

Pantheon Report

Generated at 2019-01-17 04:17:17 (UTC).

Data path: AWS India 1 on `ens5` (*local*) → India cellular on `ppp0` (*remote*).

Repeated the test of 19 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:

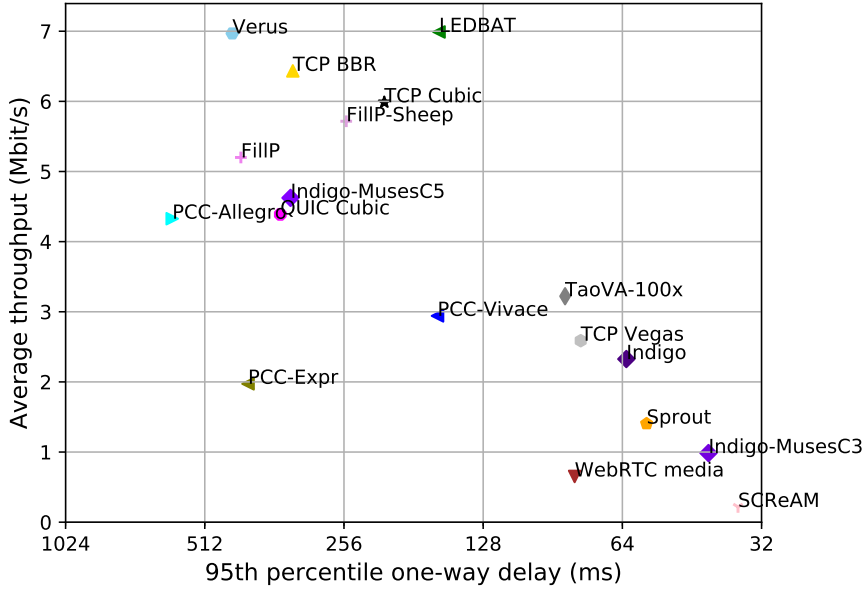
```
Linux 4.15.0-1031-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

Git summary:

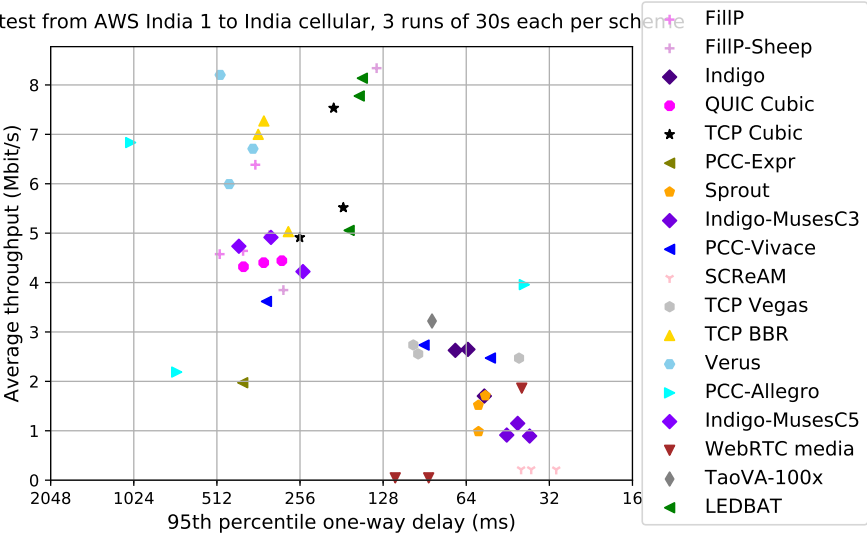
```
branch: muses @ 308b29cefdb093313dc8409e68bf4b4cecd405d1
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecd90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ c3eee875824760ec5b2fd207fefe166e1afe2170
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)



test from AWS India 1 to India cellular, 3 runs of 30s each per scheme



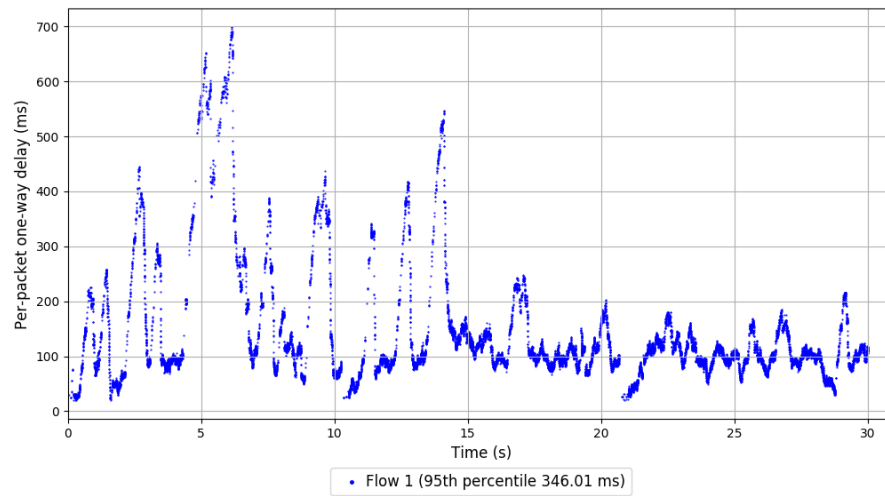
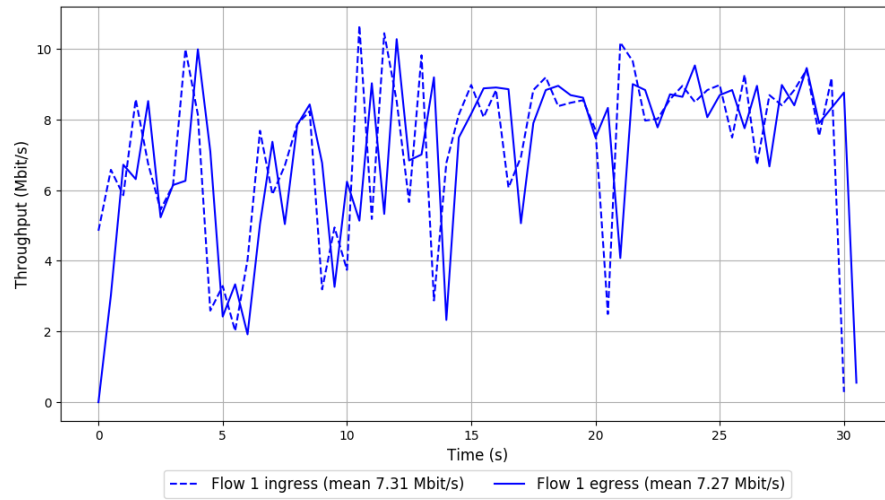
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	6.43	330.30	0.62
Copa	0	N/A	N/A	N/A
TCP Cubic	3	5.99	209.44	0.40
FillP	3	5.20	427.77	1.35
FillP-Sheep	3	5.72	253.14	0.25
Indigo	3	2.33	62.75	0.06
Indigo-MusesC3	3	0.98	41.69	0.09
Indigo-MusesC5	3	4.62	334.09	0.73
LEDBAT	3	6.99	159.50	0.16
PCC-Allegro	3	4.33	602.08	6.06
PCC-Expr	1	1.97	412.83	52.80
QUIC Cubic	3	4.39	351.55	0.67
SCReAM	3	0.22	35.99	0.09
Sprout	3	1.41	56.73	0.10
TaoVA-100x	1	3.22	85.13	22.10
TCP Vegas	3	2.59	78.75	0.06
Verus	3	6.97	446.51	0.91
PCC-Vivace	3	2.94	160.70	0.05
WebRTC media	3	0.65	81.17	0.02

Run 1: Statistics of TCP BBR

Start at: 2019-01-17 03:19:28
End at: 2019-01-17 03:19:58
Local clock offset: -16.583 ms
Remote clock offset: -4.112 ms

Below is generated by plot.py at 2019-01-17 04:16:37
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.27 Mbit/s
95th percentile per-packet one-way delay: 346.007 ms
Loss rate: 0.53%
-- Flow 1:
Average throughput: 7.27 Mbit/s
95th percentile per-packet one-way delay: 346.007 ms
Loss rate: 0.53%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2019-01-17 03:40:48

End at: 2019-01-17 03:41:18

Local clock offset: -8.5 ms

Remote clock offset: -3.433 ms

Below is generated by plot.py at 2019-01-17 04:16:37

Datalink statistics

-- Total of 1 flow:

Average throughput: 7.00 Mbit/s

95th percentile per-packet one-way delay: 362.722 ms

Loss rate: 0.83%

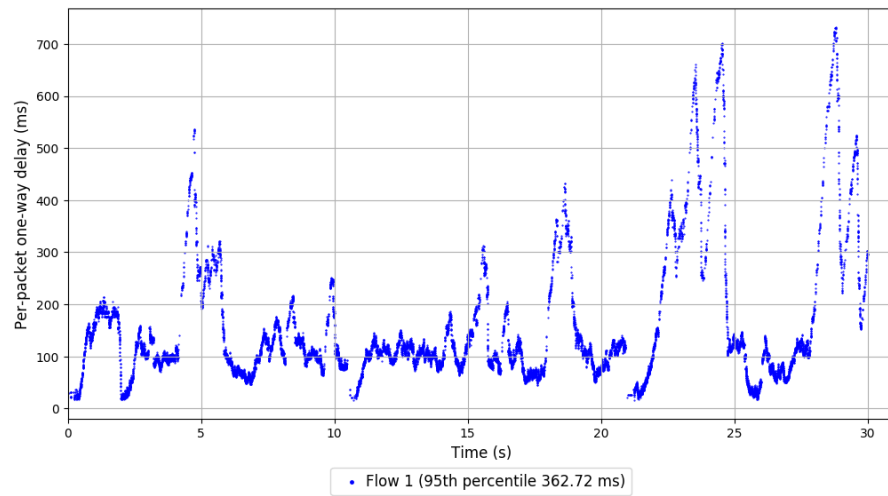
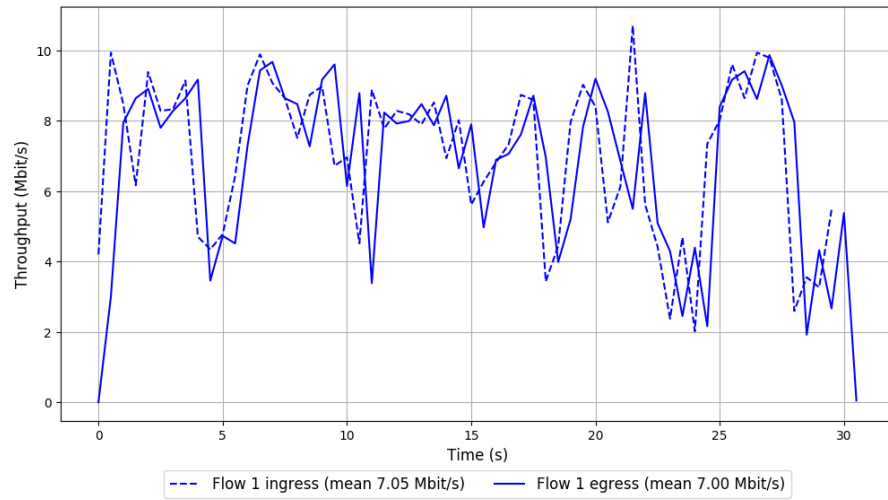
-- Flow 1:

Average throughput: 7.00 Mbit/s

95th percentile per-packet one-way delay: 362.722 ms

Loss rate: 0.83%

Run 2: Report of TCP BBR — Data Link

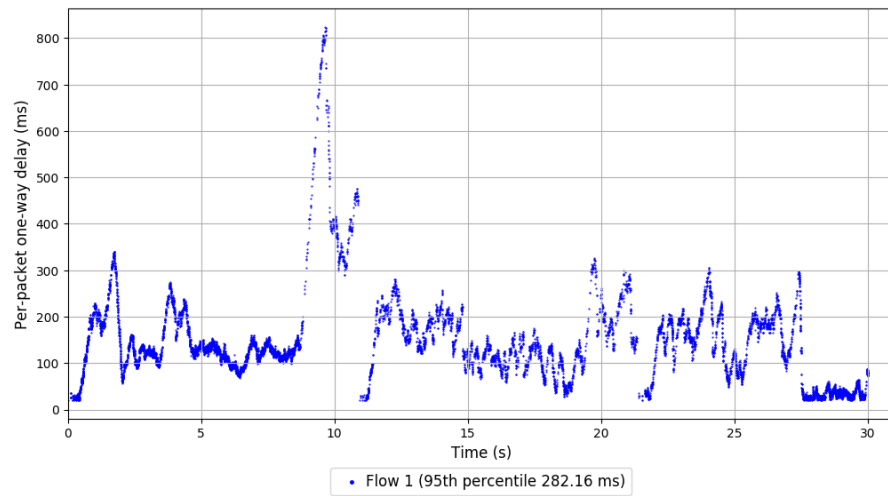
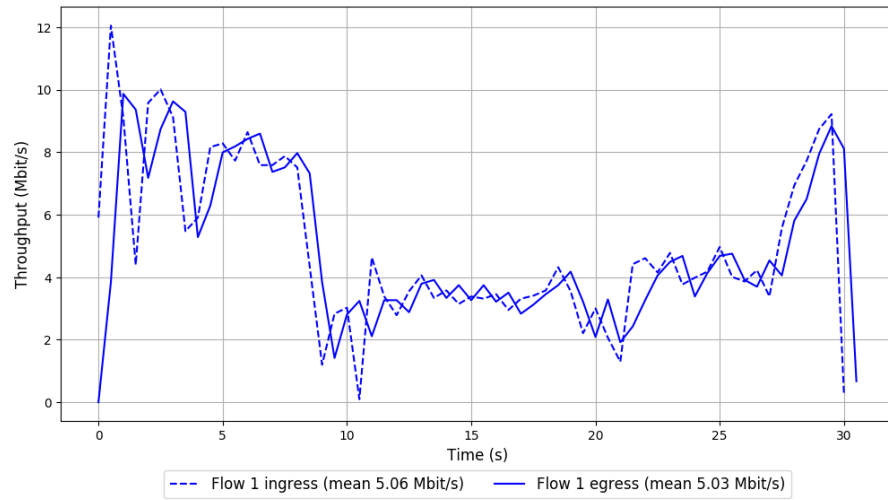


Run 3: Statistics of TCP BBR

Start at: 2019-01-17 04:02:30
End at: 2019-01-17 04:03:00
Local clock offset: -7.036 ms
Remote clock offset: -4.289 ms

Below is generated by plot.py at 2019-01-17 04:16:37
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.03 Mbit/s
95th percentile per-packet one-way delay: 282.158 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 5.03 Mbit/s
95th percentile per-packet one-way delay: 282.158 ms
Loss rate: 0.51%

Run 3: Report of TCP BBR — Data Link



Run 1: Statistics of Copa

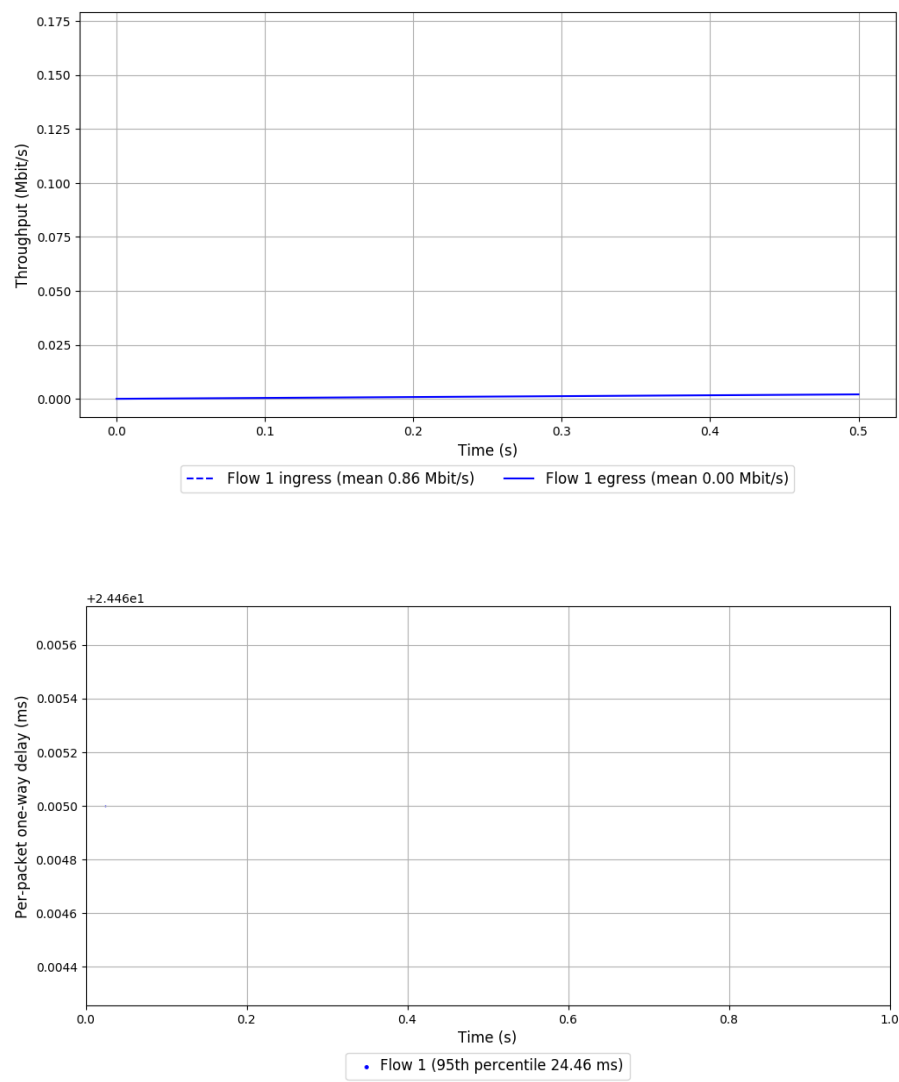
Start at: 2019-01-17 03:27:19

End at: 2019-01-17 03:27:49

Local clock offset: -9.339 ms

Remote clock offset: -3.064 ms

Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

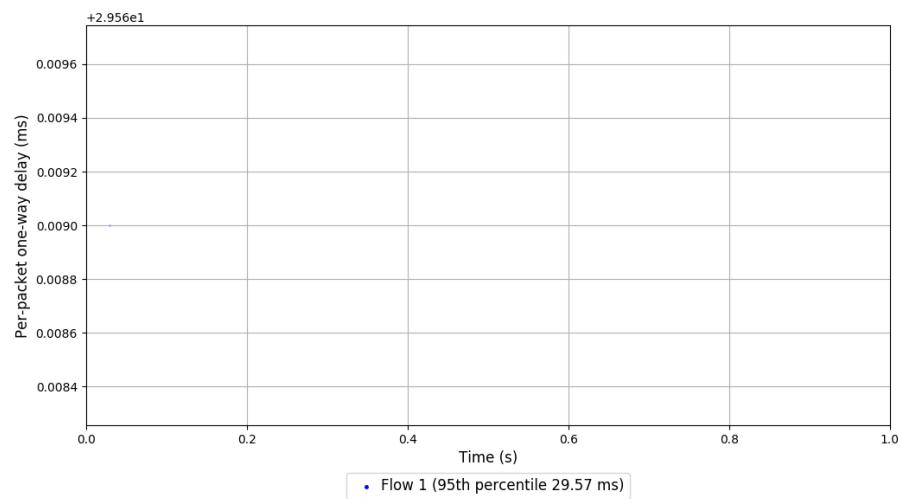
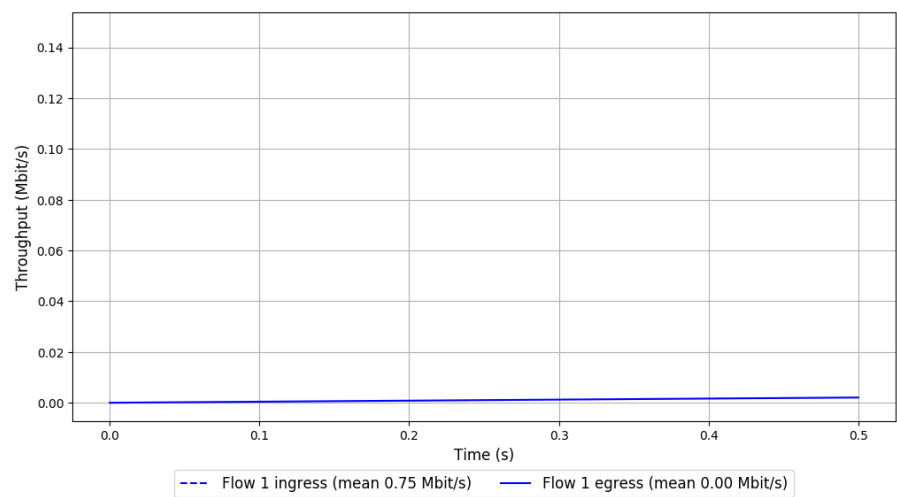
Start at: 2019-01-17 03:48:41

End at: 2019-01-17 03:49:11

Local clock offset: -11.489 ms

Remote clock offset: -4.03 ms

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

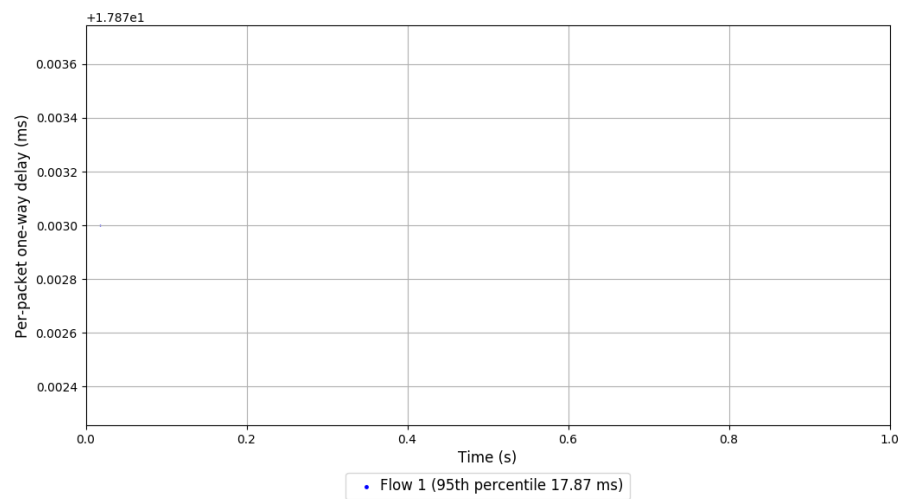
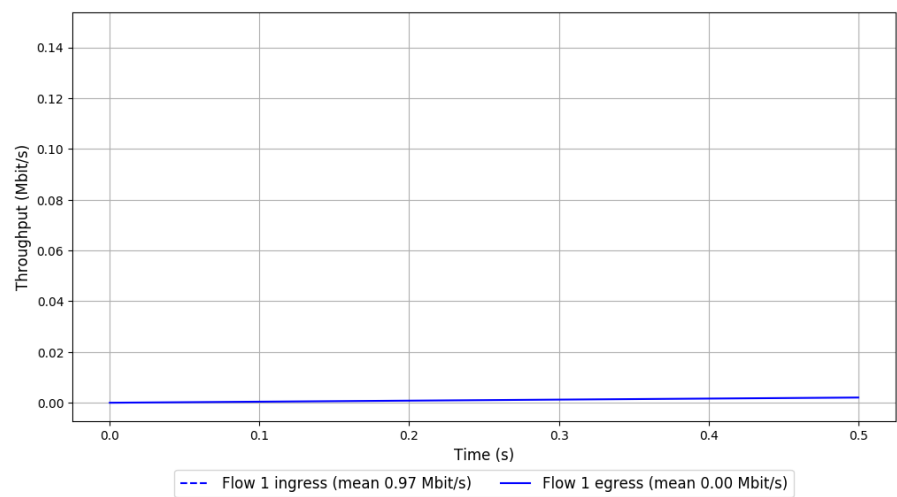
Start at: 2019-01-17 04:10:17

End at: 2019-01-17 04:10:47

Local clock offset: -6.512 ms

Remote clock offset: -5.274 ms

Run 3: Report of Copa — Data Link

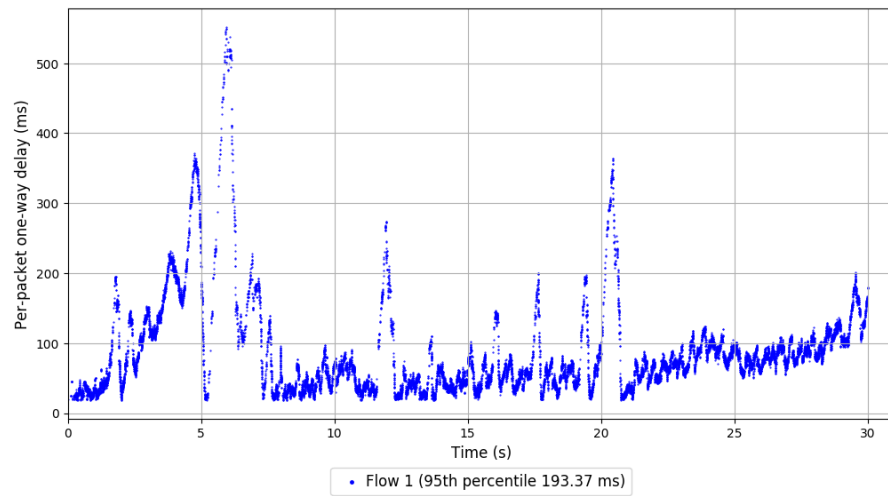
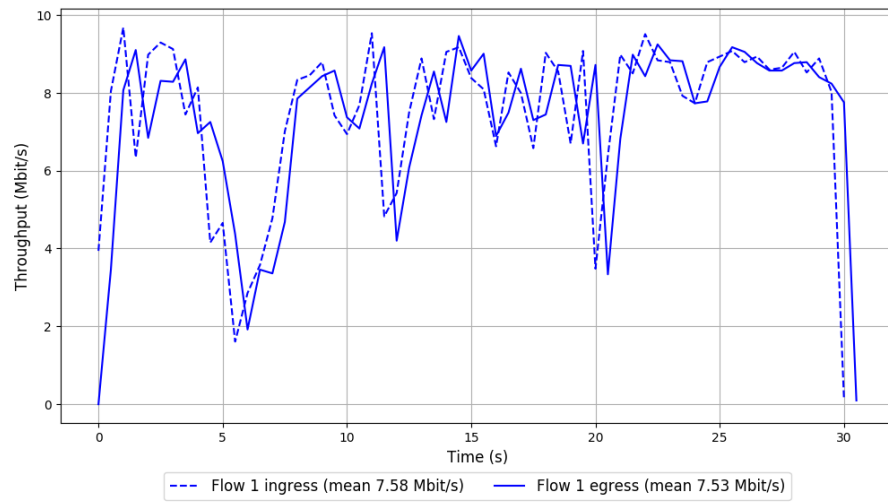


Run 1: Statistics of TCP Cubic

Start at: 2019-01-17 03:28:30
End at: 2019-01-17 03:29:00
Local clock offset: -9.358 ms
Remote clock offset: -3.942 ms

Below is generated by plot.py at 2019-01-17 04:16:38
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.53 Mbit/s
95th percentile per-packet one-way delay: 193.368 ms
Loss rate: 0.68%
-- Flow 1:
Average throughput: 7.53 Mbit/s
95th percentile per-packet one-way delay: 193.368 ms
Loss rate: 0.68%

Run 1: Report of TCP Cubic — Data Link

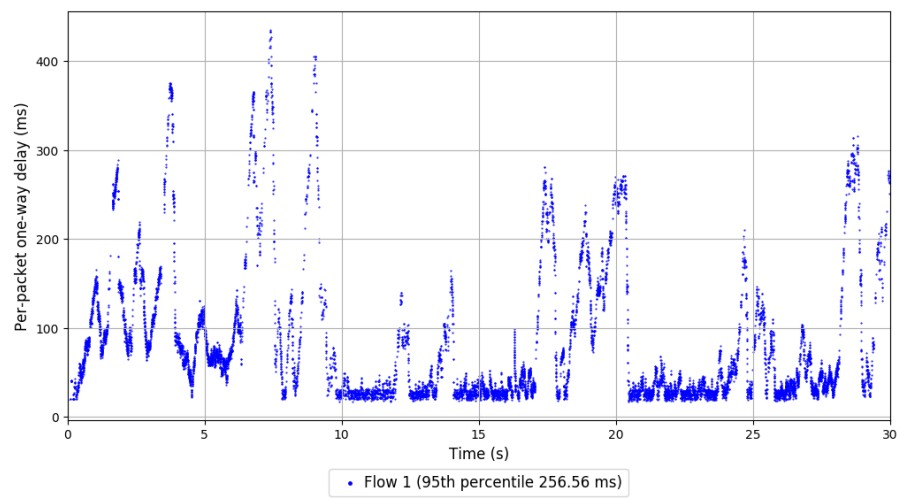
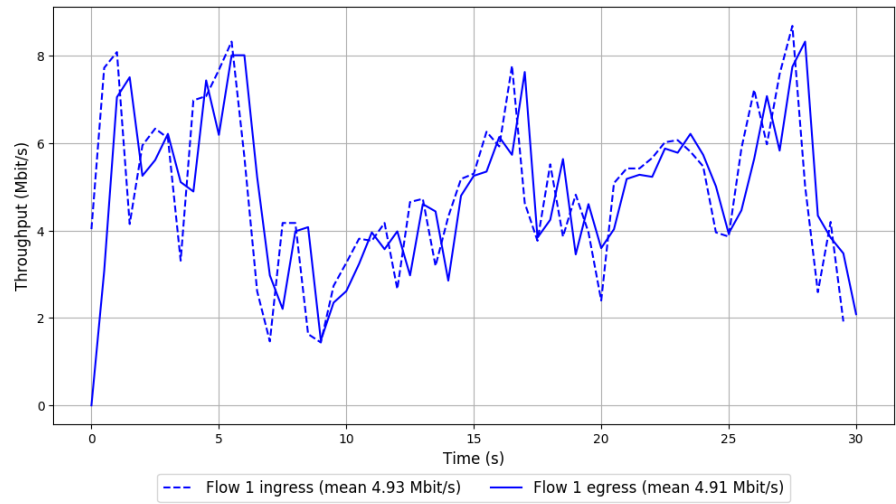


Run 2: Statistics of TCP Cubic

Start at: 2019-01-17 03:49:47
End at: 2019-01-17 03:50:17
Local clock offset: -8.735 ms
Remote clock offset: -4.161 ms

Below is generated by plot.py at 2019-01-17 04:16:38
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.91 Mbit/s
95th percentile per-packet one-way delay: 256.559 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 4.91 Mbit/s
95th percentile per-packet one-way delay: 256.559 ms
Loss rate: 0.40%

Run 2: Report of TCP Cubic — Data Link

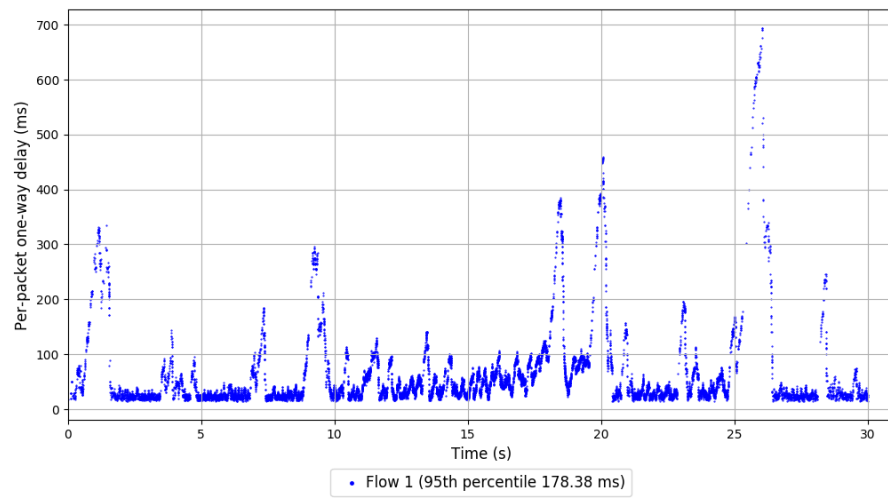
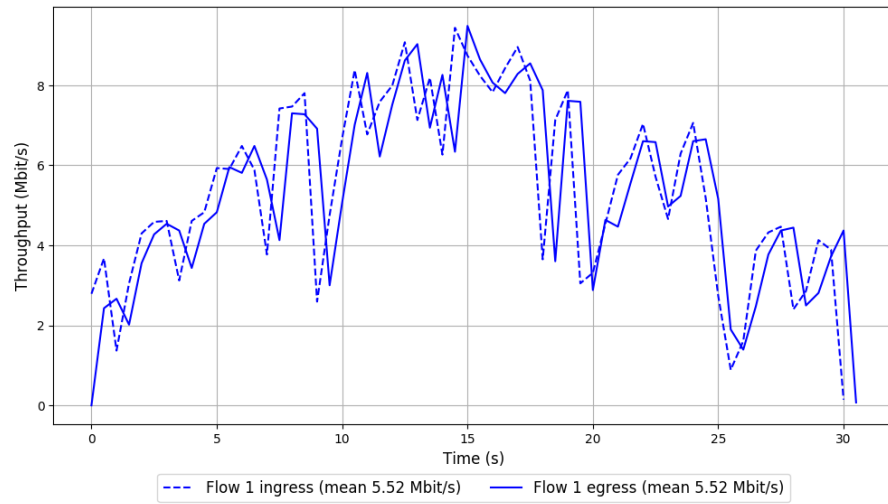


Run 3: Statistics of TCP Cubic

Start at: 2019-01-17 04:11:23
End at: 2019-01-17 04:11:53
Local clock offset: -5.146 ms
Remote clock offset: -5.295 ms

Below is generated by plot.py at 2019-01-17 04:16:38
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.52 Mbit/s
95th percentile per-packet one-way delay: 178.380 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 5.52 Mbit/s
95th percentile per-packet one-way delay: 178.380 ms
Loss rate: 0.12%

Run 3: Report of TCP Cubic — Data Link

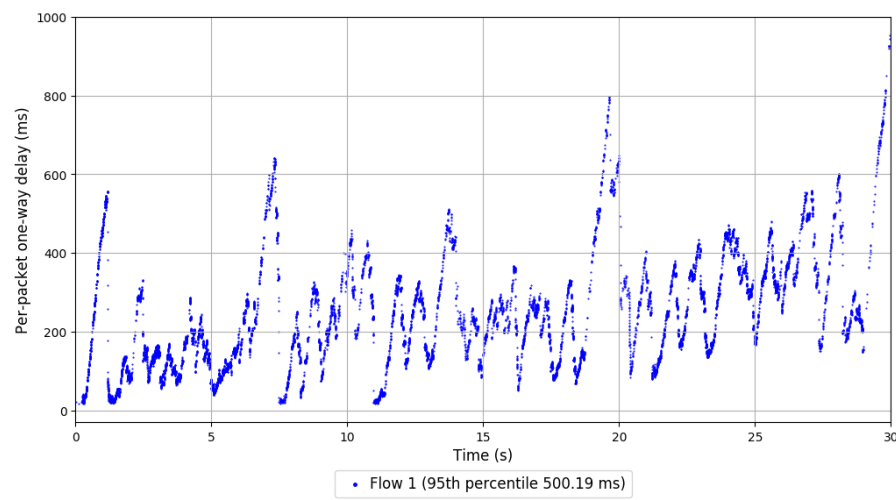
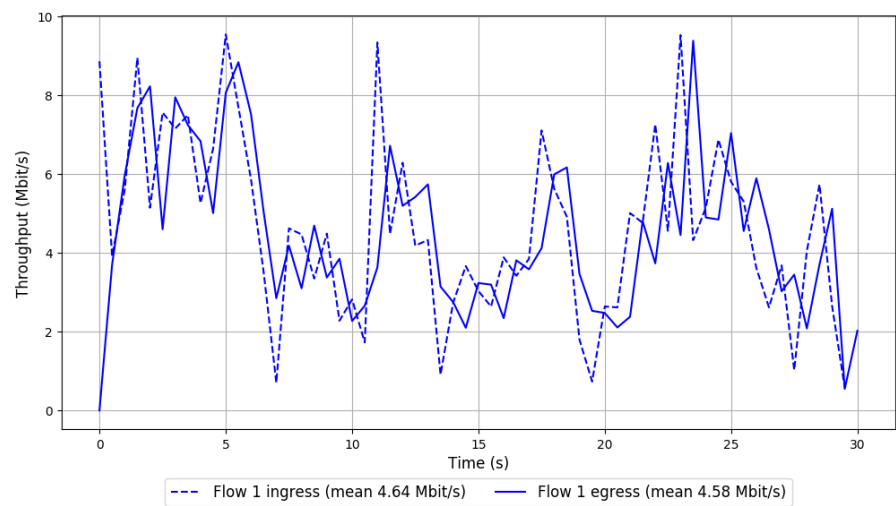


Run 1: Statistics of FillP

Start at: 2019-01-17 03:16:06
End at: 2019-01-17 03:16:36
Local clock offset: -19.272 ms
Remote clock offset: -3.986 ms

Below is generated by plot.py at 2019-01-17 04:16:38
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.58 Mbit/s
95th percentile per-packet one-way delay: 500.194 ms
Loss rate: 1.52%
-- Flow 1:
Average throughput: 4.58 Mbit/s
95th percentile per-packet one-way delay: 500.194 ms
Loss rate: 1.52%

Run 1: Report of FillP — Data Link

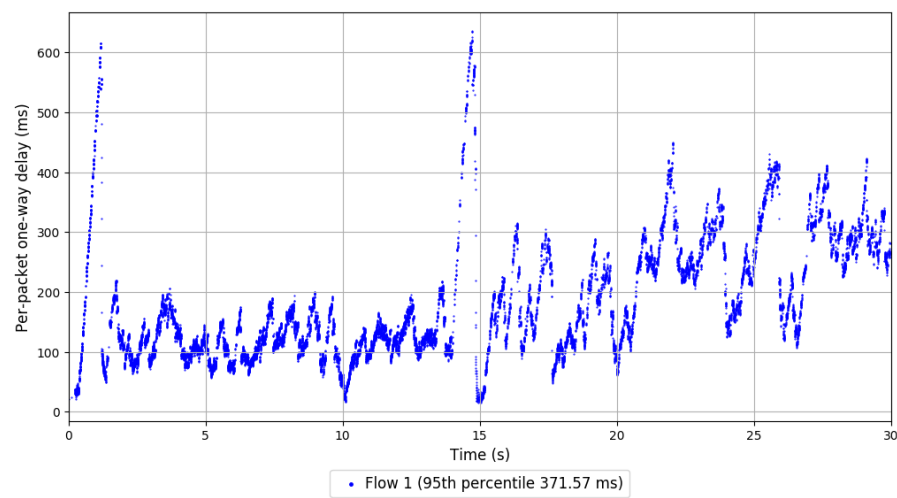
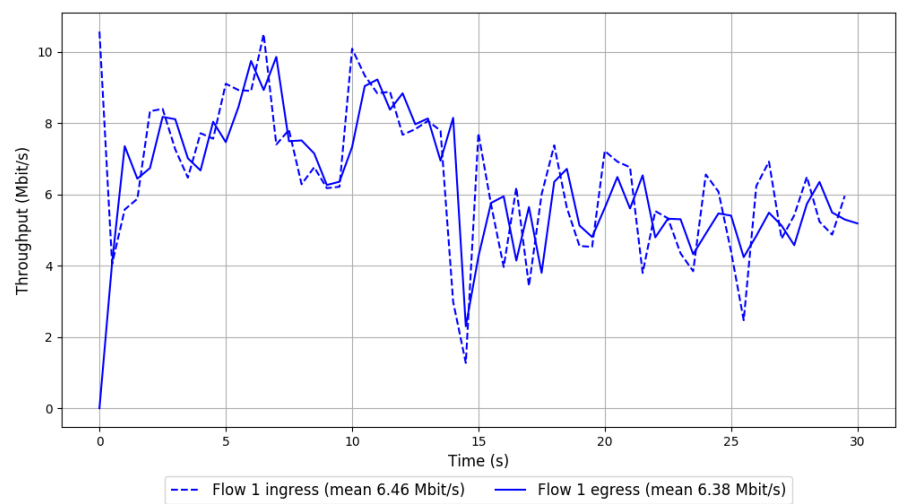


Run 2: Statistics of FillP

Start at: 2019-01-17 03:37:26
End at: 2019-01-17 03:37:56
Local clock offset: -8.096 ms
Remote clock offset: -3.748 ms

Below is generated by plot.py at 2019-01-17 04:16:39
Datalink statistics
-- Total of 1 flow:
Average throughput: 6.38 Mbit/s
95th percentile per-packet one-way delay: 371.572 ms
Loss rate: 1.06%
-- Flow 1:
Average throughput: 6.38 Mbit/s
95th percentile per-packet one-way delay: 371.572 ms
Loss rate: 1.06%

Run 2: Report of FillP — Data Link

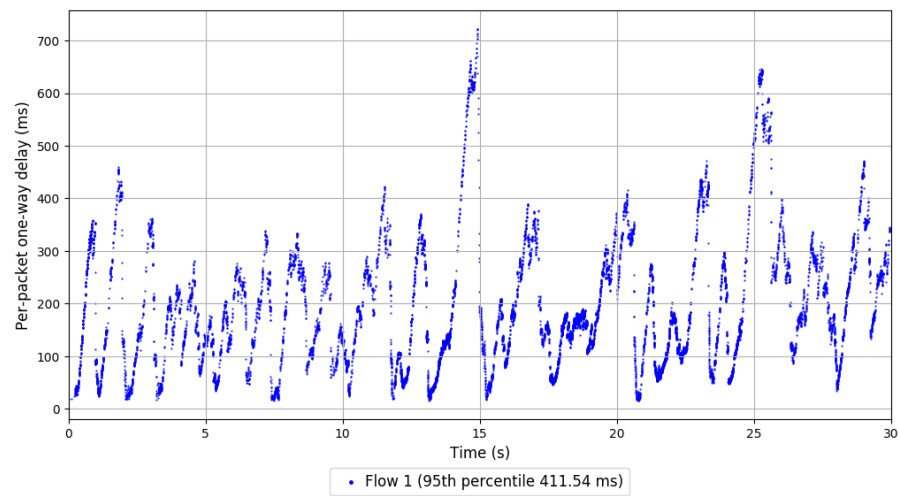
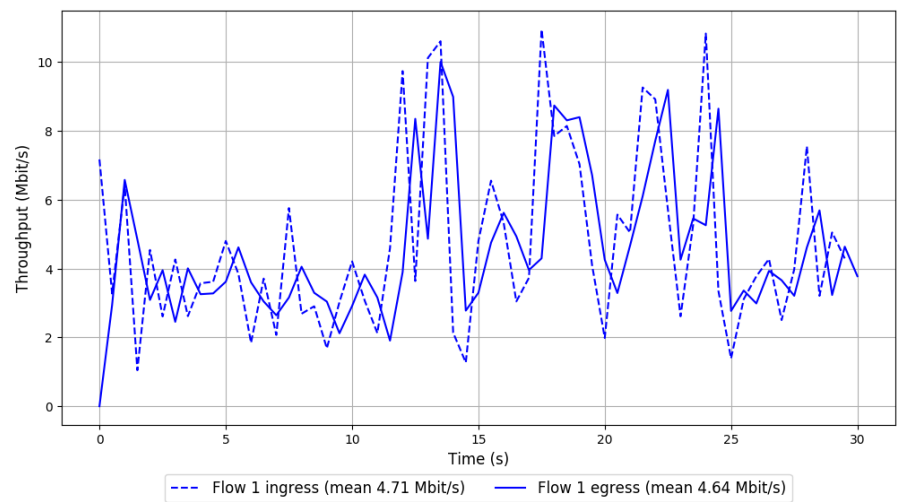


Run 3: Statistics of FillP

Start at: 2019-01-17 03:59:09
End at: 2019-01-17 03:59:39
Local clock offset: -3.685 ms
Remote clock offset: -4.486 ms

Below is generated by plot.py at 2019-01-17 04:16:44
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.64 Mbit/s
95th percentile per-packet one-way delay: 411.544 ms
Loss rate: 1.48%
-- Flow 1:
Average throughput: 4.64 Mbit/s
95th percentile per-packet one-way delay: 411.544 ms
Loss rate: 1.48%

Run 3: Report of FillP — Data Link

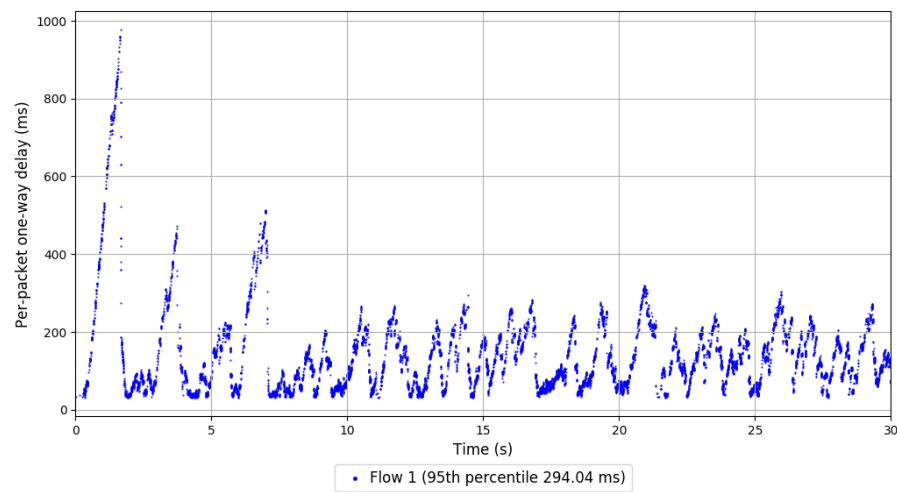
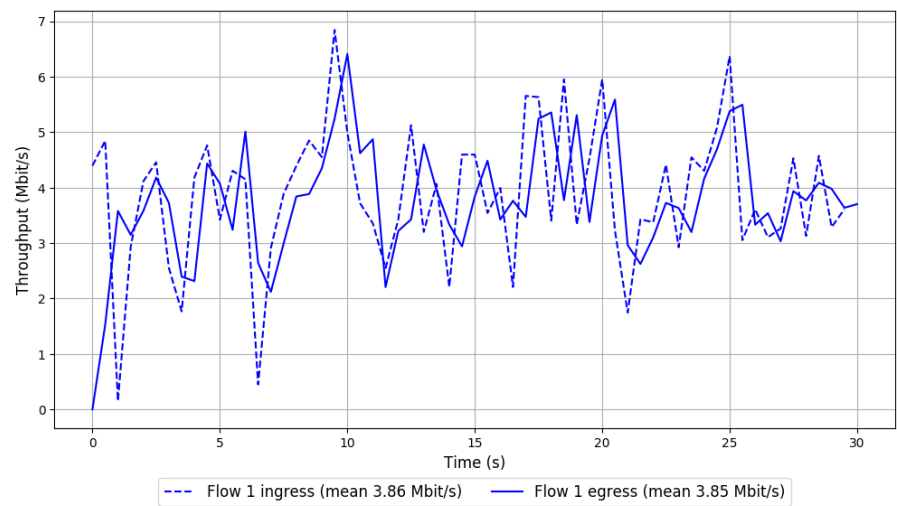


Run 1: Statistics of FillP-Sheep

Start at: 2019-01-17 03:33:00
End at: 2019-01-17 03:33:30
Local clock offset: -10.551 ms
Remote clock offset: -3.138 ms

Below is generated by plot.py at 2019-01-17 04:16:44
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.85 Mbit/s
95th percentile per-packet one-way delay: 294.043 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 3.85 Mbit/s
95th percentile per-packet one-way delay: 294.043 ms
Loss rate: 0.40%

Run 1: Report of FillP-Sheep — Data Link

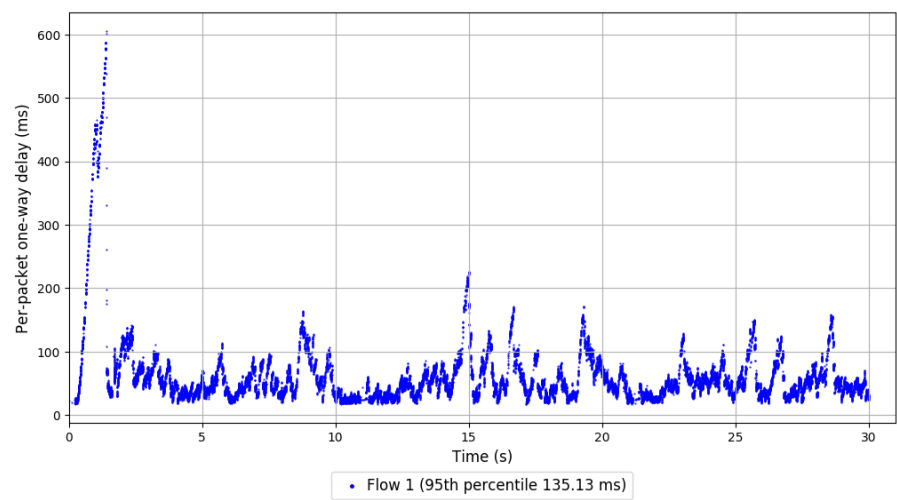
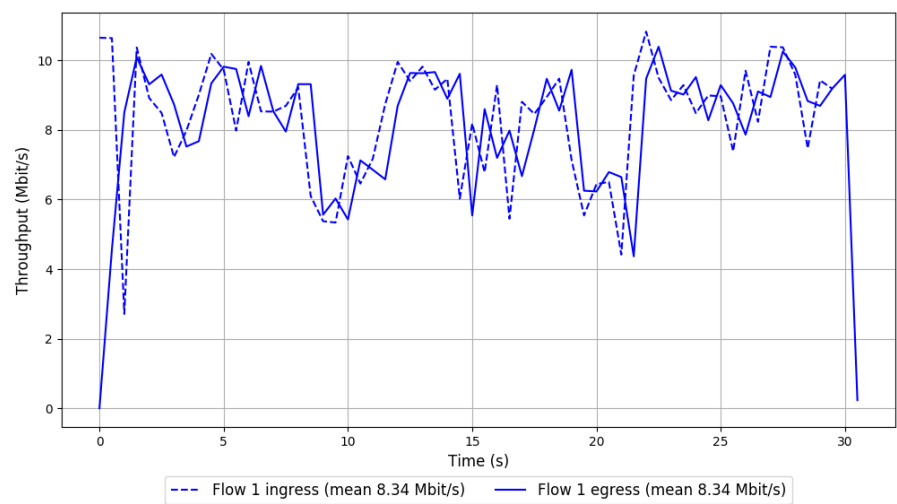


Run 2: Statistics of FillP-Sheep

Start at: 2019-01-17 03:54:20
End at: 2019-01-17 03:54:50
Local clock offset: -8.286 ms
Remote clock offset: -4.777 ms

Below is generated by plot.py at 2019-01-17 04:16:52
Datalink statistics
-- Total of 1 flow:
Average throughput: 8.34 Mbit/s
95th percentile per-packet one-way delay: 135.135 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 8.34 Mbit/s
95th percentile per-packet one-way delay: 135.135 ms
Loss rate: 0.07%

Run 2: Report of FillP-Sheep — Data Link



Run 3: Statistics of FillP-Sheep

Start at: 2019-01-17 04:15:49

End at: 2019-01-17 04:16:19

Local clock offset: -6.289 ms

Remote clock offset: -4.87 ms

Below is generated by plot.py at 2019-01-17 04:16:52

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.96 Mbit/s

95th percentile per-packet one-way delay: 330.238 ms

Loss rate: 0.28%

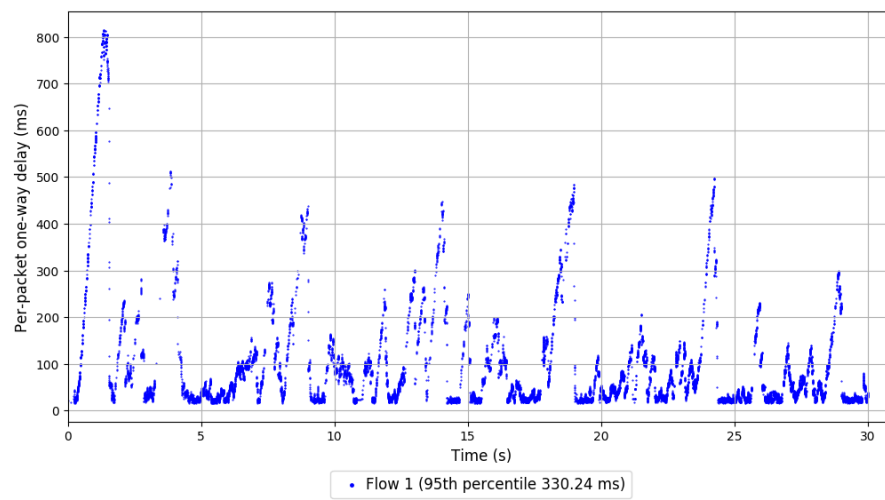
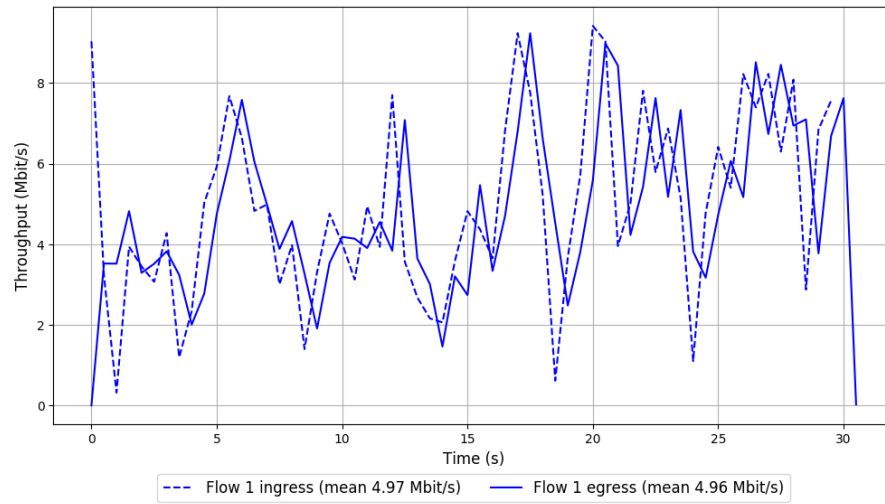
-- Flow 1:

Average throughput: 4.96 Mbit/s

95th percentile per-packet one-way delay: 330.238 ms

Loss rate: 0.28%

Run 3: Report of FillP-Sheep — Data Link

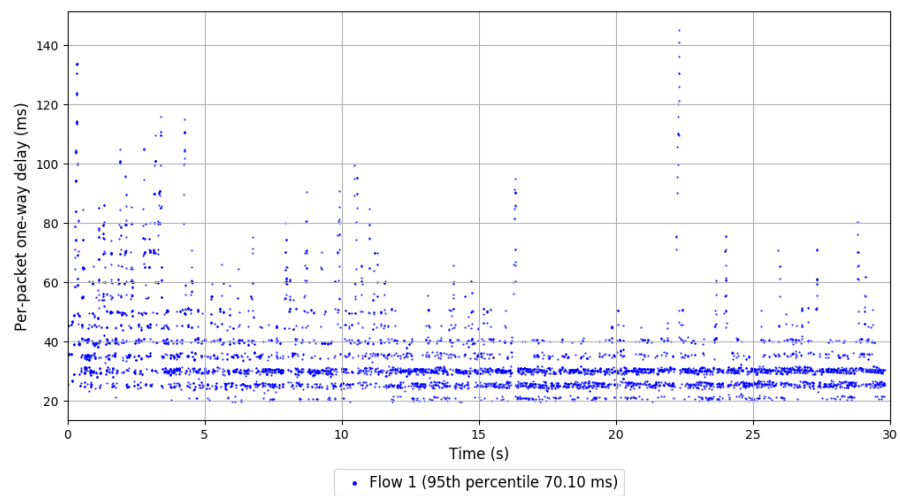
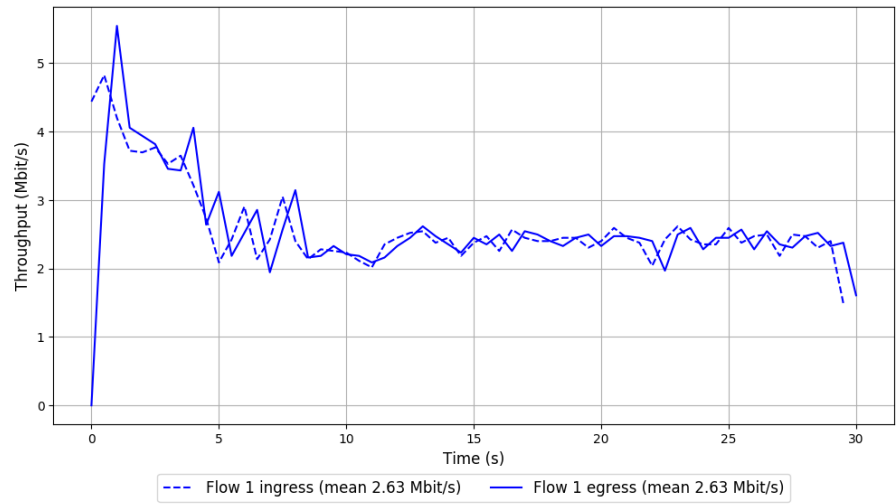


```
Run 1: Statistics of Indigo

Start at: 2019-01-17 03:26:12
End at: 2019-01-17 03:26:42
Local clock offset: -12.305 ms
Remote clock offset: -3.103 ms

# Below is generated by plot.py at 2019-01-17 04:16:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.63 Mbit/s
95th percentile per-packet one-way delay: 70.104 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.63 Mbit/s
95th percentile per-packet one-way delay: 70.104 ms
Loss rate: 0.00%
```

Run 1: Report of Indigo — Data Link

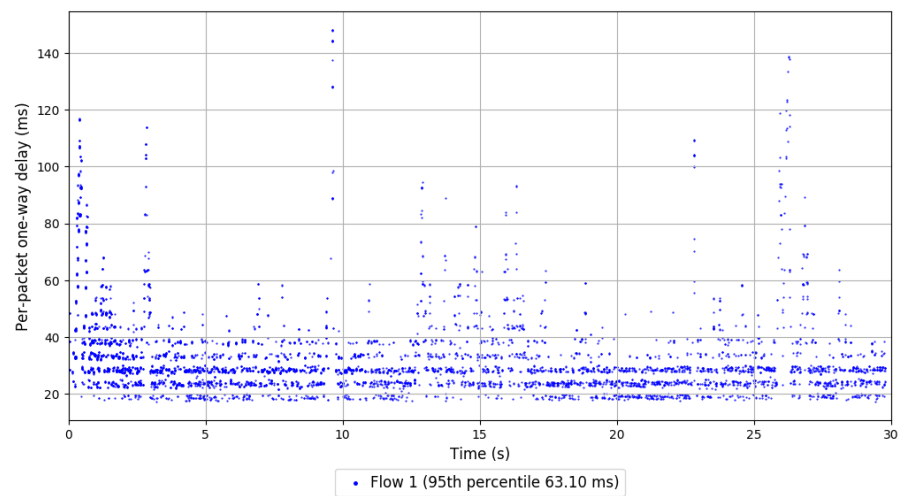
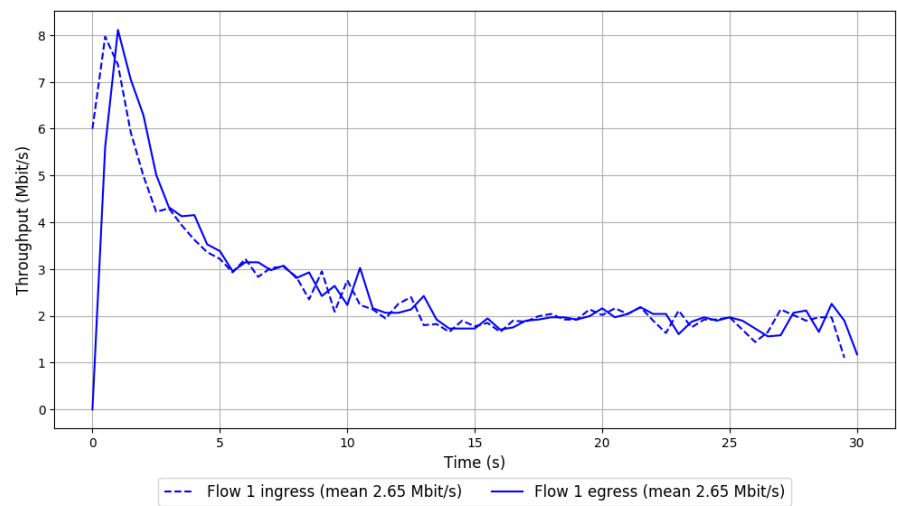


Run 2: Statistics of Indigo

Start at: 2019-01-17 03:47:30
End at: 2019-01-17 03:48:00
Local clock offset: -15.944 ms
Remote clock offset: -9.409 ms

Below is generated by plot.py at 2019-01-17 04:16:52
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.65 Mbit/s
95th percentile per-packet one-way delay: 63.105 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.65 Mbit/s
95th percentile per-packet one-way delay: 63.105 ms
Loss rate: 0.00%

Run 2: Report of Indigo — Data Link

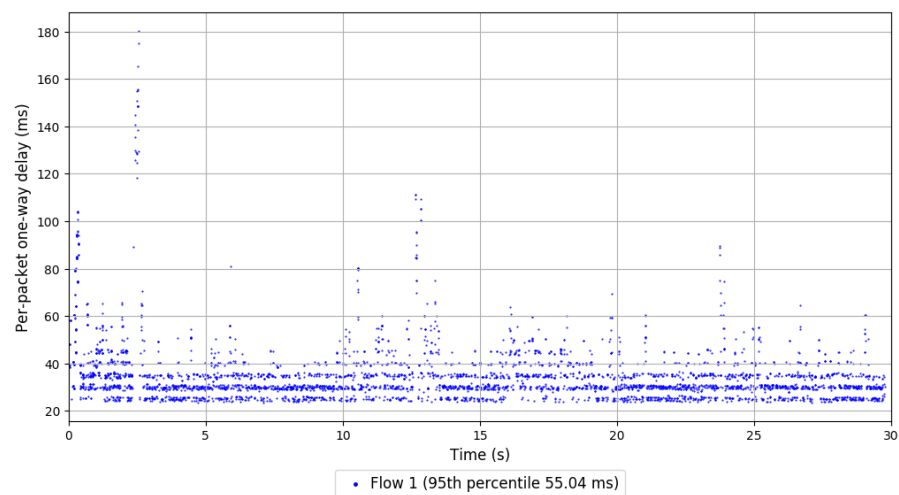
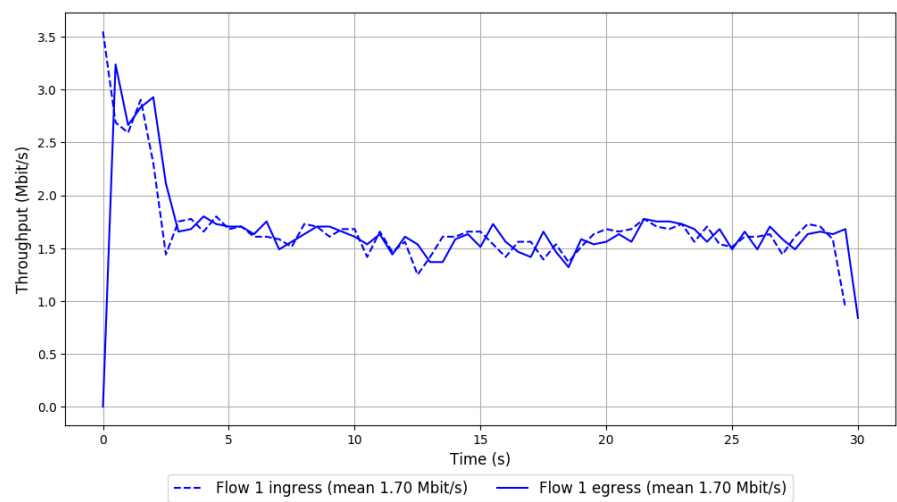


Run 3: Statistics of Indigo

Start at: 2019-01-17 04:09:11
End at: 2019-01-17 04:09:41
Local clock offset: -4.296 ms
Remote clock offset: -5.644 ms

Below is generated by plot.py at 2019-01-17 04:16:52
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.70 Mbit/s
95th percentile per-packet one-way delay: 55.038 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 1.70 Mbit/s
95th percentile per-packet one-way delay: 55.038 ms
Loss rate: 0.17%

Run 3: Report of Indigo — Data Link

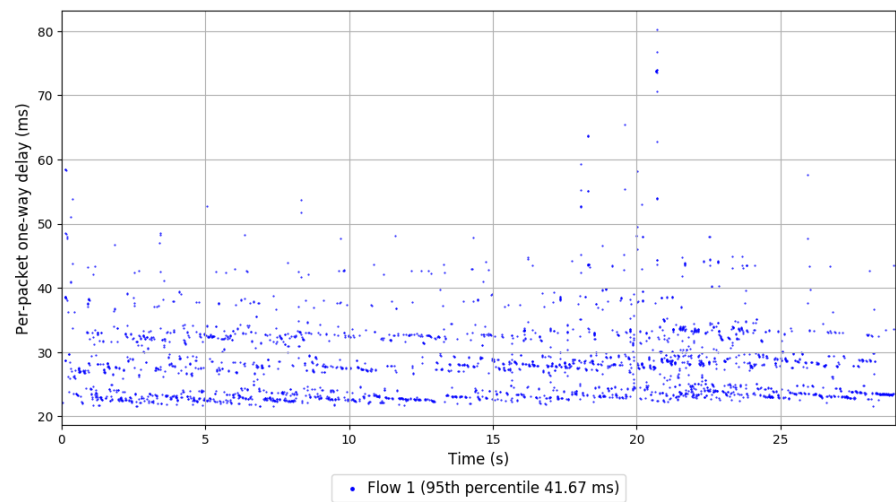
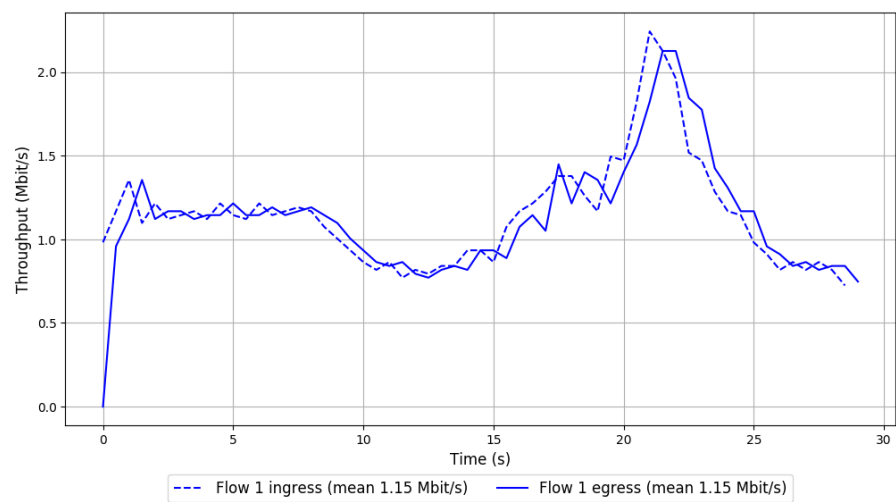


Run 1: Statistics of Indigo-MusesC3

Start at: 2019-01-17 03:17:14
End at: 2019-01-17 03:17:44
Local clock offset: -22.21 ms
Remote clock offset: -3.264 ms

Below is generated by plot.py at 2019-01-17 04:16:52
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.15 Mbit/s
95th percentile per-packet one-way delay: 41.675 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 1.15 Mbit/s
95th percentile per-packet one-way delay: 41.675 ms
Loss rate: 0.04%

Run 1: Report of Indigo-MusesC3 — Data Link

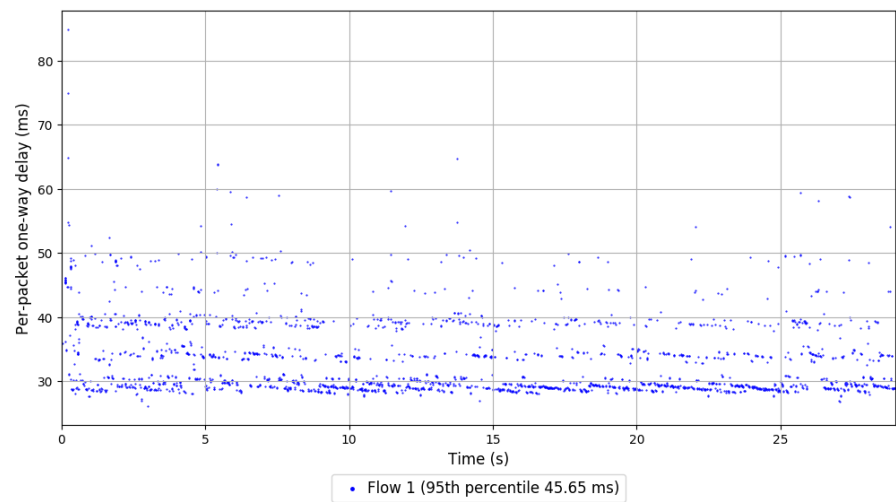
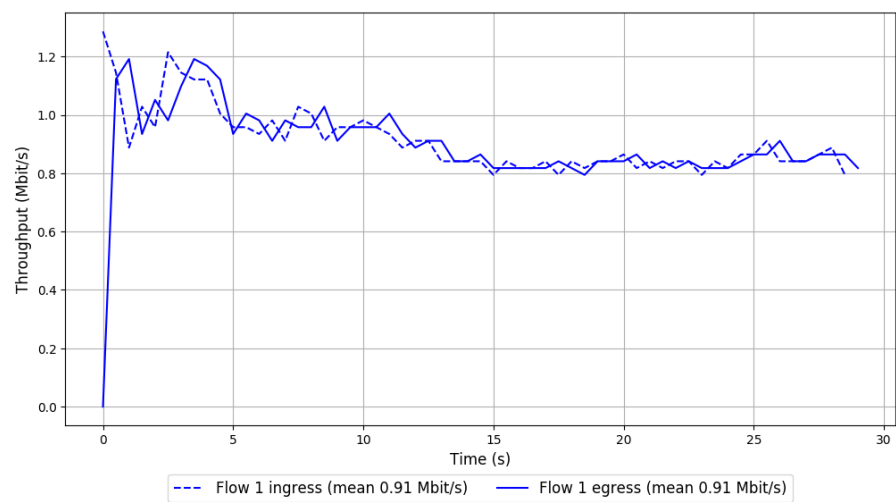


Run 2: Statistics of Indigo-MusesC3

Start at: 2019-01-17 03:38:34
End at: 2019-01-17 03:39:04
Local clock offset: -9.531 ms
Remote clock offset: -3.598 ms

Below is generated by plot.py at 2019-01-17 04:16:52
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.91 Mbit/s
95th percentile per-packet one-way delay: 45.654 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 0.91 Mbit/s
95th percentile per-packet one-way delay: 45.654 ms
Loss rate: 0.04%

Run 2: Report of Indigo-MusesC3 — Data Link

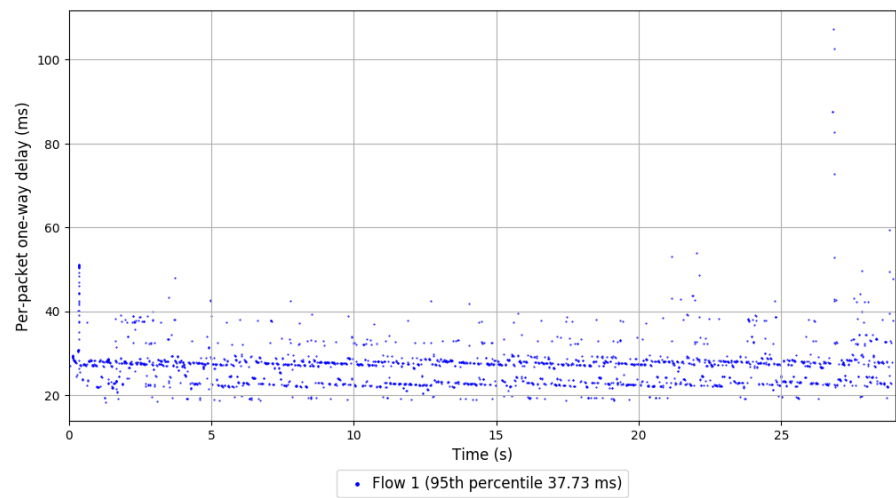
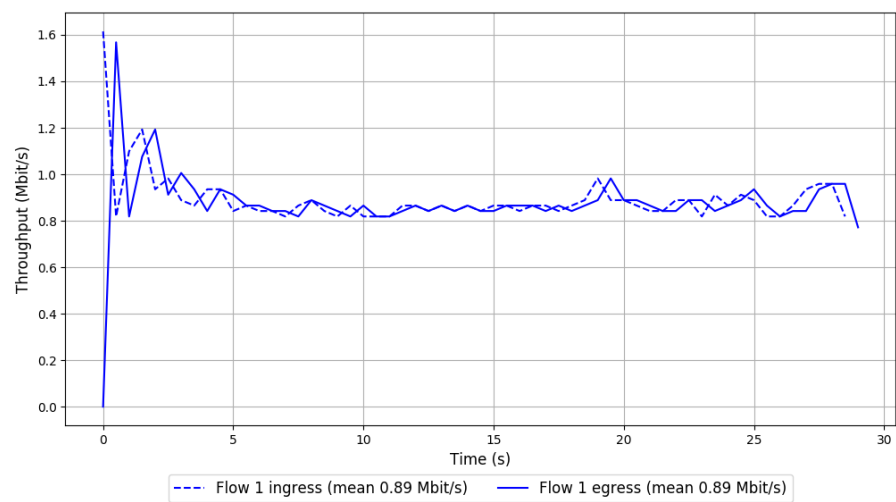


Run 3: Statistics of Indigo-MusesC3

Start at: 2019-01-17 04:00:17
End at: 2019-01-17 04:00:47
Local clock offset: -6.332 ms
Remote clock offset: -4.517 ms

Below is generated by plot.py at 2019-01-17 04:16:52
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.89 Mbit/s
95th percentile per-packet one-way delay: 37.726 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 0.89 Mbit/s
95th percentile per-packet one-way delay: 37.726 ms
Loss rate: 0.18%

Run 3: Report of Indigo-MusesC3 — Data Link

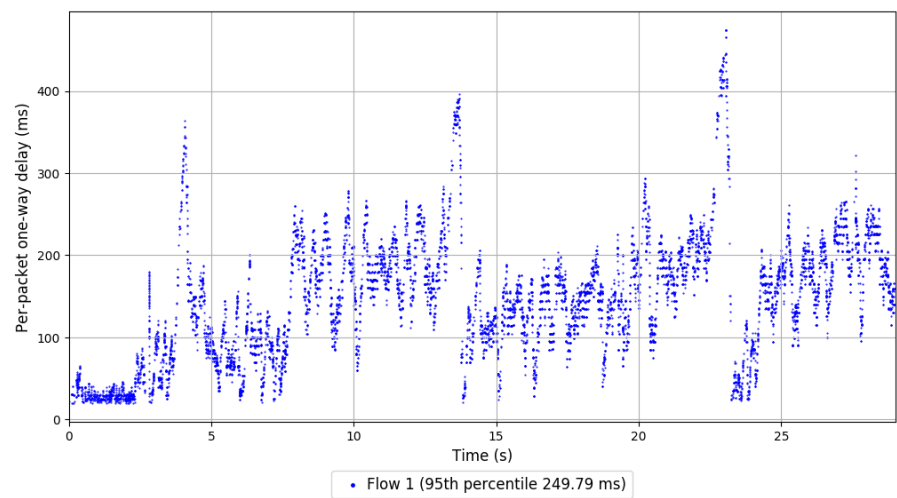
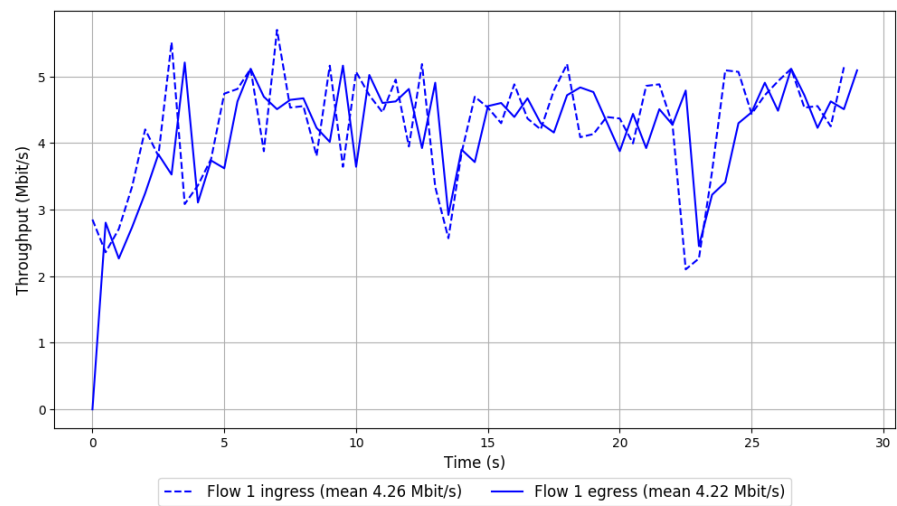


Run 1: Statistics of Indigo-MusesC5

Start at: 2019-01-17 03:21:43
End at: 2019-01-17 03:22:13
Local clock offset: -17.013 ms
Remote clock offset: -3.724 ms

Below is generated by plot.py at 2019-01-17 04:16:52
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.22 Mbit/s
95th percentile per-packet one-way delay: 249.787 ms
Loss rate: 0.93%
-- Flow 1:
Average throughput: 4.22 Mbit/s
95th percentile per-packet one-way delay: 249.787 ms
Loss rate: 0.93%

Run 1: Report of Indigo-MusesC5 — Data Link

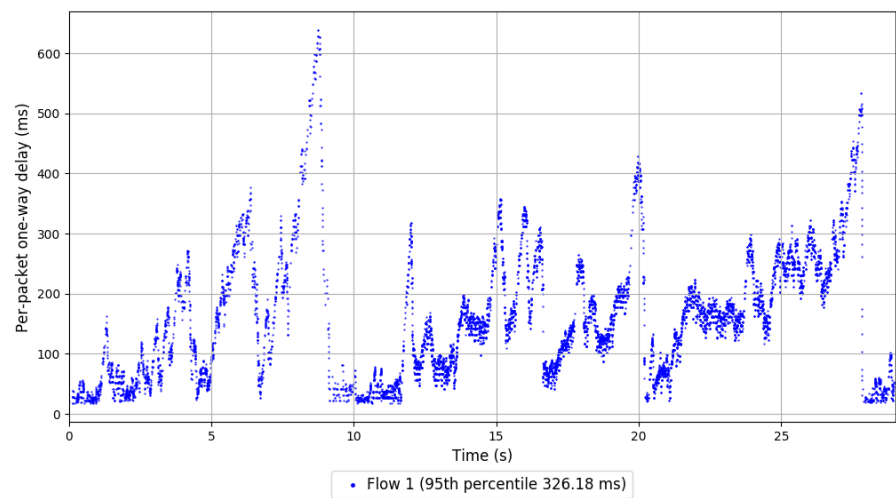
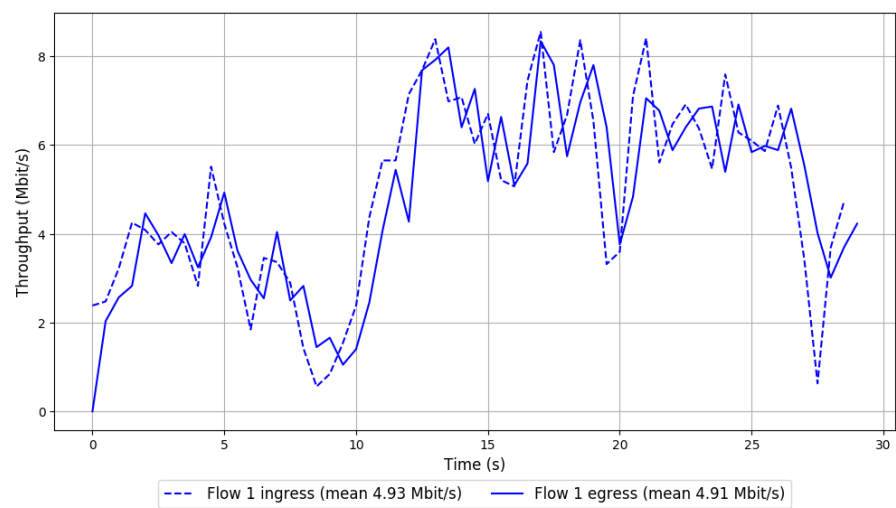


Run 2: Statistics of Indigo-MusesC5

Start at: 2019-01-17 03:43:02
End at: 2019-01-17 03:43:32
Local clock offset: -9.775 ms
Remote clock offset: -3.781 ms

Below is generated by plot.py at 2019-01-17 04:16:52
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.91 Mbit/s
95th percentile per-packet one-way delay: 326.176 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 4.91 Mbit/s
95th percentile per-packet one-way delay: 326.176 ms
Loss rate: 0.39%

Run 2: Report of Indigo-MusesC5 — Data Link



Run 3: Statistics of Indigo-MusesC5

Start at: 2019-01-17 04:04:44

End at: 2019-01-17 04:05:14

Local clock offset: -7.058 ms

Remote clock offset: -4.7 ms

Below is generated by plot.py at 2019-01-17 04:16:52

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.73 Mbit/s

95th percentile per-packet one-way delay: 426.316 ms

Loss rate: 0.88%

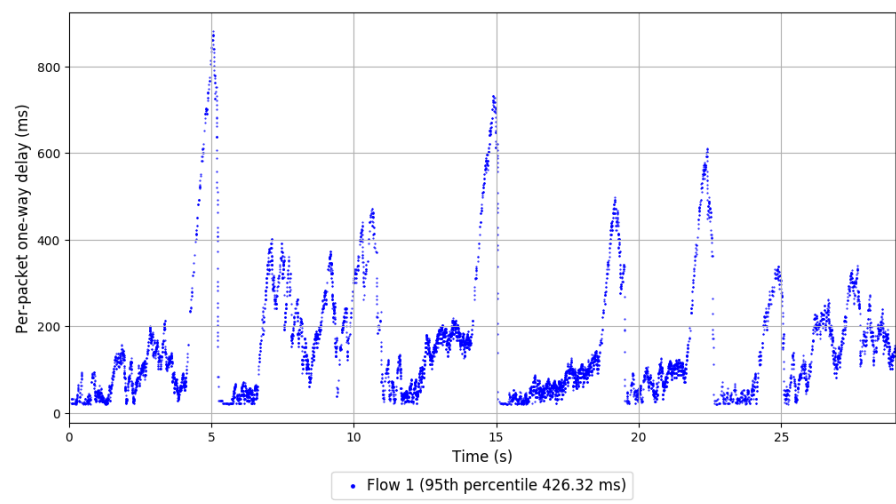
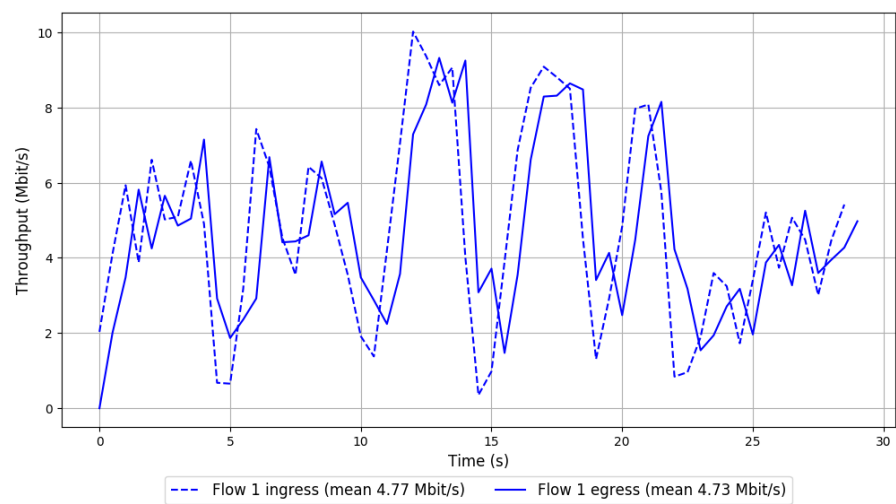
-- Flow 1:

Average throughput: 4.73 Mbit/s

95th percentile per-packet one-way delay: 426.316 ms

Loss rate: 0.88%

Run 3: Report of Indigo-MusesC5 — Data Link

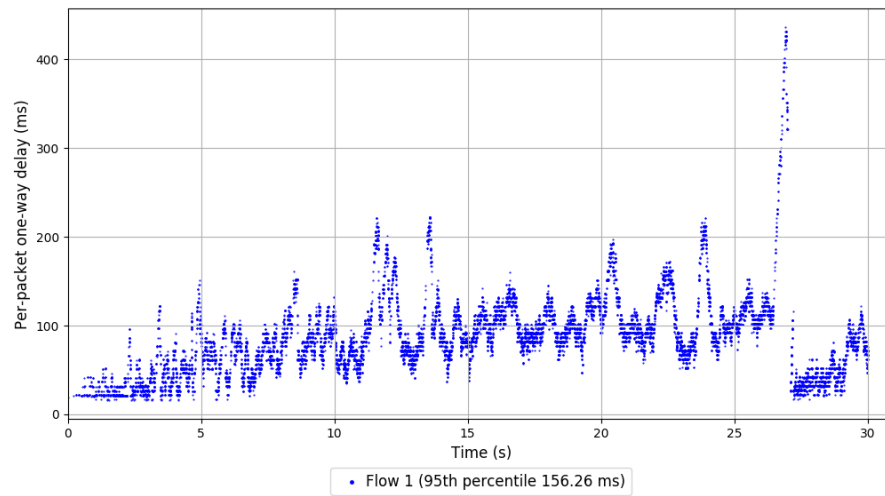
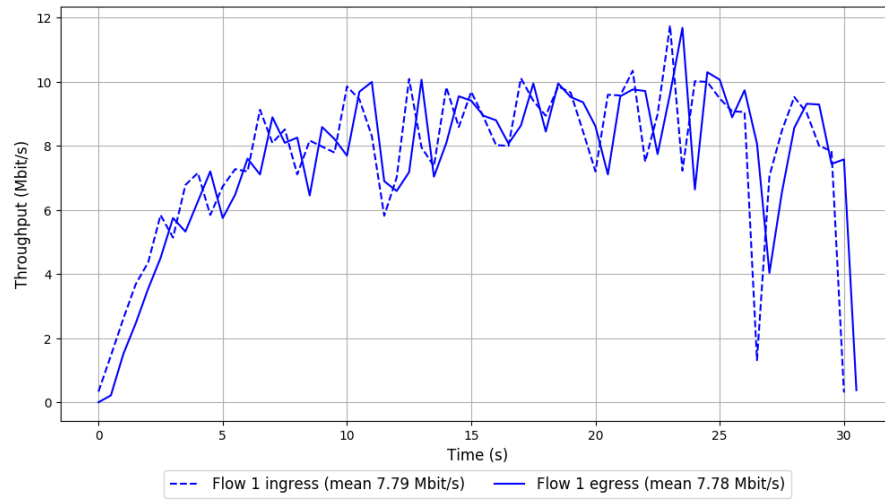


Run 1: Statistics of LEDBAT

Start at: 2019-01-17 03:22:49
End at: 2019-01-17 03:23:19
Local clock offset: -12.893 ms
Remote clock offset: -4.004 ms

Below is generated by plot.py at 2019-01-17 04:16:57
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.78 Mbit/s
95th percentile per-packet one-way delay: 156.262 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 7.78 Mbit/s
95th percentile per-packet one-way delay: 156.262 ms
Loss rate: 0.25%

Run 1: Report of LEDBAT — Data Link

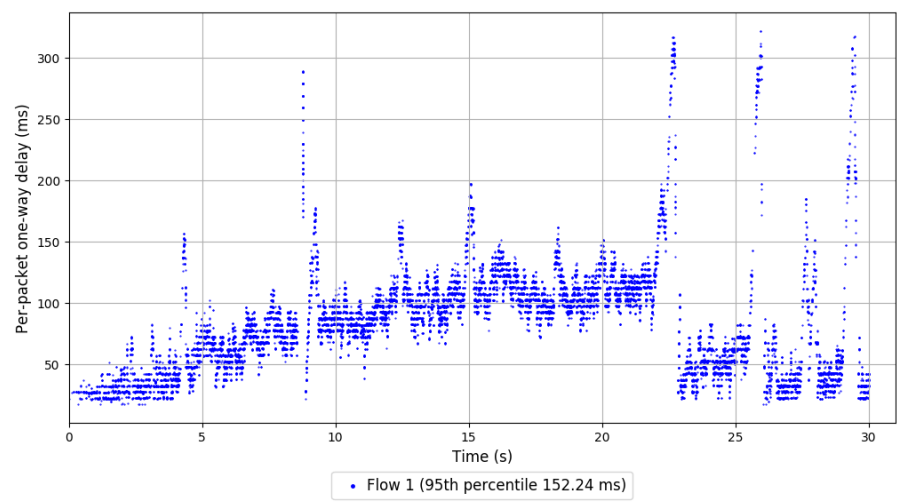
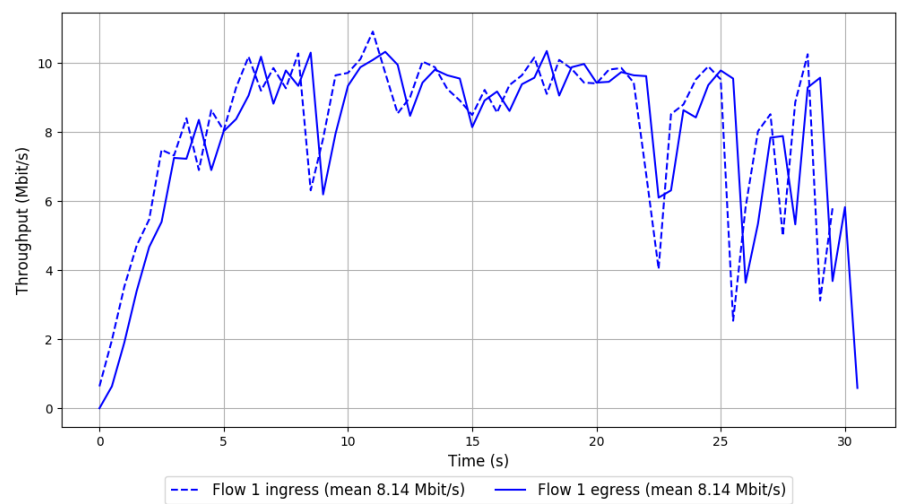


Run 2: Statistics of LEDBAT

Start at: 2019-01-17 03:44:09
End at: 2019-01-17 03:44:39
Local clock offset: -12.16 ms
Remote clock offset: -3.597 ms

Below is generated by plot.py at 2019-01-17 04:16:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 8.14 Mbit/s
95th percentile per-packet one-way delay: 152.242 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 8.14 Mbit/s
95th percentile per-packet one-way delay: 152.242 ms
Loss rate: 0.02%

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2019-01-17 04:05:51

End at: 2019-01-17 04:06:21

Local clock offset: -4.95 ms

Remote clock offset: -5.0 ms

Below is generated by plot.py at 2019-01-17 04:16:58

Datalink statistics

-- Total of 1 flow:

Average throughput: 5.06 Mbit/s

95th percentile per-packet one-way delay: 169.998 ms

Loss rate: 0.20%

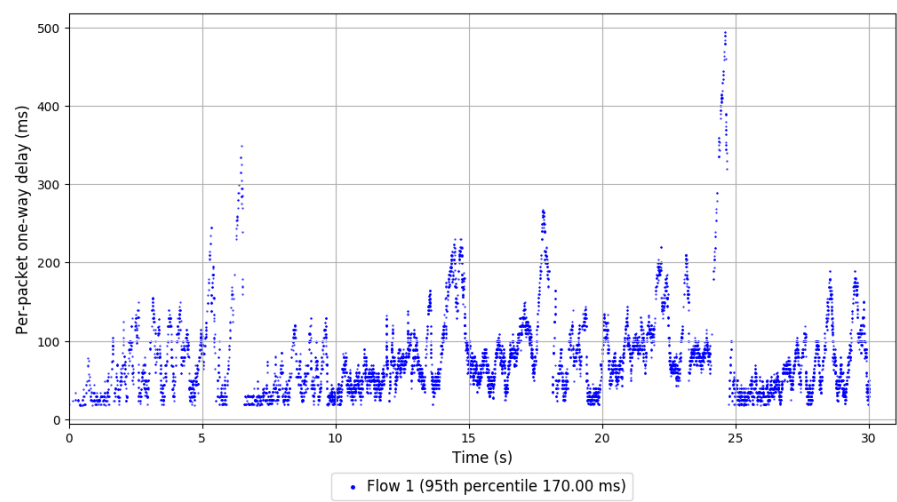
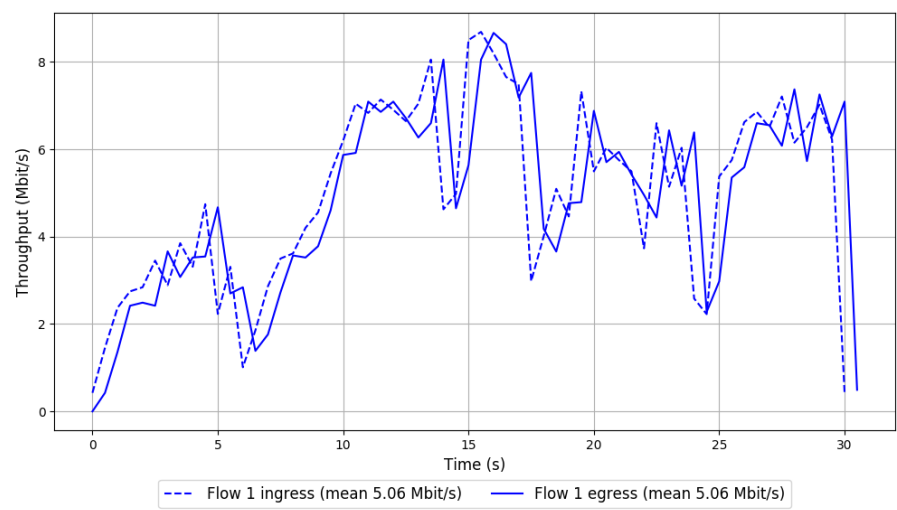
-- Flow 1:

Average throughput: 5.06 Mbit/s

95th percentile per-packet one-way delay: 169.998 ms

Loss rate: 0.20%

Run 3: Report of LEDBAT — Data Link

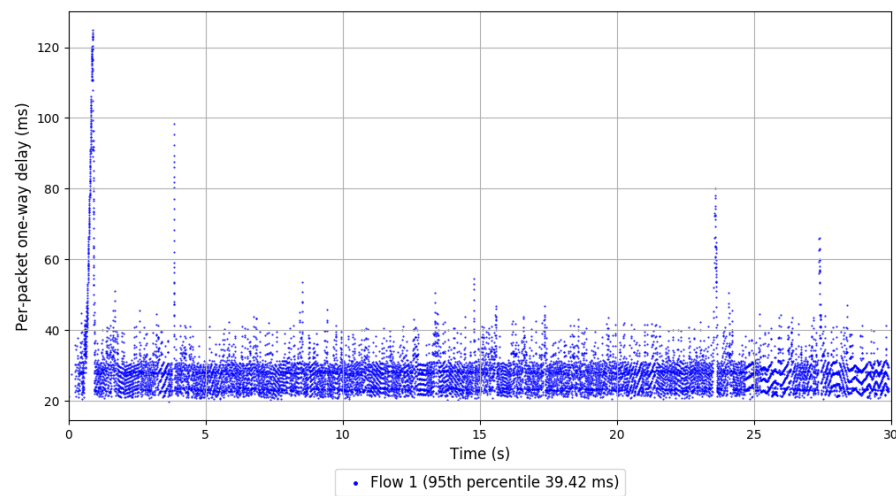
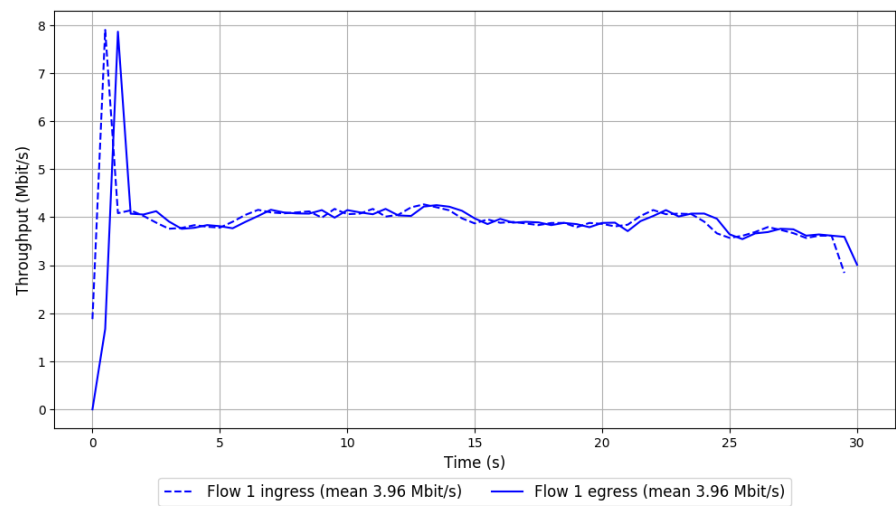


Run 1: Statistics of PCC-Allegro

Start at: 2019-01-17 03:29:39
End at: 2019-01-17 03:30:09
Local clock offset: -10.903 ms
Remote clock offset: -3.409 ms

Below is generated by plot.py at 2019-01-17 04:16:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.96 Mbit/s
95th percentile per-packet one-way delay: 39.420 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 3.96 Mbit/s
95th percentile per-packet one-way delay: 39.420 ms
Loss rate: 0.03%

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2019-01-17 03:50:55

End at: 2019-01-17 03:51:25

Local clock offset: -9.263 ms

Remote clock offset: -3.578 ms

Below is generated by plot.py at 2019-01-17 04:16:58

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.19 Mbit/s

95th percentile per-packet one-way delay: 715.924 ms

Loss rate: 0.88%

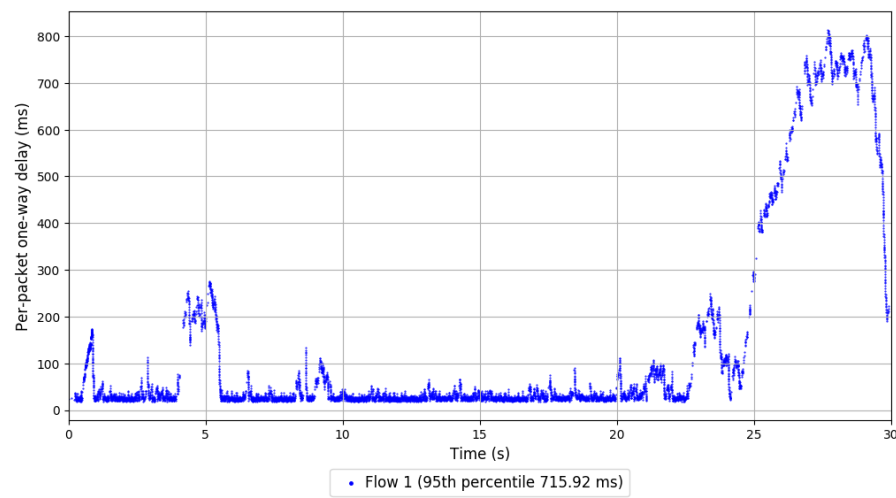
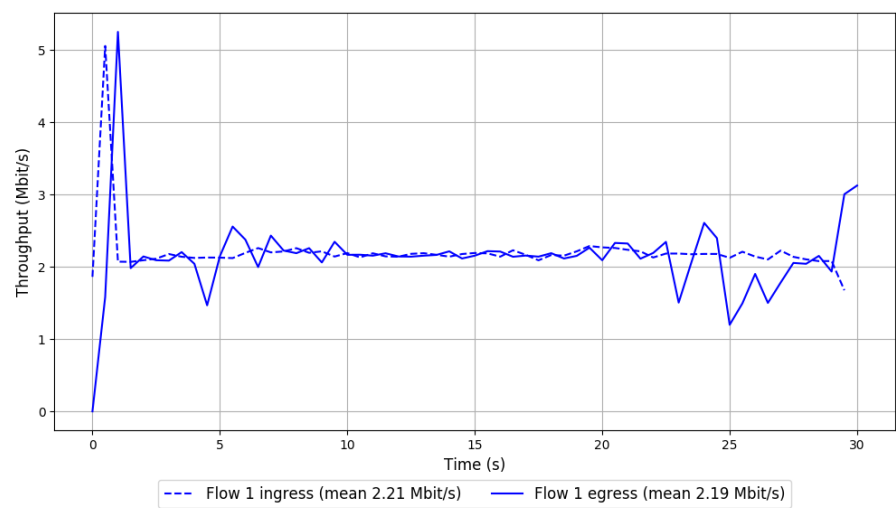
-- Flow 1:

Average throughput: 2.19 Mbit/s

95th percentile per-packet one-way delay: 715.924 ms

Loss rate: 0.88%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2019-01-17 04:12:30

End at: 2019-01-17 04:13:00

Local clock offset: -5.705 ms

Remote clock offset: -5.2 ms

Below is generated by plot.py at 2019-01-17 04:17:05

Datalink statistics

-- Total of 1 flow:

Average throughput: 6.83 Mbit/s

95th percentile per-packet one-way delay: 1050.900 ms

Loss rate: 17.28%

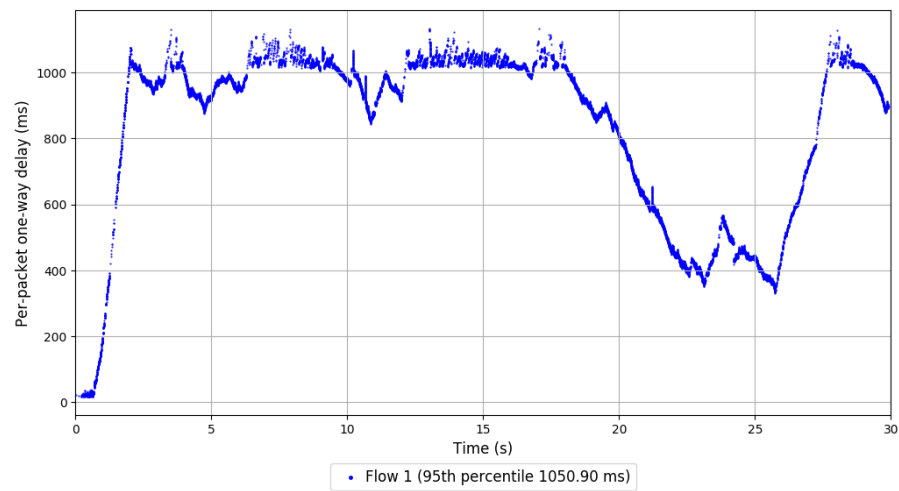
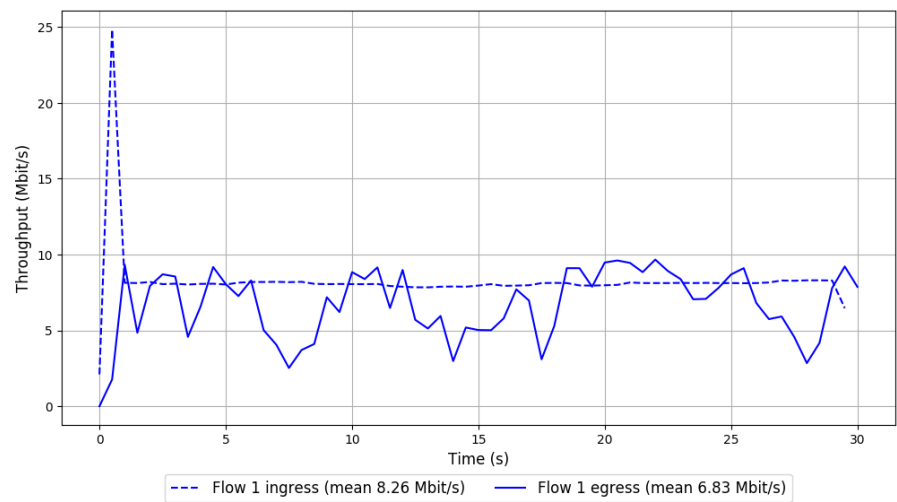
-- Flow 1:

Average throughput: 6.83 Mbit/s

95th percentile per-packet one-way delay: 1050.900 ms

Loss rate: 17.28%

Run 3: Report of PCC-Allegro — Data Link



Run 1: Statistics of PCC-Expr

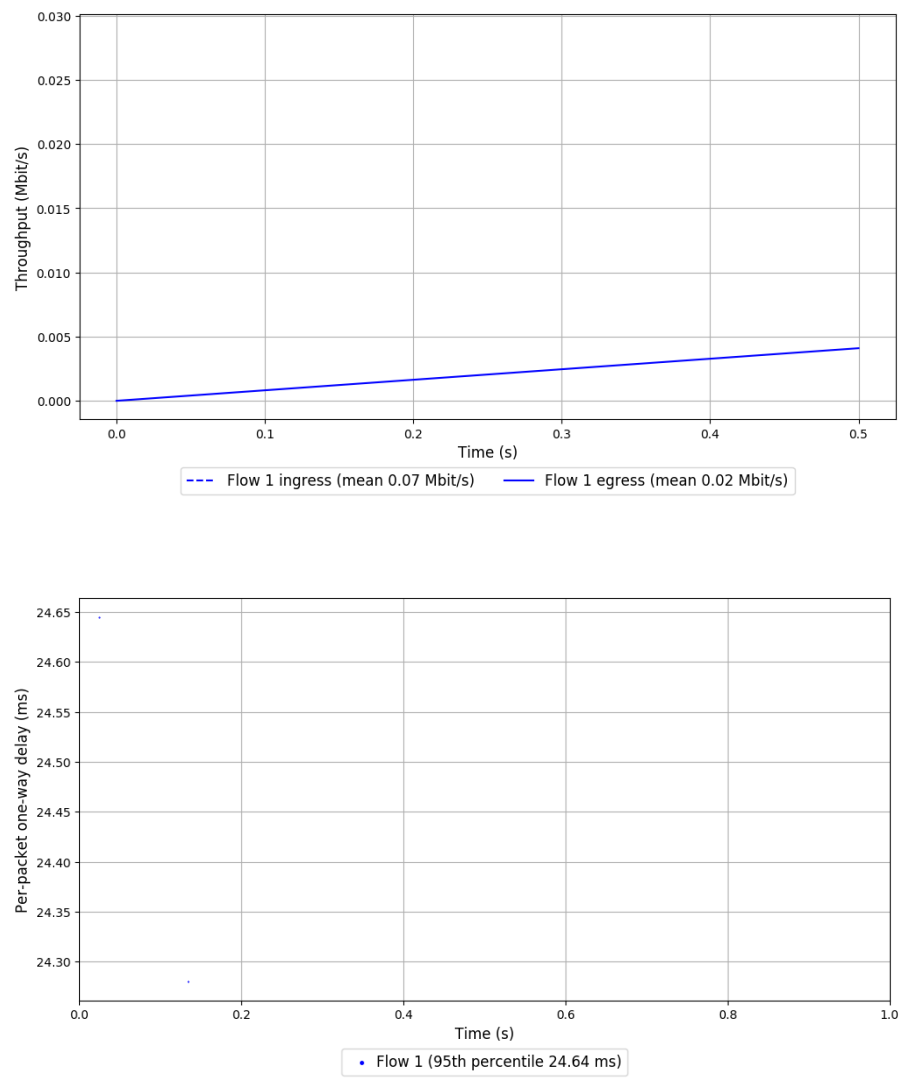
Start at: 2019-01-17 03:31:54

End at: 2019-01-17 03:32:24

Local clock offset: -8.504 ms

Remote clock offset: -3.18 ms

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

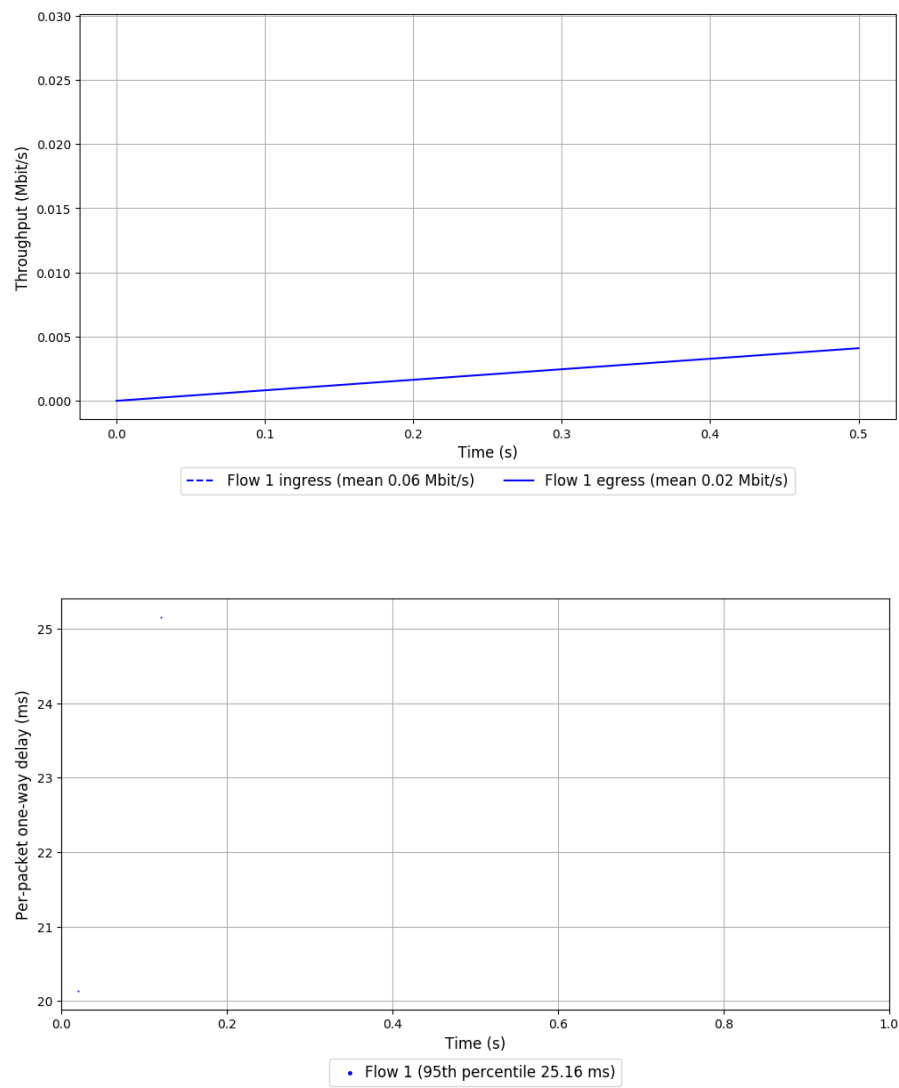
Start at: 2019-01-17 03:53:14

End at: 2019-01-17 03:53:44

Local clock offset: -6.57 ms

Remote clock offset: -4.474 ms

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2019-01-17 04:14:43

End at: 2019-01-17 04:15:13

Local clock offset: -8.244 ms

Remote clock offset: -6.7 ms

Below is generated by plot.py at 2019-01-17 04:17:05

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.97 Mbit/s

95th percentile per-packet one-way delay: 412.835 ms

Loss rate: 52.80%

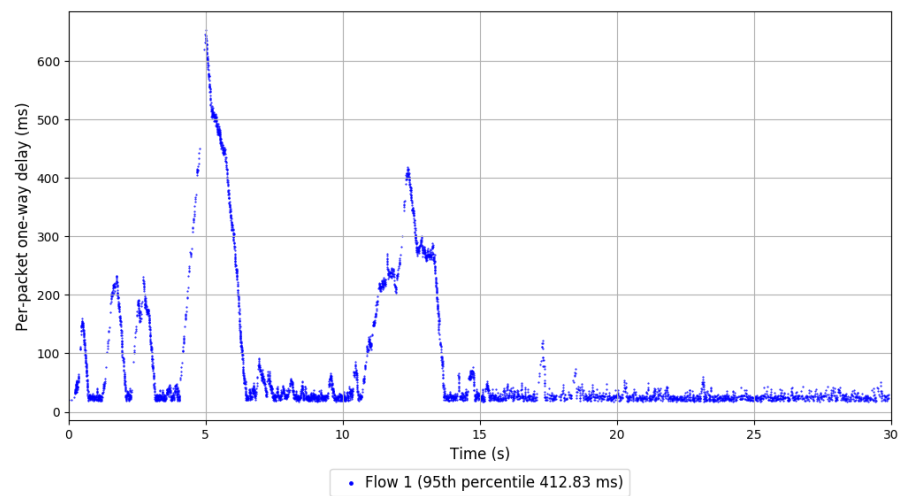
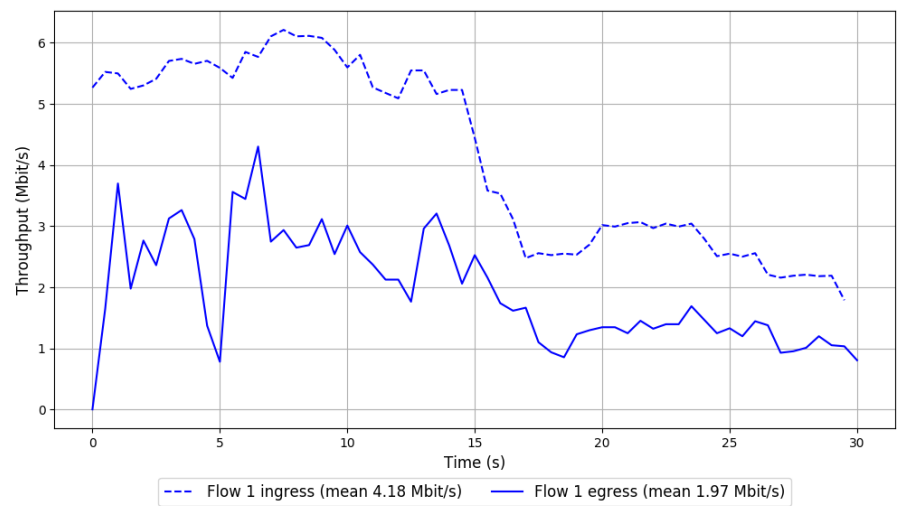
-- Flow 1:

Average throughput: 1.97 Mbit/s

95th percentile per-packet one-way delay: 412.835 ms

Loss rate: 52.80%

Run 3: Report of PCC-Expr — Data Link

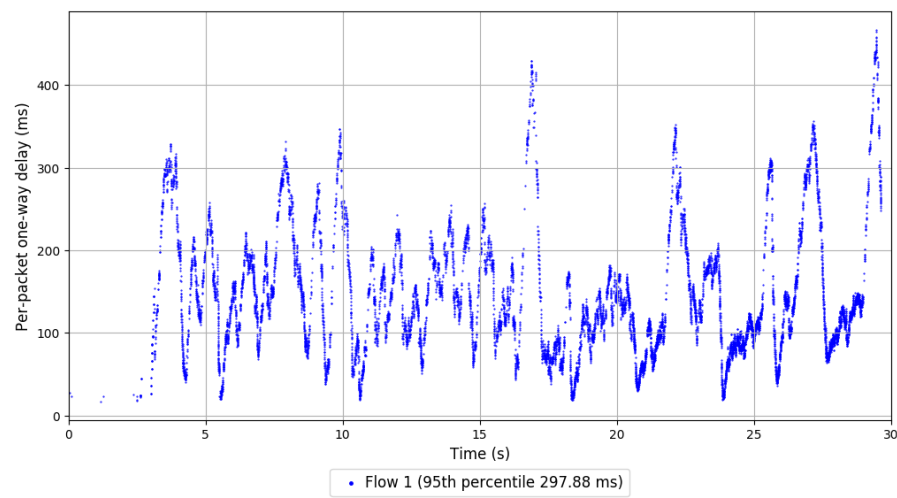
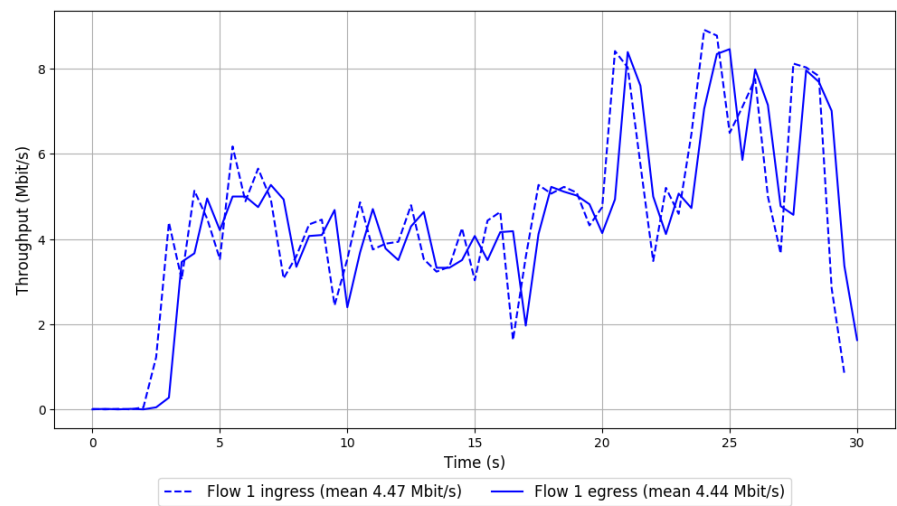


Run 1: Statistics of QUIC Cubic

Start at: 2019-01-17 03:20:36
End at: 2019-01-17 03:21:06
Local clock offset: -14.281 ms
Remote clock offset: -3.165 ms

Below is generated by plot.py at 2019-01-17 04:17:05
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.44 Mbit/s
95th percentile per-packet one-way delay: 297.878 ms
Loss rate: 0.73%
-- Flow 1:
Average throughput: 4.44 Mbit/s
95th percentile per-packet one-way delay: 297.878 ms
Loss rate: 0.73%

Run 1: Report of QUIC Cubic — Data Link

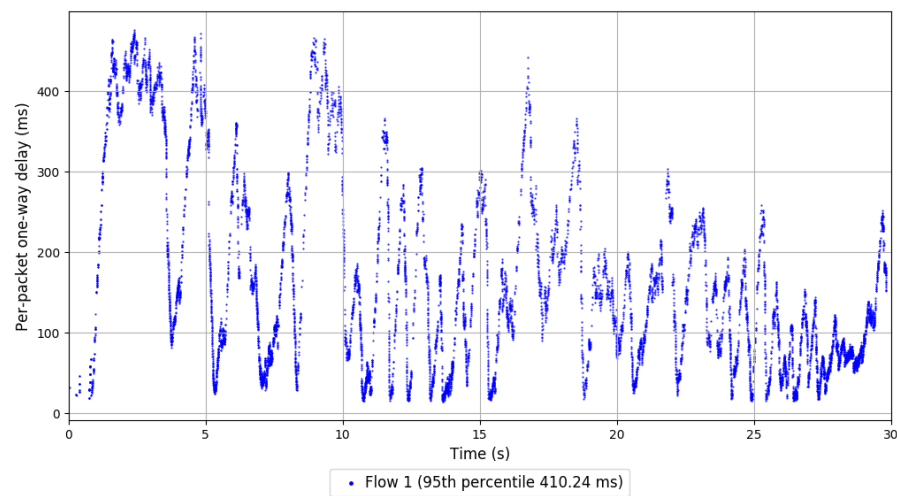
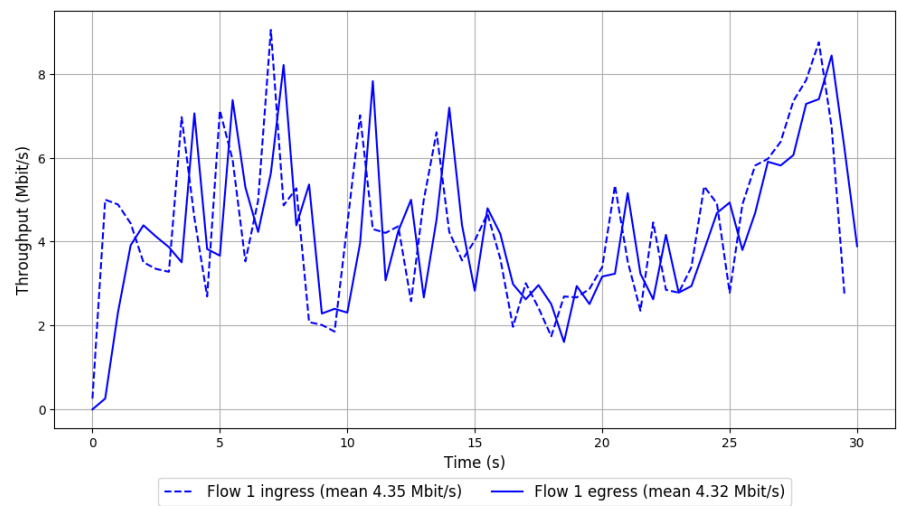


Run 2: Statistics of QUIC Cubic

Start at: 2019-01-17 03:41:55
End at: 2019-01-17 03:42:25
Local clock offset: -7.822 ms
Remote clock offset: -4.277 ms

Below is generated by plot.py at 2019-01-17 04:17:05
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.32 Mbit/s
95th percentile per-packet one-way delay: 410.239 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 4.32 Mbit/s
95th percentile per-packet one-way delay: 410.239 ms
Loss rate: 0.66%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2019-01-17 04:03:37

End at: 2019-01-17 04:04:07

Local clock offset: -3.448 ms

Remote clock offset: -4.612 ms

Below is generated by plot.py at 2019-01-17 04:17:05

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.40 Mbit/s

95th percentile per-packet one-way delay: 346.519 ms

Loss rate: 0.63%

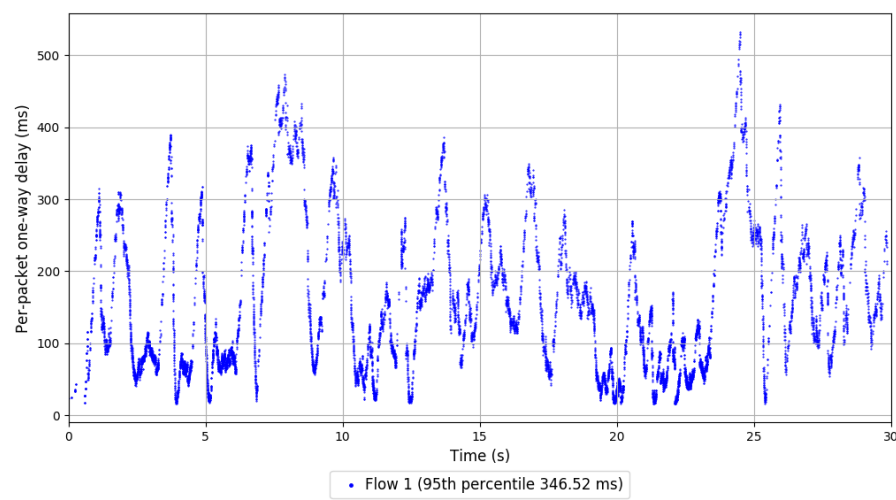
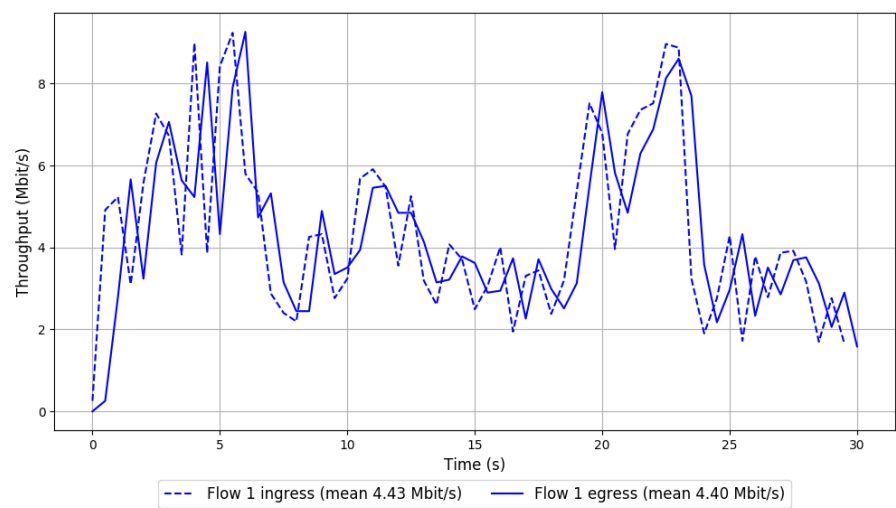
-- Flow 1:

Average throughput: 4.40 Mbit/s

95th percentile per-packet one-way delay: 346.519 ms

Loss rate: 0.63%

Run 3: Report of QUIC Cubic — Data Link

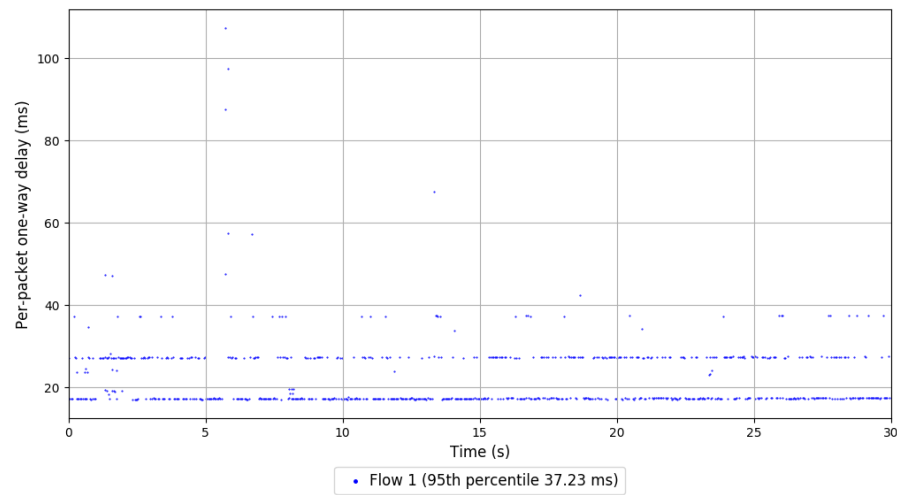
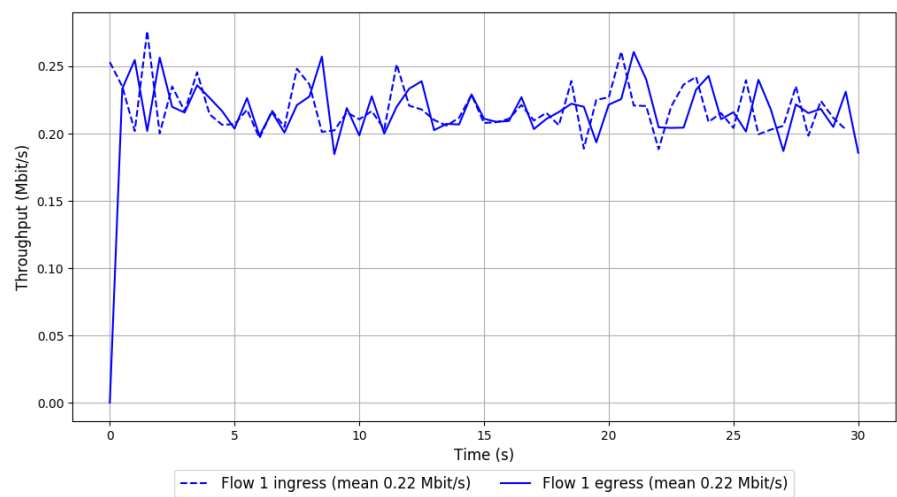


Run 1: Statistics of SCReAM

Start at: 2019-01-17 03:15:00
End at: 2019-01-17 03:15:30
Local clock offset: -18.008 ms
Remote clock offset: -3.115 ms

Below is generated by plot.py at 2019-01-17 04:17:05
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 37.232 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 37.232 ms
Loss rate: 0.13%

Run 1: Report of SReAM — Data Link

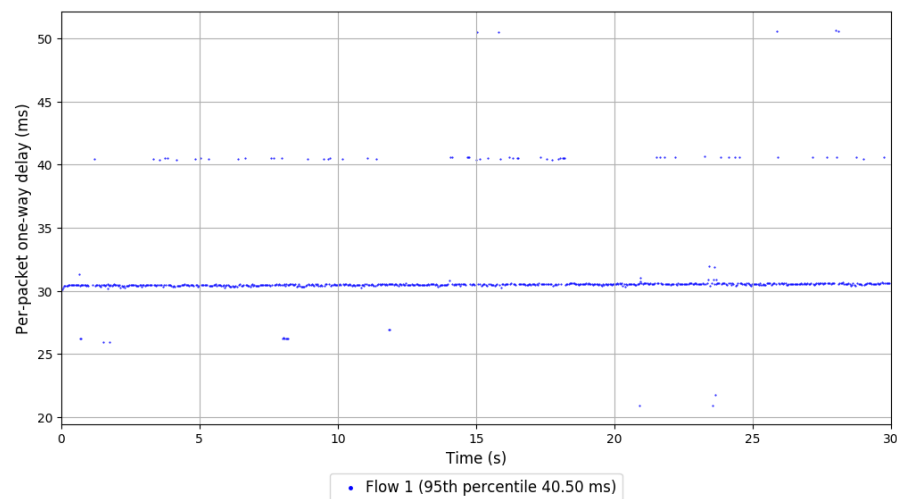
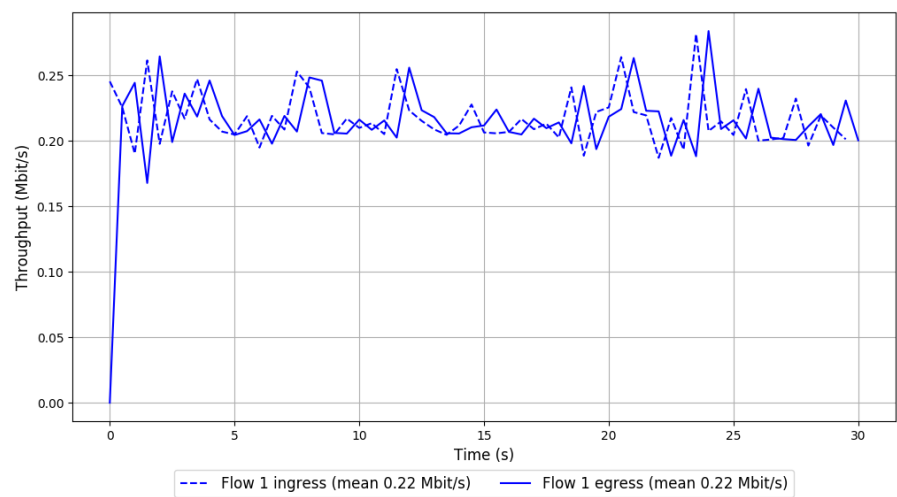


Run 2: Statistics of SCReAM

Start at: 2019-01-17 03:36:20
End at: 2019-01-17 03:36:50
Local clock offset: -9.734 ms
Remote clock offset: -3.831 ms

Below is generated by plot.py at 2019-01-17 04:17:05
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 40.503 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 40.503 ms
Loss rate: 0.13%

Run 2: Report of SReAM — Data Link

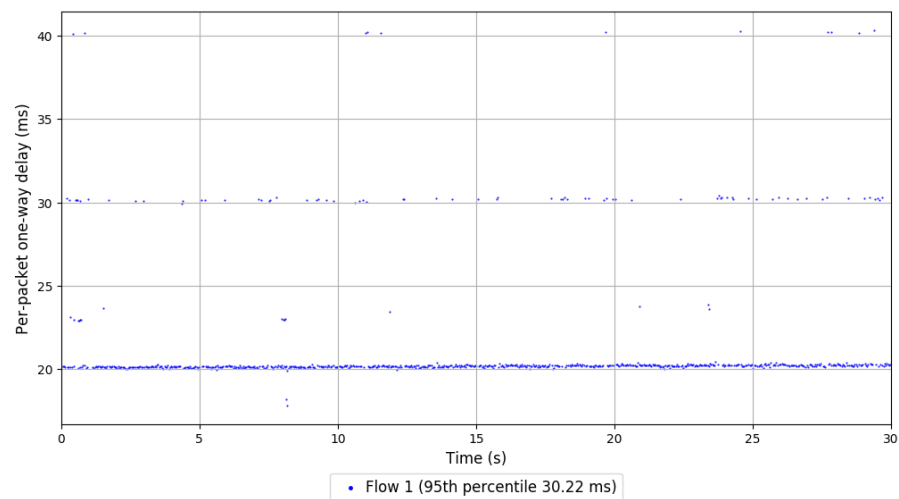
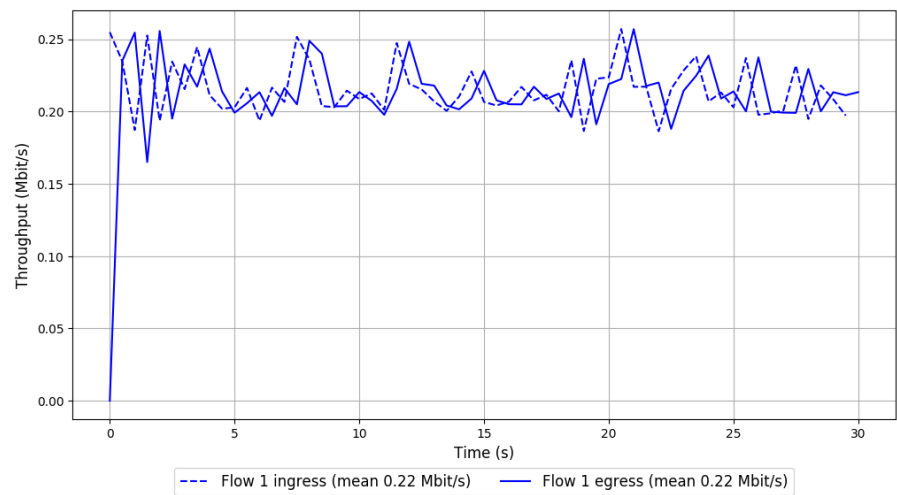


Run 3: Statistics of SCReAM

Start at: 2019-01-17 03:58:03
End at: 2019-01-17 03:58:33
Local clock offset: -6.503 ms
Remote clock offset: -4.519 ms

Below is generated by plot.py at 2019-01-17 04:17:05
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 30.221 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 30.221 ms
Loss rate: 0.00%

Run 3: Report of SReAM — Data Link

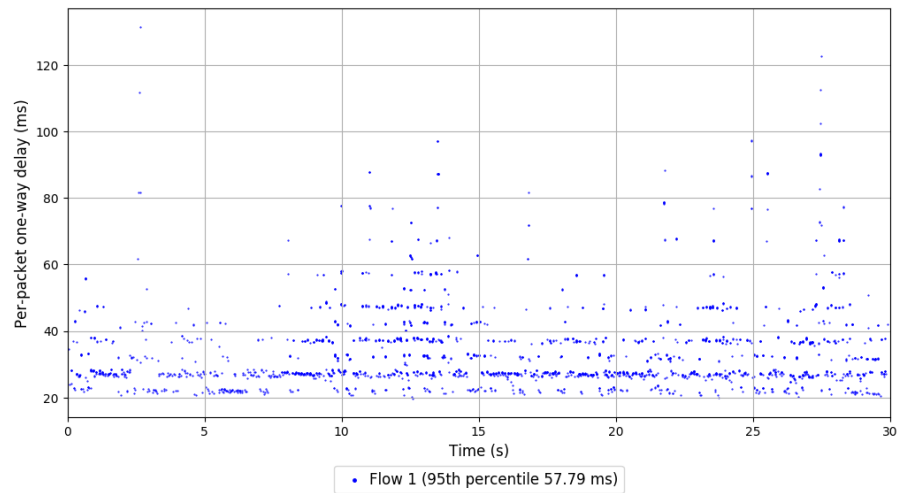
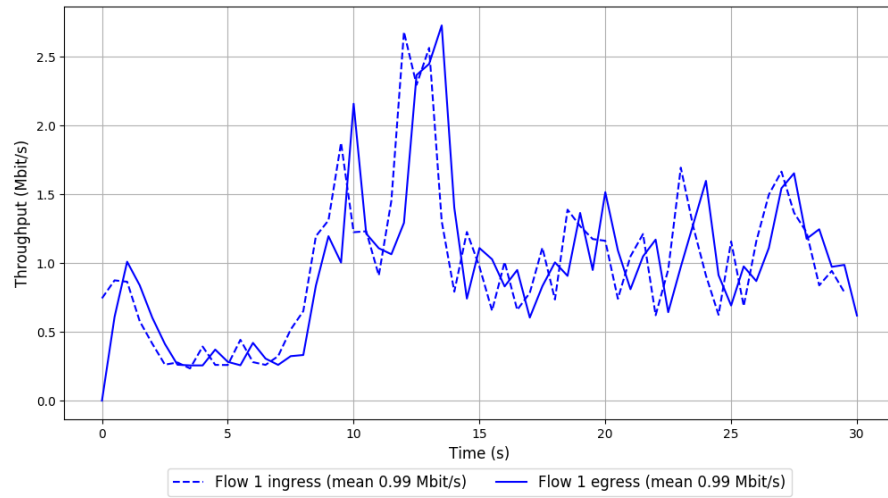


Run 1: Statistics of Sprout

Start at: 2019-01-17 03:13:54
End at: 2019-01-17 03:14:24
Local clock offset: -19.914 ms
Remote clock offset: -3.189 ms

Below is generated by plot.py at 2019-01-17 04:17:05
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.99 Mbit/s
95th percentile per-packet one-way delay: 57.794 ms
Loss rate: 0.29%
-- Flow 1:
Average throughput: 0.99 Mbit/s
95th percentile per-packet one-way delay: 57.794 ms
Loss rate: 0.29%

Run 1: Report of Sprout — Data Link

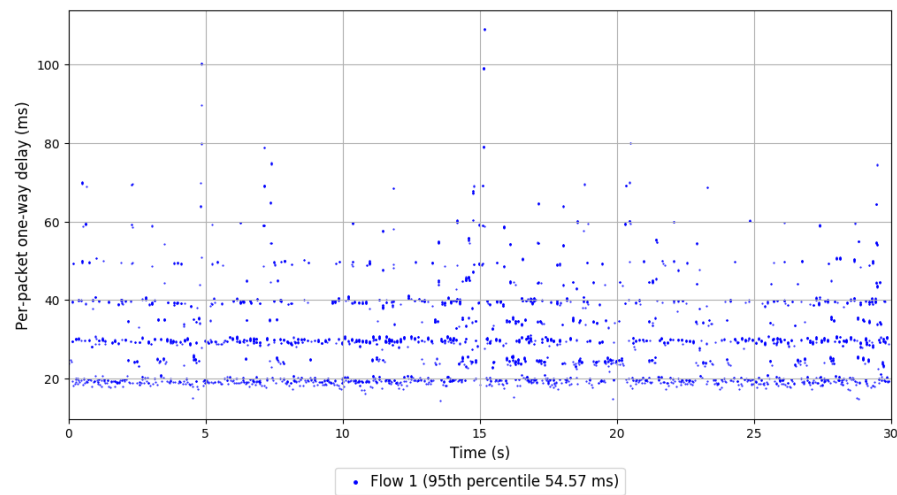
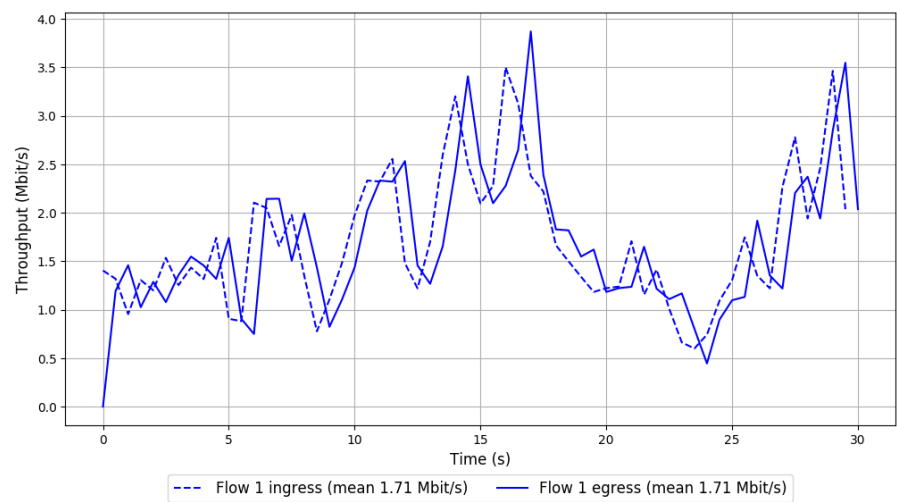


Run 2: Statistics of Sprout

Start at: 2019-01-17 03:35:14
End at: 2019-01-17 03:35:44
Local clock offset: -8.195 ms
Remote clock offset: -4.055 ms

Below is generated by plot.py at 2019-01-17 04:17:05
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.71 Mbit/s
95th percentile per-packet one-way delay: 54.569 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.71 Mbit/s
95th percentile per-packet one-way delay: 54.569 ms
Loss rate: 0.00%

Run 2: Report of Sprout — Data Link

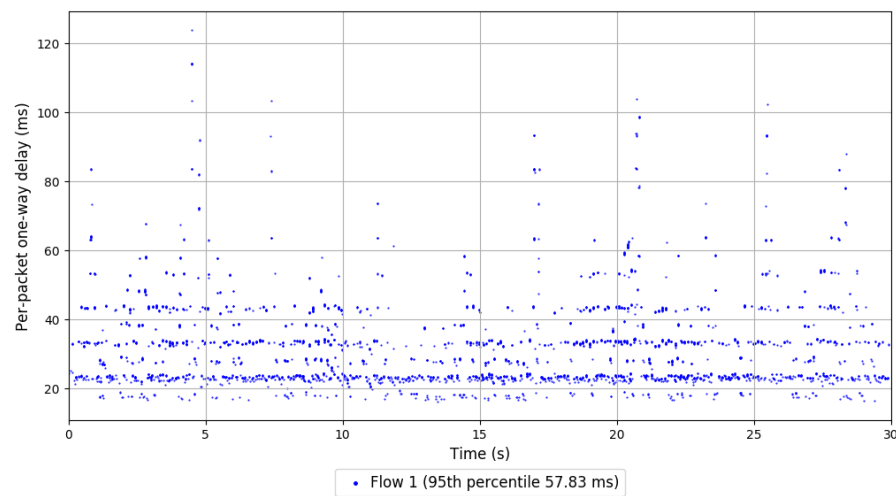
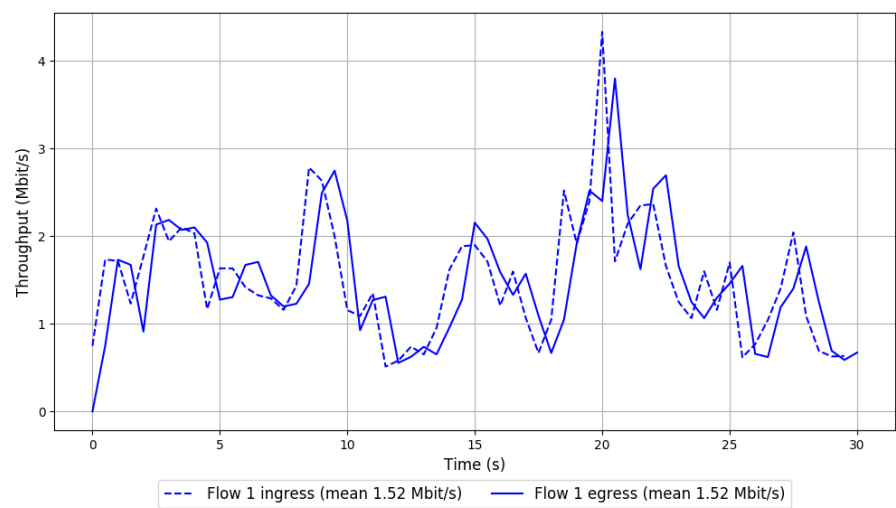


Run 3: Statistics of Sprout

Start at: 2019-01-17 03:56:56
End at: 2019-01-17 03:57:26
Local clock offset: -5.485 ms
Remote clock offset: -4.289 ms

Below is generated by plot.py at 2019-01-17 04:17:05
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.52 Mbit/s
95th percentile per-packet one-way delay: 57.830 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.52 Mbit/s
95th percentile per-packet one-way delay: 57.830 ms
Loss rate: 0.00%

Run 3: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

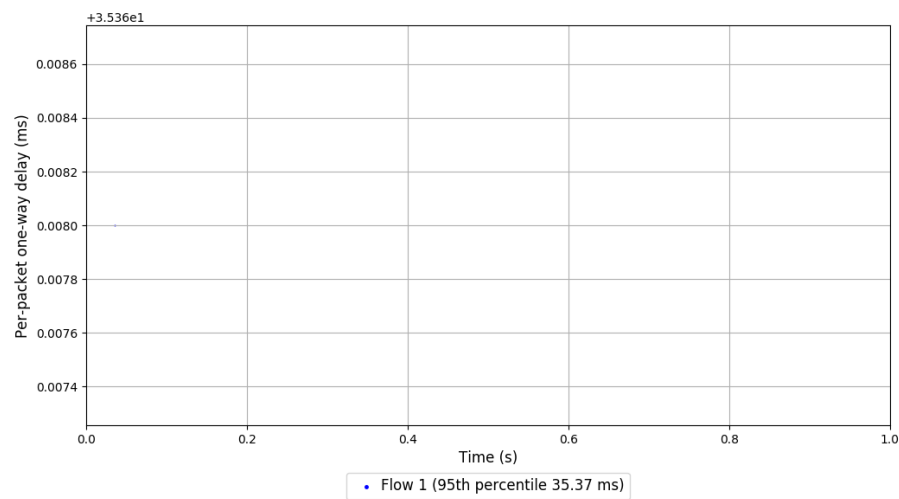
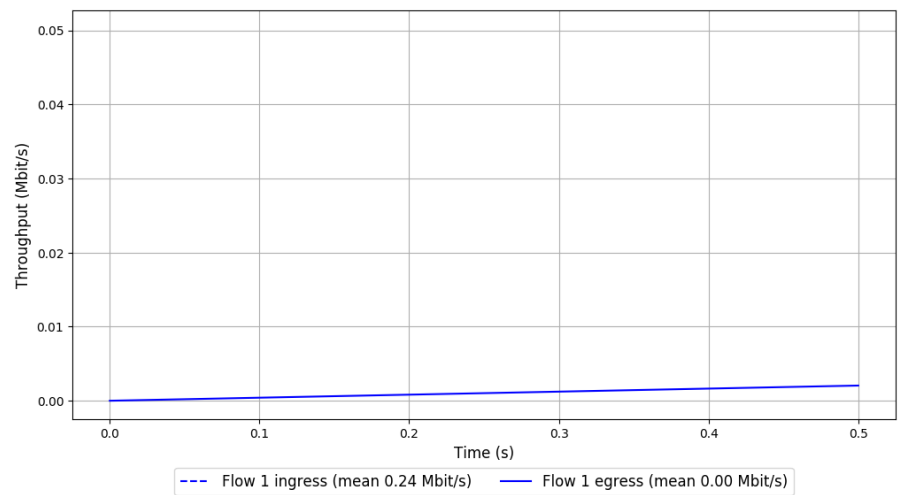
Start at: 2019-01-17 03:30:47

End at: 2019-01-17 03:31:17

Local clock offset: -7.755 ms

Remote clock offset: -3.706 ms

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



Run 2: Statistics of TaoVA-100x

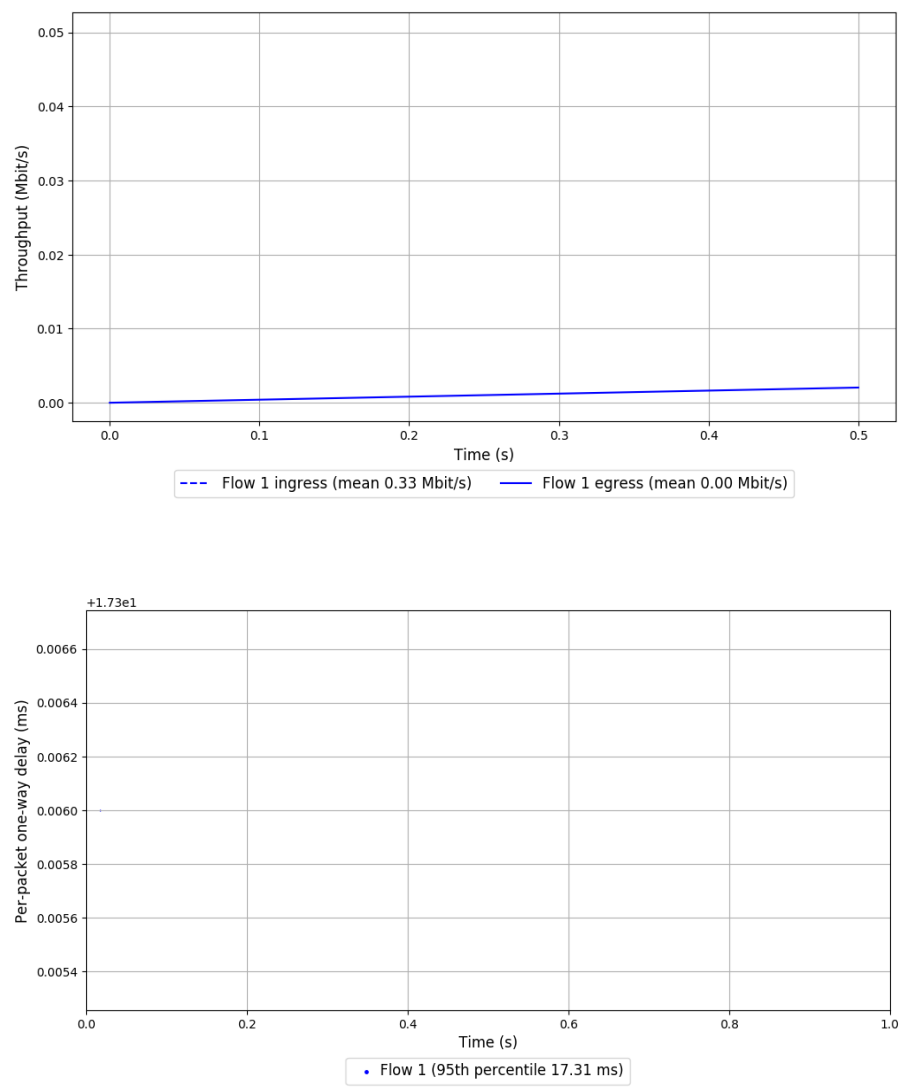
Start at: 2019-01-17 03:52:08

End at: 2019-01-17 03:52:38

Local clock offset: -6.818 ms

Remote clock offset: -3.64 ms

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

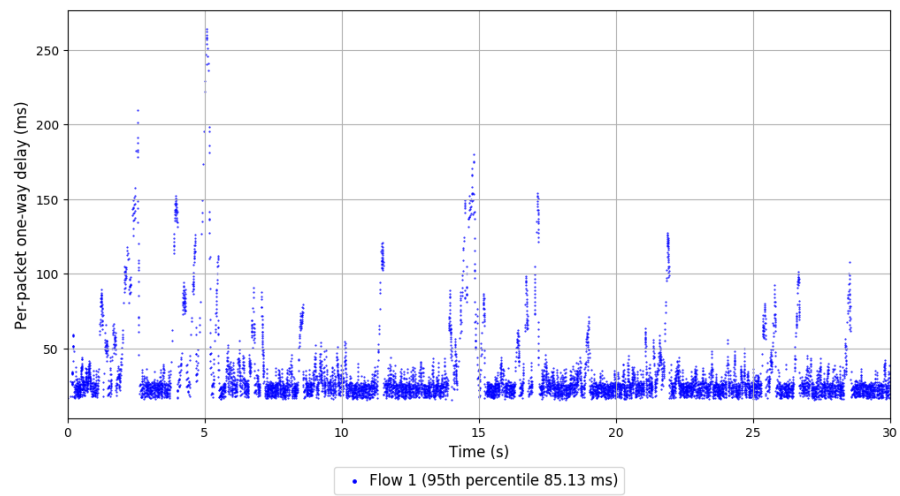
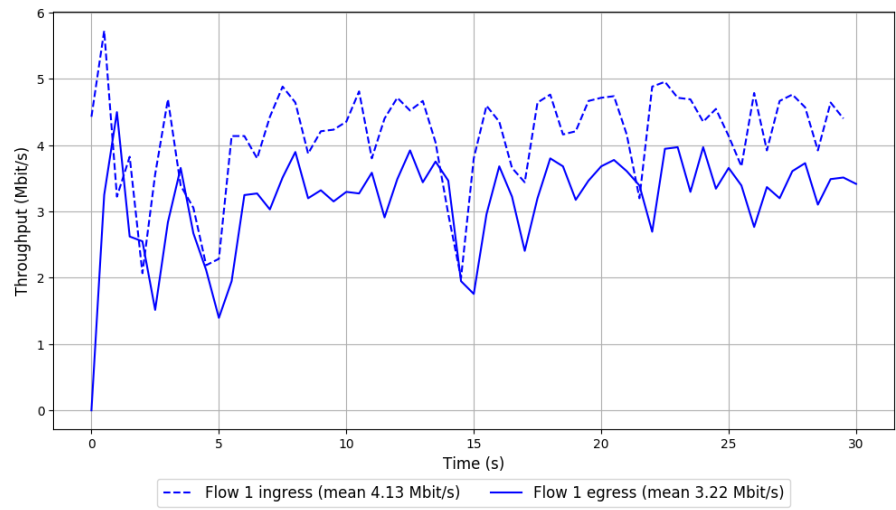


Run 3: Statistics of TaoVA-100x

Start at: 2019-01-17 04:13:36
End at: 2019-01-17 04:14:06
Local clock offset: -5.524 ms
Remote clock offset: -5.415 ms

Below is generated by plot.py at 2019-01-17 04:17:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.22 Mbit/s
95th percentile per-packet one-way delay: 85.132 ms
Loss rate: 22.10%
-- Flow 1:
Average throughput: 3.22 Mbit/s
95th percentile per-packet one-way delay: 85.132 ms
Loss rate: 22.10%

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

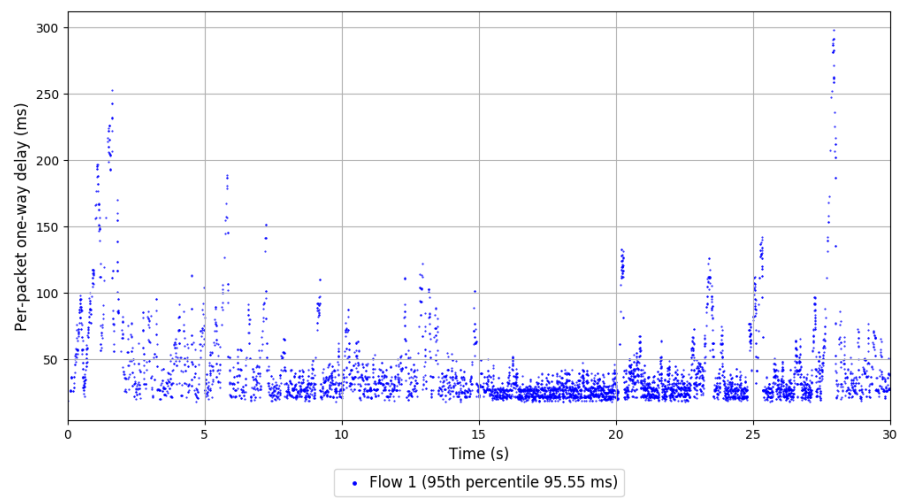
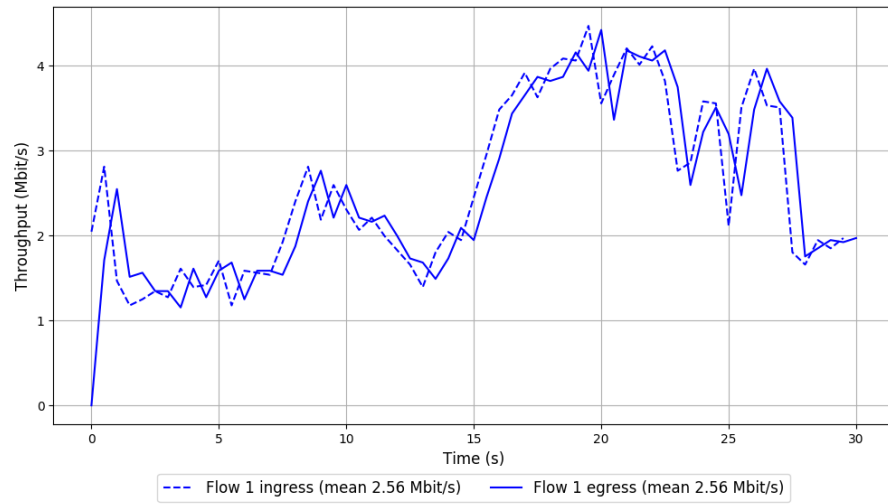


Run 1: Statistics of TCP Vegas

Start at: 2019-01-17 03:12:47
End at: 2019-01-17 03:13:17
Local clock offset: -18.333 ms
Remote clock offset: -3.537 ms

Below is generated by plot.py at 2019-01-17 04:17:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.56 Mbit/s
95th percentile per-packet one-way delay: 95.548 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 2.56 Mbit/s
95th percentile per-packet one-way delay: 95.548 ms
Loss rate: 0.06%

Run 1: Report of TCP Vegas — Data Link

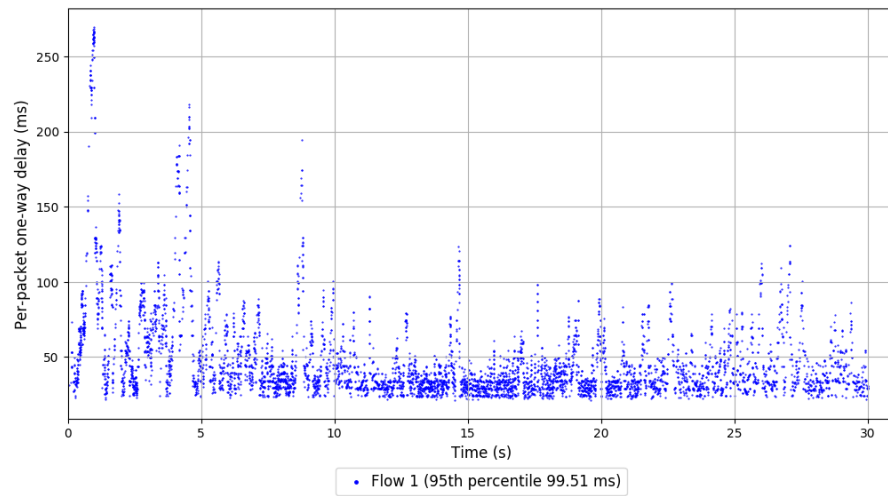
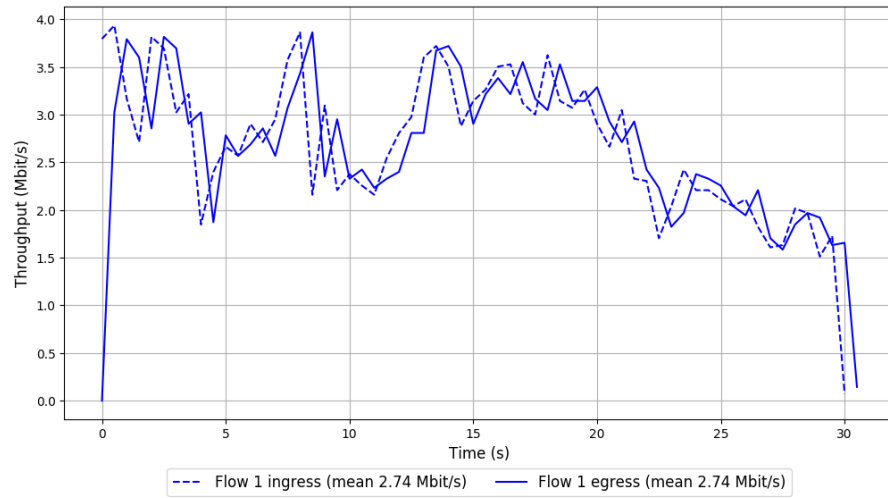


Run 2: Statistics of TCP Vegas

Start at: 2019-01-17 03:34:07
End at: 2019-01-17 03:34:37
Local clock offset: -10.124 ms
Remote clock offset: -3.282 ms

Below is generated by plot.py at 2019-01-17 04:17:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.74 Mbit/s
95th percentile per-packet one-way delay: 99.510 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 2.74 Mbit/s
95th percentile per-packet one-way delay: 99.510 ms
Loss rate: 0.06%

Run 2: Report of TCP Vegas — Data Link

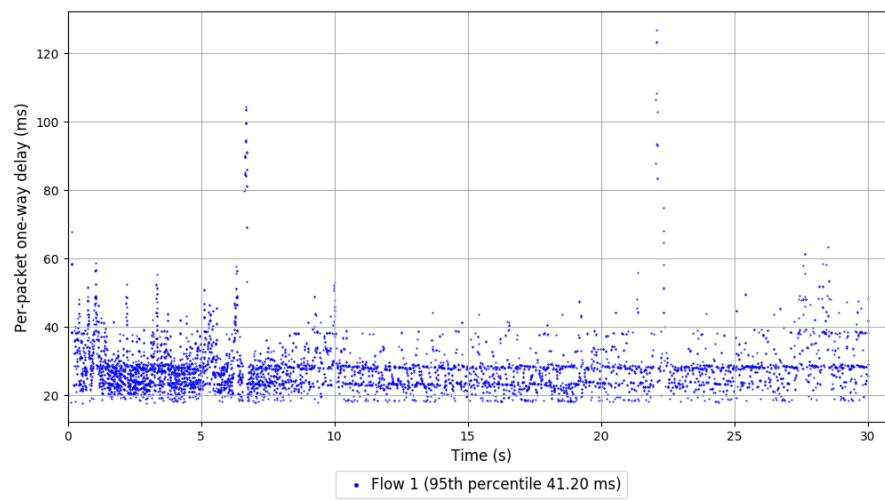
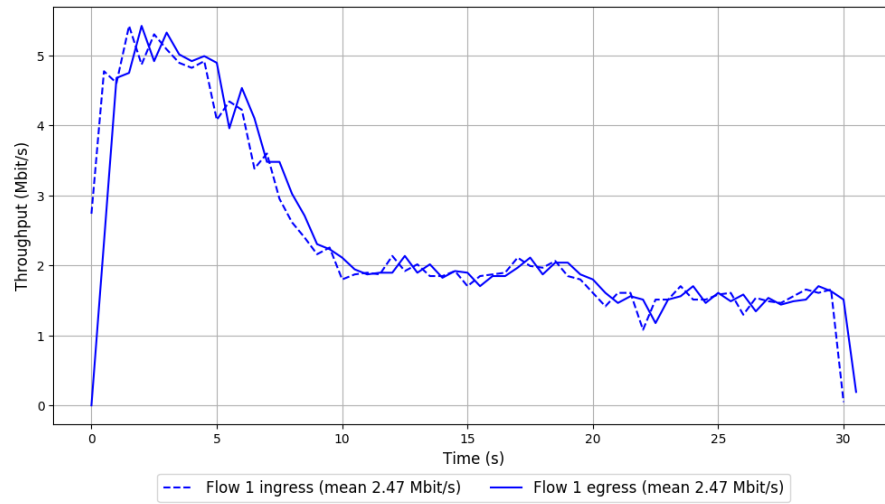


Run 3: Statistics of TCP Vegas

Start at: 2019-01-17 03:55:49
End at: 2019-01-17 03:56:19
Local clock offset: -7.275 ms
Remote clock offset: -4.691 ms

Below is generated by plot.py at 2019-01-17 04:17:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.47 Mbit/s
95th percentile per-packet one-way delay: 41.202 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 2.47 Mbit/s
95th percentile per-packet one-way delay: 41.202 ms
Loss rate: 0.05%

Run 3: Report of TCP Vegas — Data Link

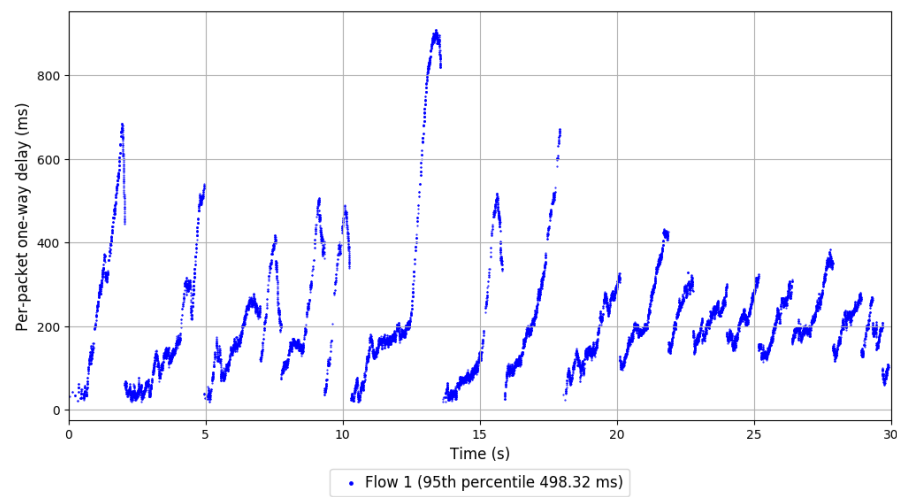
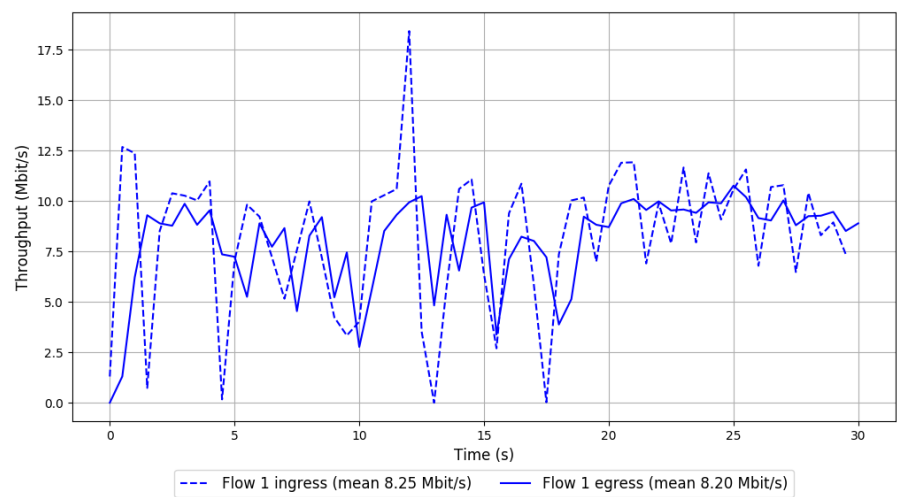


Run 1: Statistics of Verus

Start at: 2019-01-17 03:23:57
End at: 2019-01-17 03:24:27
Local clock offset: -14.285 ms
Remote clock offset: -4.205 ms

Below is generated by plot.py at 2019-01-17 04:17:16
Datalink statistics
-- Total of 1 flow:
Average throughput: 8.20 Mbit/s
95th percentile per-packet one-way delay: 498.324 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 8.20 Mbit/s
95th percentile per-packet one-way delay: 498.324 ms
Loss rate: 0.64%

Run 1: Report of Verus — Data Link

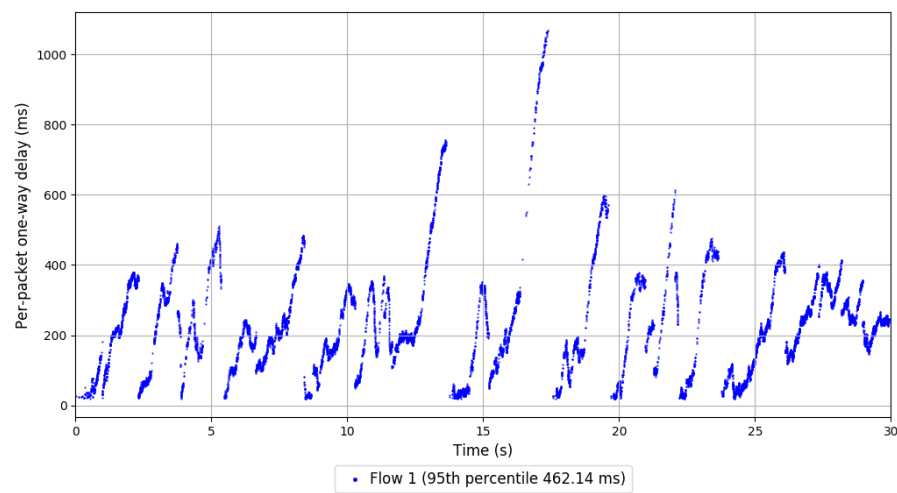
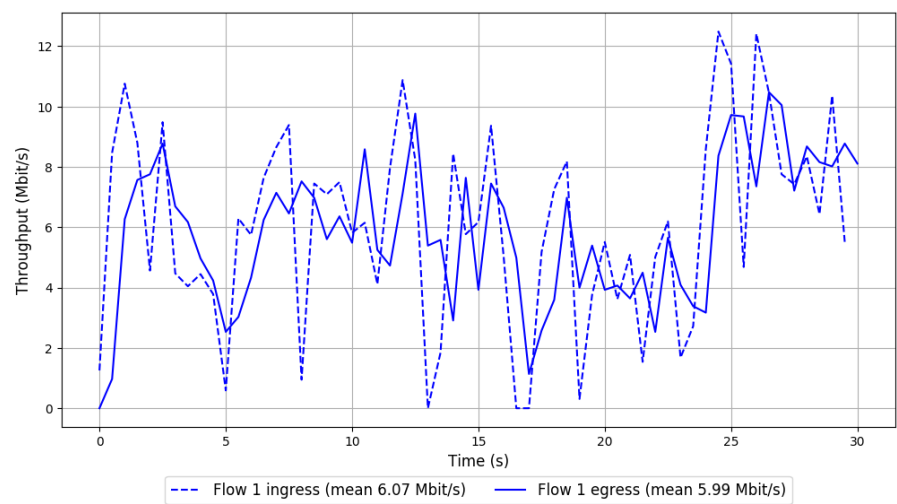


Run 2: Statistics of Verus

Start at: 2019-01-17 03:45:17
End at: 2019-01-17 03:45:47
Local clock offset: -12.878 ms
Remote clock offset: -4.324 ms

Below is generated by plot.py at 2019-01-17 04:17:16
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.99 Mbit/s
95th percentile per-packet one-way delay: 462.137 ms
Loss rate: 1.32%
-- Flow 1:
Average throughput: 5.99 Mbit/s
95th percentile per-packet one-way delay: 462.137 ms
Loss rate: 1.32%

Run 2: Report of Verus — Data Link

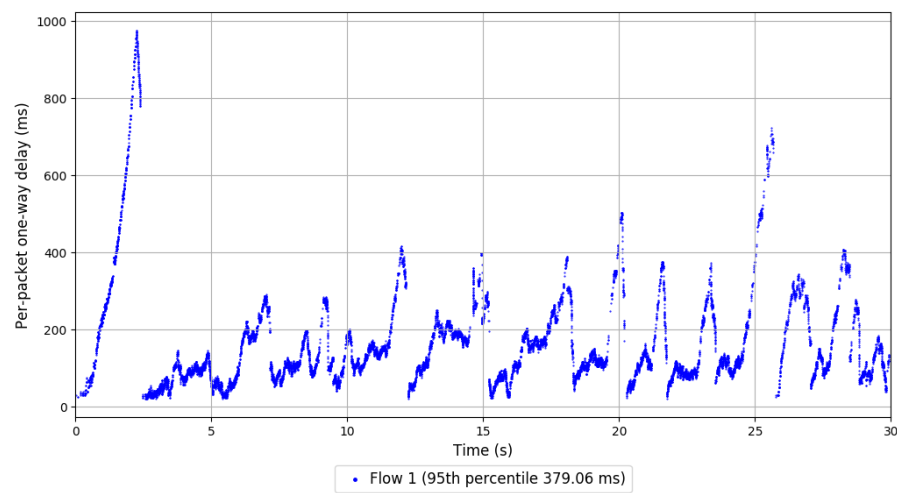
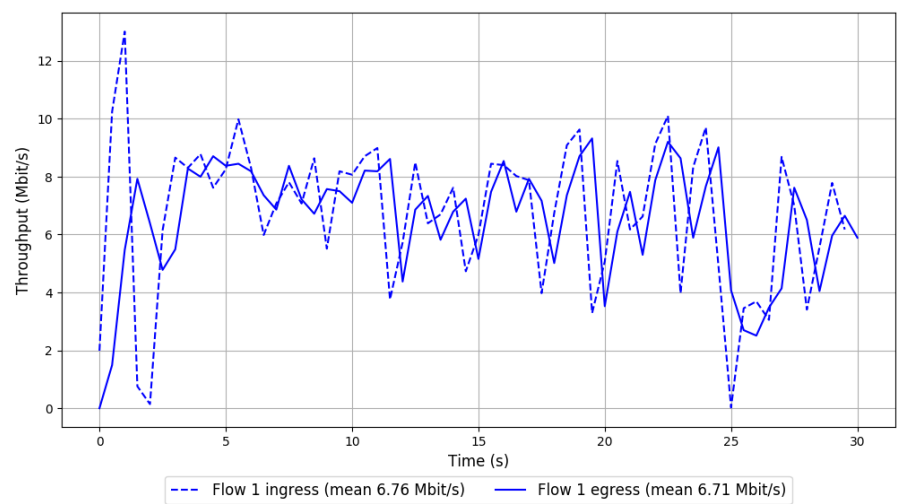


Run 3: Statistics of Verus

Start at: 2019-01-17 04:06:57
End at: 2019-01-17 04:07:27
Local clock offset: -7.736 ms
Remote clock offset: -4.255 ms

Below is generated by plot.py at 2019-01-17 04:17:16
Datalink statistics
-- Total of 1 flow:
Average throughput: 6.71 Mbit/s
95th percentile per-packet one-way delay: 379.056 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 6.71 Mbit/s
95th percentile per-packet one-way delay: 379.056 ms
Loss rate: 0.77%

Run 3: Report of Verus — Data Link

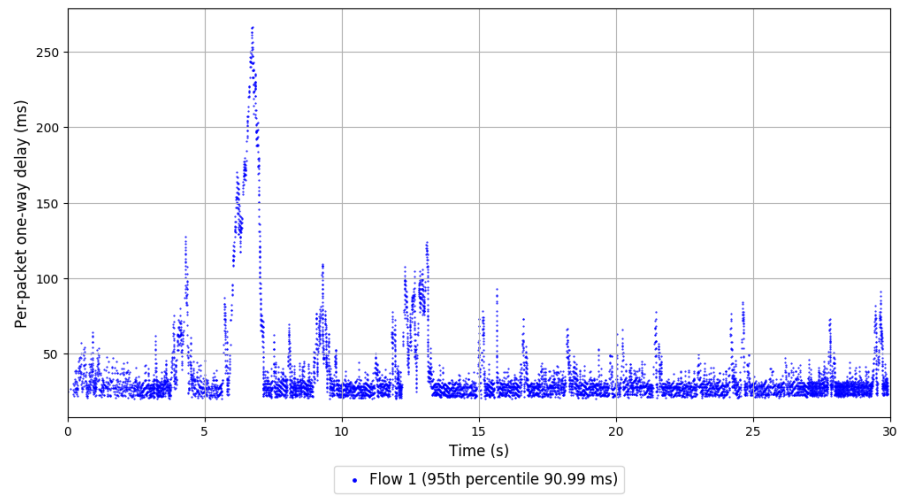
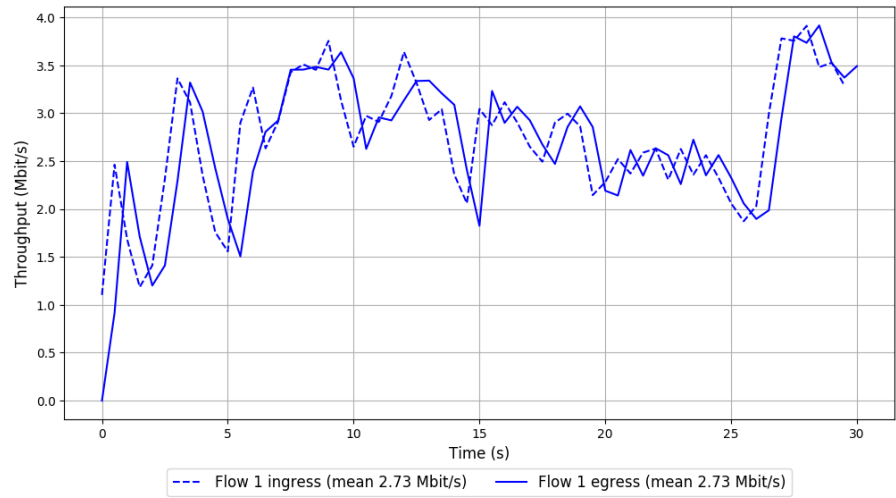


Run 1: Statistics of PCC-Vivace

Start at: 2019-01-17 03:18:20
End at: 2019-01-17 03:18:50
Local clock offset: -17.985 ms
Remote clock offset: -3.01 ms

Below is generated by plot.py at 2019-01-17 04:17:16
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.73 Mbit/s
95th percentile per-packet one-way delay: 90.993 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 2.73 Mbit/s
95th percentile per-packet one-way delay: 90.993 ms
Loss rate: 0.07%

Run 1: Report of PCC-Vivace — Data Link

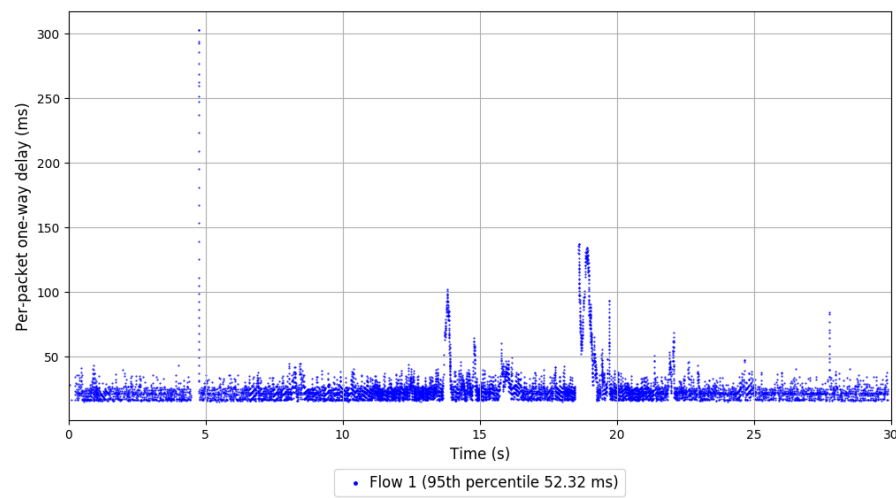
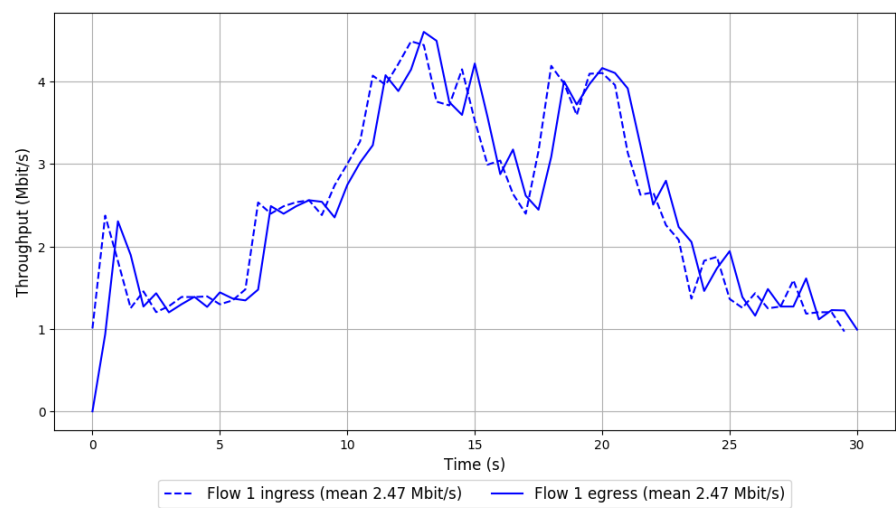


Run 2: Statistics of PCC-Vivace

Start at: 2019-01-17 03:39:40
End at: 2019-01-17 03:40:10
Local clock offset: -7.202 ms
Remote clock offset: -3.532 ms

Below is generated by plot.py at 2019-01-17 04:17:16
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.47 Mbit/s
95th percentile per-packet one-way delay: 52.321 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 2.47 Mbit/s
95th percentile per-packet one-way delay: 52.321 ms
Loss rate: 0.02%

Run 2: Report of PCC-Vivace — Data Link

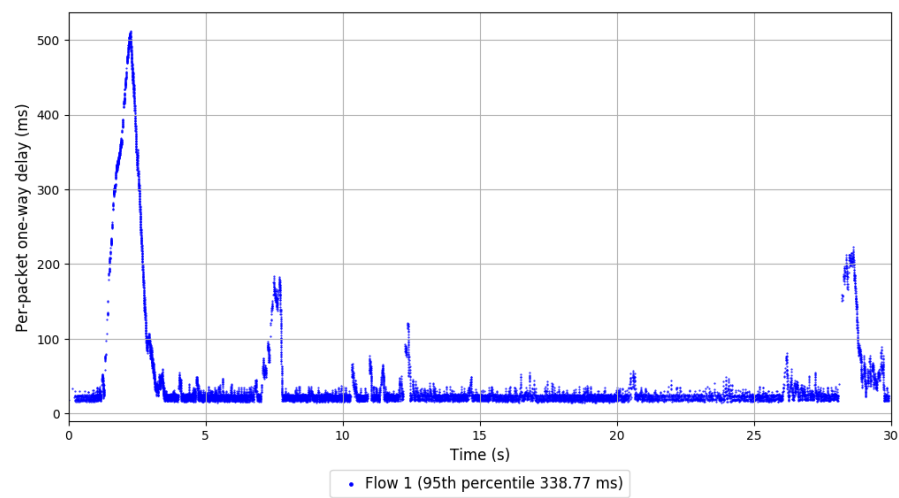
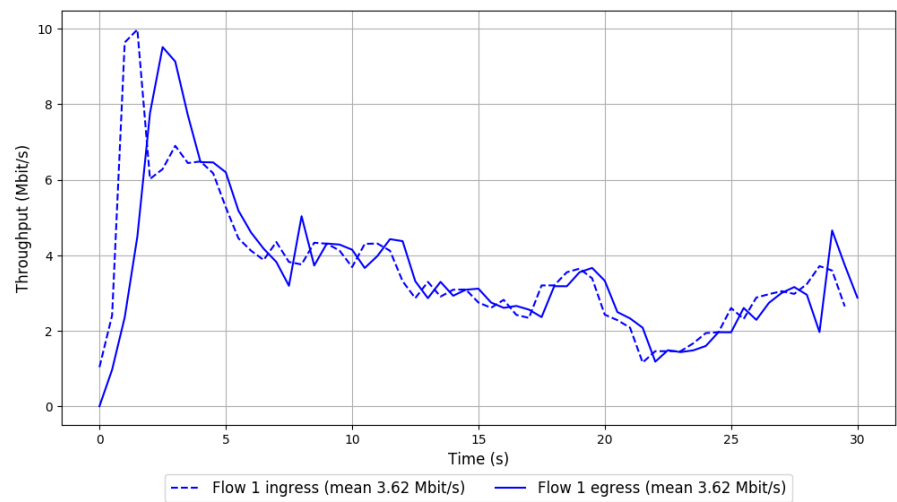


Run 3: Statistics of PCC-Vivace

Start at: 2019-01-17 04:01:23
End at: 2019-01-17 04:01:53
Local clock offset: -3.779 ms
Remote clock offset: -4.426 ms

Below is generated by plot.py at 2019-01-17 04:17:16
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.62 Mbit/s
95th percentile per-packet one-way delay: 338.771 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 3.62 Mbit/s
95th percentile per-packet one-way delay: 338.771 ms
Loss rate: 0.06%

Run 3: Report of PCC-Vivace — Data Link

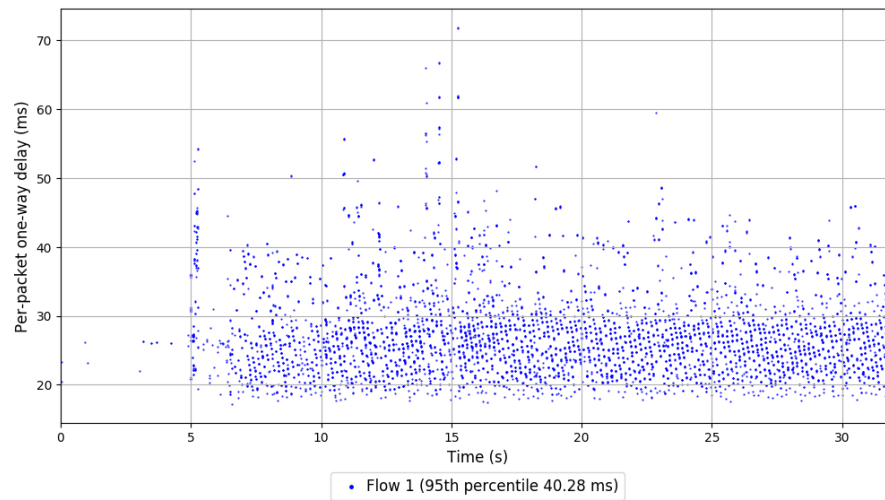
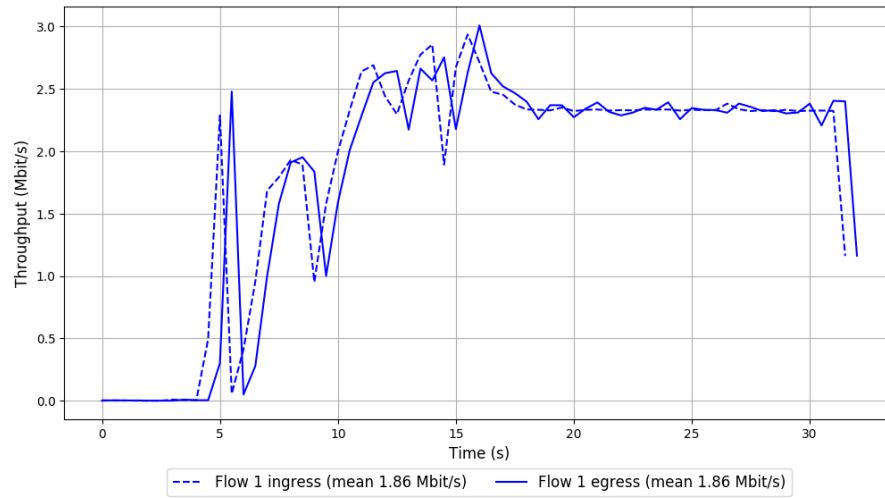



```
Run 1: Statistics of WebRTC media

Start at: 2019-01-17 03:25:06
End at: 2019-01-17 03:25:36
Local clock offset: -11.732 ms
Remote clock offset: -3.822 ms

# Below is generated by plot.py at 2019-01-17 04:17:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.86 Mbit/s
95th percentile per-packet one-way delay: 40.283 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 1.86 Mbit/s
95th percentile per-packet one-way delay: 40.283 ms
Loss rate: 0.07%
```

Run 1: Report of WebRTC media — Data Link

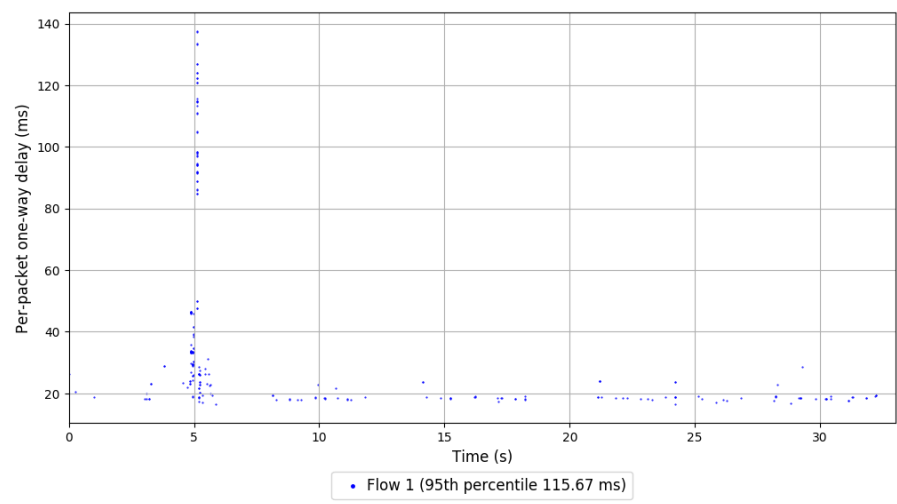
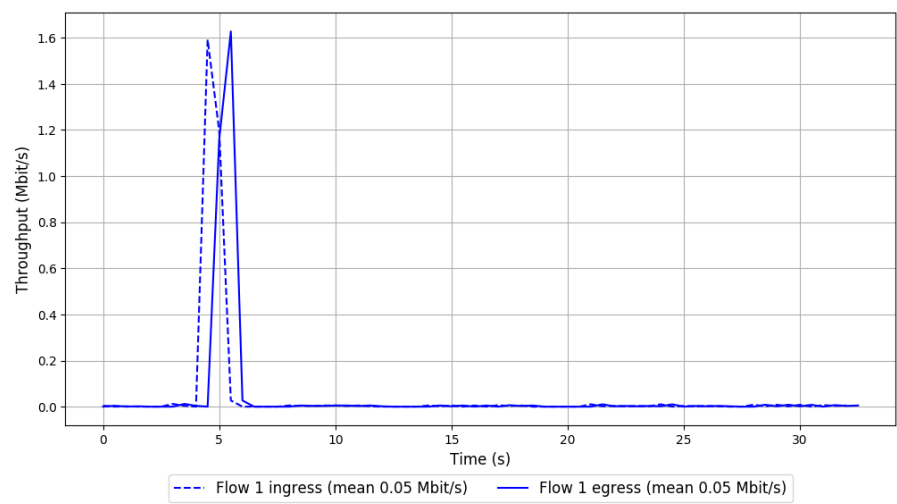


Run 2: Statistics of WebRTC media

Start at: 2019-01-17 03:46:24
End at: 2019-01-17 03:46:54
Local clock offset: -10.77 ms
Remote clock offset: -3.735 ms

Below is generated by plot.py at 2019-01-17 04:17:16
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 115.675 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 115.675 ms
Loss rate: 0.00%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2019-01-17 04:08:04
End at: 2019-01-17 04:08:34
Local clock offset: -5.716 ms
Remote clock offset: -4.984 ms

Below is generated by plot.py at 2019-01-17 04:17:16
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 87.549 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 87.549 ms
Loss rate: 0.00%

Run 3: Report of WebRTC media — Data Link

