Pantheon Report

Generated at 2018-10-02 09:02:04 (UTC).

Data path: AWS Brazil 1 on `ens5` (*local*) →Brazil on `p4p1` (*remote*).

Repeated the test of 18 congestion control schemes 5 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.
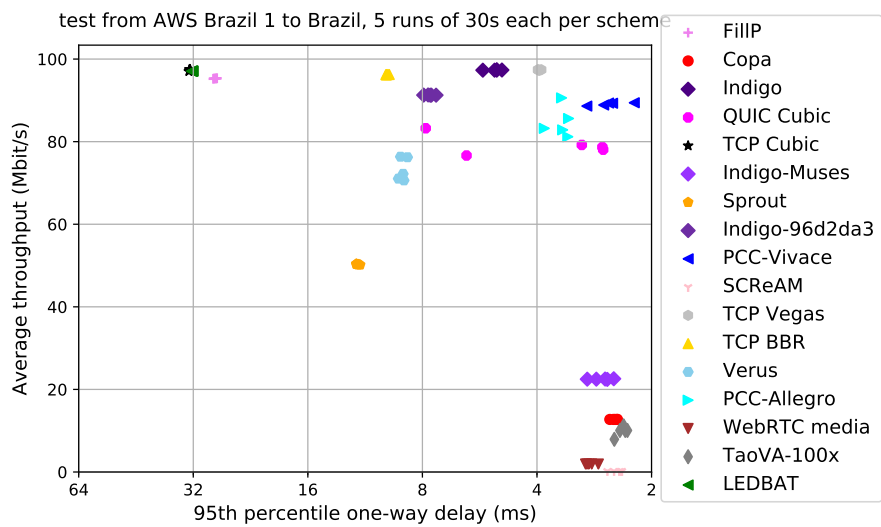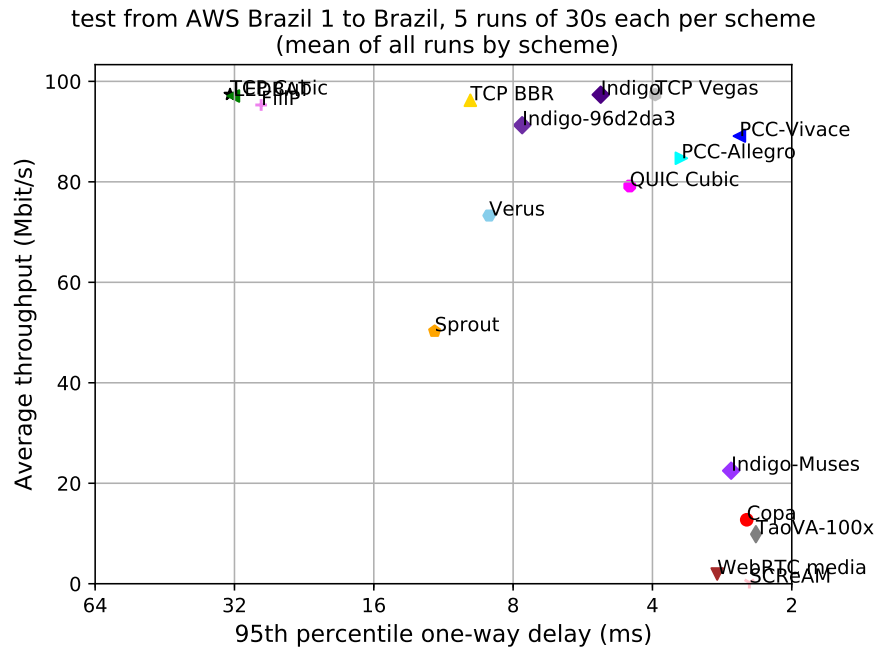
```
System info:
Linux 4.15.0-1021-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

Git summary:
branch: muses @ 2e19c0464530faa92c63f8217c9971438a26a3be
third_party/fillp @ 5332fc9127c63565e13f4933b336c02d1aabdac6
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/indigo-96d2da3 @ 8413272d46f8aa0bcb967ed7048b6a8f994abb95
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
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-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
 M src/ScreamClient
 M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
 M src/examples/cellsim.cc
 M src/examples/sproutbt2.cc
 M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
 M src/verus.hpp
 M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
```

third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851

test from AWS Brazil 1 to Brazil, 5 runs of 30s each per scheme
(mean of all runs by scheme)

test from AWS Brazil 1 to Brazil, 5 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	5	96.24	9.90	0.00
Copa	5	12.73	2.50	64.24
TCP Cubic	5	97.39	32.71	0.01
FillP	5	95.30	28.02	1.33
Indigo	5	97.34	5.17	0.00
Indigo-96d2da3	5	91.28	7.65	0.00
LEDBAT	5	97.08	32.17	0.01
Indigo-Muses	5	22.50	2.70	0.00
PCC-Allegro	5	84.69	3.46	0.00
PCC-Expr	0	N/A	N/A	N/A
QUIC Cubic	5	79.16	4.48	0.24
SCReAM	5	0.22	2.47	0.00
Sprout	5	50.27	11.82	0.00
TaoVA-100x	5	9.86	2.39	79.63
TCP Vegas	5	97.37	3.94	0.00
Verus	5	73.29	9.02	0.91
PCC-Vivace	5	89.11	2.60	0.00
WebRTC media	5	1.93	2.90	0.00

```
Run 1: Statistics of TCP BBR

Start at: 2018-10-02 07:21:54
End at: 2018-10-02 07:22:24
Local clock offset: -6.655 ms
Remote clock offset: -0.136 ms

# Below is generated by plot.py at 2018-10-02 08:54:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.26 Mbit/s
95th percentile per-packet one-way delay: 9.779 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 96.26 Mbit/s
95th percentile per-packet one-way delay: 9.779 ms
Loss rate: 0.00%
```
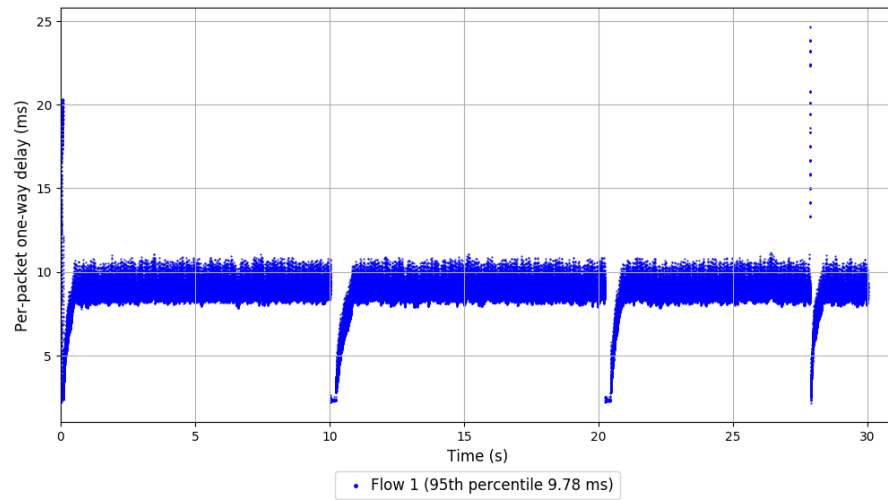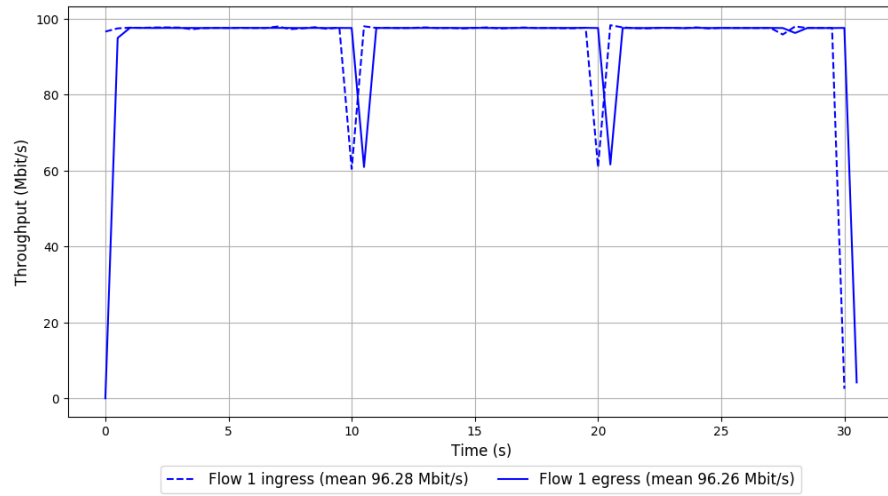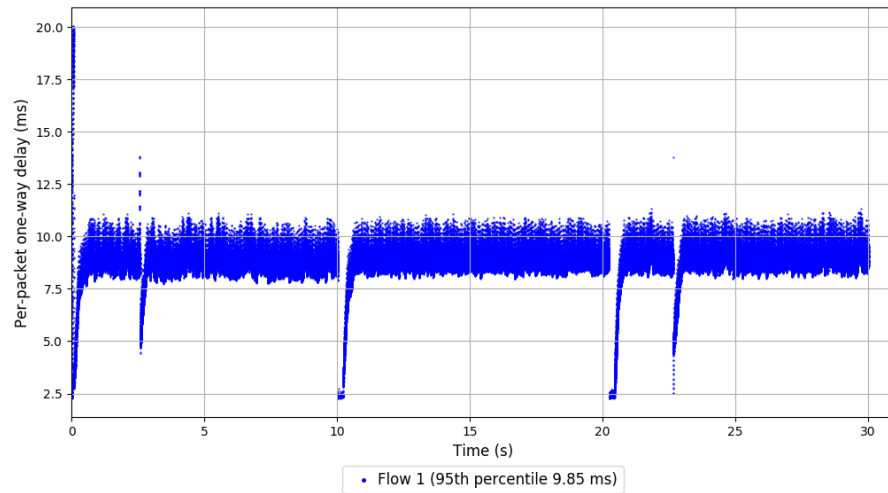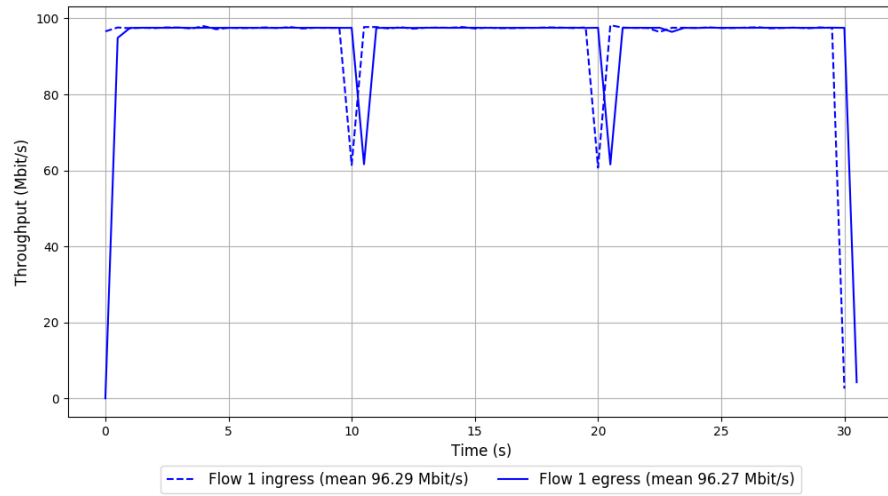
Run 1: Report of TCP BBR — Data Link

```
Run 2: Statistics of TCP BBR

Start at: 2018-10-02 07:41:58
End at: 2018-10-02 07:42:28
Local clock offset: -7.456 ms
Remote clock offset: -0.187 ms


# Below is generated by plot.py at 2018-10-02 08:54:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.27 Mbit/s
95th percentile per-packet one-way delay: 9.854 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 96.27 Mbit/s
95th percentile per-packet one-way delay: 9.854 ms
Loss rate: 0.00%
```
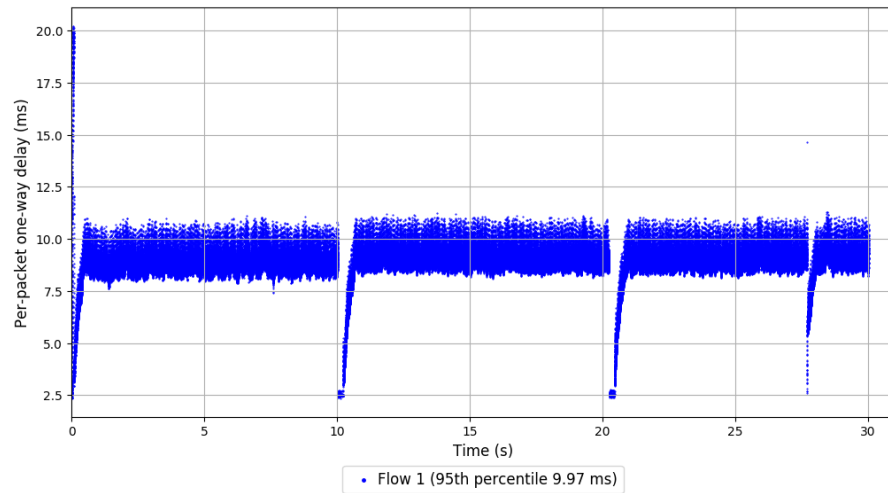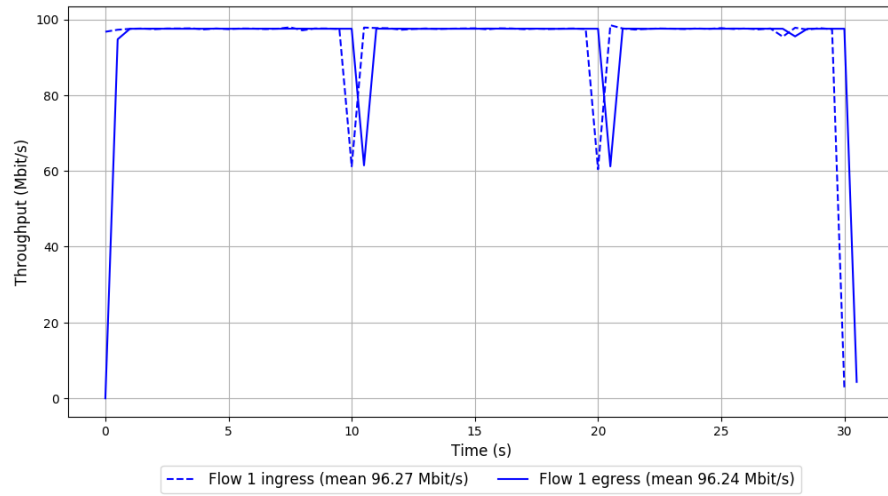
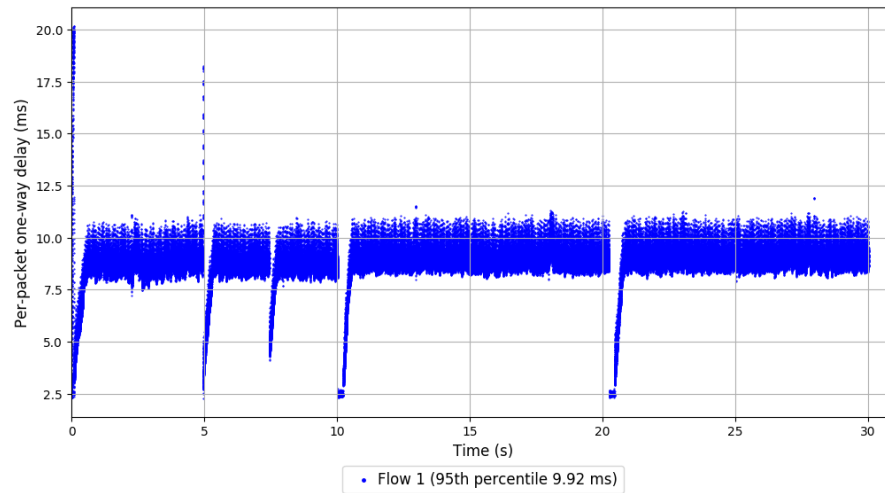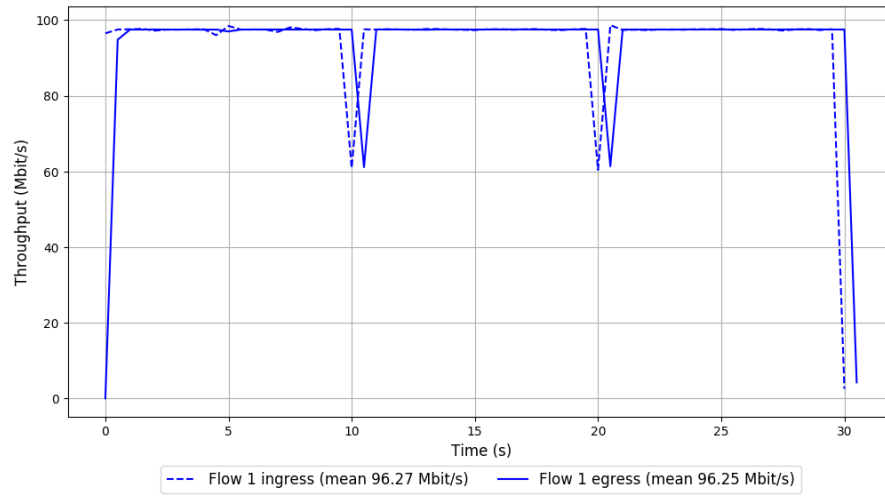Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2018-10-02 08:02:01
End at: 2018-10-02 08:02:31
Local clock offset: -2.731 ms
Remote clock offset: -0.19 ms


# Below is generated by plot.py at 2018-10-02 08:54:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.24 Mbit/s
95th percentile per-packet one-way delay: 9.975 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 96.24 Mbit/s
95th percentile per-packet one-way delay: 9.975 ms
Loss rate: 0.00%
```
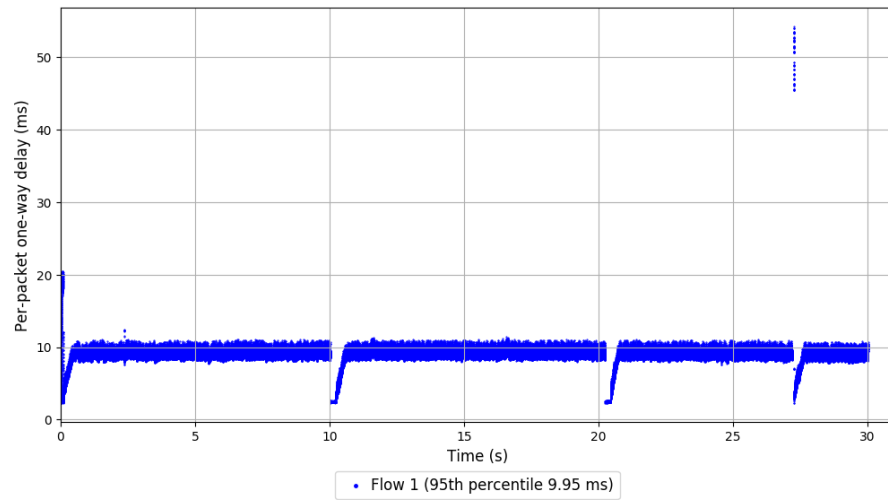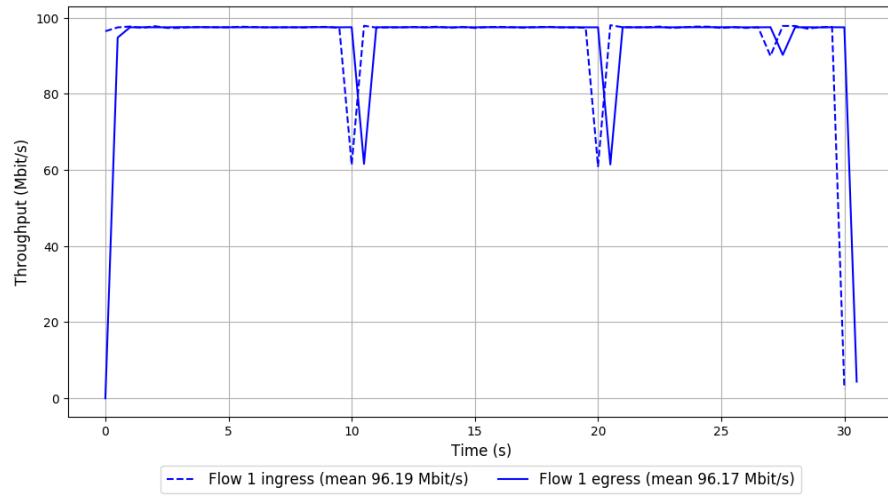
Run 3: Report of TCP BBR — Data Link

Flow 1 ingress (mean 96.27 Mbit/s)   Flow 1 egress (mean 96.24 Mbit/s)

Flow 1 (95th percentile 9.97 ms)

```
Run 4: Statistics of TCP BBR

Start at: 2018-10-02 08:22:05
End at: 2018-10-02 08:22:35
Local clock offset: -1.566 ms
Remote clock offset: -0.239 ms


# Below is generated by plot.py at 2018-10-02 08:54:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.25 Mbit/s
95th percentile per-packet one-way delay: 9.923 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 96.25 Mbit/s
95th percentile per-packet one-way delay: 9.923 ms
Loss rate: 0.00%
```

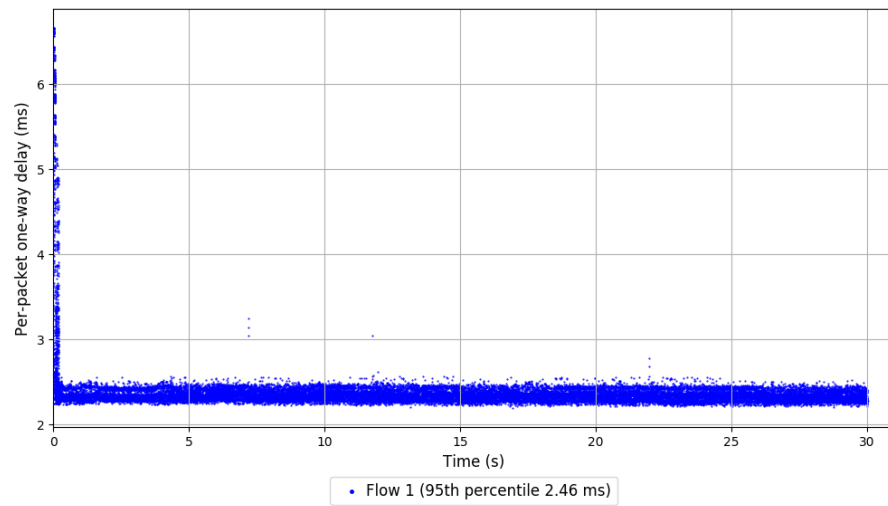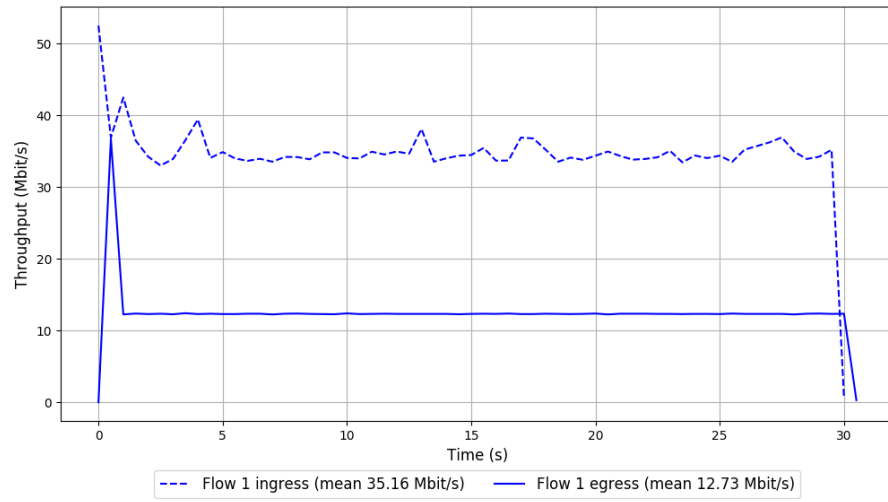Run 4: Report of TCP BBR — Data Link

```
Run 5: Statistics of TCP BBR

Start at: 2018-10-02 08:42:14
End at: 2018-10-02 08:42:44
Local clock offset: -1.039 ms
Remote clock offset: -0.298 ms


# Below is generated by plot.py at 2018-10-02 08:54:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.17 Mbit/s
95th percentile per-packet one-way delay: 9.953 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 96.17 Mbit/s
95th percentile per-packet one-way delay: 9.953 ms
Loss rate: 0.00%
```

Run 5: Report of TCP BBR — Data Link

Flow 1 ingress (mean 96.19 Mbit/s) Flow 1 egress (mean 96.17 Mbit/s)

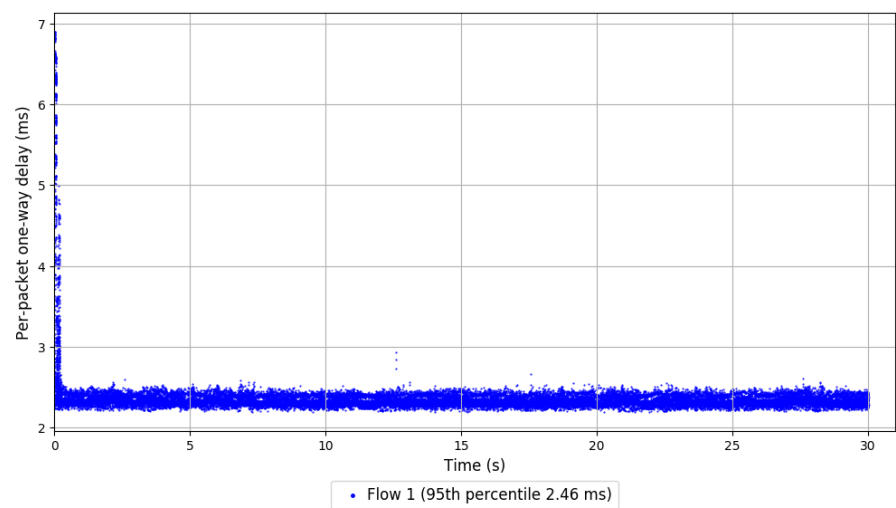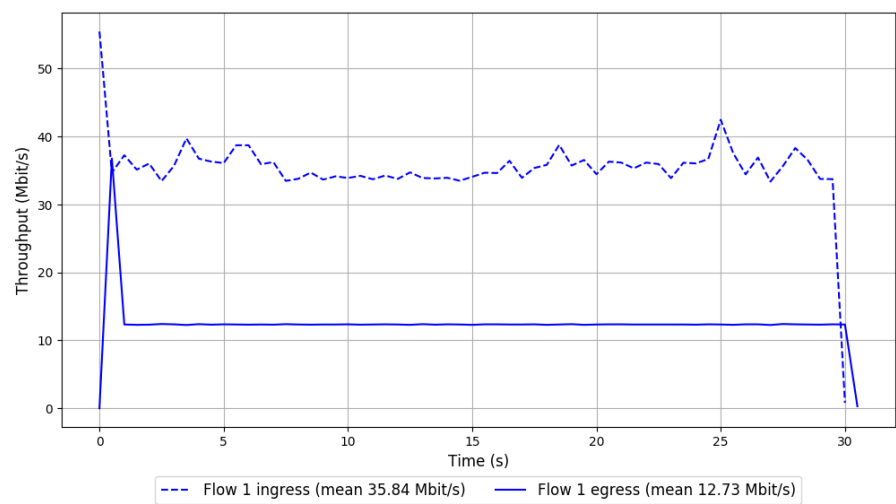Flow 1 (95th percentile 9.95 ms)

```
Run 1: Statistics of Copa

Start at: 2018-10-02 07:19:41
End at: 2018-10-02 07:20:11
Local clock offset: -6.559 ms
Remote clock offset: -0.111 ms

# Below is generated by plot.py at 2018-10-02 08:54:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 2.463 ms
Loss rate: 63.80%
-- Flow 1:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 2.463 ms
Loss rate: 63.80%
```
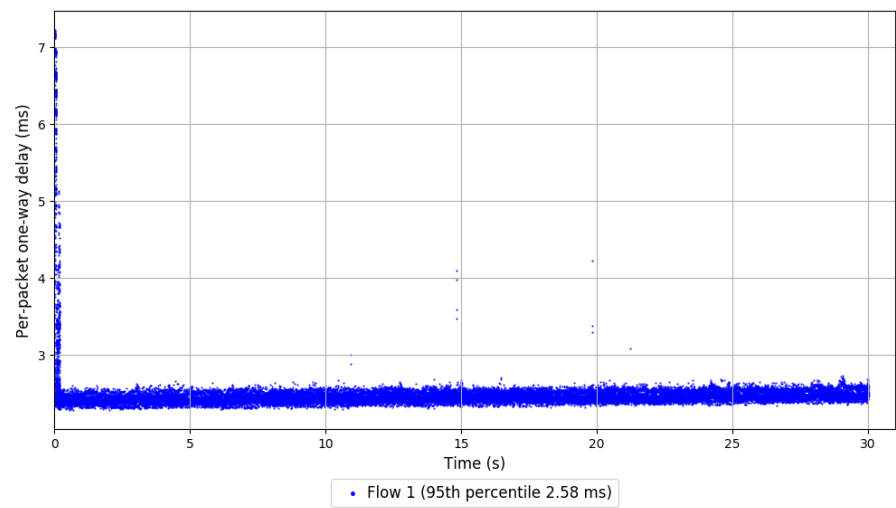
Run 1: Report of Copa — Data Link

```
Run 2: Statistics of Copa

Start at: 2018-10-02 07:39:45
End at: 2018-10-02 07:40:15
Local clock offset: -7.388 ms
Remote clock offset: -0.176 ms


# Below is generated by plot.py at 2018-10-02 08:54:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 2.459 ms
Loss rate: 64.48%
-- Flow 1:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 2.459 ms
Loss rate: 64.48%
```

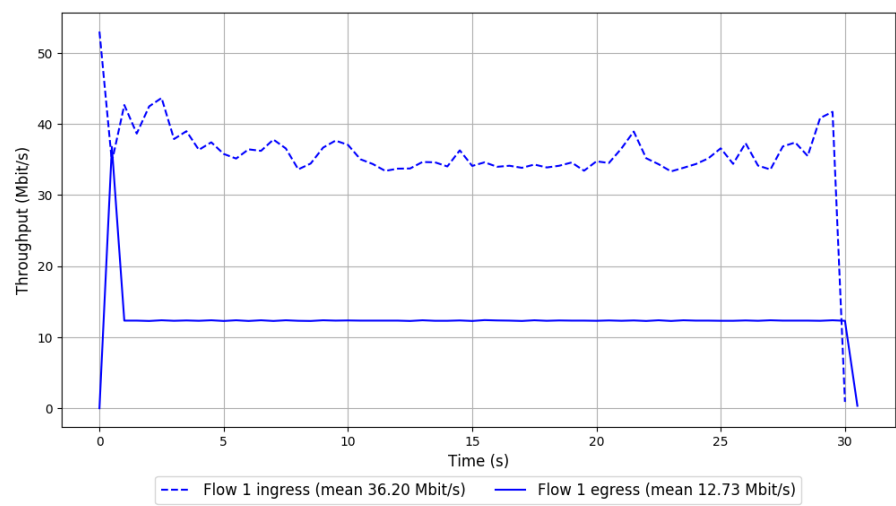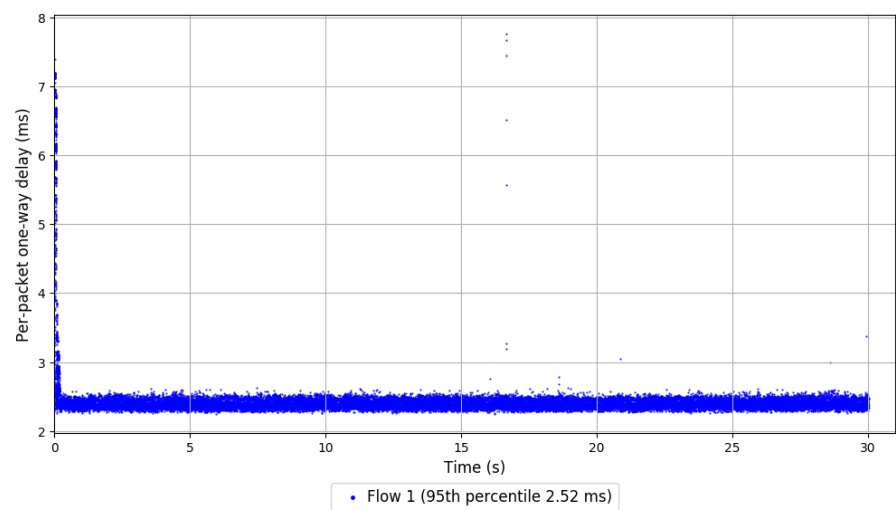## Run 2: Report of Copa — Data Link

```
Run 3: Statistics of Copa

Start at: 2018-10-02 07:59:48
End at: 2018-10-02 08:00:18
Local clock offset: -3.03 ms
Remote clock offset: -0.203 ms


# Below is generated by plot.py at 2018-10-02 08:54:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 2.575 ms
Loss rate: 64.83%
-- Flow 1:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 2.575 ms
Loss rate: 64.83%
```

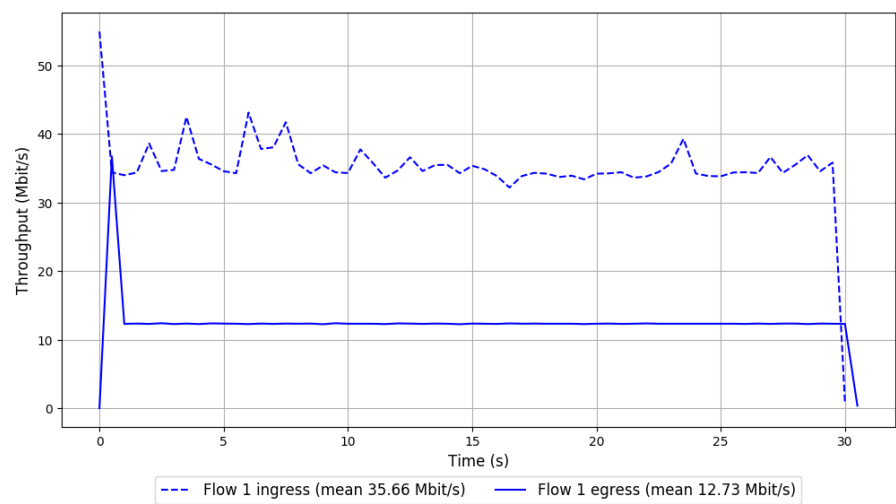Run 3: Report of Copa — Data Link

```
Run 4: Statistics of Copa

Start at: 2018-10-02 08:19:52
End at: 2018-10-02 08:20:22
Local clock offset: -1.65 ms
Remote clock offset: -0.293 ms

# Below is generated by plot.py at 2018-10-02 08:54:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 2.520 ms
Loss rate: 64.30%
-- Flow 1:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 2.520 ms
Loss rate: 64.30%
```
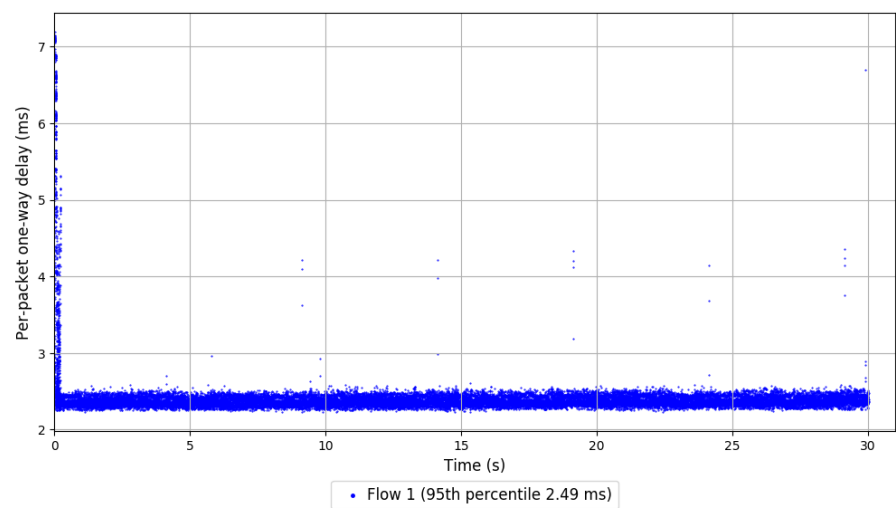
Run 4: Report of Copa — Data Link

```
Run 5: Statistics of Copa

Start at: 2018-10-02 08:40:01
End at: 2018-10-02 08:40:31
Local clock offset: -1.111 ms
Remote clock offset: -0.3 ms

# Below is generated by plot.py at 2018-10-02 08:54:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 2.494 ms
Loss rate: 63.80%
-- Flow 1:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 2.494 ms
Loss rate: 63.80%
```
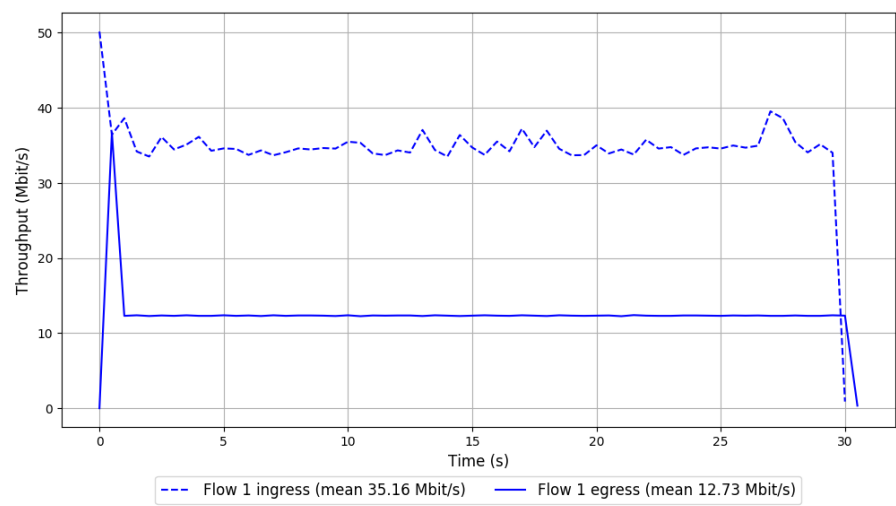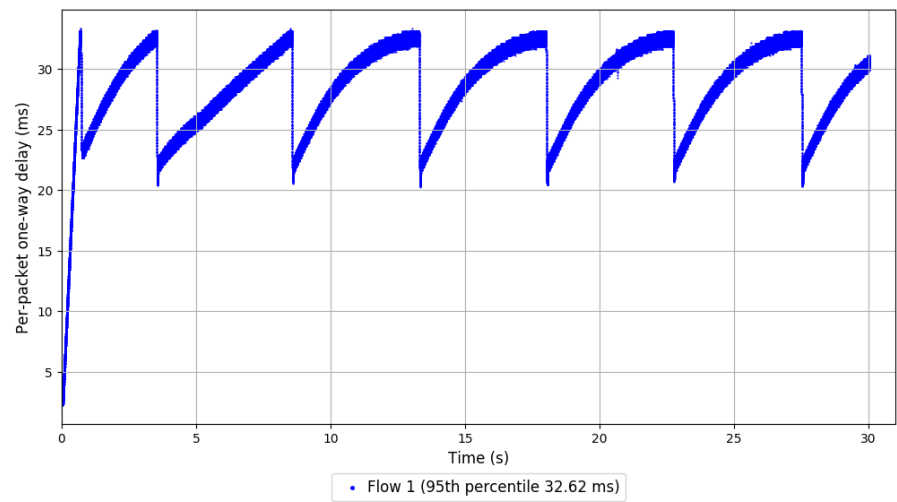
Run 5: Report of Copa — Data Link

Flow 1 ingress (mean 35.16 Mbit/s) — — — Flow 1 egress (mean 12.73 Mbit/s)

• Flow 1 (95th percentile 2.49 ms)

```
Run 1: Statistics of TCP Cubic

Start at: 2018-10-02 07:23:02
End at: 2018-10-02 07:23:32
Local clock offset: -6.725 ms
Remote clock offset: -0.1 ms


# Below is generated by plot.py at 2018-10-02 08:54:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.48 Mbit/s
95th percentile per-packet one-way delay: 32.623 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.48 Mbit/s
95th percentile per-packet one-way delay: 32.623 ms
Loss rate: 0.01%
```
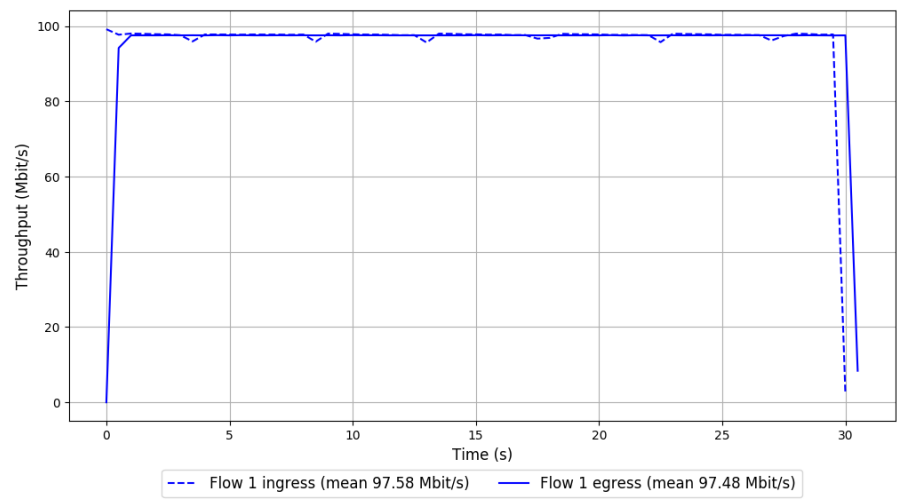
Run 1: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 97.58 Mbit/s) ----- Flow 1 egress (mean 97.48 Mbit/s)

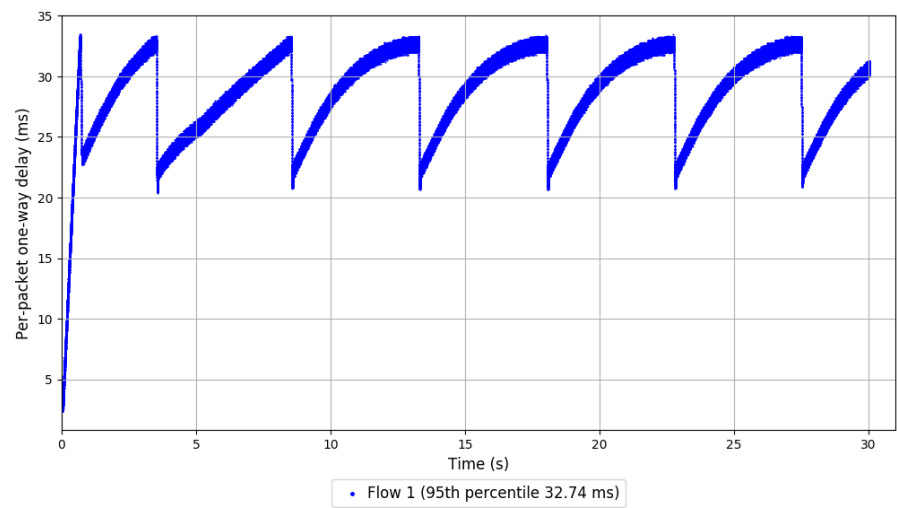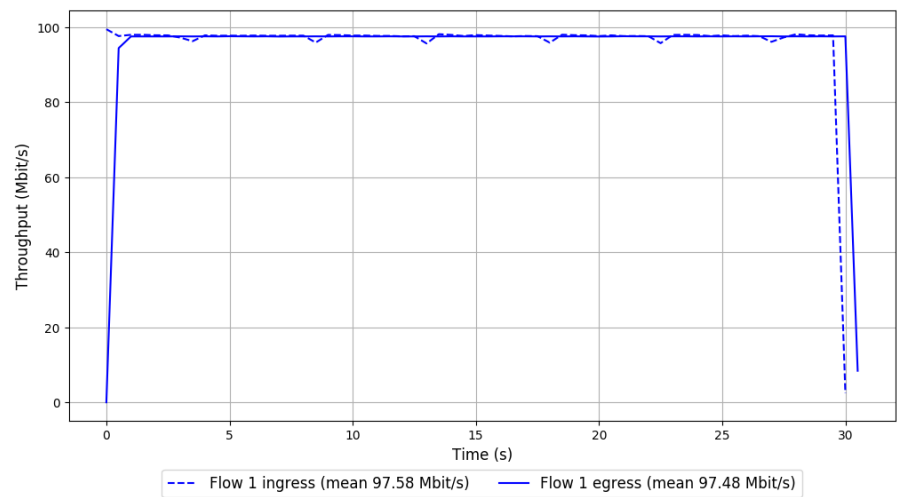
Flow 1 (95th percentile 32.62 ms)

```
Run 2: Statistics of TCP Cubic

Start at: 2018-10-02 07:43:06
End at: 2018-10-02 07:43:36
Local clock offset: -7.535 ms
Remote clock offset: -0.133 ms


# Below is generated by plot.py at 2018-10-02 08:54:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.48 Mbit/s
95th percentile per-packet one-way delay: 32.744 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.48 Mbit/s
95th percentile per-packet one-way delay: 32.744 ms
Loss rate: 0.01%
```

Run 2: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 97.58 Mbit/s)   Flow 1 egress (mean 97.48 Mbit/s)

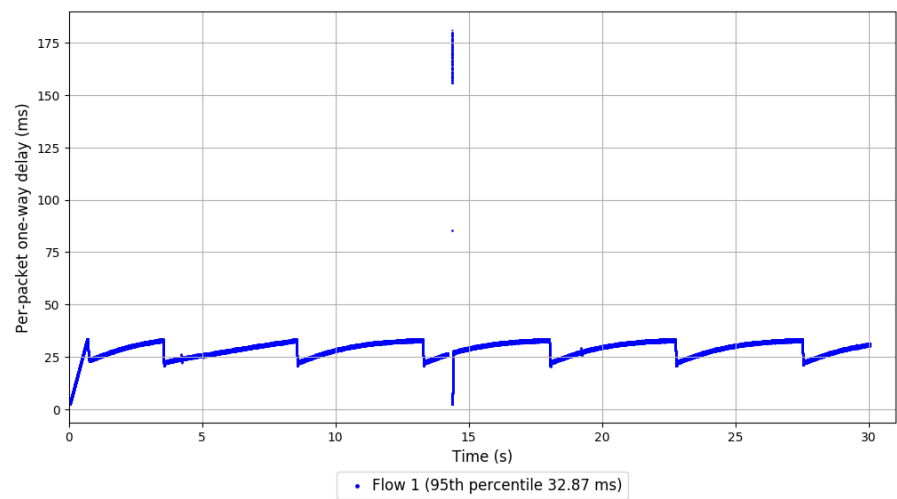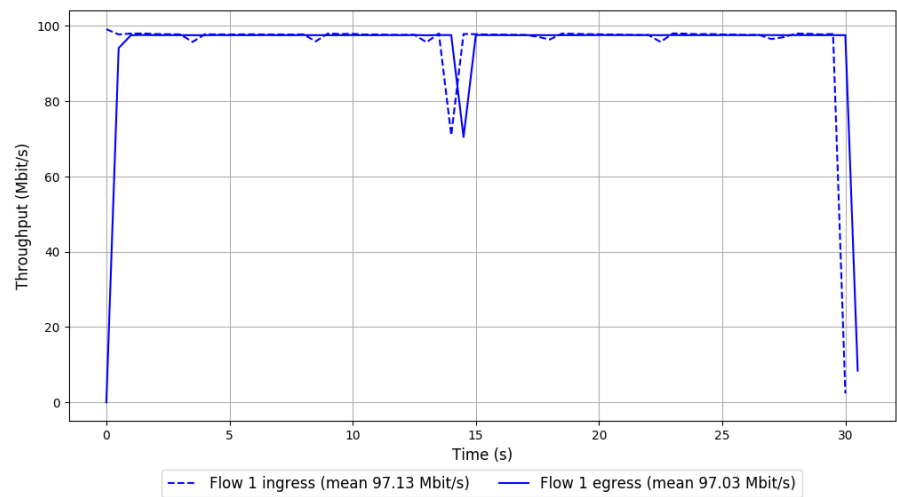Flow 1 (95th percentile 32.74 ms)

```
Run 3: Statistics of TCP Cubic

Start at: 2018-10-02 08:03:09
End at: 2018-10-02 08:03:39
Local clock offset: -2.687 ms
Remote clock offset: -0.194 ms


# Below is generated by plot.py at 2018-10-02 08:54:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.03 Mbit/s
95th percentile per-packet one-way delay: 32.866 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.03 Mbit/s
95th percentile per-packet one-way delay: 32.866 ms
Loss rate: 0.01%
```
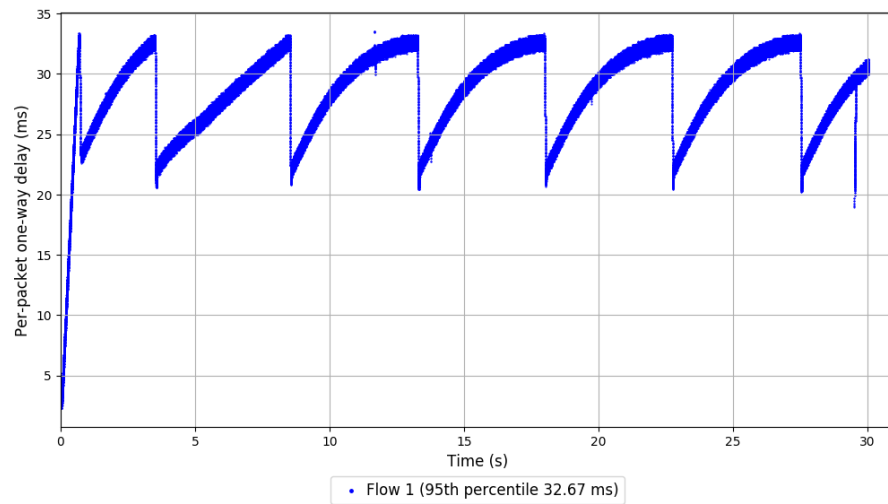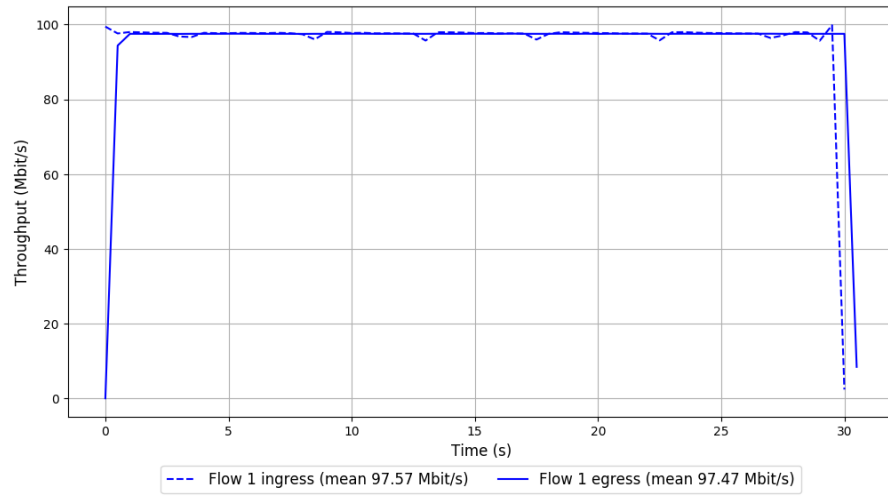
Run 3: Report of TCP Cubic — Data Link

```
Run 4: Statistics of TCP Cubic

Start at: 2018-10-02 08:23:13
End at: 2018-10-02 08:23:43
Local clock offset: -1.546 ms
Remote clock offset: -0.264 ms


# Below is generated by plot.py at 2018-10-02 08:55:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.47 Mbit/s
95th percentile per-packet one-way delay: 32.674 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.47 Mbit/s
95th percentile per-packet one-way delay: 32.674 ms
Loss rate: 0.01%
```

Run 4: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 97.57 Mbit/s) ——— Flow 1 egress (mean 97.47 Mbit/s)

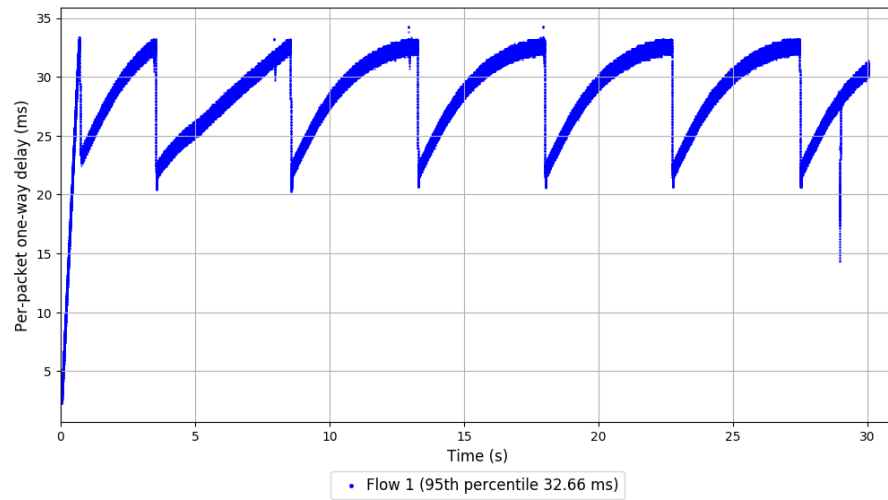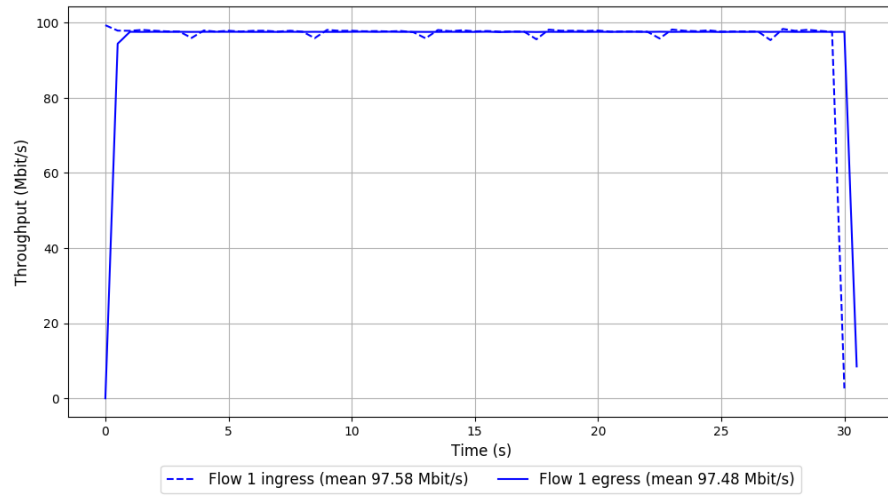
• Flow 1 (95th percentile 32.67 ms)

```
Run 5: Statistics of TCP Cubic

Start at: 2018-10-02 08:43:22
End at: 2018-10-02 08:43:52
Local clock offset: -0.982 ms
Remote clock offset: -0.304 ms


# Below is generated by plot.py at 2018-10-02 08:55:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.48 Mbit/s
95th percentile per-packet one-way delay: 32.663 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.48 Mbit/s
95th percentile per-packet one-way delay: 32.663 ms
Loss rate: 0.01%
```
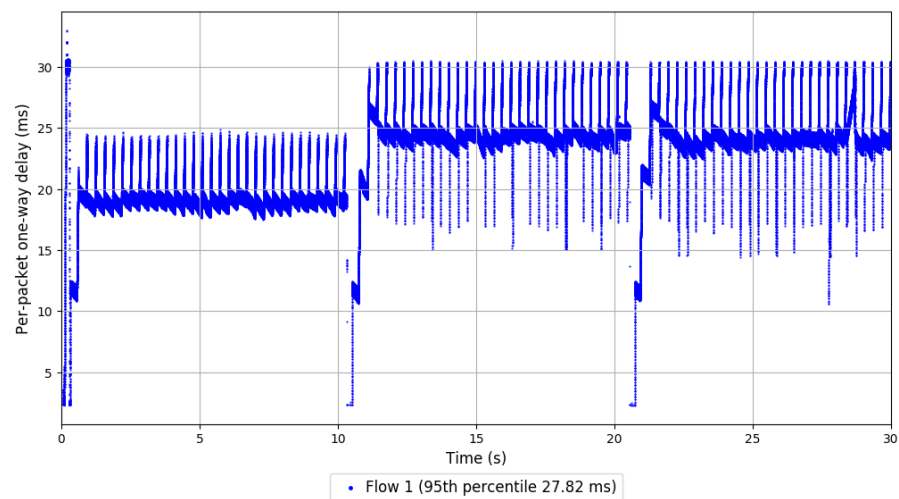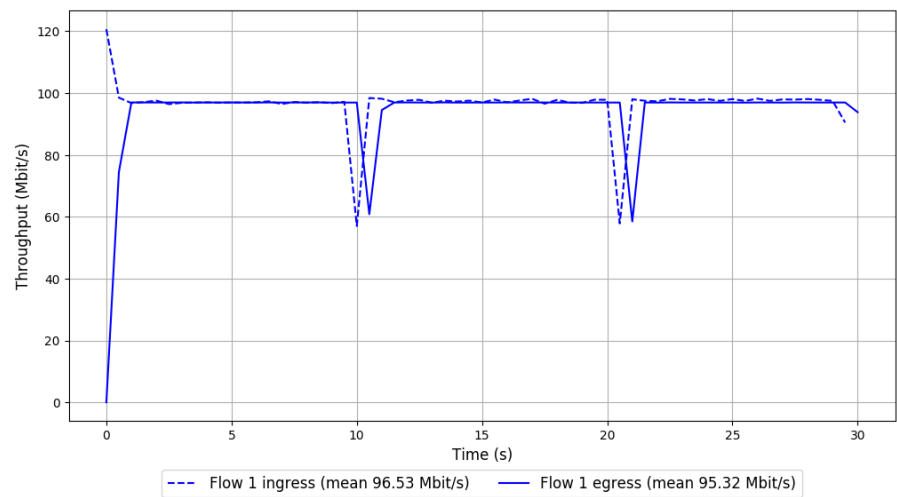
Run 5: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 97.58 Mbit/s)　　Flow 1 egress (mean 97.48 Mbit/s)

· Flow 1 (95th percentile 32.66 ms)

```
Run 1: Statistics of FillP

Start at: 2018-10-02 07:11:58
End at: 2018-10-02 07:12:29
Local clock offset: -5.999 ms
Remote clock offset: 0.072 ms


# Below is generated by plot.py at 2018-10-02 08:55:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 95.32 Mbit/s
95th percentile per-packet one-way delay: 27.817 ms
Loss rate: 1.17%
-- Flow 1:
Average throughput: 95.32 Mbit/s
95th percentile per-packet one-way delay: 27.817 ms
Loss rate: 1.17%
```

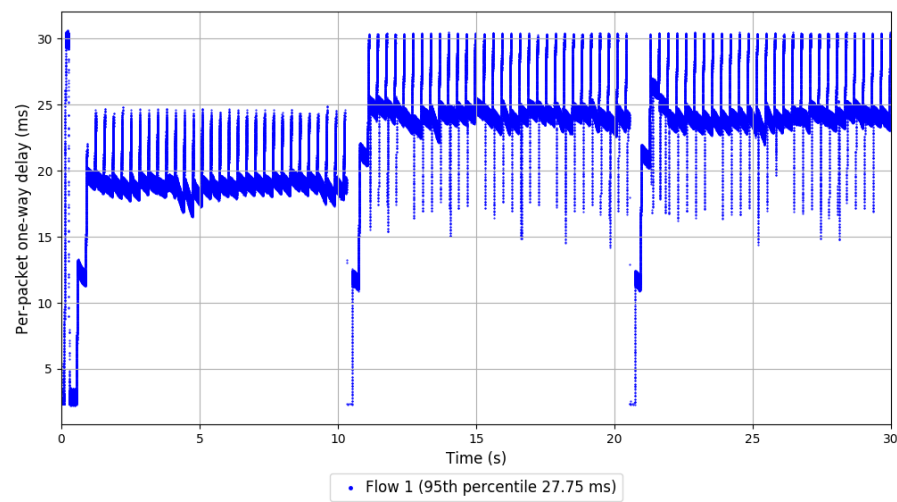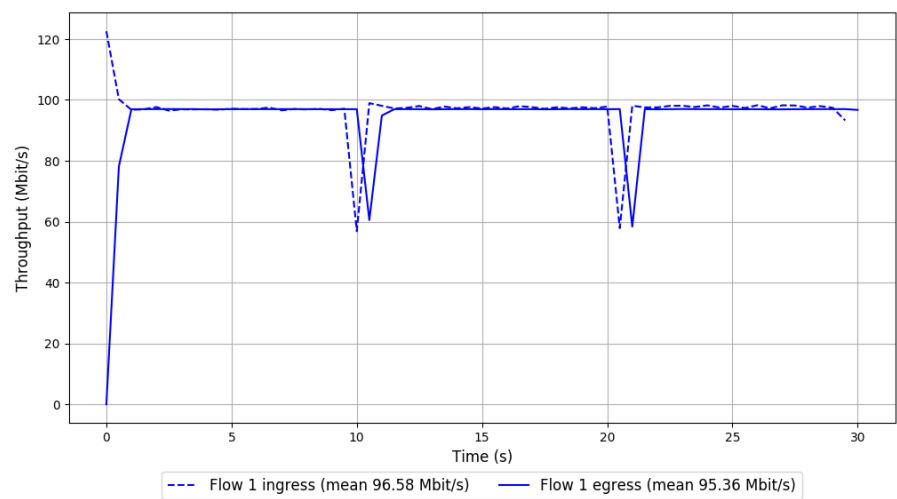Run 1: Report of FillP — Data Link

```
Run 2: Statistics of FillP

Start at: 2018-10-02 07:32:03
End at: 2018-10-02 07:32:33
Local clock offset: -7.139 ms
Remote clock offset: -0.089 ms


# Below is generated by plot.py at 2018-10-02 08:55:37
# Datalink statistics
-- Total of 1 flow:
Average throughput: 95.36 Mbit/s
95th percentile per-packet one-way delay: 27.747 ms
Loss rate: 1.19%
-- Flow 1:
Average throughput: 95.36 Mbit/s
95th percentile per-packet one-way delay: 27.747 ms
Loss rate: 1.19%
```

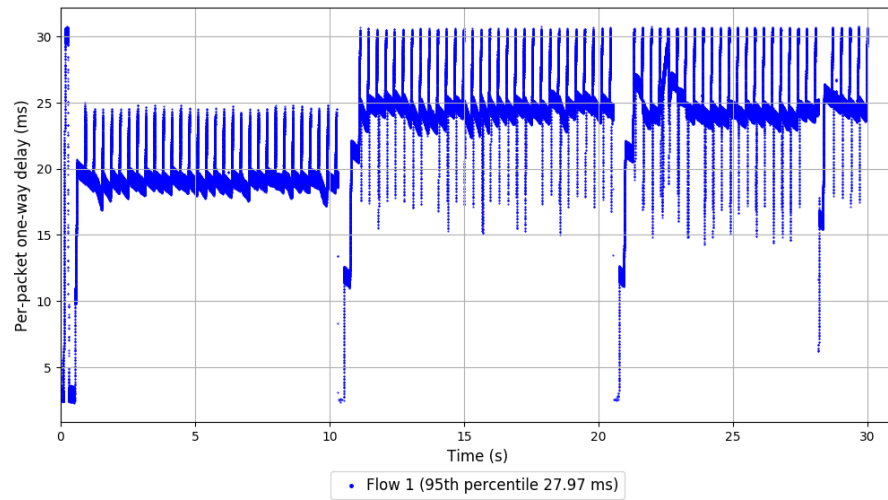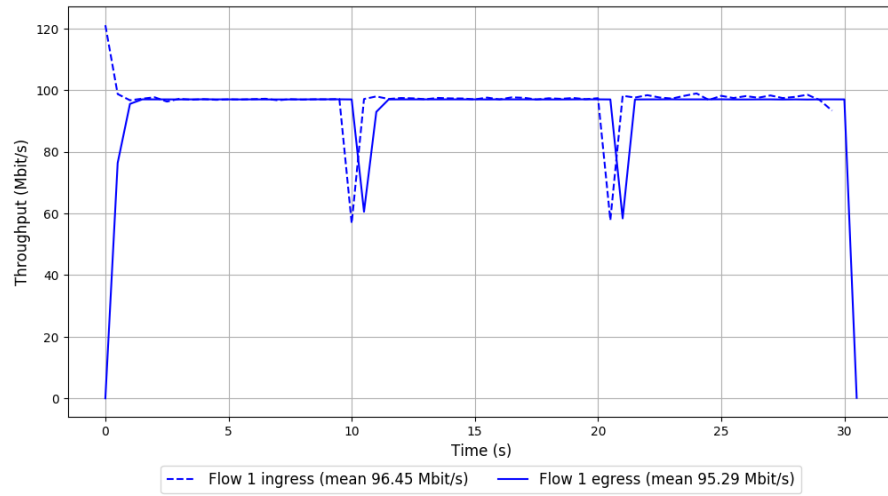Run 2: Report of FillP — Data Link

```
Run 3: Statistics of FillP

Start at: 2018-10-02 07:52:06
End at: 2018-10-02 07:52:37
Local clock offset: -4.776 ms
Remote clock offset: -0.184 ms


# Below is generated by plot.py at 2018-10-02 08:55:37
# Datalink statistics
-- Total of 1 flow:
Average throughput: 95.29 Mbit/s
95th percentile per-packet one-way delay: 27.974 ms
Loss rate: 1.11%
-- Flow 1:
Average throughput: 95.29 Mbit/s
95th percentile per-packet one-way delay: 27.974 ms
Loss rate: 1.11%
```

Run 3: Report of FillP — Data Link

Flow 1 ingress (mean 96.45 Mbit/s) Flow 1 egress (mean 95.29 Mbit/s)

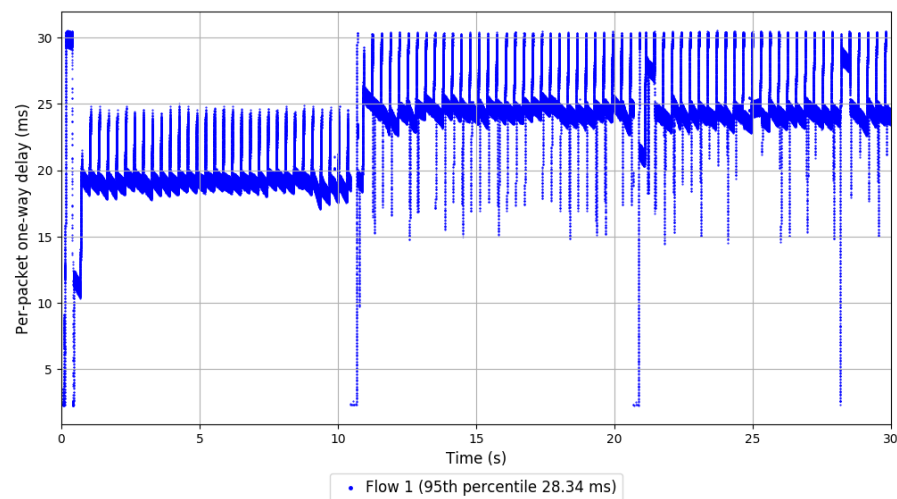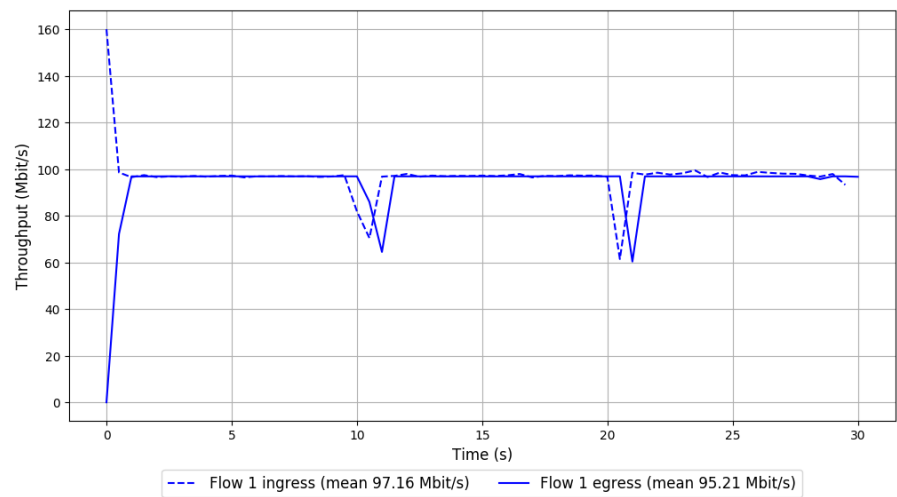Flow 1 (95th percentile 27.97 ms)

```
Run 4: Statistics of FillP

Start at: 2018-10-02 08:12:10
End at: 2018-10-02 08:12:40
Local clock offset: -1.8 ms
Remote clock offset: -0.277 ms


# Below is generated by plot.py at 2018-10-02 08:55:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 95.21 Mbit/s
95th percentile per-packet one-way delay: 28.335 ms
Loss rate: 1.94%
-- Flow 1:
Average throughput: 95.21 Mbit/s
95th percentile per-packet one-way delay: 28.335 ms
Loss rate: 1.94%
```

Run 4: Report of FillP — Data Link

Flow 1 ingress (mean 97.16 Mbit/s)   Flow 1 egress (mean 95.21 Mbit/s)

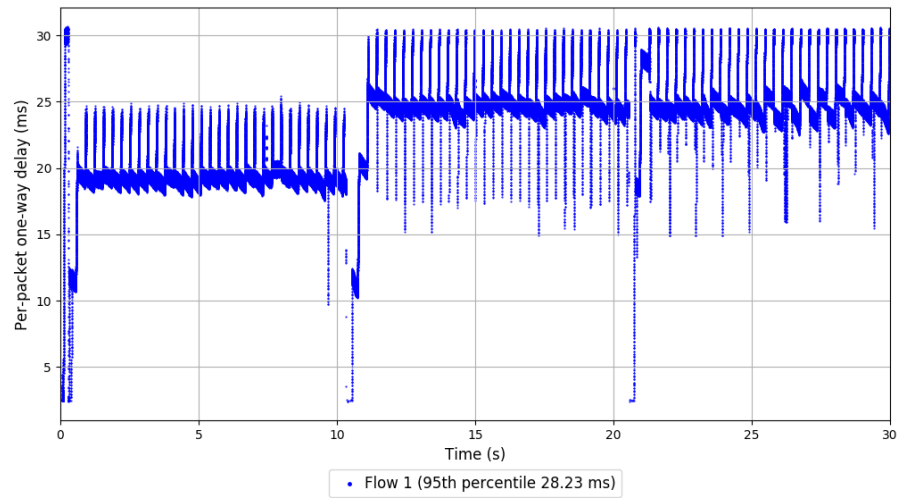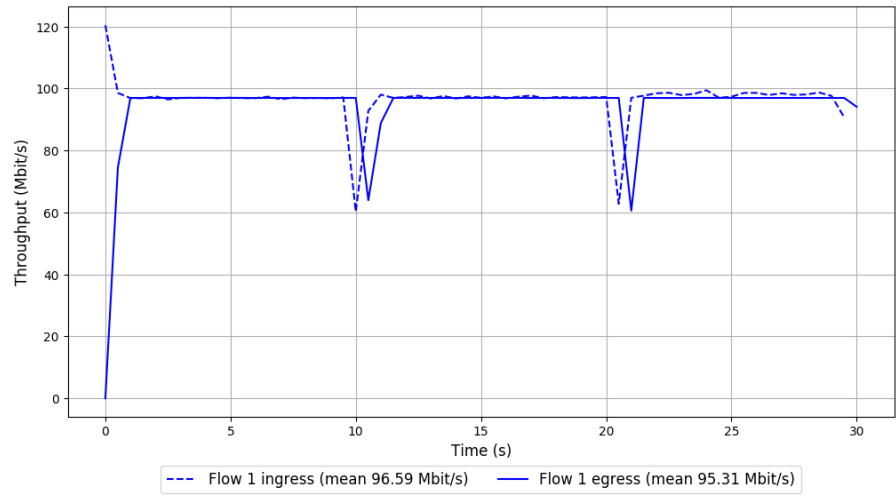Flow 1 (95th percentile 28.34 ms)

```
Run 5: Statistics of FillP

Start at: 2018-10-02 08:32:19
End at: 2018-10-02 08:32:49
Local clock offset: -1.404 ms
Remote clock offset: -0.229 ms


# Below is generated by plot.py at 2018-10-02 08:56:02
# Datalink statistics
-- Total of 1 flow:
Average throughput: 95.31 Mbit/s
95th percentile per-packet one-way delay: 28.234 ms
Loss rate: 1.23%
-- Flow 1:
Average throughput: 95.31 Mbit/s
95th percentile per-packet one-way delay: 28.234 ms
Loss rate: 1.23%
```

Run 5: Report of FillP — Data Link

Flow 1 ingress (mean 96.59 Mbit/s)   Flow 1 egress (mean 95.31 Mbit/s)
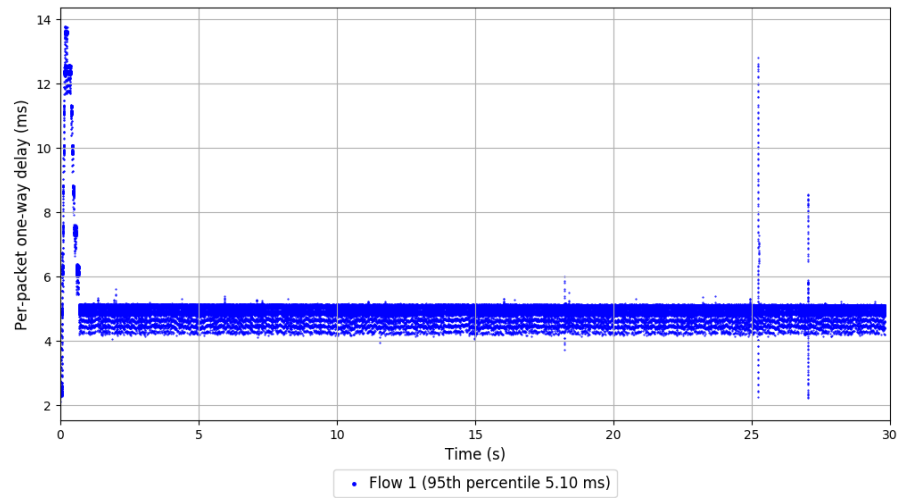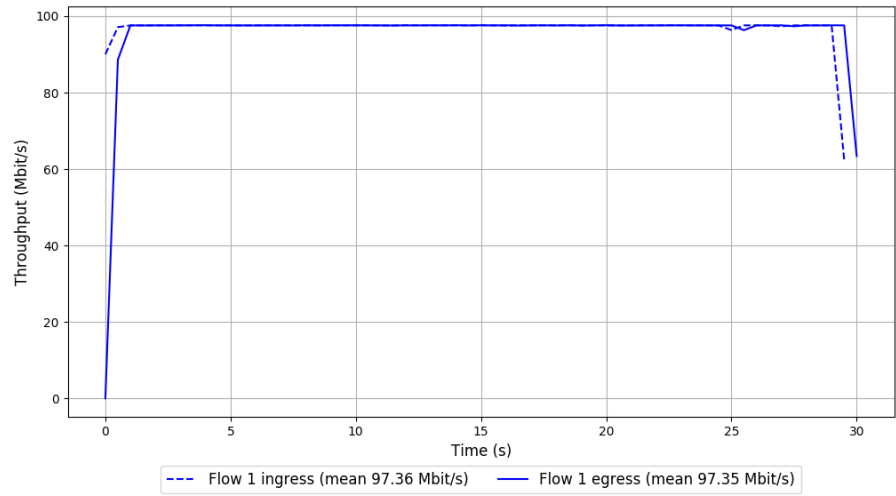

Flow 1 (95th percentile 28.23 ms)

```
Run 1: Statistics of Indigo

Start at: 2018-10-02 07:29:46
End at: 2018-10-02 07:30:16
Local clock offset: -7.06 ms
Remote clock offset: -0.111 ms


# Below is generated by plot.py at 2018-10-02 08:56:02
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.35 Mbit/s
95th percentile per-packet one-way delay: 5.104 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 97.35 Mbit/s
95th percentile per-packet one-way delay: 5.104 ms
Loss rate: 0.00%
```

Run 1: Report of Indigo — Data Link

Flow 1 ingress (mean 97.36 Mbit/s)   Flow 1 egress (mean 97.35 Mbit/s)

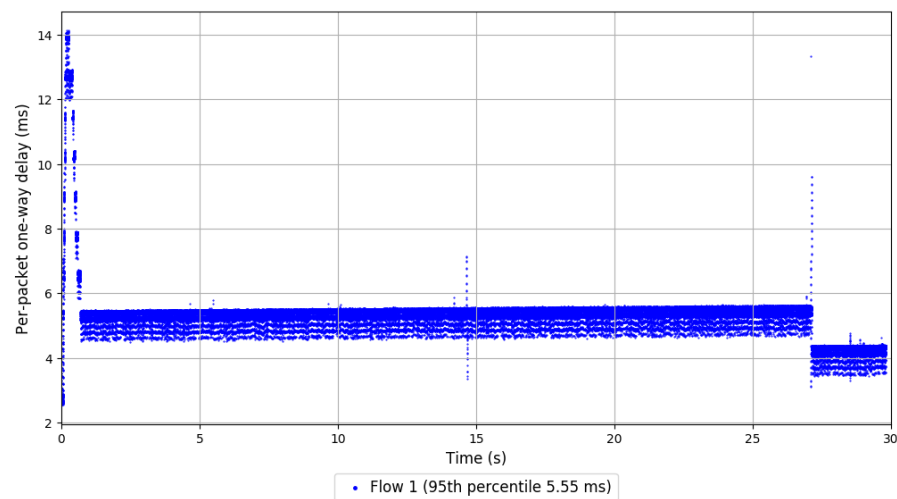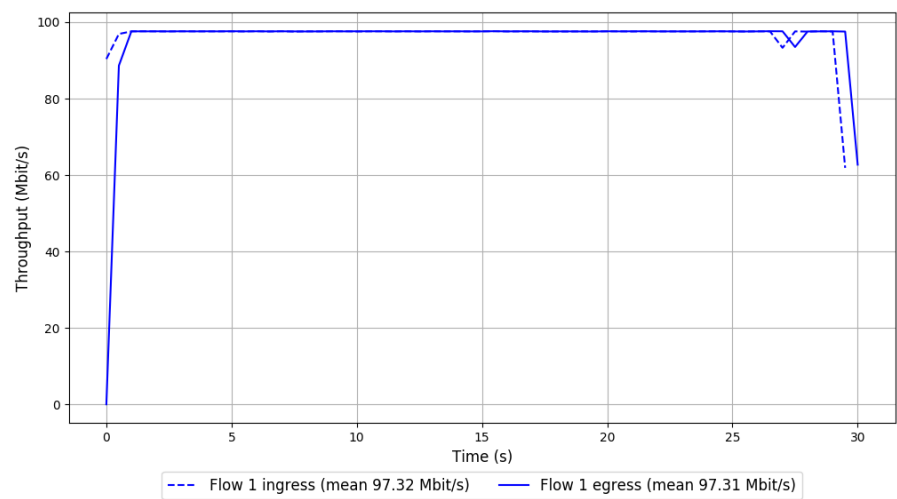Flow 1 (95th percentile 5.10 ms)

```
Run 2: Statistics of Indigo

Start at: 2018-10-02 07:49:49
End at: 2018-10-02 07:50:19
Local clock offset: -5.69 ms
Remote clock offset: -0.142 ms


# Below is generated by plot.py at 2018-10-02 08:56:31
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.31 Mbit/s
95th percentile per-packet one-way delay: 5.551 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 97.31 Mbit/s
95th percentile per-packet one-way delay: 5.551 ms
Loss rate: 0.00%
```
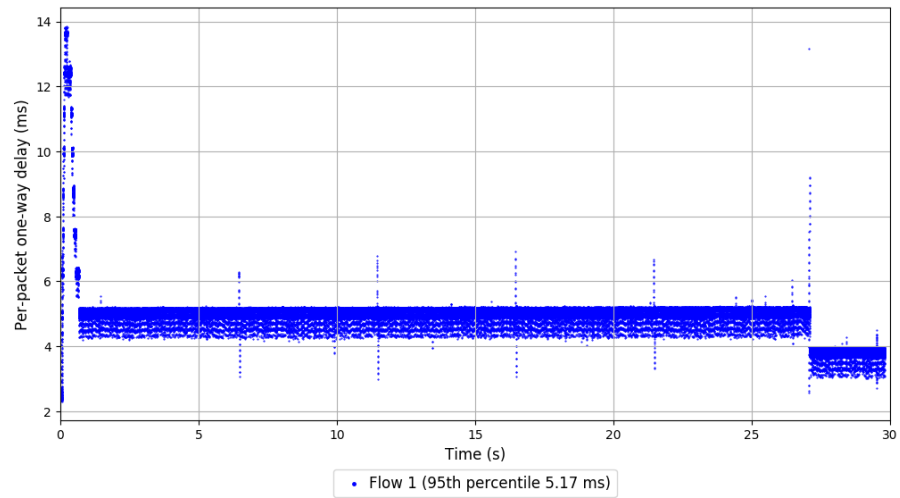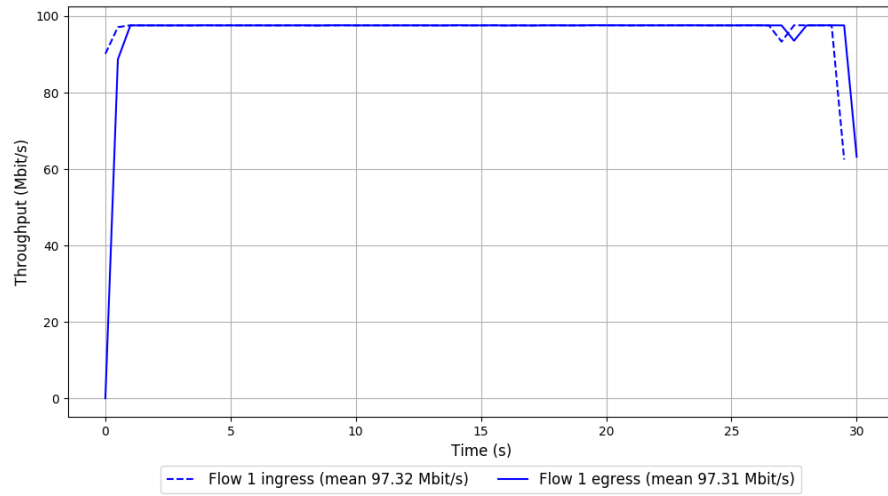
Run 2: Report of Indigo — Data Link

Flow 1 ingress (mean 97.32 Mbit/s)   Flow 1 egress (mean 97.31 Mbit/s)

Flow 1 (95th percentile 5.55 ms)

```
Run 3: Statistics of Indigo

Start at: 2018-10-02 08:09:53
End at: 2018-10-02 08:10:23
Local clock offset: -2.013 ms
Remote clock offset: -0.27 ms


# Below is generated by plot.py at 2018-10-02 08:56:31
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.31 Mbit/s
95th percentile per-packet one-way delay: 5.171 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 97.31 Mbit/s
95th percentile per-packet one-way delay: 5.171 ms
Loss rate: 0.00%
```

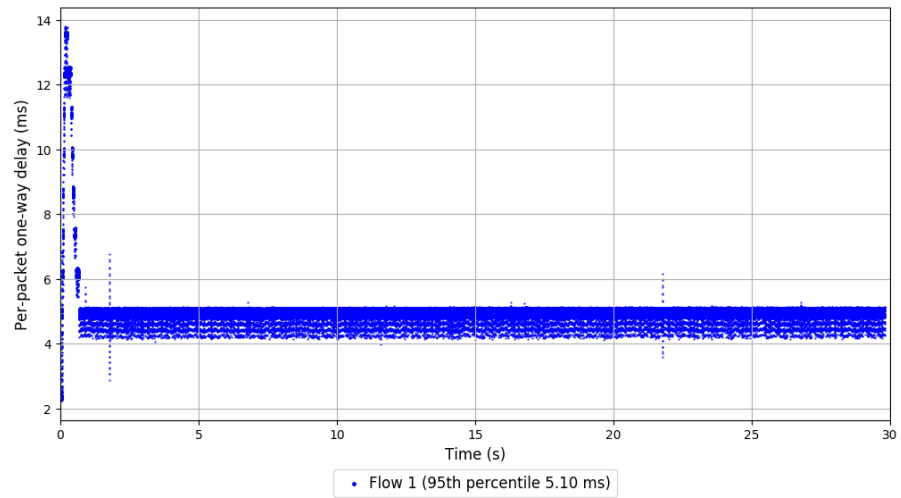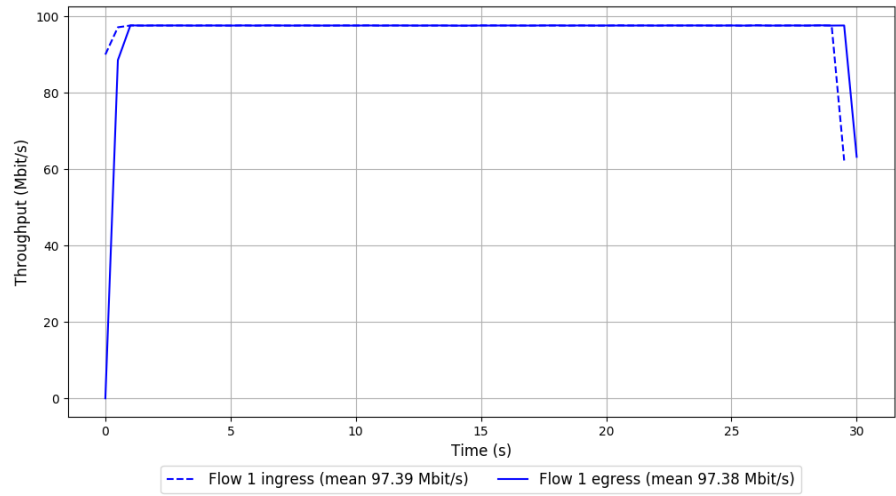Run 3: Report of Indigo — Data Link

```
Run 4: Statistics of Indigo

Start at: 2018-10-02 08:30:02
End at: 2018-10-02 08:30:32
Local clock offset: -1.436 ms
Remote clock offset: -0.324 ms


# Below is generated by plot.py at 2018-10-02 08:56:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.38 Mbit/s
95th percentile per-packet one-way delay: 5.100 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 97.38 Mbit/s
95th percentile per-packet one-way delay: 5.100 ms
Loss rate: 0.00%
```

Run 4: Report of Indigo — Data Link

Flow 1 ingress (mean 97.39 Mbit/s)   Flow 1 egress (mean 97.38 Mbit/s)

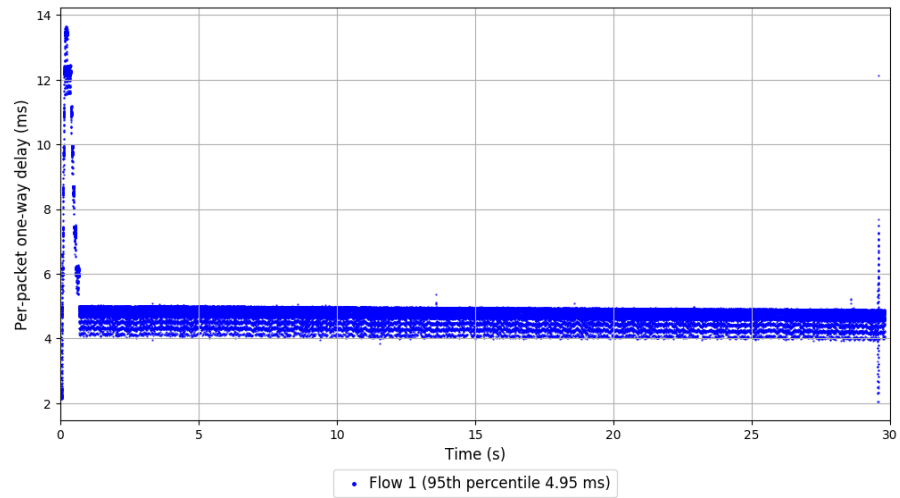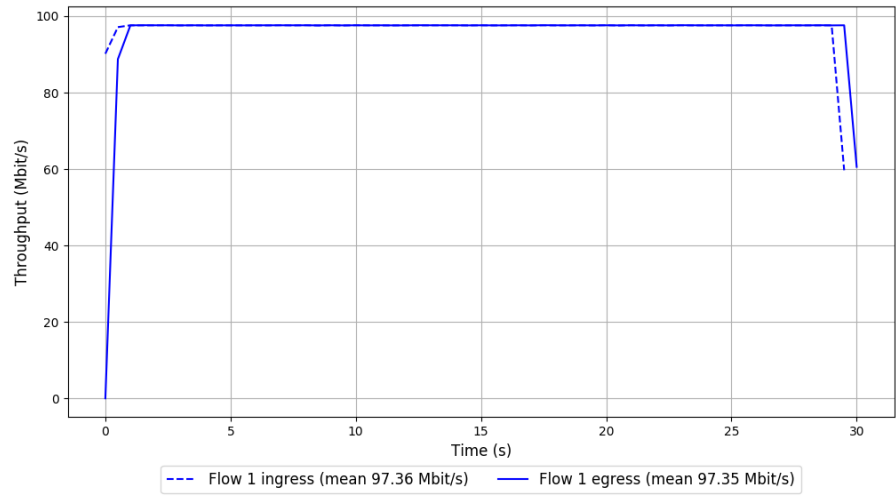• Flow 1 (95th percentile 5.10 ms)

```
Run 5: Statistics of Indigo

Start at: 2018-10-02 08:50:05
End at: 2018-10-02 08:50:35
Local clock offset: -2.504 ms
Remote clock offset: -0.295 ms


# Below is generated by plot.py at 2018-10-02 08:56:47
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.35 Mbit/s
95th percentile per-packet one-way delay: 4.945 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 97.35 Mbit/s
95th percentile per-packet one-way delay: 4.945 ms
Loss rate: 0.00%
```
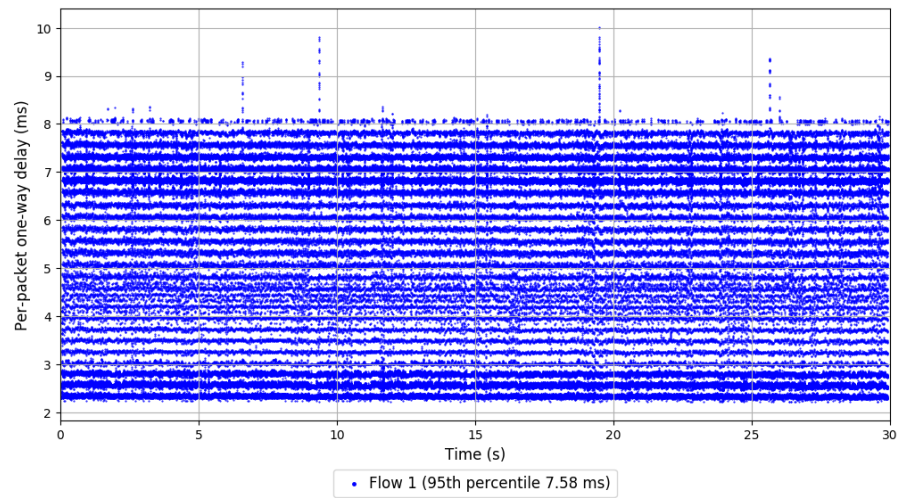
Run 5: Report of Indigo — Data Link

```
Run 1: Statistics of Indigo-96d2da3

Start at: 2018-10-02 07:27:33
End at: 2018-10-02 07:28:03
Local clock offset: -7.007 ms
Remote clock offset: -0.134 ms


# Below is generated by plot.py at 2018-10-02 08:56:47
# Datalink statistics
-- Total of 1 flow:
Average throughput: 91.27 Mbit/s
95th percentile per-packet one-way delay: 7.578 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 91.27 Mbit/s
95th percentile per-packet one-way delay: 7.578 ms
Loss rate: 0.00%
```
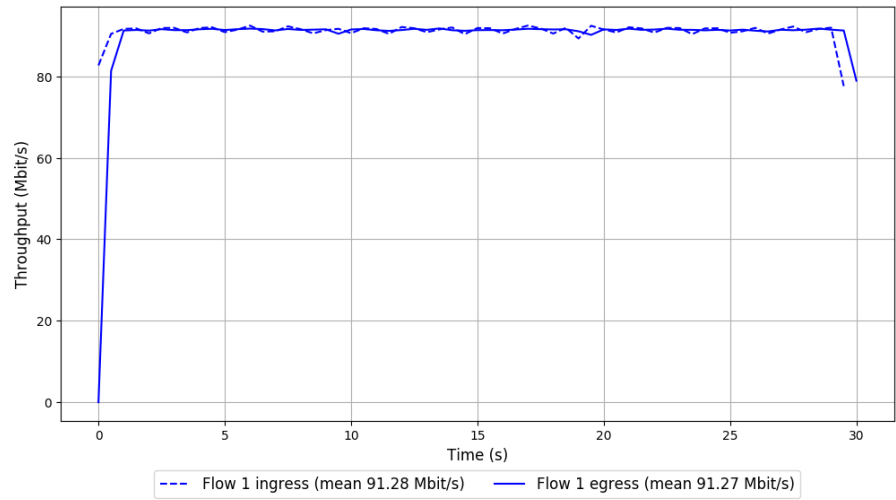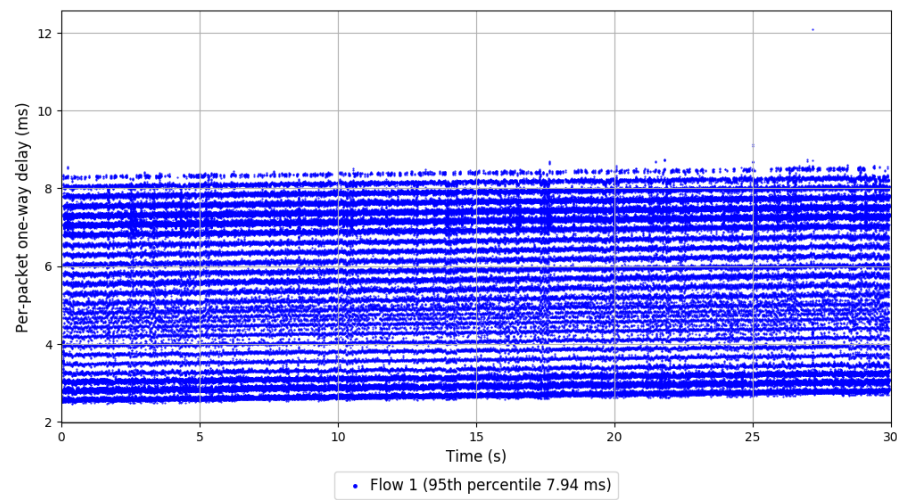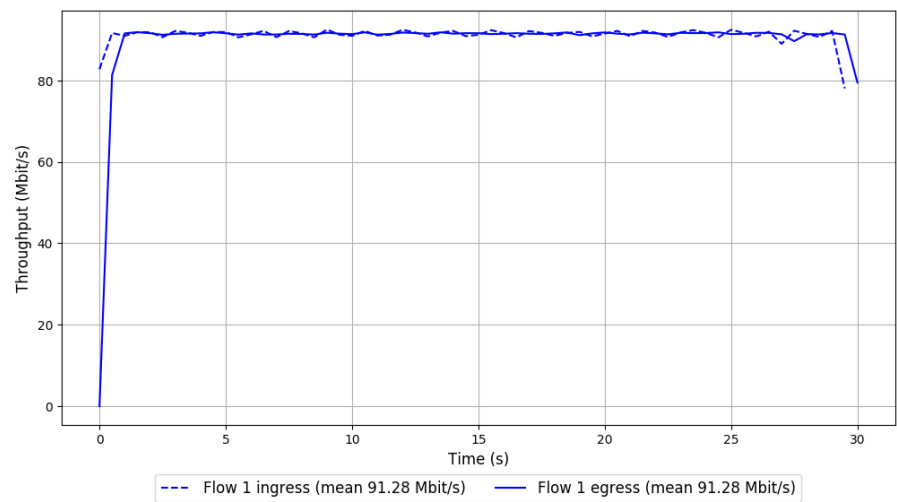
Run 1: Report of Indigo-96d2da3 — Data Link

```
Run 2: Statistics of Indigo-96d2da3

Start at: 2018-10-02 07:47:36
End at: 2018-10-02 07:48:06
Local clock offset: -6.551 ms
Remote clock offset: -0.152 ms


# Below is generated by plot.py at 2018-10-02 08:56:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 91.28 Mbit/s
95th percentile per-packet one-way delay: 7.940 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 91.28 Mbit/s
95th percentile per-packet one-way delay: 7.940 ms
Loss rate: 0.00%
```
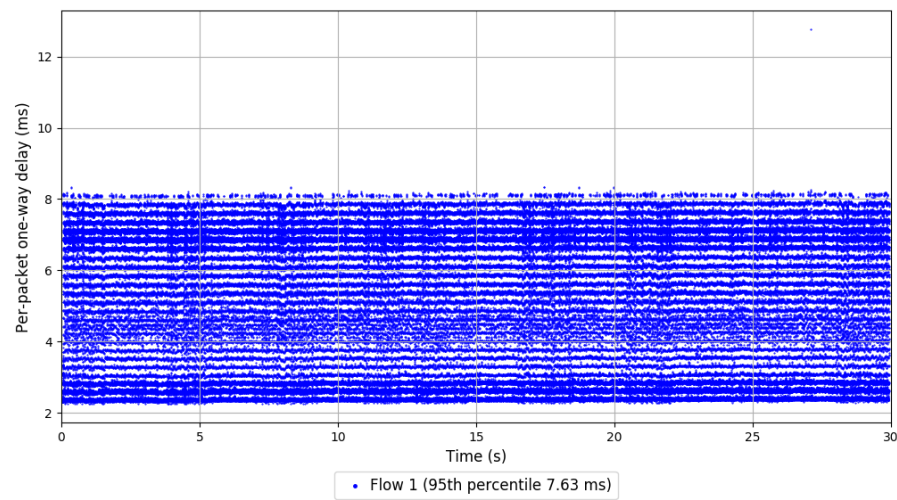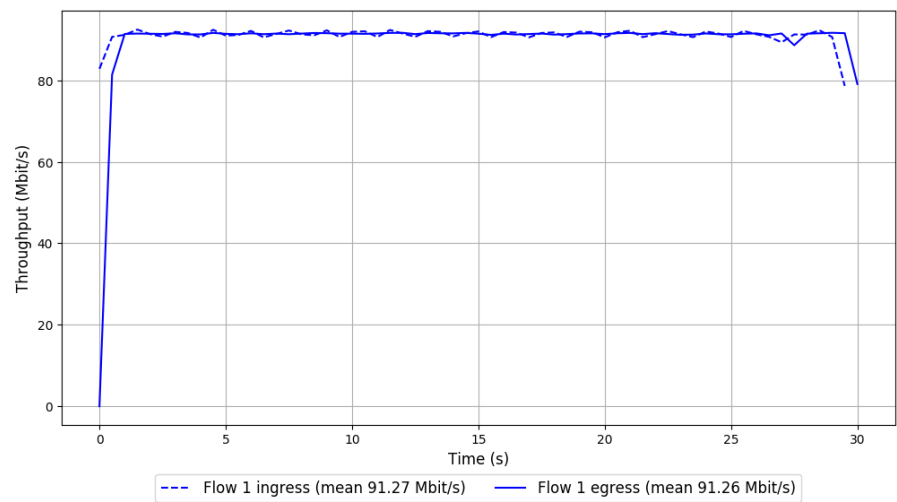
Run 2: Report of Indigo-96d2da3 — Data Link

```
Run 3: Statistics of Indigo-96d2da3

Start at: 2018-10-02 08:07:40
End at: 2018-10-02 08:08:10
Local clock offset: -2.145 ms
Remote clock offset: -0.248 ms


# Below is generated by plot.py at 2018-10-02 08:57:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 91.26 Mbit/s
95th percentile per-packet one-way delay: 7.630 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 91.26 Mbit/s
95th percentile per-packet one-way delay: 7.630 ms
Loss rate: 0.00%
```

Run 3: Report of Indigo-96d2da3 — Data Link

Flow 1 ingress (mean 91.27 Mbit/s) --- Flow 1 egress (mean 91.26 Mbit/s)

• Flow 1 (95th percentile 7.63 ms)

```
Run 4: Statistics of Indigo-96d2da3

Start at: 2018-10-02 08:27:49
End at: 2018-10-02 08:28:19
Local clock offset: -1.553 ms
Remote clock offset: -0.22 ms


# Below is generated by plot.py at 2018-10-02 08:57:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 91.31 Mbit/s
95th percentile per-packet one-way delay: 7.730 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 91.31 Mbit/s
95th percentile per-packet one-way delay: 7.730 ms
Loss rate: 0.00%
```
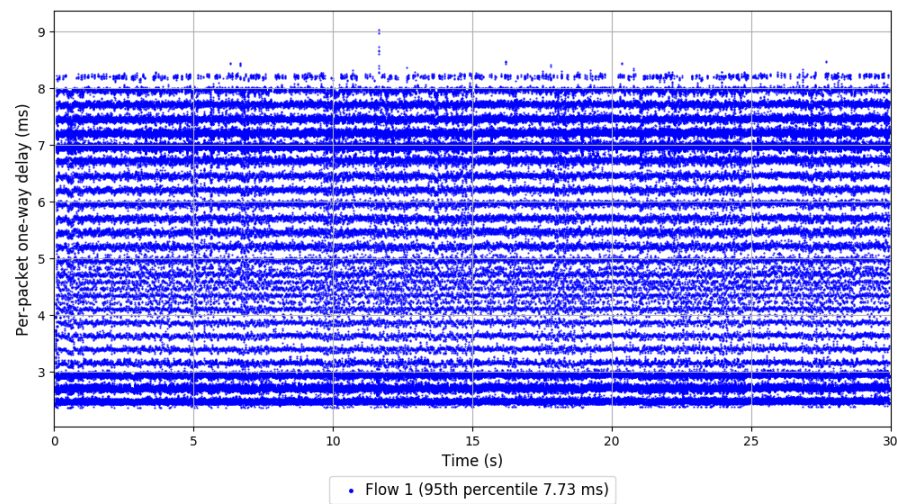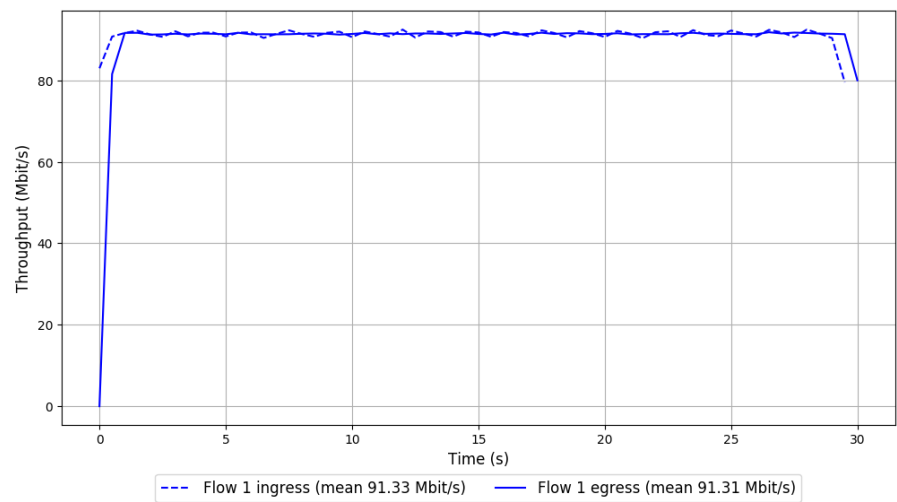
Run 4: Report of Indigo-96d2da3 — Data Link

Flow 1 ingress (mean 91.33 Mbit/s) --- Flow 1 egress (mean 91.31 Mbit/s)
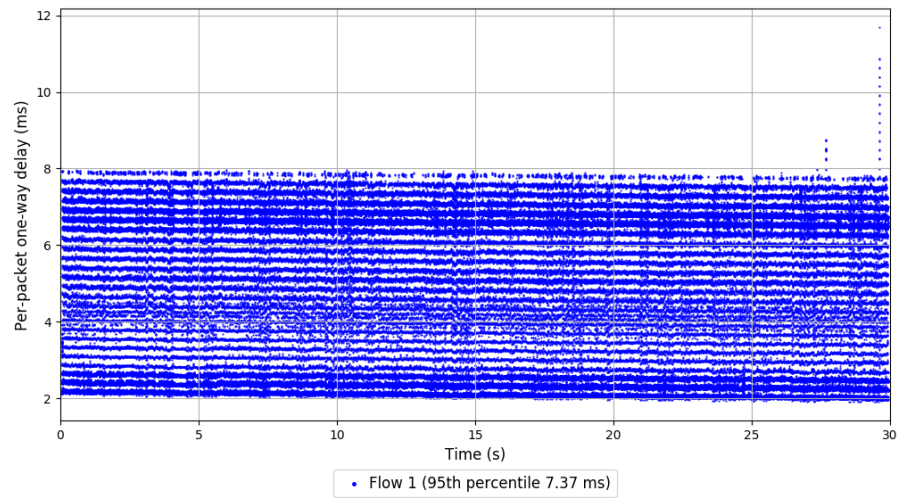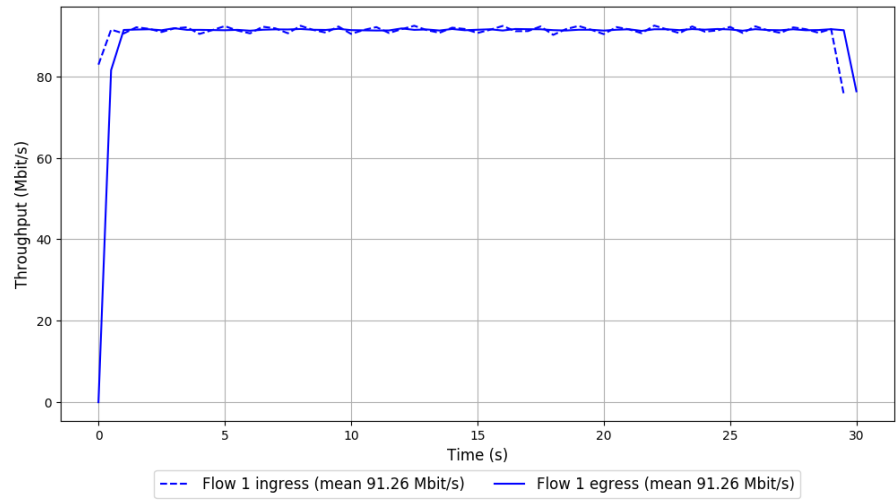

• Flow 1 (95th percentile 7.73 ms)

```
Run 5: Statistics of Indigo-96d2da3

Start at: 2018-10-02 08:47:52
End at: 2018-10-02 08:48:22
Local clock offset: -1.735 ms
Remote clock offset: -0.252 ms


# Below is generated by plot.py at 2018-10-02 08:57:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 91.26 Mbit/s
95th percentile per-packet one-way delay: 7.365 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 91.26 Mbit/s
95th percentile per-packet one-way delay: 7.365 ms
Loss rate: 0.00%
```

Run 5: Report of Indigo-96d2da3 — Data Link

Flow 1 ingress (mean 91.26 Mbit/s) --- Flow 1 egress (mean 91.26 Mbit/s)
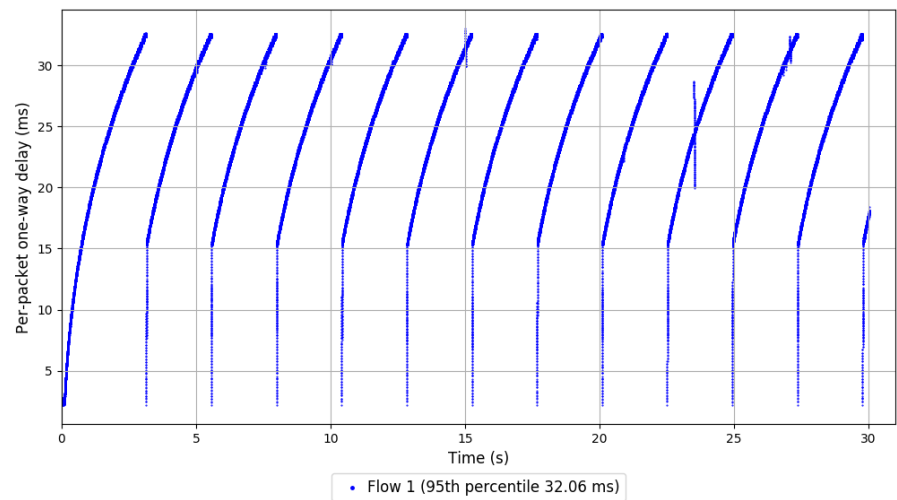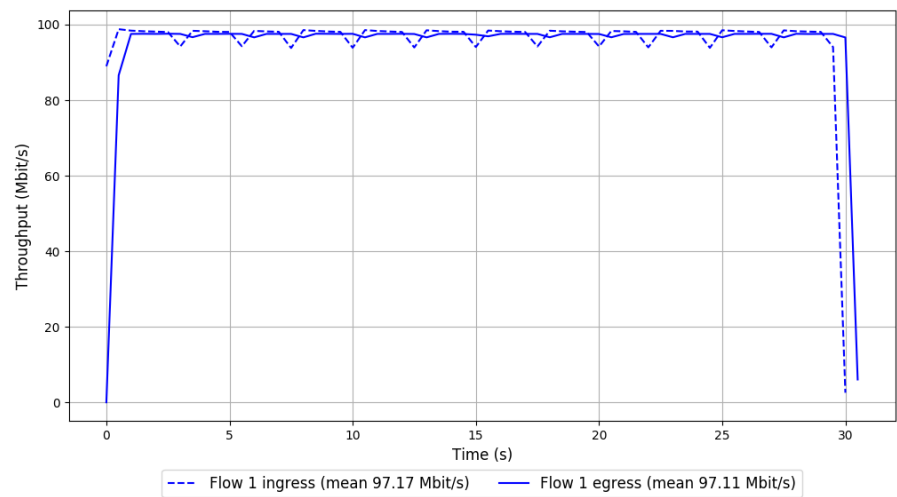

Flow 1 (95th percentile 7.37 ms)

```
Run 1: Statistics of LEDBAT

Start at: 2018-10-02 07:13:06
End at: 2018-10-02 07:13:36
Local clock offset: -6.046 ms
Remote clock offset: -0.053 ms

# Below is generated by plot.py at 2018-10-02 08:57:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.11 Mbit/s
95th percentile per-packet one-way delay: 32.065 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.11 Mbit/s
95th percentile per-packet one-way delay: 32.065 ms
Loss rate: 0.01%
```

Run 1: Report of LEDBAT — Data Link

Flow 1 ingress (mean 97.17 Mbit/s) — Flow 1 egress (mean 97.11 Mbit/s)

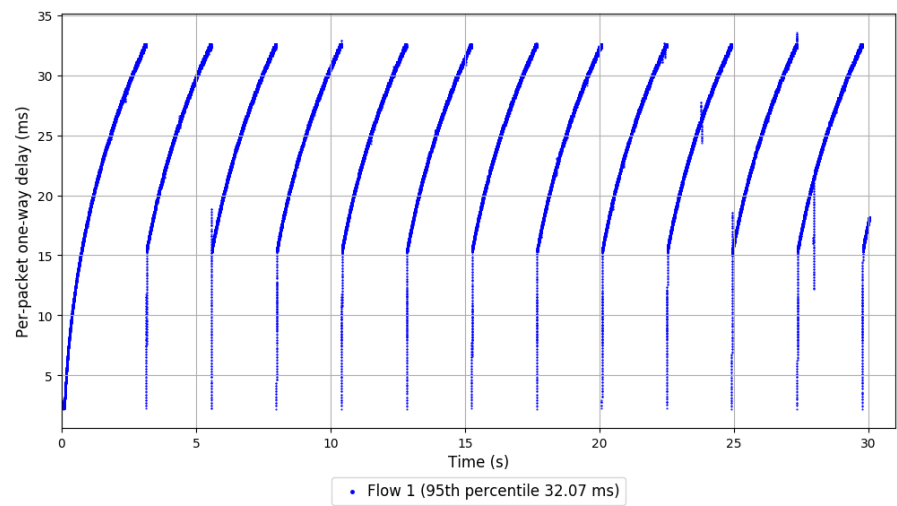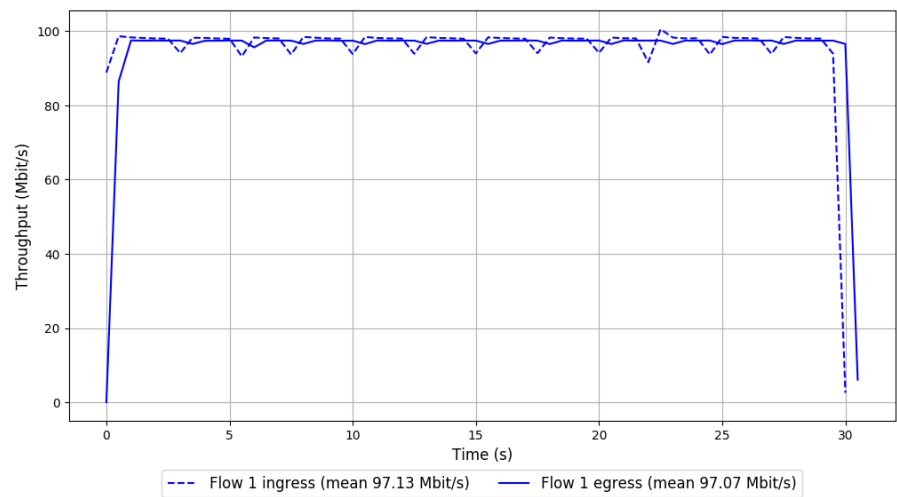• Flow 1 (95th percentile 32.06 ms)

```
Run 2: Statistics of LEDBAT

Start at: 2018-10-02 07:33:10
End at: 2018-10-02 07:33:40
Local clock offset: -7.181 ms
Remote clock offset: -0.155 ms

# Below is generated by plot.py at 2018-10-02 08:58:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.07 Mbit/s
95th percentile per-packet one-way delay: 32.072 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.07 Mbit/s
95th percentile per-packet one-way delay: 32.072 ms
Loss rate: 0.01%
```

Run 2: Report of LEDBAT — Data Link

Flow 1 ingress (mean 97.13 Mbit/s)   Flow 1 egress (mean 97.07 Mbit/s)

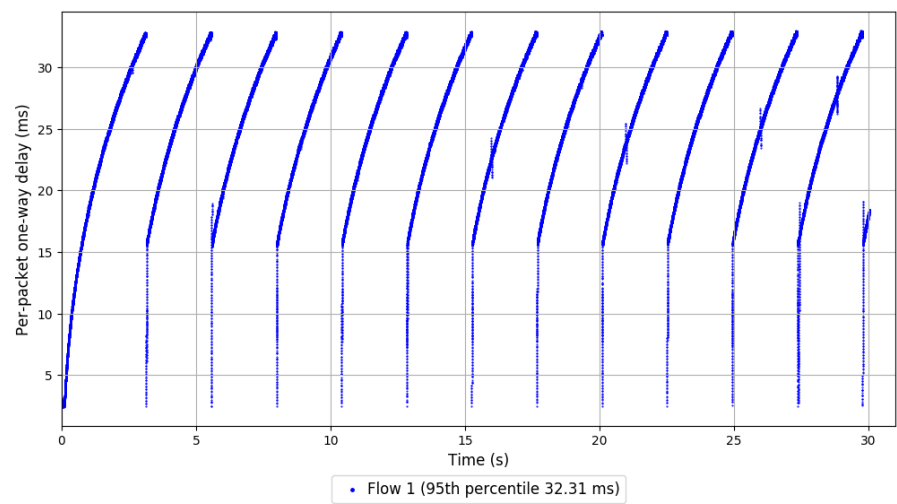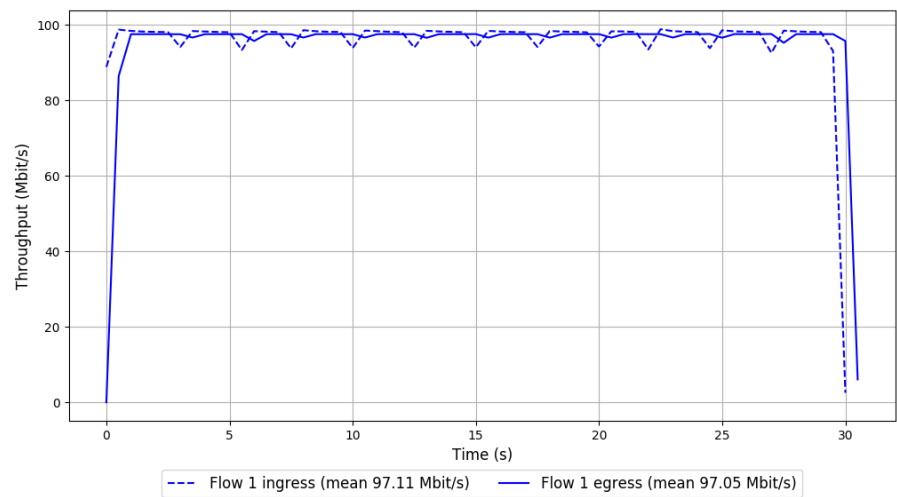• Flow 1 (95th percentile 32.07 ms)

```
Run 3: Statistics of LEDBAT

Start at: 2018-10-02 07:53:14
End at: 2018-10-02 07:53:44
Local clock offset: -4.427 ms
Remote clock offset: -0.156 ms


# Below is generated by plot.py at 2018-10-02 08:58:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.05 Mbit/s
95th percentile per-packet one-way delay: 32.315 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.05 Mbit/s
95th percentile per-packet one-way delay: 32.315 ms
Loss rate: 0.01%
```
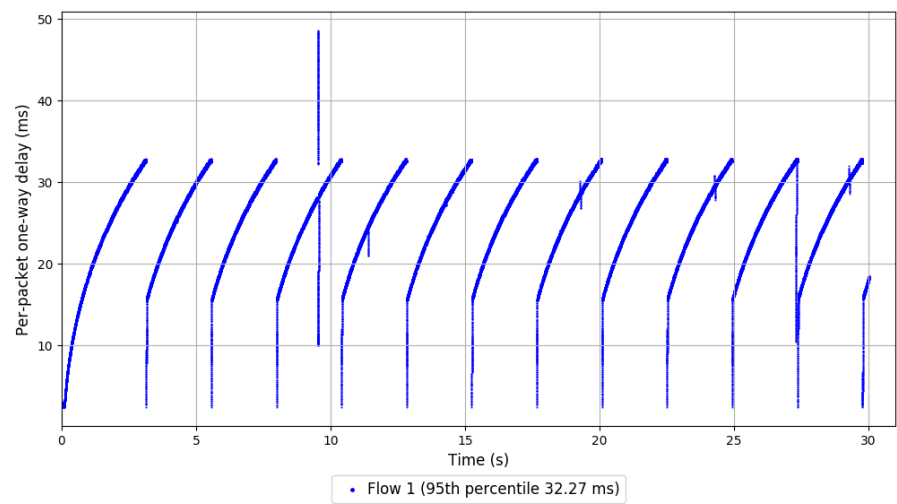
Run 3: Report of LEDBAT — Data Link

Flow 1 ingress (mean 97.11 Mbit/s) — — — — Flow 1 egress (mean 97.05 Mbit/s)

Flow 1 (95th percentile 32.31 ms)

```
Run 4: Statistics of LEDBAT

Start at: 2018-10-02 08:13:17
End at: 2018-10-02 08:13:47
Local clock offset: -1.722 ms
Remote clock offset: -0.15 ms

# Below is generated by plot.py at 2018-10-02 08:58:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.09 Mbit/s
95th percentile per-packet one-way delay: 32.265 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.09 Mbit/s
95th percentile per-packet one-way delay: 32.265 ms
Loss rate: 0.01%
```
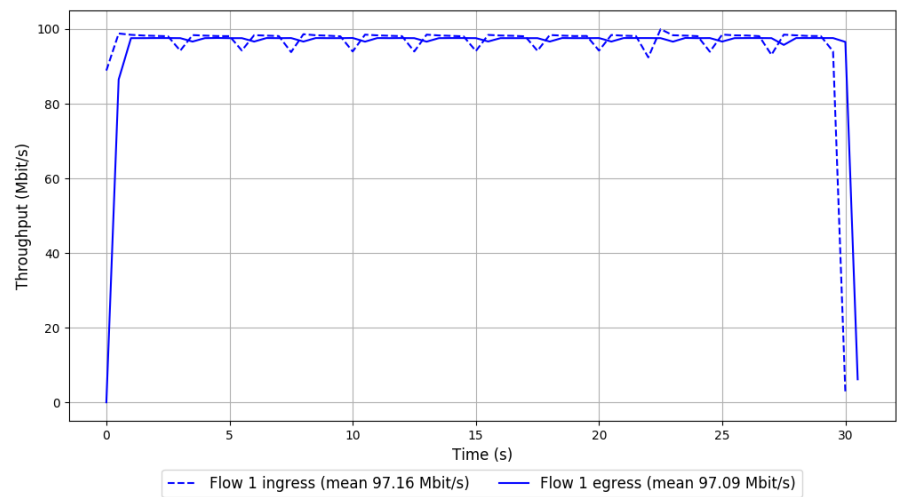
Run 4: Report of LEDBAT — Data Link

Flow 1 ingress (mean 97.16 Mbit/s)   Flow 1 egress (mean 97.09 Mbit/s)

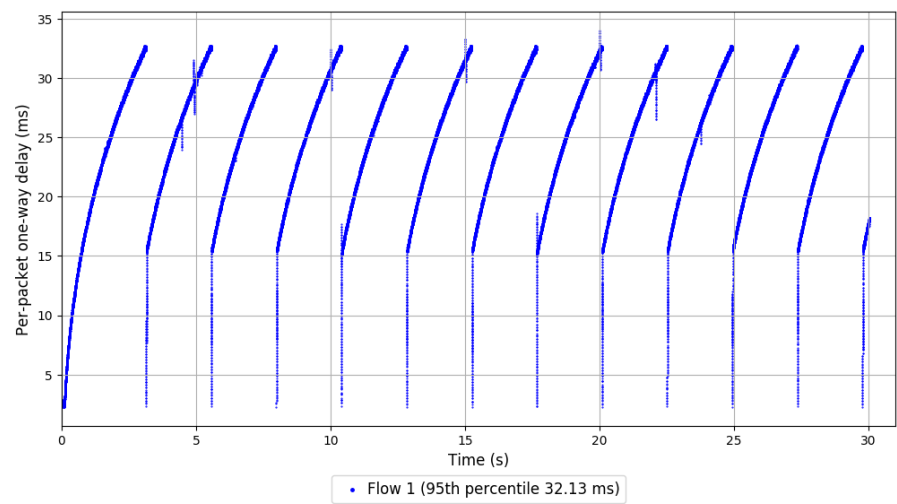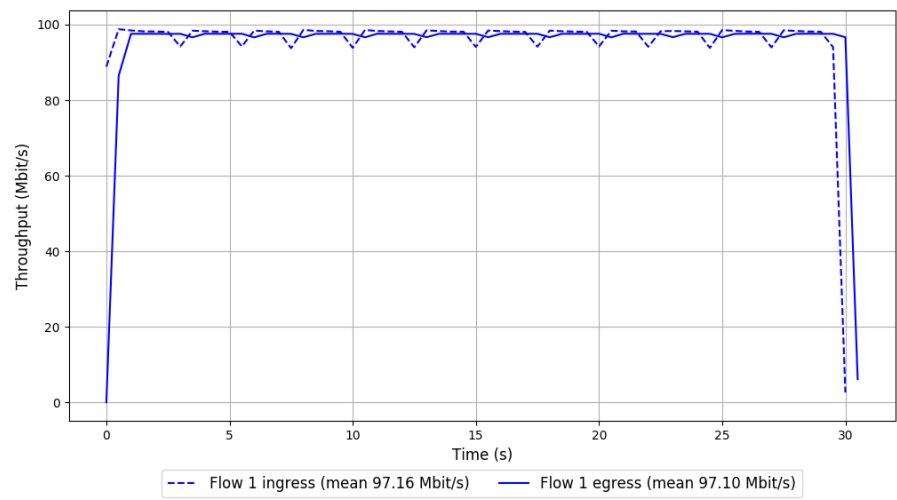Flow 1 (95th percentile 32.27 ms)

```
Run 5: Statistics of LEDBAT

Start at: 2018-10-02 08:33:26
End at: 2018-10-02 08:33:56
Local clock offset: -1.3 ms
Remote clock offset: -0.266 ms


# Below is generated by plot.py at 2018-10-02 08:58:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.10 Mbit/s
95th percentile per-packet one-way delay: 32.127 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.10 Mbit/s
95th percentile per-packet one-way delay: 32.127 ms
Loss rate: 0.01%
```

Run 5: Report of LEDBAT — Data Link

Flow 1 ingress (mean 97.16 Mbit/s) —— Flow 1 egress (mean 97.10 Mbit/s)

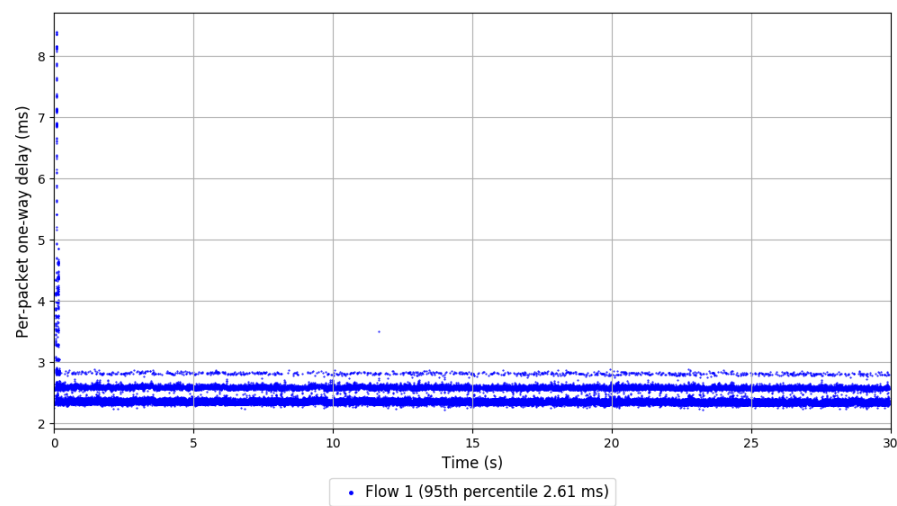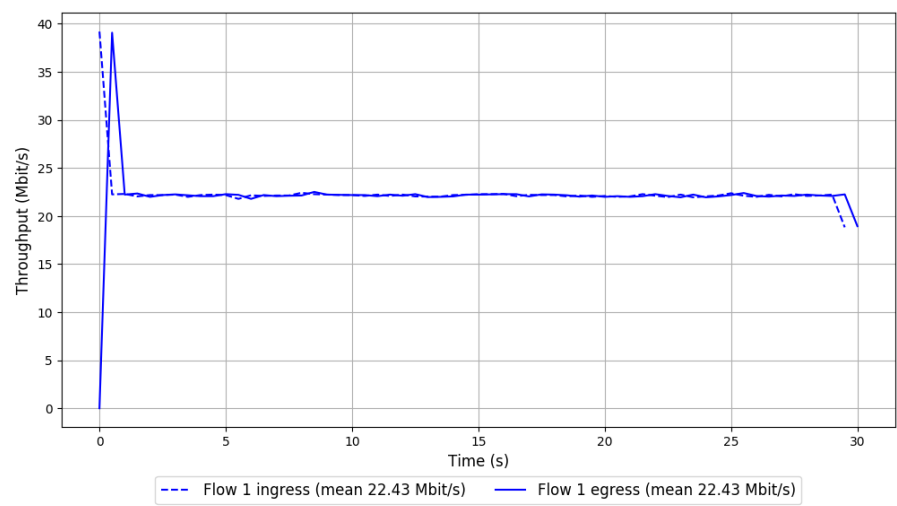• Flow 1 (95th percentile 32.13 ms)

```
Run 1: Statistics of Indigo-Muses

Start at: 2018-10-02 07:28:41
End at: 2018-10-02 07:29:11
Local clock offset: -7.092 ms
Remote clock offset: -0.156 ms


# Below is generated by plot.py at 2018-10-02 08:58:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 22.43 Mbit/s
95th percentile per-packet one-way delay: 2.614 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 22.43 Mbit/s
95th percentile per-packet one-way delay: 2.614 ms
Loss rate: 0.00%
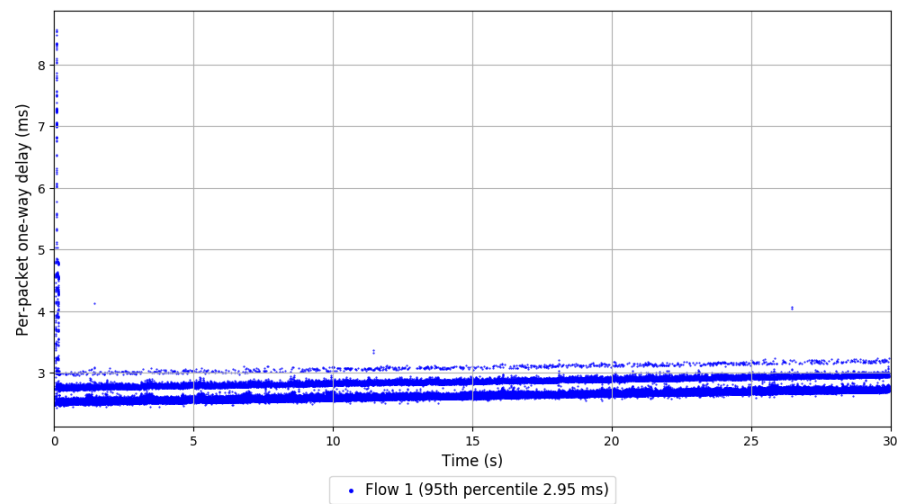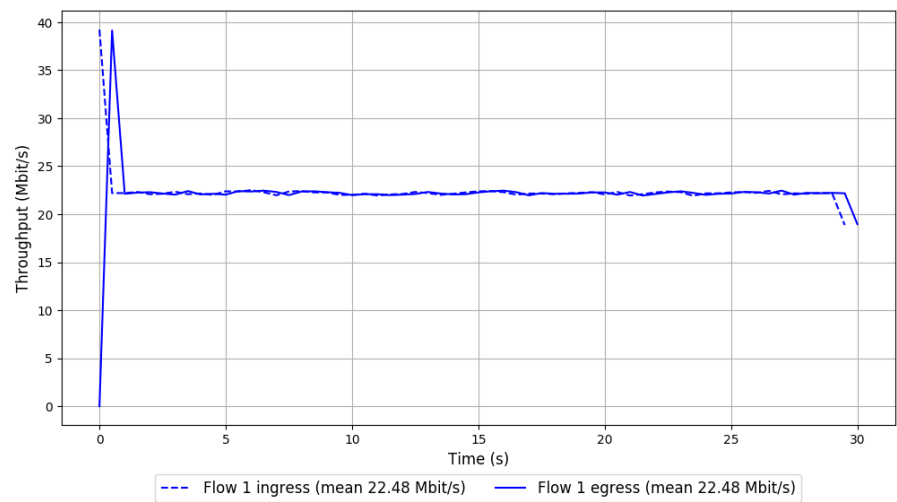```

Run 1: Report of Indigo-Muses — Data Link

```
Run 2: Statistics of Indigo-Muses

Start at: 2018-10-02 07:48:44
End at: 2018-10-02 07:49:14
Local clock offset: -6.09 ms
Remote clock offset: -0.233 ms

Below is generated by plot.py at 2018-10-02 08:58:14
Datalink statistics
-- Total of 1 flow:
Average throughput: 22.48 Mbit/s
95th percentile per-packet one-way delay: 2.951 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 22.48 Mbit/s
95th percentile per-packet one-way delay: 2.951 ms
Loss rate: 0.00%
```
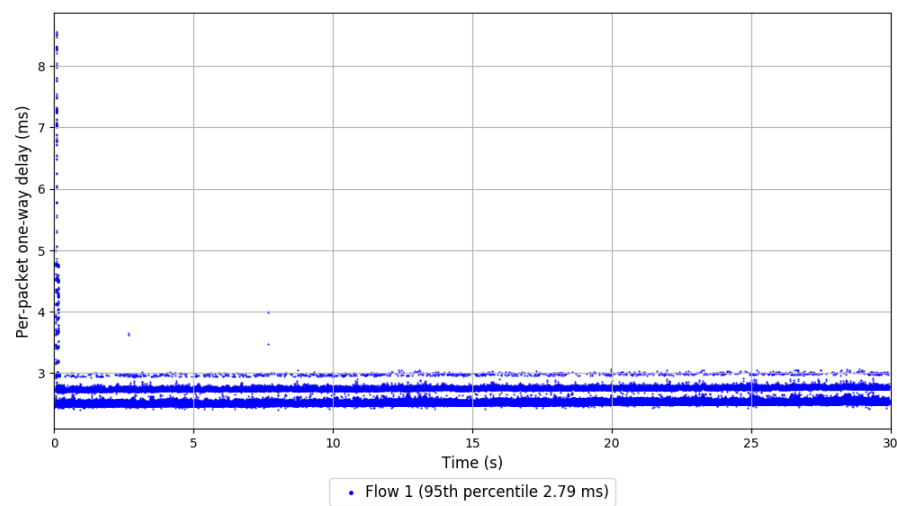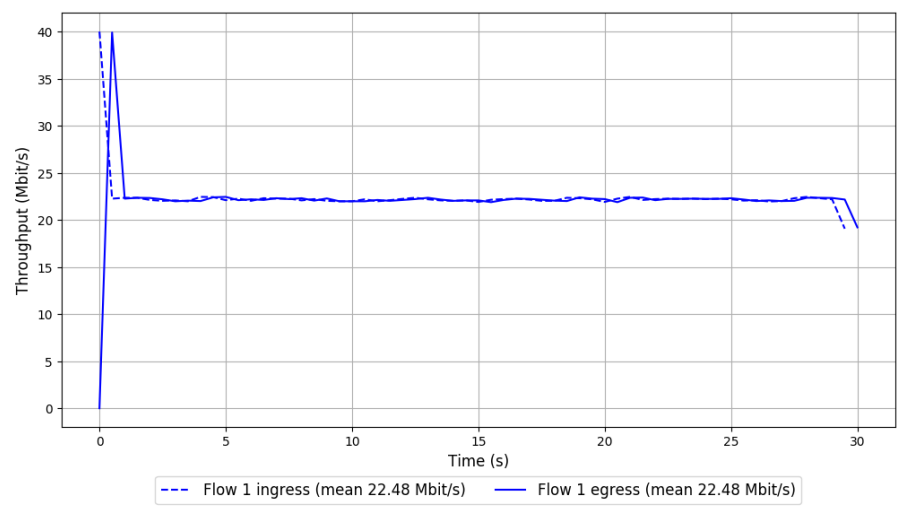
Run 2: Report of Indigo-Muses — Data Link

```
Run 3: Statistics of Indigo-Muses

Start at: 2018-10-02 08:08:47
End at: 2018-10-02 08:09:18
Local clock offset: -2.109 ms
Remote clock offset: -0.158 ms


# Below is generated by plot.py at 2018-10-02 08:58:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 22.48 Mbit/s
95th percentile per-packet one-way delay: 2.793 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 22.48 Mbit/s
95th percentile per-packet one-way delay: 2.793 ms
Loss rate: 0.00%
```

Run 3: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 22.48 Mbit/s) --- Flow 1 egress (mean 22.48 Mbit/s)
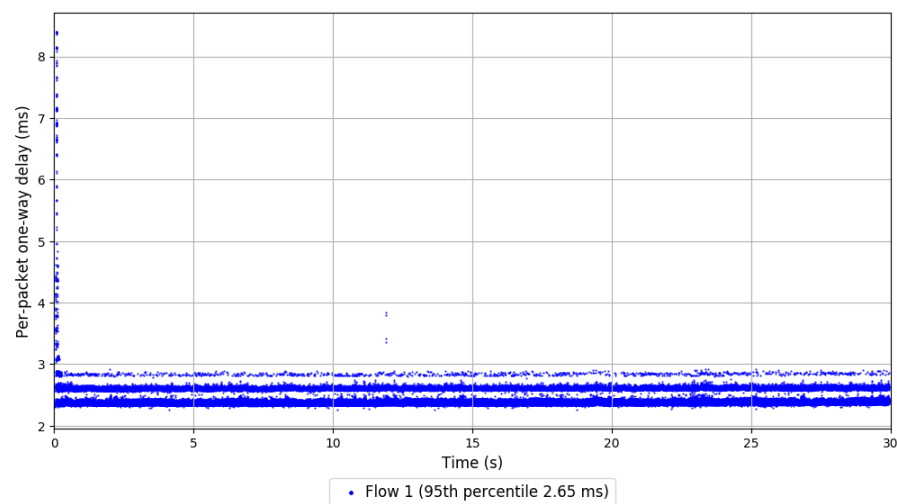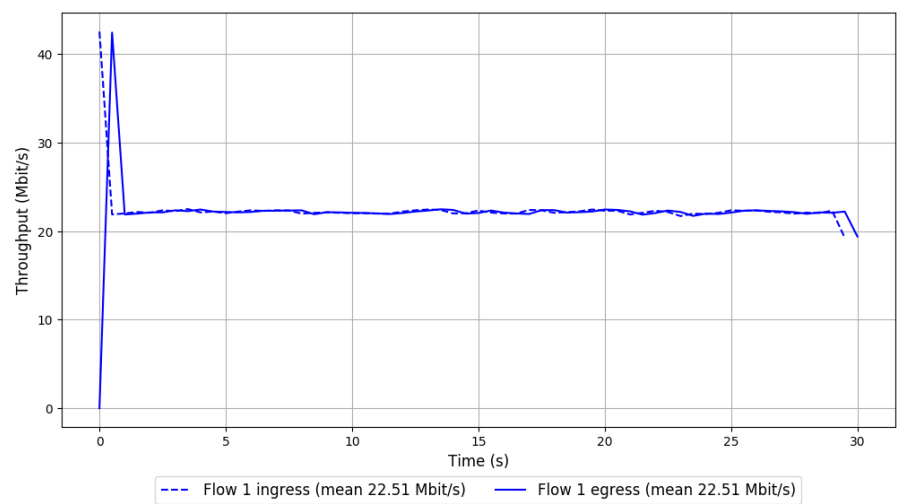

• Flow 1 (95th percentile 2.79 ms)

```
Run 4: Statistics of Indigo-Muses

Start at: 2018-10-02 08:28:56
End at: 2018-10-02 08:29:27
Local clock offset: -1.443 ms
Remote clock offset: -0.235 ms


# Below is generated by plot.py at 2018-10-02 08:58:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 22.51 Mbit/s
95th percentile per-packet one-way delay: 2.649 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 22.51 Mbit/s
95th percentile per-packet one-way delay: 2.649 ms
Loss rate: 0.00%
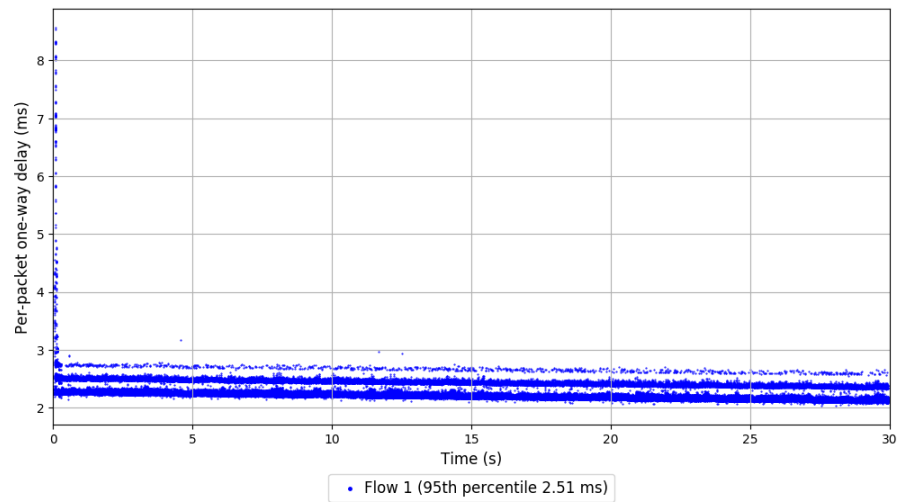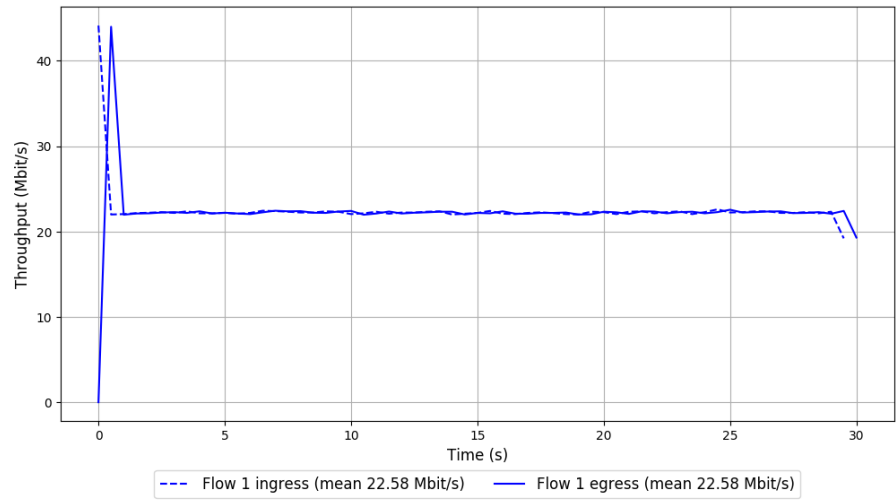```

Run 4: Report of Indigo-Muses — Data Link

```
Run 5: Statistics of Indigo-Muses

Start at: 2018-10-02 08:49:00
End at: 2018-10-02 08:49:30
Local clock offset: -2.177 ms
Remote clock offset: -0.219 ms


# Below is generated by plot.py at 2018-10-02 08:58:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 22.58 Mbit/s
95th percentile per-packet one-way delay: 2.514 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 22.58 Mbit/s
95th percentile per-packet one-way delay: 2.514 ms
Loss rate: 0.00%
```

Run 5: Report of Indigo-Muses — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2018-10-02 07:18:34
End at: 2018-10-02 07:19:04
Local clock offset: -6.412 ms
Remote clock offset: -0.006 ms


# Below is generated by plot.py at 2018-10-02 08:58:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 90.60 Mbit/s
95th percentile per-packet one-way delay: 3.447 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 90.60 Mbit/s
95th percentile per-packet one-way delay: 3.447 ms
Loss rate: 0.00%
```
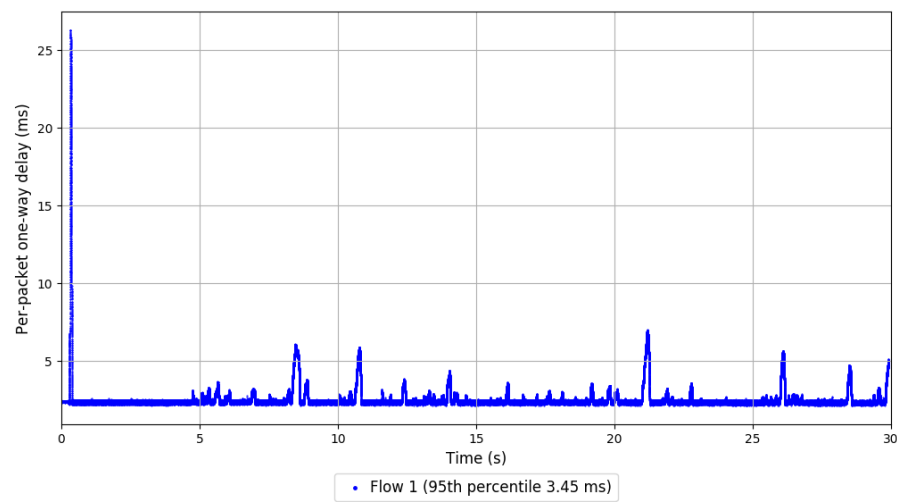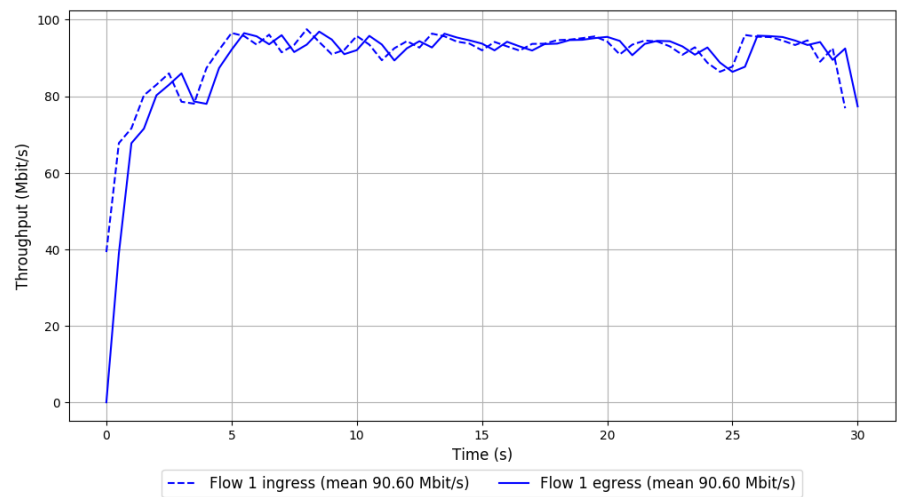
Run 1: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 90.60 Mbit/s) ----   Flow 1 egress (mean 90.60 Mbit/s) ———

Flow 1 (95th percentile 3.45 ms)

```
Run 2: Statistics of PCC-Allegro

Start at: 2018-10-02 07:38:38
End at: 2018-10-02 07:39:08
Local clock offset: -7.374 ms
Remote clock offset: -0.231 ms


# Below is generated by plot.py at 2018-10-02 08:58:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 82.85 Mbit/s
95th percentile per-packet one-way delay: 3.424 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 82.85 Mbit/s
95th percentile per-packet one-way delay: 3.424 ms
Loss rate: 0.00%
```
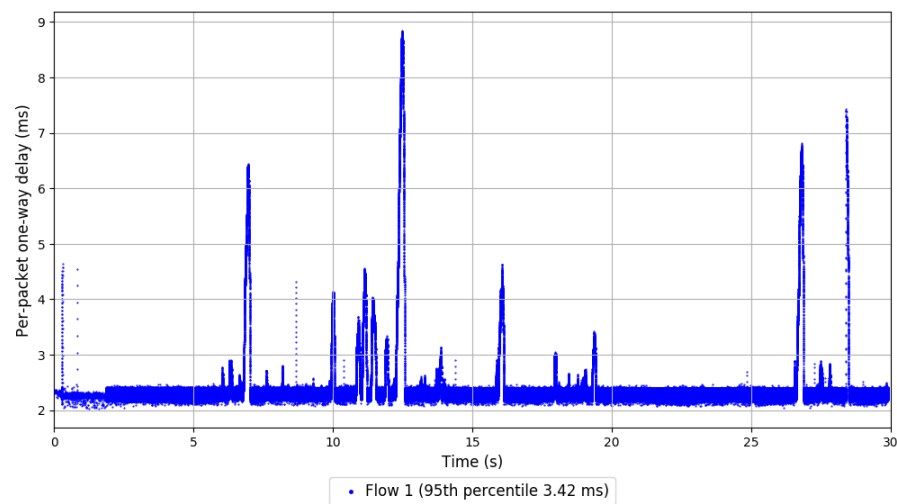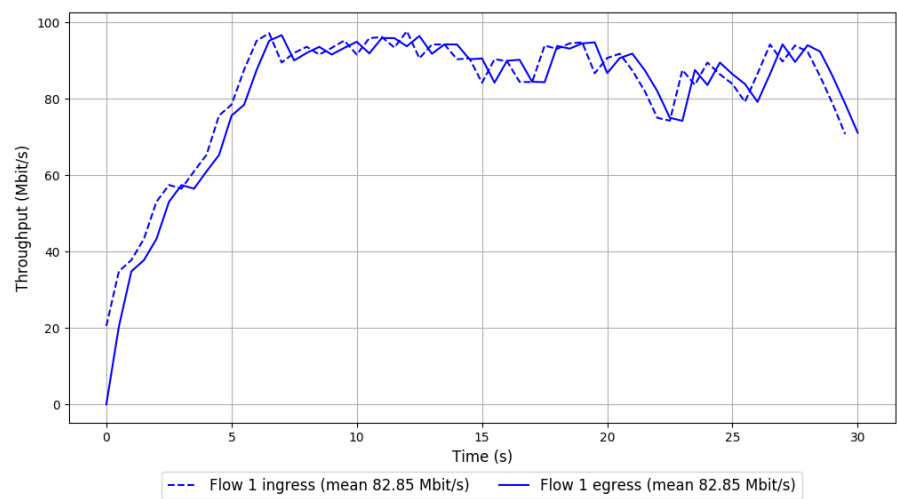
Run 2: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 82.85 Mbit/s)   Flow 1 egress (mean 82.85 Mbit/s)

• Flow 1 (95th percentile 3.42 ms)

```
Run 3: Statistics of PCC-Allegro

Start at: 2018-10-02 07:58:42
End at: 2018-10-02 07:59:12
Local clock offset: -3.234 ms
Remote clock offset: -0.244 ms


# Below is generated by plot.py at 2018-10-02 08:58:57
# Datalink statistics
-- Total of 1 flow:
Average throughput: 81.19 Mbit/s
95th percentile per-packet one-way delay: 3.319 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 81.19 Mbit/s
95th percentile per-packet one-way delay: 3.319 ms
Loss rate: 0.00%
```
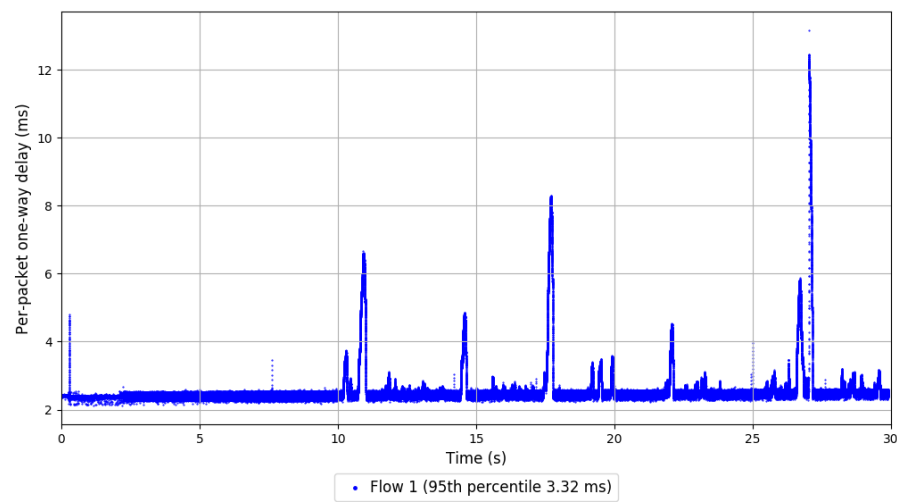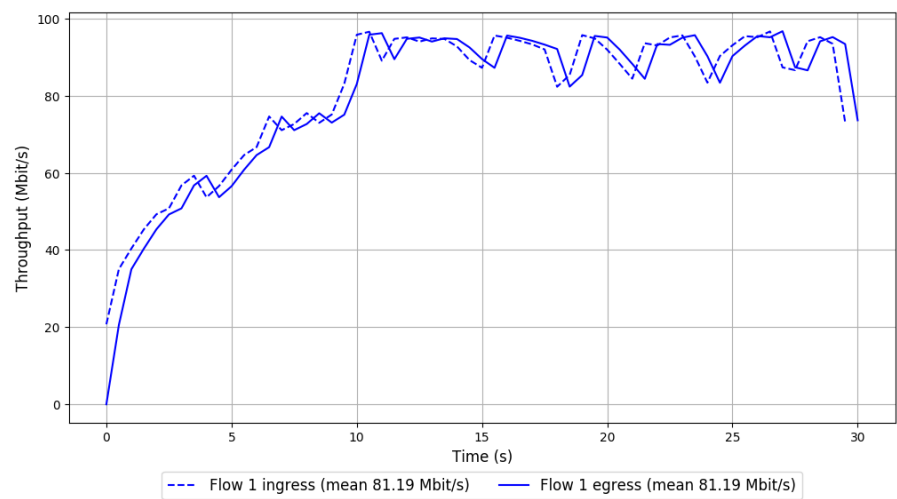
Run 3: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 81.19 Mbit/s)   Flow 1 egress (mean 81.19 Mbit/s)

Flow 1 (95th percentile 3.32 ms)

```
Run 4: Statistics of PCC-Allegro

Start at: 2018-10-02 08:18:45
End at: 2018-10-02 08:19:16
Local clock offset: -1.593 ms
Remote clock offset: -0.342 ms


# Below is generated by plot.py at 2018-10-02 08:59:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 85.61 Mbit/s
95th percentile per-packet one-way delay: 3.304 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 85.61 Mbit/s
95th percentile per-packet one-way delay: 3.304 ms
Loss rate: 0.00%
```
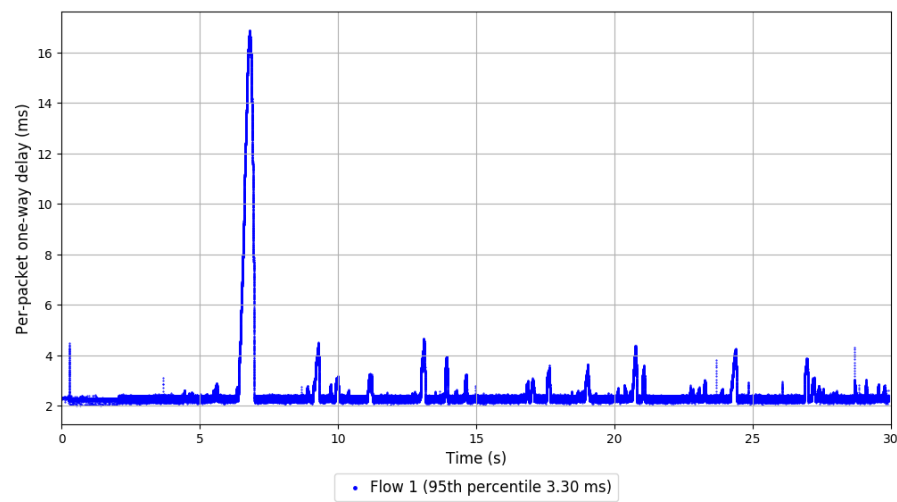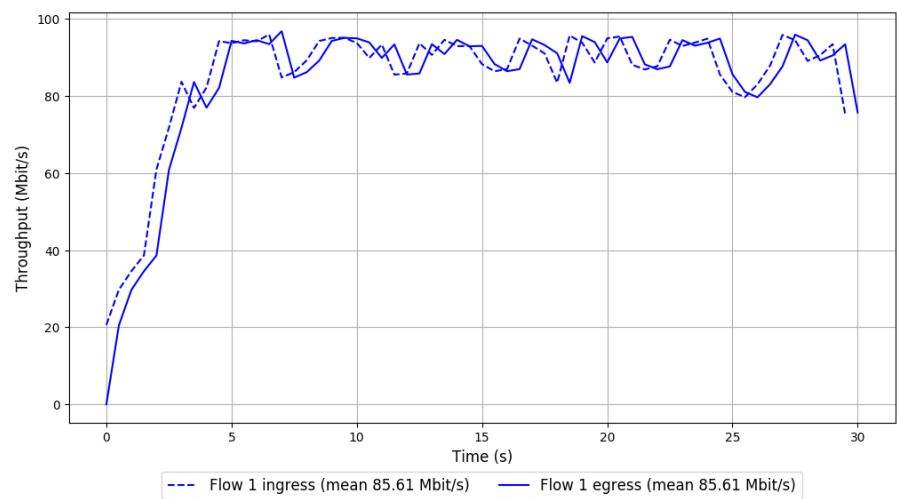
Run 4: Report of PCC-Allegro — Data Link

```
Run 5: Statistics of PCC-Allegro

Start at: 2018-10-02 08:38:54
End at: 2018-10-02 08:39:24
Local clock offset: -1.224 ms
Remote clock offset: -0.354 ms


# Below is generated by plot.py at 2018-10-02 08:59:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 83.22 Mbit/s
95th percentile per-packet one-way delay: 3.827 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 83.22 Mbit/s
95th percentile per-packet one-way delay: 3.827 ms
Loss rate: 0.00%
```
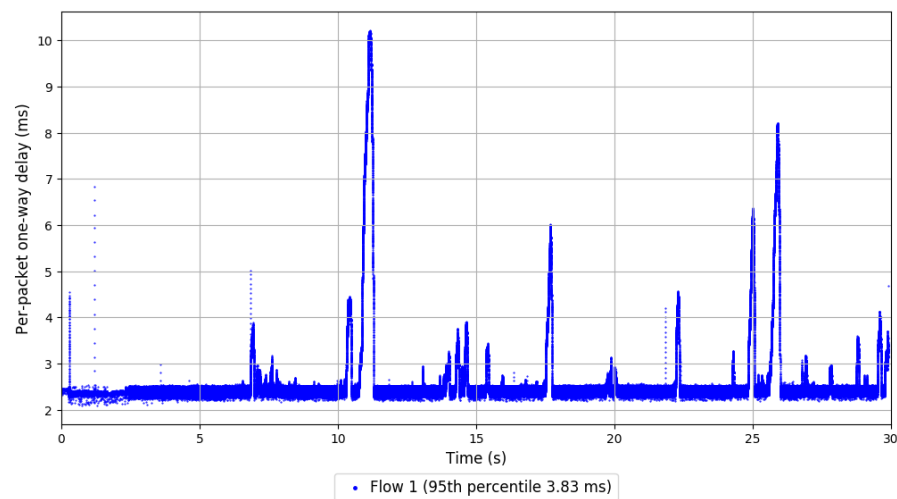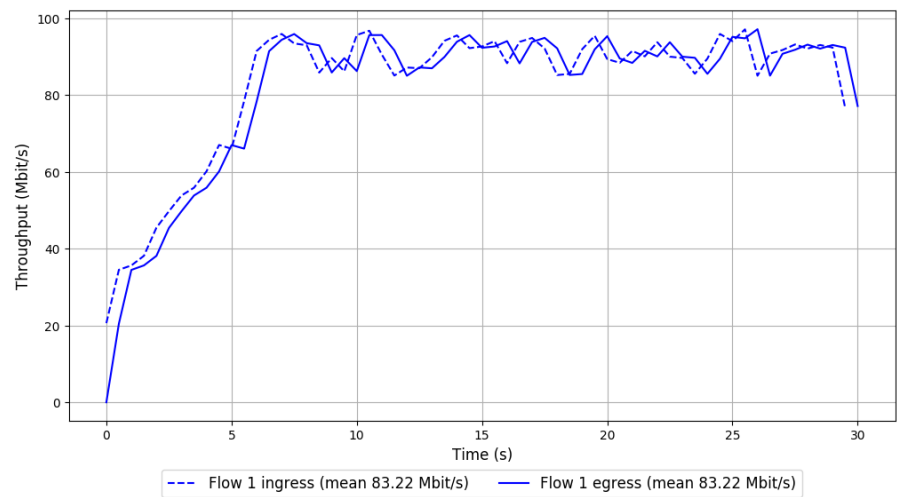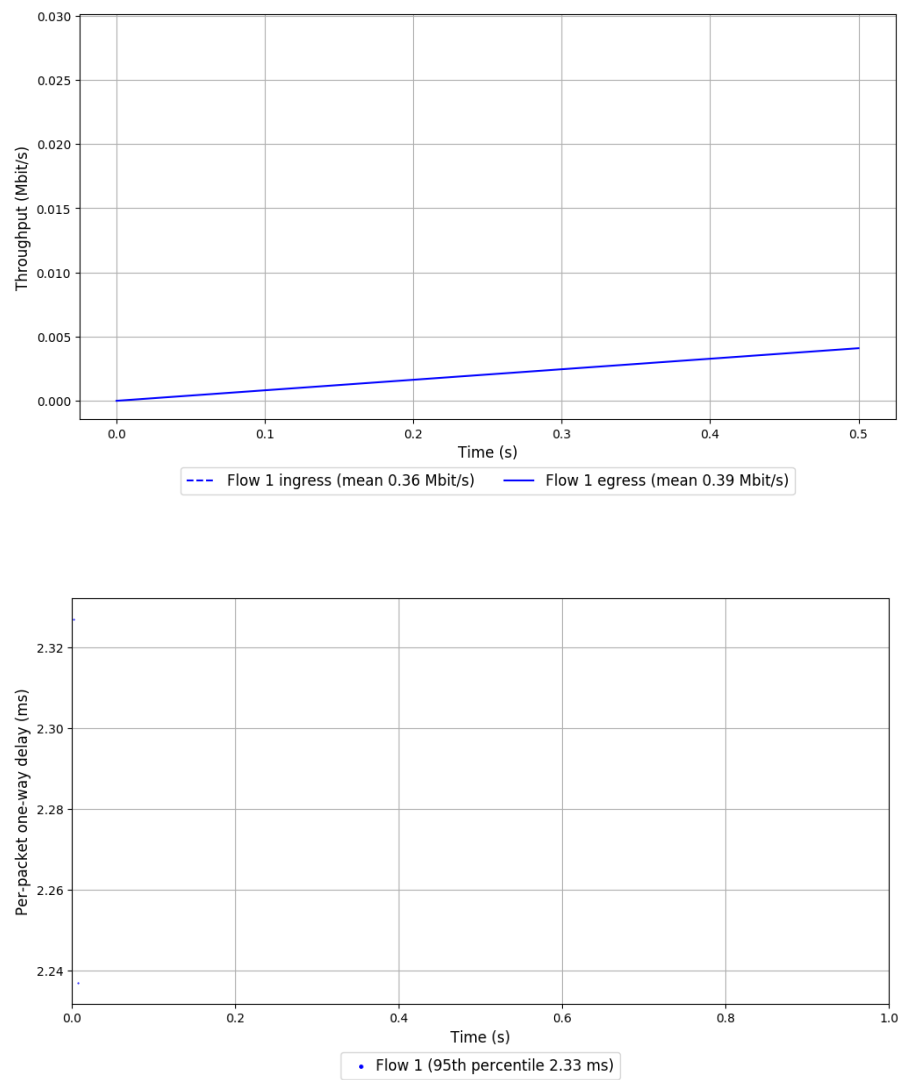
Run 5: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 83.22 Mbit/s) --- Flow 1 egress (mean 83.22 Mbit/s)

Flow 1 (95th percentile 3.83 ms)
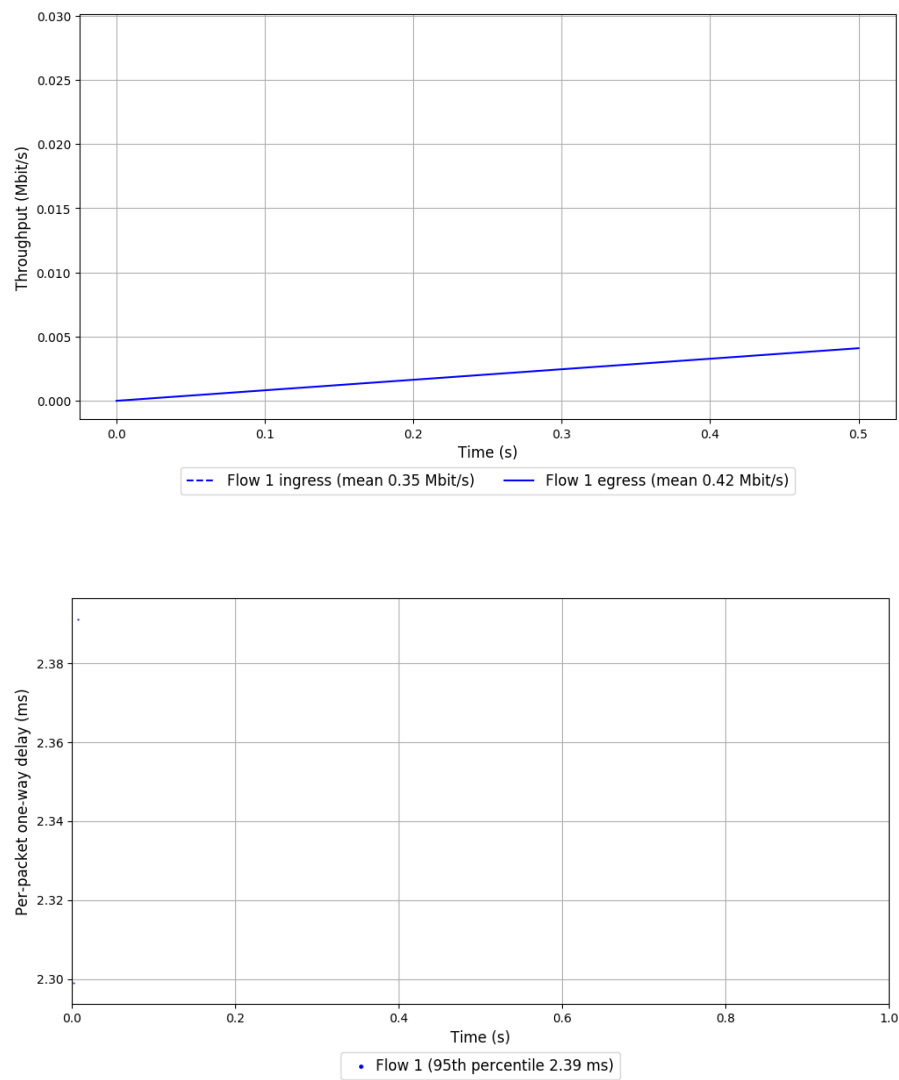
94

```
Run 1: Statistics of PCC-Expr

Start at: 2018-10-02 07:17:30
End at: 2018-10-02 07:18:00
Local clock offset: -6.322 ms
Remote clock offset: -0.123 ms
```

Run 1: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 0.36 Mbit/s)   Flow 1 egress (mean 0.39 Mbit/s)

Flow 1 (95th percentile 2.33 ms)

```
Run 2: Statistics of PCC-Expr

Start at: 2018-10-02 07:37:34
End at: 2018-10-02 07:38:04
Local clock offset: -7.326 ms
Remote clock offset: -0.111 ms
```

Run 2: Report of PCC-Expr — Data Link

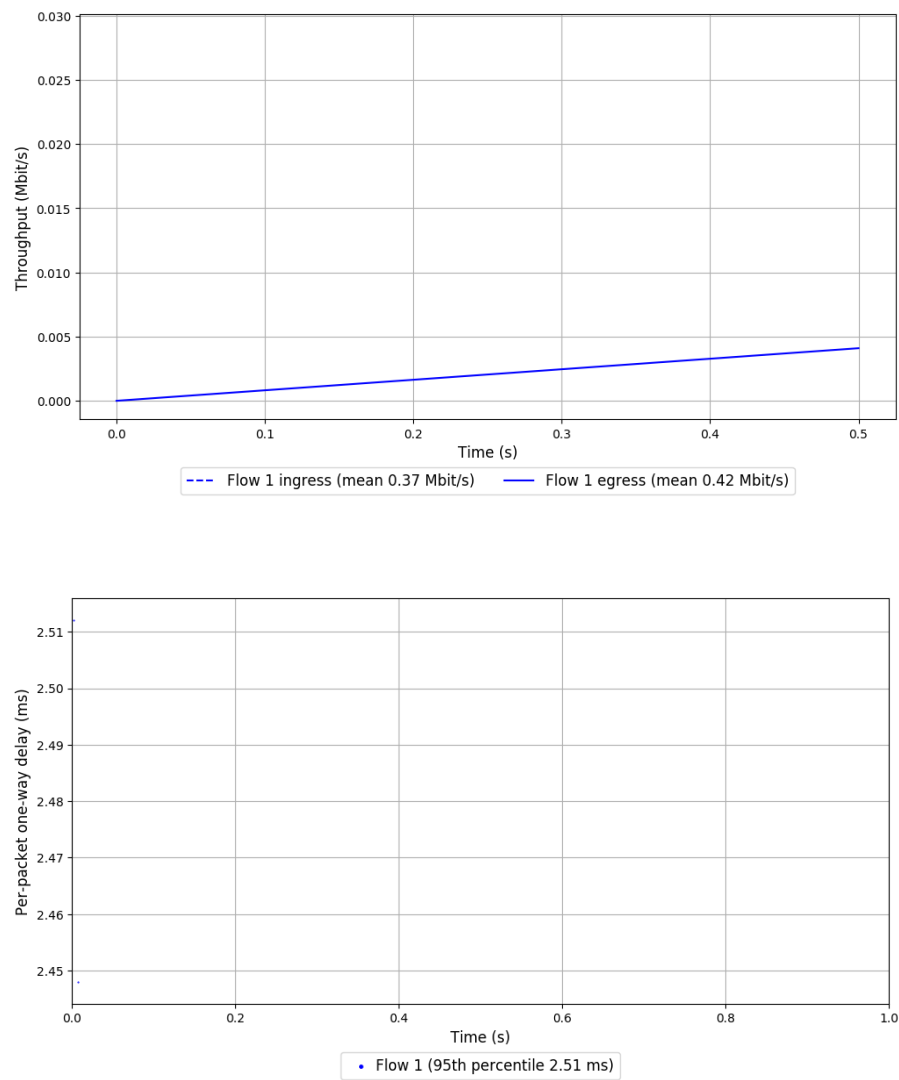```
Run 3: Statistics of PCC-Expr

Start at: 2018-10-02 07:57:38
End at: 2018-10-02 07:58:08
Local clock offset: -3.418 ms
Remote clock offset: -0.14 ms
```
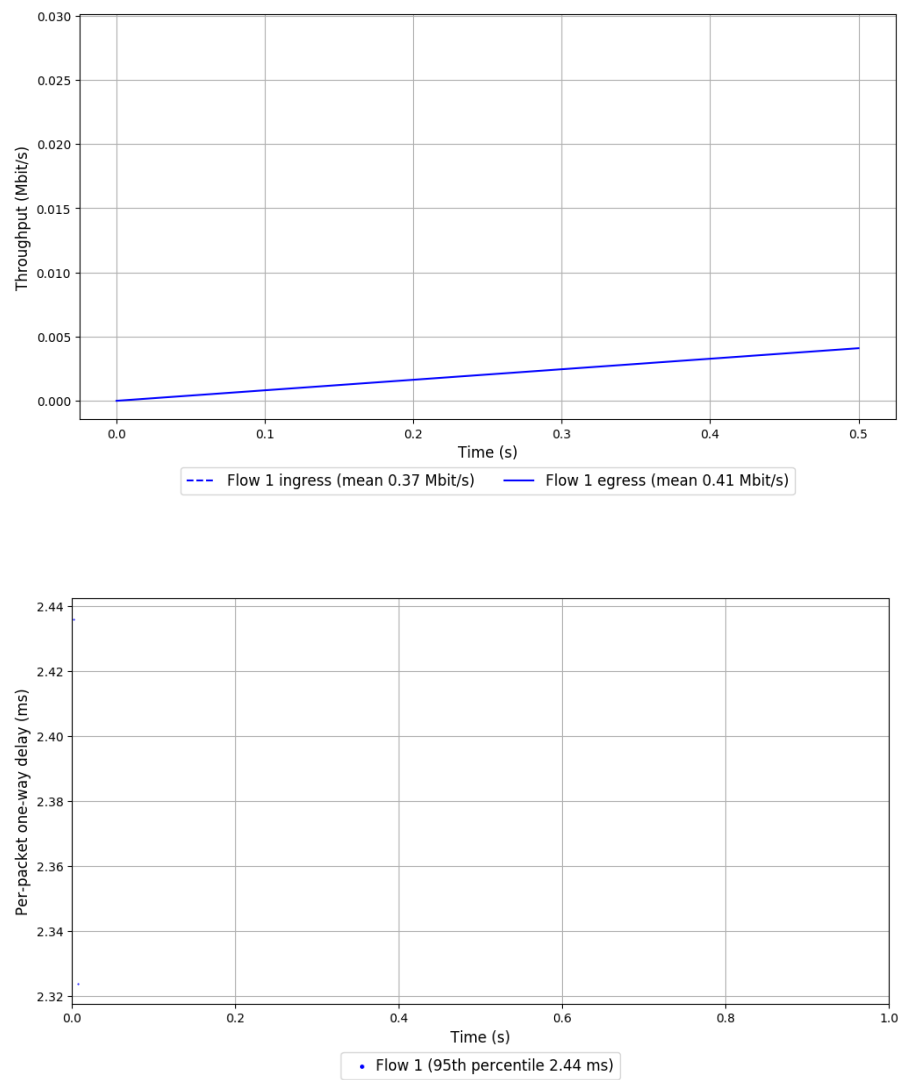
## Run 3: Report of PCC-Expr — Data Link



Flow 1 ingress (mean 0.37 Mbit/s) --- Flow 1 egress (mean 0.42 Mbit/s)



Flow 1 (95th percentile 2.51 ms)

```
Run 4: Statistics of PCC-Expr

Start at: 2018-10-02 08:17:41
End at: 2018-10-02 08:18:11
Local clock offset: -1.576 ms
Remote clock offset: -0.275 ms
```

Run 4: Report of PCC-Expr — Data Link
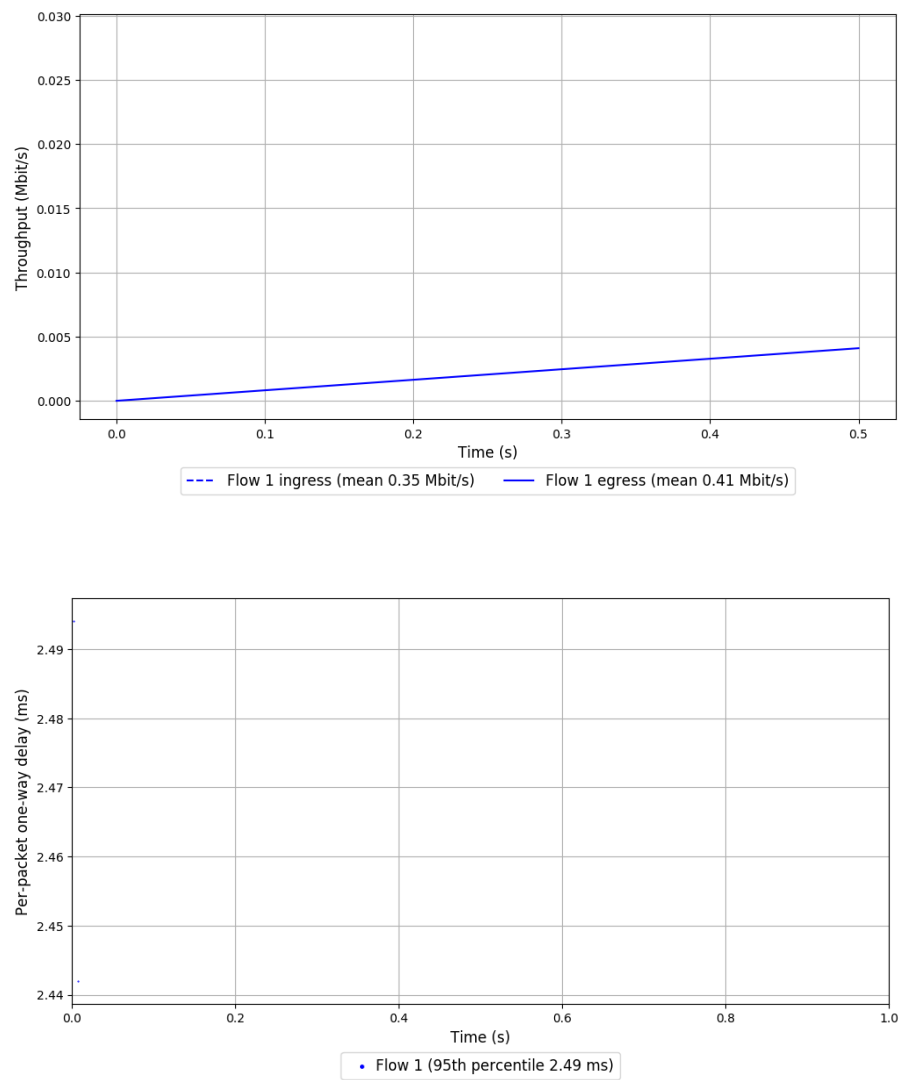
```
Run 5: Statistics of PCC-Expr

Start at: 2018-10-02 08:37:50
End at: 2018-10-02 08:38:20
Local clock offset: -1.252 ms
Remote clock offset: -0.29 ms
```

Run 5: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 0.35 Mbit/s) --- Flow 1 egress (mean 0.41 Mbit/s)

Flow 1 (95th percentile 2.49 ms)

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-10-02 07:20:46
End at: 2018-10-02 07:21:16
Local clock offset: -6.578 ms
Remote clock offset: -0.179 ms


# Below is generated by plot.py at 2018-10-02 08:59:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 83.24 Mbit/s
95th percentile per-packet one-way delay: 7.842 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 83.24 Mbit/s
95th percentile per-packet one-way delay: 7.842 ms
Loss rate: 0.23%
```
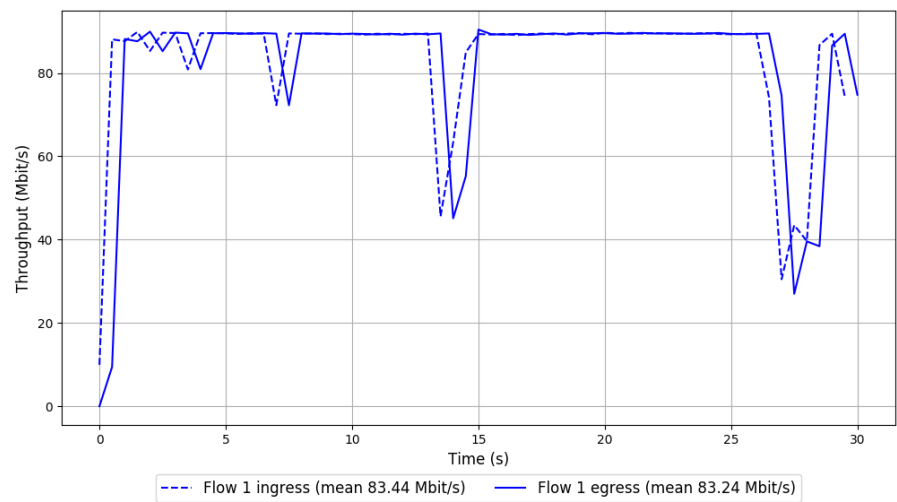
Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-10-02 07:40:50
End at: 2018-10-02 07:41:20
Local clock offset: -7.43 ms
Remote clock offset: -0.239 ms


# Below is generated by plot.py at 2018-10-02 08:59:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 79.20 Mbit/s
95th percentile per-packet one-way delay: 3.050 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 79.20 Mbit/s
95th percentile per-packet one-way delay: 3.050 ms
Loss rate: 0.30%
```
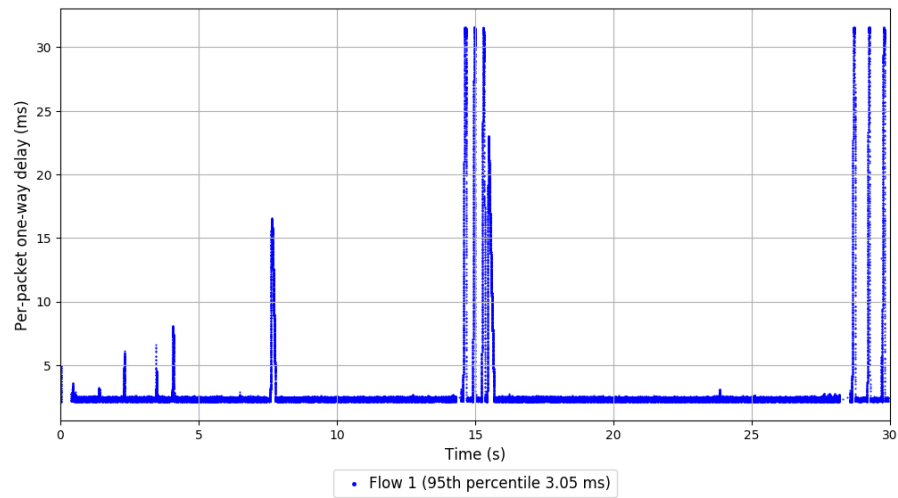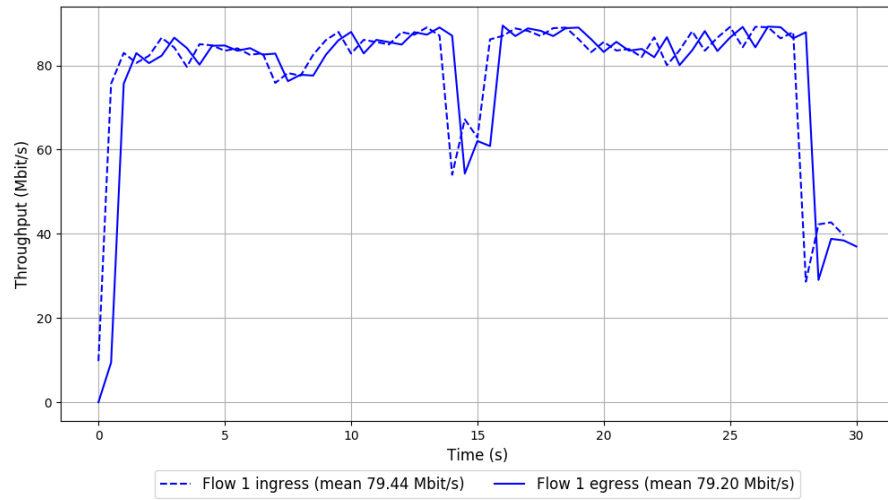
Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-10-02 08:00:54
End at: 2018-10-02 08:01:24
Local clock offset: -2.868 ms
Remote clock offset: -0.172 ms


# Below is generated by plot.py at 2018-10-02 08:59:18
# Datalink statistics
-- Total of 1 flow:
Average throughput: 78.05 Mbit/s
95th percentile per-packet one-way delay: 2.680 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 78.05 Mbit/s
95th percentile per-packet one-way delay: 2.680 ms
Loss rate: 0.10%
```
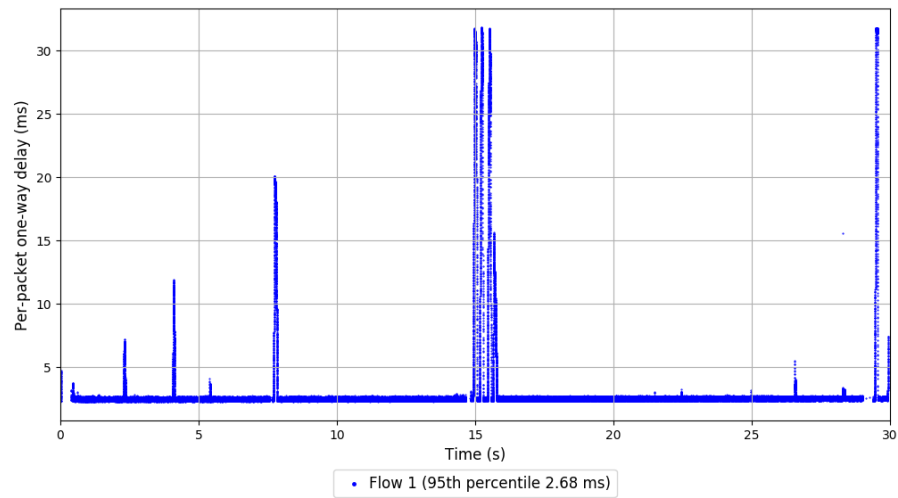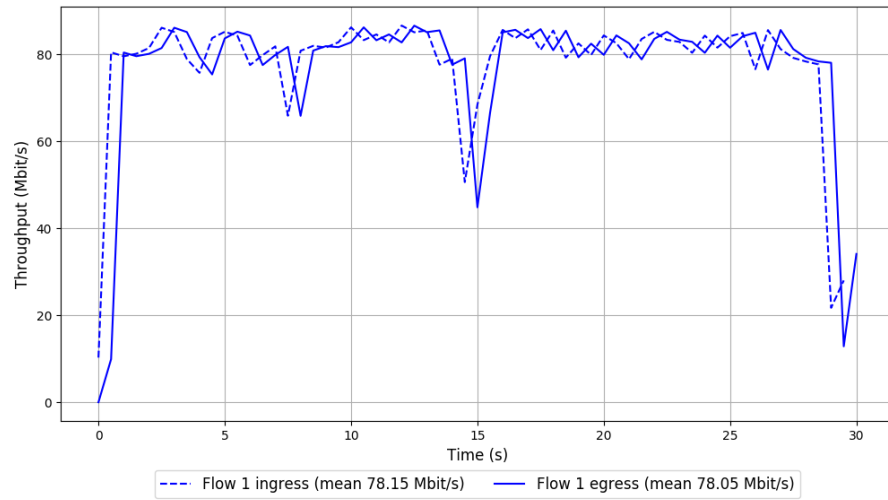
Run 3: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 78.15 Mbit/s) --- Flow 1 egress (mean 78.05 Mbit/s)

Flow 1 (95th percentile 2.68 ms)

```
Run 4: Statistics of QUIC Cubic

Start at: 2018-10-02 08:20:57
End at: 2018-10-02 08:21:28
Local clock offset: -1.644 ms
Remote clock offset: -0.231 ms


# Below is generated by plot.py at 2018-10-02 08:59:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 78.69 Mbit/s
95th percentile per-packet one-way delay: 2.693 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 78.69 Mbit/s
95th percentile per-packet one-way delay: 2.693 ms
Loss rate: 0.19%
```
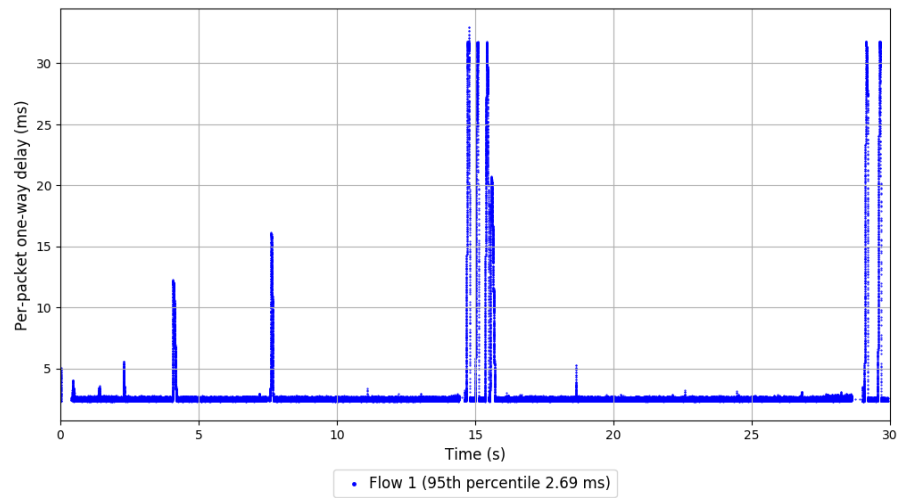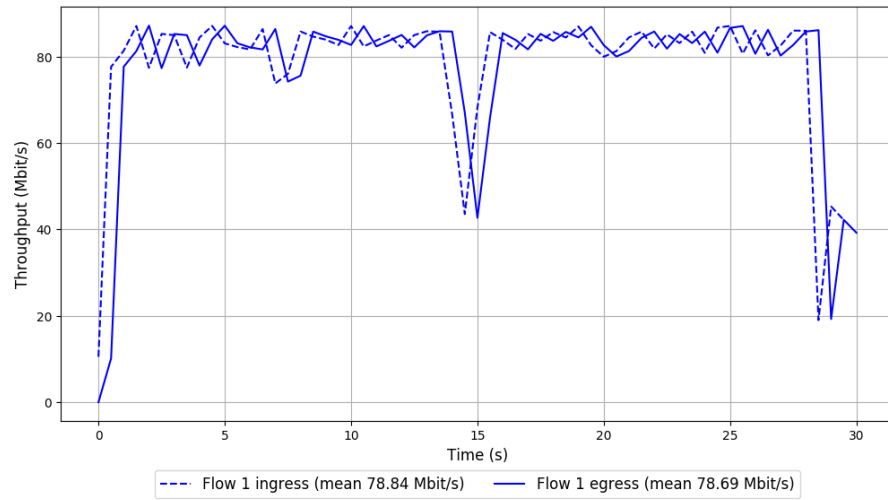
Run 4: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 78.84 Mbit/s)   Flow 1 egress (mean 78.69 Mbit/s)

Flow 1 (95th percentile 2.69 ms)

```
Run 5: Statistics of QUIC Cubic

Start at: 2018-10-02 08:41:06
End at: 2018-10-02 08:41:36
Local clock offset: -1.073 ms
Remote clock offset: -0.281 ms


# Below is generated by plot.py at 2018-10-02 08:59:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 76.64 Mbit/s
95th percentile per-packet one-way delay: 6.126 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 76.64 Mbit/s
95th percentile per-packet one-way delay: 6.126 ms
Loss rate: 0.39%
```
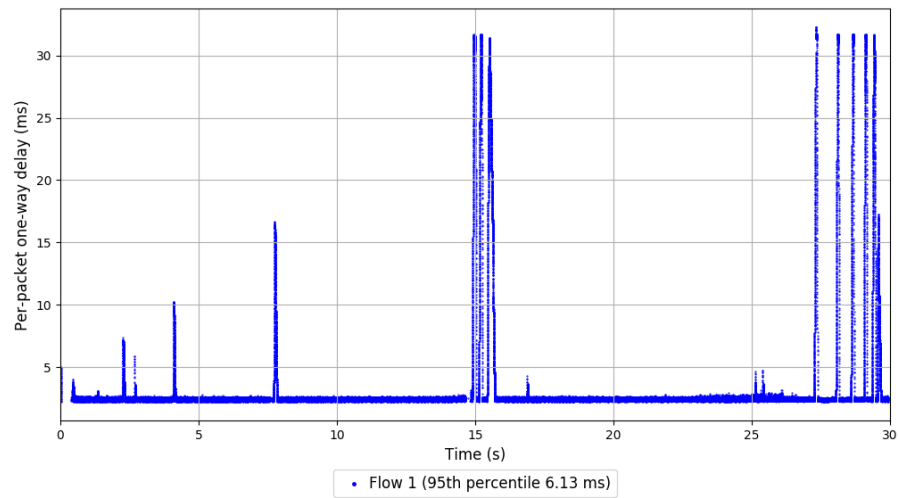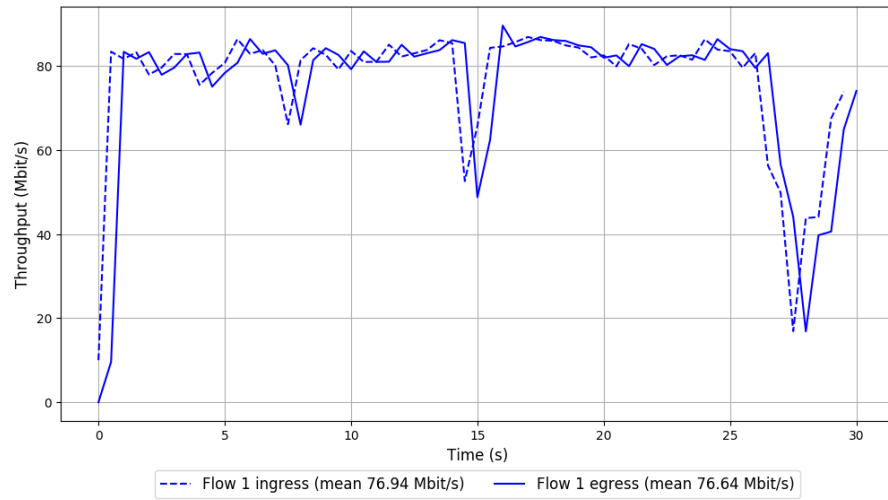
Run 5: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 76.94 Mbit/s)   Flow 1 egress (mean 76.64 Mbit/s)
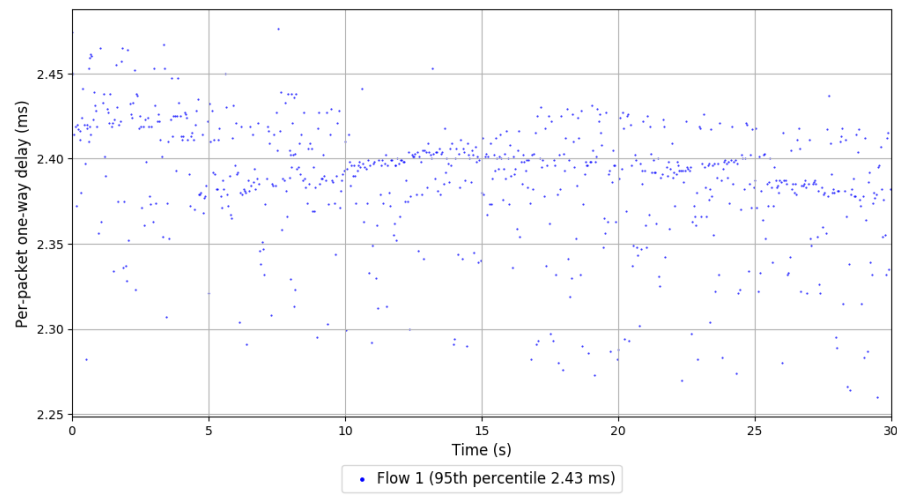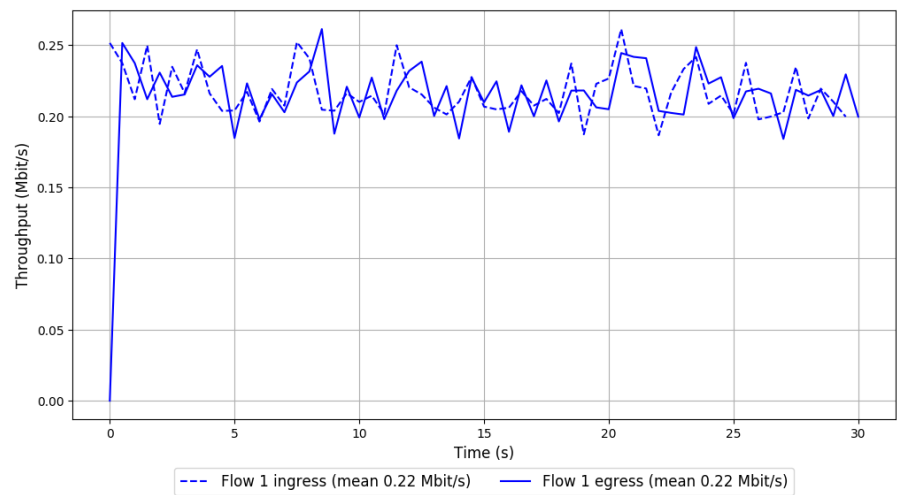

Flow 1 (95th percentile 6.13 ms)

```
Run 1: Statistics of SCReAM

Start at: 2018-10-02 07:15:20
End at: 2018-10-02 07:15:50
Local clock offset: -6.187 ms
Remote clock offset: -0.02 ms


# Below is generated by plot.py at 2018-10-02 08:59:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.432 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.432 ms
Loss rate: 0.00%
```

Run 1: Report of SCReAM — Data Link

Flow 1 ingress (mean 0.22 Mbit/s)   Flow 1 egress (mean 0.22 Mbit/s)
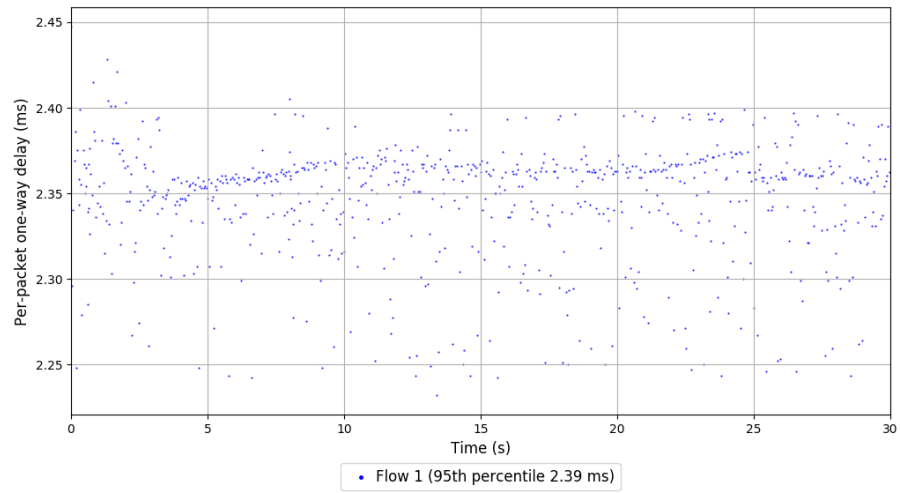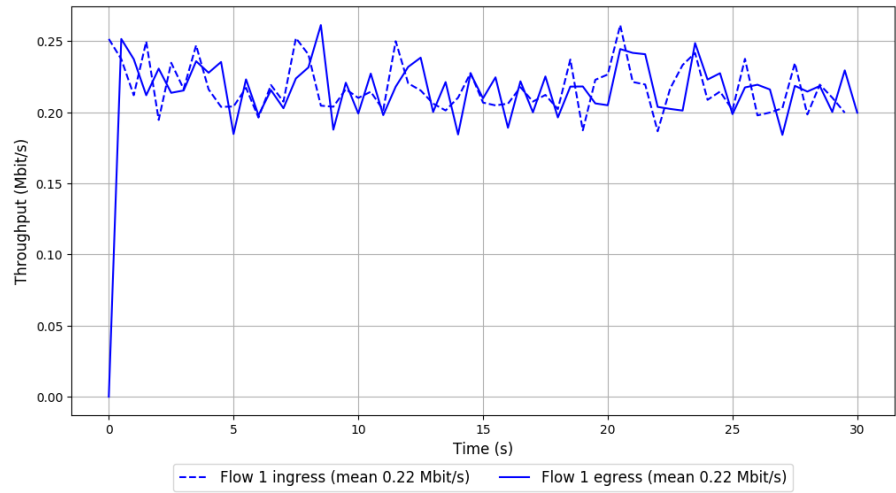

Flow 1 (95th percentile 2.43 ms)

```
Run 2: Statistics of SCReAM

Start at: 2018-10-02 07:35:24
End at: 2018-10-02 07:35:54
Local clock offset: -7.275 ms
Remote clock offset: -0.147 ms


# Below is generated by plot.py at 2018-10-02 08:59:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.392 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.392 ms
Loss rate: 0.00%
```

Run 2: Report of SCReAM — Data Link

Flow 1 ingress (mean 0.22 Mbit/s) ——— Flow 1 egress (mean 0.22 Mbit/s)

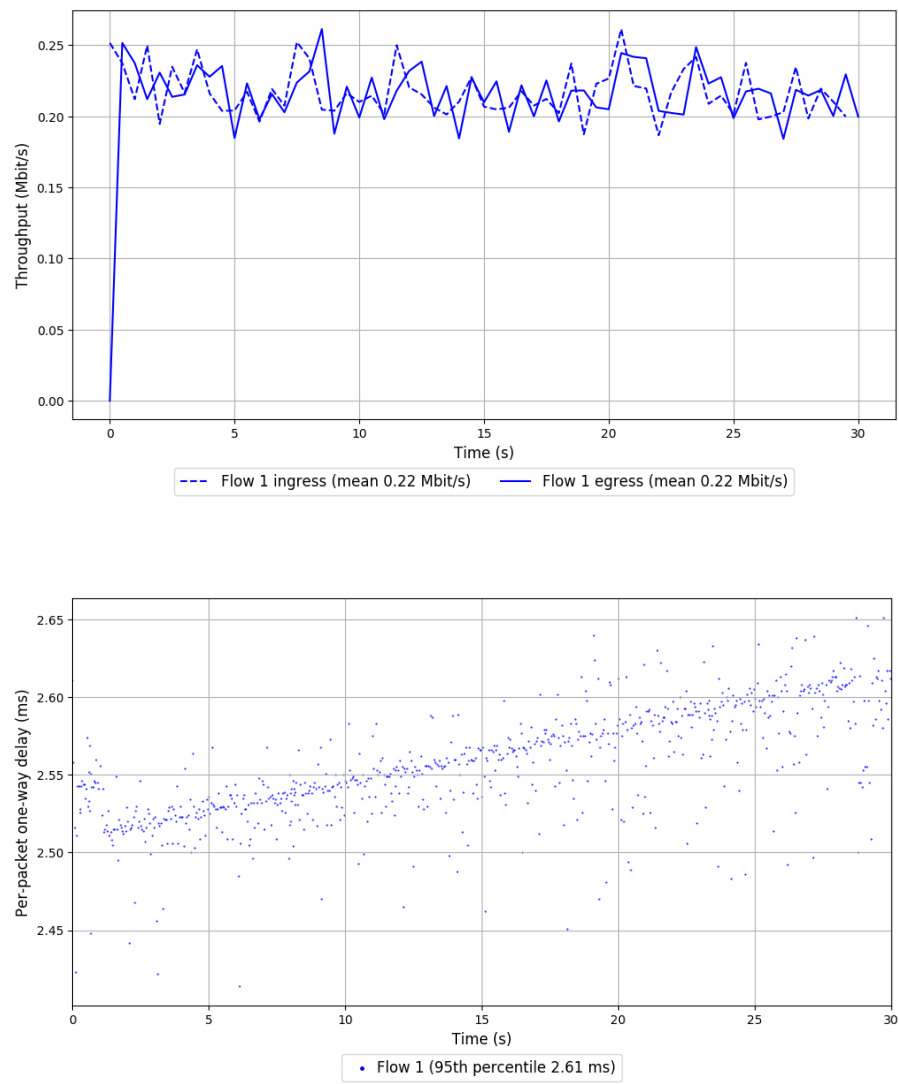• Flow 1 (95th percentile 2.39 ms)

```
Run 3: Statistics of SCReAM

Start at: 2018-10-02 07:55:28
End at: 2018-10-02 07:55:58
Local clock offset: -3.876 ms
Remote clock offset: -0.152 ms


# Below is generated by plot.py at 2018-10-02 08:59:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.612 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.612 ms
Loss rate: 0.00%
```

Run 3: Report of SCReAM — Data Link

Flow 1 ingress (mean 0.22 Mbit/s) --- Flow 1 egress (mean 0.22 Mbit/s)

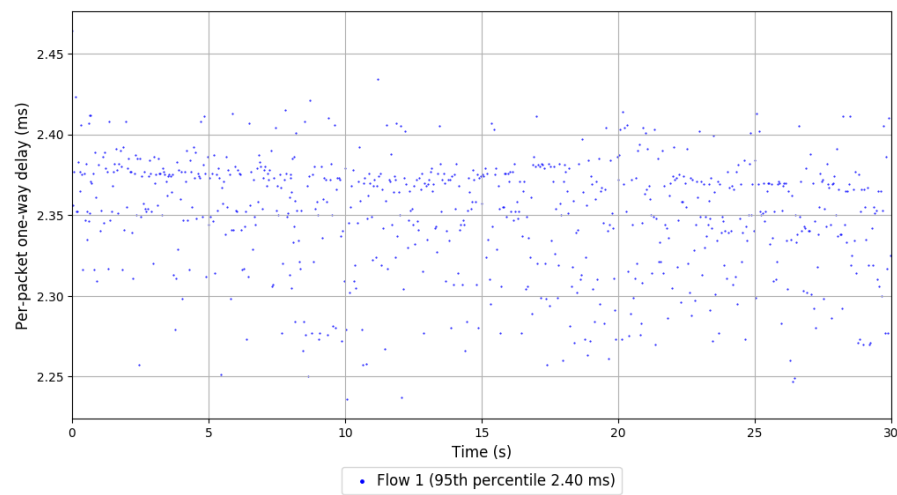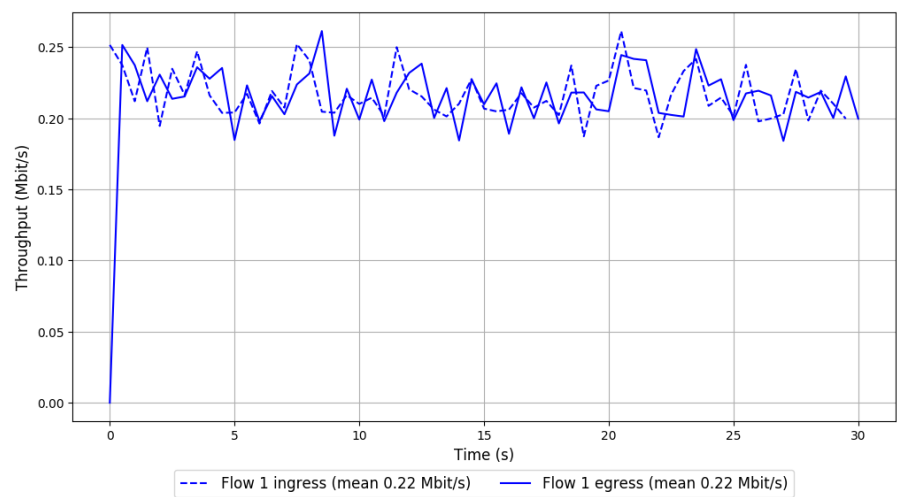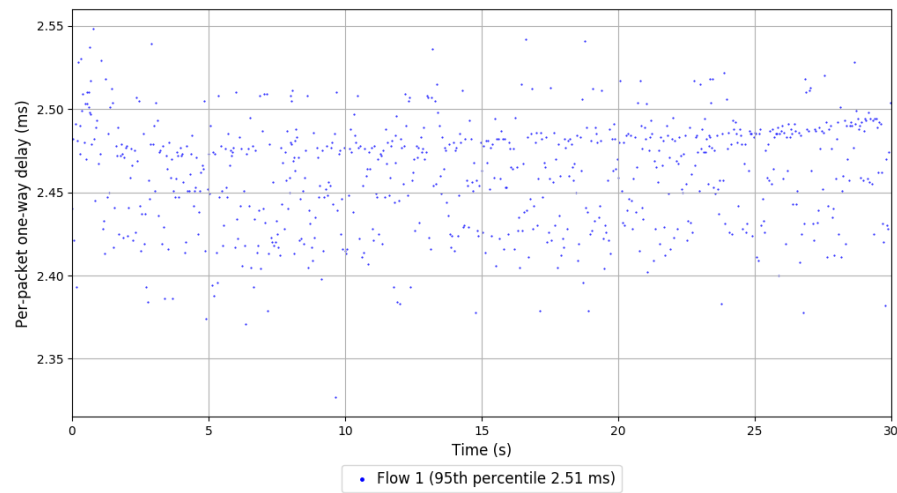Flow 1 (95th percentile 2.61 ms)

```
Run 4: Statistics of SCReAM

Start at: 2018-10-02 08:15:31
End at: 2018-10-02 08:16:01
Local clock offset: -1.57 ms
Remote clock offset: -0.254 ms


# Below is generated by plot.py at 2018-10-02 08:59:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.403 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.403 ms
Loss rate: 0.00%
```

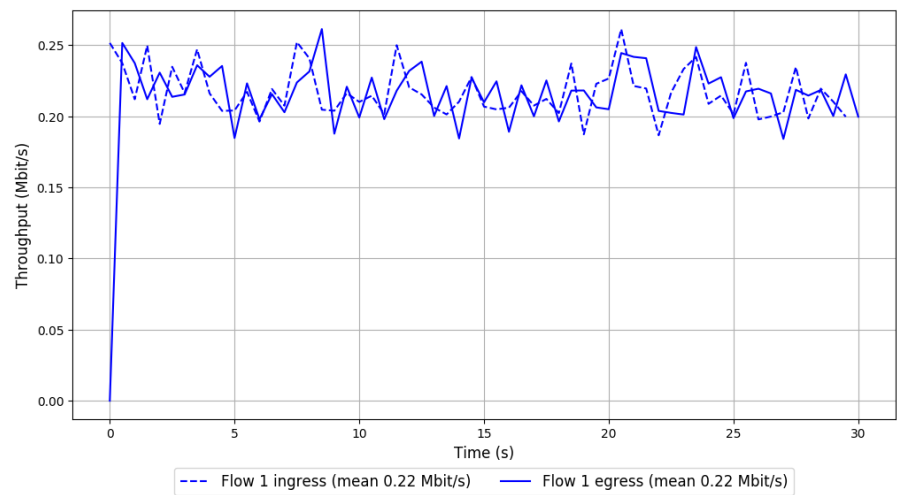## Run 4: Report of SCReAM — Data Link

```
Run 5: Statistics of SCReAM

Start at: 2018-10-02 08:35:40
End at: 2018-10-02 08:36:10
Local clock offset: -1.32 ms
Remote clock offset: -0.263 ms


# Below is generated by plot.py at 2018-10-02 08:59:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.509 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.509 ms
Loss rate: 0.00%
```

Run 5: Report of SCReAM — Data Link

Flow 1 ingress (mean 0.22 Mbit/s)   Flow 1 egress (mean 0.22 Mbit/s)

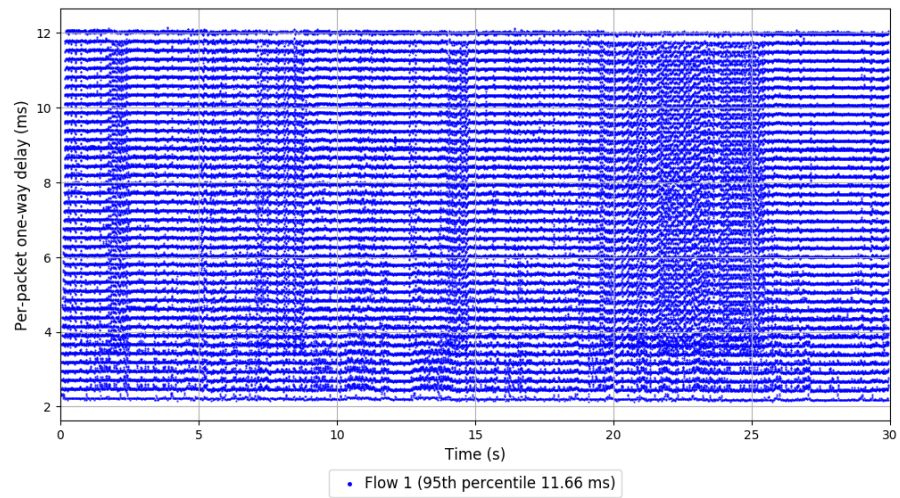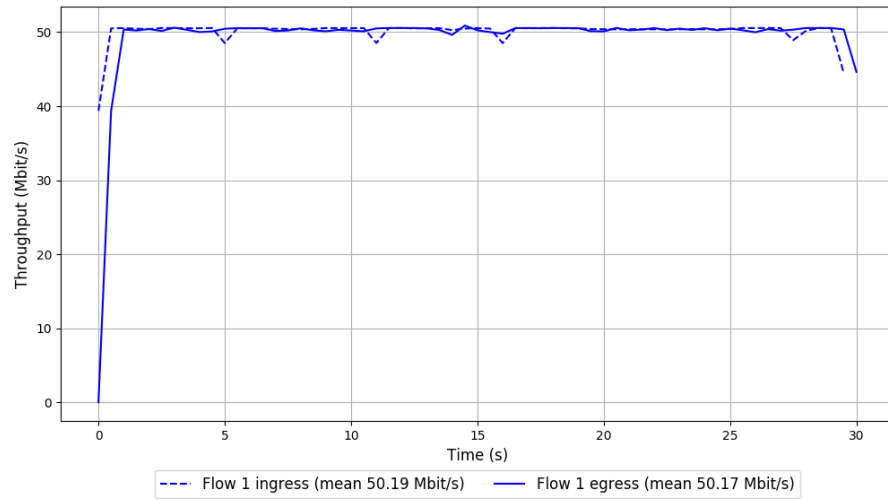Flow 1 (95th percentile 2.51 ms)

```
Run 1: Statistics of Sprout

Start at: 2018-10-02 07:16:24
End at: 2018-10-02 07:16:54
Local clock offset: -6.213 ms
Remote clock offset: -0.076 ms


# Below is generated by plot.py at 2018-10-02 08:59:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 50.17 Mbit/s
95th percentile per-packet one-way delay: 11.663 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.17 Mbit/s
95th percentile per-packet one-way delay: 11.663 ms
Loss rate: 0.00%
```

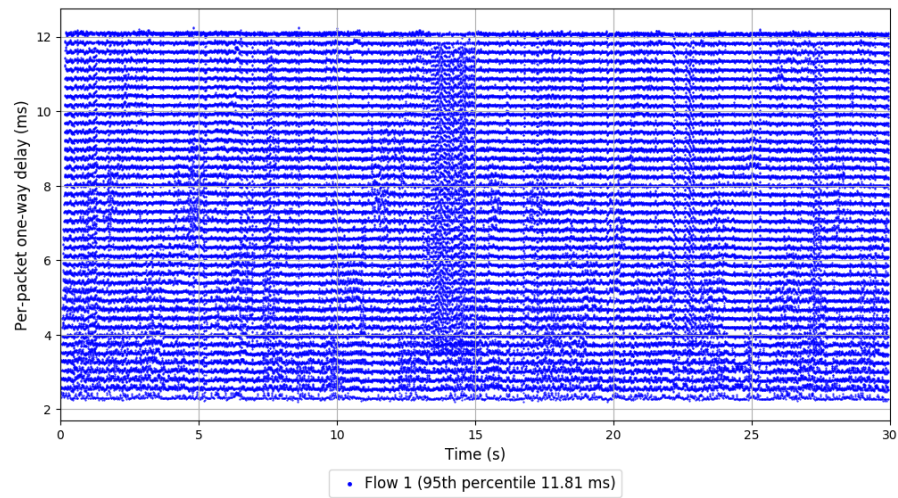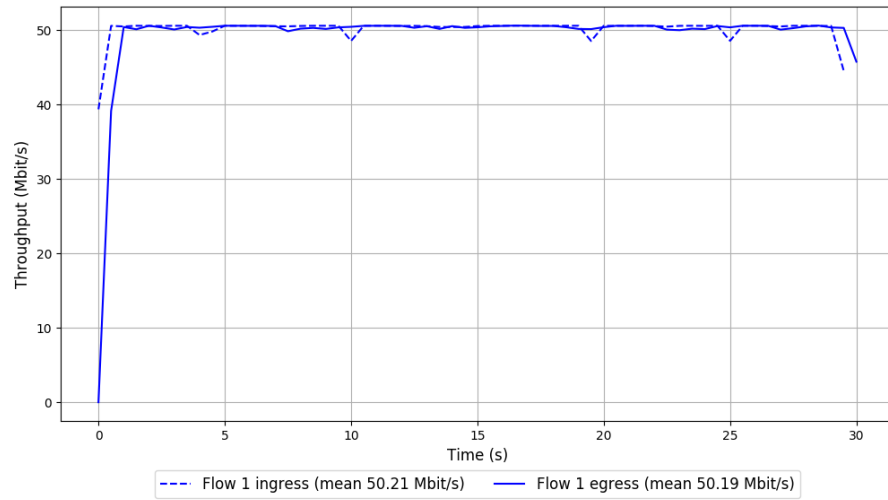# Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2018-10-02 07:36:28
End at: 2018-10-02 07:36:58
Local clock offset: -7.295 ms
Remote clock offset: -0.15 ms


# Below is generated by plot.py at 2018-10-02 08:59:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 50.19 Mbit/s
95th percentile per-packet one-way delay: 11.813 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.19 Mbit/s
95th percentile per-packet one-way delay: 11.813 ms
Loss rate: 0.00%
```

Run 2: Report of Sprout — Data Link

Flow 1 ingress (mean 50.21 Mbit/s)   Flow 1 egress (mean 50.19 Mbit/s)

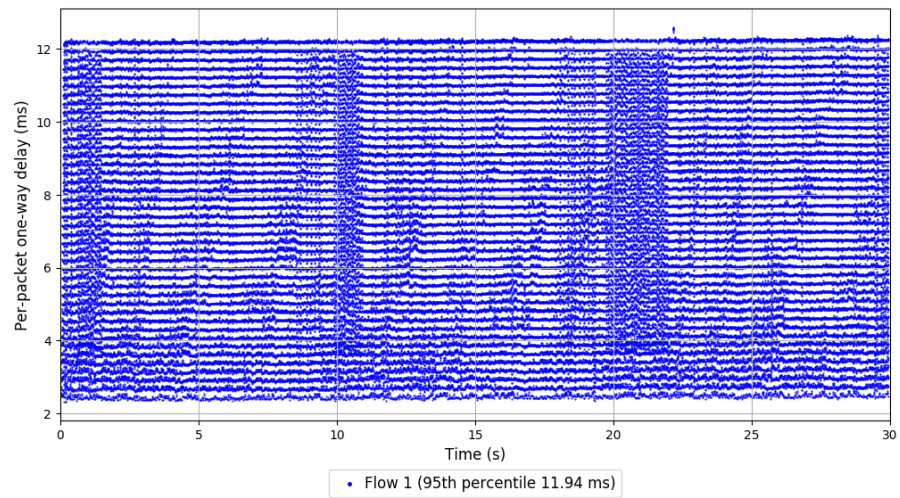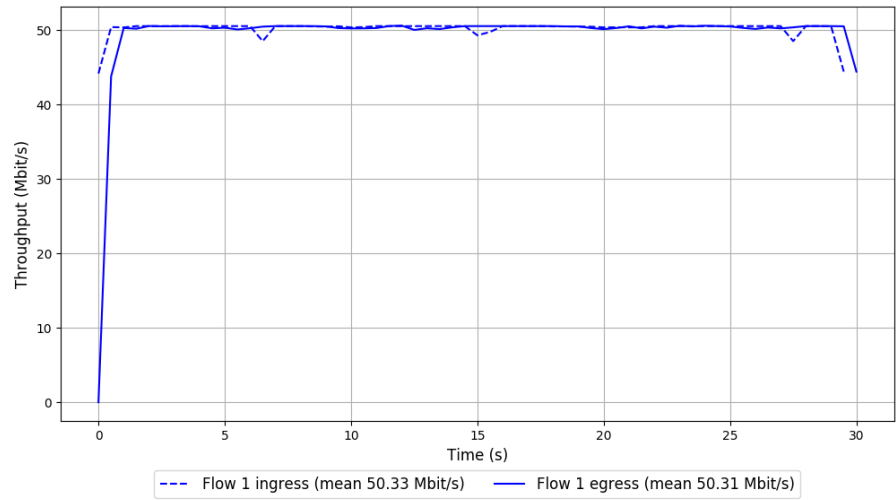Flow 1 (95th percentile 11.81 ms)

```
Run 3: Statistics of Sprout

Start at: 2018-10-02 07:56:32
End at: 2018-10-02 07:57:02
Local clock offset: -3.629 ms
Remote clock offset: -0.209 ms


# Below is generated by plot.py at 2018-10-02 08:59:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 50.31 Mbit/s
95th percentile per-packet one-way delay: 11.935 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.31 Mbit/s
95th percentile per-packet one-way delay: 11.935 ms
Loss rate: 0.00%
```

Run 3: Report of Sprout — Data Link

Flow 1 ingress (mean 50.33 Mbit/s) --- Flow 1 egress (mean 50.31 Mbit/s)

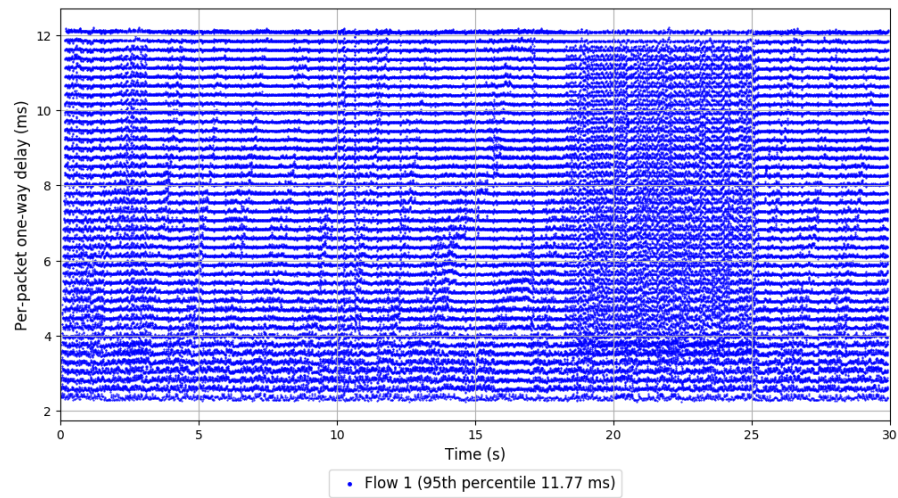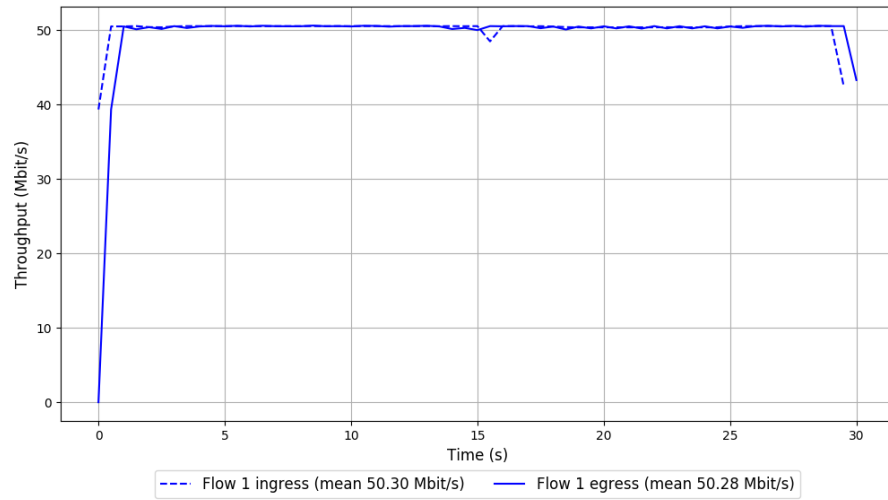• Flow 1 (95th percentile 11.94 ms)

```
Run 4: Statistics of Sprout

Start at: 2018-10-02 08:16:36
End at: 2018-10-02 08:17:06
Local clock offset: -1.583 ms
Remote clock offset: -0.255 ms


# Below is generated by plot.py at 2018-10-02 08:59:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 50.28 Mbit/s
95th percentile per-packet one-way delay: 11.767 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.28 Mbit/s
95th percentile per-packet one-way delay: 11.767 ms
Loss rate: 0.00%
```

Run 4: Report of Sprout — Data Link

Flow 1 ingress (mean 50.30 Mbit/s)   Flow 1 egress (mean 50.28 Mbit/s)

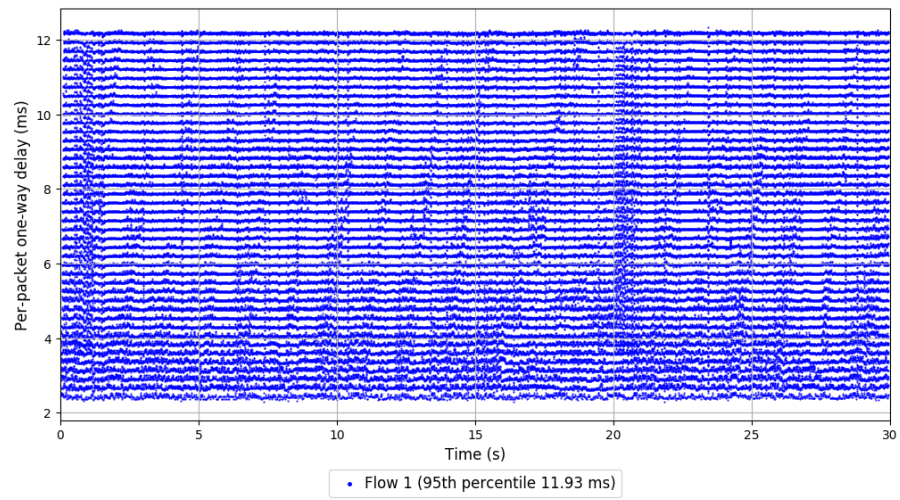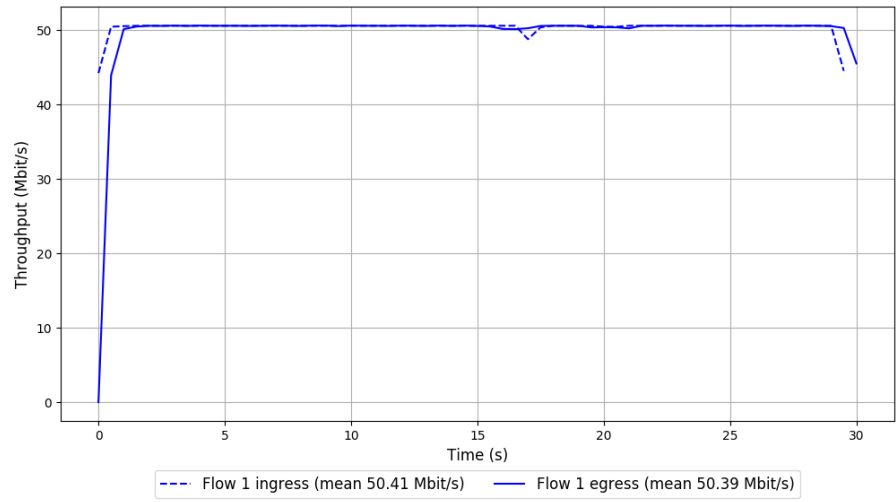• Flow 1 (95th percentile 11.77 ms)

```
Run 5: Statistics of Sprout

Start at: 2018-10-02 08:36:44
End at: 2018-10-02 08:37:14
Local clock offset: -1.224 ms
Remote clock offset: -0.239 ms


# Below is generated by plot.py at 2018-10-02 08:59:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 50.39 Mbit/s
95th percentile per-packet one-way delay: 11.926 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.39 Mbit/s
95th percentile per-packet one-way delay: 11.926 ms
Loss rate: 0.00%
```

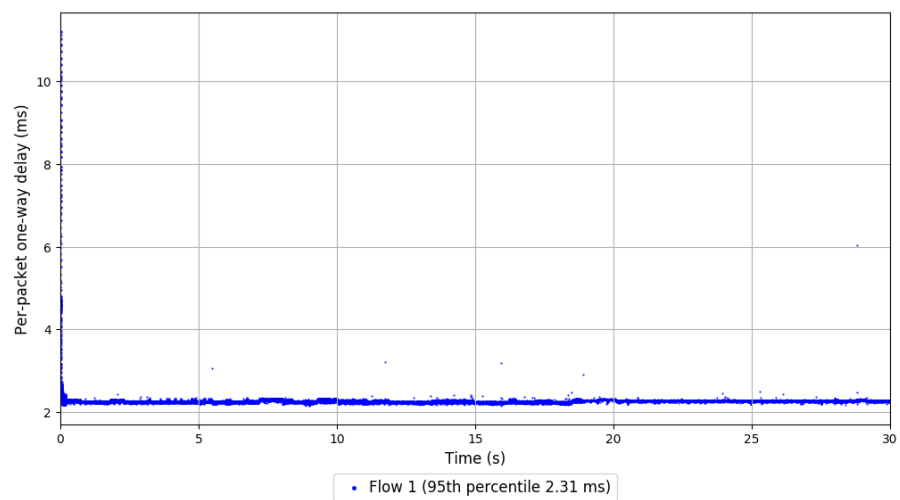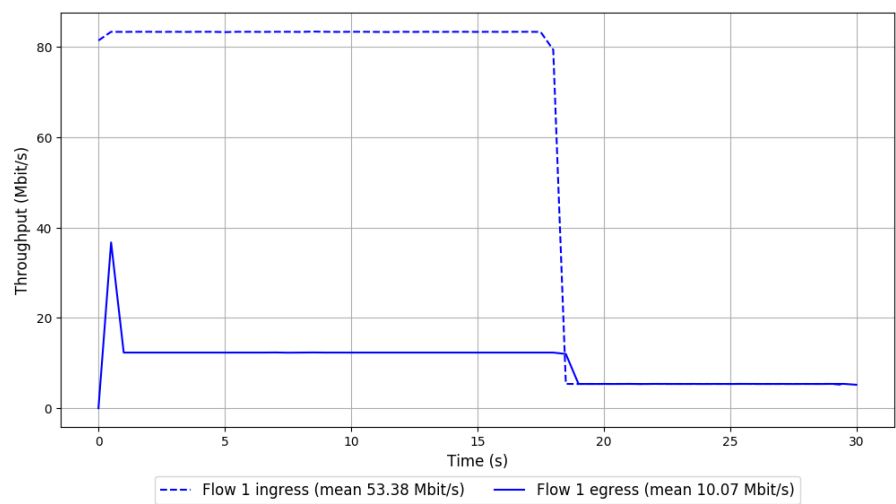Run 5: Report of Sprout — Data Link

```
Run 1: Statistics of TaoVA-100x

Start at: 2018-10-02 07:24:10
End at: 2018-10-02 07:24:40
Local clock offset: -6.79 ms
Remote clock offset: -0.16 ms


# Below is generated by plot.py at 2018-10-02 08:59:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 10.07 Mbit/s
95th percentile per-packet one-way delay: 2.314 ms
Loss rate: 81.14%
-- Flow 1:
Average throughput: 10.07 Mbit/s
95th percentile per-packet one-way delay: 2.314 ms
Loss rate: 81.14%
```
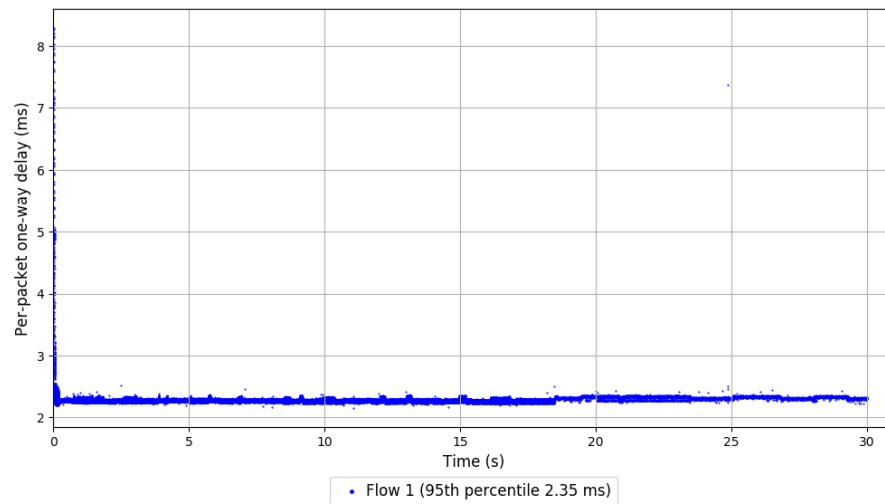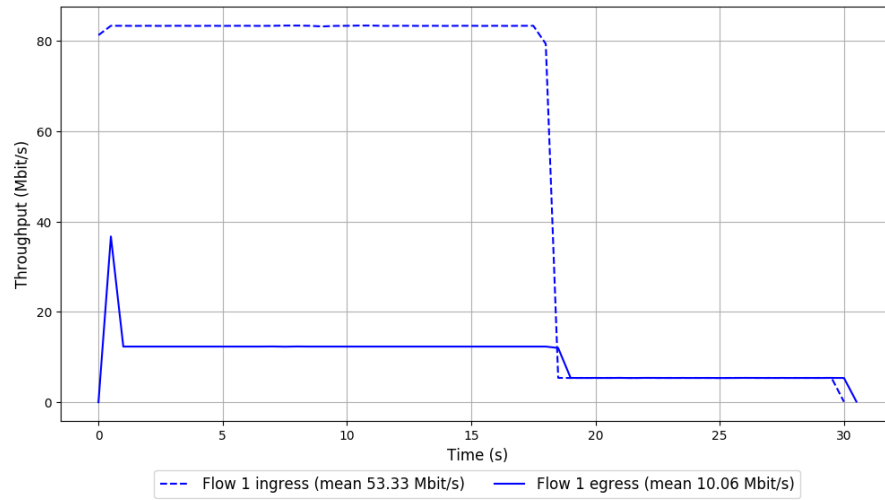
Run 1: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 53.38 Mbit/s) ----- Flow 1 egress (mean 10.07 Mbit/s)

Flow 1 (95th percentile 2.31 ms)

```
Run 2: Statistics of TaoVA-100x

Start at: 2018-10-02 07:44:14
End at: 2018-10-02 07:44:44
Local clock offset: -7.522 ms
Remote clock offset: -0.233 ms


# Below is generated by plot.py at 2018-10-02 08:59:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 10.06 Mbit/s
95th percentile per-packet one-way delay: 2.345 ms
Loss rate: 81.14%
-- Flow 1:
Average throughput: 10.06 Mbit/s
95th percentile per-packet one-way delay: 2.345 ms
Loss rate: 81.14%
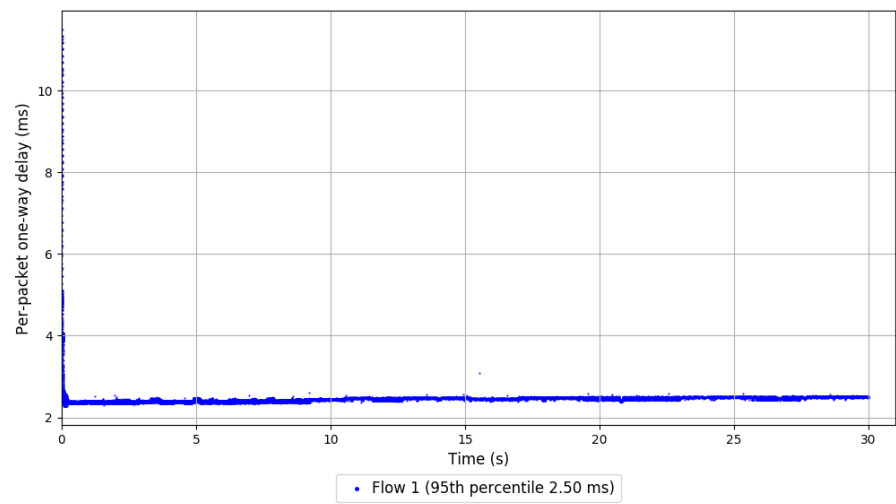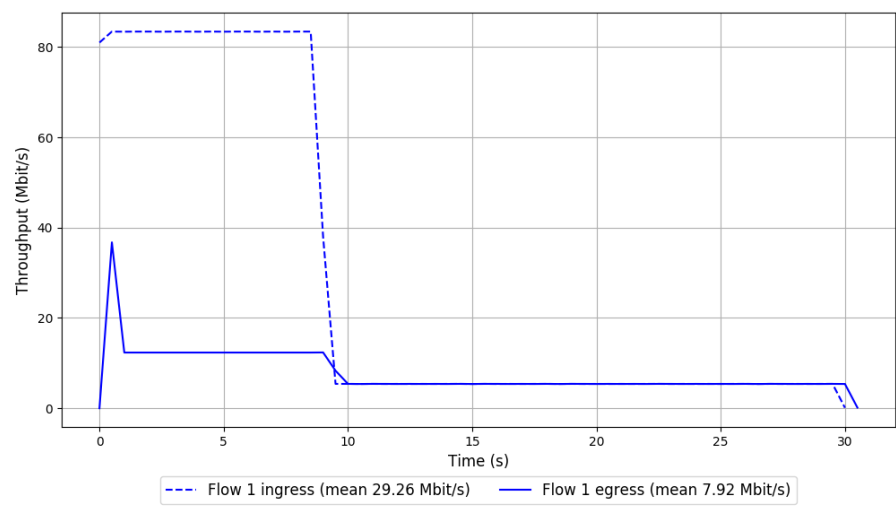```

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

```
Run 3: Statistics of TaoVA-100x

Start at: 2018-10-02 08:04:17
End at: 2018-10-02 08:04:47
Local clock offset: -2.483 ms
Remote clock offset: -0.233 ms

Below is generated by plot.py at 2018-10-02 08:59:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.92 Mbit/s
95th percentile per-packet one-way delay: 2.505 ms
Loss rate: 72.94%
-- Flow 1:
Average throughput: 7.92 Mbit/s
95th percentile per-packet one-way delay: 2.505 ms
Loss rate: 72.94%
```
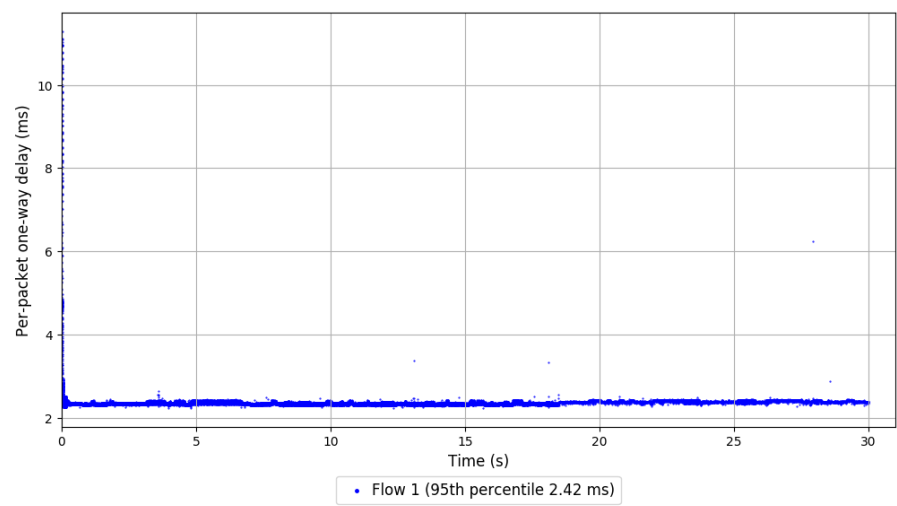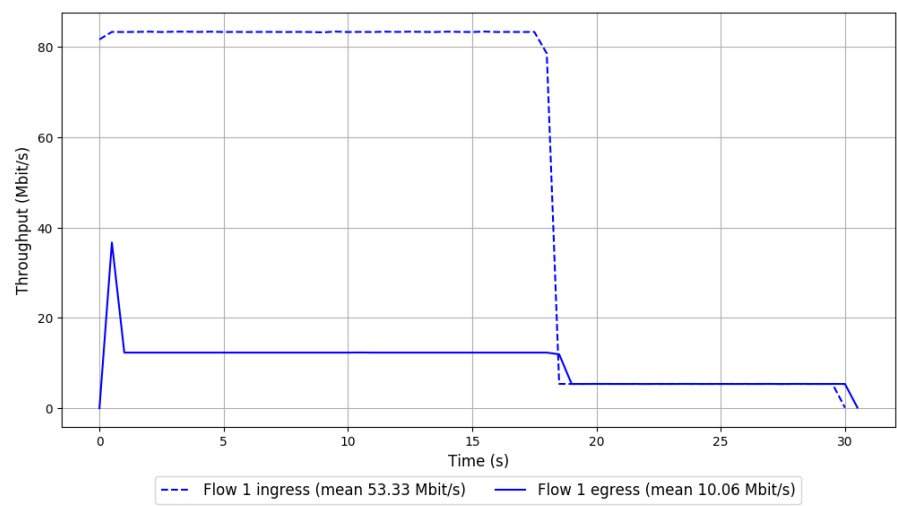
# Run 3: Report of TaoVA-100x — Data Link

```
Run 4: Statistics of TaoVA-100x

Start at: 2018-10-02 08:24:21
End at: 2018-10-02 08:24:51
Local clock offset: -1.593 ms
Remote clock offset: -0.338 ms

Below is generated by plot.py at 2018-10-02 09:00:01
Datalink statistics
-- Total of 1 flow:
Average throughput: 10.06 Mbit/s
95th percentile per-packet one-way delay: 2.422 ms
Loss rate: 81.14%
-- Flow 1:
Average throughput: 10.06 Mbit/s
95th percentile per-packet one-way delay: 2.422 ms
Loss rate: 81.14%
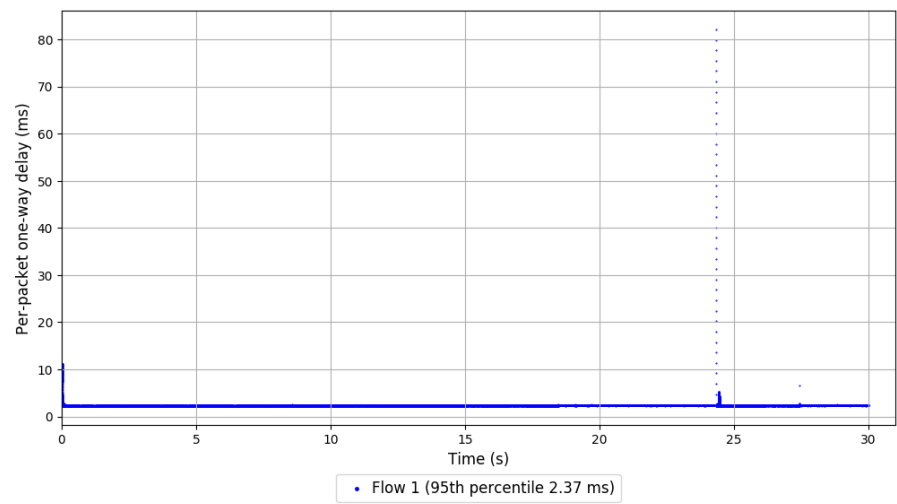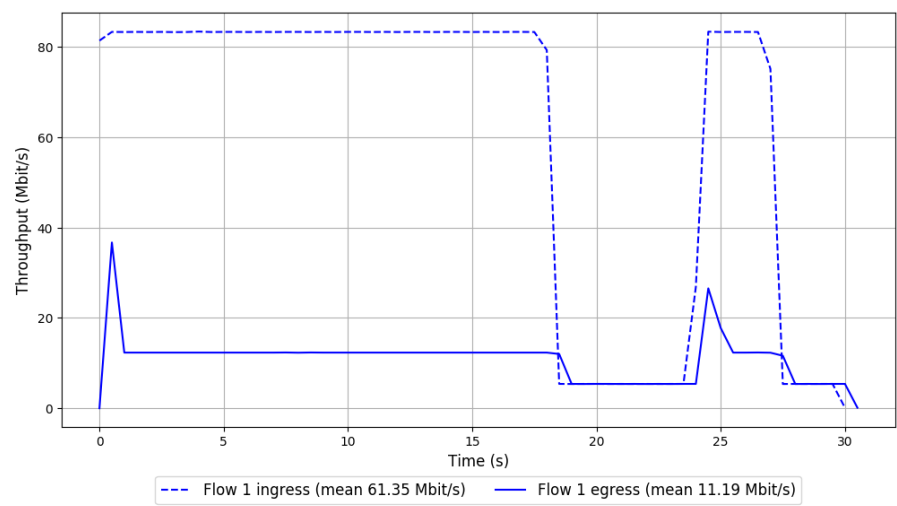```

Run 4: Report of TaoVA-100x — Data Link

```
Run 5: Statistics of TaoVA-100x

Start at: 2018-10-02 08:44:30
End at: 2018-10-02 08:45:00
Local clock offset: -0.925 ms
Remote clock offset: -0.339 ms


# Below is generated by plot.py at 2018-10-02 09:00:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.19 Mbit/s
95th percentile per-packet one-way delay: 2.368 ms
Loss rate: 81.77%
-- Flow 1:
Average throughput: 11.19 Mbit/s
95th percentile per-packet one-way delay: 2.368 ms
Loss rate: 81.77%
```

Run 5: Report of TaoVA-100x — Data Link
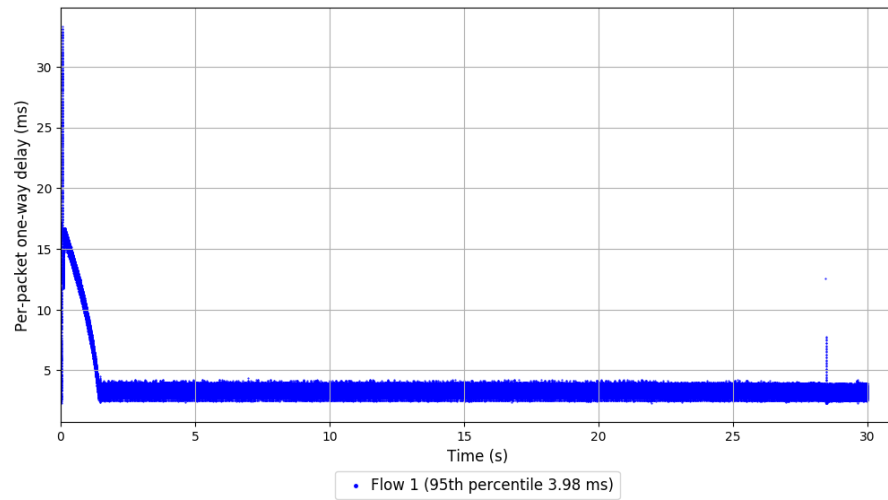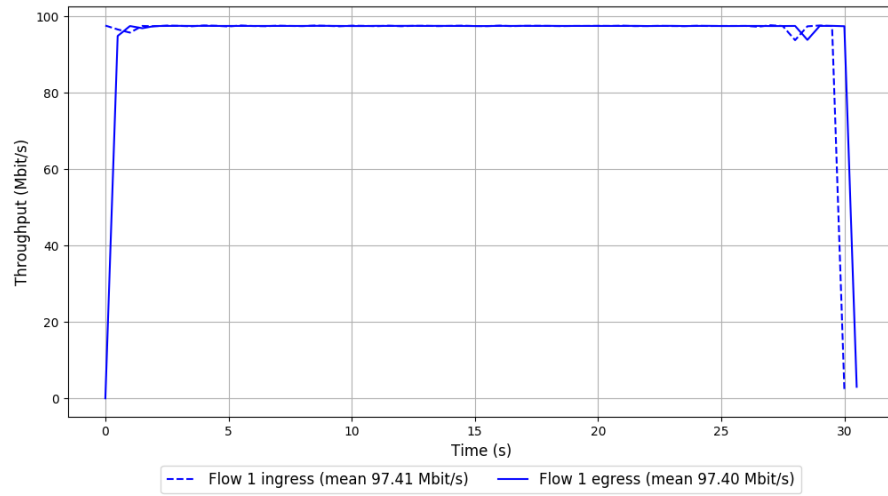

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```
Run 1: Statistics of TCP Vegas

Start at: 2018-10-02 07:30:55
End at: 2018-10-02 07:31:25
Local clock offset: -7.109 ms
Remote clock offset: -0.082 ms


# Below is generated by plot.py at 2018-10-02 09:00:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.40 Mbit/s
95th percentile per-packet one-way delay: 3.981 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 97.40 Mbit/s
95th percentile per-packet one-way delay: 3.981 ms
Loss rate: 0.00%
```
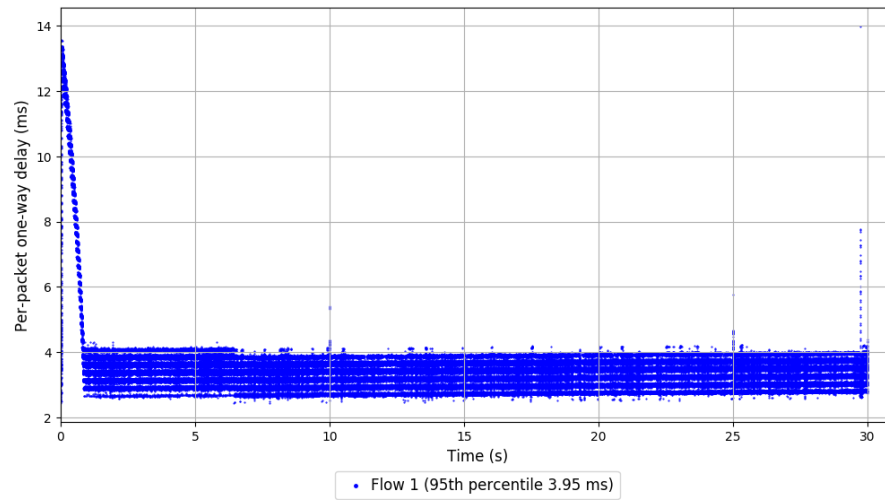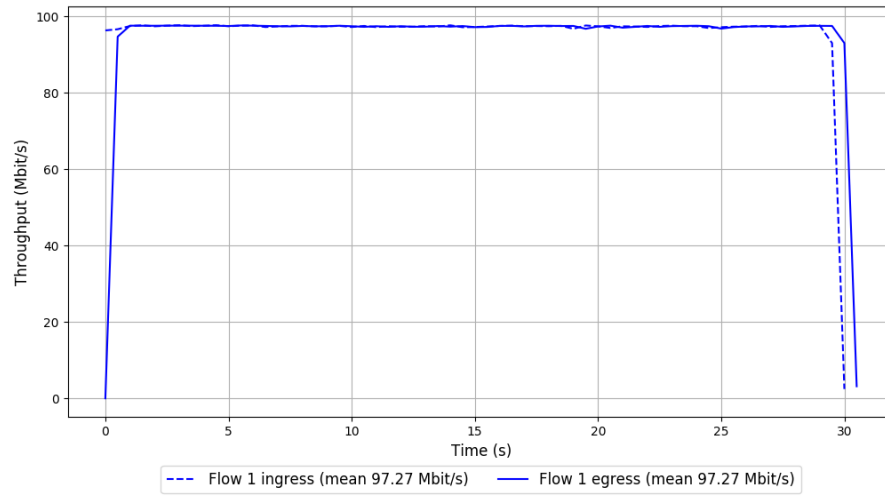
Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2018-10-02 07:50:58
End at: 2018-10-02 07:51:28
Local clock offset: -5.191 ms
Remote clock offset: -0.215 ms


# Below is generated by plot.py at 2018-10-02 09:01:02
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.27 Mbit/s
95th percentile per-packet one-way delay: 3.949 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 97.27 Mbit/s
95th percentile per-packet one-way delay: 3.949 ms
Loss rate: 0.00%
```
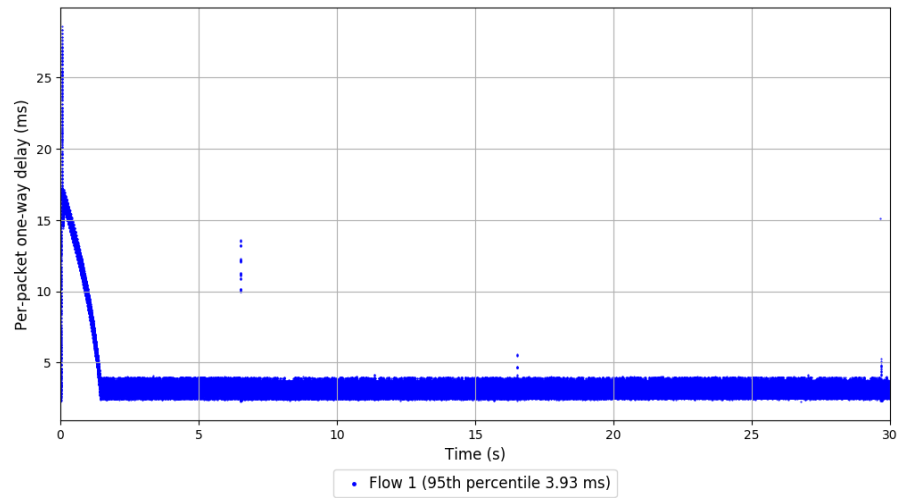
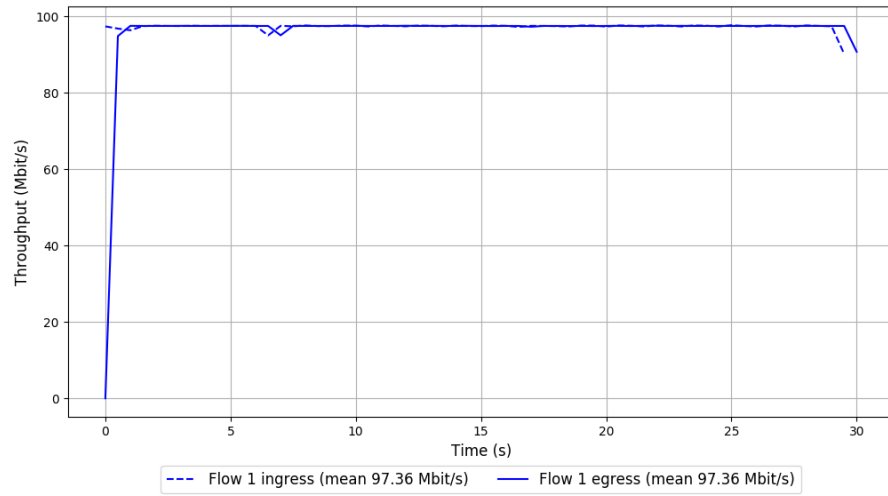Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2018-10-02 08:11:02
End at: 2018-10-02 08:11:32
Local clock offset: -1.87 ms
Remote clock offset: -0.256 ms


# Below is generated by plot.py at 2018-10-02 09:01:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.36 Mbit/s
95th percentile per-packet one-way delay: 3.928 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 97.36 Mbit/s
95th percentile per-packet one-way delay: 3.928 ms
Loss rate: 0.00%
```

Run 3: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 97.36 Mbit/s)　　Flow 1 egress (mean 97.36 Mbit/s)
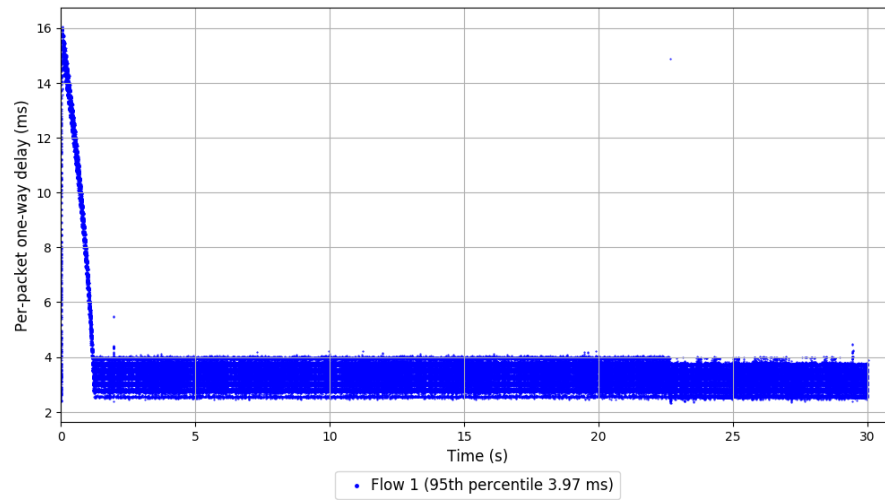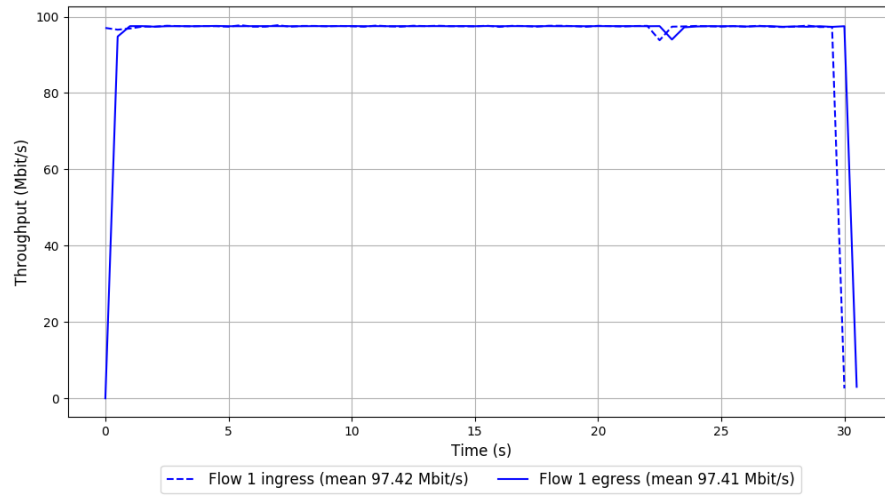

Flow 1 (95th percentile 3.93 ms)

```
Run 4: Statistics of TCP Vegas

Start at: 2018-10-02 08:31:11
End at: 2018-10-02 08:31:41
Local clock offset: -1.384 ms
Remote clock offset: -0.216 ms


# Below is generated by plot.py at 2018-10-02 09:01:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.41 Mbit/s
95th percentile per-packet one-way delay: 3.972 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 97.41 Mbit/s
95th percentile per-packet one-way delay: 3.972 ms
Loss rate: 0.00%
```

Run 4: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 97.42 Mbit/s) --- Flow 1 egress (mean 97.41 Mbit/s)
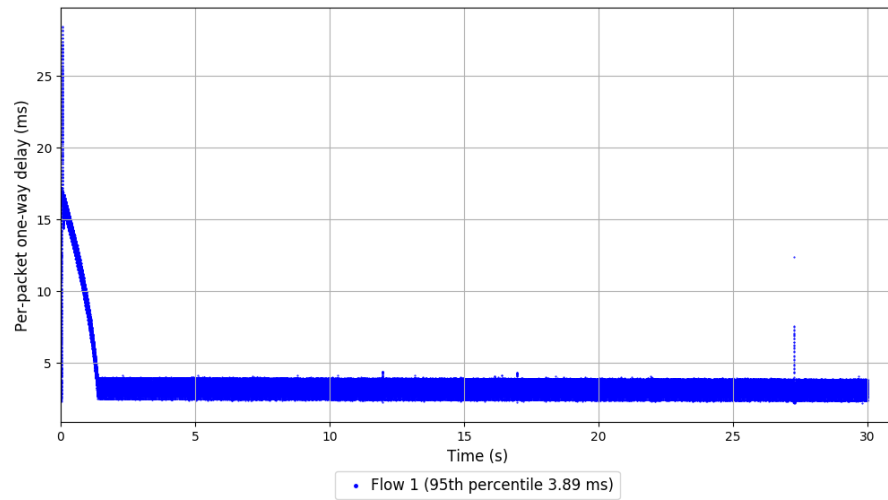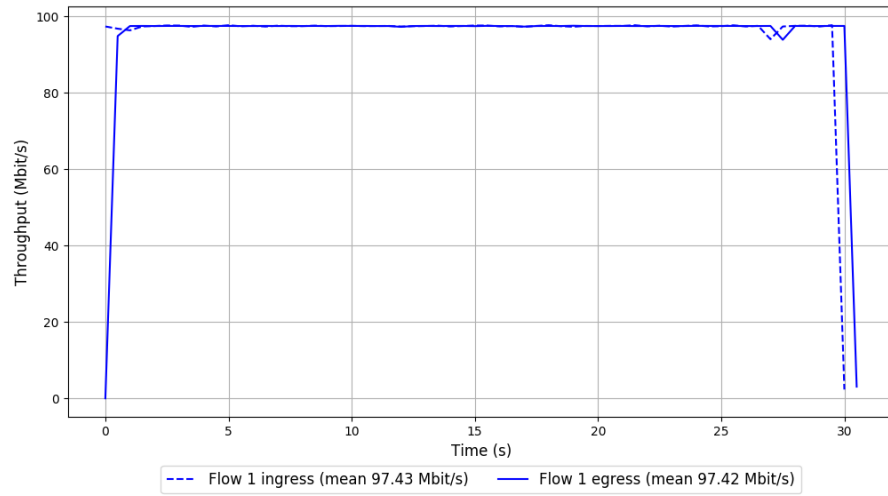

Flow 1 (95th percentile 3.97 ms)

```
Run 5: Statistics of TCP Vegas

Start at: 2018-10-02 08:51:15
End at: 2018-10-02 08:51:45
Local clock offset: -2.874 ms
Remote clock offset: -0.236 ms


# Below is generated by plot.py at 2018-10-02 09:01:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.42 Mbit/s
95th percentile per-packet one-way delay: 3.894 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 97.42 Mbit/s
95th percentile per-packet one-way delay: 3.894 ms
Loss rate: 0.00%
```

Run 5: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 97.43 Mbit/s) — — —   Flow 1 egress (mean 97.42 Mbit/s) ———

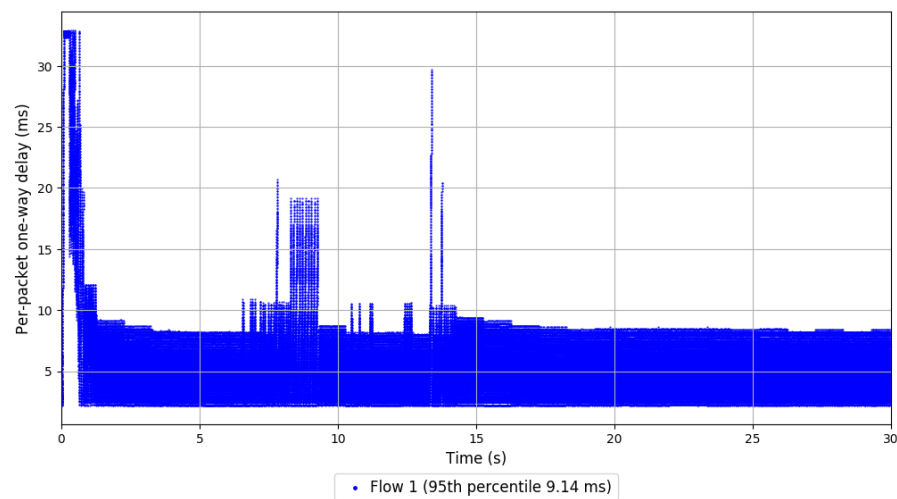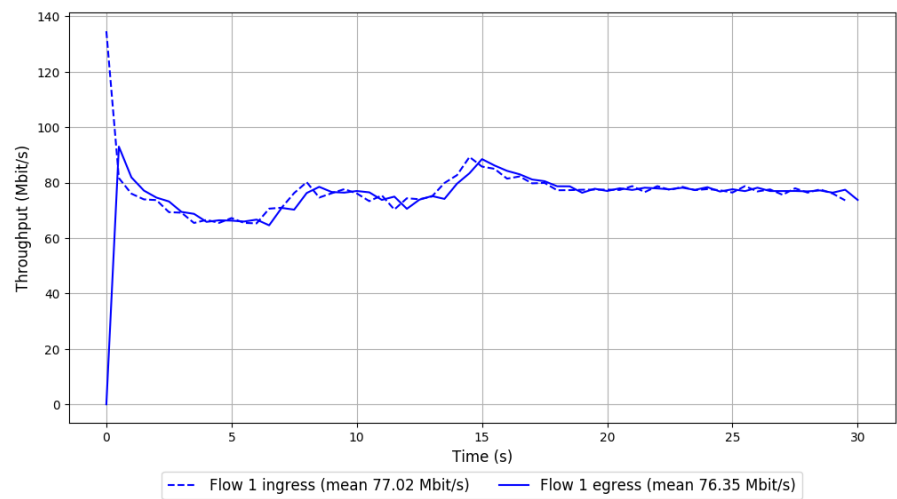Flow 1 (95th percentile 3.89 ms)

```
Run 1: Statistics of Verus

Start at: 2018-10-02 07:25:15
End at: 2018-10-02 07:25:45
Local clock offset: -6.85 ms
Remote clock offset: -0.112 ms


# Below is generated by plot.py at 2018-10-02 09:01:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 76.35 Mbit/s
95th percentile per-packet one-way delay: 9.136 ms
Loss rate: 0.85%
-- Flow 1:
Average throughput: 76.35 Mbit/s
95th percentile per-packet one-way delay: 9.136 ms
Loss rate: 0.85%
```

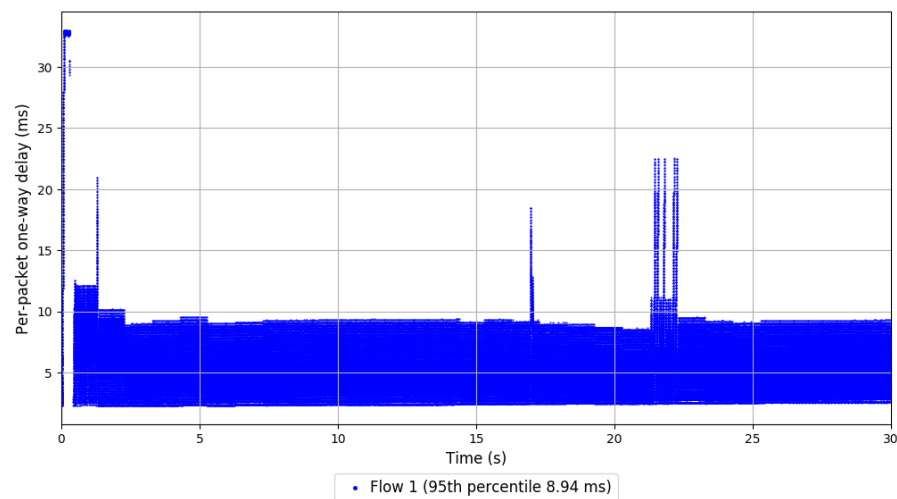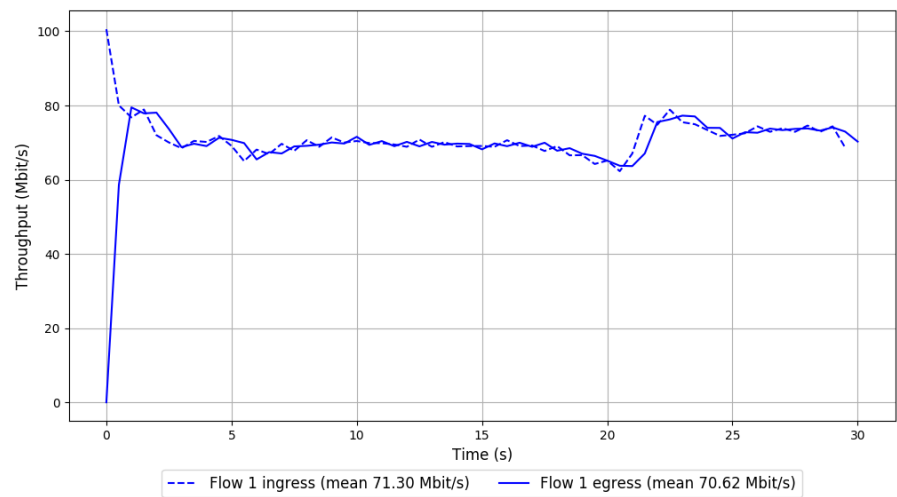## Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2018-10-02 07:45:19
End at: 2018-10-02 07:45:49
Local clock offset: -7.596 ms
Remote clock offset: -0.164 ms


# Below is generated by plot.py at 2018-10-02 09:01:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 70.62 Mbit/s
95th percentile per-packet one-way delay: 8.944 ms
Loss rate: 0.95%
-- Flow 1:
Average throughput: 70.62 Mbit/s
95th percentile per-packet one-way delay: 8.944 ms
Loss rate: 0.95%
```
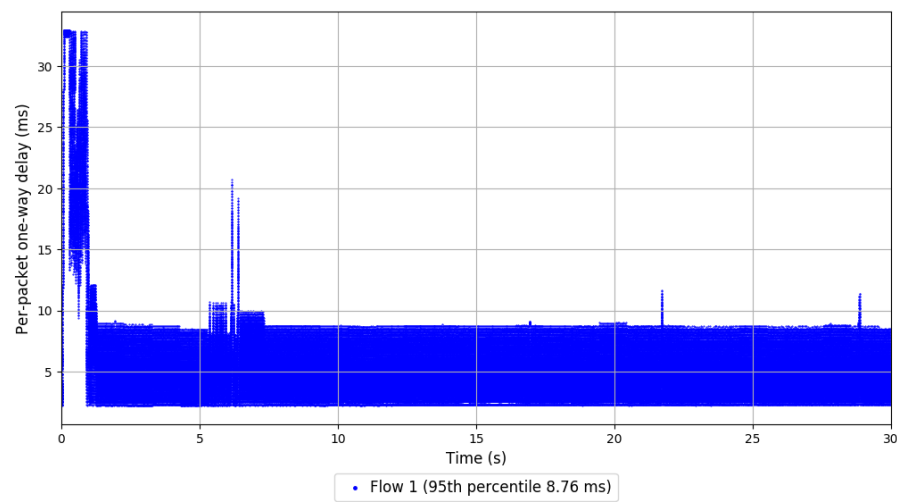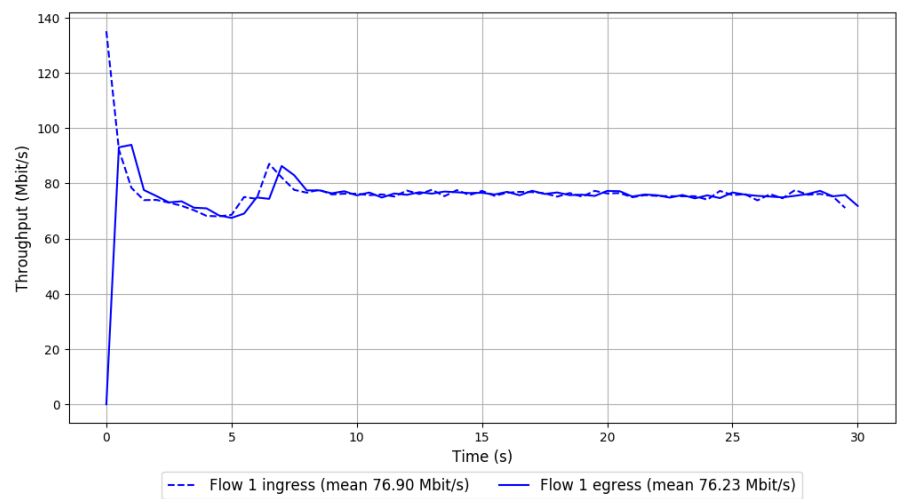
Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-10-02 08:05:22
End at: 2018-10-02 08:05:52
Local clock offset: -2.35 ms
Remote clock offset: -0.255 ms


# Below is generated by plot.py at 2018-10-02 09:01:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 76.23 Mbit/s
95th percentile per-packet one-way delay: 8.755 ms
Loss rate: 0.86%
-- Flow 1:
Average throughput: 76.23 Mbit/s
95th percentile per-packet one-way delay: 8.755 ms
Loss rate: 0.86%
```

Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2018-10-02 08:25:26
End at: 2018-10-02 08:25:56
Local clock offset: -1.566 ms
Remote clock offset: -0.28 ms


# Below is generated by plot.py at 2018-10-02 09:01:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 72.21 Mbit/s
95th percentile per-packet one-way delay: 8.991 ms
Loss rate: 0.93%
-- Flow 1:
Average throughput: 72.21 Mbit/s
95th percentile per-packet one-way delay: 8.991 ms
Loss rate: 0.93%
```
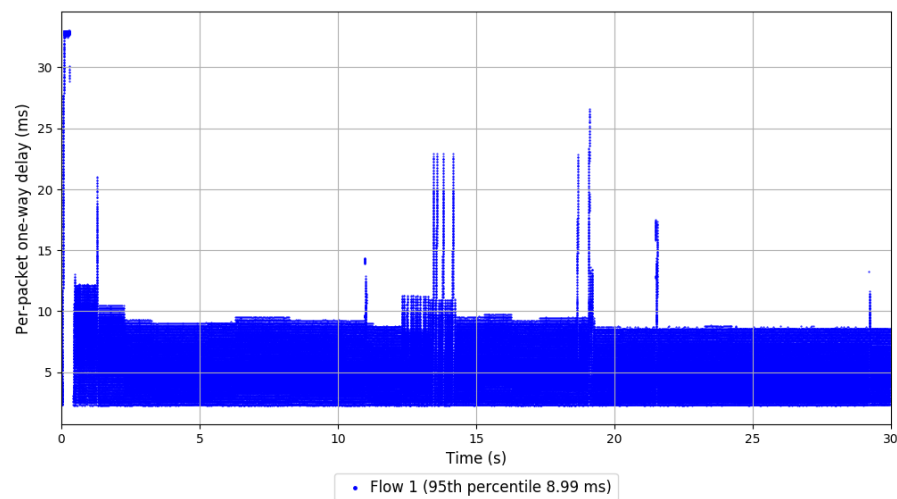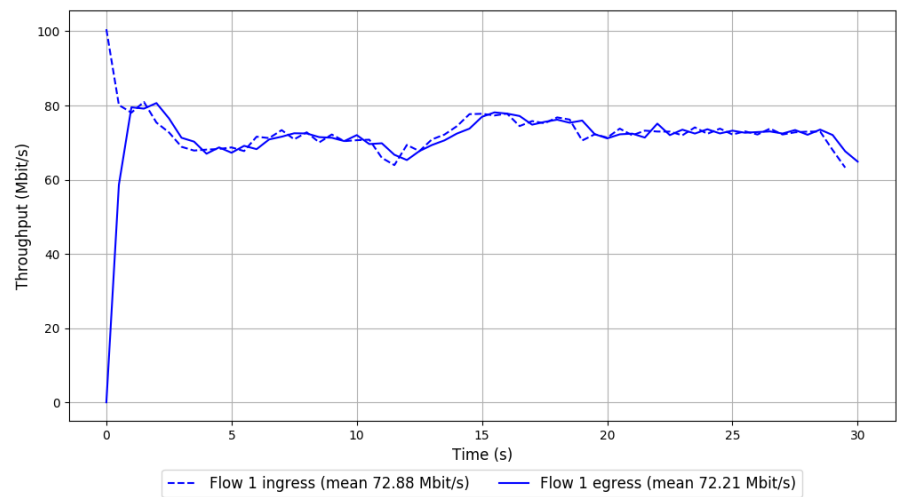
Run 4: Report of Verus — Data Link

Flow 1 ingress (mean 72.88 Mbit/s)   Flow 1 egress (mean 72.21 Mbit/s)
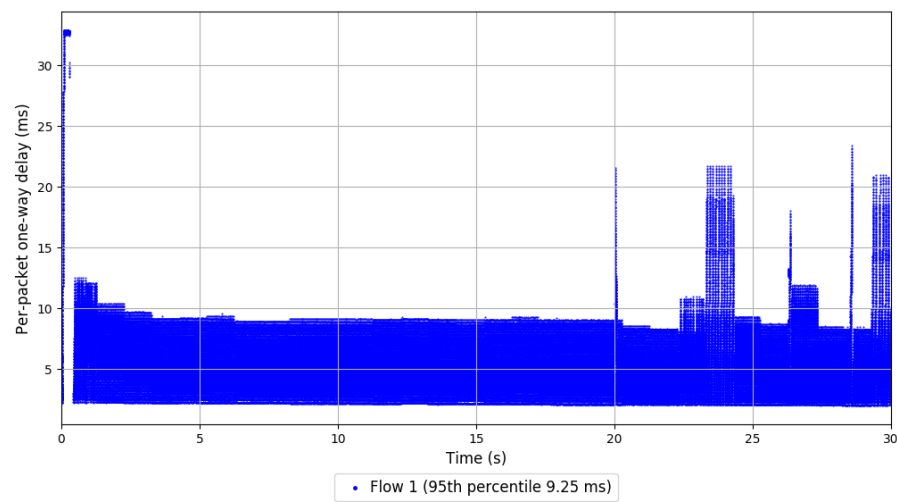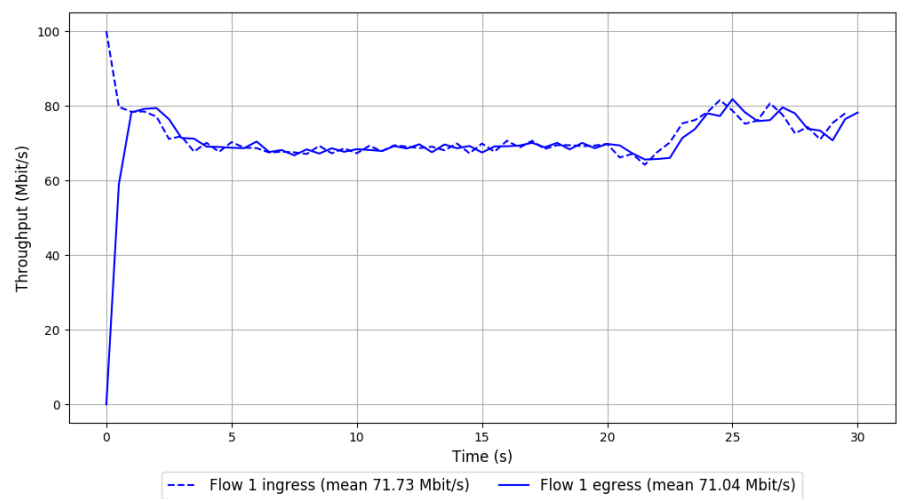

Flow 1 (95th percentile 8.99 ms)

```
Run 5: Statistics of Verus

Start at: 2018-10-02 08:45:35
End at: 2018-10-02 08:46:05
Local clock offset: -0.91 ms
Remote clock offset: -0.233 ms


# Below is generated by plot.py at 2018-10-02 09:01:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 71.04 Mbit/s
95th percentile per-packet one-way delay: 9.254 ms
Loss rate: 0.94%
-- Flow 1:
Average throughput: 71.04 Mbit/s
95th percentile per-packet one-way delay: 9.254 ms
Loss rate: 0.94%
```

Run 5: Report of Verus — Data Link

Flow 1 ingress (mean 71.73 Mbit/s)   Flow 1 egress (mean 71.04 Mbit/s)

Flow 1 (95th percentile 9.25 ms)

```
Run 1: Statistics of PCC-Vivace

Start at: 2018-10-02 07:26:23
End at: 2018-10-02 07:26:53
Local clock offset: -6.972 ms
Remote clock offset: -0.081 ms


# Below is generated by plot.py at 2018-10-02 09:02:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 89.30 Mbit/s
95th percentile per-packet one-way delay: 2.532 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 89.30 Mbit/s
95th percentile per-packet one-way delay: 2.532 ms
Loss rate: 0.00%
```
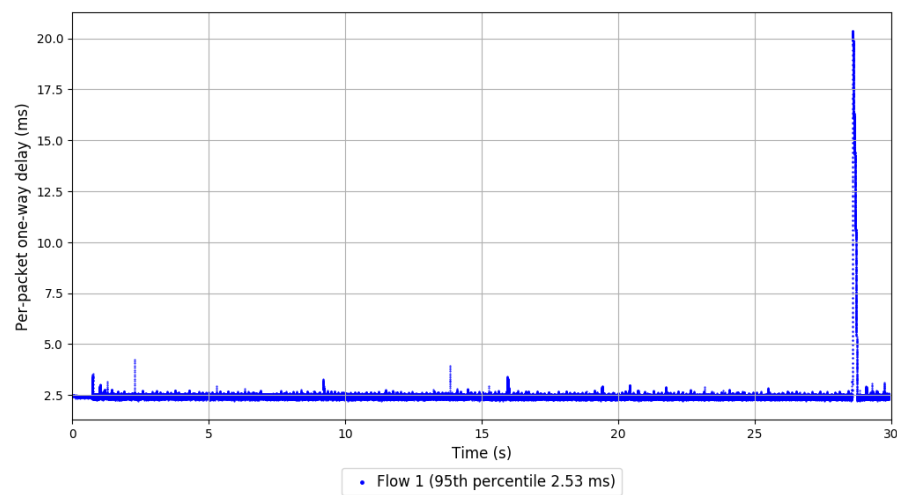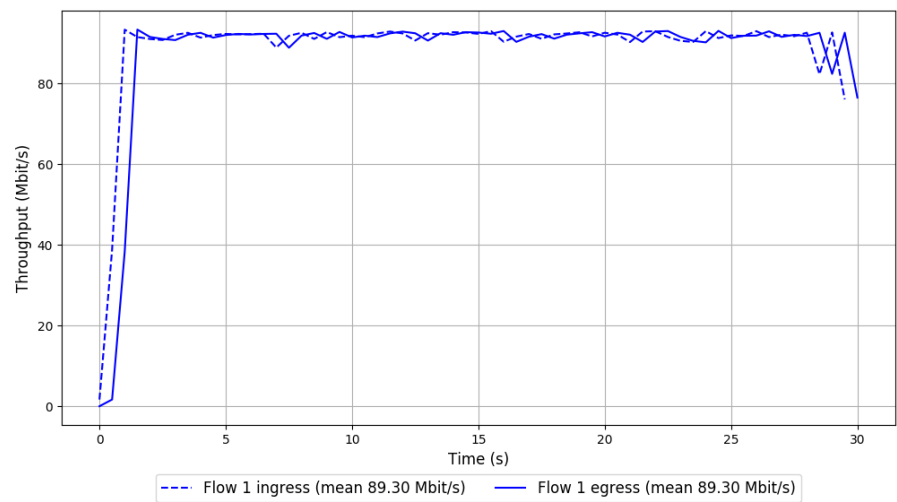
Run 1: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 89.30 Mbit/s)   Flow 1 egress (mean 89.30 Mbit/s)
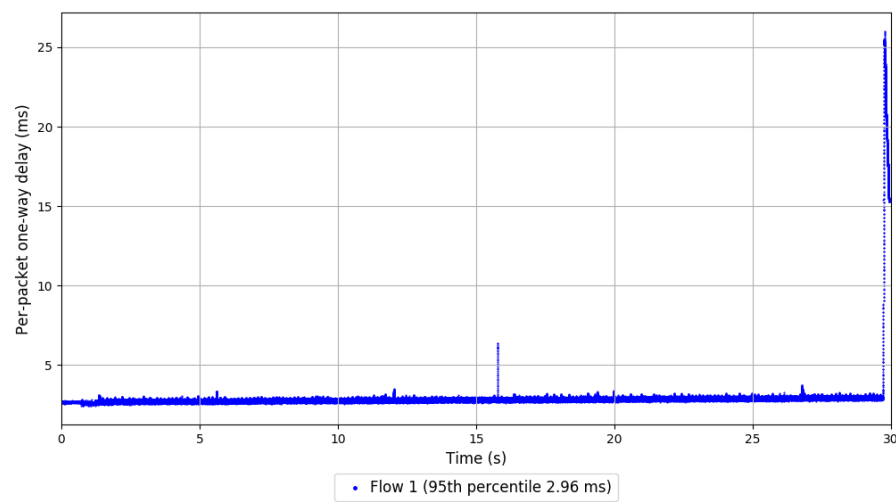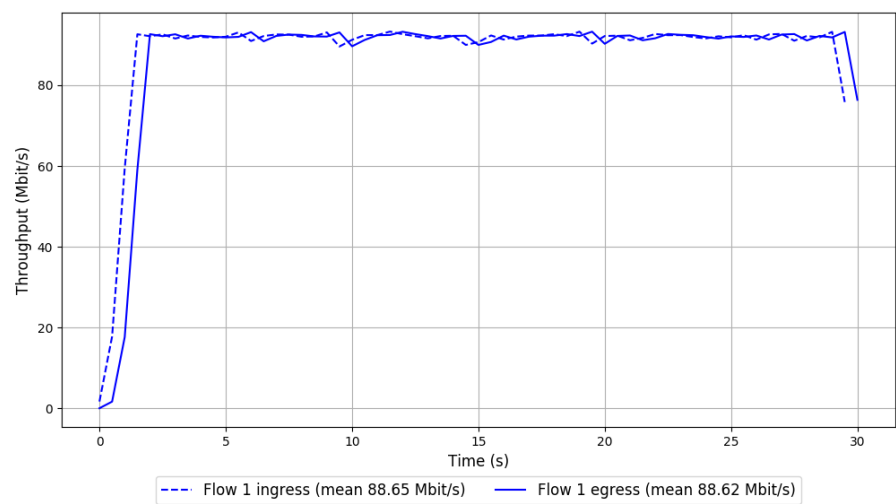

Flow 1 (95th percentile 2.53 ms)

```
Run 2: Statistics of PCC-Vivace

Start at: 2018-10-02 07:46:27
End at: 2018-10-02 07:46:57
Local clock offset: -7.204 ms
Remote clock offset: -0.158 ms


# Below is generated by plot.py at 2018-10-02 09:02:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 88.62 Mbit/s
95th percentile per-packet one-way delay: 2.959 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 88.62 Mbit/s
95th percentile per-packet one-way delay: 2.959 ms
Loss rate: 0.00%
```

Run 2: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 88.65 Mbit/s) — Flow 1 egress (mean 88.62 Mbit/s)
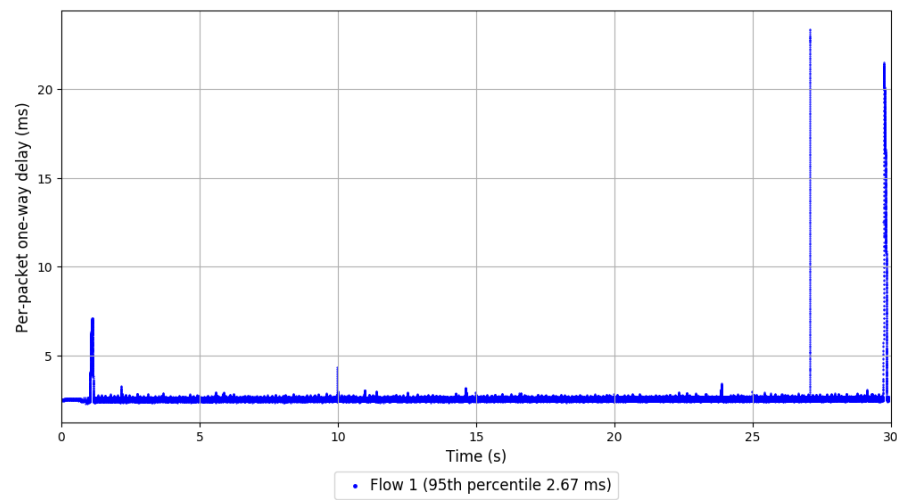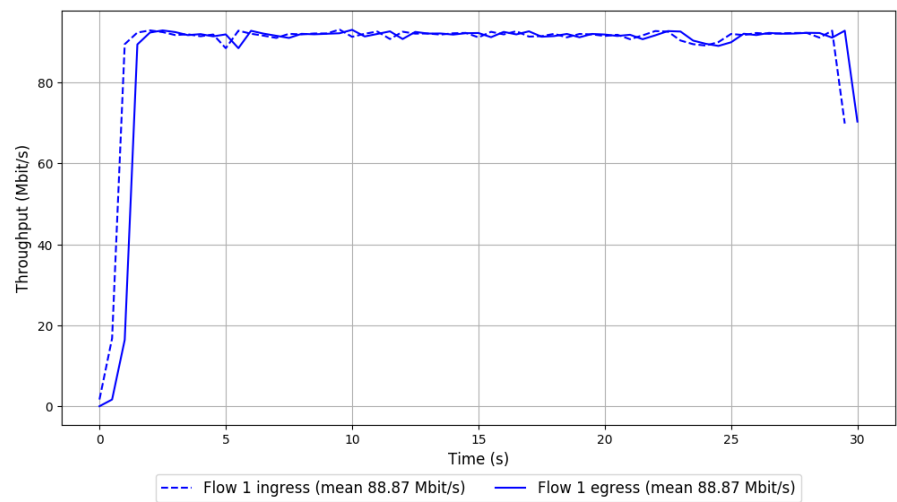

• Flow 1 (95th percentile 2.96 ms)

```
Run 3: Statistics of PCC-Vivace

Start at: 2018-10-02 08:06:30
End at: 2018-10-02 08:07:00
Local clock offset: -2.309 ms
Remote clock offset: -0.164 ms


# Below is generated by plot.py at 2018-10-02 09:02:02
# Datalink statistics
-- Total of 1 flow:
Average throughput: 88.87 Mbit/s
95th percentile per-packet one-way delay: 2.672 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 88.87 Mbit/s
95th percentile per-packet one-way delay: 2.672 ms
Loss rate: 0.00%
```

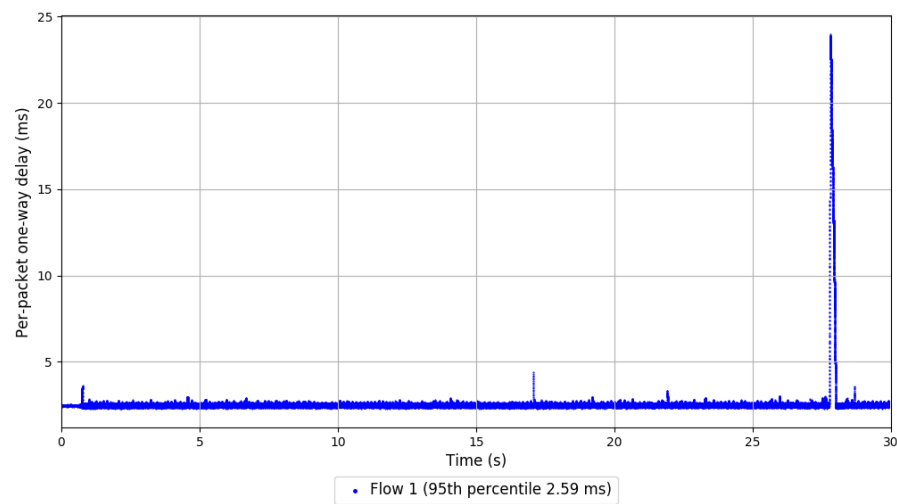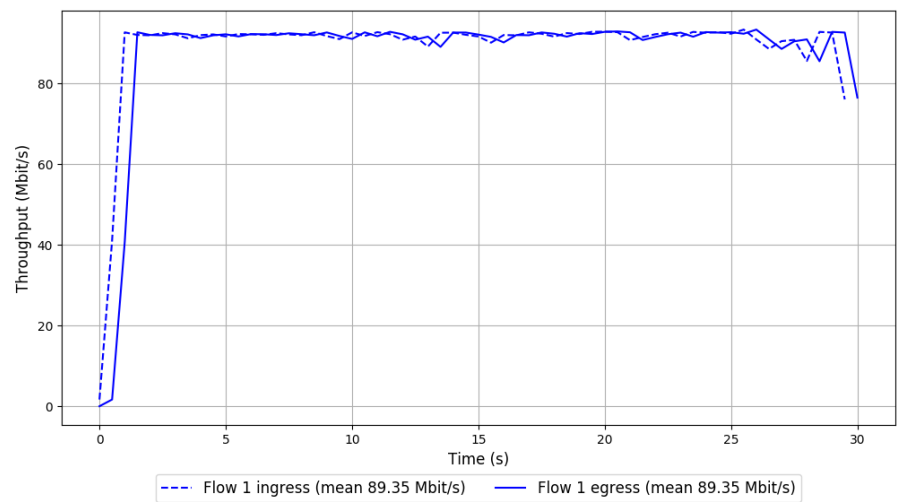Run 3: Report of PCC-Vivace — Data Link

```
Run 4: Statistics of PCC-Vivace

Start at: 2018-10-02 08:26:39
End at: 2018-10-02 08:27:09
Local clock offset: -1.562 ms
Remote clock offset: -0.232 ms


# Below is generated by plot.py at 2018-10-02 09:02:02
# Datalink statistics
-- Total of 1 flow:
Average throughput: 89.35 Mbit/s
95th percentile per-packet one-way delay: 2.594 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 89.35 Mbit/s
95th percentile per-packet one-way delay: 2.594 ms
Loss rate: 0.00%
```

Run 4: Report of PCC-Vivace — Data Link

```
Run 5: Statistics of PCC-Vivace

Start at: 2018-10-02 08:46:43
End at: 2018-10-02 08:47:13
Local clock offset: -1.251 ms
Remote clock offset: -0.24 ms


# Below is generated by plot.py at 2018-10-02 09:02:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 89.42 Mbit/s
95th percentile per-packet one-way delay: 2.221 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 89.42 Mbit/s
95th percentile per-packet one-way delay: 2.221 ms
Loss rate: 0.00%
```
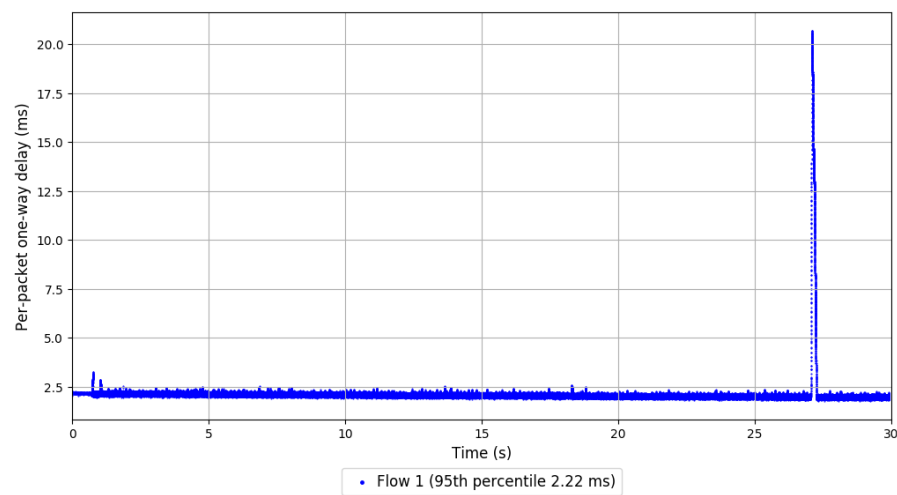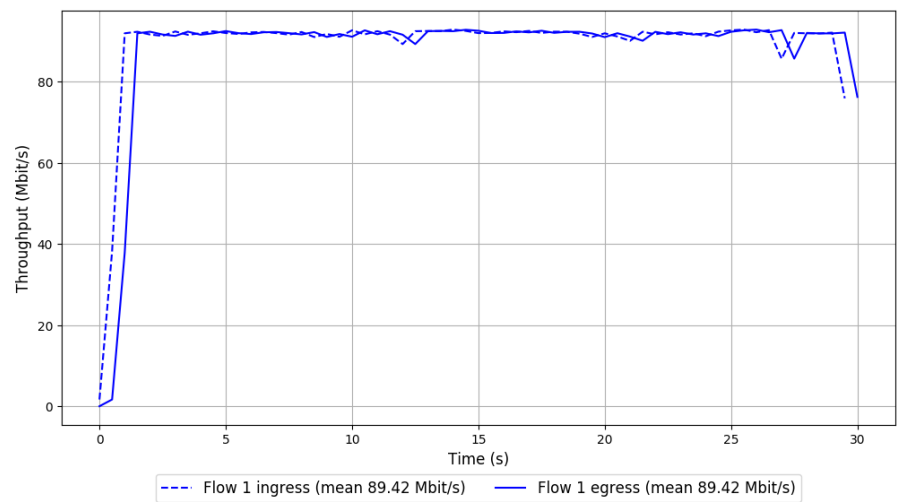
Run 5: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 89.42 Mbit/s)   Flow 1 egress (mean 89.42 Mbit/s)

Flow 1 (95th percentile 2.22 ms)

174

```
Run 1: Statistics of WebRTC media

Start at: 2018-10-02 07:14:15
End at: 2018-10-02 07:14:45
Local clock offset: -6.097 ms
Remote clock offset: -0.05 ms

# Below is generated by plot.py at 2018-10-02 09:02:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.94 Mbit/s
95th percentile per-packet one-way delay: 2.759 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.94 Mbit/s
95th percentile per-packet one-way delay: 2.759 ms
Loss rate: 0.00%
```
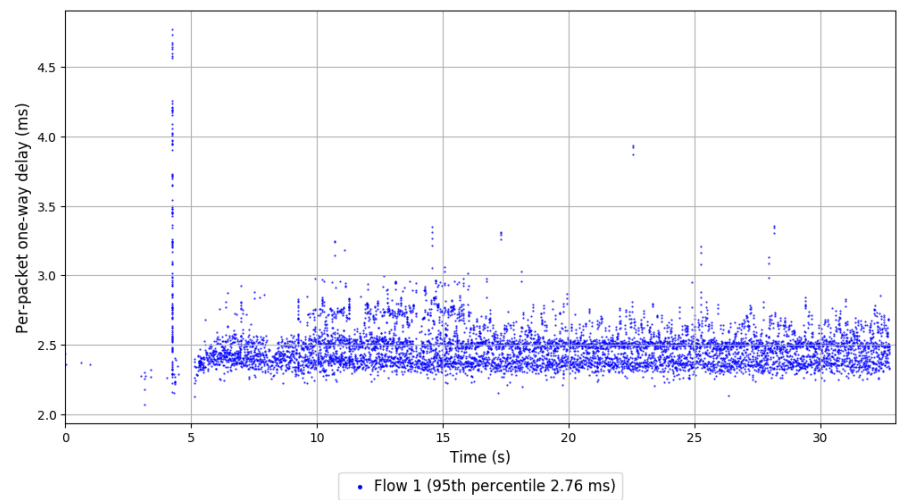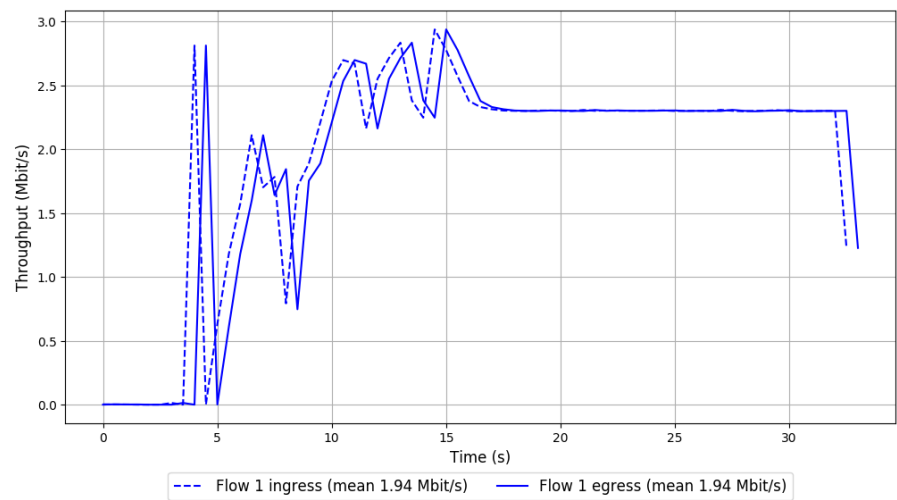
Run 1: Report of WebRTC media — Data Link

Flow 1 ingress (mean 1.94 Mbit/s) ---- Flow 1 egress (mean 1.94 Mbit/s) ——
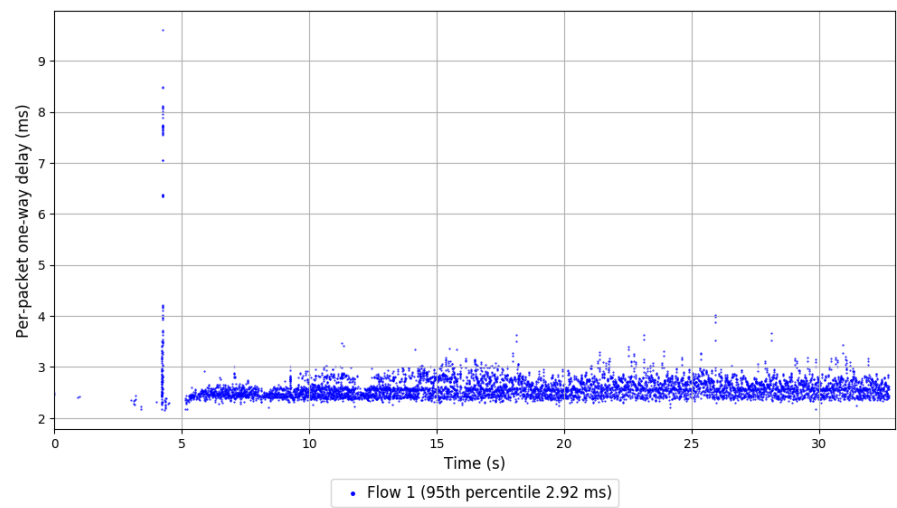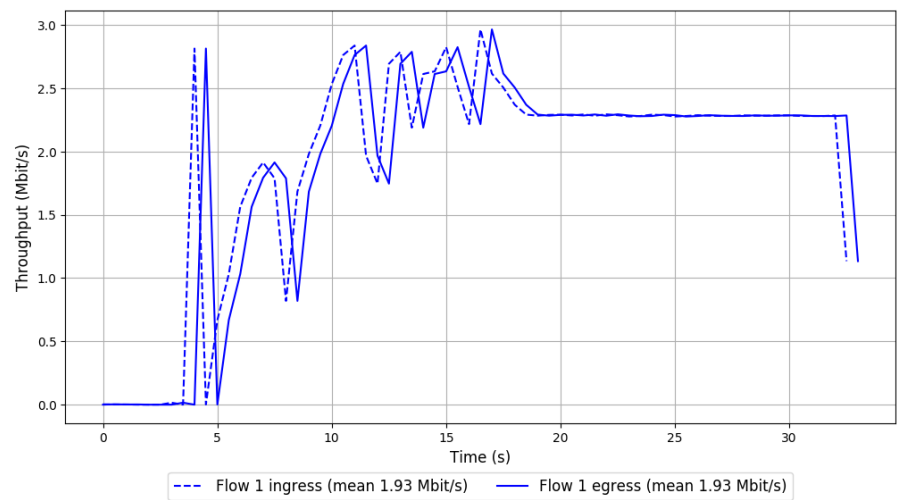

Flow 1 (95th percentile 2.76 ms)

```
Run 2: Statistics of WebRTC media

Start at: 2018-10-02 07:34:20
End at: 2018-10-02 07:34:50
Local clock offset: -7.237 ms
Remote clock offset: -0.125 ms


# Below is generated by plot.py at 2018-10-02 09:02:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 2.923 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 2.923 ms
Loss rate: 0.00%
```

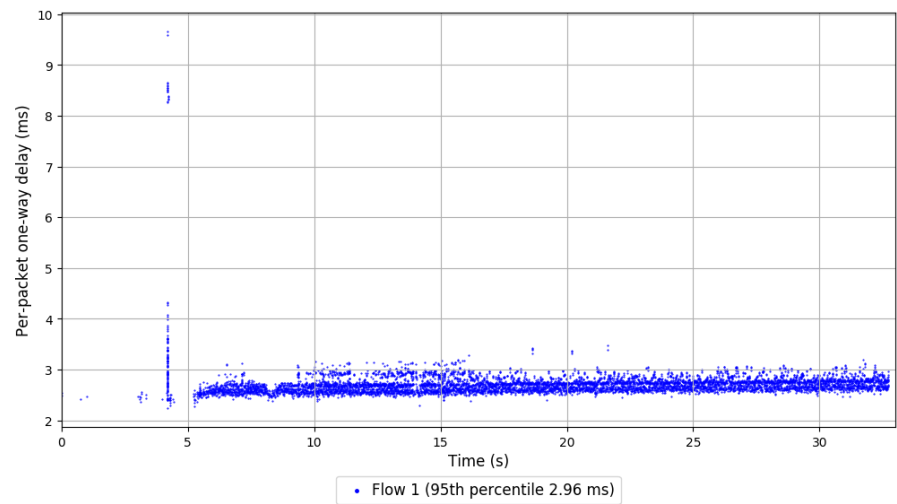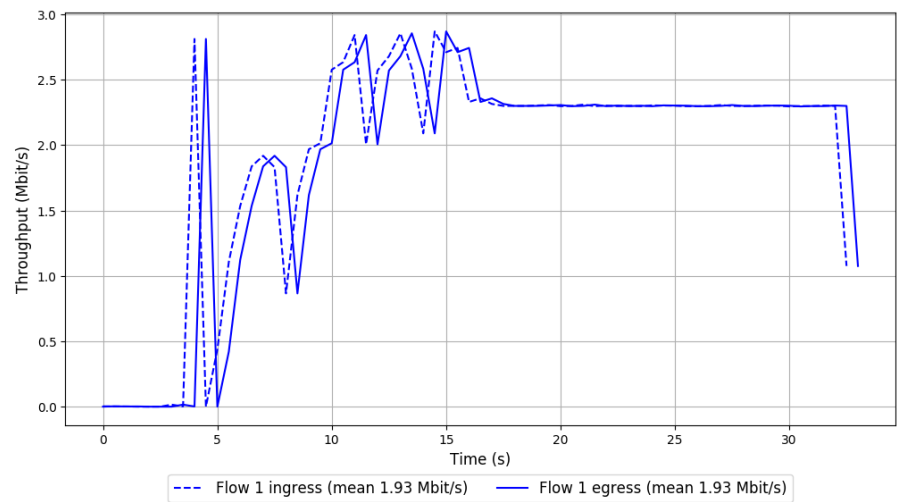Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-10-02 07:54:23
End at: 2018-10-02 07:54:53
Local clock offset: -4.161 ms
Remote clock offset: -0.223 ms


# Below is generated by plot.py at 2018-10-02 09:02:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 2.956 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 2.956 ms
Loss rate: 0.00%
```

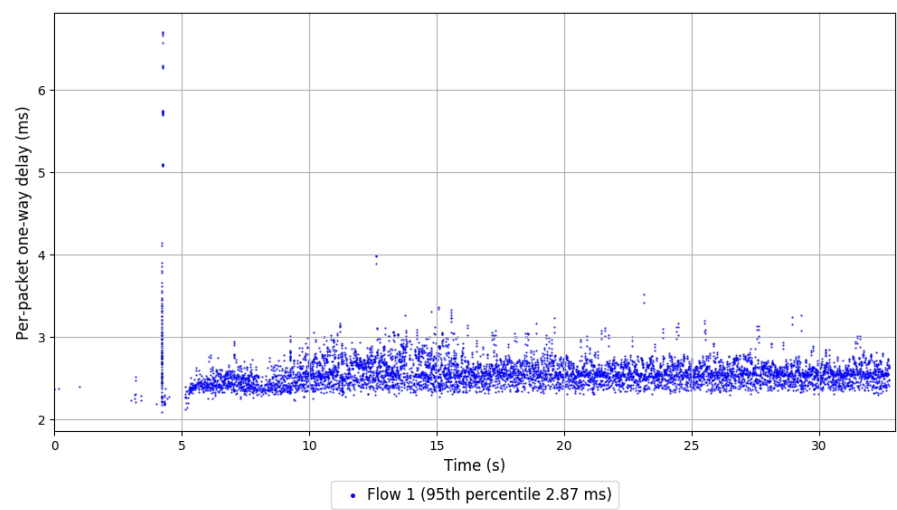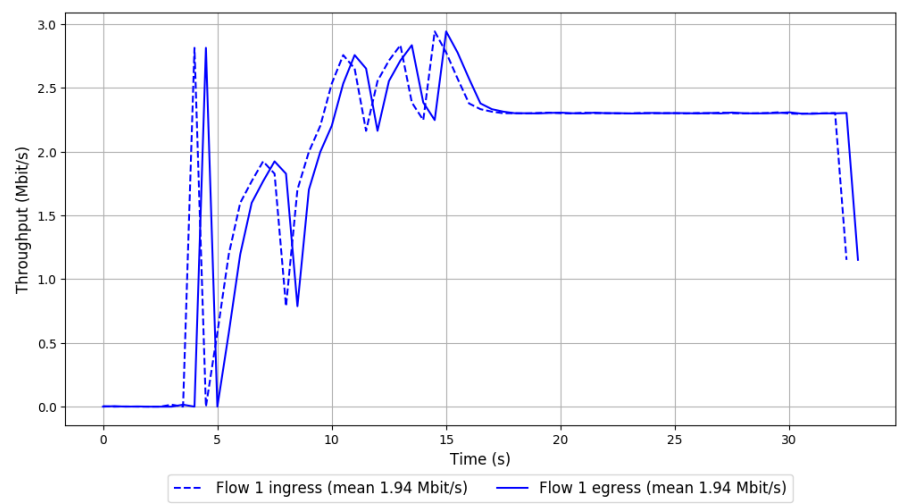Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2018-10-02 08:14:27
End at: 2018-10-02 08:14:57
Local clock offset: -1.627 ms
Remote clock offset: -0.298 ms


# Below is generated by plot.py at 2018-10-02 09:02:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.94 Mbit/s
95th percentile per-packet one-way delay: 2.873 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.94 Mbit/s
95th percentile per-packet one-way delay: 2.873 ms
Loss rate: 0.00%
```

Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2018-10-02 08:34:36
End at: 2018-10-02 08:35:06
Local clock offset: -1.275 ms
Remote clock offset: -0.218 ms


# Below is generated by plot.py at 2018-10-02 09:02:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 2.981 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 2.981 ms
Loss rate: 0.00%
```

Run 5: Report of WebRTC media — Data Link

Flow 1 ingress (mean 1.93 Mbit/s) ---- Flow 1 egress (mean 1.93 Mbit/s) ——

• Flow 1 (95th percentile 2.98 ms)