

Pantheon Report

Generated at 2018-09-10 22:29:35 (UTC).

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

Repeated the test of 18 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:

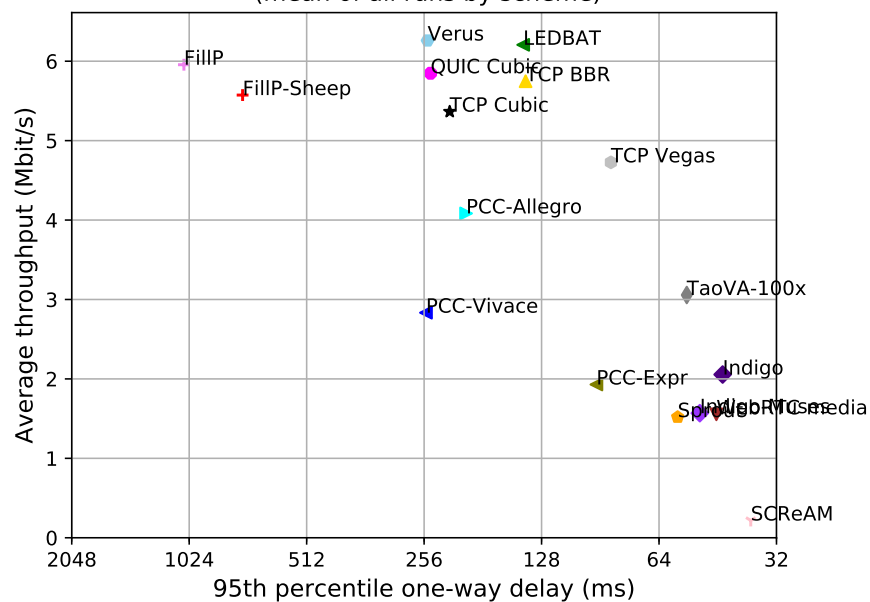
```
Linux 4.15.0-1020-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
net.ipv4.tcp_mem = 184101 245469 368202
```

Git summary:

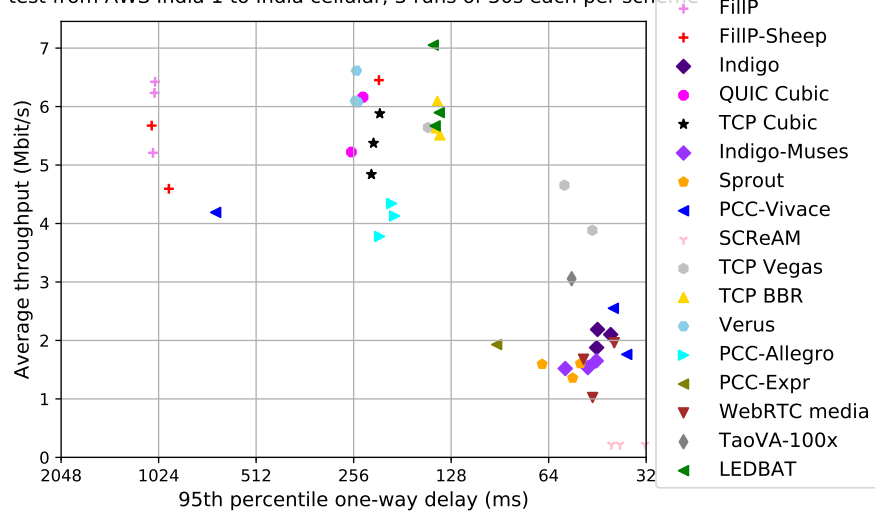
```
branch: muses @ f30bceca2aec2ef14a3cf71e25642f4a30905a03
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecd90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/pantheon-tunnel @ cbfce6db5ff5740dafa1771f813cd646339e1952
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	5.75	140.66	0.32
Copa	0	N/A	N/A	N/A
TCP Cubic	3	5.36	220.13	0.62
FillP	3	5.95	1056.39	47.85
FillP-Sheep	3	5.57	747.15	15.04
Indigo	3	2.06	43.97	0.06
LEDBAT	3	6.21	142.68	0.38
Indigo-Muses	3	1.57	50.31	0.08
PCC-Allegro	3	4.08	199.81	0.09
PCC-Expr	1	1.93	92.63	41.72
QUIC Cubic	3	5.85	246.49	0.80
SCReAM	3	0.22	37.25	0.13
Sprout	3	1.52	57.34	0.11
TaoVA-100x	1	3.06	54.34	28.46
TCP Vegas	3	4.72	85.01	0.07
Verus	3	6.26	250.87	0.77
PCC-Vivace	3	2.83	253.26	0.16
WebRTC media	3	1.55	45.63	0.09

Run 1: Statistics of TCP BBR

Start at: 2018-09-10 21:34:33

End at: 2018-09-10 21:35:03

Local clock offset: -3.716 ms

Remote clock offset: -2.396 ms

Below is generated by plot.py at 2018-09-10 22:28:54

Datalink statistics

-- Total of 1 flow:

Average throughput: 6.09 Mbit/s

95th percentile per-packet one-way delay: 141.173 ms

Loss rate: 0.28%

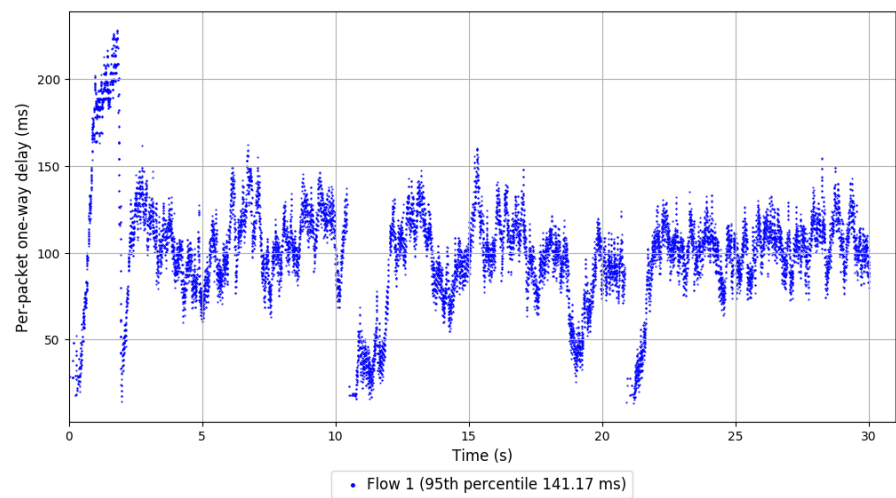
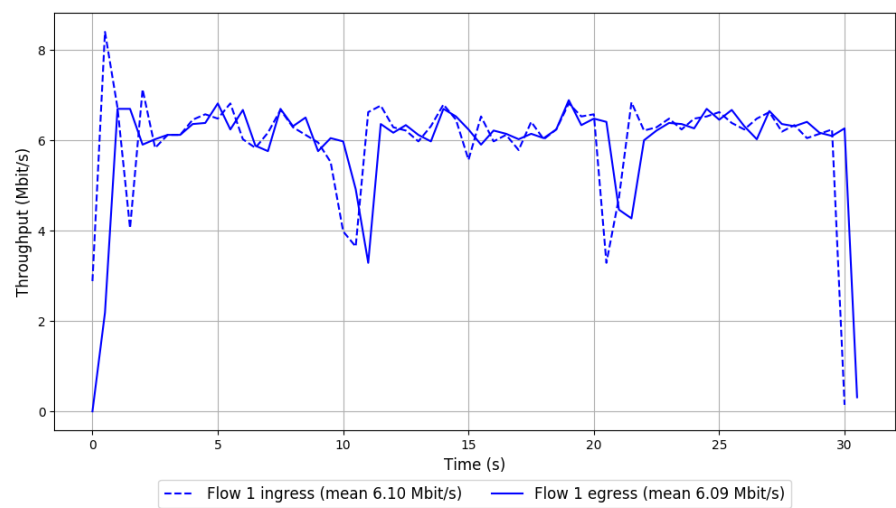
-- Flow 1:

Average throughput: 6.09 Mbit/s

95th percentile per-packet one-way delay: 141.173 ms

Loss rate: 0.28%

Run 1: Report of TCP BBR — Data Link

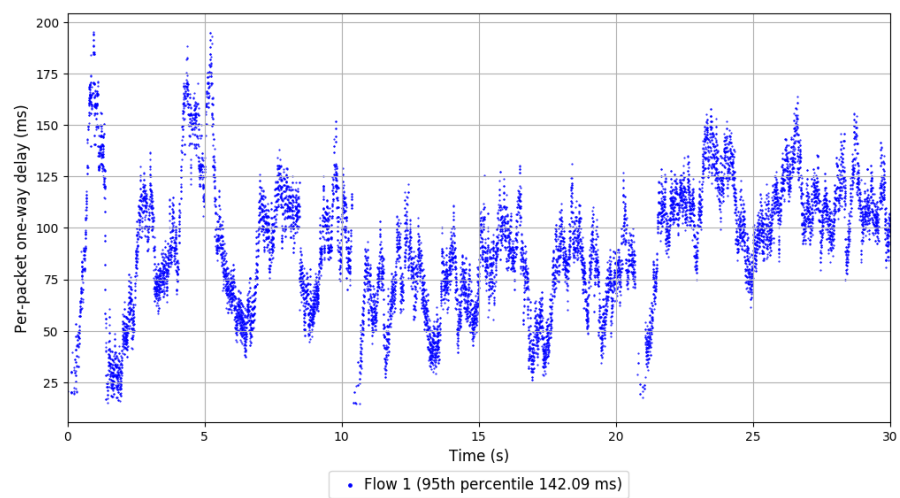
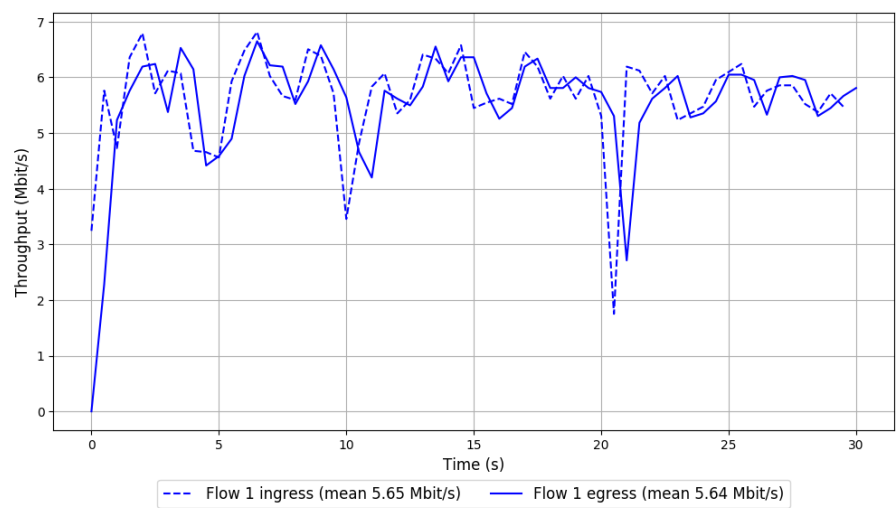


Run 2: Statistics of TCP BBR

Start at: 2018-09-10 21:54:16
End at: 2018-09-10 21:54:46
Local clock offset: -0.172 ms
Remote clock offset: -1.755 ms

Below is generated by plot.py at 2018-09-10 22:28:54
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.64 Mbit/s
95th percentile per-packet one-way delay: 142.090 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 5.64 Mbit/s
95th percentile per-packet one-way delay: 142.090 ms
Loss rate: 0.30%

Run 2: Report of TCP BBR — Data Link

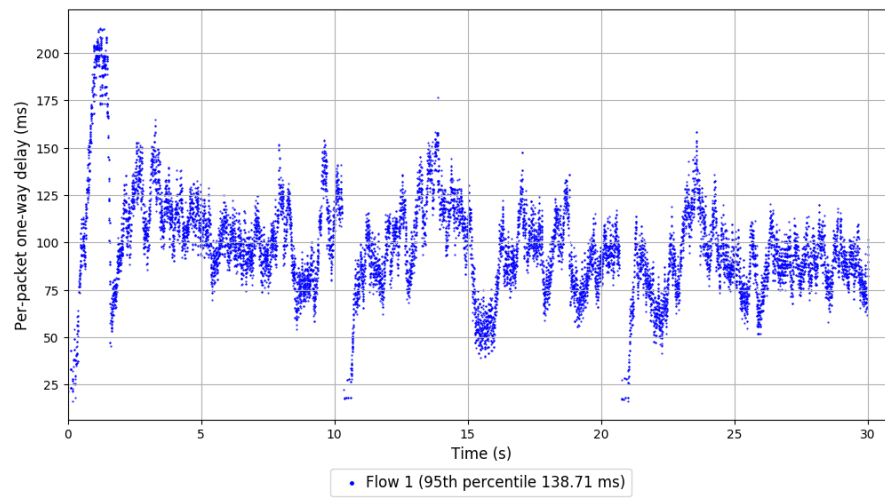
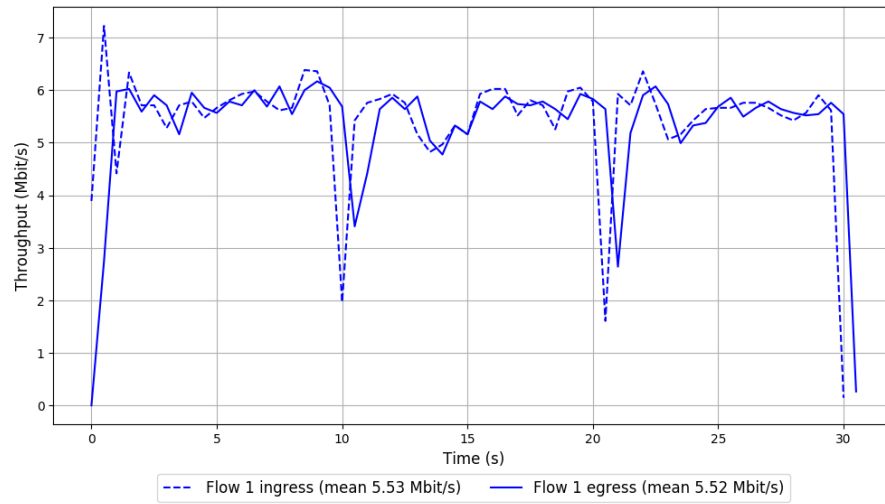


Run 3: Statistics of TCP BBR

Start at: 2018-09-10 22:14:00
End at: 2018-09-10 22:14:30
Local clock offset: -4.568 ms
Remote clock offset: -1.032 ms

Below is generated by plot.py at 2018-09-10 22:28:54
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.52 Mbit/s
95th percentile per-packet one-way delay: 138.707 ms
Loss rate: 0.37%
-- Flow 1:
Average throughput: 5.52 Mbit/s
95th percentile per-packet one-way delay: 138.707 ms
Loss rate: 0.37%

Run 3: Report of TCP BBR — Data Link



Run 1: Statistics of Copa

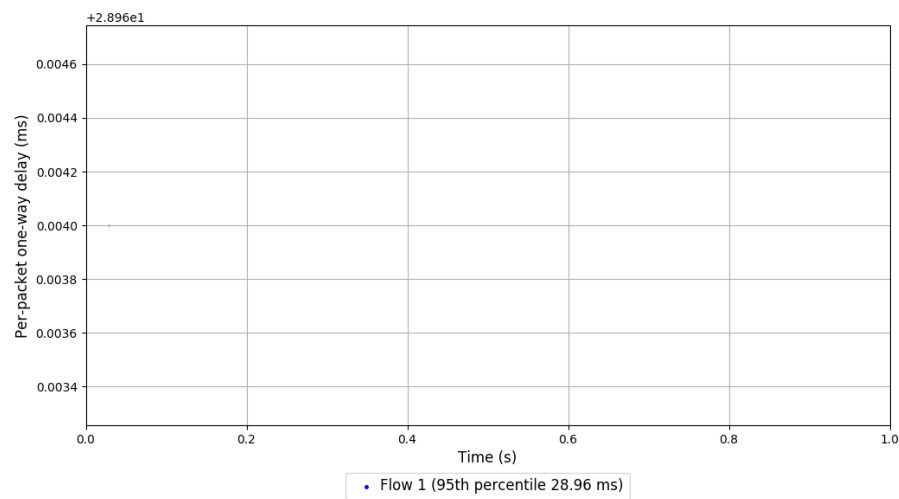
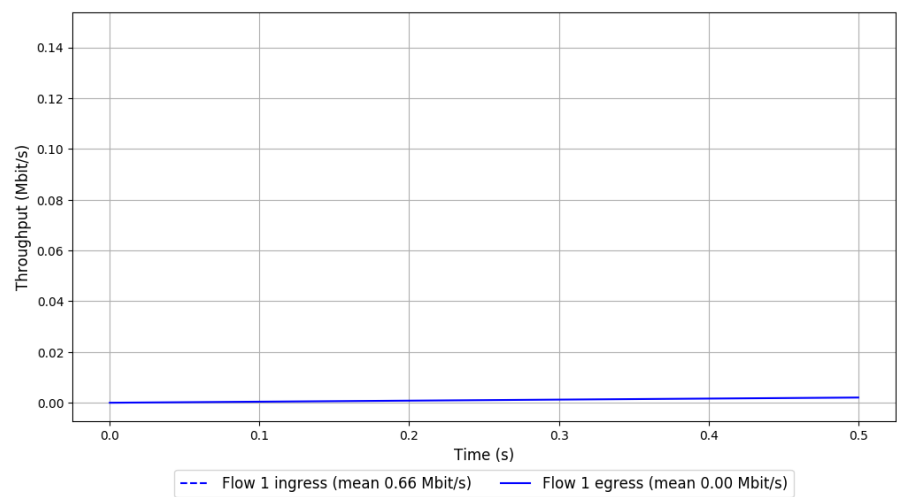
Start at: 2018-09-10 21:44:23

End at: 2018-09-10 21:44:53

Local clock offset: -5.581 ms

Remote clock offset: -2.528 ms

Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

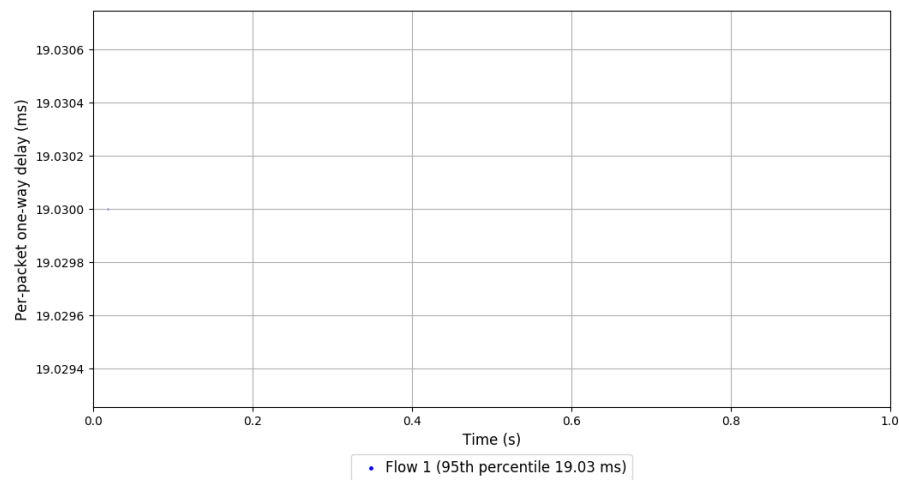
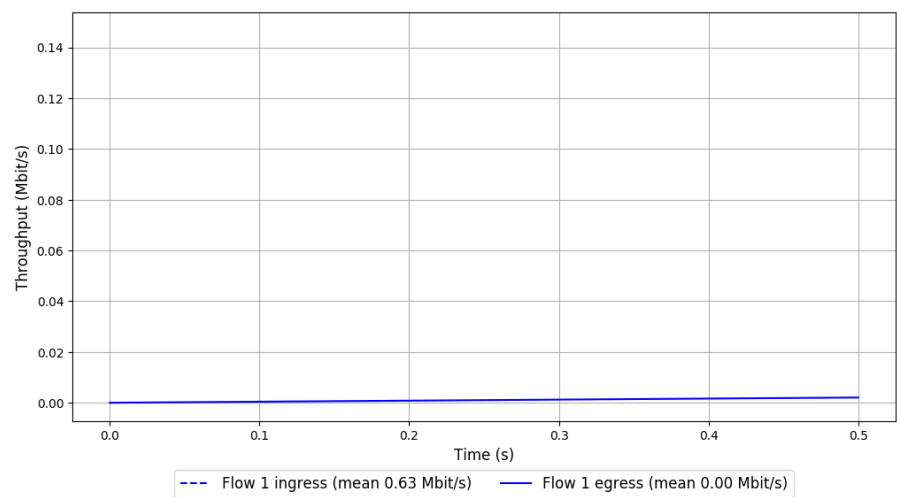
Start at: 2018-09-10 22:04:09

End at: 2018-09-10 22:04:39

Local clock offset: -2.085 ms

Remote clock offset: -1.636 ms

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

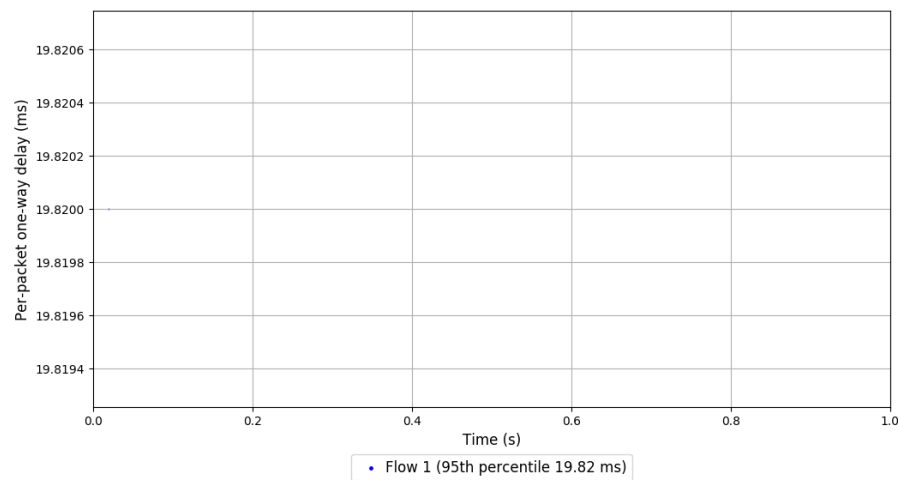
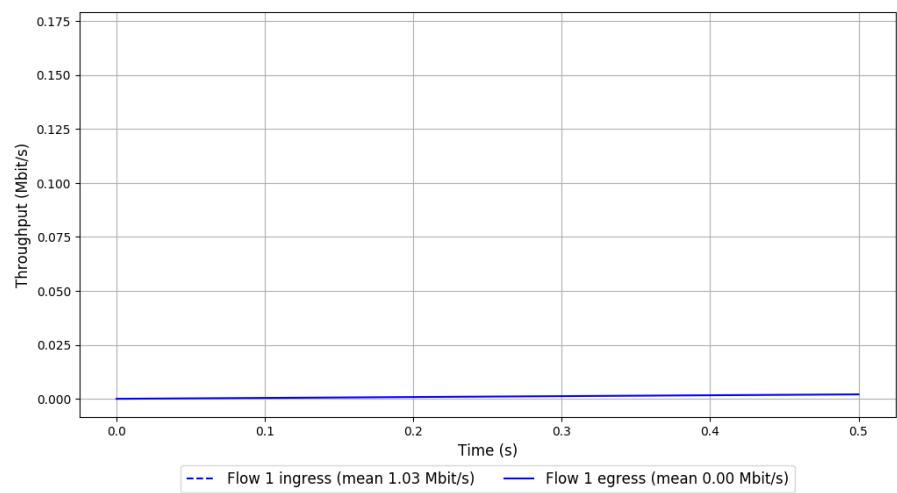
Start at: 2018-09-10 22:23:48

End at: 2018-09-10 22:24:18

Local clock offset: -6.406 ms

Remote clock offset: -1.161 ms

Run 3: Report of Copa — Data Link

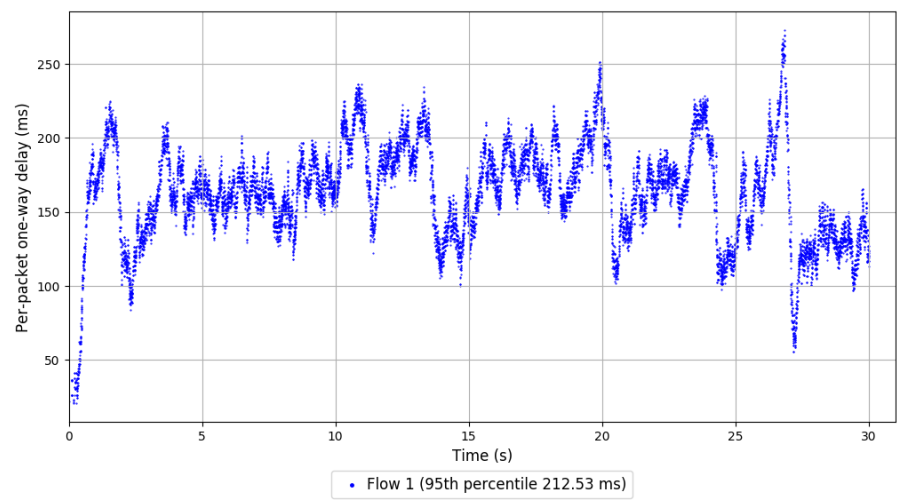
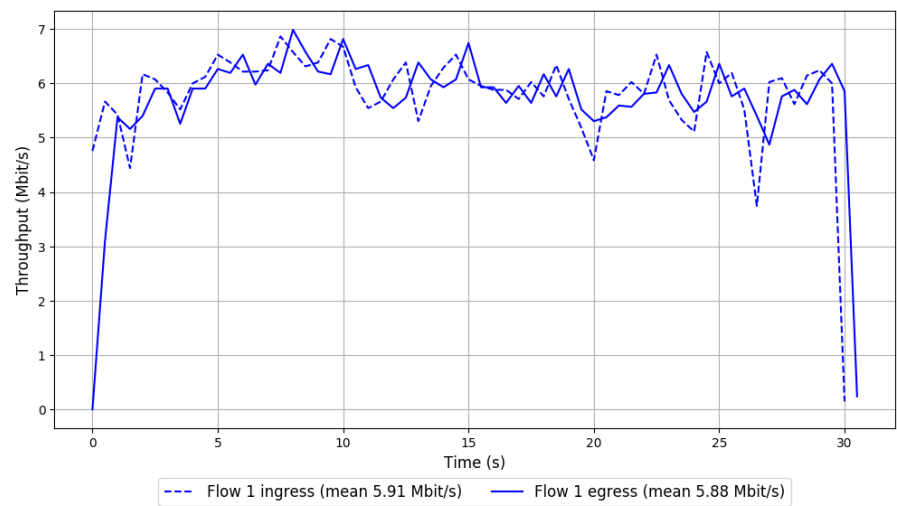


Run 1: Statistics of TCP Cubic

Start at: 2018-09-10 21:46:39
End at: 2018-09-10 21:47:09
Local clock offset: -4.003 ms
Remote clock offset: -2.313 ms

Below is generated by plot.py at 2018-09-10 22:28:54
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.88 Mbit/s
95th percentile per-packet one-way delay: 212.534 ms
Loss rate: 0.49%
-- Flow 1:
Average throughput: 5.88 Mbit/s
95th percentile per-packet one-way delay: 212.534 ms
Loss rate: 0.49%

Run 1: Report of TCP Cubic — Data Link

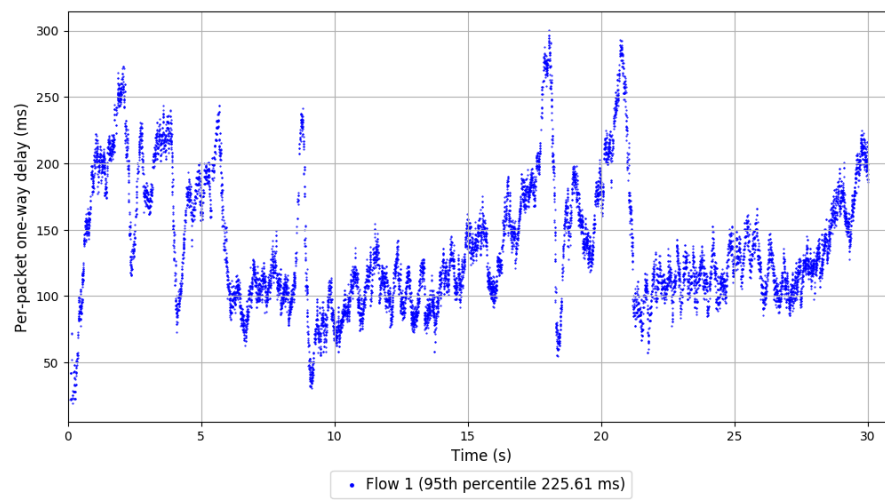
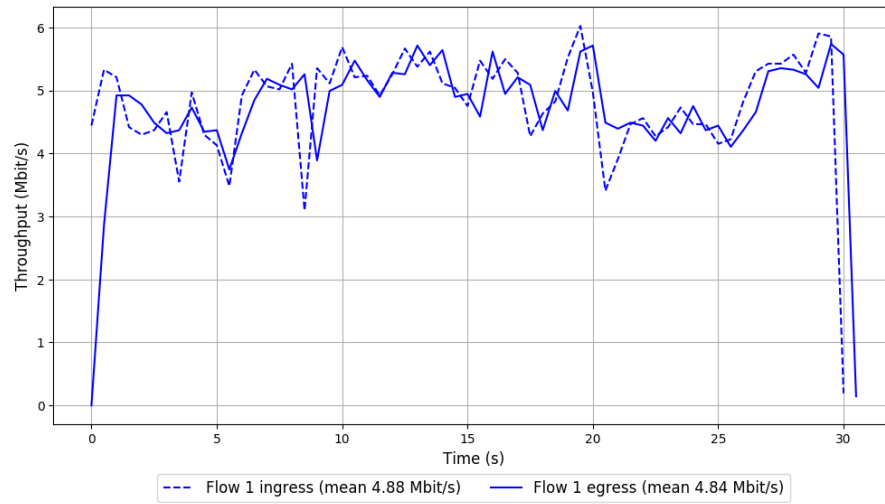


Run 2: Statistics of TCP Cubic

Start at: 2018-09-10 22:06:24
End at: 2018-09-10 22:06:54
Local clock offset: -3.113 ms
Remote clock offset: -1.162 ms

Below is generated by plot.py at 2018-09-10 22:28:54
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.84 Mbit/s
95th percentile per-packet one-way delay: 225.608 ms
Loss rate: 0.87%
-- Flow 1:
Average throughput: 4.84 Mbit/s
95th percentile per-packet one-way delay: 225.608 ms
Loss rate: 0.87%

Run 2: Report of TCP Cubic — Data Link

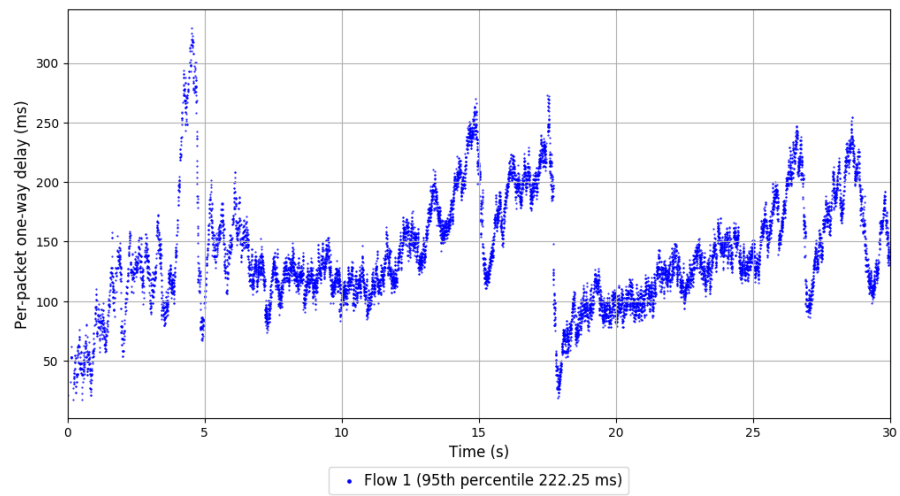
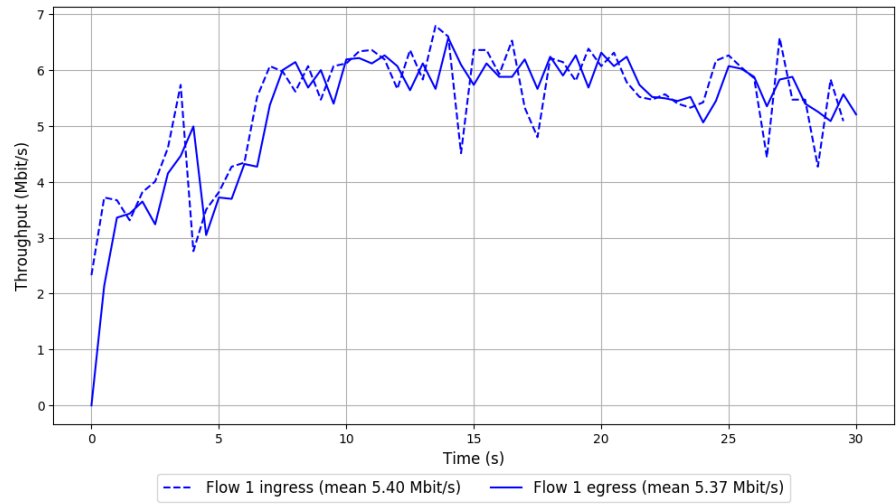


Run 3: Statistics of TCP Cubic

Start at: 2018-09-10 22:25:58
End at: 2018-09-10 22:26:28
Local clock offset: -5.779 ms
Remote clock offset: -1.173 ms

Below is generated by plot.py at 2018-09-10 22:28:54
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.37 Mbit/s
95th percentile per-packet one-way delay: 222.246 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 5.37 Mbit/s
95th percentile per-packet one-way delay: 222.246 ms
Loss rate: 0.51%

Run 3: Report of TCP Cubic — Data Link

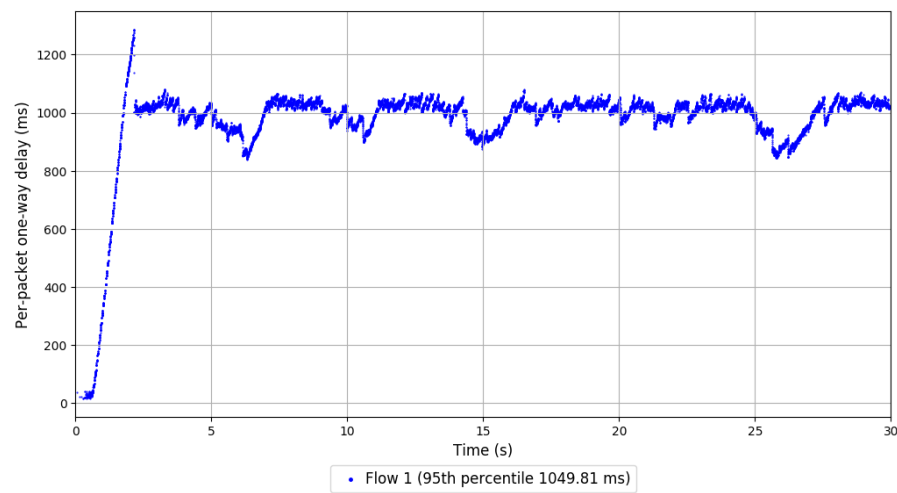
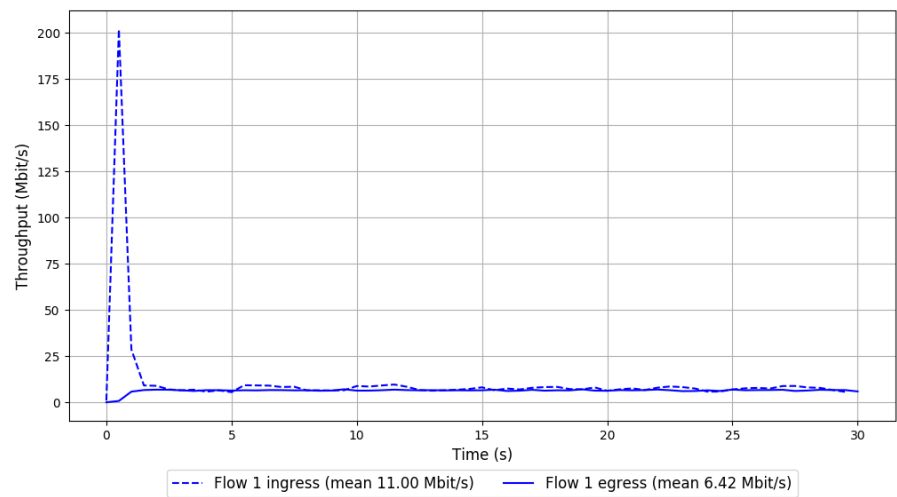


Run 1: Statistics of FillP

Start at: 2018-09-10 21:37:50
End at: 2018-09-10 21:38:20
Local clock offset: -4.81 ms
Remote clock offset: -2.433 ms

Below is generated by plot.py at 2018-09-10 22:29:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 6.42 Mbit/s
95th percentile per-packet one-way delay: 1049.810 ms
Loss rate: 41.66%
-- Flow 1:
Average throughput: 6.42 Mbit/s
95th percentile per-packet one-way delay: 1049.810 ms
Loss rate: 41.66%

Run 1: Report of FillP — Data Link



Run 2: Statistics of FillP

Start at: 2018-09-10 21:57:31

End at: 2018-09-10 21:58:01

Local clock offset: -2.06 ms

Remote clock offset: -1.9 ms

Below is generated by plot.py at 2018-09-10 22:29:00

Datalink statistics

-- Total of 1 flow:

Average throughput: 6.23 Mbit/s

95th percentile per-packet one-way delay: 1053.714 ms

Loss rate: 44.03%

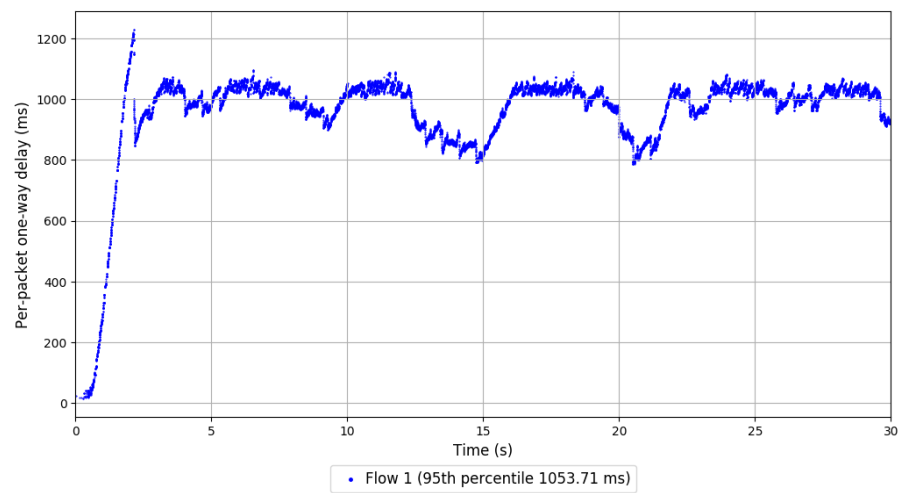
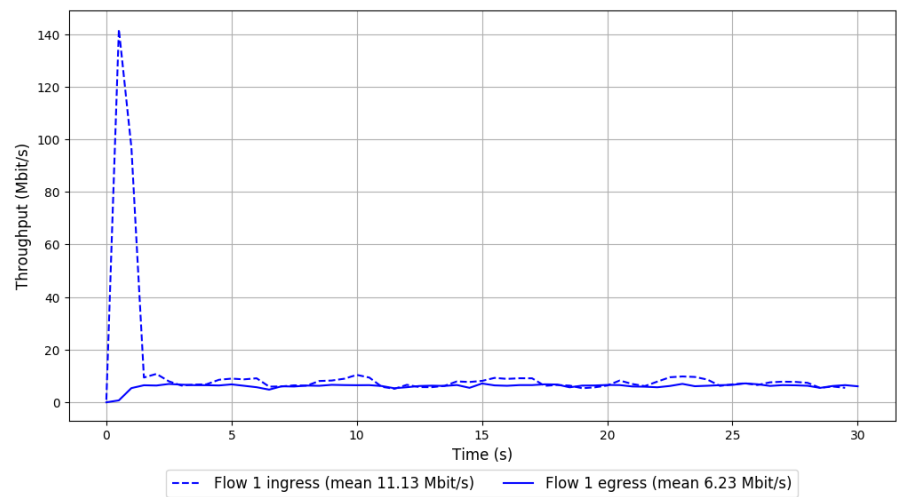
-- Flow 1:

Average throughput: 6.23 Mbit/s

95th percentile per-packet one-way delay: 1053.714 ms

Loss rate: 44.03%

Run 2: Report of FillP — Data Link

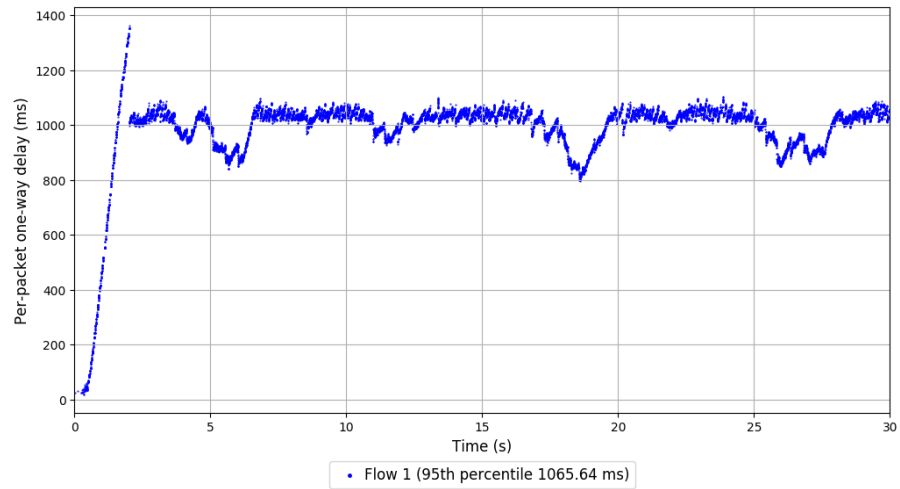
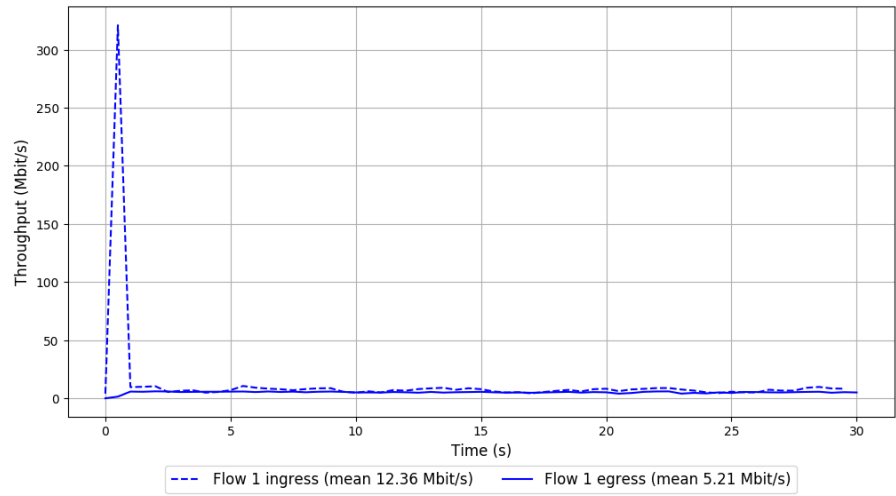


Run 3: Statistics of FillP

Start at: 2018-09-10 22:17:15
End at: 2018-09-10 22:17:45
Local clock offset: -5.397 ms
Remote clock offset: -1.473 ms

Below is generated by plot.py at 2018-09-10 22:29:05
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.21 Mbit/s
95th percentile per-packet one-way delay: 1065.637 ms
Loss rate: 57.87%
-- Flow 1:
Average throughput: 5.21 Mbit/s
95th percentile per-packet one-way delay: 1065.637 ms
Loss rate: 57.87%

Run 3: Report of FillP — Data Link



Run 1: Statistics of FillP-Sheep

Start at: 2018-09-10 21:36:44

End at: 2018-09-10 21:37:14

Local clock offset: -4.517 ms

Remote clock offset: -2.526 ms

Below is generated by plot.py at 2018-09-10 22:29:05

Datalink statistics

-- Total of 1 flow:

Average throughput: 6.45 Mbit/s

95th percentile per-packet one-way delay: 213.875 ms

Loss rate: 0.81%

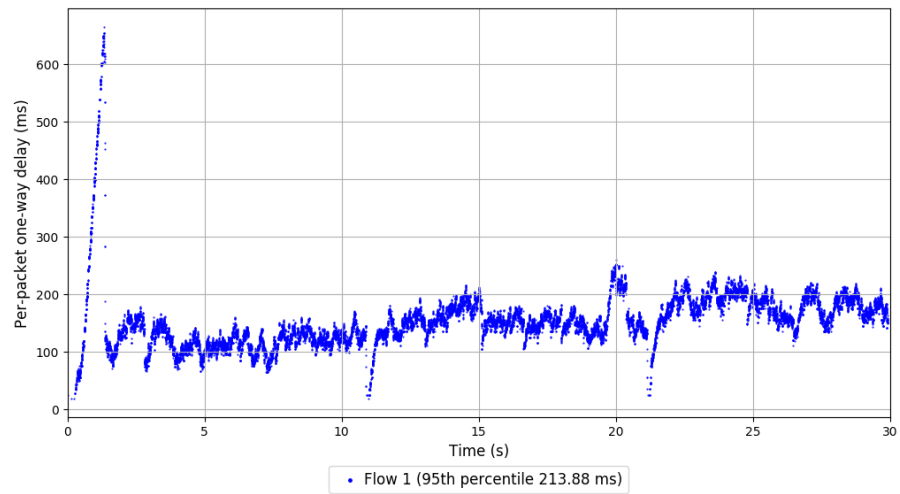
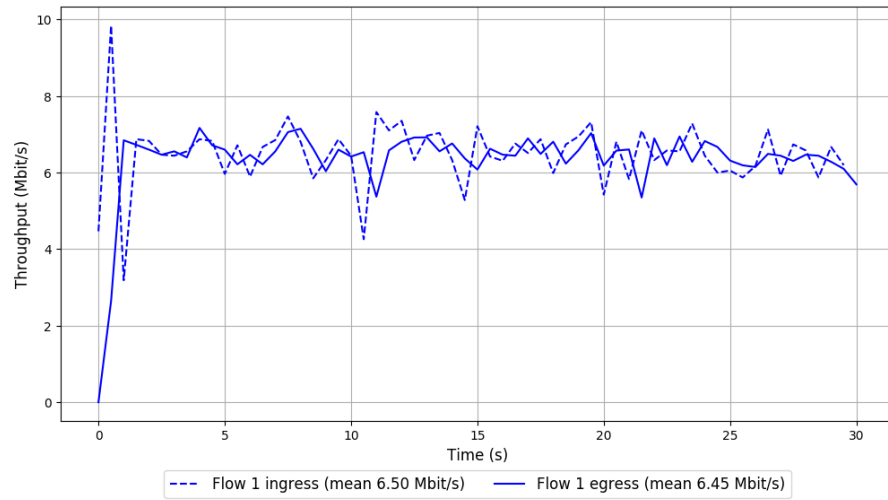
-- Flow 1:

Average throughput: 6.45 Mbit/s

95th percentile per-packet one-way delay: 213.875 ms

Loss rate: 0.81%

Run 1: Report of FillP-Sheep — Data Link

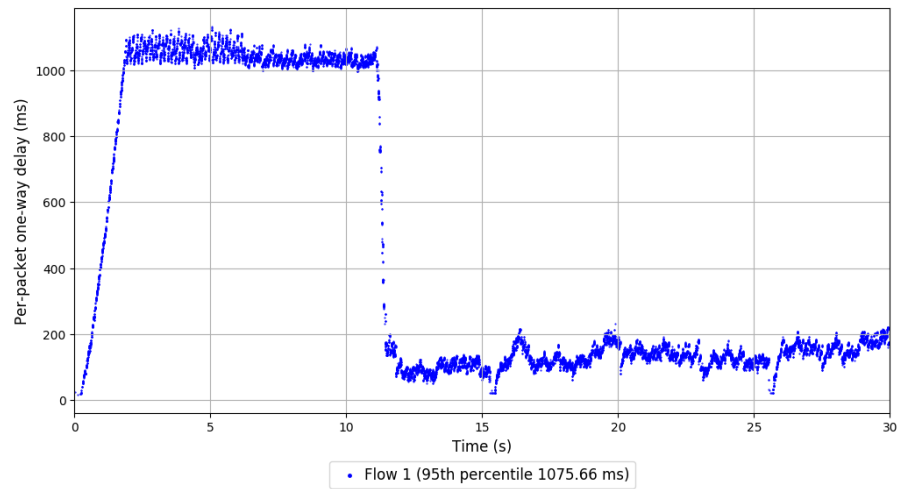
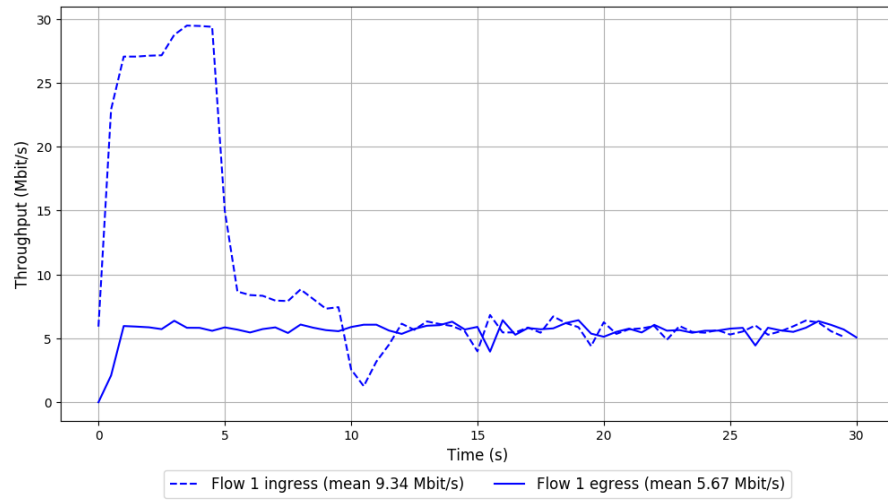


Run 2: Statistics of FillP-Sheep

Start at: 2018-09-10 21:56:26
End at: 2018-09-10 21:56:56
Local clock offset: -0.688 ms
Remote clock offset: -2.767 ms

Below is generated by plot.py at 2018-09-10 22:29:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.67 Mbit/s
95th percentile per-packet one-way delay: 1075.663 ms
Loss rate: 39.26%
-- Flow 1:
Average throughput: 5.67 Mbit/s
95th percentile per-packet one-way delay: 1075.663 ms
Loss rate: 39.26%

Run 2: Report of FillP-Sheep — Data Link

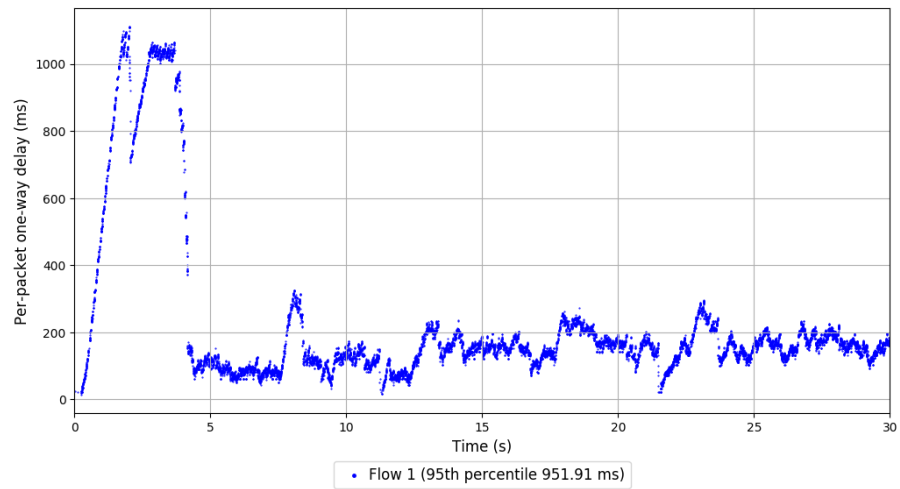
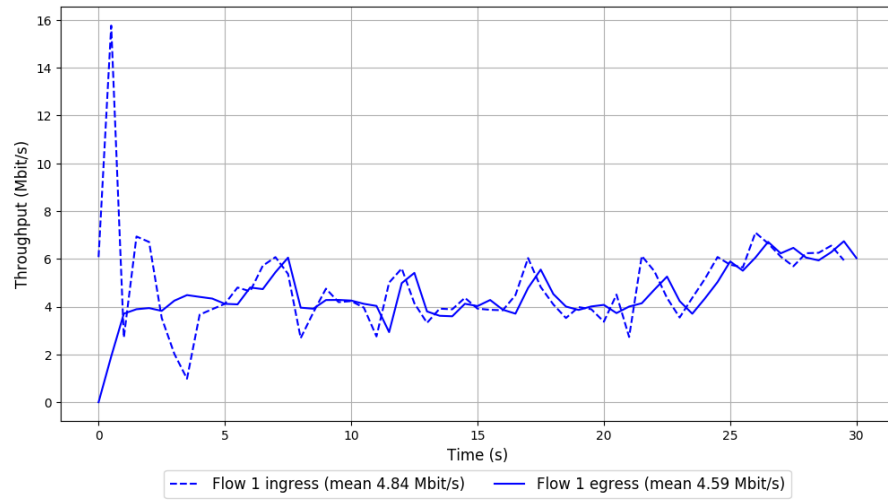


Run 3: Statistics of FillP-Sheep

Start at: 2018-09-10 22:16:10
End at: 2018-09-10 22:16:40
Local clock offset: -8.426 ms
Remote clock offset: -5.966 ms

Below is generated by plot.py at 2018-09-10 22:29:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.59 Mbit/s
95th percentile per-packet one-way delay: 951.913 ms
Loss rate: 5.05%
-- Flow 1:
Average throughput: 4.59 Mbit/s
95th percentile per-packet one-way delay: 951.913 ms
Loss rate: 5.05%

Run 3: Report of FillP-Sheep — Data Link

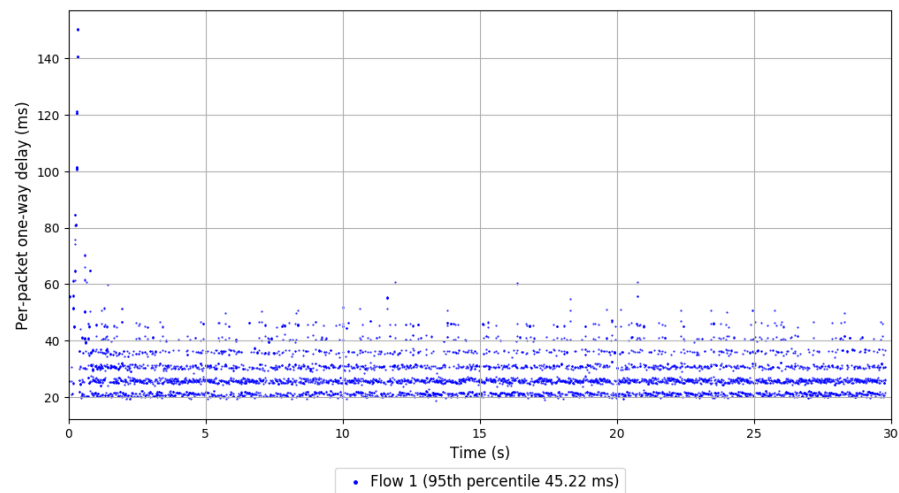
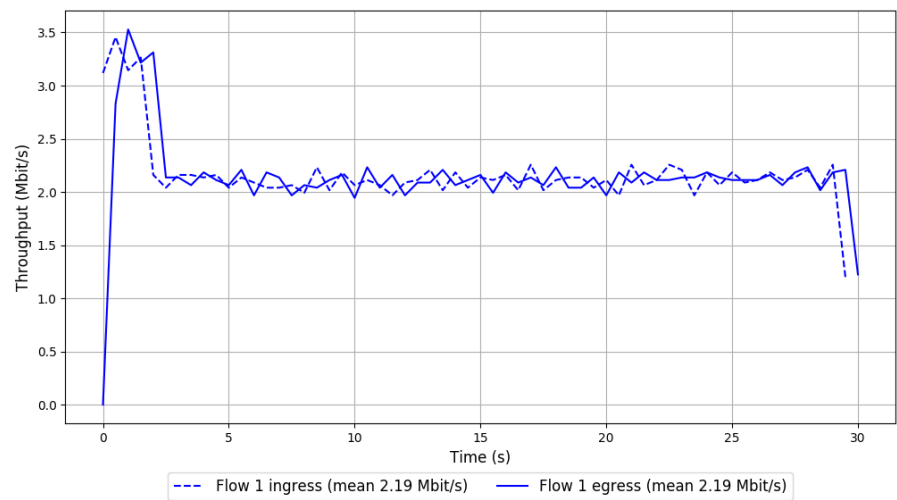


```
Run 1: Statistics of Indigo

Start at: 2018-09-10 21:42:13
End at: 2018-09-10 21:42:43
Local clock offset: -3.746 ms
Remote clock offset: -1.326 ms

# Below is generated by plot.py at 2018-09-10 22:29:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.19 Mbit/s
95th percentile per-packet one-way delay: 45.217 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 2.19 Mbit/s
95th percentile per-packet one-way delay: 45.217 ms
Loss rate: 0.06%
```

Run 1: Report of Indigo — Data Link

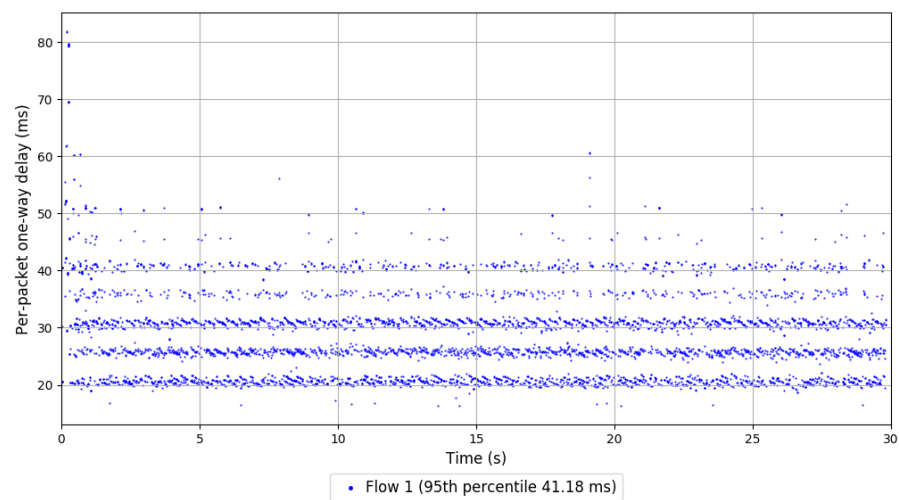
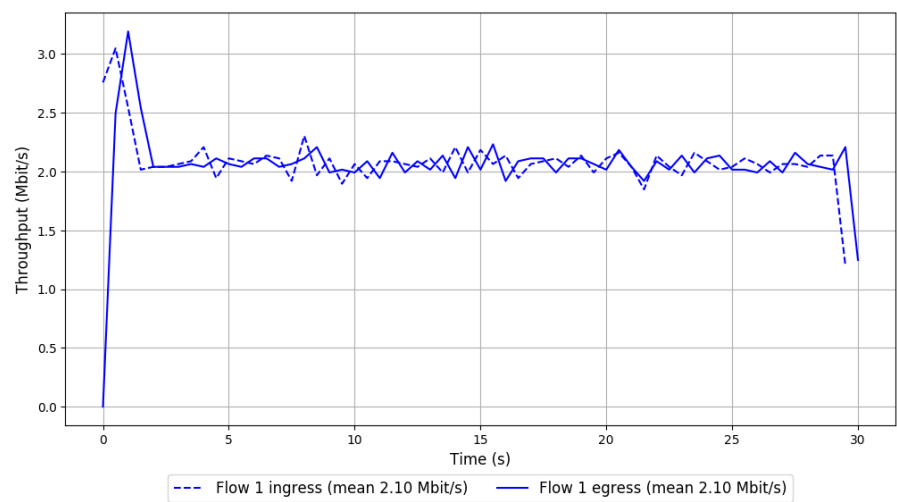


Run 2: Statistics of Indigo

Start at: 2018-09-10 22:01:58
End at: 2018-09-10 22:02:28
Local clock offset: -1.632 ms
Remote clock offset: -1.031 ms

Below is generated by plot.py at 2018-09-10 22:29:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.10 Mbit/s
95th percentile per-packet one-way delay: 41.180 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 2.10 Mbit/s
95th percentile per-packet one-way delay: 41.180 ms
Loss rate: 0.08%

Run 2: Report of Indigo — Data Link

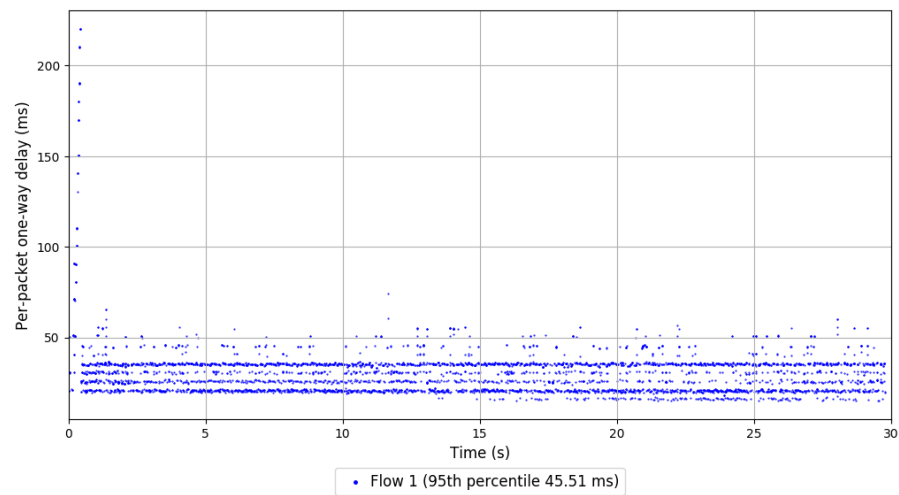
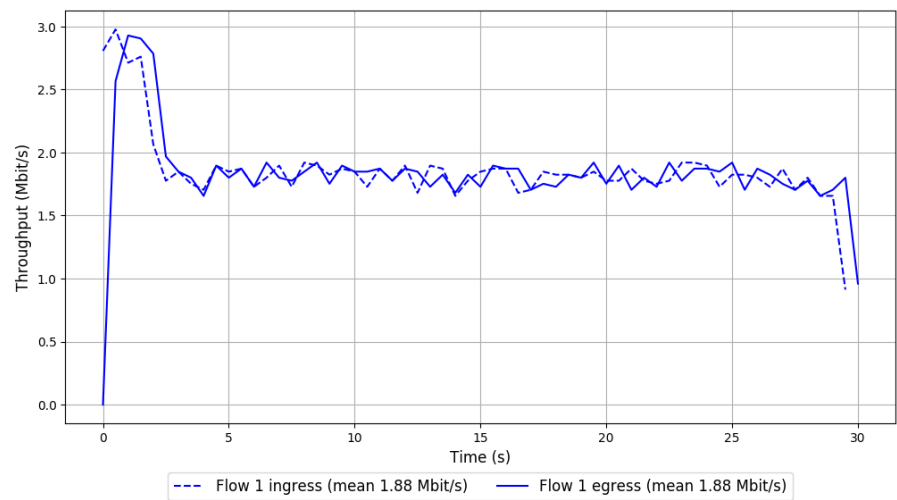


Run 3: Statistics of Indigo

Start at: 2018-09-10 22:21:37
End at: 2018-09-10 22:22:07
Local clock offset: -5.024 ms
Remote clock offset: -0.612 ms

Below is generated by plot.py at 2018-09-10 22:29:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.88 Mbit/s
95th percentile per-packet one-way delay: 45.508 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 1.88 Mbit/s
95th percentile per-packet one-way delay: 45.508 ms
Loss rate: 0.04%

Run 3: Report of Indigo — Data Link

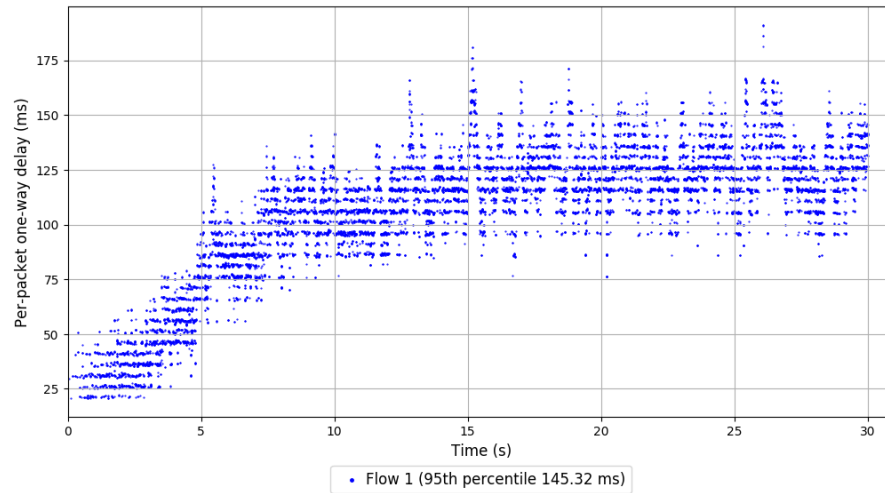
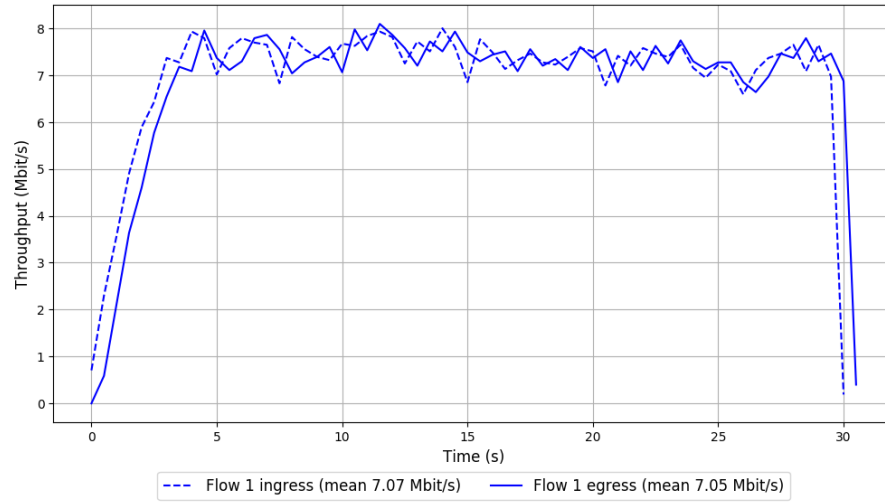


Run 1: Statistics of LEDBAT

Start at: 2018-09-10 21:33:27
End at: 2018-09-10 21:33:57
Local clock offset: -1.291 ms
Remote clock offset: -1.876 ms

Below is generated by plot.py at 2018-09-10 22:29:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.05 Mbit/s
95th percentile per-packet one-way delay: 145.323 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 7.05 Mbit/s
95th percentile per-packet one-way delay: 145.323 ms
Loss rate: 0.41%

Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2018-09-10 21:53:10

End at: 2018-09-10 21:53:40

Local clock offset: -0.499 ms

Remote clock offset: -1.68 ms

Below is generated by plot.py at 2018-09-10 22:29:10

Datalink statistics

-- Total of 1 flow:

Average throughput: 5.67 Mbit/s

95th percentile per-packet one-way delay: 143.417 ms

Loss rate: 0.43%

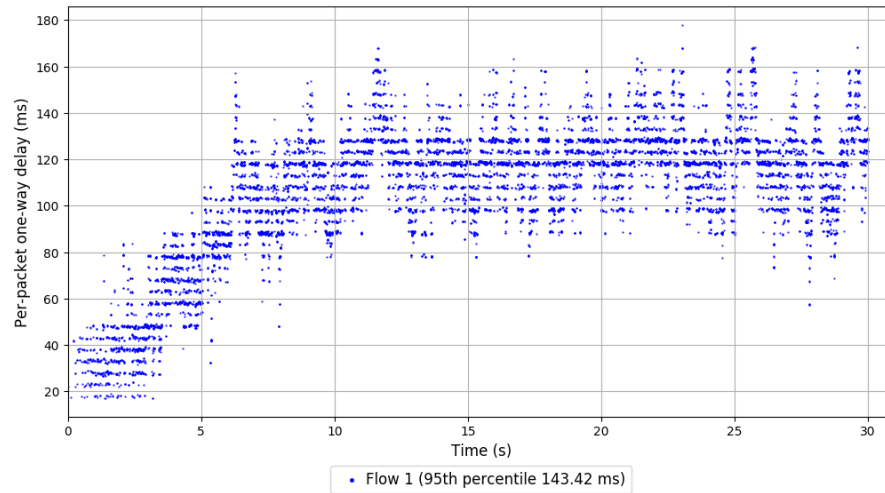
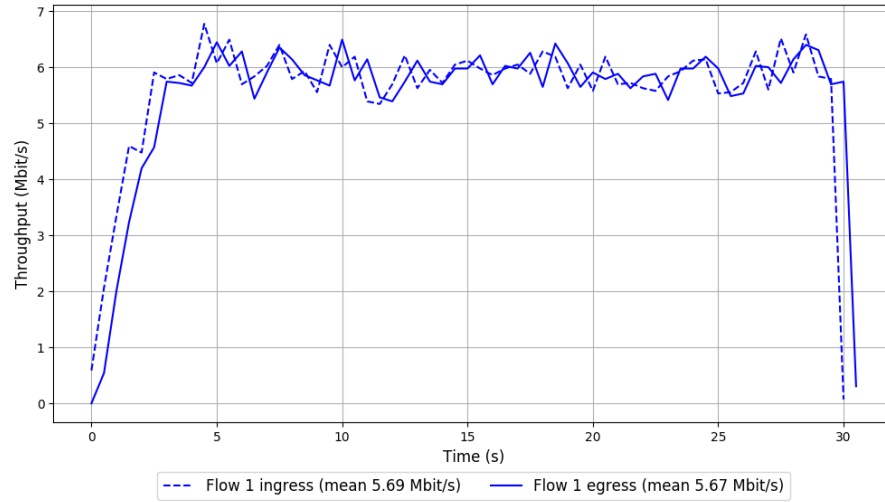
-- Flow 1:

Average throughput: 5.67 Mbit/s

95th percentile per-packet one-way delay: 143.417 ms

Loss rate: 0.43%

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2018-09-10 22:12:54

End at: 2018-09-10 22:13:24

Local clock offset: -2.791 ms

Remote clock offset: -2.29 ms

Below is generated by plot.py at 2018-09-10 22:29:11

Datalink statistics

-- Total of 1 flow:

Average throughput: 5.90 Mbit/s

95th percentile per-packet one-way delay: 139.311 ms

Loss rate: 0.31%

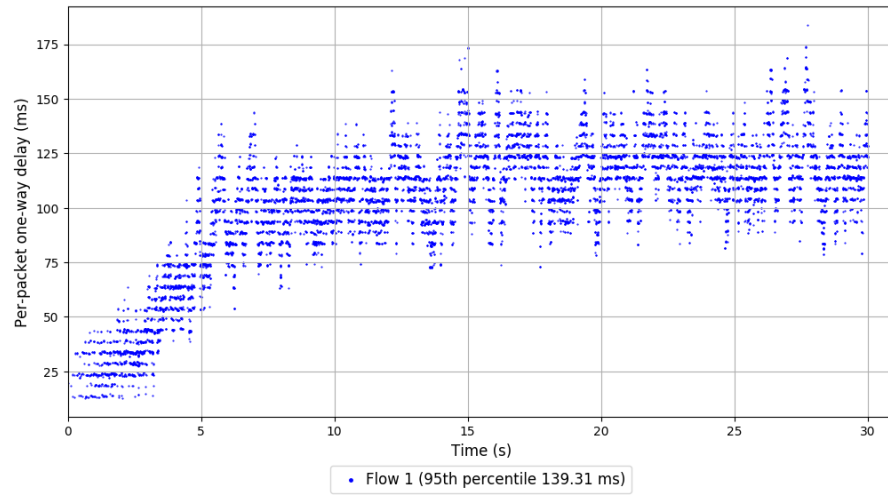
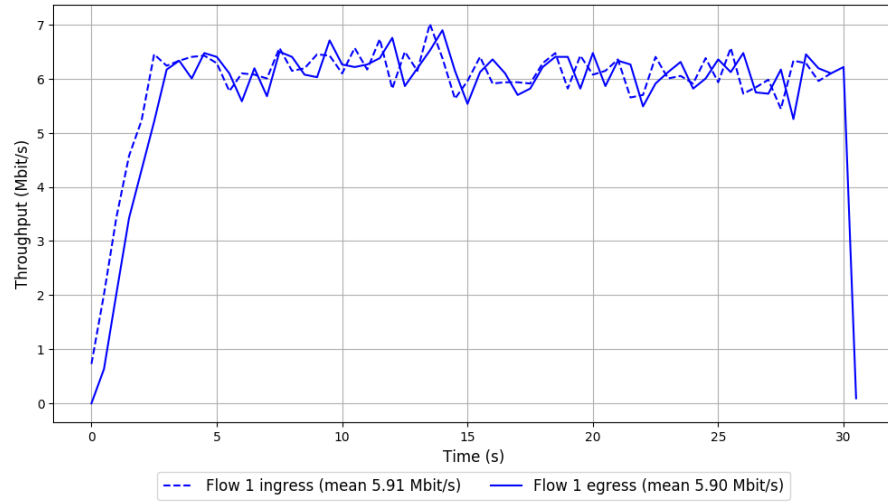
-- Flow 1:

Average throughput: 5.90 Mbit/s

95th percentile per-packet one-way delay: 139.311 ms

Loss rate: 0.31%

Run 3: Report of LEDBAT — Data Link

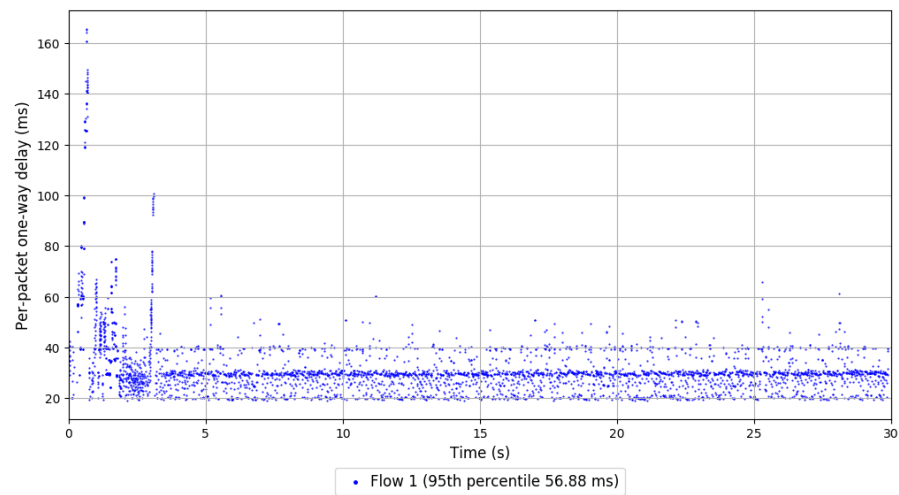
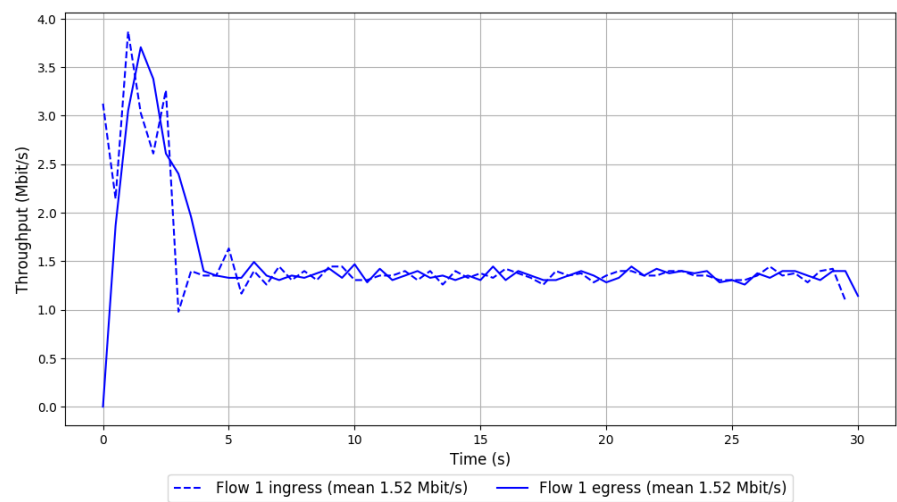


Run 1: Statistics of Indigo-Muses

Start at: 2018-09-10 21:31:16
End at: 2018-09-10 21:31:47
Local clock offset: 1.828 ms
Remote clock offset: -2.125 ms

Below is generated by plot.py at 2018-09-10 22:29:11
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.52 Mbit/s
95th percentile per-packet one-way delay: 56.881 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 1.52 Mbit/s
95th percentile per-packet one-way delay: 56.881 ms
Loss rate: 0.08%

Run 1: Report of Indigo-Muses — Data Link

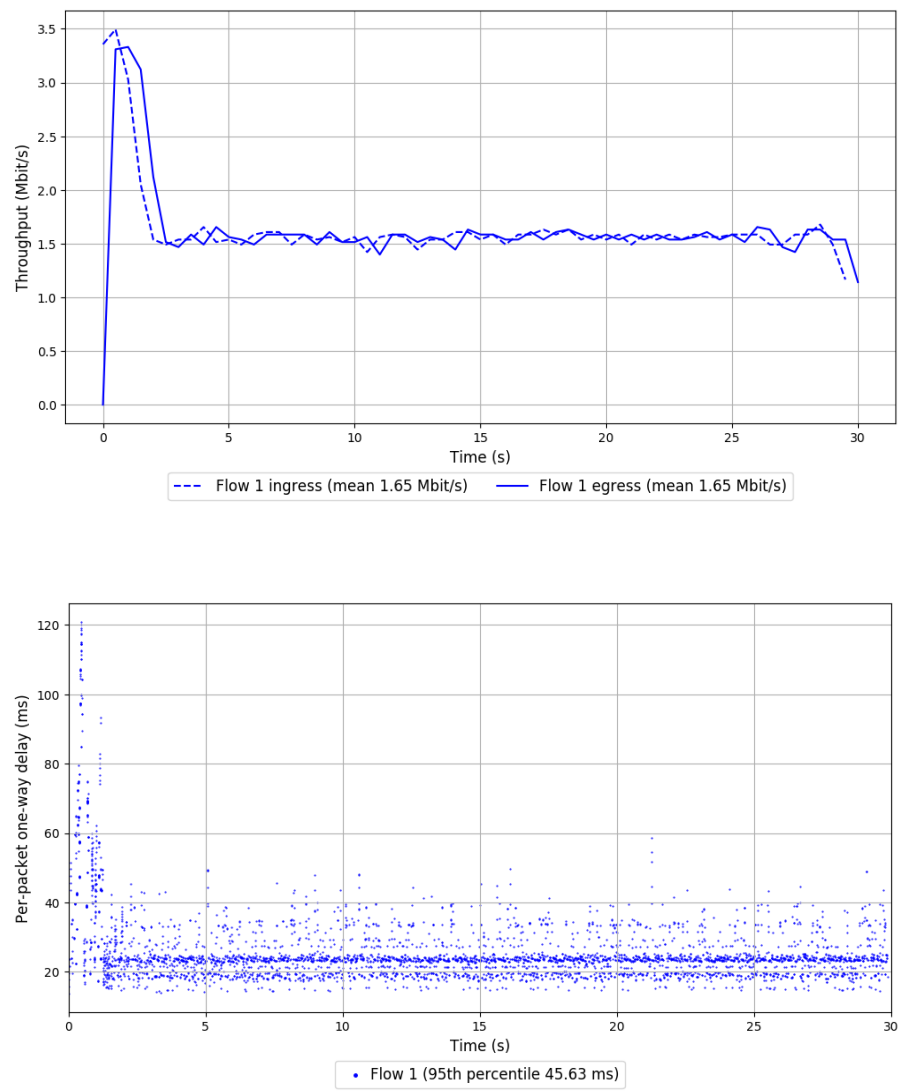


Run 2: Statistics of Indigo-Muses

Start at: 2018-09-10 21:51:00
End at: 2018-09-10 21:51:30
Local clock offset: -1.518 ms
Remote clock offset: -1.948 ms

Below is generated by plot.py at 2018-09-10 22:29:11
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.65 Mbit/s
95th percentile per-packet one-way delay: 45.633 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 1.65 Mbit/s
95th percentile per-packet one-way delay: 45.633 ms
Loss rate: 0.12%

Run 2: Report of Indigo-Muses — Data Link

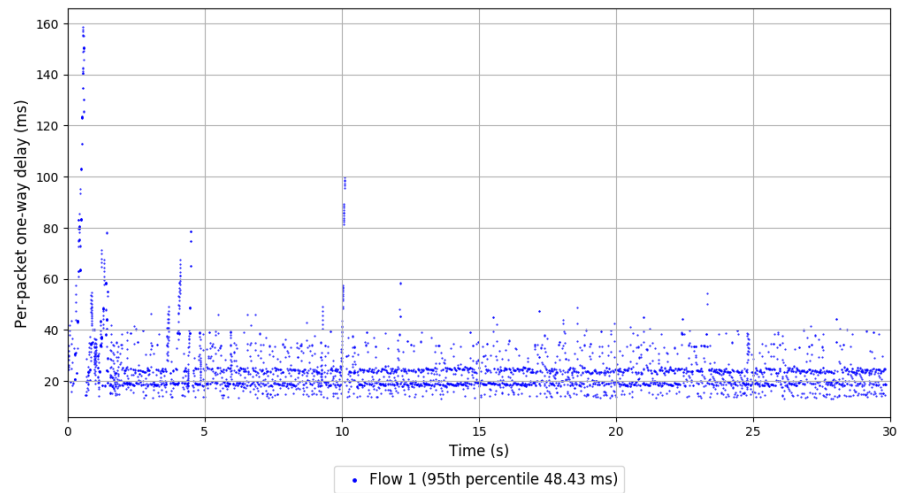
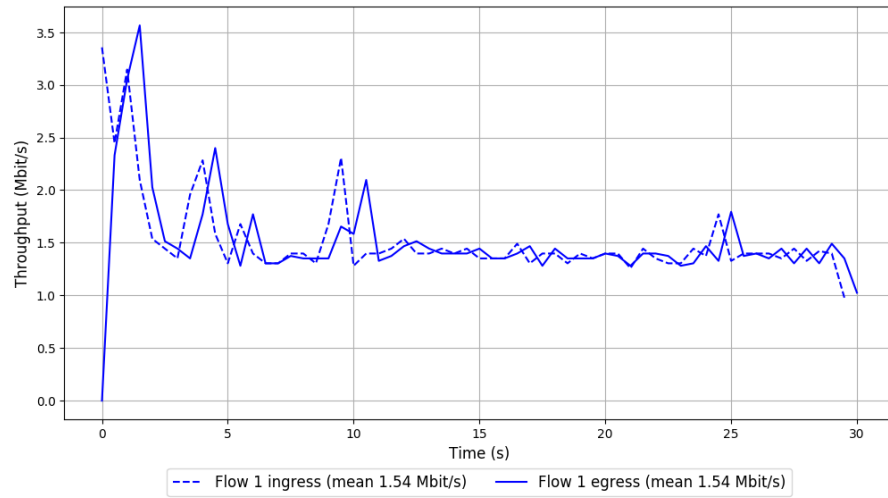


Run 3: Statistics of Indigo-Muses

Start at: 2018-09-10 22:10:44
End at: 2018-09-10 22:11:14
Local clock offset: -3.834 ms
Remote clock offset: -1.965 ms

Below is generated by plot.py at 2018-09-10 22:29:11
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.54 Mbit/s
95th percentile per-packet one-way delay: 48.428 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 1.54 Mbit/s
95th percentile per-packet one-way delay: 48.428 ms
Loss rate: 0.05%

Run 3: Report of Indigo-Muses — Data Link

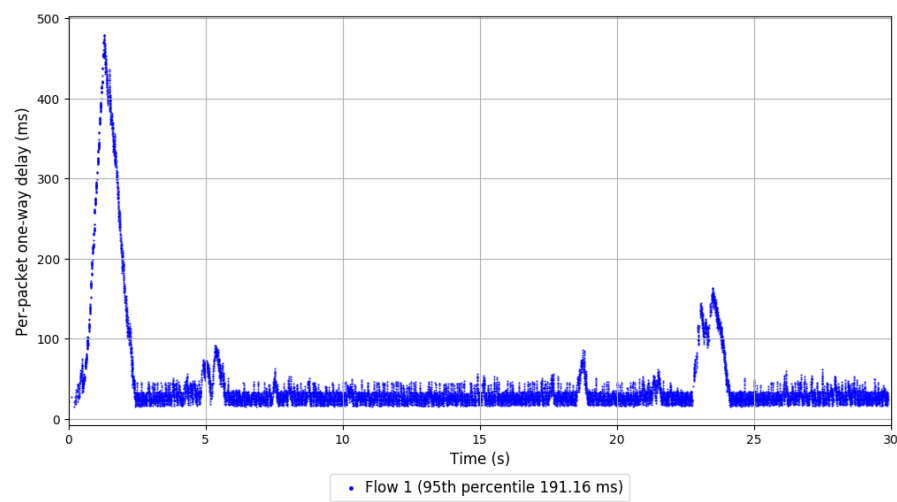
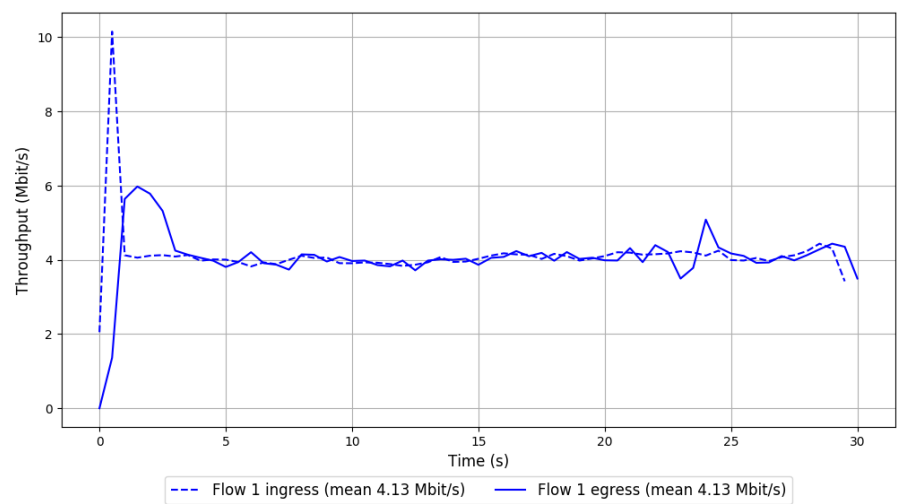


```
Run 1: Statistics of PCC-Allegro

Start at: 2018-09-10 21:45:33
End at: 2018-09-10 21:46:03
Local clock offset: -4.738 ms
Remote clock offset: -2.015 ms

# Below is generated by plot.py at 2018-09-10 22:29:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.13 Mbit/s
95th percentile per-packet one-way delay: 191.162 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 4.13 Mbit/s
95th percentile per-packet one-way delay: 191.162 ms
Loss rate: 0.08%
```

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-09-10 22:05:14

End at: 2018-09-10 22:05:44

Local clock offset: -2.414 ms

Remote clock offset: -1.815 ms

Below is generated by plot.py at 2018-09-10 22:29:15

Datalink statistics

-- Total of 1 flow:

Average throughput: 3.78 Mbit/s

95th percentile per-packet one-way delay: 212.868 ms

Loss rate: 0.10%

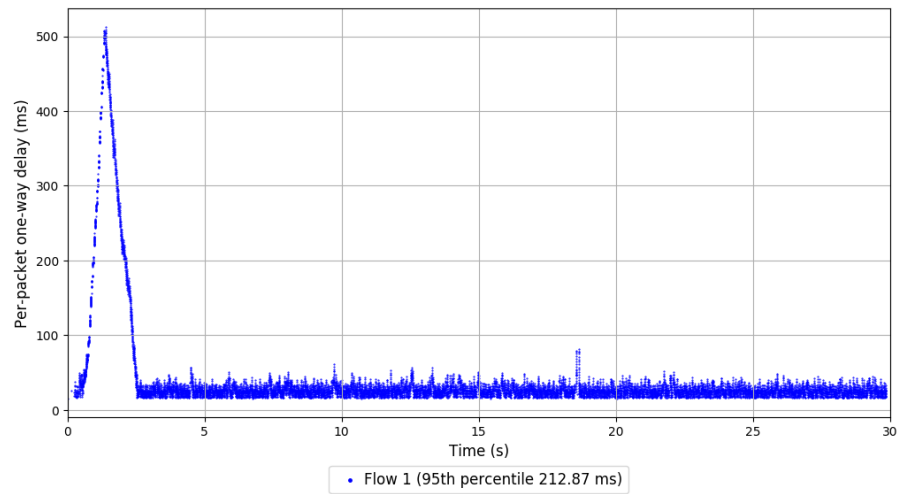
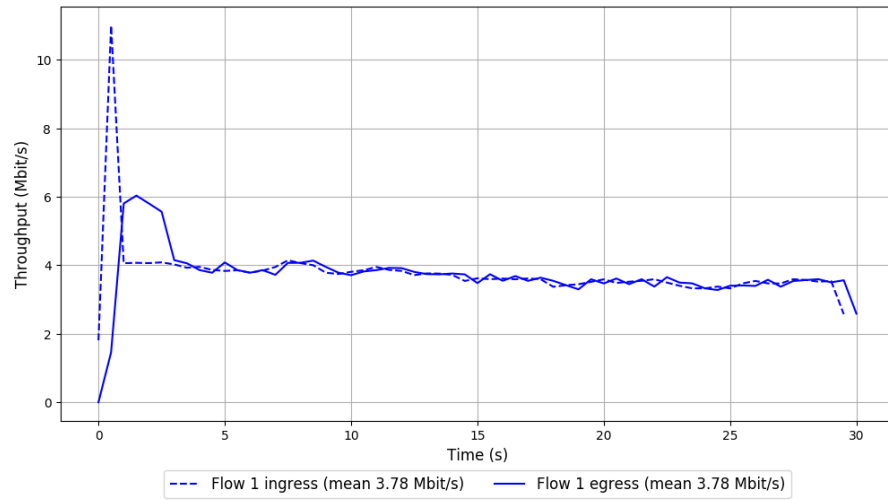
-- Flow 1:

Average throughput: 3.78 Mbit/s

95th percentile per-packet one-way delay: 212.868 ms

Loss rate: 0.10%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-09-10 22:24:53

End at: 2018-09-10 22:25:23

Local clock offset: -8.175 ms

Remote clock offset: -1.83 ms

Below is generated by plot.py at 2018-09-10 22:29:16

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.34 Mbit/s

95th percentile per-packet one-way delay: 195.395 ms

Loss rate: 0.09%

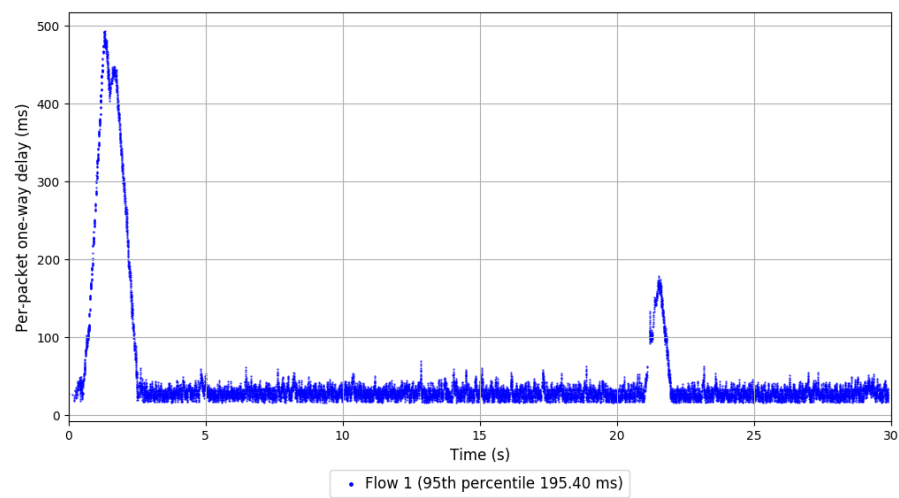
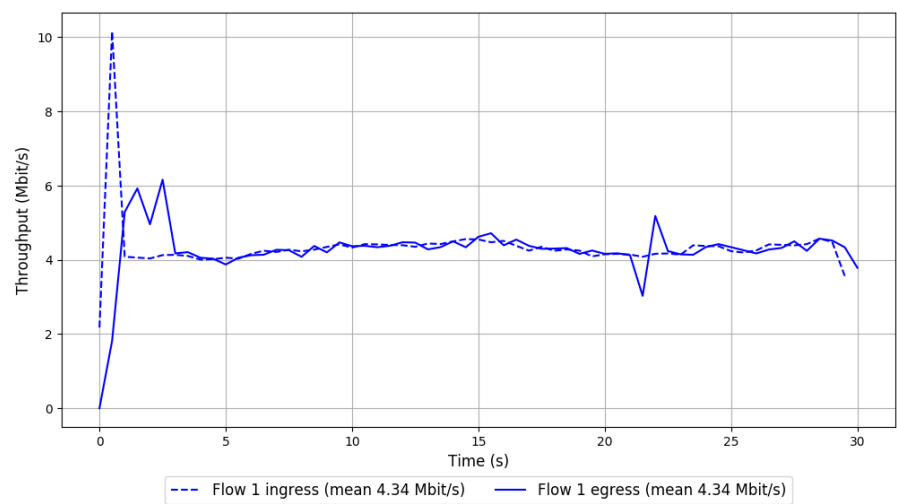
-- Flow 1:

Average throughput: 4.34 Mbit/s

95th percentile per-packet one-way delay: 195.395 ms

Loss rate: 0.09%

Run 3: Report of PCC-Allegro — Data Link

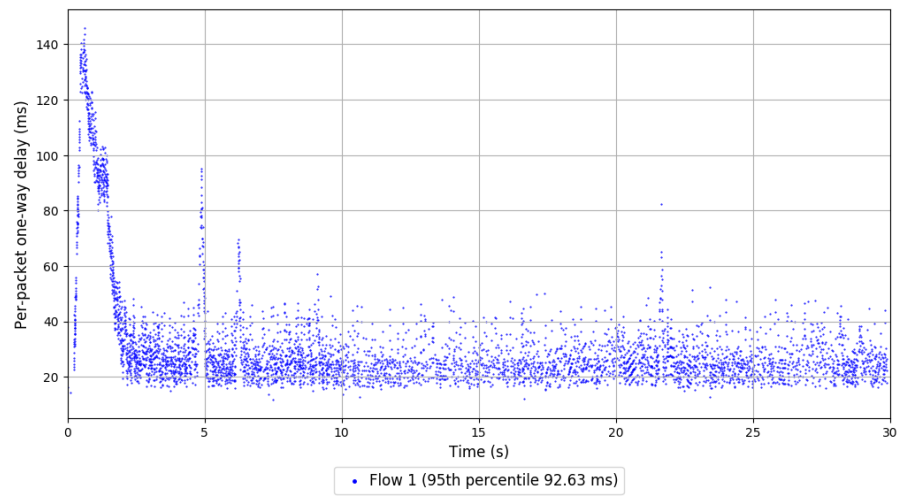
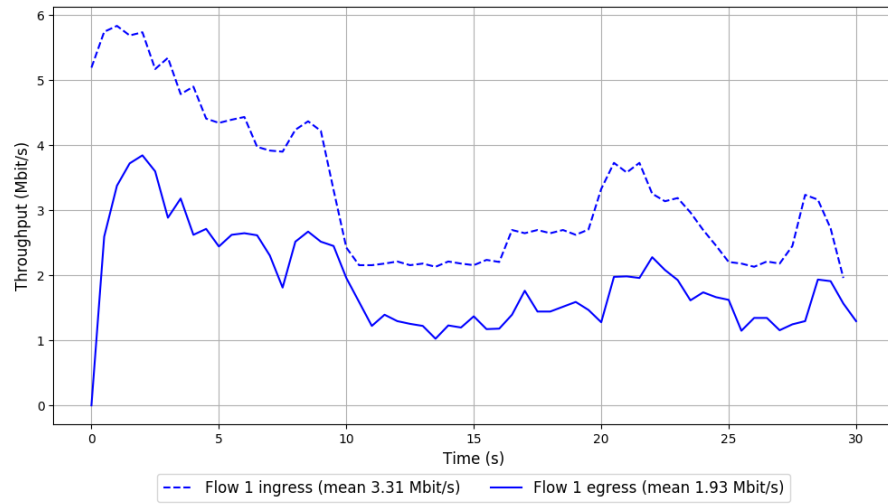


Run 1: Statistics of PCC-Expr

Start at: 2018-09-10 21:48:49
End at: 2018-09-10 21:49:19
Local clock offset: -0.649 ms
Remote clock offset: -2.555 ms

Below is generated by plot.py at 2018-09-10 22:29:16
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 92.629 ms
Loss rate: 41.72%
-- Flow 1:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 92.629 ms
Loss rate: 41.72%

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

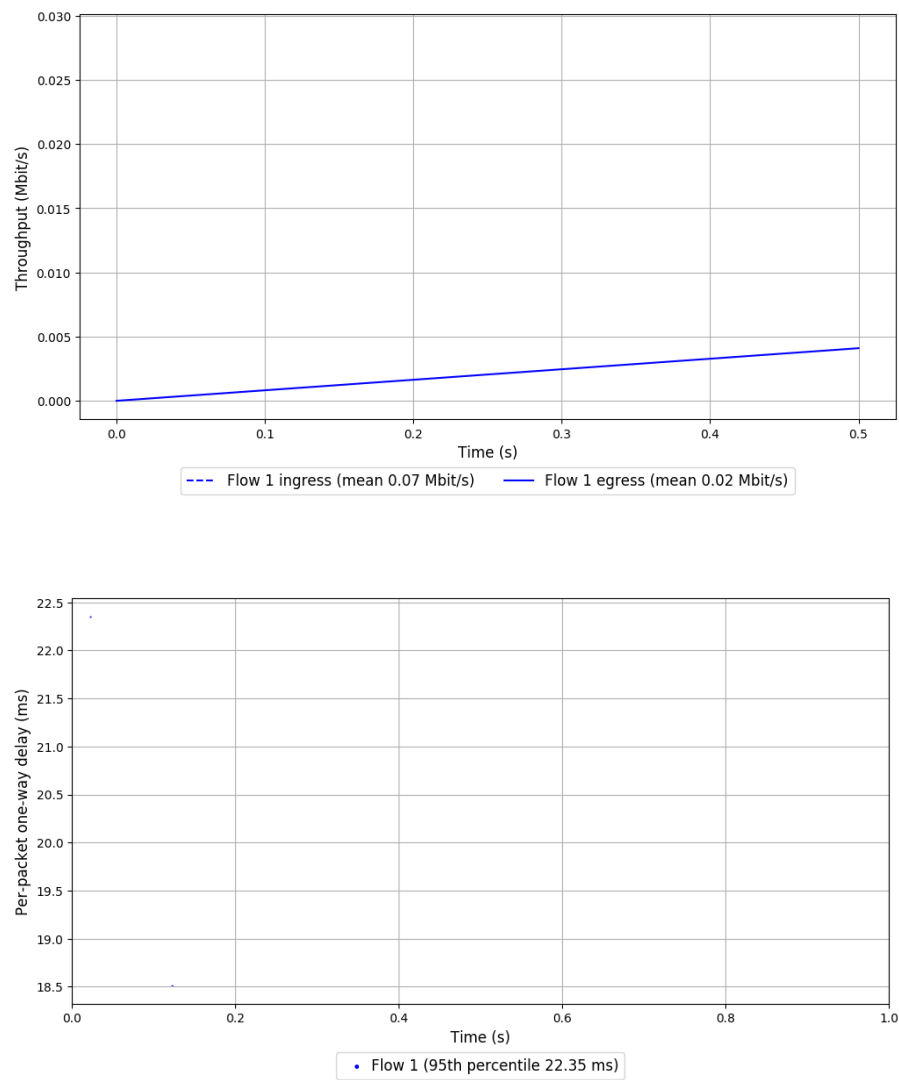
Start at: 2018-09-10 22:08:34

End at: 2018-09-10 22:09:04

Local clock offset: -3.638 ms

Remote clock offset: -1.586 ms

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

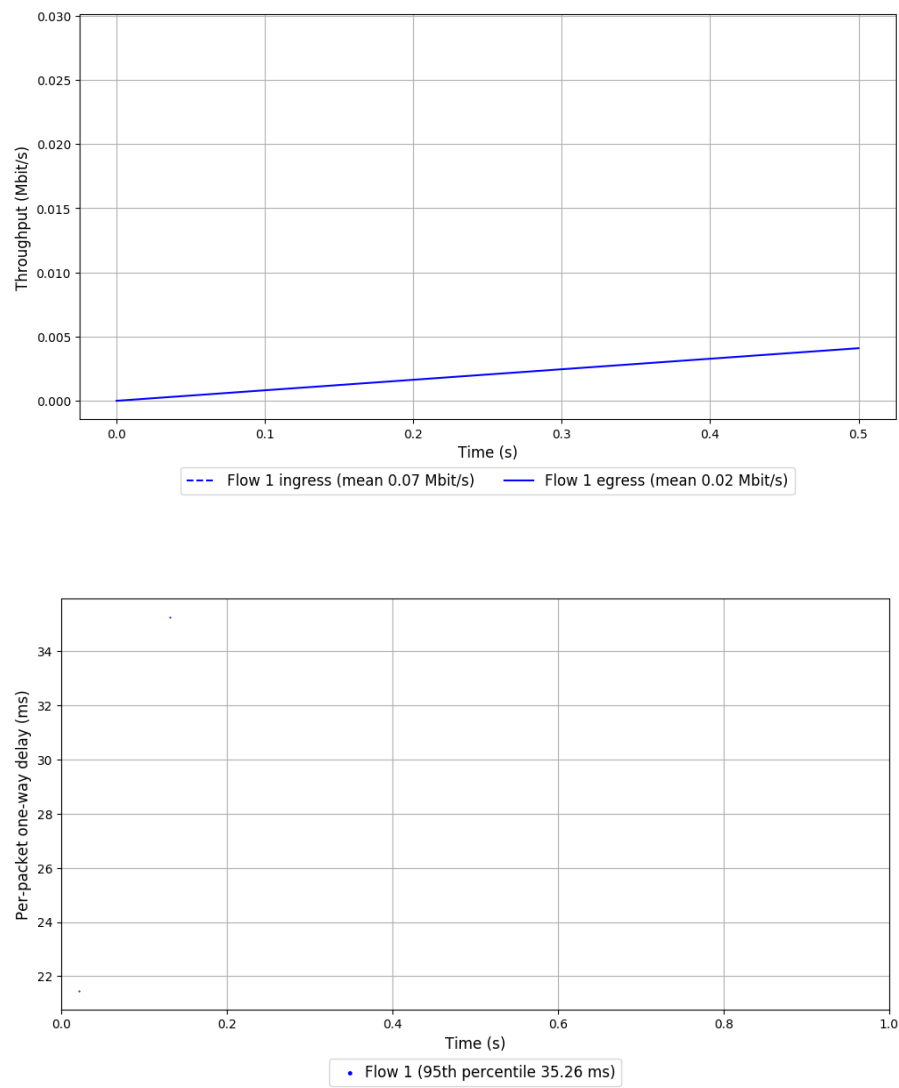
Start at: 2018-09-10 22:28:09

End at: 2018-09-10 22:28:39

Local clock offset: -6.278 ms

Remote clock offset: -1.605 ms

Run 3: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2018-09-10 21:40:02

End at: 2018-09-10 21:40:32

Local clock offset: -5.0 ms

Remote clock offset: -2.172 ms

Below is generated by plot.py at 2018-09-10 22:29:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 6.16 Mbit/s

95th percentile per-packet one-way delay: 239.335 ms

Loss rate: 0.85%

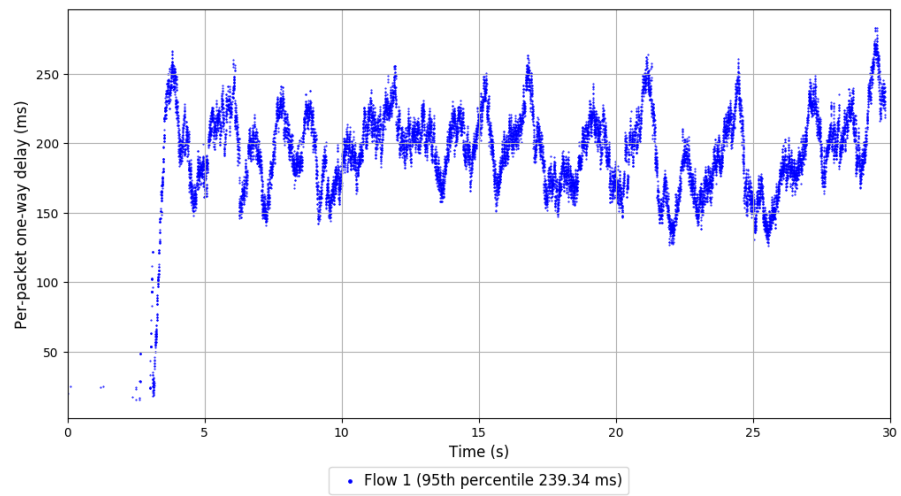
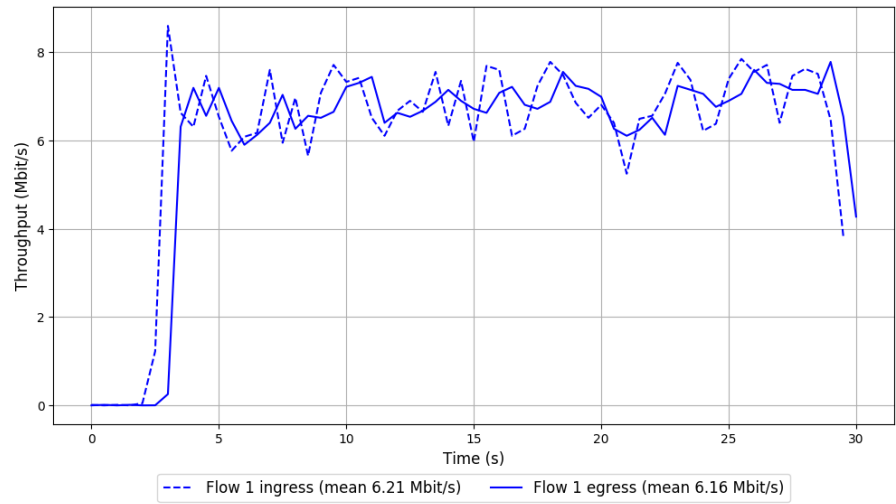
-- Flow 1:

Average throughput: 6.16 Mbit/s

95th percentile per-packet one-way delay: 239.335 ms

Loss rate: 0.85%

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-09-10 21:59:42

End at: 2018-09-10 22:00:12

Local clock offset: -1.592 ms

Remote clock offset: -1.749 ms

Below is generated by plot.py at 2018-09-10 22:29:23

Datalink statistics

-- Total of 1 flow:

Average throughput: 6.16 Mbit/s

95th percentile per-packet one-way delay: 240.115 ms

Loss rate: 0.72%

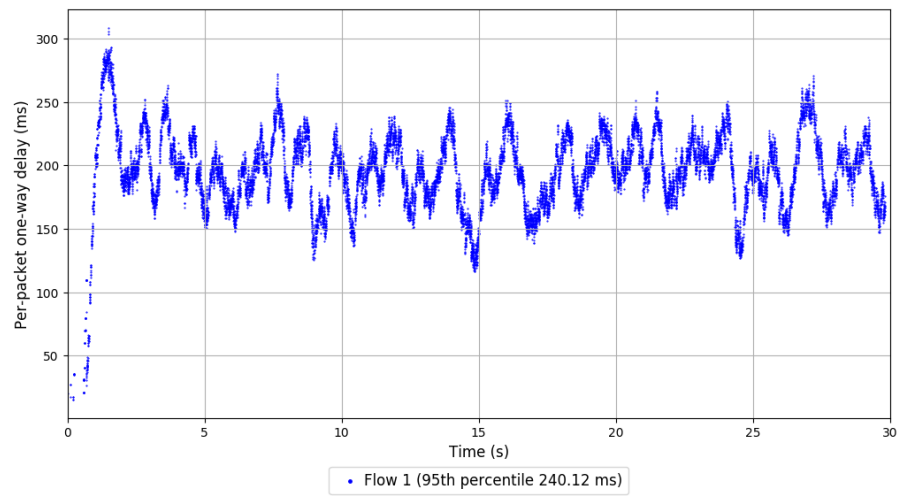
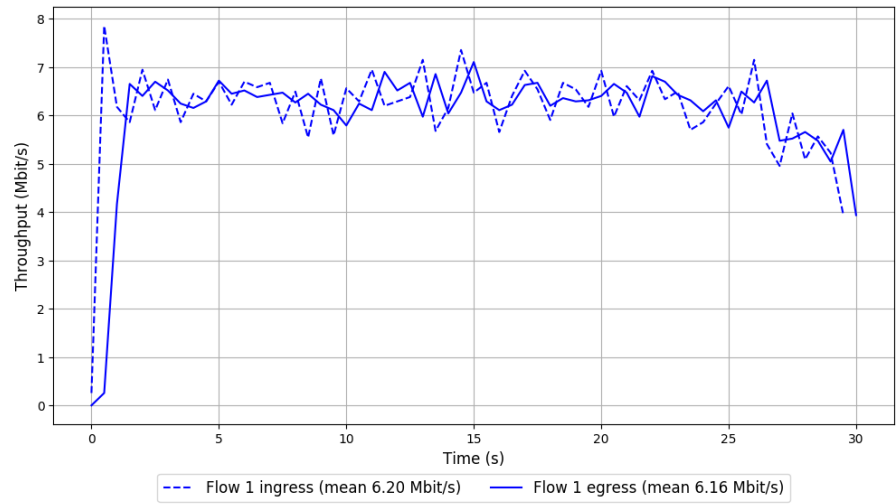
-- Flow 1:

Average throughput: 6.16 Mbit/s

95th percentile per-packet one-way delay: 240.115 ms

Loss rate: 0.72%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-09-10 22:19:26

End at: 2018-09-10 22:19:56

Local clock offset: -6.78 ms

Remote clock offset: -1.842 ms

Below is generated by plot.py at 2018-09-10 22:29:23

Datalink statistics

-- Total of 1 flow:

Average throughput: 5.22 Mbit/s

95th percentile per-packet one-way delay: 260.006 ms

Loss rate: 0.82%

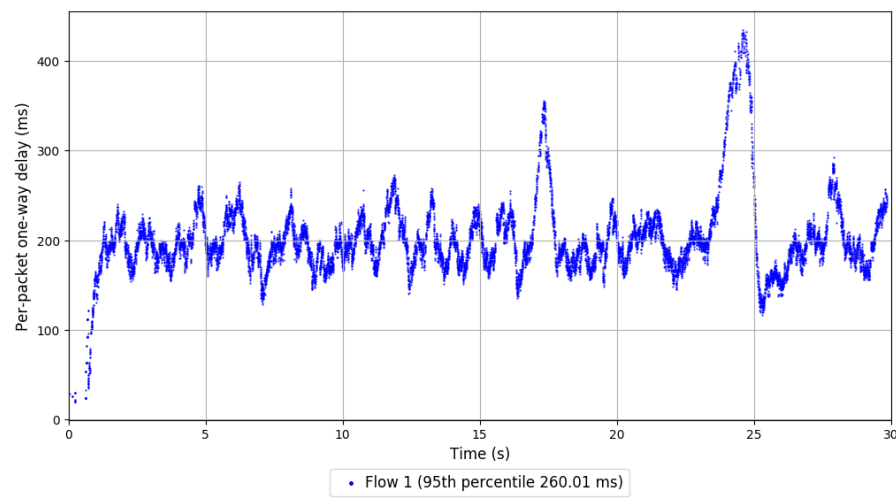
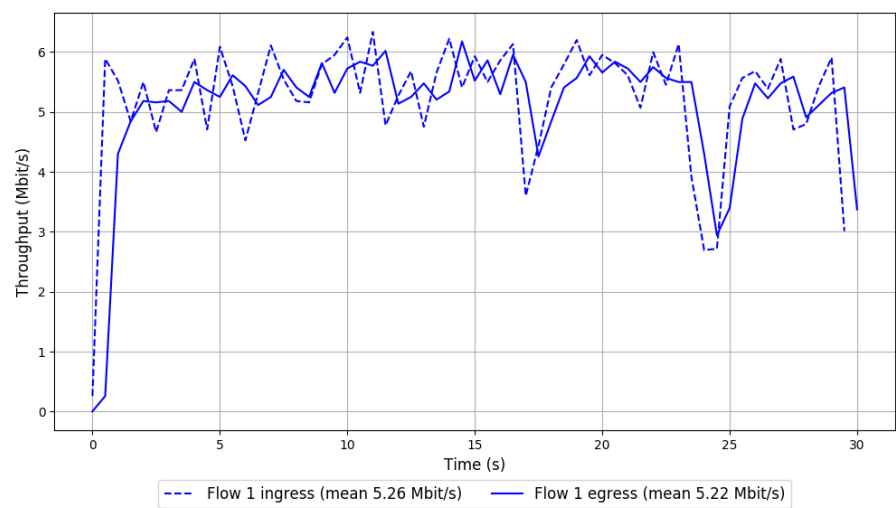
-- Flow 1:

Average throughput: 5.22 Mbit/s

95th percentile per-packet one-way delay: 260.006 ms

Loss rate: 0.82%

Run 3: Report of QUIC Cubic — Data Link

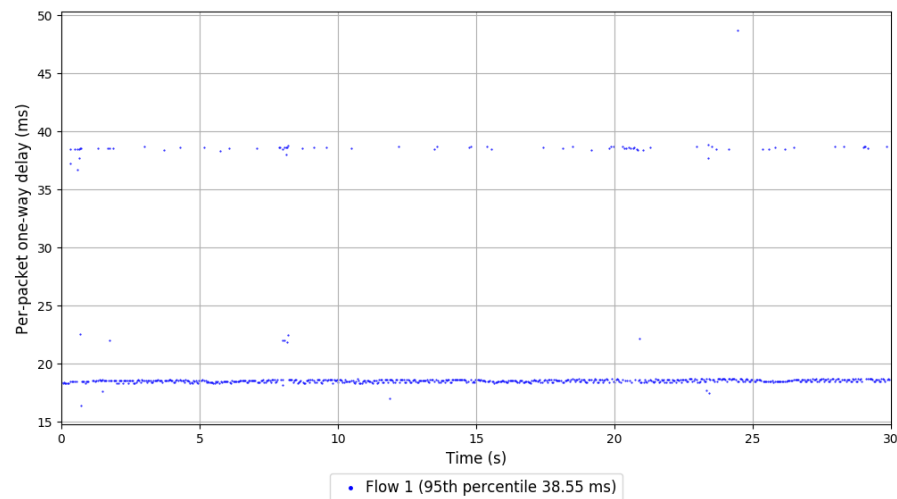
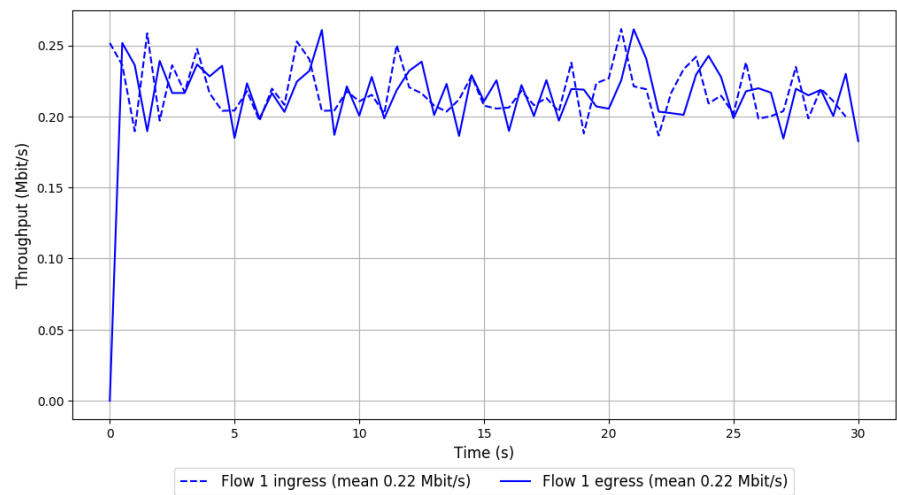


Run 1: Statistics of SCReAM

Start at: 2018-09-10 21:30:11
End at: 2018-09-10 21:30:41
Local clock offset: 2.388 ms
Remote clock offset: -1.617 ms

Below is generated by plot.py at 2018-09-10 22:29:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 38.553 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 38.553 ms
Loss rate: 0.13%

Run 1: Report of SReAM — Data Link

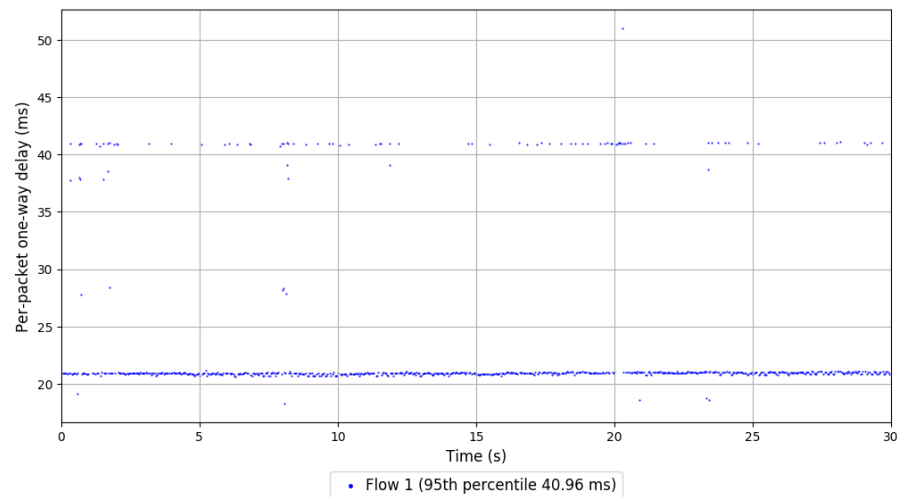
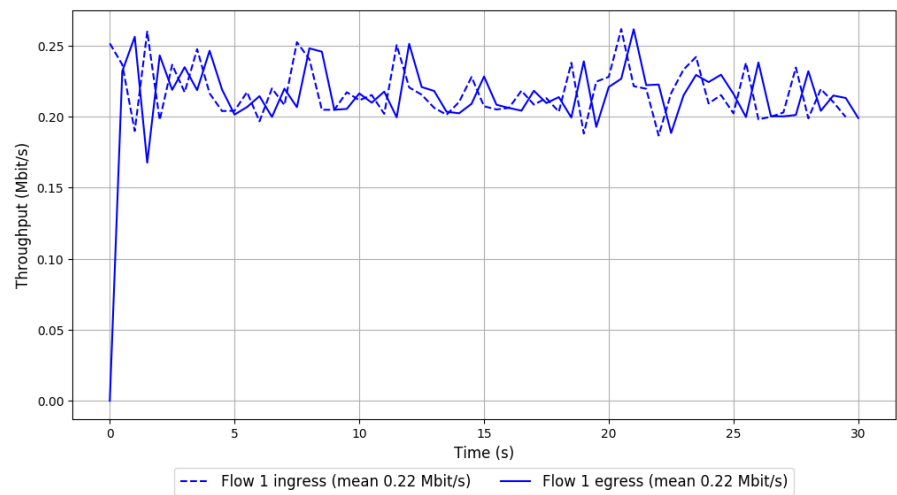


Run 2: Statistics of SCReAM

Start at: 2018-09-10 21:49:55
End at: 2018-09-10 21:50:25
Local clock offset: -1.562 ms
Remote clock offset: -2.206 ms

Below is generated by plot.py at 2018-09-10 22:29:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 40.957 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 40.957 ms
Loss rate: 0.13%

Run 2: Report of SReAM — Data Link

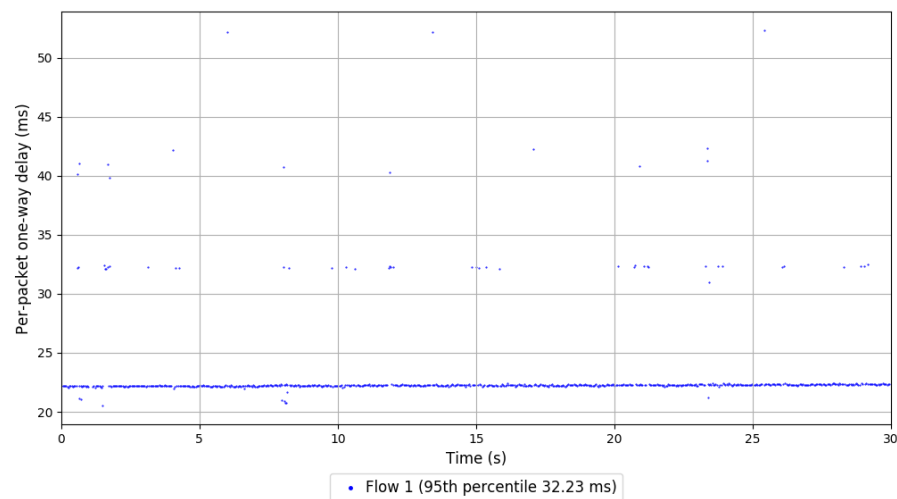
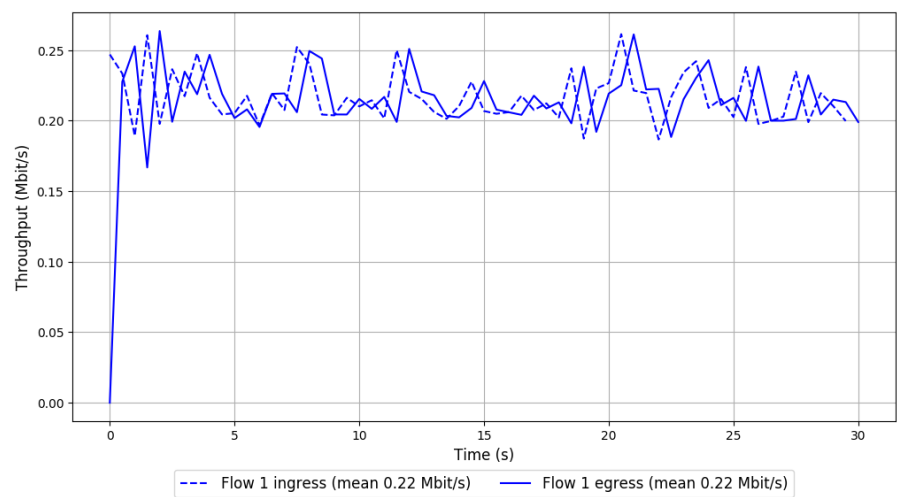


Run 3: Statistics of SCReAM

Start at: 2018-09-10 22:09:39
End at: 2018-09-10 22:10:09
Local clock offset: -5.066 ms
Remote clock offset: -1.973 ms

Below is generated by plot.py at 2018-09-10 22:29:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 32.234 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 32.234 ms
Loss rate: 0.13%

Run 3: Report of SReAM — Data Link

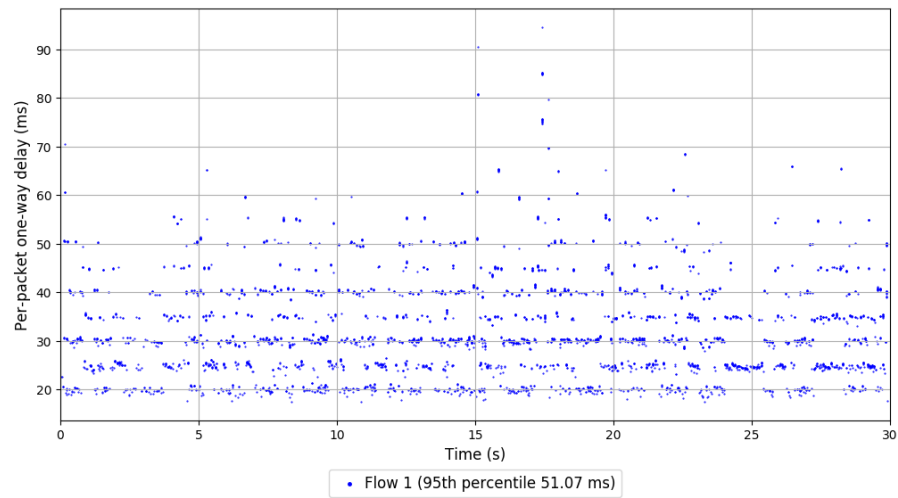
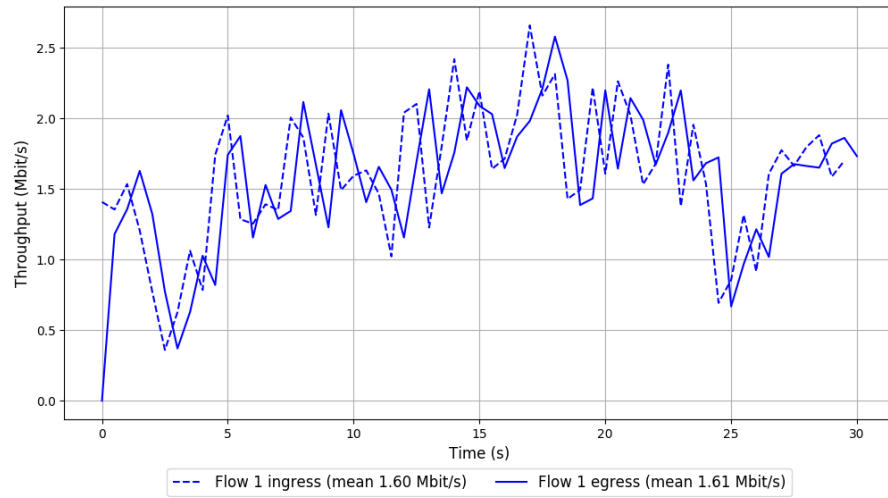


Run 1: Statistics of Sprout

Start at: 2018-09-10 21:35:39
End at: 2018-09-10 21:36:09
Local clock offset: -6.149 ms
Remote clock offset: -2.439 ms

Below is generated by plot.py at 2018-09-10 22:29:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.61 Mbit/s
95th percentile per-packet one-way delay: 51.069 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.61 Mbit/s
95th percentile per-packet one-way delay: 51.069 ms
Loss rate: 0.00%

Run 1: Report of Sprout — Data Link

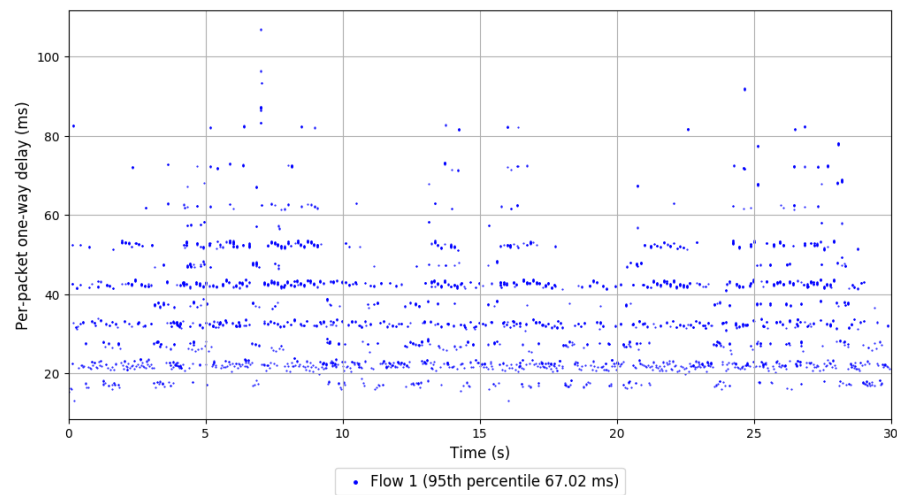
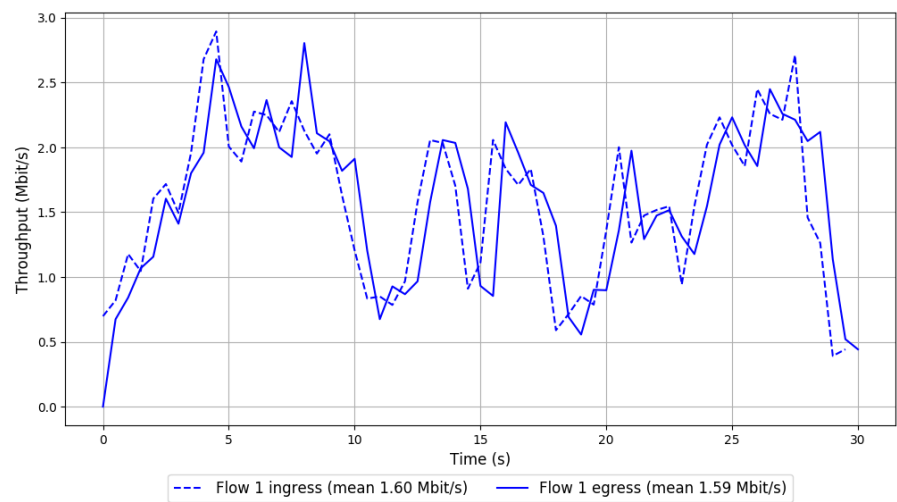


Run 2: Statistics of Sprout

Start at: 2018-09-10 21:55:21
End at: 2018-09-10 21:55:51
Local clock offset: 0.94 ms
Remote clock offset: -2.157 ms

Below is generated by plot.py at 2018-09-10 22:29:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.59 Mbit/s
95th percentile per-packet one-way delay: 67.015 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.59 Mbit/s
95th percentile per-packet one-way delay: 67.015 ms
Loss rate: 0.00%

Run 2: Report of Sprout — Data Link

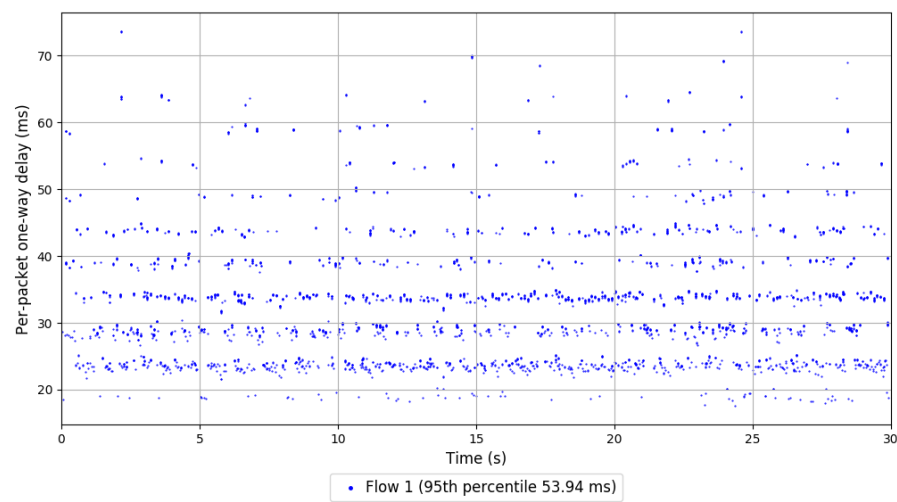
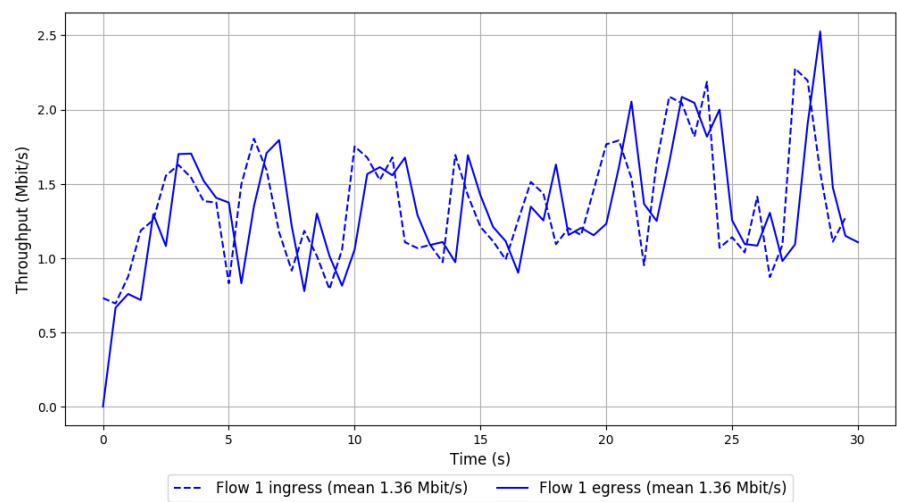


Run 3: Statistics of Sprout

Start at: 2018-09-10 22:15:05
End at: 2018-09-10 22:15:35
Local clock offset: -4.474 ms
Remote clock offset: -0.806 ms

Below is generated by plot.py at 2018-09-10 22:29:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.36 Mbit/s
95th percentile per-packet one-way delay: 53.941 ms
Loss rate: 0.33%
-- Flow 1:
Average throughput: 1.36 Mbit/s
95th percentile per-packet one-way delay: 53.941 ms
Loss rate: 0.33%

Run 3: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

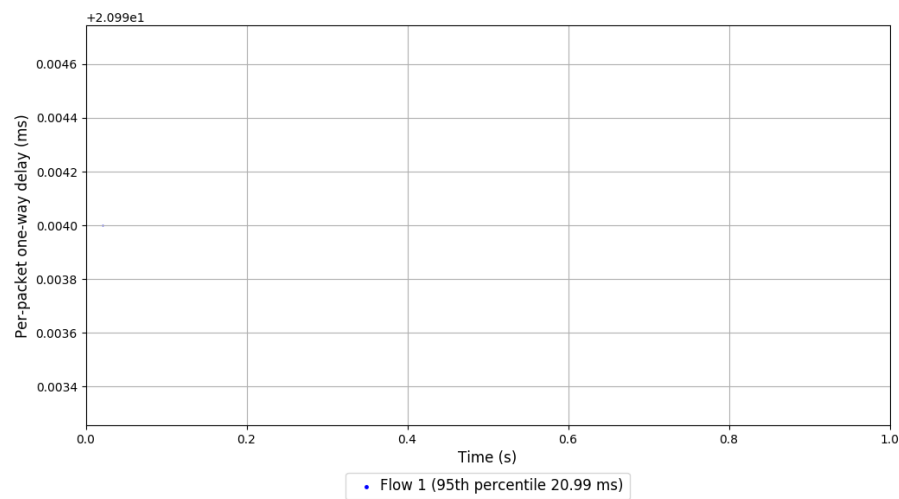
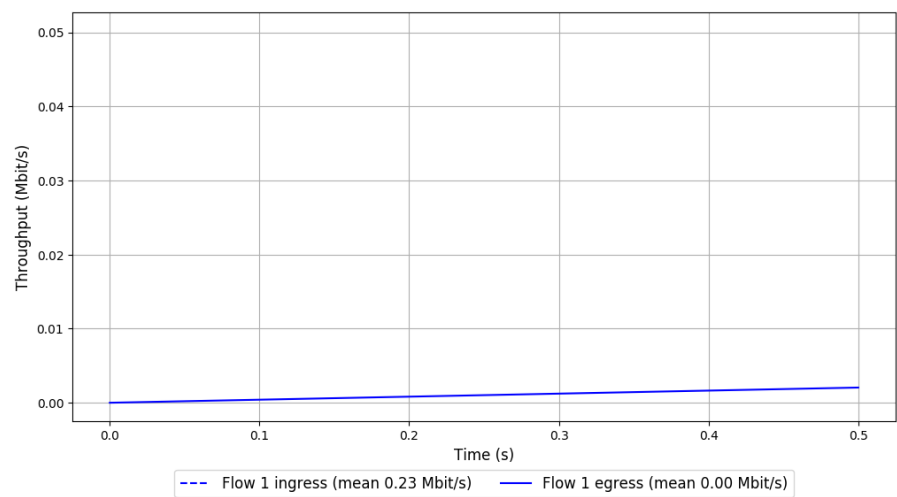
Start at: 2018-09-10 21:32:22

End at: 2018-09-10 21:32:52

Local clock offset: 2.372 ms

Remote clock offset: -2.217 ms

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

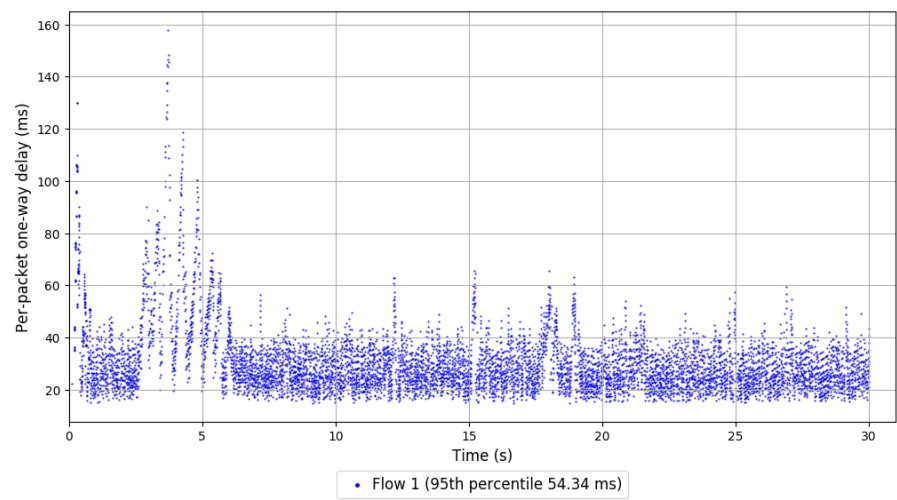
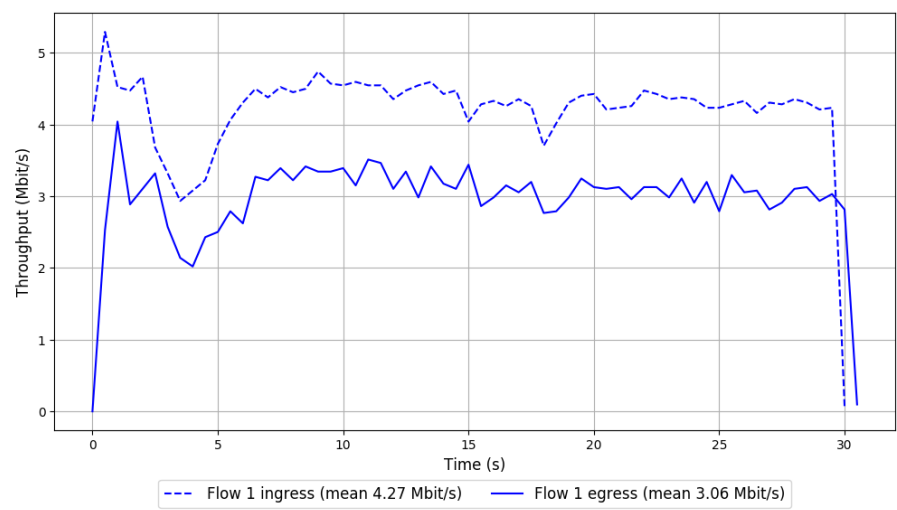


Run 2: Statistics of TaoVA-100x

Start at: 2018-09-10 21:52:05
End at: 2018-09-10 21:52:35
Local clock offset: -0.559 ms
Remote clock offset: -2.239 ms

Below is generated by plot.py at 2018-09-10 22:29:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.06 Mbit/s
95th percentile per-packet one-way delay: 54.336 ms
Loss rate: 28.46%
-- Flow 1:
Average throughput: 3.06 Mbit/s
95th percentile per-packet one-way delay: 54.336 ms
Loss rate: 28.46%

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



Run 3: Statistics of TaoVA-100x

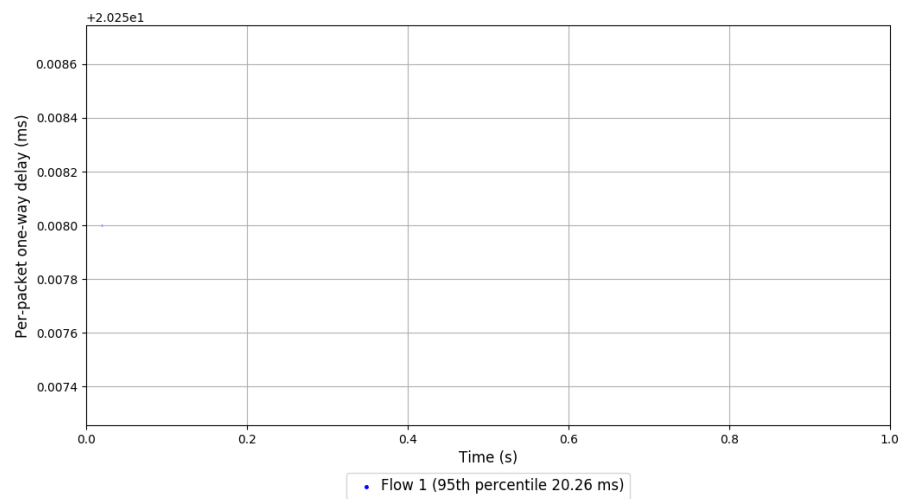
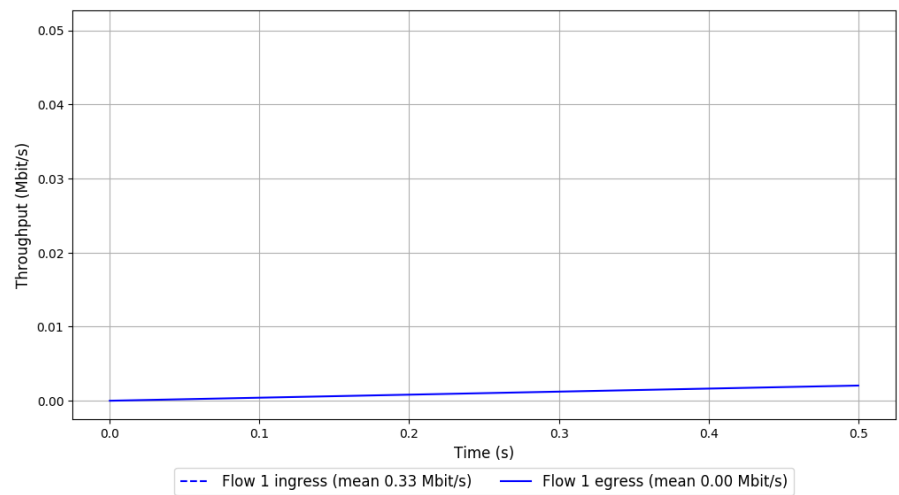
Start at: 2018-09-10 22:11:49

End at: 2018-09-10 22:12:19

Local clock offset: -4.577 ms

Remote clock offset: -0.882 ms

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

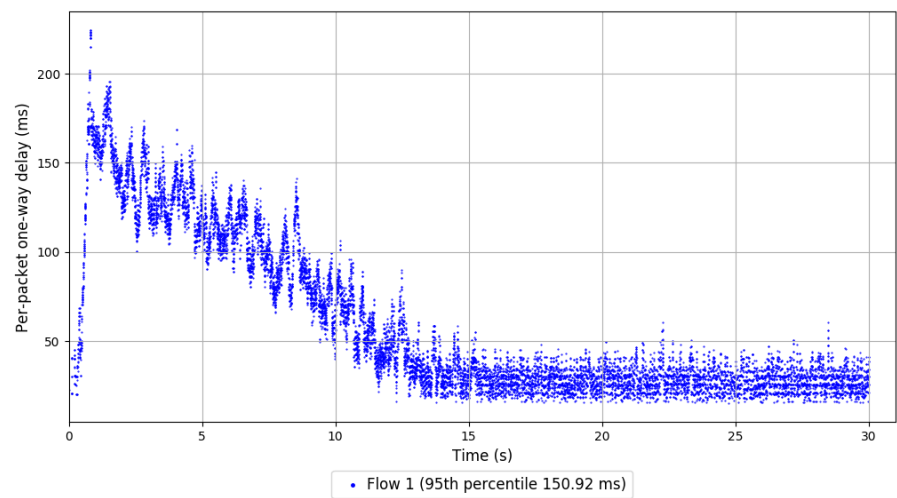
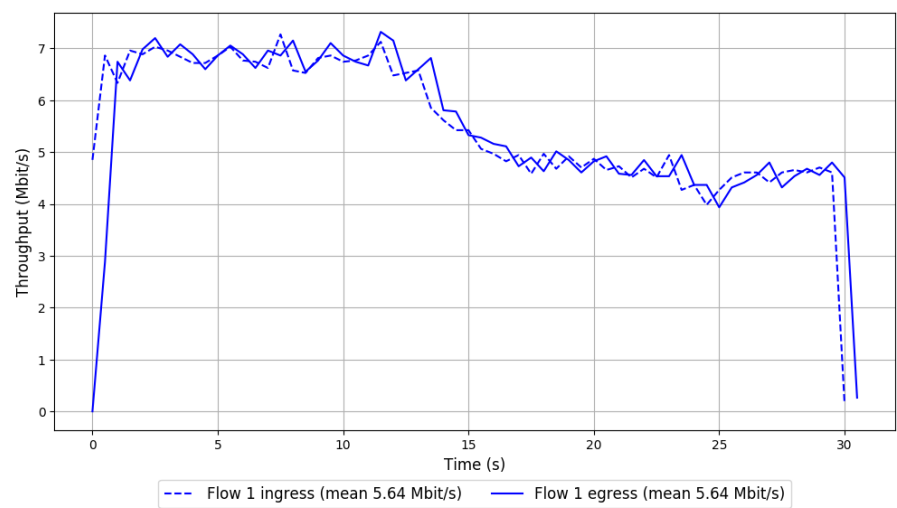


Run 1: Statistics of TCP Vegas

Start at: 2018-09-10 21:41:07
End at: 2018-09-10 21:41:37
Local clock offset: -6.503 ms
Remote clock offset: -2.622 ms

Below is generated by plot.py at 2018-09-10 22:29:26
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.64 Mbit/s
95th percentile per-packet one-way delay: 150.924 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 5.64 Mbit/s
95th percentile per-packet one-way delay: 150.924 ms
Loss rate: 0.06%

Run 1: Report of TCP Vegas — Data Link

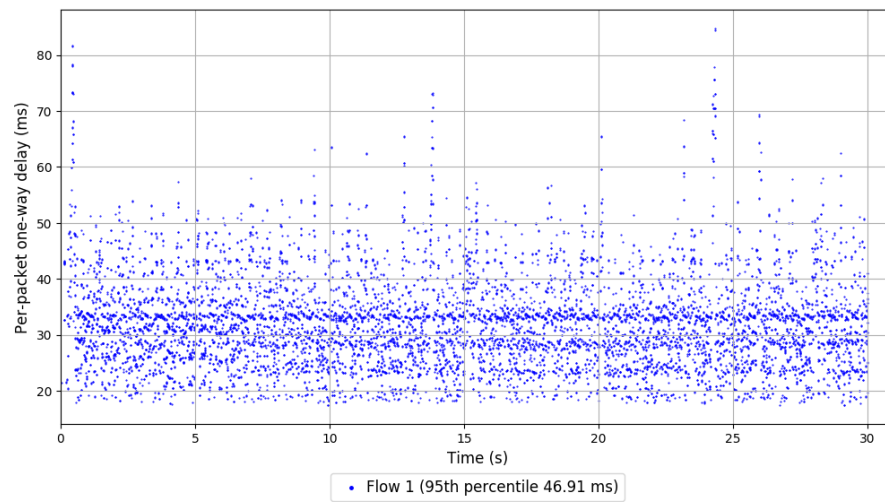
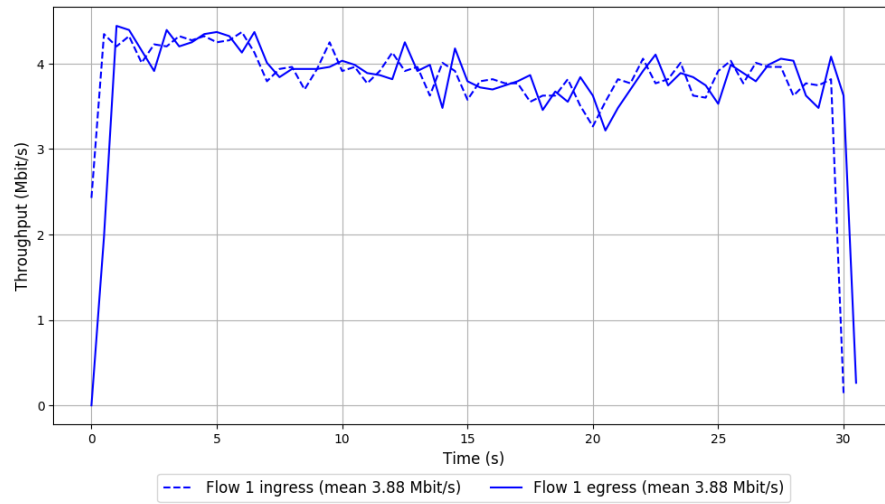


Run 2: Statistics of TCP Vegas

Start at: 2018-09-10 22:00:53
End at: 2018-09-10 22:01:23
Local clock offset: -1.818 ms
Remote clock offset: -1.863 ms

Below is generated by plot.py at 2018-09-10 22:29:26
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.88 Mbit/s
95th percentile per-packet one-way delay: 46.910 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 3.88 Mbit/s
95th percentile per-packet one-way delay: 46.910 ms
Loss rate: 0.09%

Run 2: Report of TCP Vegas — Data Link

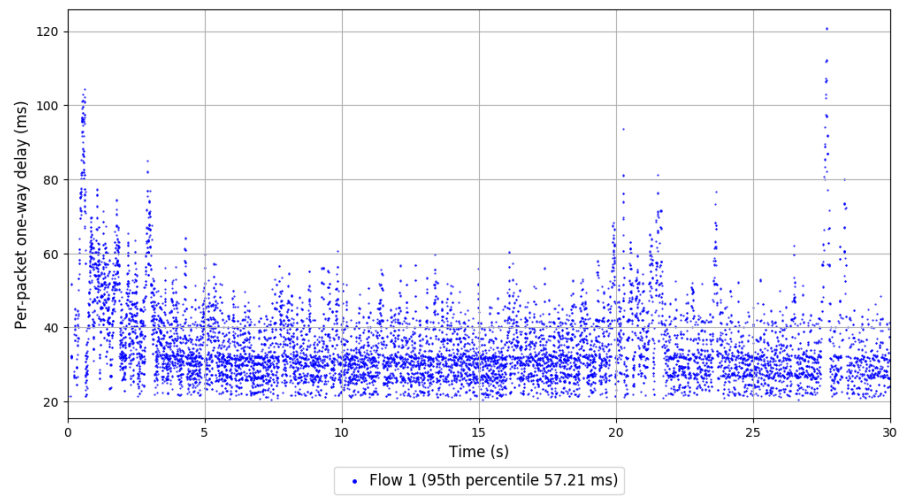
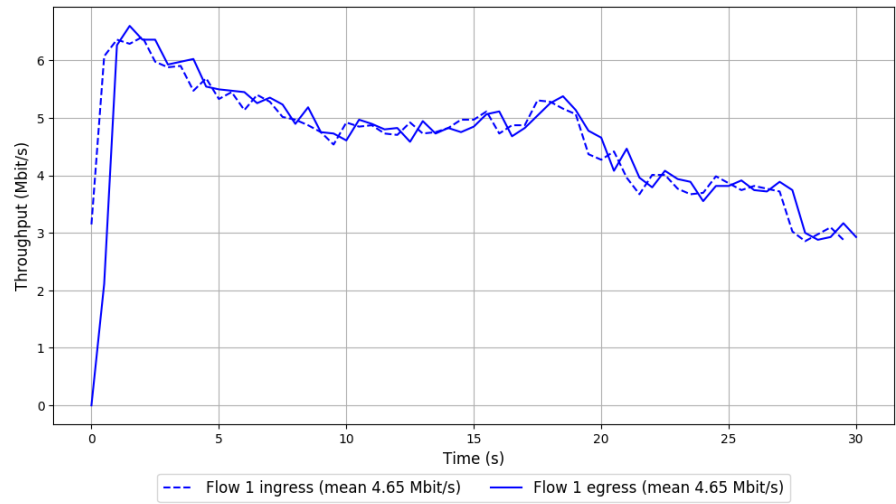


Run 3: Statistics of TCP Vegas

Start at: 2018-09-10 22:20:32
End at: 2018-09-10 22:21:02
Local clock offset: -6.313 ms
Remote clock offset: -1.706 ms

Below is generated by plot.py at 2018-09-10 22:29:27
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.65 Mbit/s
95th percentile per-packet one-way delay: 57.206 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 4.65 Mbit/s
95th percentile per-packet one-way delay: 57.206 ms
Loss rate: 0.05%

Run 3: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

Start at: 2018-09-10 21:38:56

End at: 2018-09-10 21:39:26

Local clock offset: -4.52 ms

Remote clock offset: -2.56 ms

Below is generated by plot.py at 2018-09-10 22:29:31

Datalink statistics

-- Total of 1 flow:

Average throughput: 6.61 Mbit/s

95th percentile per-packet one-way delay: 250.949 ms

Loss rate: 0.92%

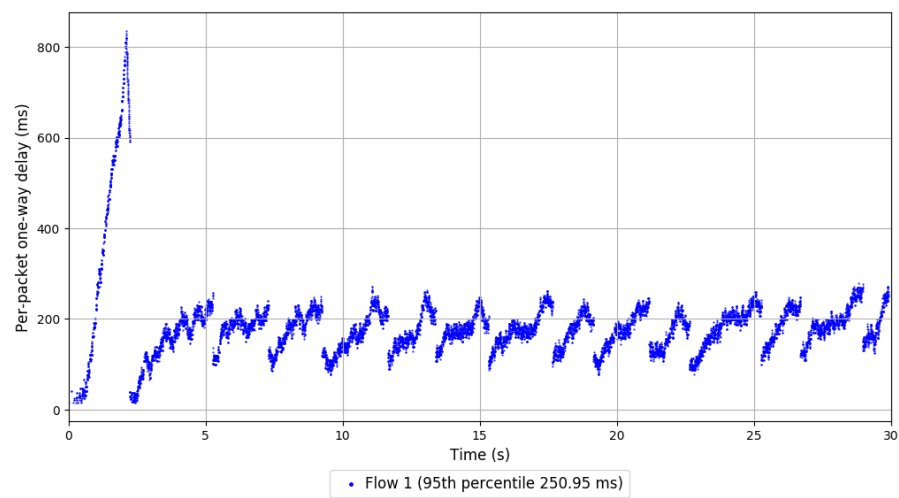
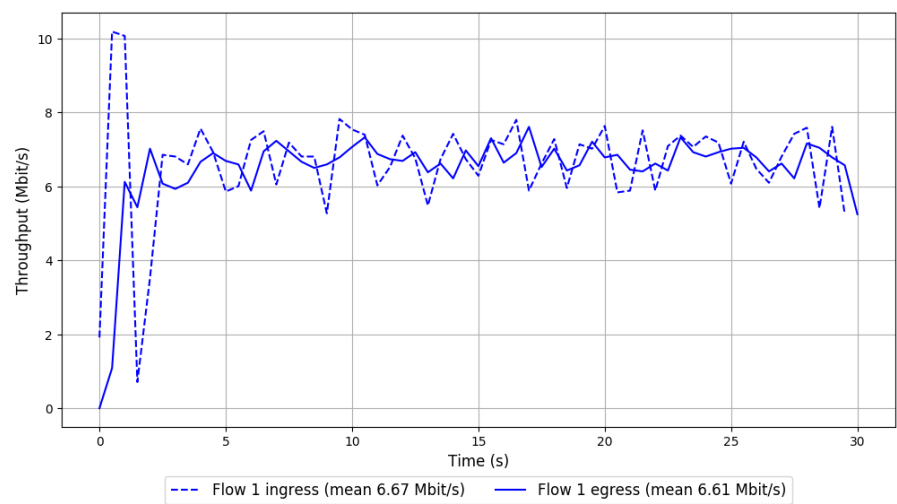
-- Flow 1:

Average throughput: 6.61 Mbit/s

95th percentile per-packet one-way delay: 250.949 ms

Loss rate: 0.92%

Run 1: Report of Verus — Data Link

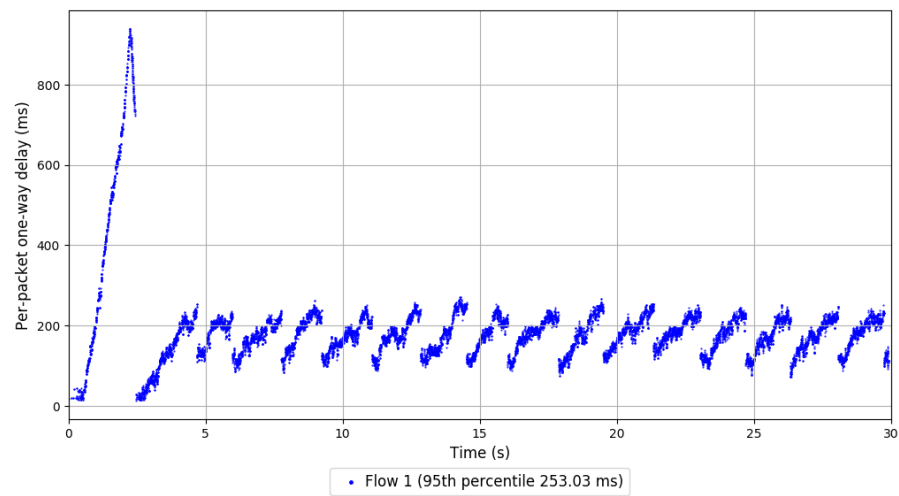
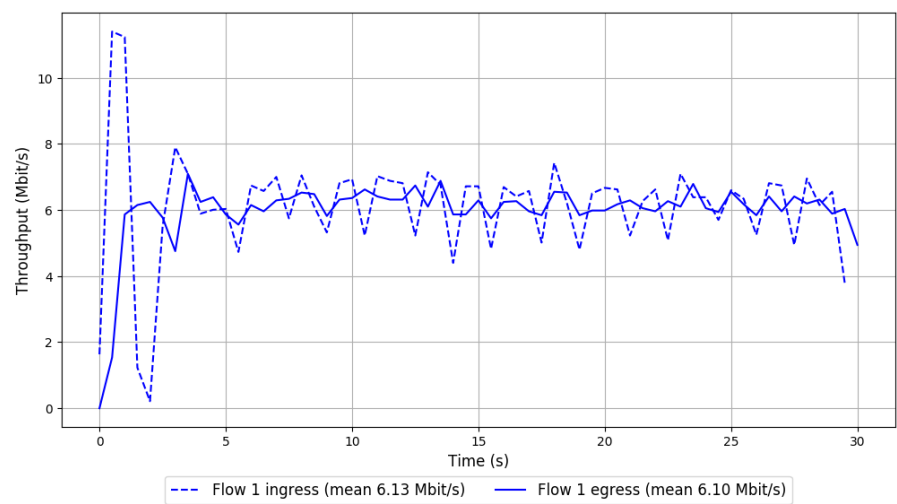


Run 2: Statistics of Verus

Start at: 2018-09-10 21:58:37
End at: 2018-09-10 21:59:07
Local clock offset: -0.213 ms
Remote clock offset: -2.702 ms

Below is generated by plot.py at 2018-09-10 22:29:32
Datalink statistics
-- Total of 1 flow:
Average throughput: 6.10 Mbit/s
95th percentile per-packet one-way delay: 253.025 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 6.10 Mbit/s
95th percentile per-packet one-way delay: 253.025 ms
Loss rate: 0.63%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2018-09-10 22:18:21

End at: 2018-09-10 22:18:51

Local clock offset: -6.185 ms

Remote clock offset: -1.22 ms

Below is generated by plot.py at 2018-09-10 22:29:33

Datalink statistics

-- Total of 1 flow:

Average throughput: 6.07 Mbit/s

95th percentile per-packet one-way delay: 248.627 ms

Loss rate: 0.76%

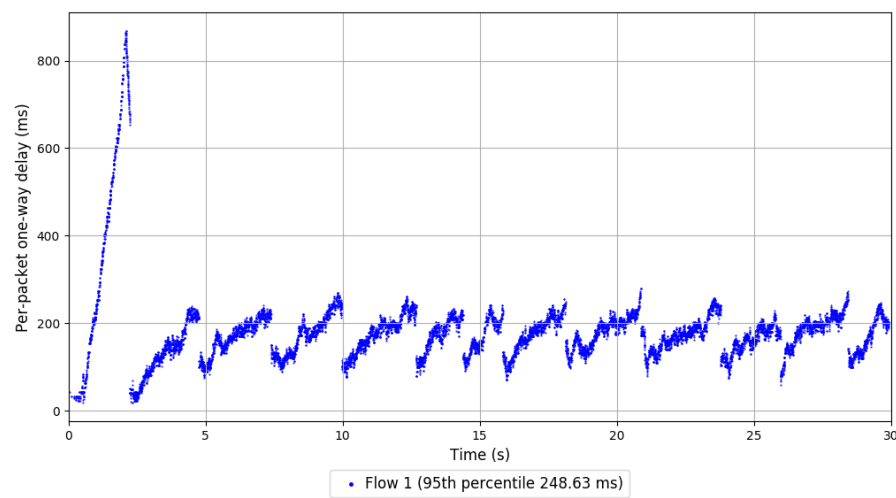
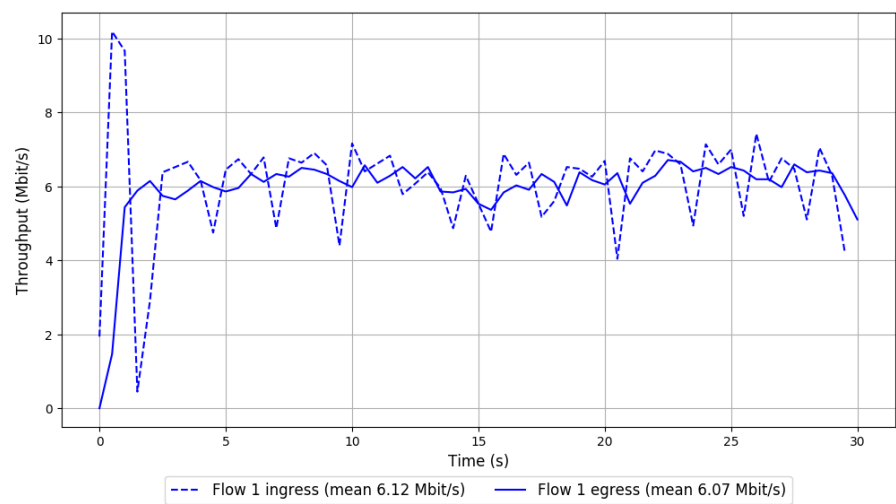
-- Flow 1:

Average throughput: 6.07 Mbit/s

95th percentile per-packet one-way delay: 248.627 ms

Loss rate: 0.76%

Run 3: Report of Verus — Data Link

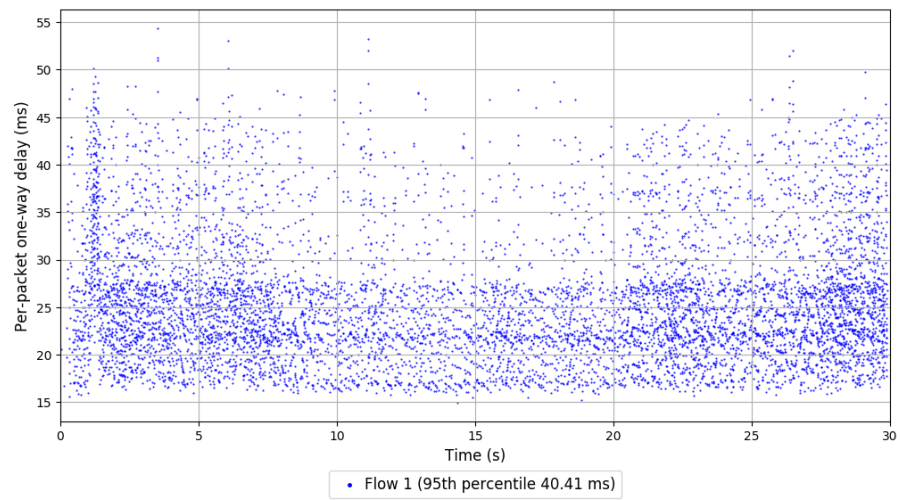
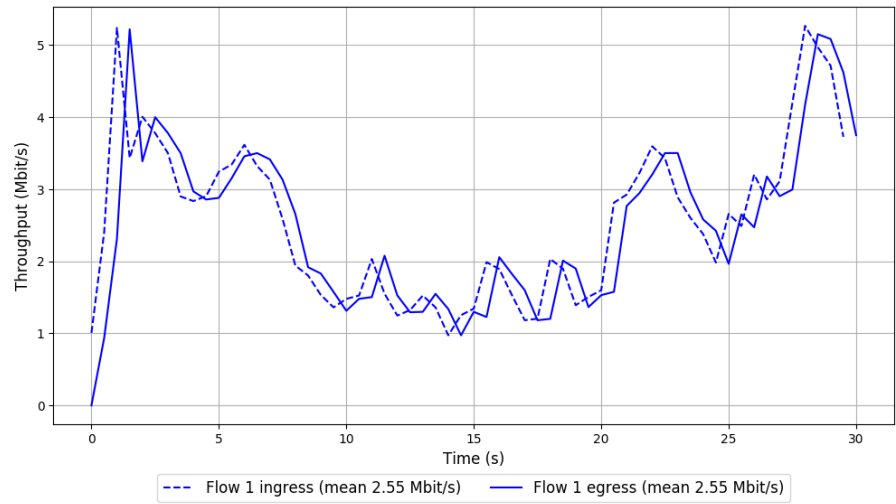


Run 1: Statistics of PCC-Vivace

Start at: 2018-09-10 21:43:18
End at: 2018-09-10 21:43:48
Local clock offset: -5.266 ms
Remote clock offset: -2.757 ms

Below is generated by plot.py at 2018-09-10 22:29:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.55 Mbit/s
95th percentile per-packet one-way delay: 40.411 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 2.55 Mbit/s
95th percentile per-packet one-way delay: 40.411 ms
Loss rate: 0.21%

Run 1: Report of PCC-Vivace — Data Link

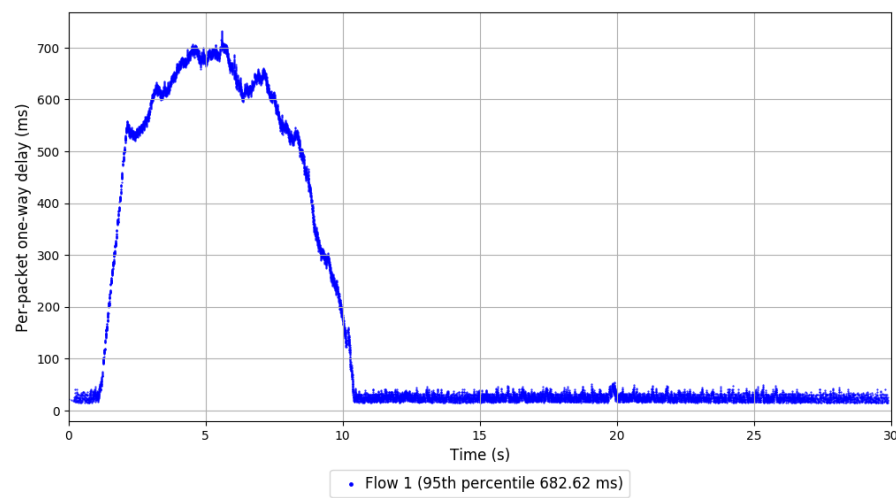
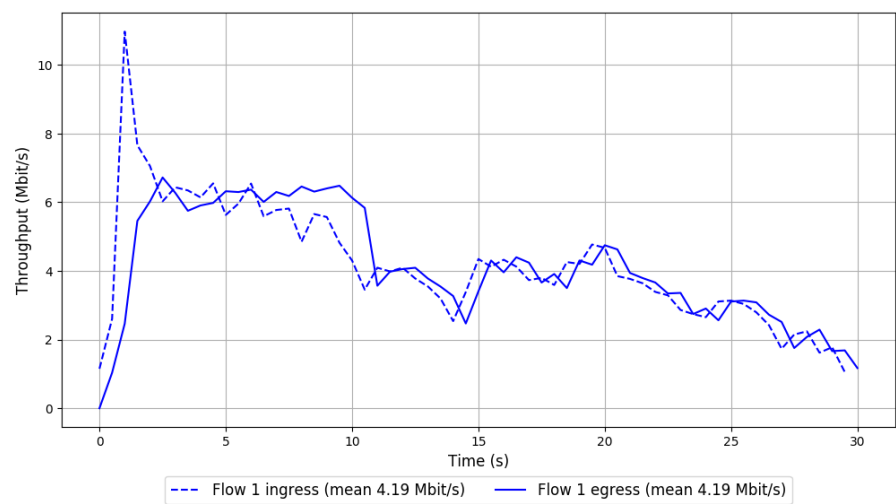


Run 2: Statistics of PCC-Vivace

Start at: 2018-09-10 22:03:03
End at: 2018-09-10 22:03:33
Local clock offset: -1.515 ms
Remote clock offset: -1.512 ms

Below is generated by plot.py at 2018-09-10 22:29:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.19 Mbit/s
95th percentile per-packet one-way delay: 682.621 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 4.19 Mbit/s
95th percentile per-packet one-way delay: 682.621 ms
Loss rate: 0.20%

Run 2: Report of PCC-Vivace — Data Link

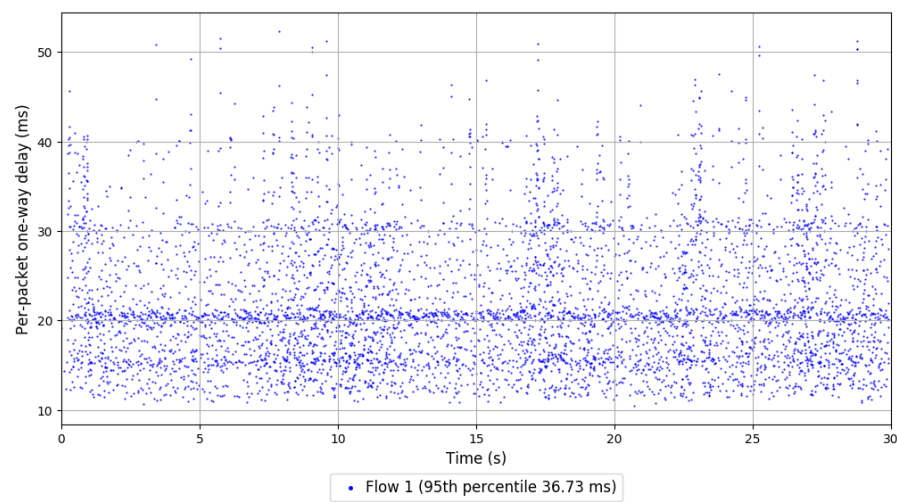
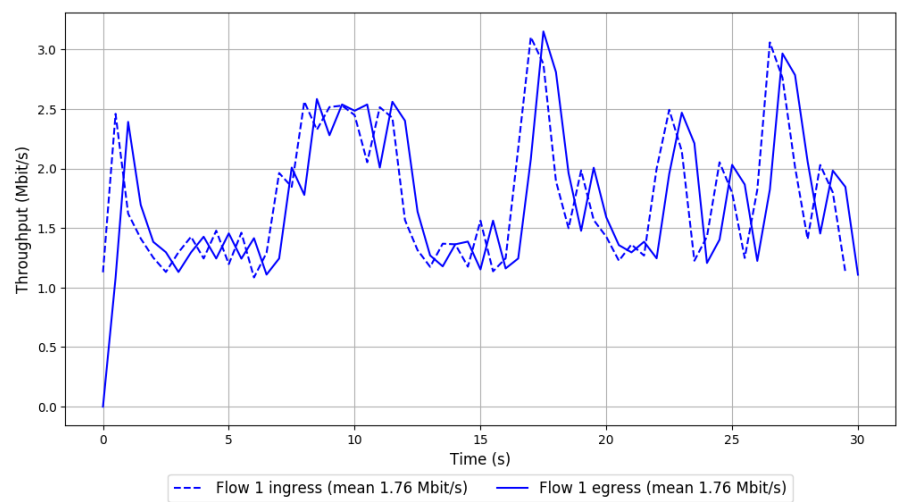


Run 3: Statistics of PCC-Vivace

Start at: 2018-09-10 22:22:43
End at: 2018-09-10 22:23:13
Local clock offset: -3.925 ms
Remote clock offset: -1.554 ms

Below is generated by plot.py at 2018-09-10 22:29:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.76 Mbit/s
95th percentile per-packet one-way delay: 36.735 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 1.76 Mbit/s
95th percentile per-packet one-way delay: 36.735 ms
Loss rate: 0.07%

Run 3: Report of PCC-Vivace — Data Link

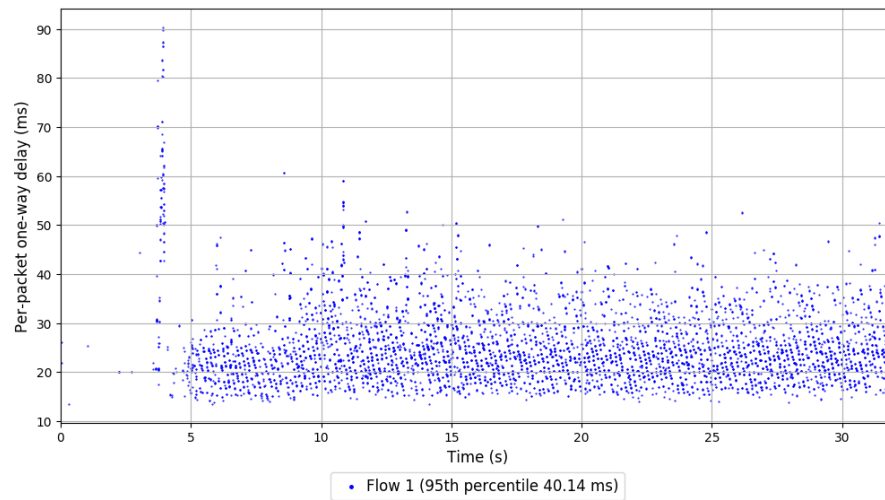
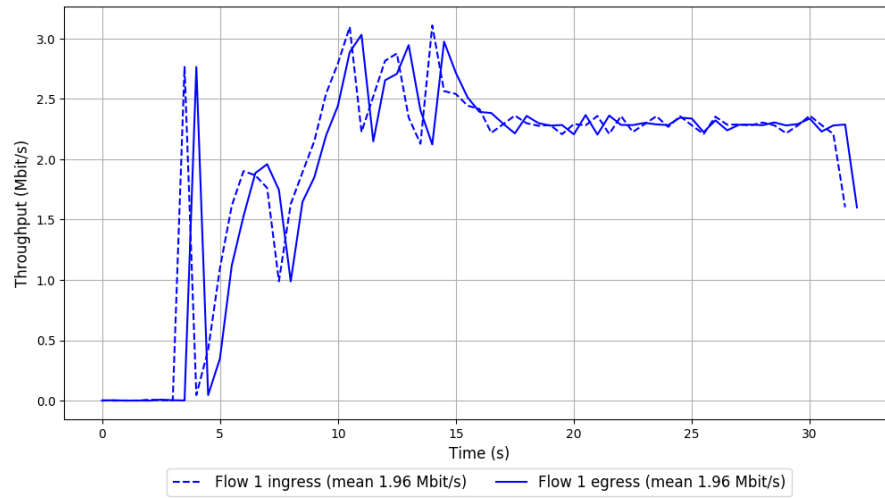


```
Run 1: Statistics of WebRTC media

Start at: 2018-09-10 21:47:44
End at: 2018-09-10 21:48:14
Local clock offset: -1.921 ms
Remote clock offset: -2.459 ms

# Below is generated by plot.py at 2018-09-10 22:29:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.96 Mbit/s
95th percentile per-packet one-way delay: 40.136 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 1.96 Mbit/s
95th percentile per-packet one-way delay: 40.136 ms
Loss rate: 0.06%
```

Run 1: Report of WebRTC media — Data Link

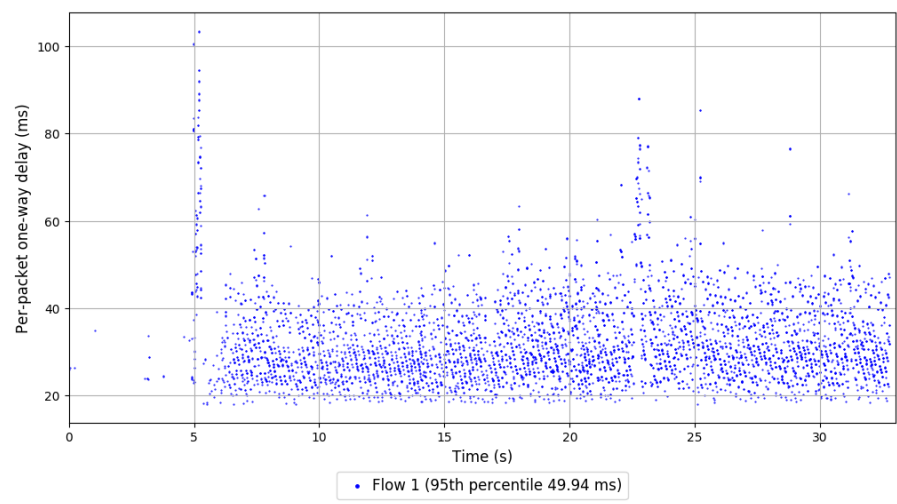
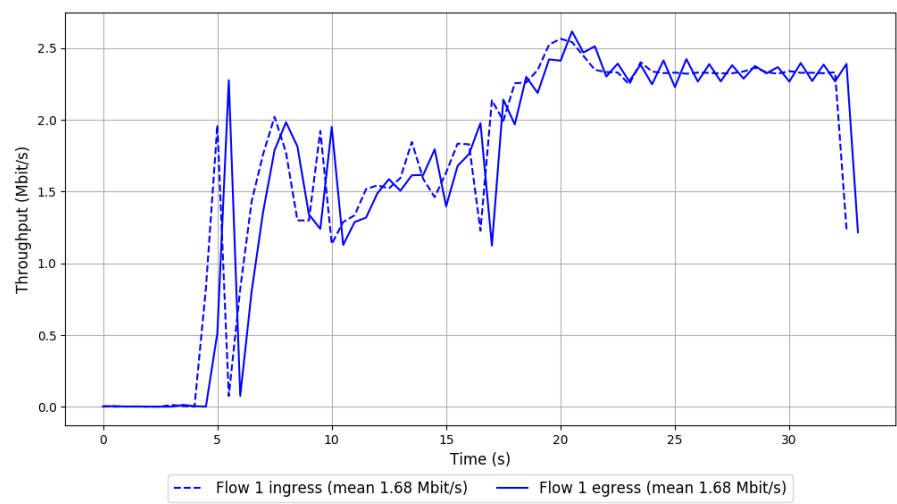


Run 2: Statistics of WebRTC media

Start at: 2018-09-10 22:07:29
End at: 2018-09-10 22:07:59
Local clock offset: -3.38 ms
Remote clock offset: -0.899 ms

Below is generated by plot.py at 2018-09-10 22:29:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.68 Mbit/s
95th percentile per-packet one-way delay: 49.939 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 1.68 Mbit/s
95th percentile per-packet one-way delay: 49.939 ms
Loss rate: 0.16%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-09-10 22:27:04
End at: 2018-09-10 22:27:34
Local clock offset: -7.174 ms
Remote clock offset: -0.985 ms

Below is generated by plot.py at 2018-09-10 22:29:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.02 Mbit/s
95th percentile per-packet one-way delay: 46.814 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 1.02 Mbit/s
95th percentile per-packet one-way delay: 46.814 ms
Loss rate: 0.04%

Run 3: Report of WebRTC media — Data Link

