Pantheon Report

Generated at 2018-12-02 02:15:56 (UTC).

Data path: AWS Brazil 1 on `ens5` (*local*) →Brazil on `p4p1` (*remote*).

Repeated the test of 19 congestion control schemes 5 times.

Each test lasted for 30 seconds running 1 flow.

NTP offsets were measured against `gps.ntp.br` and have been applied to correct the timestamps in logs.
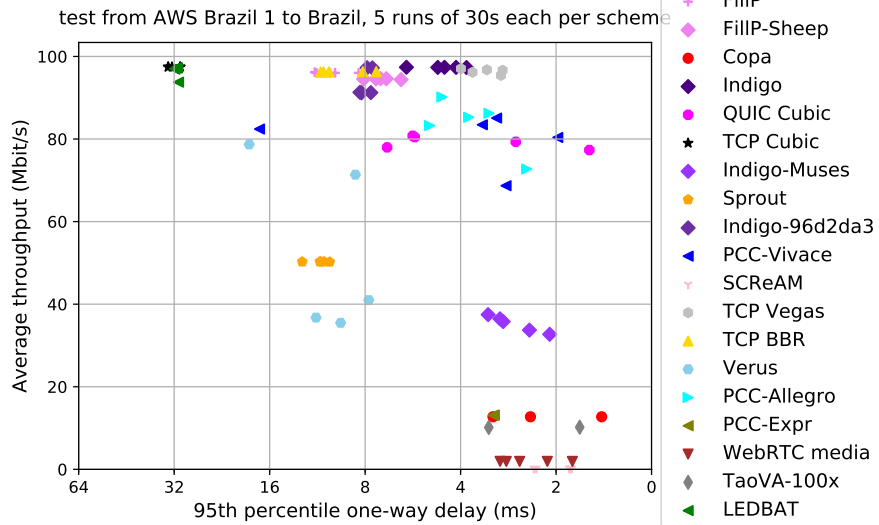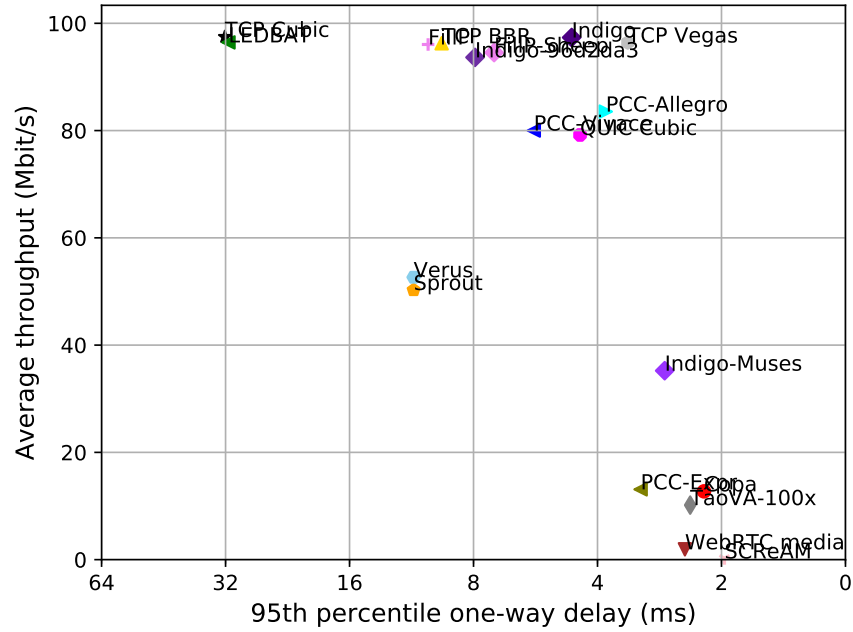
```
System info:
Linux 4.15.0-1027-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

```
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 Brazil 1 to Brazil, 5 runs of 30s each per scheme
(mean of all runs by scheme)

test from AWS Brazil 1 to Brazil, 5 runs of 30s each per scheme

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scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	5	96.28	9.56	0.01
Copa	3	12.73	2.21	65.55
TCP Cubic	5	97.47	32.12	0.01
FillP	5	96.05	10.31	0.28
FillP-Sheep	5	94.54	7.13	0.08
Indigo	5	97.35	4.62	0.00
Indigo-96d2da3	5	93.65	7.93	0.00
LEDBAT	5	96.44	31.49	0.03
Indigo-Muses	5	35.23	2.75	0.00
PCC-Allegro	5	83.53	3.82	0.00
PCC-Expr	2	13.10	3.14	22.36
QUIC Cubic	5	79.18	4.41	0.21
SCReAM	5	0.22	1.95	0.03
Sprout	5	50.27	11.18	0.00
TaoVA-100x	2	10.16	2.38	80.97
TCP Vegas	5	96.41	3.38	0.00
Verus	5	52.66	11.18	1.43
PCC-Vivace	5	80.00	5.71	0.08
WebRTC media	5	1.92	2.45	0.00

```
Run 1: Statistics of TCP BBR

Start at: 2018-12-02 00:22:58
End at: 2018-12-02 00:23:28
Local clock offset: 1.815 ms
Remote clock offset: 0.352 ms


# Below is generated by plot.py at 2018-12-02 02:07:27
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.24 Mbit/s
95th percentile per-packet one-way delay: 10.824 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 96.24 Mbit/s
95th percentile per-packet one-way delay: 10.824 ms
Loss rate: 0.01%
```
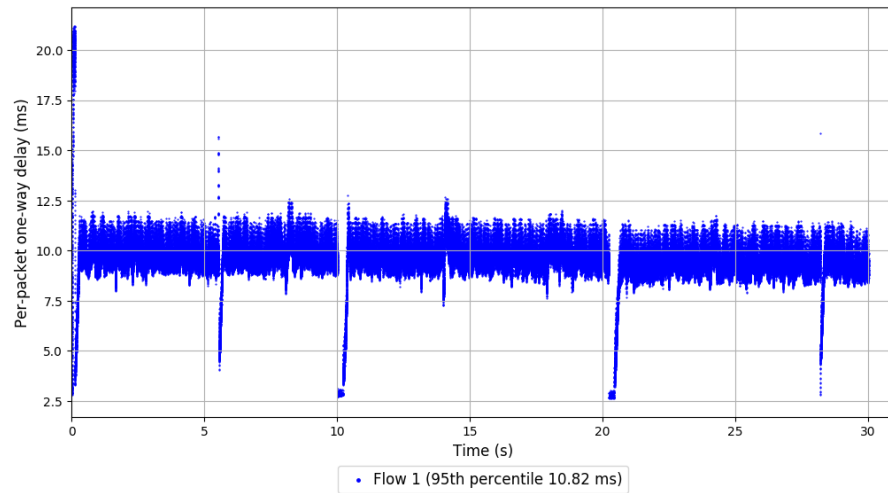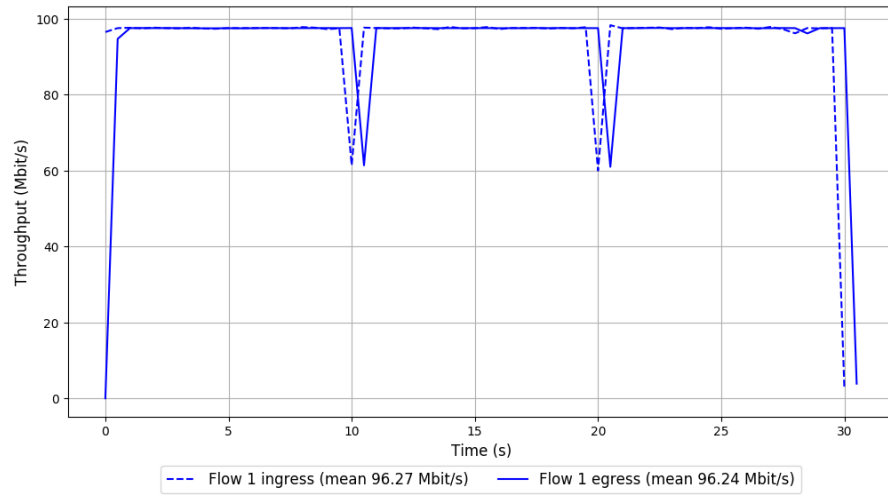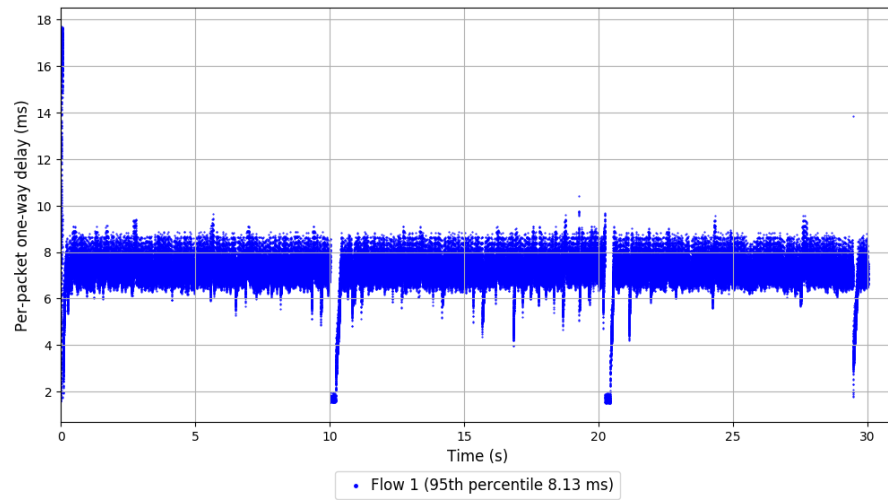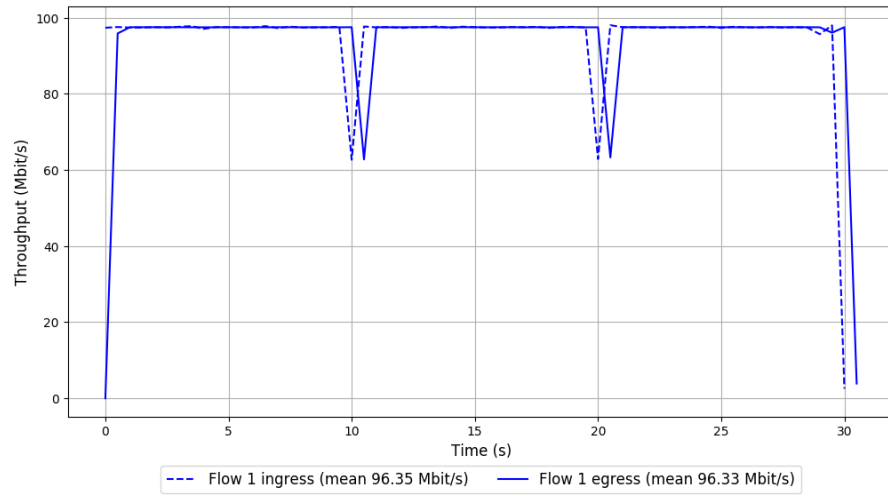
Run 1: Report of TCP BBR — Data Link

```
Run 2: Statistics of TCP BBR

Start at: 2018-12-02 00:44:08
End at: 2018-12-02 00:44:38
Local clock offset: -2.745 ms
Remote clock offset: 0.423 ms


# Below is generated by plot.py at 2018-12-02 02:07:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.33 Mbit/s
95th percentile per-packet one-way delay: 8.135 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 96.33 Mbit/s
95th percentile per-packet one-way delay: 8.135 ms
Loss rate: 0.00%
```
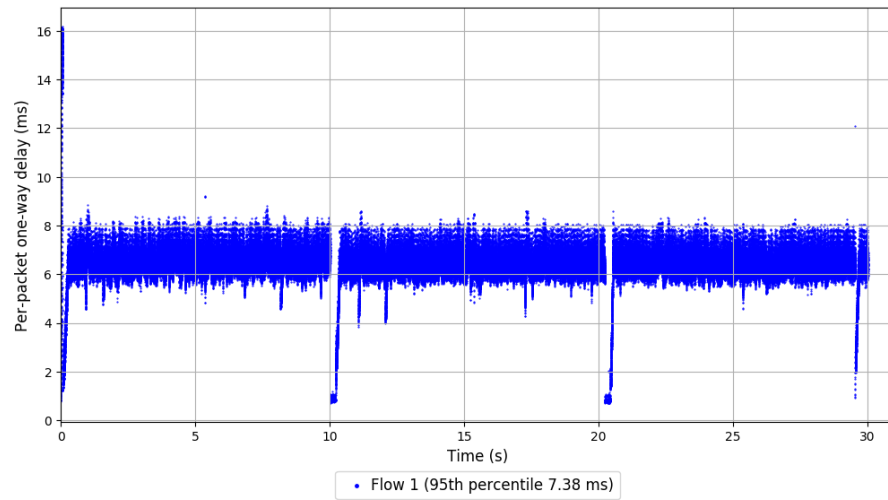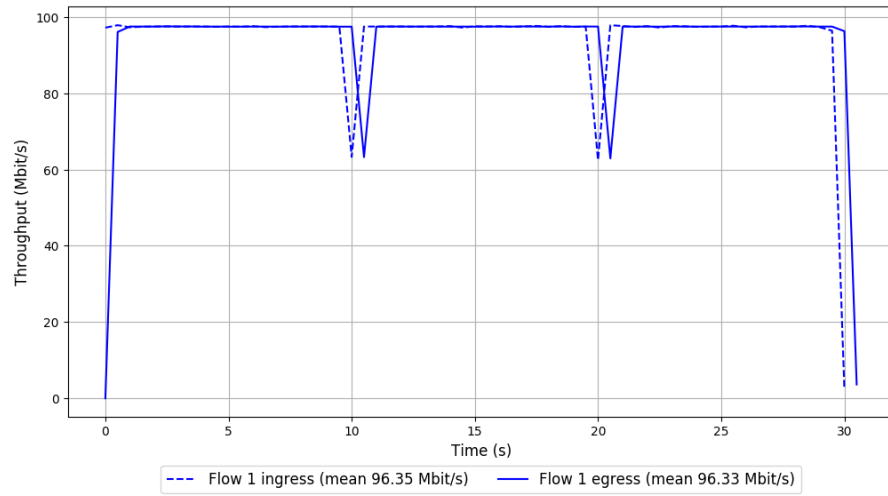
Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2018-12-02 01:05:23
End at: 2018-12-02 01:05:53
Local clock offset: -7.605 ms
Remote clock offset: 0.463 ms


# Below is generated by plot.py at 2018-12-02 02:07:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.33 Mbit/s
95th percentile per-packet one-way delay: 7.378 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 96.33 Mbit/s
95th percentile per-packet one-way delay: 7.378 ms
Loss rate: 0.00%
```
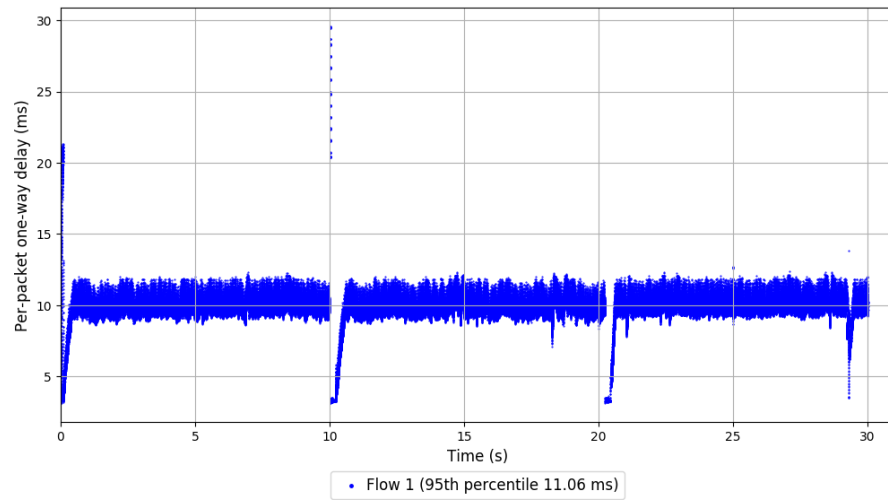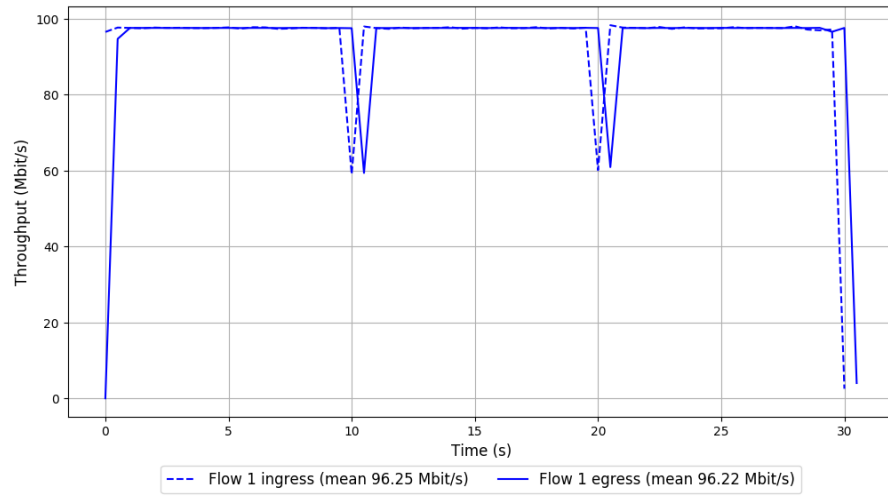
Run 3: Report of TCP BBR — Data Link

Flow 1 ingress (mean 96.35 Mbit/s) --- Flow 1 egress (mean 96.33 Mbit/s)

Flow 1 (95th percentile 7.38 ms)

```
Run 4: Statistics of TCP BBR

Start at: 2018-12-02 01:26:34
End at: 2018-12-02 01:27:04
Local clock offset: -8.829 ms
Remote clock offset: 0.46 ms


# Below is generated by plot.py at 2018-12-02 02:07:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.22 Mbit/s
95th percentile per-packet one-way delay: 11.061 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 96.22 Mbit/s
95th percentile per-packet one-way delay: 11.061 ms
Loss rate: 0.01%
```
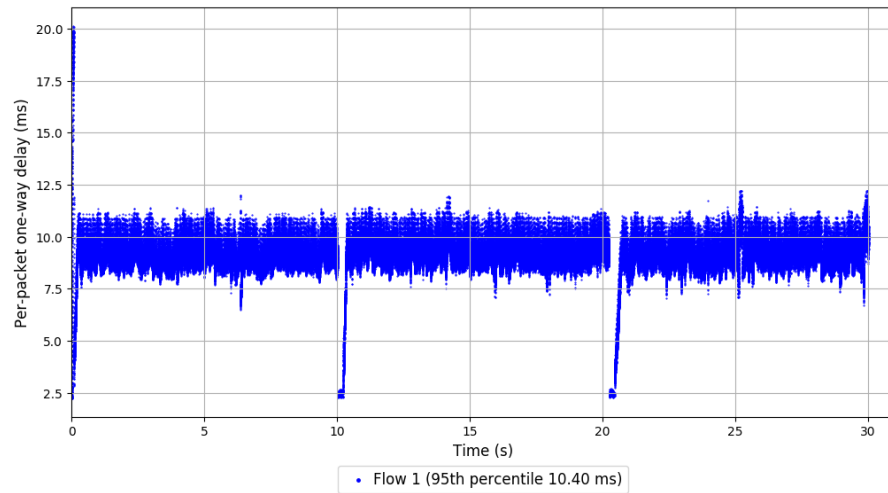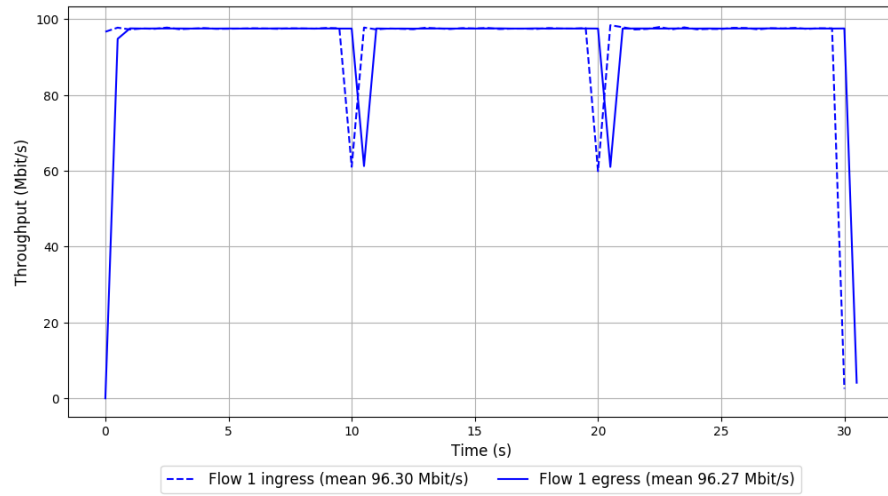
Run 4: Report of TCP BBR — Data Link

Flow 1 ingress (mean 96.25 Mbit/s) — — — Flow 1 egress (mean 96.22 Mbit/s)

Flow 1 (95th percentile 11.06 ms)

```
Run 5: Statistics of TCP BBR

Start at: 2018-12-02 01:47:42
End at: 2018-12-02 01:48:12
Local clock offset: -8.172 ms
Remote clock offset: 0.306 ms


# Below is generated by plot.py at 2018-12-02 02:07:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.27 Mbit/s
95th percentile per-packet one-way delay: 10.405 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 96.27 Mbit/s
95th percentile per-packet one-way delay: 10.405 ms
Loss rate: 0.01%
```
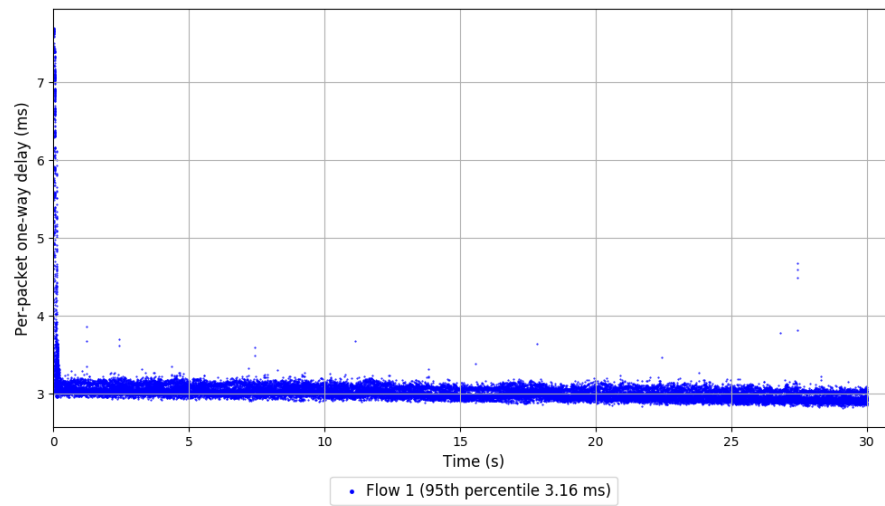
Run 5: Report of TCP BBR — Data Link

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```
Run 1: Statistics of Copa

Start at: 2018-12-02 00:29:42
End at: 2018-12-02 00:30:12
Local clock offset: -0.789 ms
Remote clock offset: 0.502 ms

# Below is generated by plot.py at 2018-12-02 02:07:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 3.162 ms
Loss rate: 64.83%
-- Flow 1:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 3.162 ms
Loss rate: 64.83%
```
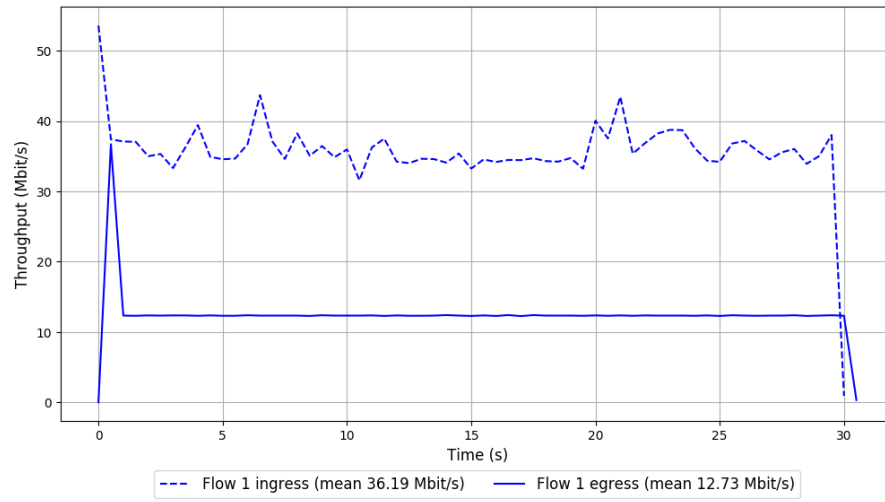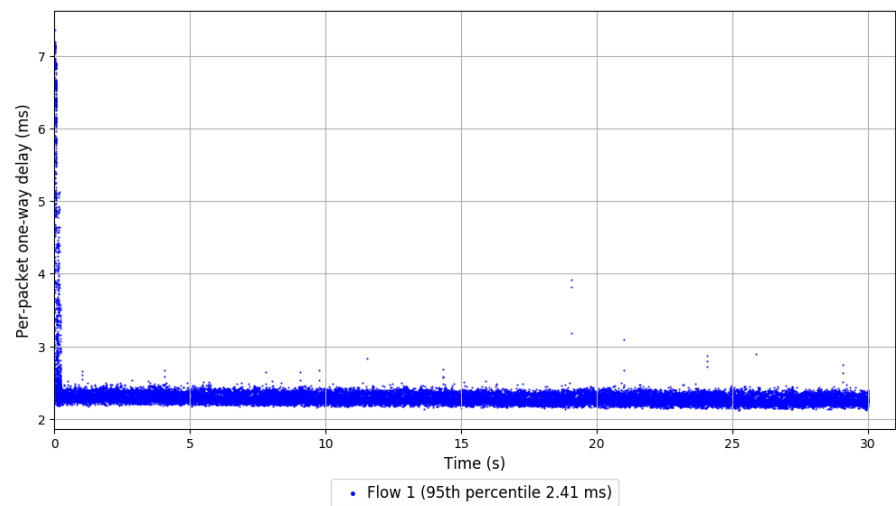
Run 1: Report of Copa — Data Link

Run 2: Statistics of Copa

Start at: 2018-12-02 00:50:51
End at: 2018-12-02 00:51:21
Local clock offset: -4.455 ms
Remote clock offset: 0.518 ms

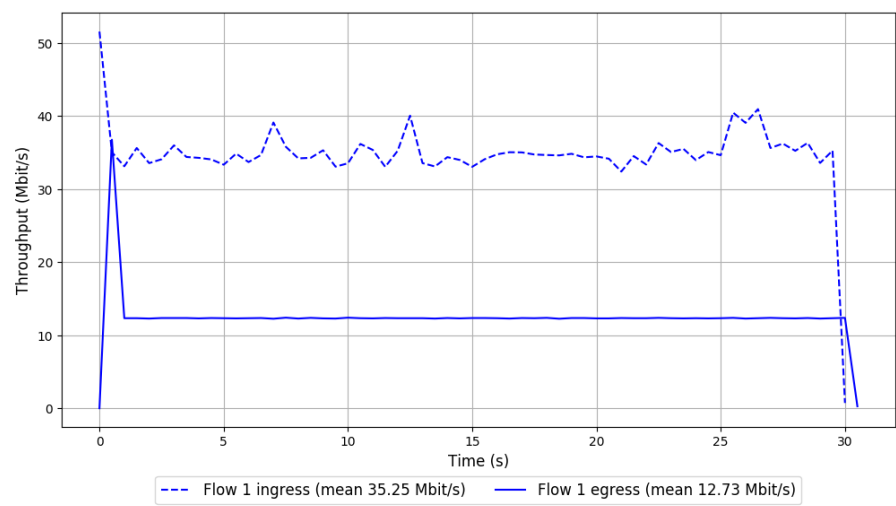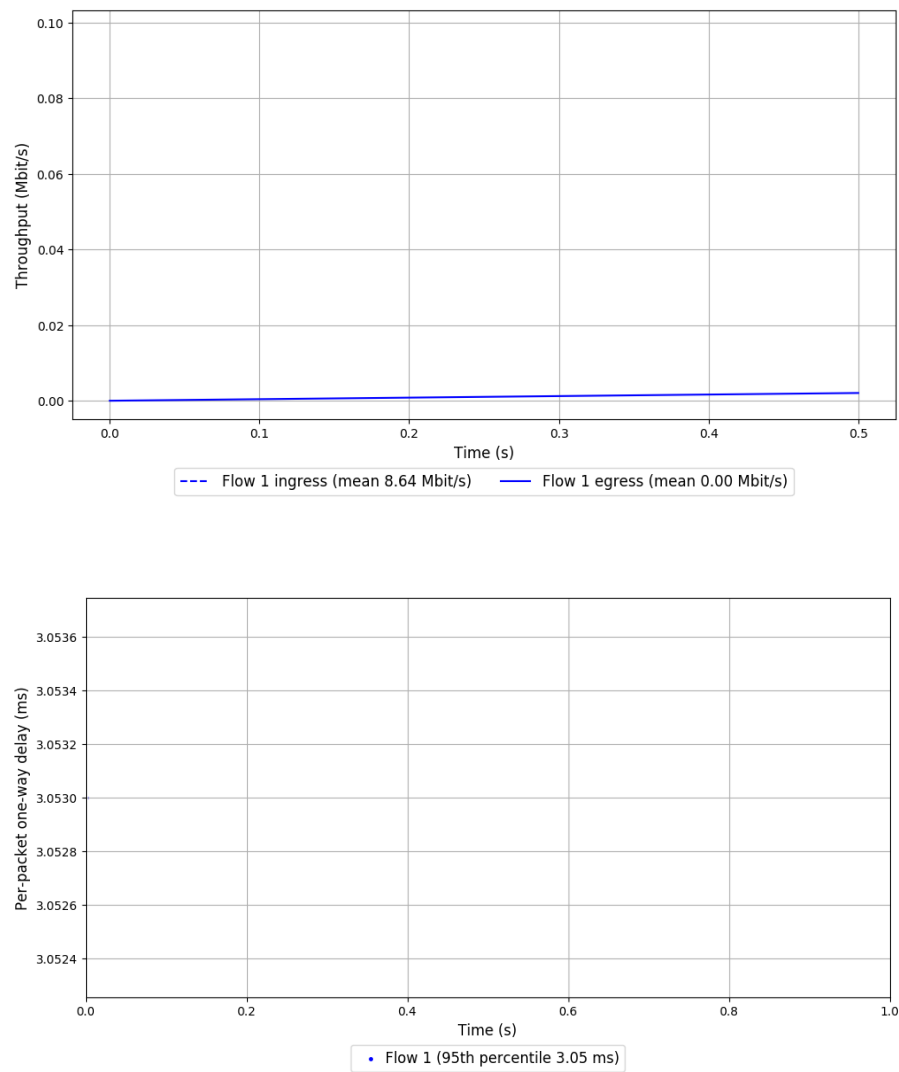Run 2: Report of Copa — Data Link

Flow 1 ingress (mean 11.21 Mbit/s) --- Flow 1 egress (mean 0.00 Mbit/s)

Flow 1 (95th percentile 3.00 ms)

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```
Run 3: Statistics of Copa

Start at: 2018-12-02 01:12:05
End at: 2018-12-02 01:12:35
Local clock offset: -8.494 ms
Remote clock offset: 0.481 ms


# Below is generated by plot.py at 2018-12-02 02:07:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 2.409 ms
Loss rate: 63.89%
-- Flow 1:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 2.409 ms
Loss rate: 63.89%
```
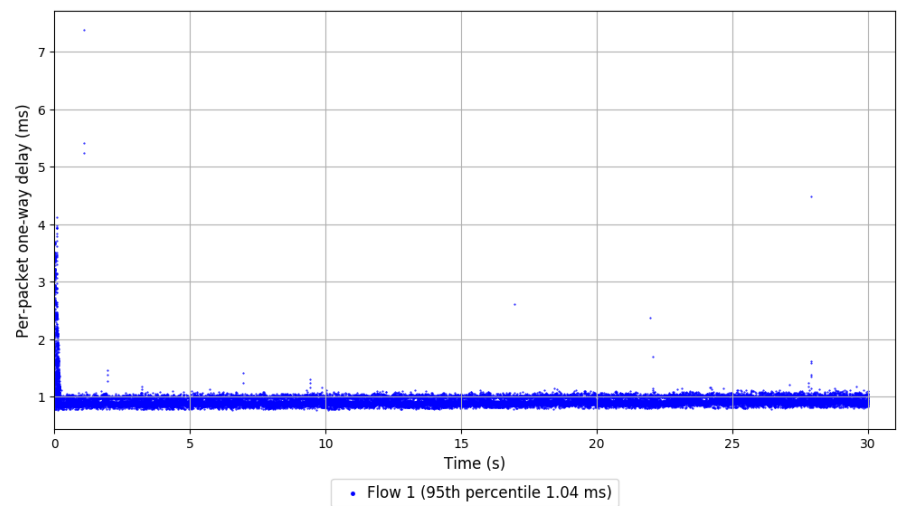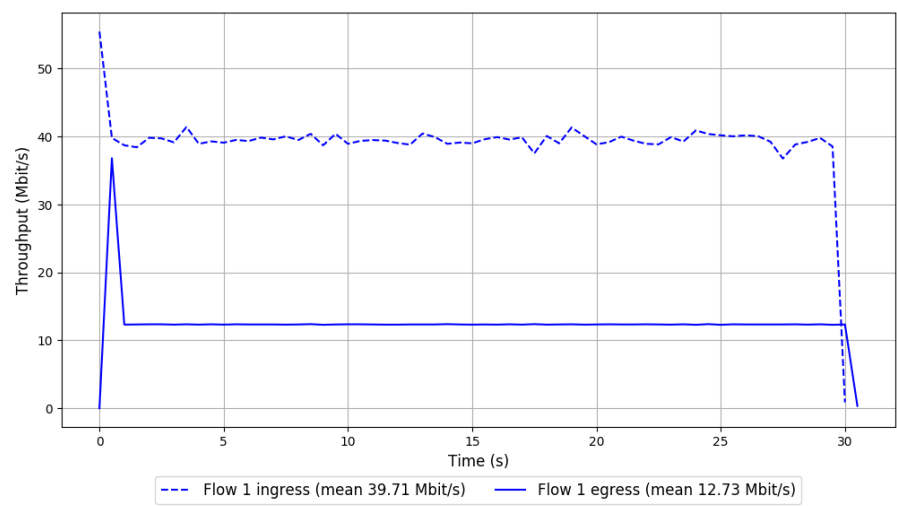
Run 3: Report of Copa — Data Link

Flow 1 ingress (mean 35.25 Mbit/s)   Flow 1 egress (mean 12.73 Mbit/s)

Flow 1 (95th percentile 2.41 ms)

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```
Run 4: Statistics of Copa

Start at: 2018-12-02 01:33:17
End at: 2018-12-02 01:33:47
Local clock offset: -8.63 ms
Remote clock offset: 0.453 ms
```

Run 4: Report of Copa — Data Link

Flow 1 ingress (mean 8.64 Mbit/s) —— Flow 1 egress (mean 0.00 Mbit/s)

• Flow 1 (95th percentile 3.05 ms)

```
Run 5: Statistics of Copa

Start at: 2018-12-02 01:54:25
End at: 2018-12-02 01:54:55
Local clock offset: -7.464 ms
Remote clock offset: 0.314 ms


# Below is generated by plot.py at 2018-12-02 02:07:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 1.045 ms
Loss rate: 67.94%
-- Flow 1:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 1.045 ms
Loss rate: 67.94%
```
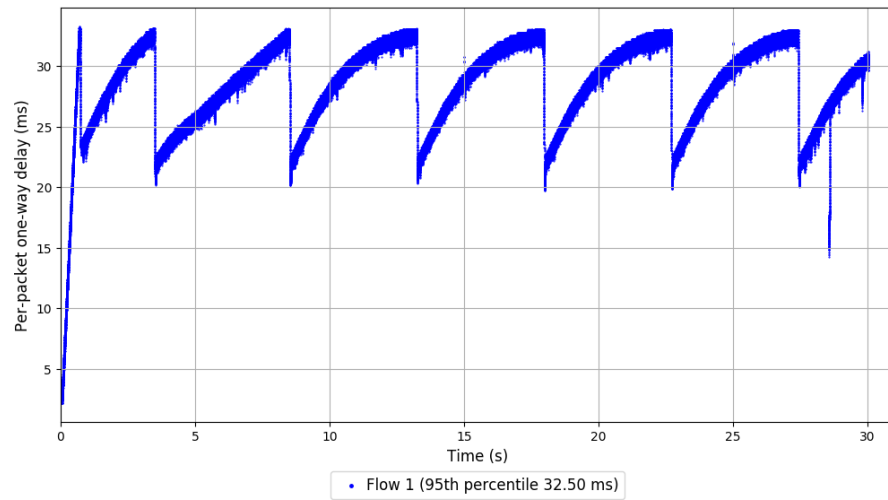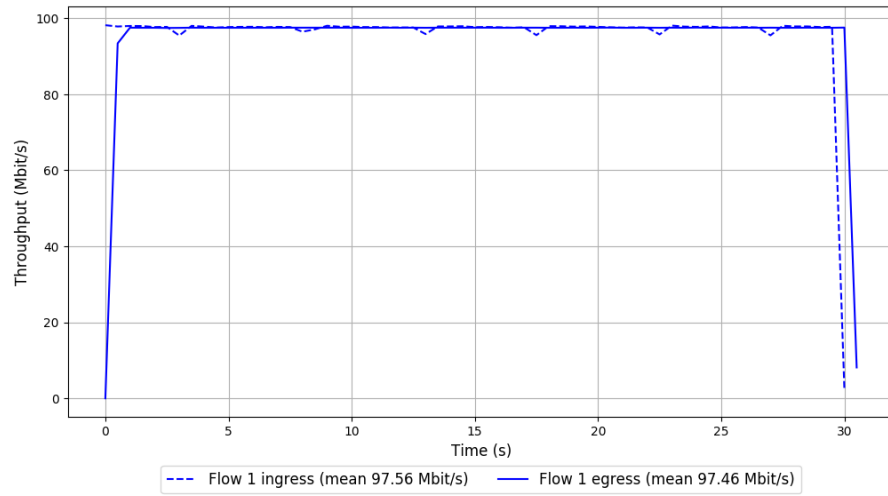
Run 5: Report of Copa — Data Link

Flow 1 ingress (mean 39.71 Mbit/s)   Flow 1 egress (mean 12.73 Mbit/s)

Flow 1 (95th percentile 1.04 ms)

```
Run 1: Statistics of TCP Cubic

Start at: 2018-12-02 00:27:25
End at: 2018-12-02 00:27:55
Local clock offset: 0.629 ms
Remote clock offset: 0.438 ms


# Below is generated by plot.py at 2018-12-02 02:07:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.46 Mbit/s
95th percentile per-packet one-way delay: 32.503 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.46 Mbit/s
95th percentile per-packet one-way delay: 32.503 ms
Loss rate: 0.01%
```
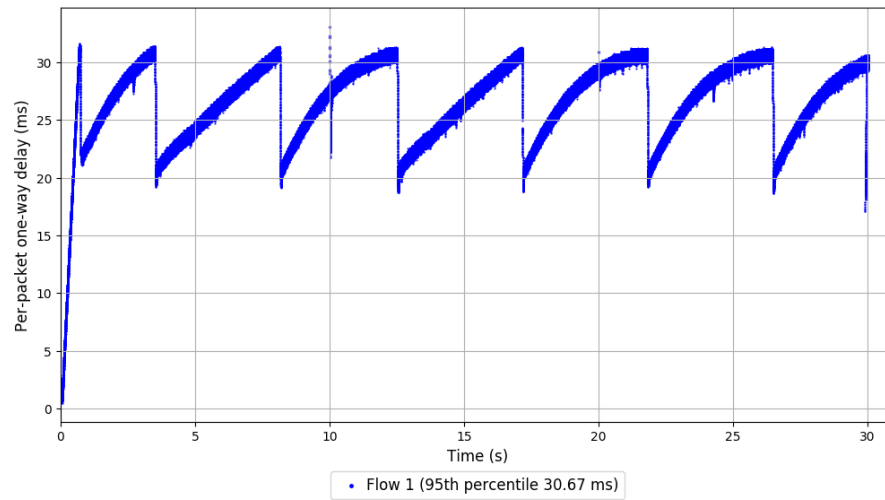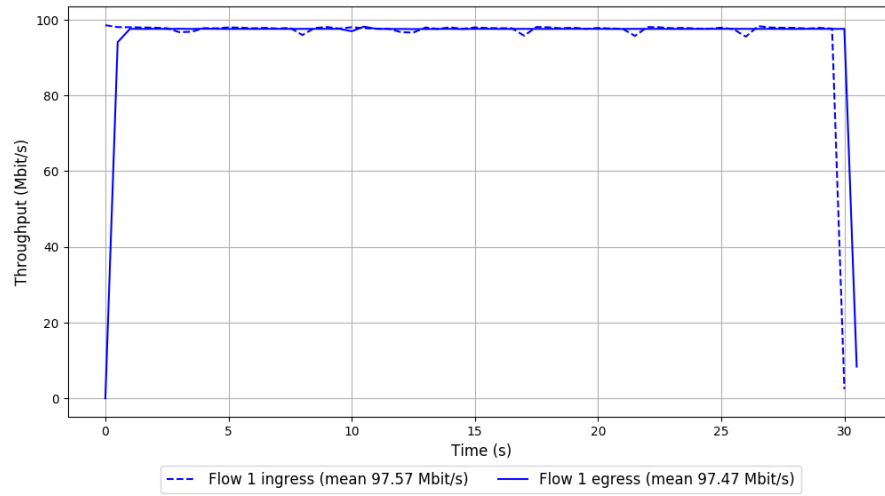
Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2018-12-02 00:48:34
End at: 2018-12-02 00:49:04
Local clock offset: -2.426 ms
Remote clock offset: 0.45 ms


# Below is generated by plot.py at 2018-12-02 02:07:41
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.47 Mbit/s
95th percentile per-packet one-way delay: 30.669 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.47 Mbit/s
95th percentile per-packet one-way delay: 30.669 ms
Loss rate: 0.01%
```
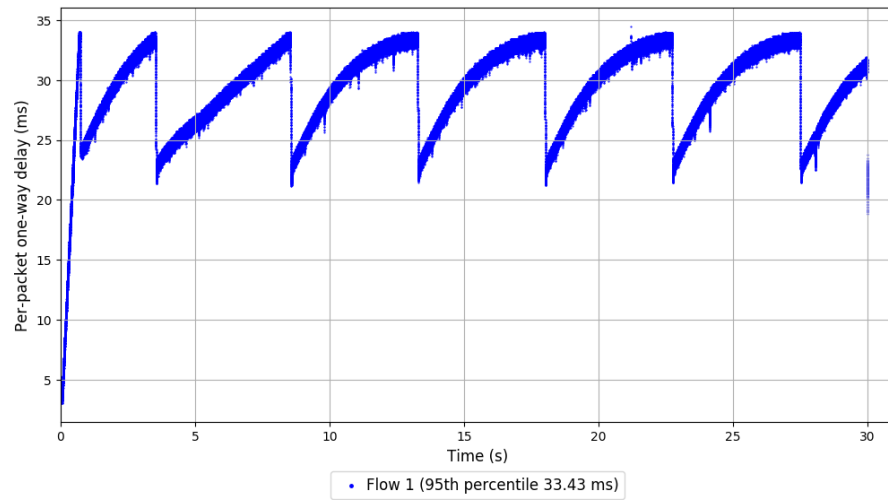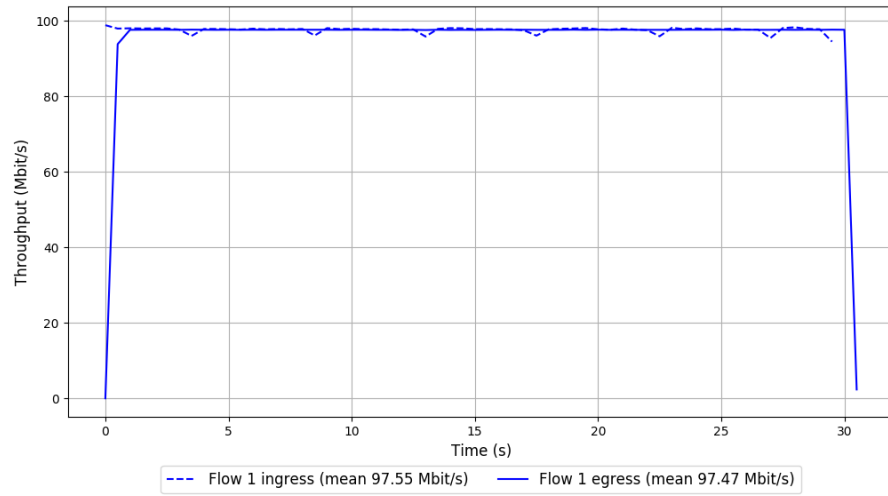
Run 2: Report of TCP Cubic — Data Link

```
Run 3: Statistics of TCP Cubic

Start at: 2018-12-02 01:09:49
End at: 2018-12-02 01:10:19
Local clock offset: -9.025 ms
Remote clock offset: 0.487 ms


# Below is generated by plot.py at 2018-12-02 02:07:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.47 Mbit/s
95th percentile per-packet one-way delay: 33.429 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 97.47 Mbit/s
95th percentile per-packet one-way delay: 33.429 ms
Loss rate: 0.02%
```
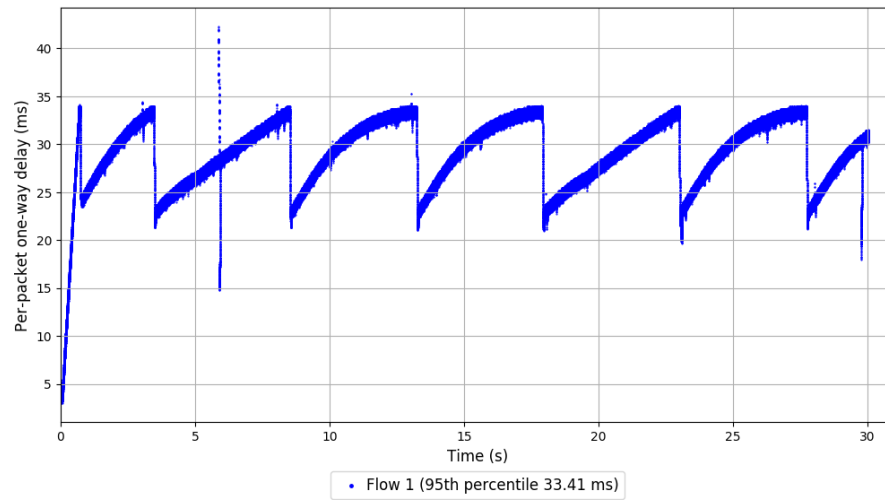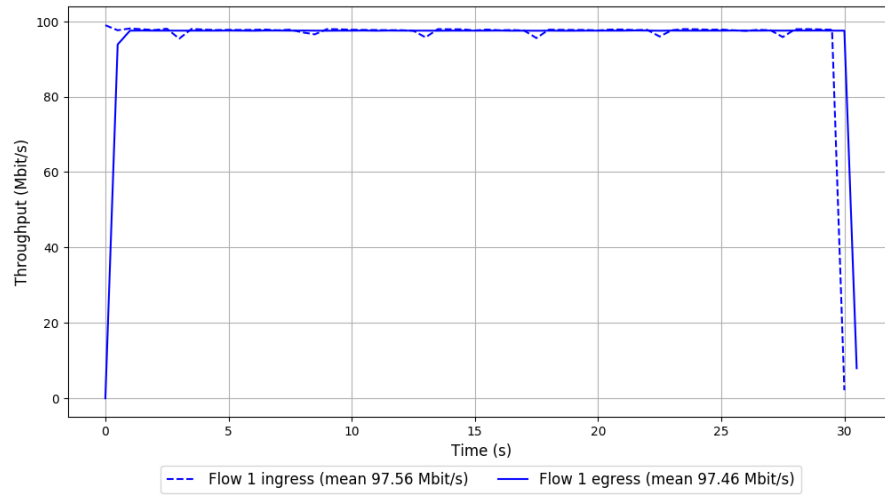
Run 3: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 97.55 Mbit/s)   Flow 1 egress (mean 97.47 Mbit/s)

Flow 1 (95th percentile 33.43 ms)

```
Run 4: Statistics of TCP Cubic

Start at: 2018-12-02 01:31:00
End at: 2018-12-02 01:31:30
Local clock offset: -8.607 ms
Remote clock offset: 0.399 ms


# Below is generated by plot.py at 2018-12-02 02:08:32
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.46 Mbit/s
95th percentile per-packet one-way delay: 33.414 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.46 Mbit/s
95th percentile per-packet one-way delay: 33.414 ms
Loss rate: 0.01%
```
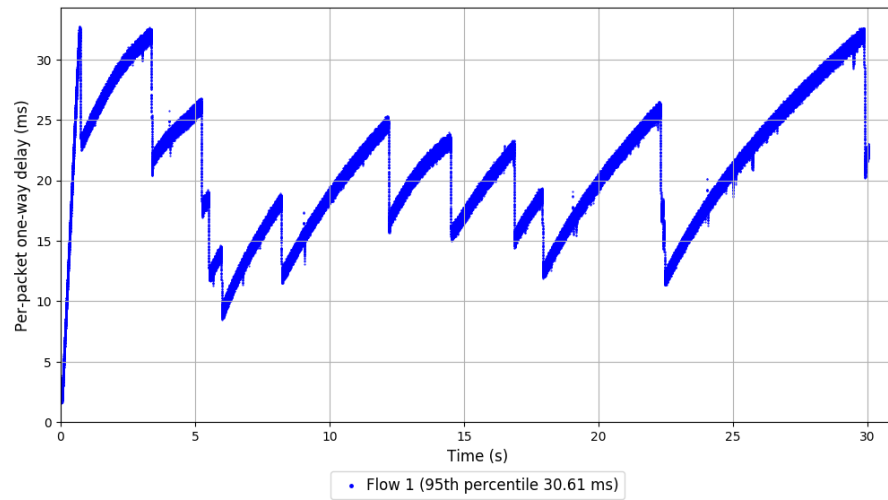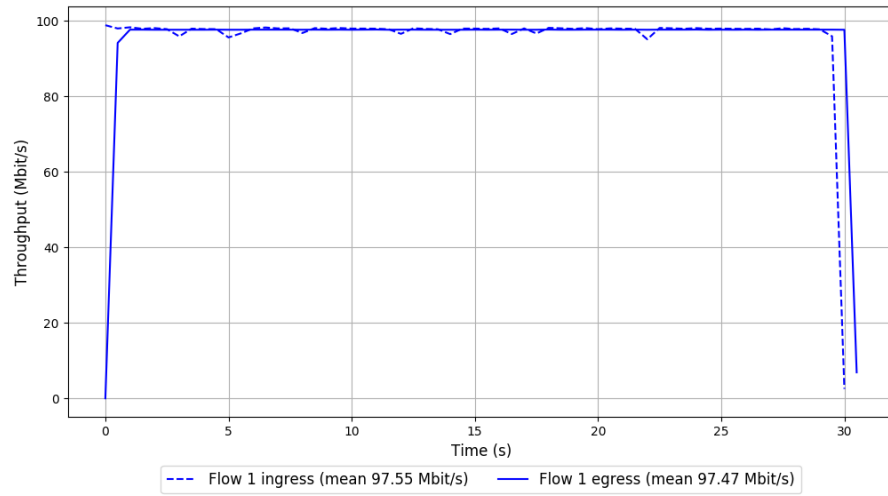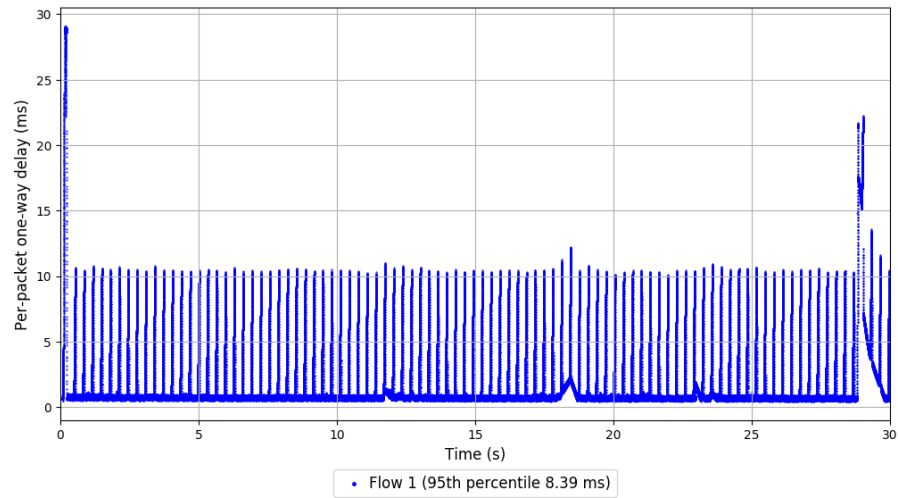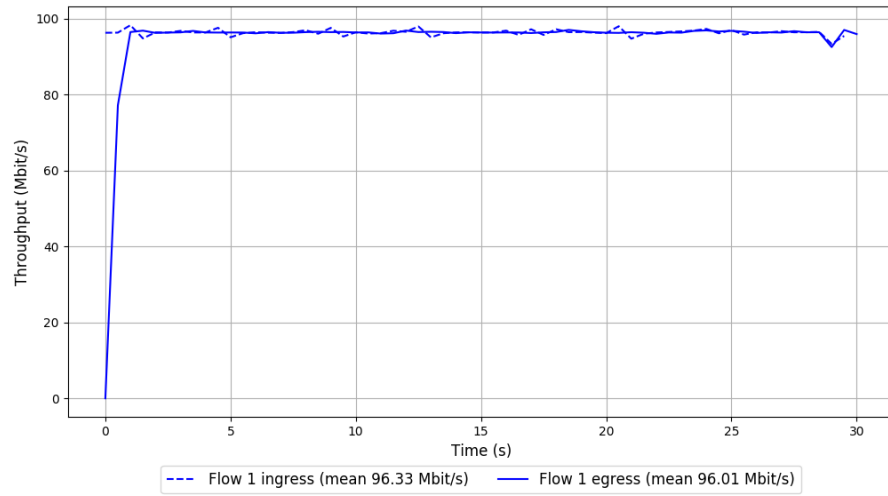
Run 4: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 97.56 Mbit/s)　　　Flow 1 egress (mean 97.46 Mbit/s)

Flow 1 (95th percentile 33.41 ms)

```
Run 5: Statistics of TCP Cubic

Start at: 2018-12-02 01:52:08
End at: 2018-12-02 01:52:38
Local clock offset: -8.421 ms
Remote clock offset: 0.341 ms


# Below is generated by plot.py at 2018-12-02 02:08:32
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.47 Mbit/s
95th percentile per-packet one-way delay: 30.606 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.47 Mbit/s
95th percentile per-packet one-way delay: 30.606 ms
Loss rate: 0.01%
```

Run 5: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 97.55 Mbit/s) — Flow 1 egress (mean 97.47 Mbit/s)

Flow 1 (95th percentile 30.61 ms)

```
Run 1: Statistics of FillP

Start at: 2018-12-02 00:33:02
End at: 2018-12-02 00:33:32
Local clock offset: -0.775 ms
Remote clock offset: 0.356 ms


# Below is generated by plot.py at 2018-12-02 02:08:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.01 Mbit/s
95th percentile per-packet one-way delay: 8.390 ms
Loss rate: 0.32%
-- Flow 1:
Average throughput: 96.01 Mbit/s
95th percentile per-packet one-way delay: 8.390 ms
Loss rate: 0.32%
```
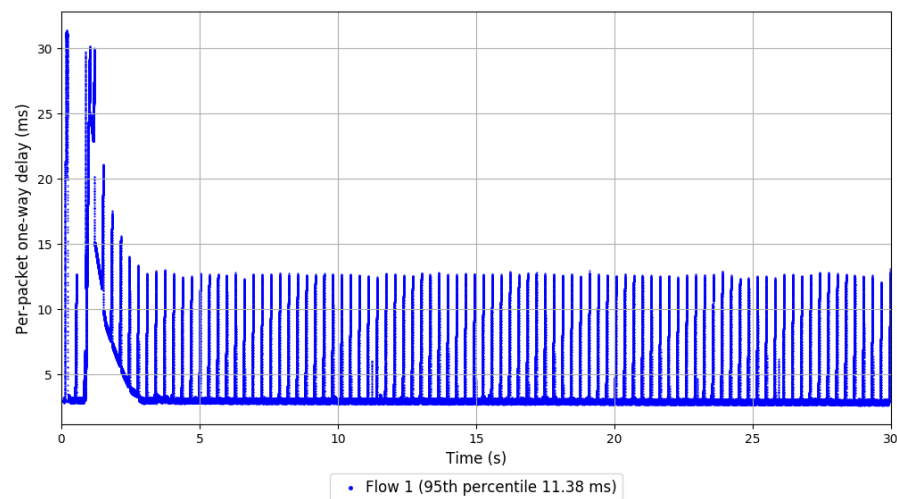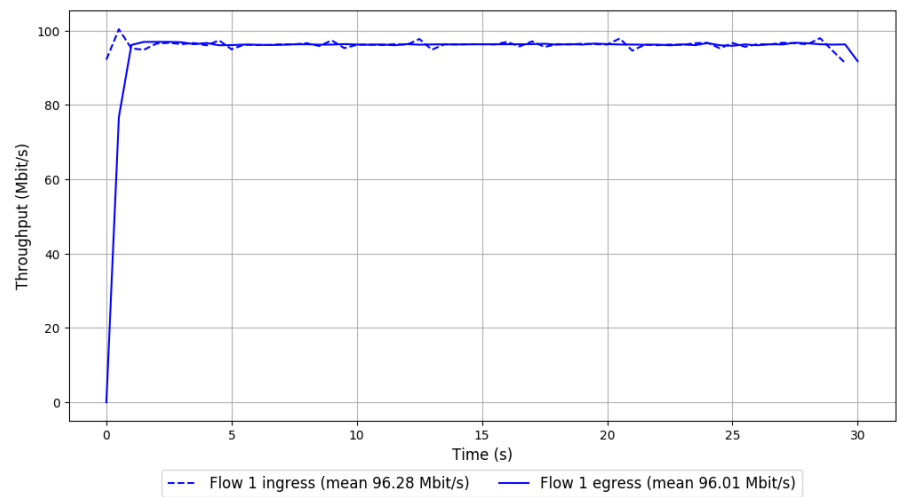
Run 1: Report of FillP — Data Link

Flow 1 ingress (mean 96.33 Mbit/s)   Flow 1 egress (mean 96.01 Mbit/s)

Flow 1 (95th percentile 8.39 ms)

```
Run 2: Statistics of FillP

Start at: 2018-12-02 00:54:11
End at: 2018-12-02 00:54:41
Local clock offset: -5.836 ms
Remote clock offset: 0.508 ms


# Below is generated by plot.py at 2018-12-02 02:08:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.01 Mbit/s
95th percentile per-packet one-way delay: 11.380 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 96.01 Mbit/s
95th percentile per-packet one-way delay: 11.380 ms
Loss rate: 0.25%
```
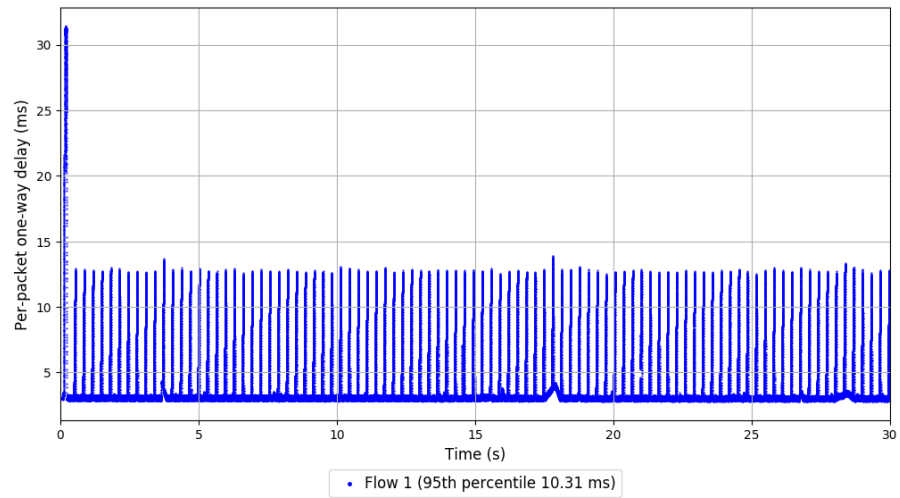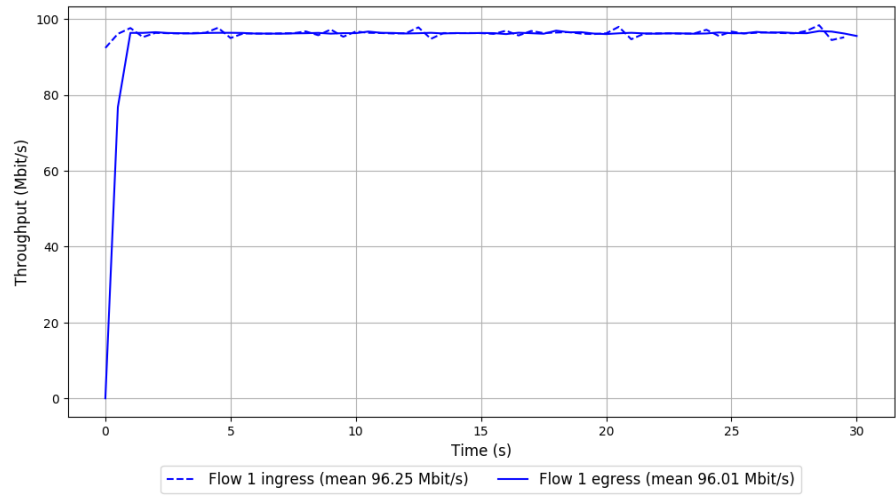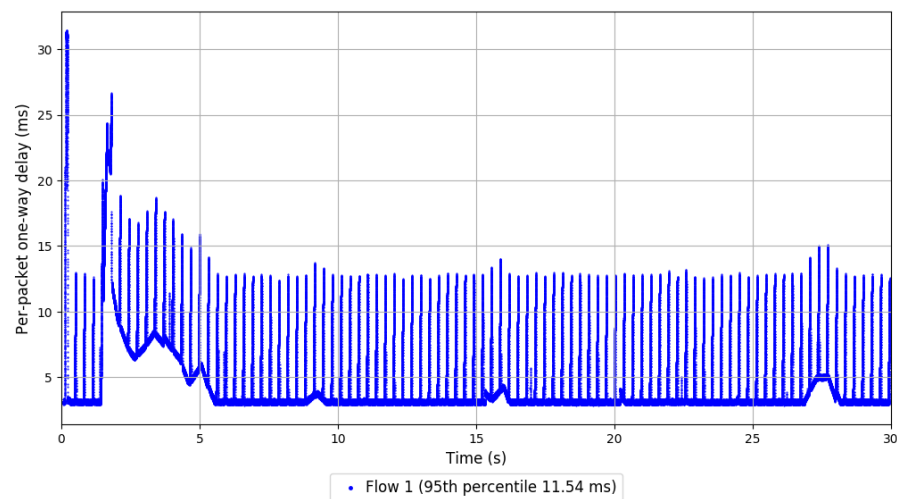
Run 2: Report of FillP — Data Link

Flow 1 ingress (mean 96.28 Mbit/s)   Flow 1 egress (mean 96.01 Mbit/s)

Flow 1 (95th percentile 11.38 ms)

```
Run 3: Statistics of FillP

Start at: 2018-12-02 01:15:26
End at: 2018-12-02 01:15:56
Local clock offset: -9.647 ms
Remote clock offset: 0.458 ms


# Below is generated by plot.py at 2018-12-02 02:08:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.01 Mbit/s
95th percentile per-packet one-way delay: 10.309 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 96.01 Mbit/s
95th percentile per-packet one-way delay: 10.309 ms
Loss rate: 0.26%
```
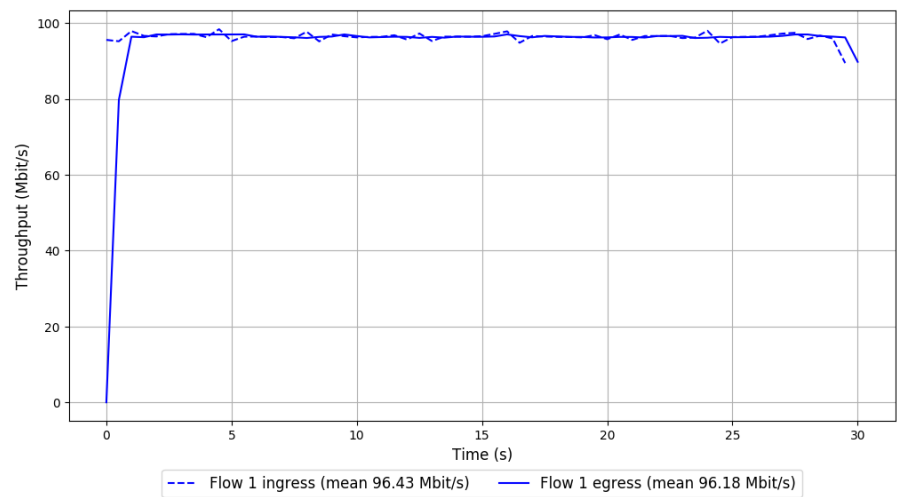
Run 3: Report of FillP — Data Link

```
Run 4: Statistics of FillP

Start at: 2018-12-02 01:36:37
End at: 2018-12-02 01:37:07
Local clock offset: -8.609 ms
Remote clock offset: 0.407 ms


# Below is generated by plot.py at 2018-12-02 02:09:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.18 Mbit/s
95th percentile per-packet one-way delay: 11.535 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 96.18 Mbit/s
95th percentile per-packet one-way delay: 11.535 ms
Loss rate: 0.25%
```
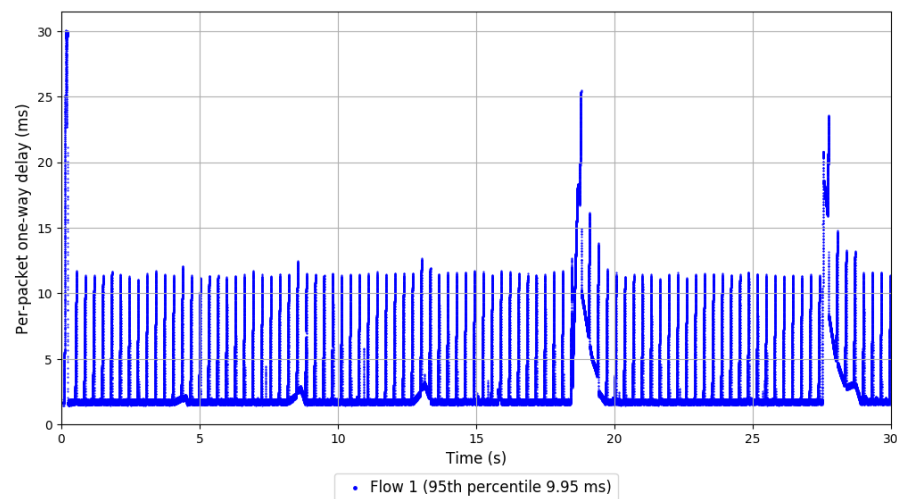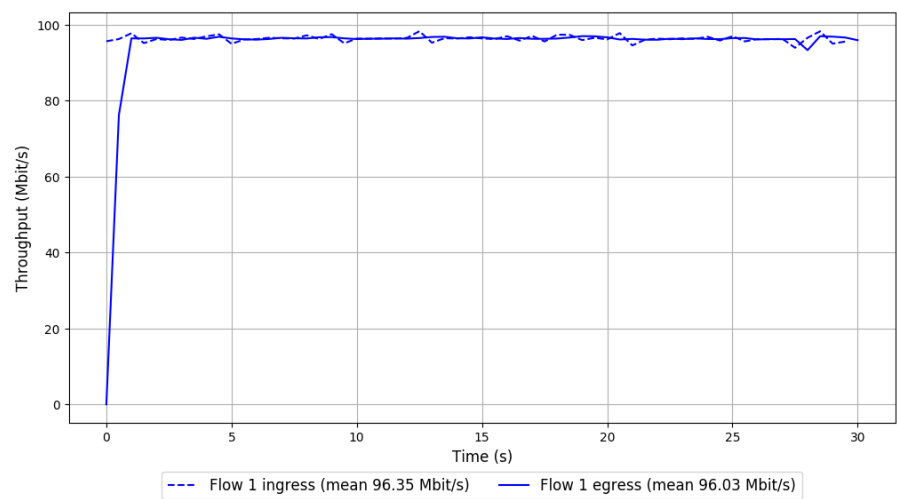
Run 4: Report of FillP — Data Link

Flow 1 ingress (mean 96.43 Mbit/s)   Flow 1 egress (mean 96.18 Mbit/s)

Flow 1 (95th percentile 11.54 ms)

```
Run 5: Statistics of FillP

Start at: 2018-12-02 01:57:46
End at: 2018-12-02 01:58:16
Local clock offset: -8.043 ms
Remote clock offset: 0.367 ms


# Below is generated by plot.py at 2018-12-02 02:09:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.03 Mbit/s
95th percentile per-packet one-way delay: 9.950 ms
Loss rate: 0.33%
-- Flow 1:
Average throughput: 96.03 Mbit/s
95th percentile per-packet one-way delay: 9.950 ms
Loss rate: 0.33%
```
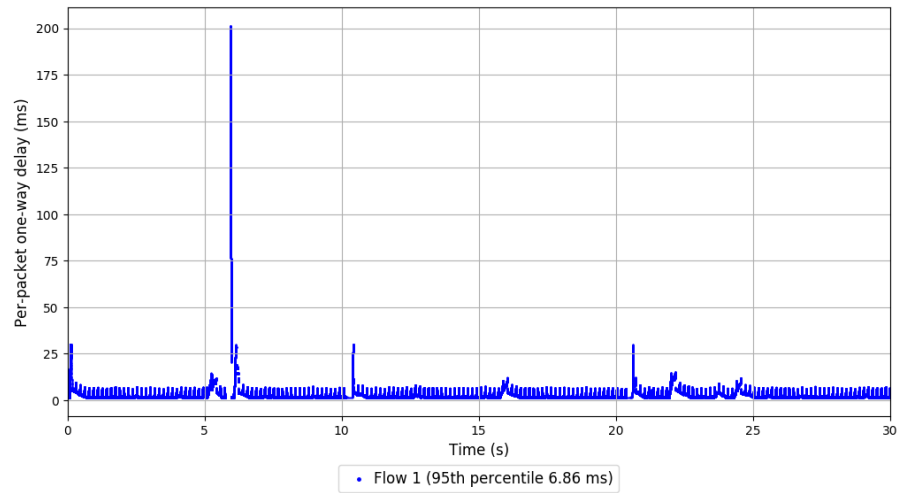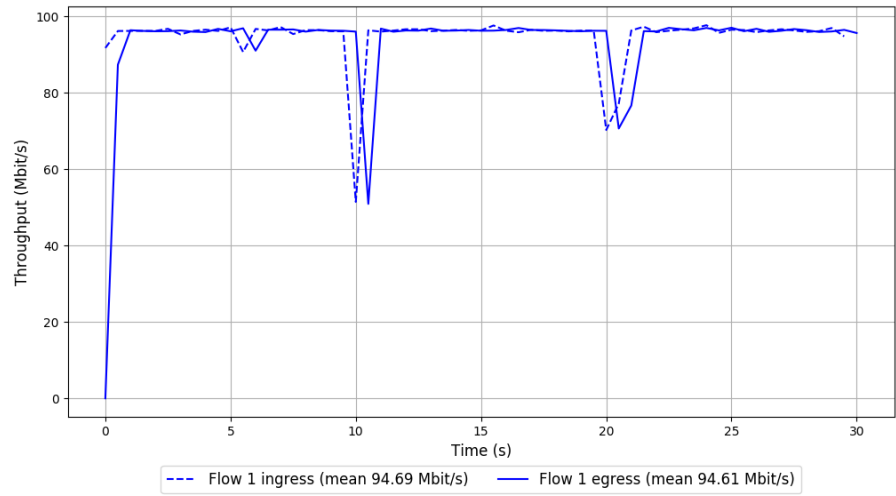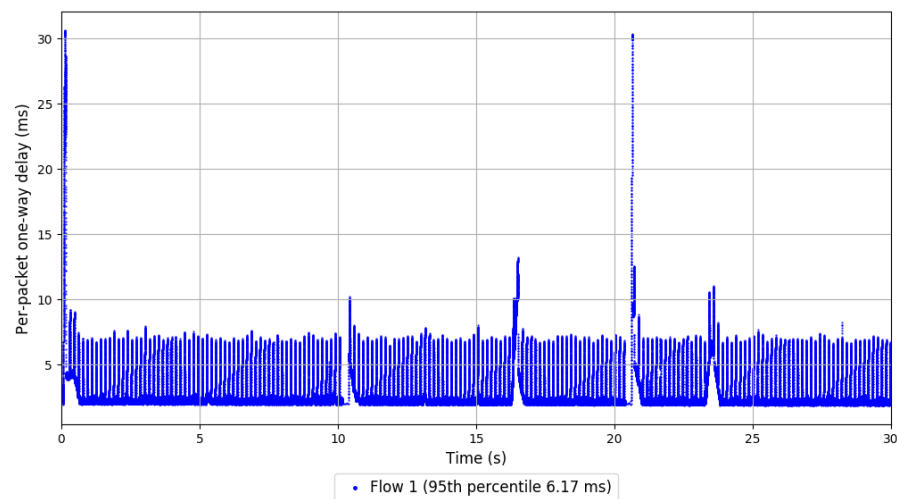
Run 5: Report of FillP — Data Link

Flow 1 ingress (mean 96.35 Mbit/s) --- Flow 1 egress (mean 96.03 Mbit/s)

• Flow 1 (95th percentile 9.95 ms)

```
Run 1: Statistics of FillP-Sheep

Start at: 2018-12-02 00:39:39
End at: 2018-12-02 00:40:10
Local clock offset: -2.395 ms
Remote clock offset: 0.455 ms


# Below is generated by plot.py at 2018-12-02 02:09:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 94.61 Mbit/s
95th percentile per-packet one-way delay: 6.859 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 94.61 Mbit/s
95th percentile per-packet one-way delay: 6.859 ms
Loss rate: 0.07%
```
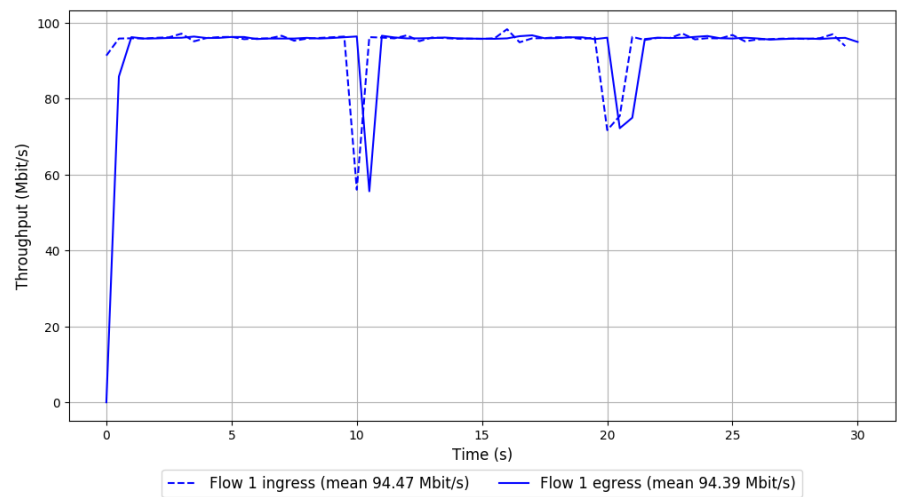
Run 1: Report of FillP-Sheep — Data Link

```
Run 2: Statistics of FillP-Sheep

Start at: 2018-12-02 01:00:55
End at: 2018-12-02 01:01:25
Local clock offset: -6.868 ms
Remote clock offset: 0.357 ms


# Below is generated by plot.py at 2018-12-02 02:10:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 94.39 Mbit/s
95th percentile per-packet one-way delay: 6.165 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 94.39 Mbit/s
95th percentile per-packet one-way delay: 6.165 ms
Loss rate: 0.09%
```
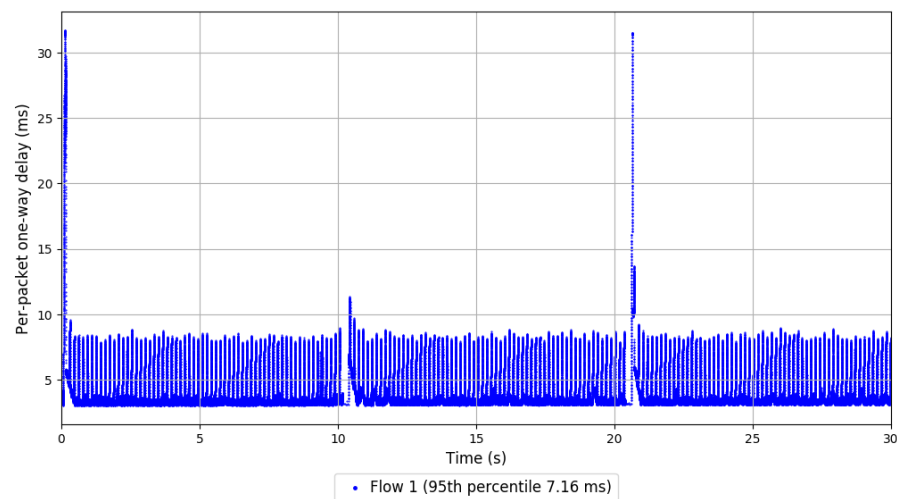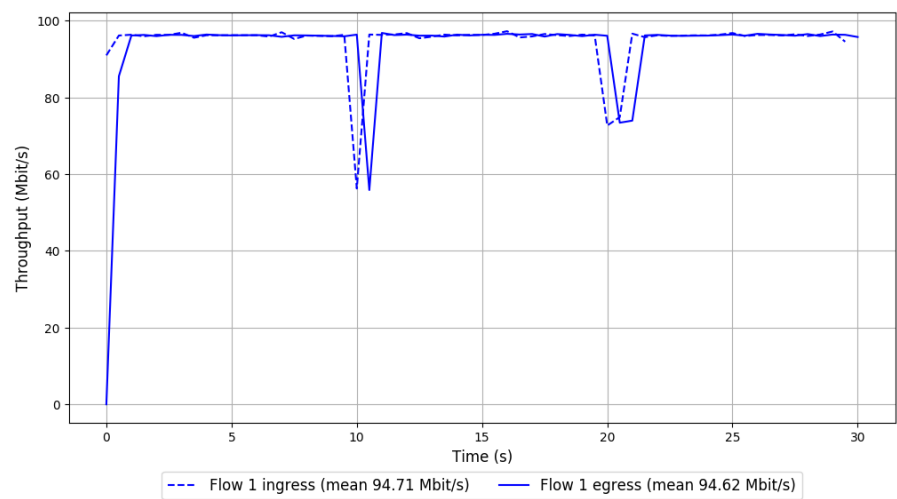
Run 2: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 94.47 Mbit/s)   Flow 1 egress (mean 94.39 Mbit/s)

Flow 1 (95th percentile 6.17 ms)

```
Run 3: Statistics of FillP-Sheep

Start at: 2018-12-02 01:22:05
End at: 2018-12-02 01:22:35
Local clock offset: -9.253 ms
Remote clock offset: 0.497 ms


# Below is generated by plot.py at 2018-12-02 02:10:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 94.62 Mbit/s
95th percentile per-packet one-way delay: 7.155 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 94.62 Mbit/s
95th percentile per-packet one-way delay: 7.155 ms
Loss rate: 0.09%
```
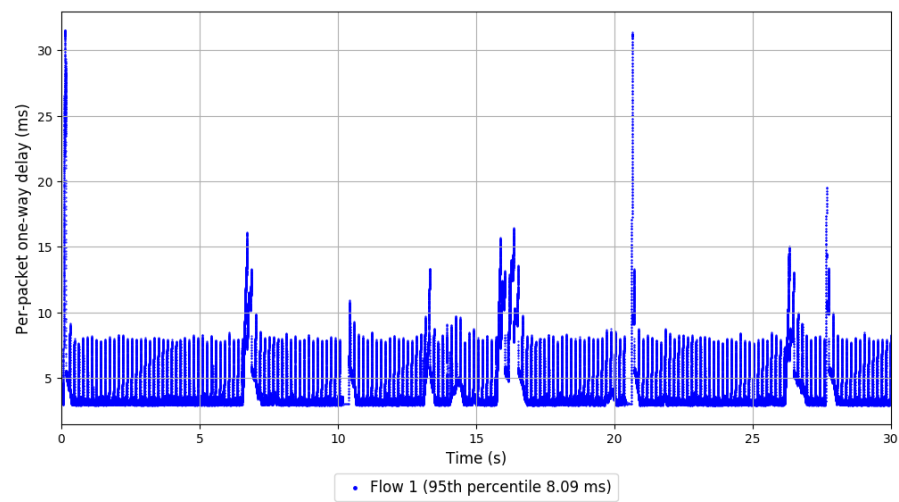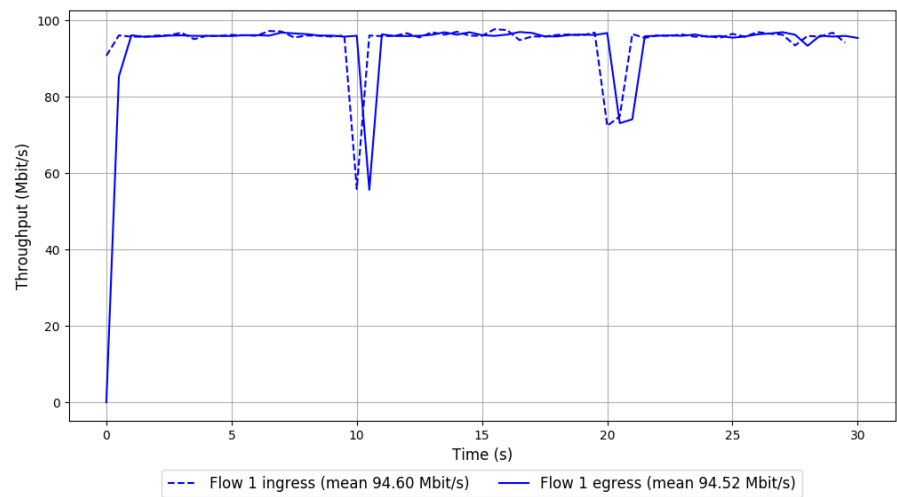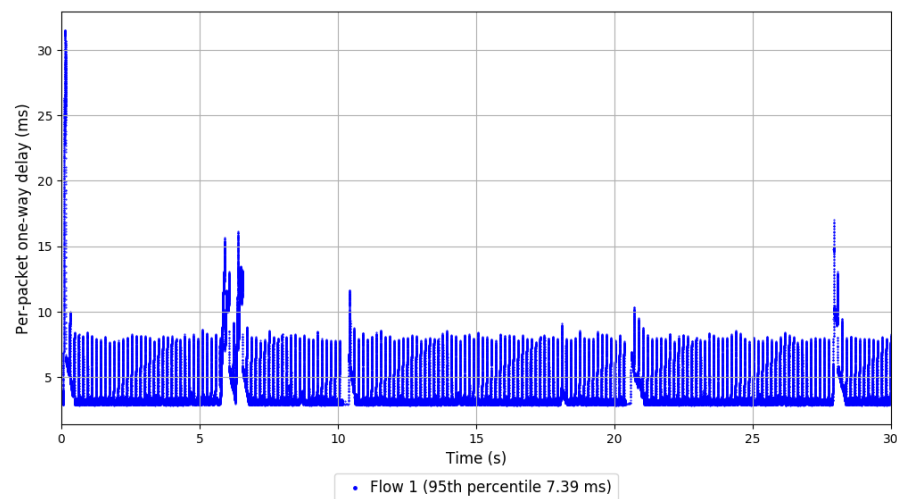
Run 3: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 94.71 Mbit/s)   Flow 1 egress (mean 94.62 Mbit/s)

Flow 1 (95th percentile 7.16 ms)

```
Run 4: Statistics of FillP-Sheep

Start at: 2018-12-02 01:43:15
End at: 2018-12-02 01:43:45
Local clock offset: -8.838 ms
Remote clock offset: 0.382 ms


# Below is generated by plot.py at 2018-12-02 02:10:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 94.52 Mbit/s
95th percentile per-packet one-way delay: 8.087 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 94.52 Mbit/s
95th percentile per-packet one-way delay: 8.087 ms
Loss rate: 0.09%
```
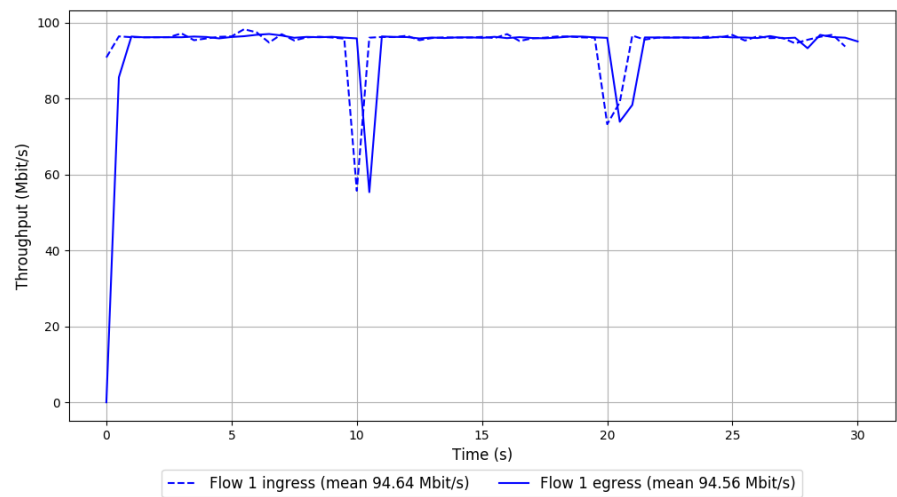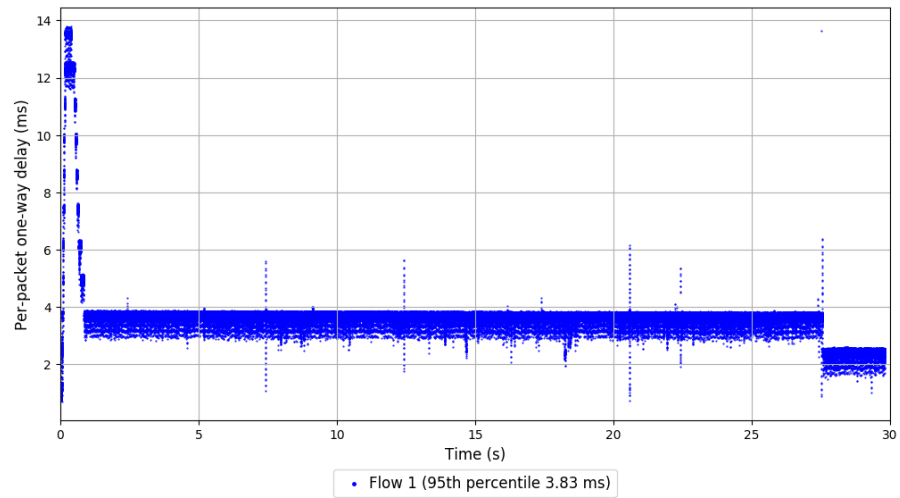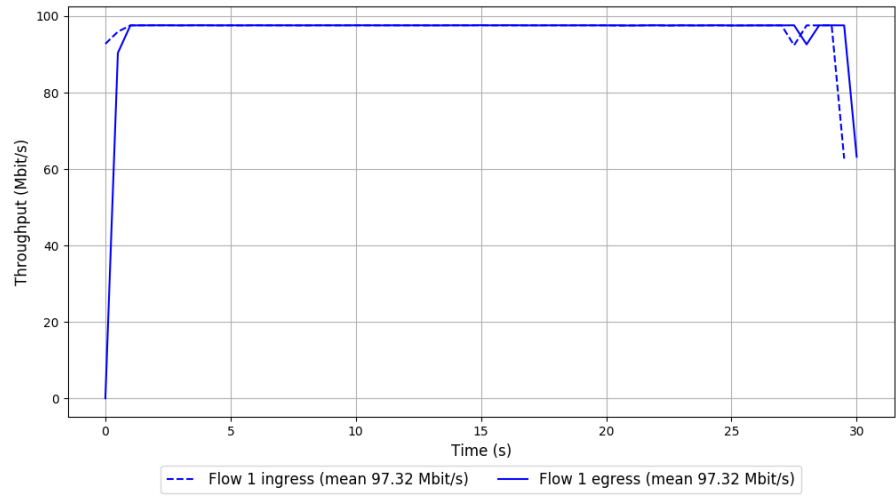
Run 4: Report of FillP-Sheep — Data Link

```
Run 5: Statistics of FillP-Sheep

Start at: 2018-12-02 02:04:23
End at: 2018-12-02 02:04:53
Local clock offset: -7.907 ms
Remote clock offset: 0.311 ms


# Below is generated by plot.py at 2018-12-02 02:10:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 94.56 Mbit/s
95th percentile per-packet one-way delay: 7.390 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 94.56 Mbit/s
95th percentile per-packet one-way delay: 7.390 ms
Loss rate: 0.08%
```

Run 5: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 94.64 Mbit/s) ——— Flow 1 egress (mean 94.56 Mbit/s)

• Flow 1 (95th percentile 7.39 ms)

```
Run 1: Statistics of Indigo

Start at: 2018-12-02 00:36:18
End at: 2018-12-02 00:36:48
Local clock offset: -1.25 ms
Remote clock offset: 0.466 ms


# Below is generated by plot.py at 2018-12-02 02:10:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.32 Mbit/s
95th percentile per-packet one-way delay: 3.832 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 97.32 Mbit/s
95th percentile per-packet one-way delay: 3.832 ms
Loss rate: 0.00%
```
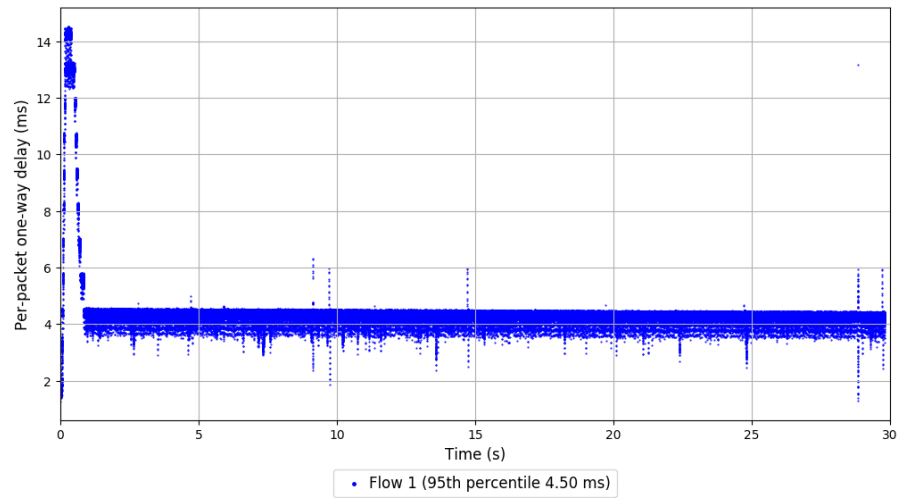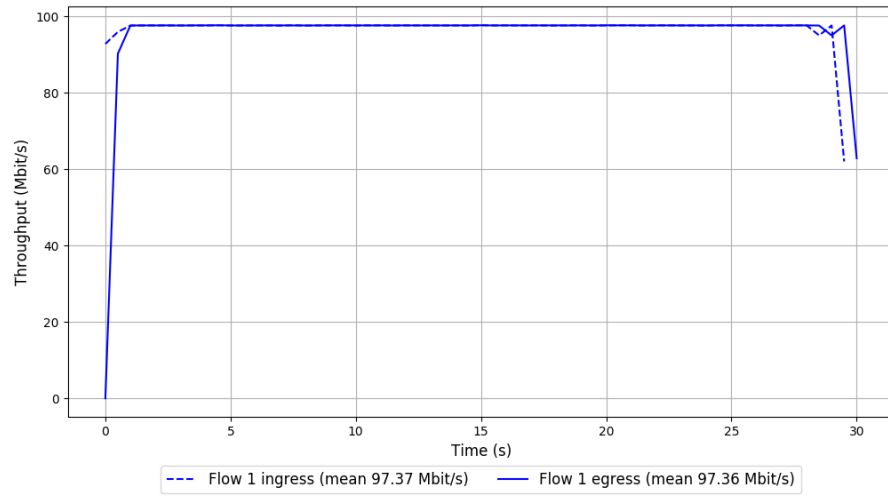
Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2018-12-02 00:57:28
End at: 2018-12-02 00:57:58
Local clock offset: -6.793 ms
Remote clock offset: 0.445 ms


# Below is generated by plot.py at 2018-12-02 02:10:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.36 Mbit/s
95th percentile per-packet one-way delay: 4.497 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 97.36 Mbit/s
95th percentile per-packet one-way delay: 4.497 ms
Loss rate: 0.00%
```
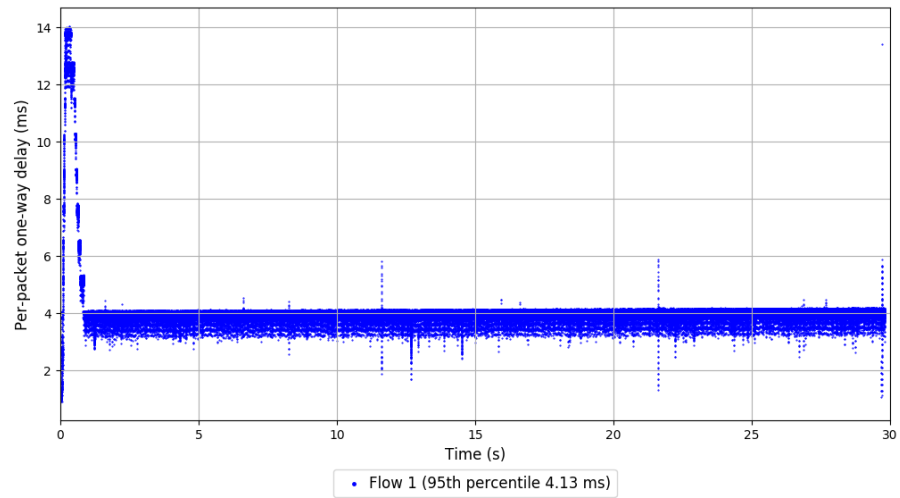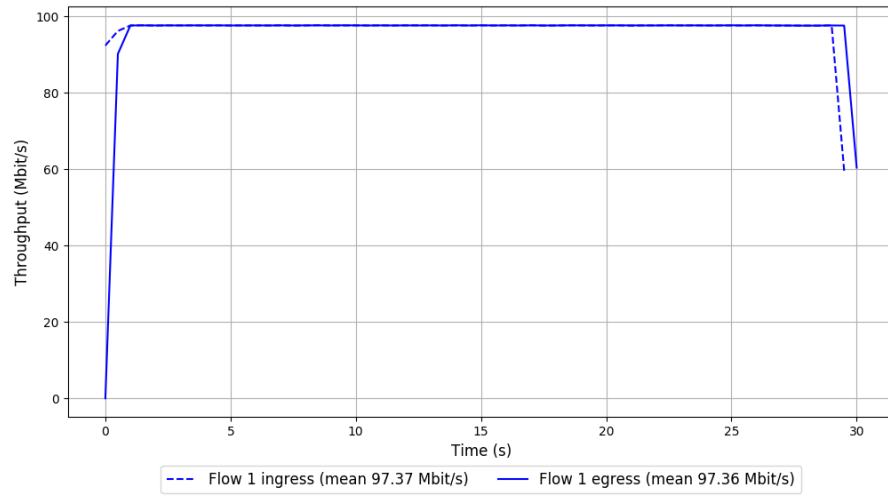
Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2018-12-02 01:18:42
End at: 2018-12-02 01:19:12
Local clock offset: -9.011 ms
Remote clock offset: 0.537 ms


# Below is generated by plot.py at 2018-12-02 02:10:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.36 Mbit/s
95th percentile per-packet one-way delay: 4.134 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 97.36 Mbit/s
95th percentile per-packet one-way delay: 4.134 ms
Loss rate: 0.00%
```
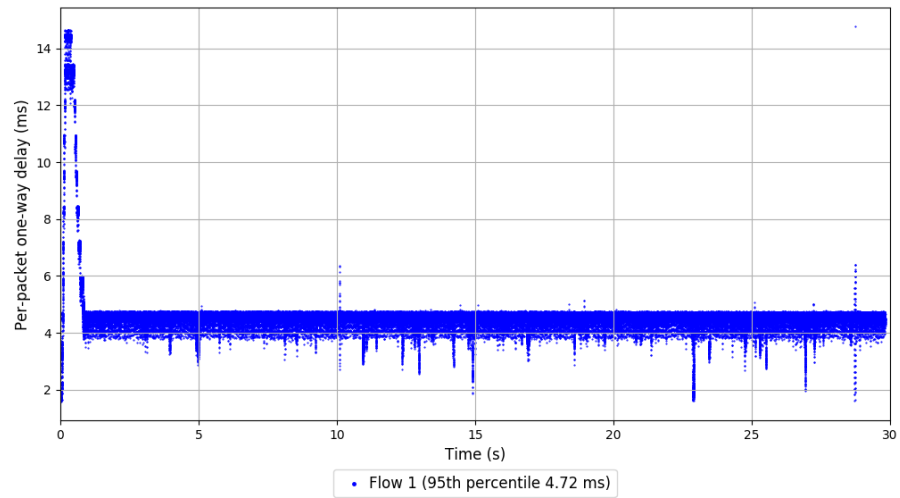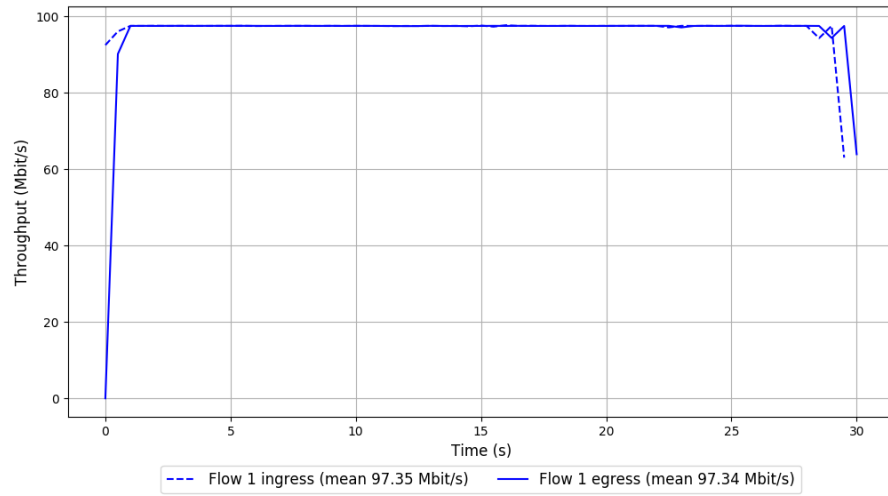
Run 3: Report of Indigo — Data Link

```
Run 4: Statistics of Indigo

Start at: 2018-12-02 01:39:53
End at: 2018-12-02 01:40:23
Local clock offset: -8.729 ms
Remote clock offset: 0.412 ms


# Below is generated by plot.py at 2018-12-02 02:10:18
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.34 Mbit/s
95th percentile per-packet one-way delay: 4.721 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 97.34 Mbit/s
95th percentile per-packet one-way delay: 4.721 ms
Loss rate: 0.00%
```

Run 4: Report of Indigo — Data Link

```
Run 5: Statistics of Indigo

Start at: 2018-12-02 02:01:02
End at: 2018-12-02 02:01:32
Local clock offset: -7.961 ms
Remote clock offset: 0.315 ms


# Below is generated by plot.py at 2018-12-02 02:11:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.38 Mbit/s
95th percentile per-packet one-way delay: 5.927 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 97.38 Mbit/s
95th percentile per-packet one-way delay: 5.927 ms
Loss rate: 0.00%
```
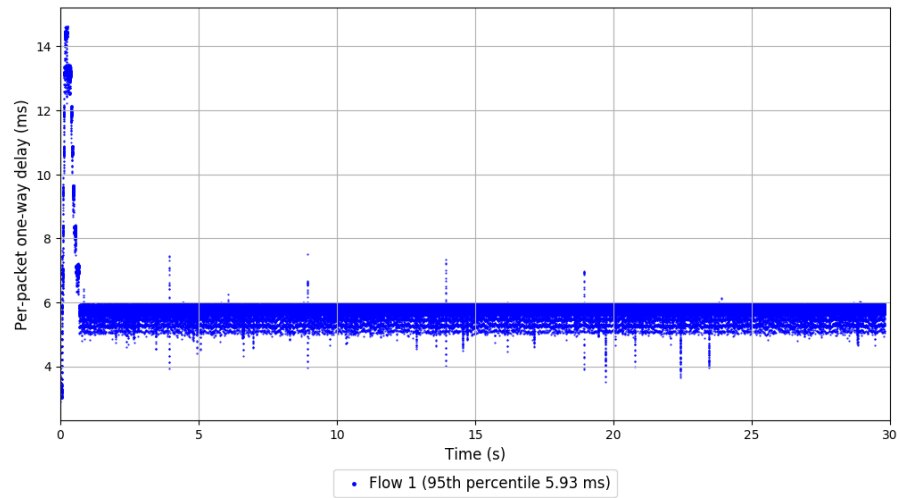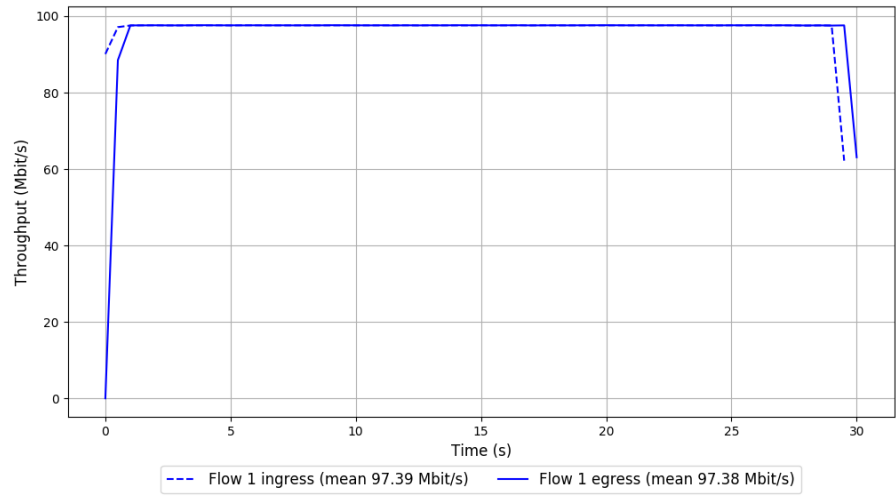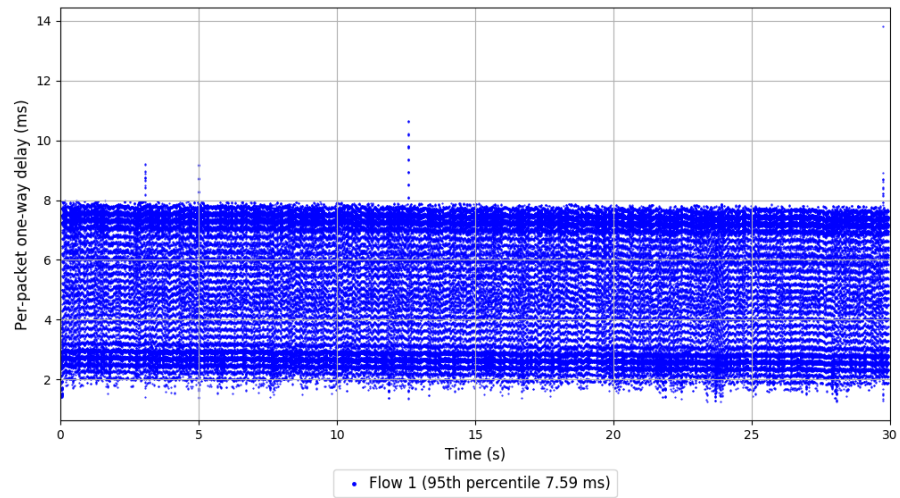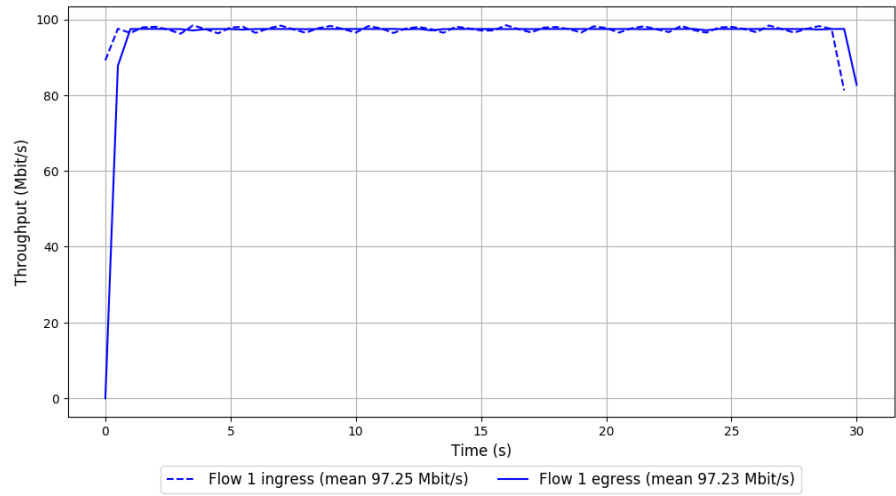
Run 5: Report of Indigo — Data Link

Flow 1 ingress (mean 97.39 Mbit/s)   Flow 1 egress (mean 97.38 Mbit/s)

Flow 1 (95th percentile 5.93 ms)

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

Start at: 2018-12-02 00:26:16
End at: 2018-12-02 00:26:46
Local clock offset: 0.387 ms
Remote clock offset: 0.495 ms

# Below is generated by plot.py at 2018-12-02 02:11:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.23 Mbit/s
95th percentile per-packet one-way delay: 7.591 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 97.23 Mbit/s
95th percentile per-packet one-way delay: 7.591 ms
Loss rate: 0.00%
```
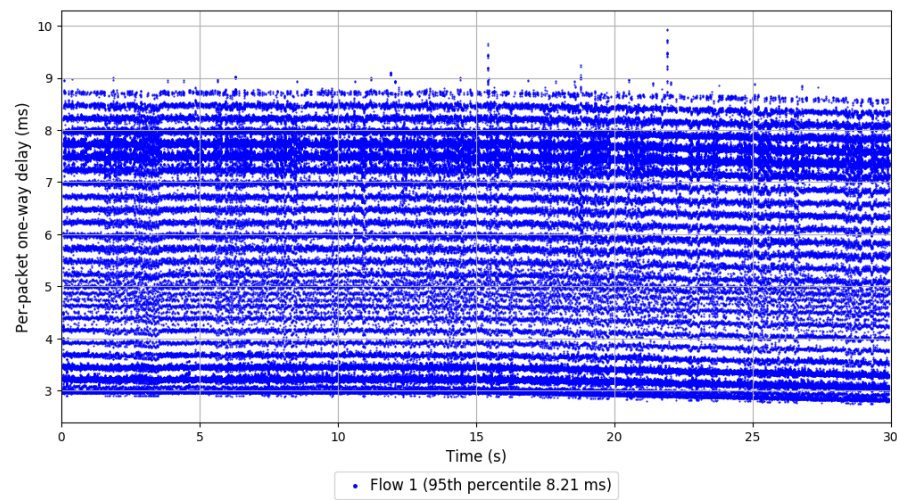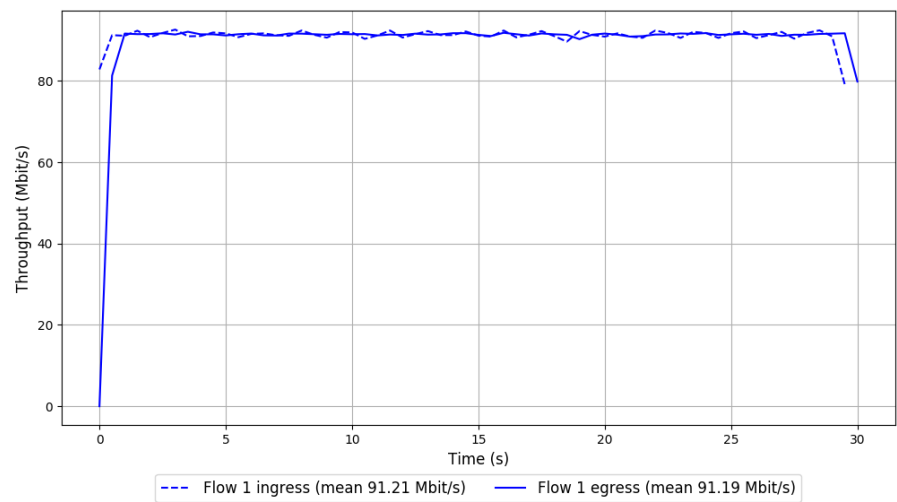
Run 1: Report of Indigo-96d2da3 — Data Link

Flow 1 ingress (mean 97.25 Mbit/s)   Flow 1 egress (mean 97.23 Mbit/s)

Flow 1 (95th percentile 7.59 ms)

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

Start at: 2018-12-02 00:47:26
End at: 2018-12-02 00:47:56
Local clock offset: -2.915 ms
Remote clock offset: 0.399 ms


# Below is generated by plot.py at 2018-12-02 02:11:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 91.19 Mbit/s
95th percentile per-packet one-way delay: 8.213 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 91.19 Mbit/s
95th percentile per-packet one-way delay: 8.213 ms
Loss rate: 0.00%
```
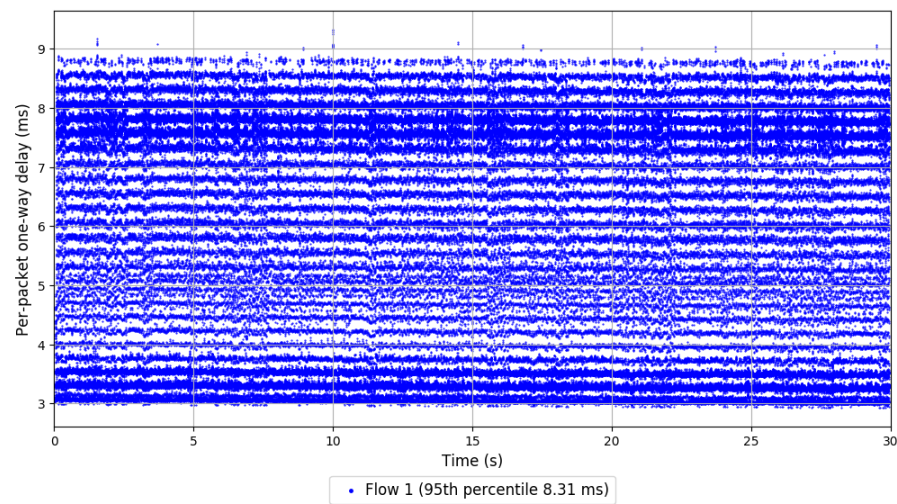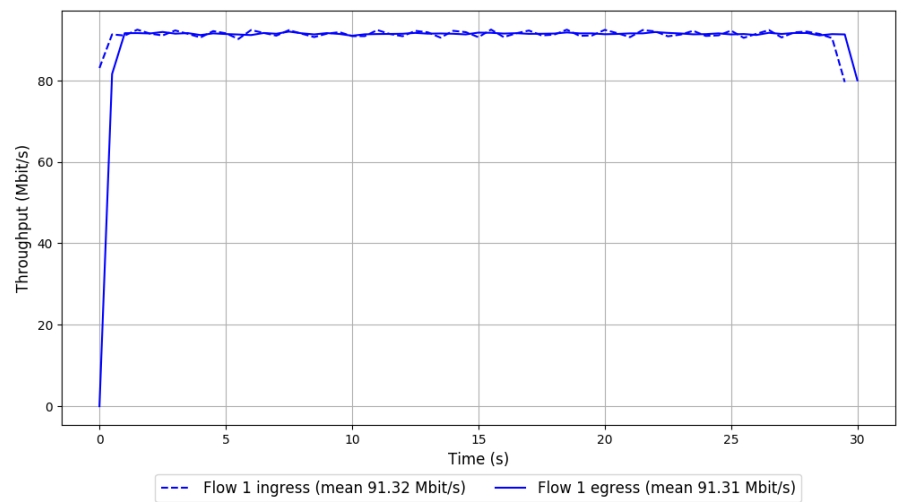
Run 2: Report of Indigo-96d2da3 — Data Link

Flow 1 ingress (mean 91.21 Mbit/s)   Flow 1 egress (mean 91.19 Mbit/s)

Flow 1 (95th percentile 8.21 ms)

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

Start at: 2018-12-02 01:08:41
End at: 2018-12-02 01:09:11
Local clock offset: -8.918 ms
Remote clock offset: 0.444 ms


# Below is generated by plot.py at 2018-12-02 02:11:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 91.31 Mbit/s
95th percentile per-packet one-way delay: 8.307 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 91.31 Mbit/s
95th percentile per-packet one-way delay: 8.307 ms
Loss rate: 0.01%
```
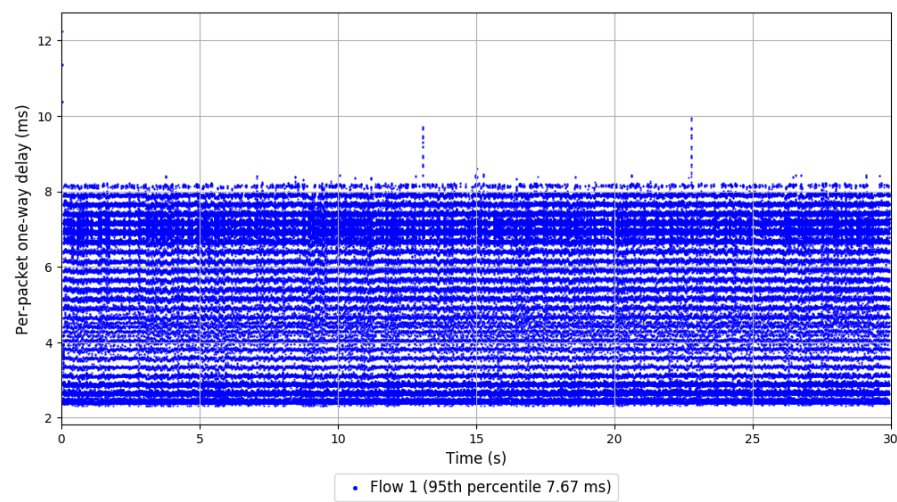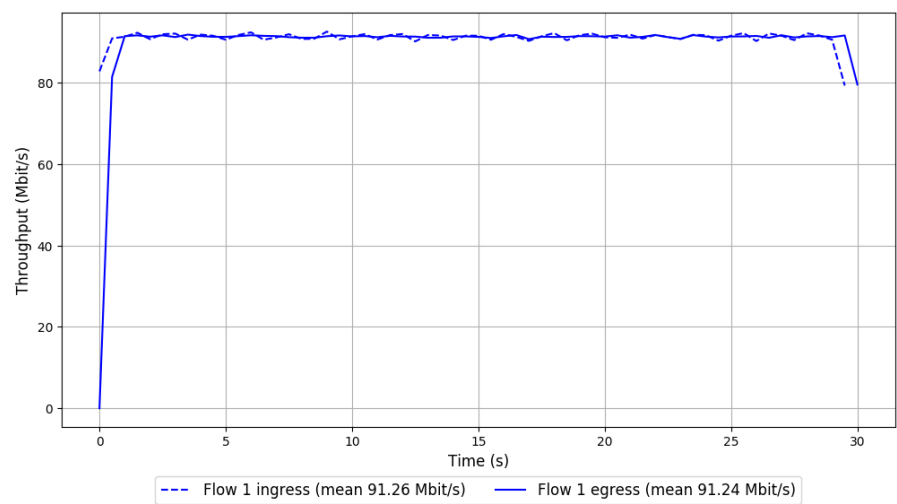
Run 3: Report of Indigo-96d2da3 — Data Link

Flow 1 ingress (mean 91.32 Mbit/s)   Flow 1 egress (mean 91.31 Mbit/s)

• Flow 1 (95th percentile 8.31 ms)

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

Start at: 2018-12-02 01:29:52
End at: 2018-12-02 01:30:22
Local clock offset: -7.928 ms
Remote clock offset: 0.454 ms


# Below is generated by plot.py at 2018-12-02 02:11:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 91.24 Mbit/s
95th percentile per-packet one-way delay: 7.674 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 91.24 Mbit/s
95th percentile per-packet one-way delay: 7.674 ms
Loss rate: 0.00%
```
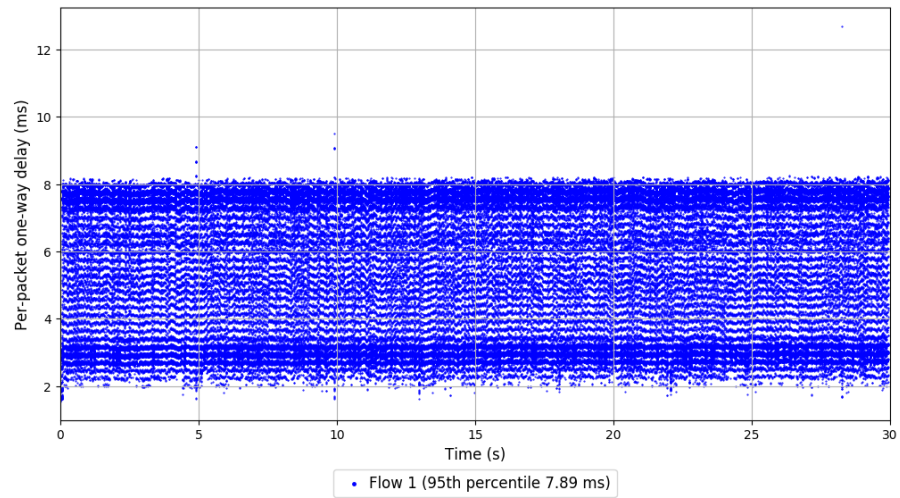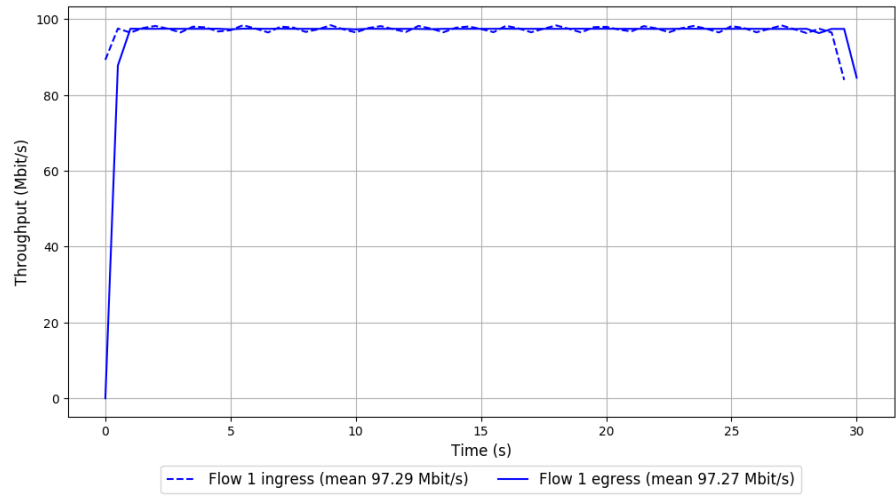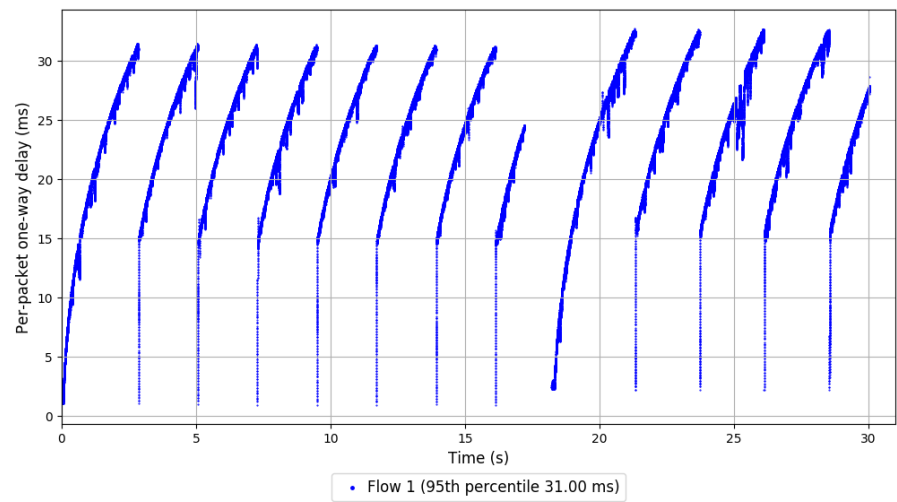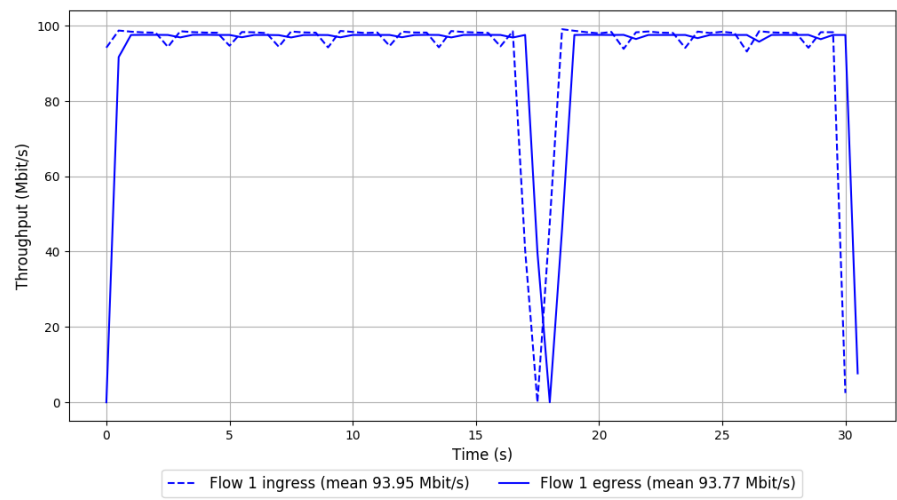
Run 4: Report of Indigo-96d2da3 — Data Link

- - - Flow 1 ingress (mean 91.26 Mbit/s) —— Flow 1 egress (mean 91.24 Mbit/s)

• Flow 1 (95th percentile 7.67 ms)

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

Start at: 2018-12-02 01:51:00
End at: 2018-12-02 01:51:30
Local clock offset: -8.578 ms
Remote clock offset: 0.287 ms


# Below is generated by plot.py at 2018-12-02 02:11:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.27 Mbit/s
95th percentile per-packet one-way delay: 7.886 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 97.27 Mbit/s
95th percentile per-packet one-way delay: 7.886 ms
Loss rate: 0.00%
```

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

Flow 1 ingress (mean 97.29 Mbit/s) ----- Flow 1 egress (mean 97.27 Mbit/s)

Flow 1 (95th percentile 7.89 ms)

```
Run 1: Statistics of LEDBAT

Start at: 2018-12-02 00:19:38
End at: 2018-12-02 00:20:08
Local clock offset: 4.33 ms
Remote clock offset: 0.387 ms


# Below is generated by plot.py at 2018-12-02 02:11:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 93.77 Mbit/s
95th percentile per-packet one-way delay: 31.005 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 93.77 Mbit/s
95th percentile per-packet one-way delay: 31.005 ms
Loss rate: 0.11%
```
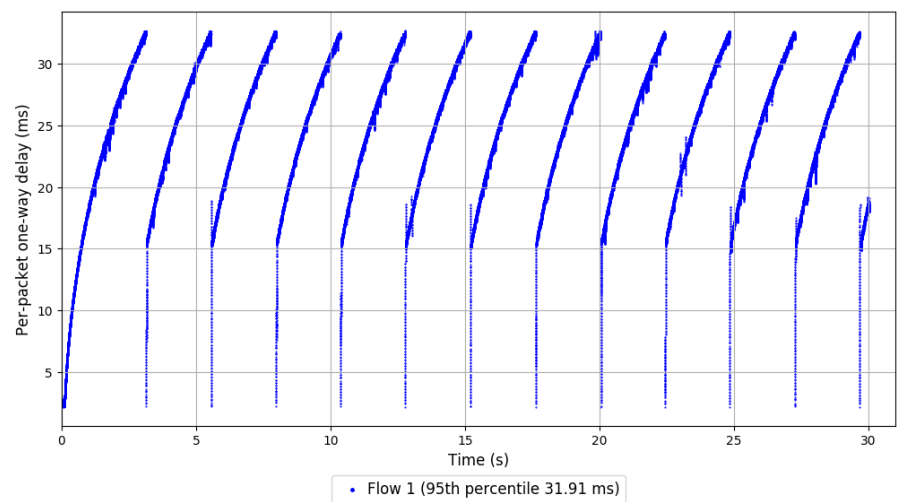
Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2018-12-02 00:40:47
End at: 2018-12-02 00:41:17
Local clock offset: -1.731 ms
Remote clock offset: 0.458 ms

# Below is generated by plot.py at 2018-12-02 02:11:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.05 Mbit/s
95th percentile per-packet one-way delay: 31.911 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.05 Mbit/s
95th percentile per-packet one-way delay: 31.911 ms
Loss rate: 0.01%
```
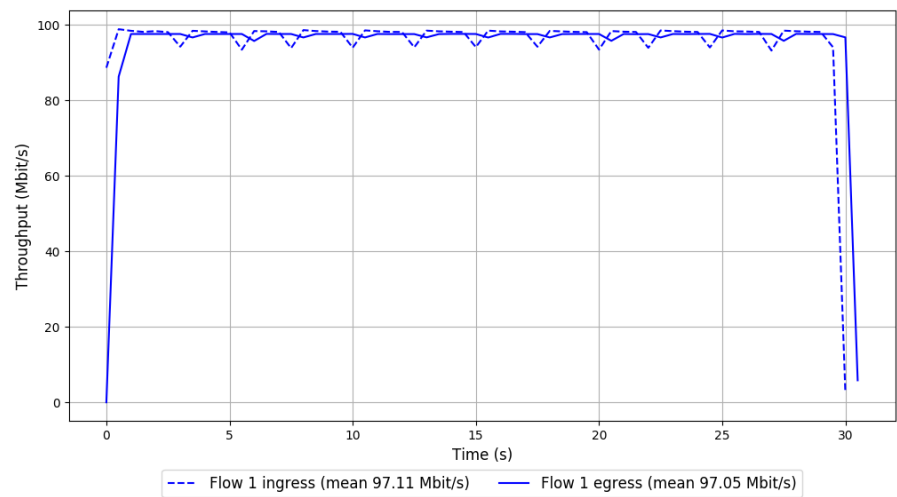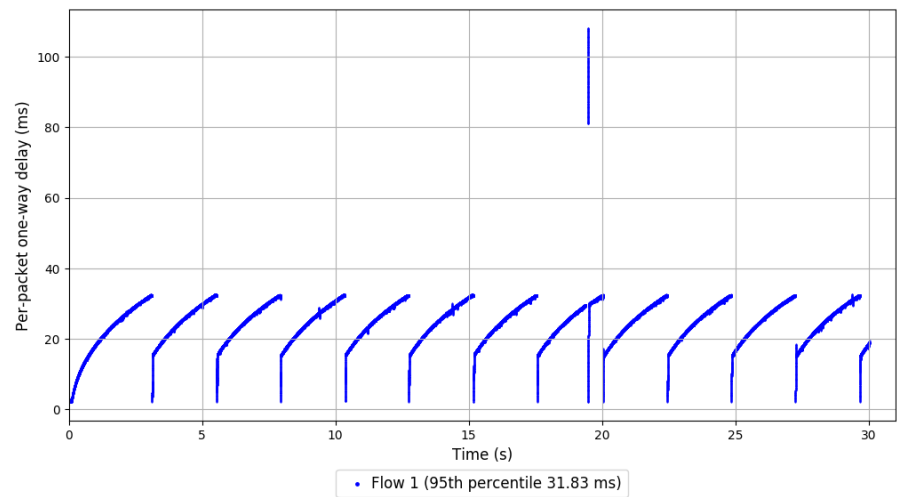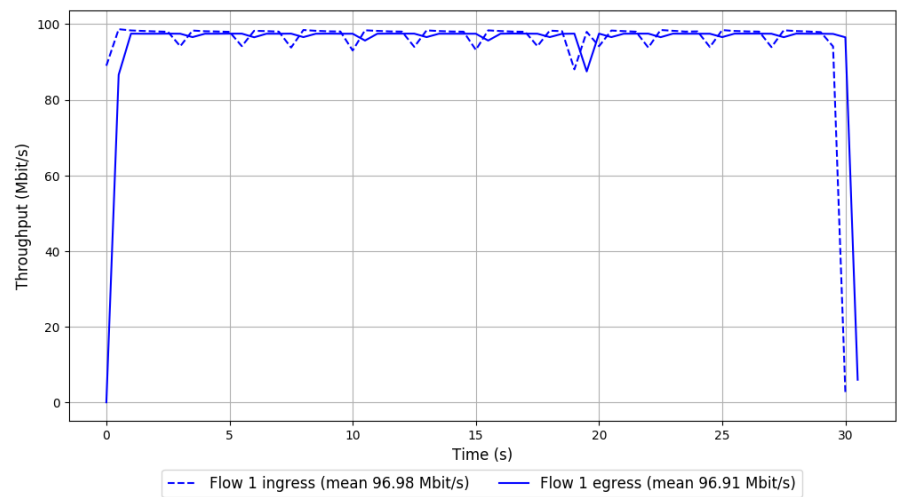
Run 2: Report of LEDBAT — Data Link

Flow 1 ingress (mean 97.11 Mbit/s)   Flow 1 egress (mean 97.05 Mbit/s)

• Flow 1 (95th percentile 31.91 ms)

```
Run 3: Statistics of LEDBAT

Start at: 2018-12-02 01:02:03
End at: 2018-12-02 01:02:33
Local clock offset: -7.045 ms
Remote clock offset: 0.435 ms

# Below is generated by plot.py at 2018-12-02 02:12:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.91 Mbit/s
95th percentile per-packet one-way delay: 31.826 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 96.91 Mbit/s
95th percentile per-packet one-way delay: 31.826 ms
Loss rate: 0.01%
```
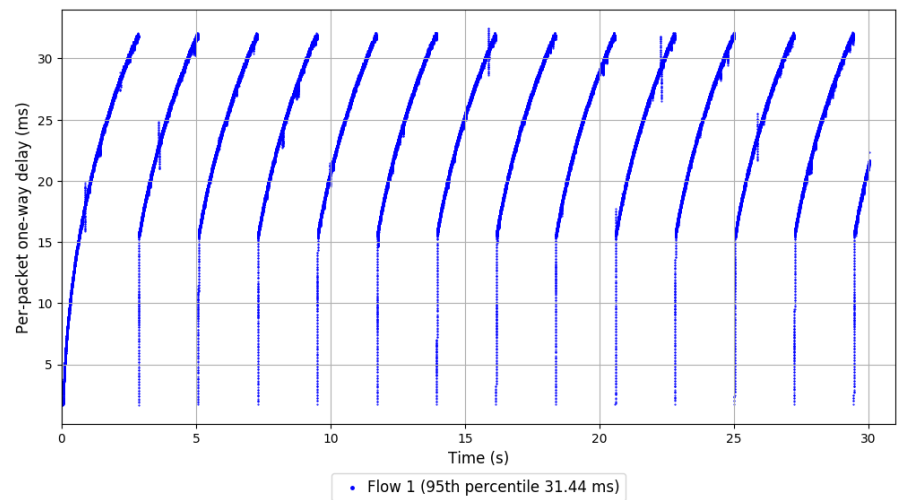
Run 3: Report of LEDBAT — Data Link

```
Run 4: Statistics of LEDBAT

Start at: 2018-12-02 01:23:13
End at: 2018-12-02 01:23:43
Local clock offset: -9.064 ms
Remote clock offset: 0.507 ms


# Below is generated by plot.py at 2018-12-02 02:12:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.22 Mbit/s
95th percentile per-packet one-way delay: 31.443 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.22 Mbit/s
95th percentile per-packet one-way delay: 31.443 ms
Loss rate: 0.01%
```
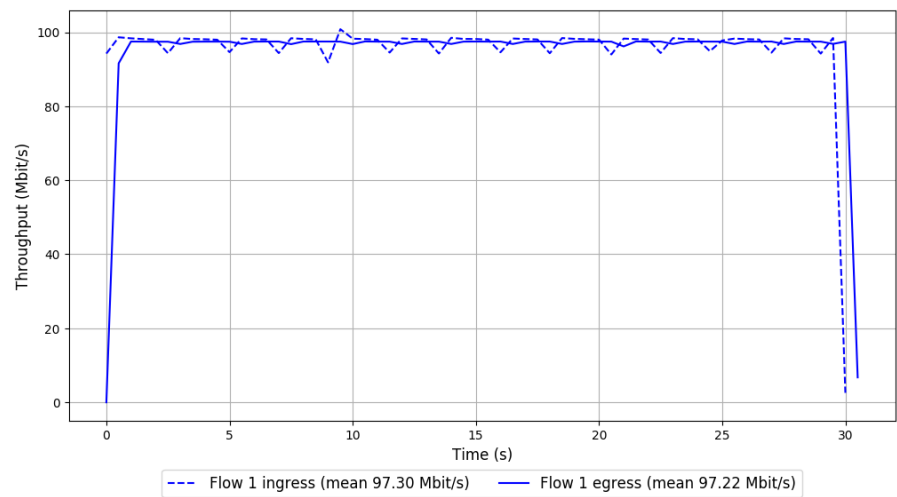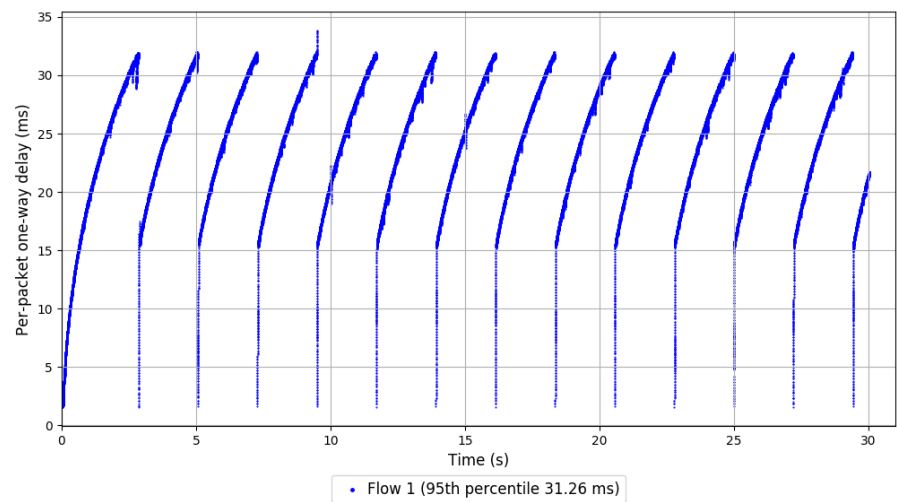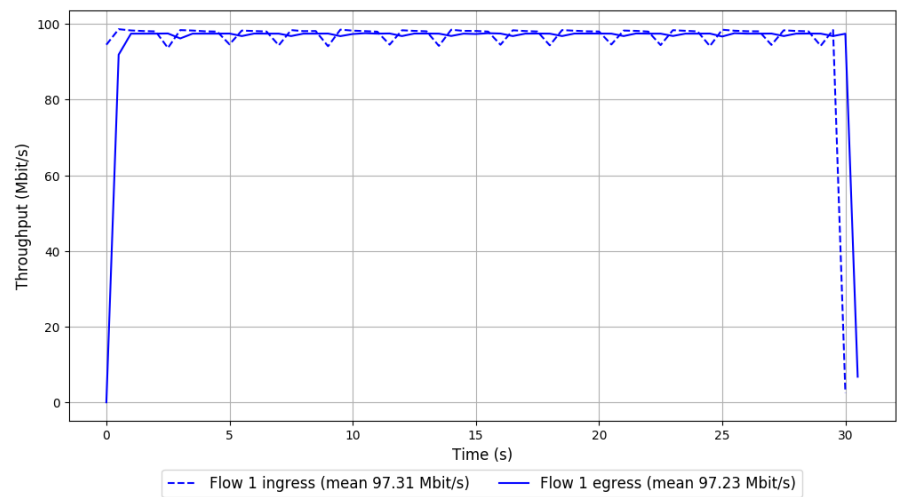
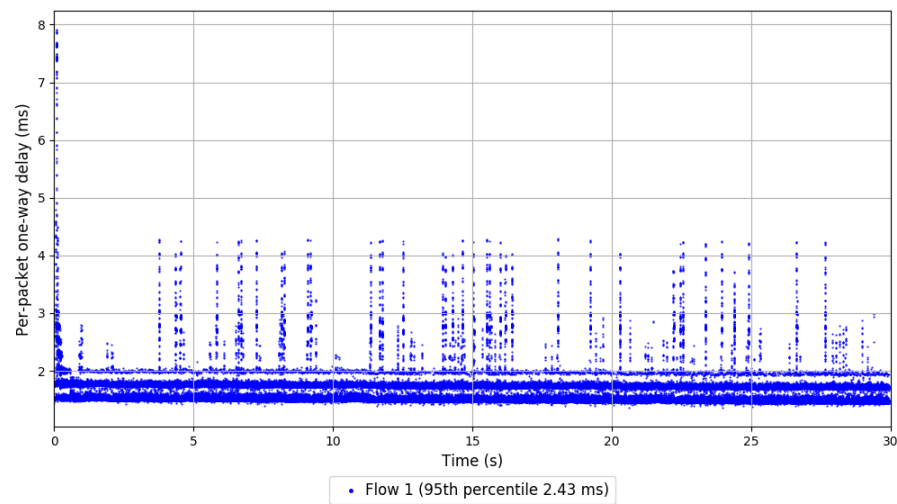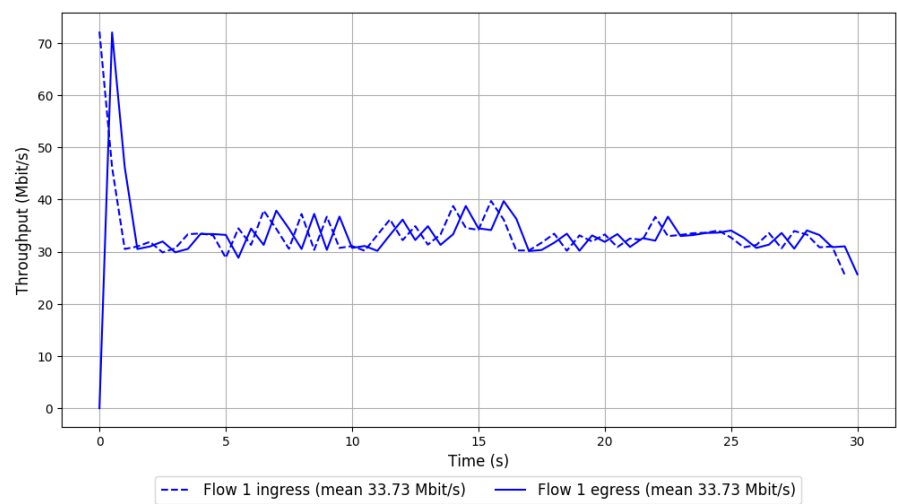Run 4: Report of LEDBAT — Data Link

Flow 1 ingress (mean 97.30 Mbit/s)   Flow 1 egress (mean 97.22 Mbit/s)

Flow 1 (95th percentile 31.44 ms)

82

```
Run 5: Statistics of LEDBAT

Start at: 2018-12-02 01:44:22
End at: 2018-12-02 01:44:52
Local clock offset: -8.841 ms
Remote clock offset: 0.365 ms


# Below is generated by plot.py at 2018-12-02 02:12:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.23 Mbit/s
95th percentile per-packet one-way delay: 31.262 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.23 Mbit/s
95th percentile per-packet one-way delay: 31.262 ms
Loss rate: 0.01%
```

Run 5: Report of LEDBAT — Data Link

```
Run 1: Statistics of Indigo-Muses

Start at: 2018-12-02 00:37:28
End at: 2018-12-02 00:37:58
Local clock offset: -2.231 ms
Remote clock offset: 0.35 ms


# Below is generated by plot.py at 2018-12-02 02:12:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 33.73 Mbit/s
95th percentile per-packet one-way delay: 2.427 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 33.73 Mbit/s
95th percentile per-packet one-way delay: 2.427 ms
Loss rate: 0.00%
```
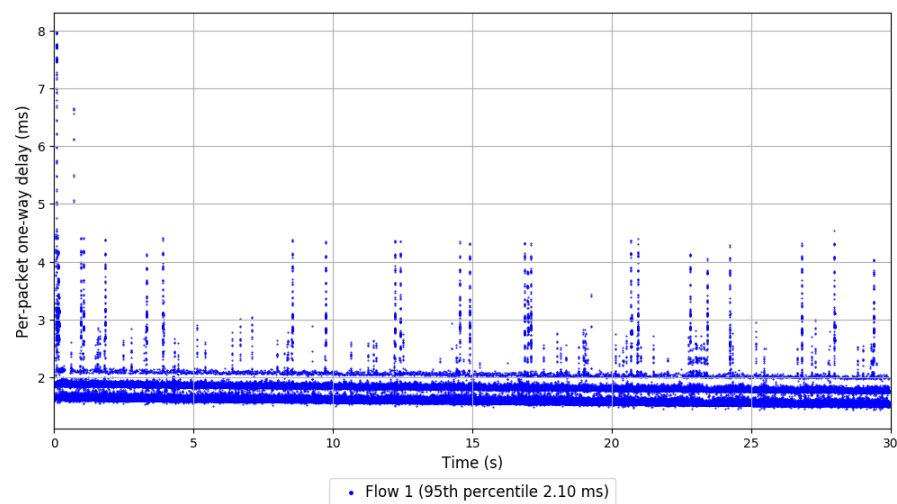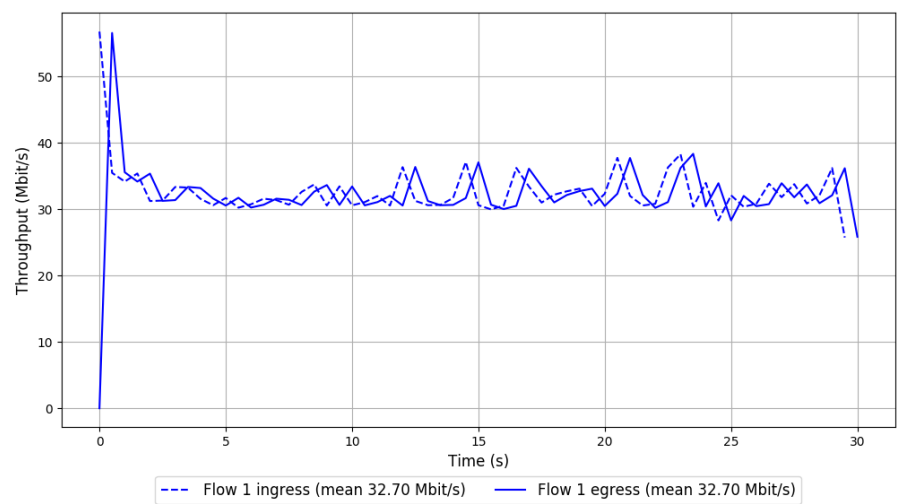
Run 1: Report of Indigo-Muses — Data Link

```
Run 2: Statistics of Indigo-Muses

Start at: 2018-12-02 00:58:37
End at: 2018-12-02 00:59:07
Local clock offset: -7.201 ms
Remote clock offset: 0.477 ms


# Below is generated by plot.py at 2018-12-02 02:12:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 32.70 Mbit/s
95th percentile per-packet one-way delay: 2.095 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 32.70 Mbit/s
95th percentile per-packet one-way delay: 2.095 ms
Loss rate: 0.00%
```
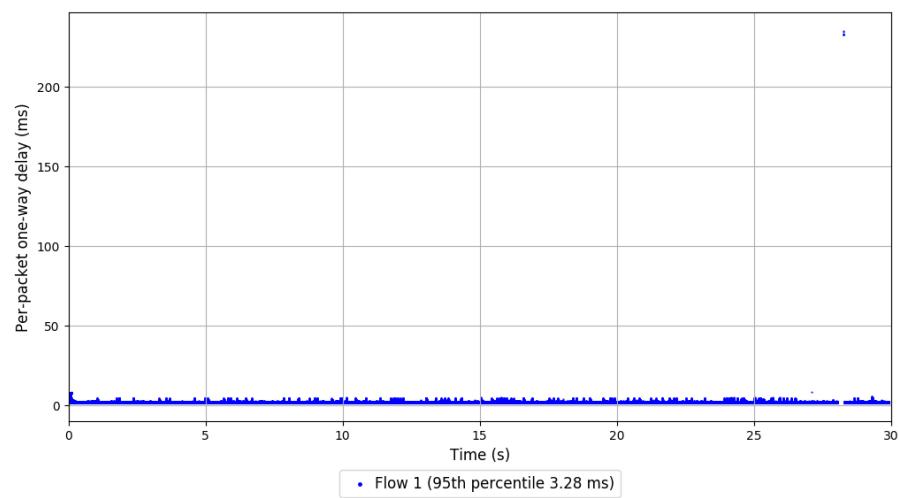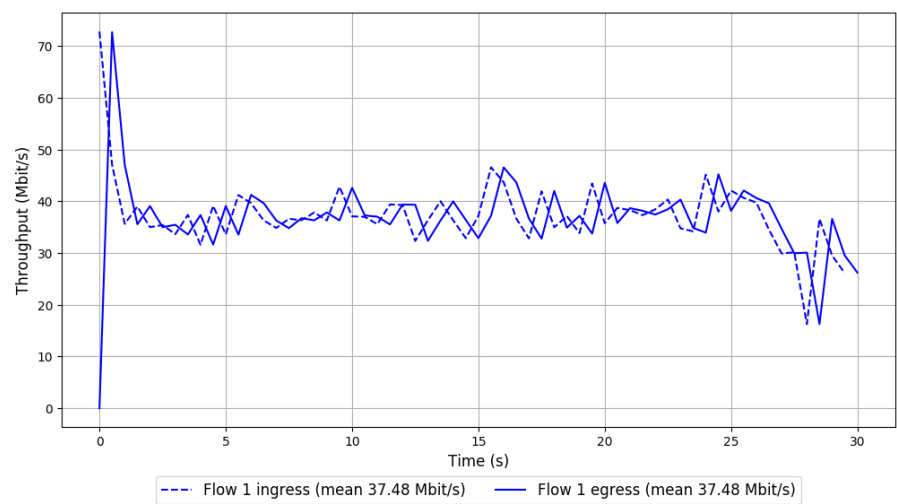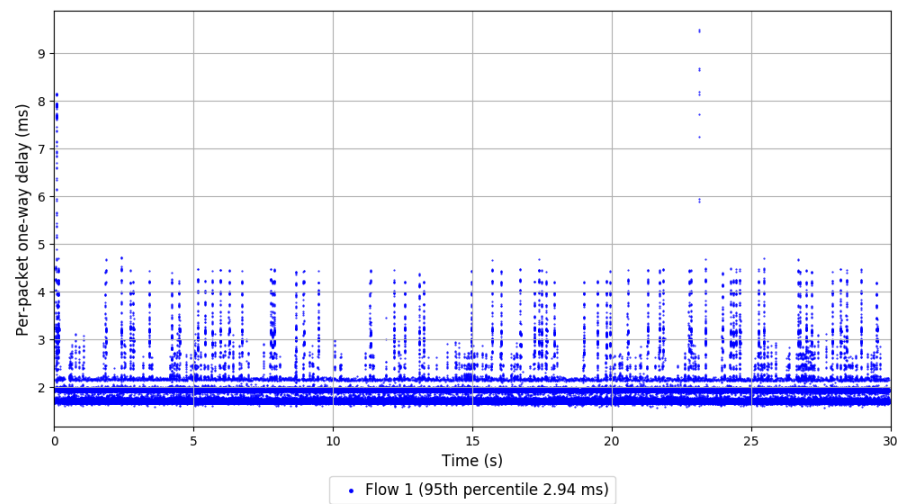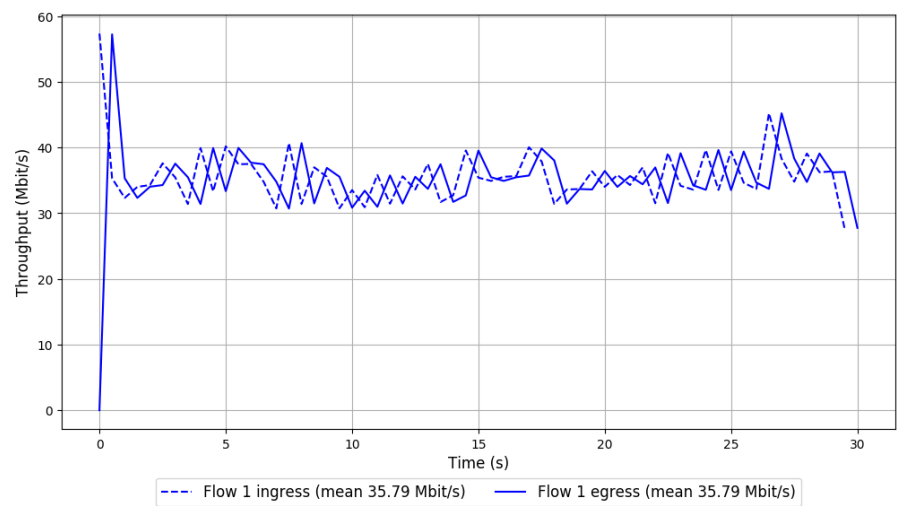
Run 2: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 32.70 Mbit/s)   Flow 1 egress (mean 32.70 Mbit/s)

· Flow 1 (95th percentile 2.10 ms)

```
Run 3: Statistics of Indigo-Muses

Start at: 2018-12-02 01:19:51
End at: 2018-12-02 01:20:21
Local clock offset: -9.596 ms
Remote clock offset: 0.492 ms


# Below is generated by plot.py at 2018-12-02 02:12:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 37.48 Mbit/s
95th percentile per-packet one-way delay: 3.276 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 37.48 Mbit/s
95th percentile per-packet one-way delay: 3.276 ms
Loss rate: 0.00%
```

Run 3: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 37.48 Mbit/s)   Flow 1 egress (mean 37.48 Mbit/s)

Flow 1 (95th percentile 3.28 ms)

```
Run 4: Statistics of Indigo-Muses

Start at: 2018-12-02 01:41:03
End at: 2018-12-02 01:41:33
Local clock offset: -8.766 ms
Remote clock offset: 0.441 ms


# Below is generated by plot.py at 2018-12-02 02:12:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 35.79 Mbit/s
95th percentile per-packet one-way delay: 2.936 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 35.79 Mbit/s
95th percentile per-packet one-way delay: 2.936 ms
Loss rate: 0.00%
```
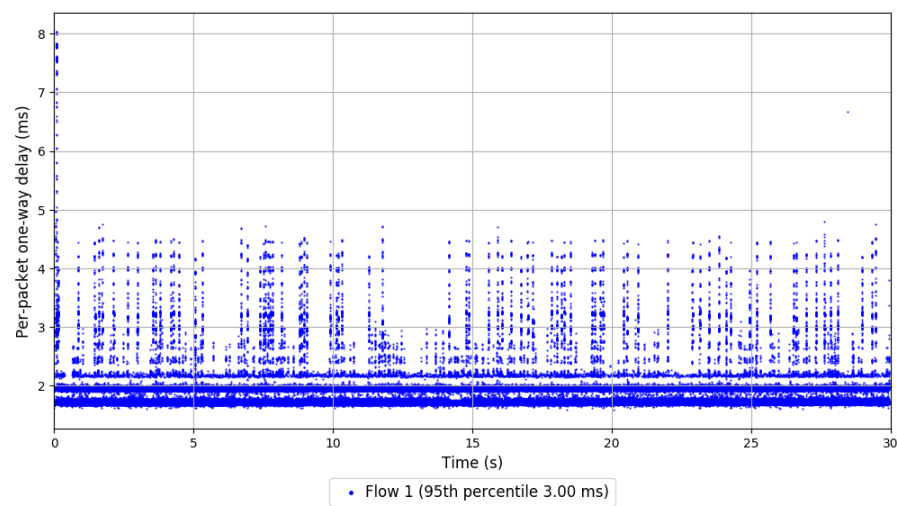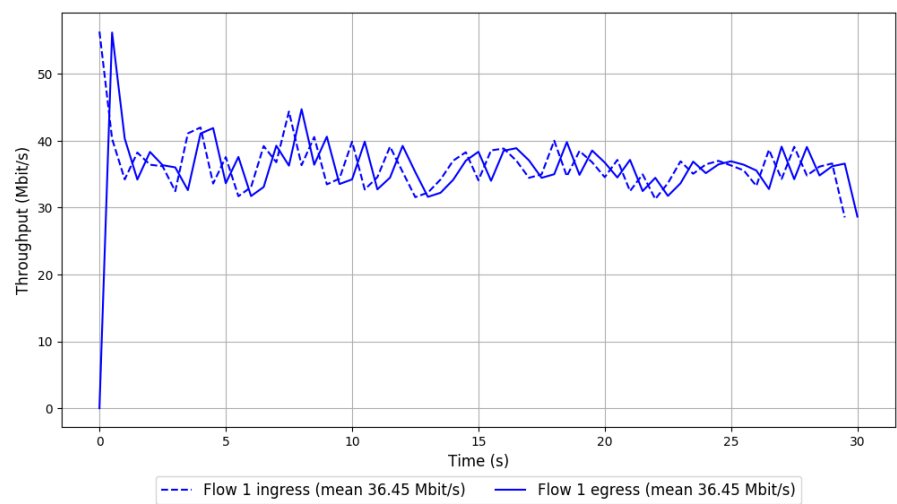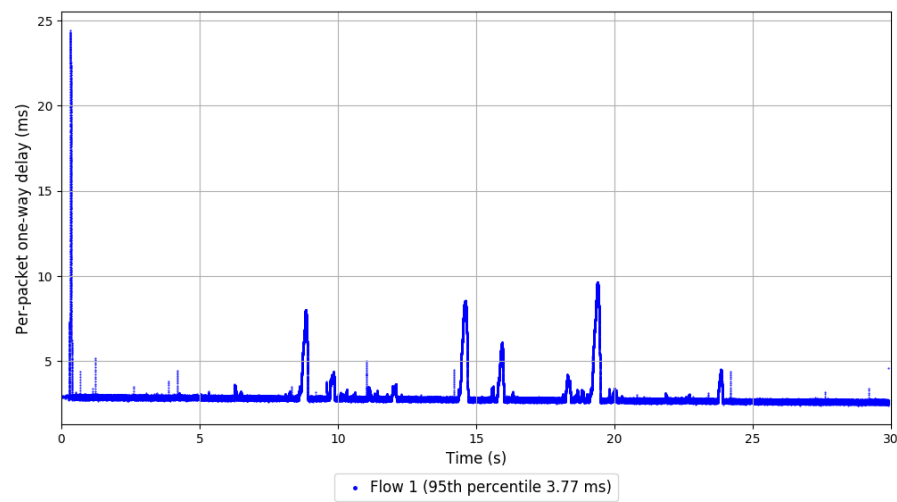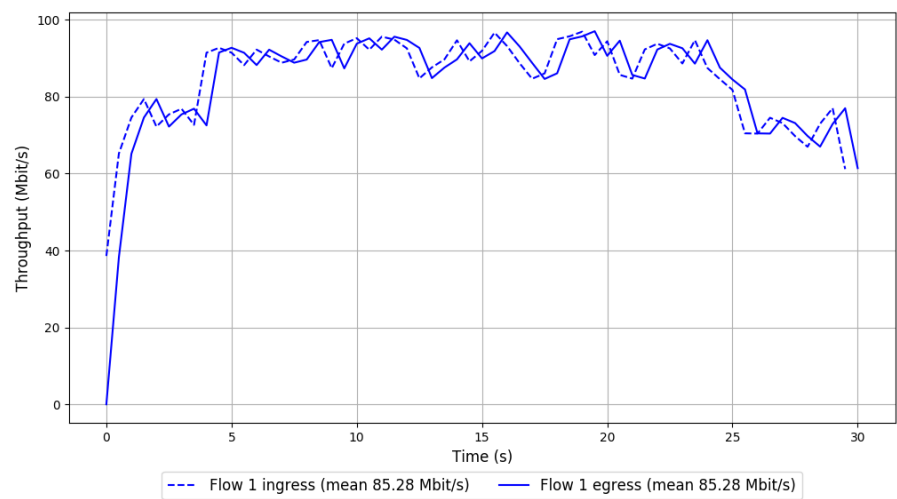
Run 4: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 35.79 Mbit/s) ——— Flow 1 egress (mean 35.79 Mbit/s)

• Flow 1 (95th percentile 2.94 ms)

```
Run 5: Statistics of Indigo-Muses

Start at: 2018-12-02 02:02:11
End at: 2018-12-02 02:02:41
Local clock offset: -7.991 ms
Remote clock offset: 0.359 ms

# Below is generated by plot.py at 2018-12-02 02:12:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 36.45 Mbit/s
95th percentile per-packet one-way delay: 3.005 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 36.45 Mbit/s
95th percentile per-packet one-way delay: 3.005 ms
Loss rate: 0.00%
```

Run 5: Report of Indigo-Muses — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2018-12-02 00:21:52
End at: 2018-12-02 00:22:22
Local clock offset: 2.498 ms
Remote clock offset: 0.406 ms


# Below is generated by plot.py at 2018-12-02 02:12:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 85.28 Mbit/s
95th percentile per-packet one-way delay: 3.772 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 85.28 Mbit/s
95th percentile per-packet one-way delay: 3.772 ms
Loss rate: 0.00%
```

Run 1: Report of PCC-Allegro — Data Link

```
Run 2: Statistics of PCC-Allegro

Start at: 2018-12-02 00:43:01
End at: 2018-12-02 00:43:31
Local clock offset: -2.753 ms
Remote clock offset: 0.467 ms


# Below is generated by plot.py at 2018-12-02 02:12:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 83.25 Mbit/s
95th percentile per-packet one-way delay: 5.010 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 83.25 Mbit/s
95th percentile per-packet one-way delay: 5.010 ms
Loss rate: 0.00%
```
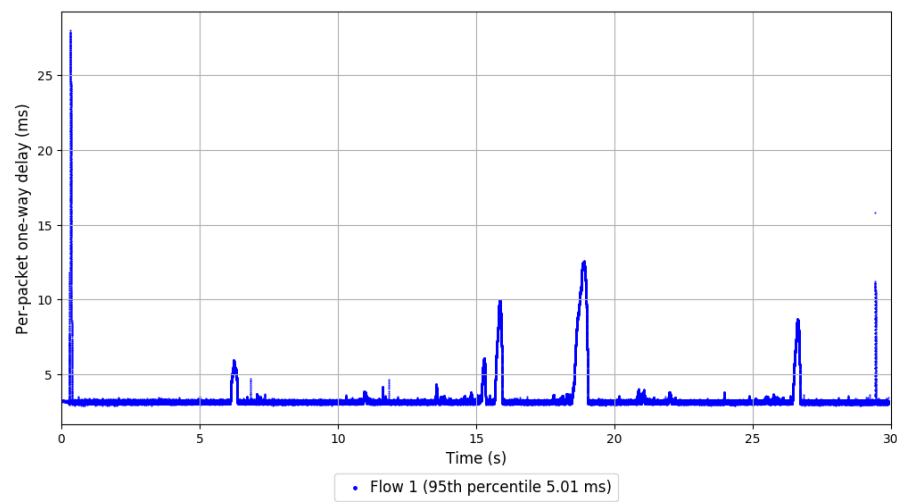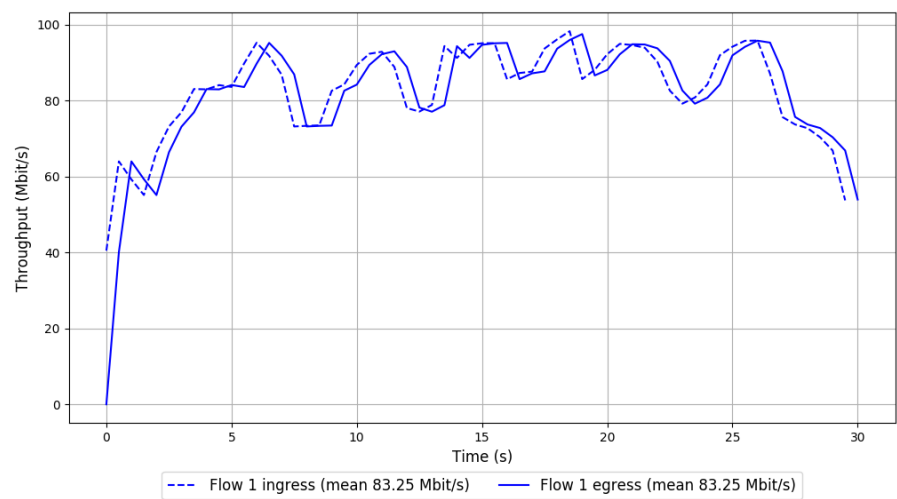
Run 2: Report of PCC-Allegro — Data Link

```
Run 3: Statistics of PCC-Allegro

Start at: 2018-12-02 01:04:16
End at: 2018-12-02 01:04:46
Local clock offset: -7.441 ms
Remote clock offset: 0.439 ms


# Below is generated by plot.py at 2018-12-02 02:13:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 90.18 Mbit/s
95th percentile per-packet one-way delay: 4.582 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 90.18 Mbit/s
95th percentile per-packet one-way delay: 4.582 ms
Loss rate: 0.00%
```
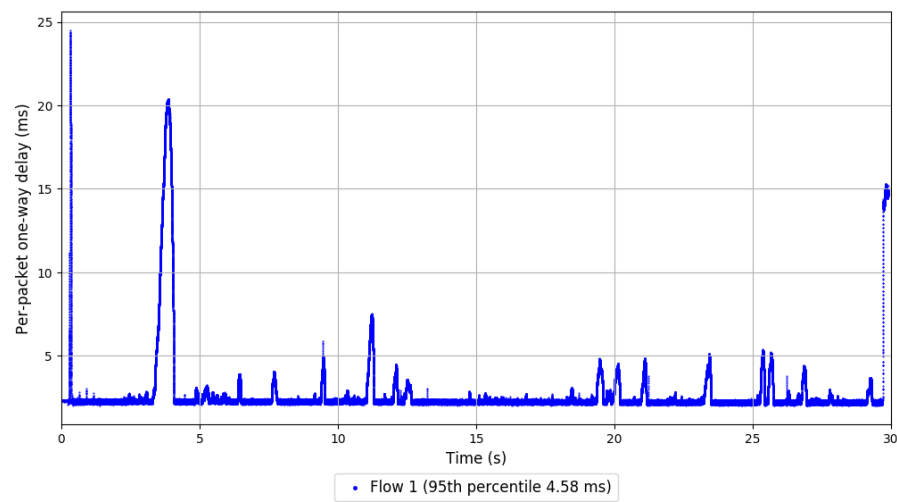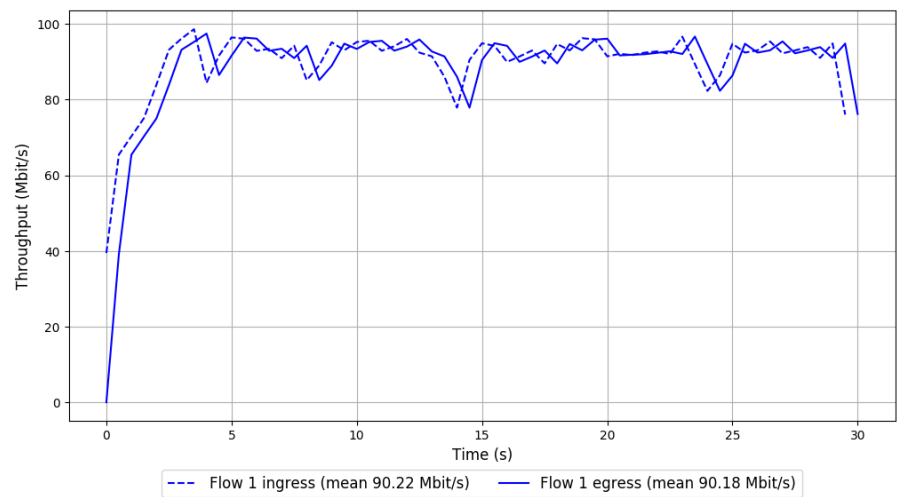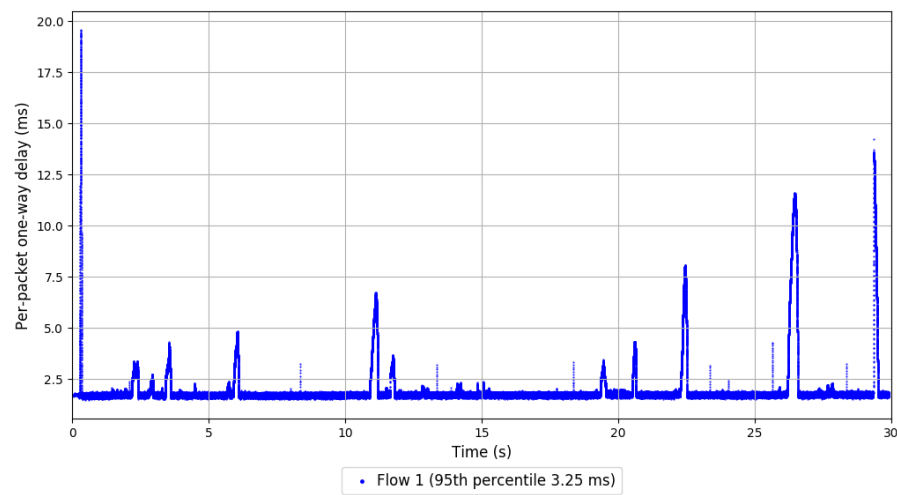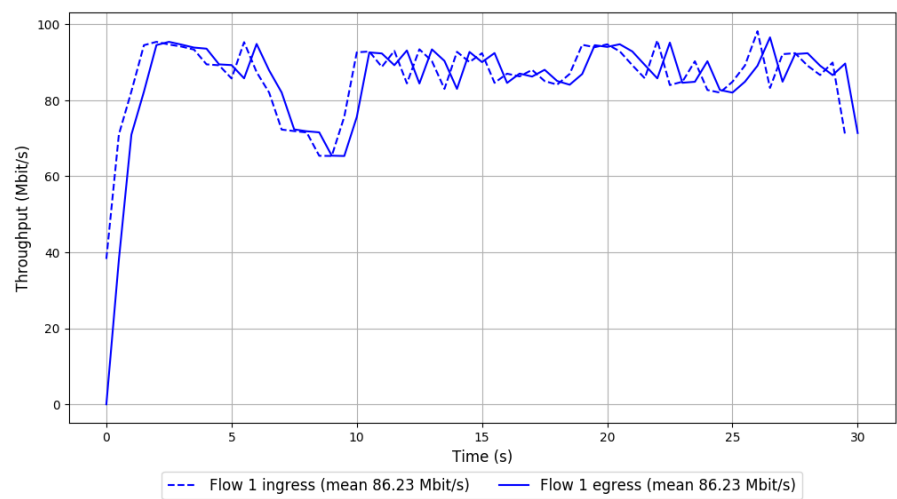
Run 3: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 90.22 Mbit/s)   Flow 1 egress (mean 90.18 Mbit/s)

Flow 1 (95th percentile 4.58 ms)

```
Run 4: Statistics of PCC-Allegro

Start at: 2018-12-02 01:25:27
End at: 2018-12-02 01:25:57
Local clock offset: -8.848 ms
Remote clock offset: 0.468 ms


# Below is generated by plot.py at 2018-12-02 02:13:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 86.23 Mbit/s
95th percentile per-packet one-way delay: 3.255 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 86.23 Mbit/s
95th percentile per-packet one-way delay: 3.255 ms
Loss rate: 0.00%
```
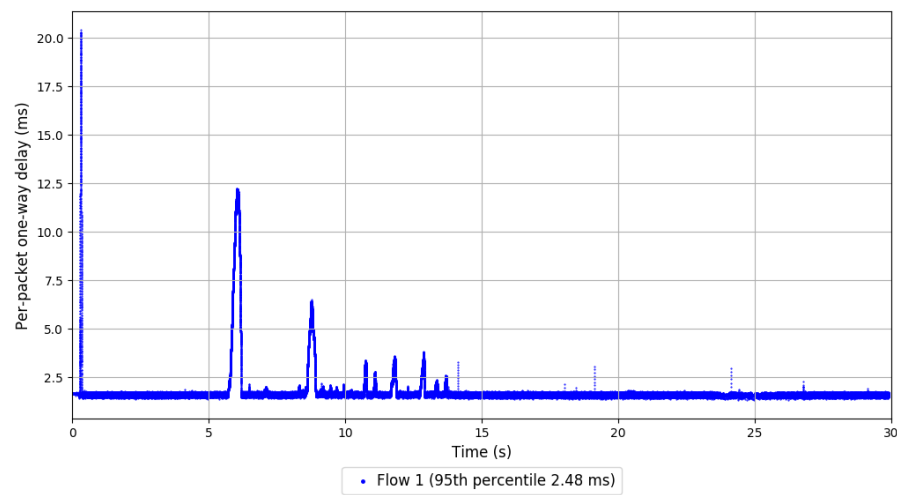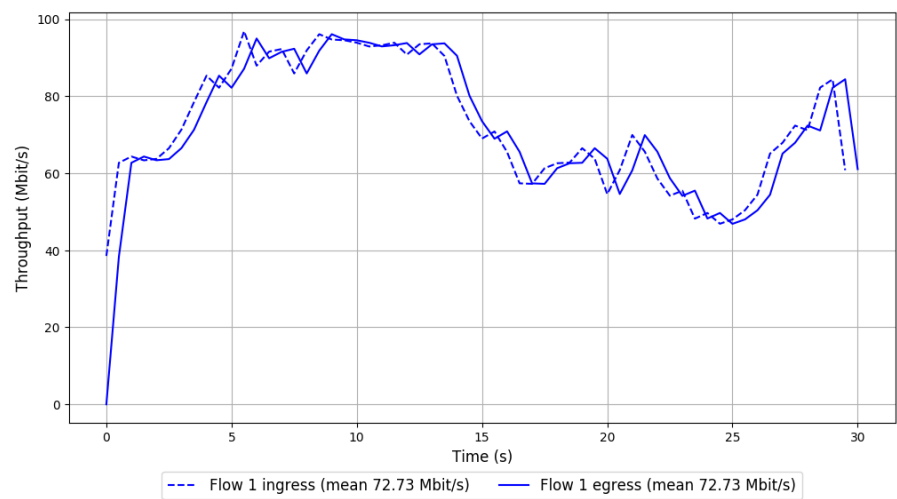
Run 4: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 86.23 Mbit/s) — — — Flow 1 egress (mean 86.23 Mbit/s)

Flow 1 (95th percentile 3.25 ms)

```
Run 5: Statistics of PCC-Allegro

Start at: 2018-12-02 01:46:35
End at: 2018-12-02 01:47:05
Local clock offset: -8.887 ms
Remote clock offset: 0.351 ms


# Below is generated by plot.py at 2018-12-02 02:13:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 72.73 Mbit/s
95th percentile per-packet one-way delay: 2.476 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 72.73 Mbit/s
95th percentile per-packet one-way delay: 2.476 ms
Loss rate: 0.00%
```
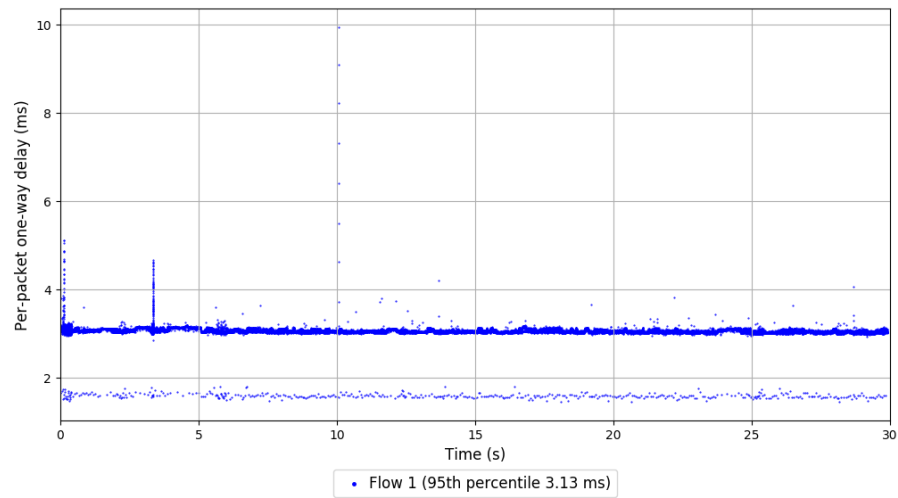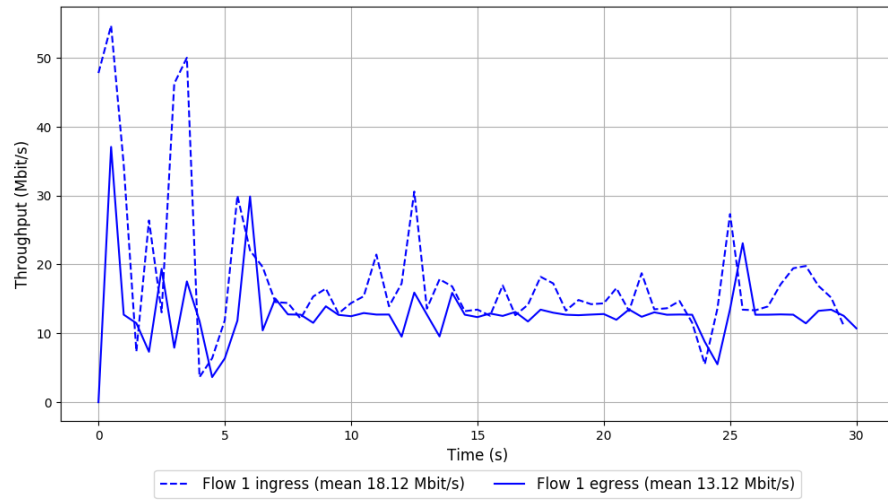
Run 5: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 72.73 Mbit/s) Flow 1 egress (mean 72.73 Mbit/s)

Flow 1 (95th percentile 2.48 ms)
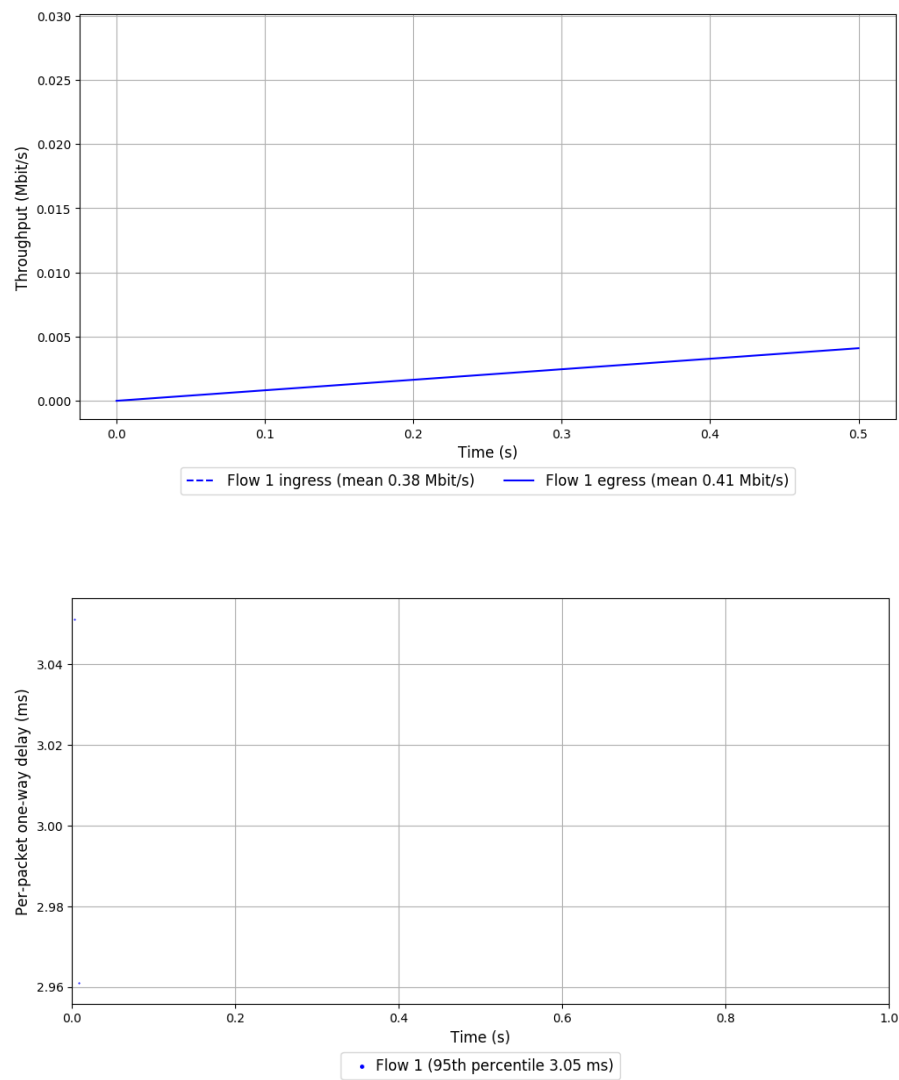
```
Run 1: Statistics of PCC-Expr

Start at: 2018-12-02 00:20:47
End at: 2018-12-02 00:21:17
Local clock offset: 3.388 ms
Remote clock offset: 0.432 ms
```

Run 1: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 0.39 Mbit/s)   Flow 1 egress (mean 0.59 Mbit/s)

Flow 1 (95th percentile 1.40 ms)

```
Run 2: Statistics of PCC-Expr

Start at: 2018-12-02 00:41:56
End at: 2018-12-02 00:42:26
Local clock offset: -2.599 ms
Remote clock offset: 0.46 ms


# Below is generated by plot.py at 2018-12-02 02:13:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 13.12 Mbit/s
95th percentile per-packet one-way delay: 3.131 ms
Loss rate: 27.58%
-- Flow 1:
Average throughput: 13.12 Mbit/s
95th percentile per-packet one-way delay: 3.131 ms
Loss rate: 27.58%
```
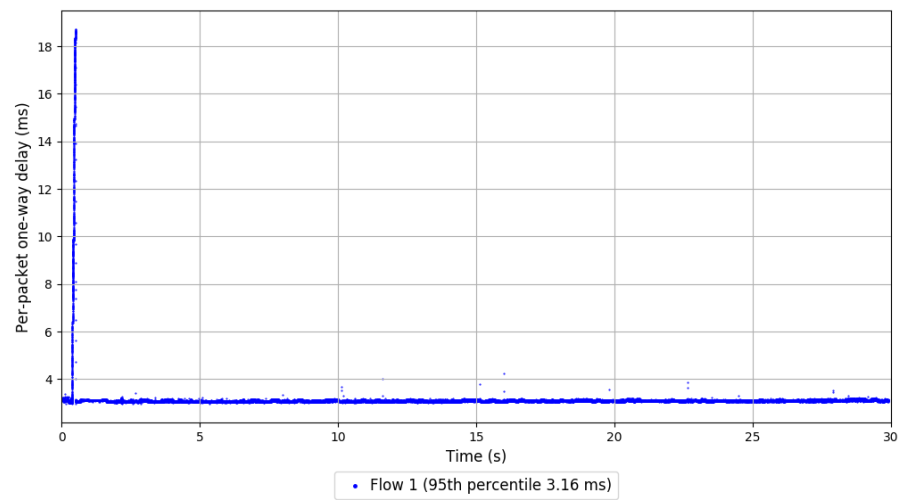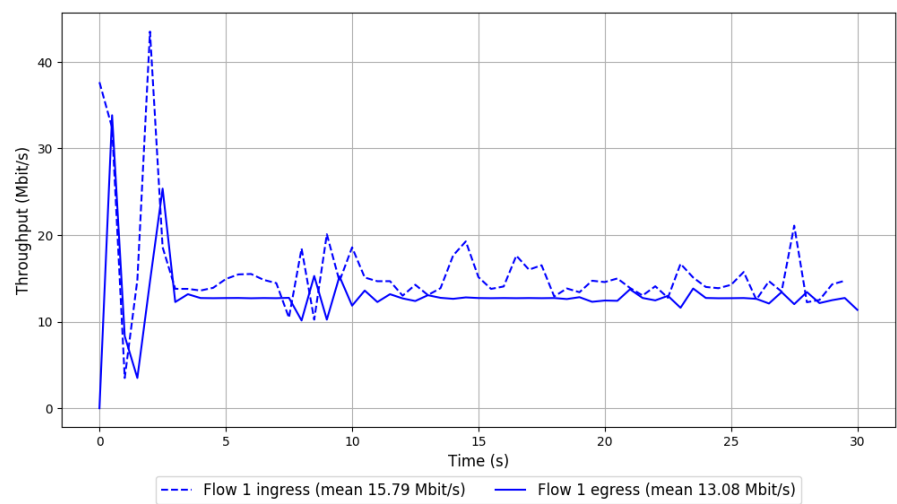
Run 2: Report of PCC-Expr — Data Link
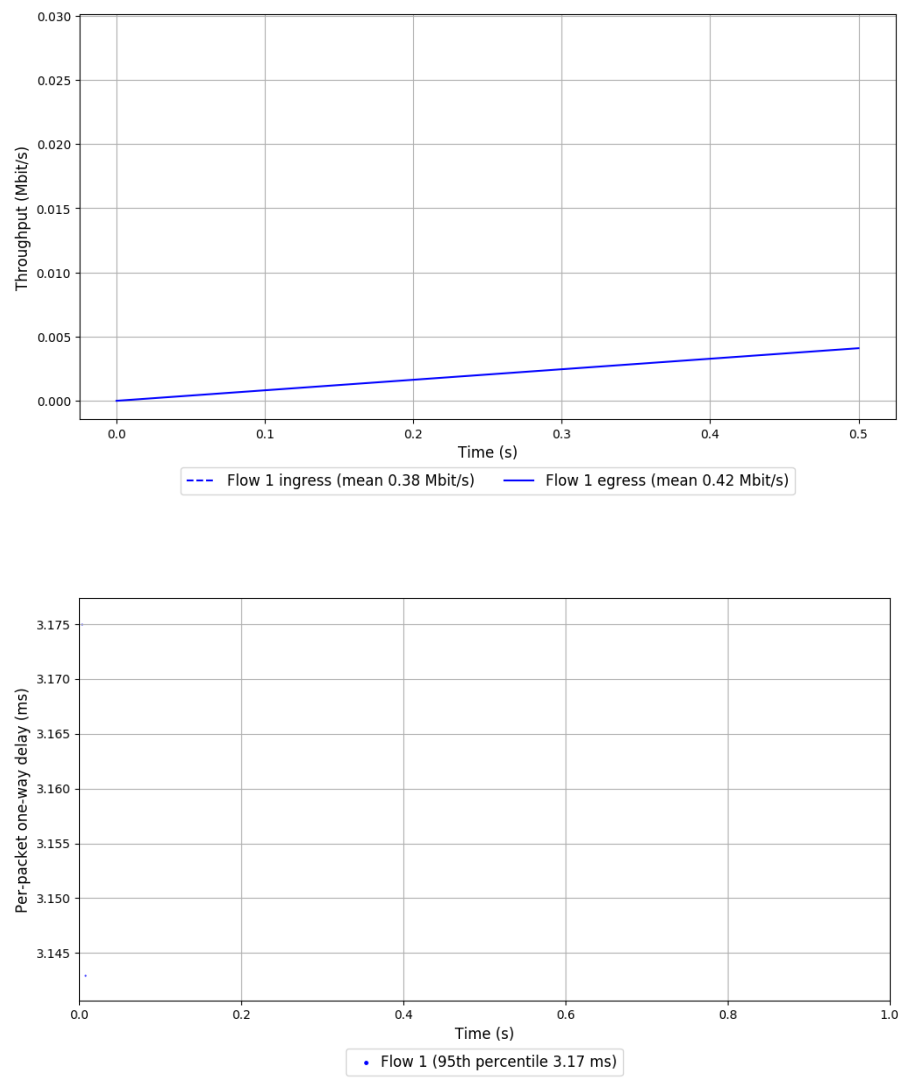
```
Run 3: Statistics of PCC-Expr

Start at: 2018-12-02 01:03:12
End at: 2018-12-02 01:03:42
Local clock offset: -8.011 ms
Remote clock offset: 0.365 ms
```

Run 3: Report of PCC-Expr — Data Link

```
Run 4: Statistics of PCC-Expr

Start at: 2018-12-02 01:24:22
End at: 2018-12-02 01:24:52
Local clock offset: -8.915 ms
Remote clock offset: 0.403 ms


# Below is generated by plot.py at 2018-12-02 02:13:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 13.08 Mbit/s
95th percentile per-packet one-way delay: 3.157 ms
Loss rate: 17.15%
-- Flow 1:
Average throughput: 13.08 Mbit/s
95th percentile per-packet one-way delay: 3.157 ms
Loss rate: 17.15%
```
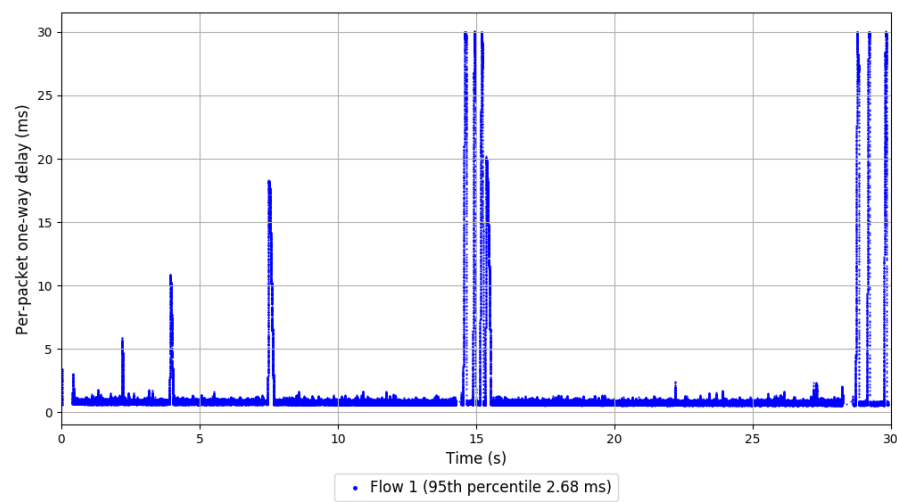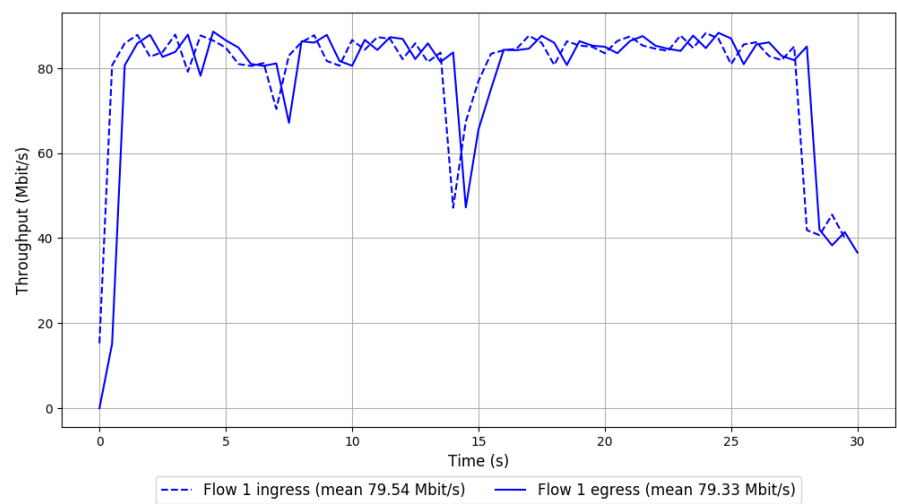
Run 4: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 15.79 Mbit/s) — — — Flow 1 egress (mean 13.08 Mbit/s)

Flow 1 (95th percentile 3.16 ms)

```
Run 5: Statistics of PCC-Expr

Start at: 2018-12-02 01:45:31
End at: 2018-12-02 01:46:01
Local clock offset: -8.919 ms
Remote clock offset: 0.354 ms
```

Run 5: Report of PCC-Expr — Data Link

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-12-02 00:31:55
End at: 2018-12-02 00:32:25
Local clock offset: -0.523 ms
Remote clock offset: 0.429 ms


# Below is generated by plot.py at 2018-12-02 02:13:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 79.33 Mbit/s
95th percentile per-packet one-way delay: 2.681 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 79.33 Mbit/s
95th percentile per-packet one-way delay: 2.681 ms
Loss rate: 0.26%
```

Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-12-02 00:53:03
End at: 2018-12-02 00:53:33
Local clock offset: -4.629 ms
Remote clock offset: 0.377 ms


# Below is generated by plot.py at 2018-12-02 02:13:45
# Datalink statistics
-- Total of 1 flow:
Average throughput: 77.98 Mbit/s
95th percentile per-packet one-way delay: 6.820 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 77.98 Mbit/s
95th percentile per-packet one-way delay: 6.820 ms
Loss rate: 0.42%
```
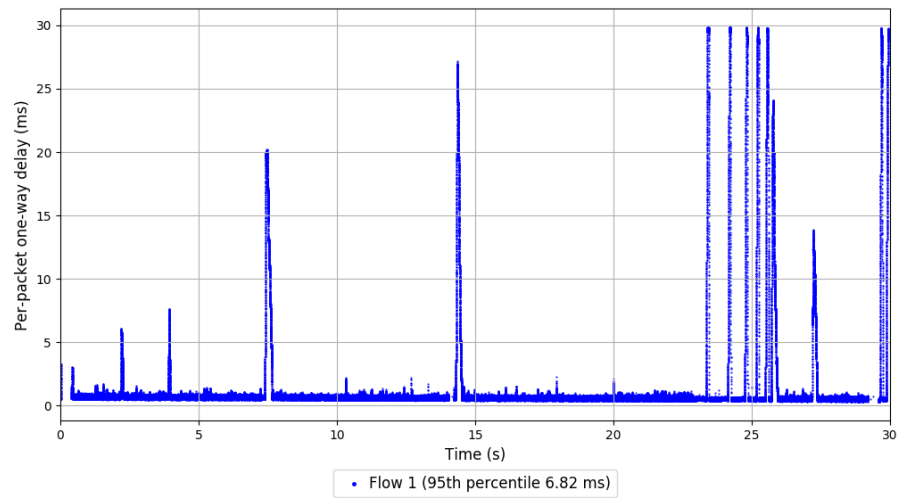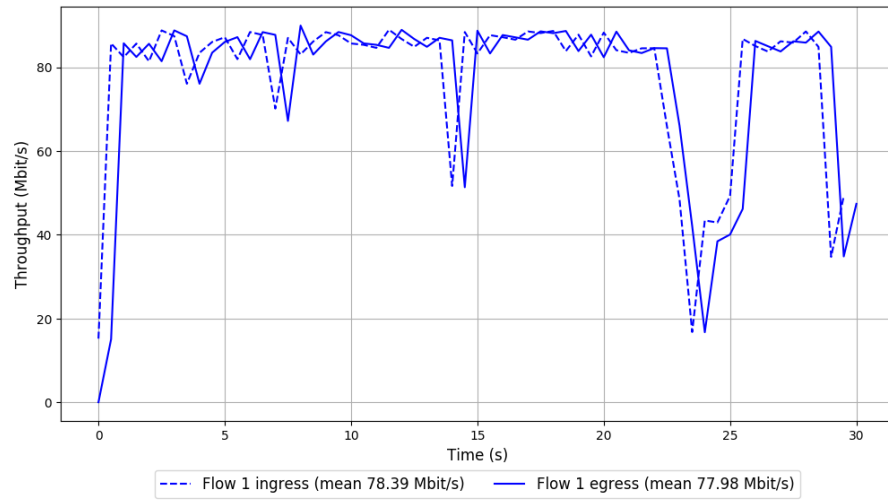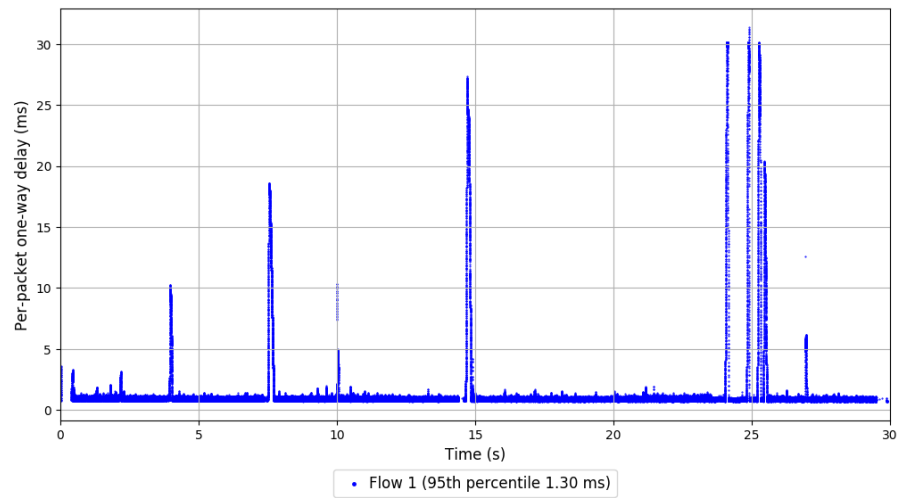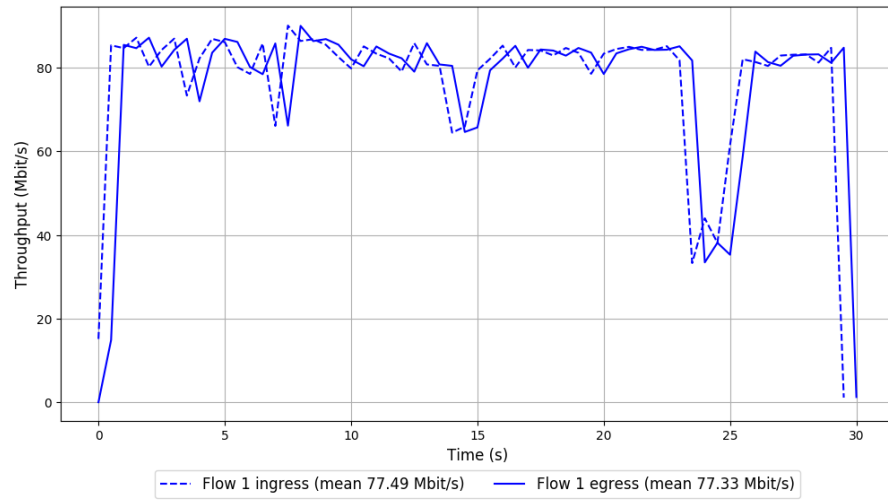
Run 2: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 78.39 Mbit/s) --- Flow 1 egress (mean 77.98 Mbit/s)

Flow 1 (95th percentile 6.82 ms)

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-12-02 01:14:18
End at: 2018-12-02 01:14:48
Local clock offset: -8.751 ms
Remote clock offset: 0.521 ms

# Below is generated by plot.py at 2018-12-02 02:13:45
# Datalink statistics
-- Total of 1 flow:
Average throughput: 77.33 Mbit/s
95th percentile per-packet one-way delay: 1.303 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 77.33 Mbit/s
95th percentile per-packet one-way delay: 1.303 ms
Loss rate: 0.21%
```
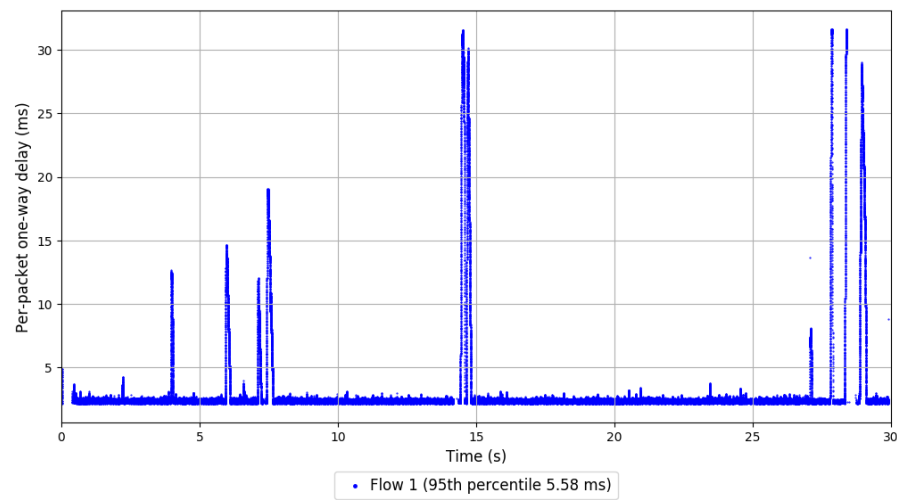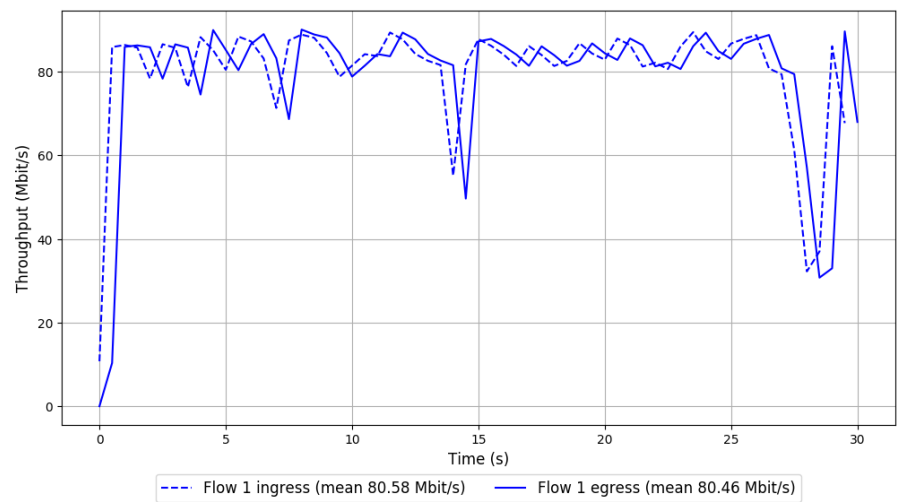
Run 3: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 77.49 Mbit/s)   Flow 1 egress (mean 77.33 Mbit/s)

Flow 1 (95th percentile 1.30 ms)

```
Run 4: Statistics of QUIC Cubic

Start at: 2018-12-02 01:35:29
End at: 2018-12-02 01:35:59
Local clock offset: -7.833 ms
Remote clock offset: 0.385 ms


# Below is generated by plot.py at 2018-12-02 02:13:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 80.46 Mbit/s
95th percentile per-packet one-way delay: 5.581 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 80.46 Mbit/s
95th percentile per-packet one-way delay: 5.581 ms
Loss rate: 0.13%
```
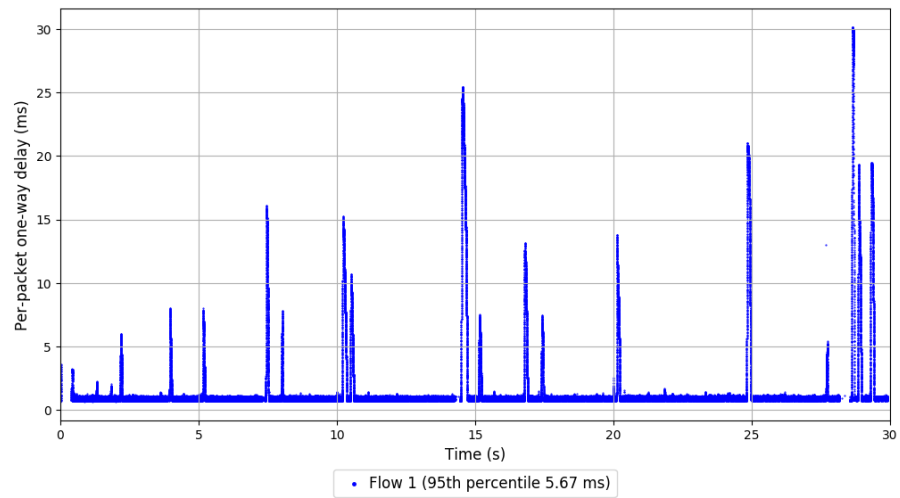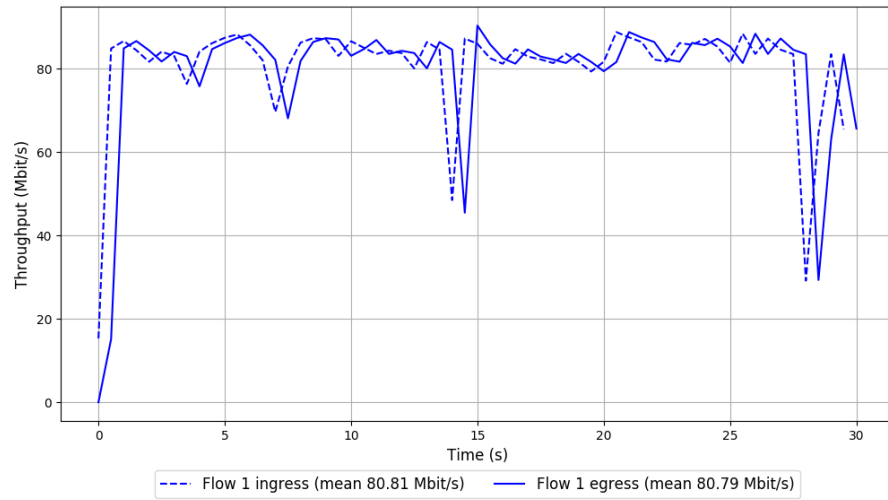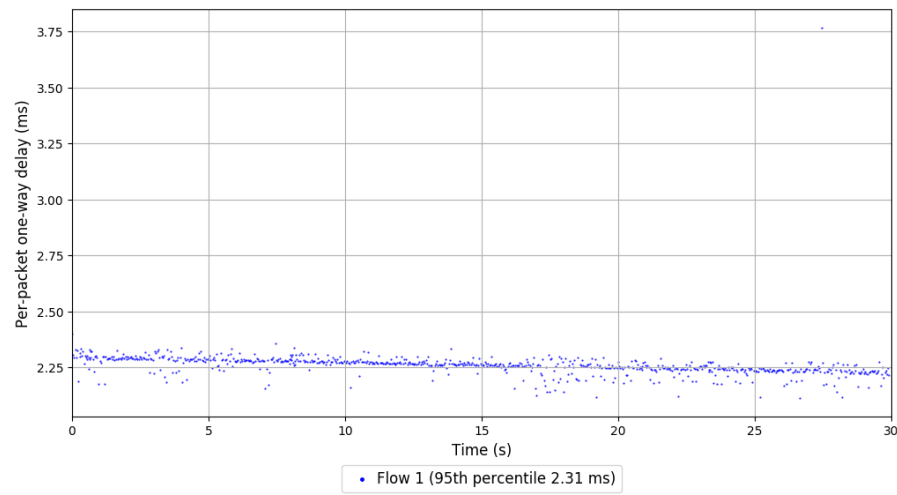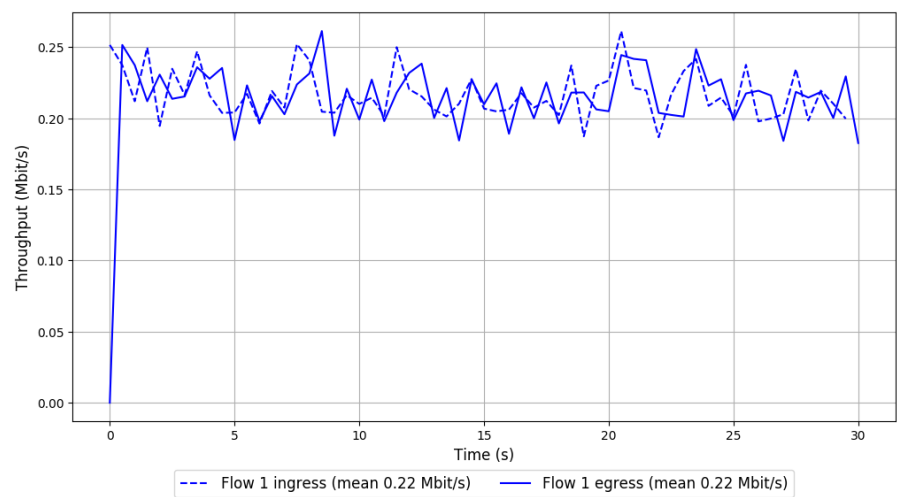
Run 4: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 80.58 Mbit/s) ----- Flow 1 egress (mean 80.46 Mbit/s)

Flow 1 (95th percentile 5.58 ms)

```
Run 5: Statistics of QUIC Cubic

Start at: 2018-12-02 01:56:38
End at: 2018-12-02 01:57:08
Local clock offset: -7.33 ms
Remote clock offset: 0.262 ms


# Below is generated by plot.py at 2018-12-02 02:14:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 80.79 Mbit/s
95th percentile per-packet one-way delay: 5.666 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 80.79 Mbit/s
95th percentile per-packet one-way delay: 5.666 ms
Loss rate: 0.04%
```

Run 5: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 80.81 Mbit/s)   Flow 1 egress (mean 80.79 Mbit/s)

Flow 1 (95th percentile 5.67 ms)

```
Run 1: Statistics of SCReAM

Start at: 2018-12-02 00:35:14
End at: 2018-12-02 00:35:44
Local clock offset: -1.121 ms
Remote clock offset: 0.449 ms

# Below is generated by plot.py at 2018-12-02 02:14:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.307 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.307 ms
Loss rate: 0.13%
```
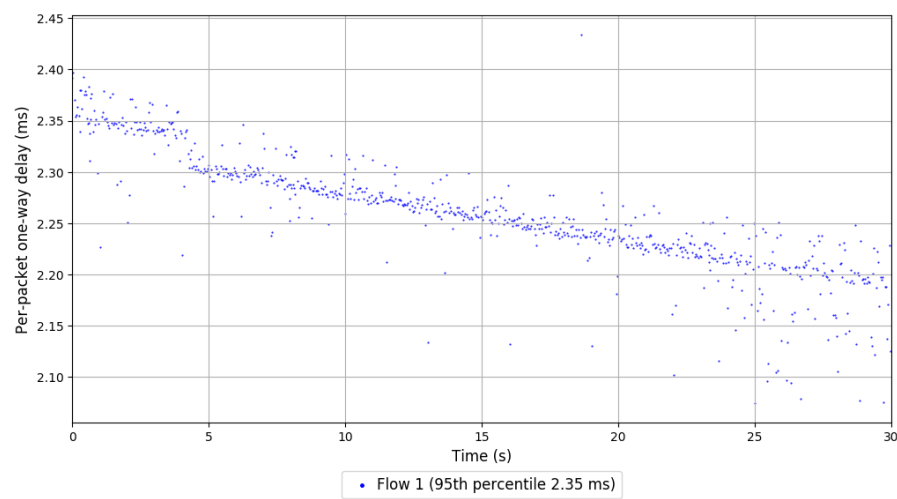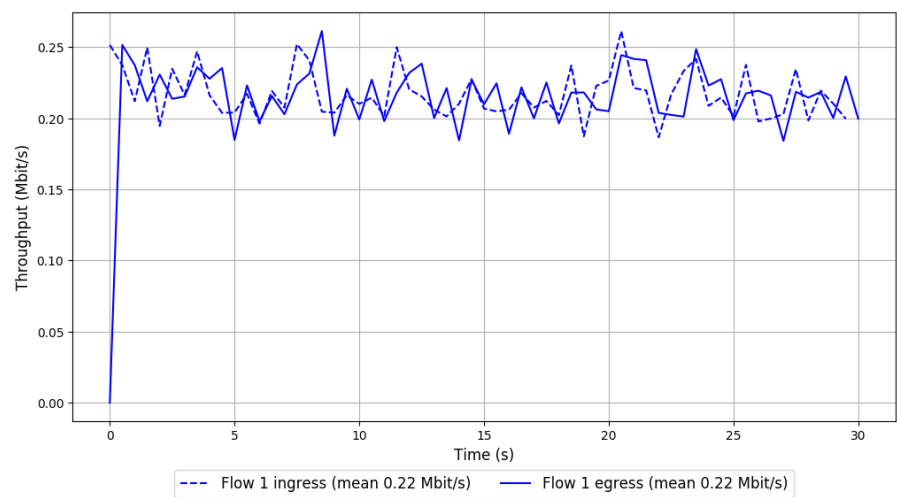
Run 1: Report of SCReAM — Data Link

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

Flow 1 (95th percentile 2.31 ms)

```
Run 2: Statistics of SCReAM

Start at: 2018-12-02 00:56:23
End at: 2018-12-02 00:56:53
Local clock offset: -5.779 ms
Remote clock offset: 0.511 ms


# Below is generated by plot.py at 2018-12-02 02:14:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.351 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.351 ms
Loss rate: 0.00%
```
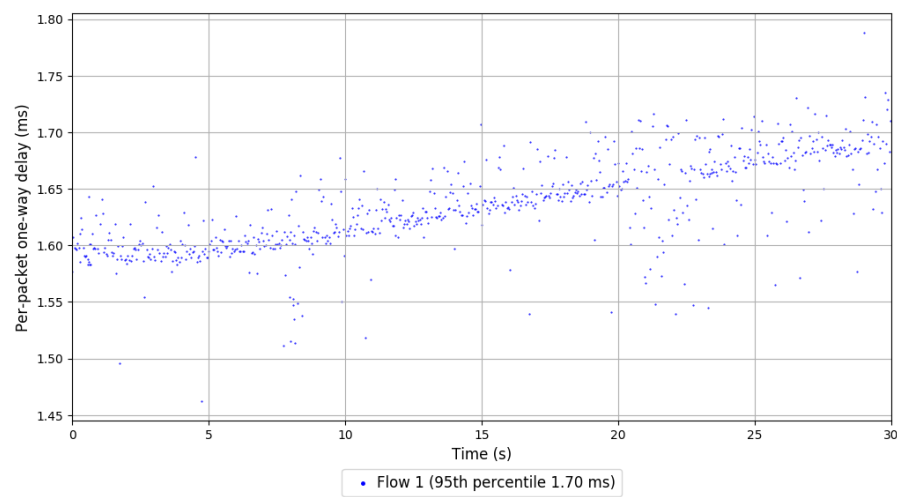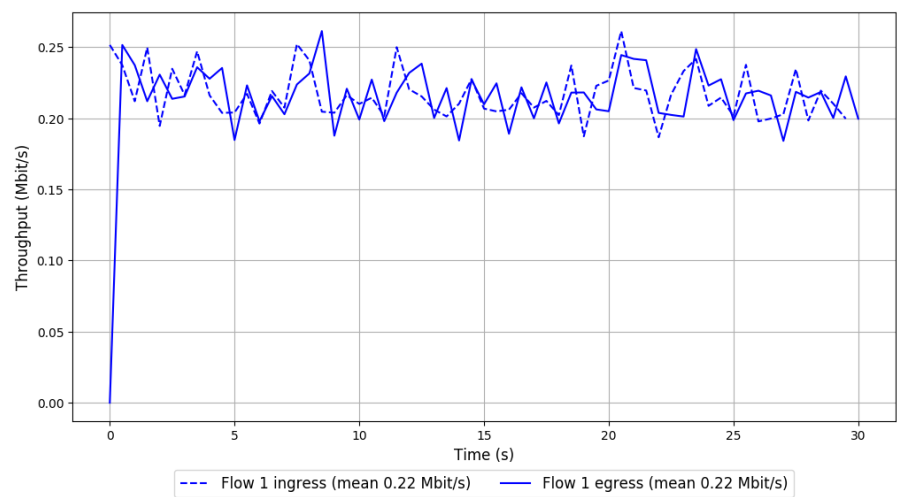
Run 2: Report of SCReAM — Data Link

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

Flow 1 (95th percentile 2.35 ms)

```
Run 3: Statistics of SCReAM

Start at: 2018-12-02 01:17:38
End at: 2018-12-02 01:18:08
Local clock offset: -9.875 ms
Remote clock offset: 0.447 ms


# Below is generated by plot.py at 2018-12-02 02:14:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.698 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.698 ms
Loss rate: 0.00%
```
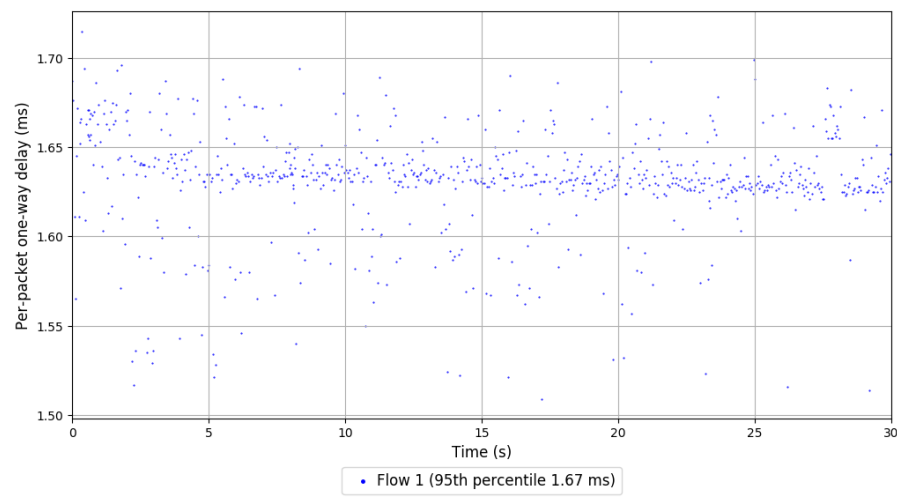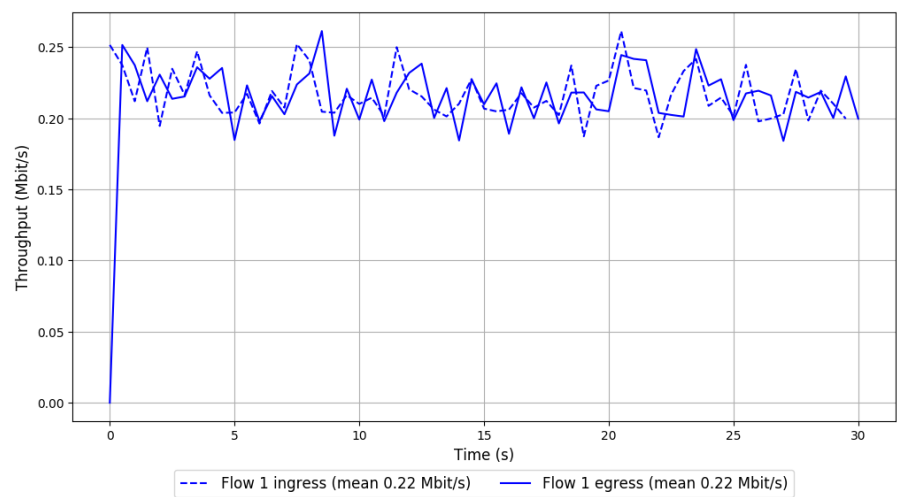
Run 3: Report of SCReAM — Data Link

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

Flow 1 (95th percentile 1.70 ms)

```
Run 4: Statistics of SCReAM

Start at: 2018-12-02 01:38:49
End at: 2018-12-02 01:39:19
Local clock offset: -8.712 ms
Remote clock offset: 0.339 ms


# Below is generated by plot.py at 2018-12-02 02:14:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.673 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.673 ms
Loss rate: 0.00%
```
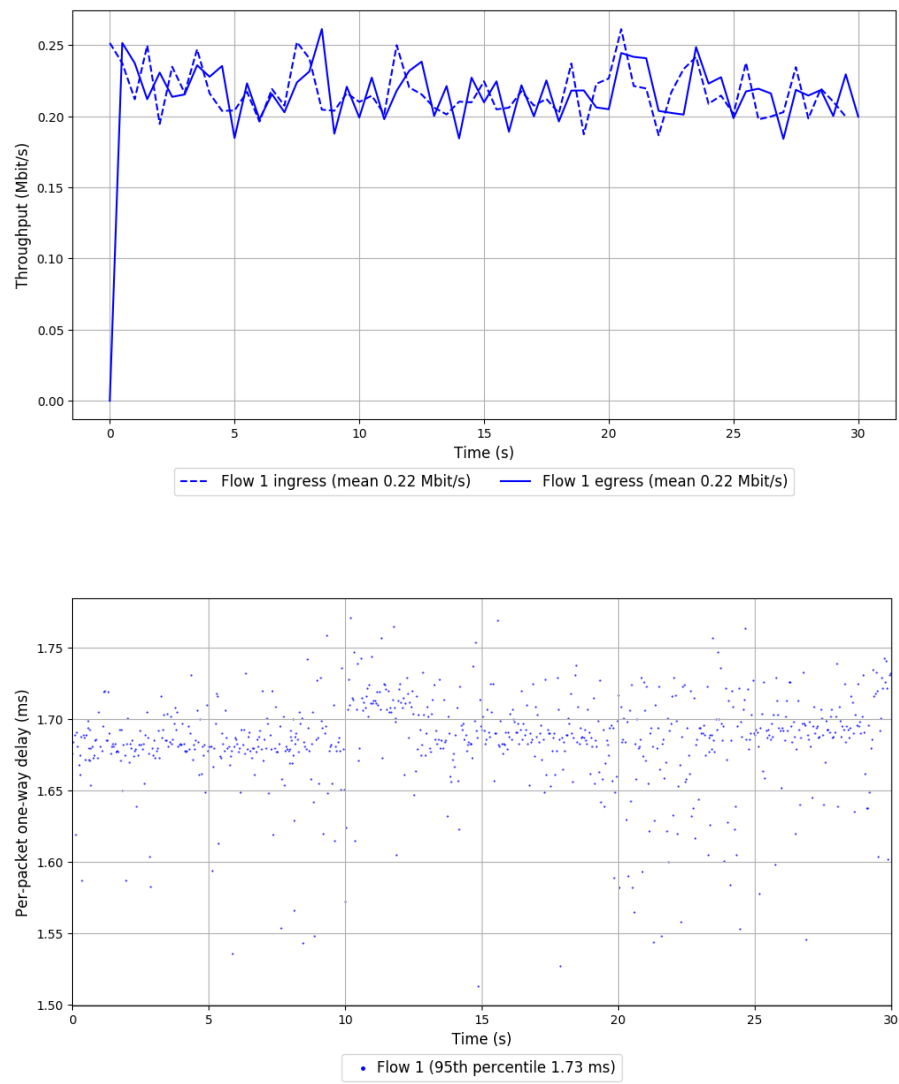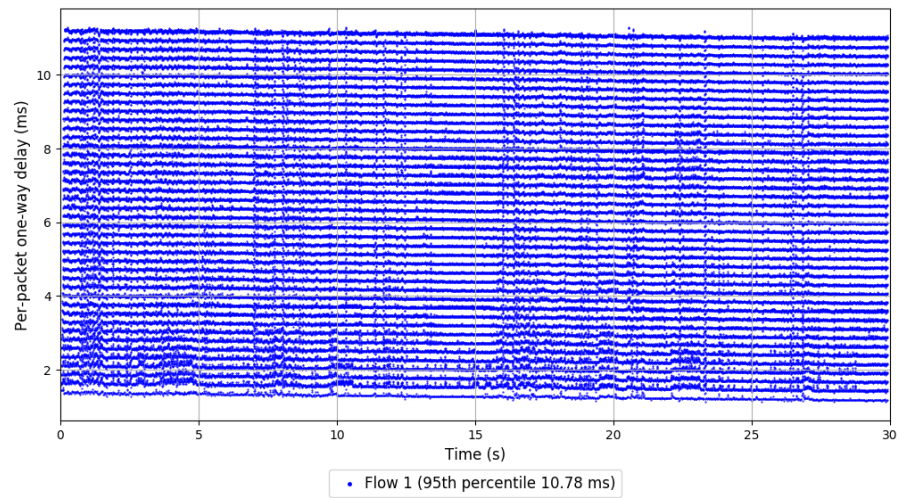
Run 4: Report of SCReAM — Data Link

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

Flow 1 (95th percentile 1.67 ms)

```
Run 5: Statistics of SCReAM

Start at: 2018-12-02 01:59:57
End at: 2018-12-02 02:00:27
Local clock offset: -7.983 ms
Remote clock offset: 0.339 ms


# Below is generated by plot.py at 2018-12-02 02:14:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.728 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.728 ms
Loss rate: 0.00%
```
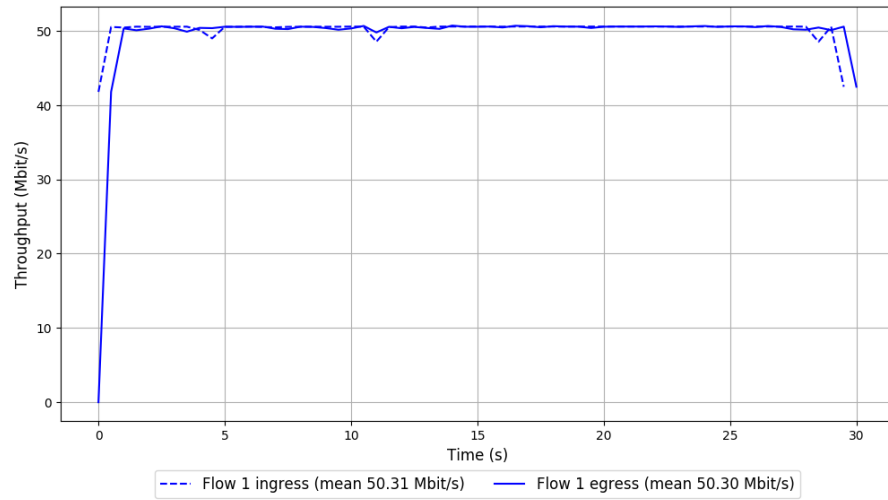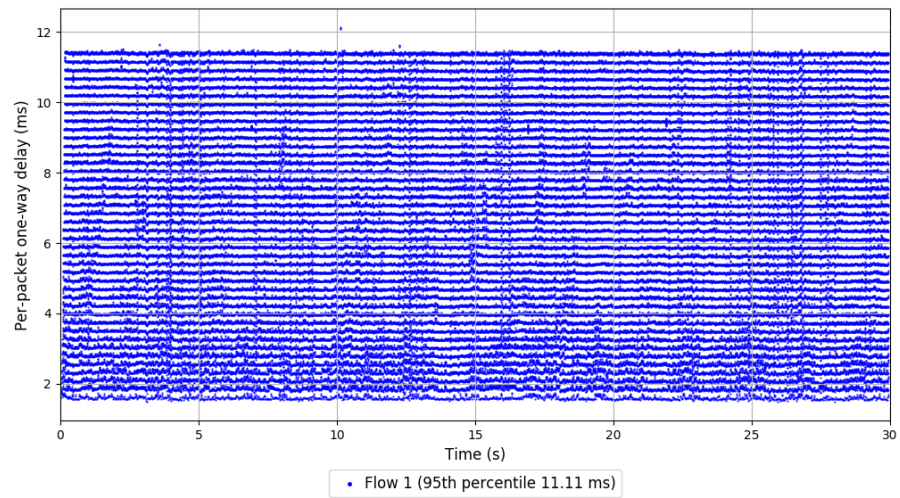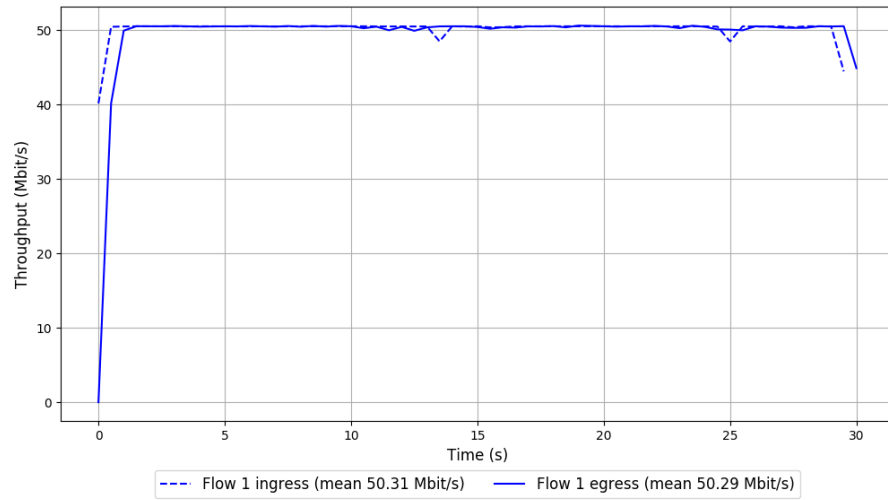
Run 5: Report of SCReAM — Data Link

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

Flow 1 (95th percentile 1.73 ms)

```
Run 1: Statistics of Sprout

Start at: 2018-12-02 00:25:11
End at: 2018-12-02 00:25:41
Local clock offset: 0.857 ms
Remote clock offset: 0.487 ms

# Below is generated by plot.py at 2018-12-02 02:14:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 50.30 Mbit/s
95th percentile per-packet one-way delay: 10.782 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.30 Mbit/s
95th percentile per-packet one-way delay: 10.782 ms
Loss rate: 0.00%
```
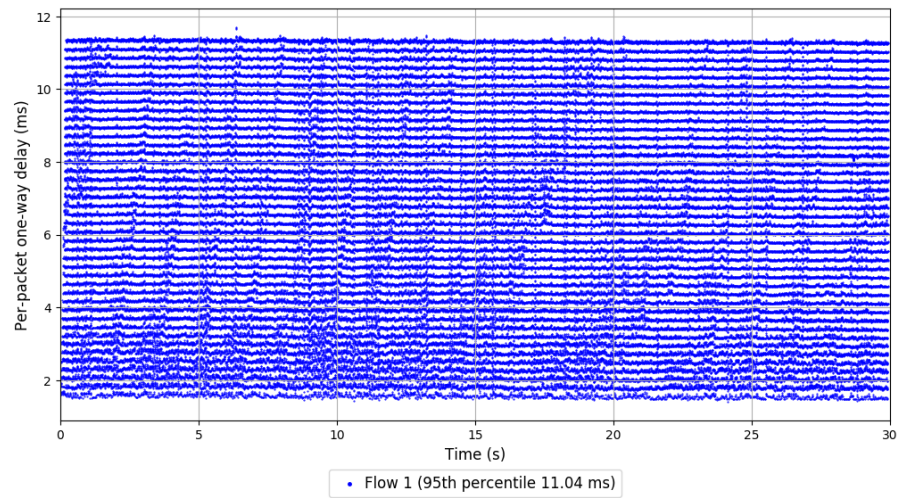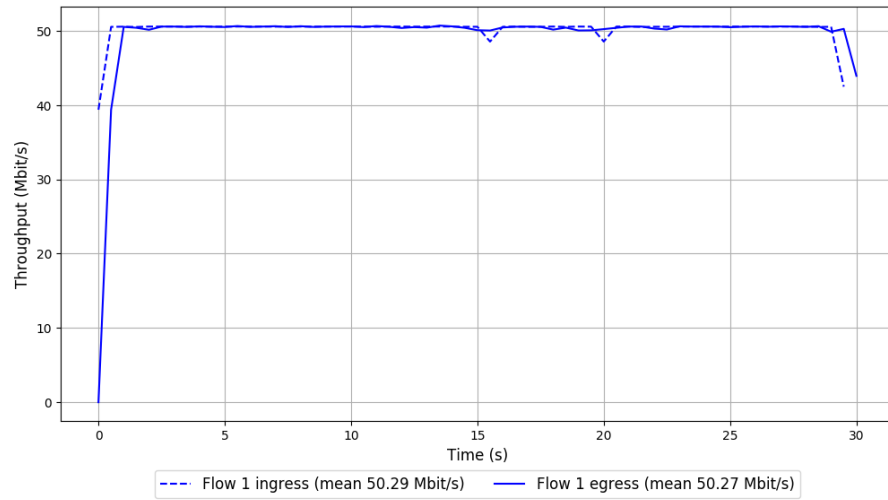
Run 1: Report of Sprout — Data Link

Flow 1 ingress (mean 50.31 Mbit/s)   Flow 1 egress (mean 50.30 Mbit/s)

• Flow 1 (95th percentile 10.78 ms)

```
Run 2: Statistics of Sprout

Start at: 2018-12-02 00:46:20
End at: 2018-12-02 00:46:50
Local clock offset: -2.867 ms
Remote clock offset: 0.463 ms


# Below is generated by plot.py at 2018-12-02 02:14:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 50.29 Mbit/s
95th percentile per-packet one-way delay: 11.113 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.29 Mbit/s
95th percentile per-packet one-way delay: 11.113 ms
Loss rate: 0.00%
```
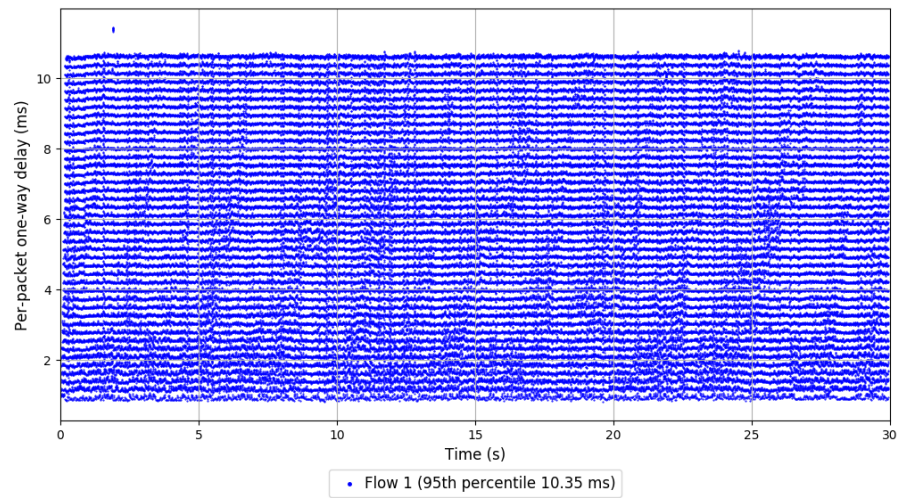
Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2018-12-02 01:07:36
End at: 2018-12-02 01:08:06
Local clock offset: -8.716 ms
Remote clock offset: 0.459 ms


# Below is generated by plot.py at 2018-12-02 02:14:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 50.27 Mbit/s
95th percentile per-packet one-way delay: 11.043 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.27 Mbit/s
95th percentile per-packet one-way delay: 11.043 ms
Loss rate: 0.00%
```
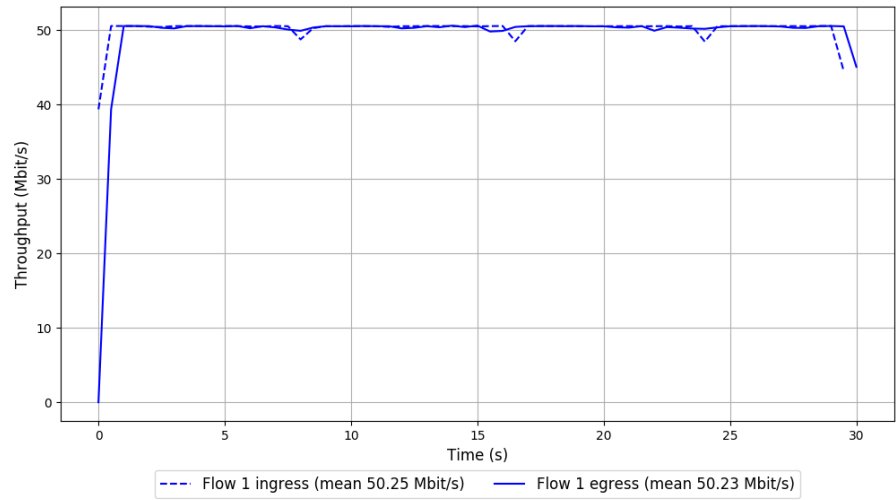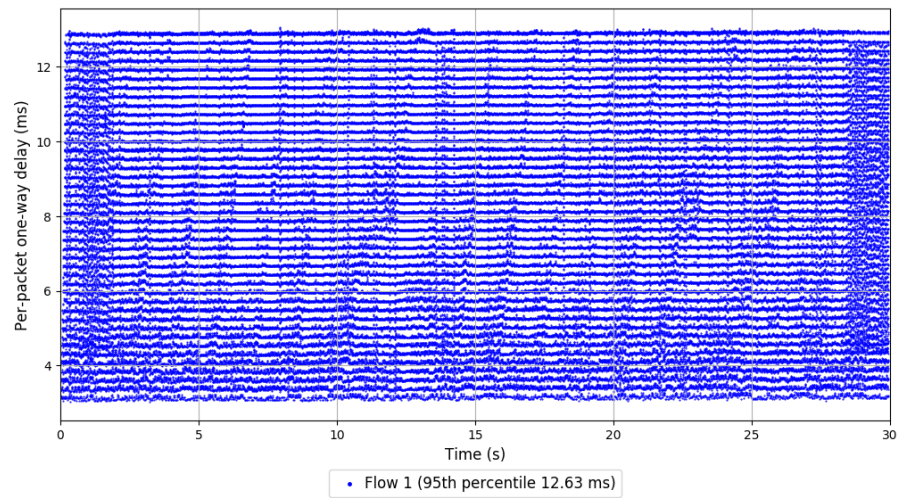
Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2018-12-02 01:28:46
End at: 2018-12-02 01:29:16
Local clock offset: -7.897 ms
Remote clock offset: 0.467 ms


# Below is generated by plot.py at 2018-12-02 02:14:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 50.23 Mbit/s
95th percentile per-packet one-way delay: 10.345 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.23 Mbit/s
95th percentile per-packet one-way delay: 10.345 ms
Loss rate: 0.00%
```
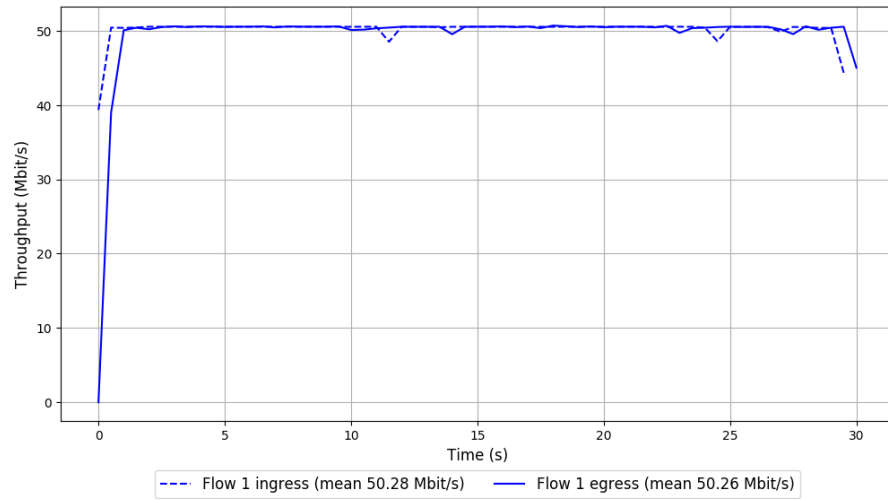
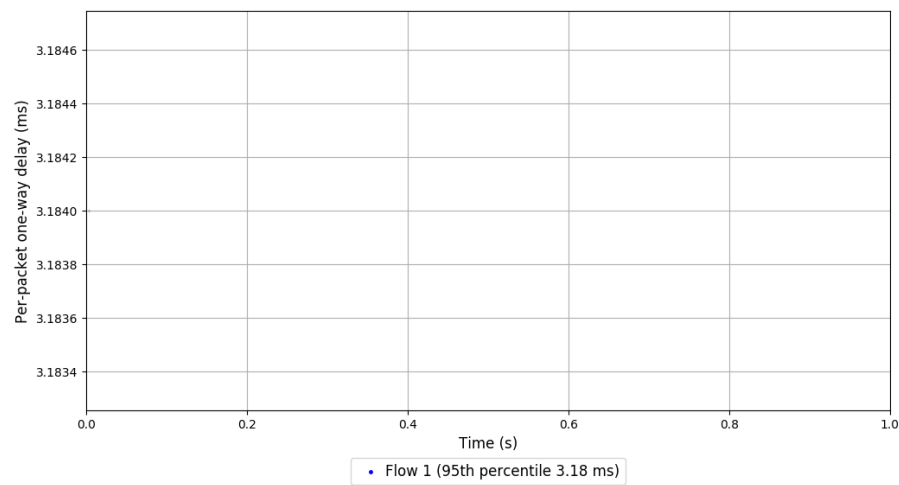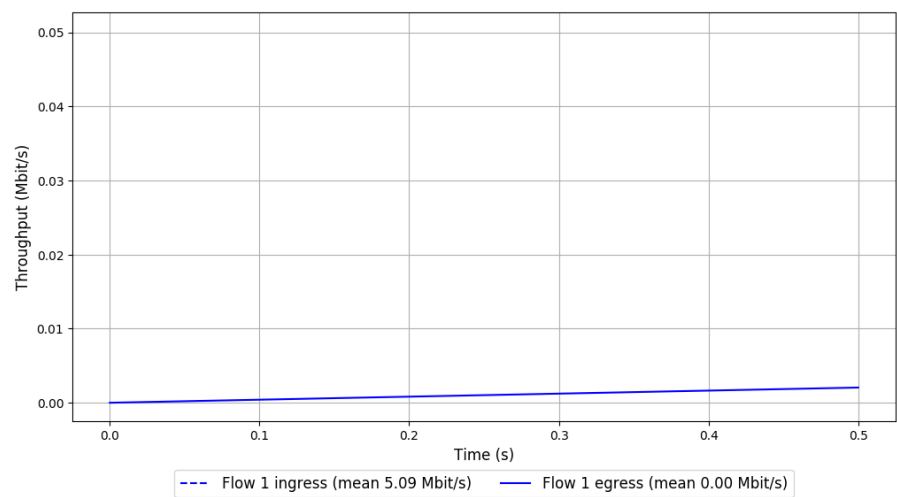Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2018-12-02 01:49:54
End at: 2018-12-02 01:50:24
Local clock offset: -8.671 ms
Remote clock offset: 0.314 ms


# Below is generated by plot.py at 2018-12-02 02:14:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 50.26 Mbit/s
95th percentile per-packet one-way delay: 12.632 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.26 Mbit/s
95th percentile per-packet one-way delay: 12.632 ms
Loss rate: 0.00%
```
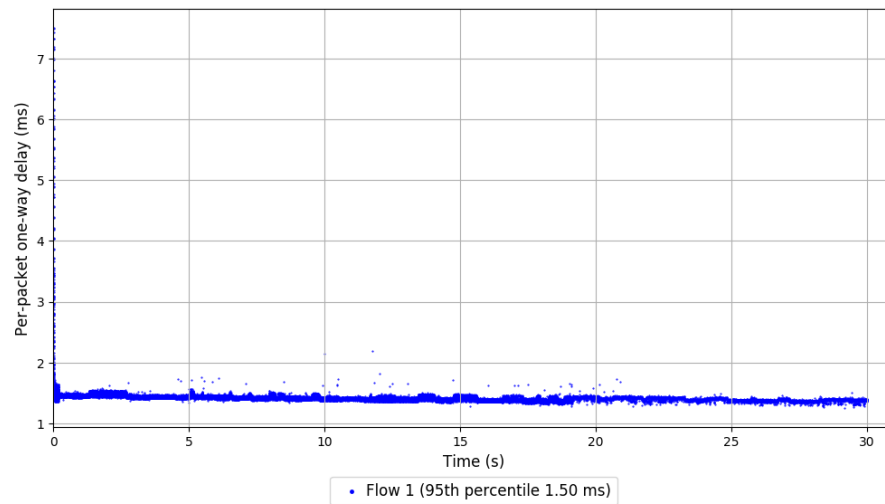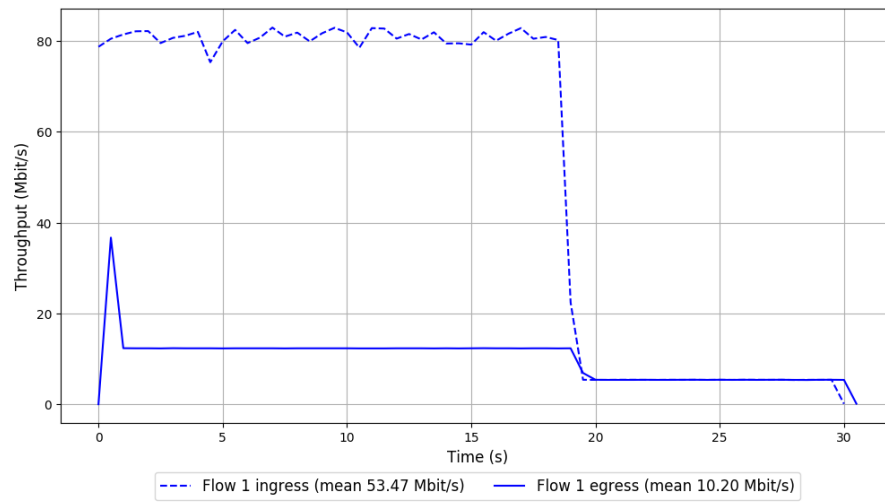
Run 5: Report of Sprout — Data Link
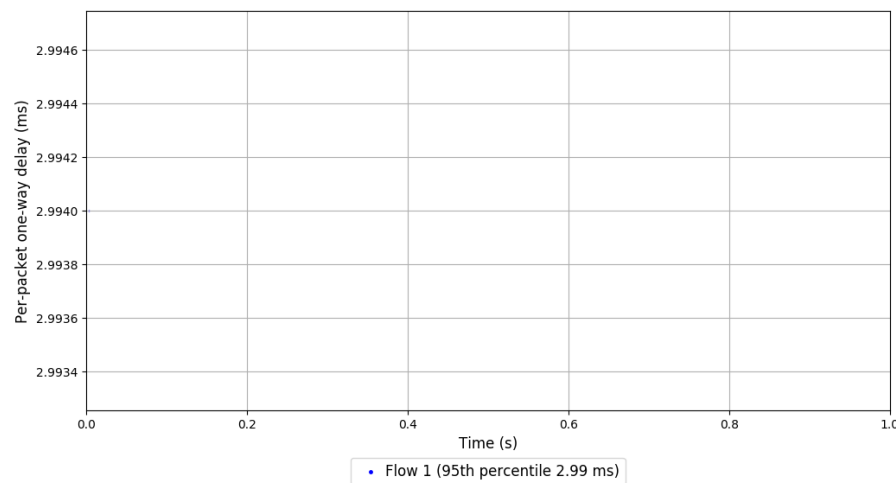
```
Run 1: Statistics of TaoVA-100x

Start at: 2018-12-02 00:34:10
End at: 2018-12-02 00:34:40
Local clock offset: -1.805 ms
Remote clock offset: 0.408 ms
```
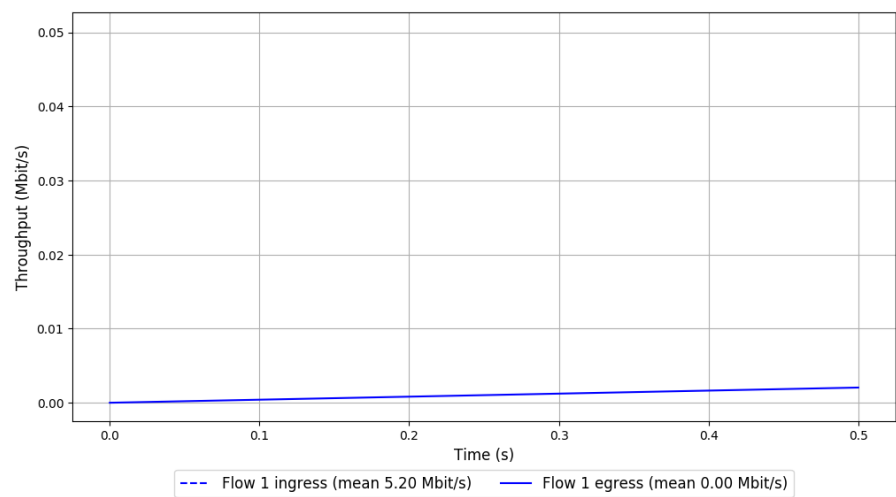
Run 1: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 5.09 Mbit/s)   Flow 1 egress (mean 0.00 Mbit/s)

Flow 1 (95th percentile 3.18 ms)

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

Start at: 2018-12-02 00:55:18
End at: 2018-12-02 00:55:48
Local clock offset: -6.176 ms
Remote clock offset: 0.425 ms


# Below is generated by plot.py at 2018-12-02 02:14:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 10.20 Mbit/s
95th percentile per-packet one-way delay: 1.505 ms
Loss rate: 80.92%
-- Flow 1:
Average throughput: 10.20 Mbit/s
95th percentile per-packet one-way delay: 1.505 ms
Loss rate: 80.92%
```
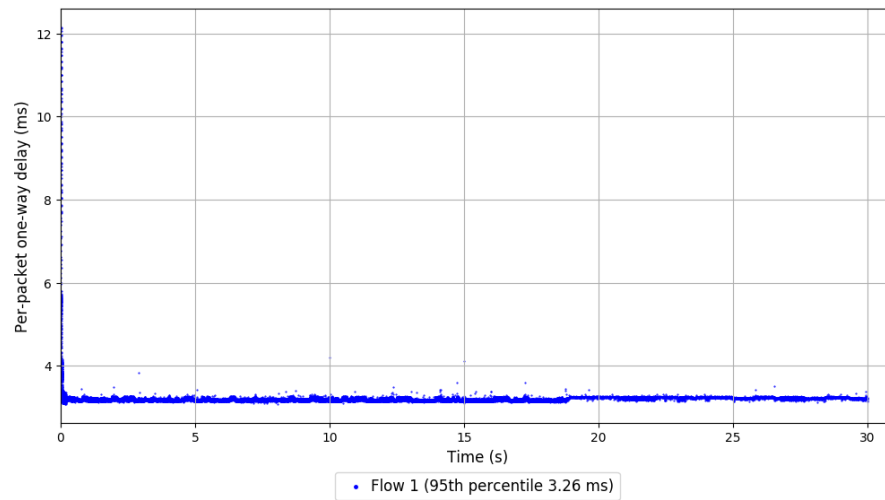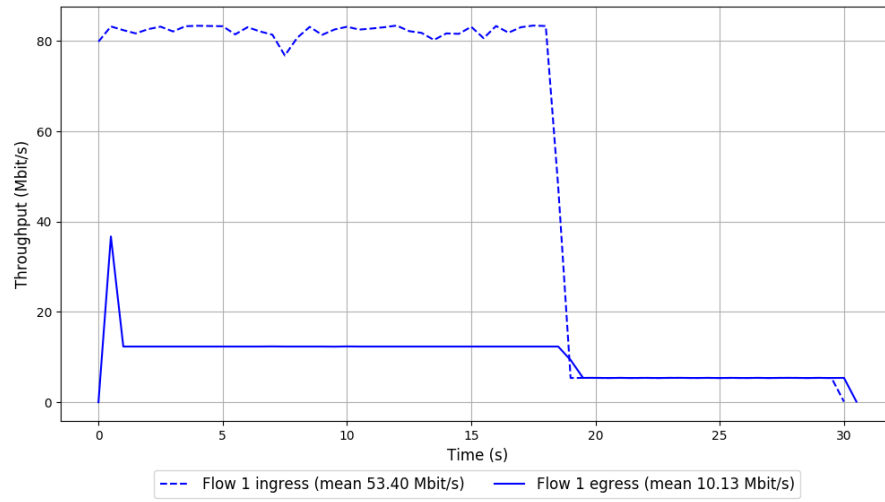
Run 2: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 53.47 Mbit/s)   Flow 1 egress (mean 10.20 Mbit/s)

Flow 1 (95th percentile 1.50 ms)

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

Start at: 2018-12-02 01:16:33
End at: 2018-12-02 01:17:03
Local clock offset: -9.801 ms
Remote clock offset: 0.454 ms
```
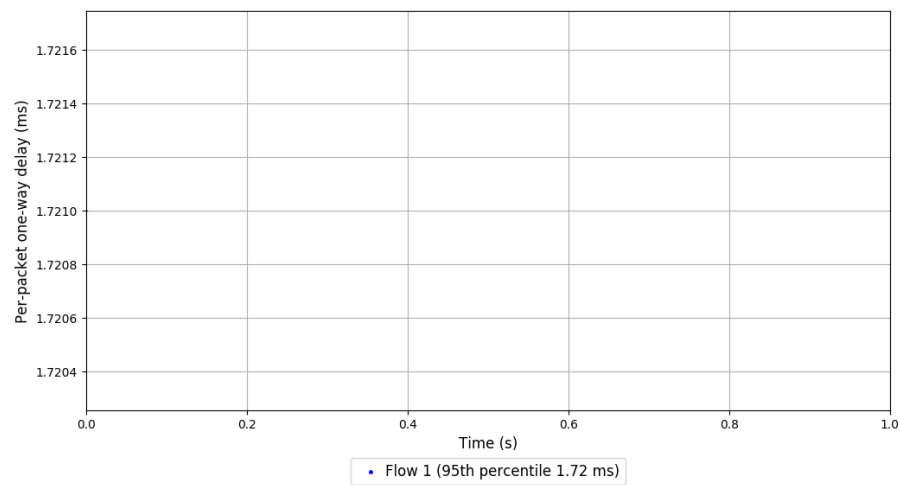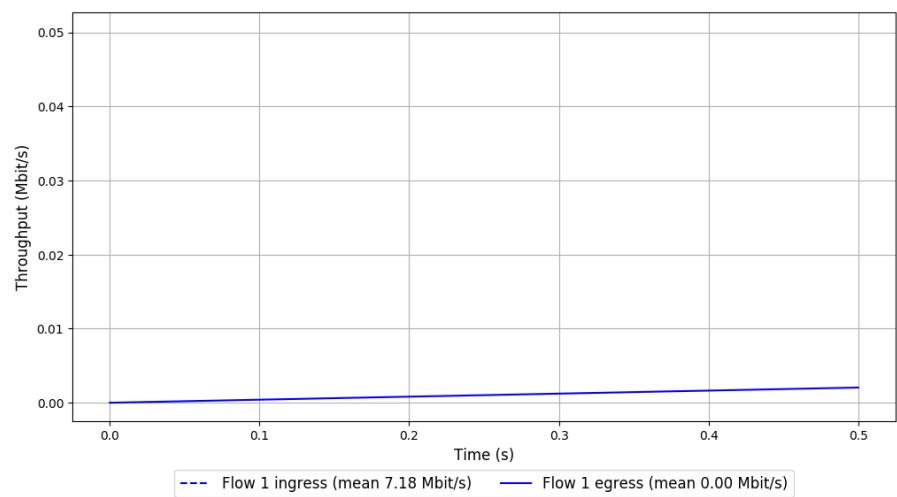
Run 3: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 5.20 Mbit/s) --- Flow 1 egress (mean 0.00 Mbit/s)

Flow 1 (95th percentile 2.99 ms)

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

Start at: 2018-12-02 01:37:44
End at: 2018-12-02 01:38:14
Local clock offset: -8.681 ms
Remote clock offset: 0.466 ms


# Below is generated by plot.py at 2018-12-02 02:14:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 10.13 Mbit/s
95th percentile per-packet one-way delay: 3.260 ms
Loss rate: 81.03%
-- Flow 1:
Average throughput: 10.13 Mbit/s
95th percentile per-packet one-way delay: 3.260 ms
Loss rate: 81.03%
```
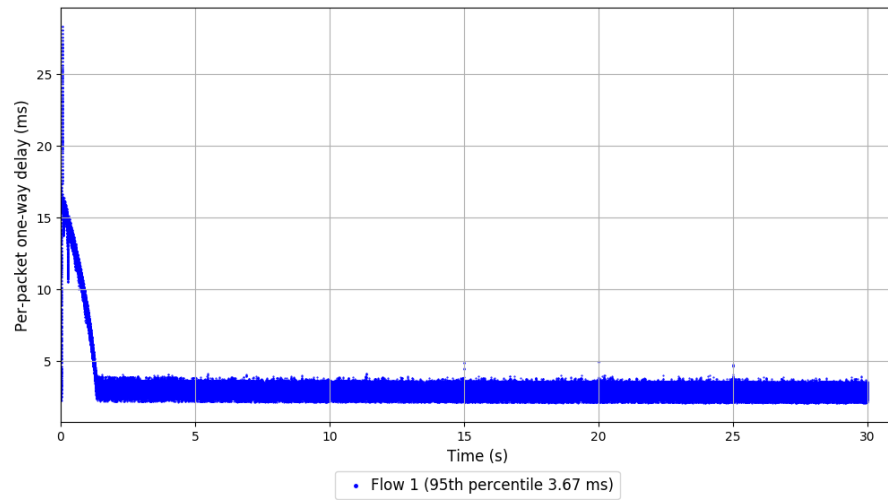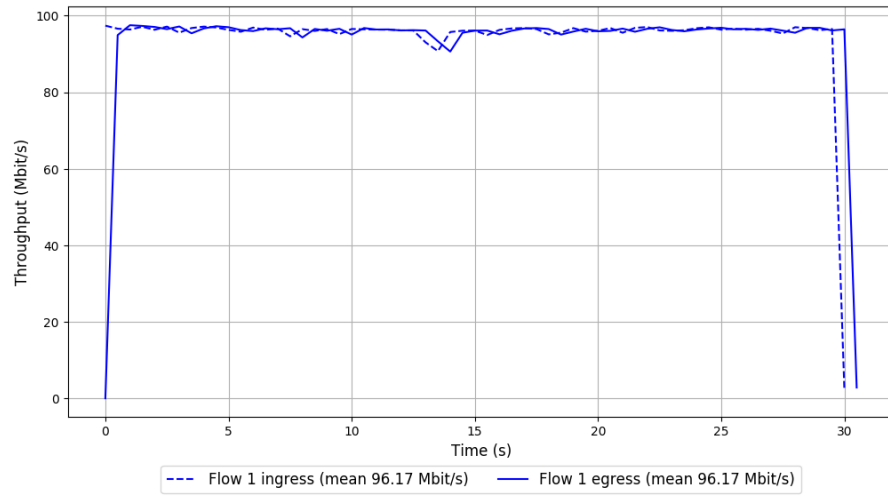
Run 4: Report of TaoVA-100x — Data Link

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

Start at: 2018-12-02 01:58:53
End at: 2018-12-02 01:59:23
Local clock offset: -8.024 ms
Remote clock offset: 0.312 ms
```

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

Flow 1 ingress (mean 7.18 Mbit/s) — Flow 1 egress (mean 0.00 Mbit/s)
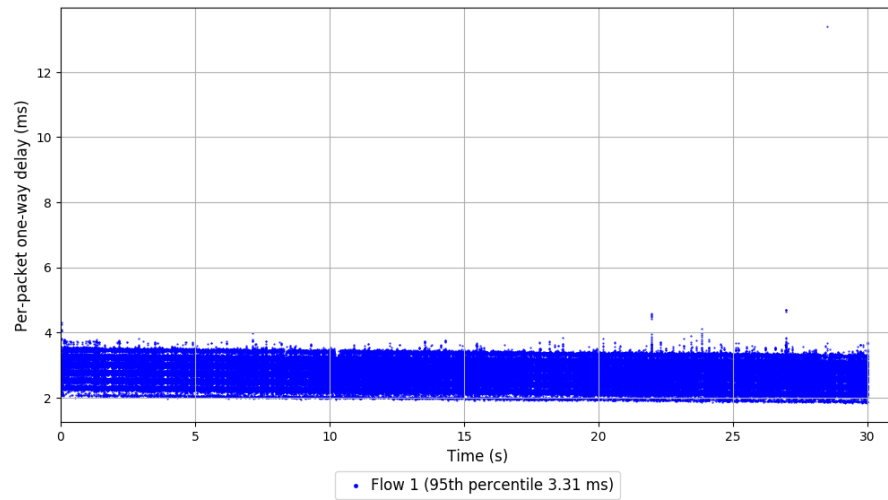

Flow 1 (95th percentile 1.72 ms)

```
Run 1: Statistics of TCP Vegas

Start at: 2018-12-02 00:30:47
End at: 2018-12-02 00:31:17
Local clock offset: -0.323 ms
Remote clock offset: 0.461 ms


# Below is generated by plot.py at 2018-12-02 02:14:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.17 Mbit/s
95th percentile per-packet one-way delay: 3.668 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 96.17 Mbit/s
95th percentile per-packet one-way delay: 3.668 ms
Loss rate: 0.00%
```

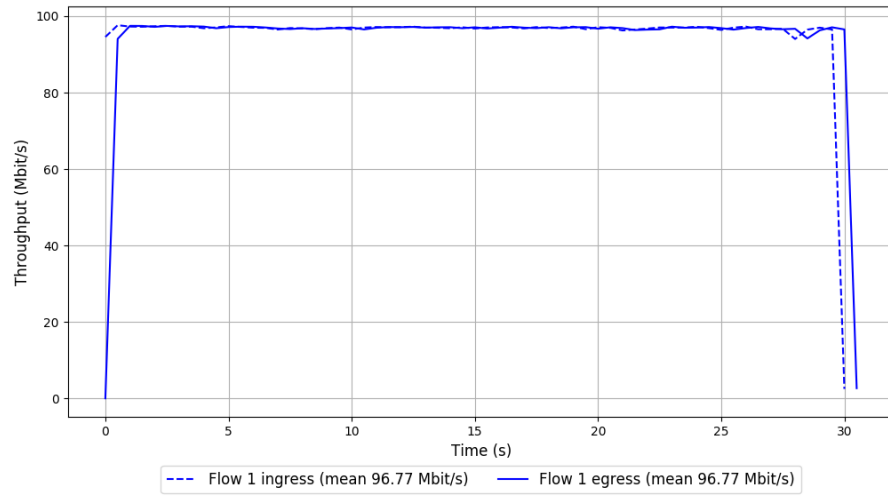## Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2018-12-02 00:51:55
End at: 2018-12-02 00:52:25
Local clock offset: -4.176 ms
Remote clock offset: 0.424 ms


# Below is generated by plot.py at 2018-12-02 02:15:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.77 Mbit/s
95th percentile per-packet one-way delay: 3.305 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 96.77 Mbit/s
95th percentile per-packet one-way delay: 3.305 ms
Loss rate: 0.00%
```

Run 2: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 96.77 Mbit/s)   —— Flow 1 egress (mean 96.77 Mbit/s)

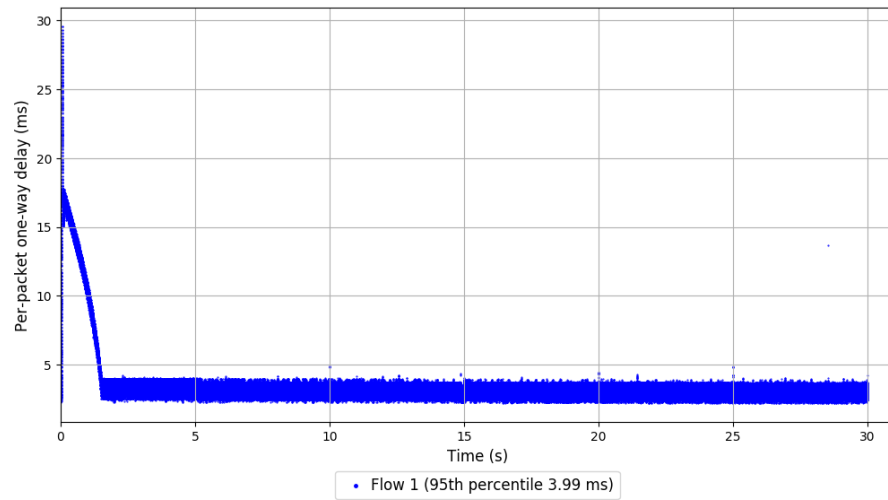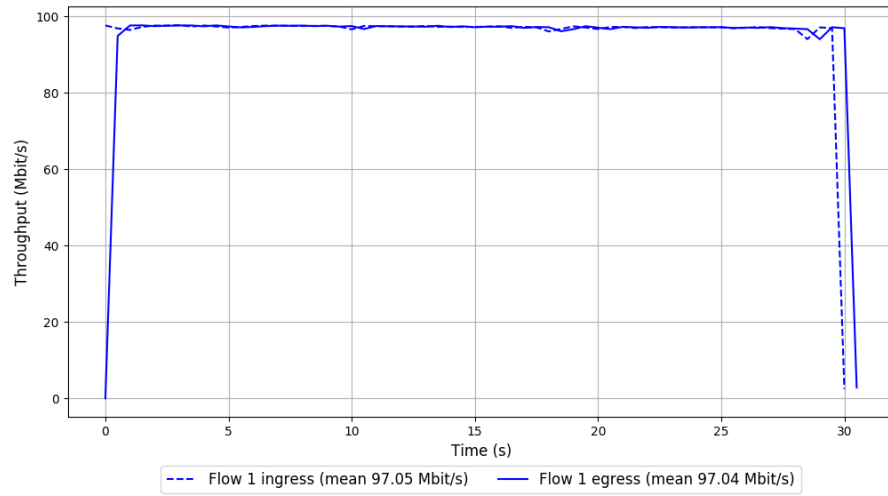• Flow 1 (95th percentile 3.31 ms)

```
Run 3: Statistics of TCP Vegas

Start at: 2018-12-02 01:13:10
End at: 2018-12-02 01:13:40
Local clock offset: -8.708 ms
Remote clock offset: 0.477 ms


# Below is generated by plot.py at 2018-12-02 02:15:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.04 Mbit/s
95th percentile per-packet one-way delay: 3.990 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 97.04 Mbit/s
95th percentile per-packet one-way delay: 3.990 ms
Loss rate: 0.00%
```
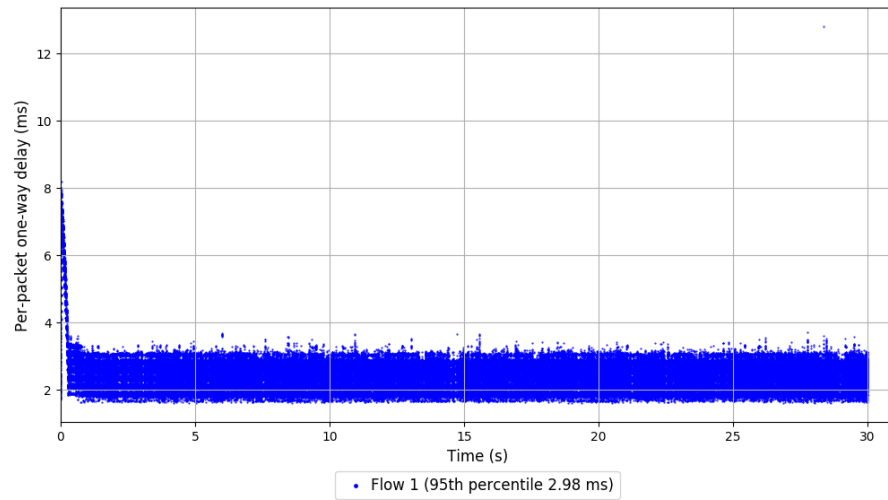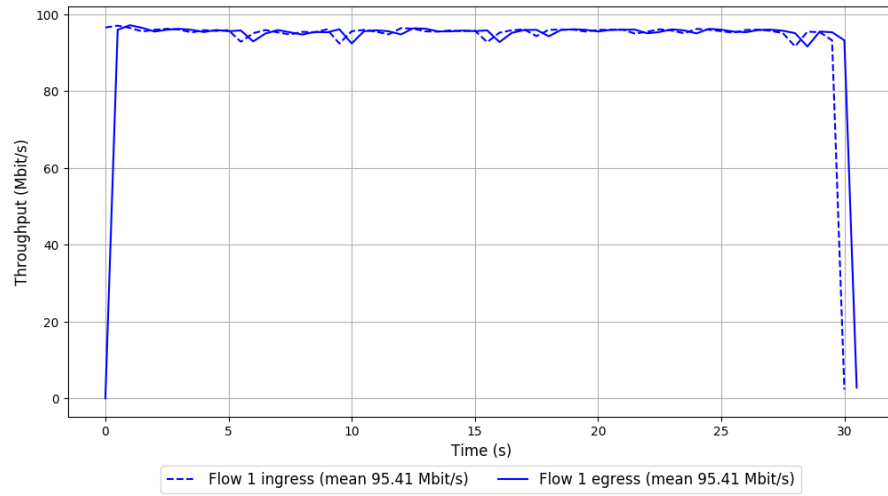
Run 3: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 97.05 Mbit/s) — Flow 1 egress (mean 97.04 Mbit/s)

Flow 1 (95th percentile 3.99 ms)

```
Run 4: Statistics of TCP Vegas

Start at: 2018-12-02 01:34:21
End at: 2018-12-02 01:34:51
Local clock offset: -8.7 ms
Remote clock offset: 0.425 ms


# Below is generated by plot.py at 2018-12-02 02:15:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 95.41 Mbit/s
95th percentile per-packet one-way delay: 2.985 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 95.41 Mbit/s
95th percentile per-packet one-way delay: 2.985 ms
Loss rate: 0.00%
```
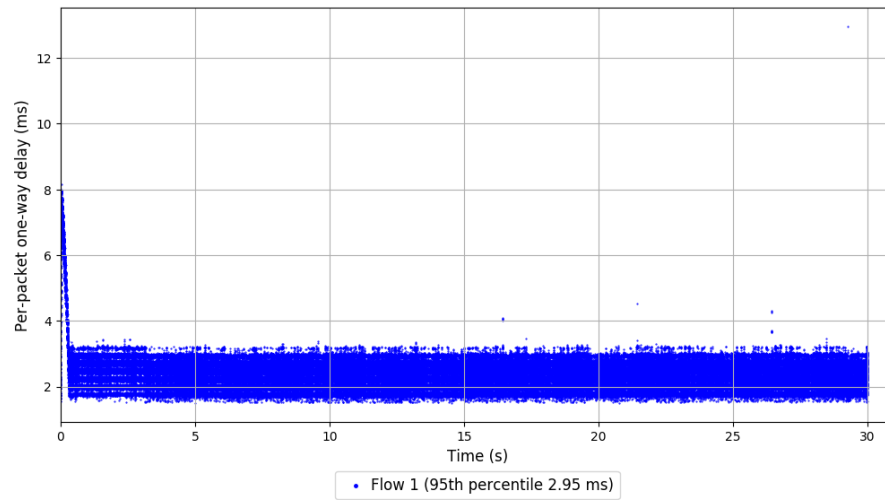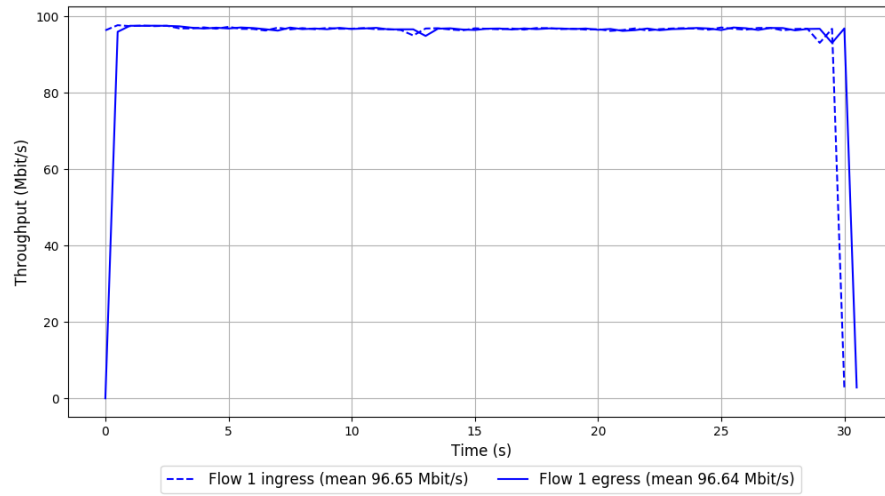
Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2018-12-02 01:55:30
End at: 2018-12-02 01:56:00
Local clock offset: -8.165 ms
Remote clock offset: 0.291 ms


# Below is generated by plot.py at 2018-12-02 02:15:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.64 Mbit/s
95th percentile per-packet one-way delay: 2.949 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 96.64 Mbit/s
95th percentile per-packet one-way delay: 2.949 ms
Loss rate: 0.00%
```

Run 5: Report of TCP Vegas — Data Link

```
Run 1: Statistics of Verus

Start at: 2018-12-02 00:38:33
End at: 2018-12-02 00:39:03
Local clock offset: -1.534 ms
Remote clock offset: 0.491 ms

# Below is generated by plot.py at 2018-12-02 02:15:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 36.75 Mbit/s
95th percentile per-packet one-way delay: 11.425 ms
Loss rate: 1.77%
-- Flow 1:
Average throughput: 36.75 Mbit/s
95th percentile per-packet one-way delay: 11.425 ms
Loss rate: 1.77%
```
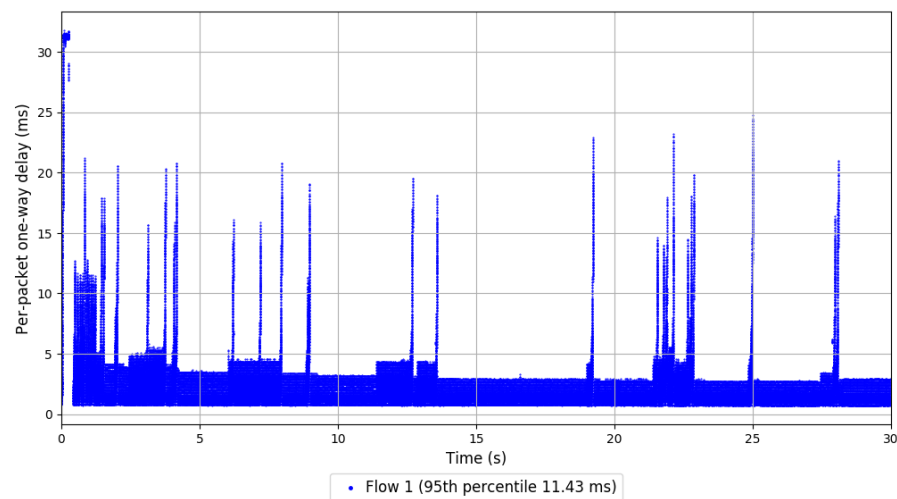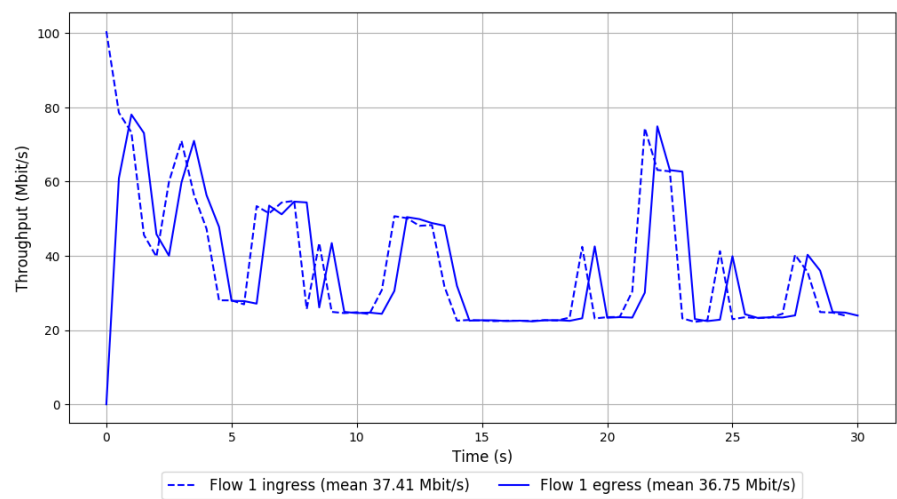
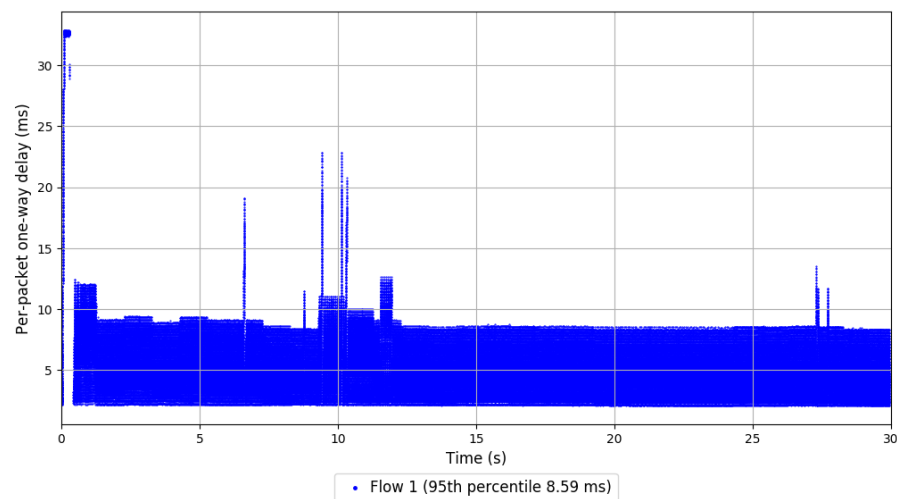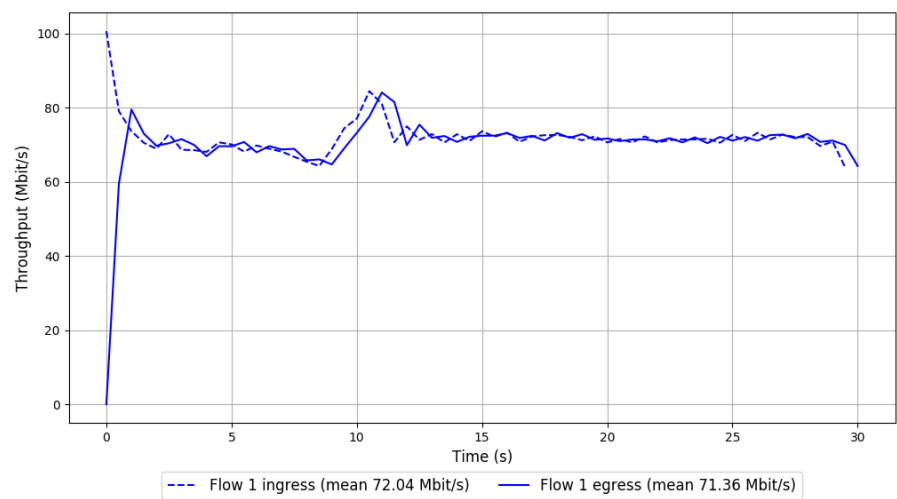Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2018-12-02 00:59:42
End at: 2018-12-02 01:00:12
Local clock offset: -6.611 ms
Remote clock offset: 0.444 ms


# Below is generated by plot.py at 2018-12-02 02:15:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 71.36 Mbit/s
95th percentile per-packet one-way delay: 8.587 ms
Loss rate: 0.96%
-- Flow 1:
Average throughput: 71.36 Mbit/s
95th percentile per-packet one-way delay: 8.587 ms
Loss rate: 0.96%
```

Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-12-02 01:20:57
End at: 2018-12-02 01:21:27
Local clock offset: -9.361 ms
Remote clock offset: 0.465 ms


# Below is generated by plot.py at 2018-12-02 02:15:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 78.70 Mbit/s
95th percentile per-packet one-way delay: 18.562 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 78.70 Mbit/s
95th percentile per-packet one-way delay: 18.562 ms
Loss rate: 0.98%
```
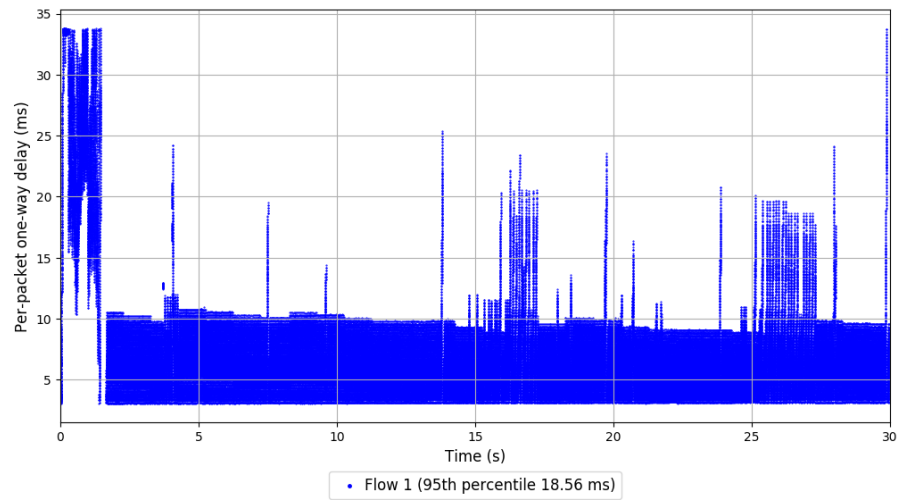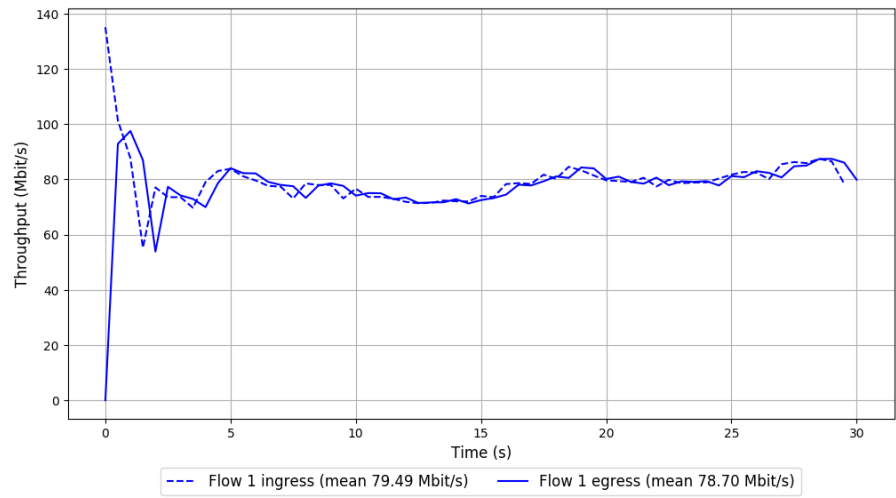
Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2018-12-02 01:42:08
End at: 2018-12-02 01:42:38
Local clock offset: -8.738 ms
Remote clock offset: 0.404 ms


# Below is generated by plot.py at 2018-12-02 02:15:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 35.49 Mbit/s
95th percentile per-packet one-way delay: 9.555 ms
Loss rate: 1.87%
-- Flow 1:
Average throughput: 35.49 Mbit/s
95th percentile per-packet one-way delay: 9.555 ms
Loss rate: 1.87%
```
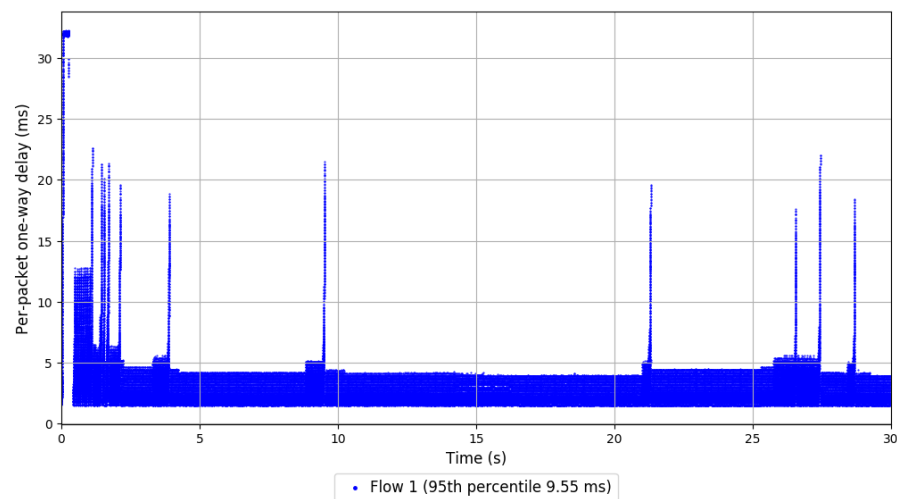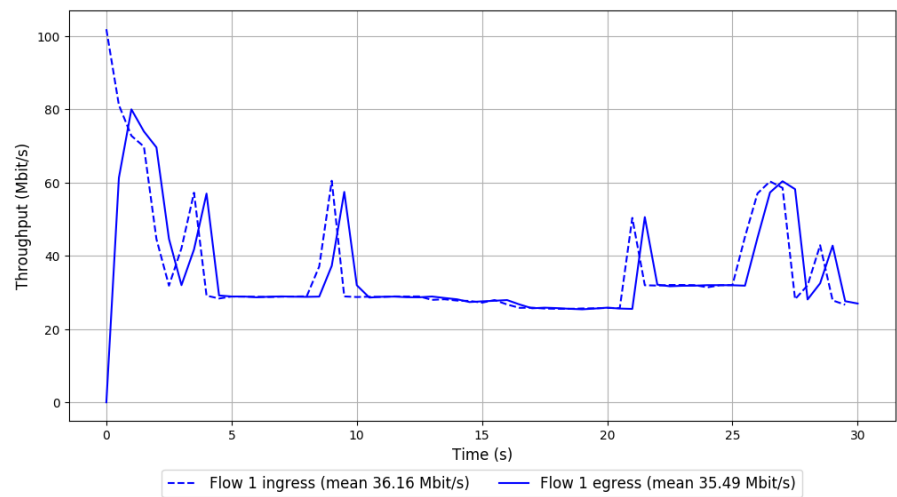
Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2018-12-02 02:03:17
End at: 2018-12-02 02:03:47
Local clock offset: -7.166 ms
Remote clock offset: 0.3 ms


# Below is generated by plot.py at 2018-12-02 02:15:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 40.99 Mbit/s
95th percentile per-packet one-way delay: 7.791 ms
Loss rate: 1.59%
-- Flow 1:
Average throughput: 40.99 Mbit/s
95th percentile per-packet one-way delay: 7.791 ms
Loss rate: 1.59%
```
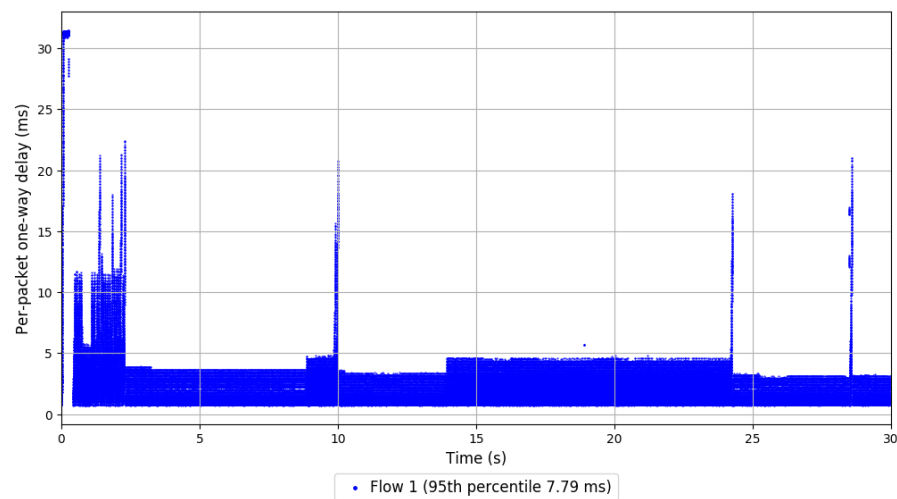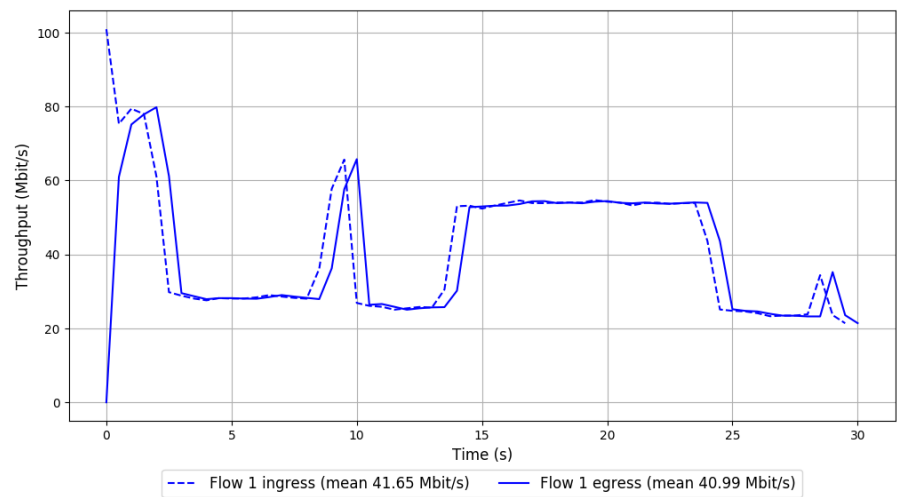
Run 5: Report of Verus — Data Link

```
Run 1: Statistics of PCC-Vivace

Start at: 2018-12-02 00:28:33
End at: 2018-12-02 00:29:03
Local clock offset: 0.229 ms
Remote clock offset: 0.4 ms


# Below is generated by plot.py at 2018-12-02 02:15:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 82.42 Mbit/s
95th percentile per-packet one-way delay: 17.228 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 82.42 Mbit/s
95th percentile per-packet one-way delay: 17.228 ms
Loss rate: 0.38%
```
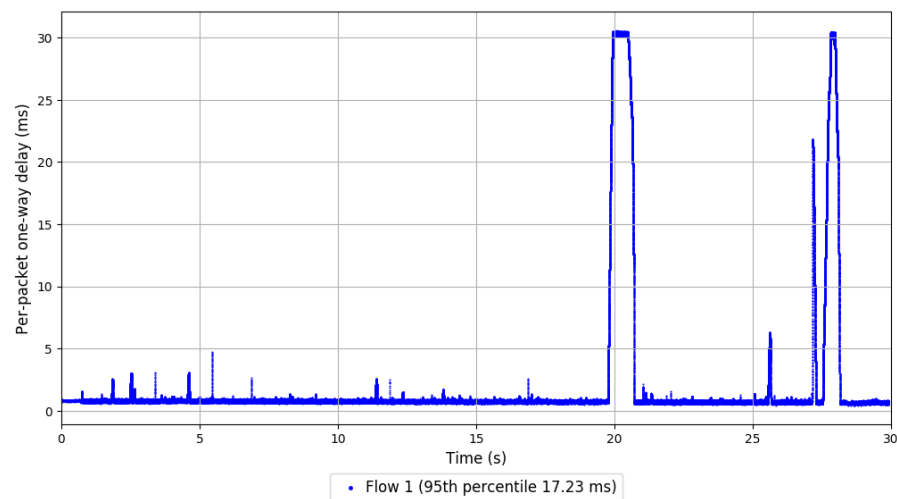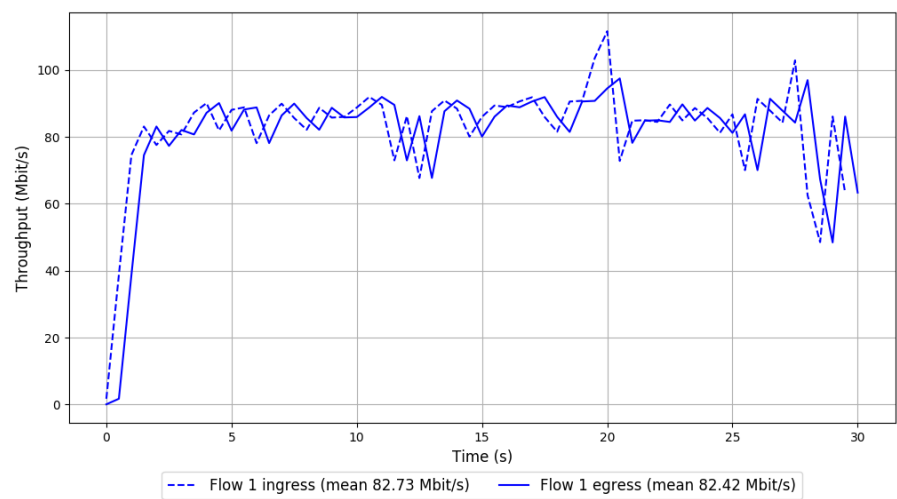
Run 1: Report of PCC-Vivace — Data Link

```
Run 2: Statistics of PCC-Vivace

Start at: 2018-12-02 00:49:42
End at: 2018-12-02 00:50:12
Local clock offset: -3.893 ms
Remote clock offset: 0.531 ms


# Below is generated by plot.py at 2018-12-02 02:15:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 85.08 Mbit/s
95th percentile per-packet one-way delay: 3.081 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 85.08 Mbit/s
95th percentile per-packet one-way delay: 3.081 ms
Loss rate: 0.00%
```
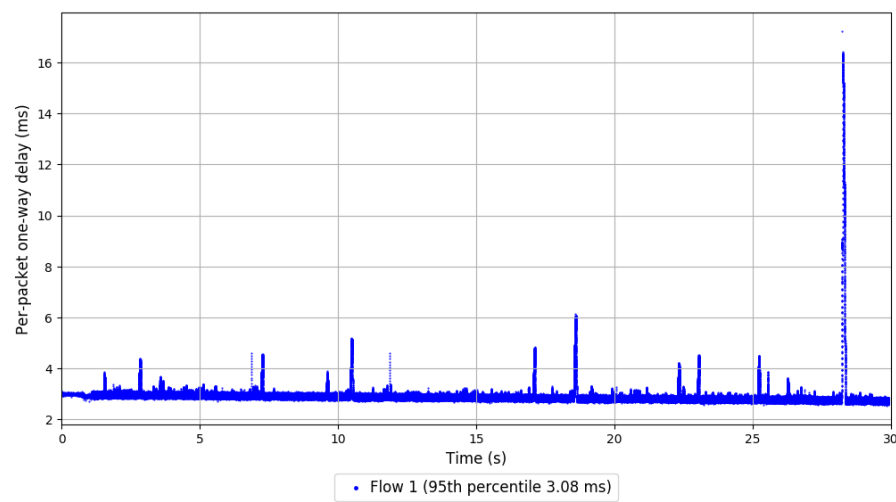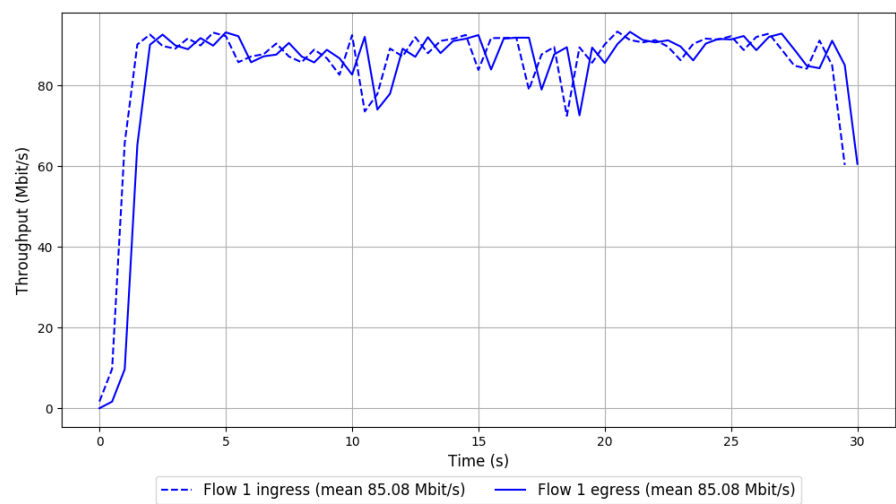
Run 2: Report of PCC-Vivace — Data Link

```
Run 3: Statistics of PCC-Vivace

Start at: 2018-12-02 01:10:57
End at: 2018-12-02 01:11:27
Local clock offset: -9.111 ms
Remote clock offset: 0.45 ms


# Below is generated by plot.py at 2018-12-02 02:15:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 68.70 Mbit/s
95th percentile per-packet one-way delay: 2.877 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 68.70 Mbit/s
95th percentile per-packet one-way delay: 2.877 ms
Loss rate: 0.00%
```
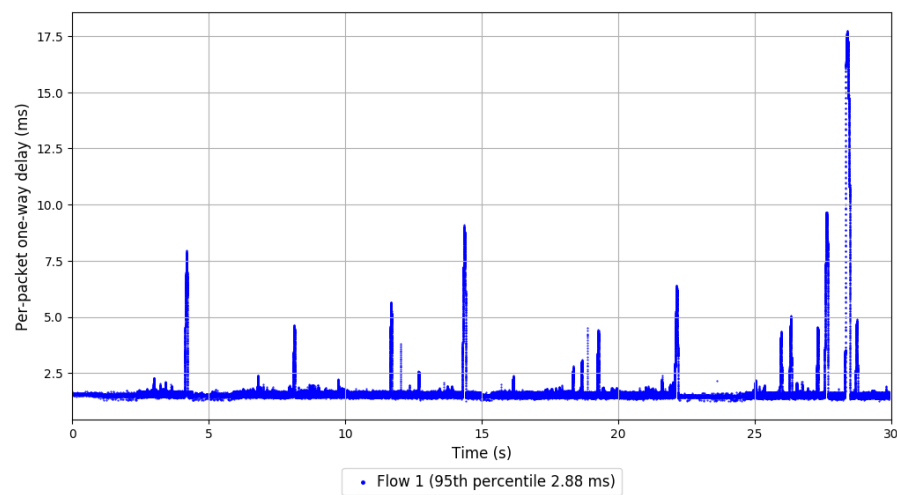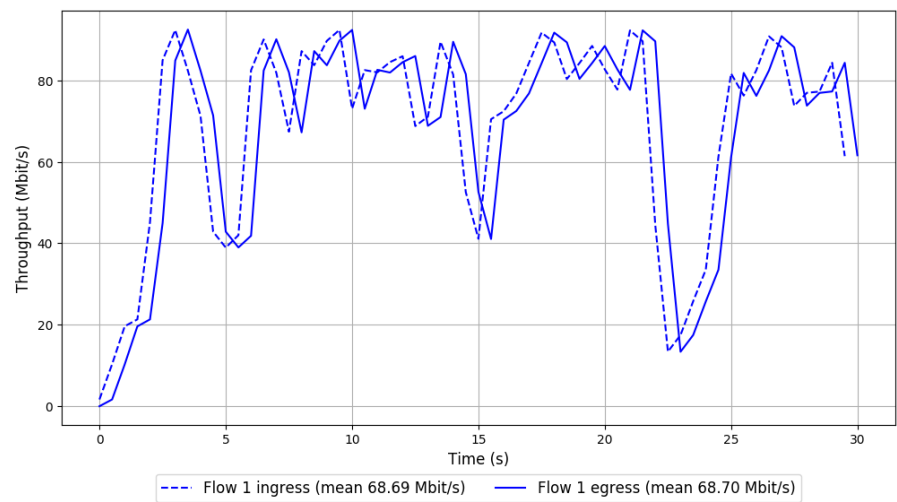
Run 3: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 68.69 Mbit/s)   Flow 1 egress (mean 68.70 Mbit/s)

Flow 1 (95th percentile 2.88 ms)

```
Run 4: Statistics of PCC-Vivace

Start at: 2018-12-02 01:32:08
End at: 2018-12-02 01:32:38
Local clock offset: -8.604 ms
Remote clock offset: 0.425 ms


# Below is generated by plot.py at 2018-12-02 02:15:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 80.37 Mbit/s
95th percentile per-packet one-way delay: 1.965 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 80.37 Mbit/s
95th percentile per-packet one-way delay: 1.965 ms
Loss rate: 0.00%
```
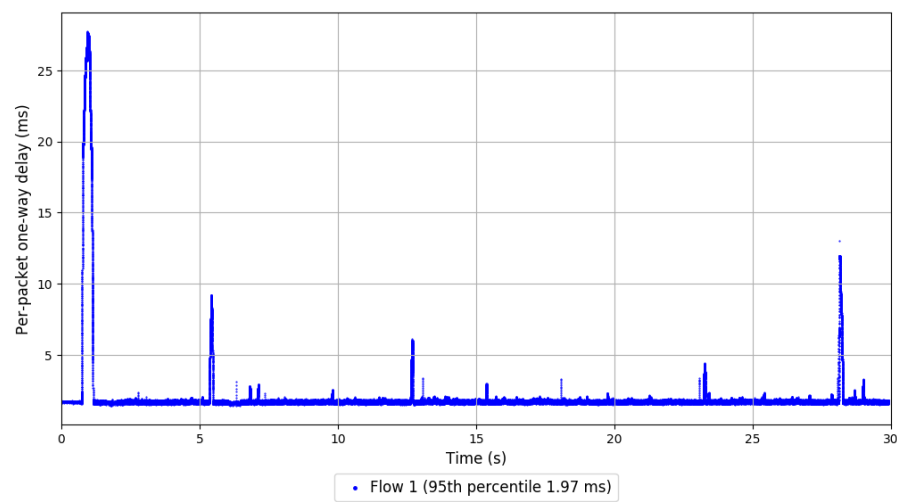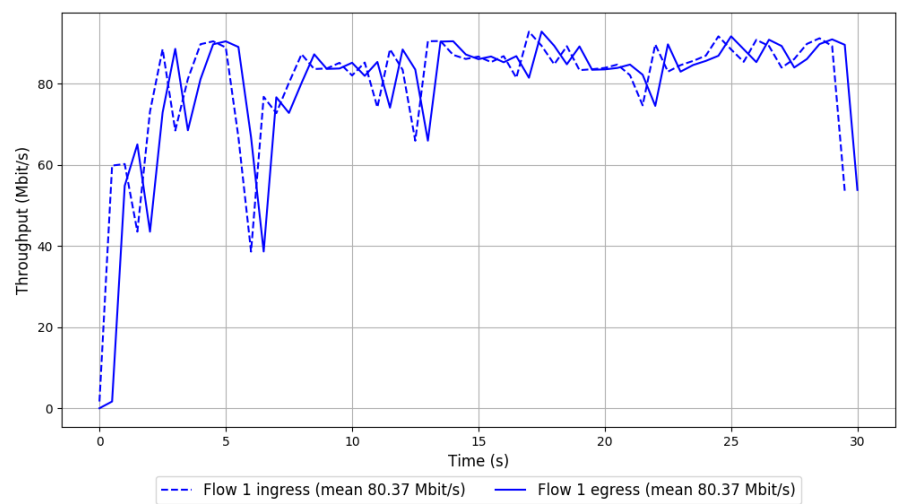
Run 4: Report of PCC-Vivace — Data Link

```
Run 5: Statistics of PCC-Vivace

Start at: 2018-12-02 01:53:16
End at: 2018-12-02 01:53:46
Local clock offset: -8.388 ms
Remote clock offset: 0.34 ms


# Below is generated by plot.py at 2018-12-02 02:15:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 83.45 Mbit/s
95th percentile per-packet one-way delay: 3.417 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 83.45 Mbit/s
95th percentile per-packet one-way delay: 3.417 ms
Loss rate: 0.01%
```
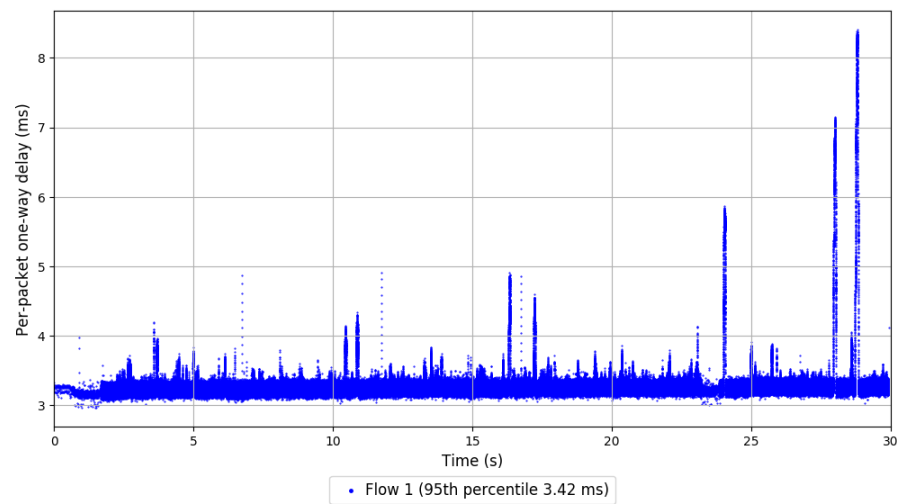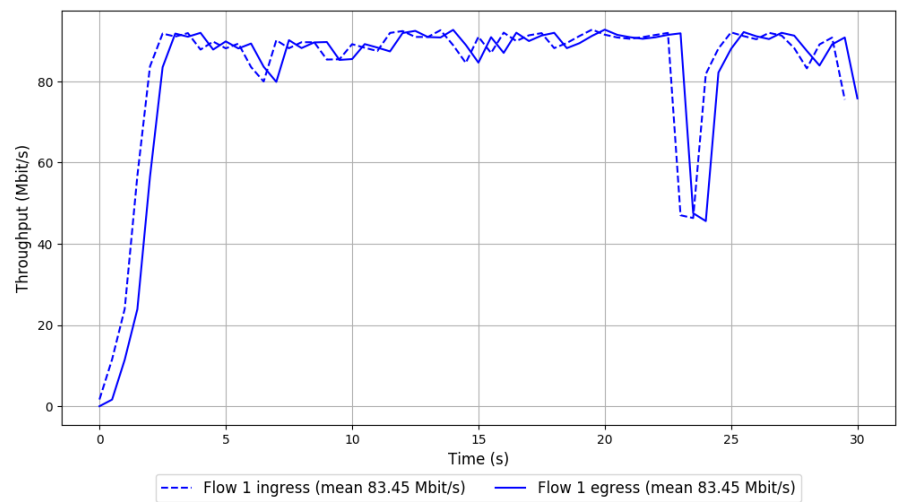
Run 5: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 83.45 Mbit/s) --- Flow 1 egress (mean 83.45 Mbit/s)

Flow 1 (95th percentile 3.42 ms)

```
Run 1: Statistics of WebRTC media

Start at: 2018-12-02 00:24:07
End at: 2018-12-02 00:24:37
Local clock offset: 2.046 ms
Remote clock offset: 0.403 ms


# Below is generated by plot.py at 2018-12-02 02:15:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.92 Mbit/s
95th percentile per-packet one-way delay: 2.606 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.92 Mbit/s
95th percentile per-packet one-way delay: 2.606 ms
Loss rate: 0.00%
```
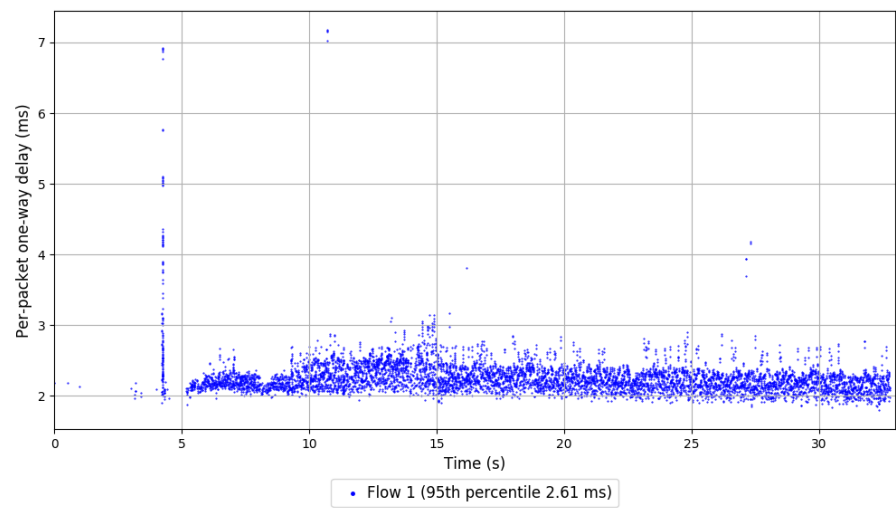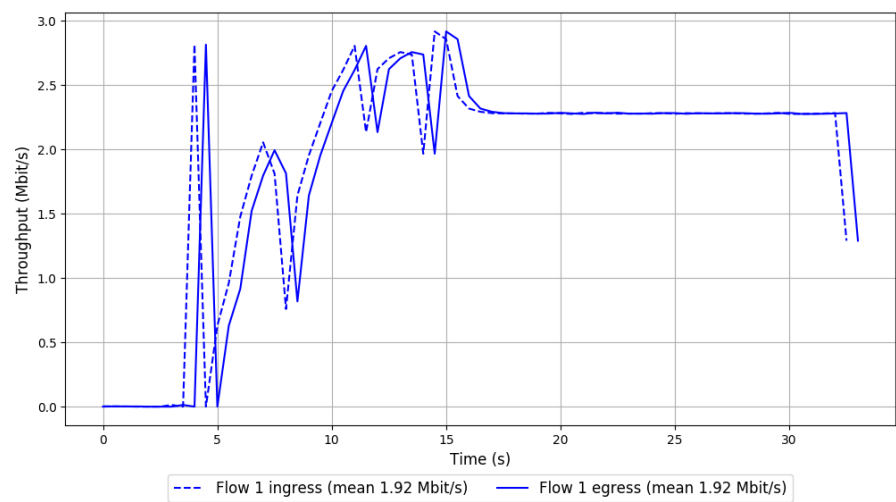
Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2018-12-02 00:45:16
End at: 2018-12-02 00:45:46
Local clock offset: -2.117 ms
Remote clock offset: 0.493 ms


# Below is generated by plot.py at 2018-12-02 02:15:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.92 Mbit/s
95th percentile per-packet one-way delay: 2.871 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.92 Mbit/s
95th percentile per-packet one-way delay: 2.871 ms
Loss rate: 0.00%
```
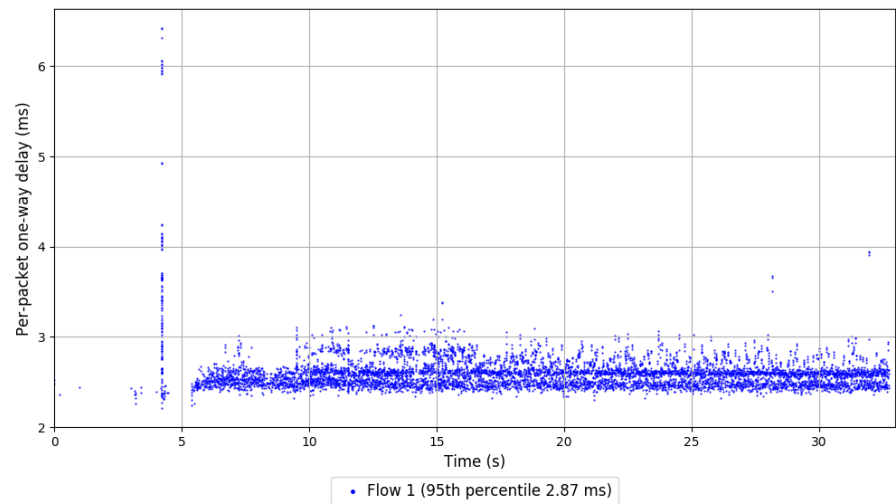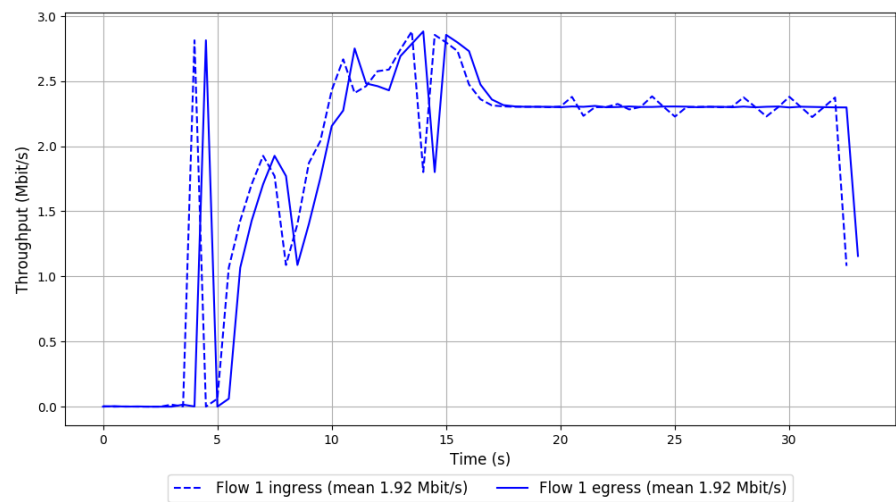
Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-12-02 01:06:31
End at: 2018-12-02 01:07:01
Local clock offset: -8.531 ms
Remote clock offset: 0.373 ms


# Below is generated by plot.py at 2018-12-02 02:15:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.92 Mbit/s
95th percentile per-packet one-way delay: 2.131 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.92 Mbit/s
95th percentile per-packet one-way delay: 2.131 ms
Loss rate: 0.00%
```
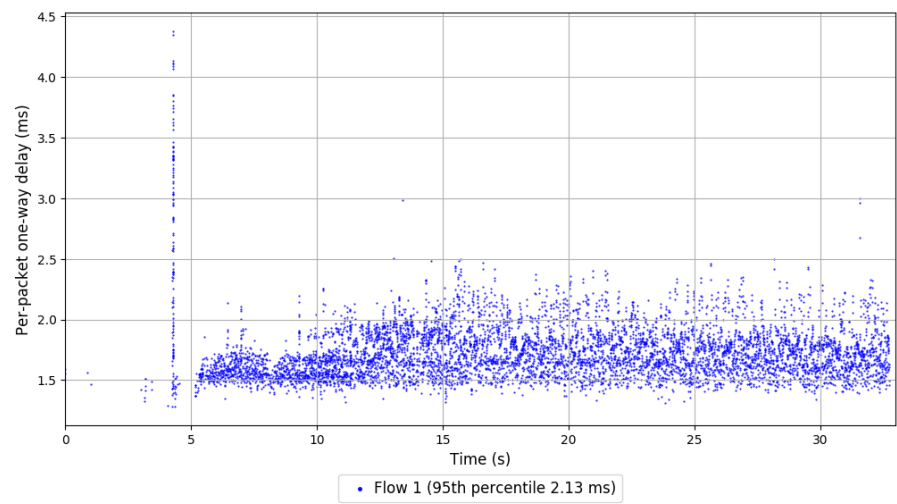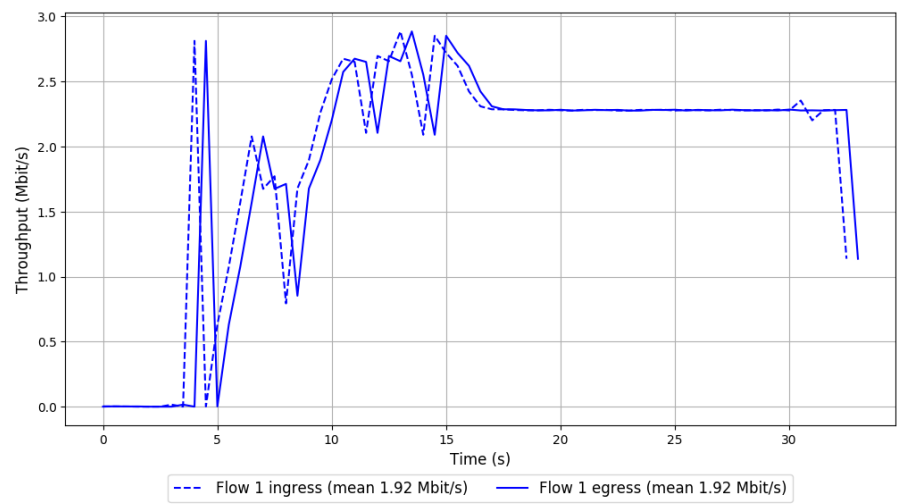
Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2018-12-02 01:27:42
End at: 2018-12-02 01:28:12
Local clock offset: -7.921 ms
Remote clock offset: 0.486 ms


# Below is generated by plot.py at 2018-12-02 02:15:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 3.003 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 3.003 ms
Loss rate: 0.00%
```
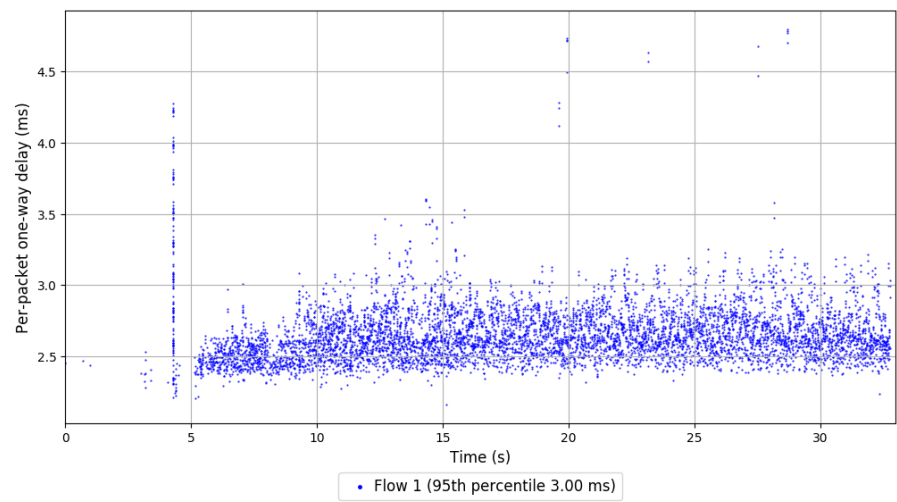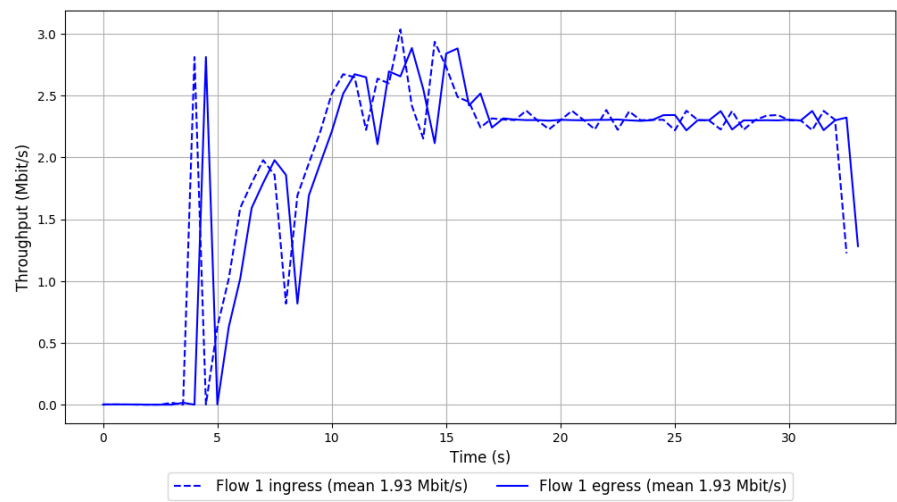
Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2018-12-02 01:48:50
End at: 2018-12-02 01:49:20
Local clock offset: -8.087 ms
Remote clock offset: 0.337 ms


# Below is generated by plot.py at 2018-12-02 02:15:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.92 Mbit/s
95th percentile per-packet one-way delay: 1.658 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.92 Mbit/s
95th percentile per-packet one-way delay: 1.658 ms
Loss rate: 0.00%
```

Run 5: Report of WebRTC media — Data Link

Flow 1 ingress (mean 1.92 Mbit/s)   Flow 1 egress (mean 1.92 Mbit/s)

Flow 1 (95th percentile 1.66 ms)