Pantheon Report

Generated at 2018-12-11 18:59:28 (UTC).

Data path: Stanford on **eno1** (*remote*) →AWS California 1 on **ens5** (*local*).

Repeated the test of 19 congestion control schemes 5 times.

Each test lasted for 30 seconds running 1 flow.

NTP offsets were measured against `time.stanford.edu` and have been applied to correct the timestamps in logs.
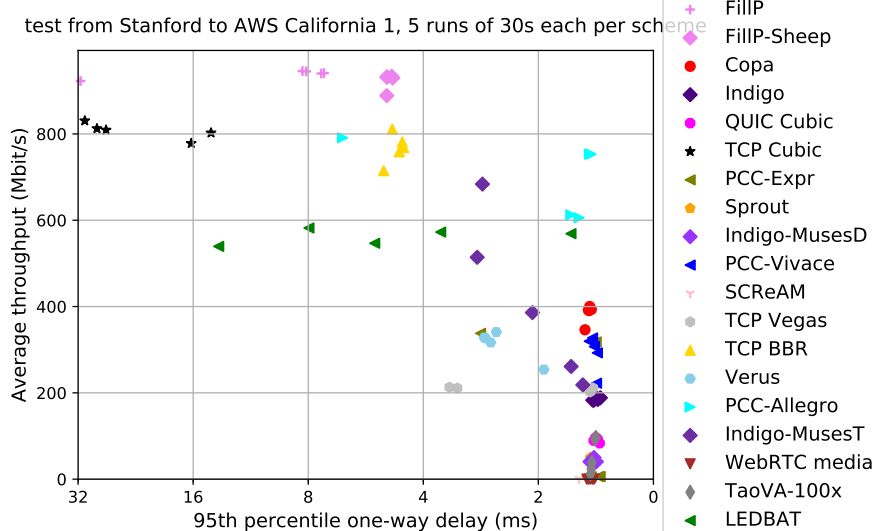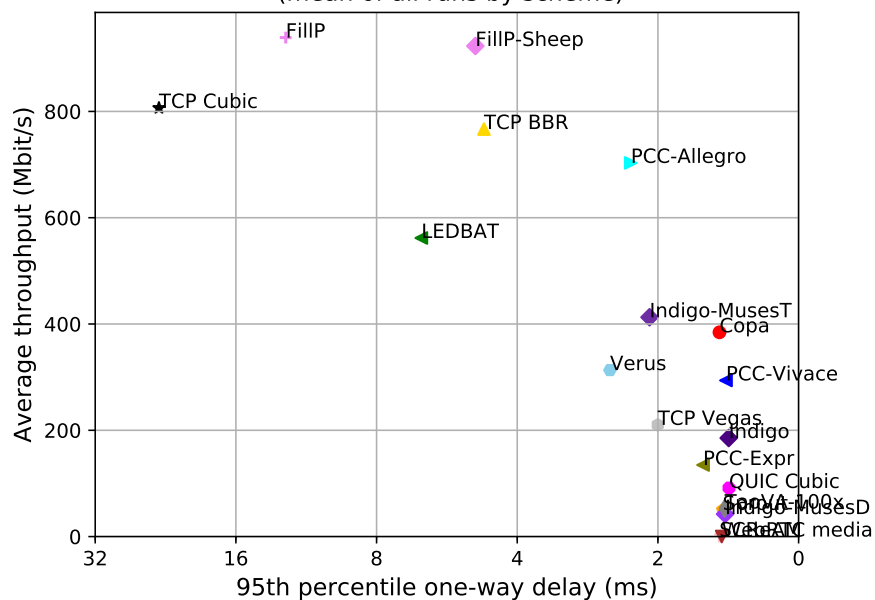
```
System info:
Linux 4.15.0-1029-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

Git summary:
branch: muses @ c654af0b7d59d4ef4b914cfac404e1fc2e96dc68
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/muses-refactored @ 31f8f0ba8ef8b1da76c2bc0cd0a7850c33ff64fb
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 Stanford to AWS California 1, 5 runs of 30s each per scheme
(mean of all runs by scheme)

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

3

scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	5	766.87	4.71	0.02
Copa	5	384.39	1.12	0.01
TCP Cubic	5	806.50	23.38	0.03
FillP	5	938.87	12.52	0.03
FillP-Sheep	5	923.12	4.92	0.02
Indigo	5	185.47	0.99	0.01
Indigo-MusesD	5	42.38	1.05	0.00
Indigo-MusesT	5	412.69	2.08	0.01
LEDBAT	5	561.88	6.42	0.01
PCC-Allegro	5	703.13	2.29	0.02
PCC-Expr	5	134.70	1.36	0.01
QUIC Cubic	5	91.45	0.99	0.01
SCReAM	5	0.22	1.13	0.03
Sprout	5	50.24	1.08	0.01
TaoVA-100x	5	52.79	1.05	0.00
TCP Vegas	5	210.15	2.00	0.00
Verus	5	313.29	2.53	0.01
PCC-Vivace	5	293.84	1.03	0.00
WebRTC media	5	0.05	1.09	0.00

```
Run 1: Statistics of TCP BBR

Start at: 2018-12-11 16:10:00
End at: 2018-12-11 16:10:30
Local clock offset: 3.581 ms
Remote clock offset: -2.262 ms

# Below is generated by plot.py at 2018-12-11 18:13:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 781.37 Mbit/s
95th percentile per-packet one-way delay: 4.540 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 781.37 Mbit/s
95th percentile per-packet one-way delay: 4.540 ms
Loss rate: 0.02%
```
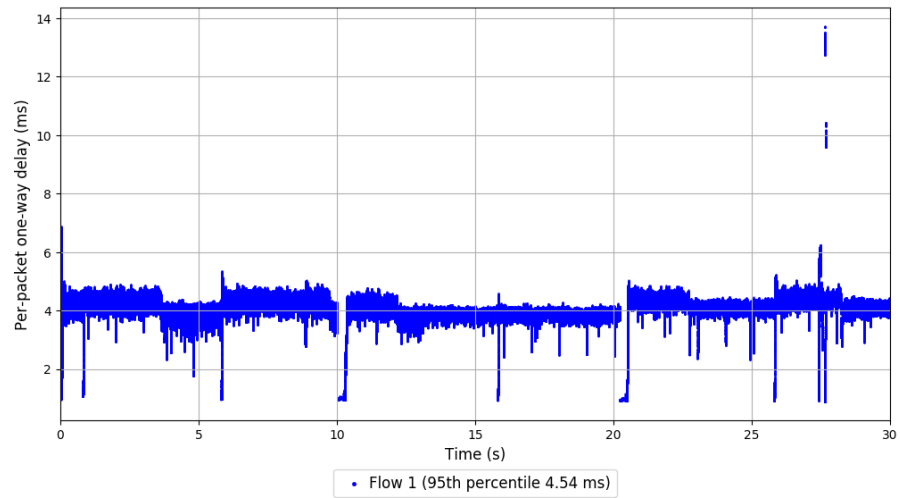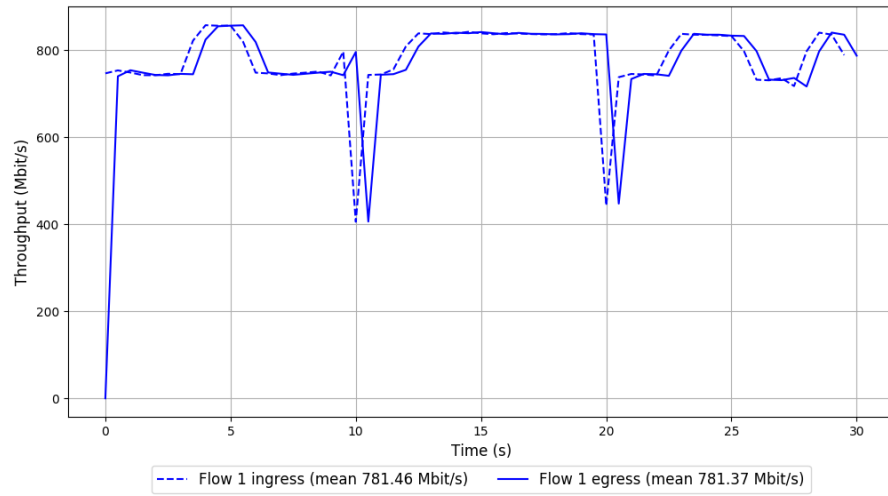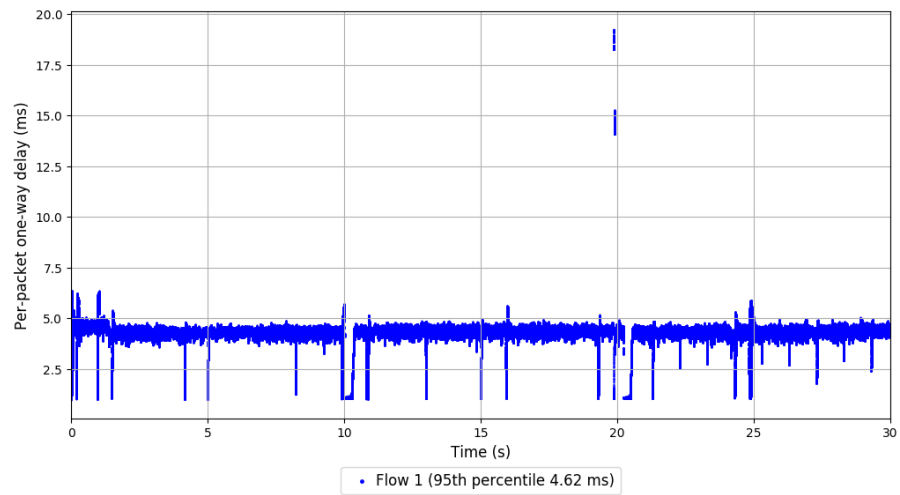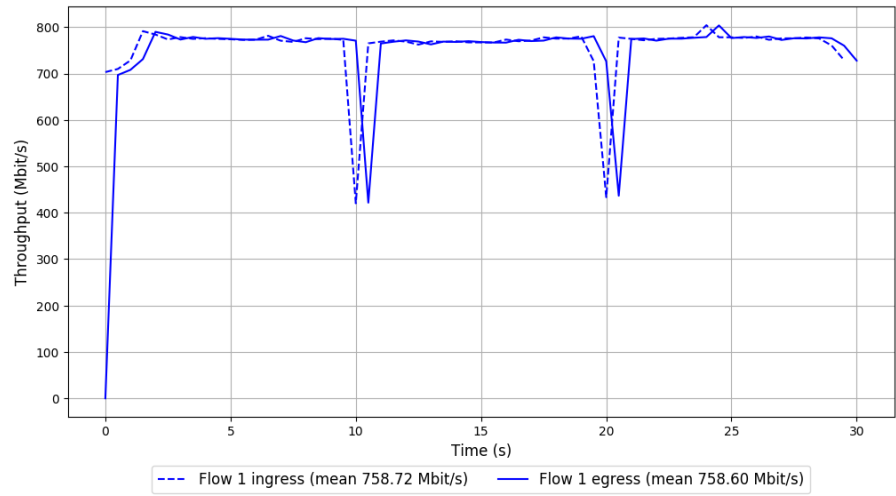
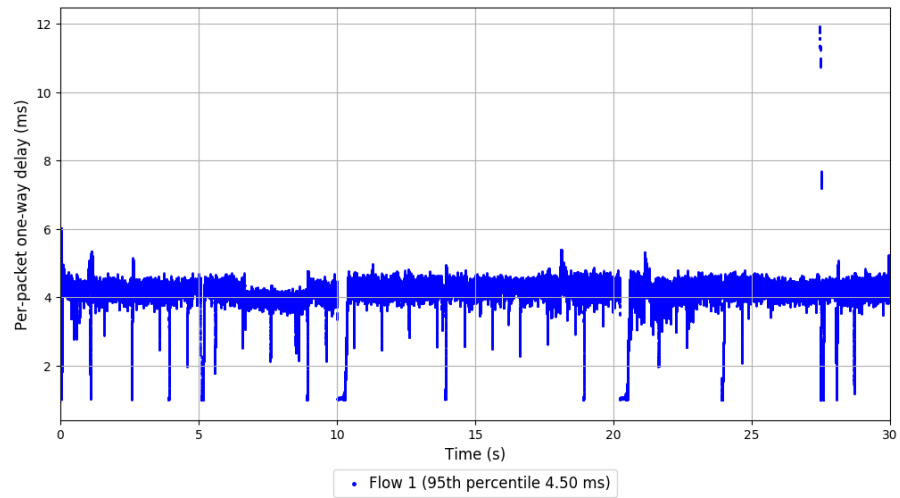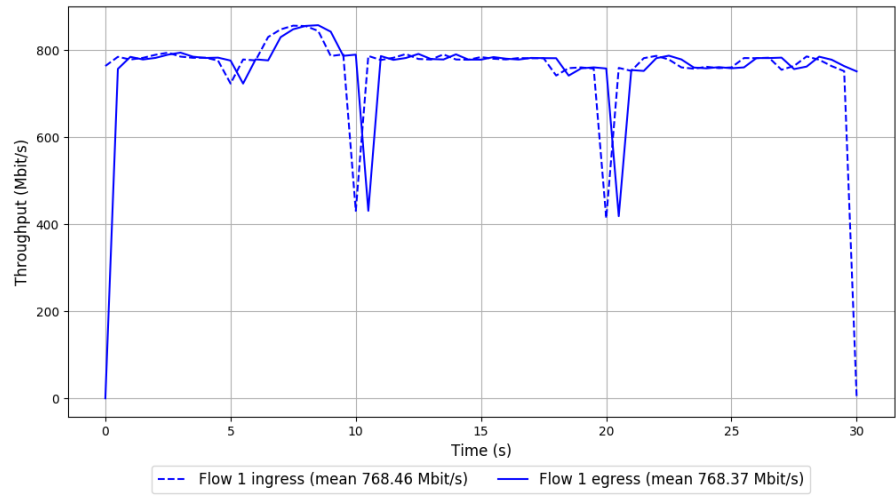Run 1: Report of TCP BBR — Data Link

Flow 1 ingress (mean 781.46 Mbit/s)   Flow 1 egress (mean 781.37 Mbit/s)

Flow 1 (95th percentile 4.54 ms)

```
Run 2: Statistics of TCP BBR

Start at: 2018-12-11 16:37:14
End at: 2018-12-11 16:37:44
Local clock offset: 3.708 ms
Remote clock offset: -4.302 ms


# Below is generated by plot.py at 2018-12-11 18:13:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 758.60 Mbit/s
95th percentile per-packet one-way delay: 4.622 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 758.60 Mbit/s
95th percentile per-packet one-way delay: 4.622 ms
Loss rate: 0.02%
```
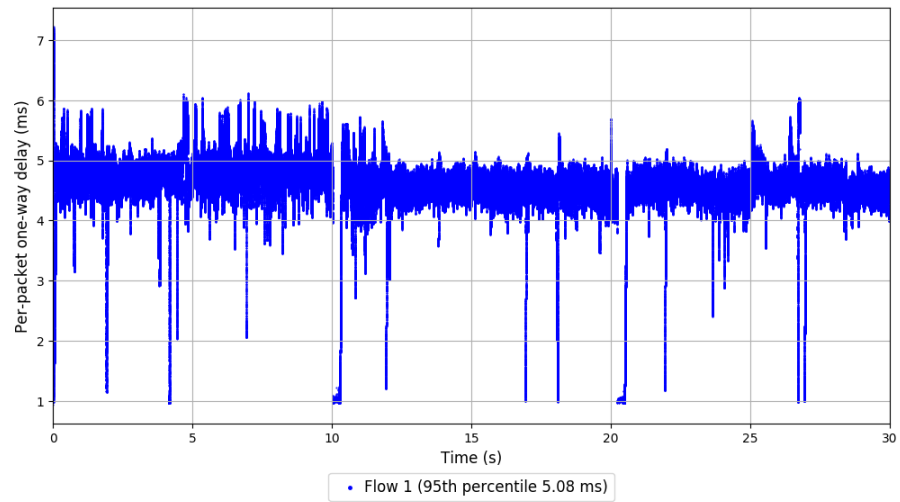
Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2018-12-11 17:04:09
End at: 2018-12-11 17:04:39
Local clock offset: 4.161 ms
Remote clock offset: -3.776 ms


# Below is generated by plot.py at 2018-12-11 18:13:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 768.37 Mbit/s
95th percentile per-packet one-way delay: 4.503 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 768.37 Mbit/s
95th percentile per-packet one-way delay: 4.503 ms
Loss rate: 0.02%
```
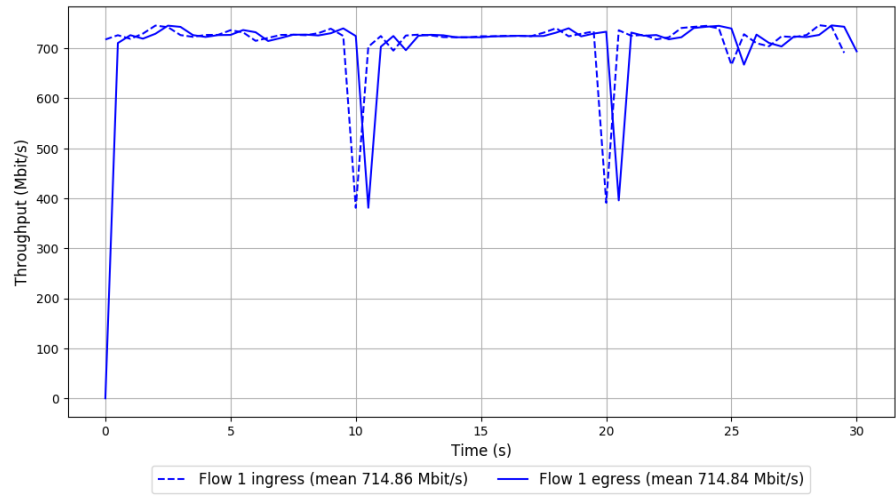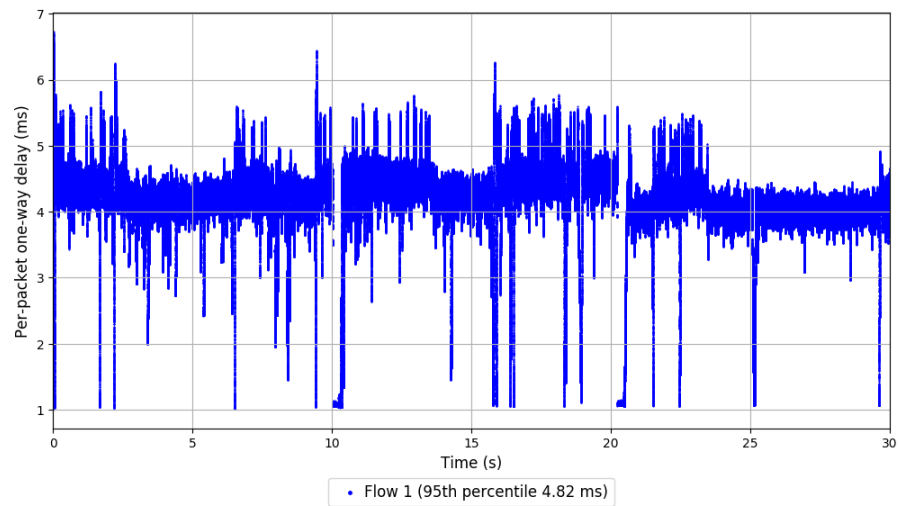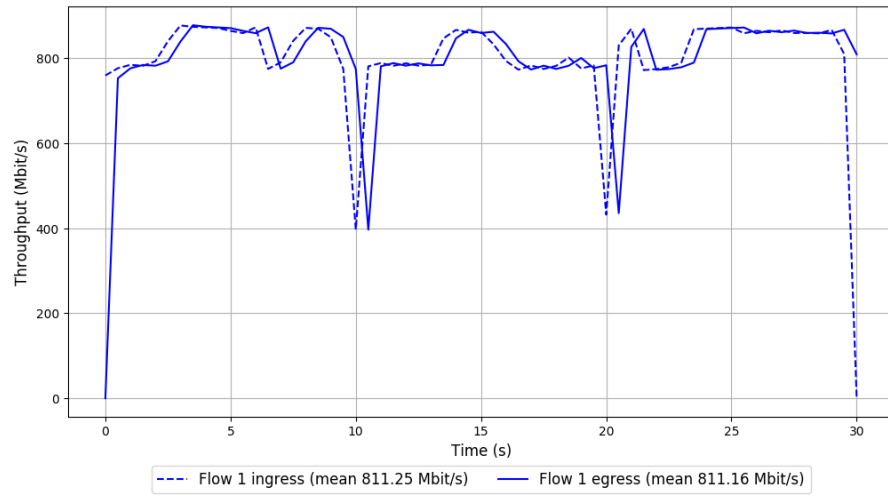
Run 3: Report of TCP BBR — Data Link

Flow 1 ingress (mean 768.46 Mbit/s) — Flow 1 egress (mean 768.37 Mbit/s)

• Flow 1 (95th percentile 4.50 ms)

```
Run 4: Statistics of TCP BBR

Start at: 2018-12-11 17:30:55
End at: 2018-12-11 17:31:25
Local clock offset: 4.612 ms
Remote clock offset: -3.211 ms


# Below is generated by plot.py at 2018-12-11 18:13:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 714.84 Mbit/s
95th percentile per-packet one-way delay: 5.079 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 714.84 Mbit/s
95th percentile per-packet one-way delay: 5.079 ms
Loss rate: 0.01%
```

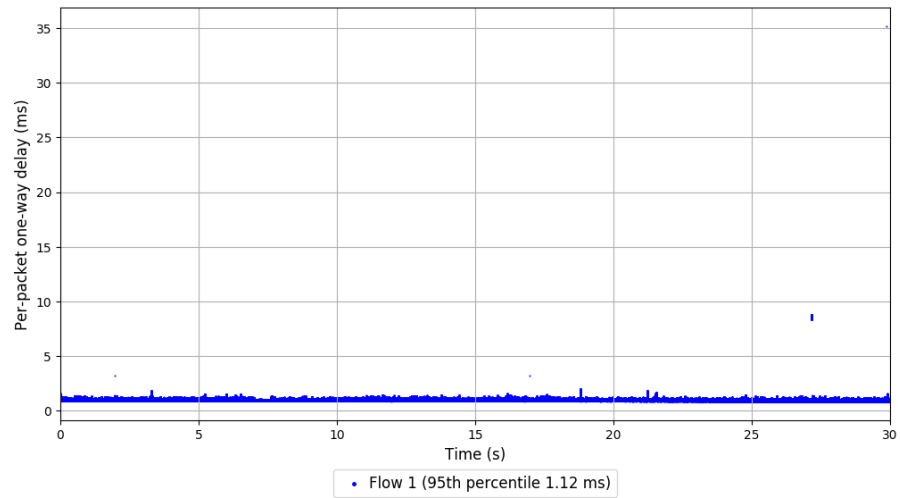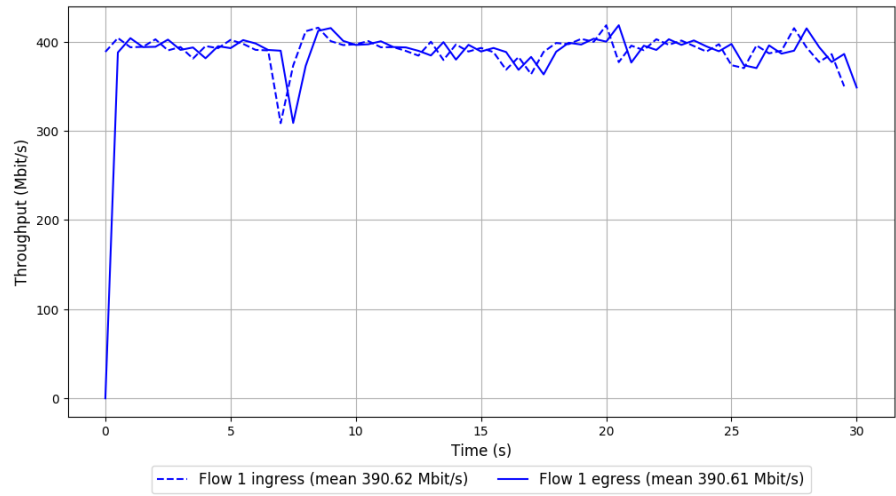Run 4: Report of TCP BBR — Data Link

```
Run 5: Statistics of TCP BBR

Start at: 2018-12-11 17:57:36
End at: 2018-12-11 17:58:06
Local clock offset: 5.011 ms
Remote clock offset: -0.385 ms


# Below is generated by plot.py at 2018-12-11 18:14:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 811.16 Mbit/s
95th percentile per-packet one-way delay: 4.820 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 811.16 Mbit/s
95th percentile per-packet one-way delay: 4.820 ms
Loss rate: 0.02%
```

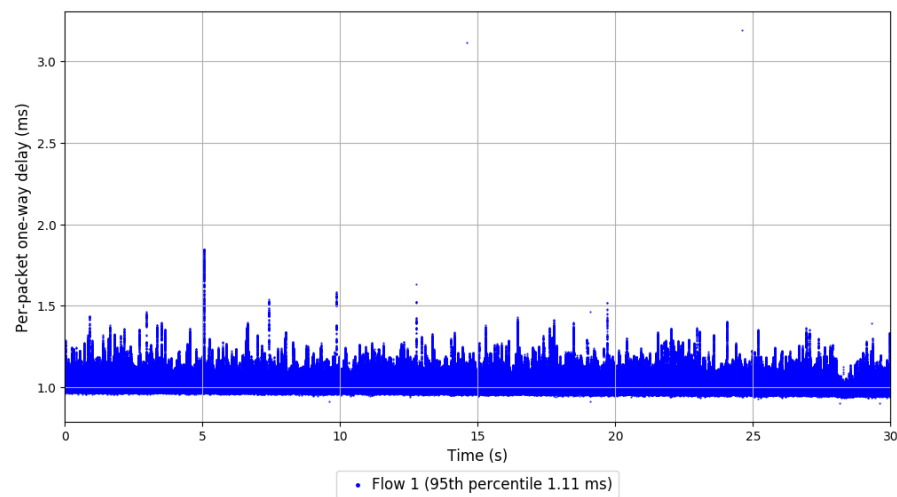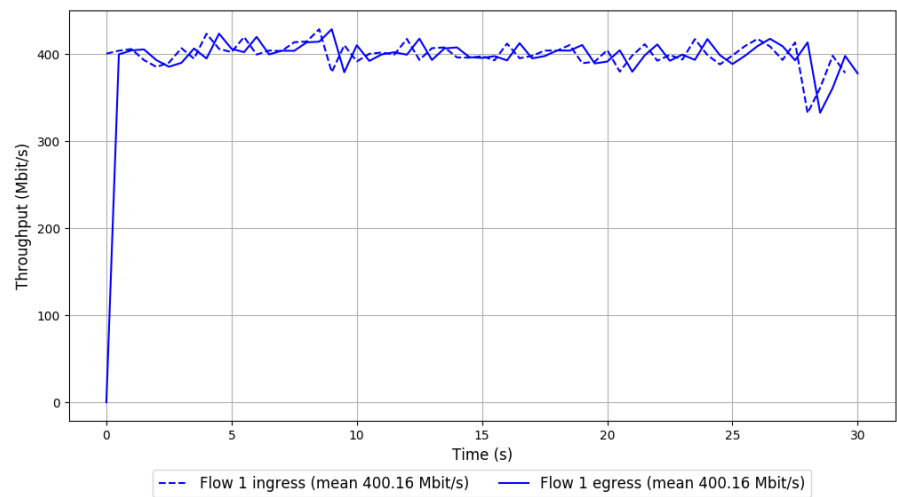# Run 5: Report of TCP BBR — Data Link

```
Run 1: Statistics of Copa

Start at: 2018-12-11 16:05:50
End at: 2018-12-11 16:06:20
Local clock offset: 3.58 ms
Remote clock offset: -1.458 ms


# Below is generated by plot.py at 2018-12-11 18:14:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 390.61 Mbit/s
95th percentile per-packet one-way delay: 1.118 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 390.61 Mbit/s
95th percentile per-packet one-way delay: 1.118 ms
Loss rate: 0.01%
```
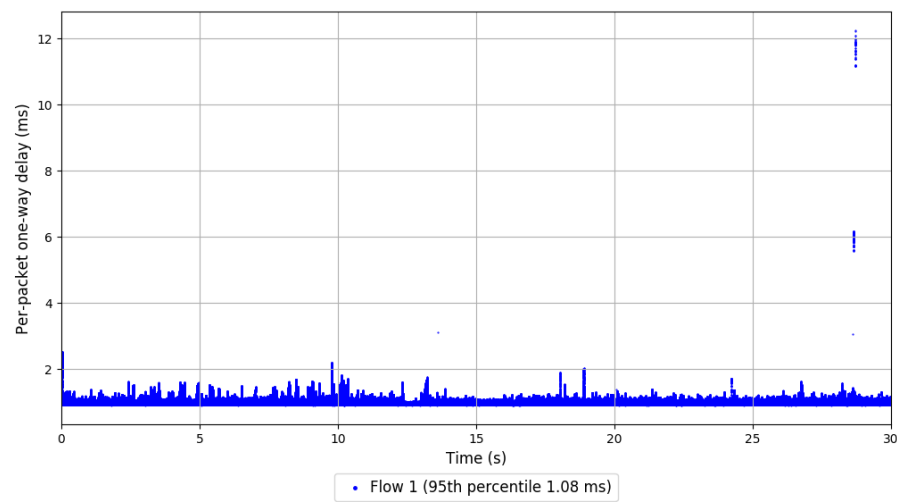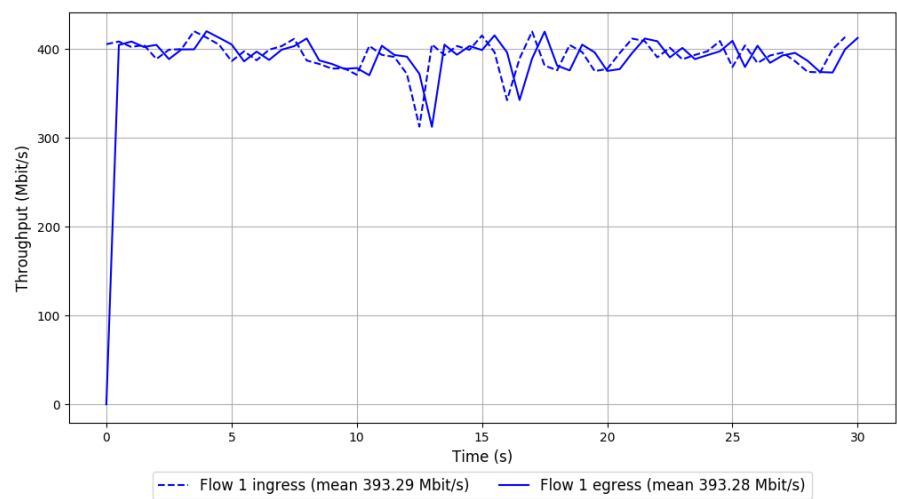
Run 1: Report of Copa — Data Link

Flow 1 ingress (mean 390.62 Mbit/s)   Flow 1 egress (mean 390.61 Mbit/s)

Flow 1 (95th percentile 1.12 ms)

```
Run 2: Statistics of Copa

Start at: 2018-12-11 16:32:59
End at: 2018-12-11 16:33:29
Local clock offset: 3.718 ms
Remote clock offset: -4.193 ms


# Below is generated by plot.py at 2018-12-11 18:14:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 400.16 Mbit/s
95th percentile per-packet one-way delay: 1.107 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 400.16 Mbit/s
95th percentile per-packet one-way delay: 1.107 ms
Loss rate: 0.01%
```
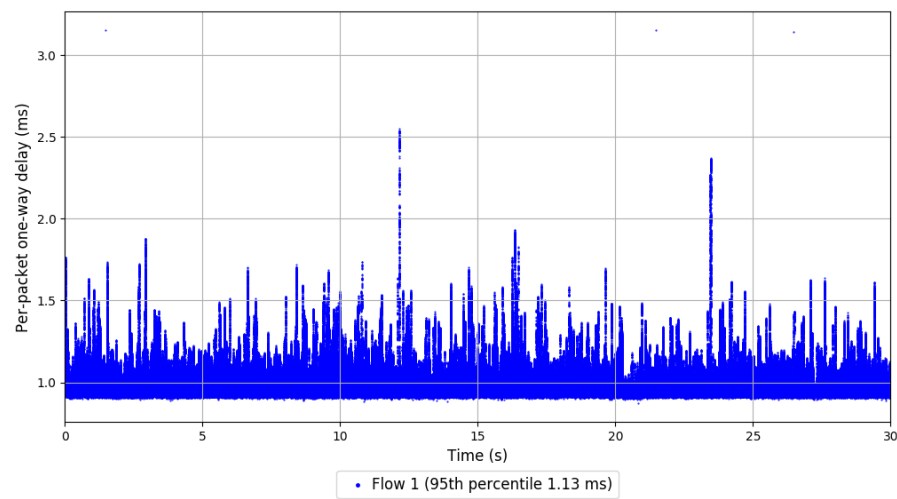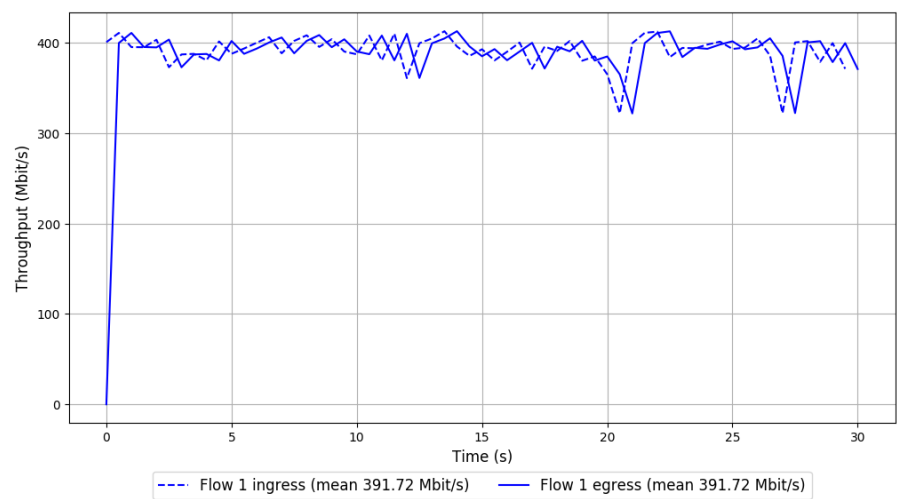
Run 2: Report of Copa — Data Link

```
Run 3: Statistics of Copa

Start at: 2018-12-11 16:59:45
End at: 2018-12-11 17:00:15
Local clock offset: 4.153 ms
Remote clock offset: -3.635 ms


# Below is generated by plot.py at 2018-12-11 18:14:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 393.28 Mbit/s
95th percentile per-packet one-way delay: 1.080 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 393.28 Mbit/s
95th percentile per-packet one-way delay: 1.080 ms
Loss rate: 0.01%
```
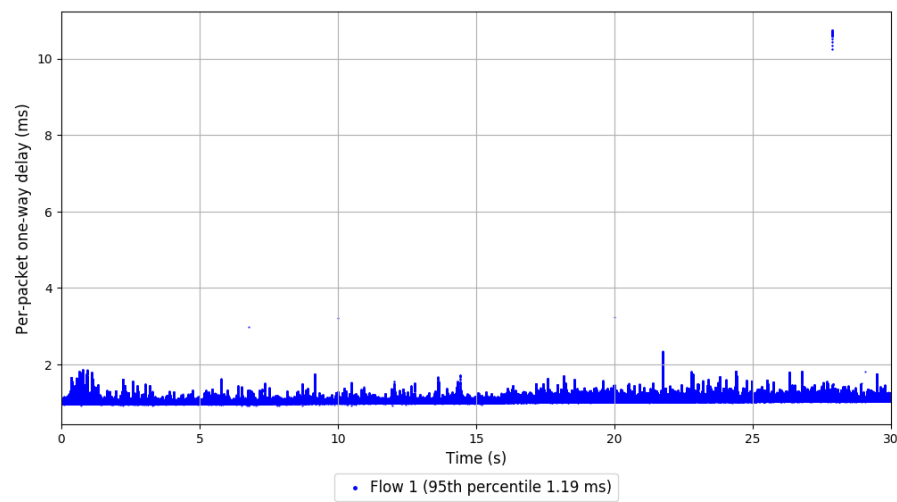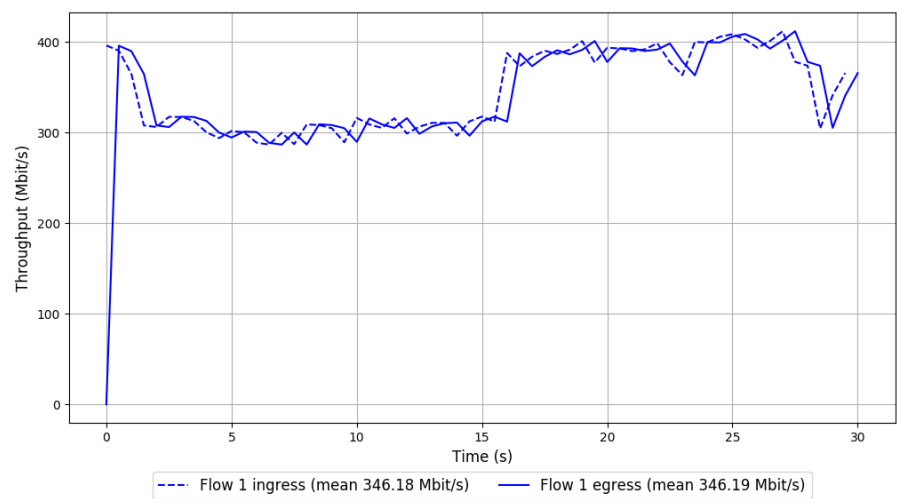
Run 3: Report of Copa — Data Link

Flow 1 ingress (mean 393.29 Mbit/s)   Flow 1 egress (mean 393.28 Mbit/s)

Flow 1 (95th percentile 1.08 ms)

```
Run 4: Statistics of Copa

Start at: 2018-12-11 17:26:37
End at: 2018-12-11 17:27:07
Local clock offset: 4.541 ms
Remote clock offset: -3.203 ms


# Below is generated by plot.py at 2018-12-11 18:21:31
# Datalink statistics
-- Total of 1 flow:
Average throughput: 391.72 Mbit/s
95th percentile per-packet one-way delay: 1.131 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 391.72 Mbit/s
95th percentile per-packet one-way delay: 1.131 ms
Loss rate: 0.01%
```
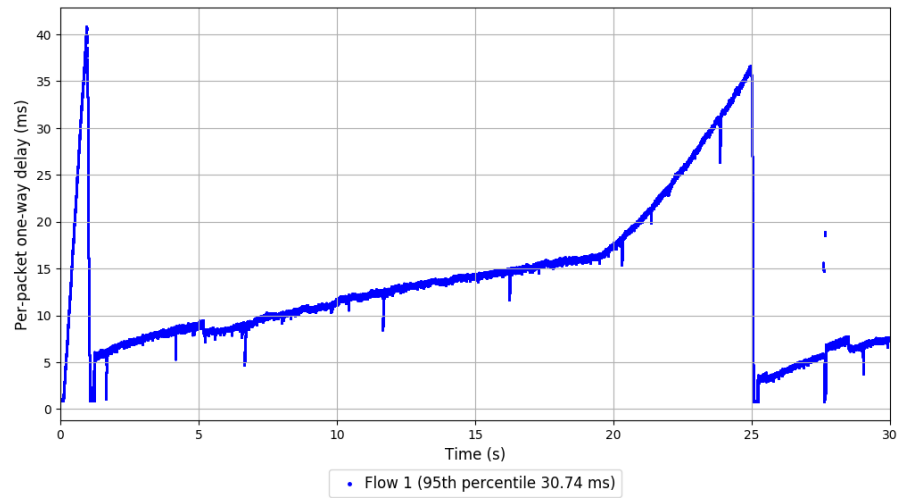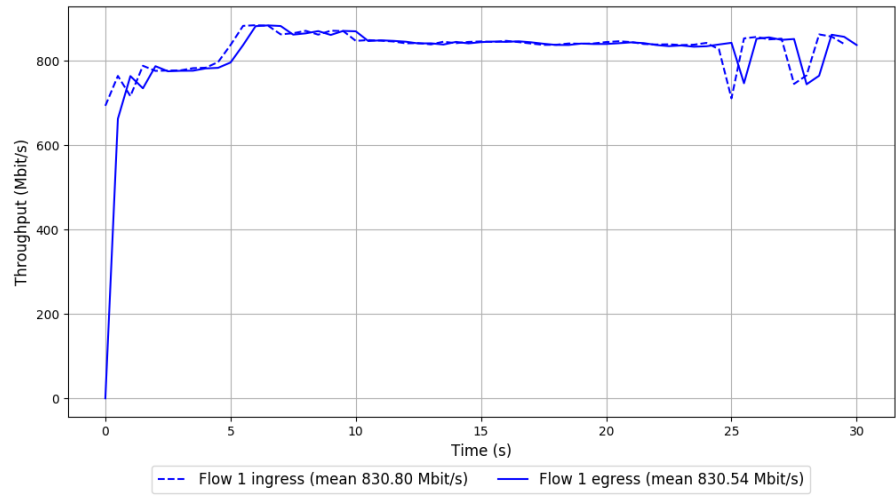
Run 4: Report of Copa — Data Link

Flow 1 ingress (mean 391.72 Mbit/s)   Flow 1 egress (mean 391.72 Mbit/s)

Flow 1 (95th percentile 1.13 ms)

```
Run 5: Statistics of Copa

Start at: 2018-12-11 17:53:29
End at: 2018-12-11 17:53:59
Local clock offset: 4.957 ms
Remote clock offset: -0.926 ms


# Below is generated by plot.py at 2018-12-11 18:21:31
# Datalink statistics
-- Total of 1 flow:
Average throughput: 346.19 Mbit/s
95th percentile per-packet one-way delay: 1.189 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 346.19 Mbit/s
95th percentile per-packet one-way delay: 1.189 ms
Loss rate: 0.00%
```

Run 5: Report of Copa — Data Link

Flow 1 ingress (mean 346.18 Mbit/s) —— Flow 1 egress (mean 346.19 Mbit/s)

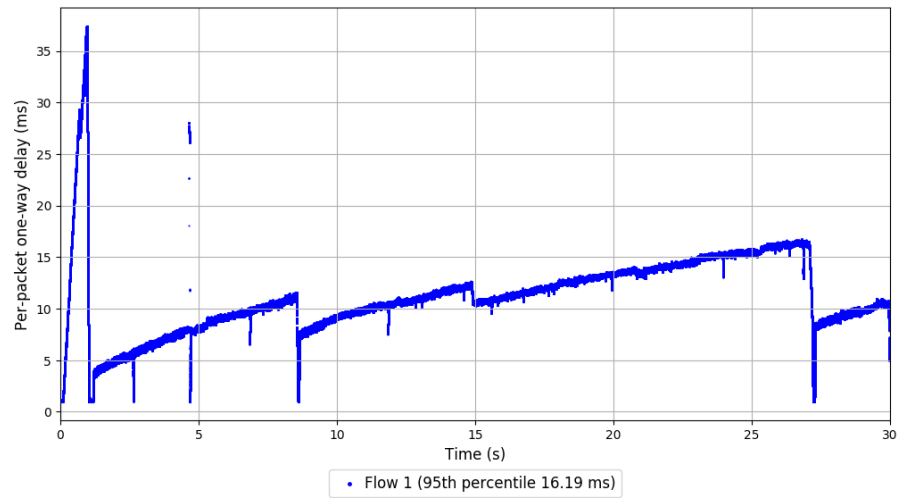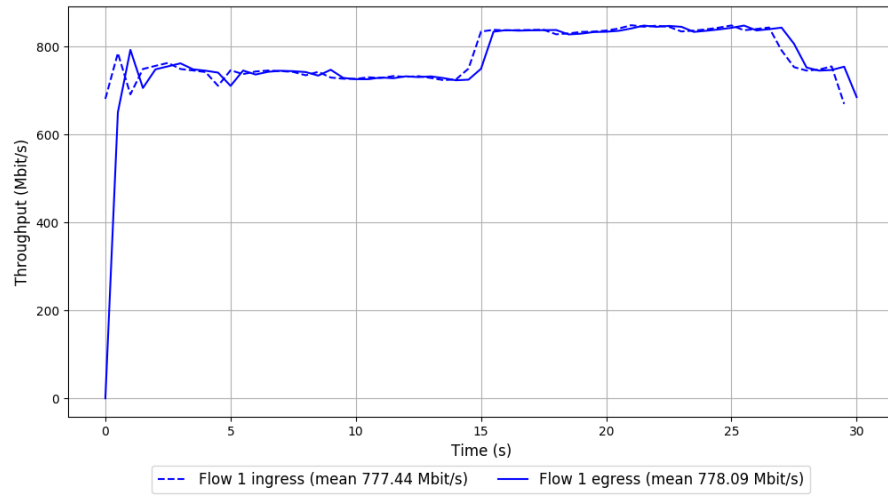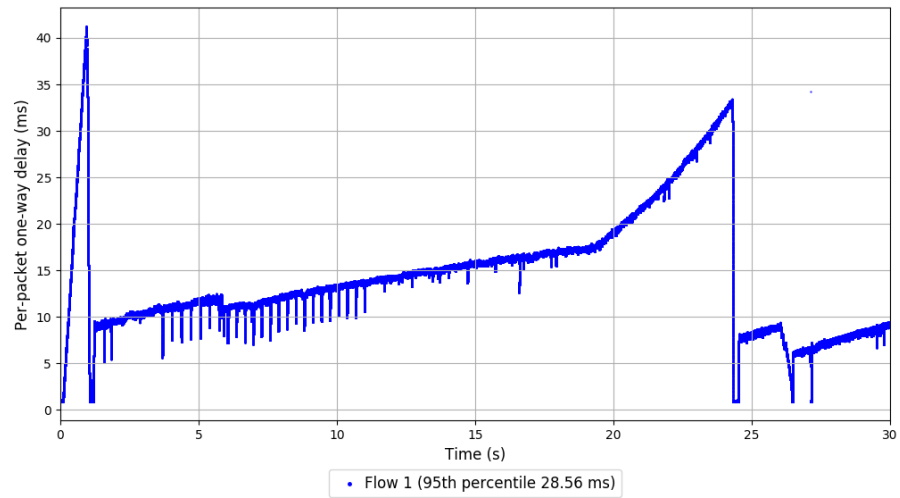• Flow 1 (95th percentile 1.19 ms)

```
Run 1: Statistics of TCP Cubic

Start at: 2018-12-11 16:02:34
End at: 2018-12-11 16:03:04
Local clock offset: 3.598 ms
Remote clock offset: -0.548 ms


# Below is generated by plot.py at 2018-12-11 18:22:18
# Datalink statistics
-- Total of 1 flow:
Average throughput: 830.54 Mbit/s
95th percentile per-packet one-way delay: 30.736 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 830.54 Mbit/s
95th percentile per-packet one-way delay: 30.736 ms
Loss rate: 0.04%
```

Run 1: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 830.80 Mbit/s)   Flow 1 egress (mean 830.54 Mbit/s)
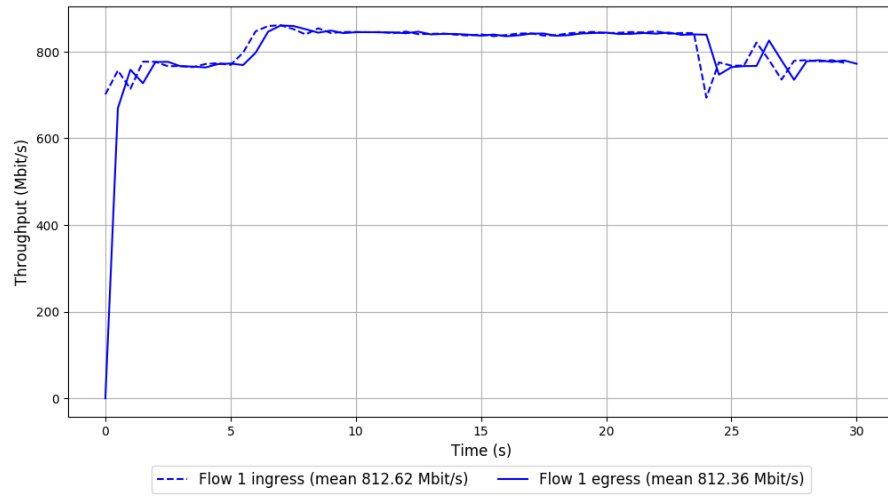

Flow 1 (95th percentile 30.74 ms)

```
Run 2: Statistics of TCP Cubic

Start at: 2018-12-11 16:29:43
End at: 2018-12-11 16:30:13
Local clock offset: 3.724 ms
Remote clock offset: -4.054 ms


# Below is generated by plot.py at 2018-12-11 18:22:18
# Datalink statistics
-- Total of 1 flow:
Average throughput: 778.09 Mbit/s
95th percentile per-packet one-way delay: 16.189 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 778.09 Mbit/s
95th percentile per-packet one-way delay: 16.189 ms
Loss rate: 0.01%
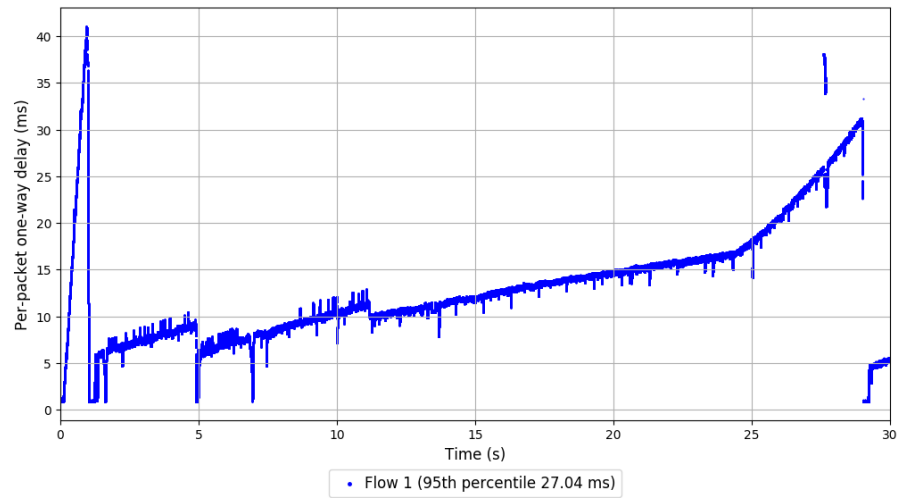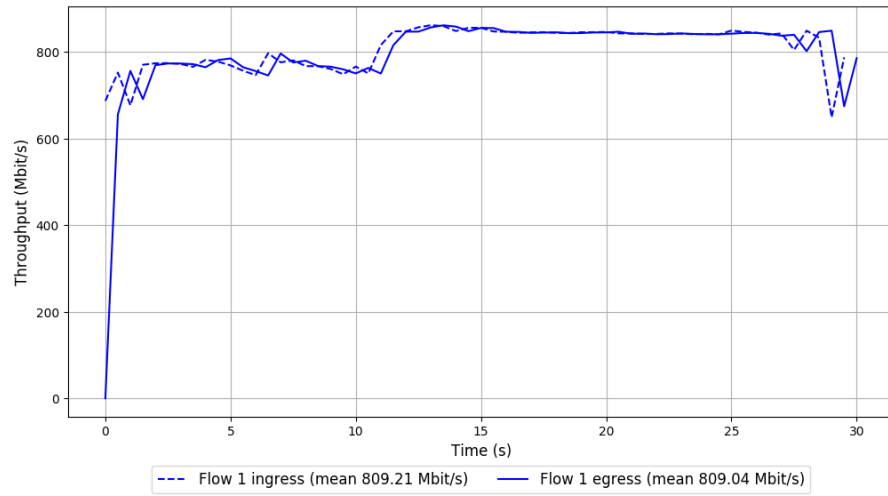```

Run 2: Report of TCP Cubic — Data Link



Flow 1 ingress (mean 777.44 Mbit/s)    Flow 1 egress (mean 778.09 Mbit/s)



Flow 1 (95th percentile 16.19 ms)

```
Run 3: Statistics of TCP Cubic

Start at: 2018-12-11 16:56:28
End at: 2018-12-11 16:56:58
Local clock offset: 4.145 ms
Remote clock offset: -3.557 ms

Below is generated by plot.py at 2018-12-11 18:22:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 812.36 Mbit/s
95th percentile per-packet one-way delay: 28.561 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 812.36 Mbit/s
95th percentile per-packet one-way delay: 28.561 ms
Loss rate: 0.04%
```
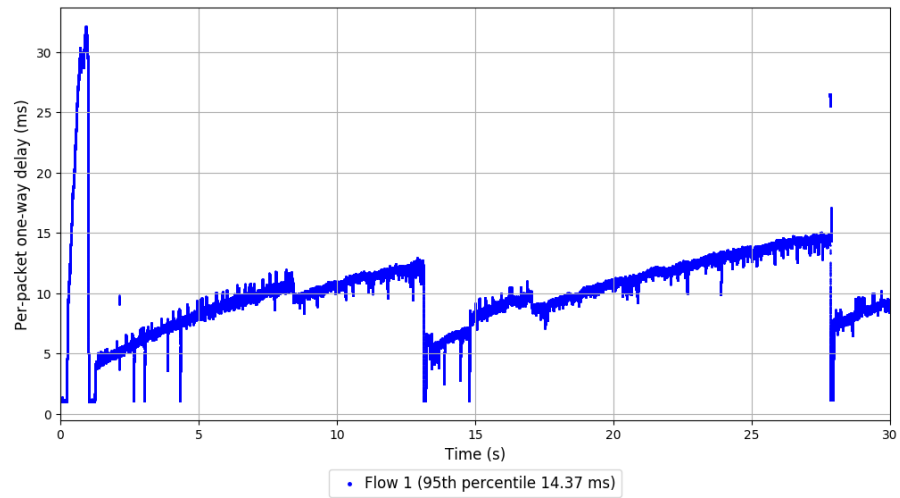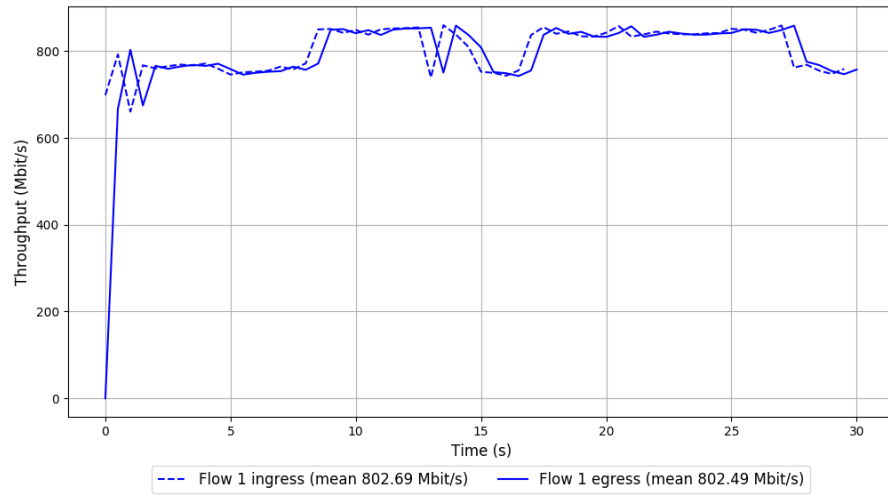
# Run 3: Report of TCP Cubic — Data Link



Flow 1 ingress (mean 812.62 Mbit/s)    Flow 1 egress (mean 812.36 Mbit/s)



• Flow 1 (95th percentile 28.56 ms)

```
Run 4: Statistics of TCP Cubic

Start at: 2018-12-11 17:23:21
End at: 2018-12-11 17:23:51
Local clock offset: 4.516 ms
Remote clock offset: -3.196 ms

Below is generated by plot.py at 2018-12-11 18:22:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 809.04 Mbit/s
95th percentile per-packet one-way delay: 27.035 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 809.04 Mbit/s
95th percentile per-packet one-way delay: 27.035 ms
Loss rate: 0.03%
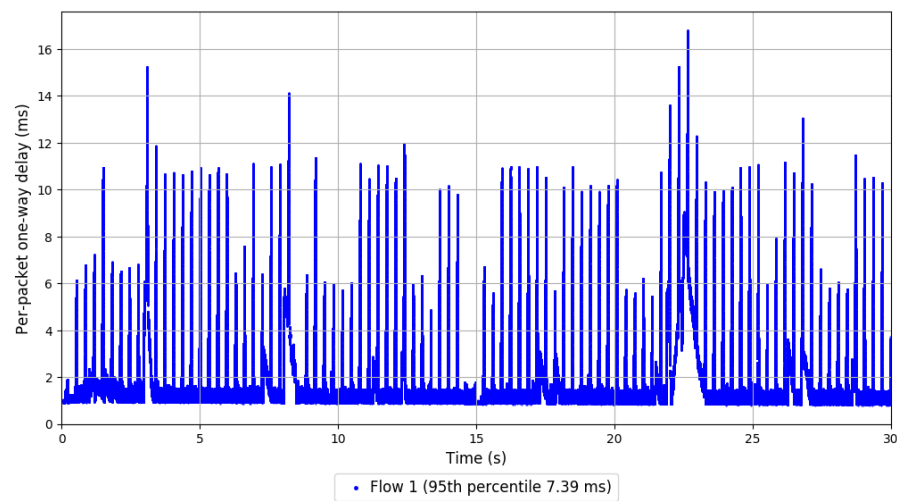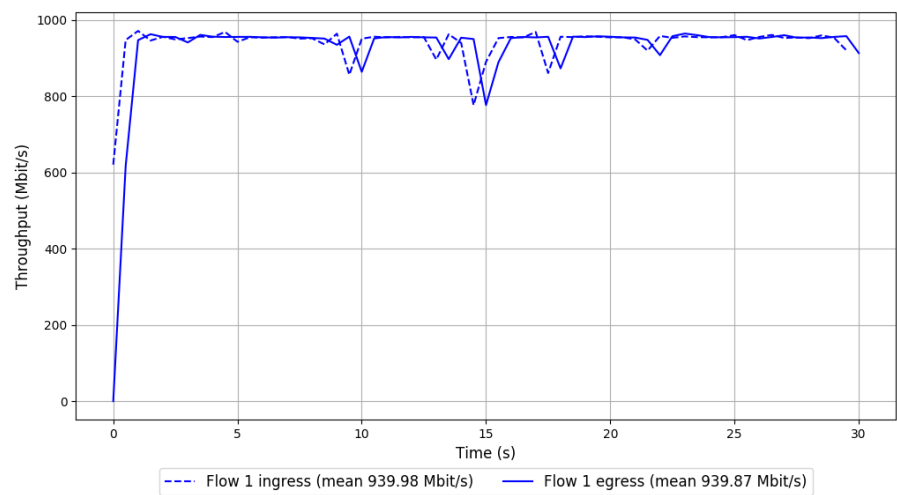```
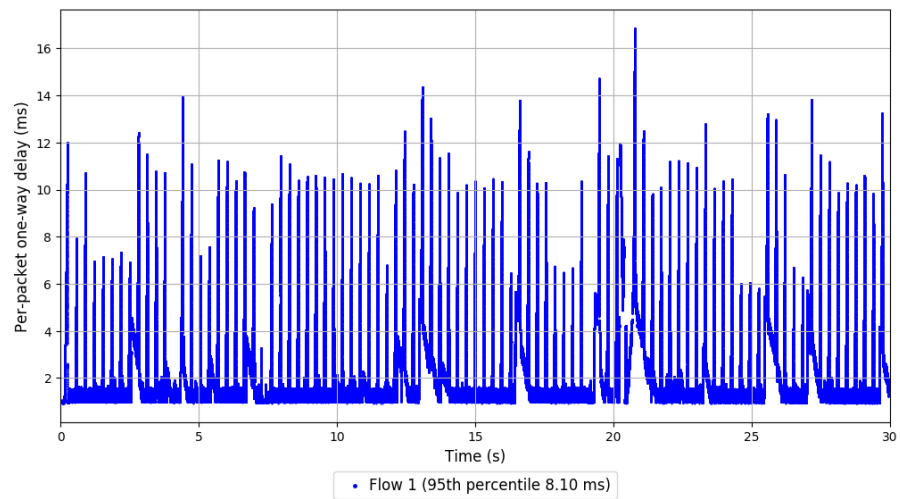
Run 4: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 809.21 Mbit/s) — Flow 1 egress (mean 809.04 Mbit/s)

Flow 1 (95th percentile 27.04 ms)

```
Run 5: Statistics of TCP Cubic

Start at: 2018-12-11 17:50:12
End at: 2018-12-11 17:50:42
Local clock offset: 4.903 ms
Remote clock offset: -1.65 ms


# Below is generated by plot.py at 2018-12-11 18:22:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 802.49 Mbit/s
95th percentile per-packet one-way delay: 14.368 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 802.49 Mbit/s
95th percentile per-packet one-way delay: 14.368 ms
Loss rate: 0.03%
```

Run 5: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 802.69 Mbit/s)   Flow 1 egress (mean 802.49 Mbit/s)
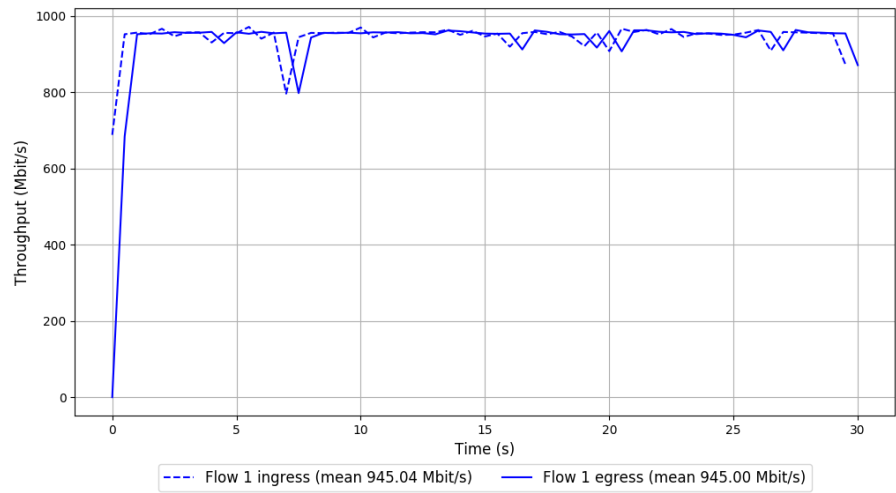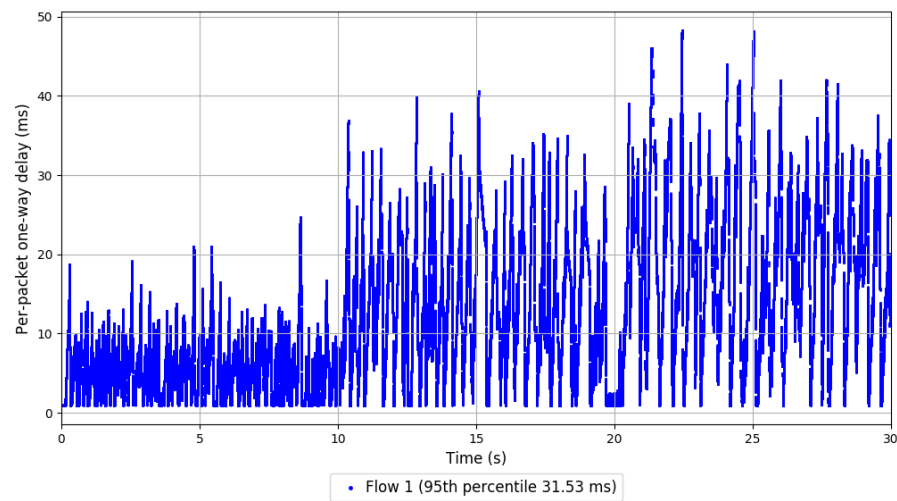

• Flow 1 (95th percentile 14.37 ms)

```
Run 1: Statistics of FillP

Start at: 2018-12-11 16:04:13
End at: 2018-12-11 16:04:43
Local clock offset: 3.599 ms
Remote clock offset: -1.062 ms


# Below is generated by plot.py at 2018-12-11 18:26:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 939.87 Mbit/s
95th percentile per-packet one-way delay: 7.395 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 939.87 Mbit/s
95th percentile per-packet one-way delay: 7.395 ms
Loss rate: 0.02%
```
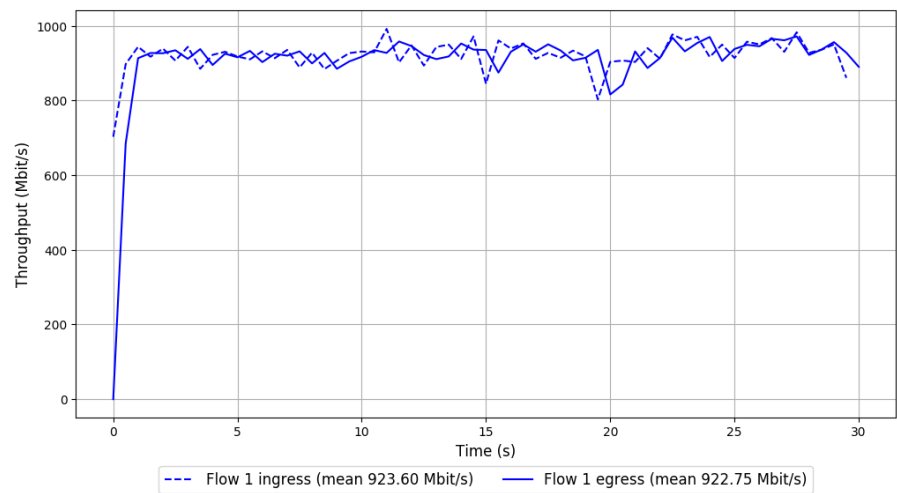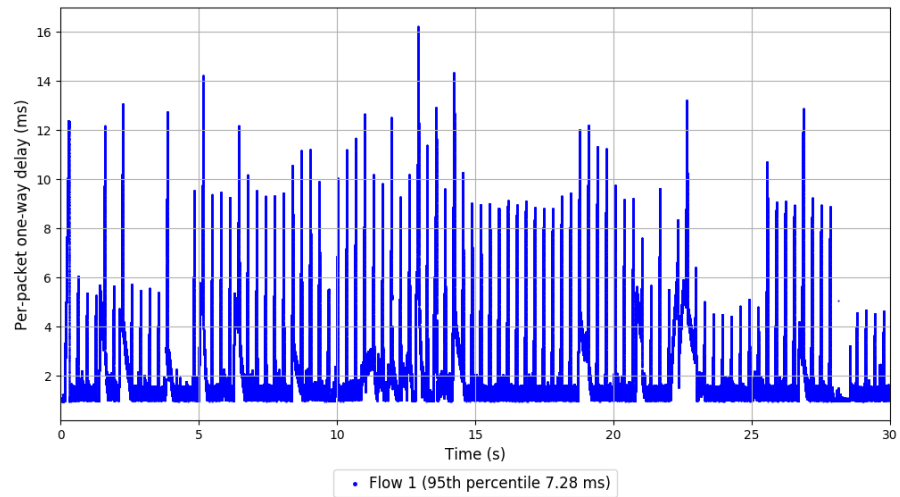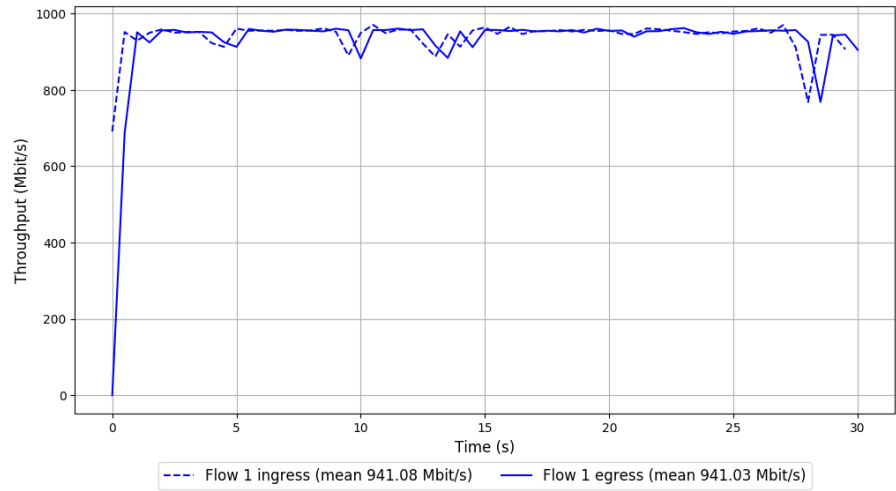
Run 1: Report of FillP — Data Link

Flow 1 ingress (mean 939.98 Mbit/s)   Flow 1 egress (mean 939.87 Mbit/s)

Flow 1 (95th percentile 7.39 ms)

```
Run 2: Statistics of FillP

Start at: 2018-12-11 16:31:20
End at: 2018-12-11 16:31:50
Local clock offset: 3.737 ms
Remote clock offset: -4.123 ms


# Below is generated by plot.py at 2018-12-11 18:33:31
# Datalink statistics
-- Total of 1 flow:
Average throughput: 945.00 Mbit/s
95th percentile per-packet one-way delay: 8.099 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 945.00 Mbit/s
95th percentile per-packet one-way delay: 8.099 ms
Loss rate: 0.01%
```
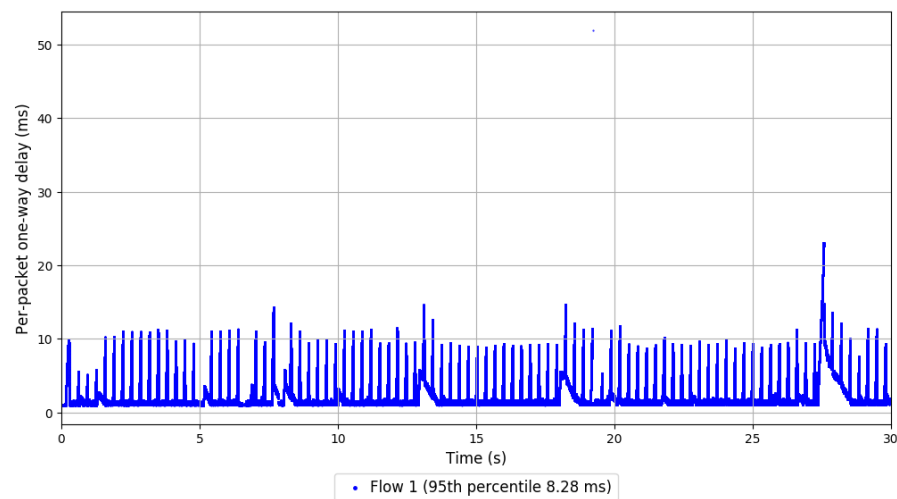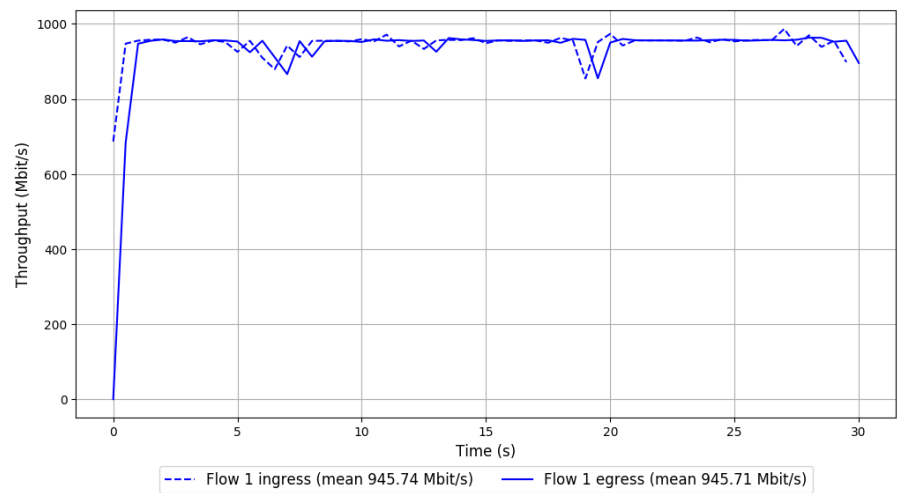
Run 2: Report of FillP — Data Link

Flow 1 ingress (mean 945.04 Mbit/s)   Flow 1 egress (mean 945.00 Mbit/s)

Flow 1 (95th percentile 8.10 ms)

```
Run 3: Statistics of FillP

Start at: 2018-12-11 16:58:08
End at: 2018-12-11 16:58:38
Local clock offset: 4.15 ms
Remote clock offset: -3.634 ms


# Below is generated by plot.py at 2018-12-11 18:33:45
# Datalink statistics
-- Total of 1 flow:
Average throughput: 922.75 Mbit/s
95th percentile per-packet one-way delay: 31.528 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 922.75 Mbit/s
95th percentile per-packet one-way delay: 31.528 ms
Loss rate: 0.10%
```

Run 3: Report of FillP — Data Link

Flow 1 ingress (mean 923.60 Mbit/s)   Flow 1 egress (mean 922.75 Mbit/s)

• Flow 1 (95th percentile 31.53 ms)

```
Run 4: Statistics of FillP

Start at: 2018-12-11 17:24:59
End at: 2018-12-11 17:25:29
Local clock offset: 4.549 ms
Remote clock offset: -3.263 ms


# Below is generated by plot.py at 2018-12-11 18:34:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 941.03 Mbit/s
95th percentile per-packet one-way delay: 7.276 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 941.03 Mbit/s
95th percentile per-packet one-way delay: 7.276 ms
Loss rate: 0.01%
```
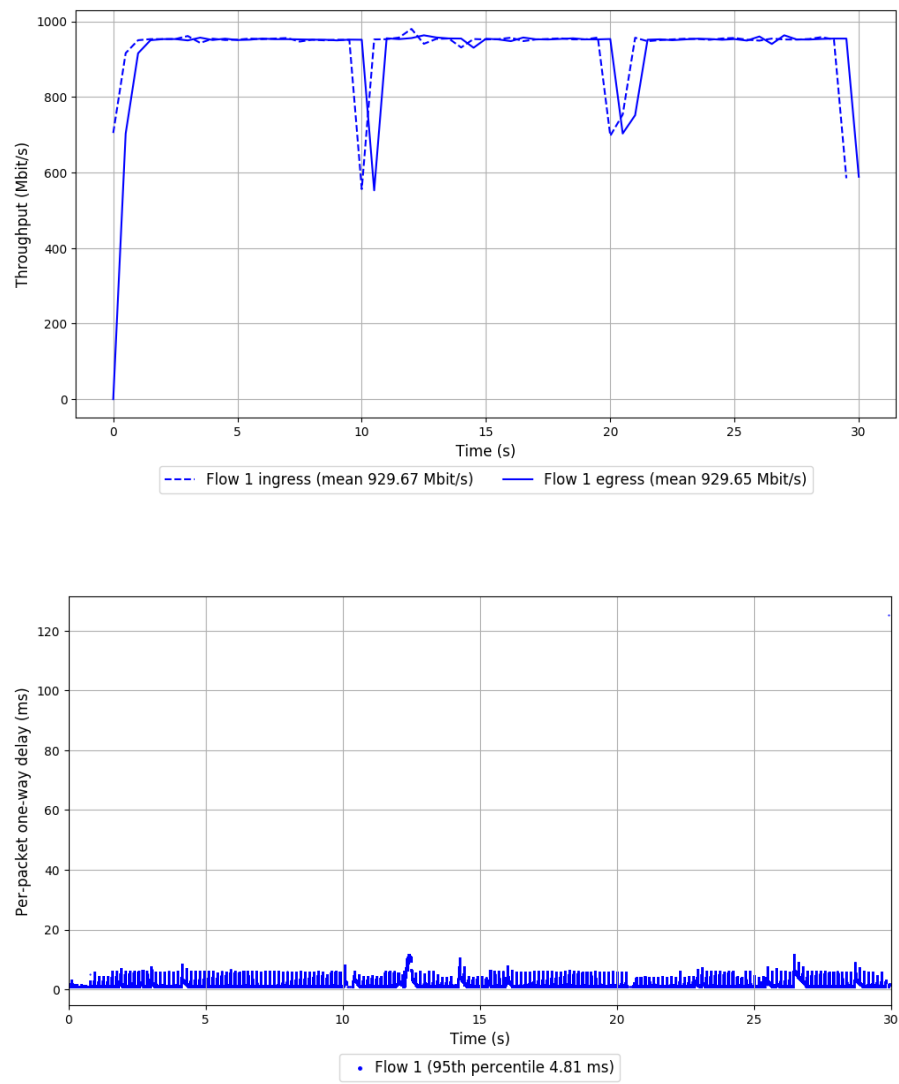
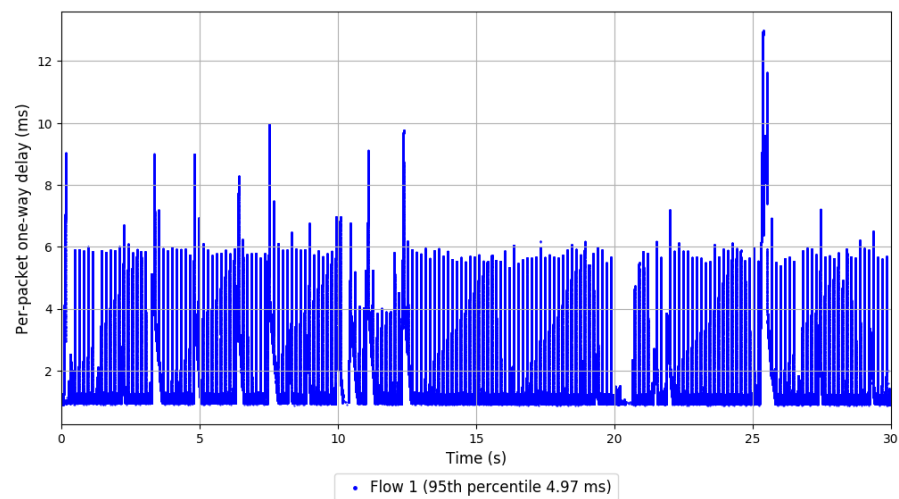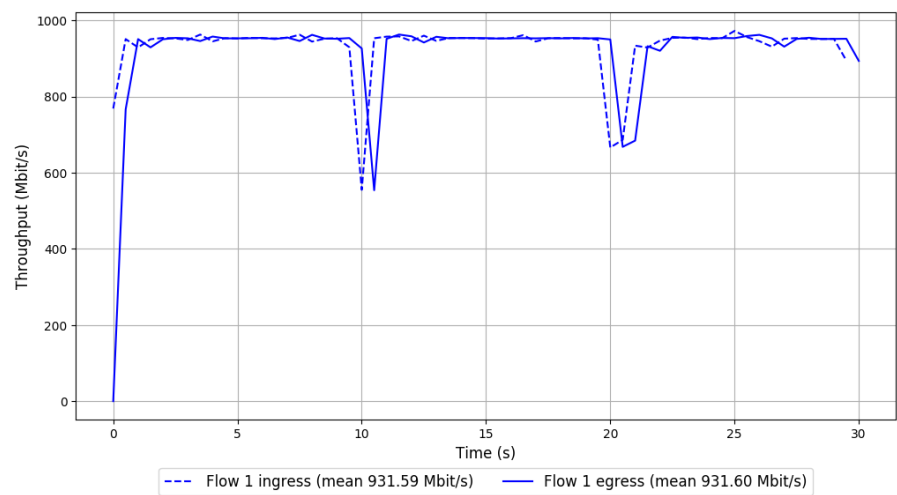# Run 4: Report of FillP — Data Link

Flow 1 ingress (mean 941.08 Mbit/s)   Flow 1 egress (mean 941.03 Mbit/s)

Flow 1 (95th percentile 7.28 ms)

```
Run 5: Statistics of FillP

Start at: 2018-12-11 17:51:51
End at: 2018-12-11 17:52:21
Local clock offset: 4.941 ms
Remote clock offset: -1.225 ms


# Below is generated by plot.py at 2018-12-11 18:34:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 945.71 Mbit/s
95th percentile per-packet one-way delay: 8.283 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 945.71 Mbit/s
95th percentile per-packet one-way delay: 8.283 ms
Loss rate: 0.01%
```

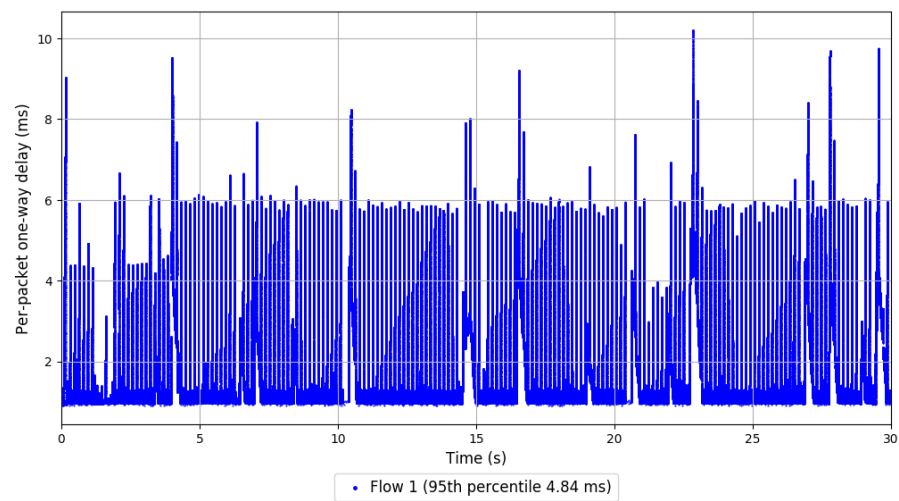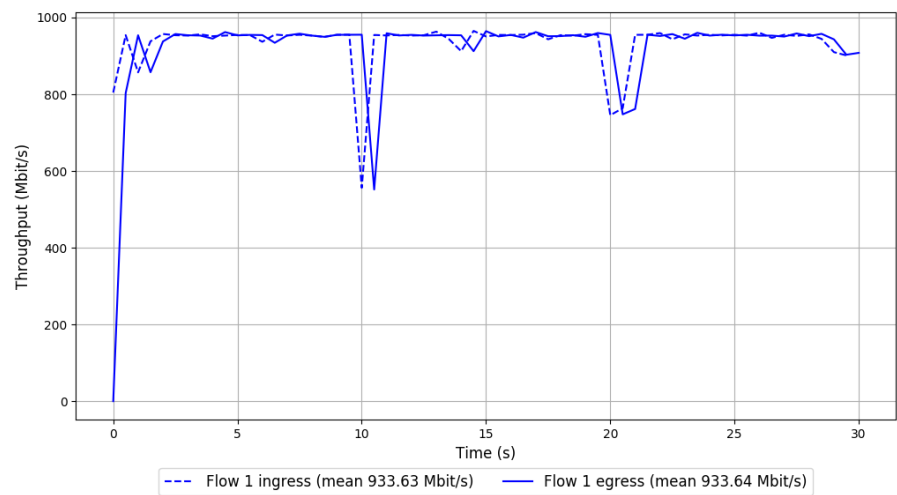Run 5: Report of FillP — Data Link

```
Run 1: Statistics of FillP-Sheep

Start at: 2018-12-11 15:52:57
End at: 2018-12-11 15:53:27
Local clock offset: 3.608 ms
Remote clock offset: -0.576 ms


# Below is generated by plot.py at 2018-12-11 18:34:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 929.65 Mbit/s
95th percentile per-packet one-way delay: 4.809 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 929.65 Mbit/s
95th percentile per-packet one-way delay: 4.809 ms
Loss rate: 0.00%
```

Run 1: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 929.67 Mbit/s) ----   Flow 1 egress (mean 929.65 Mbit/s) ——

• Flow 1 (95th percentile 4.81 ms)

```
Run 2: Statistics of FillP-Sheep

Start at: 2018-12-11 16:20:07
End at: 2018-12-11 16:20:37
Local clock offset: 3.71 ms
Remote clock offset: -3.375 ms


# Below is generated by plot.py at 2018-12-11 18:34:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 931.60 Mbit/s
95th percentile per-packet one-way delay: 4.971 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 931.60 Mbit/s
95th percentile per-packet one-way delay: 4.971 ms
Loss rate: 0.00%
```
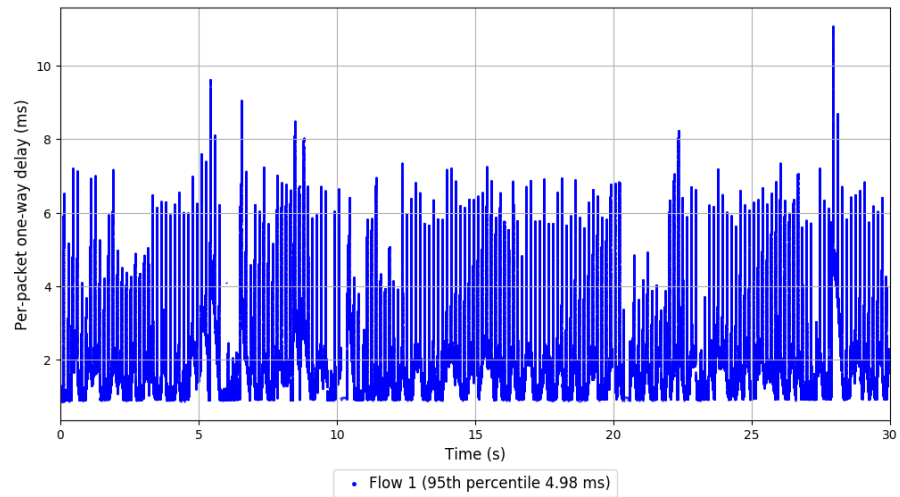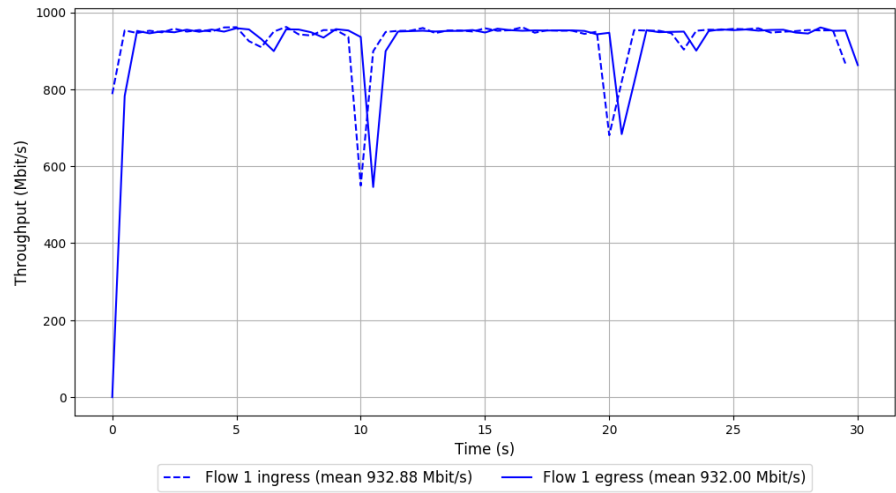
Run 2: Report of FillP-Sheep — Data Link

```
Run 3: Statistics of FillP-Sheep

Start at: 2018-12-11 16:46:56
End at: 2018-12-11 16:47:26
Local clock offset: 4.007 ms
Remote clock offset: -3.641 ms


# Below is generated by plot.py at 2018-12-11 18:34:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 933.64 Mbit/s
95th percentile per-packet one-way delay: 4.839 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 933.64 Mbit/s
95th percentile per-packet one-way delay: 4.839 ms
Loss rate: 0.01%
```
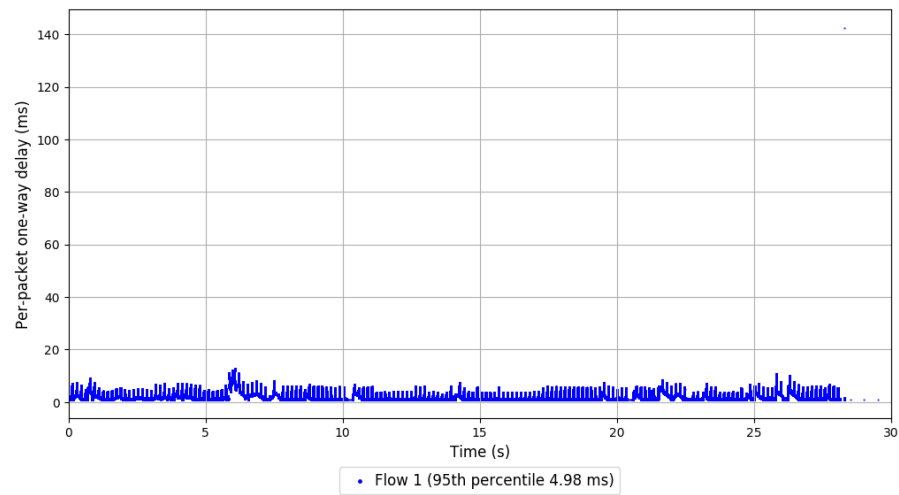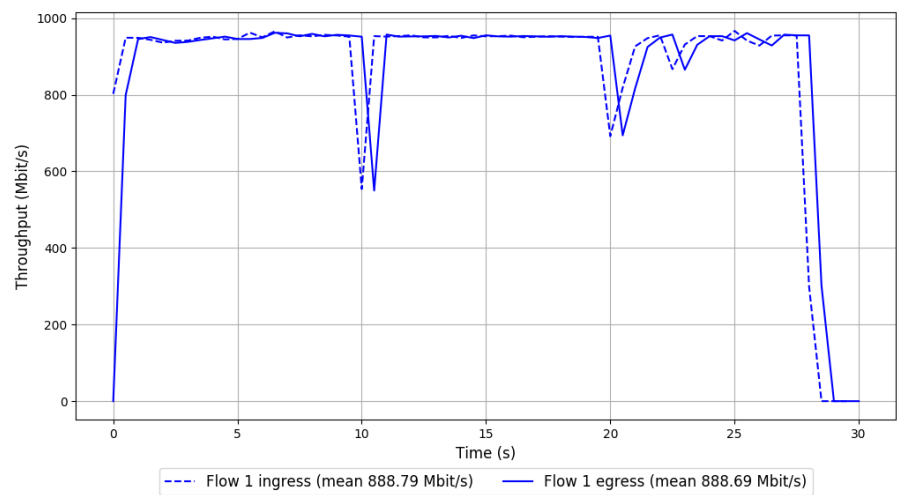
Run 3: Report of FillP-Sheep — Data Link

```
Run 4: Statistics of FillP-Sheep

Start at: 2018-12-11 17:13:51
End at: 2018-12-11 17:14:21
Local clock offset: 4.331 ms
Remote clock offset: -3.56 ms


# Below is generated by plot.py at 2018-12-11 18:40:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 932.00 Mbit/s
95th percentile per-packet one-way delay: 4.983 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 932.00 Mbit/s
95th percentile per-packet one-way delay: 4.983 ms
Loss rate: 0.10%
```
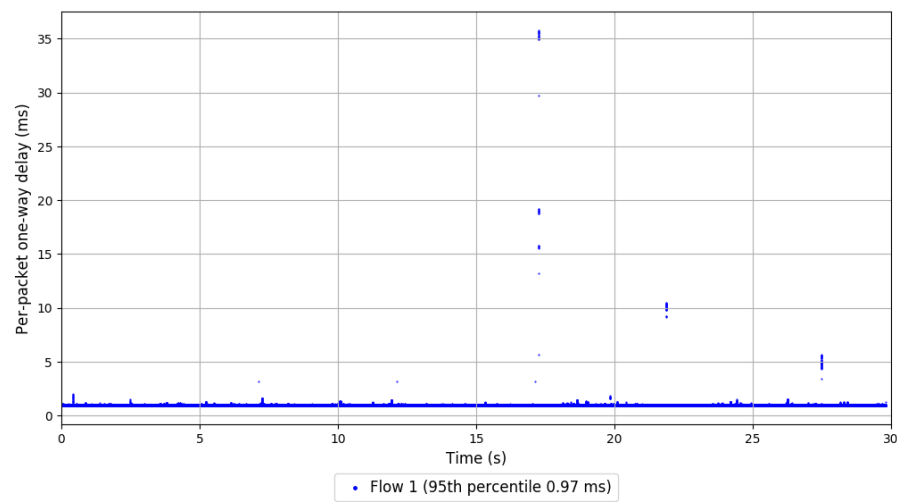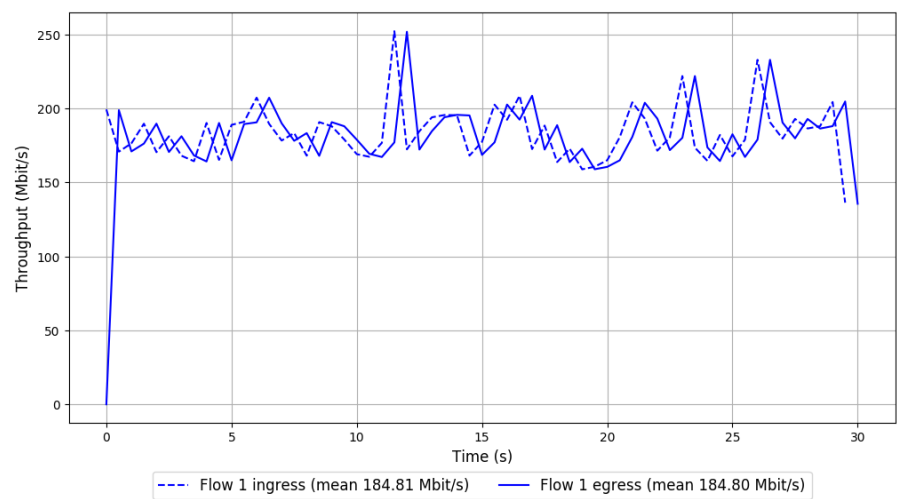
Run 4: Report of FillP-Sheep — Data Link
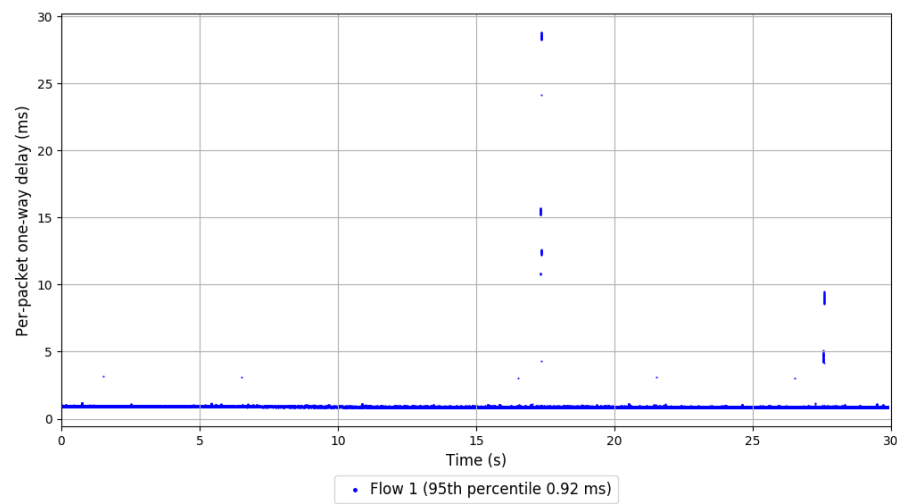

Flow 1 ingress (mean 932.88 Mbit/s) ----   Flow 1 egress (mean 932.00 Mbit/s) ——

• Flow 1 (95th percentile 4.98 ms)

```
Run 5: Statistics of FillP-Sheep

Start at: 2018-12-11 17:40:36
End at: 2018-12-11 17:41:06
Local clock offset: 4.7 ms
Remote clock offset: -3.205 ms


# Below is generated by plot.py at 2018-12-11 18:45:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 888.69 Mbit/s
95th percentile per-packet one-way delay: 4.984 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 888.69 Mbit/s
95th percentile per-packet one-way delay: 4.984 ms
Loss rate: 0.01%
```

Run 5: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 888.79 Mbit/s)   Flow 1 egress (mean 888.69 Mbit/s)

Flow 1 (95th percentile 4.98 ms)

```
Run 1: Statistics of Indigo

Start at: 2018-12-11 15:49:08
End at: 2018-12-11 15:49:38
Local clock offset: 3.588 ms
Remote clock offset: -0.566 ms


# Below is generated by plot.py at 2018-12-11 18:45:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 184.80 Mbit/s
95th percentile per-packet one-way delay: 0.967 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 184.80 Mbit/s
95th percentile per-packet one-way delay: 0.967 ms
Loss rate: 0.01%
```
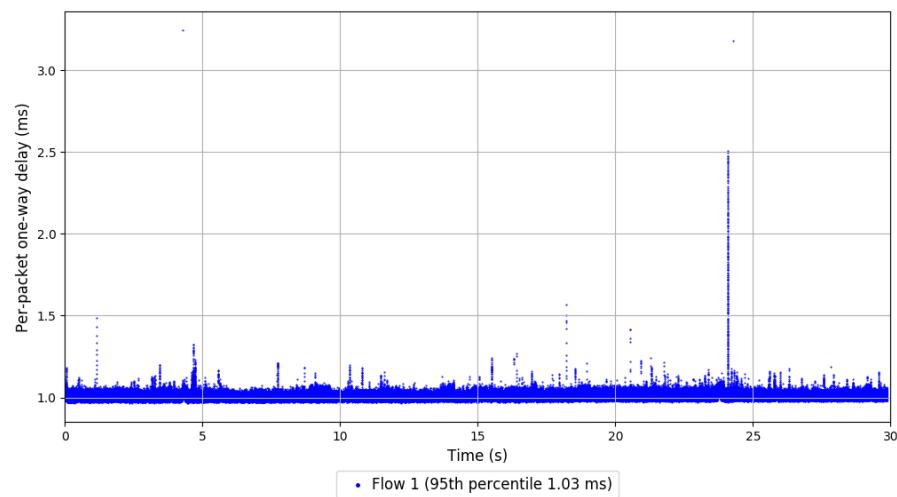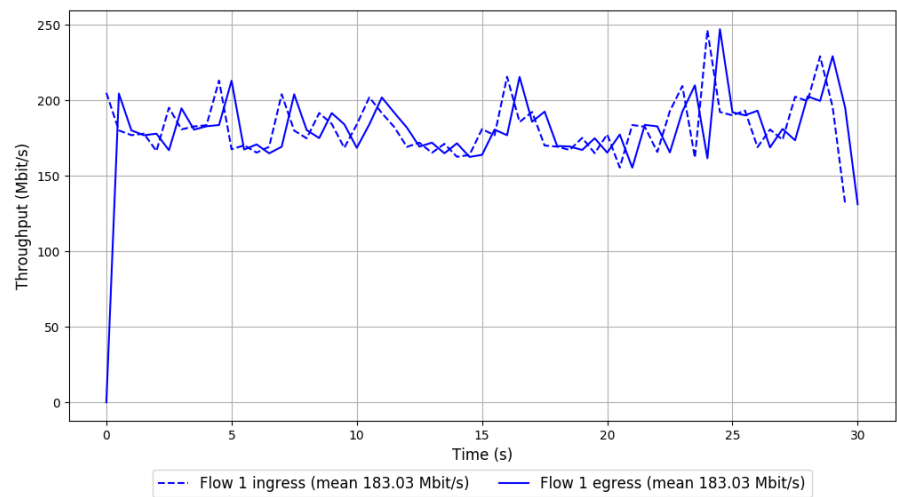
Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2018-12-11 16:16:14
End at: 2018-12-11 16:16:44
Local clock offset: 3.706 ms
Remote clock offset: -2.939 ms


# Below is generated by plot.py at 2018-12-11 18:45:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 188.57 Mbit/s
95th percentile per-packet one-way delay: 0.922 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 188.57 Mbit/s
95th percentile per-packet one-way delay: 0.922 ms
Loss rate: 0.01%
```
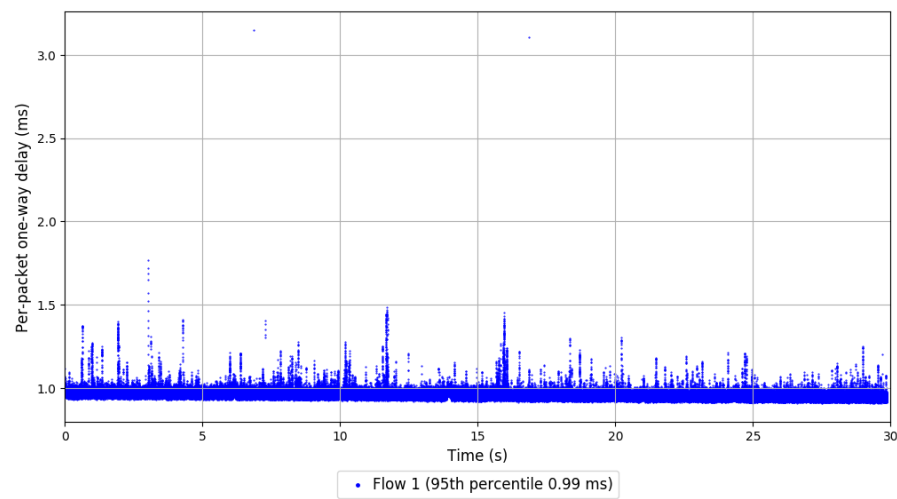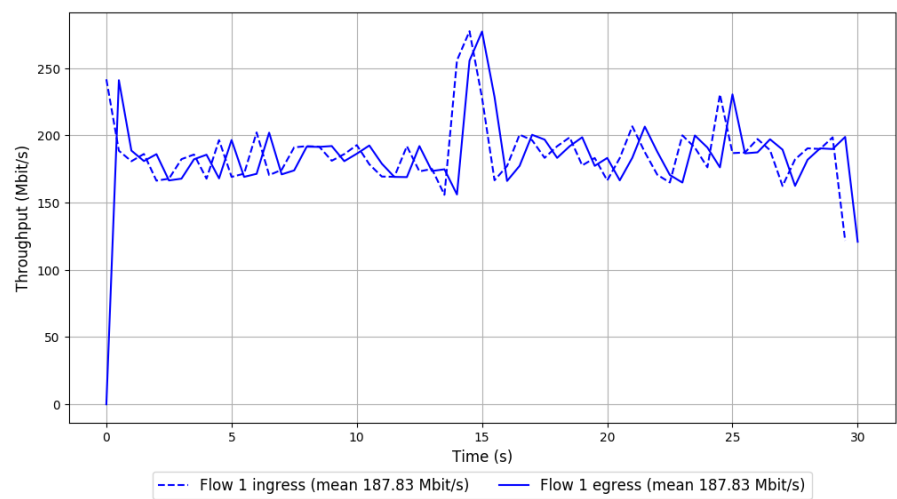
Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2018-12-11 16:43:08
End at: 2018-12-11 16:43:38
Local clock offset: 3.901 ms
Remote clock offset: -3.776 ms


# Below is generated by plot.py at 2018-12-11 18:45:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 183.03 Mbit/s
95th percentile per-packet one-way delay: 1.035 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 183.03 Mbit/s
95th percentile per-packet one-way delay: 1.035 ms
Loss rate: 0.01%
```
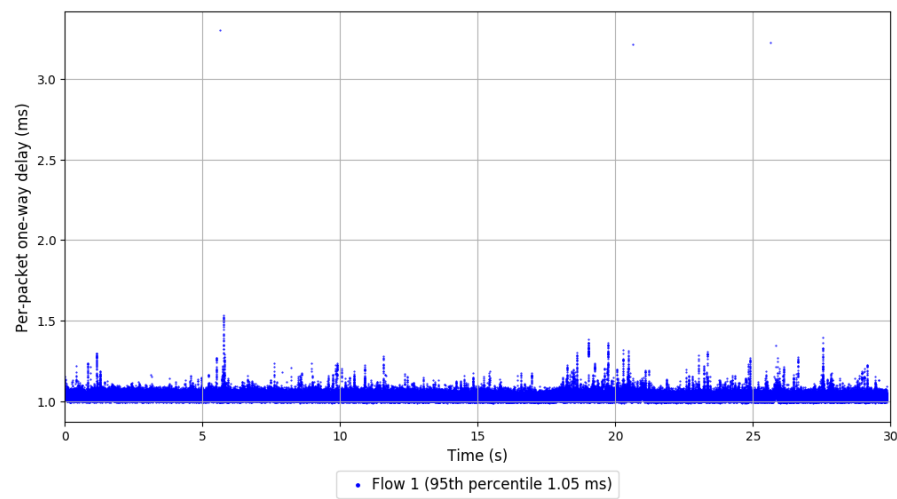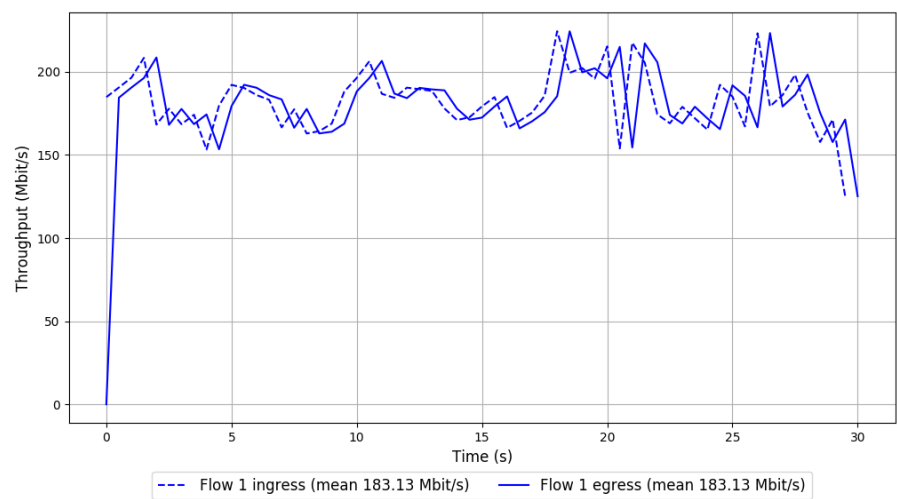
Run 3: Report of Indigo — Data Link

```
Run 4: Statistics of Indigo

Start at: 2018-12-11 17:10:02
End at: 2018-12-11 17:10:32
Local clock offset: 4.222 ms
Remote clock offset: -3.841 ms


# Below is generated by plot.py at 2018-12-11 18:45:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 187.83 Mbit/s
95th percentile per-packet one-way delay: 0.989 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 187.83 Mbit/s
95th percentile per-packet one-way delay: 0.989 ms
Loss rate: 0.01%
```
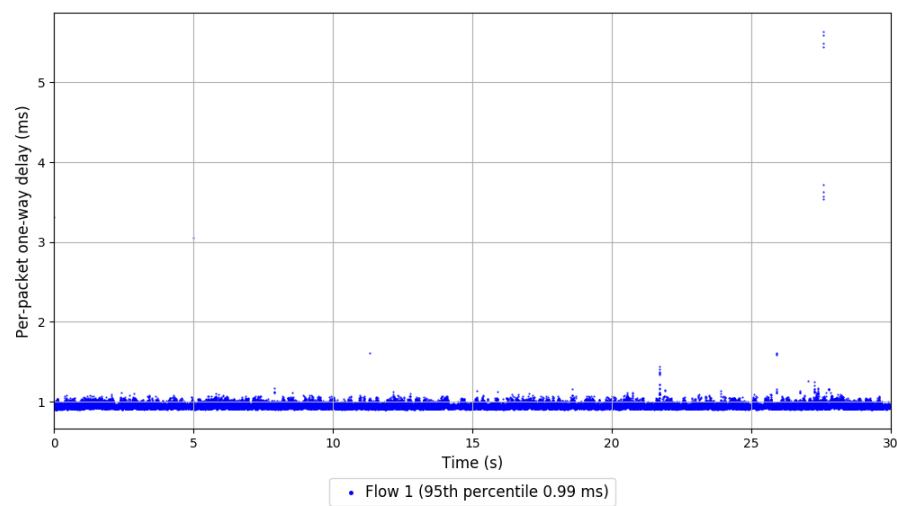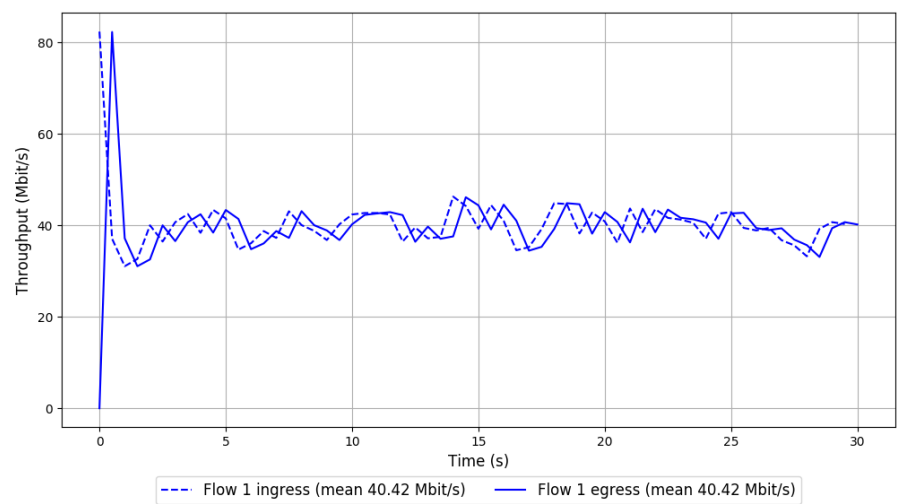
Run 4: Report of Indigo — Data Link

```
Run 5: Statistics of Indigo

Start at: 2018-12-11 17:36:43
End at: 2018-12-11 17:37:13
Local clock offset: 4.661 ms
Remote clock offset: -3.224 ms


# Below is generated by plot.py at 2018-12-11 18:45:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 183.13 Mbit/s
95th percentile per-packet one-way delay: 1.054 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 183.13 Mbit/s
95th percentile per-packet one-way delay: 1.054 ms
Loss rate: 0.00%
```
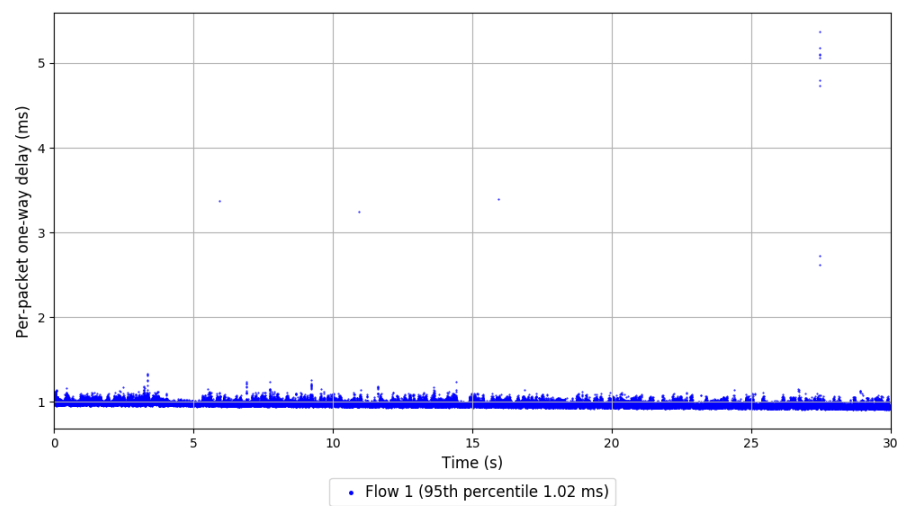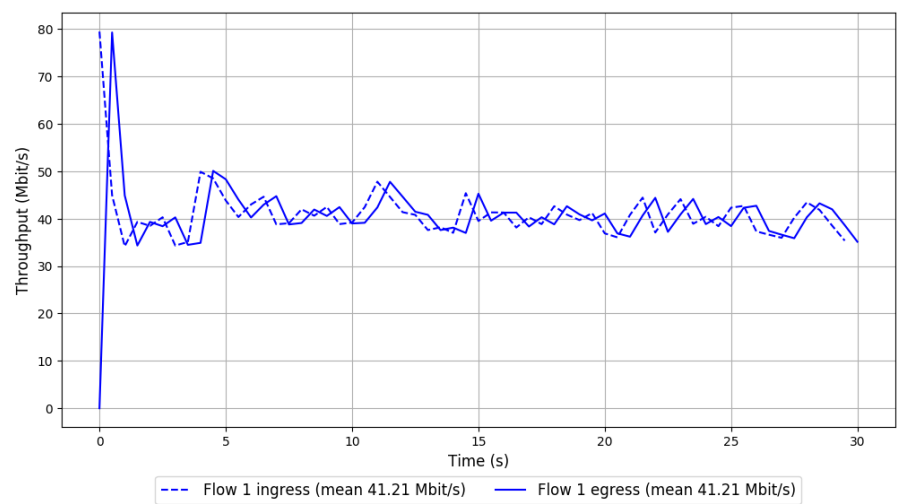
Run 5: Report of Indigo — Data Link

```
Run 1: Statistics of Indigo-MusesD

Start at: 2018-12-11 15:51:43
End at: 2018-12-11 15:52:13
Local clock offset: 3.588 ms
Remote clock offset: -0.528 ms


# Below is generated by plot.py at 2018-12-11 18:45:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 40.42 Mbit/s
95th percentile per-packet one-way delay: 0.992 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 40.42 Mbit/s
95th percentile per-packet one-way delay: 0.992 ms
Loss rate: 0.00%
```
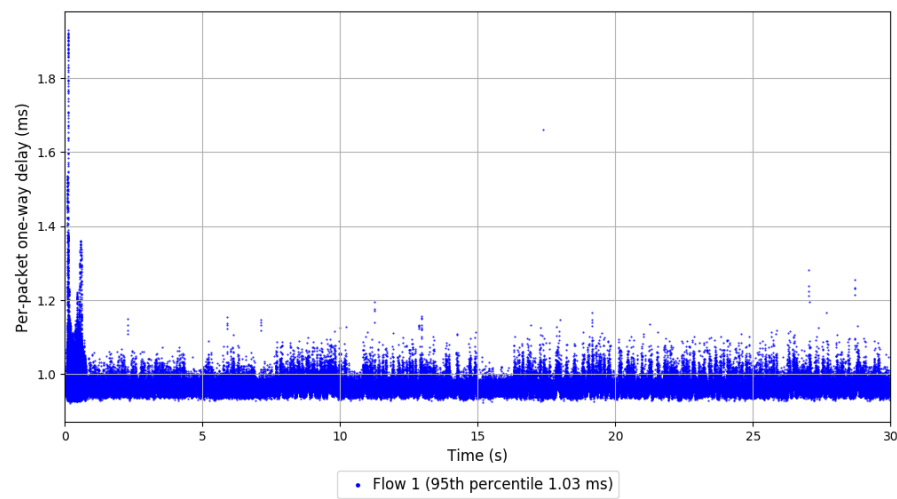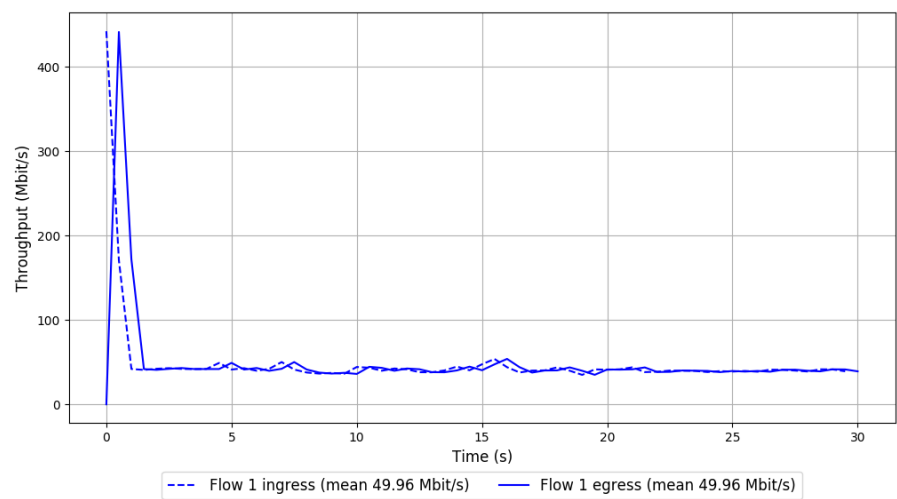
Run 1: Report of Indigo-MusesD — Data Link

```
Run 2: Statistics of Indigo-MusesD

Start at: 2018-12-11 16:18:53
End at: 2018-12-11 16:19:23
Local clock offset: 3.704 ms
Remote clock offset: -3.276 ms


# Below is generated by plot.py at 2018-12-11 18:45:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 41.21 Mbit/s
95th percentile per-packet one-way delay: 1.020 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 41.21 Mbit/s
95th percentile per-packet one-way delay: 1.020 ms
Loss rate: 0.01%
```
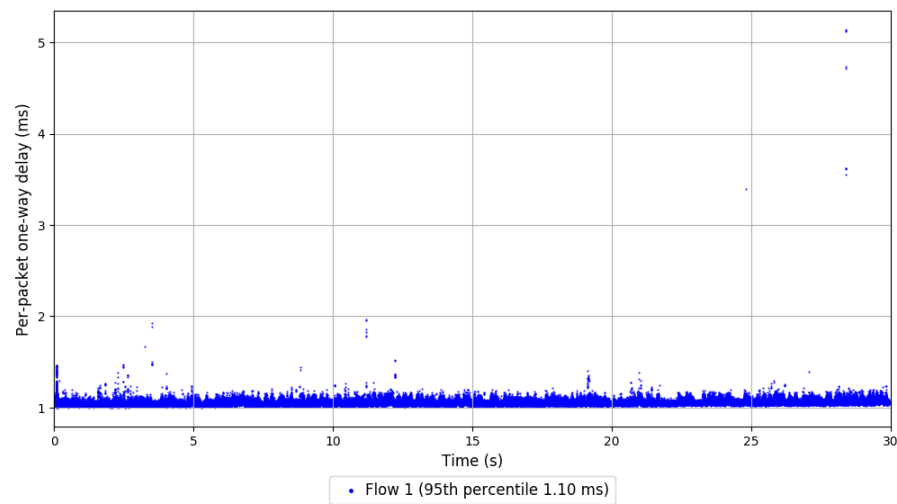
Run 2: Report of Indigo-MusesD — Data Link

```
Run 3: Statistics of Indigo-MusesD

Start at: 2018-12-11 16:45:42
End at: 2018-12-11 16:46:12
Local clock offset: 3.979 ms
Remote clock offset: -3.643 ms


# Below is generated by plot.py at 2018-12-11 18:45:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 49.96 Mbit/s
95th percentile per-packet one-way delay: 1.033 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 49.96 Mbit/s
95th percentile per-packet one-way delay: 1.033 ms
Loss rate: 0.00%
```
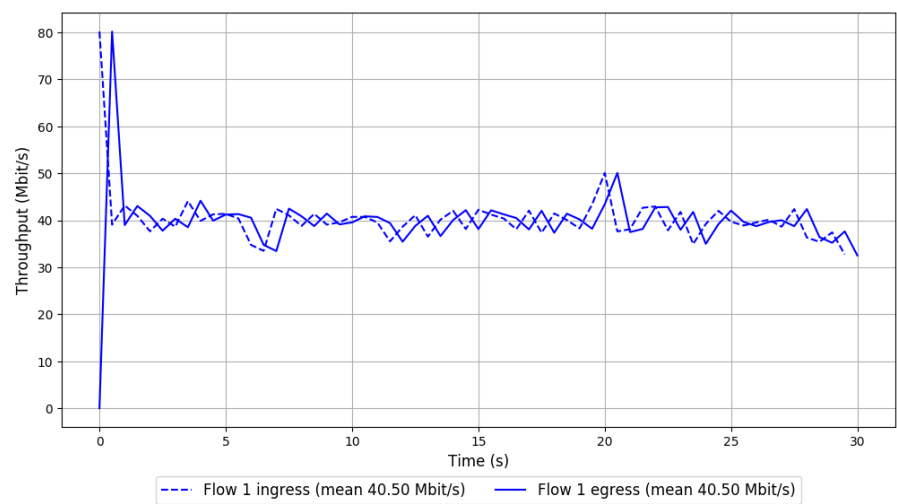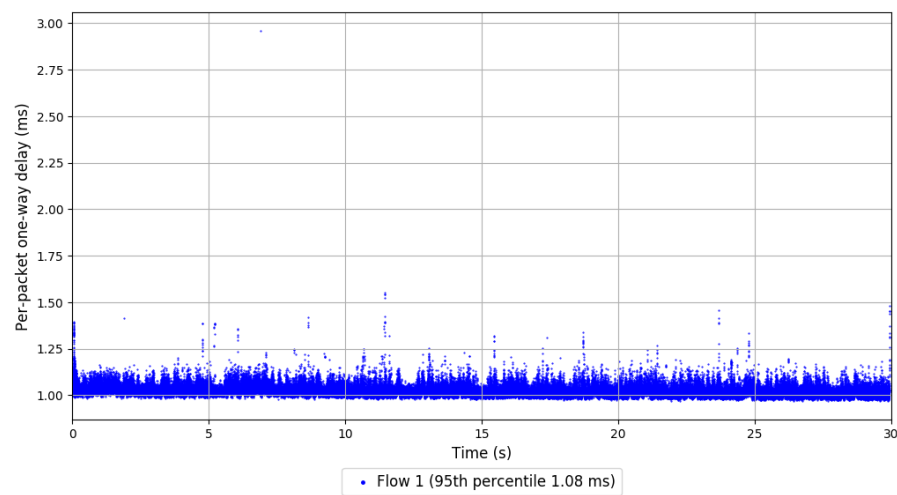
Run 3: Report of Indigo-MusesD — Data Link

```
Run 4: Statistics of Indigo-MusesD

Start at: 2018-12-11 17:12:37
End at: 2018-12-11 17:13:07
Local clock offset: 4.292 ms
Remote clock offset: -3.712 ms


# Below is generated by plot.py at 2018-12-11 18:45:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 40.50 Mbit/s
95th percentile per-packet one-way delay: 1.102 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 40.50 Mbit/s
95th percentile per-packet one-way delay: 1.102 ms
Loss rate: 0.01%
```
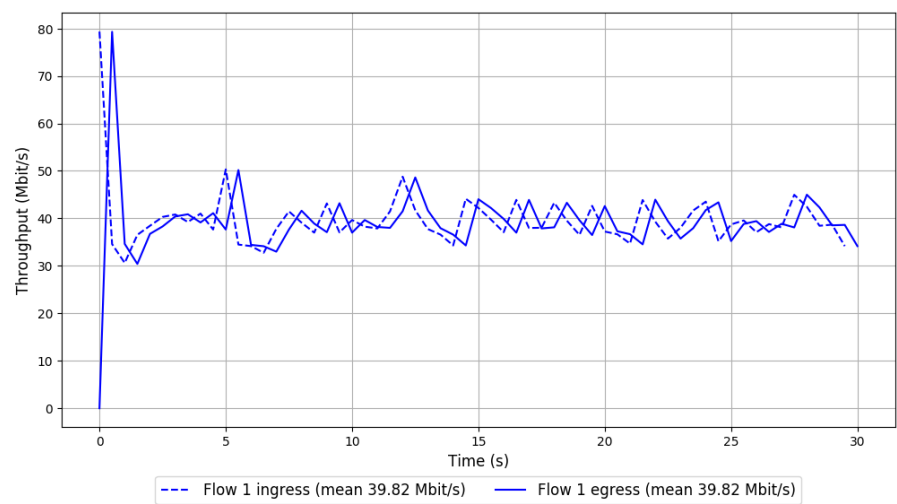
Run 4: Report of Indigo-MusesD — Data Link

```
Run 5: Statistics of Indigo-MusesD

Start at: 2018-12-11 17:39:22
End at: 2018-12-11 17:39:52
Local clock offset: 4.676 ms
Remote clock offset: -3.247 ms


# Below is generated by plot.py at 2018-12-11 18:45:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 39.82 Mbit/s
95th percentile per-packet one-way delay: 1.078 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 39.82 Mbit/s
95th percentile per-packet one-way delay: 1.078 ms
Loss rate: 0.00%
```
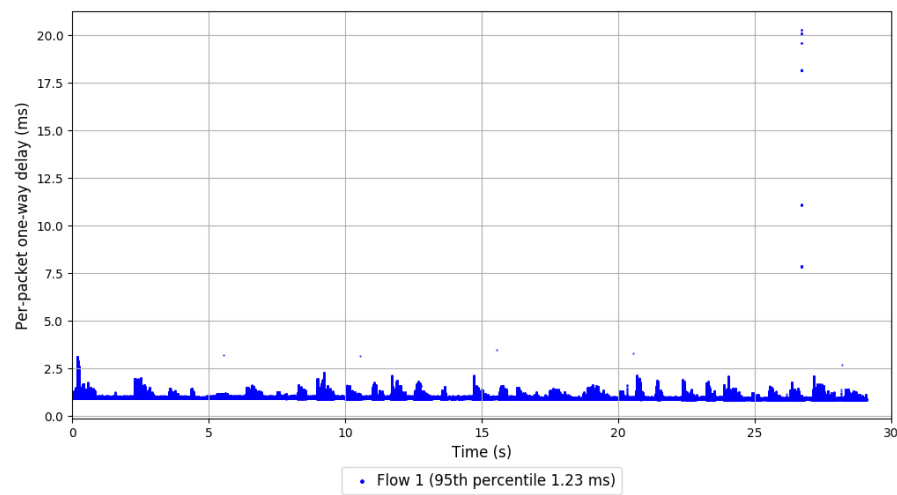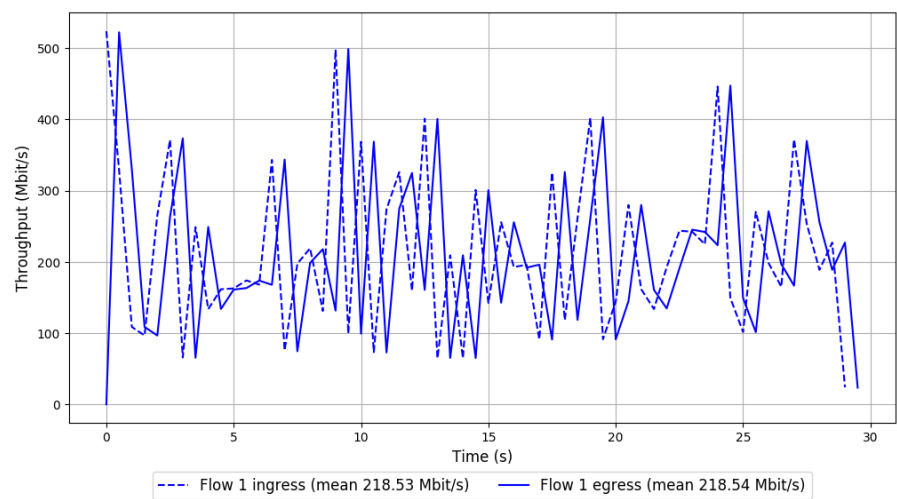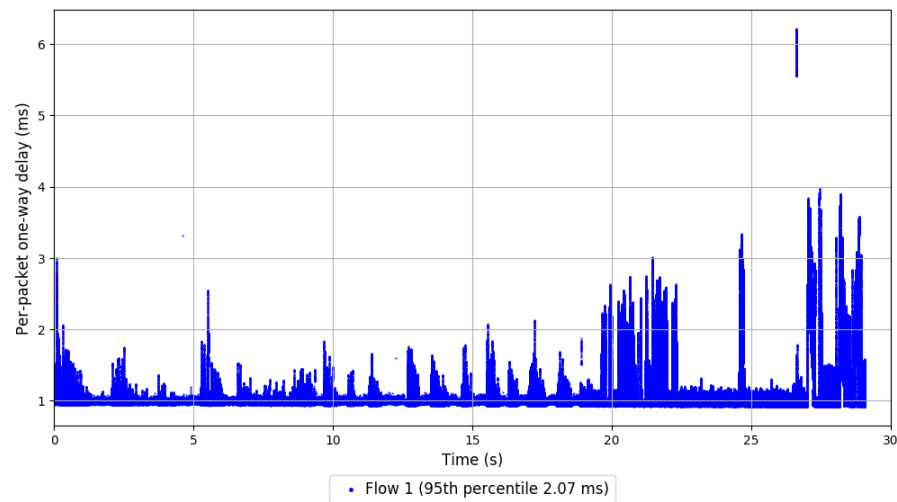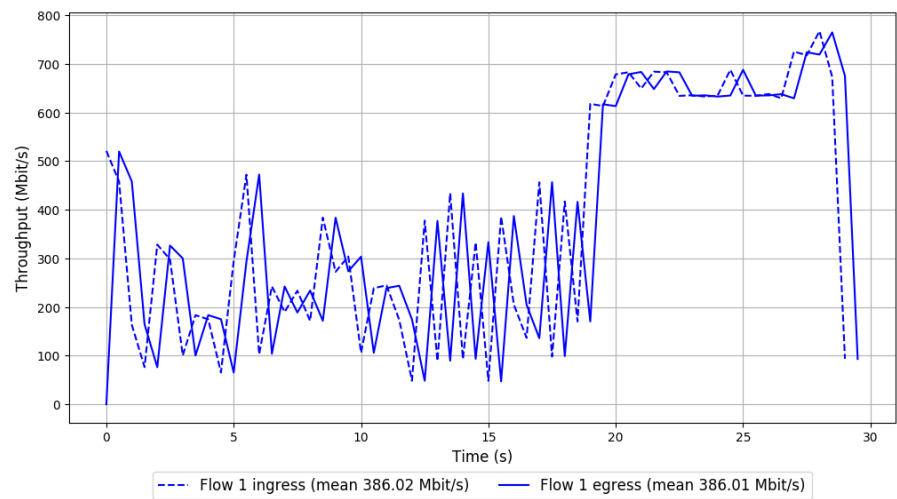
Run 5: Report of Indigo-MusesD — Data Link

```
Run 1: Statistics of Indigo-MusesT

Start at: 2018-12-11 16:08:40
End at: 2018-12-11 16:09:10
Local clock offset: 3.529 ms
Remote clock offset: -2.029 ms


# Below is generated by plot.py at 2018-12-11 18:45:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 218.54 Mbit/s
95th percentile per-packet one-way delay: 1.227 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 218.54 Mbit/s
95th percentile per-packet one-way delay: 1.227 ms
Loss rate: 0.00%
```

Run 1: Report of Indigo-MusesT — Data Link

```
Run 2: Statistics of Indigo-MusesT

Start at: 2018-12-11 16:35:49
End at: 2018-12-11 16:36:19
Local clock offset: 3.708 ms
Remote clock offset: -4.297 ms


# Below is generated by plot.py at 2018-12-11 18:45:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 386.01 Mbit/s
95th percentile per-packet one-way delay: 2.073 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 386.01 Mbit/s
95th percentile per-packet one-way delay: 2.073 ms
Loss rate: 0.01%
```
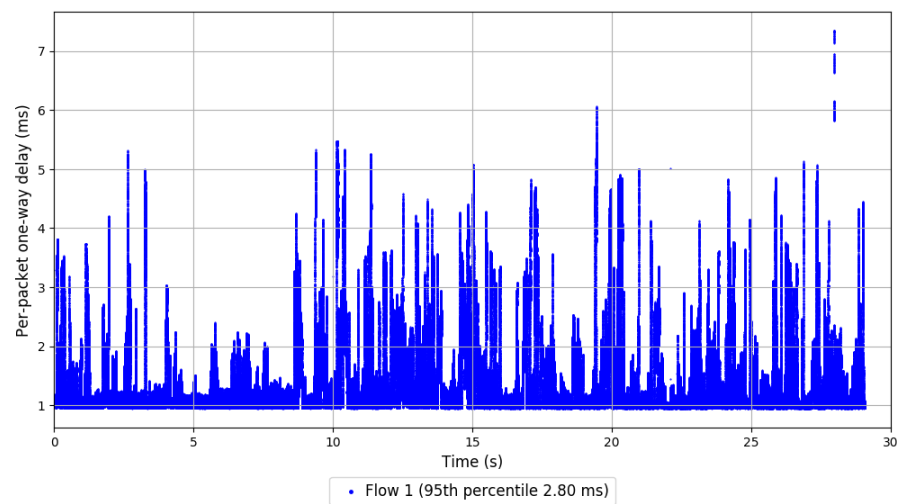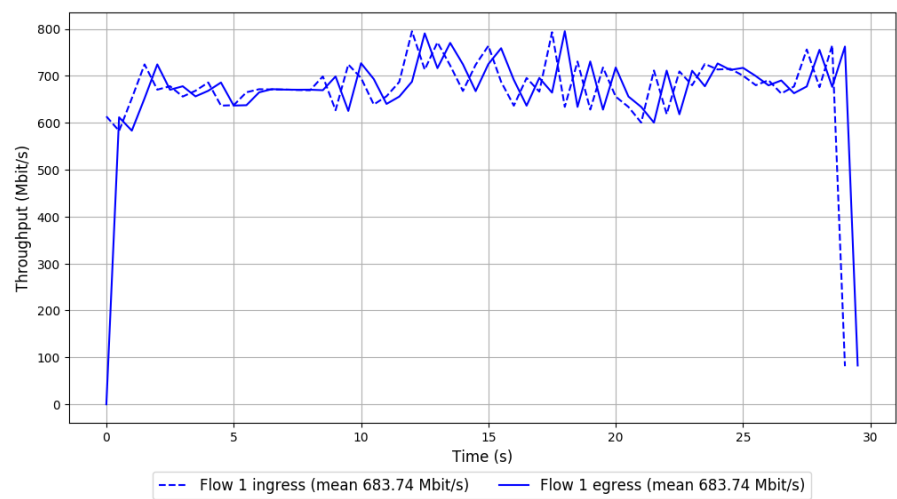
Run 2: Report of Indigo-MusesT — Data Link

Flow 1 ingress (mean 386.02 Mbit/s)   Flow 1 egress (mean 386.01 Mbit/s)

Flow 1 (95th percentile 2.07 ms)

```
Run 3: Statistics of Indigo-MusesT

Start at: 2018-12-11 17:02:34
End at: 2018-12-11 17:03:04
Local clock offset: 4.153 ms
Remote clock offset: -3.728 ms


# Below is generated by plot.py at 2018-12-11 18:45:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 683.74 Mbit/s
95th percentile per-packet one-way delay: 2.801 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 683.74 Mbit/s
95th percentile per-packet one-way delay: 2.801 ms
Loss rate: 0.01%
```
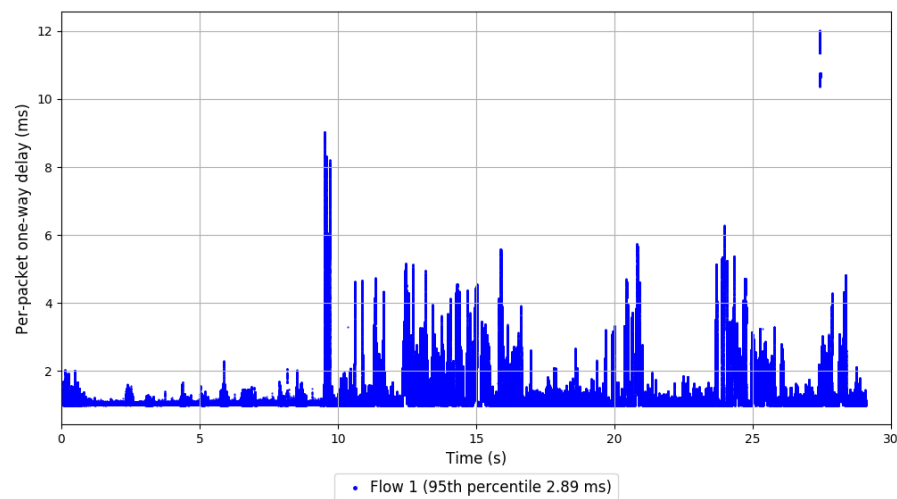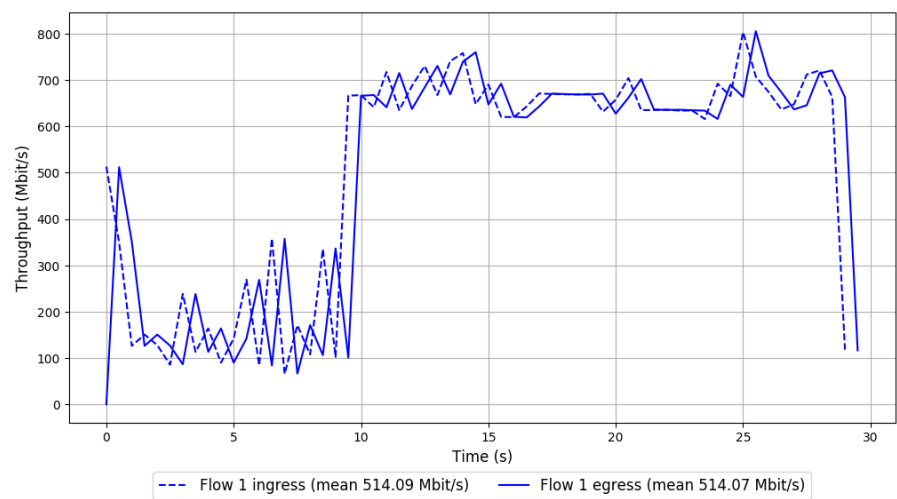
Run 3: Report of Indigo-MusesT — Data Link

```
Run 4: Statistics of Indigo-MusesT

Start at: 2018-12-11 17:29:26
End at: 2018-12-11 17:29:56
Local clock offset: 4.577 ms
Remote clock offset: -3.239 ms


# Below is generated by plot.py at 2018-12-11 18:45:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 514.07 Mbit/s
95th percentile per-packet one-way delay: 2.891 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 514.07 Mbit/s
95th percentile per-packet one-way delay: 2.891 ms
Loss rate: 0.01%
```

Run 4: Report of Indigo-MusesT — Data Link

```
Run 5: Statistics of Indigo-MusesT

Start at: 2018-12-11 17:56:15
End at: 2018-12-11 17:56:45
Local clock offset: 4.997 ms
Remote clock offset: -0.495 ms


# Below is generated by plot.py at 2018-12-11 18:45:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 261.11 Mbit/s
95th percentile per-packet one-way delay: 1.430 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 261.11 Mbit/s
95th percentile per-packet one-way delay: 1.430 ms
Loss rate: 0.03%
```
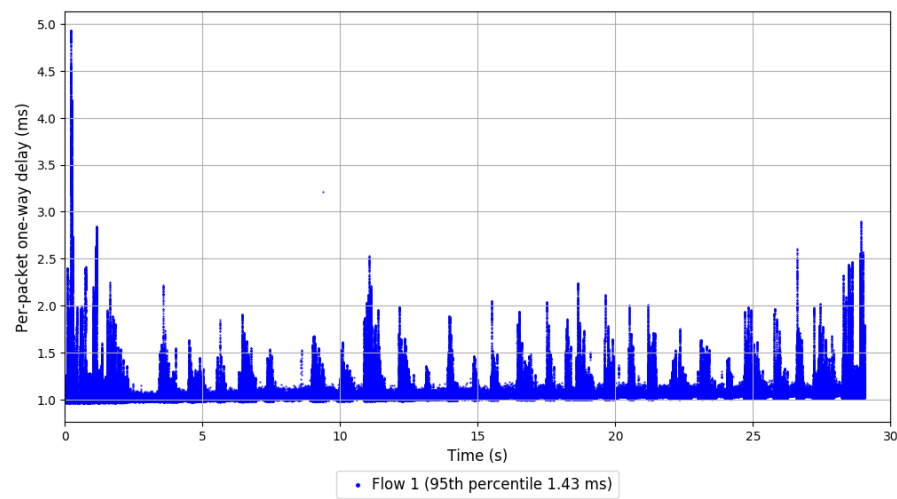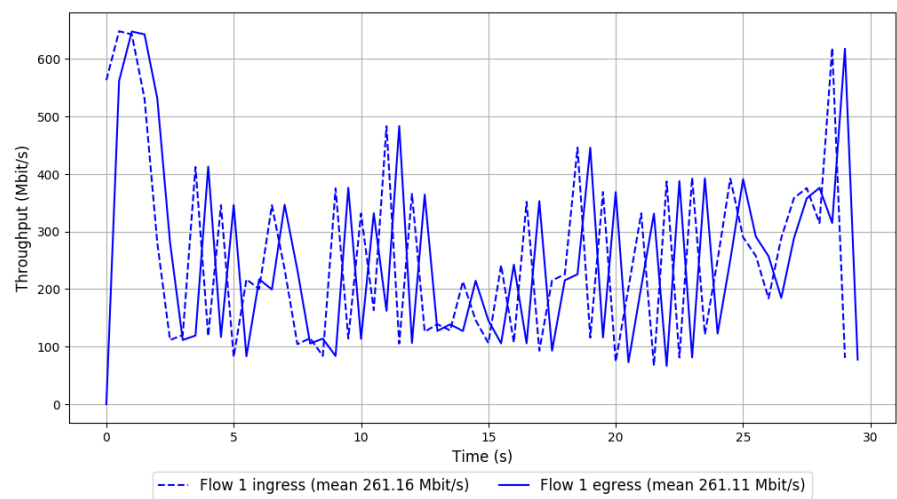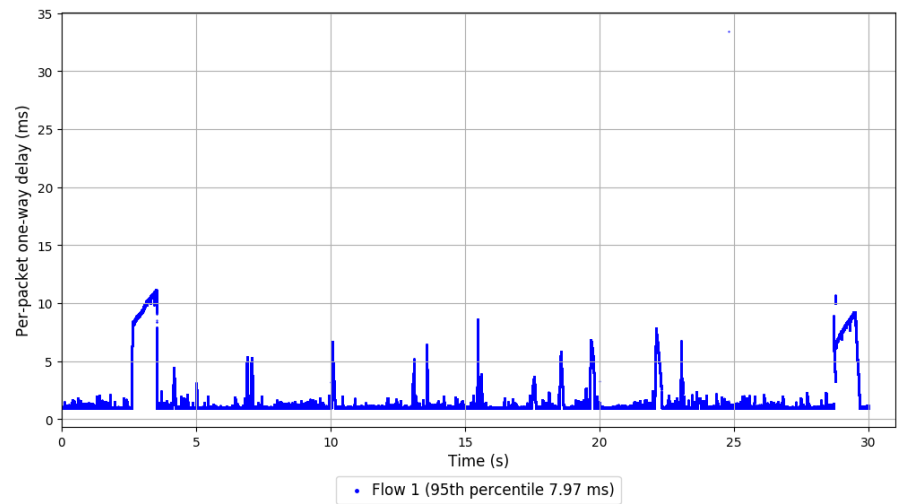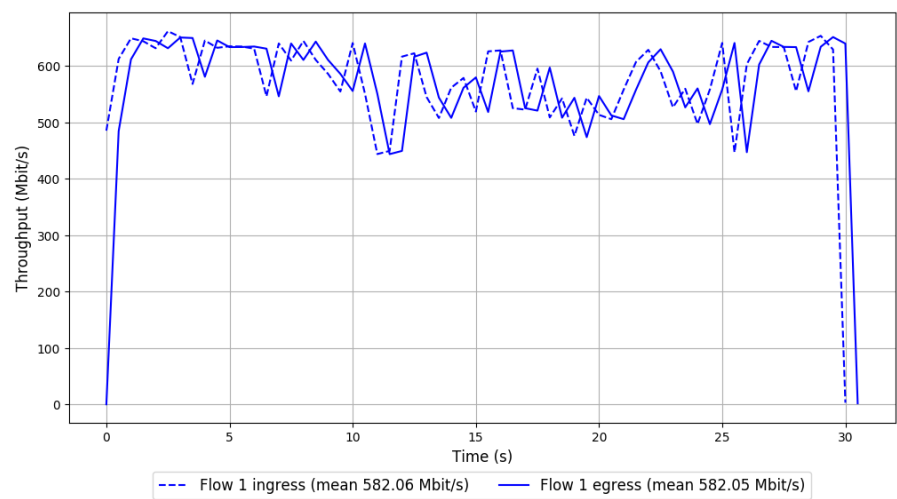
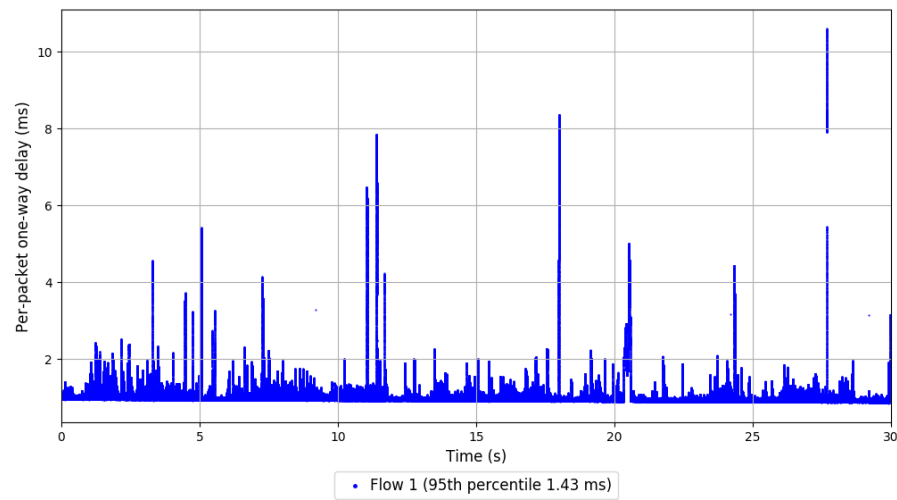Run 5: Report of Indigo-MusesT — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2018-12-11 15:44:32
End at: 2018-12-11 15:45:02
Local clock offset: 3.565 ms
Remote clock offset: -0.66 ms


# Below is generated by plot.py at 2018-12-11 18:45:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 582.05 Mbit/s
95th percentile per-packet one-way delay: 7.967 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 582.05 Mbit/s
95th percentile per-packet one-way delay: 7.967 ms
Loss rate: 0.01%
```

Run 1: Report of LEDBAT — Data Link

Flow 1 ingress (mean 582.06 Mbit/s) — Flow 1 egress (mean 582.05 Mbit/s)

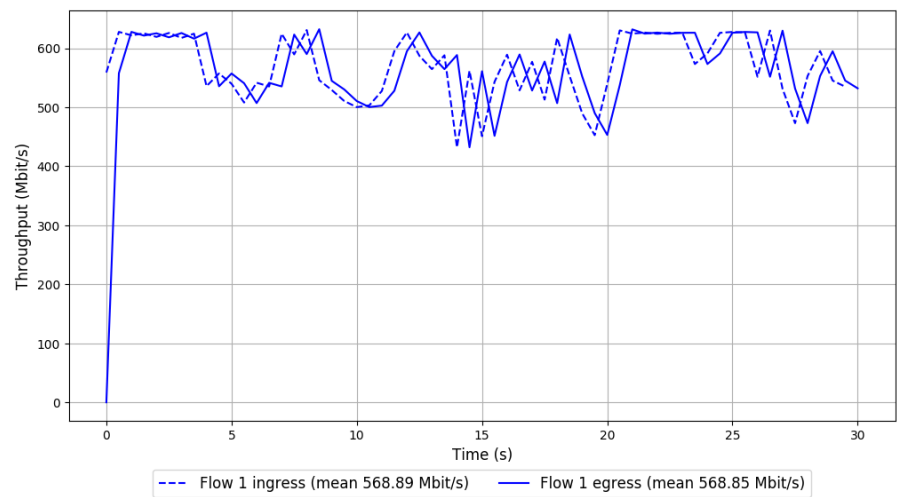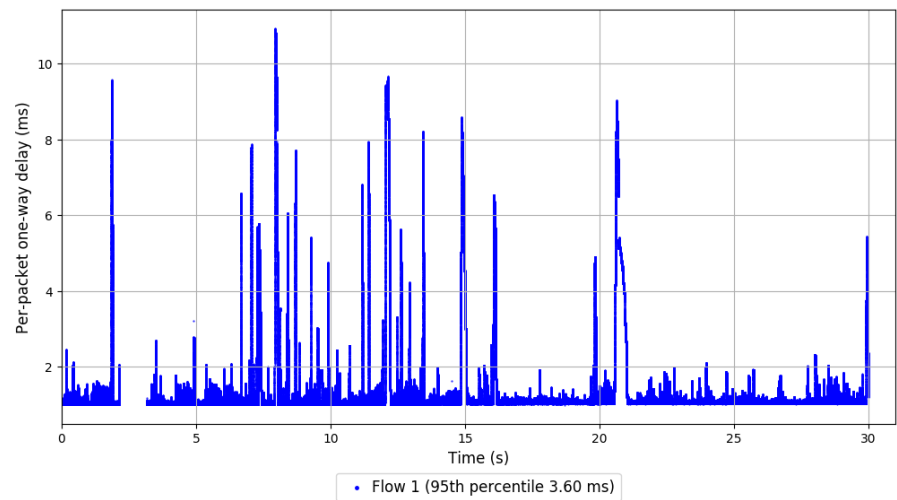Flow 1 (95th percentile 7.97 ms)

```
Run 2: Statistics of LEDBAT

Start at: 2018-12-11 16:11:38
End at: 2018-12-11 16:12:08
Local clock offset: 3.617 ms
Remote clock offset: -2.496 ms


# Below is generated by plot.py at 2018-12-11 18:45:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 568.85 Mbit/s
95th percentile per-packet one-way delay: 1.434 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 568.85 Mbit/s
95th percentile per-packet one-way delay: 1.434 ms
Loss rate: 0.01%
```

Run 2: Report of LEDBAT — Data Link

Flow 1 ingress (mean 568.89 Mbit/s)   Flow 1 egress (mean 568.85 Mbit/s)

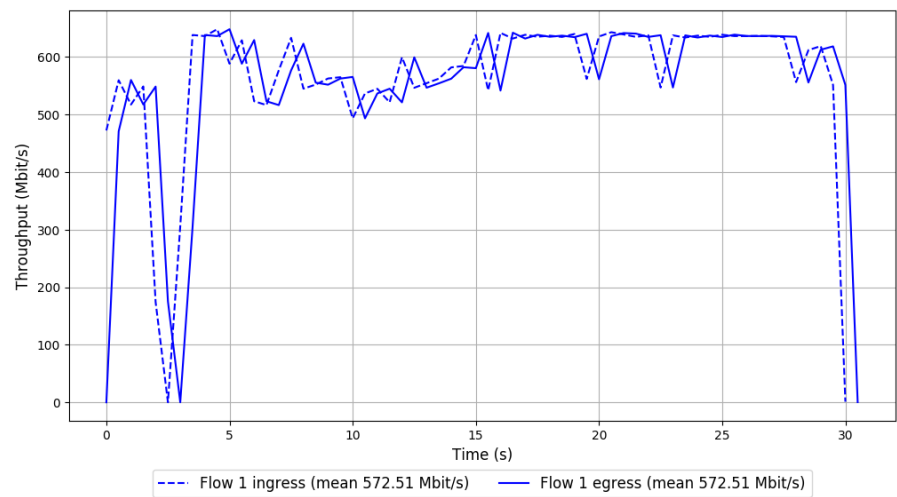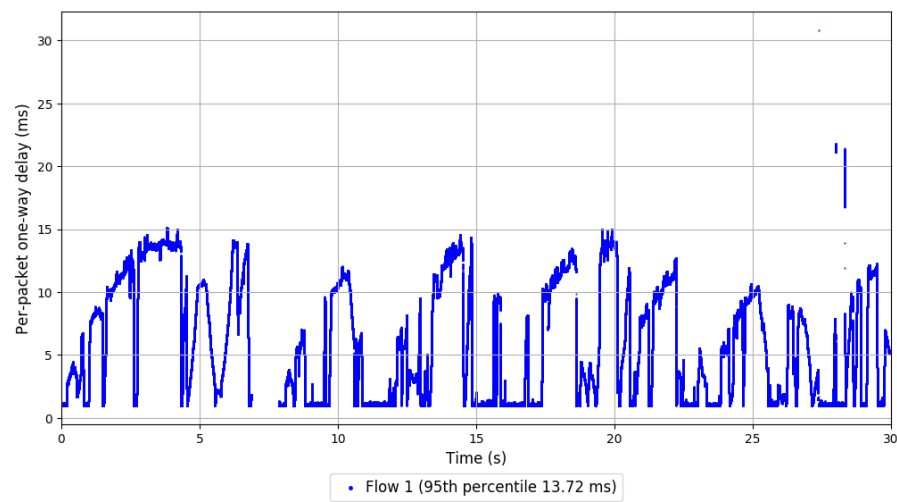• Flow 1 (95th percentile 1.43 ms)

```
Run 3: Statistics of LEDBAT

Start at: 2018-12-11 16:38:51
End at: 2018-12-11 16:39:21
Local clock offset: 3.721 ms
Remote clock offset: -4.135 ms


# Below is generated by plot.py at 2018-12-11 18:45:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 572.51 Mbit/s
95th percentile per-packet one-way delay: 3.603 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 572.51 Mbit/s
95th percentile per-packet one-way delay: 3.603 ms
Loss rate: 0.01%
```

Run 3: Report of LEDBAT — Data Link

Flow 1 ingress (mean 572.51 Mbit/s)　　Flow 1 egress (mean 572.51 Mbit/s)

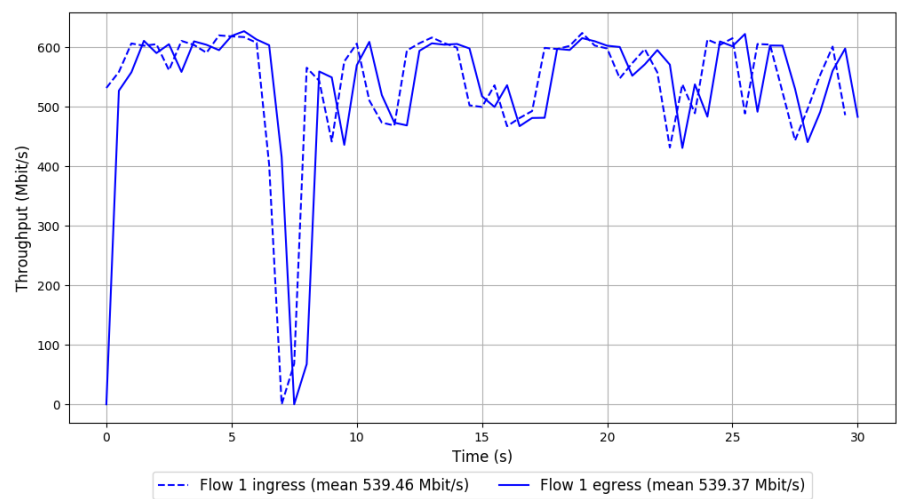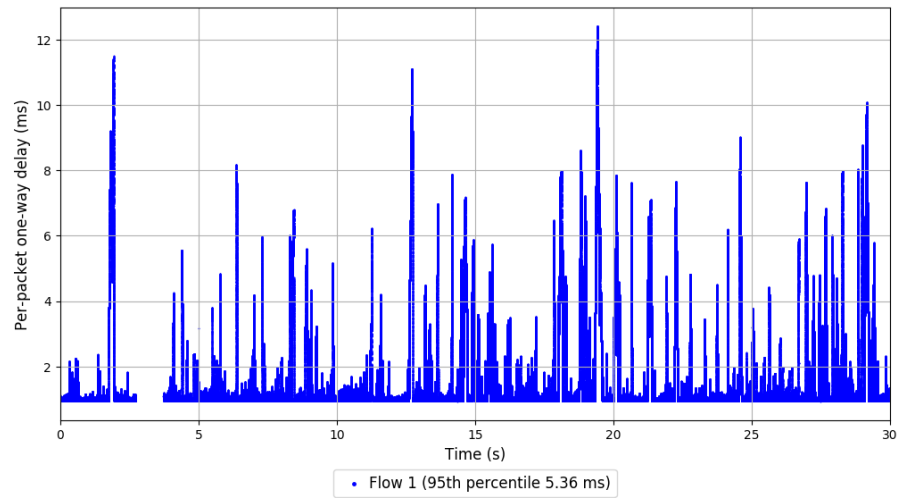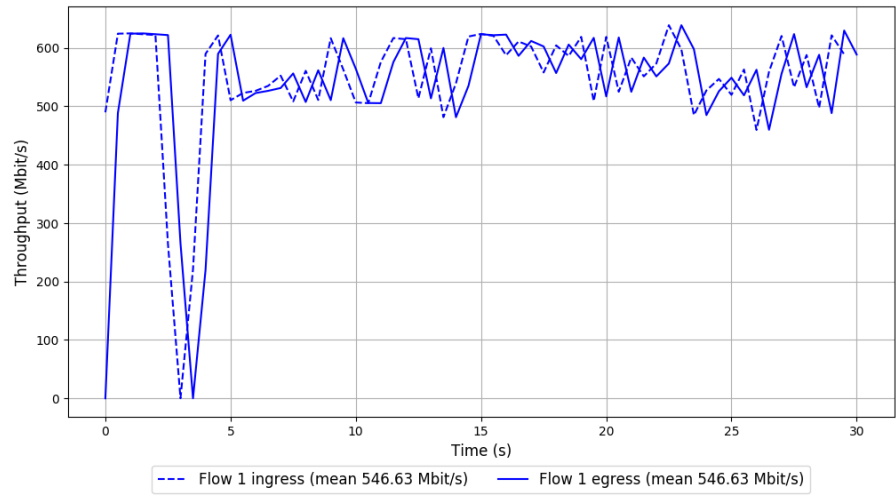Flow 1 (95th percentile 3.60 ms)

```
Run 4: Statistics of LEDBAT

Start at: 2018-12-11 17:05:46
End at: 2018-12-11 17:06:16
Local clock offset: 4.163 ms
Remote clock offset: -3.794 ms


# Below is generated by plot.py at 2018-12-11 18:46:27
# Datalink statistics
-- Total of 1 flow:
Average throughput: 539.37 Mbit/s
95th percentile per-packet one-way delay: 13.721 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 539.37 Mbit/s
95th percentile per-packet one-way delay: 13.721 ms
Loss rate: 0.02%
```
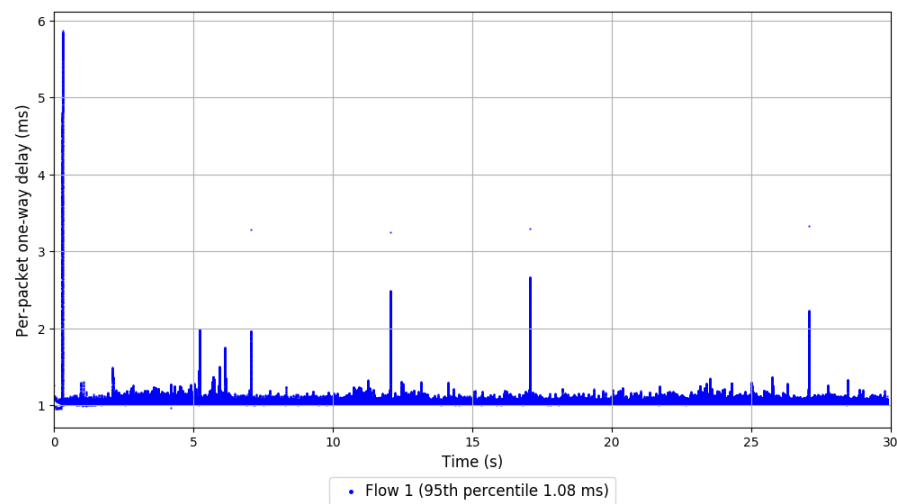
Run 4: Report of LEDBAT — Data Link

```
Run 5: Statistics of LEDBAT

Start at: 2018-12-11 17:32:31
End at: 2018-12-11 17:33:01
Local clock offset: 4.603 ms
Remote clock offset: -3.216 ms

# Below is generated by plot.py at 2018-12-11 18:46:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 546.63 Mbit/s
95th percentile per-packet one-way delay: 5.361 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 546.63 Mbit/s
95th percentile per-packet one-way delay: 5.361 ms
Loss rate: 0.01%
```

Run 5: Report of LEDBAT — Data Link

Flow 1 ingress (mean 546.63 Mbit/s)   Flow 1 egress (mean 546.63 Mbit/s)

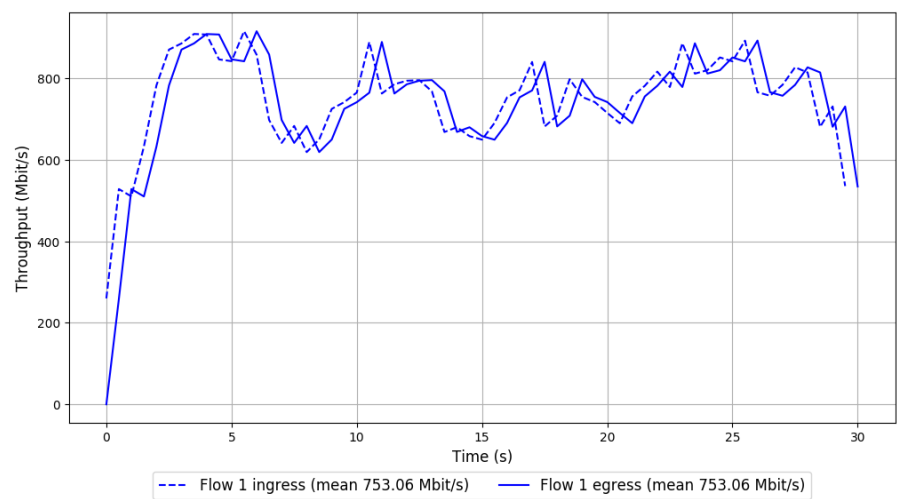Flow 1 (95th percentile 5.36 ms)

```
Run 1: Statistics of PCC-Allegro

Start at: 2018-12-11 15:58:23
End at: 2018-12-11 15:58:53
Local clock offset: 3.609 ms
Remote clock offset: -0.584 ms


# Below is generated by plot.py at 2018-12-11 18:50:48
# Datalink statistics
-- Total of 1 flow:
Average throughput: 753.06 Mbit/s
95th percentile per-packet one-way delay: 1.084 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 753.06 Mbit/s
95th percentile per-packet one-way delay: 1.084 ms
Loss rate: 0.01%
```

Run 1: Report of PCC-Allegro — Data Link

```
Run 2: Statistics of PCC-Allegro

Start at: 2018-12-11 16:25:33
End at: 2018-12-11 16:26:04
Local clock offset: 3.727 ms
Remote clock offset: -3.704 ms


# Below is generated by plot.py at 2018-12-11 18:52:02
# Datalink statistics
-- Total of 1 flow:
Average throughput: 753.34 Mbit/s
95th percentile per-packet one-way delay: 1.111 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 753.34 Mbit/s
95th percentile per-packet one-way delay: 1.111 ms
Loss rate: 0.01%
```
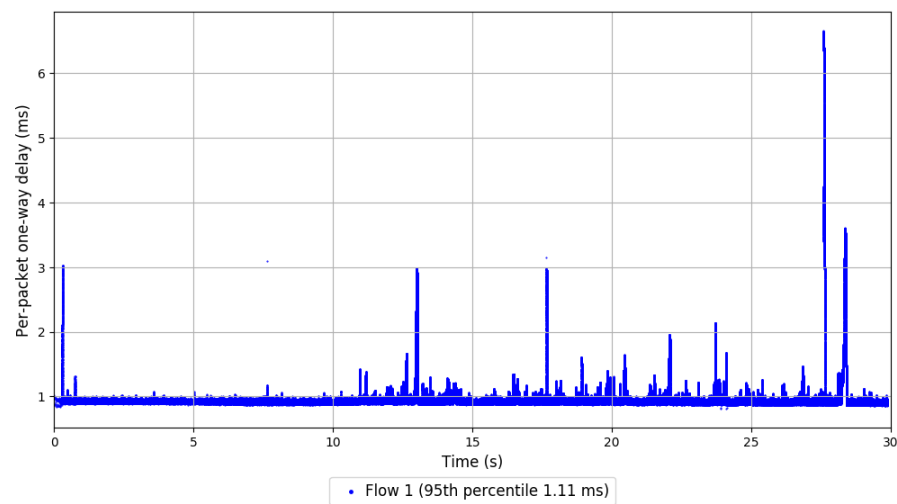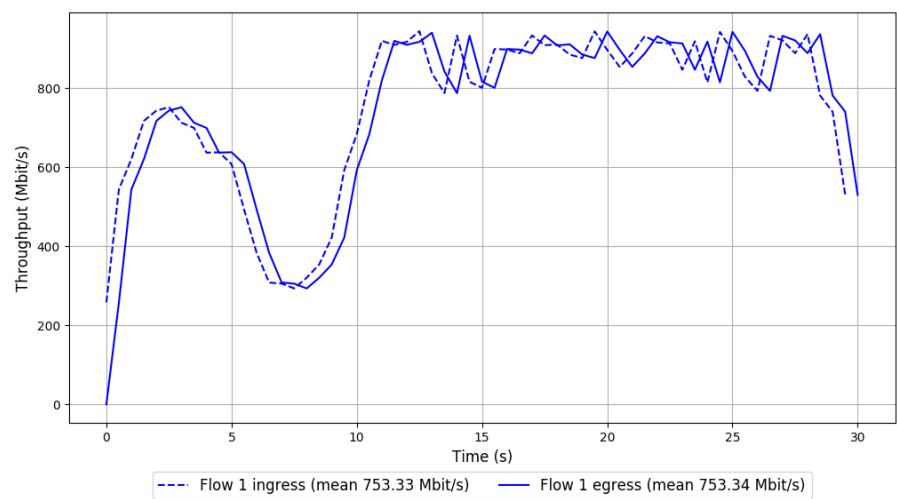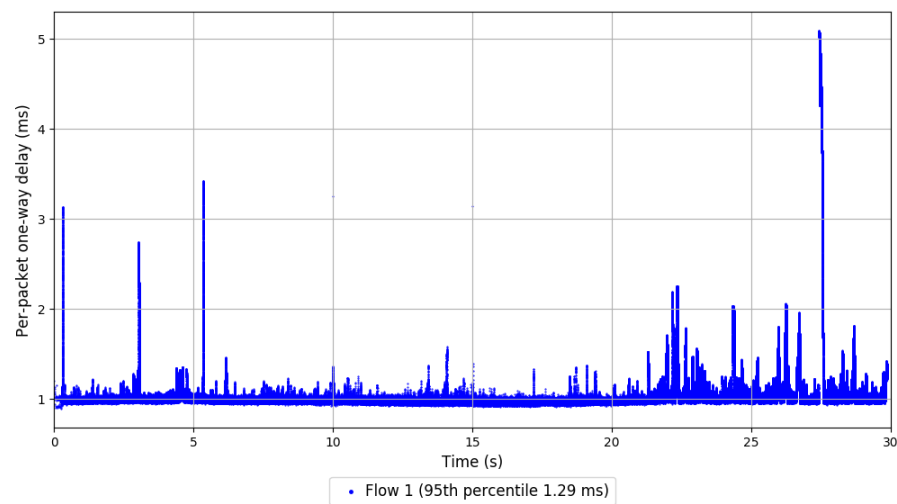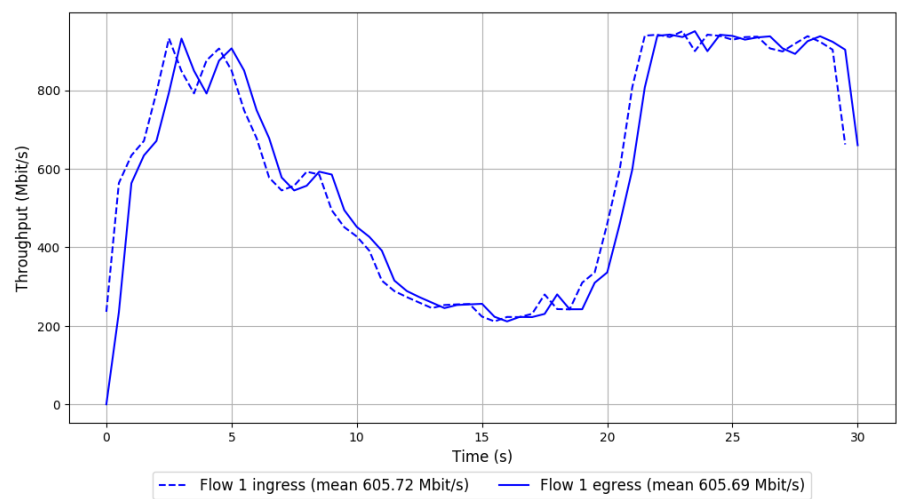
Run 2: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 753.33 Mbit/s) ---- Flow 1 egress (mean 753.34 Mbit/s)

• Flow 1 (95th percentile 1.11 ms)

```
Run 3: Statistics of PCC-Allegro

Start at: 2018-12-11 16:52:22
End at: 2018-12-11 16:52:52
Local clock offset: 4.1 ms
Remote clock offset: -3.601 ms


# Below is generated by plot.py at 2018-12-11 18:52:02
# Datalink statistics
-- Total of 1 flow:
Average throughput: 605.69 Mbit/s
95th percentile per-packet one-way delay: 1.292 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 605.69 Mbit/s
95th percentile per-packet one-way delay: 1.292 ms
Loss rate: 0.01%
```
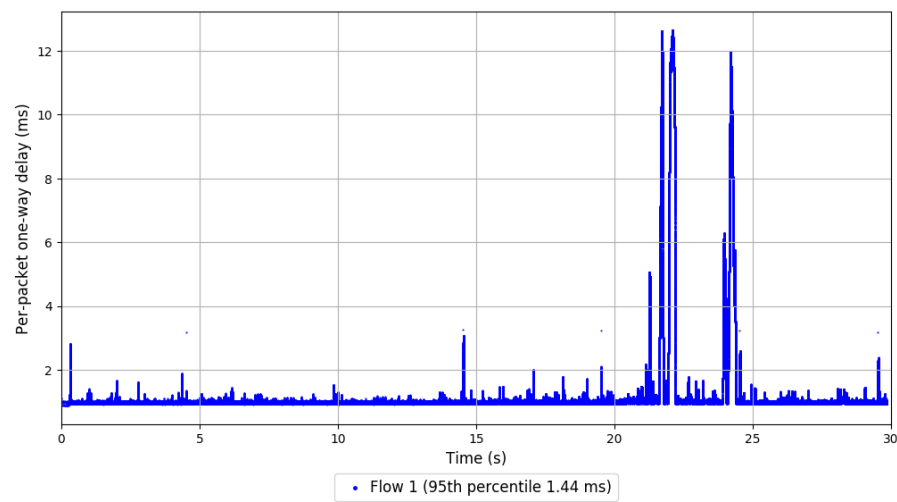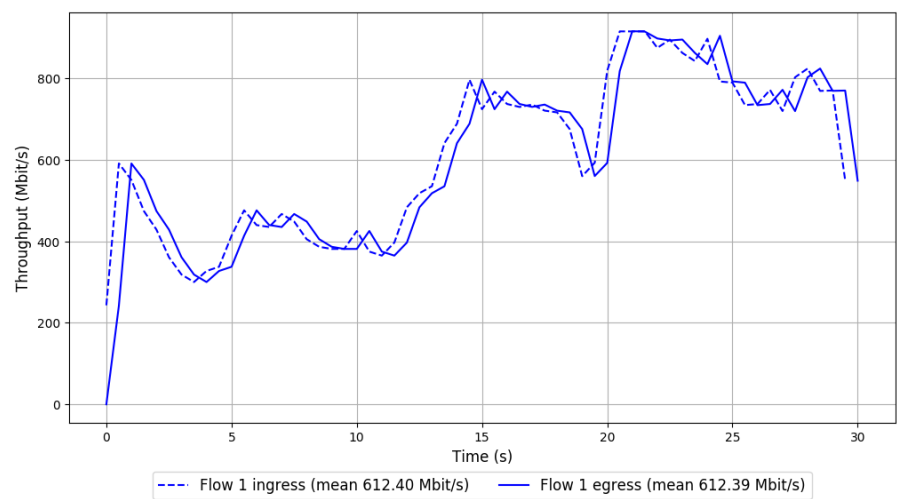
Run 3: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 605.72 Mbit/s) --- Flow 1 egress (mean 605.69 Mbit/s)

Flow 1 (95th percentile 1.29 ms)

```
Run 4: Statistics of PCC-Allegro

Start at: 2018-12-11 17:19:18
End at: 2018-12-11 17:19:48
Local clock offset: 4.45 ms
Remote clock offset: -3.309 ms


# Below is generated by plot.py at 2018-12-11 18:52:22
# Datalink statistics
-- Total of 1 flow:
Average throughput: 612.39 Mbit/s
95th percentile per-packet one-way delay: 1.436 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 612.39 Mbit/s
95th percentile per-packet one-way delay: 1.436 ms
Loss rate: 0.01%
```
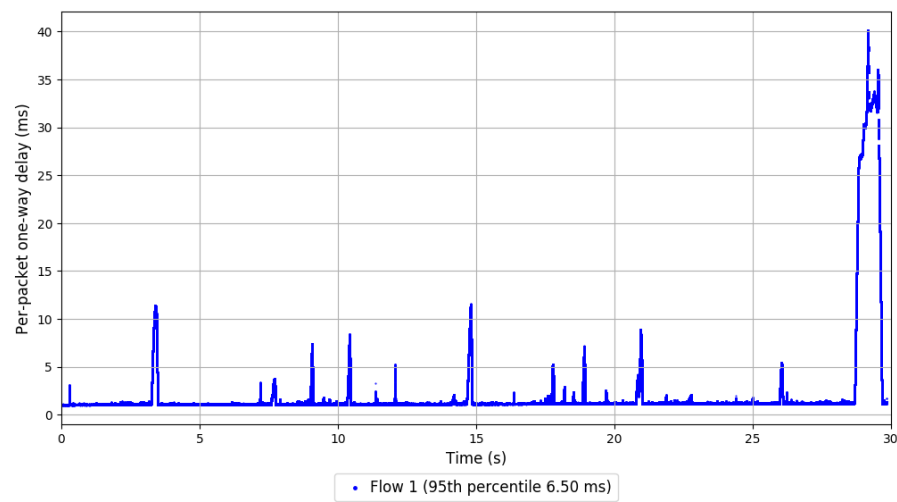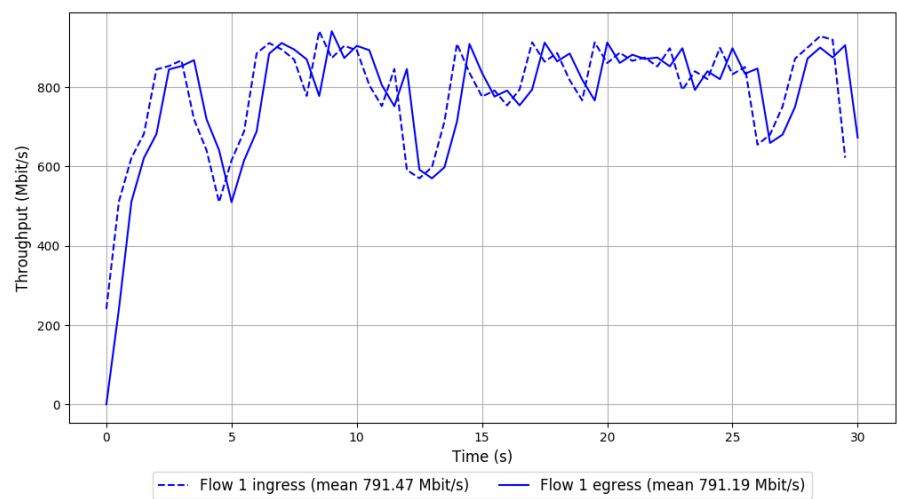
Run 4: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 612.40 Mbit/s)　　　Flow 1 egress (mean 612.39 Mbit/s)

Flow 1 (95th percentile 1.44 ms)

```
Run 5: Statistics of PCC-Allegro

Start at: 2018-12-11 17:46:01
End at: 2018-12-11 17:46:31
Local clock offset: 4.836 ms
Remote clock offset: -2.807 ms


# Below is generated by plot.py at 2018-12-11 18:54:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 791.19 Mbit/s
95th percentile per-packet one-way delay: 6.505 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 791.19 Mbit/s
95th percentile per-packet one-way delay: 6.505 ms
Loss rate: 0.04%
```
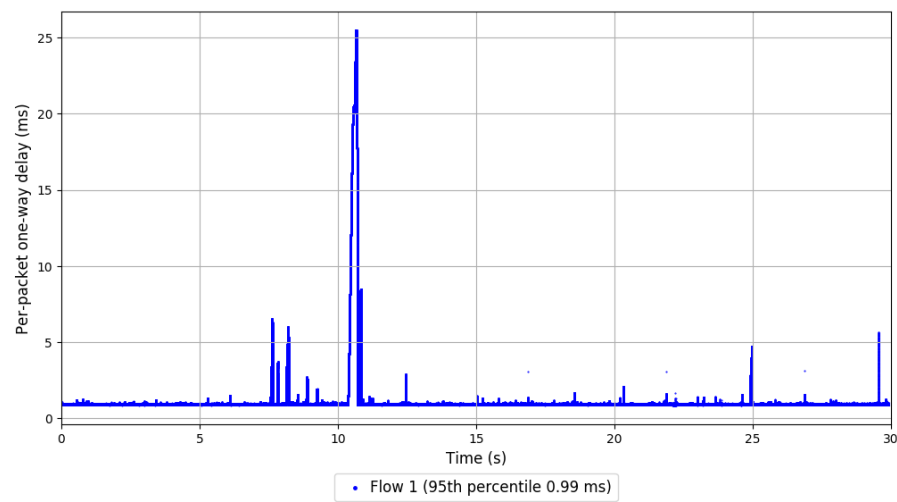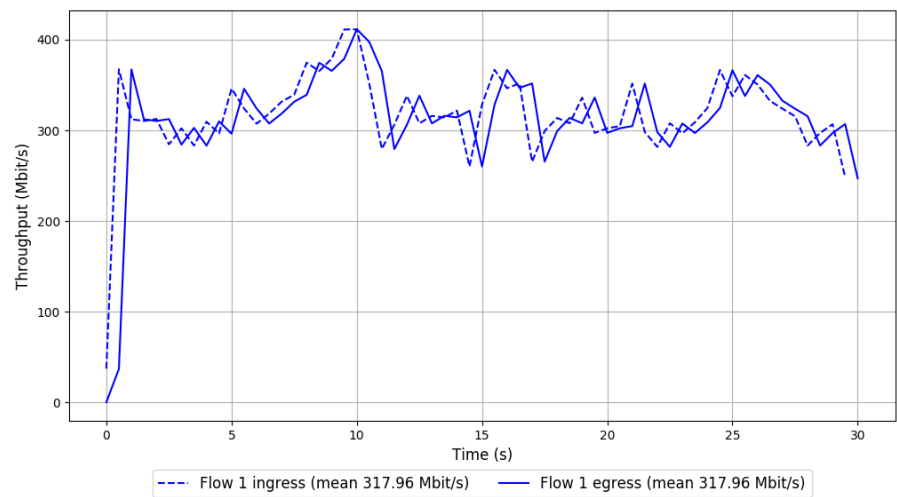
Run 5: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 791.47 Mbit/s) --- Flow 1 egress (mean 791.19 Mbit/s)
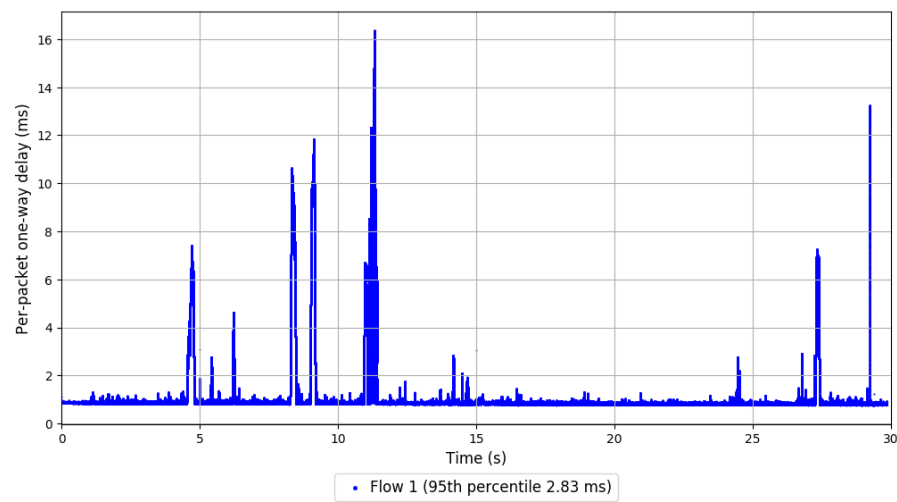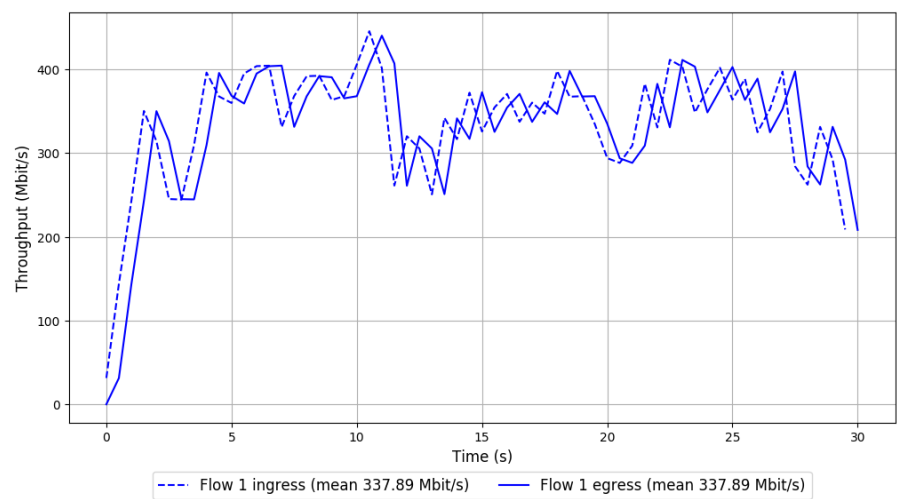

Flow 1 (95th percentile 6.50 ms)

```
Run 1: Statistics of PCC-Expr

Start at: 2018-12-11 15:46:09
End at: 2018-12-11 15:46:39
Local clock offset: 3.568 ms
Remote clock offset: -0.557 ms


# Below is generated by plot.py at 2018-12-11 18:54:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 317.96 Mbit/s
95th percentile per-packet one-way delay: 0.995 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 317.96 Mbit/s
95th percentile per-packet one-way delay: 0.995 ms
Loss rate: 0.01%
```
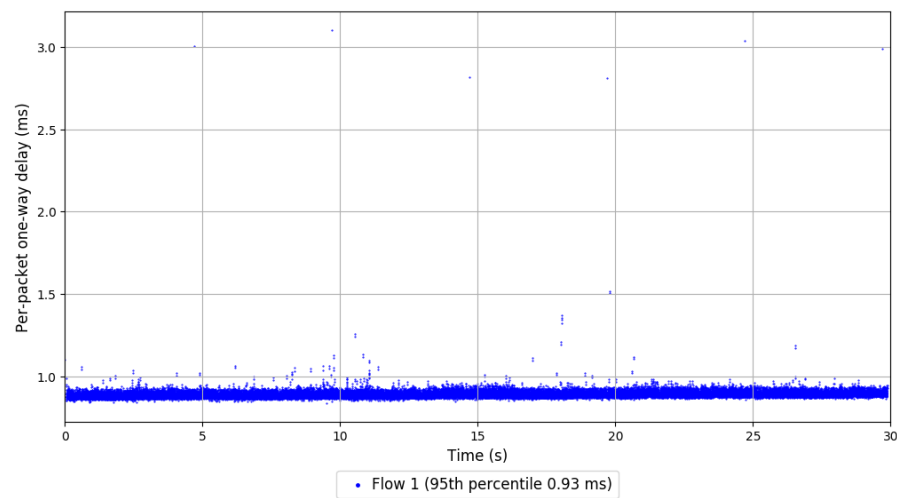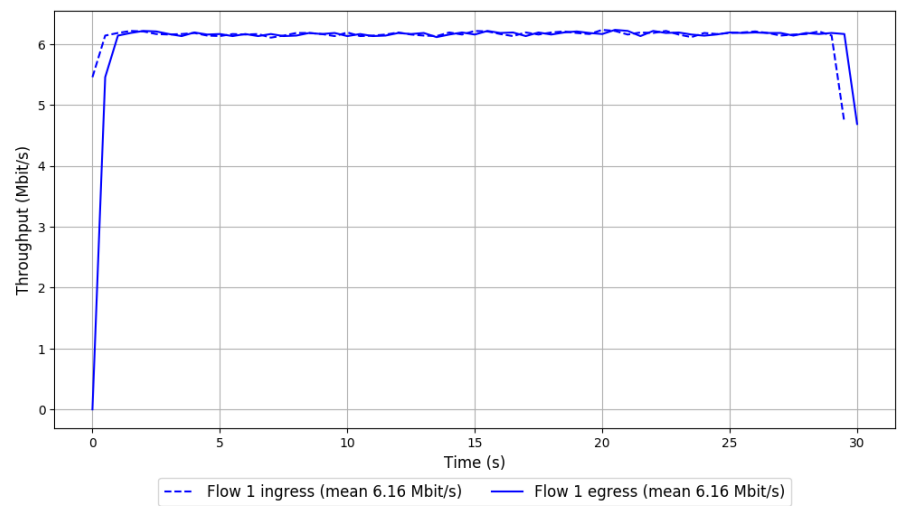
Run 1: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 317.96 Mbit/s) --- Flow 1 egress (mean 317.96 Mbit/s)

Flow 1 (95th percentile 0.99 ms)

```
Run 2: Statistics of PCC-Expr

Start at: 2018-12-11 16:13:14
End at: 2018-12-11 16:13:44
Local clock offset: 3.642 ms
Remote clock offset: -2.614 ms


# Below is generated by plot.py at 2018-12-11 18:54:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 337.89 Mbit/s
95th percentile per-packet one-way delay: 2.833 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 337.89 Mbit/s
95th percentile per-packet one-way delay: 2.833 ms
Loss rate: 0.01%
```

Run 2: Report of PCC-Expr — Data Link

```
Run 3: Statistics of PCC-Expr

Start at: 2018-12-11 16:40:28
End at: 2018-12-11 16:40:58
Local clock offset: 3.802 ms
Remote clock offset: -3.836 ms


# Below is generated by plot.py at 2018-12-11 18:54:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.16 Mbit/s
95th percentile per-packet one-way delay: 0.926 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 6.16 Mbit/s
95th percentile per-packet one-way delay: 0.926 ms
Loss rate: 0.01%
```
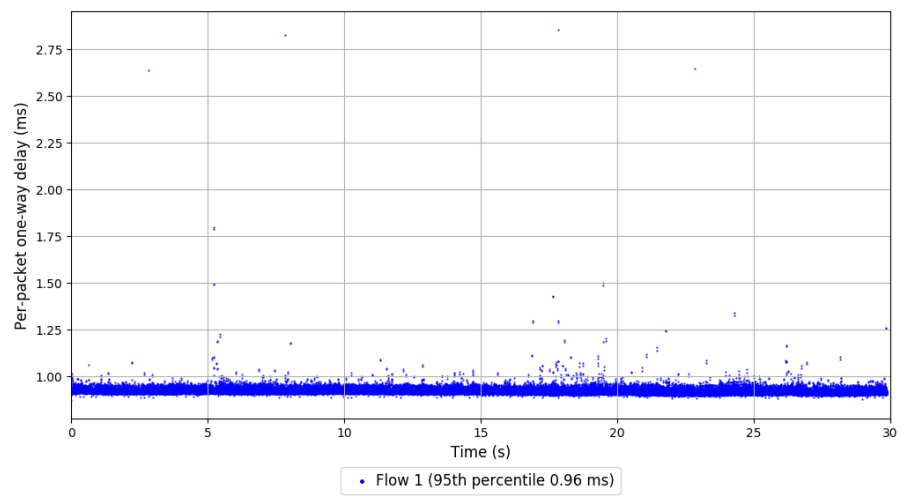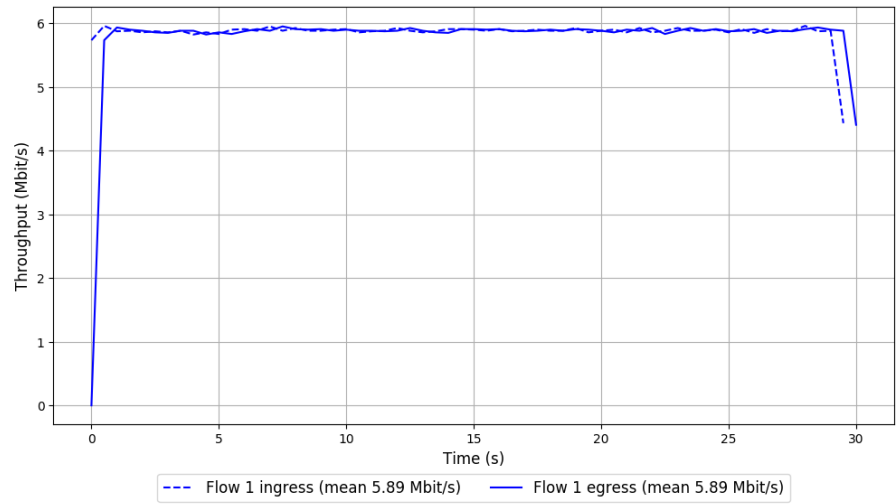
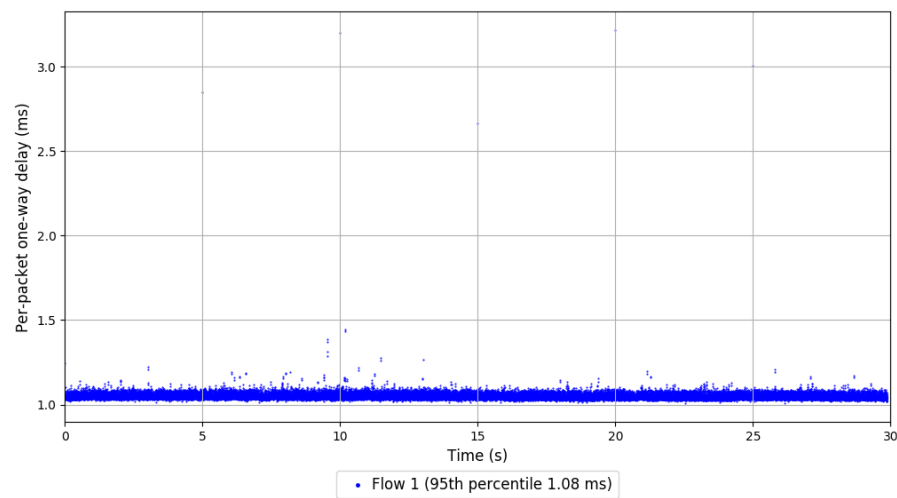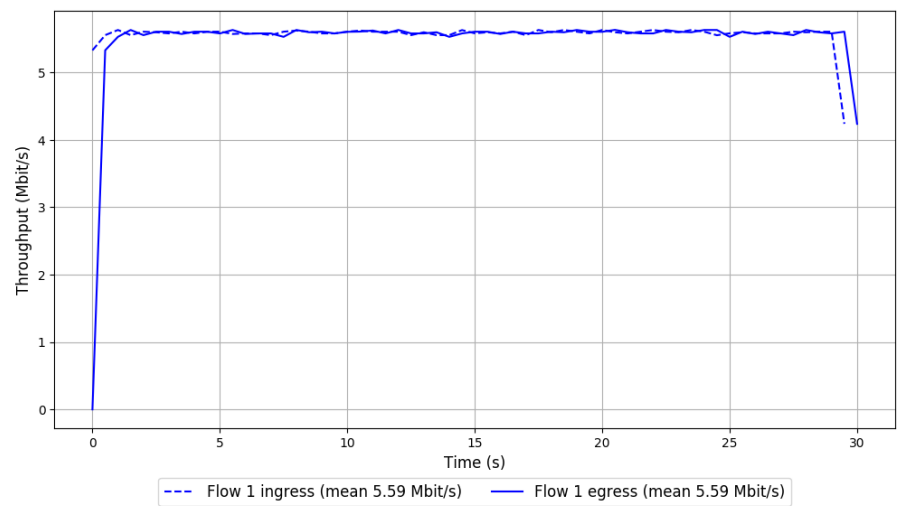## Run 3: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 6.16 Mbit/s) --- Flow 1 egress (mean 6.16 Mbit/s)

Flow 1 (95th percentile 0.93 ms)

```
Run 4: Statistics of PCC-Expr

Start at: 2018-12-11 17:07:22
End at: 2018-12-11 17:07:52
Local clock offset: 4.153 ms
Remote clock offset: -3.73 ms


# Below is generated by plot.py at 2018-12-11 18:54:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.89 Mbit/s
95th percentile per-packet one-way delay: 0.956 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 5.89 Mbit/s
95th percentile per-packet one-way delay: 0.956 ms
Loss rate: 0.01%
```

Run 4: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 5.89 Mbit/s)   Flow 1 egress (mean 5.89 Mbit/s)

Flow 1 (95th percentile 0.96 ms)

```
Run 5: Statistics of PCC-Expr

Start at: 2018-12-11 17:34:07
End at: 2018-12-11 17:34:37
Local clock offset: 4.645 ms
Remote clock offset: -3.234 ms


# Below is generated by plot.py at 2018-12-11 18:54:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.59 Mbit/s
95th percentile per-packet one-way delay: 1.083 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 5.59 Mbit/s
95th percentile per-packet one-way delay: 1.083 ms
Loss rate: 0.01%
```
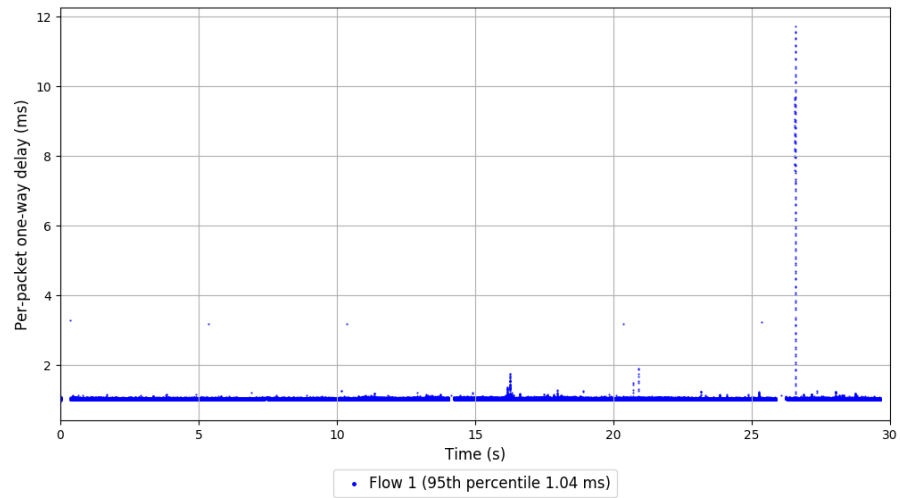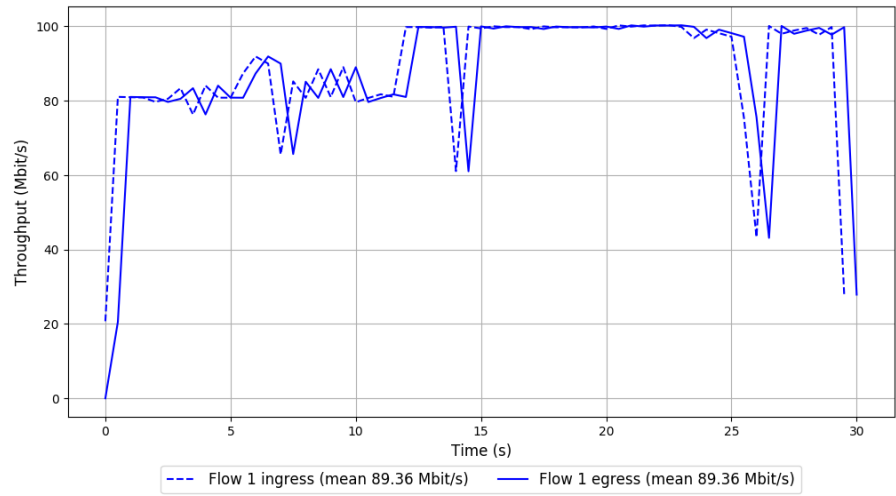
Run 5: Report of PCC-Expr — Data Link

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-12-11 15:55:48
End at: 2018-12-11 15:56:18
Local clock offset: 3.598 ms
Remote clock offset: -0.572 ms


# Below is generated by plot.py at 2018-12-11 18:54:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 89.36 Mbit/s
95th percentile per-packet one-way delay: 1.037 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 89.36 Mbit/s
95th percentile per-packet one-way delay: 1.037 ms
Loss rate: 0.01%
```
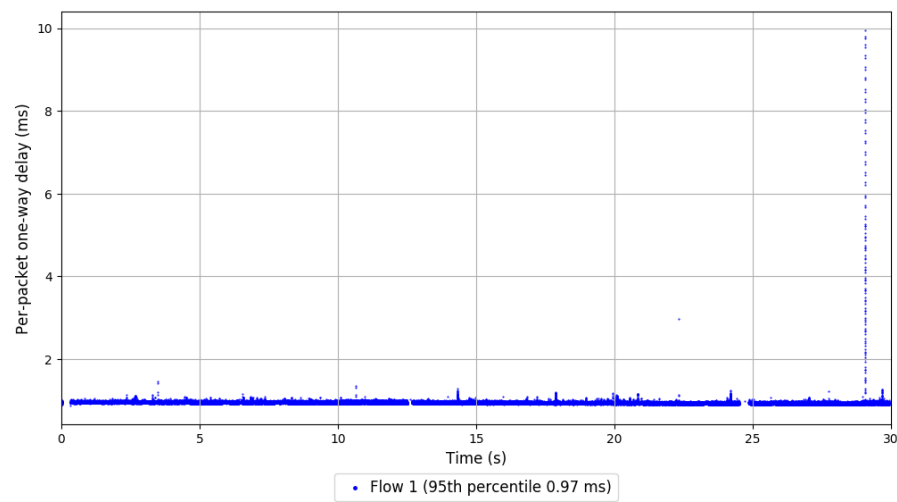
Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-12-11 16:22:58
End at: 2018-12-11 16:23:28
Local clock offset: 3.718 ms
Remote clock offset: -3.559 ms


# Below is generated by plot.py at 2018-12-11 18:54:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 93.21 Mbit/s
95th percentile per-packet one-way delay: 0.971 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 93.21 Mbit/s
95th percentile per-packet one-way delay: 0.971 ms
Loss rate: 0.01%
```
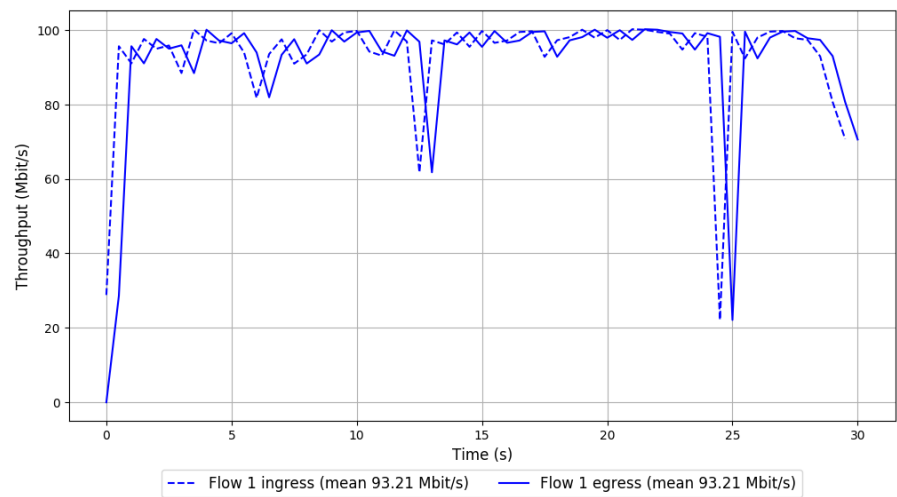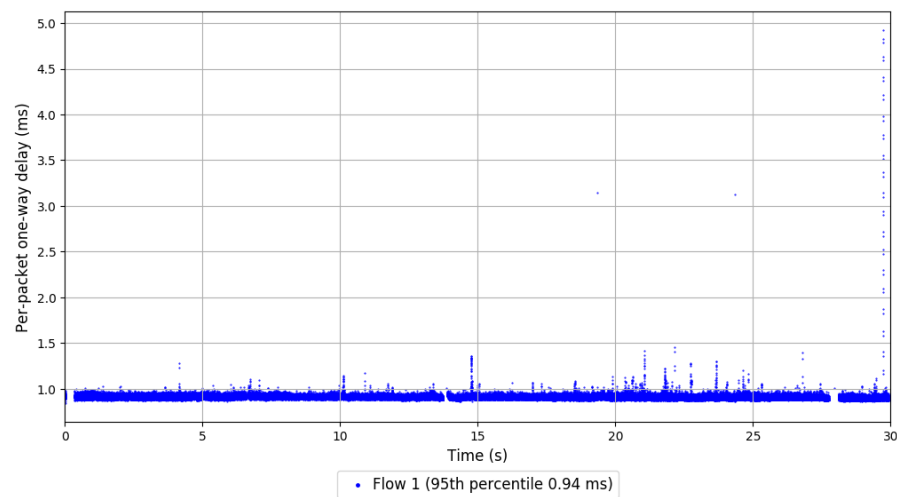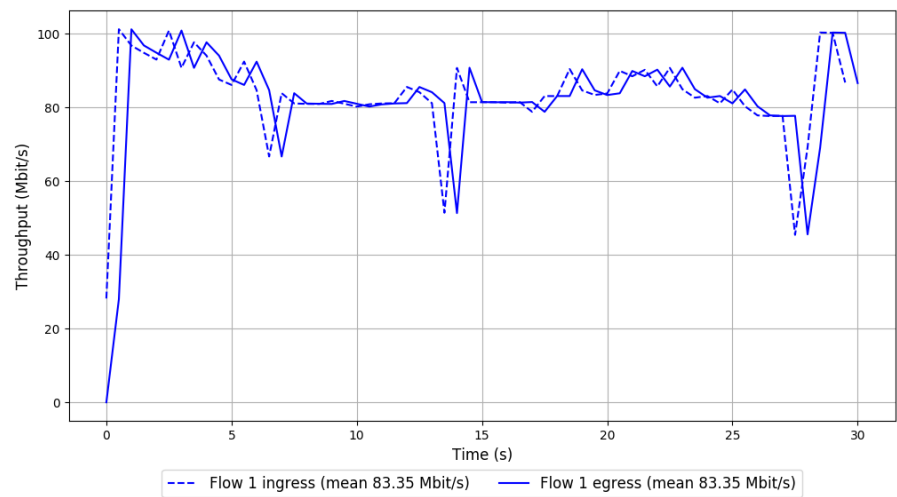
Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-12-11 16:49:47
End at: 2018-12-11 16:50:17
Local clock offset: 4.062 ms
Remote clock offset: -3.514 ms


# Below is generated by plot.py at 2018-12-11 18:54:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 83.35 Mbit/s
95th percentile per-packet one-way delay: 0.935 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 83.35 Mbit/s
95th percentile per-packet one-way delay: 0.935 ms
Loss rate: 0.01%
```
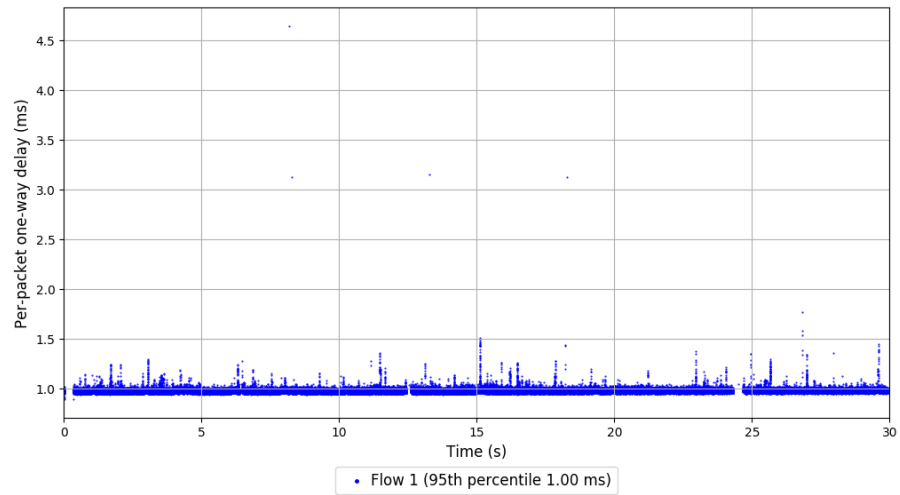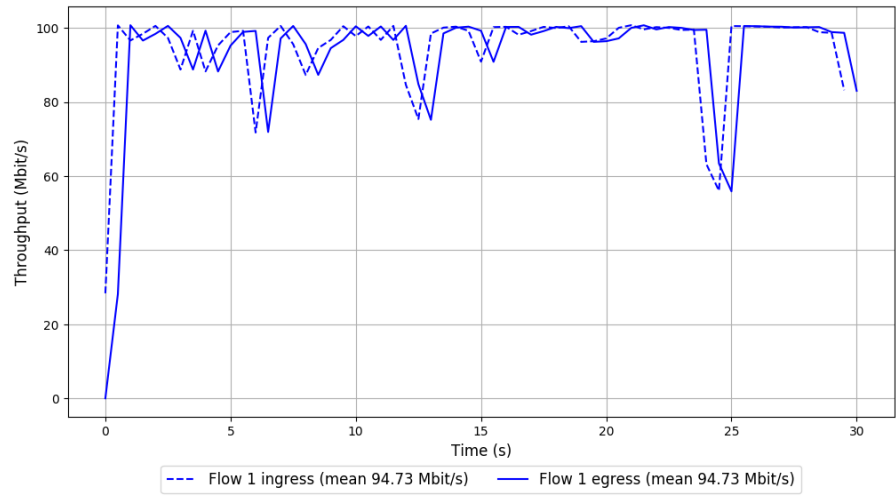
Run 3: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 83.35 Mbit/s)   Flow 1 egress (mean 83.35 Mbit/s)

Flow 1 (95th percentile 0.94 ms)

```
Run 4: Statistics of QUIC Cubic

Start at: 2018-12-11 17:16:42
End at: 2018-12-11 17:17:12
Local clock offset: 4.394 ms
Remote clock offset: -3.416 ms


# Below is generated by plot.py at 2018-12-11 18:54:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 94.73 Mbit/s
95th percentile per-packet one-way delay: 1.001 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 94.73 Mbit/s
95th percentile per-packet one-way delay: 1.001 ms
Loss rate: 0.01%
```
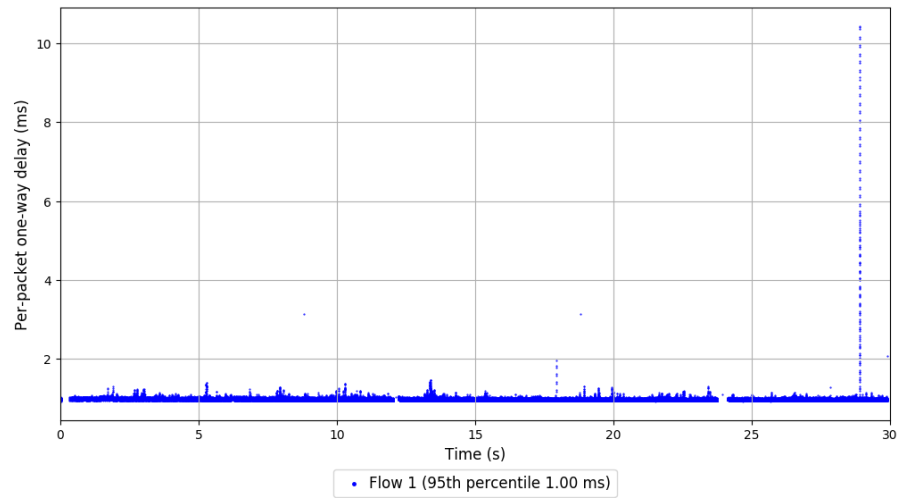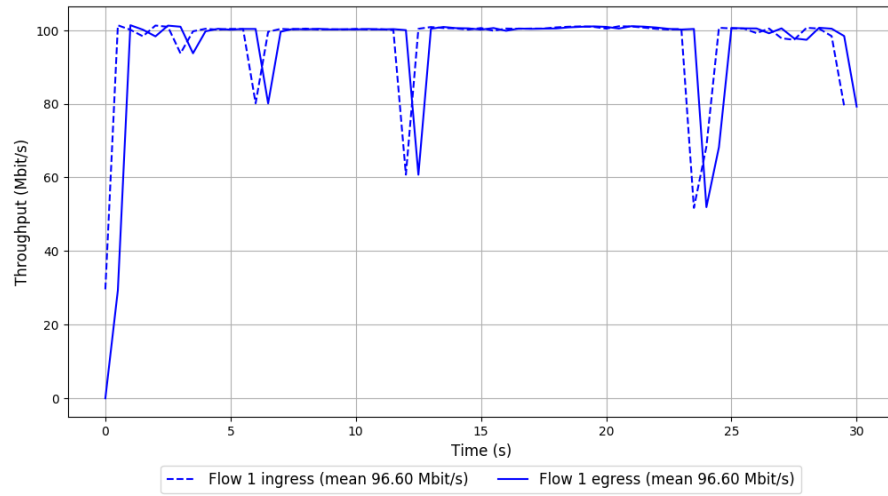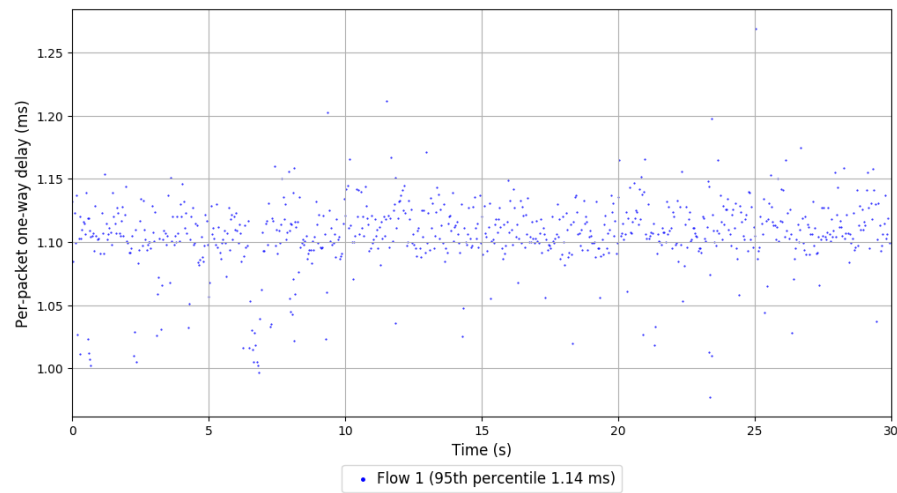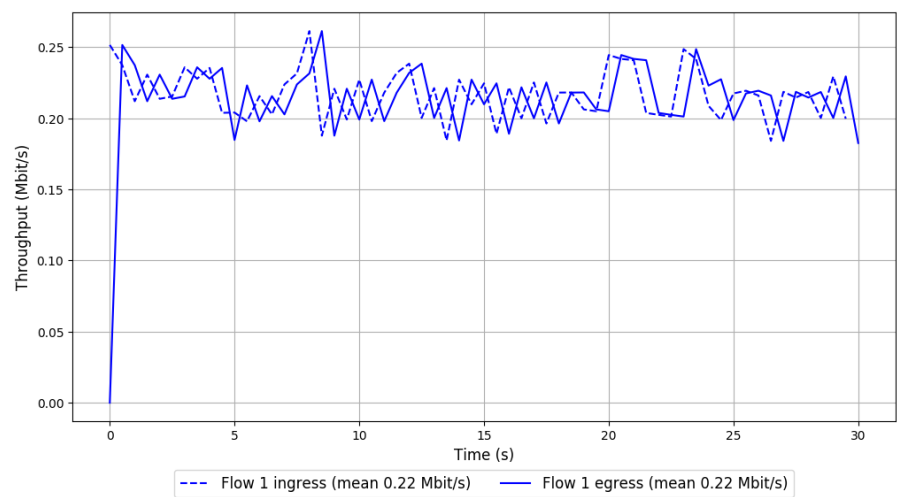
Run 4: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 94.73 Mbit/s) — Flow 1 egress (mean 94.73 Mbit/s)

- Flow 1 (95th percentile 1.00 ms)

```
Run 5: Statistics of QUIC Cubic

Start at: 2018-12-11 17:43:26
End at: 2018-12-11 17:43:56
Local clock offset: 4.784 ms
Remote clock offset: -3.243 ms


# Below is generated by plot.py at 2018-12-11 18:54:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.60 Mbit/s
95th percentile per-packet one-way delay: 1.004 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 96.60 Mbit/s
95th percentile per-packet one-way delay: 1.004 ms
Loss rate: 0.01%
```

Run 5: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 96.60 Mbit/s)　　Flow 1 egress (mean 96.60 Mbit/s)

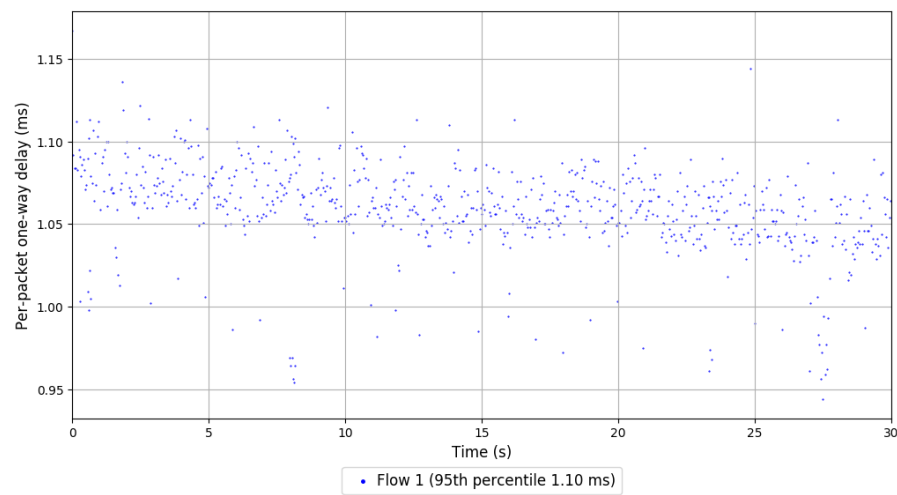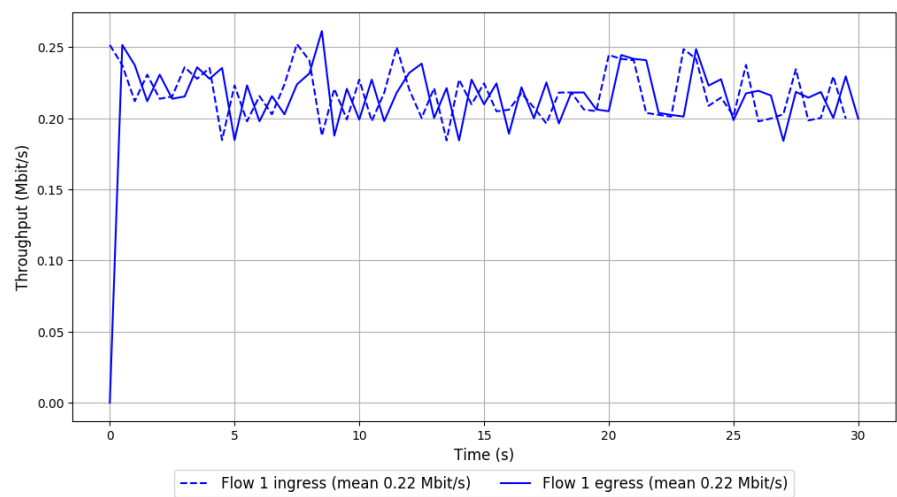Flow 1 (95th percentile 1.00 ms)

```
Run 1: Statistics of SCReAM

Start at: 2018-12-11 16:01:21
End at: 2018-12-11 16:01:51
Local clock offset: 3.6 ms
Remote clock offset: -0.518 ms

# Below is generated by plot.py at 2018-12-11 18:54:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.143 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.143 ms
Loss rate: 0.13%
```
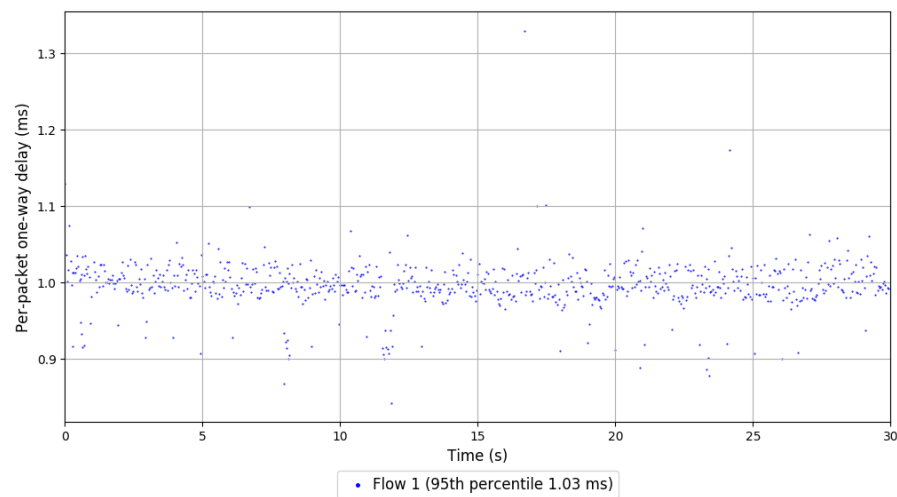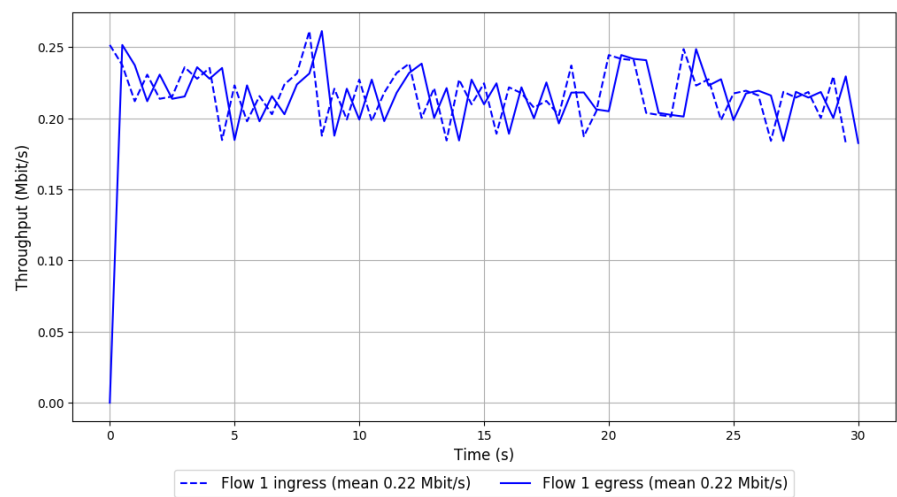
Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: 2018-12-11 16:28:30
End at: 2018-12-11 16:29:00
Local clock offset: 3.72 ms
Remote clock offset: -3.938 ms


# Below is generated by plot.py at 2018-12-11 18:54:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.097 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.097 ms
Loss rate: 0.00%
```
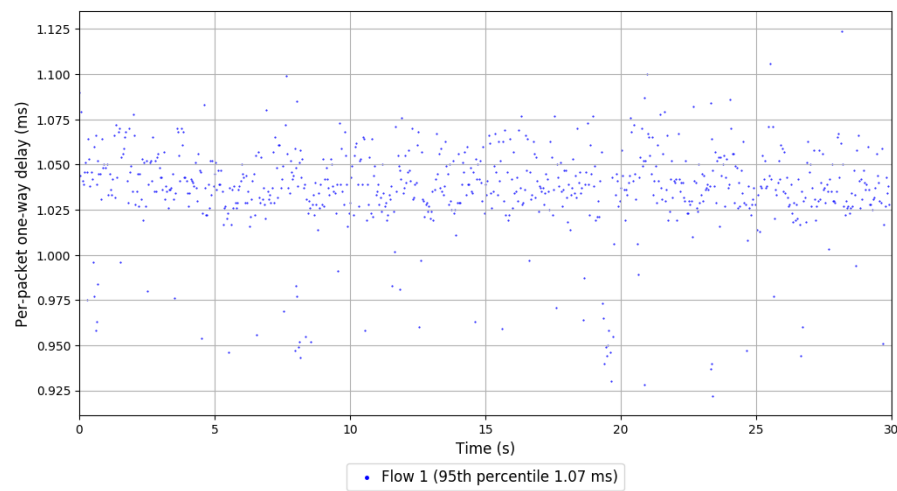
Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2018-12-11 16:55:16
End at: 2018-12-11 16:55:46
Local clock offset: 4.125 ms
Remote clock offset: -3.536 ms


# Below is generated by plot.py at 2018-12-11 18:54:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.031 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.031 ms
Loss rate: 0.00%
```

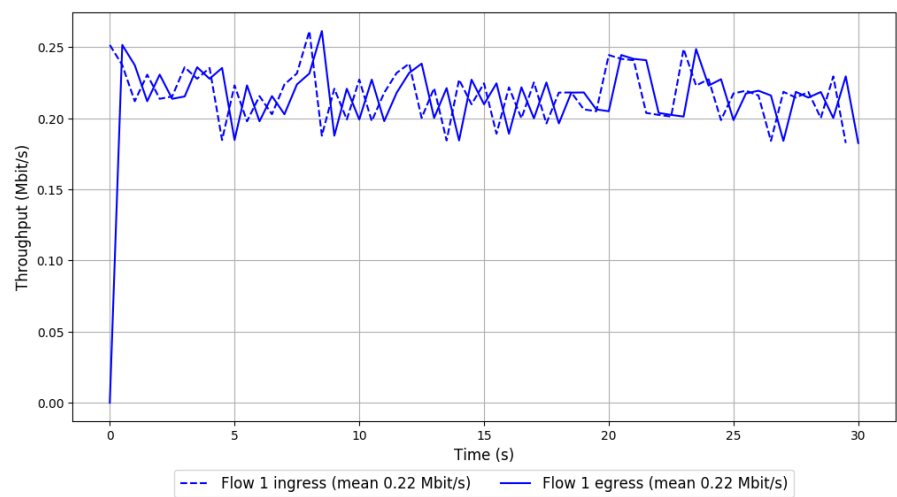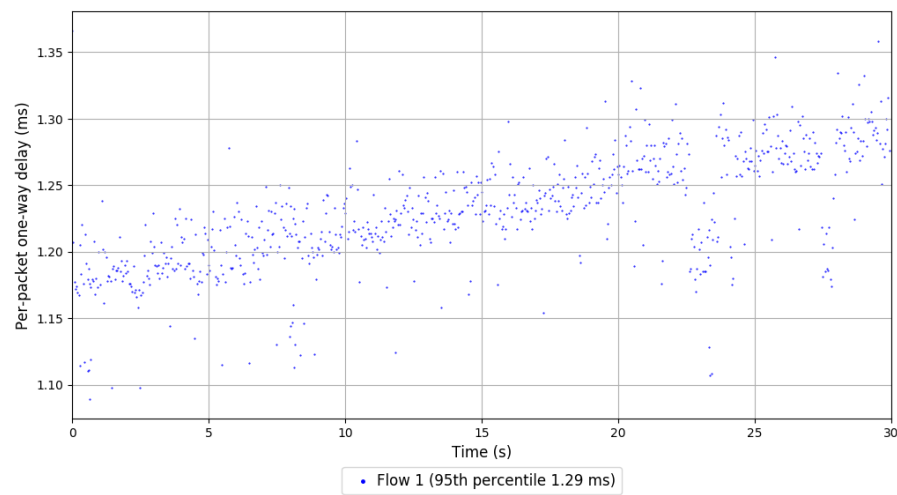## Run 3: Report of SCReAM — Data Link

```
Run 4: Statistics of SCReAM

Start at: 2018-12-11 17:22:08
End at: 2018-12-11 17:22:38
Local clock offset: 4.509 ms
Remote clock offset: -3.213 ms


# Below is generated by plot.py at 2018-12-11 18:54:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.069 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.069 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)

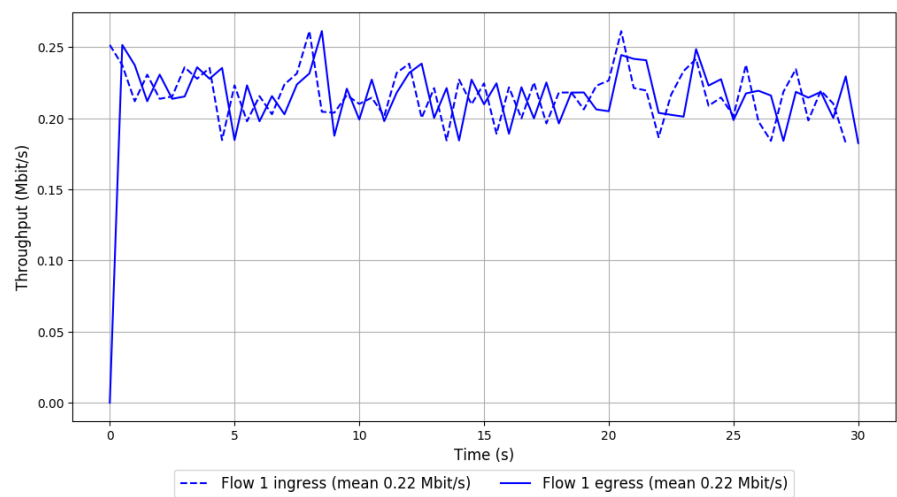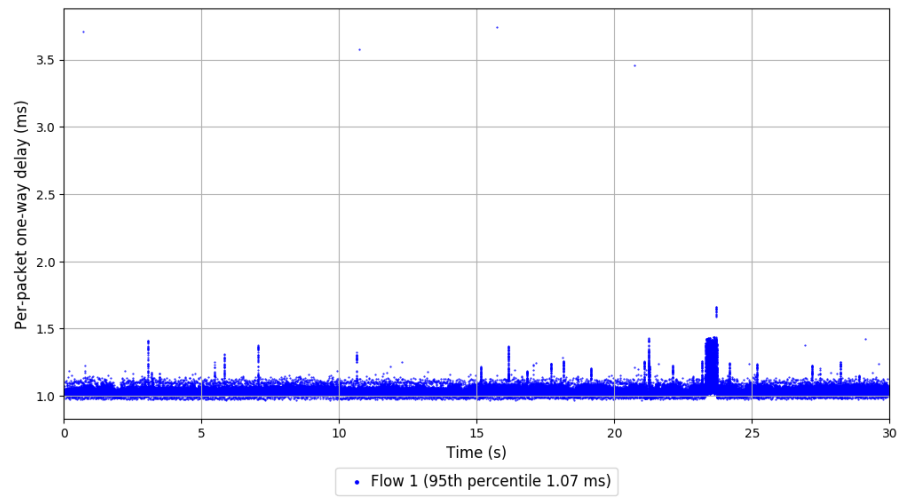Flow 1 (95th percentile 1.07 ms)

```
Run 5: Statistics of SCReAM

Start at: 2018-12-11 17:49:00
End at: 2018-12-11 17:49:30
Local clock offset: 4.884 ms
Remote clock offset: -1.943 ms


# Below is generated by plot.py at 2018-12-11 18:54:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.294 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.294 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) ——

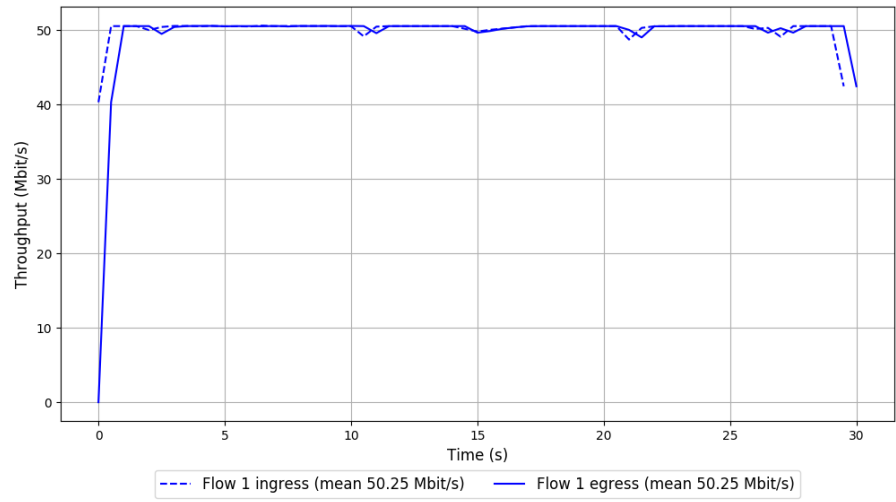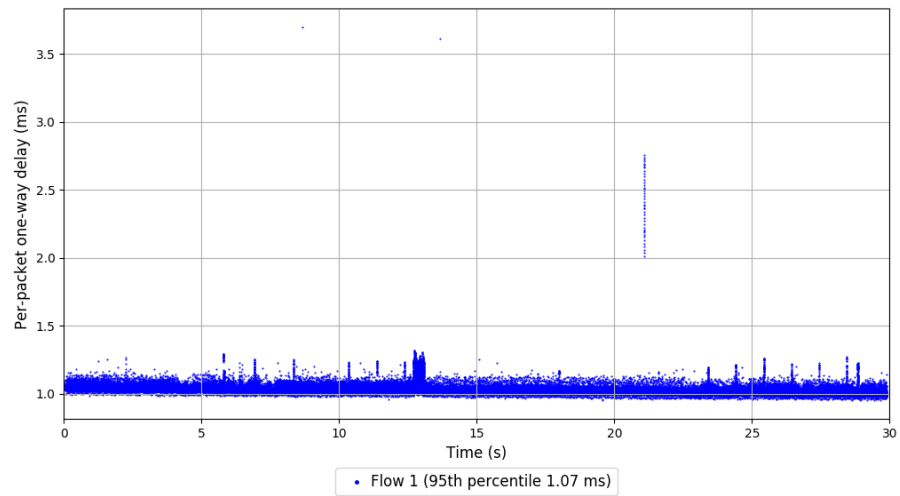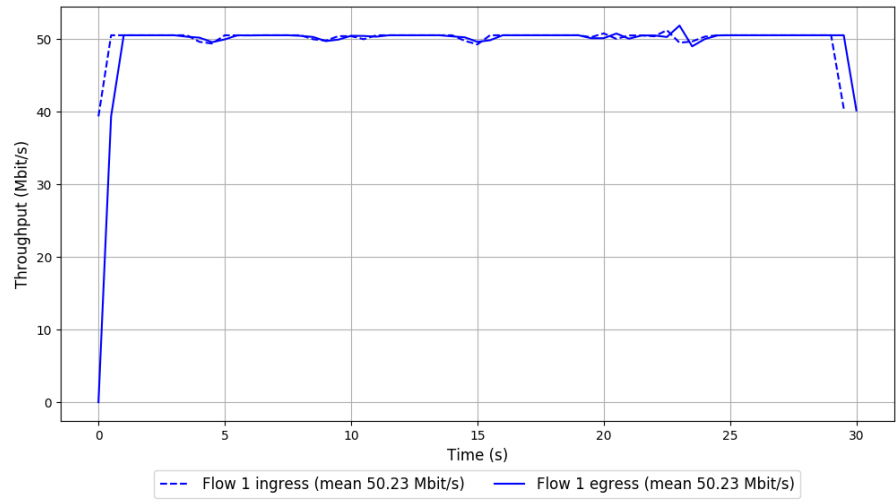Flow 1 (95th percentile 1.29 ms)

```
Run 1: Statistics of Sprout

Start at: 2018-12-11 15:54:34
End at: 2018-12-11 15:55:04
Local clock offset: 3.609 ms
Remote clock offset: -0.569 ms

# Below is generated by plot.py at 2018-12-11 18:54:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 50.25 Mbit/s
95th percentile per-packet one-way delay: 1.074 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.25 Mbit/s
95th percentile per-packet one-way delay: 1.074 ms
Loss rate: 0.00%
```
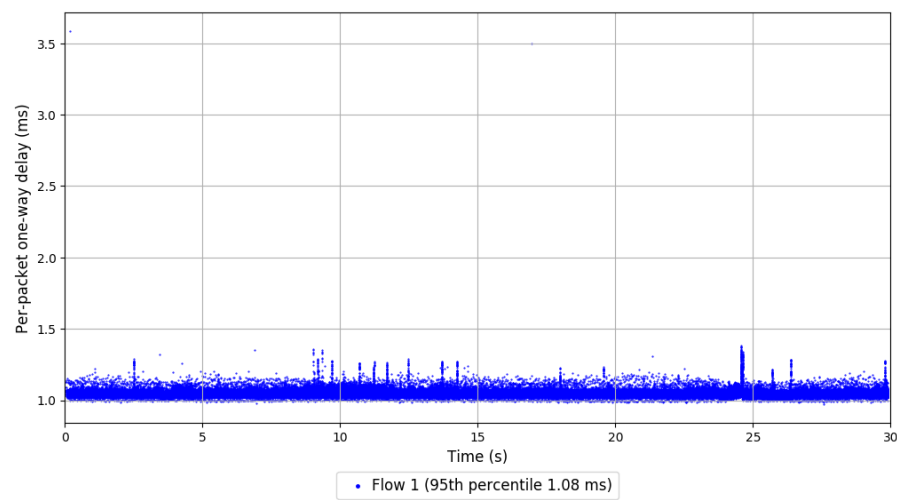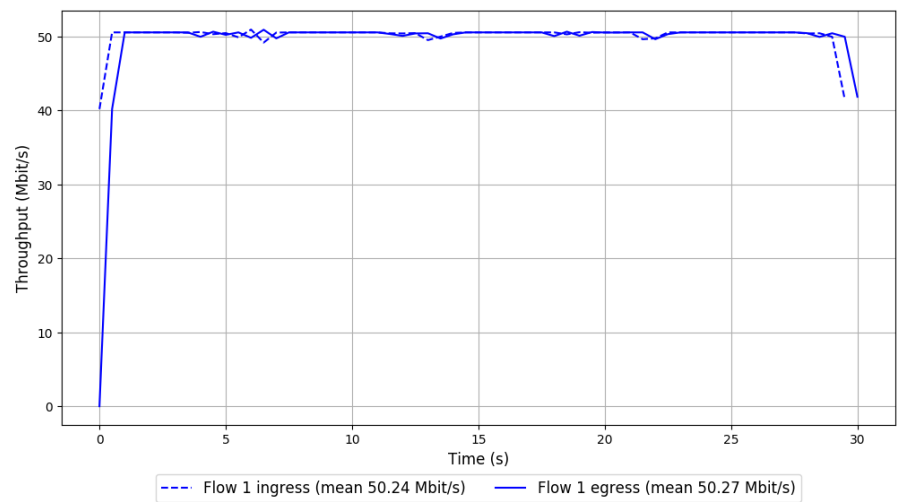
Run 1: Report of Sprout — Data Link

Flow 1 ingress (mean 50.25 Mbit/s) ——— Flow 1 egress (mean 50.25 Mbit/s)

• Flow 1 (95th percentile 1.07 ms)

```
Run 2: Statistics of Sprout

Start at: 2018-12-11 16:21:45
End at: 2018-12-11 16:22:15
Local clock offset: 3.718 ms
Remote clock offset: -3.505 ms


# Below is generated by plot.py at 2018-12-11 18:54:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 50.23 Mbit/s
95th percentile per-packet one-way delay: 1.074 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 50.23 Mbit/s
95th percentile per-packet one-way delay: 1.074 ms
Loss rate: 0.01%
```
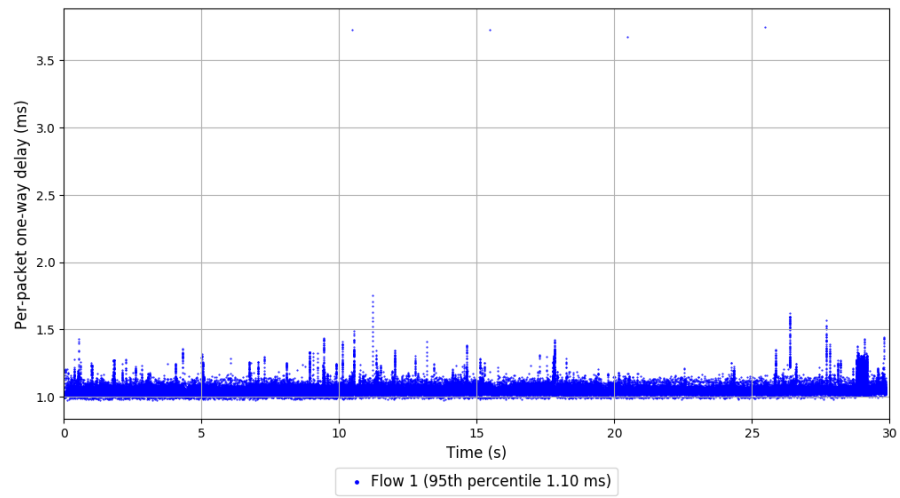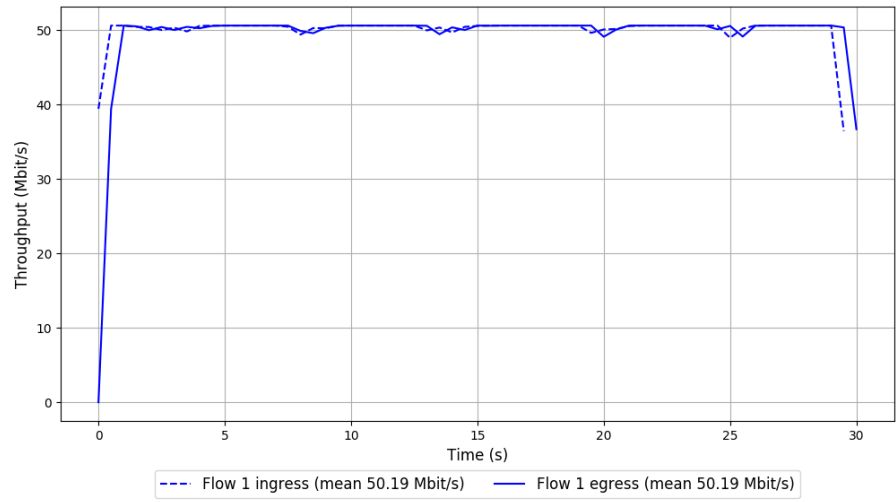
Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2018-12-11 16:48:33
End at: 2018-12-11 16:49:03
Local clock offset: 4.052 ms
Remote clock offset: -3.625 ms


# Below is generated by plot.py at 2018-12-11 18:54:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 50.27 Mbit/s
95th percentile per-packet one-way delay: 1.085 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 50.27 Mbit/s
95th percentile per-packet one-way delay: 1.085 ms
Loss rate: 0.01%
```
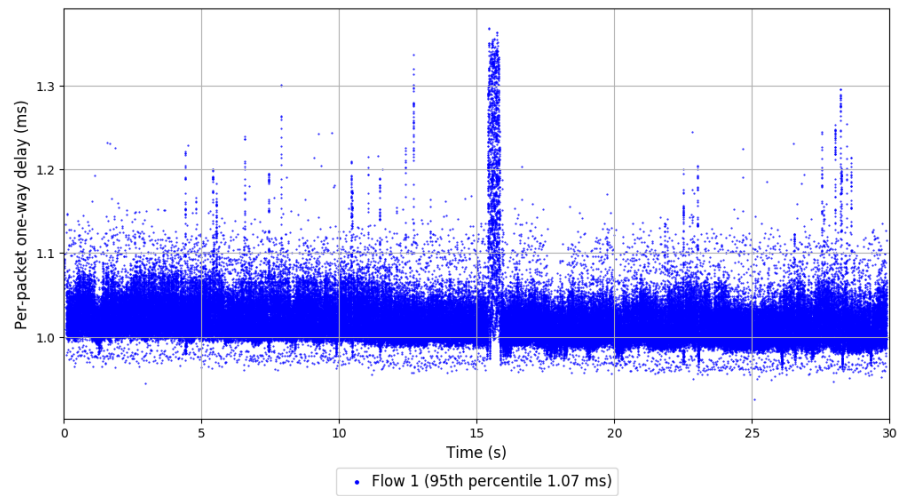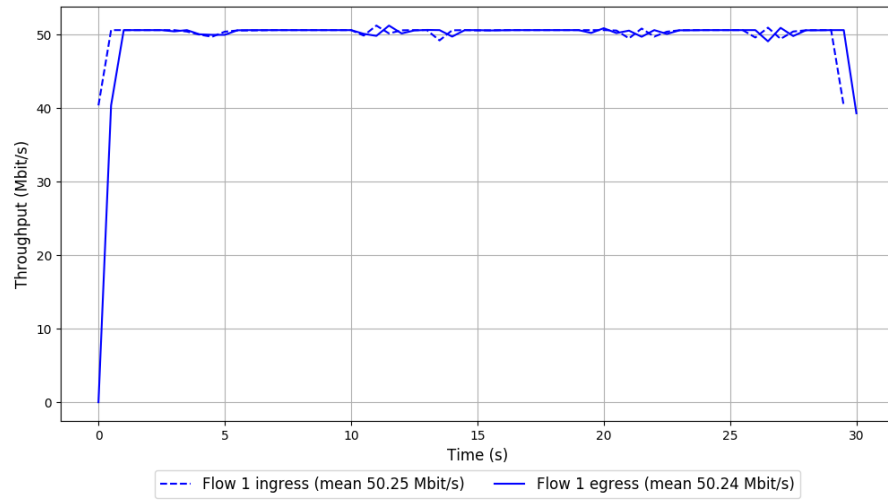
Run 3: Report of Sprout — Data Link

Flow 1 ingress (mean 50.24 Mbit/s)   Flow 1 egress (mean 50.27 Mbit/s)

Flow 1 (95th percentile 1.08 ms)

```
Run 4: Statistics of Sprout

Start at: 2018-12-11 17:15:28
End at: 2018-12-11 17:15:58
Local clock offset: 4.378 ms
Remote clock offset: -3.502 ms


# Below is generated by plot.py at 2018-12-11 18:54:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 50.19 Mbit/s
95th percentile per-packet one-way delay: 1.099 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.19 Mbit/s
95th percentile per-packet one-way delay: 1.099 ms
Loss rate: 0.00%
```

Run 4: Report of Sprout — Data Link

Flow 1 ingress (mean 50.19 Mbit/s)   Flow 1 egress (mean 50.19 Mbit/s)

• Flow 1 (95th percentile 1.10 ms)

```
Run 5: Statistics of Sprout

Start at: 2018-12-11 17:42:12
End at: 2018-12-11 17:42:42
Local clock offset: 4.749 ms
Remote clock offset: -3.267 ms


# Below is generated by plot.py at 2018-12-11 18:54:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 50.24 Mbit/s
95th percentile per-packet one-way delay: 1.067 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 50.24 Mbit/s
95th percentile per-packet one-way delay: 1.067 ms
Loss rate: 0.03%
```
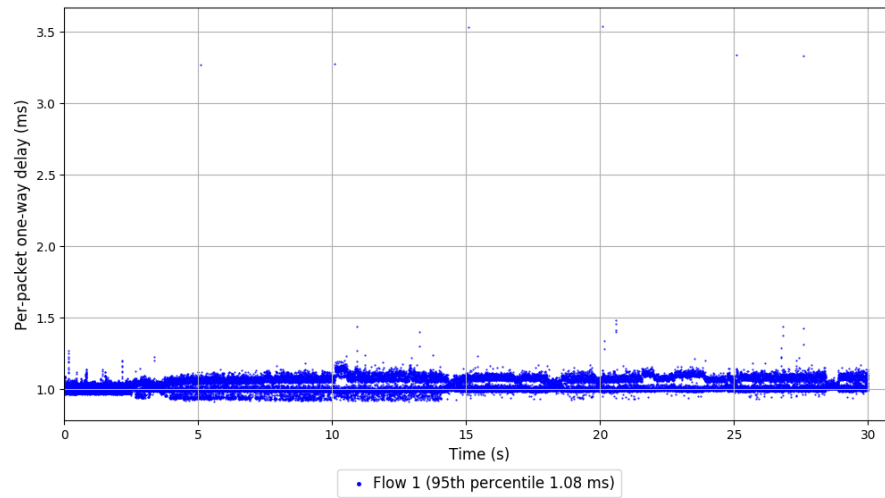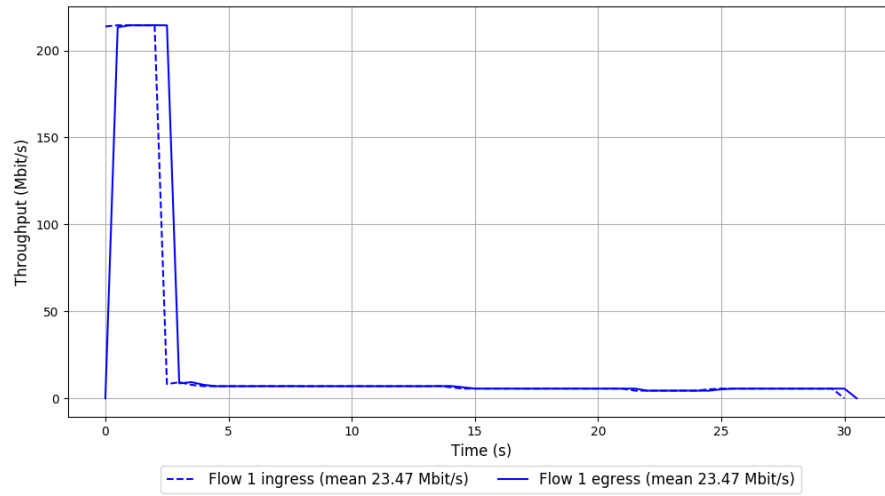
Run 5: Report of Sprout — Data Link

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

Start at: 2018-12-11 15:50:29
End at: 2018-12-11 15:50:59
Local clock offset: 3.593 ms
Remote clock offset: -0.608 ms


# Below is generated by plot.py at 2018-12-11 18:54:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 23.47 Mbit/s
95th percentile per-packet one-way delay: 1.080 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 23.47 Mbit/s
95th percentile per-packet one-way delay: 1.080 ms
Loss rate: 0.00%
```

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

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

Start at: 2018-12-11 16:17:34
End at: 2018-12-11 16:18:05
Local clock offset: 3.696 ms
Remote clock offset: -3.143 ms


# Below is generated by plot.py at 2018-12-11 18:54:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.56 Mbit/s
95th percentile per-packet one-way delay: 0.999 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 96.56 Mbit/s
95th percentile per-packet one-way delay: 0.999 ms
Loss rate: 0.01%
```
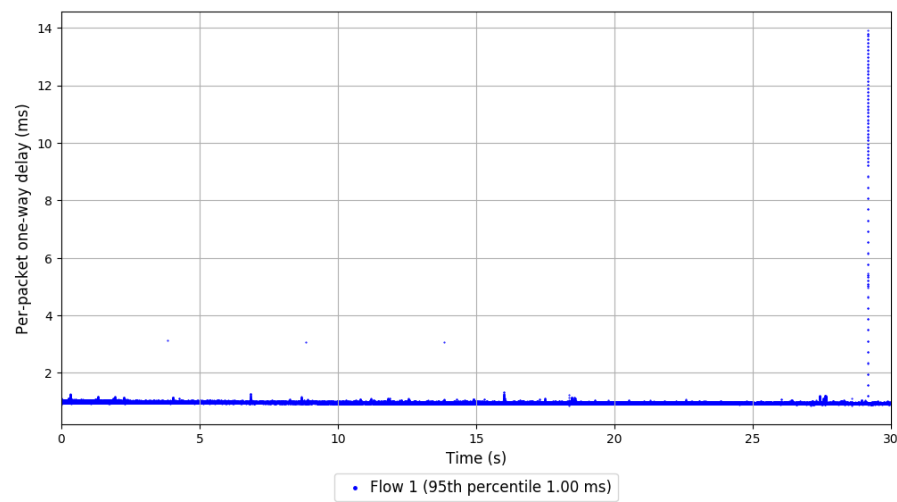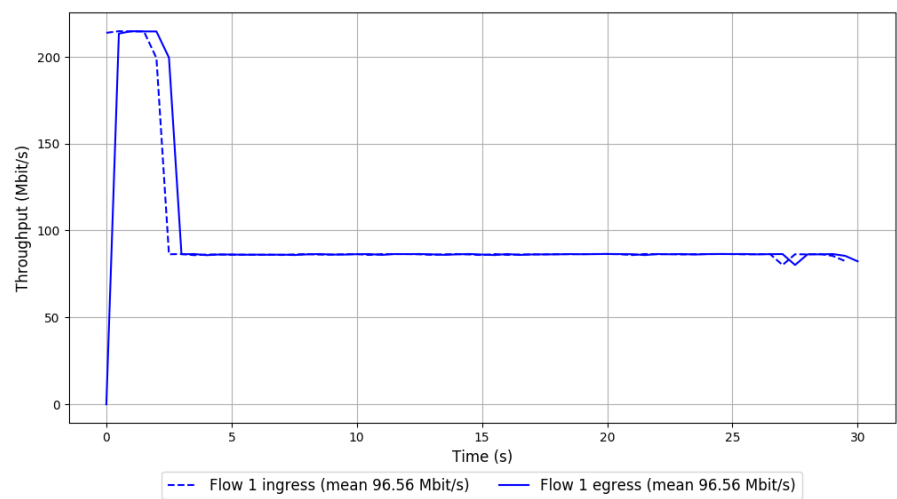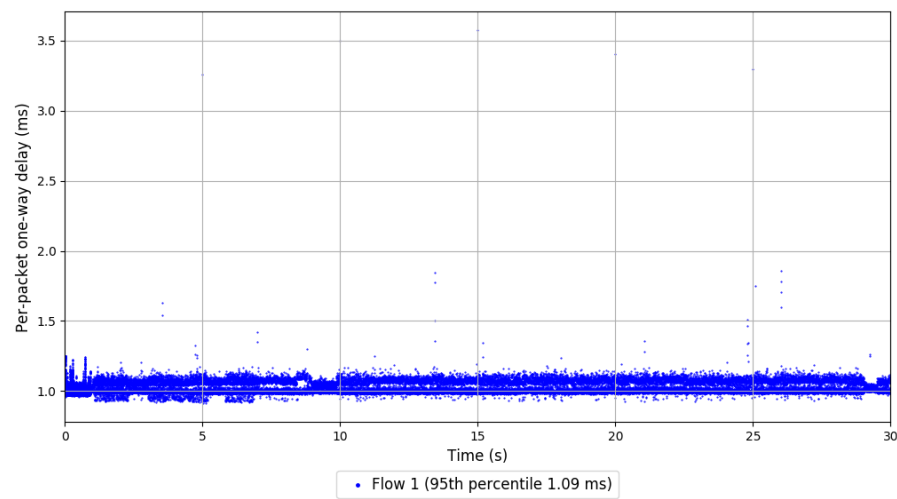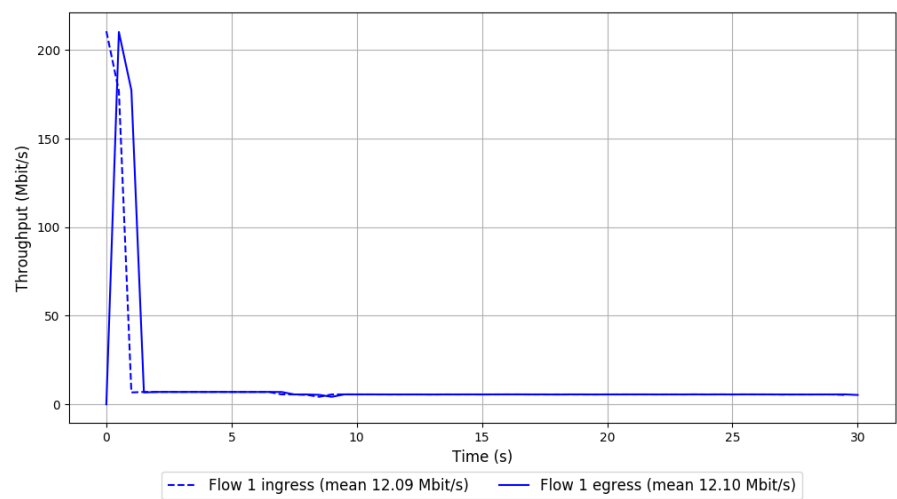
Run 2: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 96.56 Mbit/s)   Flow 1 egress (mean 96.56 Mbit/s)

Flow 1 (95th percentile 1.00 ms)

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

Start at: 2018-12-11 16:44:28
End at: 2018-12-11 16:44:58
Local clock offset: 3.946 ms
Remote clock offset: -3.722 ms


# Below is generated by plot.py at 2018-12-11 18:54:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.10 Mbit/s
95th percentile per-packet one-way delay: 1.095 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 12.10 Mbit/s
95th percentile per-packet one-way delay: 1.095 ms
Loss rate: 0.00%
```
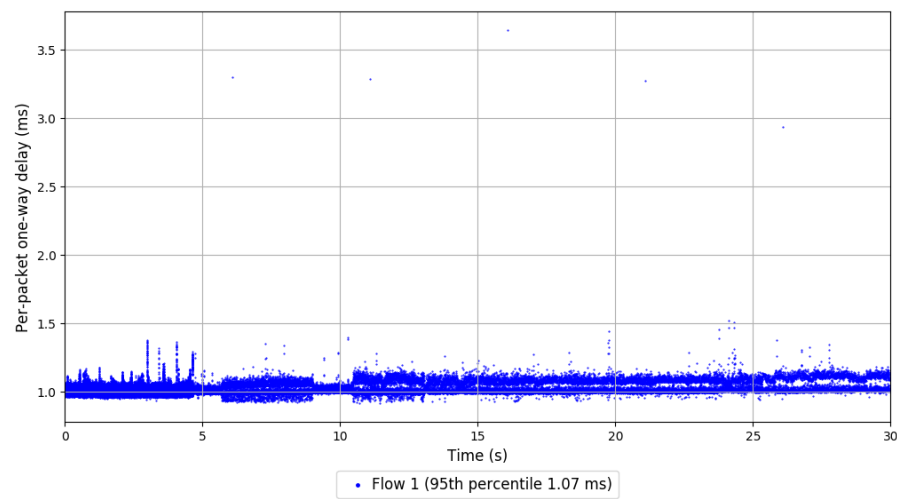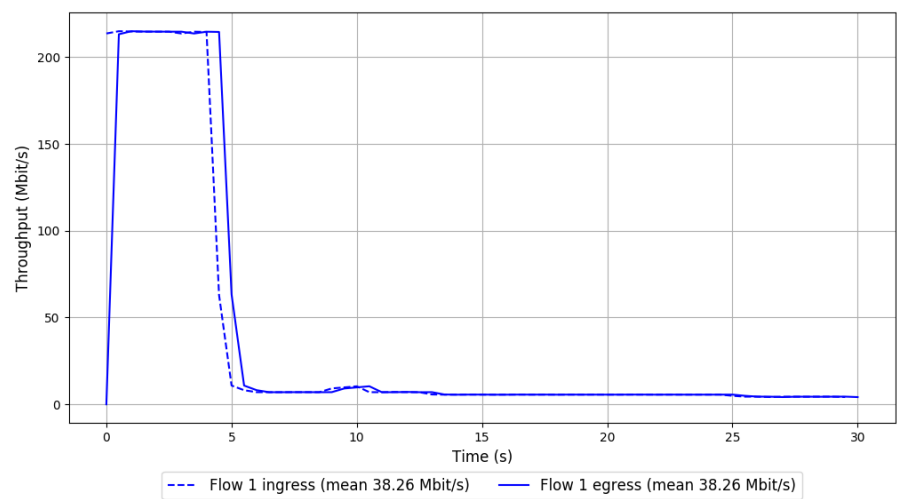
Run 3: Report of TaoVA-100x — Data Link

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

Start at: 2018-12-11 17:11:22
End at: 2018-12-11 17:11:52
Local clock offset: 4.273 ms
Remote clock offset: -3.774 ms

# Below is generated by plot.py at 2018-12-11 18:54:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 38.26 Mbit/s
95th percentile per-packet one-way delay: 1.069 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 38.26 Mbit/s
95th percentile per-packet one-way delay: 1.069 ms
Loss rate: 0.00%
```

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

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

Start at: 2018-12-11 17:38:04
End at: 2018-12-11 17:38:34
Local clock offset: 4.618 ms
Remote clock offset: -3.246 ms


# Below is generated by plot.py at 2018-12-11 18:54:44
# Datalink statistics
-- Total of 1 flow:
Average throughput: 93.55 Mbit/s
95th percentile per-packet one-way delay: 1.016 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 93.55 Mbit/s
95th percentile per-packet one-way delay: 1.016 ms
Loss rate: 0.01%
```
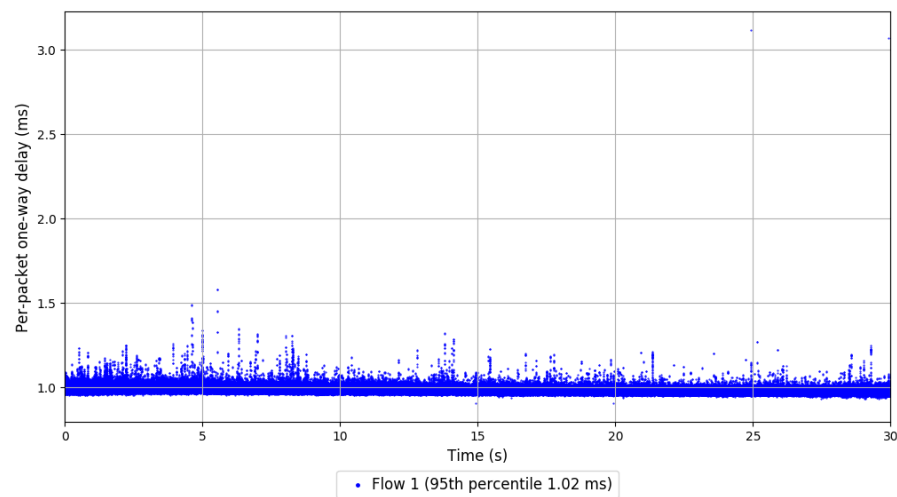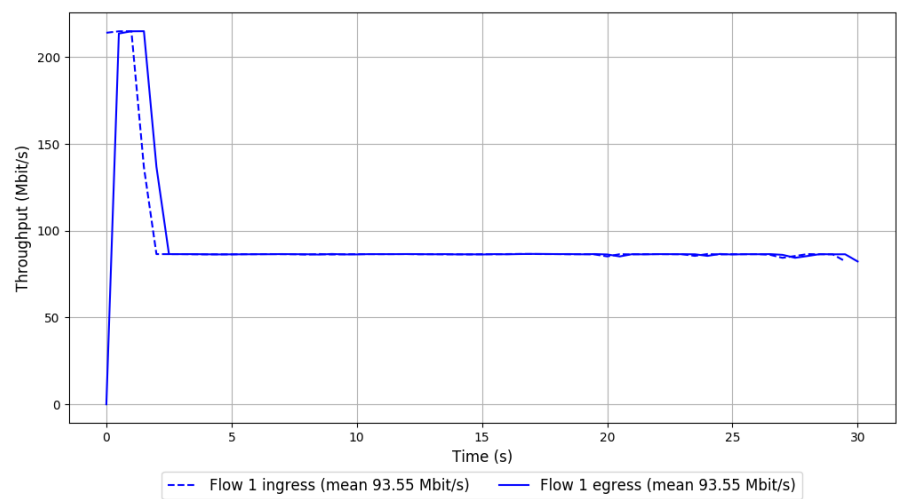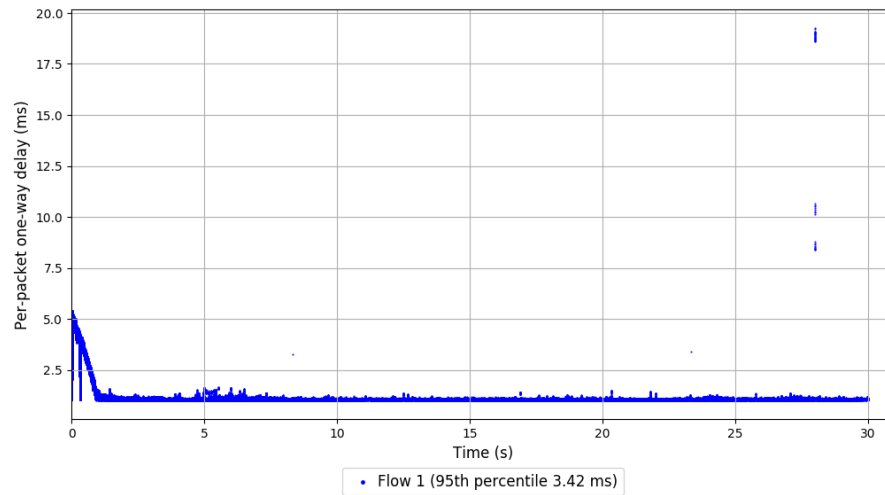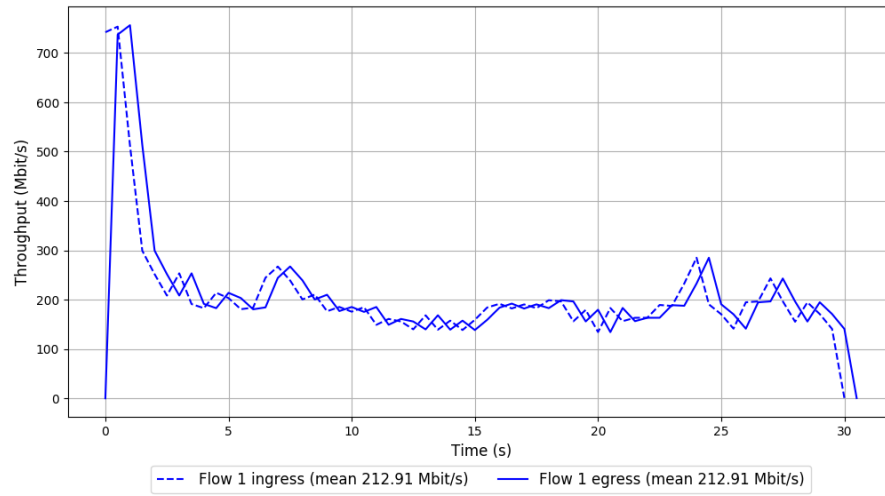
Run 5: Report of TaoVA-100x — Data Link

```
Run 1: Statistics of TCP Vegas

Start at: 2018-12-11 15:57:04
End at: 2018-12-11 15:57:34
Local clock offset: 3.602 ms
Remote clock offset: -0.609 ms


# Below is generated by plot.py at 2018-12-11 18:55:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 212.91 Mbit/s
95th percentile per-packet one-way delay: 3.416 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 212.91 Mbit/s
95th percentile per-packet one-way delay: 3.416 ms
Loss rate: 0.00%
```
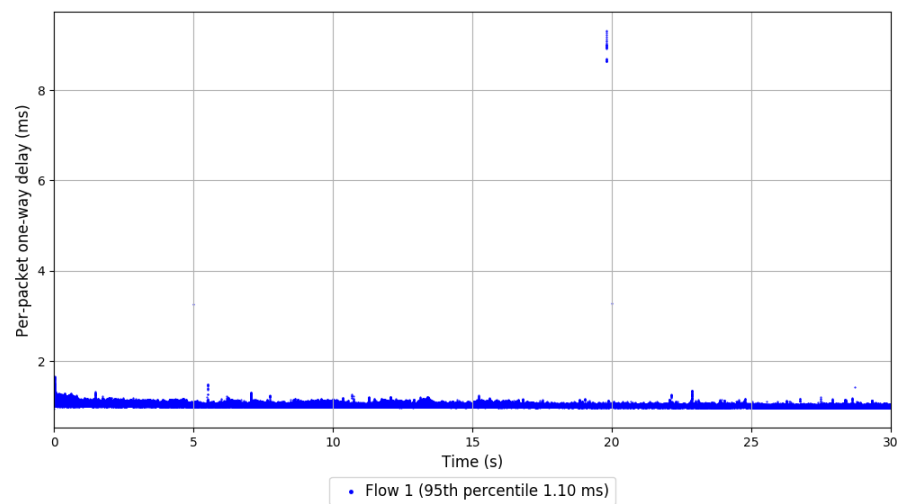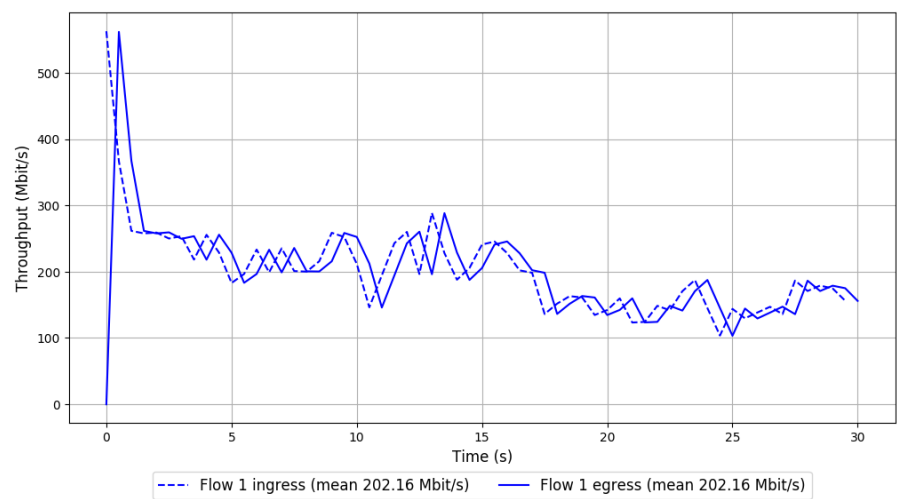
Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2018-12-11 16:24:14
End at: 2018-12-11 16:24:44
Local clock offset: 3.724 ms
Remote clock offset: -3.683 ms


# Below is generated by plot.py at 2018-12-11 18:55:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 202.16 Mbit/s
95th percentile per-packet one-way delay: 1.098 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 202.16 Mbit/s
95th percentile per-packet one-way delay: 1.098 ms
Loss rate: 0.00%
```

Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2018-12-11 16:51:02
End at: 2018-12-11 16:51:32
Local clock offset: 4.06 ms
Remote clock offset: -3.62 ms


# Below is generated by plot.py at 2018-12-11 18:55:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 213.20 Mbit/s
95th percentile per-packet one-way delay: 1.187 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 213.20 Mbit/s
95th percentile per-packet one-way delay: 1.187 ms
Loss rate: 0.00%
```
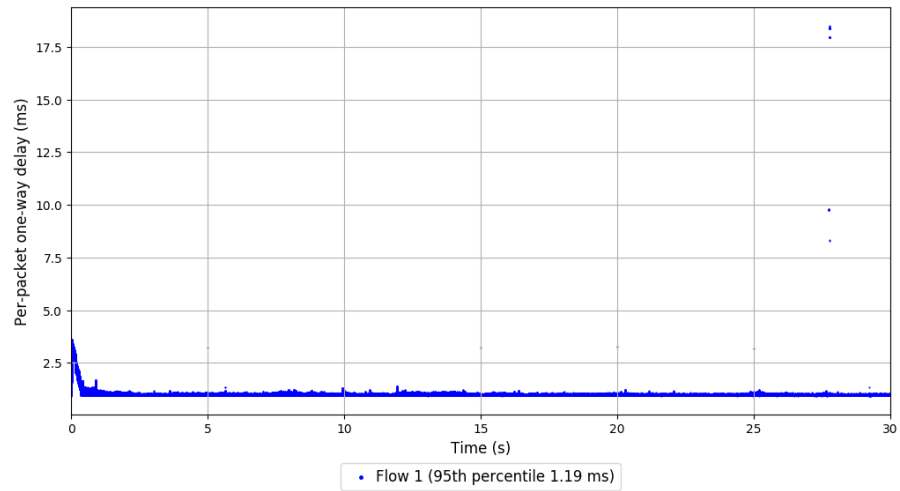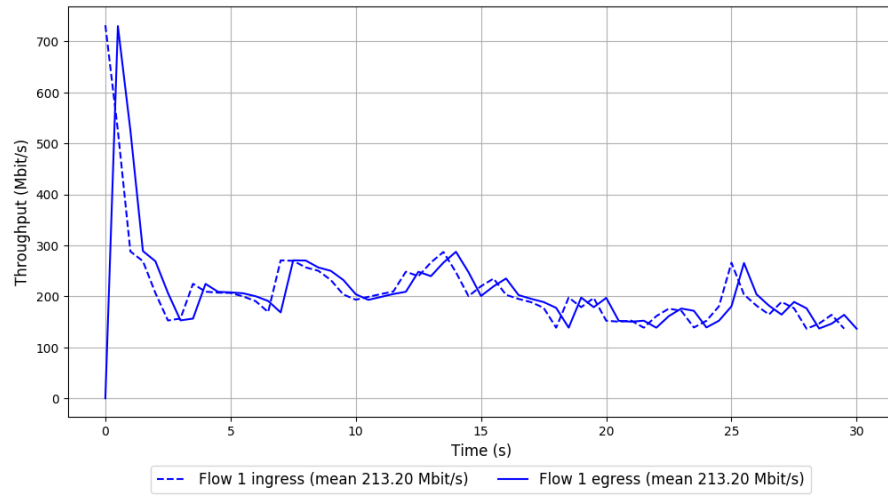
Run 3: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 213.20 Mbit/s)   Flow 1 egress (mean 213.20 Mbit/s)

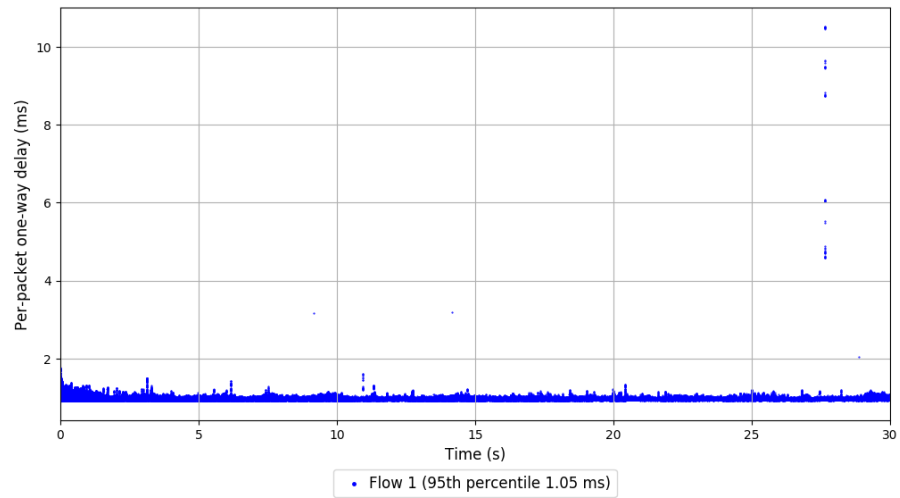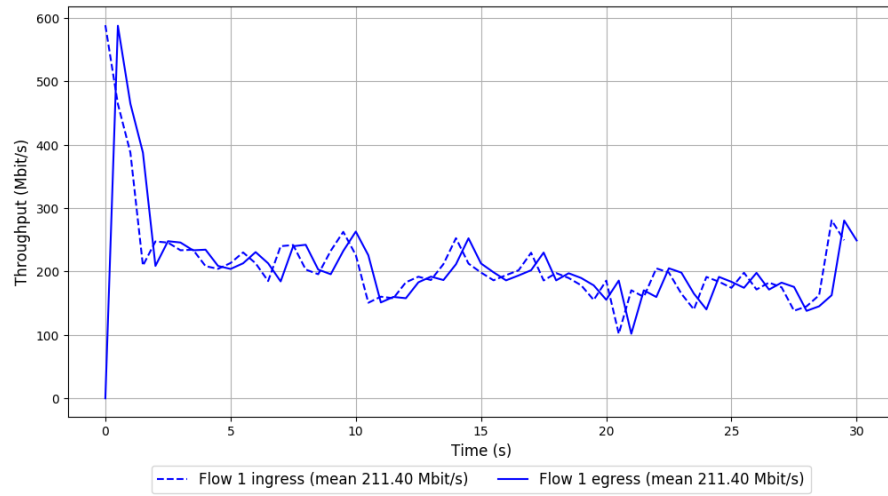
Flow 1 (95th percentile 1.19 ms)

```
Run 4: Statistics of TCP Vegas

Start at: 2018-12-11 17:17:58
End at: 2018-12-11 17:18:28
Local clock offset: 4.436 ms
Remote clock offset: -3.334 ms


# Below is generated by plot.py at 2018-12-11 18:55:48
# Datalink statistics
-- Total of 1 flow:
Average throughput: 211.40 Mbit/s
95th percentile per-packet one-way delay: 1.049 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 211.40 Mbit/s
95th percentile per-packet one-way delay: 1.049 ms
Loss rate: 0.01%
```
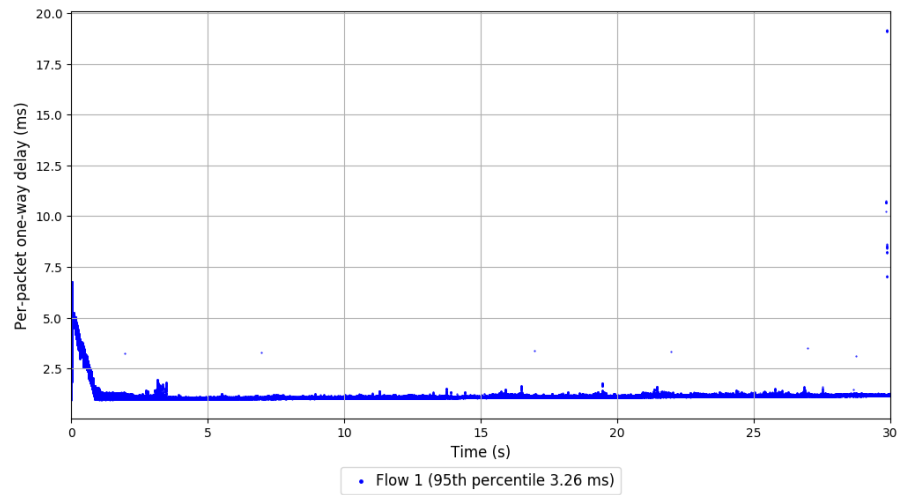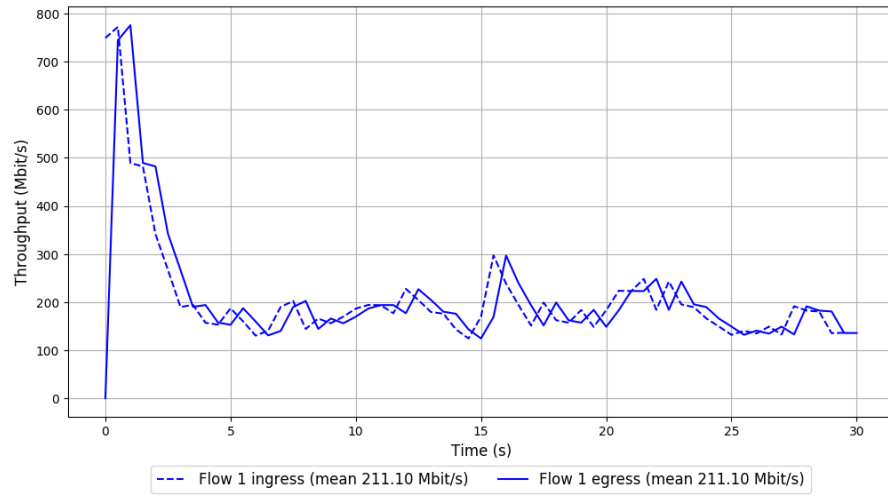
Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2018-12-11 17:44:42
End at: 2018-12-11 17:45:12
Local clock offset: 4.807 ms
Remote clock offset: -3.263 ms


# Below is generated by plot.py at 2018-12-11 18:56:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 211.10 Mbit/s
95th percentile per-packet one-way delay: 3.258 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 211.10 Mbit/s
95th percentile per-packet one-way delay: 3.258 ms
Loss rate: 0.00%
```
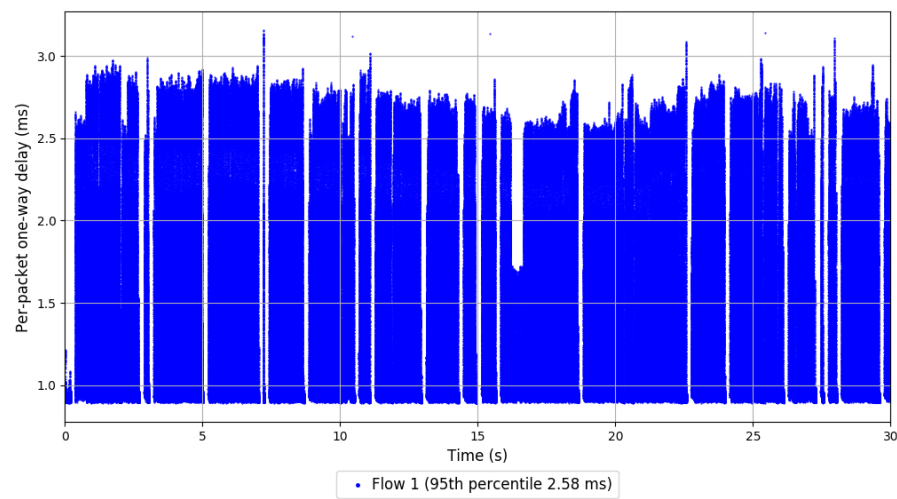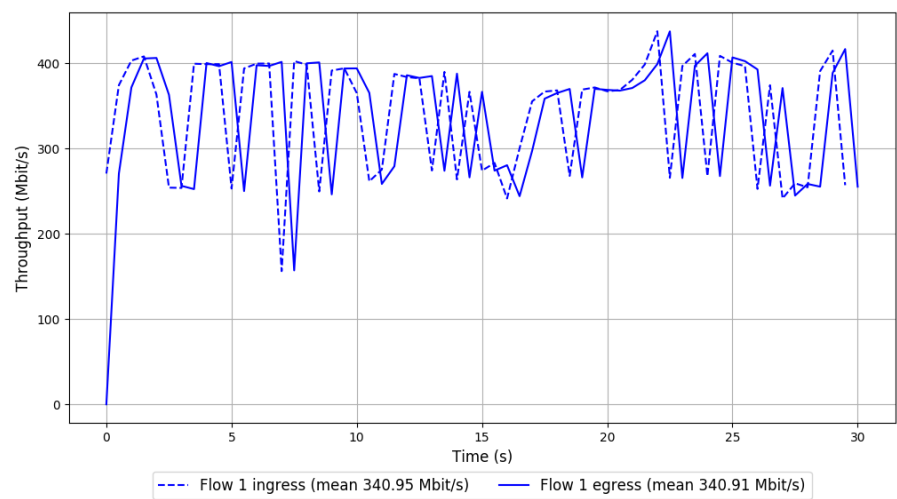
Run 5: Report of TCP Vegas — Data Link

```
Run 1: Statistics of Verus

Start at: 2018-12-11 15:47:41
End at: 2018-12-11 15:48:11
Local clock offset: 3.589 ms
Remote clock offset: -0.568 ms


# Below is generated by plot.py at 2018-12-11 18:58:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 340.91 Mbit/s
95th percentile per-packet one-way delay: 2.577 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 340.91 Mbit/s
95th percentile per-packet one-way delay: 2.577 ms
Loss rate: 0.01%
```

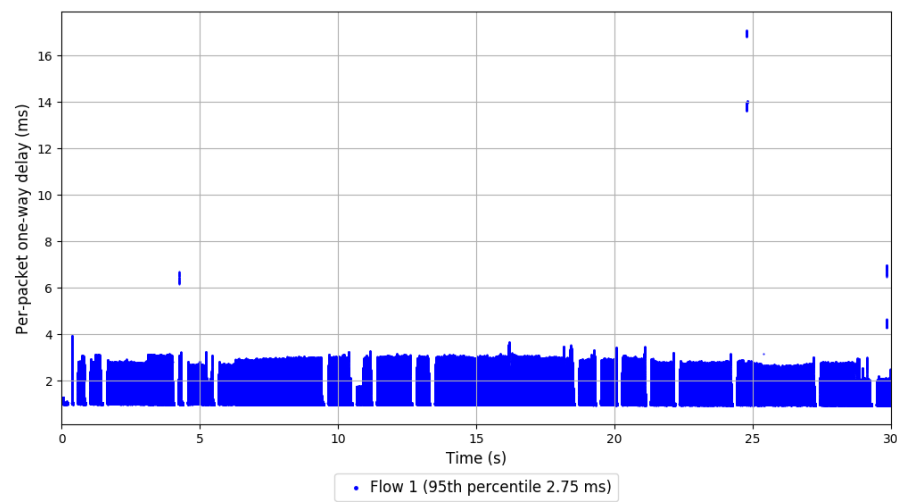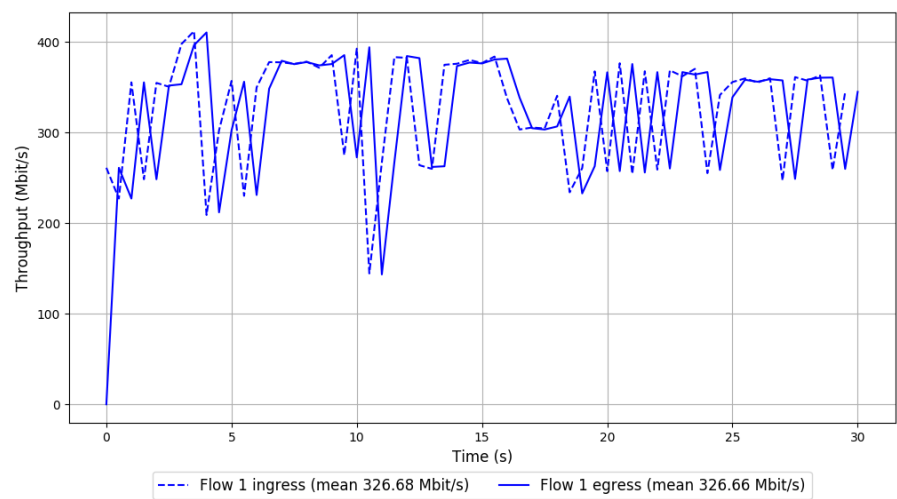Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2018-12-11 16:14:47
End at: 2018-12-11 16:15:17
Local clock offset: 3.677 ms
Remote clock offset: -2.884 ms


# Below is generated by plot.py at 2018-12-11 18:58:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 326.66 Mbit/s
95th percentile per-packet one-way delay: 2.747 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 326.66 Mbit/s
95th percentile per-packet one-way delay: 2.747 ms
Loss rate: 0.00%
```

Run 2: Report of Verus — Data Link

Flow 1 ingress (mean 326.68 Mbit/s)   Flow 1 egress (mean 326.66 Mbit/s)

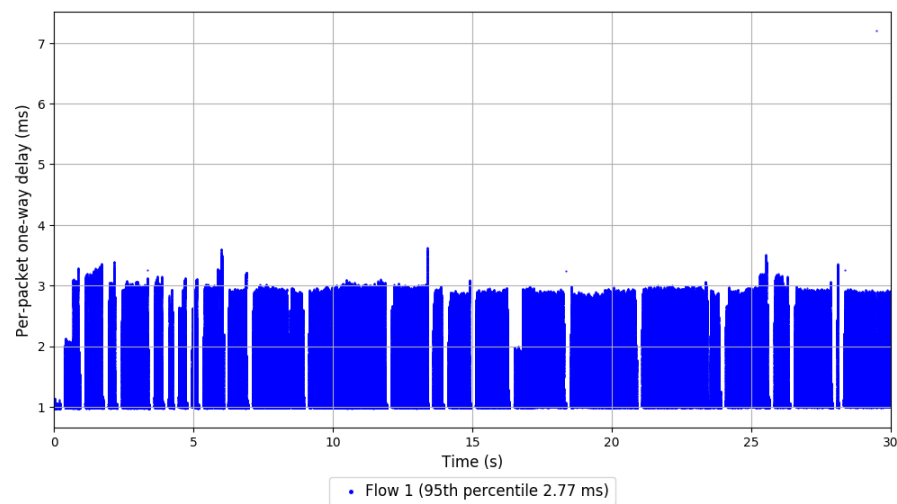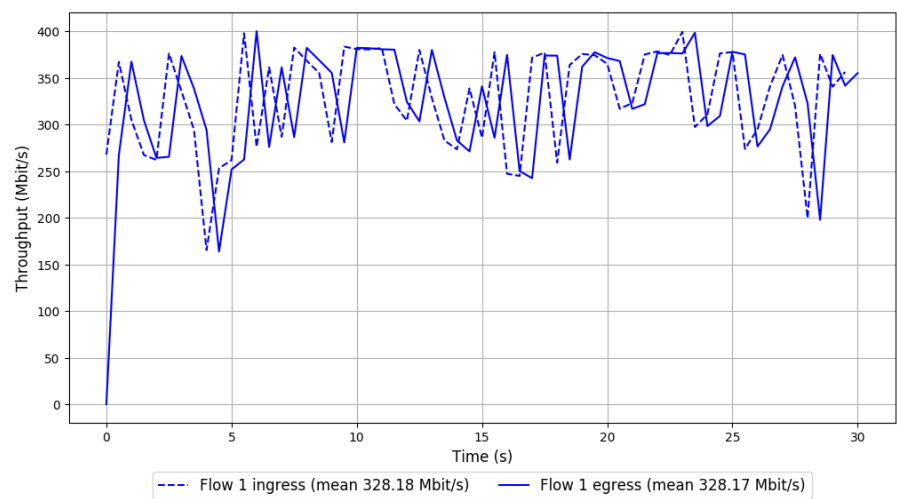Flow 1 (95th percentile 2.75 ms)

```
Run 3: Statistics of Verus

Start at: 2018-12-11 16:41:41
End at: 2018-12-11 16:42:11
Local clock offset: 3.851 ms
Remote clock offset: -3.871 ms


# Below is generated by plot.py at 2018-12-11 18:58:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 328.17 Mbit/s
95th percentile per-packet one-way delay: 2.772 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 328.17 Mbit/s
95th percentile per-packet one-way delay: 2.772 ms
Loss rate: 0.02%
```

Run 3: Report of Verus — Data Link

Flow 1 ingress (mean 328.18 Mbit/s)   Flow 1 egress (mean 328.17 Mbit/s)

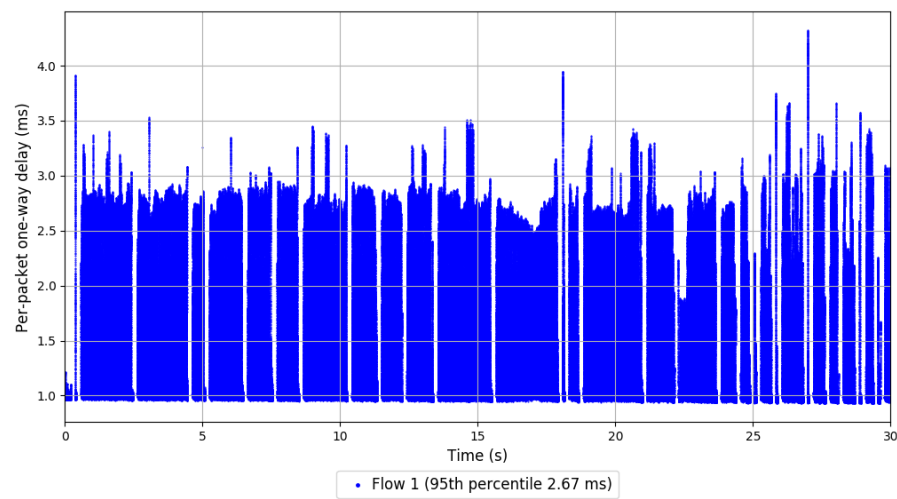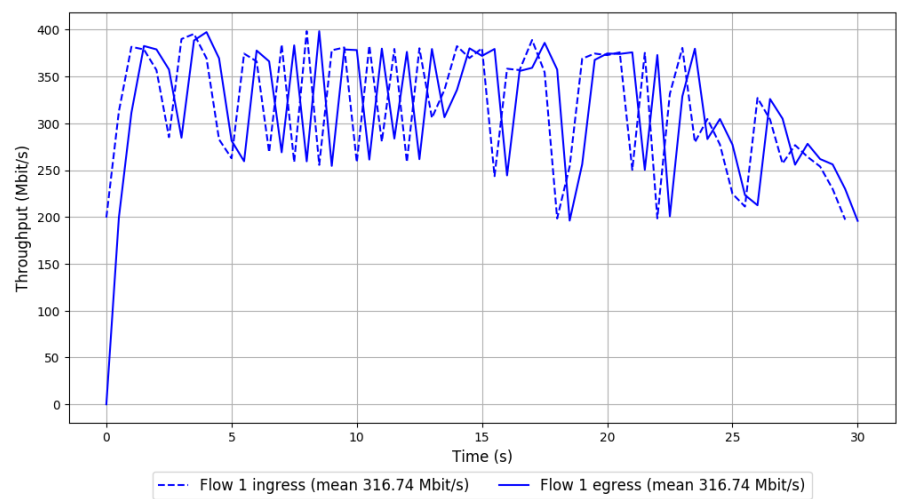Flow 1 (95th percentile 2.77 ms)

```
Run 4: Statistics of Verus

Start at: 2018-12-11 17:08:35
End at: 2018-12-11 17:09:05
Local clock offset: 4.163 ms
Remote clock offset: -3.834 ms


# Below is generated by plot.py at 2018-12-11 18:58:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 316.74 Mbit/s
95th percentile per-packet one-way delay: 2.665 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 316.74 Mbit/s
95th percentile per-packet one-way delay: 2.665 ms
Loss rate: 0.01%
```

Run 4: Report of Verus — Data Link

Flow 1 ingress (mean 316.74 Mbit/s)   Flow 1 egress (mean 316.74 Mbit/s)

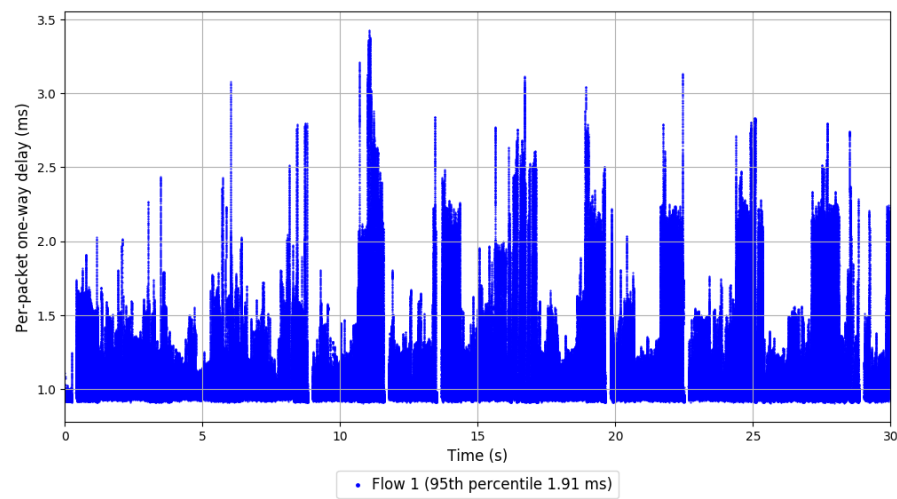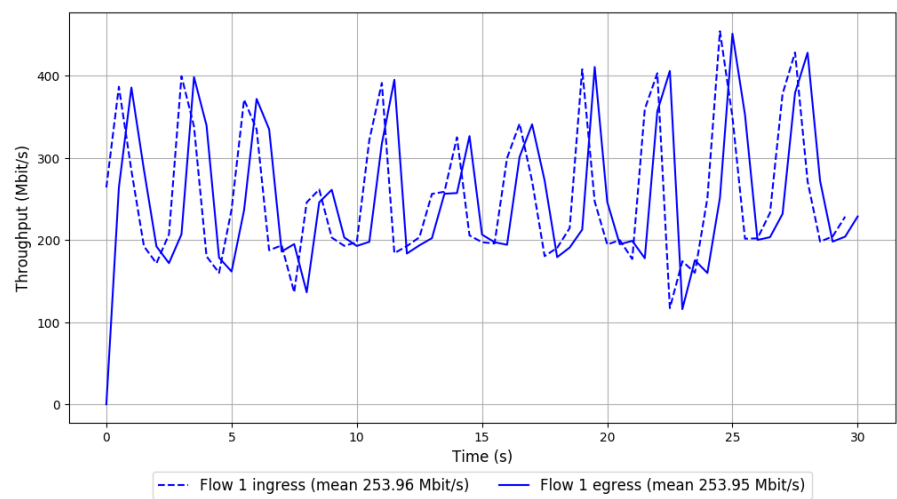• Flow 1 (95th percentile 2.67 ms)

```
Run 5: Statistics of Verus

Start at: 2018-12-11 17:35:20
End at: 2018-12-11 17:35:50
Local clock offset: 4.63 ms
Remote clock offset: -3.163 ms


# Below is generated by plot.py at 2018-12-11 18:58:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 253.95 Mbit/s
95th percentile per-packet one-way delay: 1.905 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 253.95 Mbit/s
95th percentile per-packet one-way delay: 1.905 ms
Loss rate: 0.00%
```

Run 5: Report of Verus — Data Link

```
Run 1: Statistics of PCC-Vivace

Start at: 2018-12-11 15:59:53
End at: 2018-12-11 16:00:23
Local clock offset: 3.604 ms
Remote clock offset: -0.562 ms


# Below is generated by plot.py at 2018-12-11 18:58:44
# Datalink statistics
-- Total of 1 flow:
Average throughput: 327.23 Mbit/s
95th percentile per-packet one-way delay: 1.058 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 327.23 Mbit/s
95th percentile per-packet one-way delay: 1.058 ms
Loss rate: 0.00%
```
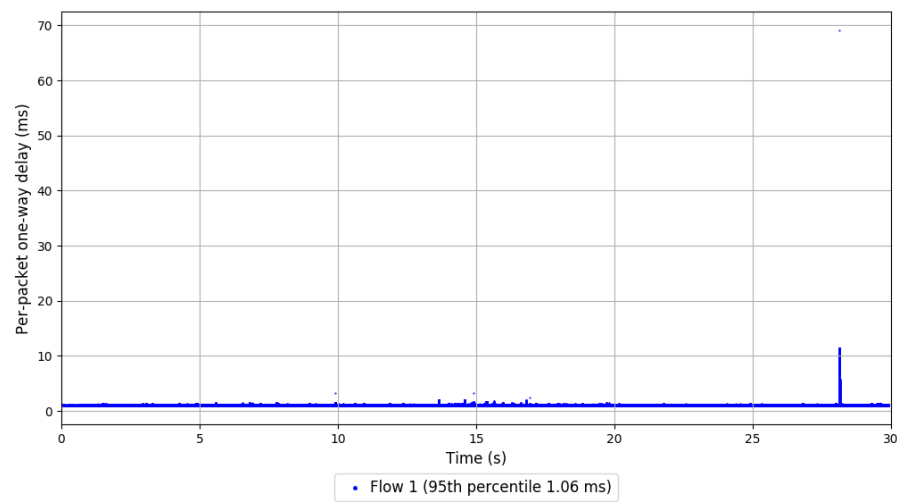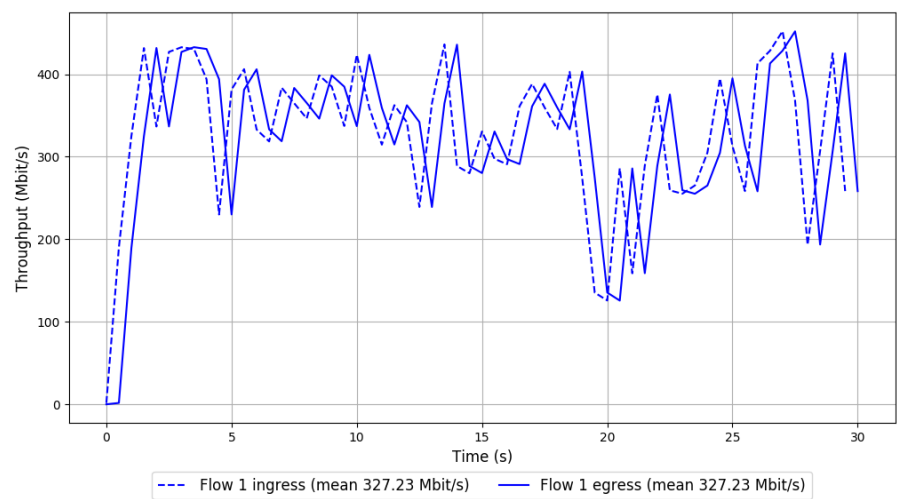
Run 1: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 327.23 Mbit/s)   Flow 1 egress (mean 327.23 Mbit/s)

Flow 1 (95th percentile 1.06 ms)

```
Run 2: Statistics of PCC-Vivace

Start at: 2018-12-11 16:27:04
End at: 2018-12-11 16:27:34
Local clock offset: 3.728 ms
Remote clock offset: -3.818 ms


# Below is generated by plot.py at 2018-12-11 18:59:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 292.73 Mbit/s
95th percentile per-packet one-way delay: 0.975 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 292.73 Mbit/s
95th percentile per-packet one-way delay: 0.975 ms
Loss rate: 0.01%
```
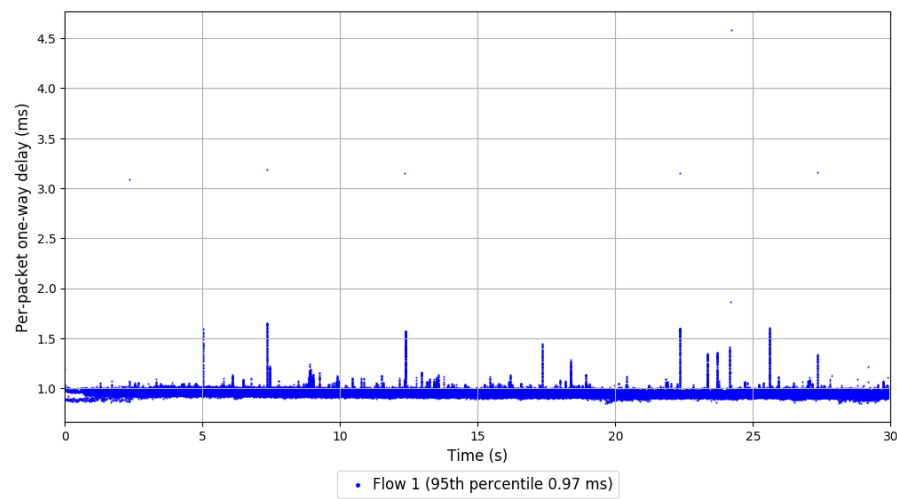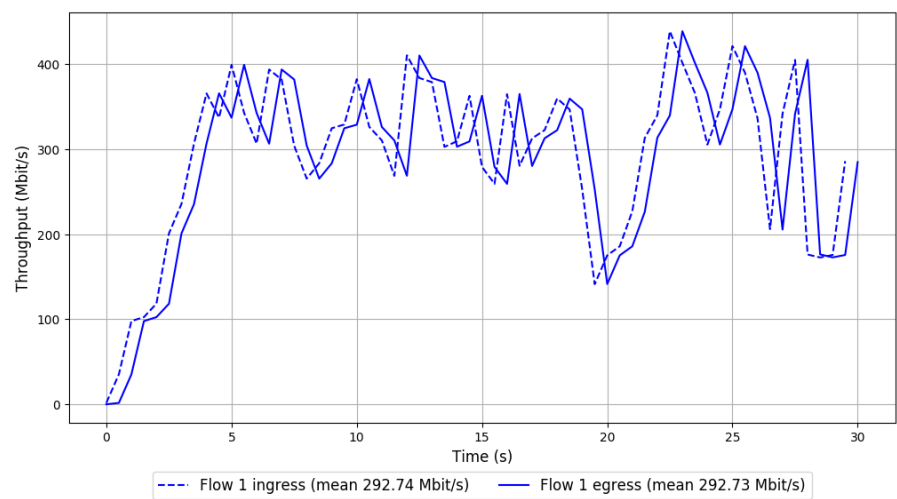
Run 2: Report of PCC-Vivace — Data Link

```
Run 3: Statistics of PCC-Vivace

Start at: 2018-12-11 16:53:49
End at: 2018-12-11 16:54:19
Local clock offset: 4.129 ms
Remote clock offset: -3.628 ms


# Below is generated by plot.py at 2018-12-11 18:59:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 307.29 Mbit/s
95th percentile per-packet one-way delay: 1.027 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 307.29 Mbit/s
95th percentile per-packet one-way delay: 1.027 ms
Loss rate: 0.00%
```
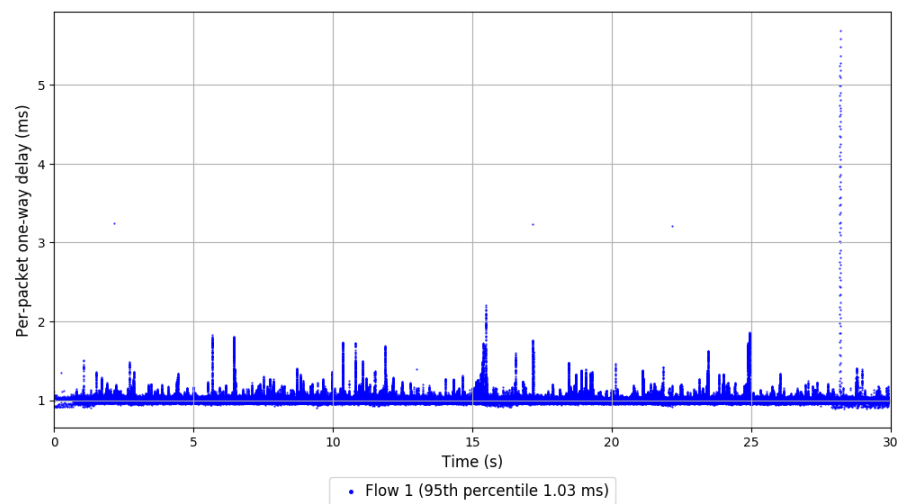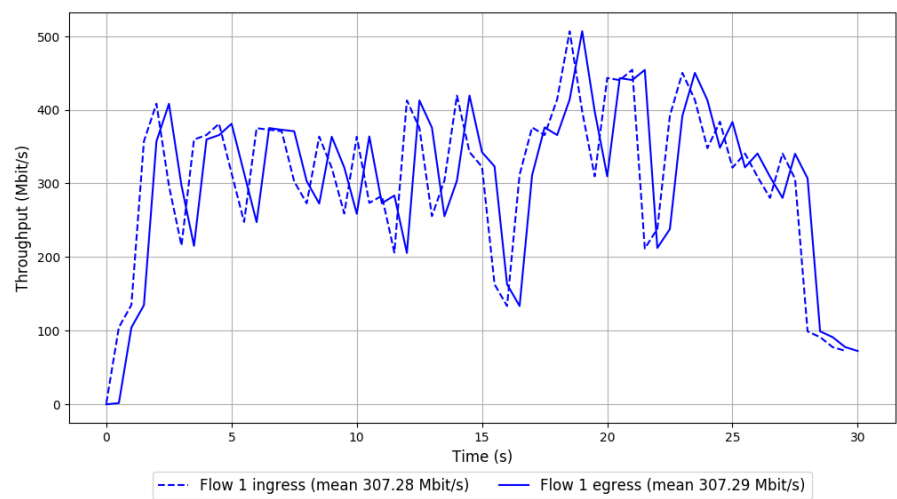
Run 3: Report of PCC-Vivace — Data Link

```
Run 4: Statistics of PCC-Vivace

Start at: 2018-12-11 17:20:45
End at: 2018-12-11 17:21:15
Local clock offset: 4.48 ms
Remote clock offset: -3.262 ms

# Below is generated by plot.py at 2018-12-11 18:59:18
# Datalink statistics
-- Total of 1 flow:
Average throughput: 222.36 Mbit/s
95th percentile per-packet one-way delay: 0.989 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 222.36 Mbit/s
95th percentile per-packet one-way delay: 0.989 ms
Loss rate: 0.00%
```
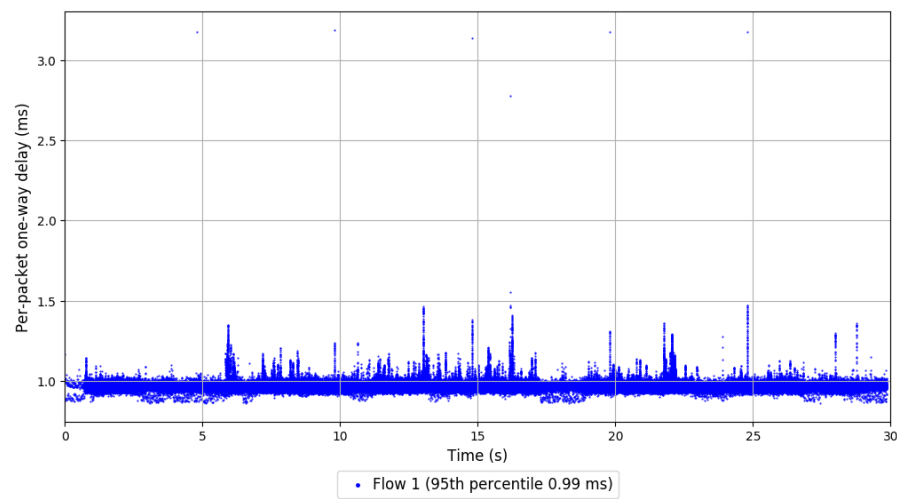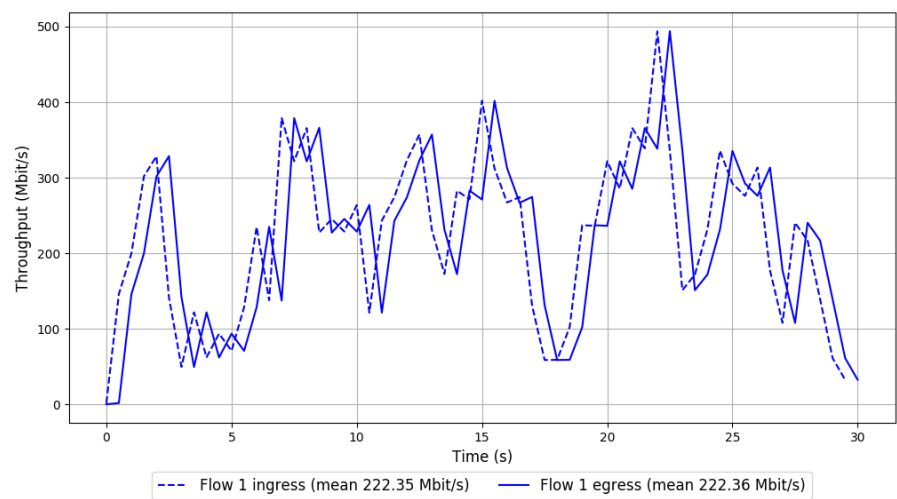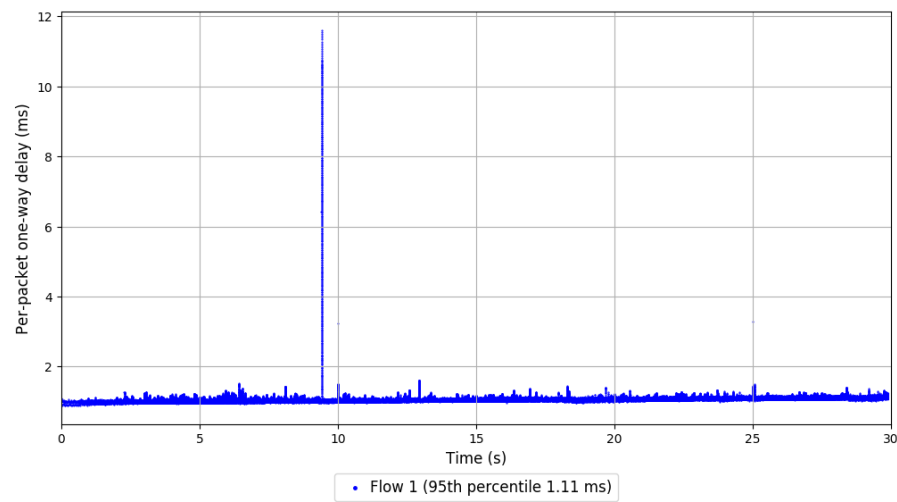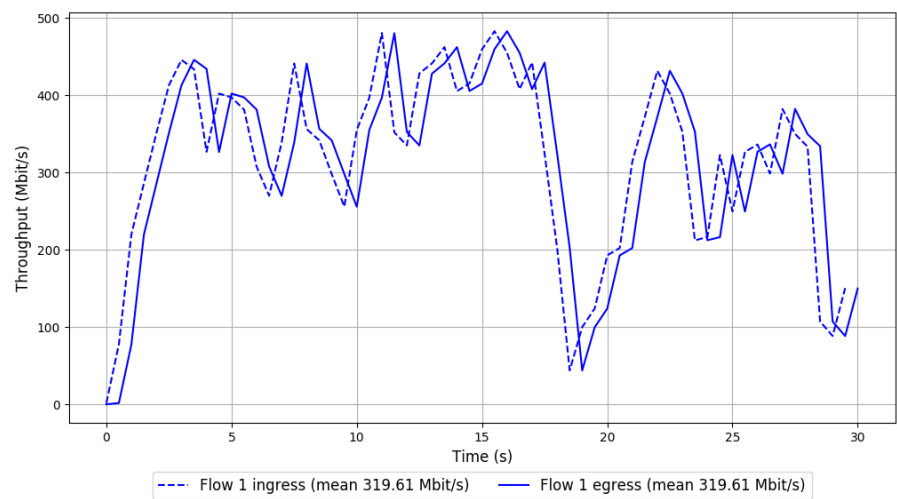
Run 4: Report of PCC-Vivace — Data Link

```
Run 5: Statistics of PCC-Vivace

Start at: 2018-12-11 17:47:32
End at: 2018-12-11 17:48:02
Local clock offset: 4.836 ms
Remote clock offset: -2.293 ms


# Below is generated by plot.py at 2018-12-11 18:59:26
# Datalink statistics
-- Total of 1 flow:
Average throughput: 319.61 Mbit/s
95th percentile per-packet one-way delay: 1.115 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 319.61 Mbit/s
95th percentile per-packet one-way delay: 1.115 ms
Loss rate: 0.00%
```
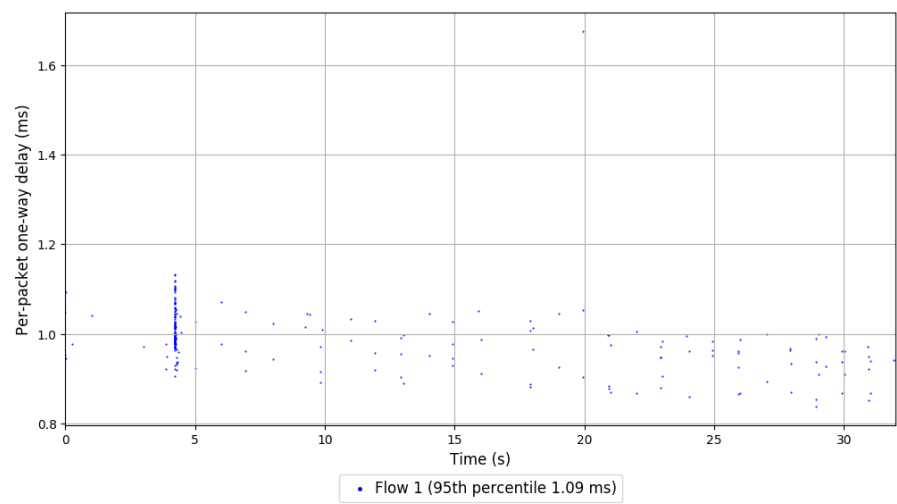
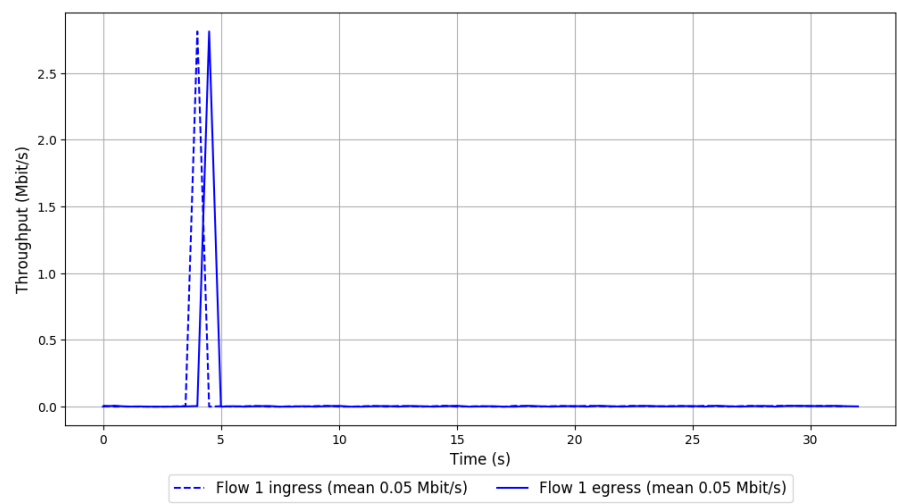Run 5: Report of PCC-Vivace — Data Link

```
Run 1: Statistics of WebRTC media

Start at: 2018-12-11 16:07:27
End at: 2018-12-11 16:07:57
Local clock offset: 3.564 ms
Remote clock offset: -1.778 ms


# Below is generated by plot.py at 2018-12-11 18:59:26
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 1.094 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 1.094 ms
Loss rate: 0.00%
```
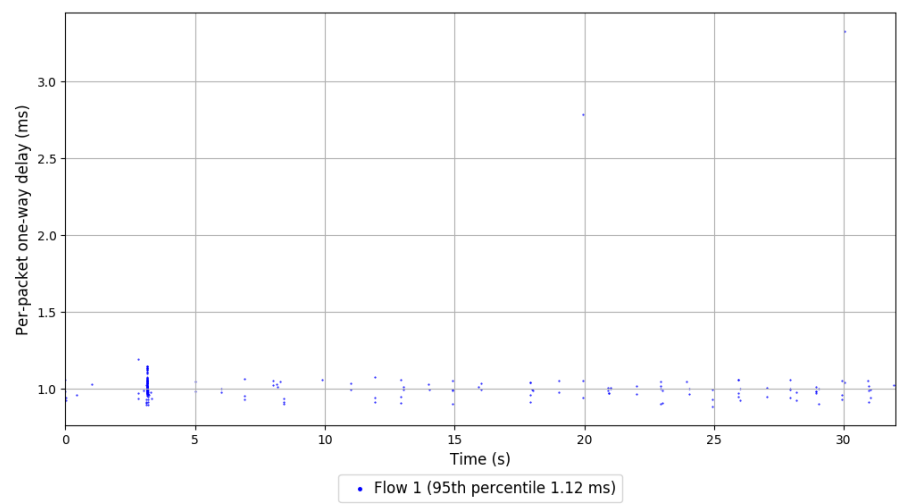
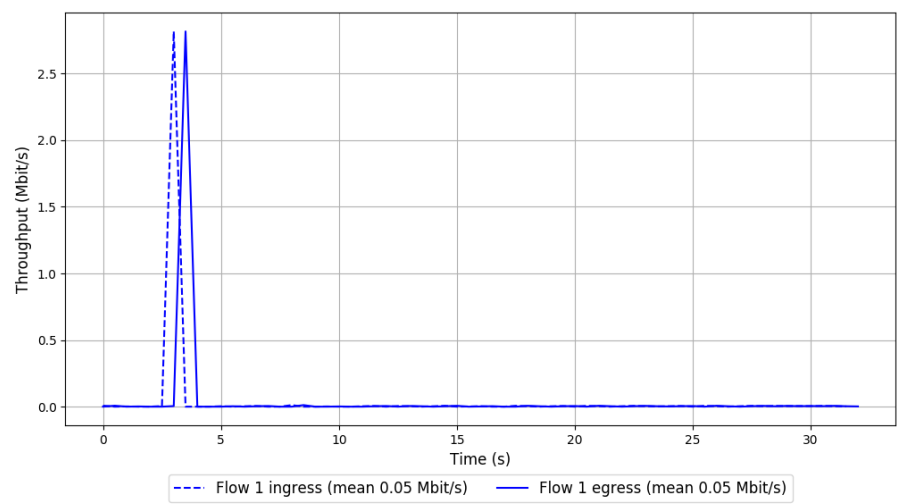Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2018-12-11 16:34:37
End at: 2018-12-11 16:35:07
Local clock offset: 3.716 ms
Remote clock offset: -4.255 ms


# Below is generated by plot.py at 2018-12-11 18:59:26
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 1.125 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 1.125 ms
Loss rate: 0.00%
```

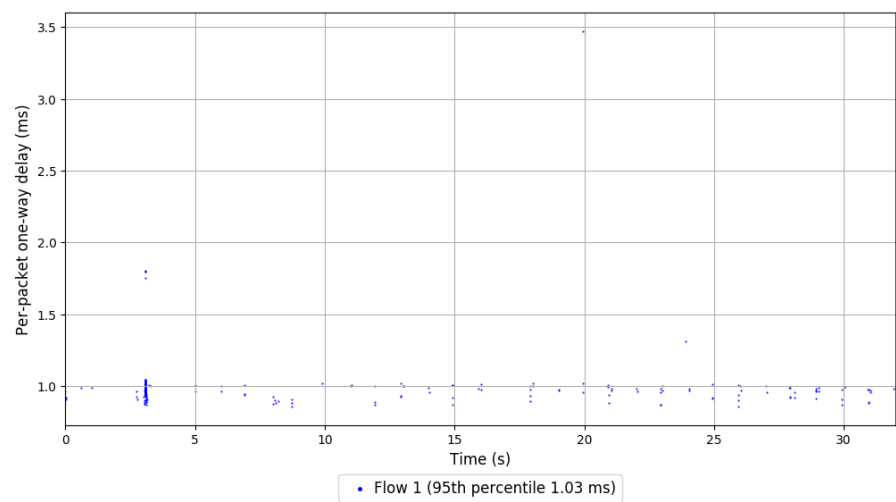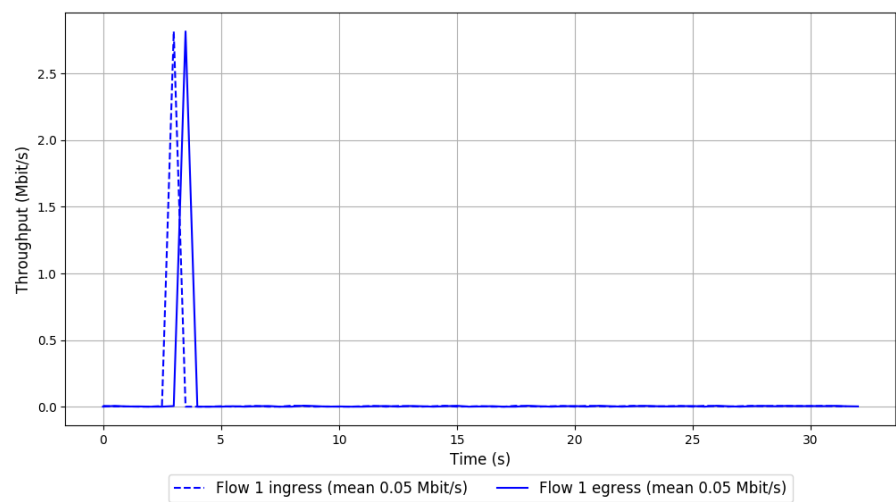Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-12-11 17:01:22
End at: 2018-12-11 17:01:52
Local clock offset: 4.151 ms
Remote clock offset: -3.645 ms


# Below is generated by plot.py at 2018-12-11 18:59:26
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 1.032 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 1.032 ms
Loss rate: 0.00%
```

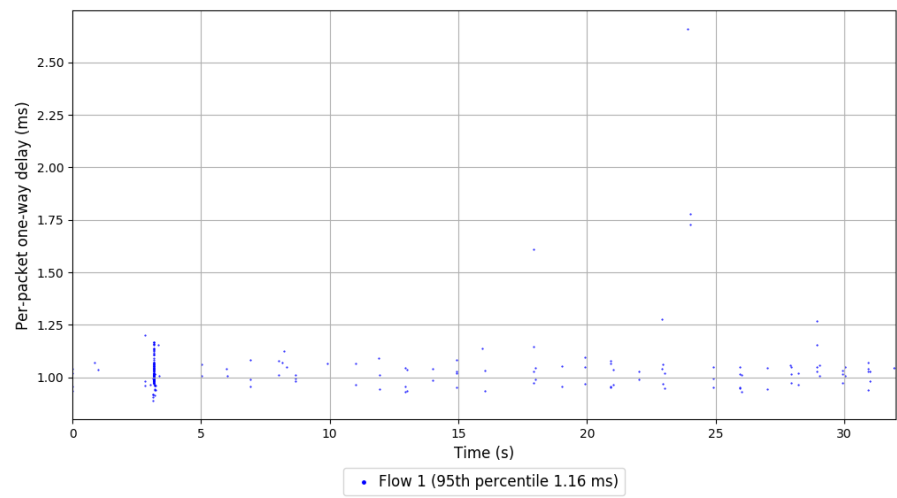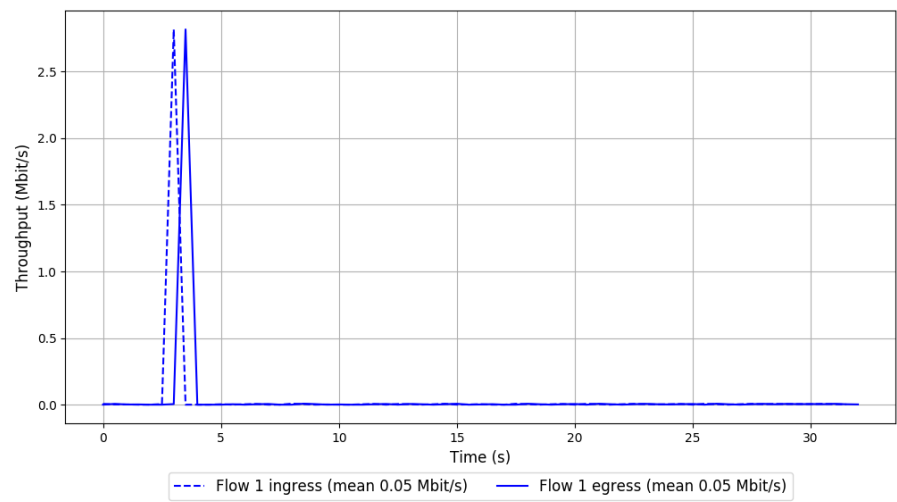Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2018-12-11 17:28:13
End at: 2018-12-11 17:28:44
Local clock offset: 4.573 ms
Remote clock offset: -3.219 ms


# Below is generated by plot.py at 2018-12-11 18:59:26
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 1.156 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 1.156 ms
Loss rate: 0.00%
```

Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2018-12-11 17:55:03
End at: 2018-12-11 17:55:33
Local clock offset: 4.98 ms
Remote clock offset: -0.608 ms


# Below is generated by plot.py at 2018-12-11 18:59:26
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 1.058 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 1.058 ms
Loss rate: 0.00%
```

Run 5: Report of WebRTC media — Data Link