Pantheon Report

Generated at 2018-10-26 02:48:21 (UTC).

Data path: AWS India 2 on `ens5` (*local*) →Saudi Arabia on `enp2s0` (*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 `nets.org.sg` and have been applied to correct the timestamps in logs.
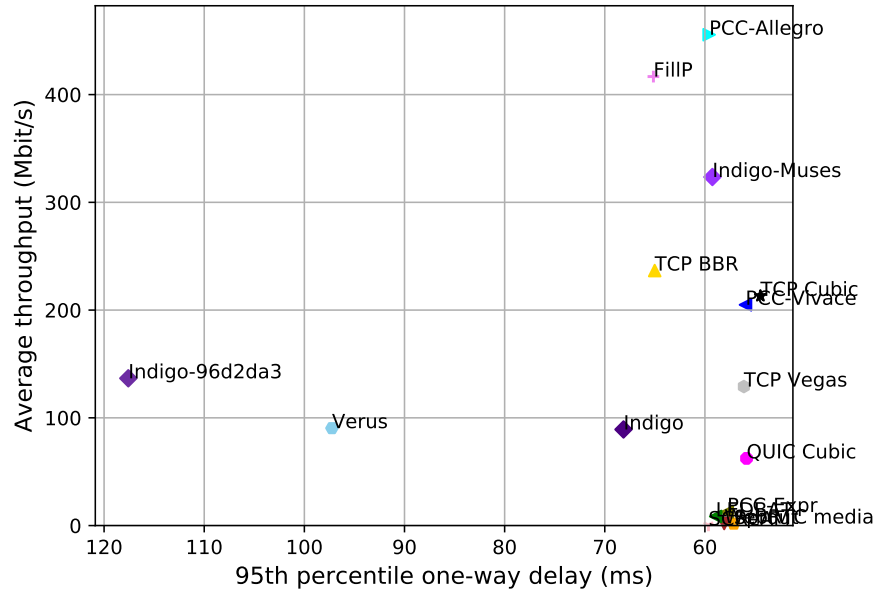
```
System info:
Linux 4.15.0-1023-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

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
```
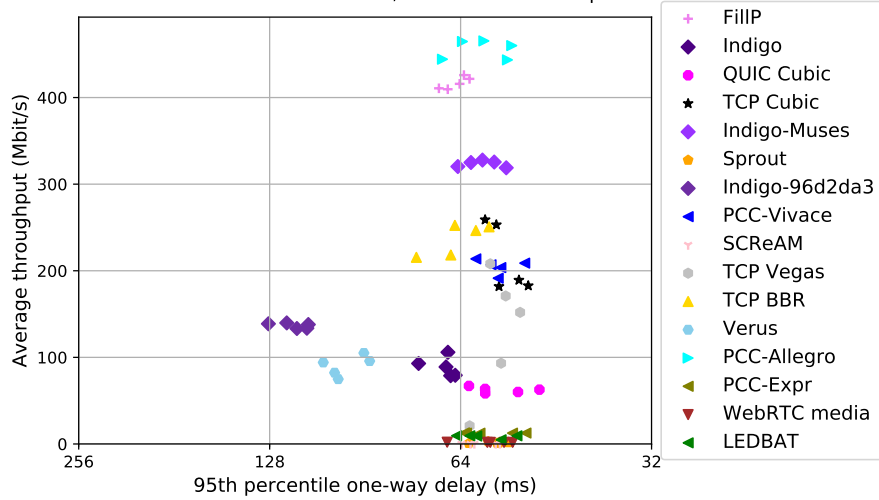
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851

test from AWS India 2 to Saudi Arabia, 5 runs of 30s each per scheme
(mean of all runs by scheme)

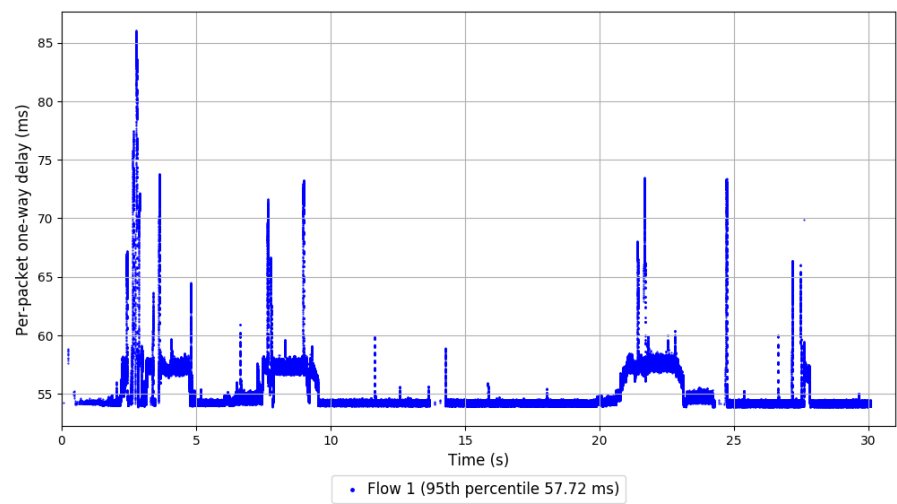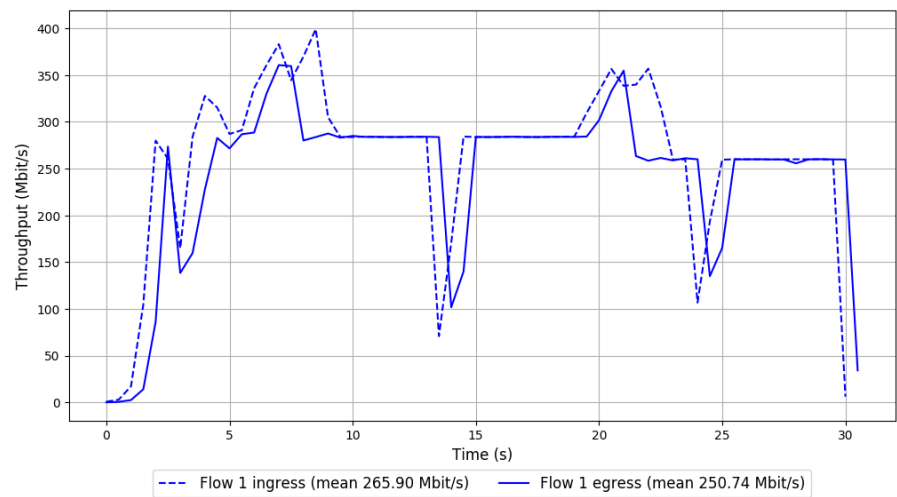## test from AWS India 2 to Saudi Arabia, 5 runs of 30s each per scheme

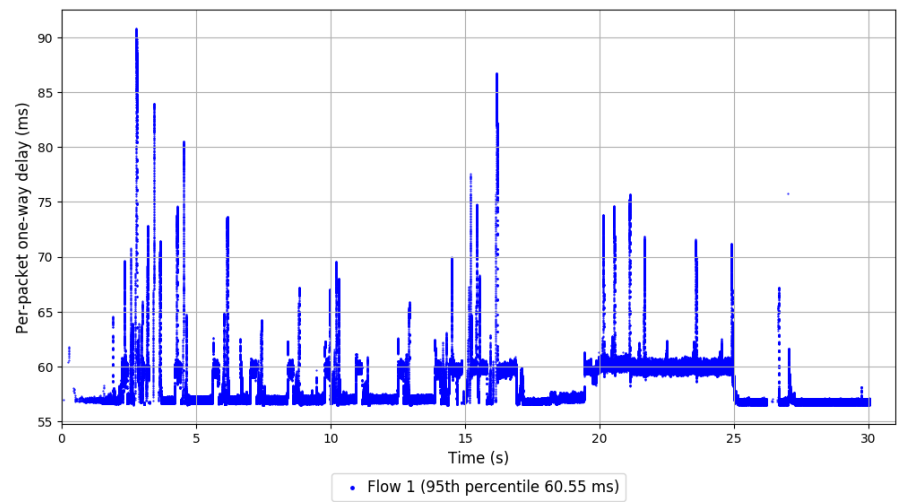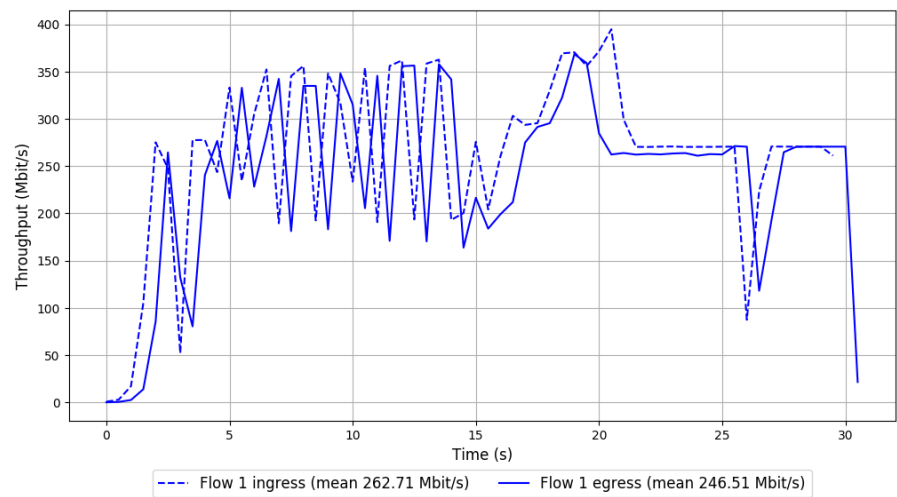| scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	5	236.68	65.01	6.15
Copa	0	N/A	N/A	N/A
TCP Cubic	5	213.15	54.46	0.53
FillP	5	416.71	65.14	16.76
Indigo	5	89.20	68.13	0.25
Indigo-96d2da3	5	136.69	117.58	37.39
LEDBAT	5	8.48	58.93	0.03
Indigo-Muses	5	323.52	59.25	31.17
PCC-Allegro	5	455.56	59.57	3.76
PCC-Expr	5	12.59	57.78	30.15
QUIC Cubic	5	62.35	55.84	0.00
SCReAM	5	0.22	59.65	0.00
Sprout	5	1.48	57.12	0.01
TaoVA-100x	0	N/A	N/A	N/A
TCP Vegas	5	129.03	56.11	1.27
Verus	5	90.41	97.25	65.53
PCC-Vivace	5	204.90	55.95	0.89
WebRTC media	5	1.91	58.07	0.00

```
Run 1: Statistics of TCP BBR

Start at: 2018-10-25 23:47:43
End at: 2018-10-25 23:48:13
Local clock offset: -0.632 ms
Remote clock offset: -45.852 ms

# Below is generated by plot.py at 2018-10-26 02:31:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 250.74 Mbit/s
95th percentile per-packet one-way delay: 57.715 ms
Loss rate: 5.70%
-- Flow 1:
Average throughput: 250.74 Mbit/s
95th percentile per-packet one-way delay: 57.715 ms
Loss rate: 5.70%
```

Run 1: Report of TCP BBR — Data Link

Flow 1 ingress (mean 265.90 Mbit/s) — — — Flow 1 egress (mean 250.74 Mbit/s) ———
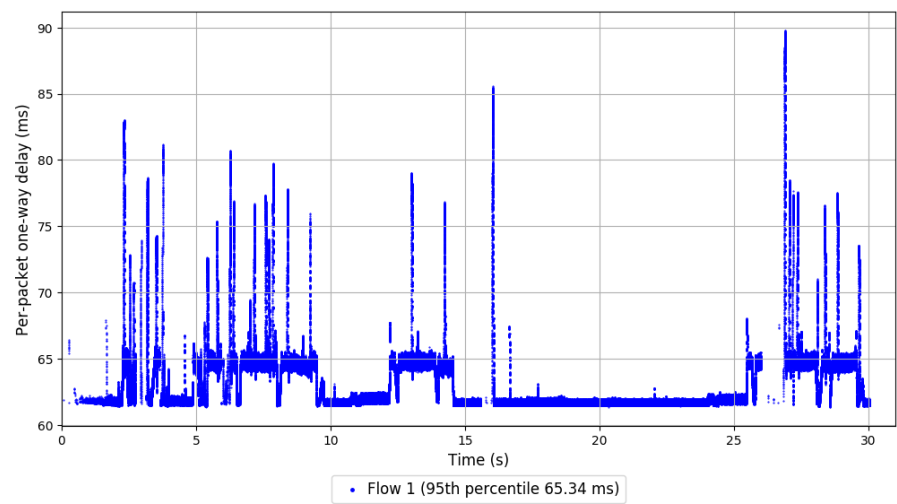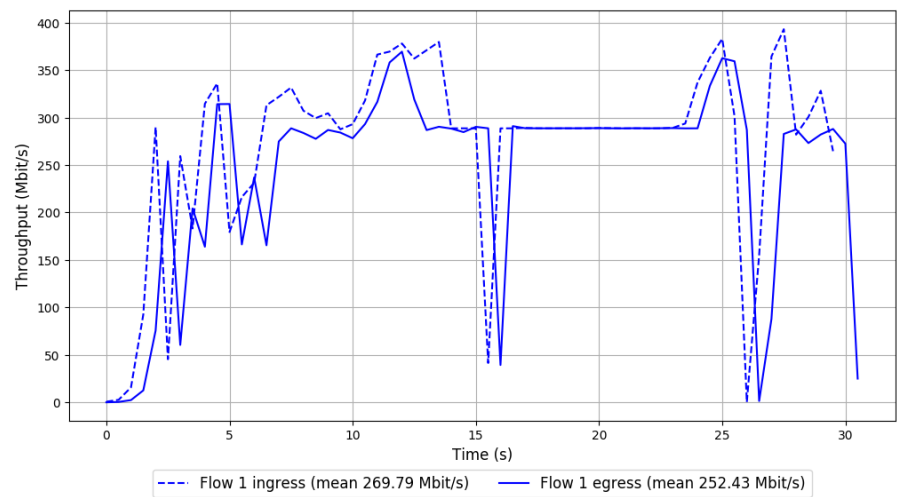

Flow 1 (95th percentile 57.72 ms) •

```
Run 2: Statistics of TCP BBR

Start at: 2018-10-26 00:16:54
End at: 2018-10-26 00:17:24
Local clock offset: -1.344 ms
Remote clock offset: -42.897 ms

# Below is generated by plot.py at 2018-10-26 02:31:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 246.51 Mbit/s
95th percentile per-packet one-way delay: 60.551 ms
Loss rate: 6.17%
-- Flow 1:
Average throughput: 246.51 Mbit/s
95th percentile per-packet one-way delay: 60.551 ms
Loss rate: 6.17%
```
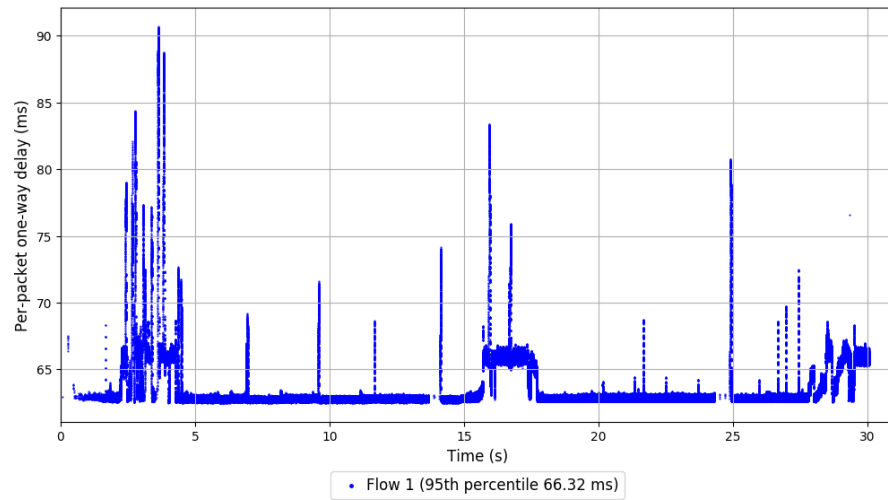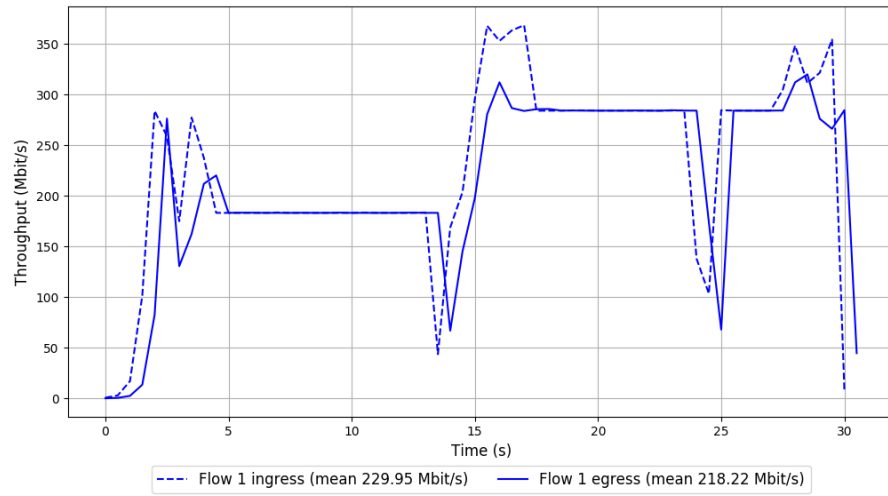
Run 2: Report of TCP BBR — Data Link

Flow 1 ingress (mean 262.71 Mbit/s) ---- Flow 1 egress (mean 246.51 Mbit/s)

Flow 1 (95th percentile 60.55 ms)

8

```
Run 3: Statistics of TCP BBR

Start at: 2018-10-26 00:56:55
End at: 2018-10-26 00:57:25
Local clock offset: -3.053 ms
Remote clock offset: -40.334 ms

# Below is generated by plot.py at 2018-10-26 02:31:44
# Datalink statistics
-- Total of 1 flow:
Average throughput: 252.43 Mbit/s
95th percentile per-packet one-way delay: 65.341 ms
Loss rate: 6.43%
-- Flow 1:
Average throughput: 252.43 Mbit/s
95th percentile per-packet one-way delay: 65.341 ms
Loss rate: 6.43%
```
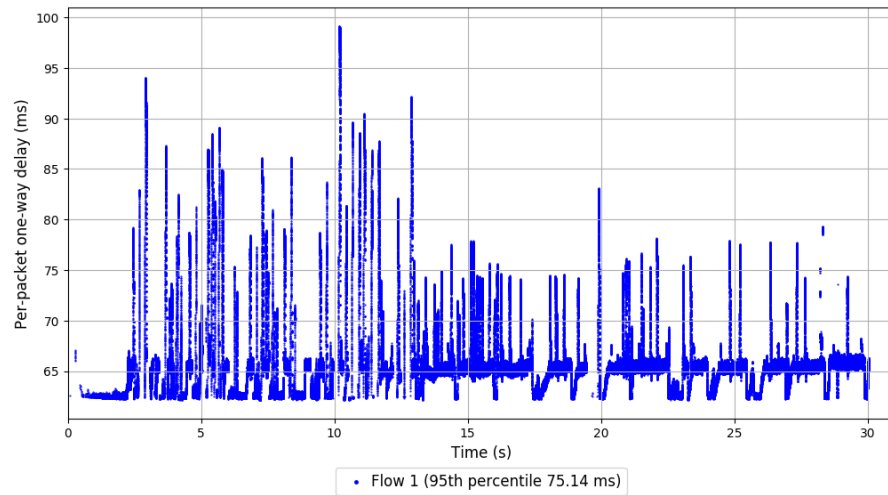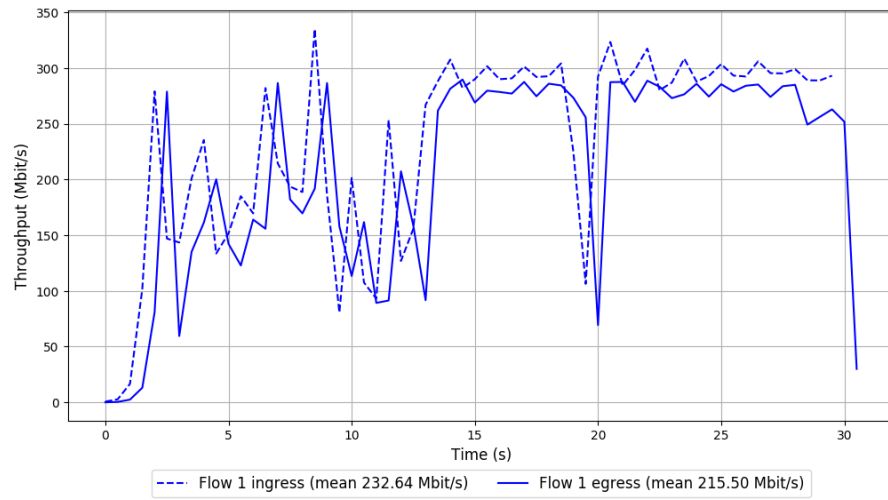
Run 3: Report of TCP BBR — Data Link

Flow 1 ingress (mean 269.79 Mbit/s)   Flow 1 egress (mean 252.43 Mbit/s)

Flow 1 (95th percentile 65.34 ms)

```
Run 4: Statistics of TCP BBR

Start at: 2018-10-26 01:37:08
End at: 2018-10-26 01:37:38
Local clock offset: -1.109 ms
Remote clock offset: -35.16 ms

# Below is generated by plot.py at 2018-10-26 02:31:44
# Datalink statistics
-- Total of 1 flow:
Average throughput: 218.22 Mbit/s
95th percentile per-packet one-way delay: 66.317 ms
Loss rate: 5.09%
-- Flow 1:
Average throughput: 218.22 Mbit/s
95th percentile per-packet one-way delay: 66.317 ms
Loss rate: 5.09%
```

Run 4: Report of TCP BBR — Data Link

Flow 1 ingress (mean 229.95 Mbit/s) --- Flow 1 egress (mean 218.22 Mbit/s)

• Flow 1 (95th percentile 66.32 ms)

```
Run 5: Statistics of TCP BBR

Start at: 2018-10-26 02:12:11
End at: 2018-10-26 02:12:41
Local clock offset: 1.529 ms
Remote clock offset: -33.787 ms


# Below is generated by plot.py at 2018-10-26 02:31:44
# Datalink statistics
-- Total of 1 flow:
Average throughput: 215.50 Mbit/s
95th percentile per-packet one-way delay: 75.144 ms
Loss rate: 7.36%
-- Flow 1:
Average throughput: 215.50 Mbit/s
95th percentile per-packet one-way delay: 75.144 ms
Loss rate: 7.36%
```

Run 5: Report of TCP BBR — Data Link

Flow 1 ingress (mean 232.64 Mbit/s) --- Flow 1 egress (mean 215.50 Mbit/s)

• Flow 1 (95th percentile 75.14 ms)
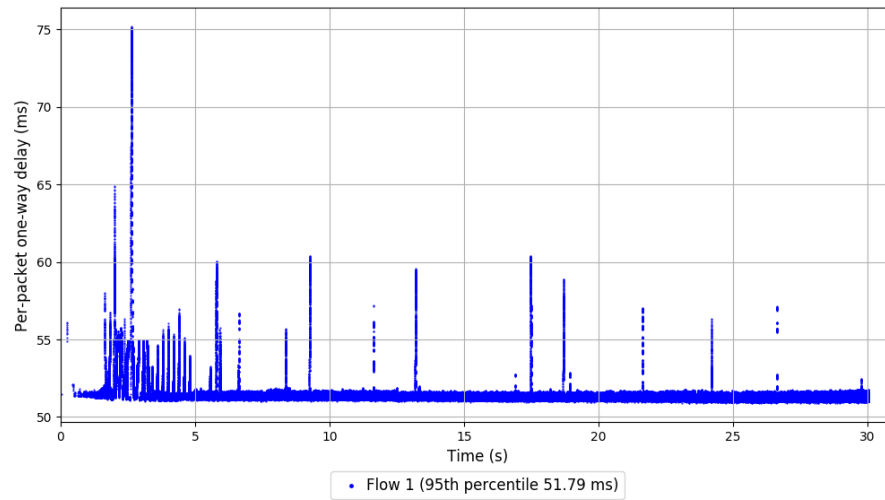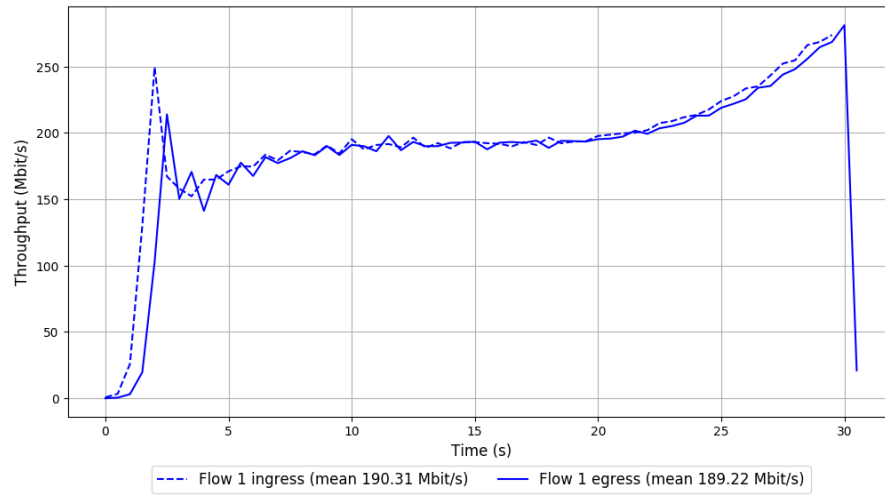
```
Run 1: Statistics of Copa

Start at: 2018-10-25 23:49:53
End at: 2018-10-25 23:50:23
Local clock offset: 0.586 ms
Remote clock offset: -41.933 ms
```

Run 1: Report of Copa — Data Link

Flow 1 ingress (mean 0.28 Mbit/s) --- Flow 1 egress (mean 0.00 Mbit/s)

Flow 1 (95th percentile 57.27 ms)

```
Run 2: Statistics of Copa

Start at: 2018-10-26 00:18:59
End at: 2018-10-26 00:19:29
Local clock offset: 0.339 ms
Remote clock offset: -42.748 ms
```

Run 2: Report of Copa — Data Link

Flow 1 ingress (mean 0.39 Mbit/s) ——— Flow 1 egress (mean 0.00 Mbit/s)

• Flow 1 (95th percentile 58.34 ms)

Run 3: Statistics of Copa

Start at: 2018-10-26 00:59:02
End at: 2018-10-26 00:59:32
Local clock offset: 0.417 ms
Remote clock offset: -38.009 ms

Run 3: Report of Copa — Data Link

Flow 1 ingress (mean 0.34 Mbit/s)   Flow 1 egress (mean 0.00 Mbit/s)

Flow 1 (95th percentile 60.13 ms)

```
Run 4: Statistics of Copa

Start at: 2018-10-26 01:39:05
End at: 2018-10-26 01:39:35
Local clock offset: 0.59 ms
Remote clock offset: -30.967 ms
```

Run 4: Report of Copa — Data Link

Flow 1 ingress (mean 0.28 Mbit/s) — Flow 1 egress (mean 0.00 Mbit/s)
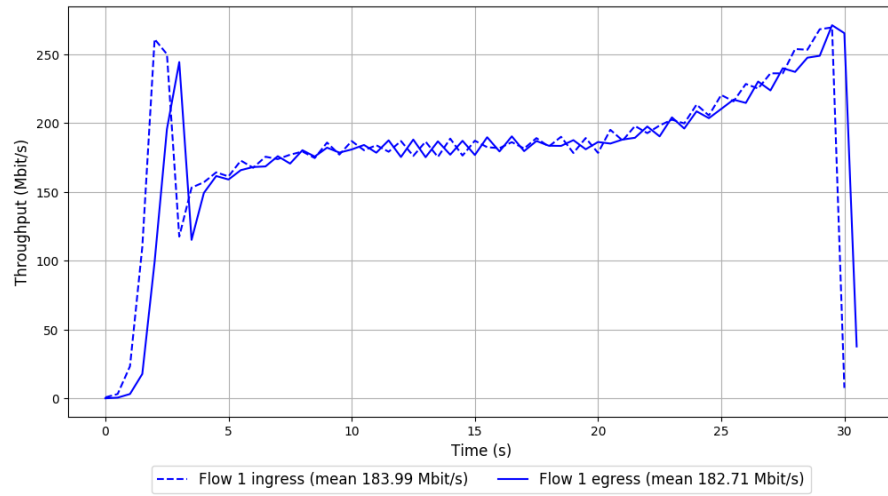

• Flow 1 (95th percentile 65.51 ms)

22

```
Run 5: Statistics of Copa

Start at: 2018-10-26 02:14:17
End at: 2018-10-26 02:14:47
Local clock offset: 0.161 ms
Remote clock offset: -38.976 ms
```

Run 5: Report of Copa — Data Link

```
Run 1: Statistics of TCP Cubic

Start at: 2018-10-25 23:35:30
End at: 2018-10-25 23:36:00
Local clock offset: -0.624 ms
Remote clock offset: -48.242 ms


# Below is generated by plot.py at 2018-10-26 02:31:44
# Datalink statistics
-- Total of 1 flow:
Average throughput: 189.22 Mbit/s
95th percentile per-packet one-way delay: 51.790 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 189.22 Mbit/s
95th percentile per-packet one-way delay: 51.790 ms
Loss rate: 0.57%
```
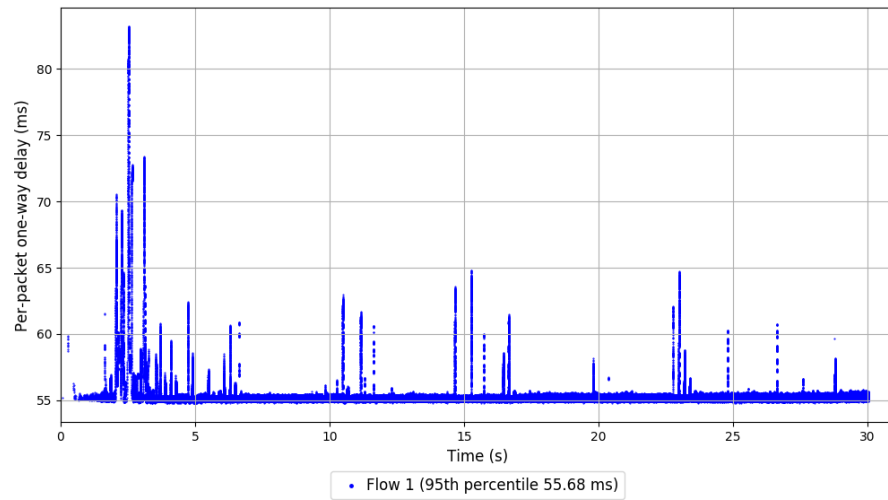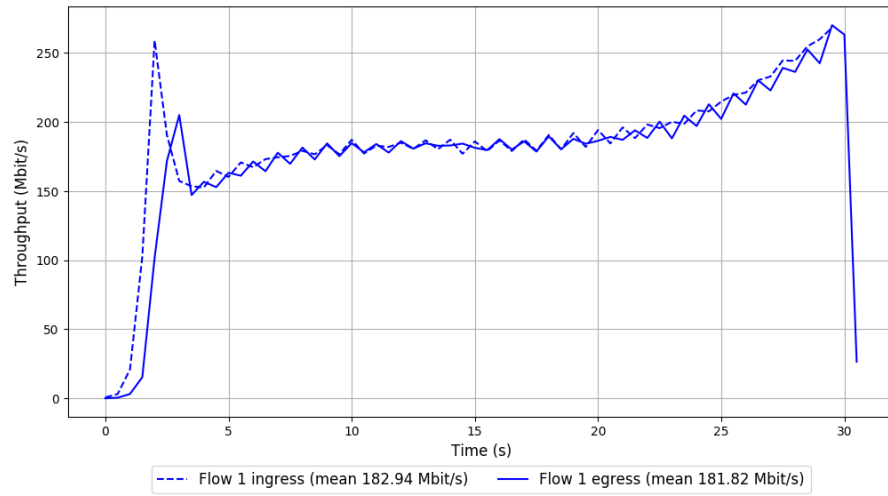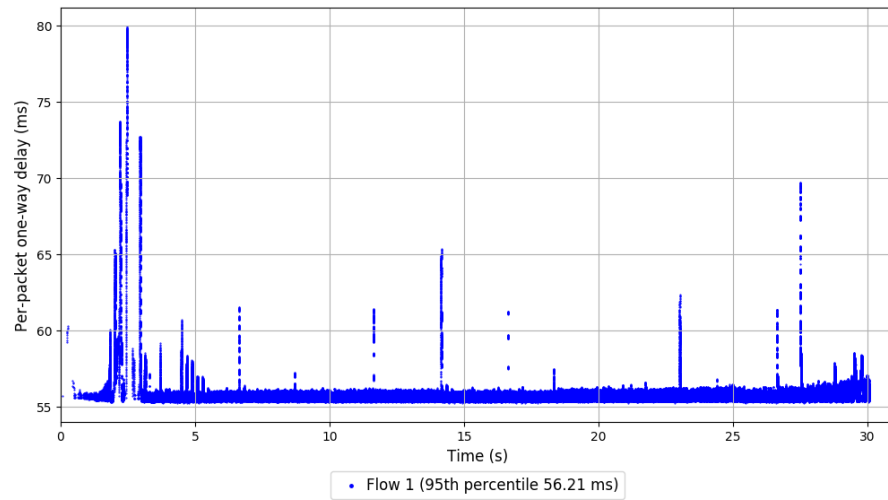
Run 1: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 190.31 Mbit/s)   Flow 1 egress (mean 189.22 Mbit/s)

Flow 1 (95th percentile 51.79 ms)

```
Run 2: Statistics of TCP Cubic

Start at: 2018-10-26 00:04:51
End at: 2018-10-26 00:05:21
Local clock offset: 1.81 ms
Remote clock offset: -48.706 ms


# Below is generated by plot.py at 2018-10-26 02:31:44
# Datalink statistics
-- Total of 1 flow:
Average throughput: 182.71 Mbit/s
95th percentile per-packet one-way delay: 50.062 ms
Loss rate: 0.69%
-- Flow 1:
Average throughput: 182.71 Mbit/s
95th percentile per-packet one-way delay: 50.062 ms
Loss rate: 0.69%
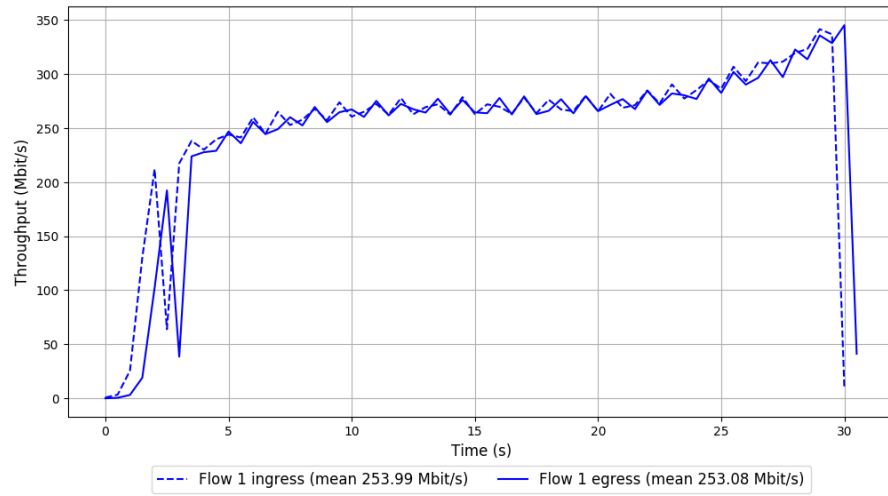```
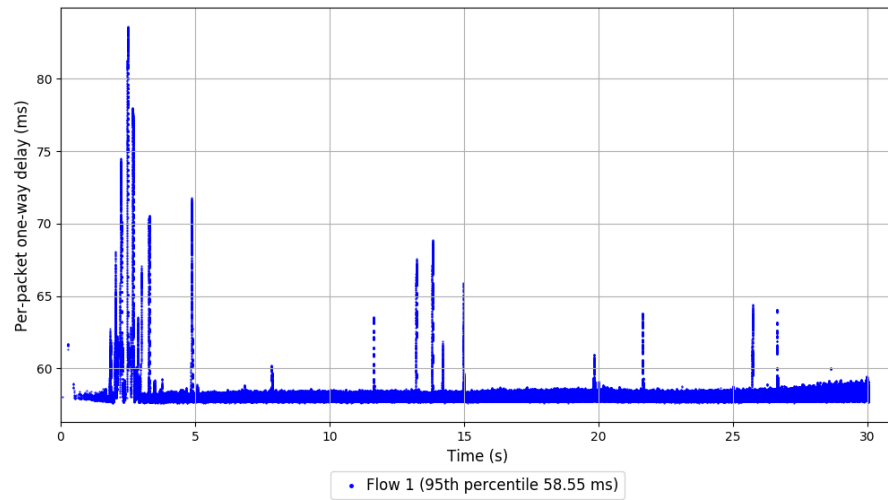
Run 2: Report of TCP Cubic — Data Link



Flow 1 ingress (mean 183.99 Mbit/s) ----    Flow 1 egress (mean 182.71 Mbit/s) ——



Flow 1 (95th percentile 50.06 ms)

```
Run 3: Statistics of TCP Cubic

Start at: 2018-10-26 00:39:26
End at: 2018-10-26 00:39:56
Local clock offset: -1.677 ms
Remote clock offset: -48.085 ms


# Below is generated by plot.py at 2018-10-26 02:31:44
# Datalink statistics
-- Total of 1 flow:
Average throughput: 181.82 Mbit/s
95th percentile per-packet one-way delay: 55.676 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 181.82 Mbit/s
95th percentile per-packet one-way delay: 55.676 ms
Loss rate: 0.62%
```

Run 3: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 182.94 Mbit/s)   Flow 1 egress (mean 181.82 Mbit/s)
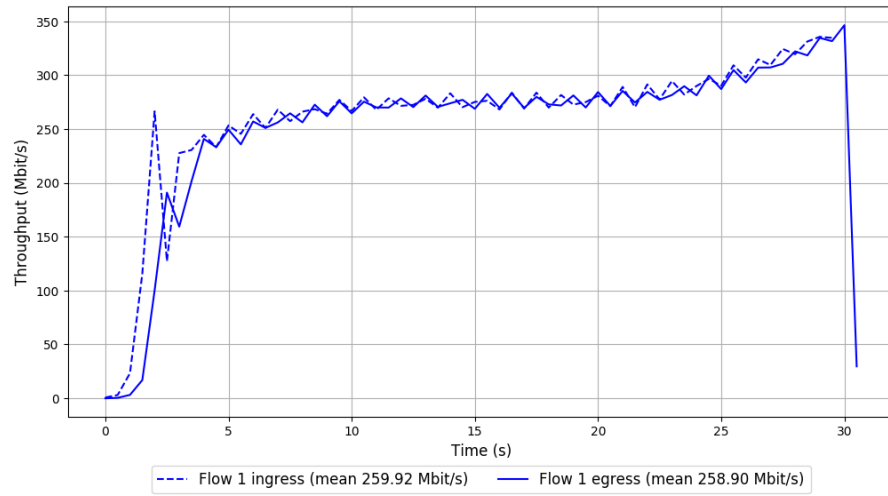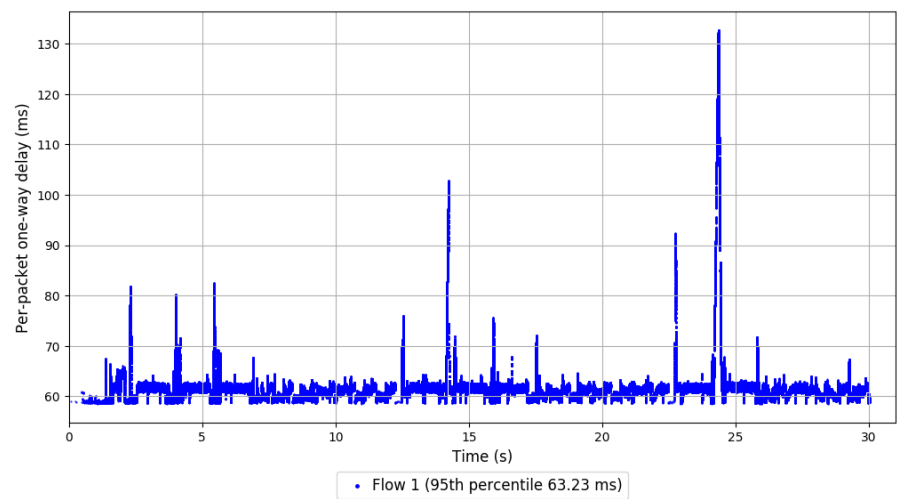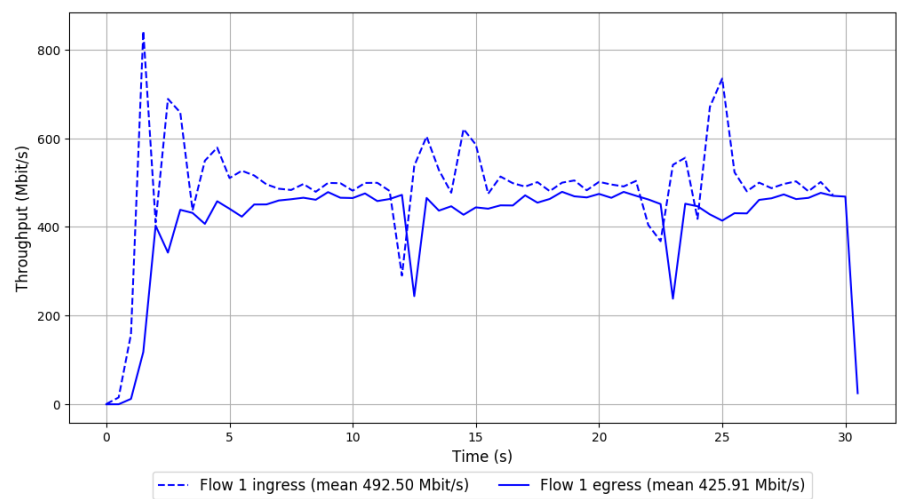

• Flow 1 (95th percentile 55.68 ms)

```
Run 4: Statistics of TCP Cubic

Start at: 2018-10-26 01:13:56
End at: 2018-10-26 01:14:26
Local clock offset: 1.041 ms
Remote clock offset: -41.726 ms


# Below is generated by plot.py at 2018-10-26 02:33:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 253.08 Mbit/s
95th percentile per-packet one-way delay: 56.208 ms
Loss rate: 0.36%
-- Flow 1:
Average throughput: 253.08 Mbit/s
95th percentile per-packet one-way delay: 56.208 ms
Loss rate: 0.36%
```
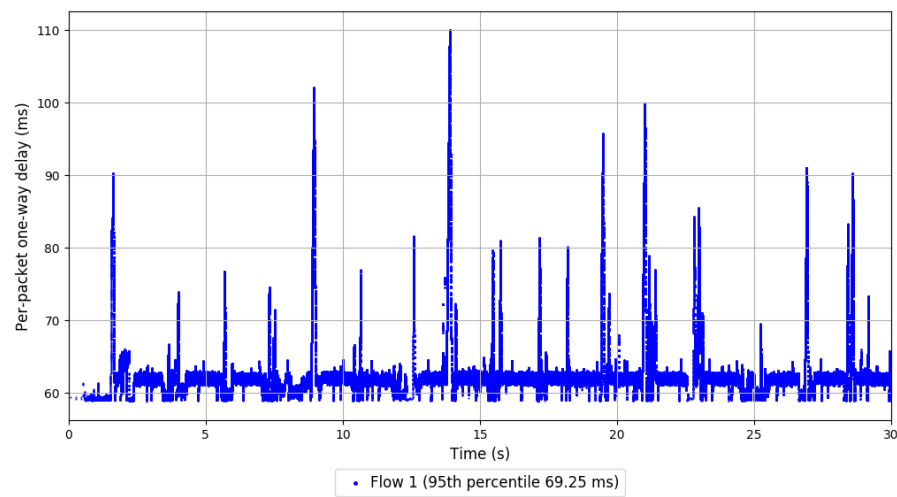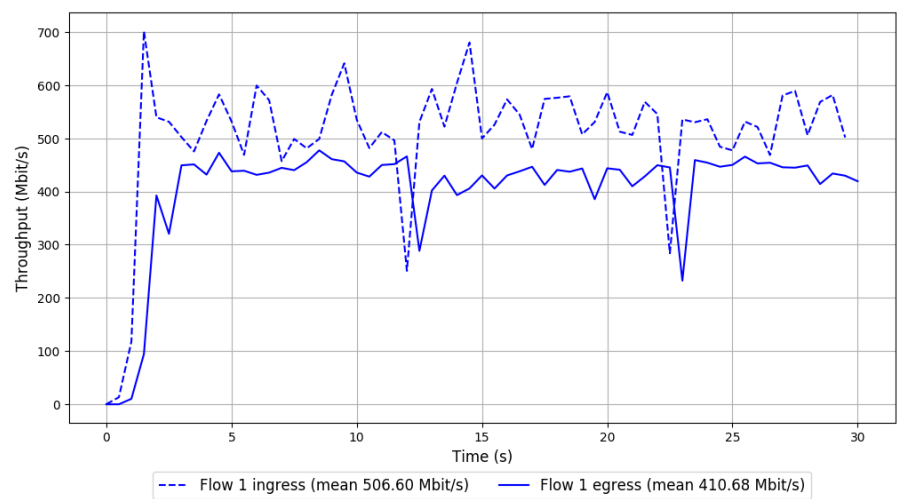
Run 4: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 253.99 Mbit/s)   Flow 1 egress (mean 253.08 Mbit/s)

Flow 1 (95th percentile 56.21 ms)

```
Run 5: Statistics of TCP Cubic

Start at: 2018-10-26 01:53:57
End at: 2018-10-26 01:54:27
Local clock offset: 2.108 ms
Remote clock offset: -36.587 ms


# Below is generated by plot.py at 2018-10-26 02:33:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 258.90 Mbit/s
95th percentile per-packet one-way delay: 58.550 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 258.90 Mbit/s
95th percentile per-packet one-way delay: 58.550 ms
Loss rate: 0.39%
```

Run 5: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 259.92 Mbit/s)   Flow 1 egress (mean 258.90 Mbit/s)
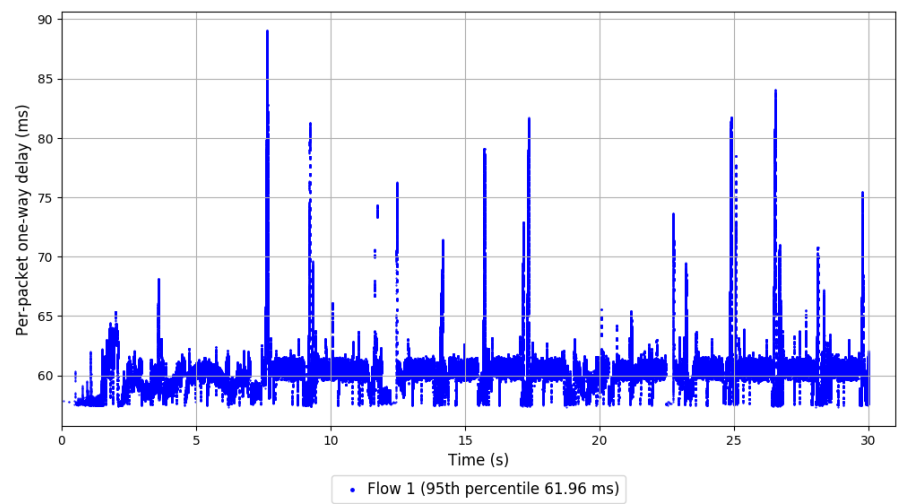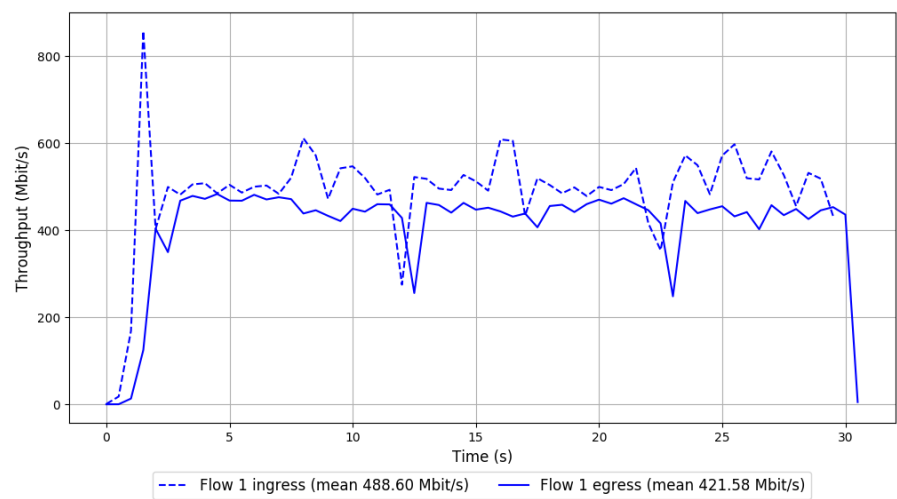

Flow 1 (95th percentile 58.55 ms)

```
Run 1: Statistics of FillP

Start at: 2018-10-25 23:45:18
End at: 2018-10-25 23:45:48
Local clock offset: 0.185 ms
Remote clock offset: -40.824 ms


# Below is generated by plot.py at 2018-10-26 02:37:18
# Datalink statistics
-- Total of 1 flow:
Average throughput: 425.91 Mbit/s
95th percentile per-packet one-way delay: 63.233 ms
Loss rate: 13.52%
-- Flow 1:
Average throughput: 425.91 Mbit/s
95th percentile per-packet one-way delay: 63.233 ms
Loss rate: 13.52%
```
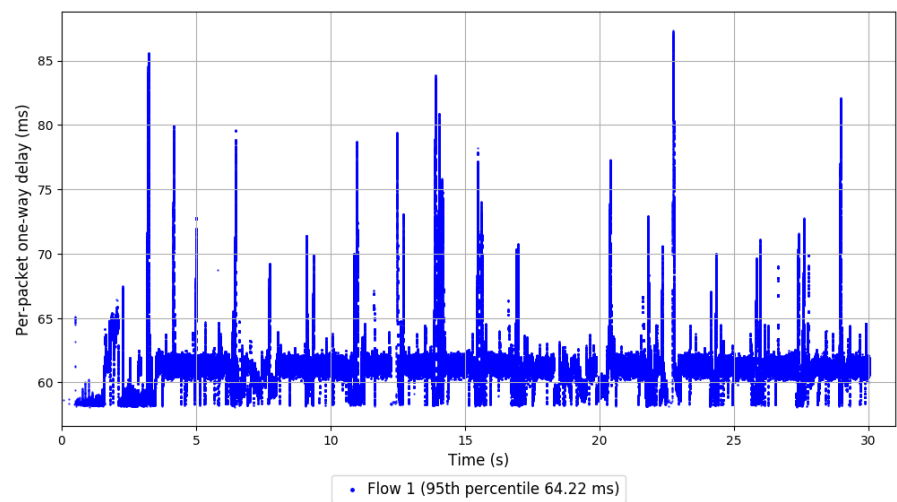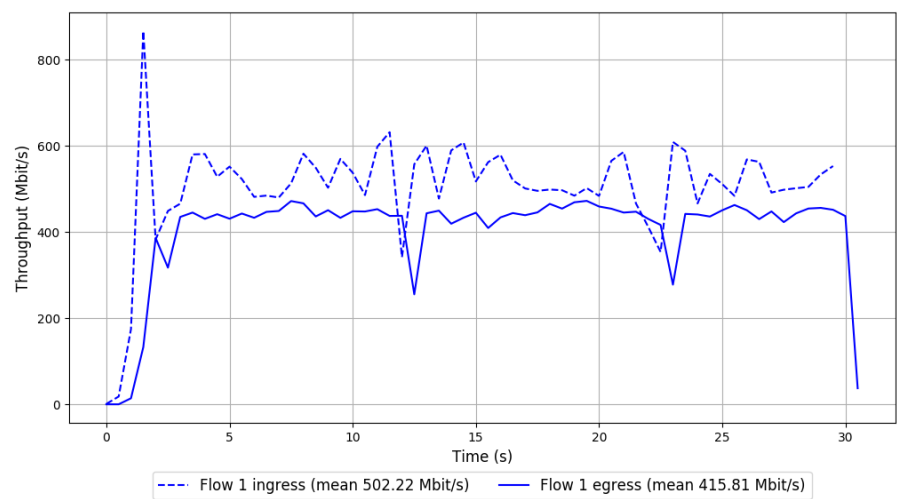
Run 1: Report of FillP — Data Link

Flow 1 ingress (mean 492.50 Mbit/s) --- Flow 1 egress (mean 425.91 Mbit/s)

Flow 1 (95th percentile 63.23 ms)

```
Run 2: Statistics of FillP

Start at: 2018-10-26 00:14:31
End at: 2018-10-26 00:15:01
Local clock offset: 0.889 ms
Remote clock offset: -41.167 ms

# Below is generated by plot.py at 2018-10-26 02:37:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 410.68 Mbit/s
95th percentile per-packet one-way delay: 69.246 ms
Loss rate: 18.94%
-- Flow 1:
Average throughput: 410.68 Mbit/s
95th percentile per-packet one-way delay: 69.246 ms
Loss rate: 18.94%
```
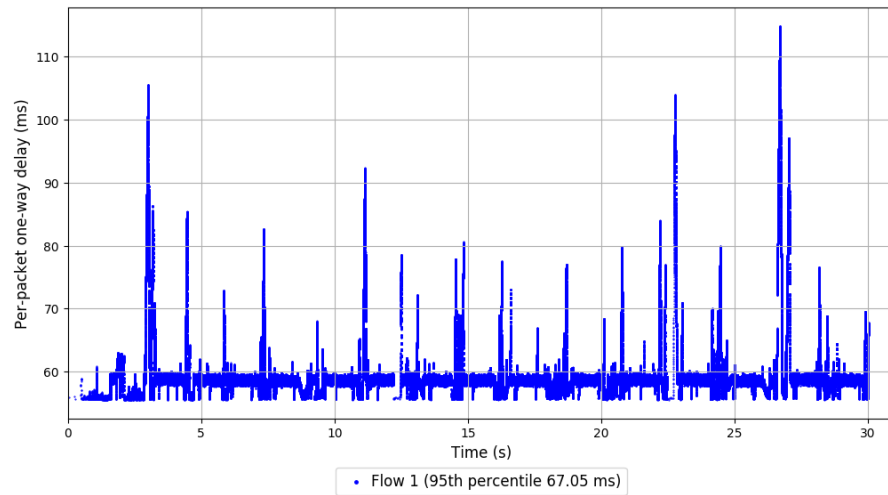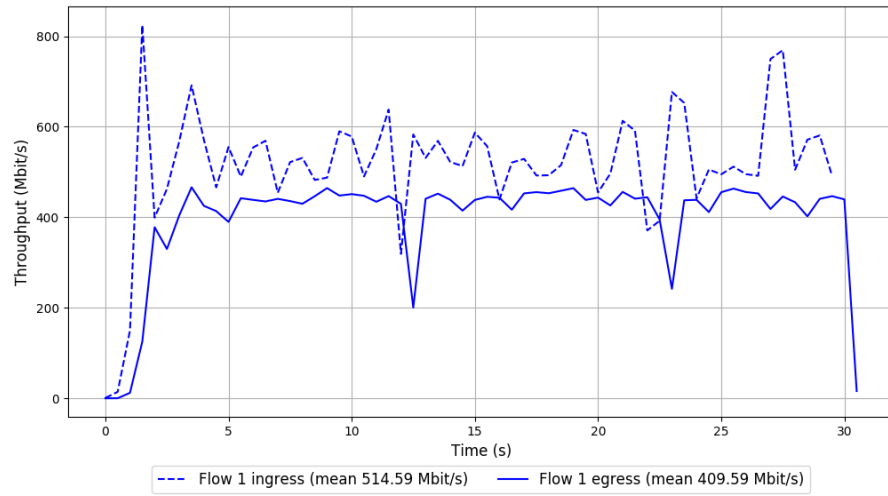
Run 2: Report of FillP — Data Link

```
Run 3: Statistics of FillP

Start at: 2018-10-26 00:54:31
End at: 2018-10-26 00:55:01
Local clock offset: 1.132 ms
Remote clock offset: -42.402 ms

# Below is generated by plot.py at 2018-10-26 02:37:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 421.58 Mbit/s
95th percentile per-packet one-way delay: 61.958 ms
Loss rate: 13.72%
-- Flow 1:
Average throughput: 421.58 Mbit/s
95th percentile per-packet one-way delay: 61.958 ms
Loss rate: 13.72%
```
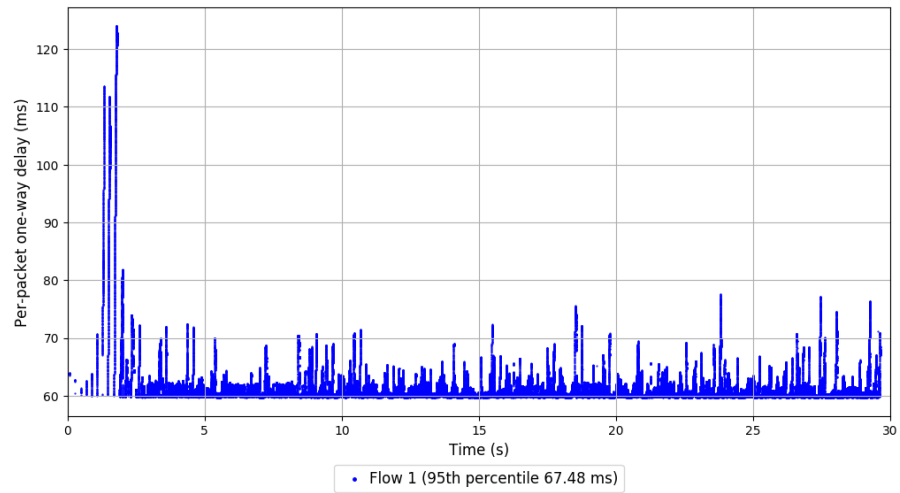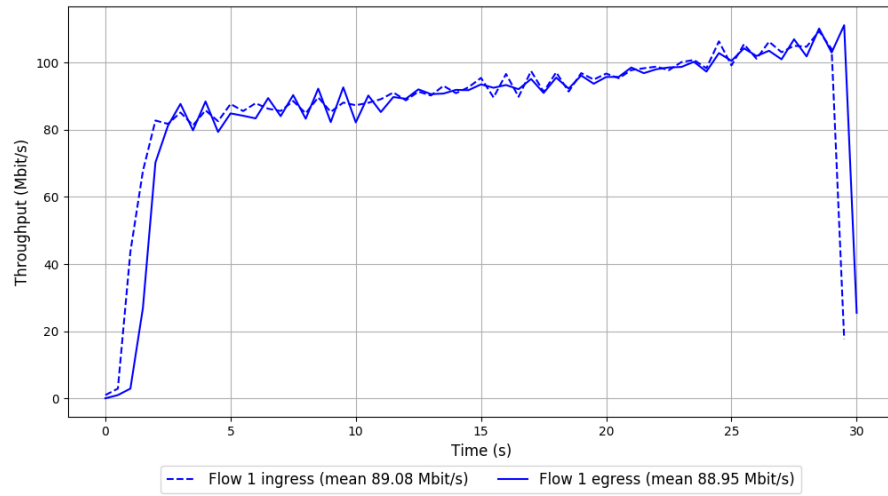
Run 3: Report of FillP — Data Link

```
Run 4: Statistics of FillP

Start at: 2018-10-26 01:28:56
End at: 2018-10-26 01:29:26
Local clock offset: 2.299 ms
Remote clock offset: -38.645 ms


# Below is generated by plot.py at 2018-10-26 02:37:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 415.81 Mbit/s
95th percentile per-packet one-way delay: 64.223 ms
Loss rate: 17.20%
-- Flow 1:
Average throughput: 415.81 Mbit/s
95th percentile per-packet one-way delay: 64.223 ms
Loss rate: 17.20%
```

Run 4: Report of FillP — Data Link

Flow 1 ingress (mean 502.22 Mbit/s) --- Flow 1 egress (mean 415.81 Mbit/s)

• Flow 1 (95th percentile 64.22 ms)

```
Run 5: Statistics of FillP

Start at: 2018-10-26 02:09:48
End at: 2018-10-26 02:10:18
Local clock offset: 2.392 ms
Remote clock offset: -39.372 ms


# Below is generated by plot.py at 2018-10-26 02:37:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 409.59 Mbit/s
95th percentile per-packet one-way delay: 67.053 ms
Loss rate: 20.40%
-- Flow 1:
Average throughput: 409.59 Mbit/s
95th percentile per-packet one-way delay: 67.053 ms
Loss rate: 20.40%
```
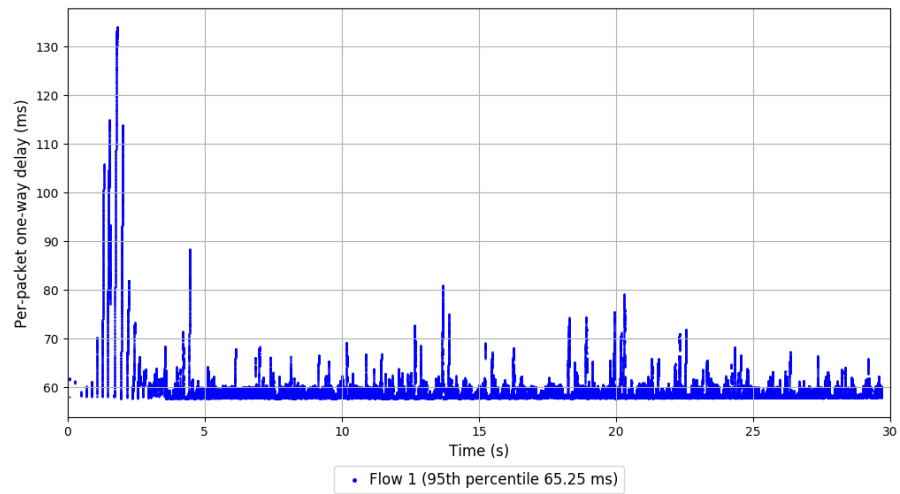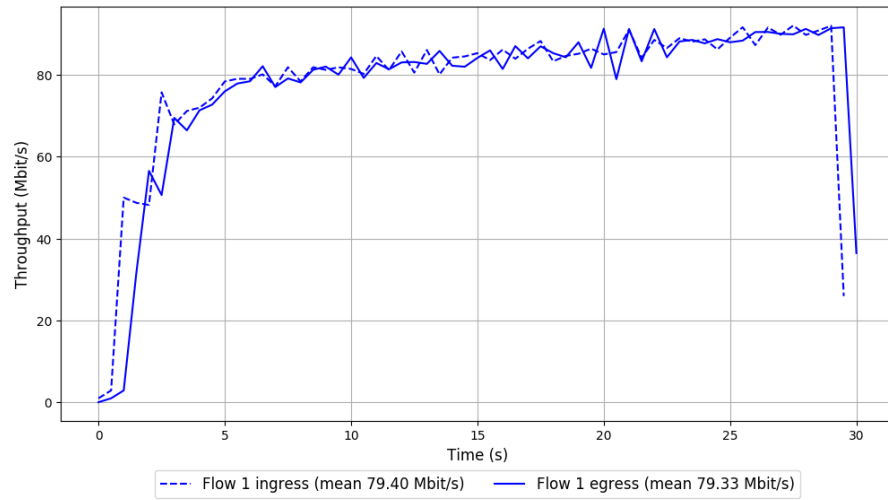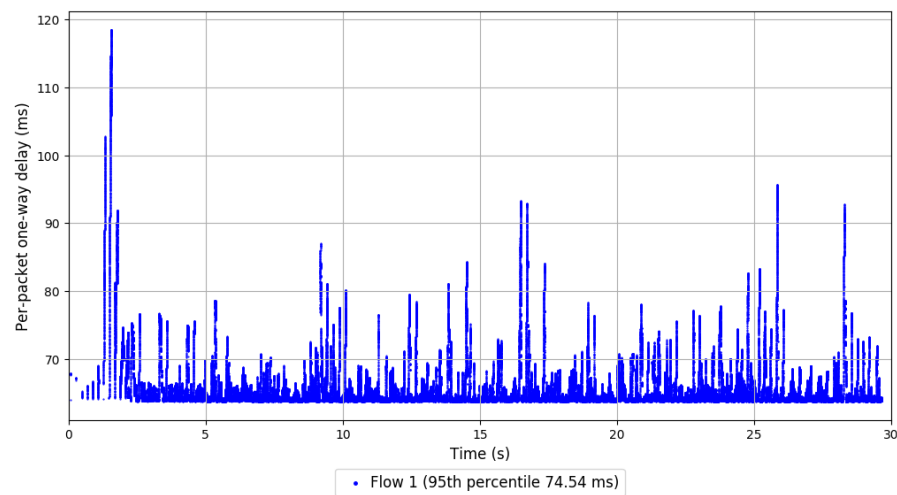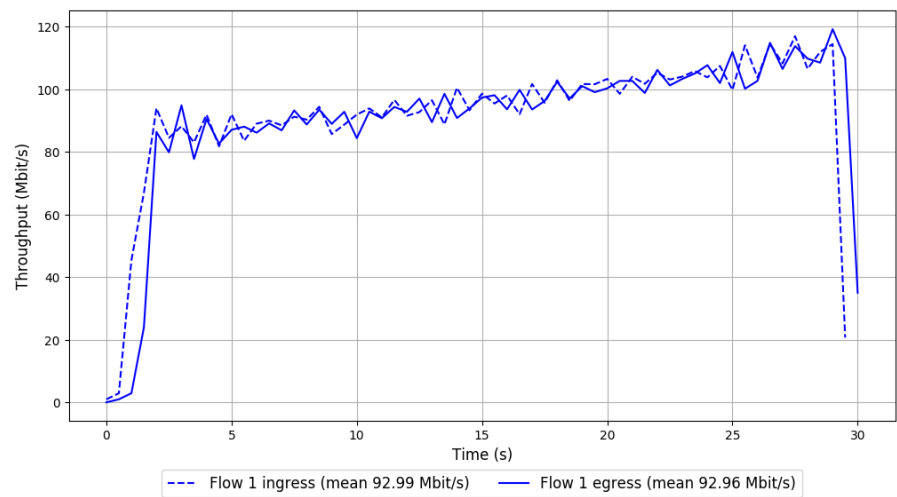
Run 5: Report of FillP — Data Link

```
Run 1: Statistics of Indigo

Start at: 2018-10-25 23:57:21
End at: 2018-10-25 23:57:51
Local clock offset: -0.399 ms
Remote clock offset: -39.403 ms


# Below is generated by plot.py at 2018-10-26 02:37:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 88.95 Mbit/s
95th percentile per-packet one-way delay: 67.477 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 88.95 Mbit/s
95th percentile per-packet one-way delay: 67.477 ms
Loss rate: 0.15%
```
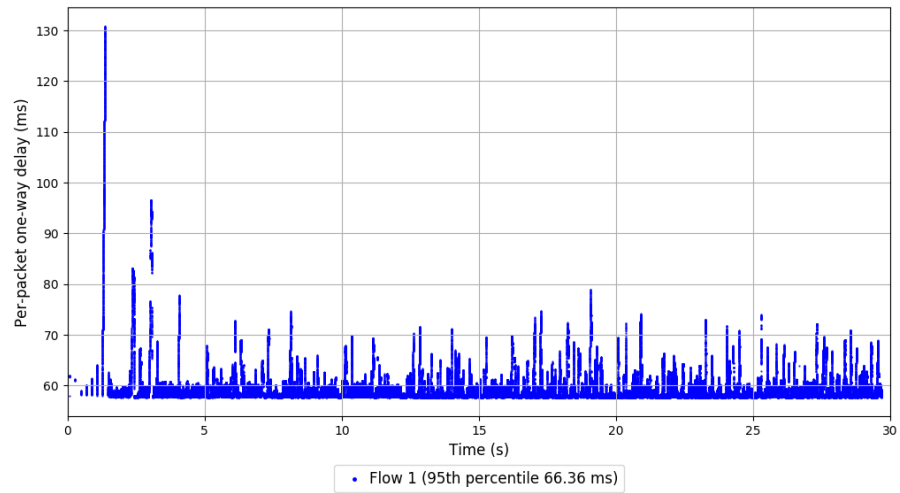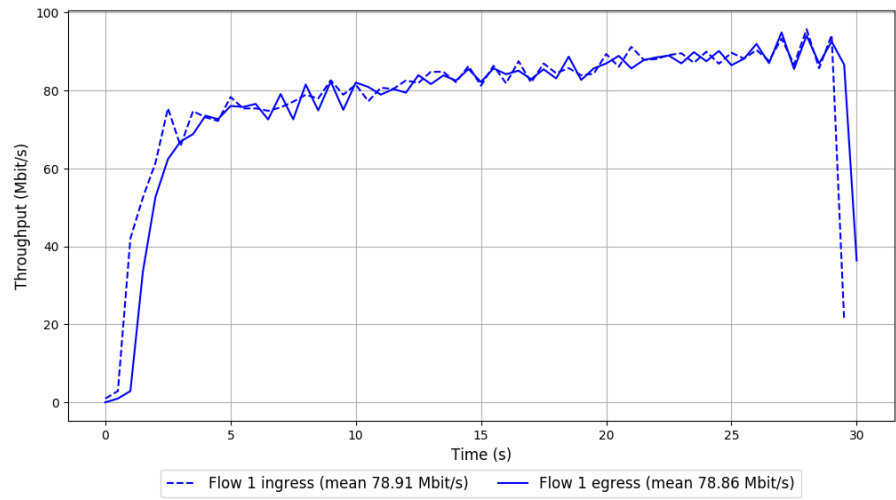
Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2018-10-26 00:32:01
End at: 2018-10-26 00:32:31
Local clock offset: -1.455 ms
Remote clock offset: -41.269 ms


# Below is generated by plot.py at 2018-10-26 02:37:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 79.33 Mbit/s
95th percentile per-packet one-way delay: 65.254 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 79.33 Mbit/s
95th percentile per-packet one-way delay: 65.254 ms
Loss rate: 0.09%
```
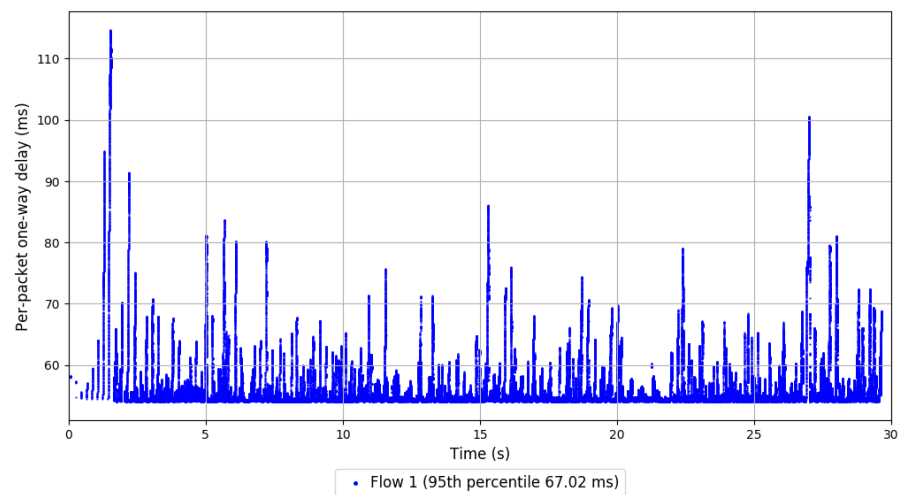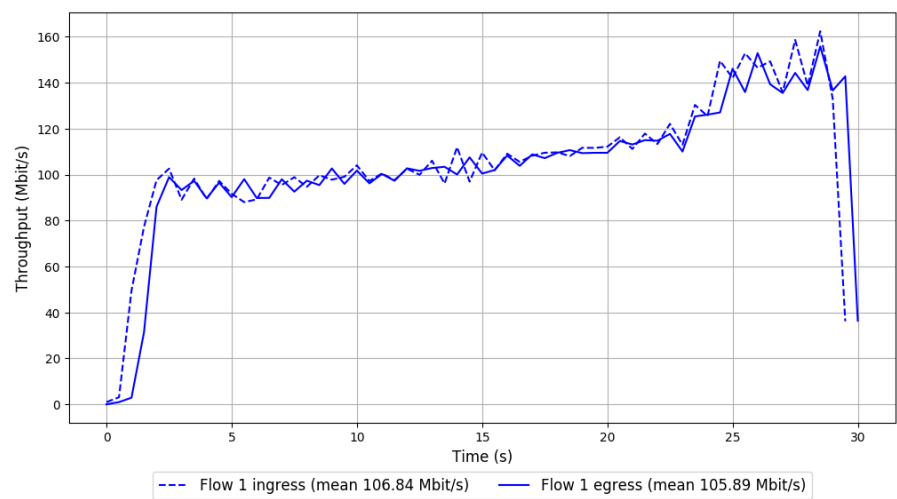
Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2018-10-26 01:06:32
End at: 2018-10-26 01:07:02
Local clock offset: 1.351 ms
Remote clock offset: -33.042 ms


# Below is generated by plot.py at 2018-10-26 02:37:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 92.96 Mbit/s
95th percentile per-packet one-way delay: 74.540 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 92.96 Mbit/s
95th percentile per-packet one-way delay: 74.540 ms
Loss rate: 0.04%
```

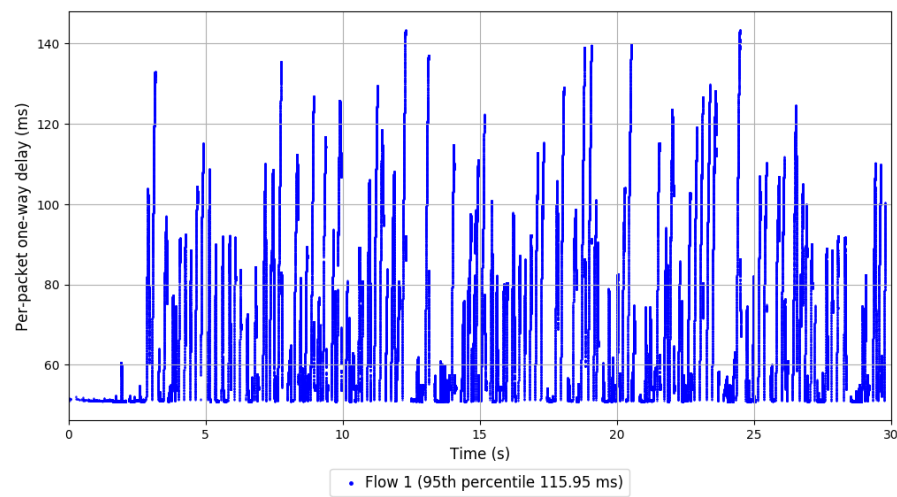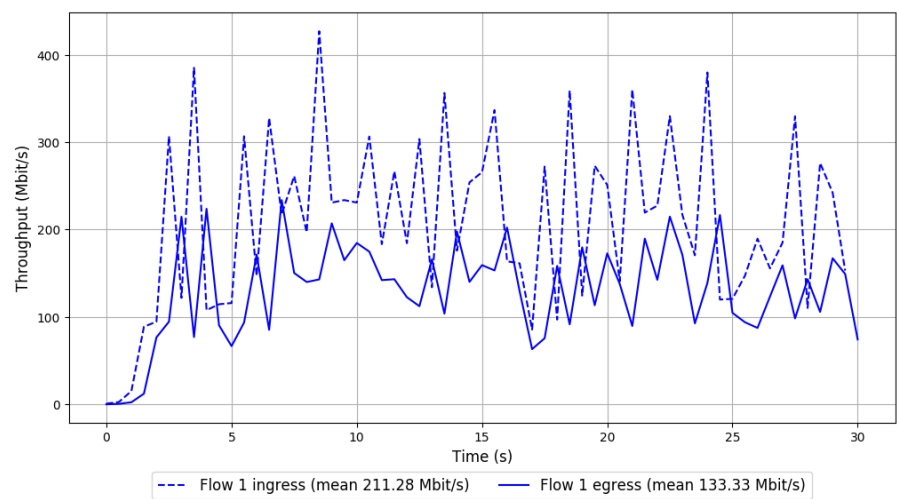# Run 3: Report of Indigo — Data Link

Flow 1 ingress (mean 92.99 Mbit/s)   Flow 1 egress (mean 92.96 Mbit/s)

Flow 1 (95th percentile 74.54 ms)

```
Run 4: Statistics of Indigo

Start at: 2018-10-26 01:46:34
End at: 2018-10-26 01:47:04
Local clock offset: 1.857 ms
Remote clock offset: -36.645 ms

# Below is generated by plot.py at 2018-10-26 02:37:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 78.86 Mbit/s
95th percentile per-packet one-way delay: 66.360 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 78.86 Mbit/s
95th percentile per-packet one-way delay: 66.360 ms
Loss rate: 0.07%
```
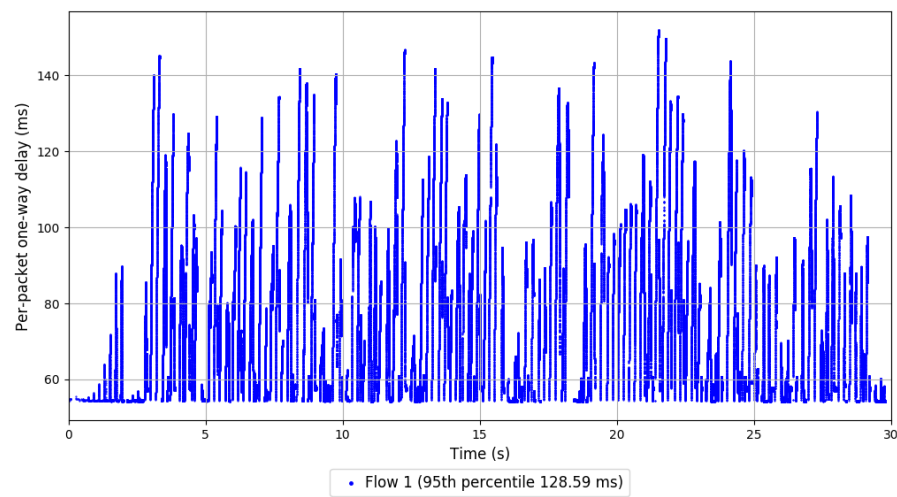
Run 4: Report of Indigo — Data Link

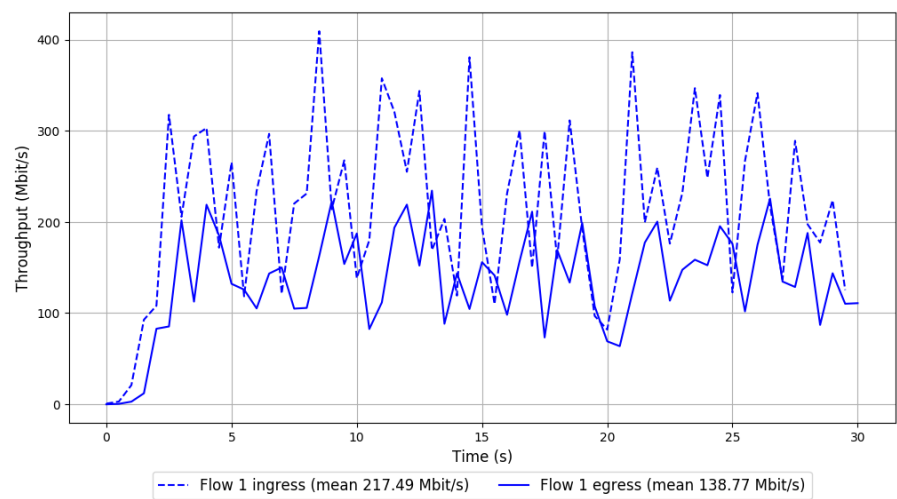Flow 1 ingress (mean 78.91 Mbit/s) —— Flow 1 egress (mean 78.86 Mbit/s)

Flow 1 (95th percentile 66.36 ms)

```
Run 5: Statistics of Indigo

Start at: 2018-10-26 02:21:47
End at: 2018-10-26 02:22:17
Local clock offset: 3.616 ms
Remote clock offset: -39.999 ms


# Below is generated by plot.py at 2018-10-26 02:37:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 105.89 Mbit/s
95th percentile per-packet one-way delay: 67.018 ms
Loss rate: 0.90%
-- Flow 1:
Average throughput: 105.89 Mbit/s
95th percentile per-packet one-way delay: 67.018 ms
Loss rate: 0.90%
```
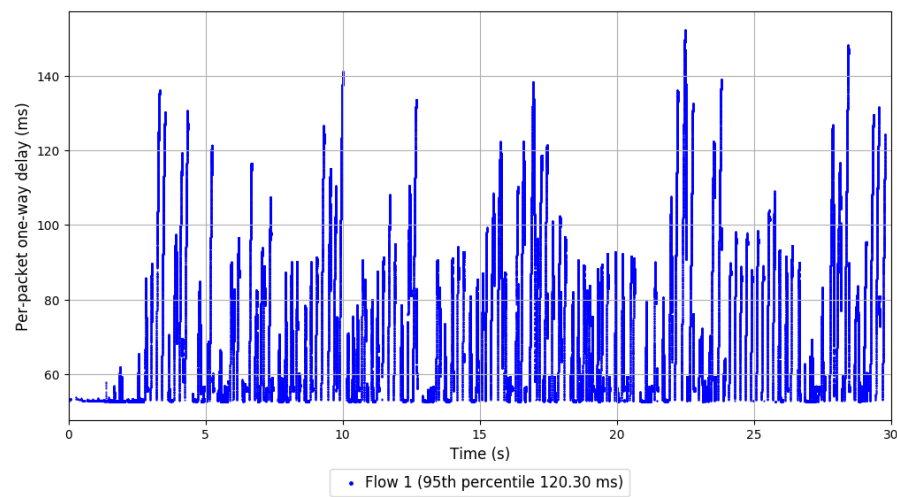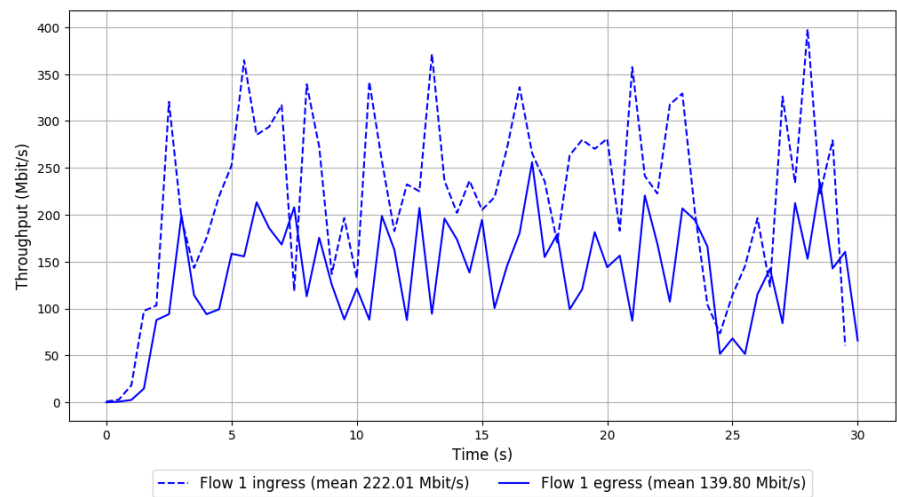
Run 5: Report of Indigo — Data Link

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

Start at: 2018-10-25 23:54:32
End at: 2018-10-25 23:55:02
Local clock offset: -0.314 ms
Remote clock offset: -48.598 ms


# Below is generated by plot.py at 2018-10-26 02:37:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 133.33 Mbit/s
95th percentile per-packet one-way delay: 115.949 ms
Loss rate: 36.84%
-- Flow 1:
Average throughput: 133.33 Mbit/s
95th percentile per-packet one-way delay: 115.949 ms
Loss rate: 36.84%
```

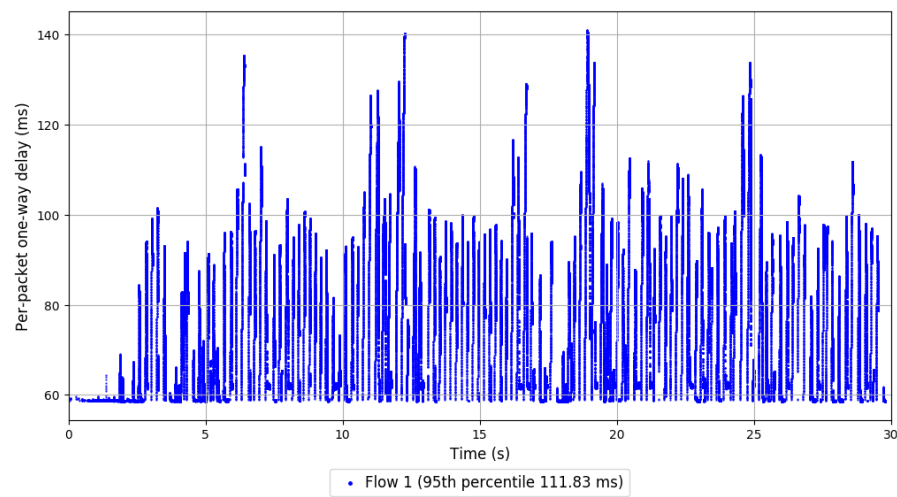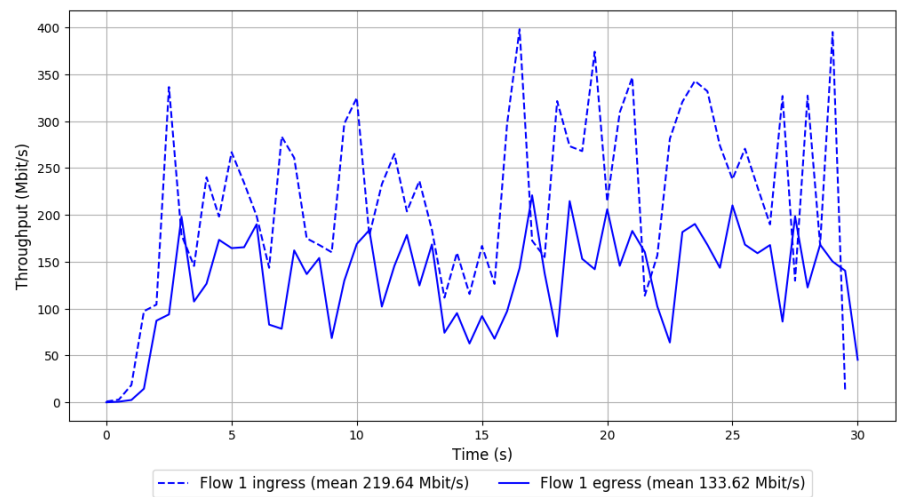Run 1: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-10-26 00:23:39
End at: 2018-10-26 00:24:09
Local clock offset: -0.694 ms
Remote clock offset: -44.147 ms


# Below is generated by plot.py at 2018-10-26 02:37:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 138.77 Mbit/s
95th percentile per-packet one-way delay: 128.589 ms
Loss rate: 36.19%
-- Flow 1:
Average throughput: 138.77 Mbit/s
95th percentile per-packet one-way delay: 128.589 ms
Loss rate: 36.19%
```
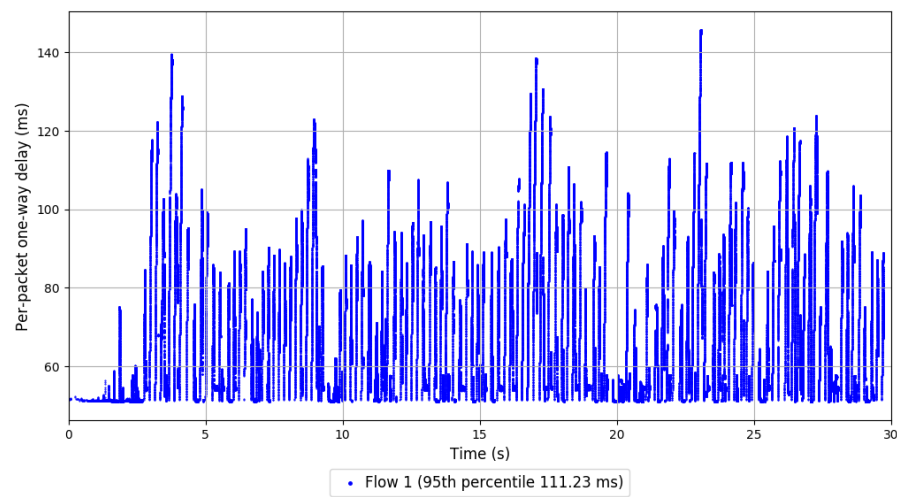
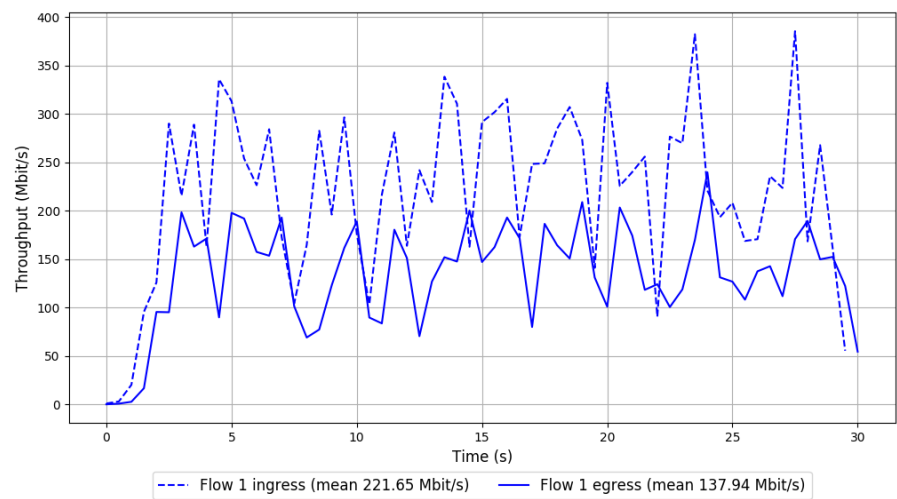Run 2: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-10-26 01:03:43
End at: 2018-10-26 01:04:13
Local clock offset: -0.14 ms
Remote clock offset: -45.299 ms


# Below is generated by plot.py at 2018-10-26 02:37:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 139.80 Mbit/s
95th percentile per-packet one-way delay: 120.304 ms
Loss rate: 37.03%
-- Flow 1:
Average throughput: 139.80 Mbit/s
95th percentile per-packet one-way delay: 120.304 ms
Loss rate: 37.03%
```

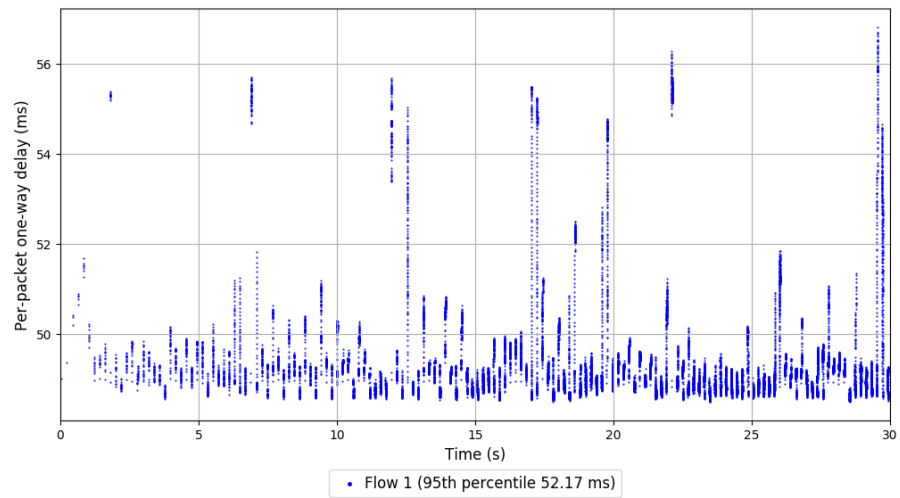Run 3: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-10-26 01:43:46
End at: 2018-10-26 01:44:16
Local clock offset: 0.684 ms
Remote clock offset: -37.121 ms


# Below is generated by plot.py at 2018-10-26 02:38:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 133.62 Mbit/s
95th percentile per-packet one-way delay: 111.829 ms
Loss rate: 39.16%
-- Flow 1:
Average throughput: 133.62 Mbit/s
95th percentile per-packet one-way delay: 111.829 ms
Loss rate: 39.16%
```
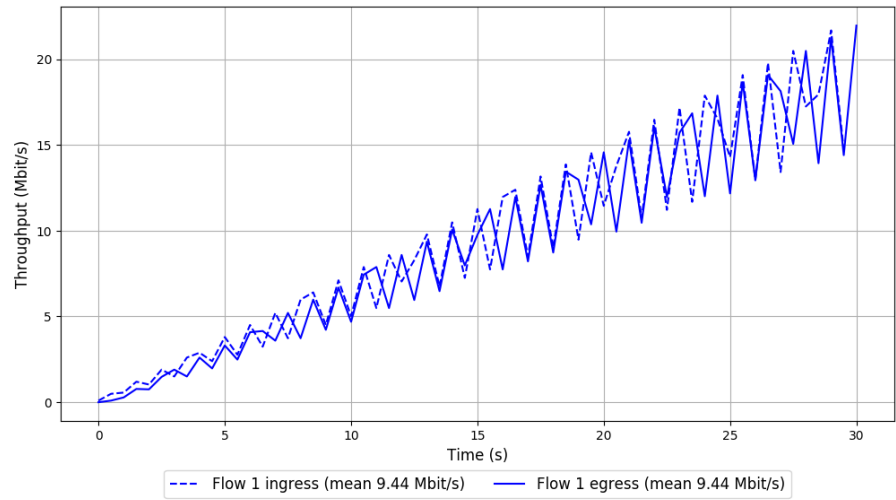
Run 4: Report of Indigo-96d2da3 — Data Link
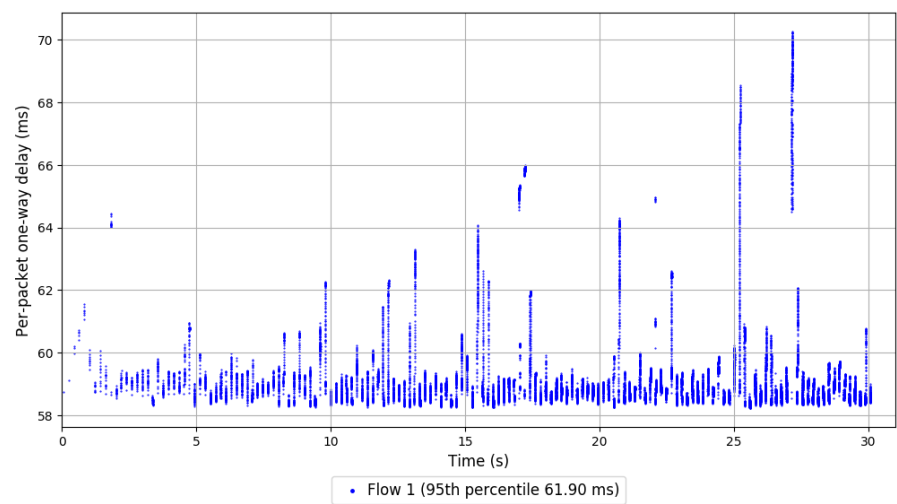
```
Run 5: Statistics of Indigo-96d2da3

Start at: 2018-10-26 02:18:57
End at: 2018-10-26 02:19:27
Local clock offset: 1.549 ms
Remote clock offset: -45.193 ms


# Below is generated by plot.py at 2018-10-26 02:38:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 137.94 Mbit/s
95th percentile per-packet one-way delay: 111.232 ms
Loss rate: 37.73%
-- Flow 1:
Average throughput: 137.94 Mbit/s
95th percentile per-packet one-way delay: 111.232 ms
Loss rate: 37.73%
```
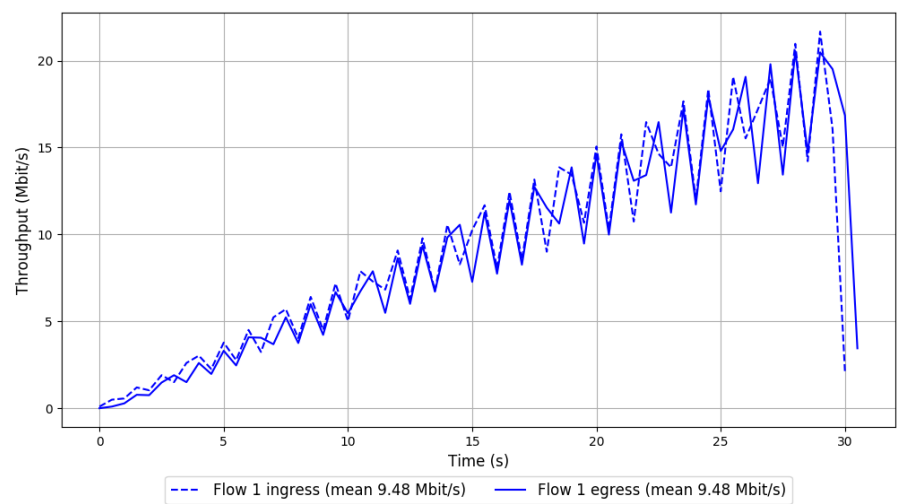
Run 5: Report of Indigo-96d2da3 — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2018-10-25 23:53:20
End at: 2018-10-25 23:53:50
Local clock offset: 1.322 ms
Remote clock offset: -49.213 ms


# Below is generated by plot.py at 2018-10-26 02:38:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.44 Mbit/s
95th percentile per-packet one-way delay: 52.169 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 9.44 Mbit/s
95th percentile per-packet one-way delay: 52.169 ms
Loss rate: 0.00%
```

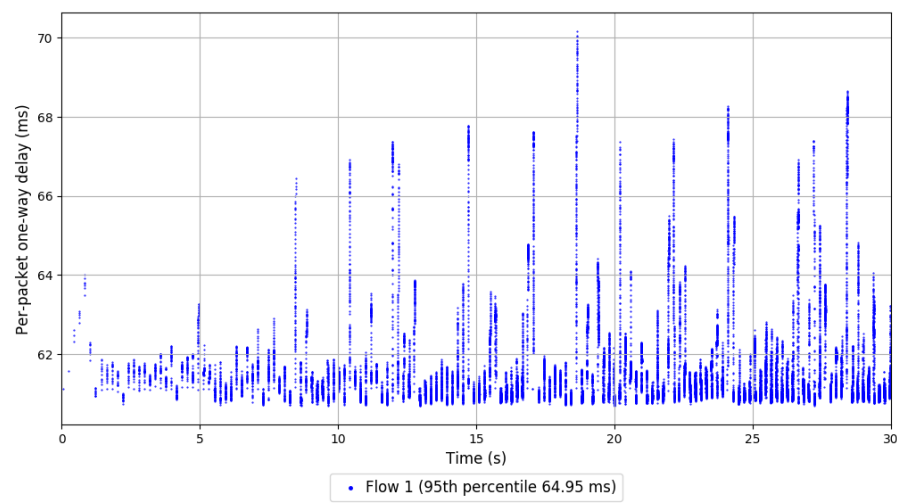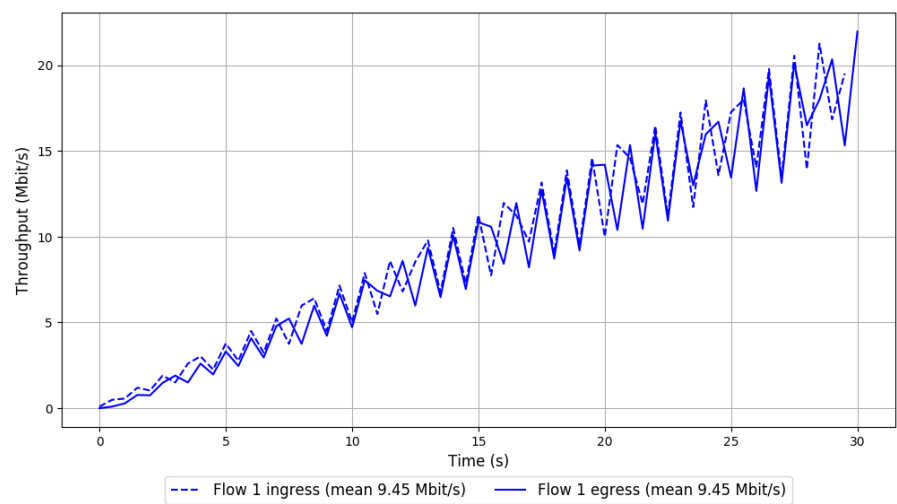Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2018-10-26 00:22:27
End at: 2018-10-26 00:22:57
Local clock offset: 0.463 ms
Remote clock offset: -39.087 ms


# Below is generated by plot.py at 2018-10-26 02:38:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.48 Mbit/s
95th percentile per-packet one-way delay: 61.898 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 9.48 Mbit/s
95th percentile per-packet one-way delay: 61.898 ms
Loss rate: 0.00%
```

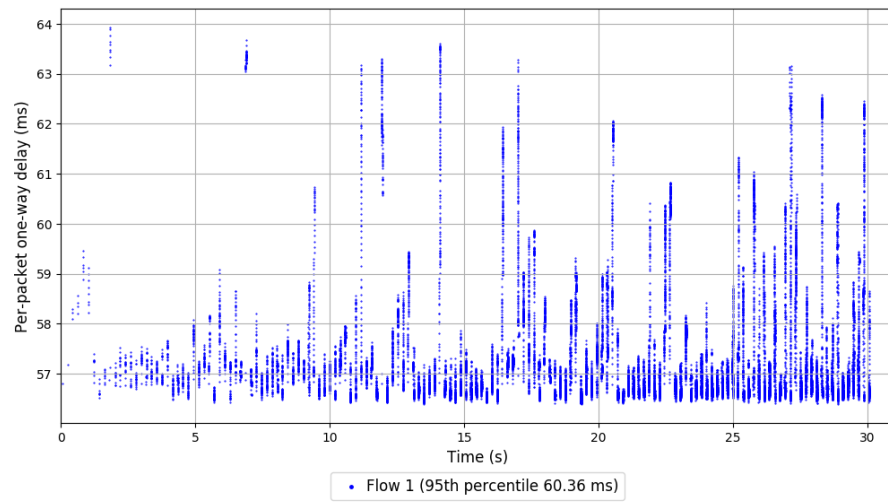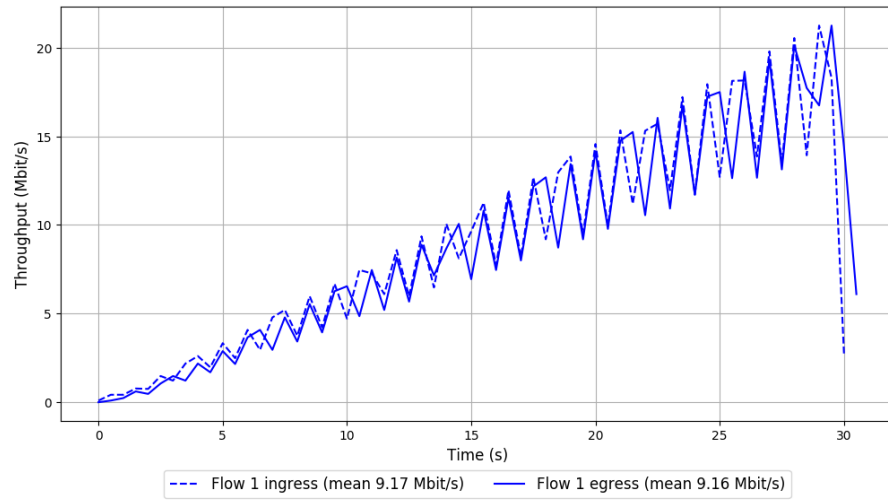Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2018-10-26 01:02:31
End at: 2018-10-26 01:03:01
Local clock offset: 1.305 ms
Remote clock offset: -38.53 ms


# Below is generated by plot.py at 2018-10-26 02:38:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.45 Mbit/s
95th percentile per-packet one-way delay: 64.949 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 9.45 Mbit/s
95th percentile per-packet one-way delay: 64.949 ms
Loss rate: 0.00%
```
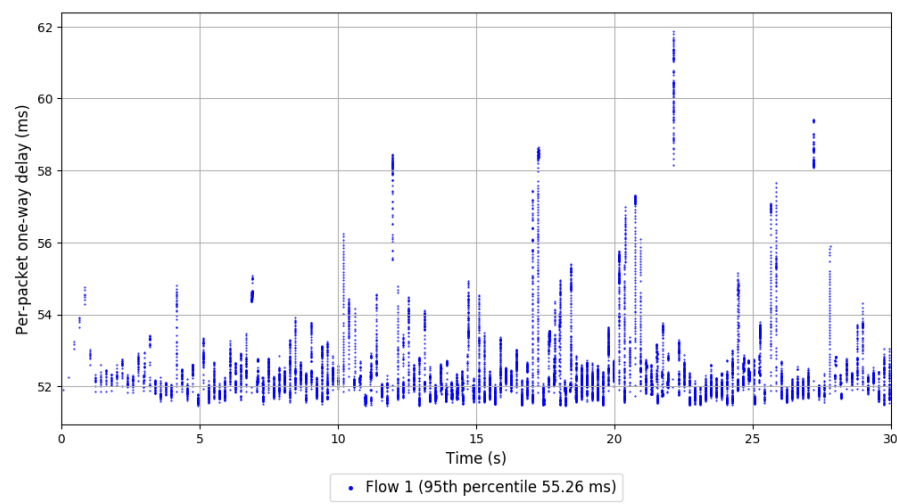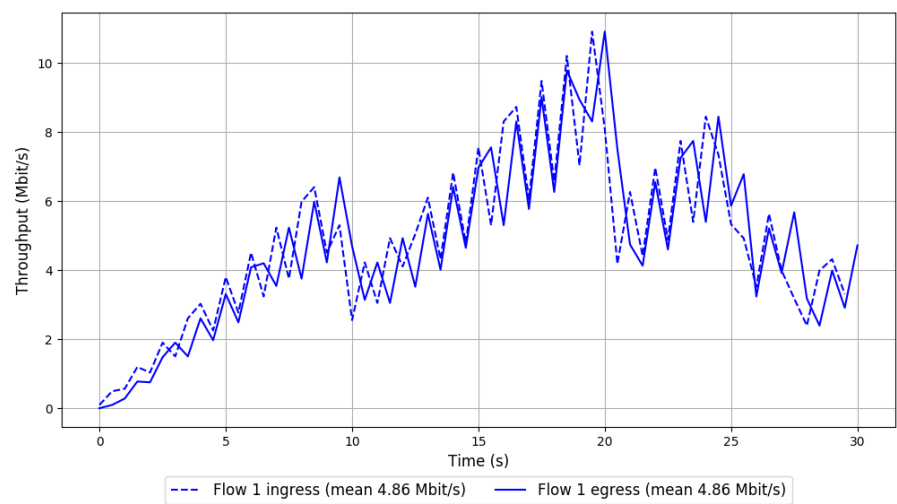
Run 3: Report of LEDBAT — Data Link

```
Run 4: Statistics of LEDBAT

Start at: 2018-10-26 01:42:33
End at: 2018-10-26 01:43:04
Local clock offset: 0.778 ms
Remote clock offset: -39.091 ms


# Below is generated by plot.py at 2018-10-26 02:38:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.16 Mbit/s
95th percentile per-packet one-way delay: 60.356 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 9.16 Mbit/s
95th percentile per-packet one-way delay: 60.356 ms
Loss rate: 0.10%
```

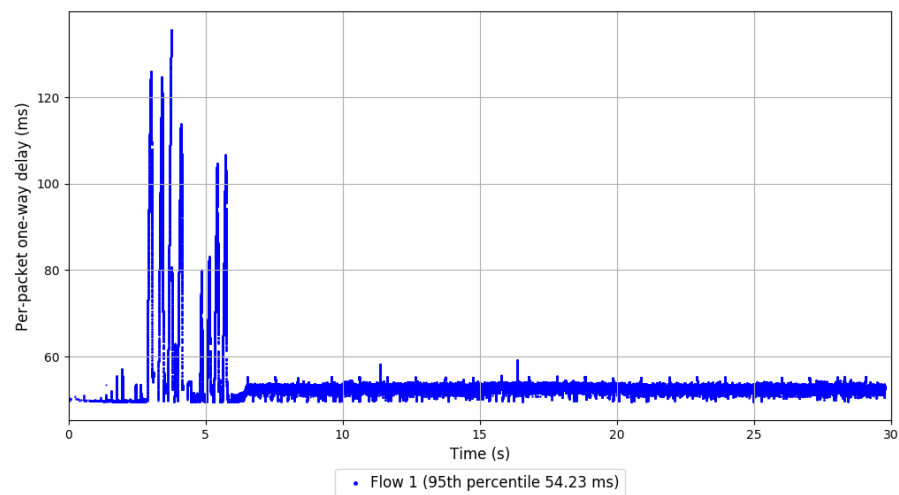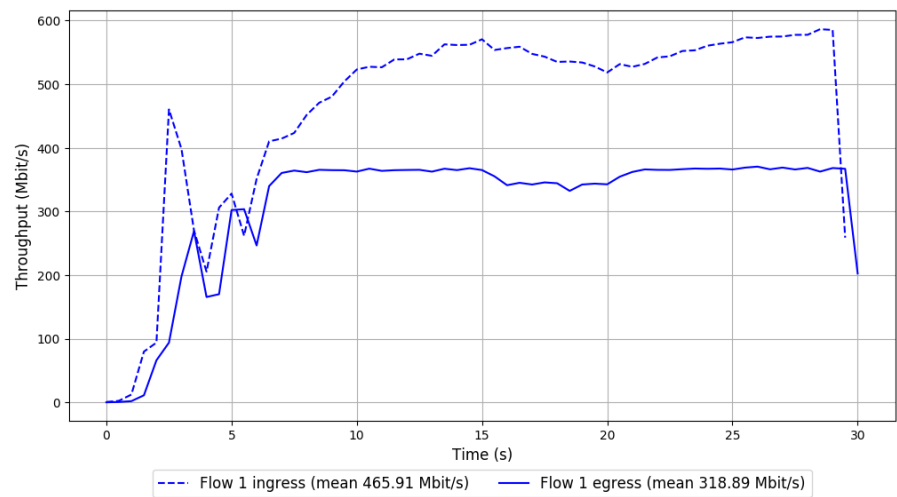Run 4: Report of LEDBAT — Data Link

Flow 1 ingress (mean 9.17 Mbit/s)   Flow 1 egress (mean 9.16 Mbit/s)

Flow 1 (95th percentile 60.36 ms)

```
Run 5: Statistics of LEDBAT

Start at: 2018-10-26 02:17:46
End at: 2018-10-26 02:18:16
Local clock offset: 3.616 ms
Remote clock offset: -42.496 ms

# Below is generated by plot.py at 2018-10-26 02:38:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.86 Mbit/s
95th percentile per-packet one-way delay: 55.260 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 4.86 Mbit/s
95th percentile per-packet one-way delay: 55.260 ms
Loss rate: 0.03%
```
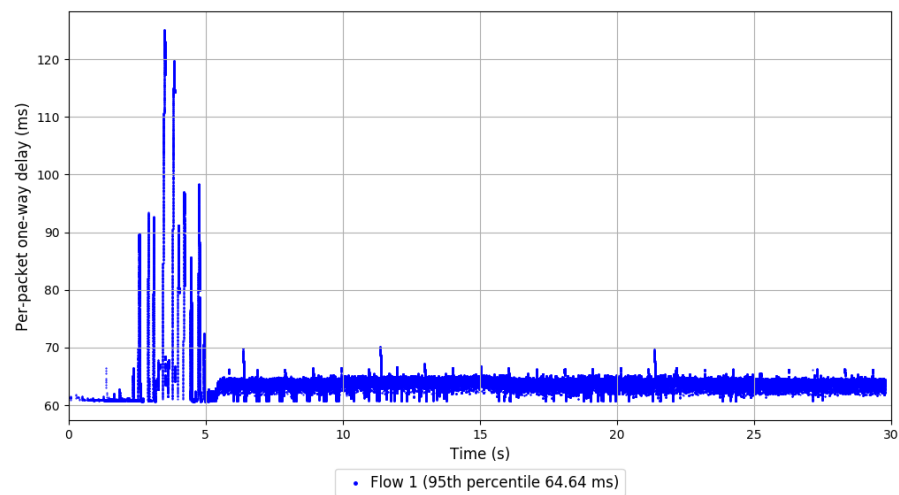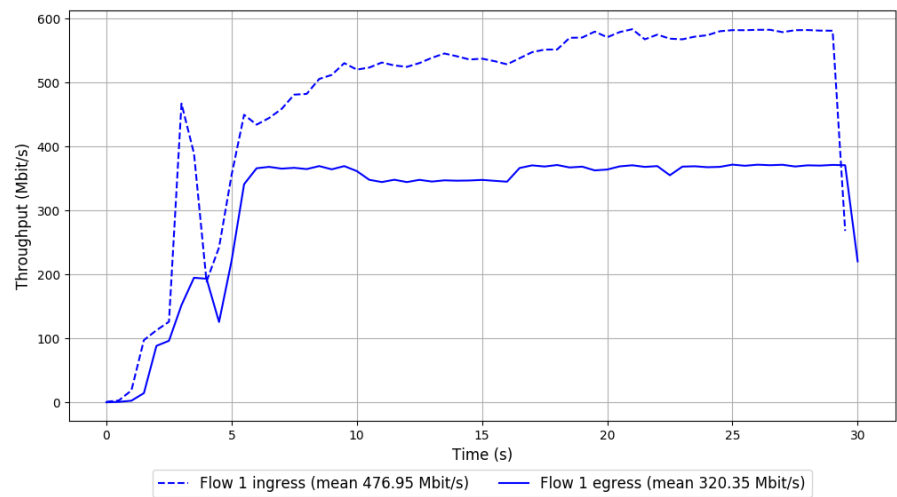
Run 5: Report of LEDBAT — Data Link

Flow 1 ingress (mean 4.86 Mbit/s)   Flow 1 egress (mean 4.86 Mbit/s)

Flow 1 (95th percentile 55.26 ms)

```
Run 1: Statistics of Indigo-Muses

Start at: 2018-10-25 23:51:03
End at: 2018-10-25 23:51:33
Local clock offset: 1.532 ms
Remote clock offset: -48.142 ms


# Below is generated by plot.py at 2018-10-26 02:41:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 318.89 Mbit/s
95th percentile per-packet one-way delay: 54.228 ms
Loss rate: 31.55%
-- Flow 1:
Average throughput: 318.89 Mbit/s
95th percentile per-packet one-way delay: 54.228 ms
Loss rate: 31.55%
```
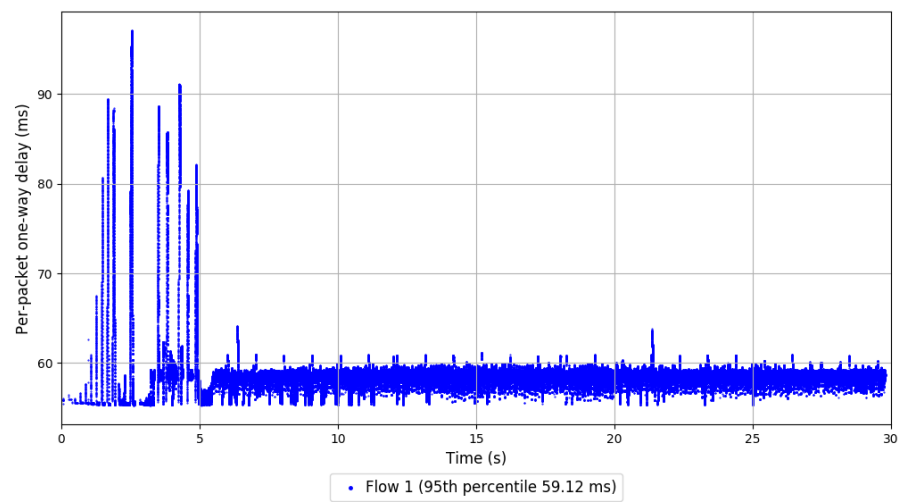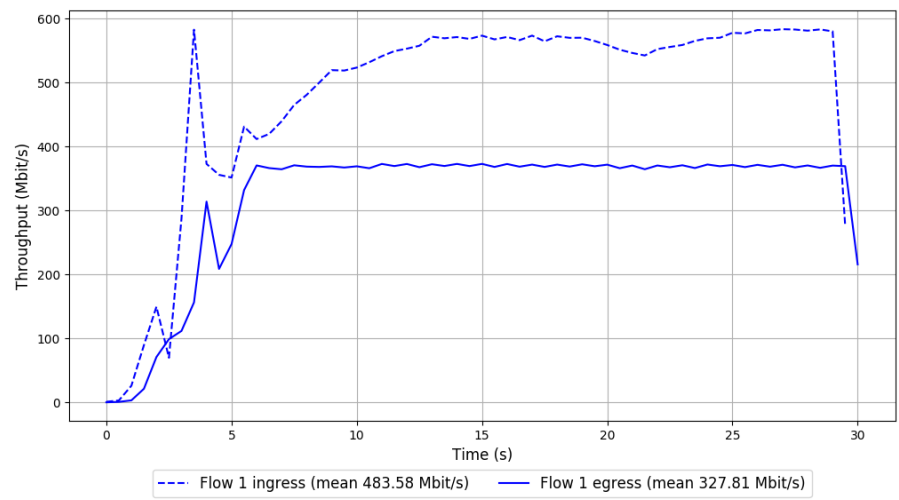
Run 1: Report of Indigo-Muses — Data Link

```
Run 2: Statistics of Indigo-Muses

Start at: 2018-10-26 00:20:09
End at: 2018-10-26 00:20:39
Local clock offset: -2.144 ms
Remote clock offset: -39.423 ms

# Below is generated by plot.py at 2018-10-26 02:41:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 320.35 Mbit/s
95th percentile per-packet one-way delay: 64.645 ms
Loss rate: 32.83%
-- Flow 1:
Average throughput: 320.35 Mbit/s
95th percentile per-packet one-way delay: 64.645 ms
Loss rate: 32.83%
```
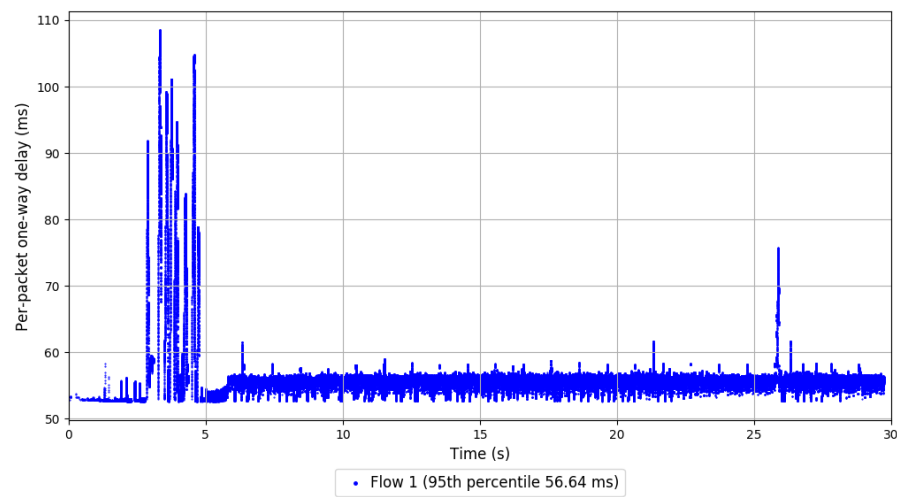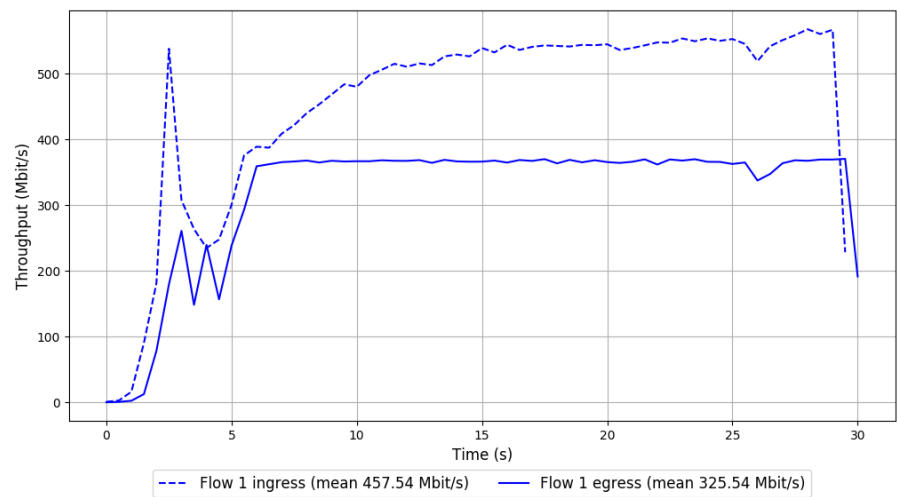
Run 2: Report of Indigo-Muses — Data Link

```
Run 3: Statistics of Indigo-Muses

Start at: 2018-10-26 01:00:12
End at: 2018-10-26 01:00:42
Local clock offset: 1.176 ms
Remote clock offset: -41.525 ms


# Below is generated by plot.py at 2018-10-26 02:41:32
# Datalink statistics
-- Total of 1 flow:
Average throughput: 327.81 Mbit/s
95th percentile per-packet one-way delay: 59.116 ms
Loss rate: 32.20%
-- Flow 1:
Average throughput: 327.81 Mbit/s
95th percentile per-packet one-way delay: 59.116 ms
Loss rate: 32.20%
```
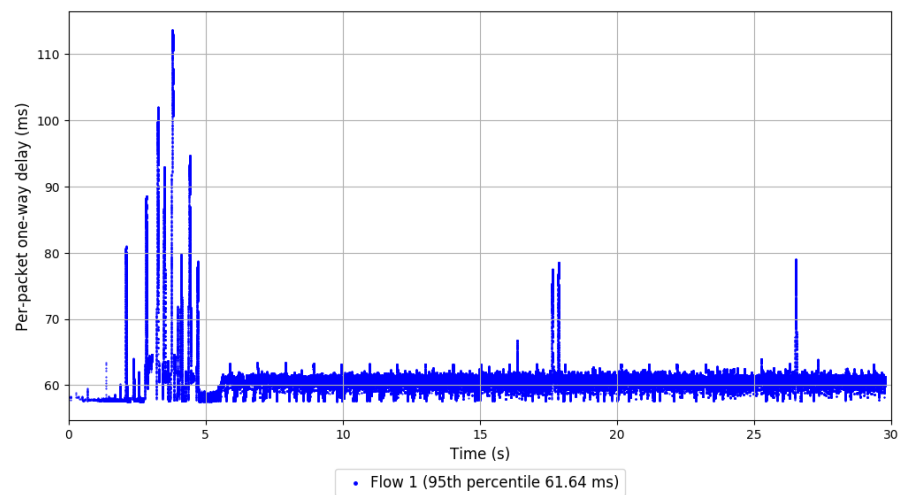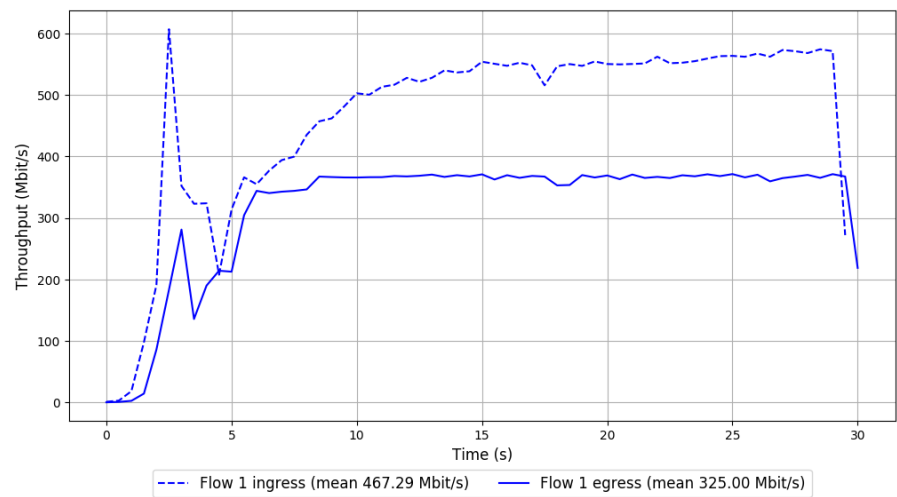
Run 3: Report of Indigo-Muses — Data Link

```
Run 4: Statistics of Indigo-Muses

Start at: 2018-10-26 01:40:14
End at: 2018-10-26 01:40:44
Local clock offset: 1.181 ms
Remote clock offset: -45.359 ms

# Below is generated by plot.py at 2018-10-26 02:41:32
# Datalink statistics
-- Total of 1 flow:
Average throughput: 325.54 Mbit/s
95th percentile per-packet one-way delay: 56.644 ms
Loss rate: 28.84%
-- Flow 1:
Average throughput: 325.54 Mbit/s
95th percentile per-packet one-way delay: 56.644 ms
Loss rate: 28.84%
```
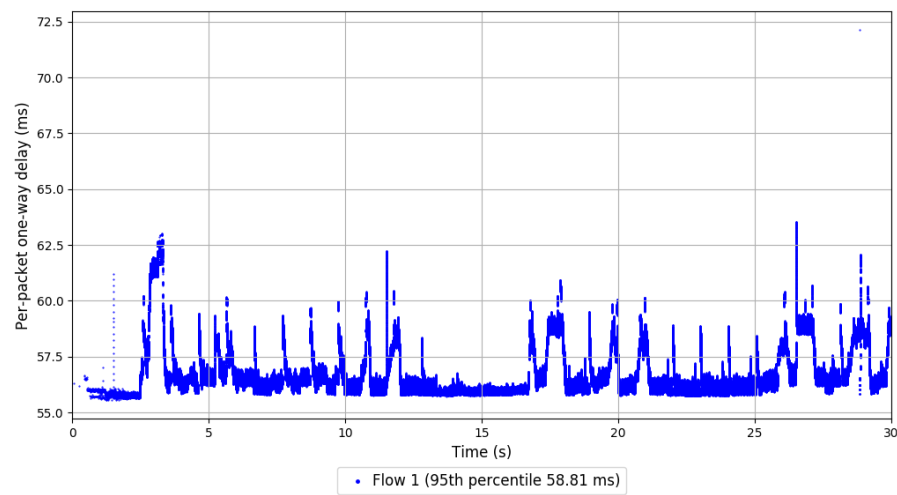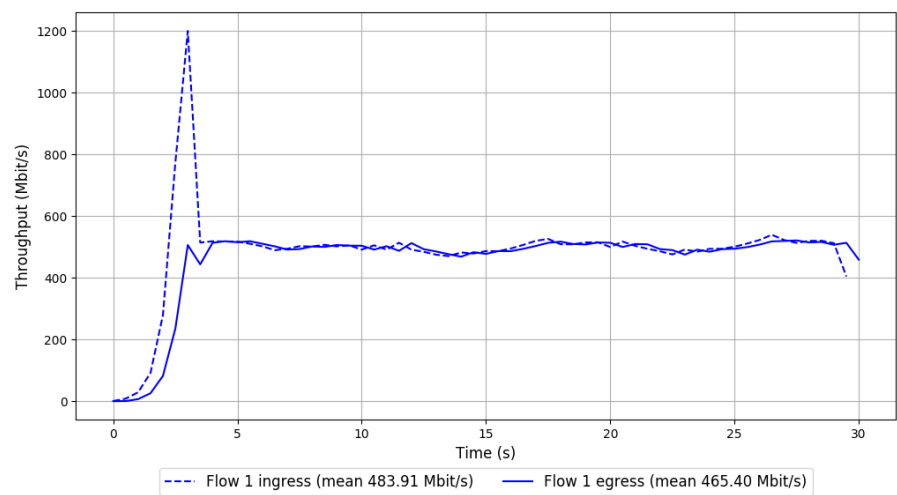
Run 4: Report of Indigo-Muses — Data Link

```
Run 5: Statistics of Indigo-Muses

Start at: 2018-10-26 02:15:26
End at: 2018-10-26 02:15:56
Local clock offset: -5.262 ms
Remote clock offset: -45.135 ms


# Below is generated by plot.py at 2018-10-26 02:42:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 325.00 Mbit/s
95th percentile per-packet one-way delay: 61.637 ms
Loss rate: 30.44%
-- Flow 1:
Average throughput: 325.00 Mbit/s
95th percentile per-packet one-way delay: 61.637 ms
Loss rate: 30.44%
```

Run 5: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 467.29 Mbit/s)   Flow 1 egress (mean 325.00 Mbit/s)
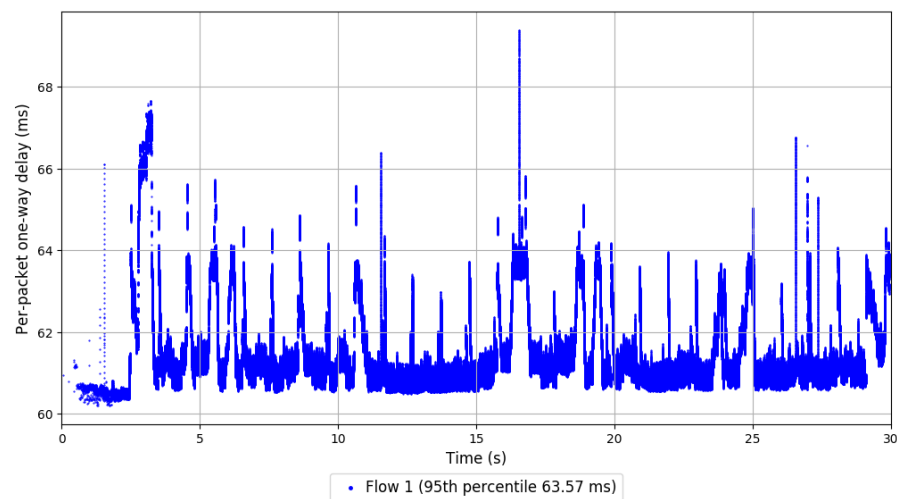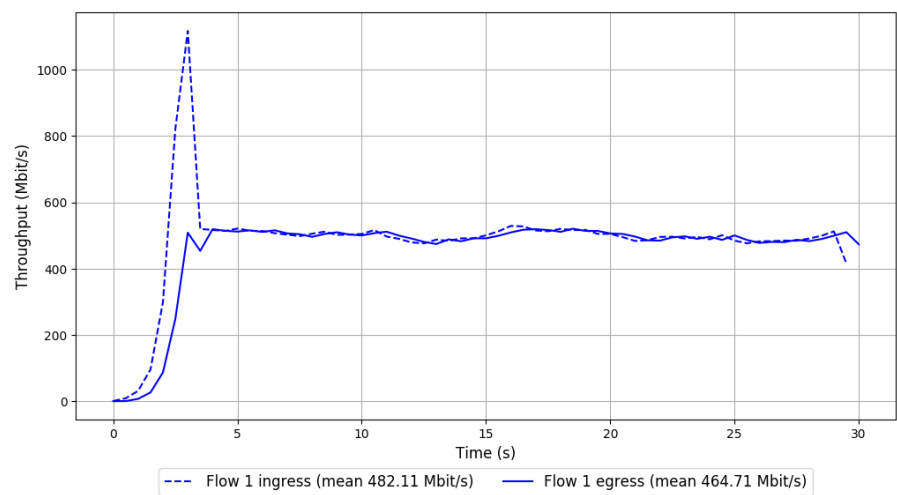

Flow 1 (95th percentile 61.64 ms)

```
Run 1: Statistics of PCC-Allegro

Start at: 2018-10-25 23:58:54
End at: 2018-10-25 23:59:24
Local clock offset: -1.035 ms
Remote clock offset: -43.914 ms


# Below is generated by plot.py at 2018-10-26 02:43:41
# Datalink statistics
-- Total of 1 flow:
Average throughput: 465.40 Mbit/s
95th percentile per-packet one-way delay: 58.809 ms
Loss rate: 3.82%
-- Flow 1:
Average throughput: 465.40 Mbit/s
95th percentile per-packet one-way delay: 58.809 ms
Loss rate: 3.82%
```

Run 1: Report of PCC-Allegro — Data Link

```
Run 2: Statistics of PCC-Allegro

Start at: 2018-10-26 00:33:33
End at: 2018-10-26 00:34:03
Local clock offset: -4.106 ms
Remote clock offset: -40.953 ms


# Below is generated by plot.py at 2018-10-26 02:44:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 464.71 Mbit/s
95th percentile per-packet one-way delay: 63.573 ms
Loss rate: 3.60%
-- Flow 1:
Average throughput: 464.71 Mbit/s
95th percentile per-packet one-way delay: 63.573 ms
Loss rate: 3.60%
```
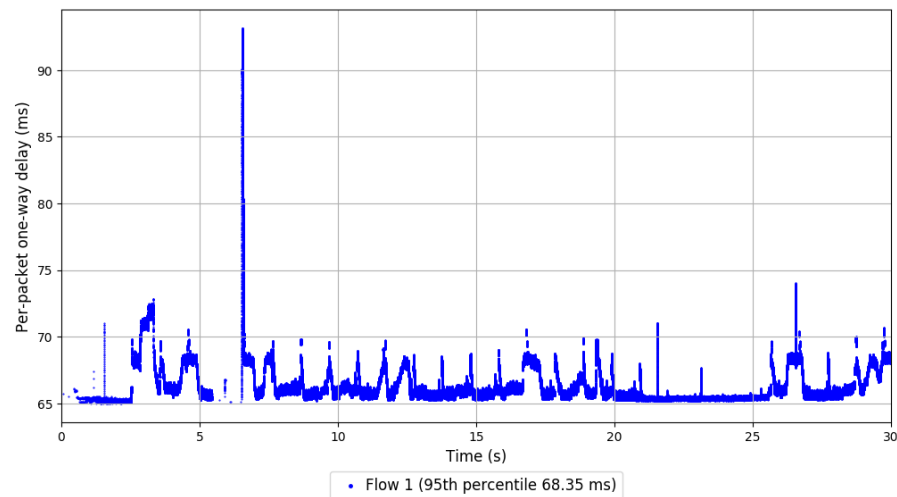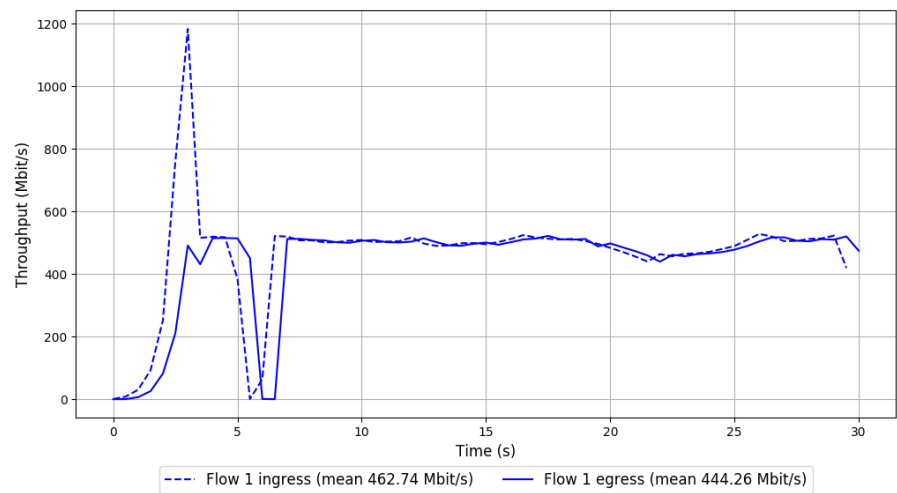
Run 2: Report of PCC-Allegro — Data Link

```
Run 3: Statistics of PCC-Allegro

Start at: 2018-10-26 01:08:07
End at: 2018-10-26 01:08:37
Local clock offset: 0.387 ms
Remote clock offset: -32.507 ms


# Below is generated by plot.py at 2018-10-26 02:44:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 444.26 Mbit/s
95th percentile per-packet one-way delay: 68.353 ms
Loss rate: 3.98%
-- Flow 1:
Average throughput: 444.26 Mbit/s
95th percentile per-packet one-way delay: 68.353 ms
Loss rate: 3.98%
```
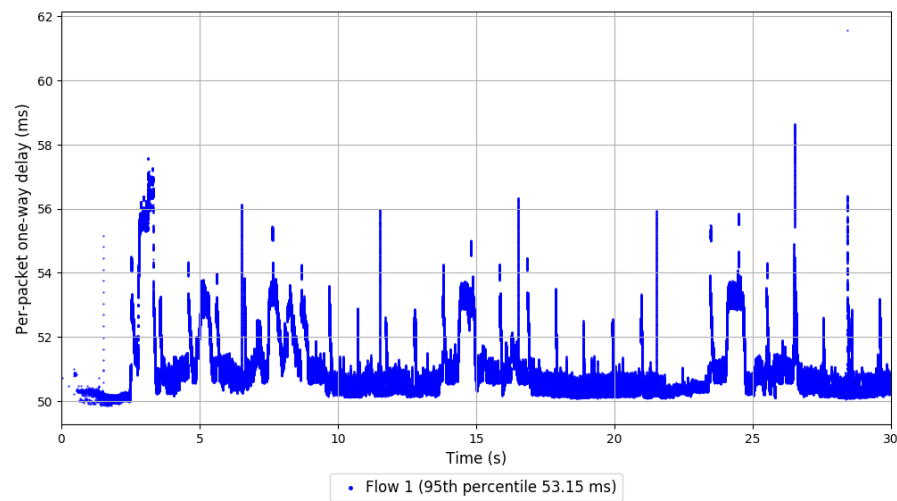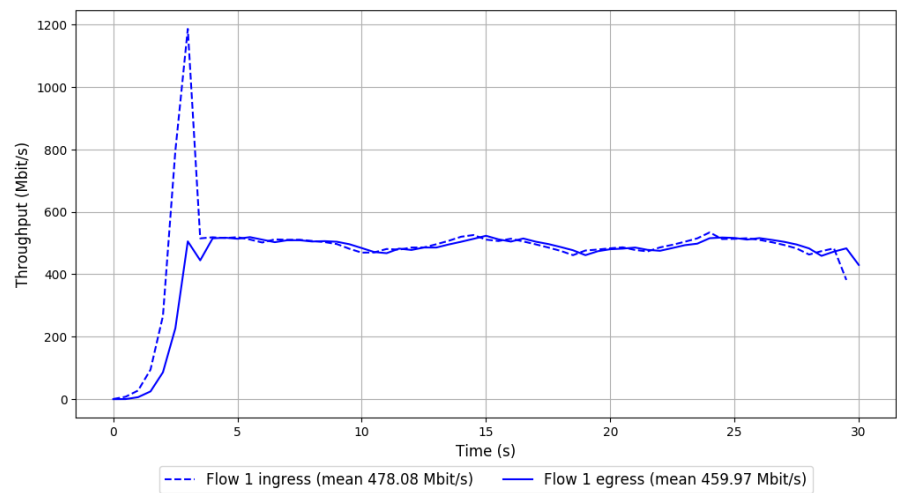
Run 3: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 462.74 Mbit/s) Flow 1 egress (mean 444.26 Mbit/s)

Flow 1 (95th percentile 68.35 ms)

```
Run 4: Statistics of PCC-Allegro

Start at: 2018-10-26 01:48:05
End at: 2018-10-26 01:48:35
Local clock offset: 1.993 ms
Remote clock offset: -44.132 ms


# Below is generated by plot.py at 2018-10-26 02:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 459.97 Mbit/s
95th percentile per-packet one-way delay: 53.150 ms
Loss rate: 3.79%
-- Flow 1:
Average throughput: 459.97 Mbit/s
95th percentile per-packet one-way delay: 53.150 ms
Loss rate: 3.79%
```
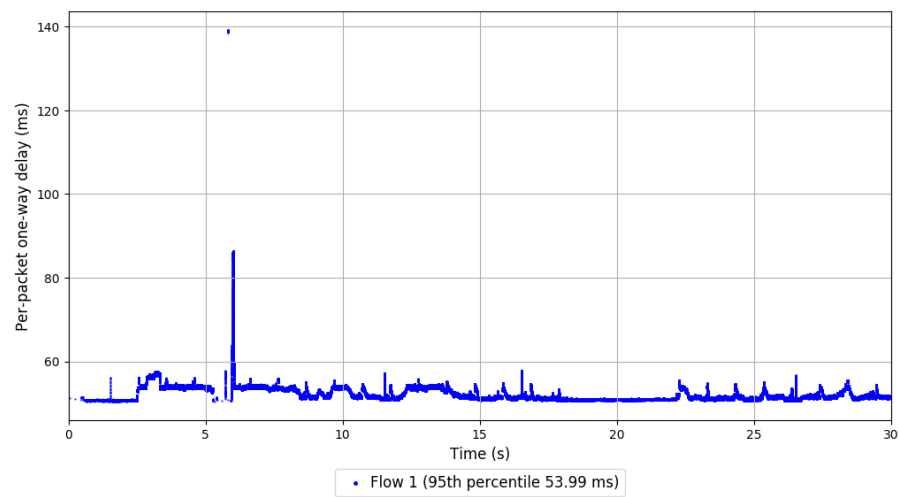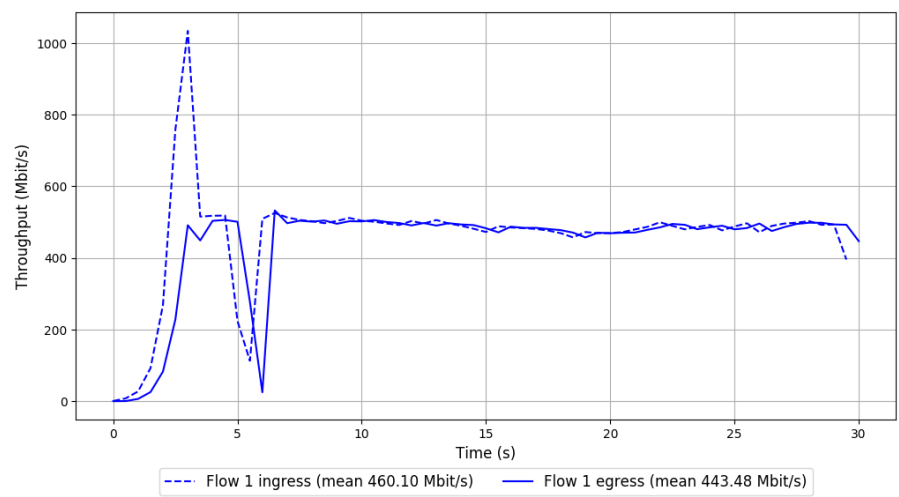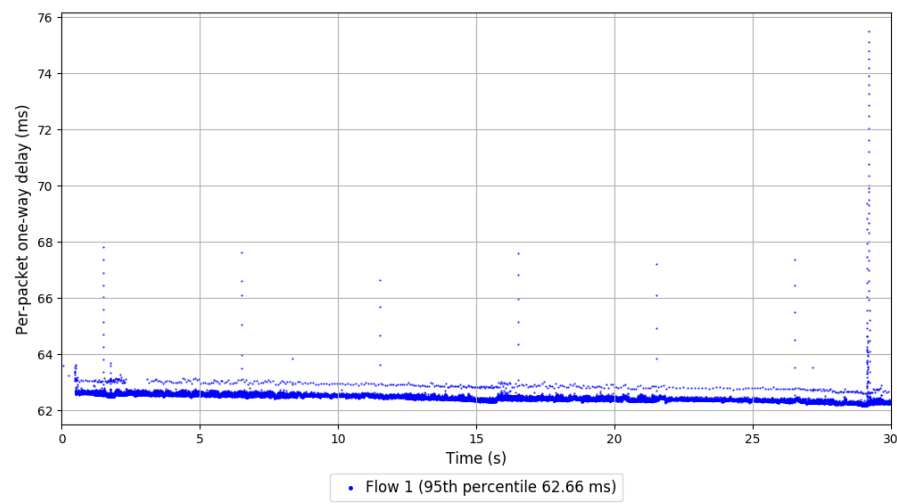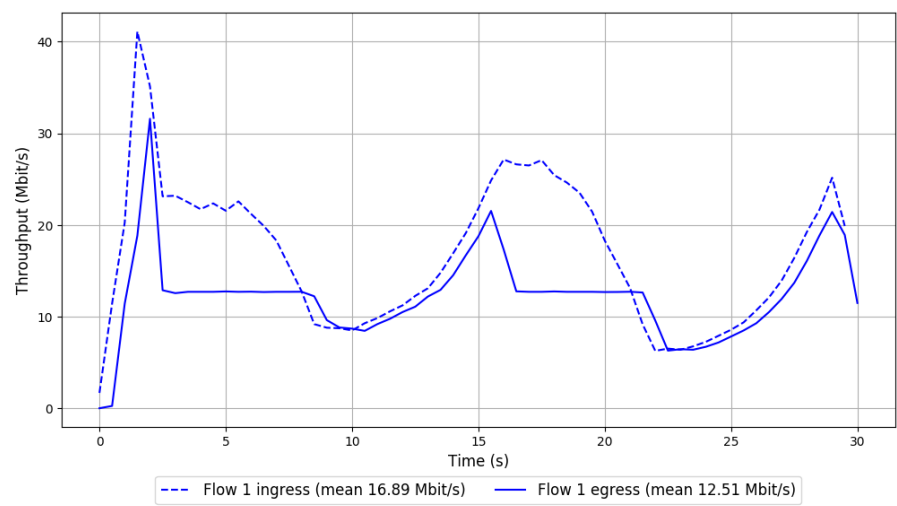
Run 4: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 478.08 Mbit/s)   Flow 1 egress (mean 459.97 Mbit/s)

Flow 1 (95th percentile 53.15 ms)

```
Run 5: Statistics of PCC-Allegro

Start at: 2018-10-26 02:23:25
End at: 2018-10-26 02:23:55
Local clock offset: 0.969 ms
Remote clock offset: -46.241 ms


# Below is generated by plot.py at 2018-10-26 02:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 443.48 Mbit/s
95th percentile per-packet one-way delay: 53.989 ms
Loss rate: 3.61%
-- Flow 1:
Average throughput: 443.48 Mbit/s
95th percentile per-packet one-way delay: 53.989 ms
Loss rate: 3.61%
```

Run 5: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 460.10 Mbit/s) ——— Flow 1 egress (mean 443.48 Mbit/s)
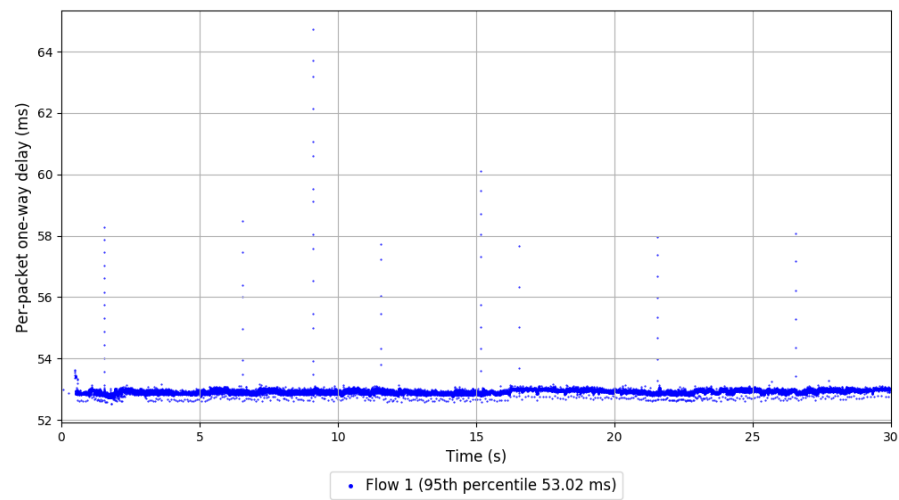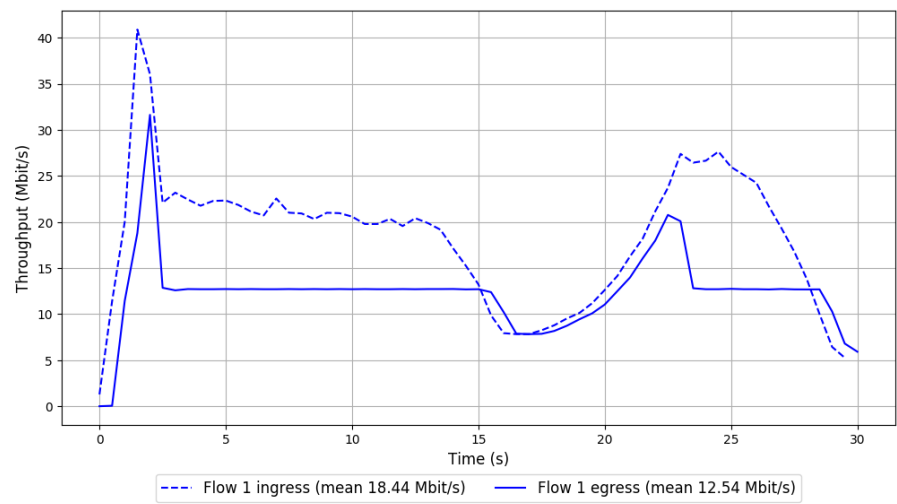

• Flow 1 (95th percentile 53.99 ms)

94

```
Run 1: Statistics of PCC-Expr

Start at: 2018-10-25 23:34:17
End at: 2018-10-25 23:34:47
Local clock offset: -0.536 ms
Remote clock offset: -37.276 ms


# Below is generated by plot.py at 2018-10-26 02:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.51 Mbit/s
95th percentile per-packet one-way delay: 62.656 ms
Loss rate: 25.98%
-- Flow 1:
Average throughput: 12.51 Mbit/s
95th percentile per-packet one-way delay: 62.656 ms
Loss rate: 25.98%
```
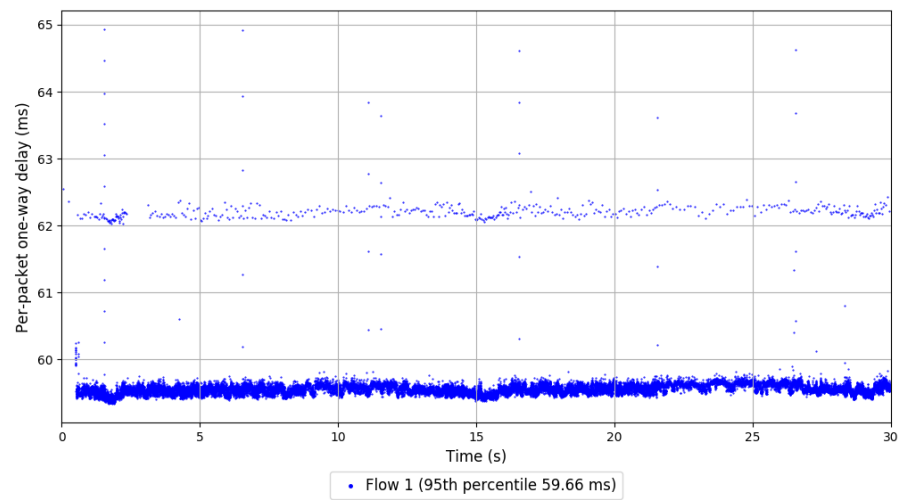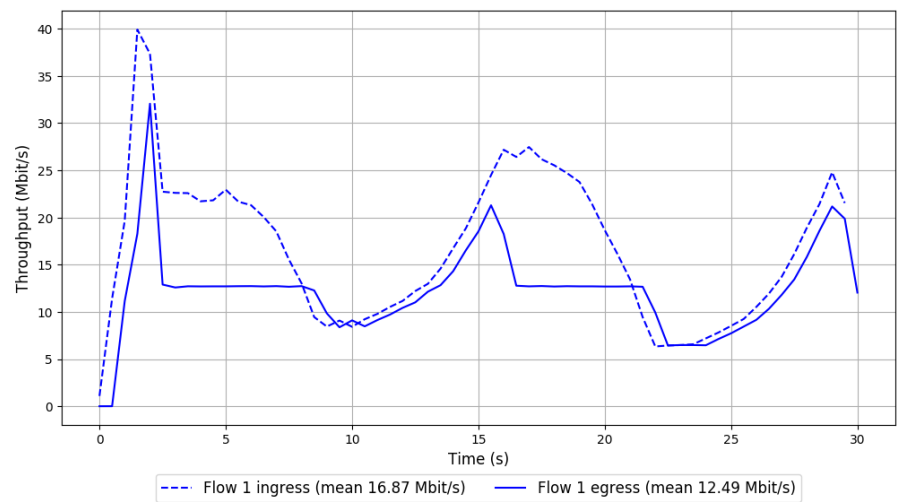
Run 1: Report of PCC-Expr — Data Link

```
Run 2: Statistics of PCC-Expr

Start at: 2018-10-26 00:03:33
End at: 2018-10-26 00:04:03
Local clock offset: -2.601 ms
Remote clock offset: -48.678 ms


# Below is generated by plot.py at 2018-10-26 02:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.54 Mbit/s
95th percentile per-packet one-way delay: 53.015 ms
Loss rate: 32.01%
-- Flow 1:
Average throughput: 12.54 Mbit/s
95th percentile per-packet one-way delay: 53.015 ms
Loss rate: 32.01%
```
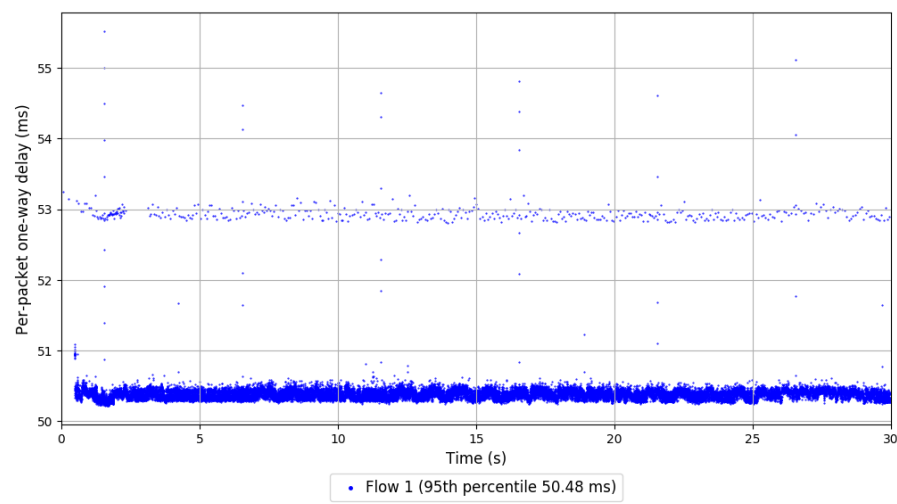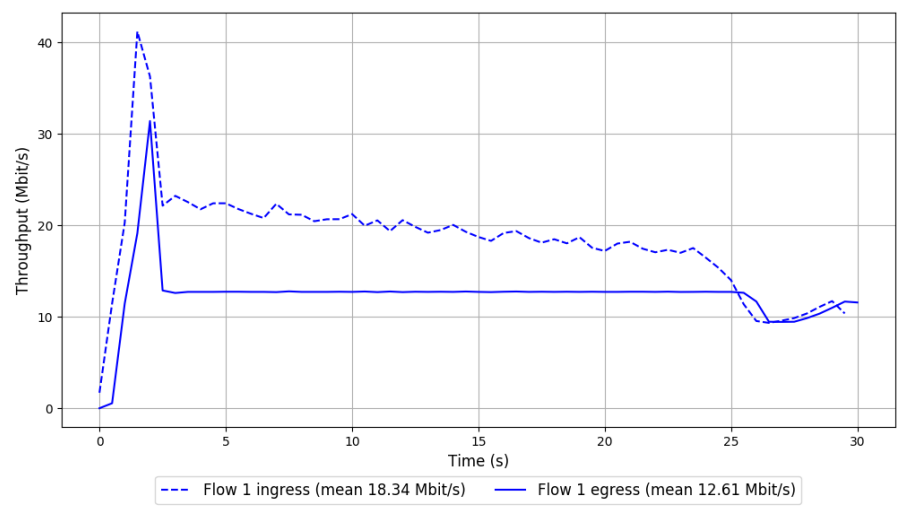
Run 2: Report of PCC-Expr — Data Link

```
Run 3: Statistics of PCC-Expr

Start at: 2018-10-26 00:38:13
End at: 2018-10-26 00:38:43
Local clock offset: -2.149 ms
Remote clock offset: -41.137 ms


# Below is generated by plot.py at 2018-10-26 02:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.49 Mbit/s
95th percentile per-packet one-way delay: 59.661 ms
Loss rate: 25.96%
-- Flow 1:
Average throughput: 12.49 Mbit/s
95th percentile per-packet one-way delay: 59.661 ms
Loss rate: 25.96%
```
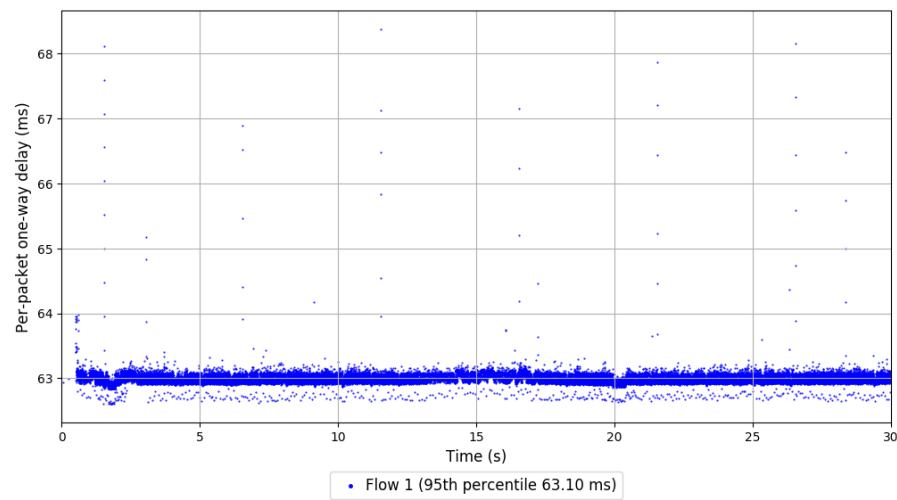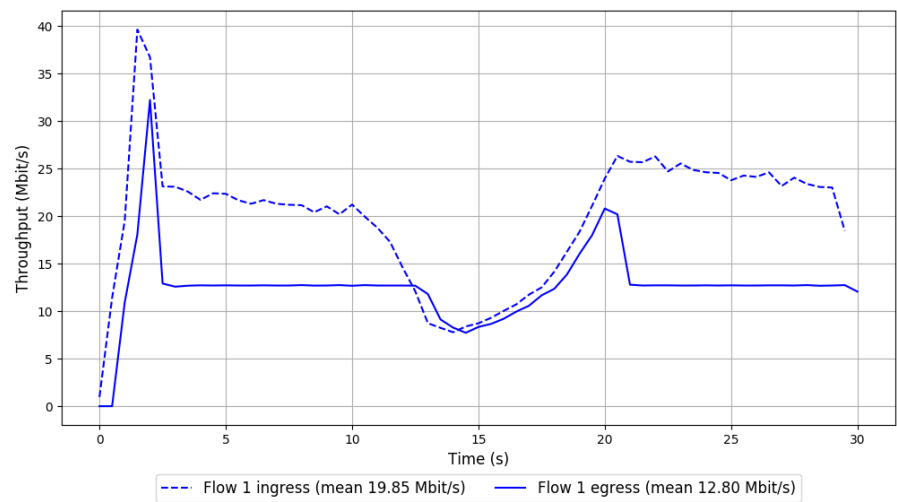
Run 3: Report of PCC-Expr — Data Link

```
Run 4: Statistics of PCC-Expr

Start at: 2018-10-26 01:12:43
End at: 2018-10-26 01:13:13
Local clock offset: 1.669 ms
Remote clock offset: -46.294 ms

# Below is generated by plot.py at 2018-10-26 02:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.61 Mbit/s
95th percentile per-packet one-way delay: 50.484 ms
Loss rate: 31.29%
-- Flow 1:
Average throughput: 12.61 Mbit/s
95th percentile per-packet one-way delay: 50.484 ms
Loss rate: 31.29%
```
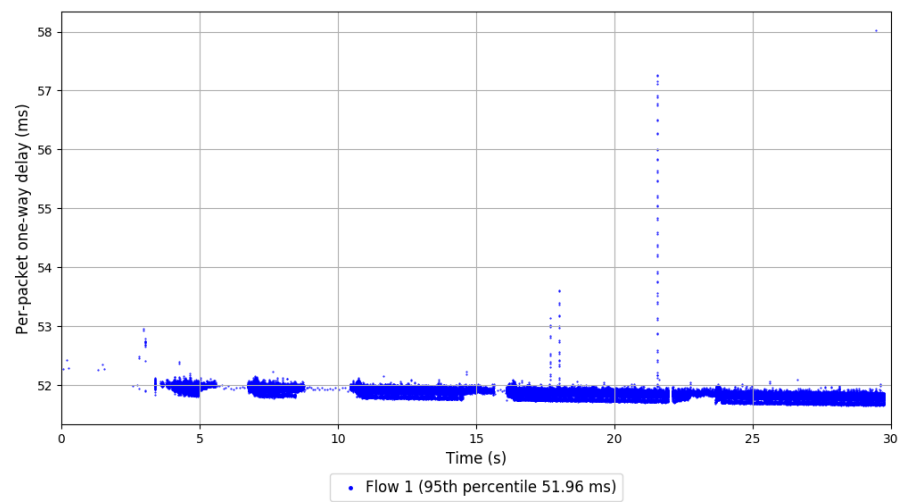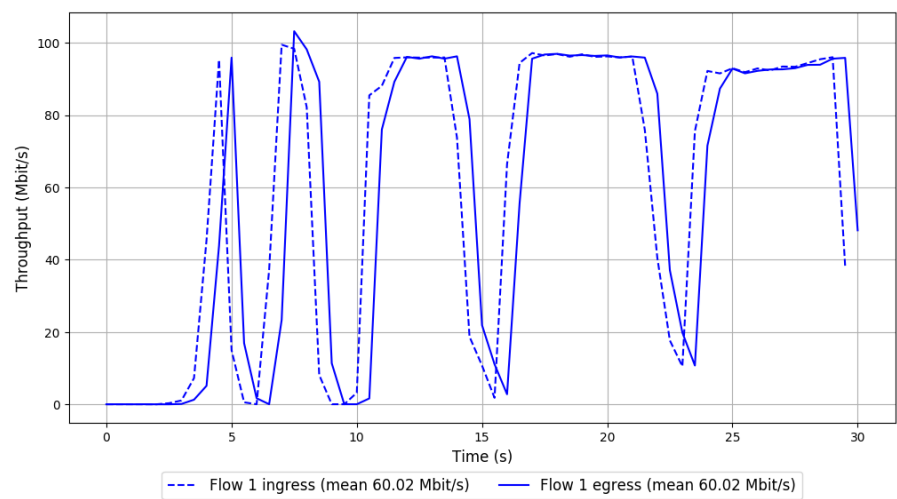
Run 4: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 18.34 Mbit/s)   Flow 1 egress (mean 12.61 Mbit/s)

Flow 1 (95th percentile 50.48 ms)

```
Run 5: Statistics of PCC-Expr

Start at: 2018-10-26 01:52:43
End at: 2018-10-26 01:53:13
Local clock offset: 1.58 ms
Remote clock offset: -32.183 ms


# Below is generated by plot.py at 2018-10-26 02:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.80 Mbit/s
95th percentile per-packet one-way delay: 63.097 ms
Loss rate: 35.53%
-- Flow 1:
Average throughput: 12.80 Mbit/s
95th percentile per-packet one-way delay: 63.097 ms
Loss rate: 35.53%
```
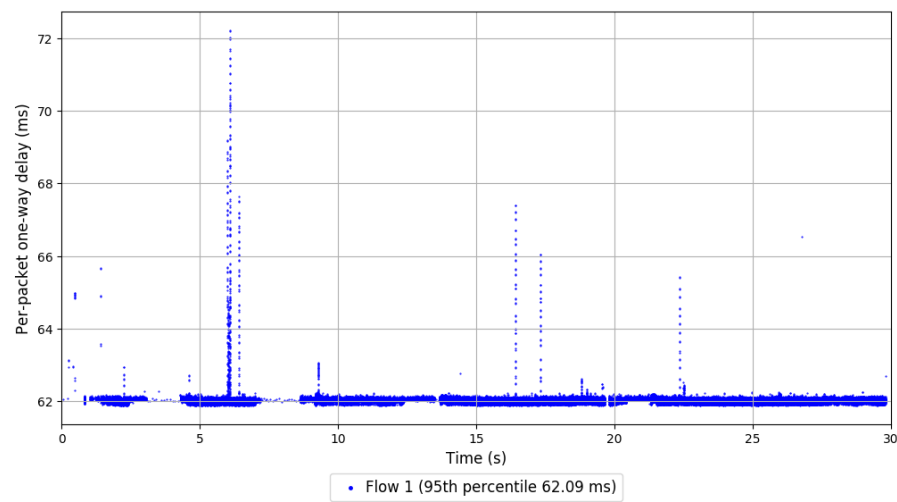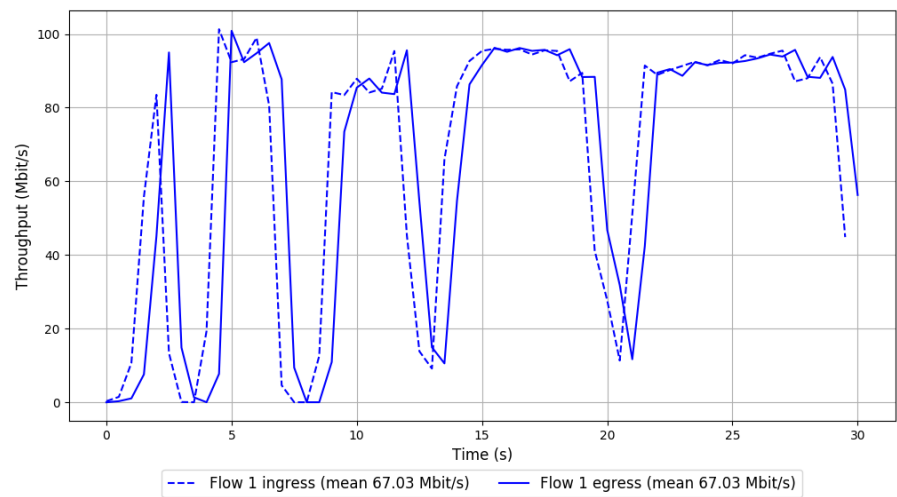
Run 5: Report of PCC-Expr — Data Link

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-10-25 23:37:18
End at: 2018-10-25 23:37:48
Local clock offset: -2.569 ms
Remote clock offset: -48.919 ms


# Below is generated by plot.py at 2018-10-26 02:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 60.02 Mbit/s
95th percentile per-packet one-way delay: 51.964 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 60.02 Mbit/s
95th percentile per-packet one-way delay: 51.964 ms
Loss rate: 0.00%
```

Run 1: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 60.02 Mbit/s)   Flow 1 egress (mean 60.02 Mbit/s)
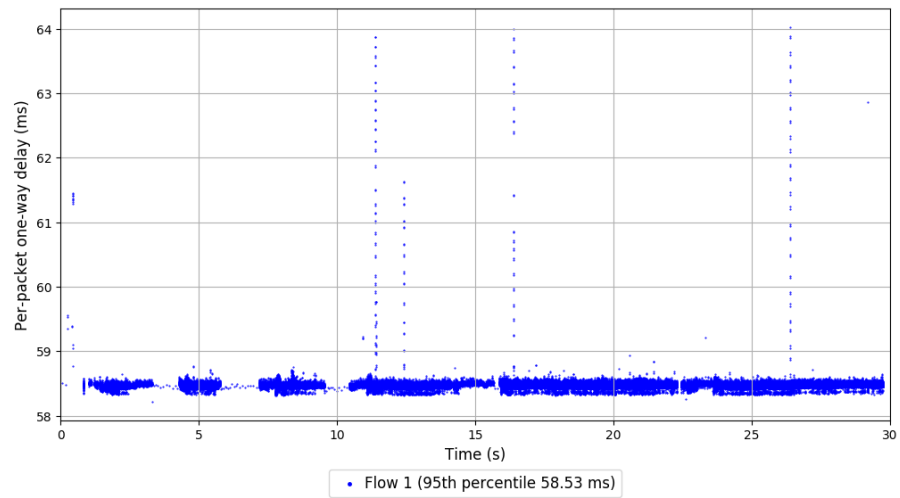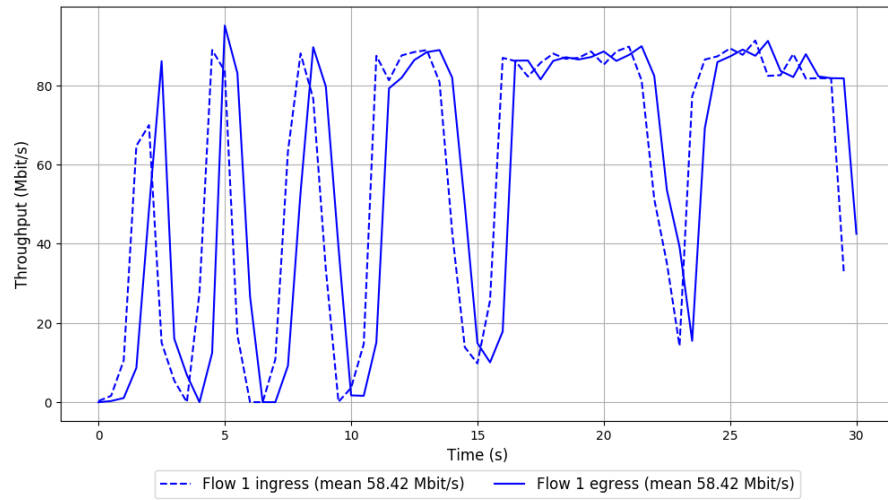

Flow 1 (95th percentile 51.96 ms)

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-10-26 00:06:38
End at: 2018-10-26 00:07:08
Local clock offset: -0.267 ms
Remote clock offset: -39.537 ms


# Below is generated by plot.py at 2018-10-26 02:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 67.03 Mbit/s
95th percentile per-packet one-way delay: 62.089 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 67.03 Mbit/s
95th percentile per-packet one-way delay: 62.089 ms
Loss rate: 0.01%
```
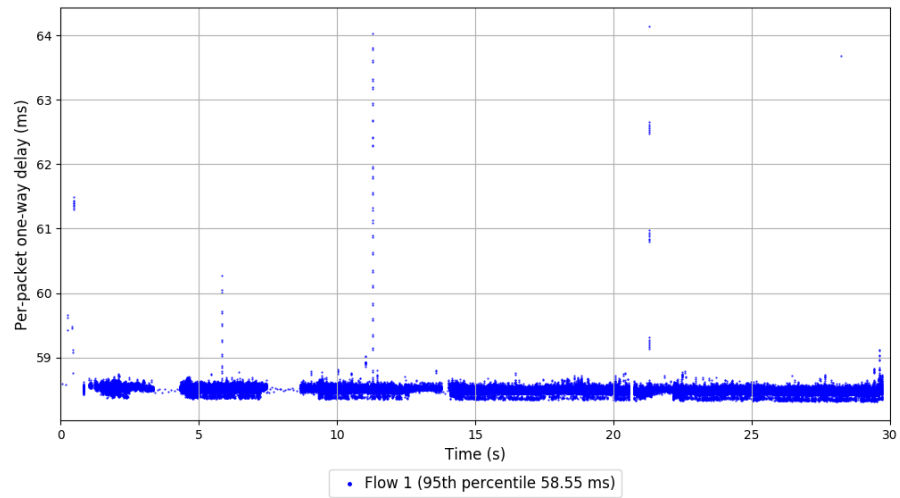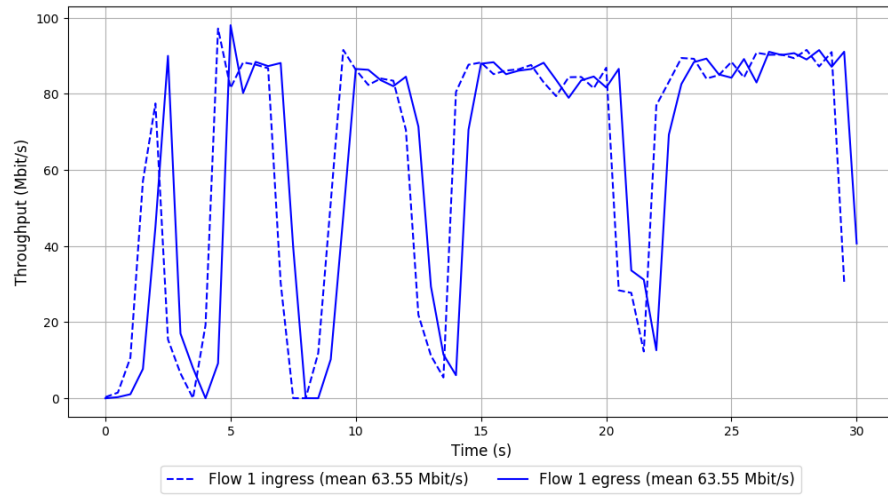
Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-10-26 00:41:12
End at: 2018-10-26 00:41:43
Local clock offset: 0.748 ms
Remote clock offset: -39.151 ms


# Below is generated by plot.py at 2018-10-26 02:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 58.42 Mbit/s
95th percentile per-packet one-way delay: 58.528 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 58.42 Mbit/s
95th percentile per-packet one-way delay: 58.528 ms
Loss rate: 0.00%
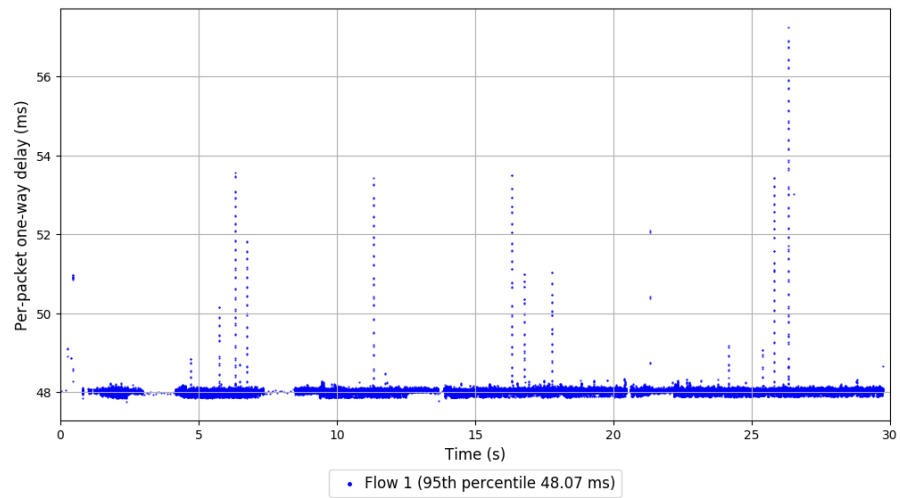```
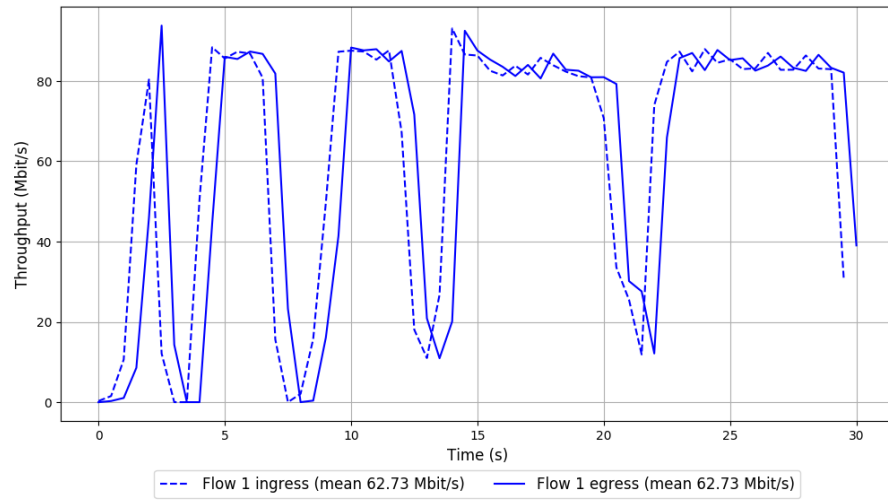
Run 3: Report of QUIC Cubic — Data Link



Flow 1 ingress (mean 58.42 Mbit/s)    Flow 1 egress (mean 58.42 Mbit/s)



Flow 1 (95th percentile 58.53 ms)

```
Run 4: Statistics of QUIC Cubic

Start at: 2018-10-26 01:21:25
End at: 2018-10-26 01:21:55
Local clock offset: 0.008 ms
Remote clock offset: -41.627 ms

Below is generated by plot.py at 2018-10-26 02:47:15
Datalink statistics
-- Total of 1 flow:
Average throughput: 63.55 Mbit/s
95th percentile per-packet one-way delay: 58.555 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 63.55 Mbit/s
95th percentile per-packet one-way delay: 58.555 ms
Loss rate: 0.01%
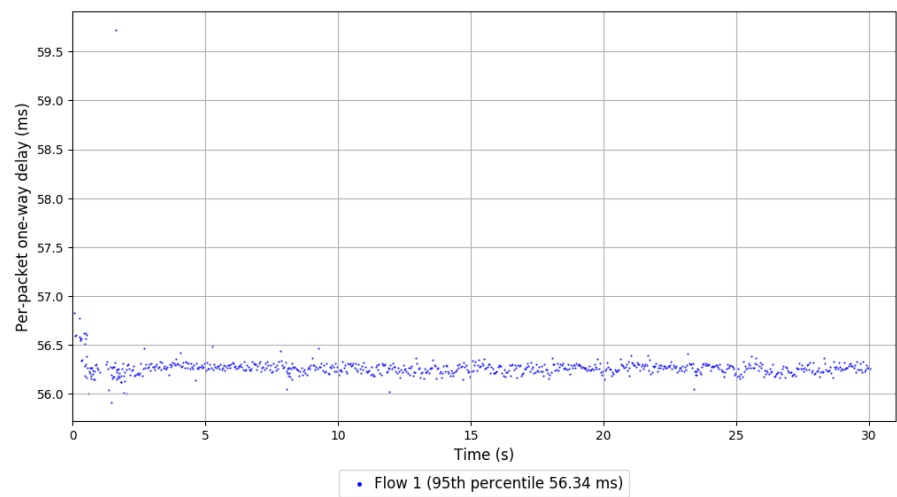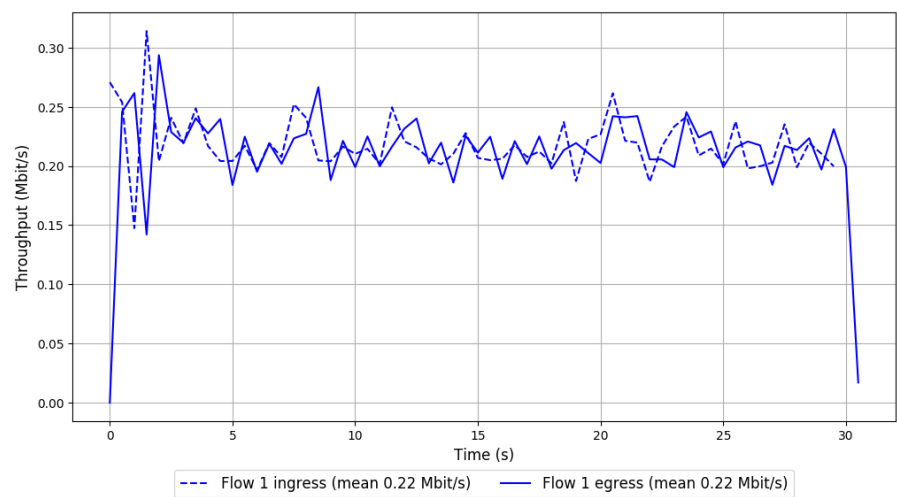```

Run 4: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 63.55 Mbit/s) — Flow 1 egress (mean 63.55 Mbit/s)

• Flow 1 (95th percentile 58.55 ms)

```
Run 5: Statistics of QUIC Cubic

Start at: 2018-10-26 02:01:36
End at: 2018-10-26 02:02:06
Local clock offset: 2.341 ms
Remote clock offset: -46.298 ms


# Below is generated by plot.py at 2018-10-26 02:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 62.73 Mbit/s
95th percentile per-packet one-way delay: 48.074 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 62.73 Mbit/s
95th percentile per-packet one-way delay: 48.074 ms
Loss rate: 0.00%
```
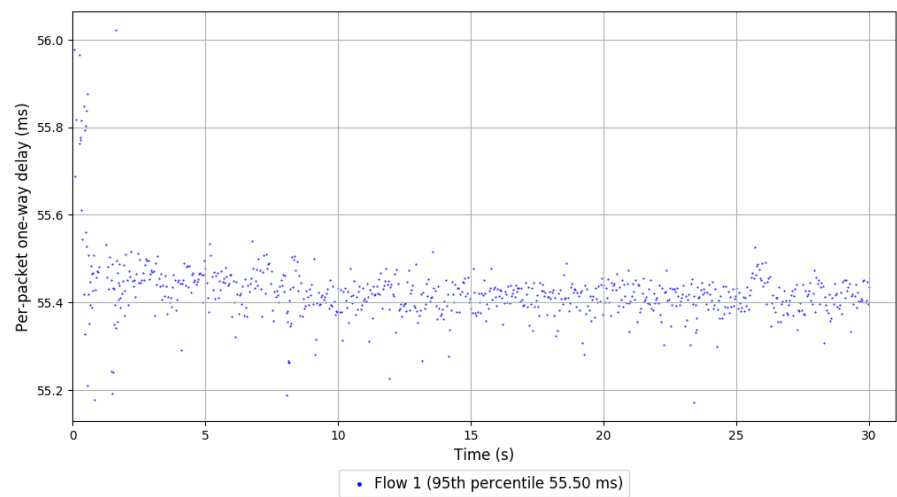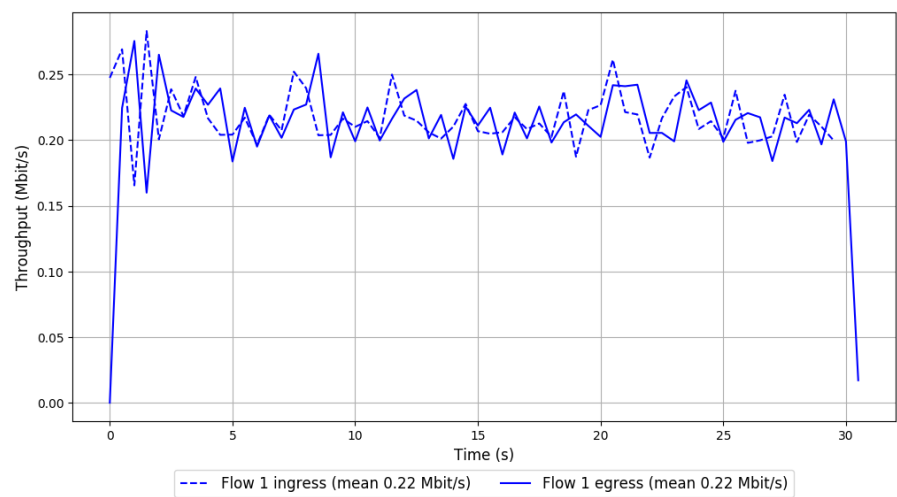
Run 5: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 62.73 Mbit/s)   Flow 1 egress (mean 62.73 Mbit/s)

• Flow 1 (95th percentile 48.07 ms)

```
Run 1: Statistics of SCReAM

Start at: 2018-10-25 23:44:08
End at: 2018-10-25 23:44:38
Local clock offset: 0.25 ms
Remote clock offset: -45.876 ms


# Below is generated by plot.py at 2018-10-26 02:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 56.335 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 56.335 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)

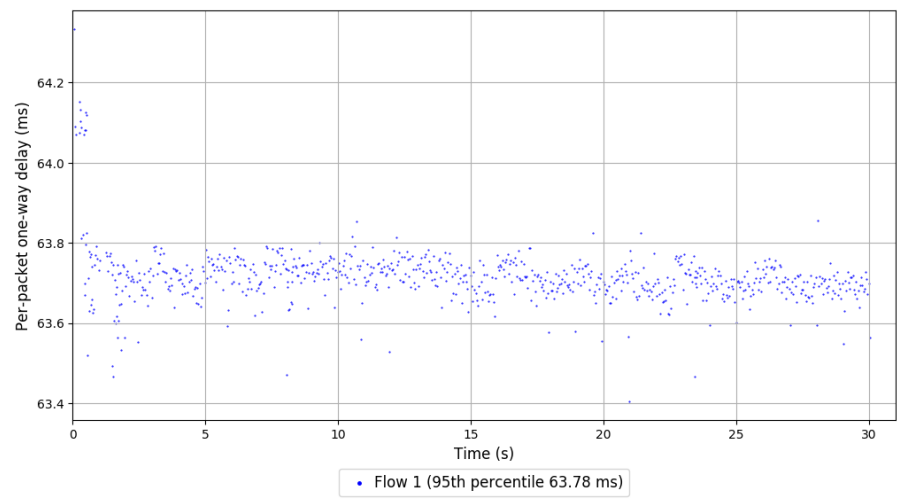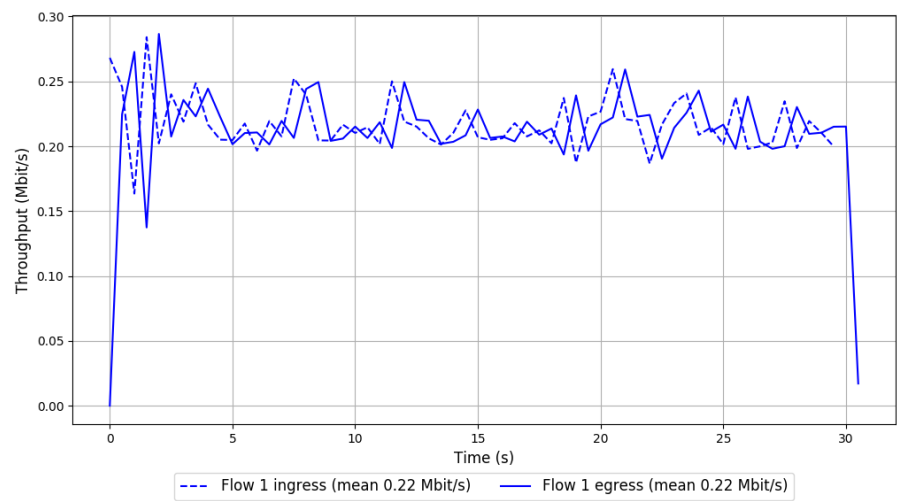• Flow 1 (95th percentile 56.34 ms)

```
Run 2: Statistics of SCReAM

Start at: 2018-10-26 00:13:21
End at: 2018-10-26 00:13:51
Local clock offset: 0.451 ms
Remote clock offset: -42.808 ms


# Below is generated by plot.py at 2018-10-26 02:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 55.497 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 55.497 ms
Loss rate: 0.00%
```
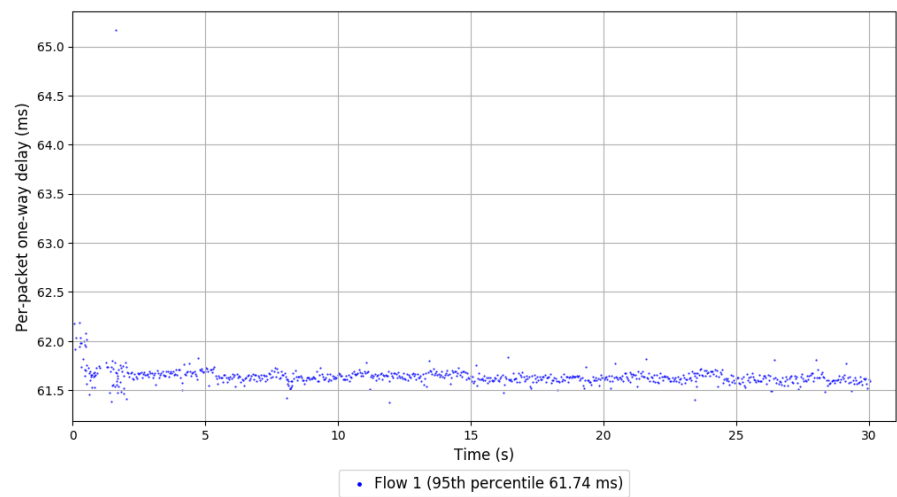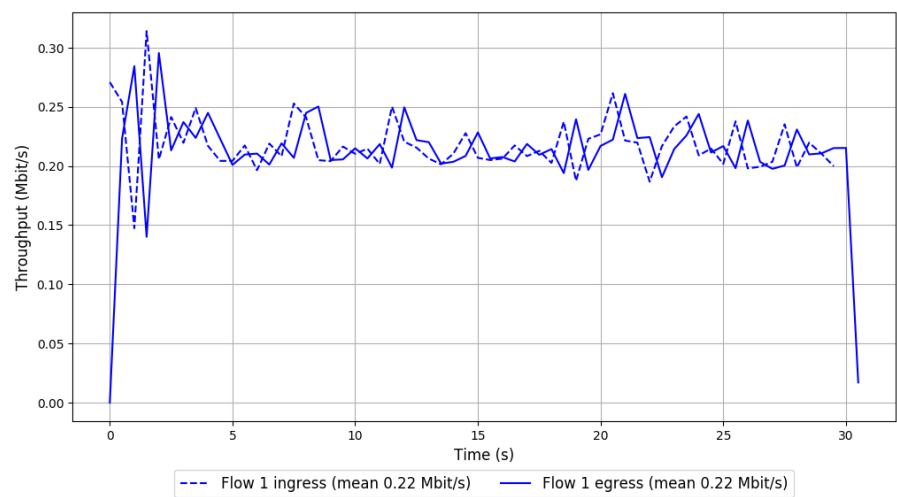
Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2018-10-26 00:53:21
End at: 2018-10-26 00:53:51
Local clock offset: -0.191 ms
Remote clock offset: -35.147 ms


# Below is generated by plot.py at 2018-10-26 02:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 63.783 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 63.783 ms
Loss rate: 0.00%
```
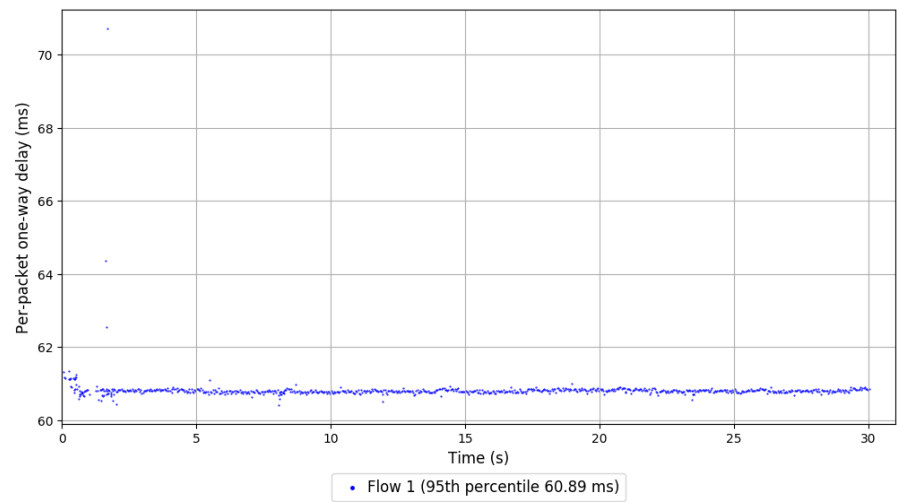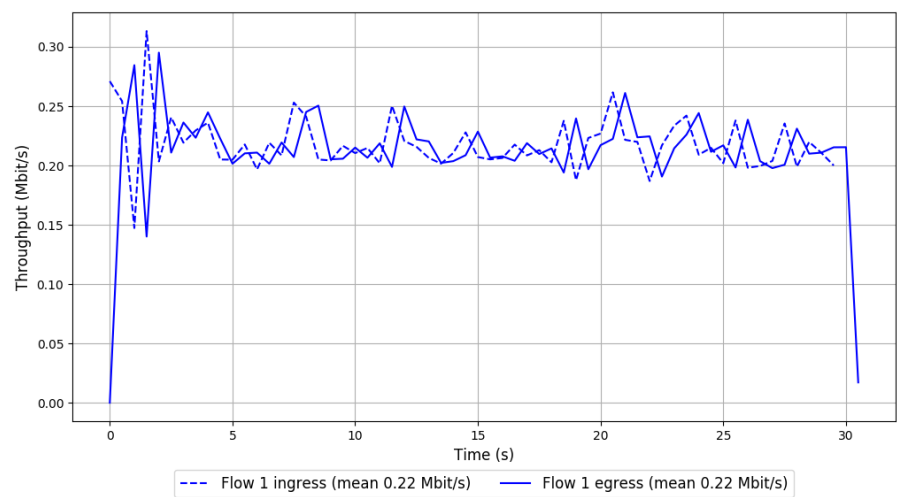
Run 3: Report of SCReAM — Data Link

```
Run 4: Statistics of SCReAM

Start at: 2018-10-26 01:27:46
End at: 2018-10-26 01:28:16
Local clock offset: 1.256 ms
Remote clock offset: -36.651 ms

# Below is generated by plot.py at 2018-10-26 02:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 61.737 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 61.737 ms
Loss rate: 0.00%
```
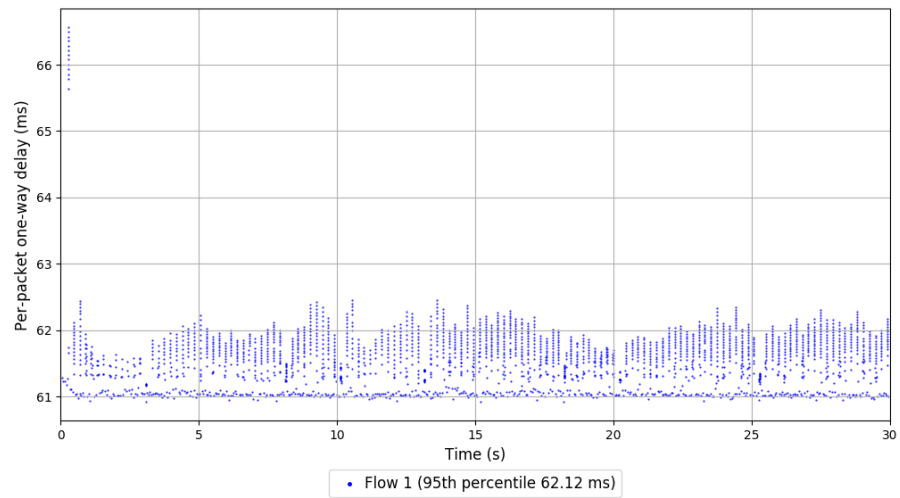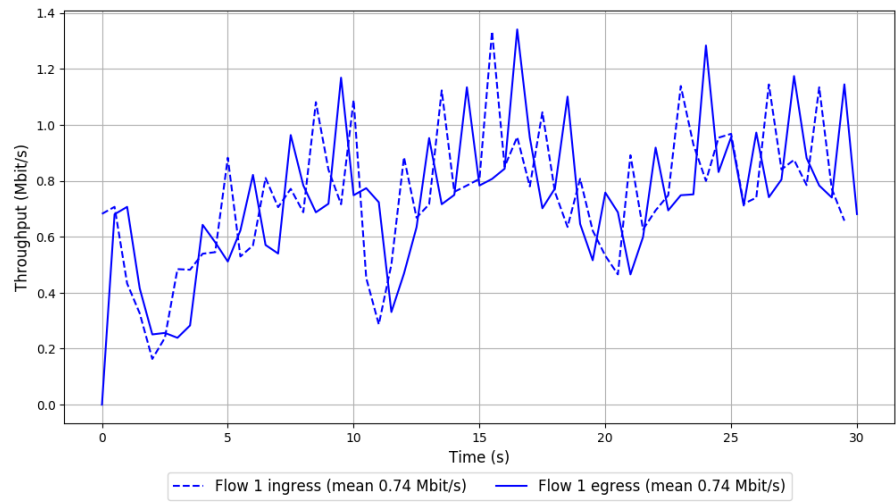
Run 4: Report of SCReAM — Data Link

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

Flow 1 (95th percentile 61.74 ms)

```
Run 5: Statistics of SCReAM

Start at: 2018-10-26 02:08:38
End at: 2018-10-26 02:09:08
Local clock offset: 2.469 ms
Remote clock offset: -36.85 ms


# Below is generated by plot.py at 2018-10-26 02:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.890 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.890 ms
Loss rate: 0.00%
```
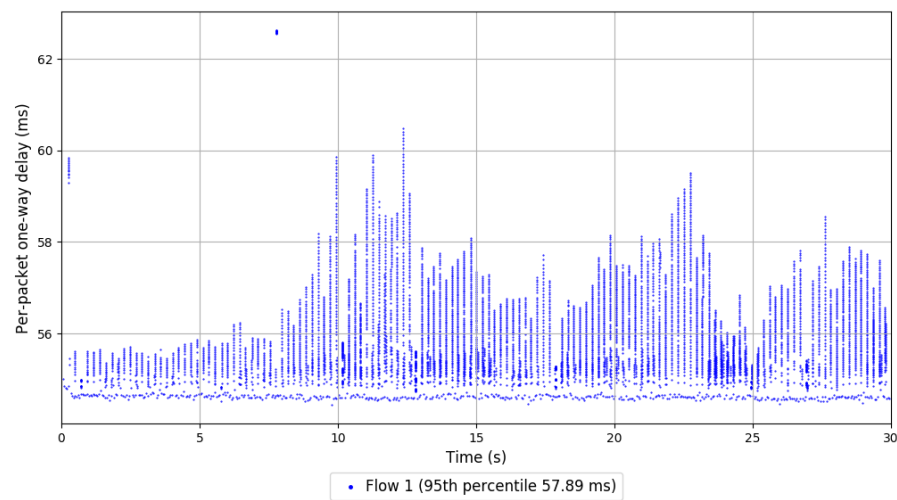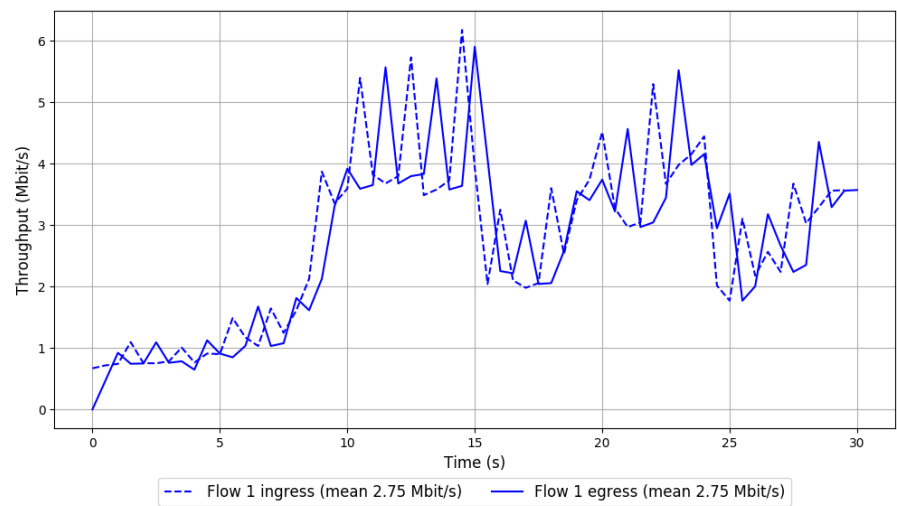
Run 5: Report of SCReAM — Data Link

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

Flow 1 (95th percentile 60.89 ms)

```
Run 1: Statistics of Sprout

Start at: 2018-10-25 23:56:11
End at: 2018-10-25 23:56:41
Local clock offset: 1.057 ms
Remote clock offset: -36.778 ms


# Below is generated by plot.py at 2018-10-26 02:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.74 Mbit/s
95th percentile per-packet one-way delay: 62.121 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.74 Mbit/s
95th percentile per-packet one-way delay: 62.121 ms
Loss rate: 0.00%
```

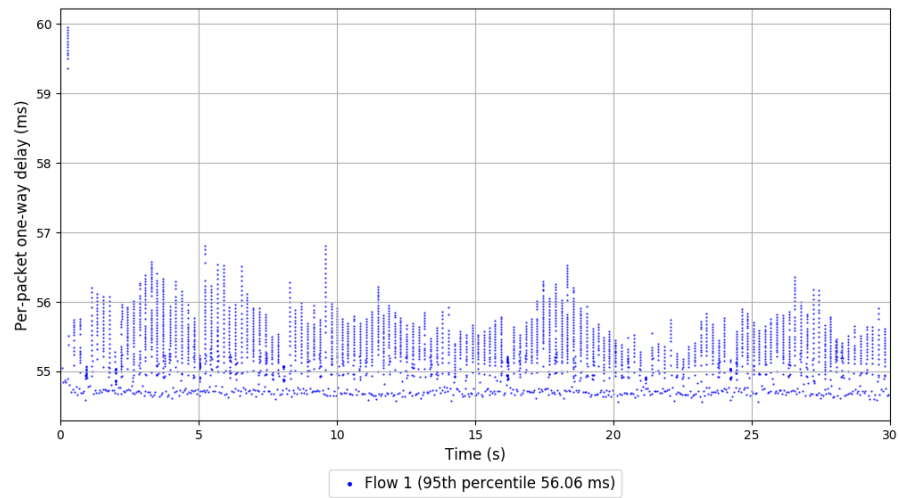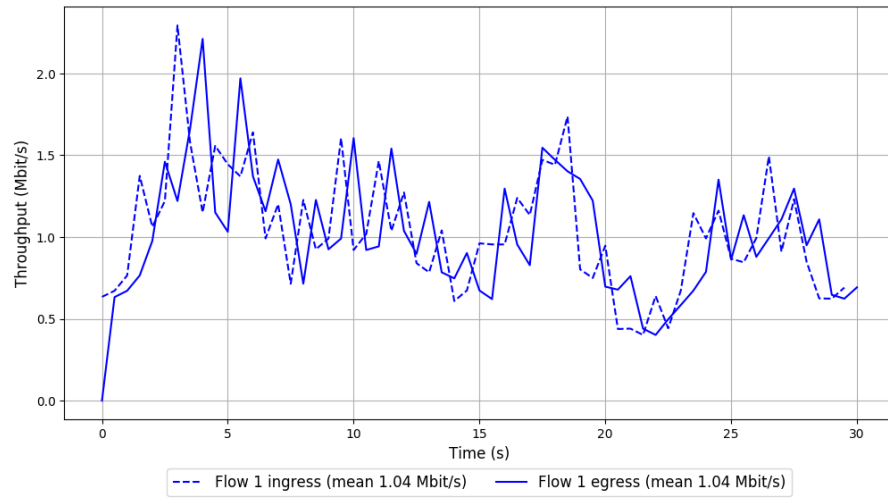Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2018-10-26 00:30:49
End at: 2018-10-26 00:31:19
Local clock offset: -0.147 ms
Remote clock offset: -42.623 ms


# Below is generated by plot.py at 2018-10-26 02:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.75 Mbit/s
95th percentile per-packet one-way delay: 57.886 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.75 Mbit/s
95th percentile per-packet one-way delay: 57.886 ms
Loss rate: 0.00%
```

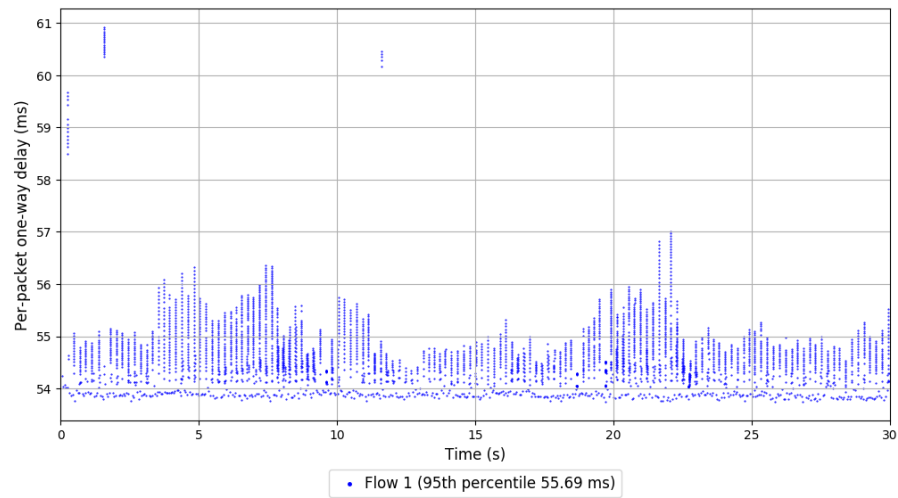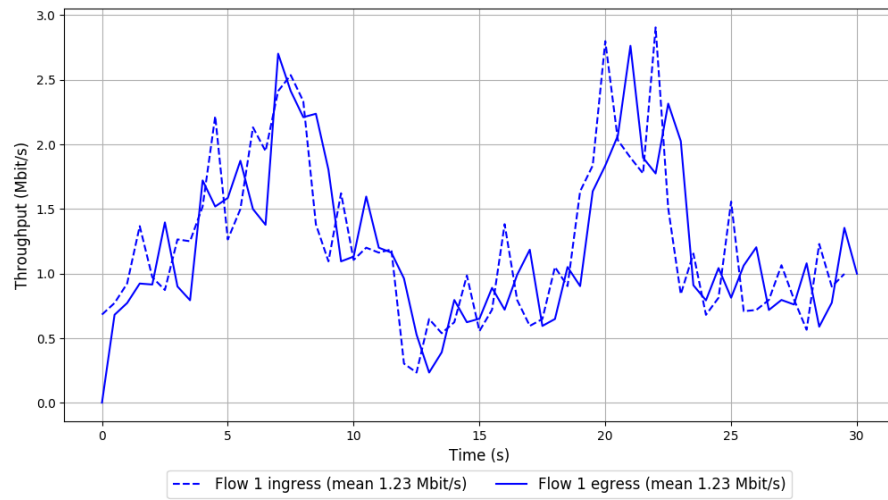Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2018-10-26 01:05:22
End at: 2018-10-26 01:05:52
Local clock offset: 1.135 ms
Remote clock offset: -42.293 ms


# Below is generated by plot.py at 2018-10-26 02:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.04 Mbit/s
95th percentile per-packet one-way delay: 56.065 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.04 Mbit/s
95th percentile per-packet one-way delay: 56.065 ms
Loss rate: 0.00%
```

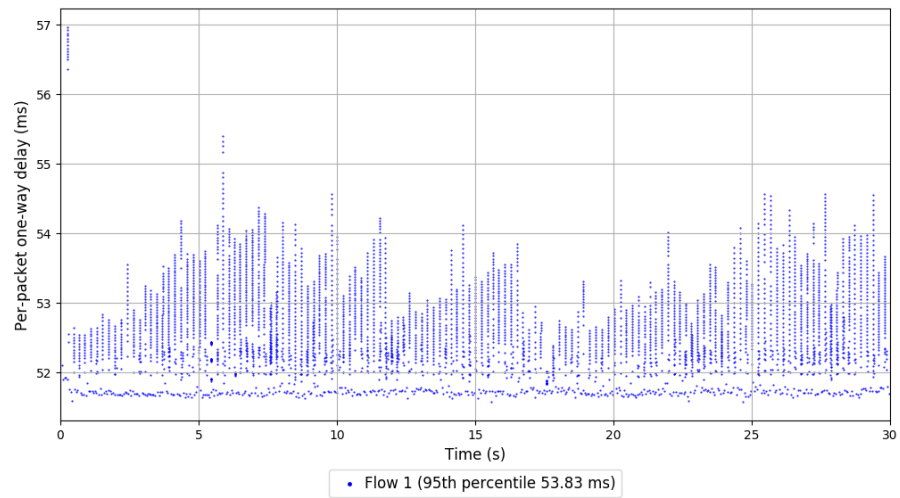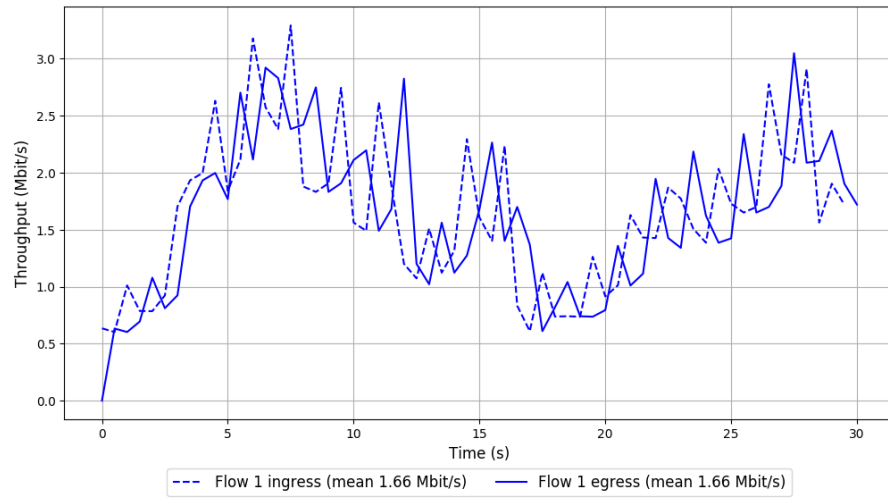Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2018-10-26 01:45:24
End at: 2018-10-26 01:45:54
Local clock offset: 1.174 ms
Remote clock offset: -41.345 ms


# Below is generated by plot.py at 2018-10-26 02:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.23 Mbit/s
95th percentile per-packet one-way delay: 55.686 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 1.23 Mbit/s
95th percentile per-packet one-way delay: 55.686 ms
Loss rate: 0.03%
```

Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2018-10-26 02:20:37
End at: 2018-10-26 02:21:07
Local clock offset: 2.957 ms
Remote clock offset: -42.94 ms


# Below is generated by plot.py at 2018-10-26 02:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.66 Mbit/s
95th percentile per-packet one-way delay: 53.828 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 1.66 Mbit/s
95th percentile per-packet one-way delay: 53.828 ms
Loss rate: 0.02%
```
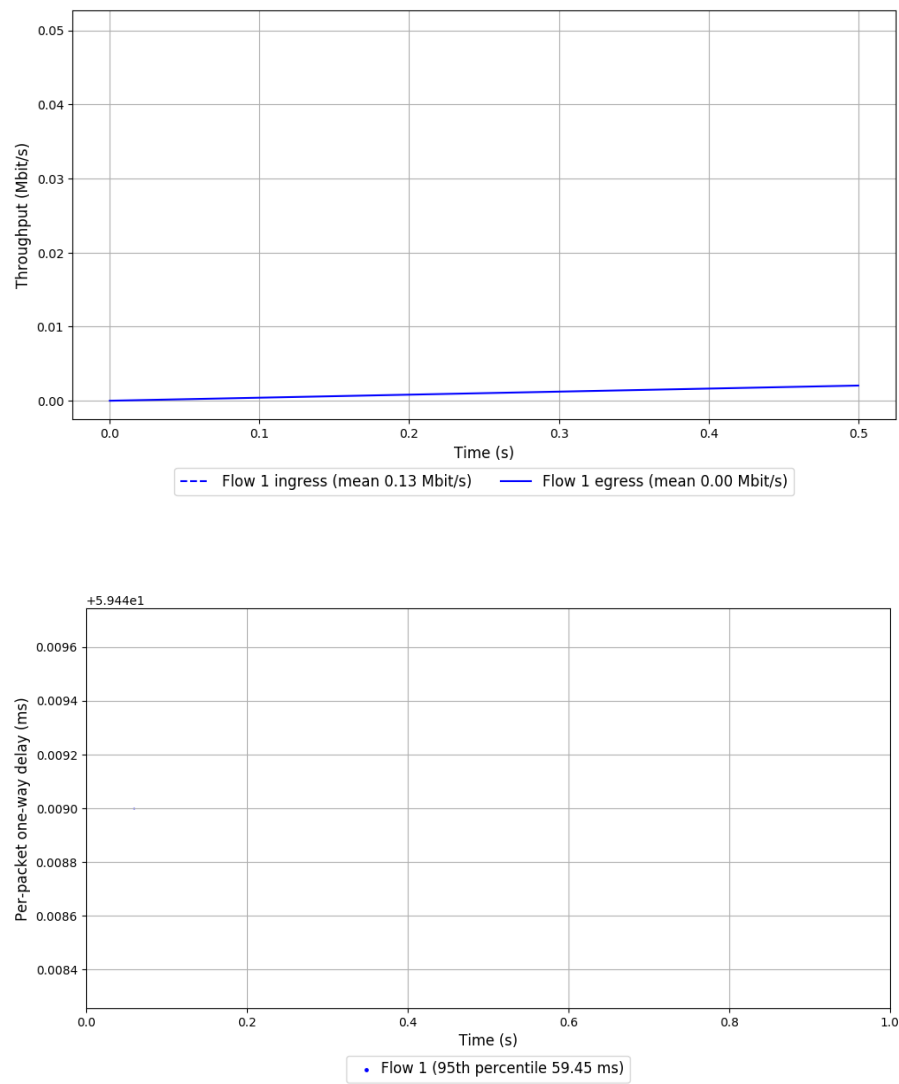
Run 5: Report of Sprout — Data Link

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

Start at: 2018-10-25 23:33:07
End at: 2018-10-25 23:33:37
Local clock offset: 2.383 ms
Remote clock offset: -39.595 ms
```

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

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

Start at: 2018-10-26 00:02:24
End at: 2018-10-26 00:02:54
Local clock offset: 0.112 ms
Remote clock offset: -39.376 ms
```
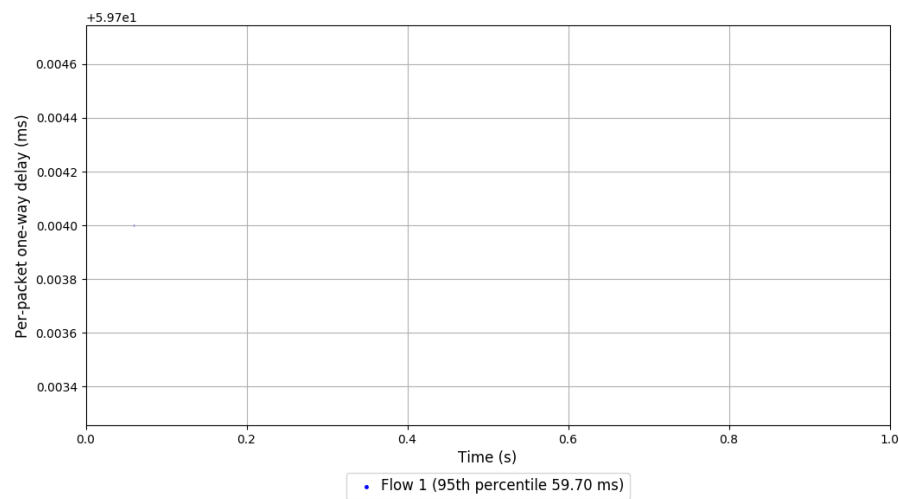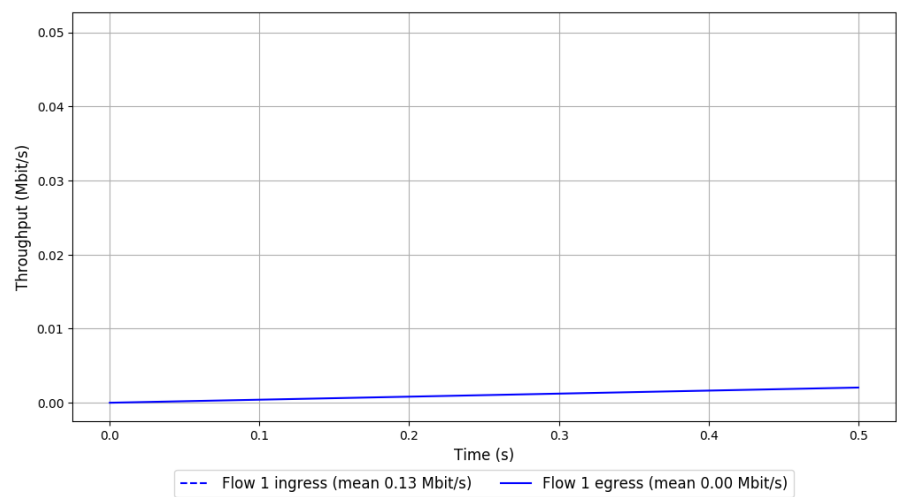
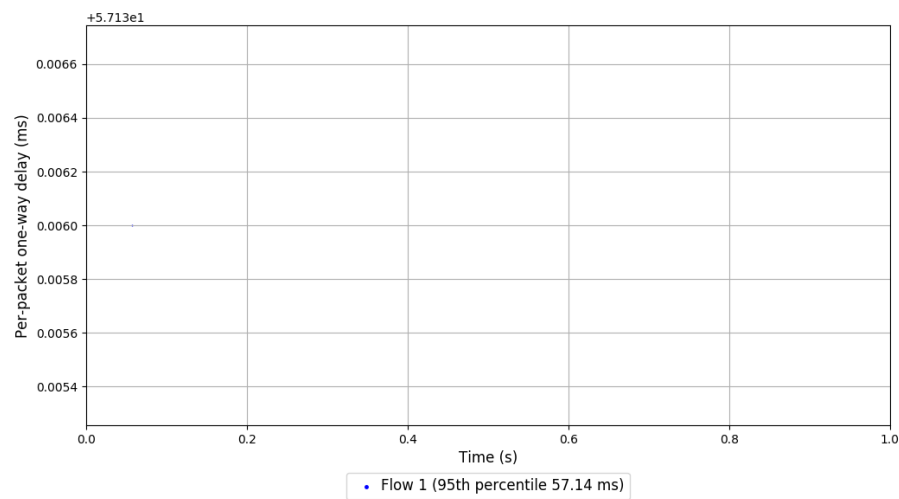# Run 2: Report of TaoVA-100x — Data Link

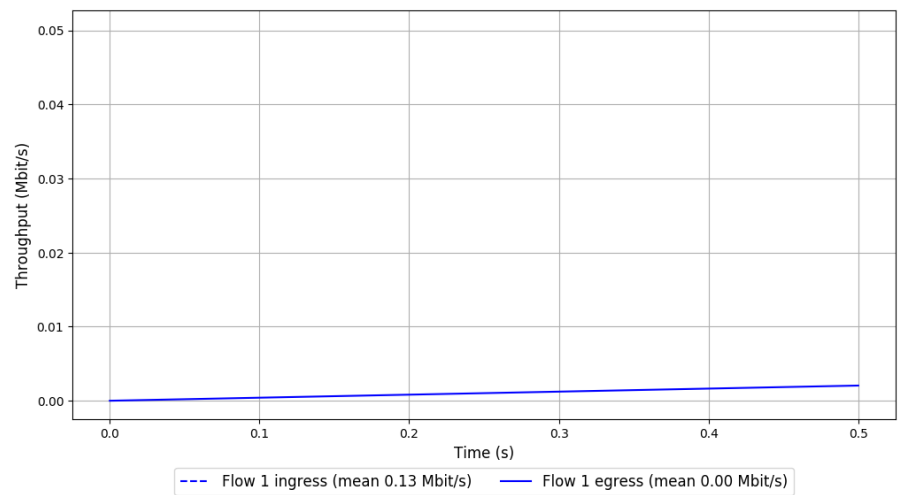
138

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

Start at: 2018-10-26 00:37:03
End at: 2018-10-26 00:37:33
Local clock offset: 0.38 ms
Remote clock offset: -41.025 ms
```

Run 3: Report of TaoVA-100x — Data Link
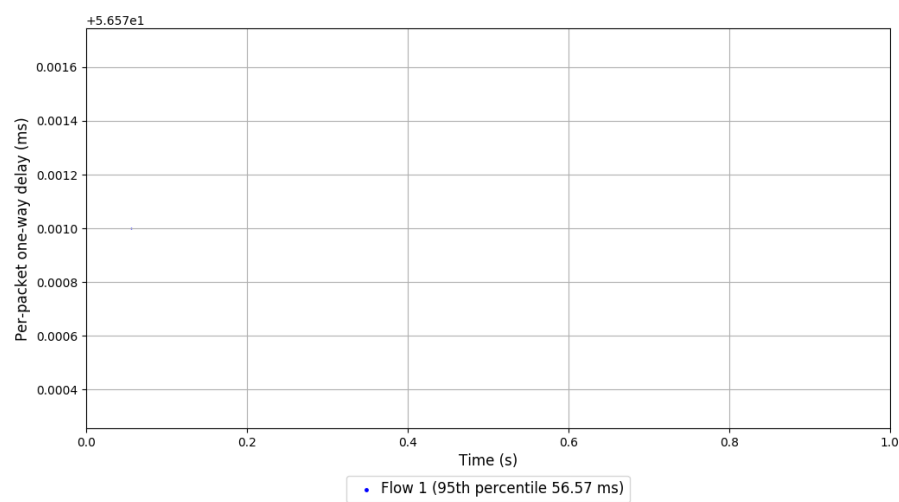
```
Run 4: Statistics of TaoVA-100x

Start at: 2018-10-26 01:11:34
End at: 2018-10-26 01:12:04
Local clock offset: 1.412 ms
Remote clock offset: -40.504 ms
```
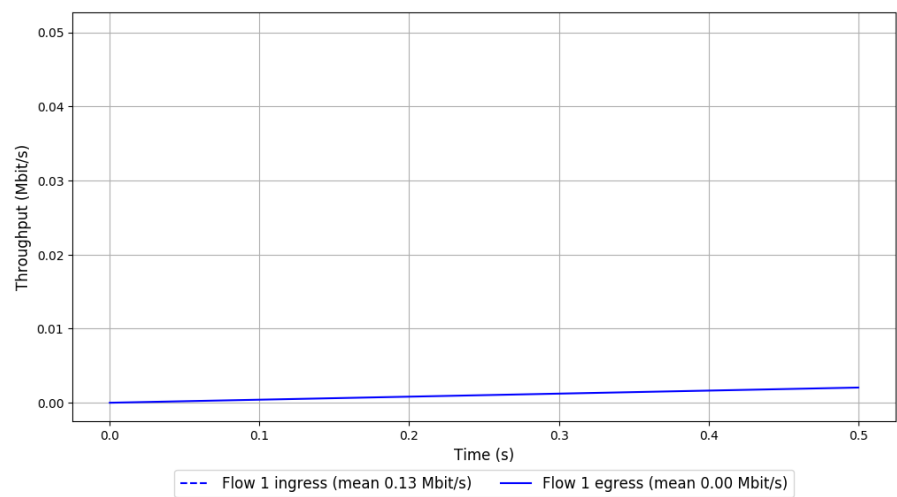
Run 4: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 0.13 Mbit/s) --- Flow 1 egress (mean 0.00 Mbit/s)

Flow 1 (95th percentile 56.57 ms)

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

Start at: 2018-10-26 01:51:34
End at: 2018-10-26 01:52:04
Local clock offset: 0.116 ms
Remote clock offset: -41.357 ms
```
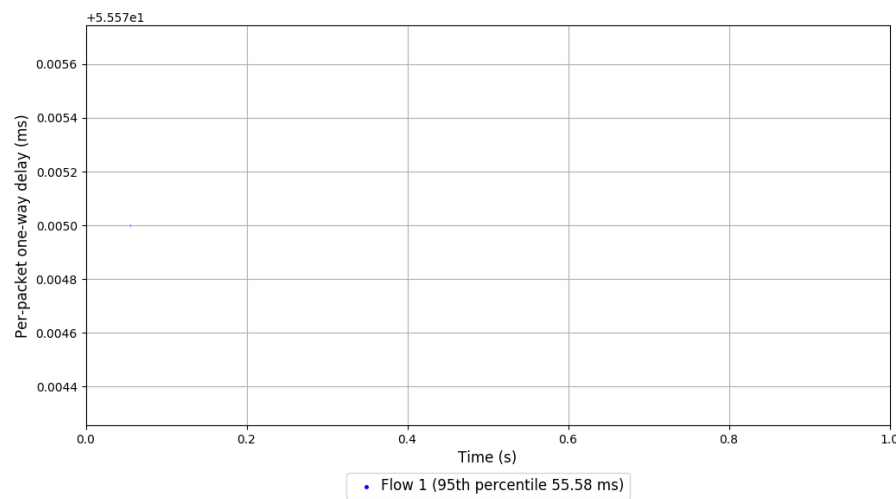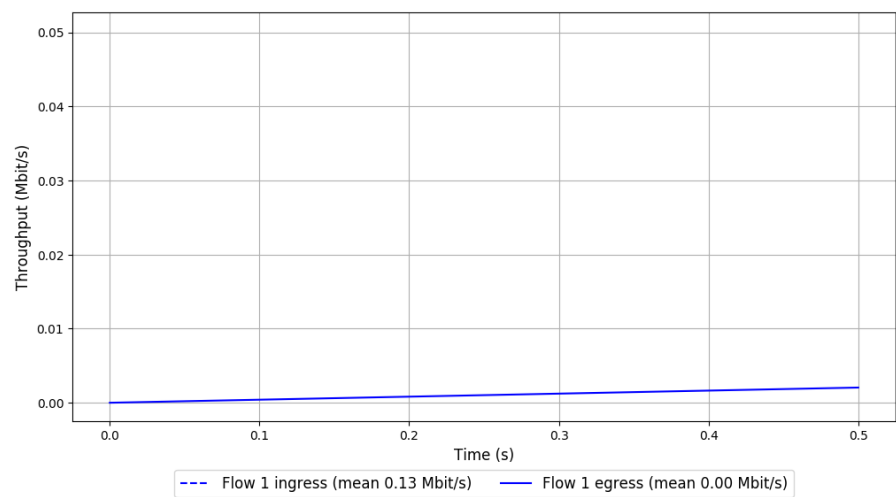
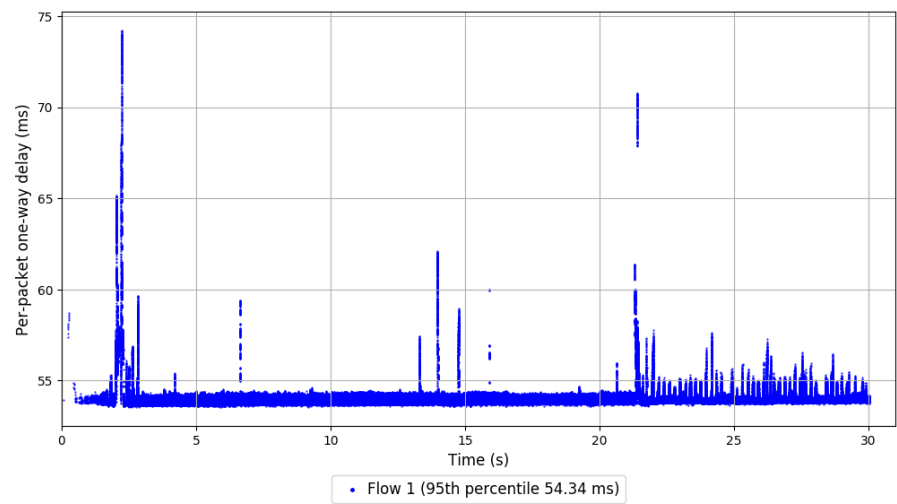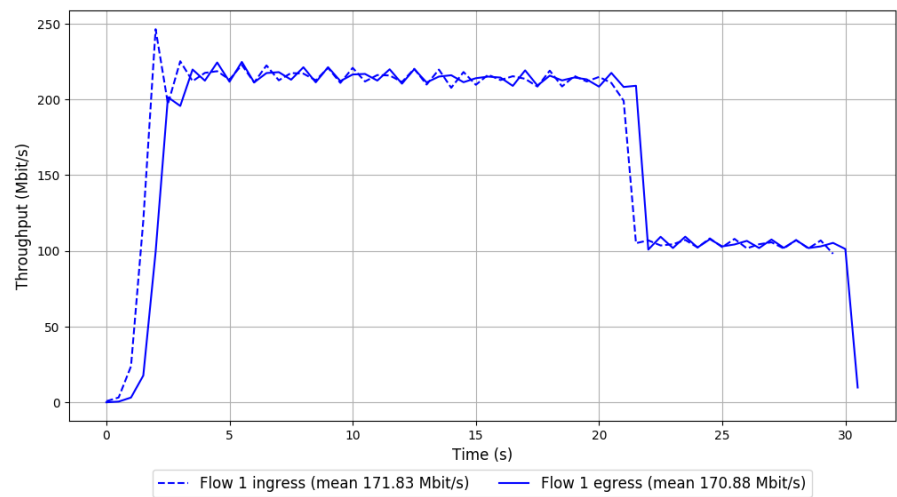## Run 5: Report of TaoVA-100x — Data Link

```
Run 1: Statistics of TCP Vegas

Start at: 2018-10-25 23:42:24
End at: 2018-10-25 23:42:54
Local clock offset: -1.271 ms
Remote clock offset: -46.851 ms


# Below is generated by plot.py at 2018-10-26 02:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 170.88 Mbit/s
95th percentile per-packet one-way delay: 54.336 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 170.88 Mbit/s
95th percentile per-packet one-way delay: 54.336 ms
Loss rate: 0.56%
```
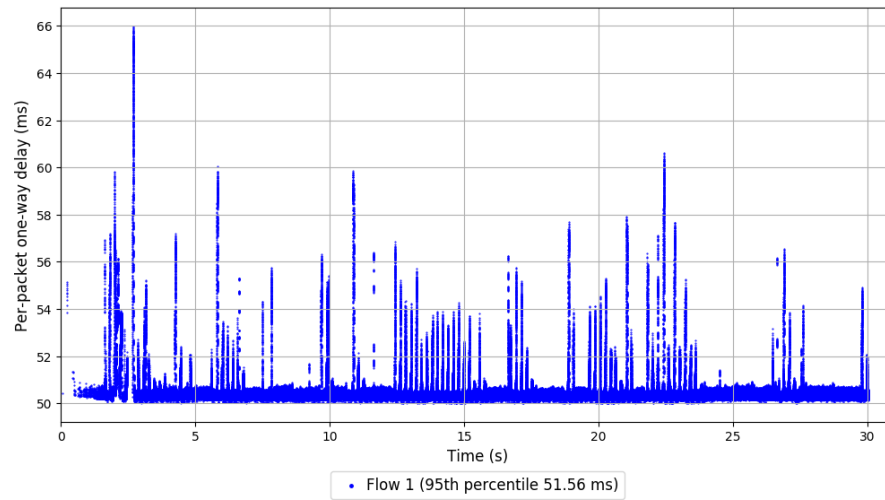
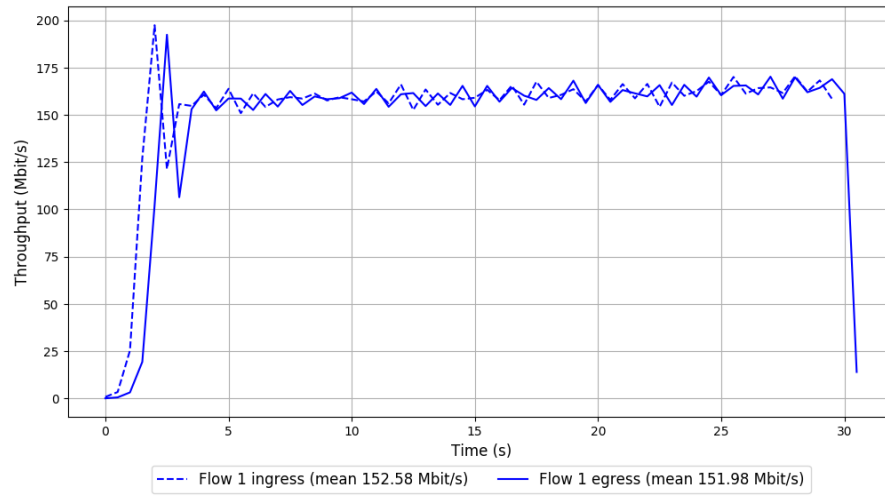Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2018-10-26 00:11:41
End at: 2018-10-26 00:12:11
Local clock offset: 1.12 ms
Remote clock offset: -47.776 ms


# Below is generated by plot.py at 2018-10-26 02:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 151.98 Mbit/s
95th percentile per-packet one-way delay: 51.565 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 151.98 Mbit/s
95th percentile per-packet one-way delay: 51.565 ms
Loss rate: 0.40%
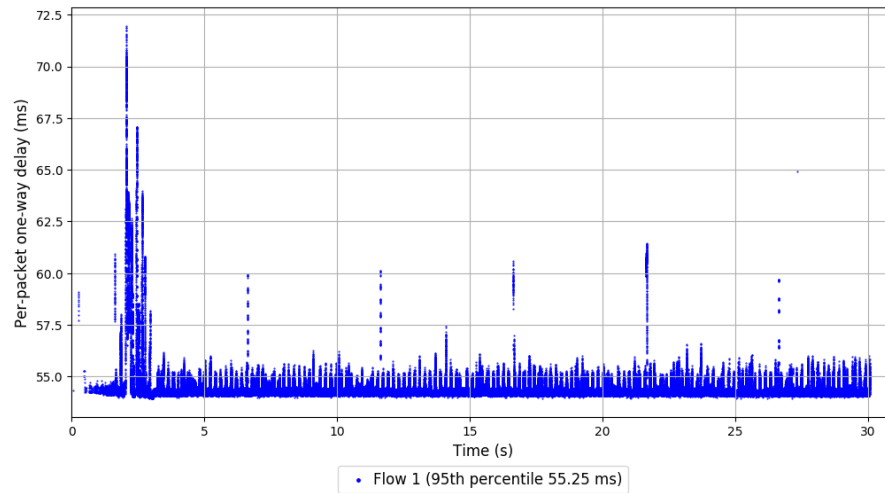```

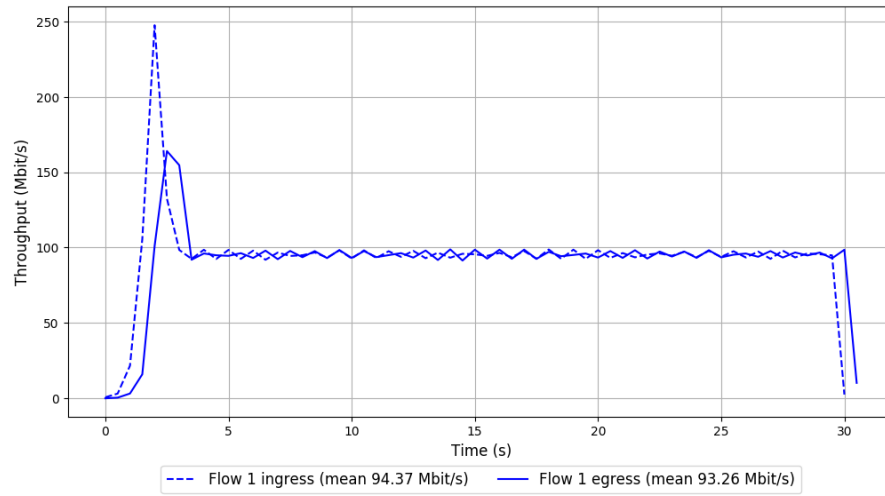Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2018-10-26 00:51:52
End at: 2018-10-26 00:52:22
Local clock offset: 0.781 ms
Remote clock offset: -46.293 ms


# Below is generated by plot.py at 2018-10-26 02:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 93.26 Mbit/s
95th percentile per-packet one-way delay: 55.253 ms
Loss rate: 1.18%
-- Flow 1:
Average throughput: 93.26 Mbit/s
95th percentile per-packet one-way delay: 55.253 ms
Loss rate: 1.18%
```

Run 3: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 94.37 Mbit/s) --- Flow 1 egress (mean 93.26 Mbit/s)
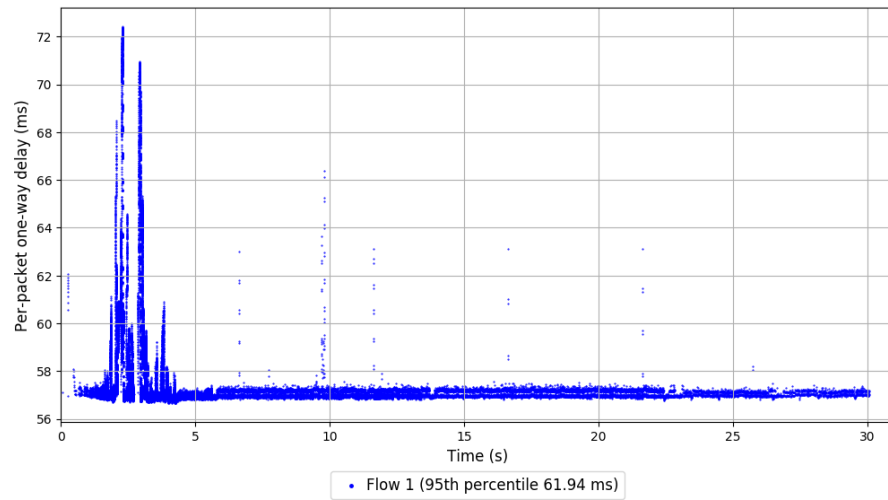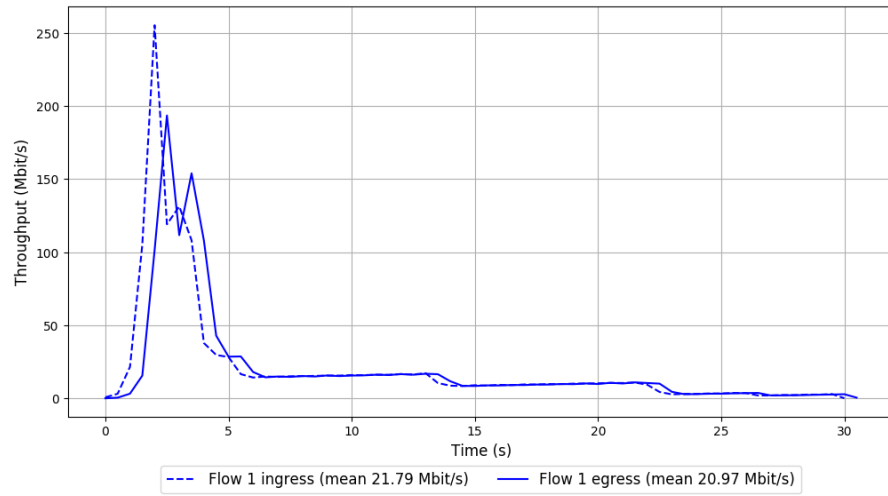

Flow 1 (95th percentile 55.25 ms)

```
Run 4: Statistics of TCP Vegas

Start at: 2018-10-26 01:26:31
End at: 2018-10-26 01:27:01
Local clock offset: 0.141 ms
Remote clock offset: -42.533 ms


# Below is generated by plot.py at 2018-10-26 02:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 20.97 Mbit/s
95th percentile per-packet one-way delay: 61.940 ms
Loss rate: 3.74%
-- Flow 1:
Average throughput: 20.97 Mbit/s
95th percentile per-packet one-way delay: 61.940 ms
Loss rate: 3.74%
```
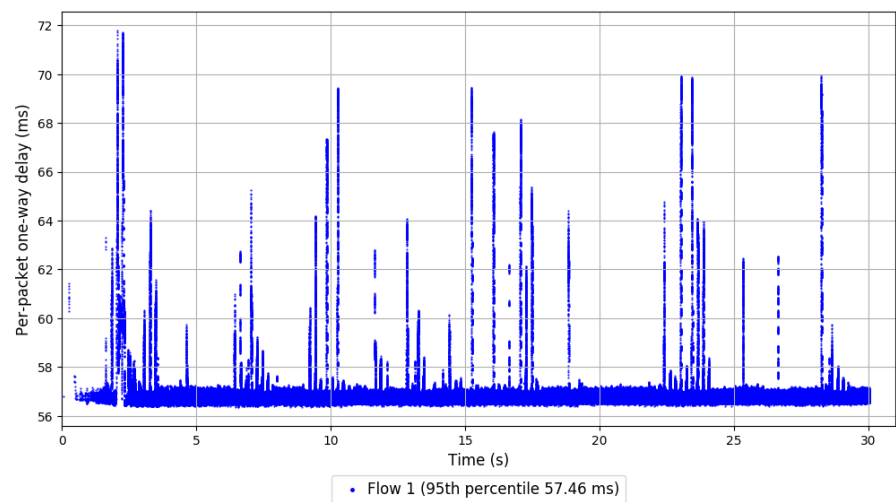
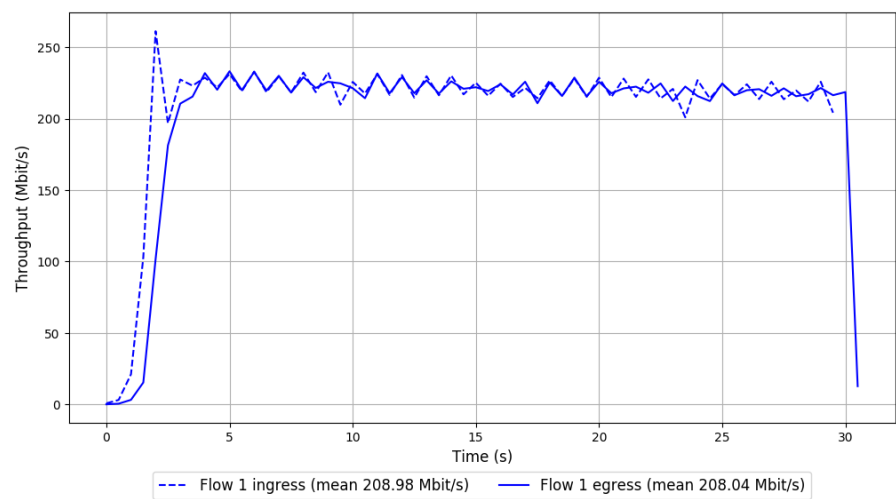Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2018-10-26 02:06:46
End at: 2018-10-26 02:07:16
Local clock offset: 2.929 ms
Remote clock offset: -40.312 ms


# Below is generated by plot.py at 2018-10-26 02:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 208.04 Mbit/s
95th percentile per-packet one-way delay: 57.459 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 208.04 Mbit/s
95th percentile per-packet one-way delay: 57.459 ms
Loss rate: 0.46%
```

Run 5: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 208.98 Mbit/s) — Flow 1 egress (mean 208.04 Mbit/s)
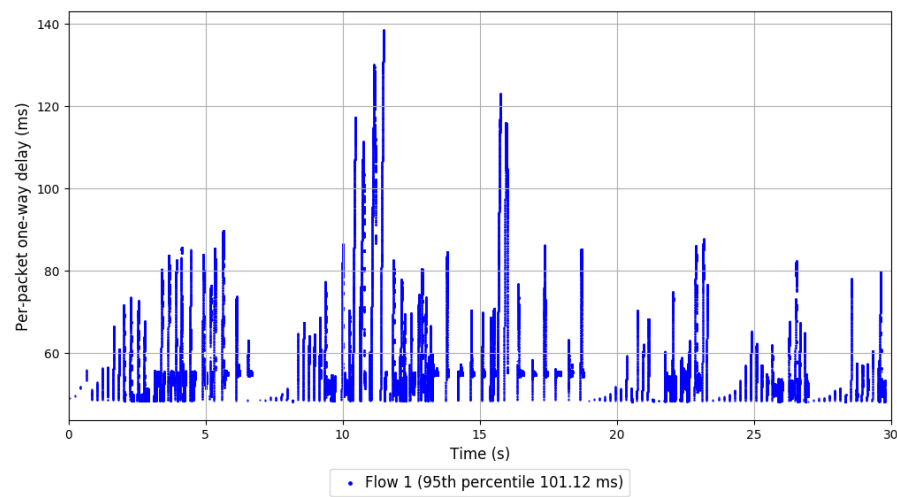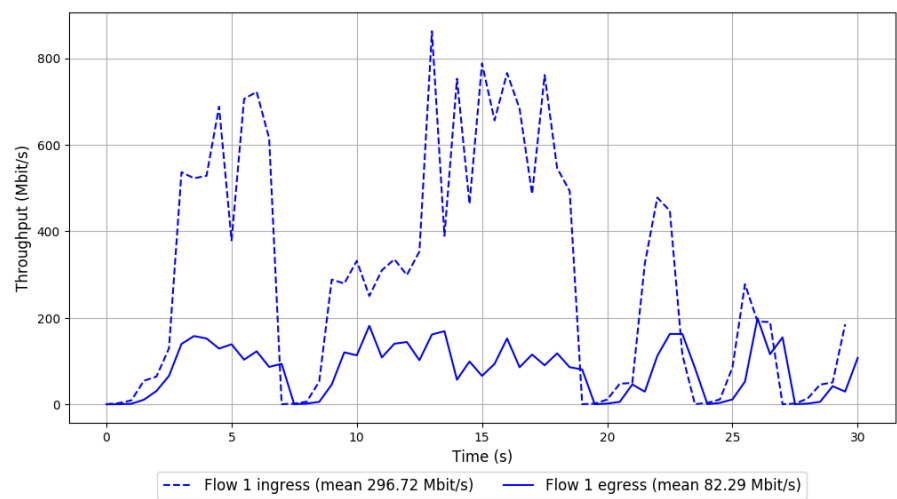

Flow 1 (95th percentile 57.46 ms)

```
Run 1: Statistics of Verus

Start at: 2018-10-25 23:38:40
End at: 2018-10-25 23:39:10
Local clock offset: 0.255 ms
Remote clock offset: -49.101 ms


# Below is generated by plot.py at 2018-10-26 02:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 82.29 Mbit/s
95th percentile per-packet one-way delay: 101.119 ms
Loss rate: 72.26%
-- Flow 1:
Average throughput: 82.29 Mbit/s
95th percentile per-packet one-way delay: 101.119 ms
Loss rate: 72.26%
```

Run 1: Report of Verus — Data Link

Flow 1 ingress (mean 296.72 Mbit/s)   Flow 1 egress (mean 82.29 Mbit/s)

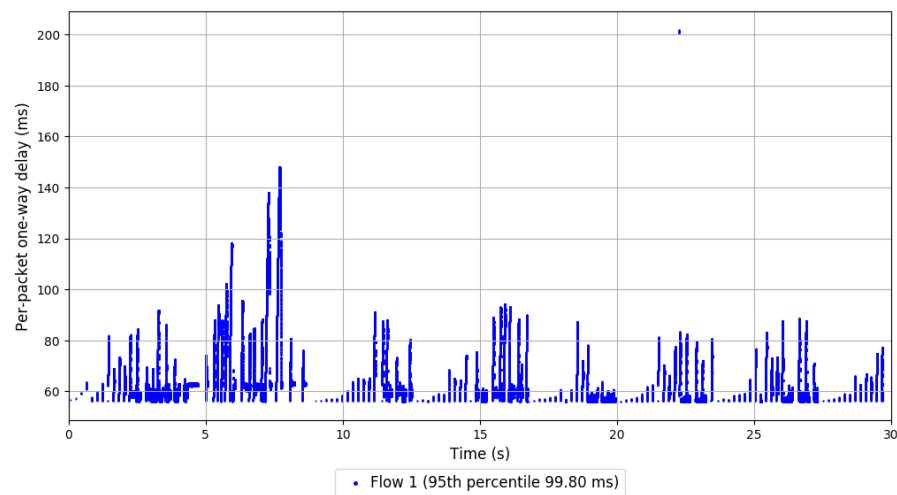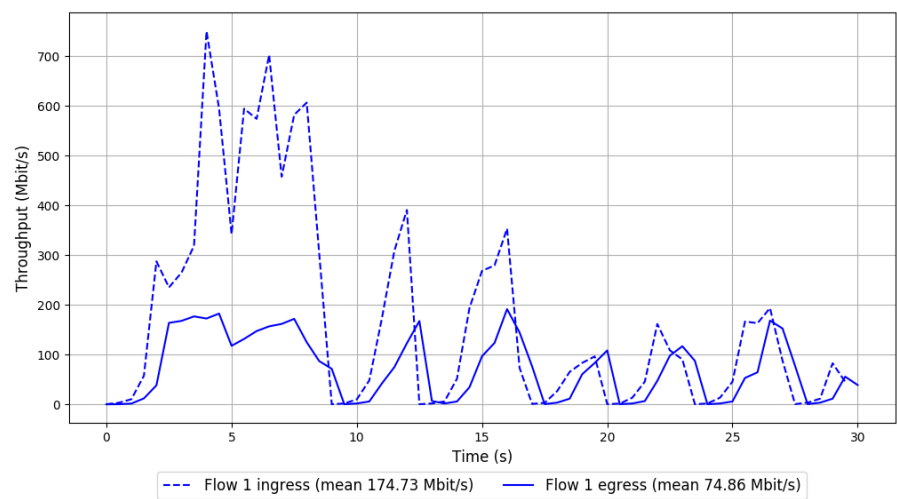Flow 1 (95th percentile 101.12 ms)

```
Run 2: Statistics of Verus

Start at: 2018-10-26 00:08:02
End at: 2018-10-26 00:08:32
Local clock offset: -1.876 ms
Remote clock offset: -44.378 ms


# Below is generated by plot.py at 2018-10-26 02:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 74.86 Mbit/s
95th percentile per-packet one-way delay: 99.799 ms
Loss rate: 57.16%
-- Flow 1:
Average throughput: 74.86 Mbit/s
95th percentile per-packet one-way delay: 99.799 ms
Loss rate: 57.16%
```
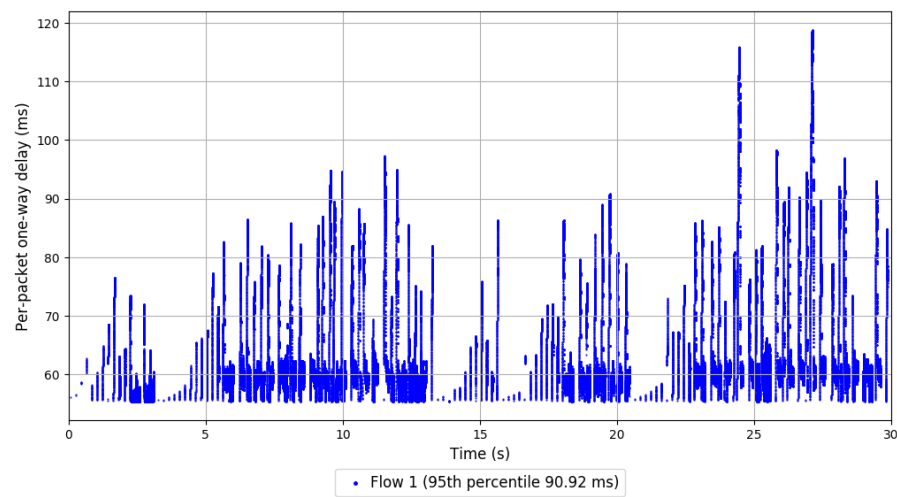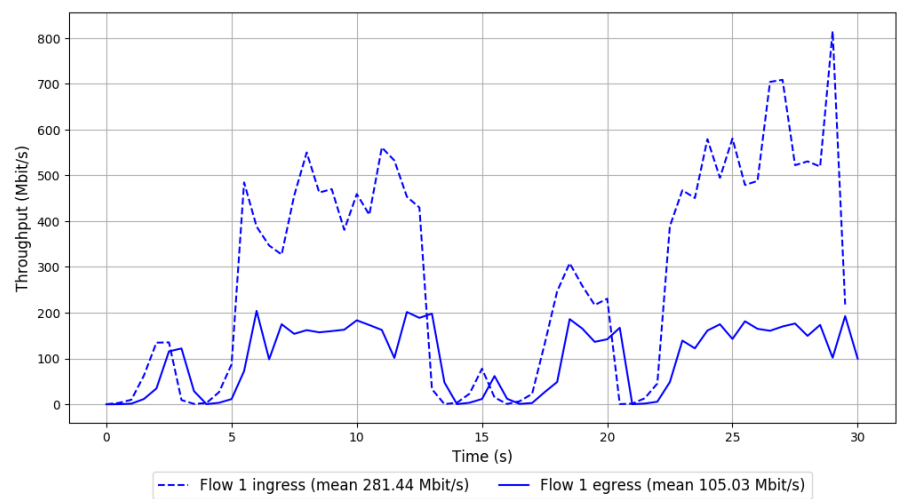
Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-10-26 00:42:35
End at: 2018-10-26 00:43:05
Local clock offset: 1.586 ms
Remote clock offset: -44.431 ms


# Below is generated by plot.py at 2018-10-26 02:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 105.03 Mbit/s
95th percentile per-packet one-way delay: 90.921 ms
Loss rate: 62.66%
-- Flow 1:
Average throughput: 105.03 Mbit/s
95th percentile per-packet one-way delay: 90.921 ms
Loss rate: 62.66%
```
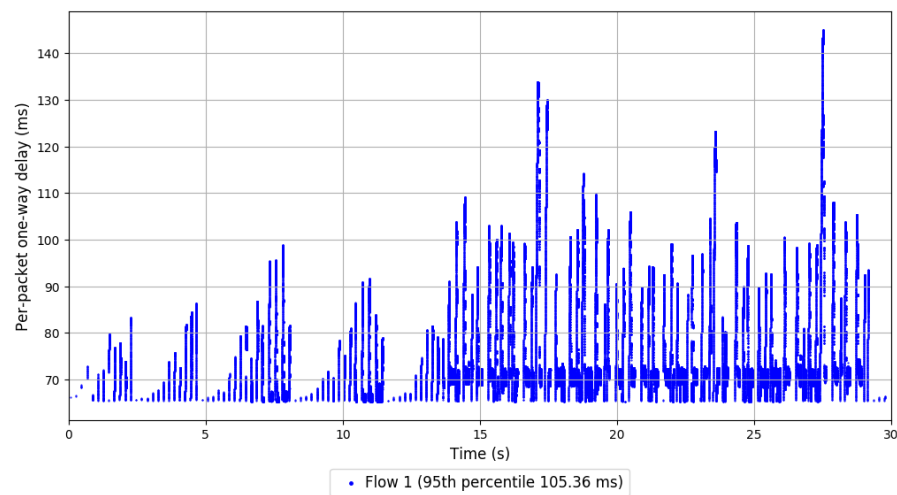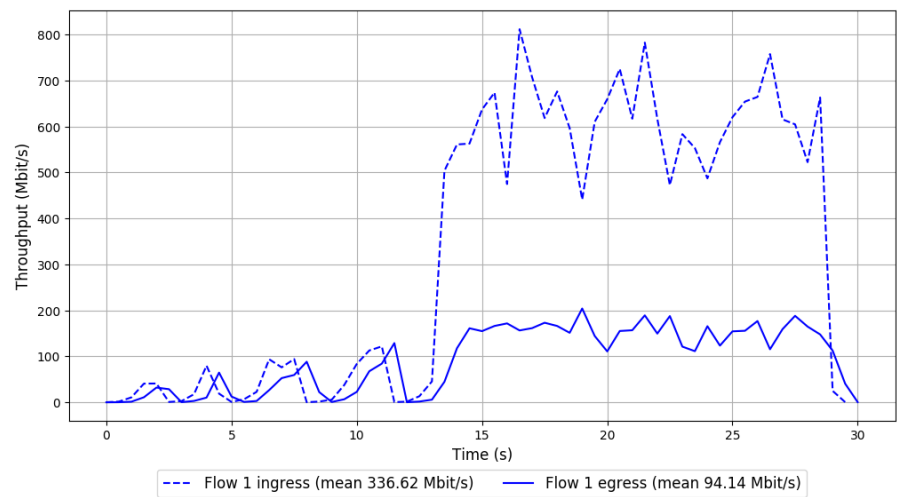
Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2018-10-26 01:22:49
End at: 2018-10-26 01:23:19
Local clock offset: -1.028 ms
Remote clock offset: -35.54 ms


# Below is generated by plot.py at 2018-10-26 02:47:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 94.14 Mbit/s
95th percentile per-packet one-way delay: 105.360 ms
Loss rate: 72.03%
-- Flow 1:
Average throughput: 94.14 Mbit/s
95th percentile per-packet one-way delay: 105.360 ms
Loss rate: 72.03%
```
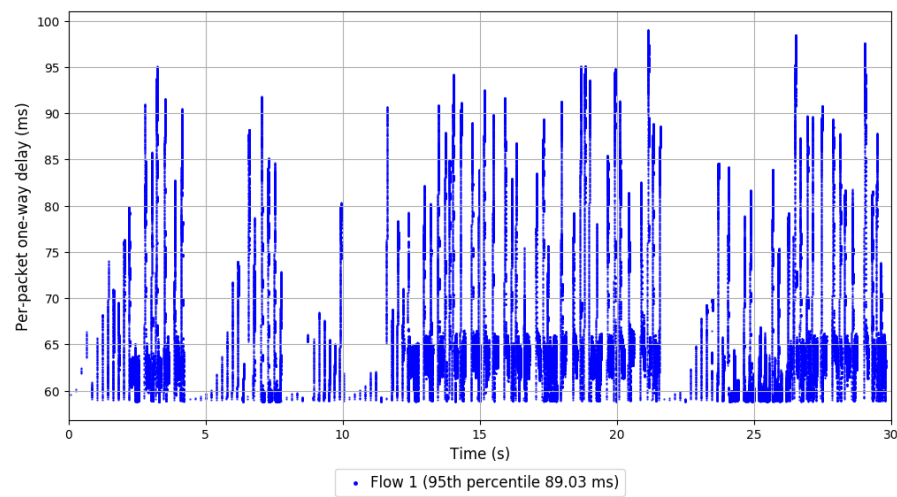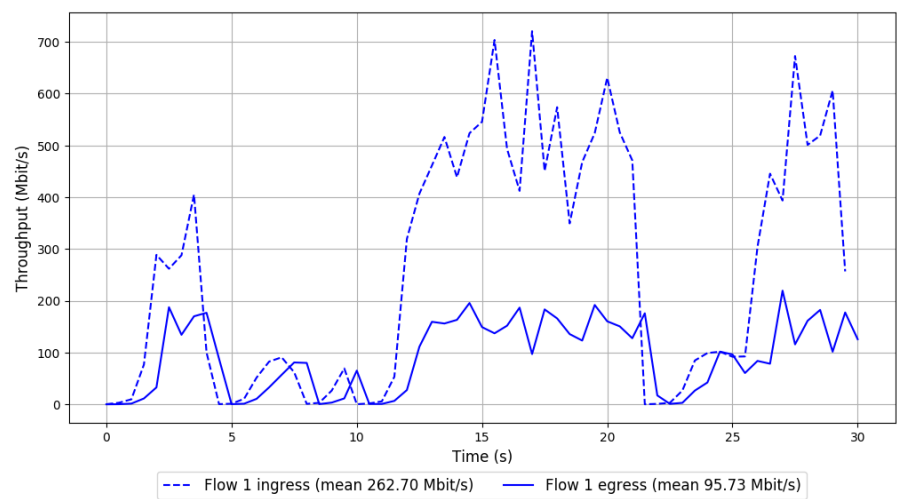
Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2018-10-26 02:02:59
End at: 2018-10-26 02:03:30
Local clock offset: 0.32 ms
Remote clock offset: -37.664 ms


# Below is generated by plot.py at 2018-10-26 02:47:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 95.73 Mbit/s
95th percentile per-packet one-way delay: 89.033 ms
Loss rate: 63.55%
-- Flow 1:
Average throughput: 95.73 Mbit/s
95th percentile per-packet one-way delay: 89.033 ms
Loss rate: 63.55%
```
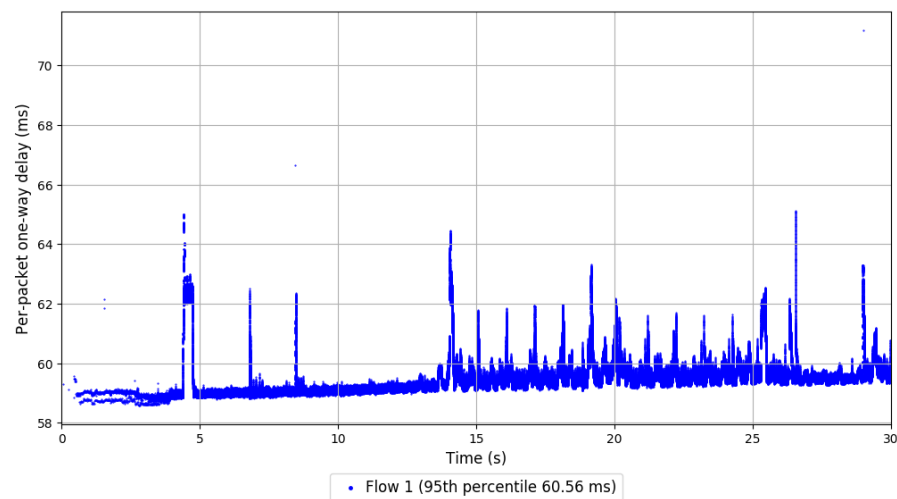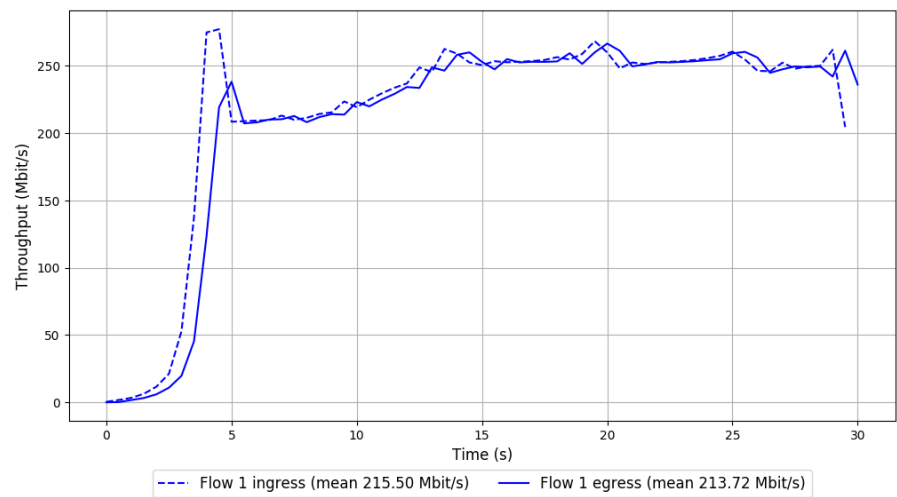
Run 5: Report of Verus — Data Link

```
Run 1: Statistics of PCC-Vivace

Start at: 2018-10-25 23:40:14
End at: 2018-10-25 23:40:44
Local clock offset: -0.115 ms
Remote clock offset: -38.924 ms


# Below is generated by plot.py at 2018-10-26 02:47:48
# Datalink statistics
-- Total of 1 flow:
Average throughput: 213.72 Mbit/s
95th percentile per-packet one-way delay: 60.562 ms
Loss rate: 0.83%
-- Flow 1:
Average throughput: 213.72 Mbit/s
95th percentile per-packet one-way delay: 60.562 ms
Loss rate: 0.83%
```

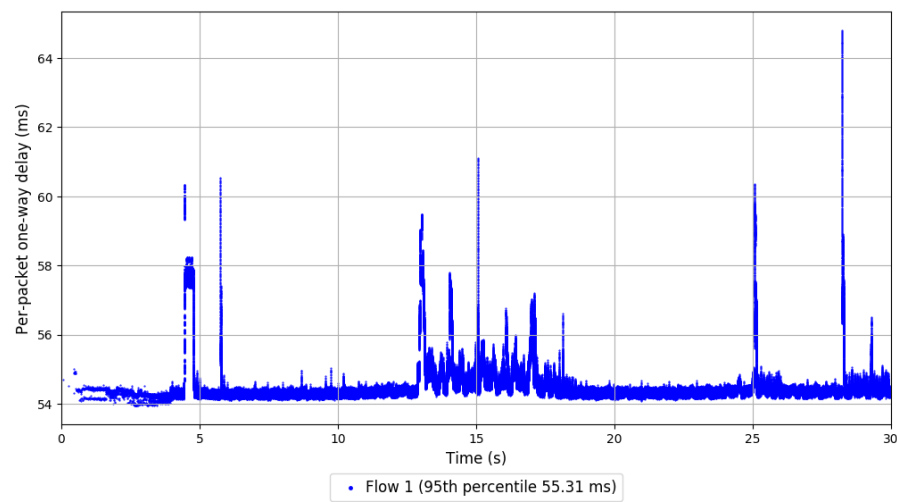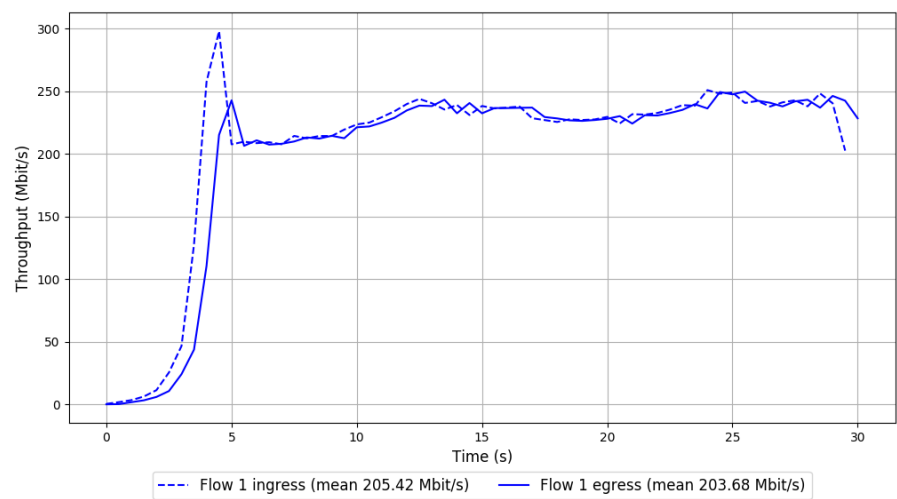Run 1: Report of PCC-Vivace — Data Link

```
Run 2: Statistics of PCC-Vivace

Start at: 2018-10-26 00:09:33
End at: 2018-10-26 00:10:03
Local clock offset: 0.048 ms
Remote clock offset: -44.113 ms


# Below is generated by plot.py at 2018-10-26 02:48:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 203.68 Mbit/s
95th percentile per-packet one-way delay: 55.309 ms
Loss rate: 0.85%
-- Flow 1:
Average throughput: 203.68 Mbit/s
95th percentile per-packet one-way delay: 55.309 ms
Loss rate: 0.85%
```

Run 2: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 205.42 Mbit/s)   Flow 1 egress (mean 203.68 Mbit/s)
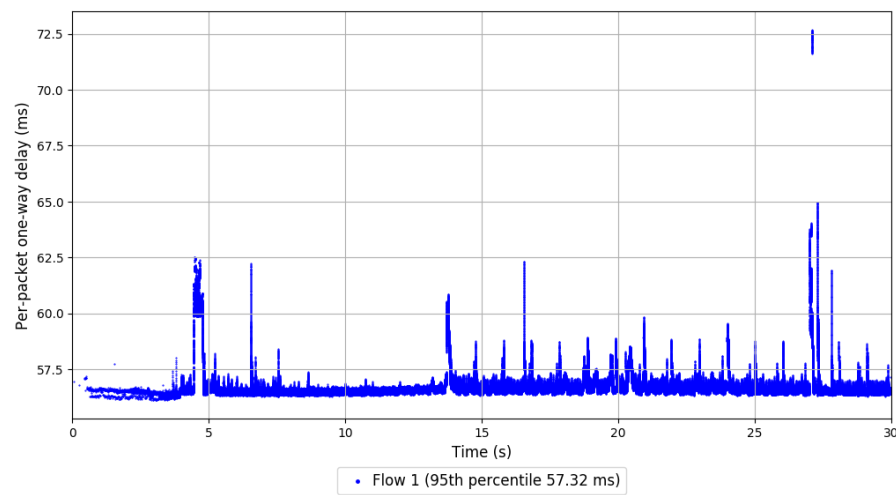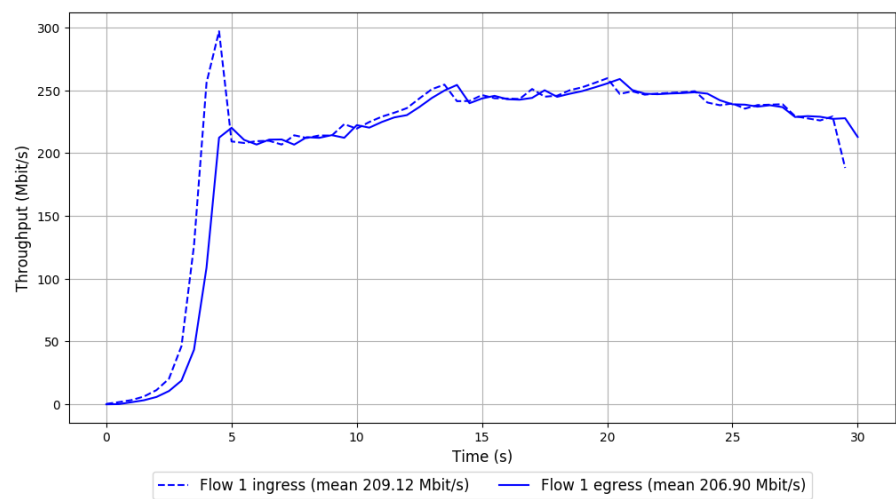

Flow 1 (95th percentile 55.31 ms)

```
Run 3: Statistics of PCC-Vivace

Start at: 2018-10-26 00:44:16
End at: 2018-10-26 00:44:46
Local clock offset: 2.473 ms
Remote clock offset: -42.435 ms


# Below is generated by plot.py at 2018-10-26 02:48:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 206.90 Mbit/s
95th percentile per-packet one-way delay: 57.318 ms
Loss rate: 1.07%
-- Flow 1:
Average throughput: 206.90 Mbit/s
95th percentile per-packet one-way delay: 57.318 ms
Loss rate: 1.07%
```

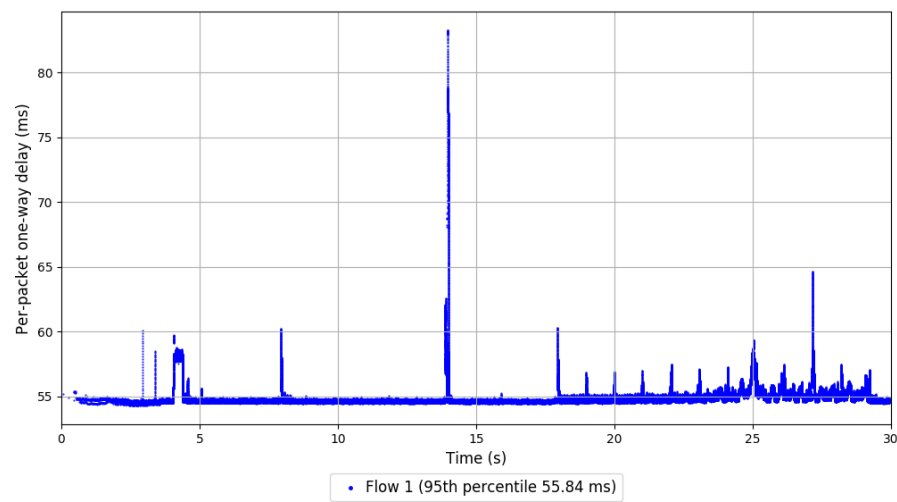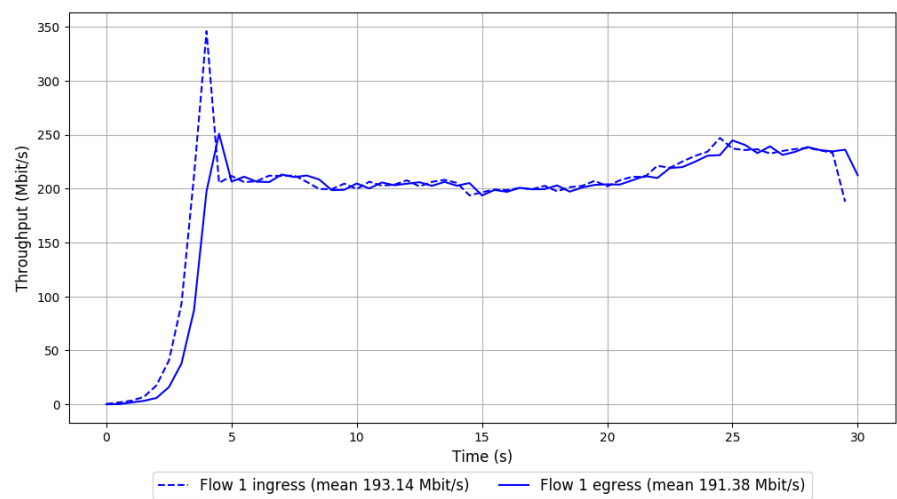Run 3: Report of PCC-Vivace — Data Link

```
Run 4: Statistics of PCC-Vivace

Start at: 2018-10-26 01:24:27
End at: 2018-10-26 01:24:57
Local clock offset: 1.286 ms
Remote clock offset: -41.192 ms


# Below is generated by plot.py at 2018-10-26 02:48:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 191.38 Mbit/s
95th percentile per-packet one-way delay: 55.845 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 191.38 Mbit/s
95th percentile per-packet one-way delay: 55.845 ms
Loss rate: 0.91%
```

Run 4: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 193.14 Mbit/s) —— Flow 1 egress (mean 191.38 Mbit/s)

• Flow 1 (95th percentile 55.84 ms)

```
Run 5: Statistics of PCC-Vivace

Start at: 2018-10-26 02:04:37
End at: 2018-10-26 02:05:07
Local clock offset: 2.471 ms
Remote clock offset: -46.3 ms


# Below is generated by plot.py at 2018-10-26 02:48:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 208.81 Mbit/s
95th percentile per-packet one-way delay: 50.716 ms
Loss rate: 0.81%
-- Flow 1:
Average throughput: 208.81 Mbit/s
95th percentile per-packet one-way delay: 50.716 ms
Loss rate: 0.81%
```
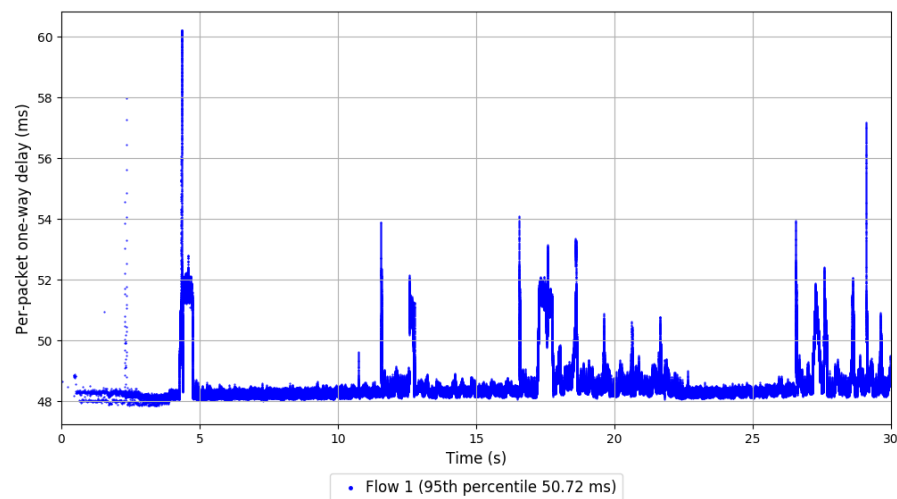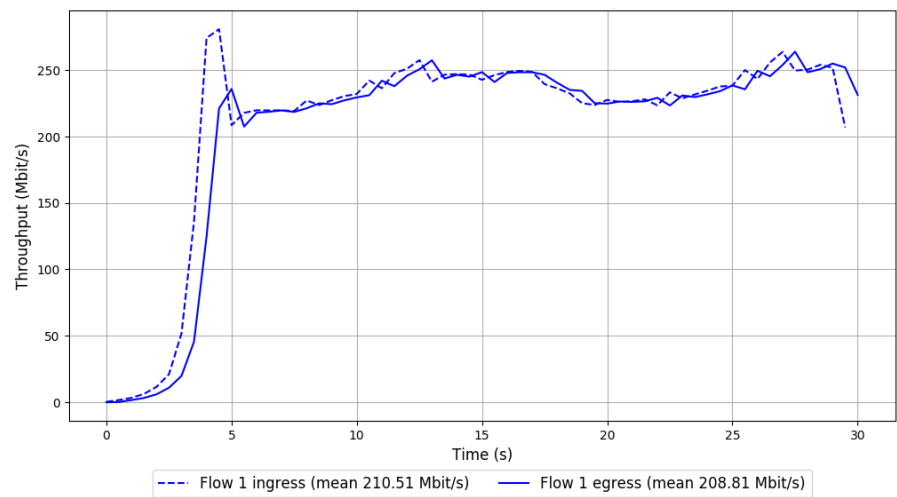
Run 5: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 210.51 Mbit/s) — Flow 1 egress (mean 208.81 Mbit/s)
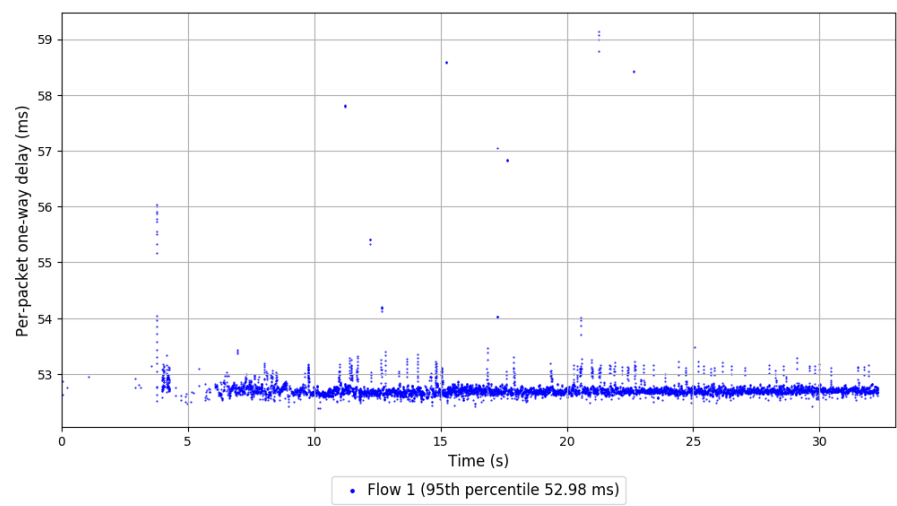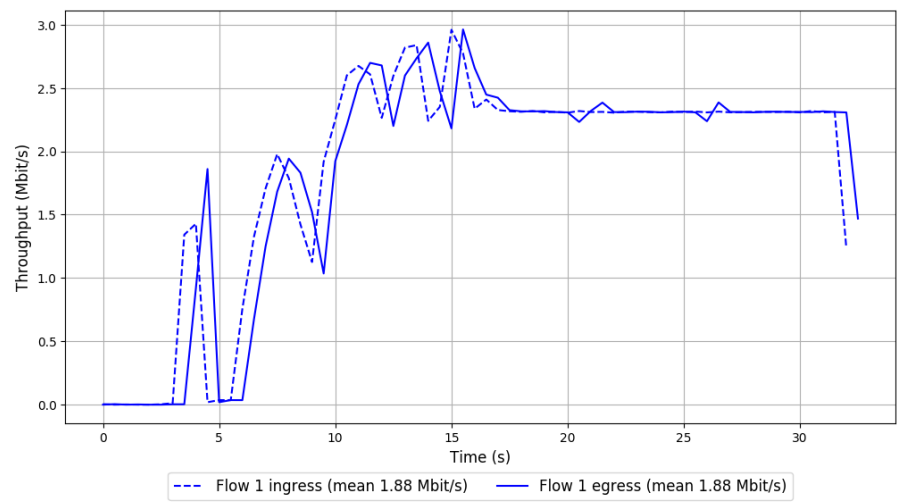

Flow 1 (95th percentile 50.72 ms)

```
Run 1: Statistics of WebRTC media

Start at: 2018-10-26 00:01:13
End at: 2018-10-26 00:01:43
Local clock offset: -0.031 ms
Remote clock offset: -45.88 ms


# Below is generated by plot.py at 2018-10-26 02:48:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.88 Mbit/s
95th percentile per-packet one-way delay: 52.985 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.88 Mbit/s
95th percentile per-packet one-way delay: 52.985 ms
Loss rate: 0.00%
```

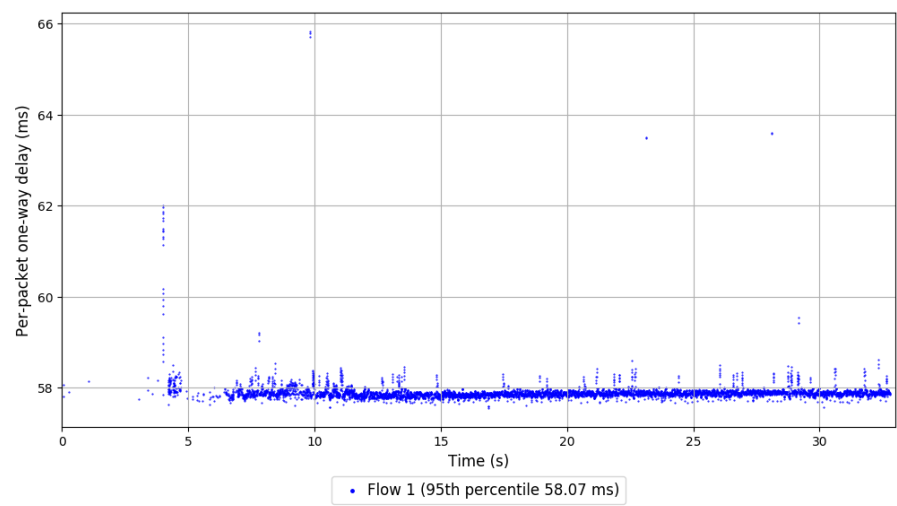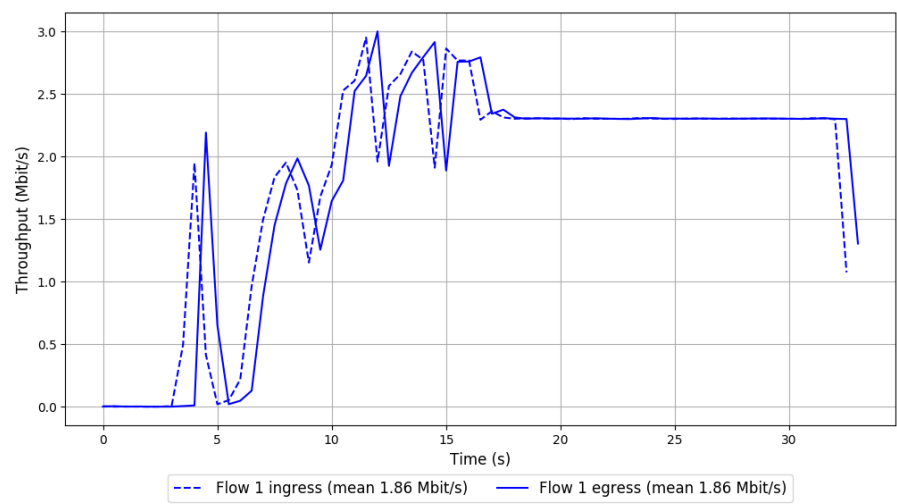Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2018-10-26 00:35:53
End at: 2018-10-26 00:36:23
Local clock offset: -2.343 ms
Remote clock offset: -43.044 ms


# Below is generated by plot.py at 2018-10-26 02:48:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.86 Mbit/s
95th percentile per-packet one-way delay: 58.073 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.86 Mbit/s
95th percentile per-packet one-way delay: 58.073 ms
Loss rate: 0.00%
```

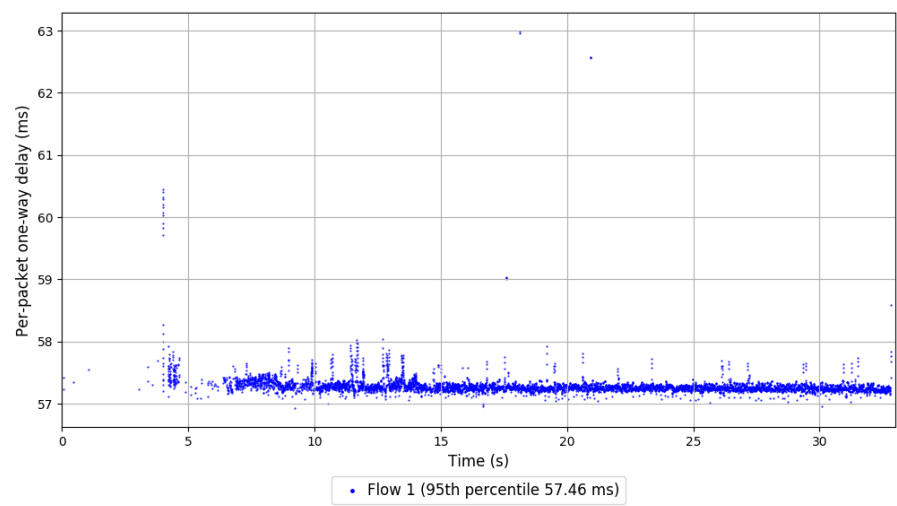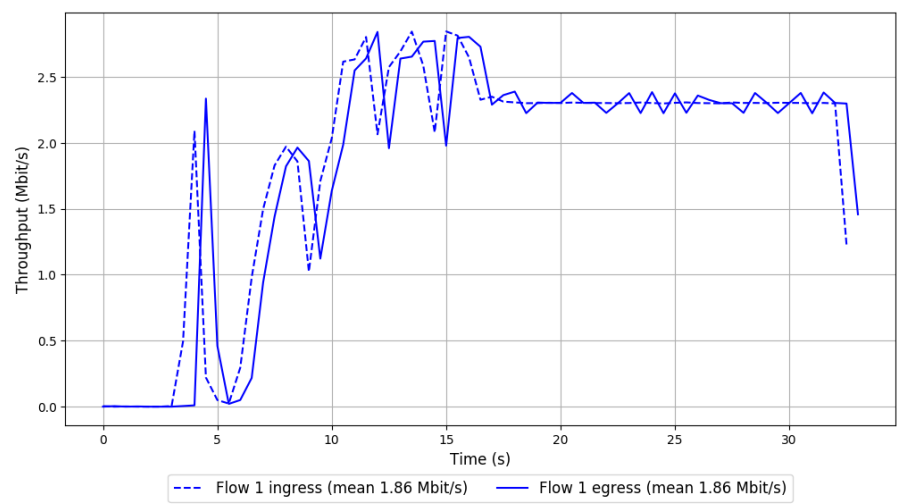Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-10-26 01:10:24
End at: 2018-10-26 01:10:54
Local clock offset: 0.245 ms
Remote clock offset: -40.527 ms


# Below is generated by plot.py at 2018-10-26 02:48:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.86 Mbit/s
95th percentile per-packet one-way delay: 57.460 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.86 Mbit/s
95th percentile per-packet one-way delay: 57.460 ms
Loss rate: 0.00%
```

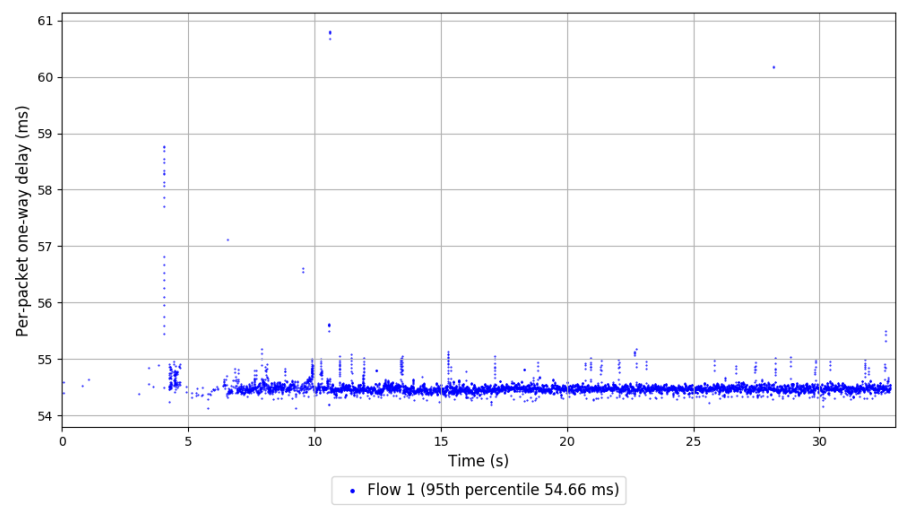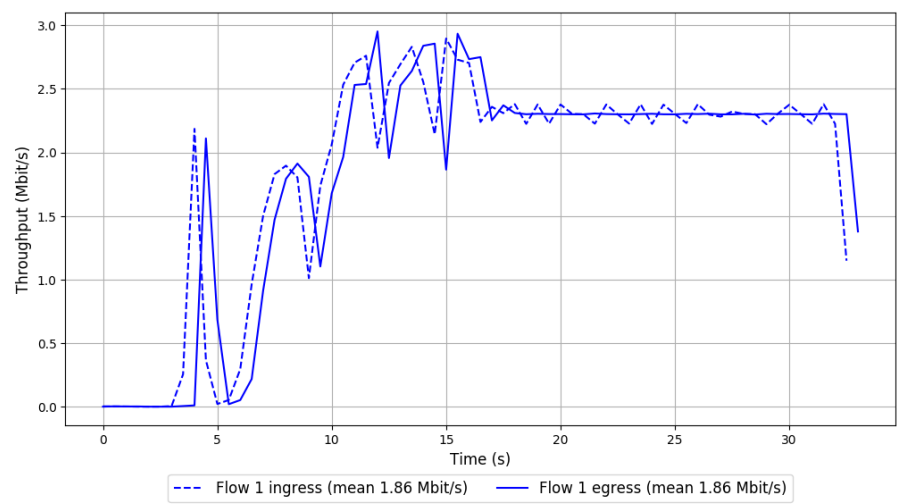# Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2018-10-26 01:50:23
End at: 2018-10-26 01:50:53
Local clock offset: 1.56 ms
Remote clock offset: -40.569 ms


# Below is generated by plot.py at 2018-10-26 02:48:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.86 Mbit/s
95th percentile per-packet one-way delay: 54.662 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.86 Mbit/s
95th percentile per-packet one-way delay: 54.662 ms
Loss rate: 0.00%
```

Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2018-10-26 02:25:41
End at: 2018-10-26 02:26:11
Local clock offset: -1.021 ms
Remote clock offset: -32.016 ms


# Below is generated by plot.py at 2018-10-26 02:48:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.07 Mbit/s
95th percentile per-packet one-way delay: 67.191 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 2.07 Mbit/s
95th percentile per-packet one-way delay: 67.191 ms
Loss rate: 0.01%
```

Run 5: Report of WebRTC media — Data Link