Pantheon Report

Generated at 2018-10-26 21:25:12 (UTC).

Data path: GCE Tokyo on `ens4` (*remote*) →GCE Sydney on `ens4` (*local*).

Repeated the test of 18 congestion control schemes 5 times.

Each test lasted for 30 seconds running 1 flow.

NTP offsets were measured against `time.google.com` and have been applied to correct the timestamps in logs.
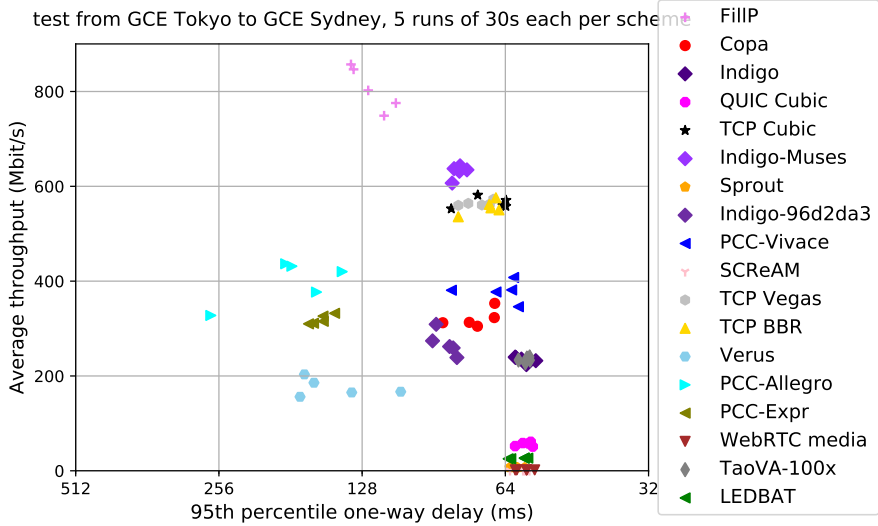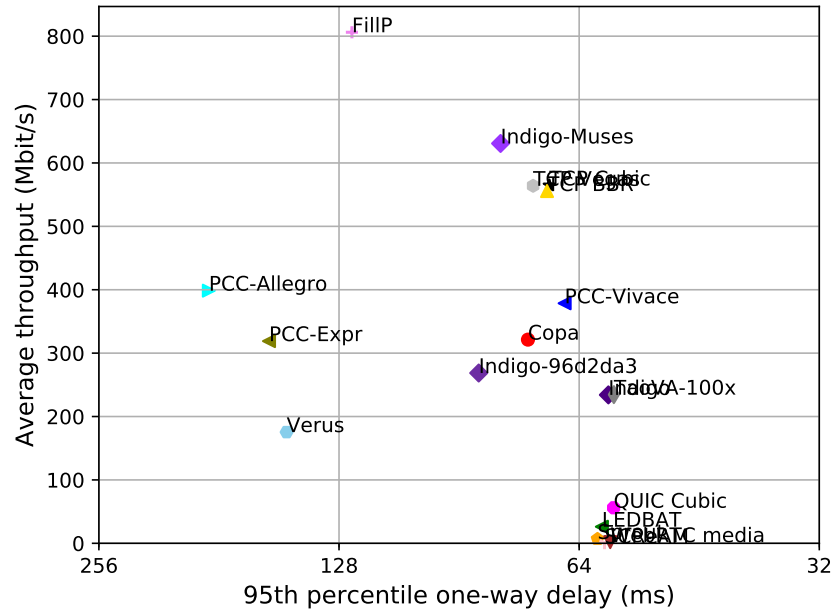
```
System info:
Linux 4.15.0-1021-gcp
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

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 GCE Tokyo to GCE Sydney, 5 runs of 30s each per scheme
(mean of all runs by scheme)

test from GCE Tokyo to GCE Sydney, 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	555.71	70.22	0.42
Copa	5	321.30	74.19	0.37
TCP Cubic	5	564.53	69.75	0.41
FillP	5	806.15	123.32	1.41
Indigo	5	234.13	58.82	0.37
Indigo-96d2da3	5	268.63	85.52	0.59
LEDBAT	5	26.18	59.94	0.76
Indigo-Muses	5	630.75	80.30	0.45
PCC-Allegro	5	398.55	186.37	4.29
PCC-Expr	5	318.95	156.67	2.22
QUIC Cubic	5	56.08	57.94	0.67
SCReAM	5	0.22	59.48	0.38
Sprout	5	6.95	60.70	0.48
TaoVA-100x	5	234.54	57.90	0.41
TCP Vegas	5	563.95	73.10	0.40
Verus	5	175.42	148.91	0.76
PCC-Vivace	5	378.63	66.74	0.43
WebRTC media	5	1.83	58.51	0.47

```
Run 1: Statistics of TCP BBR

Start at: 2018-10-26 17:29:34
End at: 2018-10-26 17:30:04
Local clock offset: -0.312 ms
Remote clock offset: 0.06 ms


# Below is generated by plot.py at 2018-10-26 20:04:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 575.90 Mbit/s
95th percentile per-packet one-way delay: 66.998 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 575.90 Mbit/s
95th percentile per-packet one-way delay: 66.998 ms
Loss rate: 0.41%
```
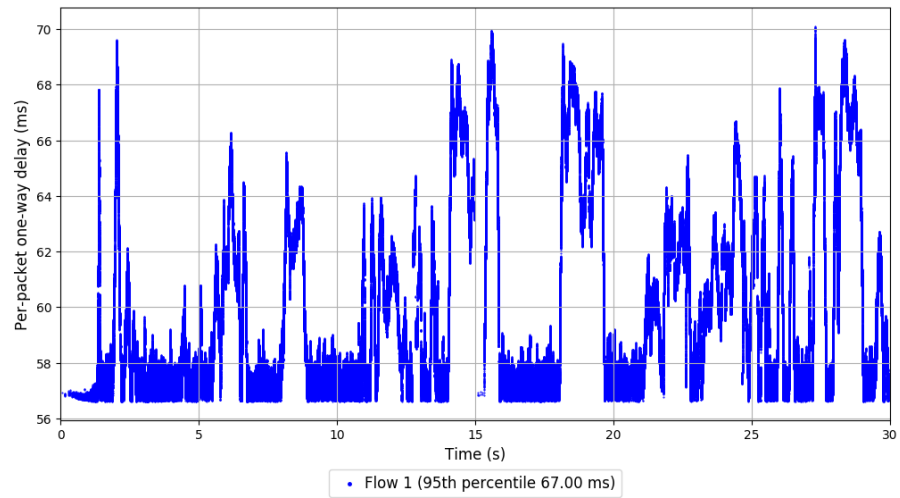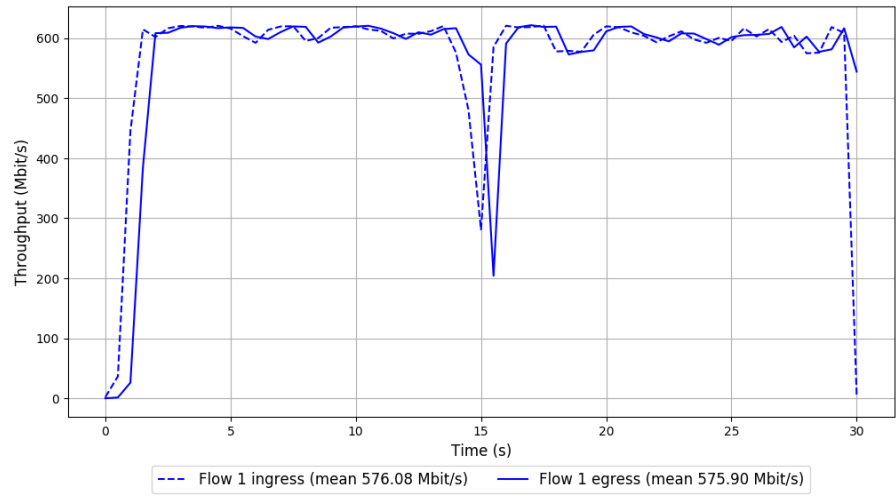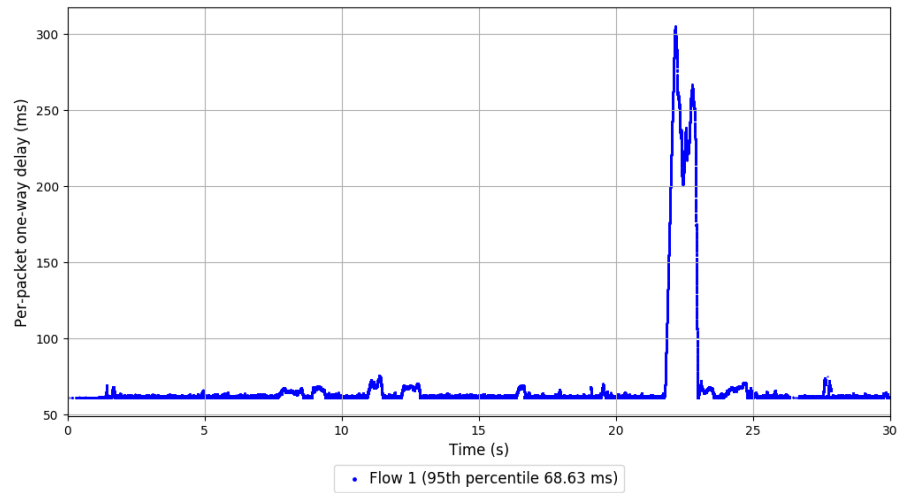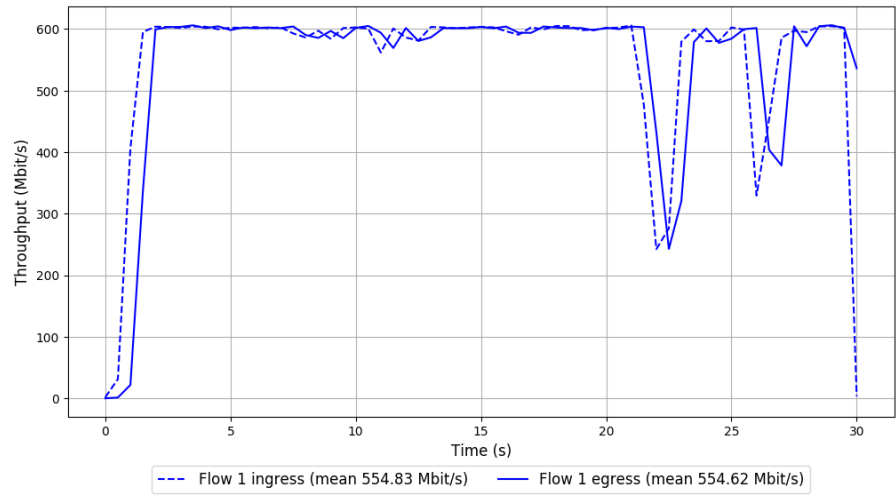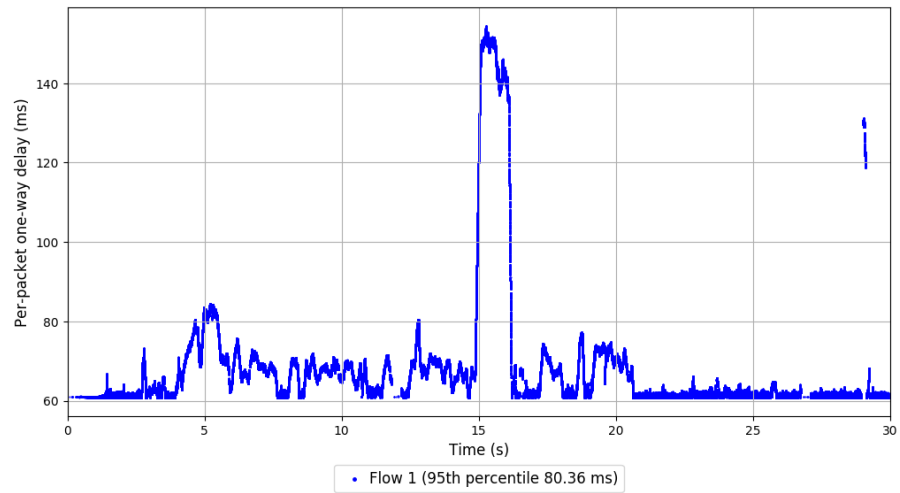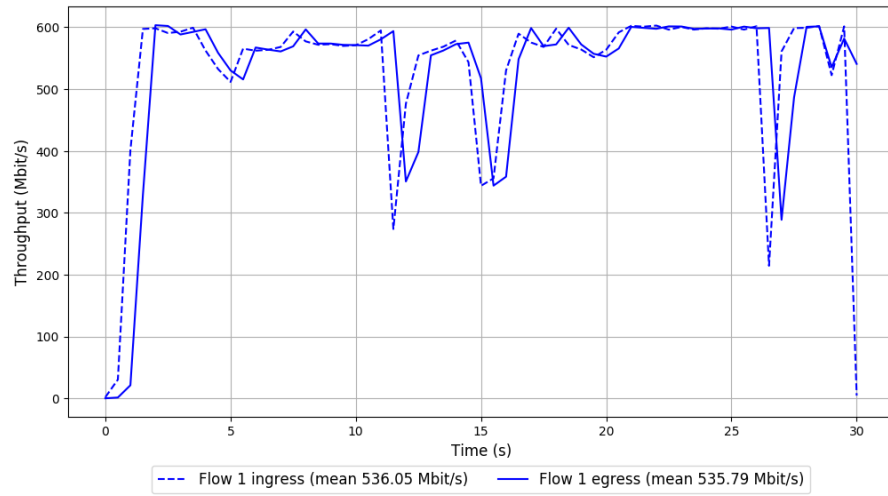
Run 1: Report of TCP BBR — Data Link

Flow 1 ingress (mean 576.08 Mbit/s)   Flow 1 egress (mean 575.90 Mbit/s)

Flow 1 (95th percentile 67.00 ms)

```
Run 2: Statistics of TCP BBR

Start at: 2018-10-26 17:56:28
End at: 2018-10-26 17:56:58
Local clock offset: 0.302 ms
Remote clock offset: -0.699 ms


# Below is generated by plot.py at 2018-10-26 20:04:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 554.62 Mbit/s
95th percentile per-packet one-way delay: 68.626 ms
Loss rate: 0.43%
-- Flow 1:
Average throughput: 554.62 Mbit/s
95th percentile per-packet one-way delay: 68.626 ms
Loss rate: 0.43%
```
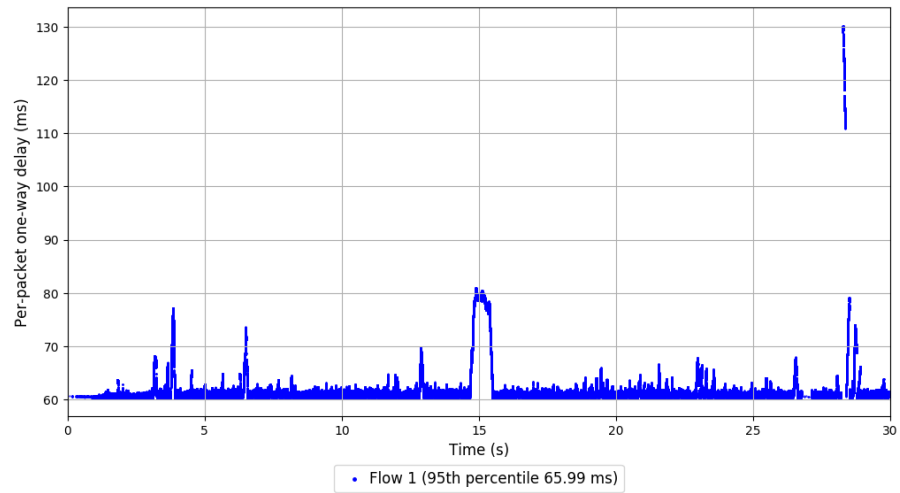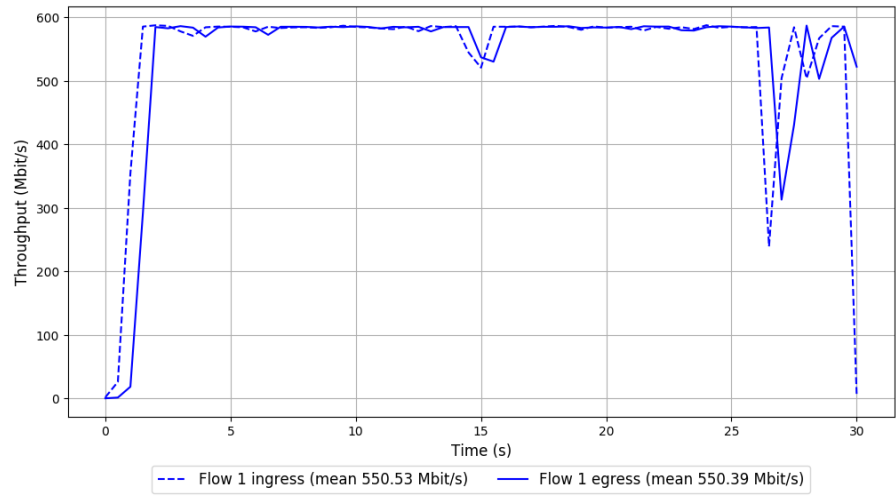
Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2018-10-26 18:23:47
End at: 2018-10-26 18:24:17
Local clock offset: 0.112 ms
Remote clock offset: -0.077 ms


# Below is generated by plot.py at 2018-10-26 20:04:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 535.79 Mbit/s
95th percentile per-packet one-way delay: 80.365 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 535.79 Mbit/s
95th percentile per-packet one-way delay: 80.365 ms
Loss rate: 0.44%
```
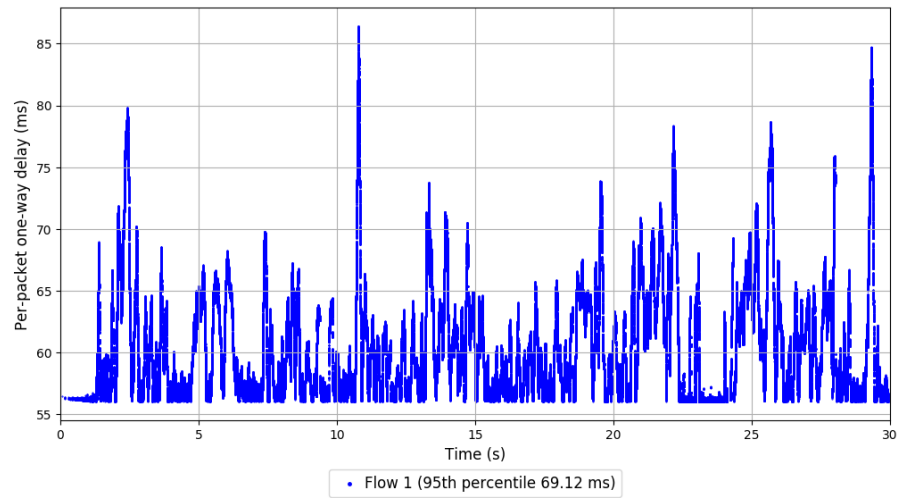
Run 3: Report of TCP BBR — Data Link

Flow 1 ingress (mean 536.05 Mbit/s) — — — Flow 1 egress (mean 535.79 Mbit/s)

• Flow 1 (95th percentile 80.36 ms)

```
Run 4: Statistics of TCP BBR

Start at: 2018-10-26 18:50:46
End at: 2018-10-26 18:51:16
Local clock offset: -0.684 ms
Remote clock offset: -0.392 ms


# Below is generated by plot.py at 2018-10-26 20:04:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 550.39 Mbit/s
95th percentile per-packet one-way delay: 65.987 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 550.39 Mbit/s
95th percentile per-packet one-way delay: 65.987 ms
Loss rate: 0.42%
```
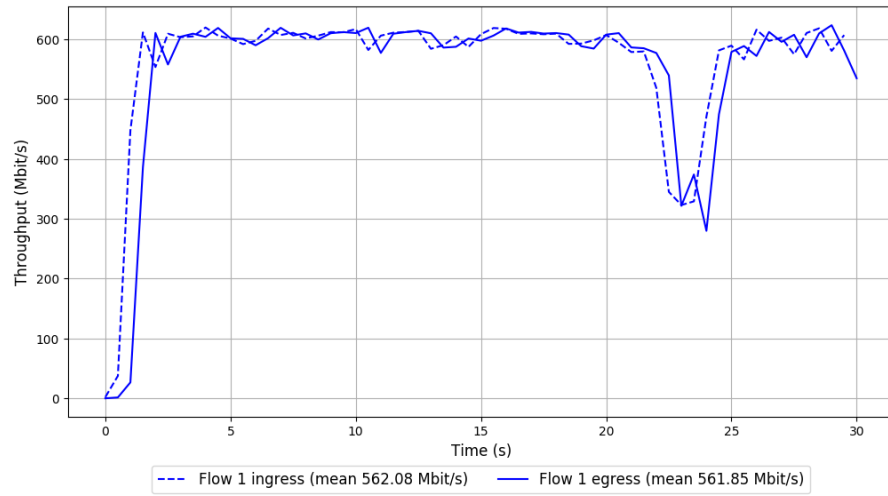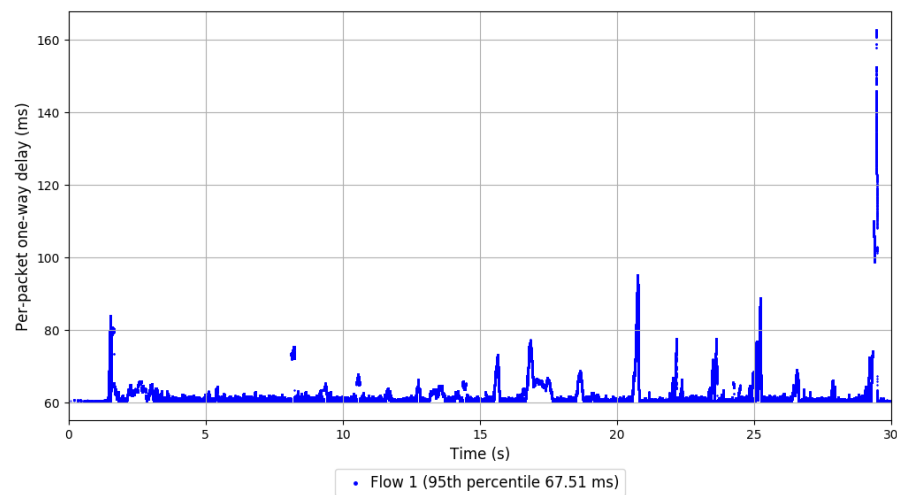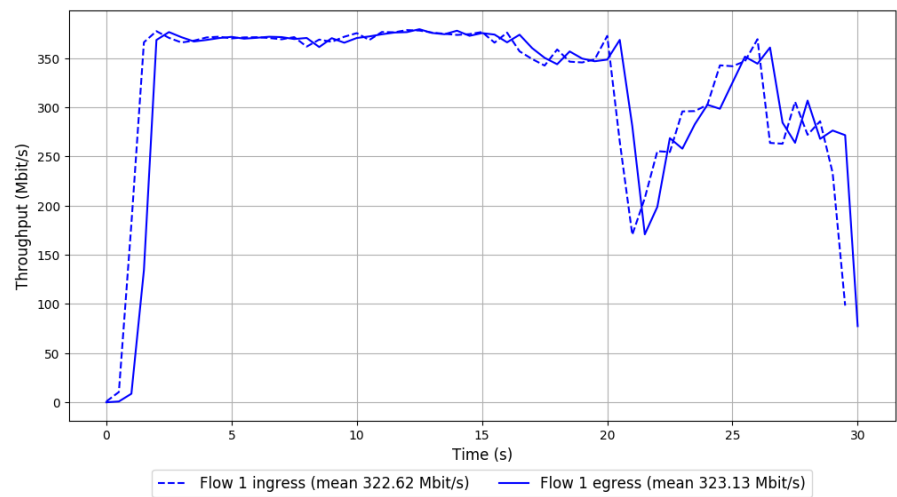
Run 4: Report of TCP BBR — Data Link

Flow 1 ingress (mean 550.53 Mbit/s) — — — Flow 1 egress (mean 550.39 Mbit/s) ———

• Flow 1 (95th percentile 65.99 ms)

```
Run 5: Statistics of TCP BBR

Start at: 2018-10-26 19:17:57
End at: 2018-10-26 19:18:27
Local clock offset: -0.245 ms
Remote clock offset: 0.644 ms


# Below is generated by plot.py at 2018-10-26 20:04:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 561.85 Mbit/s
95th percentile per-packet one-way delay: 69.124 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 561.85 Mbit/s
95th percentile per-packet one-way delay: 69.124 ms
Loss rate: 0.42%
```

Run 5: Report of TCP BBR — Data Link

Flow 1 ingress (mean 562.08 Mbit/s) ——— Flow 1 egress (mean 561.85 Mbit/s)
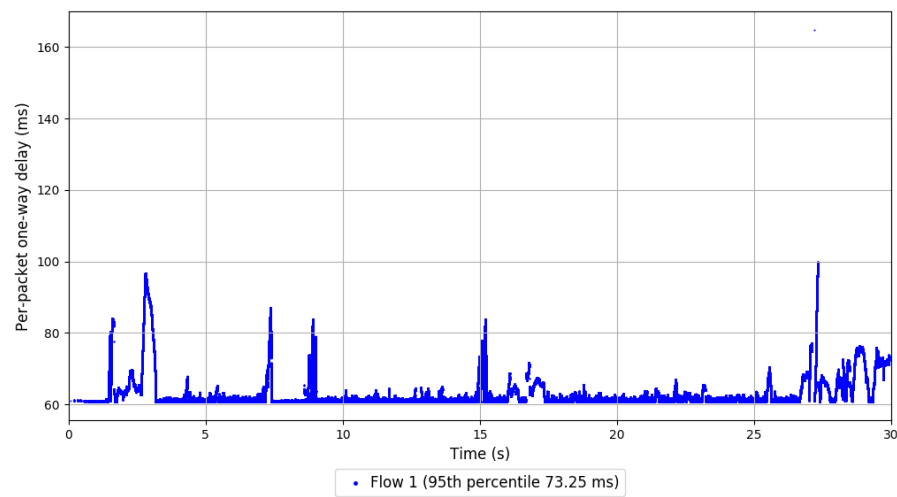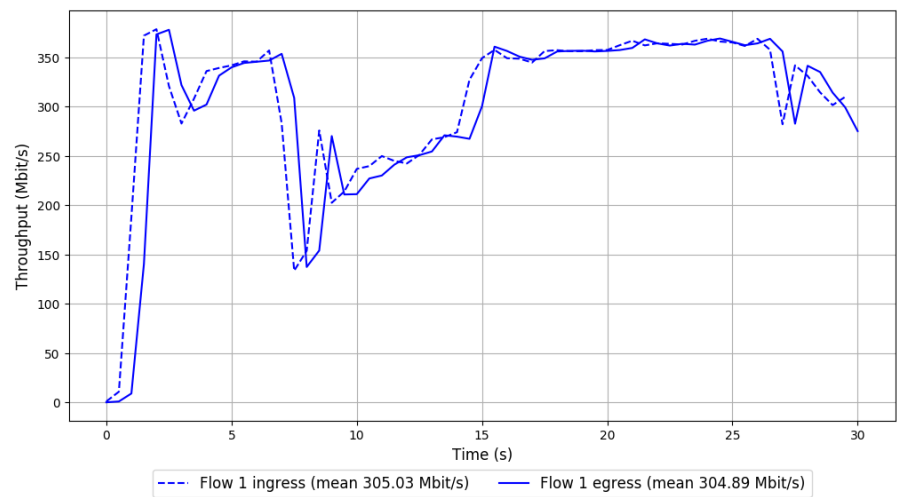

• Flow 1 (95th percentile 69.12 ms)

14

```
Run 1: Statistics of Copa

Start at: 2018-10-26 17:35:38
End at: 2018-10-26 17:36:08
Local clock offset: 0.052 ms
Remote clock offset: -0.078 ms


# Below is generated by plot.py at 2018-10-26 20:04:31
# Datalink statistics
-- Total of 1 flow:
Average throughput: 323.13 Mbit/s
95th percentile per-packet one-way delay: 67.510 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 323.13 Mbit/s
95th percentile per-packet one-way delay: 67.510 ms
Loss rate: 0.13%
```
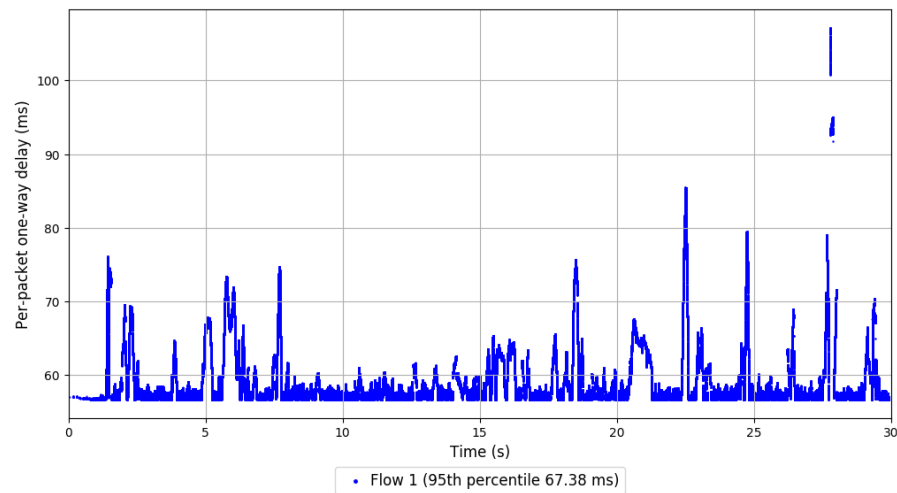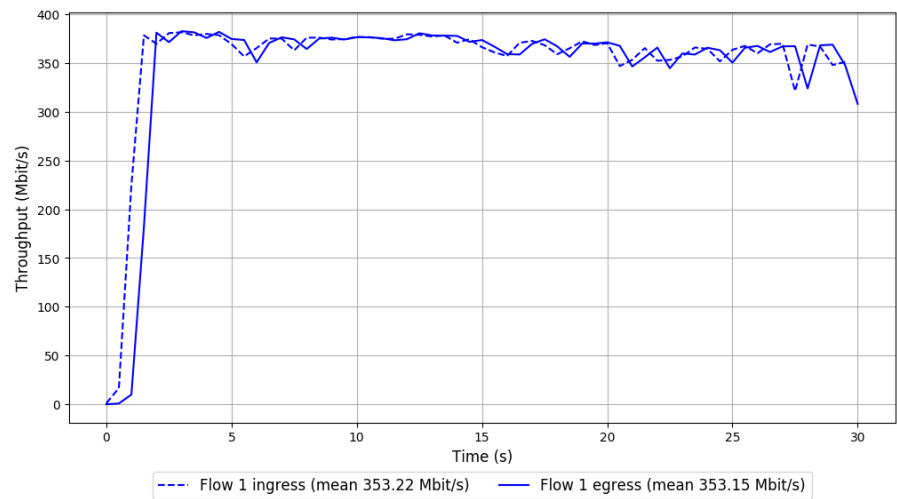
Run 1: Report of Copa — Data Link

```
Run 2: Statistics of Copa

Start at: 2018-10-26 18:02:40
End at: 2018-10-26 18:03:10
Local clock offset: -0.072 ms
Remote clock offset: -0.714 ms


# Below is generated by plot.py at 2018-10-26 20:04:31
# Datalink statistics
-- Total of 1 flow:
Average throughput: 304.89 Mbit/s
95th percentile per-packet one-way delay: 73.253 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 304.89 Mbit/s
95th percentile per-packet one-way delay: 73.253 ms
Loss rate: 0.44%
```

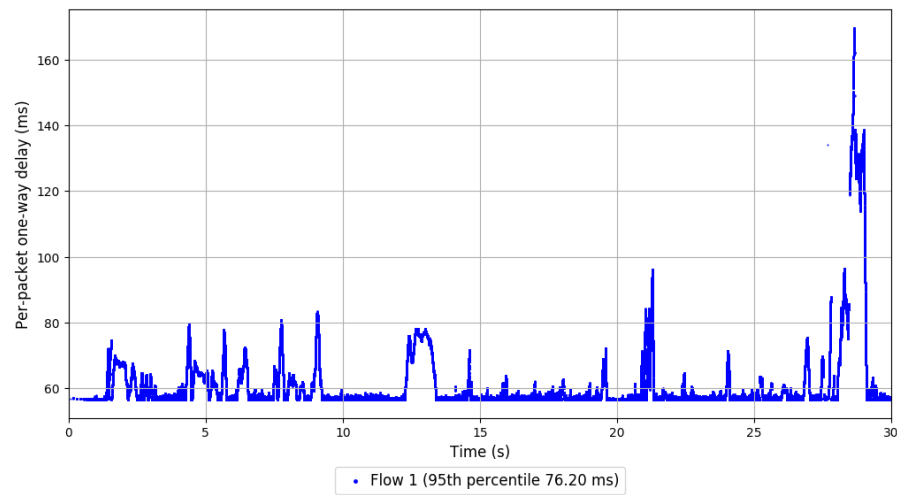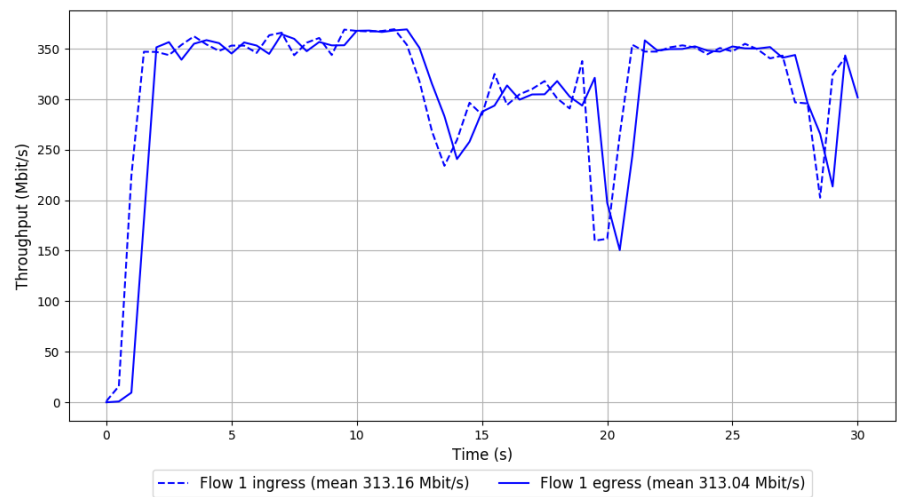Run 2: Report of Copa — Data Link

```
Run 3: Statistics of Copa

Start at: 2018-10-26 18:29:55
End at: 2018-10-26 18:30:25
Local clock offset: -0.27 ms
Remote clock offset: 0.029 ms


# Below is generated by plot.py at 2018-10-26 20:05:37
# Datalink statistics
-- Total of 1 flow:
Average throughput: 353.15 Mbit/s
95th percentile per-packet one-way delay: 67.375 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 353.15 Mbit/s
95th percentile per-packet one-way delay: 67.375 ms
Loss rate: 0.40%
```
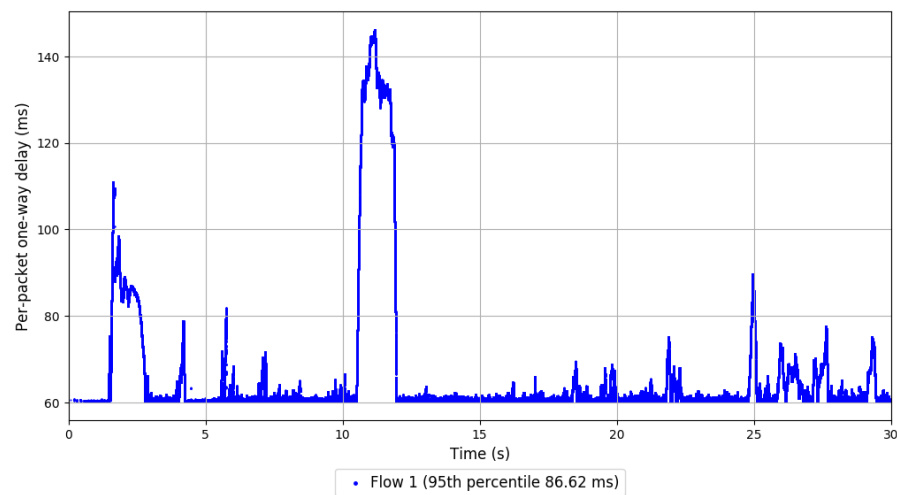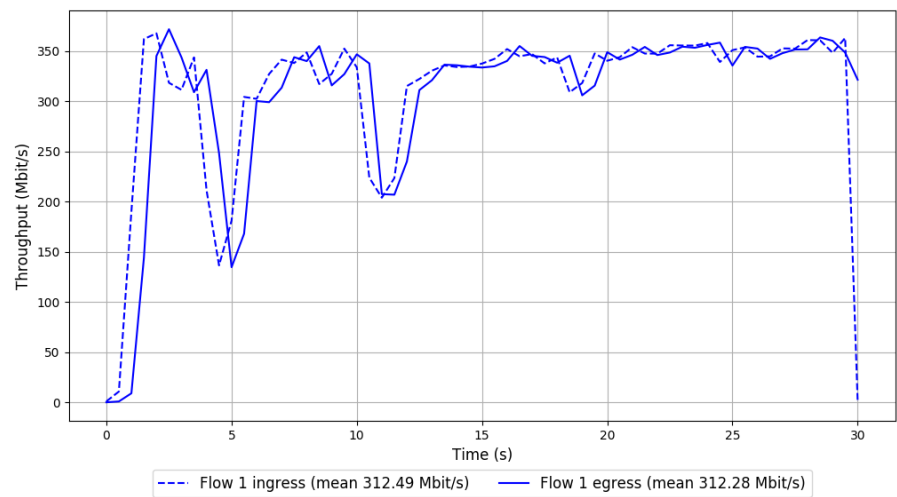
Run 3: Report of Copa — Data Link

```
Run 4: Statistics of Copa

Start at: 2018-10-26 18:56:58
End at: 2018-10-26 18:57:29
Local clock offset: -0.336 ms
Remote clock offset: 0.168 ms

# Below is generated by plot.py at 2018-10-26 20:14:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 313.04 Mbit/s
95th percentile per-packet one-way delay: 76.201 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 313.04 Mbit/s
95th percentile per-packet one-way delay: 76.201 ms
Loss rate: 0.42%
```
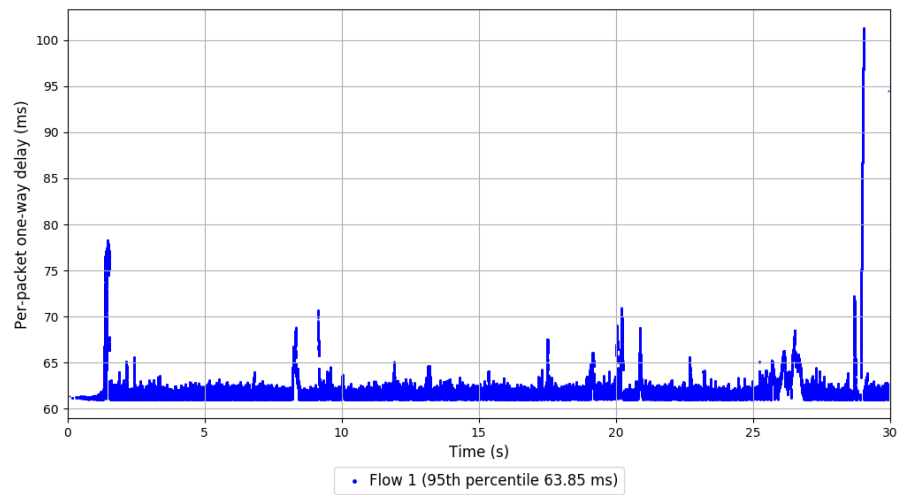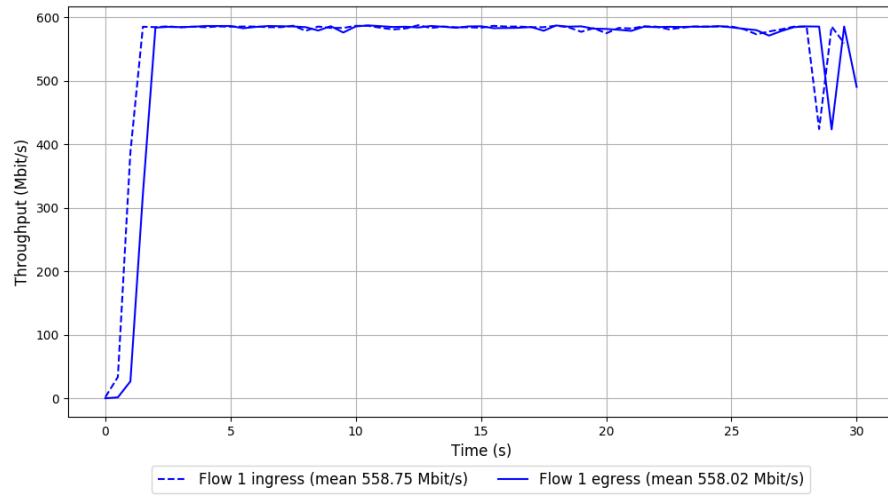
Run 4: Report of Copa — Data Link

```
Run 5: Statistics of Copa

Start at: 2018-10-26 19:24:09
End at: 2018-10-26 19:24:39
Local clock offset: -0.324 ms
Remote clock offset: -0.273 ms


# Below is generated by plot.py at 2018-10-26 20:14:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 312.28 Mbit/s
95th percentile per-packet one-way delay: 86.624 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 312.28 Mbit/s
95th percentile per-packet one-way delay: 86.624 ms
Loss rate: 0.46%
```

Run 5: Report of Copa — Data Link

Flow 1 ingress (mean 312.49 Mbit/s)   Flow 1 egress (mean 312.28 Mbit/s)

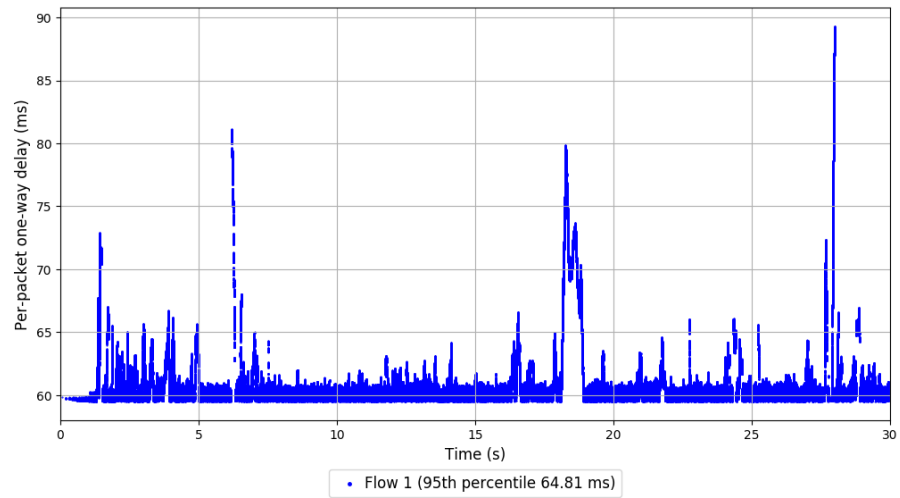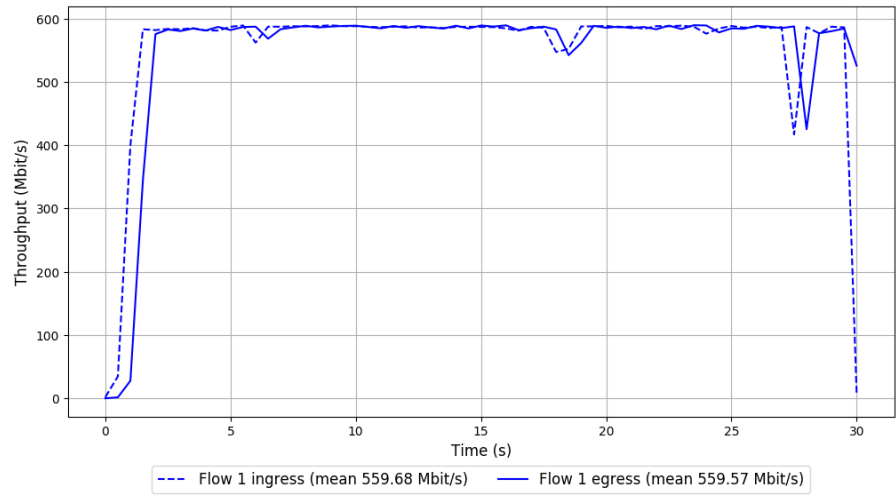Flow 1 (95th percentile 86.62 ms)

```
Run 1: Statistics of TCP Cubic

Start at: 2018-10-26 17:38:49
End at: 2018-10-26 17:39:19
Local clock offset: -0.873 ms
Remote clock offset: -1.458 ms


# Below is generated by plot.py at 2018-10-26 20:14:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 558.02 Mbit/s
95th percentile per-packet one-way delay: 63.855 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 558.02 Mbit/s
95th percentile per-packet one-way delay: 63.855 ms
Loss rate: 0.42%
```
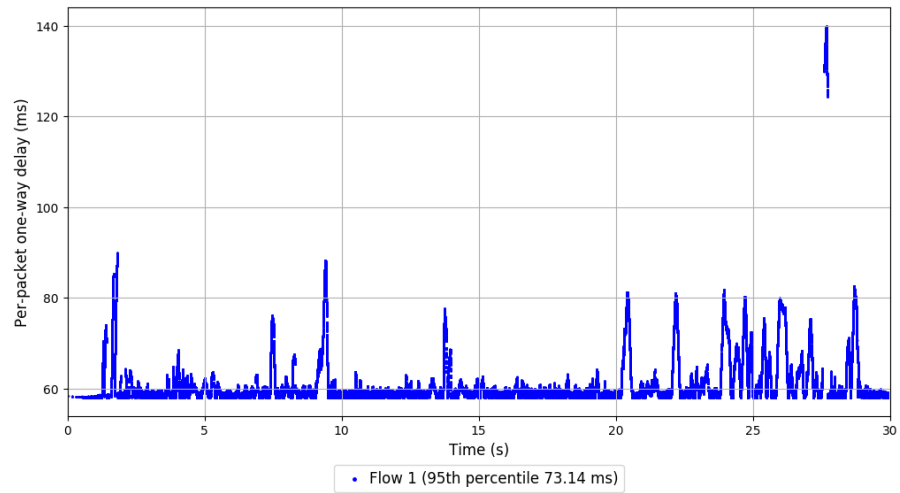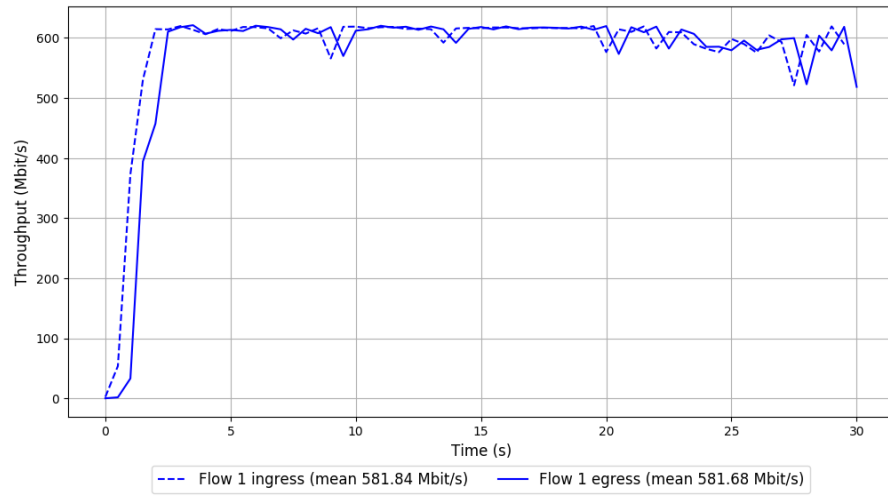
Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2018-10-26 18:06:23
End at: 2018-10-26 18:06:53
Local clock offset: -0.682 ms
Remote clock offset: -0.022 ms


# Below is generated by plot.py at 2018-10-26 20:14:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 559.57 Mbit/s
95th percentile per-packet one-way delay: 64.806 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 559.57 Mbit/s
95th percentile per-packet one-way delay: 64.806 ms
Loss rate: 0.41%
```
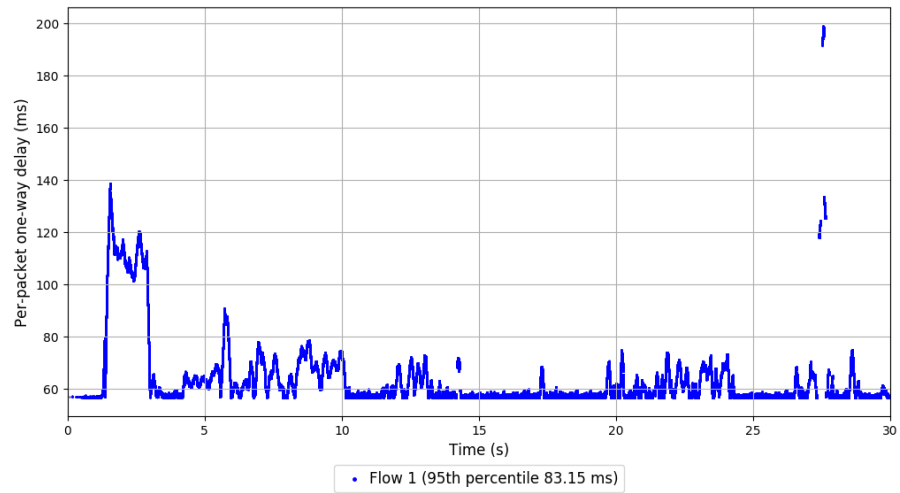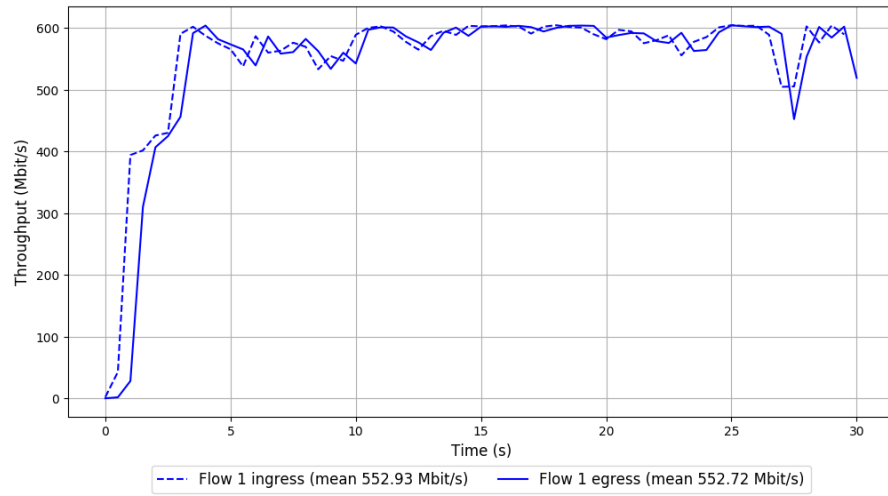
Run 2: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 559.68 Mbit/s) ----   Flow 1 egress (mean 559.57 Mbit/s) ——

• Flow 1 (95th percentile 64.81 ms)

```
Run 3: Statistics of TCP Cubic

Start at: 2018-10-26 18:33:13
End at: 2018-10-26 18:33:43
Local clock offset: -0.689 ms
Remote clock offset: -1.478 ms


# Below is generated by plot.py at 2018-10-26 20:15:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 581.68 Mbit/s
95th percentile per-packet one-way delay: 73.142 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 581.68 Mbit/s
95th percentile per-packet one-way delay: 73.142 ms
Loss rate: 0.41%
```
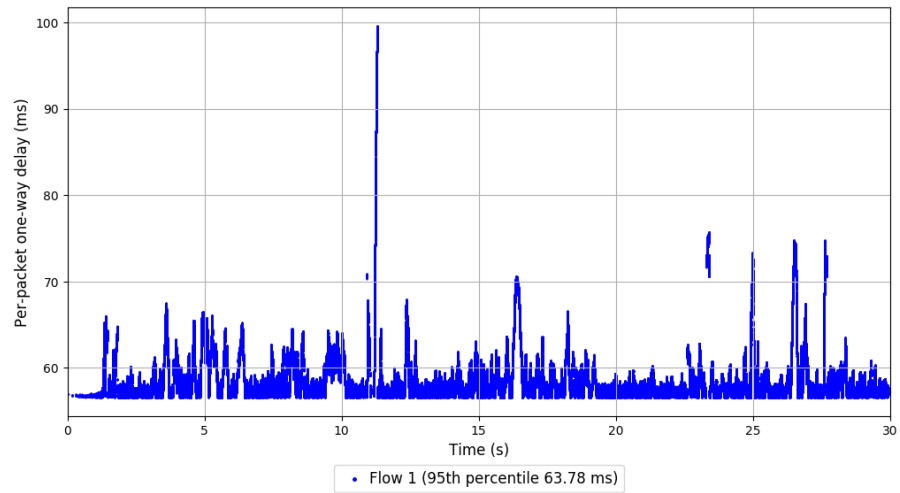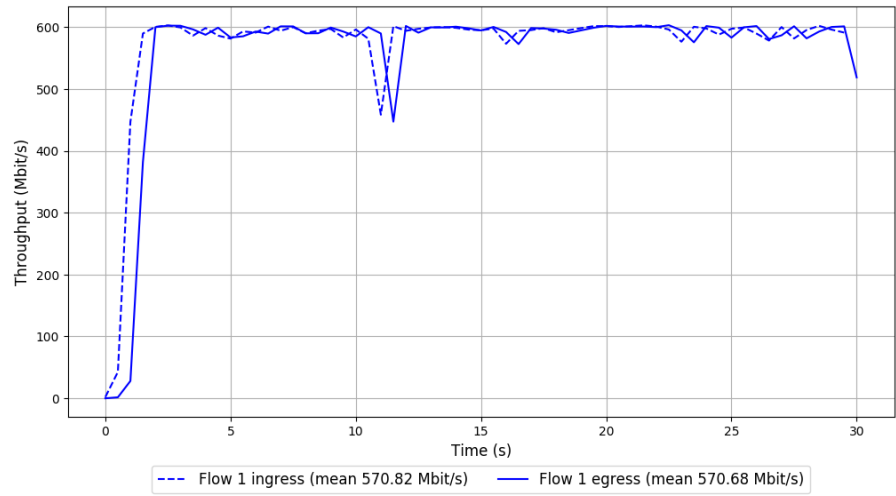
Run 3: Report of TCP Cubic — Data Link

```
Run 4: Statistics of TCP Cubic

Start at: 2018-10-26 19:00:11
End at: 2018-10-26 19:00:41
Local clock offset: -0.703 ms
Remote clock offset: -0.243 ms


# Below is generated by plot.py at 2018-10-26 20:15:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 552.72 Mbit/s
95th percentile per-packet one-way delay: 83.148 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 552.72 Mbit/s
95th percentile per-packet one-way delay: 83.148 ms
Loss rate: 0.42%
```

Run 4: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 552.93 Mbit/s)   Flow 1 egress (mean 552.72 Mbit/s)

Flow 1 (95th percentile 83.15 ms)

```
Run 5: Statistics of TCP Cubic

Start at: 2018-10-26 19:27:21
End at: 2018-10-26 19:27:51
Local clock offset: -0.725 ms
Remote clock offset: -0.099 ms


# Below is generated by plot.py at 2018-10-26 20:15:32
# Datalink statistics
-- Total of 1 flow:
Average throughput: 570.68 Mbit/s
95th percentile per-packet one-way delay: 63.785 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 570.68 Mbit/s
95th percentile per-packet one-way delay: 63.785 ms
Loss rate: 0.41%
```
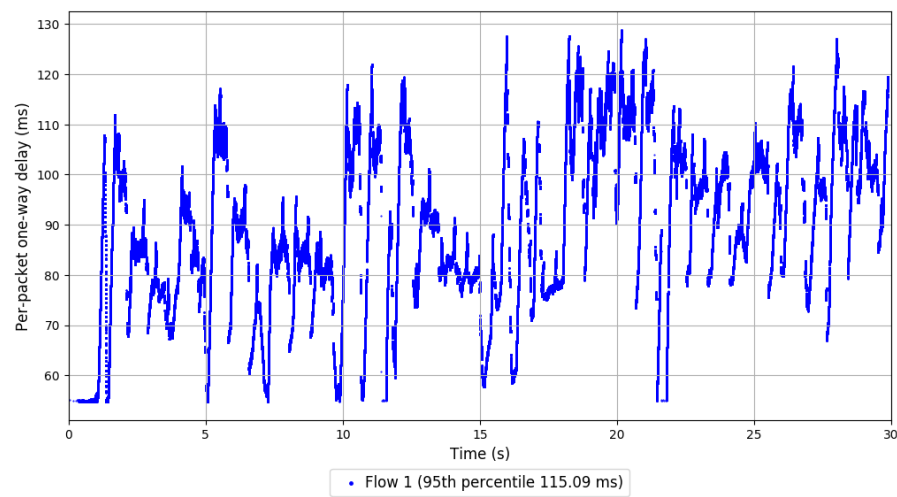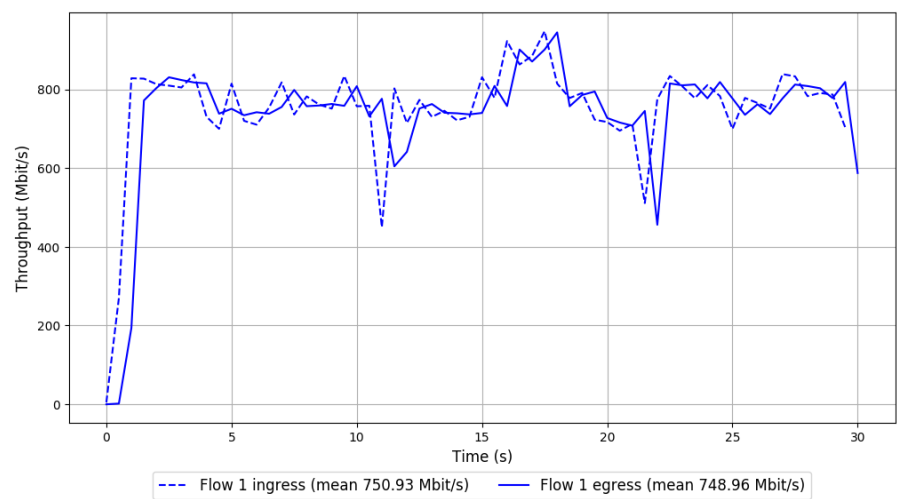
Run 5: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 570.82 Mbit/s)   Flow 1 egress (mean 570.68 Mbit/s)
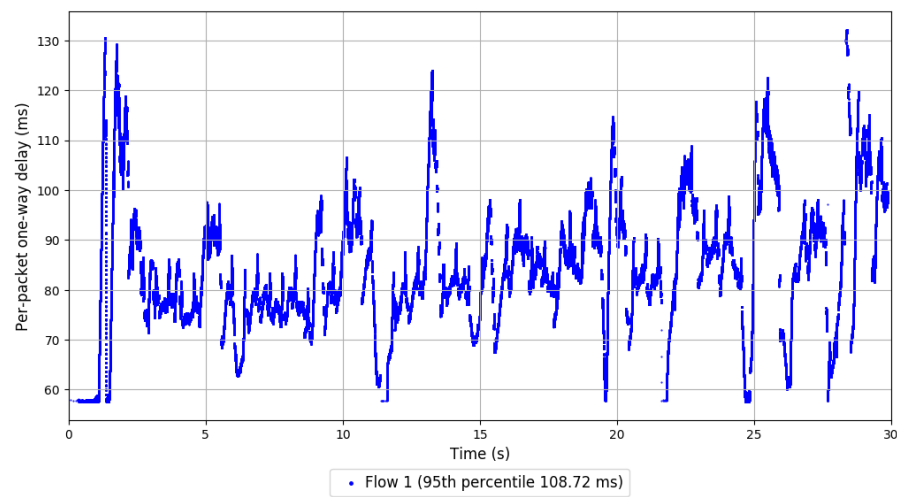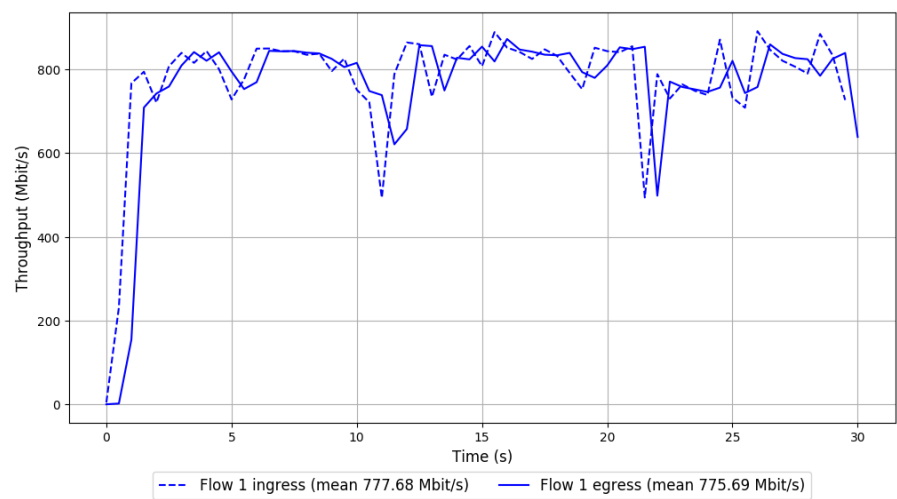

Flow 1 (95th percentile 63.78 ms)

```
Run 1: Statistics of FillP

Start at: 2018-10-26 17:41:40
End at: 2018-10-26 17:42:10
Local clock offset: -0.912 ms
Remote clock offset: 1.296 ms


# Below is generated by plot.py at 2018-10-26 20:23:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 748.96 Mbit/s
95th percentile per-packet one-way delay: 115.093 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 748.96 Mbit/s
95th percentile per-packet one-way delay: 115.093 ms
Loss rate: 0.65%
```
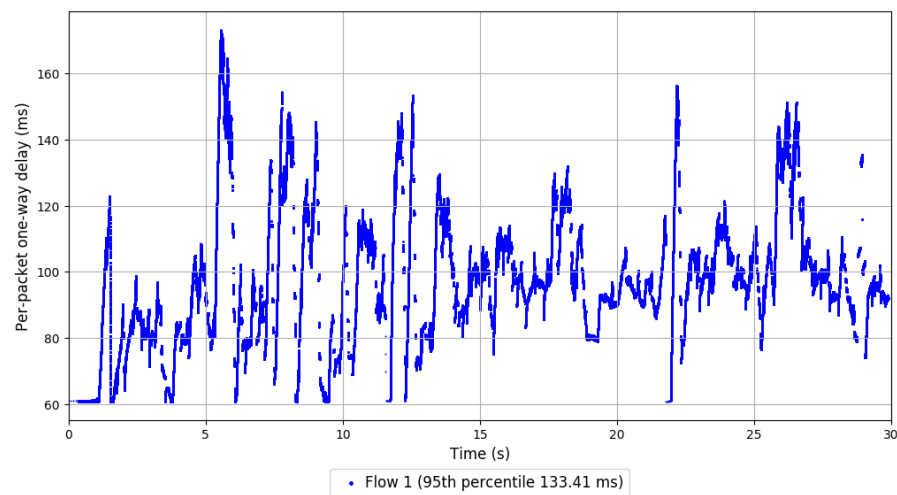
Run 1: Report of FillP — Data Link

Flow 1 ingress (mean 750.93 Mbit/s)   Flow 1 egress (mean 748.96 Mbit/s)

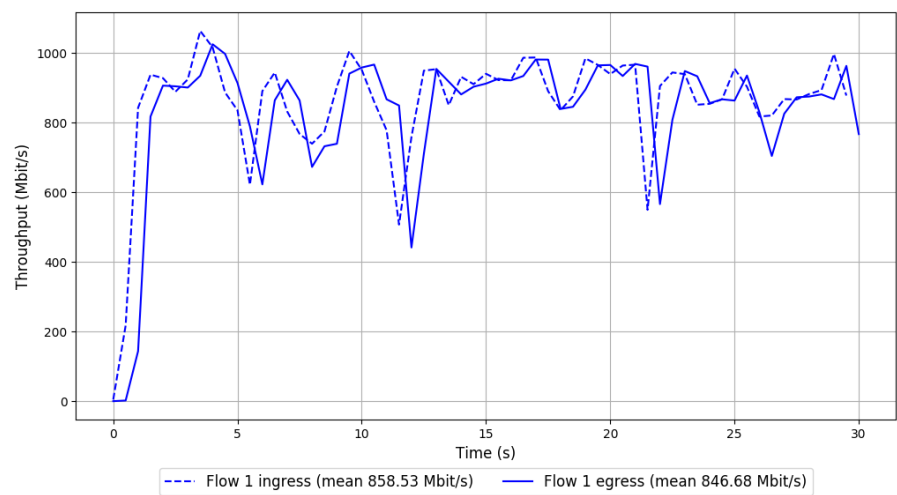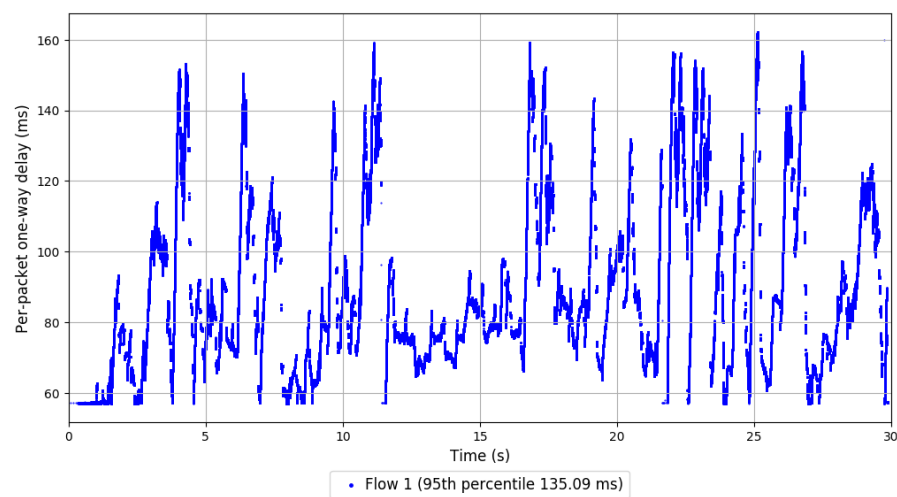Flow 1 (95th percentile 115.09 ms)

```
Run 2: Statistics of FillP

Start at: 2018-10-26 18:09:10
End at: 2018-10-26 18:09:40
Local clock offset: -0.014 ms
Remote clock offset: -0.644 ms


# Below is generated by plot.py at 2018-10-26 20:33:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 775.69 Mbit/s
95th percentile per-packet one-way delay: 108.720 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 775.69 Mbit/s
95th percentile per-packet one-way delay: 108.720 ms
Loss rate: 0.63%
```
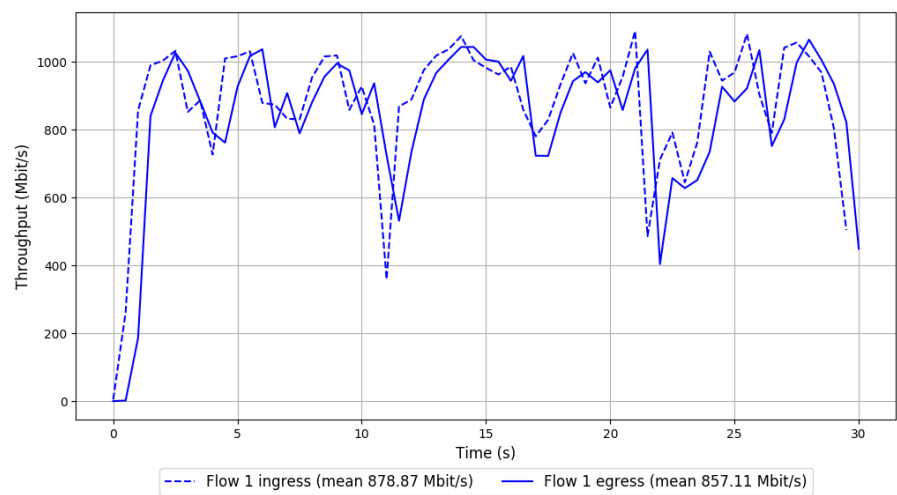
Run 2: Report of FillP — Data Link

```
Run 3: Statistics of FillP

Start at: 2018-10-26 18:36:01
End at: 2018-10-26 18:36:31
Local clock offset: -0.601 ms
Remote clock offset: -1.349 ms


# Below is generated by plot.py at 2018-10-26 20:35:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 846.68 Mbit/s
95th percentile per-packet one-way delay: 133.406 ms
Loss rate: 1.77%
-- Flow 1:
Average throughput: 846.68 Mbit/s
95th percentile per-packet one-way delay: 133.406 ms
Loss rate: 1.77%
```

Run 3: Report of FillP — Data Link

Flow 1 ingress (mean 858.53 Mbit/s)   Flow 1 egress (mean 846.68 Mbit/s)

Flow 1 (95th percentile 133.41 ms)

```
Run 4: Statistics of FillP

Start at: 2018-10-26 19:03:05
End at: 2018-10-26 19:03:35
Local clock offset: -0.049 ms
Remote clock offset: -0.048 ms

# Below is generated by plot.py at 2018-10-26 20:36:27
# Datalink statistics
-- Total of 1 flow:
Average throughput: 857.11 Mbit/s
95th percentile per-packet one-way delay: 135.095 ms
Loss rate: 2.93%
-- Flow 1:
Average throughput: 857.11 Mbit/s
95th percentile per-packet one-way delay: 135.095 ms
Loss rate: 2.93%
```
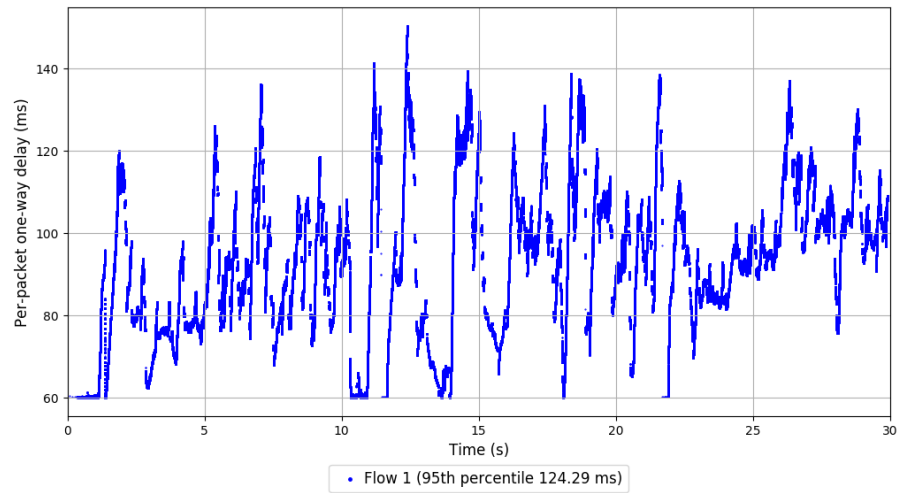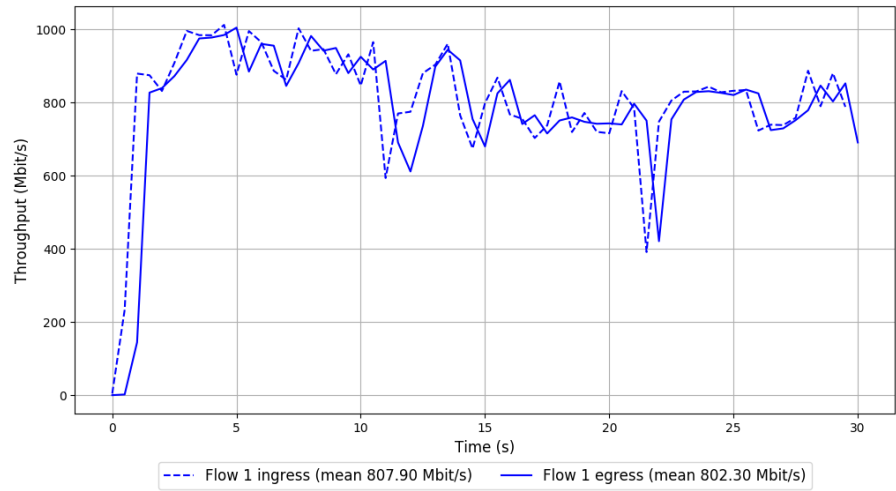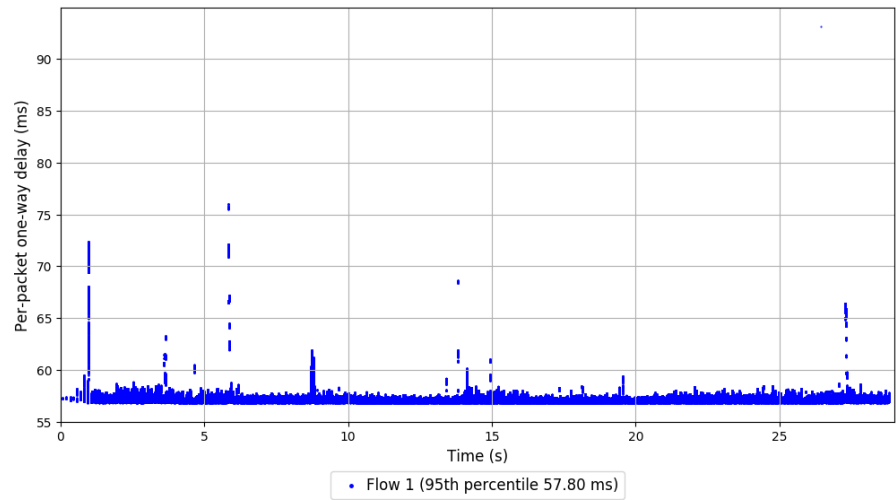
Run 4: Report of FillP — Data Link

Flow 1 ingress (mean 878.87 Mbit/s)   Flow 1 egress (mean 857.11 Mbit/s)
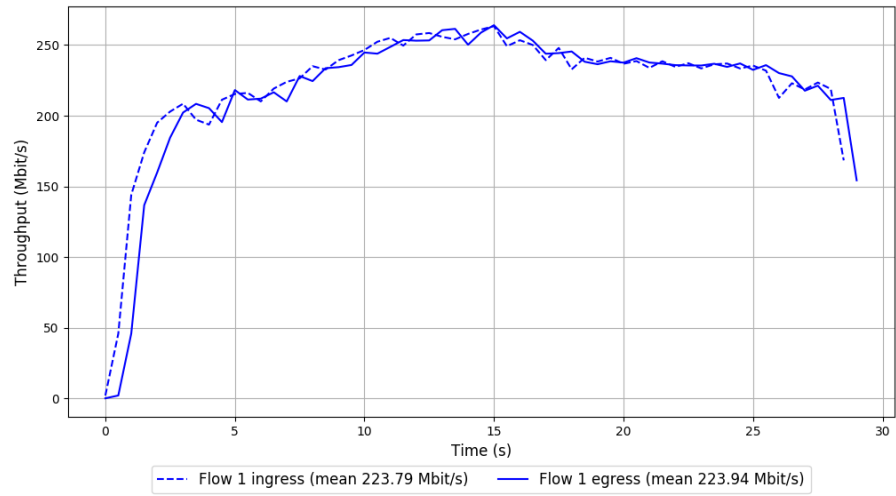

• Flow 1 (95th percentile 135.09 ms)

```
Run 5: Statistics of FillP

Start at: 2018-10-26 19:30:11
End at: 2018-10-26 19:30:41
Local clock offset: 0.283 ms
Remote clock offset: 0.335 ms


# Below is generated by plot.py at 2018-10-26 20:36:27
# Datalink statistics
-- Total of 1 flow:
Average throughput: 802.30 Mbit/s
95th percentile per-packet one-way delay: 124.287 ms
Loss rate: 1.08%
-- Flow 1:
Average throughput: 802.30 Mbit/s
95th percentile per-packet one-way delay: 124.287 ms
Loss rate: 1.08%
```
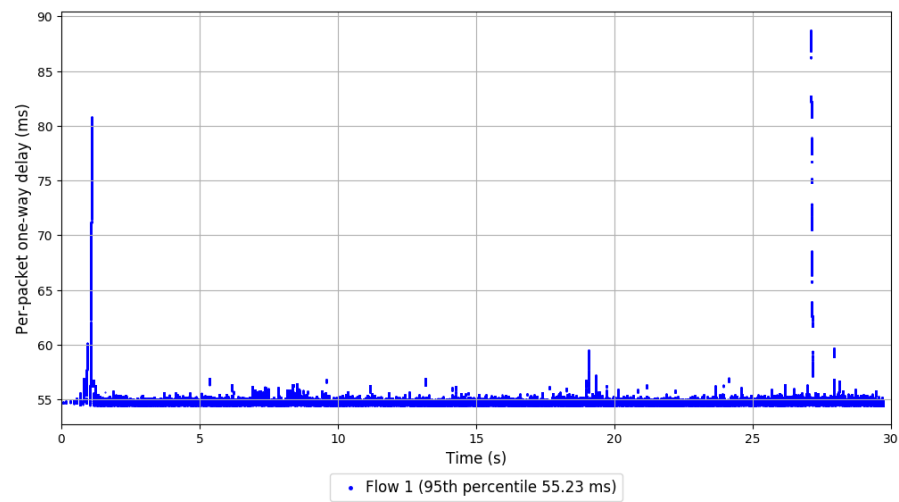
Run 5: Report of FillP — Data Link

44

```
Run 1: Statistics of Indigo

Start at: 2018-10-26 17:37:18
End at: 2018-10-26 17:37:48
Local clock offset: -0.862 ms
Remote clock offset: -0.503 ms


# Below is generated by plot.py at 2018-10-26 20:36:27
# Datalink statistics
-- Total of 1 flow:
Average throughput: 223.94 Mbit/s
95th percentile per-packet one-way delay: 57.802 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 223.94 Mbit/s
95th percentile per-packet one-way delay: 57.802 ms
Loss rate: 0.38%
```
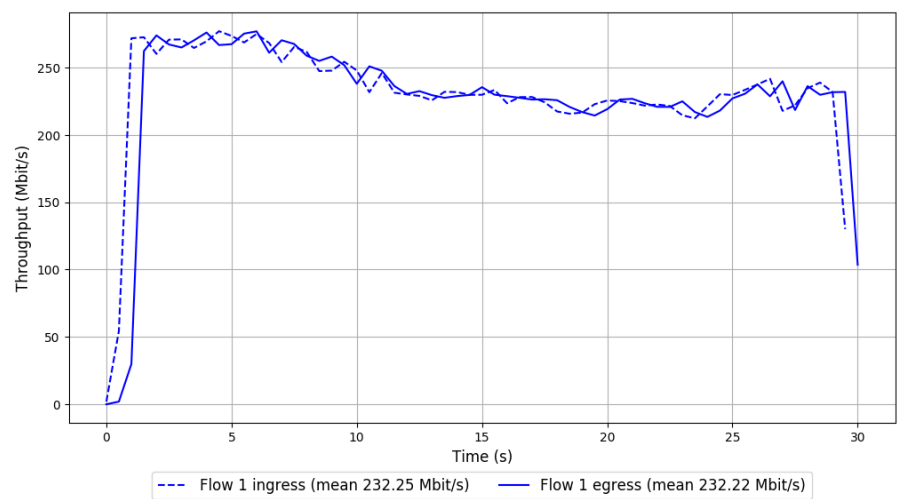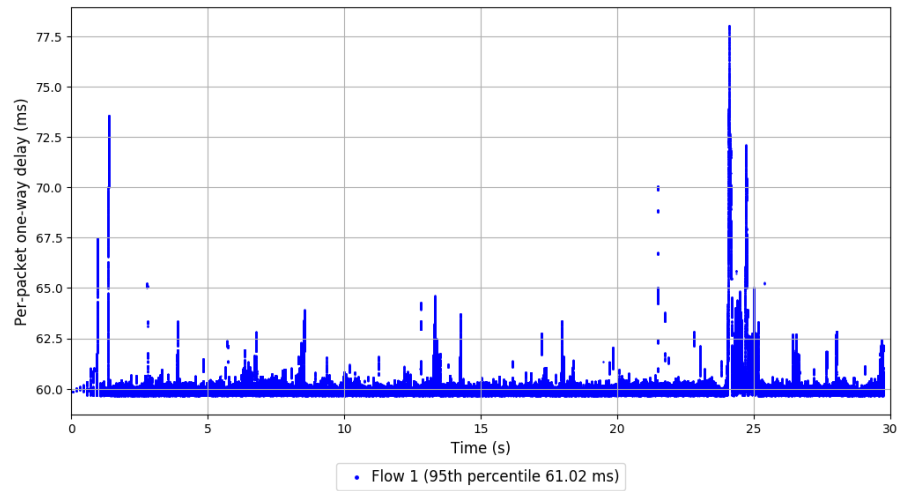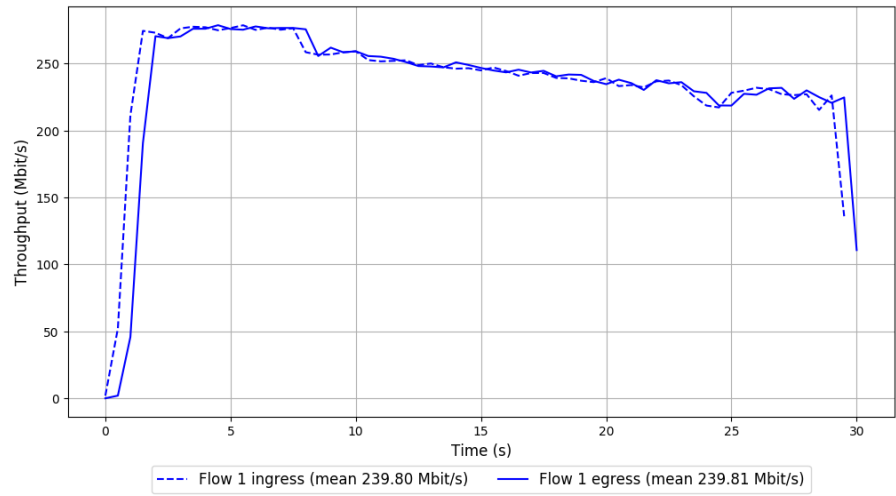
Run 1: Report of Indigo — Data Link

Flow 1 ingress (mean 223.79 Mbit/s)   Flow 1 egress (mean 223.94 Mbit/s)
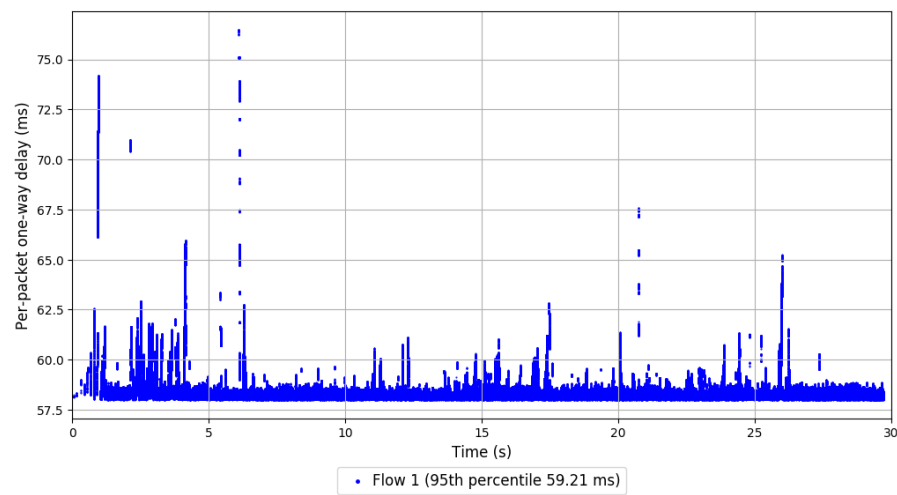

Flow 1 (95th percentile 57.80 ms)

```
Run 2: Statistics of Indigo

Start at: 2018-10-26 18:04:37
End at: 2018-10-26 18:05:07
Local clock offset: -1.443 ms
Remote clock offset: 1.026 ms


# Below is generated by plot.py at 2018-10-26 20:36:27
# Datalink statistics
-- Total of 1 flow:
Average throughput: 232.22 Mbit/s
95th percentile per-packet one-way delay: 55.230 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 232.22 Mbit/s
95th percentile per-packet one-way delay: 55.230 ms
Loss rate: 0.40%
```
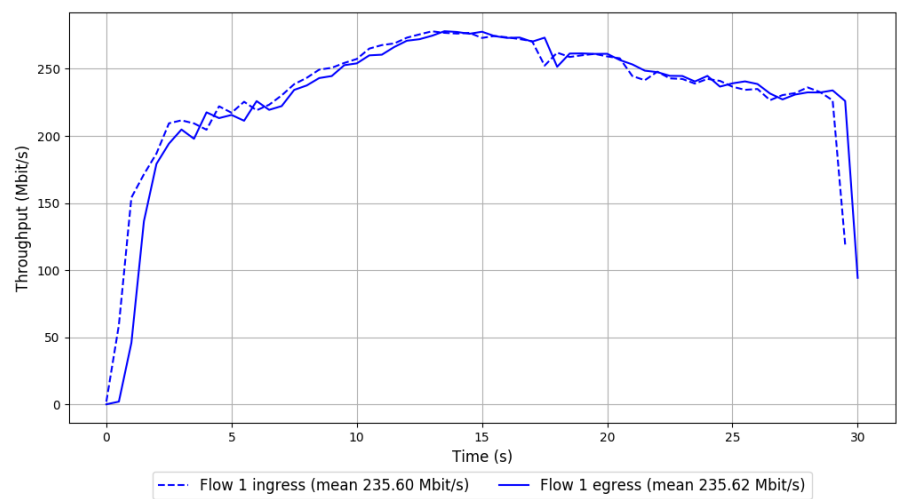
Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2018-10-26 18:31:41
End at: 2018-10-26 18:32:11
Local clock offset: -0.878 ms
Remote clock offset: -0.507 ms

# Below is generated by plot.py at 2018-10-26 20:36:27
# Datalink statistics
-- Total of 1 flow:
Average throughput: 239.81 Mbit/s
95th percentile per-packet one-way delay: 61.018 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 239.81 Mbit/s
95th percentile per-packet one-way delay: 61.018 ms
Loss rate: 0.39%
```

Run 3: Report of Indigo — Data Link

```
Run 4: Statistics of Indigo

Start at: 2018-10-26 18:58:39
End at: 2018-10-26 18:59:09
Local clock offset: 0.742 ms
Remote clock offset: -0.063 ms


# Below is generated by plot.py at 2018-10-26 20:36:27
# Datalink statistics
-- Total of 1 flow:
Average throughput: 235.62 Mbit/s
95th percentile per-packet one-way delay: 59.207 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 235.62 Mbit/s
95th percentile per-packet one-way delay: 59.207 ms
Loss rate: 0.38%
```
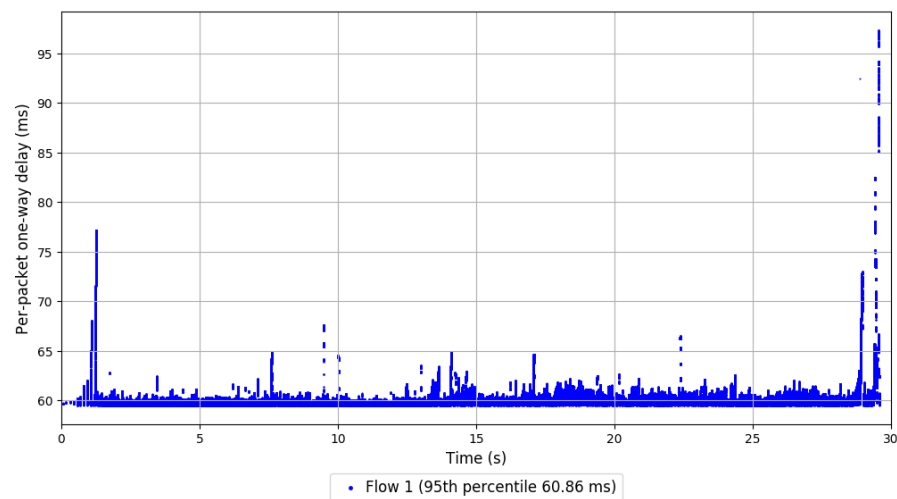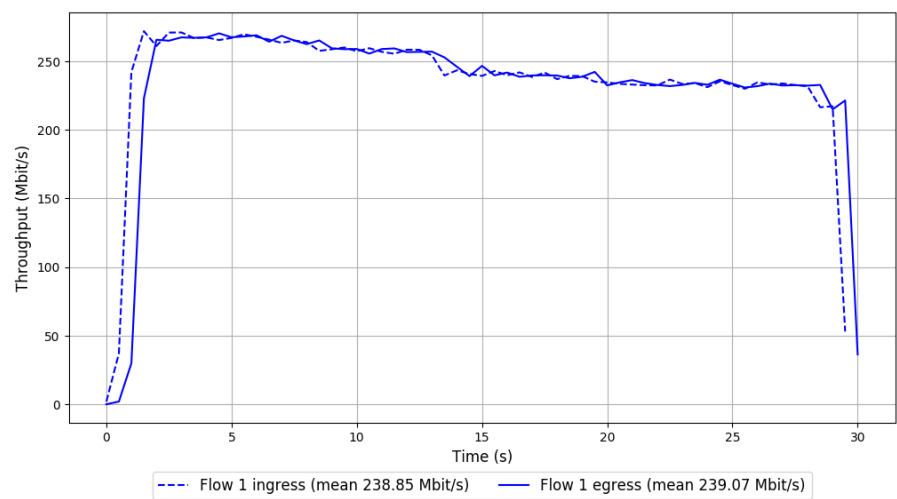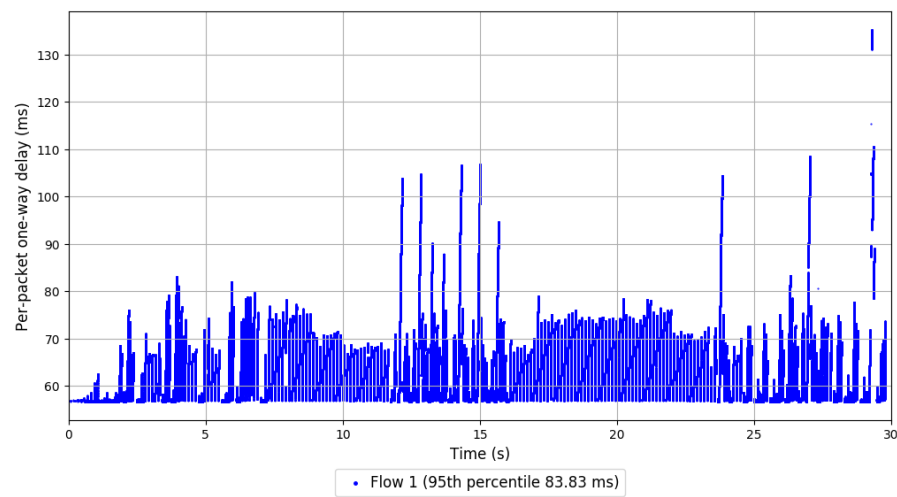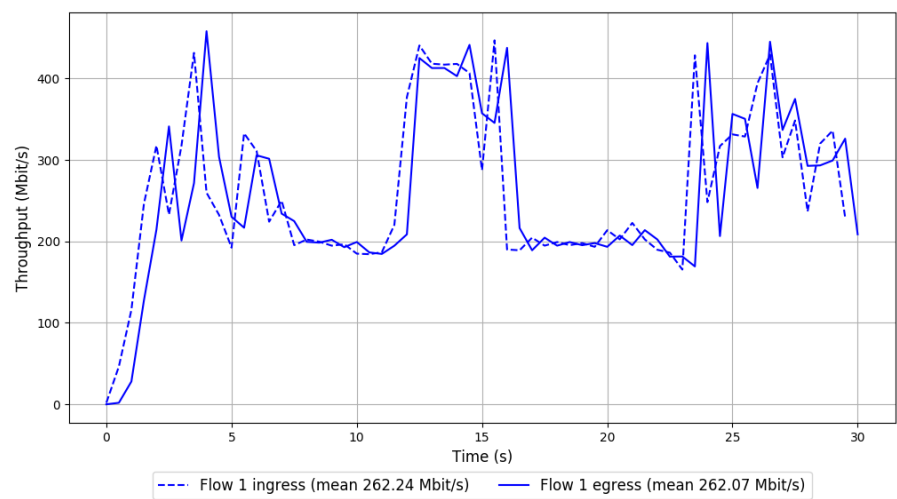
Run 4: Report of Indigo — Data Link

```
Run 5: Statistics of Indigo

Start at: 2018-10-26 19:25:49
End at: 2018-10-26 19:26:19
Local clock offset: -0.467 ms
Remote clock offset: 0.061 ms

# Below is generated by plot.py at 2018-10-26 20:36:27
# Datalink statistics
-- Total of 1 flow:
Average throughput: 239.07 Mbit/s
95th percentile per-packet one-way delay: 60.861 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 239.07 Mbit/s
95th percentile per-packet one-way delay: 60.861 ms
Loss rate: 0.30%
```

Run 5: Report of Indigo — Data Link

Flow 1 ingress (mean 238.85 Mbit/s)   Flow 1 egress (mean 239.07 Mbit/s)

• Flow 1 (95th percentile 60.86 ms)

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

Start at: 2018-10-26 17:43:30
End at: 2018-10-26 17:44:00
Local clock offset: -0.424 ms
Remote clock offset: -0.159 ms


# Below is generated by plot.py at 2018-10-26 20:36:27
# Datalink statistics
-- Total of 1 flow:
Average throughput: 262.07 Mbit/s
95th percentile per-packet one-way delay: 83.830 ms
Loss rate: 0.53%
-- Flow 1:
Average throughput: 262.07 Mbit/s
95th percentile per-packet one-way delay: 83.830 ms
Loss rate: 0.53%
```
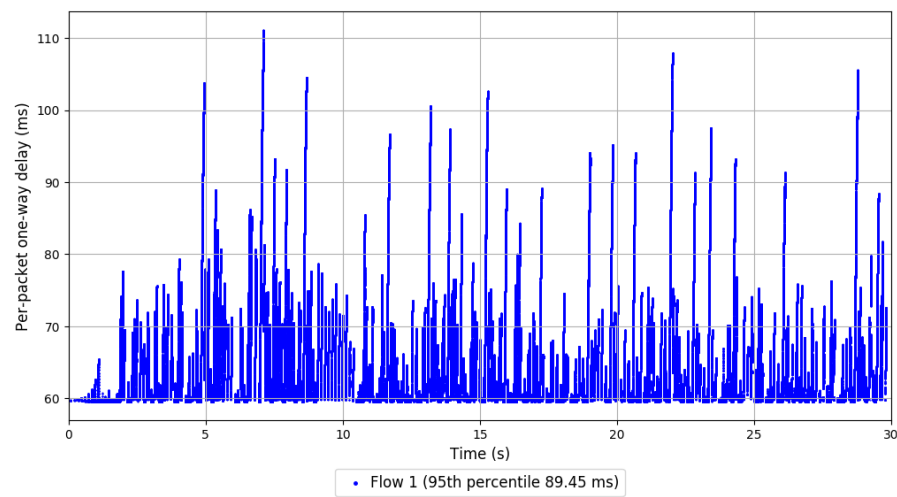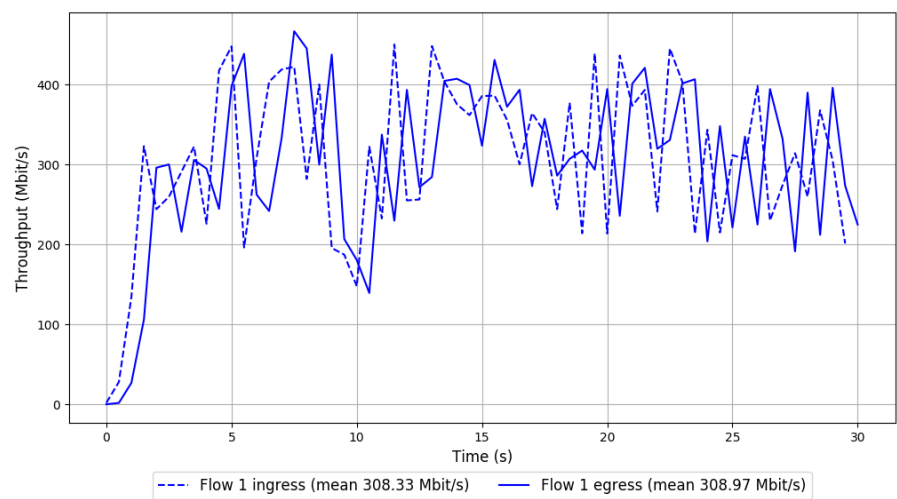
Run 1: Report of Indigo-96d2da3 — Data Link

- - - - Flow 1 ingress (mean 262.24 Mbit/s) ——— Flow 1 egress (mean 262.07 Mbit/s)

• Flow 1 (95th percentile 83.83 ms)

56

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

Start at: 2018-10-26 18:10:47
End at: 2018-10-26 18:11:17
Local clock offset: -0.402 ms
Remote clock offset: 0.634 ms


# Below is generated by plot.py at 2018-10-26 20:36:27
# Datalink statistics
-- Total of 1 flow:
Average throughput: 308.97 Mbit/s
95th percentile per-packet one-way delay: 89.450 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 308.97 Mbit/s
95th percentile per-packet one-way delay: 89.450 ms
Loss rate: 0.19%
```
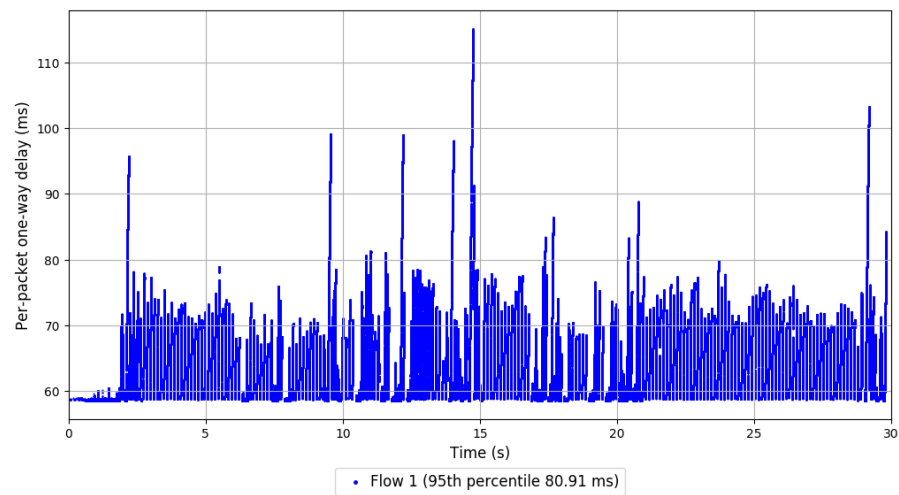
Run 2: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-10-26 18:37:52
End at: 2018-10-26 18:38:22
Local clock offset: 0.48 ms
Remote clock offset: -0.84 ms


# Below is generated by plot.py at 2018-10-26 20:36:27
# Datalink statistics
-- Total of 1 flow:
Average throughput: 238.86 Mbit/s
95th percentile per-packet one-way delay: 80.909 ms
Loss rate: 1.09%
-- Flow 1:
Average throughput: 238.86 Mbit/s
95th percentile per-packet one-way delay: 80.909 ms
Loss rate: 1.09%
```
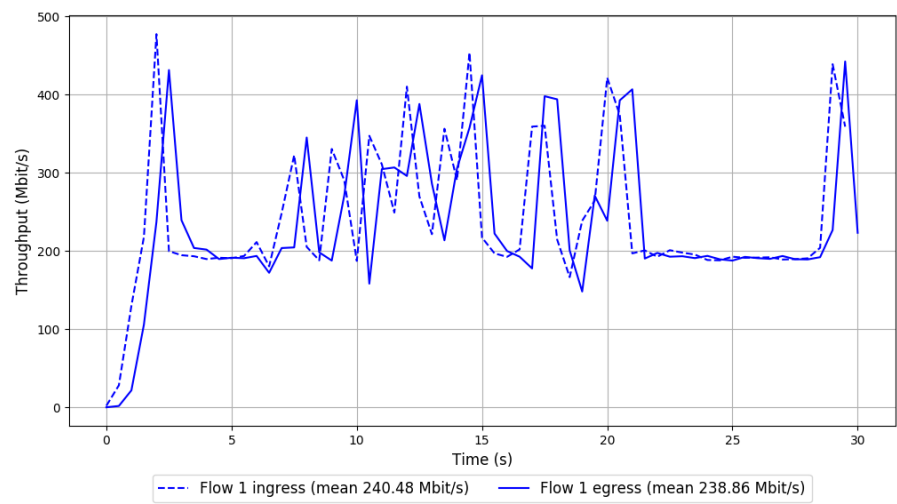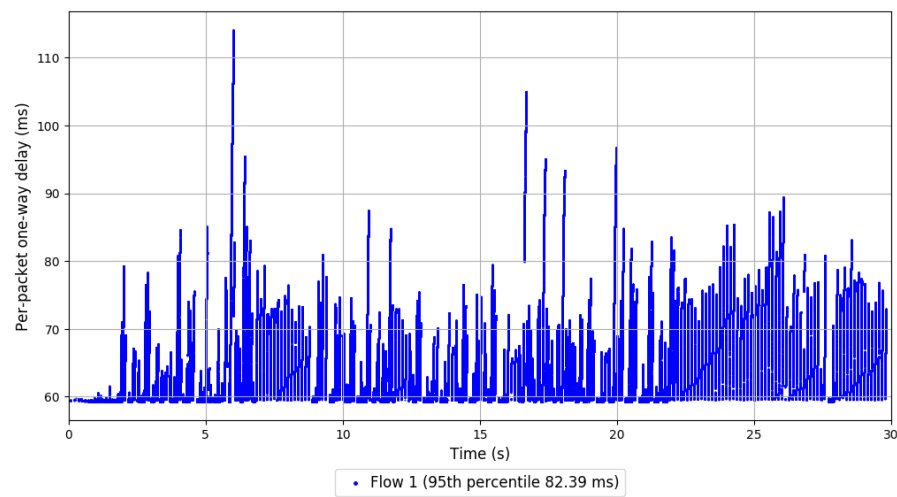
Run 3: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-10-26 19:04:56
End at: 2018-10-26 19:05:26
Local clock offset: -0.649 ms
Remote clock offset: 0.239 ms


# Below is generated by plot.py at 2018-10-26 20:36:47
# Datalink statistics
-- Total of 1 flow:
Average throughput: 259.17 Mbit/s
95th percentile per-packet one-way delay: 82.390 ms
Loss rate: 0.29%
-- Flow 1:
Average throughput: 259.17 Mbit/s
95th percentile per-packet one-way delay: 82.390 ms
Loss rate: 0.29%
```
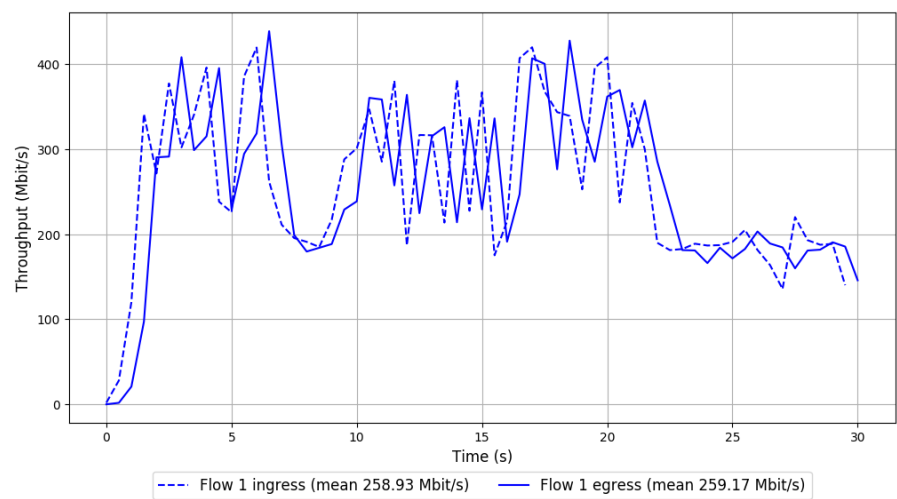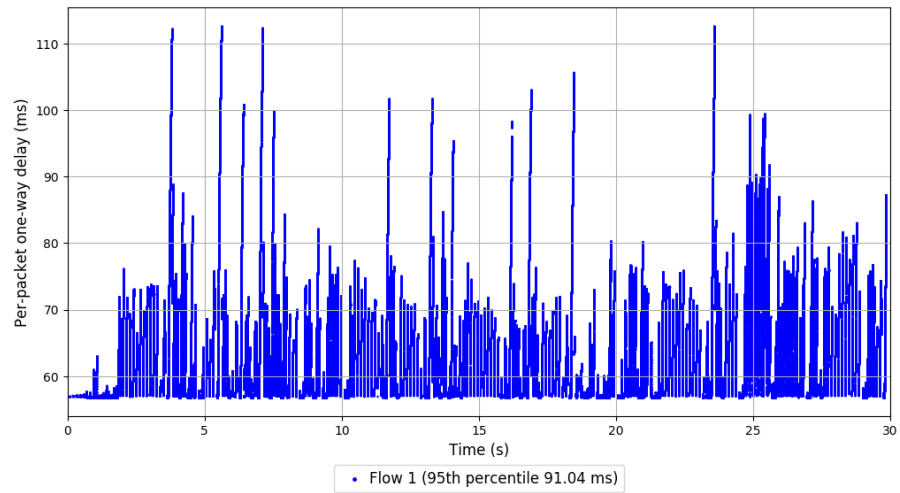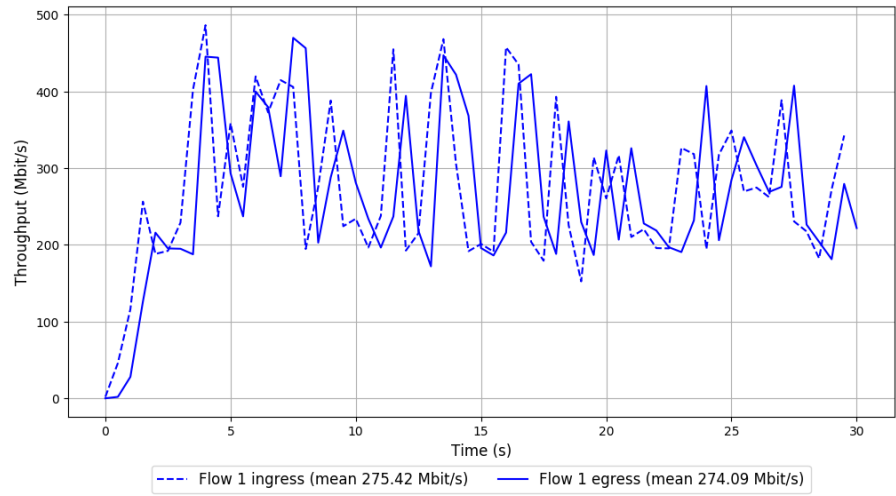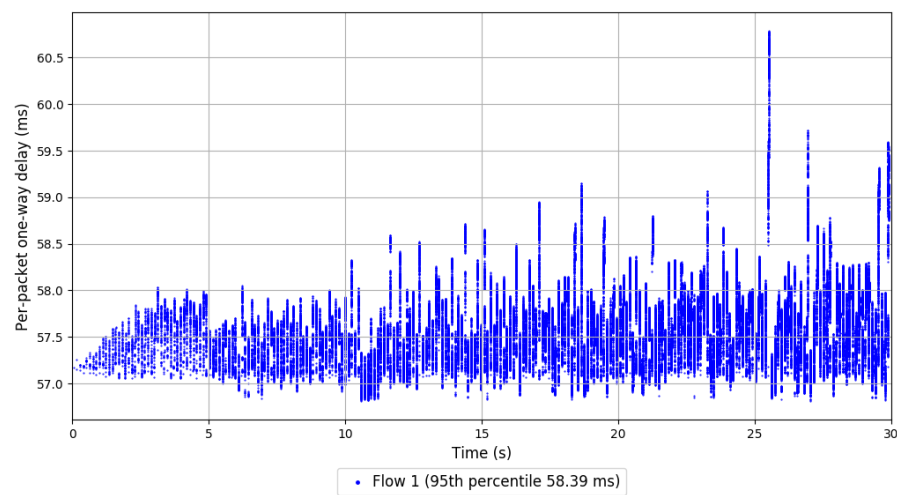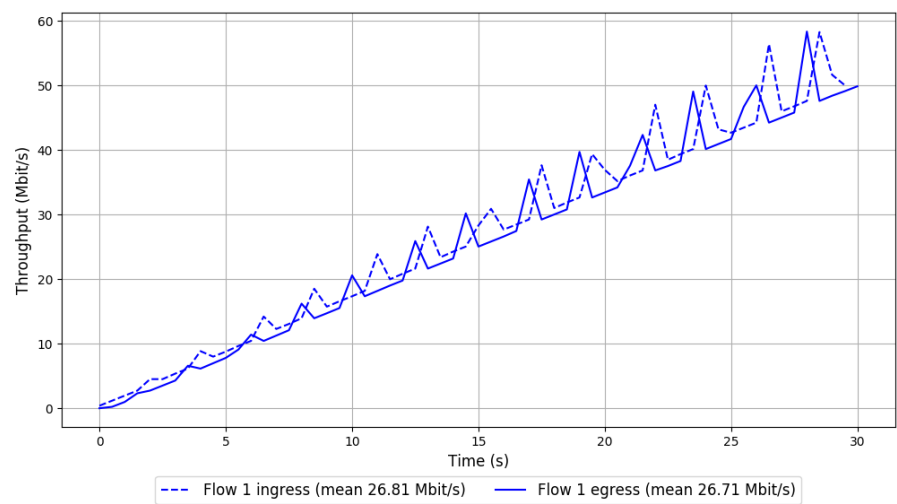
Run 4: Report of Indigo-96d2da3 — Data Link

Flow 1 ingress (mean 258.93 Mbit/s) ----   Flow 1 egress (mean 259.17 Mbit/s) ——

Flow 1 (95th percentile 82.39 ms) •

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

Start at: 2018-10-26 19:31:58
End at: 2018-10-26 19:32:29
Local clock offset: -0.658 ms
Remote clock offset: -0.241 ms


# Below is generated by plot.py at 2018-10-26 20:37:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 274.09 Mbit/s
95th percentile per-packet one-way delay: 91.040 ms
Loss rate: 0.87%
-- Flow 1:
Average throughput: 274.09 Mbit/s
95th percentile per-packet one-way delay: 91.040 ms
Loss rate: 0.87%
```

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

```
Run 1: Statistics of LEDBAT

Start at: 2018-10-26 17:34:28
End at: 2018-10-26 17:34:58
Local clock offset: -0.267 ms
Remote clock offset: -0.172 ms


# Below is generated by plot.py at 2018-10-26 20:37:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 26.71 Mbit/s
95th percentile per-packet one-way delay: 58.391 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 26.71 Mbit/s
95th percentile per-packet one-way delay: 58.391 ms
Loss rate: 0.78%
```
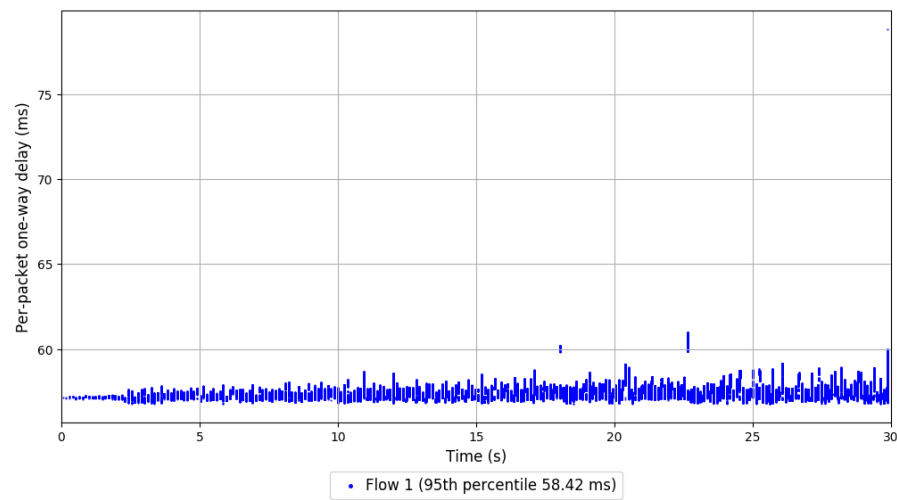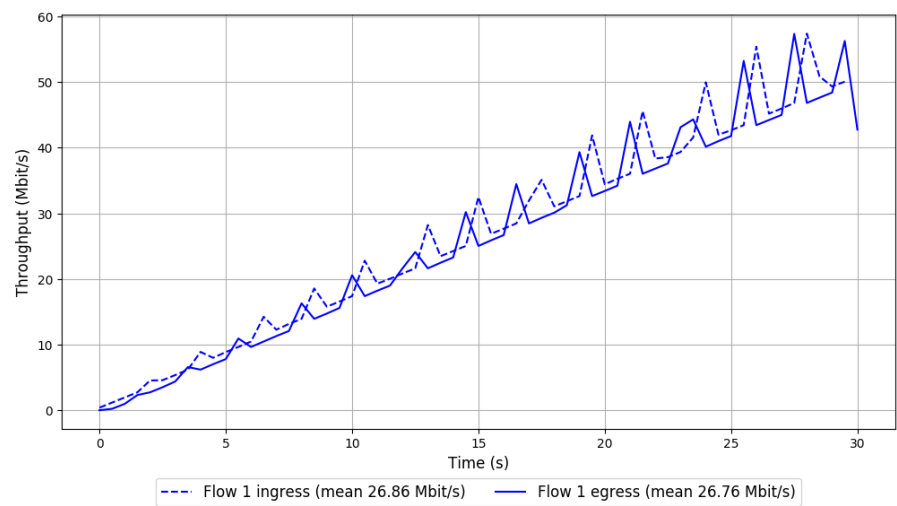
Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2018-10-26 18:01:30
End at: 2018-10-26 18:02:00
Local clock offset: -0.046 ms
Remote clock offset: 0.09 ms


# Below is generated by plot.py at 2018-10-26 20:37:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 26.76 Mbit/s
95th percentile per-packet one-way delay: 58.421 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 26.76 Mbit/s
95th percentile per-packet one-way delay: 58.421 ms
Loss rate: 0.78%
```
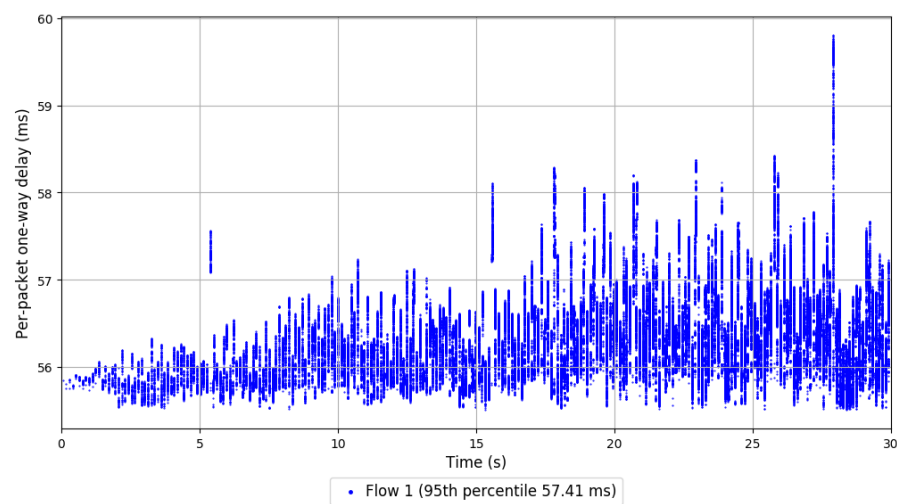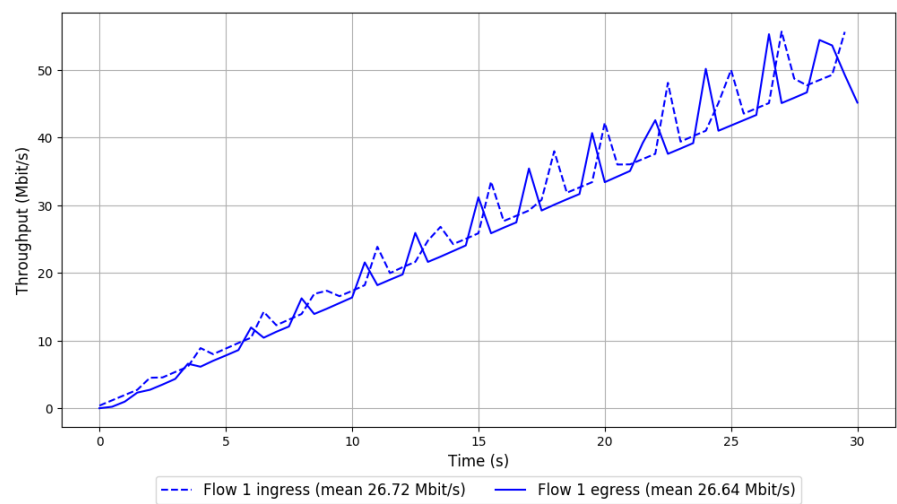
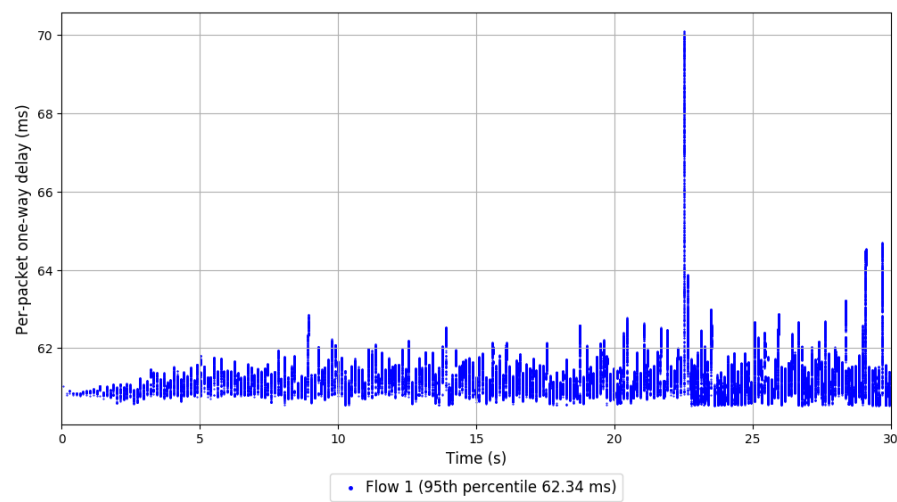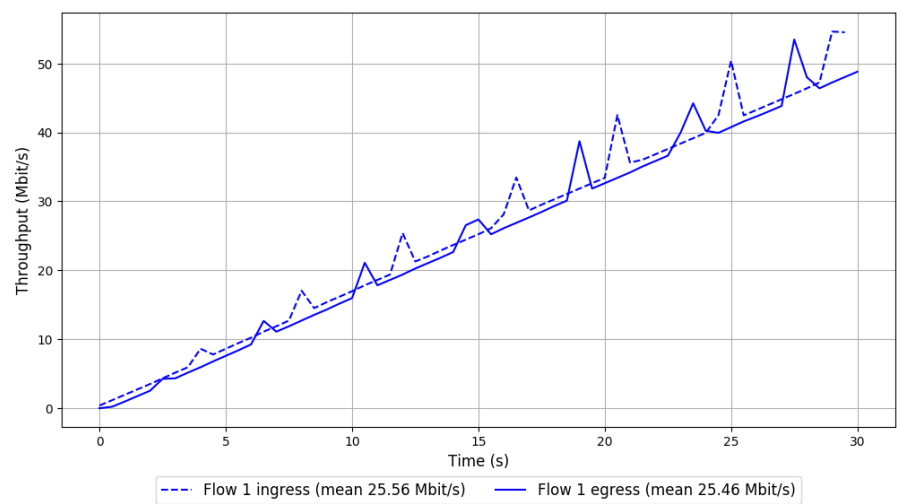Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2018-10-26 18:28:45
End at: 2018-10-26 18:29:15
Local clock offset: -1.475 ms
Remote clock offset: 0.202 ms


# Below is generated by plot.py at 2018-10-26 20:37:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 26.64 Mbit/s
95th percentile per-packet one-way delay: 57.406 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 26.64 Mbit/s
95th percentile per-packet one-way delay: 57.406 ms
Loss rate: 0.65%
```

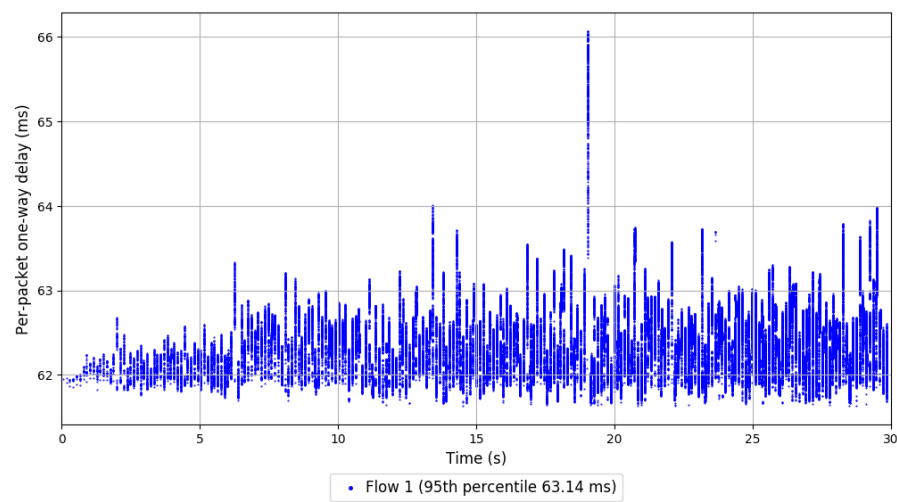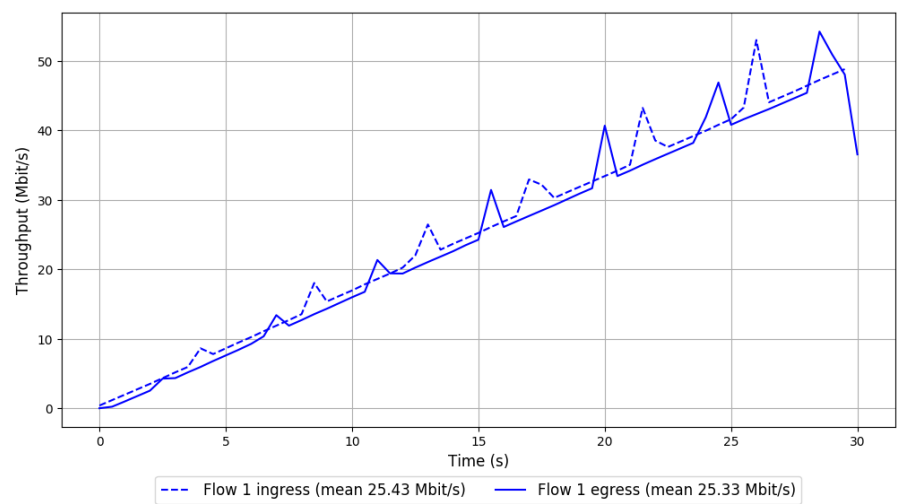Run 3: Report of LEDBAT — Data Link

Flow 1 ingress (mean 26.72 Mbit/s)   Flow 1 egress (mean 26.64 Mbit/s)

• Flow 1 (95th percentile 57.41 ms)

```
Run 4: Statistics of LEDBAT

Start at: 2018-10-26 18:55:49
End at: 2018-10-26 18:56:19
Local clock offset: -0.483 ms
Remote clock offset: -0.792 ms


# Below is generated by plot.py at 2018-10-26 20:37:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 25.46 Mbit/s
95th percentile per-packet one-way delay: 62.343 ms
Loss rate: 0.80%
-- Flow 1:
Average throughput: 25.46 Mbit/s
95th percentile per-packet one-way delay: 62.343 ms
Loss rate: 0.80%
```

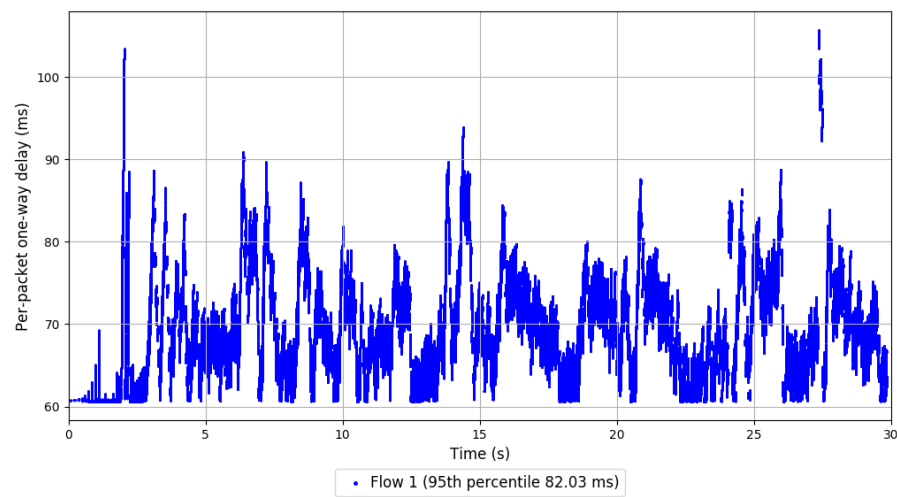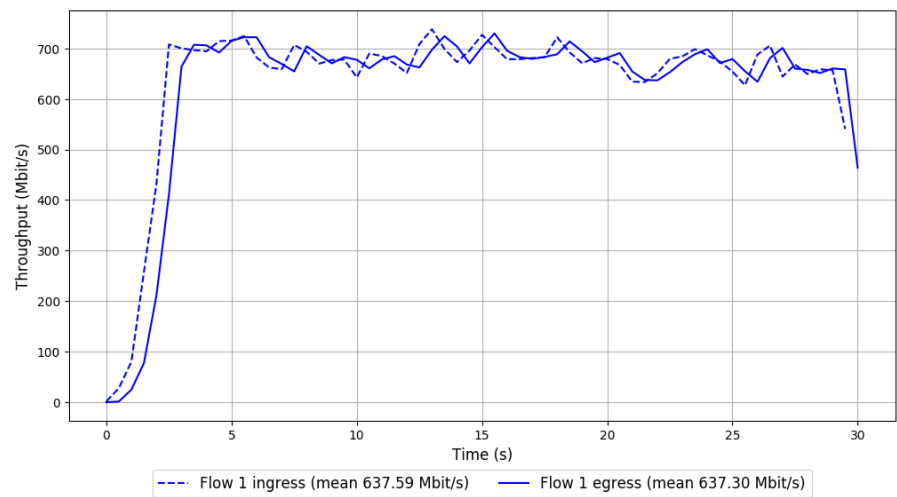Run 4: Report of LEDBAT — Data Link

Flow 1 ingress (mean 25.56 Mbit/s) ----- Flow 1 egress (mean 25.46 Mbit/s) ———

Flow 1 (95th percentile 62.34 ms)

```
Run 5: Statistics of LEDBAT

Start at: 2018-10-26 19:22:59
End at: 2018-10-26 19:23:29
Local clock offset: 0.856 ms
Remote clock offset: -0.538 ms

# Below is generated by plot.py at 2018-10-26 20:37:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 25.33 Mbit/s
95th percentile per-packet one-way delay: 63.144 ms
Loss rate: 0.81%
-- Flow 1:
Average throughput: 25.33 Mbit/s
95th percentile per-packet one-way delay: 63.144 ms
Loss rate: 0.81%
```
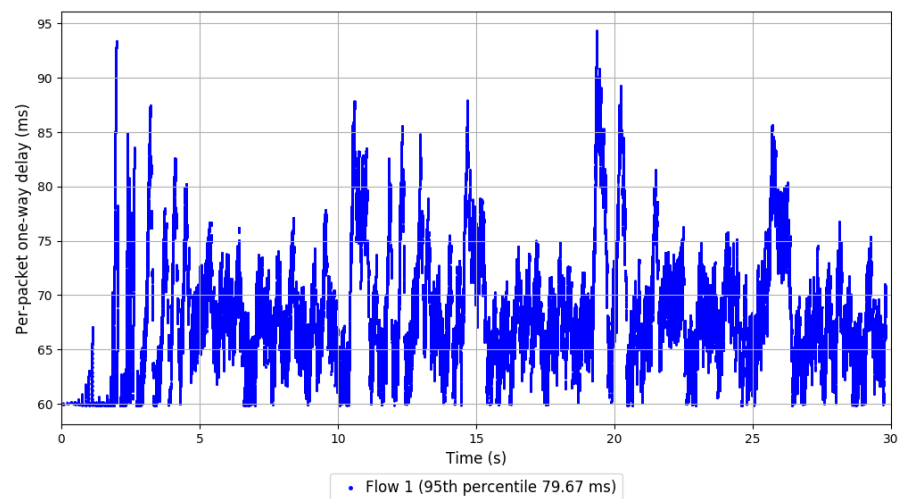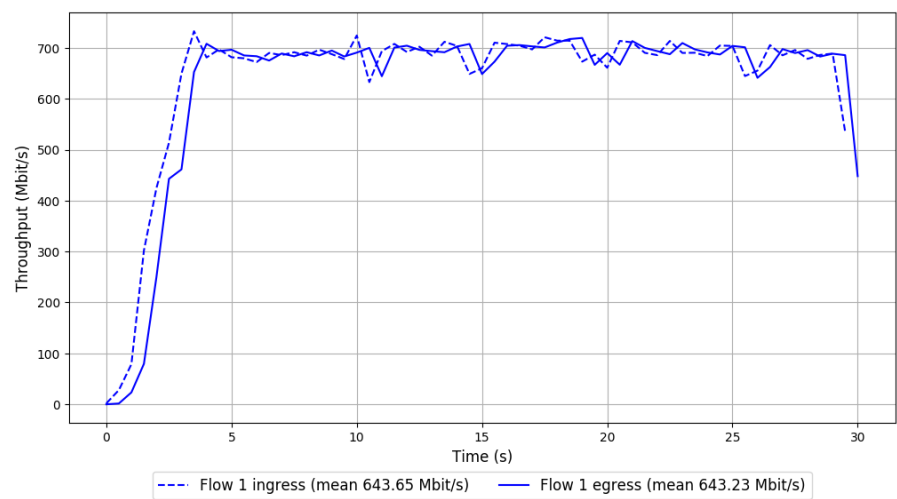
Run 5: Report of LEDBAT — Data Link

```
Run 1: Statistics of Indigo-Muses

Start at: 2018-10-26 17:44:54
End at: 2018-10-26 17:45:24
Local clock offset: 0.492 ms
Remote clock offset: 0.335 ms

# Below is generated by plot.py at 2018-10-26 20:47:41
# Datalink statistics
-- Total of 1 flow:
Average throughput: 637.30 Mbit/s
95th percentile per-packet one-way delay: 82.027 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 637.30 Mbit/s
95th percentile per-packet one-way delay: 82.027 ms
Loss rate: 0.44%
```

Run 1: Report of Indigo-Muses — Data Link

```
Run 2: Statistics of Indigo-Muses

Start at: 2018-10-26 18:12:09
End at: 2018-10-26 18:12:39
Local clock offset: -0.66 ms
Remote clock offset: -0.091 ms


# Below is generated by plot.py at 2018-10-26 20:48:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 643.23 Mbit/s
95th percentile per-packet one-way delay: 79.674 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 643.23 Mbit/s
95th percentile per-packet one-way delay: 79.674 ms
Loss rate: 0.46%
```

Run 2: Report of Indigo-Muses — Data Link

```
Run 3: Statistics of Indigo-Muses

Start at: 2018-10-26 18:39:14
End at: 2018-10-26 18:39:44
Local clock offset: -0.725 ms
Remote clock offset: 0.545 ms

# Below is generated by plot.py at 2018-10-26 20:48:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 606.82 Mbit/s
95th percentile per-packet one-way delay: 82.778 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 606.82 Mbit/s
95th percentile per-packet one-way delay: 82.778 ms
Loss rate: 0.47%
```
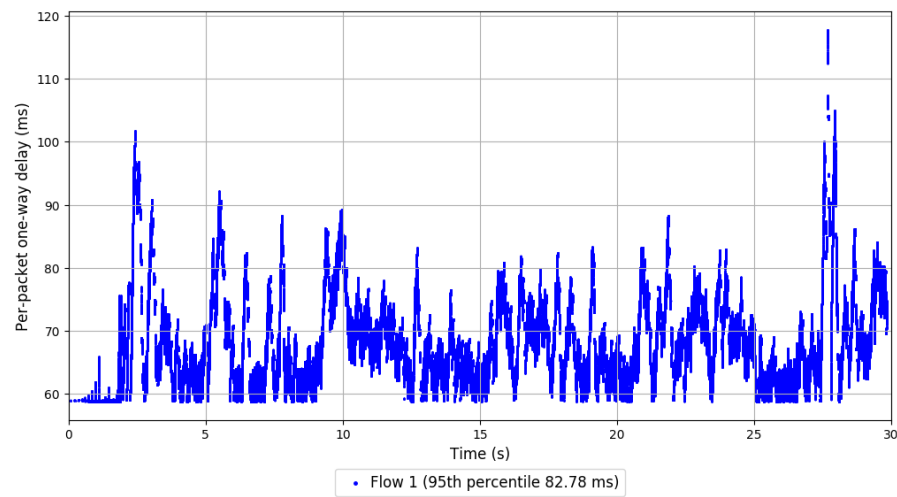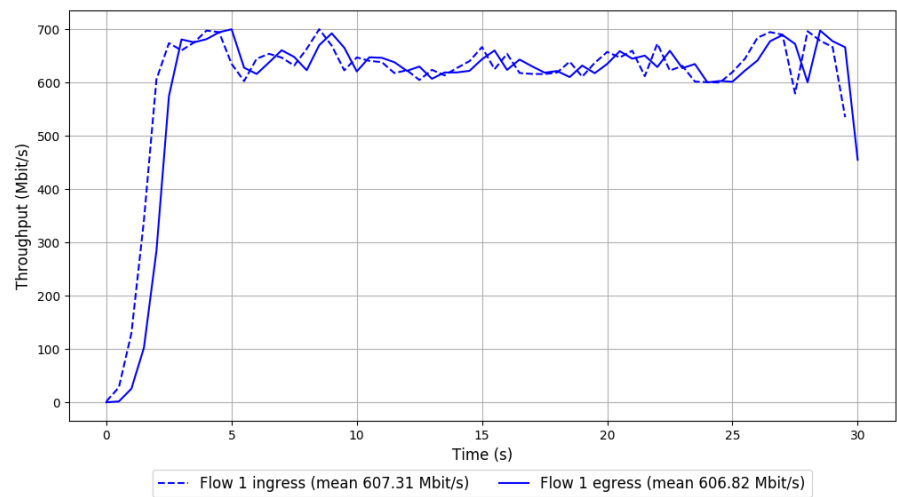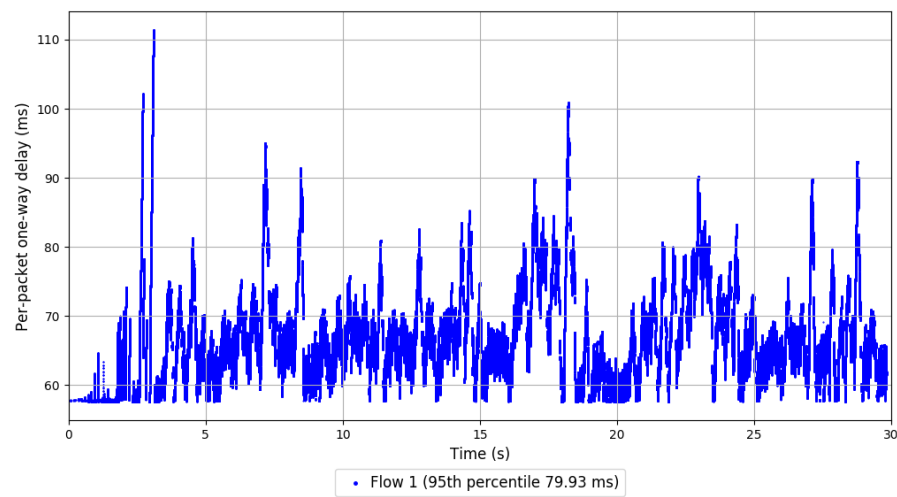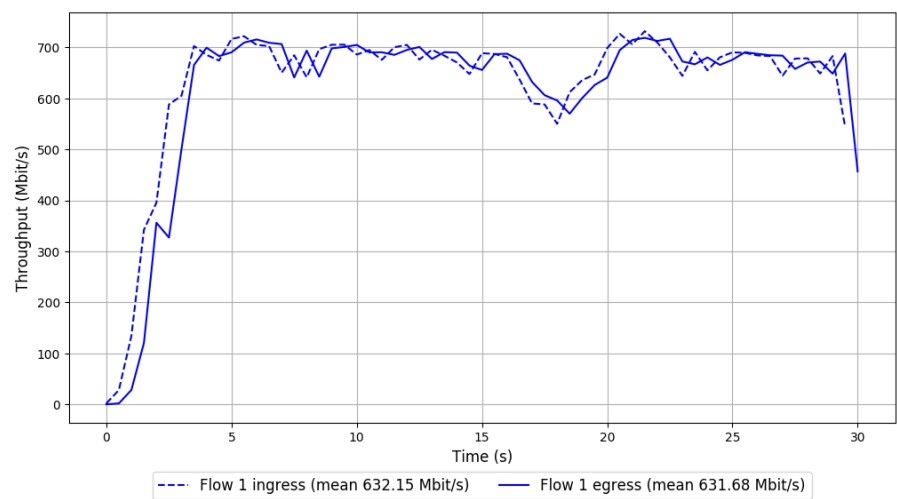
Run 3: Report of Indigo-Muses — Data Link

```
Run 4: Statistics of Indigo-Muses

Start at: 2018-10-26 19:06:19
End at: 2018-10-26 19:06:49
Local clock offset: 0.288 ms
Remote clock offset: -0.399 ms


# Below is generated by plot.py at 2018-10-26 20:48:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 631.68 Mbit/s
95th percentile per-packet one-way delay: 79.934 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 631.68 Mbit/s
95th percentile per-packet one-way delay: 79.934 ms
Loss rate: 0.46%
```
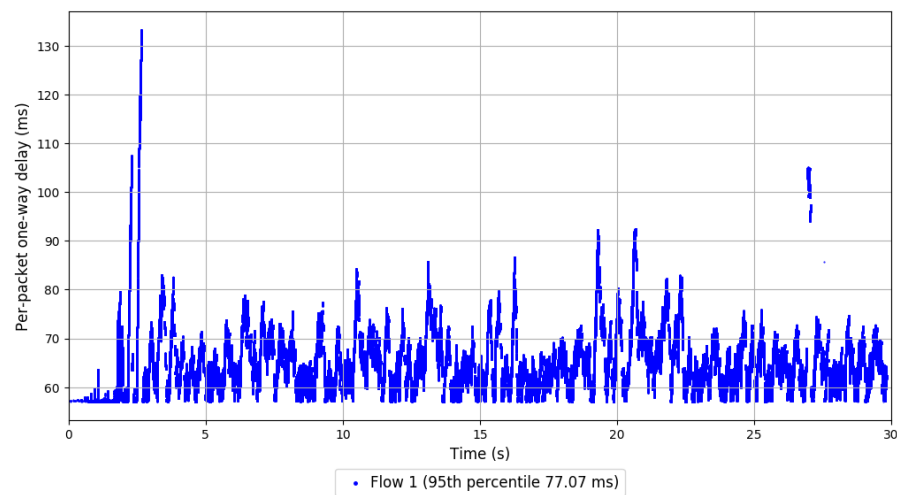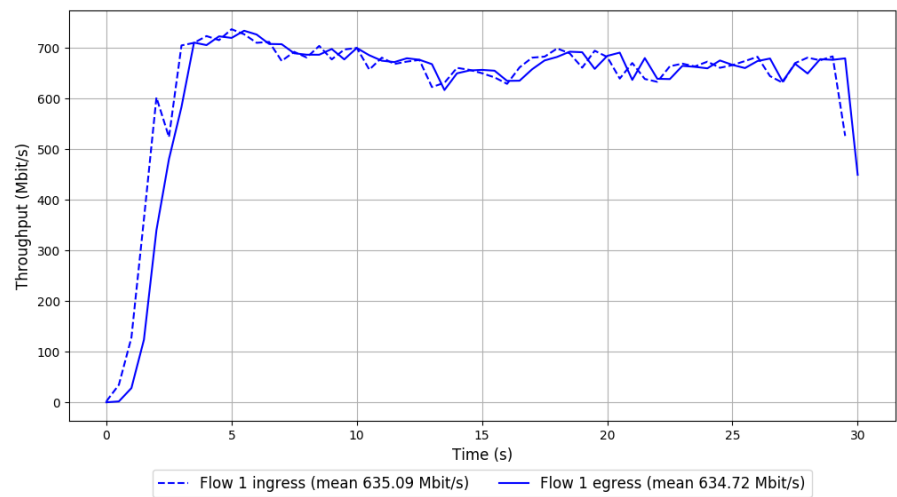
Run 4: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 632.15 Mbit/s) — Flow 1 egress (mean 631.68 Mbit/s)

Flow 1 (95th percentile 79.93 ms)

```
Run 5: Statistics of Indigo-Muses

Start at: 2018-10-26 19:33:22
End at: 2018-10-26 19:33:52
Local clock offset: 0.157 ms
Remote clock offset: 0.172 ms


# Below is generated by plot.py at 2018-10-26 20:48:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 634.72 Mbit/s
95th percentile per-packet one-way delay: 77.070 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 634.72 Mbit/s
95th percentile per-packet one-way delay: 77.070 ms
Loss rate: 0.44%
```

Run 5: Report of Indigo-Muses — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2018-10-26 17:47:49
End at: 2018-10-26 17:48:19
Local clock offset: 0.276 ms
Remote clock offset: -0.218 ms


# Below is generated by plot.py at 2018-10-26 20:50:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 376.95 Mbit/s
95th percentile per-packet one-way delay: 159.626 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 376.95 Mbit/s
95th percentile per-packet one-way delay: 159.626 ms
Loss rate: 0.62%
```
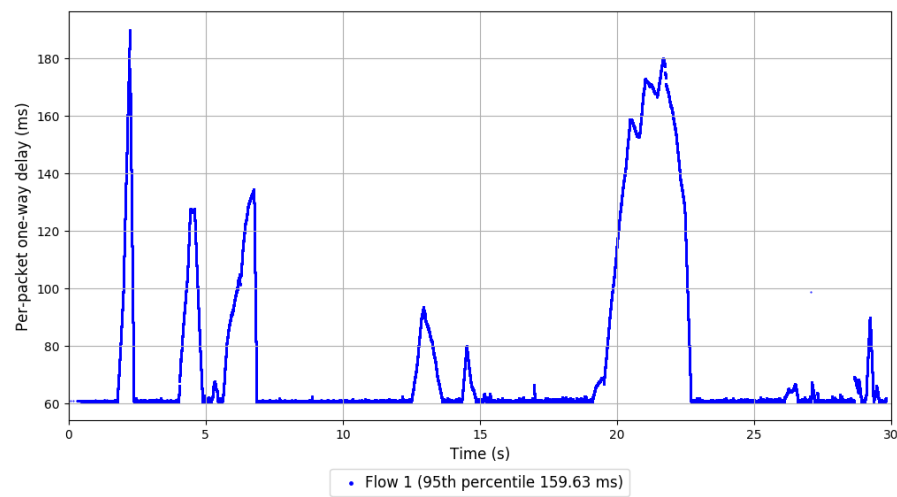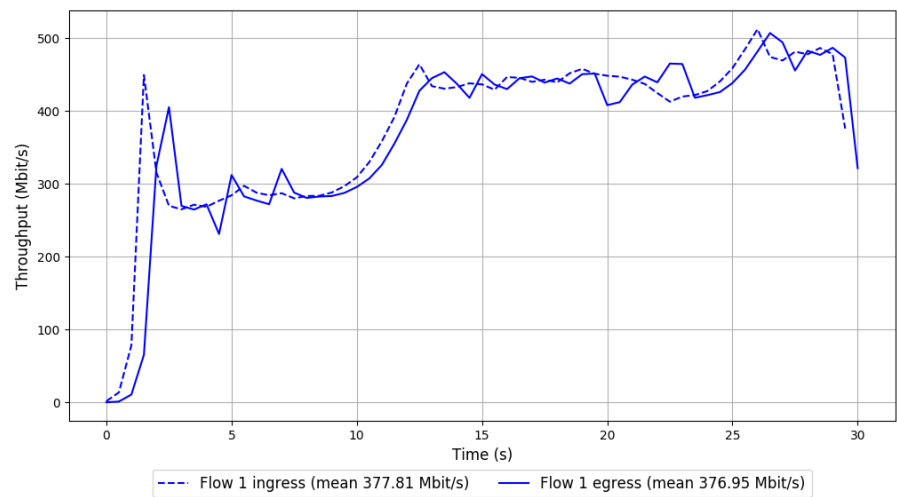
Run 1: Report of PCC-Allegro — Data Link

```
Run 2: Statistics of PCC-Allegro

Start at: 2018-10-26 18:14:59
End at: 2018-10-26 18:15:29
Local clock offset: 0.576 ms
Remote clock offset: 1.328 ms


# Below is generated by plot.py at 2018-10-26 20:52:18
# Datalink statistics
-- Total of 1 flow:
Average throughput: 420.08 Mbit/s
95th percentile per-packet one-way delay: 140.941 ms
Loss rate: 0.54%
-- Flow 1:
Average throughput: 420.08 Mbit/s
95th percentile per-packet one-way delay: 140.941 ms
Loss rate: 0.54%
```
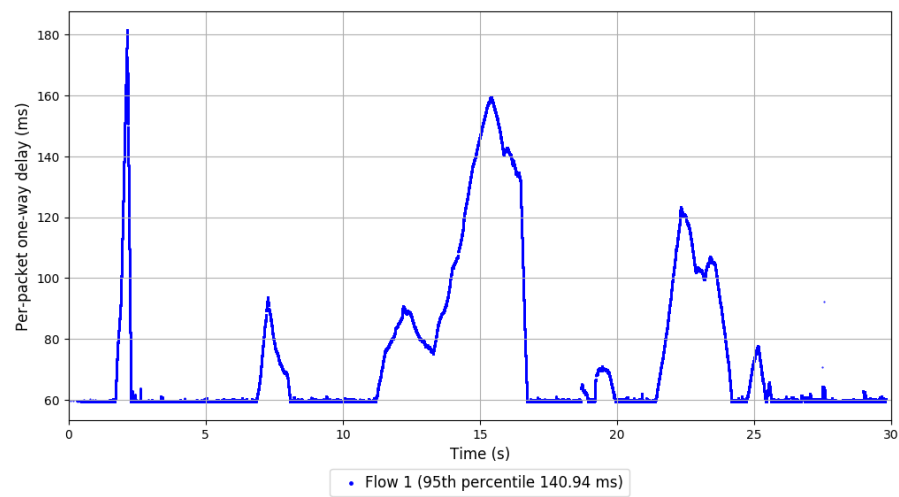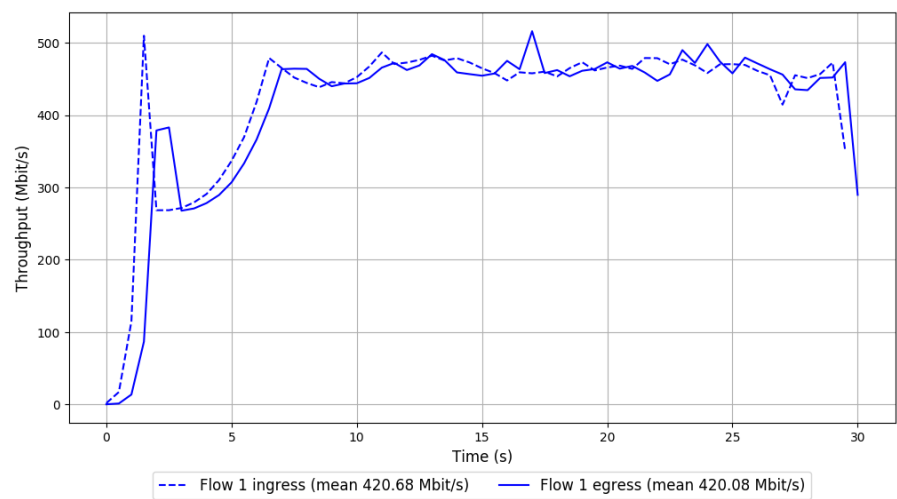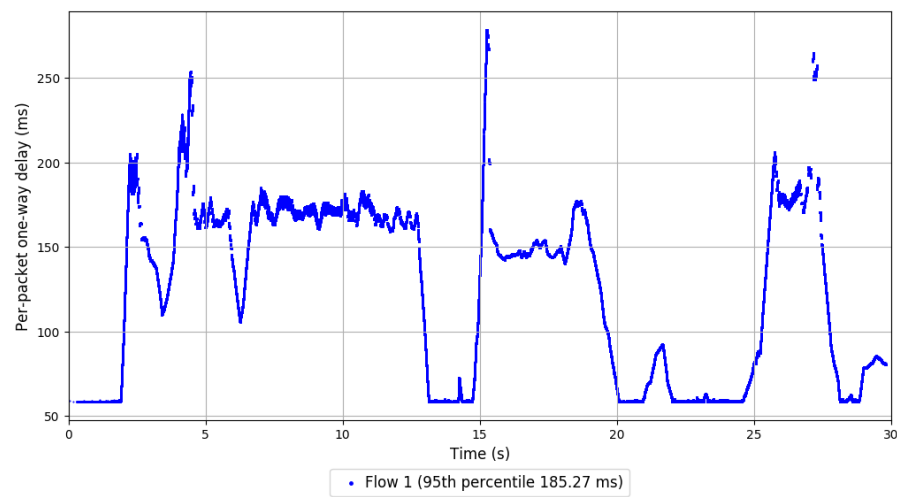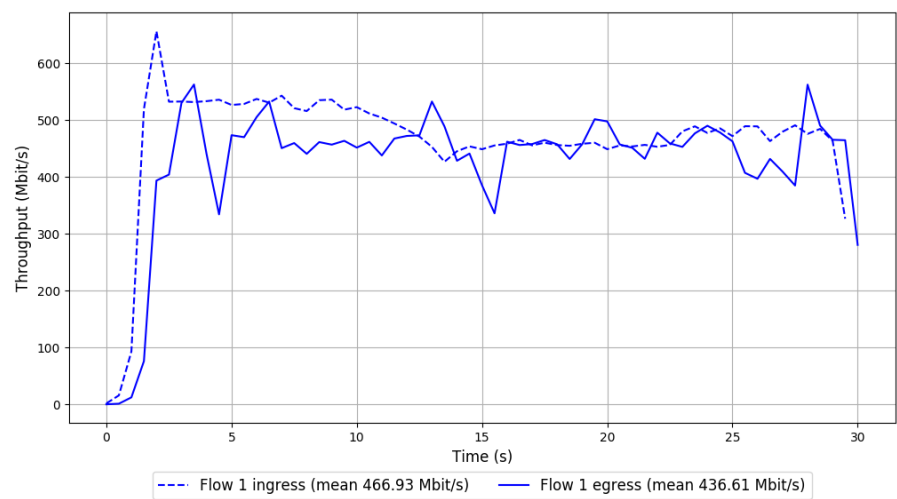
Run 2: Report of PCC-Allegro — Data Link

```
Run 3: Statistics of PCC-Allegro

Start at: 2018-10-26 18:42:11
End at: 2018-10-26 18:42:41
Local clock offset: 0.313 ms
Remote clock offset: -1.378 ms


# Below is generated by plot.py at 2018-10-26 20:54:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 436.61 Mbit/s
95th percentile per-packet one-way delay: 185.270 ms
Loss rate: 6.85%
-- Flow 1:
Average throughput: 436.61 Mbit/s
95th percentile per-packet one-way delay: 185.270 ms
Loss rate: 6.85%
```

Run 3: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 466.93 Mbit/s) — Flow 1 egress (mean 436.61 Mbit/s)
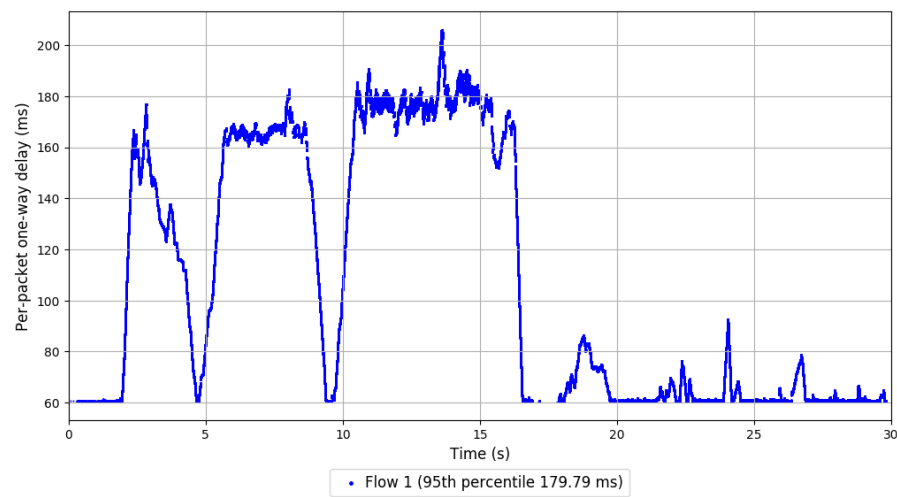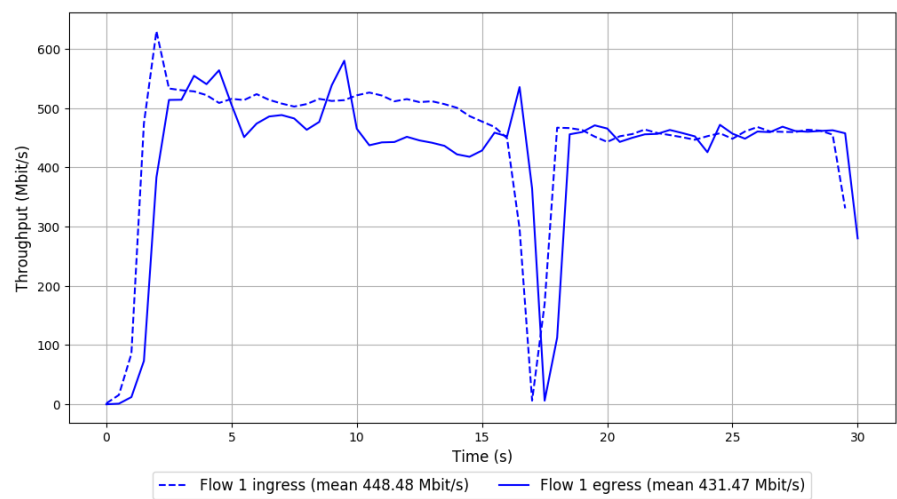

Flow 1 (95th percentile 185.27 ms)

```
Run 4: Statistics of PCC-Allegro

Start at: 2018-10-26 19:09:10
End at: 2018-10-26 19:09:40
Local clock offset: -0.137 ms
Remote clock offset: -0.168 ms


# Below is generated by plot.py at 2018-10-26 21:04:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 431.47 Mbit/s
95th percentile per-packet one-way delay: 179.792 ms
Loss rate: 4.17%
-- Flow 1:
Average throughput: 431.47 Mbit/s
95th percentile per-packet one-way delay: 179.792 ms
Loss rate: 4.17%
```

Run 4: Report of PCC-Allegro — Data Link

```
Run 5: Statistics of PCC-Allegro

Start at: 2018-10-26 19:36:17
End at: 2018-10-26 19:36:47
Local clock offset: 0.109 ms
Remote clock offset: -0.153 ms


# Below is generated by plot.py at 2018-10-26 21:04:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 327.65 Mbit/s
95th percentile per-packet one-way delay: 266.225 ms
Loss rate: 9.29%
-- Flow 1:
Average throughput: 327.65 Mbit/s
95th percentile per-packet one-way delay: 266.225 ms
Loss rate: 9.29%
```
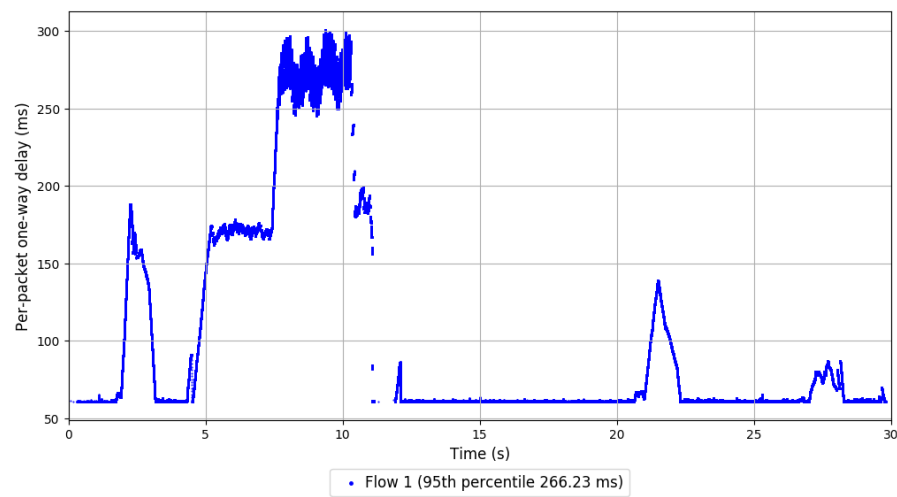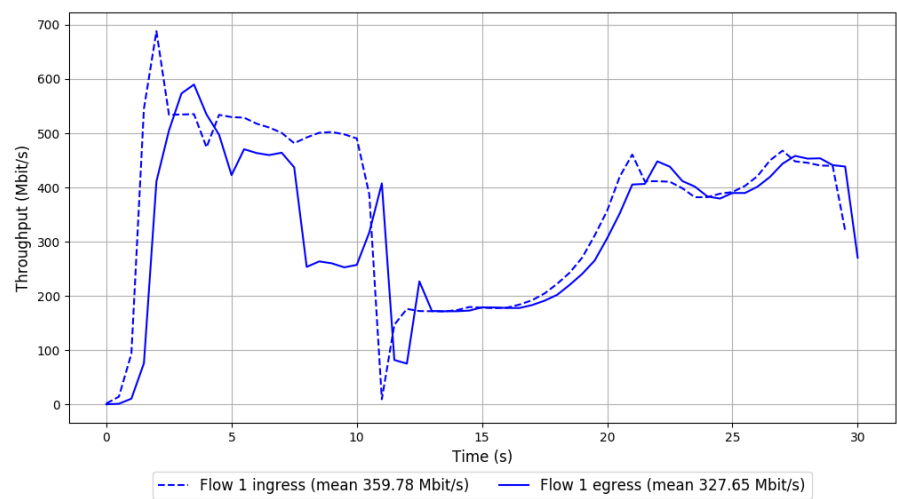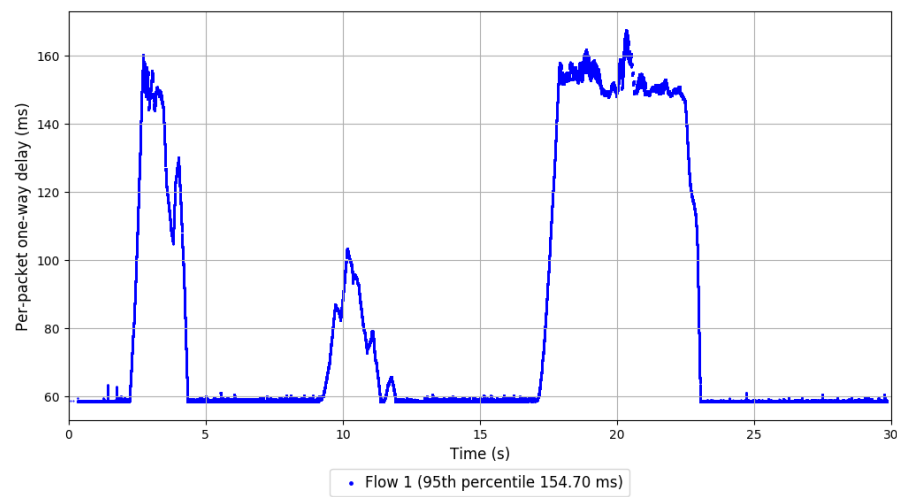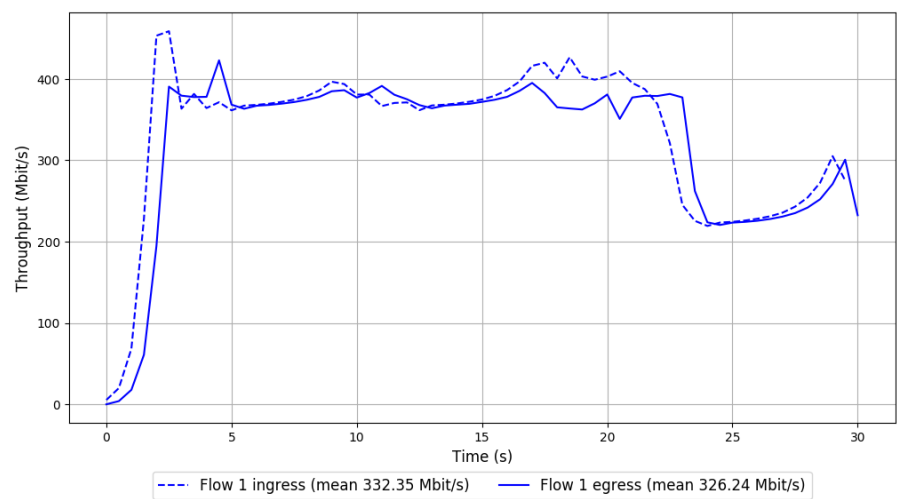
Run 5: Report of PCC-Allegro — Data Link

```
Run 1: Statistics of PCC-Expr

Start at: 2018-10-26 17:32:41
End at: 2018-10-26 17:33:11
Local clock offset: 0.293 ms
Remote clock offset: -1.291 ms


# Below is generated by plot.py at 2018-10-26 21:04:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 326.24 Mbit/s
95th percentile per-packet one-way delay: 154.701 ms
Loss rate: 2.21%
-- Flow 1:
Average throughput: 326.24 Mbit/s
95th percentile per-packet one-way delay: 154.701 ms
Loss rate: 2.21%
```
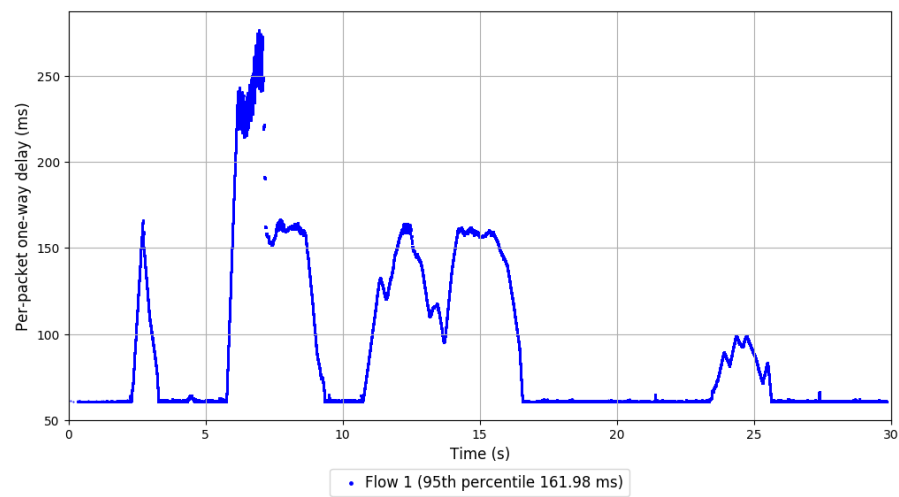
Run 1: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 332.35 Mbit/s)   Flow 1 egress (mean 326.24 Mbit/s)

• Flow 1 (95th percentile 154.70 ms)

```
Run 2: Statistics of PCC-Expr

Start at: 2018-10-26 17:59:50
End at: 2018-10-26 18:00:20
Local clock offset: 0.231 ms
Remote clock offset: 0.027 ms

# Below is generated by plot.py at 2018-10-26 21:04:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 311.21 Mbit/s
95th percentile per-packet one-way delay: 161.977 ms
Loss rate: 3.27%
-- Flow 1:
Average throughput: 311.21 Mbit/s
95th percentile per-packet one-way delay: 161.977 ms
Loss rate: 3.27%
```
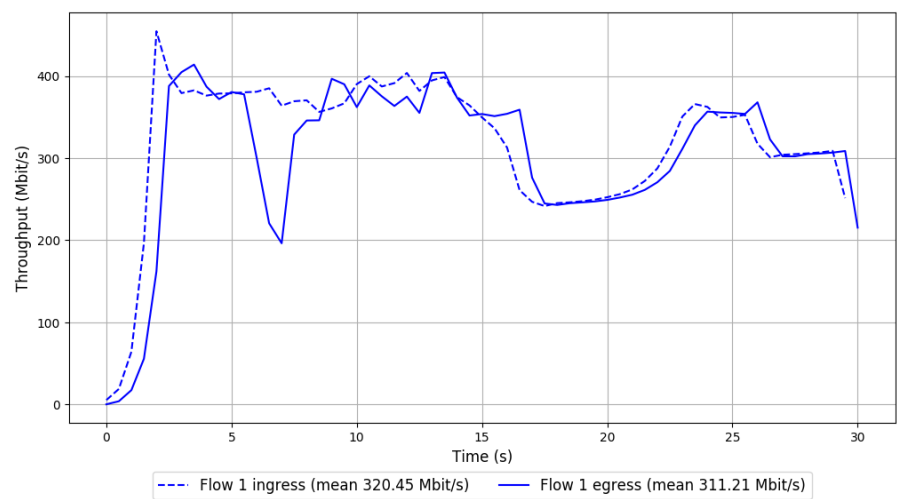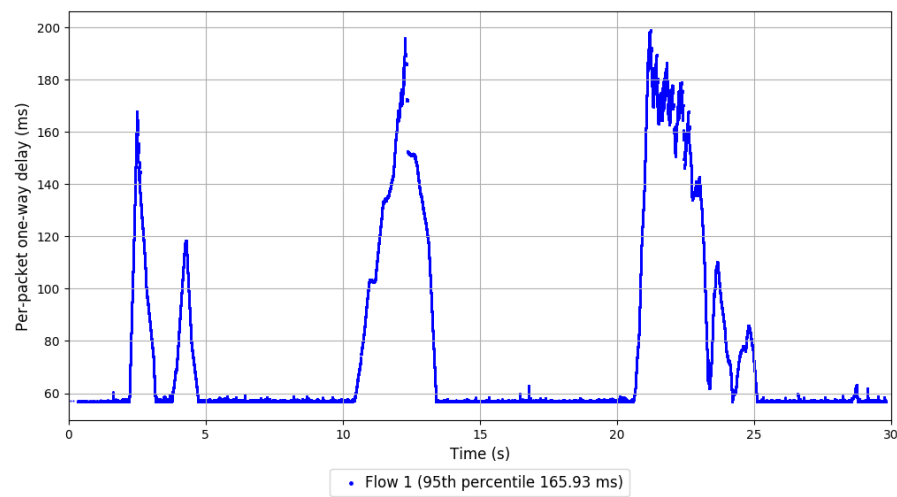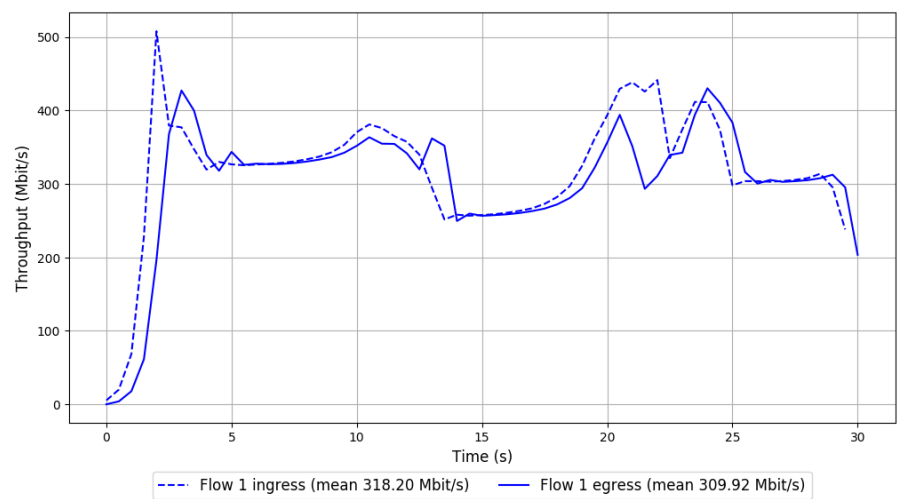
Run 2: Report of PCC-Expr — Data Link

```
Run 3: Statistics of PCC-Expr

Start at: 2018-10-26 18:27:02
End at: 2018-10-26 18:27:32
Local clock offset: -0.103 ms
Remote clock offset: -0.032 ms


# Below is generated by plot.py at 2018-10-26 21:04:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 309.92 Mbit/s
95th percentile per-packet one-way delay: 165.931 ms
Loss rate: 2.98%
-- Flow 1:
Average throughput: 309.92 Mbit/s
95th percentile per-packet one-way delay: 165.931 ms
Loss rate: 2.98%
```

Run 3: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 318.20 Mbit/s) — Flow 1 egress (mean 309.92 Mbit/s)
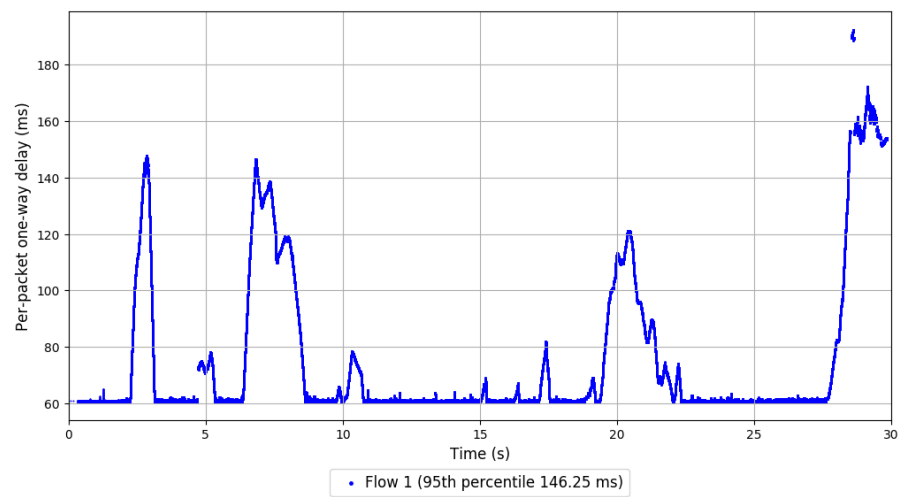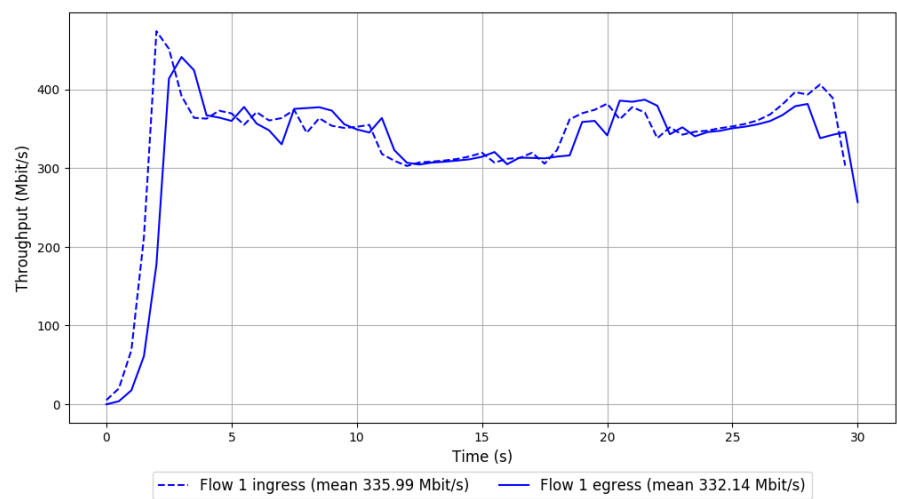

Flow 1 (95th percentile 165.93 ms)

```
Run 4: Statistics of PCC-Expr

Start at: 2018-10-26 18:54:03
End at: 2018-10-26 18:54:33
Local clock offset: -0.626 ms
Remote clock offset: -1.202 ms


# Below is generated by plot.py at 2018-10-26 21:04:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 332.14 Mbit/s
95th percentile per-packet one-way delay: 146.252 ms
Loss rate: 1.54%
-- Flow 1:
Average throughput: 332.14 Mbit/s
95th percentile per-packet one-way delay: 146.252 ms
Loss rate: 1.54%
```
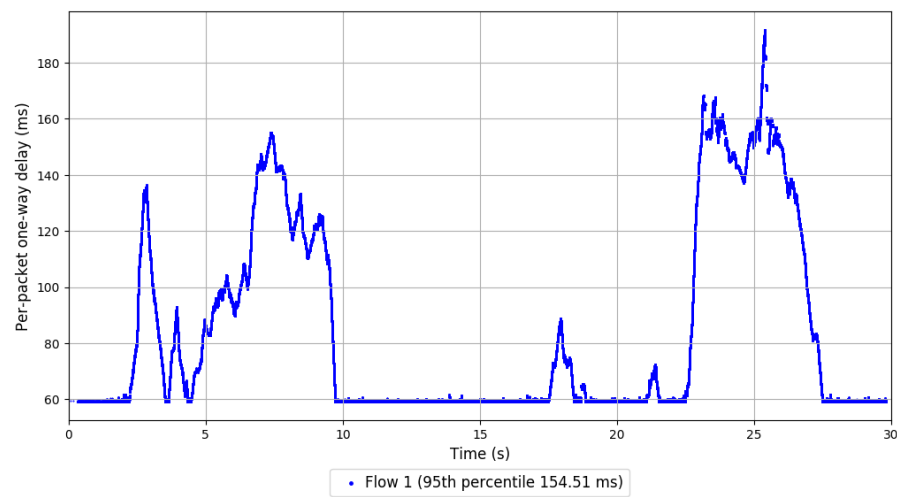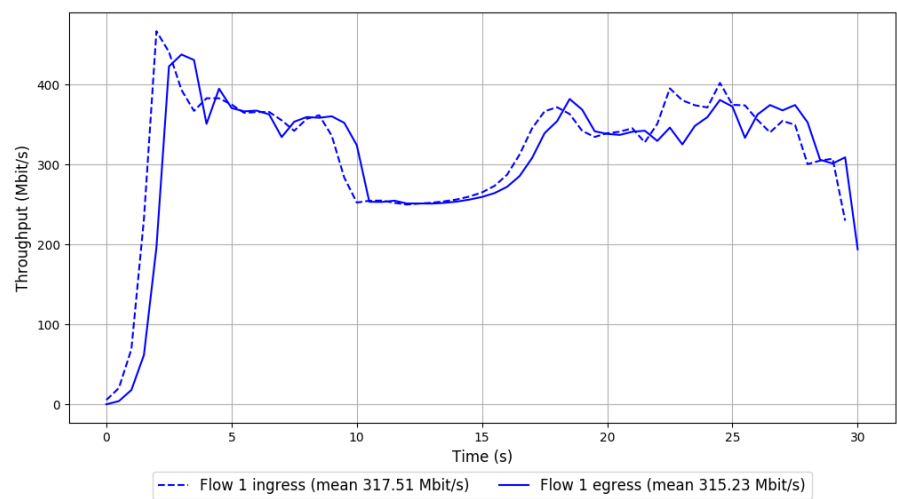
Run 4: Report of PCC-Expr — Data Link

```
Run 5: Statistics of PCC-Expr

Start at: 2018-10-26 19:21:15
End at: 2018-10-26 19:21:45
Local clock offset: -1.225 ms
Remote clock offset: -0.329 ms


# Below is generated by plot.py at 2018-10-26 21:04:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 315.23 Mbit/s
95th percentile per-packet one-way delay: 154.510 ms
Loss rate: 1.11%
-- Flow 1:
Average throughput: 315.23 Mbit/s
95th percentile per-packet one-way delay: 154.510 ms
Loss rate: 1.11%
```
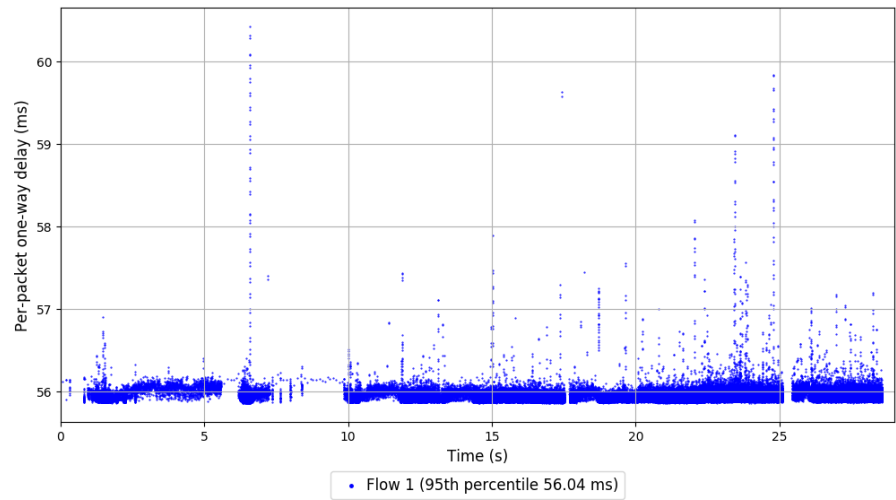
Run 5: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 317.51 Mbit/s)   Flow 1 egress (mean 315.23 Mbit/s)

• Flow 1 (95th percentile 154.51 ms)

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-10-26 17:54:10
End at: 2018-10-26 17:54:40
Local clock offset: -0.465 ms
Remote clock offset: 0.586 ms

# Below is generated by plot.py at 2018-10-26 21:04:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 50.99 Mbit/s
95th percentile per-packet one-way delay: 56.044 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 50.99 Mbit/s
95th percentile per-packet one-way delay: 56.044 ms
Loss rate: 0.74%
```
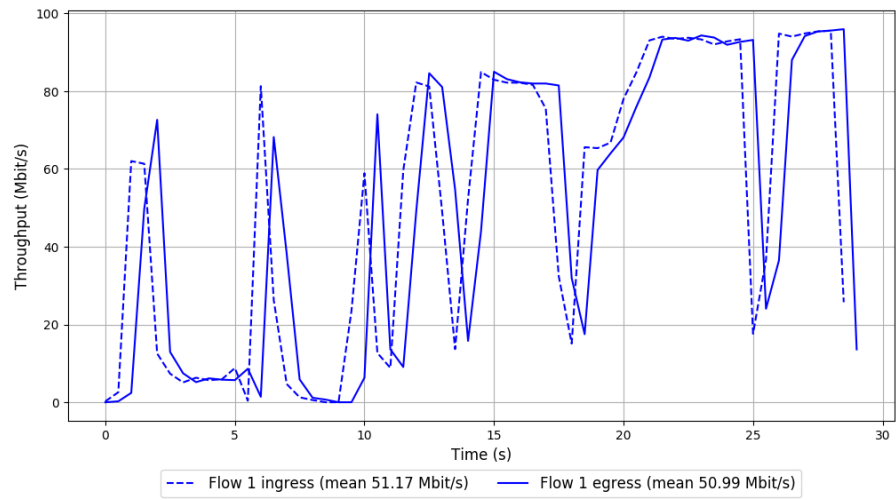
Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-10-26 18:21:28
End at: 2018-10-26 18:21:58
Local clock offset: 0.354 ms
Remote clock offset: -1.325 ms


# Below is generated by plot.py at 2018-10-26 21:04:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 58.50 Mbit/s
95th percentile per-packet one-way delay: 58.823 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 58.50 Mbit/s
95th percentile per-packet one-way delay: 58.823 ms
Loss rate: 0.63%
```
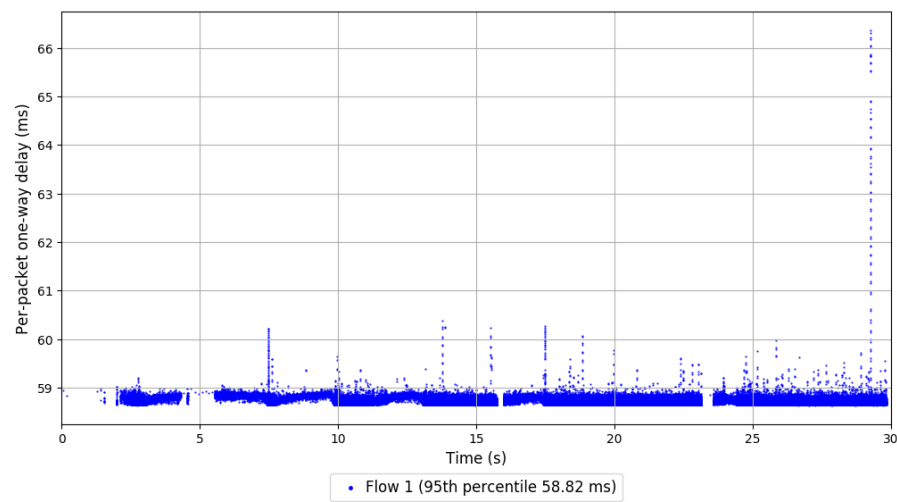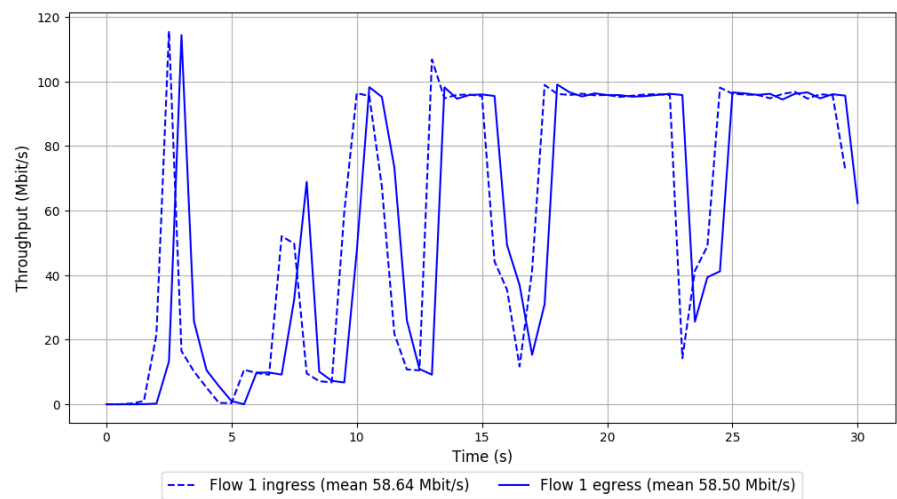
Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-10-26 18:48:28
End at: 2018-10-26 18:48:58
Local clock offset: 0.084 ms
Remote clock offset: -0.051 ms


# Below is generated by plot.py at 2018-10-26 21:04:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 57.68 Mbit/s
95th percentile per-packet one-way delay: 57.179 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 57.68 Mbit/s
95th percentile per-packet one-way delay: 57.179 ms
Loss rate: 0.62%
```
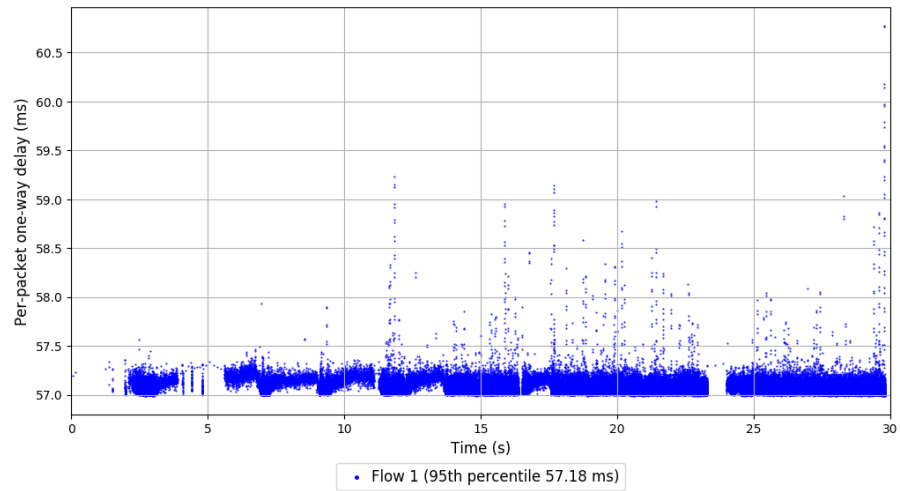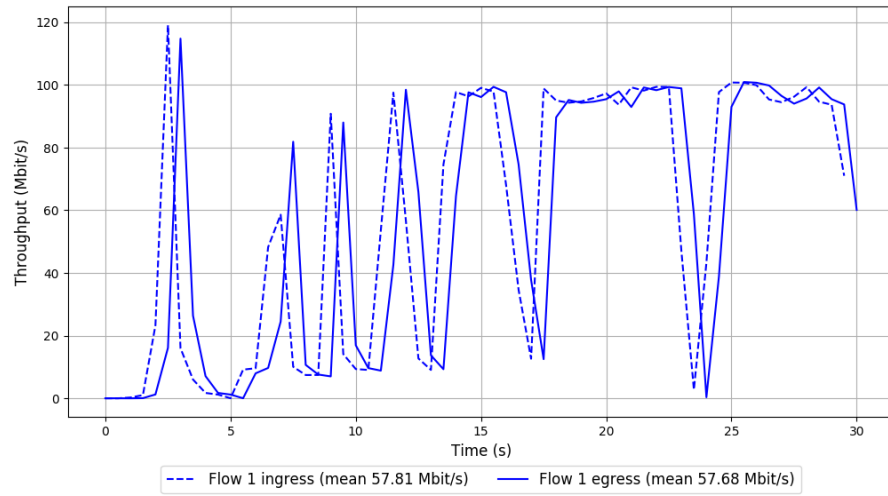
Run 3: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 57.81 Mbit/s) — Flow 1 egress (mean 57.68 Mbit/s)

Flow 1 (95th percentile 57.18 ms)

```
Run 4: Statistics of QUIC Cubic

Start at: 2018-10-26 19:15:38
End at: 2018-10-26 19:16:08
Local clock offset: 0.889 ms
Remote clock offset: 0.346 ms


# Below is generated by plot.py at 2018-10-26 21:04:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 52.11 Mbit/s
95th percentile per-packet one-way delay: 61.053 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 52.11 Mbit/s
95th percentile per-packet one-way delay: 61.053 ms
Loss rate: 0.74%
```
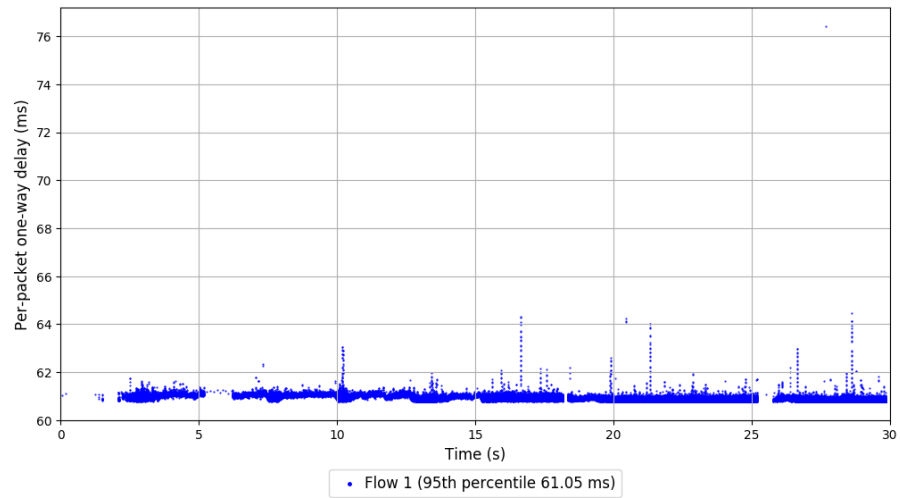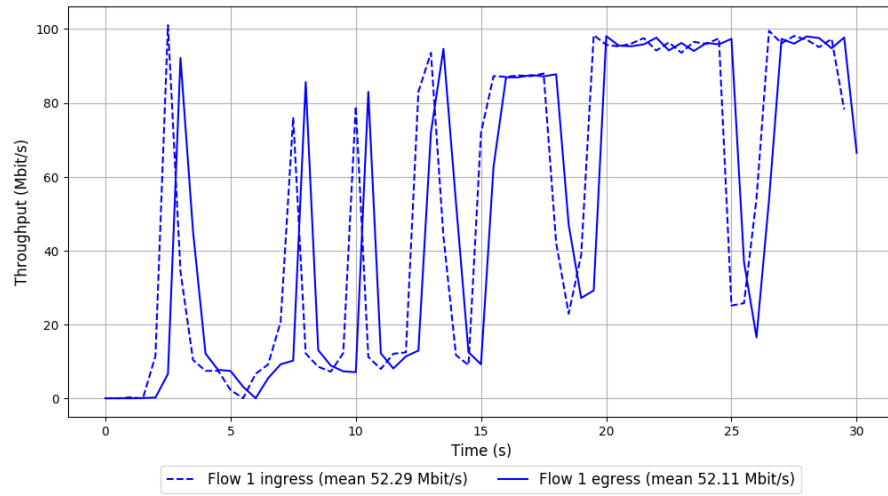
Run 4: Report of QUIC Cubic — Data Link

```
Run 5: Statistics of QUIC Cubic

Start at: 2018-10-26 19:42:41
End at: 2018-10-26 19:43:11
Local clock offset: -0.422 ms
Remote clock offset: 0.095 ms


# Below is generated by plot.py at 2018-10-26 21:04:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 61.14 Mbit/s
95th percentile per-packet one-way delay: 56.599 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 61.14 Mbit/s
95th percentile per-packet one-way delay: 56.599 ms
Loss rate: 0.61%
```
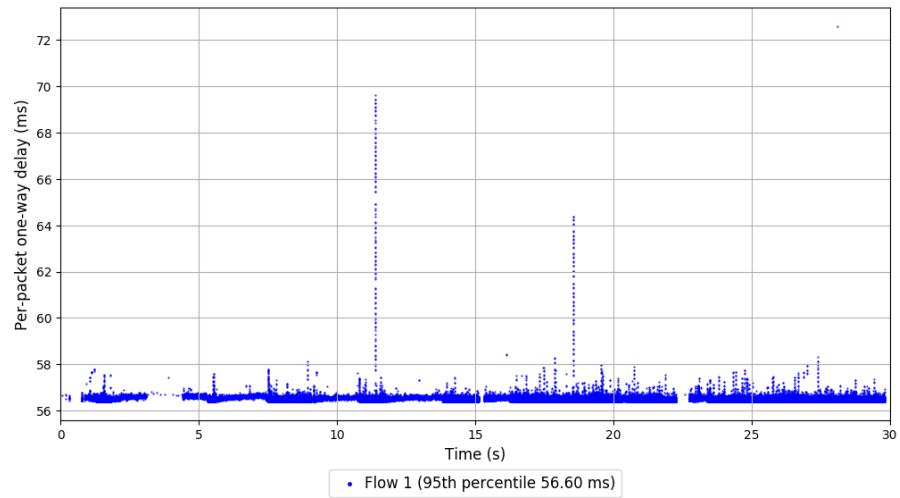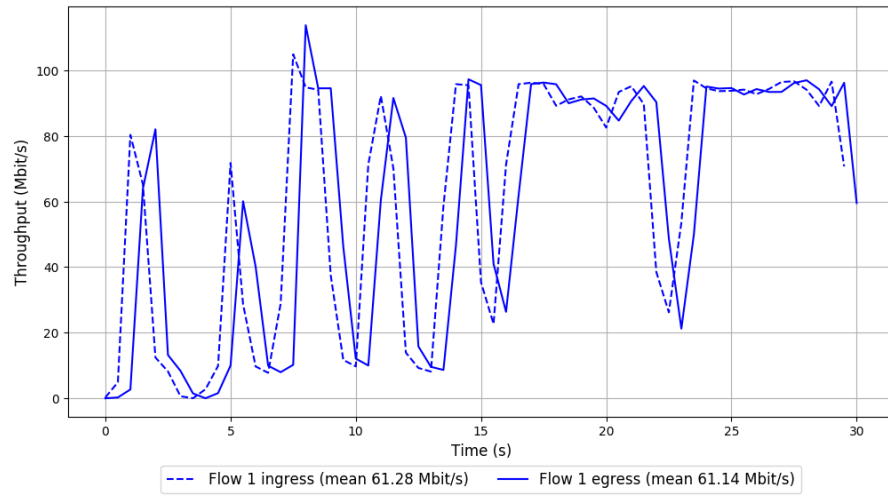
Run 5: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 61.28 Mbit/s)   Flow 1 egress (mean 61.14 Mbit/s)

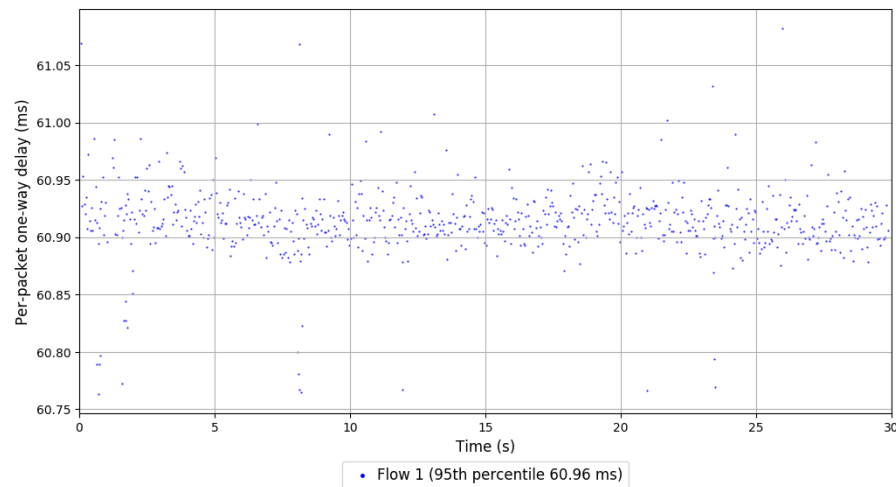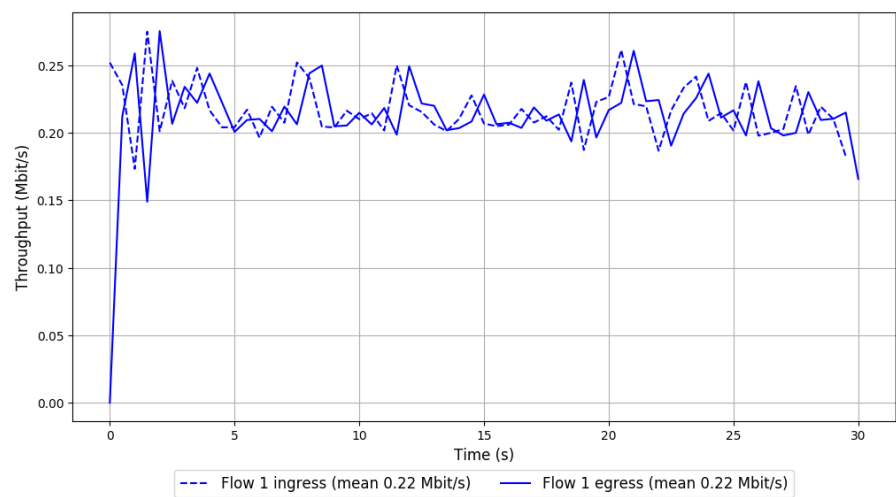• Flow 1 (95th percentile 56.60 ms)

```
Run 1: Statistics of SCReAM

Start at: 2018-10-26 17:46:42
End at: 2018-10-26 17:47:12
Local clock offset: 0.21 ms
Remote clock offset: -0.056 ms


# Below is generated by plot.py at 2018-10-26 21:04:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.957 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.957 ms
Loss rate: 0.38%
```

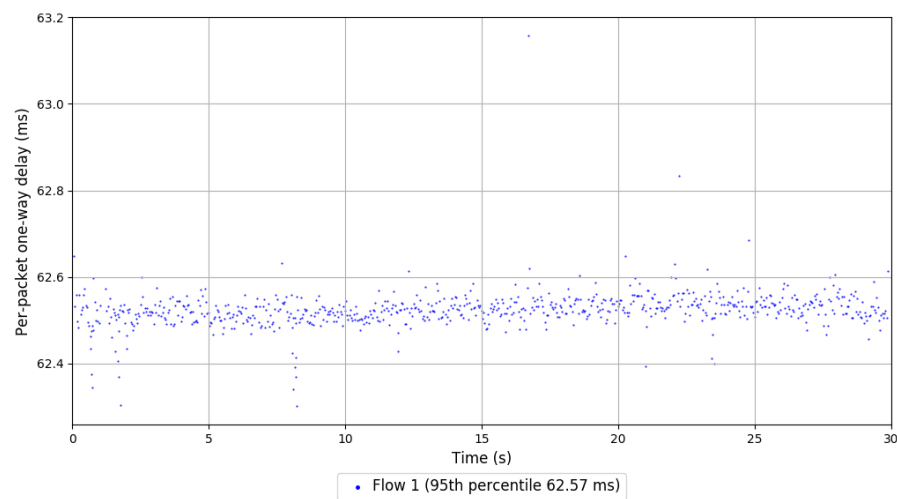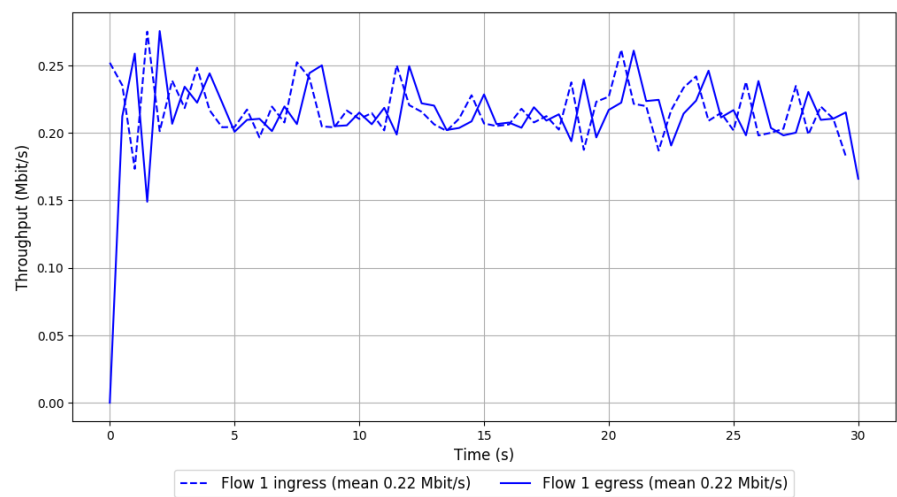# Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: 2018-10-26 18:13:52
End at: 2018-10-26 18:14:22
Local clock offset: 0.322 ms
Remote clock offset: -1.368 ms


# Below is generated by plot.py at 2018-10-26 21:04:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 62.573 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 62.573 ms
Loss rate: 0.38%
```

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 62.57 ms)

```
Run 3: Statistics of SCReAM

Start at: 2018-10-26 18:41:04
End at: 2018-10-26 18:41:34
Local clock offset: -0.489 ms
Remote clock offset: 1.354 ms


# Below is generated by plot.py at 2018-10-26 21:04:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 58.721 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 58.721 ms
Loss rate: 0.38%
```
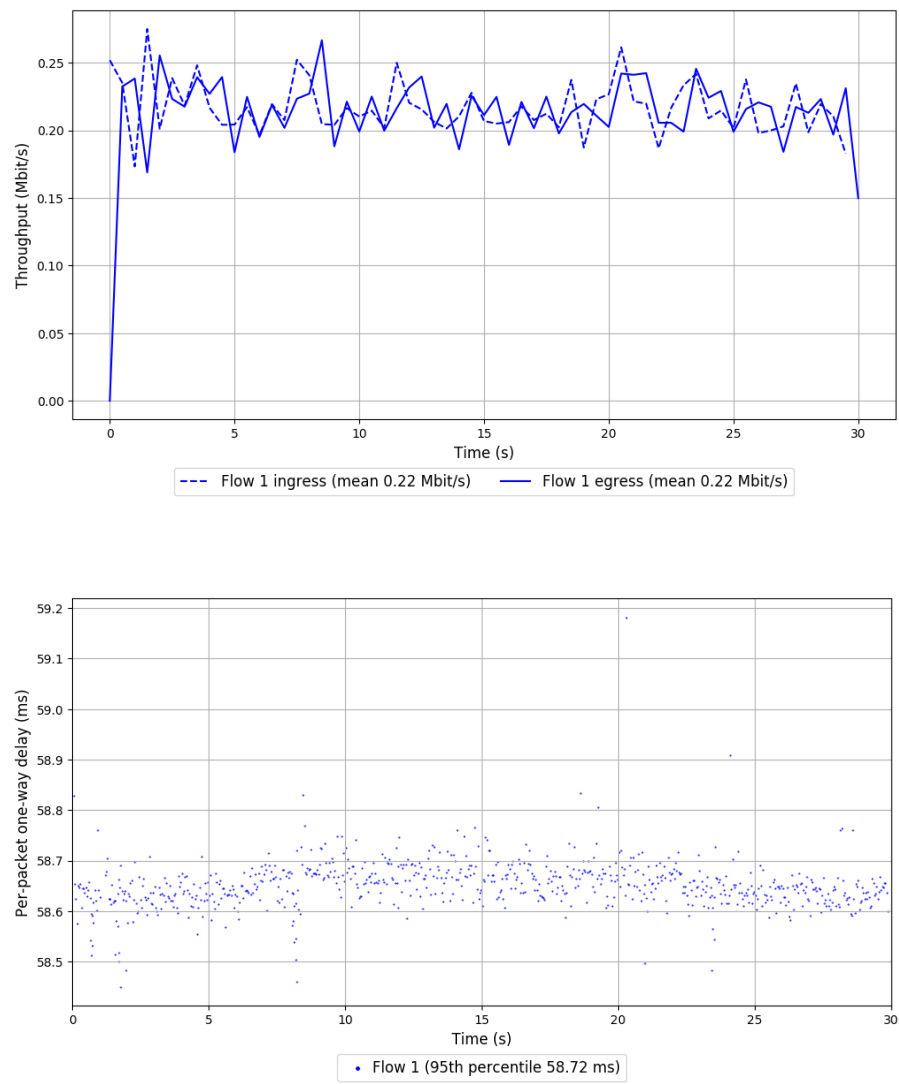
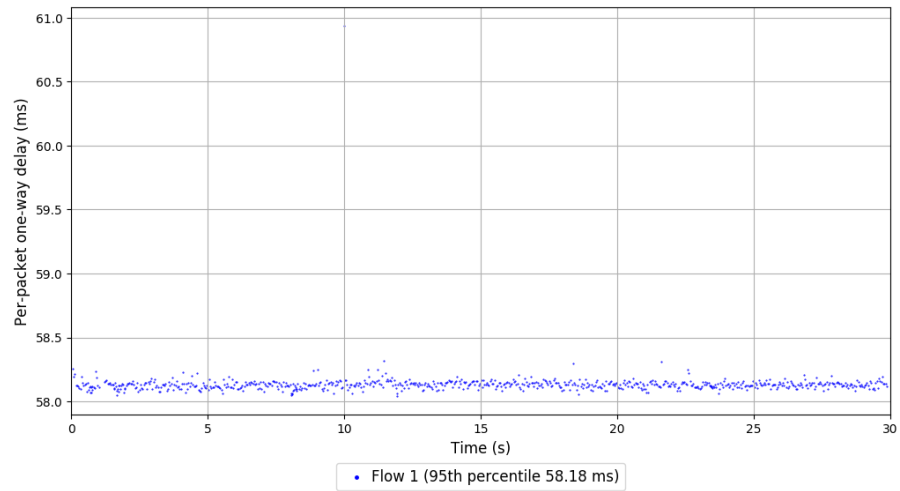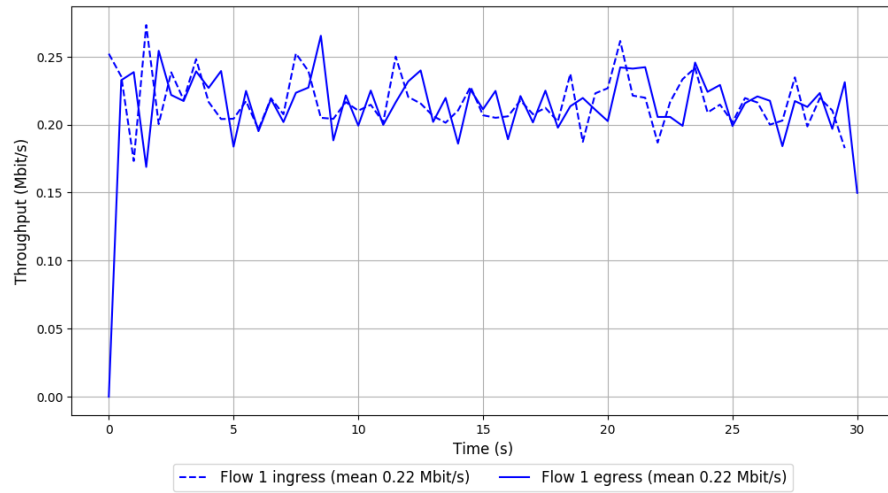Run 3: Report of SCReAM — Data Link

```
Run 4: Statistics of SCReAM

Start at: 2018-10-26 19:08:03
End at: 2018-10-26 19:08:33
Local clock offset: -0.532 ms
Remote clock offset: -1.373 ms


# Below is generated by plot.py at 2018-10-26 21:04:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 58.177 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 58.177 ms
Loss rate: 0.38%
```
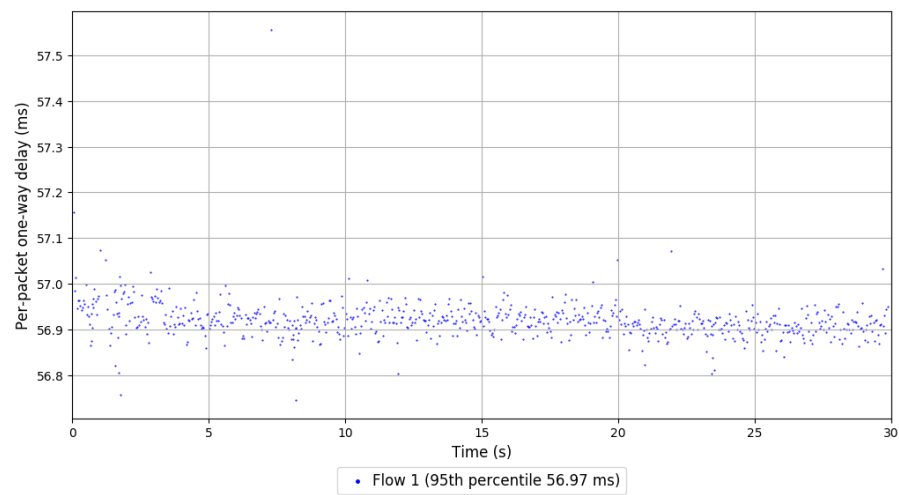
Run 4: Report of SCReAM — Data Link

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

Flow 1 (95th percentile 58.18 ms)

```
Run 5: Statistics of SCReAM

Start at: 2018-10-26 19:35:10
End at: 2018-10-26 19:35:40
Local clock offset: -0.069 ms
Remote clock offset: 0.153 ms


# Below is generated by plot.py at 2018-10-26 21:04:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 56.974 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 56.974 ms
Loss rate: 0.38%
```
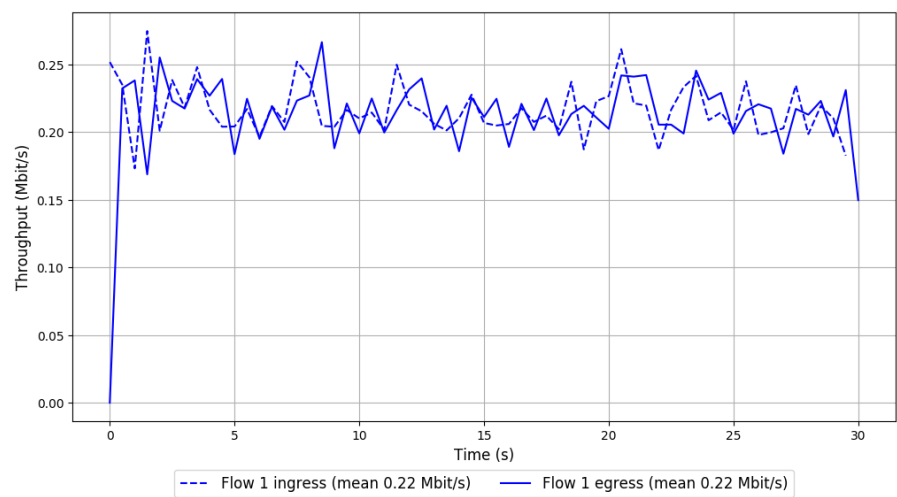
Run 5: Report of SCReAM — Data Link

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

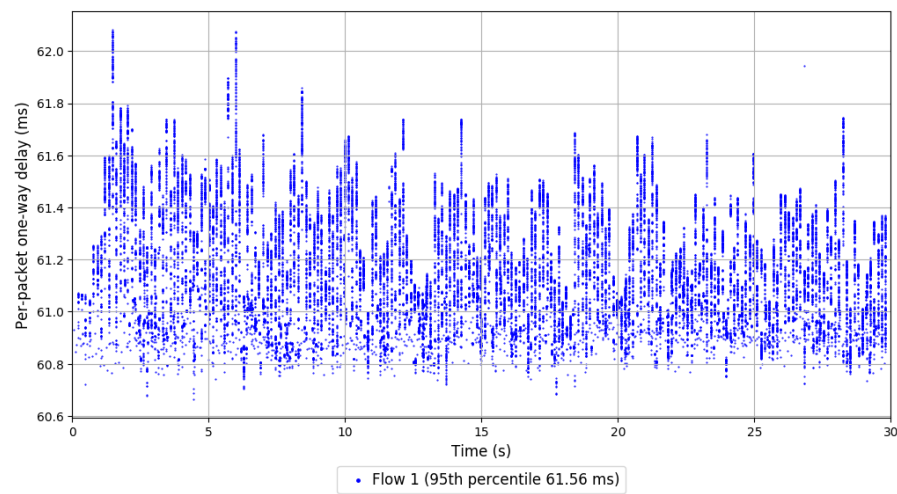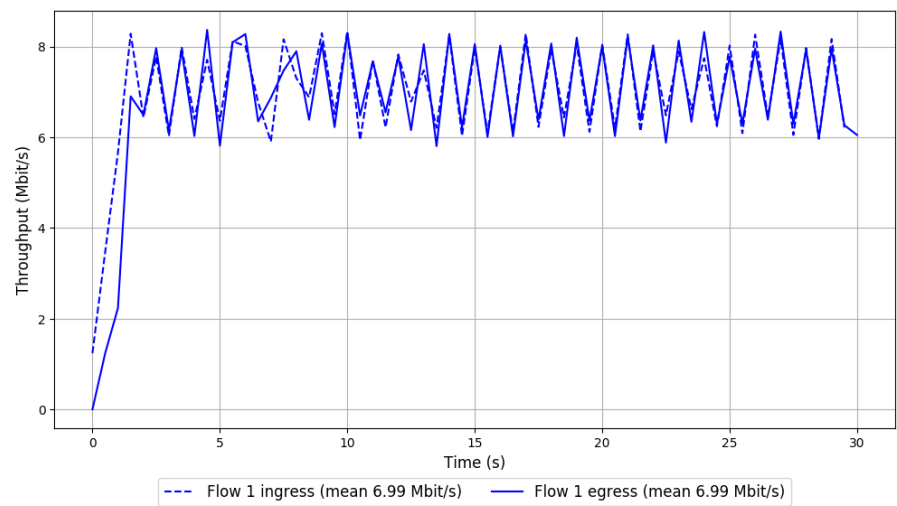Flow 1 (95th percentile 56.97 ms)

```
Run 1: Statistics of Sprout

Start at: 2018-10-26 17:28:26
End at: 2018-10-26 17:28:56
Local clock offset: -0.078 ms
Remote clock offset: -0.695 ms


# Below is generated by plot.py at 2018-10-26 21:04:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.99 Mbit/s
95th percentile per-packet one-way delay: 61.557 ms
Loss rate: 0.49%
-- Flow 1:
Average throughput: 6.99 Mbit/s
95th percentile per-packet one-way delay: 61.557 ms
Loss rate: 0.49%
```

Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2018-10-26 17:55:20
End at: 2018-10-26 17:55:50
Local clock offset: -0.323 ms
Remote clock offset: 0.381 ms


# Below is generated by plot.py at 2018-10-26 21:04:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.87 Mbit/s
95th percentile per-packet one-way delay: 60.361 ms
Loss rate: 0.50%
-- Flow 1:
Average throughput: 6.87 Mbit/s
95th percentile per-packet one-way delay: 60.361 ms
Loss rate: 0.50%
```
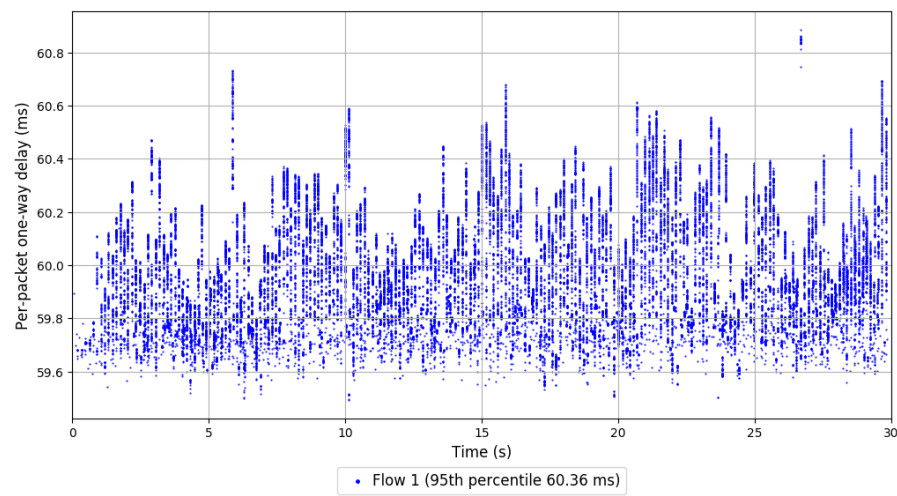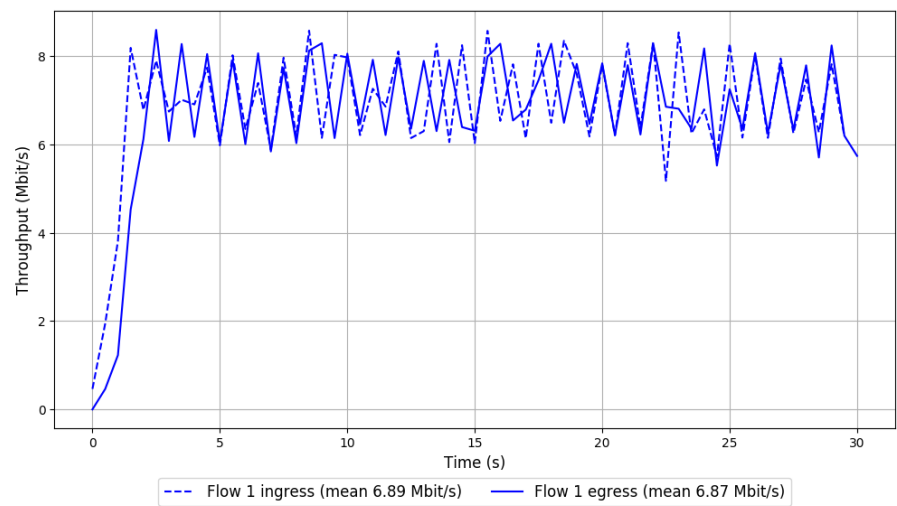
Run 2: Report of Sprout — Data Link

Flow 1 ingress (mean 6.89 Mbit/s) ----   Flow 1 egress (mean 6.87 Mbit/s) ——

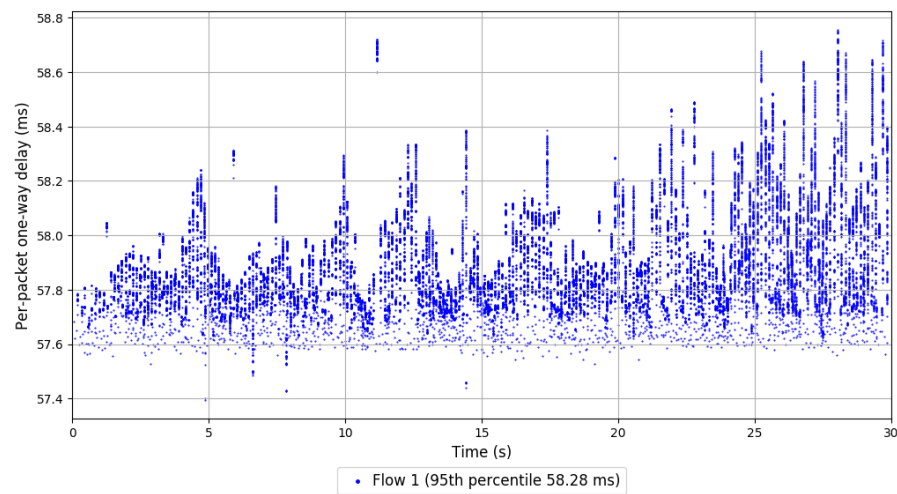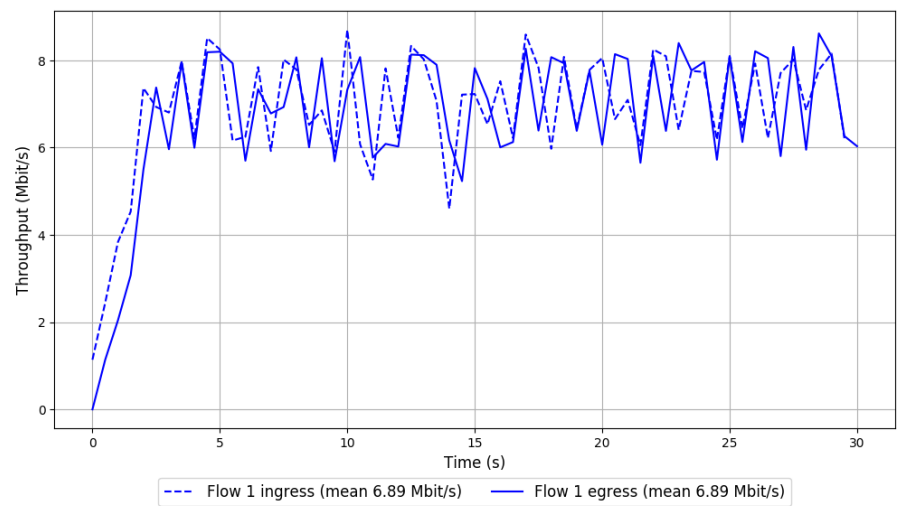• Flow 1 (95th percentile 60.36 ms)

```
Run 3: Statistics of Sprout

Start at: 2018-10-26 18:22:39
End at: 2018-10-26 18:23:09
Local clock offset: -0.053 ms
Remote clock offset: -0.601 ms


# Below is generated by plot.py at 2018-10-26 21:04:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.89 Mbit/s
95th percentile per-packet one-way delay: 58.285 ms
Loss rate: 0.50%
-- Flow 1:
Average throughput: 6.89 Mbit/s
95th percentile per-packet one-way delay: 58.285 ms
Loss rate: 0.50%
```

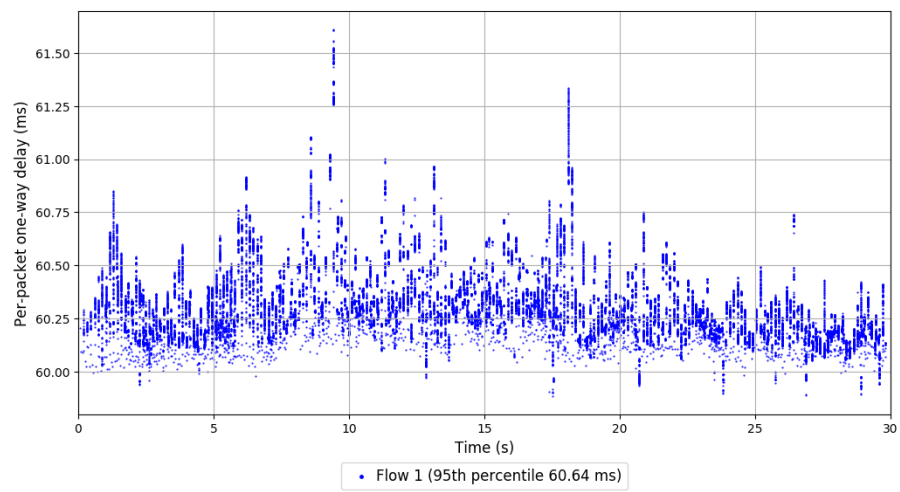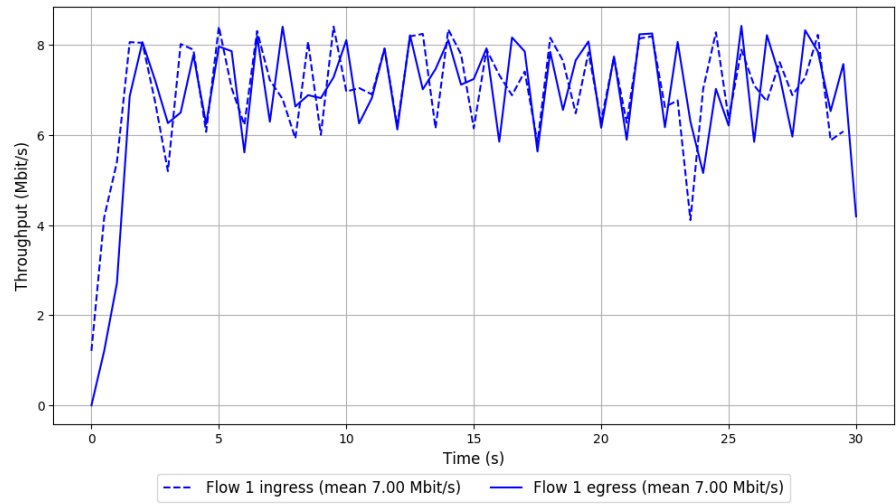Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2018-10-26 18:49:39
End at: 2018-10-26 18:50:09
Local clock offset: -0.502 ms
Remote clock offset: -0.056 ms


# Below is generated by plot.py at 2018-10-26 21:04:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.00 Mbit/s
95th percentile per-packet one-way delay: 60.642 ms
Loss rate: 0.45%
-- Flow 1:
Average throughput: 7.00 Mbit/s
95th percentile per-packet one-way delay: 60.642 ms
Loss rate: 0.45%
```

Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2018-10-26 19:16:49
End at: 2018-10-26 19:17:19
Local clock offset: 0.326 ms
Remote clock offset: -1.39 ms


# Below is generated by plot.py at 2018-10-26 21:04:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.98 Mbit/s
95th percentile per-packet one-way delay: 62.651 ms
Loss rate: 0.48%
-- Flow 1:
Average throughput: 6.98 Mbit/s
95th percentile per-packet one-way delay: 62.651 ms
Loss rate: 0.48%
```
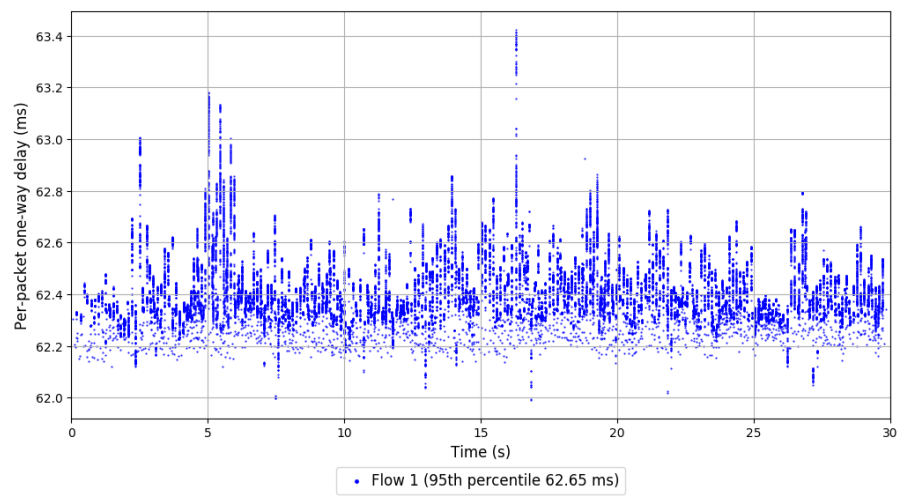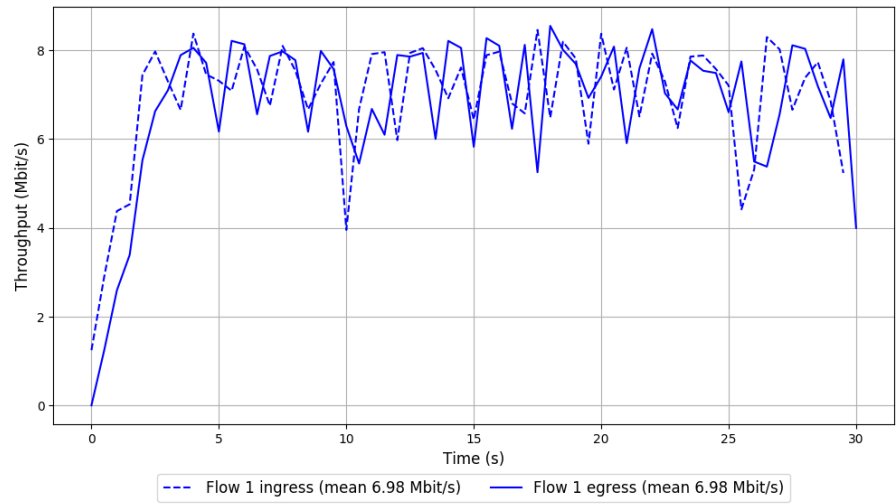
Run 5: Report of Sprout — Data Link

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

Start at: 2018-10-26 17:49:28
End at: 2018-10-26 17:49:58
Local clock offset: -0.743 ms
Remote clock offset: -1.072 ms


# Below is generated by plot.py at 2018-10-26 21:10:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 237.79 Mbit/s
95th percentile per-packet one-way delay: 57.662 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 237.79 Mbit/s
95th percentile per-packet one-way delay: 57.662 ms
Loss rate: 0.42%
```
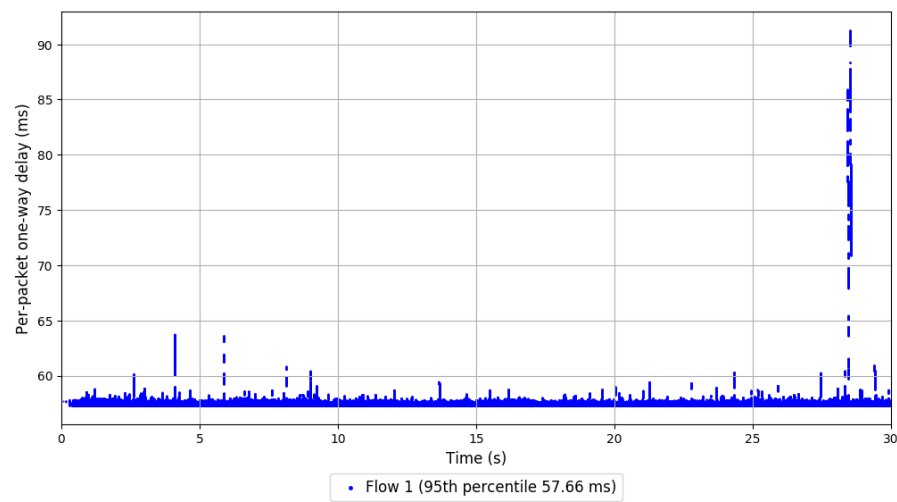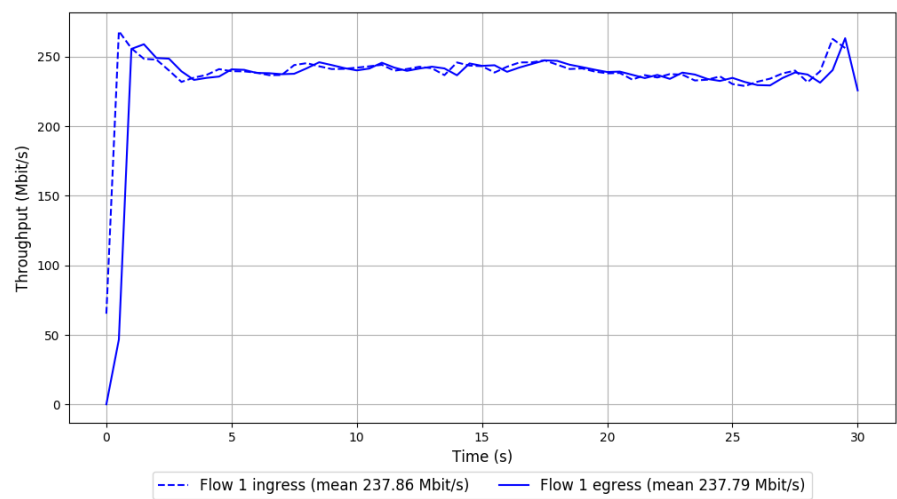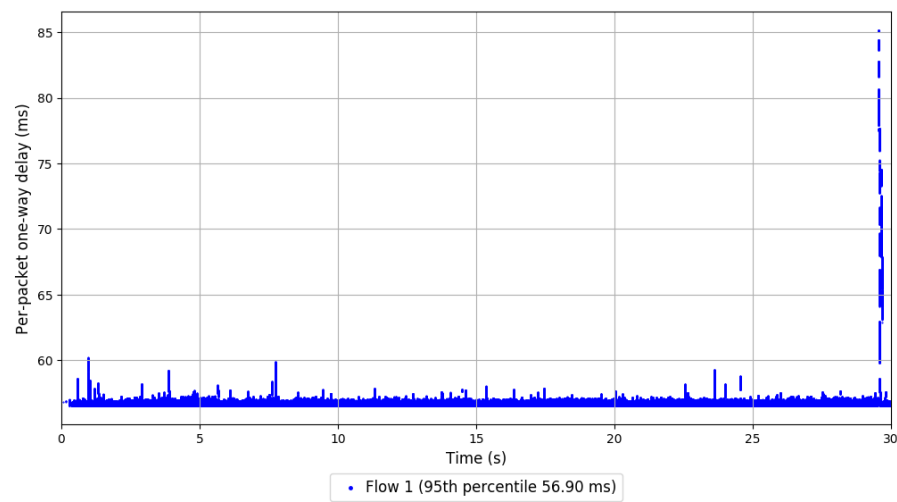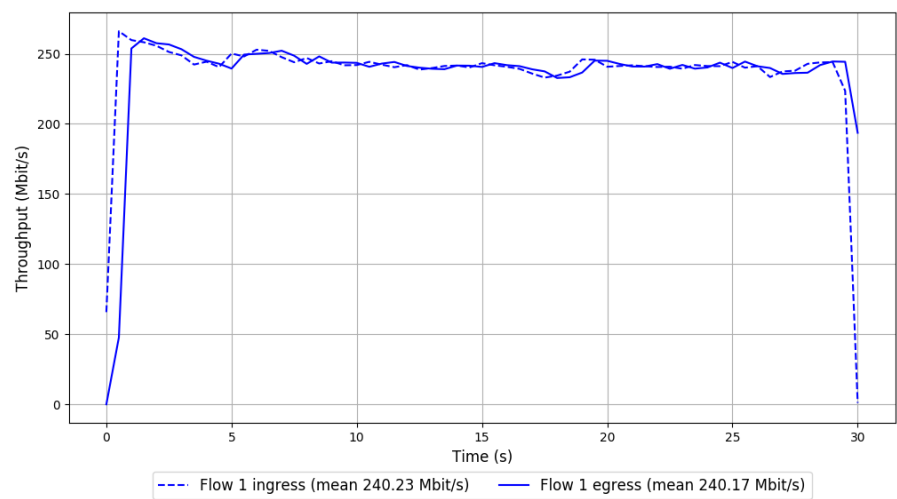
Run 1: Report of TaoVA-100x — Data Link

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

Start at: 2018-10-26 18:16:39
End at: 2018-10-26 18:17:09
Local clock offset: -0.479 ms
Remote clock offset: -0.053 ms


# Below is generated by plot.py at 2018-10-26 21:10:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 240.17 Mbit/s
95th percentile per-packet one-way delay: 56.898 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 240.17 Mbit/s
95th percentile per-packet one-way delay: 56.898 ms
Loss rate: 0.41%
```
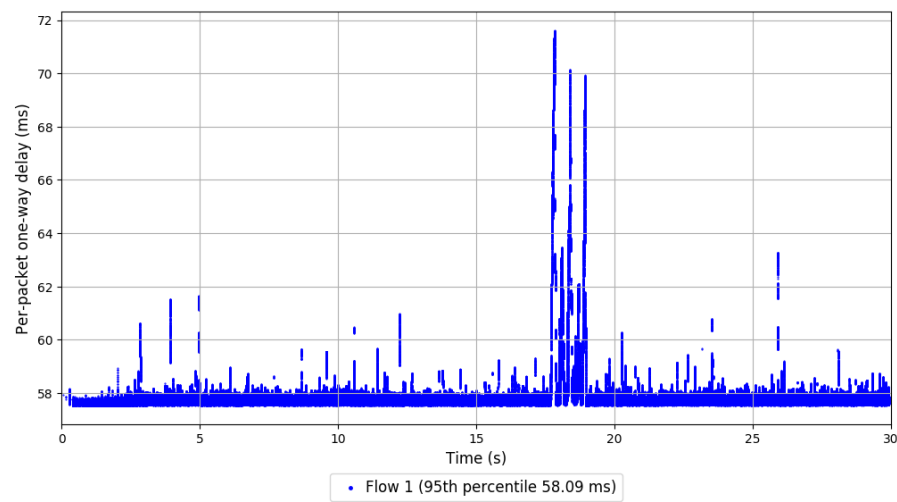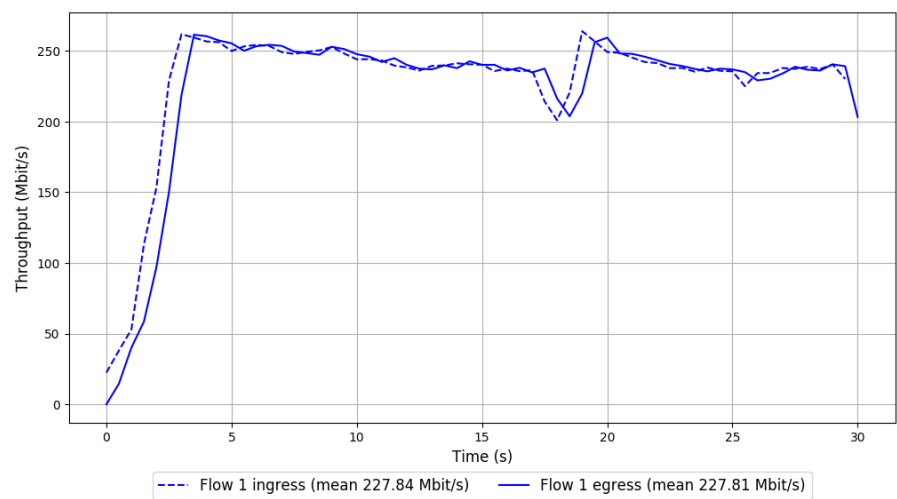
Run 2: Report of TaoVA-100x — Data Link

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

Start at: 2018-10-26 18:43:51
End at: 2018-10-26 18:44:21
Local clock offset: -0.113 ms
Remote clock offset: -0.657 ms


# Below is generated by plot.py at 2018-10-26 21:10:26
# Datalink statistics
-- Total of 1 flow:
Average throughput: 227.81 Mbit/s
95th percentile per-packet one-way delay: 58.092 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 227.81 Mbit/s
95th percentile per-packet one-way delay: 58.092 ms
Loss rate: 0.40%
```

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

Flow 1 ingress (mean 227.84 Mbit/s)   Flow 1 egress (mean 227.81 Mbit/s)
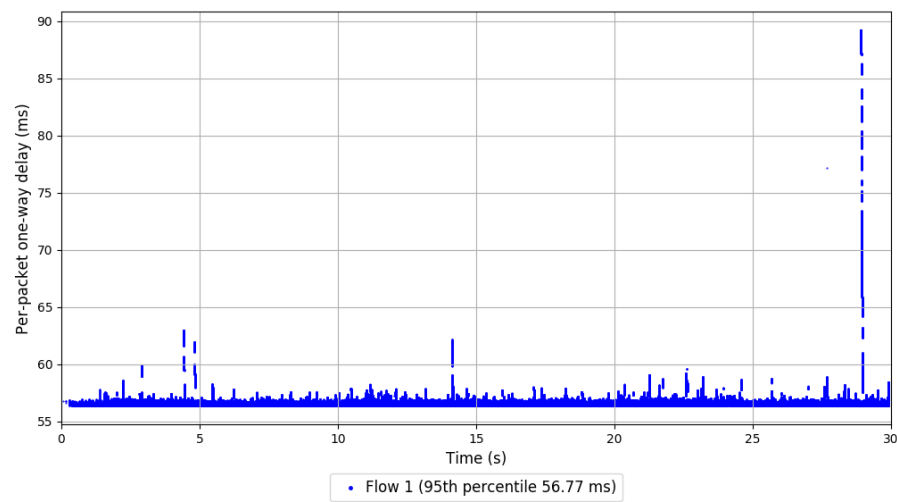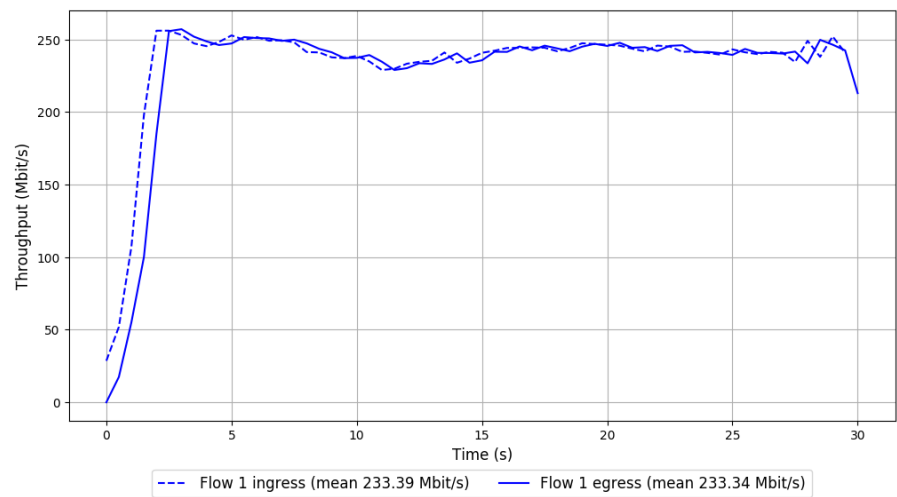

Flow 1 (95th percentile 58.09 ms)

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

Start at: 2018-10-26 19:10:56
End at: 2018-10-26 19:11:26
Local clock offset: -1.073 ms
Remote clock offset: -0.533 ms


# Below is generated by plot.py at 2018-10-26 21:10:26
# Datalink statistics
-- Total of 1 flow:
Average throughput: 233.34 Mbit/s
95th percentile per-packet one-way delay: 56.774 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 233.34 Mbit/s
95th percentile per-packet one-way delay: 56.774 ms
Loss rate: 0.40%
```

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

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

Start at: 2018-10-26 19:37:55
End at: 2018-10-26 19:38:25
Local clock offset: 0.481 ms
Remote clock offset: 1.159 ms


# Below is generated by plot.py at 2018-10-26 21:10:36
# Datalink statistics
-- Total of 1 flow:
Average throughput: 233.61 Mbit/s
95th percentile per-packet one-way delay: 60.055 ms
Loss rate: 0.43%
-- Flow 1:
Average throughput: 233.61 Mbit/s
95th percentile per-packet one-way delay: 60.055 ms
Loss rate: 0.43%
```
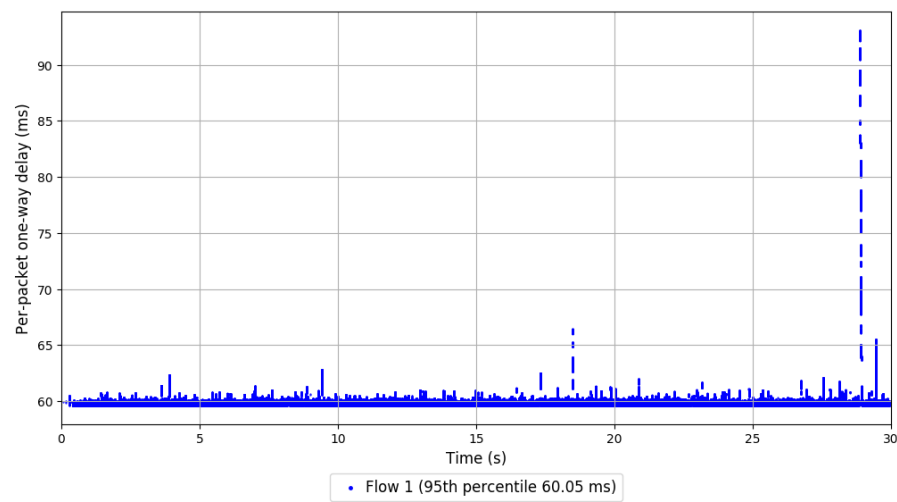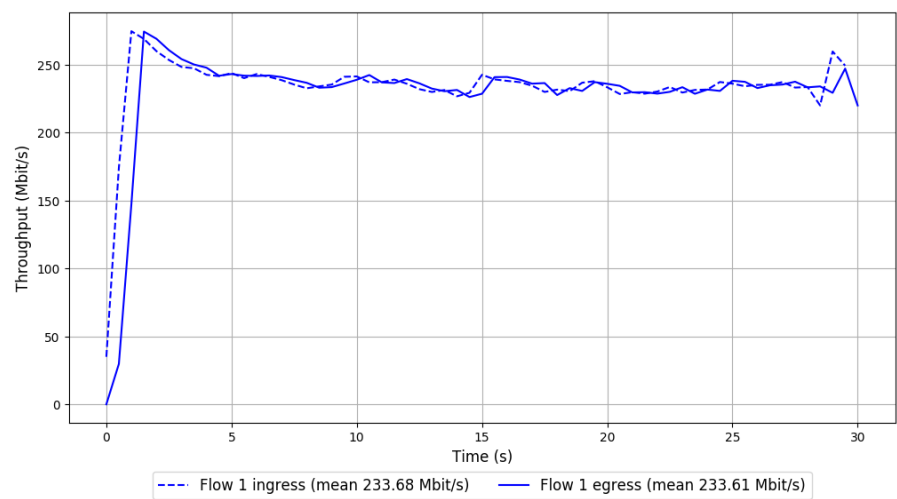
Run 5: Report of TaoVA-100x — Data Link

```
Run 1: Statistics of TCP Vegas

Start at: 2018-10-26 17:52:32
End at: 2018-10-26 17:53:02
Local clock offset: 0.5 ms
Remote clock offset: -0.182 ms


# Below is generated by plot.py at 2018-10-26 21:15:39
# Datalink statistics
-- Total of 1 flow:
Average throughput: 559.86 Mbit/s
95th percentile per-packet one-way delay: 80.370 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 559.86 Mbit/s
95th percentile per-packet one-way delay: 80.370 ms
Loss rate: 0.42%
```
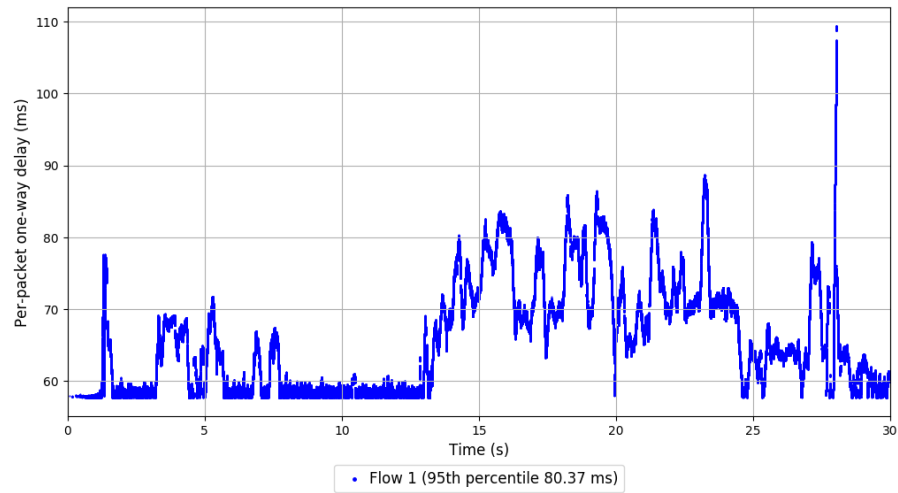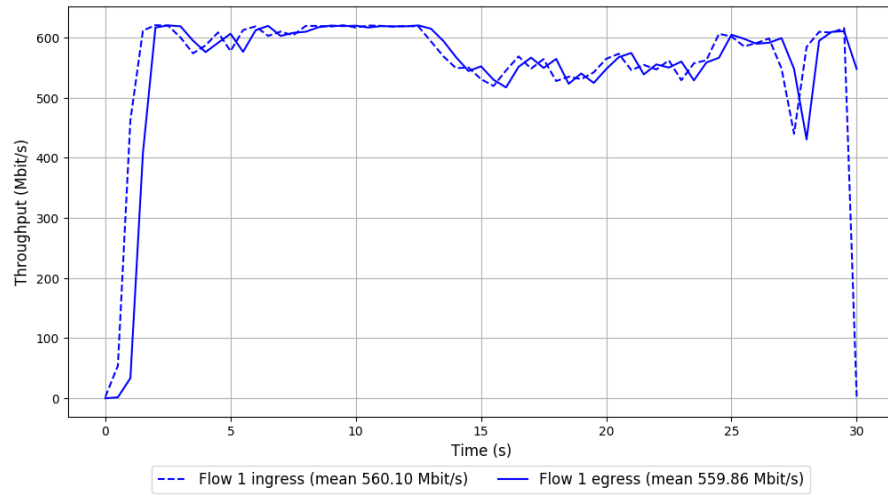
Run 1: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 560.10 Mbit/s)   Flow 1 egress (mean 559.86 Mbit/s)

Flow 1 (95th percentile 80.37 ms)

```
Run 2: Statistics of TCP Vegas

Start at: 2018-10-26 18:19:45
End at: 2018-10-26 18:20:15
Local clock offset: -0.68 ms
Remote clock offset: 1.379 ms


# Below is generated by plot.py at 2018-10-26 21:16:36
# Datalink statistics
-- Total of 1 flow:
Average throughput: 562.59 Mbit/s
95th percentile per-packet one-way delay: 69.008 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 562.59 Mbit/s
95th percentile per-packet one-way delay: 69.008 ms
Loss rate: 0.42%
```
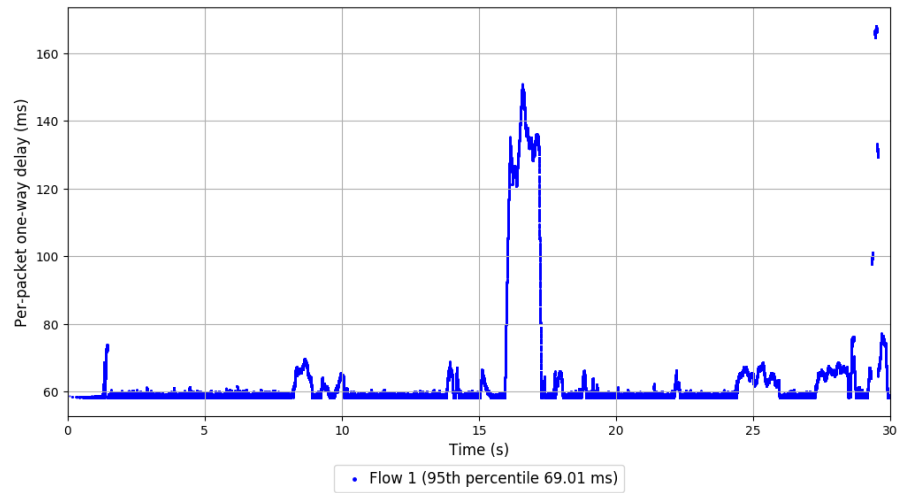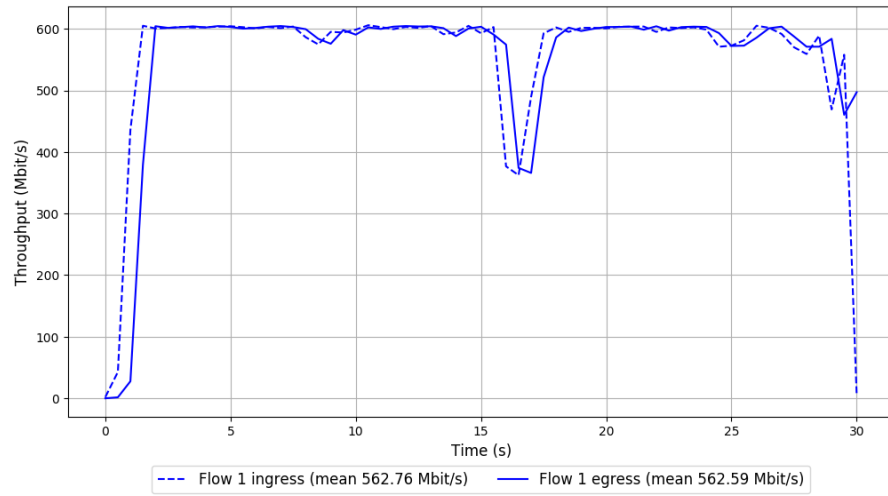
Run 2: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 562.76 Mbit/s)   Flow 1 egress (mean 562.59 Mbit/s)

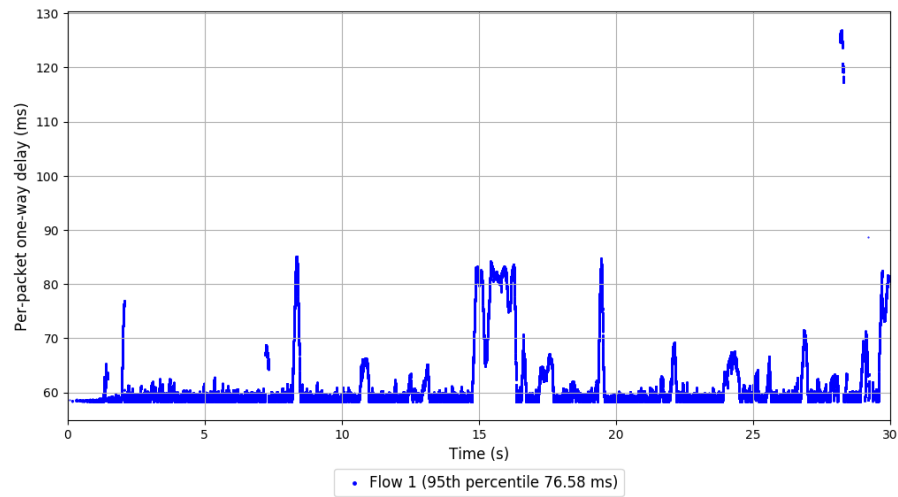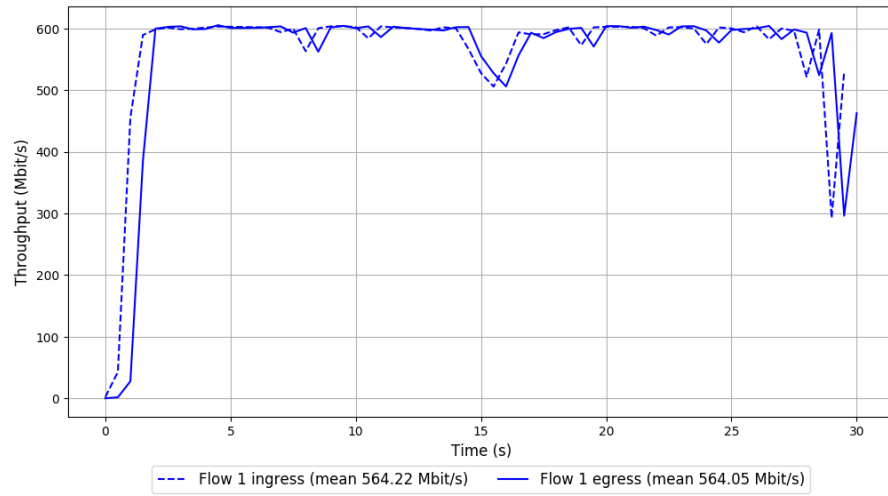

Flow 1 (95th percentile 69.01 ms)

```
Run 3: Statistics of TCP Vegas

Start at: 2018-10-26 18:46:50
End at: 2018-10-26 18:47:20
Local clock offset: 0.652 ms
Remote clock offset: -0.677 ms


# Below is generated by plot.py at 2018-10-26 21:16:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 564.05 Mbit/s
95th percentile per-packet one-way delay: 76.575 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 564.05 Mbit/s
95th percentile per-packet one-way delay: 76.575 ms
Loss rate: 0.41%
```

Run 3: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 564.22 Mbit/s)   Flow 1 egress (mean 564.05 Mbit/s)
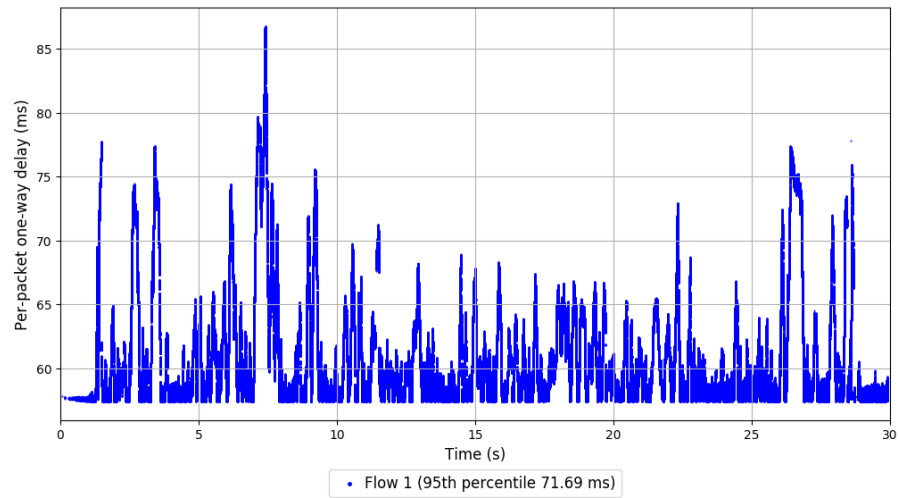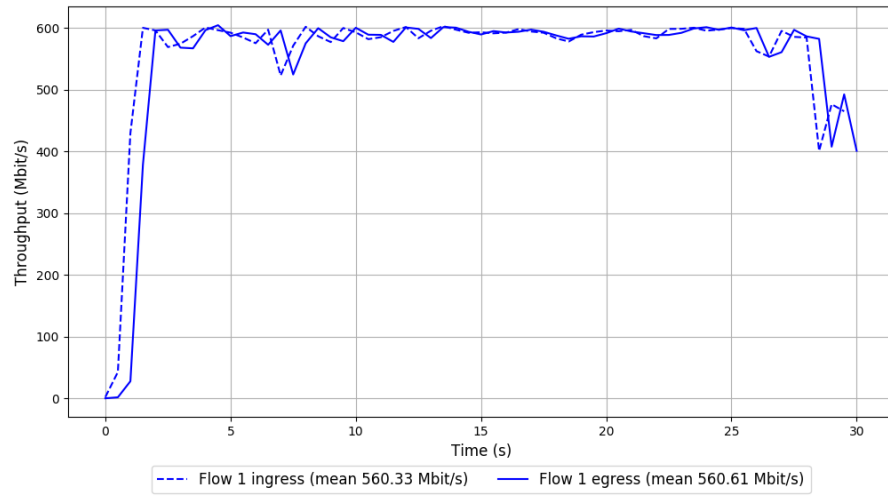

Flow 1 (95th percentile 76.58 ms)

```
Run 4: Statistics of TCP Vegas

Start at: 2018-10-26 19:14:00
End at: 2018-10-26 19:14:30
Local clock offset: 0.302 ms
Remote clock offset: -0.035 ms


# Below is generated by plot.py at 2018-10-26 21:21:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 560.61 Mbit/s
95th percentile per-packet one-way delay: 71.691 ms
Loss rate: 0.33%
-- Flow 1:
Average throughput: 560.61 Mbit/s
95th percentile per-packet one-way delay: 71.691 ms
Loss rate: 0.33%
```

Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2018-10-26 19:41:04
End at: 2018-10-26 19:41:34
Local clock offset: -0.276 ms
Remote clock offset: 0.009 ms


# Below is generated by plot.py at 2018-10-26 21:22:38
# Datalink statistics
-- Total of 1 flow:
Average throughput: 572.65 Mbit/s
95th percentile per-packet one-way delay: 67.837 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 572.65 Mbit/s
95th percentile per-packet one-way delay: 67.837 ms
Loss rate: 0.42%
```
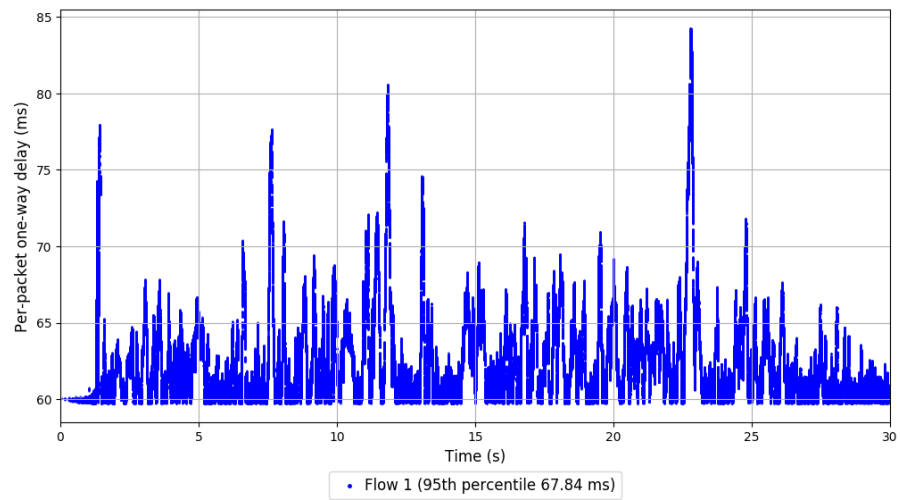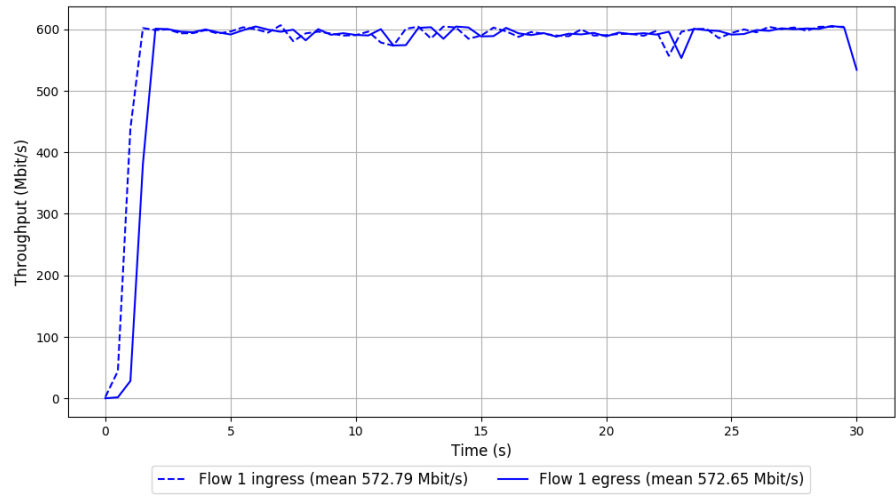
Run 5: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 572.79 Mbit/s) — Flow 1 egress (mean 572.65 Mbit/s)

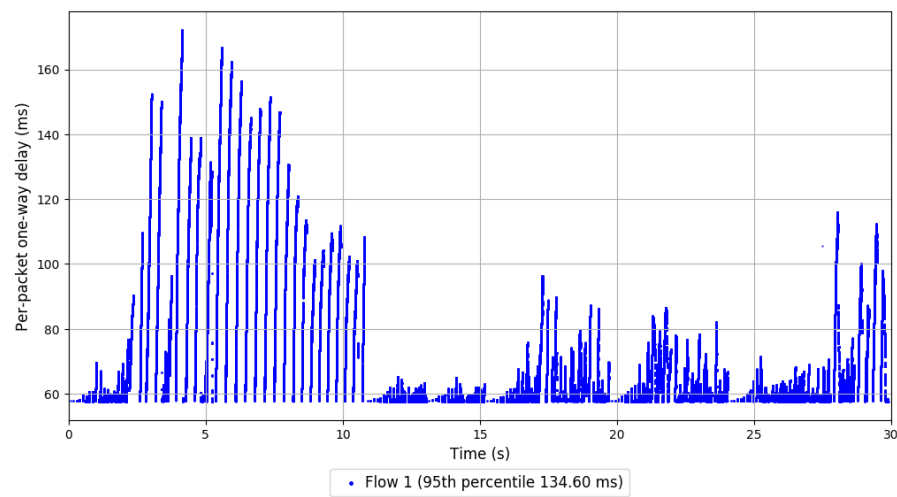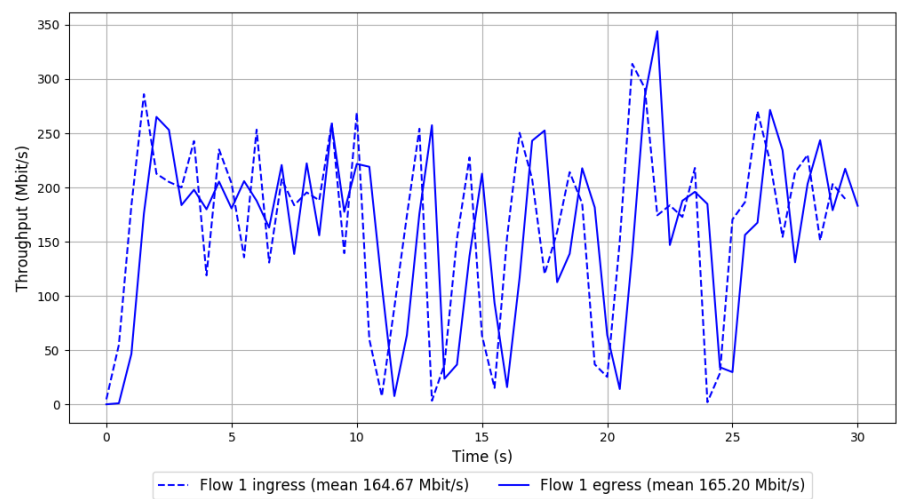

• Flow 1 (95th percentile 67.84 ms)

```
Run 1: Statistics of Verus

Start at: 2018-10-26 17:51:06
End at: 2018-10-26 17:51:36
Local clock offset: 0.312 ms
Remote clock offset: -0.237 ms


# Below is generated by plot.py at 2018-10-26 21:22:38
# Datalink statistics
-- Total of 1 flow:
Average throughput: 165.20 Mbit/s
95th percentile per-packet one-way delay: 134.605 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 165.20 Mbit/s
95th percentile per-packet one-way delay: 134.605 ms
Loss rate: 0.06%
```

Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2018-10-26 18:18:13
End at: 2018-10-26 18:18:43
Local clock offset: -0.324 ms
Remote clock offset: 1.3 ms


# Below is generated by plot.py at 2018-10-26 21:22:38
# Datalink statistics
-- Total of 1 flow:
Average throughput: 156.09 Mbit/s
95th percentile per-packet one-way delay: 172.867 ms
Loss rate: 2.68%
-- Flow 1:
Average throughput: 156.09 Mbit/s
95th percentile per-packet one-way delay: 172.867 ms
Loss rate: 2.68%
```
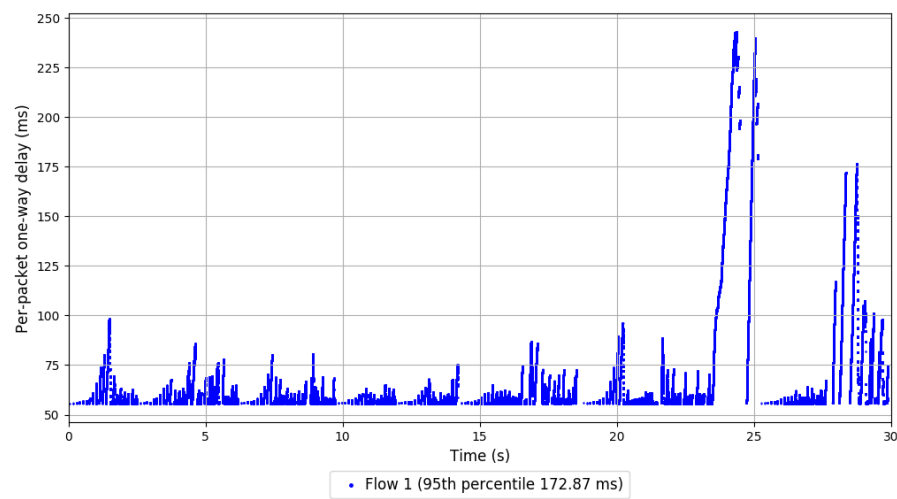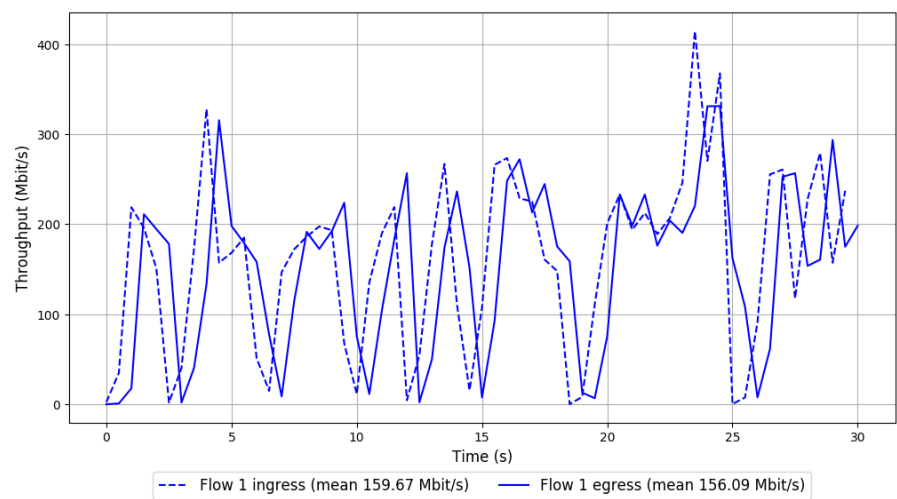
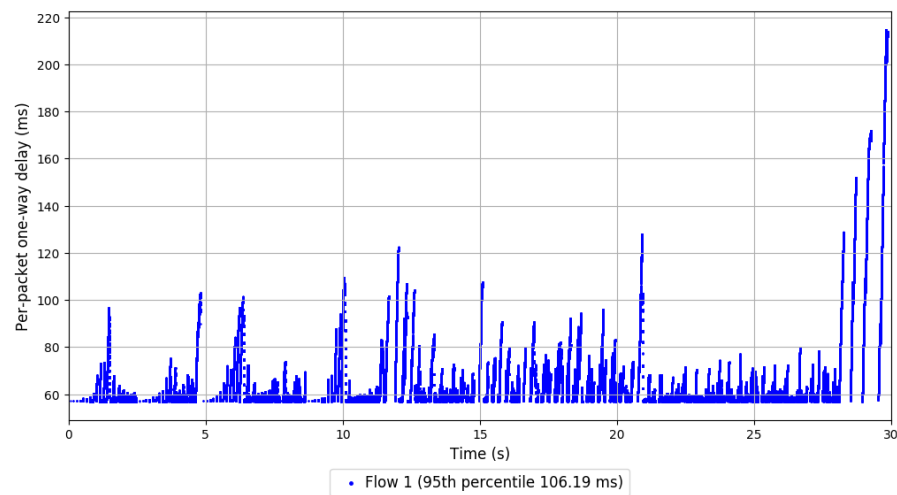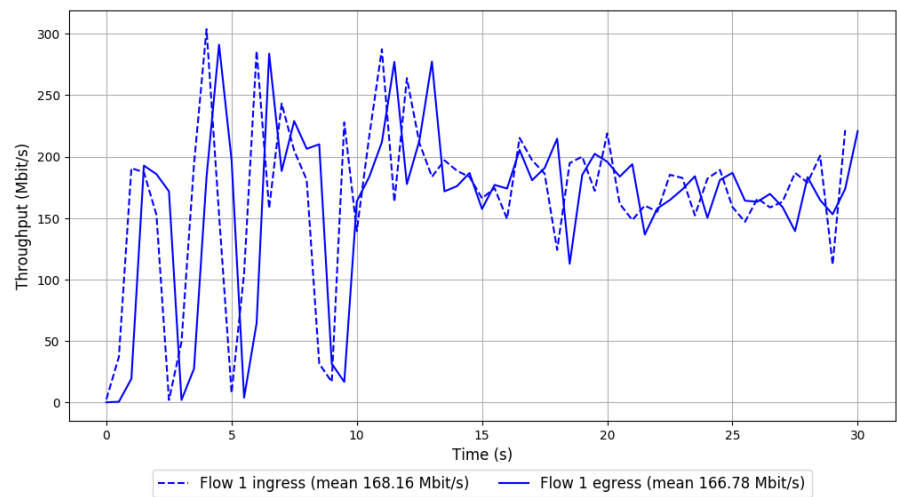Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-10-26 18:45:24
End at: 2018-10-26 18:45:54
Local clock offset: -1.104 ms
Remote clock offset: -0.748 ms


# Below is generated by plot.py at 2018-10-26 21:22:38
# Datalink statistics
-- Total of 1 flow:
Average throughput: 166.78 Mbit/s
95th percentile per-packet one-way delay: 106.187 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 166.78 Mbit/s
95th percentile per-packet one-way delay: 106.187 ms
Loss rate: 0.34%
```
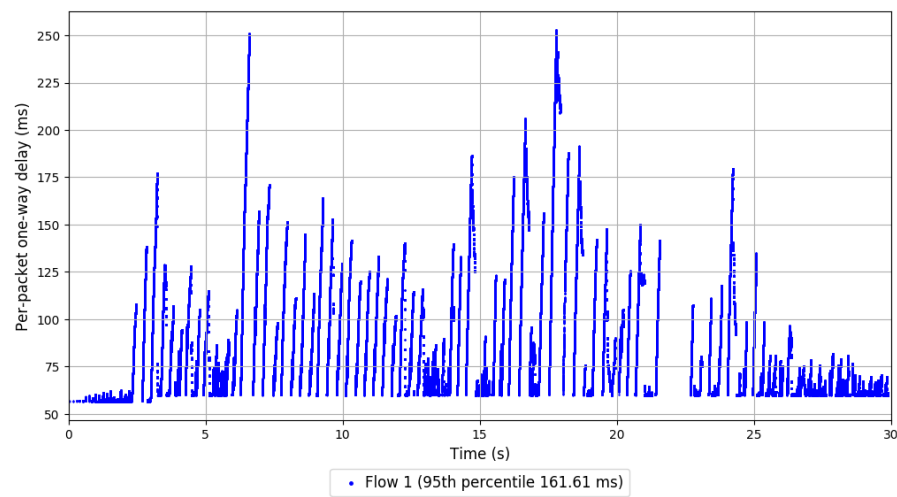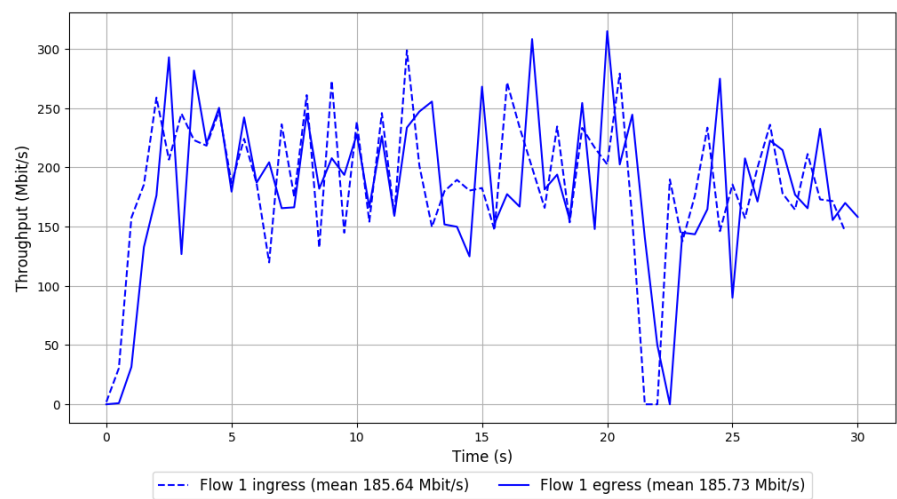
Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2018-10-26 19:12:33
End at: 2018-10-26 19:13:03
Local clock offset: -0.698 ms
Remote clock offset: -0.076 ms


# Below is generated by plot.py at 2018-10-26 21:22:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 185.73 Mbit/s
95th percentile per-packet one-way delay: 161.606 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 185.73 Mbit/s
95th percentile per-packet one-way delay: 161.606 ms
Loss rate: 0.12%
```

Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2018-10-26 19:39:34
End at: 2018-10-26 19:40:04
Local clock offset: 0.529 ms
Remote clock offset: 1.054 ms


# Below is generated by plot.py at 2018-10-26 21:24:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 203.32 Mbit/s
95th percentile per-packet one-way delay: 169.272 ms
Loss rate: 0.60%
-- Flow 1:
Average throughput: 203.32 Mbit/s
95th percentile per-packet one-way delay: 169.272 ms
Loss rate: 0.60%
```
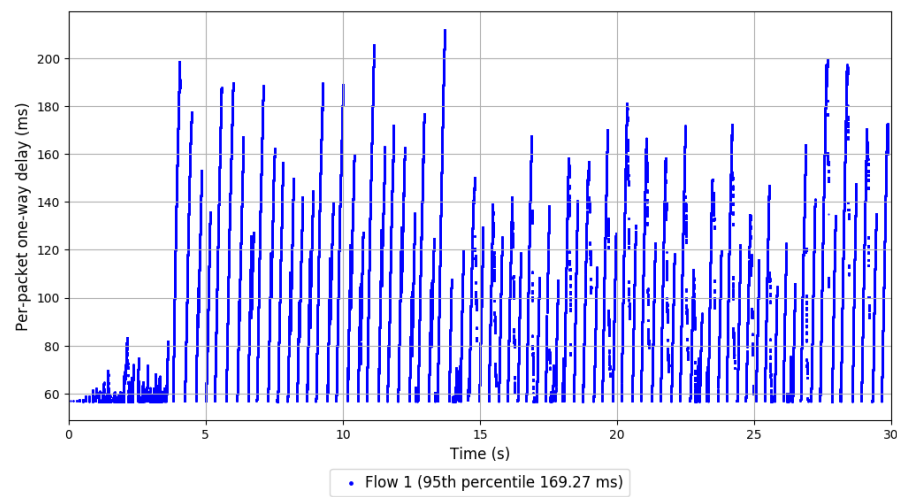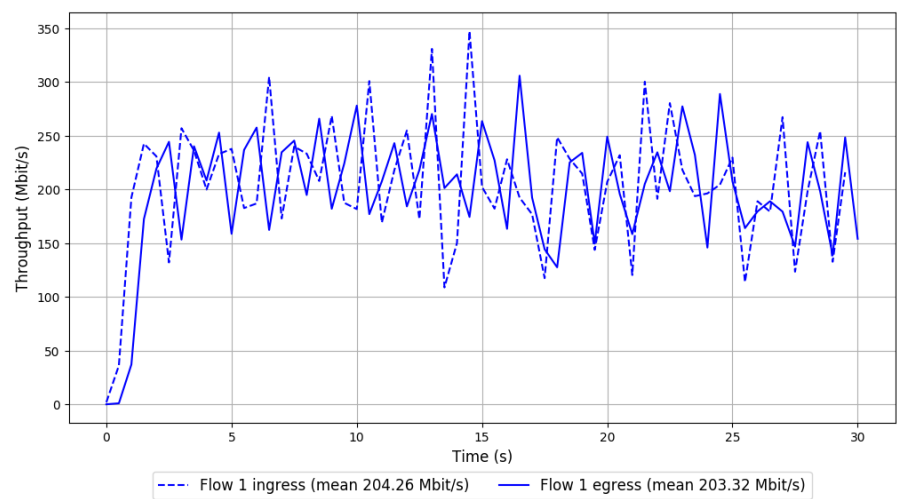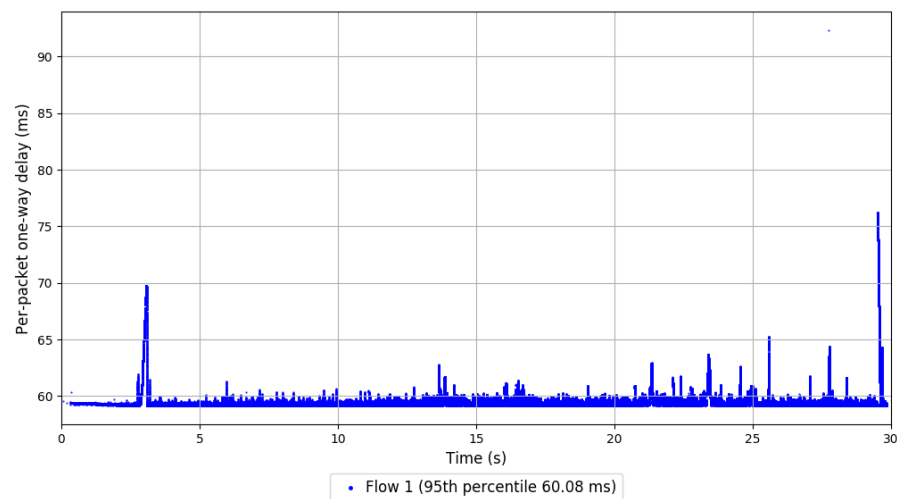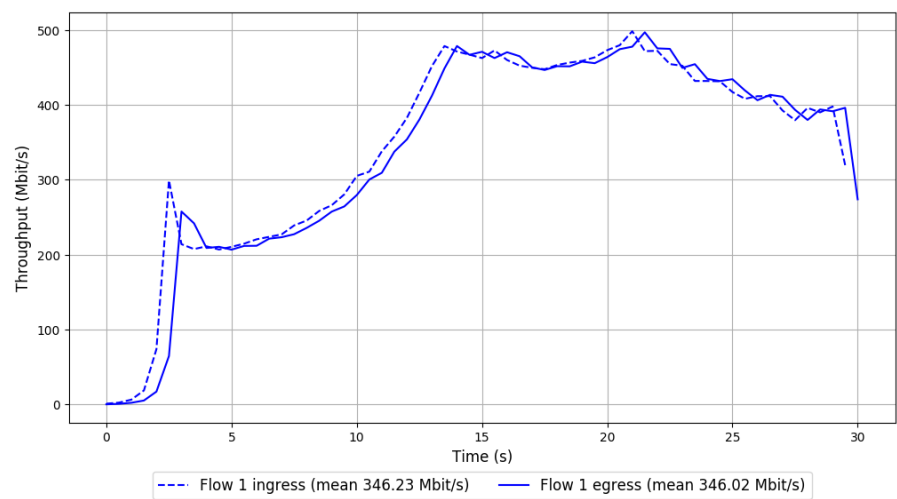
Run 5: Report of Verus — Data Link

```
Run 1: Statistics of PCC-Vivace

Start at: 2018-10-26 17:31:09
End at: 2018-10-26 17:31:39
Local clock offset: -1.304 ms
Remote clock offset: -0.445 ms


# Below is generated by plot.py at 2018-10-26 21:24:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 346.02 Mbit/s
95th percentile per-packet one-way delay: 60.083 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 346.02 Mbit/s
95th percentile per-packet one-way delay: 60.083 ms
Loss rate: 0.46%
```

Run 1: Report of PCC-Vivace — Data Link

```
Run 2: Statistics of PCC-Vivace

Start at: 2018-10-26 17:58:11
End at: 2018-10-26 17:58:41
Local clock offset: 0.326 ms
Remote clock offset: 0.077 ms


# Below is generated by plot.py at 2018-10-26 21:24:44
# Datalink statistics
-- Total of 1 flow:
Average throughput: 377.13 Mbit/s
95th percentile per-packet one-way delay: 66.967 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 377.13 Mbit/s
95th percentile per-packet one-way delay: 66.967 ms
Loss rate: 0.47%
```
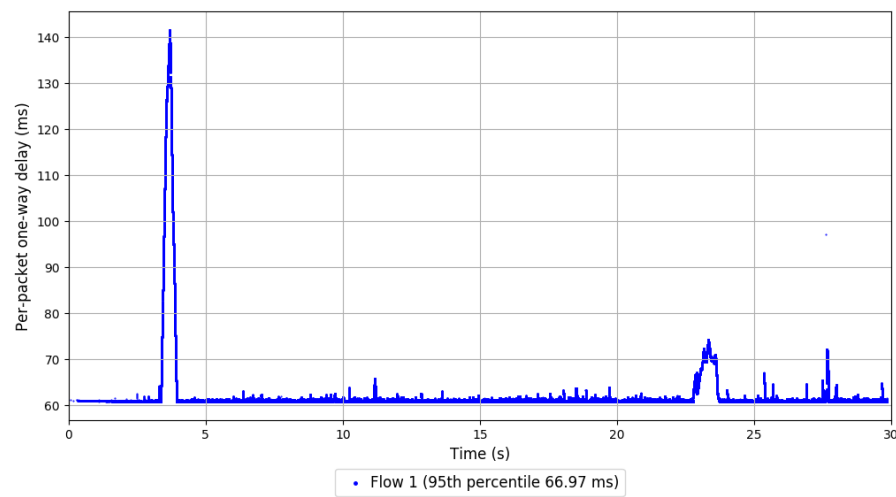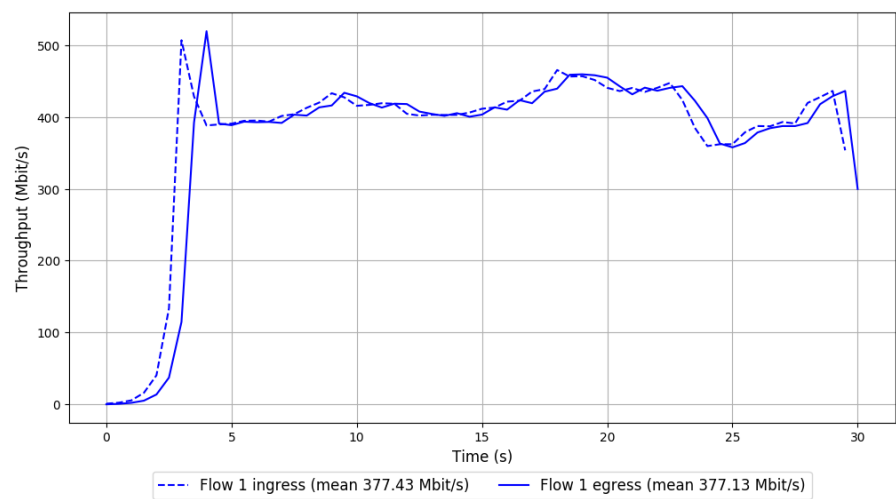
Run 2: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 377.43 Mbit/s)   Flow 1 egress (mean 377.13 Mbit/s)

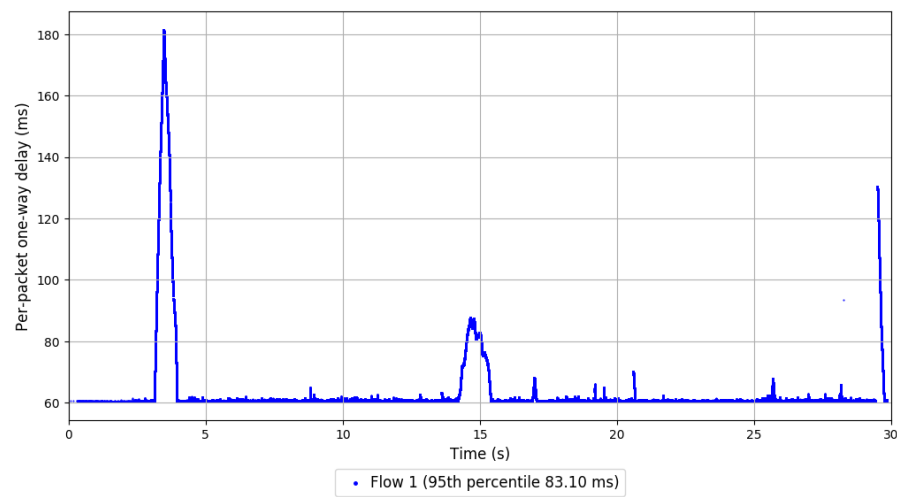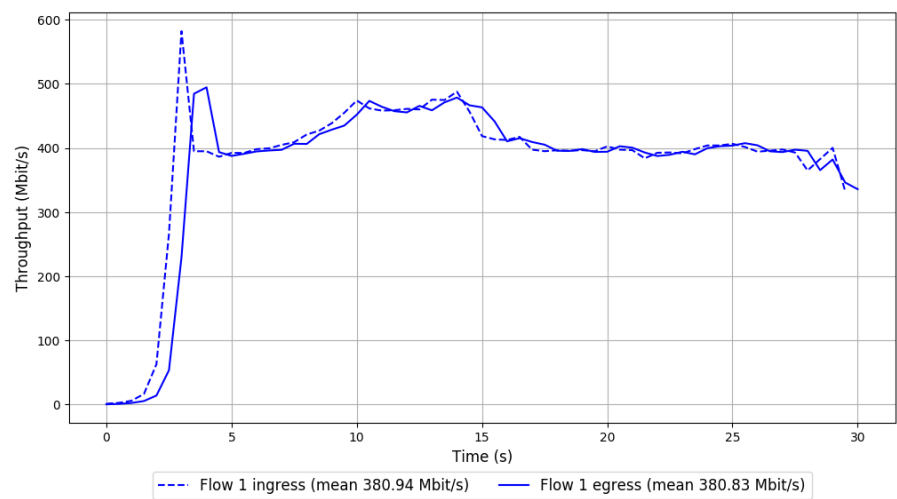

• Flow 1 (95th percentile 66.97 ms)

```
Run 3: Statistics of PCC-Vivace

Start at: 2018-10-26 18:25:25
End at: 2018-10-26 18:25:55
Local clock offset: -0.343 ms
Remote clock offset: -0.508 ms


# Below is generated by plot.py at 2018-10-26 21:24:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 380.83 Mbit/s
95th percentile per-packet one-way delay: 83.101 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 380.83 Mbit/s
95th percentile per-packet one-way delay: 83.101 ms
Loss rate: 0.42%
```

Run 3: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 380.94 Mbit/s)   Flow 1 egress (mean 380.83 Mbit/s)

Flow 1 (95th percentile 83.10 ms)

```
Run 4: Statistics of PCC-Vivace

Start at: 2018-10-26 18:52:24
End at: 2018-10-26 18:52:54
Local clock offset: 0.444 ms
Remote clock offset: 1.254 ms


# Below is generated by plot.py at 2018-10-26 21:24:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 381.42 Mbit/s
95th percentile per-packet one-way delay: 62.085 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 381.42 Mbit/s
95th percentile per-packet one-way delay: 62.085 ms
Loss rate: 0.38%
```
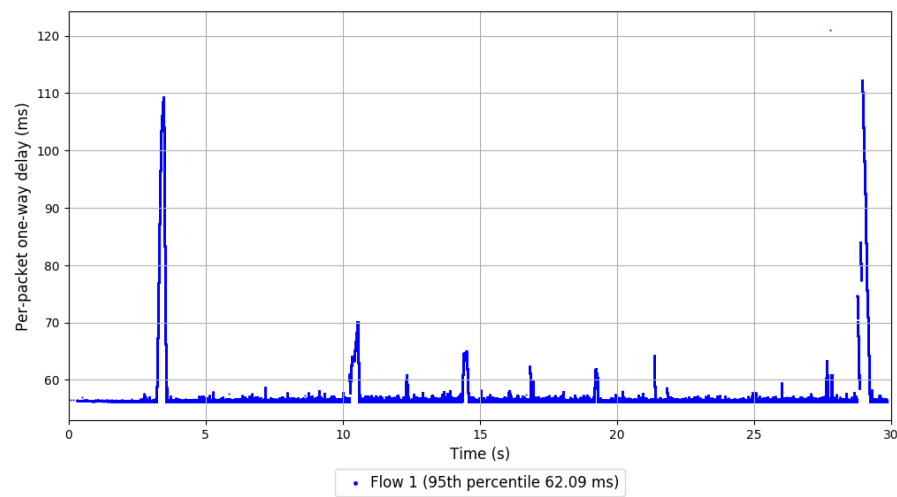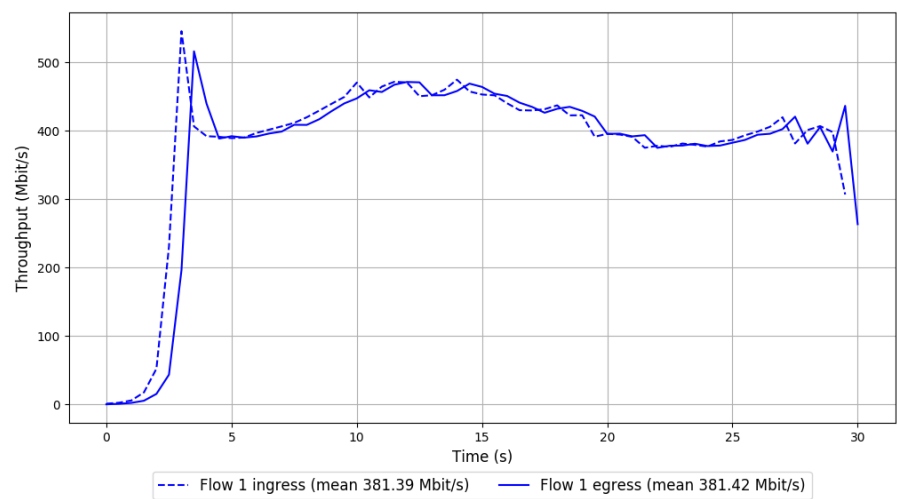
Run 4: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 381.39 Mbit/s)   Flow 1 egress (mean 381.42 Mbit/s)
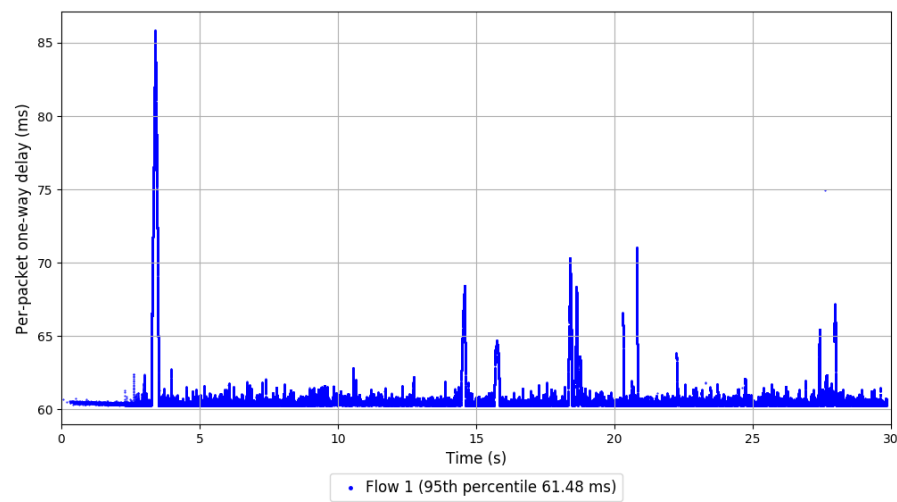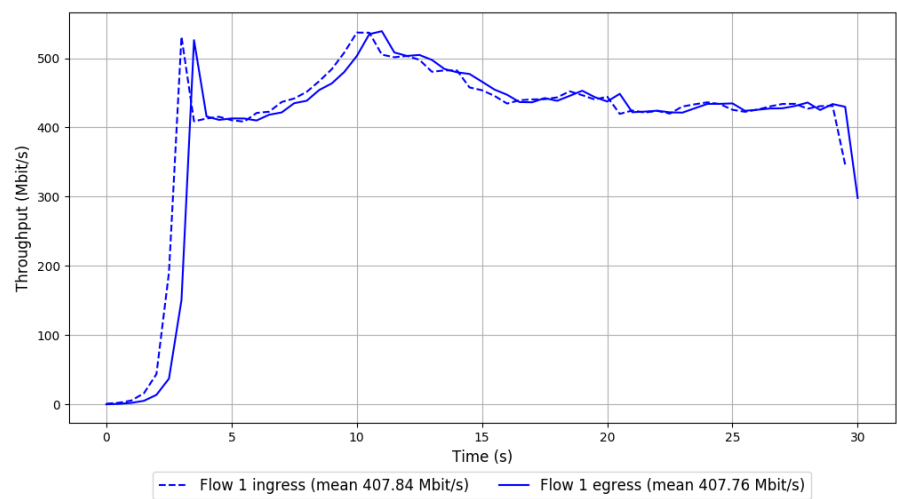

Flow 1 (95th percentile 62.09 ms)

```
Run 5: Statistics of PCC-Vivace

Start at: 2018-10-26 19:19:35
End at: 2018-10-26 19:20:05
Local clock offset: -0.107 ms
Remote clock offset: -0.011 ms


# Below is generated by plot.py at 2018-10-26 21:25:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 407.76 Mbit/s
95th percentile per-packet one-way delay: 61.483 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 407.76 Mbit/s
95th percentile per-packet one-way delay: 61.483 ms
Loss rate: 0.41%
```

Run 5: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 407.84 Mbit/s)   Flow 1 egress (mean 407.76 Mbit/s)
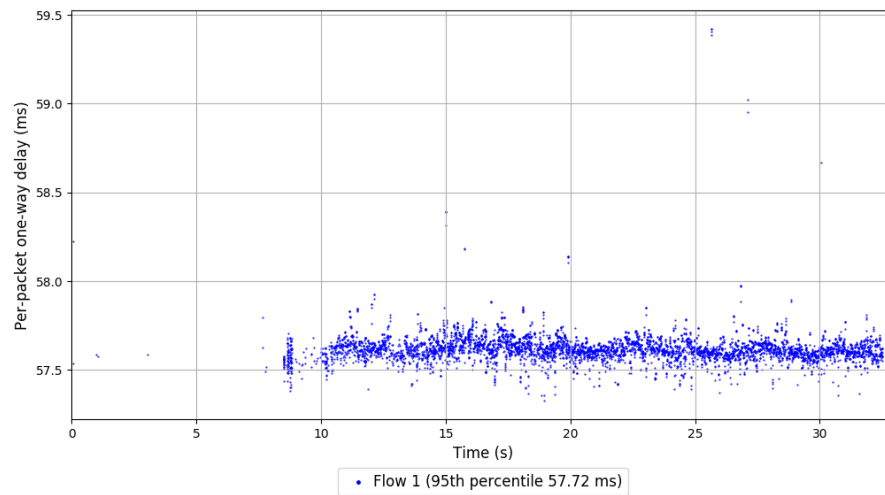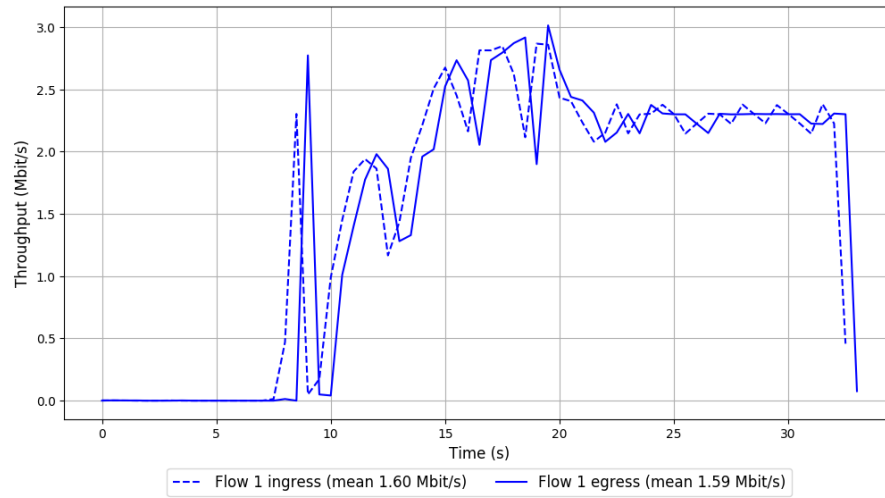

Flow 1 (95th percentile 61.48 ms)

```
Run 1: Statistics of WebRTC media

Start at: 2018-10-26 17:40:33
End at: 2018-10-26 17:41:03
Local clock offset: -0.07 ms
Remote clock offset: -0.469 ms


# Below is generated by plot.py at 2018-10-26 21:25:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.59 Mbit/s
95th percentile per-packet one-way delay: 57.720 ms
Loss rate: 0.59%
-- Flow 1:
Average throughput: 1.59 Mbit/s
95th percentile per-packet one-way delay: 57.720 ms
Loss rate: 0.59%
```

Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2018-10-26 18:08:02
End at: 2018-10-26 18:08:32
Local clock offset: -0.275 ms
Remote clock offset: 1.405 ms


# Below is generated by plot.py at 2018-10-26 21:25:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.89 Mbit/s
95th percentile per-packet one-way delay: 55.530 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 1.89 Mbit/s
95th percentile per-packet one-way delay: 55.530 ms
Loss rate: 0.44%
```
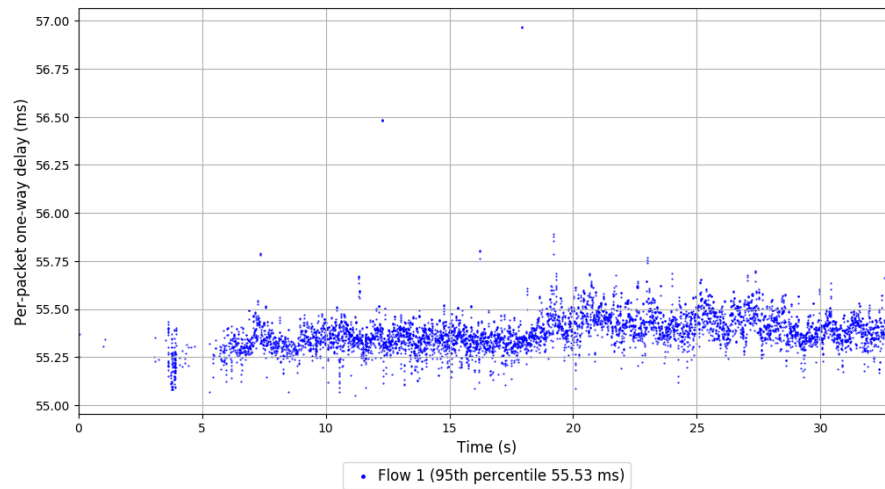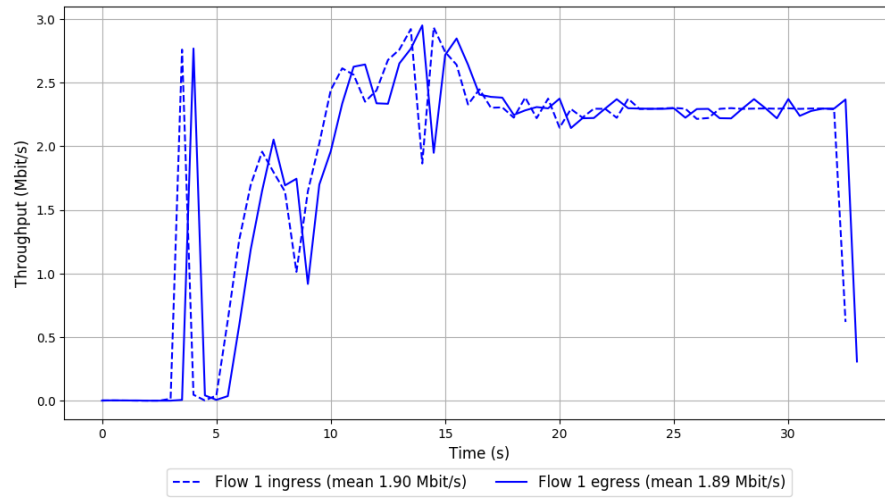
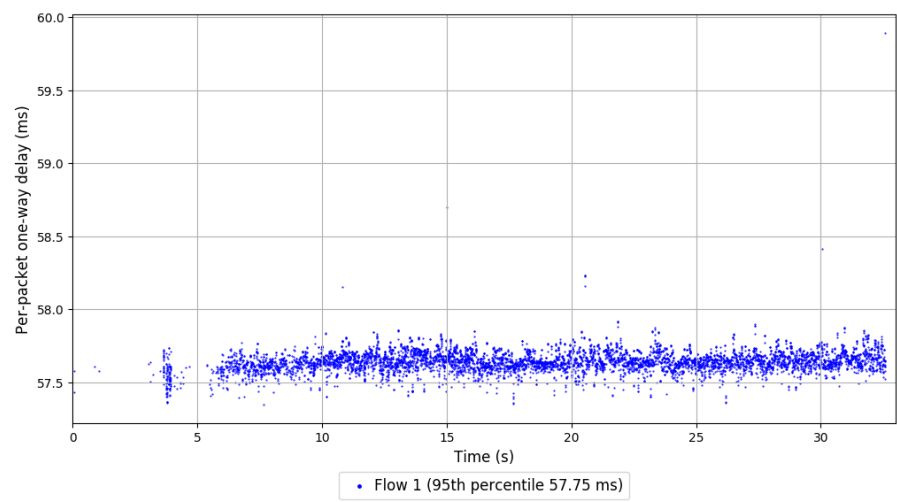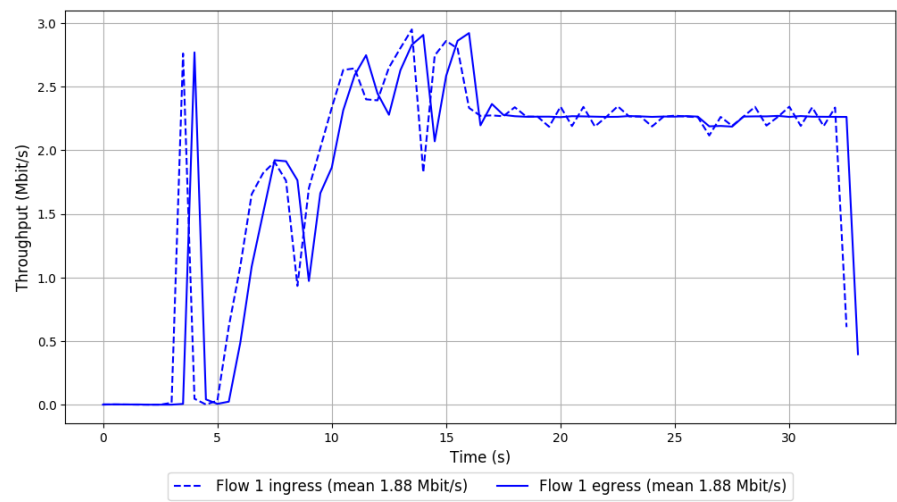Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-10-26 18:34:54
End at: 2018-10-26 18:35:24
Local clock offset: -0.513 ms
Remote clock offset: -0.673 ms


# Below is generated by plot.py at 2018-10-26 21:25:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.88 Mbit/s
95th percentile per-packet one-way delay: 57.748 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 1.88 Mbit/s
95th percentile per-packet one-way delay: 57.748 ms
Loss rate: 0.42%
```

Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2018-10-26 19:01:58
End at: 2018-10-26 19:02:28
Local clock offset: 0.359 ms
Remote clock offset: 0.23 ms

# Below is generated by plot.py at 2018-10-26 21:25:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.90 Mbit/s
95th percentile per-packet one-way delay: 60.563 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 1.90 Mbit/s
95th percentile per-packet one-way delay: 60.563 ms
Loss rate: 0.44%
```
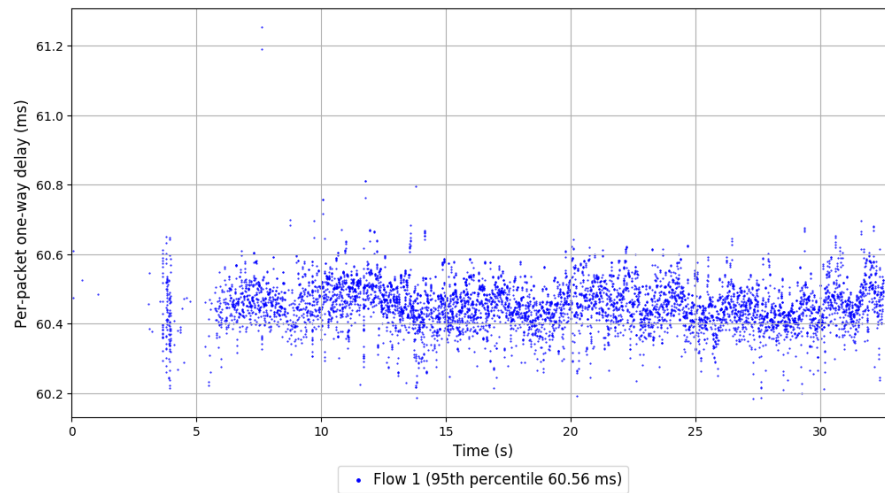
Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2018-10-26 19:29:04
End at: 2018-10-26 19:29:34
Local clock offset: 0.88 ms
Remote clock offset: 0.27 ms


# Below is generated by plot.py at 2018-10-26 21:25:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.90 Mbit/s
95th percentile per-packet one-way delay: 60.993 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 1.90 Mbit/s
95th percentile per-packet one-way delay: 60.993 ms
Loss rate: 0.44%
```
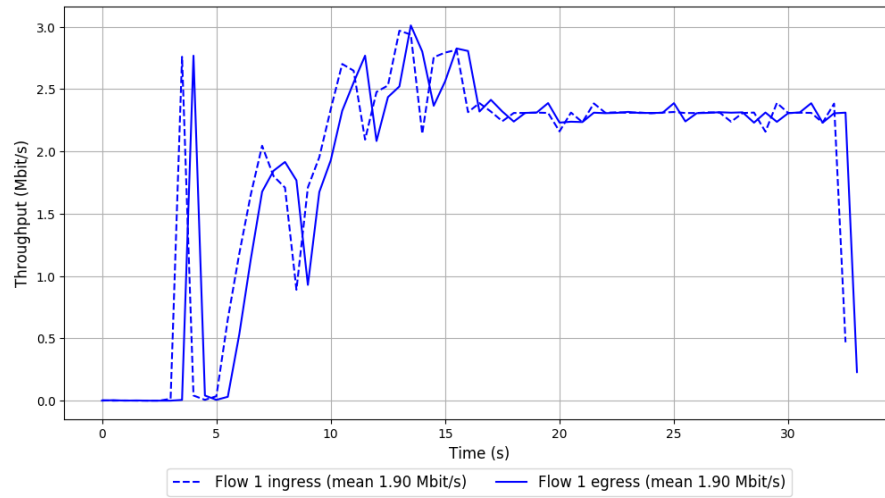
Run 5: Report of WebRTC media — Data Link