Pantheon Report

Generated at 2018-12-10 23:53:53 (UTC).

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

Repeated the test of 19 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.
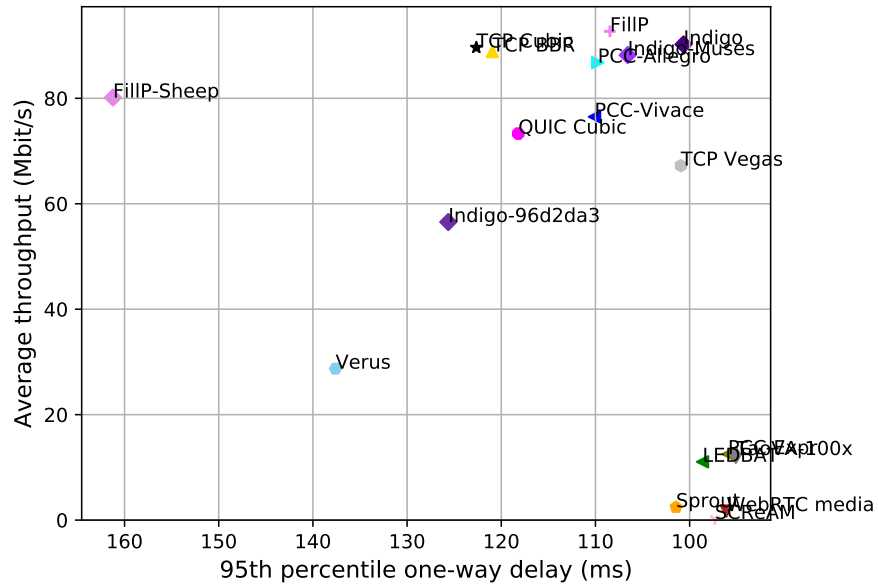
```
System info:
Linux 4.15.0-1029-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

Git summary:
branch: muses @ c6268d7c473682290bfe9901ef81a6b6a1e51d3c
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
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
```
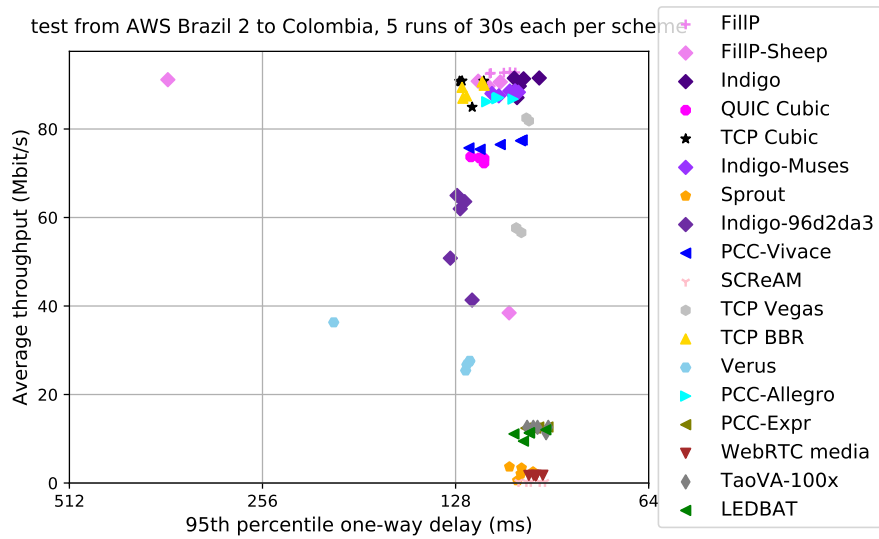
```
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

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

scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	5	88.88	120.95	3.74
Copa	0	N/A	N/A	N/A
TCP Cubic	5	89.63	122.65	0.47
FillP	5	92.71	108.46	1.09
FillP-Sheep	5	80.15	161.23	1.34
Indigo	5	90.23	100.65	1.08
Indigo-96d2da3	5	56.54	125.63	49.17
LEDBAT	5	11.05	98.64	0.00
Indigo-Muses	5	88.20	106.58	2.23
PCC-Allegro	5	86.77	109.76	1.51
PCC-Expr	5	12.50	95.94	48.58
QUIC Cubic	5	73.31	118.19	0.31
SCReAM	5	0.22	97.32	0.00
Sprout	5	2.44	101.45	0.00
TaoVA-100x	5	12.34	95.10	24.70
TCP Vegas	5	67.23	100.94	0.88
Verus	5	28.72	137.60	23.86
PCC-Vivace	5	76.50	110.10	0.11
WebRTC media	5	1.70	96.10	0.00

```
Run 1: Statistics of TCP BBR

Start at: 2018-12-10 22:04:49
End at: 2018-12-10 22:05:19
Local clock offset: 8.787 ms
Remote clock offset: -168.468 ms

# Below is generated by plot.py at 2018-12-10 23:47:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 86.96 Mbit/s
95th percentile per-packet one-way delay: 124.701 ms
Loss rate: 4.43%
-- Flow 1:
Average throughput: 86.96 Mbit/s
95th percentile per-packet one-way delay: 124.701 ms
Loss rate: 4.43%
```
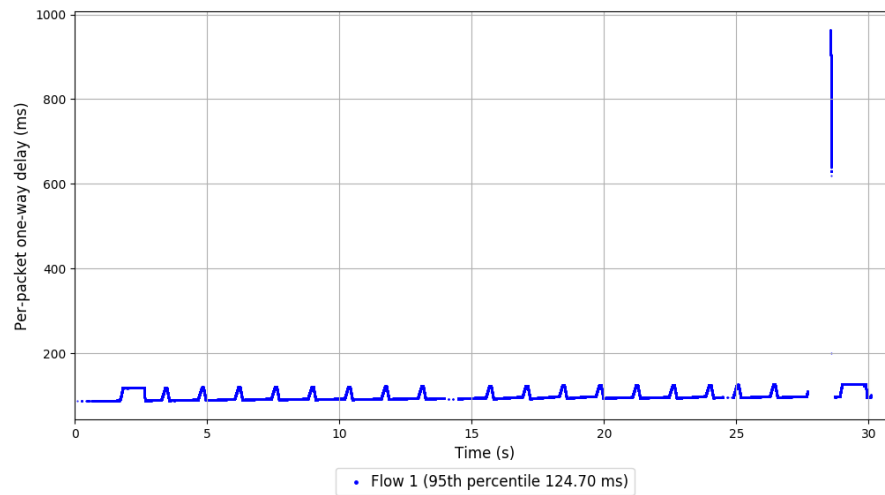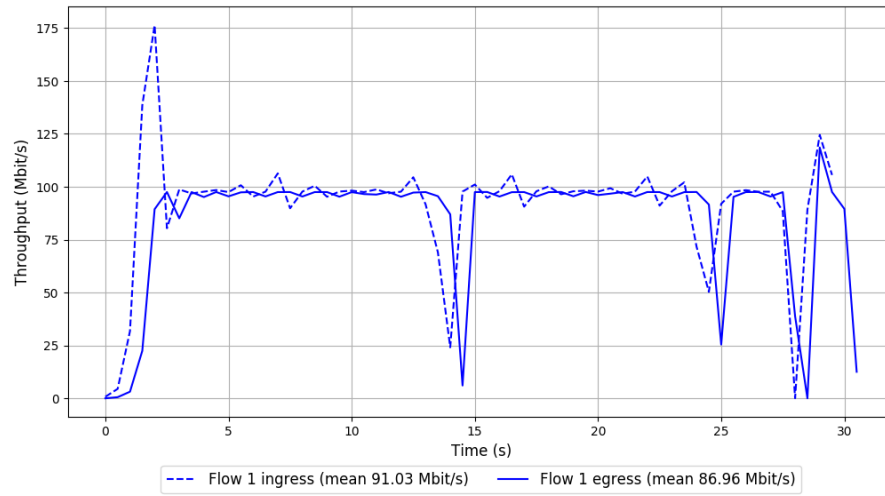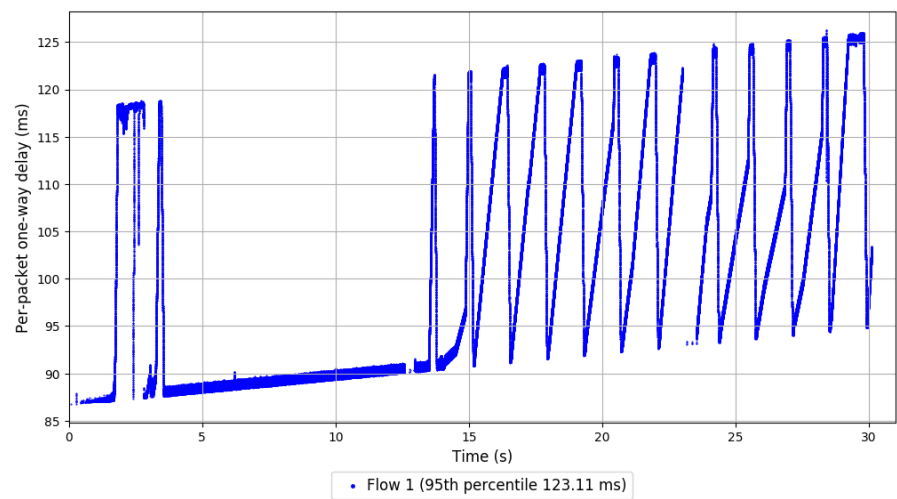
Run 1: Report of TCP BBR — Data Link

```
Run 2: Statistics of TCP BBR

Start at: 2018-12-10 22:27:05
End at: 2018-12-10 22:27:35
Local clock offset: 14.099 ms
Remote clock offset: -573.727 ms


# Below is generated by plot.py at 2018-12-10 23:47:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 87.48 Mbit/s
95th percentile per-packet one-way delay: 123.109 ms
Loss rate: 4.37%
-- Flow 1:
Average throughput: 87.48 Mbit/s
95th percentile per-packet one-way delay: 123.109 ms
Loss rate: 4.37%
```
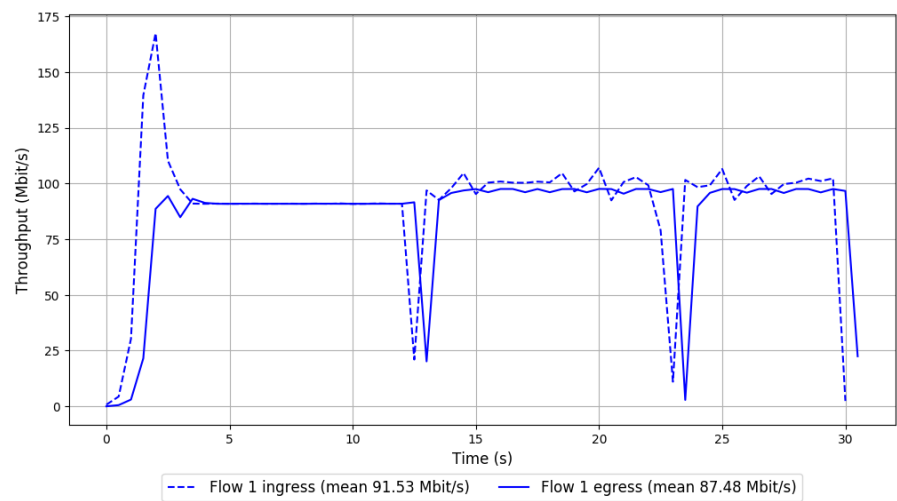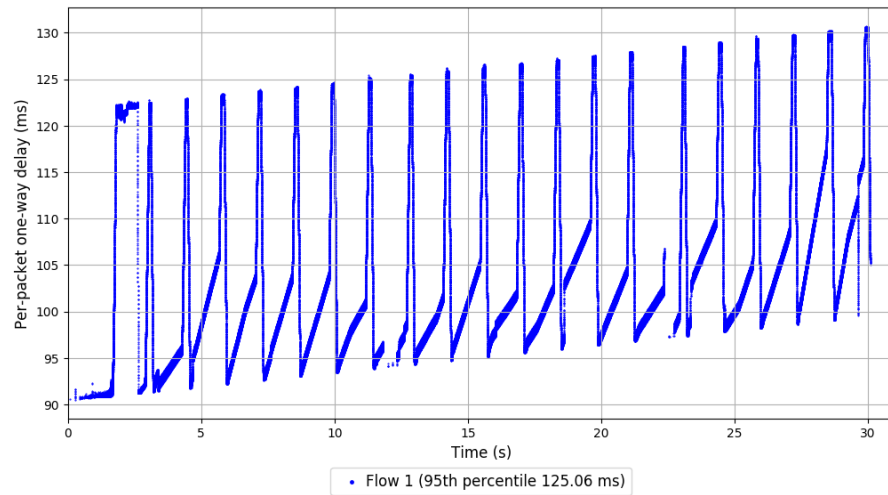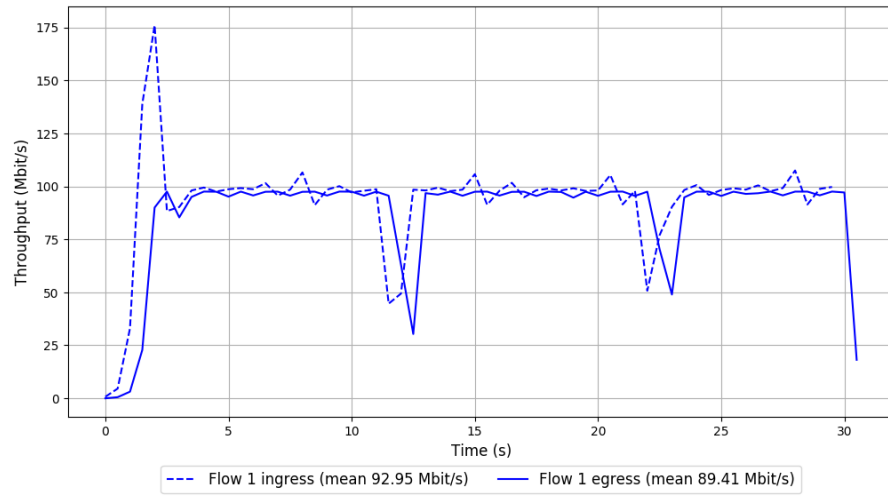
Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2018-12-10 22:49:21
End at: 2018-12-10 22:49:51
Local clock offset: -4.044 ms
Remote clock offset: -977.141 ms


# Below is generated by plot.py at 2018-12-10 23:47:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 89.41 Mbit/s
95th percentile per-packet one-way delay: 125.060 ms
Loss rate: 3.75%
-- Flow 1:
Average throughput: 89.41 Mbit/s
95th percentile per-packet one-way delay: 125.060 ms
Loss rate: 3.75%
```
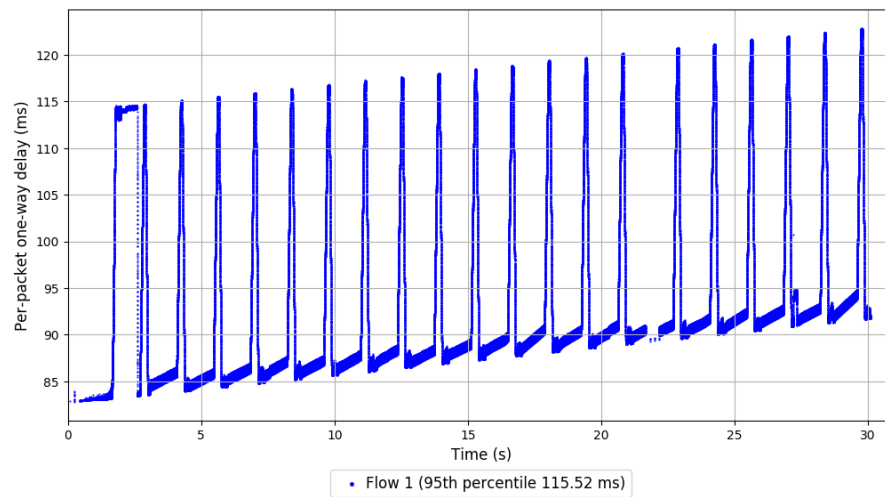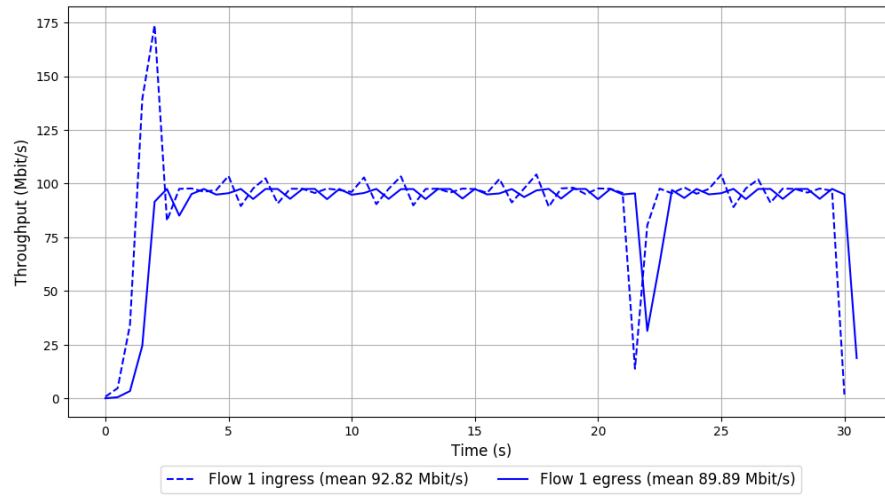
Run 3: Report of TCP BBR — Data Link

Flow 1 ingress (mean 92.95 Mbit/s) ----- Flow 1 egress (mean 89.41 Mbit/s)

• Flow 1 (95th percentile 125.06 ms)

```
Run 4: Statistics of TCP BBR

Start at: 2018-12-10 23:11:35
End at: 2018-12-10 23:12:05
Local clock offset: -7.585 ms
Remote clock offset: -1390.648 ms


# Below is generated by plot.py at 2018-12-10 23:47:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 89.89 Mbit/s
95th percentile per-packet one-way delay: 115.520 ms
Loss rate: 3.12%
-- Flow 1:
Average throughput: 89.89 Mbit/s
95th percentile per-packet one-way delay: 115.520 ms
Loss rate: 3.12%
```
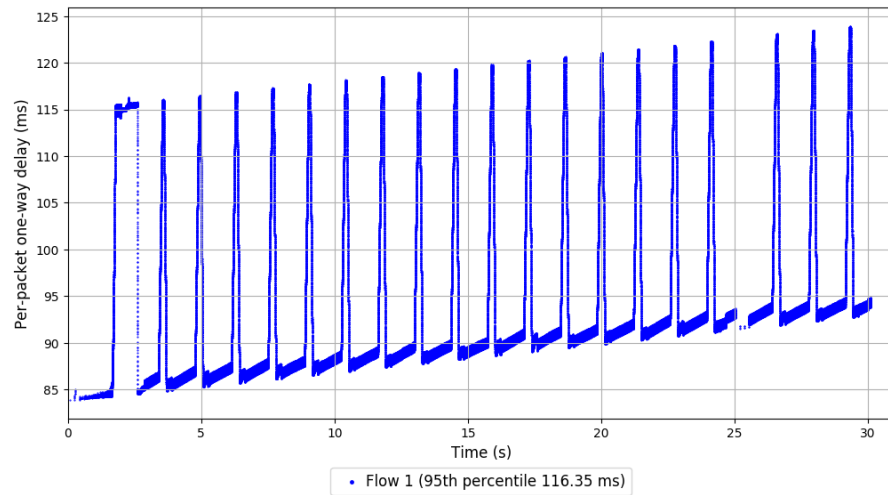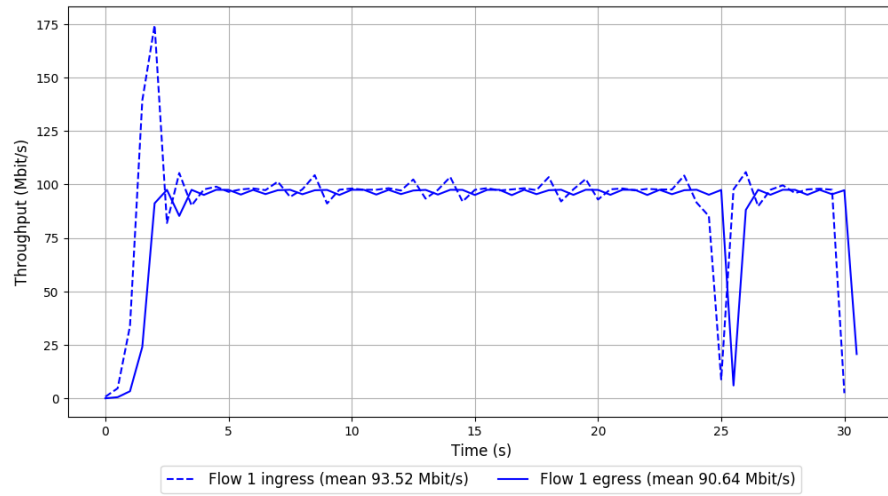
Run 4: Report of TCP BBR — Data Link

Flow 1 ingress (mean 92.82 Mbit/s) --- Flow 1 egress (mean 89.89 Mbit/s)

Flow 1 (95th percentile 115.52 ms)

```
Run 5: Statistics of TCP BBR

Start at: 2018-12-10 23:33:48
End at: 2018-12-10 23:34:18
Local clock offset: -7.506 ms
Remote clock offset: -1795.558 ms

# Below is generated by plot.py at 2018-12-10 23:47:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 90.64 Mbit/s
95th percentile per-packet one-way delay: 116.347 ms
Loss rate: 3.04%
-- Flow 1:
Average throughput: 90.64 Mbit/s
95th percentile per-packet one-way delay: 116.347 ms
Loss rate: 3.04%
```

Run 5: Report of TCP BBR — Data Link

Flow 1 ingress (mean 93.52 Mbit/s)   Flow 1 egress (mean 90.64 Mbit/s)

• Flow 1 (95th percentile 116.35 ms)

```
Run 1: Statistics of Copa

Start at: 2018-12-10 21:55:29
End at: 2018-12-10 21:55:59
Local clock offset: 6.852 ms
Remote clock offset: -24.067 ms
```
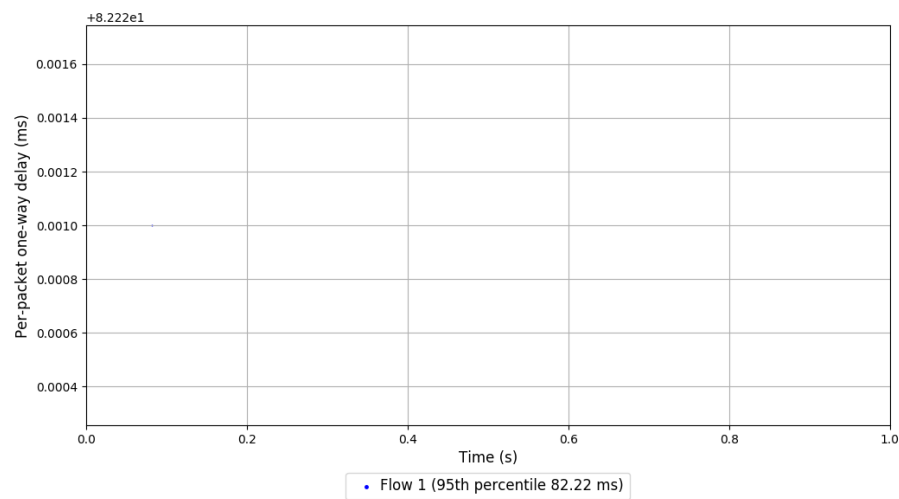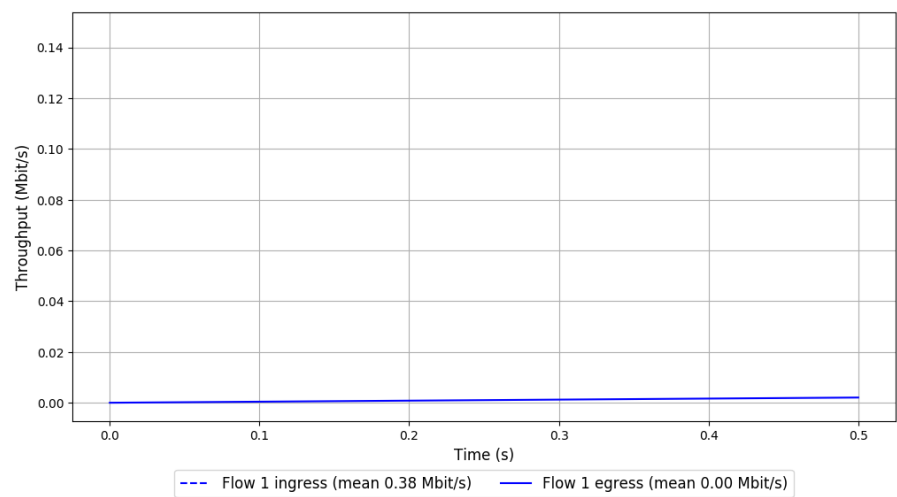
Run 1: Report of Copa — Data Link

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

• Flow 1 (95th percentile 82.85 ms)

```
Run 2: Statistics of Copa

Start at: 2018-12-10 22:17:46
End at: 2018-12-10 22:18:16
Local clock offset: 12.224 ms
Remote clock offset: -406.797 ms
```

Run 2: Report of Copa — Data Link

Run 3: Statistics of Copa

Start at: 2018-12-10 22:40:03
End at: 2018-12-10 22:40:33
Local clock offset: -0.665 ms
Remote clock offset: -810.46 ms

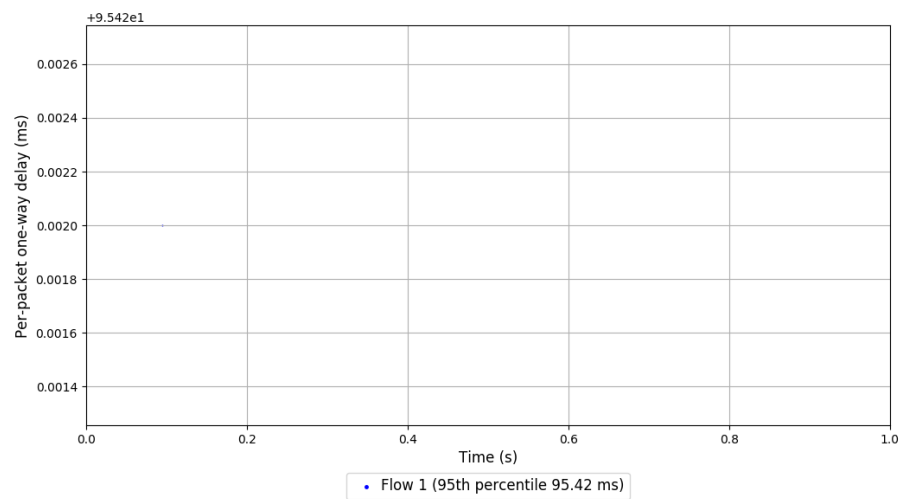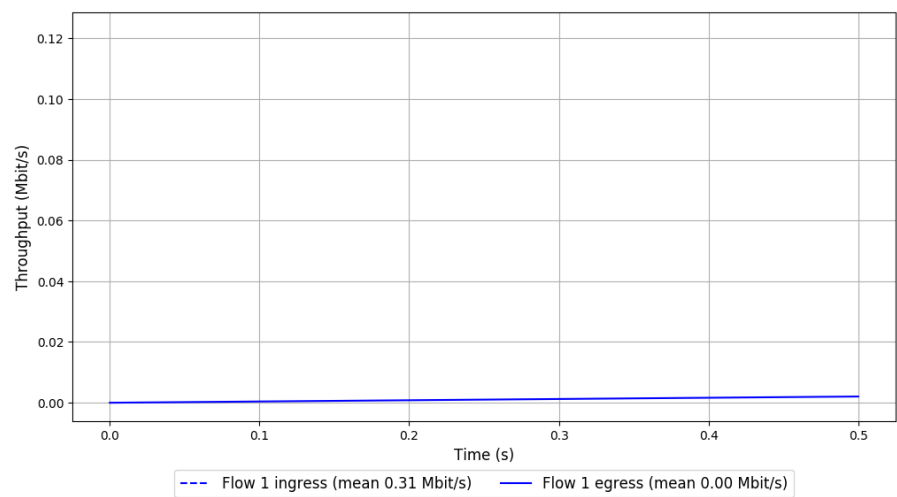Run 3: Report of Copa — Data Link

```
Run 4: Statistics of Copa

Start at: 2018-12-10 23:02:18
End at: 2018-12-10 23:02:48
Local clock offset: -6.38 ms
Remote clock offset: -1214.089 ms
```
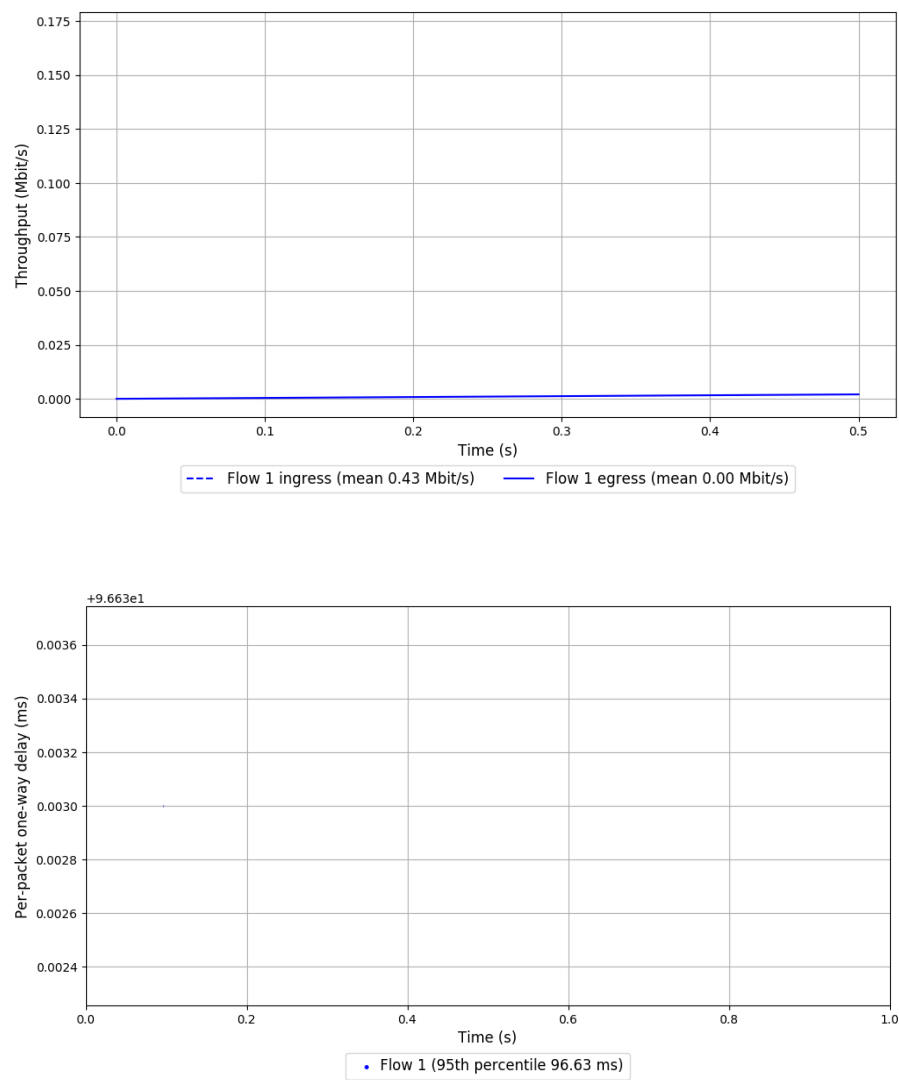
Run 4: Report of Copa — Data Link

Flow 1 ingress (mean 0.31 Mbit/s) ——— Flow 1 egress (mean 0.00 Mbit/s)

• Flow 1 (95th percentile 95.42 ms)

```
Run 5: Statistics of Copa

Start at: 2018-12-10 23:24:31
End at: 2018-12-10 23:25:01
Local clock offset: -8.082 ms
Remote clock offset: -1620.022 ms
```
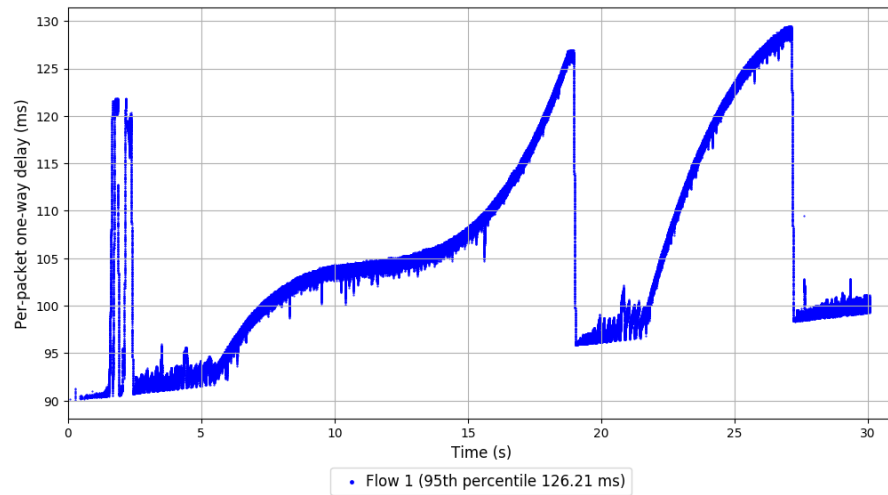
Run 5: Report of Copa — Data Link

Flow 1 ingress (mean 0.43 Mbit/s) — Flow 1 egress (mean 0.00 Mbit/s)
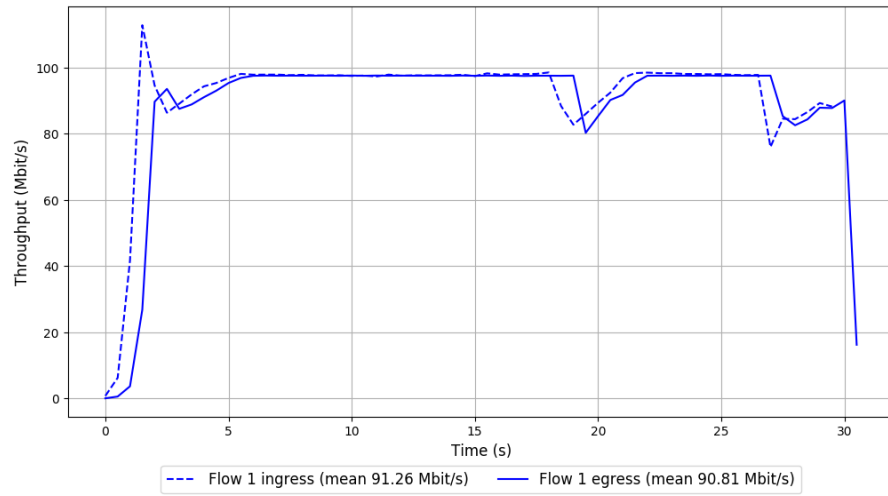

Flow 1 (95th percentile 96.63 ms)

24

```
Run 1: Statistics of TCP Cubic

Start at: 2018-12-10 22:07:13
End at: 2018-12-10 22:07:43
Local clock offset: 9.255 ms
Remote clock offset: -209.275 ms


# Below is generated by plot.py at 2018-12-10 23:47:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 90.81 Mbit/s
95th percentile per-packet one-way delay: 126.210 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 90.81 Mbit/s
95th percentile per-packet one-way delay: 126.210 ms
Loss rate: 0.46%
```
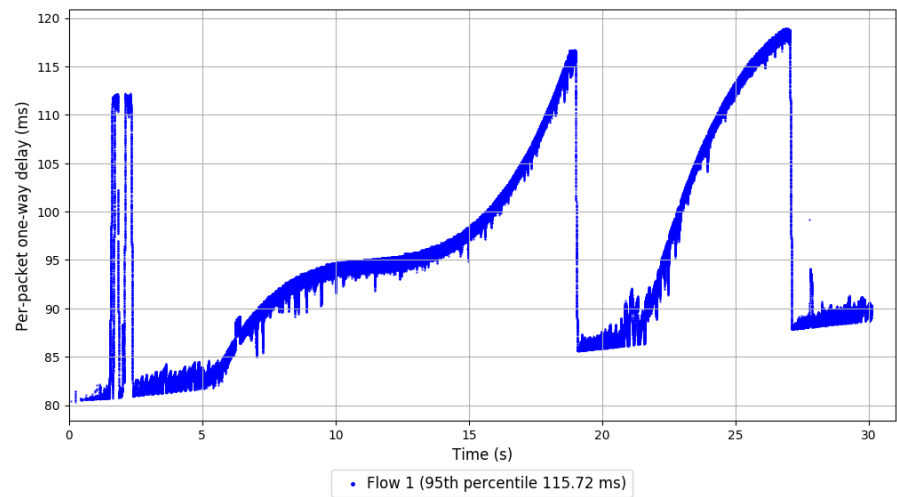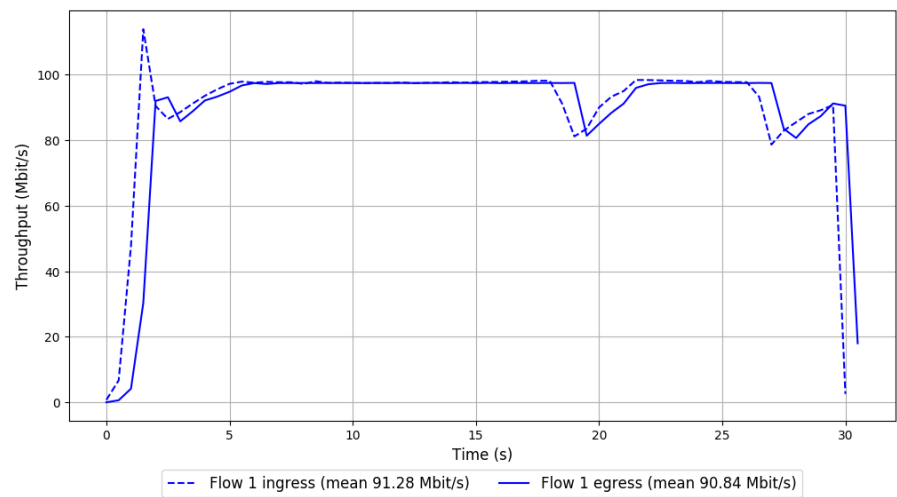
Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2018-12-10 22:29:29
End at: 2018-12-10 22:29:59
Local clock offset: 9.503 ms
Remote clock offset: -622.381 ms


# Below is generated by plot.py at 2018-12-10 23:47:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 90.84 Mbit/s
95th percentile per-packet one-way delay: 115.716 ms
Loss rate: 0.45%
-- Flow 1:
Average throughput: 90.84 Mbit/s
95th percentile per-packet one-way delay: 115.716 ms
Loss rate: 0.45%
```

Run 2: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 91.28 Mbit/s) ----   Flow 1 egress (mean 90.84 Mbit/s) ——
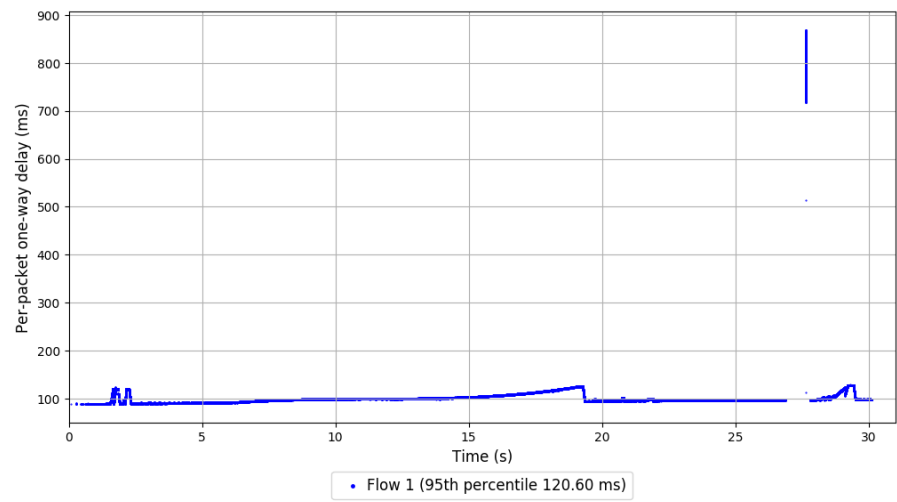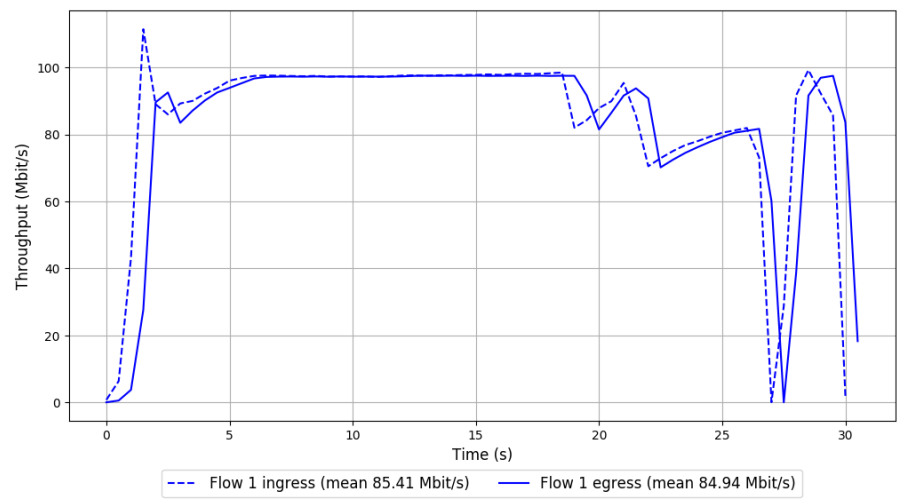

Flow 1 (95th percentile 115.72 ms)

```
Run 3: Statistics of TCP Cubic

Start at: 2018-12-10 22:51:45
End at: 2018-12-10 22:52:15
Local clock offset: -4.535 ms
Remote clock offset: -1023.602 ms


# Below is generated by plot.py at 2018-12-10 23:47:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 84.94 Mbit/s
95th percentile per-packet one-way delay: 120.596 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 84.94 Mbit/s
95th percentile per-packet one-way delay: 120.596 ms
Loss rate: 0.51%
```
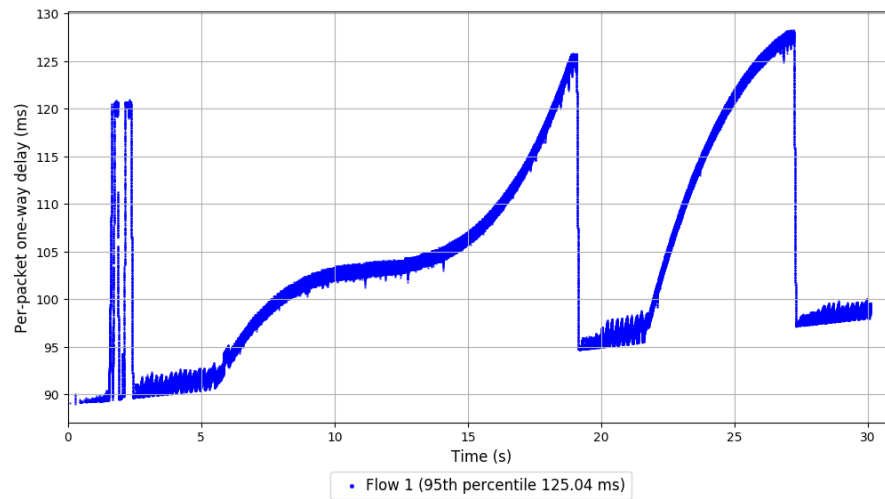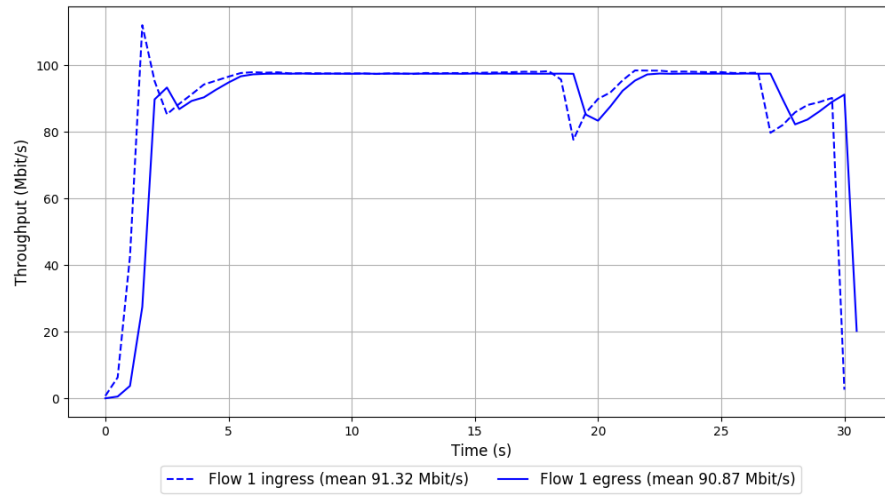
Run 3: Report of TCP Cubic — Data Link

```
Run 4: Statistics of TCP Cubic

Start at: 2018-12-10 23:13:59
End at: 2018-12-10 23:14:29
Local clock offset: -6.93 ms
Remote clock offset: -1429.683 ms


# Below is generated by plot.py at 2018-12-10 23:48:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 90.87 Mbit/s
95th percentile per-packet one-way delay: 125.043 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 90.87 Mbit/s
95th percentile per-packet one-way delay: 125.043 ms
Loss rate: 0.46%
```
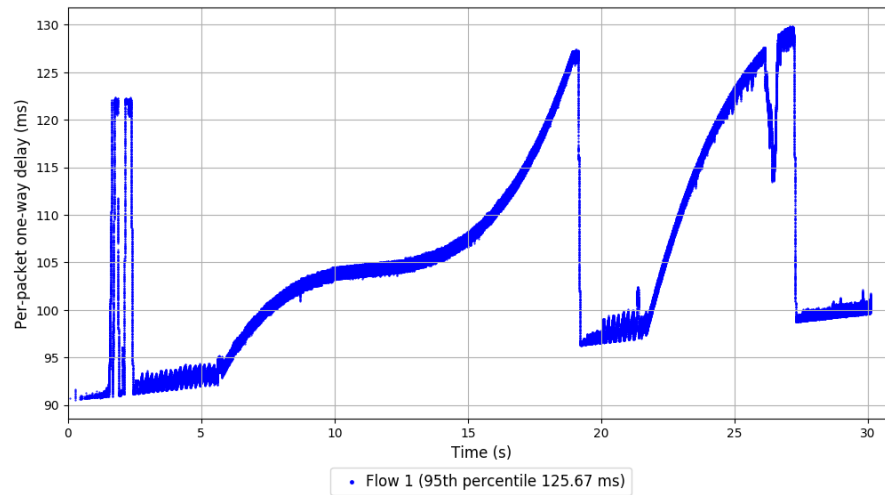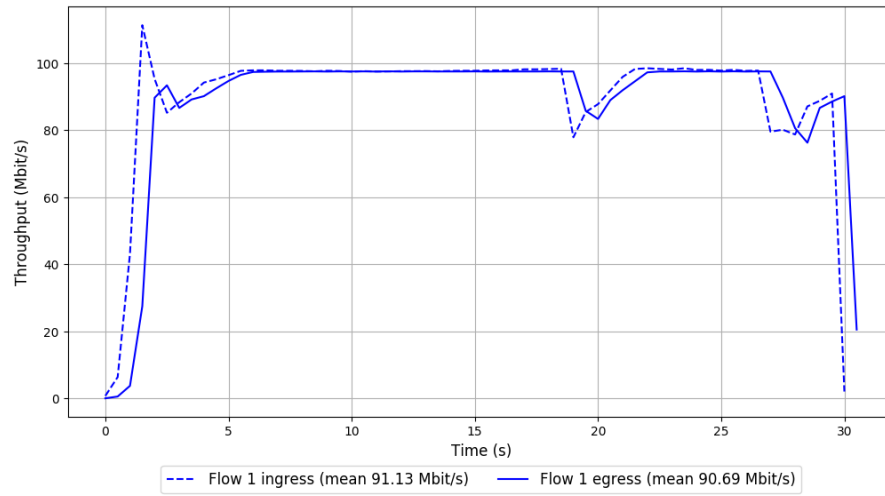
Run 4: Report of TCP Cubic — Data Link

```
Run 5: Statistics of TCP Cubic

Start at: 2018-12-10 23:36:12
End at: 2018-12-10 23:36:42
Local clock offset: -7.293 ms
Remote clock offset: -1834.418 ms


# Below is generated by plot.py at 2018-12-10 23:48:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 90.69 Mbit/s
95th percentile per-packet one-way delay: 125.672 ms
Loss rate: 0.45%
-- Flow 1:
Average throughput: 90.69 Mbit/s
95th percentile per-packet one-way delay: 125.672 ms
Loss rate: 0.45%
```

Run 5: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 91.13 Mbit/s) ----   Flow 1 egress (mean 90.69 Mbit/s) ——
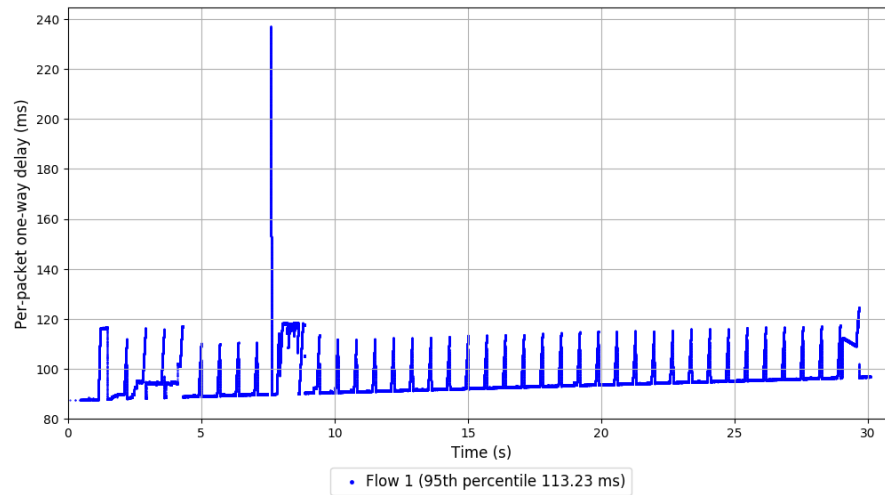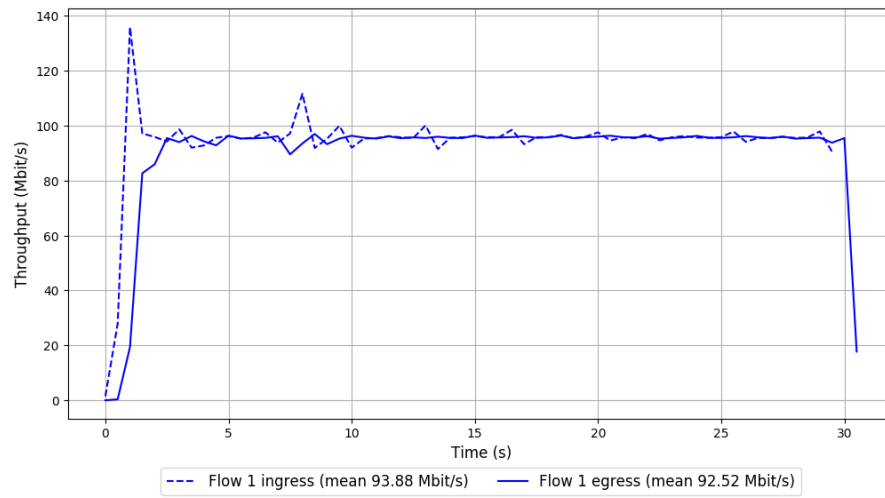

Flow 1 (95th percentile 125.67 ms)

```
Run 1: Statistics of FillP

Start at: 2018-12-10 21:59:00
End at: 2018-12-10 21:59:30
Local clock offset: 8.508 ms
Remote clock offset: -59.606 ms

# Below is generated by plot.py at 2018-12-10 23:48:26
# Datalink statistics
-- Total of 1 flow:
Average throughput: 92.52 Mbit/s
95th percentile per-packet one-way delay: 113.230 ms
Loss rate: 1.42%
-- Flow 1:
Average throughput: 92.52 Mbit/s
95th percentile per-packet one-way delay: 113.230 ms
Loss rate: 1.42%
```

Run 1: Report of FillP — Data Link

Flow 1 ingress (mean 93.88 Mbit/s)   Flow 1 egress (mean 92.52 Mbit/s)
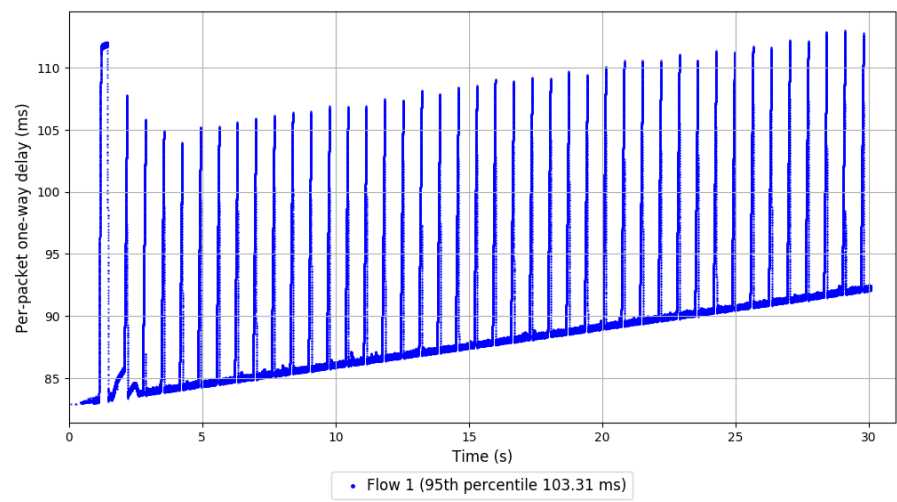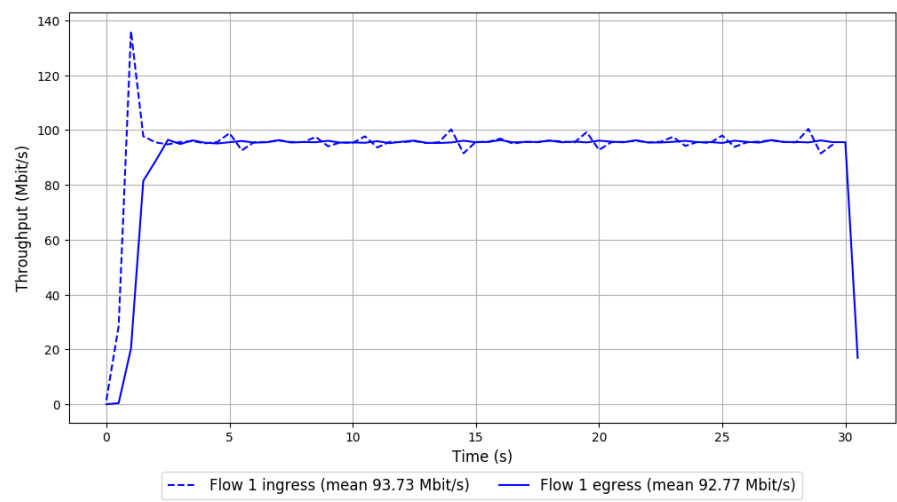

Flow 1 (95th percentile 113.23 ms)

```
Run 2: Statistics of FillP

Start at: 2018-12-10 22:21:16
End at: 2018-12-10 22:21:46
Local clock offset: 12.053 ms
Remote clock offset: -470.803 ms


# Below is generated by plot.py at 2018-12-10 23:48:26
# Datalink statistics
-- Total of 1 flow:
Average throughput: 92.77 Mbit/s
95th percentile per-packet one-way delay: 103.307 ms
Loss rate: 0.99%
-- Flow 1:
Average throughput: 92.77 Mbit/s
95th percentile per-packet one-way delay: 103.307 ms
Loss rate: 0.99%
```
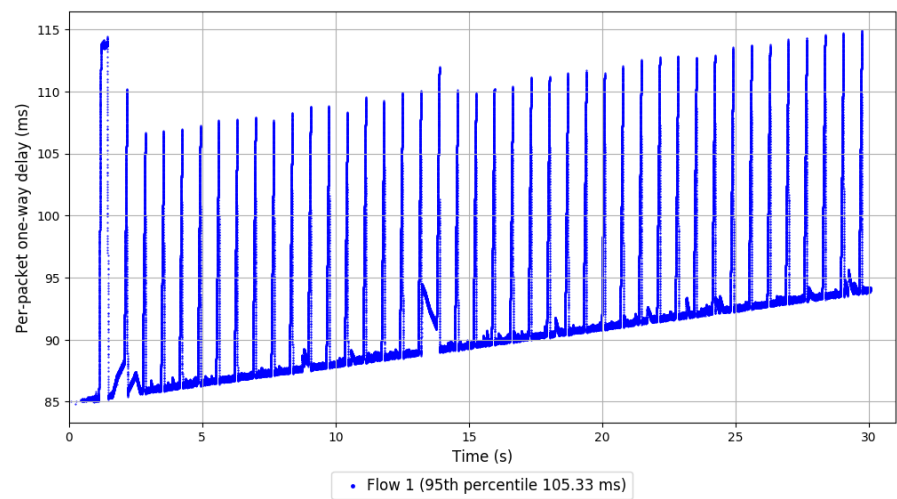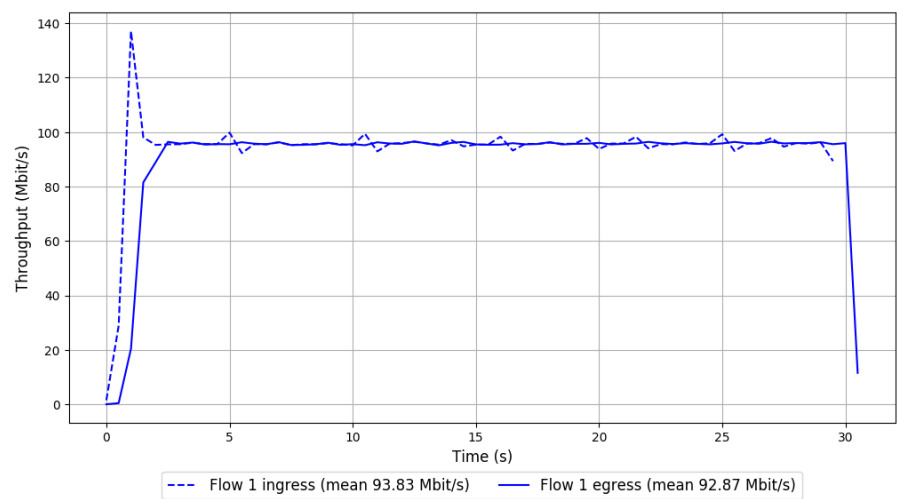
Run 2: Report of FillP — Data Link

```
Run 3: Statistics of FillP

Start at: 2018-12-10 22:43:32
End at: 2018-12-10 22:44:02
Local clock offset: -2.294 ms
Remote clock offset: -875.237 ms


# Below is generated by plot.py at 2018-12-10 23:48:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 92.87 Mbit/s
95th percentile per-packet one-way delay: 105.329 ms
Loss rate: 1.00%
-- Flow 1:
Average throughput: 92.87 Mbit/s
95th percentile per-packet one-way delay: 105.329 ms
Loss rate: 1.00%
```
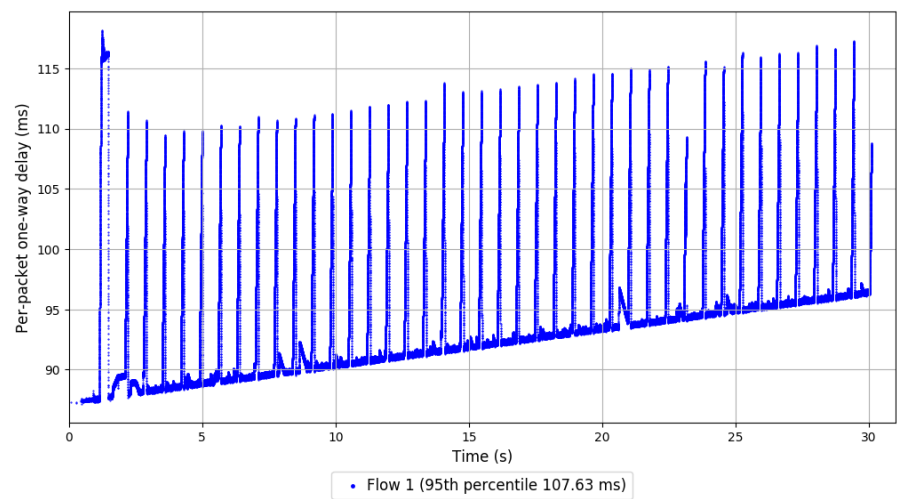
Run 3: Report of FillP — Data Link

Flow 1 ingress (mean 93.83 Mbit/s) --- Flow 1 egress (mean 92.87 Mbit/s)

Flow 1 (95th percentile 105.33 ms)

```
Run 4: Statistics of FillP

Start at: 2018-12-10 23:05:48
End at: 2018-12-10 23:06:18
Local clock offset: -5.962 ms
Remote clock offset: -1281.479 ms


# Below is generated by plot.py at 2018-12-10 23:48:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 92.73 Mbit/s
95th percentile per-packet one-way delay: 107.632 ms
Loss rate: 1.03%
-- Flow 1:
Average throughput: 92.73 Mbit/s
95th percentile per-packet one-way delay: 107.632 ms
Loss rate: 1.03%
```
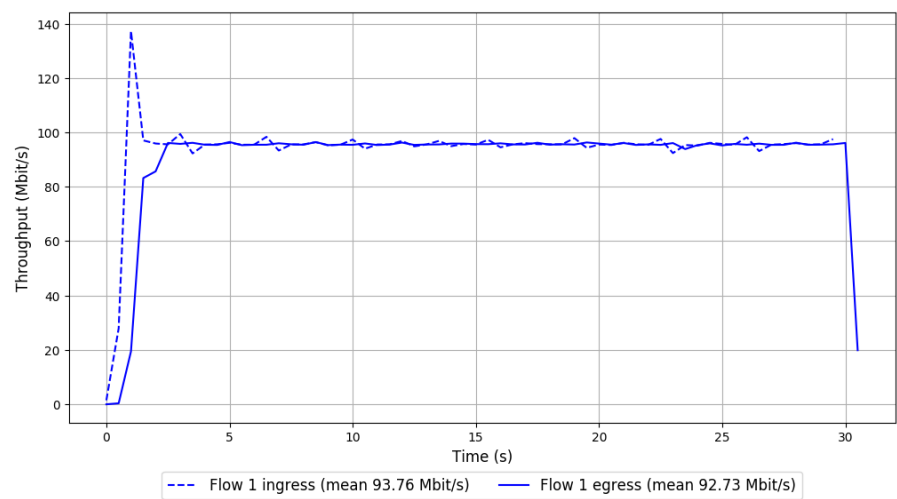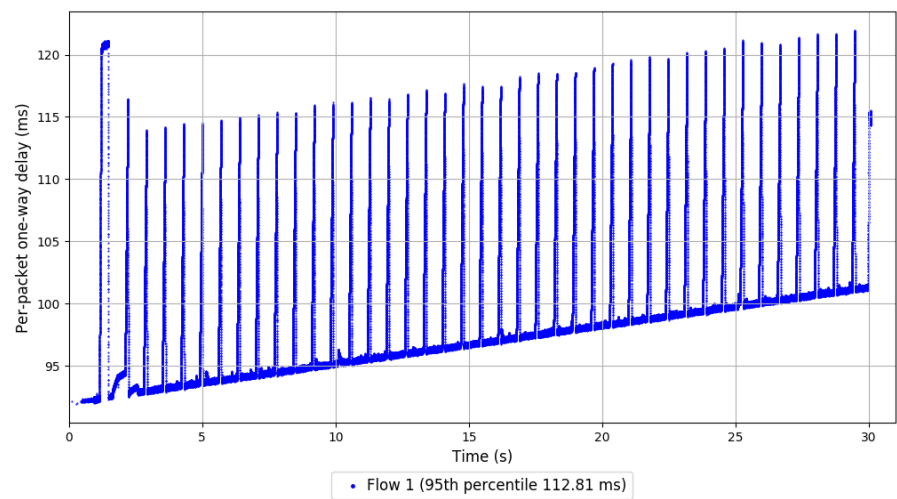
Run 4: Report of FillP — Data Link

Flow 1 ingress (mean 93.76 Mbit/s) — — —   Flow 1 egress (mean 92.73 Mbit/s) ———

• Flow 1 (95th percentile 107.63 ms)

```
Run 5: Statistics of FillP

Start at: 2018-12-10 23:28:01
End at: 2018-12-10 23:28:31
Local clock offset: -8.307 ms
Remote clock offset: -1683.225 ms


# Below is generated by plot.py at 2018-12-10 23:48:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 92.64 Mbit/s
95th percentile per-packet one-way delay: 112.814 ms
Loss rate: 1.01%
-- Flow 1:
Average throughput: 92.64 Mbit/s
95th percentile per-packet one-way delay: 112.814 ms
Loss rate: 1.01%
```
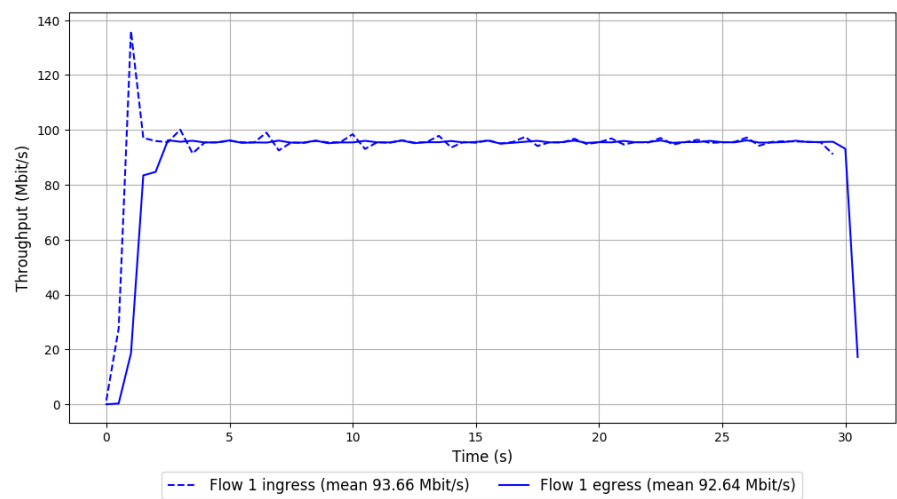
Run 5: Report of FillP — Data Link

Flow 1 ingress (mean 93.66 Mbit/s)   Flow 1 egress (mean 92.64 Mbit/s)

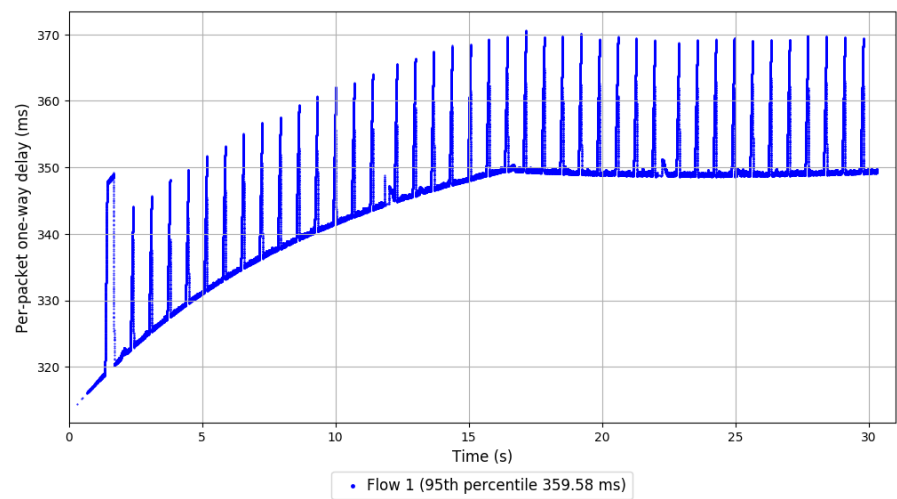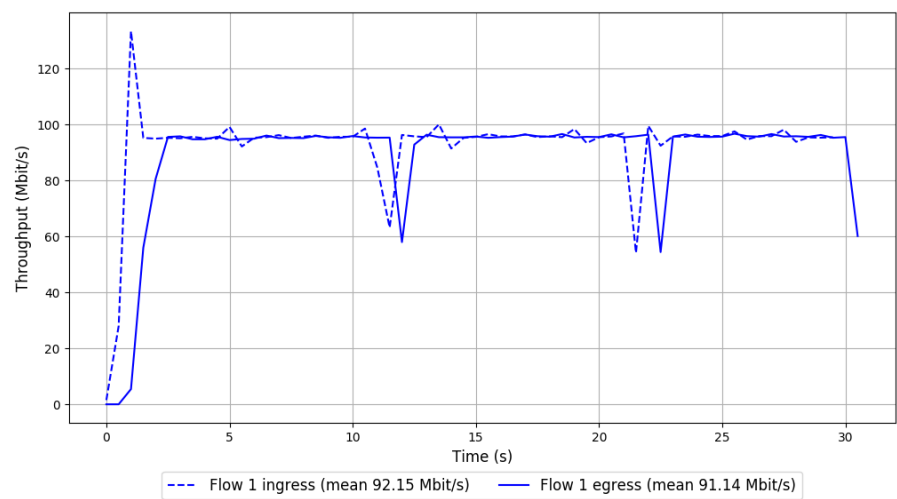Flow 1 (95th percentile 112.81 ms)

```
Run 1: Statistics of FillP-Sheep

Start at: 2018-12-10 21:54:16
End at: 2018-12-10 21:54:46
Local clock offset: 6.686 ms
Remote clock offset: 255.343 ms


# Below is generated by plot.py at 2018-12-10 23:48:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 91.14 Mbit/s
95th percentile per-packet one-way delay: 359.578 ms
Loss rate: 1.08%
-- Flow 1:
Average throughput: 91.14 Mbit/s
95th percentile per-packet one-way delay: 359.578 ms
Loss rate: 1.08%
```

Run 1: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 92.15 Mbit/s) --- Flow 1 egress (mean 91.14 Mbit/s) ———
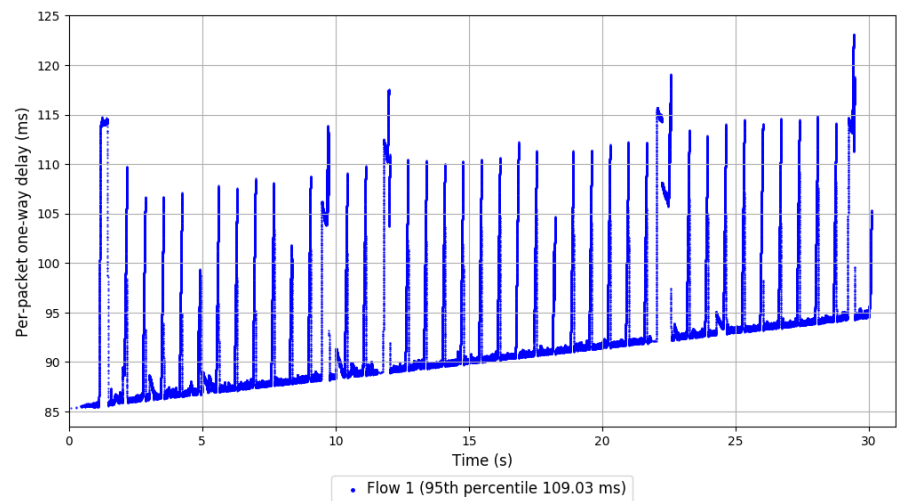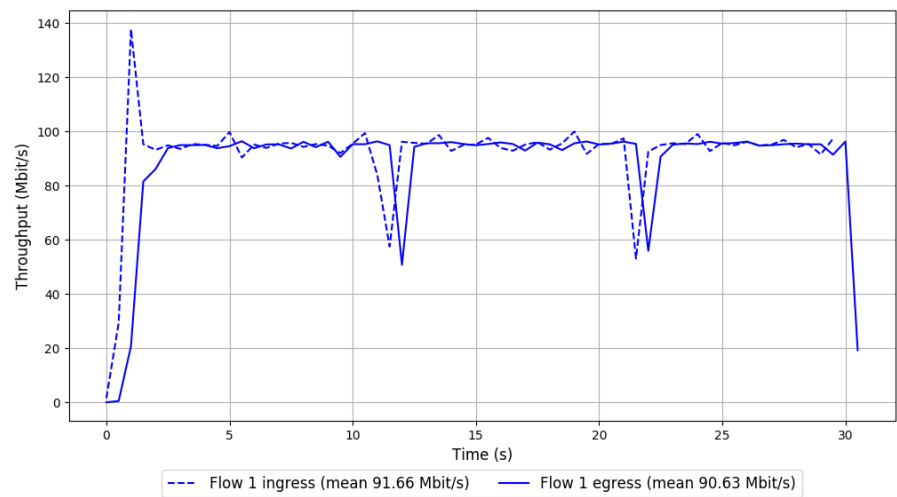

Flow 1 (95th percentile 359.58 ms)

```
Run 2: Statistics of FillP-Sheep

Start at: 2018-12-10 22:16:35
End at: 2018-12-10 22:17:05
Local clock offset: 11.026 ms
Remote clock offset: -382.198 ms


# Below is generated by plot.py at 2018-12-10 23:49:26
# Datalink statistics
-- Total of 1 flow:
Average throughput: 90.63 Mbit/s
95th percentile per-packet one-way delay: 109.026 ms
Loss rate: 1.06%
-- Flow 1:
Average throughput: 90.63 Mbit/s
95th percentile per-packet one-way delay: 109.026 ms
Loss rate: 1.06%
```

Run 2: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 91.66 Mbit/s)   Flow 1 egress (mean 90.63 Mbit/s)
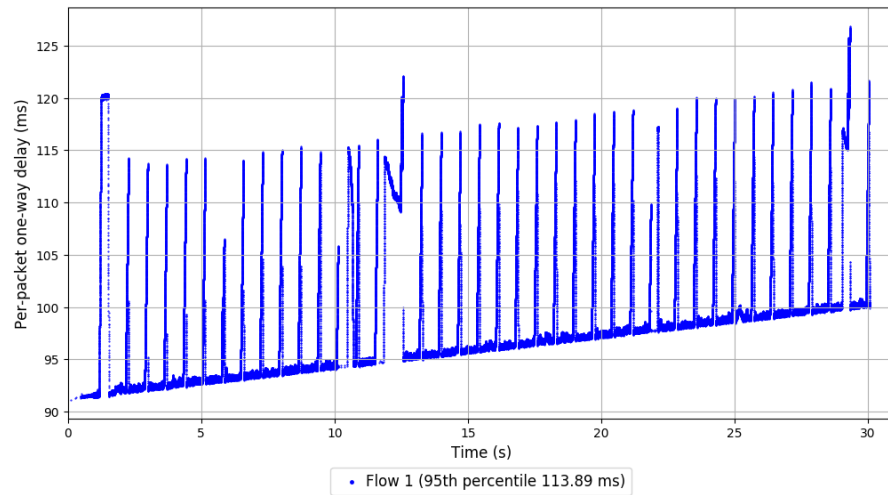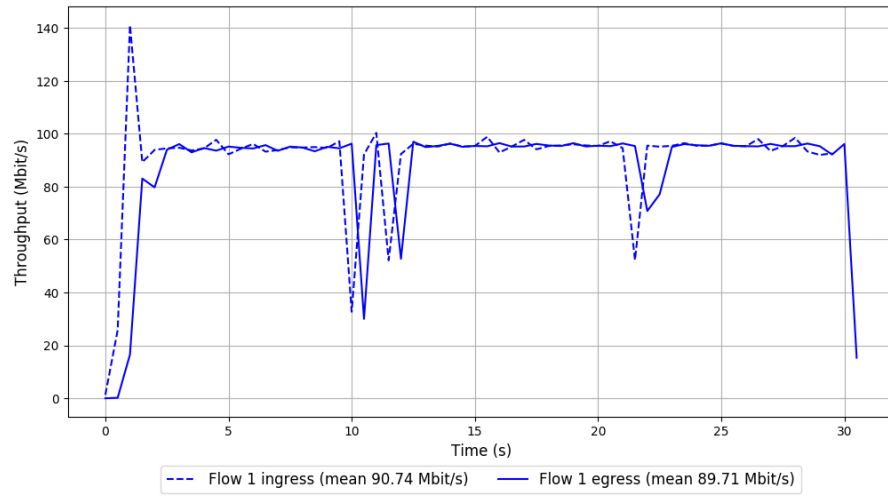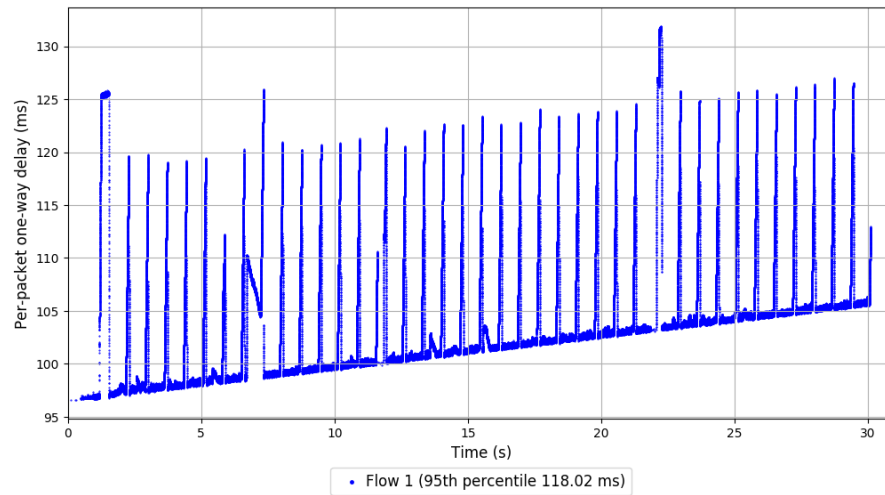

Flow 1 (95th percentile 109.03 ms)

```
Run 3: Statistics of FillP-Sheep

Start at: 2018-12-10 22:38:52
End at: 2018-12-10 22:39:22
Local clock offset: -0.094 ms
Remote clock offset: -791.152 ms


# Below is generated by plot.py at 2018-12-10 23:49:27
# Datalink statistics
-- Total of 1 flow:
Average throughput: 89.71 Mbit/s
95th percentile per-packet one-way delay: 113.892 ms
Loss rate: 1.11%
-- Flow 1:
Average throughput: 89.71 Mbit/s
95th percentile per-packet one-way delay: 113.892 ms
Loss rate: 1.11%
```

Run 3: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 90.74 Mbit/s)   Flow 1 egress (mean 89.71 Mbit/s)
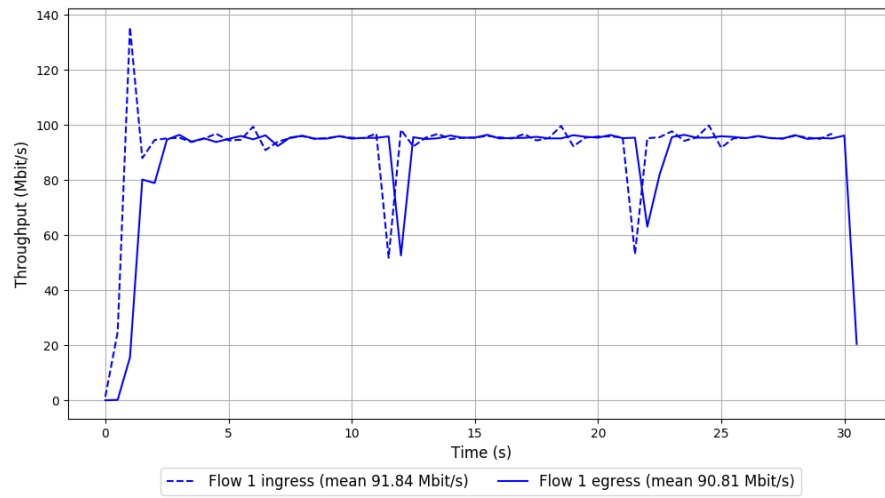

Flow 1 (95th percentile 113.89 ms)

```
Run 4: Statistics of FillP-Sheep

Start at: 2018-12-10 23:01:07
End at: 2018-12-10 23:01:37
Local clock offset: -6.159 ms
Remote clock offset: -1192.91 ms


# Below is generated by plot.py at 2018-12-10 23:49:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 90.81 Mbit/s
95th percentile per-packet one-way delay: 118.015 ms
Loss rate: 1.08%
-- Flow 1:
Average throughput: 90.81 Mbit/s
95th percentile per-packet one-way delay: 118.015 ms
Loss rate: 1.08%
```
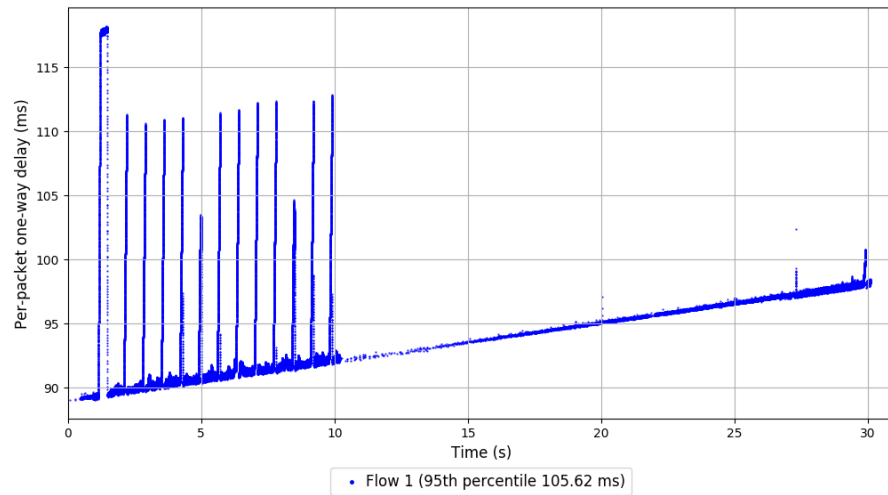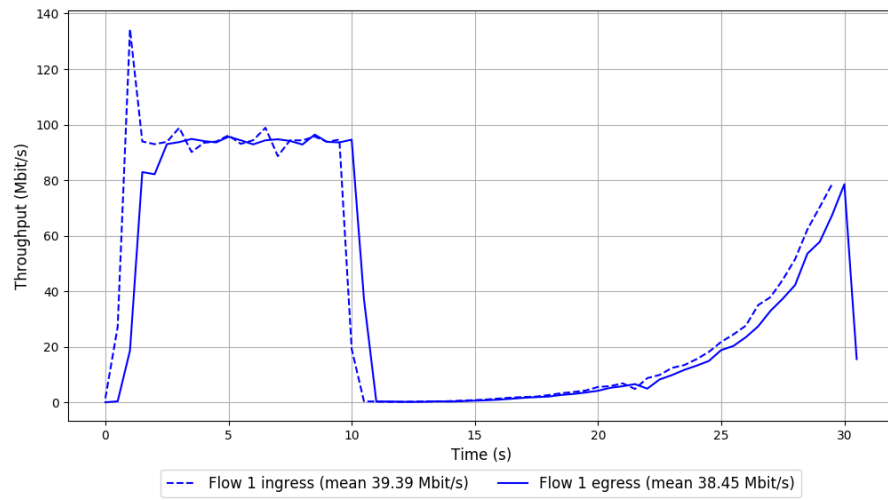
Run 4: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 91.84 Mbit/s) --- Flow 1 egress (mean 90.81 Mbit/s)

Flow 1 (95th percentile 118.02 ms)

```
Run 5: Statistics of FillP-Sheep

Start at: 2018-12-10 23:23:22
End at: 2018-12-10 23:23:52
Local clock offset: -7.942 ms
Remote clock offset: -1600.985 ms


# Below is generated by plot.py at 2018-12-10 23:49:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 38.45 Mbit/s
95th percentile per-packet one-way delay: 105.620 ms
Loss rate: 2.35%
-- Flow 1:
Average throughput: 38.45 Mbit/s
95th percentile per-packet one-way delay: 105.620 ms
Loss rate: 2.35%
```
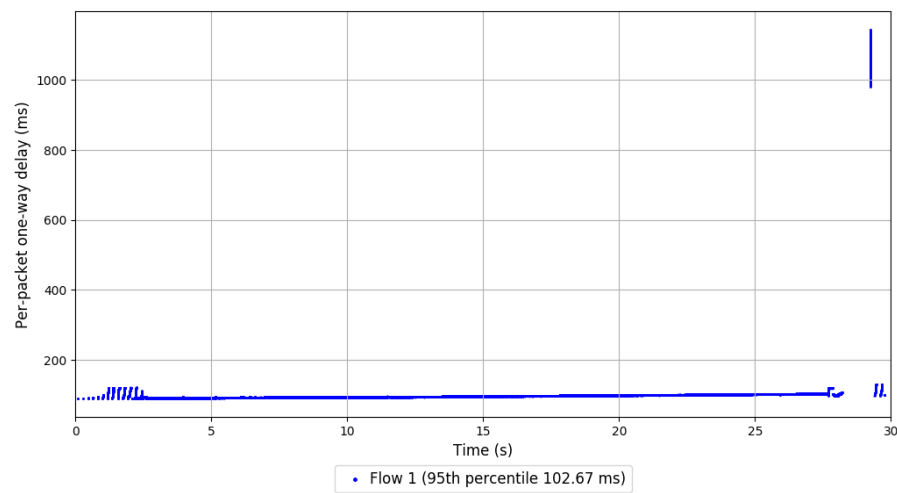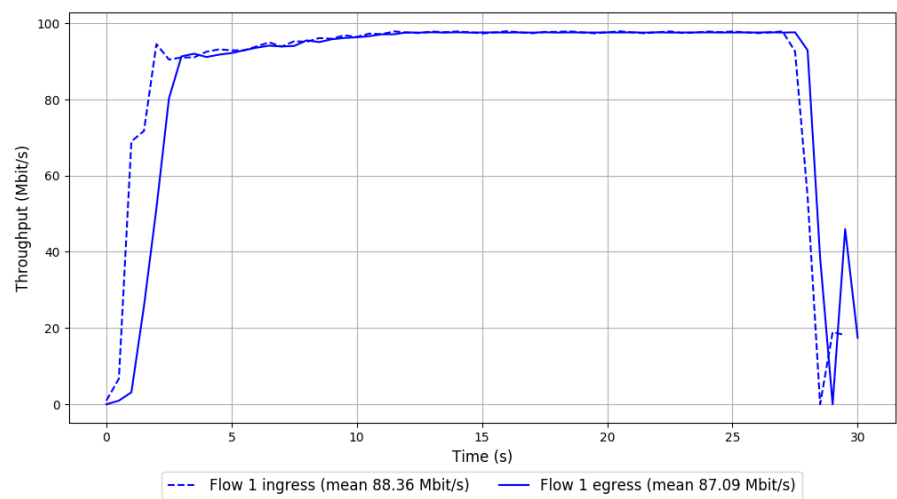
Run 5: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 39.39 Mbit/s)   Flow 1 egress (mean 38.45 Mbit/s)
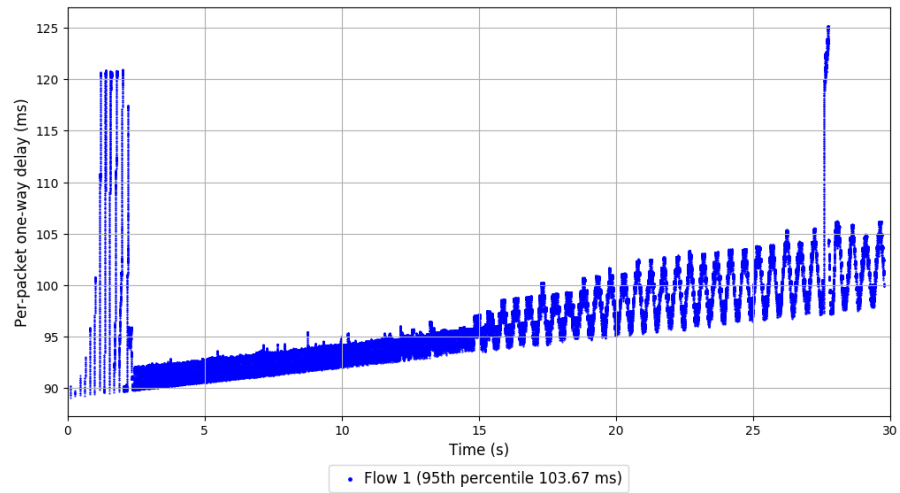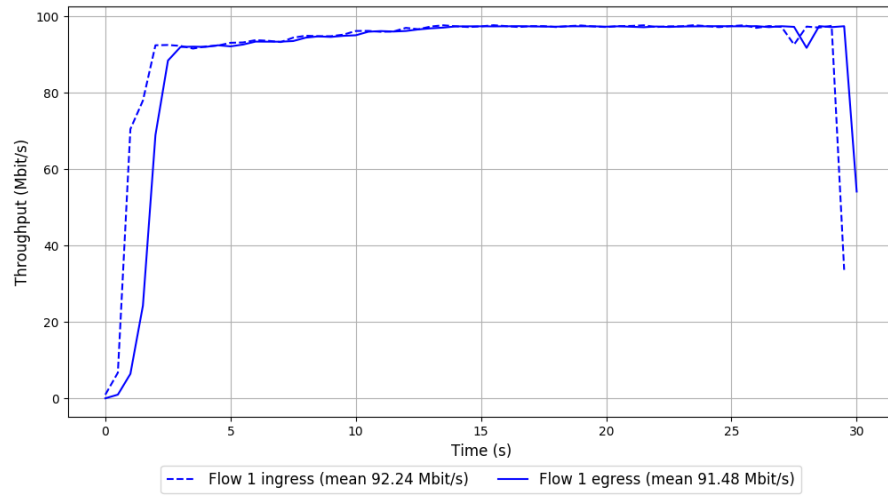

Flow 1 (95th percentile 105.62 ms)

```
Run 1: Statistics of Indigo

Start at: 2018-12-10 22:13:06
End at: 2018-12-10 22:13:36
Local clock offset: 11.315 ms
Remote clock offset: -318.246 ms


# Below is generated by plot.py at 2018-12-10 23:49:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 87.09 Mbit/s
95th percentile per-packet one-way delay: 102.675 ms
Loss rate: 1.39%
-- Flow 1:
Average throughput: 87.09 Mbit/s
95th percentile per-packet one-way delay: 102.675 ms
Loss rate: 1.39%
```

Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2018-12-10 22:35:23
End at: 2018-12-10 22:35:53
Local clock offset: 2.466 ms
Remote clock offset: -722.109 ms


# Below is generated by plot.py at 2018-12-10 23:49:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 91.48 Mbit/s
95th percentile per-packet one-way delay: 103.666 ms
Loss rate: 0.79%
-- Flow 1:
Average throughput: 91.48 Mbit/s
95th percentile per-packet one-way delay: 103.666 ms
Loss rate: 0.79%
```

Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2018-12-10 22:57:38
End at: 2018-12-10 22:58:08
Local clock offset: -4.672 ms
Remote clock offset: -1135.597 ms


# Below is generated by plot.py at 2018-12-10 23:49:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 91.53 Mbit/s
95th percentile per-packet one-way delay: 94.792 ms
Loss rate: 1.07%
-- Flow 1:
Average throughput: 91.53 Mbit/s
95th percentile per-packet one-way delay: 94.792 ms
Loss rate: 1.07%
```
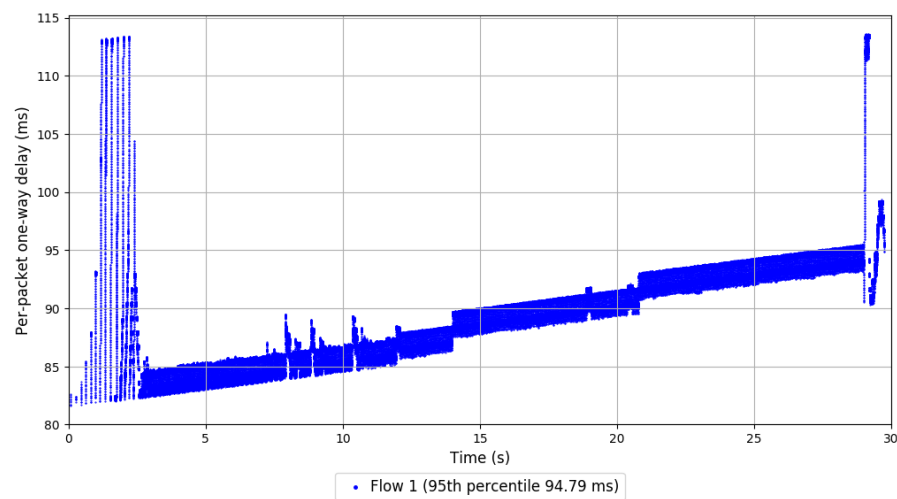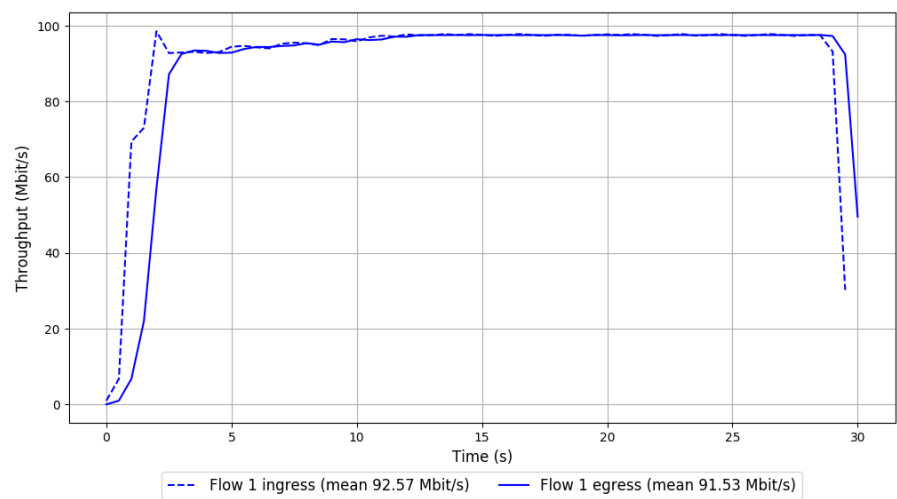
Run 3: Report of Indigo — Data Link

```
Run 4: Statistics of Indigo

Start at: 2018-12-10 23:19:52
End at: 2018-12-10 23:20:22
Local clock offset: -7.589 ms
Remote clock offset: -1539.337 ms


# Below is generated by plot.py at 2018-12-10 23:49:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 91.34 Mbit/s
95th percentile per-packet one-way delay: 100.290 ms
Loss rate: 0.82%
-- Flow 1:
Average throughput: 91.34 Mbit/s
95th percentile per-packet one-way delay: 100.290 ms
Loss rate: 0.82%
```
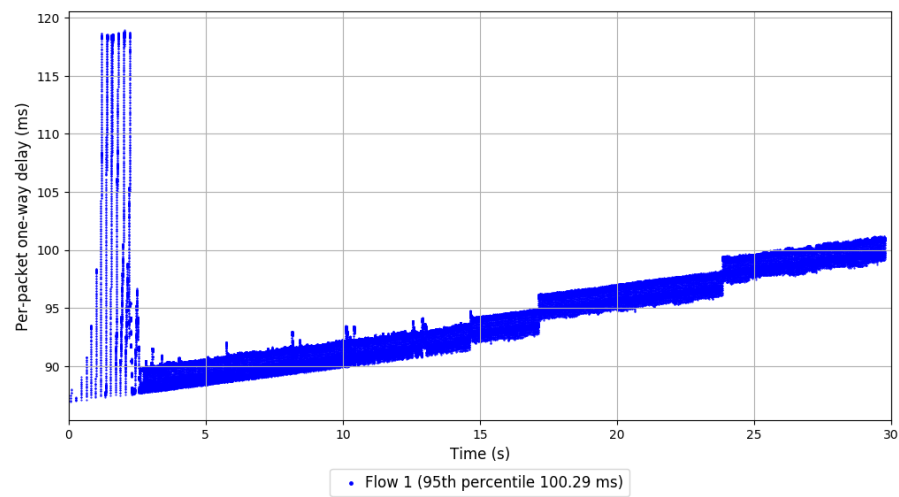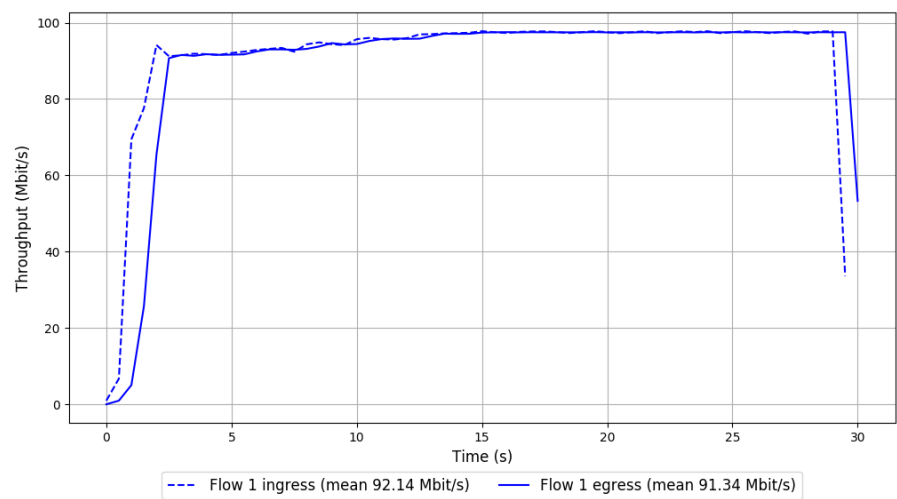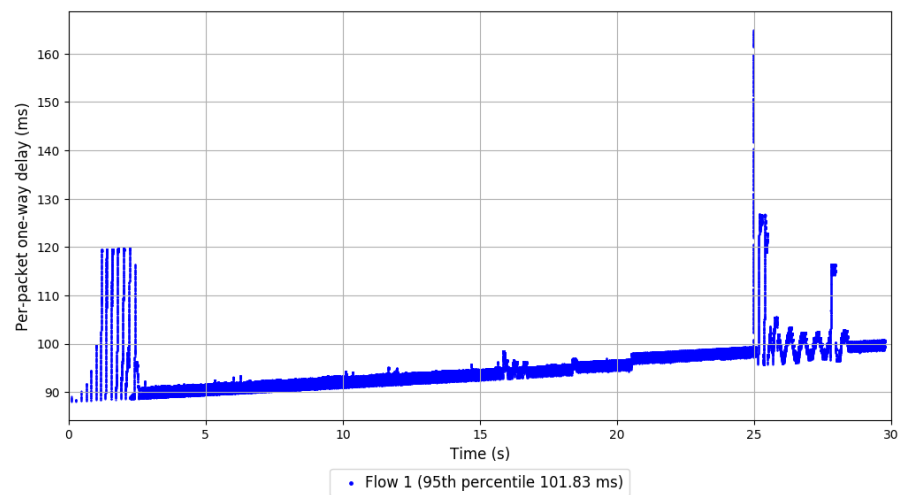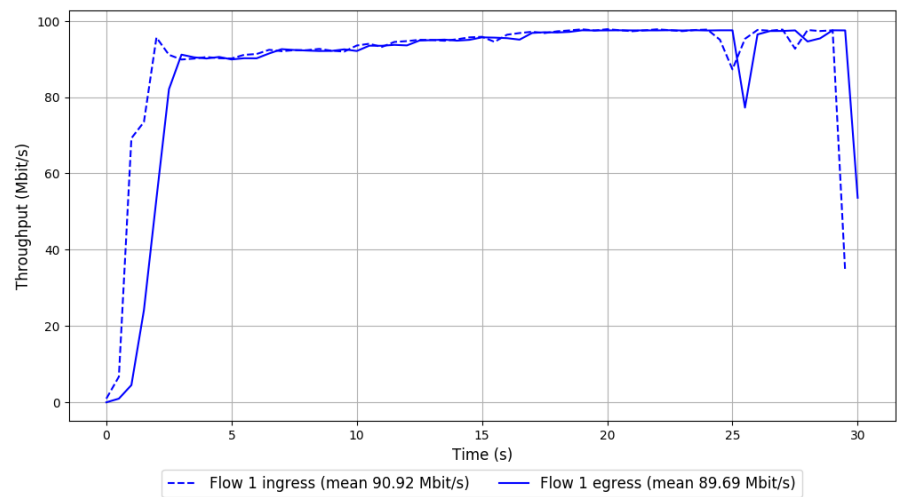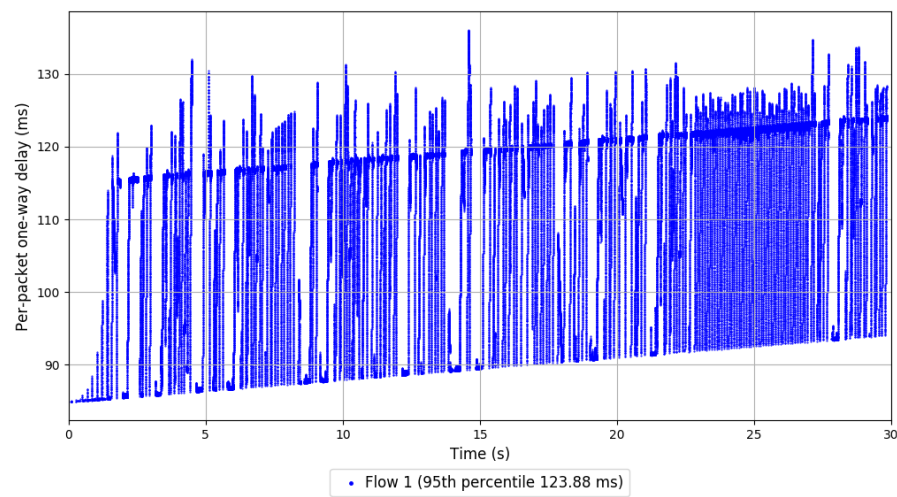
Run 4: Report of Indigo — Data Link

Flow 1 ingress (mean 92.14 Mbit/s) ------- Flow 1 egress (mean 91.34 Mbit/s)

• Flow 1 (95th percentile 100.29 ms)

```
Run 5: Statistics of Indigo

Start at: 2018-12-10 23:42:08
End at: 2018-12-10 23:42:38
Local clock offset: -7.224 ms
Remote clock offset: -1945.403 ms


# Below is generated by plot.py at 2018-12-10 23:50:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 89.69 Mbit/s
95th percentile per-packet one-way delay: 101.832 ms
Loss rate: 1.32%
-- Flow 1:
Average throughput: 89.69 Mbit/s
95th percentile per-packet one-way delay: 101.832 ms
Loss rate: 1.32%
```
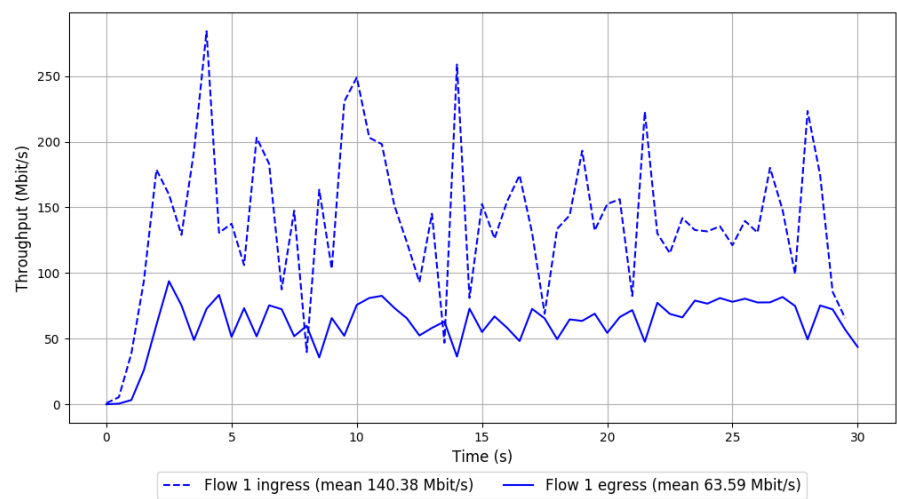
Run 5: Report of Indigo — Data Link

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

Start at: 2018-12-10 22:00:11
End at: 2018-12-10 22:00:41
Local clock offset: 7.799 ms
Remote clock offset: -85.088 ms

# Below is generated by plot.py at 2018-12-10 23:50:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 63.59 Mbit/s
95th percentile per-packet one-way delay: 123.878 ms
Loss rate: 54.64%
-- Flow 1:
Average throughput: 63.59 Mbit/s
95th percentile per-packet one-way delay: 123.878 ms
Loss rate: 54.64%
```
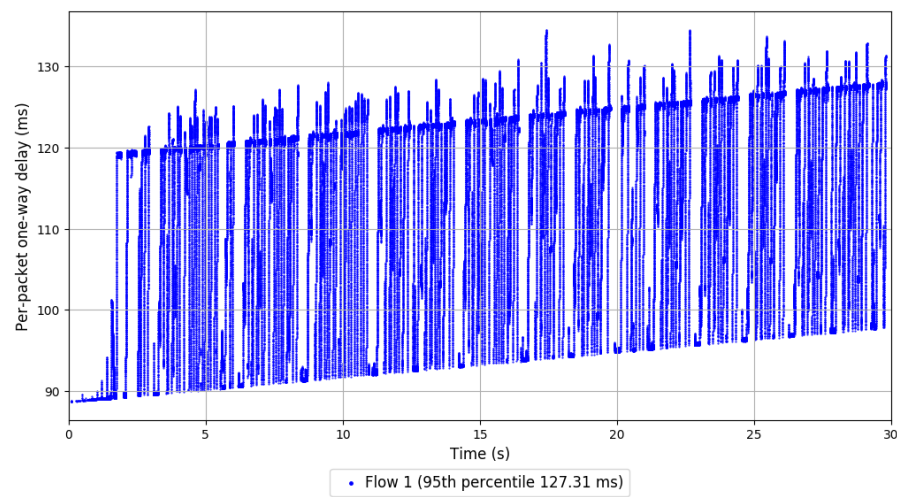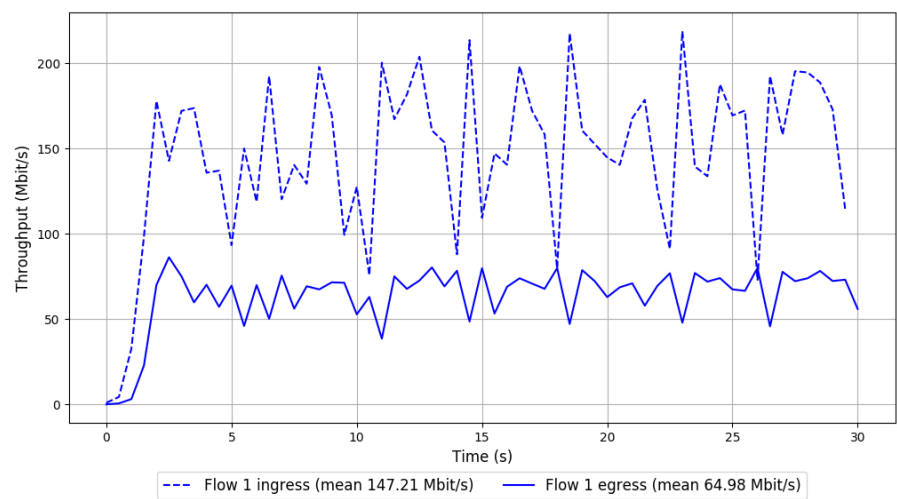
Run 1: Report of Indigo-96d2da3 — Data Link

Flow 1 ingress (mean 140.38 Mbit/s) ----- Flow 1 egress (mean 63.59 Mbit/s)

Flow 1 (95th percentile 123.88 ms)

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

Start at: 2018-12-10 22:22:28
End at: 2018-12-10 22:22:58
Local clock offset: 13.102 ms
Remote clock offset: -486.128 ms


# Below is generated by plot.py at 2018-12-10 23:50:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 64.98 Mbit/s
95th percentile per-packet one-way delay: 127.313 ms
Loss rate: 55.80%
-- Flow 1:
Average throughput: 64.98 Mbit/s
95th percentile per-packet one-way delay: 127.313 ms
Loss rate: 55.80%
```

Run 2: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-12-10 22:44:44
End at: 2018-12-10 22:45:14
Local clock offset: -2.754 ms
Remote clock offset: -900.907 ms


# Below is generated by plot.py at 2018-12-10 23:50:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 61.97 Mbit/s
95th percentile per-packet one-way delay: 125.880 ms
Loss rate: 55.14%
-- Flow 1:
Average throughput: 61.97 Mbit/s
95th percentile per-packet one-way delay: 125.880 ms
Loss rate: 55.14%
```
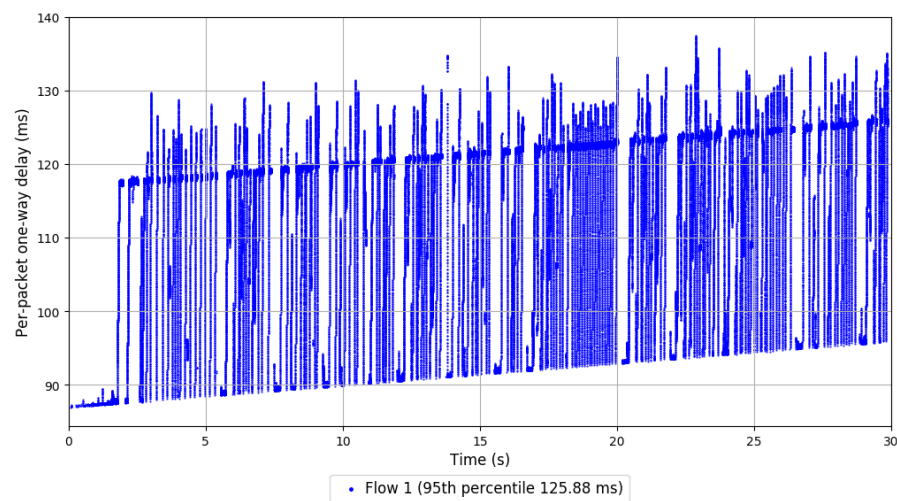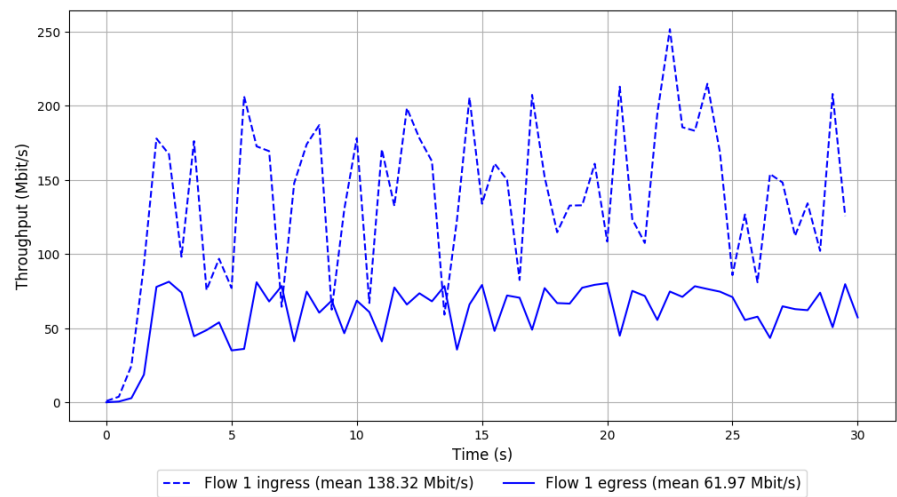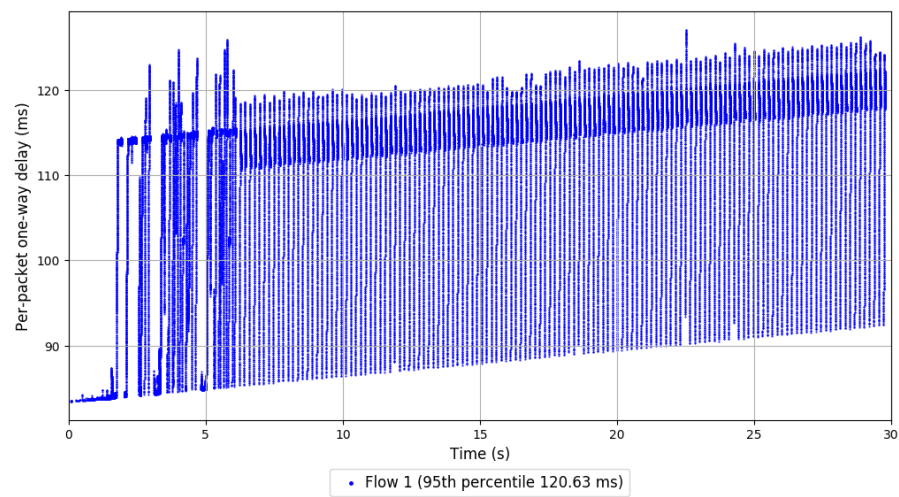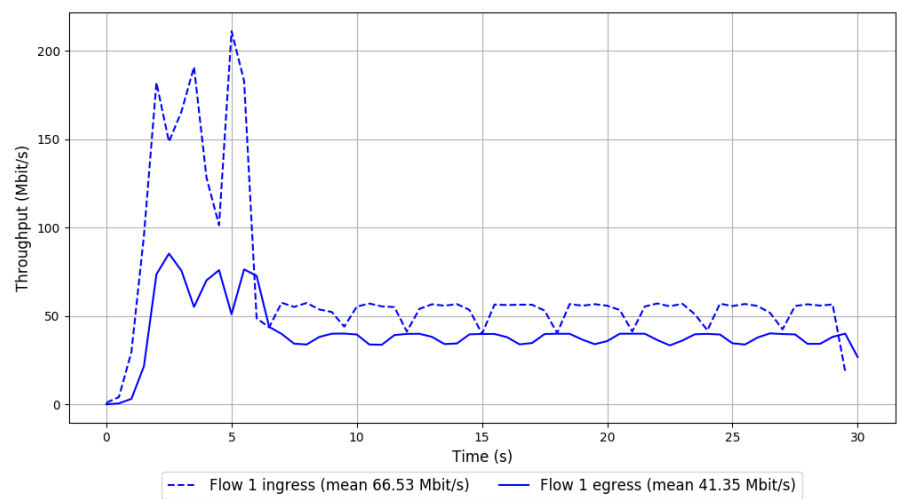
Run 3: Report of Indigo-96d2da3 — Data Link

Flow 1 ingress (mean 138.32 Mbit/s) --- Flow 1 egress (mean 61.97 Mbit/s)

• Flow 1 (95th percentile 125.88 ms)

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

Start at: 2018-12-10 23:06:59
End at: 2018-12-10 23:07:29
Local clock offset: -6.119 ms
Remote clock offset: -1306.724 ms


# Below is generated by plot.py at 2018-12-10 23:50:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 41.35 Mbit/s
95th percentile per-packet one-way delay: 120.631 ms
Loss rate: 37.78%
-- Flow 1:
Average throughput: 41.35 Mbit/s
95th percentile per-packet one-way delay: 120.631 ms
Loss rate: 37.78%
```
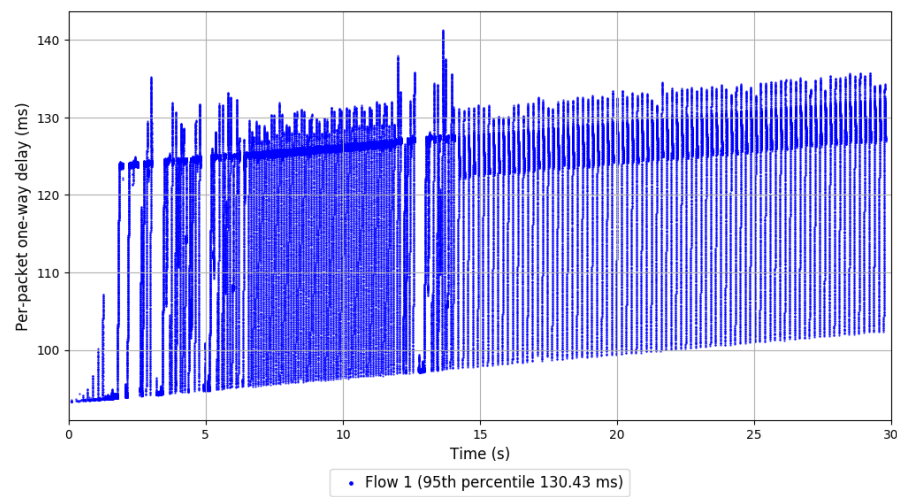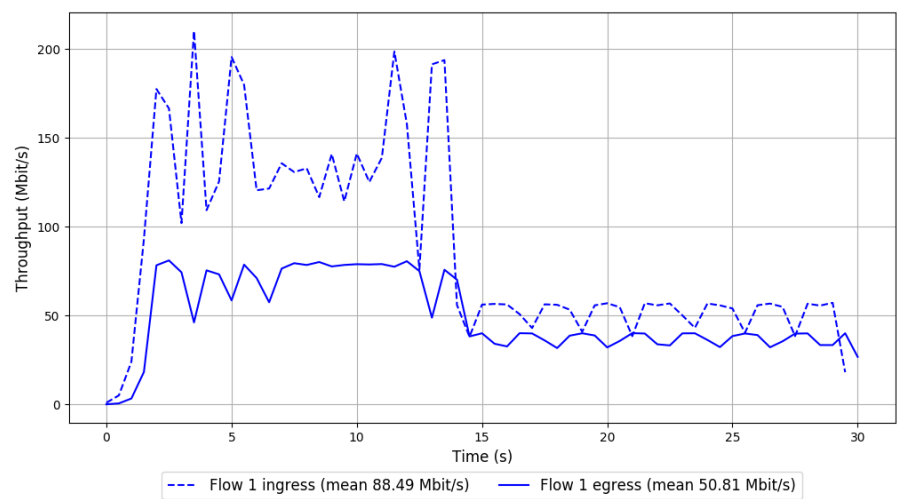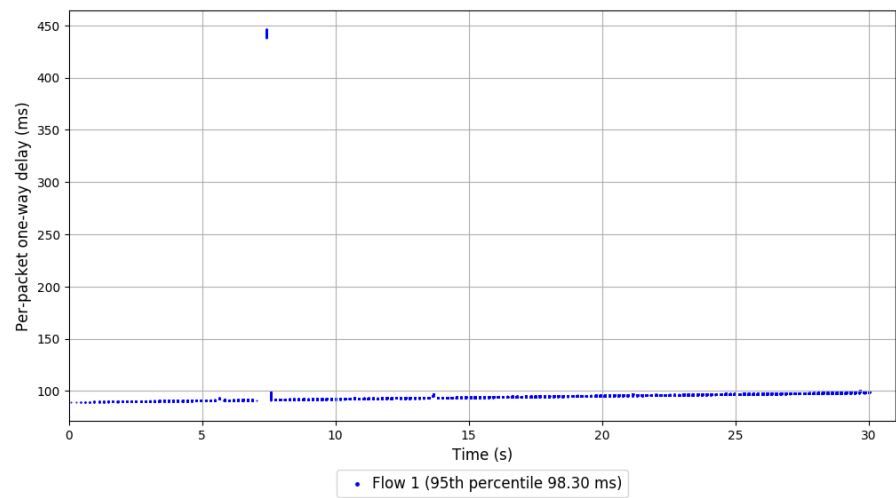
Run 4: Report of Indigo-96d2da3 — Data Link

Flow 1 ingress (mean 66.53 Mbit/s)   Flow 1 egress (mean 41.35 Mbit/s)

Flow 1 (95th percentile 120.63 ms)

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

Start at: 2018-12-10 23:29:12
End at: 2018-12-10 23:29:42
Local clock offset: -8.001 ms
Remote clock offset: -1707.096 ms


# Below is generated by plot.py at 2018-12-10 23:50:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 50.81 Mbit/s
95th percentile per-packet one-way delay: 130.432 ms
Loss rate: 42.51%
-- Flow 1:
Average throughput: 50.81 Mbit/s
95th percentile per-packet one-way delay: 130.432 ms
Loss rate: 42.51%
```

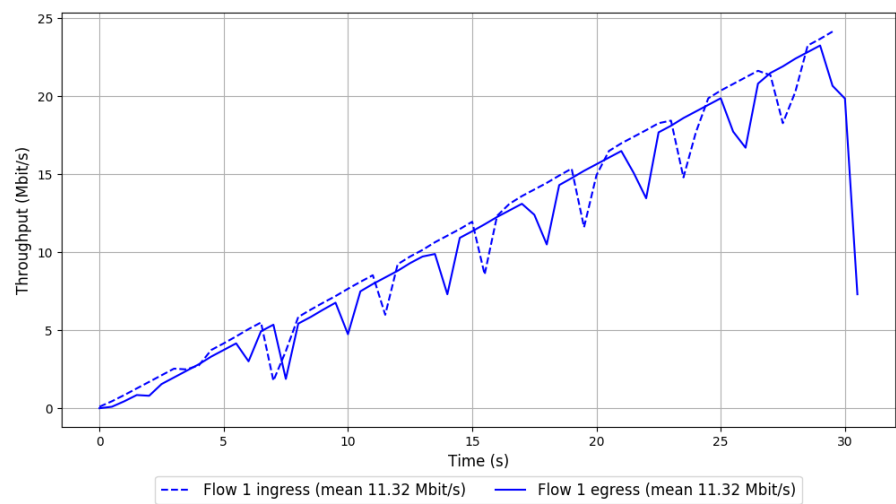Run 5: Report of Indigo-96d2da3 — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2018-12-10 22:15:26
End at: 2018-12-10 22:15:56
Local clock offset: 11.749 ms
Remote clock offset: -358.073 ms


# Below is generated by plot.py at 2018-12-10 23:50:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.32 Mbit/s
95th percentile per-packet one-way delay: 98.300 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 11.32 Mbit/s
95th percentile per-packet one-way delay: 98.300 ms
Loss rate: 0.00%
```
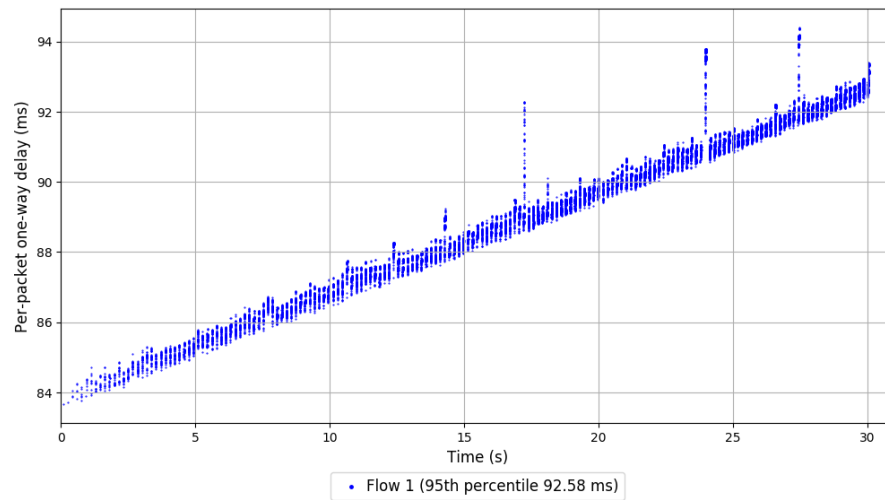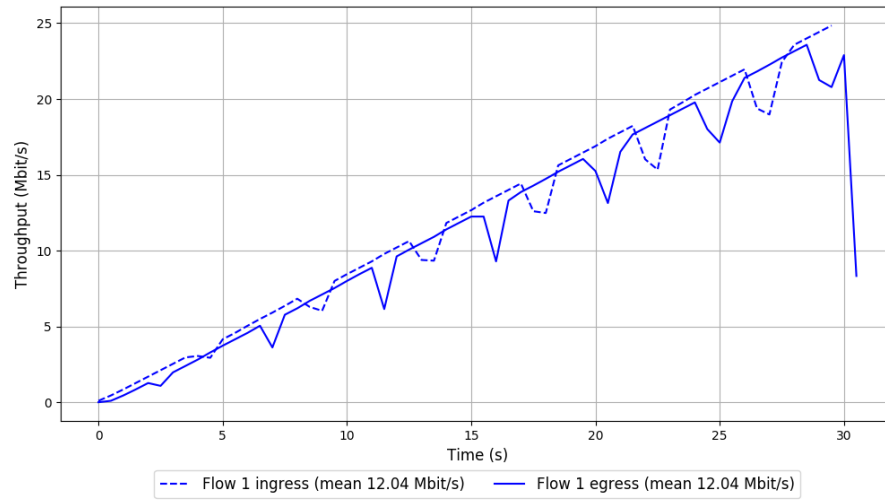
Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2018-12-10 22:37:43
End at: 2018-12-10 22:38:13
Local clock offset: 1.453 ms
Remote clock offset: -769.779 ms


# Below is generated by plot.py at 2018-12-10 23:50:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.04 Mbit/s
95th percentile per-packet one-way delay: 92.583 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 12.04 Mbit/s
95th percentile per-packet one-way delay: 92.583 ms
Loss rate: 0.00%
```
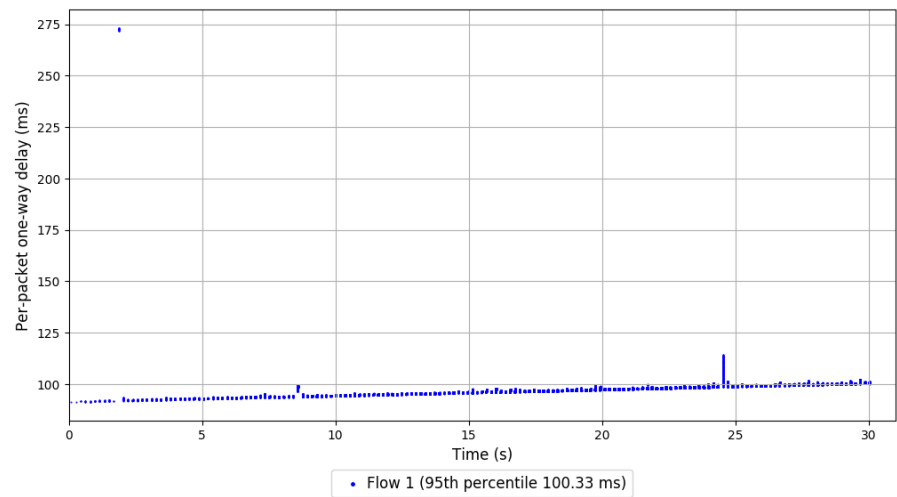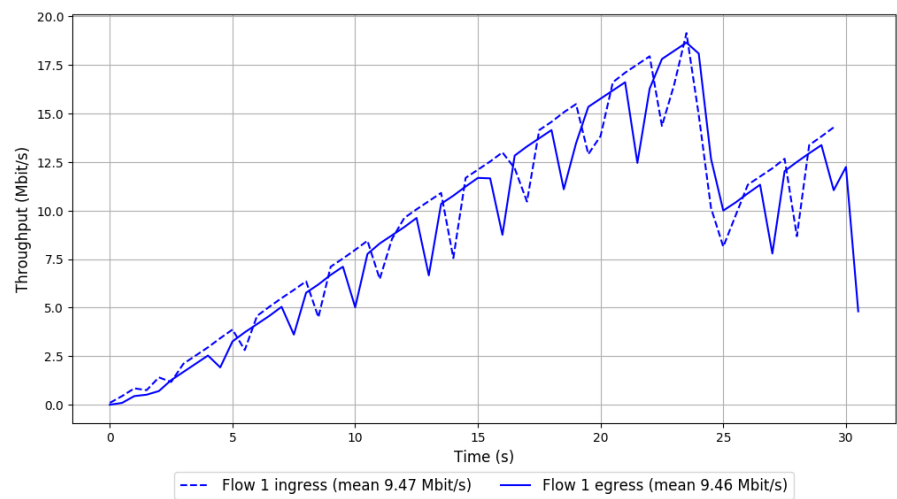
Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2018-12-10 22:59:58
End at: 2018-12-10 23:00:29
Local clock offset: -5.093 ms
Remote clock offset: -1173.152 ms

# Below is generated by plot.py at 2018-12-10 23:50:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.46 Mbit/s
95th percentile per-packet one-way delay: 100.335 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 9.46 Mbit/s
95th percentile per-packet one-way delay: 100.335 ms
Loss rate: 0.00%
```

Run 3: Report of LEDBAT — Data Link

```
Run 4: Statistics of LEDBAT

Start at: 2018-12-10 23:22:13
End at: 2018-12-10 23:22:43
Local clock offset: -8.711 ms
Remote clock offset: -1580.726 ms


# Below is generated by plot.py at 2018-12-10 23:50:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.09 Mbit/s
95th percentile per-packet one-way delay: 103.821 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 11.09 Mbit/s
95th percentile per-packet one-way delay: 103.821 ms
Loss rate: 0.00%
```
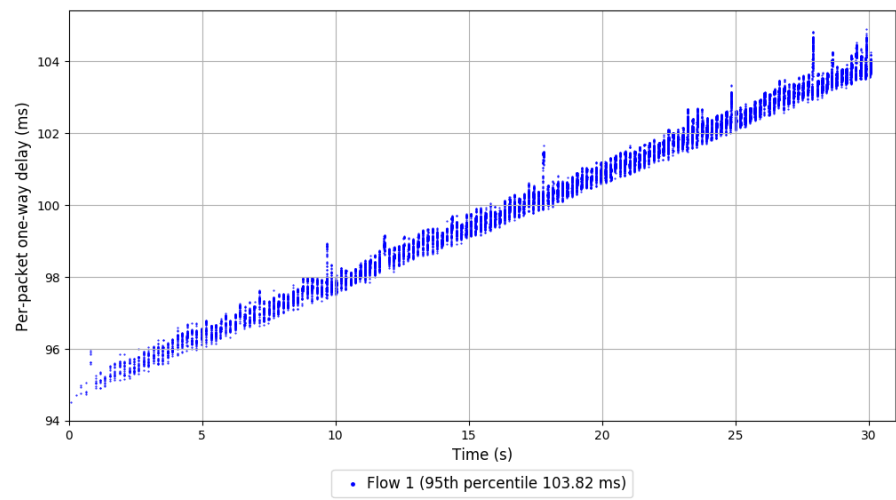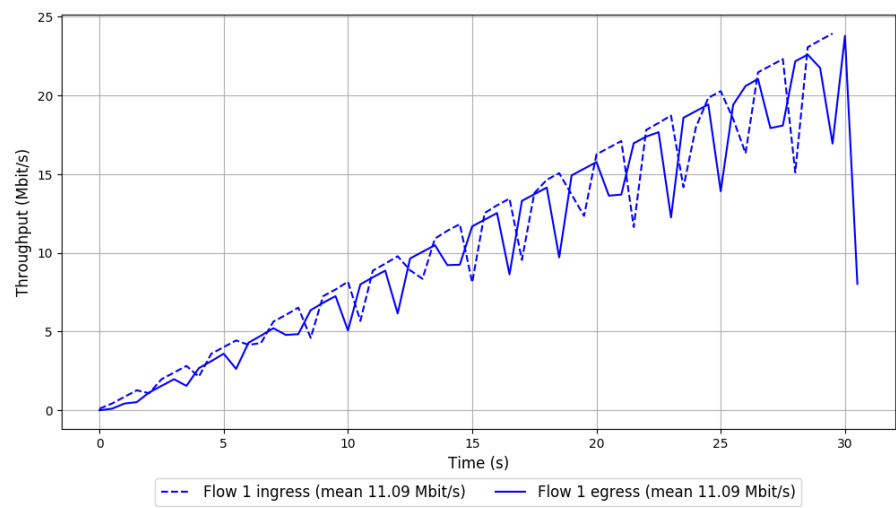
Run 4: Report of LEDBAT — Data Link

Flow 1 ingress (mean 11.09 Mbit/s)   Flow 1 egress (mean 11.09 Mbit/s)

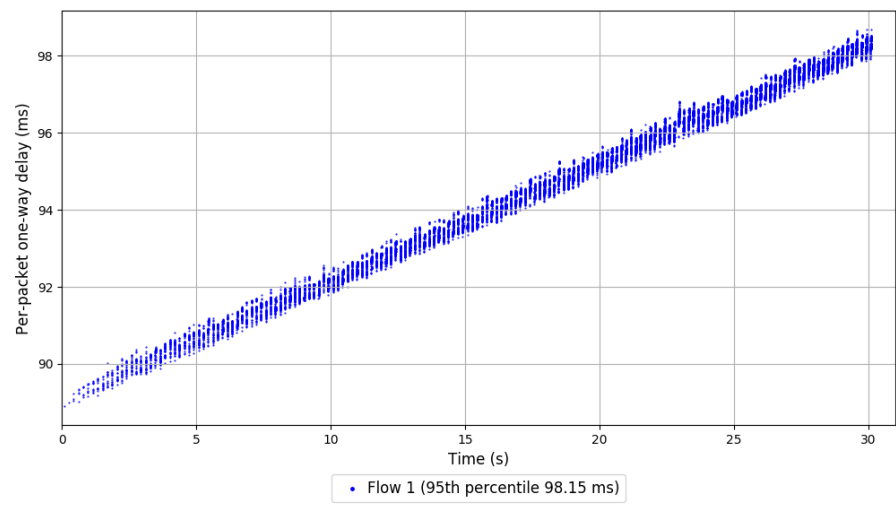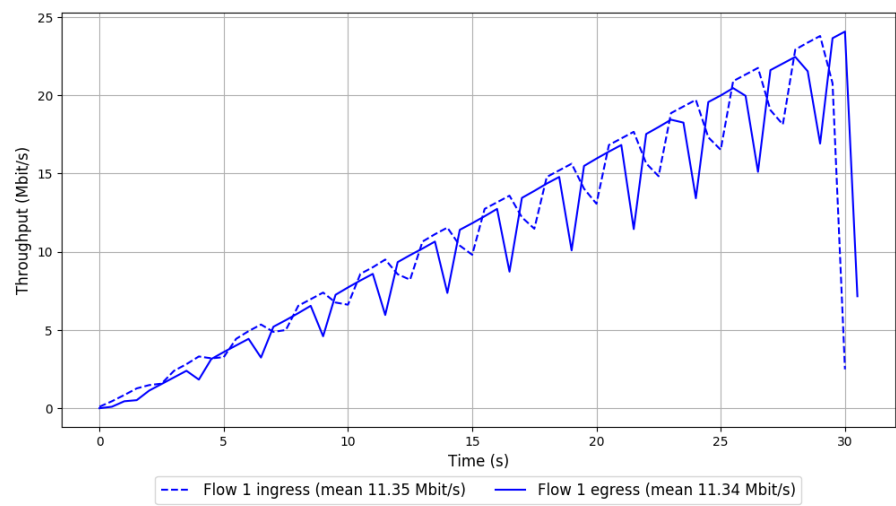Flow 1 (95th percentile 103.82 ms)

```
Run 5: Statistics of LEDBAT

Start at: 2018-12-10 23:44:29
End at: 2018-12-10 23:44:59
Local clock offset: -7.25 ms
Remote clock offset: -5.257 ms

# Below is generated by plot.py at 2018-12-10 23:50:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.34 Mbit/s
95th percentile per-packet one-way delay: 98.149 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 11.34 Mbit/s
95th percentile per-packet one-way delay: 98.149 ms
Loss rate: 0.00%
```

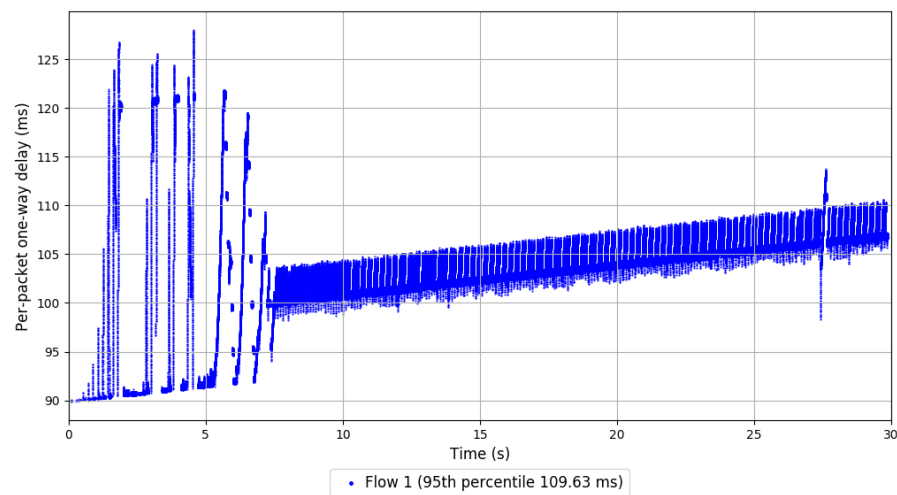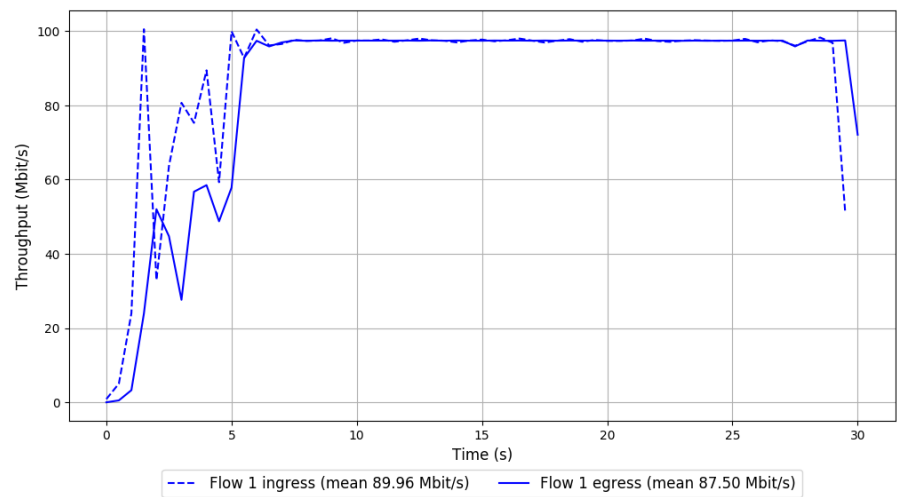# Run 5: Report of LEDBAT — Data Link

```
Run 1: Statistics of Indigo-Muses

Start at: 2018-12-10 22:06:01
End at: 2018-12-10 22:06:31
Local clock offset: 9.045 ms
Remote clock offset: -190.435 ms


# Below is generated by plot.py at 2018-12-10 23:50:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 87.50 Mbit/s
95th percentile per-packet one-way delay: 109.630 ms
Loss rate: 2.68%
-- Flow 1:
Average throughput: 87.50 Mbit/s
95th percentile per-packet one-way delay: 109.630 ms
Loss rate: 2.68%
```

Run 1: Report of Indigo-Muses — Data Link

```
Run 2: Statistics of Indigo-Muses

Start at: 2018-12-10 22:28:18
End at: 2018-12-10 22:28:48
Local clock offset: 12.472 ms
Remote clock offset: -597.856 ms


# Below is generated by plot.py at 2018-12-10 23:50:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 88.31 Mbit/s
95th percentile per-packet one-way delay: 102.175 ms
Loss rate: 1.85%
-- Flow 1:
Average throughput: 88.31 Mbit/s
95th percentile per-packet one-way delay: 102.175 ms
Loss rate: 1.85%
```
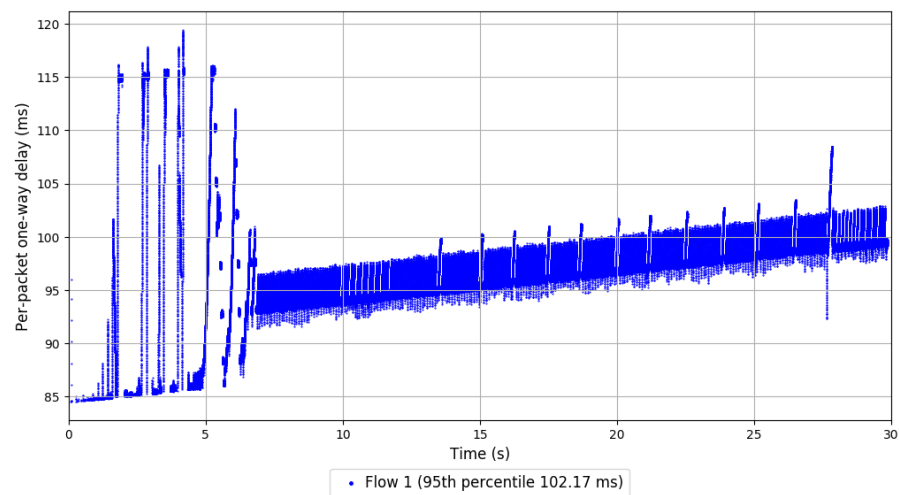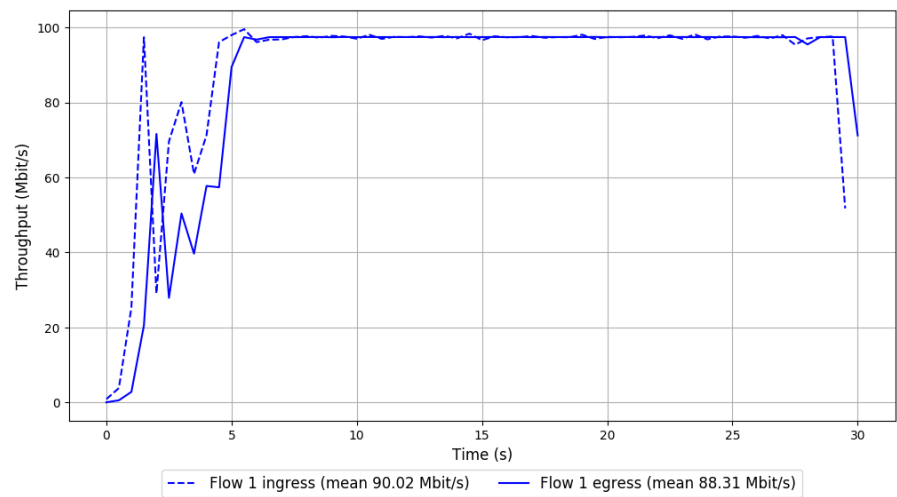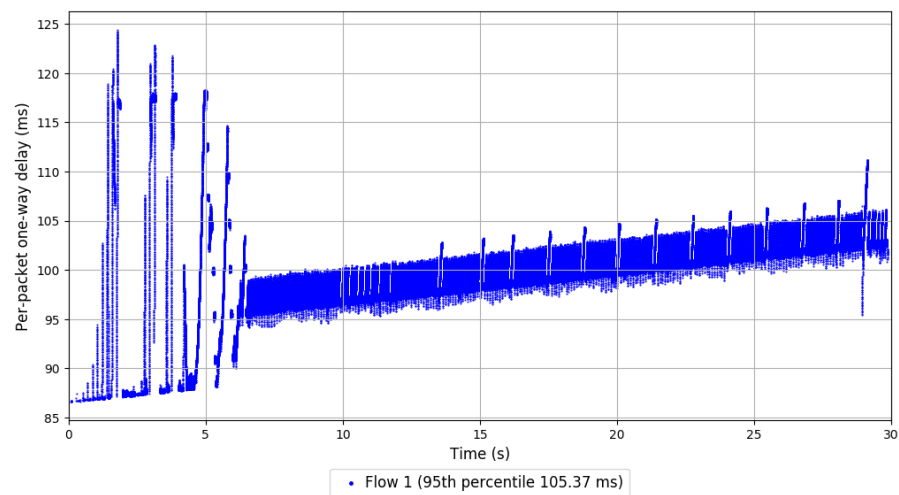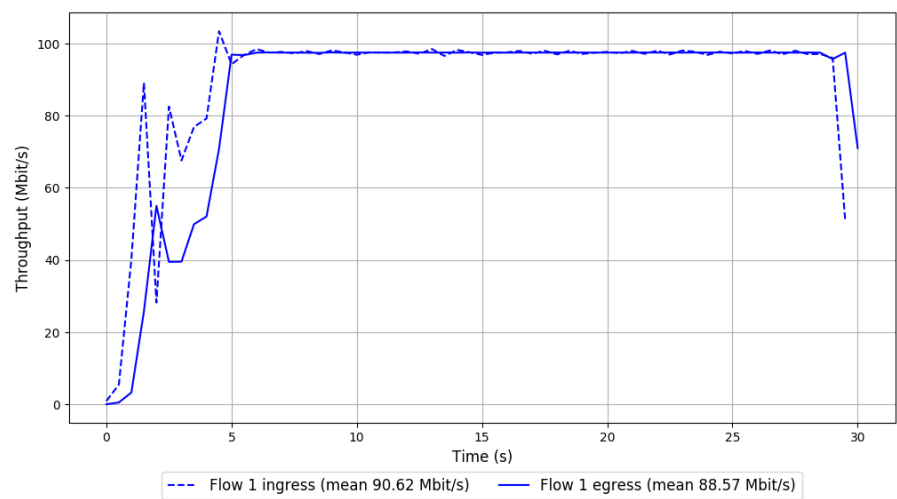
Run 2: Report of Indigo-Muses — Data Link

```
Run 3: Statistics of Indigo-Muses

Start at: 2018-12-10 22:50:33
End at: 2018-12-10 22:51:03
Local clock offset: -3.444 ms
Remote clock offset: -1003.127 ms


# Below is generated by plot.py at 2018-12-10 23:51:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 88.57 Mbit/s
95th percentile per-packet one-way delay: 105.367 ms
Loss rate: 2.21%
-- Flow 1:
Average throughput: 88.57 Mbit/s
95th percentile per-packet one-way delay: 105.367 ms
Loss rate: 2.21%
```

Run 3: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 90.62 Mbit/s) — — — Flow 1 egress (mean 88.57 Mbit/s)
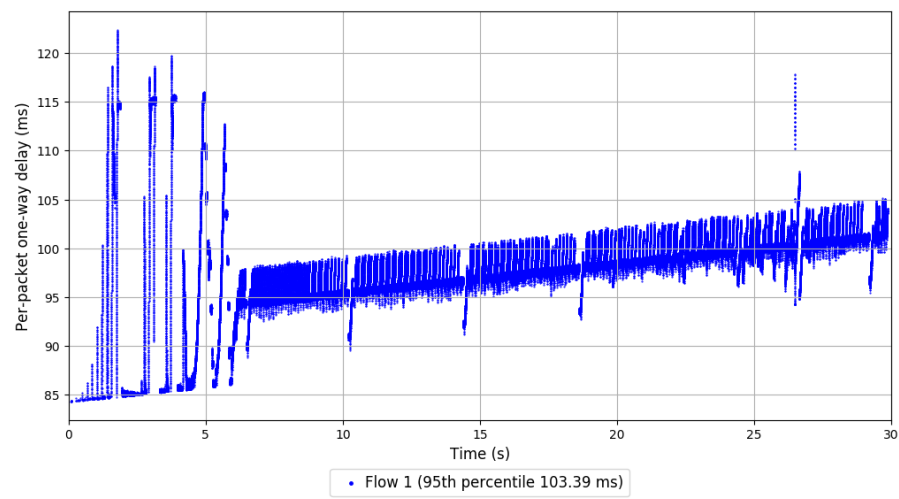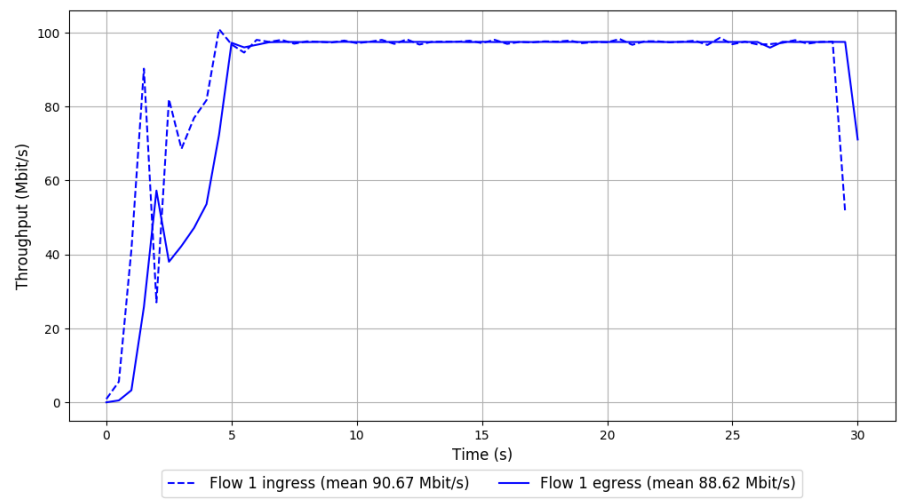

• Flow 1 (95th percentile 105.37 ms)

```
Run 4: Statistics of Indigo-Muses

Start at: 2018-12-10 23:12:47
End at: 2018-12-10 23:13:17
Local clock offset: -6.812 ms
Remote clock offset: -1411.298 ms


# Below is generated by plot.py at 2018-12-10 23:51:02
# Datalink statistics
-- Total of 1 flow:
Average throughput: 88.62 Mbit/s
95th percentile per-packet one-way delay: 103.389 ms
Loss rate: 2.20%
-- Flow 1:
Average throughput: 88.62 Mbit/s
95th percentile per-packet one-way delay: 103.389 ms
Loss rate: 2.20%
```
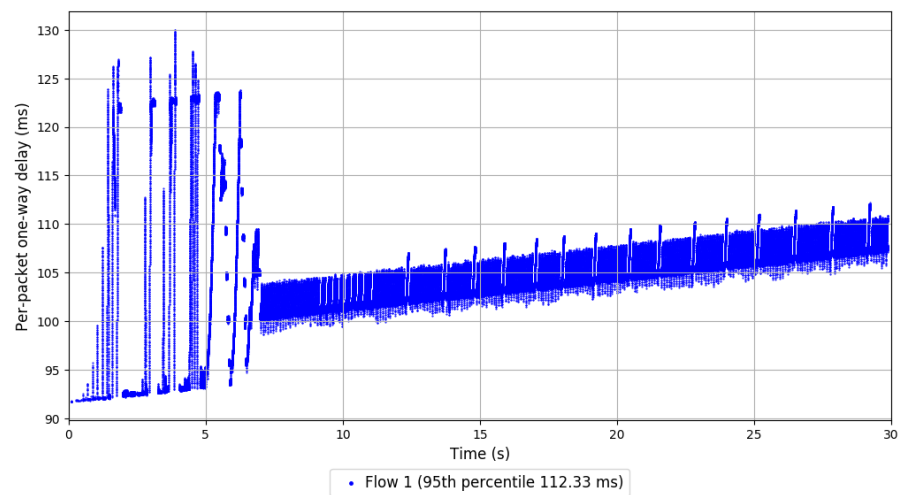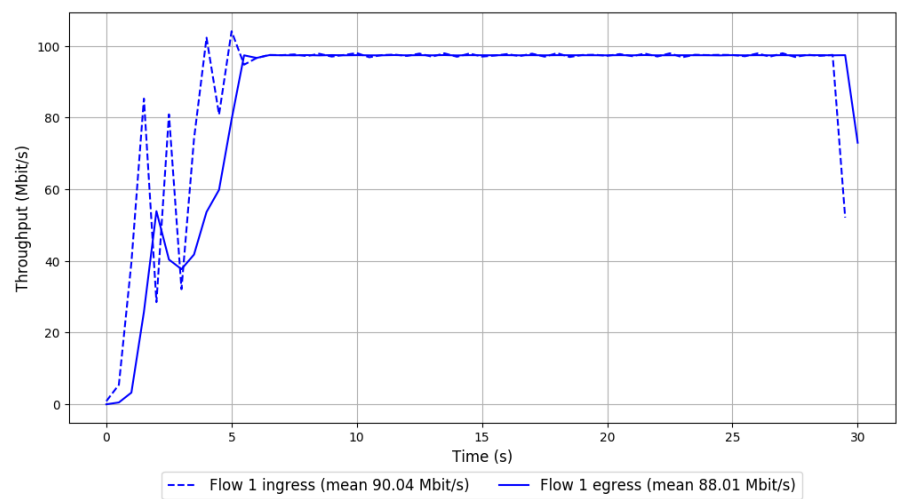
Run 4: Report of Indigo-Muses — Data Link

```
Run 5: Statistics of Indigo-Muses

Start at: 2018-12-10 23:35:01
End at: 2018-12-10 23:35:31
Local clock offset: -8.227 ms
Remote clock offset: -1812.345 ms


# Below is generated by plot.py at 2018-12-10 23:51:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 88.01 Mbit/s
95th percentile per-packet one-way delay: 112.335 ms
Loss rate: 2.20%
-- Flow 1:
Average throughput: 88.01 Mbit/s
95th percentile per-packet one-way delay: 112.335 ms
Loss rate: 2.20%
```

Run 5: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 90.04 Mbit/s)   Flow 1 egress (mean 88.01 Mbit/s)
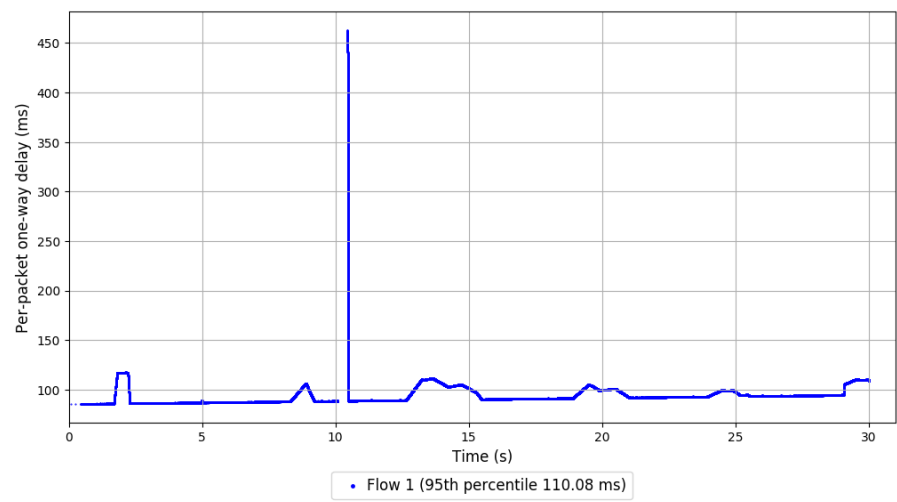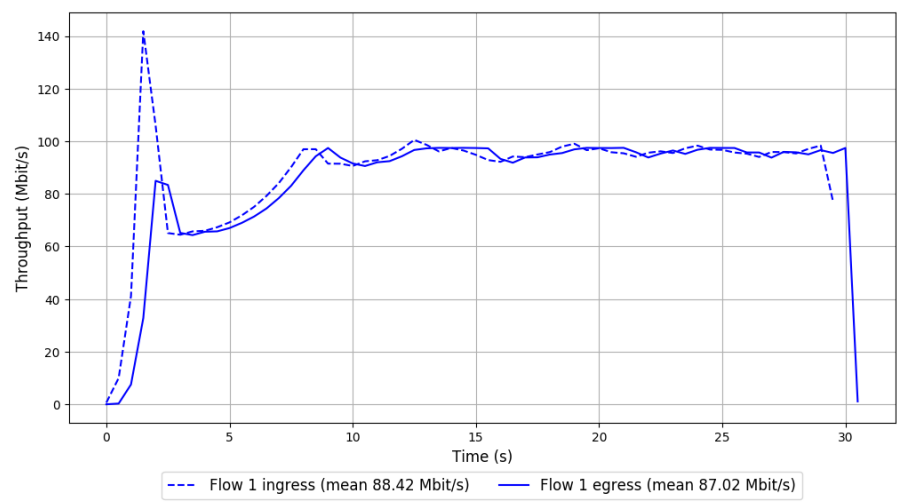

Flow 1 (95th percentile 112.33 ms)

```
Run 1: Statistics of PCC-Allegro

Start at: 2018-12-10 22:09:35
End at: 2018-12-10 22:10:05
Local clock offset: 9.688 ms
Remote clock offset: -254.225 ms


# Below is generated by plot.py at 2018-12-10 23:51:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 87.02 Mbit/s
95th percentile per-packet one-way delay: 110.079 ms
Loss rate: 1.50%
-- Flow 1:
Average throughput: 87.02 Mbit/s
95th percentile per-packet one-way delay: 110.079 ms
Loss rate: 1.50%
```

Run 1: Report of PCC-Allegro — Data Link

```
Run 2: Statistics of PCC-Allegro

Start at: 2018-12-10 22:31:51
End at: 2018-12-10 22:32:21
Local clock offset: 6.909 ms
Remote clock offset: -658.359 ms


# Below is generated by plot.py at 2018-12-10 23:51:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 86.16 Mbit/s
95th percentile per-packet one-way delay: 114.453 ms
Loss rate: 1.54%
-- Flow 1:
Average throughput: 86.16 Mbit/s
95th percentile per-packet one-way delay: 114.453 ms
Loss rate: 1.54%
```
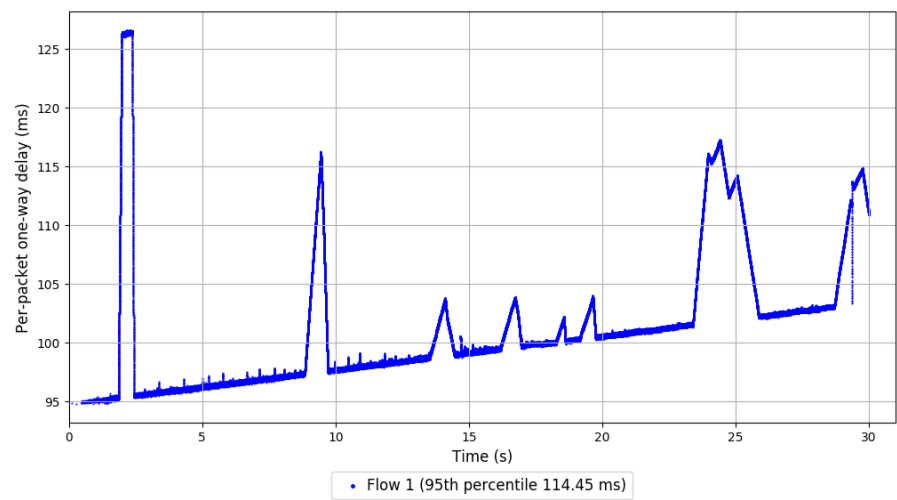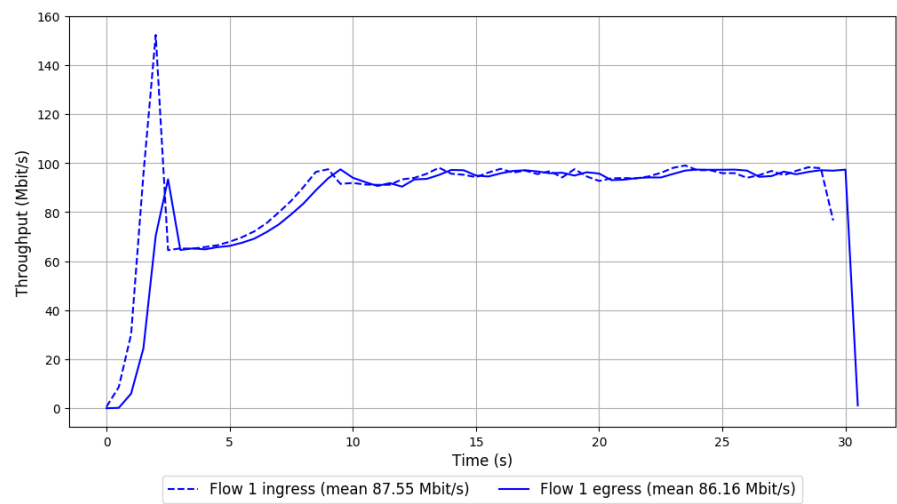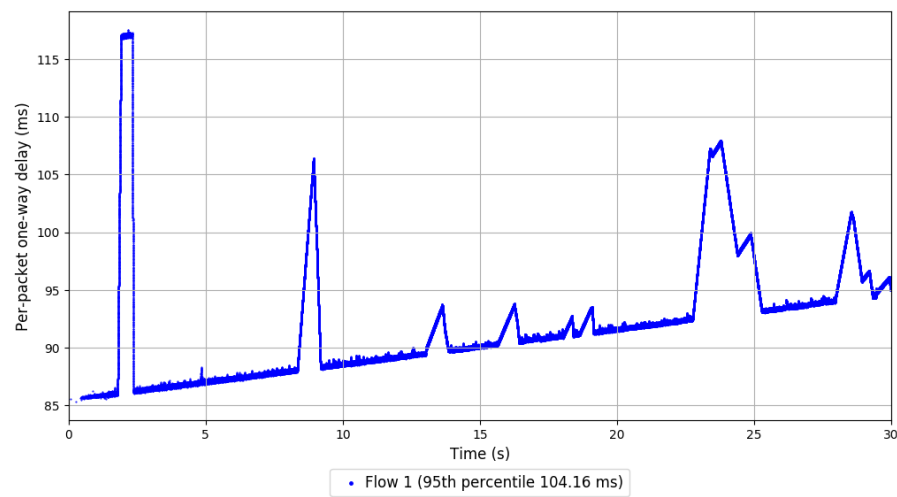
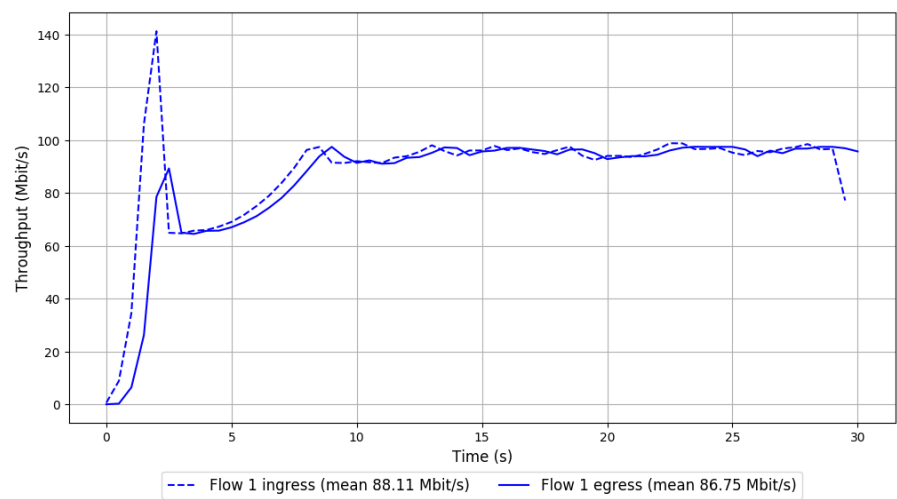Run 2: Report of PCC-Allegro — Data Link

```
Run 3: Statistics of PCC-Allegro

Start at: 2018-12-10 22:54:06
End at: 2018-12-10 22:54:37
Local clock offset: -4.164 ms
Remote clock offset: -1071.156 ms


# Below is generated by plot.py at 2018-12-10 23:51:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 86.75 Mbit/s
95th percentile per-packet one-way delay: 104.158 ms
Loss rate: 1.51%
-- Flow 1:
Average throughput: 86.75 Mbit/s
95th percentile per-packet one-way delay: 104.158 ms
Loss rate: 1.51%
```

Run 3: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 88.11 Mbit/s) — Flow 1 egress (mean 86.75 Mbit/s)
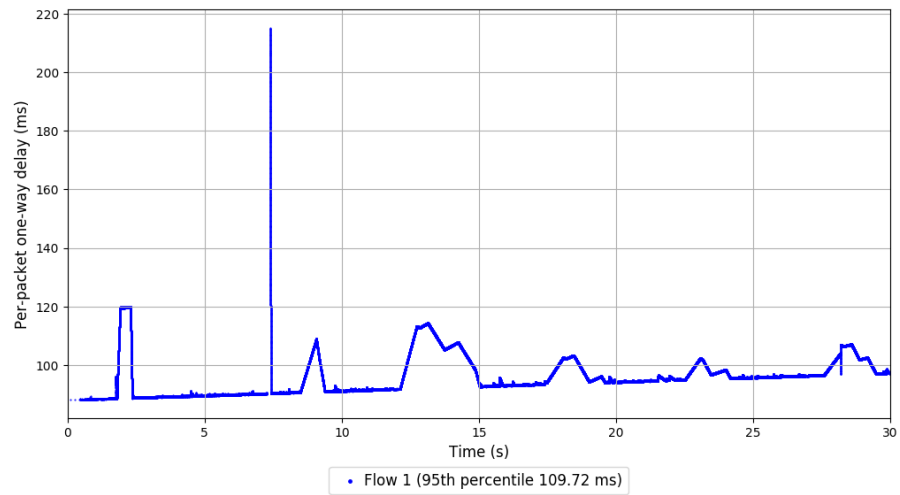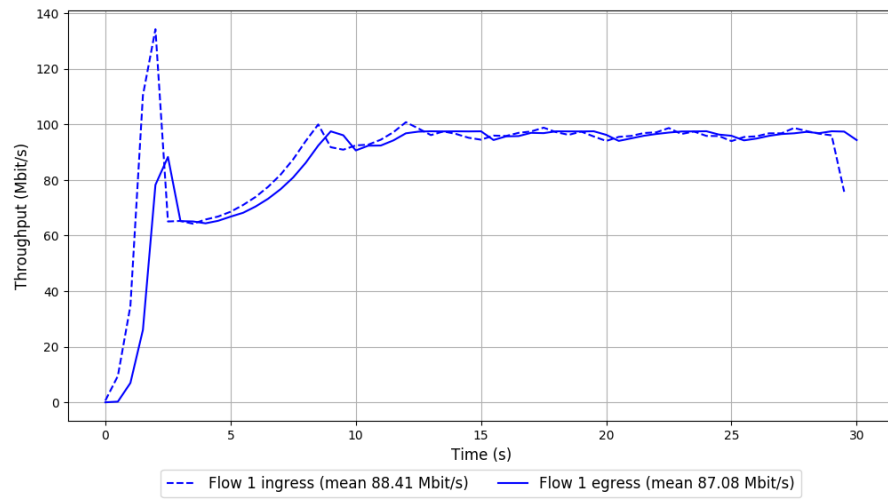

Flow 1 (95th percentile 104.16 ms)

```
Run 4: Statistics of PCC-Allegro

Start at: 2018-12-10 23:16:21
End at: 2018-12-10 23:16:51
Local clock offset: -8.097 ms
Remote clock offset: -1474.802 ms


# Below is generated by plot.py at 2018-12-10 23:52:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 87.08 Mbit/s
95th percentile per-packet one-way delay: 109.715 ms
Loss rate: 1.48%
-- Flow 1:
Average throughput: 87.08 Mbit/s
95th percentile per-packet one-way delay: 109.715 ms
Loss rate: 1.48%
```

Run 4: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 88.41 Mbit/s) --- Flow 1 egress (mean 87.08 Mbit/s)
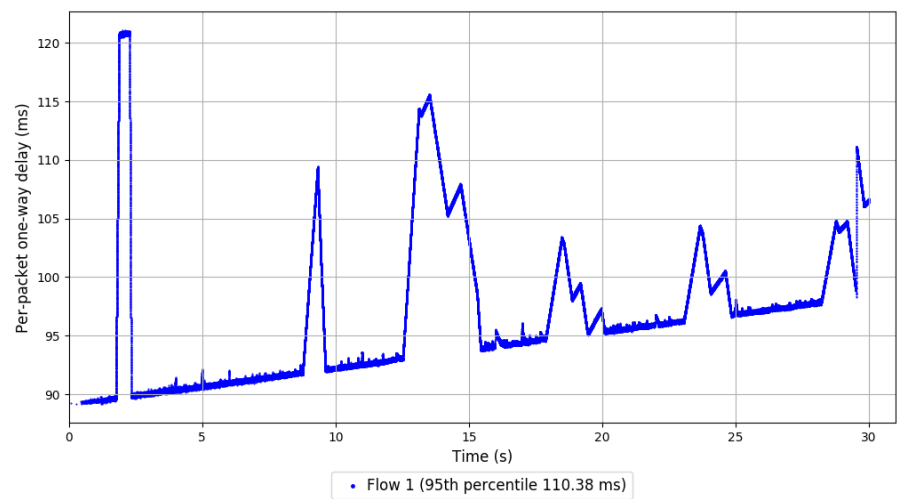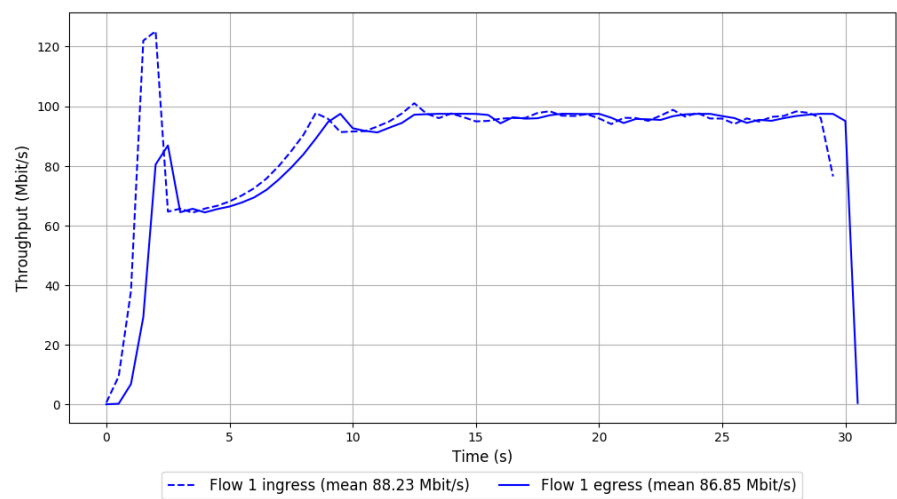

Flow 1 (95th percentile 109.72 ms)

```
Run 5: Statistics of PCC-Allegro

Start at: 2018-12-10 23:38:37
End at: 2018-12-10 23:39:07
Local clock offset: -8.187 ms
Remote clock offset: -1886.094 ms

# Below is generated by plot.py at 2018-12-10 23:52:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 86.85 Mbit/s
95th percentile per-packet one-way delay: 110.376 ms
Loss rate: 1.52%
-- Flow 1:
Average throughput: 86.85 Mbit/s
95th percentile per-packet one-way delay: 110.376 ms
Loss rate: 1.52%
```

Run 5: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 88.23 Mbit/s) ----   Flow 1 egress (mean 86.85 Mbit/s) ——
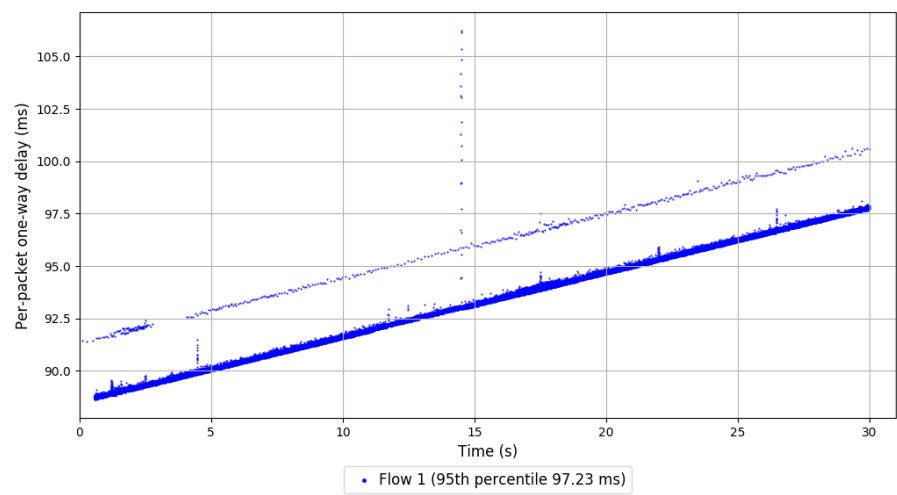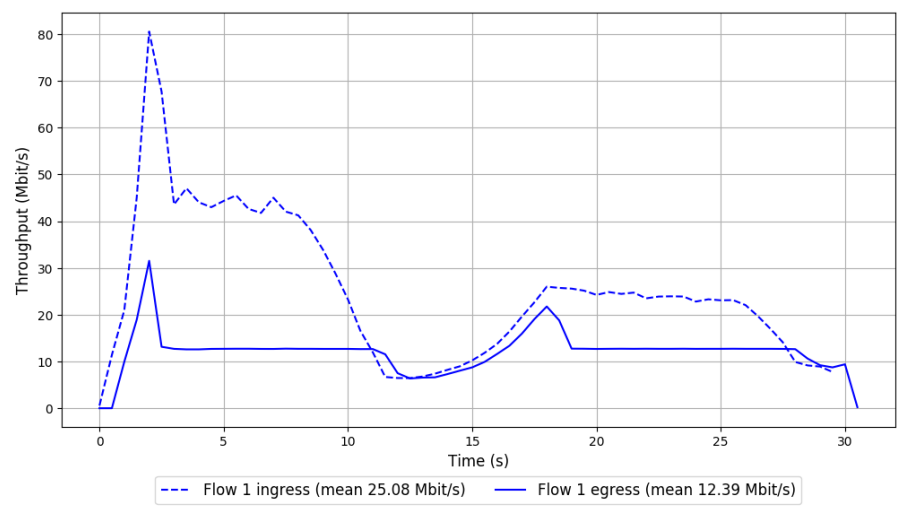

Flow 1 (95th percentile 110.38 ms)

```
Run 1: Statistics of PCC-Expr

Start at: 2018-12-10 22:02:32
End at: 2018-12-10 22:03:02
Local clock offset: 8.241 ms
Remote clock offset: -122.573 ms


# Below is generated by plot.py at 2018-12-10 23:52:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.39 Mbit/s
95th percentile per-packet one-way delay: 97.231 ms
Loss rate: 50.58%
-- Flow 1:
Average throughput: 12.39 Mbit/s
95th percentile per-packet one-way delay: 97.231 ms
Loss rate: 50.58%
```

Run 1: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 25.08 Mbit/s)   Flow 1 egress (mean 12.39 Mbit/s)

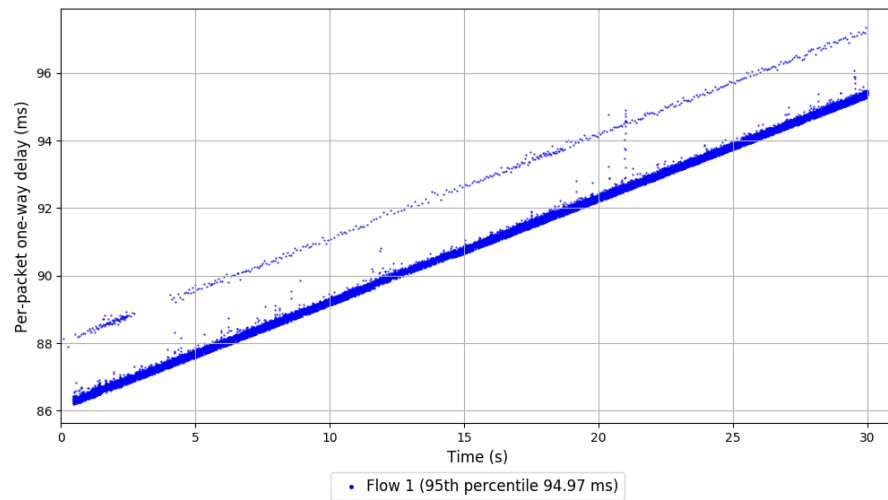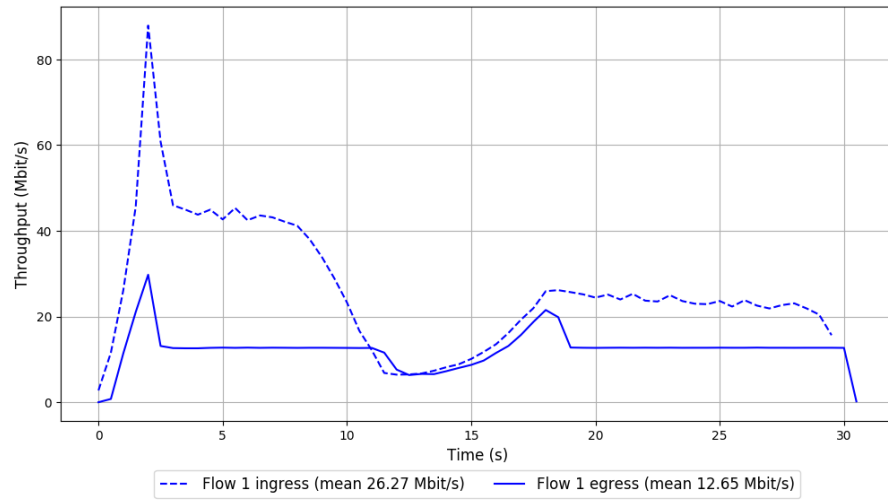
Flow 1 (95th percentile 97.23 ms)

```
Run 2: Statistics of PCC-Expr

Start at: 2018-12-10 22:24:49
End at: 2018-12-10 22:25:19
Local clock offset: 13.65 ms
Remote clock offset: -532.978 ms


# Below is generated by plot.py at 2018-12-10 23:52:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.65 Mbit/s
95th percentile per-packet one-way delay: 94.971 ms
Loss rate: 51.85%
-- Flow 1:
Average throughput: 12.65 Mbit/s
95th percentile per-packet one-way delay: 94.971 ms
Loss rate: 51.85%
```
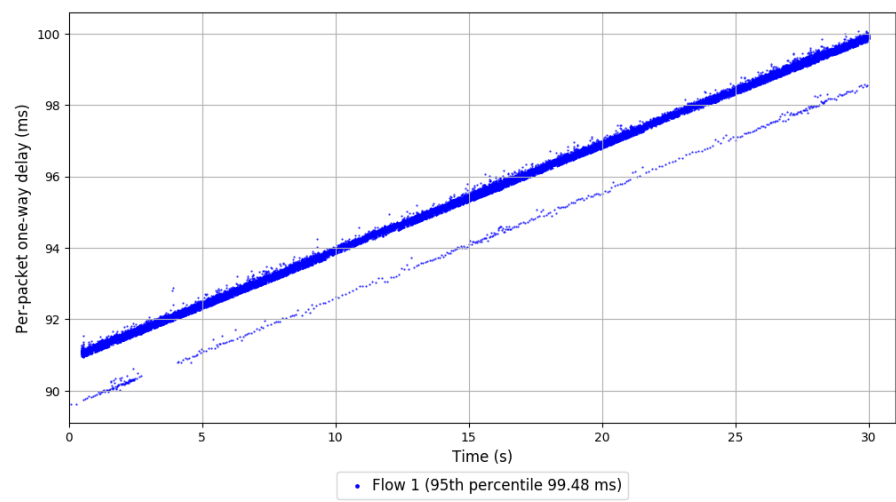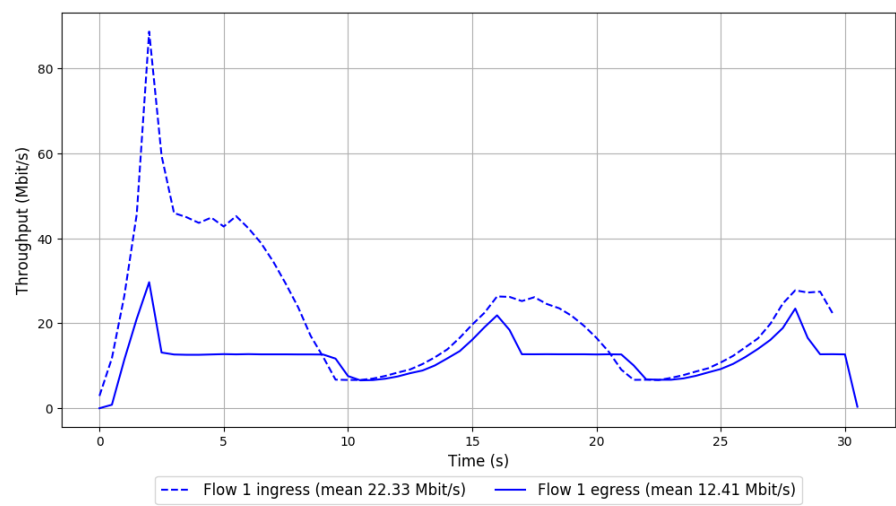
Run 2: Report of PCC-Expr — Data Link

```
Run 3: Statistics of PCC-Expr

Start at: 2018-12-10 22:47:04
End at: 2018-12-10 22:47:34
Local clock offset: -2.619 ms
Remote clock offset: -935.084 ms


# Below is generated by plot.py at 2018-12-10 23:52:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.41 Mbit/s
95th percentile per-packet one-way delay: 99.477 ms
Loss rate: 44.42%
-- Flow 1:
Average throughput: 12.41 Mbit/s
95th percentile per-packet one-way delay: 99.477 ms
Loss rate: 44.42%
```

Run 3: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 22.33 Mbit/s) --- Flow 1 egress (mean 12.41 Mbit/s)

Flow 1 (95th percentile 99.48 ms)

```
Run 4: Statistics of PCC-Expr

Start at: 2018-12-10 23:09:18
End at: 2018-12-10 23:09:48
Local clock offset: -6.489 ms
Remote clock offset: -1345.211 ms


# Below is generated by plot.py at 2018-12-10 23:52:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.40 Mbit/s
95th percentile per-packet one-way delay: 96.109 ms
Loss rate: 44.21%
-- Flow 1:
Average throughput: 12.40 Mbit/s
95th percentile per-packet one-way delay: 96.109 ms
Loss rate: 44.21%
```
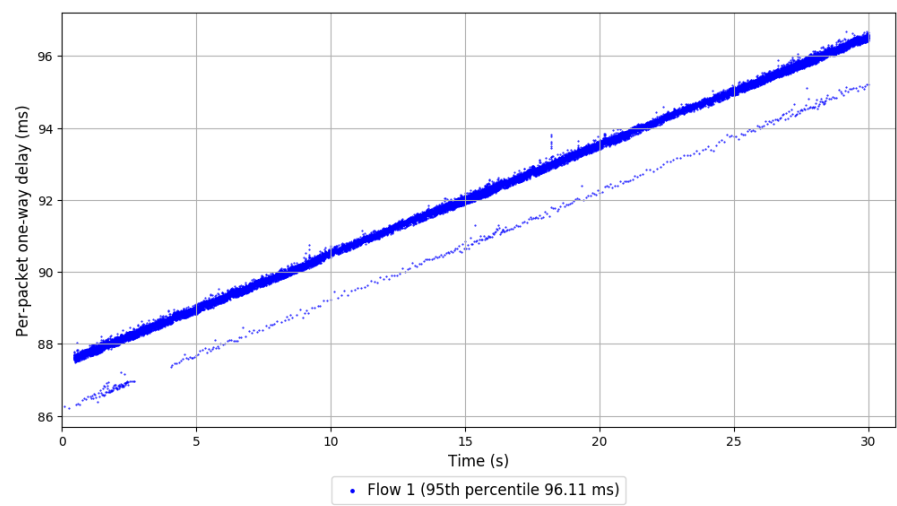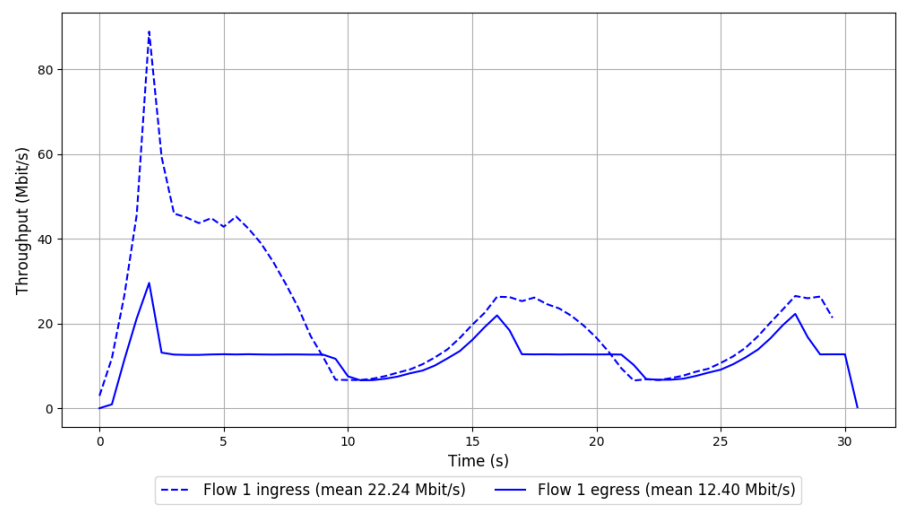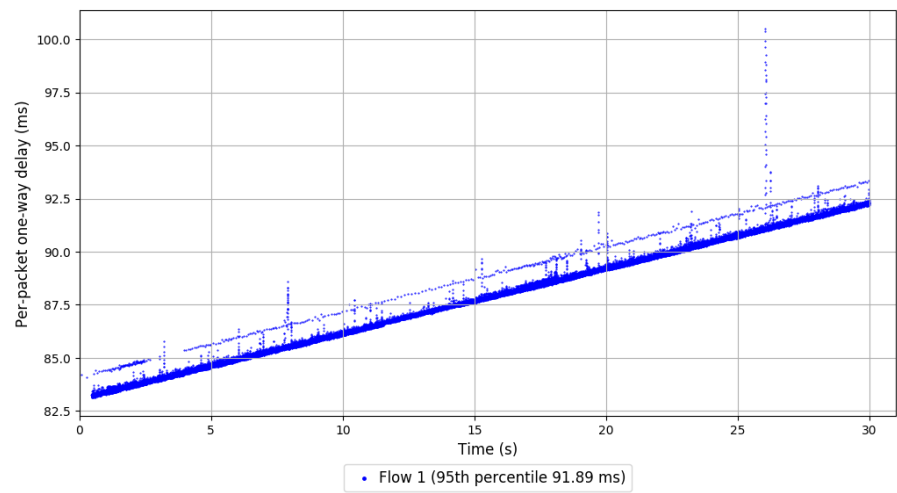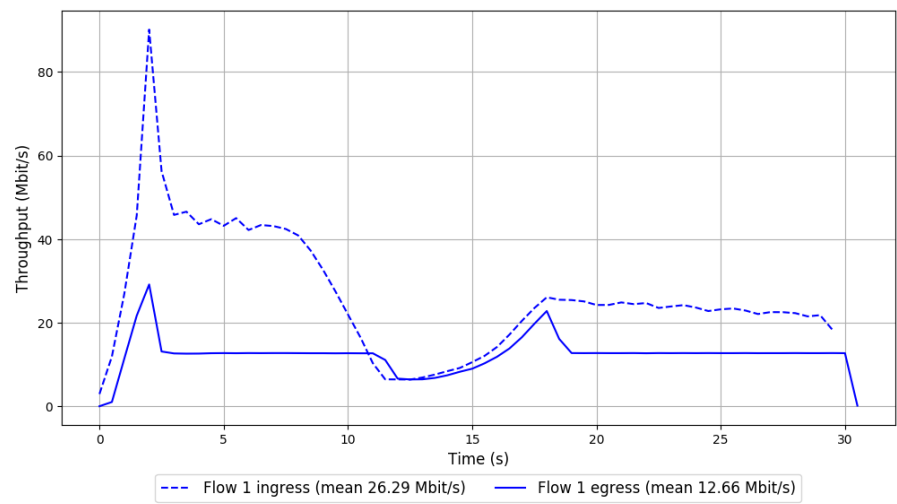
Run 4: Report of PCC-Expr — Data Link

```
Run 5: Statistics of PCC-Expr

Start at: 2018-12-10 23:31:32
End at: 2018-12-10 23:32:02
Local clock offset: -8.61 ms
Remote clock offset: -1755.082 ms


# Below is generated by plot.py at 2018-12-10 23:52:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.66 Mbit/s
95th percentile per-packet one-way delay: 91.890 ms
Loss rate: 51.85%
-- Flow 1:
Average throughput: 12.66 Mbit/s
95th percentile per-packet one-way delay: 91.890 ms
Loss rate: 51.85%
```
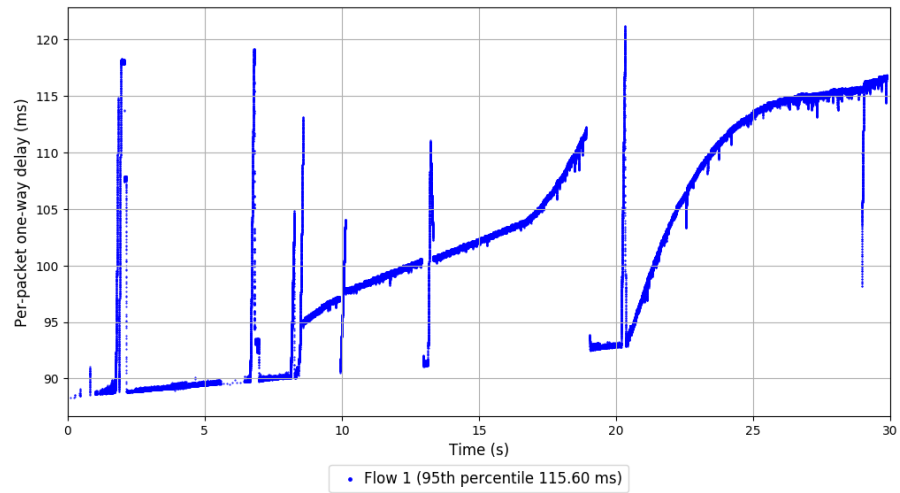
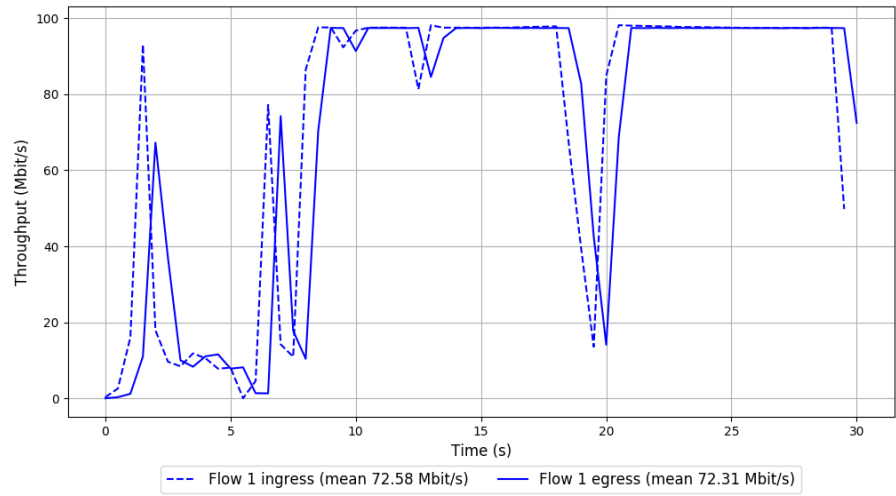Run 5: Report of PCC-Expr — Data Link

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-12-10 21:56:36
End at: 2018-12-10 21:57:06
Local clock offset: 8.06 ms
Remote clock offset: -18.807 ms


# Below is generated by plot.py at 2018-12-10 23:52:26
# Datalink statistics
-- Total of 1 flow:
Average throughput: 72.31 Mbit/s
95th percentile per-packet one-way delay: 115.596 ms
Loss rate: 0.28%
-- Flow 1:
Average throughput: 72.31 Mbit/s
95th percentile per-packet one-way delay: 115.596 ms
Loss rate: 0.28%
```
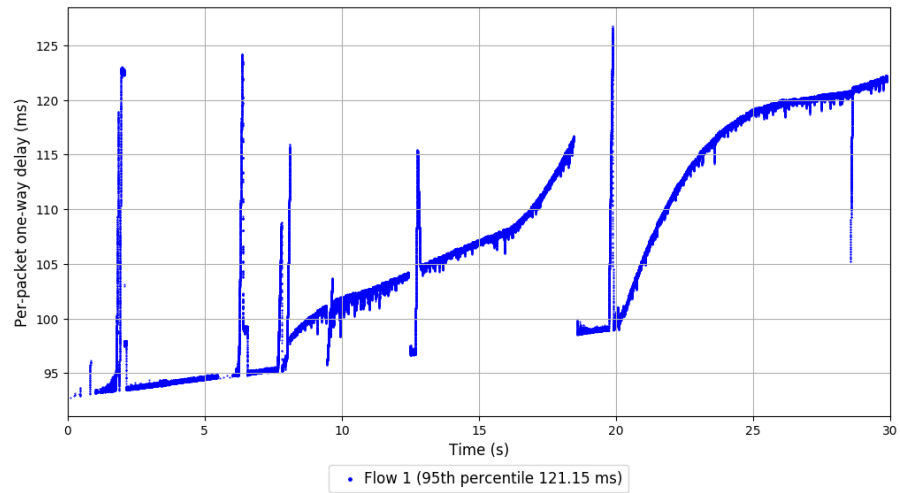
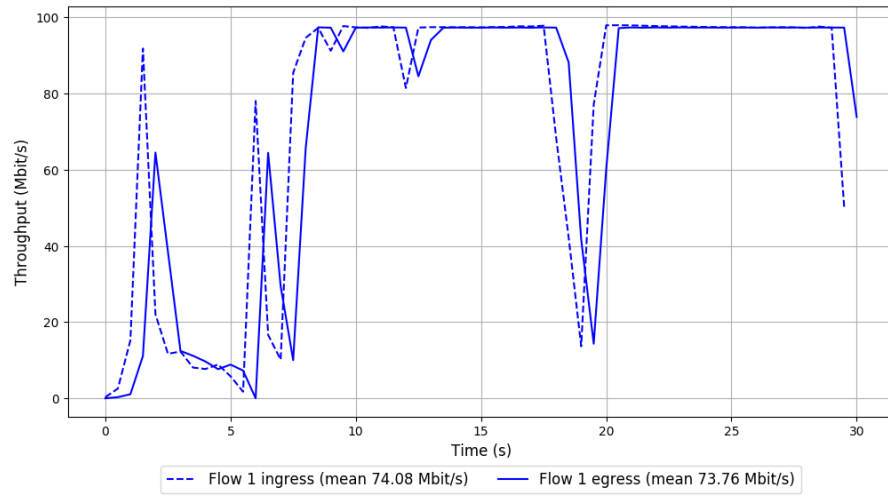Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-12-10 22:18:53
End at: 2018-12-10 22:19:23
Local clock offset: 11.516 ms
Remote clock offset: -420.005 ms


# Below is generated by plot.py at 2018-12-10 23:52:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 73.76 Mbit/s
95th percentile per-packet one-way delay: 121.150 ms
Loss rate: 0.32%
-- Flow 1:
Average throughput: 73.76 Mbit/s
95th percentile per-packet one-way delay: 121.150 ms
Loss rate: 0.32%
```

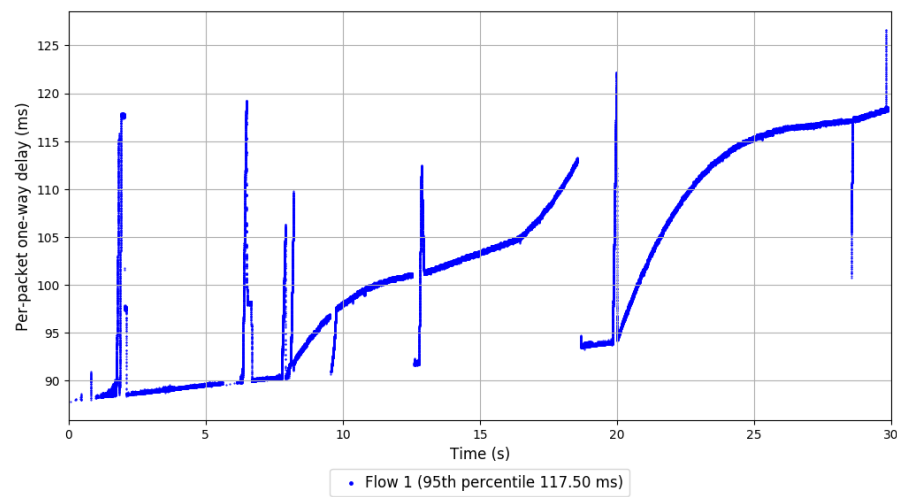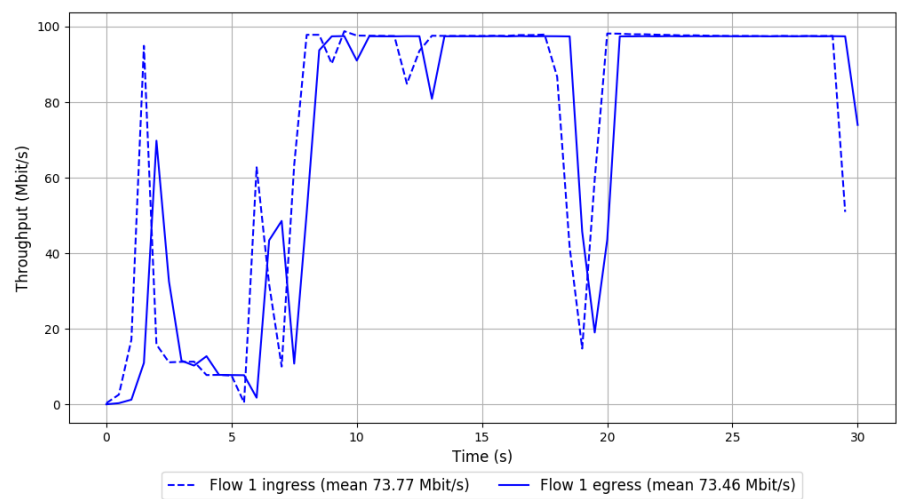Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-12-10 22:41:10
End at: 2018-12-10 22:41:40
Local clock offset: -0.484 ms
Remote clock offset: -828.126 ms


# Below is generated by plot.py at 2018-12-10 23:52:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 73.46 Mbit/s
95th percentile per-packet one-way delay: 117.501 ms
Loss rate: 0.31%
-- Flow 1:
Average throughput: 73.46 Mbit/s
95th percentile per-packet one-way delay: 117.501 ms
Loss rate: 0.31%
```

Run 3: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 73.77 Mbit/s) ---- Flow 1 egress (mean 73.46 Mbit/s) ——
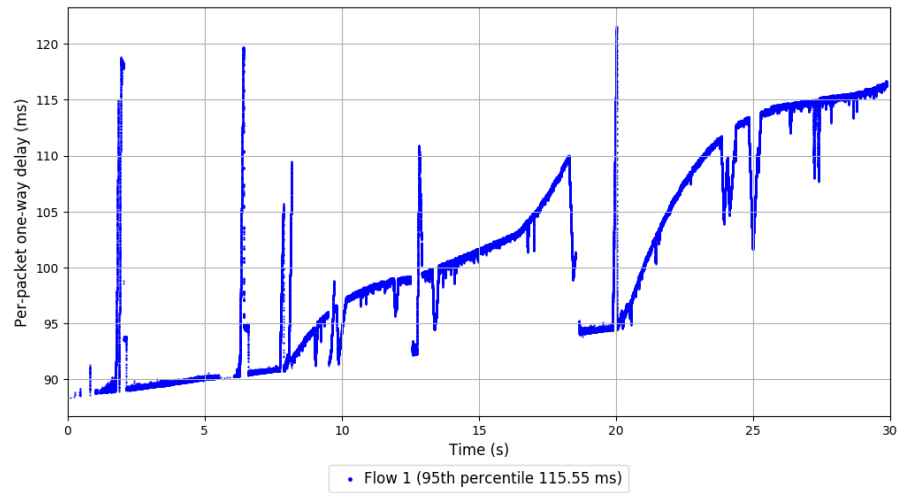

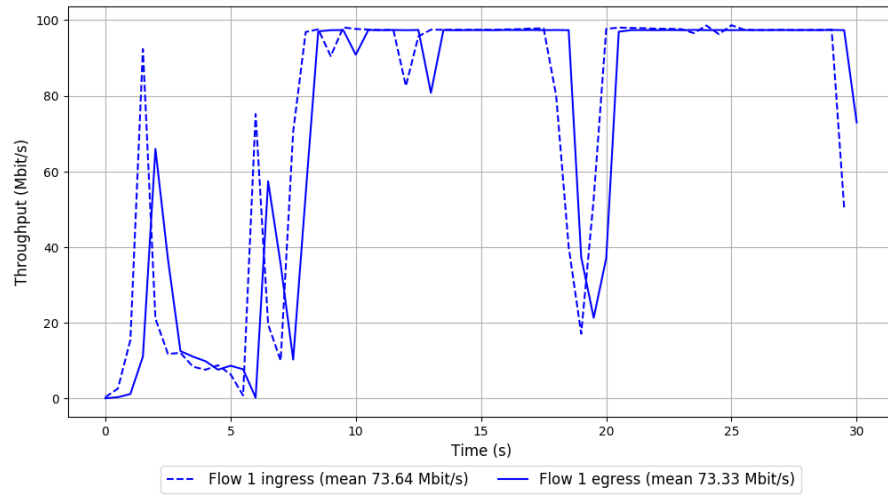
• Flow 1 (95th percentile 117.50 ms)

```
Run 4: Statistics of QUIC Cubic

Start at: 2018-12-10 23:03:26
End at: 2018-12-10 23:03:56
Local clock offset: -5.663 ms
Remote clock offset: -1237.115 ms


# Below is generated by plot.py at 2018-12-10 23:52:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 73.33 Mbit/s
95th percentile per-packet one-way delay: 115.546 ms
Loss rate: 0.33%
-- Flow 1:
Average throughput: 73.33 Mbit/s
95th percentile per-packet one-way delay: 115.546 ms
Loss rate: 0.33%
```

Run 4: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 73.64 Mbit/s)   Flow 1 egress (mean 73.33 Mbit/s)
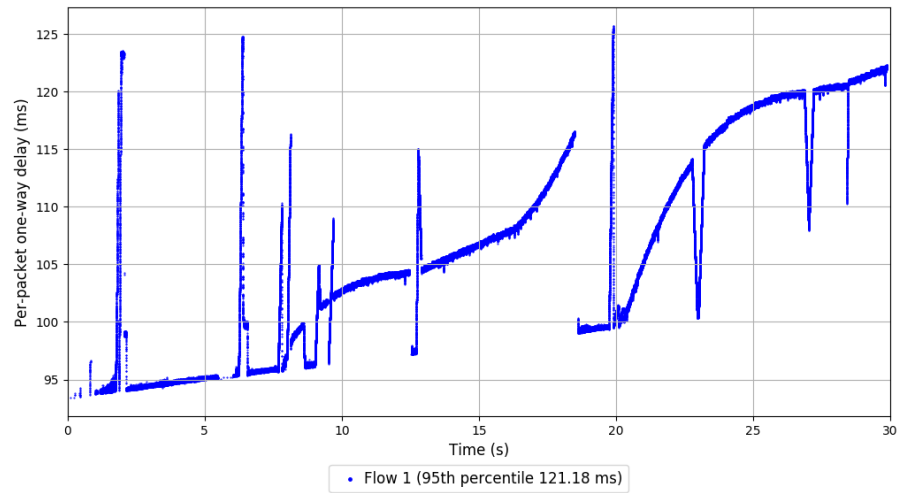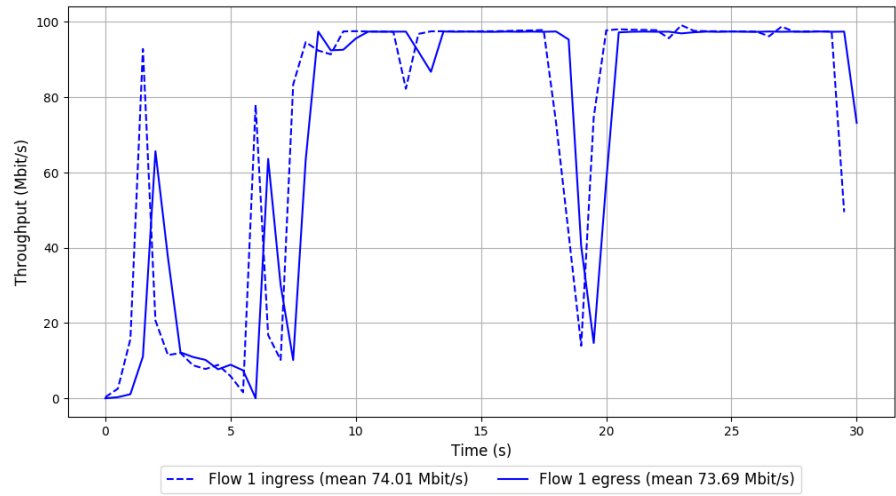

Flow 1 (95th percentile 115.55 ms)

```
Run 5: Statistics of QUIC Cubic

Start at: 2018-12-10 23:25:38
End at: 2018-12-10 23:26:09
Local clock offset: -9.053 ms
Remote clock offset: -1639.153 ms

# Below is generated by plot.py at 2018-12-10 23:52:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 73.69 Mbit/s
95th percentile per-packet one-way delay: 121.178 ms
Loss rate: 0.33%
-- Flow 1:
Average throughput: 73.69 Mbit/s
95th percentile per-packet one-way delay: 121.178 ms
Loss rate: 0.33%
```

Run 5: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 74.01 Mbit/s)   Flow 1 egress (mean 73.69 Mbit/s)
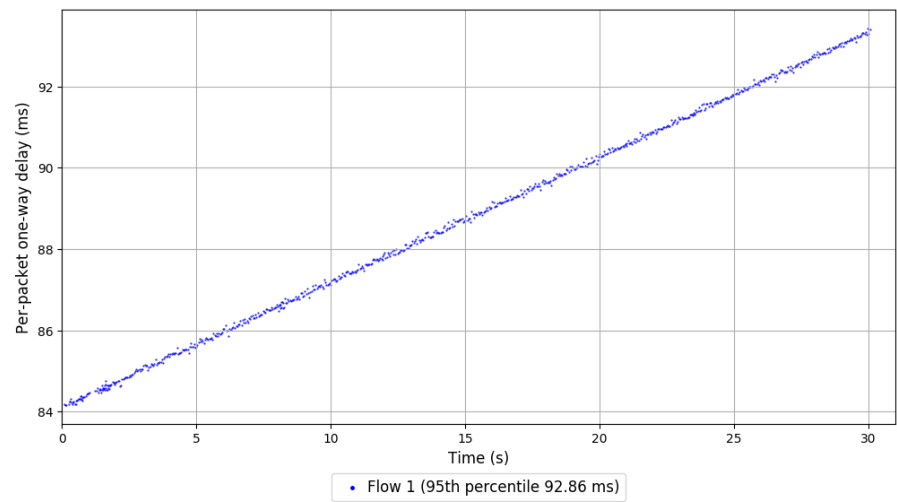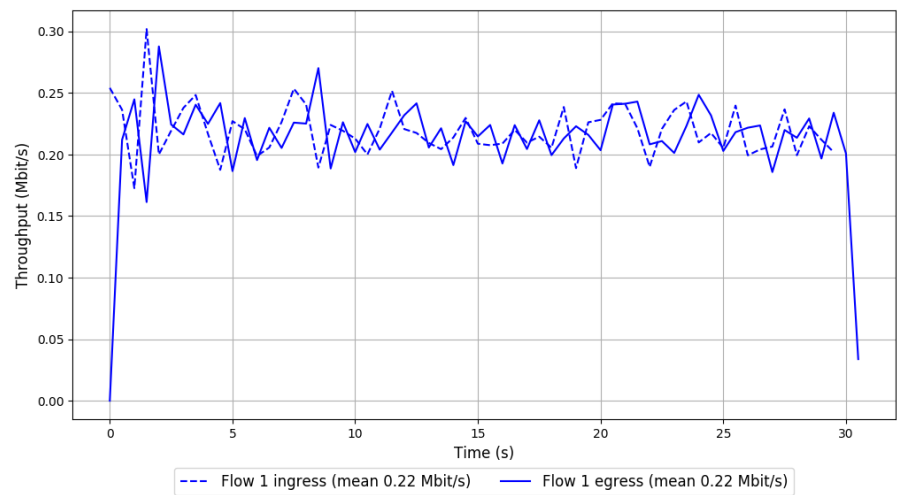

Flow 1 (95th percentile 121.18 ms)

```
Run 1: Statistics of SCReAM

Start at: 2018-12-10 22:14:19
End at: 2018-12-10 22:14:49
Local clock offset: 11.476 ms
Remote clock offset: -343.598 ms


# Below is generated by plot.py at 2018-12-10 23:52:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 92.864 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 92.864 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)
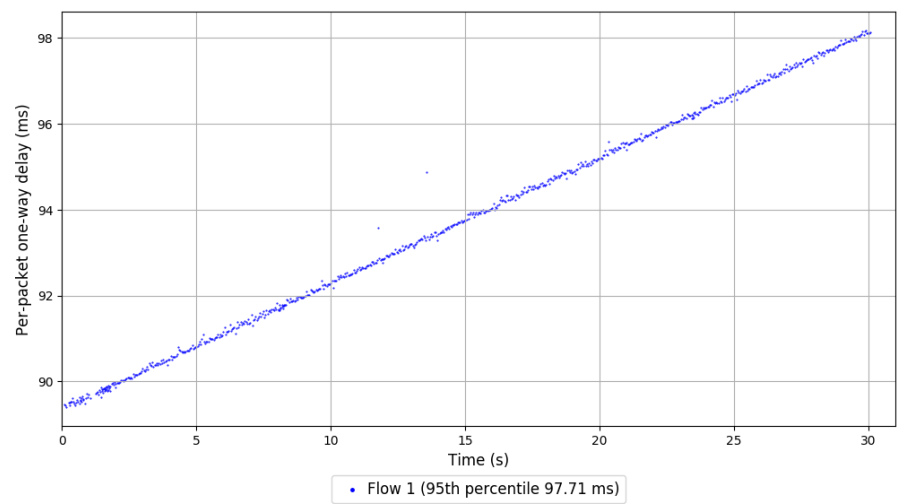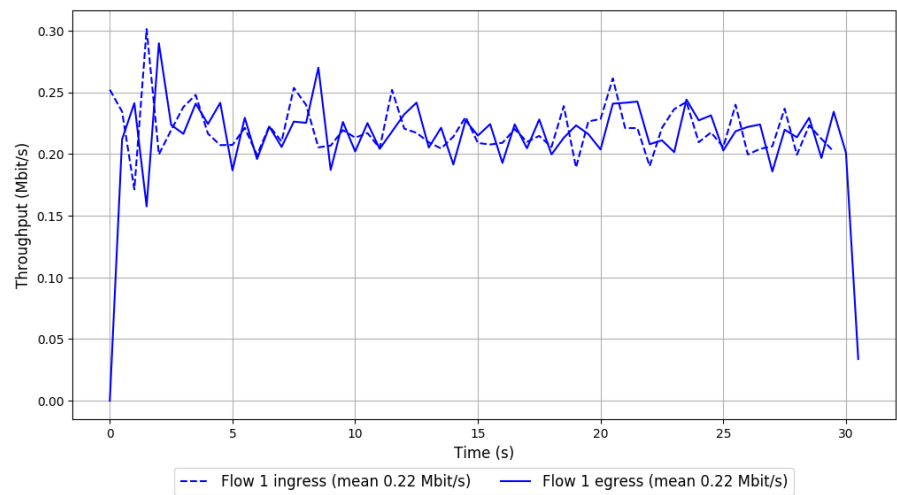

• Flow 1 (95th percentile 92.86 ms)

```
Run 2: Statistics of SCReAM

Start at: 2018-12-10 22:36:36
End at: 2018-12-10 22:37:06
Local clock offset: 2.263 ms
Remote clock offset: -744.911 ms


# Below is generated by plot.py at 2018-12-10 23:52:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 97.706 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 97.706 ms
Loss rate: 0.00%
```

Run 2: Report of SCReAM — Data Link

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

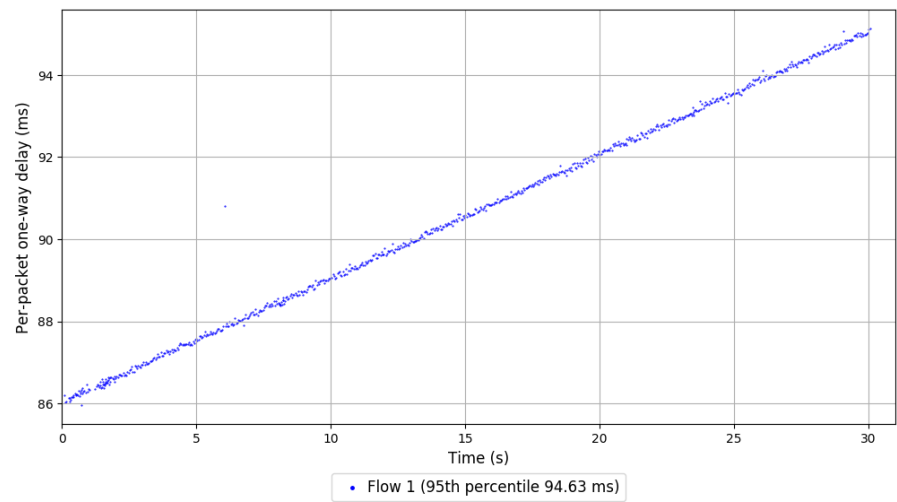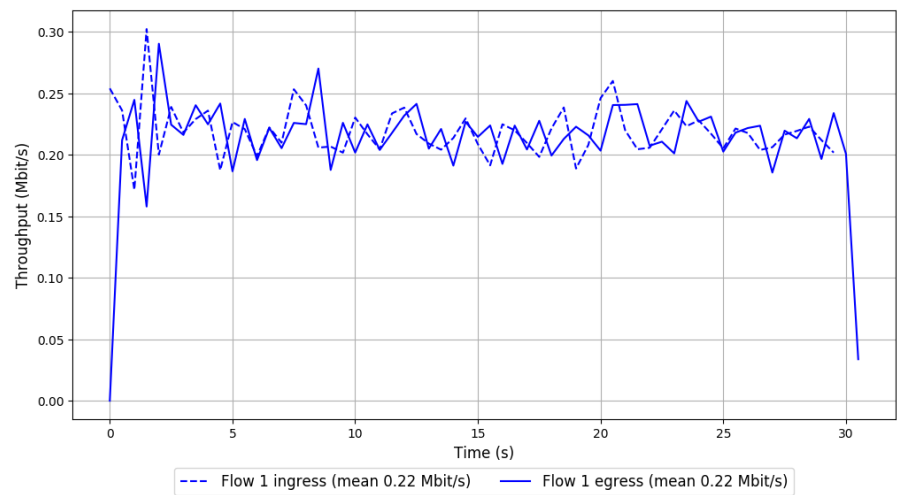• Flow 1 (95th percentile 97.71 ms)

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```
Run 3: Statistics of SCReAM

Start at: 2018-12-10 22:58:51
End at: 2018-12-10 22:59:21
Local clock offset: -5.791 ms
Remote clock offset: -1156.263 ms


# Below is generated by plot.py at 2018-12-10 23:52:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 94.632 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 94.632 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)

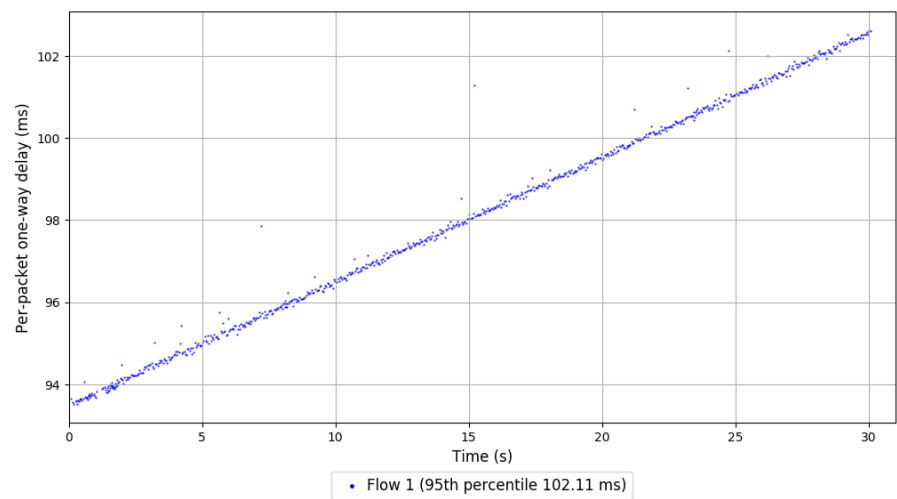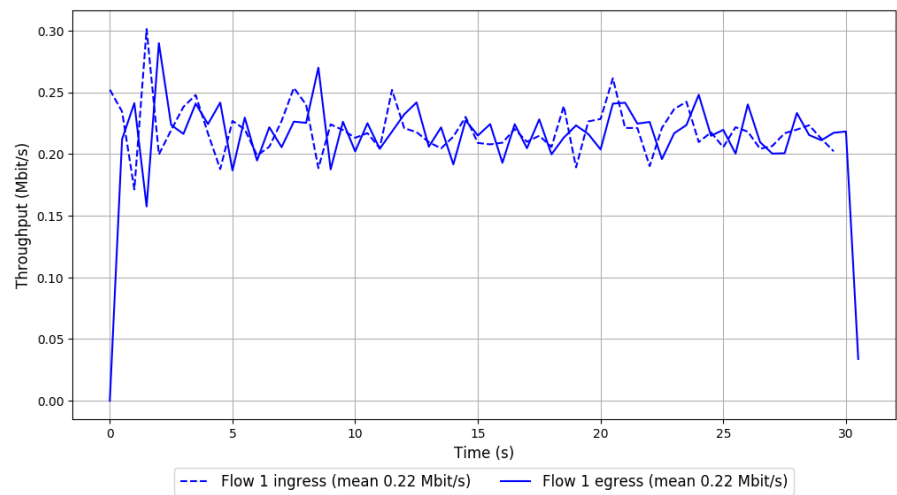Flow 1 (95th percentile 94.63 ms)

```
Run 4: Statistics of SCReAM

Start at: 2018-12-10 23:21:05
End at: 2018-12-10 23:21:35
Local clock offset: -7.71 ms
Remote clock offset: -1554.986 ms


# Below is generated by plot.py at 2018-12-10 23:52:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 102.115 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 102.115 ms
Loss rate: 0.00%
```
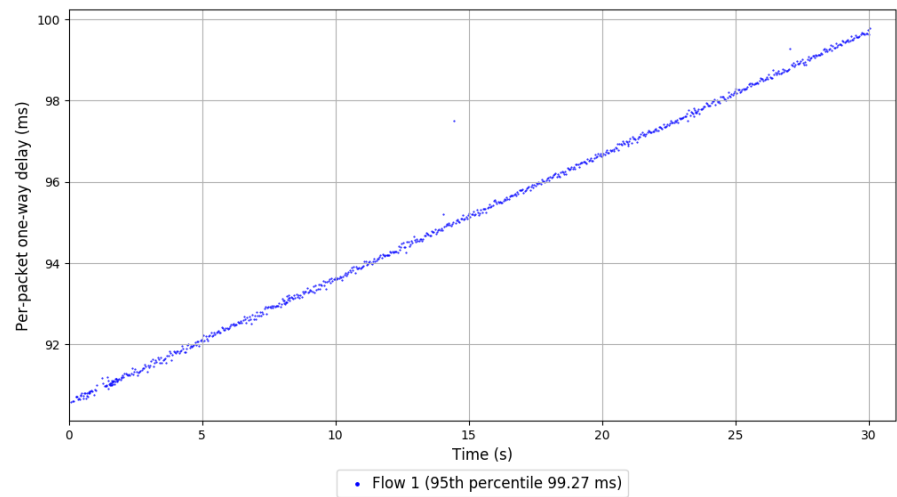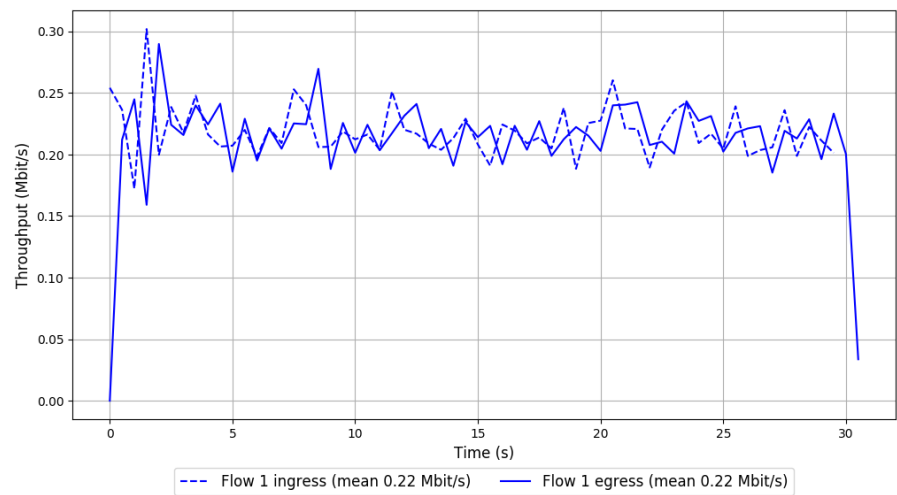
Run 4: Report of SCReAM — Data Link

```
Run 5: Statistics of SCReAM

Start at: 2018-12-10 23:43:21
End at: 2018-12-10 23:43:51
Local clock offset: -7.232 ms
Remote clock offset: -1966.497 ms


# Below is generated by plot.py at 2018-12-10 23:52:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 99.274 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 99.274 ms
Loss rate: 0.00%
```

Run 5: Report of SCReAM — Data Link

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

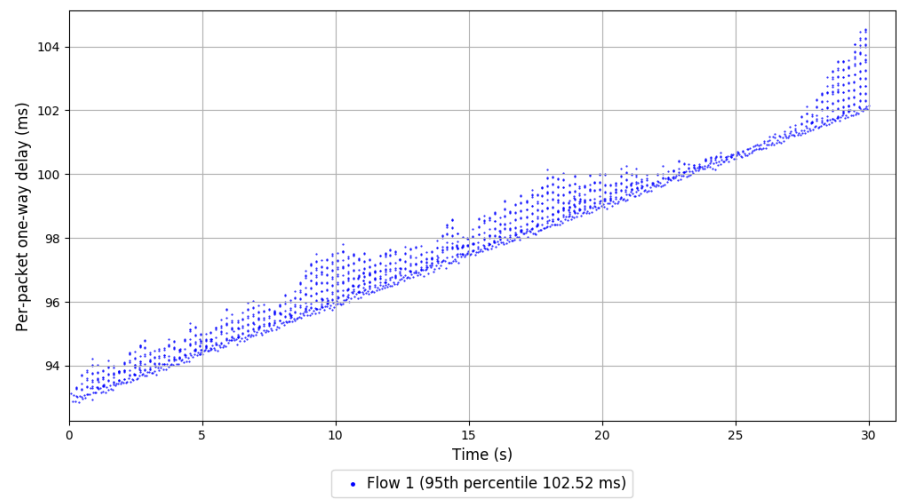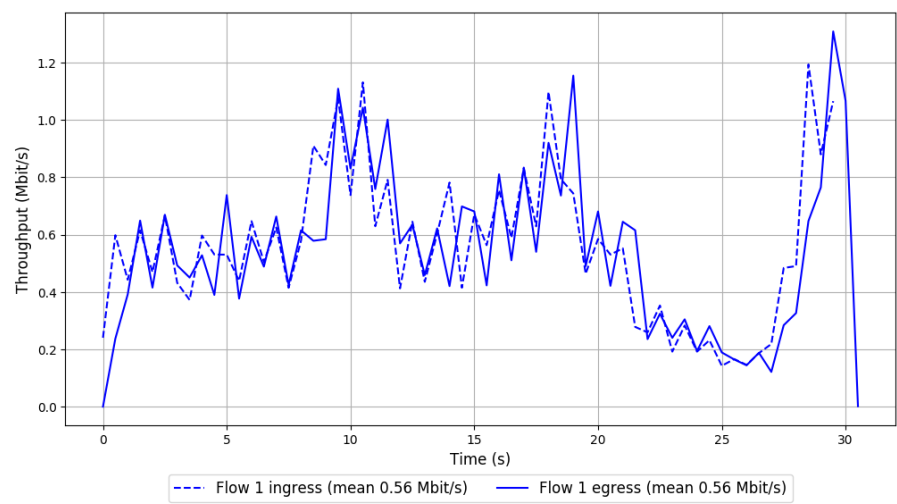Flow 1 (95th percentile 99.27 ms)

```
Run 1: Statistics of Sprout

Start at: 2018-12-10 22:10:45
End at: 2018-12-10 22:11:15
Local clock offset: 10.854 ms
Remote clock offset: -271.629 ms


# Below is generated by plot.py at 2018-12-10 23:52:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 102.517 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 102.517 ms
Loss rate: 0.00%
```
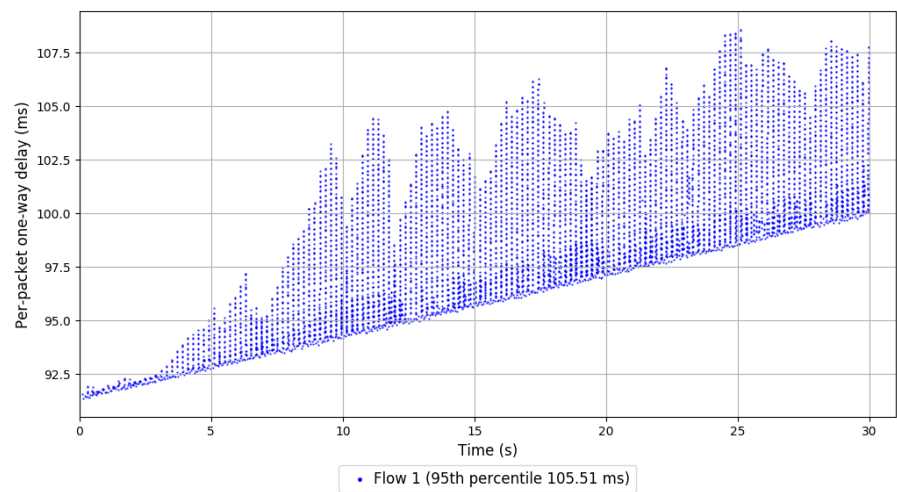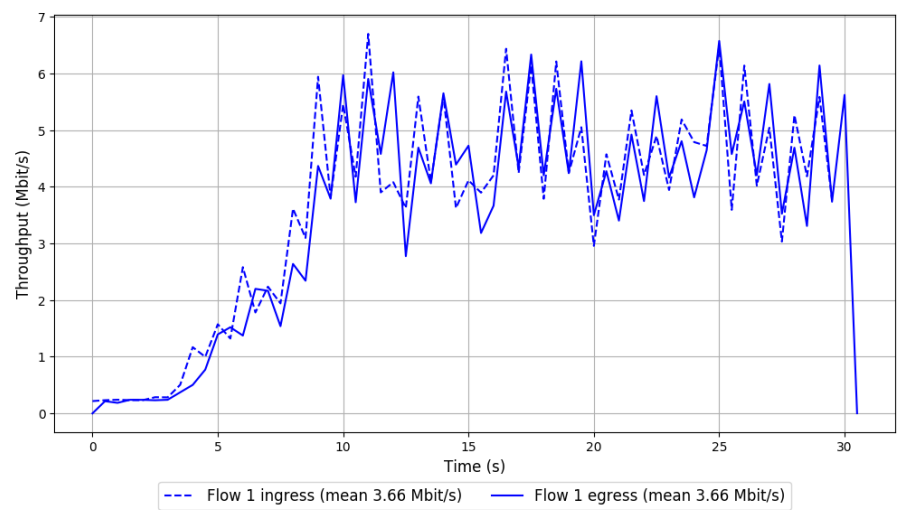
Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2018-12-10 22:33:02
End at: 2018-12-10 22:33:32
Local clock offset: 4.856 ms
Remote clock offset: -681.958 ms


# Below is generated by plot.py at 2018-12-10 23:52:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.66 Mbit/s
95th percentile per-packet one-way delay: 105.507 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 3.66 Mbit/s
95th percentile per-packet one-way delay: 105.507 ms
Loss rate: 0.00%
```
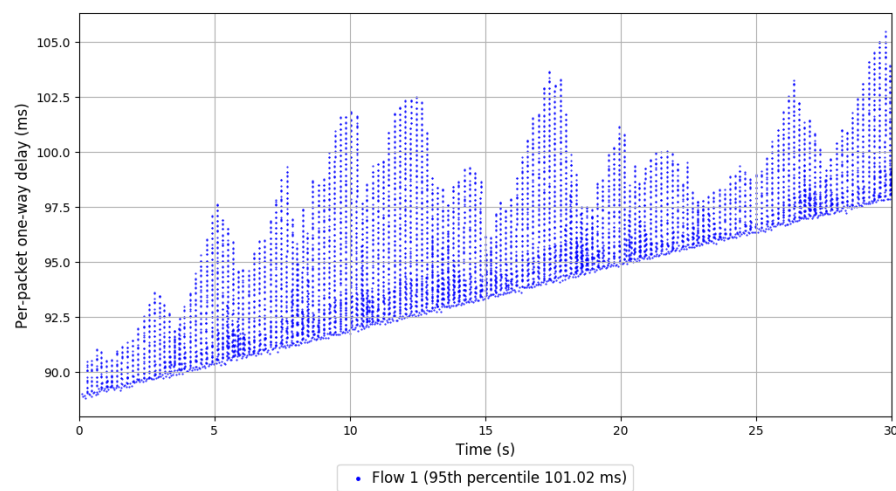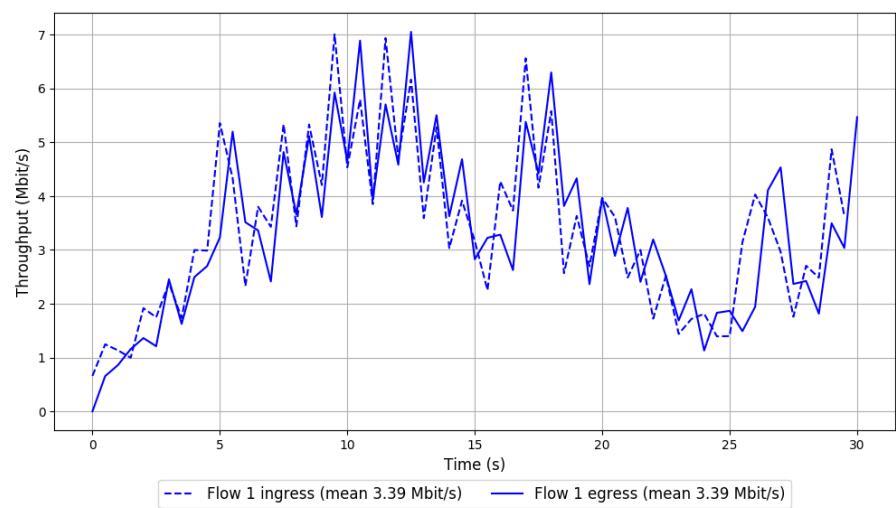
Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2018-12-10 22:55:17
End at: 2018-12-10 22:55:47
Local clock offset: -4.386 ms
Remote clock offset: -1087.381 ms

# Below is generated by plot.py at 2018-12-10 23:52:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.39 Mbit/s
95th percentile per-packet one-way delay: 101.018 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 3.39 Mbit/s
95th percentile per-packet one-way delay: 101.018 ms
Loss rate: 0.00%
```
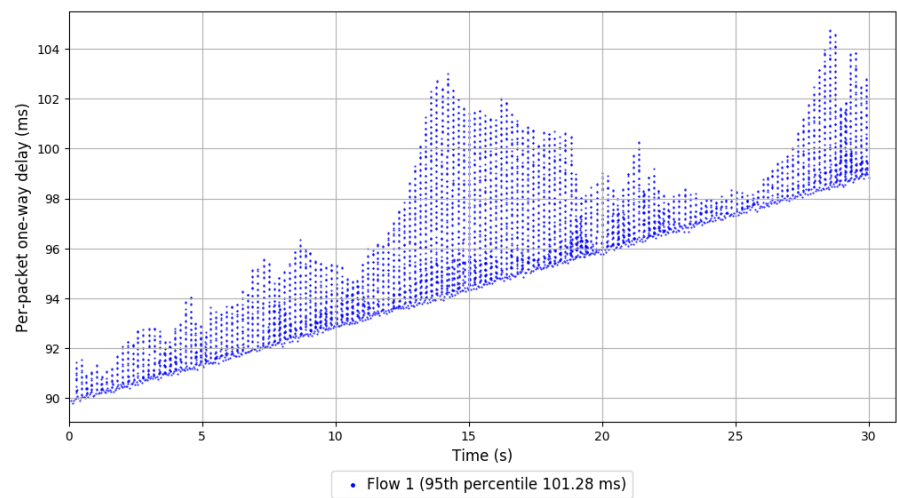
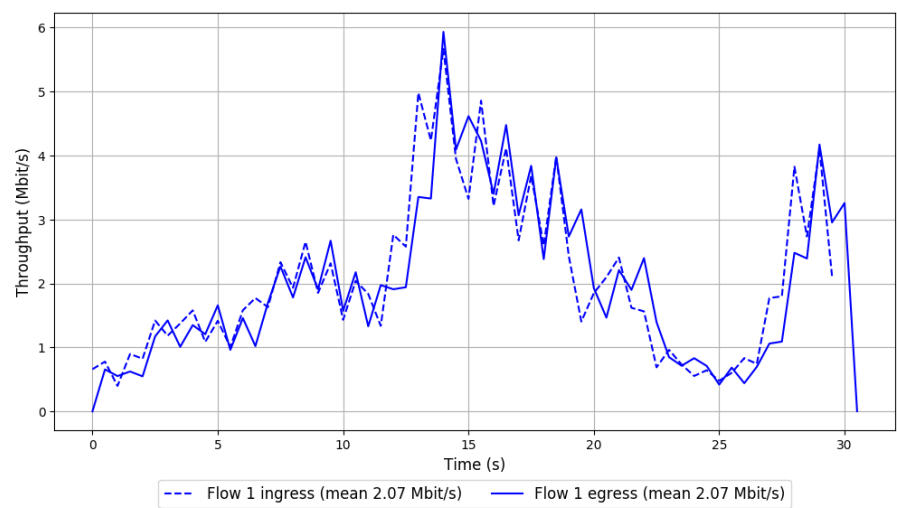Run 3: Report of Sprout — Data Link

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```
Run 4: Statistics of Sprout

Start at: 2018-12-10 23:17:32
End at: 2018-12-10 23:18:02
Local clock offset: -7.33 ms
Remote clock offset: -1494.069 ms

# Below is generated by plot.py at 2018-12-10 23:52:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.07 Mbit/s
95th percentile per-packet one-way delay: 101.280 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.07 Mbit/s
95th percentile per-packet one-way delay: 101.280 ms
Loss rate: 0.00%
```

Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2018-12-10 23:39:47
End at: 2018-12-10 23:40:17
Local clock offset: -7.225 ms
Remote clock offset: -1903.564 ms


# Below is generated by plot.py at 2018-12-10 23:52:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.53 Mbit/s
95th percentile per-packet one-way delay: 96.921 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.53 Mbit/s
95th percentile per-packet one-way delay: 96.921 ms
Loss rate: 0.00%
```
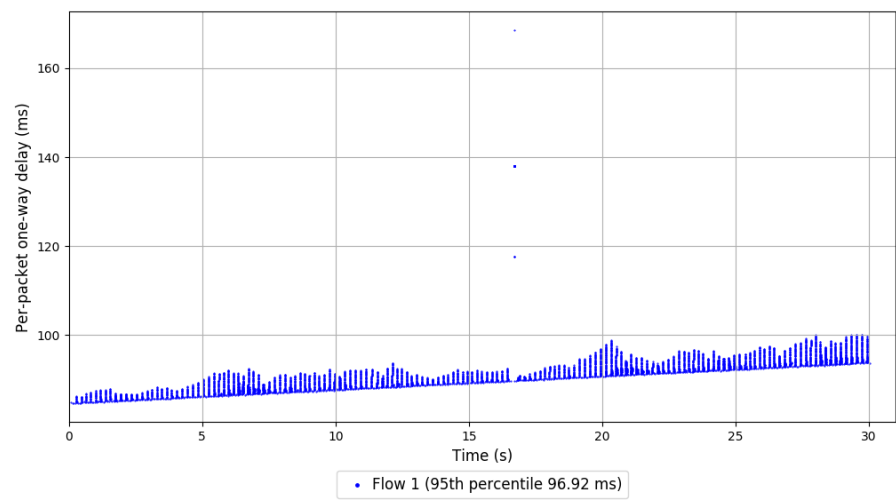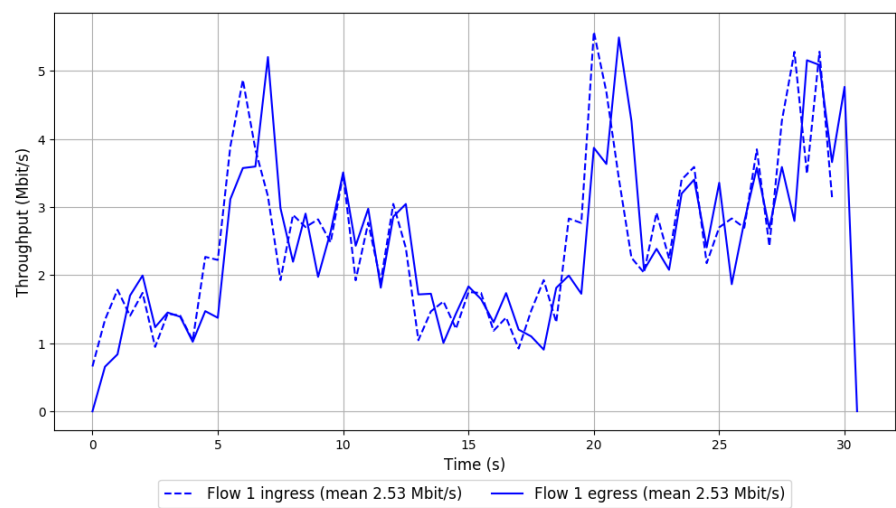
Run 5: Report of Sprout — Data Link

Flow 1 ingress (mean 2.53 Mbit/s)   Flow 1 egress (mean 2.53 Mbit/s)

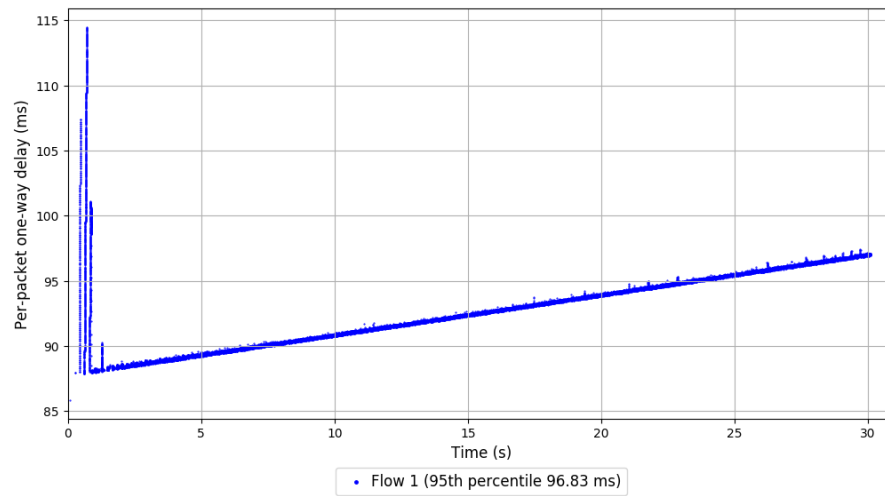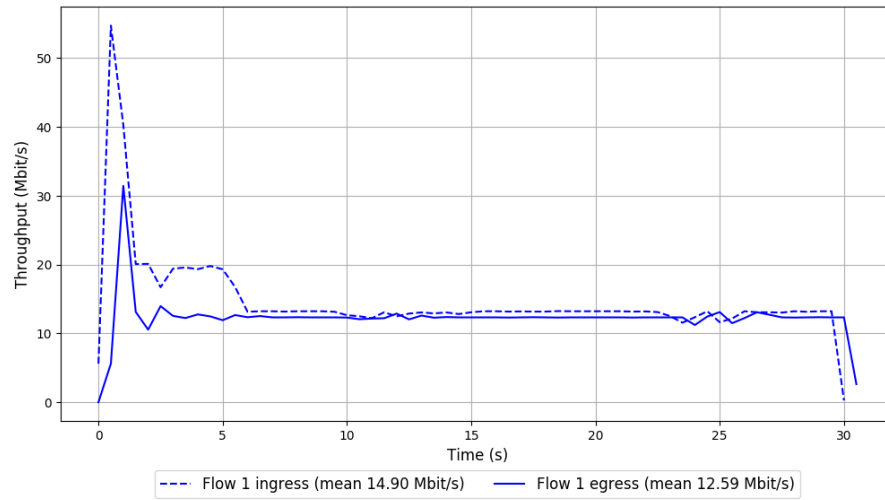
Flow 1 (95th percentile 96.92 ms)

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

Start at: 2018-12-10 22:01:23
End at: 2018-12-10 22:01:53
Local clock offset: 8.968 ms
Remote clock offset: -103.114 ms

# Below is generated by plot.py at 2018-12-10 23:52:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.59 Mbit/s
95th percentile per-packet one-way delay: 96.829 ms
Loss rate: 15.50%
-- Flow 1:
Average throughput: 12.59 Mbit/s
95th percentile per-packet one-way delay: 96.829 ms
Loss rate: 15.50%
```

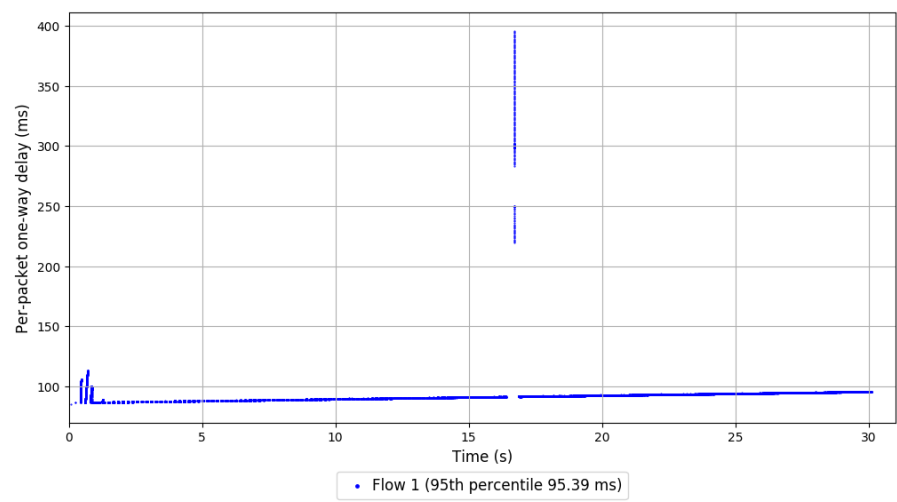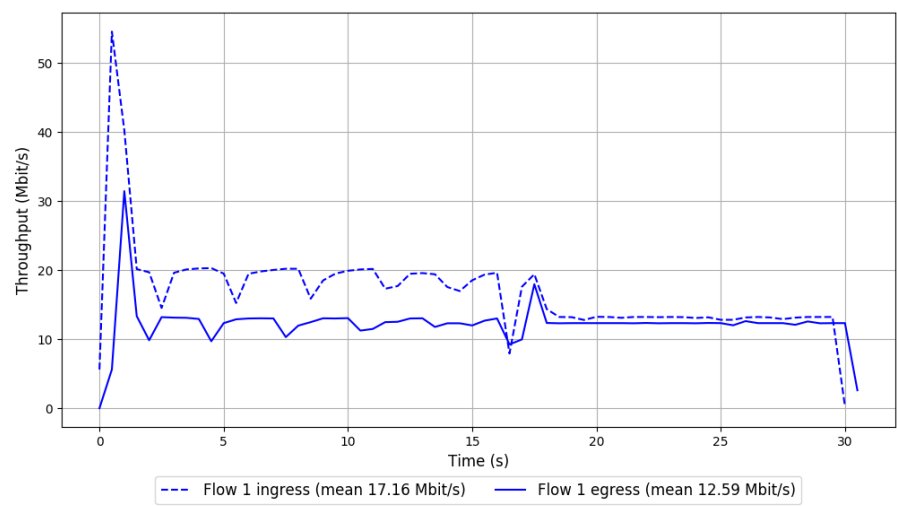Run 1: Report of TaoVA-100x — Data Link

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

Start at: 2018-12-10 22:23:40
End at: 2018-12-10 22:24:10
Local clock offset: 12.505 ms
Remote clock offset: -512.745 ms


# Below is generated by plot.py at 2018-12-10 23:52:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.59 Mbit/s
95th percentile per-packet one-way delay: 95.387 ms
Loss rate: 26.64%
-- Flow 1:
Average throughput: 12.59 Mbit/s
95th percentile per-packet one-way delay: 95.387 ms
Loss rate: 26.64%
```

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

Flow 1 ingress (mean 17.16 Mbit/s) ——— Flow 1 egress (mean 12.59 Mbit/s)
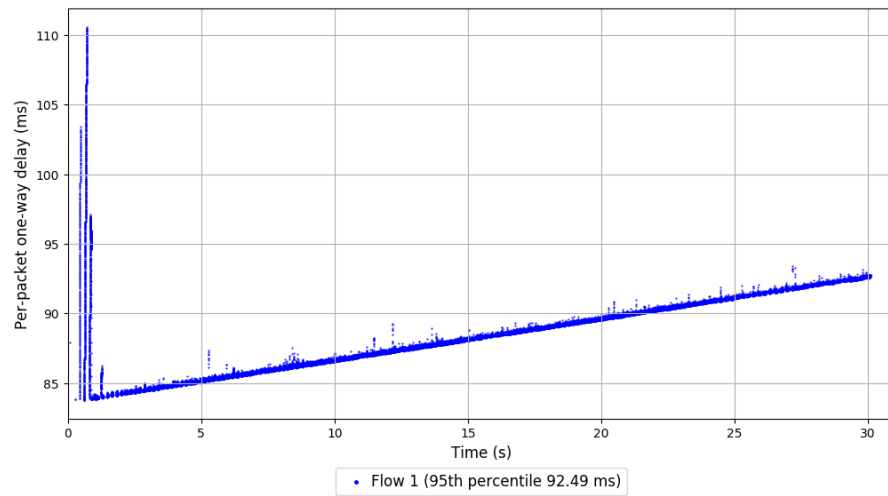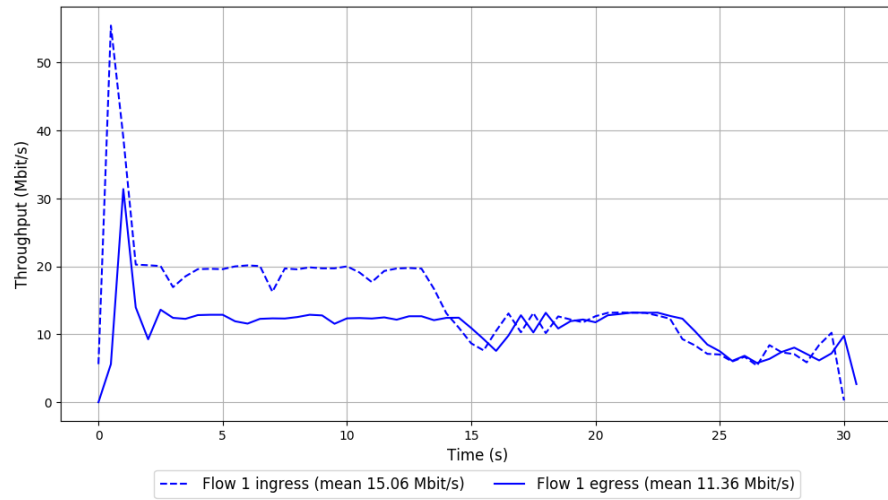

Flow 1 (95th percentile 95.39 ms)

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

Start at: 2018-12-10 22:45:55
End at: 2018-12-10 22:46:25
Local clock offset: -2.222 ms
Remote clock offset: -919.532 ms


# Below is generated by plot.py at 2018-12-10 23:52:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.36 Mbit/s
95th percentile per-packet one-way delay: 92.487 ms
Loss rate: 24.53%
-- Flow 1:
Average throughput: 11.36 Mbit/s
95th percentile per-packet one-way delay: 92.487 ms
Loss rate: 24.53%
```

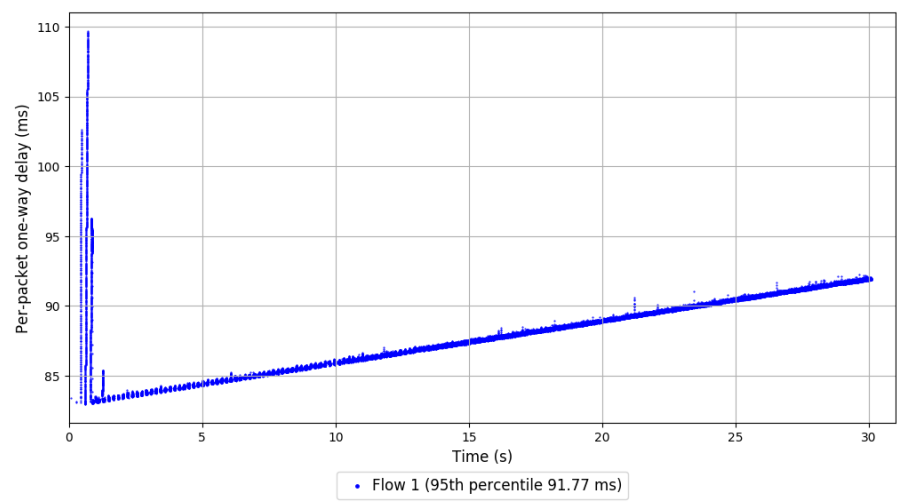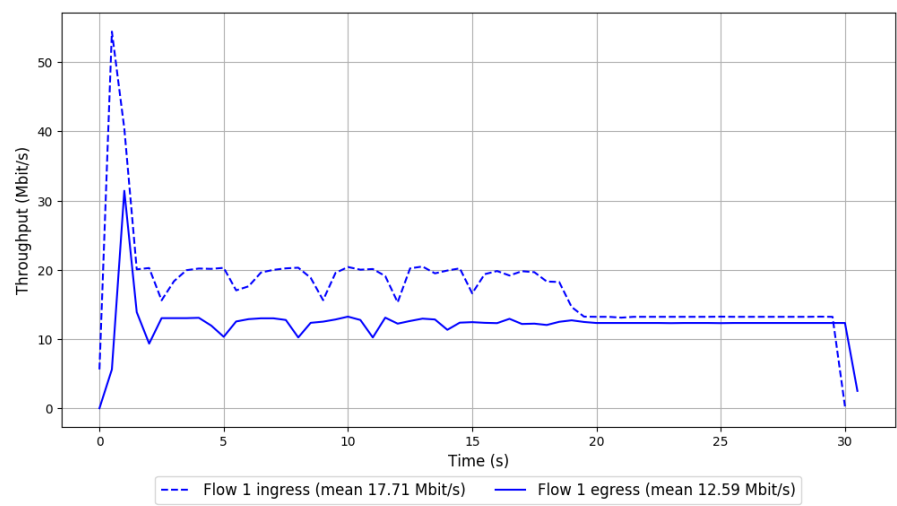Run 3: Report of TaoVA-100x — Data Link

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

Start at: 2018-12-10 23:08:09
End at: 2018-12-10 23:08:39
Local clock offset: -7.144 ms
Remote clock offset: -1329.556 ms


# Below is generated by plot.py at 2018-12-10 23:52:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.59 Mbit/s
95th percentile per-packet one-way delay: 91.768 ms
Loss rate: 28.89%
-- Flow 1:
Average throughput: 12.59 Mbit/s
95th percentile per-packet one-way delay: 91.768 ms
Loss rate: 28.89%
```

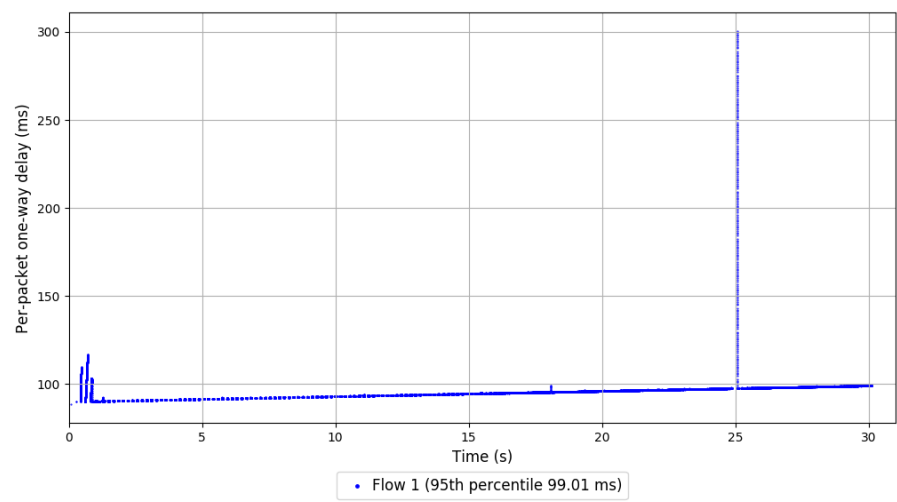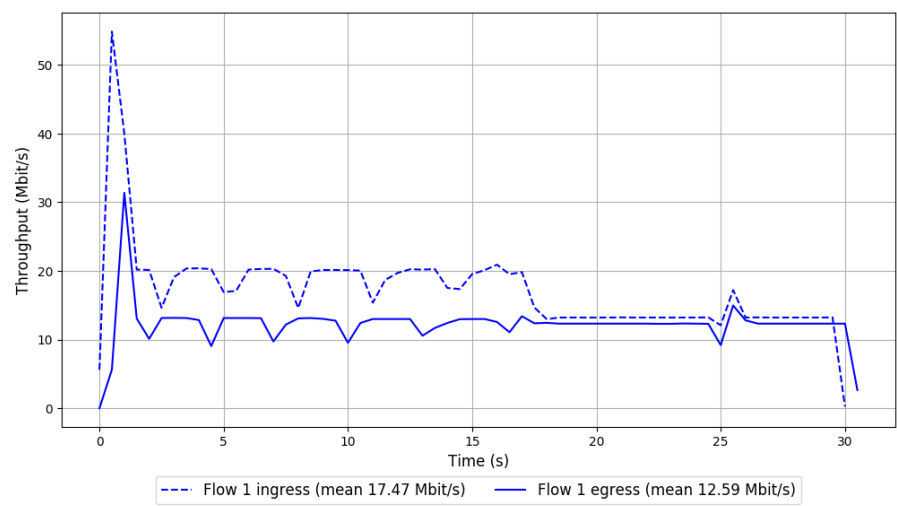Run 4: Report of TaoVA-100x — Data Link

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

Start at: 2018-12-10 23:30:23
End at: 2018-12-10 23:30:53
Local clock offset: -8.719 ms
Remote clock offset: -1728.936 ms


# Below is generated by plot.py at 2018-12-10 23:52:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.59 Mbit/s
95th percentile per-packet one-way delay: 99.007 ms
Loss rate: 27.94%
-- Flow 1:
Average throughput: 12.59 Mbit/s
95th percentile per-packet one-way delay: 99.007 ms
Loss rate: 27.94%
```

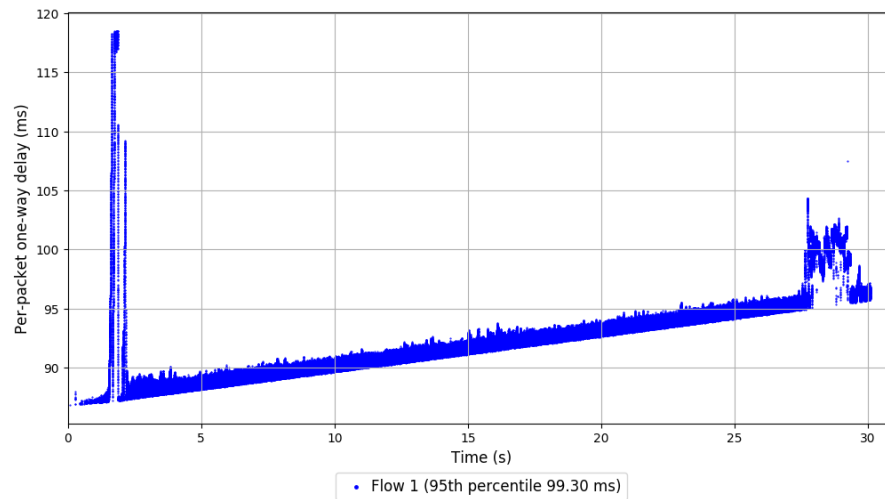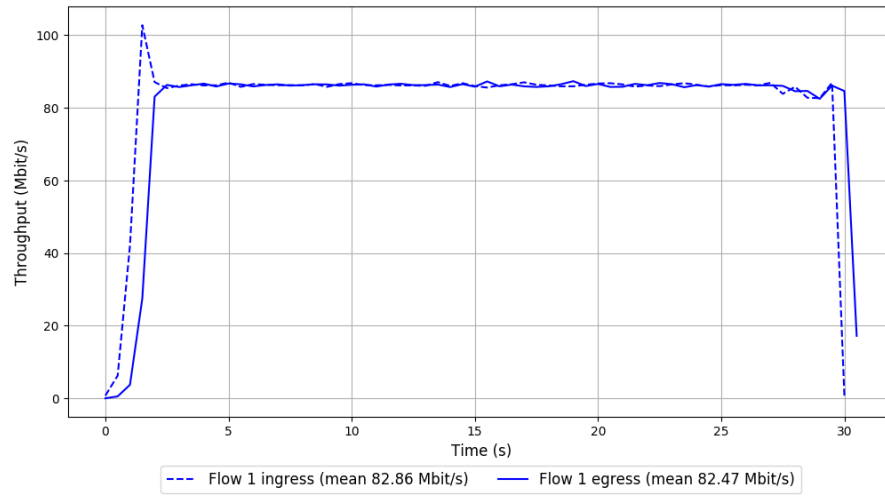Run 5: Report of TaoVA-100x — Data Link

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```
Run 1: Statistics of TCP Vegas

Start at: 2018-12-10 21:57:48
End at: 2018-12-10 21:58:18
Local clock offset: 8.277 ms
Remote clock offset: -39.415 ms


# Below is generated by plot.py at 2018-12-10 23:53:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 82.47 Mbit/s
95th percentile per-packet one-way delay: 99.295 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 82.47 Mbit/s
95th percentile per-packet one-way delay: 99.295 ms
Loss rate: 0.44%
```

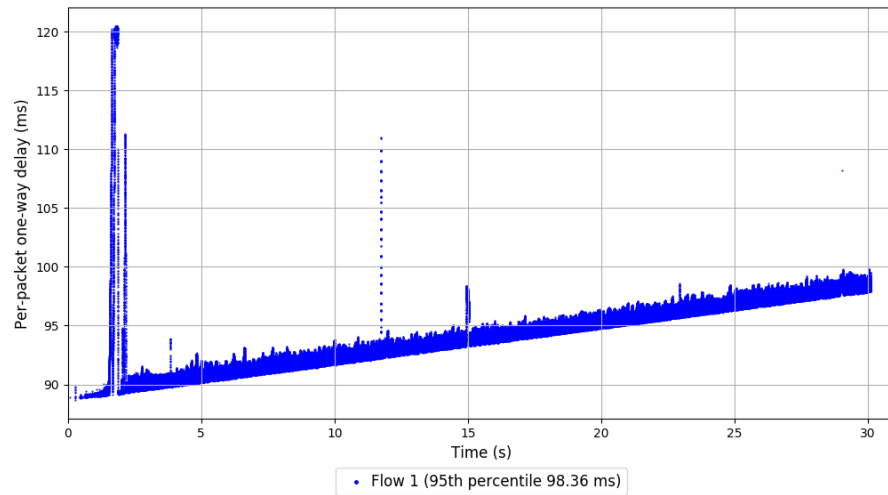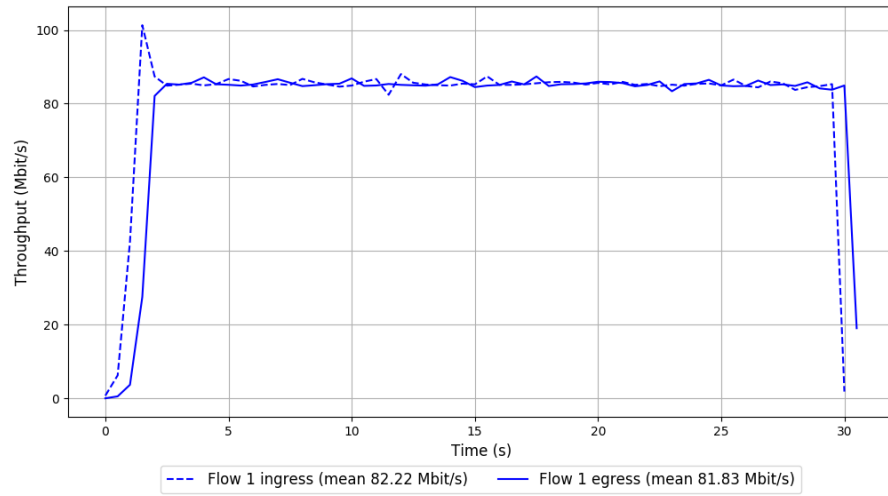Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2018-12-10 22:20:05
End at: 2018-12-10 22:20:35
Local clock offset: 12.625 ms
Remote clock offset: -444.469 ms


# Below is generated by plot.py at 2018-12-10 23:53:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 81.83 Mbit/s
95th percentile per-packet one-way delay: 98.363 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 81.83 Mbit/s
95th percentile per-packet one-way delay: 98.363 ms
Loss rate: 0.44%
```

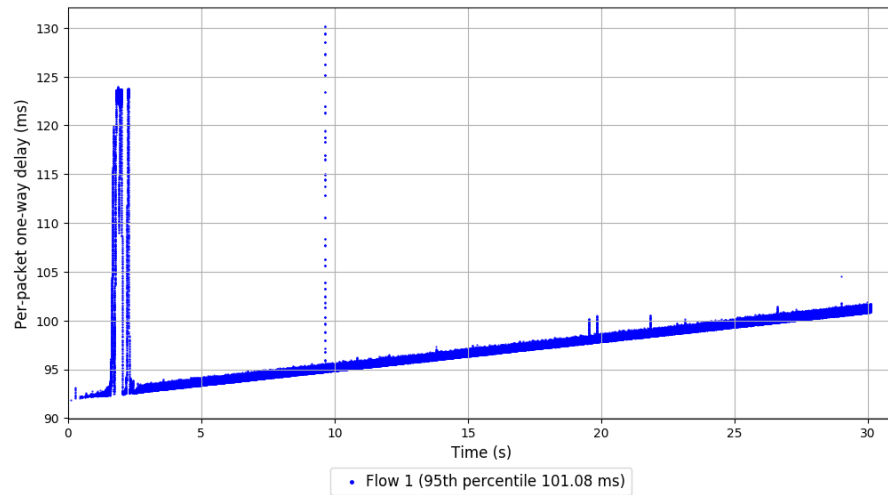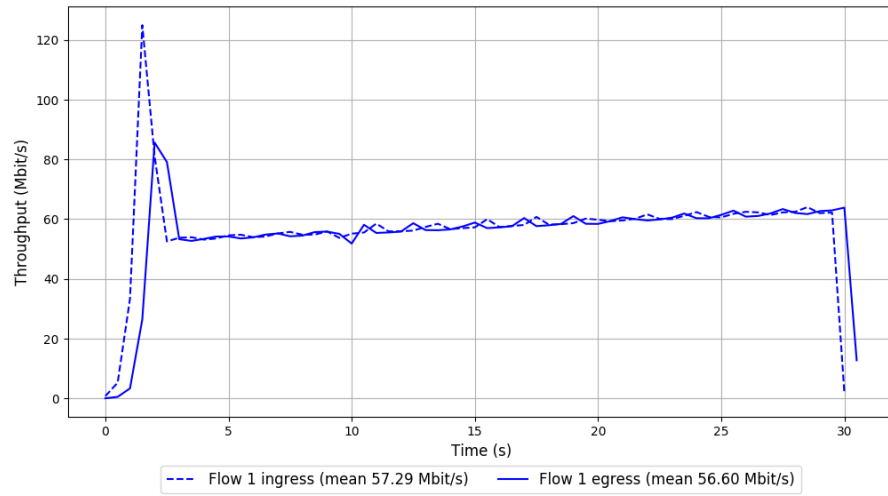Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2018-12-10 22:42:22
End at: 2018-12-10 22:42:52
Local clock offset: -1.011 ms
Remote clock offset: -853.722 ms


# Below is generated by plot.py at 2018-12-10 23:53:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 56.60 Mbit/s
95th percentile per-packet one-way delay: 101.085 ms
Loss rate: 1.18%
-- Flow 1:
Average throughput: 56.60 Mbit/s
95th percentile per-packet one-way delay: 101.085 ms
Loss rate: 1.18%
```

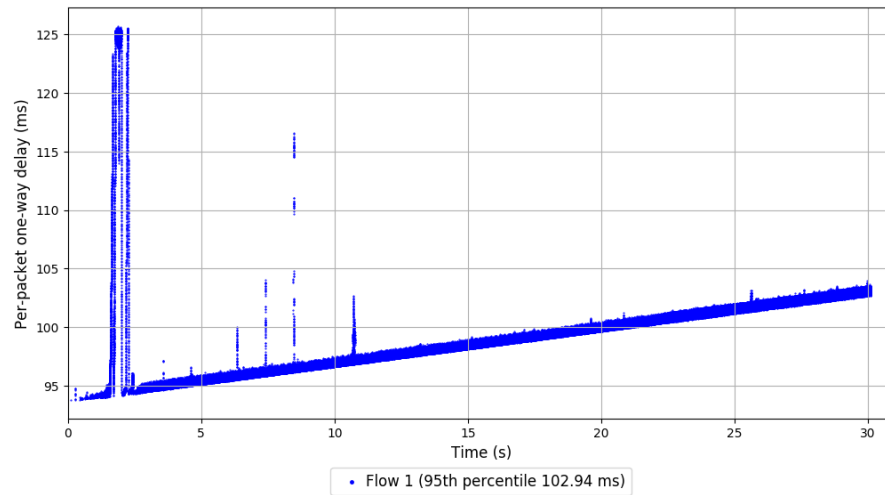# Run 3: Report of TCP Vegas — Data Link

```
Run 4: Statistics of TCP Vegas

Start at: 2018-12-10 23:04:37
End at: 2018-12-10 23:05:07
Local clock offset: -6.753 ms
Remote clock offset: -1257.912 ms


# Below is generated by plot.py at 2018-12-10 23:53:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 57.65 Mbit/s
95th percentile per-packet one-way delay: 102.939 ms
Loss rate: 1.18%
-- Flow 1:
Average throughput: 57.65 Mbit/s
95th percentile per-packet one-way delay: 102.939 ms
Loss rate: 1.18%
```
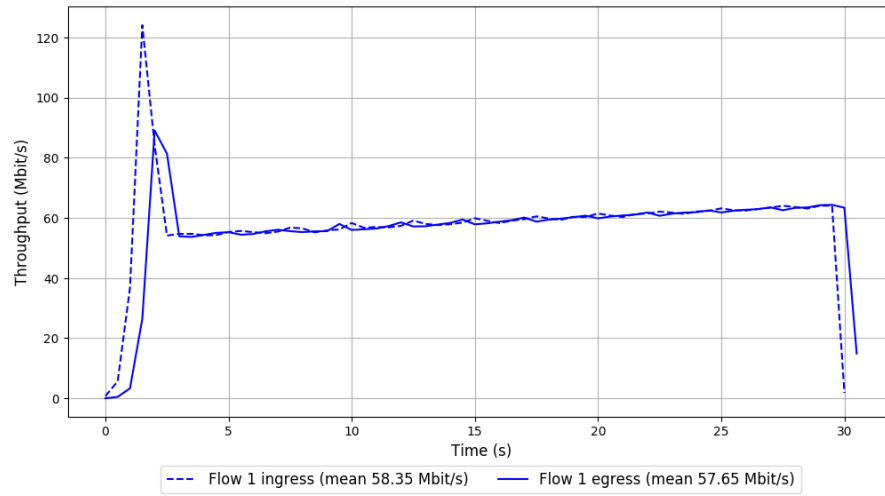
Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2018-12-10 23:26:50
End at: 2018-12-10 23:27:20
Local clock offset: -9.167 ms
Remote clock offset: -1664.176 ms


# Below is generated by plot.py at 2018-12-10 23:53:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 57.58 Mbit/s
95th percentile per-packet one-way delay: 102.998 ms
Loss rate: 1.18%
-- Flow 1:
Average throughput: 57.58 Mbit/s
95th percentile per-packet one-way delay: 102.998 ms
Loss rate: 1.18%
```
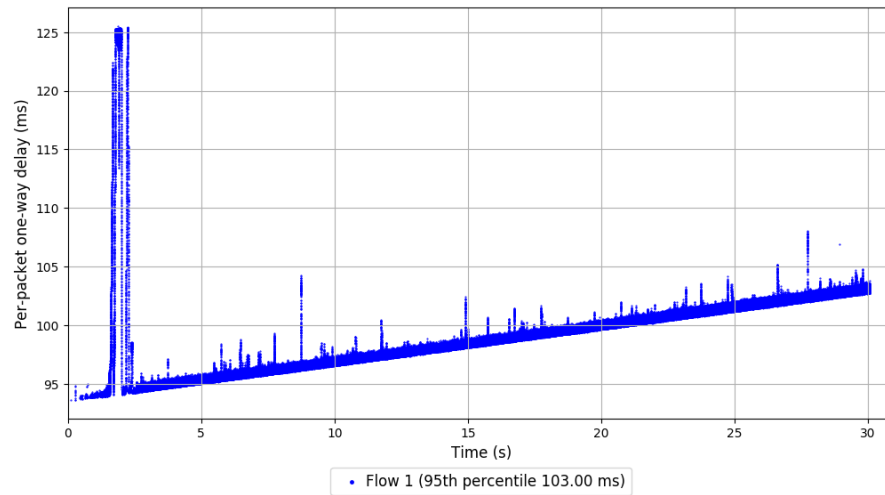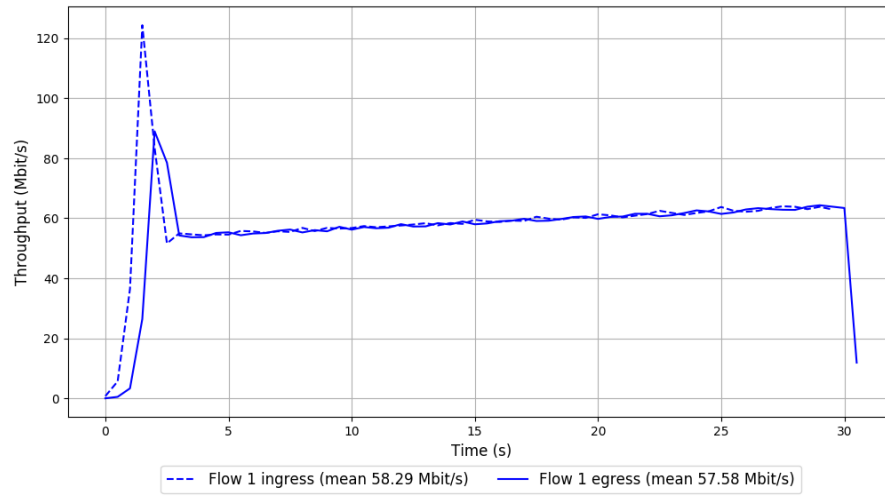
Run 5: Report of TCP Vegas — Data Link

```
Run 1: Statistics of Verus

Start at: 2018-12-10 22:08:25
End at: 2018-12-10 22:08:55
Local clock offset: 10.309 ms
Remote clock offset: -235.412 ms


# Below is generated by plot.py at 2018-12-10 23:53:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 27.48 Mbit/s
95th percentile per-packet one-way delay: 121.724 ms
Loss rate: 9.57%
-- Flow 1:
Average throughput: 27.48 Mbit/s
95th percentile per-packet one-way delay: 121.724 ms
Loss rate: 9.57%
```
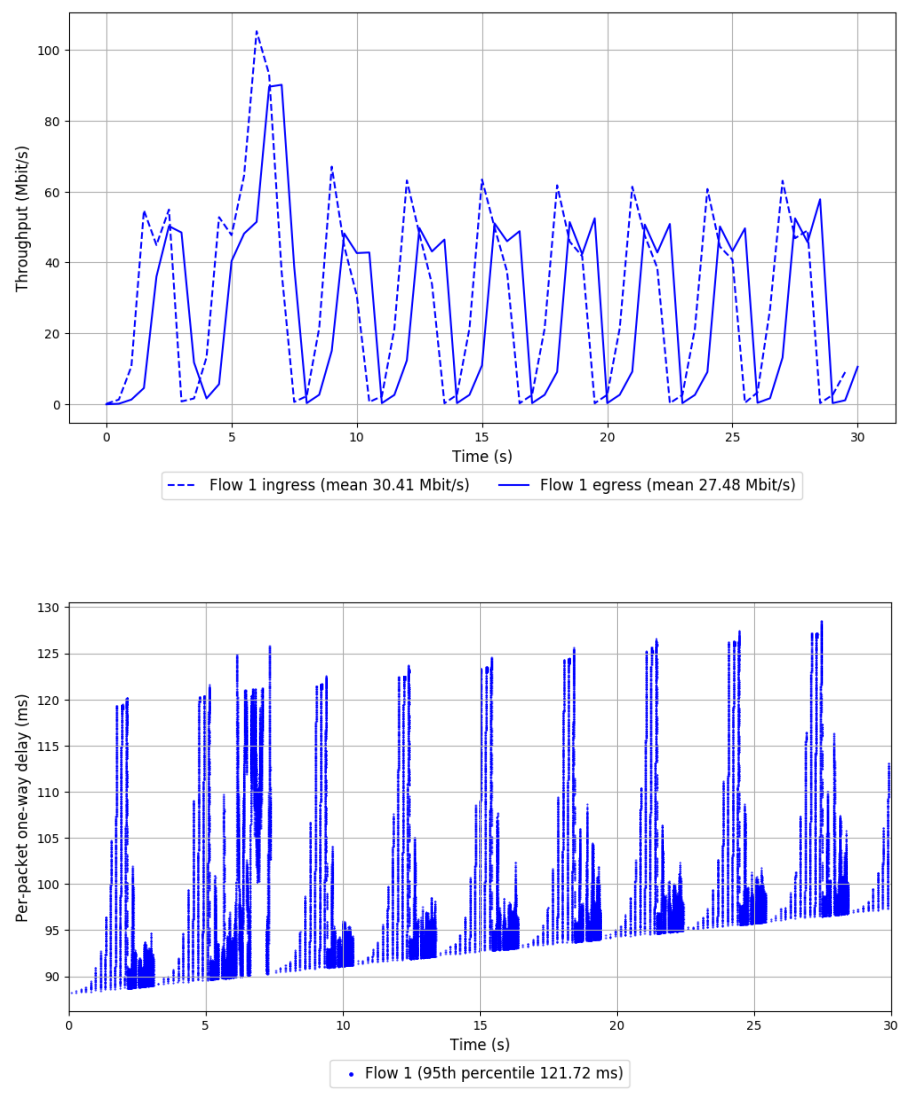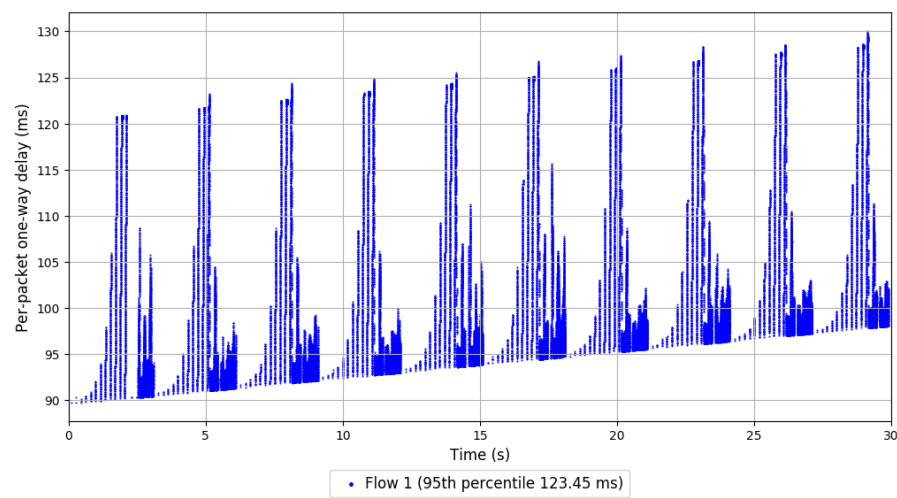
Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2018-12-10 22:30:41
End at: 2018-12-10 22:31:11
Local clock offset: 8.578 ms
Remote clock offset: -640.016 ms


# Below is generated by plot.py at 2018-12-10 23:53:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 25.43 Mbit/s
95th percentile per-packet one-way delay: 123.454 ms
Loss rate: 8.79%
-- Flow 1:
Average throughput: 25.43 Mbit/s
95th percentile per-packet one-way delay: 123.454 ms
Loss rate: 8.79%
```
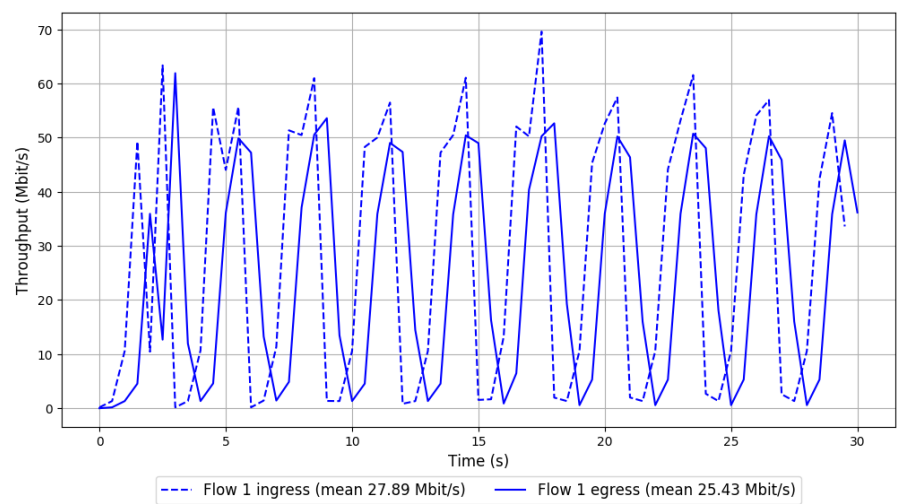
Run 2: Report of Verus — Data Link

Flow 1 ingress (mean 27.89 Mbit/s) — — — — — Flow 1 egress (mean 25.43 Mbit/s)
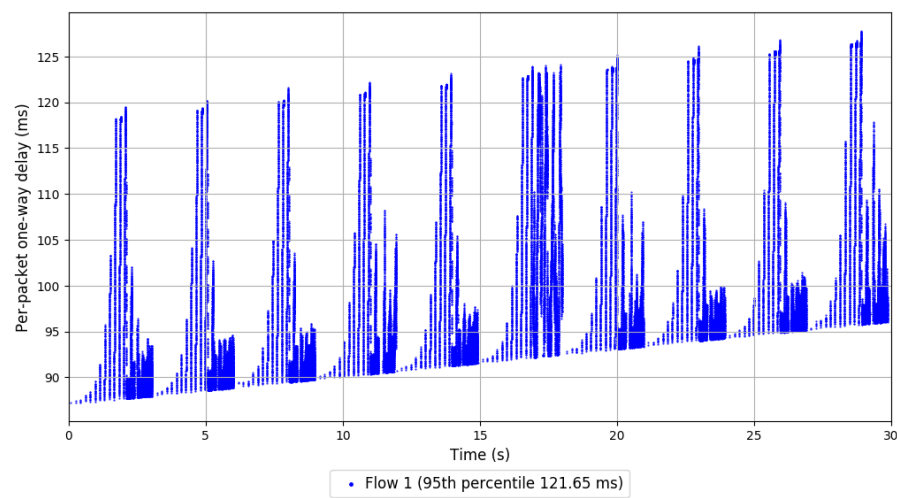

• Flow 1 (95th percentile 123.45 ms)

```
Run 3: Statistics of Verus

Start at: 2018-12-10 22:52:57
End at: 2018-12-10 22:53:27
Local clock offset: -4.771 ms
Remote clock offset: -1047.14 ms


# Below is generated by plot.py at 2018-12-10 23:53:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 27.62 Mbit/s
95th percentile per-packet one-way delay: 121.647 ms
Loss rate: 9.36%
-- Flow 1:
Average throughput: 27.62 Mbit/s
95th percentile per-packet one-way delay: 121.647 ms
Loss rate: 9.36%
```
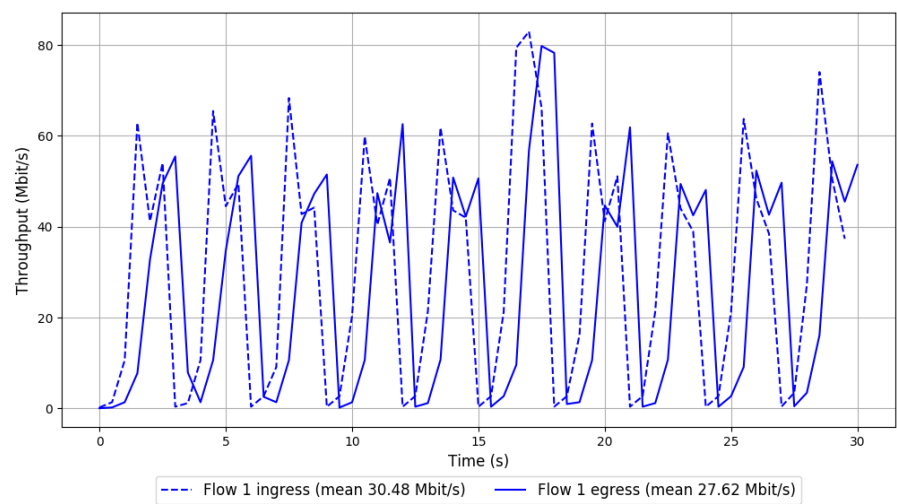
Run 3: Report of Verus — Data Link

Flow 1 ingress (mean 30.48 Mbit/s) ----- Flow 1 egress (mean 27.62 Mbit/s)

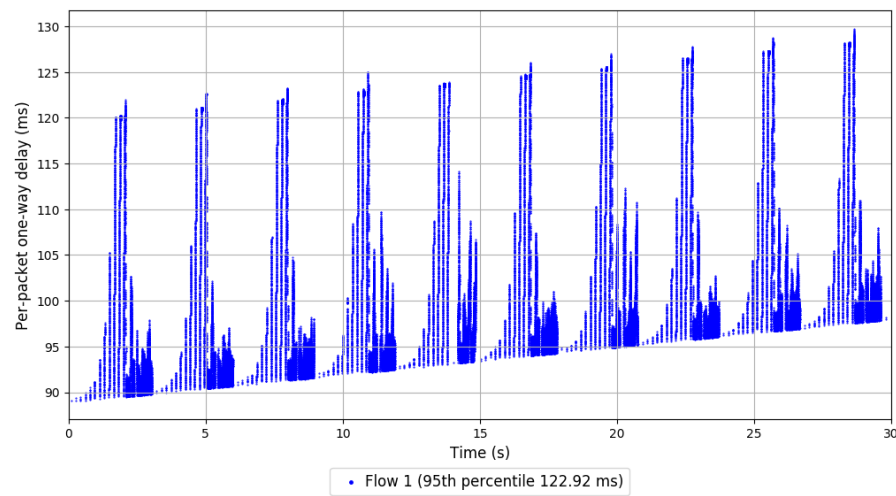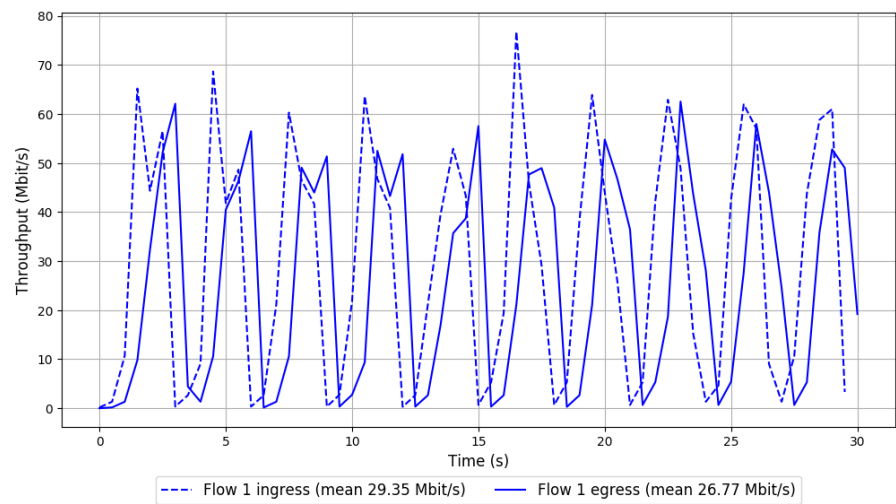
• Flow 1 (95th percentile 121.65 ms)

```
Run 4: Statistics of Verus

Start at: 2018-12-10 23:15:11
End at: 2018-12-10 23:15:41
Local clock offset: -7.067 ms
Remote clock offset: -1449.577 ms


# Below is generated by plot.py at 2018-12-10 23:53:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 26.77 Mbit/s
95th percentile per-packet one-way delay: 122.921 ms
Loss rate: 8.75%
-- Flow 1:
Average throughput: 26.77 Mbit/s
95th percentile per-packet one-way delay: 122.921 ms
Loss rate: 8.75%
```

Run 4: Report of Verus — Data Link

Flow 1 ingress (mean 29.35 Mbit/s)   Flow 1 egress (mean 26.77 Mbit/s)

Flow 1 (95th percentile 122.92 ms)

```
Run 5: Statistics of Verus

Start at: 2018-12-10 23:37:24
End at: 2018-12-10 23:37:54
Local clock offset: -8.149 ms
Remote clock offset: -1857.746 ms


# Below is generated by plot.py at 2018-12-10 23:53:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 36.31 Mbit/s
95th percentile per-packet one-way delay: 198.247 ms
Loss rate: 82.85%
-- Flow 1:
Average throughput: 36.31 Mbit/s
95th percentile per-packet one-way delay: 198.247 ms
Loss rate: 82.85%
```
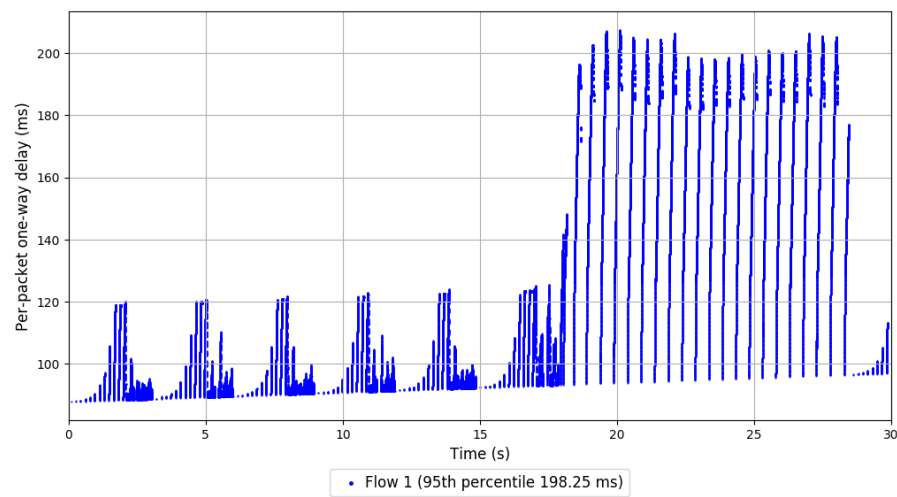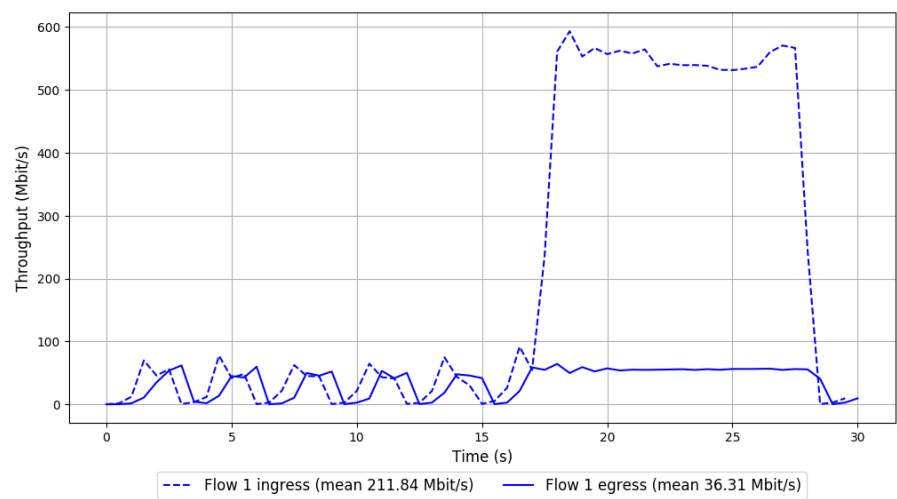
Run 5: Report of Verus — Data Link

Flow 1 ingress (mean 211.84 Mbit/s) --- Flow 1 egress (mean 36.31 Mbit/s)

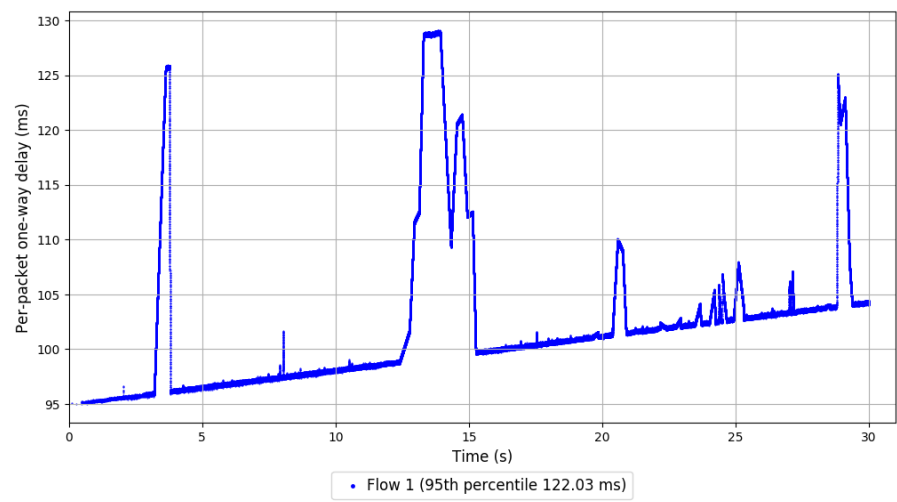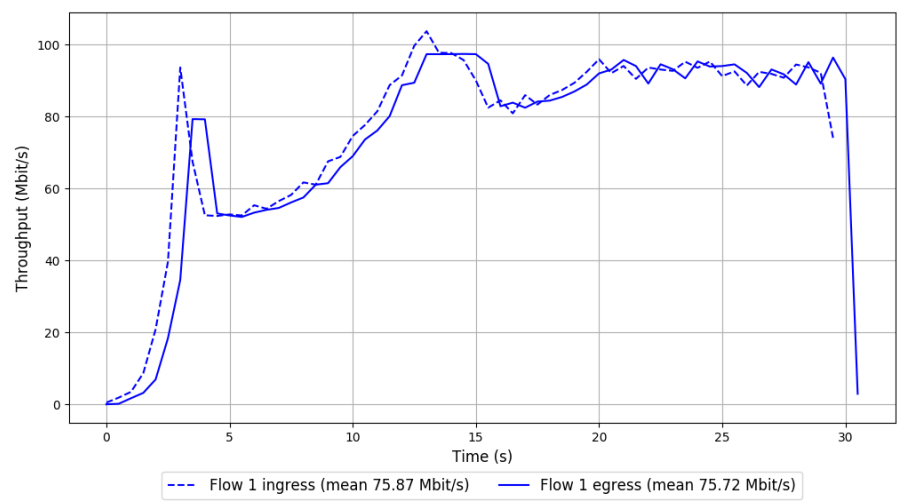
• Flow 1 (95th percentile 198.25 ms)

```
Run 1: Statistics of PCC-Vivace

Start at: 2018-12-10 22:11:53
End at: 2018-12-10 22:12:23
Local clock offset: 11.06 ms
Remote clock offset: -293.724 ms


# Below is generated by plot.py at 2018-12-10 23:53:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 75.72 Mbit/s
95th percentile per-packet one-way delay: 122.029 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 75.72 Mbit/s
95th percentile per-packet one-way delay: 122.029 ms
Loss rate: 0.17%
```

Run 1: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 75.87 Mbit/s) --- Flow 1 egress (mean 75.72 Mbit/s)
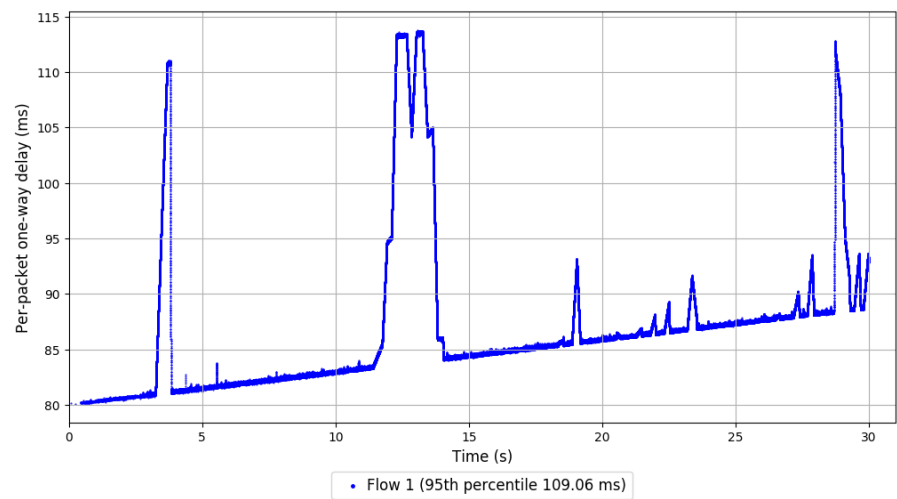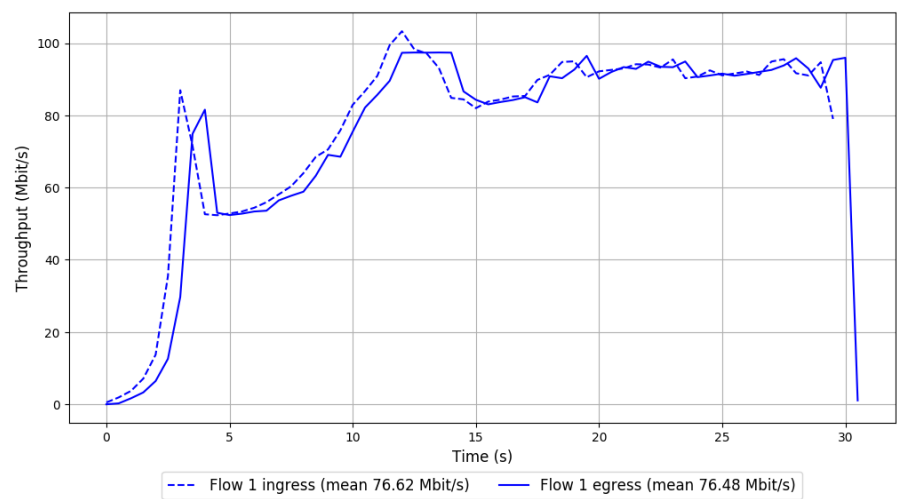

Flow 1 (95th percentile 122.03 ms)

```
Run 2: Statistics of PCC-Vivace

Start at: 2018-12-10 22:34:10
End at: 2018-12-10 22:34:40
Local clock offset: 4.539 ms
Remote clock offset: -707.982 ms

# Below is generated by plot.py at 2018-12-10 23:53:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 76.48 Mbit/s
95th percentile per-packet one-way delay: 109.059 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 76.48 Mbit/s
95th percentile per-packet one-way delay: 109.059 ms
Loss rate: 0.14%
```

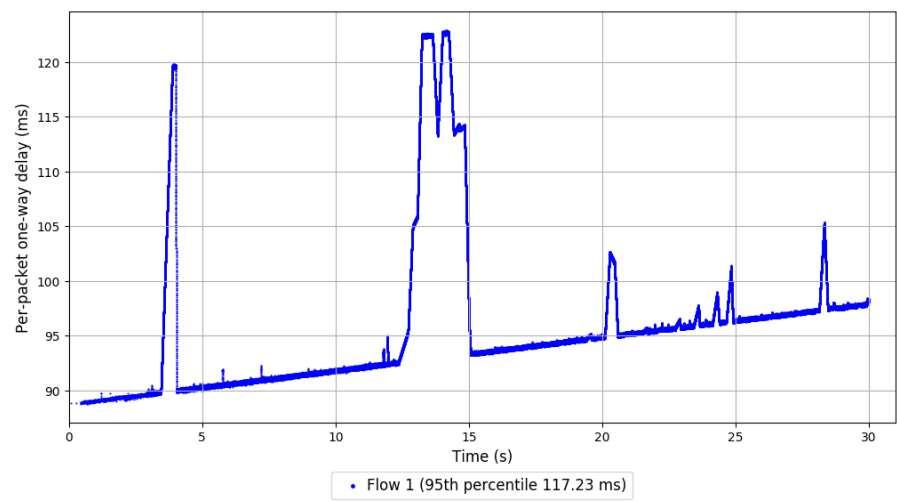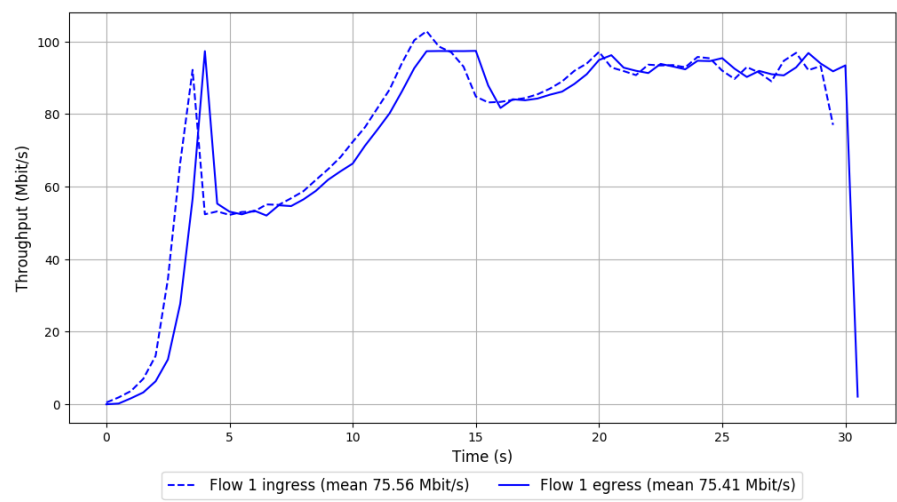# Run 2: Report of PCC-Vivace — Data Link

```
Run 3: Statistics of PCC-Vivace

Start at: 2018-12-10 22:56:25
End at: 2018-12-10 22:56:55
Local clock offset: -4.571 ms
Remote clock offset: -1108.33 ms


# Below is generated by plot.py at 2018-12-10 23:53:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 75.41 Mbit/s
95th percentile per-packet one-way delay: 117.231 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 75.41 Mbit/s
95th percentile per-packet one-way delay: 117.231 ms
Loss rate: 0.16%
```

Run 3: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 75.56 Mbit/s) — — — Flow 1 egress (mean 75.41 Mbit/s)

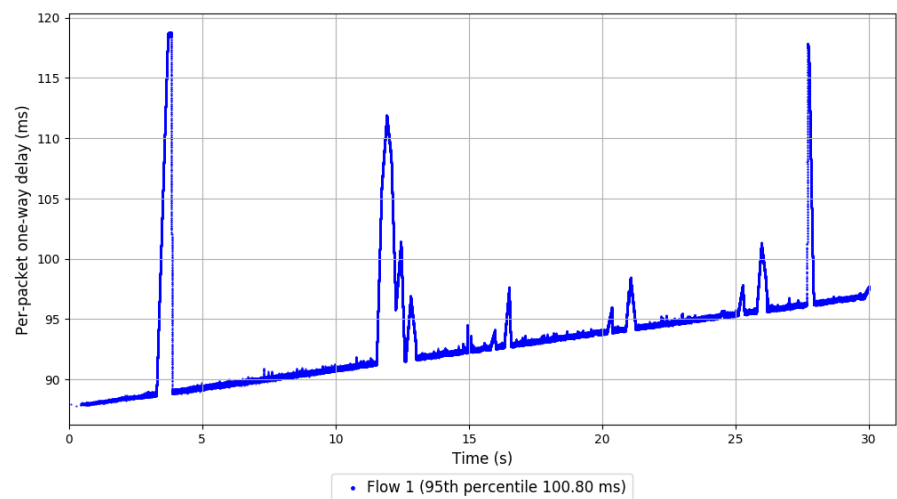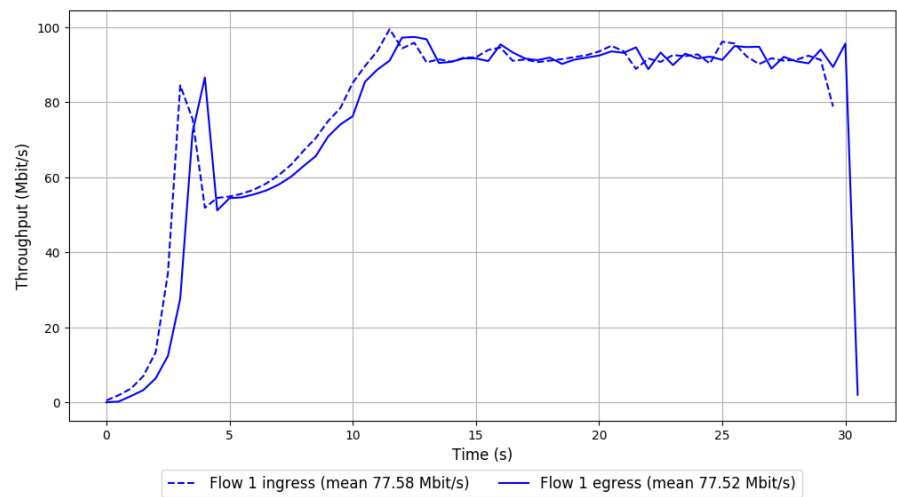
• Flow 1 (95th percentile 117.23 ms)

```
Run 4: Statistics of PCC-Vivace

Start at: 2018-12-10 23:18:40
End at: 2018-12-10 23:19:10
Local clock offset: -8.329 ms
Remote clock offset: -1517.168 ms


# Below is generated by plot.py at 2018-12-10 23:53:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 77.52 Mbit/s
95th percentile per-packet one-way delay: 100.804 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 77.52 Mbit/s
95th percentile per-packet one-way delay: 100.804 ms
Loss rate: 0.04%
```

Run 4: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 77.58 Mbit/s) --- Flow 1 egress (mean 77.52 Mbit/s)
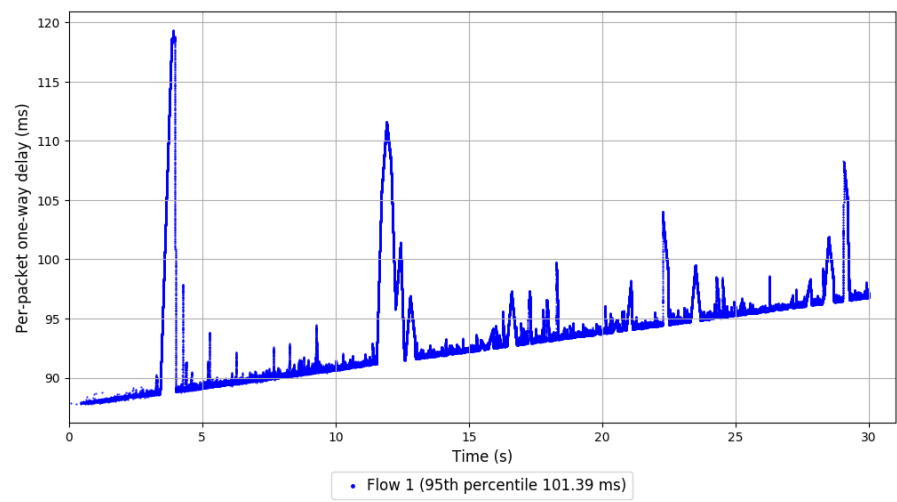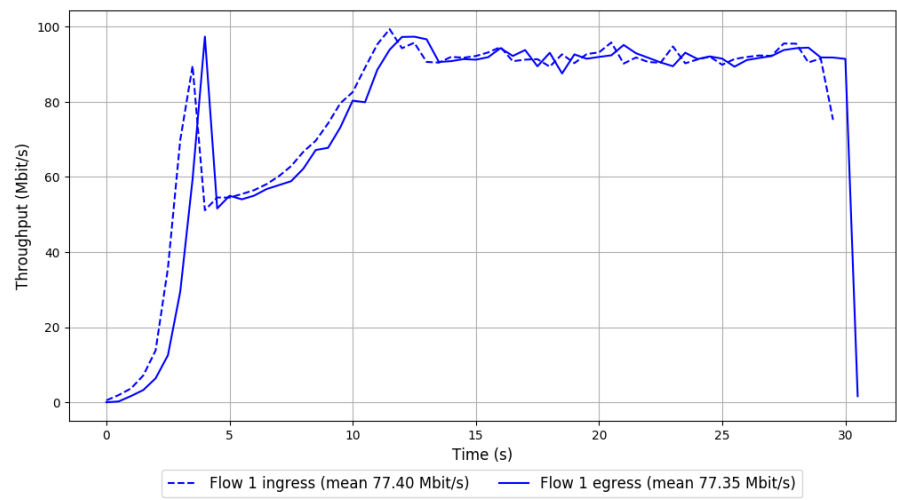

Flow 1 (95th percentile 100.80 ms)

```
Run 5: Statistics of PCC-Vivace

Start at: 2018-12-10 23:40:55
End at: 2018-12-10 23:41:25
Local clock offset: -8.104 ms
Remote clock offset: -1921.904 ms


# Below is generated by plot.py at 2018-12-10 23:53:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 77.35 Mbit/s
95th percentile per-packet one-way delay: 101.386 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 77.35 Mbit/s
95th percentile per-packet one-way delay: 101.386 ms
Loss rate: 0.04%
```

Run 5: Report of PCC-Vivace — Data Link

```
Run 1: Statistics of WebRTC media

Start at: 2018-12-10 22:03:41
End at: 2018-12-10 22:04:11
Local clock offset: 9.445 ms
Remote clock offset: -145.927 ms

# Below is generated by plot.py at 2018-12-10 23:53:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.58 Mbit/s
95th percentile per-packet one-way delay: 96.008 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.58 Mbit/s
95th percentile per-packet one-way delay: 96.008 ms
Loss rate: 0.00%
```
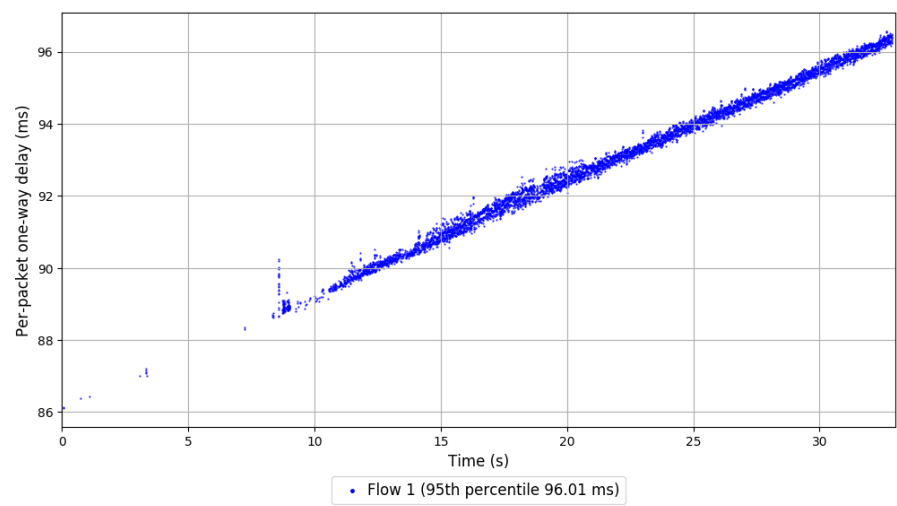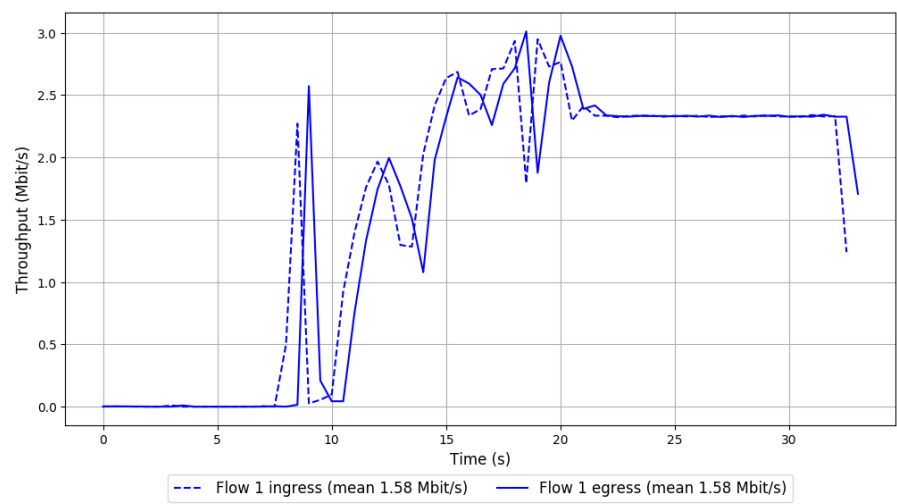
Run 1: Report of WebRTC media — Data Link

Flow 1 ingress (mean 1.58 Mbit/s) — — — Flow 1 egress (mean 1.58 Mbit/s)
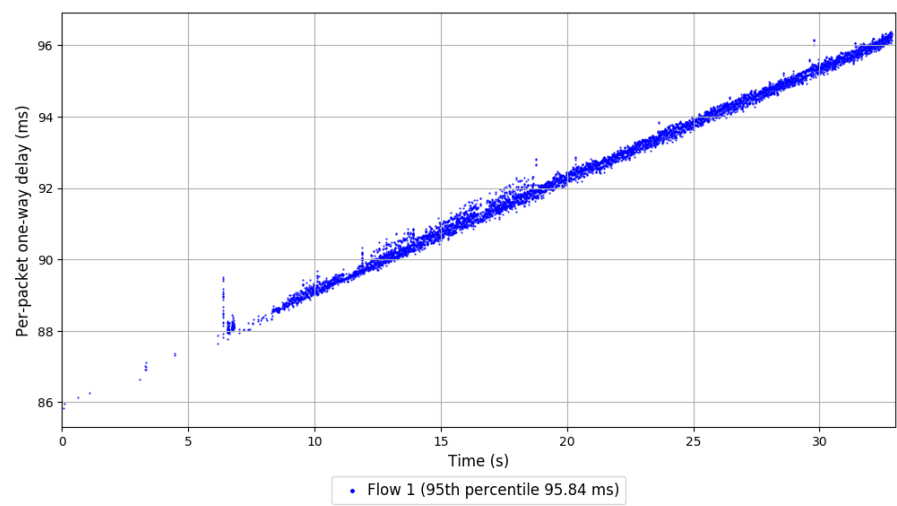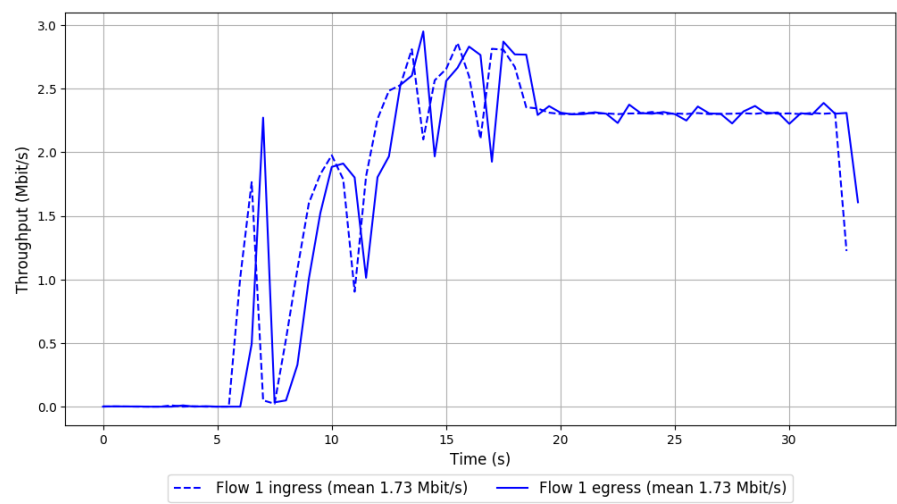

Flow 1 (95th percentile 96.01 ms)

```
Run 2: Statistics of WebRTC media

Start at: 2018-12-10 22:25:58
End at: 2018-12-10 22:26:28
Local clock offset: 12.981 ms
Remote clock offset: -554.704 ms


# Below is generated by plot.py at 2018-12-10 23:53:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.73 Mbit/s
95th percentile per-packet one-way delay: 95.836 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.73 Mbit/s
95th percentile per-packet one-way delay: 95.836 ms
Loss rate: 0.00%
```

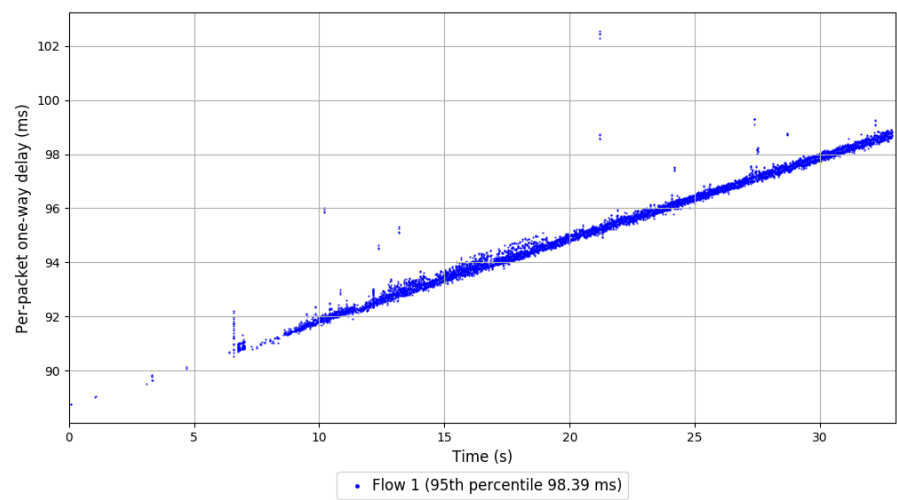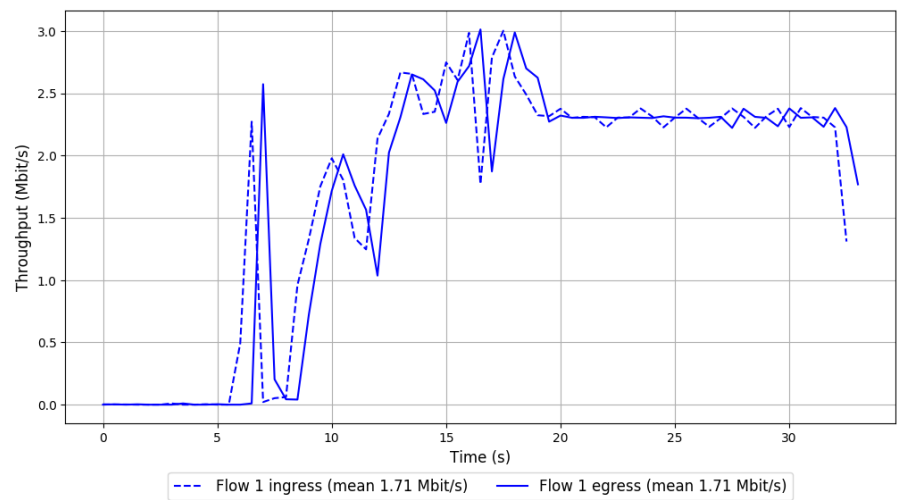Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-12-10 22:48:13
End at: 2018-12-10 22:48:43
Local clock offset: -3.771 ms
Remote clock offset: -956.314 ms


# Below is generated by plot.py at 2018-12-10 23:53:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.71 Mbit/s
95th percentile per-packet one-way delay: 98.392 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.71 Mbit/s
95th percentile per-packet one-way delay: 98.392 ms
Loss rate: 0.00%
```

Run 3: Report of WebRTC media — Data Link

Flow 1 ingress (mean 1.71 Mbit/s) —— Flow 1 egress (mean 1.71 Mbit/s)

· Flow 1 (95th percentile 98.39 ms)

```
Run 4: Statistics of WebRTC media

Start at: 2018-12-10 23:10:27
End at: 2018-12-10 23:10:57
Local clock offset: -7.428 ms
Remote clock offset: -1368.89 ms


# Below is generated by plot.py at 2018-12-10 23:53:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.76 Mbit/s
95th percentile per-packet one-way delay: 93.575 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.76 Mbit/s
95th percentile per-packet one-way delay: 93.575 ms
Loss rate: 0.00%
```
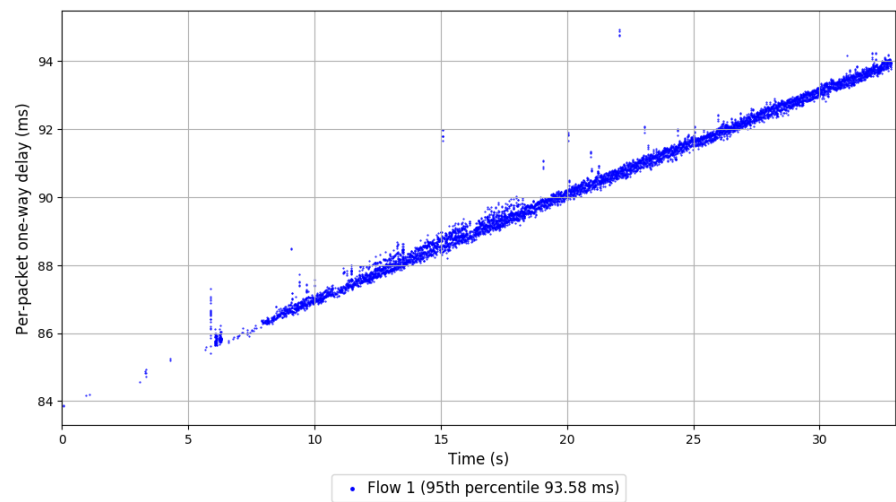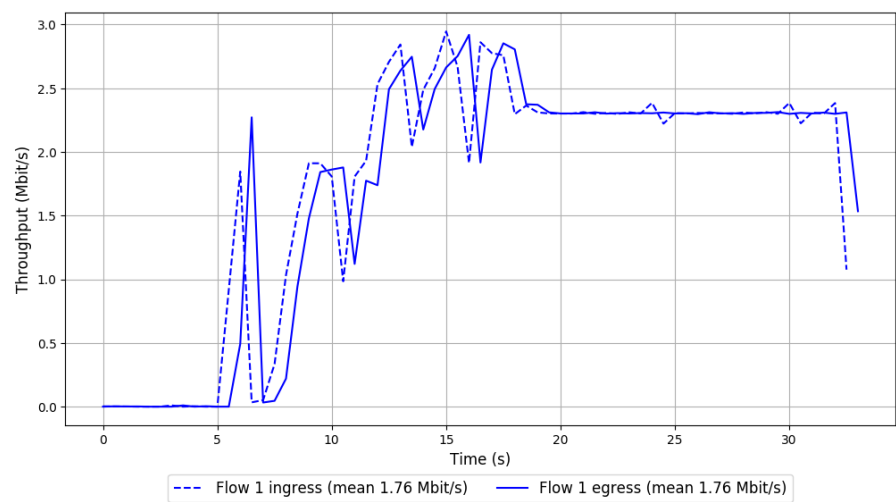
Run 4: Report of WebRTC media — Data Link

Flow 1 ingress (mean 1.76 Mbit/s) ——— Flow 1 egress (mean 1.76 Mbit/s)

• Flow 1 (95th percentile 93.58 ms)

```
Run 5: Statistics of WebRTC media

Start at: 2018-12-10 23:32:41
End at: 2018-12-10 23:33:11
Local clock offset: -8.421 ms
Remote clock offset: -1773.153 ms


# Below is generated by plot.py at 2018-12-10 23:53:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.74 Mbit/s
95th percentile per-packet one-way delay: 96.681 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.74 Mbit/s
95th percentile per-packet one-way delay: 96.681 ms
Loss rate: 0.00%
```

Run 5: Report of WebRTC media — Data Link