Pantheon Report

Generated at 2018-11-15 03:51:00 (UTC).

Data path: AWS Brazil 2 on `ens5` (*local*) →Colombia on `p4p1` (*remote*).

Repeated the test of 18 congestion control schemes 5 times.

Each test lasted for 30 seconds running 1 flow.

NTP offsets were measured against `gps.ntp.br` and have been applied to correct the timestamps in logs.
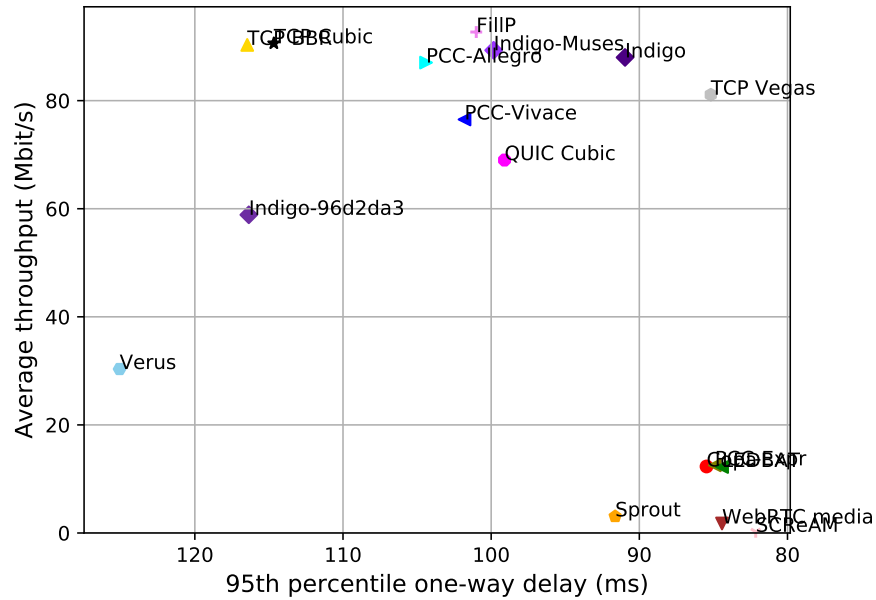
```
System info:
Linux 4.15.0-1023-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

Git summary:
branch: muses @ 794ca3866981572cb73700a276691acf79c60f2b
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/indigo-96d2da3 @ 8413272d46f8aa0bcb967ed7048b6a8f994abb95
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
 M receiver/src/buffer.h
 M receiver/src/core.cpp
 M sender/src/buffer.h
 M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
 M src/ScreamClient
 M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
 M src/examples/cellsim.cc
 M src/examples/sproutbt2.cc
 M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
 M src/verus.hpp
 M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
```
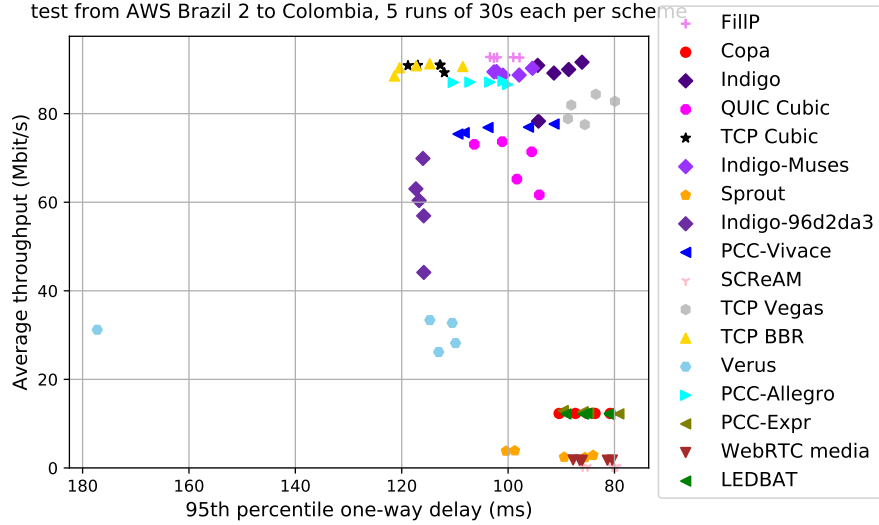
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851

test from AWS Brazil 2 to Colombia, 5 runs of 30s each per scheme
(mean of all runs by scheme)

test from AWS Brazil 2 to Colombia, 5 runs of 30s each per scheme

Legend:
- FillP
- Copa
- Indigo
- QUIC Cubic
- TCP Cubic
- Indigo-Muses
- Sprout
- Indigo-96d2da3
- PCC-Vivace
- SCReAM
- TCP Vegas
- TCP BBR
- Verus
- PCC-Allegro
- PCC-Expr
- WebRTC media
- LEDBAT

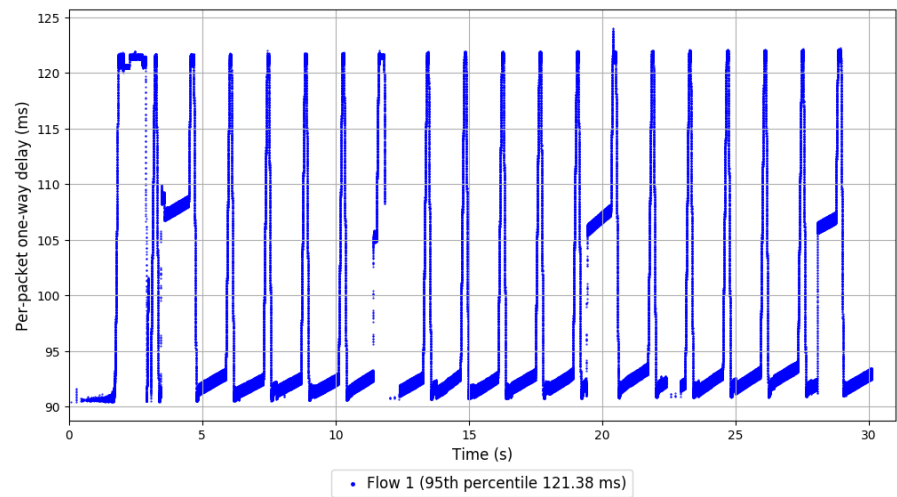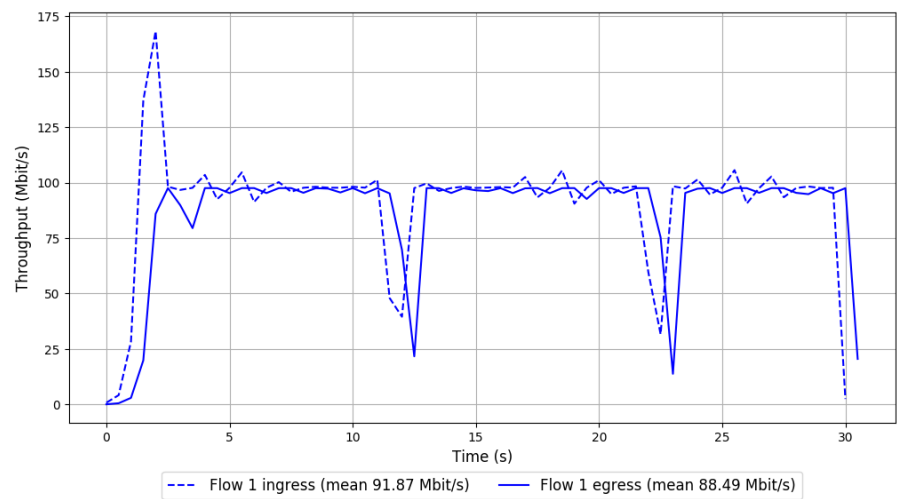| scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	5	90.31	116.46	3.07
Copa	5	12.31	85.46	74.07
TCP Cubic	5	90.61	114.67	0.47
FillP	5	92.70	101.01	1.00
Indigo	5	87.99	90.97	1.34
Indigo-96d2da3	5	58.88	116.36	52.75
LEDBAT	5	12.21	84.42	0.00
Indigo-Muses	5	89.32	99.83	2.53
PCC-Allegro	5	87.04	104.39	1.48
PCC-Expr	5	12.52	84.91	50.51
QUIC Cubic	5	69.01	99.10	0.35
SCReAM	5	0.22	82.15	0.00
Sprout	5	3.08	91.63	0.00
TaoVA-100x	0	N/A	N/A	N/A
TCP Vegas	5	81.10	85.18	0.44
Verus	5	30.34	125.08	24.34
PCC-Vivace	5	76.52	101.80	0.10
WebRTC media	5	1.76	84.42	0.00

```
Run 1: Statistics of TCP BBR

Start at: 2018-11-15 02:08:01
End at: 2018-11-15 02:08:31
Local clock offset: -20.754 ms
Remote clock offset: 6.523 ms


# Below is generated by plot.py at 2018-11-15 03:44:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 90.82 Mbit/s
95th percentile per-packet one-way delay: 117.281 ms
Loss rate: 2.43%
-- Flow 1:
Average throughput: 90.82 Mbit/s
95th percentile per-packet one-way delay: 117.281 ms
Loss rate: 2.43%
```
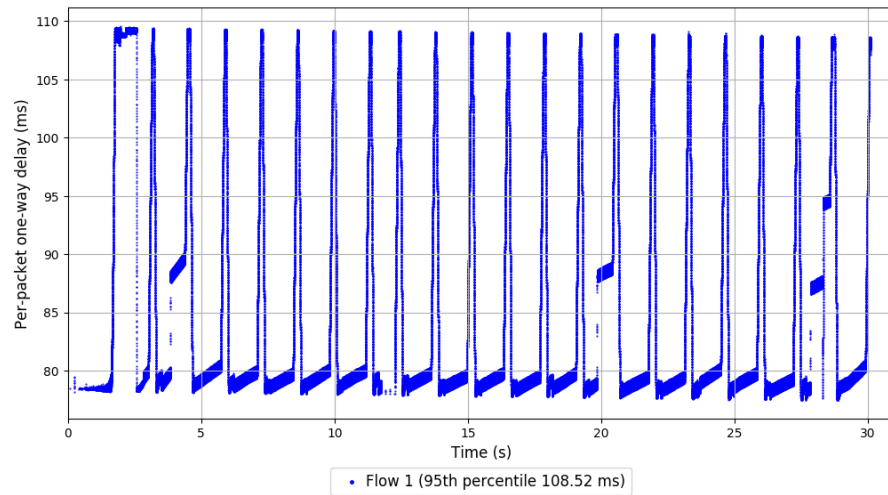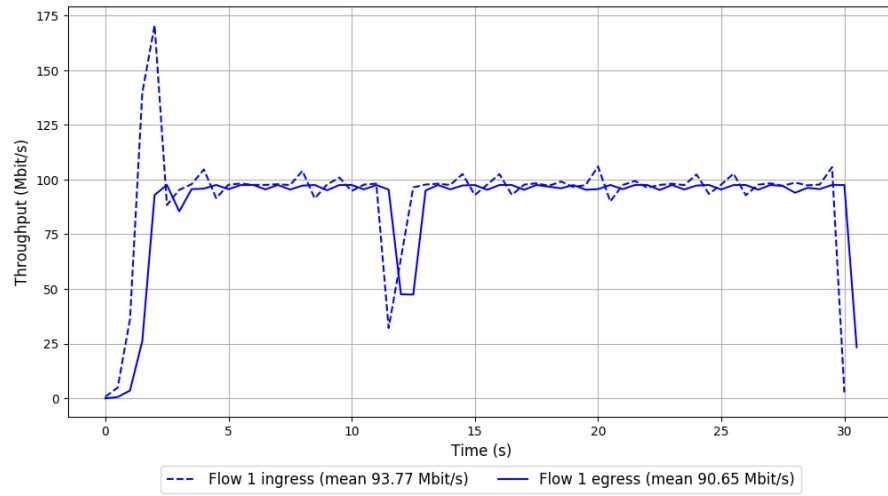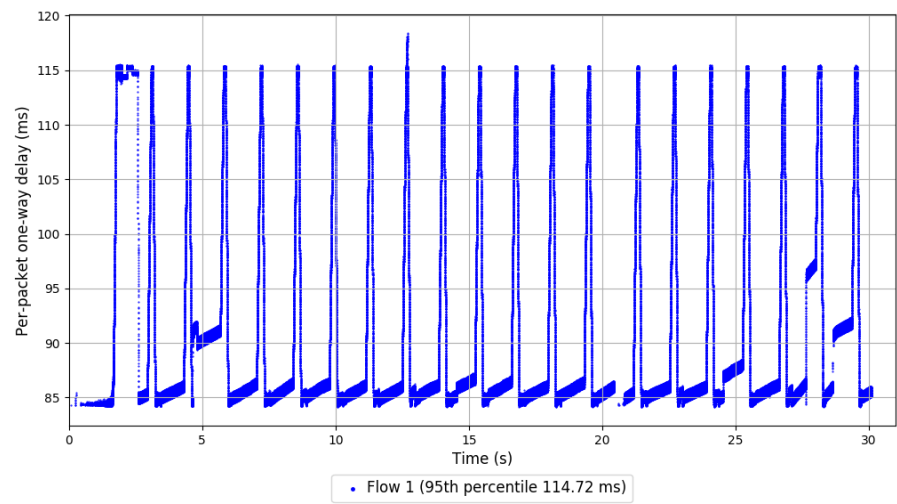
Run 1: Report of TCP BBR — Data Link

Flow 1 ingress (mean 93.10 Mbit/s) ——— Flow 1 egress (mean 90.82 Mbit/s)

• Flow 1 (95th percentile 117.28 ms)

```
Run 2: Statistics of TCP BBR

Start at: 2018-11-15 02:29:06
End at: 2018-11-15 02:29:36
Local clock offset: -35.107 ms
Remote clock offset: 6.75 ms


# Below is generated by plot.py at 2018-11-15 03:44:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 88.49 Mbit/s
95th percentile per-packet one-way delay: 121.380 ms
Loss rate: 3.66%
-- Flow 1:
Average throughput: 88.49 Mbit/s
95th percentile per-packet one-way delay: 121.380 ms
Loss rate: 3.66%
```
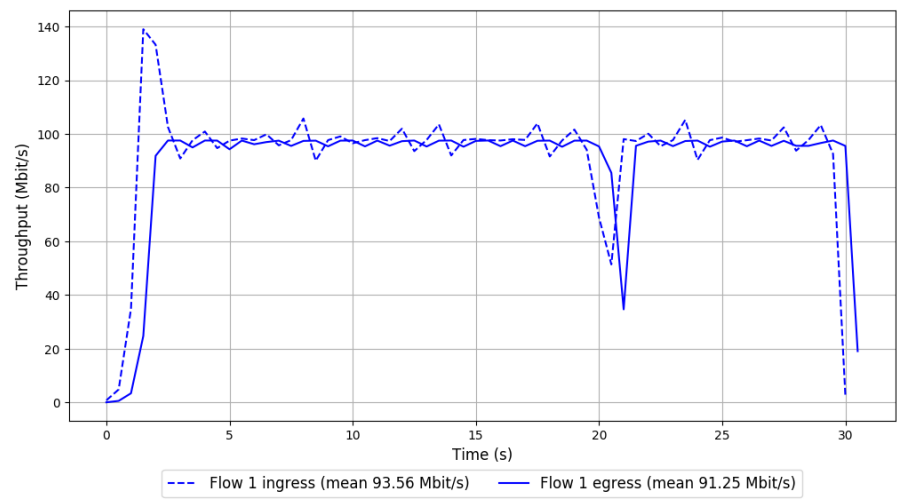
Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2018-11-15 02:50:12
End at: 2018-11-15 02:50:42
Local clock offset: -49.76 ms
Remote clock offset: 2.964 ms


# Below is generated by plot.py at 2018-11-15 03:44:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 90.65 Mbit/s
95th percentile per-packet one-way delay: 108.515 ms
Loss rate: 3.23%
-- Flow 1:
Average throughput: 90.65 Mbit/s
95th percentile per-packet one-way delay: 108.515 ms
Loss rate: 3.23%
```
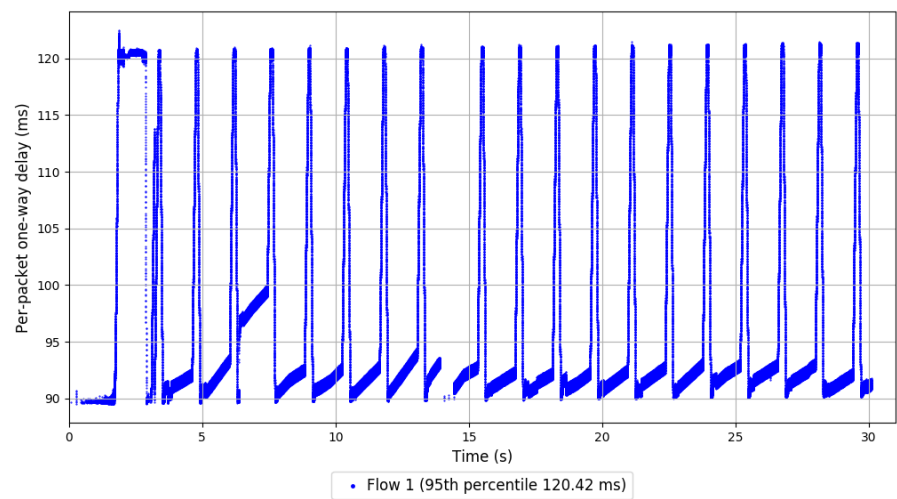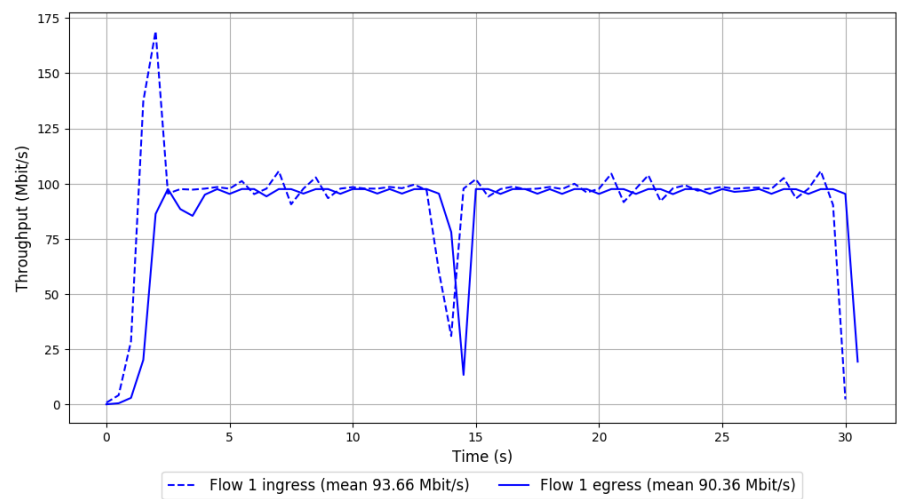
Run 3: Report of TCP BBR — Data Link

```
Run 4: Statistics of TCP BBR

Start at: 2018-11-15 03:11:17
End at: 2018-11-15 03:11:47
Local clock offset: -32.811 ms
Remote clock offset: 8.502 ms

# Below is generated by plot.py at 2018-11-15 03:44:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 91.25 Mbit/s
95th percentile per-packet one-way delay: 114.725 ms
Loss rate: 2.47%
-- Flow 1:
Average throughput: 91.25 Mbit/s
95th percentile per-packet one-way delay: 114.725 ms
Loss rate: 2.47%
```
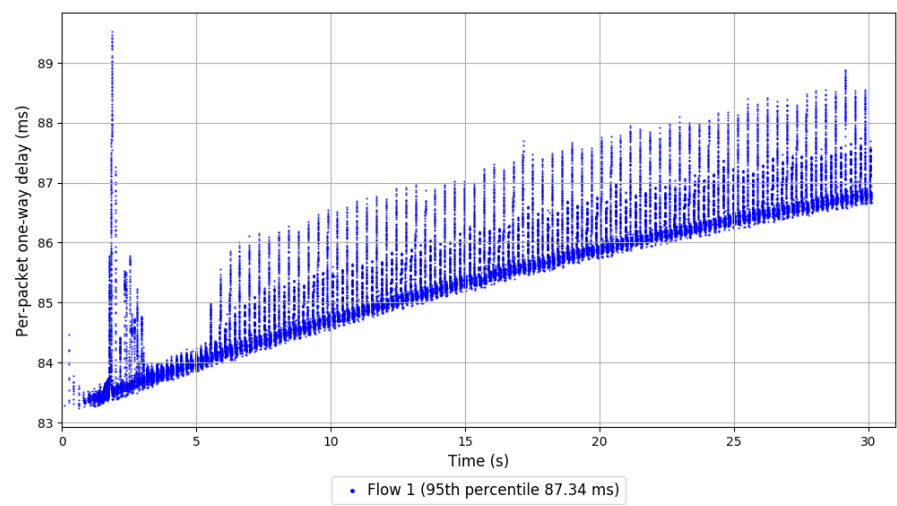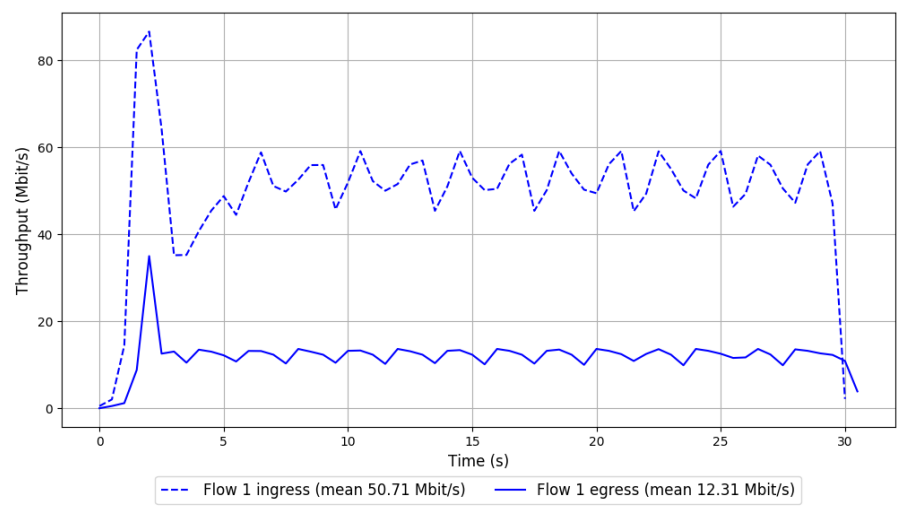
Run 4: Report of TCP BBR — Data Link

Flow 1 ingress (mean 93.56 Mbit/s) — Flow 1 egress (mean 91.25 Mbit/s)
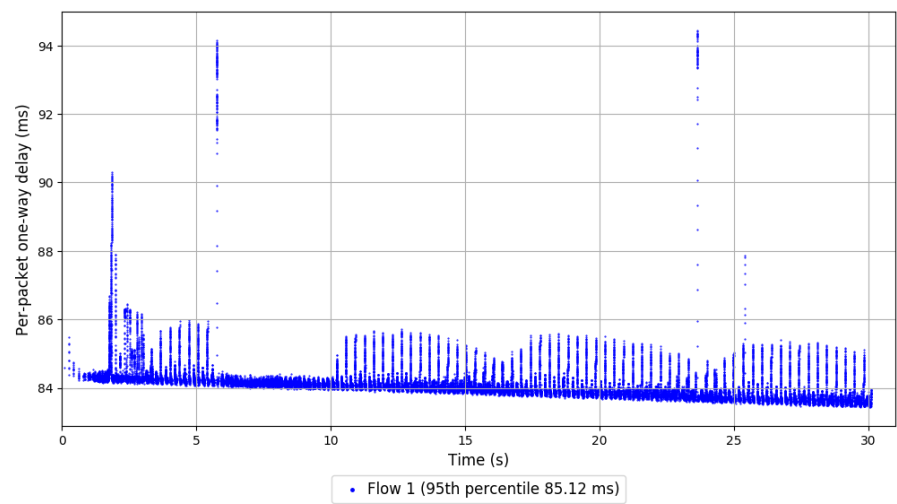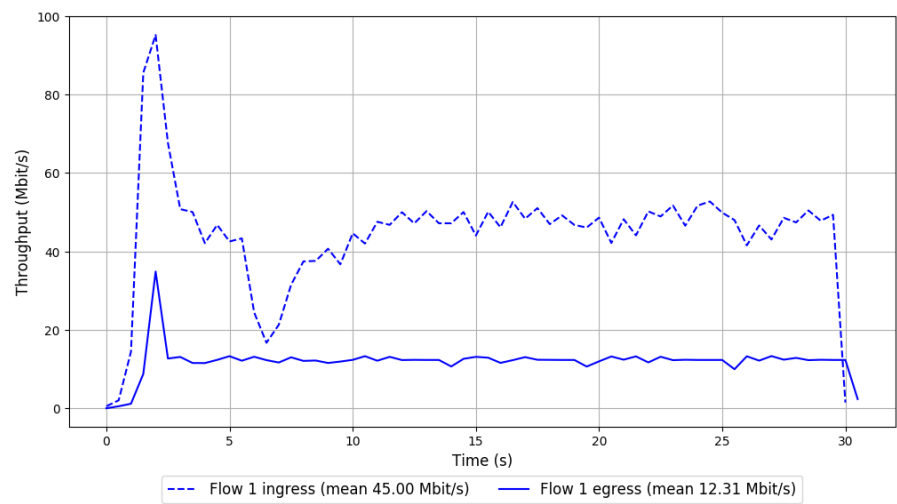

Flow 1 (95th percentile 114.72 ms)

```
Run 5: Statistics of TCP BBR

Start at: 2018-11-15 03:32:22
End at: 2018-11-15 03:32:52
Local clock offset: -28.46 ms
Remote clock offset: 8.386 ms

# Below is generated by plot.py at 2018-11-15 03:44:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 90.36 Mbit/s
95th percentile per-packet one-way delay: 120.416 ms
Loss rate: 3.54%
-- Flow 1:
Average throughput: 90.36 Mbit/s
95th percentile per-packet one-way delay: 120.416 ms
Loss rate: 3.54%
```

Run 5: Report of TCP BBR — Data Link

Flow 1 ingress (mean 93.66 Mbit/s) ----- Flow 1 egress (mean 90.36 Mbit/s)
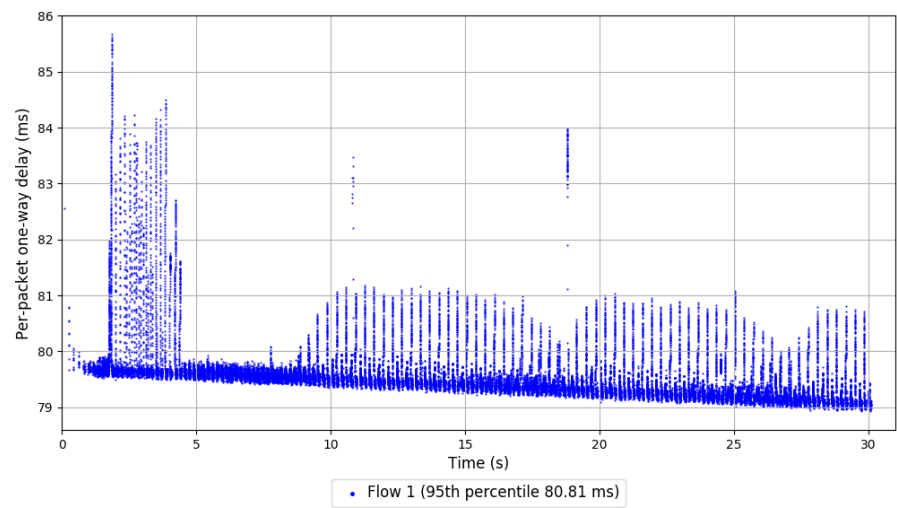

Flow 1 (95th percentile 120.42 ms)

```
Run 1: Statistics of Copa

Start at: 2018-11-15 01:59:47
End at: 2018-11-15 02:00:17
Local clock offset: -17.392 ms
Remote clock offset: 4.828 ms


# Below is generated by plot.py at 2018-11-15 03:44:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.31 Mbit/s
95th percentile per-packet one-way delay: 87.337 ms
Loss rate: 75.72%
-- Flow 1:
Average throughput: 12.31 Mbit/s
95th percentile per-packet one-way delay: 87.337 ms
Loss rate: 75.72%
```

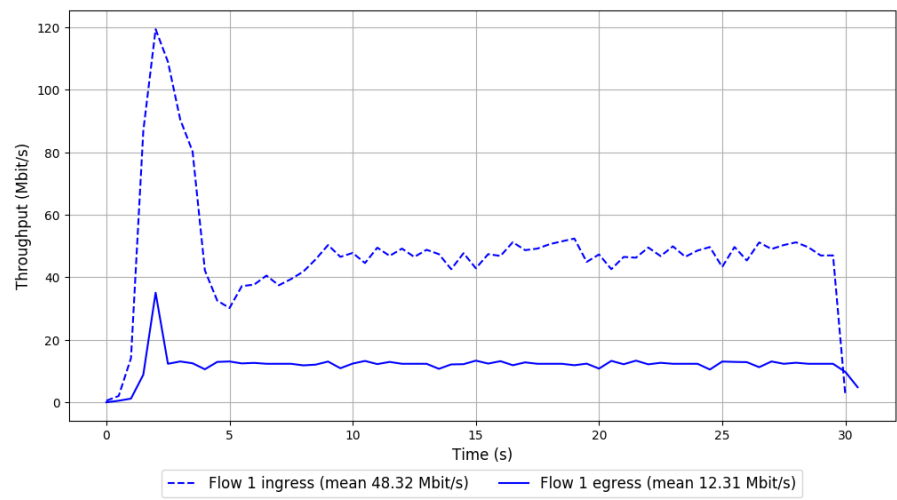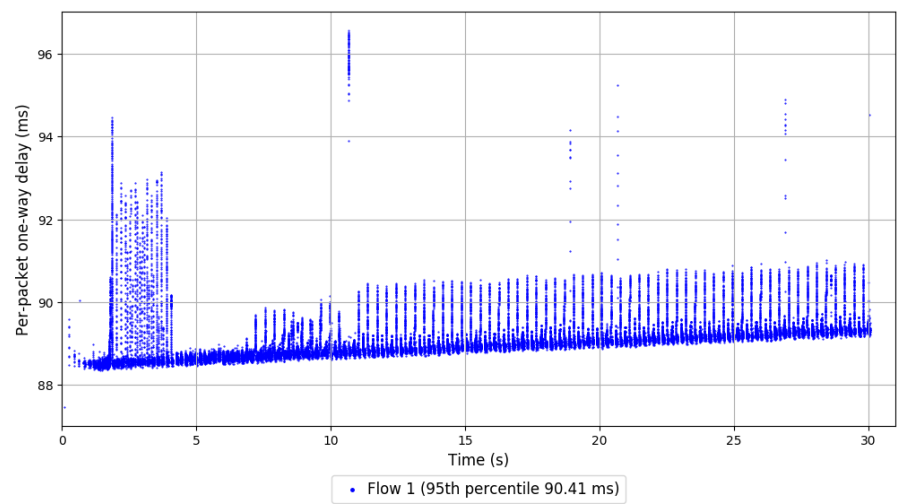Run 1: Report of Copa — Data Link

```
Run 2: Statistics of Copa

Start at: 2018-11-15 02:20:51
End at: 2018-11-15 02:21:21
Local clock offset: -28.428 ms
Remote clock offset: 7.392 ms


# Below is generated by plot.py at 2018-11-15 03:44:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.31 Mbit/s
95th percentile per-packet one-way delay: 85.118 ms
Loss rate: 72.65%
-- Flow 1:
Average throughput: 12.31 Mbit/s
95th percentile per-packet one-way delay: 85.118 ms
Loss rate: 72.65%
```

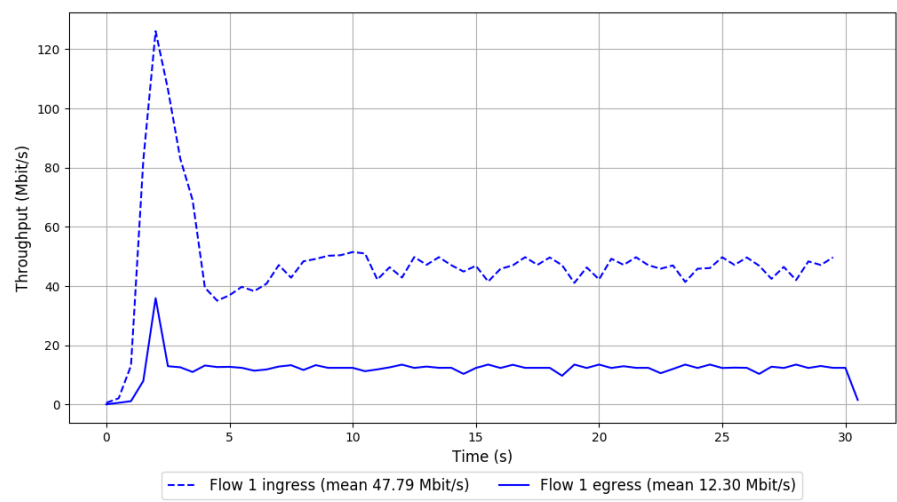Run 2: Report of Copa — Data Link

```
Run 3: Statistics of Copa

Start at: 2018-11-15 02:41:56
End at: 2018-11-15 02:42:26
Local clock offset: -37.952 ms
Remote clock offset: 3.586 ms


# Below is generated by plot.py at 2018-11-15 03:44:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.31 Mbit/s
95th percentile per-packet one-way delay: 80.810 ms
Loss rate: 74.53%
-- Flow 1:
Average throughput: 12.31 Mbit/s
95th percentile per-packet one-way delay: 80.810 ms
Loss rate: 74.53%
```

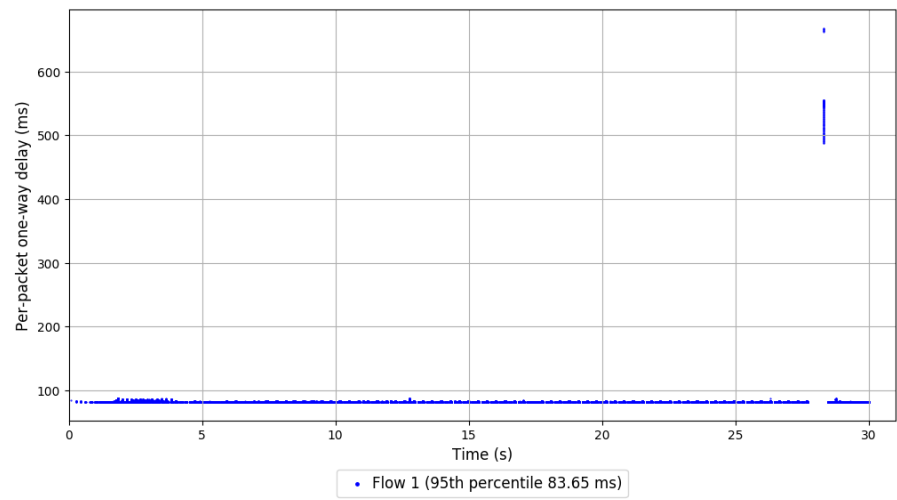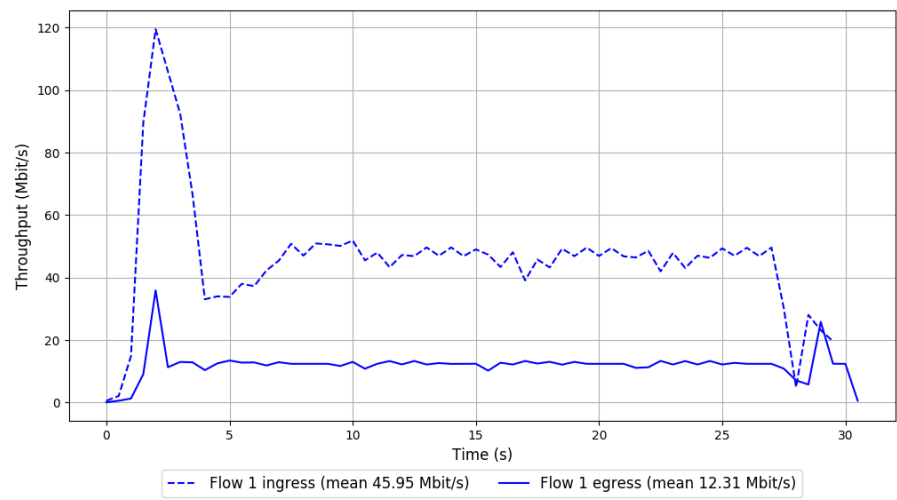Run 3: Report of Copa — Data Link

```
Run 4: Statistics of Copa

Start at: 2018-11-15 03:03:02
End at: 2018-11-15 03:03:33
Local clock offset: -40.756 ms
Remote clock offset: 9.402 ms


# Below is generated by plot.py at 2018-11-15 03:44:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.30 Mbit/s
95th percentile per-packet one-way delay: 90.408 ms
Loss rate: 74.25%
-- Flow 1:
Average throughput: 12.30 Mbit/s
95th percentile per-packet one-way delay: 90.408 ms
Loss rate: 74.25%
```

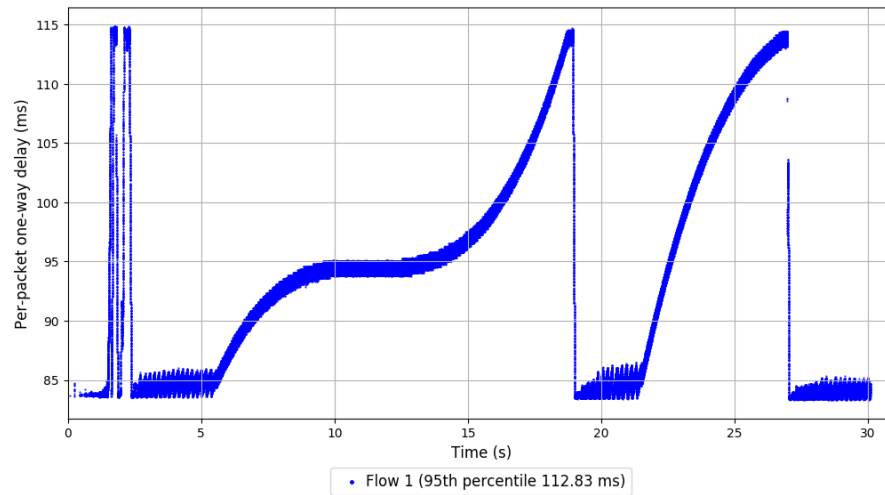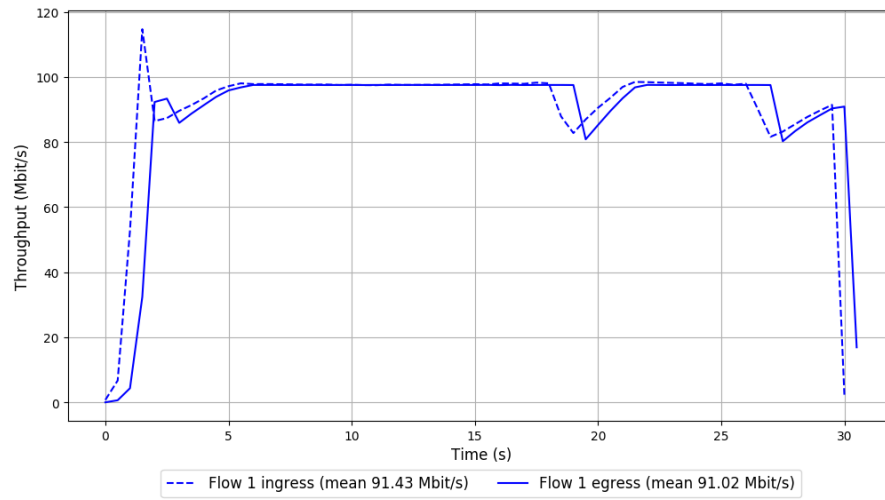Run 4: Report of Copa — Data Link

Flow 1 ingress (mean 47.79 Mbit/s) --- Flow 1 egress (mean 12.30 Mbit/s)

Flow 1 (95th percentile 90.41 ms)

```
Run 5: Statistics of Copa

Start at: 2018-11-15 03:24:07
End at: 2018-11-15 03:24:37
Local clock offset: -39.362 ms
Remote clock offset: 8.026 ms

# Below is generated by plot.py at 2018-11-15 03:44:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.31 Mbit/s
95th percentile per-packet one-way delay: 83.646 ms
Loss rate: 73.21%
-- Flow 1:
Average throughput: 12.31 Mbit/s
95th percentile per-packet one-way delay: 83.646 ms
Loss rate: 73.21%
```

Run 5: Report of Copa — Data Link

Flow 1 ingress (mean 45.95 Mbit/s)   Flow 1 egress (mean 12.31 Mbit/s)

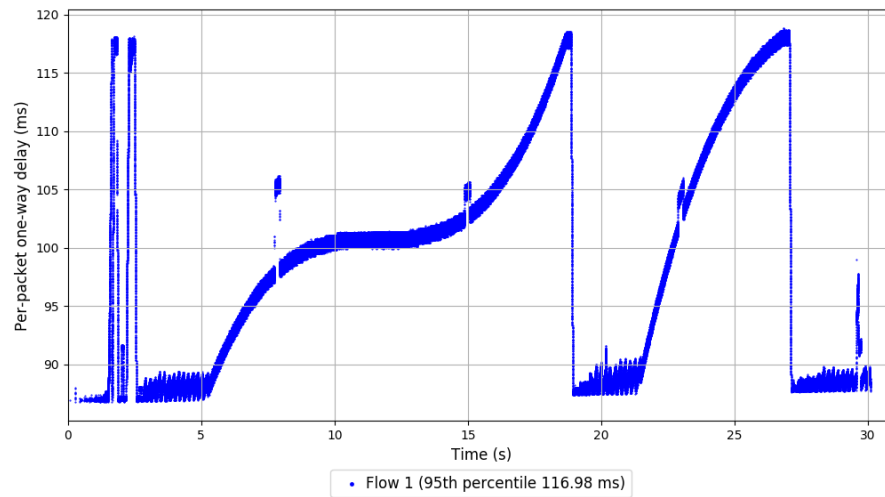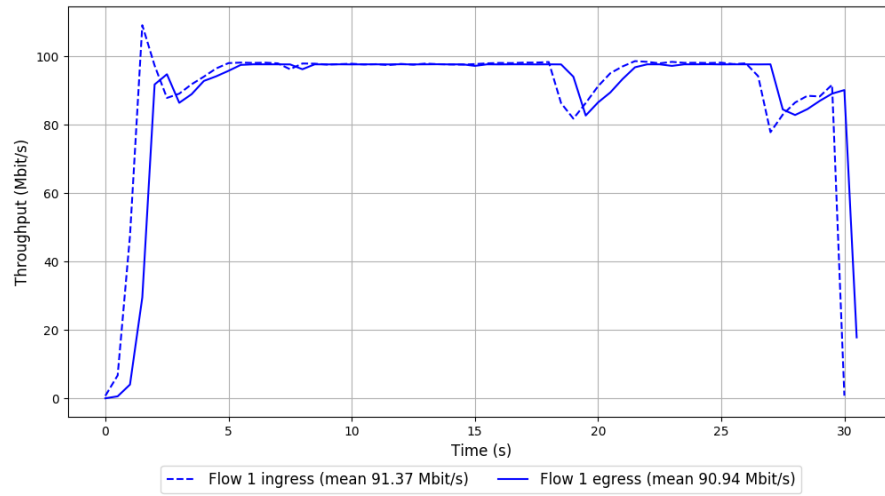Flow 1 (95th percentile 83.65 ms)

```
Run 1: Statistics of TCP Cubic

Start at: 2018-11-15 02:05:41
End at: 2018-11-15 02:06:11
Local clock offset: -18.586 ms
Remote clock offset: 4.156 ms


# Below is generated by plot.py at 2018-11-15 03:44:47
# Datalink statistics
-- Total of 1 flow:
Average throughput: 91.02 Mbit/s
95th percentile per-packet one-way delay: 112.835 ms
Loss rate: 0.45%
-- Flow 1:
Average throughput: 91.02 Mbit/s
95th percentile per-packet one-way delay: 112.835 ms
Loss rate: 0.45%
```
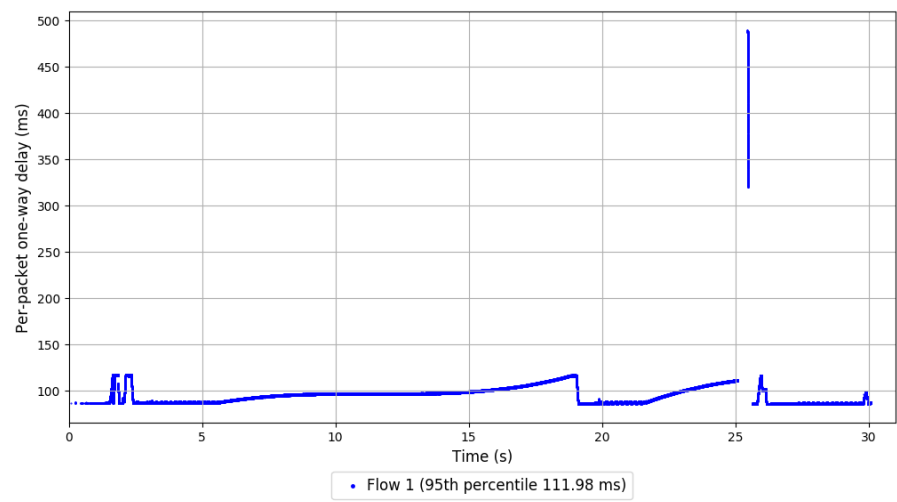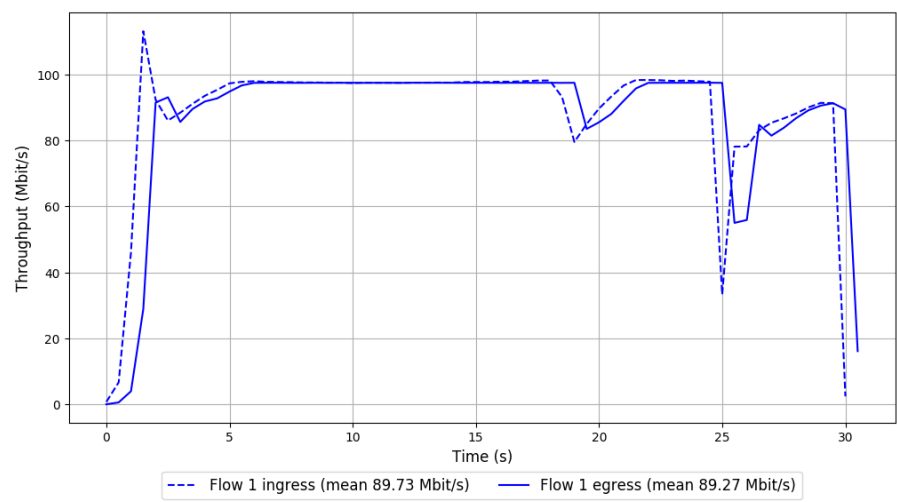
Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2018-11-15 02:26:46
End at: 2018-11-15 02:27:16
Local clock offset: -39.755 ms
Remote clock offset: 6.542 ms

# Below is generated by plot.py at 2018-11-15 03:44:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 90.94 Mbit/s
95th percentile per-packet one-way delay: 116.984 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 90.94 Mbit/s
95th percentile per-packet one-way delay: 116.984 ms
Loss rate: 0.46%
```
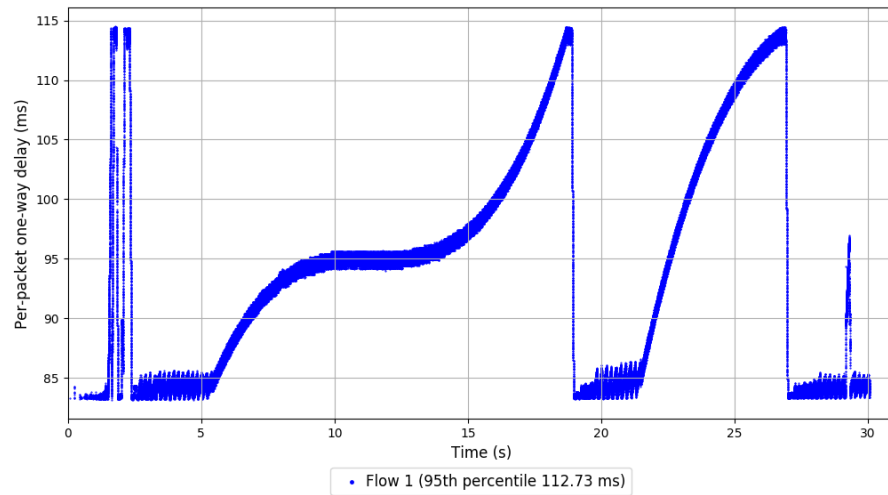
Run 2: Report of TCP Cubic — Data Link

```
Run 3: Statistics of TCP Cubic

Start at: 2018-11-15 02:47:52
End at: 2018-11-15 02:48:22
Local clock offset: -46.213 ms
Remote clock offset: 8.721 ms


# Below is generated by plot.py at 2018-11-15 03:44:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 89.27 Mbit/s
95th percentile per-packet one-way delay: 111.977 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 89.27 Mbit/s
95th percentile per-packet one-way delay: 111.977 ms
Loss rate: 0.56%
```
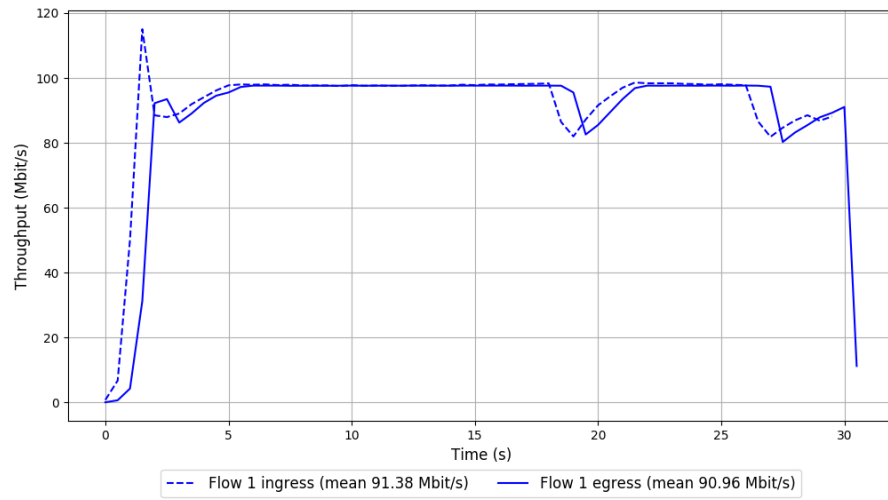
Run 3: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 89.73 Mbit/s) --- Flow 1 egress (mean 89.27 Mbit/s)
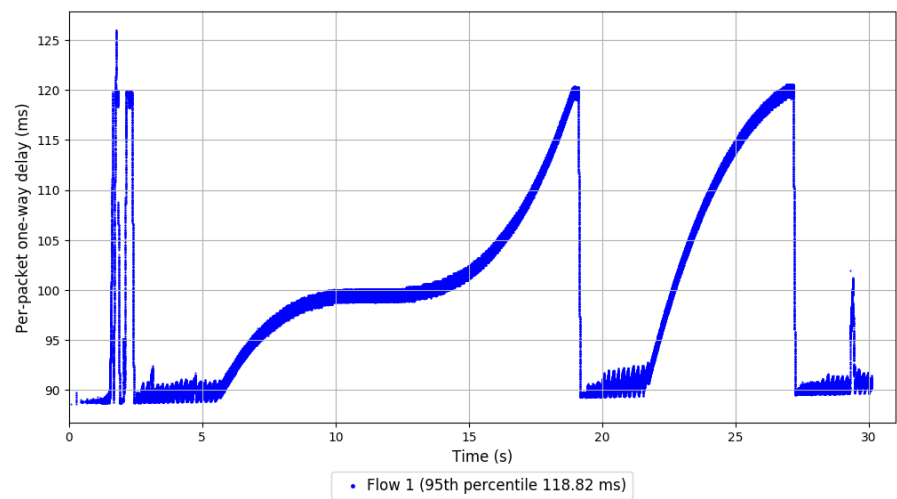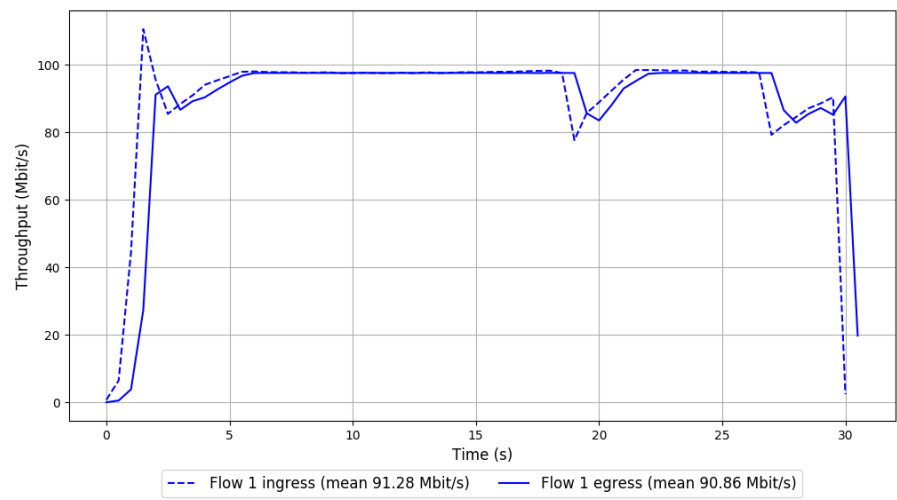

• Flow 1 (95th percentile 111.98 ms)

```
Run 4: Statistics of TCP Cubic

Start at: 2018-11-15 03:08:58
End at: 2018-11-15 03:09:28
Local clock offset: -33.29 ms
Remote clock offset: 7.528 ms


# Below is generated by plot.py at 2018-11-15 03:45:32
# Datalink statistics
-- Total of 1 flow:
Average throughput: 90.96 Mbit/s
95th percentile per-packet one-way delay: 112.730 ms
Loss rate: 0.45%
-- Flow 1:
Average throughput: 90.96 Mbit/s
95th percentile per-packet one-way delay: 112.730 ms
Loss rate: 0.45%
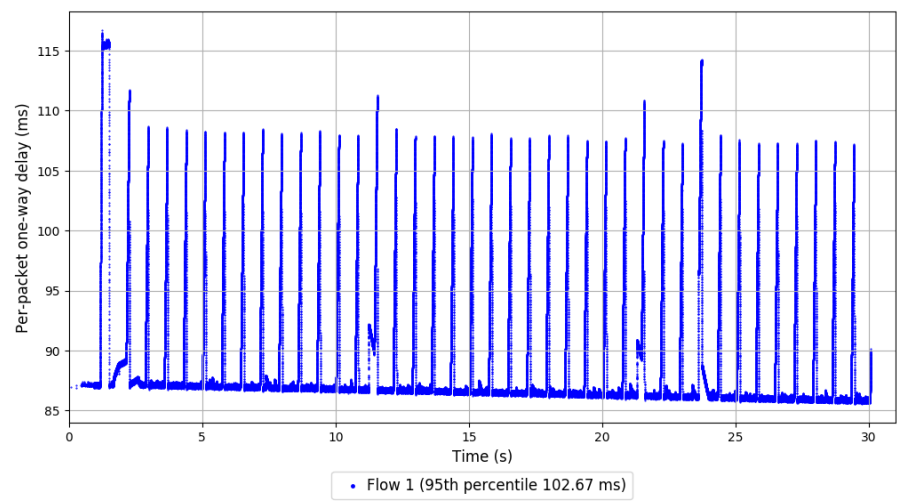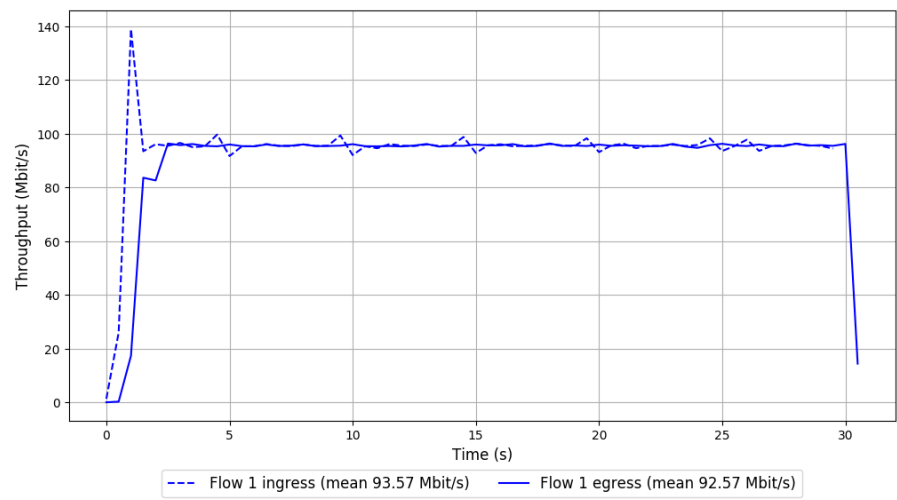```
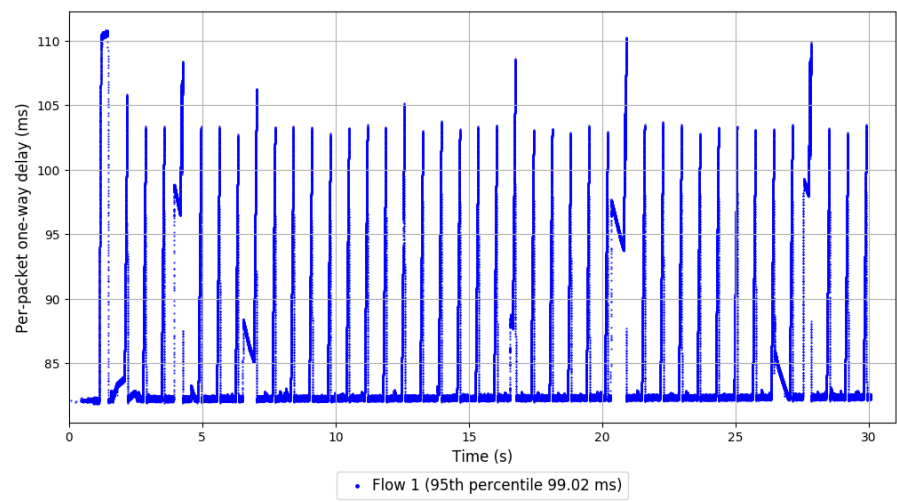
Run 4: Report of TCP Cubic — Data Link

```
Run 5: Statistics of TCP Cubic

Start at: 2018-11-15 03:30:02
End at: 2018-11-15 03:30:32
Local clock offset: -33.698 ms
Remote clock offset: 9.328 ms


# Below is generated by plot.py at 2018-11-15 03:45:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 90.86 Mbit/s
95th percentile per-packet one-way delay: 118.824 ms
Loss rate: 0.45%
-- Flow 1:
Average throughput: 90.86 Mbit/s
95th percentile per-packet one-way delay: 118.824 ms
Loss rate: 0.45%
```

Run 5: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 91.28 Mbit/s)　　Flow 1 egress (mean 90.86 Mbit/s)

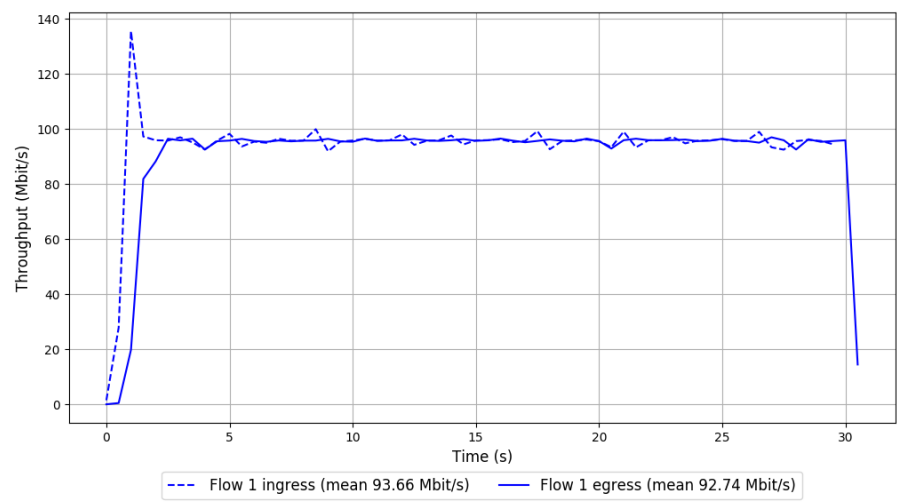Flow 1 (95th percentile 118.82 ms)

```
Run 1: Statistics of FillP

Start at: 2018-11-15 02:10:25
End at: 2018-11-15 02:10:55
Local clock offset: -26.158 ms
Remote clock offset: 2.037 ms


# Below is generated by plot.py at 2018-11-15 03:45:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 92.57 Mbit/s
95th percentile per-packet one-way delay: 102.670 ms
Loss rate: 1.06%
-- Flow 1:
Average throughput: 92.57 Mbit/s
95th percentile per-packet one-way delay: 102.670 ms
Loss rate: 1.06%
```
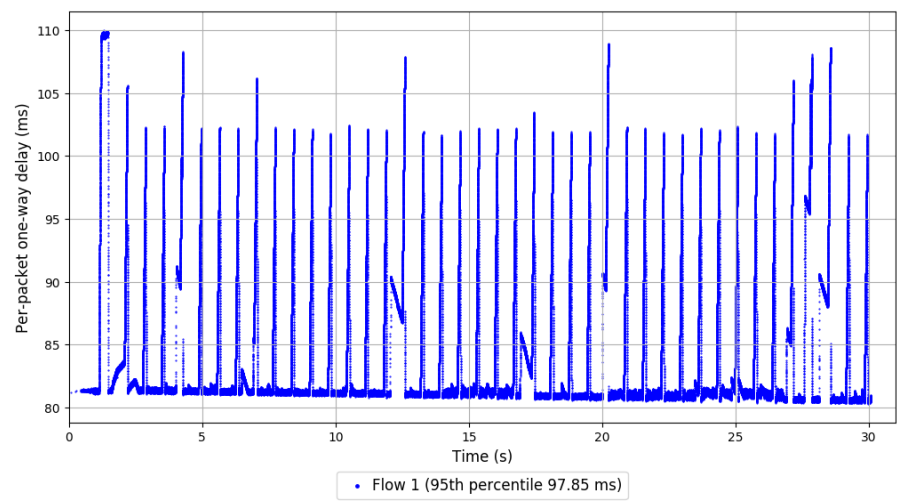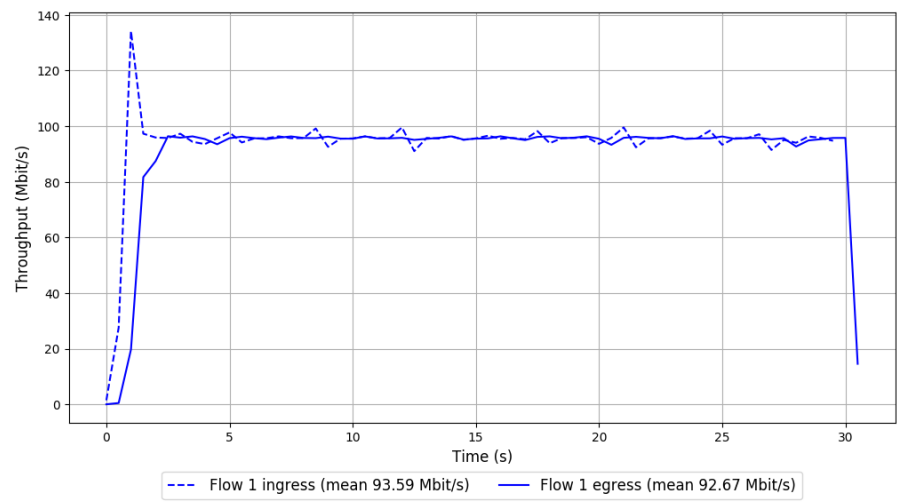
Run 1: Report of FillP — Data Link

Flow 1 ingress (mean 93.57 Mbit/s)   Flow 1 egress (mean 92.57 Mbit/s)

• Flow 1 (95th percentile 102.67 ms)

```
Run 2: Statistics of FillP

Start at: 2018-11-15 02:31:30
End at: 2018-11-15 02:32:00
Local clock offset: -32.969 ms
Remote clock offset: 3.021 ms


# Below is generated by plot.py at 2018-11-15 03:45:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 92.74 Mbit/s
95th percentile per-packet one-way delay: 99.020 ms
Loss rate: 0.99%
-- Flow 1:
Average throughput: 92.74 Mbit/s
95th percentile per-packet one-way delay: 99.020 ms
Loss rate: 0.99%
```

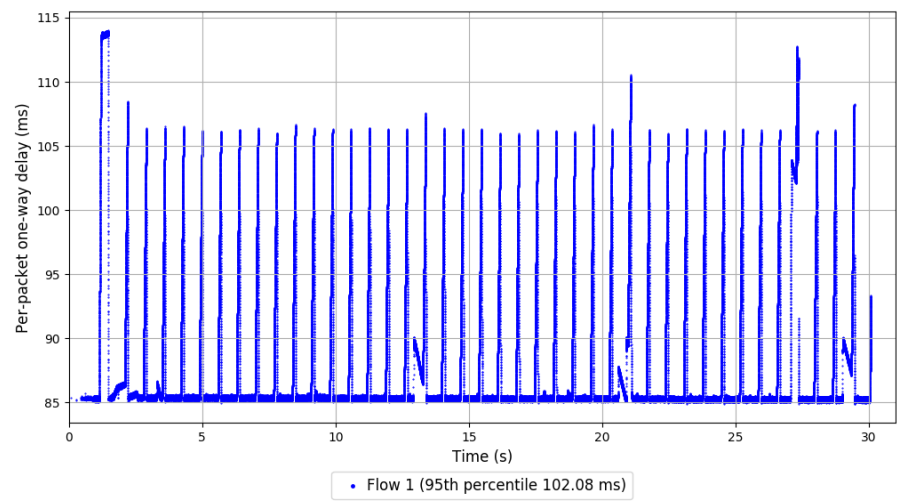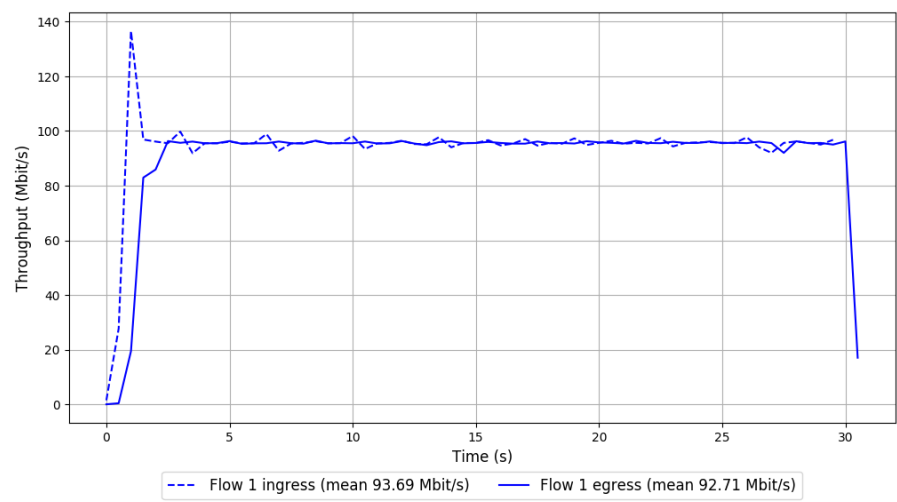Run 2: Report of FillP — Data Link

```
Run 3: Statistics of FillP

Start at: 2018-11-15 02:52:36
End at: 2018-11-15 02:53:06
Local clock offset: -54.078 ms
Remote clock offset: 4.085 ms

# Below is generated by plot.py at 2018-11-15 03:45:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 92.67 Mbit/s
95th percentile per-packet one-way delay: 97.851 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 92.67 Mbit/s
95th percentile per-packet one-way delay: 97.851 ms
Loss rate: 0.98%
```
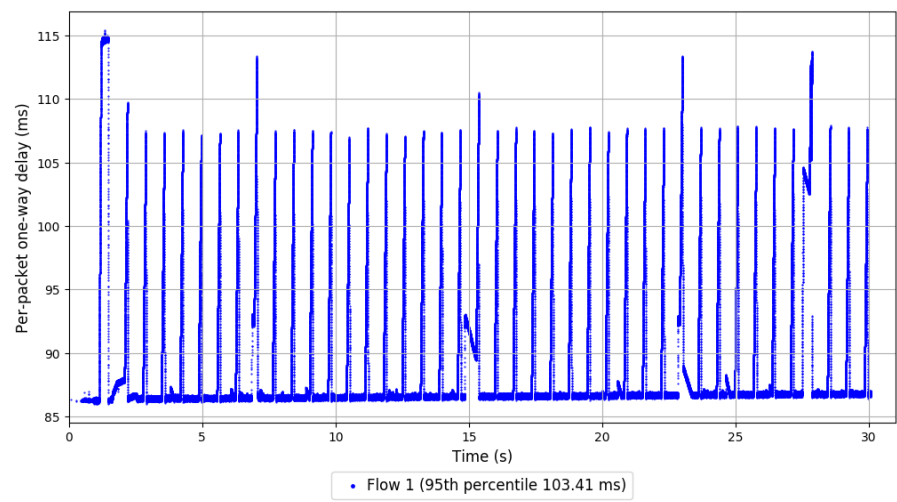
Run 3: Report of FillP — Data Link

Flow 1 ingress (mean 93.59 Mbit/s)   Flow 1 egress (mean 92.67 Mbit/s)

Flow 1 (95th percentile 97.85 ms)

```
Run 4: Statistics of FillP

Start at: 2018-11-15 03:13:41
End at: 2018-11-15 03:14:11
Local clock offset: -33.017 ms
Remote clock offset: 7.532 ms


# Below is generated by plot.py at 2018-11-15 03:46:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 92.71 Mbit/s
95th percentile per-packet one-way delay: 102.078 ms
Loss rate: 1.02%
-- Flow 1:
Average throughput: 92.71 Mbit/s
95th percentile per-packet one-way delay: 102.078 ms
Loss rate: 1.02%
```
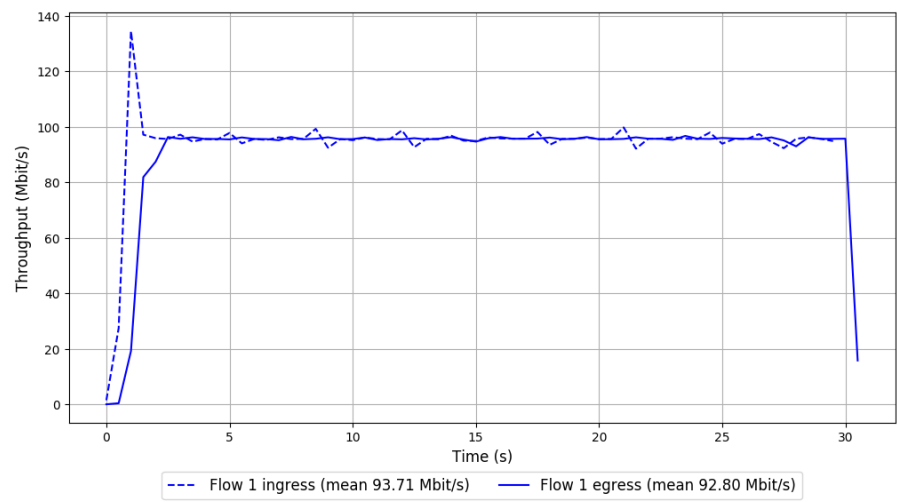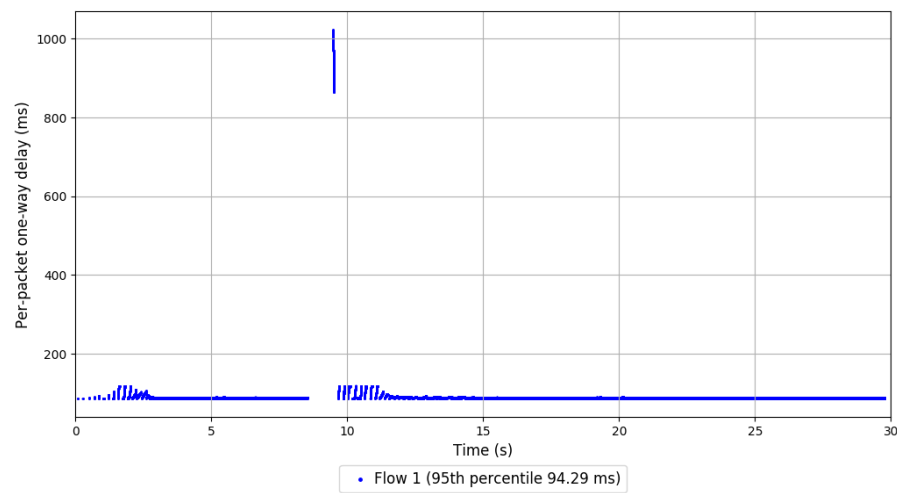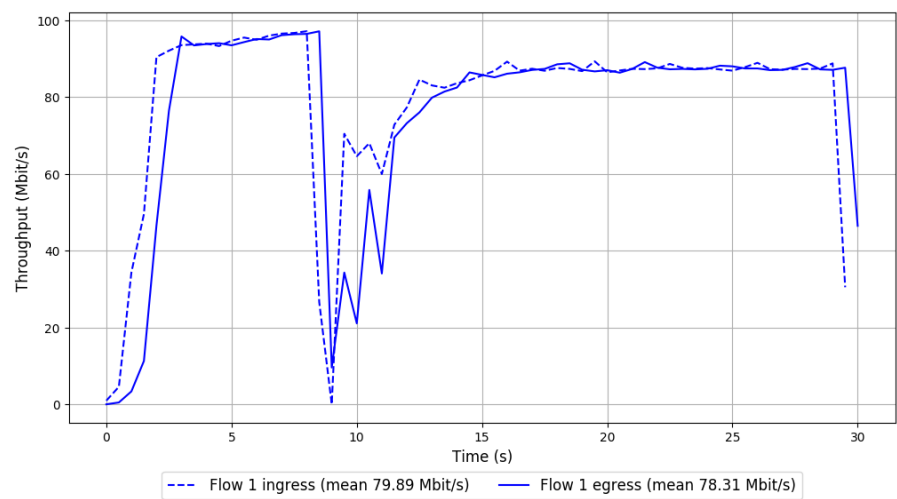
Run 4: Report of FillP — Data Link

```
Run 5: Statistics of FillP

Start at: 2018-11-15 03:34:46
End at: 2018-11-15 03:35:16
Local clock offset: -26.07 ms
Remote clock offset: 8.303 ms


# Below is generated by plot.py at 2018-11-15 03:46:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 92.80 Mbit/s
95th percentile per-packet one-way delay: 103.412 ms
Loss rate: 0.97%
-- Flow 1:
Average throughput: 92.80 Mbit/s
95th percentile per-packet one-way delay: 103.412 ms
Loss rate: 0.97%
```

Run 5: Report of FillP — Data Link

Flow 1 ingress (mean 93.71 Mbit/s)   Flow 1 egress (mean 92.80 Mbit/s)

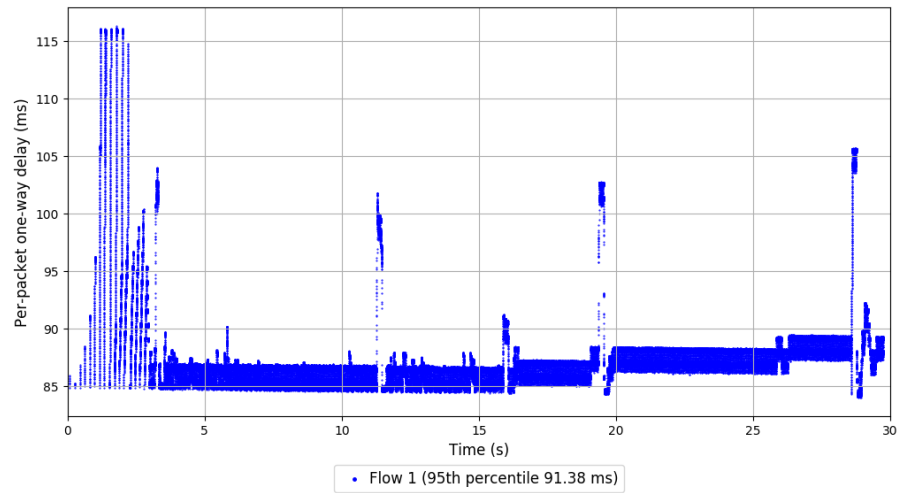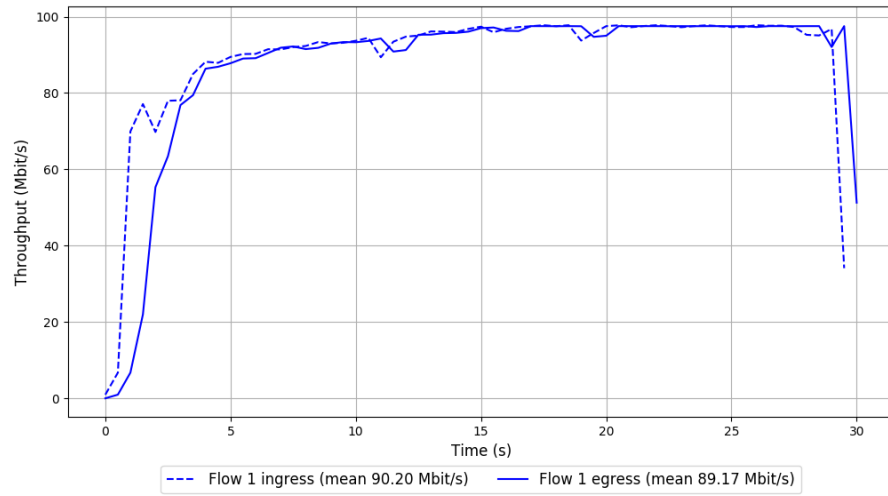Flow 1 (95th percentile 103.41 ms)

```
Run 1: Statistics of Indigo

Start at: 2018-11-15 02:00:56
End at: 2018-11-15 02:01:26
Local clock offset: -14.078 ms
Remote clock offset: 4.997 ms


# Below is generated by plot.py at 2018-11-15 03:46:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 78.31 Mbit/s
95th percentile per-packet one-way delay: 94.287 ms
Loss rate: 1.98%
-- Flow 1:
Average throughput: 78.31 Mbit/s
95th percentile per-packet one-way delay: 94.287 ms
Loss rate: 1.98%
```

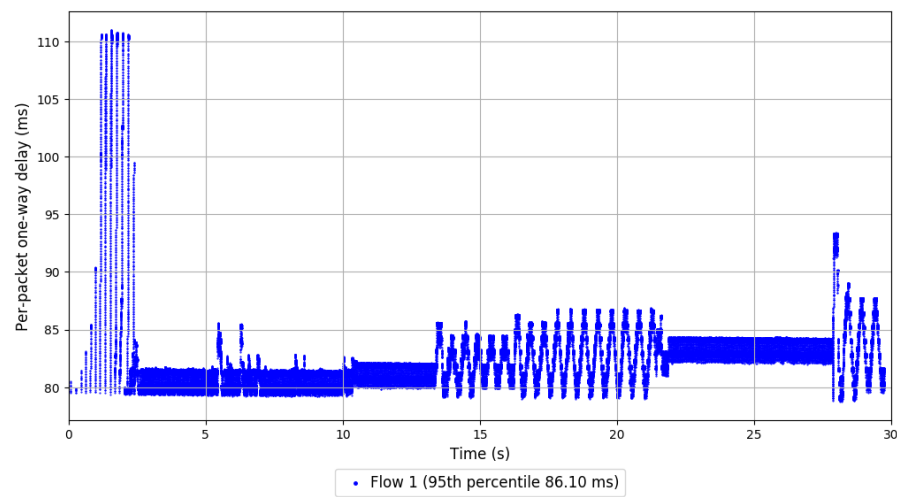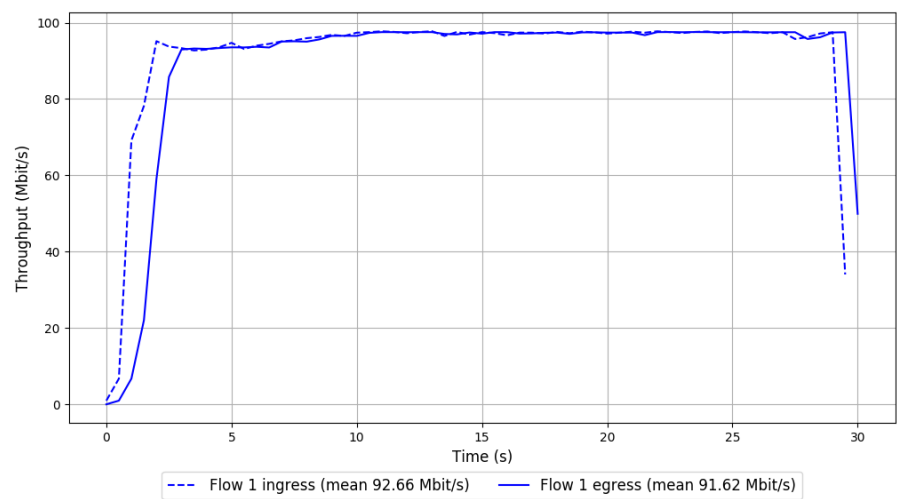Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2018-11-15 02:22:00
End at: 2018-11-15 02:22:30
Local clock offset: -30.903 ms
Remote clock offset: 5.231 ms


# Below is generated by plot.py at 2018-11-15 03:46:32
# Datalink statistics
-- Total of 1 flow:
Average throughput: 89.17 Mbit/s
95th percentile per-packet one-way delay: 91.384 ms
Loss rate: 1.14%
-- Flow 1:
Average throughput: 89.17 Mbit/s
95th percentile per-packet one-way delay: 91.384 ms
Loss rate: 1.14%
```

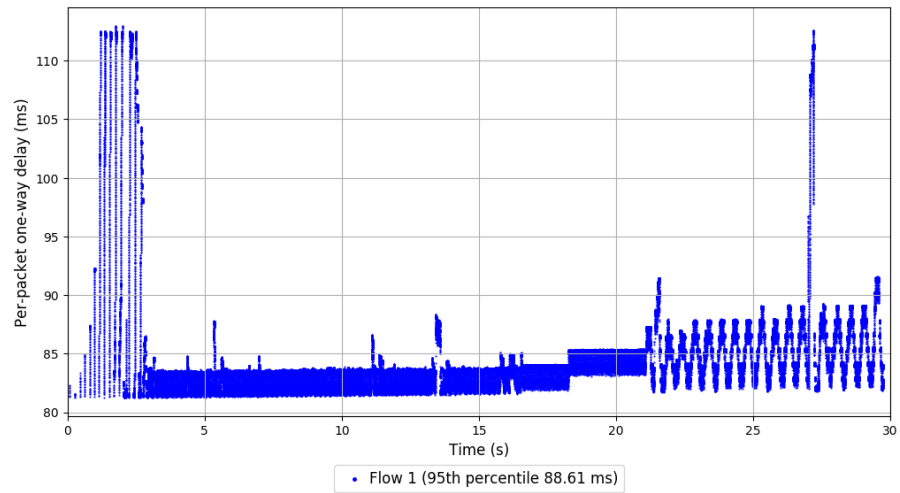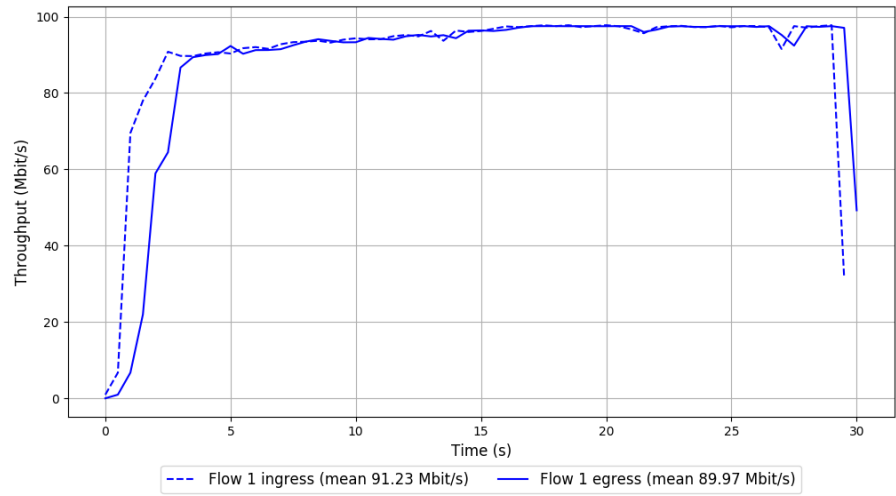Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2018-11-15 02:43:05
End at: 2018-11-15 02:43:35
Local clock offset: -39.972 ms
Remote clock offset: 2.627 ms


# Below is generated by plot.py at 2018-11-15 03:46:38
# Datalink statistics
-- Total of 1 flow:
Average throughput: 91.62 Mbit/s
95th percentile per-packet one-way delay: 86.104 ms
Loss rate: 1.11%
-- Flow 1:
Average throughput: 91.62 Mbit/s
95th percentile per-packet one-way delay: 86.104 ms
Loss rate: 1.11%
```
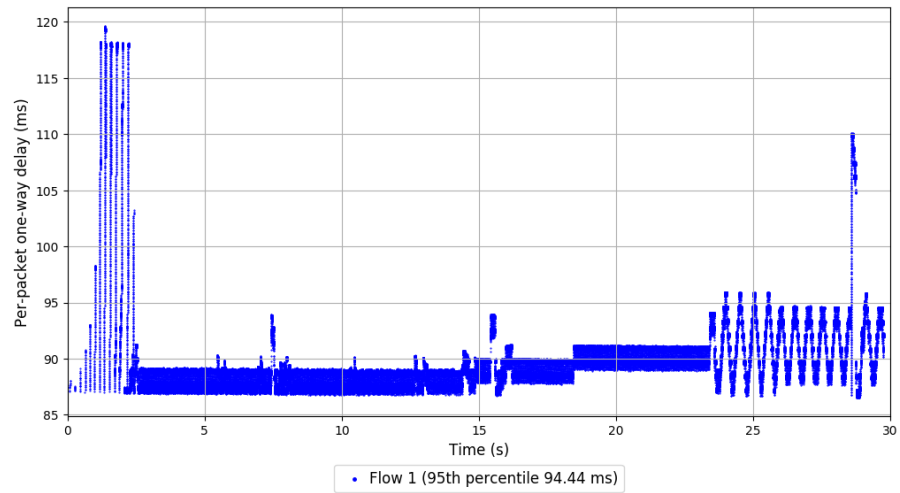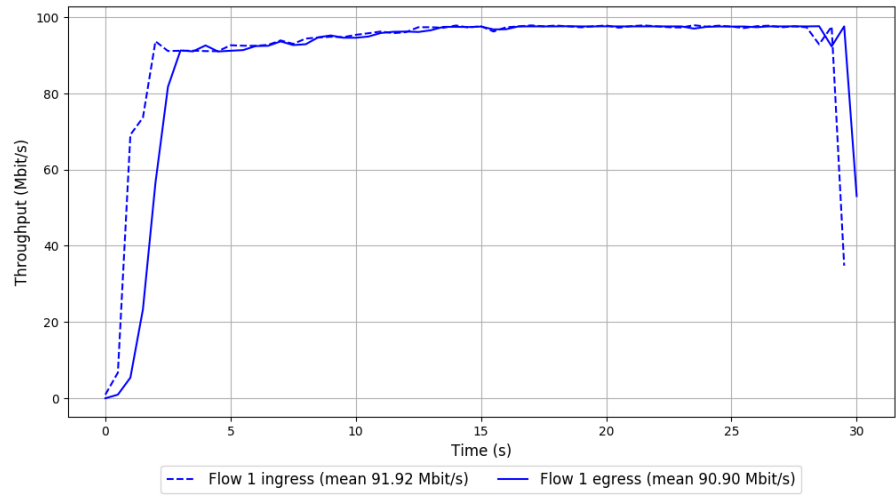
Run 3: Report of Indigo — Data Link

```
Run 4: Statistics of Indigo

Start at: 2018-11-15 03:04:12
End at: 2018-11-15 03:04:42
Local clock offset: -38.568 ms
Remote clock offset: 3.565 ms


# Below is generated by plot.py at 2018-11-15 03:46:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 89.97 Mbit/s
95th percentile per-packet one-way delay: 88.613 ms
Loss rate: 1.38%
-- Flow 1:
Average throughput: 89.97 Mbit/s
95th percentile per-packet one-way delay: 88.613 ms
Loss rate: 1.38%
```

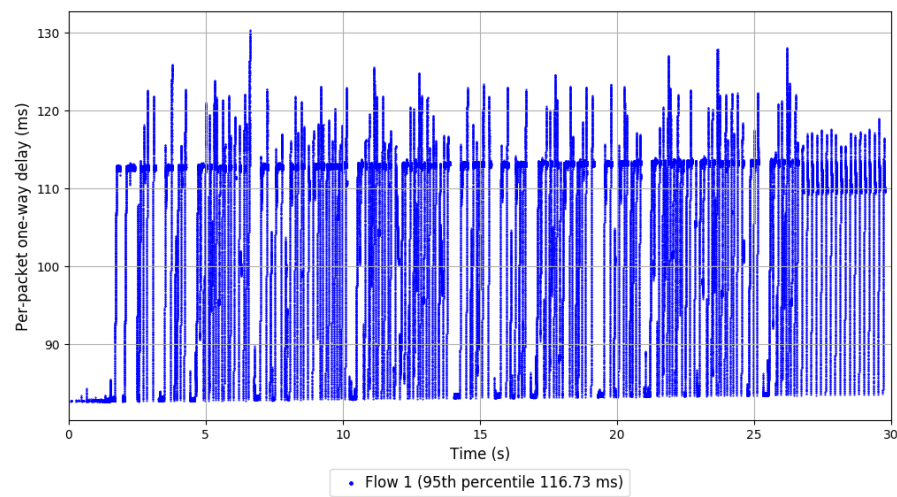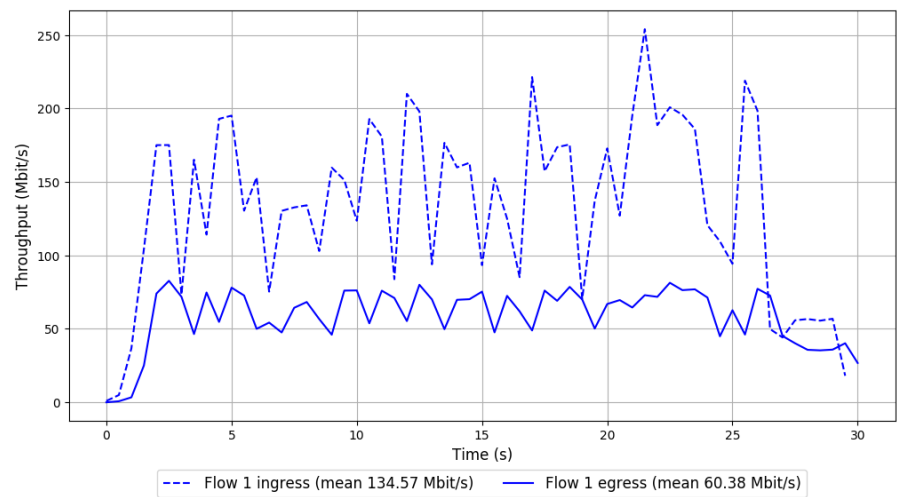Run 4: Report of Indigo — Data Link

```
Run 5: Statistics of Indigo

Start at: 2018-11-15 03:25:16
End at: 2018-11-15 03:25:46
Local clock offset: -41.281 ms
Remote clock offset: 9.08 ms


# Below is generated by plot.py at 2018-11-15 03:46:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 90.90 Mbit/s
95th percentile per-packet one-way delay: 94.440 ms
Loss rate: 1.09%
-- Flow 1:
Average throughput: 90.90 Mbit/s
95th percentile per-packet one-way delay: 94.440 ms
Loss rate: 1.09%
```

Run 5: Report of Indigo — Data Link

Flow 1 ingress (mean 91.92 Mbit/s)   Flow 1 egress (mean 90.90 Mbit/s)
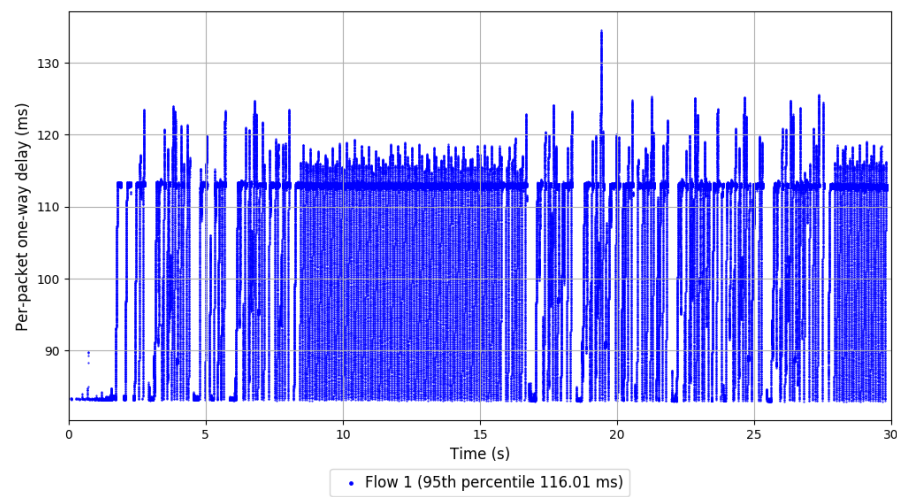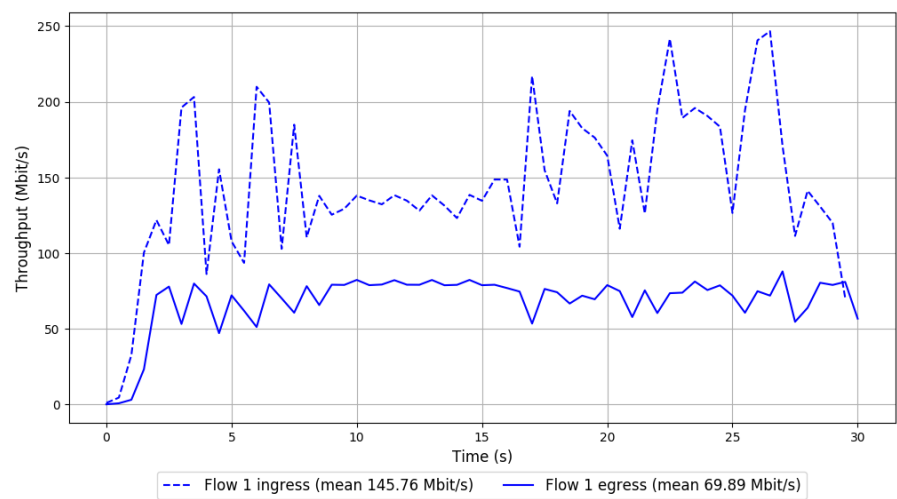

Flow 1 (95th percentile 94.44 ms)

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

Start at: 2018-11-15 02:13:58
End at: 2018-11-15 02:14:28
Local clock offset: -30.242 ms
Remote clock offset: 1.079 ms


# Below is generated by plot.py at 2018-11-15 03:46:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 60.38 Mbit/s
95th percentile per-packet one-way delay: 116.728 ms
Loss rate: 55.09%
-- Flow 1:
Average throughput: 60.38 Mbit/s
95th percentile per-packet one-way delay: 116.728 ms
Loss rate: 55.09%
```
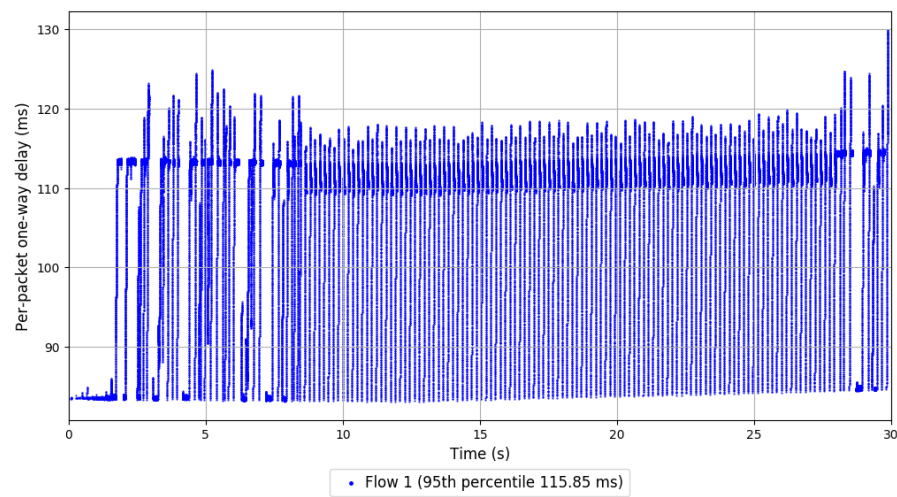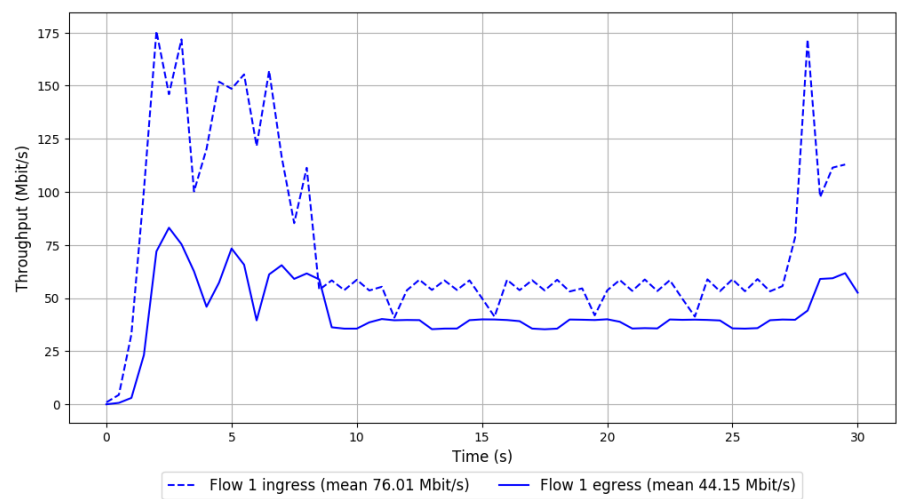
Run 1: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-11-15 02:35:02
End at: 2018-11-15 02:35:32
Local clock offset: -32.402 ms
Remote clock offset: 5.965 ms


# Below is generated by plot.py at 2018-11-15 03:47:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 69.89 Mbit/s
95th percentile per-packet one-way delay: 116.008 ms
Loss rate: 52.00%
-- Flow 1:
Average throughput: 69.89 Mbit/s
95th percentile per-packet one-way delay: 116.008 ms
Loss rate: 52.00%
```
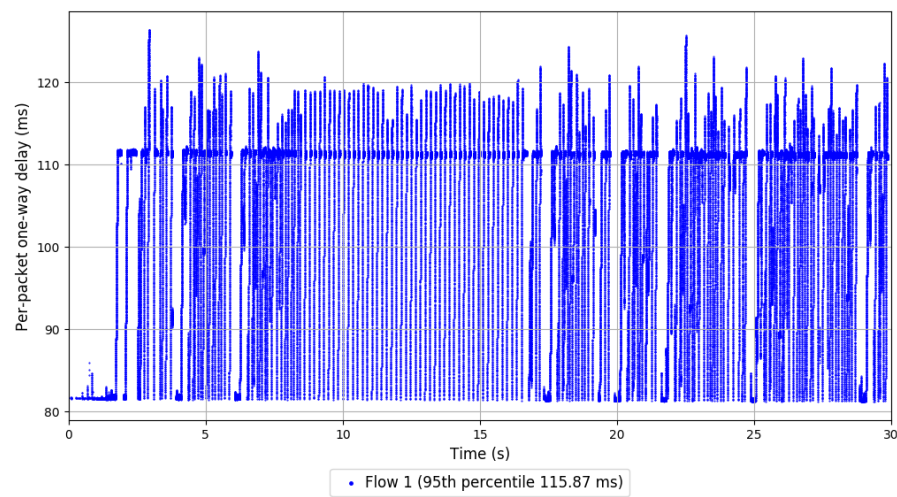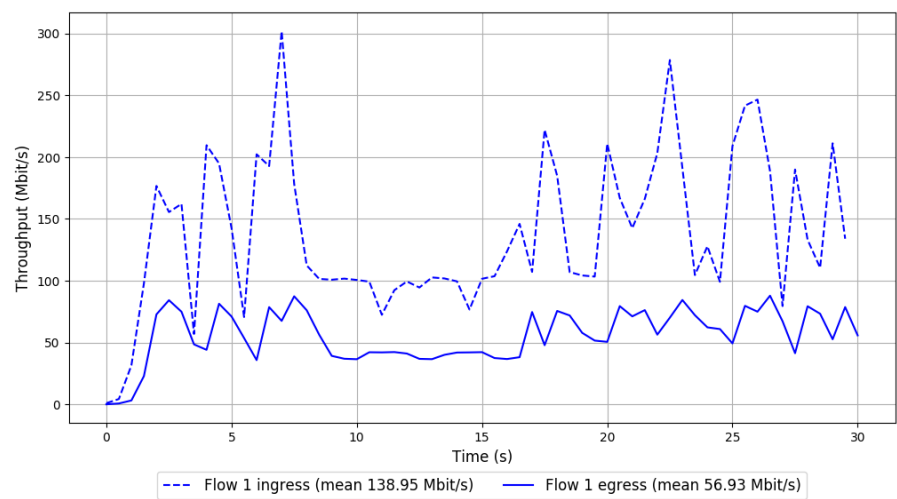
Run 2: Report of Indigo-96d2da3 — Data Link

Flow 1 ingress (mean 145.76 Mbit/s)   Flow 1 egress (mean 69.89 Mbit/s)

• Flow 1 (95th percentile 116.01 ms)

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

Start at: 2018-11-15 02:56:10
End at: 2018-11-15 02:56:40
Local clock offset: -60.005 ms
Remote clock offset: 8.146 ms


# Below is generated by plot.py at 2018-11-15 03:47:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 44.15 Mbit/s
95th percentile per-packet one-way delay: 115.846 ms
Loss rate: 41.84%
-- Flow 1:
Average throughput: 44.15 Mbit/s
95th percentile per-packet one-way delay: 115.846 ms
Loss rate: 41.84%
```
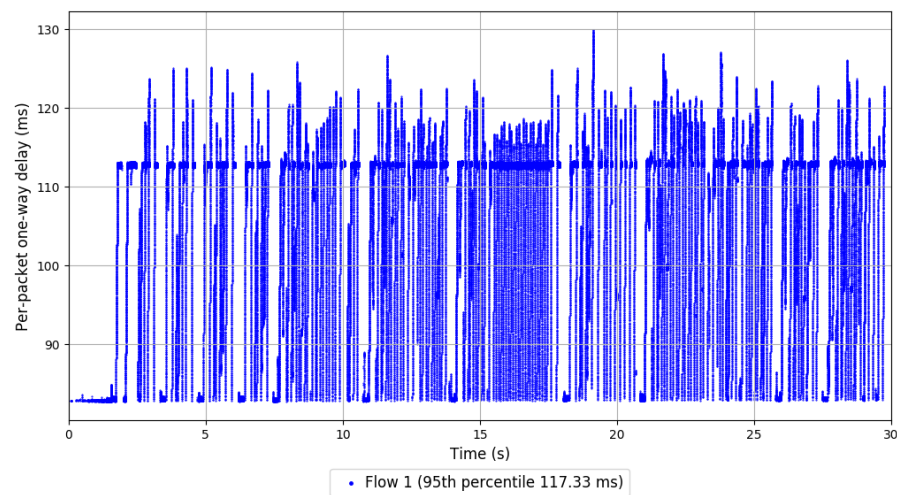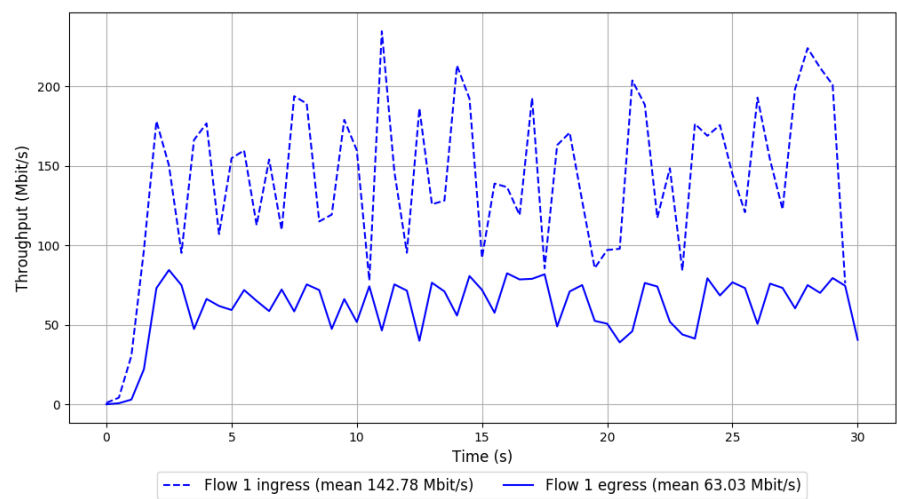
Run 3: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-11-15 03:17:14
End at: 2018-11-15 03:17:44
Local clock offset: -34.472 ms
Remote clock offset: 4.964 ms


# Below is generated by plot.py at 2018-11-15 03:47:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 56.93 Mbit/s
95th percentile per-packet one-way delay: 115.873 ms
Loss rate: 58.99%
-- Flow 1:
Average throughput: 56.93 Mbit/s
95th percentile per-packet one-way delay: 115.873 ms
Loss rate: 58.99%
```
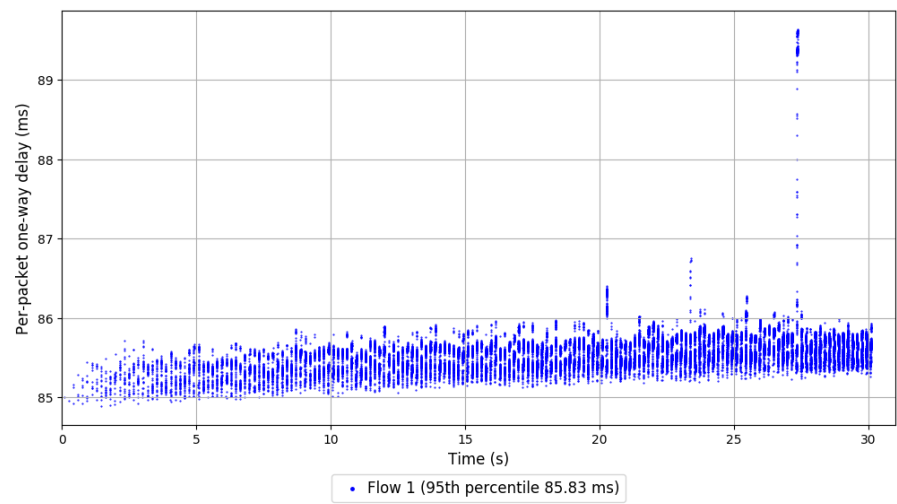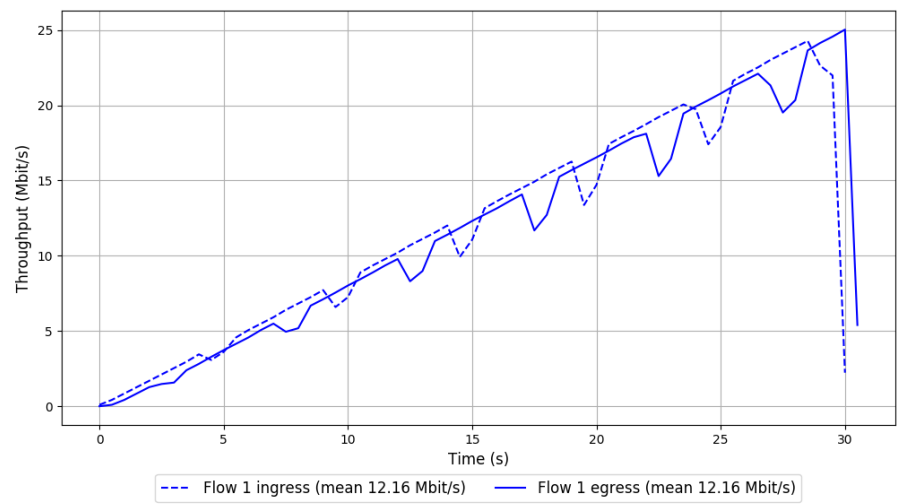
Run 4: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-11-15 03:38:18
End at: 2018-11-15 03:38:48
Local clock offset: -23.364 ms
Remote clock offset: 5.849 ms


# Below is generated by plot.py at 2018-11-15 03:47:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 63.03 Mbit/s
95th percentile per-packet one-way delay: 117.335 ms
Loss rate: 55.81%
-- Flow 1:
Average throughput: 63.03 Mbit/s
95th percentile per-packet one-way delay: 117.335 ms
Loss rate: 55.81%
```

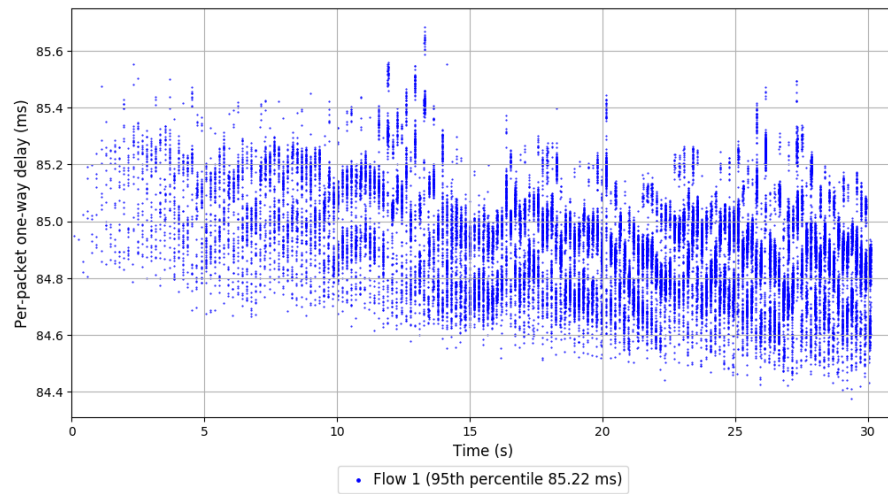Run 5: Report of Indigo-96d2da3 — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2018-11-15 02:15:09
End at: 2018-11-15 02:15:39
Local clock offset: -27.068 ms
Remote clock offset: 6.014 ms

# Below is generated by plot.py at 2018-11-15 03:47:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.16 Mbit/s
95th percentile per-packet one-way delay: 85.834 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 12.16 Mbit/s
95th percentile per-packet one-way delay: 85.834 ms
Loss rate: 0.00%
```

Run 1: Report of LEDBAT — Data Link

Flow 1 ingress (mean 12.16 Mbit/s) --- Flow 1 egress (mean 12.16 Mbit/s)

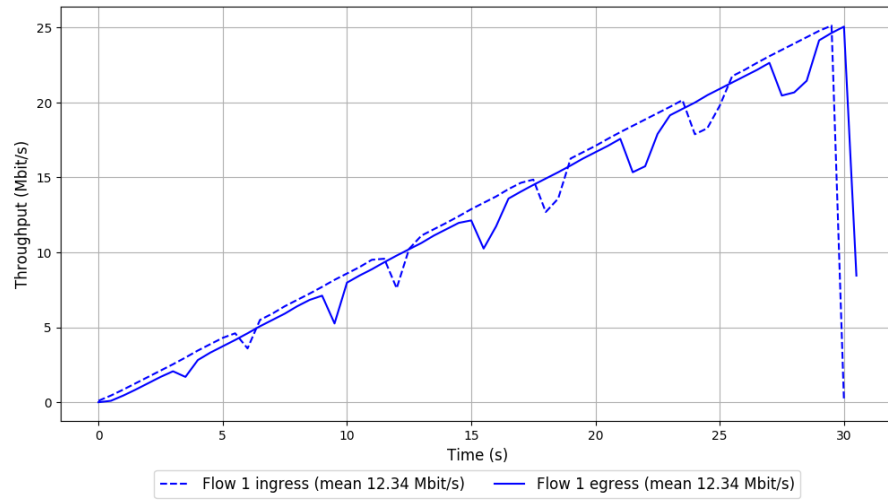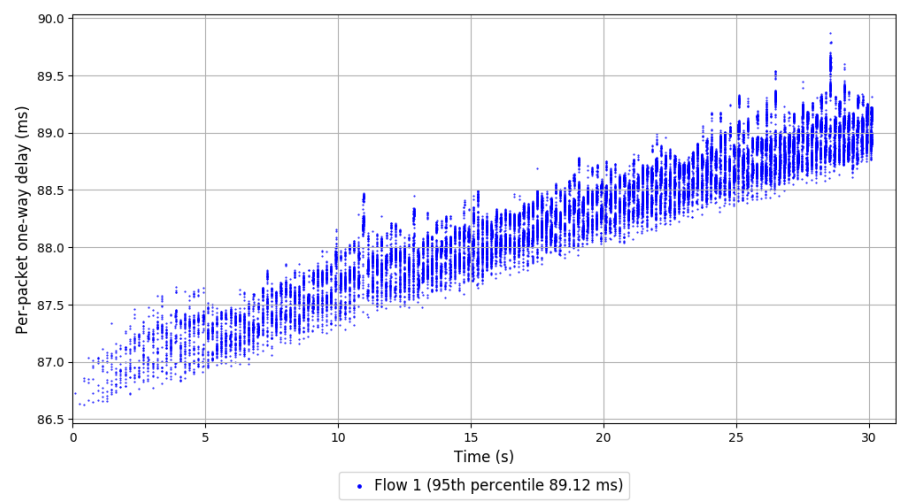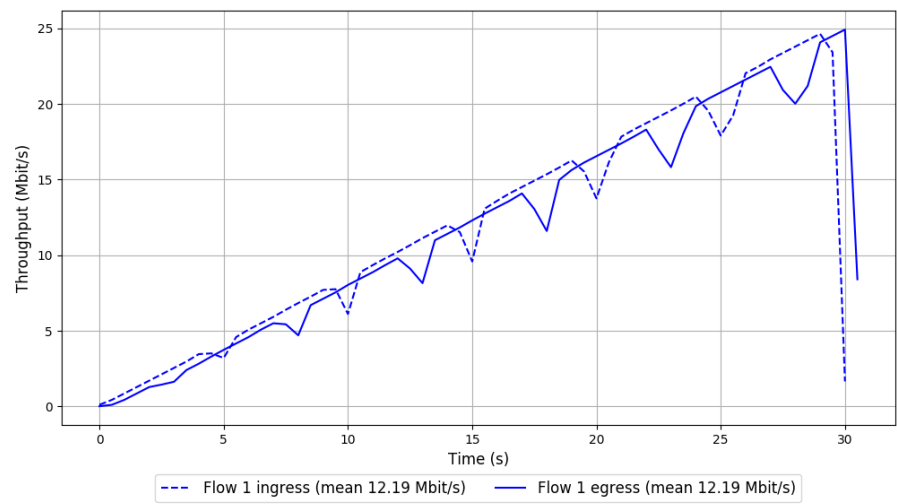Flow 1 (95th percentile 85.83 ms)

```
Run 2: Statistics of LEDBAT

Start at: 2018-11-15 02:36:14
End at: 2018-11-15 02:36:44
Local clock offset: -32.841 ms
Remote clock offset: 8.371 ms


# Below is generated by plot.py at 2018-11-15 03:47:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.34 Mbit/s
95th percentile per-packet one-way delay: 85.222 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 12.34 Mbit/s
95th percentile per-packet one-way delay: 85.222 ms
Loss rate: 0.00%
```

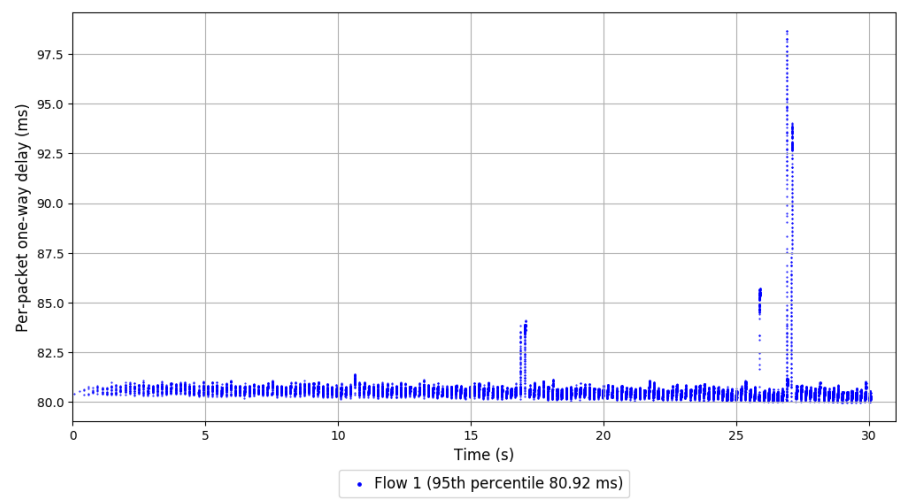Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2018-11-15 02:57:20
End at: 2018-11-15 02:57:50
Local clock offset: -58.828 ms
Remote clock offset: 8.123 ms


# Below is generated by plot.py at 2018-11-15 03:47:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.19 Mbit/s
95th percentile per-packet one-way delay: 89.119 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 12.19 Mbit/s
95th percentile per-packet one-way delay: 89.119 ms
Loss rate: 0.00%
```

Run 3: Report of LEDBAT — Data Link

Flow 1 ingress (mean 12.19 Mbit/s) --- Flow 1 egress (mean 12.19 Mbit/s)

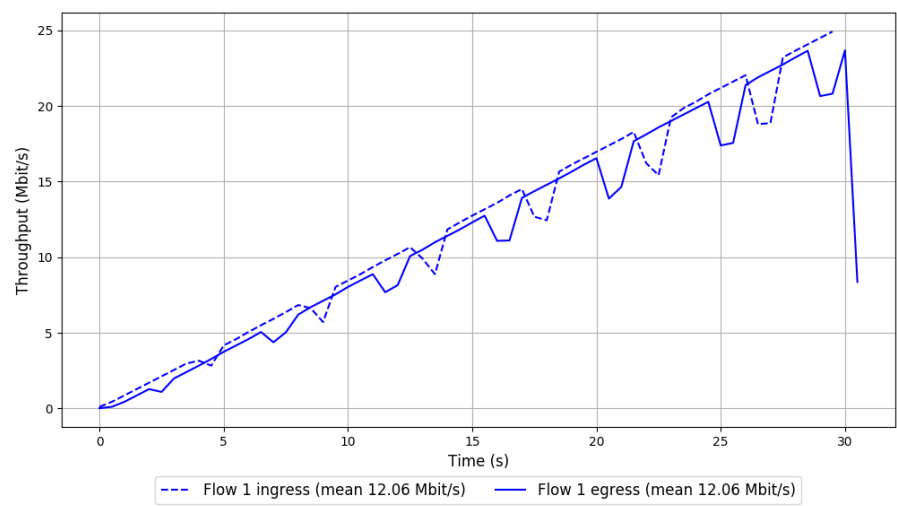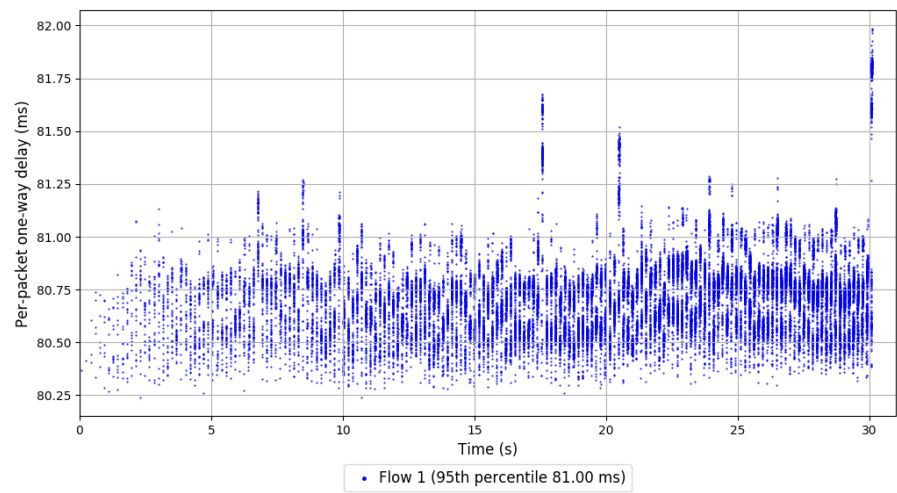• Flow 1 (95th percentile 89.12 ms)

```
Run 4: Statistics of LEDBAT

Start at: 2018-11-15 03:18:25
End at: 2018-11-15 03:18:55
Local clock offset: -35.809 ms
Remote clock offset: 3.986 ms


# Below is generated by plot.py at 2018-11-15 03:47:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.06 Mbit/s
95th percentile per-packet one-way delay: 80.919 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 12.06 Mbit/s
95th percentile per-packet one-way delay: 80.919 ms
Loss rate: 0.00%
```

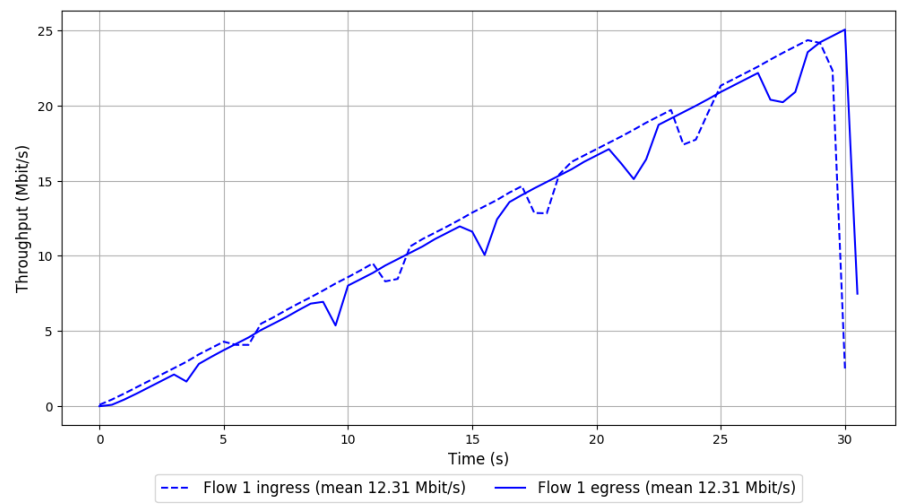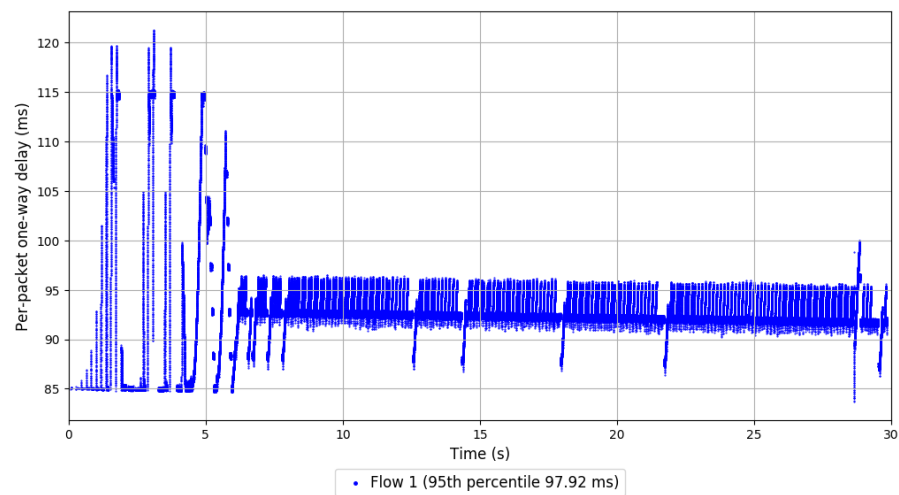# Run 4: Report of LEDBAT — Data Link

```
Run 5: Statistics of LEDBAT

Start at: 2018-11-15 03:39:29
End at: 2018-11-15 03:39:59
Local clock offset: -22.065 ms
Remote clock offset: 5.902 ms


# Below is generated by plot.py at 2018-11-15 03:47:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.31 Mbit/s
95th percentile per-packet one-way delay: 80.997 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 12.31 Mbit/s
95th percentile per-packet one-way delay: 80.997 ms
Loss rate: 0.00%
```

Run 5: Report of LEDBAT — Data Link

Flow 1 ingress (mean 12.31 Mbit/s) --- Flow 1 egress (mean 12.31 Mbit/s)

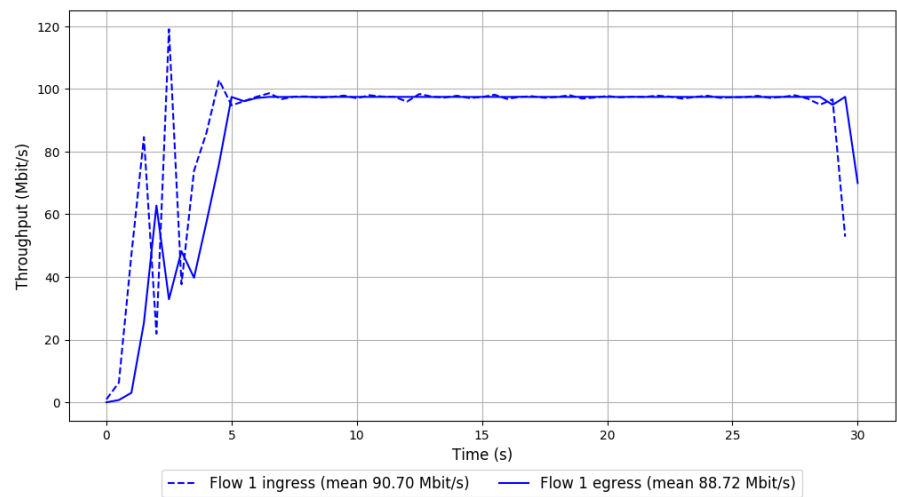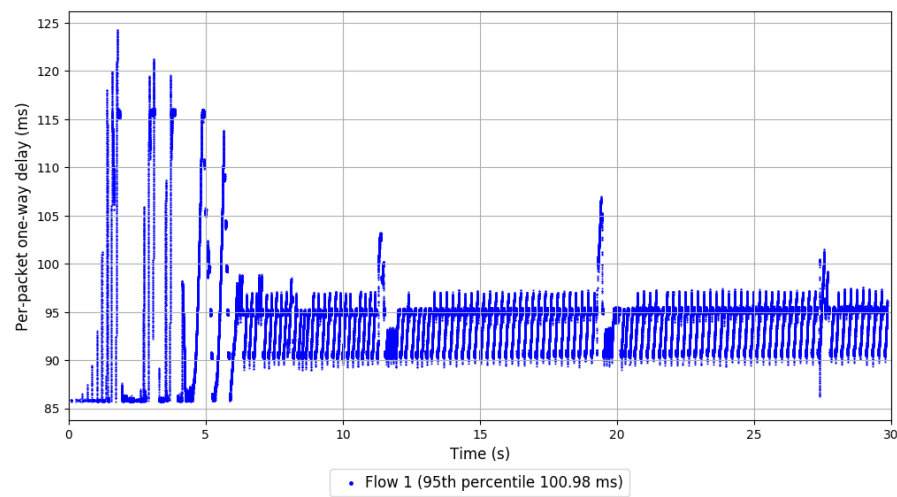Flow 1 (95th percentile 81.00 ms)

```
Run 1: Statistics of Indigo-Muses

Start at: 2018-11-15 02:09:13
End at: 2018-11-15 02:09:43
Local clock offset: -22.762 ms
Remote clock offset: 5.623 ms


# Below is generated by plot.py at 2018-11-15 03:48:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 88.72 Mbit/s
95th percentile per-packet one-way delay: 97.921 ms
Loss rate: 2.16%
-- Flow 1:
Average throughput: 88.72 Mbit/s
95th percentile per-packet one-way delay: 97.921 ms
Loss rate: 2.16%
```
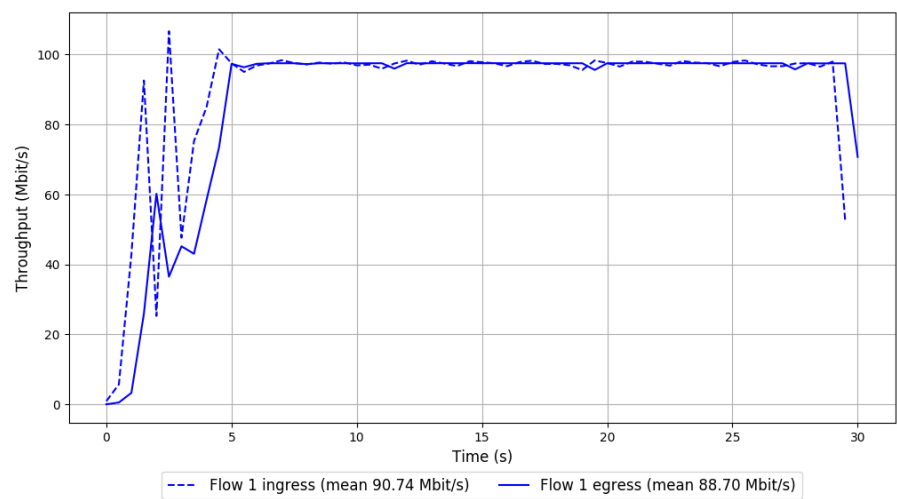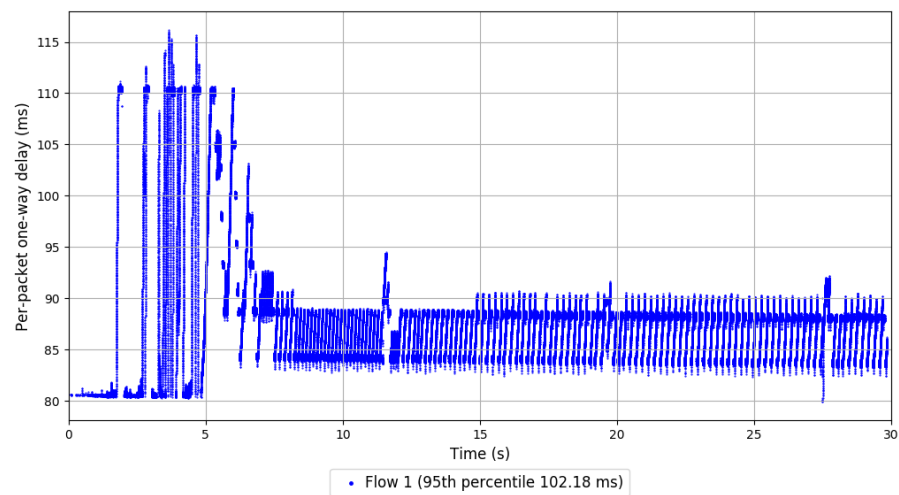
Run 1: Report of Indigo-Muses — Data Link

```
Run 2: Statistics of Indigo-Muses

Start at: 2018-11-15 02:30:18
End at: 2018-11-15 02:30:48
Local clock offset: -33.789 ms
Remote clock offset: 6.908 ms


# Below is generated by plot.py at 2018-11-15 03:48:02
# Datalink statistics
-- Total of 1 flow:
Average throughput: 88.70 Mbit/s
95th percentile per-packet one-way delay: 100.977 ms
Loss rate: 2.22%
-- Flow 1:
Average throughput: 88.70 Mbit/s
95th percentile per-packet one-way delay: 100.977 ms
Loss rate: 2.22%
```

Run 2: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 90.74 Mbit/s)   Flow 1 egress (mean 88.70 Mbit/s)
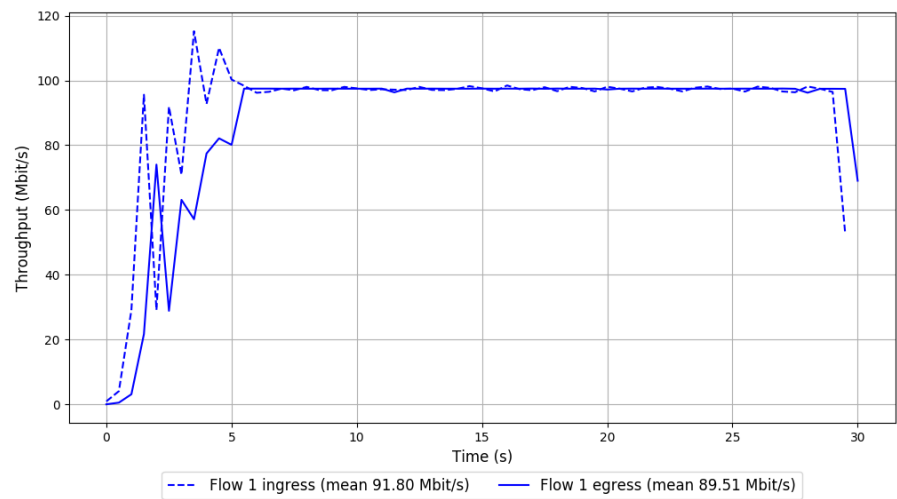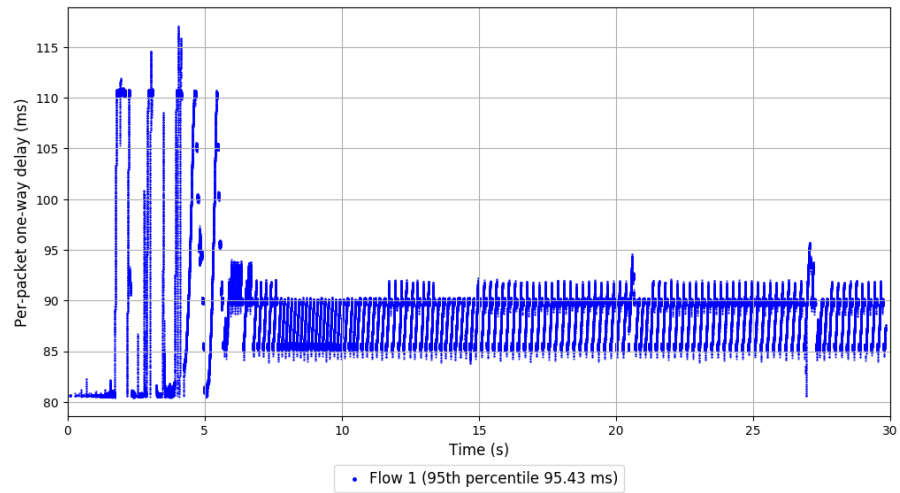

Flow 1 (95th percentile 100.98 ms)

```
Run 3: Statistics of Indigo-Muses

Start at: 2018-11-15 02:51:24
End at: 2018-11-15 02:51:54
Local clock offset: -51.609 ms
Remote clock offset: 4.062 ms


# Below is generated by plot.py at 2018-11-15 03:48:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 89.51 Mbit/s
95th percentile per-packet one-way delay: 102.181 ms
Loss rate: 2.48%
-- Flow 1:
Average throughput: 89.51 Mbit/s
95th percentile per-packet one-way delay: 102.181 ms
Loss rate: 2.48%
```
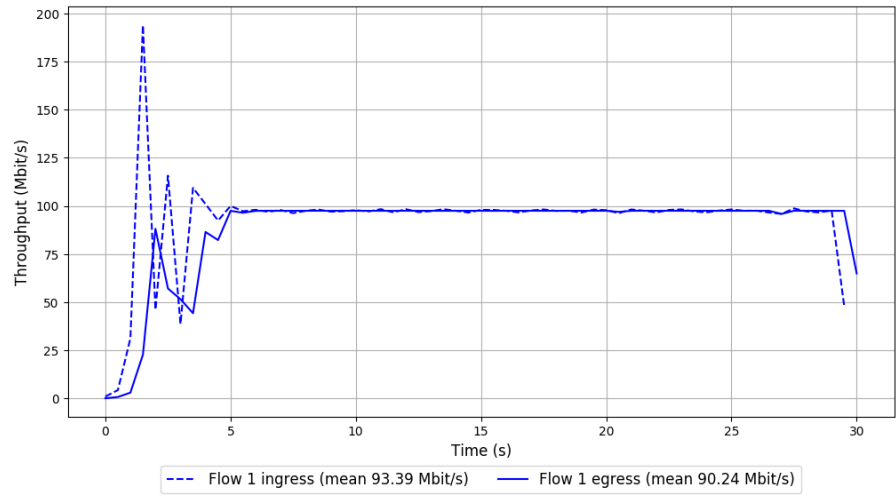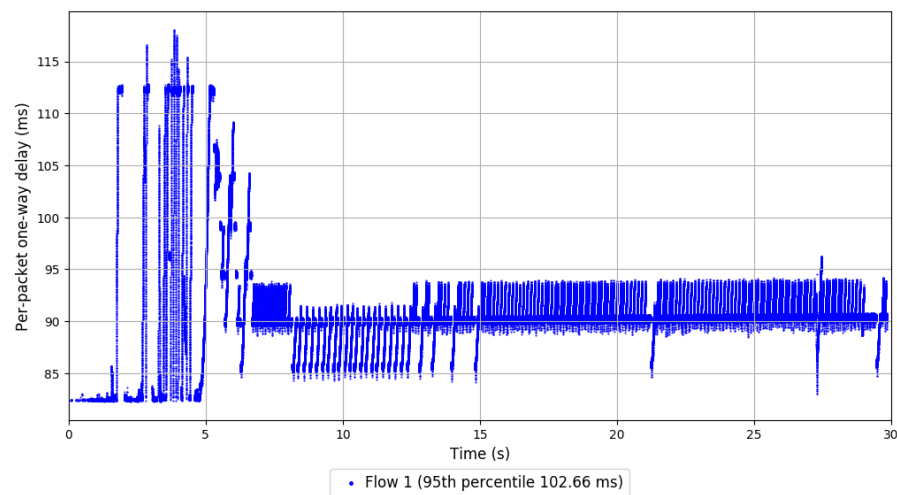
Run 3: Report of Indigo-Muses — Data Link

```
Run 4: Statistics of Indigo-Muses

Start at: 2018-11-15 03:12:30
End at: 2018-11-15 03:13:00
Local clock offset: -32.845 ms
Remote clock offset: 4.896 ms


# Below is generated by plot.py at 2018-11-15 03:48:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 90.24 Mbit/s
95th percentile per-packet one-way delay: 95.430 ms
Loss rate: 3.35%
-- Flow 1:
Average throughput: 90.24 Mbit/s
95th percentile per-packet one-way delay: 95.430 ms
Loss rate: 3.35%
```
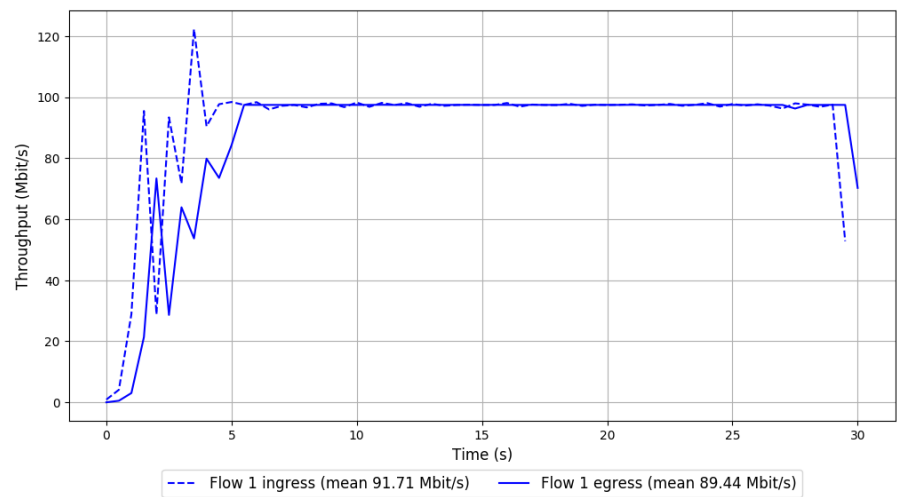
Run 4: Report of Indigo-Muses — Data Link

```
Run 5: Statistics of Indigo-Muses

Start at: 2018-11-15 03:33:34
End at: 2018-11-15 03:34:04
Local clock offset: -27.165 ms
Remote clock offset: 4.498 ms


# Below is generated by plot.py at 2018-11-15 03:48:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 89.44 Mbit/s
95th percentile per-packet one-way delay: 102.661 ms
Loss rate: 2.46%
-- Flow 1:
Average throughput: 89.44 Mbit/s
95th percentile per-packet one-way delay: 102.661 ms
Loss rate: 2.46%
```

Run 5: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 91.71 Mbit/s) --- Flow 1 egress (mean 89.44 Mbit/s)
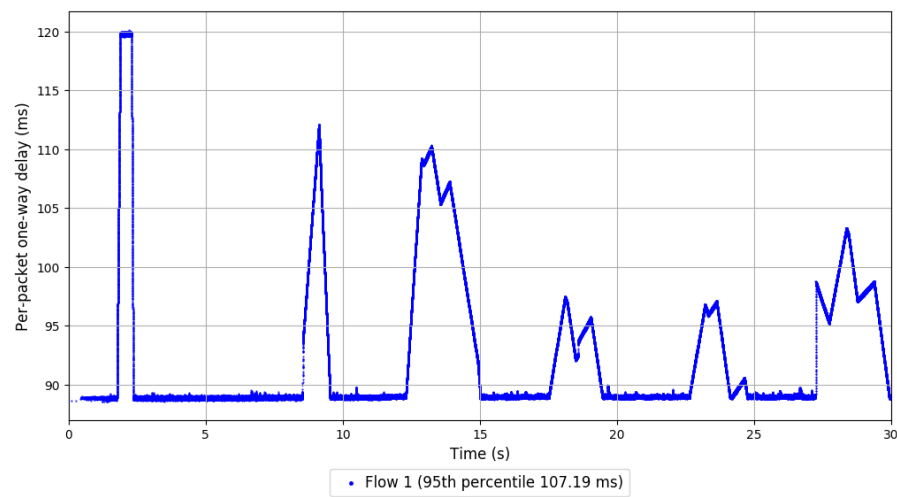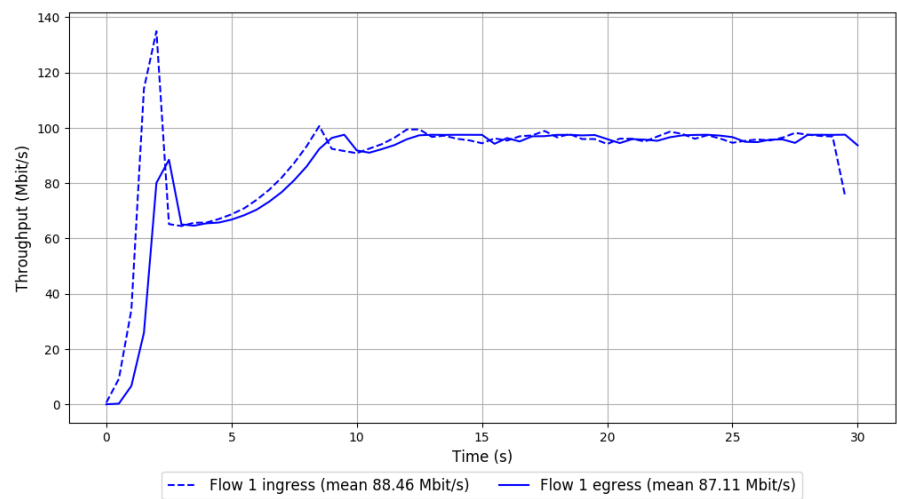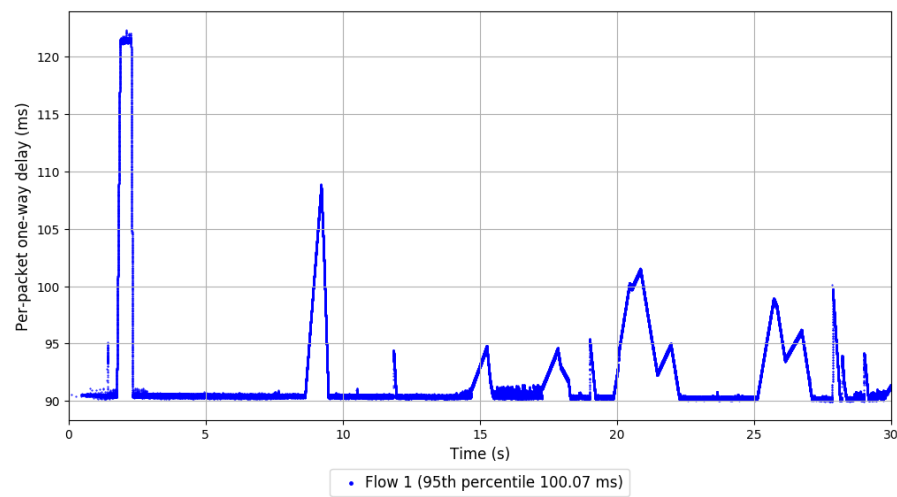

• Flow 1 (95th percentile 102.66 ms)

```
Run 1: Statistics of PCC-Allegro

Start at: 2018-11-15 02:16:18
End at: 2018-11-15 02:16:48
Local clock offset: -26.78 ms
Remote clock offset: 7.17 ms


# Below is generated by plot.py at 2018-11-15 03:48:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 87.11 Mbit/s
95th percentile per-packet one-way delay: 107.189 ms
Loss rate: 1.52%
-- Flow 1:
Average throughput: 87.11 Mbit/s
95th percentile per-packet one-way delay: 107.189 ms
Loss rate: 1.52%
```

Run 1: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 88.46 Mbit/s) ---- Flow 1 egress (mean 87.11 Mbit/s)
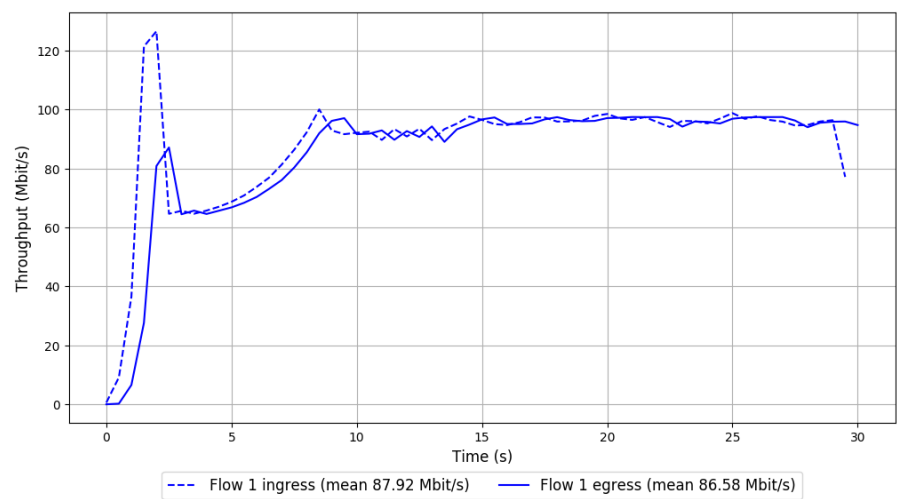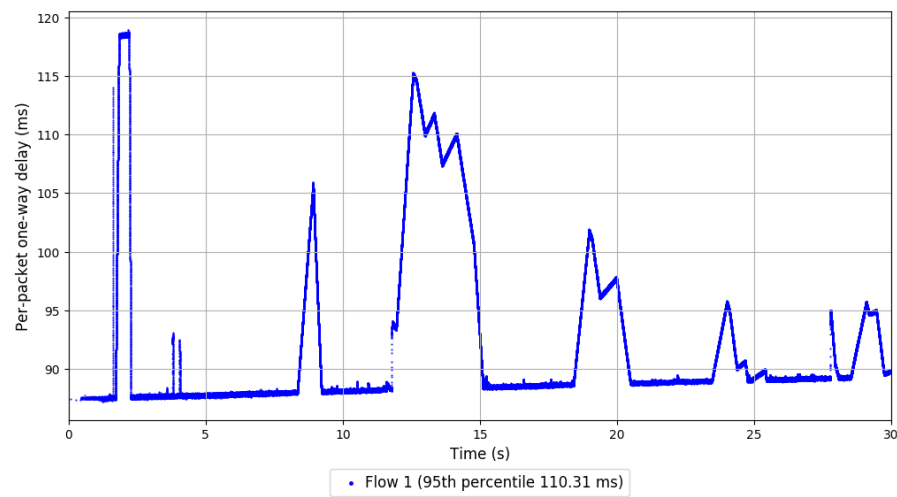

Flow 1 (95th percentile 107.19 ms)

```
Run 2: Statistics of PCC-Allegro

Start at: 2018-11-15 02:37:23
End at: 2018-11-15 02:37:53
Local clock offset: -33.481 ms
Remote clock offset: 8.342 ms


# Below is generated by plot.py at 2018-11-15 03:48:31
# Datalink statistics
-- Total of 1 flow:
Average throughput: 86.58 Mbit/s
95th percentile per-packet one-way delay: 100.066 ms
Loss rate: 1.52%
-- Flow 1:
Average throughput: 86.58 Mbit/s
95th percentile per-packet one-way delay: 100.066 ms
Loss rate: 1.52%
```
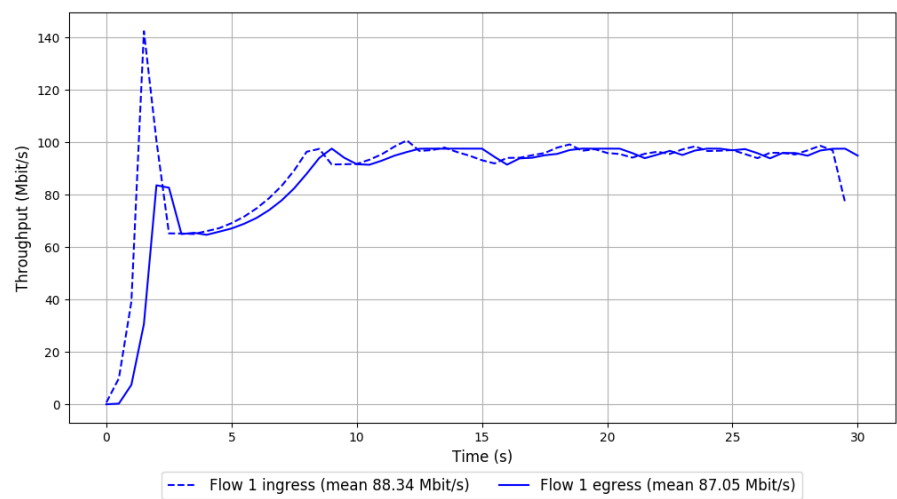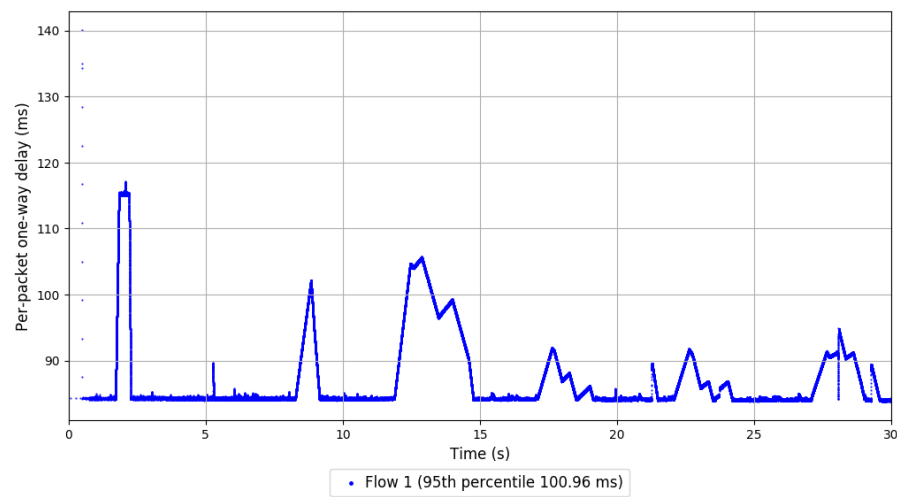
Run 2: Report of PCC-Allegro — Data Link

```
Run 3: Statistics of PCC-Allegro

Start at: 2018-11-15 02:58:29
End at: 2018-11-15 02:58:59
Local clock offset: -53.338 ms
Remote clock offset: 8.23 ms


# Below is generated by plot.py at 2018-11-15 03:48:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 87.05 Mbit/s
95th percentile per-packet one-way delay: 110.309 ms
Loss rate: 1.45%
-- Flow 1:
Average throughput: 87.05 Mbit/s
95th percentile per-packet one-way delay: 110.309 ms
Loss rate: 1.45%
```

Run 3: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 88.34 Mbit/s) Flow 1 egress (mean 87.05 Mbit/s)
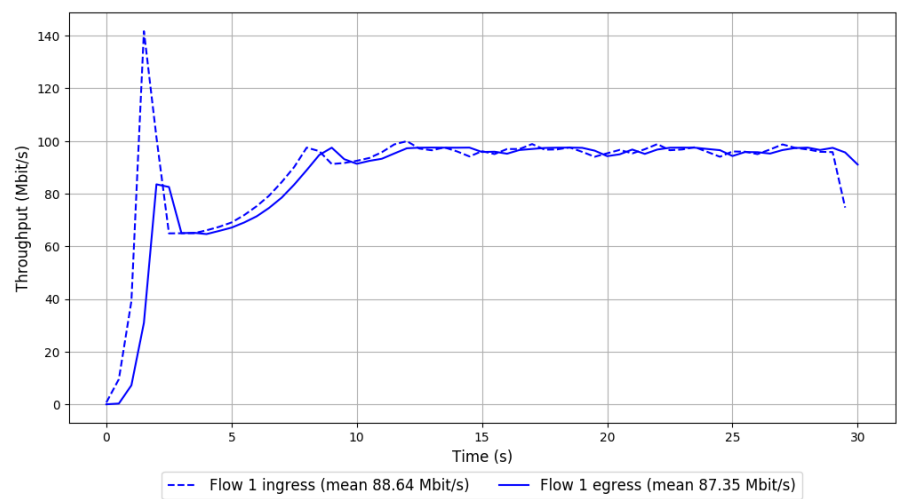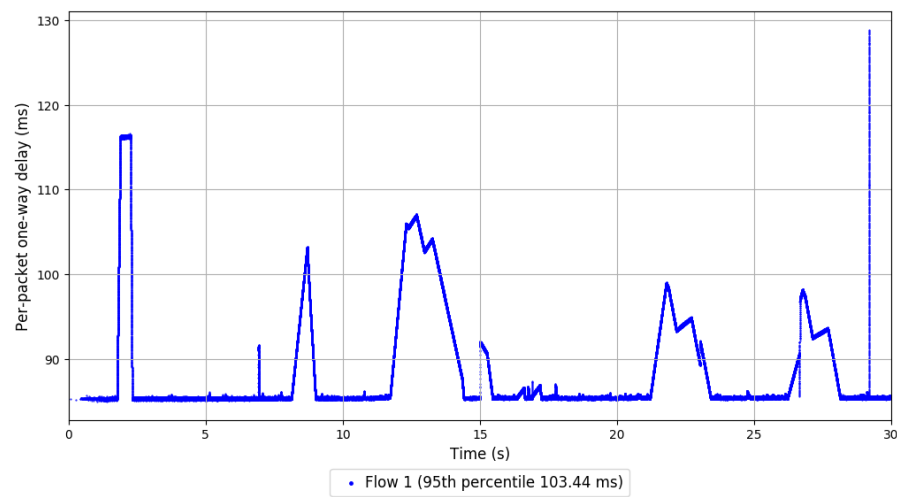

• Flow 1 (95th percentile 110.31 ms)

90

```
Run 4: Statistics of PCC-Allegro

Start at: 2018-11-15 03:19:34
End at: 2018-11-15 03:20:04
Local clock offset: -36.588 ms
Remote clock offset: 8.877 ms


# Below is generated by plot.py at 2018-11-15 03:49:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 87.35 Mbit/s
95th percentile per-packet one-way delay: 100.959 ms
Loss rate: 1.45%
-- Flow 1:
Average throughput: 87.35 Mbit/s
95th percentile per-packet one-way delay: 100.959 ms
Loss rate: 1.45%
```

Run 4: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 88.64 Mbit/s)   Flow 1 egress (mean 87.35 Mbit/s)
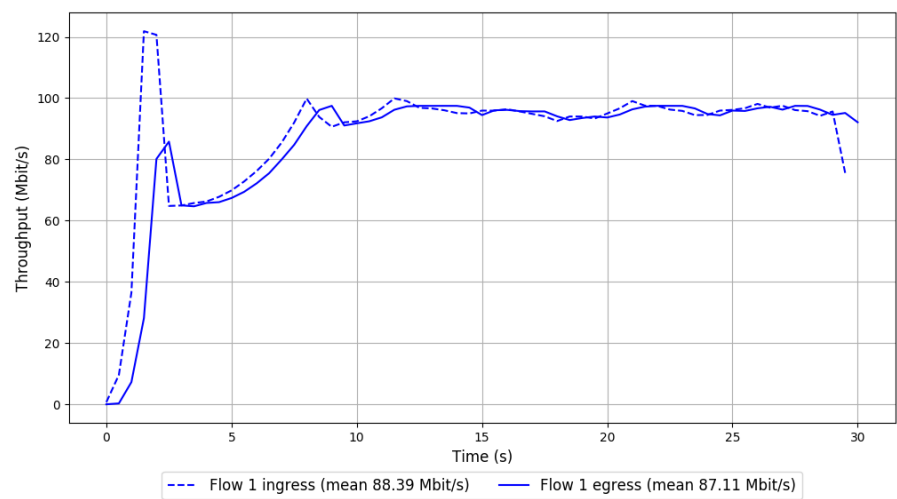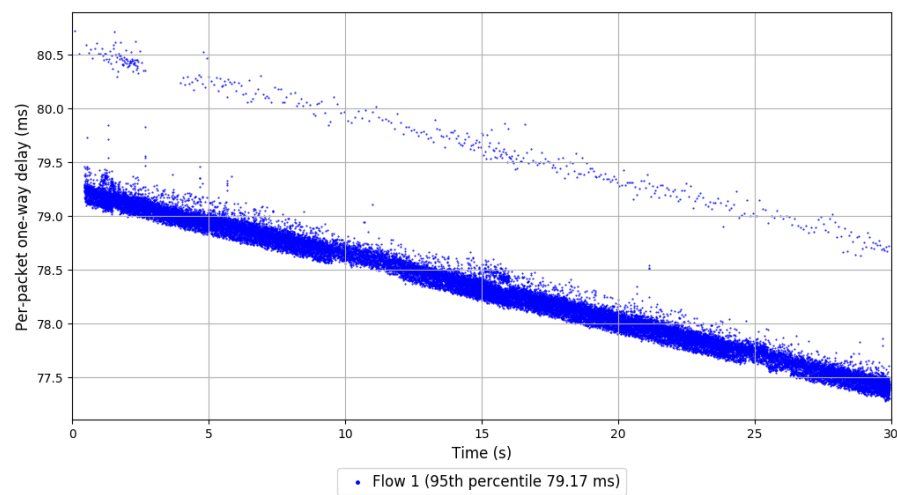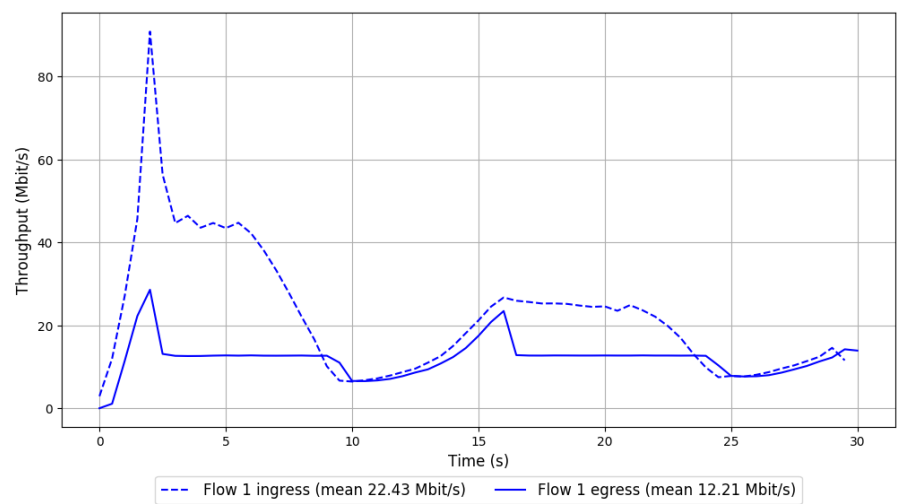

• Flow 1 (95th percentile 100.96 ms)

```
Run 5: Statistics of PCC-Allegro

Start at: 2018-11-15 03:40:38
End at: 2018-11-15 03:41:08
Local clock offset: -22.519 ms
Remote clock offset: 9.703 ms


# Below is generated by plot.py at 2018-11-15 03:49:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 87.11 Mbit/s
95th percentile per-packet one-way delay: 103.444 ms
Loss rate: 1.45%
-- Flow 1:
Average throughput: 87.11 Mbit/s
95th percentile per-packet one-way delay: 103.444 ms
Loss rate: 1.45%
```
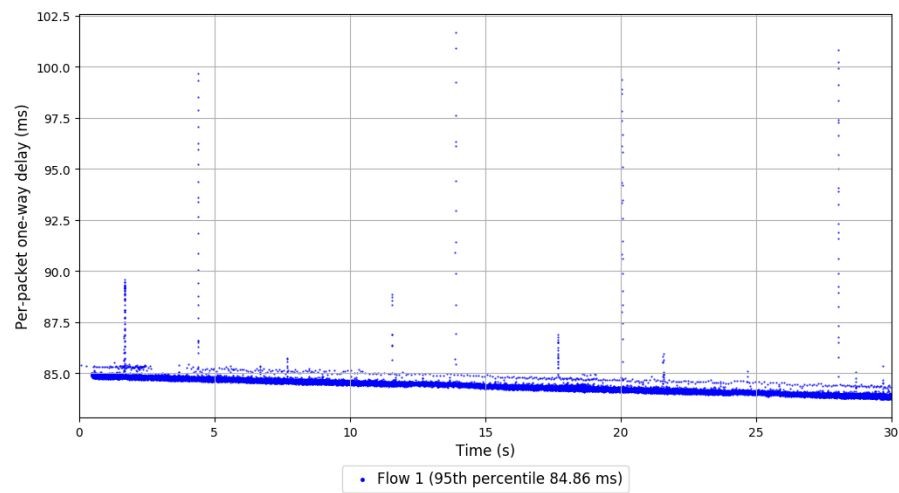
Run 5: Report of PCC-Allegro — Data Link

```
Run 1: Statistics of PCC-Expr

Start at: 2018-11-15 02:03:20
End at: 2018-11-15 02:03:50
Local clock offset: -17.037 ms
Remote clock offset: 1.347 ms

# Below is generated by plot.py at 2018-11-15 03:49:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.21 Mbit/s
95th percentile per-packet one-way delay: 79.172 ms
Loss rate: 45.58%
-- Flow 1:
Average throughput: 12.21 Mbit/s
95th percentile per-packet one-way delay: 79.172 ms
Loss rate: 45.58%
```
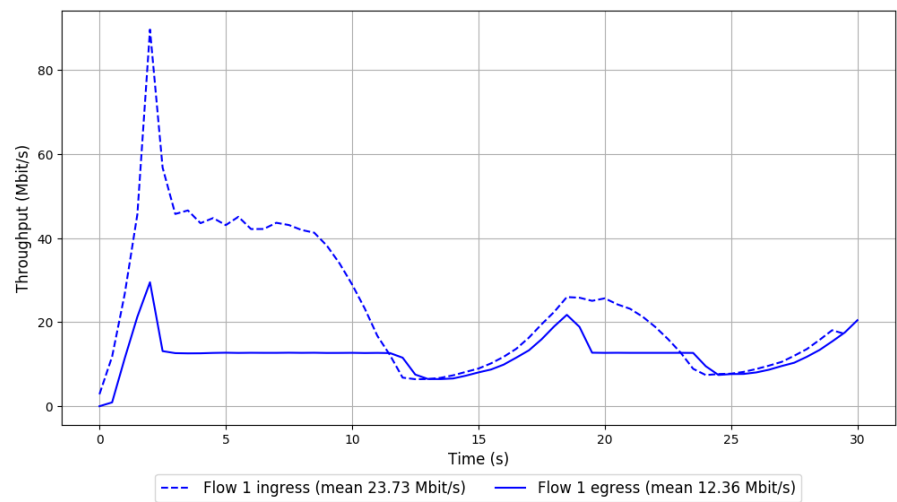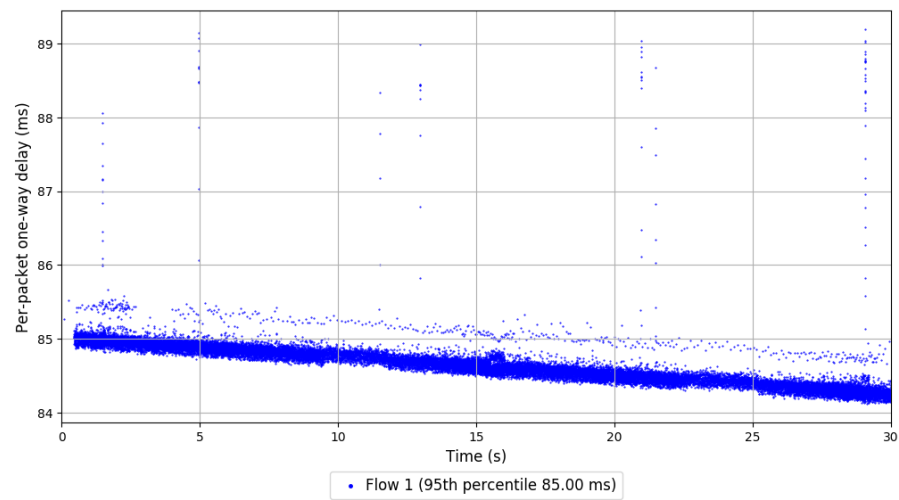
Run 1: Report of PCC-Expr — Data Link

```
Run 2: Statistics of PCC-Expr

Start at: 2018-11-15 02:24:25
End at: 2018-11-15 02:24:55
Local clock offset: -34.604 ms
Remote clock offset: 6.452 ms


# Below is generated by plot.py at 2018-11-15 03:49:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.36 Mbit/s
95th percentile per-packet one-way delay: 84.856 ms
Loss rate: 47.91%
-- Flow 1:
Average throughput: 12.36 Mbit/s
95th percentile per-packet one-way delay: 84.856 ms
Loss rate: 47.91%
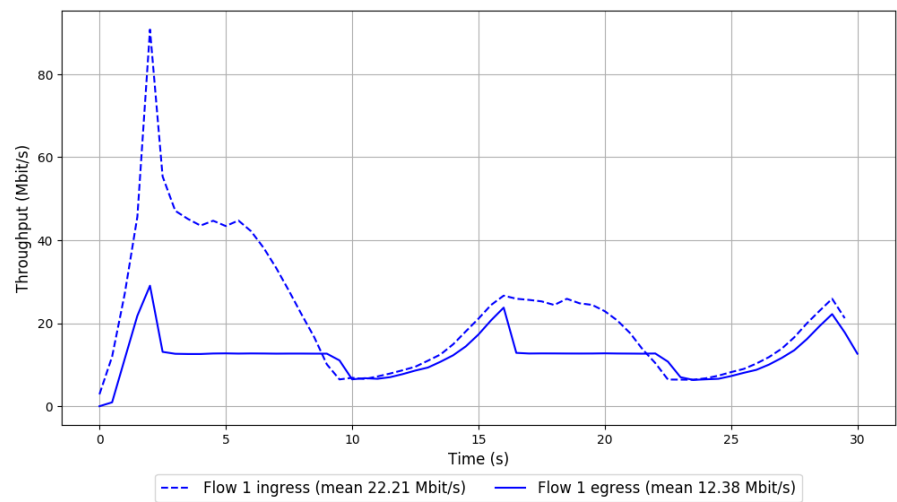```

Run 2: Report of PCC-Expr — Data Link

```
Run 3: Statistics of PCC-Expr

Start at: 2018-11-15 02:45:30
End at: 2018-11-15 02:46:00
Local clock offset: -43.116 ms
Remote clock offset: 8.703 ms

Below is generated by plot.py at 2018-11-15 03:49:15
Datalink statistics
-- Total of 1 flow:
Average throughput: 12.38 Mbit/s
95th percentile per-packet one-way delay: 85.001 ms
Loss rate: 44.26%
-- Flow 1:
Average throughput: 12.38 Mbit/s
95th percentile per-packet one-way delay: 85.001 ms
Loss rate: 44.26%
```
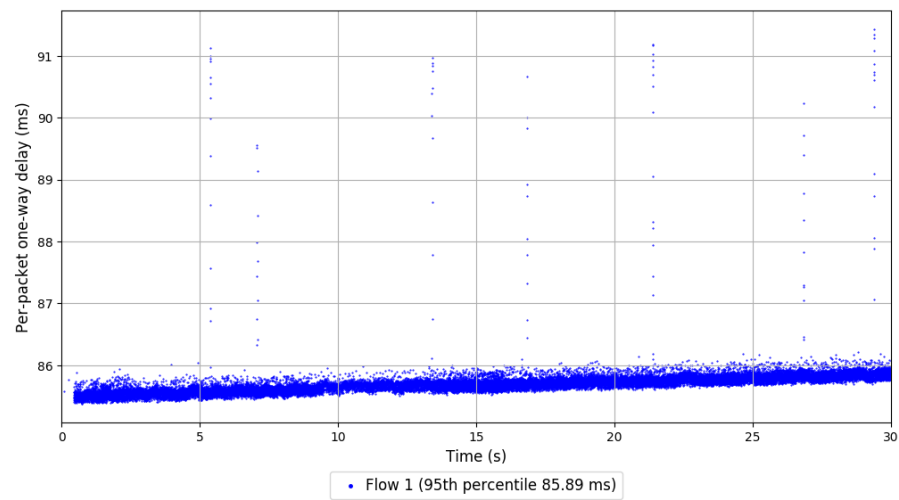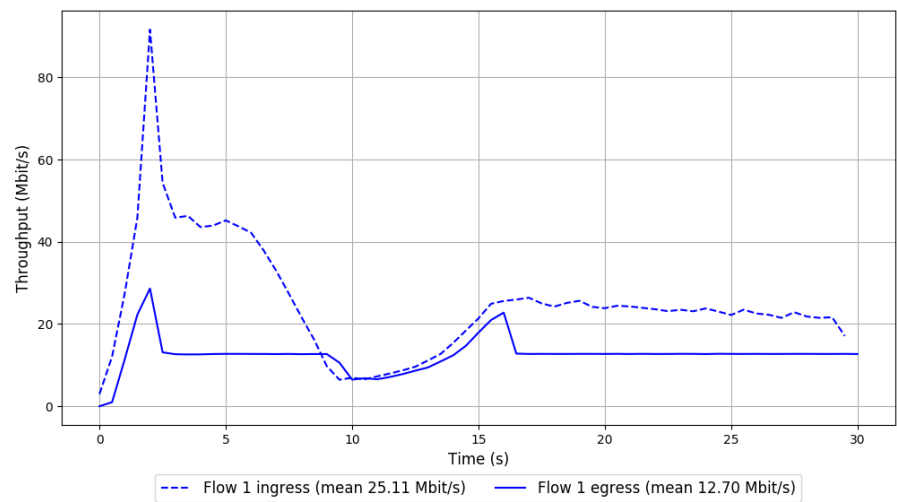
# Run 3: Report of PCC-Expr — Data Link



Flow 1 ingress (mean 22.21 Mbit/s) --- Flow 1 egress (mean 12.38 Mbit/s)
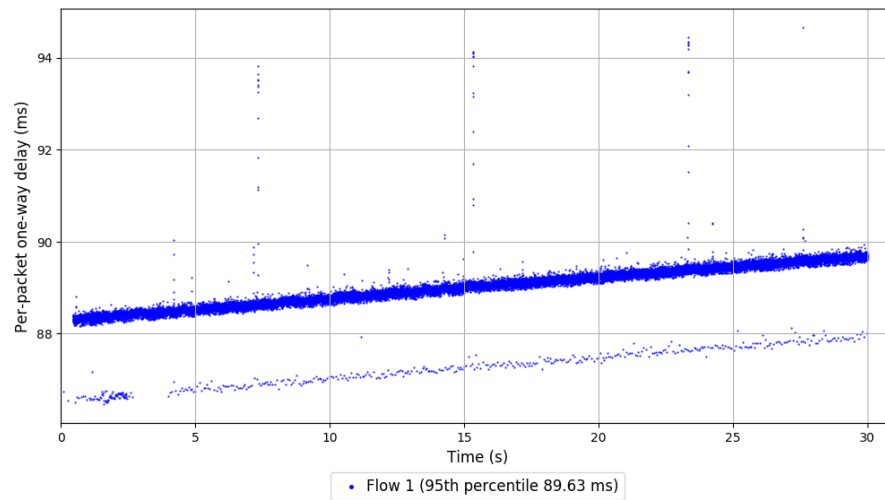


Flow 1 (95th percentile 85.00 ms)

```
Run 4: Statistics of PCC-Expr

Start at: 2018-11-15 03:06:36
End at: 2018-11-15 03:07:06
Local clock offset: -34.85 ms
Remote clock offset: 9.663 ms

# Below is generated by plot.py at 2018-11-15 03:49:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.70 Mbit/s
95th percentile per-packet one-way delay: 85.889 ms
Loss rate: 49.42%
-- Flow 1:
Average throughput: 12.70 Mbit/s
95th percentile per-packet one-way delay: 85.889 ms
Loss rate: 49.42%
```

Run 4: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 25.11 Mbit/s) --- Flow 1 egress (mean 12.70 Mbit/s)

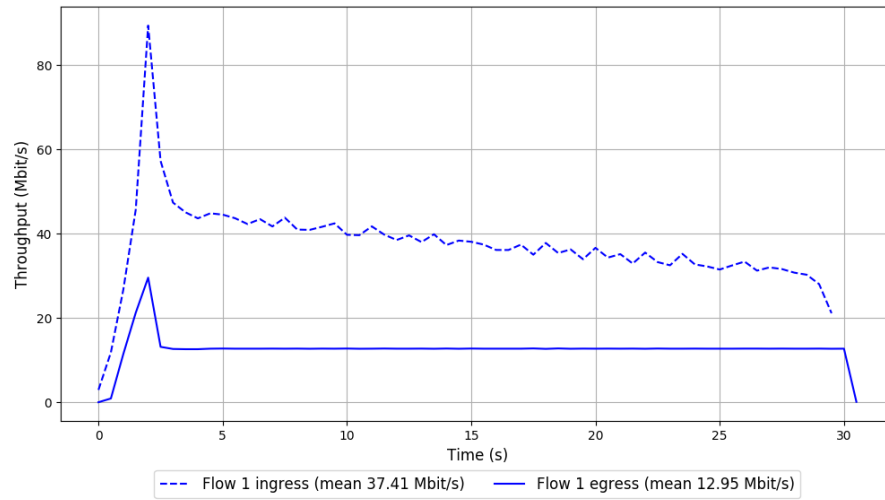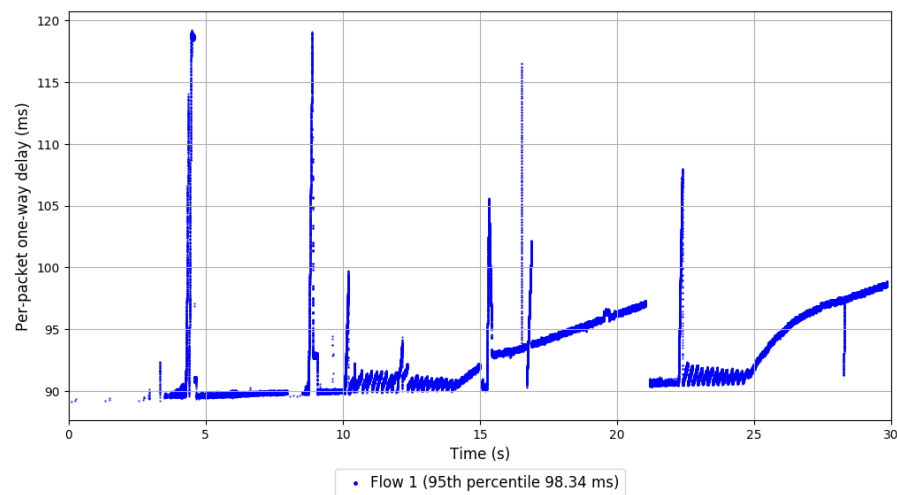
• Flow 1 (95th percentile 85.89 ms)

```
Run 5: Statistics of PCC-Expr

Start at: 2018-11-15 03:27:40
End at: 2018-11-15 03:28:10
Local clock offset: -40.143 ms
Remote clock offset: 9.293 ms


# Below is generated by plot.py at 2018-11-15 03:49:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.95 Mbit/s
95th percentile per-packet one-way delay: 89.629 ms
Loss rate: 65.37%
-- Flow 1:
Average throughput: 12.95 Mbit/s
95th percentile per-packet one-way delay: 89.629 ms
Loss rate: 65.37%
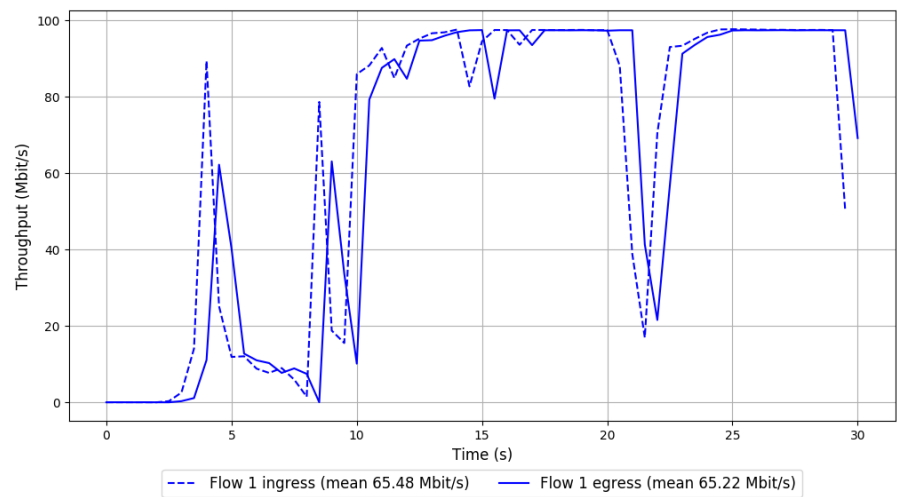```
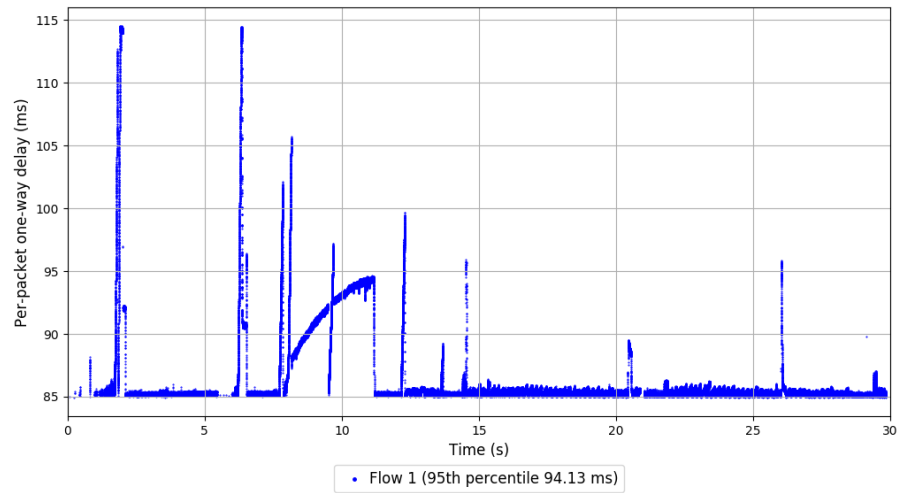
## Run 5: Report of PCC-Expr — Data Link

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-11-15 02:12:47
End at: 2018-11-15 02:13:17
Local clock offset: -33.544 ms
Remote clock offset: 2.104 ms

Below is generated by plot.py at 2018-11-15 03:49:16
Datalink statistics
-- Total of 1 flow:
Average throughput: 65.22 Mbit/s
95th percentile per-packet one-way delay: 98.344 ms
Loss rate: 0.37%
-- Flow 1:
Average throughput: 65.22 Mbit/s
95th percentile per-packet one-way delay: 98.344 ms
Loss rate: 0.37%
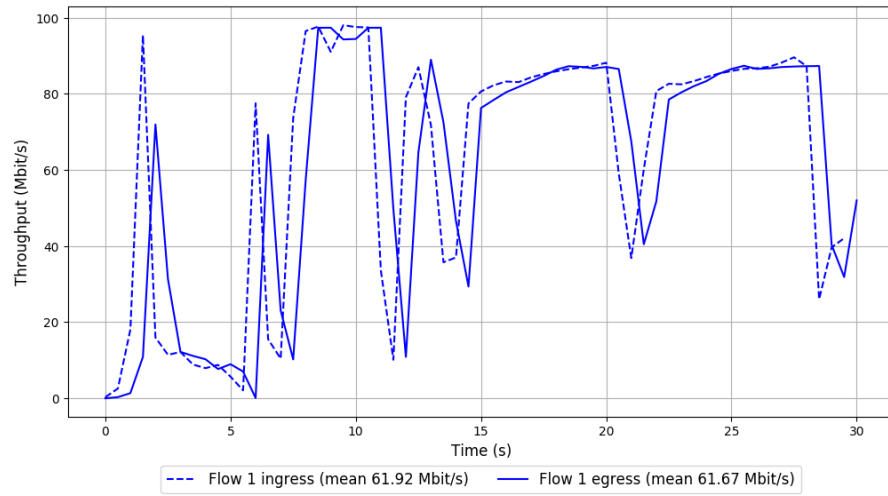```

Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-11-15 02:33:52
End at: 2018-11-15 02:34:22
Local clock offset: -32.221 ms
Remote clock offset: 8.267 ms


# Below is generated by plot.py at 2018-11-15 03:49:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 61.67 Mbit/s
95th percentile per-packet one-way delay: 94.130 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 61.67 Mbit/s
95th percentile per-packet one-way delay: 94.130 ms
Loss rate: 0.41%
```

Run 2: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 61.92 Mbit/s)   Flow 1 egress (mean 61.67 Mbit/s)
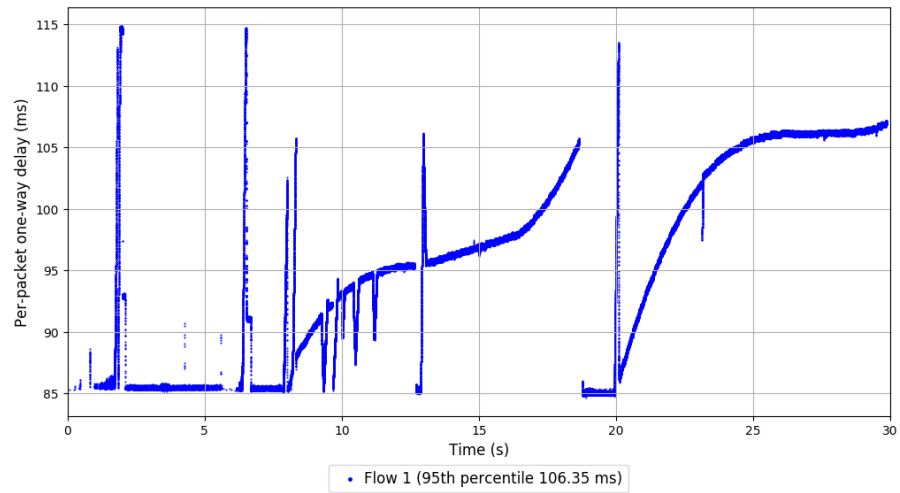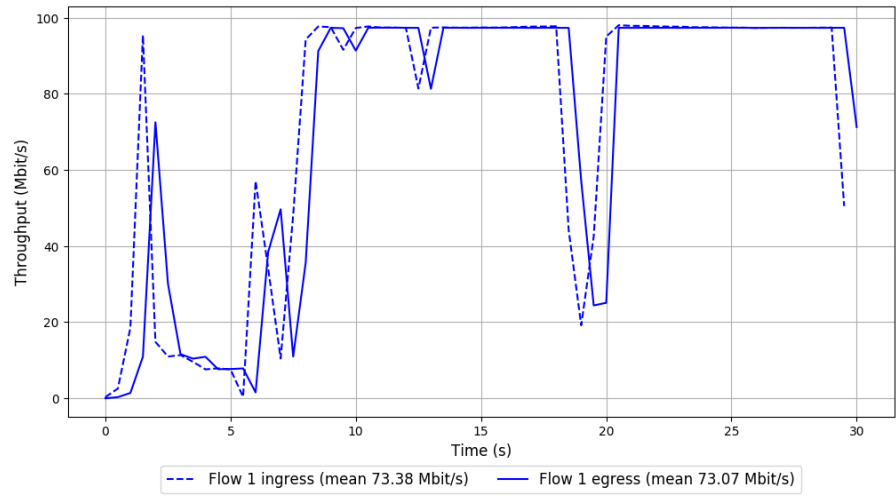

Flow 1 (95th percentile 94.13 ms)

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-11-15 02:54:59
End at: 2018-11-15 02:55:29
Local clock offset: -58.876 ms
Remote clock offset: 9.166 ms


# Below is generated by plot.py at 2018-11-15 03:49:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 73.07 Mbit/s
95th percentile per-packet one-way delay: 106.354 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 73.07 Mbit/s
95th percentile per-packet one-way delay: 106.354 ms
Loss rate: 0.34%
```

Run 3: Report of QUIC Cubic — Data Link

```
Run 4: Statistics of QUIC Cubic

Start at: 2018-11-15 03:16:02
End at: 2018-11-15 03:16:32
Local clock offset: -34.67 ms
Remote clock offset: 4.012 ms


# Below is generated by plot.py at 2018-11-15 03:49:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 73.69 Mbit/s
95th percentile per-packet one-way delay: 101.097 ms
Loss rate: 0.33%
-- Flow 1:
Average throughput: 73.69 Mbit/s
95th percentile per-packet one-way delay: 101.097 ms
Loss rate: 0.33%
```
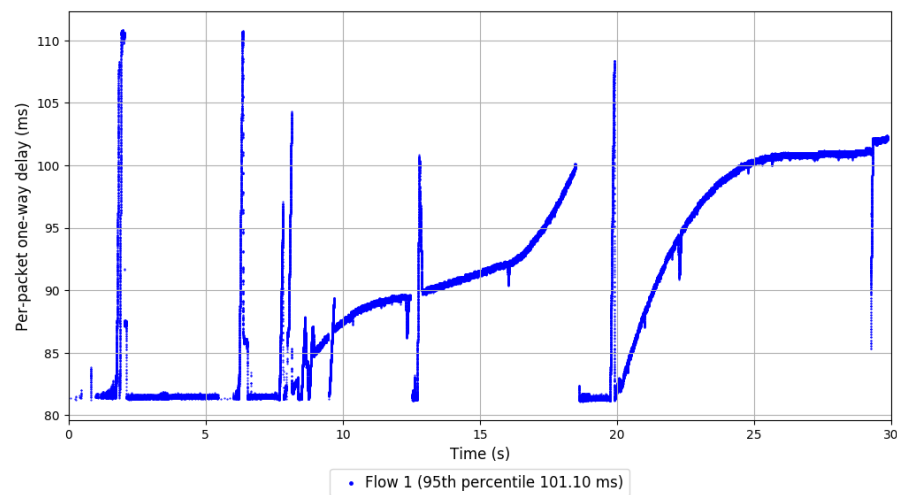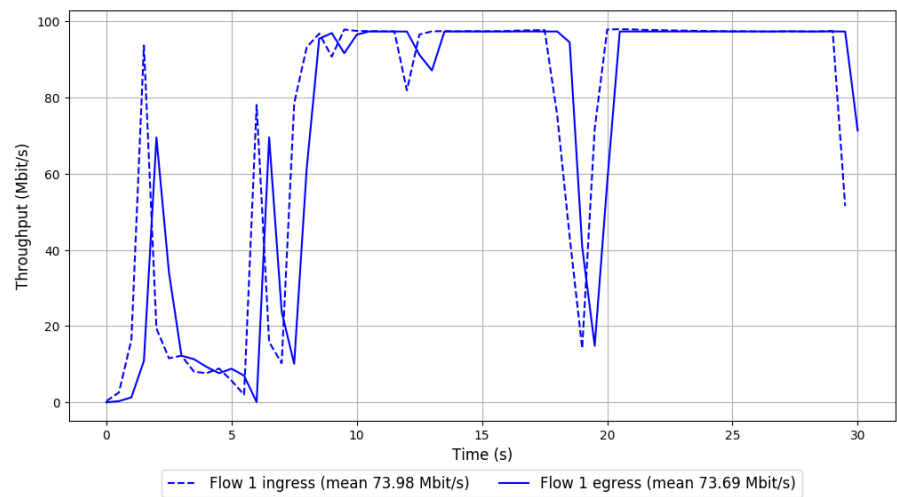
Run 4: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 73.98 Mbit/s) —— Flow 1 egress (mean 73.69 Mbit/s)
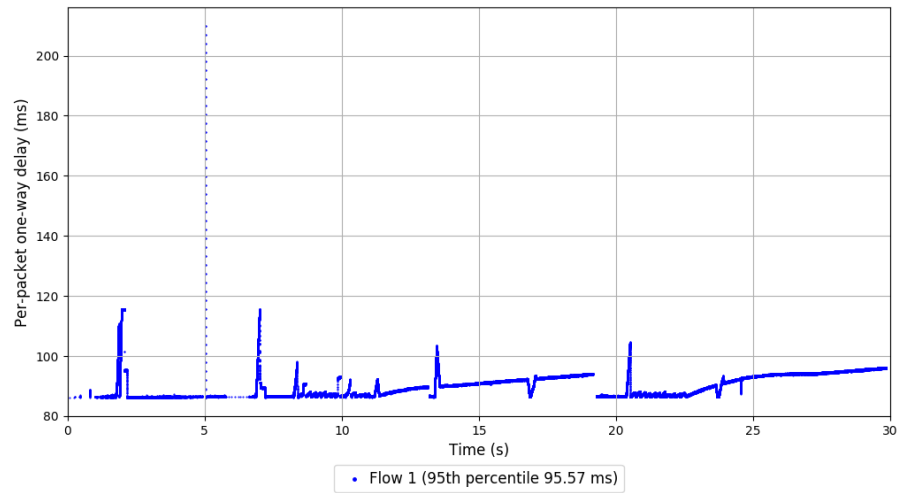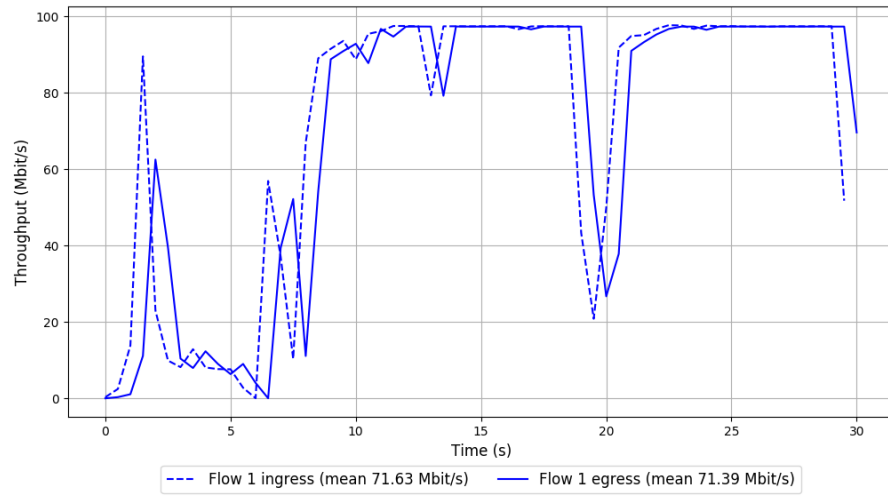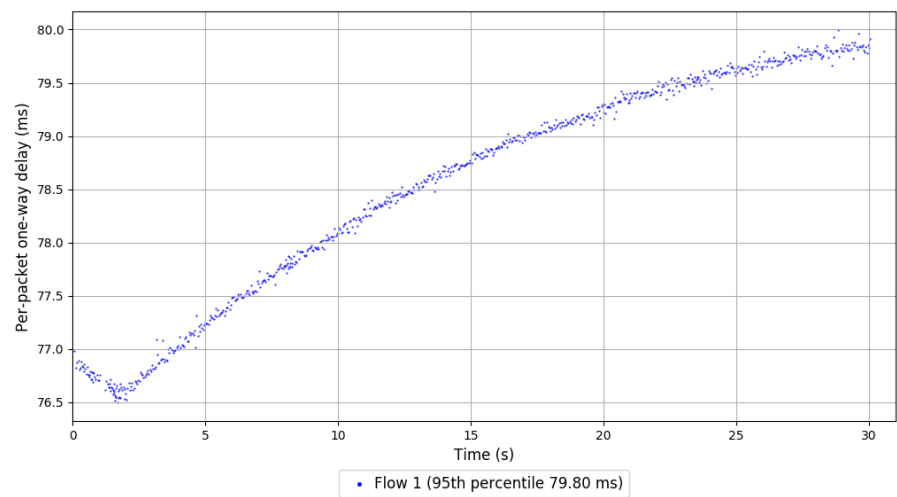

• Flow 1 (95th percentile 101.10 ms)

```
Run 5: Statistics of QUIC Cubic

Start at: 2018-11-15 03:37:07
End at: 2018-11-15 03:37:37
Local clock offset: -23.225 ms
Remote clock offset: 5.84 ms


# Below is generated by plot.py at 2018-11-15 03:49:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 71.39 Mbit/s
95th percentile per-packet one-way delay: 95.566 ms
Loss rate: 0.32%
-- Flow 1:
Average throughput: 71.39 Mbit/s
95th percentile per-packet one-way delay: 95.566 ms
Loss rate: 0.32%
```

Run 5: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 71.63 Mbit/s) Flow 1 egress (mean 71.39 Mbit/s)

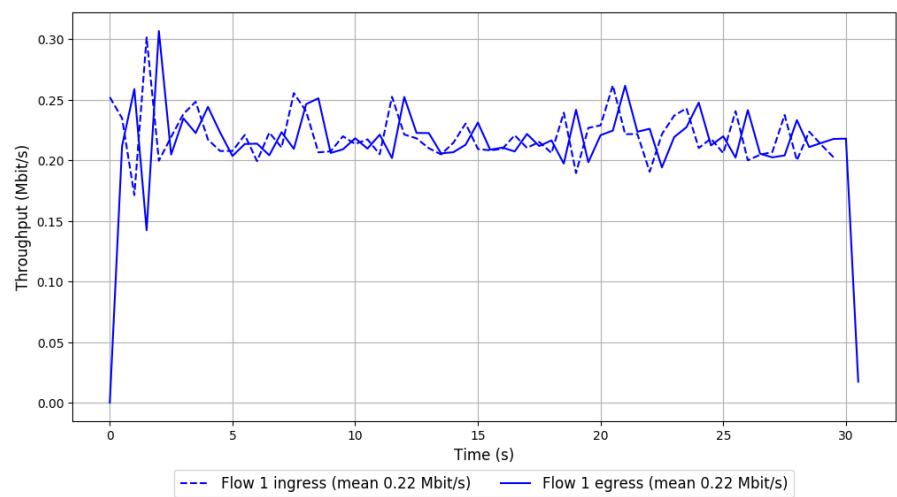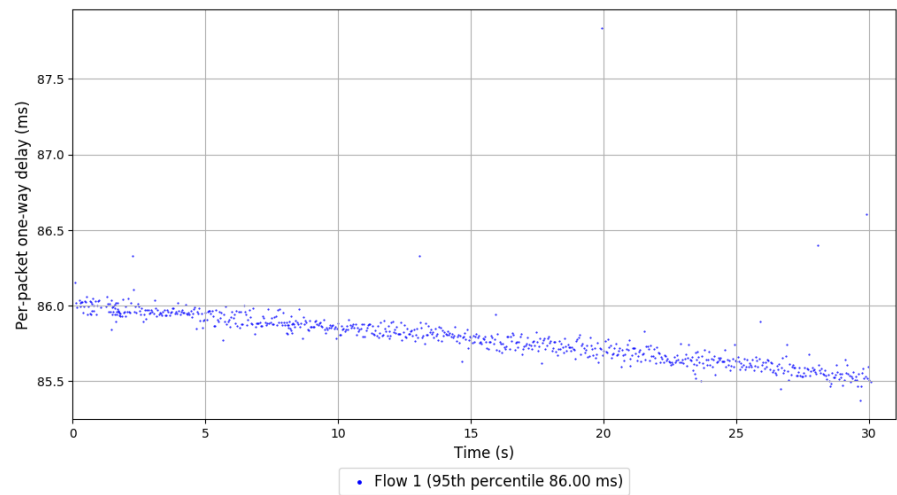

Flow 1 (95th percentile 95.57 ms)

```
Run 1: Statistics of SCReAM

Start at: 2018-11-15 01:57:32
End at: 2018-11-15 01:58:02
Local clock offset: -9.103 ms
Remote clock offset: 4.697 ms


# Below is generated by plot.py at 2018-11-15 03:49:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 79.799 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 79.799 ms
Loss rate: 0.00%
```

Run 1: Report of SCReAM — Data Link

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

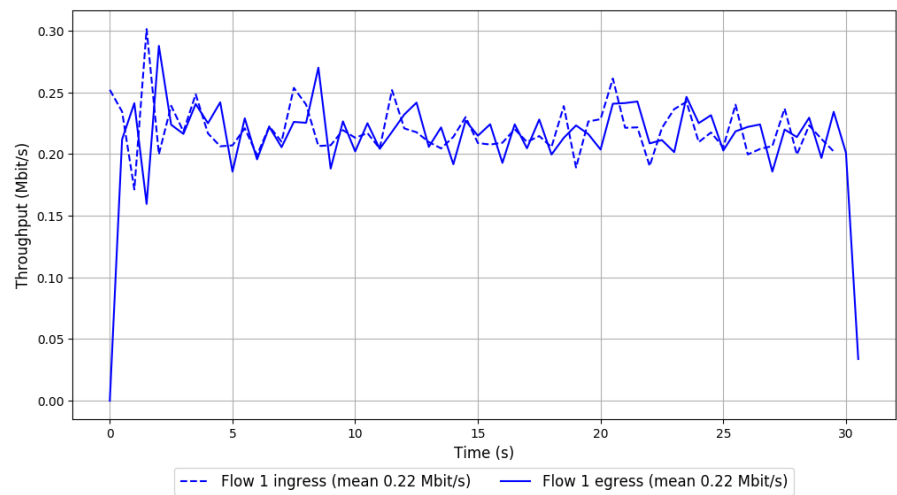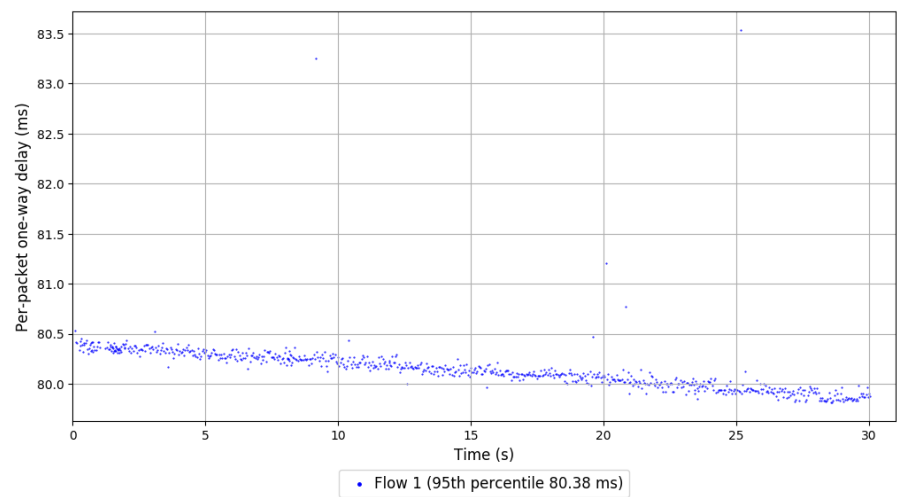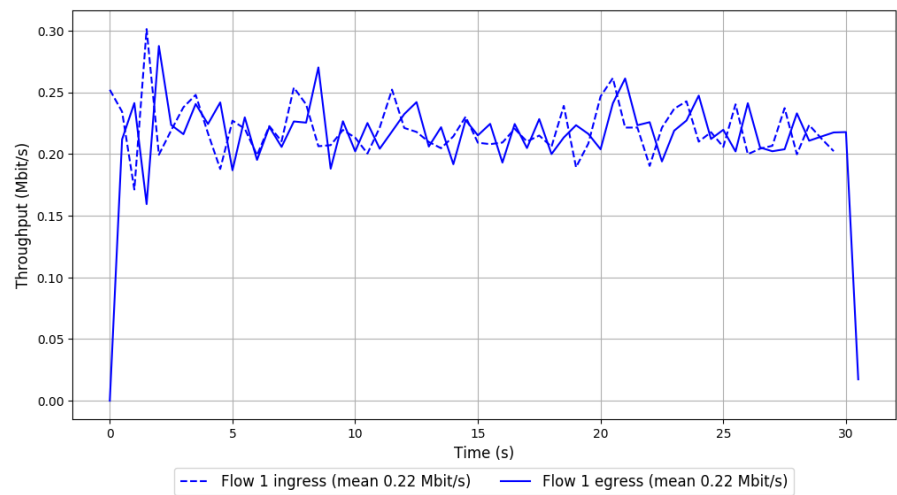Flow 1 (95th percentile 79.80 ms)

```
Run 2: Statistics of SCReAM

Start at: 2018-11-15 02:18:37
End at: 2018-11-15 02:19:07
Local clock offset: -26.873 ms
Remote clock offset: 6.115 ms


# Below is generated by plot.py at 2018-11-15 03:49:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 85.999 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 85.999 ms
Loss rate: 0.00%
```
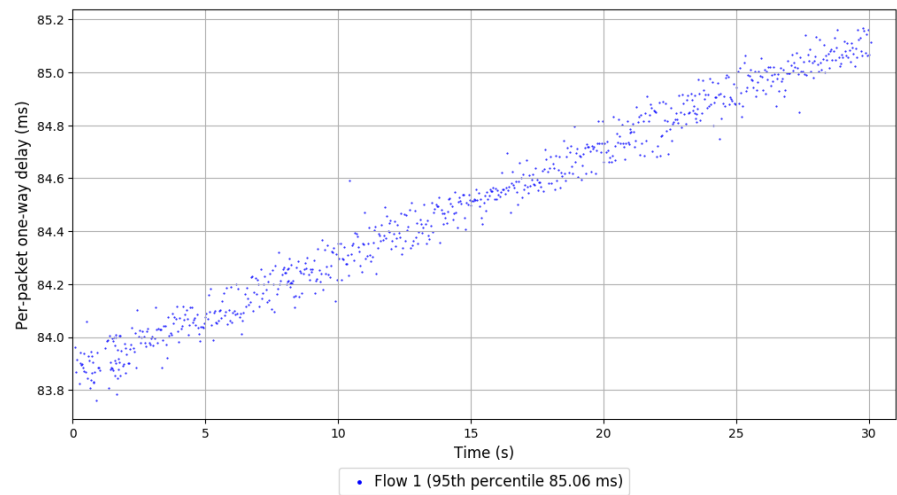
Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2018-11-15 02:39:42
End at: 2018-11-15 02:40:12
Local clock offset: -35.516 ms
Remote clock offset: 2.445 ms


# Below is generated by plot.py at 2018-11-15 03:49:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 80.381 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 80.381 ms
Loss rate: 0.00%
```

Run 3: Report of SCReAM — Data Link

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

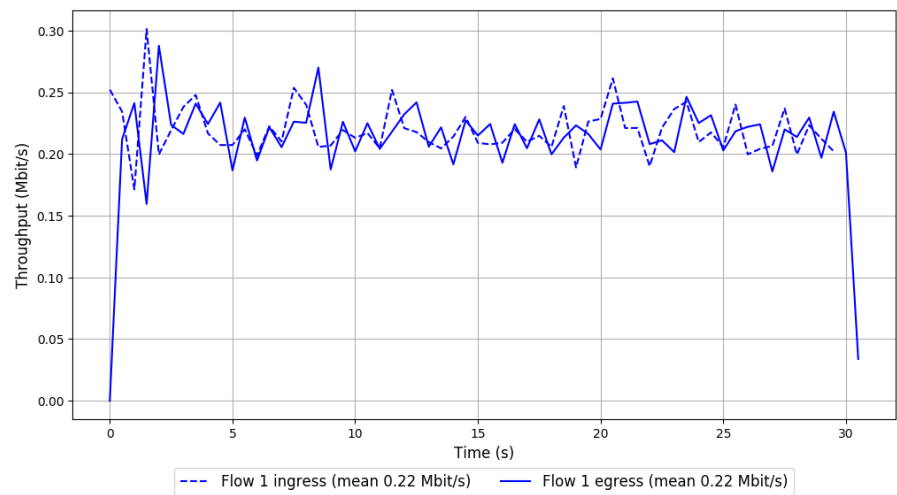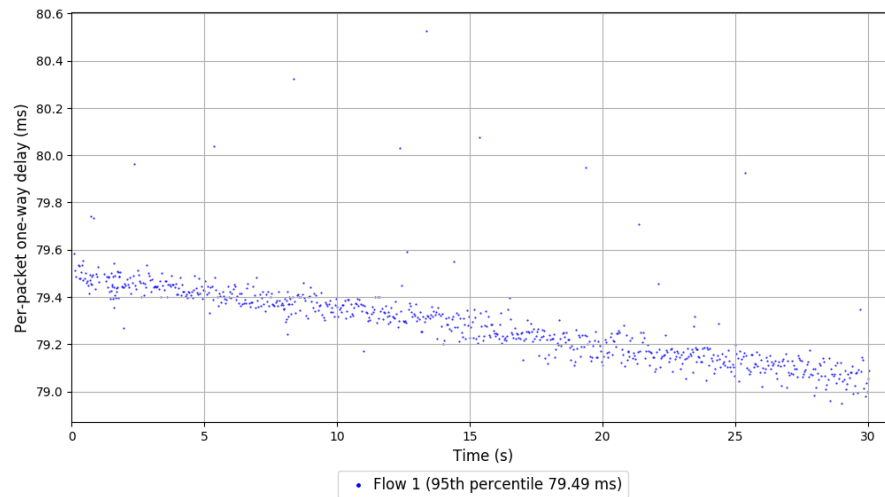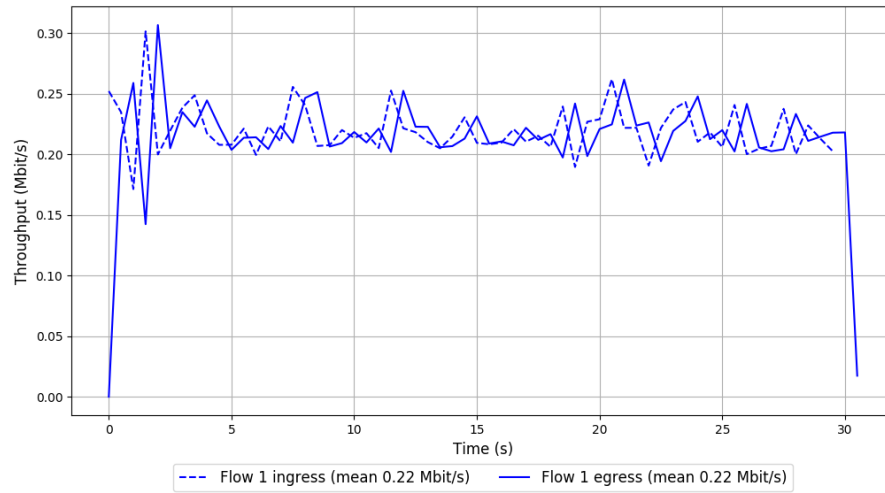Flow 1 (95th percentile 80.38 ms)

```
Run 4: Statistics of SCReAM

Start at: 2018-11-15 03:00:48
End at: 2018-11-15 03:01:18
Local clock offset: -46.043 ms
Remote clock offset: 3.451 ms


# Below is generated by plot.py at 2018-11-15 03:49:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 85.062 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 85.062 ms
Loss rate: 0.00%
```

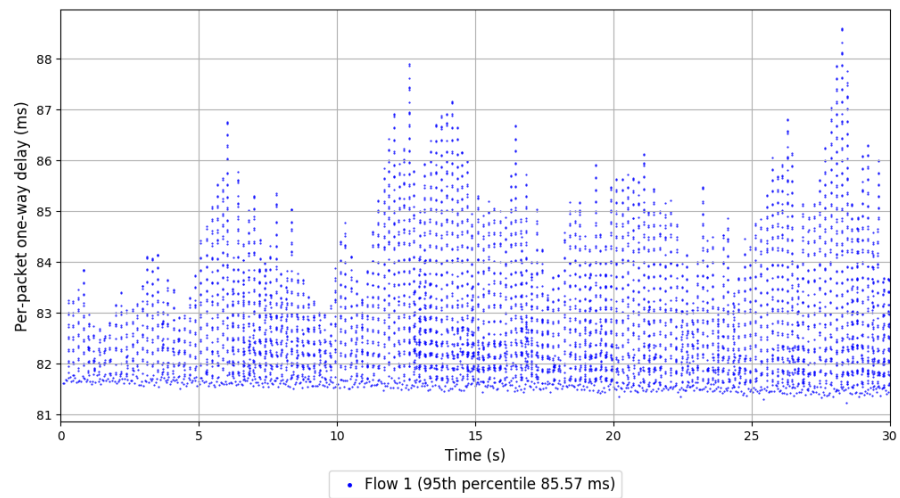Run 4: Report of SCReAM — Data Link

```
Run 5: Statistics of SCReAM

Start at: 2018-11-15 03:21:52
End at: 2018-11-15 03:22:22
Local clock offset: -38.332 ms
Remote clock offset: 4.154 ms


# Below is generated by plot.py at 2018-11-15 03:49:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 79.490 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 79.490 ms
Loss rate: 0.00%
```

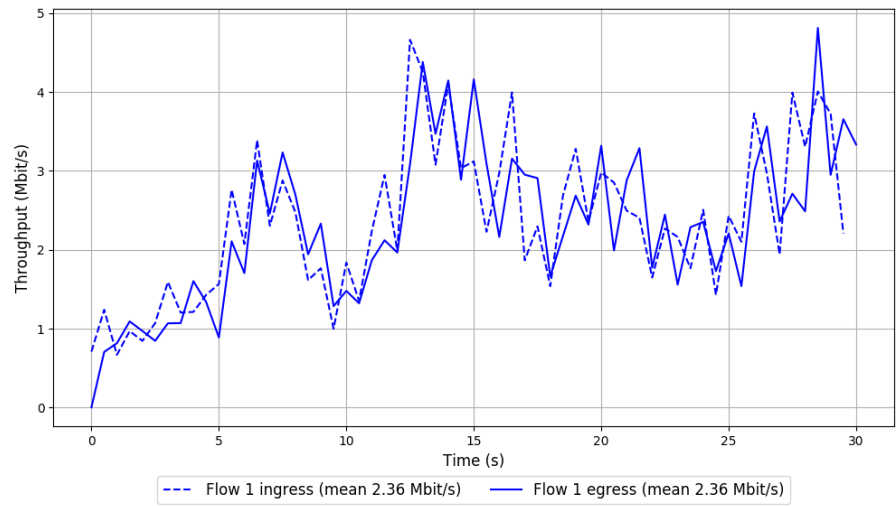Run 5: Report of SCReAM — Data Link

```
Run 1: Statistics of Sprout

Start at: 2018-11-15 02:17:29
End at: 2018-11-15 02:17:59
Local clock offset: -25.812 ms
Remote clock offset: 2.35 ms


# Below is generated by plot.py at 2018-11-15 03:49:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.36 Mbit/s
95th percentile per-packet one-way delay: 85.567 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.36 Mbit/s
95th percentile per-packet one-way delay: 85.567 ms
Loss rate: 0.00%
```

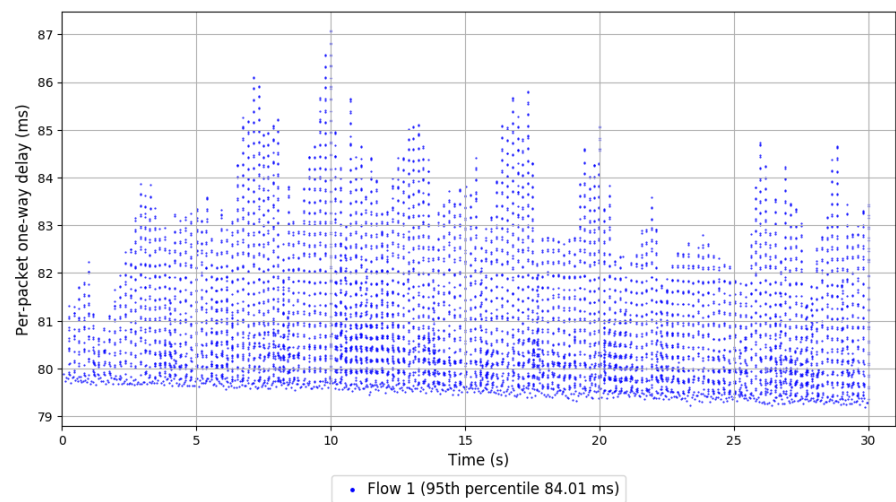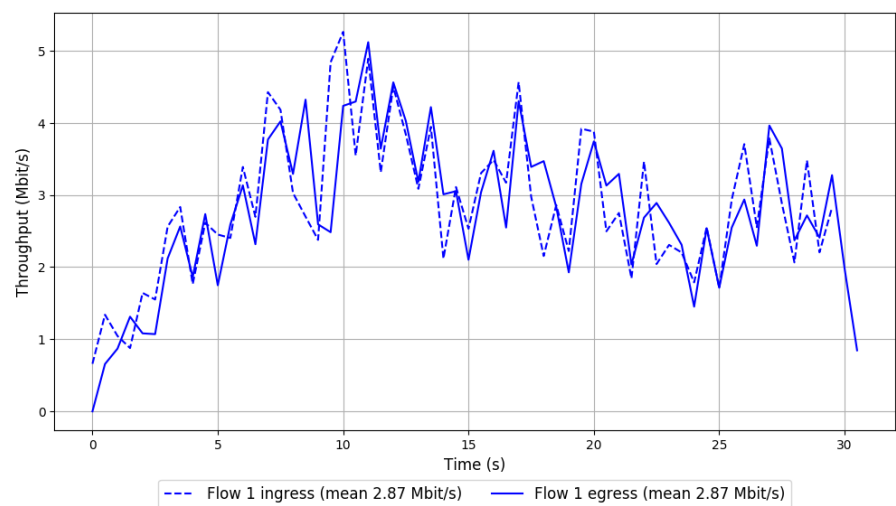Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2018-11-15 02:38:34
End at: 2018-11-15 02:39:04
Local clock offset: -35.196 ms
Remote clock offset: 2.308 ms


# Below is generated by plot.py at 2018-11-15 03:49:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.87 Mbit/s
95th percentile per-packet one-way delay: 84.009 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.87 Mbit/s
95th percentile per-packet one-way delay: 84.009 ms
Loss rate: 0.00%
```

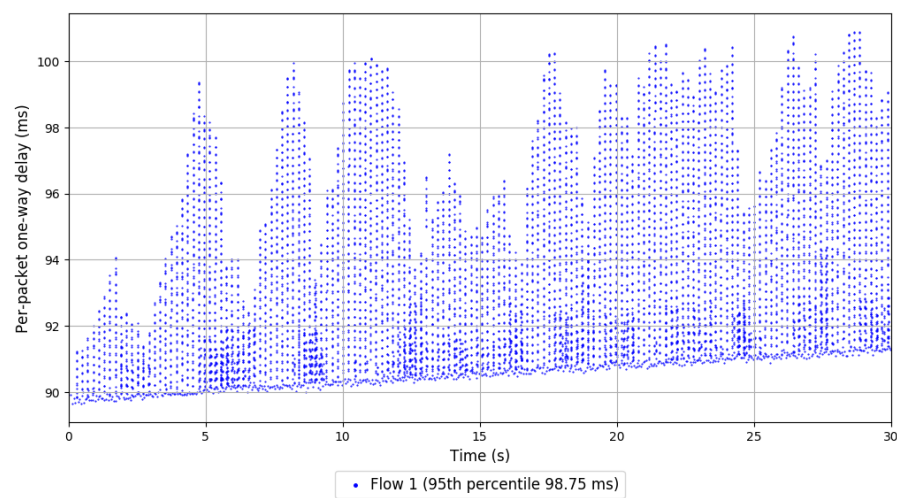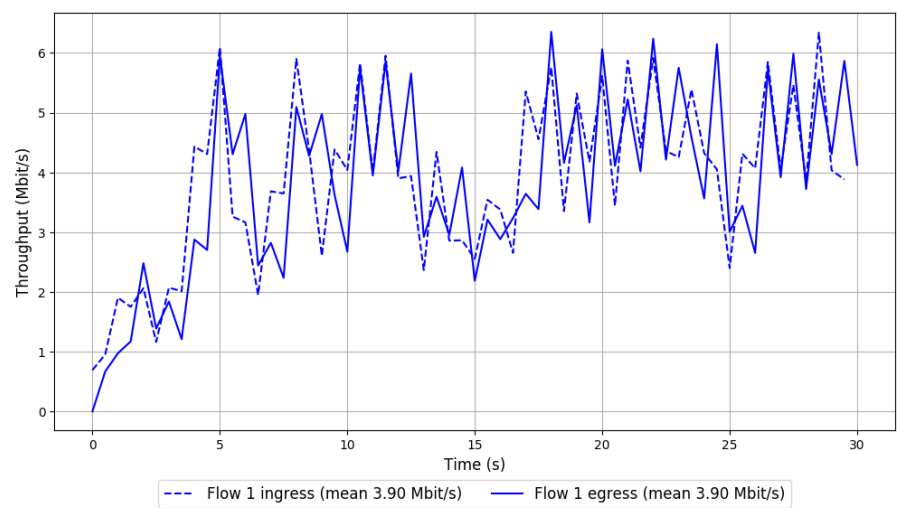Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2018-11-15 02:59:40
End at: 2018-11-15 03:00:10
Local clock offset: -49.564 ms
Remote clock offset: 4.474 ms


# Below is generated by plot.py at 2018-11-15 03:49:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.90 Mbit/s
95th percentile per-packet one-way delay: 98.752 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 3.90 Mbit/s
95th percentile per-packet one-way delay: 98.752 ms
Loss rate: 0.00%
```

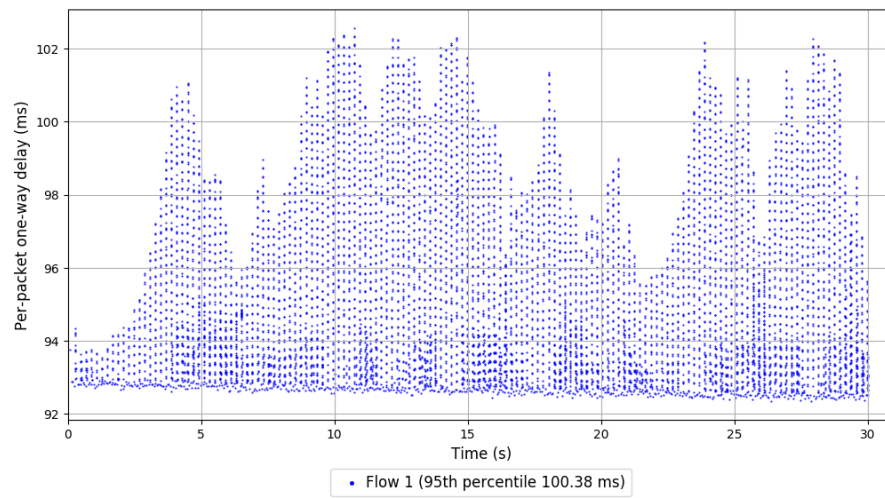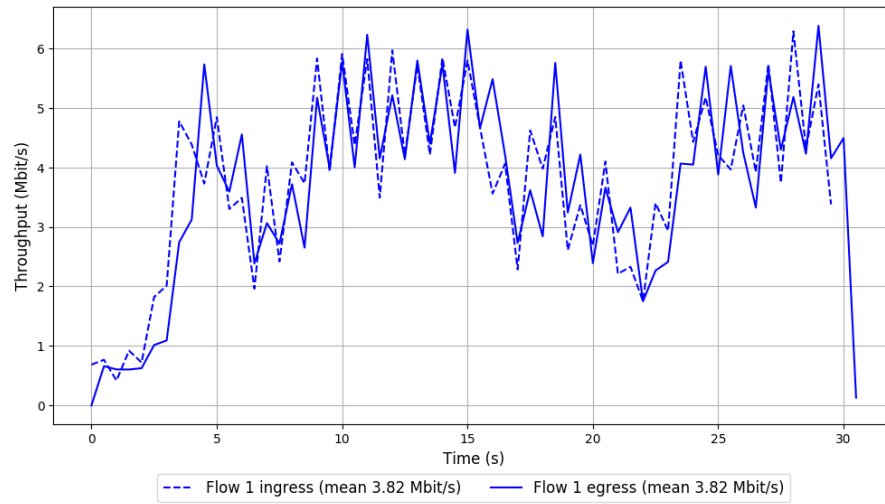Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2018-11-15 03:20:44
End at: 2018-11-15 03:21:14
Local clock offset: -37.414 ms
Remote clock offset: 10.144 ms


# Below is generated by plot.py at 2018-11-15 03:49:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.82 Mbit/s
95th percentile per-packet one-way delay: 100.375 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 3.82 Mbit/s
95th percentile per-packet one-way delay: 100.375 ms
Loss rate: 0.00%
```
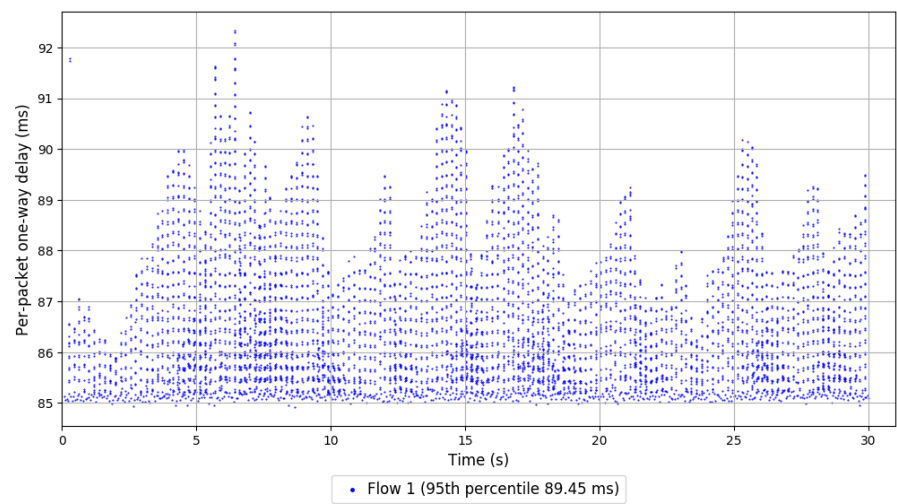
Run 4: Report of Sprout — Data Link

Flow 1 ingress (mean 3.82 Mbit/s)   Flow 1 egress (mean 3.82 Mbit/s)

• Flow 1 (95th percentile 100.38 ms)

```
Run 5: Statistics of Sprout

Start at: 2018-11-15 03:41:49
End at: 2018-11-15 03:42:19
Local clock offset: -22.42 ms
Remote clock offset: 9.611 ms


# Below is generated by plot.py at 2018-11-15 03:49:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.44 Mbit/s
95th percentile per-packet one-way delay: 89.454 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.44 Mbit/s
95th percentile per-packet one-way delay: 89.454 ms
Loss rate: 0.00%
```
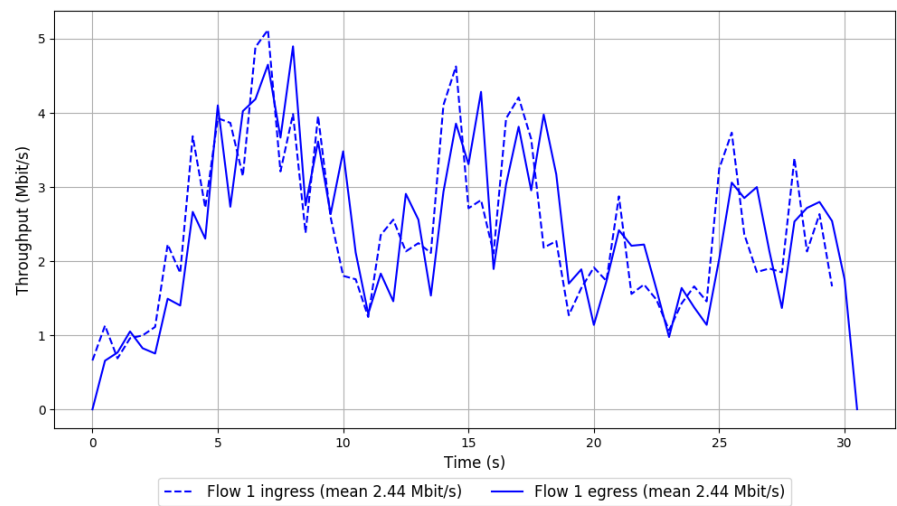
Run 5: Report of Sprout — Data Link
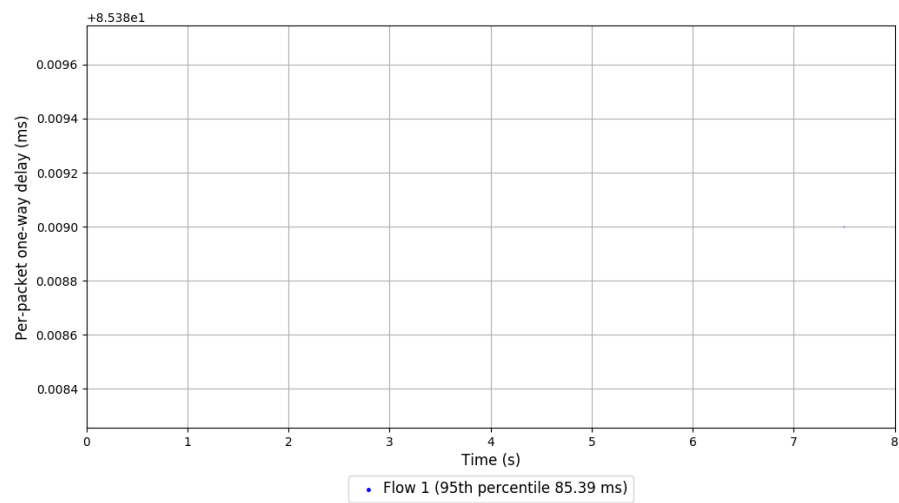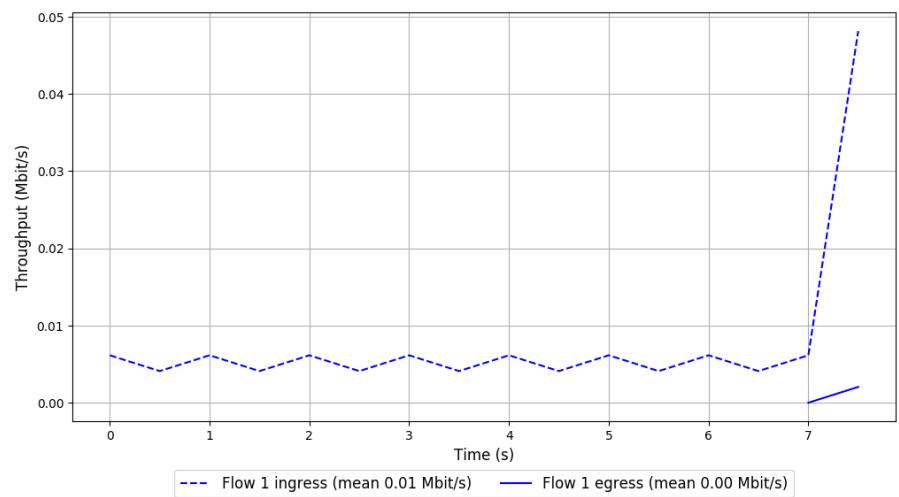
```
Run 1: Statistics of TaoVA-100x

Start at: 2018-11-15 01:58:39
End at: 2018-11-15 01:59:09
Local clock offset: -13.76 ms
Remote clock offset: 5.873 ms
```

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

Flow 1 ingress (mean 0.01 Mbit/s)   Flow 1 egress (mean 0.00 Mbit/s)

Flow 1 (95th percentile 85.39 ms)

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

Start at: 2018-11-15 02:19:44
End at: 2018-11-15 02:20:14
Local clock offset: -28.055 ms
Remote clock offset: 1.335 ms
```
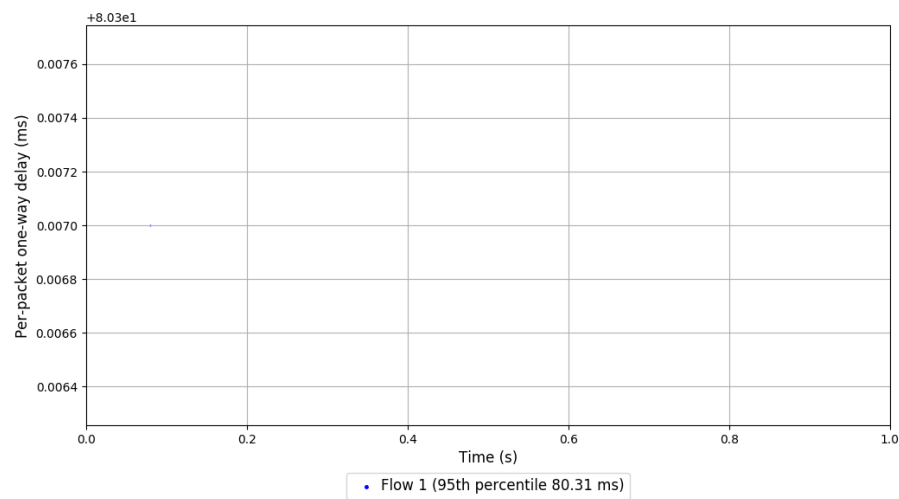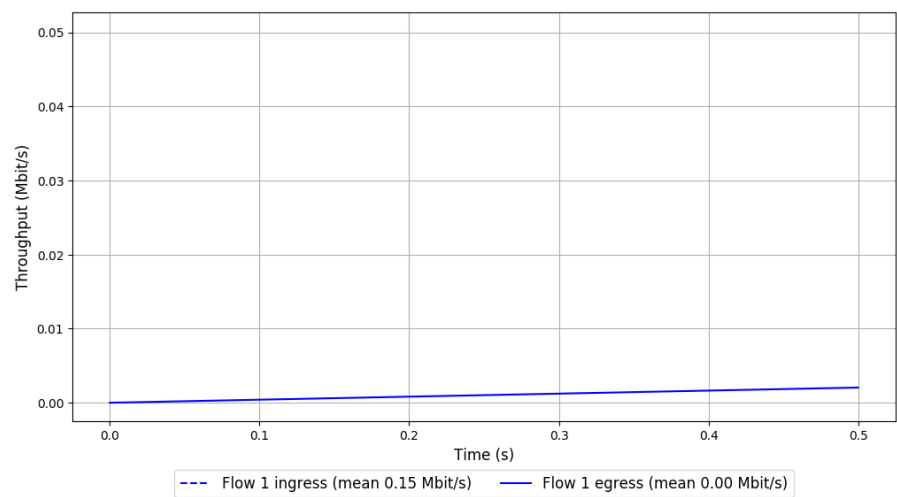
Run 2: Report of TaoVA-100x — Data Link
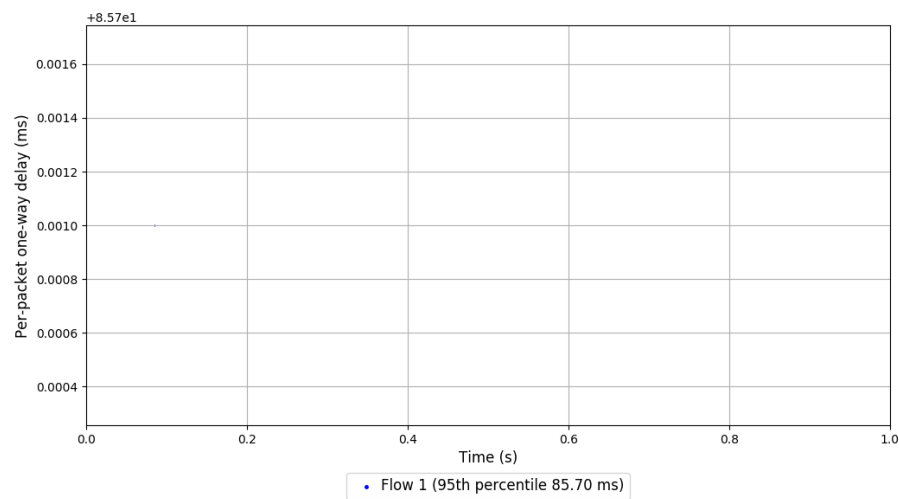
```
Run 3: Statistics of TaoVA-100x

Start at: 2018-11-15 02:40:49
End at: 2018-11-15 02:41:19
Local clock offset: -37.235 ms
Remote clock offset: 7.312 ms
```
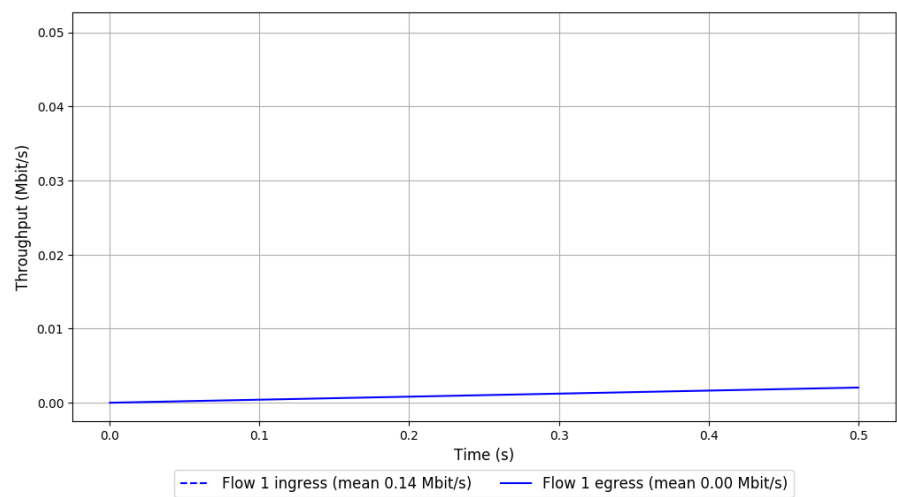
Run 3: Report of TaoVA-100x — Data Link
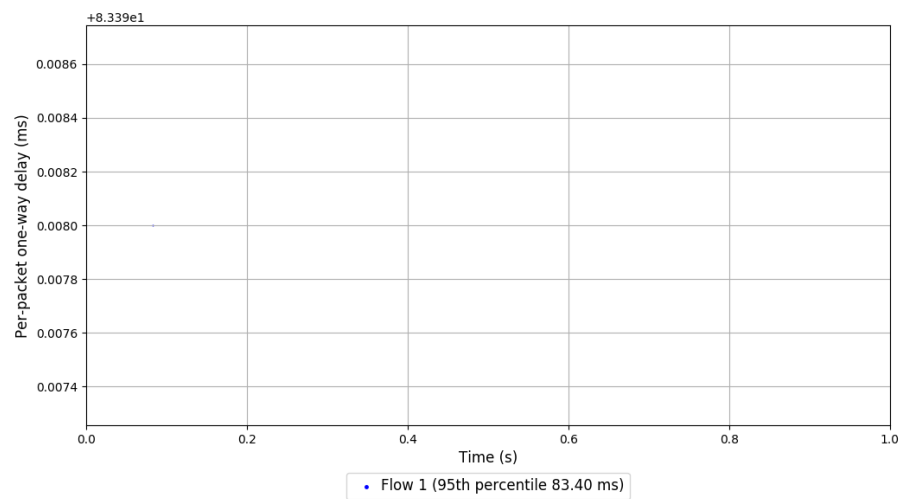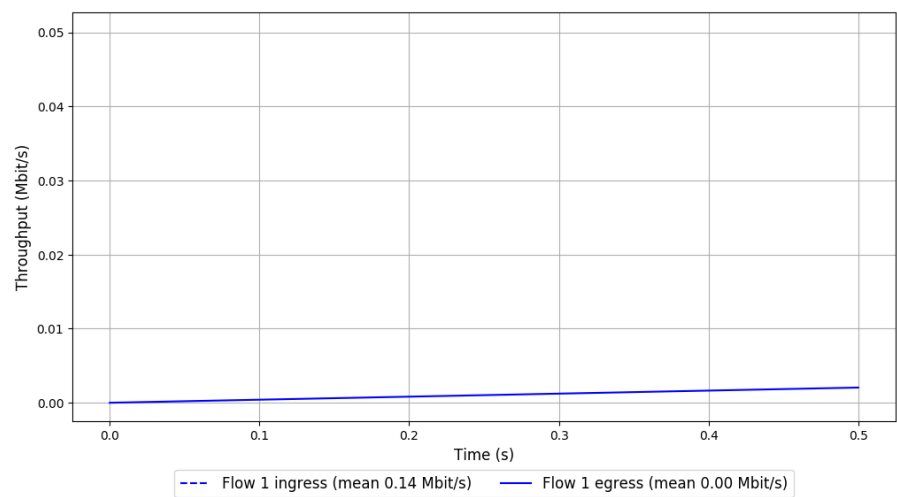
```
Run 4: Statistics of TaoVA-100x

Start at: 2018-11-15 03:01:55
End at: 2018-11-15 03:02:25
Local clock offset: -42.472 ms
Remote clock offset: 4.49 ms
```

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

Flow 1 ingress (mean 0.14 Mbit/s) — Flow 1 egress (mean 0.00 Mbit/s)

Flow 1 (95th percentile 83.40 ms)
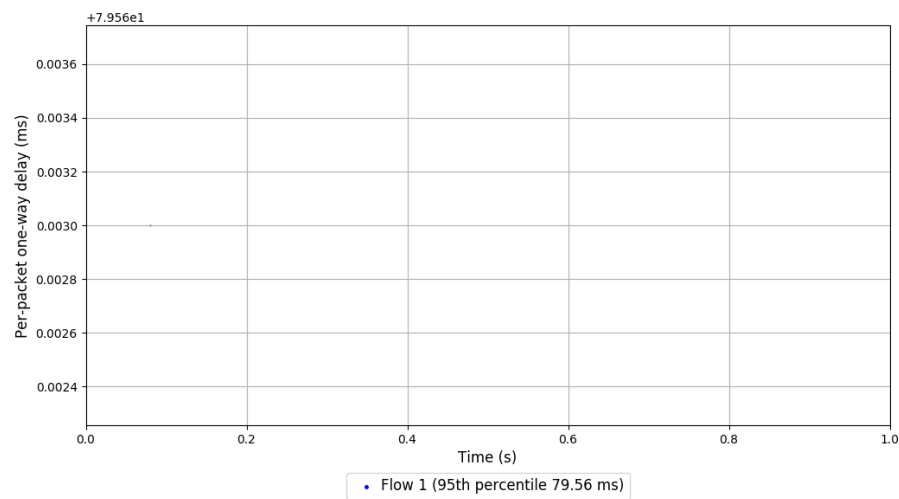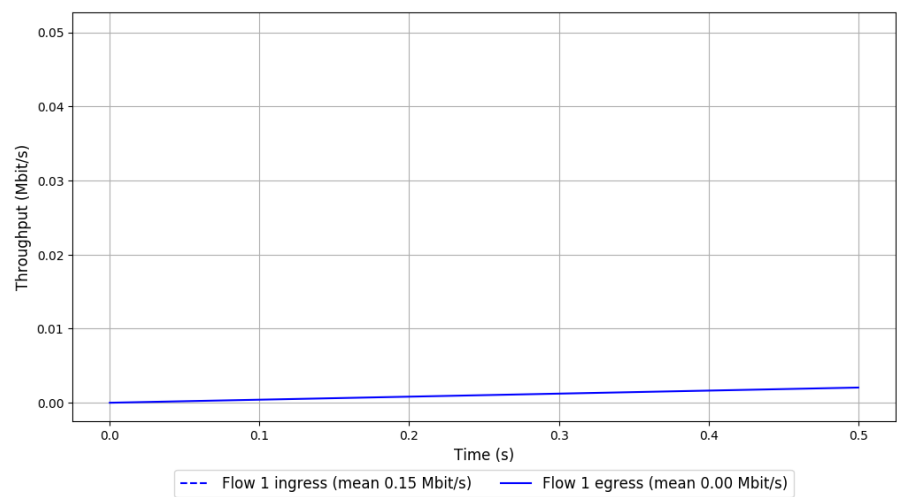
```
Run 5: Statistics of TaoVA-100x

Start at: 2018-11-15 03:23:00
End at: 2018-11-15 03:23:30
Local clock offset: -39.317 ms
Remote clock offset: 4.123 ms
```

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

Flow 1 ingress (mean 0.15 Mbit/s)   Flow 1 egress (mean 0.00 Mbit/s)

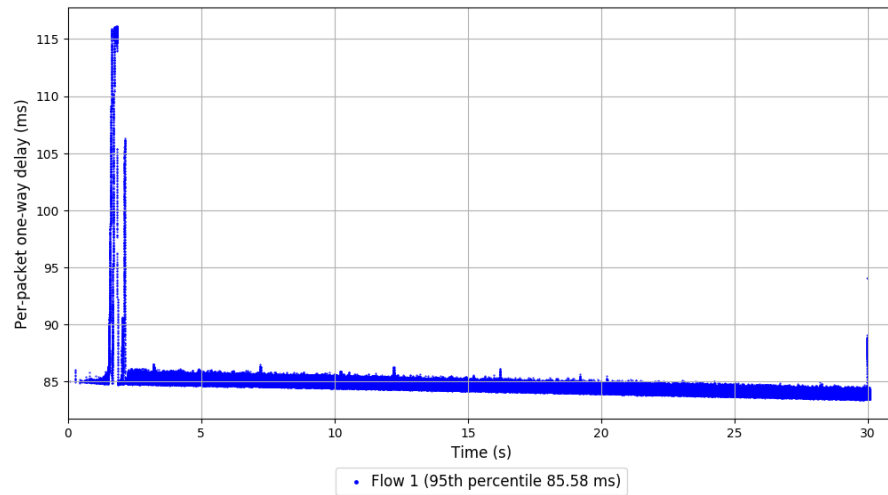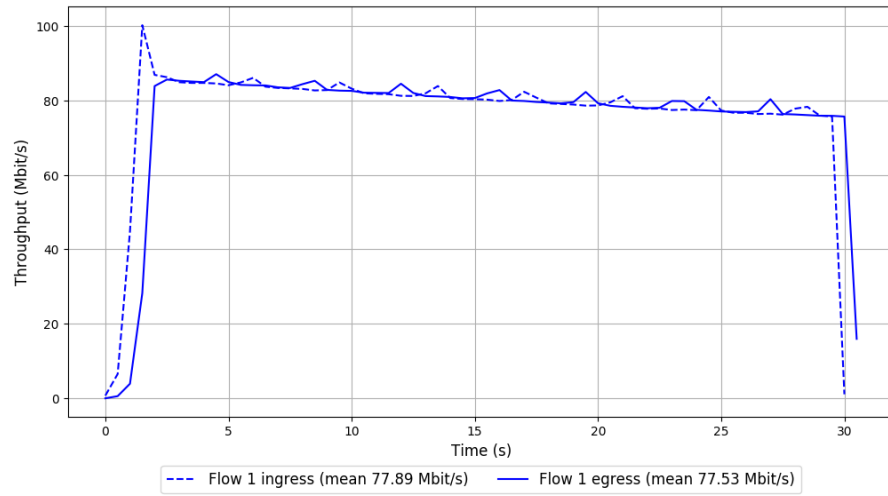Flow 1 (95th percentile 79.56 ms)

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```
Run 1: Statistics of TCP Vegas

Start at: 2018-11-15 02:02:08
End at: 2018-11-15 02:02:38
Local clock offset: -13.068 ms
Remote clock offset: 5.019 ms


# Below is generated by plot.py at 2018-11-15 03:50:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 77.53 Mbit/s
95th percentile per-packet one-way delay: 85.580 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 77.53 Mbit/s
95th percentile per-packet one-way delay: 85.580 ms
Loss rate: 0.47%
```

Run 1: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 77.89 Mbit/s)   Flow 1 egress (mean 77.53 Mbit/s)
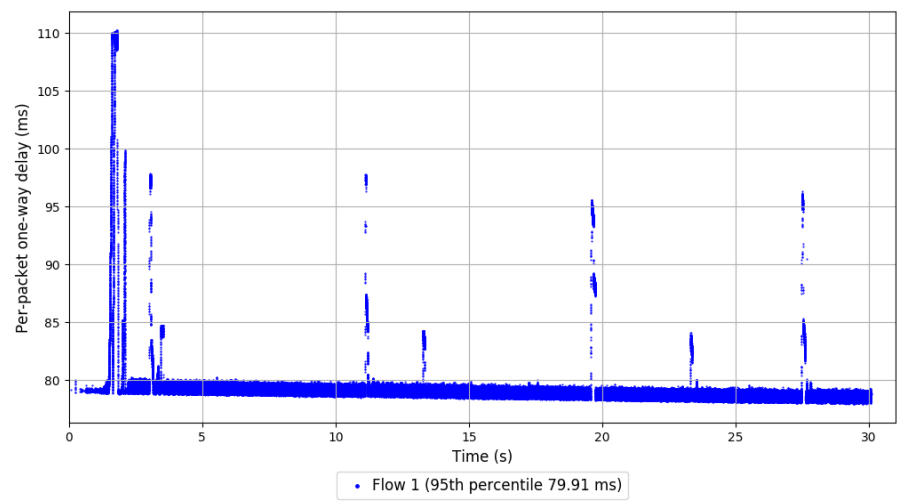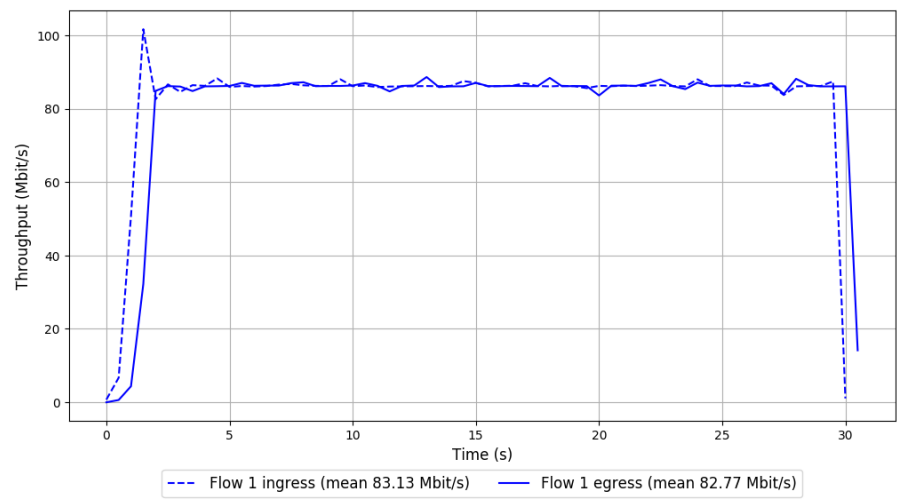

Flow 1 (95th percentile 85.58 ms)

```
Run 2: Statistics of TCP Vegas

Start at: 2018-11-15 02:23:13
End at: 2018-11-15 02:23:43
Local clock offset: -32.927 ms
Remote clock offset: 1.658 ms


# Below is generated by plot.py at 2018-11-15 03:50:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 82.77 Mbit/s
95th percentile per-packet one-way delay: 79.910 ms
Loss rate: 0.43%
-- Flow 1:
Average throughput: 82.77 Mbit/s
95th percentile per-packet one-way delay: 79.910 ms
Loss rate: 0.43%
```

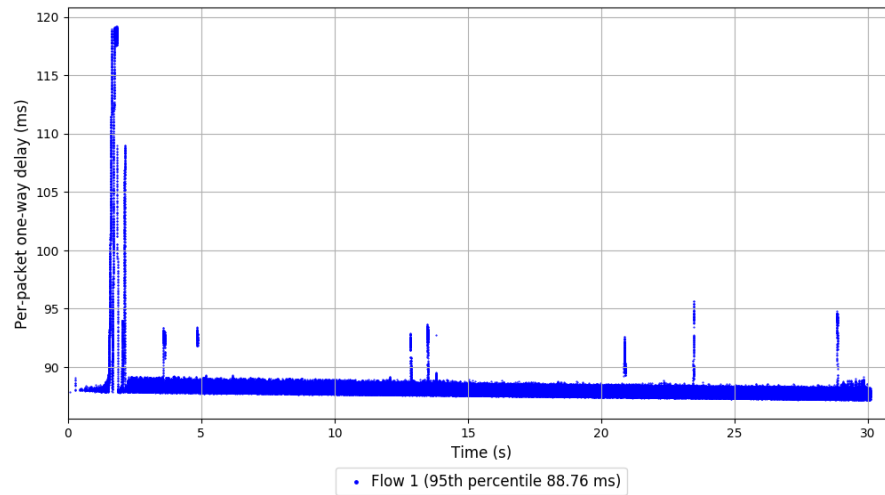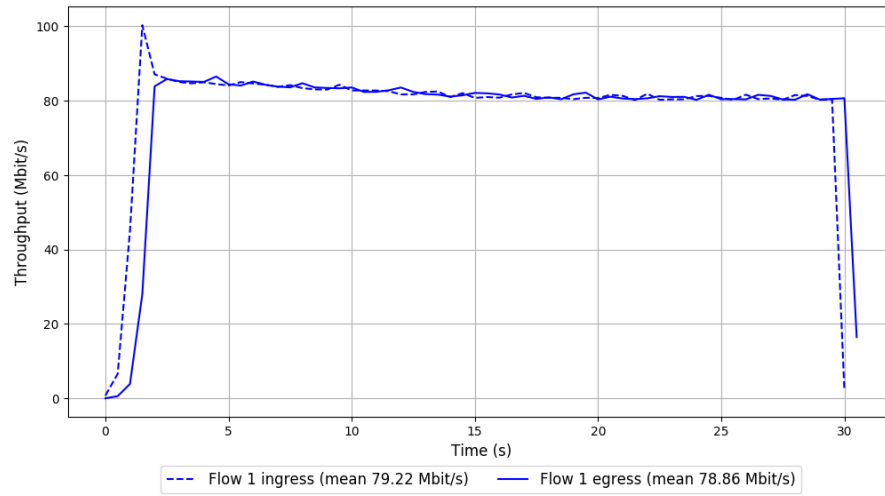Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2018-11-15 02:44:19
End at: 2018-11-15 02:44:49
Local clock offset: -41.577 ms
Remote clock offset: 8.683 ms


# Below is generated by plot.py at 2018-11-15 03:50:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 78.86 Mbit/s
95th percentile per-packet one-way delay: 88.757 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 78.86 Mbit/s
95th percentile per-packet one-way delay: 88.757 ms
Loss rate: 0.46%
```

Run 3: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 79.22 Mbit/s)   Flow 1 egress (mean 78.86 Mbit/s)
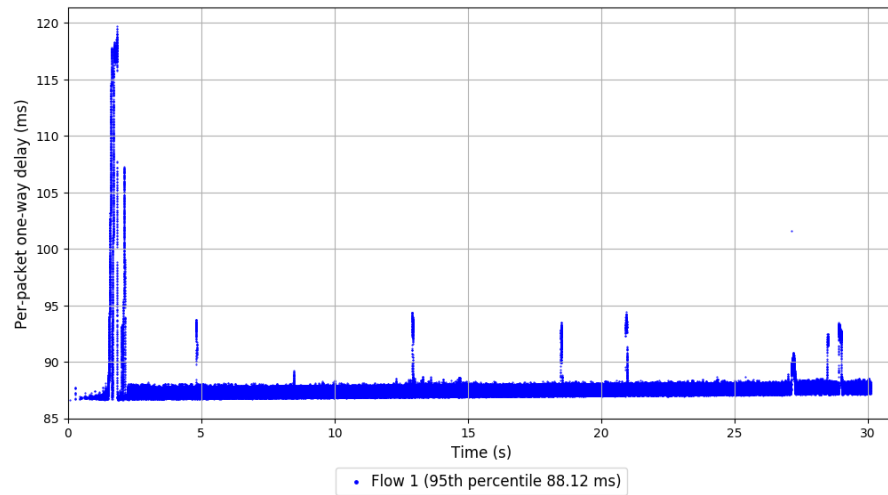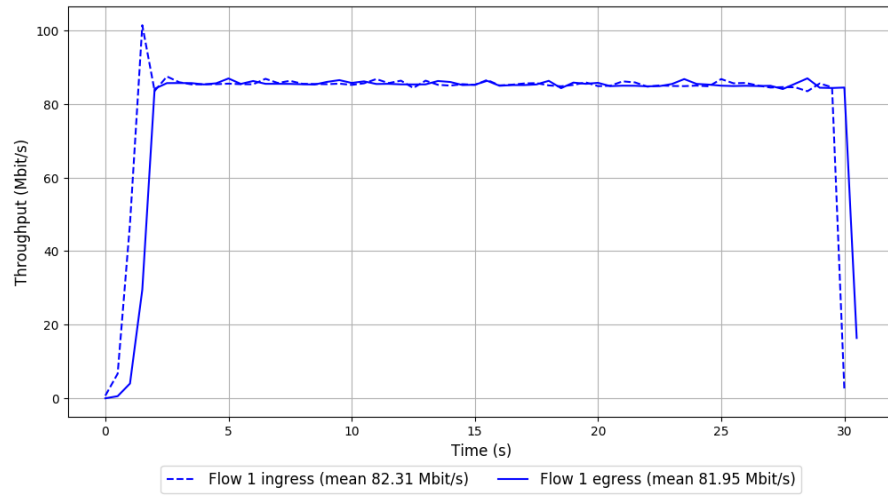

Flow 1 (95th percentile 88.76 ms)

```
Run 4: Statistics of TCP Vegas

Start at: 2018-11-15 03:05:25
End at: 2018-11-15 03:05:55
Local clock offset: -36.783 ms
Remote clock offset: 8.312 ms


# Below is generated by plot.py at 2018-11-15 03:50:18
# Datalink statistics
-- Total of 1 flow:
Average throughput: 81.95 Mbit/s
95th percentile per-packet one-way delay: 88.122 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 81.95 Mbit/s
95th percentile per-packet one-way delay: 88.122 ms
Loss rate: 0.44%
```

Run 4: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 82.31 Mbit/s) — — — — Flow 1 egress (mean 81.95 Mbit/s)
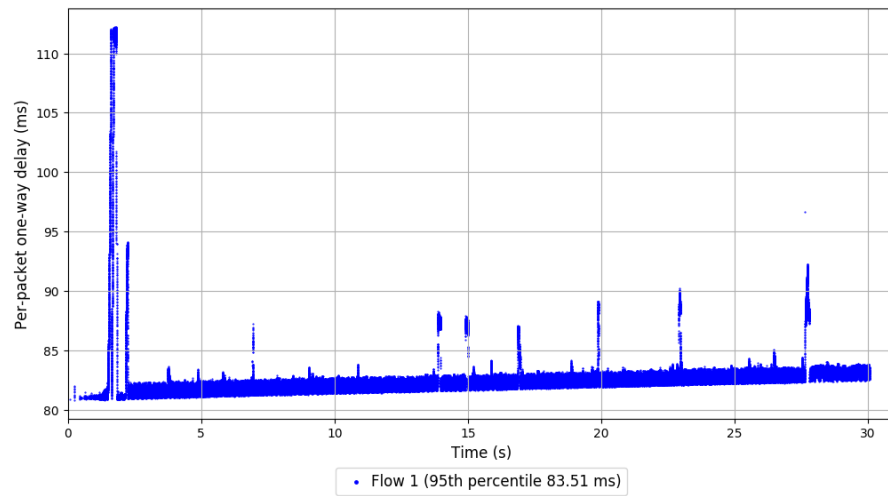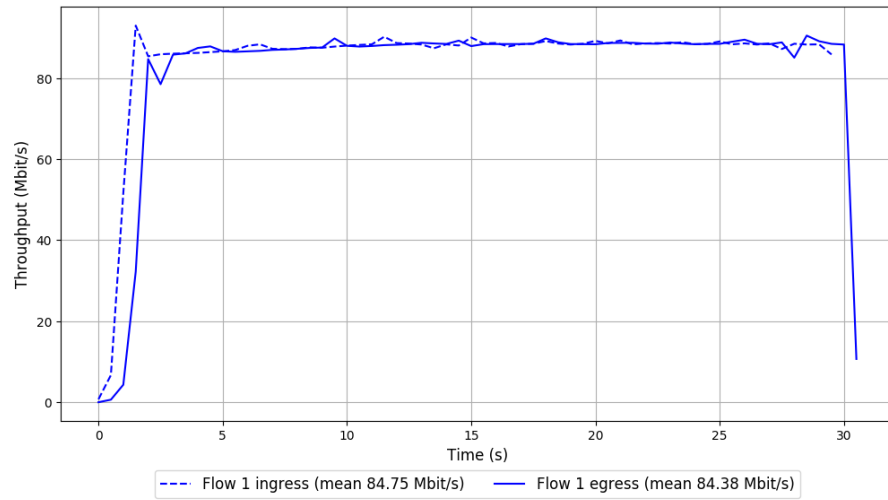

Flow 1 (95th percentile 88.12 ms)

```
Run 5: Statistics of TCP Vegas

Start at: 2018-11-15 03:26:29
End at: 2018-11-15 03:26:59
Local clock offset: -42.142 ms
Remote clock offset: 5.546 ms


# Below is generated by plot.py at 2018-11-15 03:50:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 84.38 Mbit/s
95th percentile per-packet one-way delay: 83.512 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 84.38 Mbit/s
95th percentile per-packet one-way delay: 83.512 ms
Loss rate: 0.42%
```

Run 5: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 84.75 Mbit/s) --- Flow 1 egress (mean 84.38 Mbit/s)
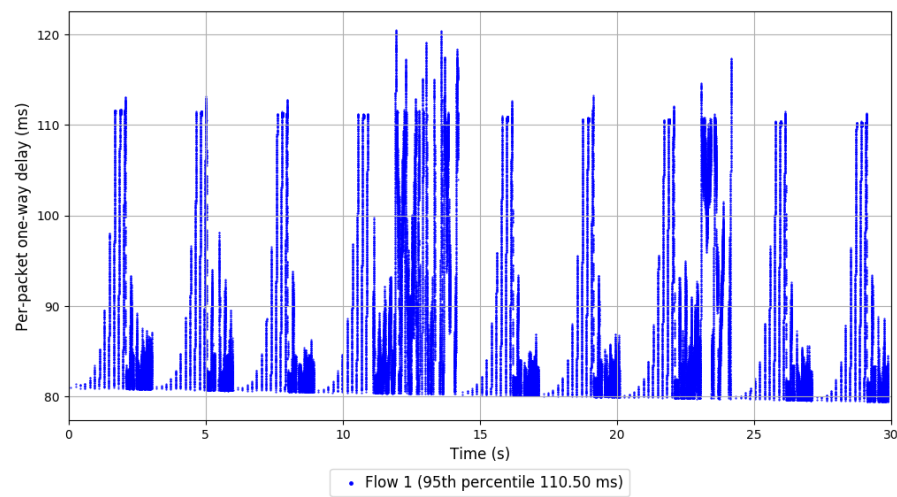

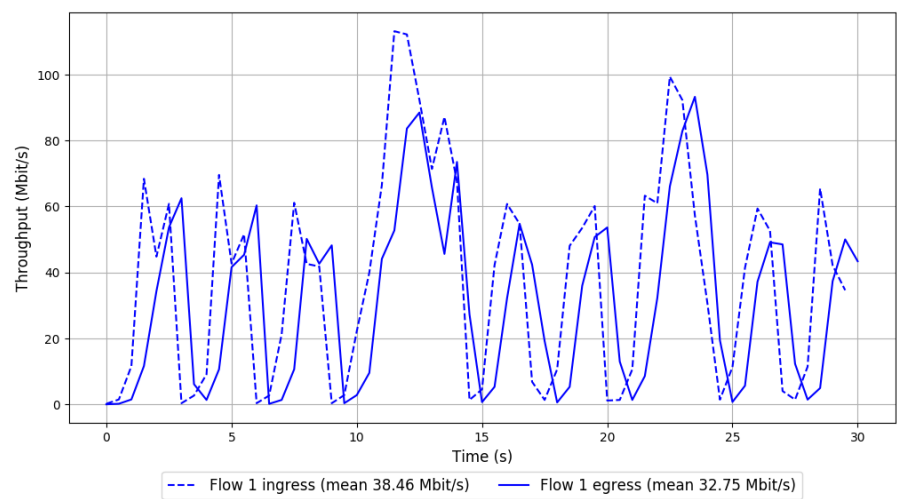· Flow 1 (95th percentile 83.51 ms)

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```
Run 1: Statistics of Verus

Start at: 2018-11-15 02:11:37
End at: 2018-11-15 02:12:07
Local clock offset: -29.366 ms
Remote clock offset: 1.993 ms


# Below is generated by plot.py at 2018-11-15 03:50:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 32.75 Mbit/s
95th percentile per-packet one-way delay: 110.504 ms
Loss rate: 14.86%
-- Flow 1:
Average throughput: 32.75 Mbit/s
95th percentile per-packet one-way delay: 110.504 ms
Loss rate: 14.86%
```
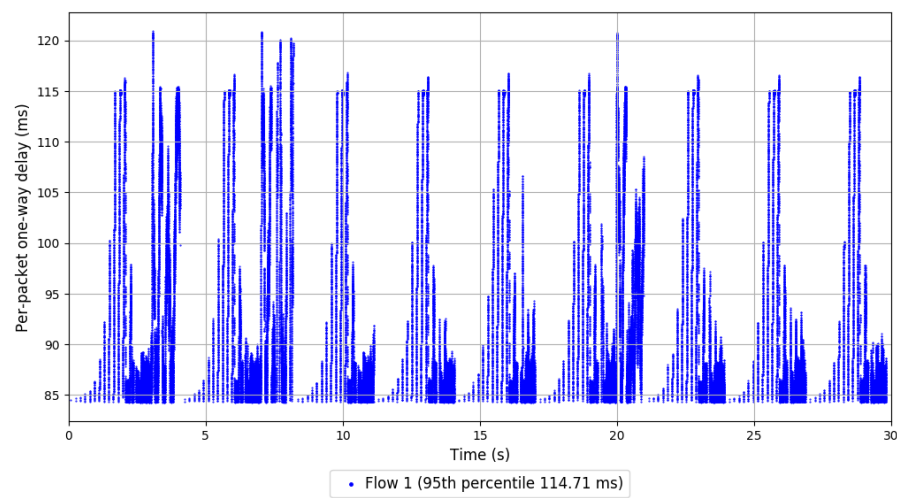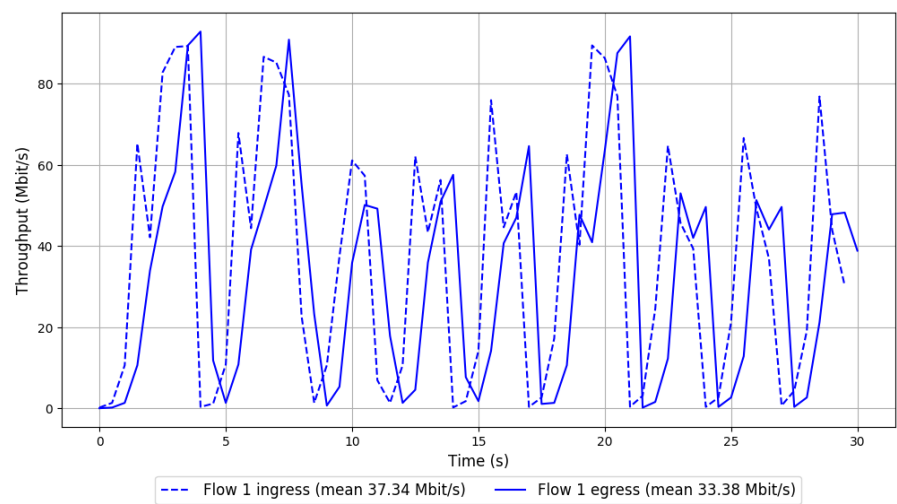
Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2018-11-15 02:32:41
End at: 2018-11-15 02:33:11
Local clock offset: -32.455 ms
Remote clock offset: 6.91 ms


# Below is generated by plot.py at 2018-11-15 03:50:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 33.38 Mbit/s
95th percentile per-packet one-way delay: 114.714 ms
Loss rate: 10.60%
-- Flow 1:
Average throughput: 33.38 Mbit/s
95th percentile per-packet one-way delay: 114.714 ms
Loss rate: 10.60%
```

Run 2: Report of Verus — Data Link

Flow 1 ingress (mean 37.34 Mbit/s) --- Flow 1 egress (mean 33.38 Mbit/s)
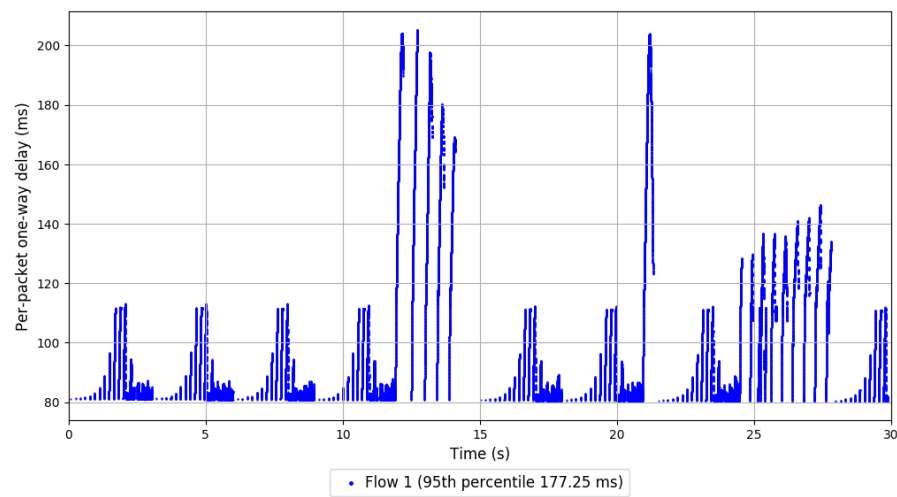

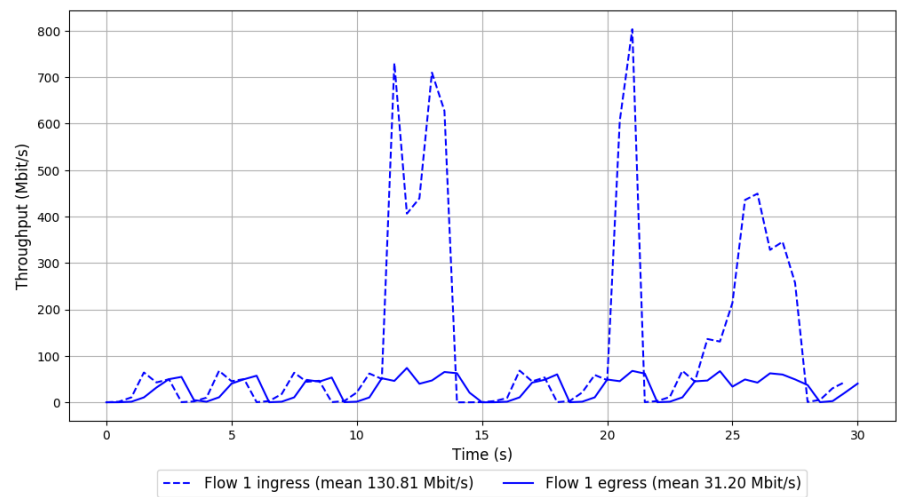
• Flow 1 (95th percentile 114.71 ms)

```
Run 3: Statistics of Verus

Start at: 2018-11-15 02:53:48
End at: 2018-11-15 02:54:18
Local clock offset: -55.841 ms
Remote clock offset: 4.169 ms


# Below is generated by plot.py at 2018-11-15 03:50:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 31.20 Mbit/s
95th percentile per-packet one-way delay: 177.248 ms
Loss rate: 76.15%
-- Flow 1:
Average throughput: 31.20 Mbit/s
95th percentile per-packet one-way delay: 177.248 ms
Loss rate: 76.15%
```
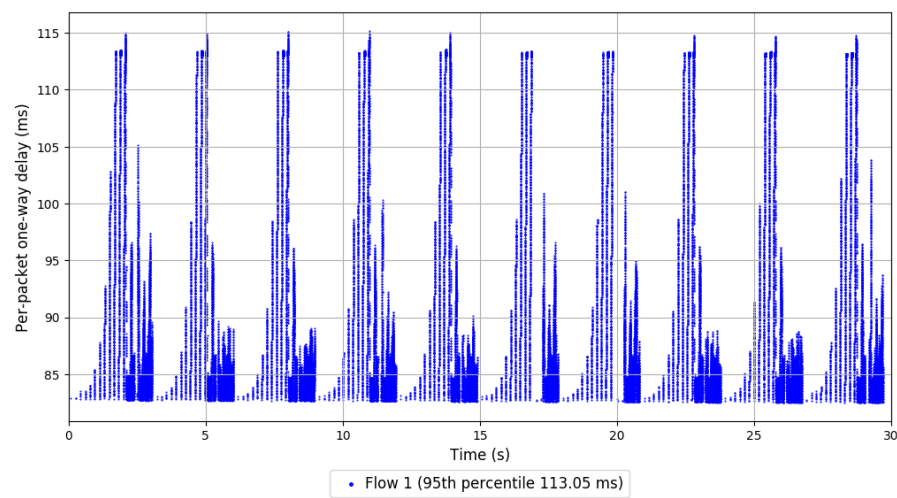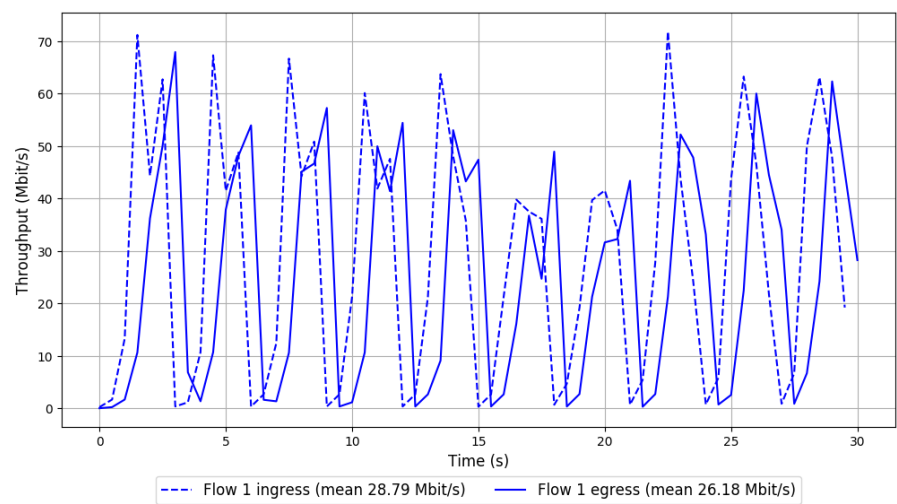
Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2018-11-15 03:14:53
End at: 2018-11-15 03:15:23
Local clock offset: -33.463 ms
Remote clock offset: 5.03 ms


# Below is generated by plot.py at 2018-11-15 03:50:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 26.18 Mbit/s
95th percentile per-packet one-way delay: 113.052 ms
Loss rate: 9.06%
-- Flow 1:
Average throughput: 26.18 Mbit/s
95th percentile per-packet one-way delay: 113.052 ms
Loss rate: 9.06%
```
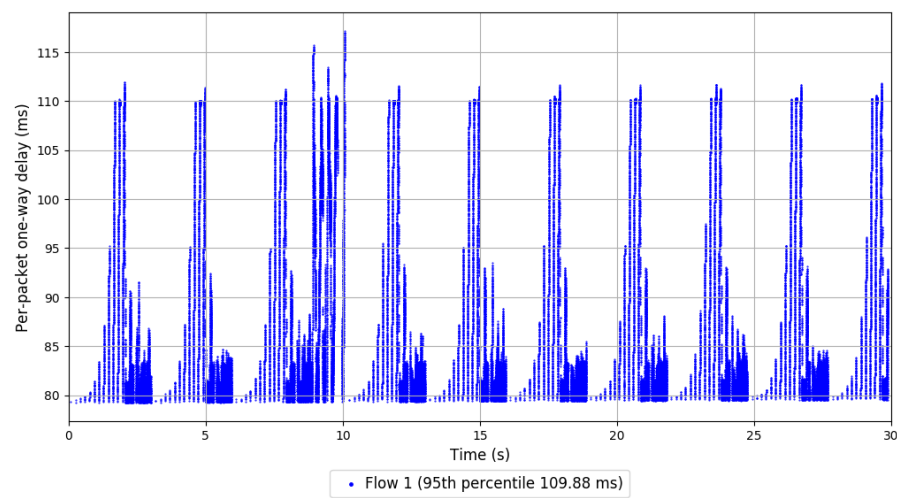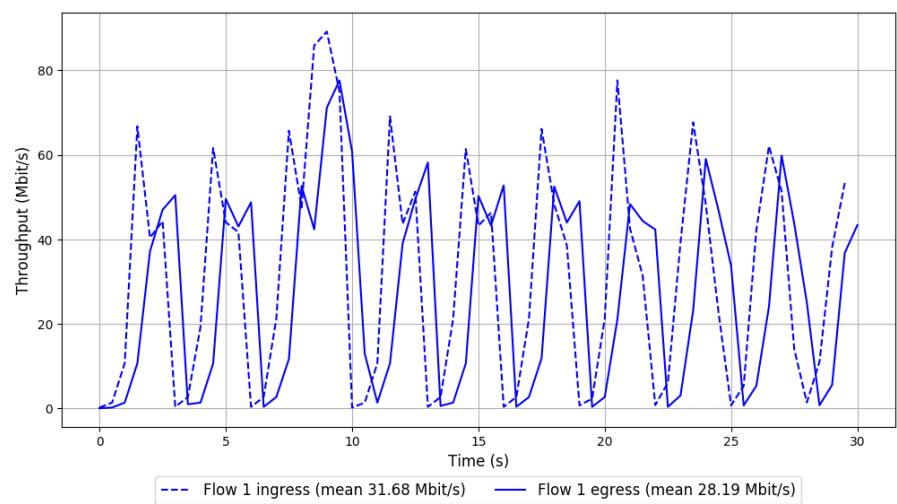
Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2018-11-15 03:35:57
End at: 2018-11-15 03:36:27
Local clock offset: -24.134 ms
Remote clock offset: 4.489 ms


# Below is generated by plot.py at 2018-11-15 03:50:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 28.19 Mbit/s
95th percentile per-packet one-way delay: 109.875 ms
Loss rate: 11.02%
-- Flow 1:
Average throughput: 28.19 Mbit/s
95th percentile per-packet one-way delay: 109.875 ms
Loss rate: 11.02%
```

Run 5: Report of Verus — Data Link

Flow 1 ingress (mean 31.68 Mbit/s) --- Flow 1 egress (mean 28.19 Mbit/s)
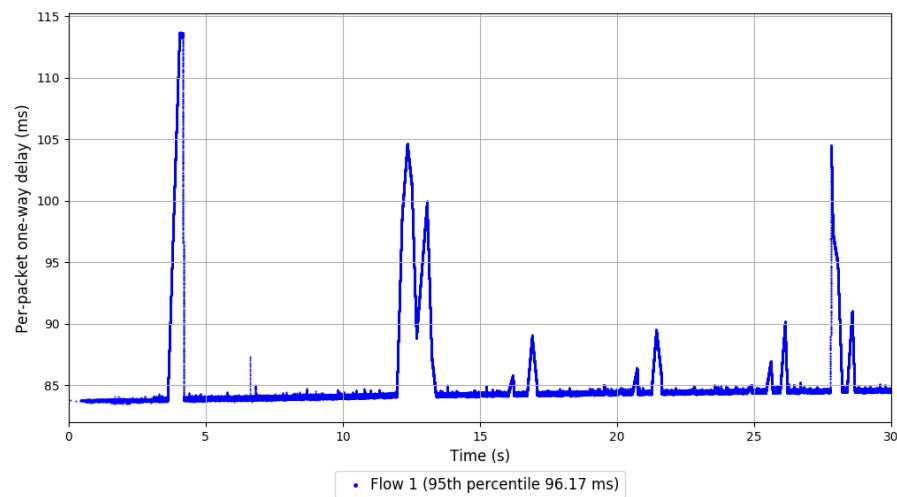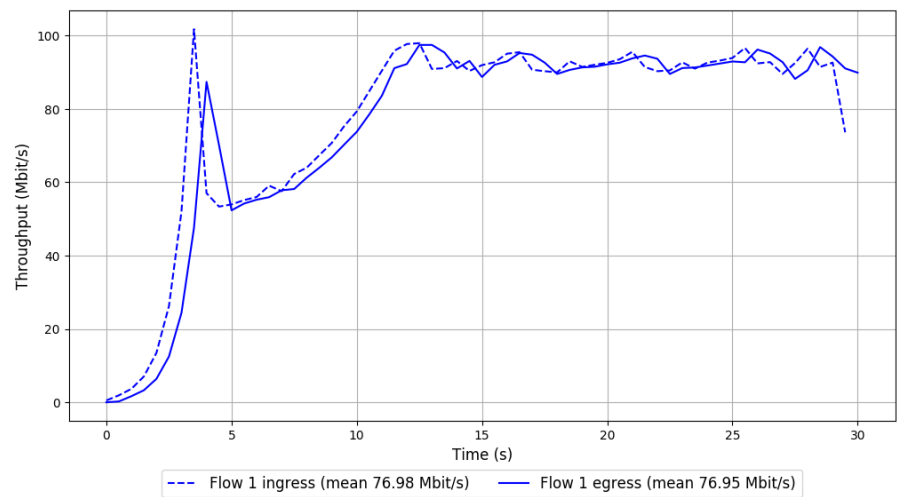

Flow 1 (95th percentile 109.88 ms)

```
Run 1: Statistics of PCC-Vivace

Start at: 2018-11-15 02:04:29
End at: 2018-11-15 02:04:59
Local clock offset: -20.448 ms
Remote clock offset: 1.567 ms


# Below is generated by plot.py at 2018-11-15 03:50:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 76.95 Mbit/s
95th percentile per-packet one-way delay: 96.173 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 76.95 Mbit/s
95th percentile per-packet one-way delay: 96.173 ms
Loss rate: 0.04%
```

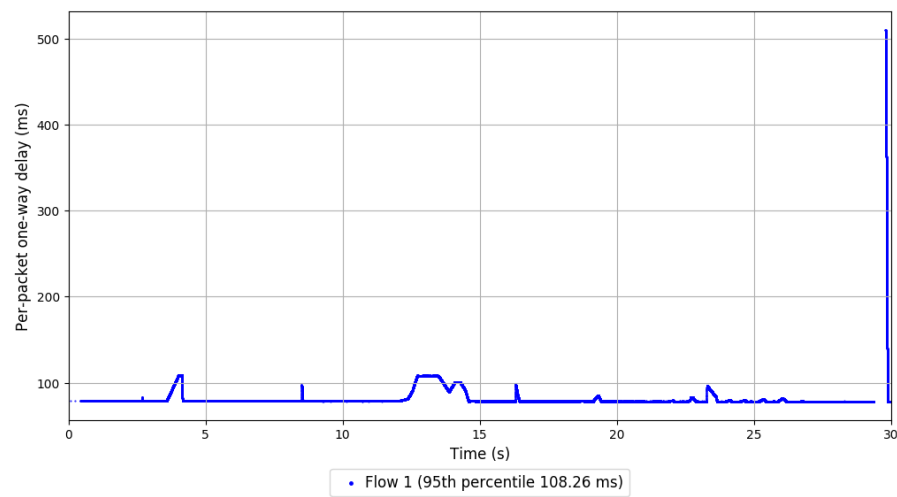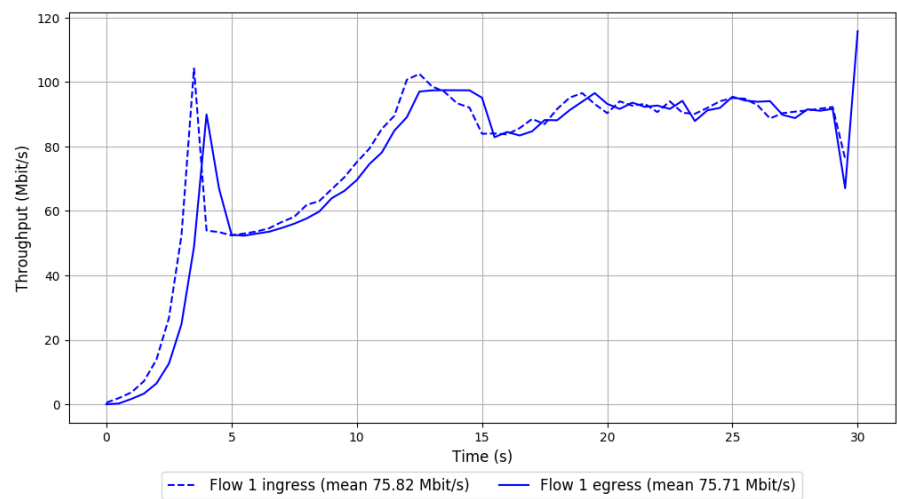# Run 1: Report of PCC-Vivace — Data Link

```
Run 2: Statistics of PCC-Vivace

Start at: 2018-11-15 02:25:34
End at: 2018-11-15 02:26:04
Local clock offset: -36.712 ms
Remote clock offset: 2.779 ms


# Below is generated by plot.py at 2018-11-15 03:50:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 75.71 Mbit/s
95th percentile per-packet one-way delay: 108.261 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 75.71 Mbit/s
95th percentile per-packet one-way delay: 108.261 ms
Loss rate: 0.15%
```

Run 2: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 75.82 Mbit/s) — — —   Flow 1 egress (mean 75.71 Mbit/s) ———

• Flow 1 (95th percentile 108.26 ms)

```
Run 3: Statistics of PCC-Vivace

Start at: 2018-11-15 02:46:39
End at: 2018-11-15 02:47:09
Local clock offset: -44.94 ms
Remote clock offset: 3.78 ms


# Below is generated by plot.py at 2018-11-15 03:50:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 76.87 Mbit/s
95th percentile per-packet one-way delay: 103.781 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 76.87 Mbit/s
95th percentile per-packet one-way delay: 103.781 ms
Loss rate: 0.14%
```
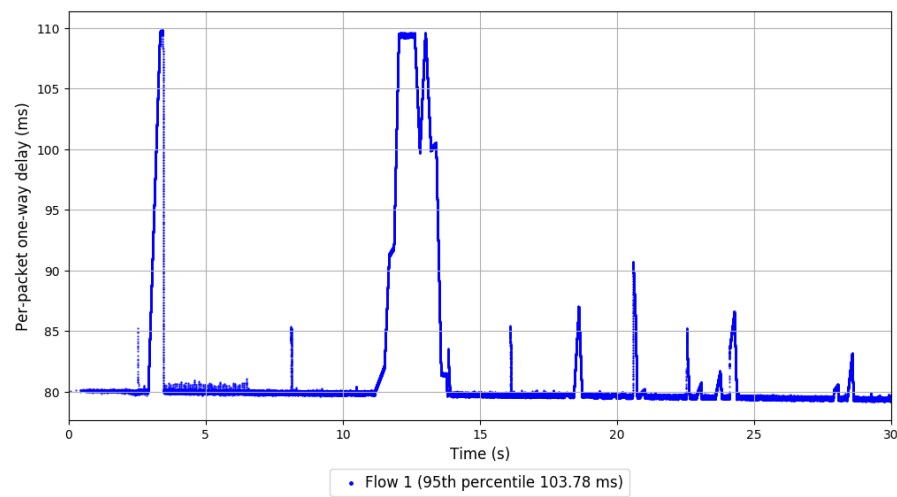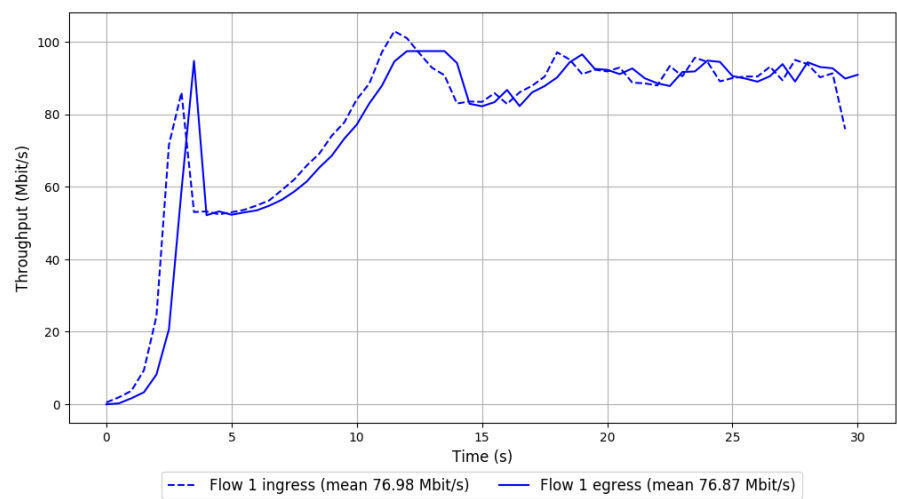
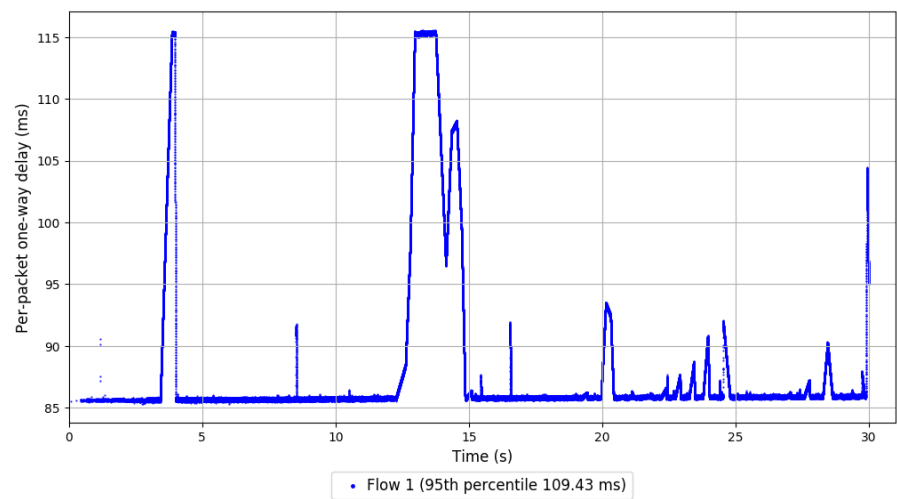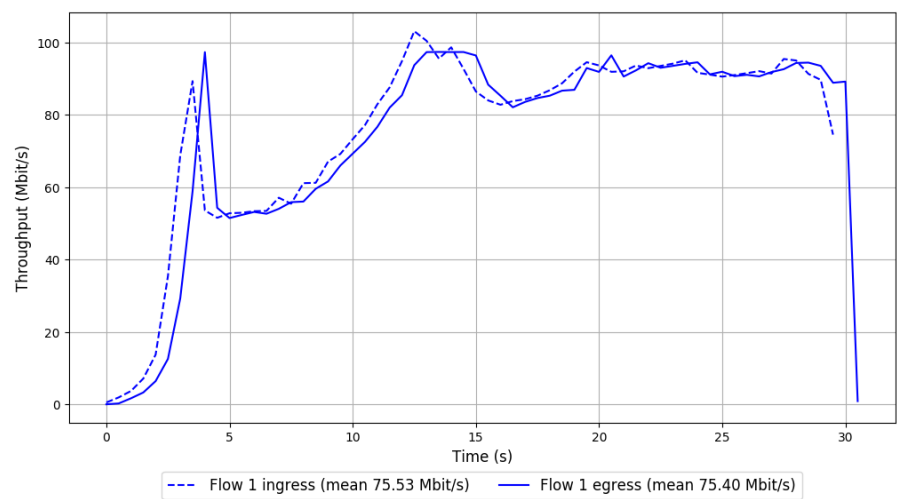Run 3: Report of PCC-Vivace — Data Link

```
Run 4: Statistics of PCC-Vivace

Start at: 2018-11-15 03:07:45
End at: 2018-11-15 03:08:15
Local clock offset: -34.805 ms
Remote clock offset: 7.391 ms


# Below is generated by plot.py at 2018-11-15 03:50:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 75.40 Mbit/s
95th percentile per-packet one-way delay: 109.429 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 75.40 Mbit/s
95th percentile per-packet one-way delay: 109.429 ms
Loss rate: 0.15%
```

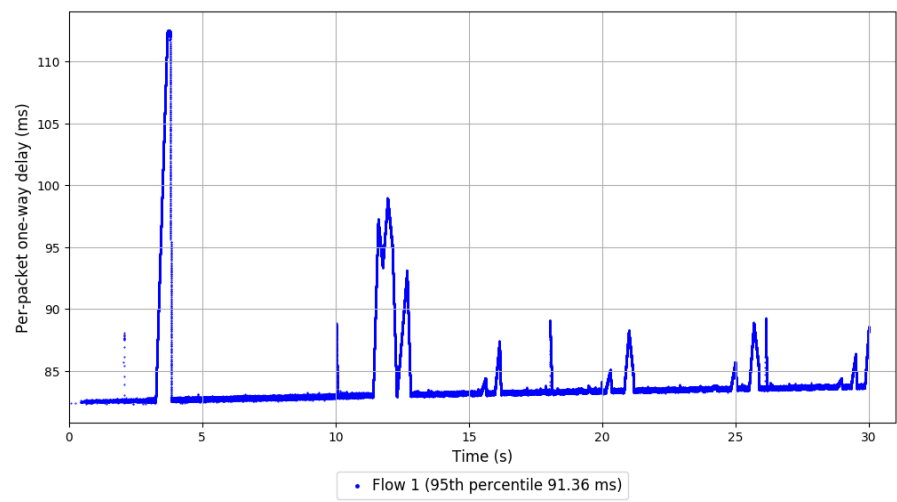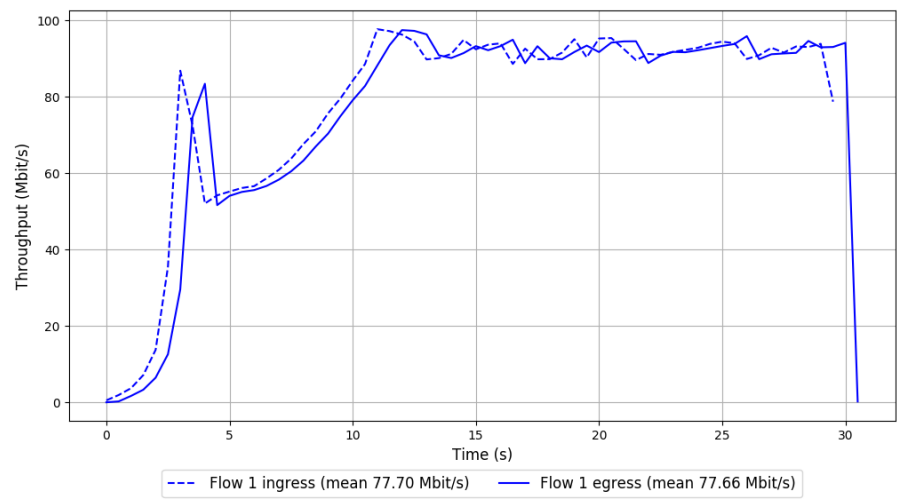Run 4: Report of PCC-Vivace — Data Link

```
Run 5: Statistics of PCC-Vivace

Start at: 2018-11-15 03:28:50
End at: 2018-11-15 03:29:20
Local clock offset: -36.087 ms
Remote clock offset: 4.49 ms


# Below is generated by plot.py at 2018-11-15 03:50:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 77.66 Mbit/s
95th percentile per-packet one-way delay: 91.358 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 77.66 Mbit/s
95th percentile per-packet one-way delay: 91.358 ms
Loss rate: 0.04%
```

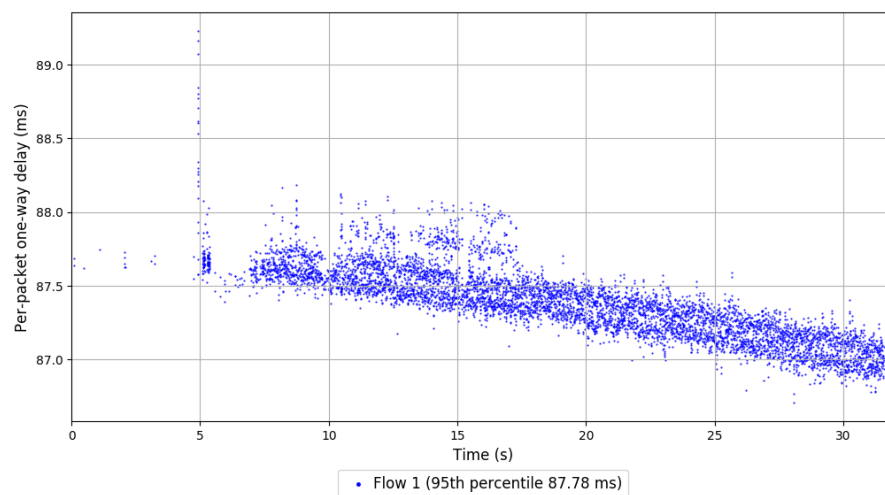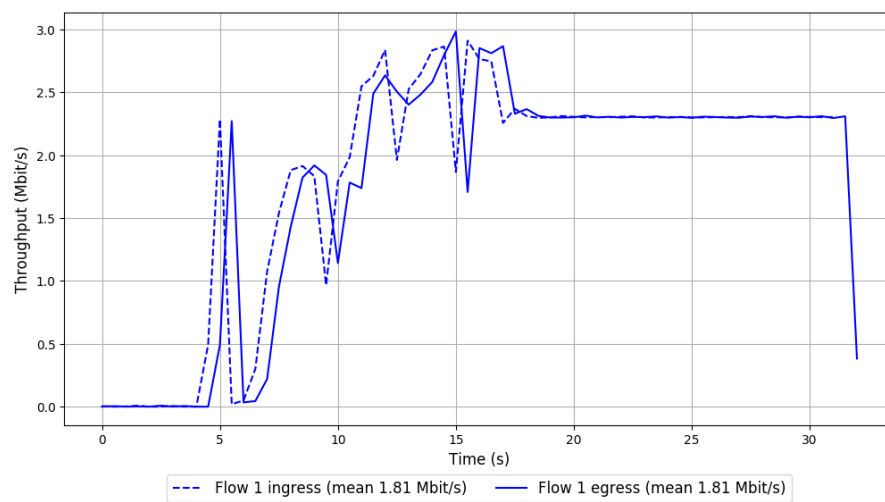## Run 5: Report of PCC-Vivace — Data Link

```
Run 1: Statistics of WebRTC media

Start at: 2018-11-15 02:06:54
End at: 2018-11-15 02:07:24
Local clock offset: -18.941 ms
Remote clock offset: 6.553 ms


# Below is generated by plot.py at 2018-11-15 03:50:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.81 Mbit/s
95th percentile per-packet one-way delay: 87.776 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.81 Mbit/s
95th percentile per-packet one-way delay: 87.776 ms
Loss rate: 0.00%
```

Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2018-11-15 02:27:58
End at: 2018-11-15 02:28:28
Local clock offset: -36.97 ms
Remote clock offset: 1.829 ms


# Below is generated by plot.py at 2018-11-15 03:50:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.73 Mbit/s
95th percentile per-packet one-way delay: 86.541 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.73 Mbit/s
95th percentile per-packet one-way delay: 86.541 ms
Loss rate: 0.00%
```
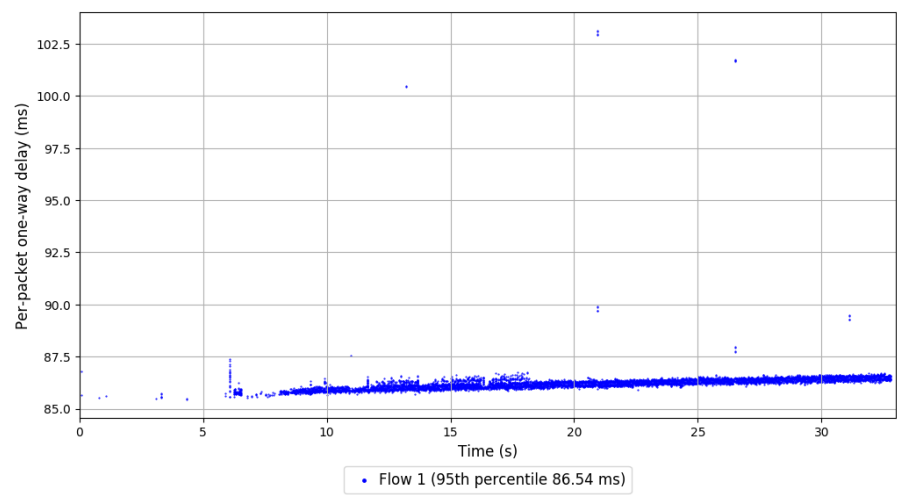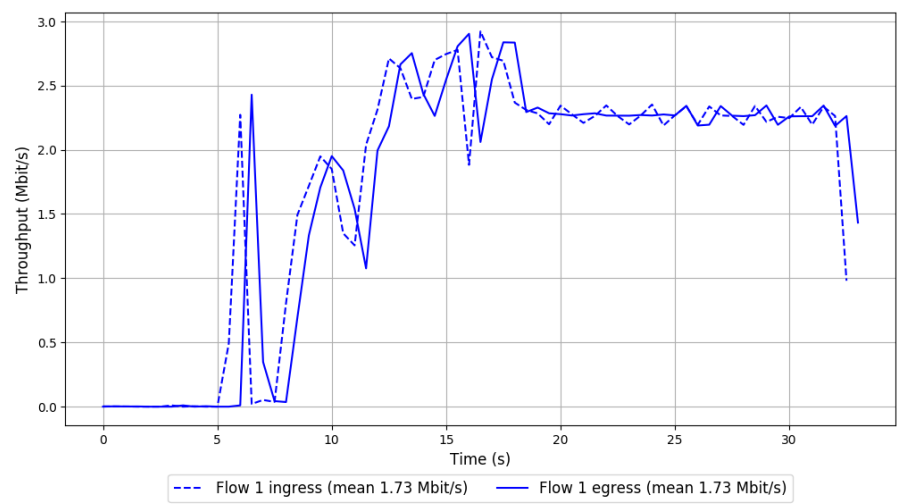
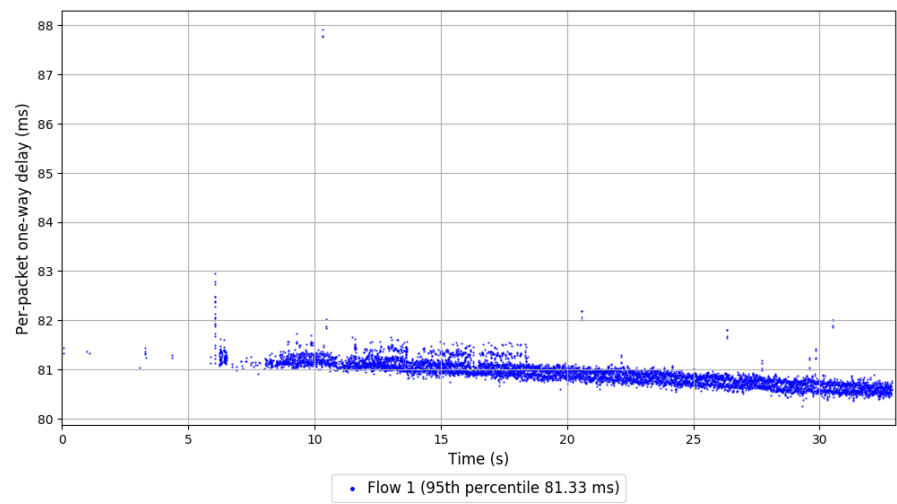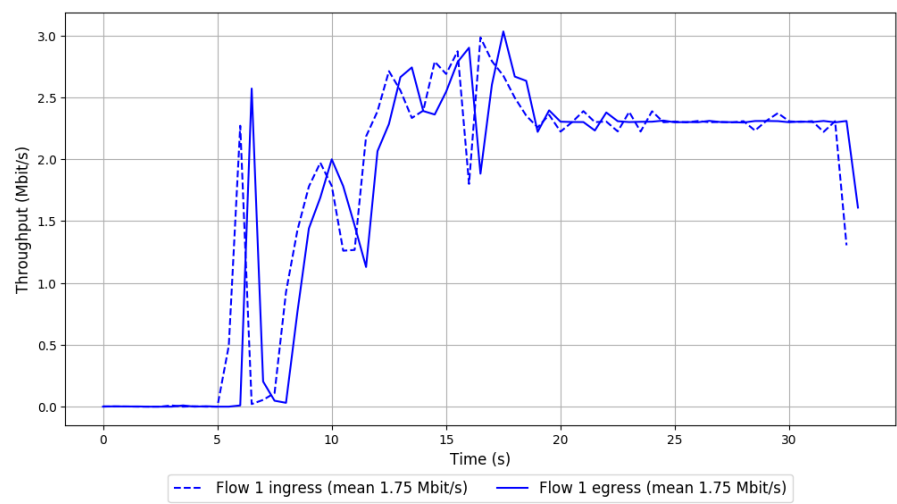Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-11-15 02:49:04
End at: 2018-11-15 02:49:34
Local clock offset: -48.057 ms
Remote clock offset: 3.934 ms


# Below is generated by plot.py at 2018-11-15 03:50:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.75 Mbit/s
95th percentile per-packet one-way delay: 81.329 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.75 Mbit/s
95th percentile per-packet one-way delay: 81.329 ms
Loss rate: 0.00%
```

Run 3: Report of WebRTC media — Data Link

Flow 1 ingress (mean 1.75 Mbit/s)   Flow 1 egress (mean 1.75 Mbit/s)
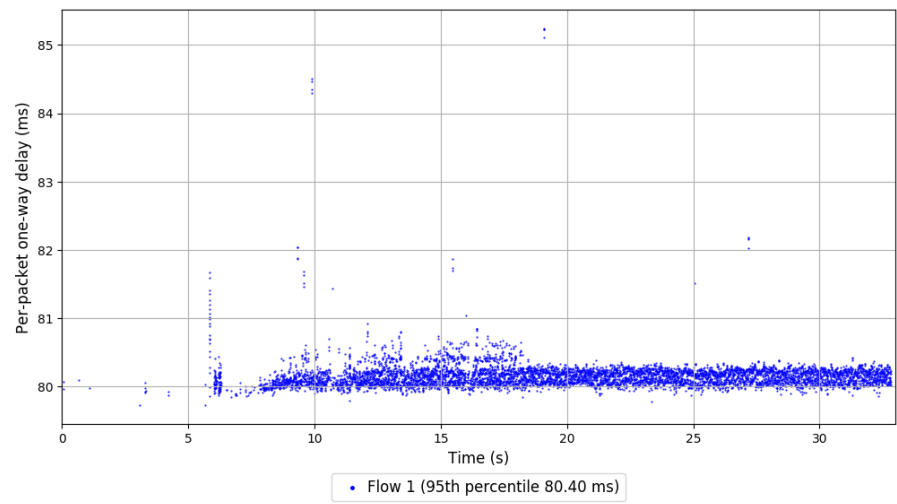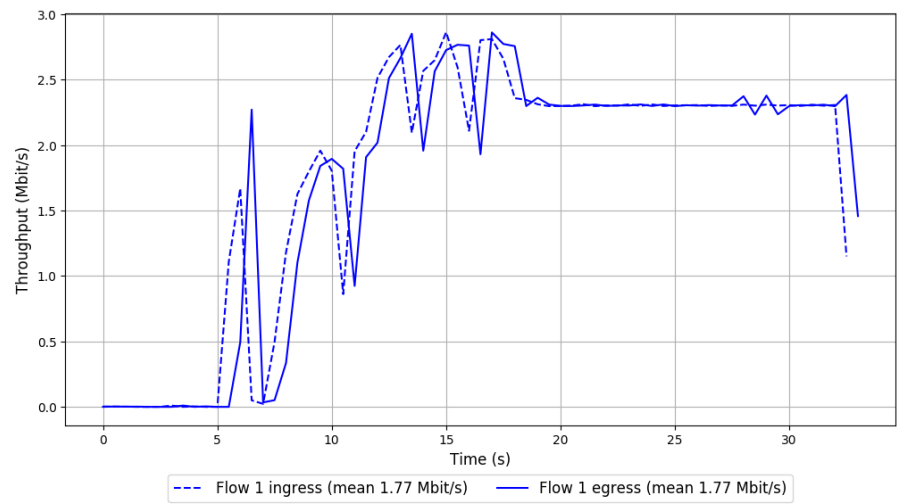

Flow 1 (95th percentile 81.33 ms)

```
Run 4: Statistics of WebRTC media

Start at: 2018-11-15 03:10:10
End at: 2018-11-15 03:10:40
Local clock offset: -33.718 ms
Remote clock offset: 3.745 ms


# Below is generated by plot.py at 2018-11-15 03:50:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.77 Mbit/s
95th percentile per-packet one-way delay: 80.399 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.77 Mbit/s
95th percentile per-packet one-way delay: 80.399 ms
Loss rate: 0.00%
```

Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2018-11-15 03:31:14
End at: 2018-11-15 03:31:44
Local clock offset: -30.349 ms
Remote clock offset: 9.48 ms


# Below is generated by plot.py at 2018-11-15 03:50:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.72 Mbit/s
95th percentile per-packet one-way delay: 86.055 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.72 Mbit/s
95th percentile per-packet one-way delay: 86.055 ms
Loss rate: 0.00%
```

Run 5: Report of WebRTC media — Data Link

Flow 1 ingress (mean 1.72 Mbit/s) ---- Flow 1 egress (mean 1.72 Mbit/s) ——

Flow 1 (95th percentile 86.06 ms)