

Pantheon Report

Generated at 2019-01-21 04:45:41 (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:

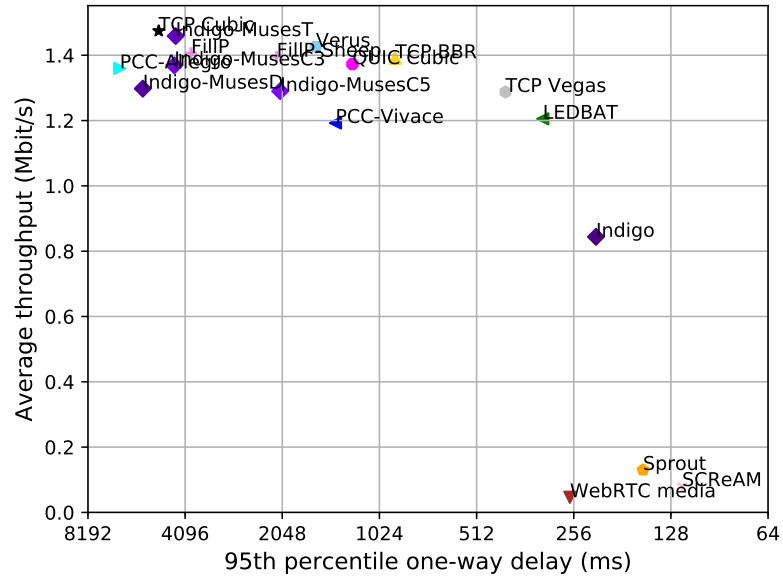
```
Linux 4.15.0-1031-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

Git summary:

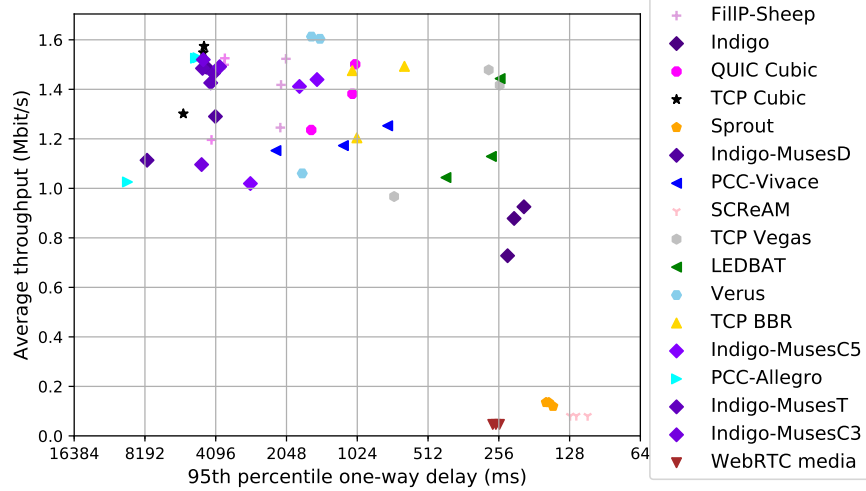
```
branch: muses @ 89d24e57783e7fbfec537a619071de937b639e38
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf5e58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecd90c077e64d
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 Brazil 2 to Colombia cellular, 3 runs of 30s each per scheme
(mean of all runs by scheme)



test from AWS Brazil 2 to Colombia cellular, 3 runs of 30s each per scheme



scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	1.39	915.80	1.61
Copa	0	N/A	N/A	N/A
TCP Cubic	3	1.47	4947.24	17.79
FillP	3	1.41	3927.07	9.07
FillP-Sheep	3	1.40	2131.49	2.01
Indigo	3	0.85	218.52	0.22
Indigo-MusesC3	3	1.37	4424.00	76.93
Indigo-MusesC5	3	1.29	2079.68	3.19
Indigo-MusesD	3	1.30	5540.86	32.39
Indigo-MusesT	3	1.46	4382.09	77.93
LEDBAT	3	1.20	319.34	0.60
PCC-Allegro	3	1.36	6530.83	78.01
PCC-Expr	0	N/A	N/A	N/A
QUIC Cubic	3	1.37	1241.84	4.10
SCReAM	3	0.08	118.16	0.13
Sprout	3	0.13	156.19	0.02
TaoVA-100x	0	N/A	N/A	N/A
TCP Vegas	3	1.29	416.76	0.17
Verus	3	1.42	1611.71	2.79
PCC-Vivace	3	1.19	1401.55	2.72
WebRTC media	3	0.05	263.19	0.00

Run 1: Statistics of TCP BBR

Start at: 2019-01-21 03:49:46

End at: 2019-01-21 03:50:16

Local clock offset: -1.678 ms

Remote clock offset: 6.061 ms

Below is generated by plot.py at 2019-01-21 04:45:06

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.49 Mbit/s

95th percentile per-packet one-way delay: 645.087 ms

Loss rate: 1.41%

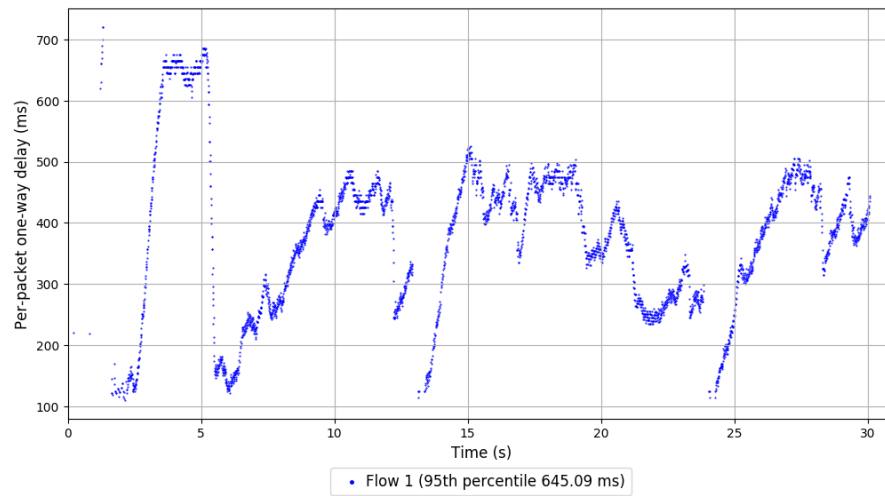
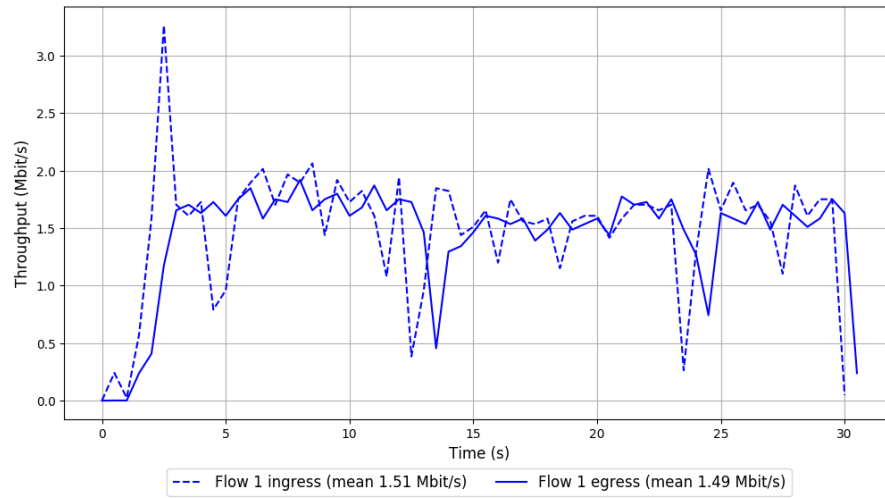
-- Flow 1:

Average throughput: 1.49 Mbit/s

95th percentile per-packet one-way delay: 645.087 ms

Loss rate: 1.41%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2019-01-21 04:13:42

End at: 2019-01-21 04:14:12

Local clock offset: -2.7 ms

Remote clock offset: 2.933 ms

Below is generated by plot.py at 2019-01-21 04:45:06

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.48 Mbit/s

95th percentile per-packet one-way delay: 1074.397 ms

Loss rate: 1.21%

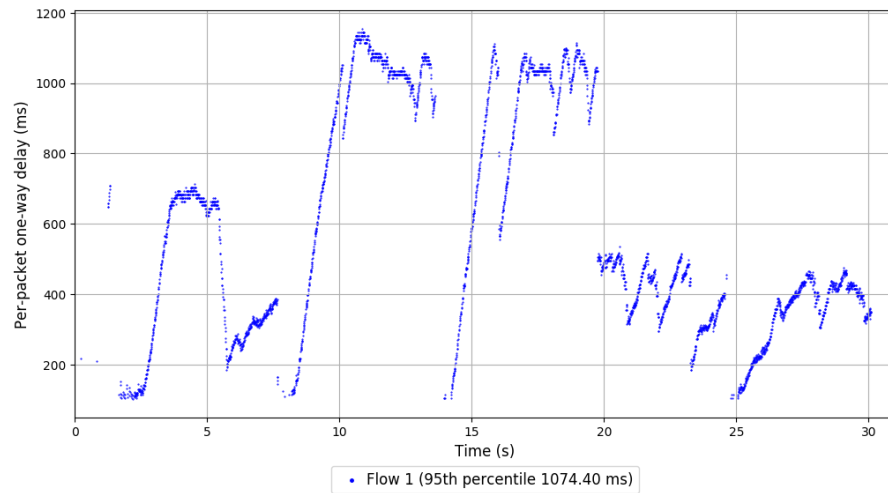
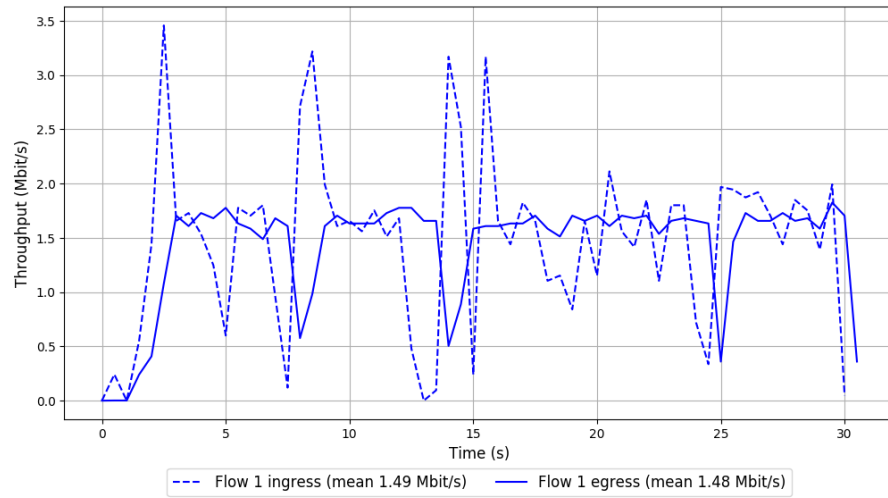
-- Flow 1:

Average throughput: 1.48 Mbit/s

95th percentile per-packet one-way delay: 1074.397 ms

Loss rate: 1.21%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2019-01-21 04:37:35

End at: 2019-01-21 04:38:05

Local clock offset: -6.738 ms

Remote clock offset: 7.014 ms

Below is generated by plot.py at 2019-01-21 04:45:06

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.20 Mbit/s

95th percentile per-packet one-way delay: 1027.911 ms

Loss rate: 2.22%

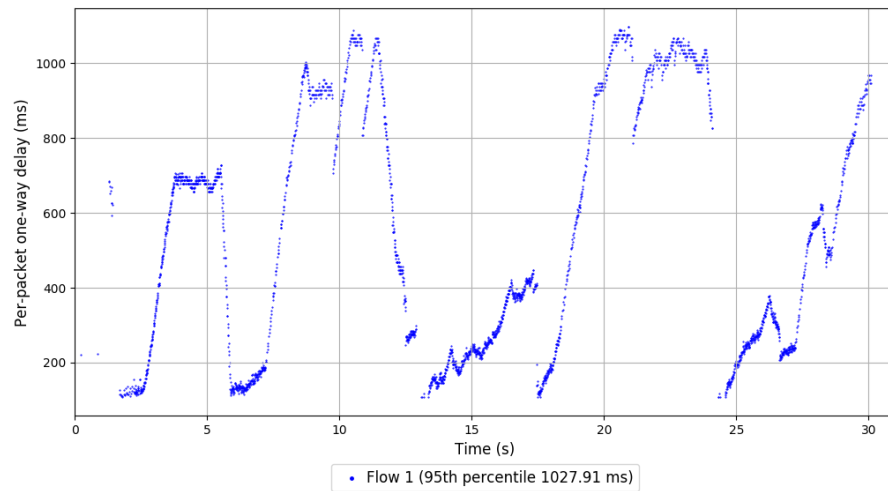
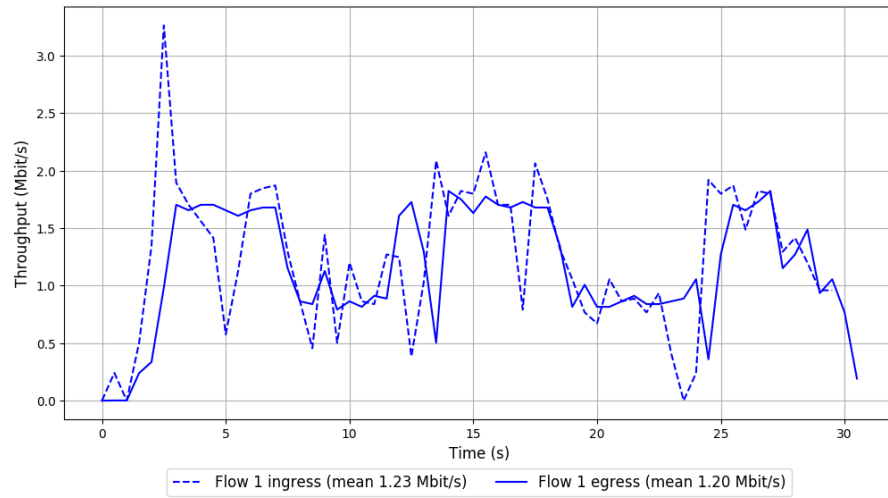
-- Flow 1:

Average throughput: 1.20 Mbit/s

95th percentile per-packet one-way delay: 1027.911 ms

Loss rate: 2.22%

Run 3: Report of TCP BBR — Data Link



Run 1: Statistics of Copa

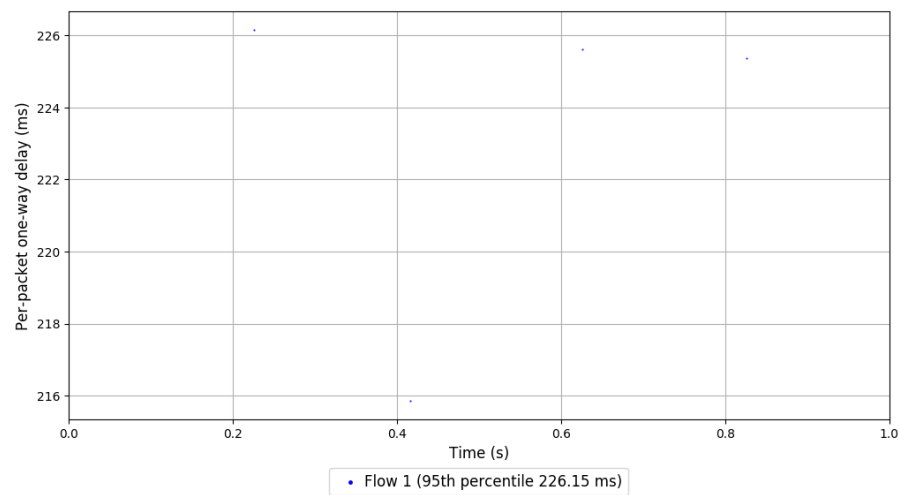
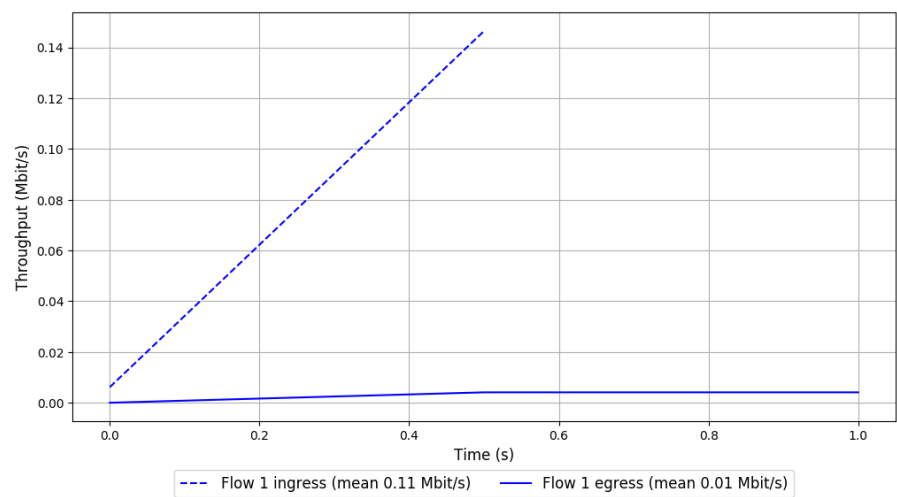
Start at: 2019-01-21 03:55:28

End at: 2019-01-21 03:55:58

Local clock offset: -2.996 ms

Remote clock offset: 2.789 ms

Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

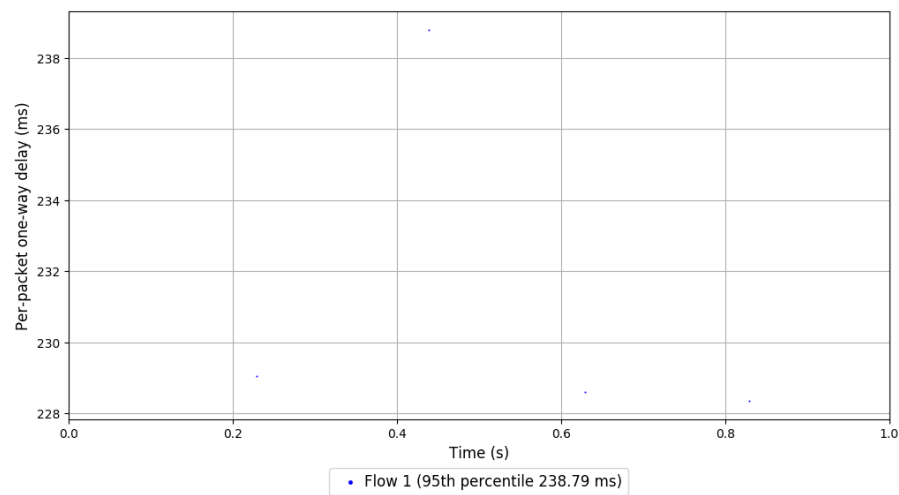
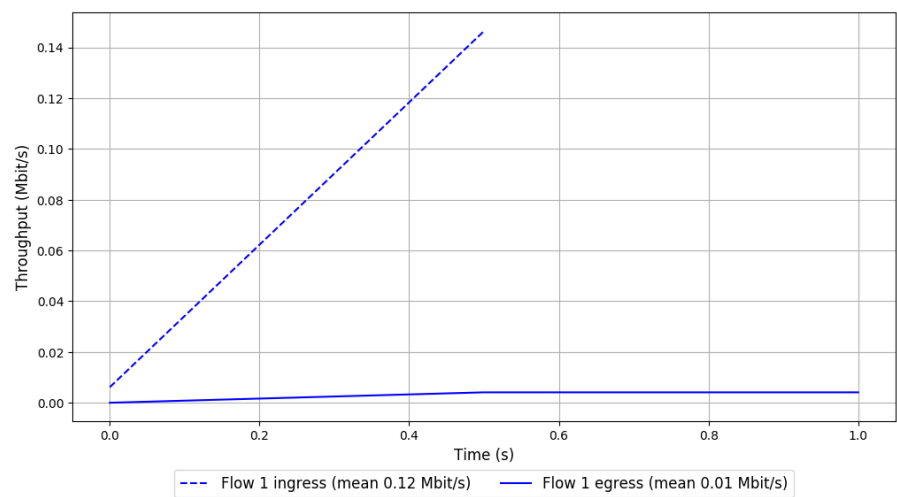
Start at: 2019-01-21 04:19:24

End at: 2019-01-21 04:19:54

Local clock offset: -3.756 ms

Remote clock offset: 6.357 ms

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

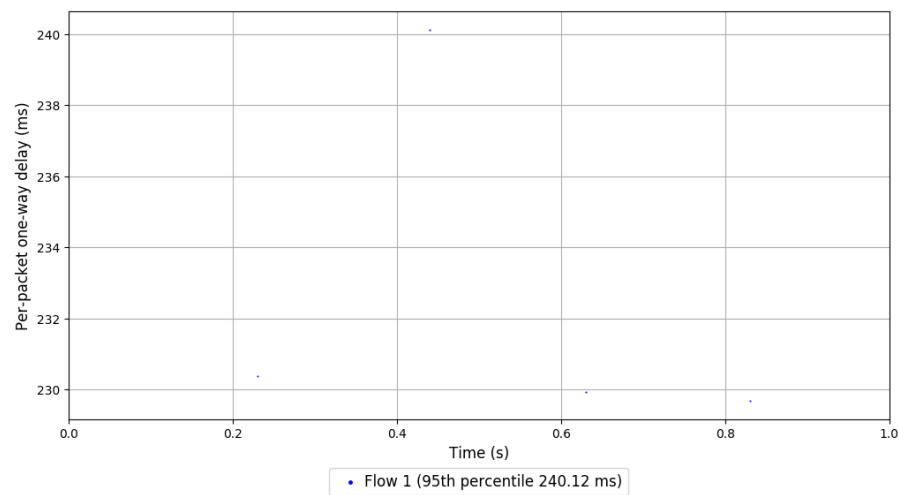
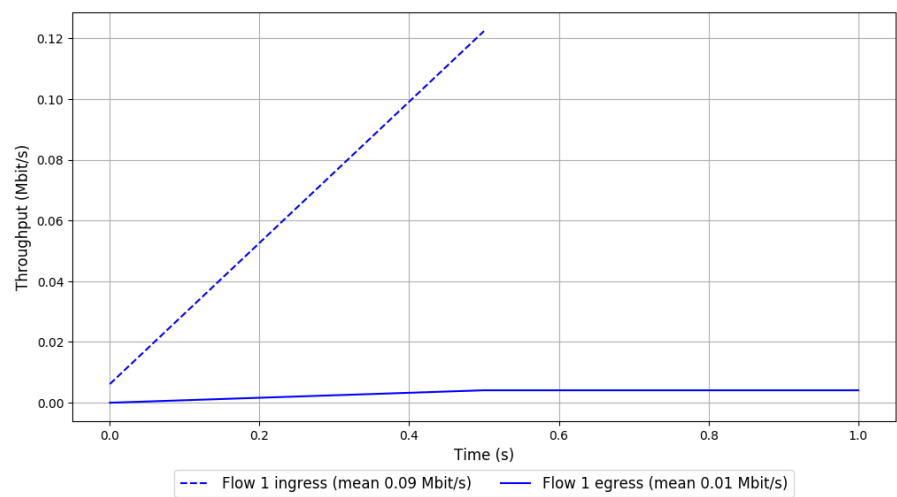
Start at: 2019-01-21 04:43:16

End at: 2019-01-21 04:43:46

Local clock offset: -7.994 ms

Remote clock offset: 7.369 ms

Run 3: Report of Copa — Data Link



Run 1: Statistics of TCP Cubic

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

End at: 2019-01-21 03:46:51

Local clock offset: -1.127 ms

Remote clock offset: 6.63 ms

Below is generated by plot.py at 2019-01-21 04:45:07

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.57 Mbit/s

95th percentile per-packet one-way delay: 4592.957 ms

Loss rate: 16.59%

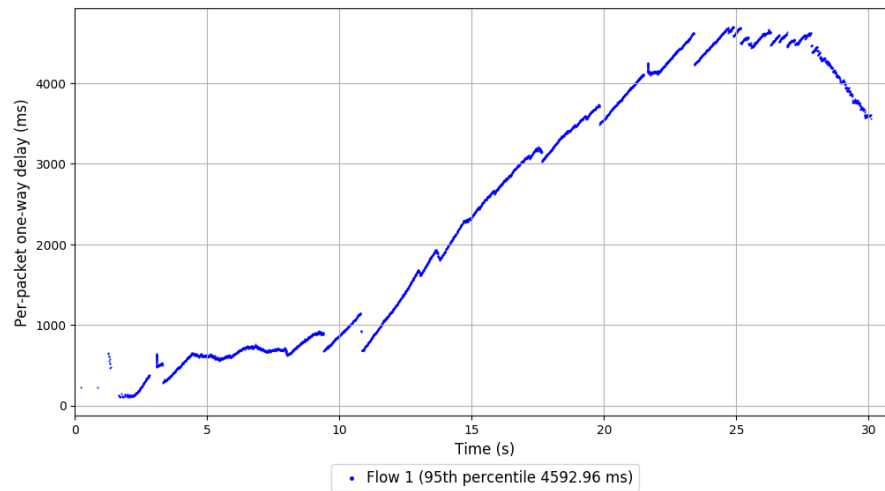
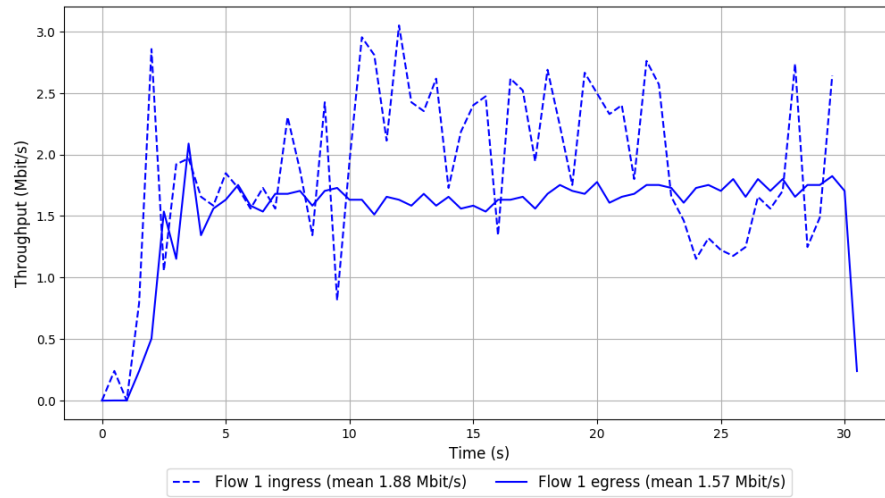
-- Flow 1:

Average throughput: 1.57 Mbit/s

95th percentile per-packet one-way delay: 4592.957 ms

Loss rate: 16.59%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2019-01-21 04:10:17

End at: 2019-01-21 04:10:47

Local clock offset: -3.448 ms

Remote clock offset: 2.754 ms

Below is generated by plot.py at 2019-01-21 04:45:07

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.55 Mbit/s

95th percentile per-packet one-way delay: 4624.903 ms

Loss rate: 18.59%

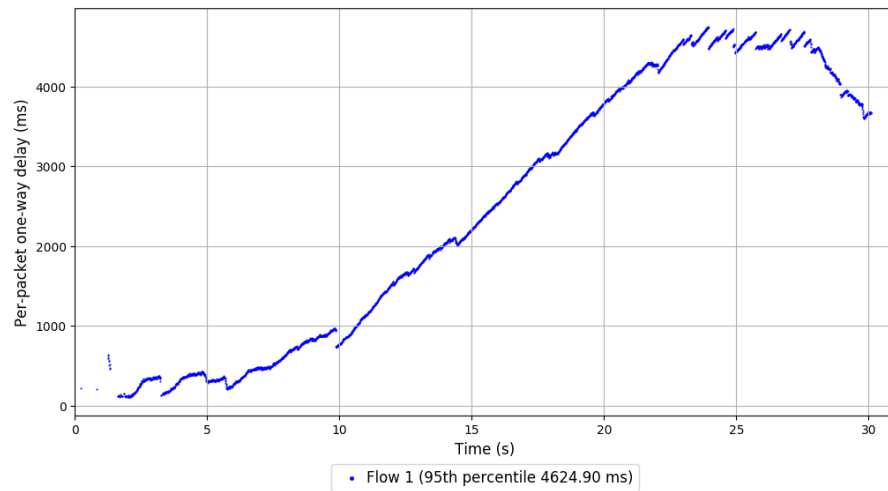
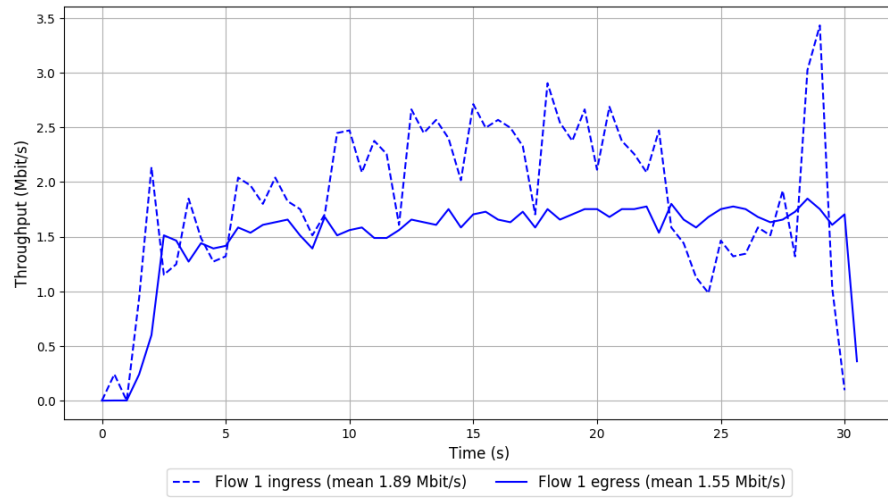
-- Flow 1:

Average throughput: 1.55 Mbit/s

95th percentile per-packet one-way delay: 4624.903 ms

Loss rate: 18.59%

Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2019-01-21 04:34:10

End at: 2019-01-21 04:34:40

Local clock offset: -7.254 ms

Remote clock offset: 7.367 ms

Below is generated by plot.py at 2019-01-21 04:45:07

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.30 Mbit/s

95th percentile per-packet one-way delay: 5623.862 ms

Loss rate: 18.19%

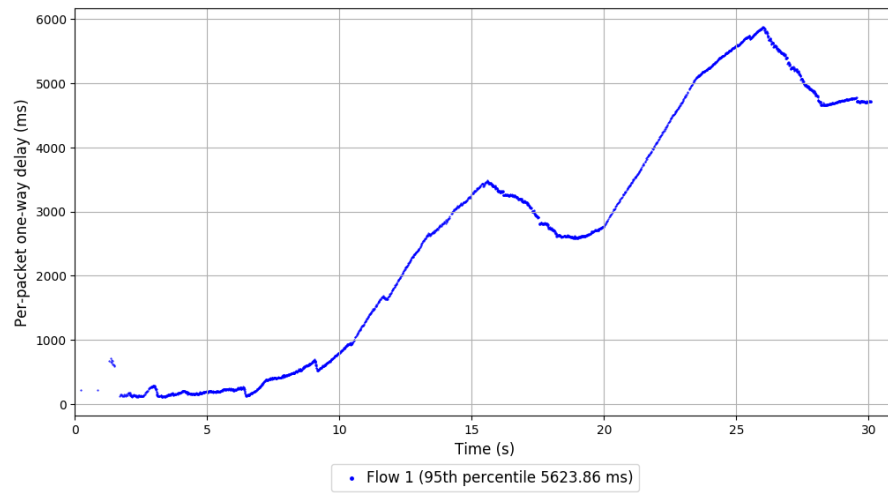
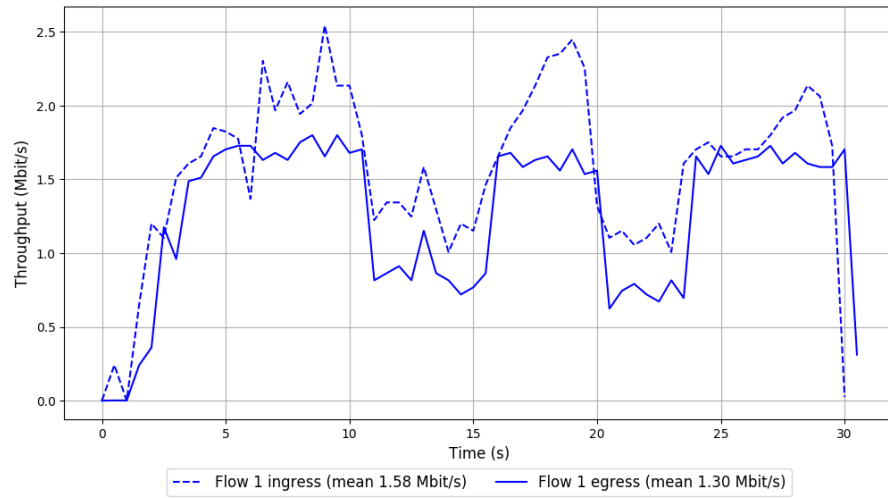
-- Flow 1:

Average throughput: 1.30 Mbit/s

95th percentile per-packet one-way delay: 5623.862 ms

Loss rate: 18.19%

Run 3: Report of TCP Cubic — Data Link



Run 1: Statistics of FillP

Start at: 2019-01-21 03:42:56

End at: 2019-01-21 03:43:26

Local clock offset: -2.146 ms

Remote clock offset: 6.521 ms

Below is generated by plot.py at 2019-01-21 04:45:08

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.50 Mbit/s

95th percentile per-packet one-way delay: 3766.699 ms

Loss rate: 7.81%

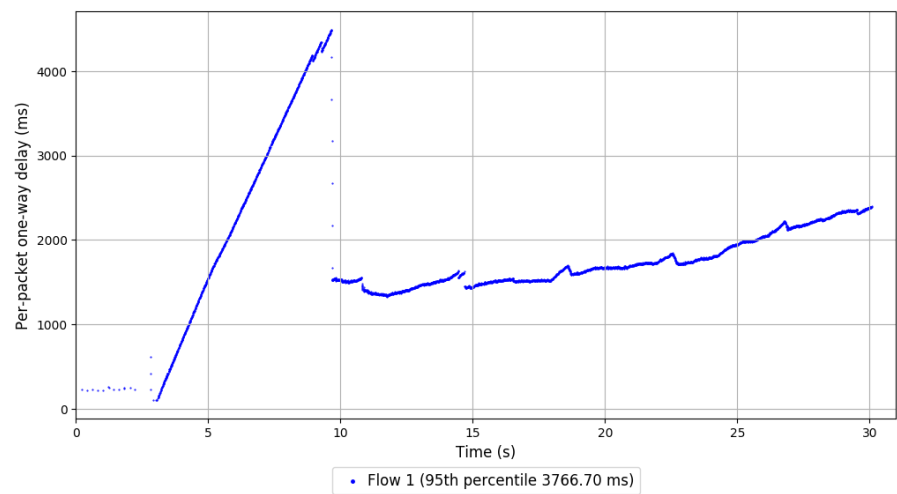
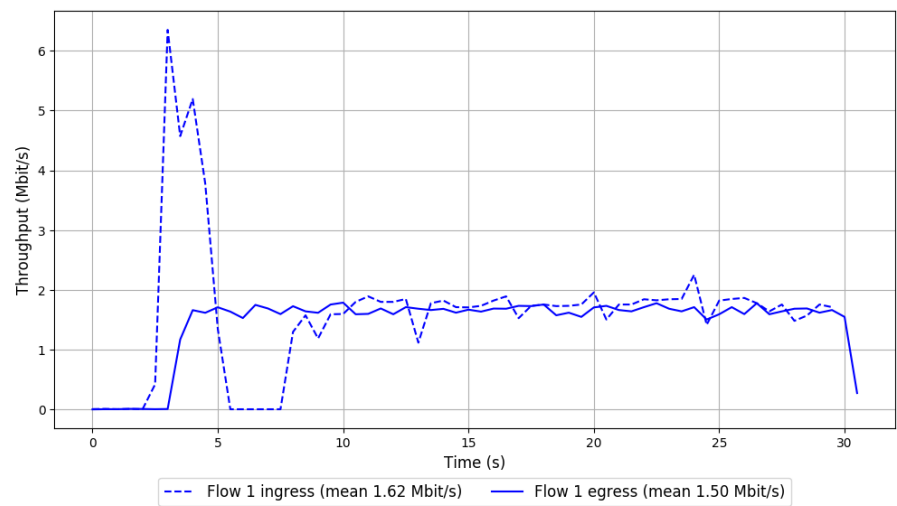
-- Flow 1:

Average throughput: 1.50 Mbit/s

95th percentile per-packet one-way delay: 3766.699 ms

Loss rate: 7.81%

Run 1: Report of FillP — Data Link



Run 2: Statistics of FillP

Start at: 2019-01-21 04:06:52

End at: 2019-01-21 04:07:22

Local clock offset: -3.478 ms

Remote clock offset: 6.073 ms

Below is generated by plot.py at 2019-01-21 04:45:08

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.53 Mbit/s

95th percentile per-packet one-way delay: 3745.720 ms

Loss rate: 7.85%

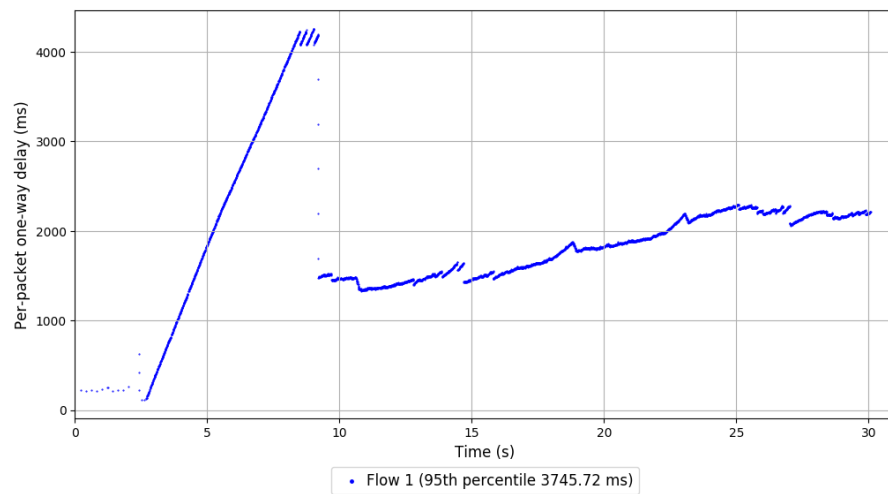
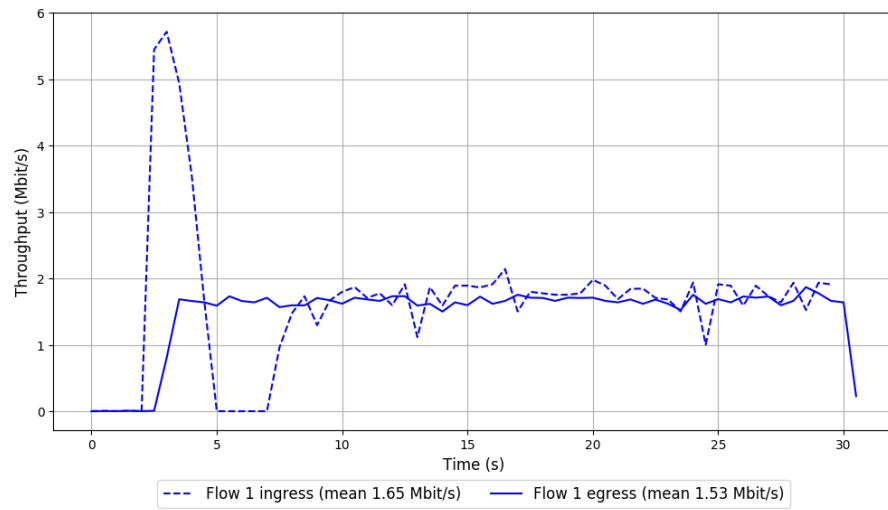
-- Flow 1:

Average throughput: 1.53 Mbit/s

95th percentile per-packet one-way delay: 3745.720 ms

Loss rate: 7.85%

Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2019-01-21 04:30:45

End at: 2019-01-21 04:31:15

Local clock offset: -6.058 ms

Remote clock offset: 6.572 ms

Below is generated by plot.py at 2019-01-21 04:45:10

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.20 Mbit/s

95th percentile per-packet one-way delay: 4268.800 ms

Loss rate: 11.55%

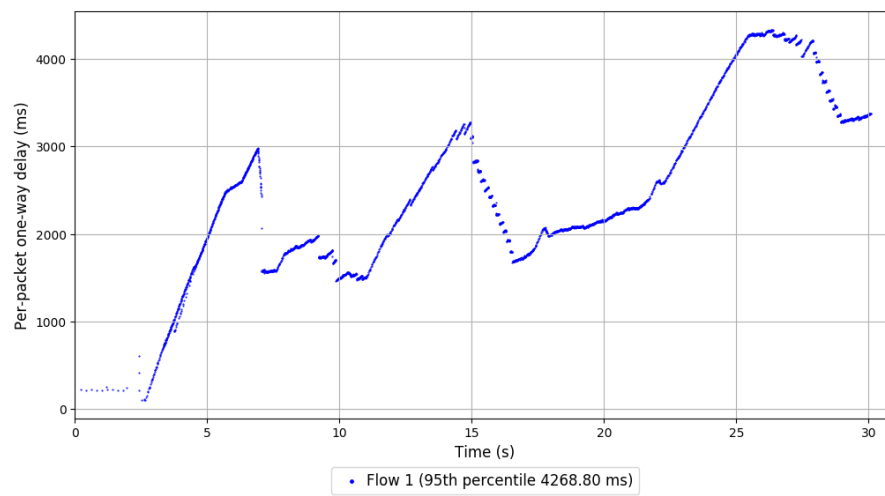
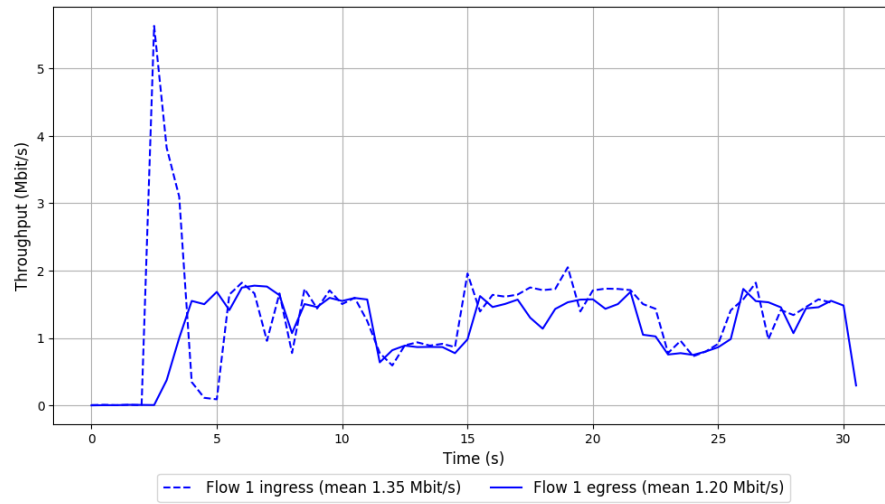
-- Flow 1:

Average throughput: 1.20 Mbit/s

95th percentile per-packet one-way delay: 4268.800 ms

Loss rate: 11.55%

Run 3: Report of FillP — Data Link



Run 1: Statistics of FillP-Sheep

Start at: 2019-01-21 03:41:47

End at: 2019-01-21 03:42:17

Local clock offset: -2.225 ms

Remote clock offset: 2.344 ms

Below is generated by plot.py at 2019-01-21 04:45:11

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.52 Mbit/s

95th percentile per-packet one-way delay: 2058.728 ms

Loss rate: 0.93%

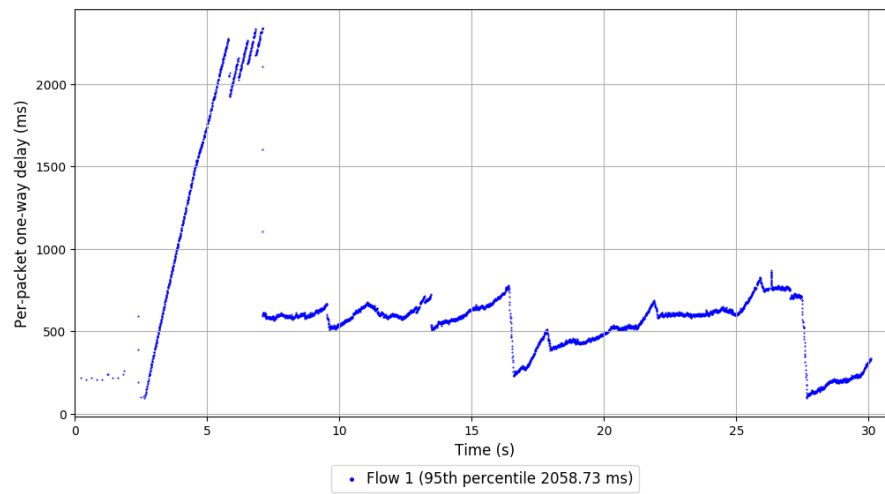
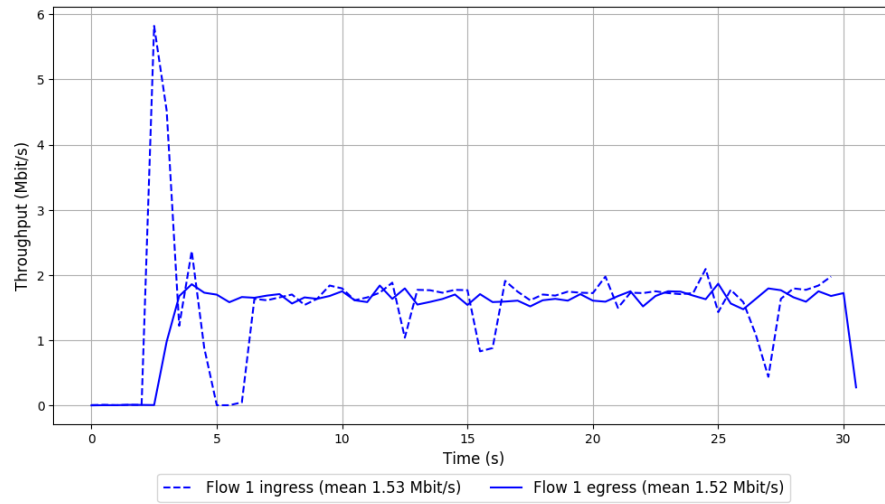
-- Flow 1:

Average throughput: 1.52 Mbit/s

95th percentile per-packet one-way delay: 2058.728 ms

Loss rate: 0.93%

Run 1: Report of FillP-Sheep — Data Link



Run 2: Statistics of FillP-Sheep

Start at: 2019-01-21 04:05:44

End at: 2019-01-21 04:06:14

Local clock offset: -2.617 ms

Remote clock offset: 6.453 ms

Below is generated by plot.py at 2019-01-21 04:45:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.42 Mbit/s

95th percentile per-packet one-way delay: 2160.287 ms

Loss rate: 2.93%

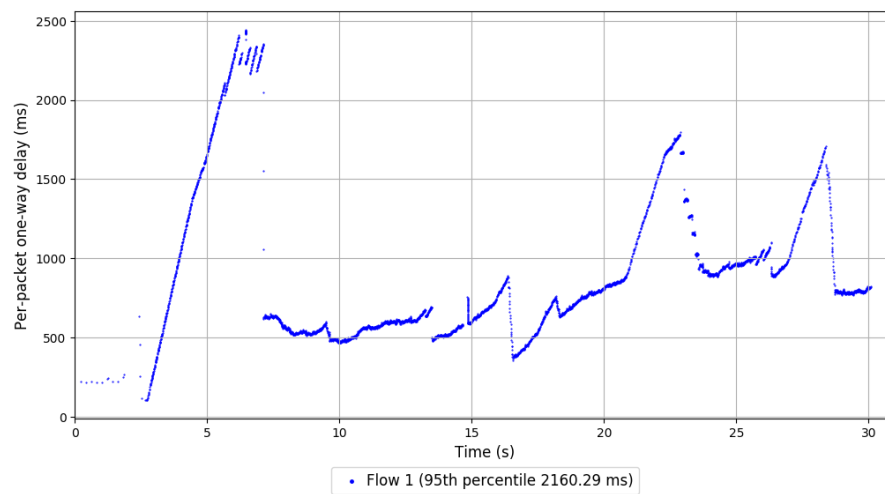
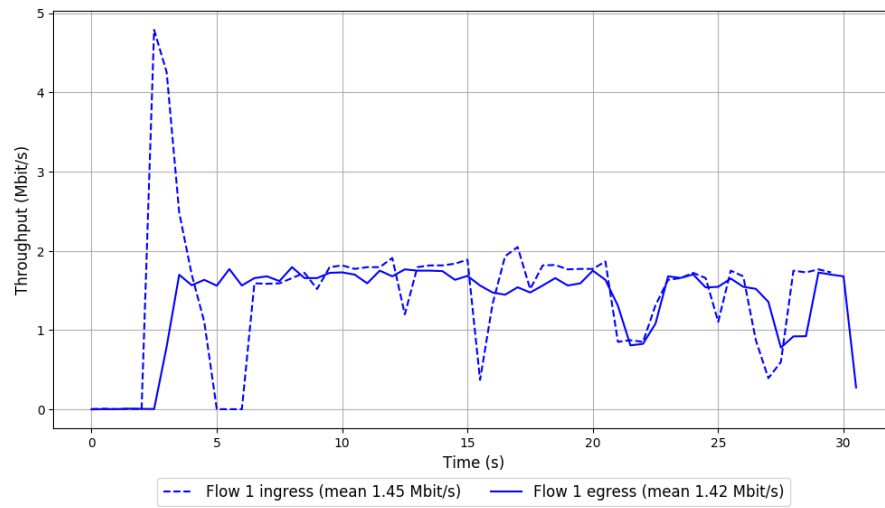
-- Flow 1:

Average throughput: 1.42 Mbit/s

95th percentile per-packet one-way delay: 2160.287 ms

Loss rate: 2.93%

Run 2: Report of FillP-Sheep — Data Link



Run 3: Statistics of FillP-Sheep

Start at: 2019-01-21 04:29:37

End at: 2019-01-21 04:30:07

Local clock offset: -6.731 ms

Remote clock offset: 3.404 ms

Below is generated by plot.py at 2019-01-21 04:45:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.25 Mbit/s

95th percentile per-packet one-way delay: 2175.459 ms

Loss rate: 2.17%

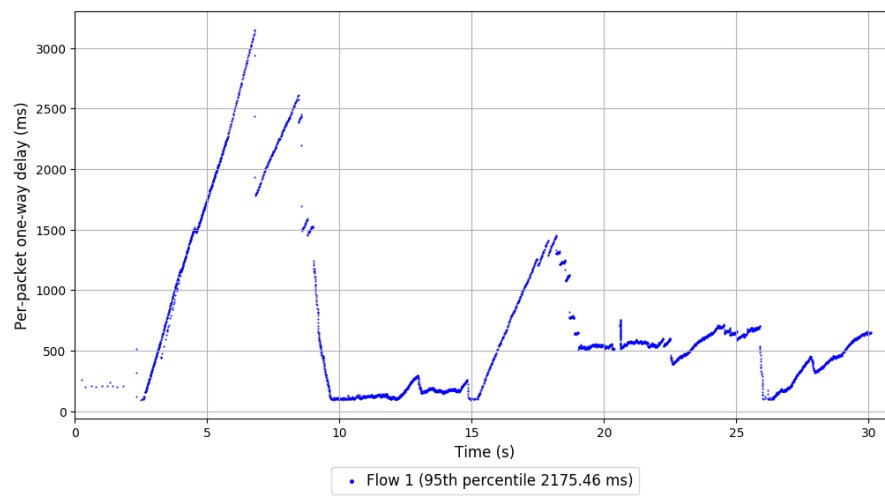
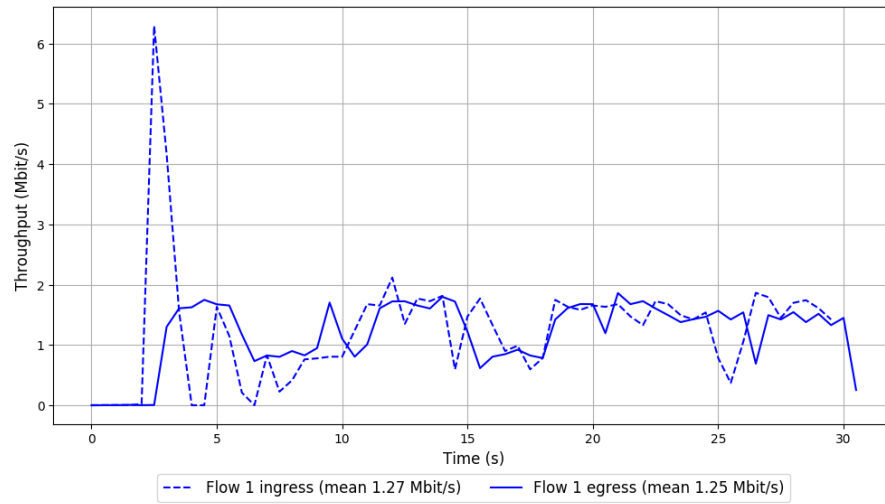
-- Flow 1:

Average throughput: 1.25 Mbit/s

95th percentile per-packet one-way delay: 2175.459 ms

Loss rate: 2.17%

Run 3: Report of FillP-Sheep — Data Link

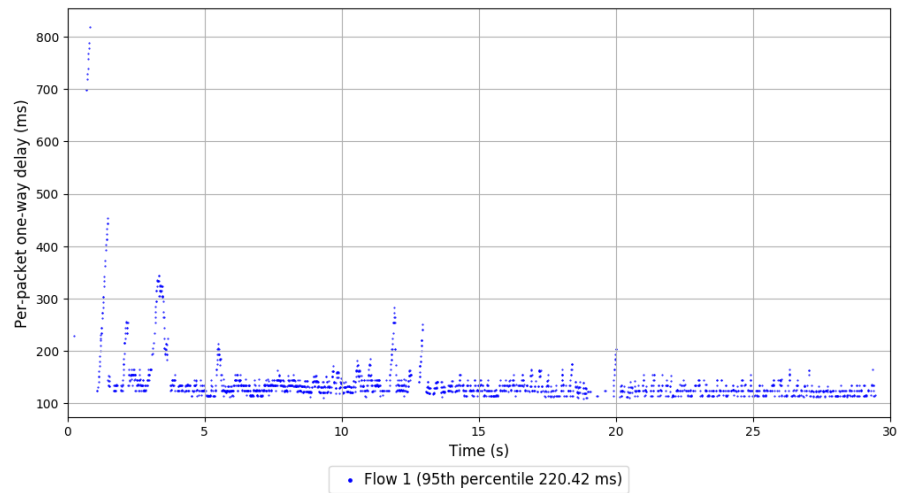
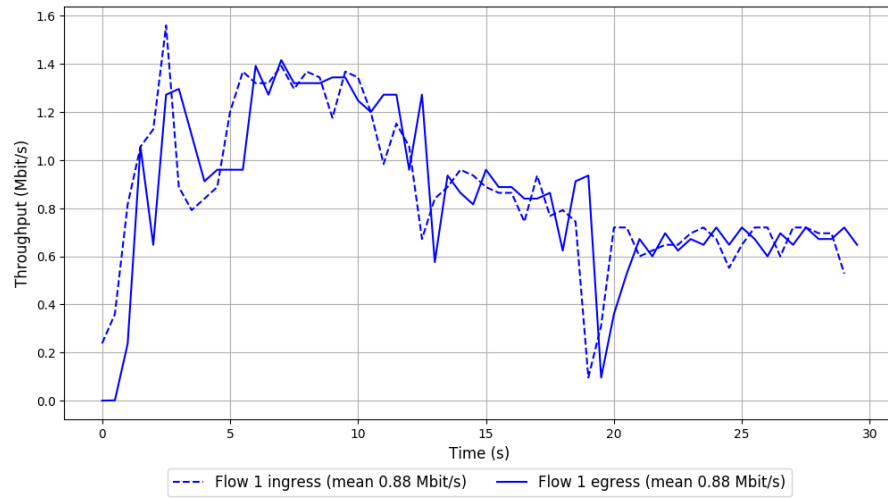


```
Run 1: Statistics of Indigo

Start at: 2019-01-21 03:45:13
End at: 2019-01-21 03:45:43
Local clock offset: -1.189 ms
Remote clock offset: 5.86 ms

# Below is generated by plot.py at 2019-01-21 04:45:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.88 Mbit/s
95th percentile per-packet one-way delay: 220.417 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 0.88 Mbit/s
95th percentile per-packet one-way delay: 220.417 ms
Loss rate: 0.14%
```

Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

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

End at: 2019-01-21 04:09:39

Local clock offset: -2.605 ms

Remote clock offset: 2.716 ms

Below is generated by plot.py at 2019-01-21 04:45:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.93 Mbit/s

95th percentile per-packet one-way delay: 200.212 ms

Loss rate: 0.18%

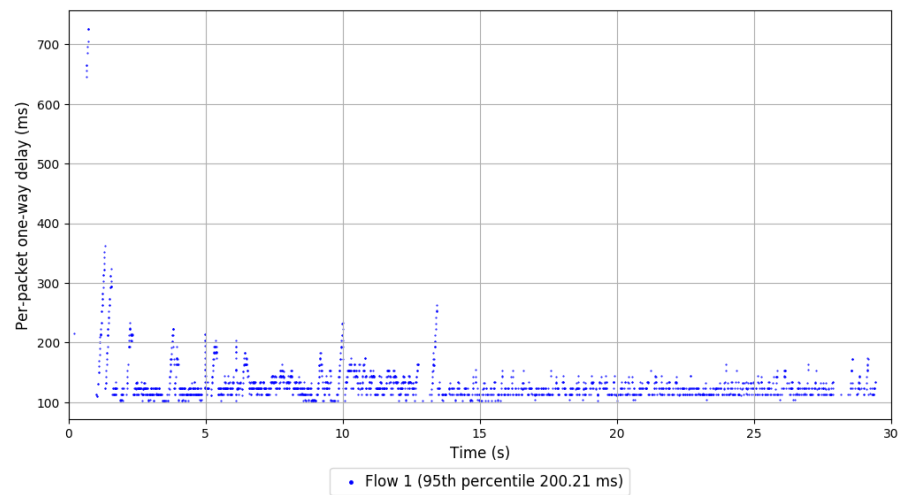
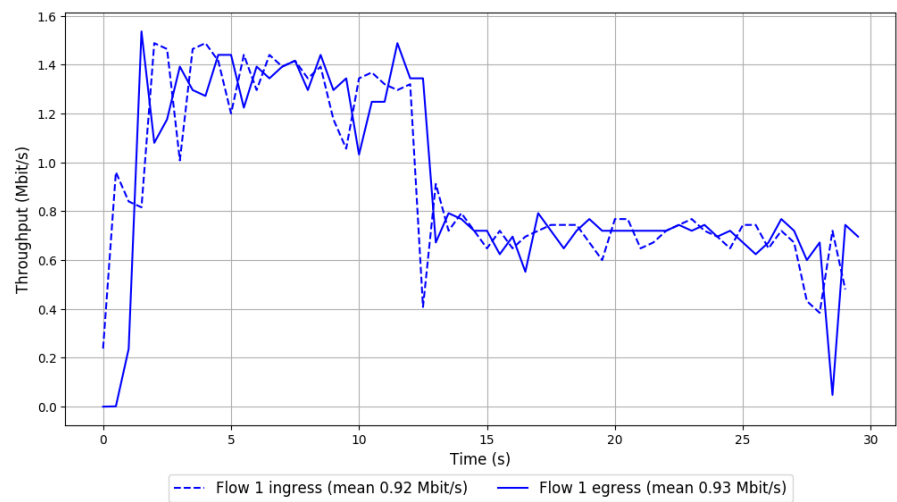
-- Flow 1:

Average throughput: 0.93 Mbit/s

95th percentile per-packet one-way delay: 200.212 ms

Loss rate: 0.18%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2019-01-21 04:33:02

End at: 2019-01-21 04:33:32

Local clock offset: -7.174 ms

Remote clock offset: 7.091 ms

Below is generated by plot.py at 2019-01-21 04:45:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.73 Mbit/s

95th percentile per-packet one-way delay: 234.942 ms

Loss rate: 0.34%

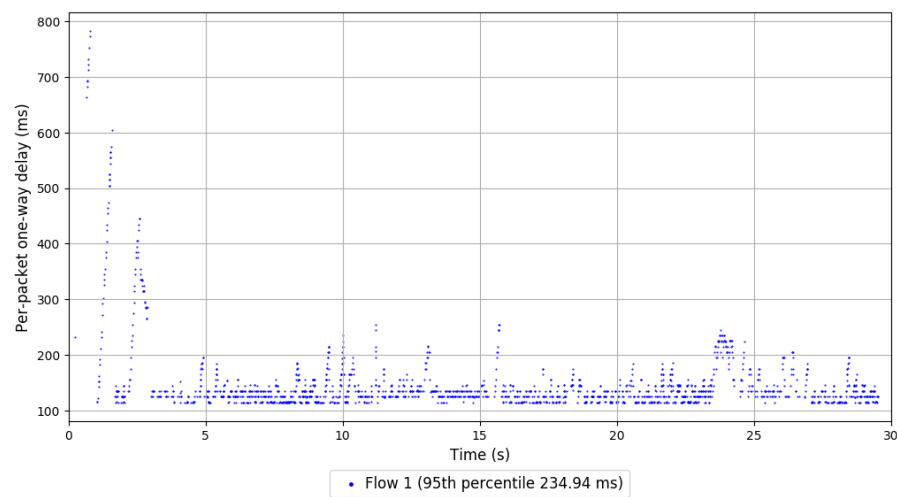
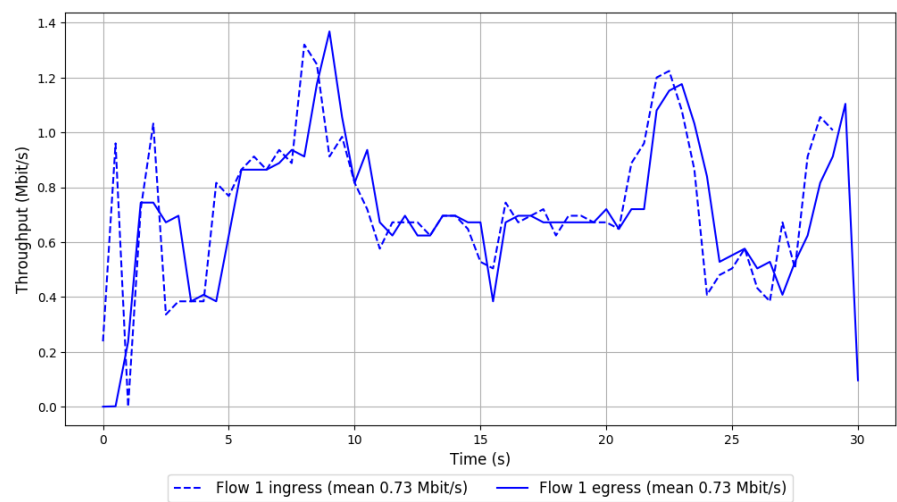
-- Flow 1:

Average throughput: 0.73 Mbit/s

95th percentile per-packet one-way delay: 234.942 ms

Loss rate: 0.34%

Run 3: Report of Indigo — Data Link



Run 1: Statistics of Indigo-MusesC3

Start at: 2019-01-21 03:47:29

End at: 2019-01-21 03:47:59

Local clock offset: -2.135 ms

Remote clock offset: 2.235 ms

Below is generated by plot.py at 2019-01-21 04:45:14

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.49 Mbit/s

95th percentile per-packet one-way delay: 3942.328 ms

Loss rate: 67.07%

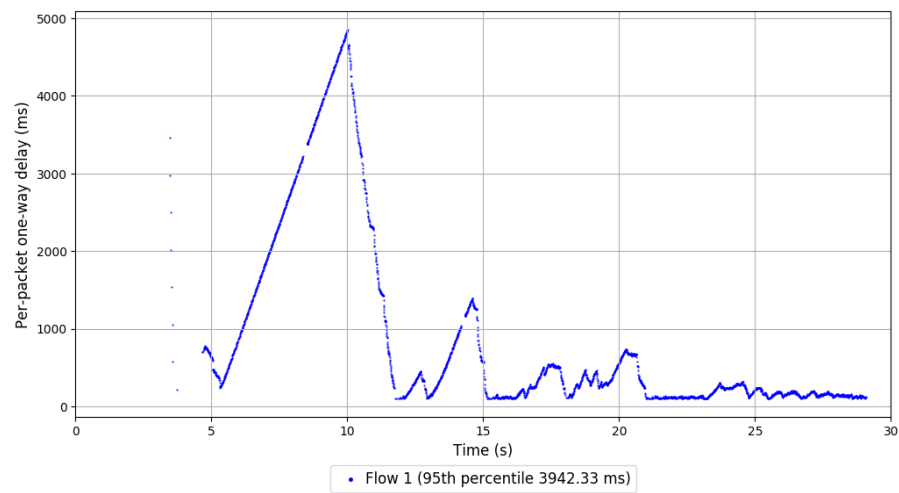
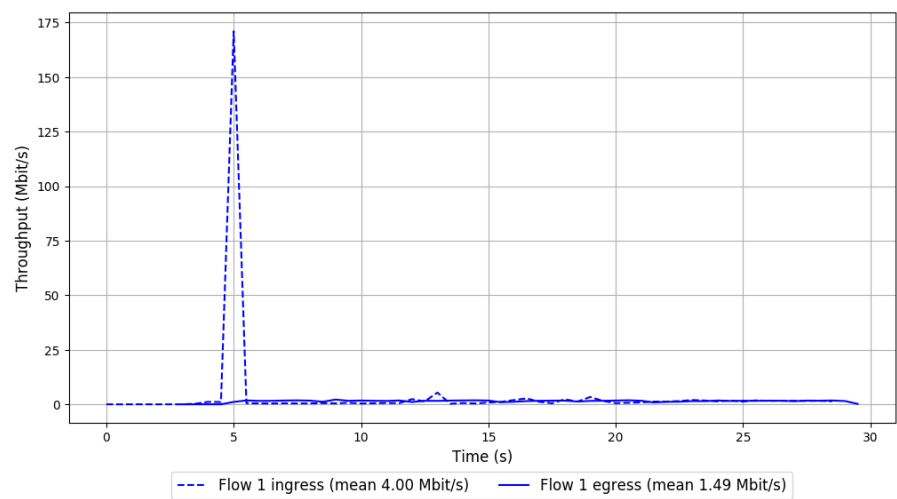
-- Flow 1:

Average throughput: 1.49 Mbit/s

95th percentile per-packet one-way delay: 3942.328 ms

Loss rate: 67.07%

Run 1: Report of Indigo-MusesC3 — Data Link



Run 2: Statistics of Indigo-MusesC3

Start at: 2019-01-21 04:11:25

End at: 2019-01-21 04:11:55

Local clock offset: -3.459 ms

Remote clock offset: 3.034 ms

Below is generated by plot.py at 2019-01-21 04:45:18

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.52 Mbit/s

95th percentile per-packet one-way delay: 4626.658 ms

Loss rate: 82.46%

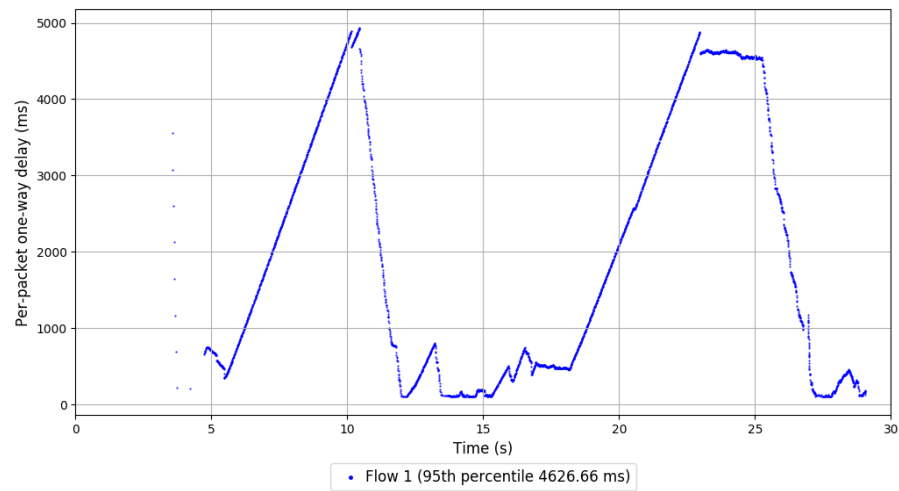
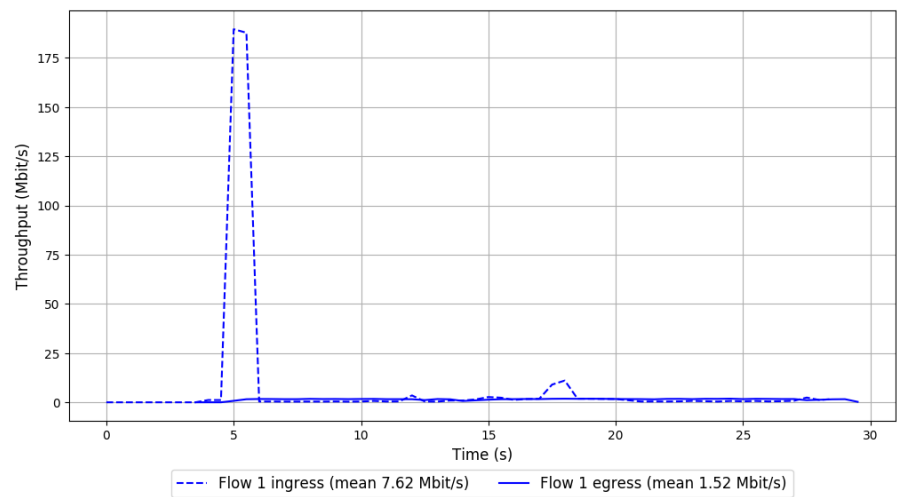
-- Flow 1:

Average throughput: 1.52 Mbit/s

95th percentile per-packet one-way delay: 4626.658 ms

Loss rate: 82.46%

Run 2: Report of Indigo-MusesC3 — Data Link



Run 3: Statistics of Indigo-MusesC3

Start at: 2019-01-21 04:35:18

End at: 2019-01-21 04:35:48

Local clock offset: -6.536 ms

Remote clock offset: 7.048 ms

Below is generated by plot.py at 2019-01-21 04:45:18

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.10 Mbit/s

95th percentile per-packet one-way delay: 4703.013 ms

Loss rate: 81.26%

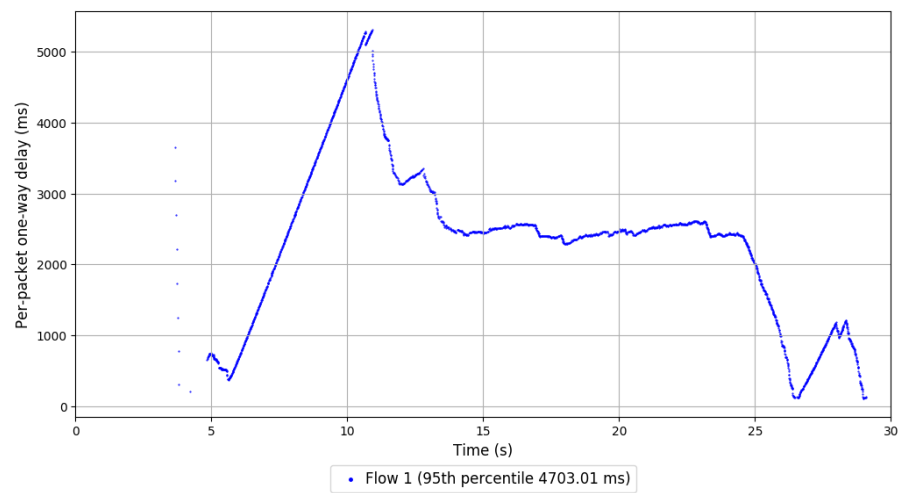
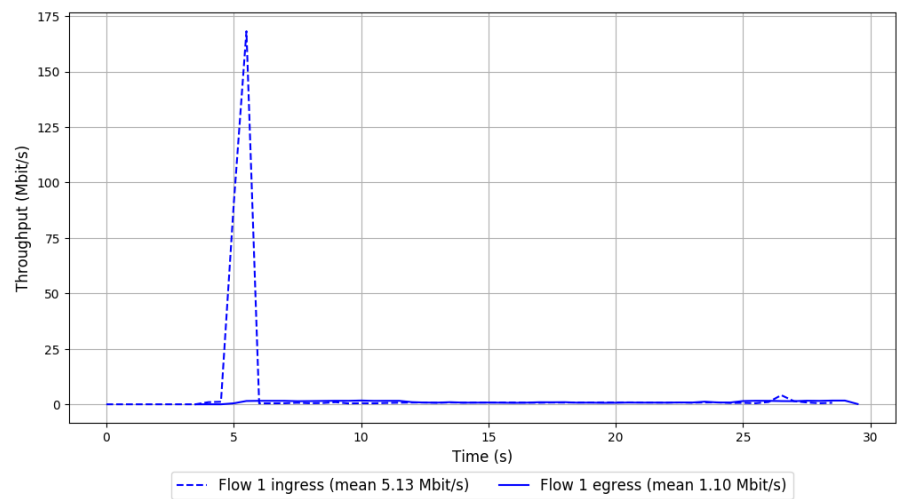
-- Flow 1:

Average throughput: 1.10 Mbit/s

95th percentile per-packet one-way delay: 4703.013 ms

Loss rate: 81.26%

Run 3: Report of Indigo-MusesC3 — Data Link



Run 1: Statistics of Indigo-MusesC5

Start at: 2019-01-21 03:38:22

End at: 2019-01-21 03:38:52

Local clock offset: -2.504 ms

Remote clock offset: 6.529 ms

Below is generated by plot.py at 2019-01-21 04:45:18

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.41 Mbit/s

95th percentile per-packet one-way delay: 1803.556 ms

Loss rate: 4.46%

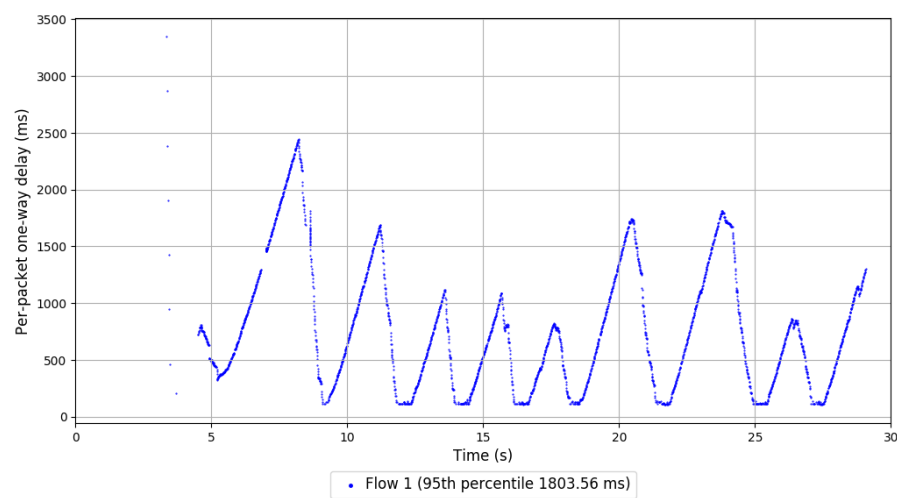
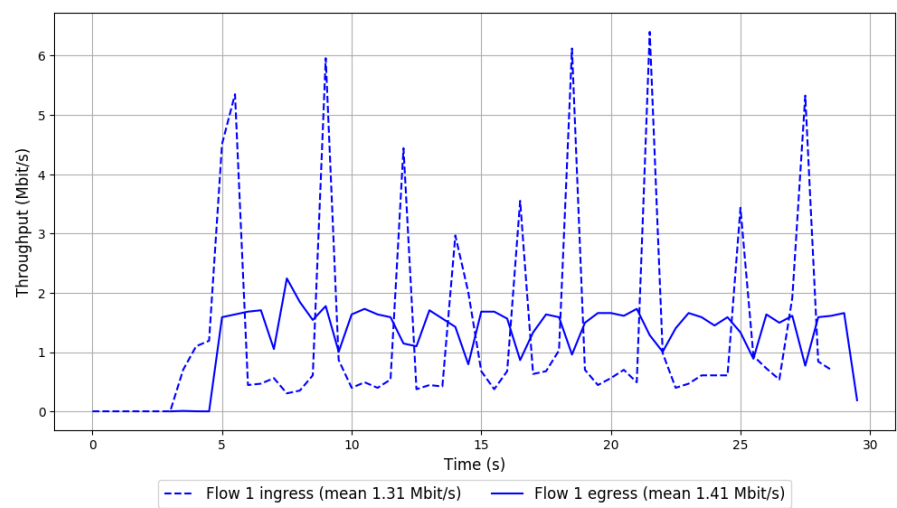
-- Flow 1:

Average throughput: 1.41 Mbit/s

95th percentile per-packet one-way delay: 1803.556 ms

Loss rate: 4.46%

Run 1: Report of Indigo-MusesC5 — Data Link



Run 2: Statistics of Indigo-MusesC5

Start at: 2019-01-21 04:02:19

End at: 2019-01-21 04:02:49

Local clock offset: -2.462 ms

Remote clock offset: 6.968 ms

Below is generated by plot.py at 2019-01-21 04:45:18

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.44 Mbit/s

95th percentile per-packet one-way delay: 1518.946 ms

Loss rate: 4.66%

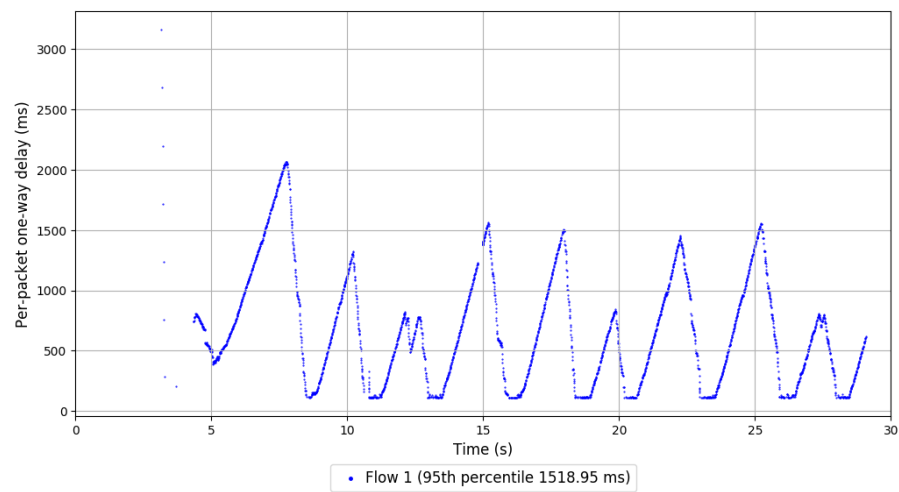
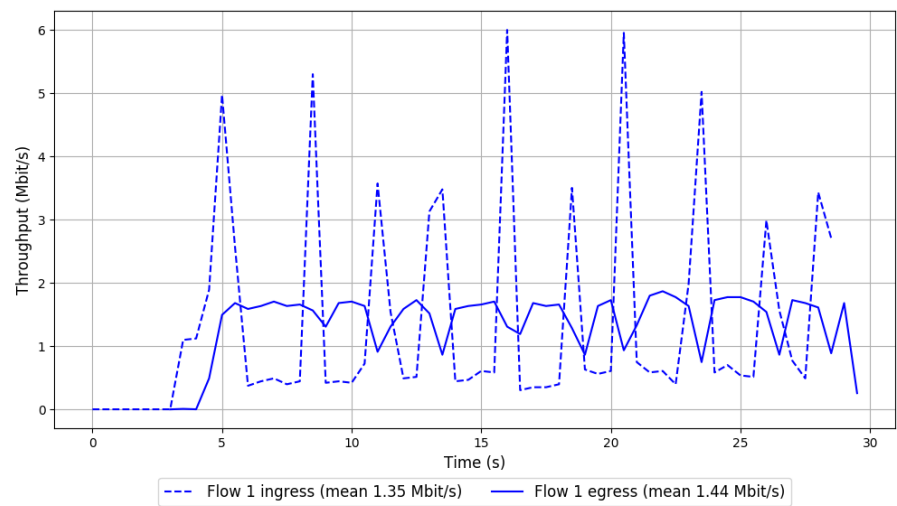
-- Flow 1:

Average throughput: 1.44 Mbit/s

95th percentile per-packet one-way delay: 1518.946 ms

Loss rate: 4.66%

Run 2: Report of Indigo-MusesC5 — Data Link



Run 3: Statistics of Indigo-MusesC5

Start at: 2019-01-21 04:26:12

End at: 2019-01-21 04:26:42

Local clock offset: -6.231 ms

Remote clock offset: 7.042 ms

Below is generated by plot.py at 2019-01-21 04:45:18

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.02 Mbit/s

95th percentile per-packet one-way delay: 2916.537 ms

Loss rate: 0.44%

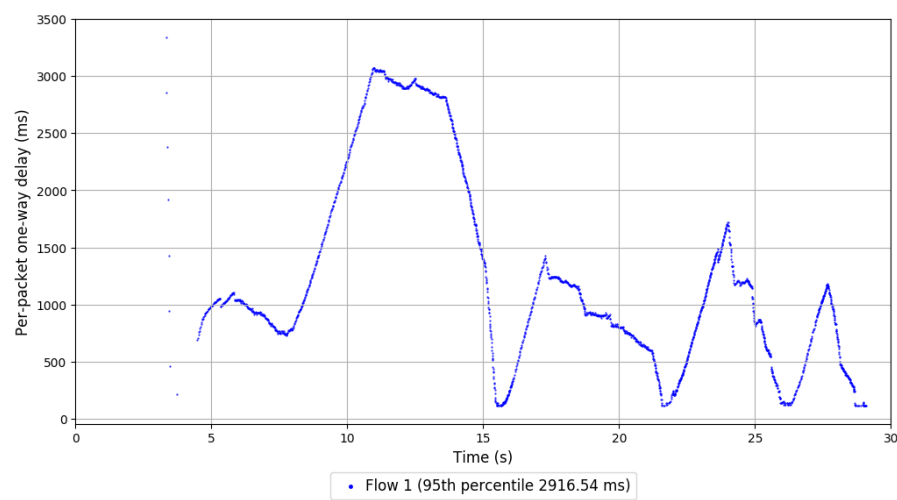
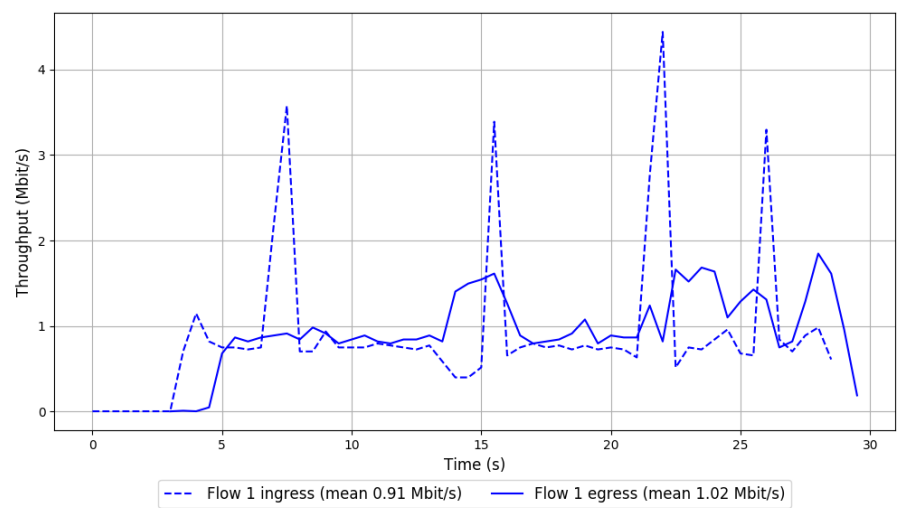
-- Flow 1:

Average throughput: 1.02 Mbit/s

95th percentile per-packet one-way delay: 2916.537 ms

Loss rate: 0.44%

Run 3: Report of Indigo-MusesC5 — Data Link

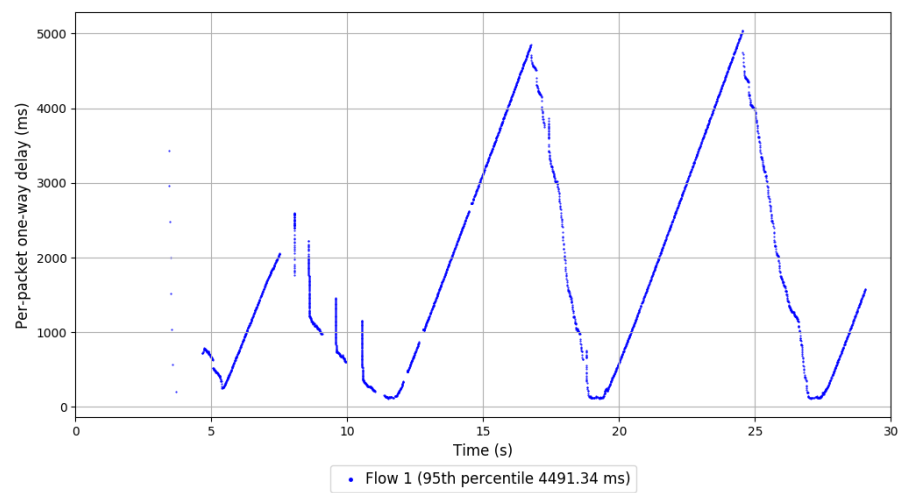
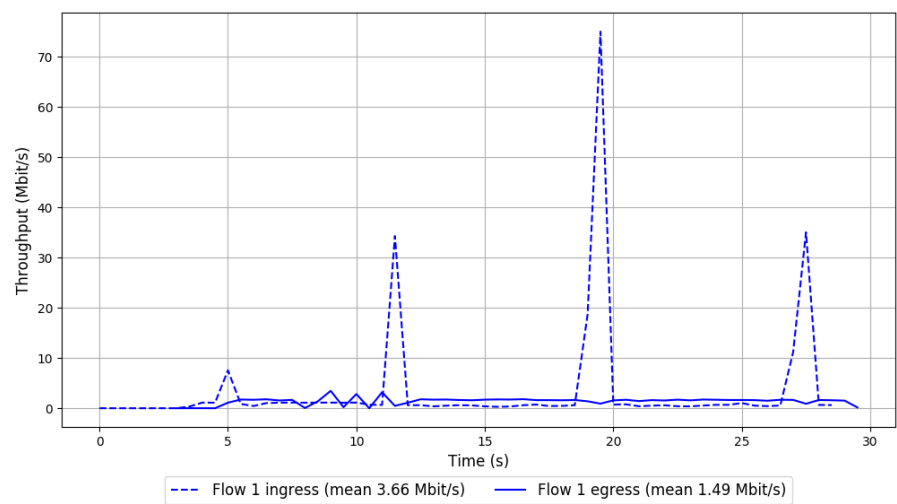


```
Run 1: Statistics of Indigo-MusesD

Start at: 2019-01-21 03:37:13
End at: 2019-01-21 03:37:43
Local clock offset: -2.645 ms
Remote clock offset: 2.656 ms

# Below is generated by plot.py at 2019-01-21 04:45:18
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.49 Mbit/s
95th percentile per-packet one-way delay: 4491.339 ms
Loss rate: 64.04%
-- Flow 1:
Average throughput: 1.49 Mbit/s
95th percentile per-packet one-way delay: 4491.339 ms
Loss rate: 64.04%
```

Run 1: Report of Indigo-MusesD — Data Link



Run 2: Statistics of Indigo-MusesD

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

End at: 2019-01-21 04:01:40

Local clock offset: -3.272 ms

Remote clock offset: 2.594 ms

Below is generated by plot.py at 2019-01-21 04:45:18

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.29 Mbit/s

95th percentile per-packet one-way delay: 4107.291 ms

Loss rate: 0.49%

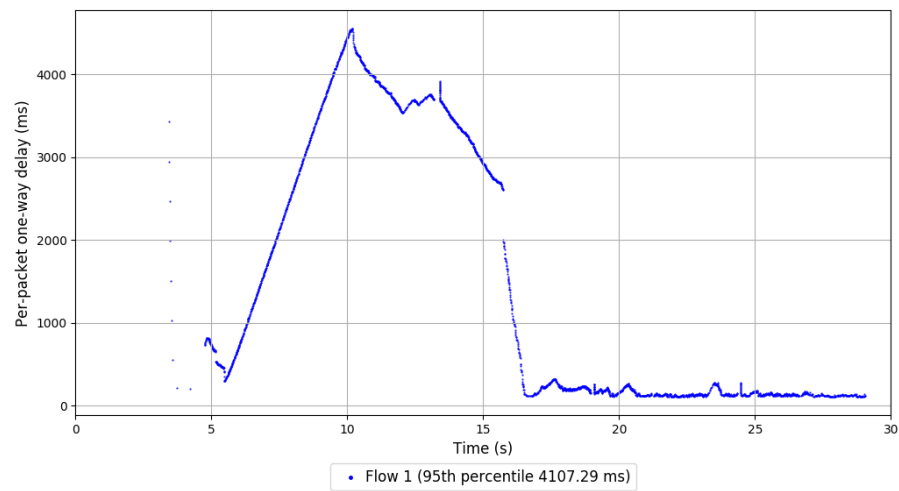
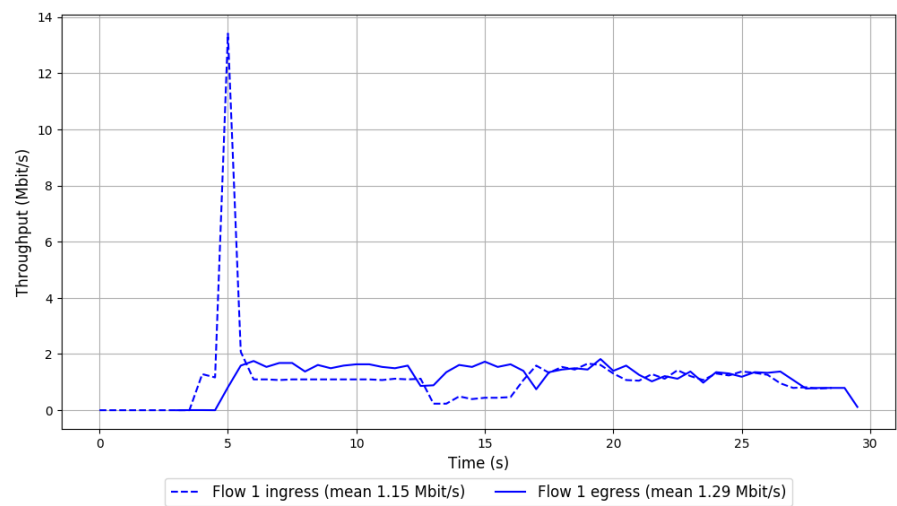
-- Flow 1:

Average throughput: 1.29 Mbit/s

95th percentile per-packet one-way delay: 4107.291 ms

Loss rate: 0.49%

Run 2: Report of Indigo-MusesD — Data Link



Run 3: Statistics of Indigo-MusesD

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

End at: 2019-01-21 04:25:34

Local clock offset: -5.196 ms

Remote clock offset: 3.286 ms

Below is generated by plot.py at 2019-01-21 04:45:18

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.11 Mbit/s

95th percentile per-packet one-way delay: 8023.945 ms

Loss rate: 32.63%

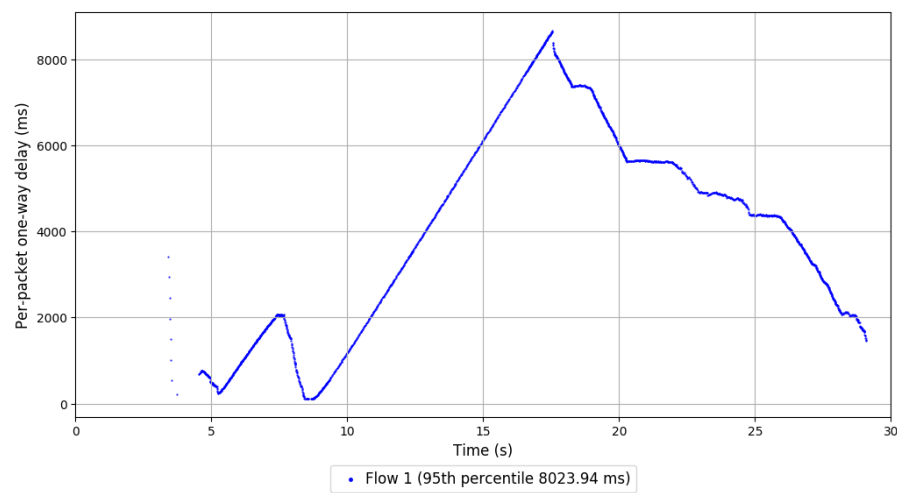
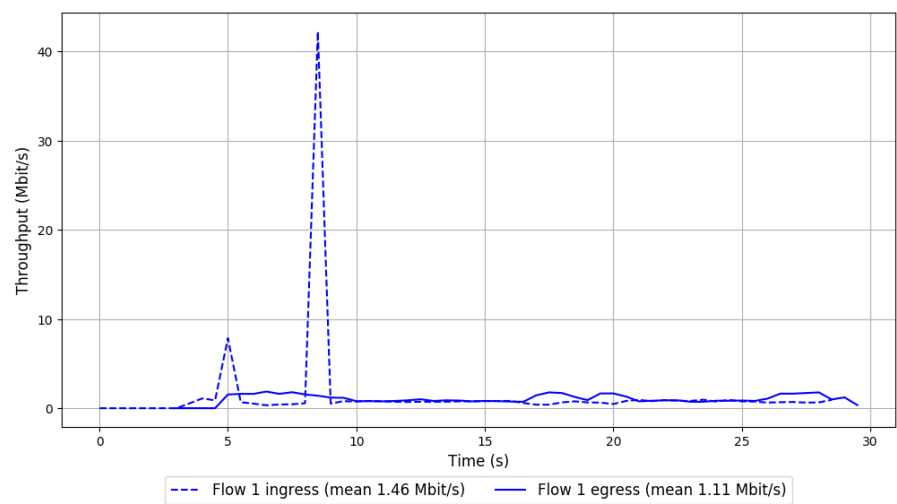
-- Flow 1:

Average throughput: 1.11 Mbit/s

95th percentile per-packet one-way delay: 8023.945 ms

Loss rate: 32.63%

Run 3: Report of Indigo-MusesD — Data Link



Run 1: Statistics of Indigo-MusesT

Start at: 2019-01-21 03:52:03

End at: 2019-01-21 03:52:33

Local clock offset: -1.99 ms

Remote clock offset: 6.546 ms

Below is generated by plot.py at 2019-01-21 04:45:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.47 Mbit/s

95th percentile per-packet one-way delay: 4181.688 ms

Loss rate: 79.10%

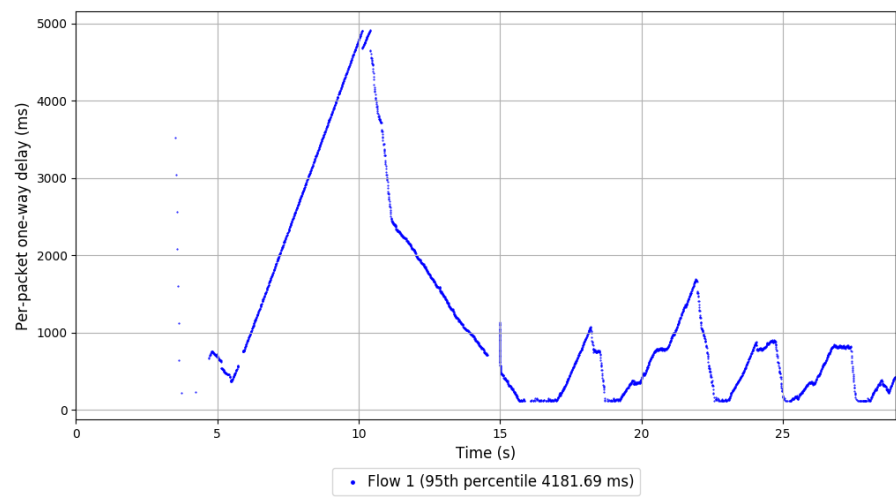
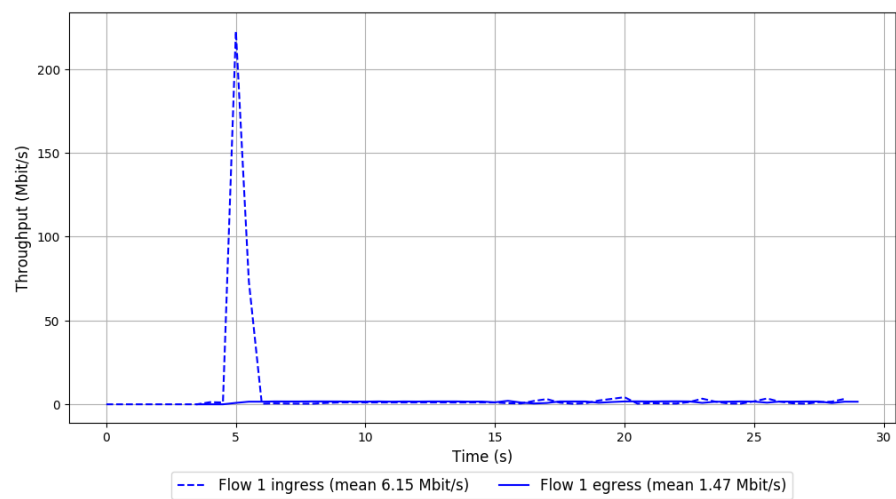
-- Flow 1:

Average throughput: 1.47 Mbit/s

95th percentile per-packet one-way delay: 4181.688 ms

Loss rate: 79.10%

Run 1: Report of Indigo-MusesT — Data Link



Run 2: Statistics of Indigo-MusesT

Start at: 2019-01-21 04:15:59

End at: 2019-01-21 04:16:29

Local clock offset: -3.499 ms

Remote clock offset: 2.727 ms

Below is generated by plot.py at 2019-01-21 04:45:23

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.48 Mbit/s

95th percentile per-packet one-way delay: 4662.345 ms

Loss rate: 81.51%

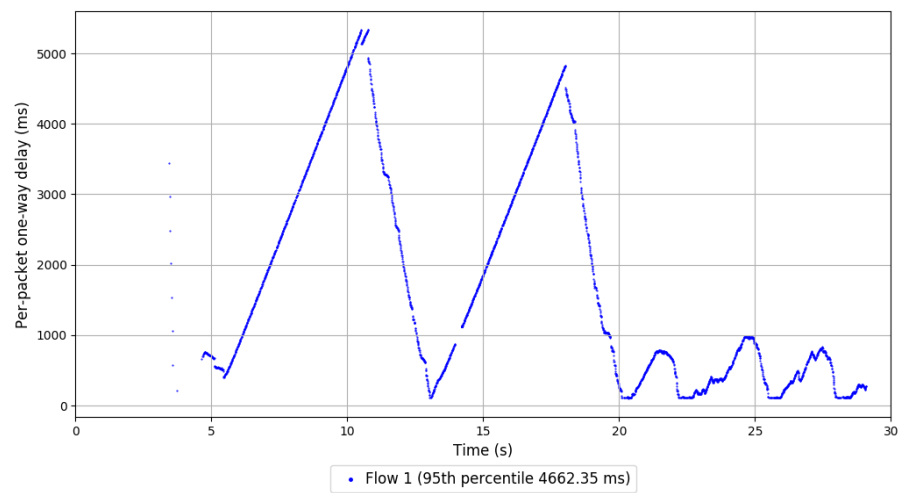
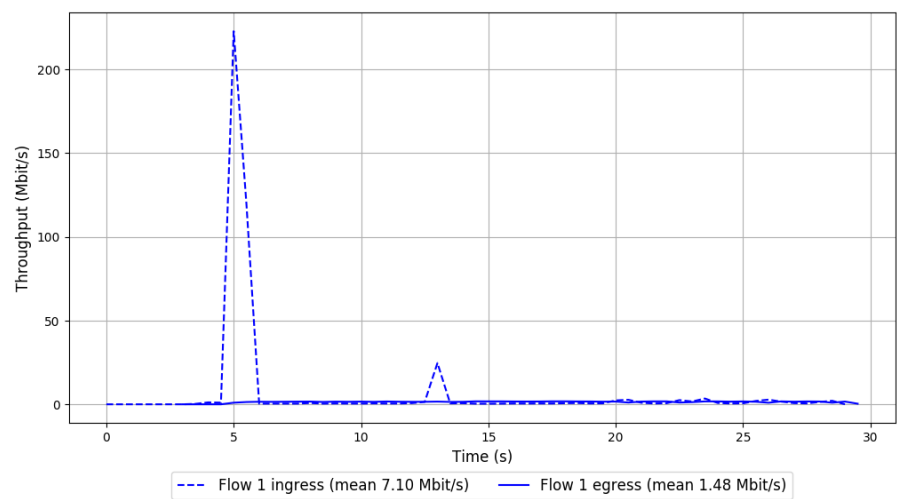
-- Flow 1:

Average throughput: 1.48 Mbit/s

95th percentile per-packet one-way delay: 4662.345 ms

Loss rate: 81.51%

Run 2: Report of Indigo-MusesT — Data Link



Run 3: Statistics of Indigo-MusesT

Start at: 2019-01-21 04:39:51

End at: 2019-01-21 04:40:21

Local clock offset: -7.739 ms

Remote clock offset: 6.748 ms

Below is generated by plot.py at 2019-01-21 04:45:23

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.43 Mbit/s

95th percentile per-packet one-way delay: 4302.249 ms

Loss rate: 73.18%

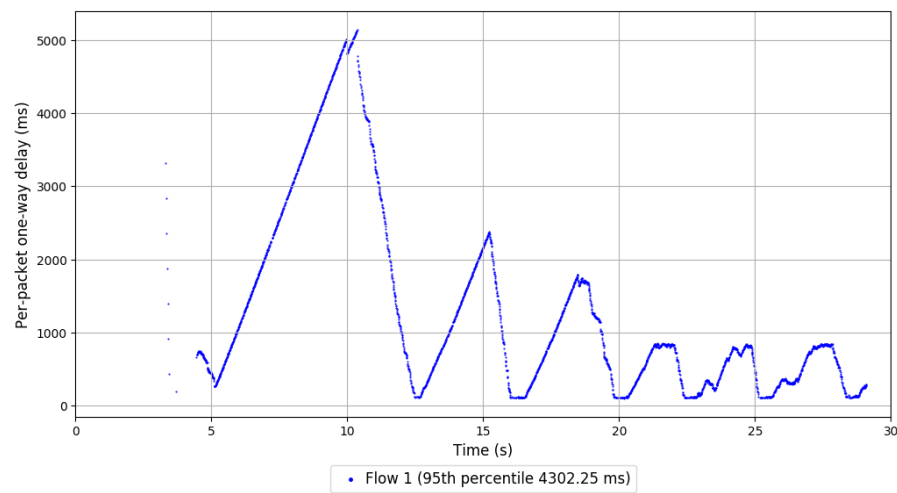
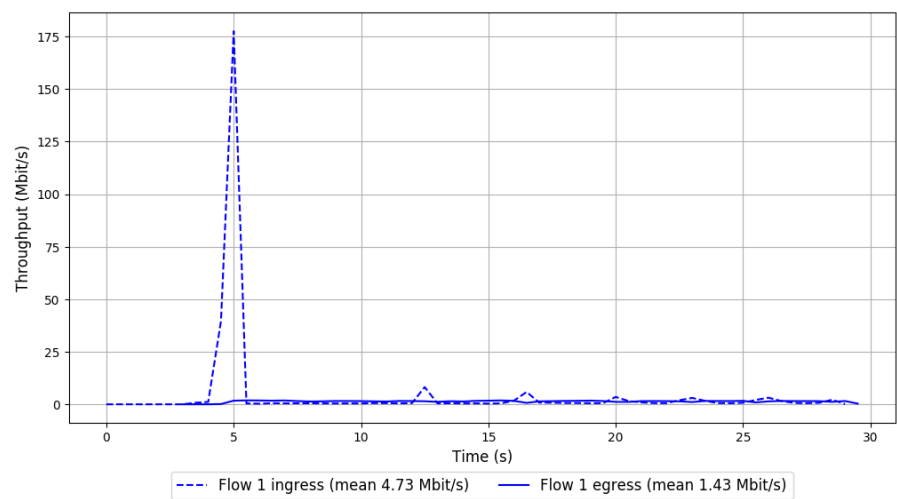
-- Flow 1:

Average throughput: 1.43 Mbit/s

95th percentile per-packet one-way delay: 4302.249 ms

Loss rate: 73.18%

Run 3: Report of Indigo-MusesT — Data Link

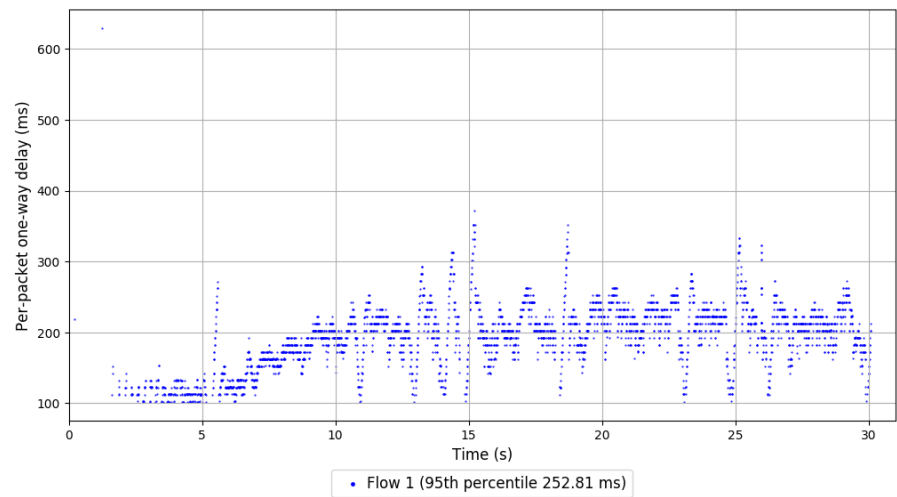
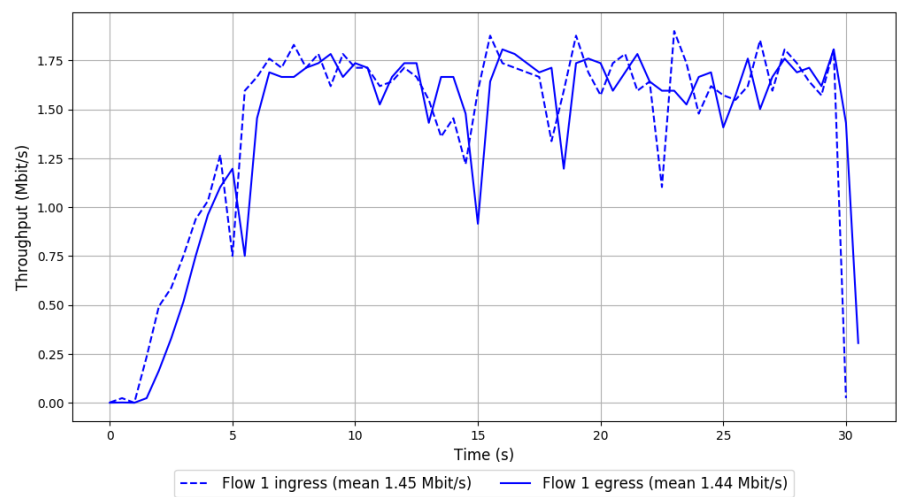


```
Run 1: Statistics of LEDBAT

Start at: 2019-01-21 03:50:54
End at: 2019-01-21 03:51:24
Local clock offset: -2.613 ms
Remote clock offset: 2.325 ms

# Below is generated by plot.py at 2019-01-21 04:45:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.44 Mbit/s
95th percentile per-packet one-way delay: 252.807 ms
Loss rate: 0.76%
-- Flow 1:
Average throughput: 1.44 Mbit/s
95th percentile per-packet one-way delay: 252.807 ms
Loss rate: 0.76%
```

Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2019-01-21 04:14:50

End at: 2019-01-21 04:15:20

Local clock offset: -2.659 ms

Remote clock offset: 2.664 ms

Below is generated by plot.py at 2019-01-21 04:45:23

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.13 Mbit/s

95th percentile per-packet one-way delay: 275.450 ms

Loss rate: 0.90%

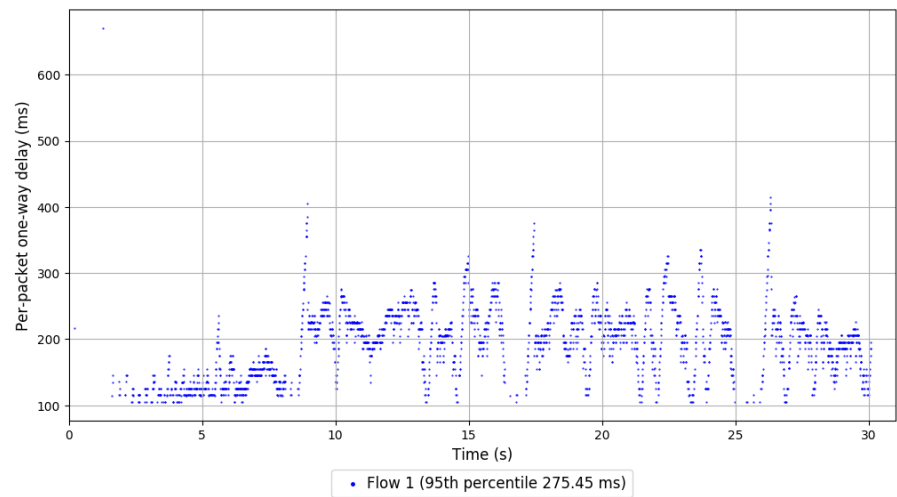
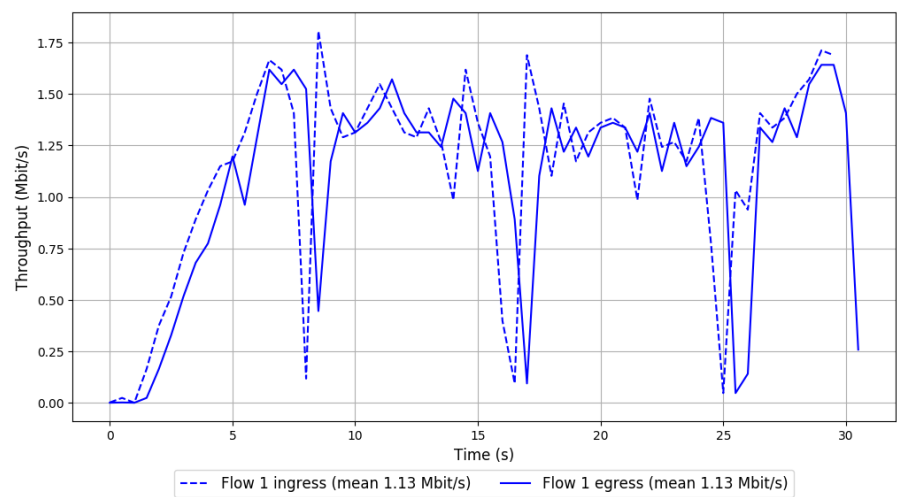
-- Flow 1:

Average throughput: 1.13 Mbit/s

95th percentile per-packet one-way delay: 275.450 ms

Loss rate: 0.90%

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2019-01-21 04:38:43

End at: 2019-01-21 04:39:13

Local clock offset: -7.658 ms

Remote clock offset: 7.683 ms

Below is generated by plot.py at 2019-01-21 04:45:23

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.04 Mbit/s

95th percentile per-packet one-way delay: 429.753 ms

Loss rate: 0.15%

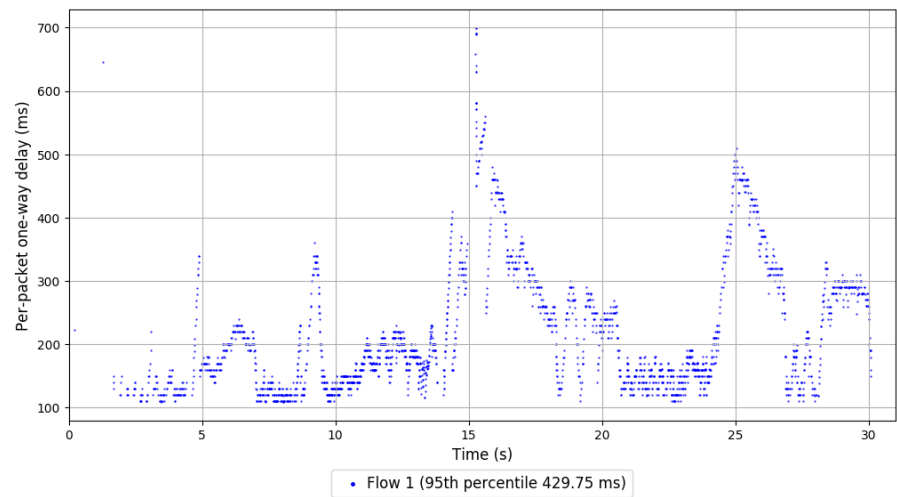
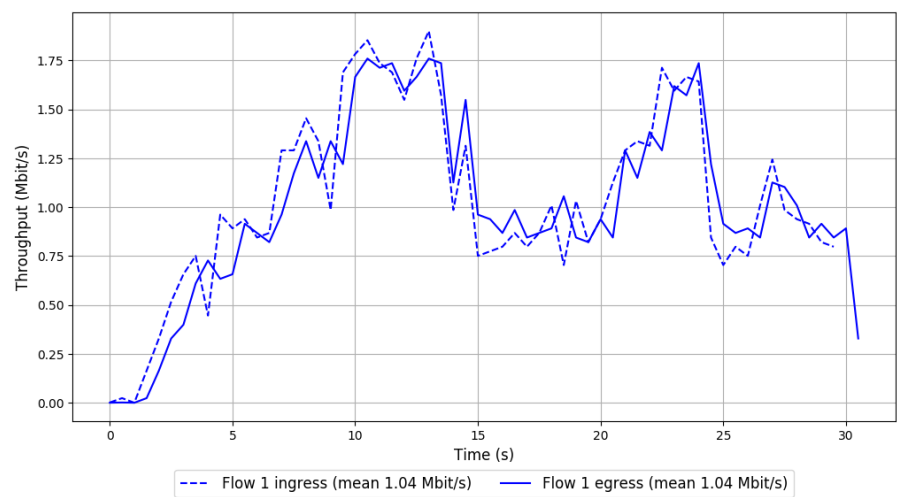
-- Flow 1:

Average throughput: 1.04 Mbit/s

95th percentile per-packet one-way delay: 429.753 ms

Loss rate: 0.15%

Run 3: Report of LEDBAT — Data Link



Run 1: Statistics of PCC-Allegro

Start at: 2019-01-21 03:40:39

End at: 2019-01-21 03:41:09

Local clock offset: -1.52 ms

Remote clock offset: 6.696 ms

Below is generated by plot.py at 2019-01-21 04:45:26

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.53 Mbit/s

95th percentile per-packet one-way delay: 4876.977 ms

Loss rate: 74.65%

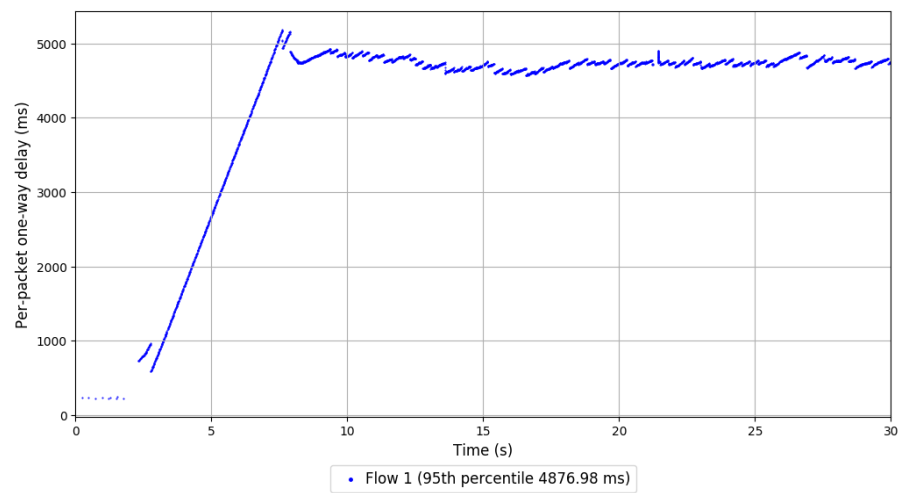
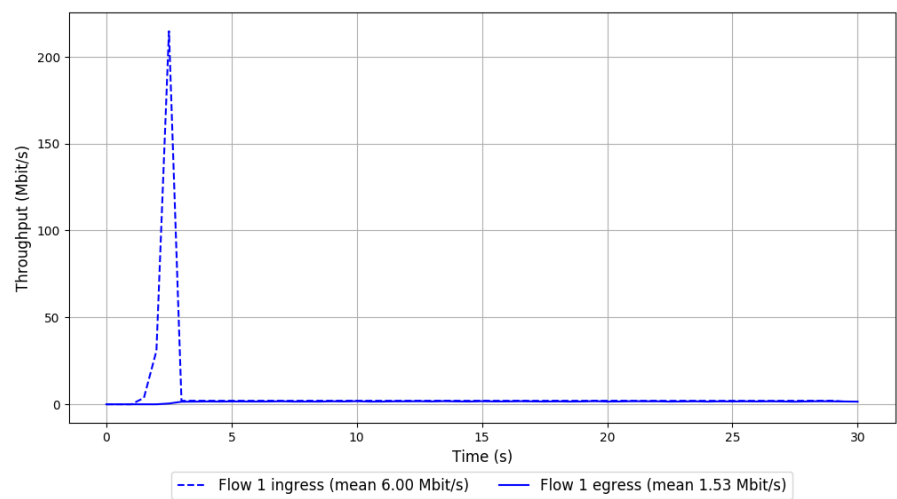
-- Flow 1:

Average throughput: 1.53 Mbit/s

95th percentile per-packet one-way delay: 4876.977 ms

Loss rate: 74.65%

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2019-01-21 04:04:35

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

Local clock offset: -3.359 ms

Remote clock offset: 2.906 ms

Below is generated by plot.py at 2019-01-21 04:45:28

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.53 Mbit/s

95th percentile per-packet one-way delay: 4992.449 ms

Loss rate: 81.83%

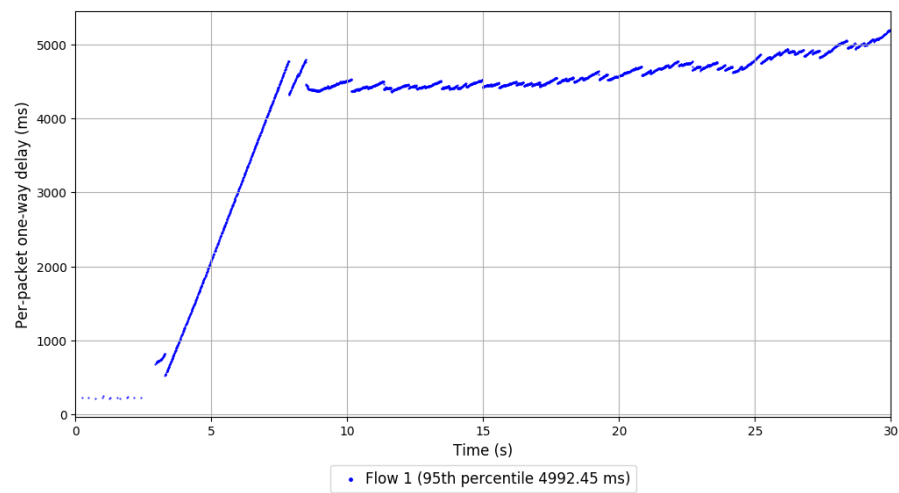
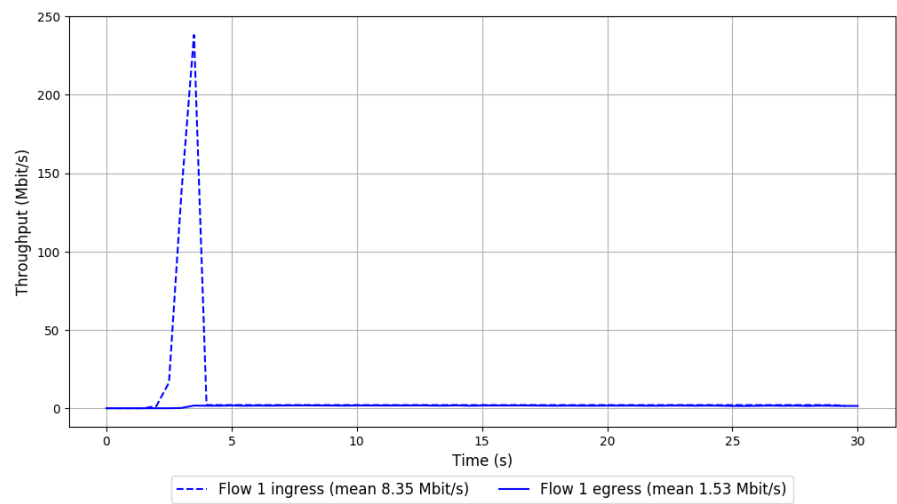
-- Flow 1:

Average throughput: 1.53 Mbit/s

95th percentile per-packet one-way delay: 4992.449 ms

Loss rate: 81.83%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2019-01-21 04:28:29

End at: 2019-01-21 04:28:59

Local clock offset: -5.764 ms

Remote clock offset: 6.966 ms

Below is generated by plot.py at 2019-01-21 04:45:28

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.03 Mbit/s

95th percentile per-packet one-way delay: 9723.065 ms

Loss rate: 77.54%

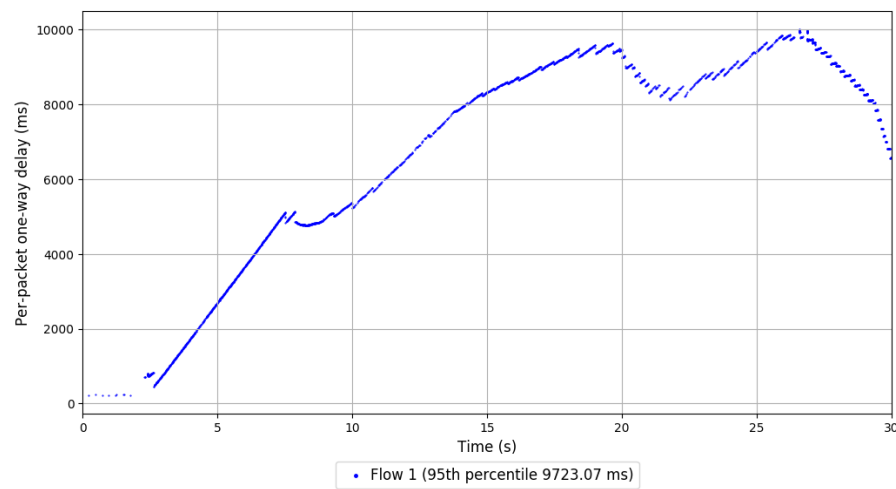
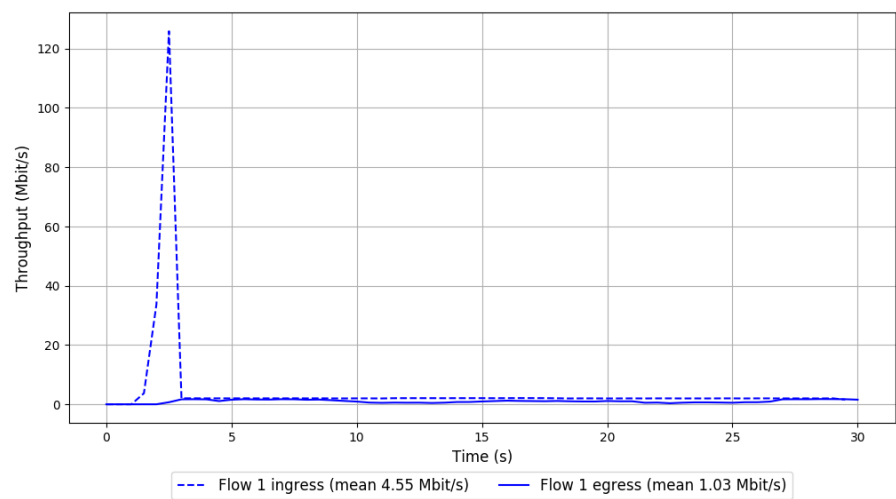
-- Flow 1:

Average throughput: 1.03 Mbit/s

95th percentile per-packet one-way delay: 9723.065 ms

Loss rate: 77.54%

Run 3: Report of PCC-Allegro — Data Link



Run 1: Statistics of PCC-Expr

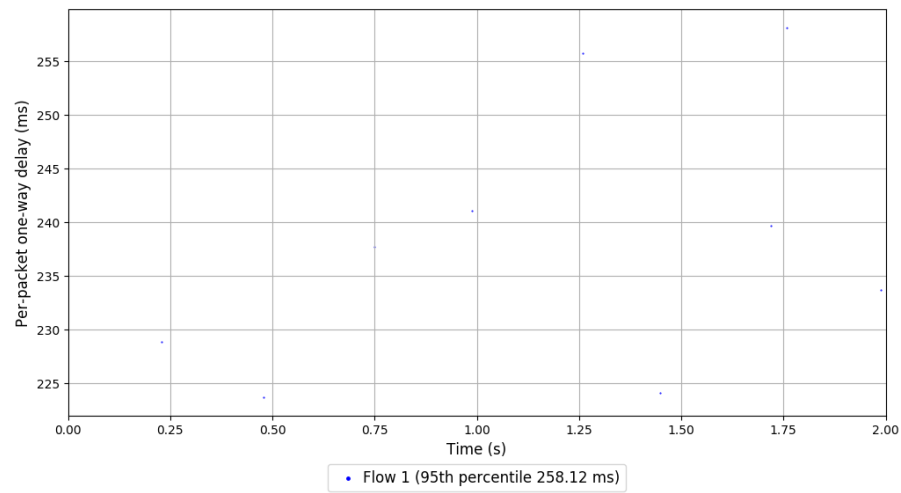
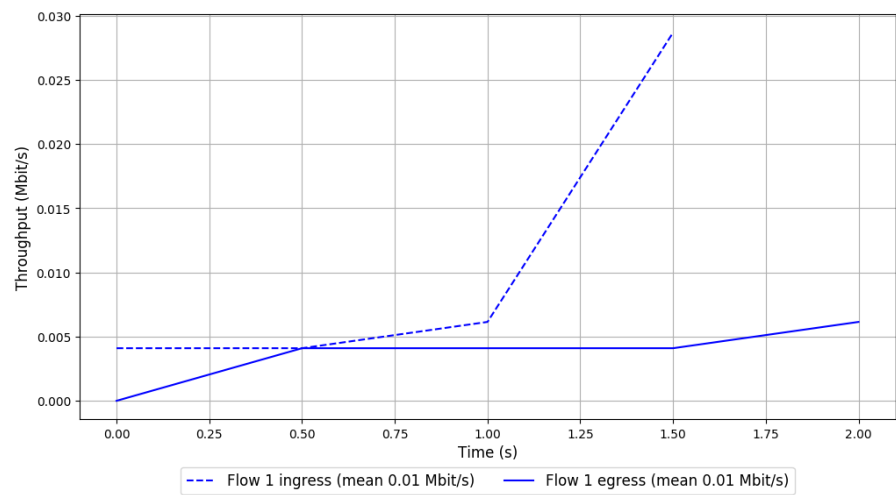
Start at: 2019-01-21 03:36:06

End at: 2019-01-21 03:36:36

Local clock offset: -2.764 ms

Remote clock offset: 2.471 ms

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

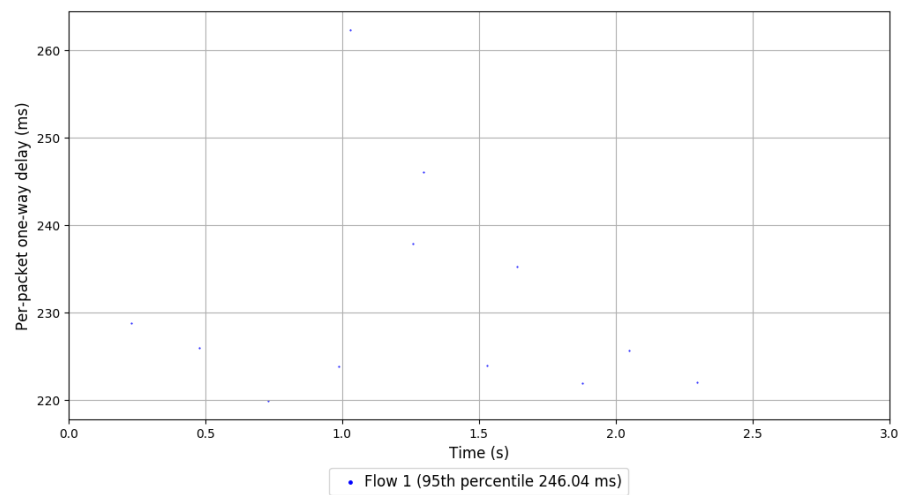
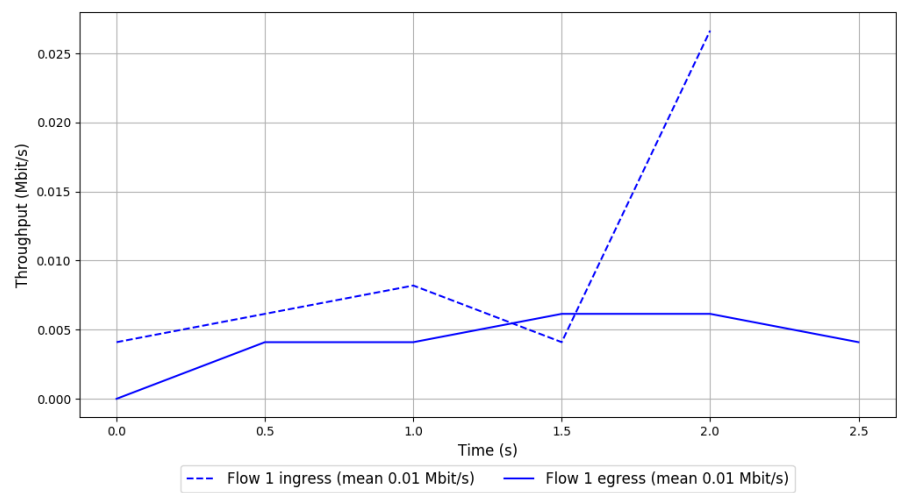
Start at: 2019-01-21 04:00:02

End at: 2019-01-21 04:00:32

Local clock offset: -3.238 ms

Remote clock offset: 2.573 ms

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

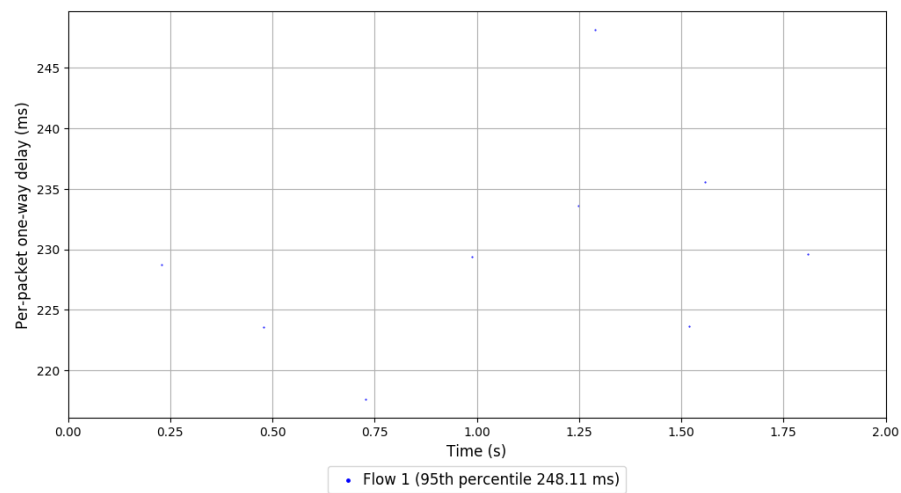
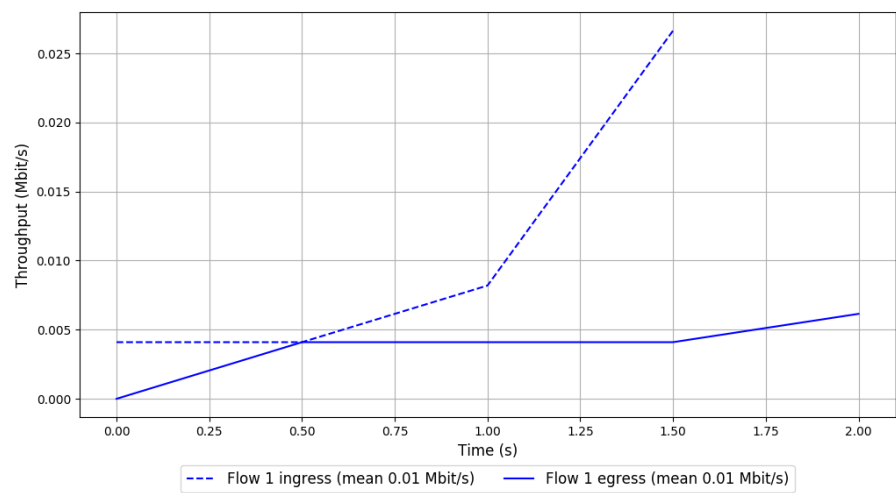
Start at: 2019-01-21 04:23:56

End at: 2019-01-21 04:24:26

Local clock offset: -4.922 ms

Remote clock offset: 3.2 ms

Run 3: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2019-01-21 03:56:35

End at: 2019-01-21 03:57:05

Local clock offset: -2.305 ms

Remote clock offset: 6.704 ms

Below is generated by plot.py at 2019-01-21 04:45:28

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.50 Mbit/s

95th percentile per-packet one-way delay: 1044.625 ms

Loss rate: 3.71%

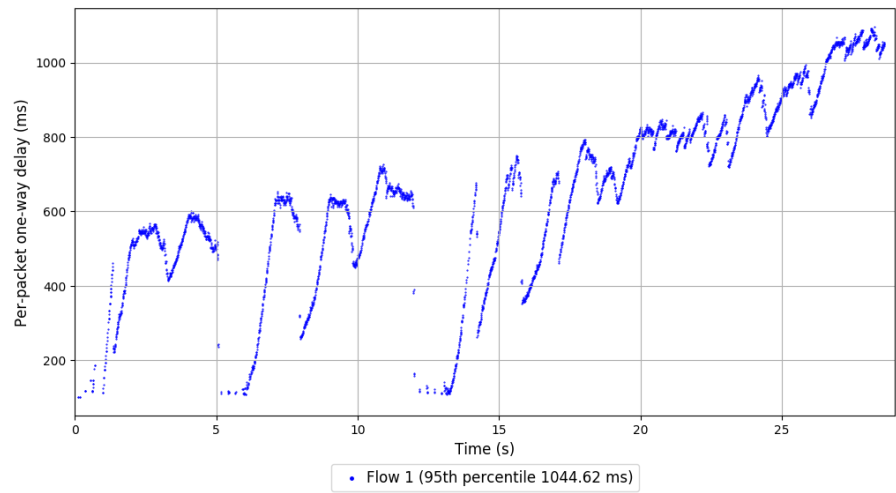
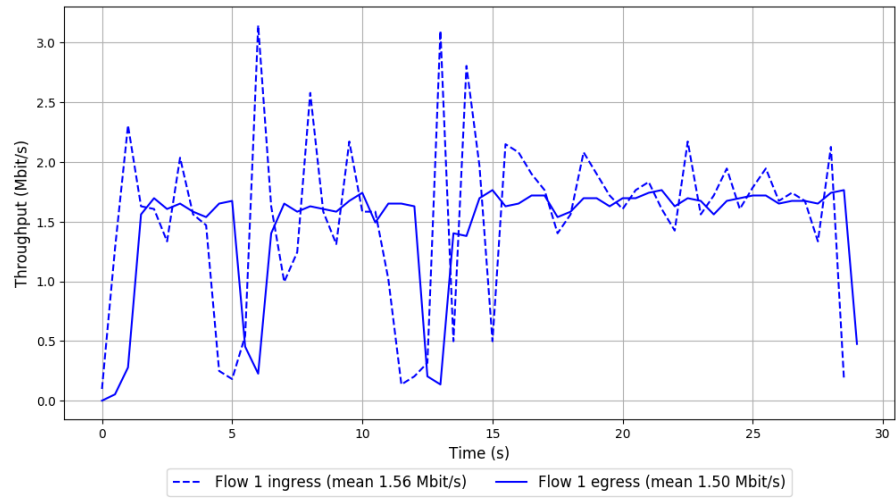
-- Flow 1:

Average throughput: 1.50 Mbit/s

95th percentile per-packet one-way delay: 1044.625 ms

Loss rate: 3.71%

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2019-01-21 04:20:31

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

Local clock offset: -5.04 ms

Remote clock offset: 2.733 ms

Below is generated by plot.py at 2019-01-21 04:45:29

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.24 Mbit/s

95th percentile per-packet one-way delay: 1607.185 ms

Loss rate: 4.33%

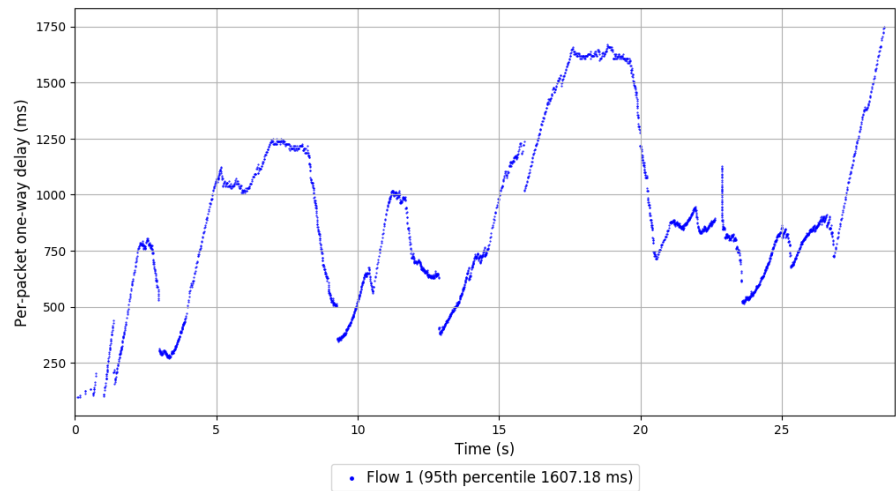
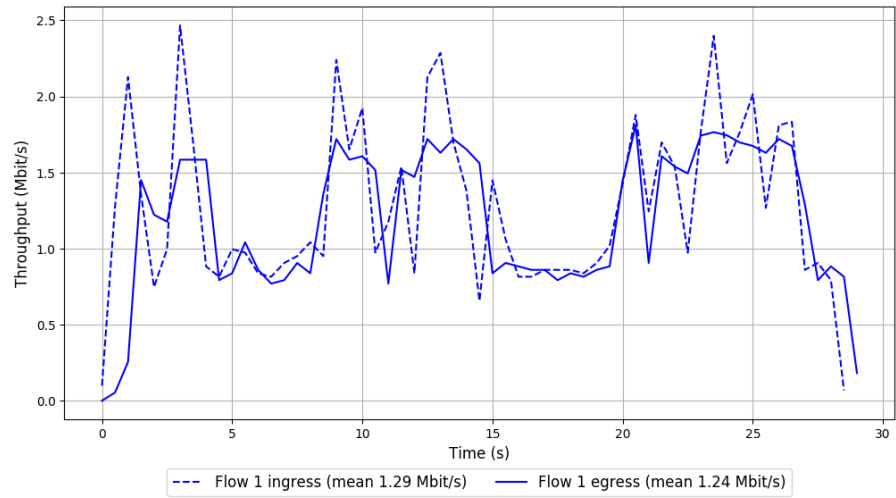
-- Flow 1:

Average throughput: 1.24 Mbit/s

95th percentile per-packet one-way delay: 1607.185 ms

Loss rate: 4.33%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2019-01-21 04:44:24

End at: 2019-01-21 04:44:54

Local clock offset: -8.064 ms

Remote clock offset: 3.41 ms

Below is generated by plot.py at 2019-01-21 04:45:29

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.38 Mbit/s

95th percentile per-packet one-way delay: 1073.708 ms

Loss rate: 4.26%

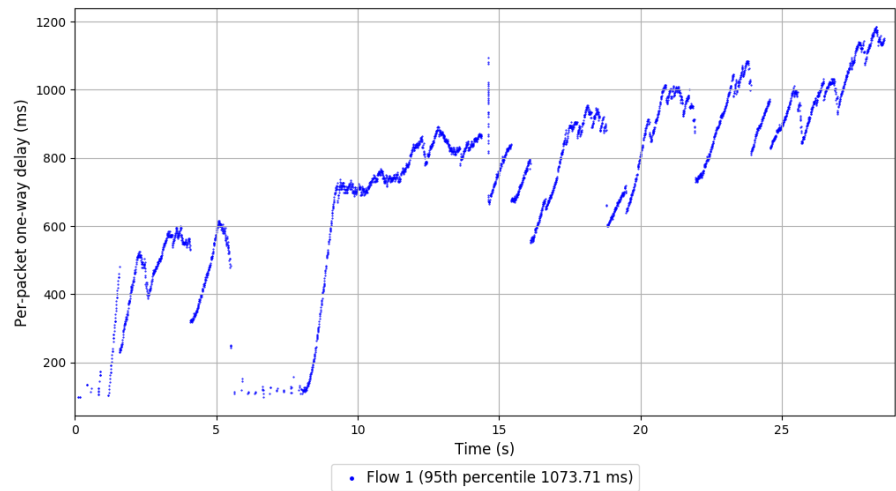
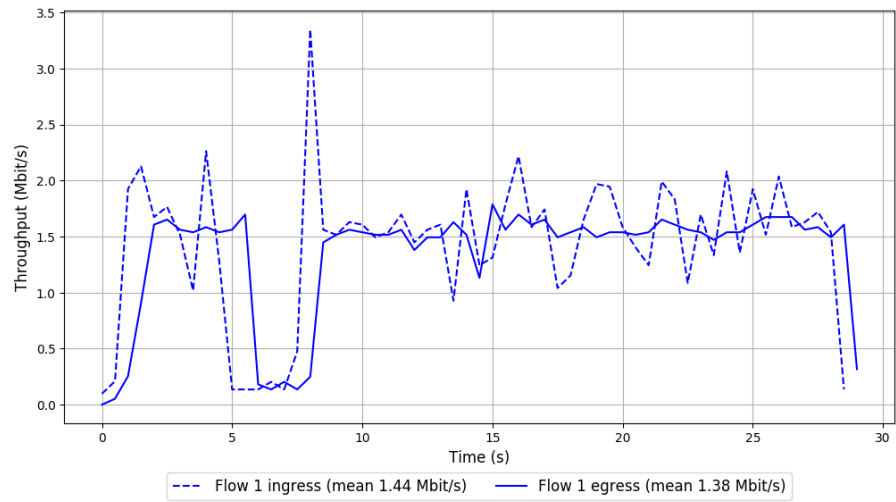
-- Flow 1:

Average throughput: 1.38 Mbit/s

95th percentile per-packet one-way delay: 1073.708 ms

Loss rate: 4.26%

Run 3: Report of QUIC Cubic — Data Link



Run 1: Statistics of SCReAM

Start at: 2019-01-21 03:53:11

End at: 2019-01-21 03:53:41

Local clock offset: -2.071 ms

Remote clock offset: 2.916 ms

Below is generated by plot.py at 2019-01-21 04:45:29

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 127.338 ms

Loss rate: 0.13%

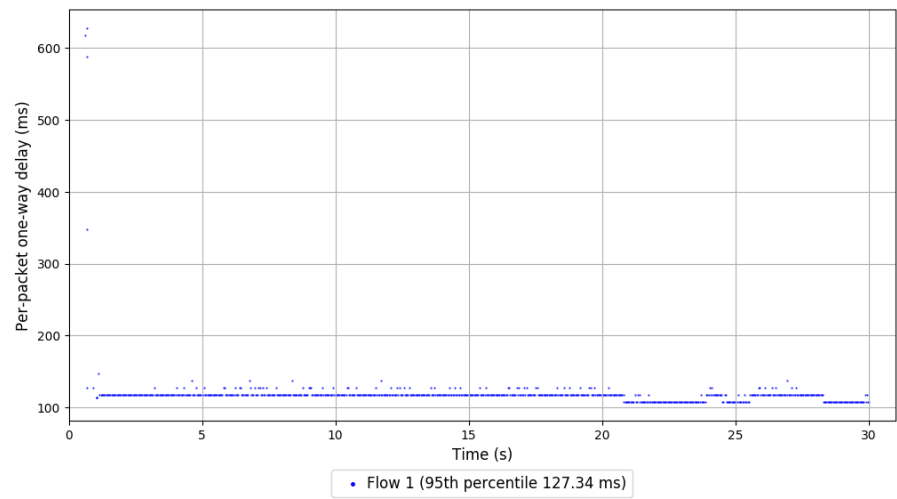
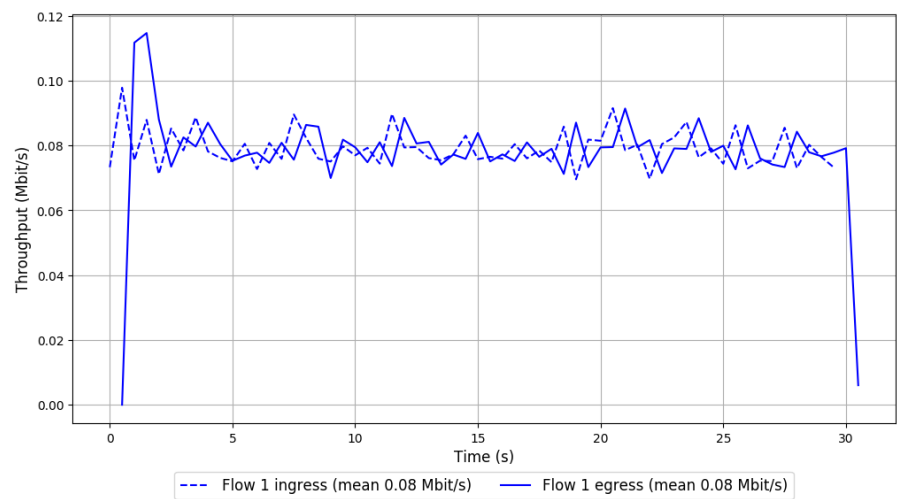
-- Flow 1:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 127.338 ms

Loss rate: 0.13%

Run 1: Report of SReAM — Data Link



Run 2: Statistics of SCReAM

Start at: 2019-01-21 04:17:07

End at: 2019-01-21 04:17:37

Local clock offset: -2.987 ms

Remote clock offset: 6.321 ms

Below is generated by plot.py at 2019-01-21 04:45:29

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 119.873 ms

Loss rate: 0.13%

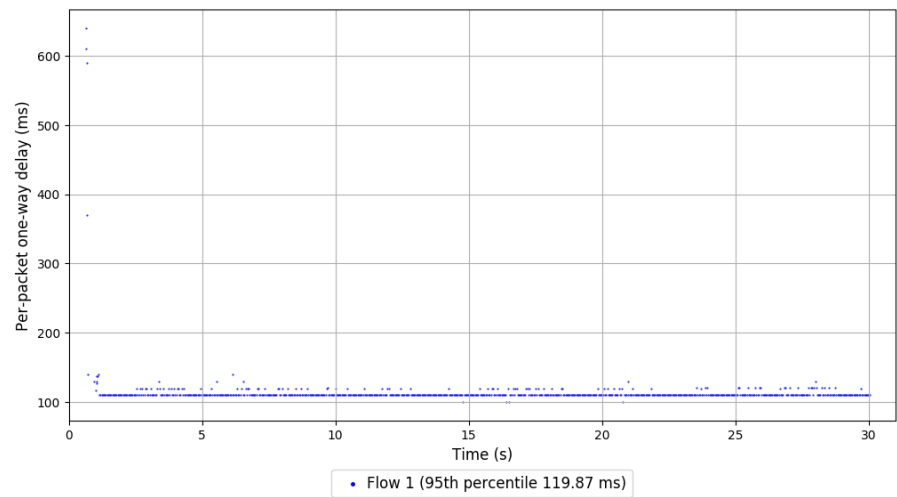
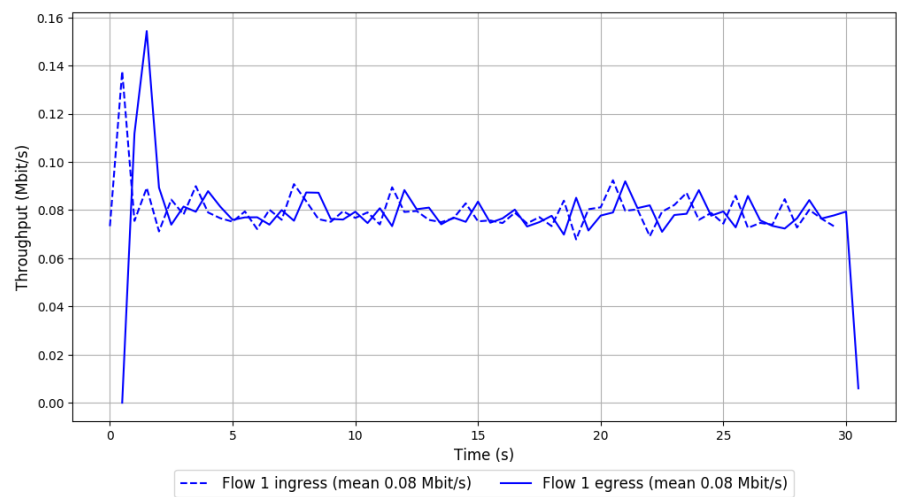
-- Flow 1:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 119.873 ms

Loss rate: 0.13%

Run 2: Report of SReAM — Data Link



Run 3: Statistics of SCReAM

Start at: 2019-01-21 04:41:00

End at: 2019-01-21 04:41:30

Local clock offset: -6.996 ms

Remote clock offset: 3.331 ms

Below is generated by plot.py at 2019-01-21 04:45:31

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 107.274 ms

Loss rate: 0.13%

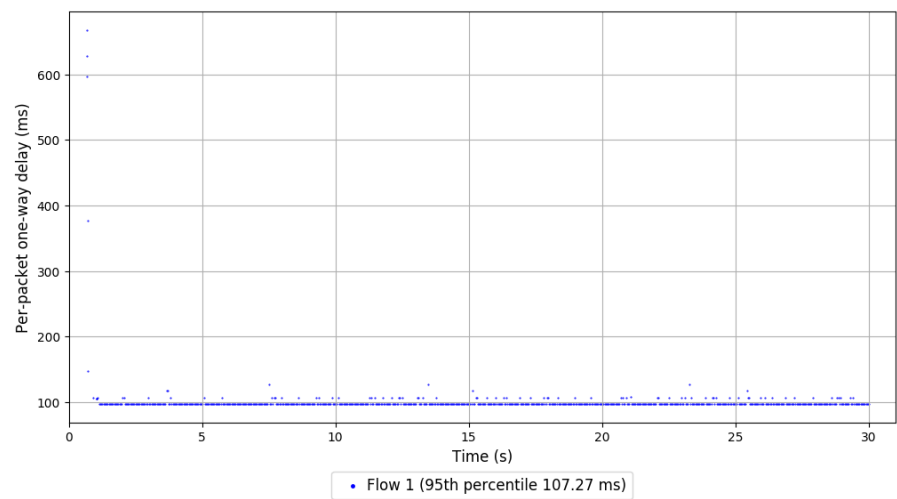
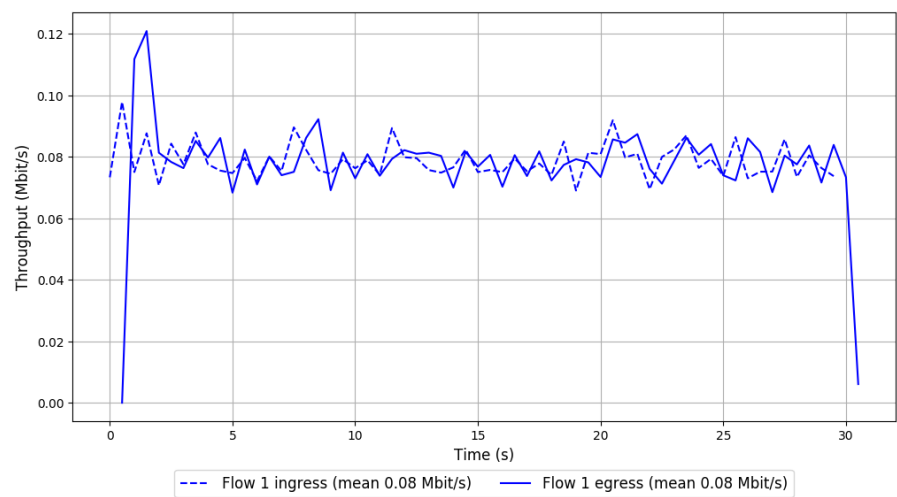
-- Flow 1:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 107.274 ms

Loss rate: 0.13%

Run 3: Report of SReAM — Data Link



Run 1: Statistics of Sprout

Start at: 2019-01-21 03:39:31

End at: 2019-01-21 03:40:01

Local clock offset: -2.405 ms

Remote clock offset: 3.012 ms

Below is generated by plot.py at 2019-01-21 04:45:32

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.12 Mbit/s

95th percentile per-packet one-way delay: 150.538 ms

Loss rate: 0.02%

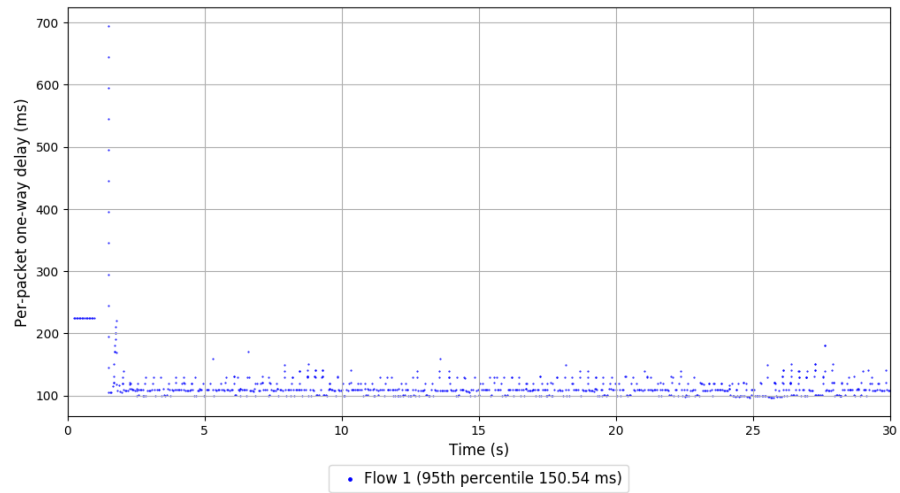
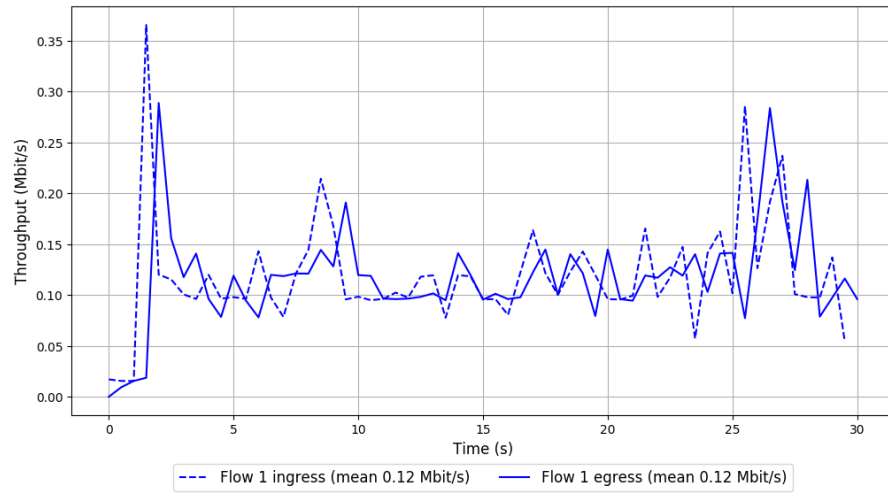
-- Flow 1:

Average throughput: 0.12 Mbit/s

95th percentile per-packet one-way delay: 150.538 ms

Loss rate: 0.02%

Run 1: Report of Sprout — Data Link



Run 2: Statistics of Sprout

Start at: 2019-01-21 04:03:27

End at: 2019-01-21 04:03:57

Local clock offset: -2.514 ms

Remote clock offset: 6.155 ms

Below is generated by plot.py at 2019-01-21 04:45:32

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.14 Mbit/s

95th percentile per-packet one-way delay: 156.928 ms

Loss rate: 0.03%

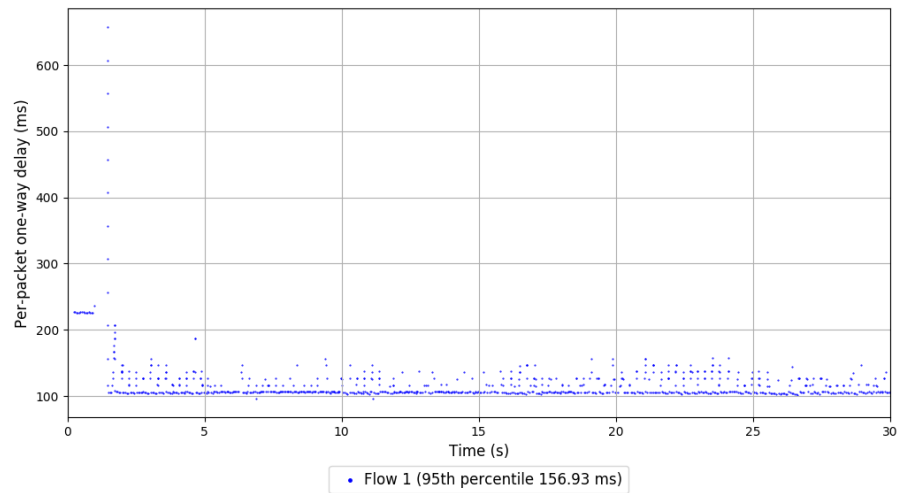
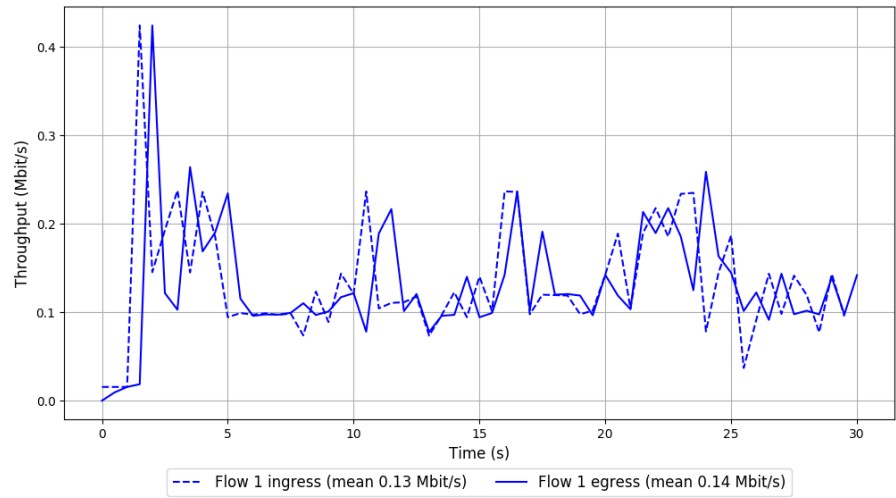
-- Flow 1:

Average throughput: 0.14 Mbit/s

95th percentile per-packet one-way delay: 156.928 ms

Loss rate: 0.03%

Run 2: Report of Sprout — Data Link

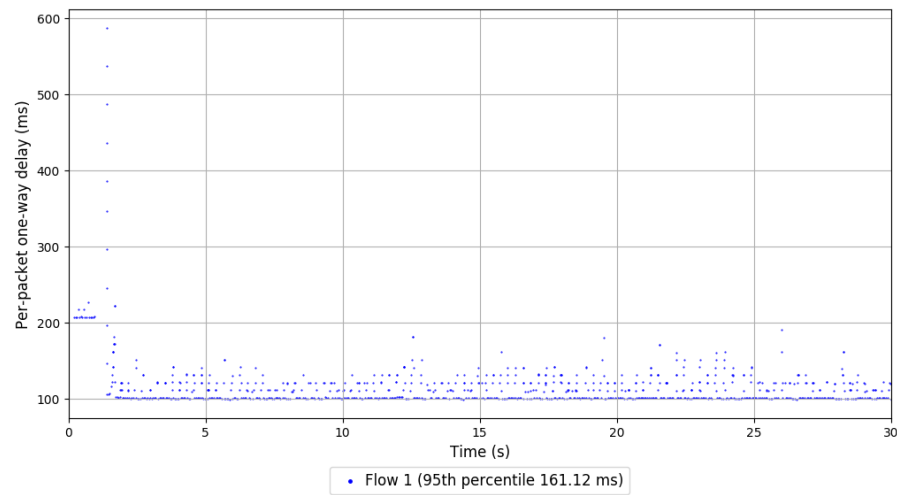
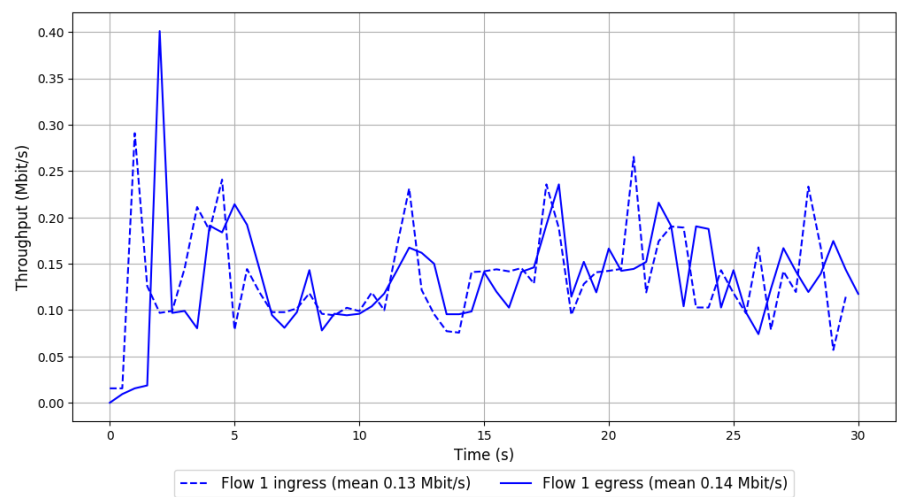


Run 3: Statistics of Sprout

Start at: 2019-01-21 04:27:20
End at: 2019-01-21 04:27:50
Local clock offset: -5.636 ms
Remote clock offset: 6.51 ms

Below is generated by plot.py at 2019-01-21 04:45:32
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 161.118 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 161.118 ms
Loss rate: 0.00%

Run 3: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

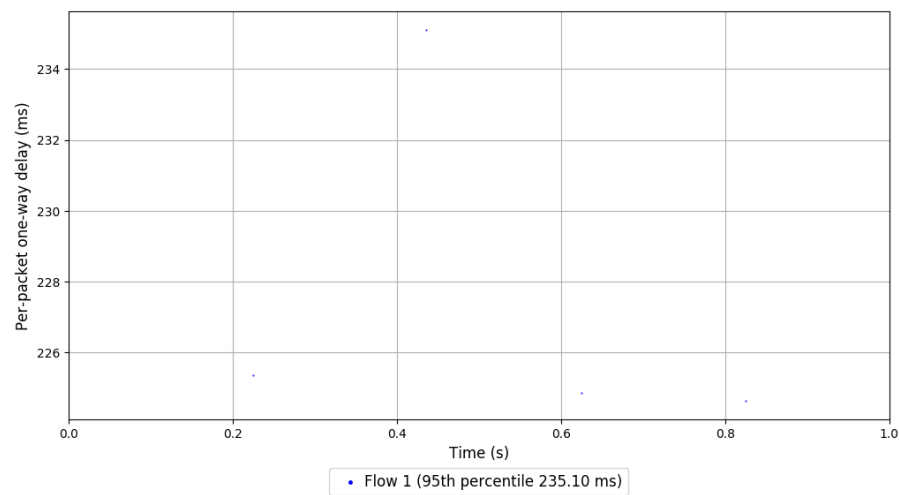
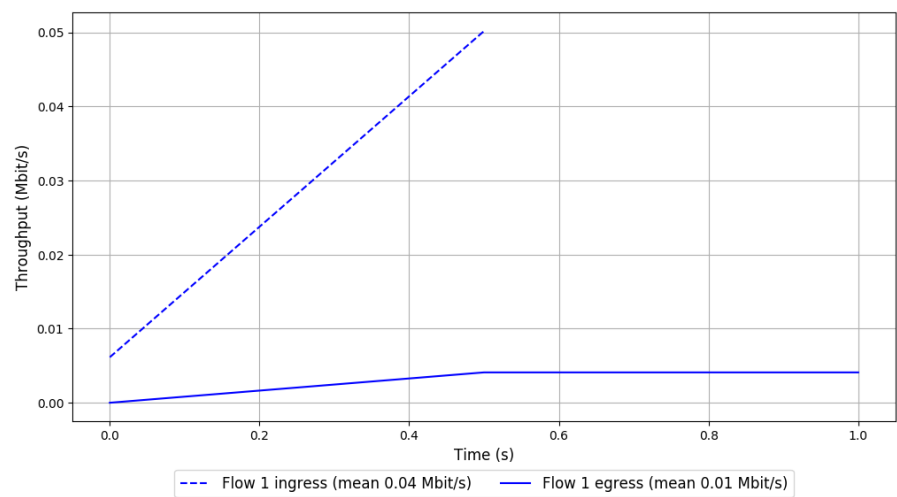
Start at: 2019-01-21 03:33:49

End at: 2019-01-21 03:34:19

Local clock offset: -2.263 ms

Remote clock offset: 3.079 ms

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



Run 2: Statistics of TaoVA-100x

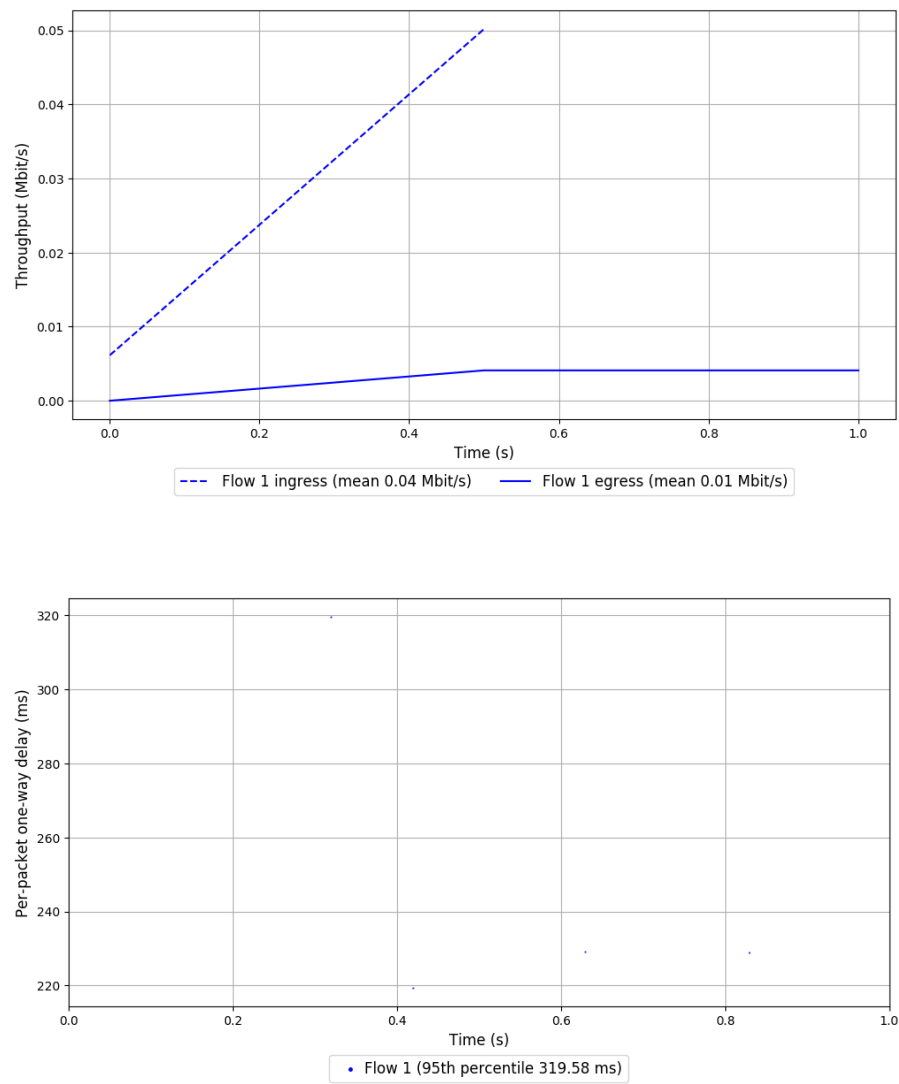
Start at: 2019-01-21 03:57:44

End at: 2019-01-21 03:58:14

Local clock offset: -3.134 ms

Remote clock offset: 6.331 ms

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



Run 3: Statistics of TaoVA-100x

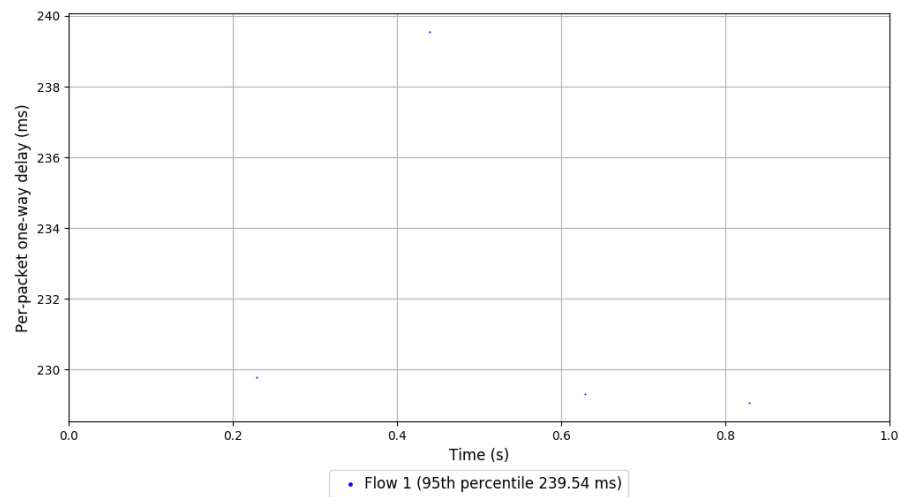
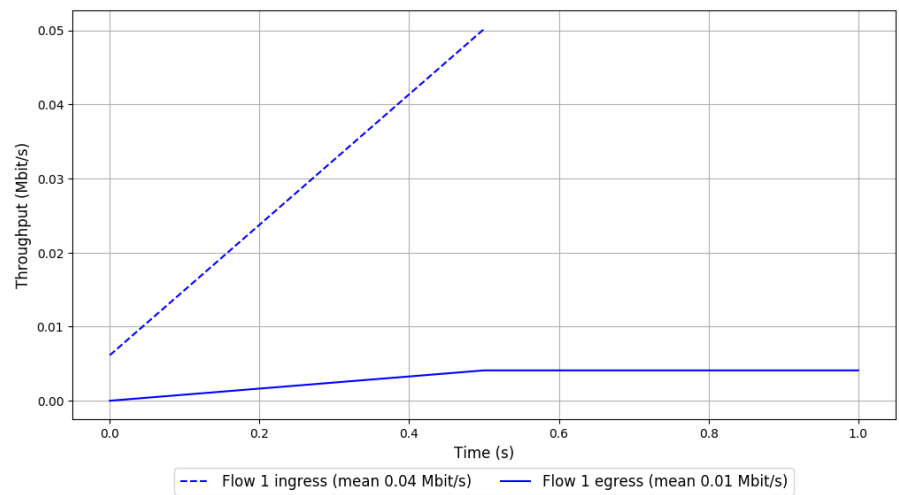
Start at: 2019-01-21 04:21:40

End at: 2019-01-21 04:22:10

Local clock offset: -5.375 ms

Remote clock offset: 6.604 ms

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



Run 1: Statistics of TCP Vegas

Start at: 2019-01-21 03:48:37

End at: 2019-01-21 03:49:07

Local clock offset: -2.322 ms

Remote clock offset: 2.258 ms

Below is generated by plot.py at 2019-01-21 04:45:34

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.48 Mbit/s

95th percentile per-packet one-way delay: 282.668 ms

Loss rate: 0.08%

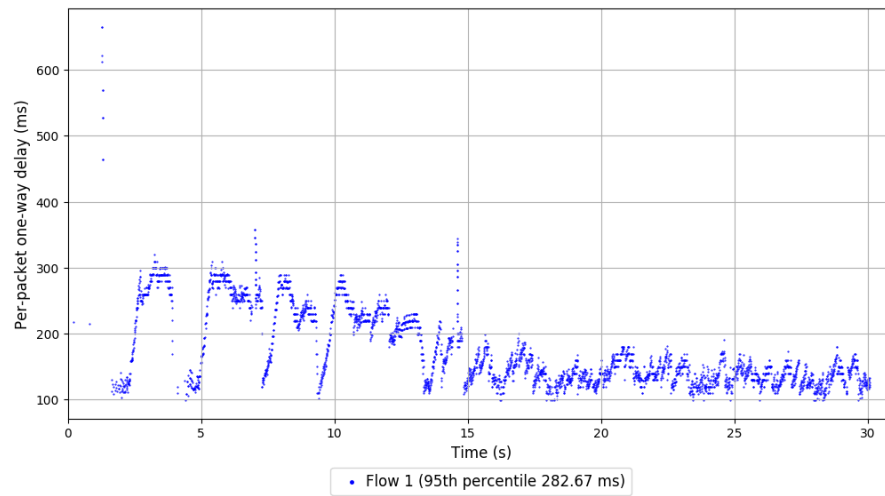
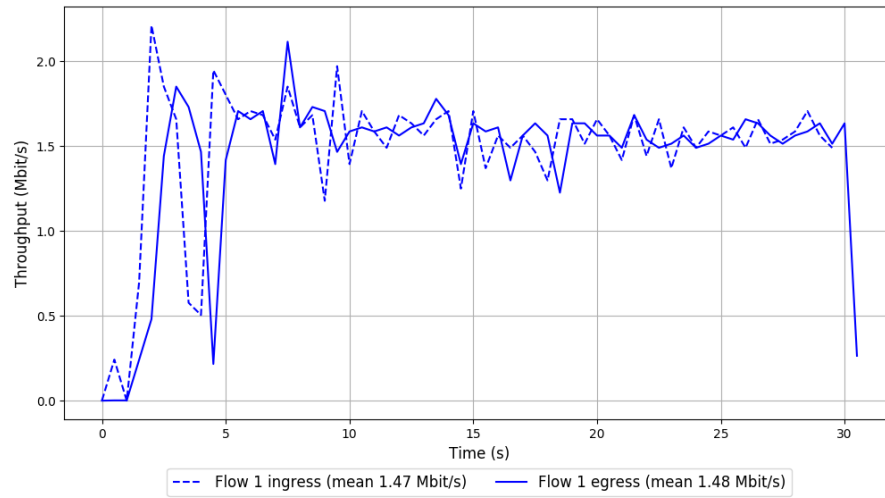
-- Flow 1:

Average throughput: 1.48 Mbit/s

95th percentile per-packet one-way delay: 282.668 ms

Loss rate: 0.08%

Run 1: Report of TCP Vegas — Data Link



Run 2: Statistics of TCP Vegas

Start at: 2019-01-21 04:12:34

End at: 2019-01-21 04:13:04

Local clock offset: -2.648 ms

Remote clock offset: 6.604 ms

Below is generated by plot.py at 2019-01-21 04:45:35

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.42 Mbit/s

95th percentile per-packet one-way delay: 253.785 ms

Loss rate: 0.25%

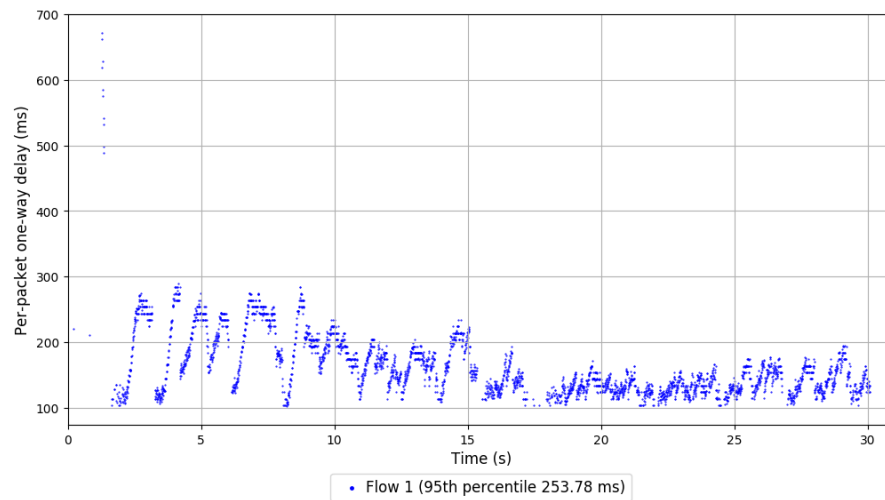
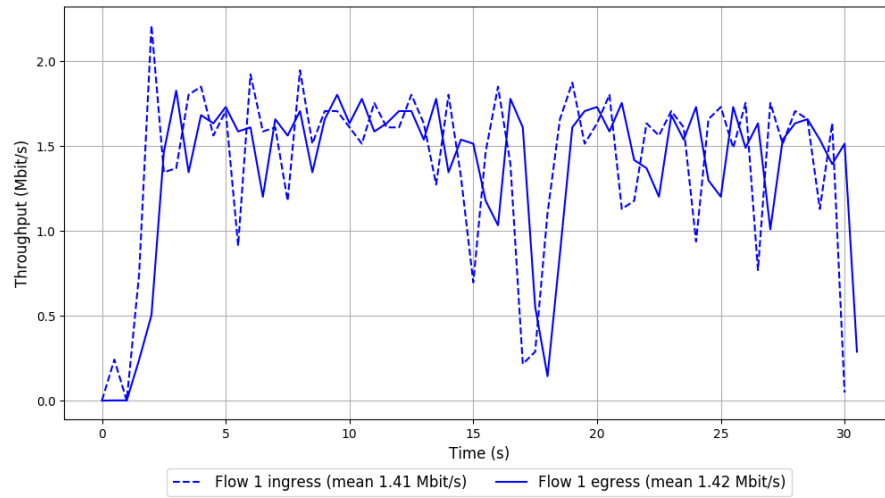
-- Flow 1:

Average throughput: 1.42 Mbit/s

95th percentile per-packet one-way delay: 253.785 ms

Loss rate: 0.25%

Run 2: Report of TCP Vegas — Data Link



Run 3: Statistics of TCP Vegas

Start at: 2019-01-21 04:36:26

End at: 2019-01-21 04:36:56

Local clock offset: -6.695 ms

Remote clock offset: 3.679 ms

Below is generated by plot.py at 2019-01-21 04:45:35

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.97 Mbit/s

95th percentile per-packet one-way delay: 713.814 ms

Loss rate: 0.17%

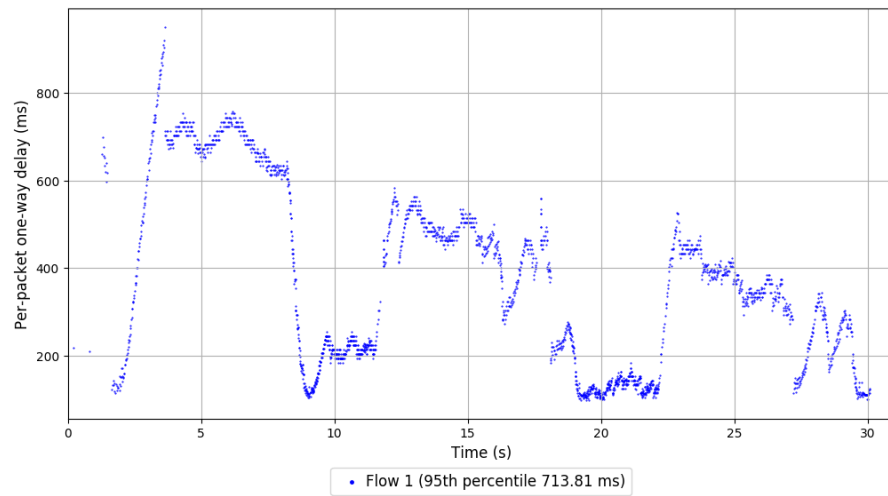
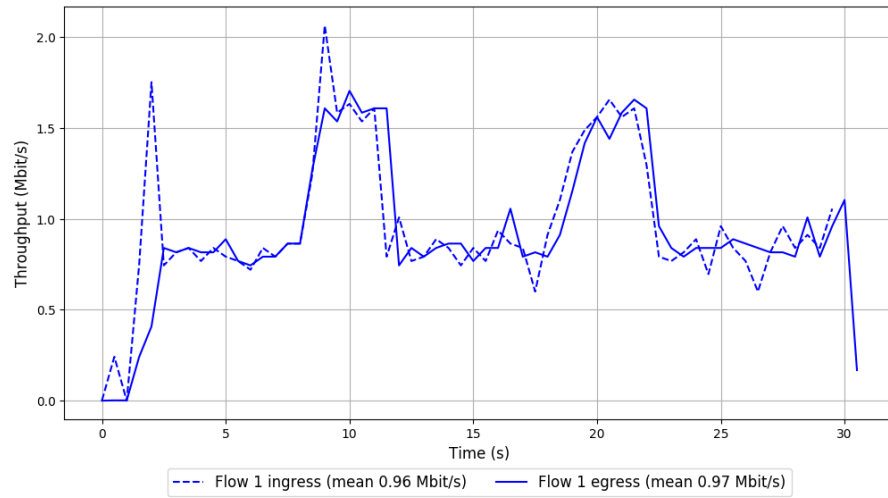
-- Flow 1:

Average throughput: 0.97 Mbit/s

95th percentile per-packet one-way delay: 713.814 ms

Loss rate: 0.17%

Run 3: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

Start at: 2019-01-21 03:54:19

End at: 2019-01-21 03:54:49

Local clock offset: -3.009 ms

Remote clock offset: 6.036 ms

Below is generated by plot.py at 2019-01-21 04:45:38

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.60 Mbit/s

95th percentile per-packet one-way delay: 1476.183 ms

Loss rate: 1.62%

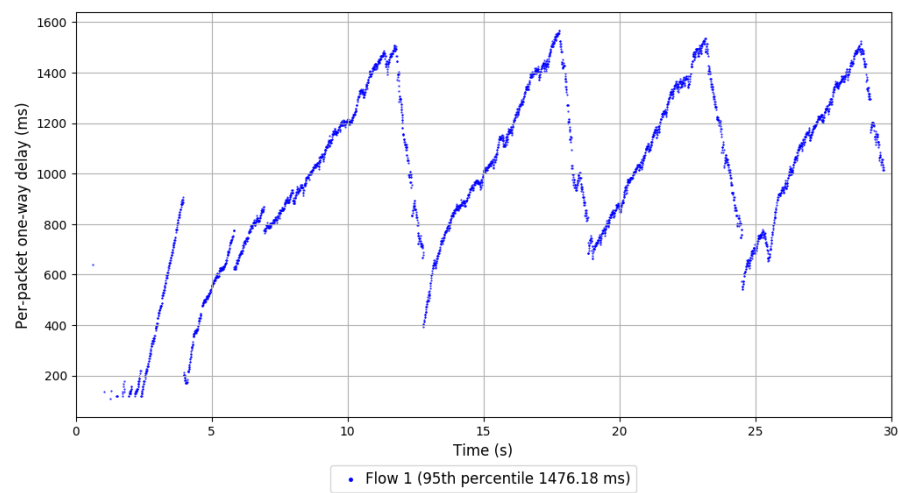
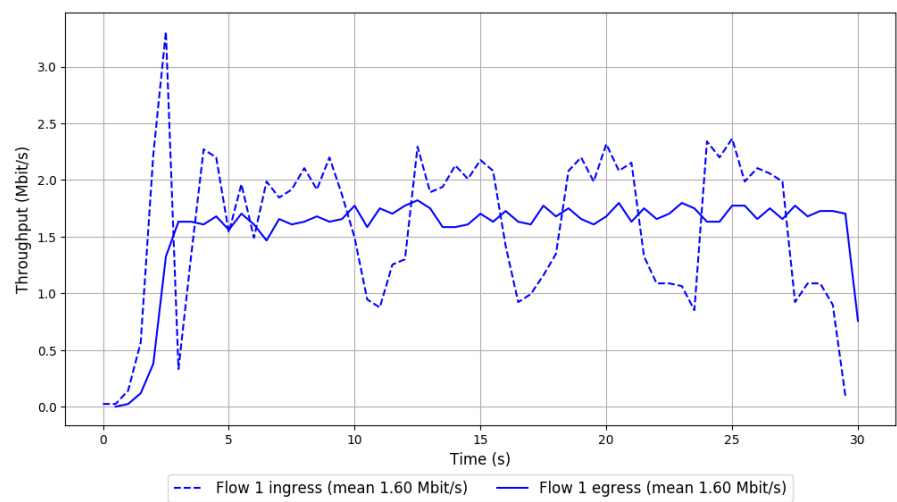
-- Flow 1:

Average throughput: 1.60 Mbit/s

95th percentile per-packet one-way delay: 1476.183 ms

Loss rate: 1.62%

Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

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

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

Local clock offset: -4.265 ms

Remote clock offset: 3.061 ms

Below is generated by plot.py at 2019-01-21 04:45:38

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.06 Mbit/s

95th percentile per-packet one-way delay: 1755.131 ms

Loss rate: 1.92%

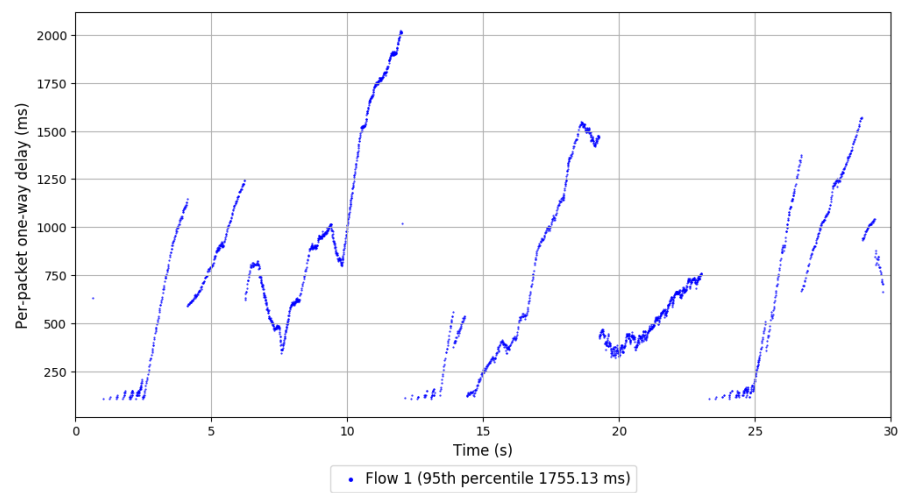
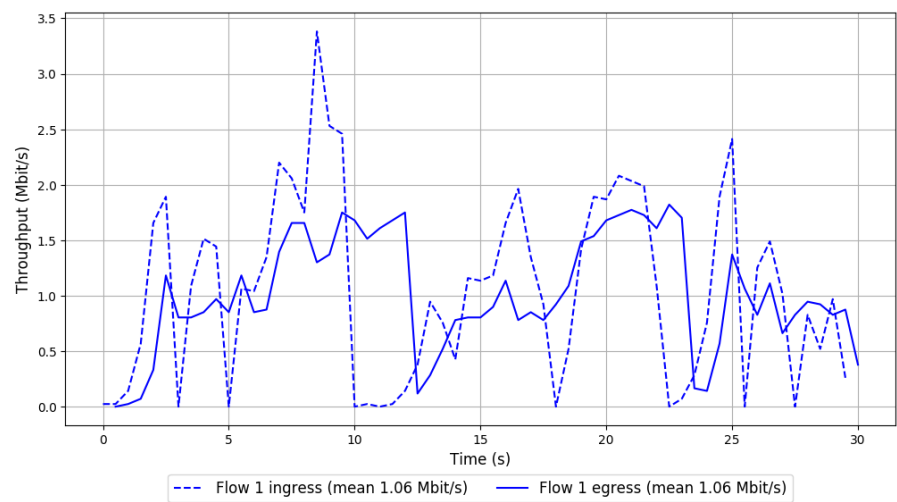
-- Flow 1:

Average throughput: 1.06 Mbit/s

95th percentile per-packet one-way delay: 1755.131 ms

Loss rate: 1.92%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2019-01-21 04:42:08

End at: 2019-01-21 04:42:38

Local clock offset: -7.91 ms

Remote clock offset: 3.31 ms

Below is generated by plot.py at 2019-01-21 04:45:38

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.61 Mbit/s

95th percentile per-packet one-way delay: 1603.815 ms

Loss rate: 4.82%

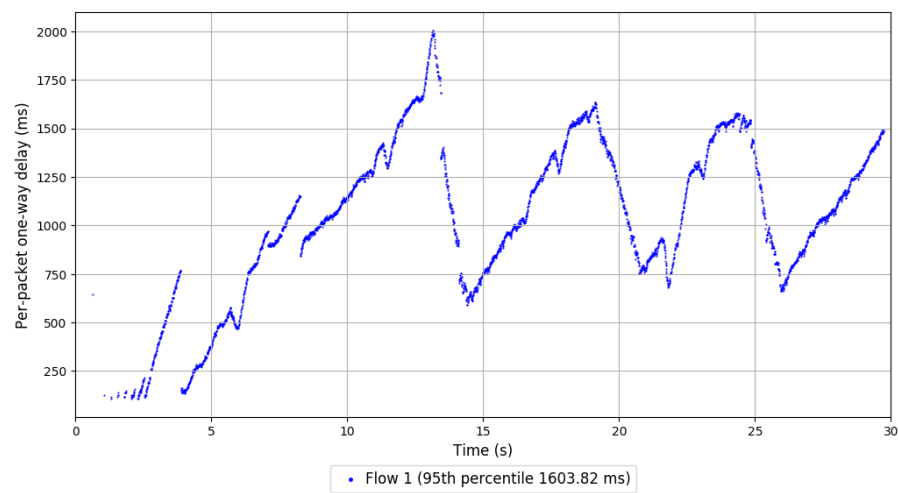
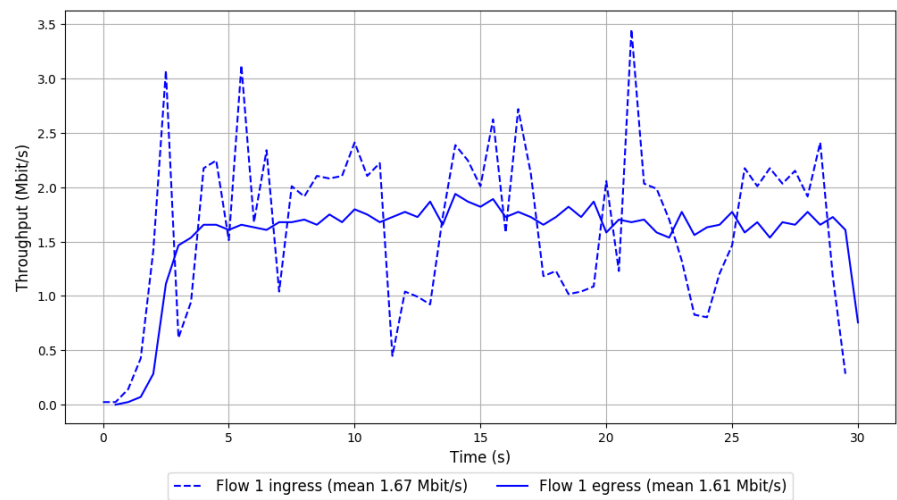
-- Flow 1:

Average throughput: 1.61 Mbit/s

95th percentile per-packet one-way delay: 1603.815 ms

Loss rate: 4.82%

Run 3: Report of Verus — Data Link



Run 1: Statistics of PCC-Vivace

Start at: 2019-01-21 03:34:57

End at: 2019-01-21 03:35:27

Local clock offset: -2.859 ms

Remote clock offset: 3.225 ms

Below is generated by plot.py at 2019-01-21 04:45:39

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.25 Mbit/s

95th percentile per-packet one-way delay: 760.453 ms

Loss rate: 1.57%

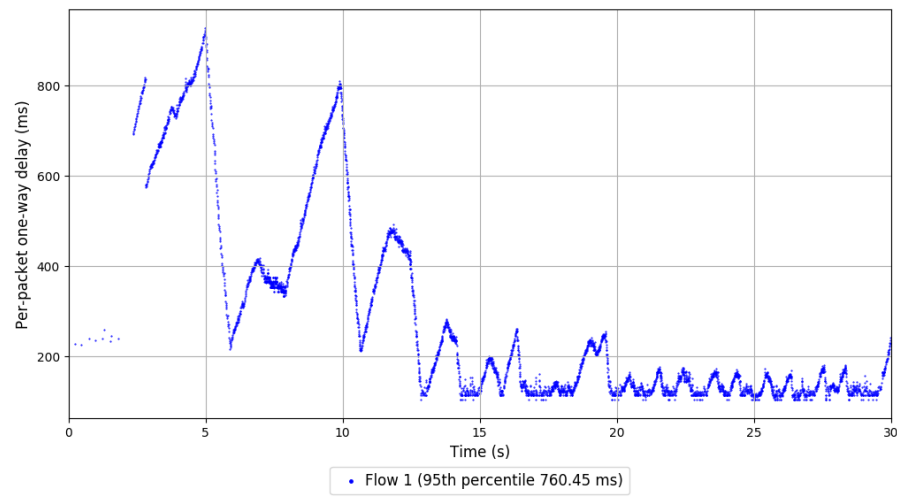
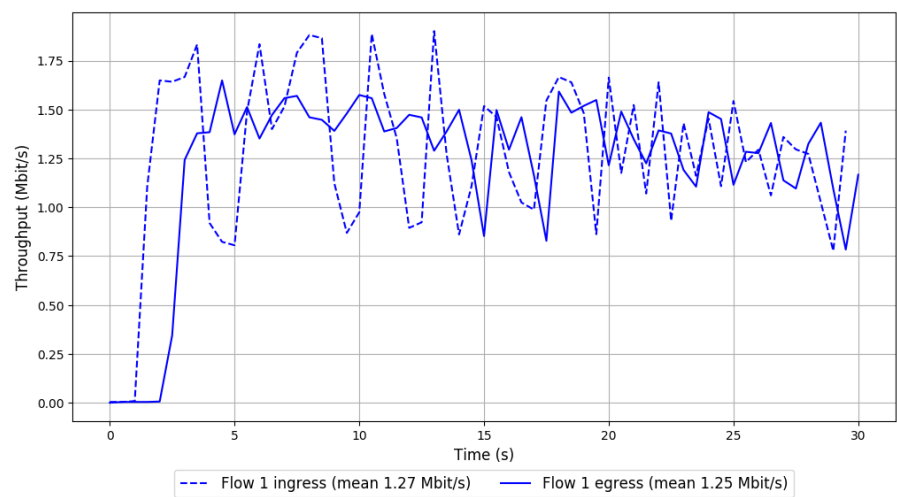
-- Flow 1:

Average throughput: 1.25 Mbit/s

95th percentile per-packet one-way delay: 760.453 ms

Loss rate: 1.57%

Run 1: Report of PCC-Vivace — Data Link



Run 2: Statistics of PCC-Vivace

Start at: 2019-01-21 03:58:54

End at: 2019-01-21 03:59:24

Local clock offset: -2.407 ms

Remote clock offset: 2.968 ms

Below is generated by plot.py at 2019-01-21 04:45:39

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.17 Mbit/s

95th percentile per-packet one-way delay: 1173.126 ms

Loss rate: 0.88%

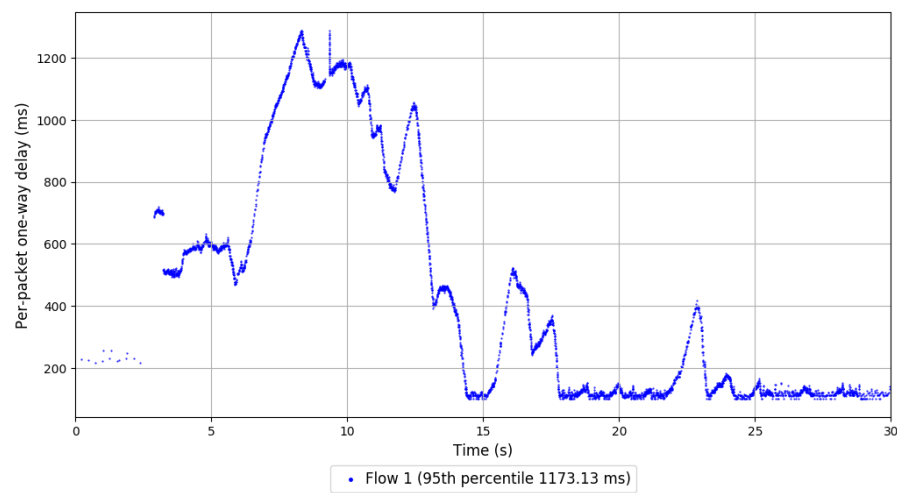
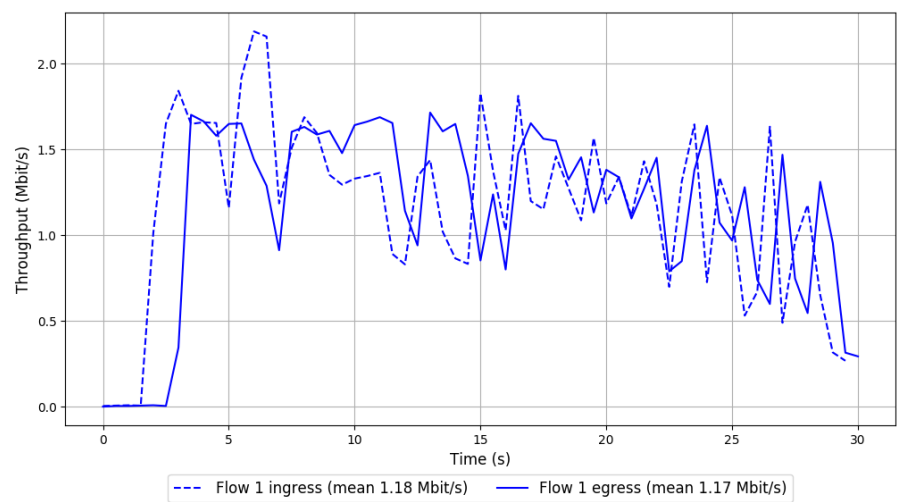
-- Flow 1:

Average throughput: 1.17 Mbit/s

95th percentile per-packet one-way delay: 1173.126 ms

Loss rate: 0.88%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2019-01-21 04:22:48

End at: 2019-01-21 04:23:18

Local clock offset: -5.531 ms

Remote clock offset: 6.616 ms

Below is generated by plot.py at 2019-01-21 04:45:39

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.15 Mbit/s

95th percentile per-packet one-way delay: 2271.072 ms

Loss rate: 5.70%

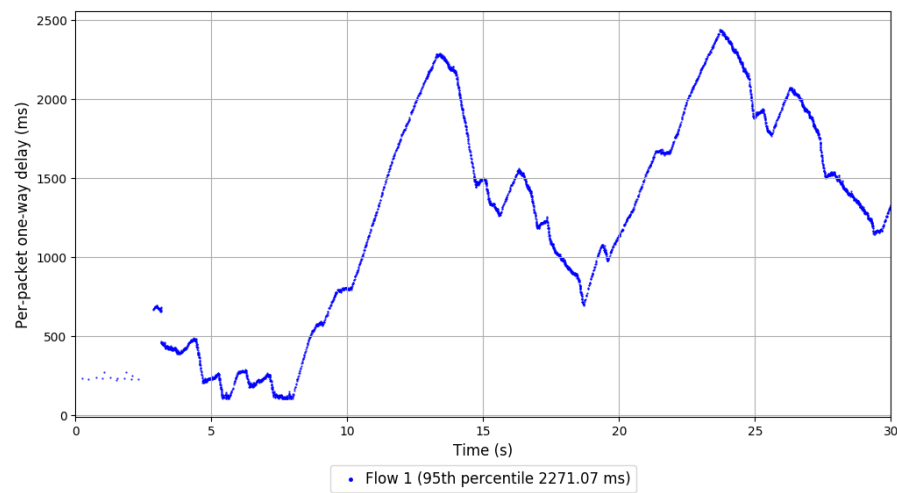
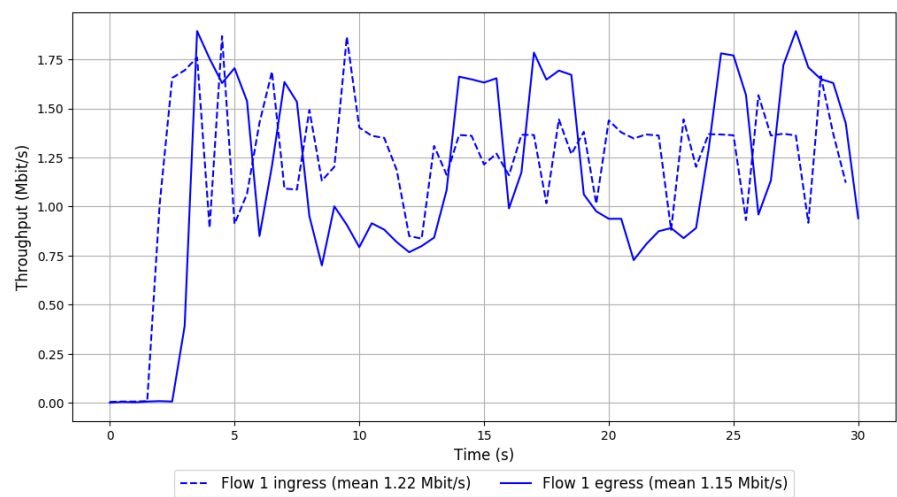
-- Flow 1:

Average throughput: 1.15 Mbit/s

95th percentile per-packet one-way delay: 2271.072 ms

Loss rate: 5.70%

Run 3: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

Start at: 2019-01-21 03:44:04

End at: 2019-01-21 03:44:34

Local clock offset: -1.316 ms

Remote clock offset: 6.678 ms

Below is generated by plot.py at 2019-01-21 04:45:39

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.05 Mbit/s

95th percentile per-packet one-way delay: 263.437 ms

Loss rate: 0.00%

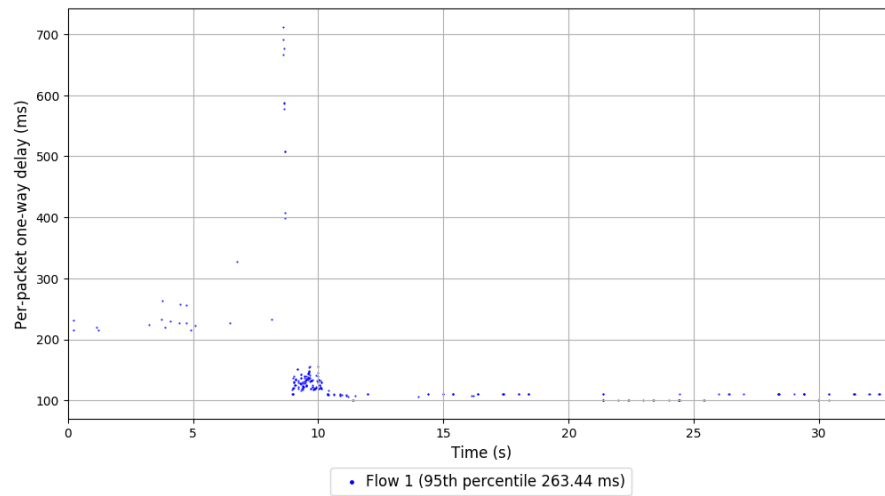
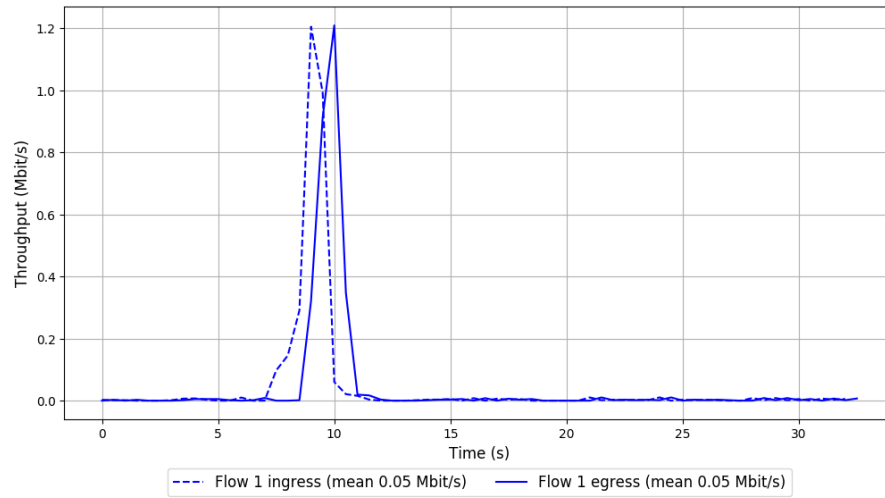
-- Flow 1:

Average throughput: 0.05 Mbit/s

95th percentile per-packet one-way delay: 263.437 ms

Loss rate: 0.00%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

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

End at: 2019-01-21 04:08:31

Local clock offset: -2.579 ms

Remote clock offset: 3.012 ms

Below is generated by plot.py at 2019-01-21 04:45:39

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.05 Mbit/s

95th percentile per-packet one-way delay: 254.520 ms

Loss rate: 0.00%

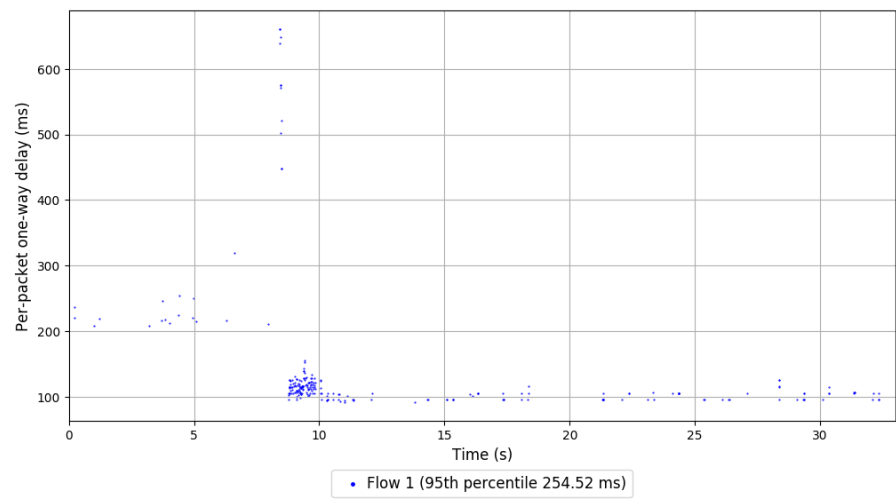
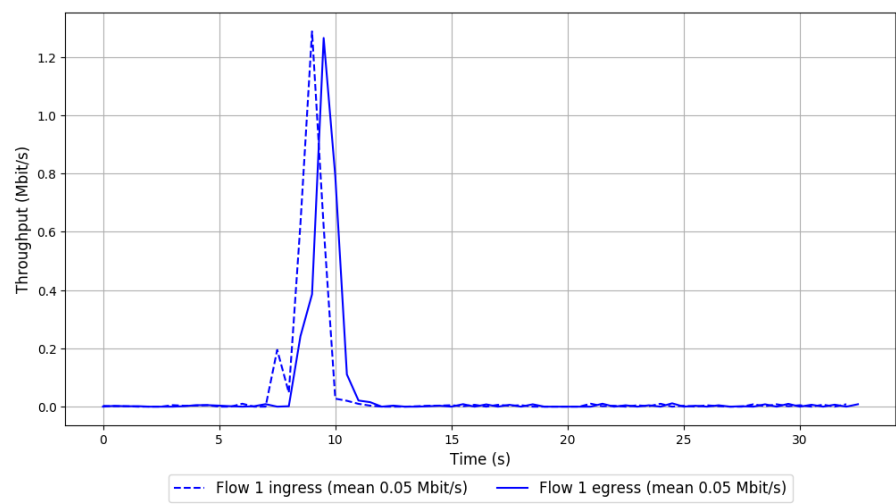
-- Flow 1:

Average throughput: 0.05 Mbit/s

95th percentile per-packet one-way delay: 254.520 ms

Loss rate: 0.00%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2019-01-21 04:31:54

End at: 2019-01-21 04:32:24

Local clock offset: -7.033 ms

Remote clock offset: 7.245 ms

Below is generated by plot.py at 2019-01-21 04:45:39

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.05 Mbit/s

95th percentile per-packet one-way delay: 271.627 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.05 Mbit/s

95th percentile per-packet one-way delay: 271.627 ms

Loss rate: 0.00%

Run 3: Report of WebRTC media — Data Link

