

Pantheon Report

Generated at 2018-08-21 18:45:36 (UTC).

Data path: AWS Brazil 2 Ethernet (*local*) → Colombia ppp0 ppp0 (*remote*).

Repeated the test of 17 congestion control schemes 3 times.

Each test lasted for 30 seconds running 1 flow.

NTP offsets were measured against `gps.ntp.br` and have been applied to correct the timestamps in logs.

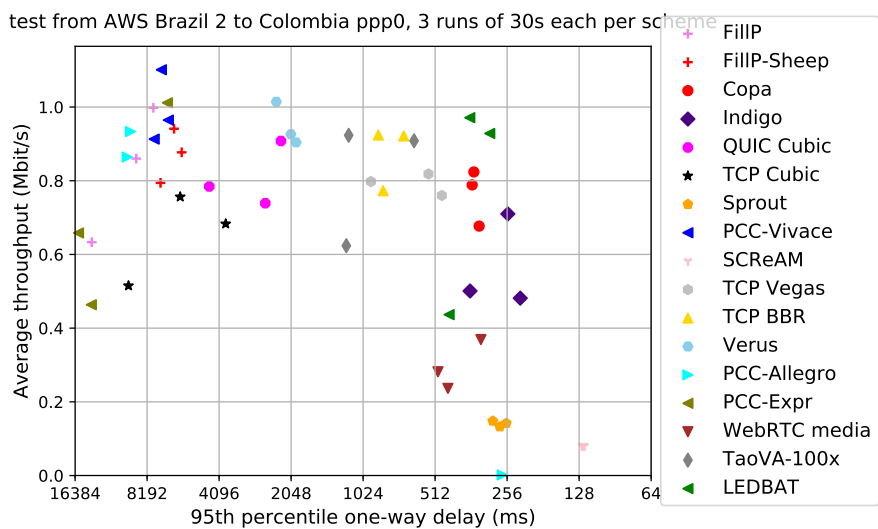
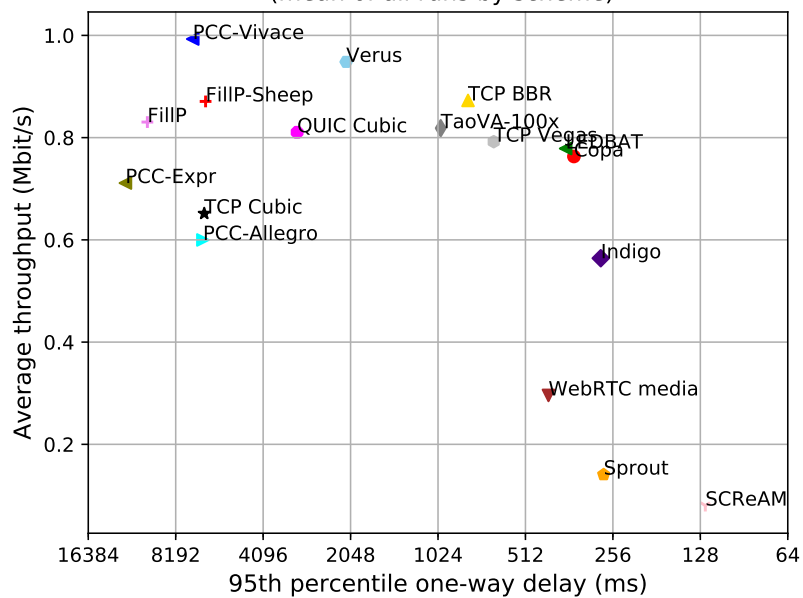
System info:

```
Linux 4.15.0-1017-aws
net.core.default_qdisc = fq_codel
net.core.rmem_default = 16777216
net.core.rmem_max = 33554432
net.core.wmem_default = 212992
net.core.wmem_max = 212992
net.ipv4.tcp_rmem = 4096 87380 6291456
net.ipv4.tcp_wmem = 4096 16384 4194304
```

Git summary:

```
branch: master @ 7719b900495aa706f8452ab7d4a94dd562e9296e
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfef58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-tunnel @ 6f038ed31259d366f9840f65b82cbe8f464b1b39
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-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
M src/ScreamClient
M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

test from AWS Brazil 2 to Colombia ppp0, 3 runs of 30s each per scheme
(mean of all runs by scheme)



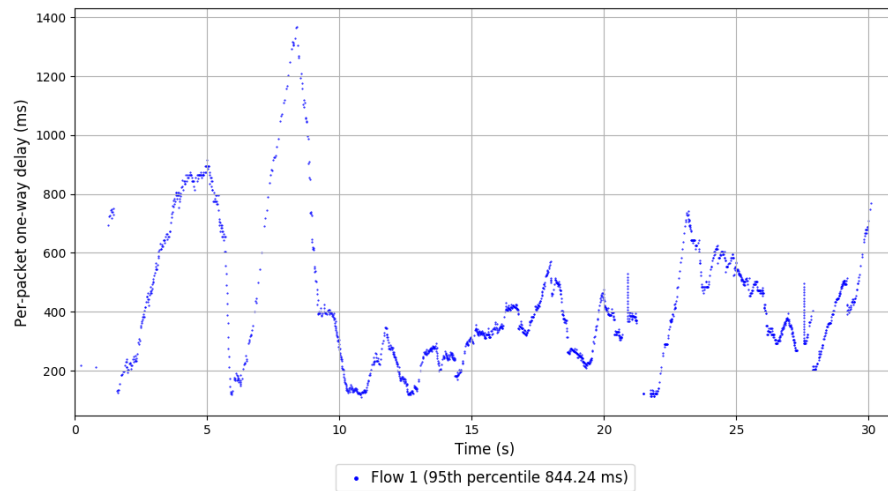
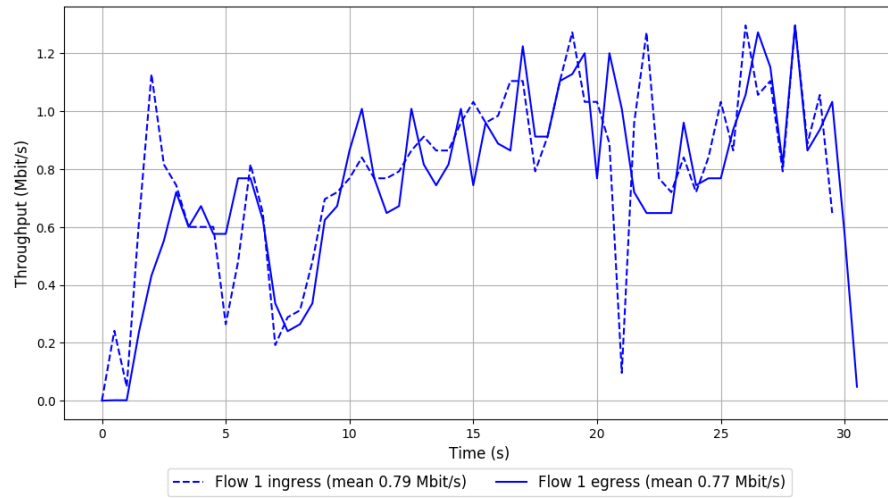
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	0.87	807.18	2.04
Copa	3	0.76	348.66	0.59
TCP Cubic	3	0.65	6533.40	14.67
FillP	3	0.83	10254.17	93.40
FillP-Sheep	3	0.87	6463.77	20.61
Indigo	3	0.56	281.84	0.31
LEDBAT	3	0.78	372.35	0.39
PCC-Allegro	3	0.60	6600.23	63.19
PCC-Expr	3	0.71	12206.59	87.92
QUIC Cubic	3	0.81	3128.60	7.17
SCReAM	3	0.08	123.05	0.18
Sprout	3	0.14	275.47	0.18
TaoVA-100x	3	0.82	1002.40	1.27
TCP Vegas	3	0.79	658.54	0.30
Verus	3	0.95	2121.34	2.61
PCC-Vivace	3	0.99	7157.77	28.20
WebRTC media	3	0.30	426.66	0.12

Run 1: Statistics of TCP BBR

Start at: 2018-08-21 18:00:36
End at: 2018-08-21 18:01:06
Local clock offset: -14.585 ms
Remote clock offset: 7.962 ms

Below is generated by plot.py at 2018-08-21 18:45:04
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.77 Mbit/s
95th percentile per-packet one-way delay: 844.244 ms
Loss rate: 2.14%
-- Flow 1:
Average throughput: 0.77 Mbit/s
95th percentile per-packet one-way delay: 844.244 ms
Loss rate: 2.14%

Run 1: Report of TCP BBR — Data Link

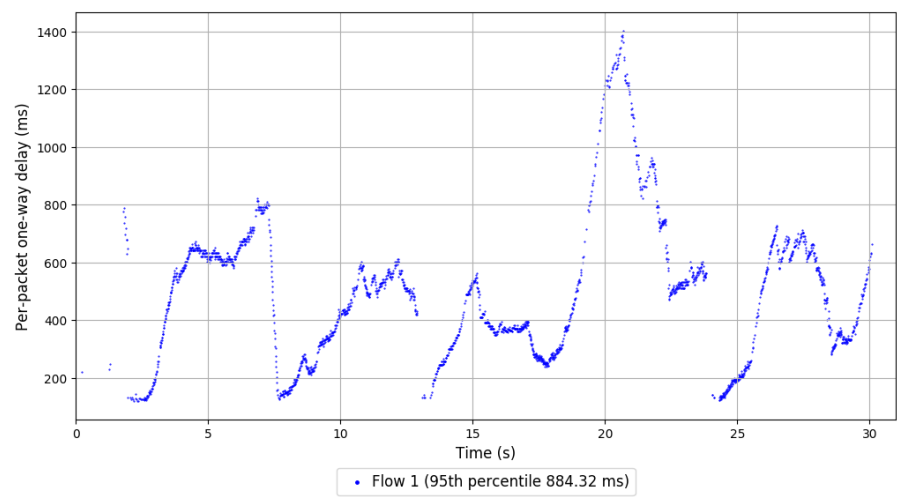
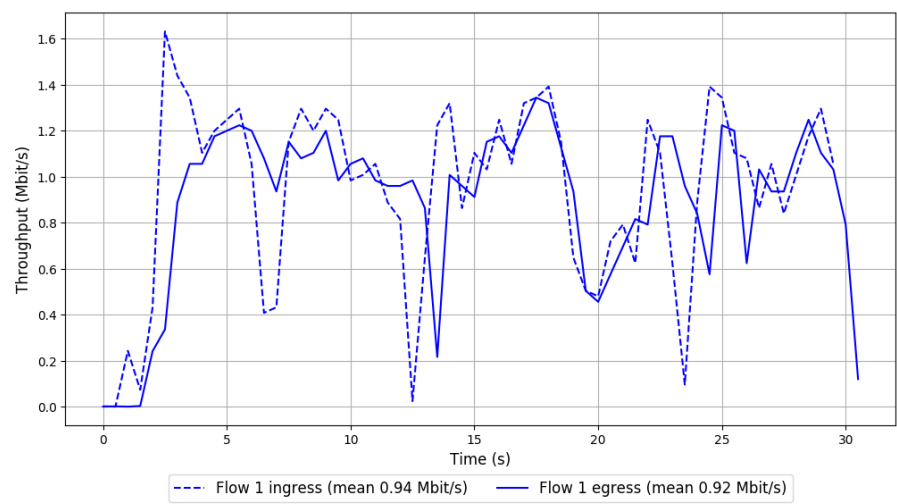


Run 2: Statistics of TCP BBR

Start at: 2018-08-21 18:19:41
End at: 2018-08-21 18:20:11
Local clock offset: -12.557 ms
Remote clock offset: 8.955 ms

Below is generated by plot.py at 2018-08-21 18:45:05
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.92 Mbit/s
95th percentile per-packet one-way delay: 884.324 ms
Loss rate: 2.34%
-- Flow 1:
Average throughput: 0.92 Mbit/s
95th percentile per-packet one-way delay: 884.324 ms
Loss rate: 2.34%

Run 2: Report of TCP BBR — Data Link

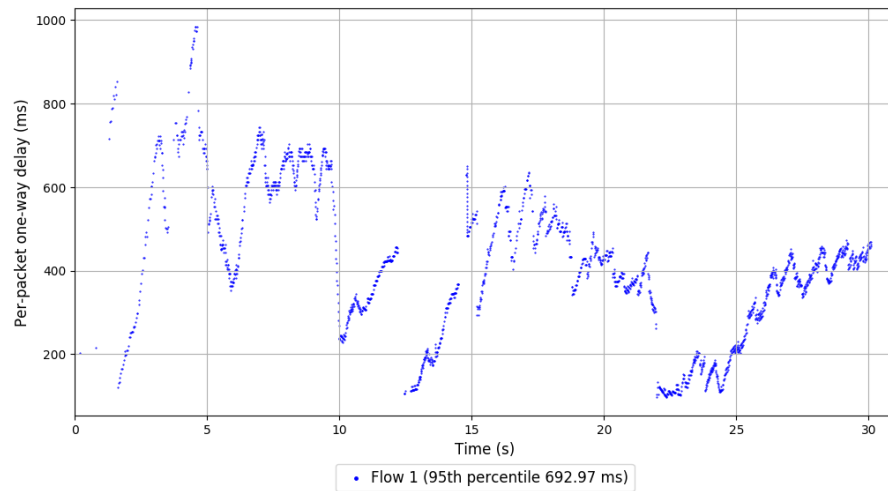
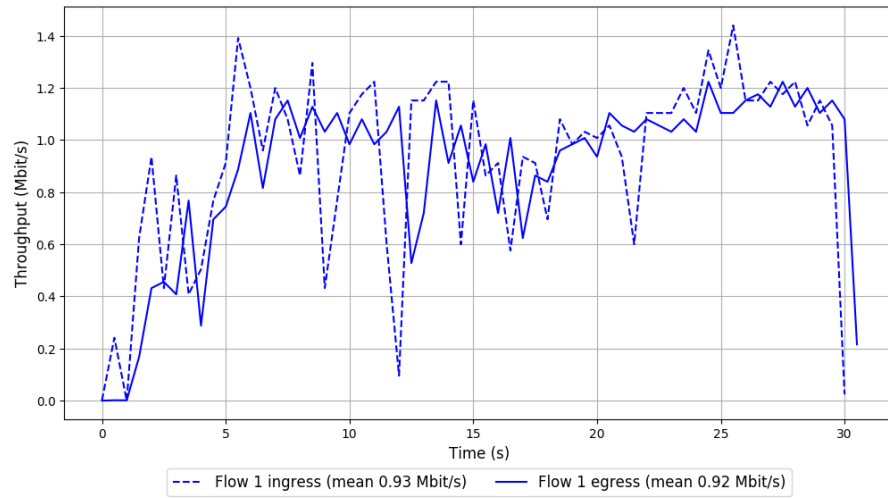


Run 3: Statistics of TCP BBR

Start at: 2018-08-21 18:38:46
End at: 2018-08-21 18:39:16
Local clock offset: -11.681 ms
Remote clock offset: 1.585 ms

Below is generated by plot.py at 2018-08-21 18:45:05
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.92 Mbit/s
95th percentile per-packet one-way delay: 692.966 ms
Loss rate: 1.63%
-- Flow 1:
Average throughput: 0.92 Mbit/s
95th percentile per-packet one-way delay: 692.966 ms
Loss rate: 1.63%

Run 3: Report of TCP BBR — Data Link

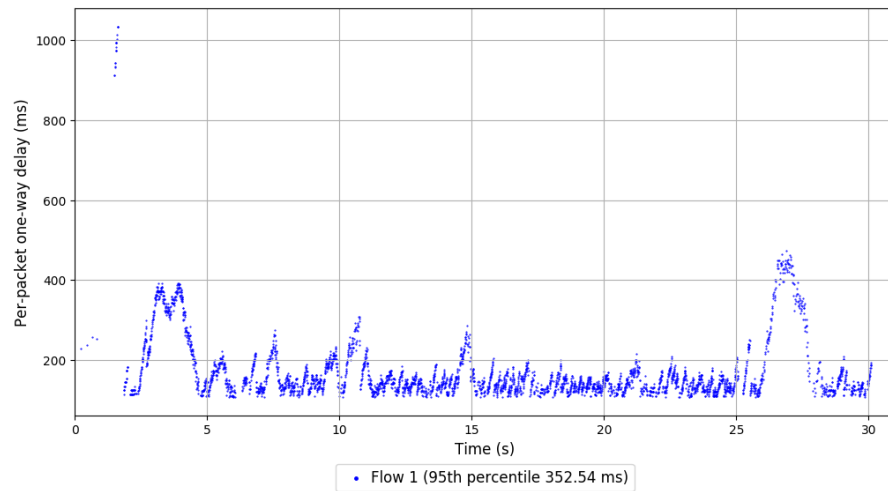
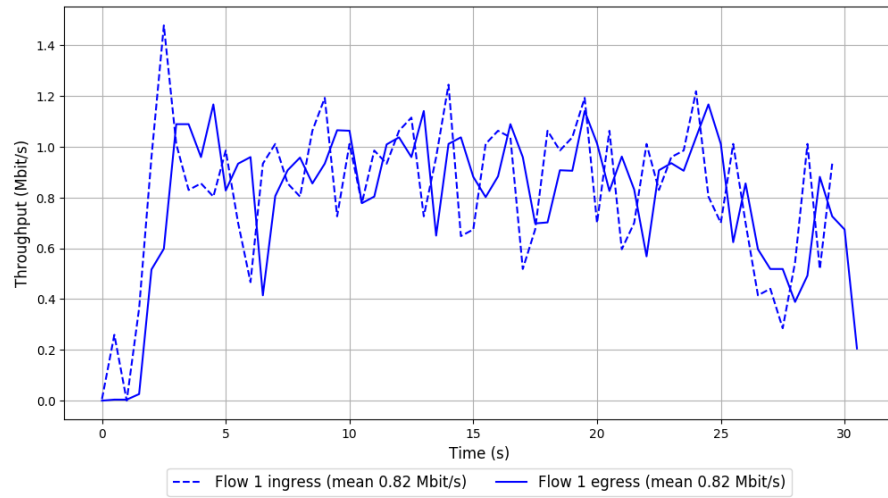


Run 1: Statistics of Copa

Start at: 2018-08-21 18:03:58
End at: 2018-08-21 18:04:28
Local clock offset: -14.744 ms
Remote clock offset: 9.017 ms

Below is generated by plot.py at 2018-08-21 18:45:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.82 Mbit/s
95th percentile per-packet one-way delay: 352.538 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 0.82 Mbit/s
95th percentile per-packet one-way delay: 352.538 ms
Loss rate: 0.47%

Run 1: Report of Copa — Data Link

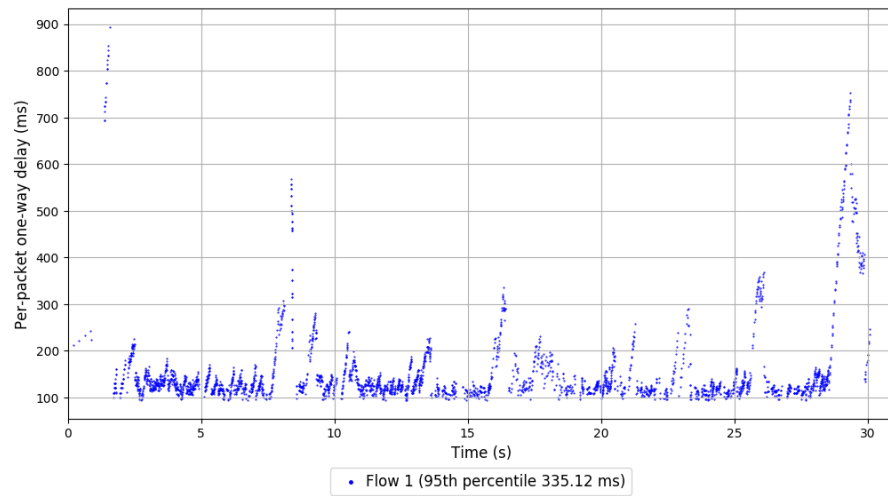
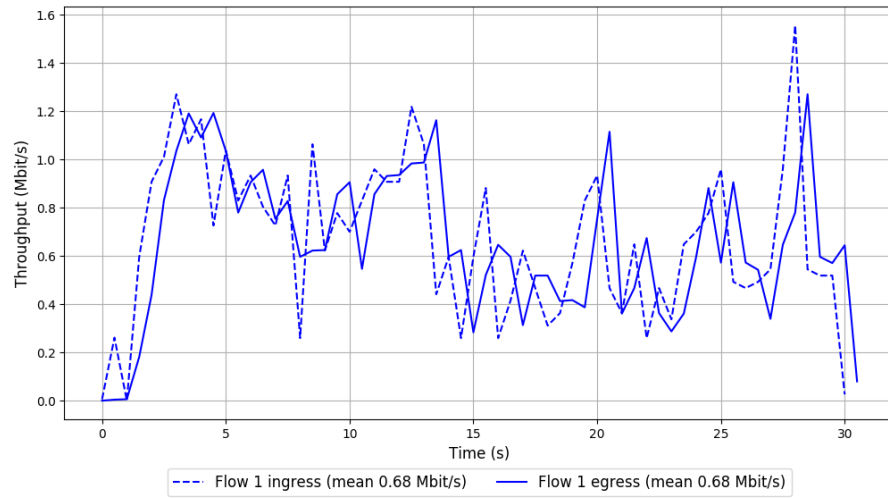


Run 2: Statistics of Copa

Start at: 2018-08-21 18:23:03
End at: 2018-08-21 18:23:33
Local clock offset: -11.782 ms
Remote clock offset: 2.976 ms

Below is generated by plot.py at 2018-08-21 18:45:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.68 Mbit/s
95th percentile per-packet one-way delay: 335.118 ms
Loss rate: 1.03%
-- Flow 1:
Average throughput: 0.68 Mbit/s
95th percentile per-packet one-way delay: 335.118 ms
Loss rate: 1.03%

Run 2: Report of Copa — Data Link

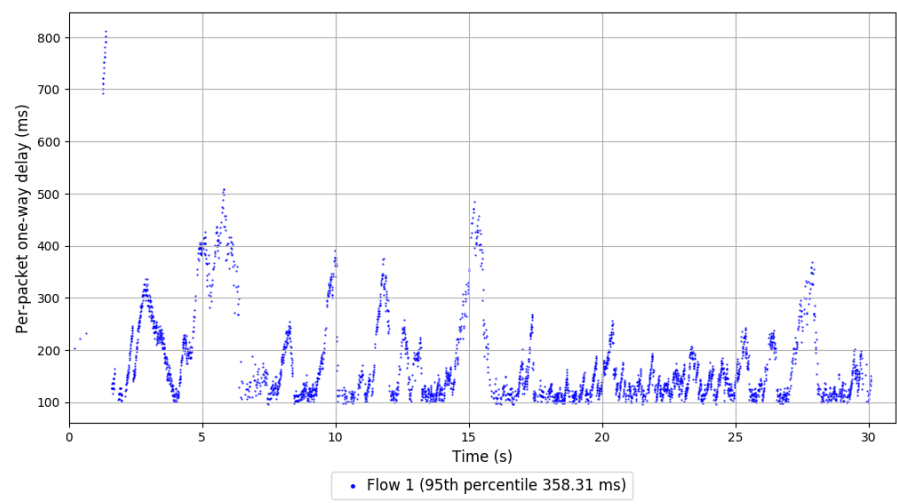
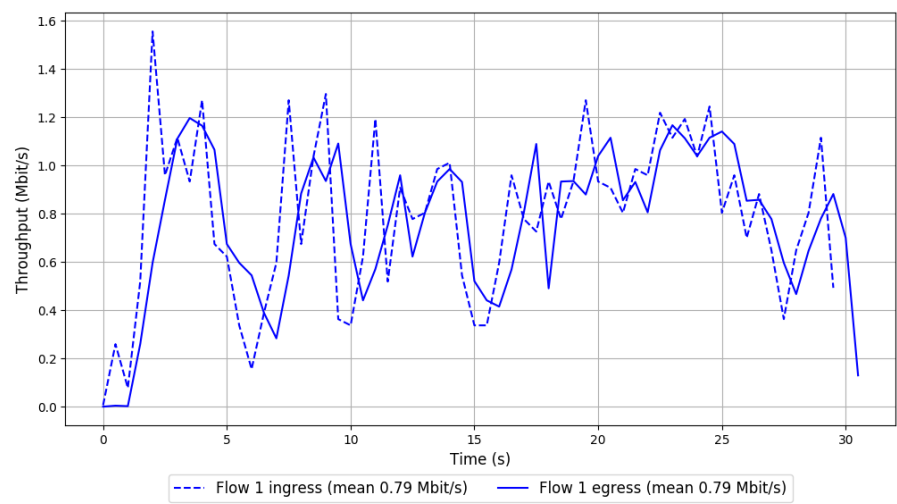


Run 3: Statistics of Copa

Start at: 2018-08-21 18:42:08
End at: 2018-08-21 18:42:38
Local clock offset: -9.904 ms
Remote clock offset: 2.375 ms

Below is generated by plot.py at 2018-08-21 18:45:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.79 Mbit/s
95th percentile per-packet one-way delay: 358.312 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 0.79 Mbit/s
95th percentile per-packet one-way delay: 358.312 ms
Loss rate: 0.27%

Run 3: Report of Copa — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-08-21 18:01:43

End at: 2018-08-21 18:02:13

Local clock offset: -13.29 ms

Remote clock offset: 3.104 ms

Below is generated by plot.py at 2018-08-21 18:45:06

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.76 Mbit/s

95th percentile per-packet one-way delay: 5956.102 ms

Loss rate: 9.48%

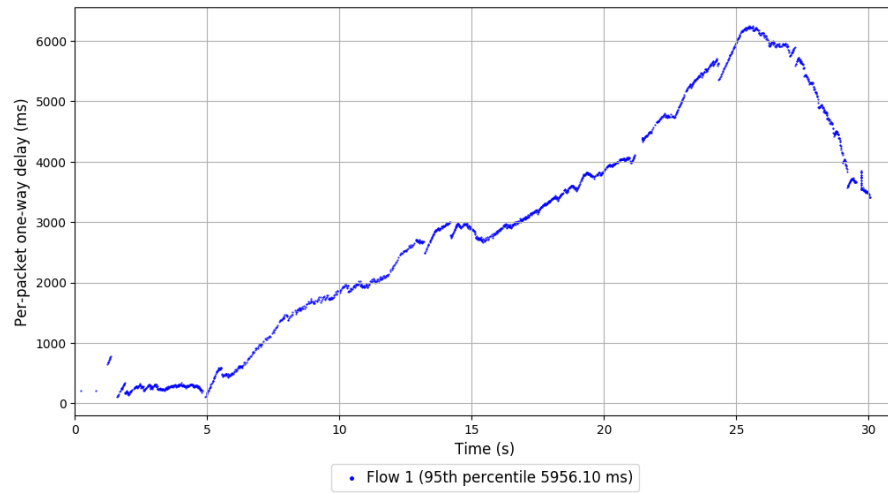
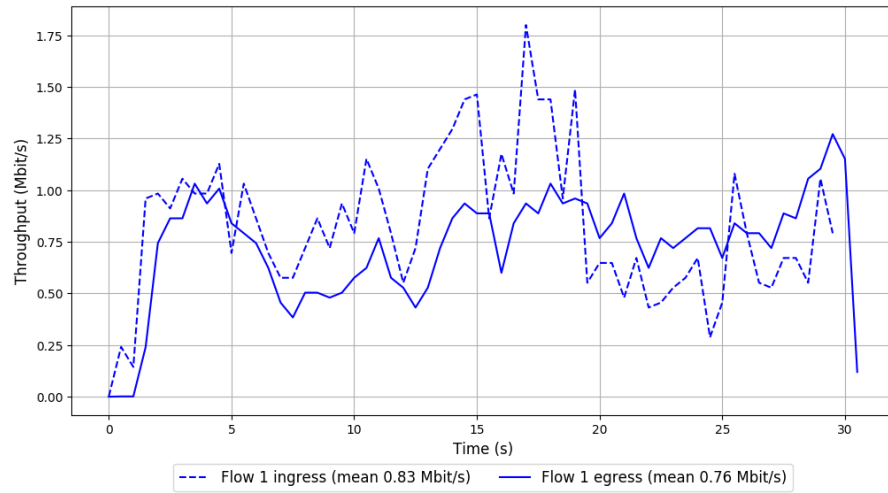
-- Flow 1:

Average throughput: 0.76 Mbit/s

95th percentile per-packet one-way delay: 5956.102 ms

Loss rate: 9.48%

Run 1: Report of TCP Cubic — Data Link

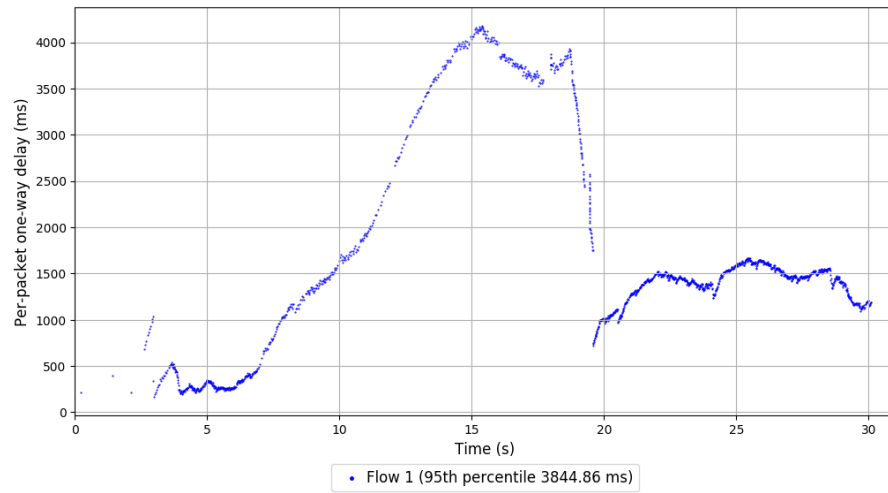
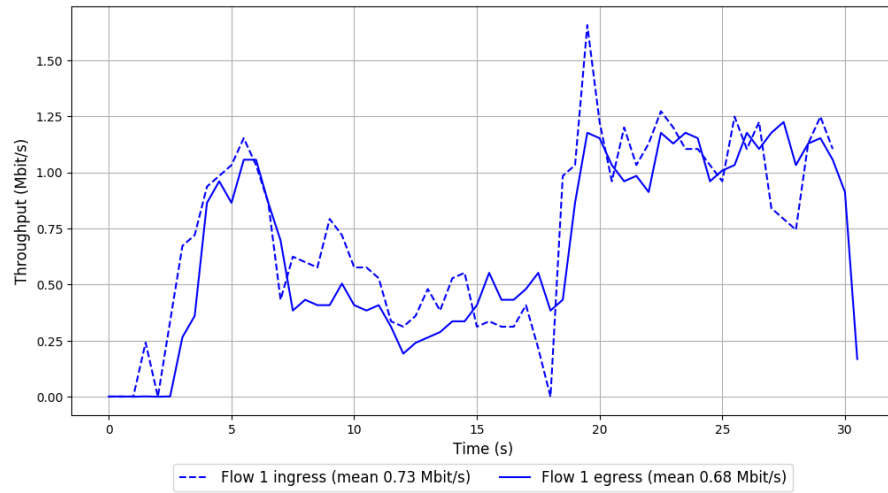


Run 2: Statistics of TCP Cubic

Start at: 2018-08-21 18:20:49
End at: 2018-08-21 18:21:19
Local clock offset: -11.703 ms
Remote clock offset: 2.876 ms

Below is generated by plot.py at 2018-08-21 18:45:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.68 Mbit/s
95th percentile per-packet one-way delay: 3844.861 ms
Loss rate: 6.34%
-- Flow 1:
Average throughput: 0.68 Mbit/s
95th percentile per-packet one-way delay: 3844.861 ms
Loss rate: 6.34%

Run 2: Report of TCP Cubic — Data Link

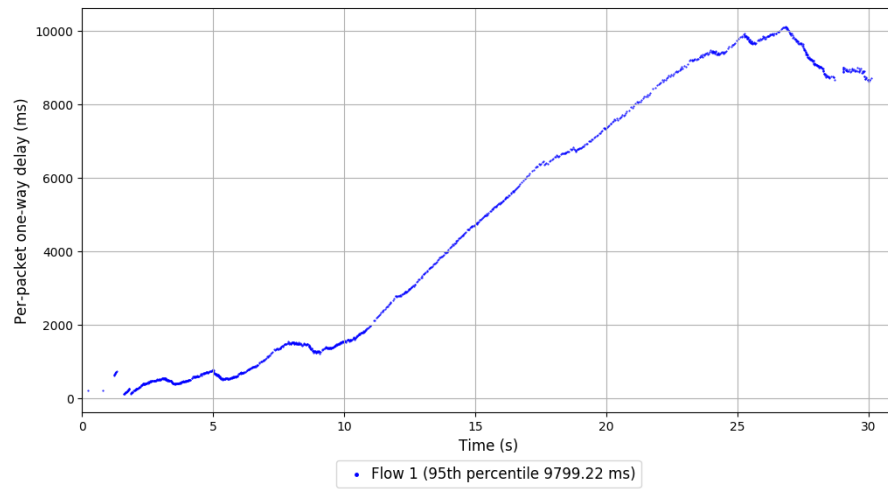
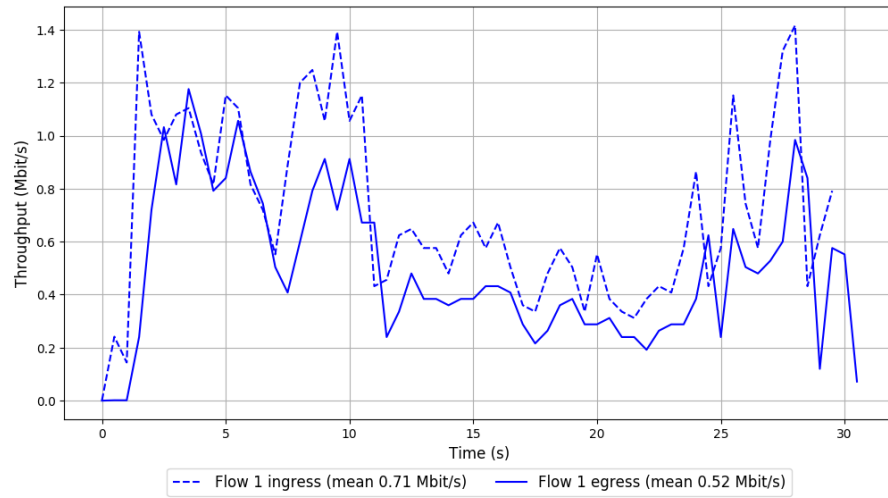


Run 3: Statistics of TCP Cubic

Start at: 2018-08-21 18:39:54
End at: 2018-08-21 18:40:24
Local clock offset: -12.282 ms
Remote clock offset: 1.419 ms

Below is generated by plot.py at 2018-08-21 18:45:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.52 Mbit/s
95th percentile per-packet one-way delay: 9799.223 ms
Loss rate: 28.18%
-- Flow 1:
Average throughput: 0.52 Mbit/s
95th percentile per-packet one-way delay: 9799.223 ms
Loss rate: 28.18%

Run 3: Report of TCP Cubic — Data Link

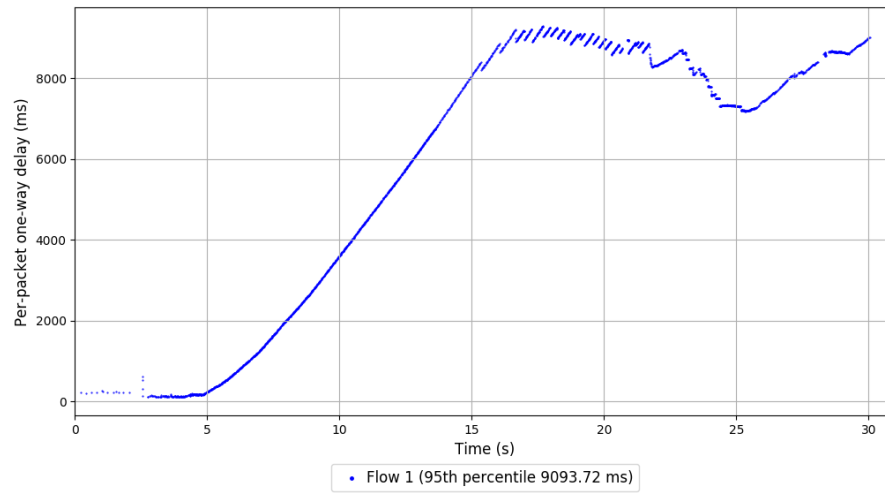
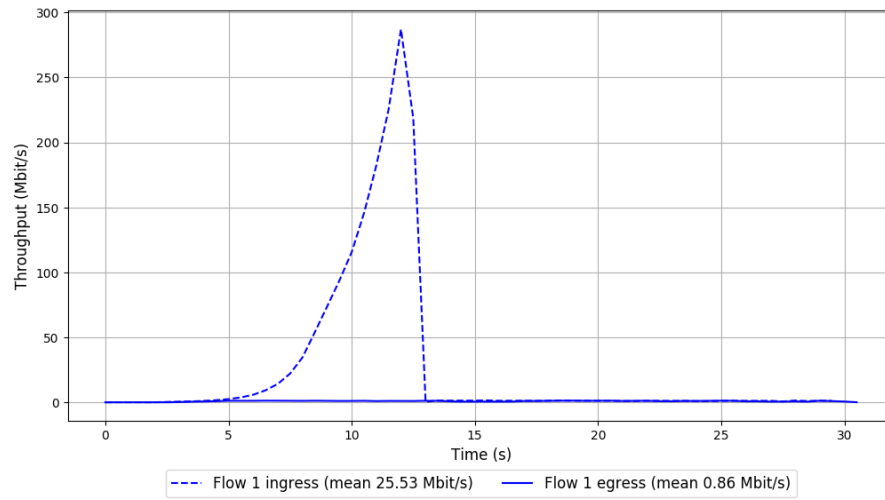


Run 1: Statistics of FillP

Start at: 2018-08-21 17:50:26
End at: 2018-08-21 17:50:56
Local clock offset: -11.644 ms
Remote clock offset: 3.08 ms

Below is generated by plot.py at 2018-08-21 18:45:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.86 Mbit/s
95th percentile per-packet one-way delay: 9093.717 ms
Loss rate: 96.65%
-- Flow 1:
Average throughput: 0.86 Mbit/s
95th percentile per-packet one-way delay: 9093.717 ms
Loss rate: 96.65%

Run 1: Report of FillP — Data Link

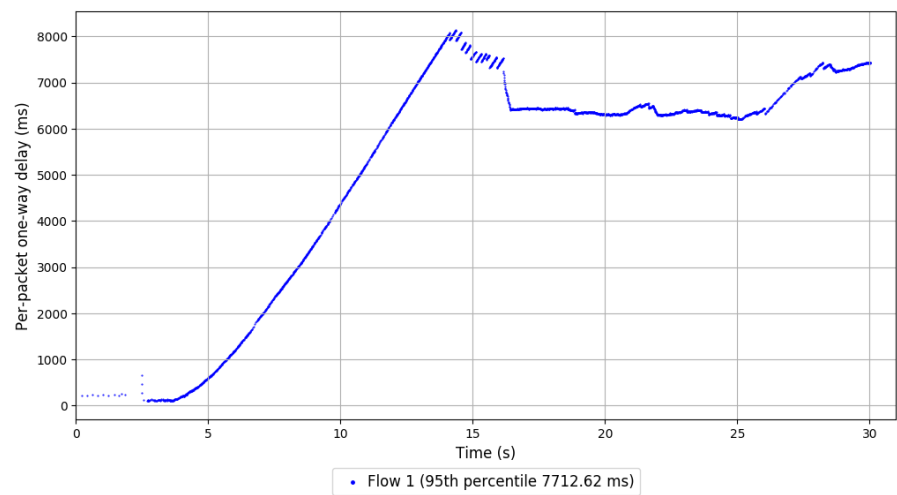
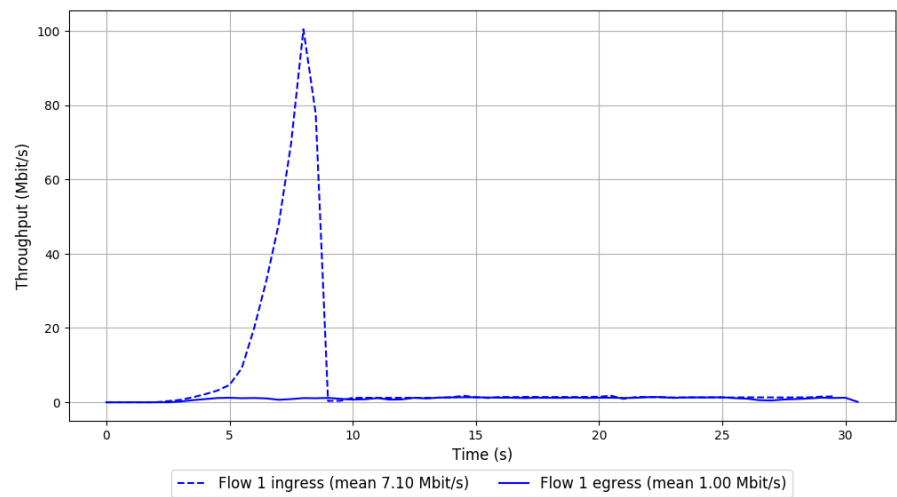


Run 2: Statistics of FillP

Start at: 2018-08-21 18:09:34
End at: 2018-08-21 18:10:04
Local clock offset: -14.466 ms
Remote clock offset: 8.972 ms

Below is generated by plot.py at 2018-08-21 18:45:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.00 Mbit/s
95th percentile per-packet one-way delay: 7712.620 ms
Loss rate: 85.99%
-- Flow 1:
Average throughput: 1.00 Mbit/s
95th percentile per-packet one-way delay: 7712.620 ms
Loss rate: 85.99%

Run 2: Report of FillP — Data Link

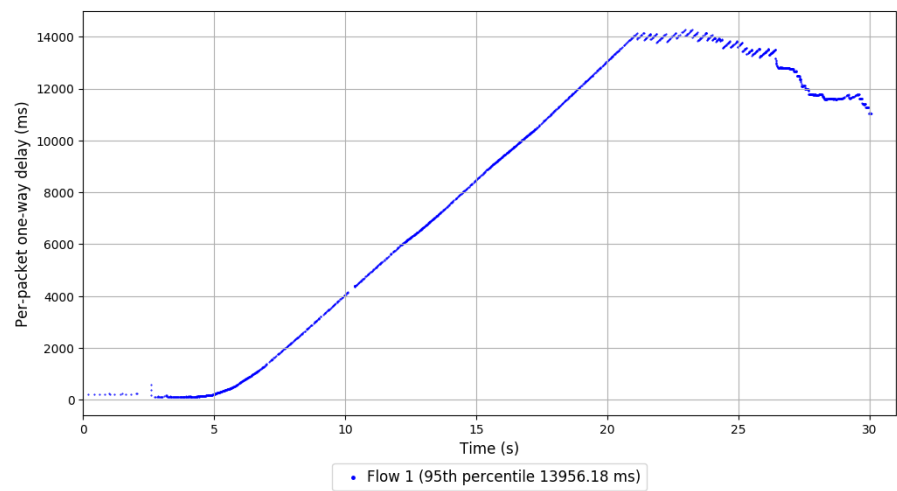
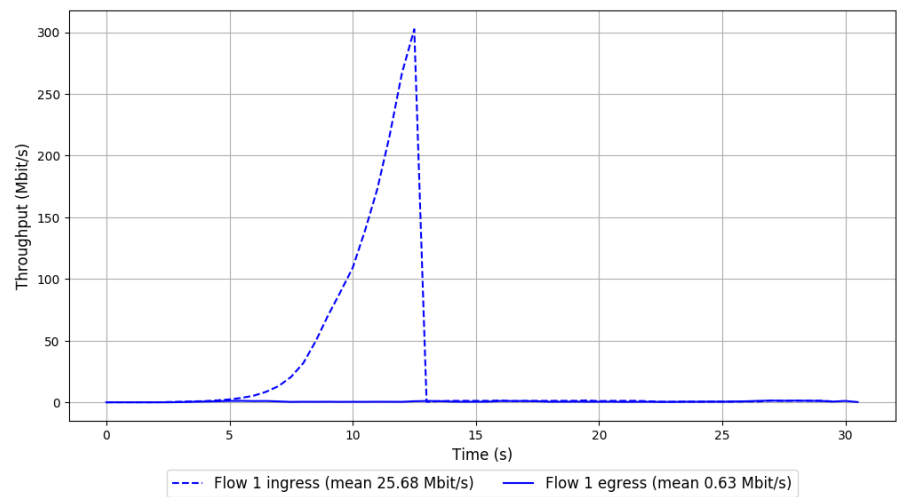


Run 3: Statistics of FillP

Start at: 2018-08-21 18:28:40
End at: 2018-08-21 18:29:10
Local clock offset: -12.288 ms
Remote clock offset: 7.913 ms

Below is generated by plot.py at 2018-08-21 18:45:24
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.63 Mbit/s
95th percentile per-packet one-way delay: 13956.176 ms
Loss rate: 97.55%
-- Flow 1:
Average throughput: 0.63 Mbit/s
95th percentile per-packet one-way delay: 13956.176 ms
Loss rate: 97.55%

Run 3: Report of FillP — Data Link



Run 1: Statistics of FillP-Sheep

Start at: 2018-08-21 17:51:34

End at: 2018-08-21 17:52:04

Local clock offset: -11.89 ms

Remote clock offset: 4.253 ms

Below is generated by plot.py at 2018-08-21 18:45:24

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.94 Mbit/s

95th percentile per-packet one-way delay: 6319.872 ms

Loss rate: 14.47%

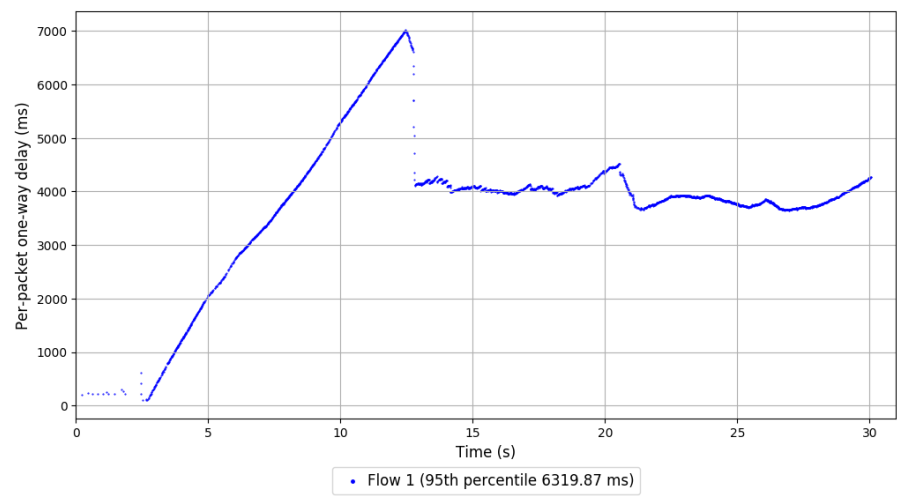
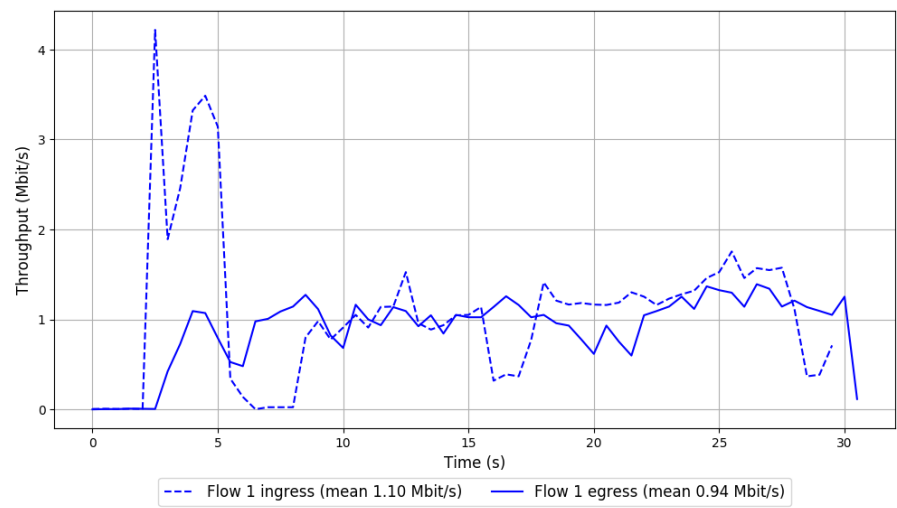
-- Flow 1:

Average throughput: 0.94 Mbit/s

95th percentile per-packet one-way delay: 6319.872 ms

Loss rate: 14.47%

Run 1: Report of FillP-Sheep — Data Link

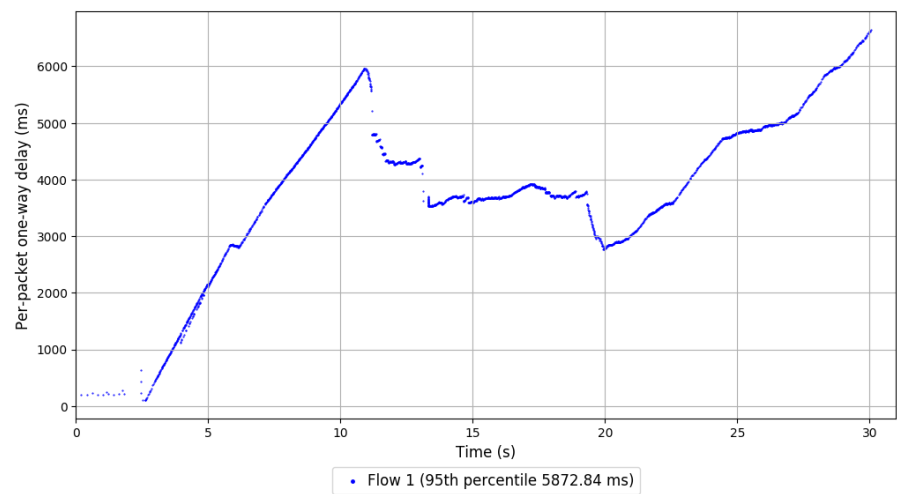
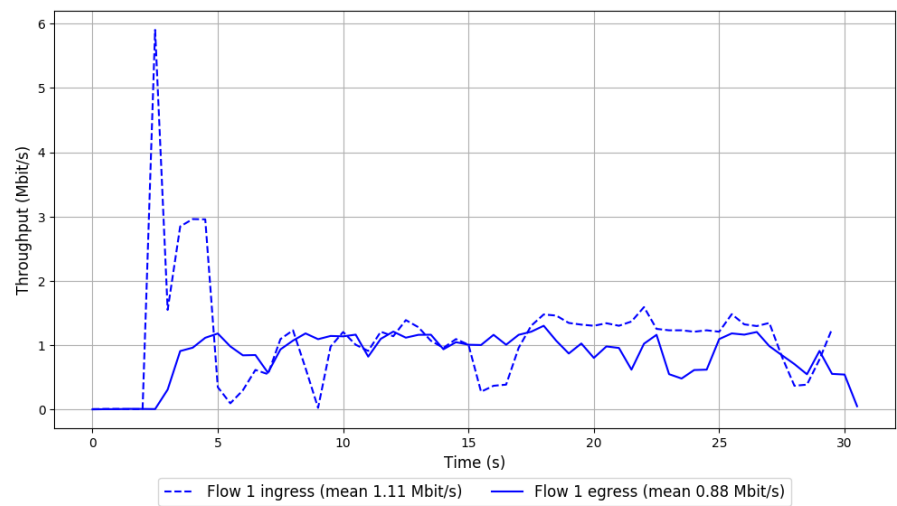


Run 2: Statistics of FillP-Sheep

Start at: 2018-08-21 18:10:42
End at: 2018-08-21 18:11:12
Local clock offset: -13.688 ms
Remote clock offset: 4.05 ms

Below is generated by plot.py at 2018-08-21 18:45:24
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.88 Mbit/s
95th percentile per-packet one-way delay: 5872.837 ms
Loss rate: 21.33%
-- Flow 1:
Average throughput: 0.88 Mbit/s
95th percentile per-packet one-way delay: 5872.837 ms
Loss rate: 21.33%

Run 2: Report of FillP-Sheep — Data Link

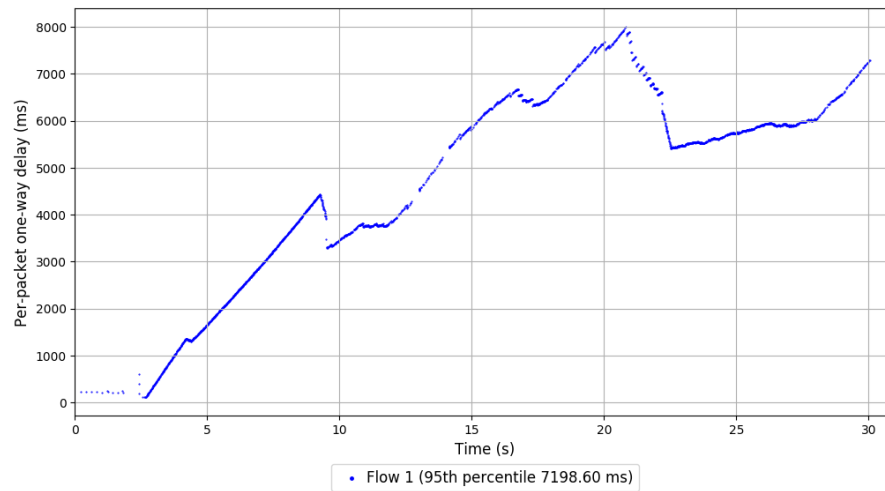
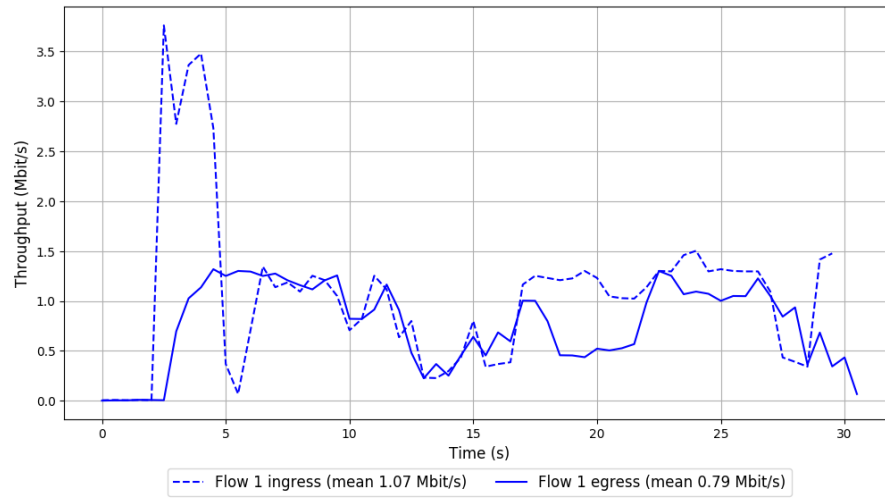


Run 3: Statistics of FillP-Sheep

Start at: 2018-08-21 18:29:48
End at: 2018-08-21 18:30:18
Local clock offset: -12.462 ms
Remote clock offset: 2.876 ms

Below is generated by plot.py at 2018-08-21 18:45:24
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.79 Mbit/s
95th percentile per-packet one-way delay: 7198.605 ms
Loss rate: 26.03%
-- Flow 1:
Average throughput: 0.79 Mbit/s
95th percentile per-packet one-way delay: 7198.605 ms
Loss rate: 26.03%

Run 3: Report of FillP-Sheep — Data Link

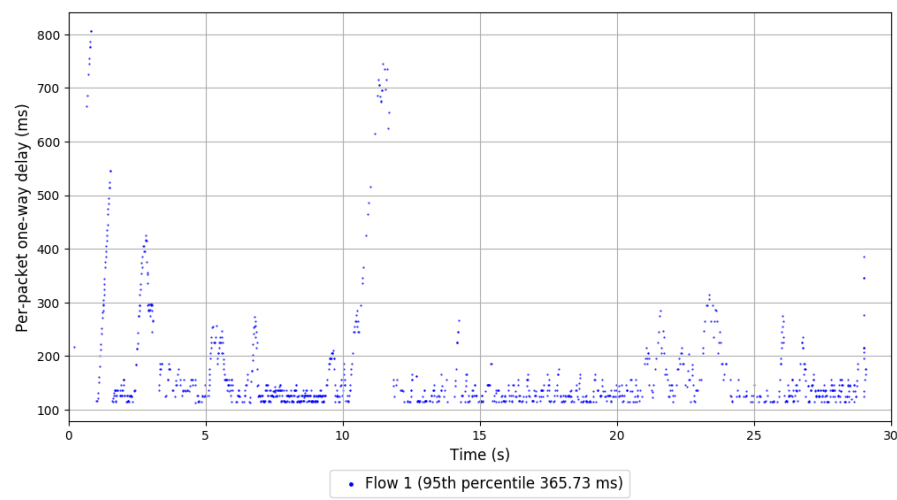
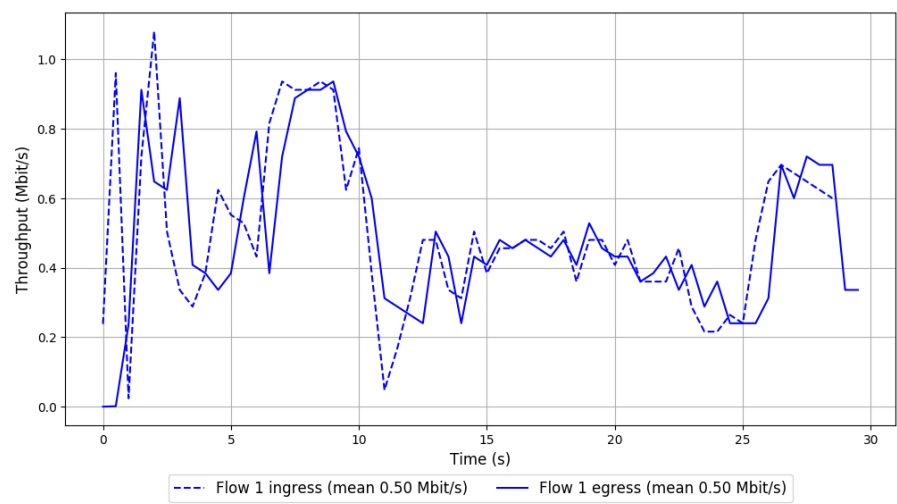


Run 1: Statistics of Indigo

Start at: 2018-08-21 17:54:56
End at: 2018-08-21 17:55:26
Local clock offset: -12.089 ms
Remote clock offset: 8.121 ms

Below is generated by plot.py at 2018-08-21 18:45:24
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 365.734 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 365.734 ms
Loss rate: 0.41%

Run 1: Report of Indigo — Data Link

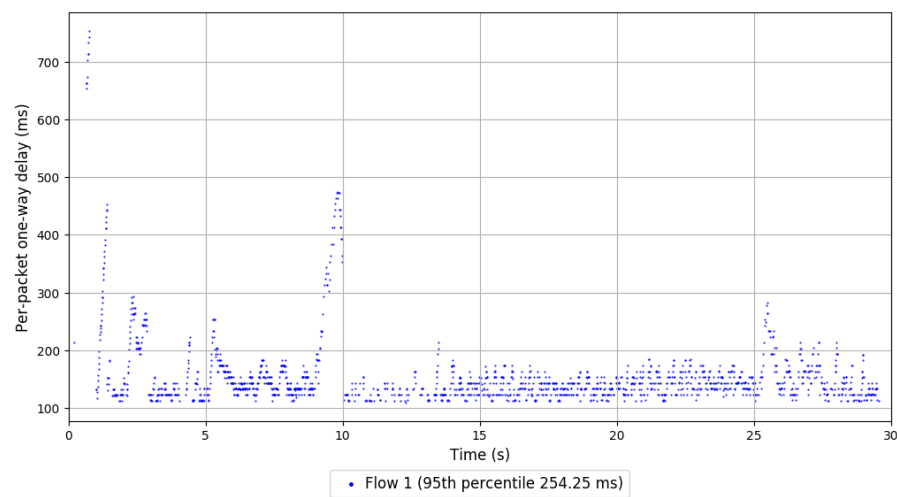
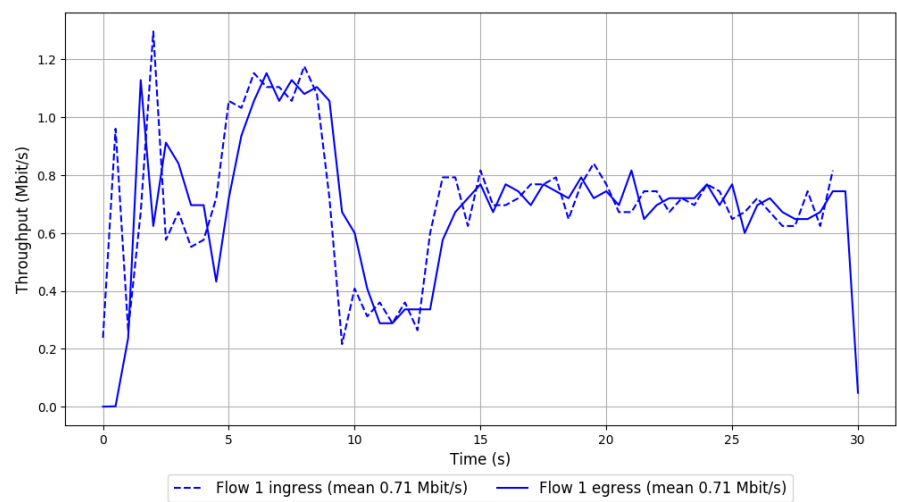


Run 2: Statistics of Indigo

Start at: 2018-08-21 18:14:04
End at: 2018-08-21 18:14:34
Local clock offset: -13.255 ms
Remote clock offset: 2.84 ms

Below is generated by plot.py at 2018-08-21 18:45:24
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.71 Mbit/s
95th percentile per-packet one-way delay: 254.250 ms
Loss rate: 0.52%
-- Flow 1:
Average throughput: 0.71 Mbit/s
95th percentile per-packet one-way delay: 254.250 ms
Loss rate: 0.52%

Run 2: Report of Indigo — Data Link

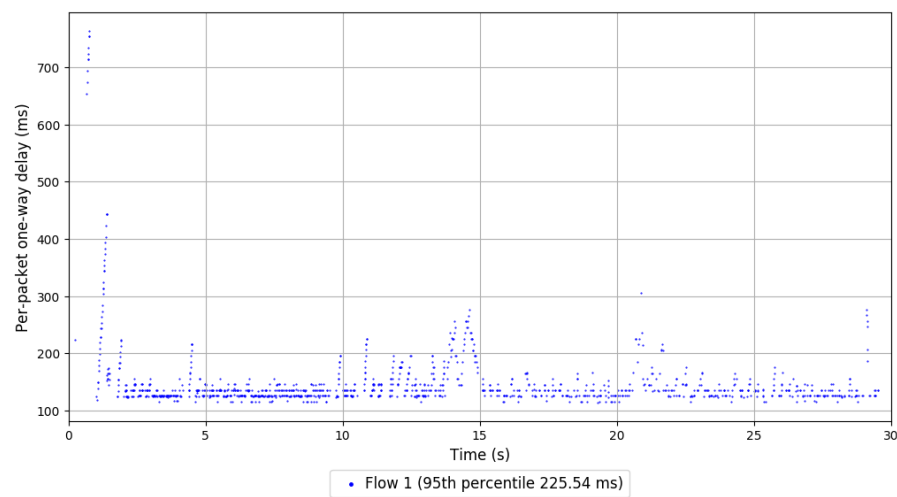
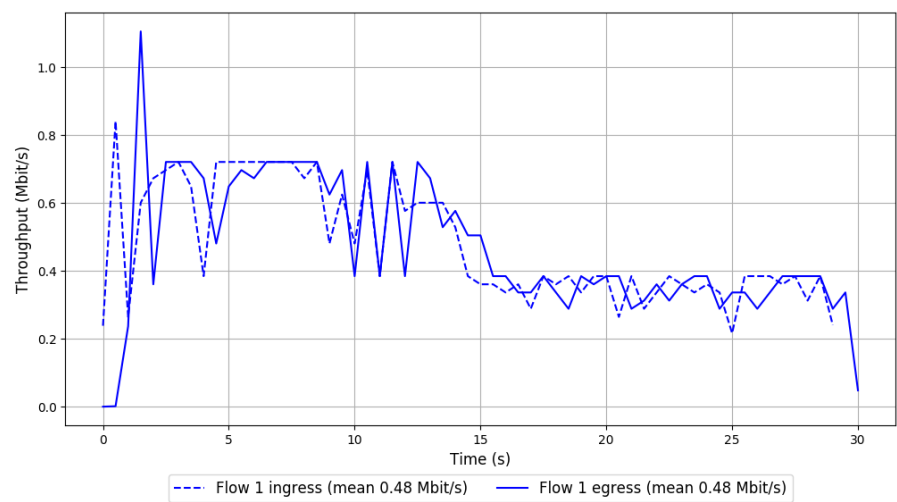


Run 3: Statistics of Indigo

Start at: 2018-08-21 18:33:10
End at: 2018-08-21 18:33:40
Local clock offset: -13.768 ms
Remote clock offset: 8.636 ms

Below is generated by plot.py at 2018-08-21 18:45:24
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.48 Mbit/s
95th percentile per-packet one-way delay: 225.538 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.48 Mbit/s
95th percentile per-packet one-way delay: 225.538 ms
Loss rate: 0.00%

Run 3: Report of Indigo — Data Link

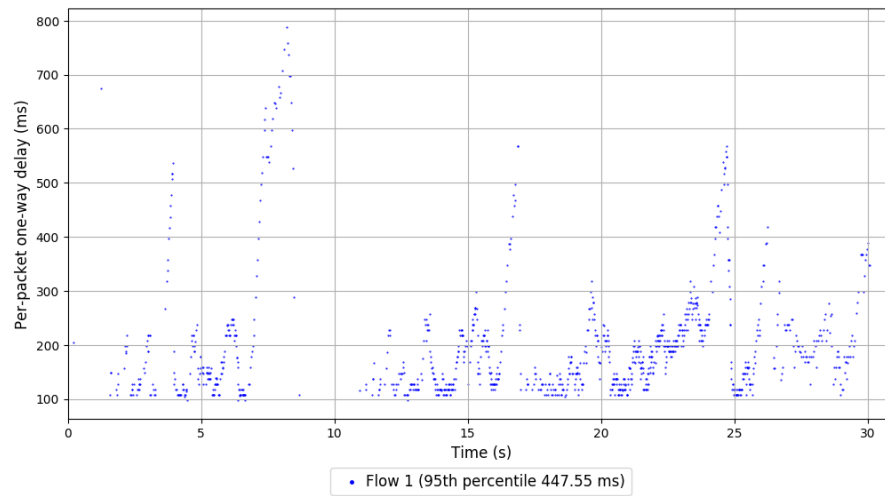
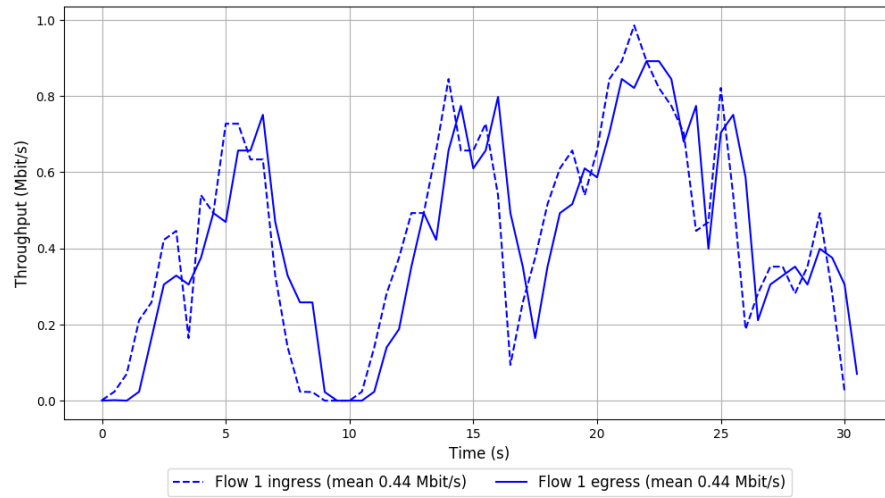


```
Run 1: Statistics of LEDBAT

Start at: 2018-08-21 18:06:12
End at: 2018-08-21 18:06:42
Local clock offset: -14.812 ms
Remote clock offset: 3.037 ms

# Below is generated by plot.py at 2018-08-21 18:45:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 447.548 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 447.548 ms
Loss rate: 0.63%
```

Run 1: Report of LEDBAT — Data Link

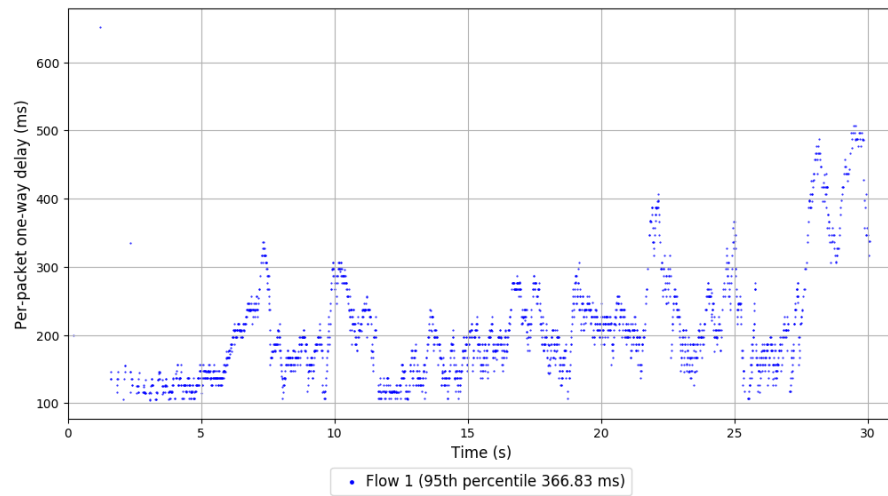
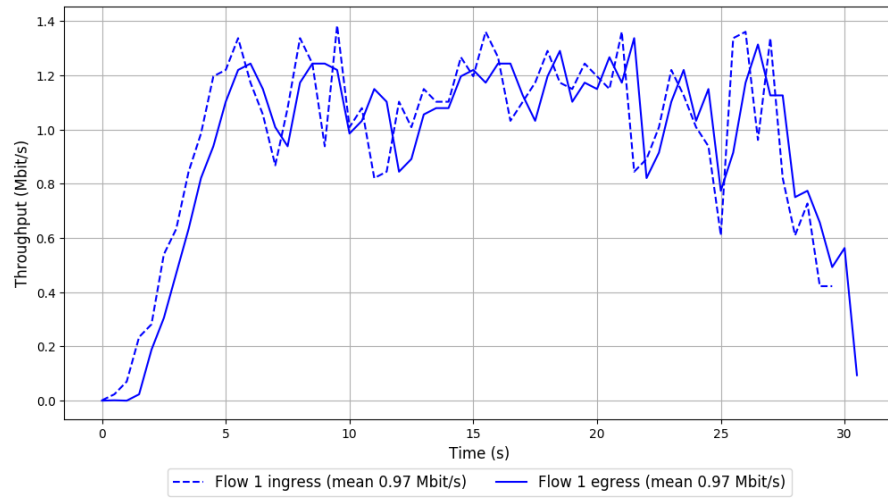


Run 2: Statistics of LEDBAT

Start at: 2018-08-21 18:25:18
End at: 2018-08-21 18:25:48
Local clock offset: -11.938 ms
Remote clock offset: 7.877 ms

Below is generated by plot.py at 2018-08-21 18:45:24
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.97 Mbit/s
95th percentile per-packet one-way delay: 366.832 ms
Loss rate: 0.36%
-- Flow 1:
Average throughput: 0.97 Mbit/s
95th percentile per-packet one-way delay: 366.832 ms
Loss rate: 0.36%

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2018-08-21 18:44:25

End at: 2018-08-21 18:44:55

Local clock offset: -8.867 ms

Remote clock offset: 0.98 ms

Below is generated by plot.py at 2018-08-21 18:45:24

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.93 Mbit/s

95th percentile per-packet one-way delay: 302.659 ms

Loss rate: 0.17%

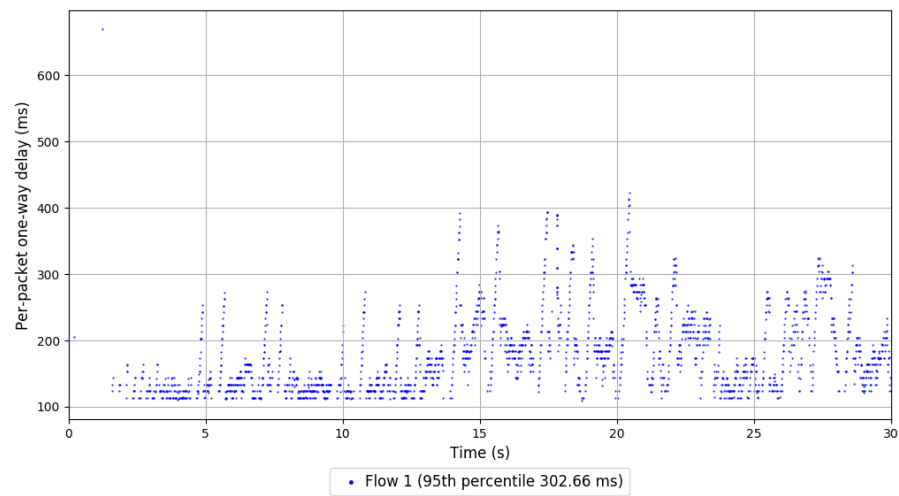
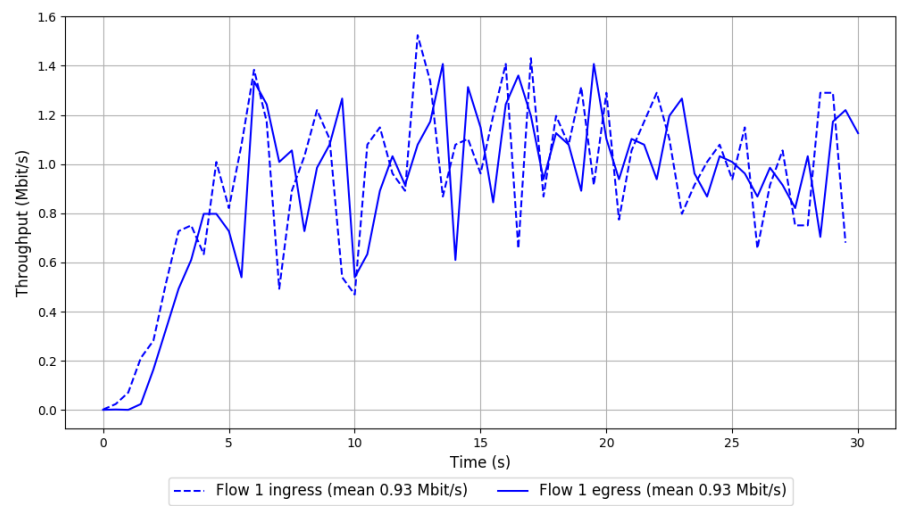
-- Flow 1:

Average throughput: 0.93 Mbit/s

95th percentile per-packet one-way delay: 302.659 ms

Loss rate: 0.17%

Run 3: Report of LEDBAT — Data Link

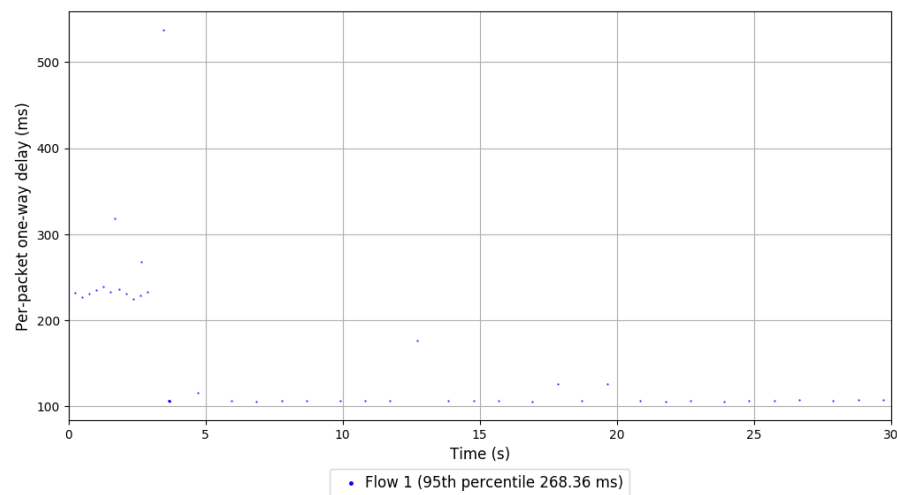
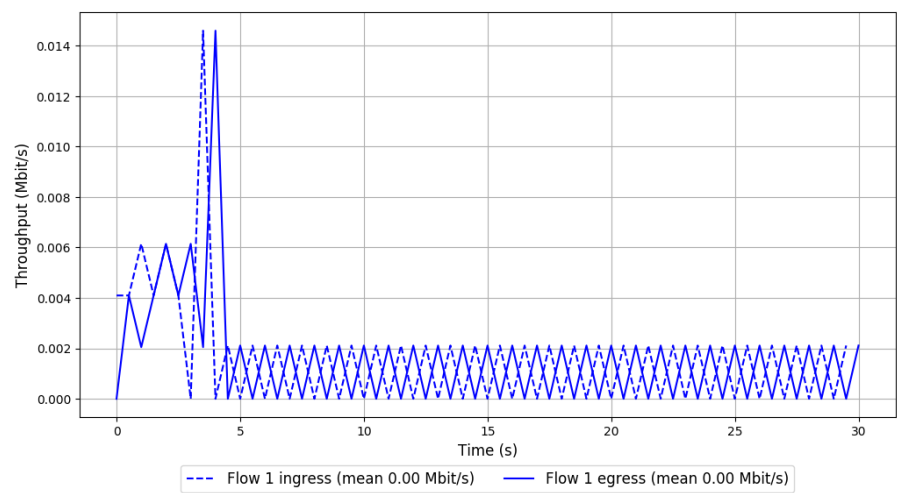


```
Run 1: Statistics of PCC-Allegro

Start at: 2018-08-21 17:58:20
End at: 2018-08-21 17:58:50
Local clock offset: -13.085 ms
Remote clock offset: 6.893 ms

# Below is generated by plot.py at 2018-08-21 18:45:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 268.355 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 268.355 ms
Loss rate: 0.00%
```

Run 1: Report of PCC-Allegro — Data Link

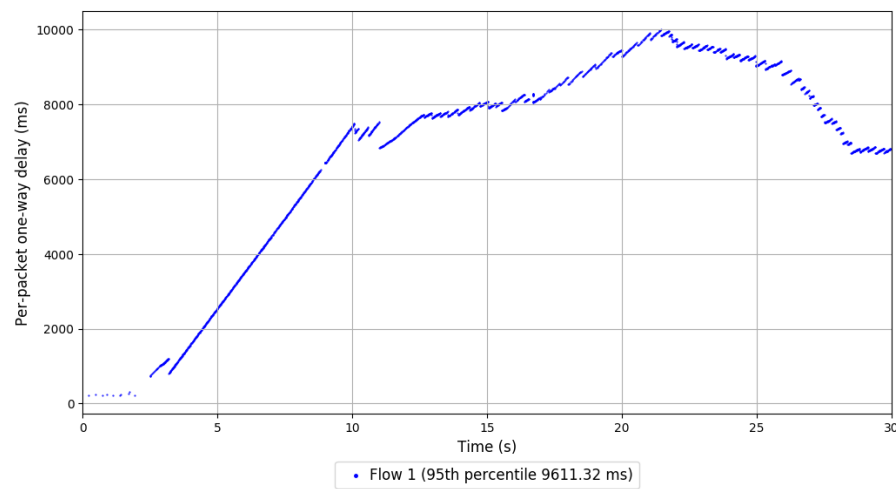
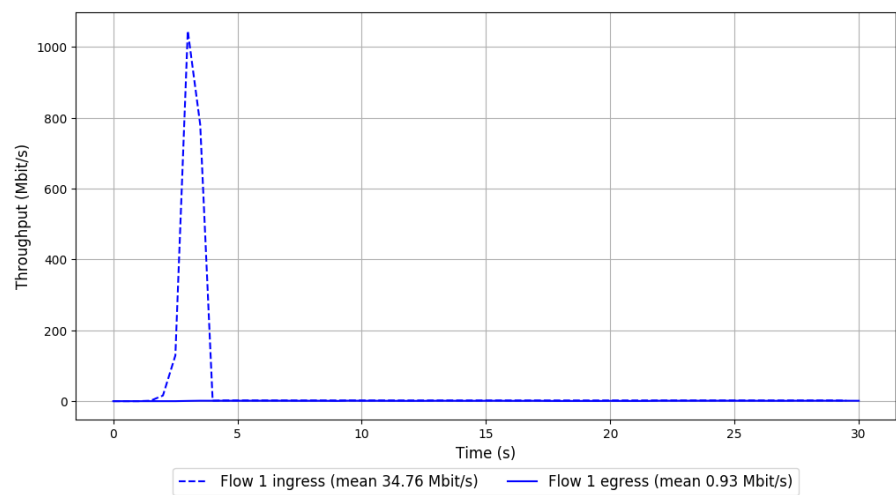


Run 2: Statistics of PCC-Allegro

Start at: 2018-08-21 18:17:26
End at: 2018-08-21 18:17:56
Local clock offset: -11.864 ms
Remote clock offset: 3.942 ms

Below is generated by plot.py at 2018-08-21 18:45:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.93 Mbit/s
95th percentile per-packet one-way delay: 9611.317 ms
Loss rate: 97.33%
-- Flow 1:
Average throughput: 0.93 Mbit/s
95th percentile per-packet one-way delay: 9611.317 ms
Loss rate: 97.33%

Run 2: Report of PCC-Allegro — Data Link

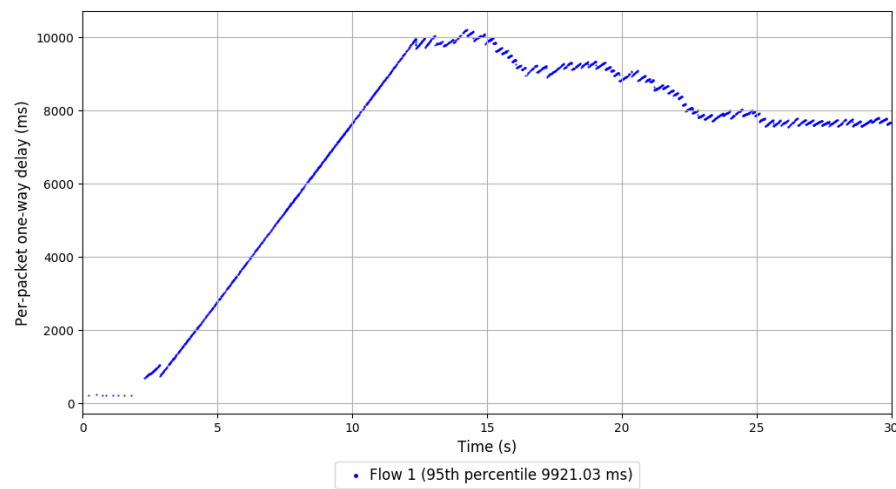
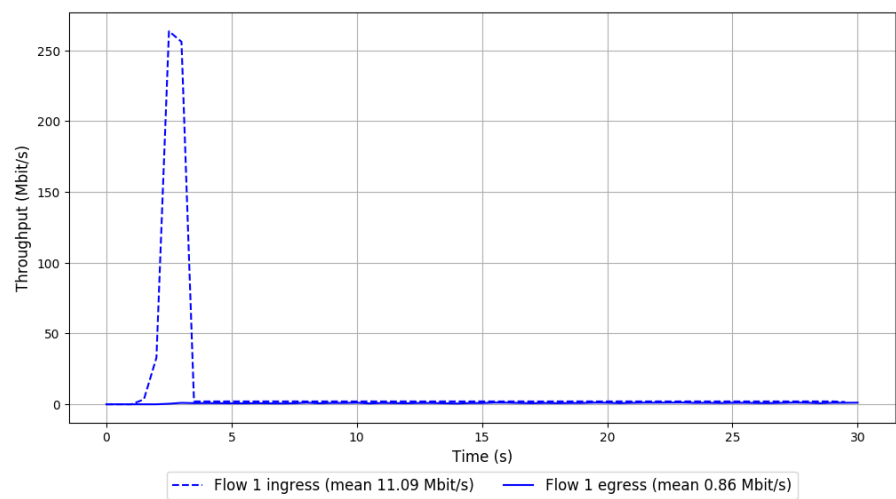


Run 3: Statistics of PCC-Allegro

Start at: 2018-08-21 18:36:31
End at: 2018-08-21 18:37:01
Local clock offset: -14.423 ms
Remote clock offset: 1.848 ms

Below is generated by plot.py at 2018-08-21 18:45:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.86 Mbit/s
95th percentile per-packet one-way delay: 9921.030 ms
Loss rate: 92.25%
-- Flow 1:
Average throughput: 0.86 Mbit/s
95th percentile per-packet one-way delay: 9921.030 ms
Loss rate: 92.25%

Run 3: Report of PCC-Allegro — Data Link

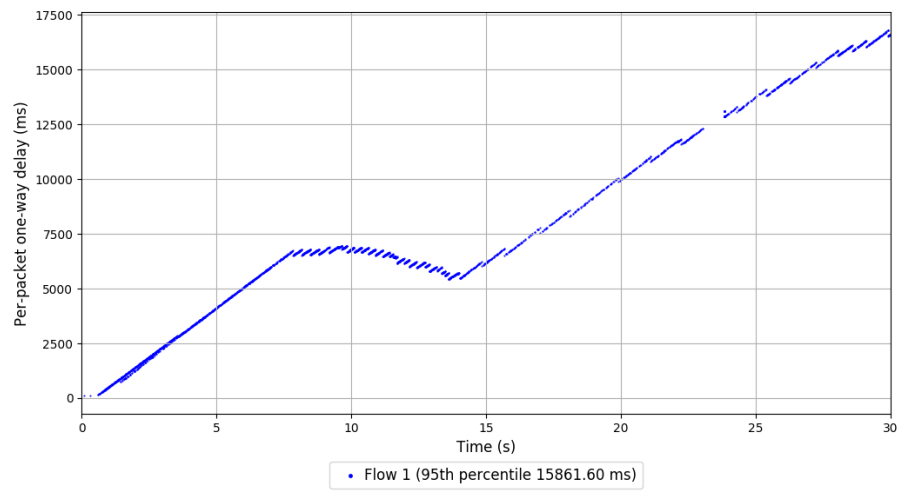
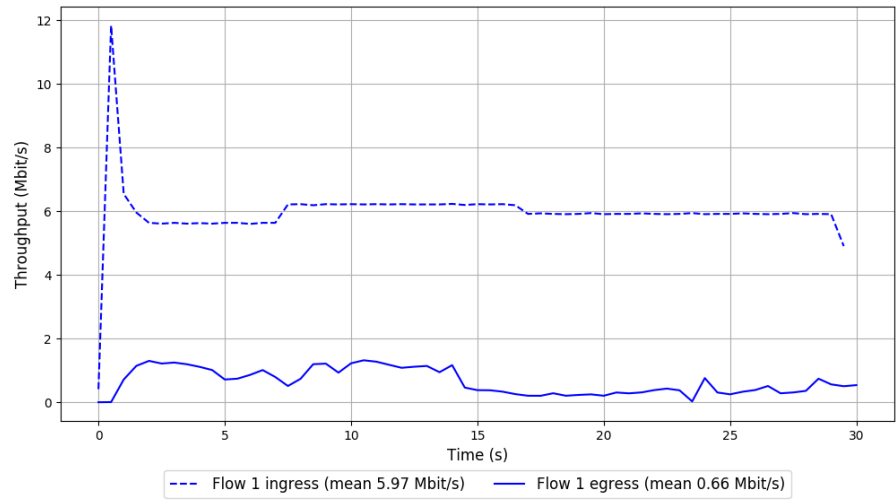


Run 1: Statistics of PCC-Expr

Start at: 2018-08-21 17:59:28
End at: 2018-08-21 17:59:58
Local clock offset: -13.375 ms
Remote clock offset: 3.152 ms

Below is generated by plot.py at 2018-08-21 18:45:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.66 Mbit/s
95th percentile per-packet one-way delay: 15861.605 ms
Loss rate: 88.99%
-- Flow 1:
Average throughput: 0.66 Mbit/s
95th percentile per-packet one-way delay: 15861.605 ms
Loss rate: 88.99%

Run 1: Report of PCC-Expr — Data Link

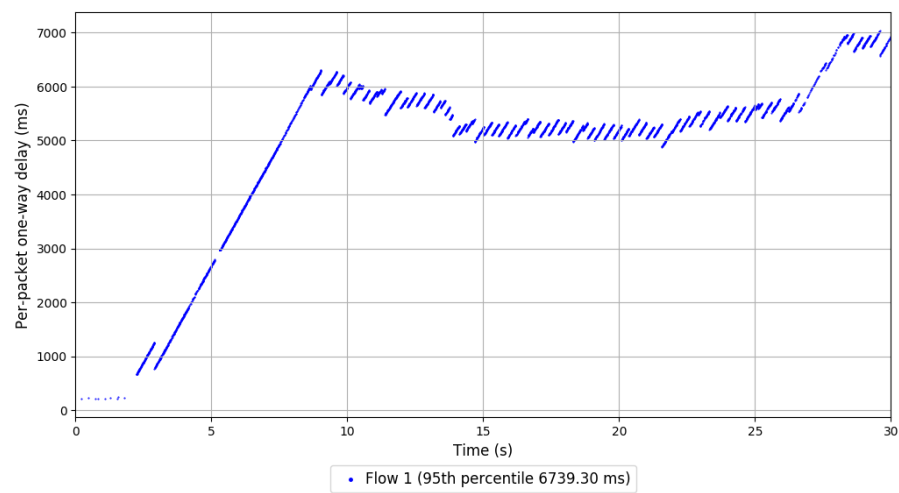
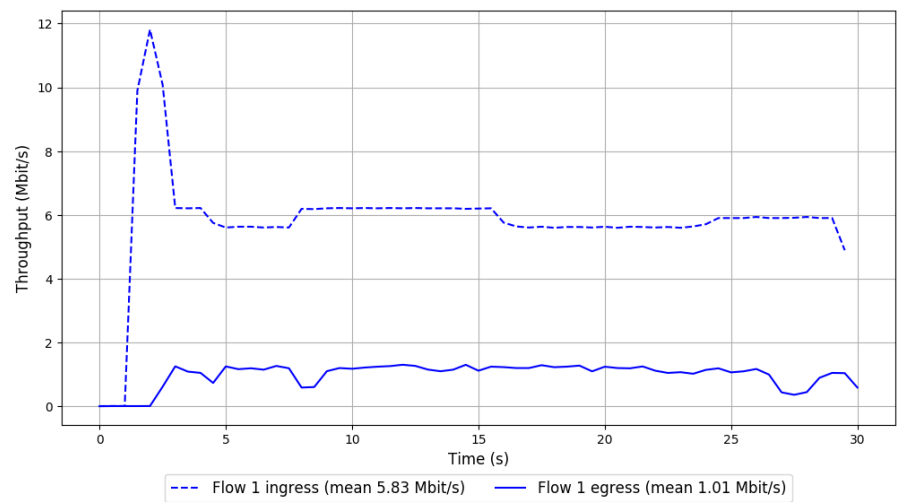


Run 2: Statistics of PCC-Expr

Start at: 2018-08-21 18:18:33
End at: 2018-08-21 18:19:04
Local clock offset: -12.585 ms
Remote clock offset: 8.849 ms

Below is generated by plot.py at 2018-08-21 18:45:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.01 Mbit/s
95th percentile per-packet one-way delay: 6739.295 ms
Loss rate: 82.74%
-- Flow 1:
Average throughput: 1.01 Mbit/s
95th percentile per-packet one-way delay: 6739.295 ms
Loss rate: 82.74%

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2018-08-21 18:37:39

End at: 2018-08-21 18:38:09

Local clock offset: -12.77 ms

Remote clock offset: 6.655 ms

Below is generated by plot.py at 2018-08-21 18:45:31

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.46 Mbit/s

95th percentile per-packet one-way delay: 14018.867 ms

Loss rate: 92.04%

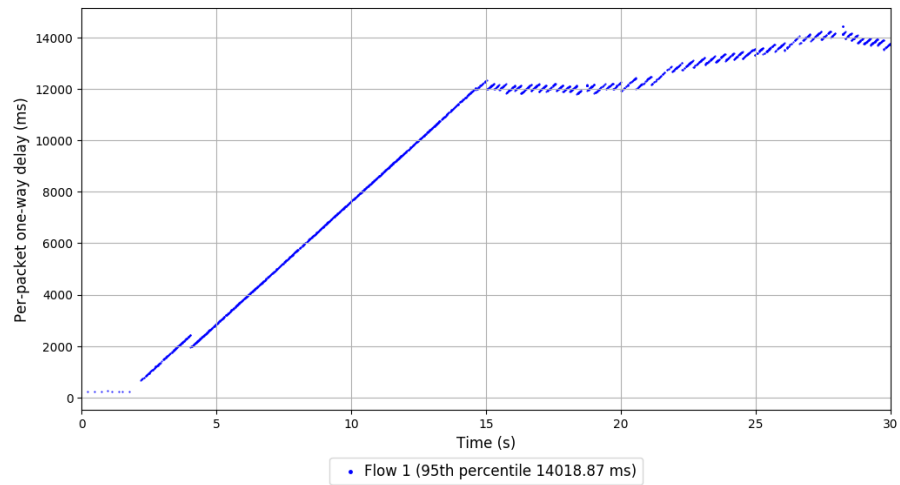
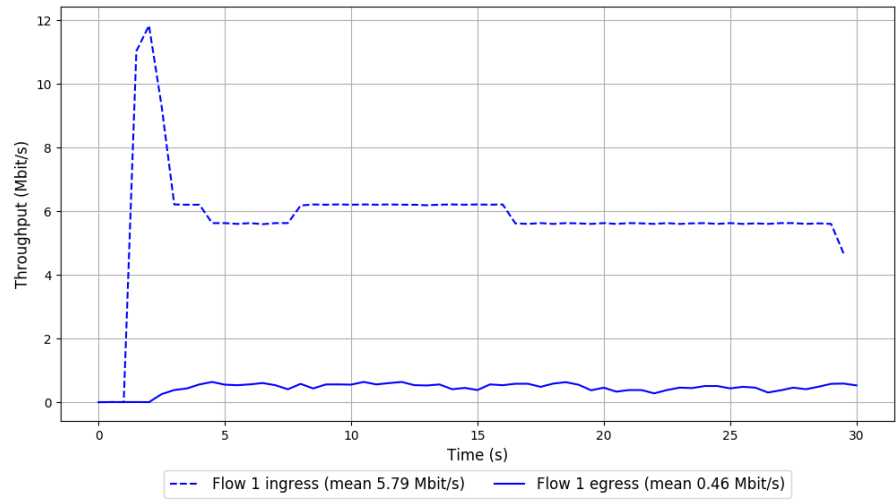
-- Flow 1:

Average throughput: 0.46 Mbit/s

95th percentile per-packet one-way delay: 14018.867 ms

Loss rate: 92.04%

Run 3: Report of PCC-Expr — Data Link

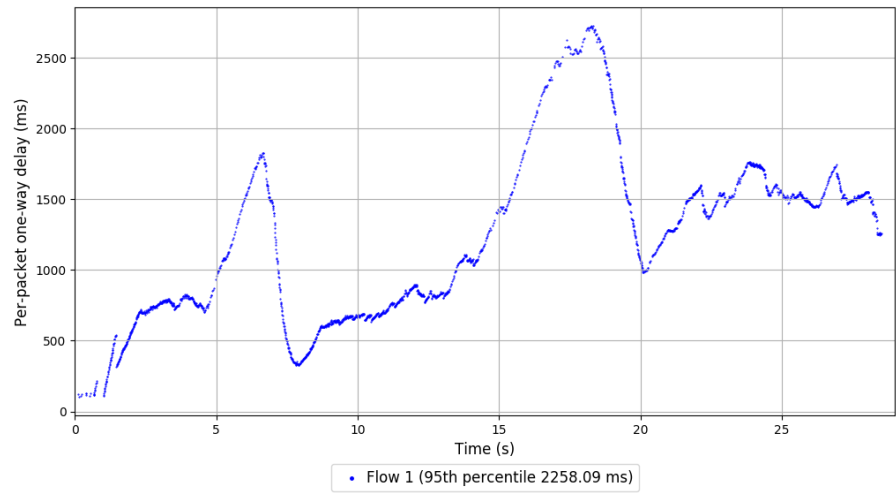
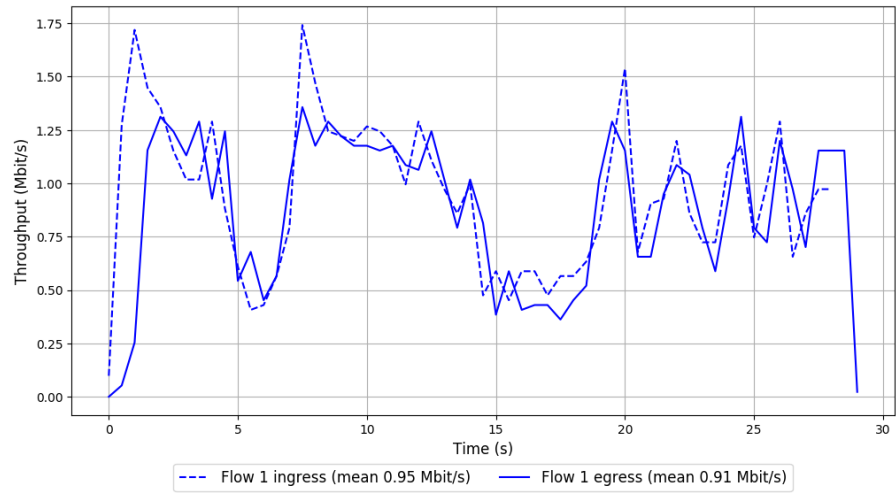


Run 1: Statistics of QUIC Cubic

Start at: 2018-08-21 17:49:18
End at: 2018-08-21 17:49:48
Local clock offset: -10.646 ms
Remote clock offset: 3.044 ms

Below is generated by plot.py at 2018-08-21 18:45:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.91 Mbit/s
95th percentile per-packet one-way delay: 2258.085 ms
Loss rate: 4.61%
-- Flow 1:
Average throughput: 0.91 Mbit/s
95th percentile per-packet one-way delay: 2258.085 ms
Loss rate: 4.61%

Run 1: Report of QUIC Cubic — Data Link

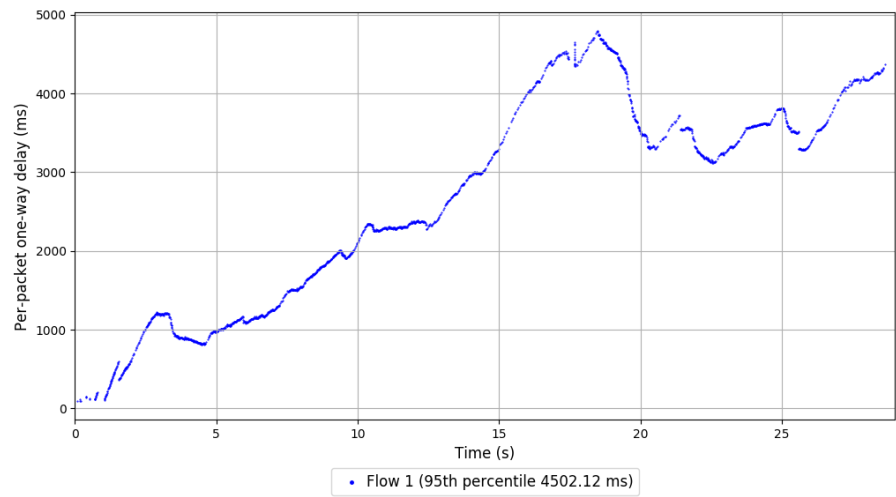
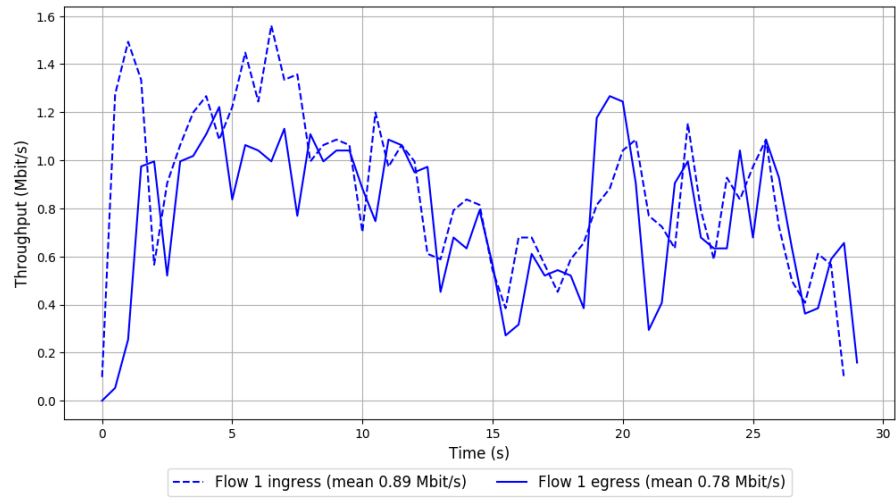


Run 2: Statistics of QUIC Cubic

Start at: 2018-08-21 18:08:27
End at: 2018-08-21 18:08:57
Local clock offset: -15.087 ms
Remote clock offset: 7.859 ms

Below is generated by plot.py at 2018-08-21 18:45:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.78 Mbit/s
95th percentile per-packet one-way delay: 4502.118 ms
Loss rate: 12.11%
-- Flow 1:
Average throughput: 0.78 Mbit/s
95th percentile per-packet one-way delay: 4502.118 ms
Loss rate: 12.11%

Run 2: Report of QUIC Cubic — Data Link

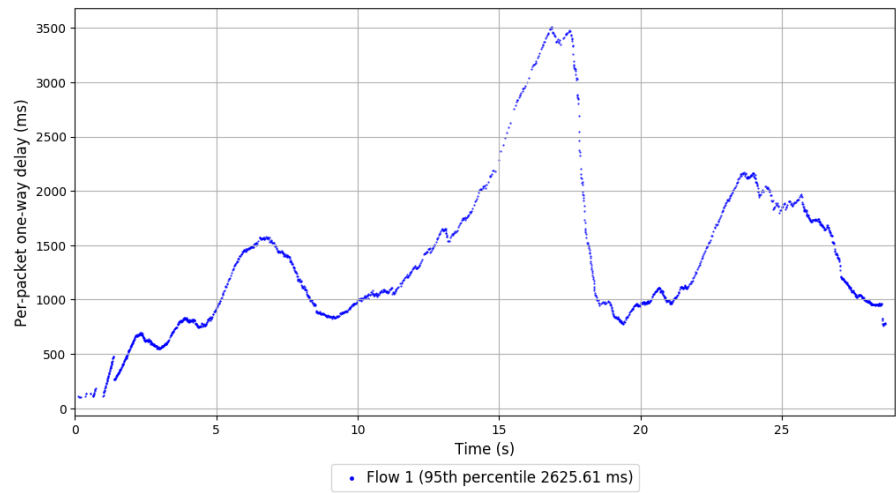
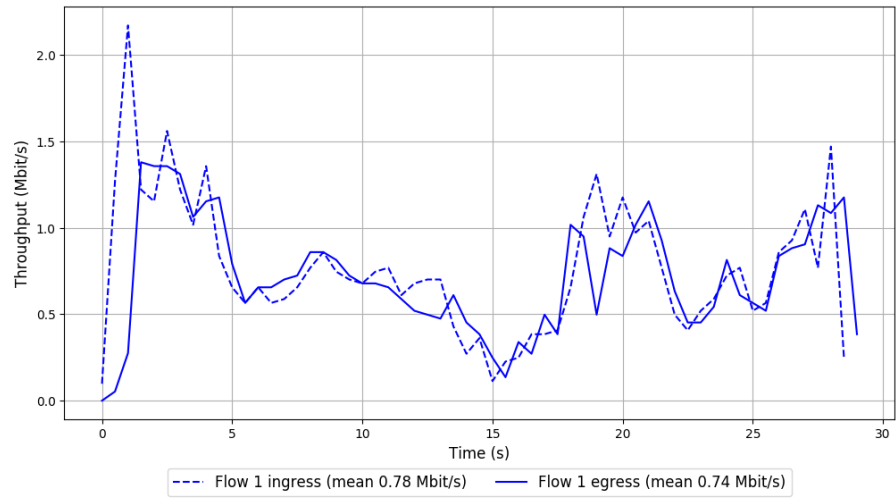


Run 3: Statistics of QUIC Cubic

Start at: 2018-08-21 18:27:32
End at: 2018-08-21 18:28:02
Local clock offset: -12.155 ms
Remote clock offset: 3.909 ms

Below is generated by plot.py at 2018-08-21 18:45:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.74 Mbit/s
95th percentile per-packet one-way delay: 2625.608 ms
Loss rate: 4.80%
-- Flow 1:
Average throughput: 0.74 Mbit/s
95th percentile per-packet one-way delay: 2625.608 ms
Loss rate: 4.80%

Run 3: Report of QUIC Cubic — Data Link

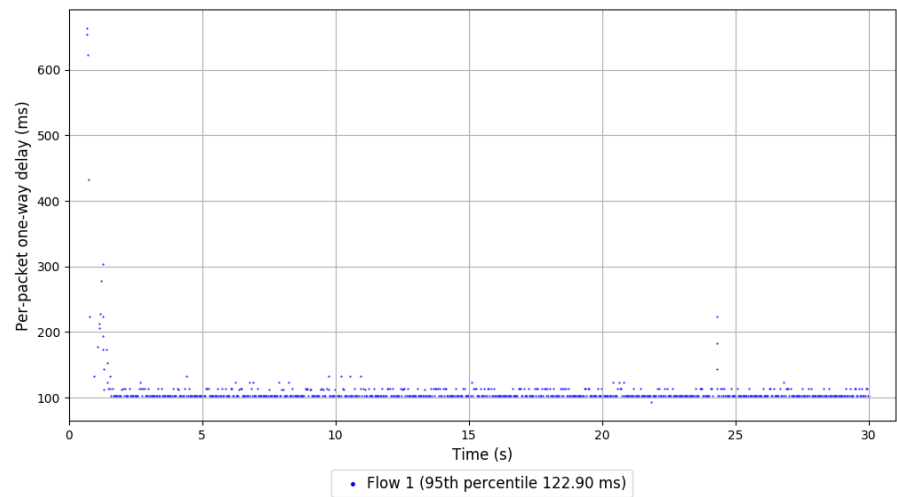
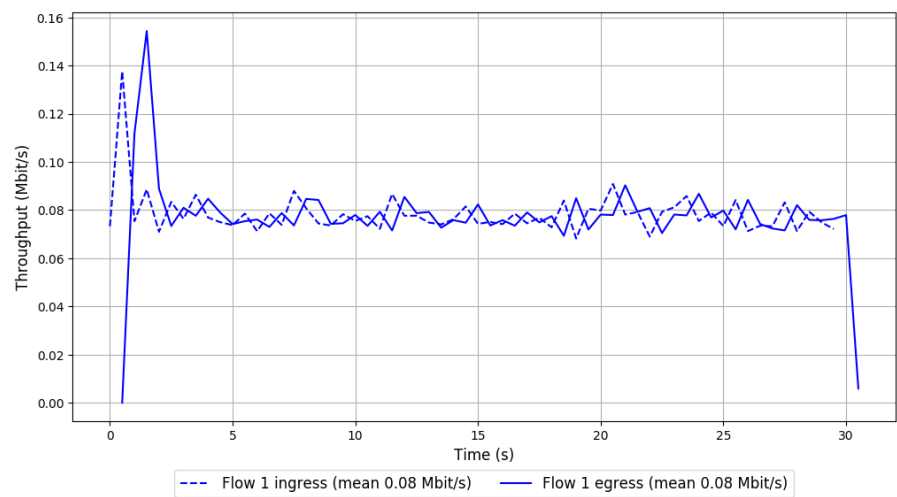


Run 1: Statistics of SCReAM

Start at: 2018-08-21 17:52:42
End at: 2018-08-21 17:53:12
Local clock offset: -10.648 ms
Remote clock offset: 3.148 ms

Below is generated by plot.py at 2018-08-21 18:45:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 122.899 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 122.899 ms
Loss rate: 0.13%

Run 1: Report of SReAM — Data Link



Run 2: Statistics of SCReAM

Start at: 2018-08-21 18:11:49

End at: 2018-08-21 18:12:19

Local clock offset: -13.98 ms

Remote clock offset: 2.927 ms

Below is generated by plot.py at 2018-08-21 18:45:31

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 124.836 ms

Loss rate: 0.16%

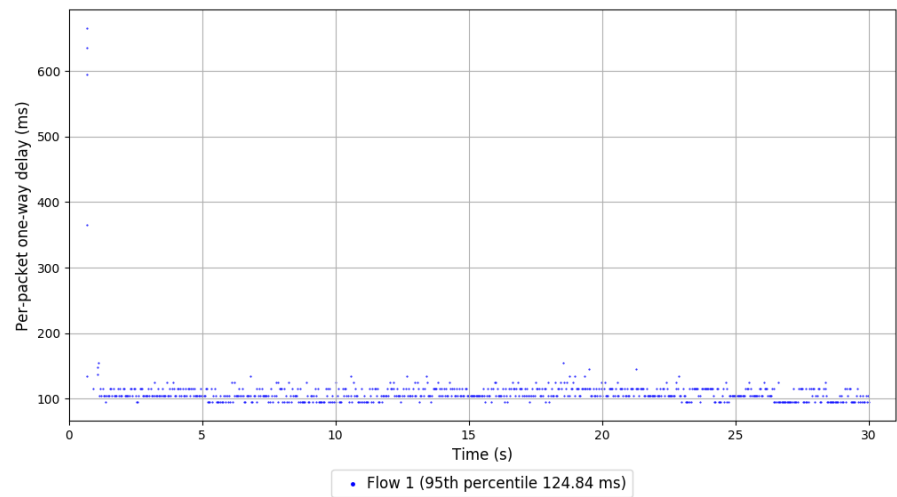
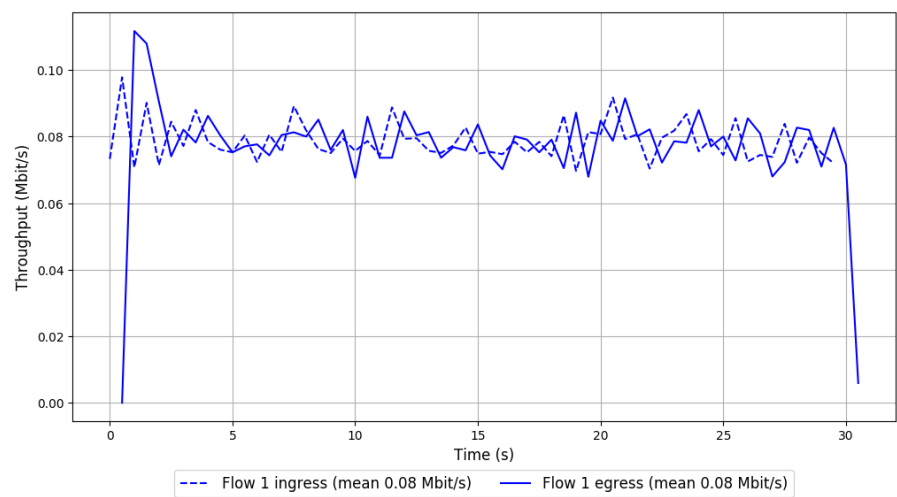
-- Flow 1:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 124.836 ms

Loss rate: 0.16%

Run 2: Report of SReAM — Data Link

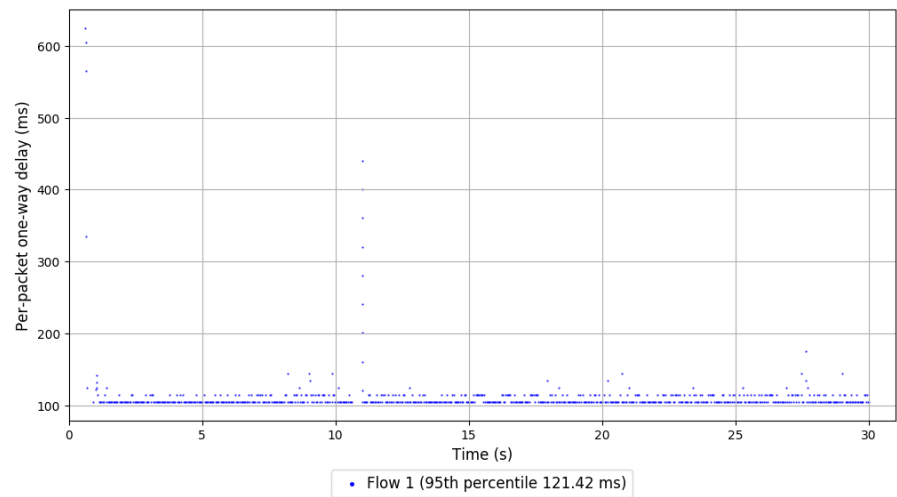
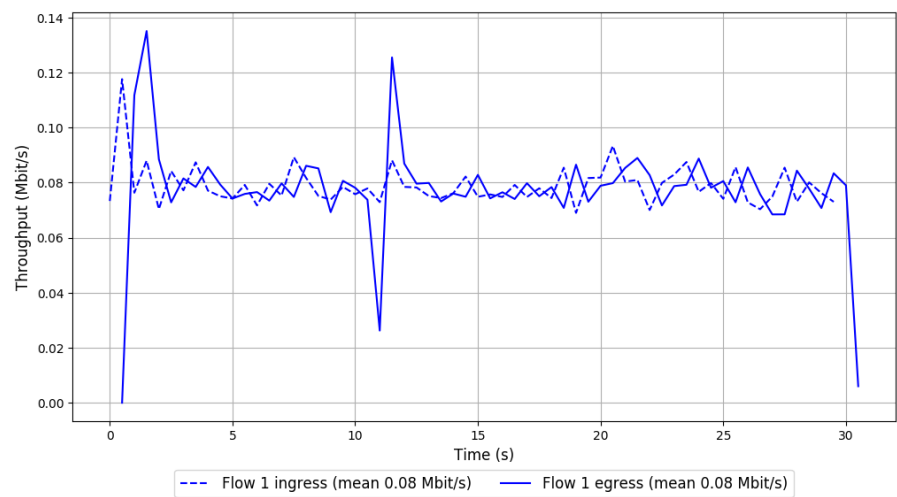


Run 3: Statistics of SCReAM

Start at: 2018-08-21 18:30:55
End at: 2018-08-21 18:31:25
Local clock offset: -13.423 ms
Remote clock offset: 3.009 ms

Below is generated by plot.py at 2018-08-21 18:45:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 121.421 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 121.421 ms
Loss rate: 0.24%

Run 3: Report of SReAM — Data Link

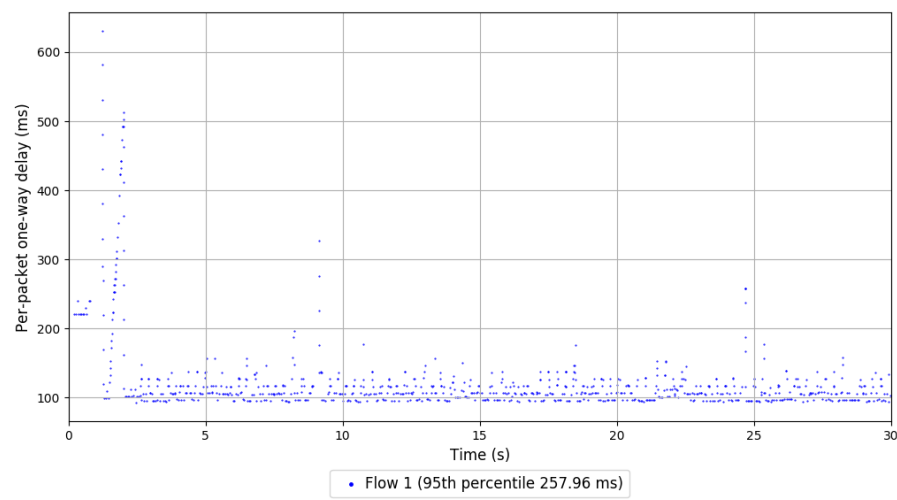
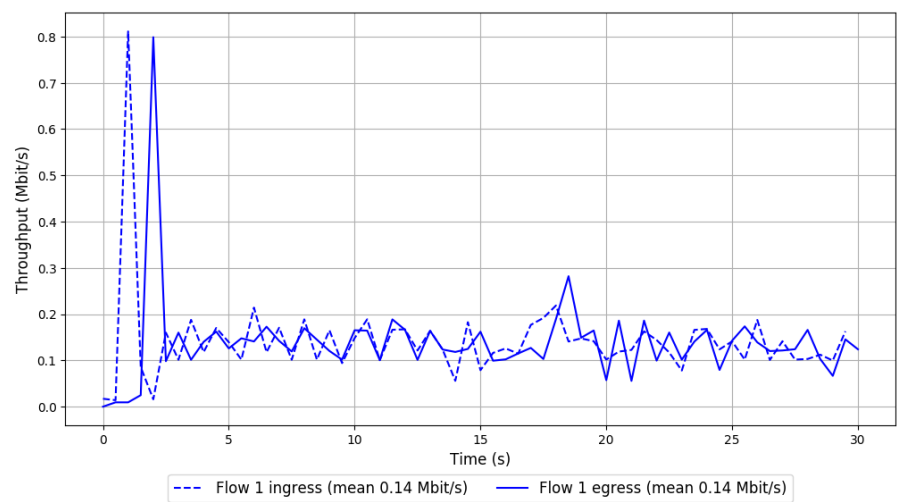


Run 1: Statistics of Sprout

Start at: 2018-08-21 18:05:05
End at: 2018-08-21 18:05:35
Local clock offset: -14.333 ms
Remote clock offset: 3.077 ms

Below is generated by plot.py at 2018-08-21 18:45:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 257.957 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 257.957 ms
Loss rate: 0.51%

Run 1: Report of Sprout — Data Link



Run 2: Statistics of Sprout

Start at: 2018-08-21 18:24:11

End at: 2018-08-21 18:24:41

Local clock offset: -11.83 ms

Remote clock offset: 8.938 ms

Below is generated by plot.py at 2018-08-21 18:45:31

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.13 Mbit/s

95th percentile per-packet one-way delay: 274.688 ms

Loss rate: 0.00%

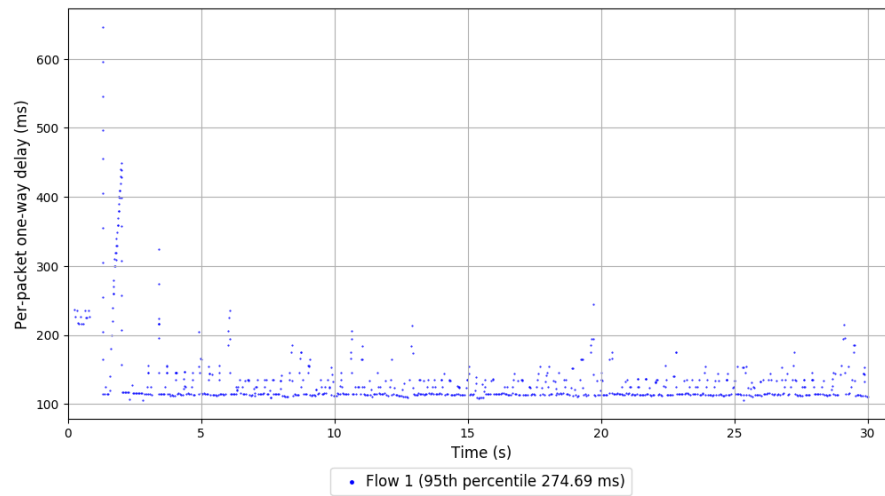
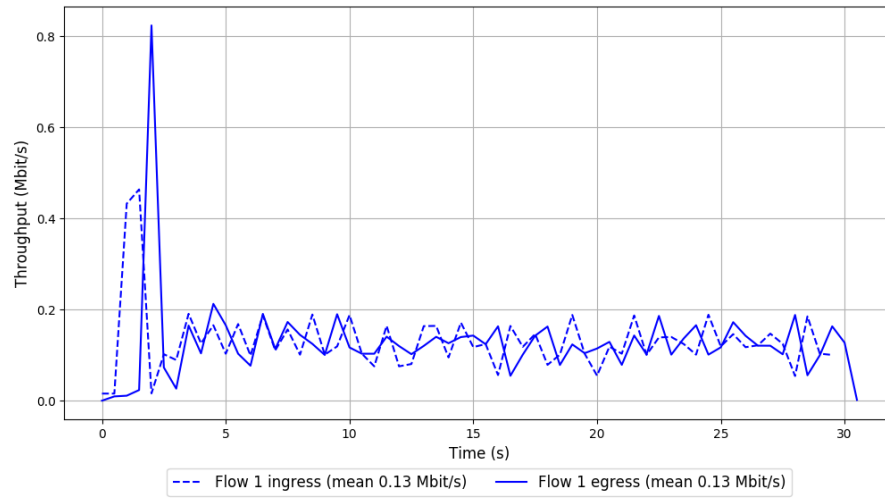
-- Flow 1:

Average throughput: 0.13 Mbit/s

95th percentile per-packet one-way delay: 274.688 ms

Loss rate: 0.00%

Run 2: Report of Sprout — Data Link



Run 3: Statistics of Sprout

Start at: 2018-08-21 18:43:16

End at: 2018-08-21 18:43:46

Local clock offset: -9.31 ms

Remote clock offset: 5.021 ms

Below is generated by plot.py at 2018-08-21 18:45:31

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.15 Mbit/s

95th percentile per-packet one-way delay: 293.751 ms

Loss rate: 0.04%

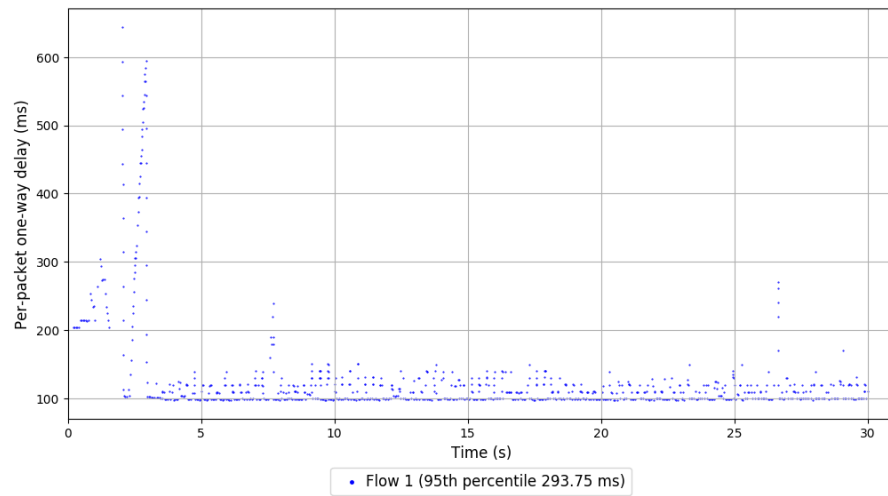
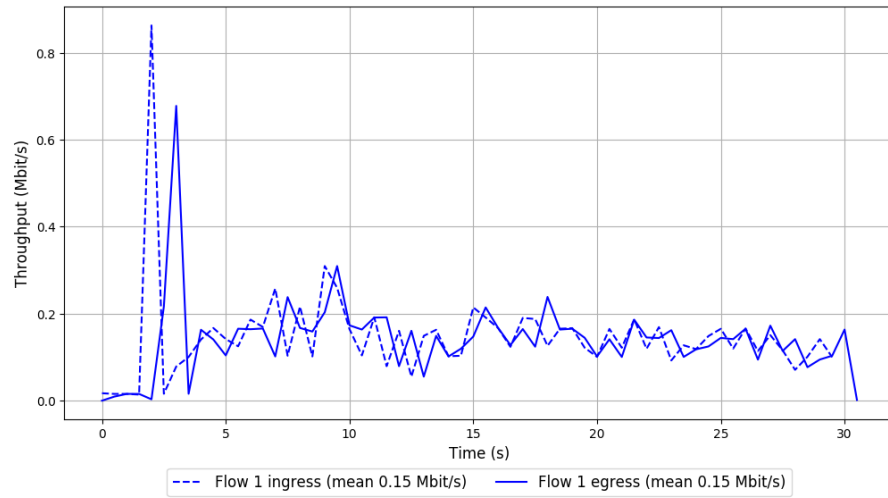
-- Flow 1:

Average throughput: 0.15 Mbit/s

95th percentile per-packet one-way delay: 293.751 ms

Loss rate: 0.04%

Run 3: Report of Sprout — Data Link

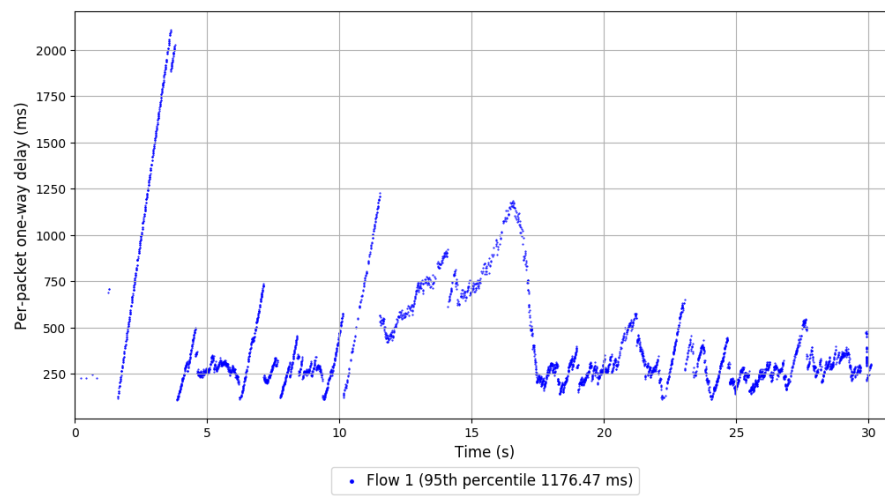
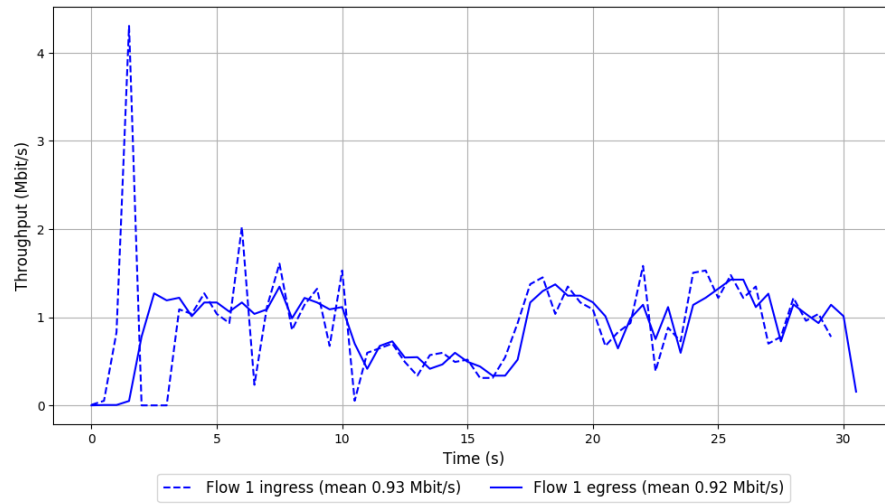


Run 1: Statistics of TaoVA-100x

Start at: 2018-08-21 17:48:11
End at: 2018-08-21 17:48:41
Local clock offset: -10.406 ms
Remote clock offset: 8.966 ms

Below is generated by plot.py at 2018-08-21 18:45:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.92 Mbit/s
95th percentile per-packet one-way delay: 1176.474 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 0.92 Mbit/s
95th percentile per-packet one-way delay: 1176.474 ms
Loss rate: 0.46%

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

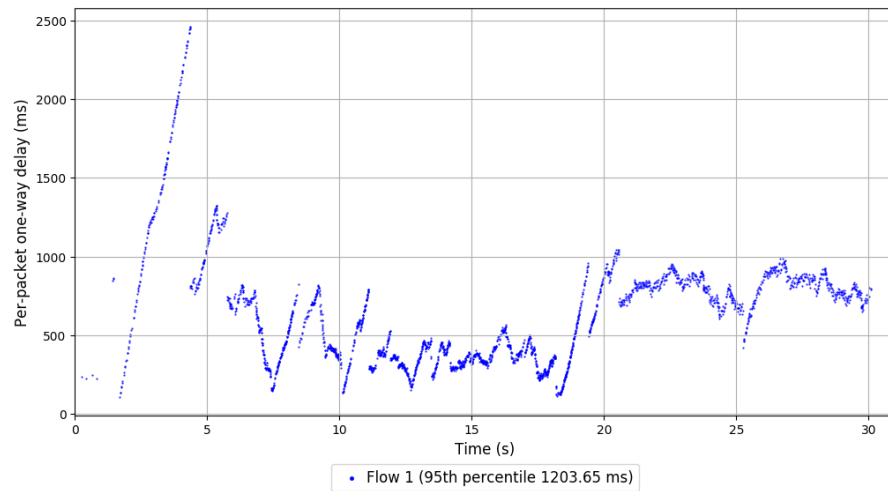
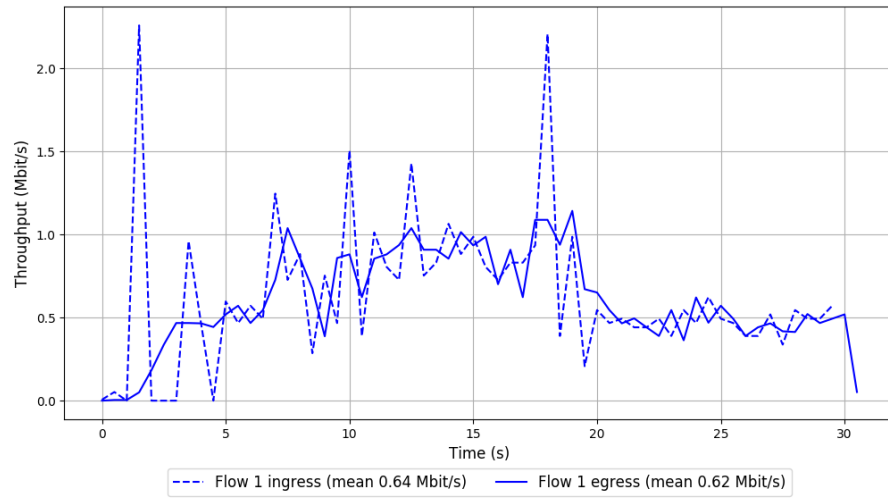


Run 2: Statistics of TaoVA-100x

Start at: 2018-08-21 18:07:20
End at: 2018-08-21 18:07:50
Local clock offset: -16.561 ms
Remote clock offset: 7.851 ms

Below is generated by plot.py at 2018-08-21 18:45:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.62 Mbit/s
95th percentile per-packet one-way delay: 1203.646 ms
Loss rate: 2.26%
-- Flow 1:
Average throughput: 0.62 Mbit/s
95th percentile per-packet one-way delay: 1203.646 ms
Loss rate: 2.26%

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

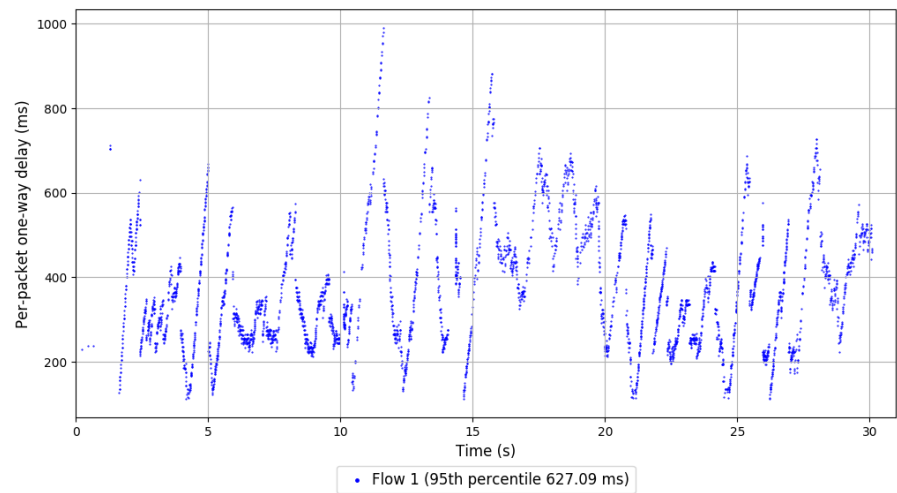
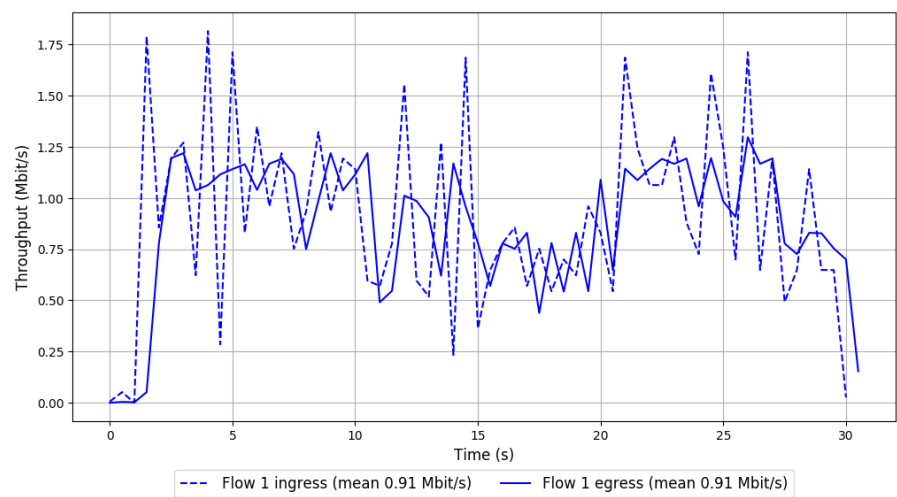


Run 3: Statistics of TaoVA-100x

Start at: 2018-08-21 18:26:25
End at: 2018-08-21 18:26:55
Local clock offset: -12.819 ms
Remote clock offset: 9.049 ms

Below is generated by plot.py at 2018-08-21 18:45:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.91 Mbit/s
95th percentile per-packet one-way delay: 627.085 ms
Loss rate: 1.09%
-- Flow 1:
Average throughput: 0.91 Mbit/s
95th percentile per-packet one-way delay: 627.085 ms
Loss rate: 1.09%

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

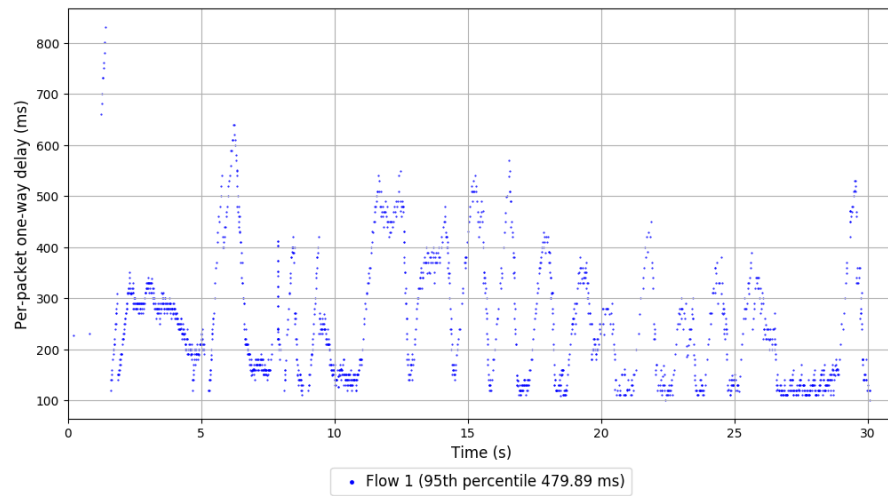
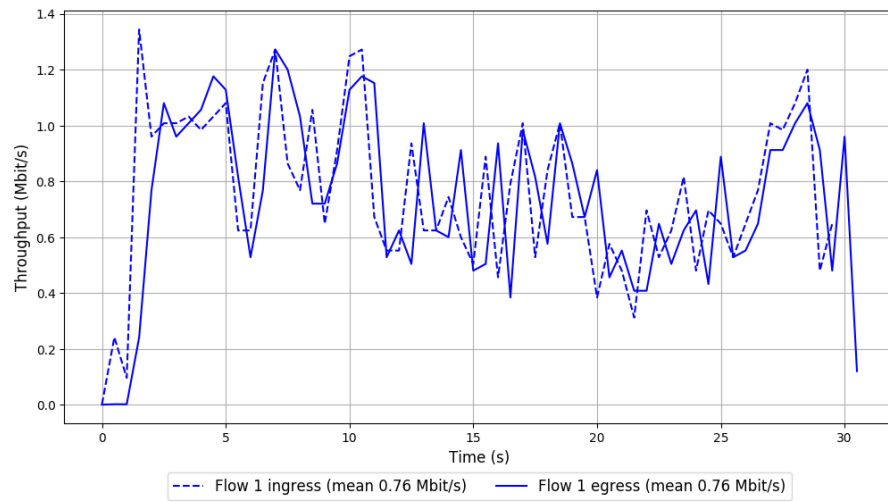


Run 1: Statistics of TCP Vegas

Start at: 2018-08-21 17:57:13
End at: 2018-08-21 17:57:43
Local clock offset: -11.951 ms
Remote clock offset: 8.037 ms

Below is generated by plot.py at 2018-08-21 18:45:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.76 Mbit/s
95th percentile per-packet one-way delay: 479.886 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 0.76 Mbit/s
95th percentile per-packet one-way delay: 479.886 ms
Loss rate: 0.21%

Run 1: Report of TCP Vegas — Data Link

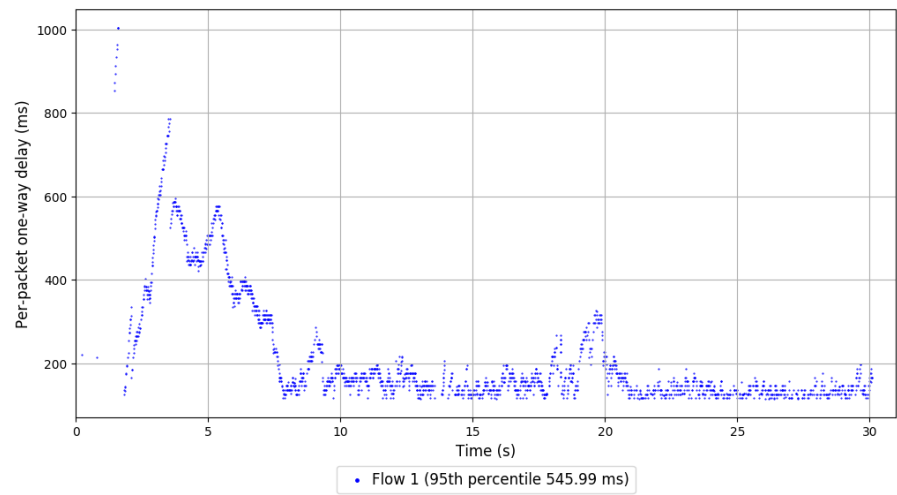
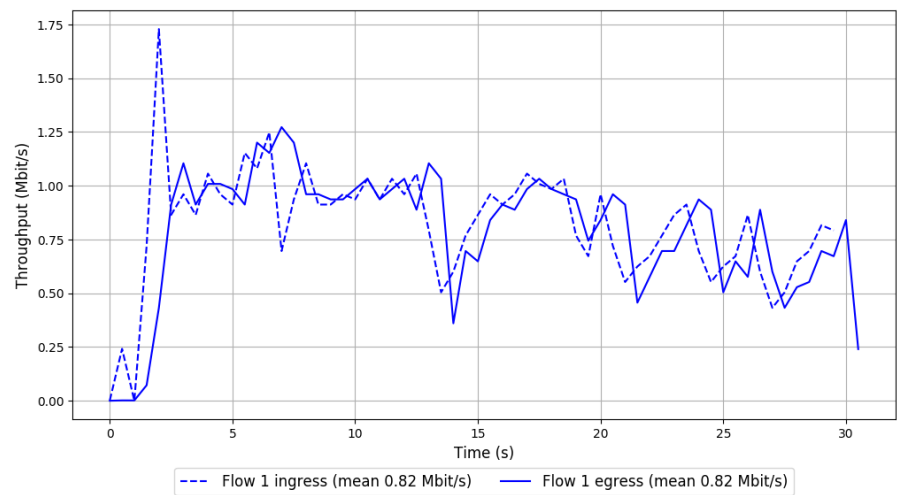


Run 2: Statistics of TCP Vegas

Start at: 2018-08-21 18:16:18
End at: 2018-08-21 18:16:48
Local clock offset: -12.013 ms
Remote clock offset: 8.956 ms

Below is generated by plot.py at 2018-08-21 18:45:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.82 Mbit/s
95th percentile per-packet one-way delay: 545.987 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 0.82 Mbit/s
95th percentile per-packet one-way delay: 545.987 ms
Loss rate: 0.44%

Run 2: Report of TCP Vegas — Data Link

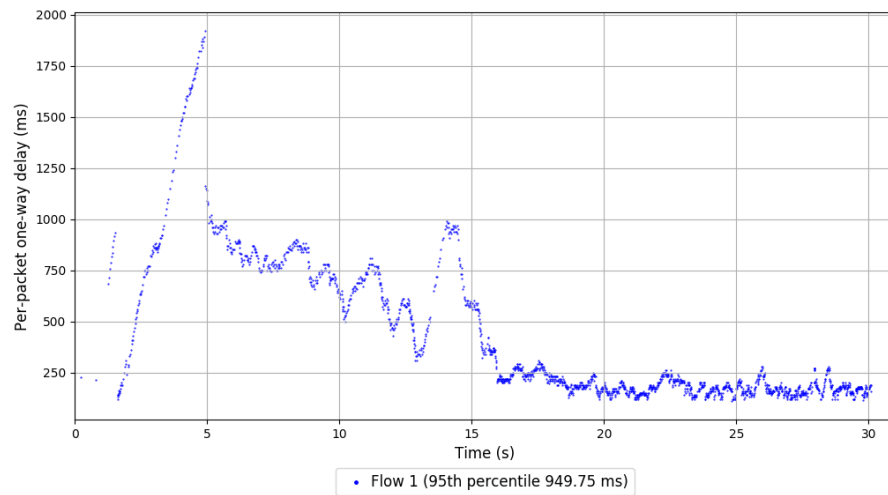
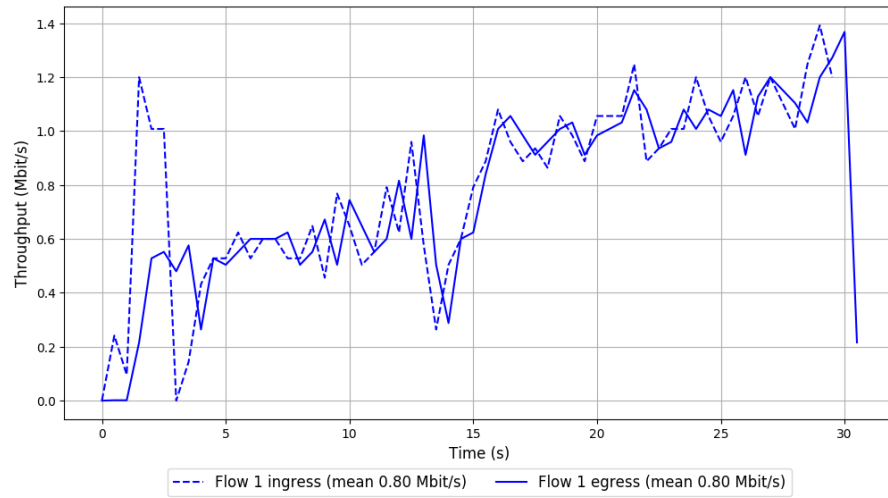


Run 3: Statistics of TCP Vegas

Start at: 2018-08-21 18:35:24
End at: 2018-08-21 18:35:54
Local clock offset: -14.188 ms
Remote clock offset: 3.232 ms

Below is generated by plot.py at 2018-08-21 18:45:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.80 Mbit/s
95th percentile per-packet one-way delay: 949.750 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 0.80 Mbit/s
95th percentile per-packet one-way delay: 949.750 ms
Loss rate: 0.25%

Run 3: Report of TCP Vegas — Data Link

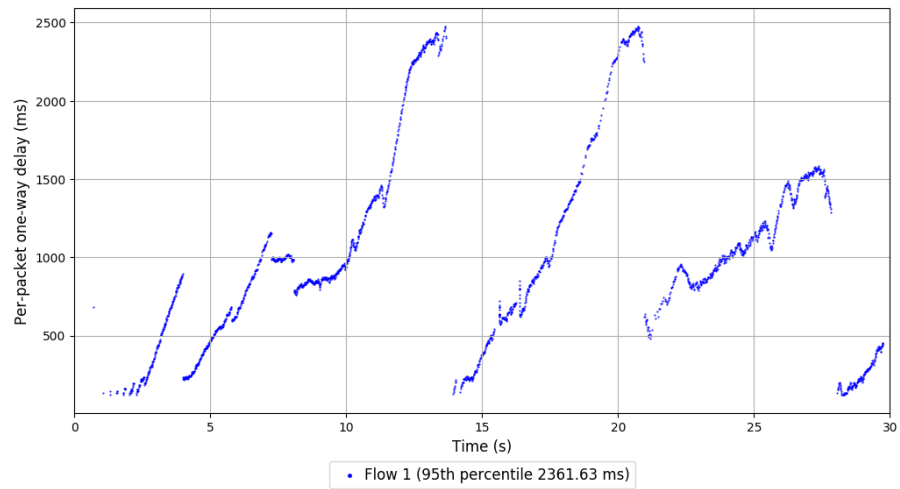
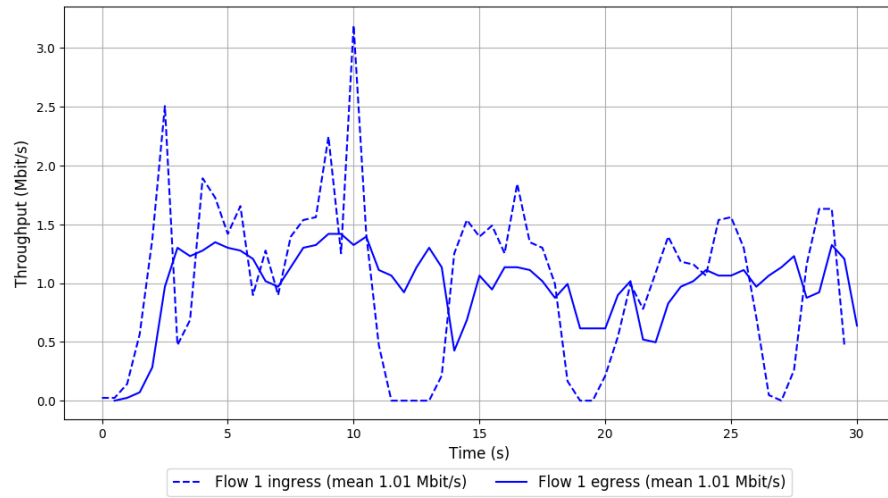


Run 1: Statistics of Verus

Start at: 2018-08-21 17:53:49
End at: 2018-08-21 17:54:19
Local clock offset: -11.723 ms
Remote clock offset: 7.995 ms

Below is generated by plot.py at 2018-08-21 18:45:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.01 Mbit/s
95th percentile per-packet one-way delay: 2361.626 ms
Loss rate: 2.00%
-- Flow 1:
Average throughput: 1.01 Mbit/s
95th percentile per-packet one-way delay: 2361.626 ms
Loss rate: 2.00%

Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

Start at: 2018-08-21 18:12:57

End at: 2018-08-21 18:13:27

Local clock offset: -13.57 ms

Remote clock offset: 2.767 ms

Below is generated by plot.py at 2018-08-21 18:45:32

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.93 Mbit/s

95th percentile per-packet one-way delay: 2051.540 ms

Loss rate: 3.40%

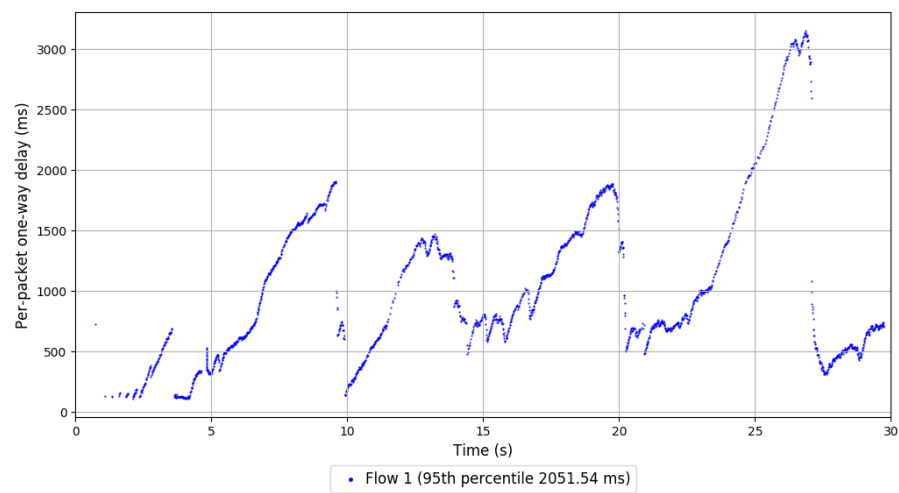
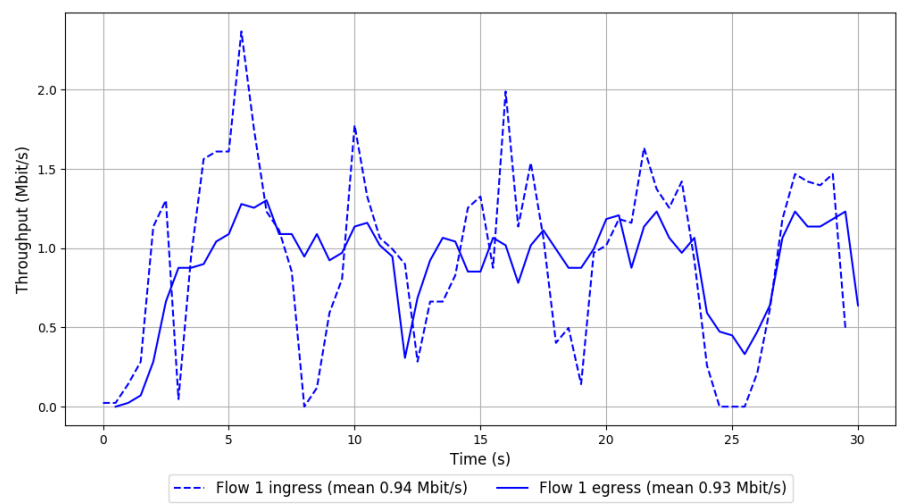
-- Flow 1:

Average throughput: 0.93 Mbit/s

95th percentile per-packet one-way delay: 2051.540 ms

Loss rate: 3.40%

Run 2: Report of Verus — Data Link

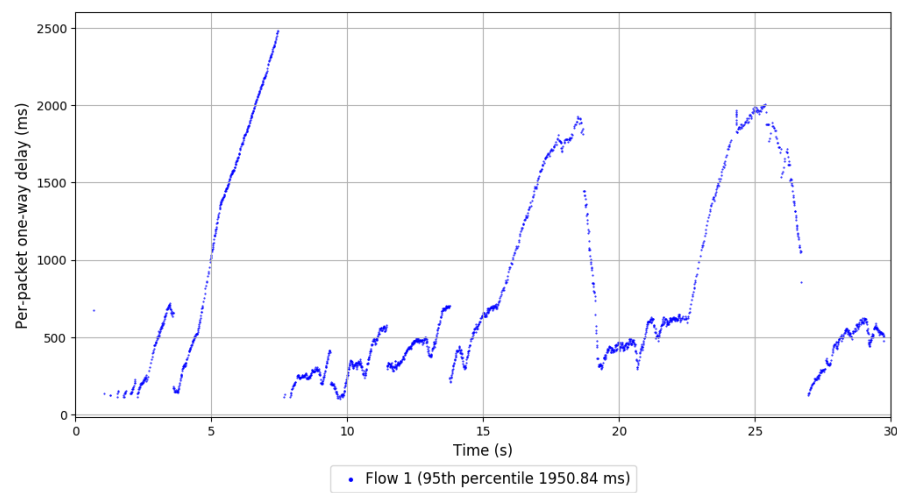
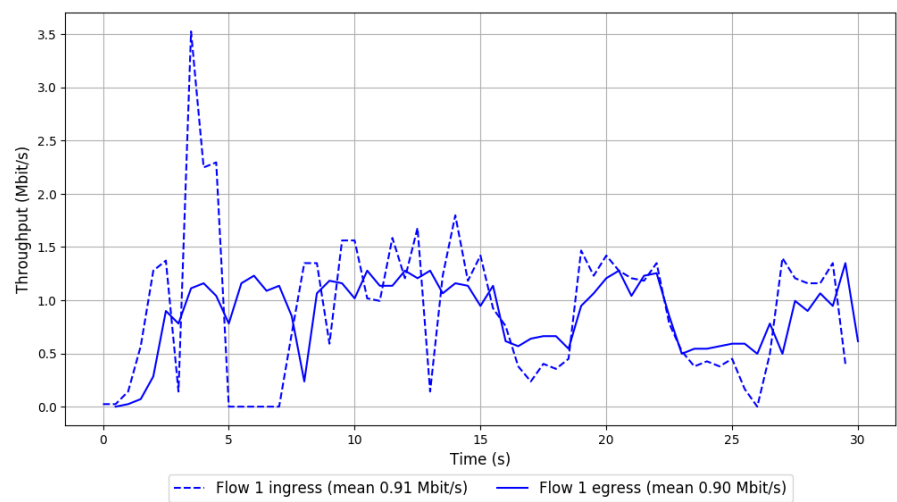


Run 3: Statistics of Verus

Start at: 2018-08-21 18:32:02
End at: 2018-08-21 18:32:32
Local clock offset: -12.814 ms
Remote clock offset: 3.955 ms

Below is generated by plot.py at 2018-08-21 18:45:32
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.90 Mbit/s
95th percentile per-packet one-way delay: 1950.839 ms
Loss rate: 2.42%
-- Flow 1:
Average throughput: 0.90 Mbit/s
95th percentile per-packet one-way delay: 1950.839 ms
Loss rate: 2.42%

Run 3: Report of Verus — Data Link

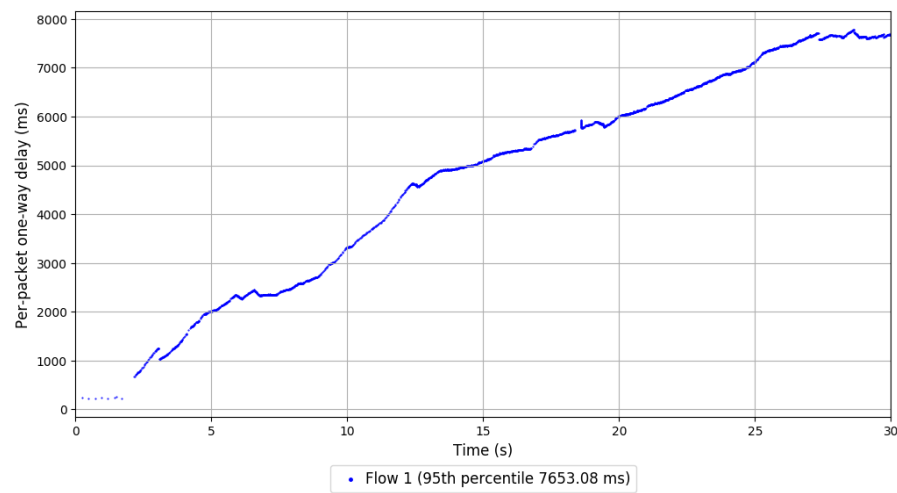
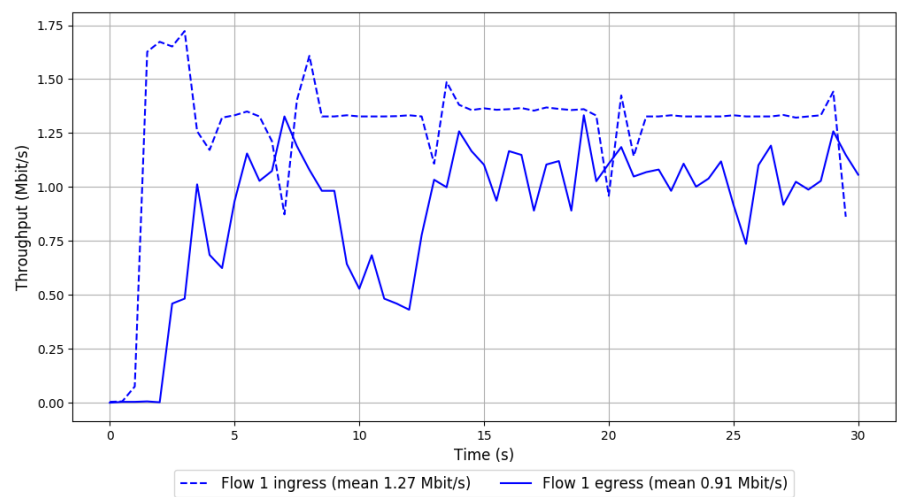


Run 1: Statistics of PCC-Vivace

Start at: 2018-08-21 18:02:50
End at: 2018-08-21 18:03:20
Local clock offset: -15.149 ms
Remote clock offset: 7.888 ms

Below is generated by plot.py at 2018-08-21 18:45:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.91 Mbit/s
95th percentile per-packet one-way delay: 7653.077 ms
Loss rate: 28.75%
-- Flow 1:
Average throughput: 0.91 Mbit/s
95th percentile per-packet one-way delay: 7653.077 ms
Loss rate: 28.75%

Run 1: Report of PCC-Vivace — Data Link

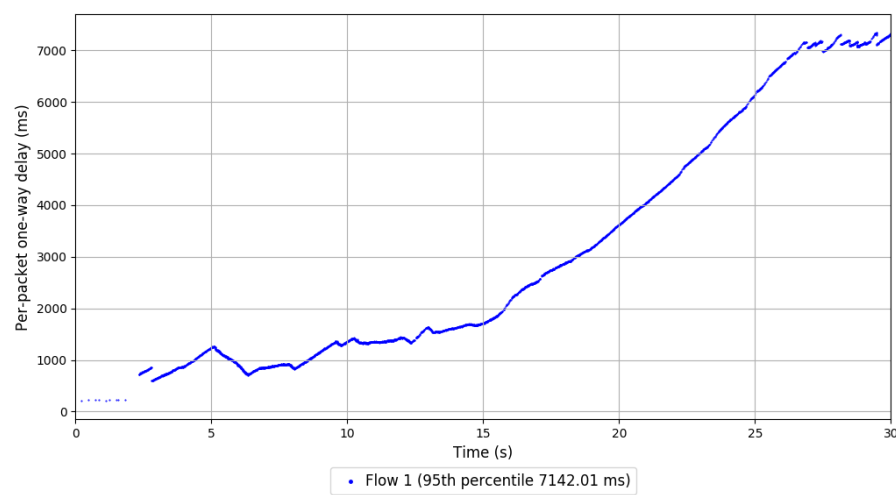
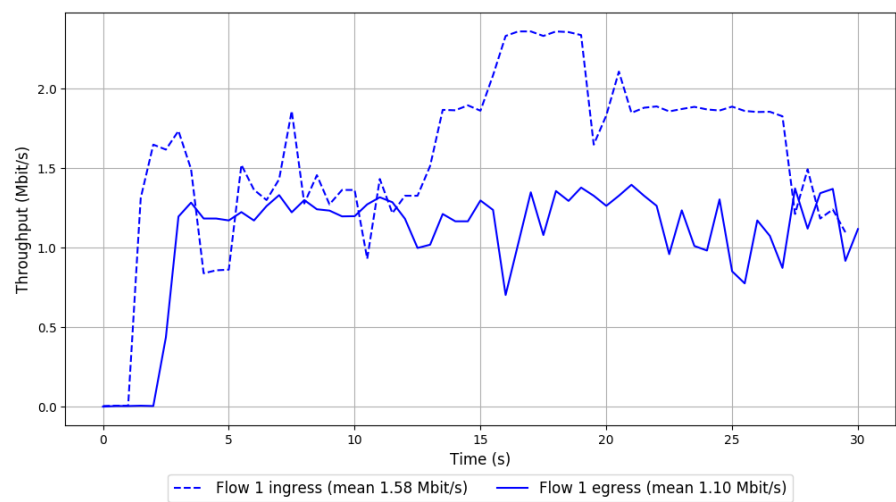


Run 2: Statistics of PCC-Vivace

Start at: 2018-08-21 18:21:56
End at: 2018-08-21 18:22:26
Local clock offset: -11.736 ms
Remote clock offset: 7.885 ms

Below is generated by plot.py at 2018-08-21 18:45:34
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.10 Mbit/s
95th percentile per-packet one-way delay: 7142.005 ms
Loss rate: 30.55%
-- Flow 1:
Average throughput: 1.10 Mbit/s
95th percentile per-packet one-way delay: 7142.005 ms
Loss rate: 30.55%

Run 2: Report of PCC-Vivace — Data Link

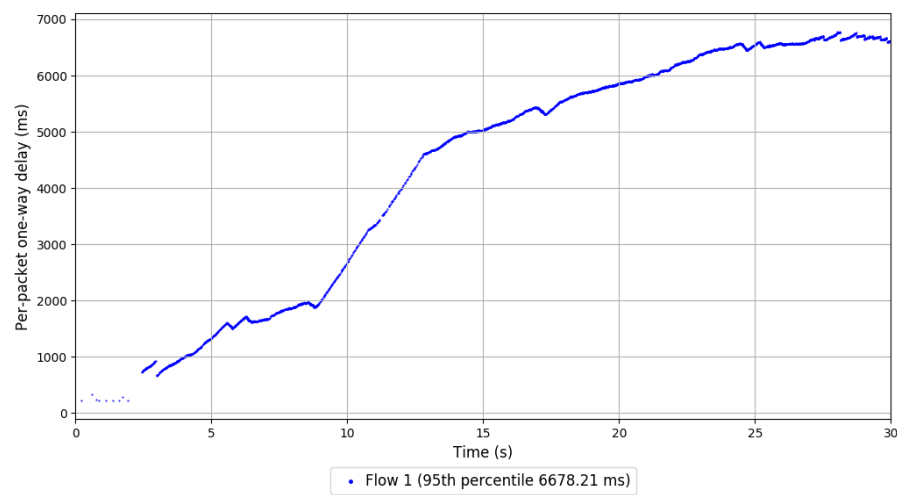
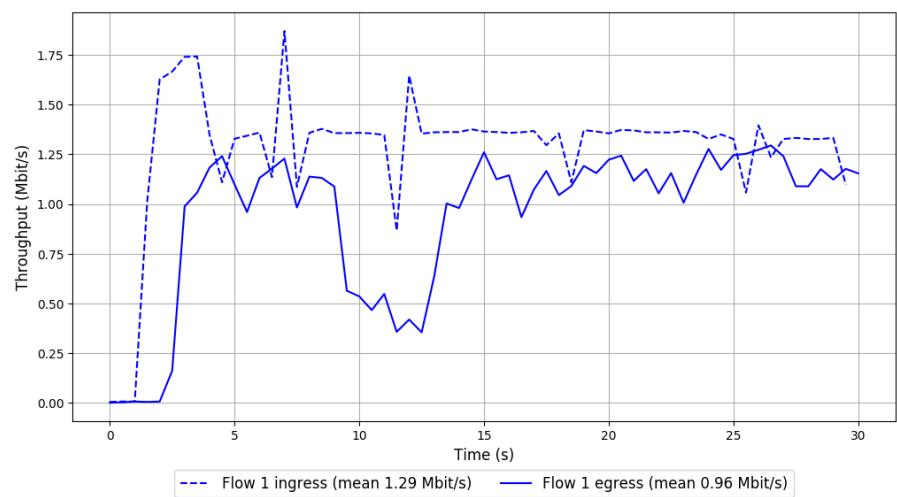


Run 3: Statistics of PCC-Vivace

Start at: 2018-08-21 18:41:01
End at: 2018-08-21 18:41:31
Local clock offset: -10.644 ms
Remote clock offset: 2.394 ms

Below is generated by plot.py at 2018-08-21 18:45:34
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.96 Mbit/s
95th percentile per-packet one-way delay: 6678.214 ms
Loss rate: 25.29%
-- Flow 1:
Average throughput: 0.96 Mbit/s
95th percentile per-packet one-way delay: 6678.214 ms
Loss rate: 25.29%

Run 3: Report of PCC-Vivace — Data Link

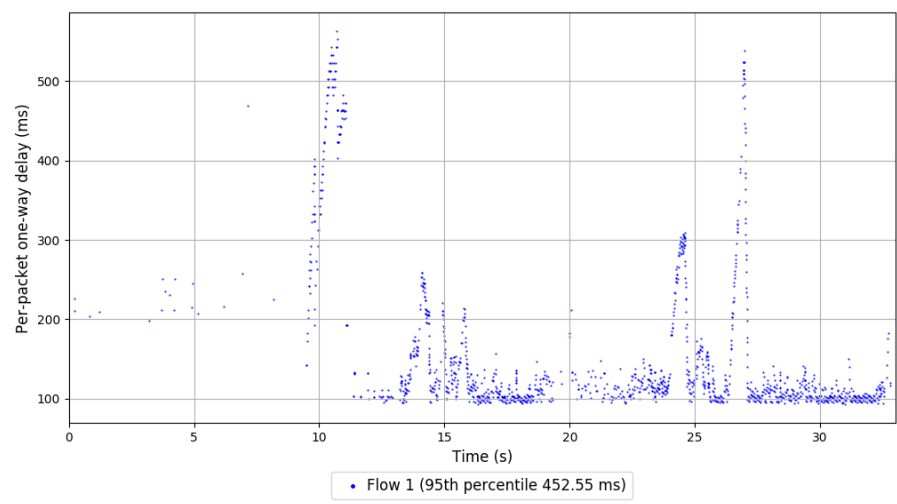
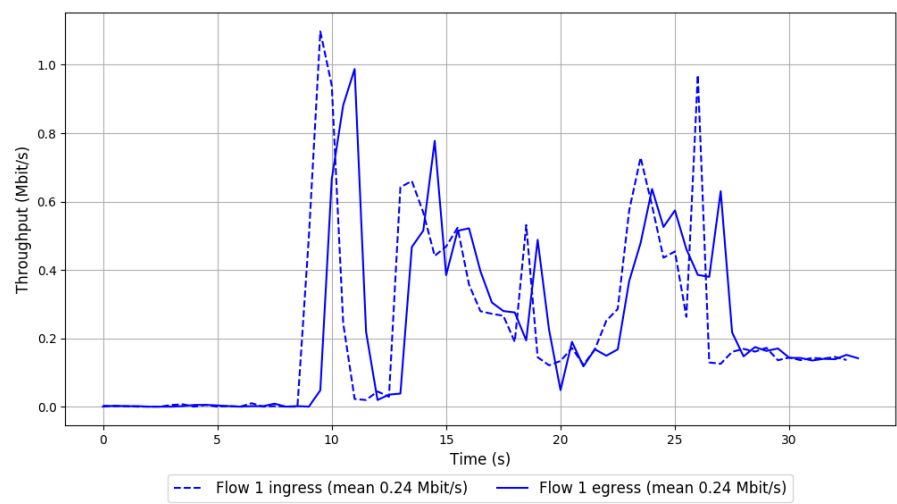


Run 1: Statistics of WebRTC media

Start at: 2018-08-21 17:56:05
End at: 2018-08-21 17:56:35
Local clock offset: -12.329 ms
Remote clock offset: 3.121 ms

Below is generated by plot.py at 2018-08-21 18:45:34
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 452.552 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 452.552 ms
Loss rate: 0.14%

Run 1: Report of WebRTC media — Data Link

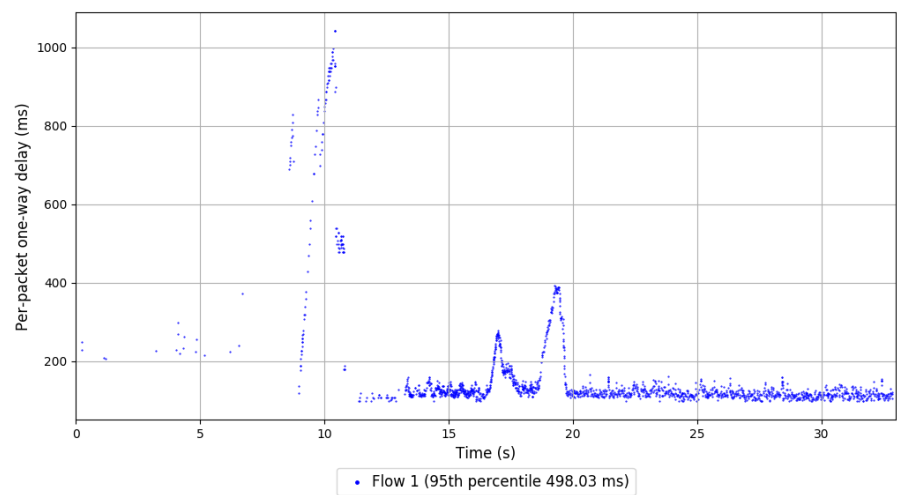
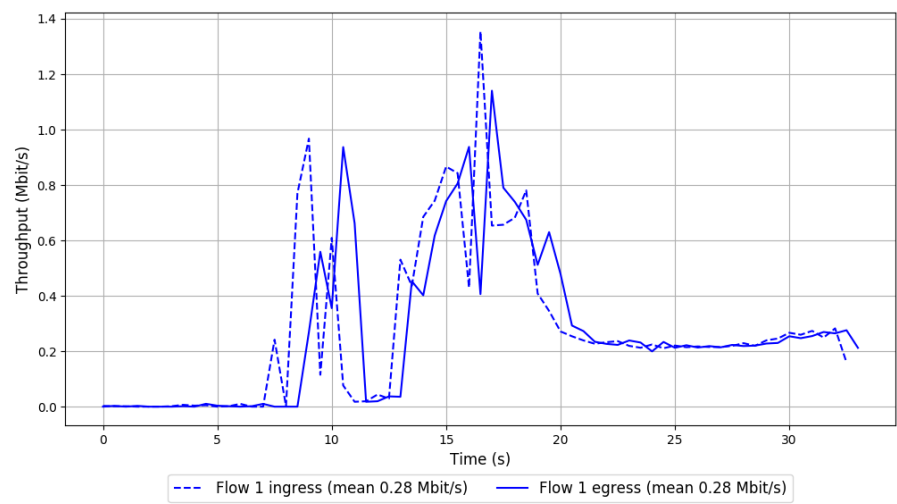


Run 2: Statistics of WebRTC media

Start at: 2018-08-21 18:15:11
End at: 2018-08-21 18:15:41
Local clock offset: -12.279 ms
Remote clock offset: 6.69 ms

Below is generated by plot.py at 2018-08-21 18:45:34
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.28 Mbit/s
95th percentile per-packet one-way delay: 498.034 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 0.28 Mbit/s
95th percentile per-packet one-way delay: 498.034 ms
Loss rate: 0.06%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-08-21 18:34:17
End at: 2018-08-21 18:34:47
Local clock offset: -13.153 ms
Remote clock offset: 2.308 ms

Below is generated by plot.py at 2018-08-21 18:45:34
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.37 Mbit/s
95th percentile per-packet one-way delay: 329.406 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 0.37 Mbit/s
95th percentile per-packet one-way delay: 329.406 ms
Loss rate: 0.17%

Run 3: Report of WebRTC media — Data Link

