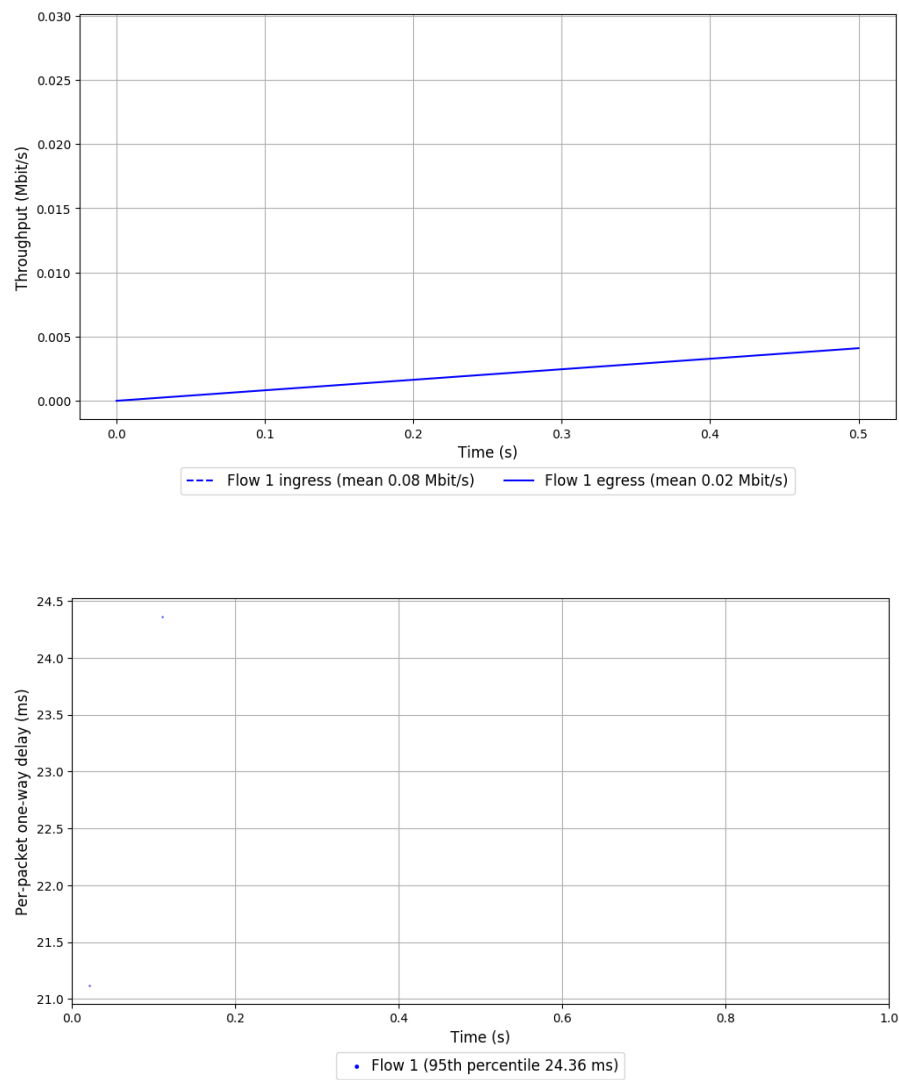
Start at: 2019-01-21 03:48:25

End at: 2019-01-21 03:48:55

Local clock offset: -1.841 ms

Remote clock offset: -5.55 ms

Run 1: Report of PCC-Expr — Data Link

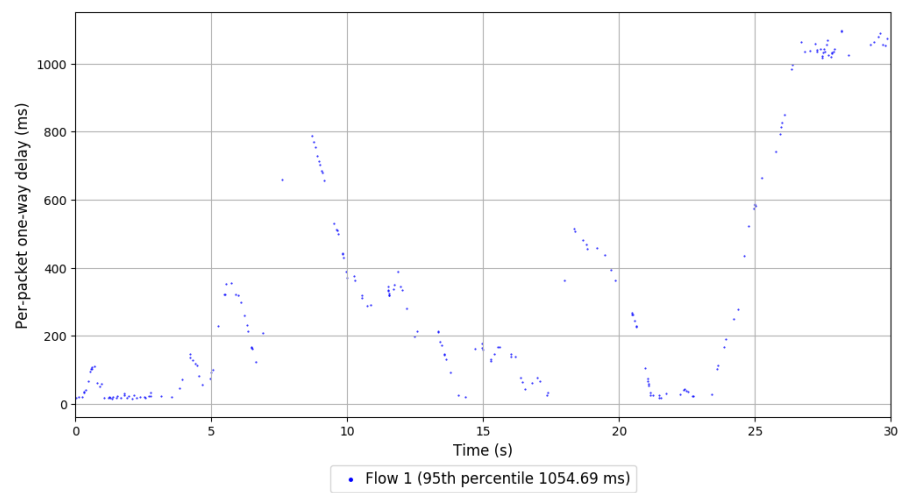
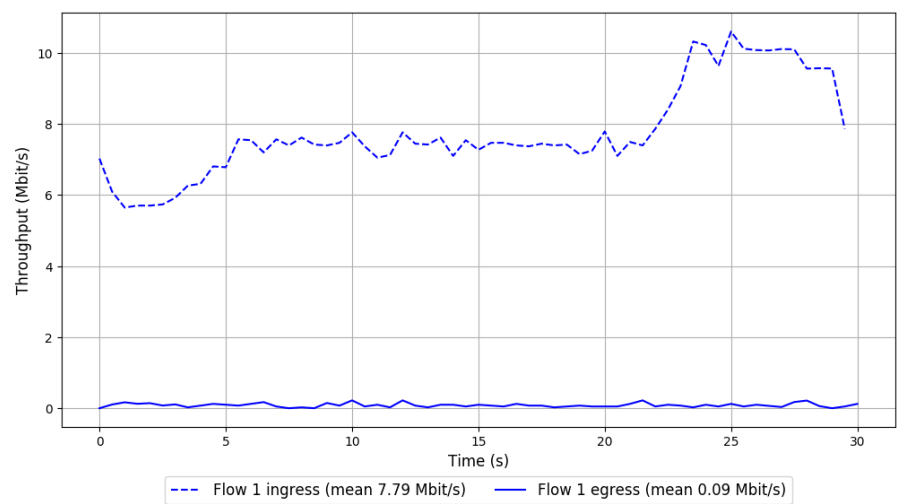


Run 2: Statistics of PCC-Expr

Start at: 2019-01-21 04:12:42
End at: 2019-01-21 04:13:12
Local clock offset: 0.345 ms
Remote clock offset: -7.145 ms

Below is generated by plot.py at 2019-01-21 04:45:52
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 1054.687 ms
Loss rate: 98.89%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 1054.687 ms
Loss rate: 98.89%

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

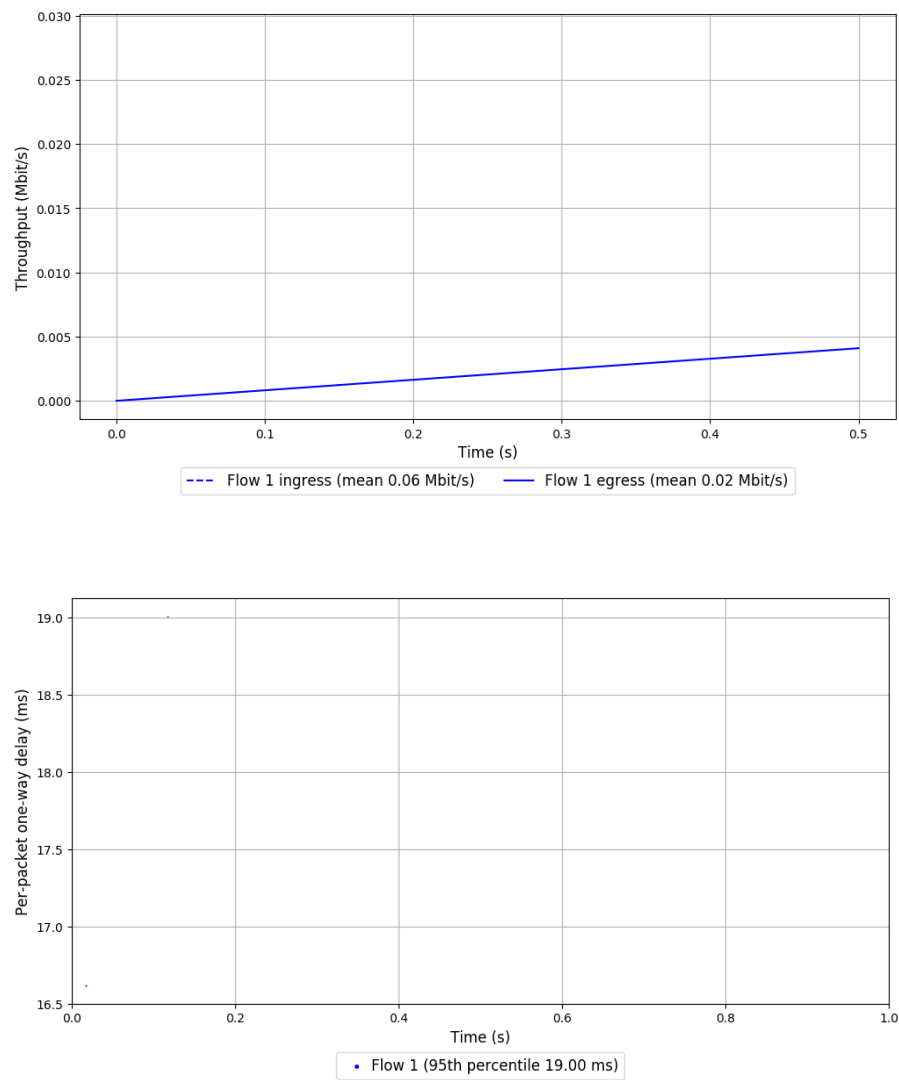
Start at: 2019-01-21 04:36:46

End at: 2019-01-21 04:37:16

Local clock offset: 0.098 ms

Remote clock offset: -9.235 ms

Run 3: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2019-01-21 03:42:47

End at: 2019-01-21 03:43:17

Local clock offset: -2.126 ms

Remote clock offset: -5.92 ms

Below is generated by plot.py at 2019-01-21 04:46:03

Datalink statistics

-- Total of 1 flow:

Average throughput: 7.28 Mbit/s

95th percentile per-packet one-way delay: 272.199 ms

Loss rate: 0.83%

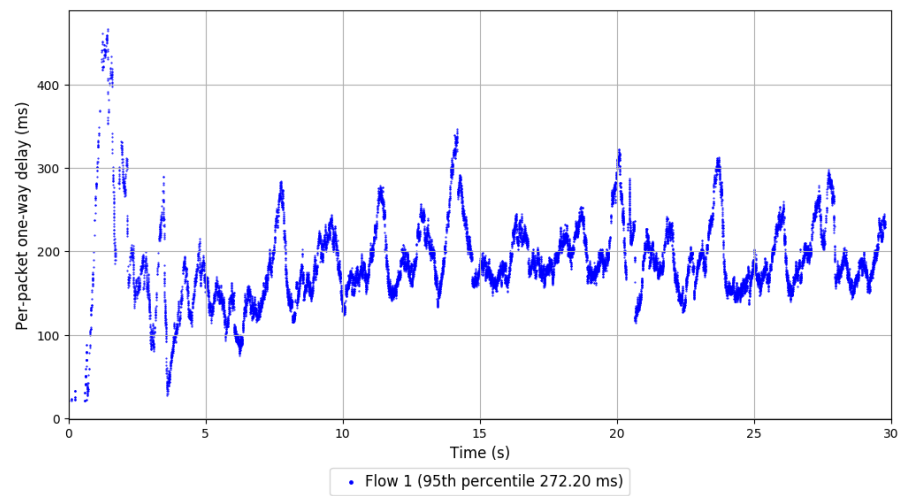
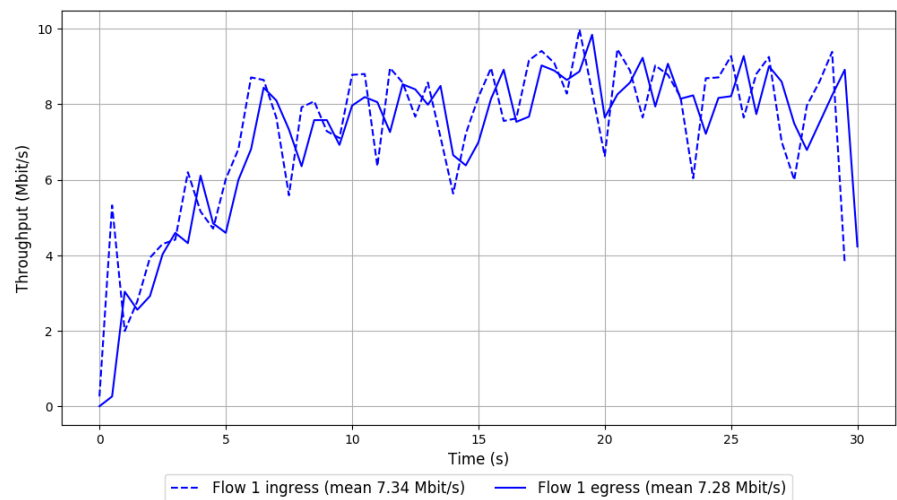
-- Flow 1:

Average throughput: 7.28 Mbit/s

95th percentile per-packet one-way delay: 272.199 ms

Loss rate: 0.83%

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2019-01-21 04:07:02

End at: 2019-01-21 04:07:32

Local clock offset: 0.207 ms

Remote clock offset: -7.112 ms

Below is generated by plot.py at 2019-01-21 04:46:03

Datalink statistics

-- Total of 1 flow:

Average throughput: 6.54 Mbit/s

95th percentile per-packet one-way delay: 295.975 ms

Loss rate: 0.61%

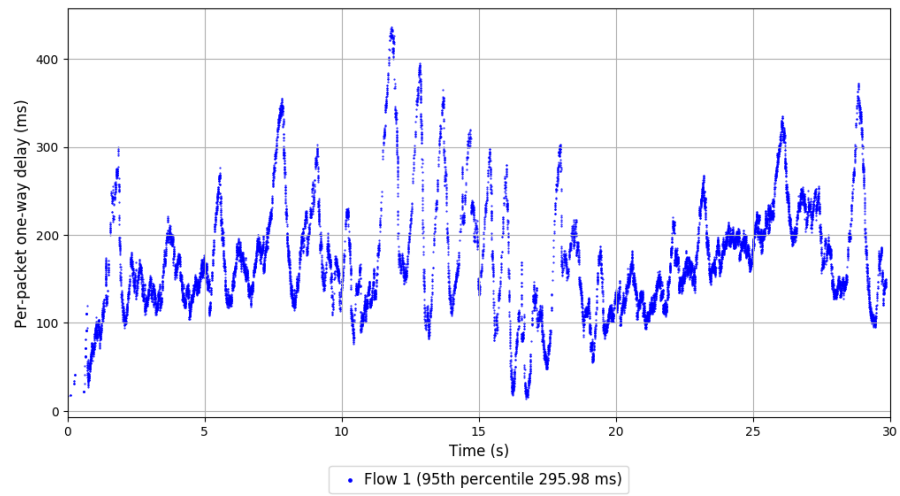
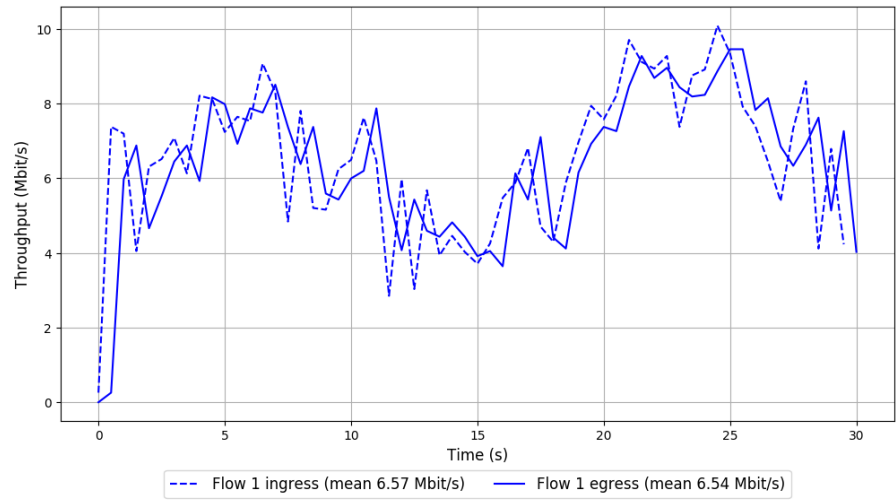
-- Flow 1:

Average throughput: 6.54 Mbit/s

95th percentile per-packet one-way delay: 295.975 ms

Loss rate: 0.61%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2019-01-21 04:31:05

End at: 2019-01-21 04:31:35

Local clock offset: 0.06 ms

Remote clock offset: -7.491 ms

Below is generated by plot.py at 2019-01-21 04:46:03

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.82 Mbit/s

95th percentile per-packet one-way delay: 372.164 ms

Loss rate: 0.64%

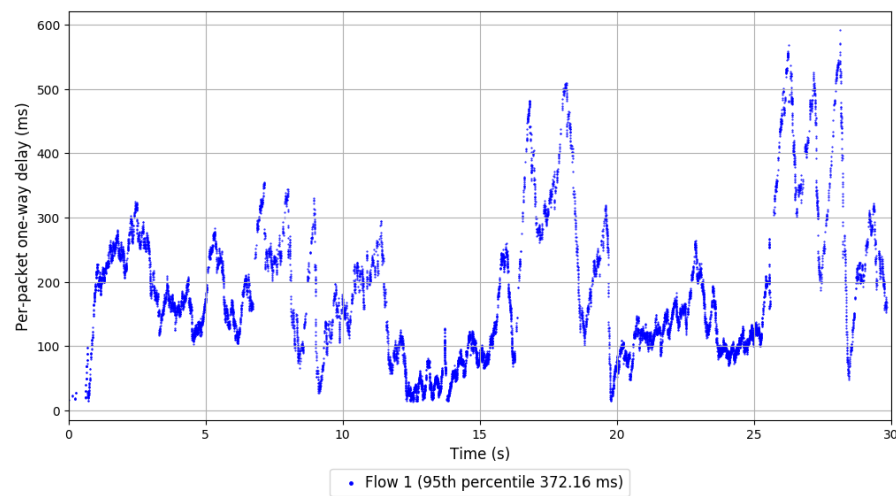
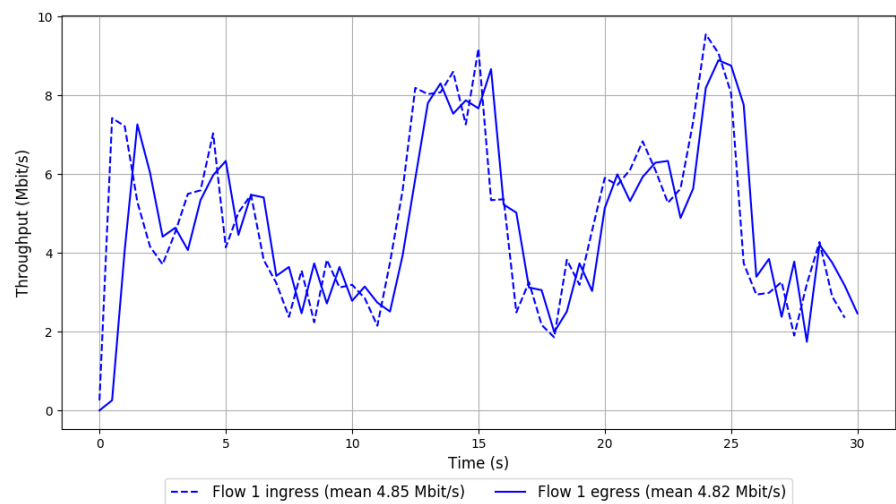
-- Flow 1:

Average throughput: 4.82 Mbit/s

95th percentile per-packet one-way delay: 372.164 ms

Loss rate: 0.64%

Run 3: Report of QUIC Cubic — Data Link

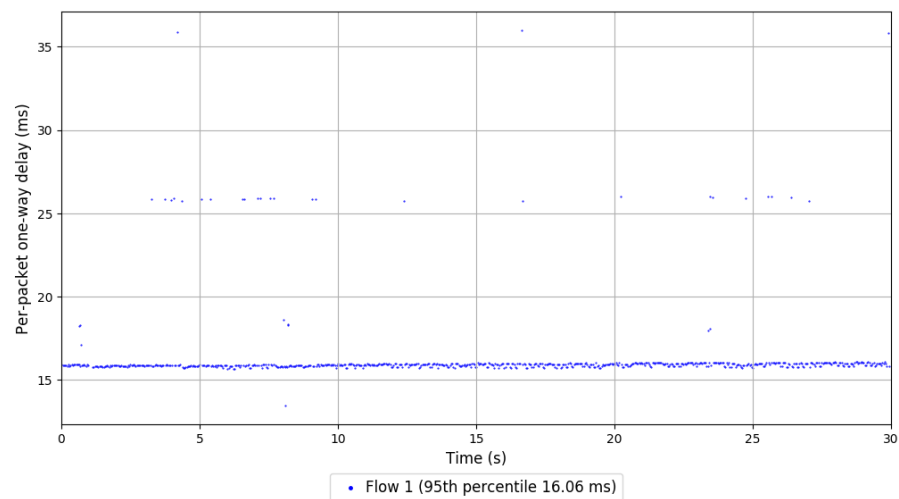
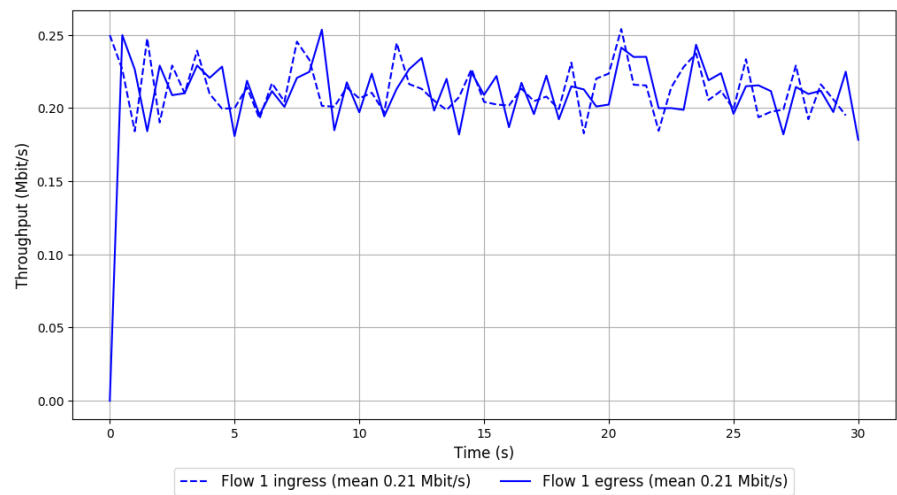


Run 1: Statistics of SCReAM

Start at: 2019-01-21 03:43:56
End at: 2019-01-21 03:44:26
Local clock offset: 0.521 ms
Remote clock offset: -6.948 ms

Below is generated by plot.py at 2019-01-21 04:46:03
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 16.059 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 16.059 ms
Loss rate: 0.13%

Run 1: Report of SReAM — Data Link



Run 2: Statistics of SCReAM

Start at: 2019-01-21 04:08:14

End at: 2019-01-21 04:08:45

Local clock offset: 1.641 ms

Remote clock offset: -5.088 ms

Run 2: Report of SReAM — Data Link

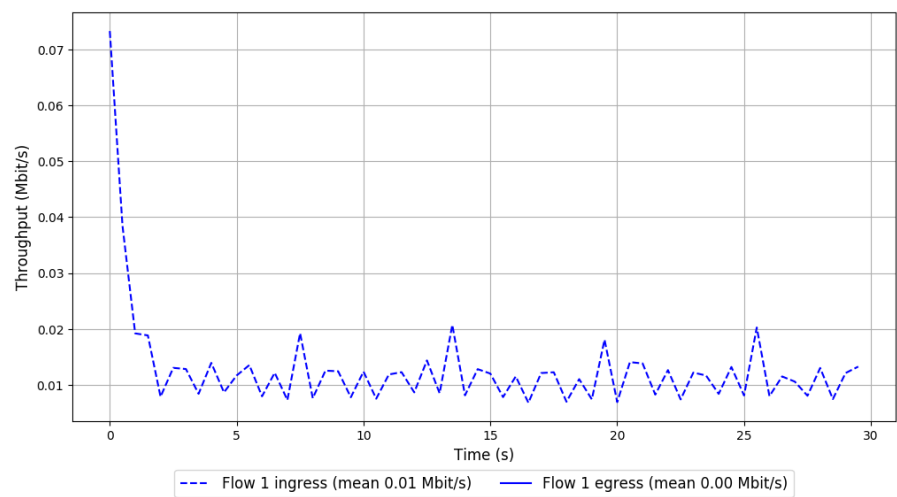


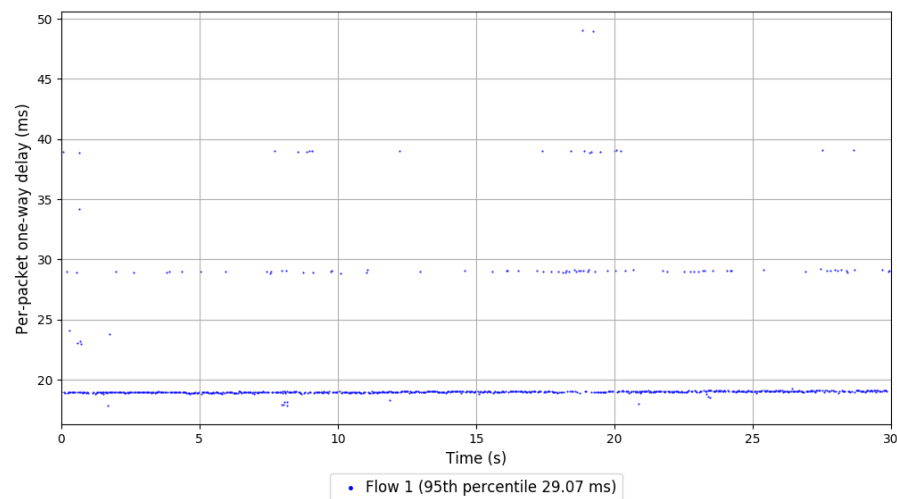
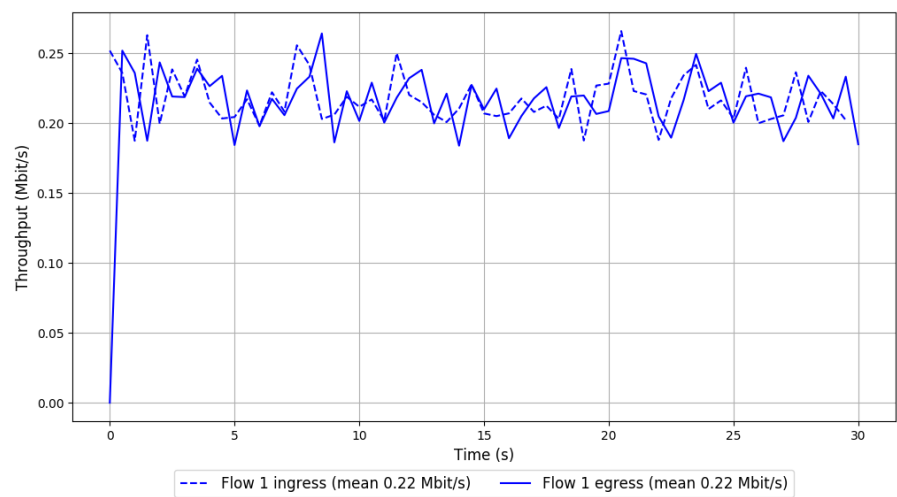
Figure is missing

Run 3: Statistics of SCReAM

Start at: 2019-01-21 04:32:13
End at: 2019-01-21 04:32:43
Local clock offset: -0.437 ms
Remote clock offset: -6.353 ms

Below is generated by plot.py at 2019-01-21 04:46:03
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 29.072 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 29.072 ms
Loss rate: 0.13%

Run 3: Report of SReAM — Data Link

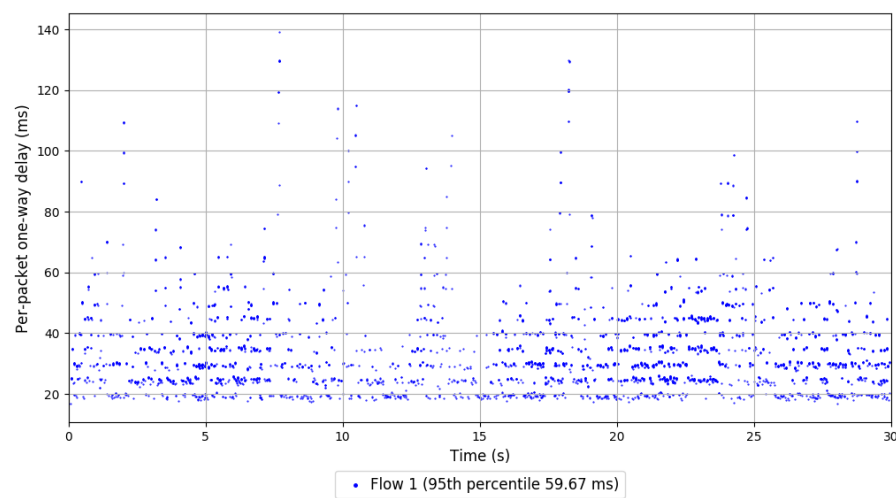
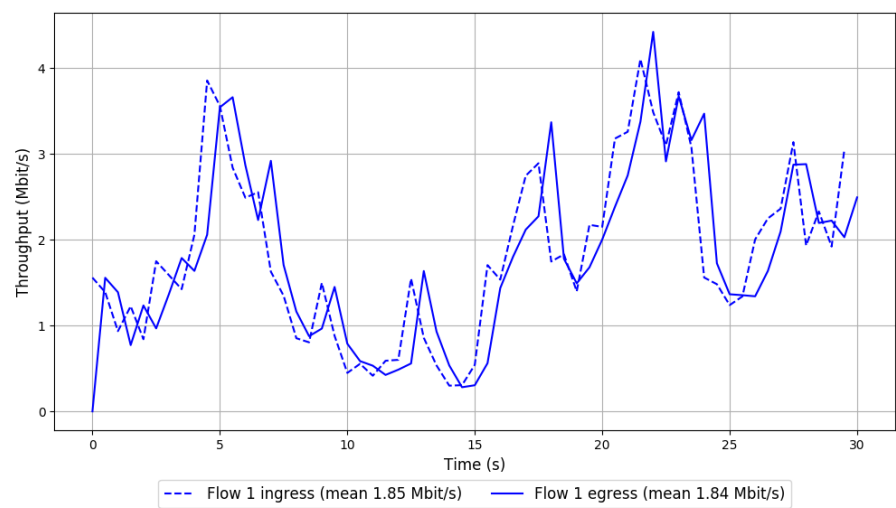


Run 1: Statistics of Sprout

Start at: 2019-01-21 03:51:46
End at: 2019-01-21 03:52:16
Local clock offset: -1.809 ms
Remote clock offset: -5.465 ms

Below is generated by plot.py at 2019-01-21 04:46:03
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.84 Mbit/s
95th percentile per-packet one-way delay: 59.674 ms
Loss rate: 0.50%
-- Flow 1:
Average throughput: 1.84 Mbit/s
95th percentile per-packet one-way delay: 59.674 ms
Loss rate: 0.50%

Run 1: Report of Sprout — Data Link

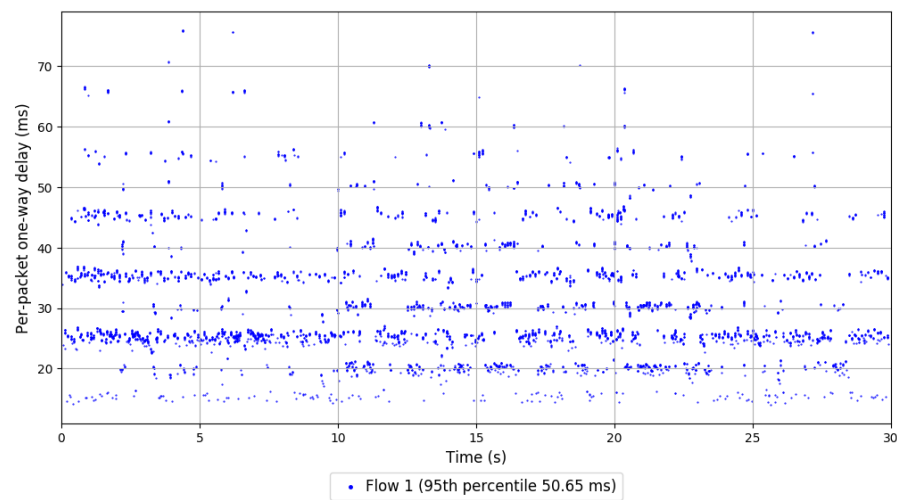
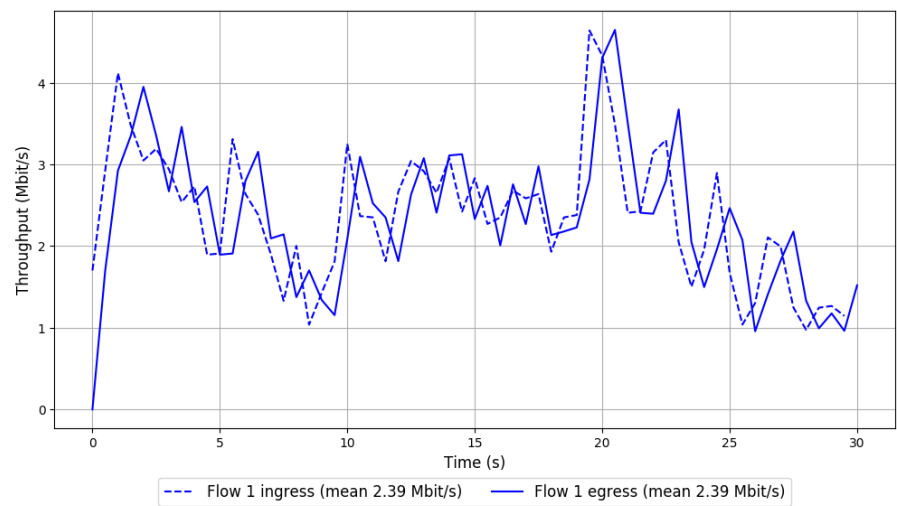


Run 2: Statistics of Sprout

Start at: 2019-01-21 04:16:02
End at: 2019-01-21 04:16:32
Local clock offset: 0.196 ms
Remote clock offset: -7.174 ms

Below is generated by plot.py at 2019-01-21 04:46:03
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.39 Mbit/s
95th percentile per-packet one-way delay: 50.647 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.39 Mbit/s
95th percentile per-packet one-way delay: 50.647 ms
Loss rate: 0.00%

Run 2: Report of Sprout — Data Link

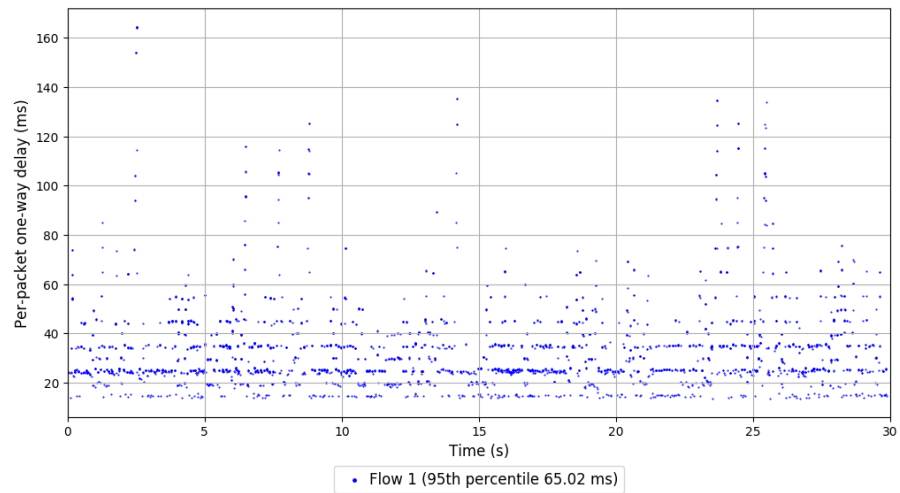
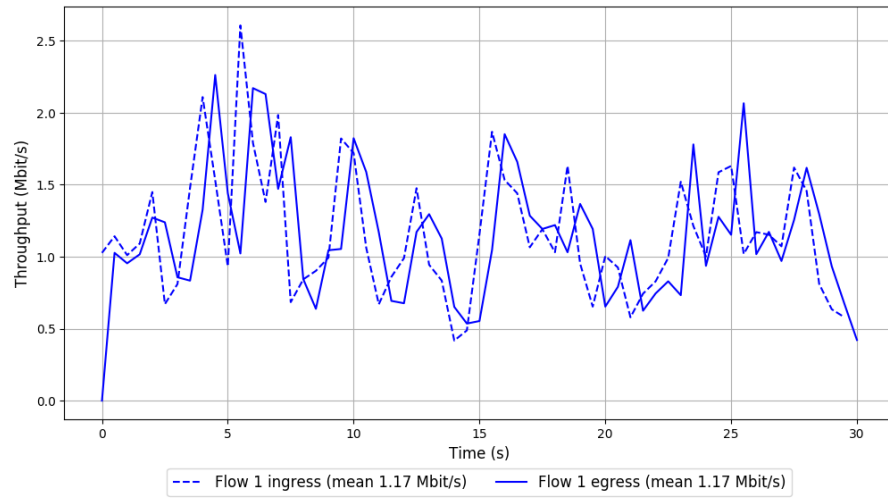


Run 3: Statistics of Sprout

Start at: 2019-01-21 04:40:07
End at: 2019-01-21 04:40:37
Local clock offset: -1.715 ms
Remote clock offset: -6.641 ms

Below is generated by plot.py at 2019-01-21 04:46:03
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.17 Mbit/s
95th percentile per-packet one-way delay: 65.018 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 1.17 Mbit/s
95th percentile per-packet one-way delay: 65.018 ms
Loss rate: 0.23%

Run 3: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

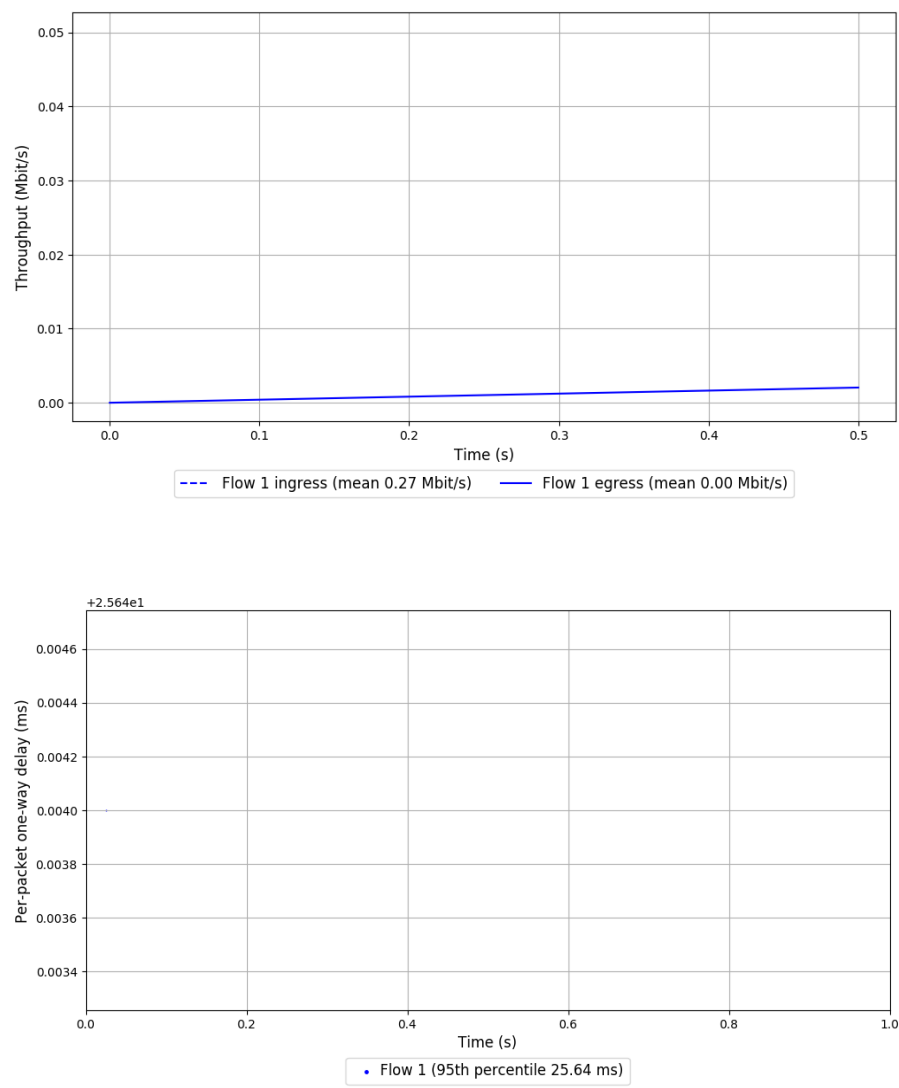
Start at: 2019-01-21 03:45:02

End at: 2019-01-21 03:45:32

Local clock offset: -1.603 ms

Remote clock offset: -7.014 ms

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



Run 2: Statistics of TaoVA-100x

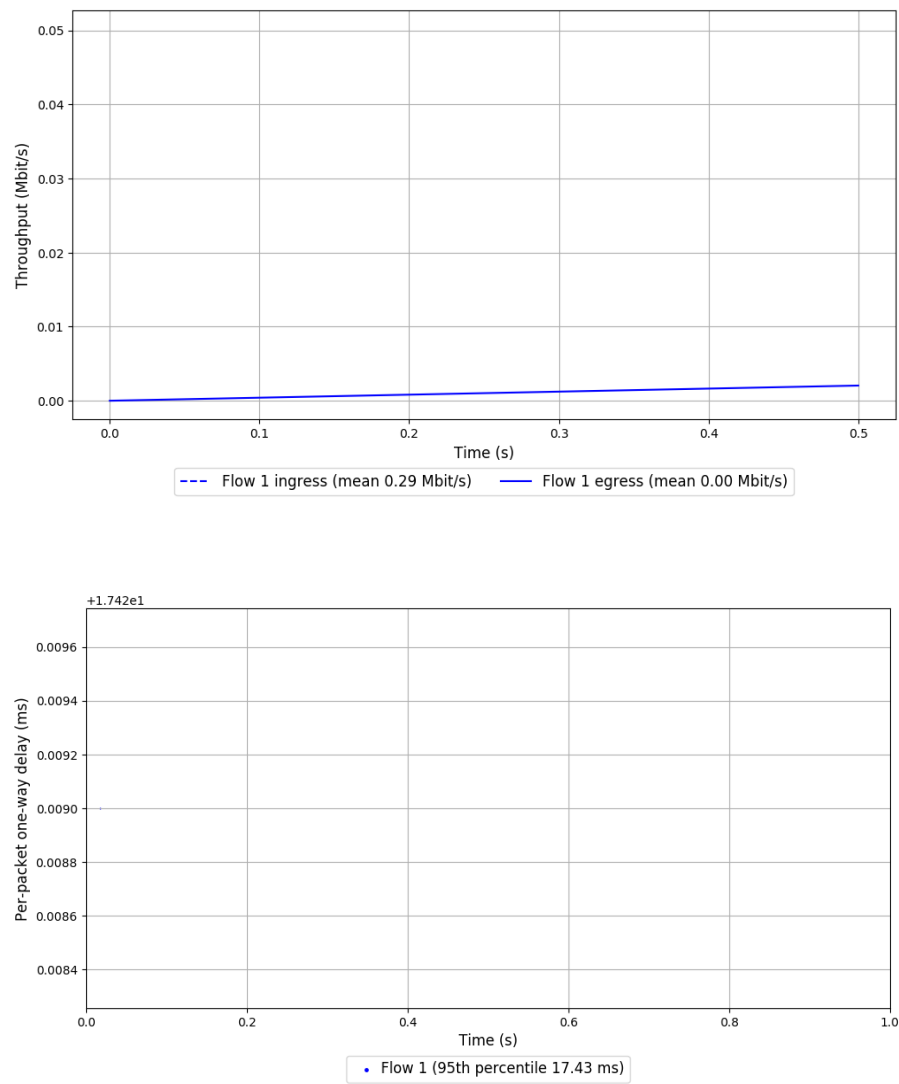
Start at: 2019-01-21 04:09:21

End at: 2019-01-21 04:09:51

Local clock offset: 0.518 ms

Remote clock offset: -5.321 ms

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



Run 3: Statistics of TaoVA-100x

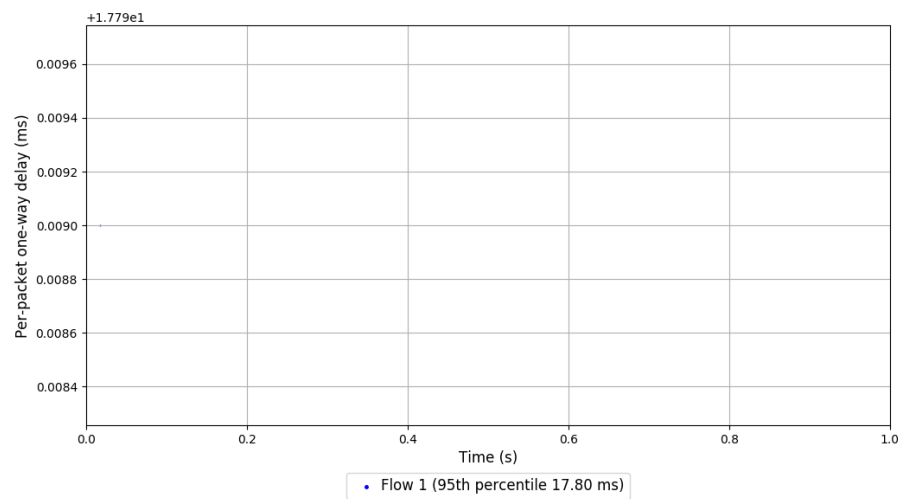
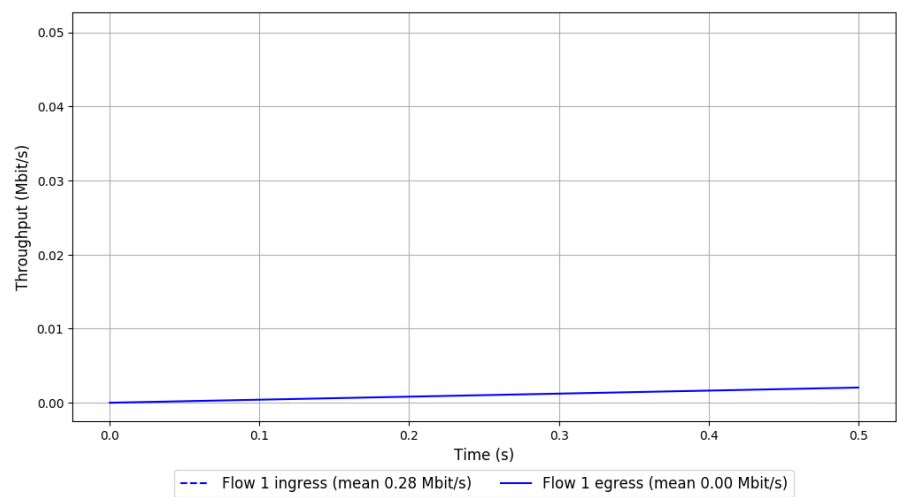
Start at: 2019-01-21 04:33:19

End at: 2019-01-21 04:33:49

Local clock offset: -0.745 ms

Remote clock offset: -5.66 ms

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

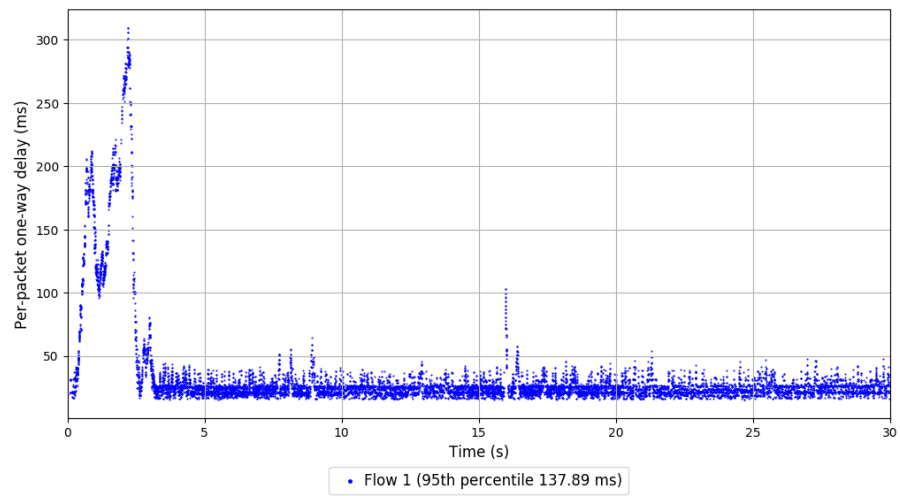
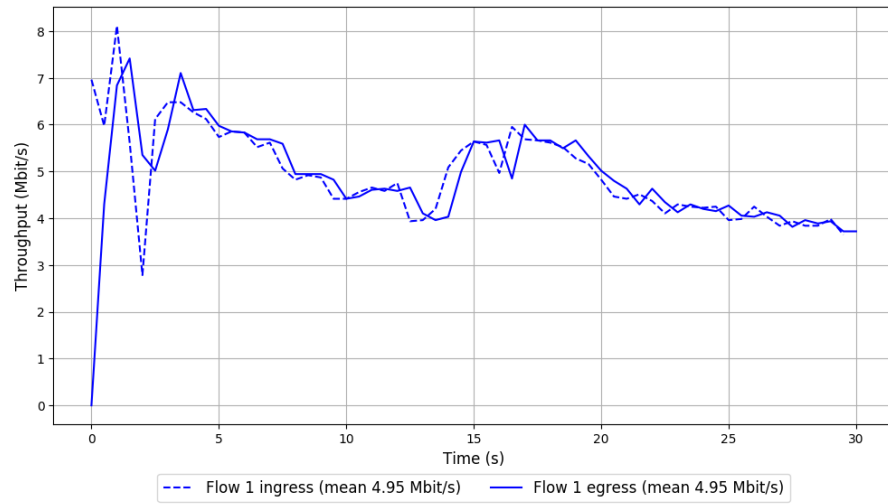


Run 1: Statistics of TCP Vegas

Start at: 2019-01-21 03:41:40
End at: 2019-01-21 03:42:10
Local clock offset: -0.767 ms
Remote clock offset: -4.926 ms

Below is generated by plot.py at 2019-01-21 04:46:03
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.95 Mbit/s
95th percentile per-packet one-way delay: 137.887 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 4.95 Mbit/s
95th percentile per-packet one-way delay: 137.887 ms
Loss rate: 0.09%

Run 1: Report of TCP Vegas — Data Link



Run 2: Statistics of TCP Vegas

Start at: 2019-01-21 04:05:56

End at: 2019-01-21 04:06:26

Local clock offset: -0.284 ms

Remote clock offset: -5.78 ms

Below is generated by plot.py at 2019-01-21 04:46:03

Datalink statistics

-- Total of 1 flow:

Average throughput: 3.87 Mbit/s

95th percentile per-packet one-way delay: 106.839 ms

Loss rate: 0.03%

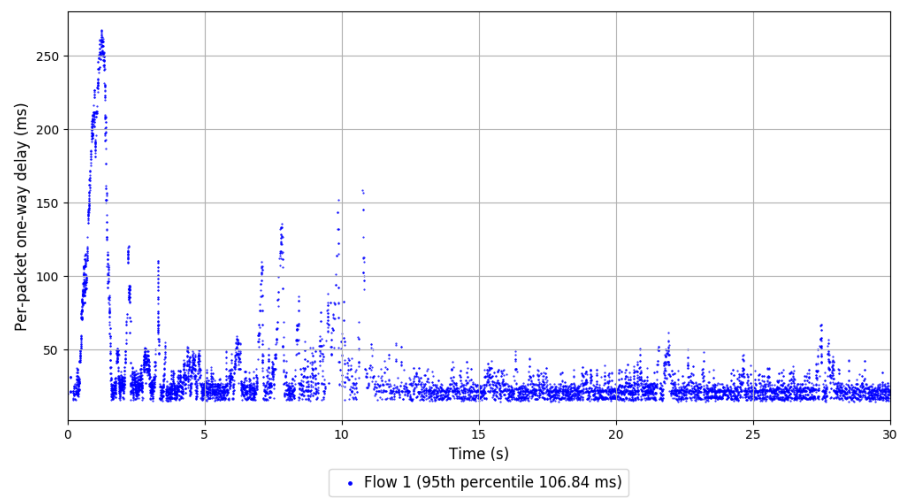
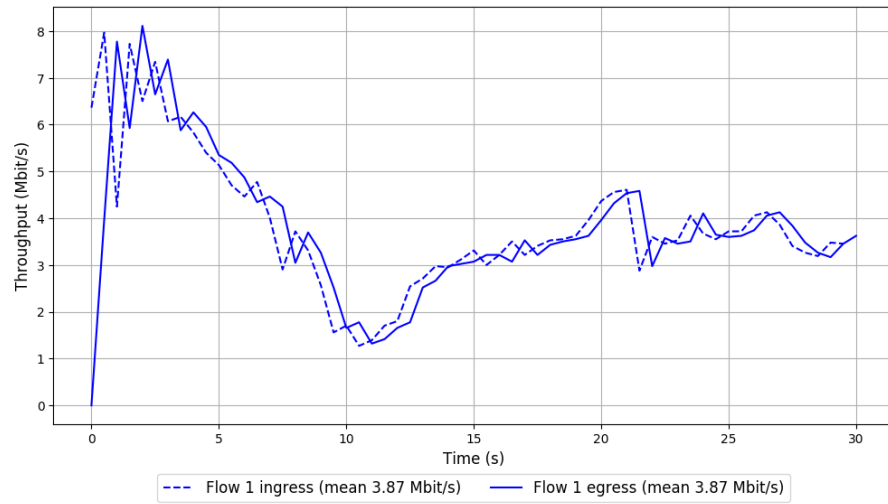
-- Flow 1:

Average throughput: 3.87 Mbit/s

95th percentile per-packet one-way delay: 106.839 ms

Loss rate: 0.03%

Run 2: Report of TCP Vegas — Data Link

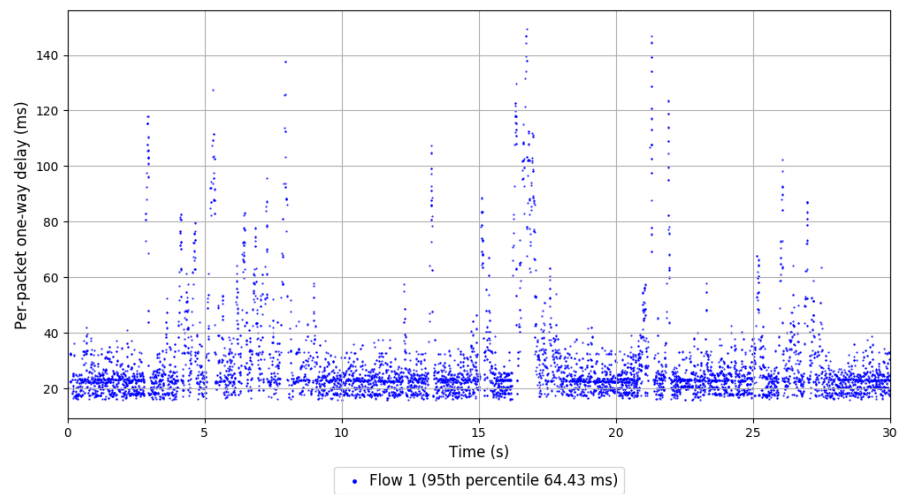
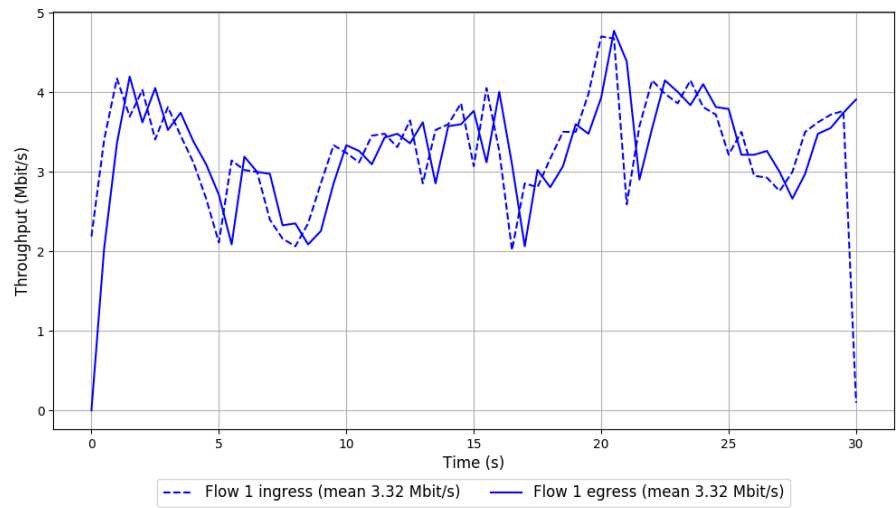


Run 3: Statistics of TCP Vegas

Start at: 2019-01-21 04:29:58
End at: 2019-01-21 04:30:28
Local clock offset: -2.22 ms
Remote clock offset: -6.791 ms

Below is generated by plot.py at 2019-01-21 04:46:03
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.32 Mbit/s
95th percentile per-packet one-way delay: 64.430 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 3.32 Mbit/s
95th percentile per-packet one-way delay: 64.430 ms
Loss rate: 0.11%

Run 3: Report of TCP Vegas — Data Link

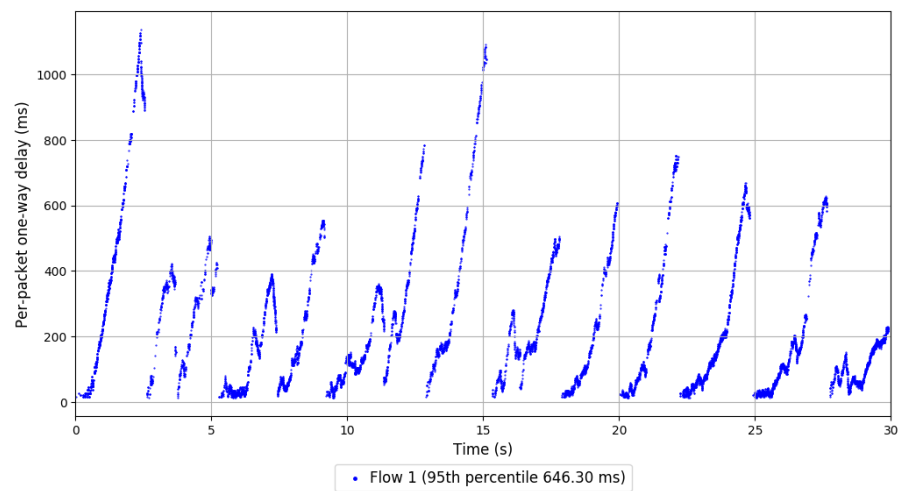
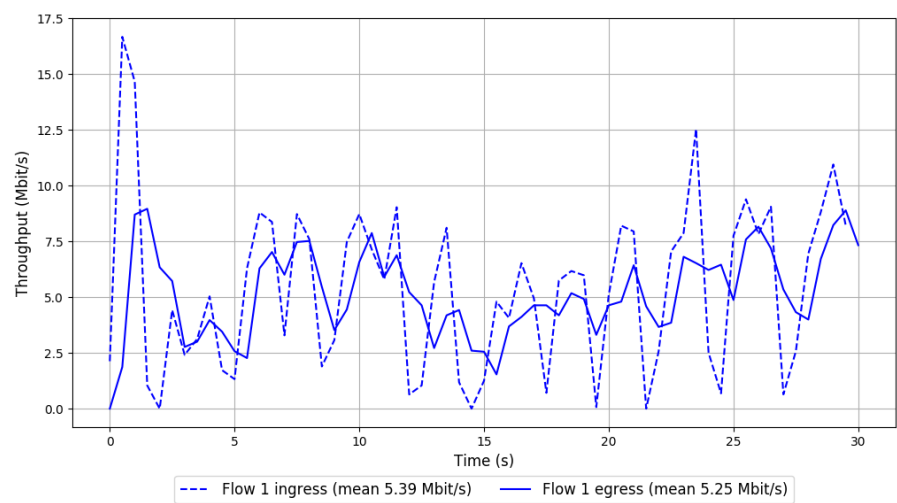


Run 1: Statistics of Verus

Start at: 2019-01-21 03:52:53
End at: 2019-01-21 03:53:23
Local clock offset: -1.102 ms
Remote clock offset: -6.639 ms

Below is generated by plot.py at 2019-01-21 04:46:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.25 Mbit/s
95th percentile per-packet one-way delay: 646.298 ms
Loss rate: 2.64%
-- Flow 1:
Average throughput: 5.25 Mbit/s
95th percentile per-packet one-way delay: 646.298 ms
Loss rate: 2.64%

Run 1: Report of Verus — Data Link

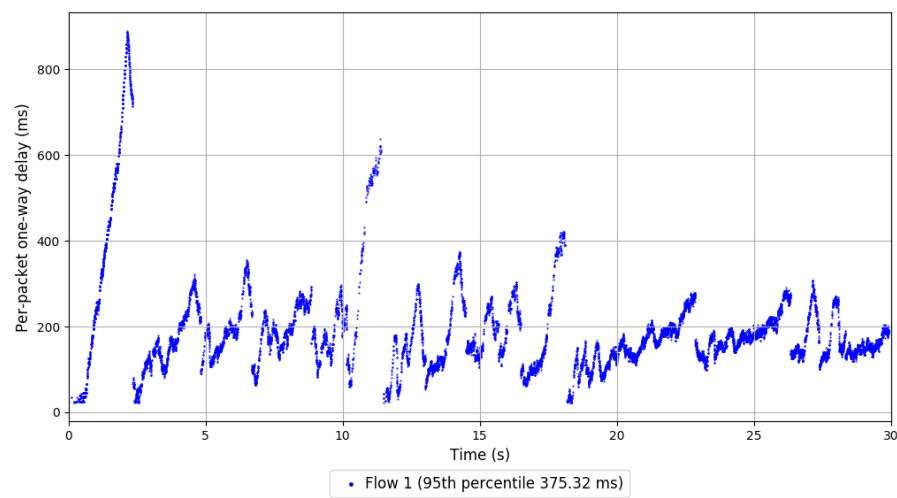
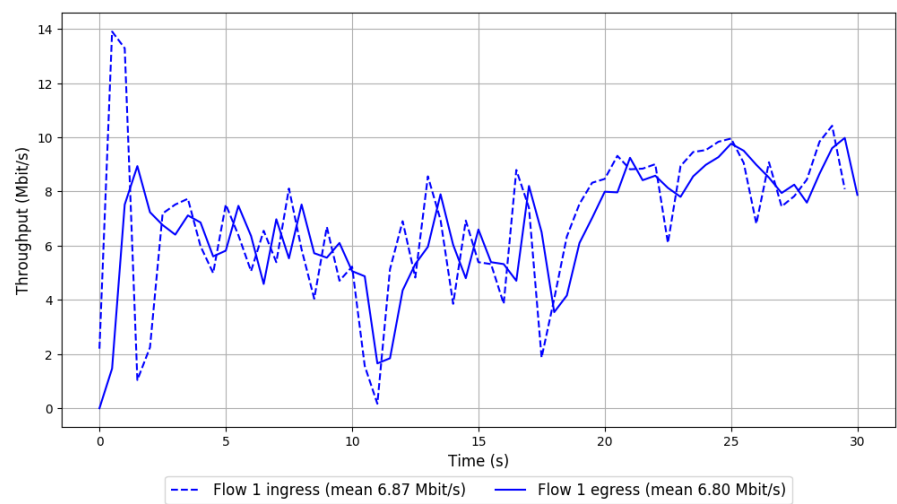


Run 2: Statistics of Verus

Start at: 2019-01-21 04:17:08
End at: 2019-01-21 04:17:38
Local clock offset: -5.006 ms
Remote clock offset: -7.324 ms

Below is generated by plot.py at 2019-01-21 04:46:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 6.80 Mbit/s
95th percentile per-packet one-way delay: 375.323 ms
Loss rate: 1.01%
-- Flow 1:
Average throughput: 6.80 Mbit/s
95th percentile per-packet one-way delay: 375.323 ms
Loss rate: 1.01%

Run 2: Report of Verus — Data Link

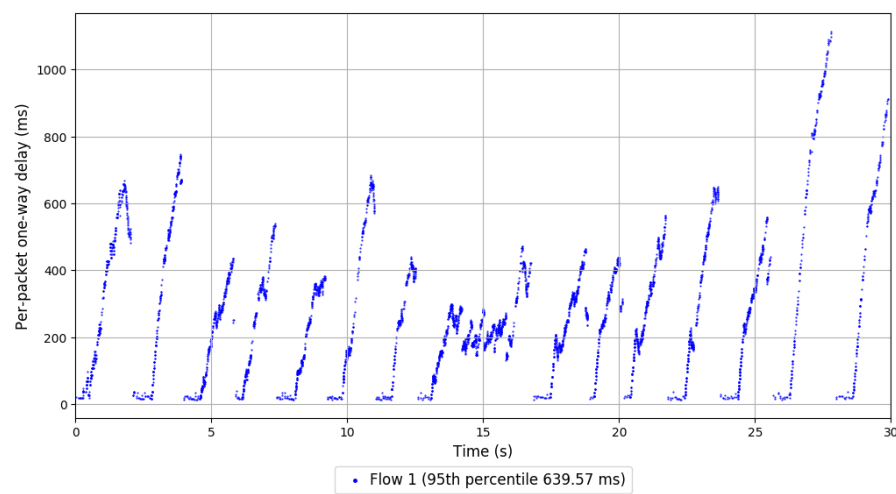
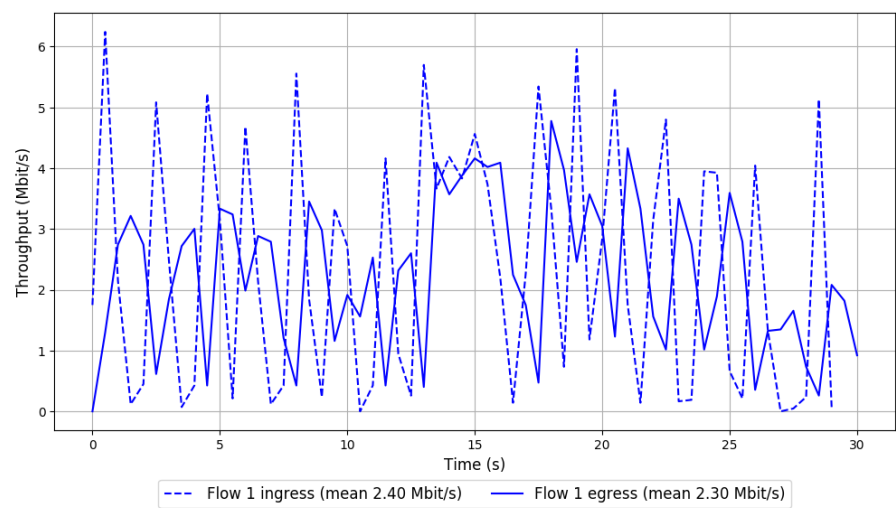


Run 3: Statistics of Verus

Start at: 2019-01-21 04:41:18
End at: 2019-01-21 04:41:48
Local clock offset: -1.407 ms
Remote clock offset: -8.345 ms

Below is generated by plot.py at 2019-01-21 04:46:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.30 Mbit/s
95th percentile per-packet one-way delay: 639.571 ms
Loss rate: 1.12%
-- Flow 1:
Average throughput: 2.30 Mbit/s
95th percentile per-packet one-way delay: 639.571 ms
Loss rate: 1.12%

Run 3: Report of Verus — Data Link



Run 1: Statistics of PCC-Vivace

Start at: 2019-01-21 03:55:08

End at: 2019-01-21 03:55:38

Local clock offset: 0.213 ms

Remote clock offset: -6.789 ms

Below is generated by plot.py at 2019-01-21 04:46:08

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.44 Mbit/s

95th percentile per-packet one-way delay: 83.733 ms

Loss rate: 0.03%

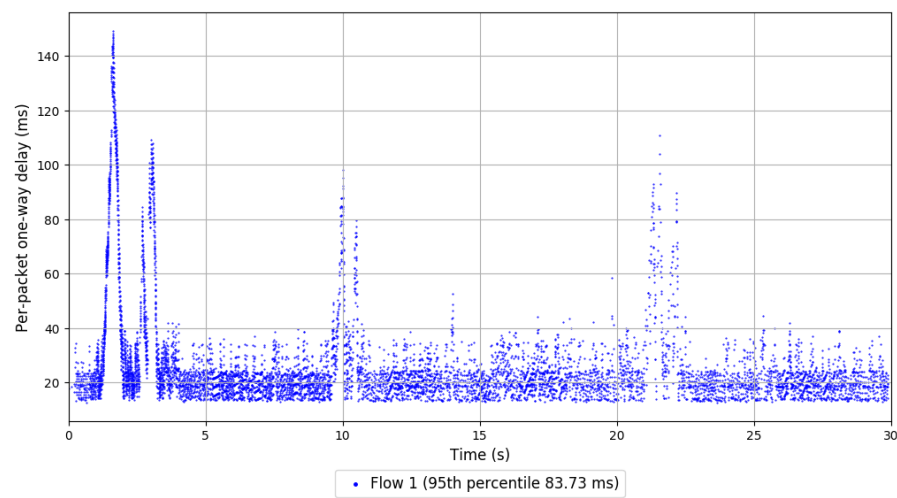
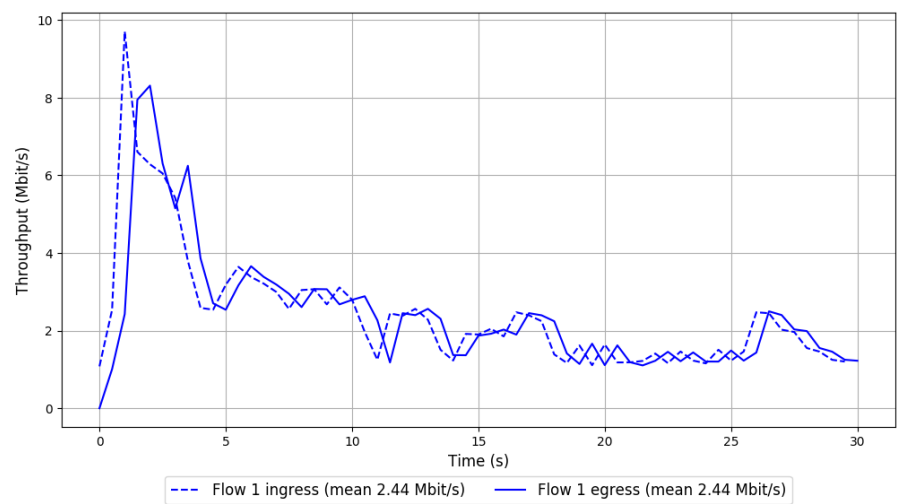
-- Flow 1:

Average throughput: 2.44 Mbit/s

95th percentile per-packet one-way delay: 83.733 ms

Loss rate: 0.03%

Run 1: Report of PCC-Vivace — Data Link

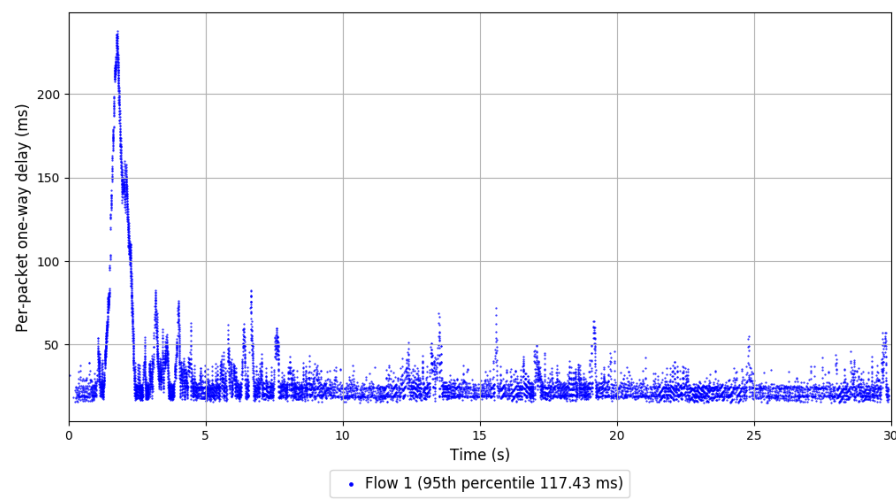
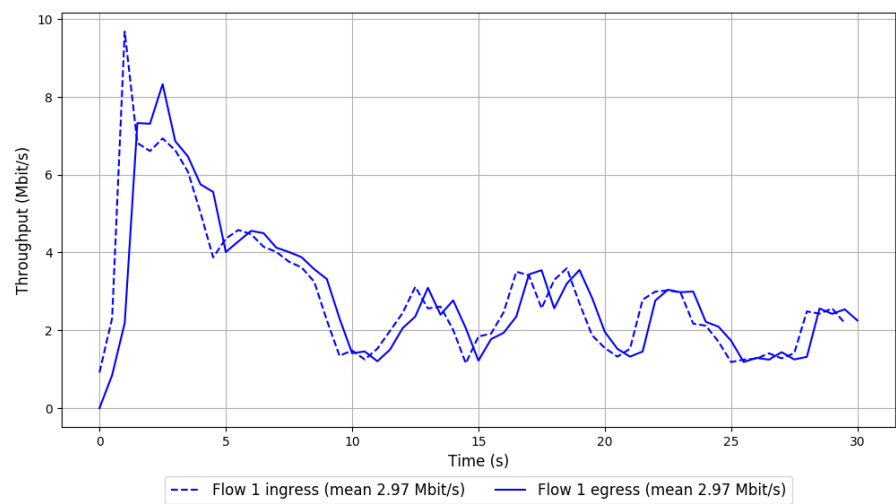


Run 2: Statistics of PCC-Vivace

Start at: 2019-01-21 04:19:24
End at: 2019-01-21 04:19:54
Local clock offset: -0.021 ms
Remote clock offset: -4.559 ms

Below is generated by plot.py at 2019-01-21 04:46:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.97 Mbit/s
95th percentile per-packet one-way delay: 117.434 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 2.97 Mbit/s
95th percentile per-packet one-way delay: 117.434 ms
Loss rate: 0.04%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2019-01-21 04:43:32

End at: 2019-01-21 04:44:02

Local clock offset: -0.748 ms

Remote clock offset: -7.099 ms

Below is generated by plot.py at 2019-01-21 04:46:08

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.67 Mbit/s

95th percentile per-packet one-way delay: 599.961 ms

Loss rate: 0.84%

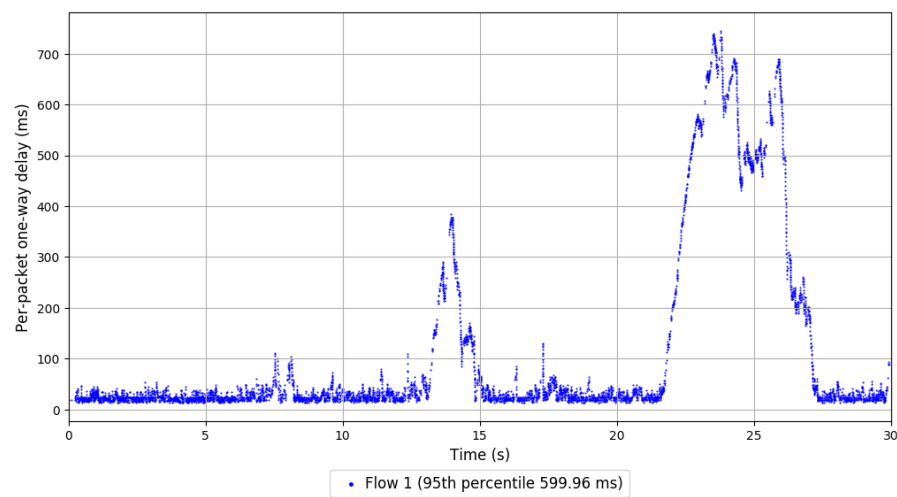
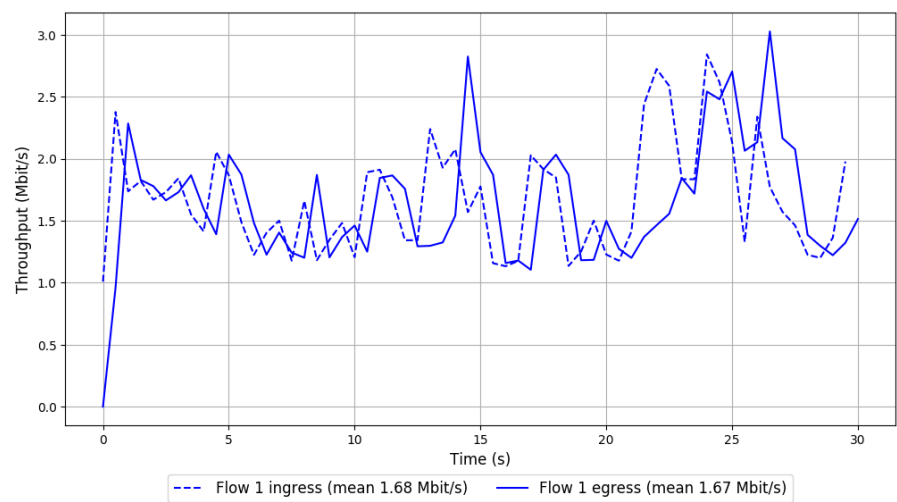
-- Flow 1:

Average throughput: 1.67 Mbit/s

95th percentile per-packet one-way delay: 599.961 ms

Loss rate: 0.84%

Run 3: Report of PCC-Vivace — Data Link

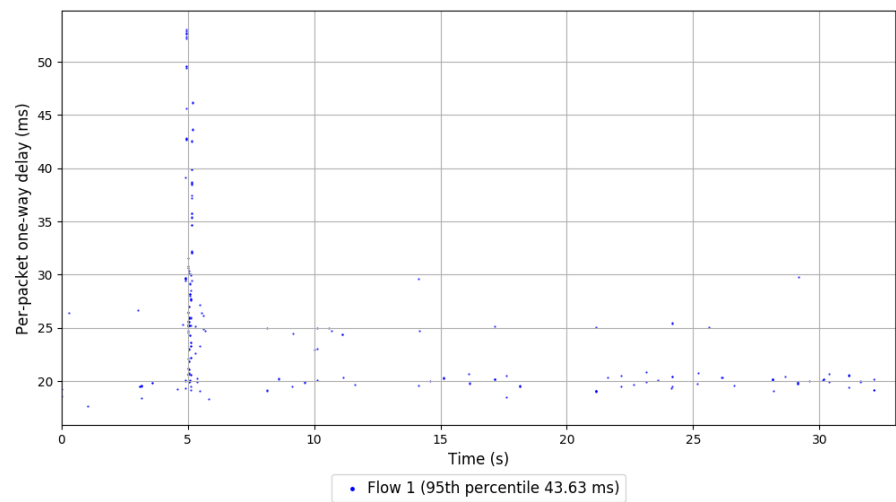
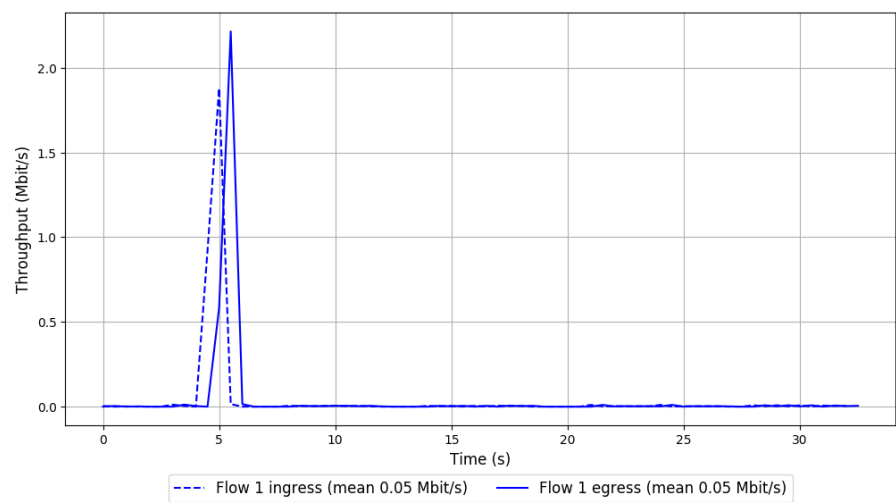


Run 1: Statistics of WebRTC media

Start at: 2019-01-21 03:36:03
End at: 2019-01-21 03:36:33
Local clock offset: -3.314 ms
Remote clock offset: -4.678 ms

Below is generated by plot.py at 2019-01-21 04:46:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 43.635 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 43.635 ms
Loss rate: 0.00%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

/home/ubuntu/pantheon/data/2019-01-21T03-33-AWS-India-1-to-India-cellular-3-runs/webrtc_stat

Run 2: Report of WebRTC media — Data Link

Figure is missing

Figure is missing

Run 3: Statistics of WebRTC media

Start at: 2019-01-21 04:23:57
End at: 2019-01-21 04:24:27
Local clock offset: -1.349 ms
Remote clock offset: -6.353 ms

Below is generated by plot.py at 2019-01-21 04:46:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 54.032 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 54.032 ms
Loss rate: 0.00%

Run 3: Report of WebRTC media — Data Link

