Pantheon Report

Generated at 2018-12-02 02:16:21 (UTC).

Data path: AWS India 1 on `ens5` (*local*) →India on `em1` (*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 `nets.org.sg` and have been applied to correct the timestamps in logs.
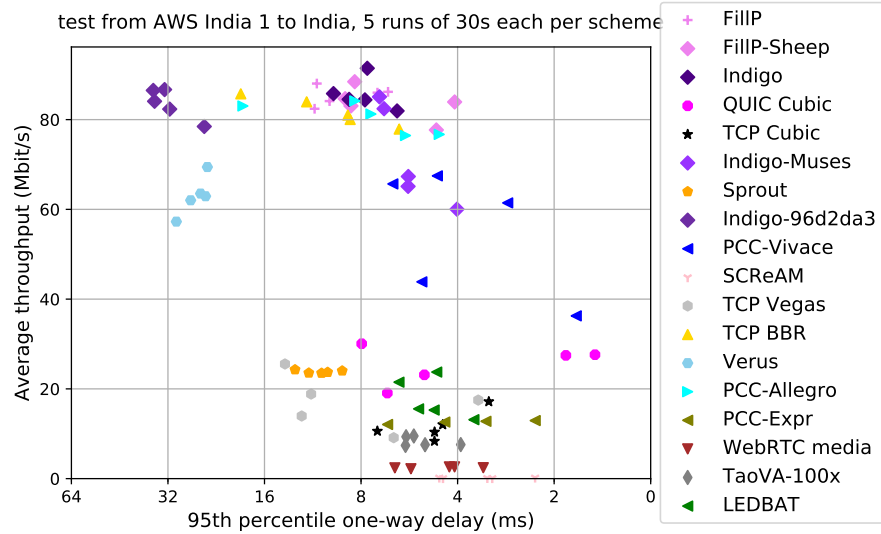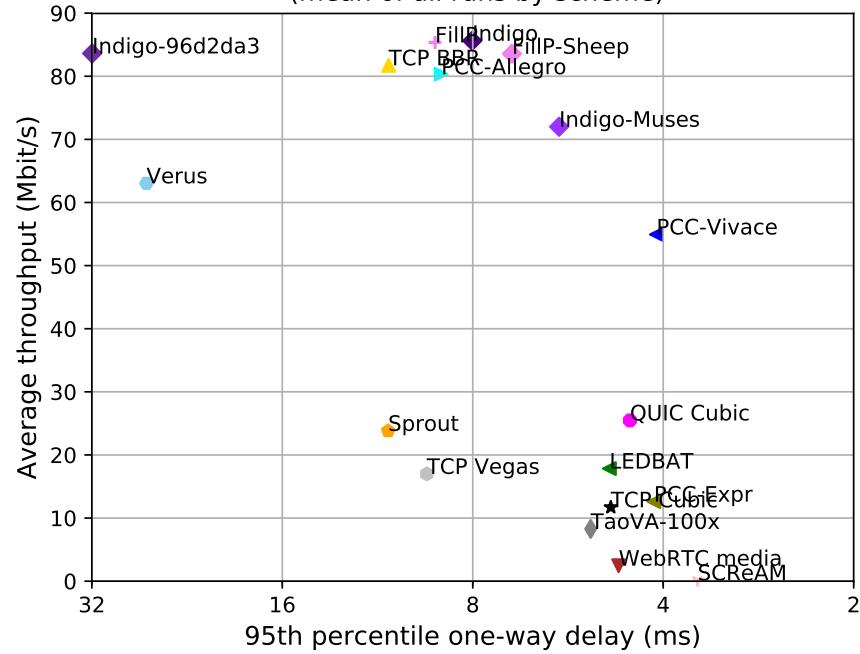
```
System info:
Linux 4.15.0-1027-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

Git summary:
branch: muses @ 7b6dad87cde3ab65f7c4052140eb54098aa58e9d
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 India 1 to India, 5 runs of 30s each per scheme
(mean of all runs by scheme)

test from AWS India 1 to India, 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	81.73	10.86	8.24
Copa	0	N/A	N/A	N/A
TCP Cubic	5	11.70	4.84	0.55
FillP	5	85.35	9.18	7.74
FillP-Sheep	5	83.56	6.94	7.40
Indigo	5	85.62	8.01	7.90
Indigo-96d2da3	5	83.62	31.96	38.48
LEDBAT	5	17.84	4.87	0.56
Indigo-Muses	5	72.00	5.84	7.24
PCC-Allegro	5	80.32	8.97	8.54
PCC-Expr	4	12.60	4.14	40.00
QUIC Cubic	5	25.47	4.52	1.26
SCReAM	5	0.14	3.53	0.33
Sprout	5	23.82	10.89	1.46
TaoVA-100x	5	8.28	5.21	77.28
TCP Vegas	5	16.99	9.46	1.32
Verus	5	63.04	26.23	10.09
PCC-Vivace	5	54.94	4.10	7.41
WebRTC media	5	2.45	4.70	0.91

```
Run 1: Statistics of TCP BBR

Start at: 2018-12-02 00:25:20
End at: 2018-12-02 00:25:50
Local clock offset: 3.625 ms
Remote clock offset: -4.069 ms


# Below is generated by plot.py at 2018-12-02 02:10:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 77.89 Mbit/s
95th percentile per-packet one-way delay: 6.083 ms
Loss rate: 9.90%
-- Flow 1:
Average throughput: 77.89 Mbit/s
95th percentile per-packet one-way delay: 6.083 ms
Loss rate: 9.90%
```
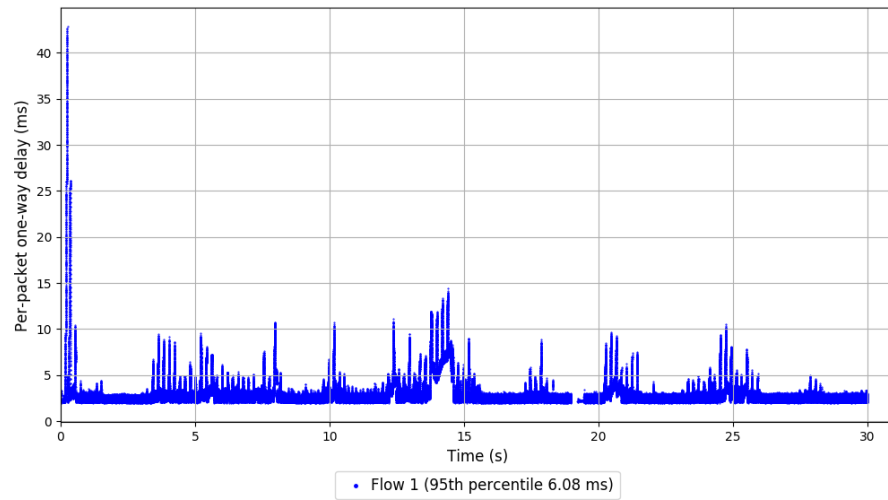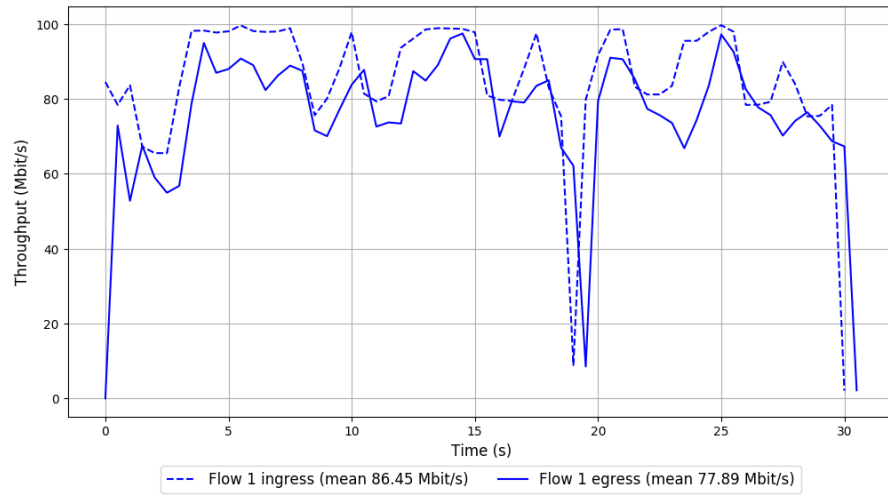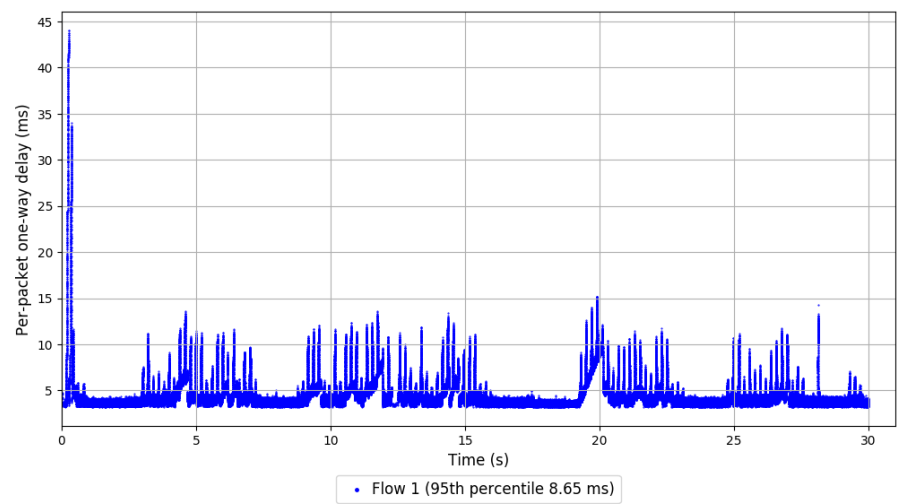
Run 1: Report of TCP BBR — Data Link

```
Run 2: Statistics of TCP BBR

Start at: 2018-12-02 00:47:04
End at: 2018-12-02 00:47:34
Local clock offset: 2.509 ms
Remote clock offset: -3.604 ms


# Below is generated by plot.py at 2018-12-02 02:10:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 80.04 Mbit/s
95th percentile per-packet one-way delay: 8.650 ms
Loss rate: 8.31%
-- Flow 1:
Average throughput: 80.04 Mbit/s
95th percentile per-packet one-way delay: 8.650 ms
Loss rate: 8.31%
```
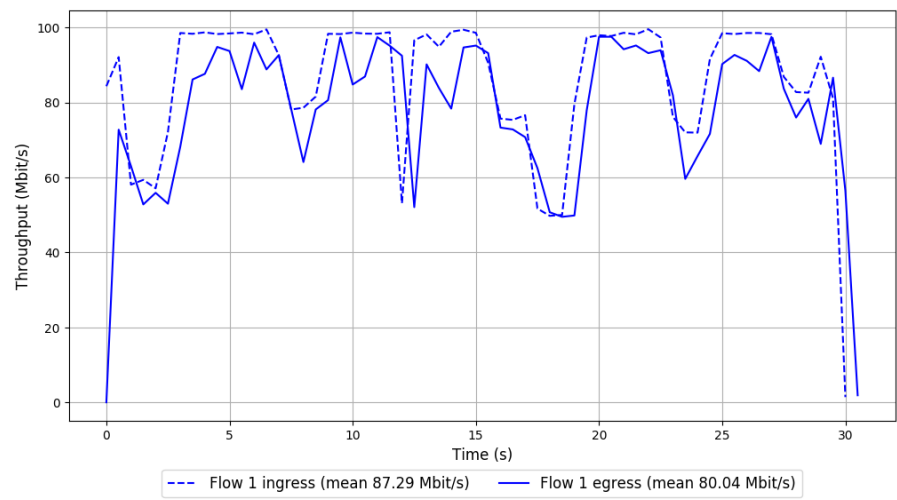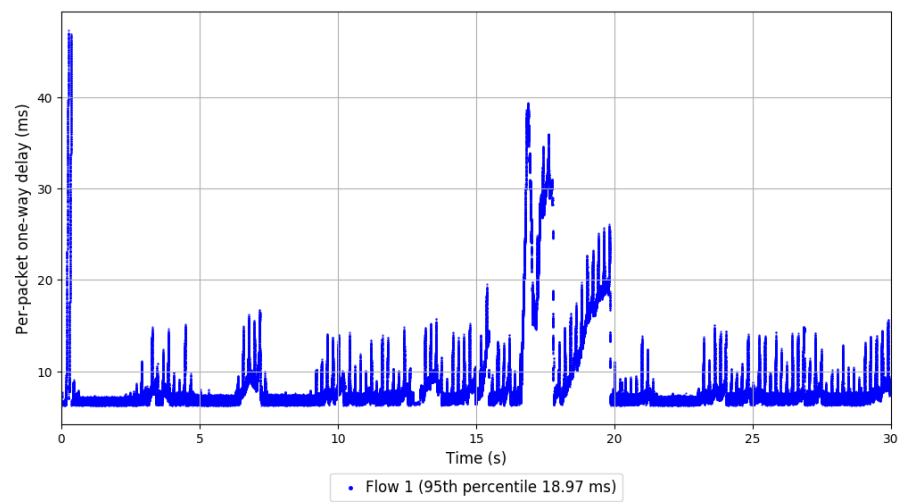
Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2018-12-02 01:09:06
End at: 2018-12-02 01:09:36
Local clock offset: 1.384 ms
Remote clock offset: -3.039 ms


# Below is generated by plot.py at 2018-12-02 02:10:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 85.75 Mbit/s
95th percentile per-packet one-way delay: 18.969 ms
Loss rate: 7.75%
-- Flow 1:
Average throughput: 85.75 Mbit/s
95th percentile per-packet one-way delay: 18.969 ms
Loss rate: 7.75%
```
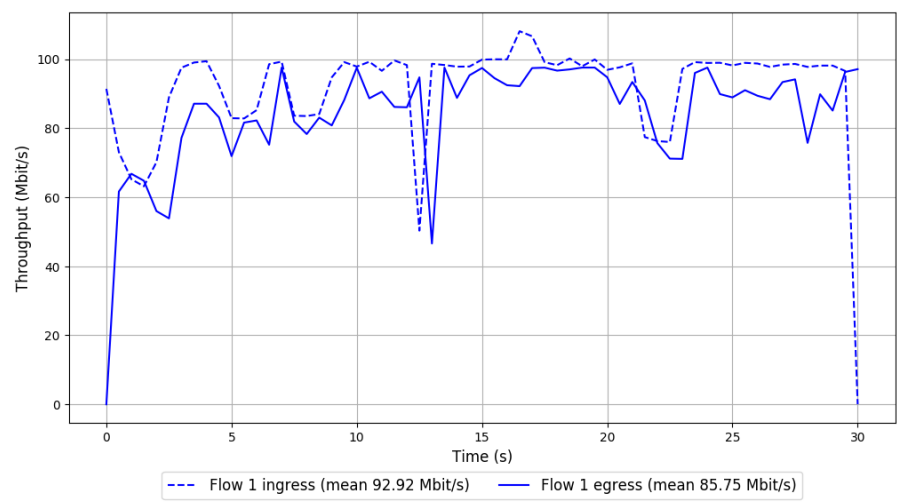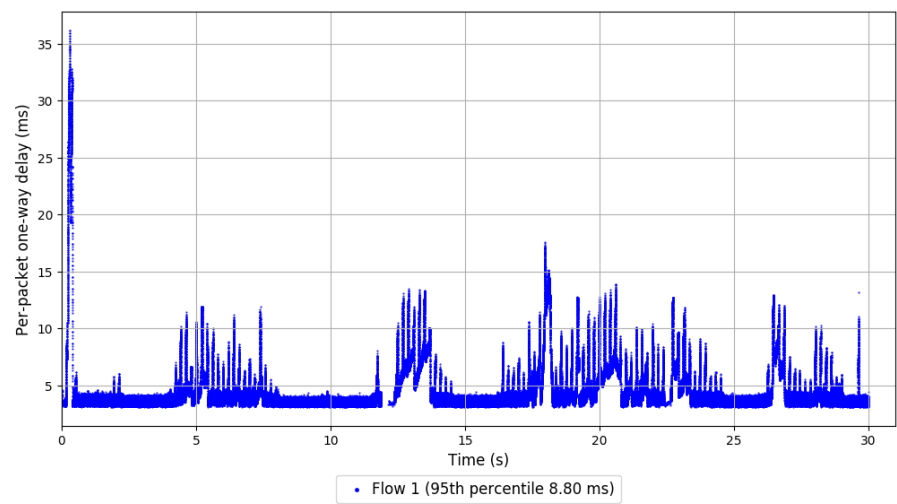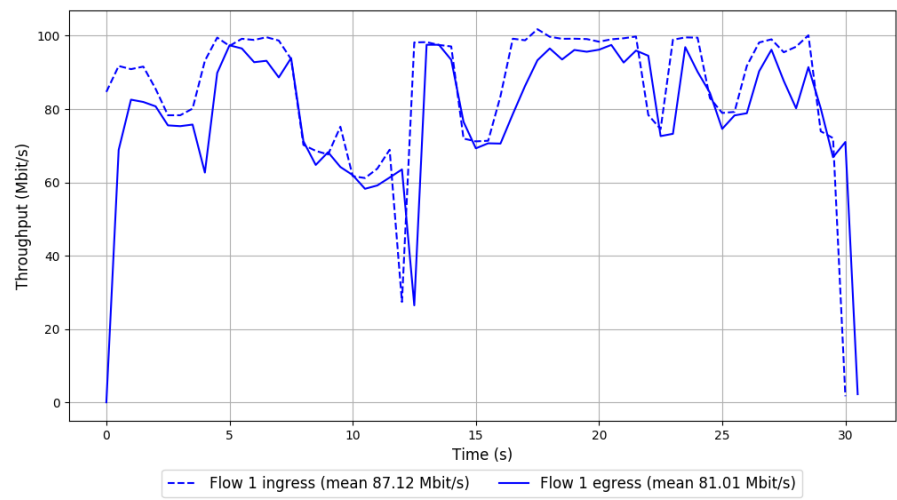
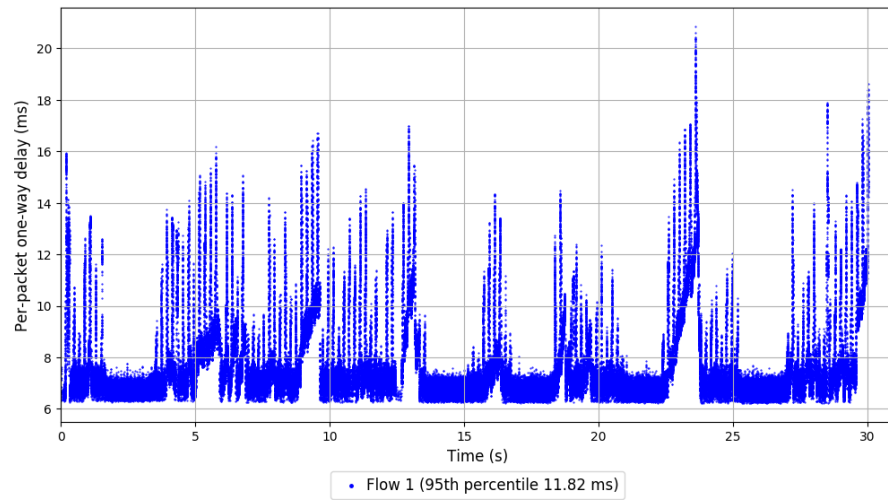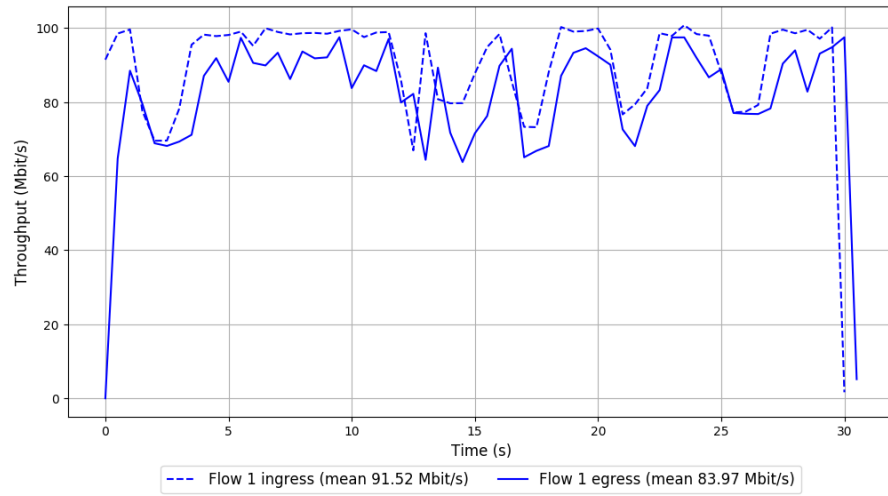## Run 3: Report of TCP BBR — Data Link

Flow 1 ingress (mean 92.92 Mbit/s)   Flow 1 egress (mean 85.75 Mbit/s)

Flow 1 (95th percentile 18.97 ms)

```
Run 4: Statistics of TCP BBR

Start at: 2018-12-02 01:31:07
End at: 2018-12-02 01:31:37
Local clock offset: 2.611 ms
Remote clock offset: -3.569 ms


# Below is generated by plot.py at 2018-12-02 02:10:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 81.01 Mbit/s
95th percentile per-packet one-way delay: 8.796 ms
Loss rate: 7.01%
-- Flow 1:
Average throughput: 81.01 Mbit/s
95th percentile per-packet one-way delay: 8.796 ms
Loss rate: 7.01%
```

Run 4: Report of TCP BBR — Data Link

Flow 1 ingress (mean 87.12 Mbit/s)   Flow 1 egress (mean 81.01 Mbit/s)

Flow 1 (95th percentile 8.80 ms)

```
Run 5: Statistics of TCP BBR

Start at: 2018-12-02 01:52:53
End at: 2018-12-02 01:53:23
Local clock offset: -0.047 ms
Remote clock offset: -2.174 ms

# Below is generated by plot.py at 2018-12-02 02:10:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 83.97 Mbit/s
95th percentile per-packet one-way delay: 11.822 ms
Loss rate: 8.23%
-- Flow 1:
Average throughput: 83.97 Mbit/s
95th percentile per-packet one-way delay: 11.822 ms
Loss rate: 8.23%
```

Run 5: Report of TCP BBR — Data Link

```
Run 1: Statistics of Copa

Start at: 2018-12-02 00:36:48
End at: 2018-12-02 00:37:18
Local clock offset: 1.166 ms
Remote clock offset: -3.968 ms
```
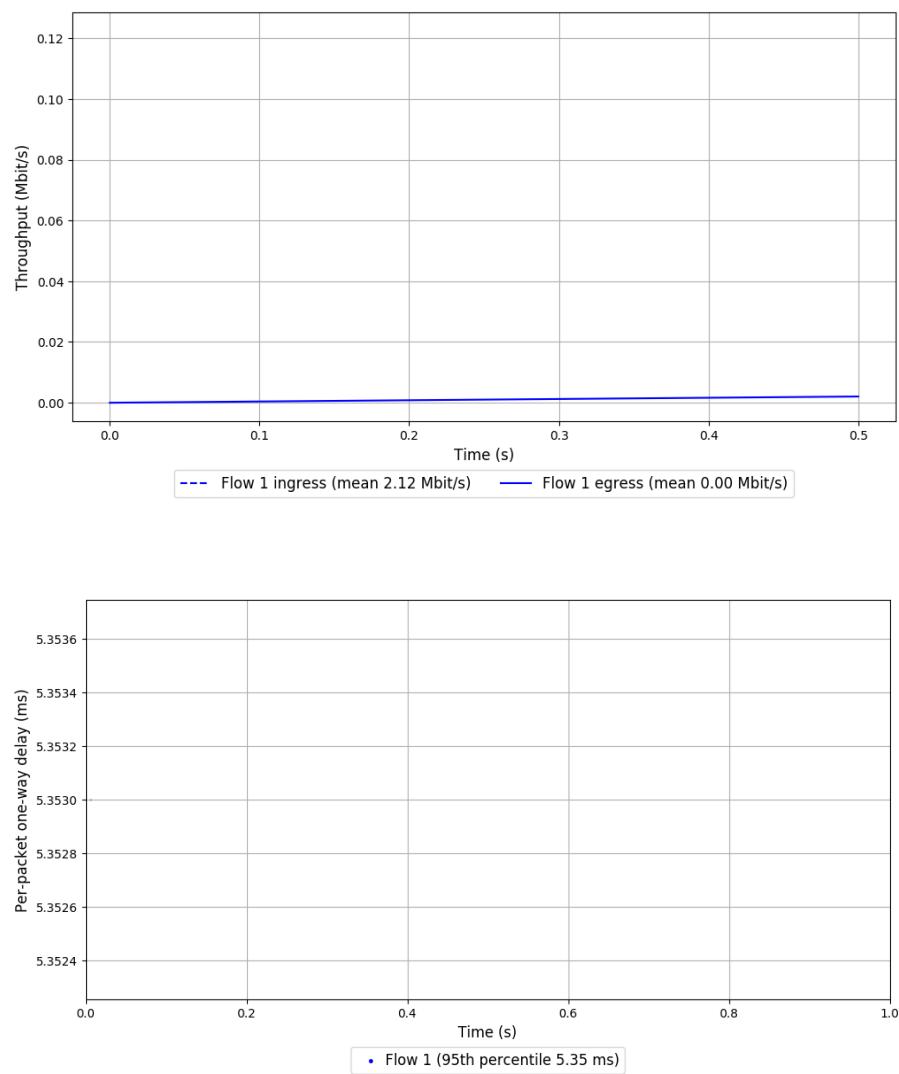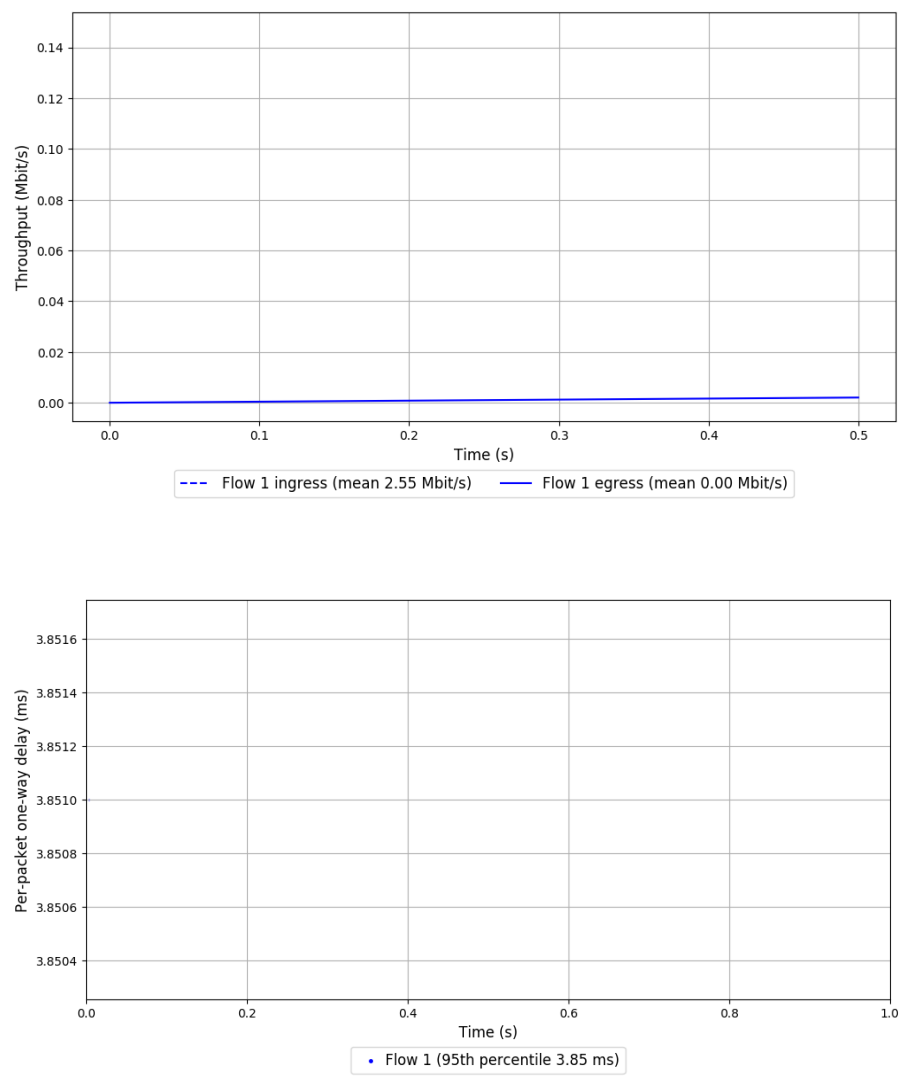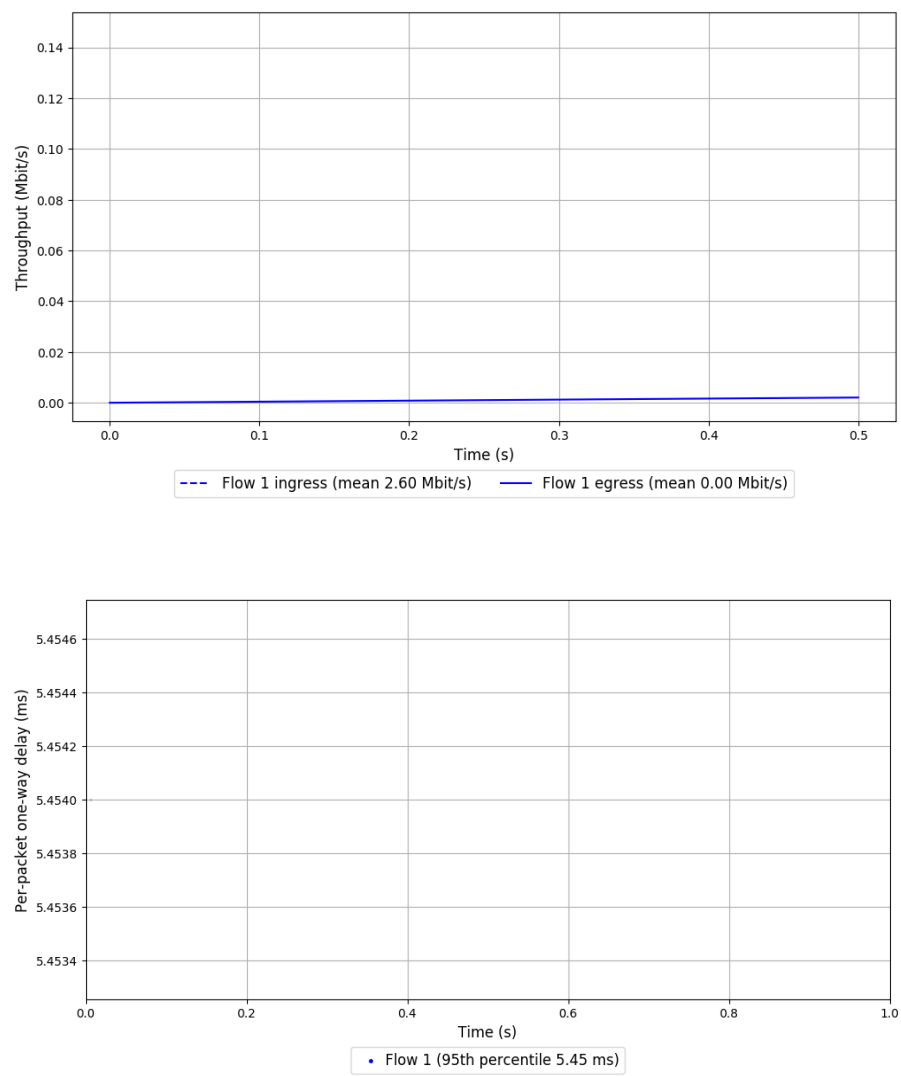
Run 1: Report of Copa — Data Link

Flow 1 ingress (mean 2.10 Mbit/s) — — —   Flow 1 egress (mean 0.00 Mbit/s) ———

Flow 1 (95th percentile 5.25 ms) •
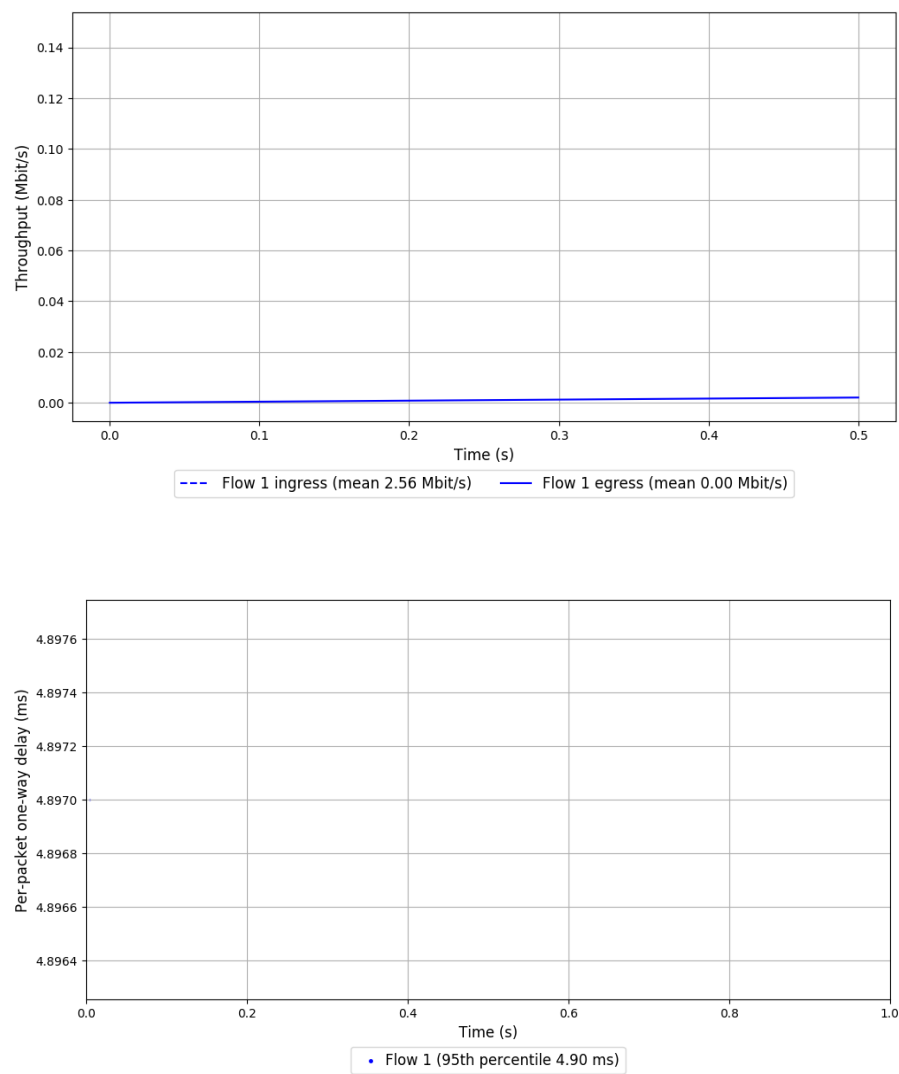
```
Run 2: Statistics of Copa

Start at: 2018-12-02 00:58:35
End at: 2018-12-02 00:59:05
Local clock offset: 1.349 ms
Remote clock offset: -4.225 ms
```

Run 2: Report of Copa — Data Link

Flow 1 ingress (mean 2.12 Mbit/s)   Flow 1 egress (mean 0.00 Mbit/s)
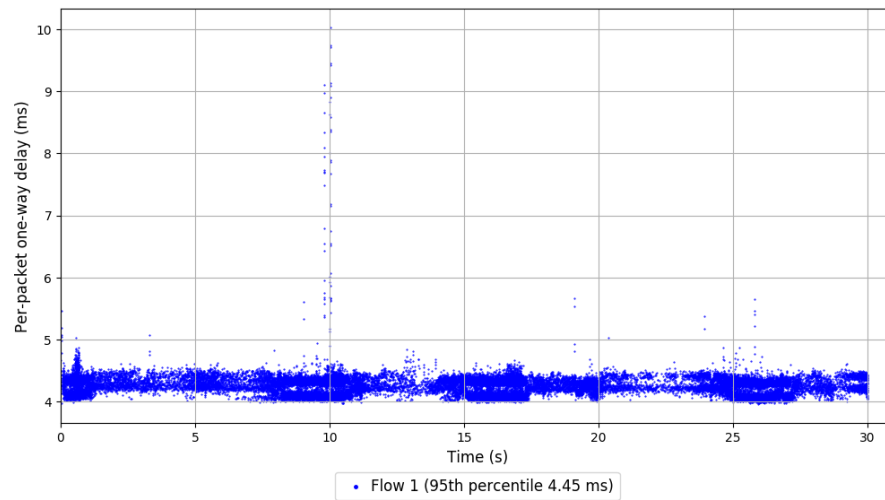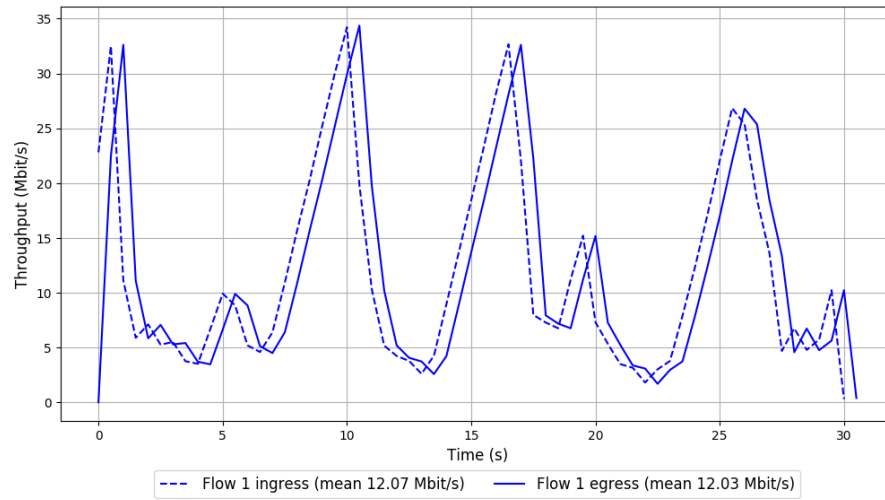

Flow 1 (95th percentile 5.35 ms)

```
Run 3: Statistics of Copa

Start at: 2018-12-02 01:20:48
End at: 2018-12-02 01:21:18
Local clock offset: 4.441 ms
Remote clock offset: -2.644 ms
```

Run 3: Report of Copa — Data Link

Flow 1 ingress (mean 2.55 Mbit/s)   Flow 1 egress (mean 0.00 Mbit/s)

Flow 1 (95th percentile 3.85 ms)

```
Run 4: Statistics of Copa

Start at: 2018-12-02 01:42:41
End at: 2018-12-02 01:43:11
Local clock offset: 0.142 ms
Remote clock offset: -3.539 ms
```

Run 4: Report of Copa — Data Link

Flow 1 ingress (mean 2.60 Mbit/s) ——— Flow 1 egress (mean 0.00 Mbit/s)
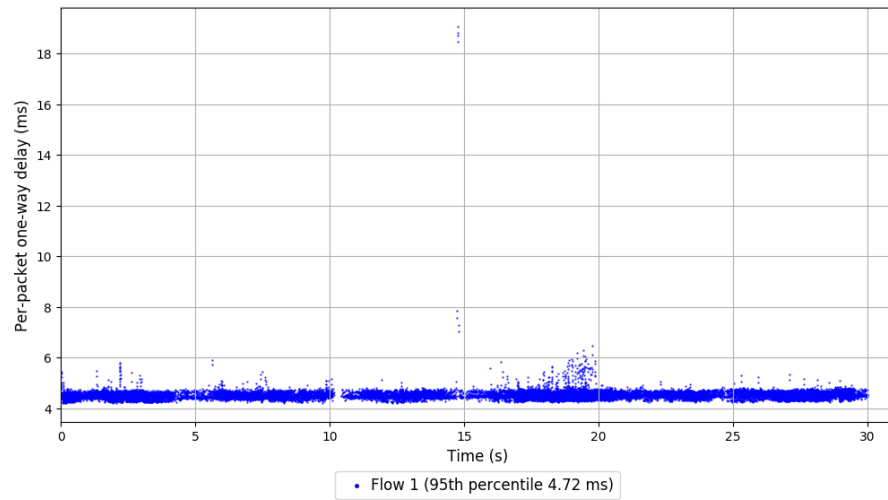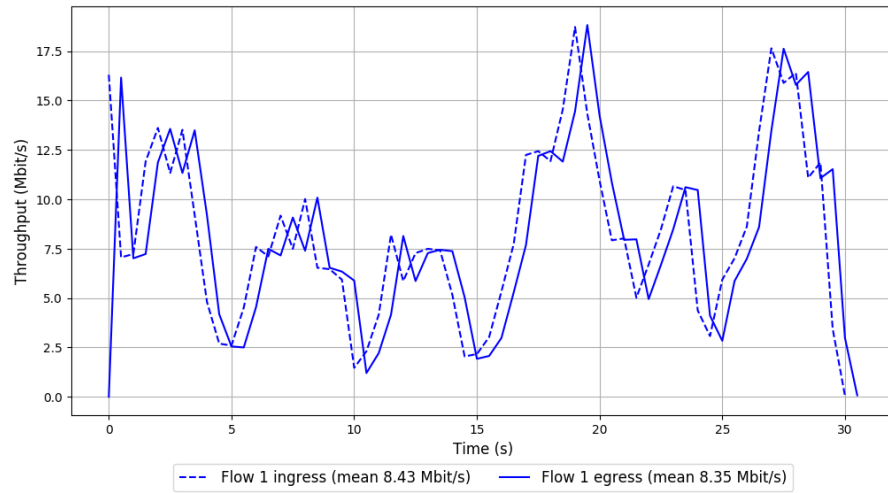

• Flow 1 (95th percentile 5.45 ms)

```
Run 5: Statistics of Copa

Start at: 2018-12-02 02:04:13
End at: 2018-12-02 02:04:43
Local clock offset: 0.491 ms
Remote clock offset: -2.895 ms
```

Run 5: Report of Copa — Data Link

Flow 1 ingress (mean 2.56 Mbit/s) — Flow 1 egress (mean 0.00 Mbit/s)

Flow 1 (95th percentile 4.90 ms)

```
Run 1: Statistics of TCP Cubic

Start at: 2018-12-02 00:26:30
End at: 2018-12-02 00:27:00
Local clock offset: 1.418 ms
Remote clock offset: -4.272 ms


# Below is generated by plot.py at 2018-12-02 02:10:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.03 Mbit/s
95th percentile per-packet one-way delay: 4.450 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 12.03 Mbit/s
95th percentile per-packet one-way delay: 4.450 ms
Loss rate: 0.38%
```

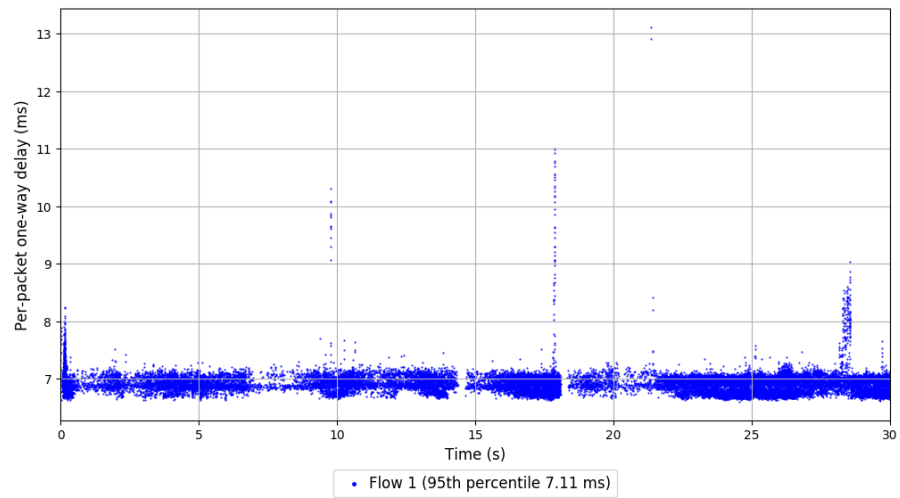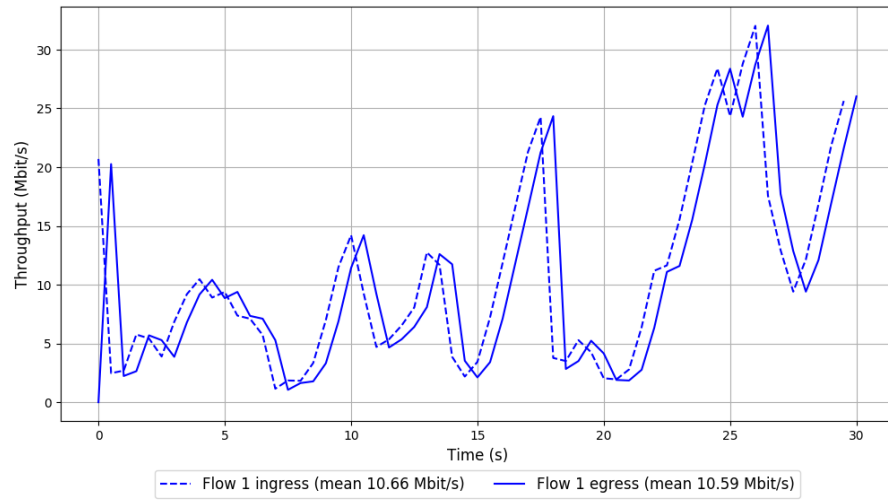Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2018-12-02 00:48:16
End at: 2018-12-02 00:48:47
Local clock offset: 1.266 ms
Remote clock offset: -3.916 ms


# Below is generated by plot.py at 2018-12-02 02:10:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.35 Mbit/s
95th percentile per-packet one-way delay: 4.722 ms
Loss rate: 0.87%
-- Flow 1:
Average throughput: 8.35 Mbit/s
95th percentile per-packet one-way delay: 4.722 ms
Loss rate: 0.87%
```

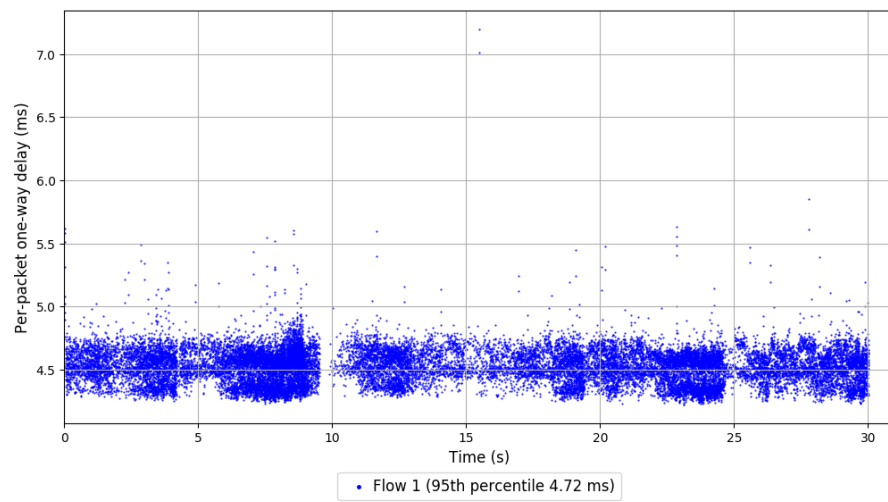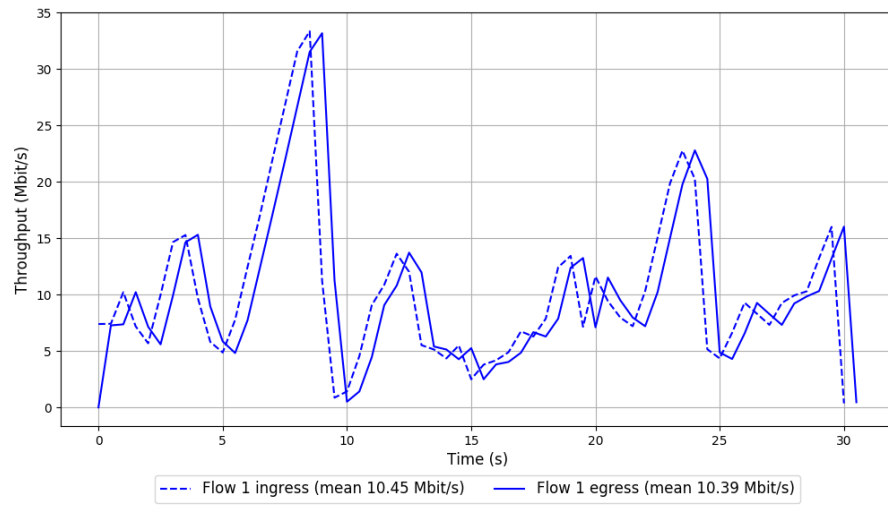Run 2: Report of TCP Cubic — Data Link

```
Run 3: Statistics of TCP Cubic

Start at: 2018-12-02 01:10:24
End at: 2018-12-02 01:10:54
Local clock offset: 1.722 ms
Remote clock offset: -2.394 ms


# Below is generated by plot.py at 2018-12-02 02:10:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 10.59 Mbit/s
95th percentile per-packet one-way delay: 7.114 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 10.59 Mbit/s
95th percentile per-packet one-way delay: 7.114 ms
Loss rate: 0.71%
```

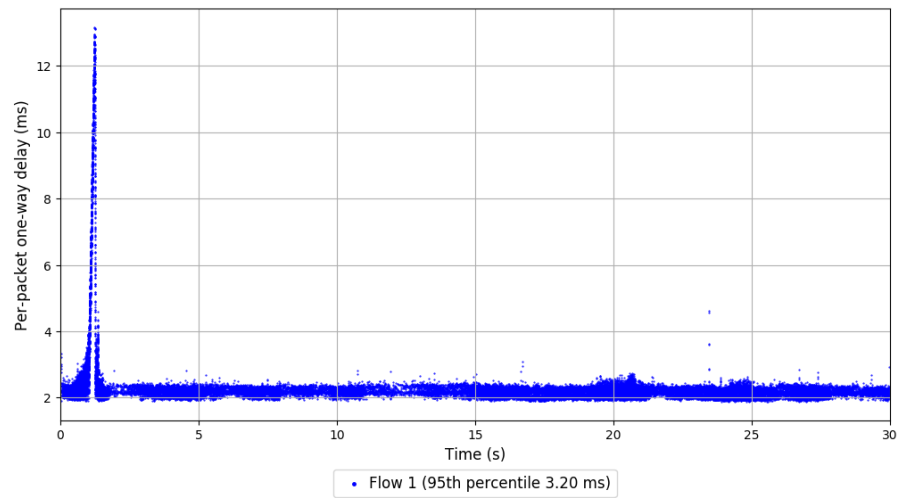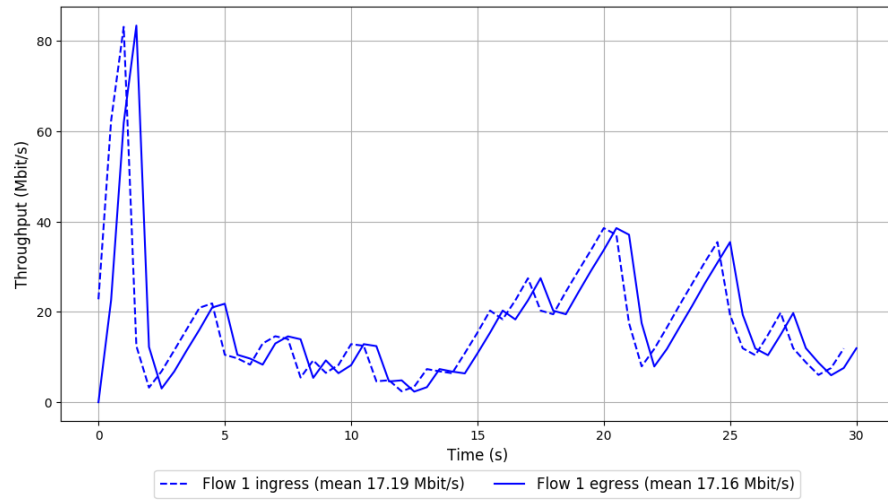Run 3: Report of TCP Cubic — Data Link

```
Run 4: Statistics of TCP Cubic

Start at: 2018-12-02 01:32:20
End at: 2018-12-02 01:32:50
Local clock offset: 1.049 ms
Remote clock offset: -3.941 ms


# Below is generated by plot.py at 2018-12-02 02:10:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 10.39 Mbit/s
95th percentile per-packet one-way delay: 4.719 ms
Loss rate: 0.59%
-- Flow 1:
Average throughput: 10.39 Mbit/s
95th percentile per-packet one-way delay: 4.719 ms
Loss rate: 0.59%
```

Run 4: Report of TCP Cubic — Data Link

```
Run 5: Statistics of TCP Cubic

Start at: 2018-12-02 01:54:06
End at: 2018-12-02 01:54:36
Local clock offset: 2.717 ms
Remote clock offset: -3.653 ms


# Below is generated by plot.py at 2018-12-02 02:10:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 17.16 Mbit/s
95th percentile per-packet one-way delay: 3.197 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 17.16 Mbit/s
95th percentile per-packet one-way delay: 3.197 ms
Loss rate: 0.20%
```
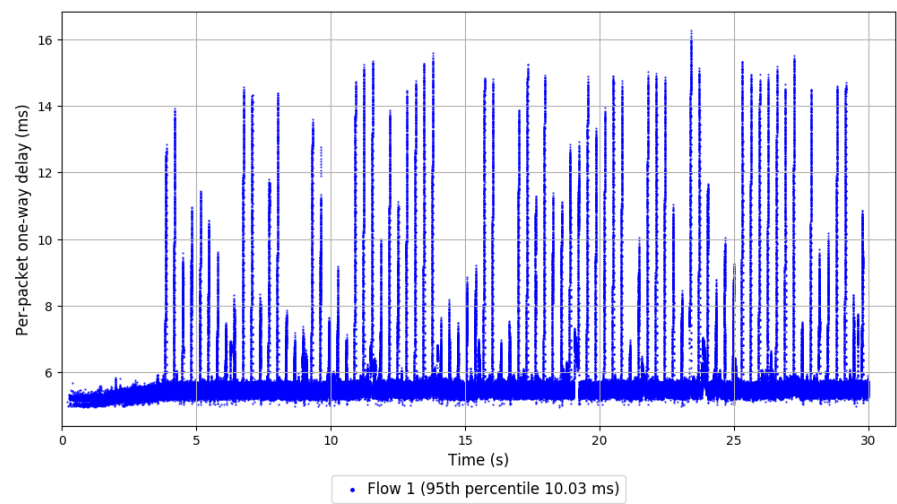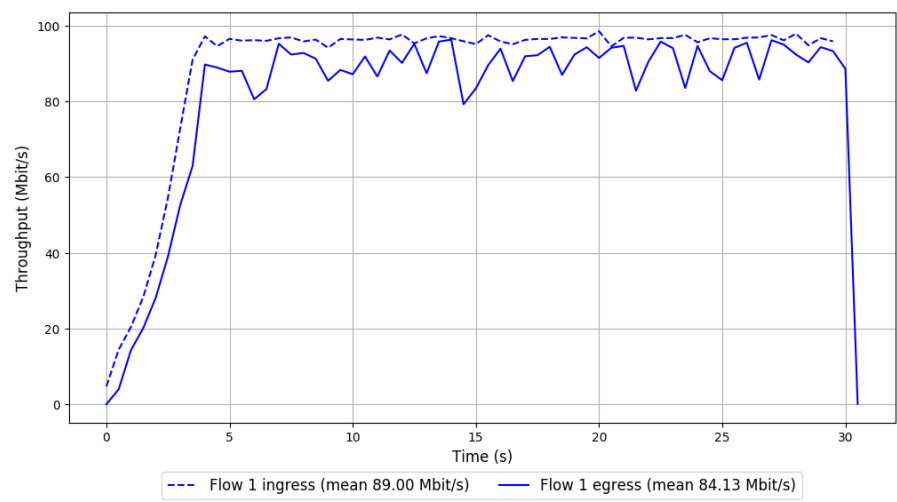
Run 5: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 17.19 Mbit/s)   Flow 1 egress (mean 17.16 Mbit/s)

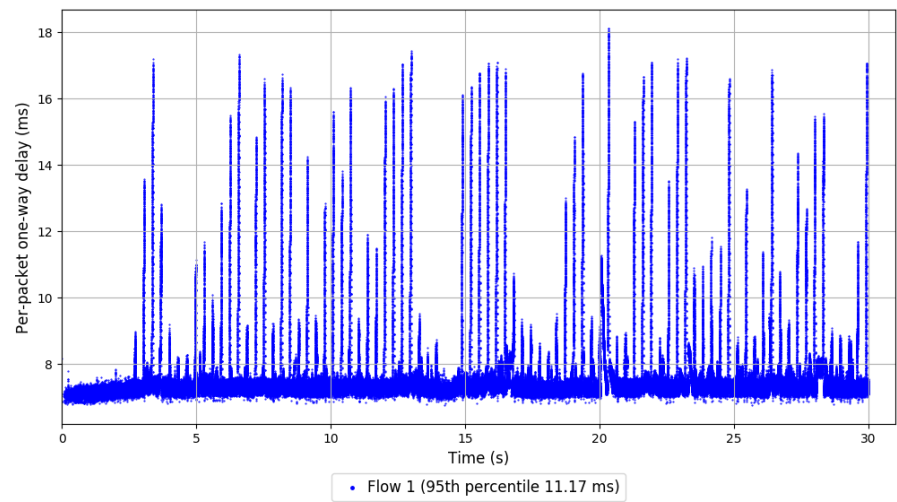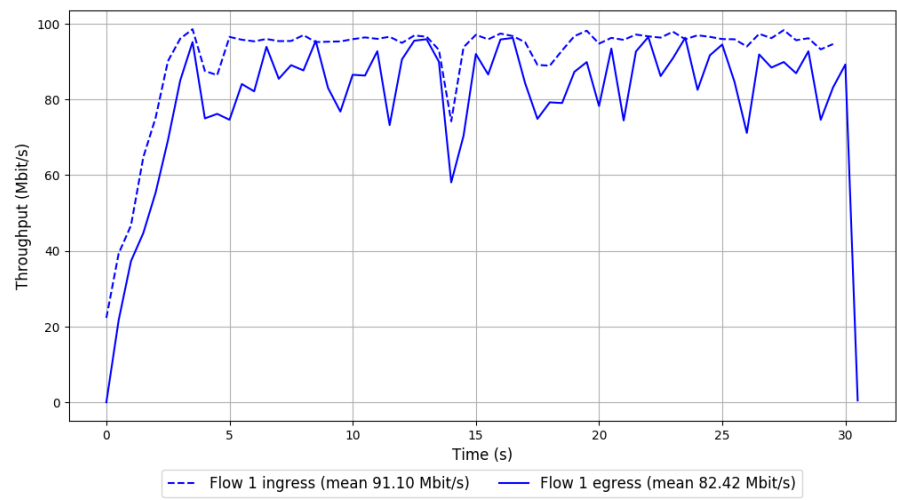

Flow 1 (95th percentile 3.20 ms)

```
Run 1: Statistics of FillP

Start at: 2018-12-02 00:23:02
End at: 2018-12-02 00:23:32
Local clock offset: 0.553 ms
Remote clock offset: -4.03 ms


# Below is generated by plot.py at 2018-12-02 02:10:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 84.13 Mbit/s
95th percentile per-packet one-way delay: 10.030 ms
Loss rate: 6.10%
-- Flow 1:
Average throughput: 84.13 Mbit/s
95th percentile per-packet one-way delay: 10.030 ms
Loss rate: 6.10%
```
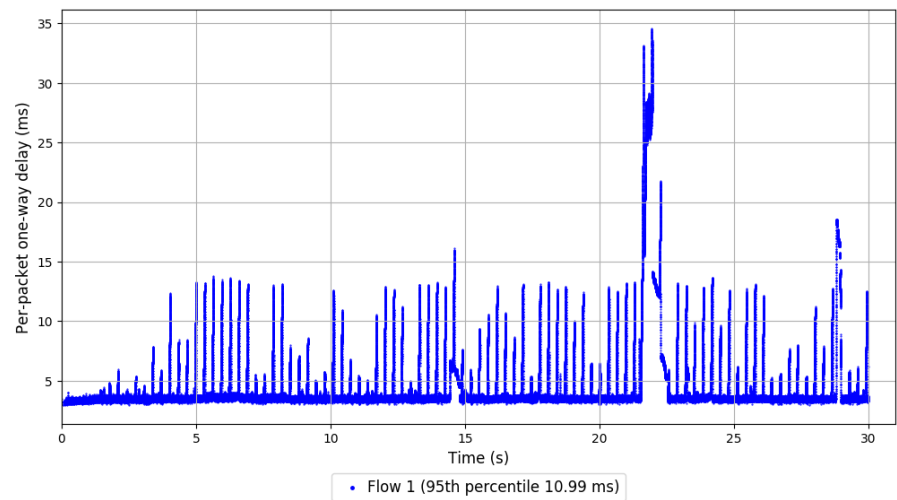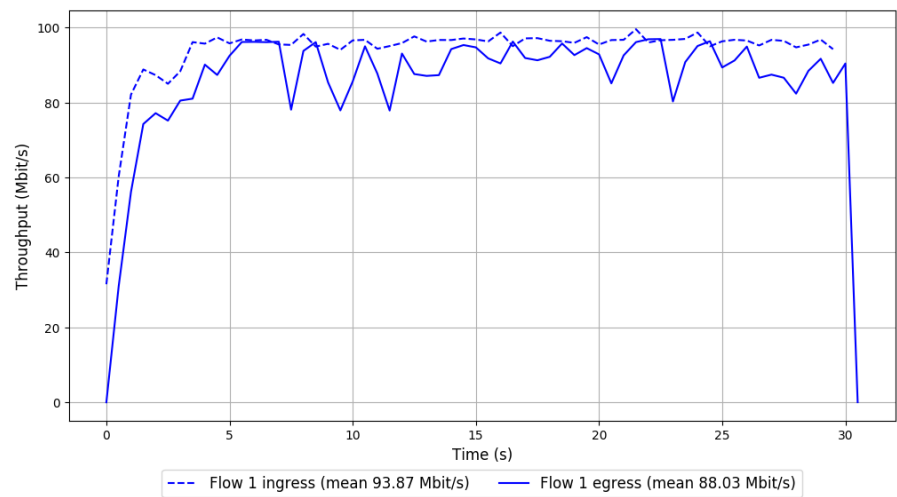
Run 1: Report of FillP — Data Link

Flow 1 ingress (mean 89.00 Mbit/s) --- Flow 1 egress (mean 84.13 Mbit/s)

Flow 1 (95th percentile 10.03 ms)

```
Run 2: Statistics of FillP

Start at: 2018-12-02 00:44:43
End at: 2018-12-02 00:45:13
Local clock offset: -0.388 ms
Remote clock offset: -2.688 ms


# Below is generated by plot.py at 2018-12-02 02:10:39
# Datalink statistics
-- Total of 1 flow:
Average throughput: 82.42 Mbit/s
95th percentile per-packet one-way delay: 11.166 ms
Loss rate: 9.53%
-- Flow 1:
Average throughput: 82.42 Mbit/s
95th percentile per-packet one-way delay: 11.166 ms
Loss rate: 9.53%
```

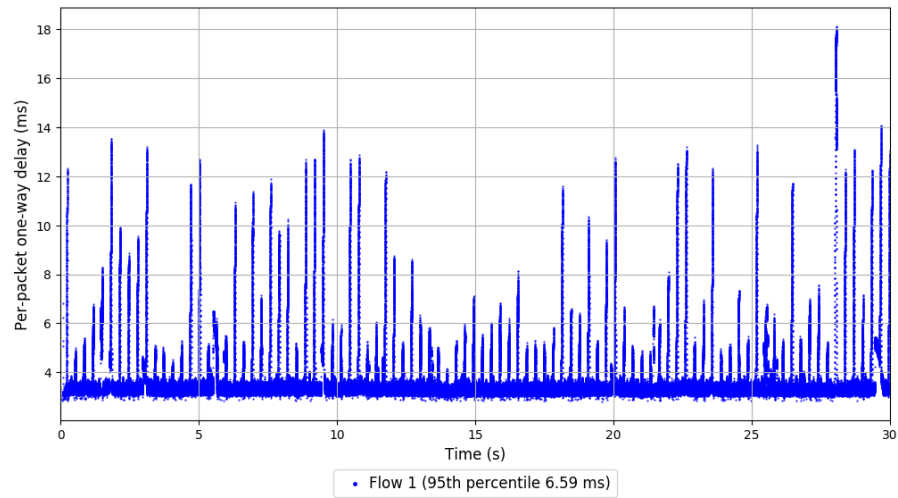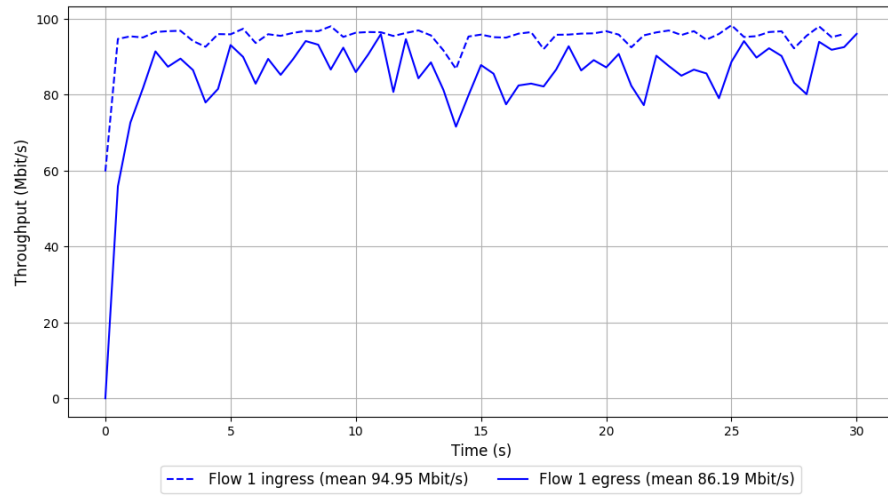Run 2: Report of FillP — Data Link

```
Run 3: Statistics of FillP

Start at: 2018-12-02 01:06:44
End at: 2018-12-02 01:07:14
Local clock offset: 4.113 ms
Remote clock offset: -3.293 ms


# Below is generated by plot.py at 2018-12-02 02:10:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 88.03 Mbit/s
95th percentile per-packet one-way delay: 10.989 ms
Loss rate: 6.21%
-- Flow 1:
Average throughput: 88.03 Mbit/s
95th percentile per-packet one-way delay: 10.989 ms
Loss rate: 6.21%
```
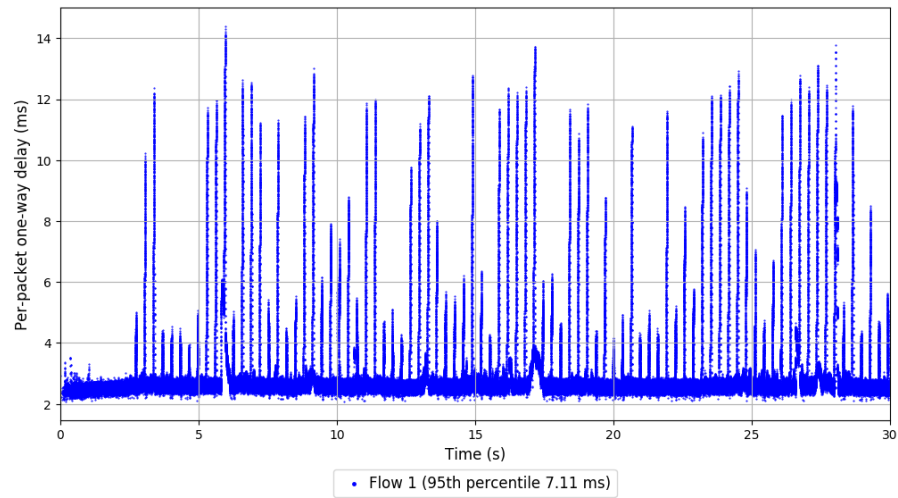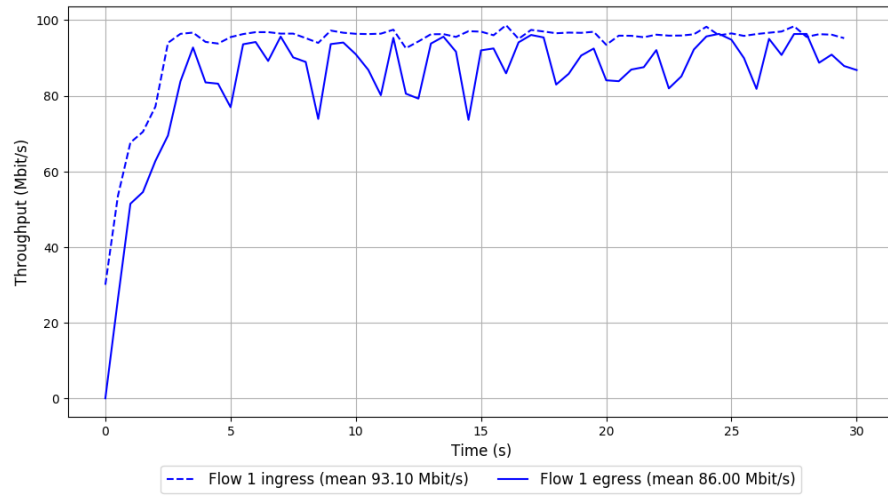
Run 3: Report of FillP — Data Link

Flow 1 ingress (mean 93.87 Mbit/s)   Flow 1 egress (mean 88.03 Mbit/s)

Flow 1 (95th percentile 10.99 ms)

```
Run 4: Statistics of FillP

Start at: 2018-12-02 01:28:45
End at: 2018-12-02 01:29:15
Local clock offset: 2.354 ms
Remote clock offset: -3.867 ms


# Below is generated by plot.py at 2018-12-02 02:11:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 86.19 Mbit/s
95th percentile per-packet one-way delay: 6.590 ms
Loss rate: 9.22%
-- Flow 1:
Average throughput: 86.19 Mbit/s
95th percentile per-packet one-way delay: 6.590 ms
Loss rate: 9.22%
```
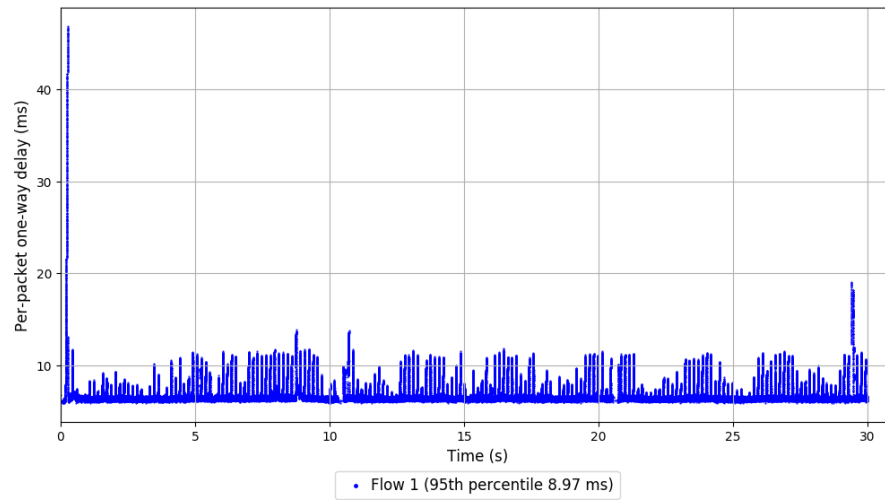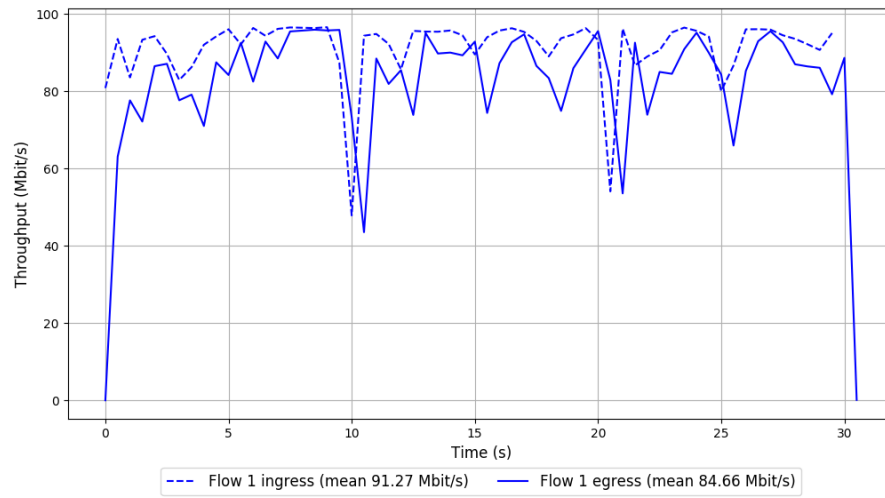
Run 4: Report of FillP — Data Link

Flow 1 ingress (mean 94.95 Mbit/s)   Flow 1 egress (mean 86.19 Mbit/s)

Flow 1 (95th percentile 6.59 ms)

```
Run 5: Statistics of FillP

Start at: 2018-12-02 01:50:36
End at: 2018-12-02 01:51:06
Local clock offset: 2.569 ms
Remote clock offset: -3.701 ms


# Below is generated by plot.py at 2018-12-02 02:11:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 86.00 Mbit/s
95th percentile per-packet one-way delay: 7.111 ms
Loss rate: 7.63%
-- Flow 1:
Average throughput: 86.00 Mbit/s
95th percentile per-packet one-way delay: 7.111 ms
Loss rate: 7.63%
```

Run 5: Report of FillP — Data Link

Flow 1 ingress (mean 93.10 Mbit/s)   Flow 1 egress (mean 86.00 Mbit/s)
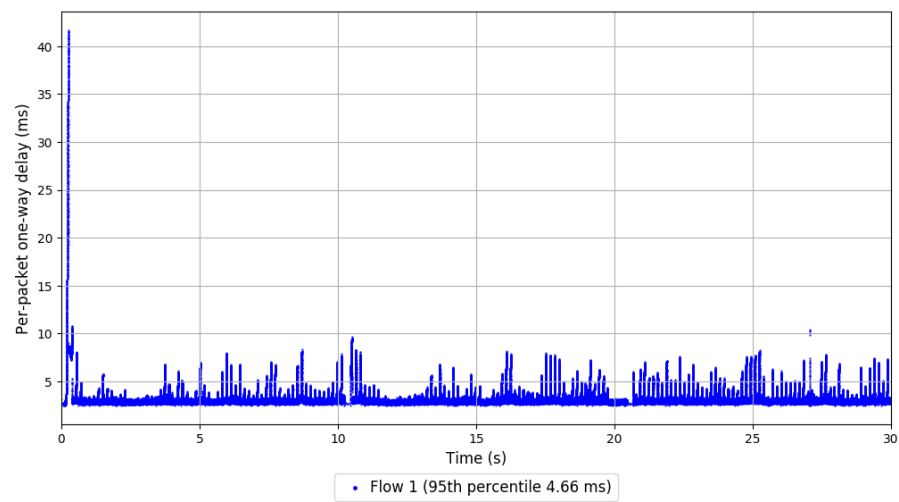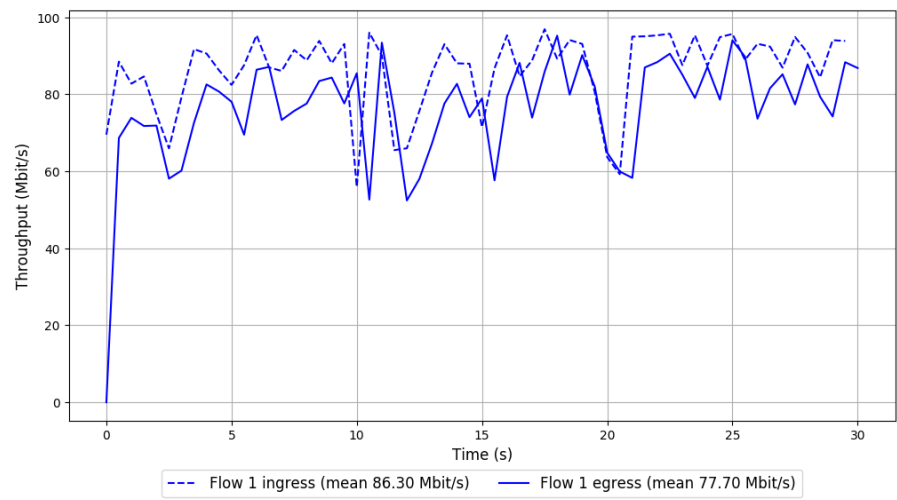

Flow 1 (95th percentile 7.11 ms)

```
Run 1: Statistics of FillP-Sheep

Start at: 2018-12-02 00:24:10
End at: 2018-12-02 00:24:40
Local clock offset: -0.28 ms
Remote clock offset: -3.905 ms


# Below is generated by plot.py at 2018-12-02 02:11:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 84.66 Mbit/s
95th percentile per-packet one-way delay: 8.966 ms
Loss rate: 7.24%
-- Flow 1:
Average throughput: 84.66 Mbit/s
95th percentile per-packet one-way delay: 8.966 ms
Loss rate: 7.24%
```
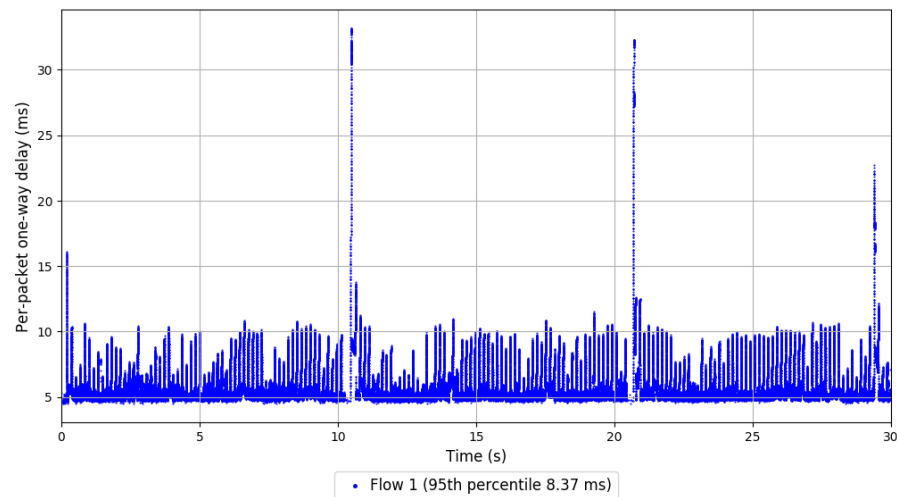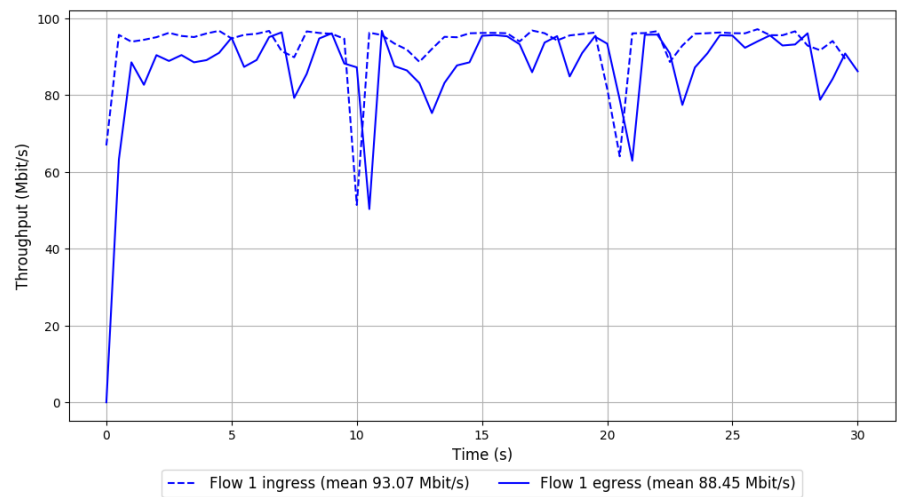
Run 1: Report of FillP-Sheep — Data Link

```
Run 2: Statistics of FillP-Sheep

Start at: 2018-12-02 00:45:54
End at: 2018-12-02 00:46:24
Local clock offset: 2.639 ms
Remote clock offset: -4.043 ms


# Below is generated by plot.py at 2018-12-02 02:11:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 77.70 Mbit/s
95th percentile per-packet one-way delay: 4.659 ms
Loss rate: 9.97%
-- Flow 1:
Average throughput: 77.70 Mbit/s
95th percentile per-packet one-way delay: 4.659 ms
Loss rate: 9.97%
```

Run 2: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 86.30 Mbit/s) --- Flow 1 egress (mean 77.70 Mbit/s)

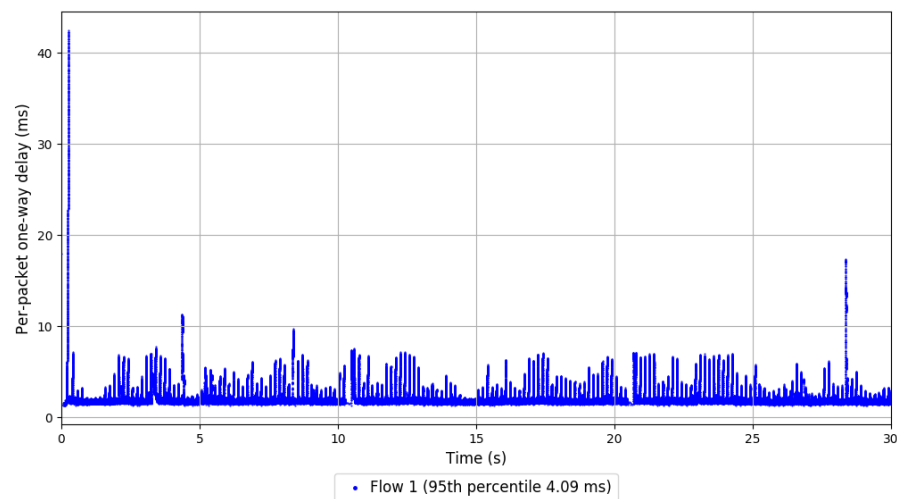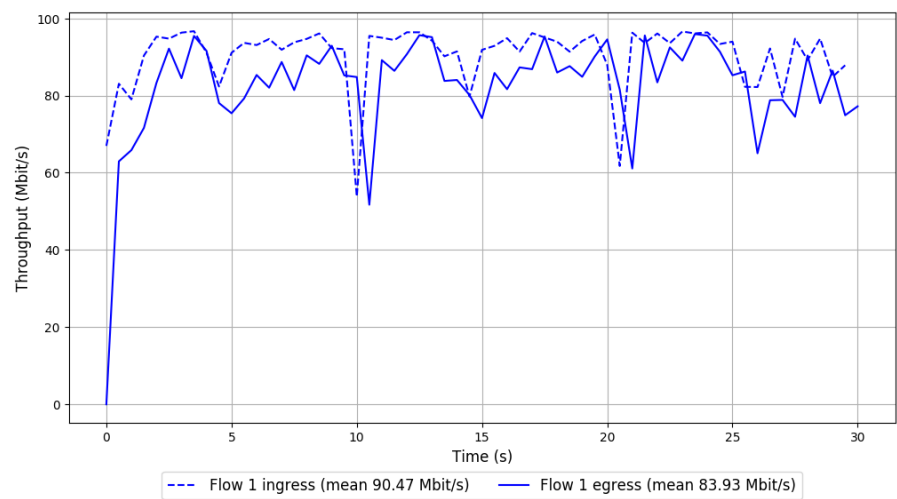

Flow 1 (95th percentile 4.66 ms)

```
Run 3: Statistics of FillP-Sheep

Start at: 2018-12-02 01:07:55
End at: 2018-12-02 01:08:25
Local clock offset: 3.438 ms
Remote clock offset: -2.489 ms


# Below is generated by plot.py at 2018-12-02 02:11:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 88.45 Mbit/s
95th percentile per-packet one-way delay: 8.372 ms
Loss rate: 4.96%
-- Flow 1:
Average throughput: 88.45 Mbit/s
95th percentile per-packet one-way delay: 8.372 ms
Loss rate: 4.96%
```
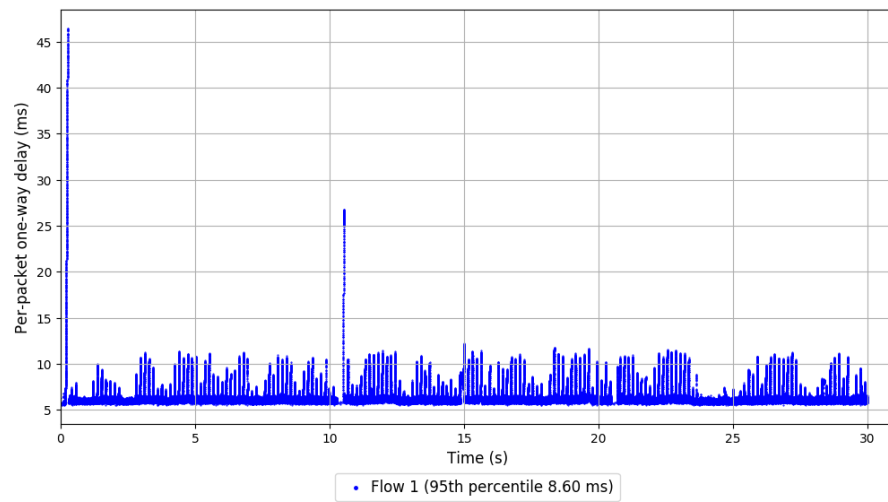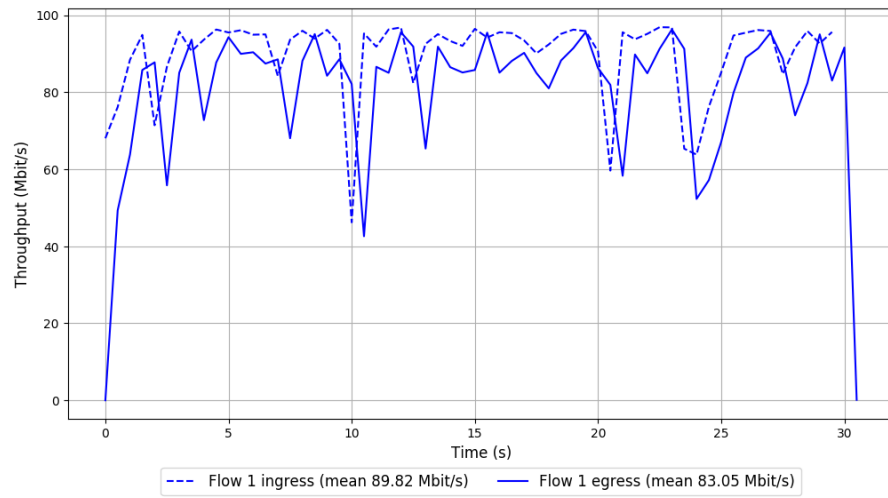
Run 3: Report of FillP-Sheep — Data Link

```
Run 4: Statistics of FillP-Sheep

Start at: 2018-12-02 01:29:57
End at: 2018-12-02 01:30:27
Local clock offset: 4.235 ms
Remote clock offset: -3.555 ms

# Below is generated by plot.py at 2018-12-02 02:11:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 83.93 Mbit/s
95th percentile per-packet one-way delay: 4.086 ms
Loss rate: 7.28%
-- Flow 1:
Average throughput: 83.93 Mbit/s
95th percentile per-packet one-way delay: 4.086 ms
Loss rate: 7.28%
```

Run 4: Report of FillP-Sheep — Data Link

```
Run 5: Statistics of FillP-Sheep

Start at: 2018-12-02 01:51:45
End at: 2018-12-02 01:52:15
Local clock offset: 0.33 ms
Remote clock offset: -2.374 ms


# Below is generated by plot.py at 2018-12-02 02:11:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 83.05 Mbit/s
95th percentile per-packet one-way delay: 8.600 ms
Loss rate: 7.54%
-- Flow 1:
Average throughput: 83.05 Mbit/s
95th percentile per-packet one-way delay: 8.600 ms
Loss rate: 7.54%
```
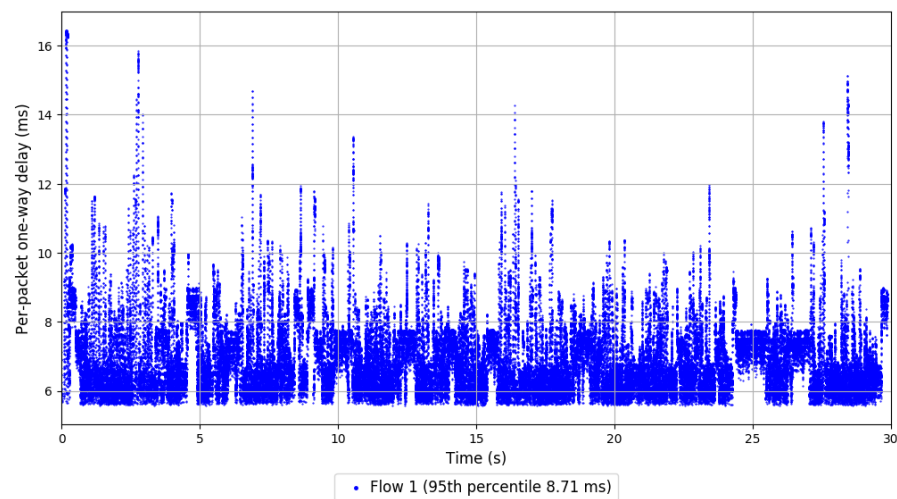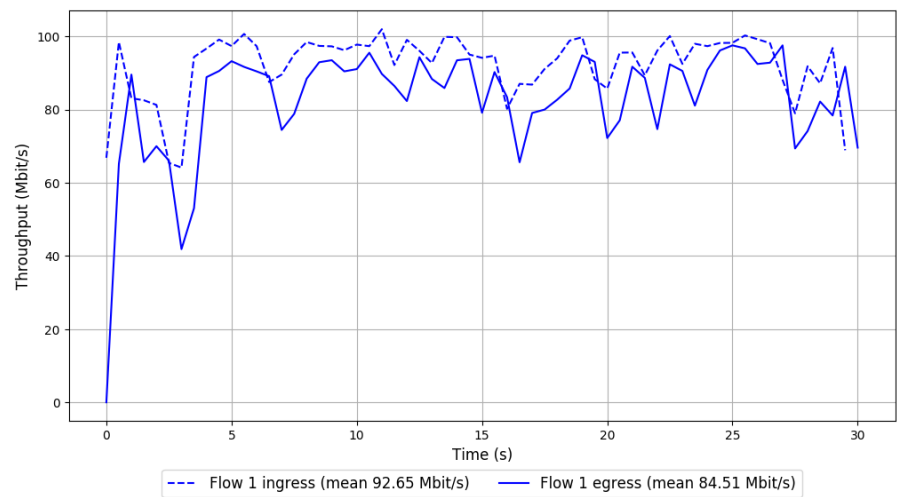
Run 5: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 89.82 Mbit/s) --- Flow 1 egress (mean 83.05 Mbit/s)
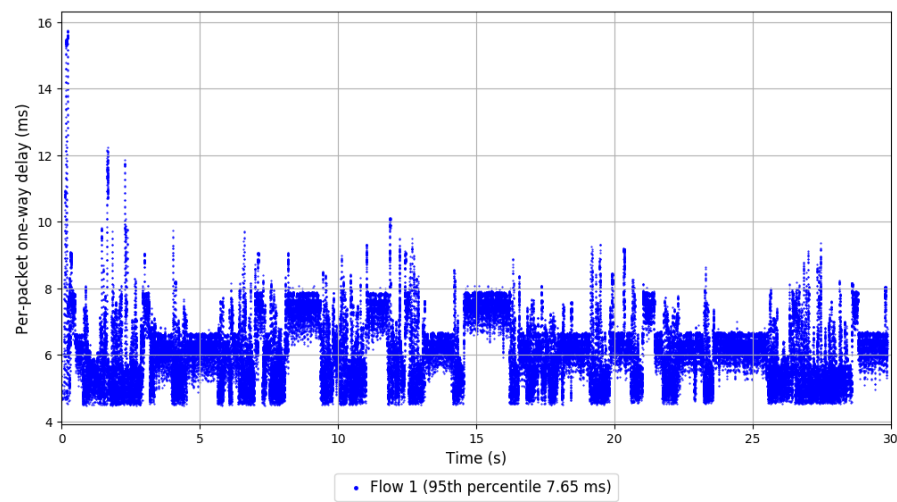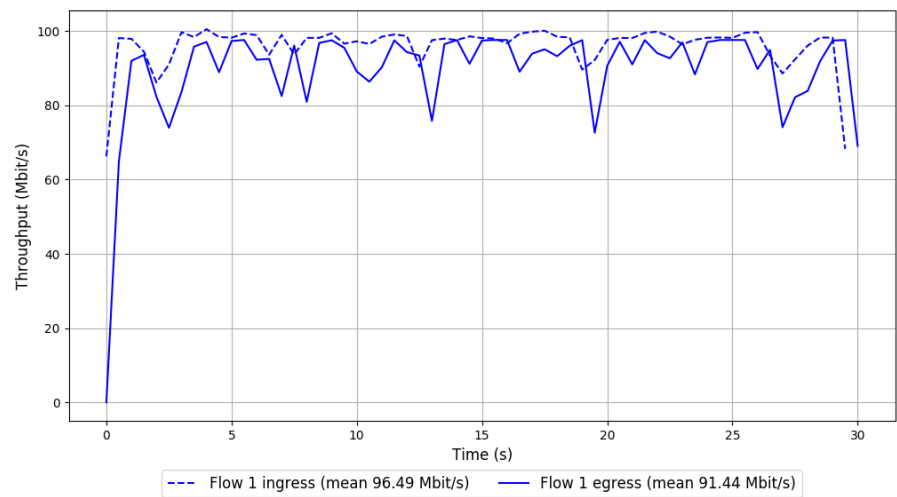

Flow 1 (95th percentile 8.60 ms)

```
Run 1: Statistics of Indigo

Start at: 2018-12-02 00:30:58
End at: 2018-12-02 00:31:28
Local clock offset: 0.241 ms
Remote clock offset: -3.717 ms


# Below is generated by plot.py at 2018-12-02 02:11:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 84.51 Mbit/s
95th percentile per-packet one-way delay: 8.714 ms
Loss rate: 8.77%
-- Flow 1:
Average throughput: 84.51 Mbit/s
95th percentile per-packet one-way delay: 8.714 ms
Loss rate: 8.77%
```

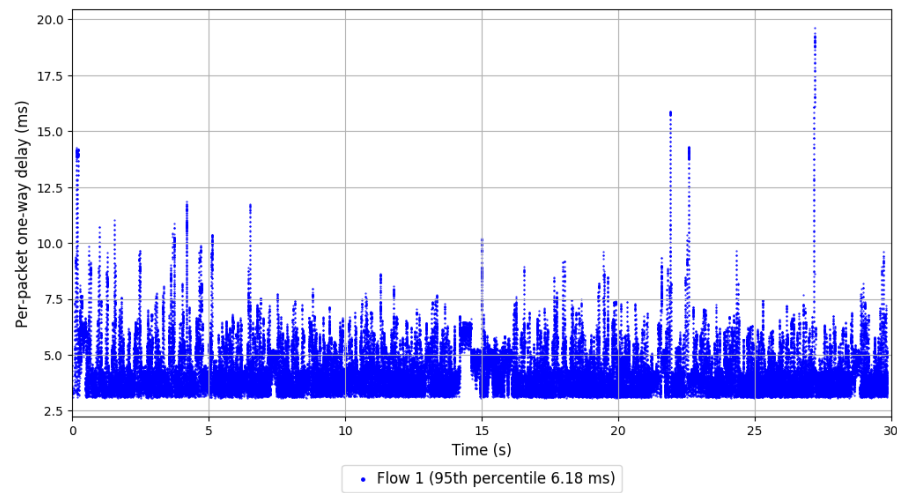Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2018-12-02 00:52:47
End at: 2018-12-02 00:53:17
Local clock offset: 1.996 ms
Remote clock offset: -3.393 ms


# Below is generated by plot.py at 2018-12-02 02:12:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 91.44 Mbit/s
95th percentile per-packet one-way delay: 7.650 ms
Loss rate: 5.23%
-- Flow 1:
Average throughput: 91.44 Mbit/s
95th percentile per-packet one-way delay: 7.650 ms
Loss rate: 5.23%
```

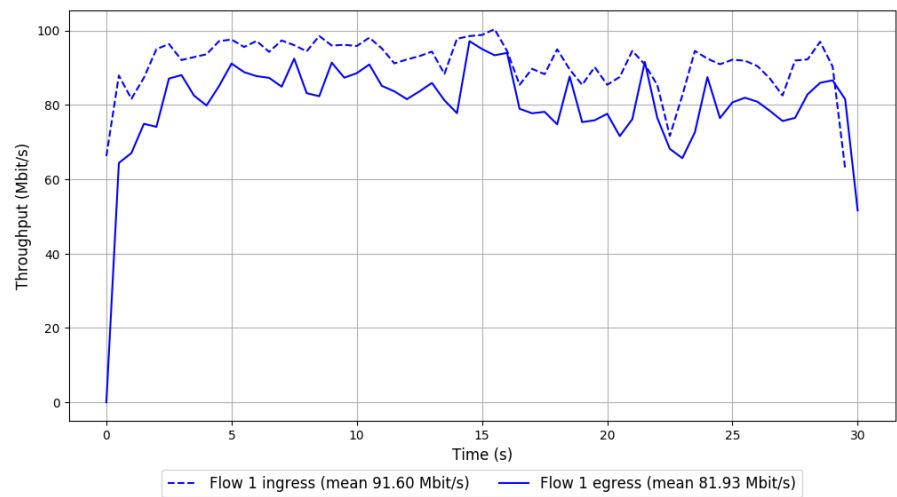Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2018-12-02 01:14:57
End at: 2018-12-02 01:15:27
Local clock offset: 4.381 ms
Remote clock offset: -3.368 ms


# Below is generated by plot.py at 2018-12-02 02:12:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 81.93 Mbit/s
95th percentile per-packet one-way delay: 6.176 ms
Loss rate: 10.55%
-- Flow 1:
Average throughput: 81.93 Mbit/s
95th percentile per-packet one-way delay: 6.176 ms
Loss rate: 10.55%
```

Run 3: Report of Indigo — Data Link

```
Run 4: Statistics of Indigo

Start at: 2018-12-02 01:36:48
End at: 2018-12-02 01:37:18
Local clock offset: 0.111 ms
Remote clock offset: -2.55 ms


# Below is generated by plot.py at 2018-12-02 02:12:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 85.80 Mbit/s
95th percentile per-packet one-way delay: 9.751 ms
Loss rate: 8.57%
-- Flow 1:
Average throughput: 85.80 Mbit/s
95th percentile per-packet one-way delay: 9.751 ms
Loss rate: 8.57%
```
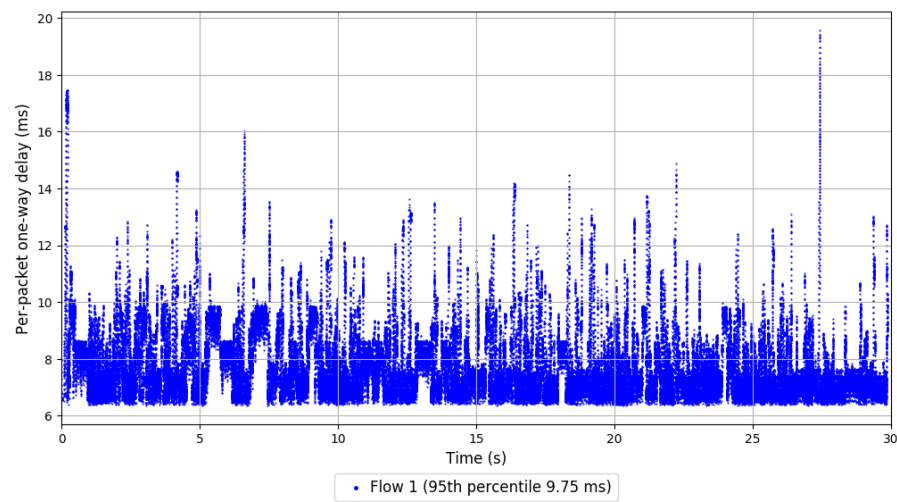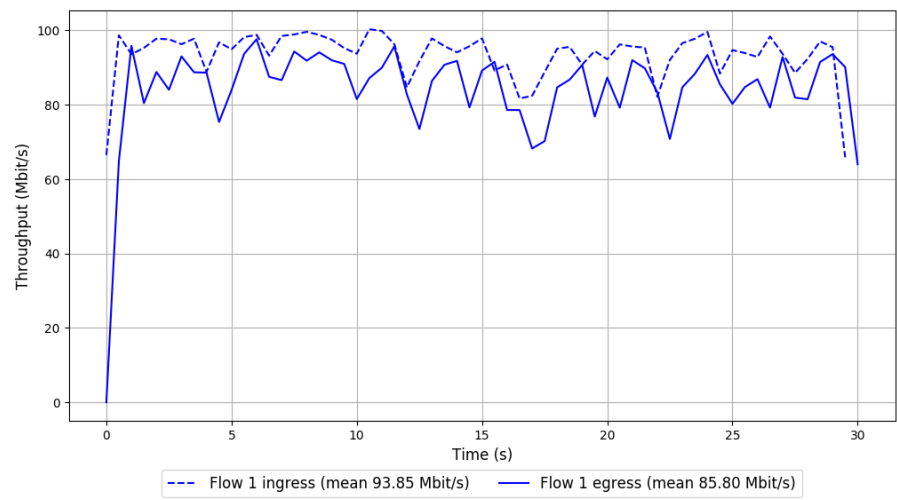
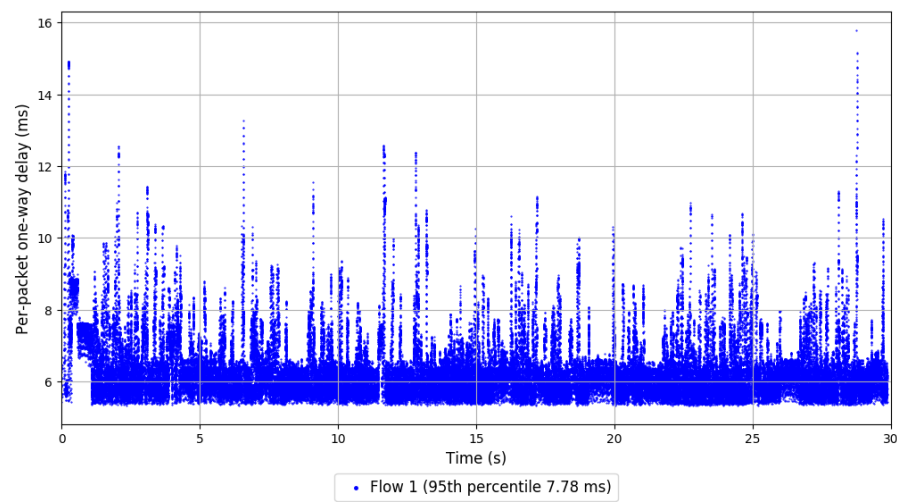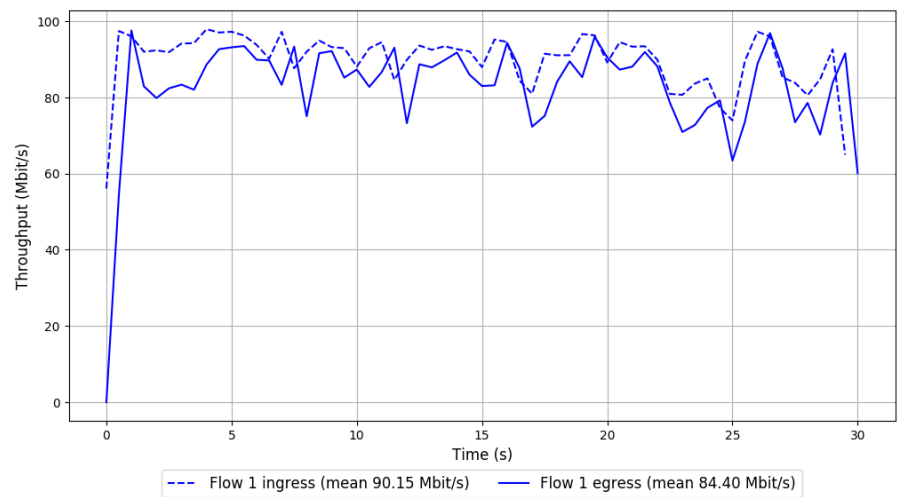Run 4: Report of Indigo — Data Link

```
Run 5: Statistics of Indigo

Start at: 2018-12-02 01:58:31
End at: 2018-12-02 01:59:01
Local clock offset: -0.504 ms
Remote clock offset: -3.098 ms


# Below is generated by plot.py at 2018-12-02 02:12:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 84.40 Mbit/s
95th percentile per-packet one-way delay: 7.780 ms
Loss rate: 6.38%
-- Flow 1:
Average throughput: 84.40 Mbit/s
95th percentile per-packet one-way delay: 7.780 ms
Loss rate: 6.38%
```

Run 5: Report of Indigo — Data Link

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

Start at: 2018-12-02 00:19:36
End at: 2018-12-02 00:20:06
Local clock offset: -5.652 ms
Remote clock offset: -8.6 ms


# Below is generated by plot.py at 2018-12-02 02:12:45
# Datalink statistics
-- Total of 1 flow:
Average throughput: 86.51 Mbit/s
95th percentile per-packet one-way delay: 35.552 ms
Loss rate: 38.33%
-- Flow 1:
Average throughput: 86.51 Mbit/s
95th percentile per-packet one-way delay: 35.552 ms
Loss rate: 38.33%
```
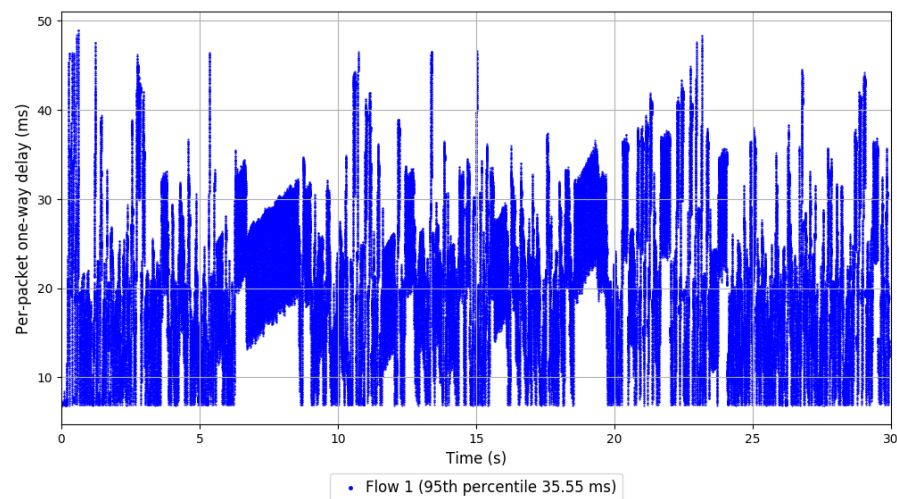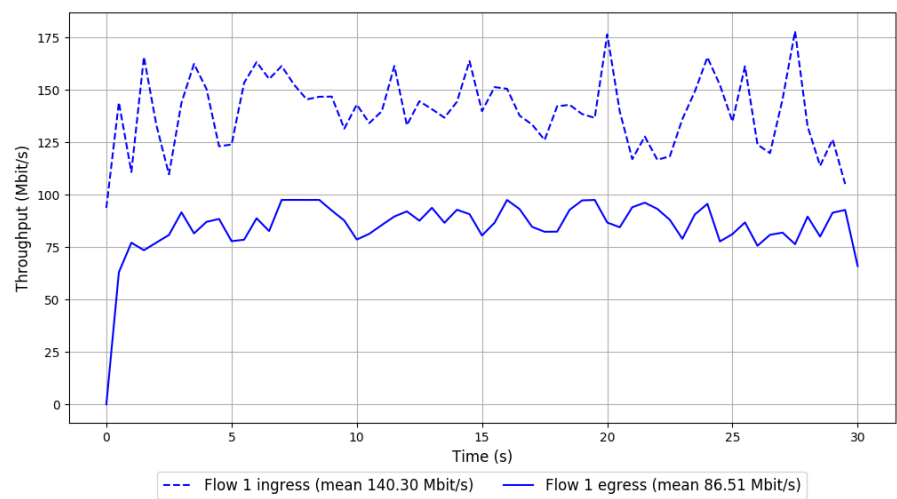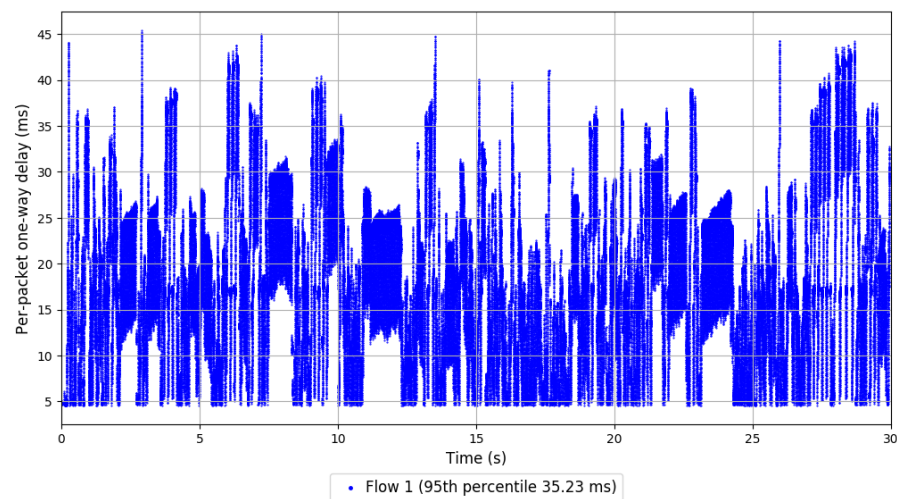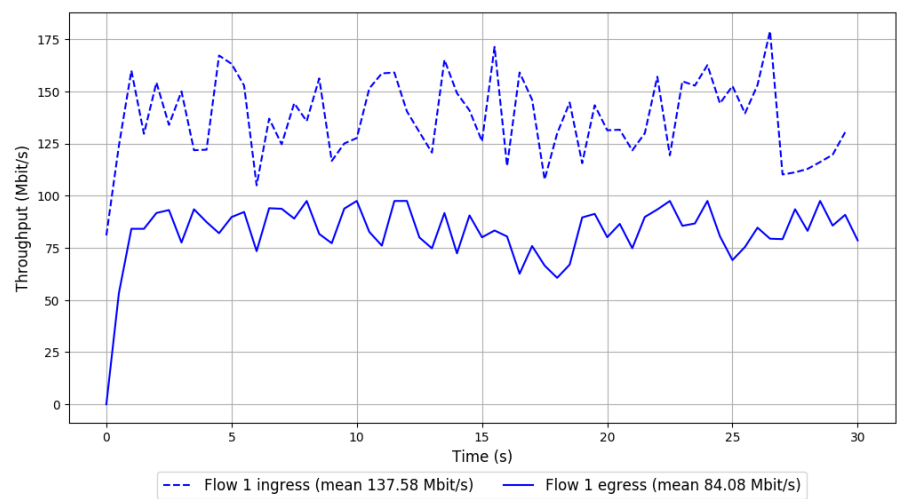
Run 1: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-12-02 00:41:14
End at: 2018-12-02 00:41:44
Local clock offset: 1.206 ms
Remote clock offset: -3.632 ms


# Below is generated by plot.py at 2018-12-02 02:13:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 84.08 Mbit/s
95th percentile per-packet one-way delay: 35.228 ms
Loss rate: 38.85%
-- Flow 1:
Average throughput: 84.08 Mbit/s
95th percentile per-packet one-way delay: 35.228 ms
Loss rate: 38.85%
```

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

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

Start at: 2018-12-02 01:03:09
End at: 2018-12-02 01:03:39
Local clock offset: 2.467 ms
Remote clock offset: -4.027 ms


# Below is generated by plot.py at 2018-12-02 02:13:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 86.69 Mbit/s
95th percentile per-packet one-way delay: 32.779 ms
Loss rate: 36.86%
-- Flow 1:
Average throughput: 86.69 Mbit/s
95th percentile per-packet one-way delay: 32.779 ms
Loss rate: 36.86%
```
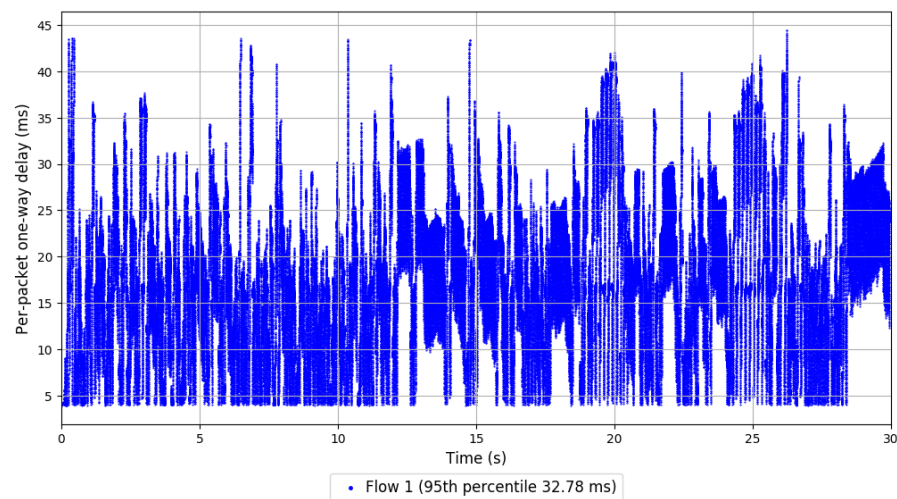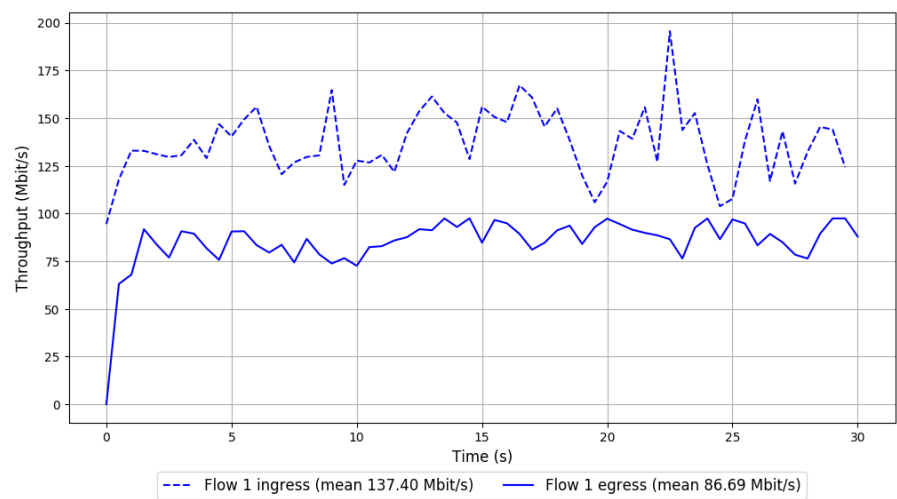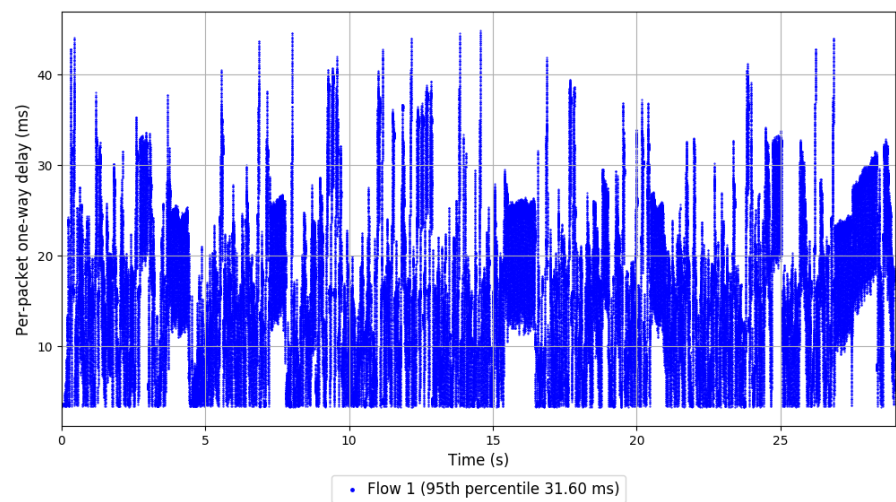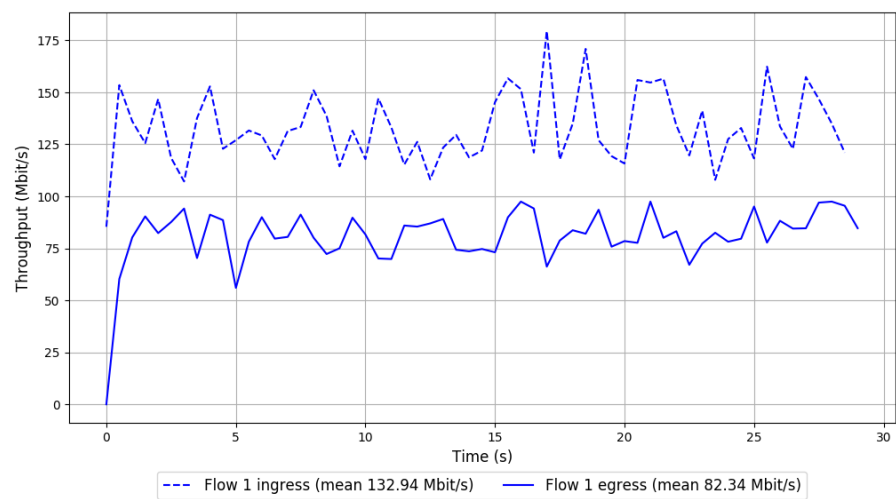
Run 3: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-12-02 01:25:16
End at: 2018-12-02 01:25:46
Local clock offset: 3.322 ms
Remote clock offset: -3.074 ms


# Below is generated by plot.py at 2018-12-02 02:13:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 82.34 Mbit/s
95th percentile per-packet one-way delay: 31.599 ms
Loss rate: 38.06%
-- Flow 1:
Average throughput: 82.34 Mbit/s
95th percentile per-packet one-way delay: 31.599 ms
Loss rate: 38.06%
```

Run 4: Report of Indigo-96d2da3 — Data Link

Flow 1 ingress (mean 132.94 Mbit/s)   Flow 1 egress (mean 82.34 Mbit/s)
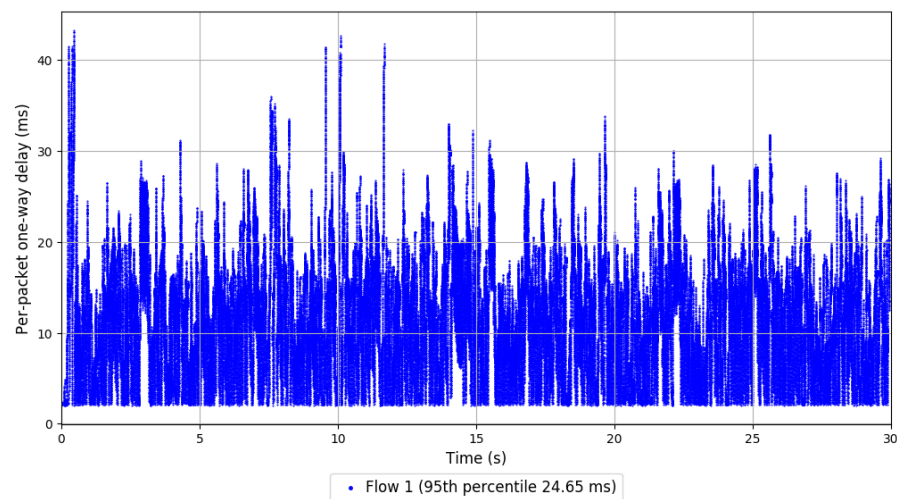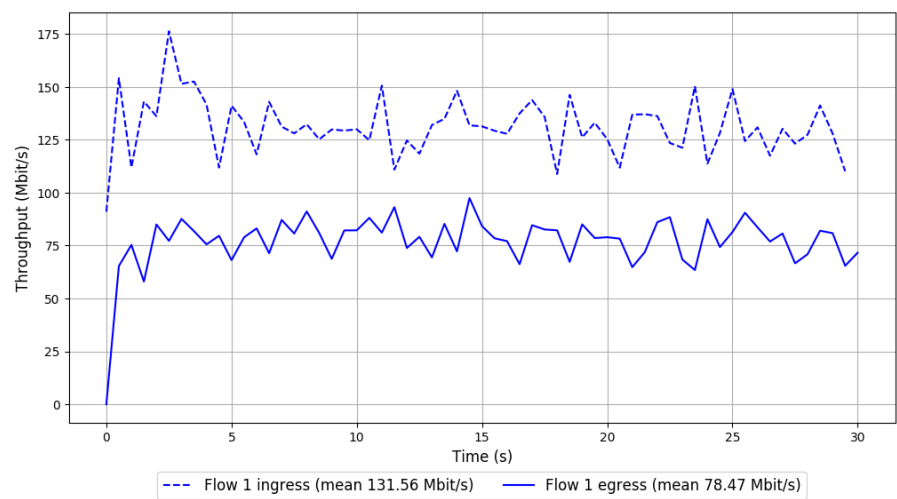

Flow 1 (95th percentile 31.60 ms)

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

Start at: 2018-12-02 01:47:07
End at: 2018-12-02 01:47:37
Local clock offset: 3.854 ms
Remote clock offset: -2.994 ms


# Below is generated by plot.py at 2018-12-02 02:13:39
# Datalink statistics
-- Total of 1 flow:
Average throughput: 78.47 Mbit/s
95th percentile per-packet one-way delay: 24.654 ms
Loss rate: 40.32%
-- Flow 1:
Average throughput: 78.47 Mbit/s
95th percentile per-packet one-way delay: 24.654 ms
Loss rate: 40.32%
```
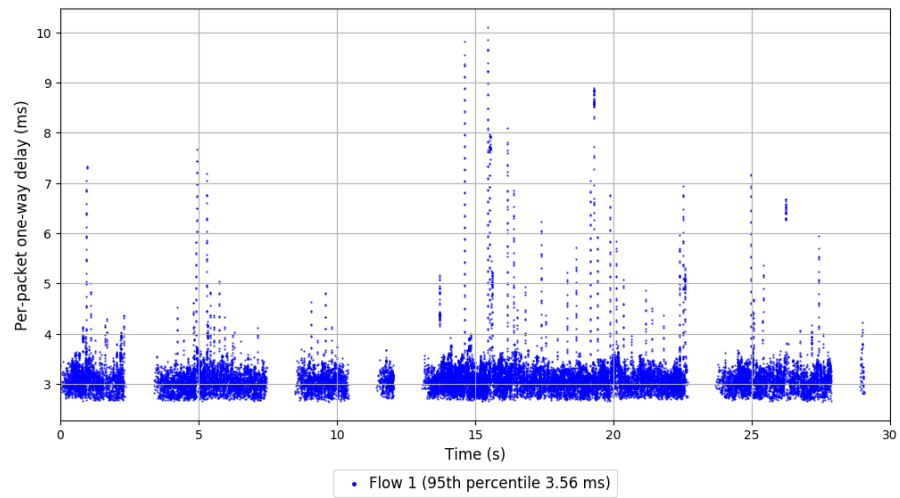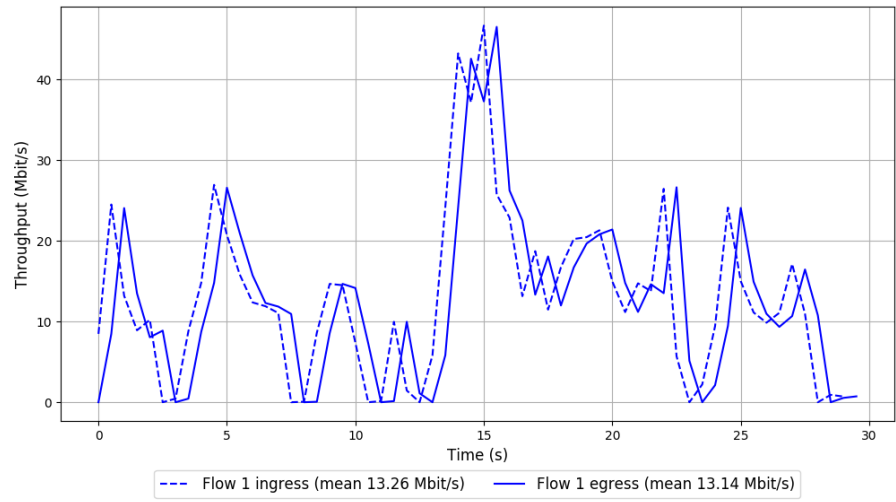
Run 5: Report of Indigo-96d2da3 — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2018-12-02 00:34:32
End at: 2018-12-02 00:35:02
Local clock offset: 2.011 ms
Remote clock offset: -4.776 ms


# Below is generated by plot.py at 2018-12-02 02:13:39
# Datalink statistics
-- Total of 1 flow:
Average throughput: 13.14 Mbit/s
95th percentile per-packet one-way delay: 3.559 ms
Loss rate: 1.00%
-- Flow 1:
Average throughput: 13.14 Mbit/s
95th percentile per-packet one-way delay: 3.559 ms
Loss rate: 1.00%
```

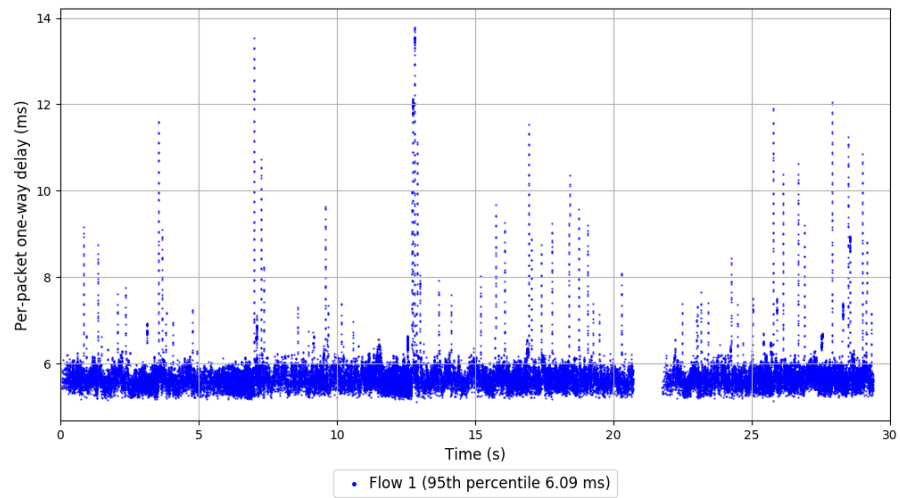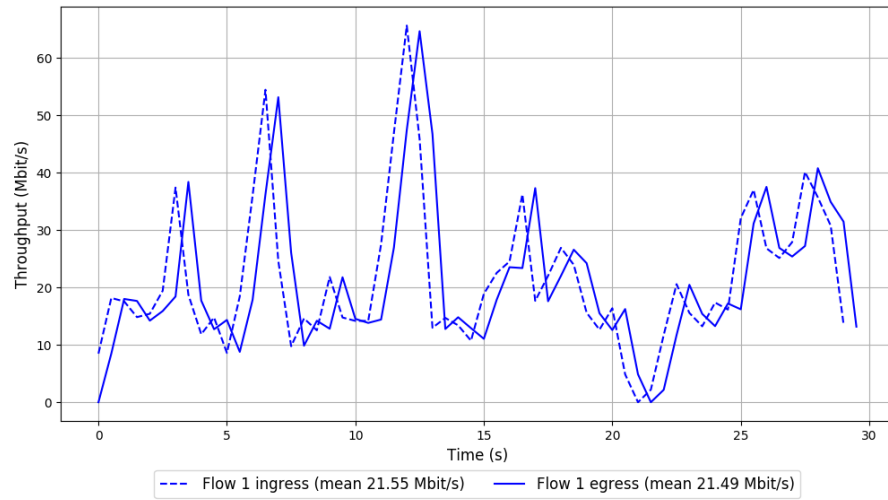Run 1: Report of LEDBAT — Data Link

Flow 1 ingress (mean 13.26 Mbit/s)   Flow 1 egress (mean 13.14 Mbit/s)

Flow 1 (95th percentile 3.56 ms)

```
Run 2: Statistics of LEDBAT

Start at: 2018-12-02 00:56:19
End at: 2018-12-02 00:56:49
Local clock offset: 1.54 ms
Remote clock offset: -3.494 ms


# Below is generated by plot.py at 2018-12-02 02:13:39
# Datalink statistics
-- Total of 1 flow:
Average throughput: 21.49 Mbit/s
95th percentile per-packet one-way delay: 6.095 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 21.49 Mbit/s
95th percentile per-packet one-way delay: 6.095 ms
Loss rate: 0.27%
```

Run 2: Report of LEDBAT — Data Link

Flow 1 ingress (mean 21.55 Mbit/s) ---   Flow 1 egress (mean 21.49 Mbit/s) ———

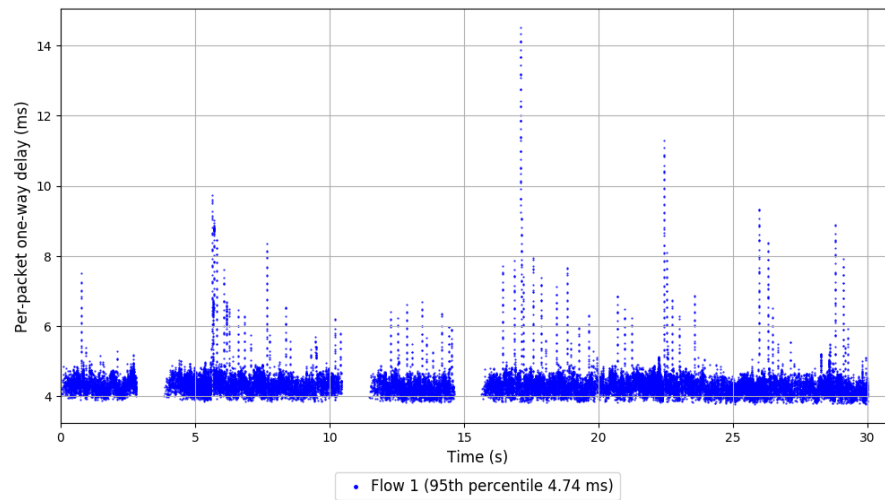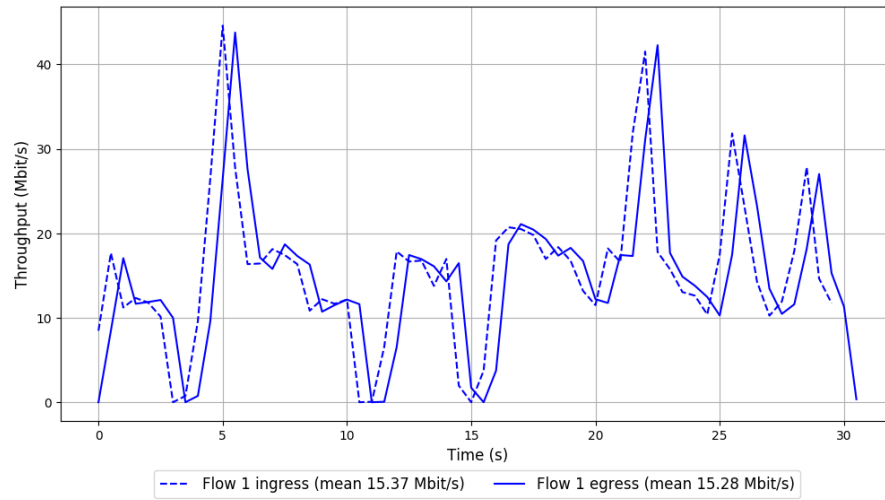Flow 1 (95th percentile 6.09 ms)

```
Run 3: Statistics of LEDBAT

Start at: 2018-12-02 01:18:34
End at: 2018-12-02 01:19:04
Local clock offset: 3.43 ms
Remote clock offset: -3.399 ms


# Below is generated by plot.py at 2018-12-02 02:13:39
# Datalink statistics
-- Total of 1 flow:
Average throughput: 15.28 Mbit/s
95th percentile per-packet one-way delay: 4.735 ms
Loss rate: 0.60%
-- Flow 1:
Average throughput: 15.28 Mbit/s
95th percentile per-packet one-way delay: 4.735 ms
Loss rate: 0.60%
```

Run 3: Report of LEDBAT — Data Link

Flow 1 ingress (mean 15.37 Mbit/s) --- Flow 1 egress (mean 15.28 Mbit/s)

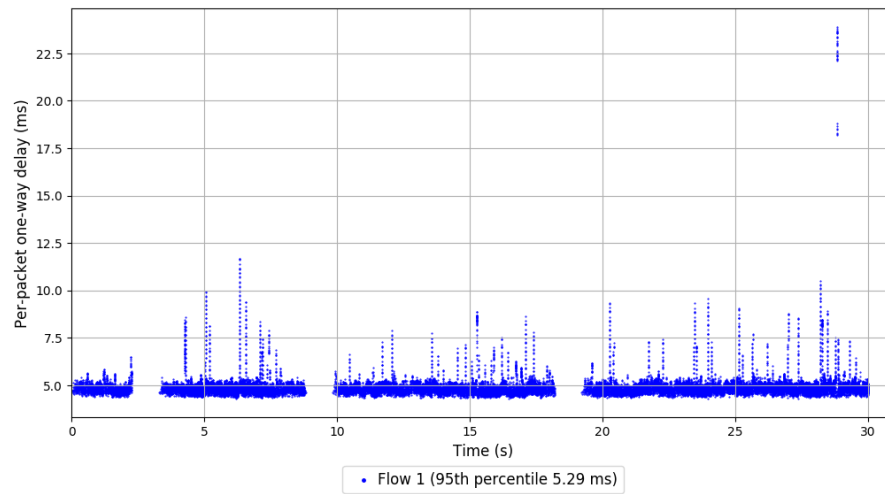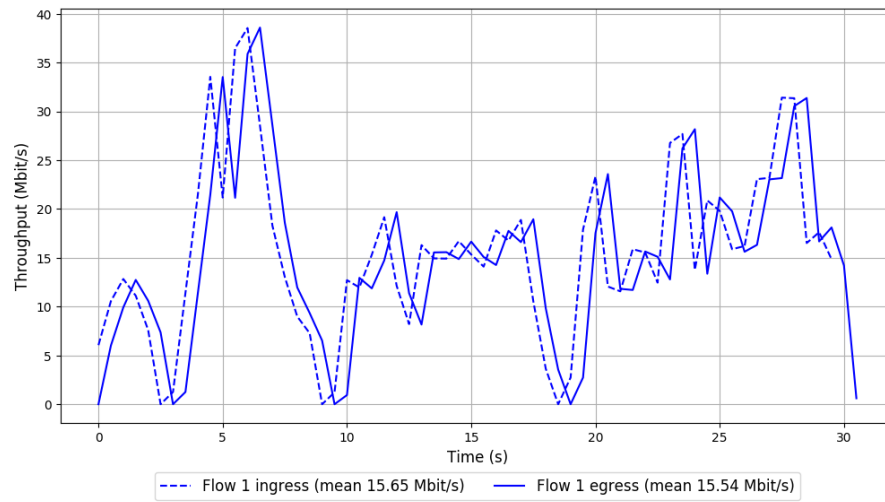Flow 1 (95th percentile 4.74 ms)

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```
Run 4: Statistics of LEDBAT

Start at: 2018-12-02 01:40:27
End at: 2018-12-02 01:40:57
Local clock offset: 0.89 ms
Remote clock offset: -3.798 ms


# Below is generated by plot.py at 2018-12-02 02:13:39
# Datalink statistics
-- Total of 1 flow:
Average throughput: 15.54 Mbit/s
95th percentile per-packet one-way delay: 5.294 ms
Loss rate: 0.72%
-- Flow 1:
Average throughput: 15.54 Mbit/s
95th percentile per-packet one-way delay: 5.294 ms
Loss rate: 0.72%
```

Run 4: Report of LEDBAT — Data Link

Flow 1 ingress (mean 15.65 Mbit/s) — — — Flow 1 egress (mean 15.54 Mbit/s)

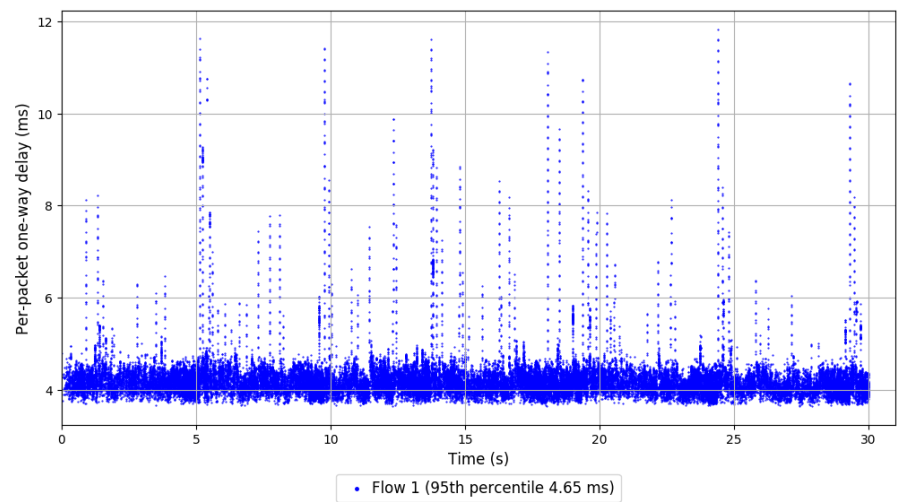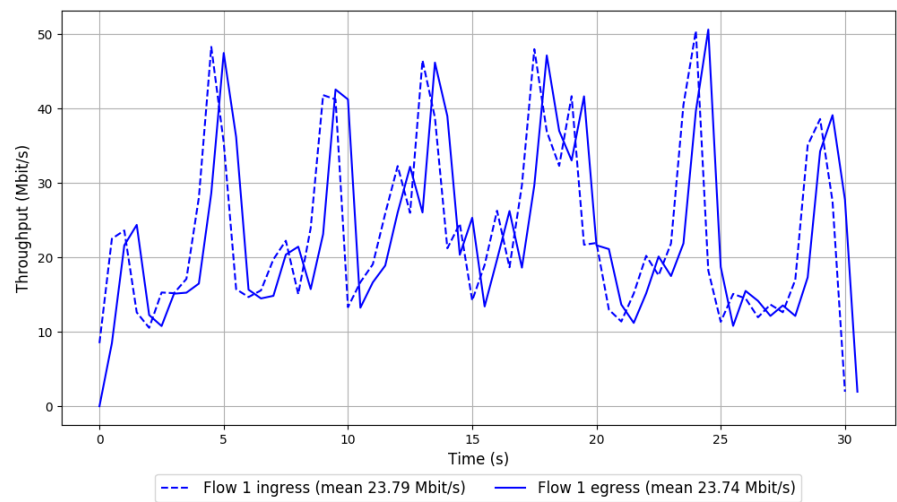• Flow 1 (95th percentile 5.29 ms)

```
Run 5: Statistics of LEDBAT

Start at: 2018-12-02 02:01:59
End at: 2018-12-02 02:02:29
Local clock offset: 1.88 ms
Remote clock offset: -2.302 ms

# Below is generated by plot.py at 2018-12-02 02:13:39
# Datalink statistics
-- Total of 1 flow:
Average throughput: 23.74 Mbit/s
95th percentile per-packet one-way delay: 4.647 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 23.74 Mbit/s
95th percentile per-packet one-way delay: 4.647 ms
Loss rate: 0.21%
```

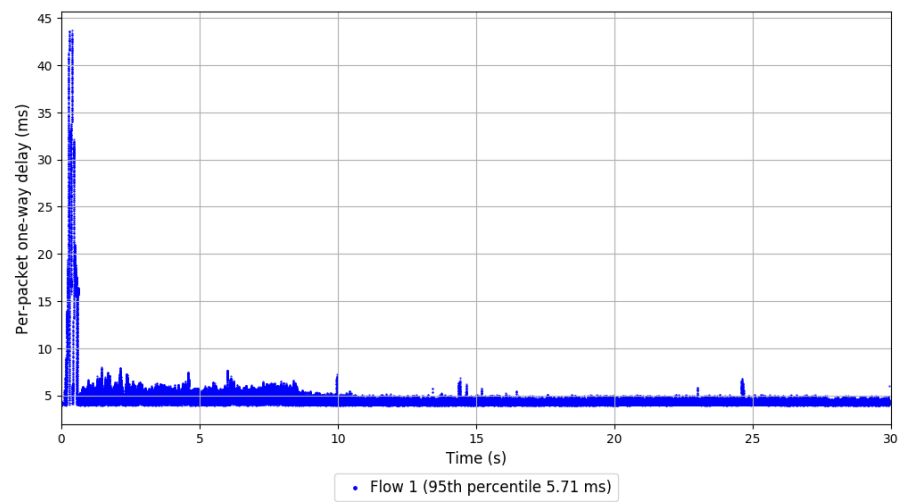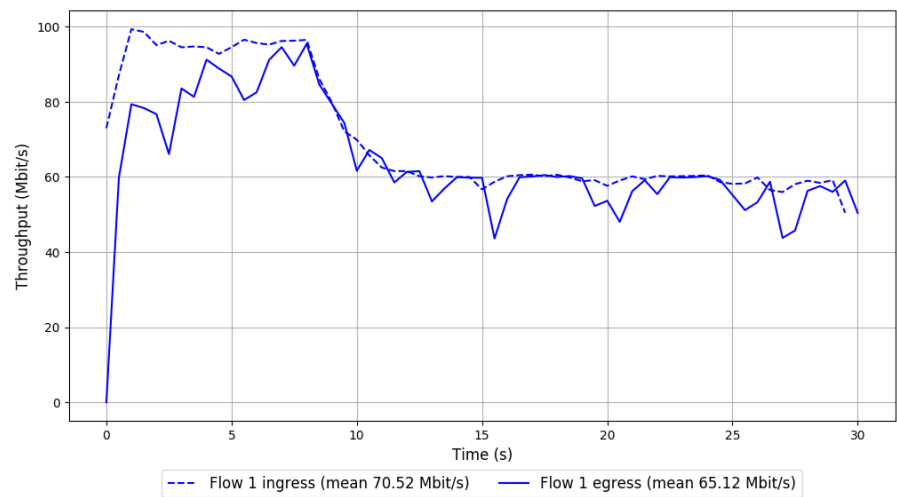Run 5: Report of LEDBAT — Data Link

```
Run 1: Statistics of Indigo-Muses

Start at: 2018-12-02 00:32:15
End at: 2018-12-02 00:32:45
Local clock offset: 1.768 ms
Remote clock offset: -3.768 ms


# Below is generated by plot.py at 2018-12-02 02:13:39
# Datalink statistics
-- Total of 1 flow:
Average throughput: 65.12 Mbit/s
95th percentile per-packet one-way delay: 5.707 ms
Loss rate: 7.66%
-- Flow 1:
Average throughput: 65.12 Mbit/s
95th percentile per-packet one-way delay: 5.707 ms
Loss rate: 7.66%
```
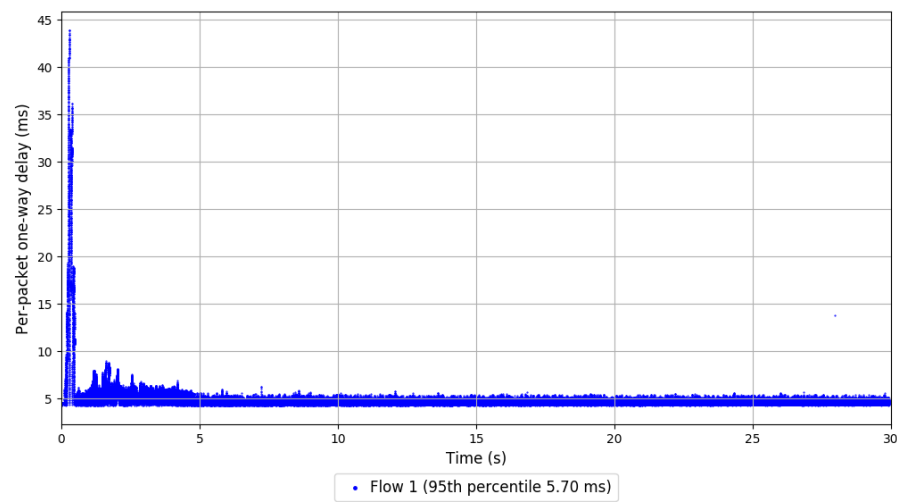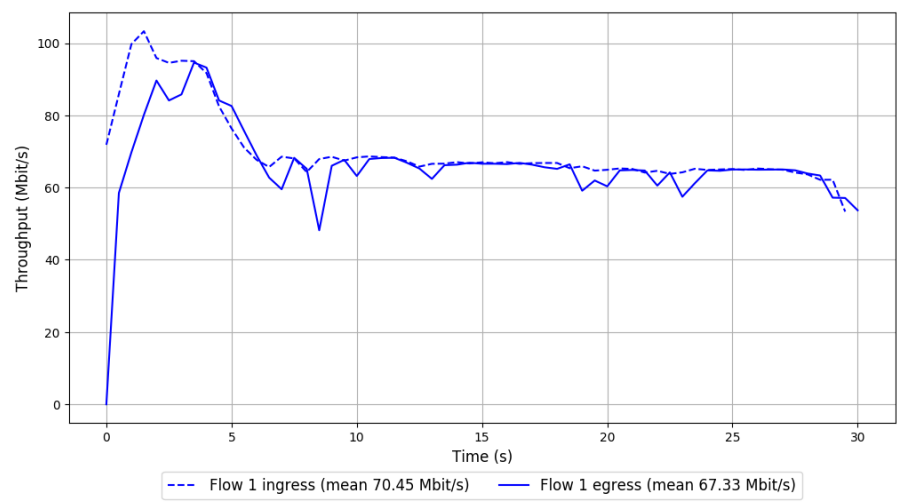
Run 1: Report of Indigo-Muses — Data Link

```
Run 2: Statistics of Indigo-Muses

Start at: 2018-12-02 00:54:02
End at: 2018-12-02 00:54:32
Local clock offset: 1.961 ms
Remote clock offset: -3.664 ms


# Below is generated by plot.py at 2018-12-02 02:13:41
# Datalink statistics
-- Total of 1 flow:
Average throughput: 67.33 Mbit/s
95th percentile per-packet one-way delay: 5.698 ms
Loss rate: 4.43%
-- Flow 1:
Average throughput: 67.33 Mbit/s
95th percentile per-packet one-way delay: 5.698 ms
Loss rate: 4.43%
```

Run 2: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 70.45 Mbit/s)   Flow 1 egress (mean 67.33 Mbit/s)

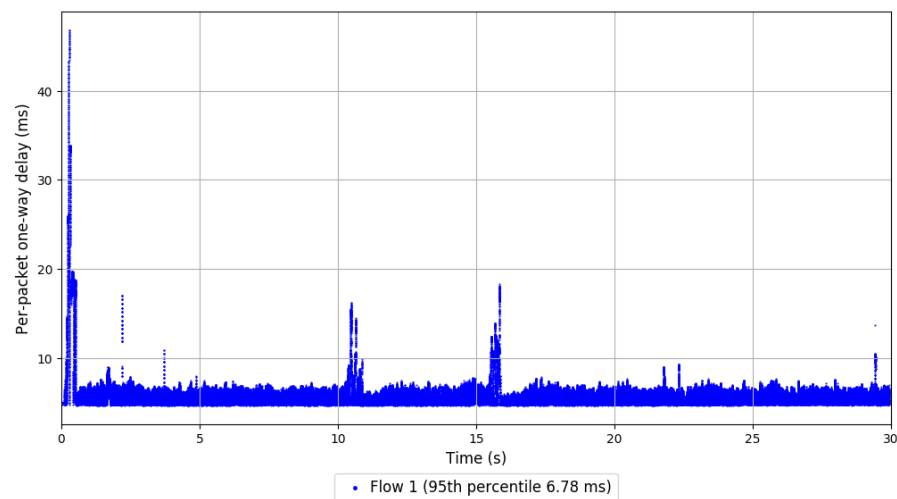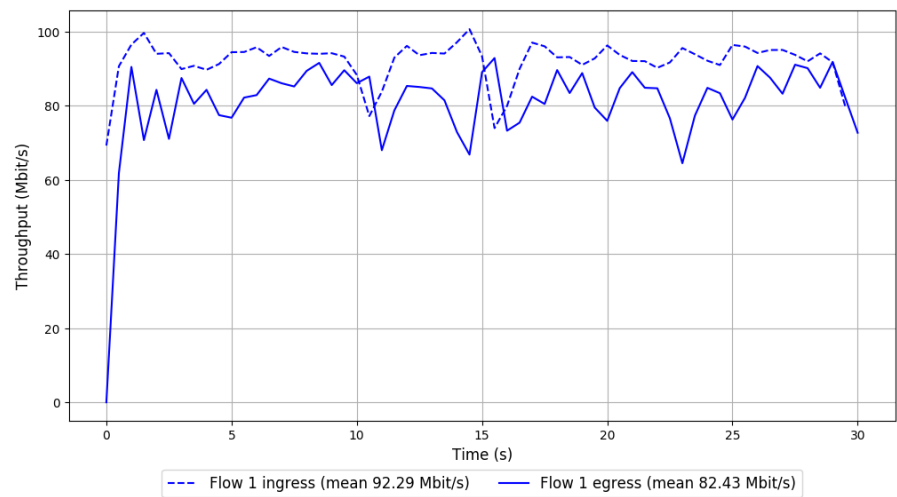

Flow 1 (95th percentile 5.70 ms)

```
Run 3: Statistics of Indigo-Muses

Start at: 2018-12-02 01:16:11
End at: 2018-12-02 01:16:41
Local clock offset: 3.269 ms
Remote clock offset: -2.974 ms


# Below is generated by plot.py at 2018-12-02 02:13:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 82.43 Mbit/s
95th percentile per-packet one-way delay: 6.782 ms
Loss rate: 10.68%
-- Flow 1:
Average throughput: 82.43 Mbit/s
95th percentile per-packet one-way delay: 6.782 ms
Loss rate: 10.68%
```
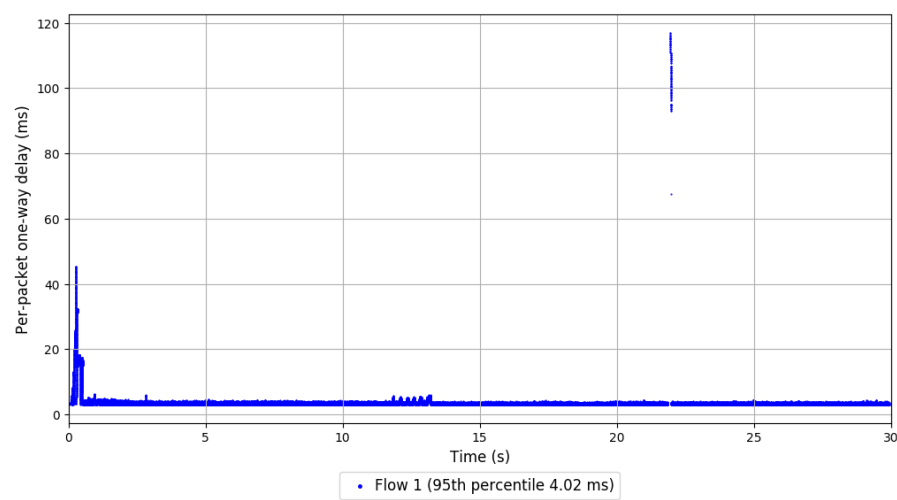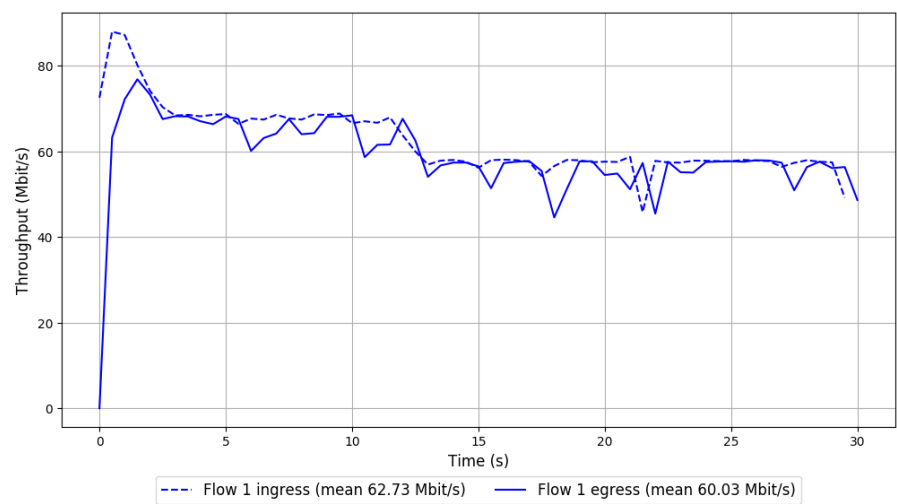
Run 3: Report of Indigo-Muses — Data Link

```
Run 4: Statistics of Indigo-Muses

Start at: 2018-12-02 01:38:11
End at: 2018-12-02 01:38:41
Local clock offset: 2.57 ms
Remote clock offset: -3.369 ms


# Below is generated by plot.py at 2018-12-02 02:13:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 60.03 Mbit/s
95th percentile per-packet one-way delay: 4.018 ms
Loss rate: 4.31%
-- Flow 1:
Average throughput: 60.03 Mbit/s
95th percentile per-packet one-way delay: 4.018 ms
Loss rate: 4.31%
```
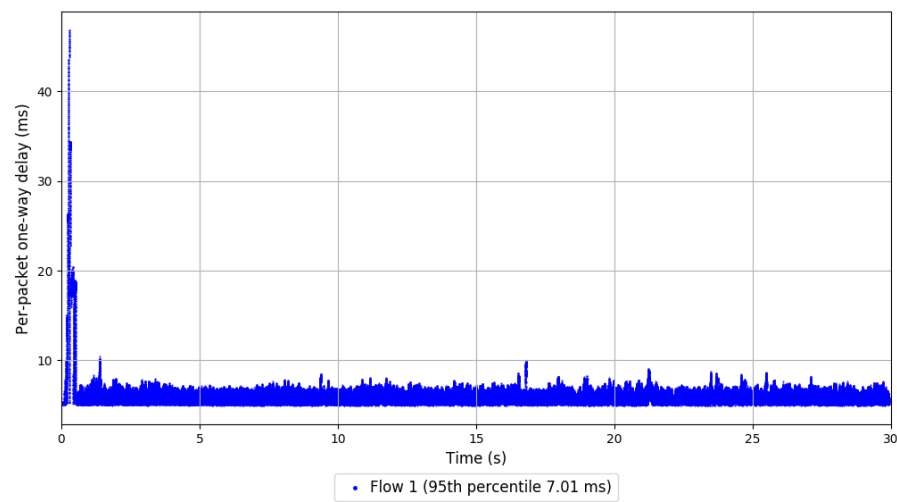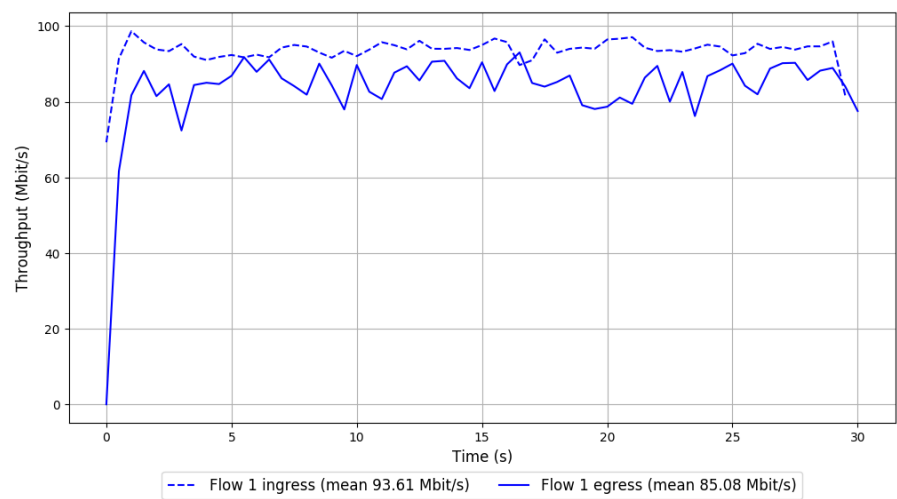
Run 4: Report of Indigo-Muses — Data Link

```
Run 5: Statistics of Indigo-Muses

Start at: 2018-12-02 01:59:41
End at: 2018-12-02 02:00:11
Local clock offset: -0.238 ms
Remote clock offset: -3.206 ms


# Below is generated by plot.py at 2018-12-02 02:14:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 85.08 Mbit/s
95th percentile per-packet one-way delay: 7.009 ms
Loss rate: 9.12%
-- Flow 1:
Average throughput: 85.08 Mbit/s
95th percentile per-packet one-way delay: 7.009 ms
Loss rate: 9.12%
```

Run 5: Report of Indigo-Muses — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2018-12-02 00:28:41
End at: 2018-12-02 00:29:11
Local clock offset: -0.205 ms
Remote clock offset: -3.14 ms


# Below is generated by plot.py at 2018-12-02 02:14:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 81.24 Mbit/s
95th percentile per-packet one-way delay: 7.451 ms
Loss rate: 7.21%
-- Flow 1:
Average throughput: 81.24 Mbit/s
95th percentile per-packet one-way delay: 7.451 ms
Loss rate: 7.21%
```
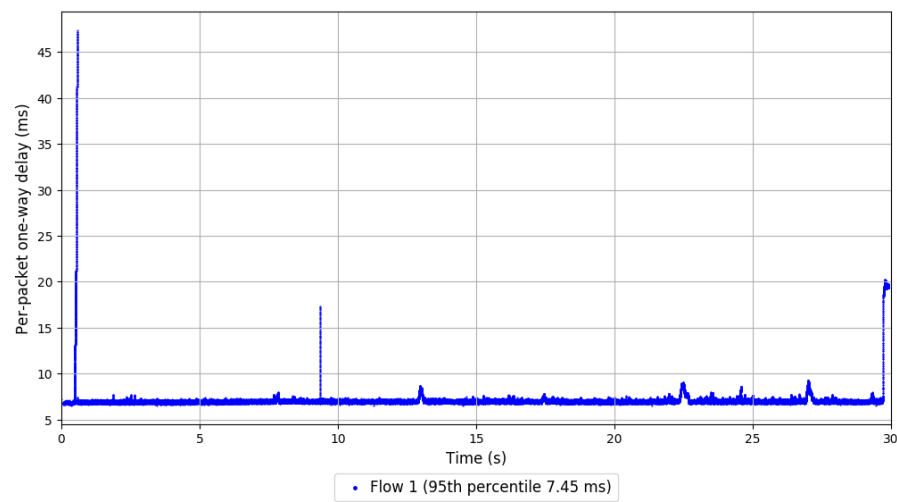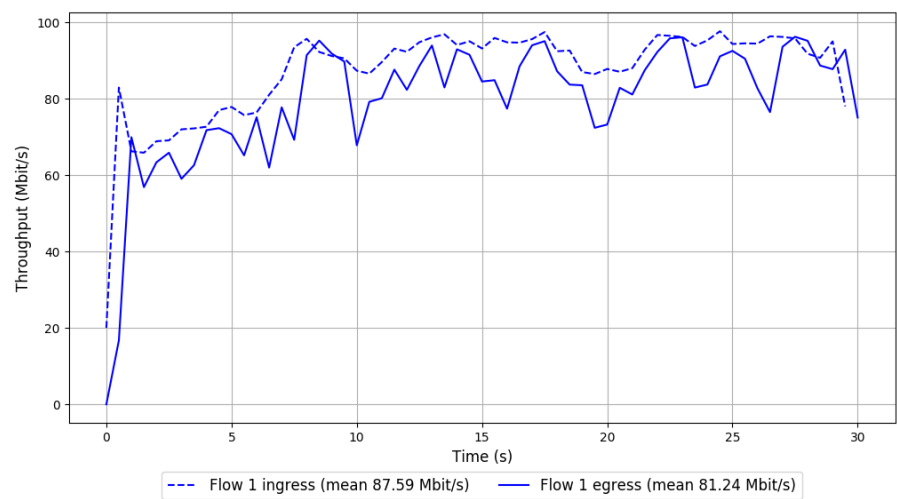
Run 1: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 87.59 Mbit/s) Flow 1 egress (mean 81.24 Mbit/s)

Flow 1 (95th percentile 7.45 ms)

```
Run 2: Statistics of PCC-Allegro

Start at: 2018-12-02 00:50:28
End at: 2018-12-02 00:50:58
Local clock offset: 0.846 ms
Remote clock offset: -3.709 ms


# Below is generated by plot.py at 2018-12-02 02:14:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 84.17 Mbit/s
95th percentile per-packet one-way delay: 8.366 ms
Loss rate: 7.00%
-- Flow 1:
Average throughput: 84.17 Mbit/s
95th percentile per-packet one-way delay: 8.366 ms
Loss rate: 7.00%
```
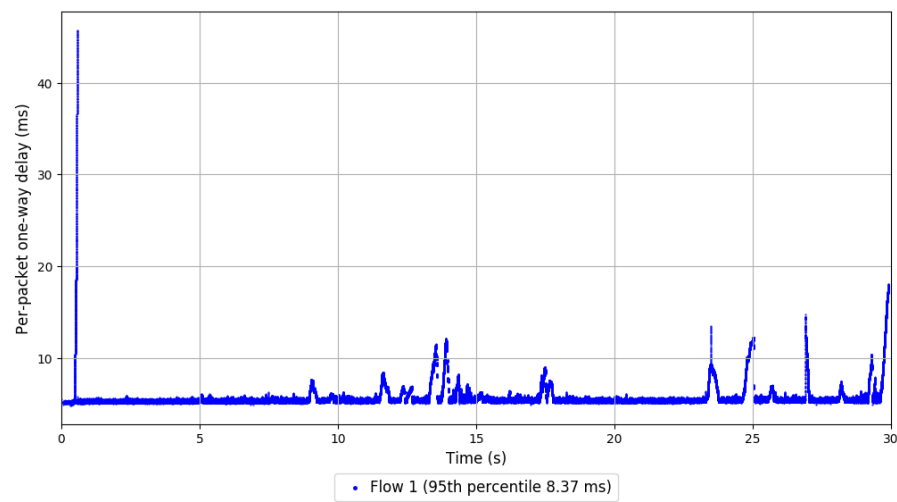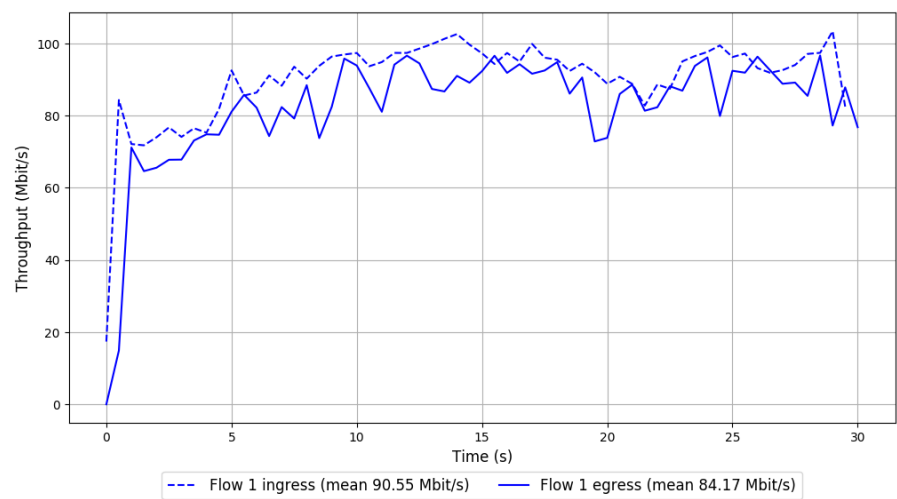
Run 2: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 90.55 Mbit/s)   Flow 1 egress (mean 84.17 Mbit/s)

Flow 1 (95th percentile 8.37 ms)

```
Run 3: Statistics of PCC-Allegro

Start at: 2018-12-02 01:12:37
End at: 2018-12-02 01:13:07
Local clock offset: 3.433 ms
Remote clock offset: -3.522 ms


# Below is generated by plot.py at 2018-12-02 02:14:44
# Datalink statistics
-- Total of 1 flow:
Average throughput: 76.70 Mbit/s
95th percentile per-packet one-way delay: 4.563 ms
Loss rate: 12.52%
-- Flow 1:
Average throughput: 76.70 Mbit/s
95th percentile per-packet one-way delay: 4.563 ms
Loss rate: 12.52%
```
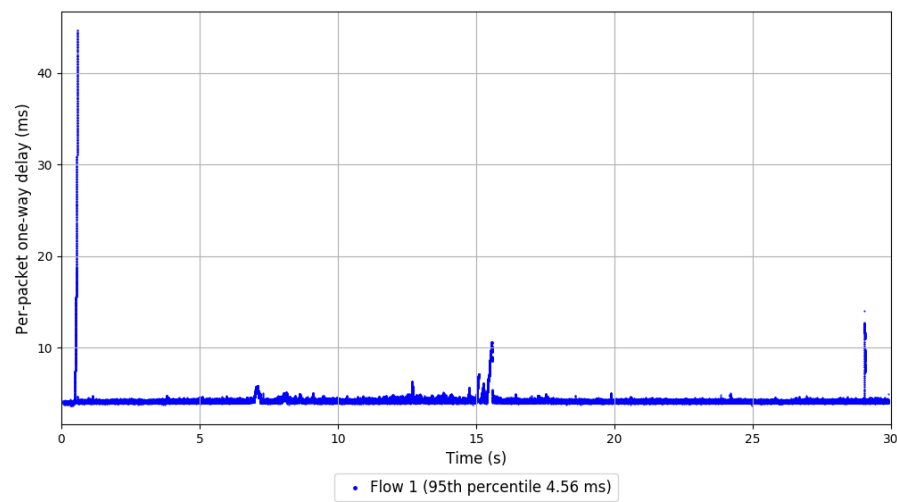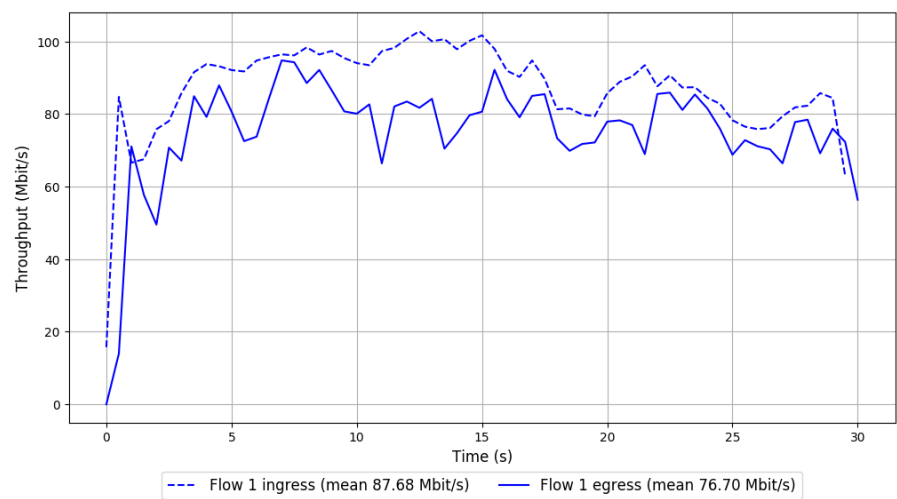
Run 3: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 87.68 Mbit/s) --- Flow 1 egress (mean 76.70 Mbit/s)

• Flow 1 (95th percentile 4.56 ms)

```
Run 4: Statistics of PCC-Allegro

Start at: 2018-12-02 01:34:32
End at: 2018-12-02 01:35:02
Local clock offset: 2.373 ms
Remote clock offset: -2.984 ms


# Below is generated by plot.py at 2018-12-02 02:14:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 76.46 Mbit/s
95th percentile per-packet one-way delay: 5.813 ms
Loss rate: 8.65%
-- Flow 1:
Average throughput: 76.46 Mbit/s
95th percentile per-packet one-way delay: 5.813 ms
Loss rate: 8.65%
```
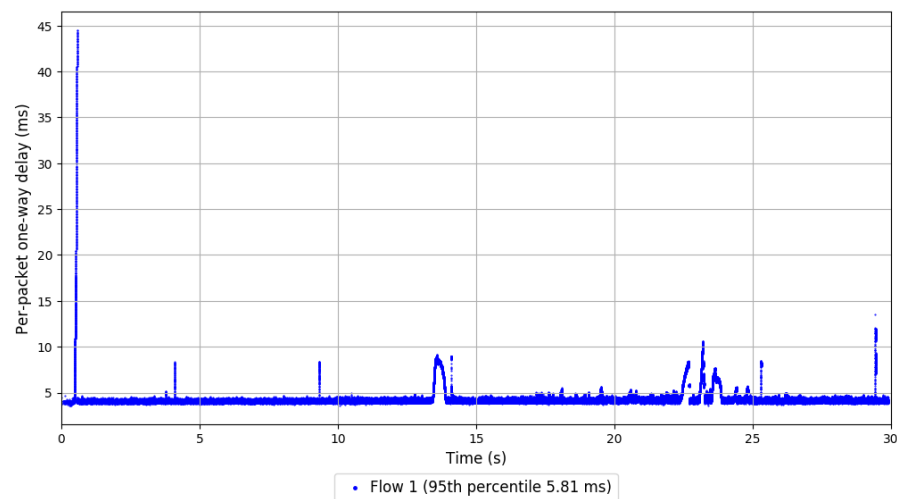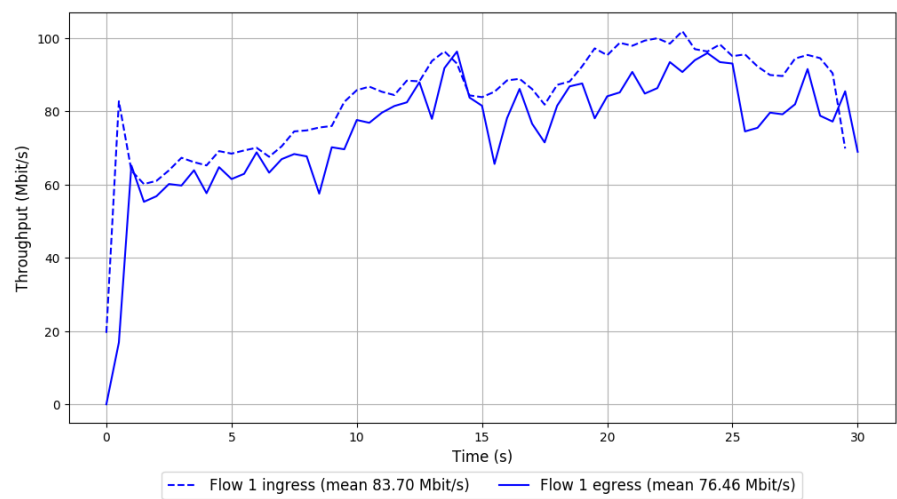
Run 4: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 83.70 Mbit/s) --- Flow 1 egress (mean 76.46 Mbit/s)

Flow 1 (95th percentile 5.81 ms)

```
Run 5: Statistics of PCC-Allegro

Start at: 2018-12-02 01:56:16
End at: 2018-12-02 01:56:47
Local clock offset: -0.301 ms
Remote clock offset: -3.37 ms


# Below is generated by plot.py at 2018-12-02 02:14:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 83.04 Mbit/s
95th percentile per-packet one-way delay: 18.677 ms
Loss rate: 7.34%
-- Flow 1:
Average throughput: 83.04 Mbit/s
95th percentile per-packet one-way delay: 18.677 ms
Loss rate: 7.34%
```
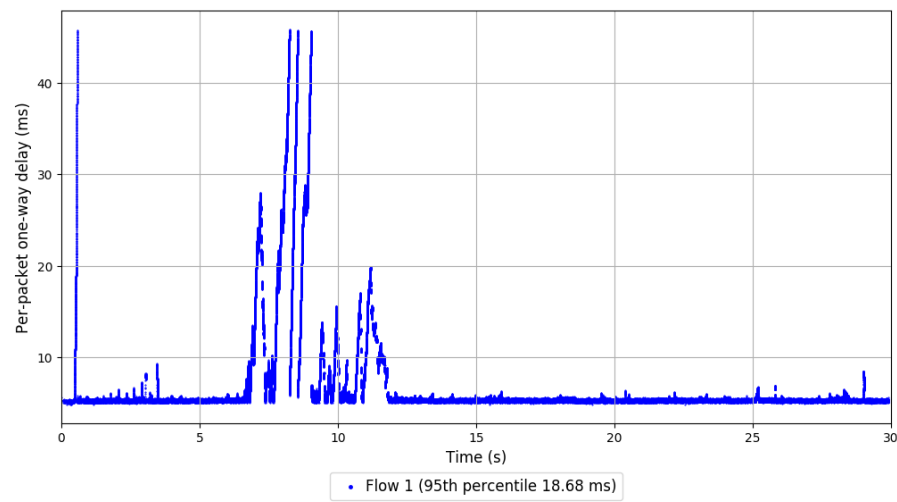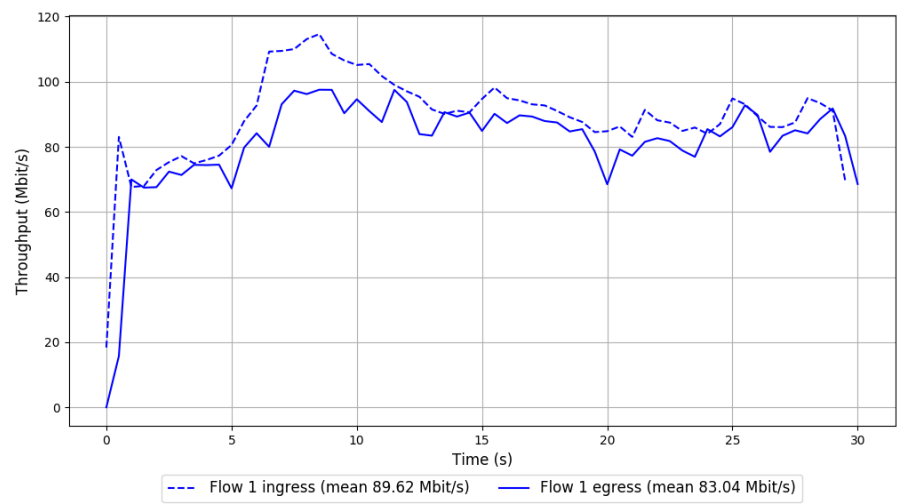
Run 5: Report of PCC-Allegro — Data Link
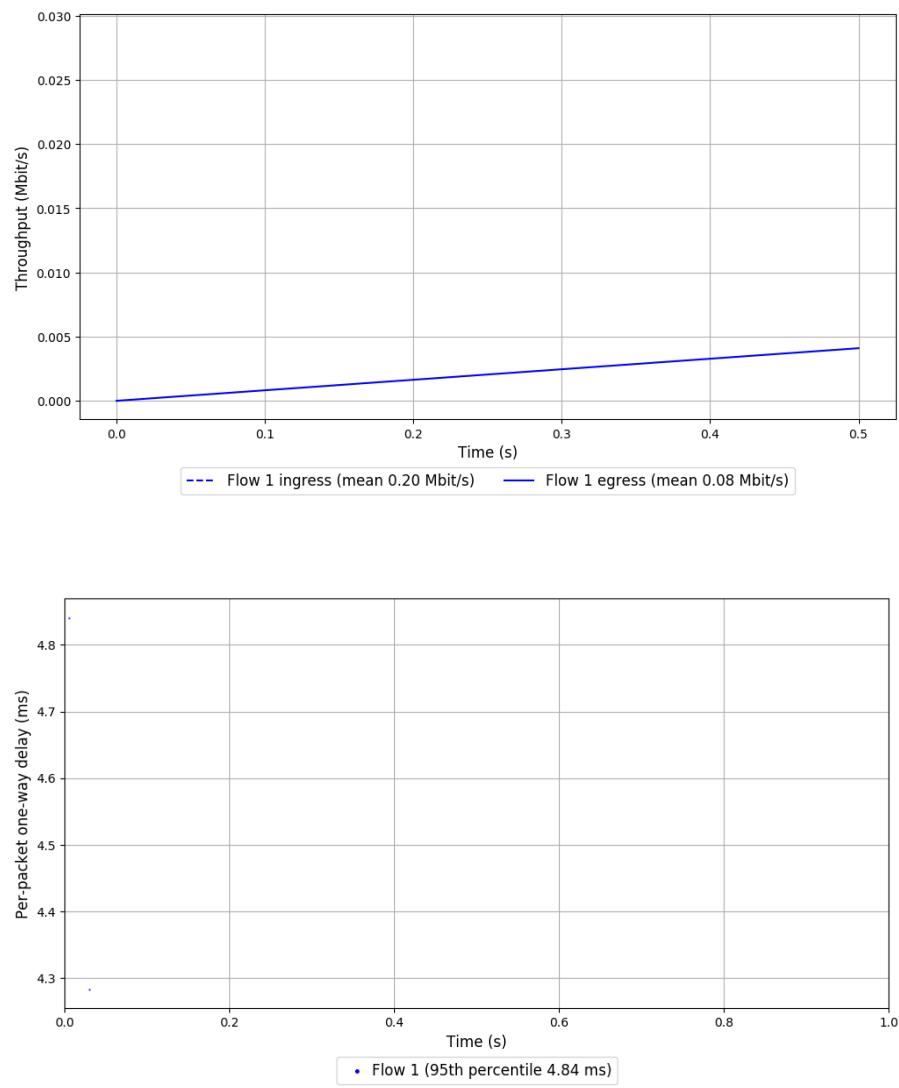
```
Run 1: Statistics of PCC-Expr

Start at: 2018-12-02 00:20:47
End at: 2018-12-02 00:21:17
Local clock offset: 1.542 ms
Remote clock offset: -3.999 ms
```
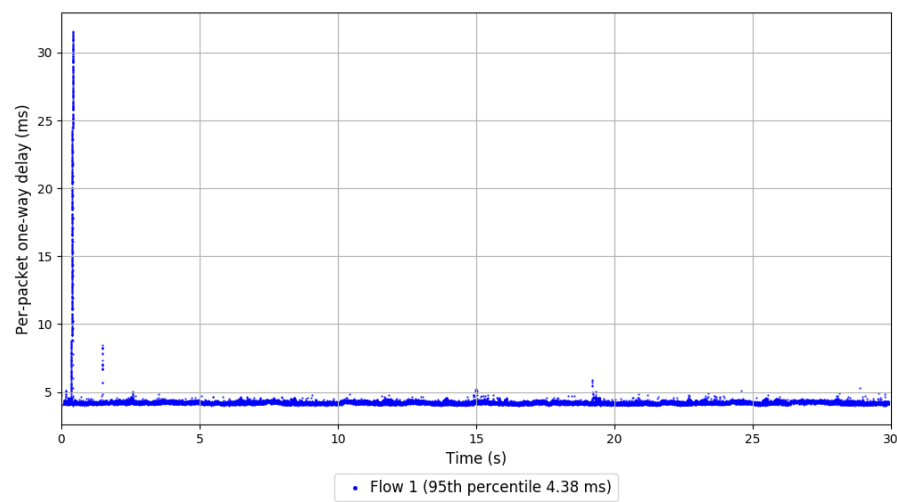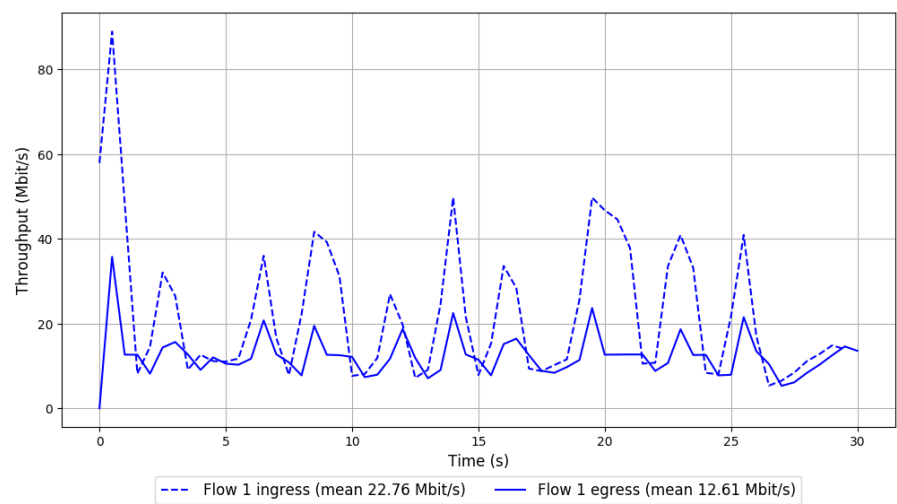
Run 1: Report of PCC-Expr — Data Link

```
Run 2: Statistics of PCC-Expr

Start at: 2018-12-02 00:42:26
End at: 2018-12-02 00:42:56
Local clock offset: 1.598 ms
Remote clock offset: -3.745 ms

# Below is generated by plot.py at 2018-12-02 02:14:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.61 Mbit/s
95th percentile per-packet one-way delay: 4.384 ms
Loss rate: 44.62%
-- Flow 1:
Average throughput: 12.61 Mbit/s
95th percentile per-packet one-way delay: 4.384 ms
Loss rate: 44.62%
```

Run 2: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 22.76 Mbit/s) — — — Flow 1 egress (mean 12.61 Mbit/s)

Flow 1 (95th percentile 4.38 ms)

```
Run 3: Statistics of PCC-Expr

Start at: 2018-12-02 01:04:23
End at: 2018-12-02 01:04:53
Local clock offset: 5.183 ms
Remote clock offset: -3.557 ms

# Below is generated by plot.py at 2018-12-02 02:14:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.94 Mbit/s
95th percentile per-packet one-way delay: 2.292 ms
Loss rate: 39.68%
-- Flow 1:
Average throughput: 12.94 Mbit/s
95th percentile per-packet one-way delay: 2.292 ms
Loss rate: 39.68%
```
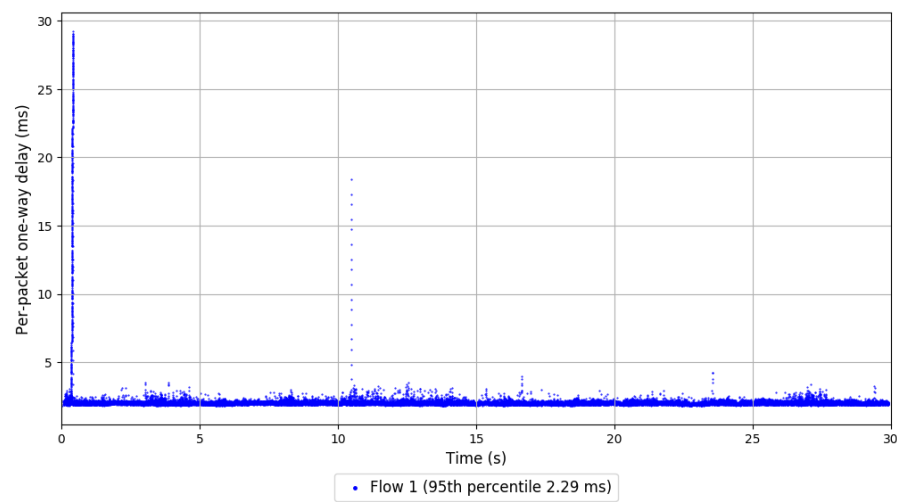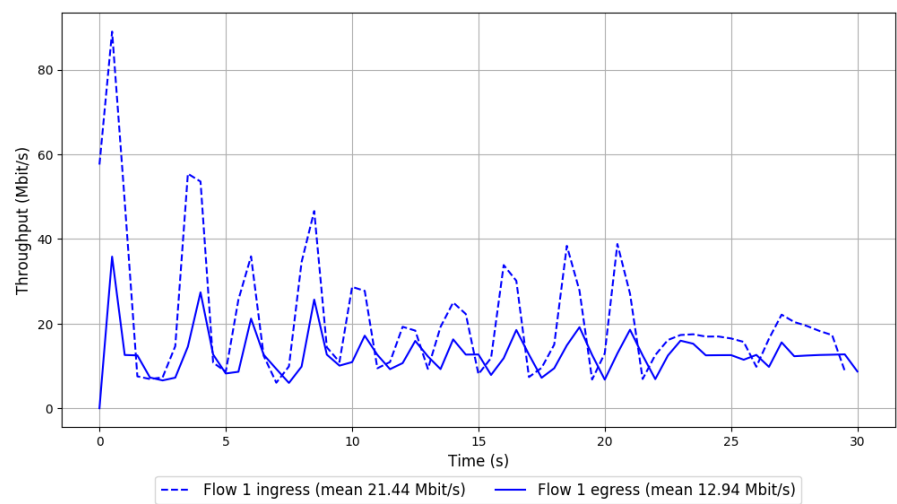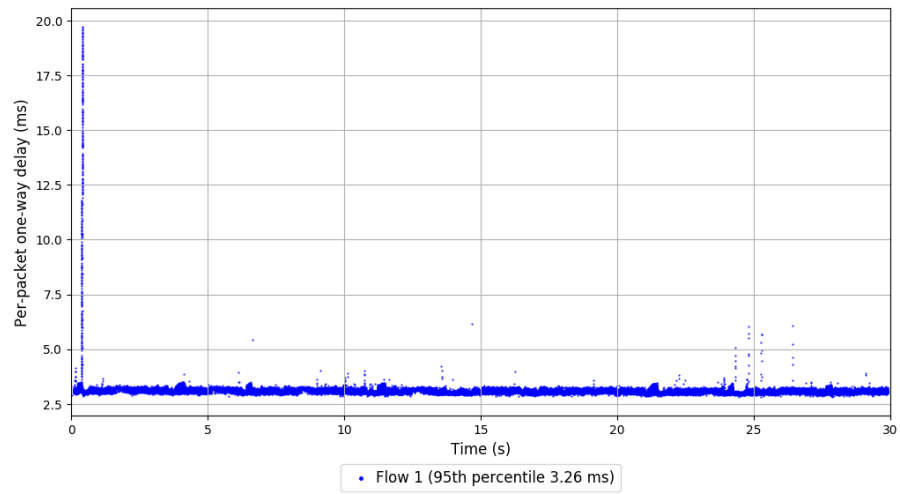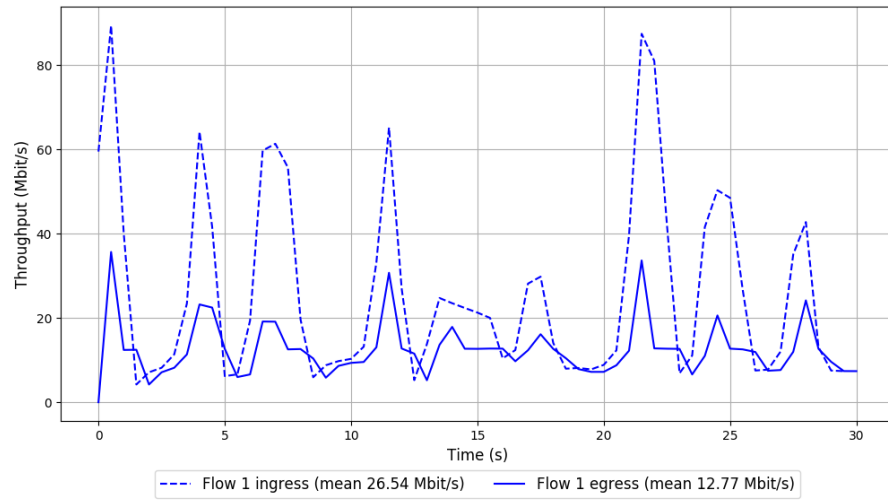
Run 3: Report of PCC-Expr — Data Link

```
Run 4: Statistics of PCC-Expr

Start at: 2018-12-02 01:26:26
End at: 2018-12-02 01:26:56
Local clock offset: 3.098 ms
Remote clock offset: -3.541 ms


# Below is generated by plot.py at 2018-12-02 02:14:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.77 Mbit/s
95th percentile per-packet one-way delay: 3.264 ms
Loss rate: 51.89%
-- Flow 1:
Average throughput: 12.77 Mbit/s
95th percentile per-packet one-way delay: 3.264 ms
Loss rate: 51.89%
```

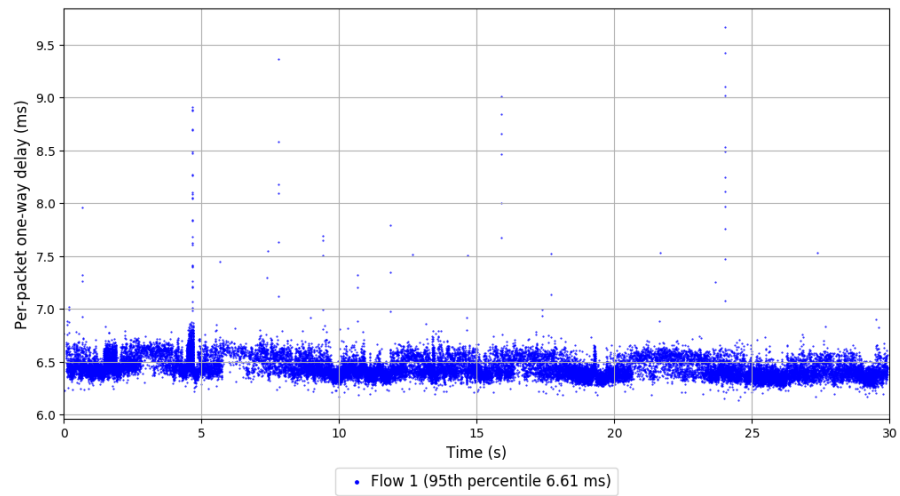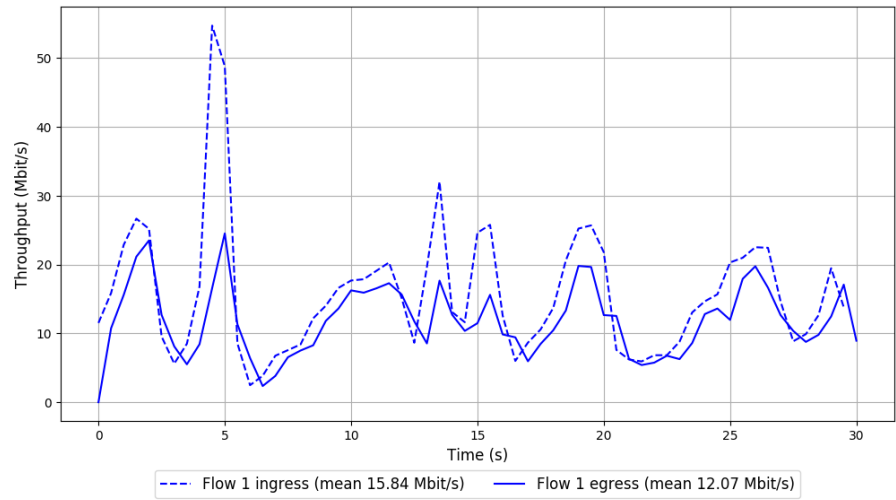# Run 4: Report of PCC-Expr — Data Link

```
Run 5: Statistics of PCC-Expr

Start at: 2018-12-02 01:48:19
End at: 2018-12-02 01:48:49
Local clock offset: -0.431 ms
Remote clock offset: -2.951 ms


# Below is generated by plot.py at 2018-12-02 02:14:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.07 Mbit/s
95th percentile per-packet one-way delay: 6.613 ms
Loss rate: 23.82%
-- Flow 1:
Average throughput: 12.07 Mbit/s
95th percentile per-packet one-way delay: 6.613 ms
Loss rate: 23.82%
```

Run 5: Report of PCC-Expr — Data Link

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-12-02 00:35:40
End at: 2018-12-02 00:36:10
Local clock offset: -0.573 ms
Remote clock offset: -3.145 ms


# Below is generated by plot.py at 2018-12-02 02:14:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 30.06 Mbit/s
95th percentile per-packet one-way delay: 7.963 ms
Loss rate: 0.89%
-- Flow 1:
Average throughput: 30.06 Mbit/s
95th percentile per-packet one-way delay: 7.963 ms
Loss rate: 0.89%
```
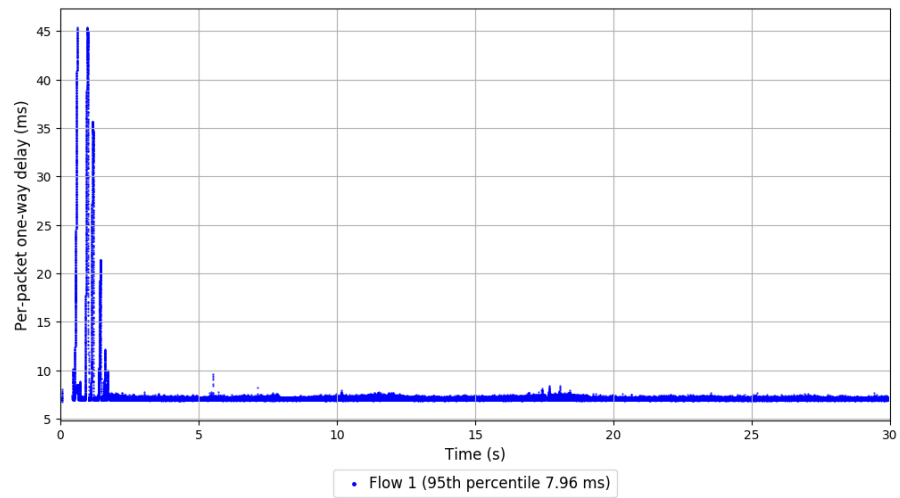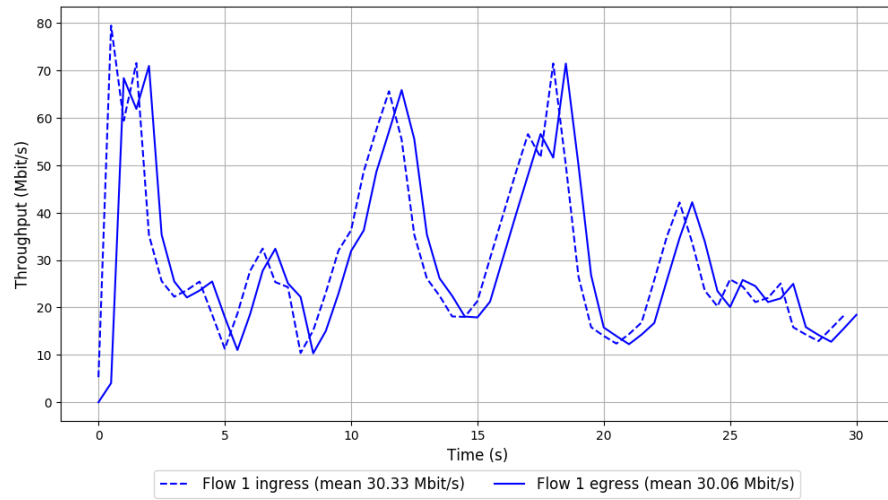
Run 1: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 30.33 Mbit/s) ---- Flow 1 egress (mean 30.06 Mbit/s)

Flow 1 (95th percentile 7.96 ms)

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-12-02 00:57:27
End at: 2018-12-02 00:57:57
Local clock offset: 5.623 ms
Remote clock offset: -3.849 ms

# Below is generated by plot.py at 2018-12-02 02:14:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 27.62 Mbit/s
95th percentile per-packet one-way delay: 1.154 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 27.62 Mbit/s
95th percentile per-packet one-way delay: 1.154 ms
Loss rate: 0.27%
```
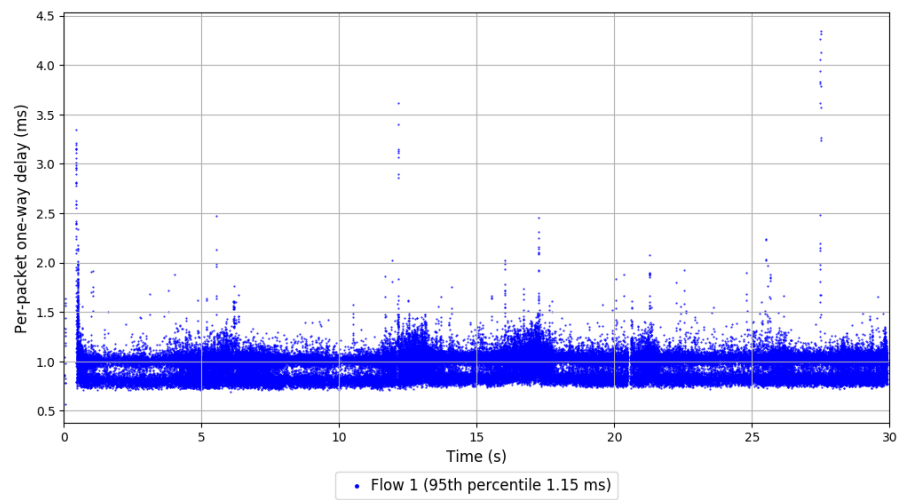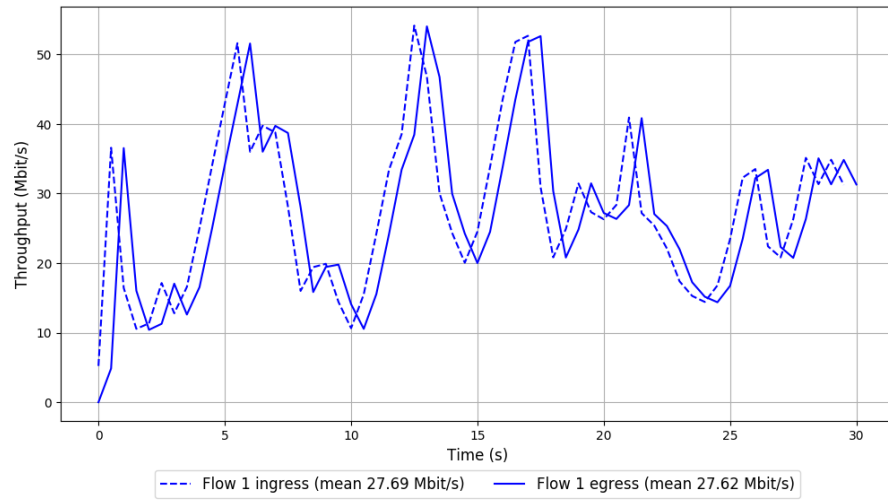
Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-12-02 01:19:40
End at: 2018-12-02 01:20:11
Local clock offset: 5.291 ms
Remote clock offset: -3.729 ms


# Below is generated by plot.py at 2018-12-02 02:14:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 27.46 Mbit/s
95th percentile per-packet one-way delay: 1.757 ms
Loss rate: 1.00%
-- Flow 1:
Average throughput: 27.46 Mbit/s
95th percentile per-packet one-way delay: 1.757 ms
Loss rate: 1.00%
```
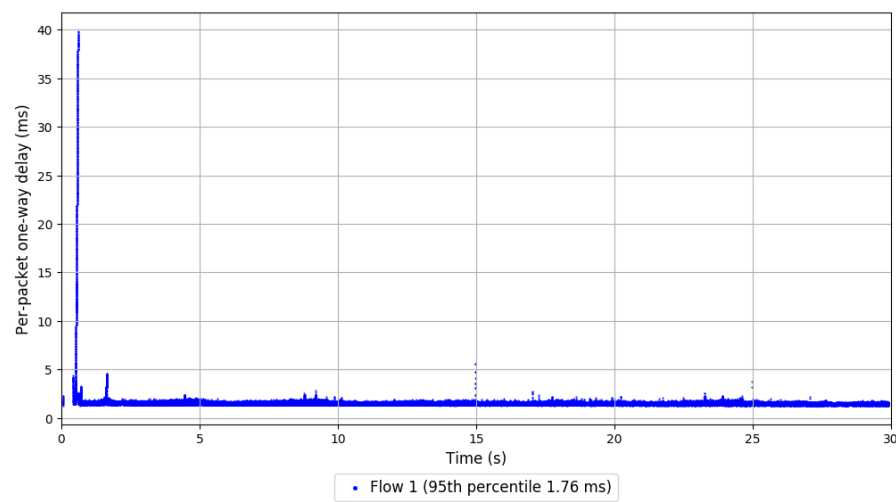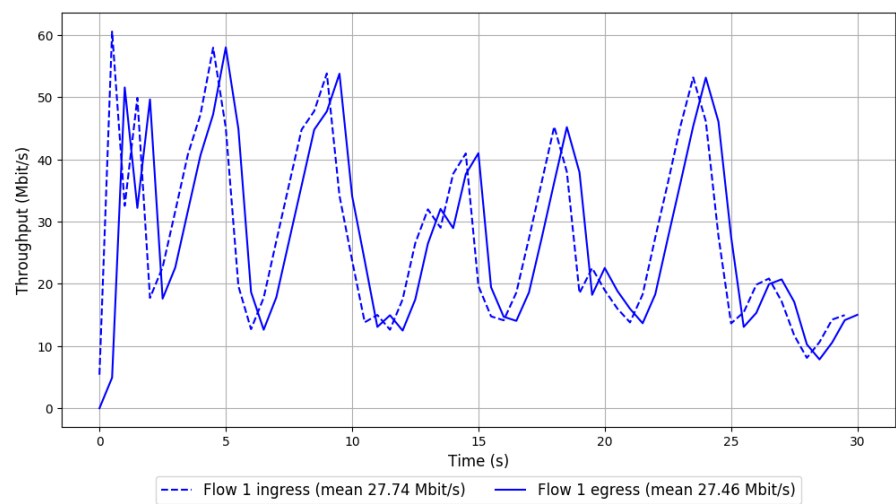
Run 3: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 27.74 Mbit/s)   Flow 1 egress (mean 27.46 Mbit/s)

Flow 1 (95th percentile 1.76 ms)

```
Run 4: Statistics of QUIC Cubic

Start at: 2018-12-02 01:41:34
End at: 2018-12-02 01:42:04
Local clock offset: 0.209 ms
Remote clock offset: -2.582 ms


# Below is generated by plot.py at 2018-12-02 02:14:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 19.07 Mbit/s
95th percentile per-packet one-way delay: 6.624 ms
Loss rate: 2.53%
-- Flow 1:
Average throughput: 19.07 Mbit/s
95th percentile per-packet one-way delay: 6.624 ms
Loss rate: 2.53%
```
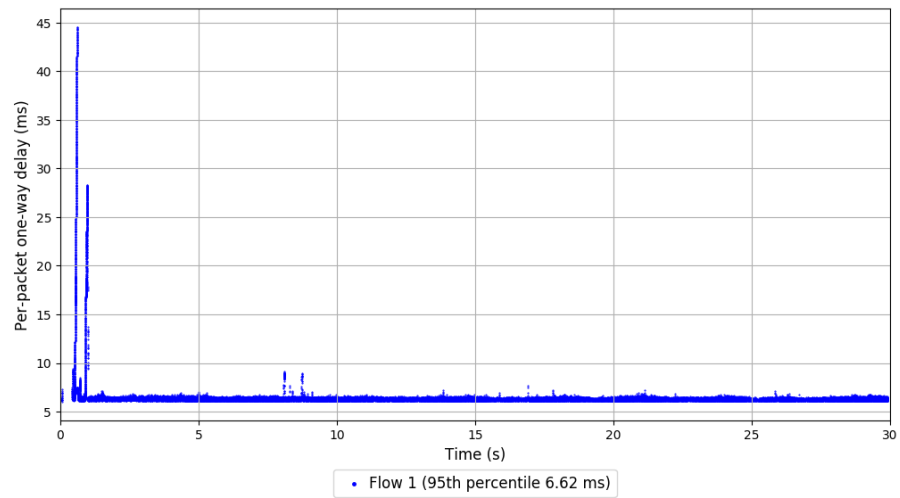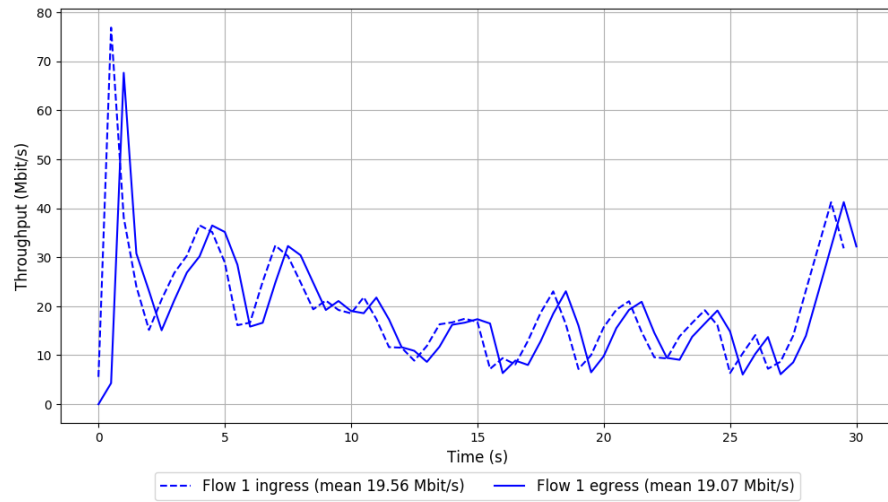
Run 4: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 19.56 Mbit/s) --- Flow 1 egress (mean 19.07 Mbit/s)

Flow 1 (95th percentile 6.62 ms)

```
Run 5: Statistics of QUIC Cubic

Start at: 2018-12-02 02:03:07
End at: 2018-12-02 02:03:37
Local clock offset: -0.357 ms
Remote clock offset: -3.673 ms


# Below is generated by plot.py at 2018-12-02 02:14:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 23.13 Mbit/s
95th percentile per-packet one-way delay: 5.077 ms
Loss rate: 1.60%
-- Flow 1:
Average throughput: 23.13 Mbit/s
95th percentile per-packet one-way delay: 5.077 ms
Loss rate: 1.60%
```
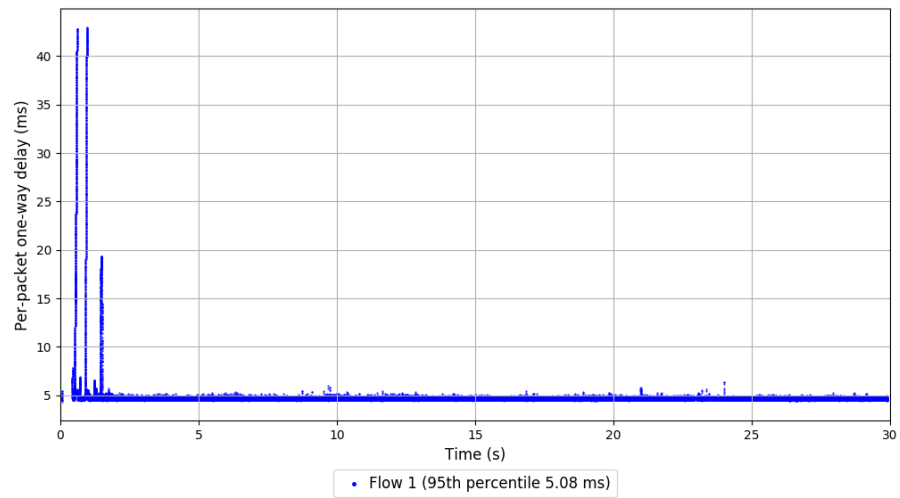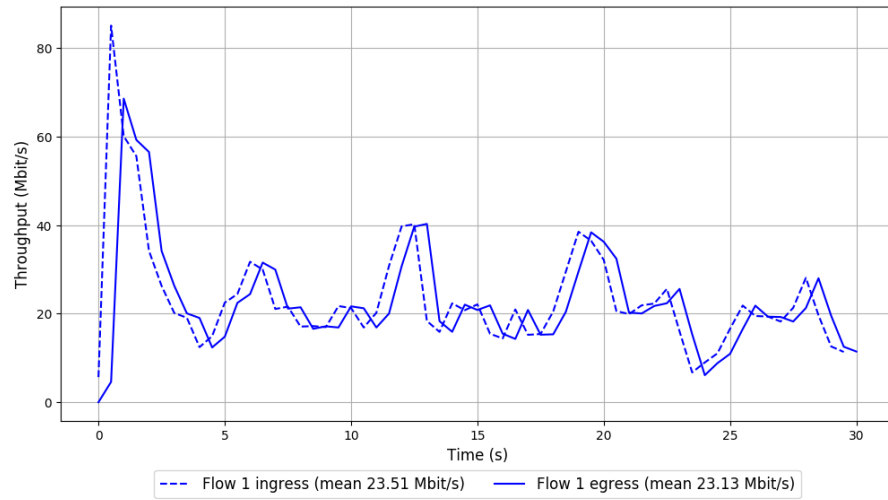
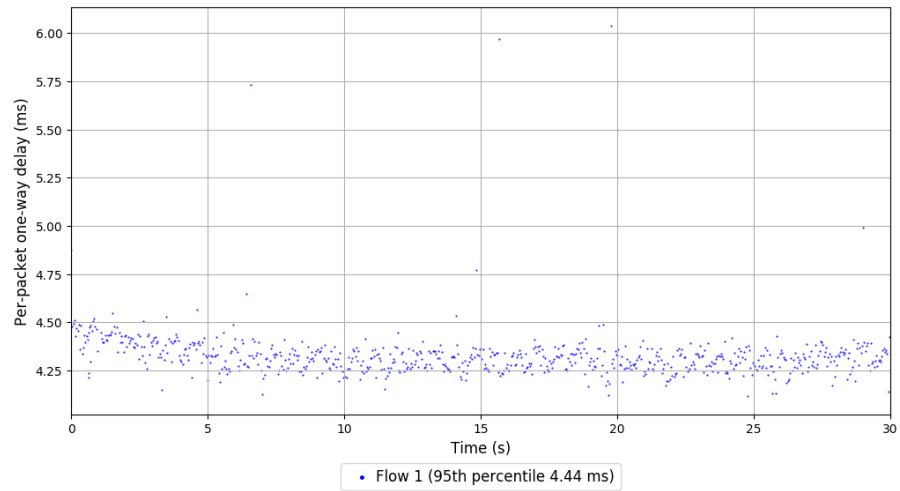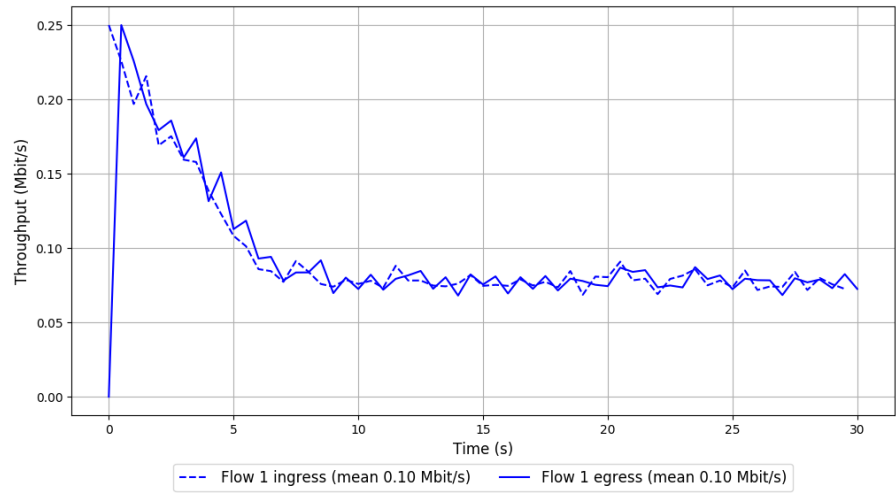# Run 5: Report of QUIC Cubic — Data Link

```
Run 1: Statistics of SCReAM

Start at: 2018-12-02 00:38:59
End at: 2018-12-02 00:39:29
Local clock offset: 0.856 ms
Remote clock offset: -4.294 ms


# Below is generated by plot.py at 2018-12-02 02:14:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 4.442 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 4.442 ms
Loss rate: 0.58%
```

Run 1: Report of SCReAM — Data Link

Flow 1 ingress (mean 0.10 Mbit/s) — — —   Flow 1 egress (mean 0.10 Mbit/s) ———
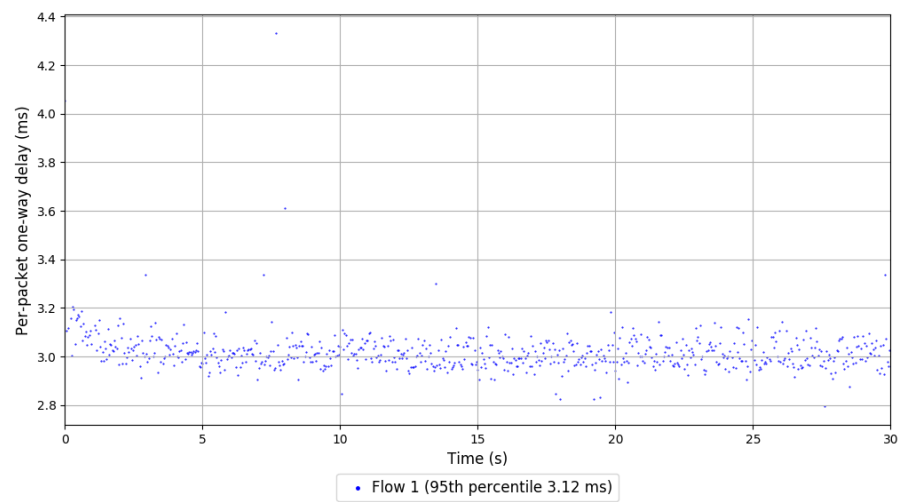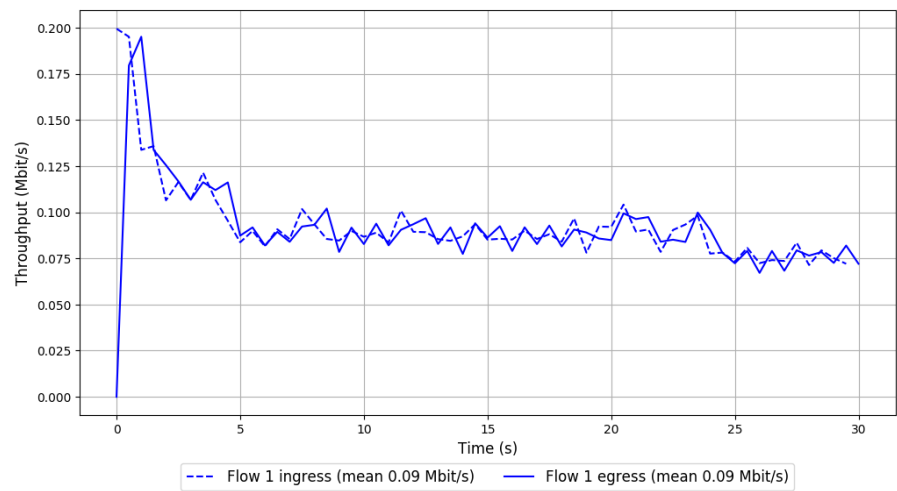

Flow 1 (95th percentile 4.44 ms)

```
Run 2: Statistics of SCReAM

Start at: 2018-12-02 01:00:47
End at: 2018-12-02 01:01:17
Local clock offset: 3.08 ms
Remote clock offset: -4.351 ms


# Below is generated by plot.py at 2018-12-02 02:14:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 3.119 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 3.119 ms
Loss rate: 0.61%
```
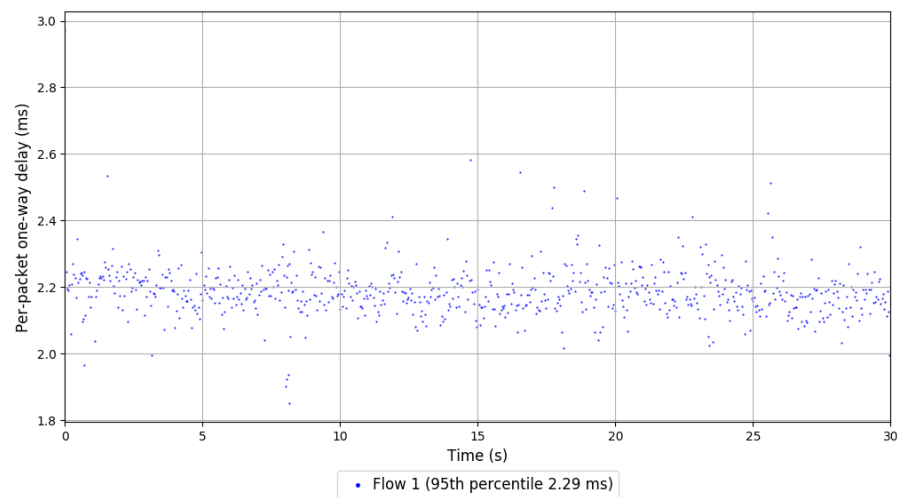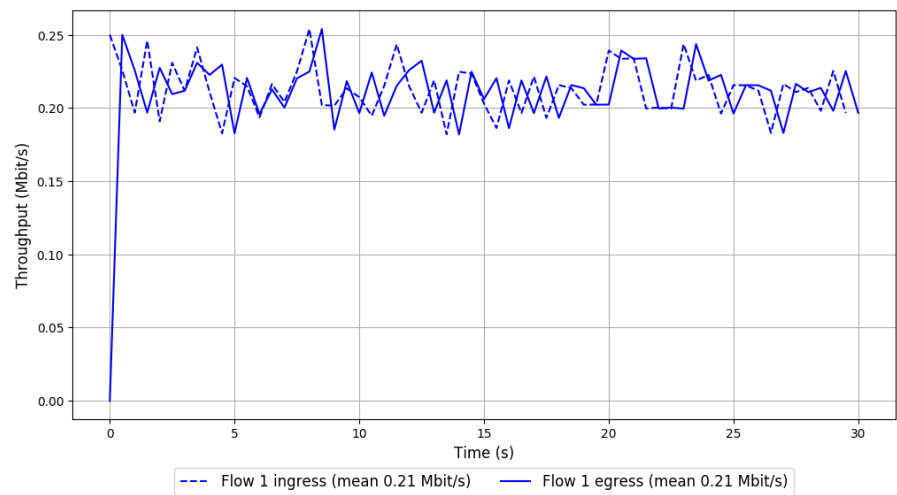
Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2018-12-02 01:23:00
End at: 2018-12-02 01:23:30
Local clock offset: 4.382 ms
Remote clock offset: -3.591 ms


# Below is generated by plot.py at 2018-12-02 02:14:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 2.293 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 2.293 ms
Loss rate: 0.00%
```

Run 3: Report of SCReAM — Data Link

Flow 1 ingress (mean 0.21 Mbit/s) —— Flow 1 egress (mean 0.21 Mbit/s)
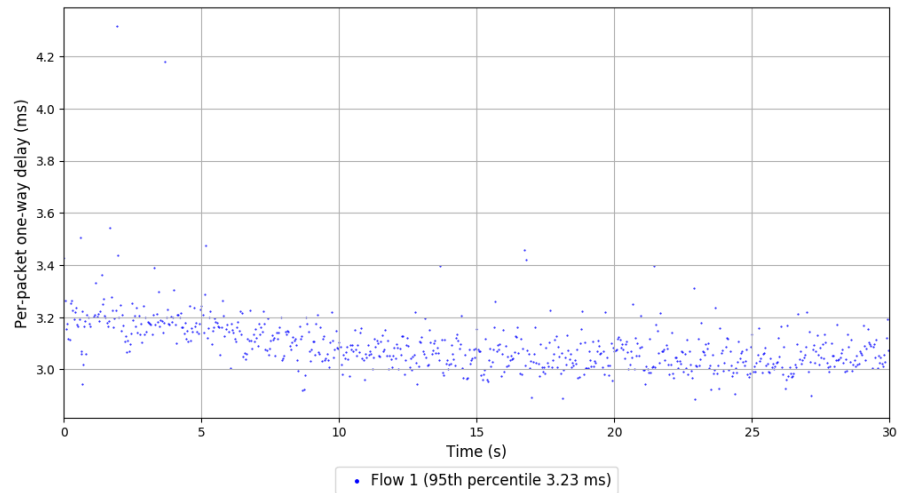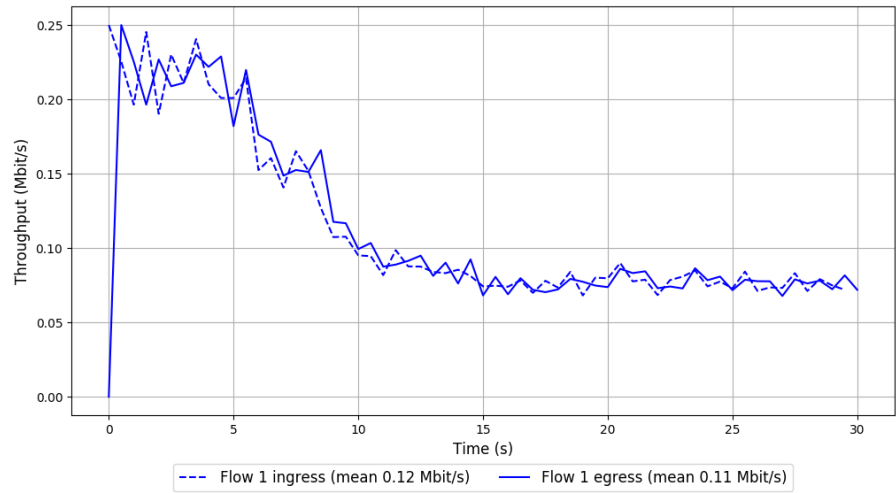

• Flow 1 (95th percentile 2.29 ms)

```
Run 4: Statistics of SCReAM

Start at: 2018-12-02 01:44:53
End at: 2018-12-02 01:45:23
Local clock offset: 3.096 ms
Remote clock offset: -2.909 ms


# Below is generated by plot.py at 2018-12-02 02:14:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 3.231 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 3.231 ms
Loss rate: 0.46%
```

Run 4: Report of SCReAM — Data Link

Flow 1 ingress (mean 0.12 Mbit/s)   Flow 1 egress (mean 0.11 Mbit/s)
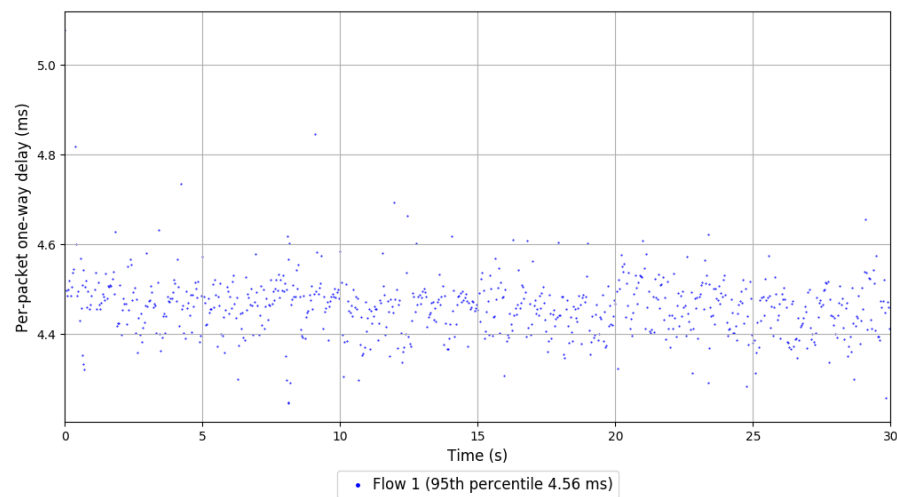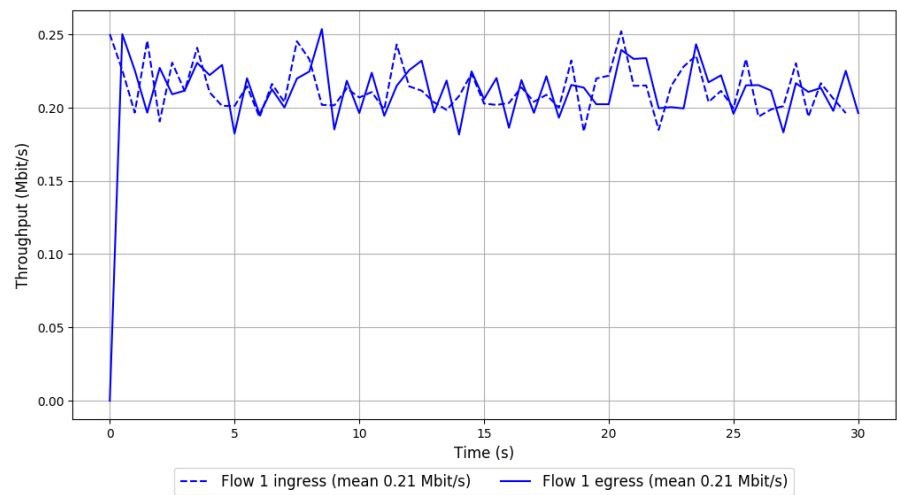

Flow 1 (95th percentile 3.23 ms)

```
Run 5: Statistics of SCReAM

Start at: 2018-12-02 02:06:24
End at: 2018-12-02 02:06:54
Local clock offset: 0.441 ms
Remote clock offset: -2.991 ms


# Below is generated by plot.py at 2018-12-02 02:14:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 4.562 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 4.562 ms
Loss rate: 0.00%
```

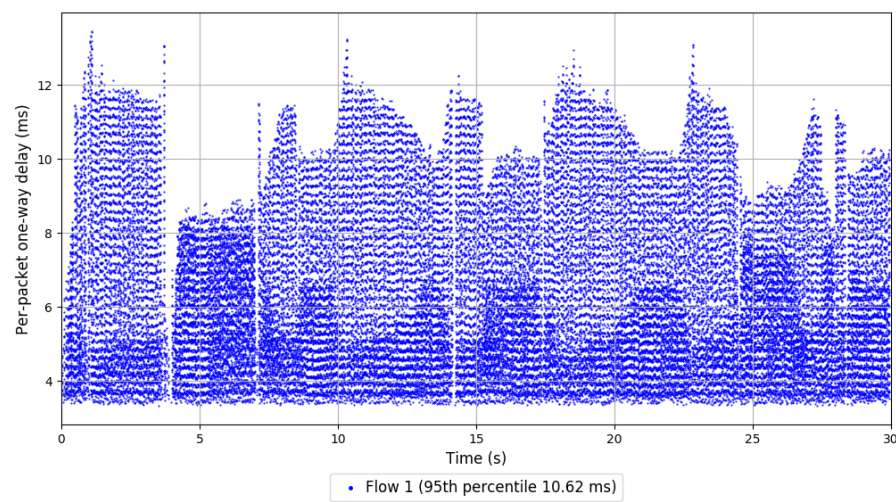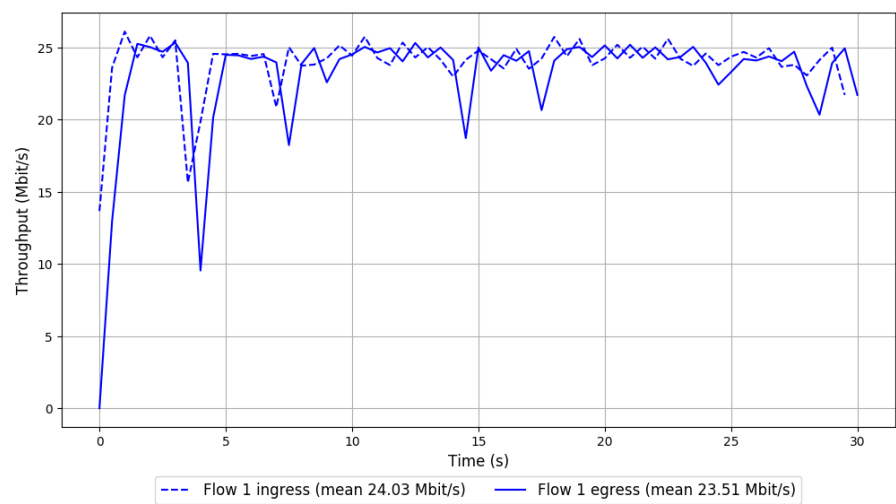## Run 5: Report of SCReAM — Data Link

```
Run 1: Statistics of Sprout

Start at: 2018-12-02 00:33:26
End at: 2018-12-02 00:33:56
Local clock offset: 2.173 ms
Remote clock offset: -4.082 ms


# Below is generated by plot.py at 2018-12-02 02:15:02
# Datalink statistics
-- Total of 1 flow:
Average throughput: 23.51 Mbit/s
95th percentile per-packet one-way delay: 10.621 ms
Loss rate: 2.13%
-- Flow 1:
Average throughput: 23.51 Mbit/s
95th percentile per-packet one-way delay: 10.621 ms
Loss rate: 2.13%
```

Run 1: Report of Sprout — Data Link

Flow 1 ingress (mean 24.03 Mbit/s) ——— Flow 1 egress (mean 23.51 Mbit/s)

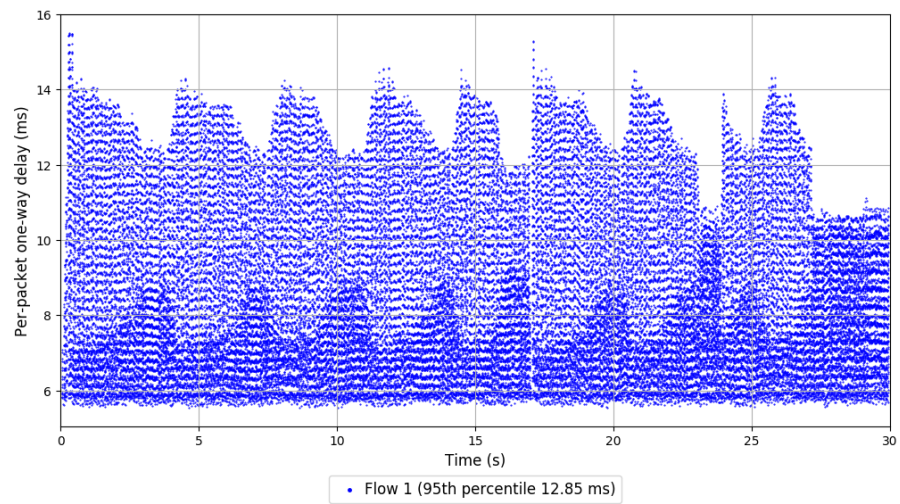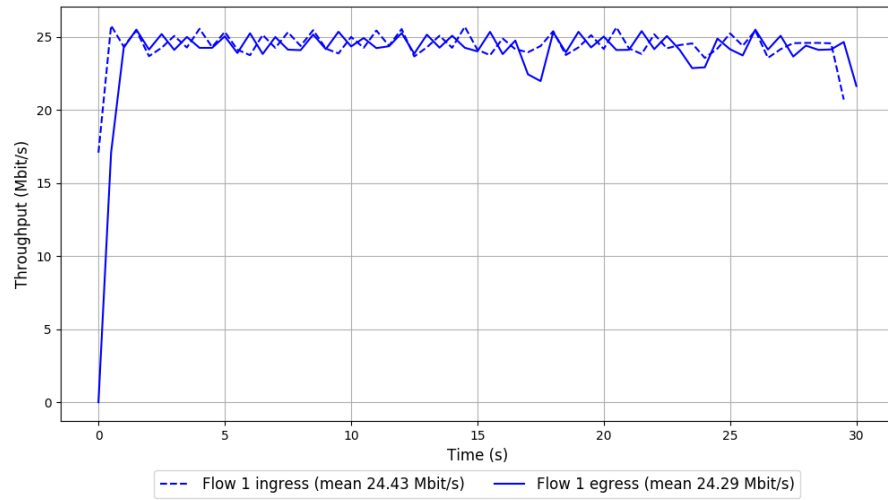

• Flow 1 (95th percentile 10.62 ms)

```
Run 2: Statistics of Sprout

Start at: 2018-12-02 00:55:11
End at: 2018-12-02 00:55:41
Local clock offset: 1.037 ms
Remote clock offset: -3.52 ms


# Below is generated by plot.py at 2018-12-02 02:15:02
# Datalink statistics
-- Total of 1 flow:
Average throughput: 24.29 Mbit/s
95th percentile per-packet one-way delay: 12.850 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 24.29 Mbit/s
95th percentile per-packet one-way delay: 12.850 ms
Loss rate: 0.57%
```

Run 2: Report of Sprout — Data Link

Flow 1 ingress (mean 24.43 Mbit/s) --- Flow 1 egress (mean 24.29 Mbit/s)
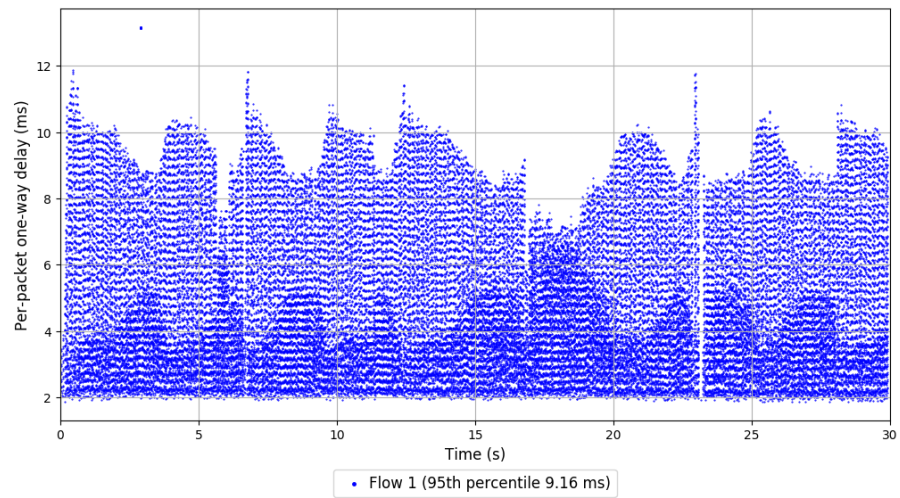
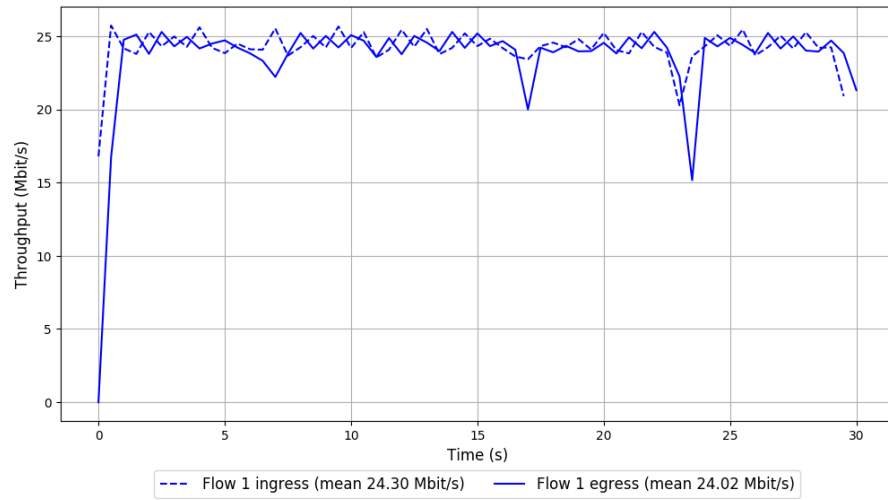

• Flow 1 (95th percentile 12.85 ms)

```
Run 3: Statistics of Sprout

Start at: 2018-12-02 01:17:27
End at: 2018-12-02 01:17:57
Local clock offset: 5.505 ms
Remote clock offset: -3.442 ms


# Below is generated by plot.py at 2018-12-02 02:15:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 24.02 Mbit/s
95th percentile per-packet one-way delay: 9.158 ms
Loss rate: 1.12%
-- Flow 1:
Average throughput: 24.02 Mbit/s
95th percentile per-packet one-way delay: 9.158 ms
Loss rate: 1.12%
```

Run 3: Report of Sprout — Data Link

Flow 1 ingress (mean 24.30 Mbit/s)   Flow 1 egress (mean 24.02 Mbit/s)
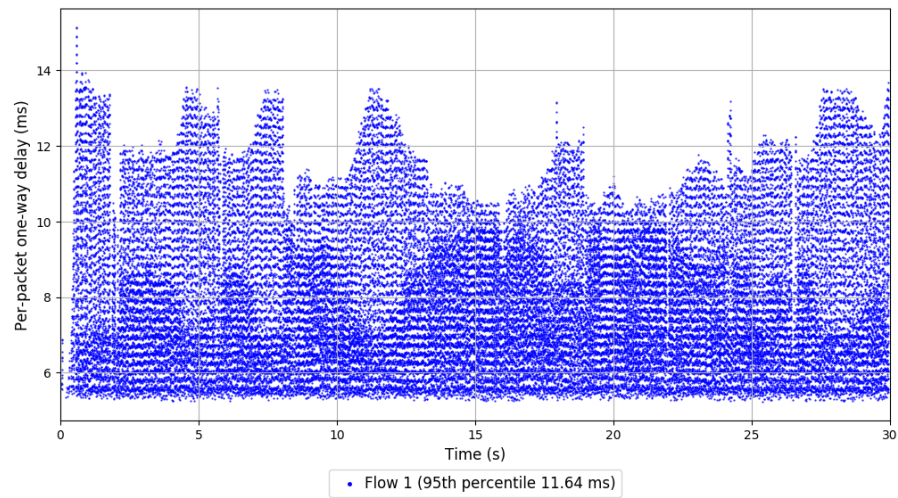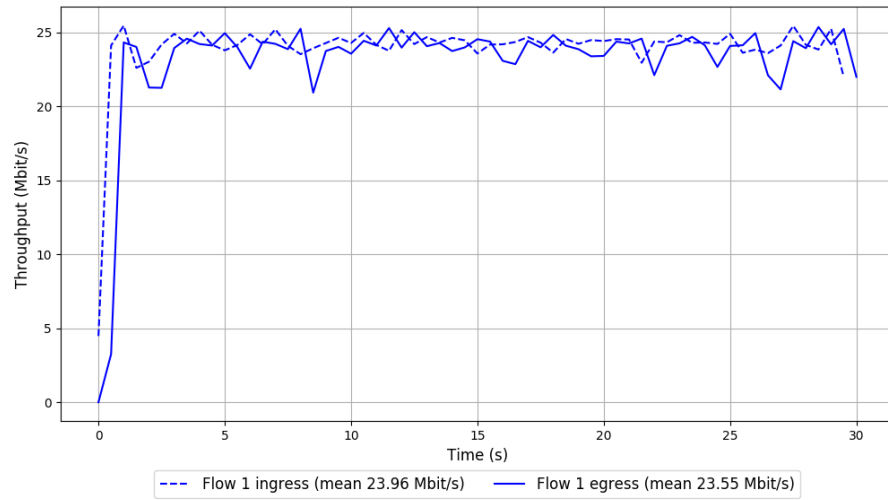

• Flow 1 (95th percentile 9.16 ms)

```
Run 4: Statistics of Sprout

Start at: 2018-12-02 01:39:21
End at: 2018-12-02 01:39:51
Local clock offset: 1.506 ms
Remote clock offset: -2.255 ms


# Below is generated by plot.py at 2018-12-02 02:15:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 23.55 Mbit/s
95th percentile per-packet one-way delay: 11.639 ms
Loss rate: 1.70%
-- Flow 1:
Average throughput: 23.55 Mbit/s
95th percentile per-packet one-way delay: 11.639 ms
Loss rate: 1.70%
```

Run 4: Report of Sprout — Data Link

Flow 1 ingress (mean 23.96 Mbit/s) --- Flow 1 egress (mean 23.55 Mbit/s)

• Flow 1 (95th percentile 11.64 ms)

```
Run 5: Statistics of Sprout

Start at: 2018-12-02 02:00:51
End at: 2018-12-02 02:01:21
Local clock offset: 0.983 ms
Remote clock offset: -3.63 ms


# Below is generated by plot.py at 2018-12-02 02:15:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 23.71 Mbit/s
95th percentile per-packet one-way delay: 10.170 ms
Loss rate: 1.80%
-- Flow 1:
Average throughput: 23.71 Mbit/s
95th percentile per-packet one-way delay: 10.170 ms
Loss rate: 1.80%
```
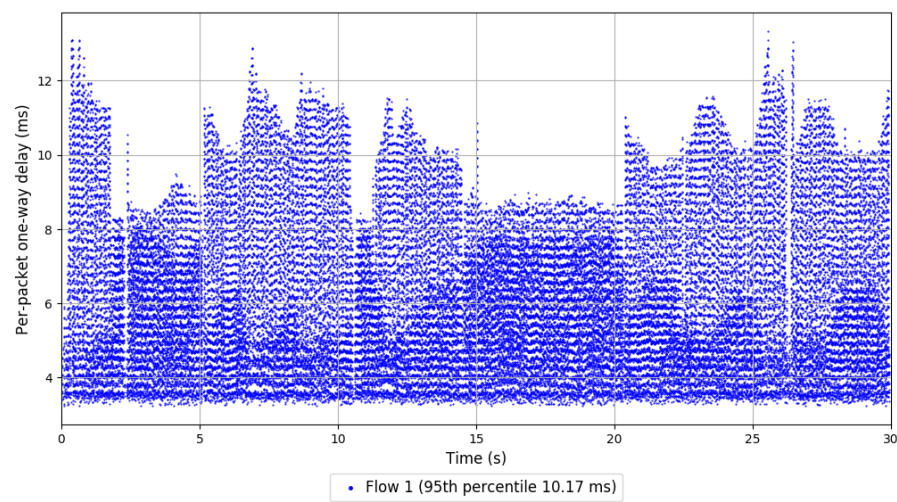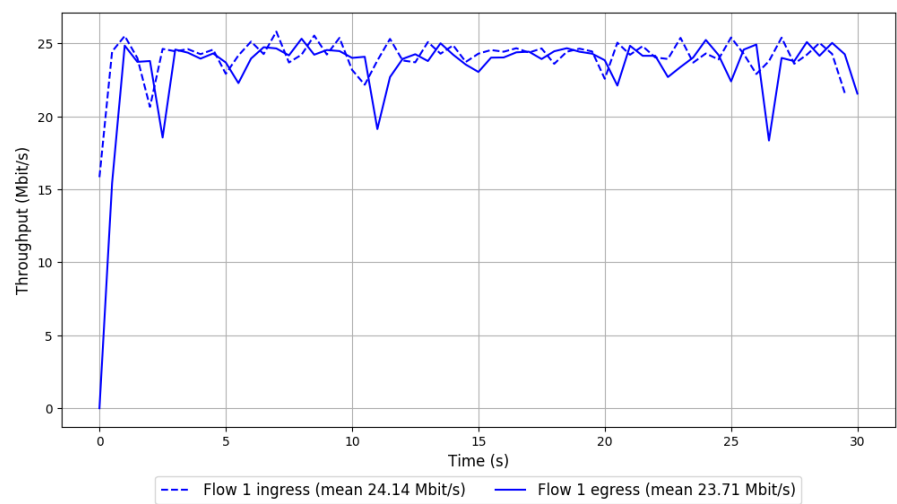
Run 5: Report of Sprout — Data Link

Flow 1 ingress (mean 24.14 Mbit/s) ——— Flow 1 egress (mean 23.71 Mbit/s)

• Flow 1 (95th percentile 10.17 ms)

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

Start at: 2018-12-02 00:37:53
End at: 2018-12-02 00:38:23
Local clock offset: 0.427 ms
Remote clock offset: -3.651 ms


# Below is generated by plot.py at 2018-12-02 02:15:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.40 Mbit/s
95th percentile per-packet one-way delay: 5.814 ms
Loss rate: 74.35%
-- Flow 1:
Average throughput: 7.40 Mbit/s
95th percentile per-packet one-way delay: 5.814 ms
Loss rate: 74.35%
```
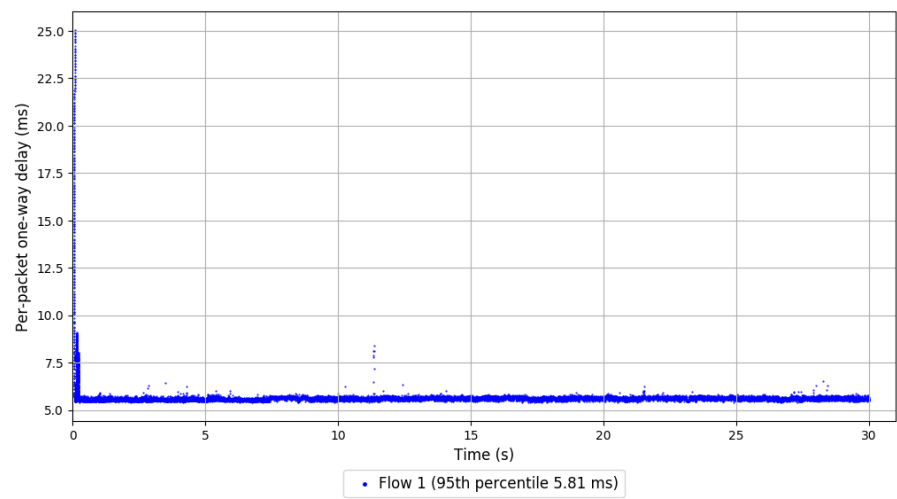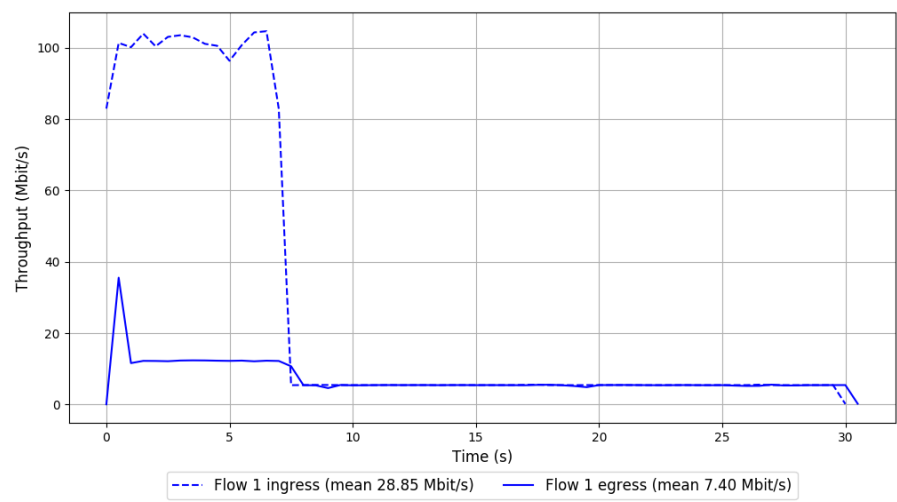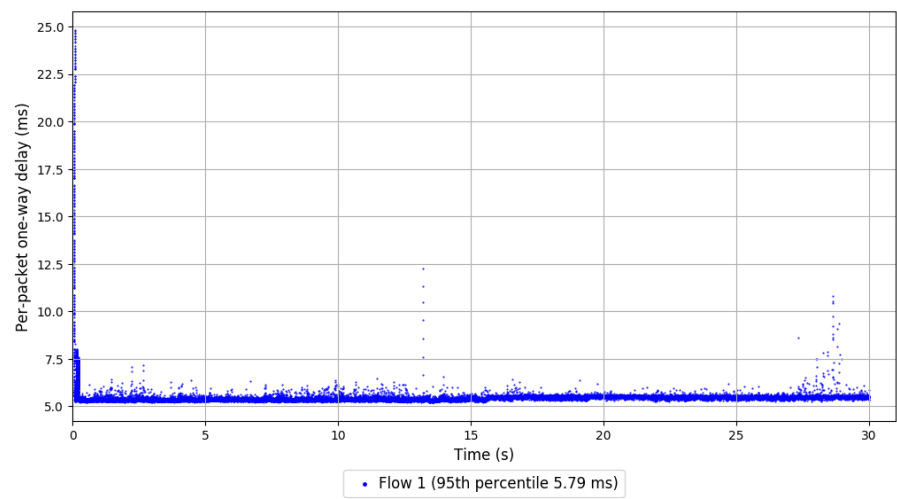
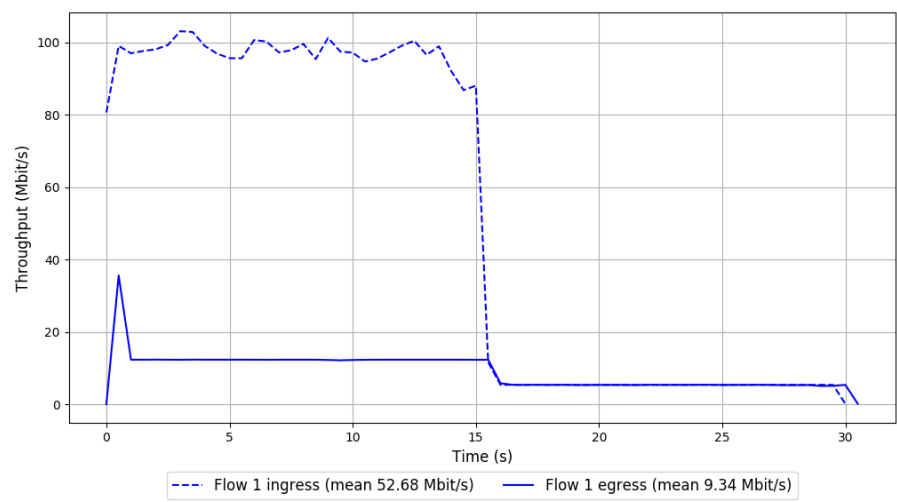# Run 1: Report of TaoVA-100x — Data Link

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

Start at: 2018-12-02 00:59:40
End at: 2018-12-02 01:00:10
Local clock offset: 1.653 ms
Remote clock offset: -3.496 ms


# Below is generated by plot.py at 2018-12-02 02:15:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.34 Mbit/s
95th percentile per-packet one-way delay: 5.790 ms
Loss rate: 82.28%
-- Flow 1:
Average throughput: 9.34 Mbit/s
95th percentile per-packet one-way delay: 5.790 ms
Loss rate: 82.28%
```

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

Flow 1 ingress (mean 52.68 Mbit/s) ----   Flow 1 egress (mean 9.34 Mbit/s) ——

• Flow 1 (95th percentile 5.79 ms)

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

Start at: 2018-12-02 01:21:53
End at: 2018-12-02 01:22:23
Local clock offset: 1.7 ms
Remote clock offset: -3.307 ms


# Below is generated by plot.py at 2018-12-02 02:15:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.51 Mbit/s
95th percentile per-packet one-way delay: 5.477 ms
Loss rate: 82.01%
-- Flow 1:
Average throughput: 9.51 Mbit/s
95th percentile per-packet one-way delay: 5.477 ms
Loss rate: 82.01%
```
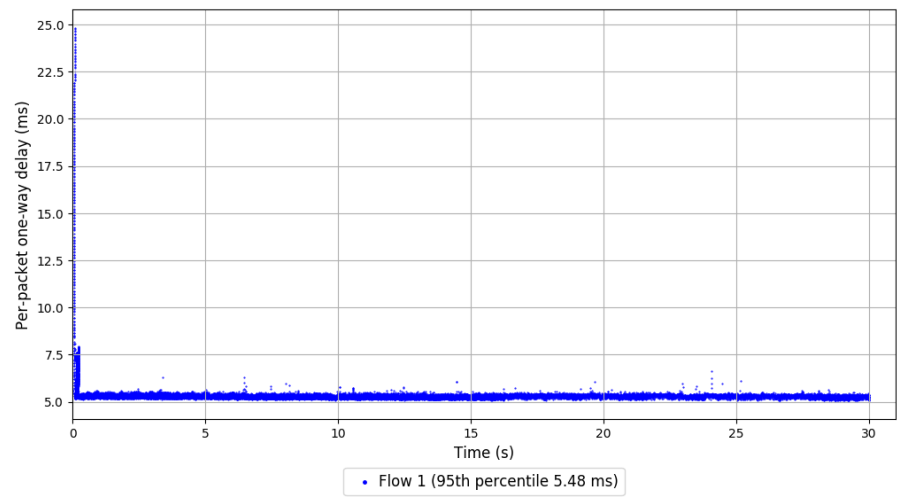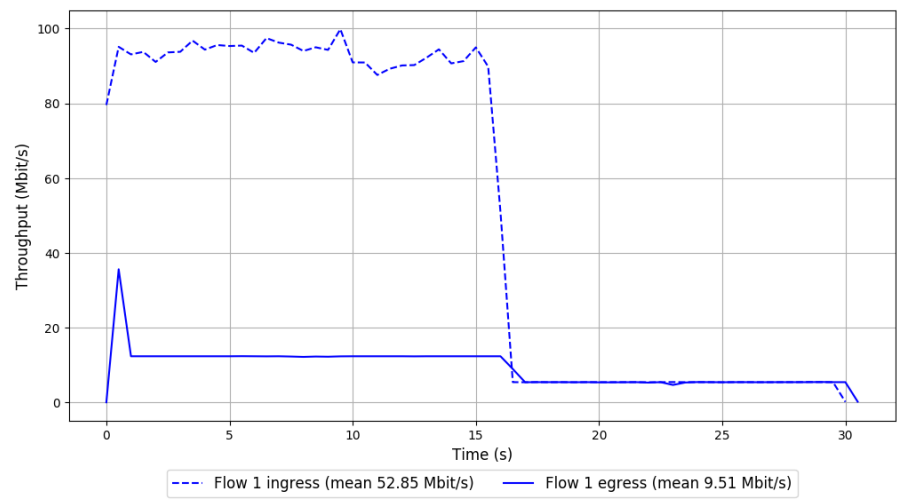
Run 3: Report of TaoVA-100x — Data Link

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

Start at: 2018-12-02 01:43:46
End at: 2018-12-02 01:44:17
Local clock offset: 0.76 ms
Remote clock offset: -3.567 ms


# Below is generated by plot.py at 2018-12-02 02:15:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.56 Mbit/s
95th percentile per-packet one-way delay: 5.052 ms
Loss rate: 73.91%
-- Flow 1:
Average throughput: 7.56 Mbit/s
95th percentile per-packet one-way delay: 5.052 ms
Loss rate: 73.91%
```
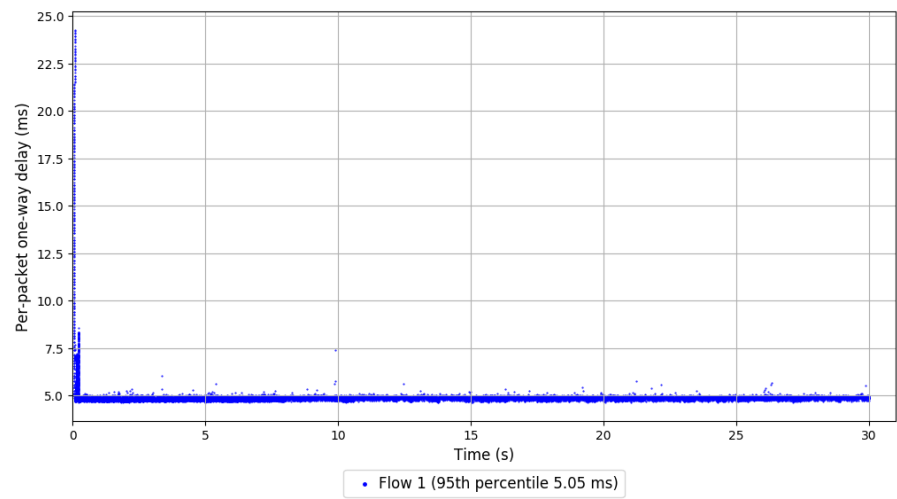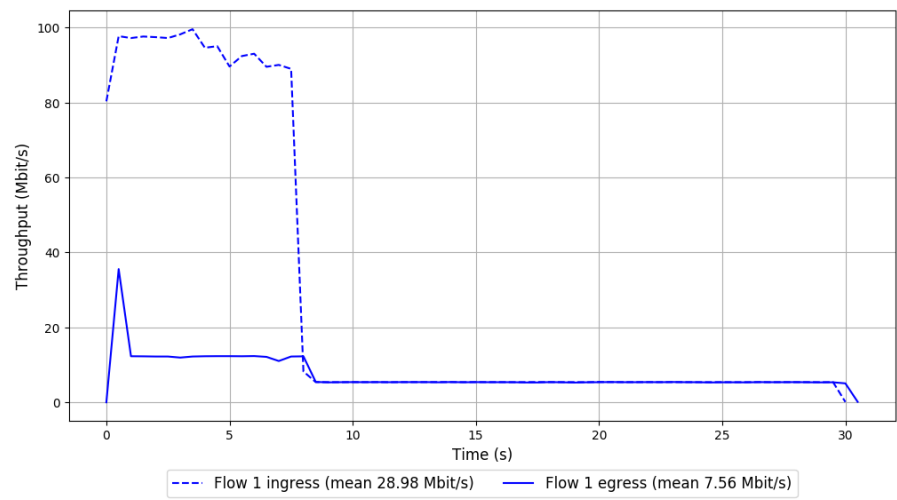
Run 4: Report of TaoVA-100x — Data Link

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

Start at: 2018-12-02 02:05:18
End at: 2018-12-02 02:05:48
Local clock offset: 0.547 ms
Remote clock offset: -3.707 ms


# Below is generated by plot.py at 2018-12-02 02:15:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.59 Mbit/s
95th percentile per-packet one-way delay: 3.910 ms
Loss rate: 73.83%
-- Flow 1:
Average throughput: 7.59 Mbit/s
95th percentile per-packet one-way delay: 3.910 ms
Loss rate: 73.83%
```
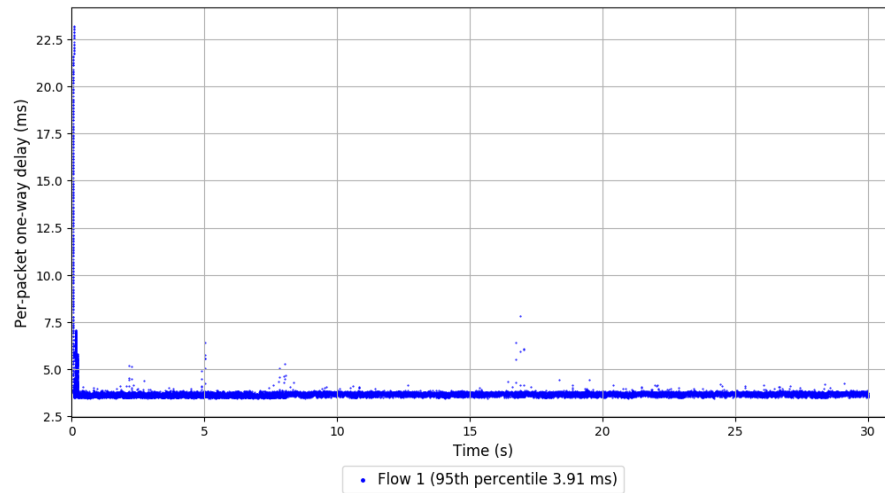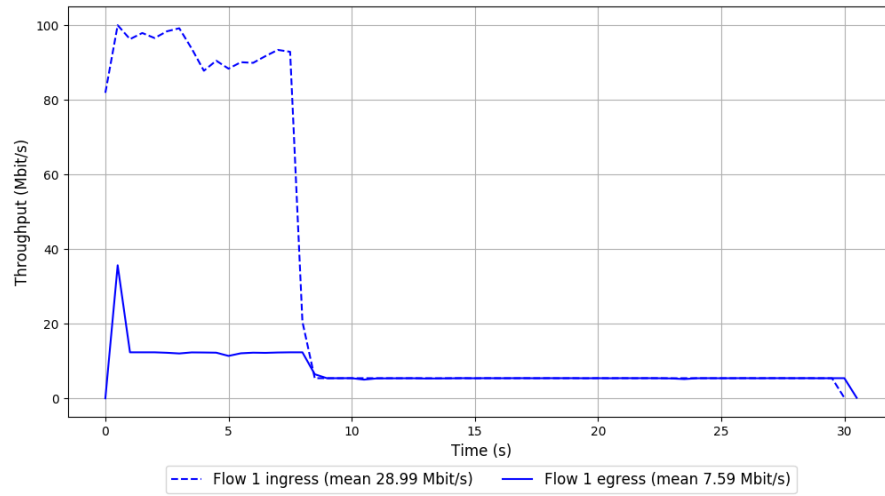
Run 5: Report of TaoVA-100x — Data Link

```
Run 1: Statistics of TCP Vegas

Start at: 2018-12-02 00:29:52
End at: 2018-12-02 00:30:22
Local clock offset: 1.743 ms
Remote clock offset: -3.945 ms


# Below is generated by plot.py at 2018-12-02 02:15:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 18.85 Mbit/s
95th percentile per-packet one-way delay: 11.448 ms
Loss rate: 2.26%
-- Flow 1:
Average throughput: 18.85 Mbit/s
95th percentile per-packet one-way delay: 11.448 ms
Loss rate: 2.26%
```
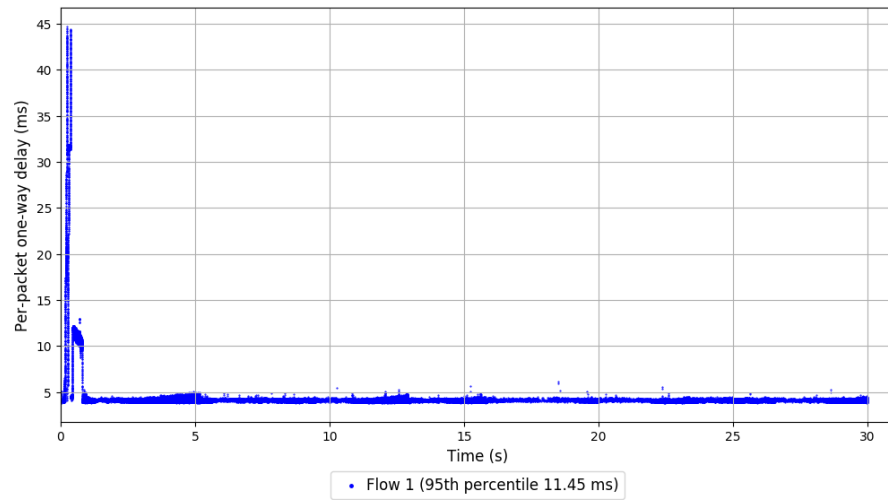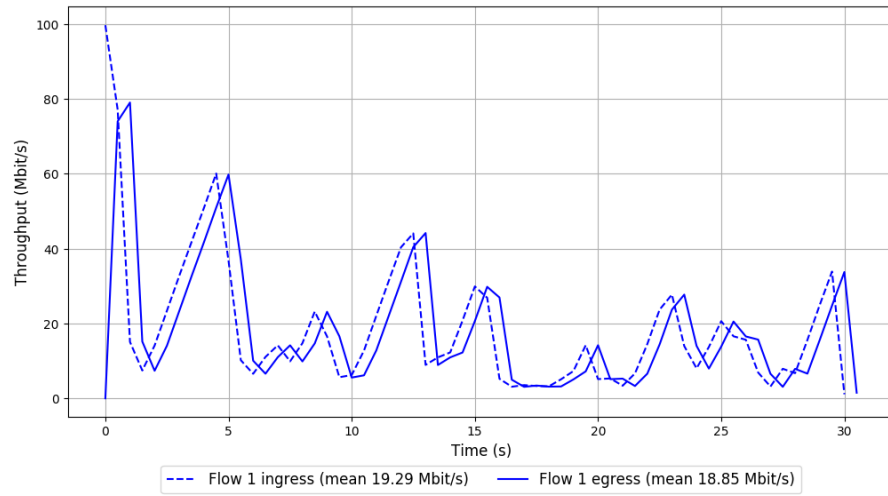
Run 1: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 19.29 Mbit/s)   Flow 1 egress (mean 18.85 Mbit/s)
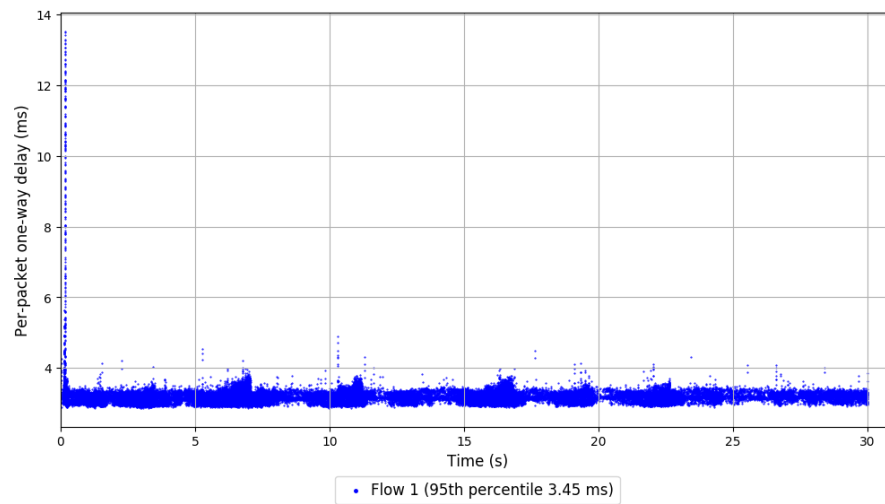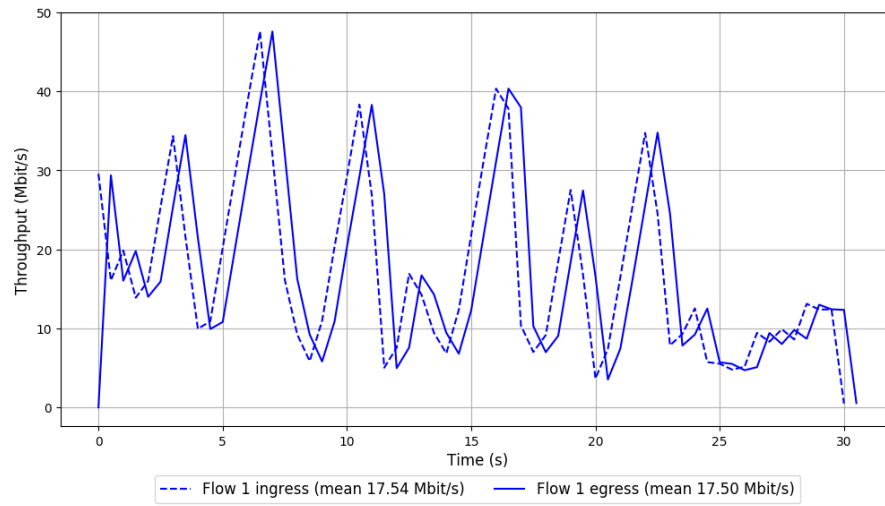

Flow 1 (95th percentile 11.45 ms)

```
Run 2: Statistics of TCP Vegas

Start at: 2018-12-02 00:51:40
End at: 2018-12-02 00:52:10
Local clock offset: 3.847 ms
Remote clock offset: -3.101 ms


# Below is generated by plot.py at 2018-12-02 02:15:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 17.50 Mbit/s
95th percentile per-packet one-way delay: 3.449 ms
Loss rate: 0.22%
-- Flow 1:
Average throughput: 17.50 Mbit/s
95th percentile per-packet one-way delay: 3.449 ms
Loss rate: 0.22%
```

Run 2: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 17.54 Mbit/s)   Flow 1 egress (mean 17.50 Mbit/s)
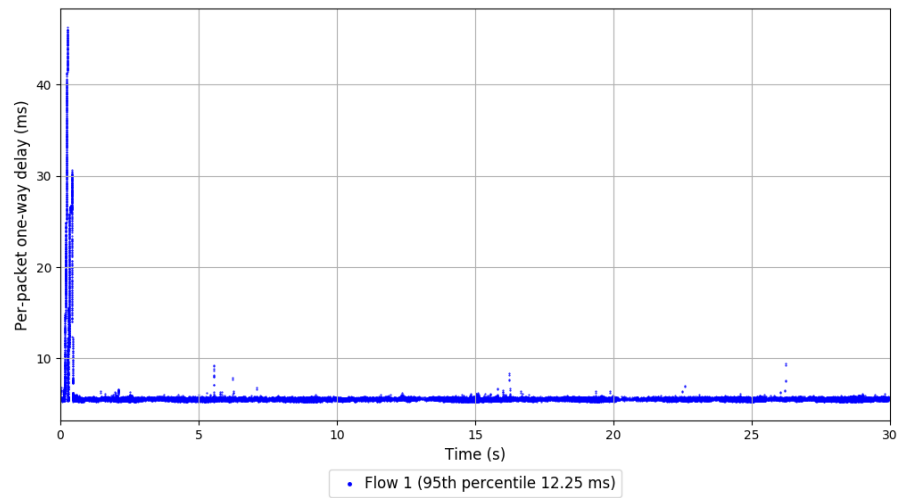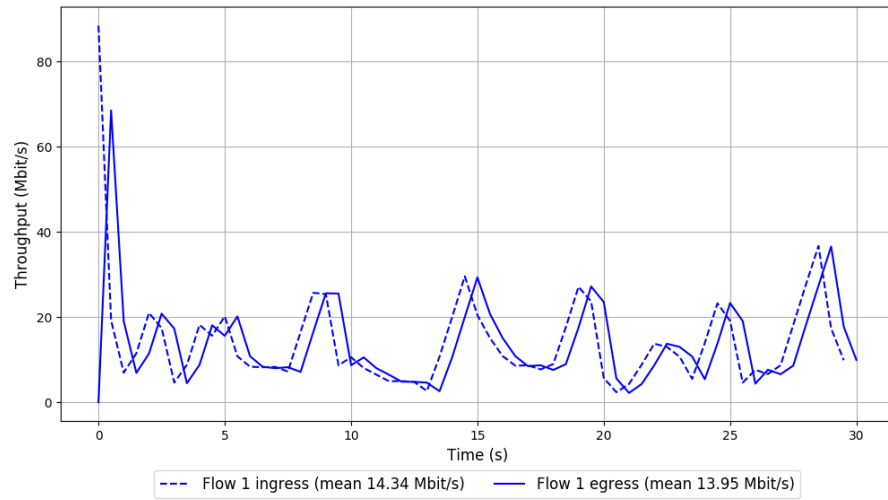

Flow 1 (95th percentile 3.45 ms)

```
Run 3: Statistics of TCP Vegas

Start at: 2018-12-02 01:13:50
End at: 2018-12-02 01:14:20
Local clock offset: 1.994 ms
Remote clock offset: -3.635 ms


# Below is generated by plot.py at 2018-12-02 02:15:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 13.95 Mbit/s
95th percentile per-packet one-way delay: 12.250 ms
Loss rate: 2.70%
-- Flow 1:
Average throughput: 13.95 Mbit/s
95th percentile per-packet one-way delay: 12.250 ms
Loss rate: 2.70%
```

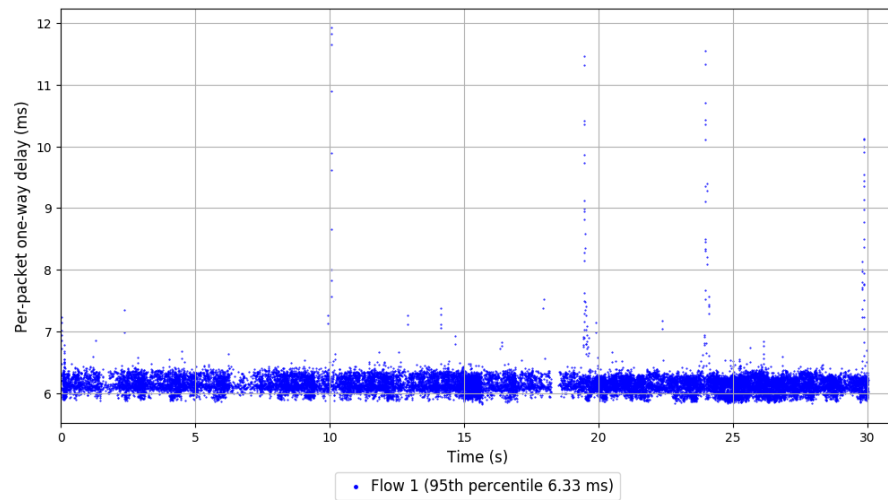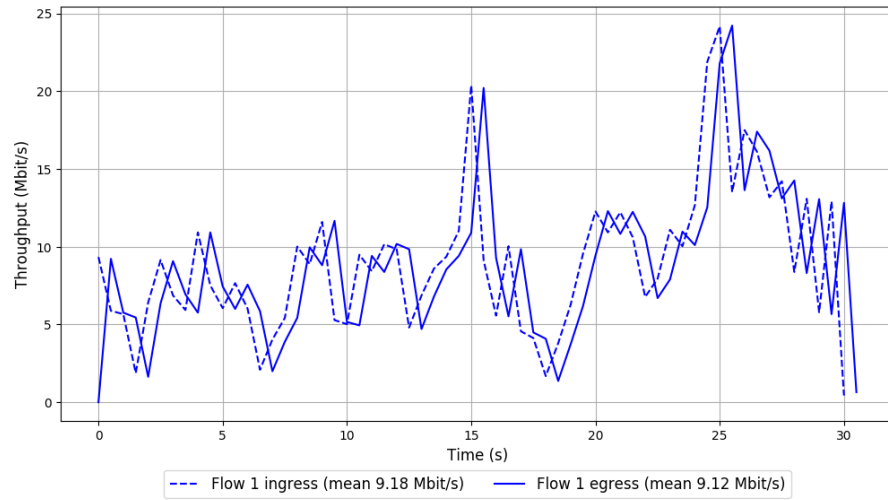Run 3: Report of TCP Vegas — Data Link

```
Run 4: Statistics of TCP Vegas

Start at: 2018-12-02 01:35:42
End at: 2018-12-02 01:36:12
Local clock offset: 0.359 ms
Remote clock offset: -2.911 ms


# Below is generated by plot.py at 2018-12-02 02:15:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.12 Mbit/s
95th percentile per-packet one-way delay: 6.328 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 9.12 Mbit/s
95th percentile per-packet one-way delay: 6.328 ms
Loss rate: 0.63%
```

Run 4: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 9.18 Mbit/s) --- Flow 1 egress (mean 9.12 Mbit/s)
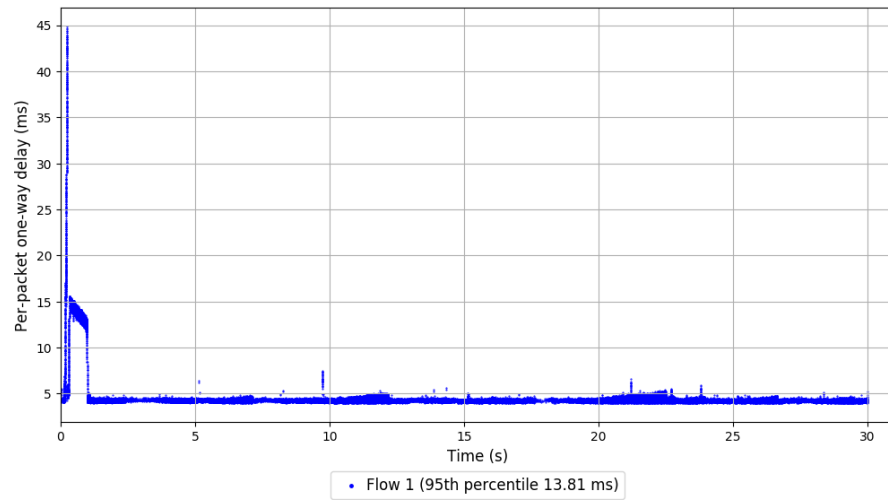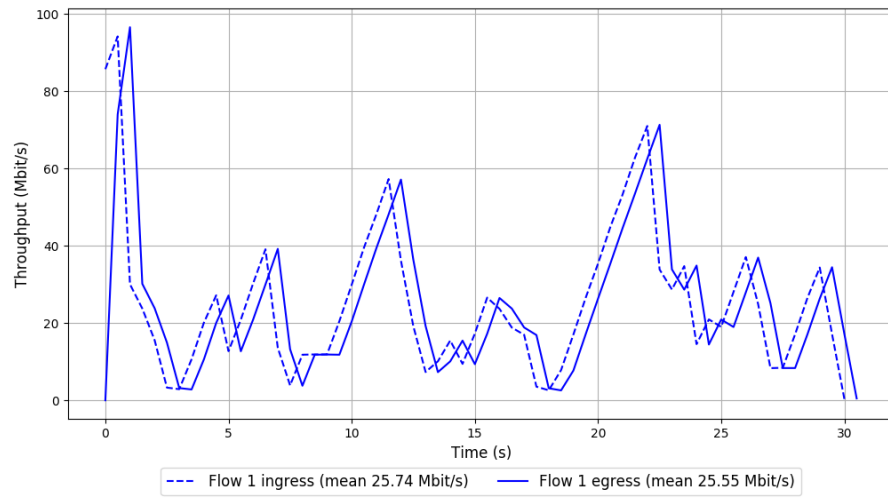

Flow 1 (95th percentile 6.33 ms)

```
Run 5: Statistics of TCP Vegas

Start at: 2018-12-02 01:57:25
End at: 2018-12-02 01:57:55
Local clock offset: 1.603 ms
Remote clock offset: -2.438 ms

# Below is generated by plot.py at 2018-12-02 02:15:26
# Datalink statistics
-- Total of 1 flow:
Average throughput: 25.55 Mbit/s
95th percentile per-packet one-way delay: 13.813 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 25.55 Mbit/s
95th percentile per-packet one-way delay: 13.813 ms
Loss rate: 0.77%
```

Run 5: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 25.74 Mbit/s)   Flow 1 egress (mean 25.55 Mbit/s)
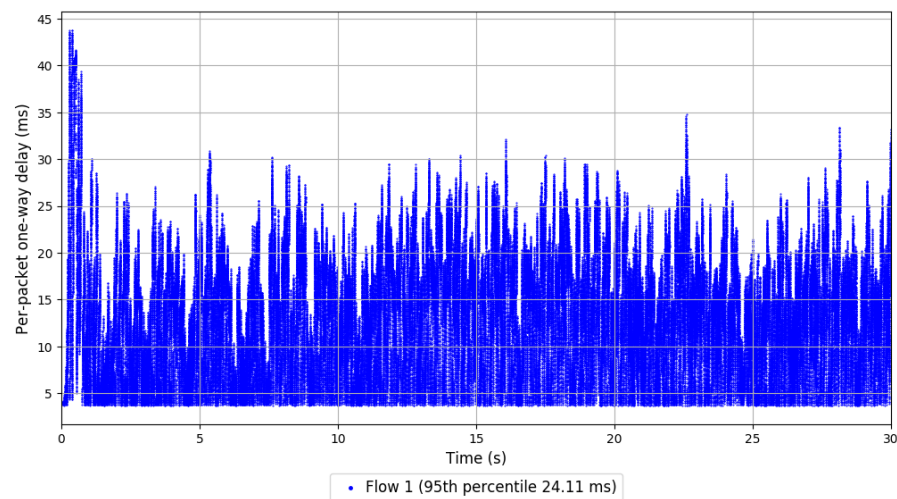
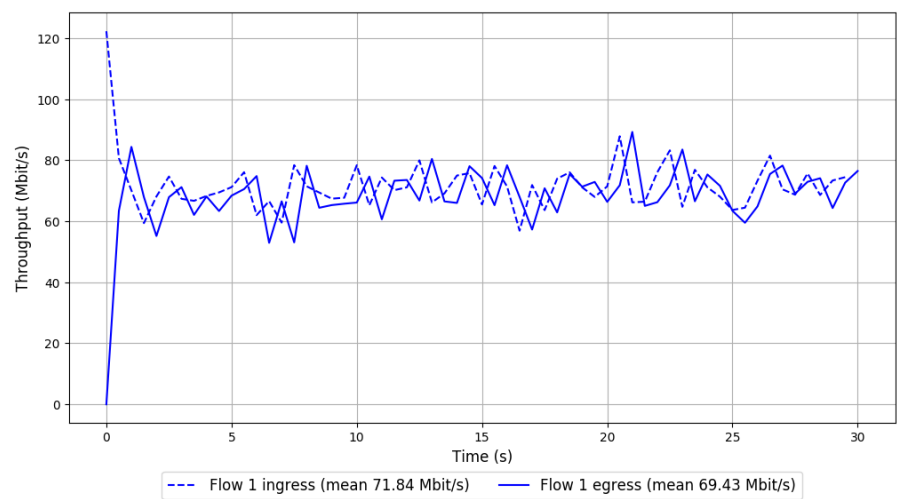

• Flow 1 (95th percentile 13.81 ms)

```
Run 1: Statistics of Verus

Start at: 2018-12-02 00:21:52
End at: 2018-12-02 00:22:22
Local clock offset: 1.79 ms
Remote clock offset: -4.368 ms


# Below is generated by plot.py at 2018-12-02 02:16:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 69.43 Mbit/s
95th percentile per-packet one-way delay: 24.112 ms
Loss rate: 3.26%
-- Flow 1:
Average throughput: 69.43 Mbit/s
95th percentile per-packet one-way delay: 24.112 ms
Loss rate: 3.26%
```
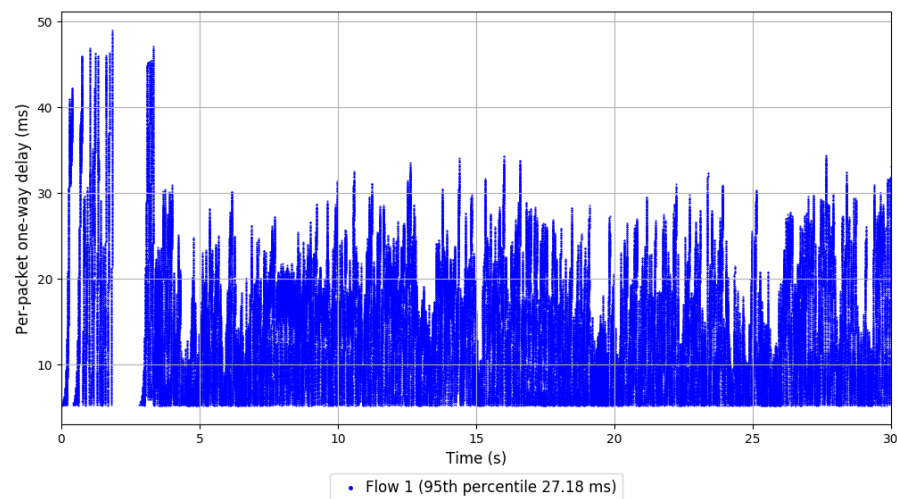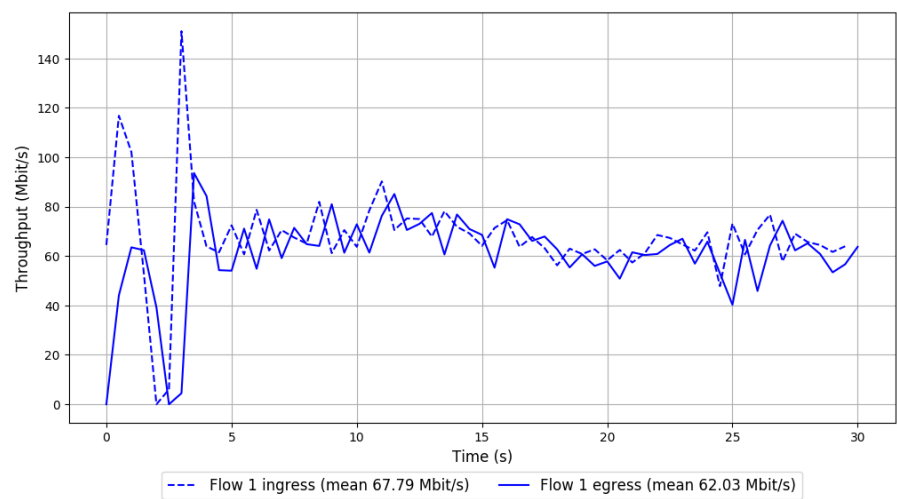
Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2018-12-02 00:43:33
End at: 2018-12-02 00:44:03
Local clock offset: 0.141 ms
Remote clock offset: -3.899 ms


# Below is generated by plot.py at 2018-12-02 02:16:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 62.03 Mbit/s
95th percentile per-packet one-way delay: 27.184 ms
Loss rate: 8.42%
-- Flow 1:
Average throughput: 62.03 Mbit/s
95th percentile per-packet one-way delay: 27.184 ms
Loss rate: 8.42%
```

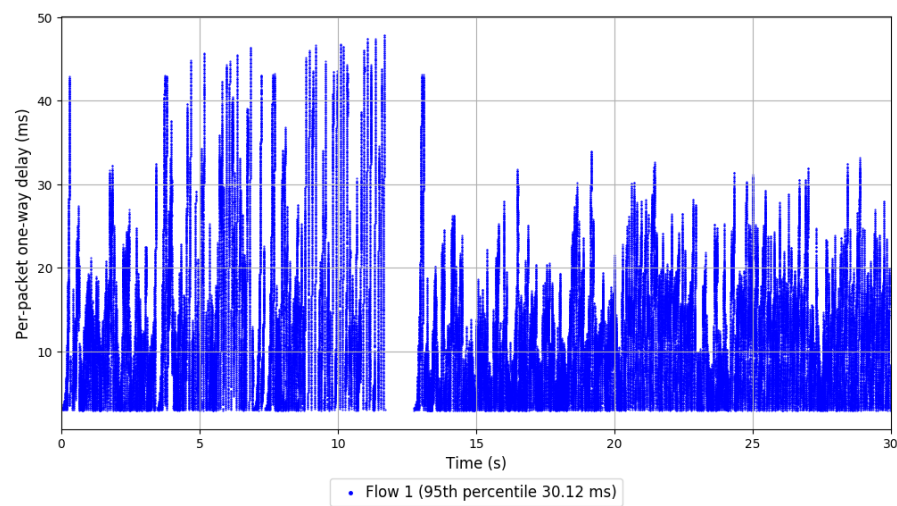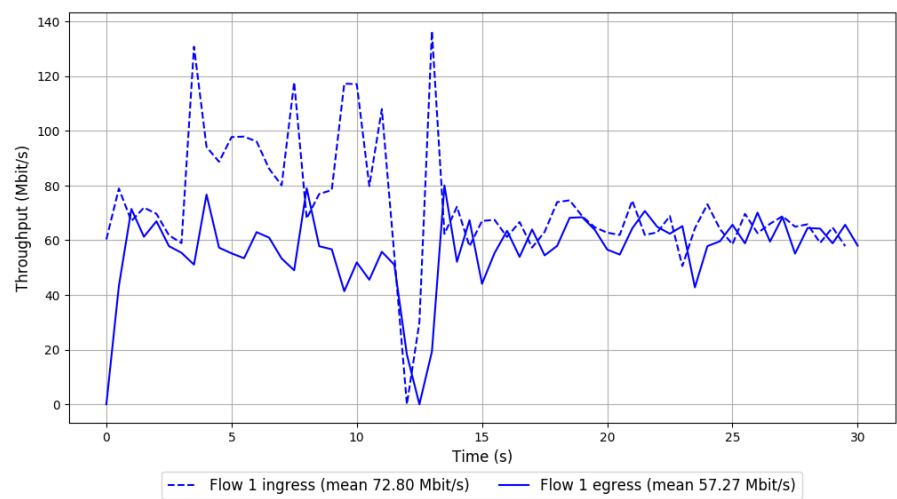## Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-12-02 01:05:30
End at: 2018-12-02 01:06:00
Local clock offset: 4.2 ms
Remote clock offset: -3.479 ms


# Below is generated by plot.py at 2018-12-02 02:16:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 57.27 Mbit/s
95th percentile per-packet one-way delay: 30.125 ms
Loss rate: 21.32%
-- Flow 1:
Average throughput: 57.27 Mbit/s
95th percentile per-packet one-way delay: 30.125 ms
Loss rate: 21.32%
```

Run 3: Report of Verus — Data Link

Flow 1 ingress (mean 72.80 Mbit/s) --- Flow 1 egress (mean 57.27 Mbit/s)

Flow 1 (95th percentile 30.12 ms)

```
Run 4: Statistics of Verus

Start at: 2018-12-02 01:27:33
End at: 2018-12-02 01:28:03
Local clock offset: 3.477 ms
Remote clock offset: -3.26 ms


# Below is generated by plot.py at 2018-12-02 02:16:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 63.52 Mbit/s
95th percentile per-packet one-way delay: 25.322 ms
Loss rate: 12.20%
-- Flow 1:
Average throughput: 63.52 Mbit/s
95th percentile per-packet one-way delay: 25.322 ms
Loss rate: 12.20%
```
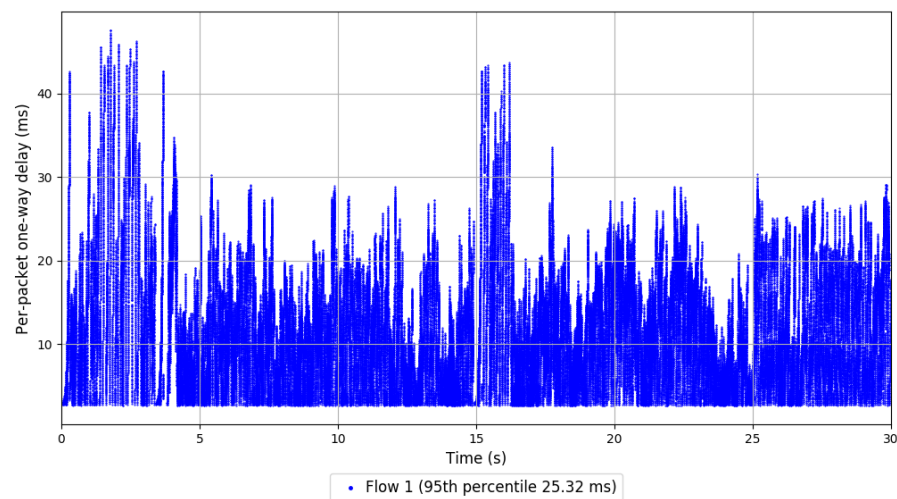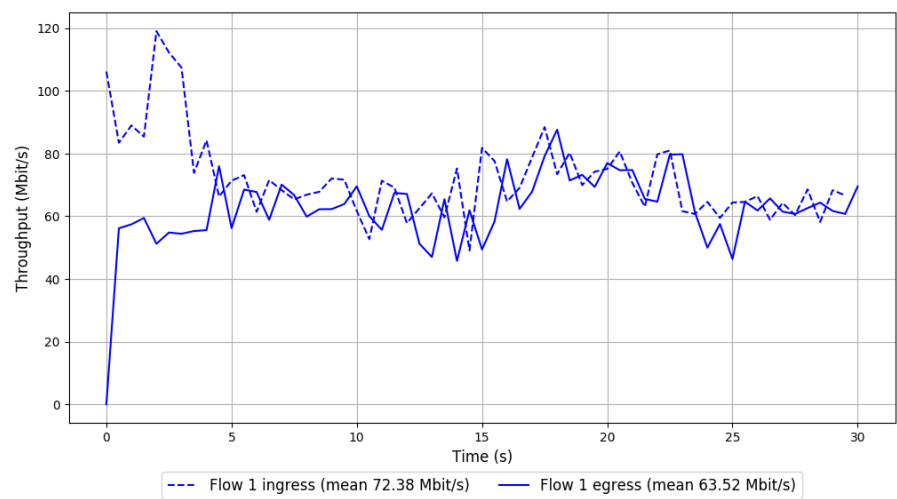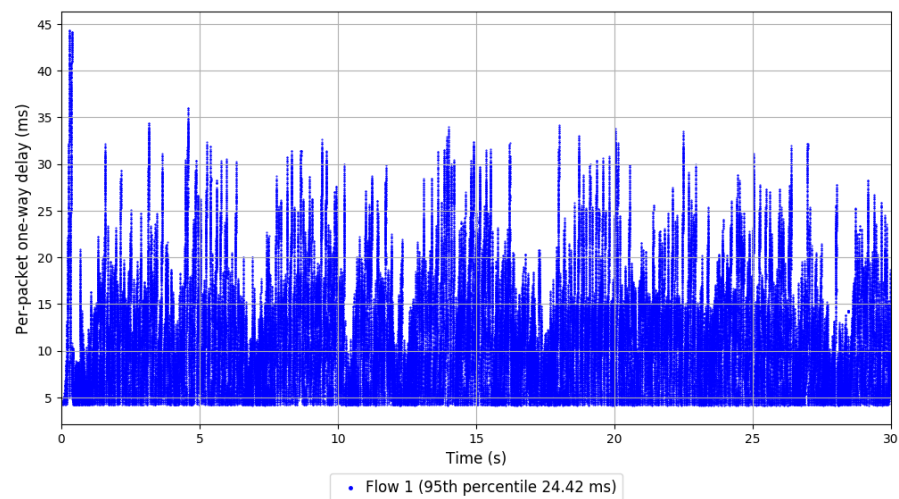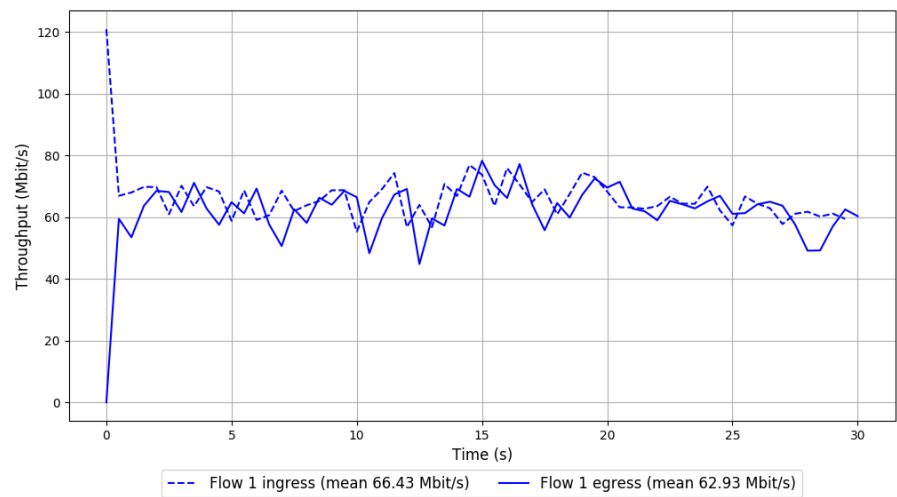
Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2018-12-02 01:49:25
End at: 2018-12-02 01:49:55
Local clock offset: 1.399 ms
Remote clock offset: -3.055 ms


# Below is generated by plot.py at 2018-12-02 02:16:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 62.93 Mbit/s
95th percentile per-packet one-way delay: 24.423 ms
Loss rate: 5.23%
-- Flow 1:
Average throughput: 62.93 Mbit/s
95th percentile per-packet one-way delay: 24.423 ms
Loss rate: 5.23%
```

Run 5: Report of Verus — Data Link

```
Run 1: Statistics of PCC-Vivace

Start at: 2018-12-02 00:40:04
End at: 2018-12-02 00:40:34
Local clock offset: 0.189 ms
Remote clock offset: -4.591 ms


# Below is generated by plot.py at 2018-12-02 02:16:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 43.85 Mbit/s
95th percentile per-packet one-way delay: 5.171 ms
Loss rate: 7.77%
-- Flow 1:
Average throughput: 43.85 Mbit/s
95th percentile per-packet one-way delay: 5.171 ms
Loss rate: 7.77%
```
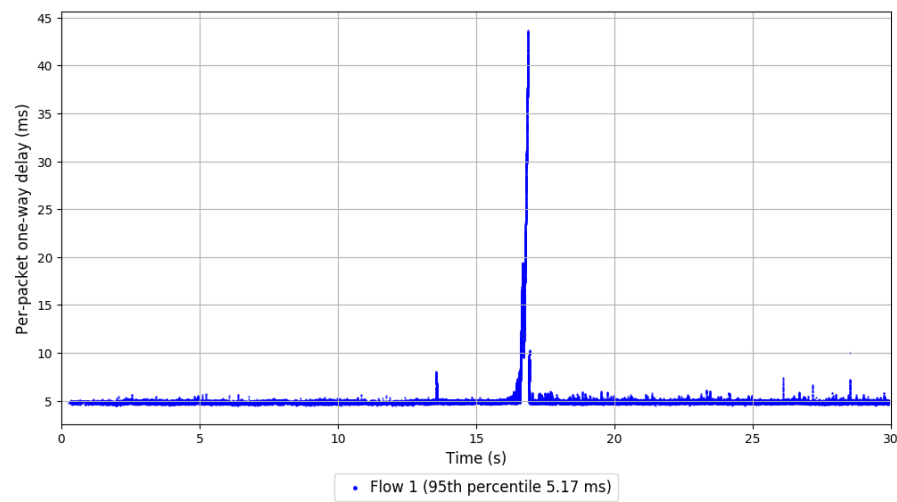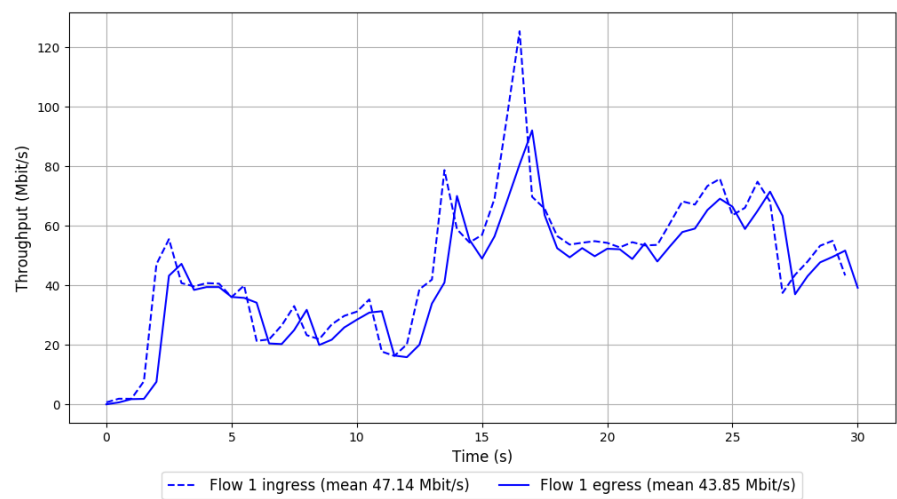
Run 1: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 47.14 Mbit/s) ----   Flow 1 egress (mean 43.85 Mbit/s) ——
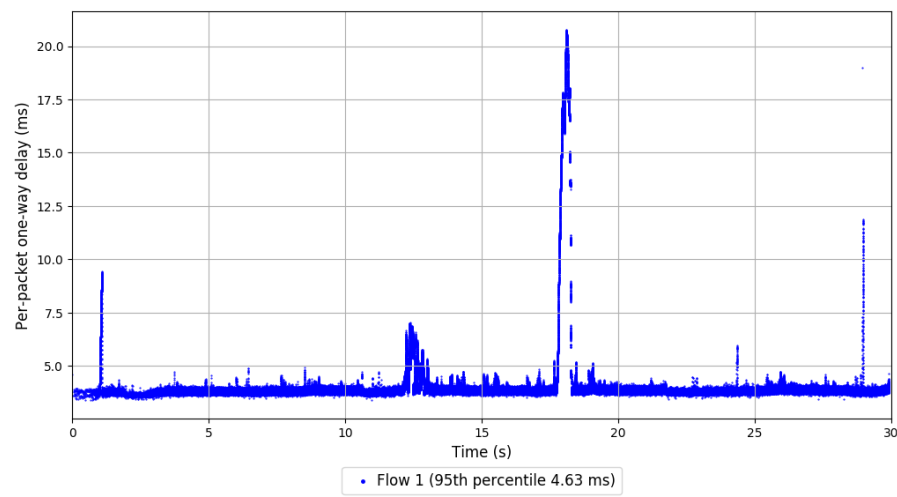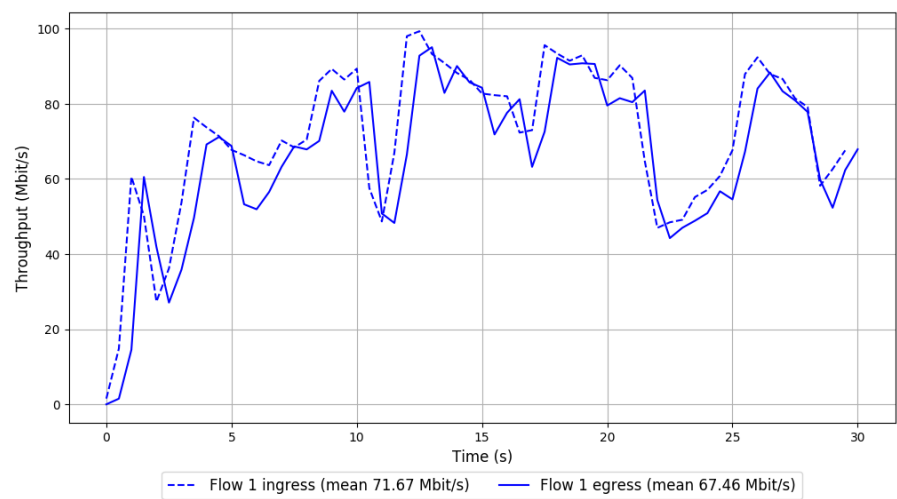

Flow 1 (95th percentile 5.17 ms)

```
Run 2: Statistics of PCC-Vivace

Start at: 2018-12-02 01:01:52
End at: 2018-12-02 01:02:22
Local clock offset: 2.717 ms
Remote clock offset: -4.124 ms


# Below is generated by plot.py at 2018-12-02 02:16:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 67.46 Mbit/s
95th percentile per-packet one-way delay: 4.627 ms
Loss rate: 5.87%
-- Flow 1:
Average throughput: 67.46 Mbit/s
95th percentile per-packet one-way delay: 4.627 ms
Loss rate: 5.87%
```

Run 2: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 71.67 Mbit/s)   Flow 1 egress (mean 67.46 Mbit/s)

Flow 1 (95th percentile 4.63 ms)

```
Run 3: Statistics of PCC-Vivace

Start at: 2018-12-02 01:24:05
End at: 2018-12-02 01:24:35
Local clock offset: 3.511 ms
Remote clock offset: -4.047 ms


# Below is generated by plot.py at 2018-12-02 02:16:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 61.44 Mbit/s
95th percentile per-packet one-way delay: 2.792 ms
Loss rate: 7.82%
-- Flow 1:
Average throughput: 61.44 Mbit/s
95th percentile per-packet one-way delay: 2.792 ms
Loss rate: 7.82%
```
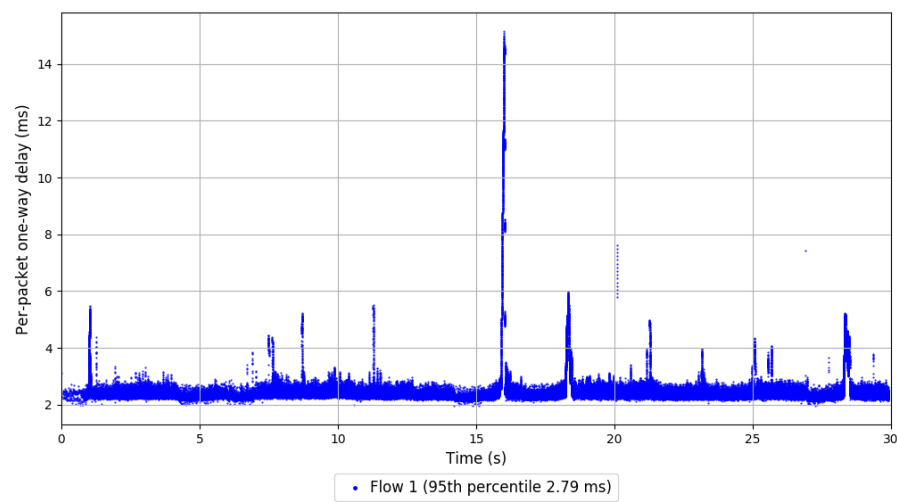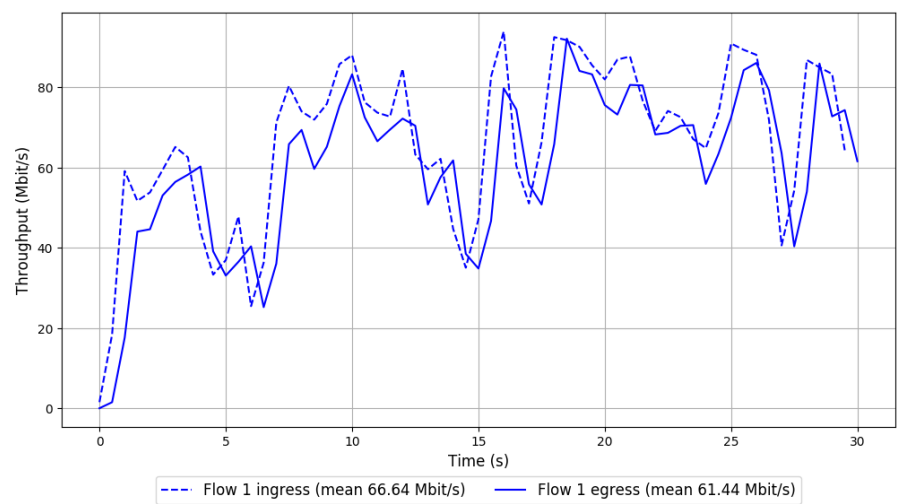
Run 3: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 66.64 Mbit/s) ----- Flow 1 egress (mean 61.44 Mbit/s)

Flow 1 (95th percentile 2.79 ms)

```
Run 4: Statistics of PCC-Vivace

Start at: 2018-12-02 01:45:58
End at: 2018-12-02 01:46:28
Local clock offset: 4.304 ms
Remote clock offset: -3.536 ms

# Below is generated by plot.py at 2018-12-02 02:16:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 36.27 Mbit/s
95th percentile per-packet one-way delay: 1.543 ms
Loss rate: 9.54%
-- Flow 1:
Average throughput: 36.27 Mbit/s
95th percentile per-packet one-way delay: 1.543 ms
Loss rate: 9.54%
```
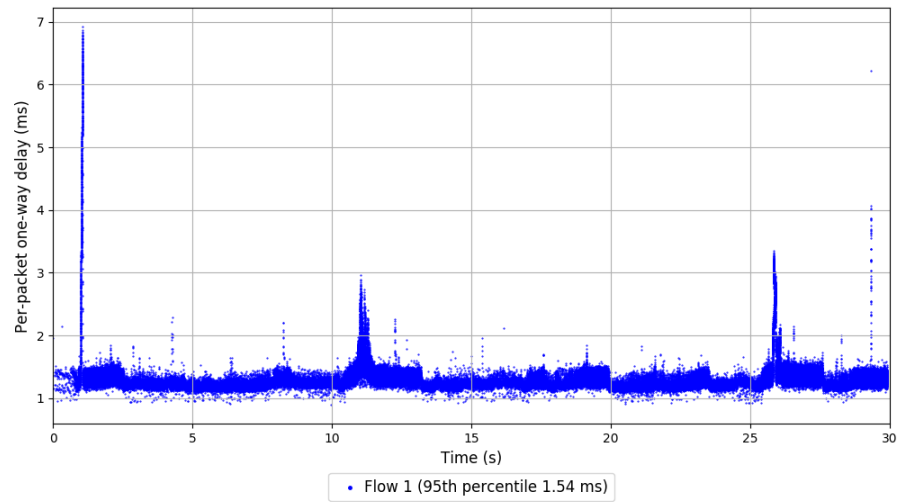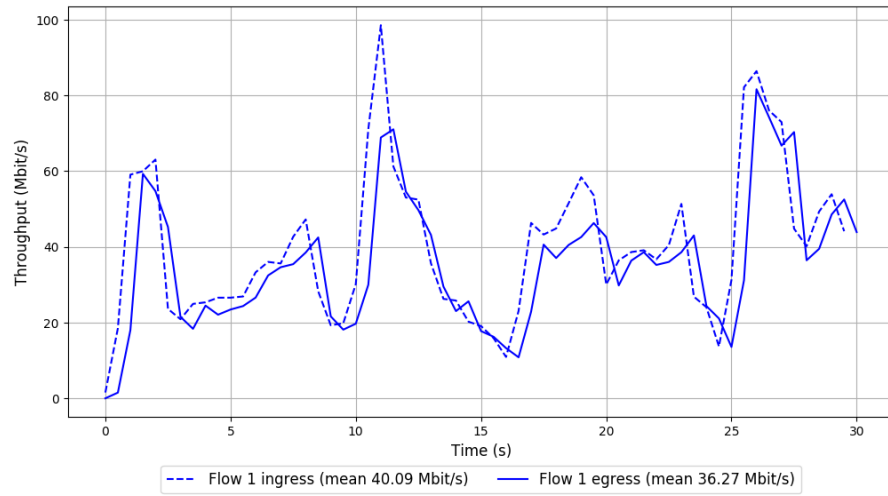
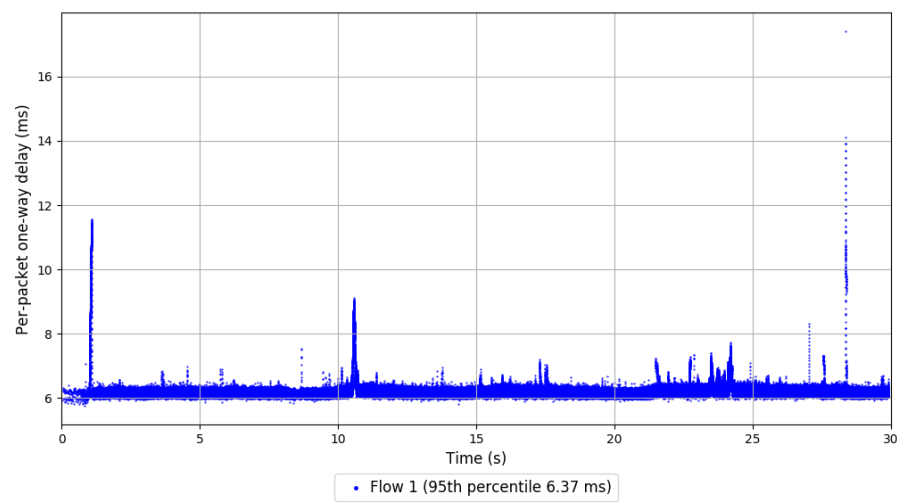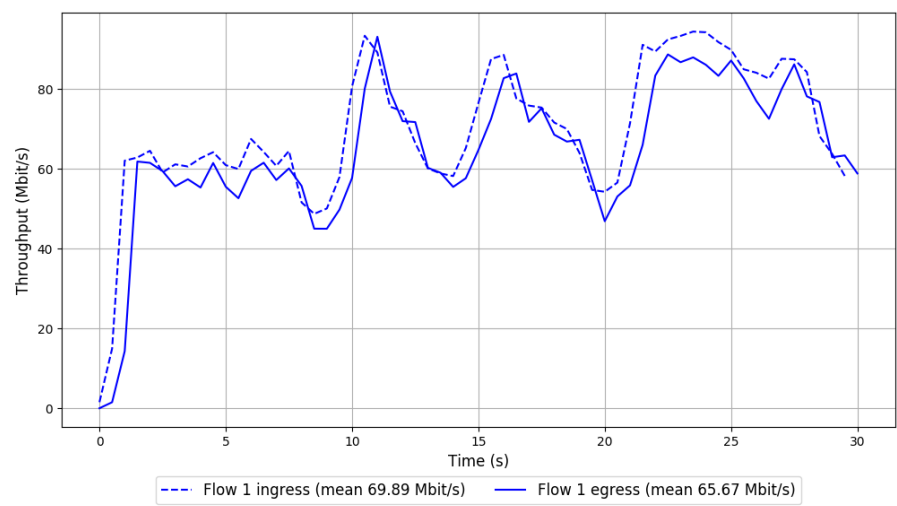# Run 4: Report of PCC-Vivace — Data Link

```
Run 5: Statistics of PCC-Vivace

Start at: 2018-12-02 02:07:29
End at: 2018-12-02 02:07:59
Local clock offset: -1.229 ms
Remote clock offset: -2.912 ms


# Below is generated by plot.py at 2018-12-02 02:16:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 65.67 Mbit/s
95th percentile per-packet one-way delay: 6.368 ms
Loss rate: 6.04%
-- Flow 1:
Average throughput: 65.67 Mbit/s
95th percentile per-packet one-way delay: 6.368 ms
Loss rate: 6.04%
```

Run 5: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 69.89 Mbit/s)   Flow 1 egress (mean 65.67 Mbit/s)

Flow 1 (95th percentile 6.37 ms)

```
Run 1: Statistics of WebRTC media

Start at: 2018-12-02 00:27:36
End at: 2018-12-02 00:28:06
Local clock offset: 0.356 ms
Remote clock offset: -3.75 ms


# Below is generated by plot.py at 2018-12-02 02:16:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.40 Mbit/s
95th percentile per-packet one-way delay: 6.275 ms
Loss rate: 1.35%
-- Flow 1:
Average throughput: 2.40 Mbit/s
95th percentile per-packet one-way delay: 6.275 ms
Loss rate: 1.35%
```
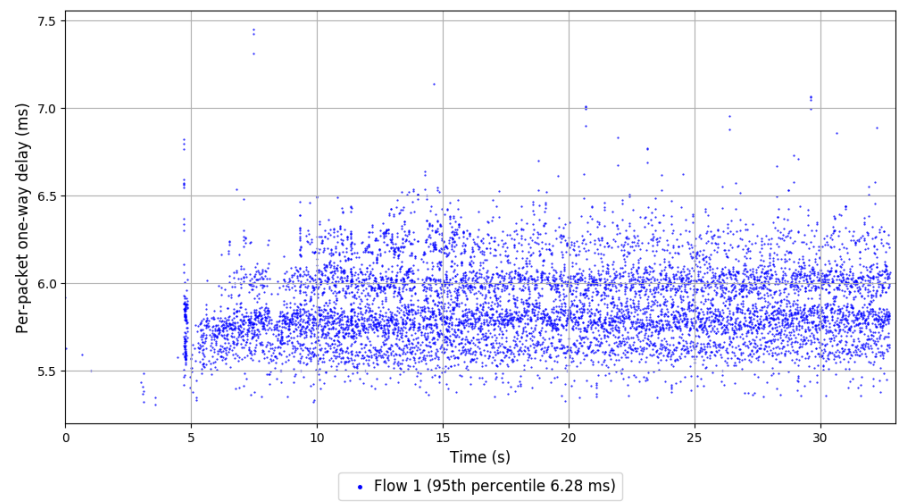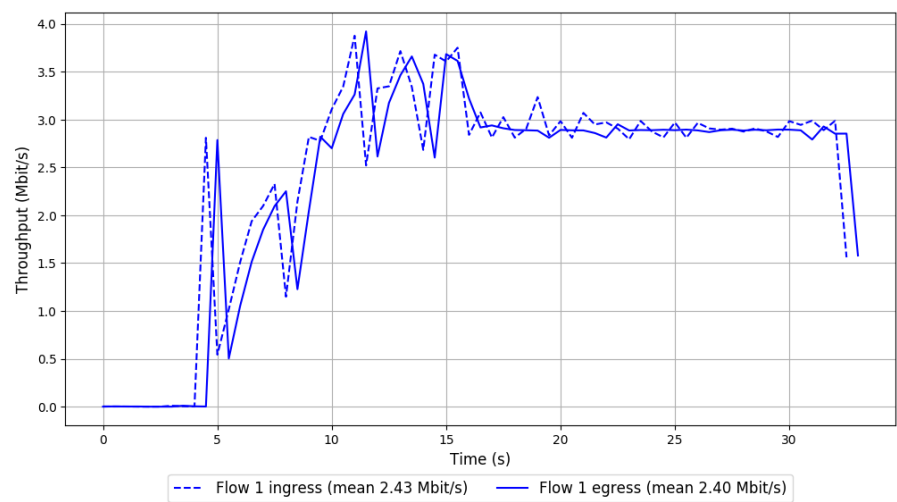
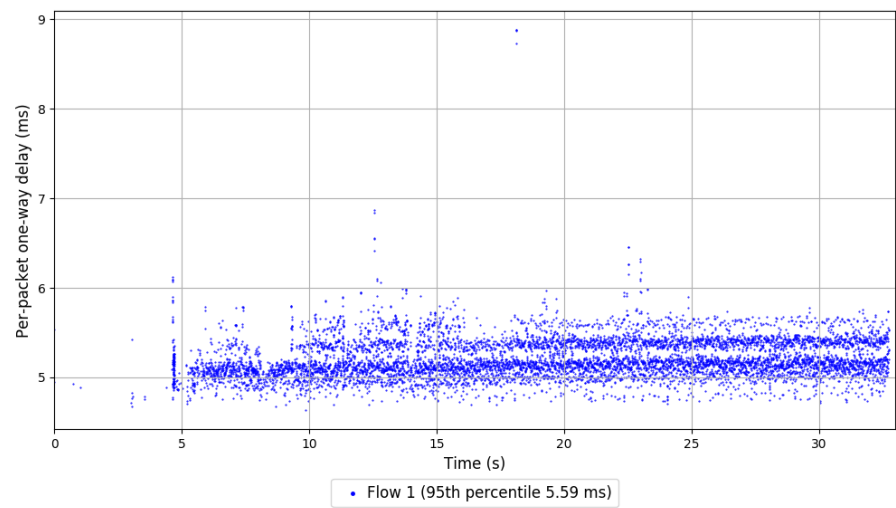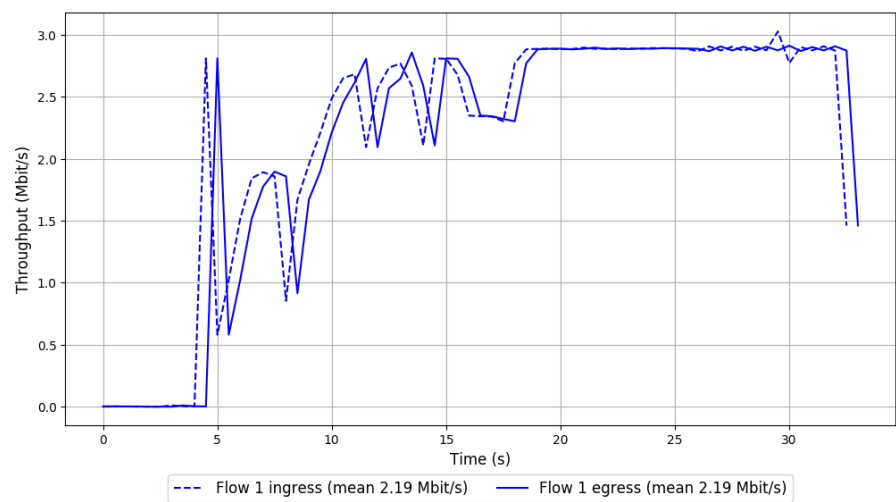Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2018-12-02 00:49:22
End at: 2018-12-02 00:49:52
Local clock offset: 0.754 ms
Remote clock offset: -3.915 ms


# Below is generated by plot.py at 2018-12-02 02:16:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.19 Mbit/s
95th percentile per-packet one-way delay: 5.592 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 2.19 Mbit/s
95th percentile per-packet one-way delay: 5.592 ms
Loss rate: 0.04%
```

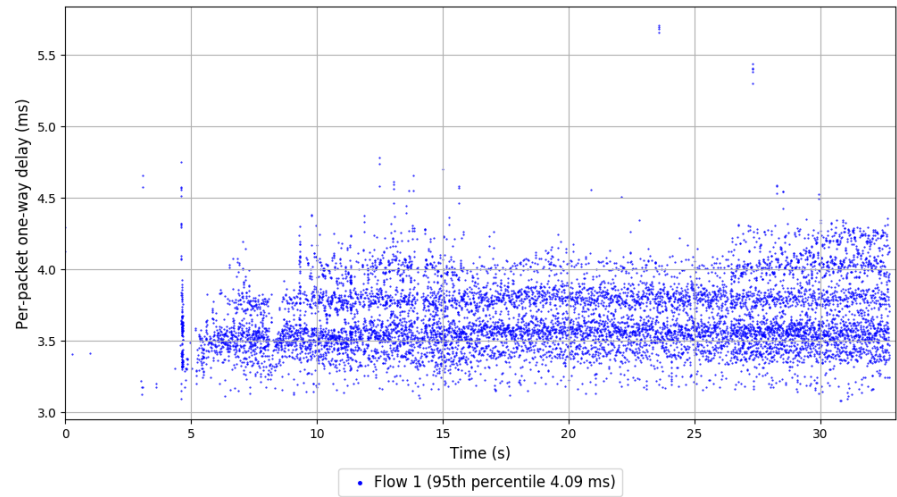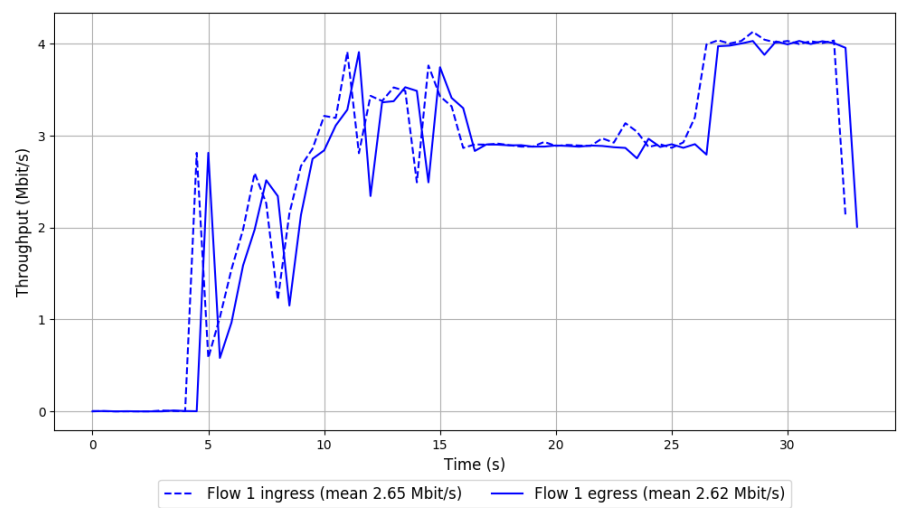Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-12-02 01:11:31
End at: 2018-12-02 01:12:01
Local clock offset: 4.221 ms
Remote clock offset: -3.255 ms


# Below is generated by plot.py at 2018-12-02 02:16:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.62 Mbit/s
95th percentile per-packet one-way delay: 4.088 ms
Loss rate: 1.35%
-- Flow 1:
Average throughput: 2.62 Mbit/s
95th percentile per-packet one-way delay: 4.088 ms
Loss rate: 1.35%
```

Run 3: Report of WebRTC media — Data Link

Flow 1 ingress (mean 2.65 Mbit/s) —— Flow 1 egress (mean 2.62 Mbit/s)
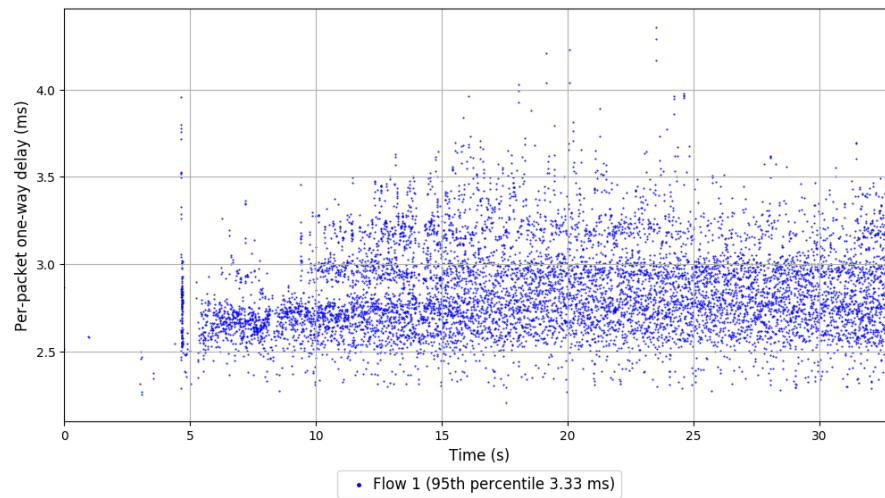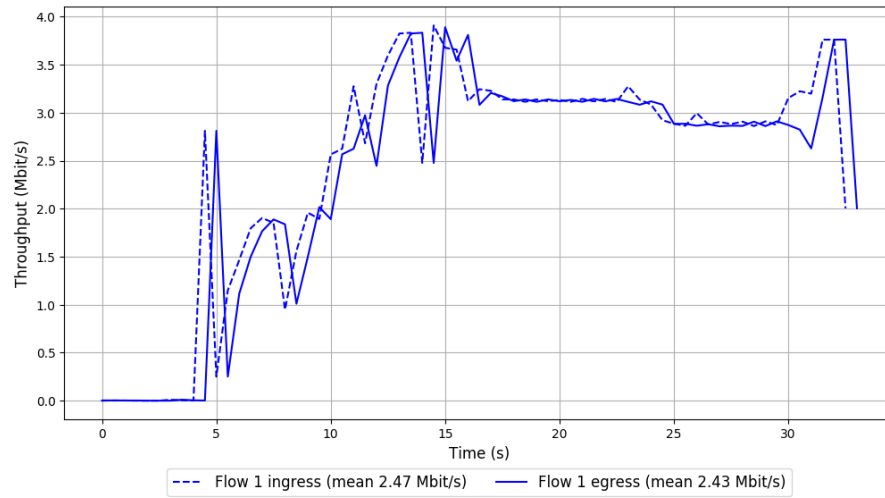

• Flow 1 (95th percentile 4.09 ms)

```
Run 4: Statistics of WebRTC media

Start at: 2018-12-02 01:33:27
End at: 2018-12-02 01:33:57
Local clock offset: -2.022 ms
Remote clock offset: -8.697 ms


# Below is generated by plot.py at 2018-12-02 02:16:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.43 Mbit/s
95th percentile per-packet one-way delay: 3.326 ms
Loss rate: 1.32%
-- Flow 1:
Average throughput: 2.43 Mbit/s
95th percentile per-packet one-way delay: 3.326 ms
Loss rate: 1.32%
```

Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2018-12-02 01:55:11
End at: 2018-12-02 01:55:41
Local clock offset: 1.699 ms
Remote clock offset: -3.011 ms


# Below is generated by plot.py at 2018-12-02 02:16:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.61 Mbit/s
95th percentile per-packet one-way delay: 4.243 ms
Loss rate: 0.48%
-- Flow 1:
Average throughput: 2.61 Mbit/s
95th percentile per-packet one-way delay: 4.243 ms
Loss rate: 0.48%
```

Run 5: Report of WebRTC media — Data Link

Flow 1 ingress (mean 2.62 Mbit/s) — Flow 1 egress (mean 2.61 Mbit/s)

• Flow 1 (95th percentile 4.24 ms)