Pantheon Report

Generated at 2018-01-16 00:13:56 (UTC).

Data path: AWS India 1 Ethernet (*local*) →India ppp0 (*remote*).

Repeated the test of 14 congestion control schemes 3 times.

Each test lasted for 30 seconds running 1 flow.

Increased UDP receive buffer to 16 MB (default) and 32 MB (max).
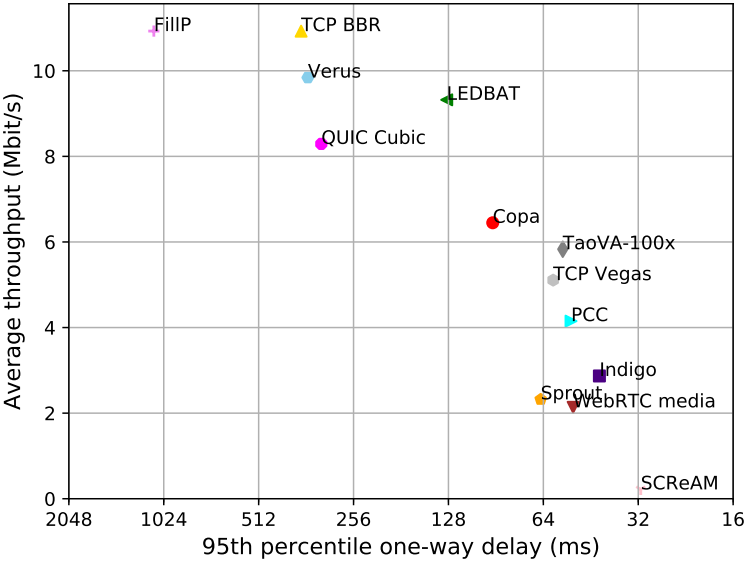
Tested BBR with qdisc of Fair Queuing (`fq`), and other schemes with the default Linux qdisc (`pfifo_fast`).

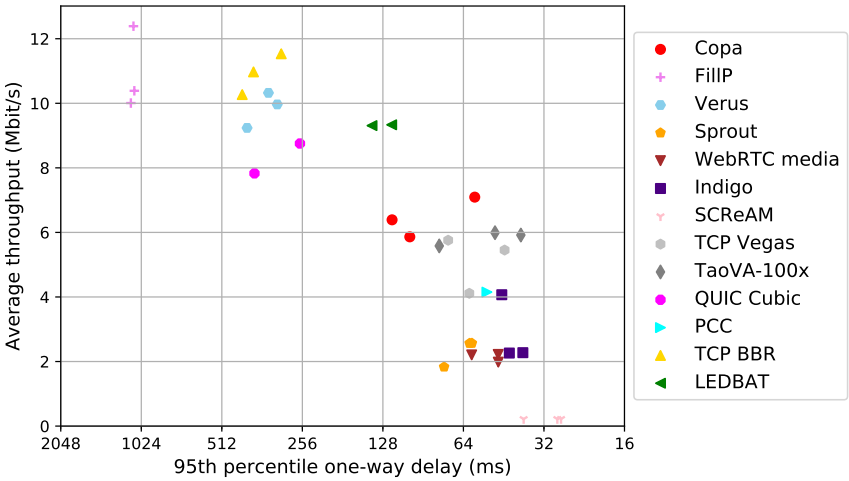NTP offsets were measured against `nets.org.sg` and have been applied to correct the timestamps in logs.

```
Git summary:
branch: master @ af8abdfba95588b0c5f2aeca9e856a1656b0c598
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
 M datagrump/sender.cc
third_party/fillp @ ec9585325218d5048c4d4152fa42240af54c6e67
third_party/genericCC @ 80b516c448f795fd6e9675f7177b69c622f07da8
third_party/indigo @ b19f3730105f9aa95452552af924e3719b03cc55
third_party/indigo-no-calib @ 7224f2202e8a044d8306fa0b983ad84360c53d89
third_party/koho_cc @ f0f2e693303aee82ea808e6928eac4f1083a6681
 M datagrump/sender.cc
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-tunnel @ fb1053193c2861da659ba9013db26744ccfcf993
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/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream @ c3370fd7bd17265a79aeb34e4016ad23f5965885
third_party/sourdough @ f1a14bffe749737437f61b1eaeeb30b267cde681
third_party/sprout @ 6f2efe6e088d91066a9f023df375eee2665089ce
 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 @ 423cbca3e8ea1d599e7b5cf725835e8a2b6bfac6
third_party/webrtc @ a488197ddd041ace68a42849b2540ad834825f42
```

test from AWS India 1 Ethernet to India ppp0, 3 runs of 30s each per scheme
(mean of all runs by scheme)

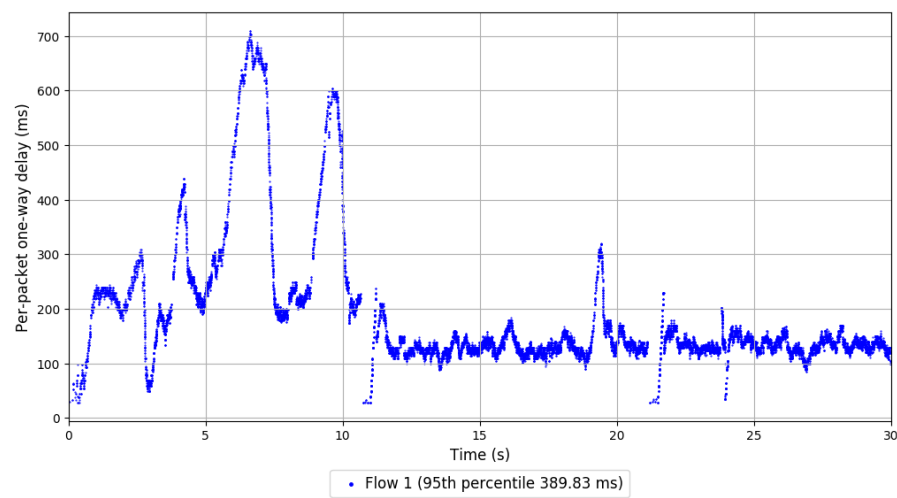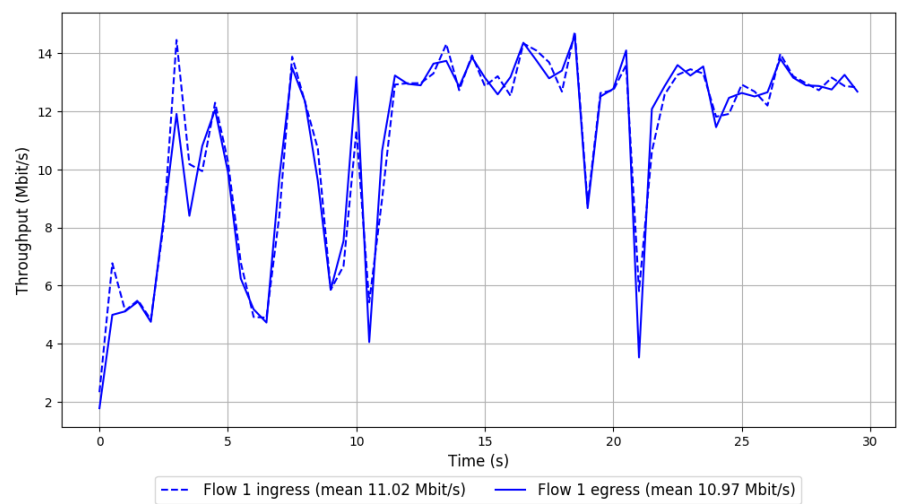test from AWS India 1 Ethernet to India ppp0, 3 runs of 30s each per scheme

2

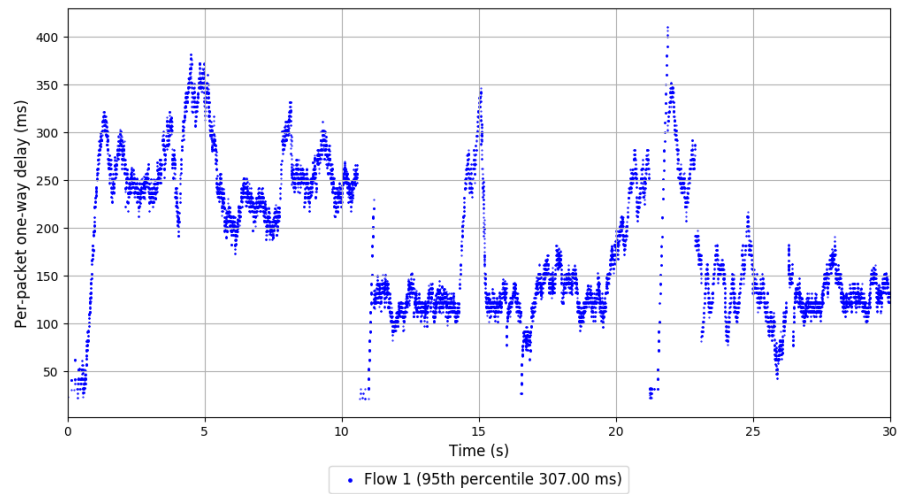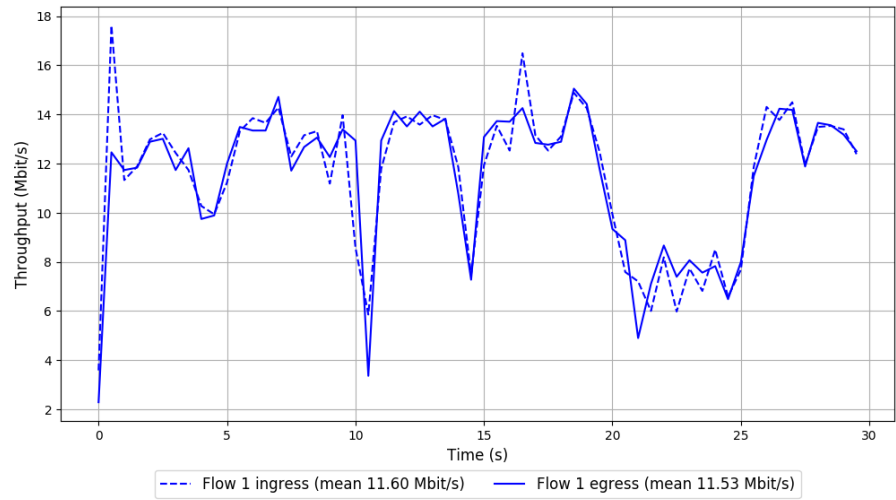| scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	10.92	375.45	0.66
TCP Cubic	0	N/A	N/A	N/A
LEDBAT	2	9.32	129.65	0.42
PCC	1	4.15	52.27	0.14
QUIC Cubic	2	8.29	323.99	1.95
SCReAM	3	0.22	31.42	0.13
WebRTC media	3	2.14	51.48	0.18
Sprout	3	2.32	65.26	0.50
TaoVA-100x	3	5.83	55.53	0.60
TCP Vegas	3	5.11	59.57	0.37
Verus	3	9.84	357.49	1.72
Copa	3	6.45	92.63	0.56
FillP	3	10.93	1100.93	80.38
Indigo	3	2.87	42.50	0.20

```
Run 1: Statistics of TCP BBR

Start at: 2018-01-15 23:24:29
End at: 2018-01-15 23:24:59
Local clock offset: -17.988 ms
Remote clock offset: -17.031 ms


# Below is generated by plot.py at 2018-01-16 00:13:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 10.97 Mbit/s
95th percentile per-packet one-way delay: 389.827 ms
Loss rate: 0.59%
-- Flow 1:
Average throughput: 10.97 Mbit/s
95th percentile per-packet one-way delay: 389.827 ms
Loss rate: 0.59%
```

Run 1: Report of TCP BBR — Data Link

Flow 1 ingress (mean 11.02 Mbit/s)   Flow 1 egress (mean 10.97 Mbit/s)
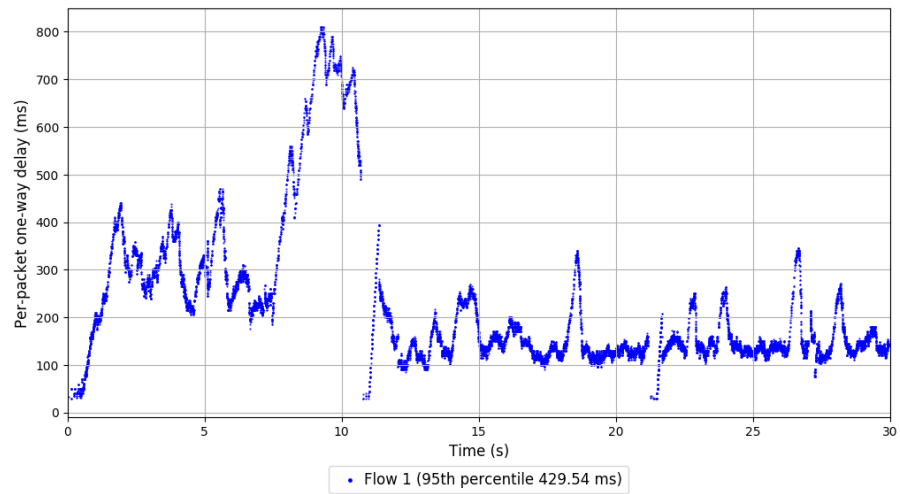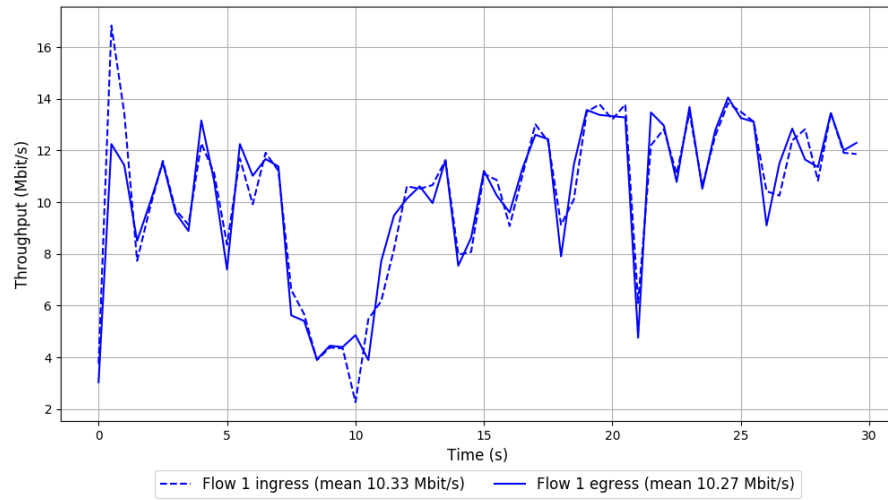

Flow 1 (95th percentile 389.83 ms)

```
Run 2: Statistics of TCP BBR

Start at: 2018-01-15 23:41:02
End at: 2018-01-15 23:41:32
Local clock offset: -8.39 ms
Remote clock offset: -16.508 ms


# Below is generated by plot.py at 2018-01-16 00:13:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.53 Mbit/s
95th percentile per-packet one-way delay: 306.995 ms
Loss rate: 0.72%
-- Flow 1:
Average throughput: 11.53 Mbit/s
95th percentile per-packet one-way delay: 306.995 ms
Loss rate: 0.72%
```

Run 2: Report of TCP BBR — Data Link

Flow 1 ingress (mean 11.60 Mbit/s) ----- Flow 1 egress (mean 11.53 Mbit/s)
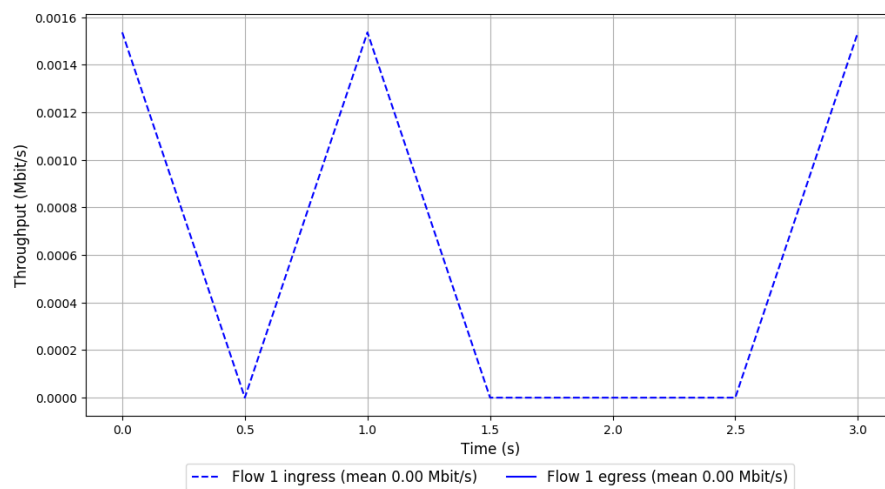

• Flow 1 (95th percentile 307.00 ms)

```
Run 3: Statistics of TCP BBR

Start at: 2018-01-15 23:57:22
End at: 2018-01-15 23:57:52
Local clock offset: -12.856 ms
Remote clock offset: -17.599 ms


# Below is generated by plot.py at 2018-01-16 00:13:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 10.27 Mbit/s
95th percentile per-packet one-way delay: 429.538 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 10.27 Mbit/s
95th percentile per-packet one-way delay: 429.538 ms
Loss rate: 0.66%
```

Run 3: Report of TCP BBR — Data Link

Flow 1 ingress (mean 10.33 Mbit/s)   Flow 1 egress (mean 10.27 Mbit/s)

• Flow 1 (95th percentile 429.54 ms)

Run 1: Statistics of TCP Cubic

Start at: 2018-01-15 23:34:30
End at: 2018-01-15 23:35:00
Local clock offset: -8.716 ms
Remote clock offset: -17.56 ms

Run 1: Report of TCP Cubic — Data Link

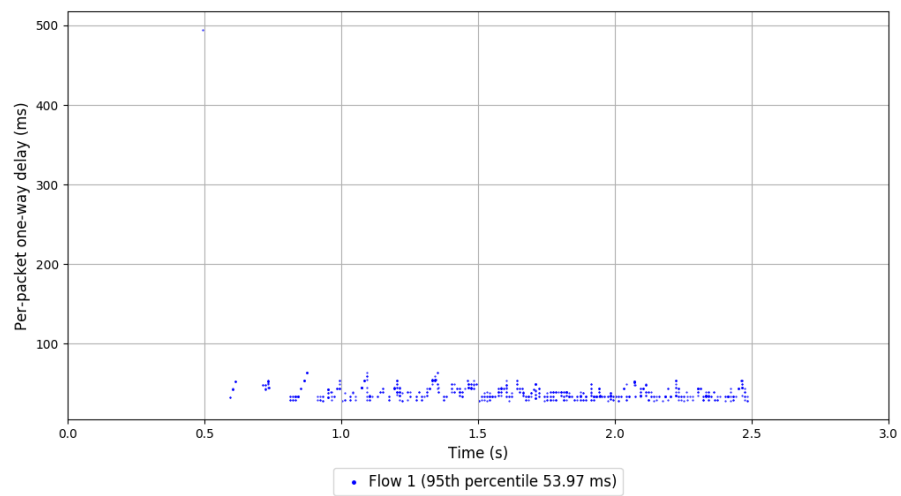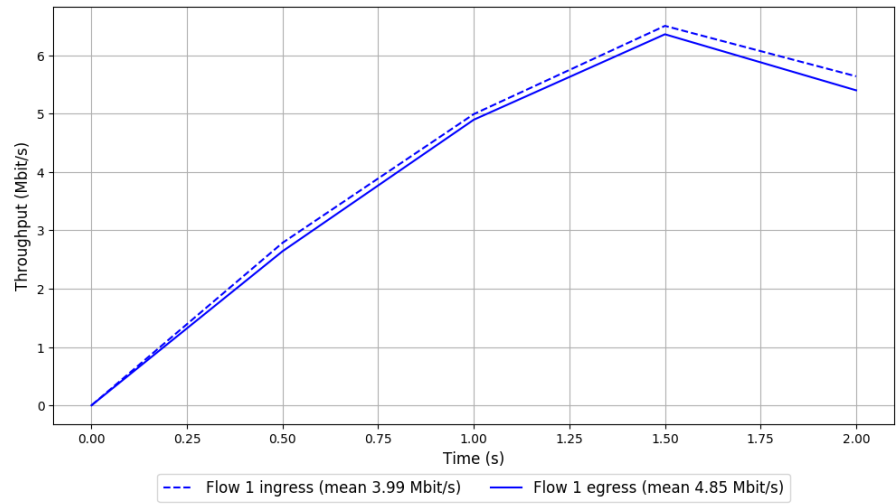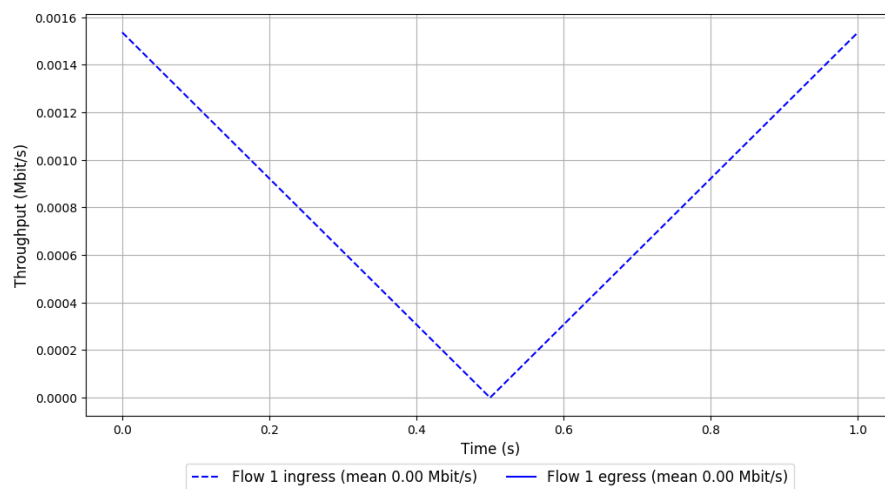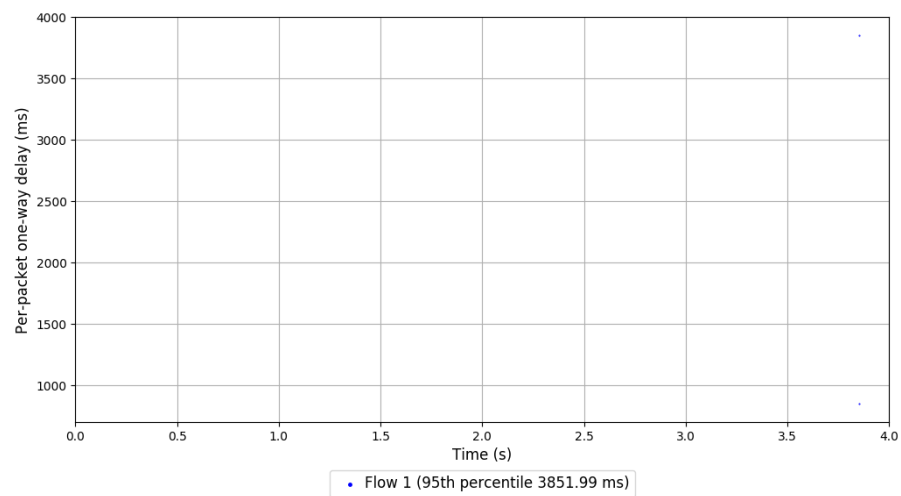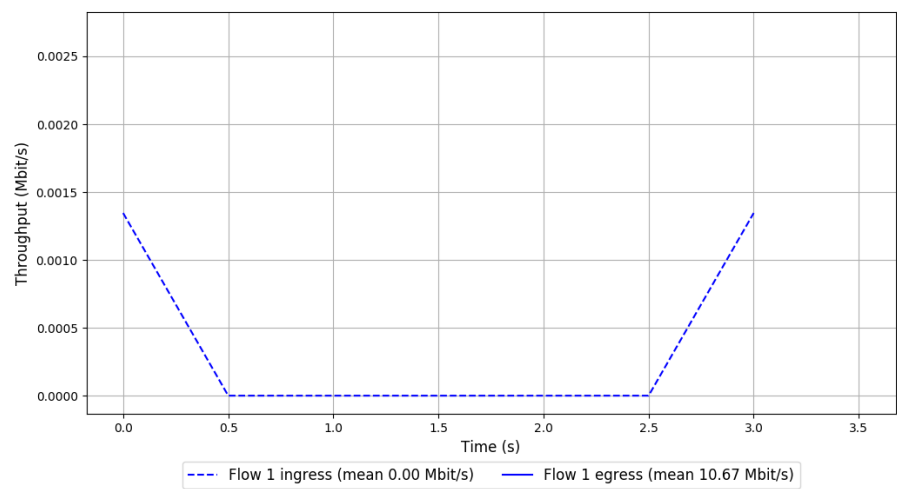Figure is missing

```
Run 2: Statistics of TCP Cubic

Start at: 2018-01-15 23:50:50
End at: 2018-01-15 23:51:20
Local clock offset: -7.56 ms
Remote clock offset: -16.688 ms
```

Run 2: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 3.99 Mbit/s)   Flow 1 egress (mean 4.85 Mbit/s)

• Flow 1 (95th percentile 53.97 ms)

```
Run 3: Statistics of TCP Cubic

Start at: 2018-01-16 00:07:09
End at: 2018-01-16 00:07:39
Local clock offset: -13.746 ms
Remote clock offset: -16.705 ms
```

Run 3: Report of TCP Cubic — Data Link

Figure is missing

```
Run 1: Statistics of LEDBAT

Start at: 2018-01-15 23:29:57
End at: 2018-01-15 23:30:27
Local clock offset: -13.341 ms
Remote clock offset: -17.853 ms
```
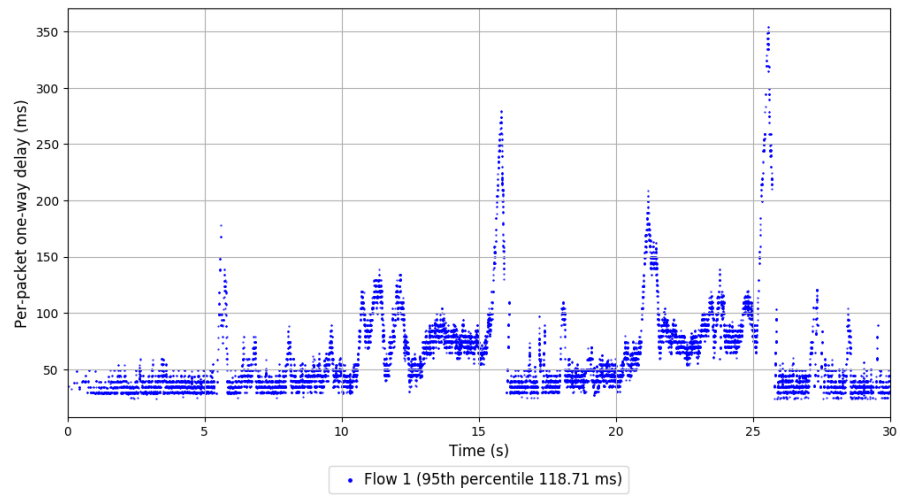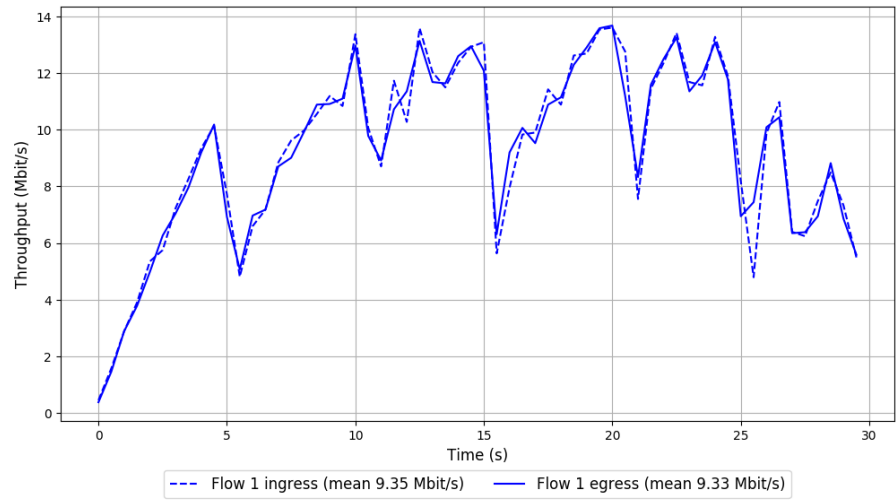
Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2018-01-15 23:46:28
End at: 2018-01-15 23:46:58
Local clock offset: -9.745 ms
Remote clock offset: -17.365 ms

# Below is generated by plot.py at 2018-01-16 00:13:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.33 Mbit/s
95th percentile per-packet one-way delay: 118.706 ms
Loss rate: 0.37%
-- Flow 1:
Average throughput: 9.33 Mbit/s
95th percentile per-packet one-way delay: 118.706 ms
Loss rate: 0.37%
```

Run 2: Report of LEDBAT — Data Link

Flow 1 ingress (mean 9.35 Mbit/s) Flow 1 egress (mean 9.33 Mbit/s)

Flow 1 (95th percentile 118.71 ms)

```
Run 3: Statistics of LEDBAT

Start at: 2018-01-16 00:02:47
End at: 2018-01-16 00:03:17
Local clock offset: -12.375 ms
Remote clock offset: -17.386 ms


# Below is generated by plot.py at 2018-01-16 00:13:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.31 Mbit/s
95th percentile per-packet one-way delay: 140.600 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 9.31 Mbit/s
95th percentile per-packet one-way delay: 140.600 ms
Loss rate: 0.46%
```
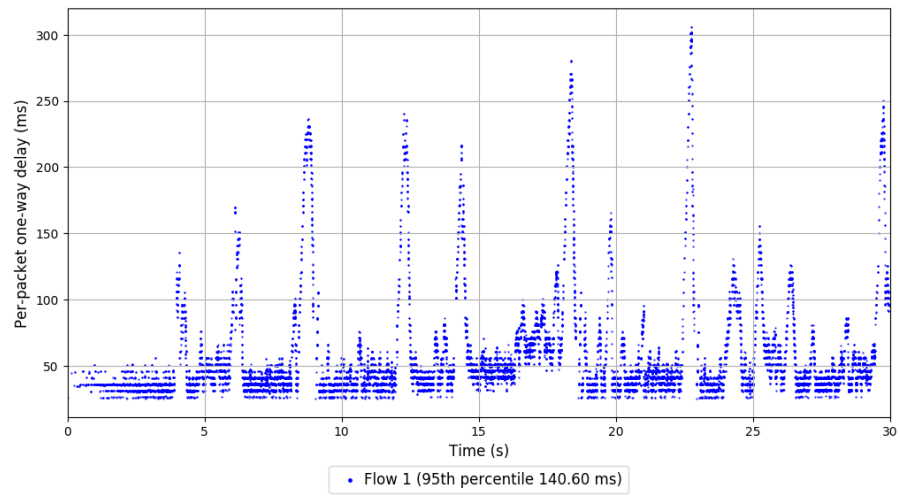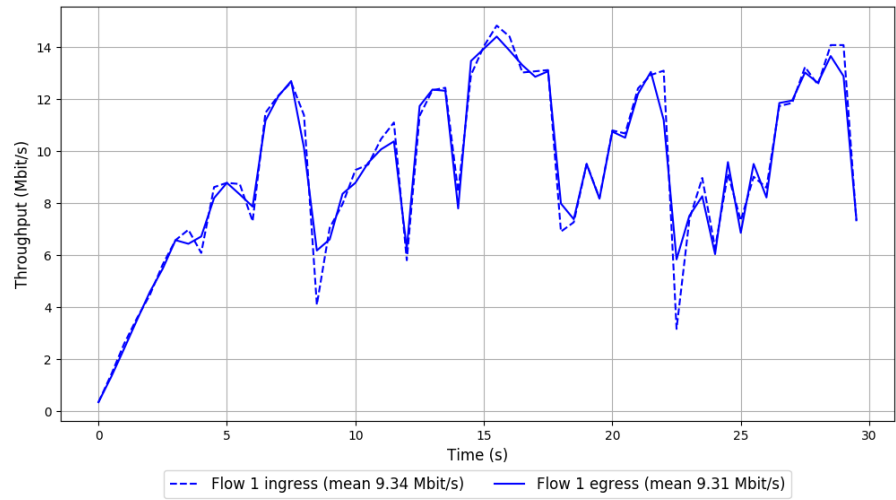
Run 3: Report of LEDBAT — Data Link

Flow 1 ingress (mean 9.34 Mbit/s)   Flow 1 egress (mean 9.31 Mbit/s)

Flow 1 (95th percentile 140.60 ms)

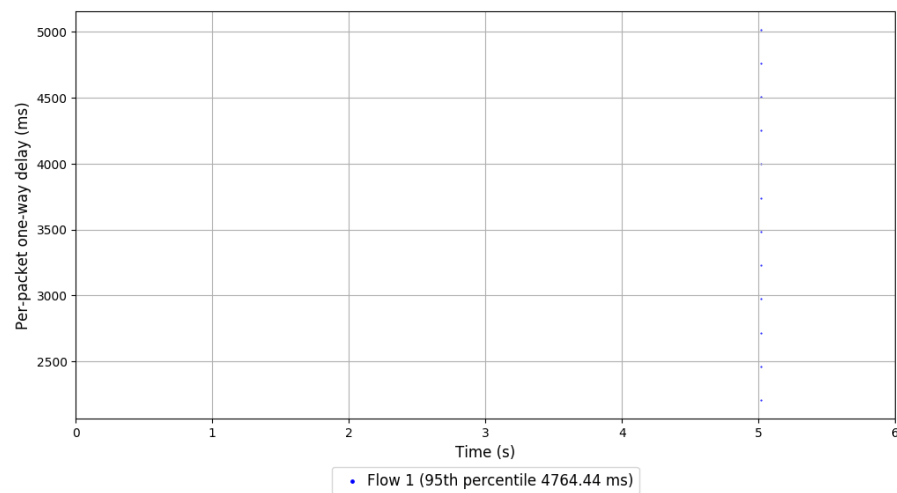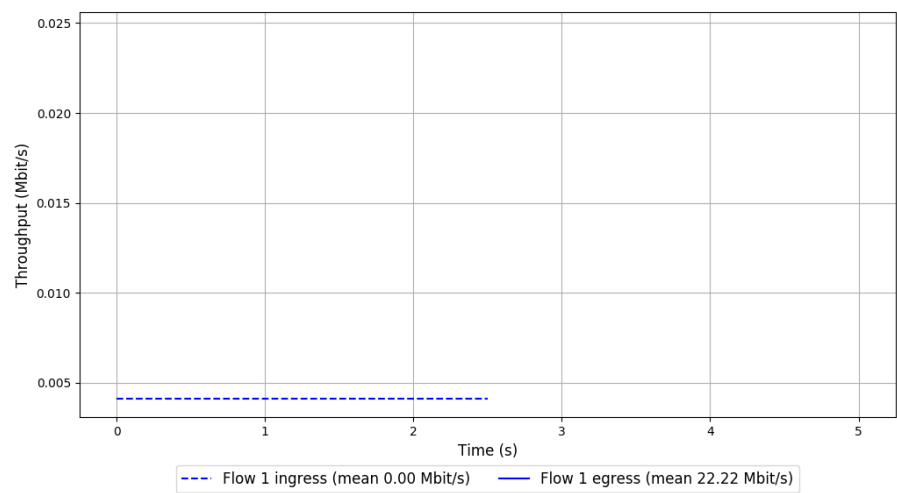```
Run 1: Statistics of PCC

Start at: 2018-01-15 23:28:53
End at: 2018-01-15 23:29:23
Local clock offset: -11.551 ms
Remote clock offset: -16.441 ms
```
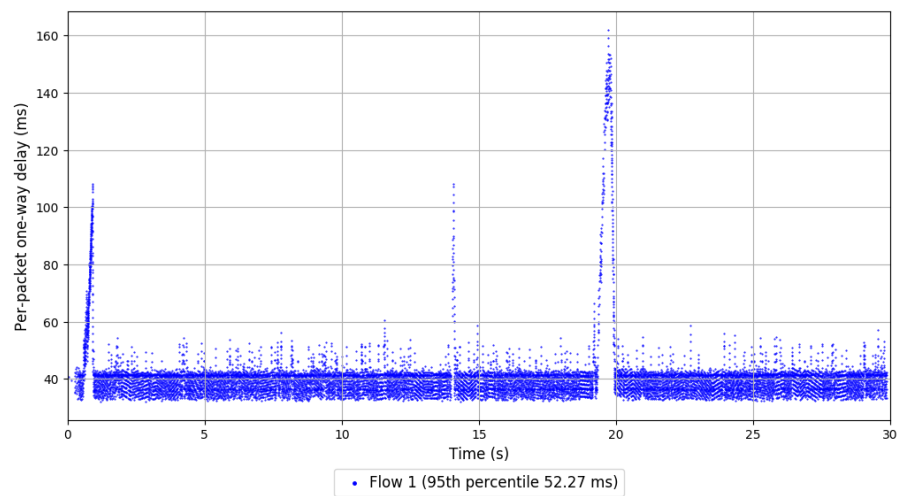
# Run 1: Report of PCC — Data Link



Flow 1 ingress (mean 0.00 Mbit/s)    Flow 1 egress (mean 22.22 Mbit/s)
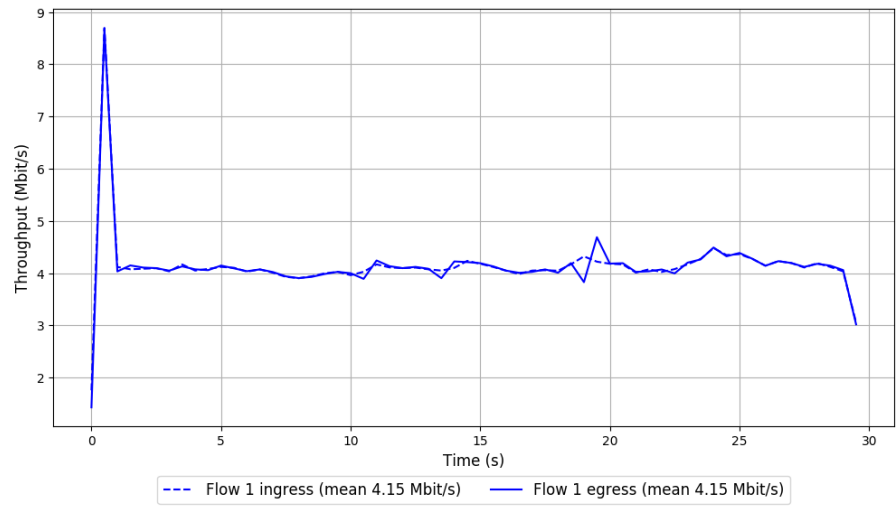


• Flow 1 (95th percentile 4764.44 ms)

```
Run 2: Statistics of PCC

Start at: 2018-01-15 23:45:23
End at: 2018-01-15 23:45:53
Local clock offset: -12.39 ms
Remote clock offset: -17.296 ms


# Below is generated by plot.py at 2018-01-16 00:13:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.15 Mbit/s
95th percentile per-packet one-way delay: 52.273 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 4.15 Mbit/s
95th percentile per-packet one-way delay: 52.273 ms
Loss rate: 0.14%
```

Run 2: Report of PCC — Data Link

Flow 1 ingress (mean 4.15 Mbit/s)   Flow 1 egress (mean 4.15 Mbit/s)

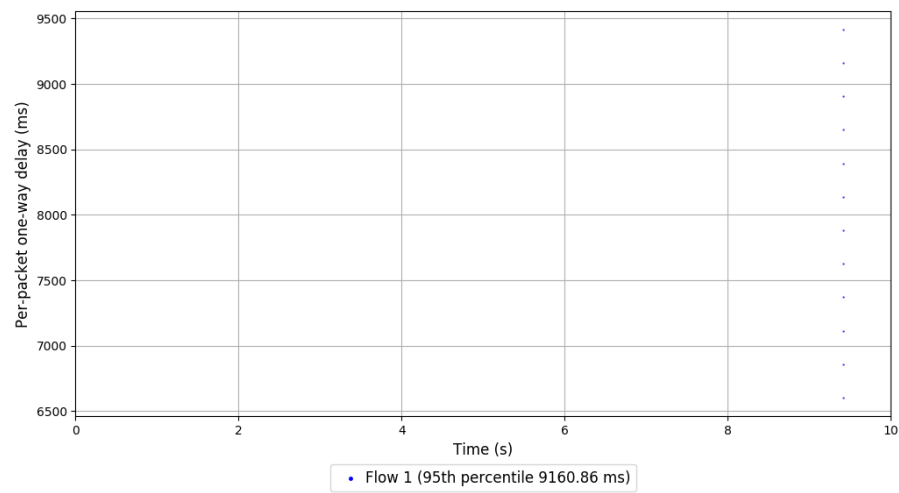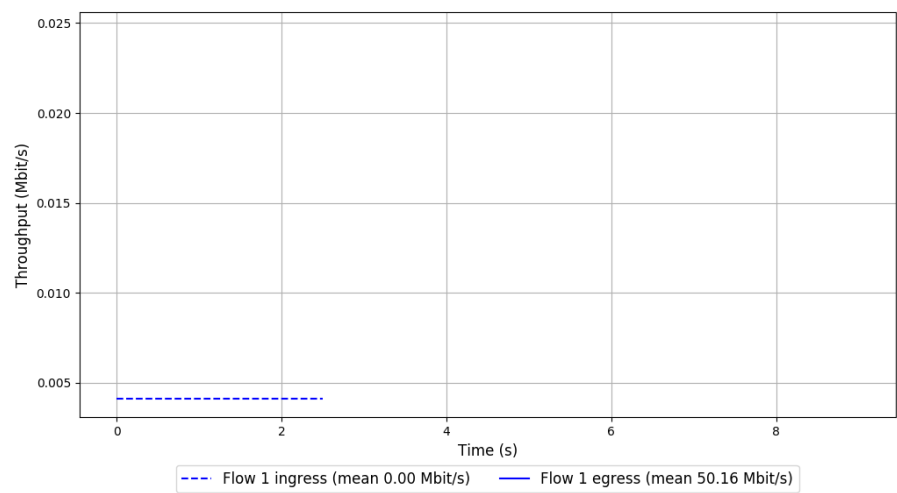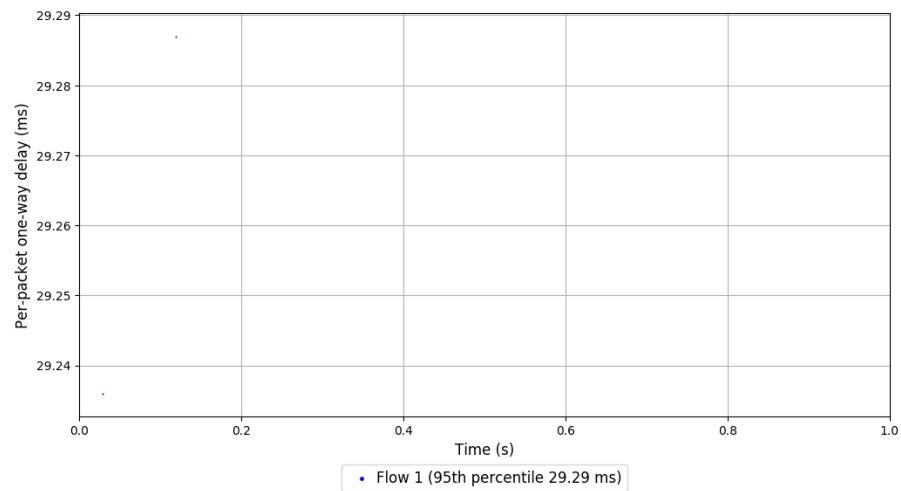Flow 1 (95th percentile 52.27 ms)

```
Run 3: Statistics of PCC

Start at: 2018-01-16 00:01:43
End at: 2018-01-16 00:02:13
Local clock offset: -10.928 ms
Remote clock offset: -19.299 ms
```
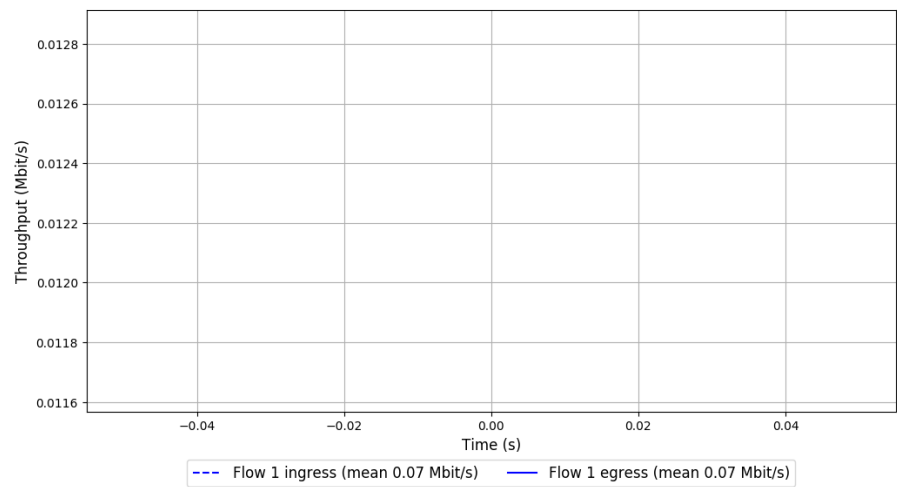
Run 3: Report of PCC — Data Link

Flow 1 ingress (mean 0.00 Mbit/s)   Flow 1 egress (mean 50.16 Mbit/s)

• Flow 1 (95th percentile 9160.86 ms)

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-01-15 23:33:23
End at: 2018-01-15 23:33:53
Local clock offset: -10.416 ms
Remote clock offset: -16.063 ms
```

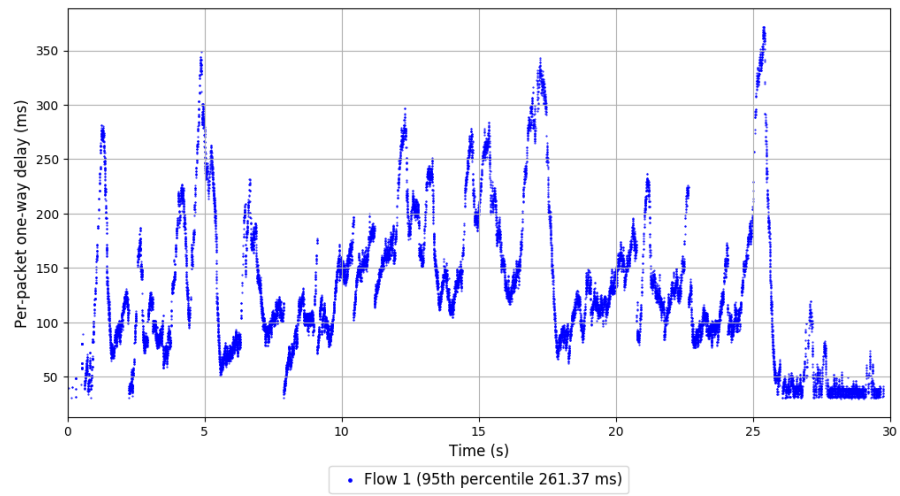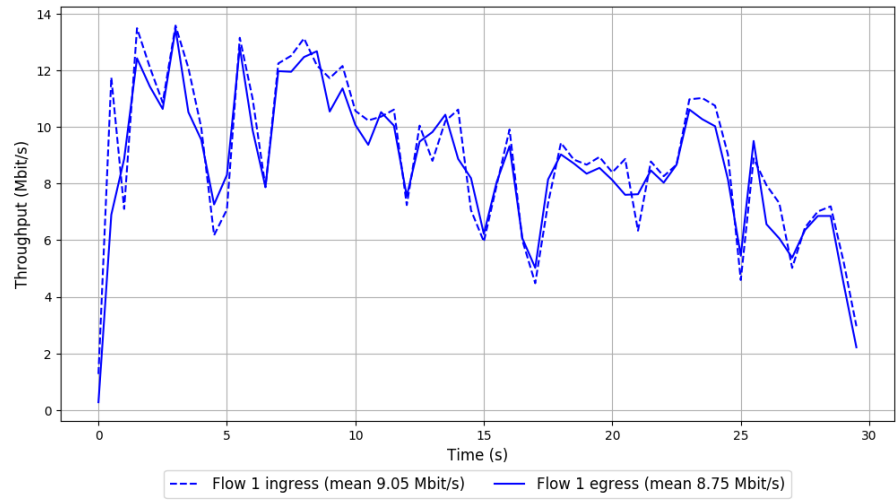# Run 1: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 0.07 Mbit/s) Flow 1 egress (mean 0.07 Mbit/s)

Flow 1 (95th percentile 29.29 ms)

29

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-01-15 23:49:44
End at: 2018-01-15 23:50:14
Local clock offset: -9.674 ms
Remote clock offset: -16.757 ms


# Below is generated by plot.py at 2018-01-16 00:13:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.75 Mbit/s
95th percentile per-packet one-way delay: 261.372 ms
Loss rate: 3.35%
-- Flow 1:
Average throughput: 8.75 Mbit/s
95th percentile per-packet one-way delay: 261.372 ms
Loss rate: 3.35%
```

Run 2: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 9.05 Mbit/s) — — — Flow 1 egress (mean 8.75 Mbit/s)
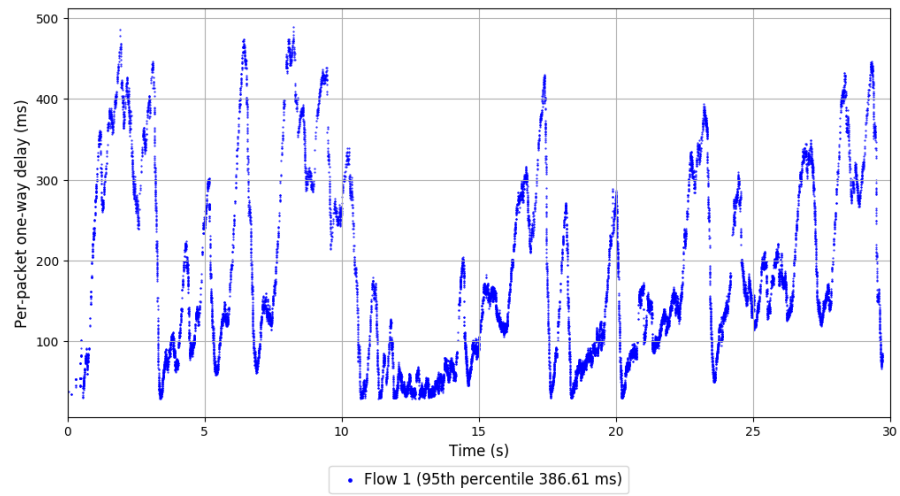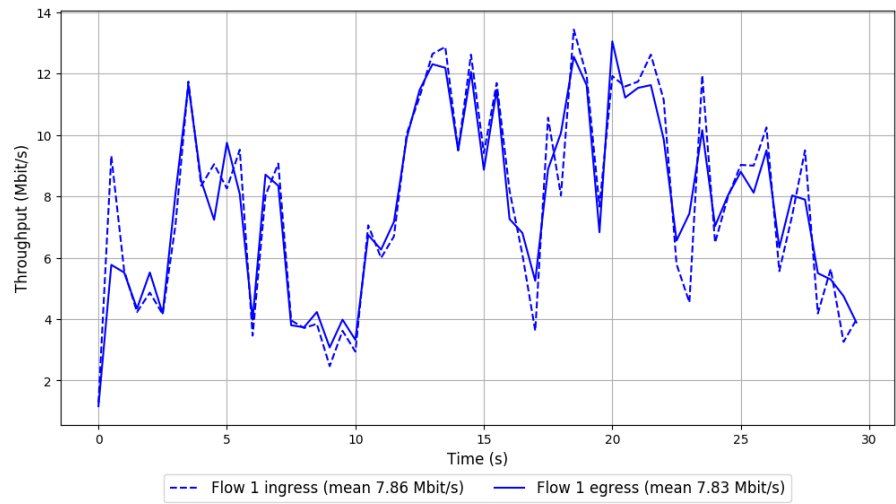

• Flow 1 (95th percentile 261.37 ms)

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-01-16 00:06:03
End at: 2018-01-16 00:06:33
Local clock offset: -11.841 ms
Remote clock offset: -17.135 ms


# Below is generated by plot.py at 2018-01-16 00:13:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.83 Mbit/s
95th percentile per-packet one-way delay: 386.607 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 7.83 Mbit/s
95th percentile per-packet one-way delay: 386.607 ms
Loss rate: 0.55%
```
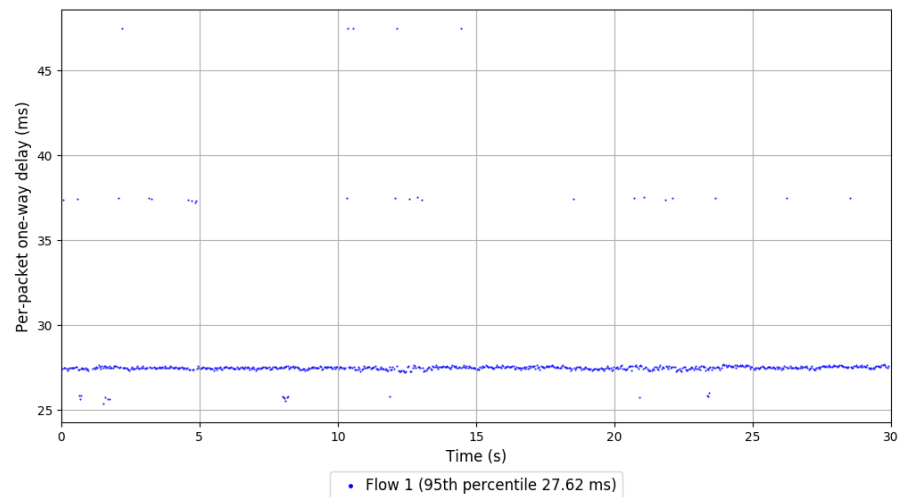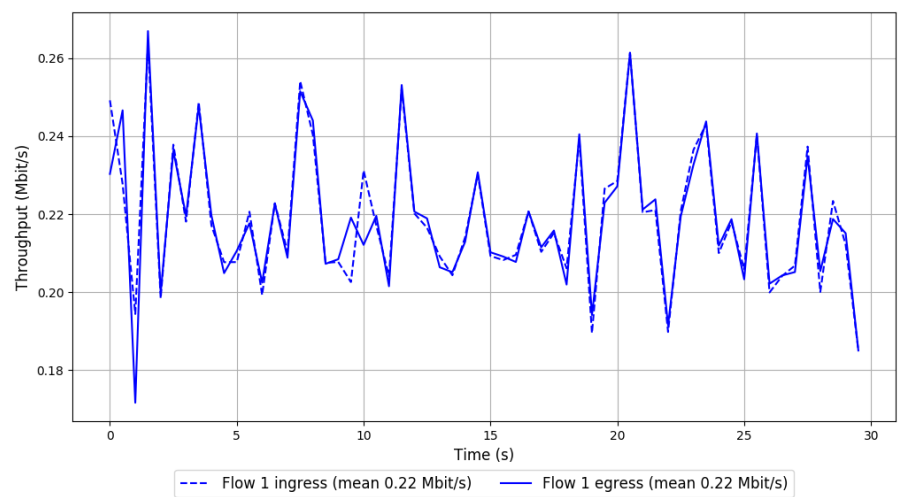
Run 3: Report of QUIC Cubic — Data Link

```
Run 1: Statistics of SCReAM

Start at: 2018-01-15 23:27:48
End at: 2018-01-15 23:28:18
Local clock offset: -14.856 ms
Remote clock offset: -17.643 ms

# Below is generated by plot.py at 2018-01-16 00:13:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 27.624 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 27.624 ms
Loss rate: 0.13%
```

Run 1: Report of SCReAM — Data Link

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

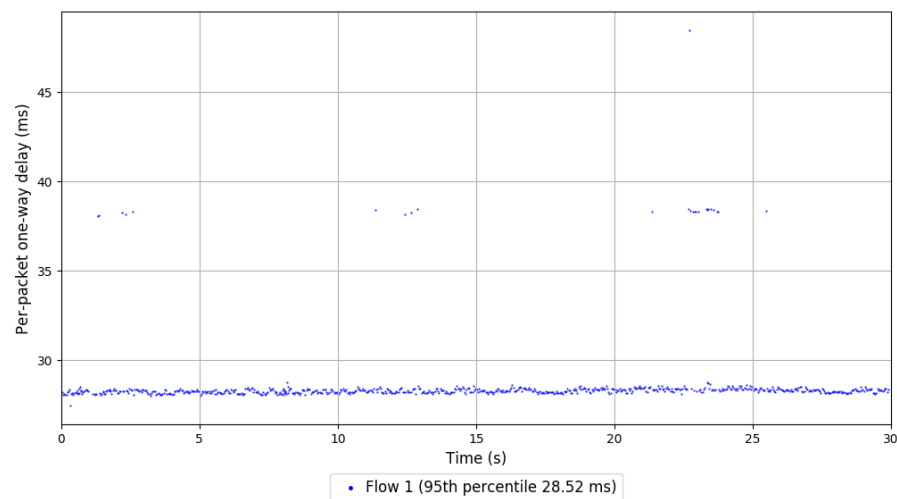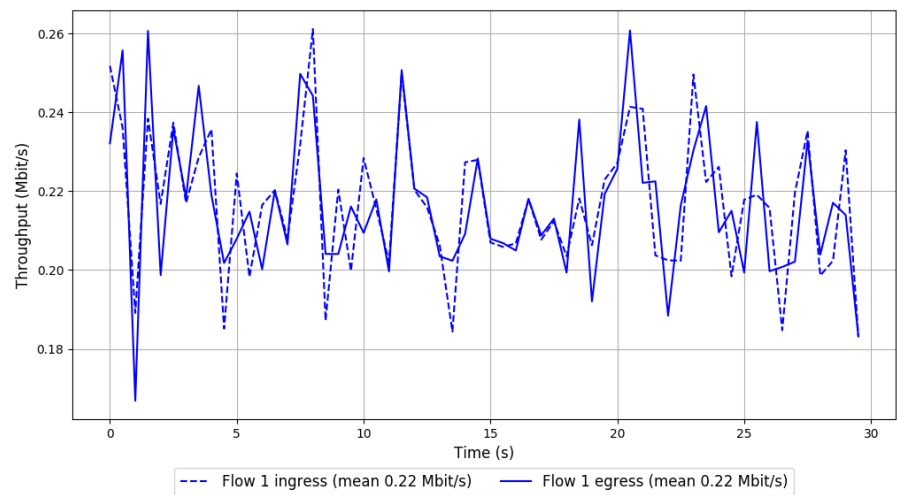Flow 1 (95th percentile 27.62 ms)

```
Run 2: Statistics of SCReAM

Start at: 2018-01-15 23:44:18
End at: 2018-01-15 23:44:48
Local clock offset: -10.745 ms
Remote clock offset: -17.586 ms


# Below is generated by plot.py at 2018-01-16 00:13:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 28.519 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 28.519 ms
Loss rate: 0.13%
```

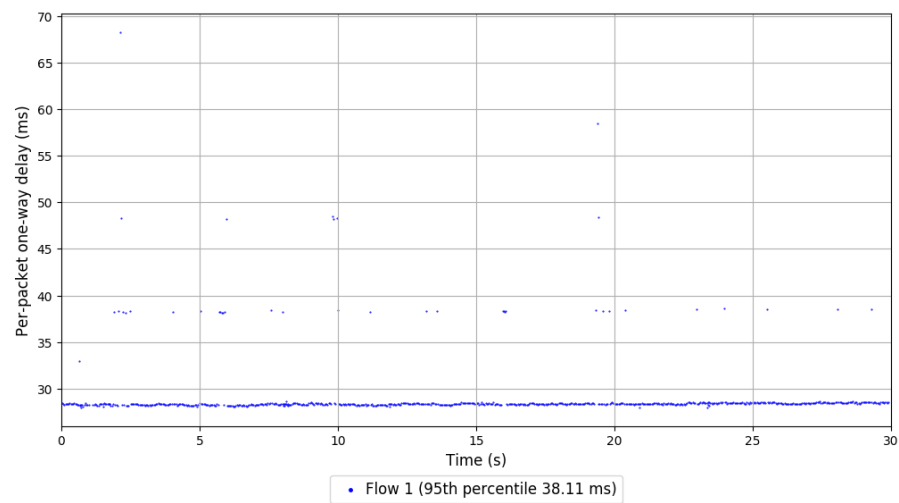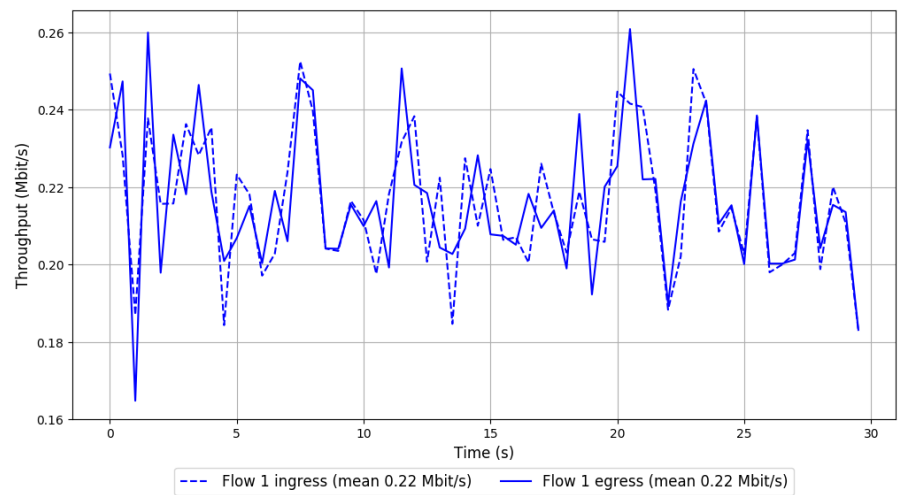Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2018-01-16 00:00:38
End at: 2018-01-16 00:01:08
Local clock offset: -11.579 ms
Remote clock offset: -17.877 ms

# Below is generated by plot.py at 2018-01-16 00:13:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 38.109 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 38.109 ms
Loss rate: 0.13%
```

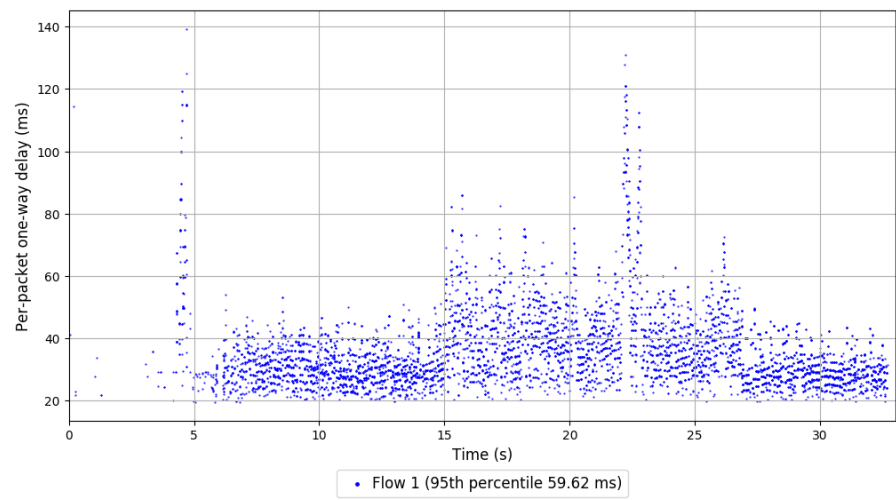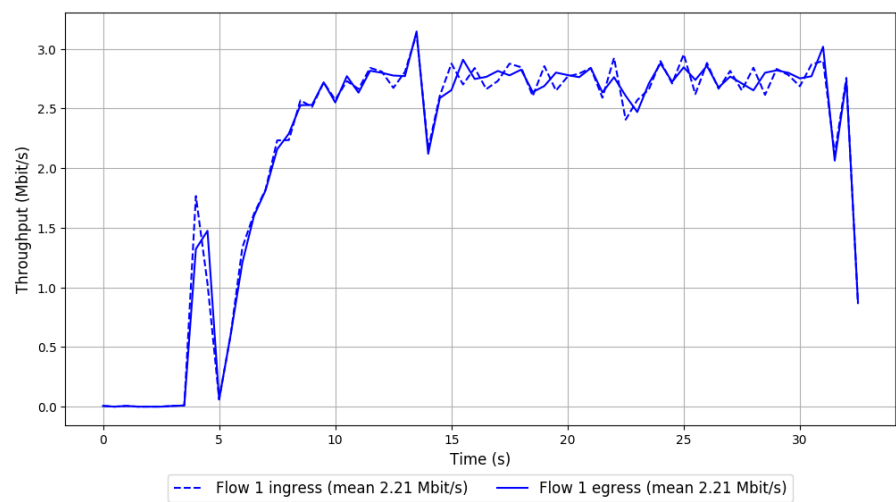Run 3: Report of SCReAM — Data Link

```
Run 1: Statistics of WebRTC media

Start at: 2018-01-15 23:23:24
End at: 2018-01-15 23:23:54
Local clock offset: -16.922 ms
Remote clock offset: -19.392 ms


# Below is generated by plot.py at 2018-01-16 00:13:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.21 Mbit/s
95th percentile per-packet one-way delay: 59.617 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 2.21 Mbit/s
95th percentile per-packet one-way delay: 59.617 ms
Loss rate: 0.13%
```
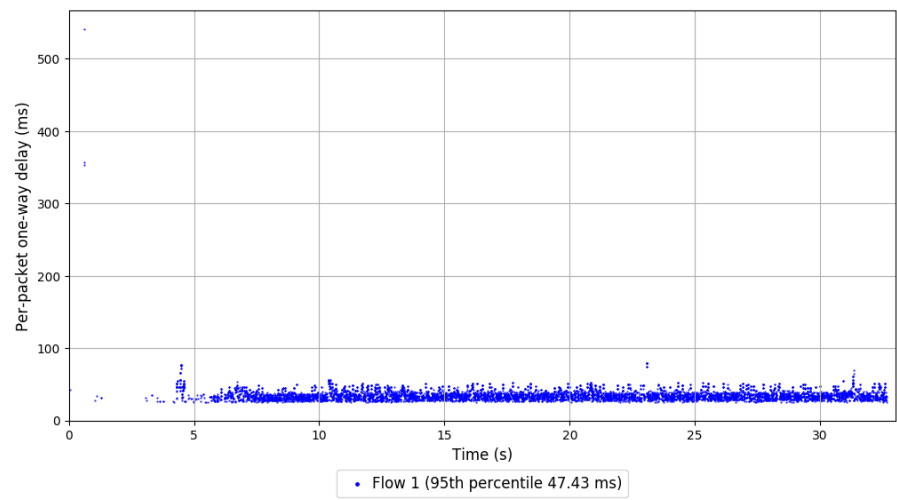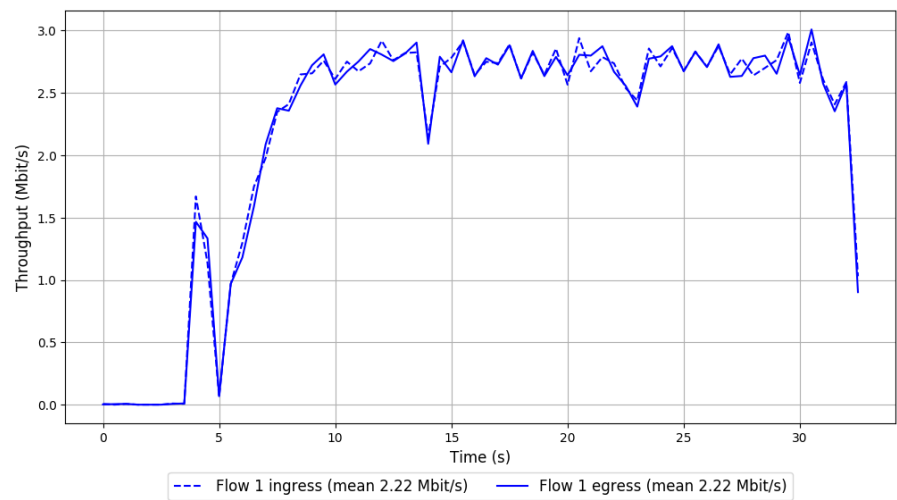
Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2018-01-15 23:39:57
End at: 2018-01-15 23:40:27
Local clock offset: -12.594 ms
Remote clock offset: -15.433 ms


# Below is generated by plot.py at 2018-01-16 00:13:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.22 Mbit/s
95th percentile per-packet one-way delay: 47.432 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 2.22 Mbit/s
95th percentile per-packet one-way delay: 47.432 ms
Loss rate: 0.24%
```

Run 2: Report of WebRTC media — Data Link

Throughput (Mbit/s) vs Time (s)

Flow 1 ingress (mean 2.22 Mbit/s)   Flow 1 egress (mean 2.22 Mbit/s)

Per-packet one-way delay (ms) vs Time (s)

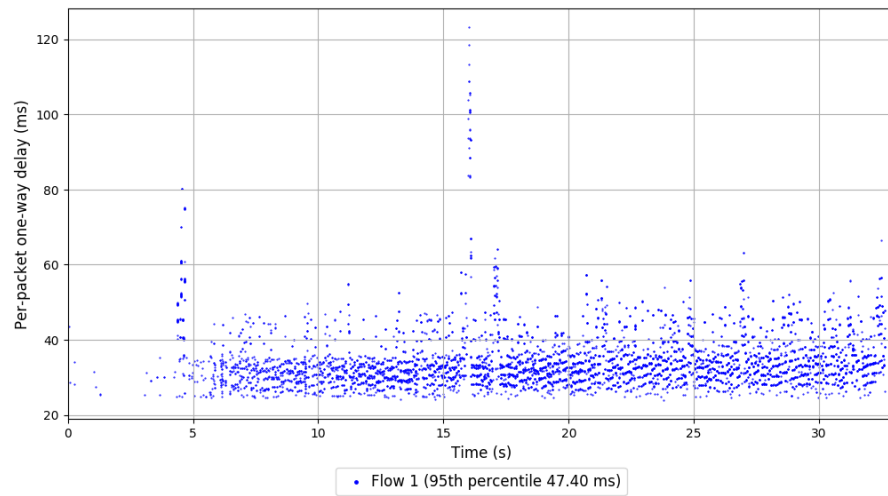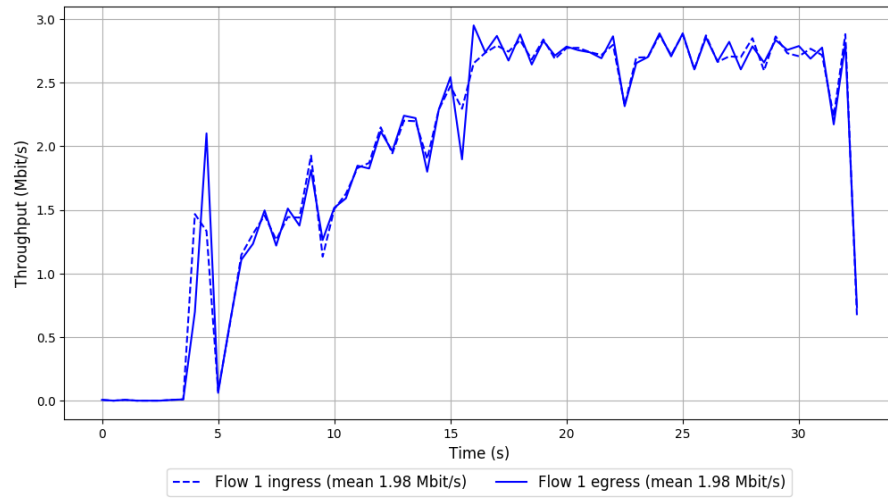Flow 1 (95th percentile 47.43 ms)

```
Run 3: Statistics of WebRTC media

Start at: 2018-01-15 23:56:16
End at: 2018-01-15 23:56:46
Local clock offset: -11.884 ms
Remote clock offset: -16.651 ms


# Below is generated by plot.py at 2018-01-16 00:13:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.98 Mbit/s
95th percentile per-packet one-way delay: 47.399 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 1.98 Mbit/s
95th percentile per-packet one-way delay: 47.399 ms
Loss rate: 0.17%
```
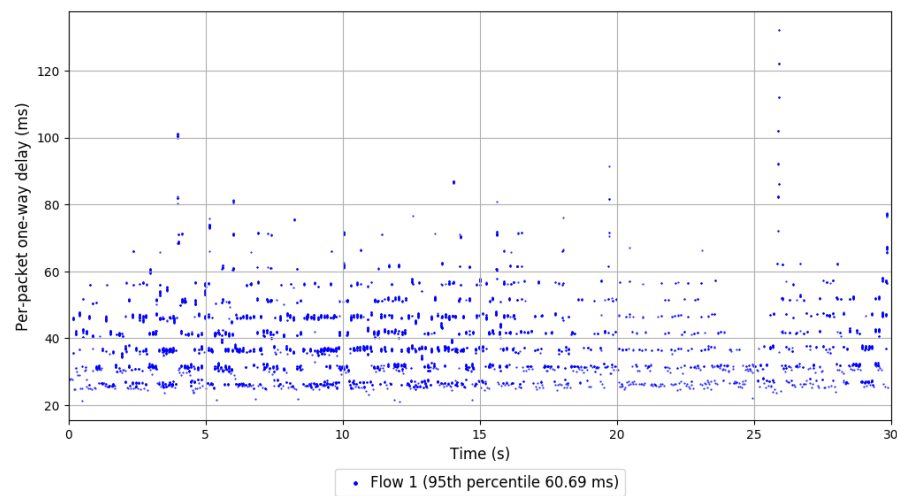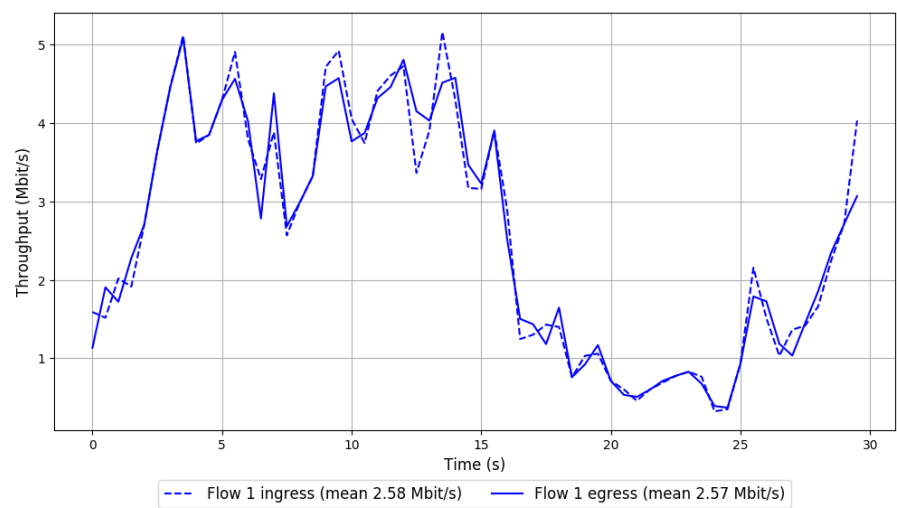
Run 3: Report of WebRTC media — Data Link

```
Run 1: Statistics of Sprout

Start at: 2018-01-15 23:25:35
End at: 2018-01-15 23:26:05
Local clock offset: -15.14 ms
Remote clock offset: -17.441 ms

# Below is generated by plot.py at 2018-01-16 00:13:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.57 Mbit/s
95th percentile per-packet one-way delay: 60.690 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 2.57 Mbit/s
95th percentile per-packet one-way delay: 60.690 ms
Loss rate: 0.63%
```
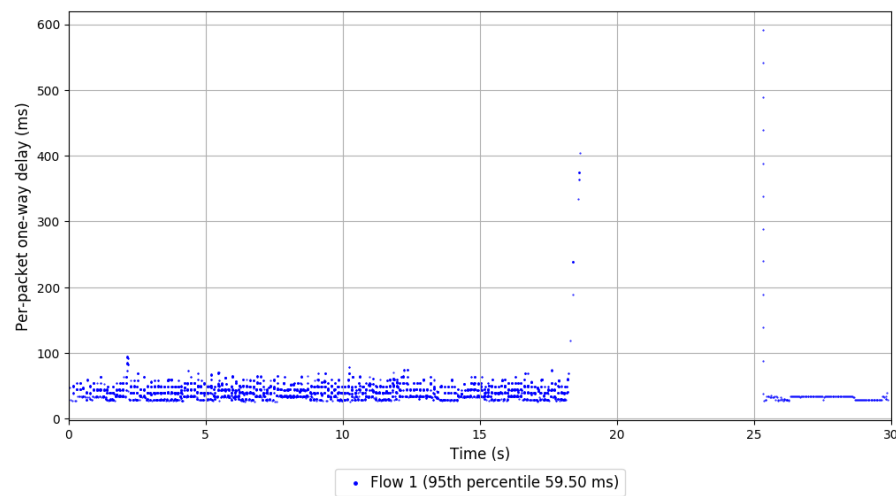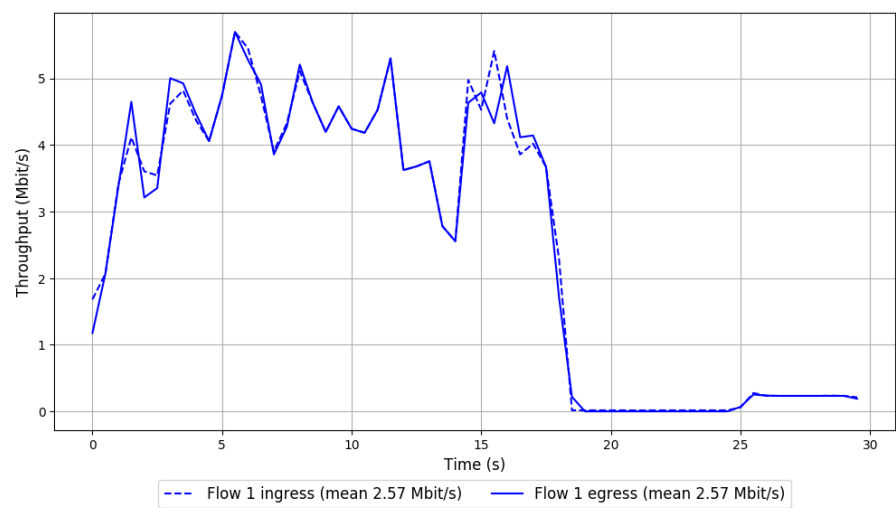
Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2018-01-15 23:42:08
End at: 2018-01-15 23:42:38
Local clock offset: -12.494 ms
Remote clock offset: -17.41 ms


# Below is generated by plot.py at 2018-01-16 00:13:26
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.57 Mbit/s
95th percentile per-packet one-way delay: 59.499 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 2.57 Mbit/s
95th percentile per-packet one-way delay: 59.499 ms
Loss rate: 0.39%
```

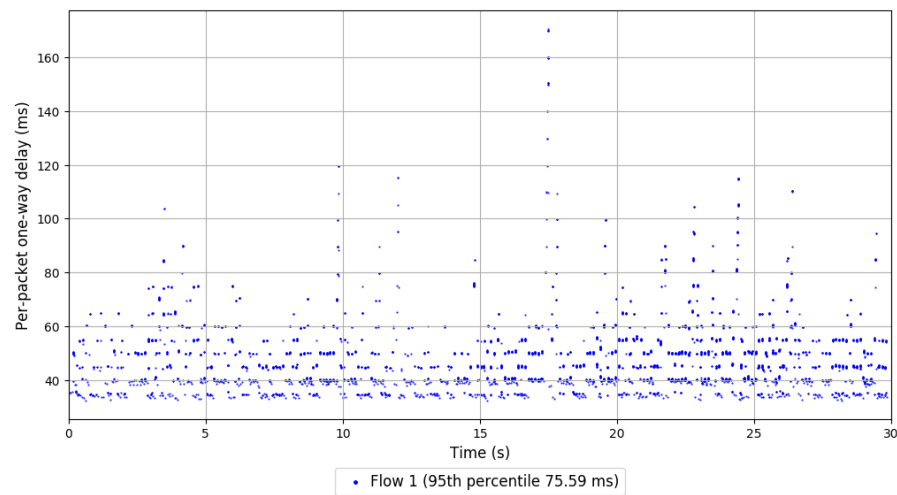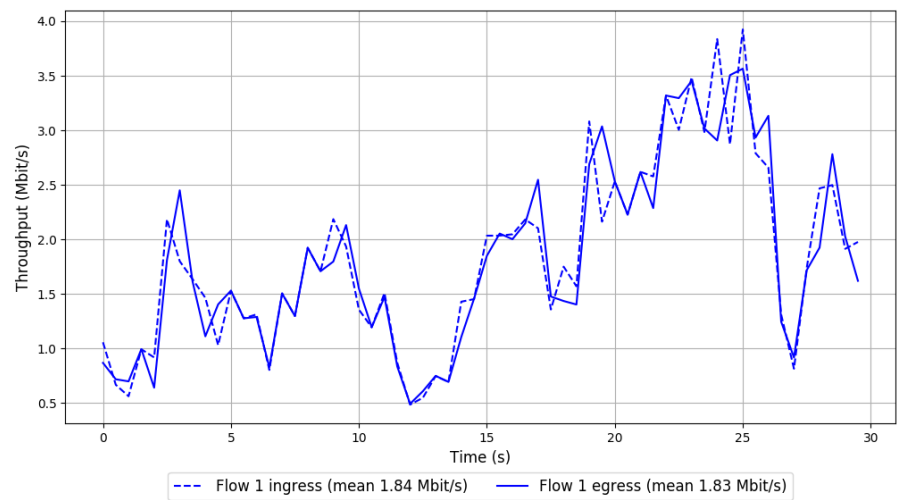## Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2018-01-15 23:58:27
End at: 2018-01-15 23:58:57
Local clock offset: -14.071 ms
Remote clock offset: -18.161 ms


# Below is generated by plot.py at 2018-01-16 00:13:26
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.83 Mbit/s
95th percentile per-packet one-way delay: 75.589 ms
Loss rate: 0.48%
-- Flow 1:
Average throughput: 1.83 Mbit/s
95th percentile per-packet one-way delay: 75.589 ms
Loss rate: 0.48%
```

Run 3: Report of Sprout — Data Link

Flow 1 ingress (mean 1.84 Mbit/s) Flow 1 egress (mean 1.83 Mbit/s)
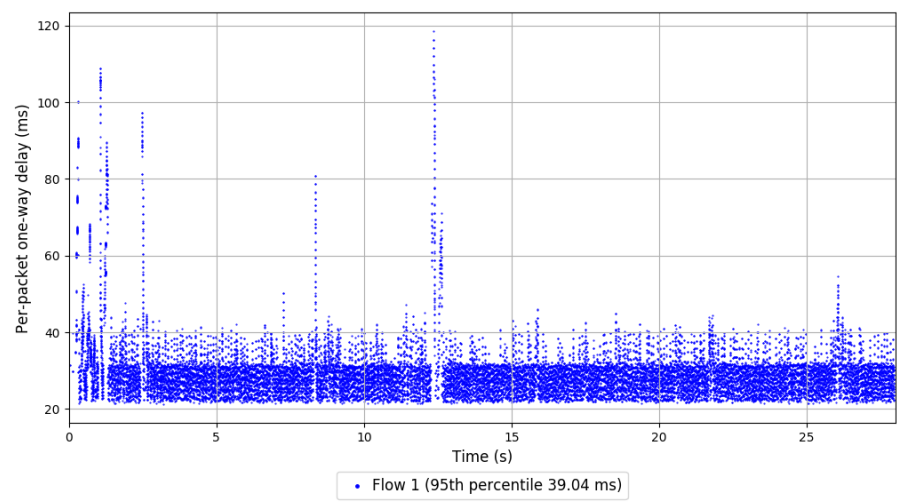

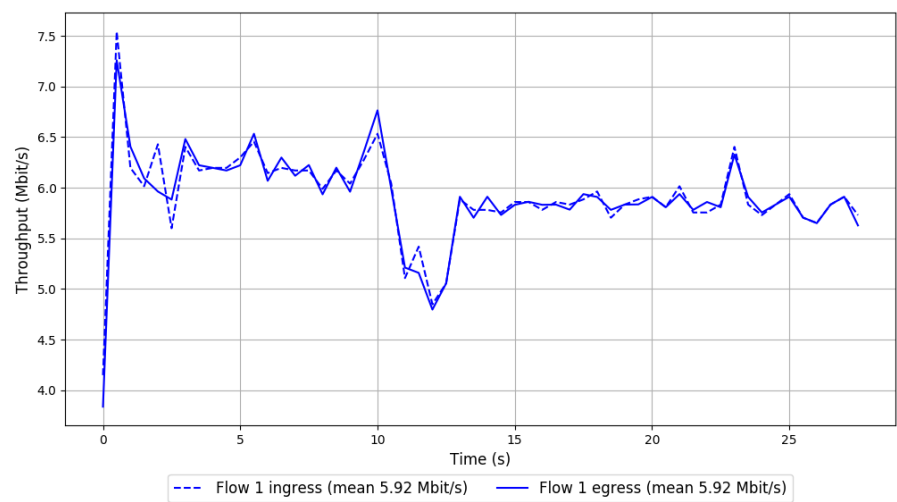Flow 1 (95th percentile 75.59 ms)

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

Start at: 2018-01-15 23:35:35
End at: 2018-01-15 23:36:05
Local clock offset: -9.509 ms
Remote clock offset: -16.374 ms


# Below is generated by plot.py at 2018-01-16 00:13:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.92 Mbit/s
95th percentile per-packet one-way delay: 39.042 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 5.92 Mbit/s
95th percentile per-packet one-way delay: 39.042 ms
Loss rate: 0.14%
```
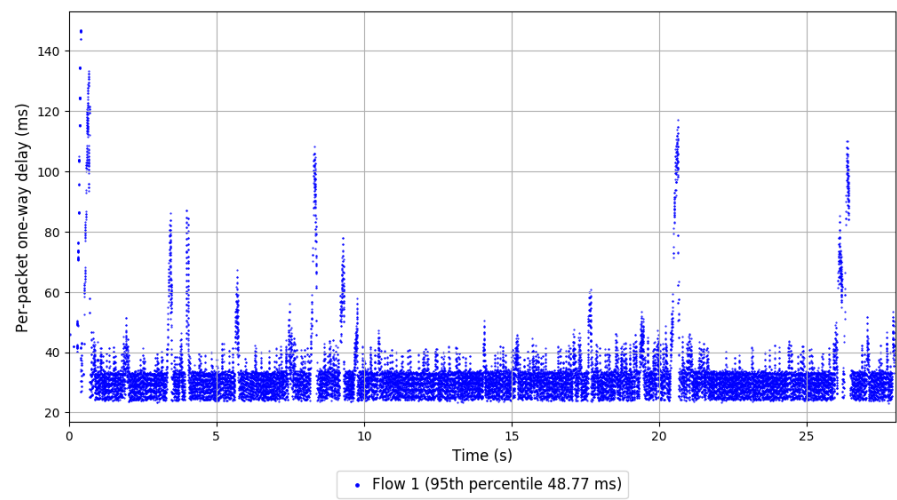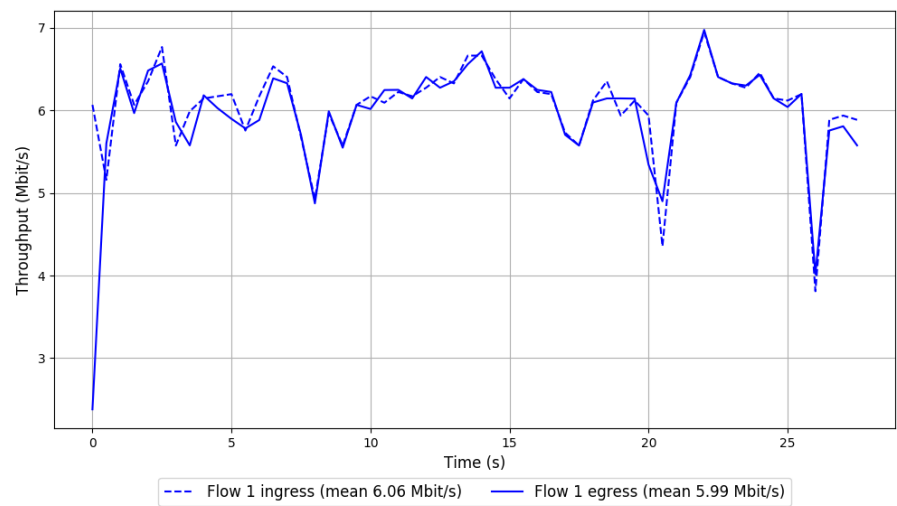
Run 1: Report of TaoVA-100x — Data Link

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

Start at: 2018-01-15 23:51:55
End at: 2018-01-15 23:52:25
Local clock offset: -11.242 ms
Remote clock offset: -17.602 ms

# Below is generated by plot.py at 2018-01-16 00:13:36
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.99 Mbit/s
95th percentile per-packet one-way delay: 48.766 ms
Loss rate: 1.45%
-- Flow 1:
Average throughput: 5.99 Mbit/s
95th percentile per-packet one-way delay: 48.766 ms
Loss rate: 1.45%
```
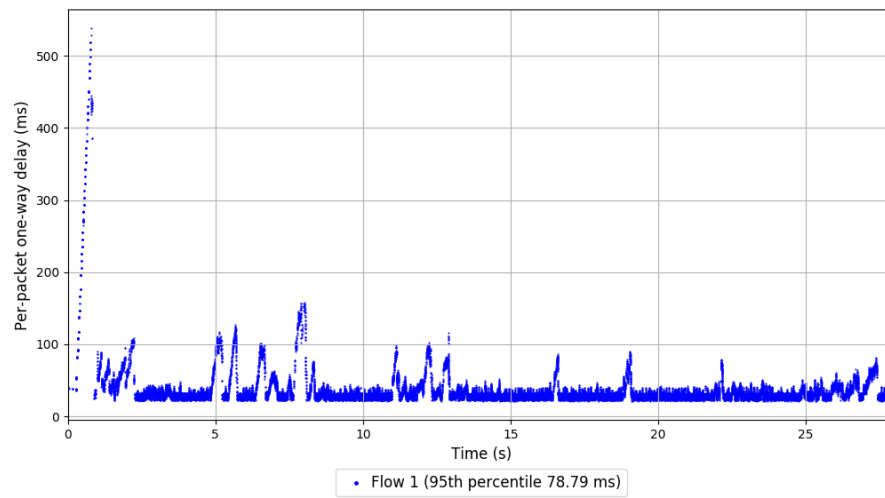
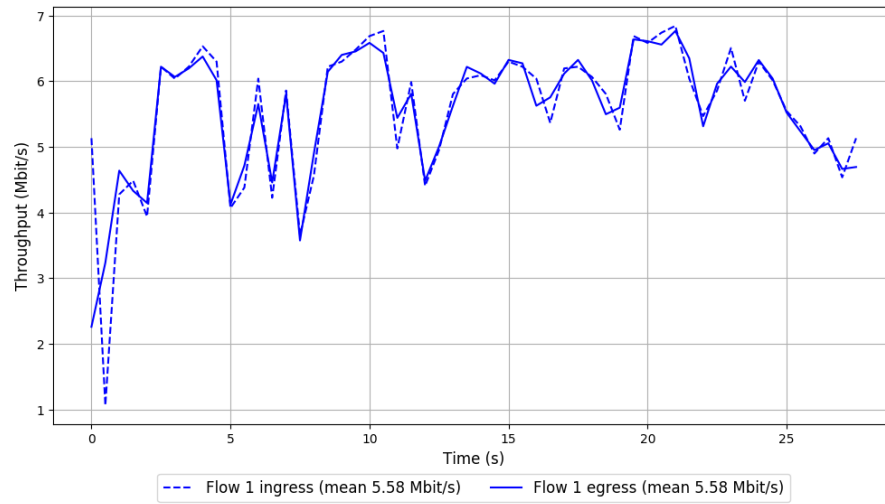Run 2: Report of TaoVA-100x — Data Link

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

Start at: 2018-01-16 00:08:14
End at: 2018-01-16 00:08:44
Local clock offset: -12.667 ms
Remote clock offset: -18.717 ms

# Below is generated by plot.py at 2018-01-16 00:13:37
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.58 Mbit/s
95th percentile per-packet one-way delay: 78.788 ms
Loss rate: 0.22%
-- Flow 1:
Average throughput: 5.58 Mbit/s
95th percentile per-packet one-way delay: 78.788 ms
Loss rate: 0.22%
```

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

Flow 1 ingress (mean 5.58 Mbit/s)   Flow 1 egress (mean 5.58 Mbit/s)
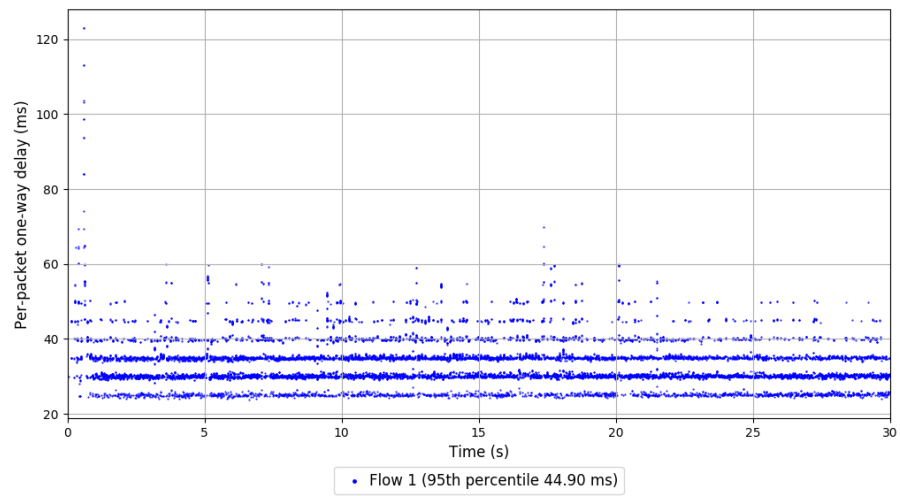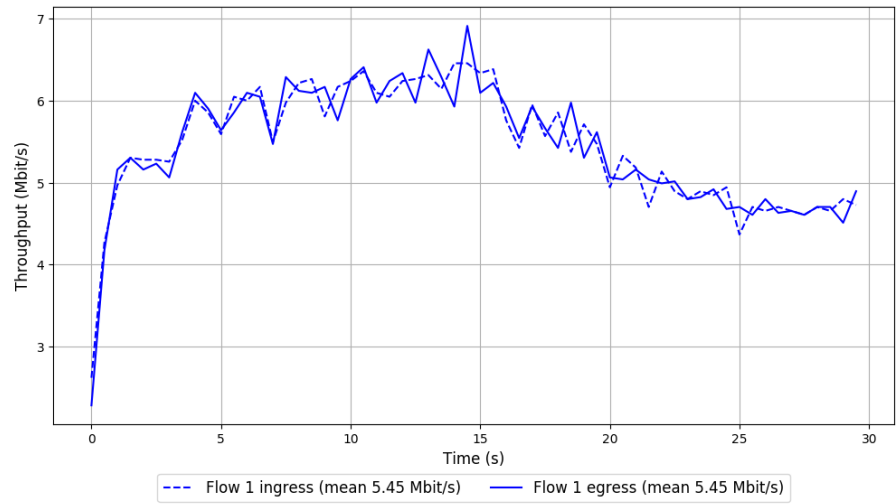

Flow 1 (95th percentile 78.79 ms)

```
Run 1: Statistics of TCP Vegas

Start at: 2018-01-15 23:31:12
End at: 2018-01-15 23:31:42
Local clock offset: -12.142 ms
Remote clock offset: -17.584 ms


# Below is generated by plot.py at 2018-01-16 00:13:37
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.45 Mbit/s
95th percentile per-packet one-way delay: 44.899 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 5.45 Mbit/s
95th percentile per-packet one-way delay: 44.899 ms
Loss rate: 0.08%
```

Run 1: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 5.45 Mbit/s) —— Flow 1 egress (mean 5.45 Mbit/s)

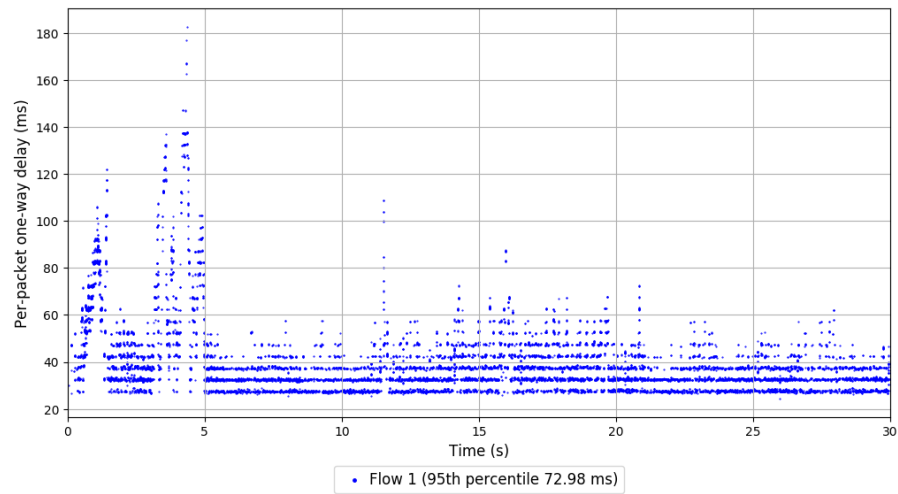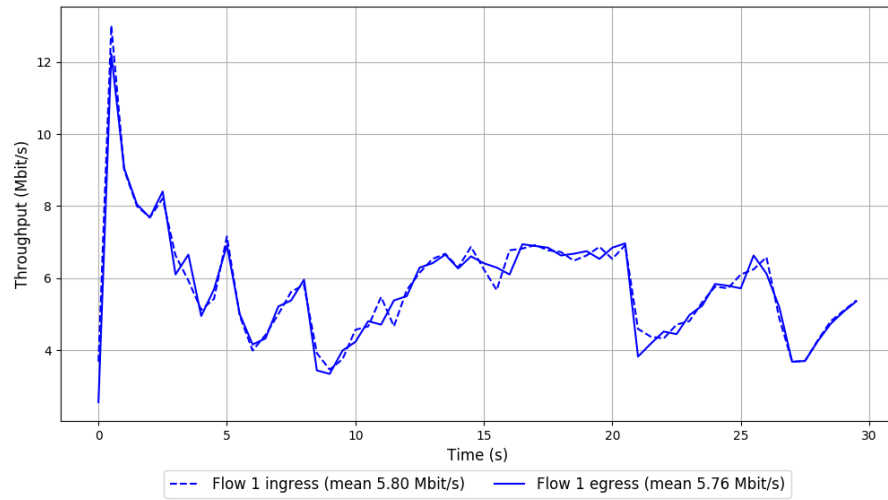• Flow 1 (95th percentile 44.90 ms)

```
Run 2: Statistics of TCP Vegas

Start at: 2018-01-15 23:47:34
End at: 2018-01-15 23:48:04
Local clock offset: -9.758 ms
Remote clock offset: -15.398 ms


# Below is generated by plot.py at 2018-01-16 00:13:37
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.76 Mbit/s
95th percentile per-packet one-way delay: 72.983 ms
Loss rate: 0.86%
-- Flow 1:
Average throughput: 5.76 Mbit/s
95th percentile per-packet one-way delay: 72.983 ms
Loss rate: 0.86%
```

Run 2: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 5.80 Mbit/s) —— Flow 1 egress (mean 5.76 Mbit/s)

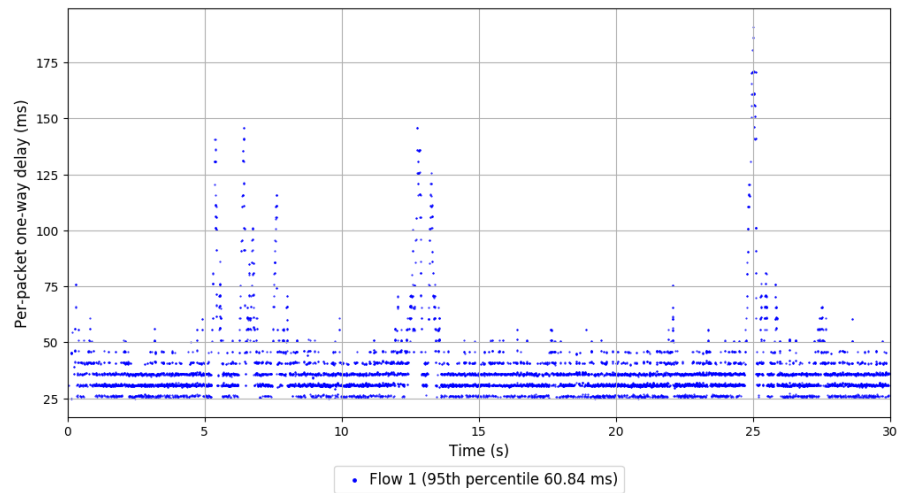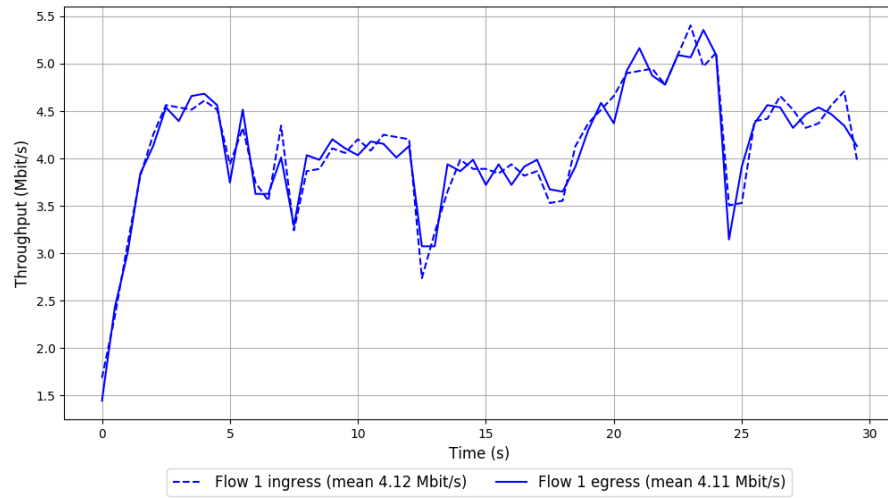• Flow 1 (95th percentile 72.98 ms)

```
Run 3: Statistics of TCP Vegas

Start at: 2018-01-16 00:03:53
End at: 2018-01-16 00:04:23
Local clock offset: -14.495 ms
Remote clock offset: -18.478 ms


# Below is generated by plot.py at 2018-01-16 00:13:37
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.11 Mbit/s
95th percentile per-packet one-way delay: 60.839 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 4.11 Mbit/s
95th percentile per-packet one-way delay: 60.839 ms
Loss rate: 0.18%
```
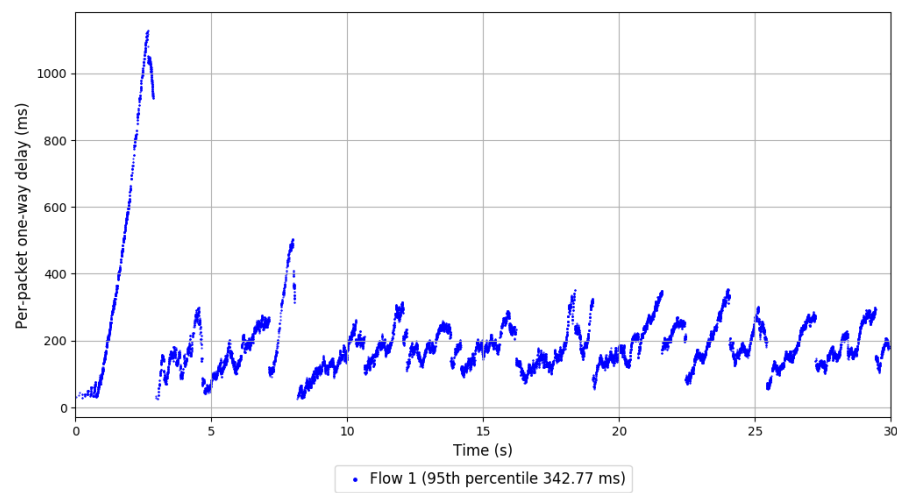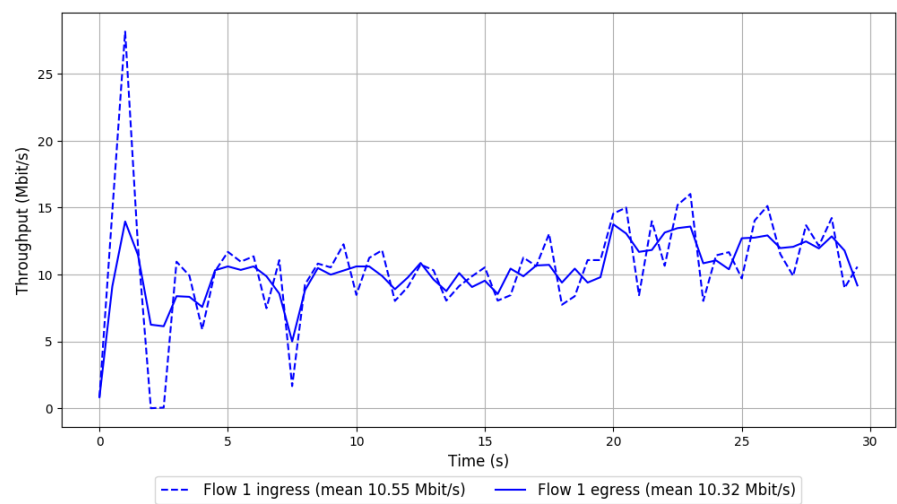
Run 3: Report of TCP Vegas — Data Link

```
Run 1: Statistics of Verus

Start at: 2018-01-15 23:26:42
End at: 2018-01-15 23:27:12
Local clock offset: -16.496 ms
Remote clock offset: -18.135 ms


# Below is generated by plot.py at 2018-01-16 00:13:39
# Datalink statistics
-- Total of 1 flow:
Average throughput: 10.32 Mbit/s
95th percentile per-packet one-way delay: 342.770 ms
Loss rate: 2.27%
-- Flow 1:
Average throughput: 10.32 Mbit/s
95th percentile per-packet one-way delay: 342.770 ms
Loss rate: 2.27%
```
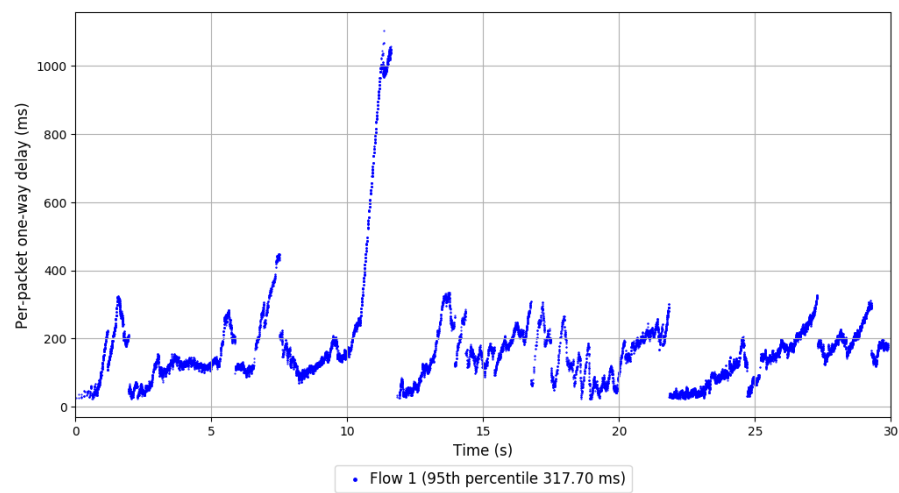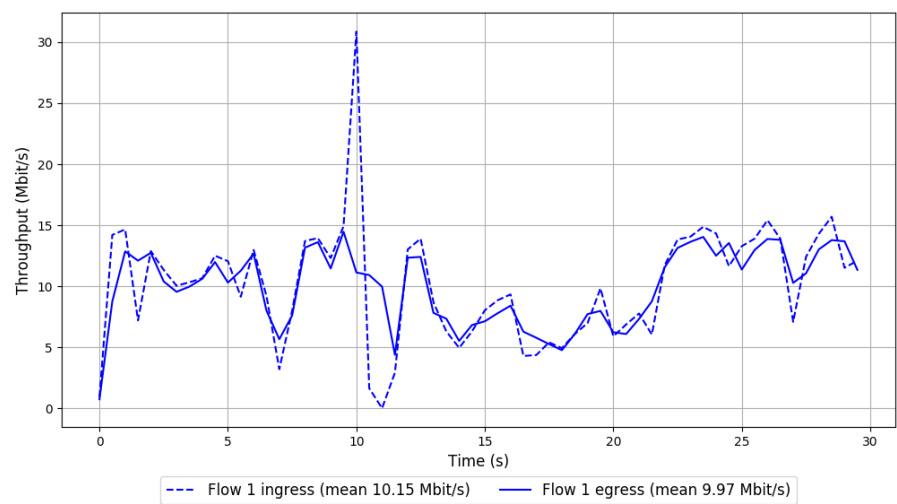
Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2018-01-15 23:43:12
End at: 2018-01-15 23:43:42
Local clock offset: -8.865 ms
Remote clock offset: -16.082 ms

# Below is generated by plot.py at 2018-01-16 00:13:39
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.97 Mbit/s
95th percentile per-packet one-way delay: 317.703 ms
Loss rate: 1.94%
-- Flow 1:
Average throughput: 9.97 Mbit/s
95th percentile per-packet one-way delay: 317.703 ms
Loss rate: 1.94%
```
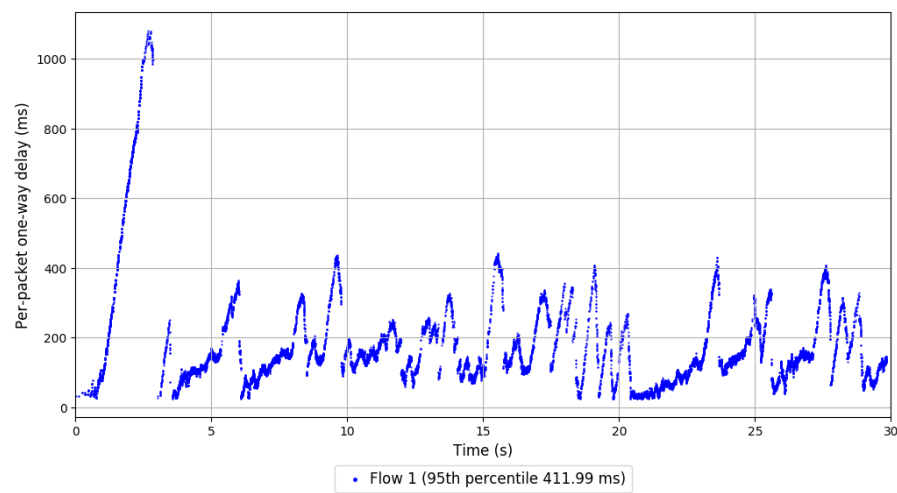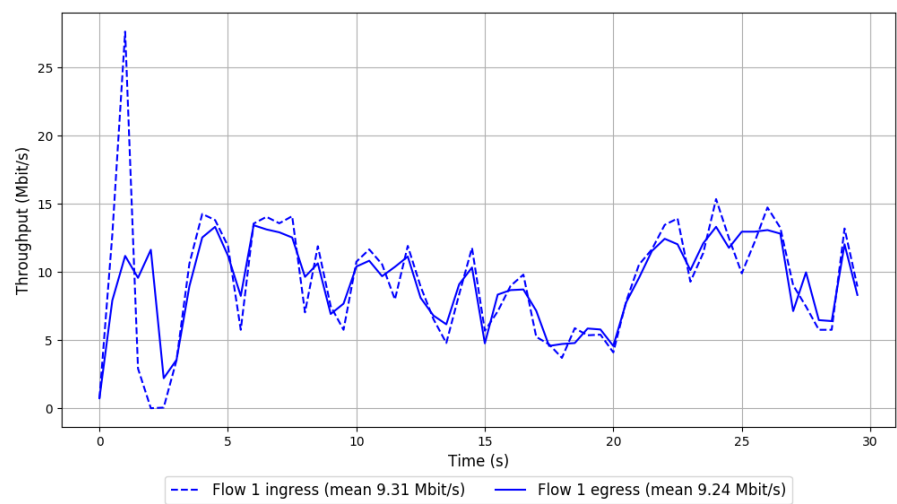
Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-01-15 23:59:32
End at: 2018-01-16 00:00:02
Local clock offset: -10.529 ms
Remote clock offset: -17.561 ms

# Below is generated by plot.py at 2018-01-16 00:13:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.24 Mbit/s
95th percentile per-packet one-way delay: 411.992 ms
Loss rate: 0.94%
-- Flow 1:
Average throughput: 9.24 Mbit/s
95th percentile per-packet one-way delay: 411.992 ms
Loss rate: 0.94%
```
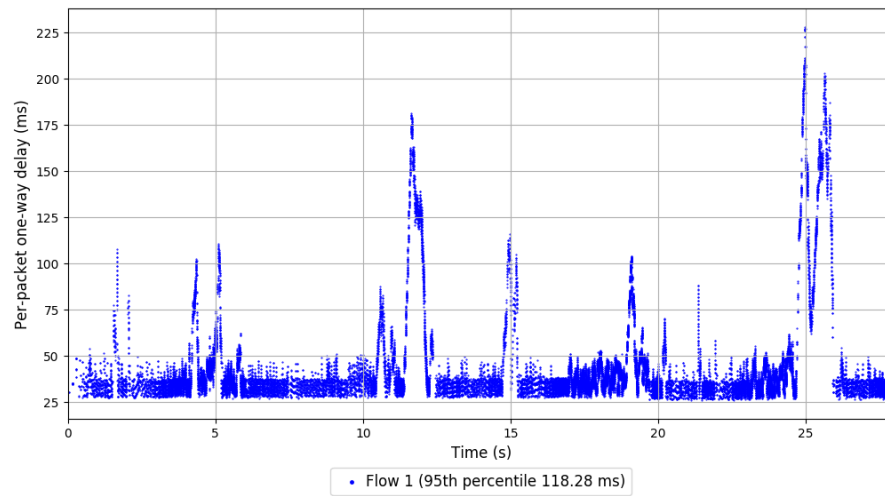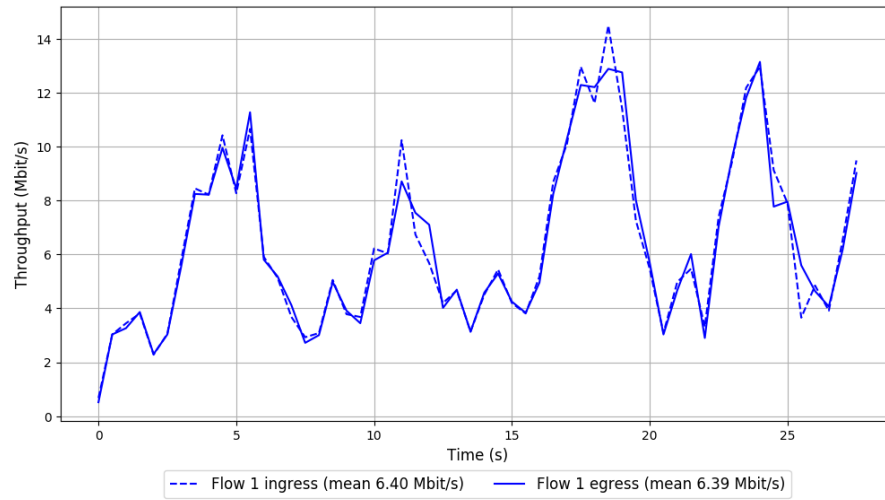
Run 3: Report of Verus — Data Link

```
Run 1: Statistics of Copa

Start at: 2018-01-15 23:32:18
End at: 2018-01-15 23:32:48
Local clock offset: -12.04 ms
Remote clock offset: -19.508 ms


# Below is generated by plot.py at 2018-01-16 00:13:47
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.39 Mbit/s
95th percentile per-packet one-way delay: 118.279 ms
Loss rate: 0.29%
-- Flow 1:
Average throughput: 6.39 Mbit/s
95th percentile per-packet one-way delay: 118.279 ms
Loss rate: 0.29%
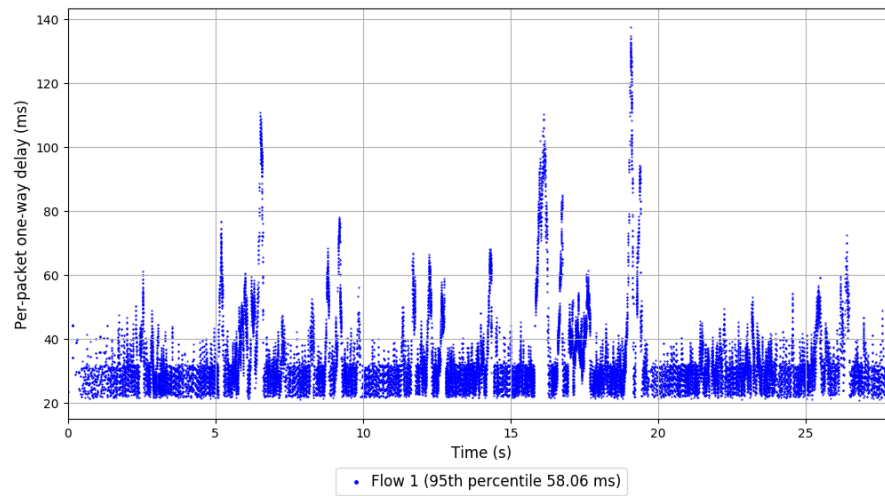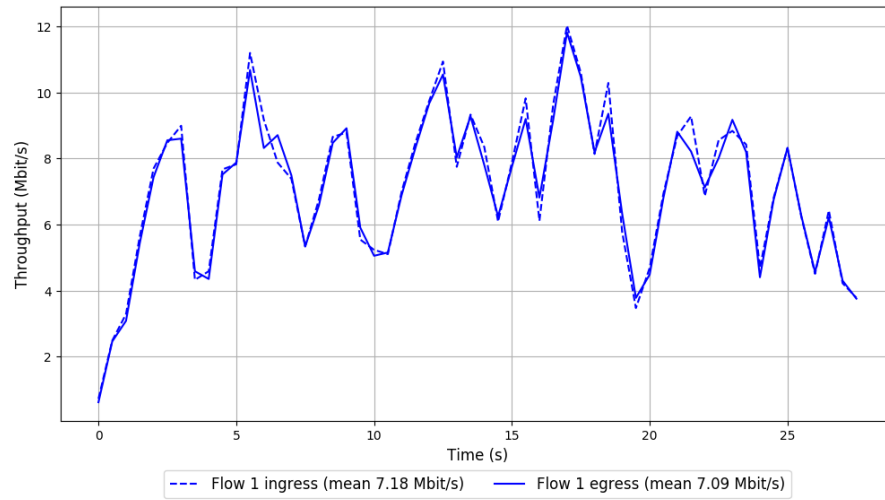```

Run 1: Report of Copa — Data Link

```
Run 2: Statistics of Copa

Start at: 2018-01-15 23:48:39
End at: 2018-01-15 23:49:09
Local clock offset: -8.632 ms
Remote clock offset: -17.316 ms

Below is generated by plot.py at 2018-01-16 00:13:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.09 Mbit/s
95th percentile per-packet one-way delay: 58.059 ms
Loss rate: 1.30%
-- Flow 1:
Average throughput: 7.09 Mbit/s
95th percentile per-packet one-way delay: 58.059 ms
Loss rate: 1.30%
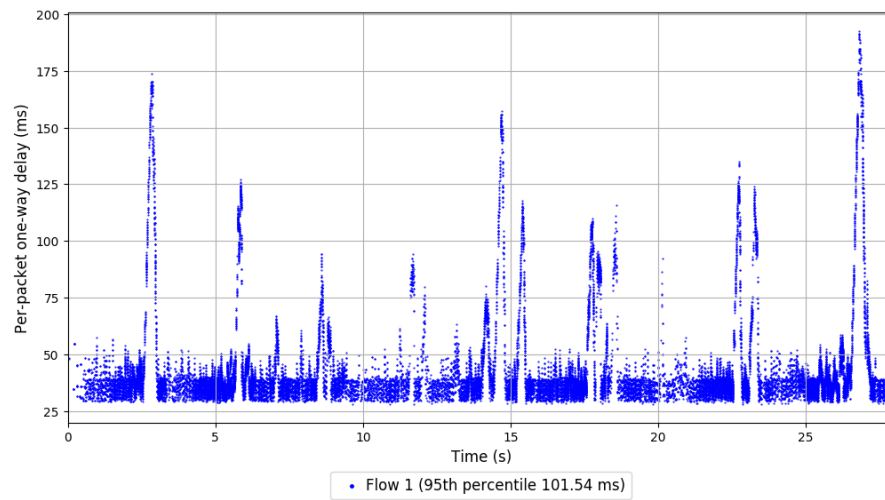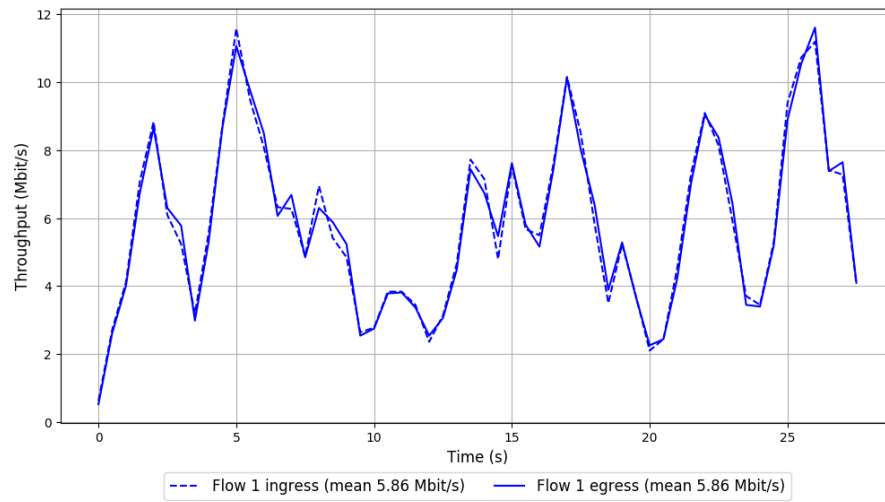```

Run 2: Report of Copa — Data Link

```
Run 3: Statistics of Copa

Start at: 2018-01-16 00:04:58
End at: 2018-01-16 00:05:28
Local clock offset: -12.525 ms
Remote clock offset: -17.339 ms


# Below is generated by plot.py at 2018-01-16 00:13:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.86 Mbit/s
95th percentile per-packet one-way delay: 101.541 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 5.86 Mbit/s
95th percentile per-packet one-way delay: 101.541 ms
Loss rate: 0.10%
```

Run 3: Report of Copa — Data Link

Flow 1 ingress (mean 5.86 Mbit/s)   Flow 1 egress (mean 5.86 Mbit/s)
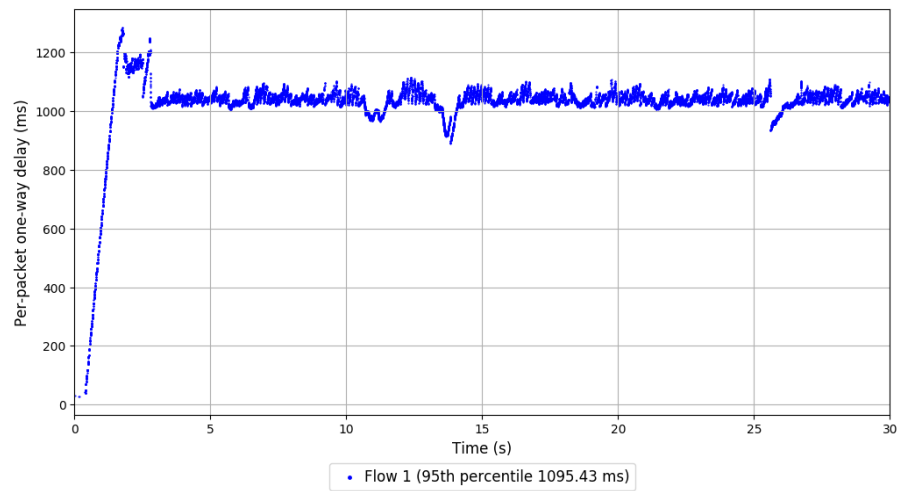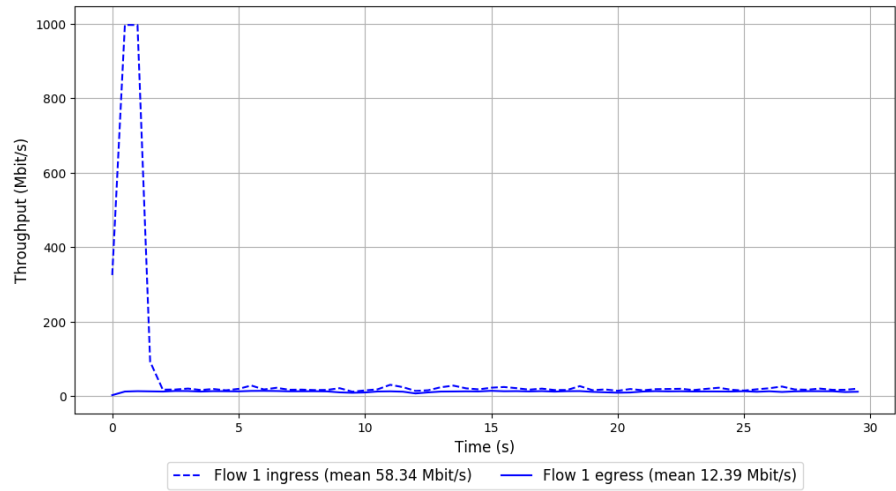

Flow 1 (95th percentile 101.54 ms)

```
Run 1: Statistics of FillP

Start at: 2018-01-15 23:36:41
End at: 2018-01-15 23:37:11
Local clock offset: -9.389 ms
Remote clock offset: -17.248 ms


# Below is generated by plot.py at 2018-01-16 00:13:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.39 Mbit/s
95th percentile per-packet one-way delay: 1095.427 ms
Loss rate: 78.80%
-- Flow 1:
Average throughput: 12.39 Mbit/s
95th percentile per-packet one-way delay: 1095.427 ms
Loss rate: 78.80%
```
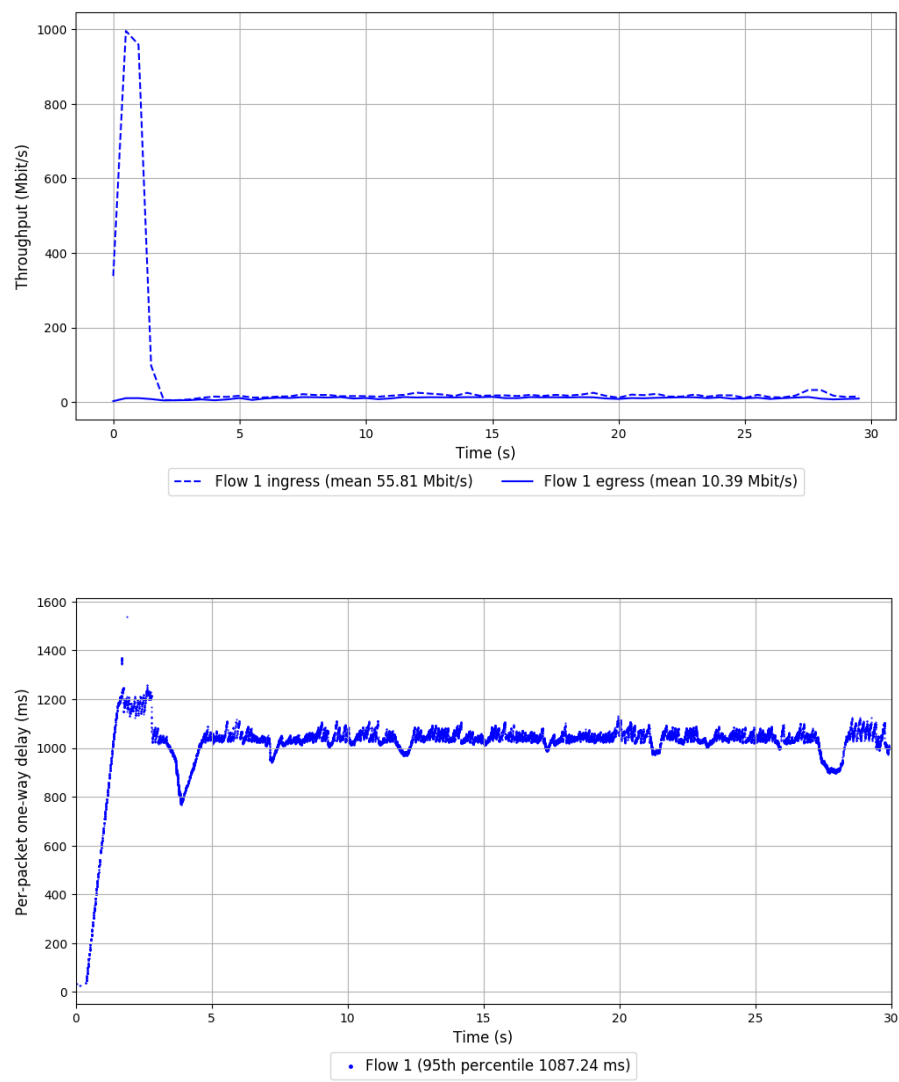
Run 1: Report of FillP — Data Link

```
Run 2: Statistics of FillP

Start at: 2018-01-15 23:53:00
End at: 2018-01-15 23:53:30
Local clock offset: -9.44 ms
Remote clock offset: -16.01 ms


# Below is generated by plot.py at 2018-01-16 00:13:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 10.39 Mbit/s
95th percentile per-packet one-way delay: 1087.244 ms
Loss rate: 81.41%
-- Flow 1:
Average throughput: 10.39 Mbit/s
95th percentile per-packet one-way delay: 1087.244 ms
Loss rate: 81.41%
```
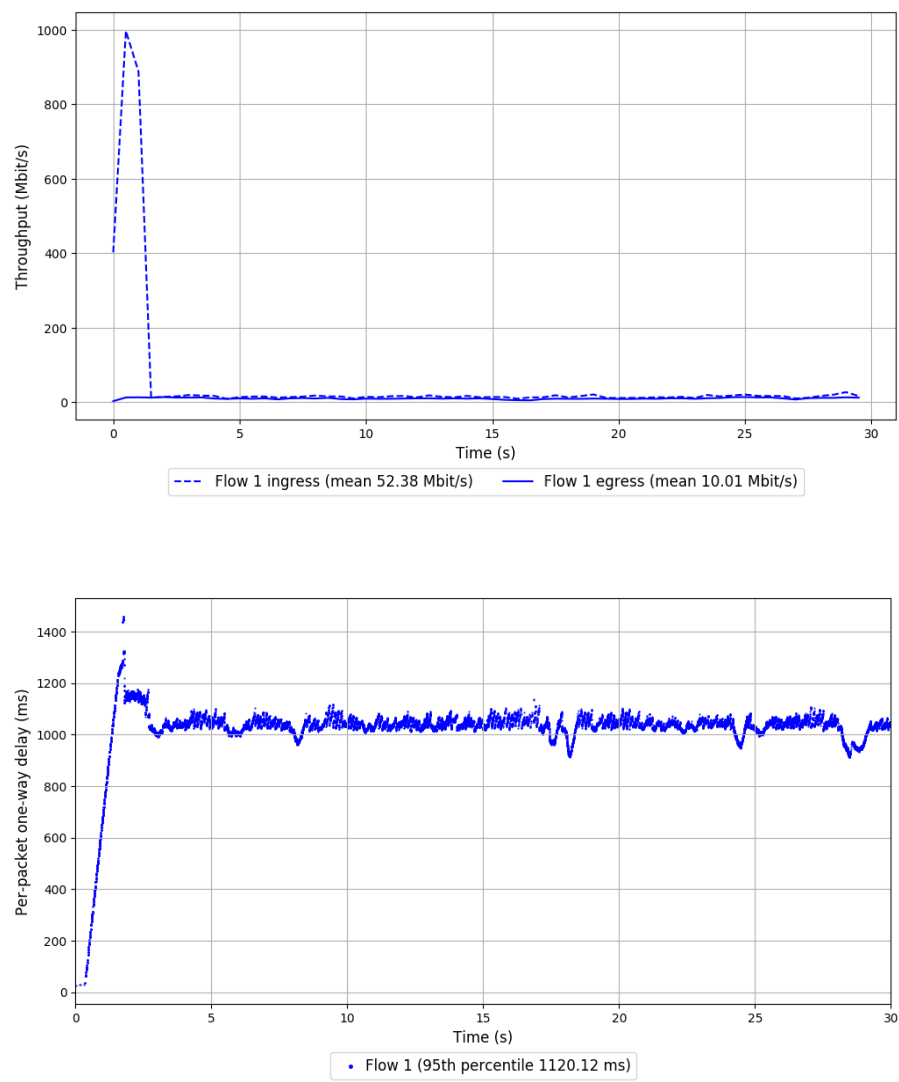
Run 2: Report of FillP — Data Link

```
Run 3: Statistics of FillP

Start at: 2018-01-16 00:09:19
End at: 2018-01-16 00:09:49
Local clock offset: -13.297 ms
Remote clock offset: -18.806 ms


# Below is generated by plot.py at 2018-01-16 00:13:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 10.01 Mbit/s
95th percentile per-packet one-way delay: 1120.116 ms
Loss rate: 80.92%
-- Flow 1:
Average throughput: 10.01 Mbit/s
95th percentile per-packet one-way delay: 1120.116 ms
Loss rate: 80.92%
```

Run 3: Report of FillP — Data Link

Flow 1 ingress (mean 52.38 Mbit/s)   Flow 1 egress (mean 10.01 Mbit/s)

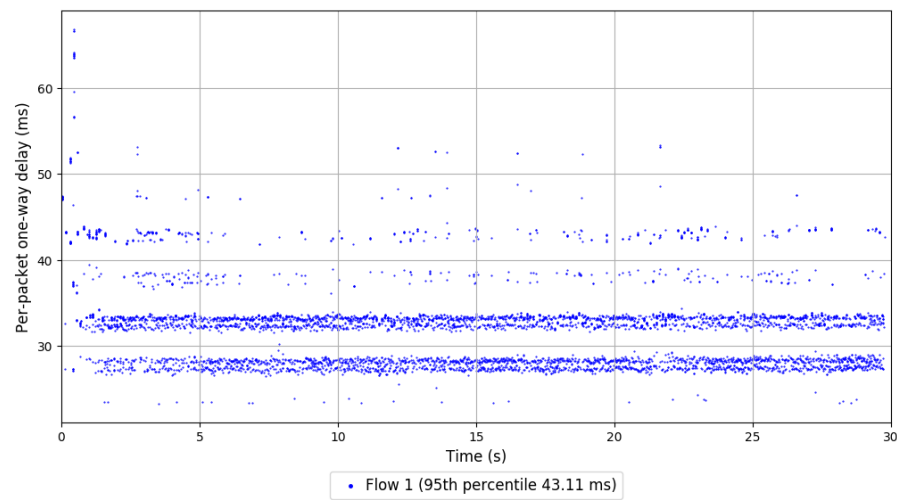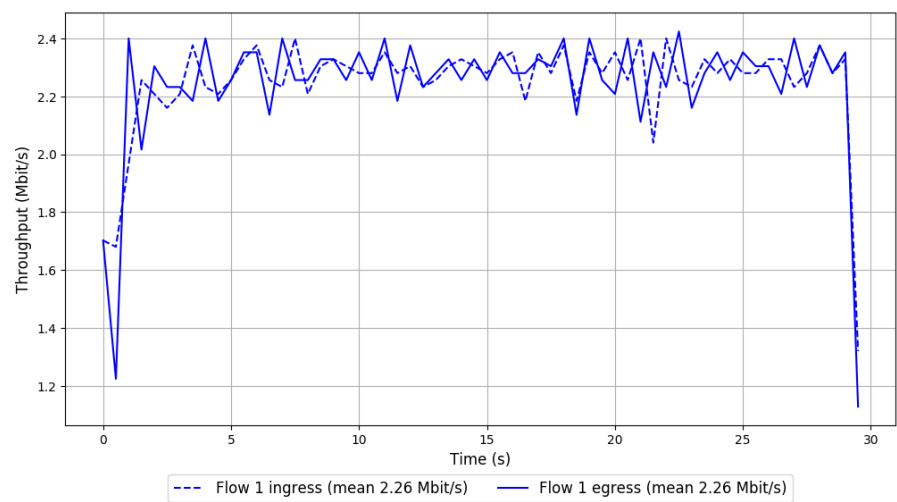

Flow 1 (95th percentile 1120.12 ms)

```
Run 1: Statistics of Indigo

Start at: 2018-01-15 23:37:47
End at: 2018-01-15 23:38:17
Local clock offset: -10.465 ms
Remote clock offset: -15.621 ms


# Below is generated by plot.py at 2018-01-16 00:13:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.26 Mbit/s
95th percentile per-packet one-way delay: 43.112 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 2.26 Mbit/s
95th percentile per-packet one-way delay: 43.112 ms
Loss rate: 0.21%
```
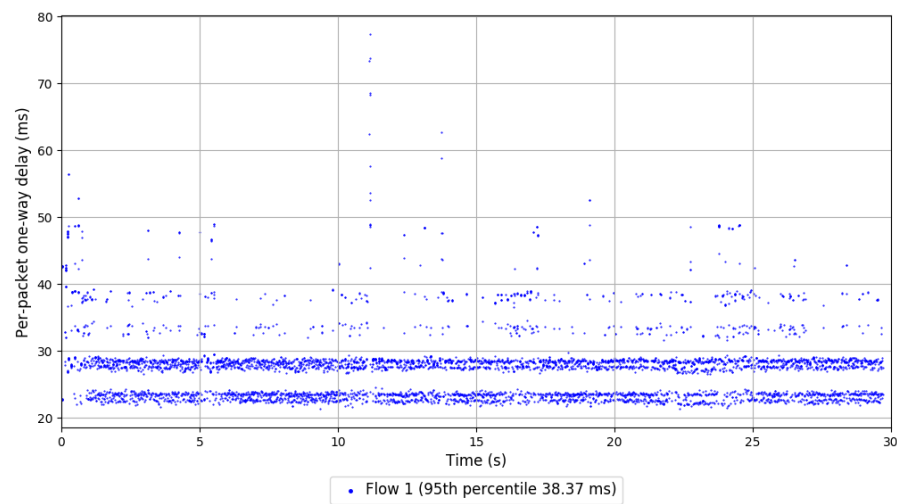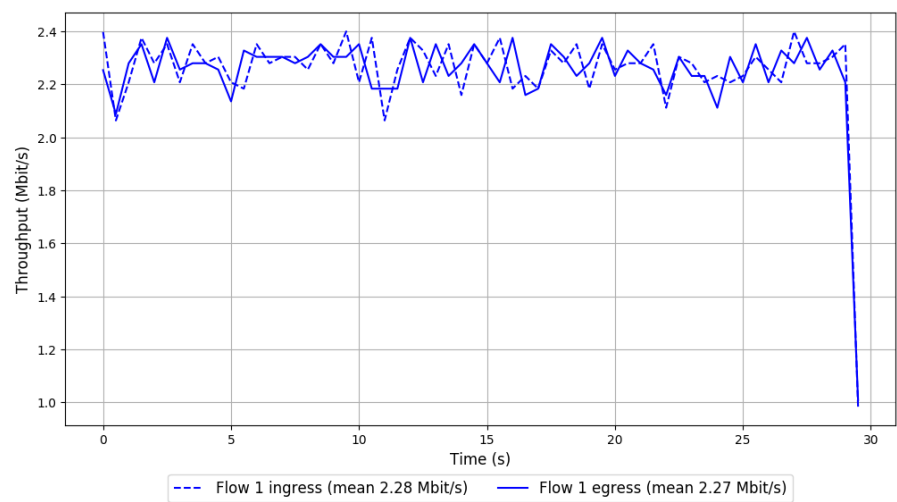
Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2018-01-15 23:54:06
End at: 2018-01-15 23:54:36
Local clock offset: -11.918 ms
Remote clock offset: -22.99 ms


# Below is generated by plot.py at 2018-01-16 00:13:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.27 Mbit/s
95th percentile per-packet one-way delay: 38.373 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 2.27 Mbit/s
95th percentile per-packet one-way delay: 38.373 ms
Loss rate: 0.23%
```

Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2018-01-16 00:10:25
End at: 2018-01-16 00:10:55
Local clock offset: -13.674 ms
Remote clock offset: -16.735 ms


# Below is generated by plot.py at 2018-01-16 00:13:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.07 Mbit/s
95th percentile per-packet one-way delay: 46.004 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 4.07 Mbit/s
95th percentile per-packet one-way delay: 46.004 ms
Loss rate: 0.17%
```

Run 3: Report of Indigo — Data Link