Pantheon Report

Generated at 2018-12-10 23:50:05 (UTC).

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

Repeated the test of 19 congestion control schemes 5 times.

Each test lasted for 30 seconds running 1 flow.

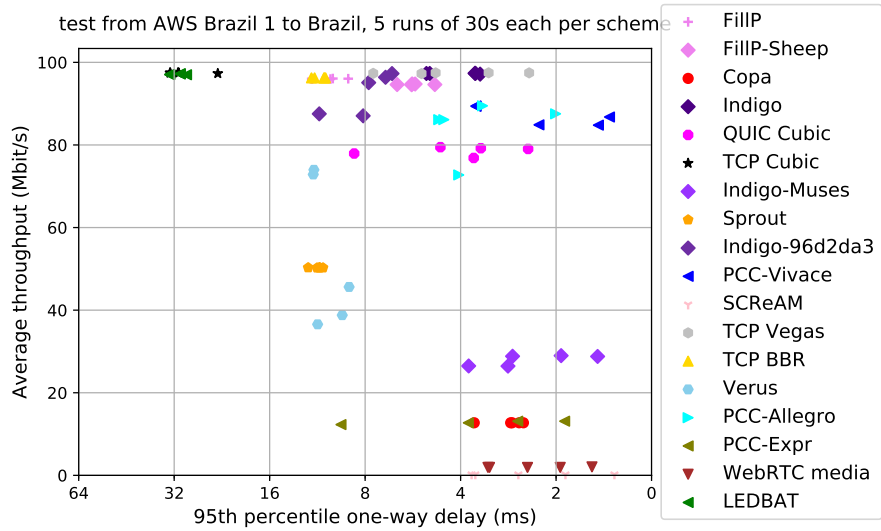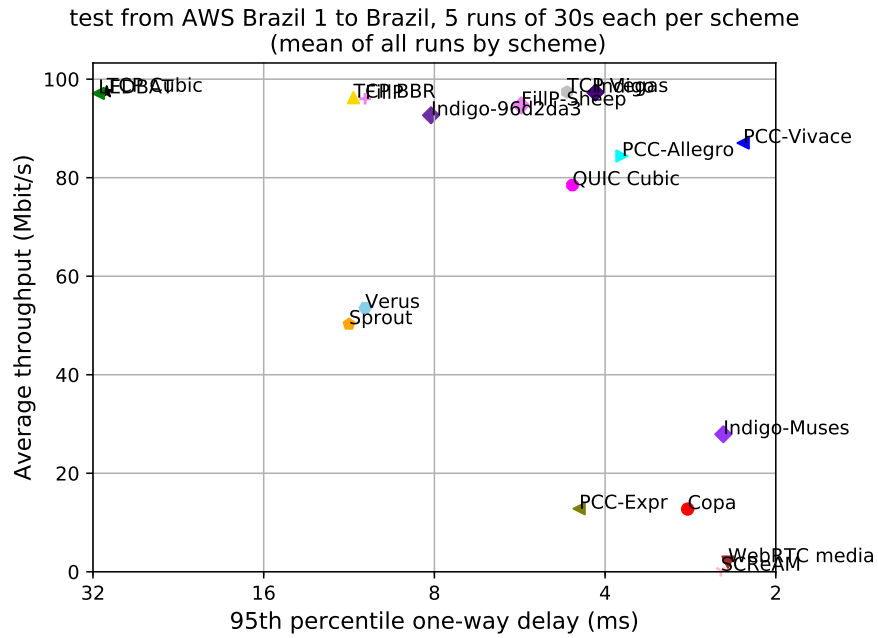NTP offsets were measured against gps.ntp.br and have been applied to correct the timestamps in logs.

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

Git summary:
branch: muses @ c6268d7c473682290bfe9901ef81a6b6a1e51d3c
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/indigo-96d2da3 @ 8413272d46f8aa0bcb967ed7048b6a8f994abb95
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
 M receiver/src/buffer.h
 M receiver/src/core.cpp
 M sender/src/buffer.h
 M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
 M src/ScreamClient
 M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
 M src/examples/cellsim.cc
 M src/examples/sproutbt2.cc
 M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
 M src/verus.hpp
 M tools/plot.py
```

```
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```
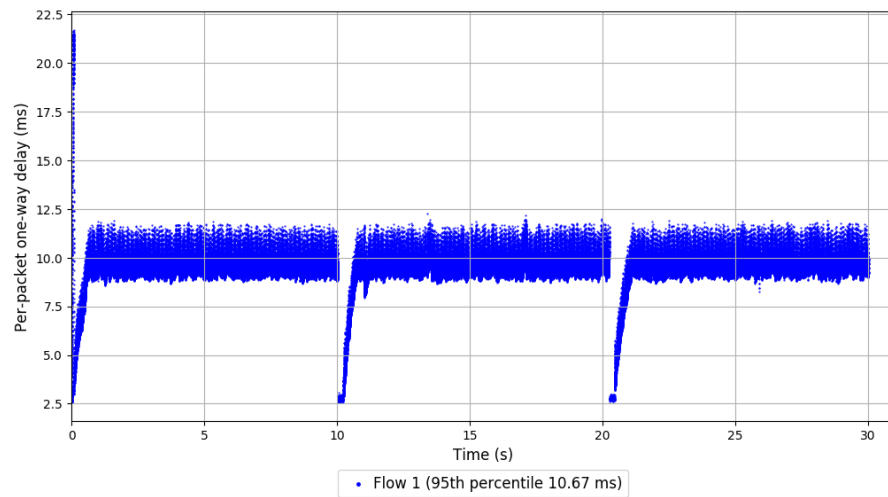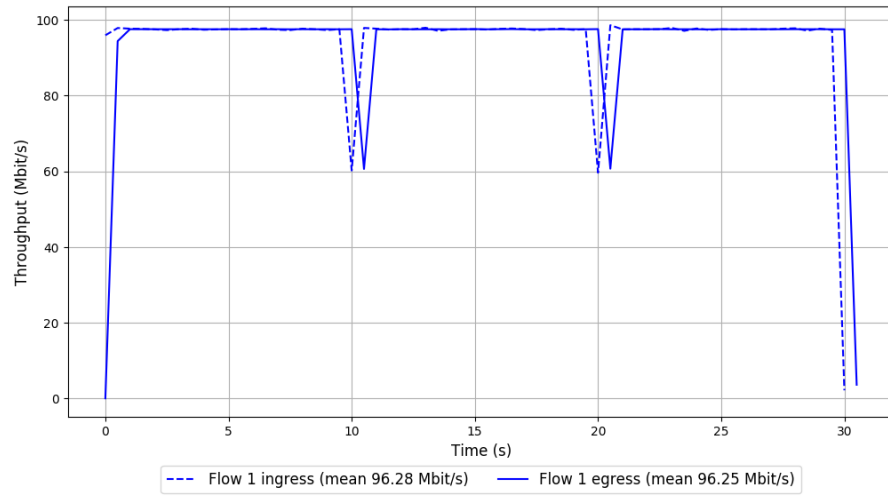
test from AWS Brazil 1 to Brazil, 5 runs of 30s each per scheme
(mean of all runs by scheme)

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

scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	5	96.24	11.11	0.01
Copa	5	12.73	2.86	69.23
TCP Cubic	5	97.44	30.26	0.01
FillP	5	96.02	10.60	0.28
FillP-Sheep	5	94.67	5.62	0.08
Indigo	5	97.29	4.16	0.01
Indigo-96d2da3	5	92.67	8.11	0.00
LEDBAT	5	97.11	31.32	0.02
Indigo-Muses	5	27.91	2.48	0.00
PCC-Allegro	5	84.40	3.74	0.00
PCC-Expr	4	12.81	4.45	31.07
QUIC Cubic	5	78.50	4.57	0.22
SCReAM	5	0.22	2.50	0.00
Sprout	5	50.27	11.32	0.00
TaoVA-100x	0	N/A	N/A	N/A
TCP Vegas	5	97.40	4.67	0.00
Verus	5	53.56	10.60	1.36
PCC-Vivace	5	87.05	2.28	0.00
WebRTC media	5	1.95	2.43	0.01

```
Run 1: Statistics of TCP BBR

Start at: 2018-12-10 21:55:29
End at: 2018-12-10 21:55:59
Local clock offset: -0.785 ms
Remote clock offset: -0.078 ms


# Below is generated by plot.py at 2018-12-10 23:42:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.25 Mbit/s
95th percentile per-packet one-way delay: 10.666 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 96.25 Mbit/s
95th percentile per-packet one-way delay: 10.666 ms
Loss rate: 0.01%
```
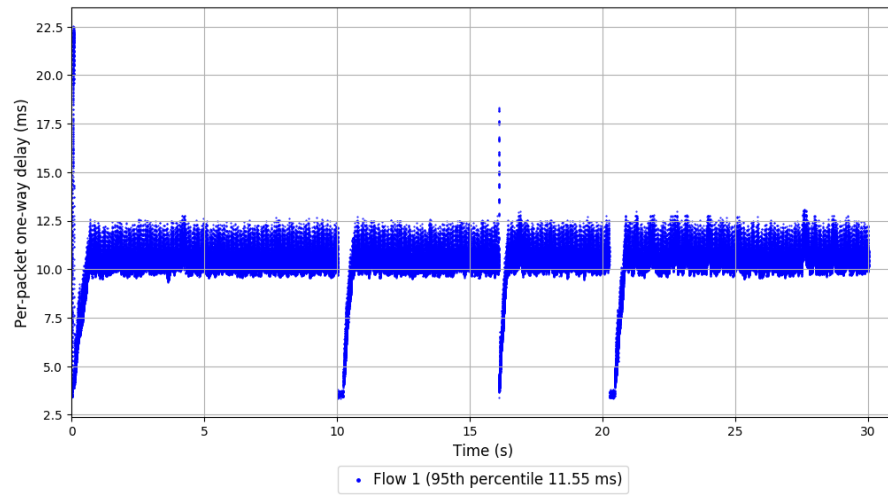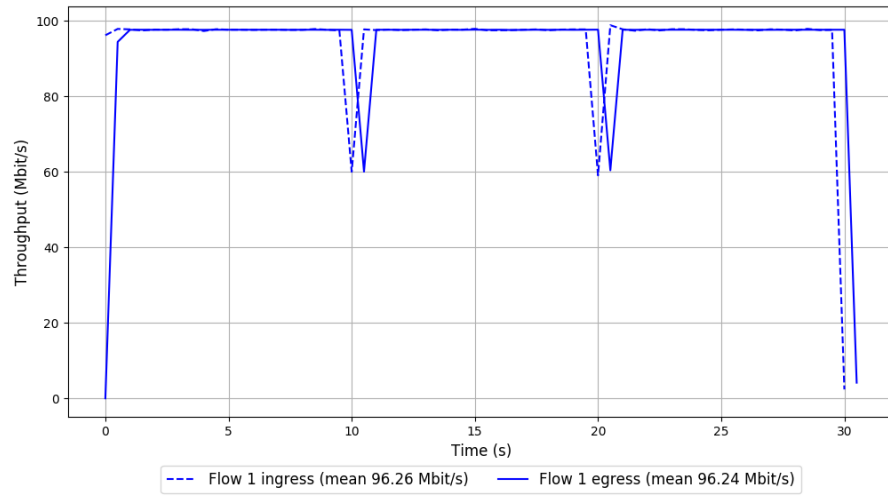
Run 1: Report of TCP BBR — Data Link

```
Run 2: Statistics of TCP BBR

Start at: 2018-12-10 22:16:40
End at: 2018-12-10 22:17:10
Local clock offset: -5.524 ms
Remote clock offset: 0.025 ms


# Below is generated by plot.py at 2018-12-10 23:42:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.24 Mbit/s
95th percentile per-packet one-way delay: 11.548 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 96.24 Mbit/s
95th percentile per-packet one-way delay: 11.548 ms
Loss rate: 0.00%
```
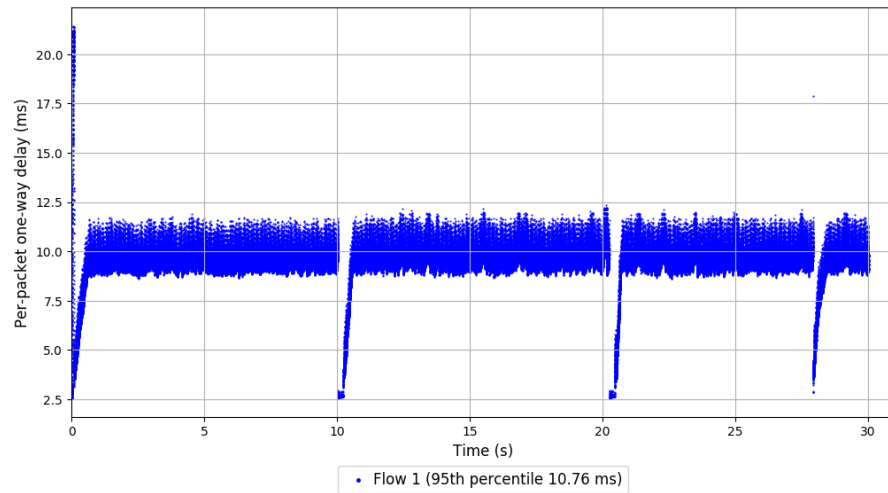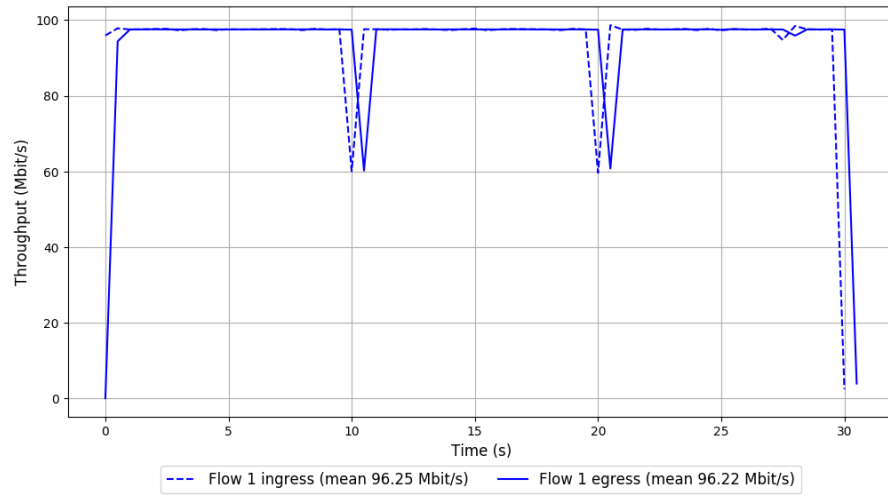
Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2018-12-10 22:37:50
End at: 2018-12-10 22:38:20
Local clock offset: -5.642 ms
Remote clock offset: 0.266 ms


# Below is generated by plot.py at 2018-12-10 23:42:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.22 Mbit/s
95th percentile per-packet one-way delay: 10.759 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 96.22 Mbit/s
95th percentile per-packet one-way delay: 10.759 ms
Loss rate: 0.01%
```
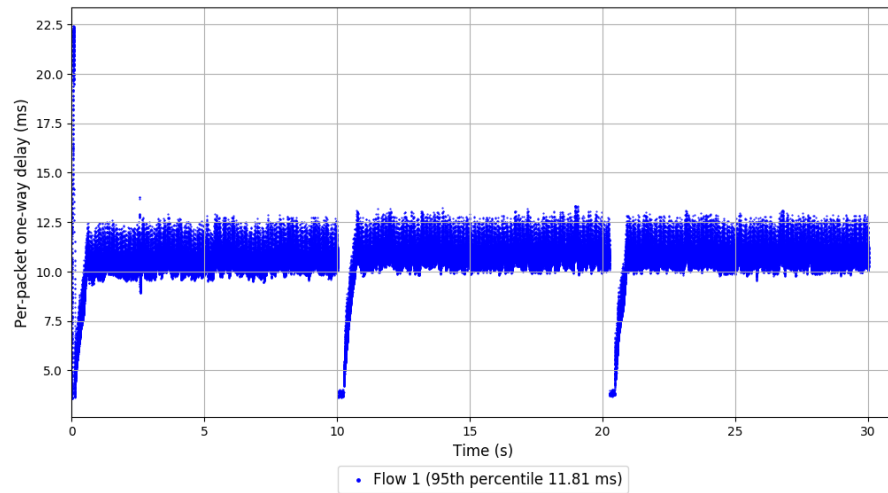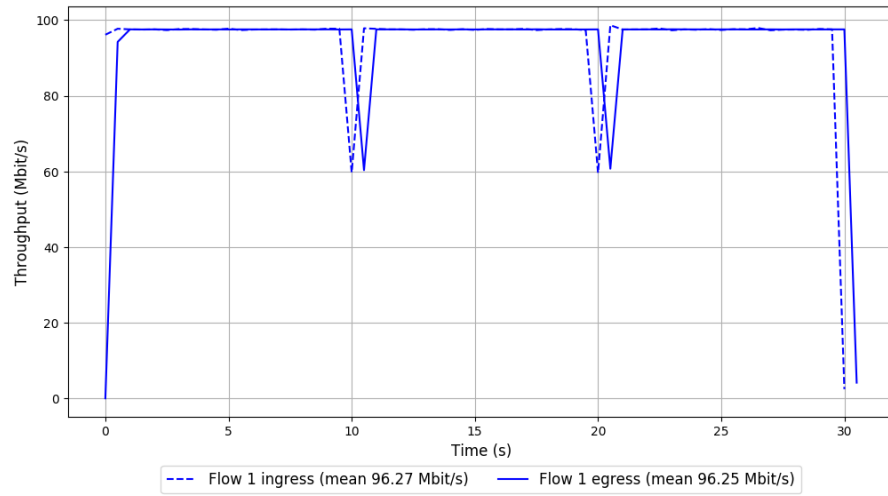
Run 3: Report of TCP BBR — Data Link

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

• Flow 1 (95th percentile 10.76 ms)

```
Run 4: Statistics of TCP BBR

Start at: 2018-12-10 22:59:00
End at: 2018-12-10 22:59:30
Local clock offset: -5.82 ms
Remote clock offset: 0.332 ms


# Below is generated by plot.py at 2018-12-10 23:42:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.25 Mbit/s
95th percentile per-packet one-way delay: 11.811 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 96.25 Mbit/s
95th percentile per-packet one-way delay: 11.811 ms
Loss rate: 0.01%
```
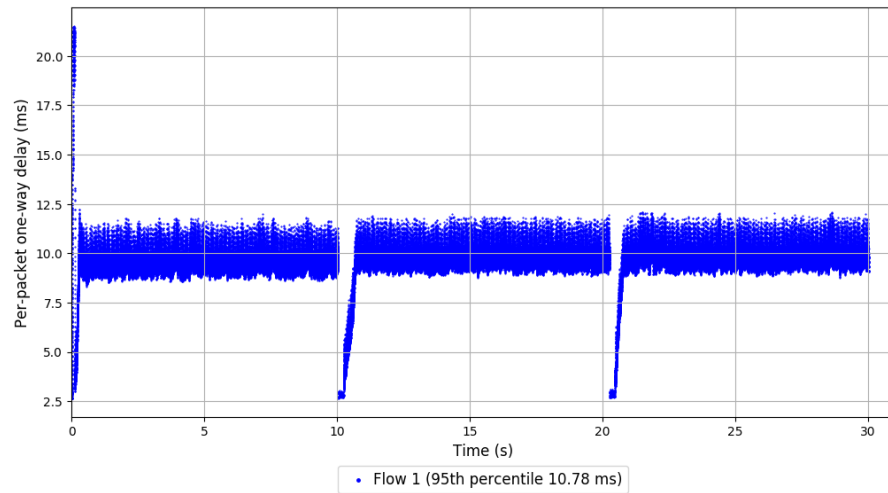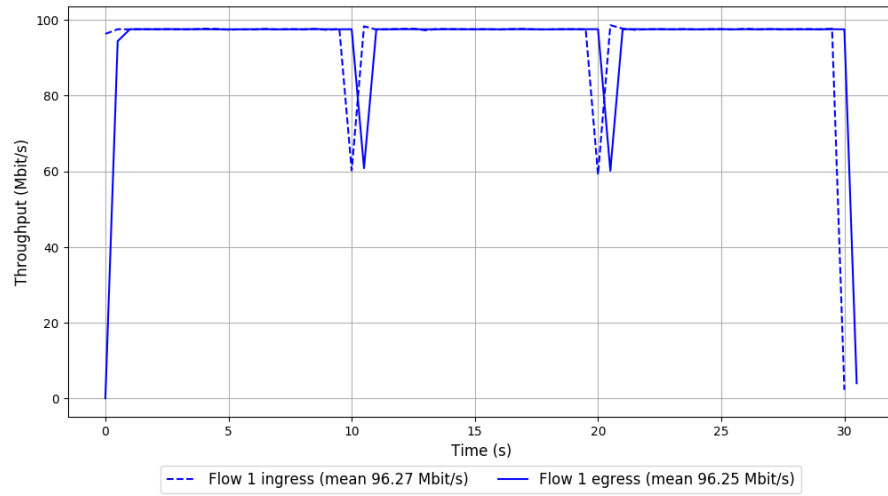
Run 4: Report of TCP BBR — Data Link

```
Run 5: Statistics of TCP BBR

Start at: 2018-12-10 23:20:10
End at: 2018-12-10 23:20:40
Local clock offset: -1.122 ms
Remote clock offset: 0.463 ms


# Below is generated by plot.py at 2018-12-10 23:42:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.25 Mbit/s
95th percentile per-packet one-way delay: 10.783 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 96.25 Mbit/s
95th percentile per-packet one-way delay: 10.783 ms
Loss rate: 0.01%
```

Run 5: Report of TCP BBR — Data Link

```
Run 1: Statistics of Copa

Start at: 2018-12-10 22:13:21
End at: 2018-12-10 22:13:51
Local clock offset: -4.591 ms
Remote clock offset: 0.053 ms

# Below is generated by plot.py at 2018-12-10 23:42:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 2.752 ms
Loss rate: 68.69%
-- Flow 1:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 2.752 ms
Loss rate: 68.69%
```
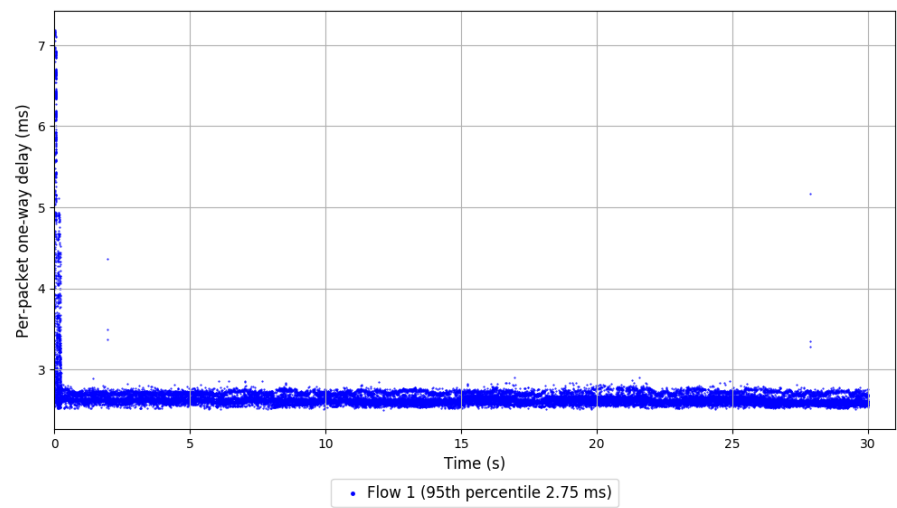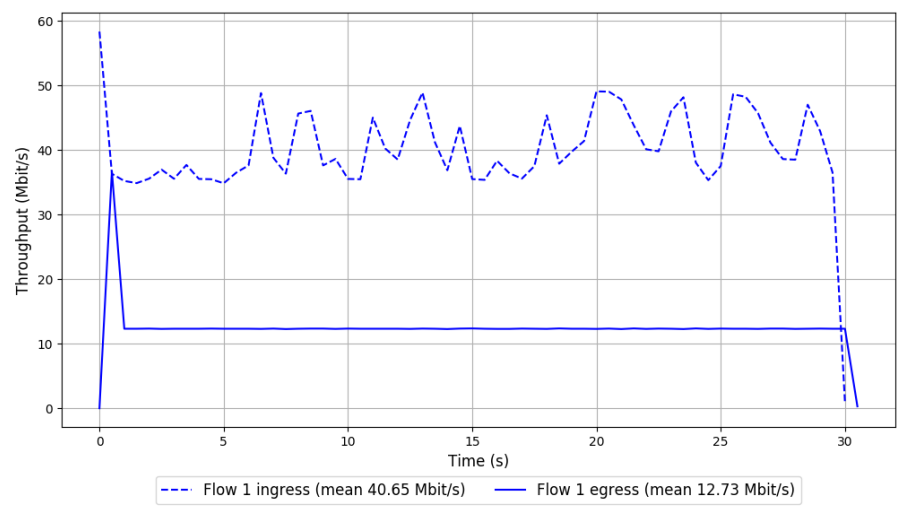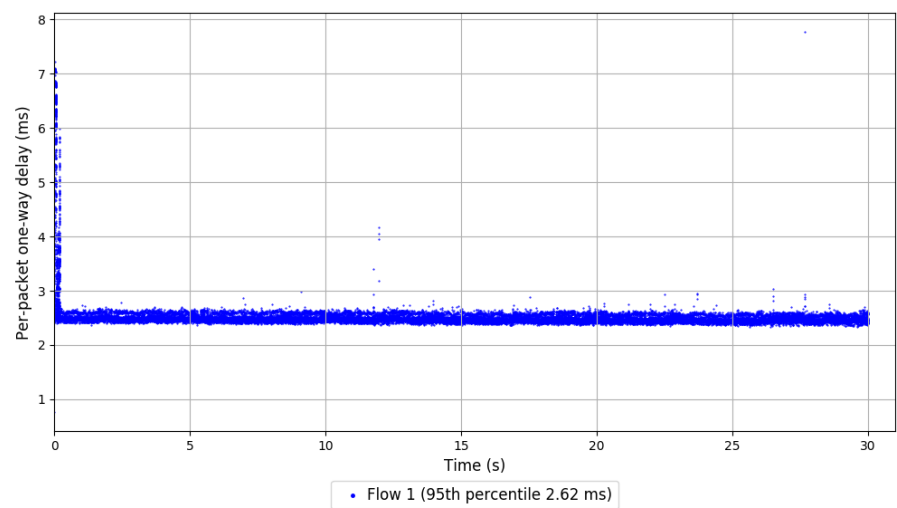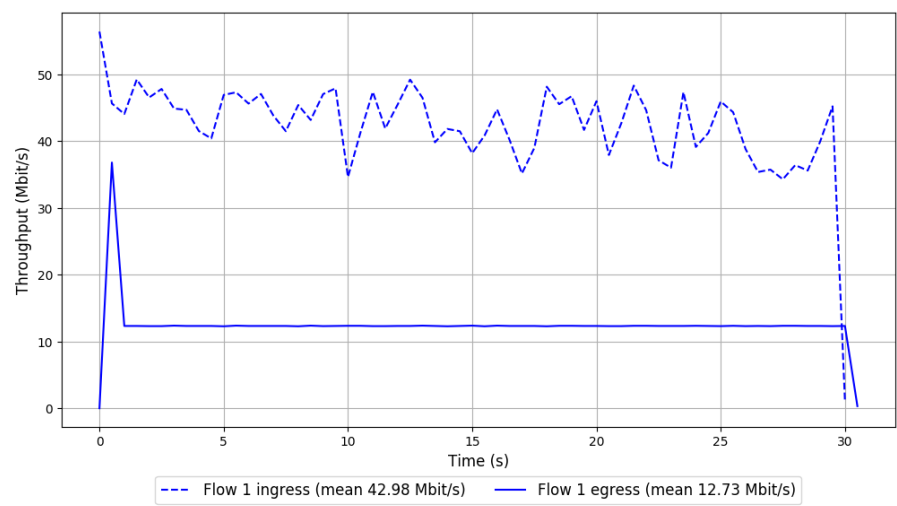
Run 1: Report of Copa — Data Link

Flow 1 ingress (mean 40.65 Mbit/s)   Flow 1 egress (mean 12.73 Mbit/s)

• Flow 1 (95th percentile 2.75 ms)

```
Run 2: Statistics of Copa

Start at: 2018-12-10 22:34:30
End at: 2018-12-10 22:35:00
Local clock offset: -5.439 ms
Remote clock offset: 0.115 ms


# Below is generated by plot.py at 2018-12-10 23:42:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 2.615 ms
Loss rate: 70.38%
-- Flow 1:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 2.615 ms
Loss rate: 70.38%
```
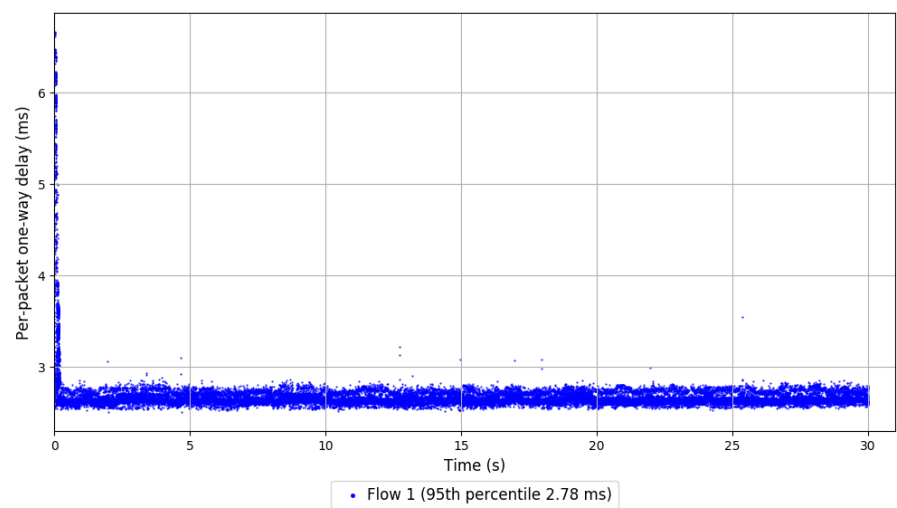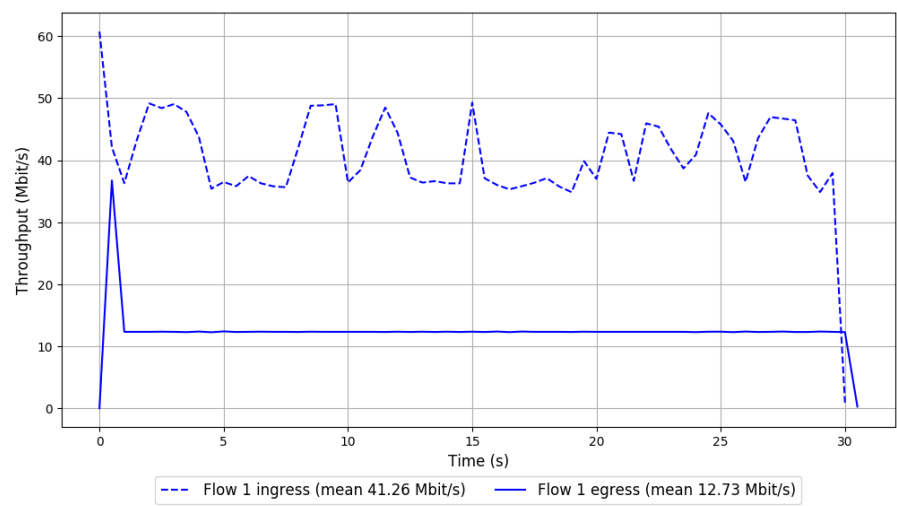
Run 2: Report of Copa — Data Link

```
Run 3: Statistics of Copa

Start at: 2018-12-10 22:55:40
End at: 2018-12-10 22:56:10
Local clock offset: -5.588 ms
Remote clock offset: 0.366 ms


# Below is generated by plot.py at 2018-12-10 23:42:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 2.781 ms
Loss rate: 69.15%
-- Flow 1:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 2.781 ms
Loss rate: 69.15%
```
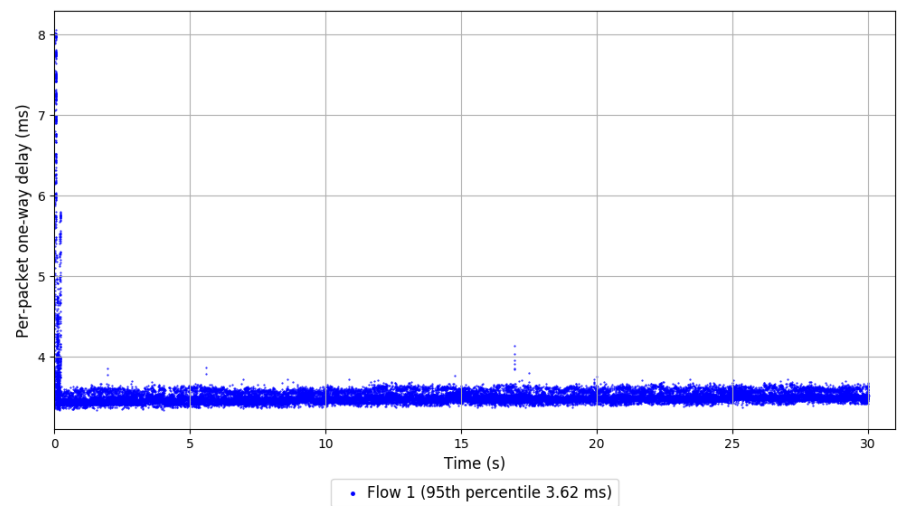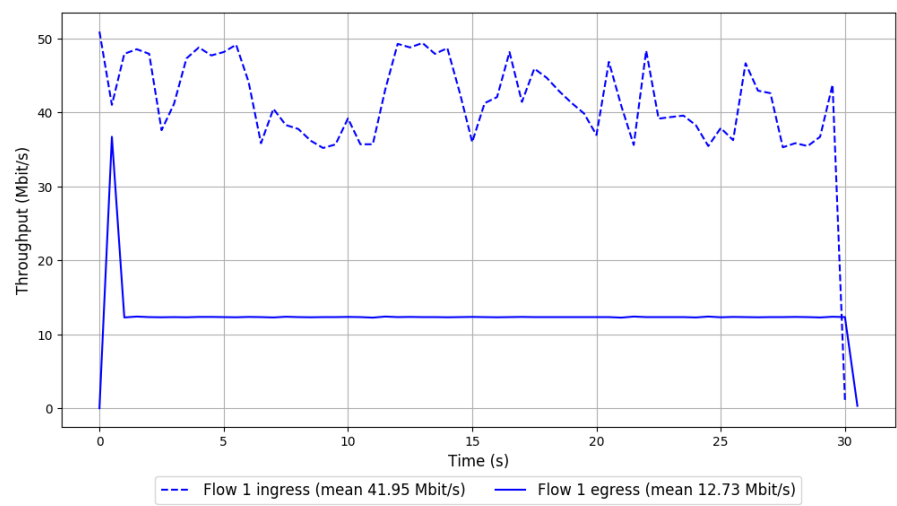
Run 3: Report of Copa — Data Link

Flow 1 ingress (mean 41.26 Mbit/s) --- Flow 1 egress (mean 12.73 Mbit/s) ———

Flow 1 (95th percentile 2.78 ms)

```
Run 4: Statistics of Copa

Start at: 2018-12-10 23:16:50
End at: 2018-12-10 23:17:20
Local clock offset: -2.358 ms
Remote clock offset: 0.311 ms


# Below is generated by plot.py at 2018-12-10 23:42:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 3.623 ms
Loss rate: 69.66%
-- Flow 1:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 3.623 ms
Loss rate: 69.66%
```
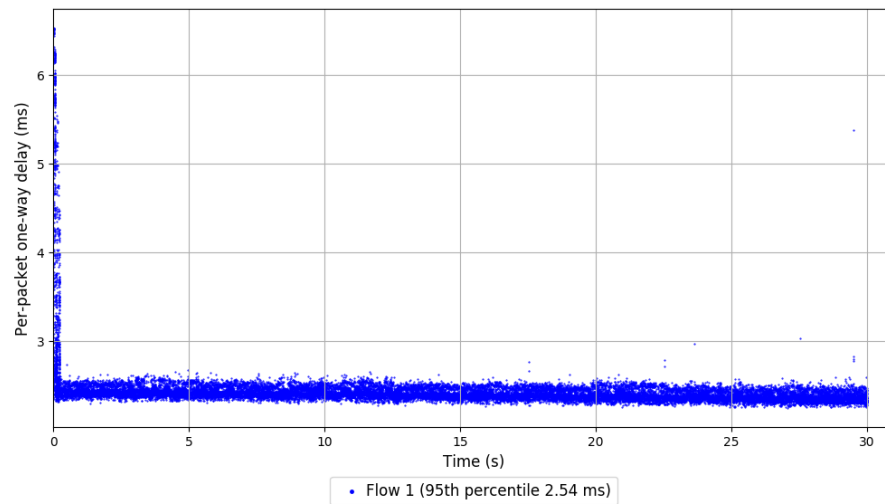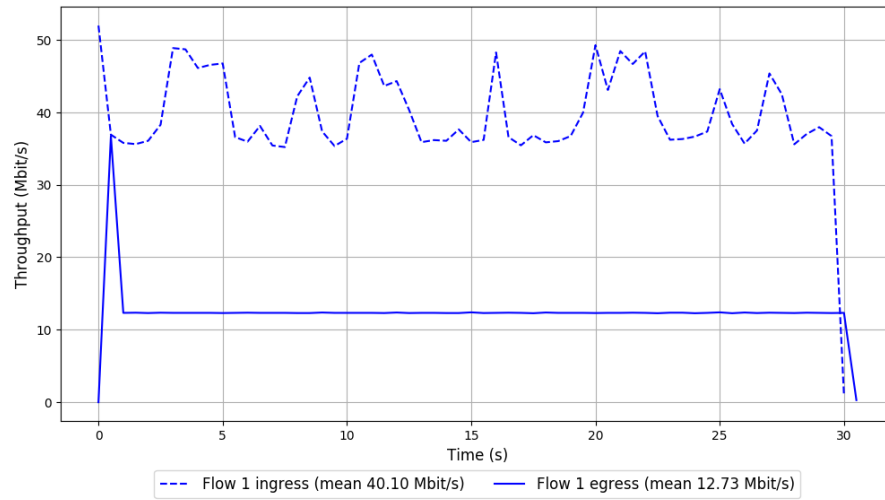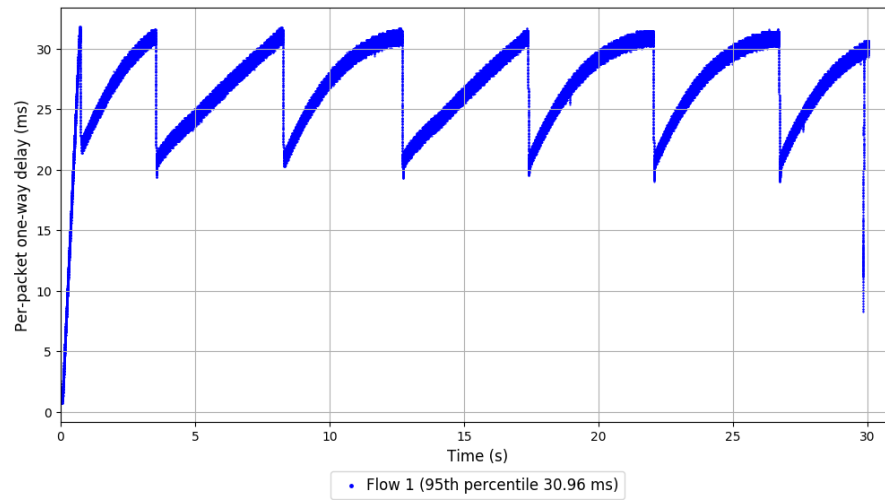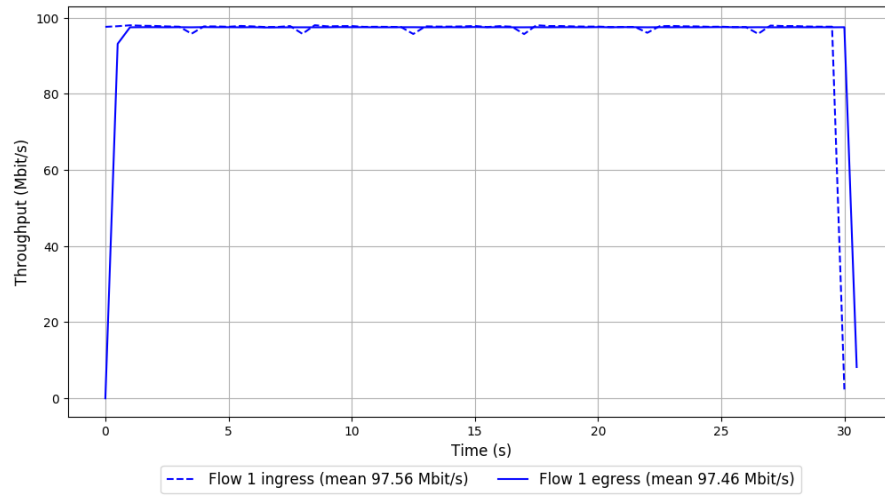
Run 4: Report of Copa — Data Link

Flow 1 ingress (mean 41.95 Mbit/s)   Flow 1 egress (mean 12.73 Mbit/s)

Flow 1 (95th percentile 3.62 ms)

```
Run 5: Statistics of Copa

Start at: 2018-12-10 23:38:02
End at: 2018-12-10 23:38:32
Local clock offset: -4.098 ms
Remote clock offset: 0.357 ms

# Below is generated by plot.py at 2018-12-10 23:42:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 2.535 ms
Loss rate: 68.25%
-- Flow 1:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 2.535 ms
Loss rate: 68.25%
```

Run 5: Report of Copa — Data Link

```
Run 1: Statistics of TCP Cubic

Start at: 2018-12-10 22:01:09
End at: 2018-12-10 22:01:39
Local clock offset: -2.543 ms
Remote clock offset: -0.026 ms


# Below is generated by plot.py at 2018-12-10 23:42:22
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.46 Mbit/s
95th percentile per-packet one-way delay: 30.958 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.46 Mbit/s
95th percentile per-packet one-way delay: 30.958 ms
Loss rate: 0.01%
```
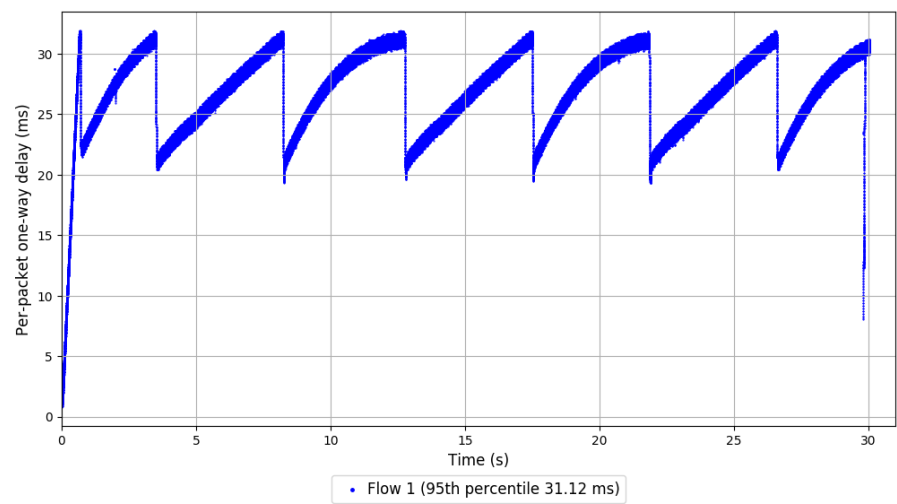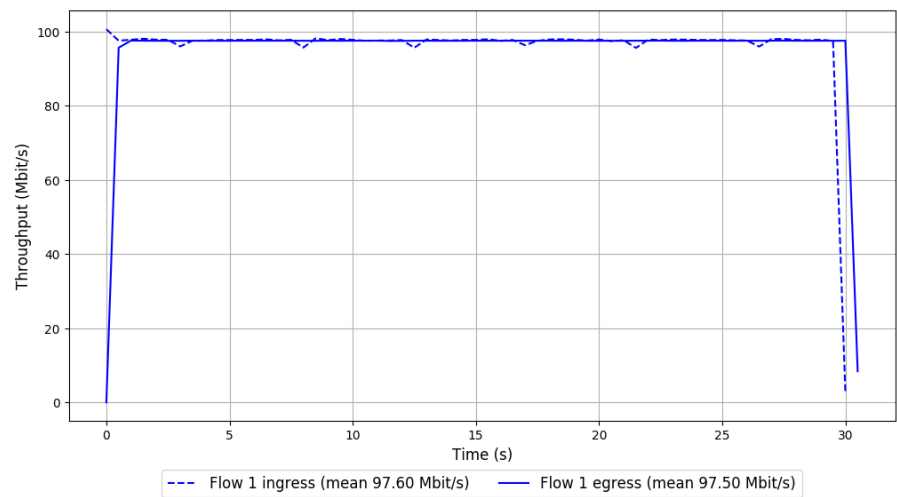
Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2018-12-10 22:22:20
End at: 2018-12-10 22:22:50
Local clock offset: -4.515 ms
Remote clock offset: 0.069 ms


# Below is generated by plot.py at 2018-12-10 23:42:32
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.50 Mbit/s
95th percentile per-packet one-way delay: 31.125 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.50 Mbit/s
95th percentile per-packet one-way delay: 31.125 ms
Loss rate: 0.01%
```

Run 2: Report of TCP Cubic — Data Link

```
Run 3: Statistics of TCP Cubic

Start at: 2018-12-10 22:43:30
End at: 2018-12-10 22:44:00
Local clock offset: -5.829 ms
Remote clock offset: 0.283 ms


# Below is generated by plot.py at 2018-12-10 23:42:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.46 Mbit/s
95th percentile per-packet one-way delay: 32.977 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 97.46 Mbit/s
95th percentile per-packet one-way delay: 32.977 ms
Loss rate: 0.02%
```
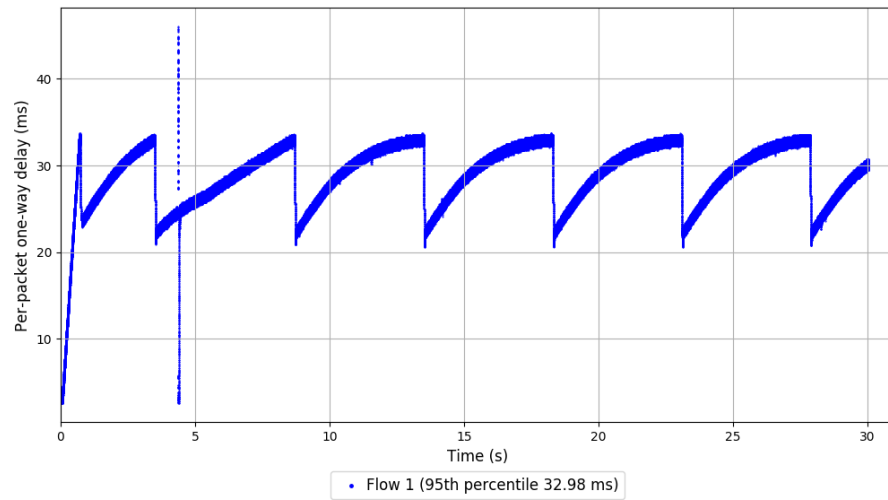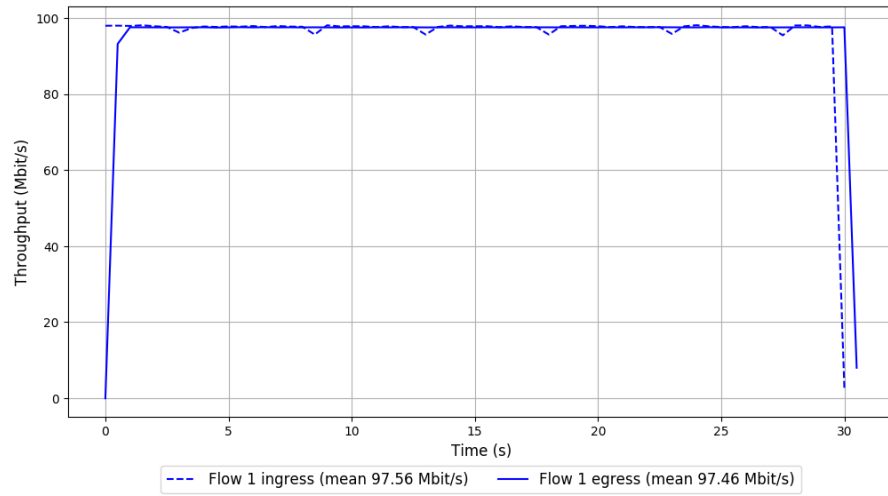
Run 3: Report of TCP Cubic — Data Link

```
Run 4: Statistics of TCP Cubic

Start at: 2018-12-10 23:04:40
End at: 2018-12-10 23:05:10
Local clock offset: -3.322 ms
Remote clock offset: 0.305 ms


# Below is generated by plot.py at 2018-12-10 23:43:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.31 Mbit/s
95th percentile per-packet one-way delay: 23.315 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.31 Mbit/s
95th percentile per-packet one-way delay: 23.315 ms
Loss rate: 0.01%
```
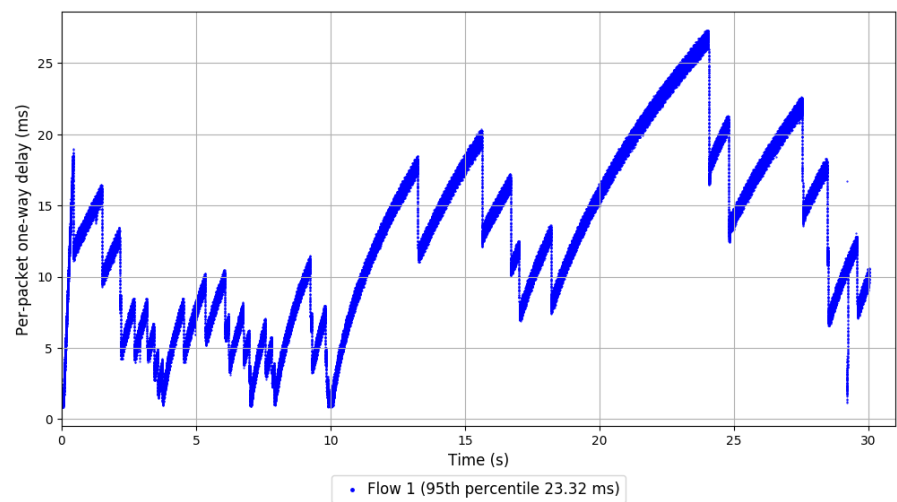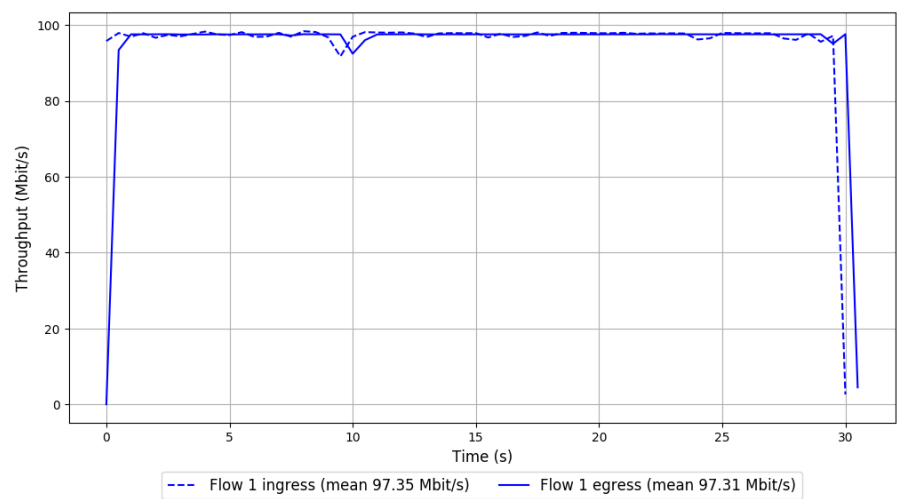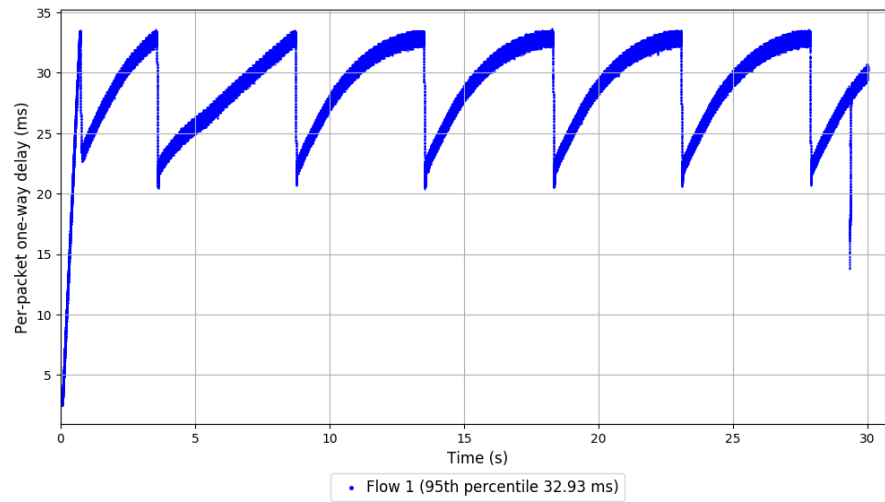
Run 4: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 97.35 Mbit/s)   Flow 1 egress (mean 97.31 Mbit/s)

Flow 1 (95th percentile 23.32 ms)

```
Run 5: Statistics of TCP Cubic

Start at: 2018-12-10 23:25:50
End at: 2018-12-10 23:26:20
Local clock offset: -0.559 ms
Remote clock offset: 0.388 ms


# Below is generated by plot.py at 2018-12-10 23:43:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.46 Mbit/s
95th percentile per-packet one-way delay: 32.930 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.46 Mbit/s
95th percentile per-packet one-way delay: 32.930 ms
Loss rate: 0.01%
```
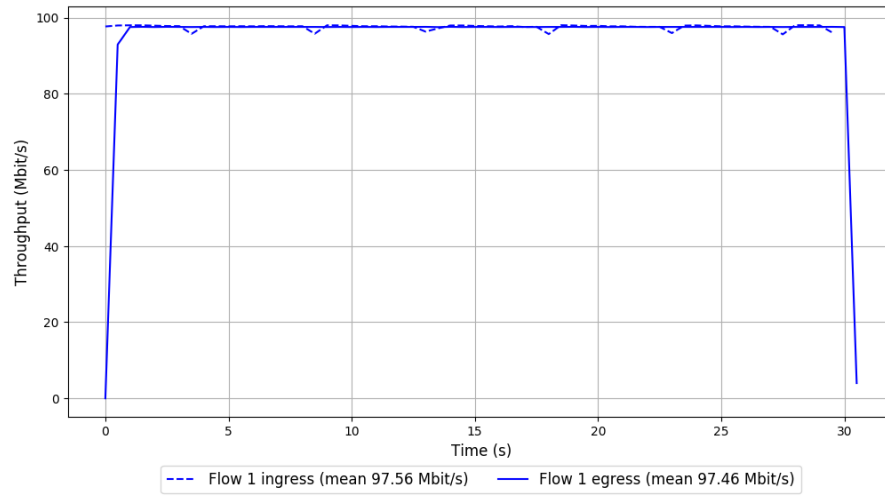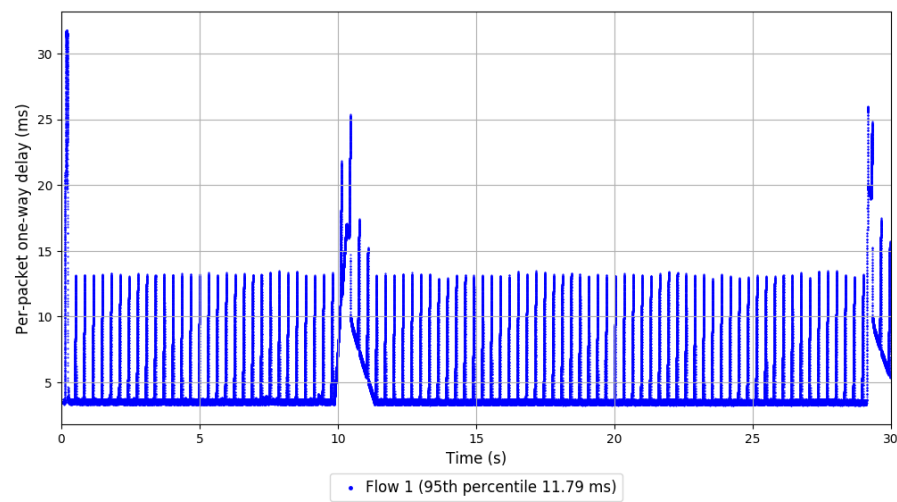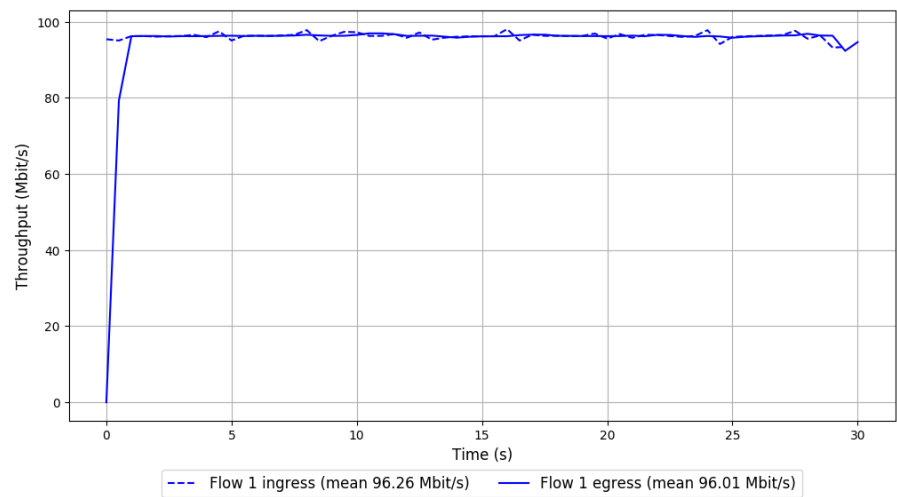
Run 5: Report of TCP Cubic — Data Link

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

• Flow 1 (95th percentile 32.93 ms)

```
Run 1: Statistics of FillP

Start at: 2018-12-10 22:08:56
End at: 2018-12-10 22:09:26
Local clock offset: -5.247 ms
Remote clock offset: -0.02 ms


# Below is generated by plot.py at 2018-12-10 23:43:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.01 Mbit/s
95th percentile per-packet one-way delay: 11.791 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 96.01 Mbit/s
95th percentile per-packet one-way delay: 11.791 ms
Loss rate: 0.25%
```
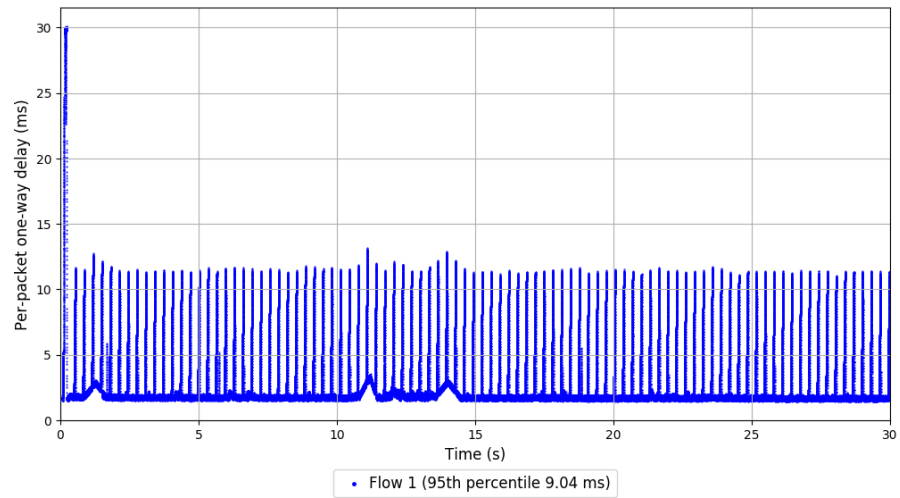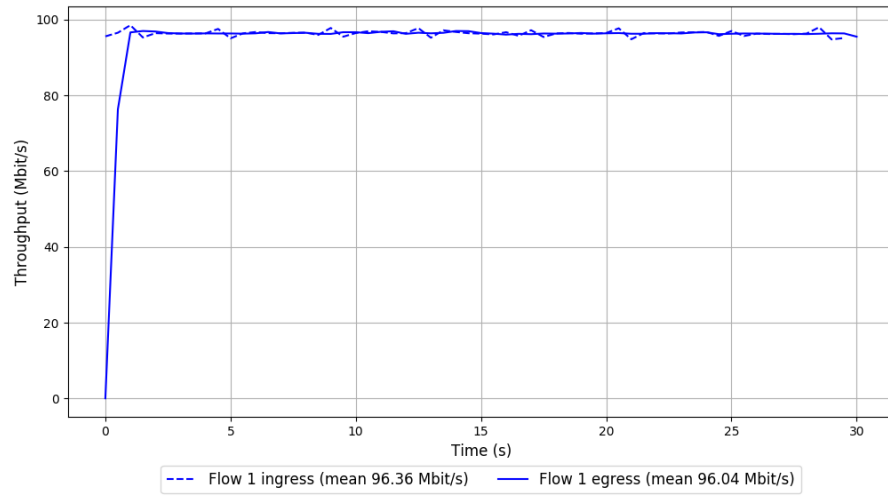
Run 1: Report of FillP — Data Link

Flow 1 ingress (mean 96.26 Mbit/s)   Flow 1 egress (mean 96.01 Mbit/s)

Flow 1 (95th percentile 11.79 ms)

```
Run 2: Statistics of FillP

Start at: 2018-12-10 22:30:06
End at: 2018-12-10 22:30:36
Local clock offset: -5.751 ms
Remote clock offset: 0.177 ms


# Below is generated by plot.py at 2018-12-10 23:43:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.04 Mbit/s
95th percentile per-packet one-way delay: 9.044 ms
Loss rate: 0.32%
-- Flow 1:
Average throughput: 96.04 Mbit/s
95th percentile per-packet one-way delay: 9.044 ms
Loss rate: 0.32%
```

Run 2: Report of FillP — Data Link

```
Run 3: Statistics of FillP

Start at: 2018-12-10 22:51:16
End at: 2018-12-10 22:51:46
Local clock offset: -5.776 ms
Remote clock offset: 0.309 ms


# Below is generated by plot.py at 2018-12-10 23:43:22
# Datalink statistics
-- Total of 1 flow:
Average throughput: 95.96 Mbit/s
95th percentile per-packet one-way delay: 10.291 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 95.96 Mbit/s
95th percentile per-packet one-way delay: 10.291 ms
Loss rate: 0.25%
```
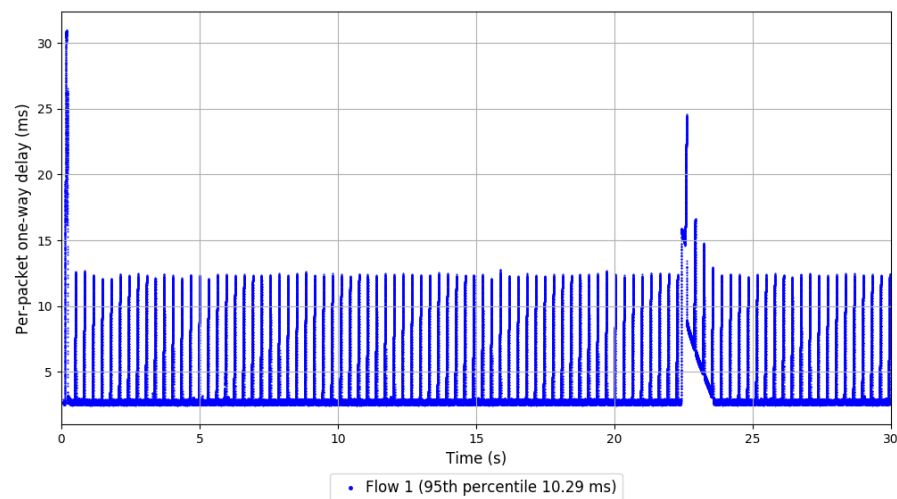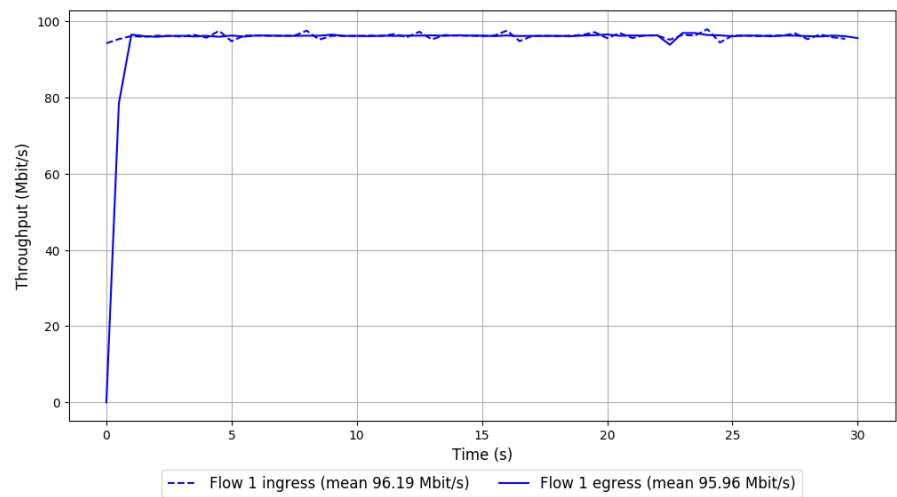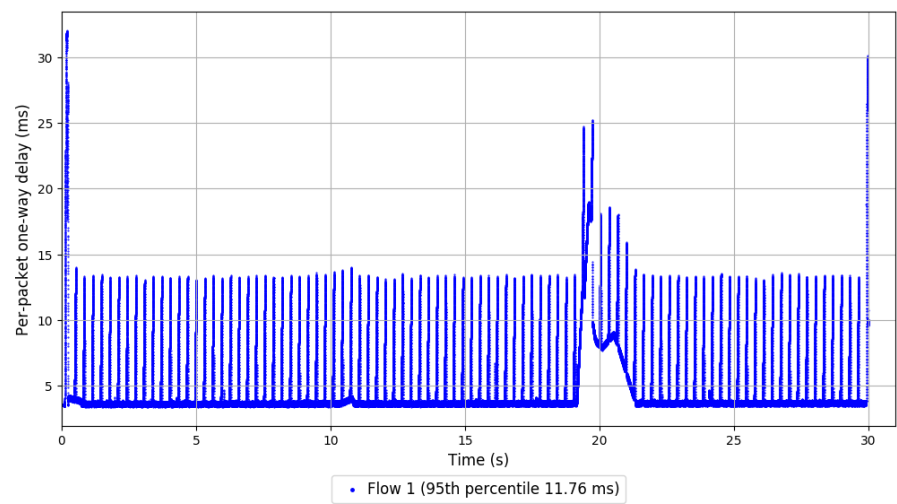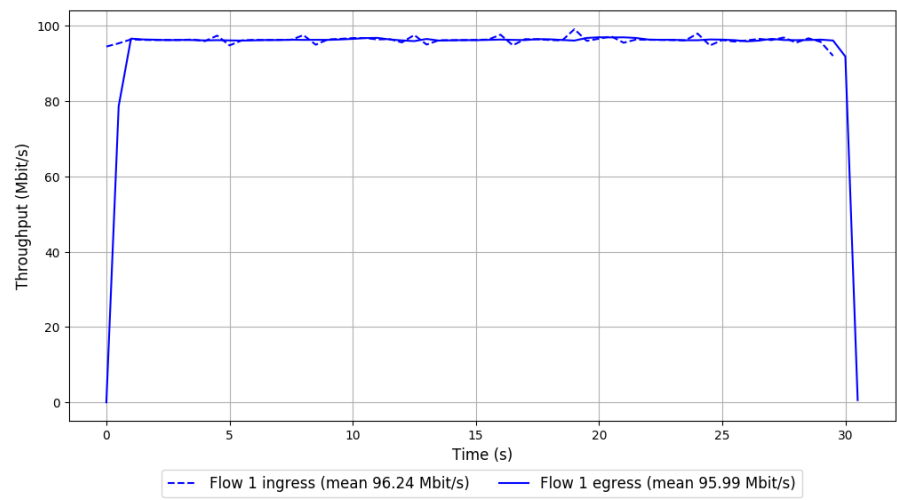
Run 3: Report of FillP — Data Link

Flow 1 ingress (mean 96.19 Mbit/s)   Flow 1 egress (mean 95.96 Mbit/s)

Flow 1 (95th percentile 10.29 ms)

```
Run 4: Statistics of FillP

Start at: 2018-12-10 23:12:25
End at: 2018-12-10 23:12:55
Local clock offset: -2.894 ms
Remote clock offset: 0.451 ms


# Below is generated by plot.py at 2018-12-10 23:43:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 95.99 Mbit/s
95th percentile per-packet one-way delay: 11.757 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 95.99 Mbit/s
95th percentile per-packet one-way delay: 11.757 ms
Loss rate: 0.25%
```

Run 4: Report of FillP — Data Link

```
Run 5: Statistics of FillP

Start at: 2018-12-10 23:33:37
End at: 2018-12-10 23:34:07
Local clock offset: -3.946 ms
Remote clock offset: 0.516 ms


# Below is generated by plot.py at 2018-12-10 23:43:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.08 Mbit/s
95th percentile per-packet one-way delay: 10.114 ms
Loss rate: 0.33%
-- Flow 1:
Average throughput: 96.08 Mbit/s
95th percentile per-packet one-way delay: 10.114 ms
Loss rate: 0.33%
```
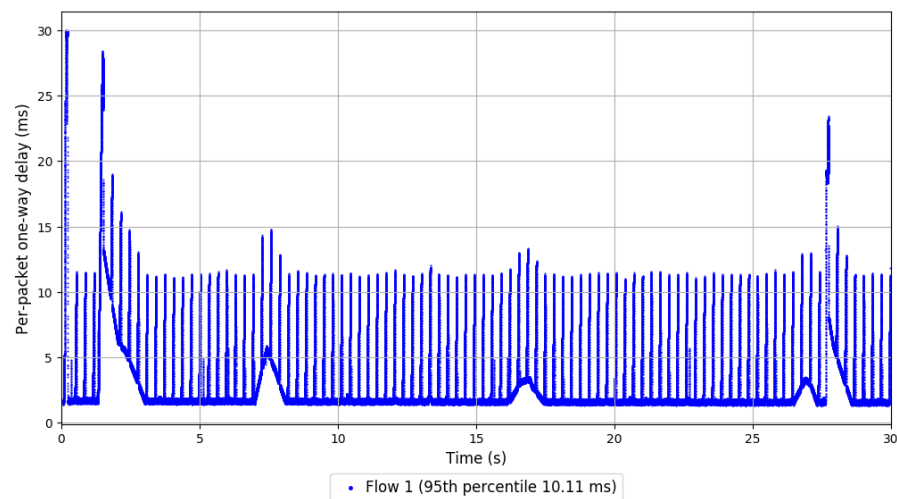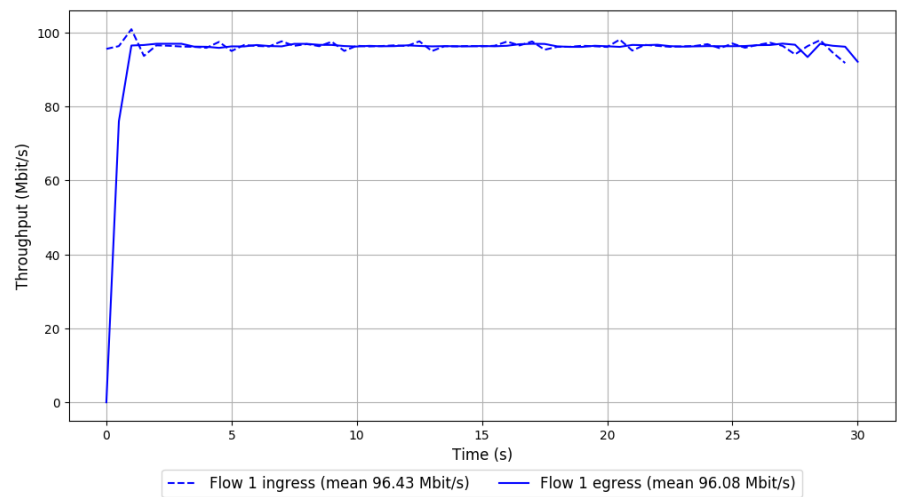
Run 5: Report of FillP — Data Link

Flow 1 ingress (mean 96.43 Mbit/s)   Flow 1 egress (mean 96.08 Mbit/s)

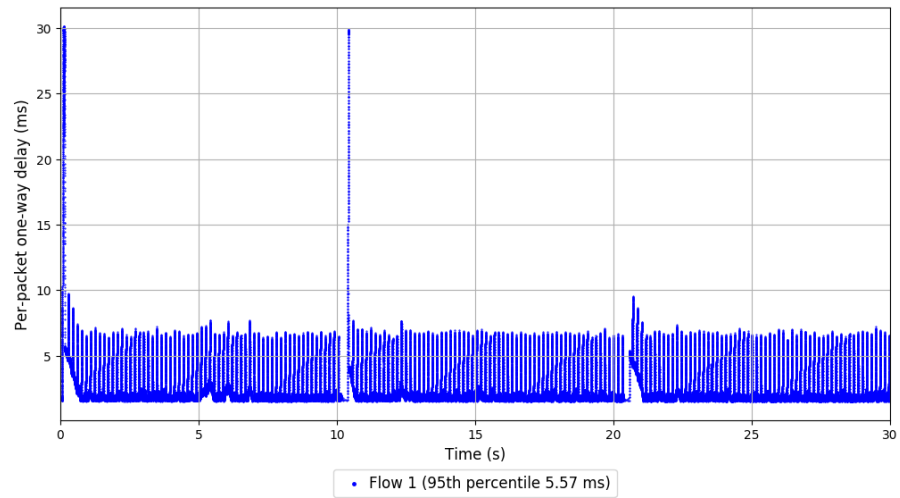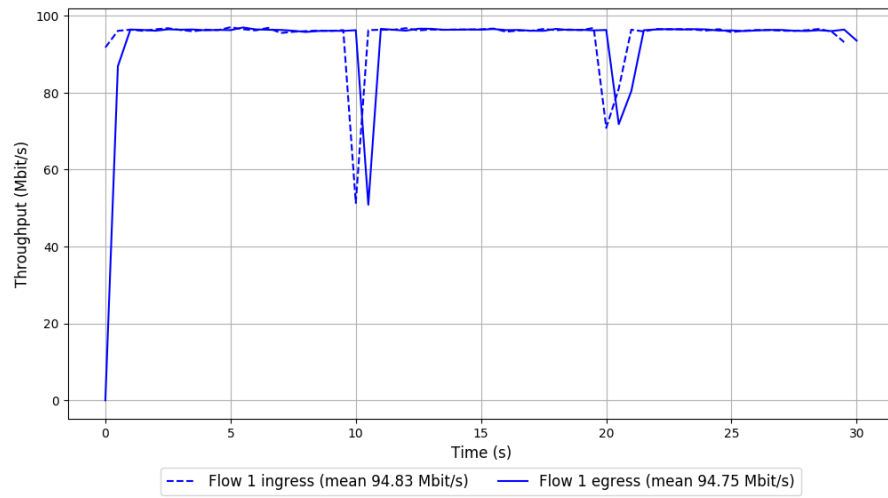• Flow 1 (95th percentile 10.11 ms)

44

```
Run 1: Statistics of FillP-Sheep

Start at: 2018-12-10 22:12:13
End at: 2018-12-10 22:12:43
Local clock offset: -5.481 ms
Remote clock offset: -0.071 ms


# Below is generated by plot.py at 2018-12-10 23:43:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 94.75 Mbit/s
95th percentile per-packet one-way delay: 5.565 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 94.75 Mbit/s
95th percentile per-packet one-way delay: 5.565 ms
Loss rate: 0.08%
```

Run 1: Report of FillP-Sheep — Data Link

```
Run 2: Statistics of FillP-Sheep

Start at: 2018-12-10 22:33:23
End at: 2018-12-10 22:33:53
Local clock offset: -5.36 ms
Remote clock offset: 0.185 ms


# Below is generated by plot.py at 2018-12-10 23:44:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 94.63 Mbit/s
95th percentile per-packet one-way delay: 4.823 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 94.63 Mbit/s
95th percentile per-packet one-way delay: 4.823 ms
Loss rate: 0.08%
```
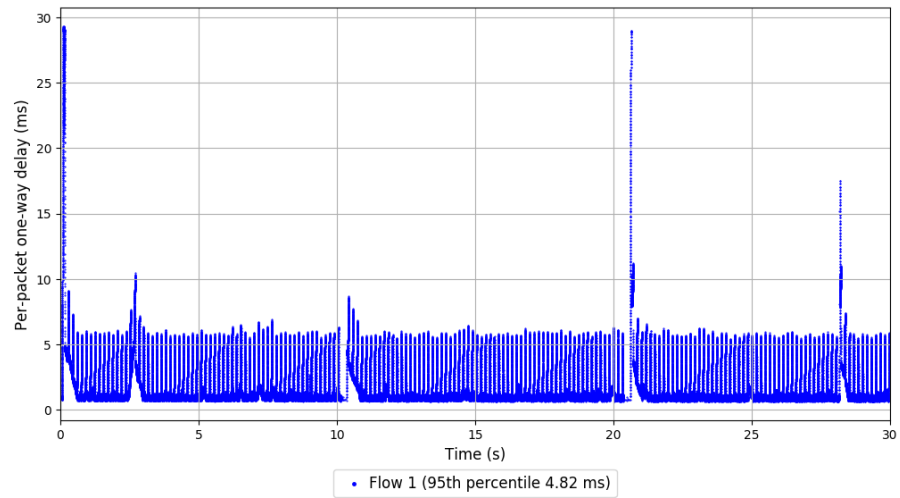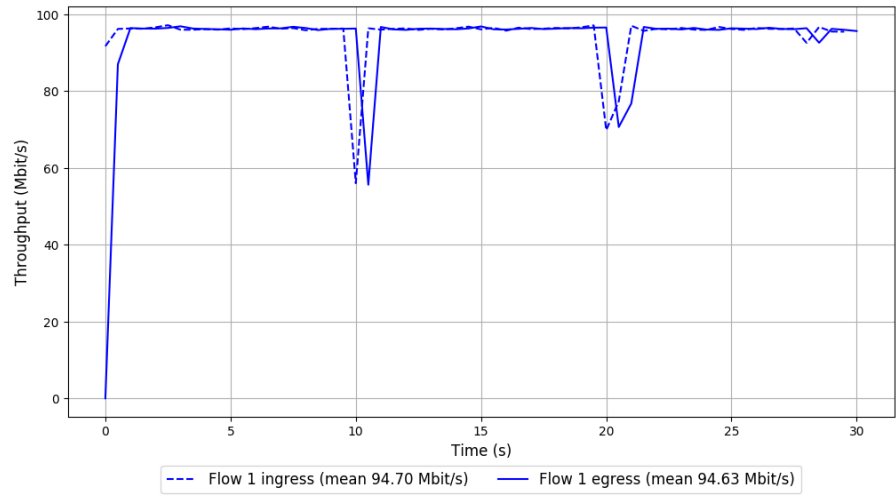
Run 2: Report of FillP-Sheep — Data Link

```
Run 3: Statistics of FillP-Sheep

Start at: 2018-12-10 22:54:33
End at: 2018-12-10 22:55:03
Local clock offset: -6.511 ms
Remote clock offset: 0.376 ms


# Below is generated by plot.py at 2018-12-10 23:44:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 94.78 Mbit/s
95th percentile per-packet one-way delay: 5.686 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 94.78 Mbit/s
95th percentile per-packet one-way delay: 5.686 ms
Loss rate: 0.07%
```
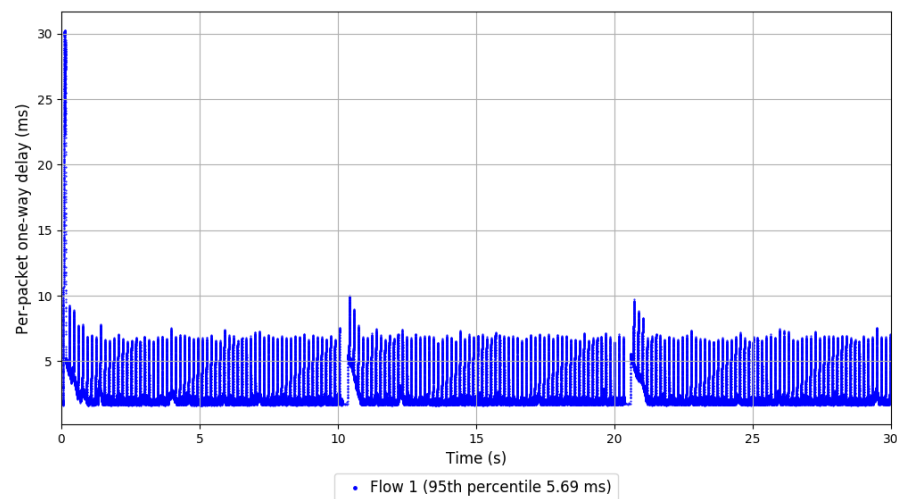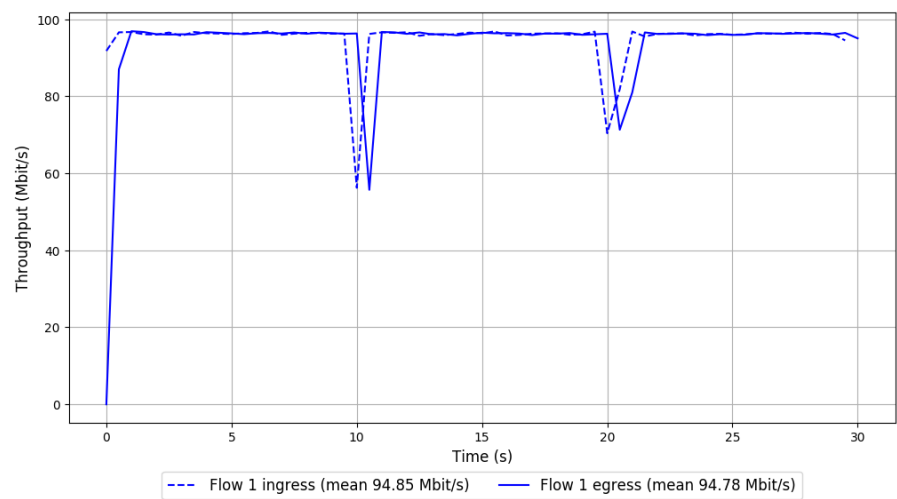
Run 3: Report of FillP-Sheep — Data Link

```
Run 4: Statistics of FillP-Sheep

Start at: 2018-12-10 23:15:42
End at: 2018-12-10 23:16:12
Local clock offset: -2.524 ms
Remote clock offset: 0.343 ms


# Below is generated by plot.py at 2018-12-10 23:44:37
# Datalink statistics
-- Total of 1 flow:
Average throughput: 94.58 Mbit/s
95th percentile per-packet one-way delay: 5.708 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 94.58 Mbit/s
95th percentile per-packet one-way delay: 5.708 ms
Loss rate: 0.08%
```
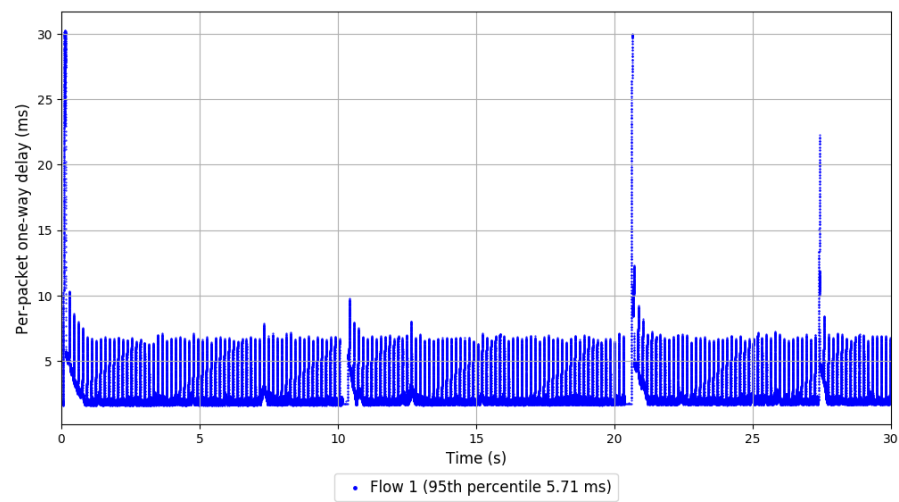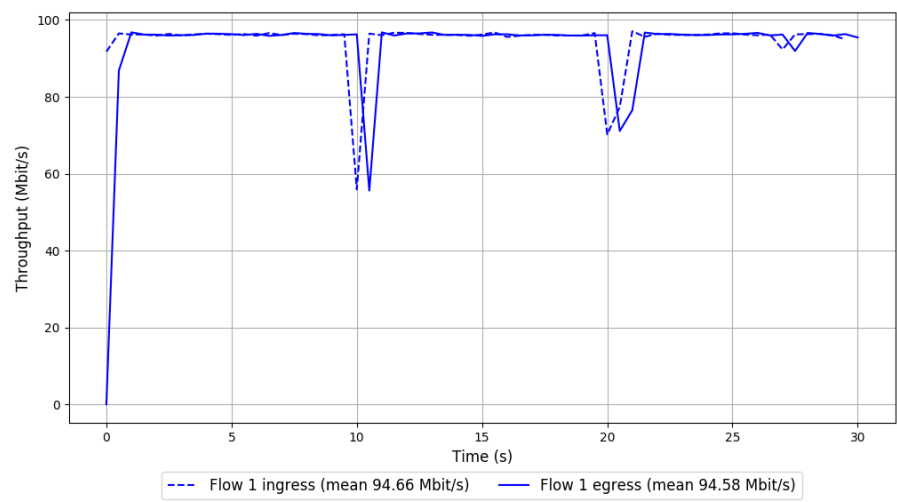
Run 4: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 94.66 Mbit/s) --- Flow 1 egress (mean 94.58 Mbit/s)

Flow 1 (95th percentile 5.71 ms)

```
Run 5: Statistics of FillP-Sheep

Start at: 2018-12-10 23:36:54
End at: 2018-12-10 23:37:25
Local clock offset: -3.879 ms
Remote clock offset: 0.457 ms


# Below is generated by plot.py at 2018-12-10 23:44:37
# Datalink statistics
-- Total of 1 flow:
Average throughput: 94.62 Mbit/s
95th percentile per-packet one-way delay: 6.342 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 94.62 Mbit/s
95th percentile per-packet one-way delay: 6.342 ms
Loss rate: 0.08%
```
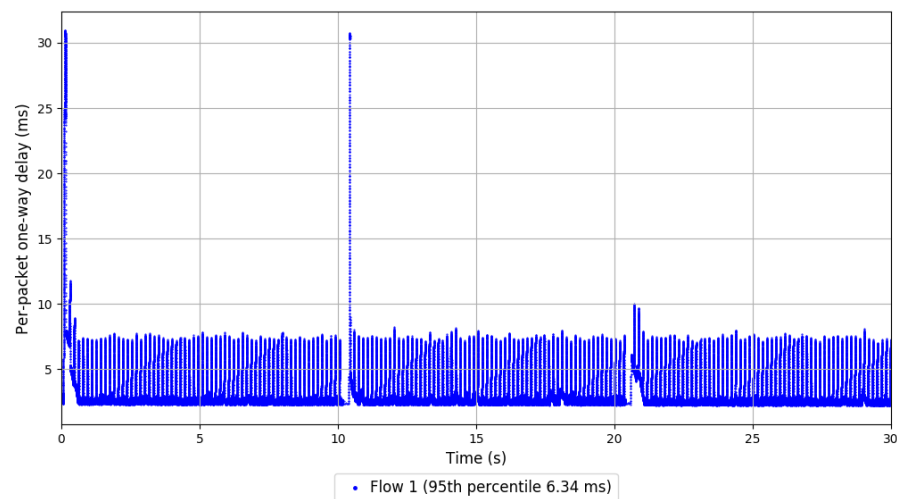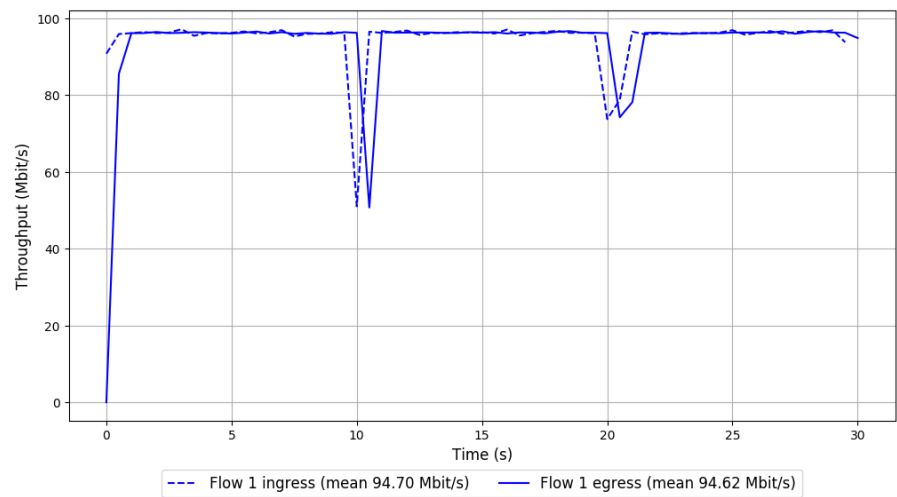
Run 5: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 94.70 Mbit/s)   Flow 1 egress (mean 94.62 Mbit/s)

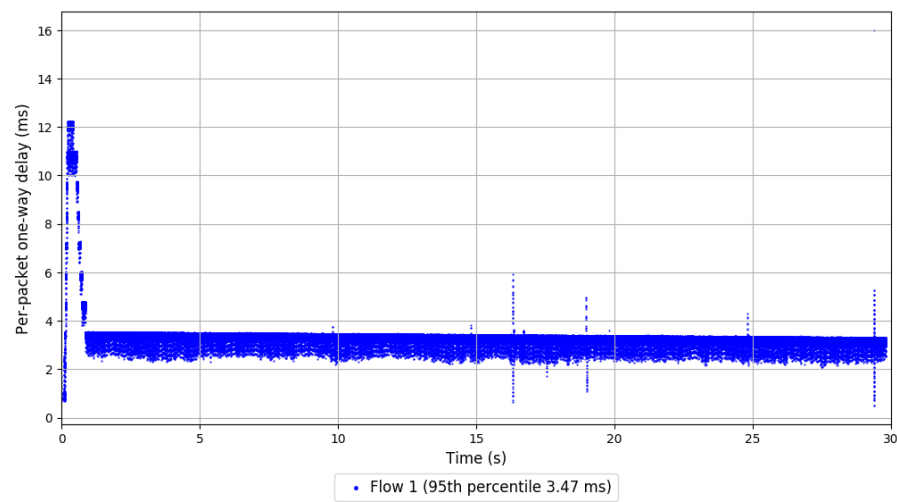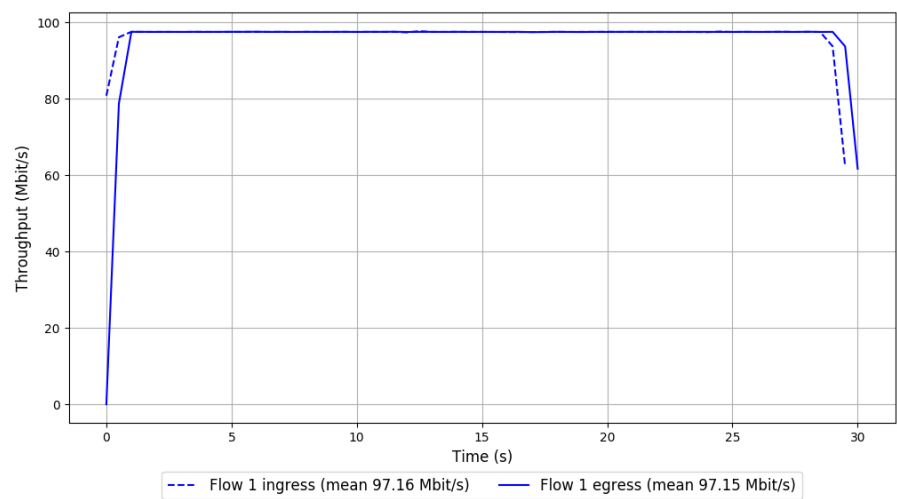

Flow 1 (95th percentile 6.34 ms)

```
Run 1: Statistics of Indigo

Start at: 2018-12-10 21:58:50
End at: 2018-12-10 21:59:21
Local clock offset: -1.535 ms
Remote clock offset: -0.019 ms


# Below is generated by plot.py at 2018-12-10 23:44:37
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.15 Mbit/s
95th percentile per-packet one-way delay: 3.471 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 97.15 Mbit/s
95th percentile per-packet one-way delay: 3.471 ms
Loss rate: 0.02%
```

Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2018-12-10 22:20:02
End at: 2018-12-10 22:20:32
Local clock offset: -4.674 ms
Remote clock offset: 0.11 ms


# Below is generated by plot.py at 2018-12-10 23:44:48
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.31 Mbit/s
95th percentile per-packet one-way delay: 5.005 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 97.31 Mbit/s
95th percentile per-packet one-way delay: 5.005 ms
Loss rate: 0.00%
```
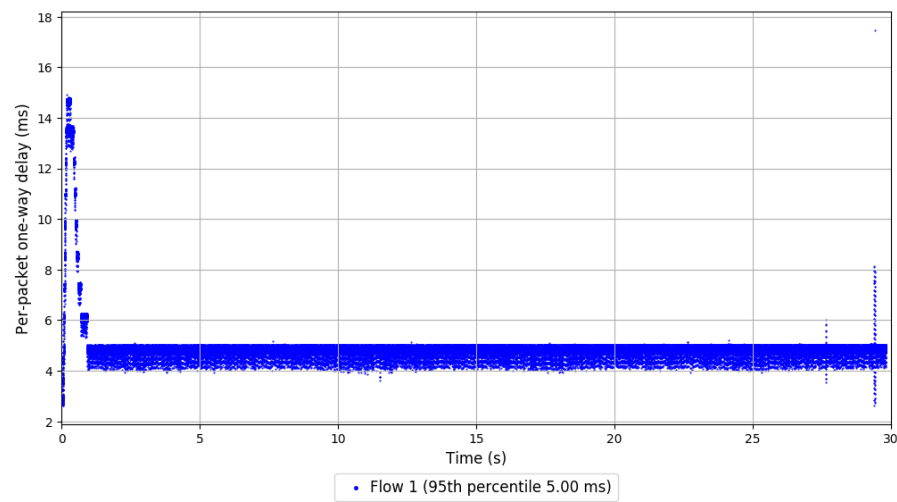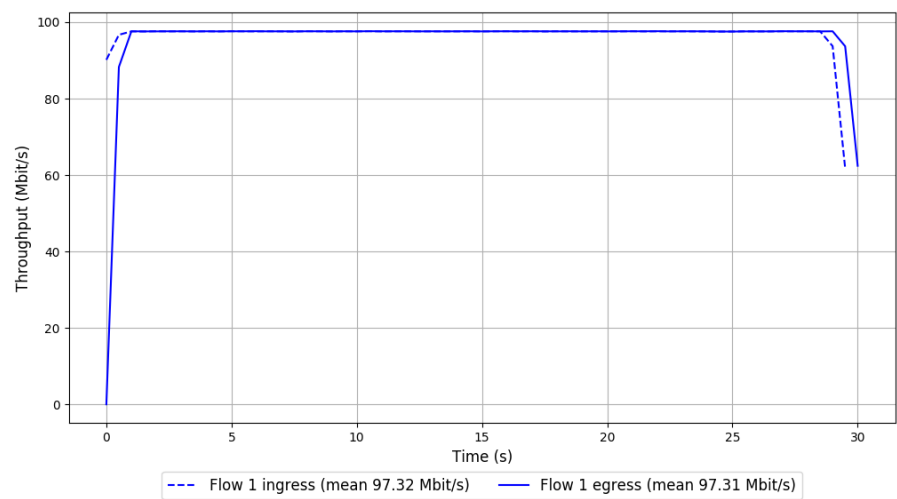
Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2018-12-10 22:41:11
End at: 2018-12-10 22:41:41
Local clock offset: -5.748 ms
Remote clock offset: 0.238 ms


# Below is generated by plot.py at 2018-12-10 23:44:57
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.33 Mbit/s
95th percentile per-packet one-way delay: 3.592 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 97.33 Mbit/s
95th percentile per-packet one-way delay: 3.592 ms
Loss rate: 0.00%
```
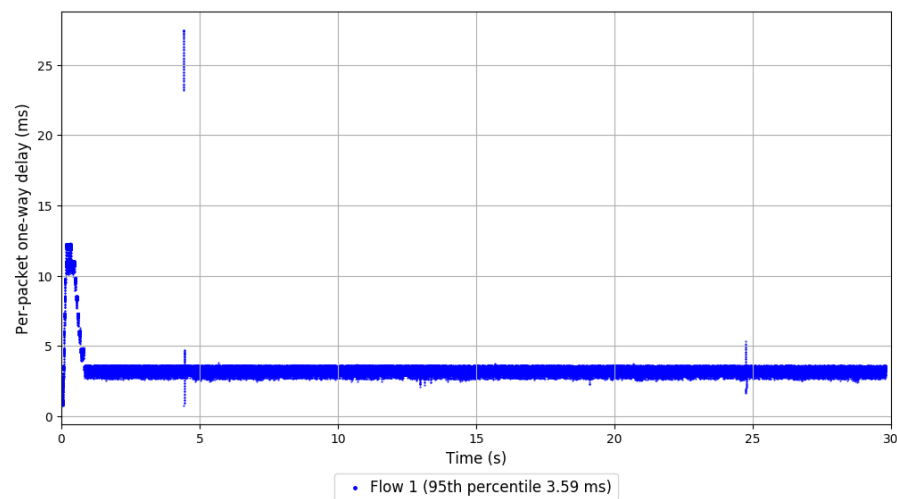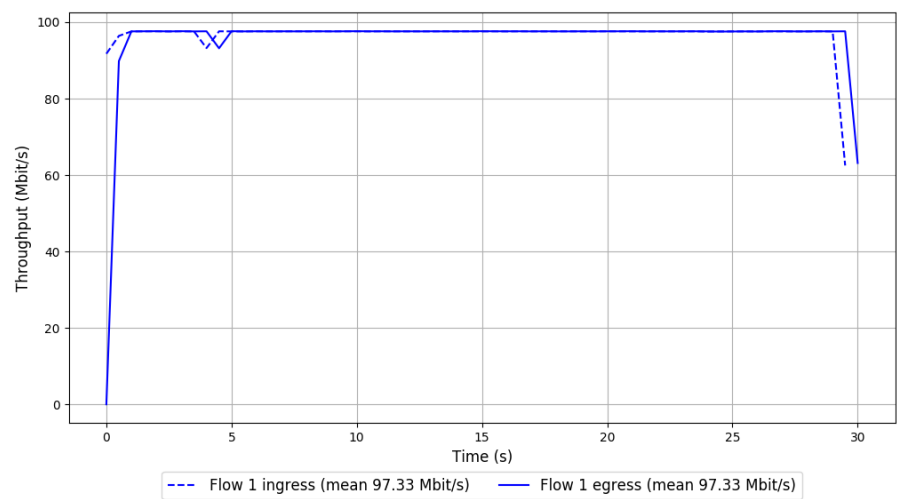
Run 3: Report of Indigo — Data Link

```
Run 4: Statistics of Indigo

Start at: 2018-12-10 23:02:22
End at: 2018-12-10 23:02:52
Local clock offset: -3.907 ms
Remote clock offset: 0.394 ms


# Below is generated by plot.py at 2018-12-10 23:44:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.31 Mbit/s
95th percentile per-packet one-way delay: 5.127 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.31 Mbit/s
95th percentile per-packet one-way delay: 5.127 ms
Loss rate: 0.01%
```
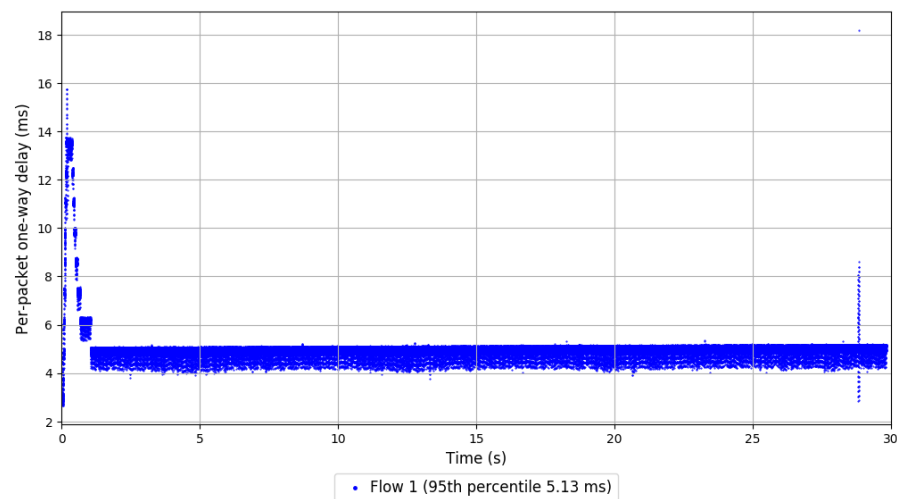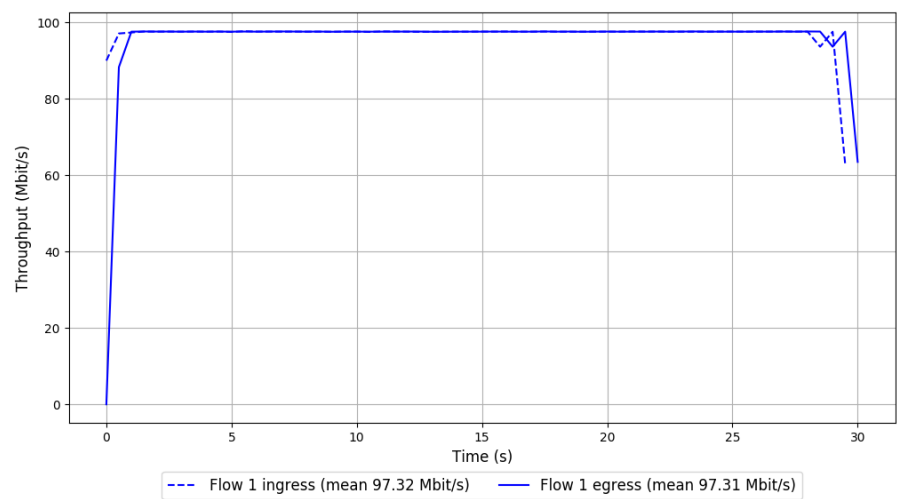
Run 4: Report of Indigo — Data Link

```
Run 5: Statistics of Indigo

Start at: 2018-12-10 23:23:31
End at: 2018-12-10 23:24:01
Local clock offset: -0.765 ms
Remote clock offset: 0.348 ms

# Below is generated by plot.py at 2018-12-10 23:45:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.36 Mbit/s
95th percentile per-packet one-way delay: 3.602 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 97.36 Mbit/s
95th percentile per-packet one-way delay: 3.602 ms
Loss rate: 0.00%
```
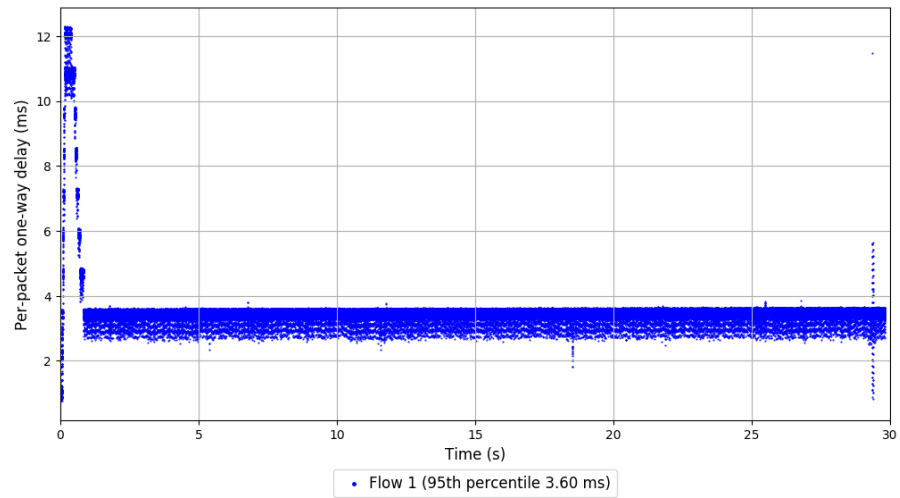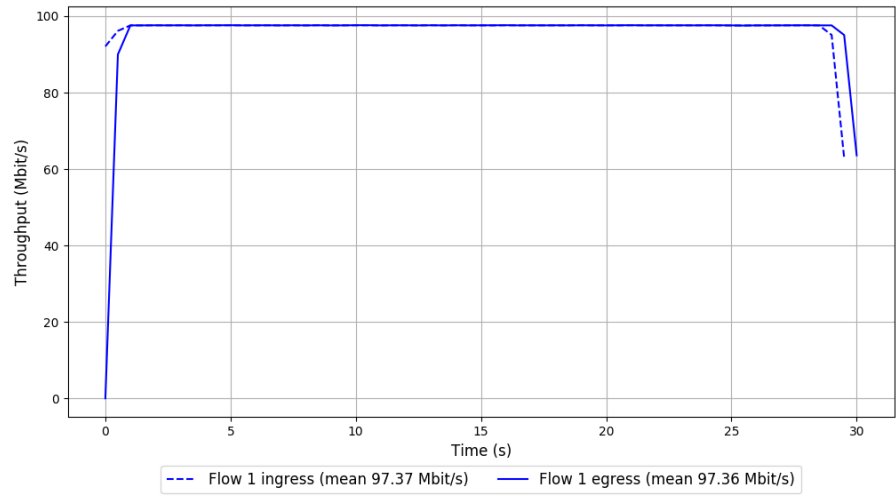
Run 5: Report of Indigo — Data Link

Flow 1 ingress (mean 97.37 Mbit/s) — — — Flow 1 egress (mean 97.36 Mbit/s)
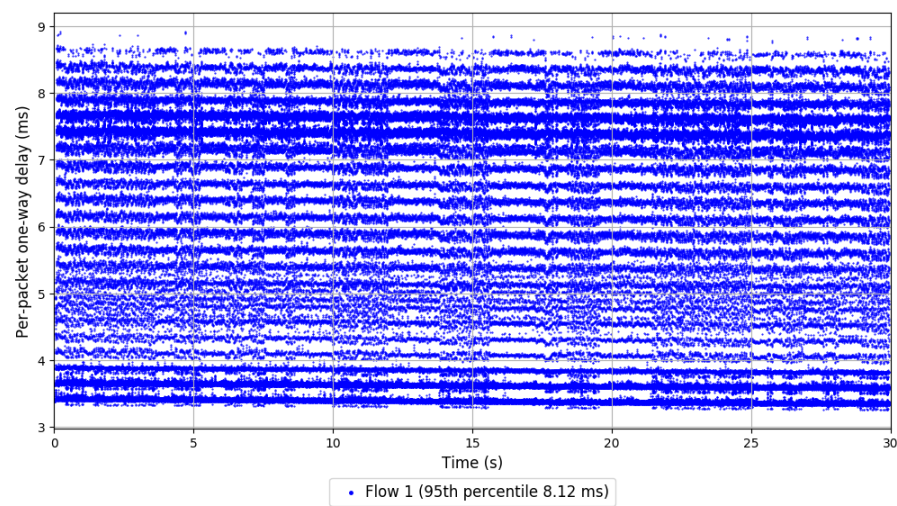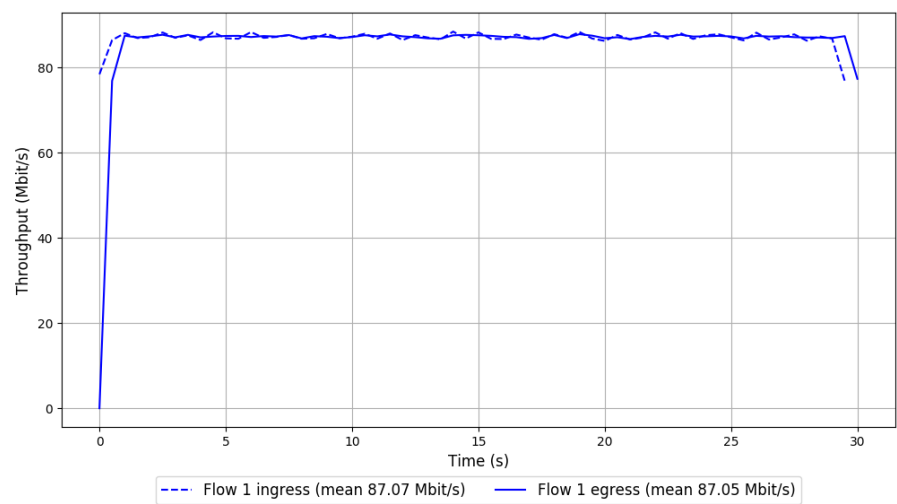

Flow 1 (95th percentile 3.60 ms)

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

Start at: 2018-12-10 22:06:41
End at: 2018-12-10 22:07:11
Local clock offset: -4.88 ms
Remote clock offset: -0.033 ms

# Below is generated by plot.py at 2018-12-10 23:45:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 87.05 Mbit/s
95th percentile per-packet one-way delay: 8.115 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 87.05 Mbit/s
95th percentile per-packet one-way delay: 8.115 ms
Loss rate: 0.00%
```

Run 1: Report of Indigo-96d2da3 — Data Link

Flow 1 ingress (mean 87.07 Mbit/s)   Flow 1 egress (mean 87.05 Mbit/s)

• Flow 1 (95th percentile 8.12 ms)

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

Start at: 2018-12-10 22:27:50
End at: 2018-12-10 22:28:20
Local clock offset: -4.395 ms
Remote clock offset: 0.18 ms


# Below is generated by plot.py at 2018-12-10 23:45:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 87.53 Mbit/s
95th percentile per-packet one-way delay: 11.161 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 87.53 Mbit/s
95th percentile per-packet one-way delay: 11.161 ms
Loss rate: 0.00%
```
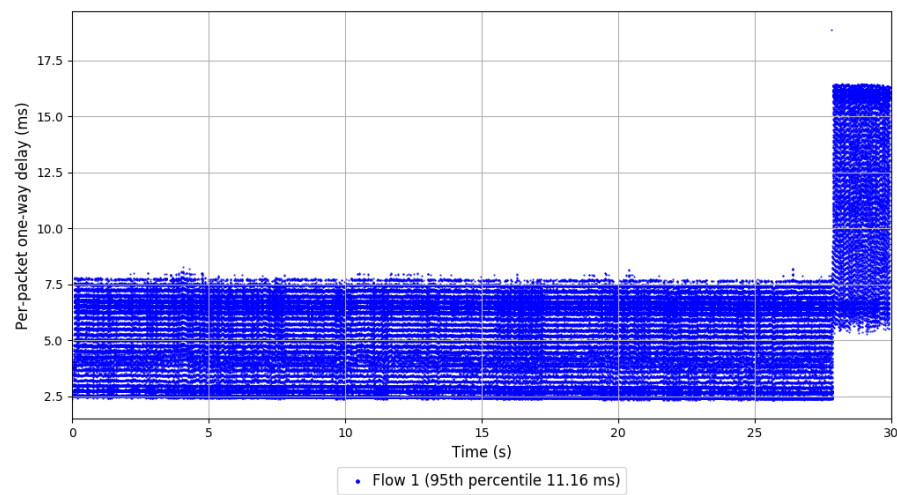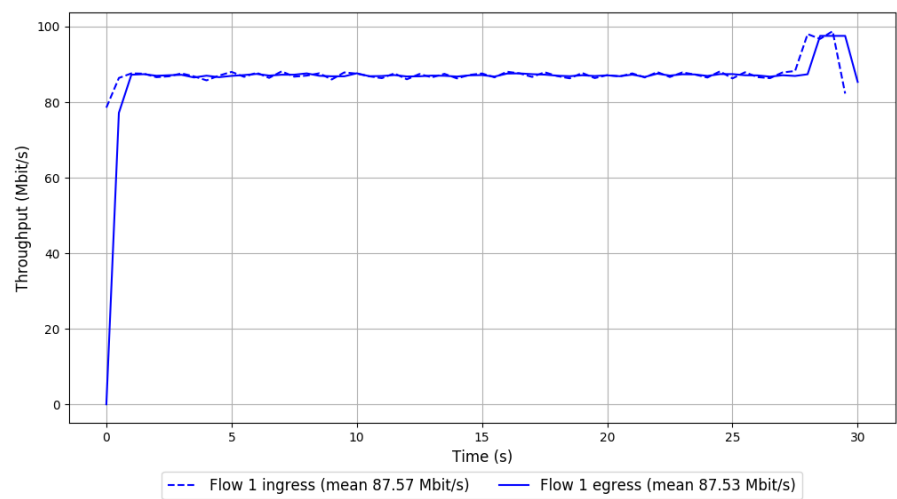
Run 2: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-12-10 22:49:00
End at: 2018-12-10 22:49:30
Local clock offset: -5.744 ms
Remote clock offset: 0.368 ms


# Below is generated by plot.py at 2018-12-10 23:45:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.39 Mbit/s
95th percentile per-packet one-way delay: 6.899 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 96.39 Mbit/s
95th percentile per-packet one-way delay: 6.899 ms
Loss rate: 0.00%
```
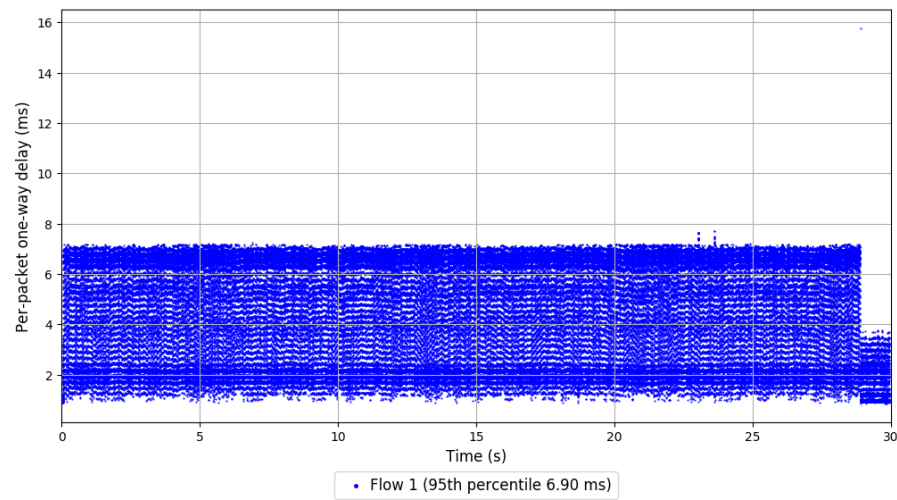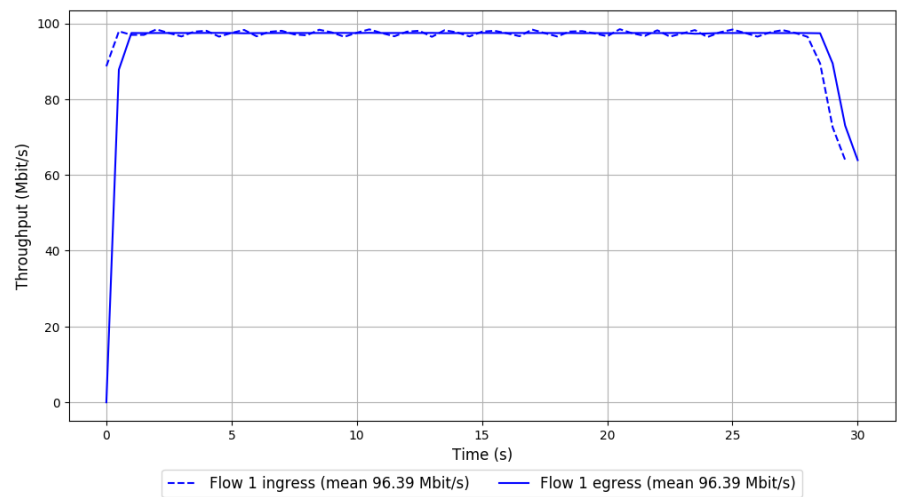
Run 3: Report of Indigo-96d2da3 — Data Link

Flow 1 ingress (mean 96.39 Mbit/s)   Flow 1 egress (mean 96.39 Mbit/s)

Flow 1 (95th percentile 6.90 ms)

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

Start at: 2018-12-10 23:10:10
End at: 2018-12-10 23:10:40
Local clock offset: -3.233 ms
Remote clock offset: 0.362 ms


# Below is generated by plot.py at 2018-12-10 23:45:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 95.09 Mbit/s
95th percentile per-packet one-way delay: 7.796 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 95.09 Mbit/s
95th percentile per-packet one-way delay: 7.796 ms
Loss rate: 0.00%
```
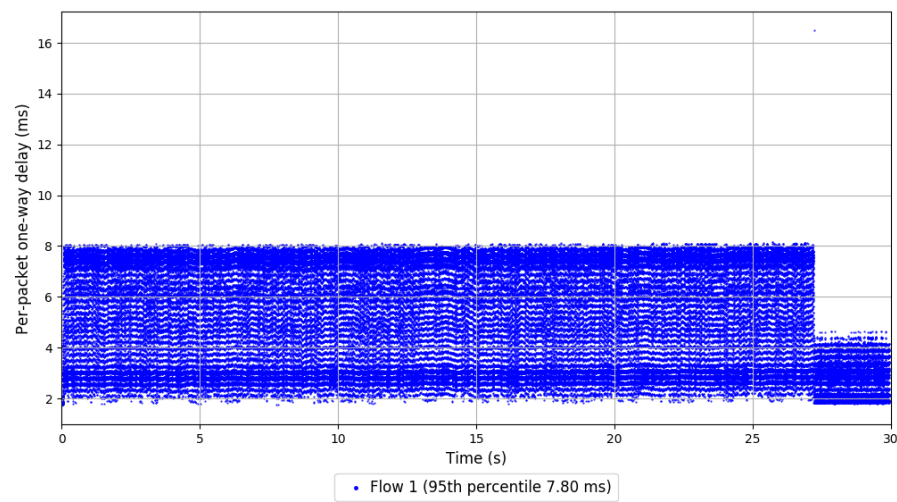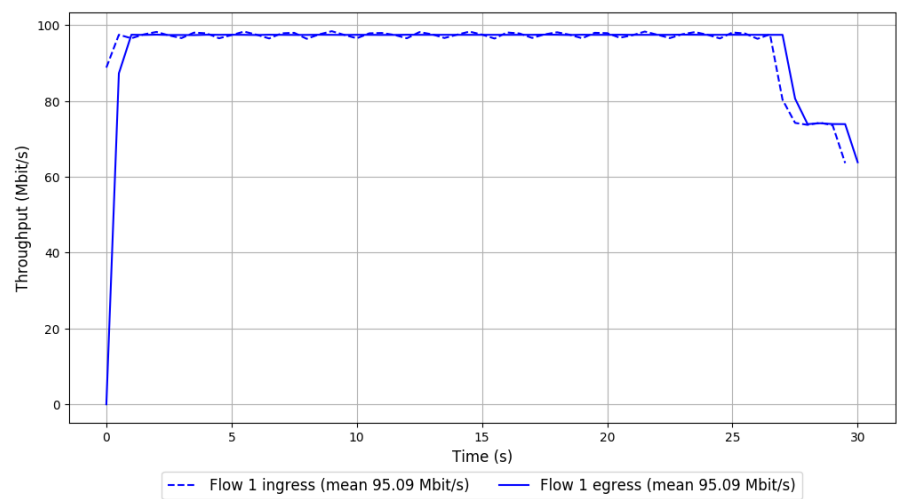
Run 4: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-12-10 23:31:22
End at: 2018-12-10 23:31:52
Local clock offset: -2.407 ms
Remote clock offset: 0.432 ms


# Below is generated by plot.py at 2018-12-10 23:45:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.29 Mbit/s
95th percentile per-packet one-way delay: 6.581 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 97.29 Mbit/s
95th percentile per-packet one-way delay: 6.581 ms
Loss rate: 0.00%
```
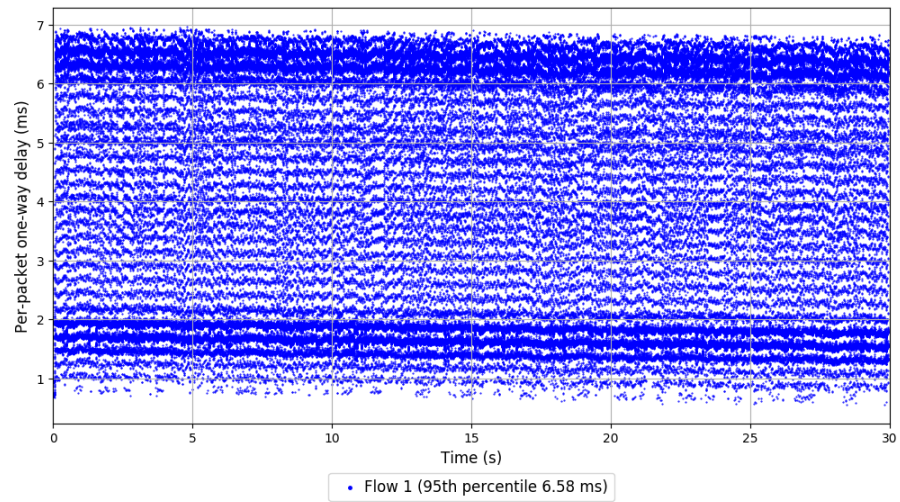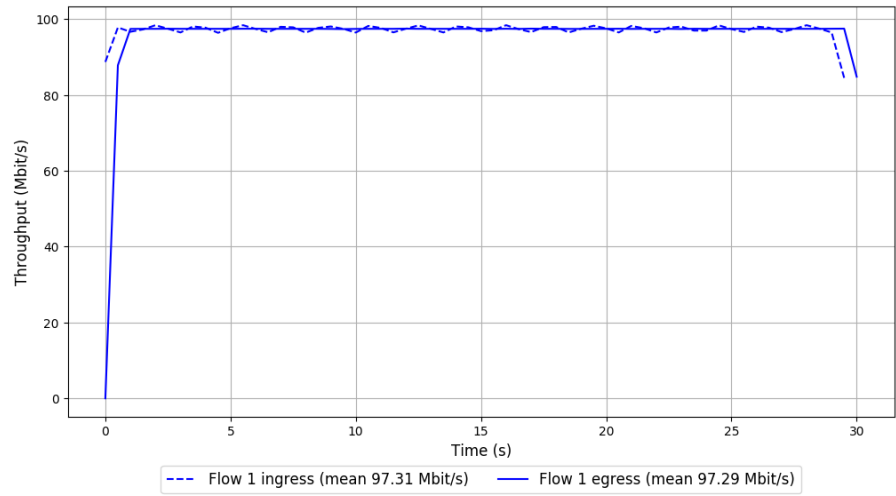
Run 5: Report of Indigo-96d2da3 — Data Link

Flow 1 ingress (mean 97.31 Mbit/s)   Flow 1 egress (mean 97.29 Mbit/s)
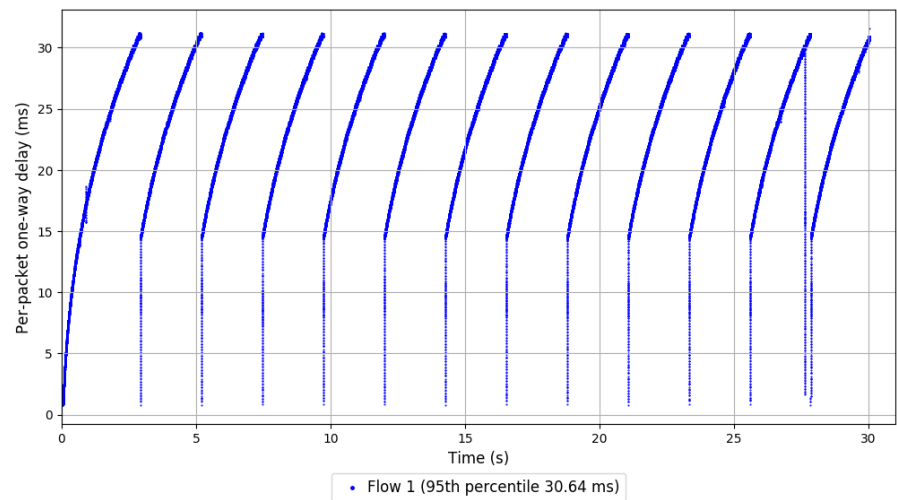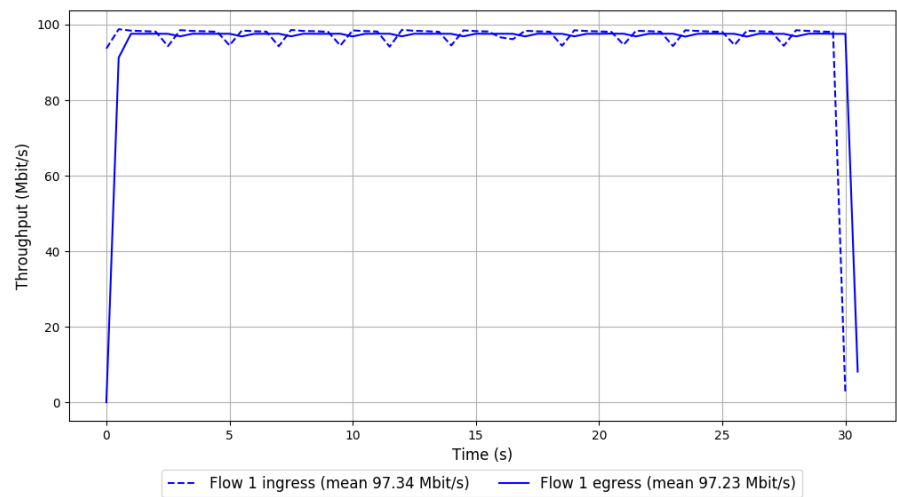

Flow 1 (95th percentile 6.58 ms)

```
Run 1: Statistics of LEDBAT

Start at: 2018-12-10 22:14:26
End at: 2018-12-10 22:14:56
Local clock offset: -4.639 ms
Remote clock offset: 0.0 ms


# Below is generated by plot.py at 2018-12-10 23:46:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.23 Mbit/s
95th percentile per-packet one-way delay: 30.641 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.23 Mbit/s
95th percentile per-packet one-way delay: 30.641 ms
Loss rate: 0.01%
```

Run 1: Report of LEDBAT — Data Link

Flow 1 ingress (mean 97.34 Mbit/s)   Flow 1 egress (mean 97.23 Mbit/s)

Flow 1 (95th percentile 30.64 ms)

```
Run 2: Statistics of LEDBAT

Start at: 2018-12-10 22:35:35
End at: 2018-12-10 22:36:05
Local clock offset: -6.455 ms
Remote clock offset: 0.163 ms

# Below is generated by plot.py at 2018-12-10 23:46:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.07 Mbit/s
95th percentile per-packet one-way delay: 33.047 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.07 Mbit/s
95th percentile per-packet one-way delay: 33.047 ms
Loss rate: 0.01%
```
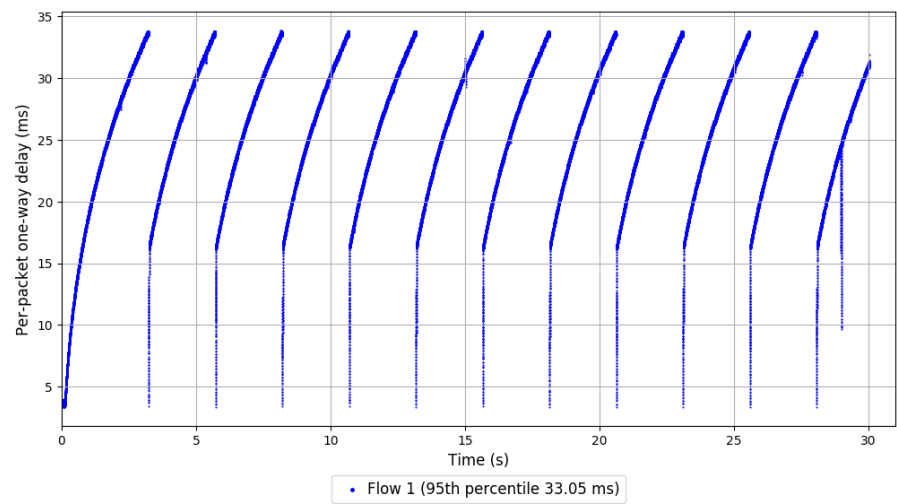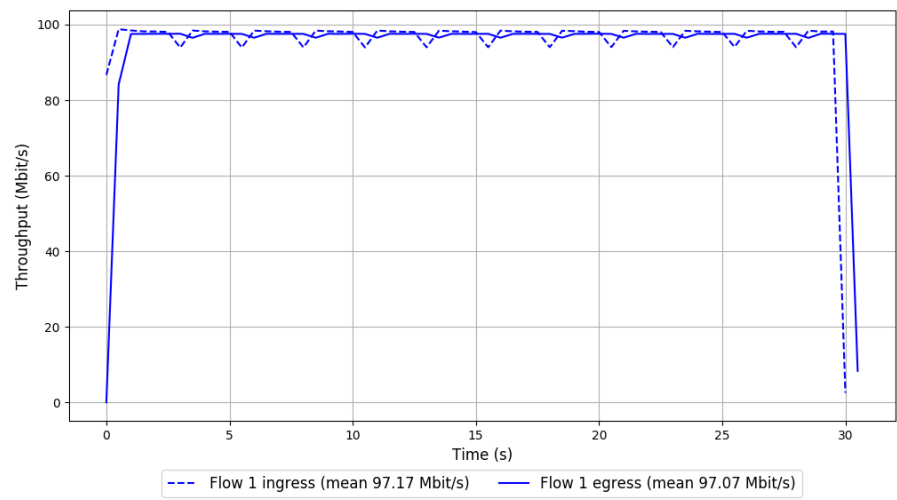
Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2018-12-10 22:56:45
End at: 2018-12-10 22:57:15
Local clock offset: -6.44 ms
Remote clock offset: 0.26 ms


# Below is generated by plot.py at 2018-12-10 23:46:34
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.04 Mbit/s
95th percentile per-packet one-way delay: 33.080 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.04 Mbit/s
95th percentile per-packet one-way delay: 33.080 ms
Loss rate: 0.01%
```
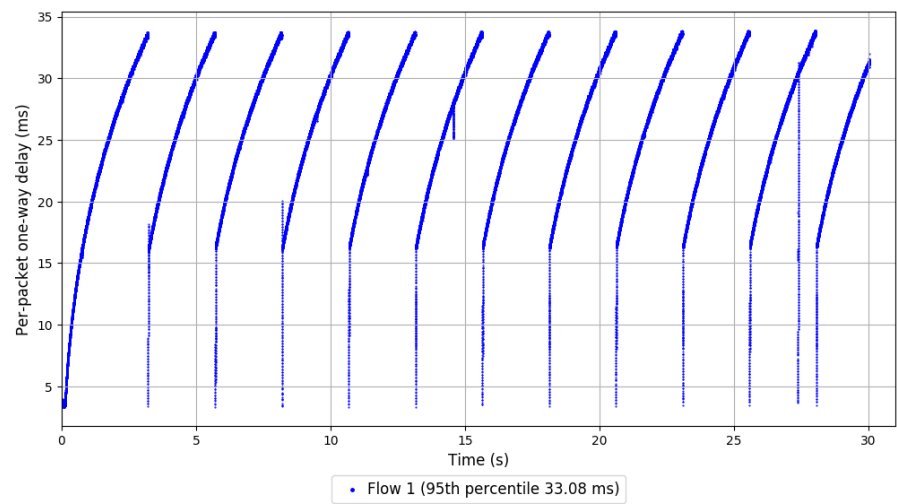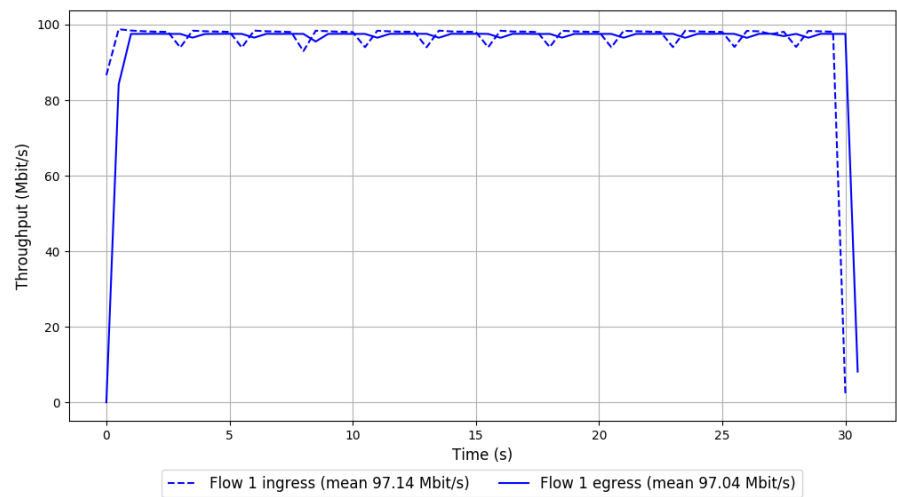
Run 3: Report of LEDBAT — Data Link

```
Run 4: Statistics of LEDBAT

Start at: 2018-12-10 23:17:55
End at: 2018-12-10 23:18:25
Local clock offset: -1.4 ms
Remote clock offset: 0.468 ms


# Below is generated by plot.py at 2018-12-10 23:46:38
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.00 Mbit/s
95th percentile per-packet one-way delay: 29.258 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 97.00 Mbit/s
95th percentile per-packet one-way delay: 29.258 ms
Loss rate: 0.06%
```
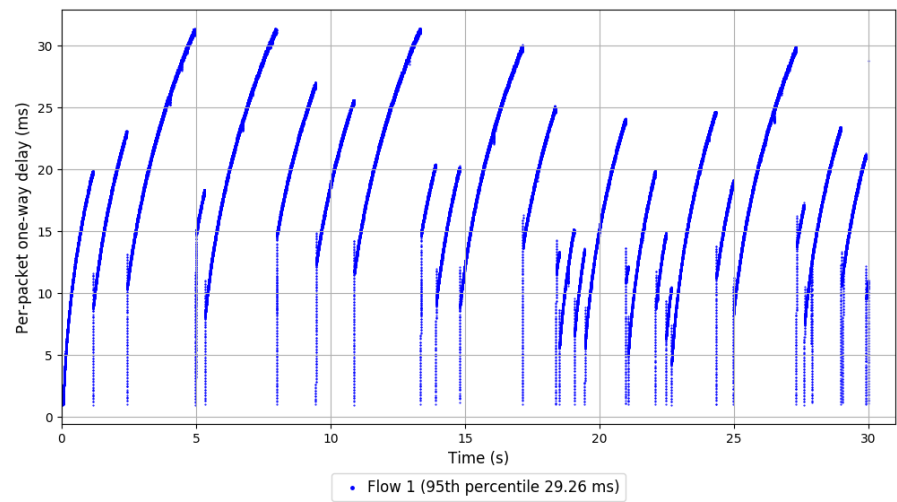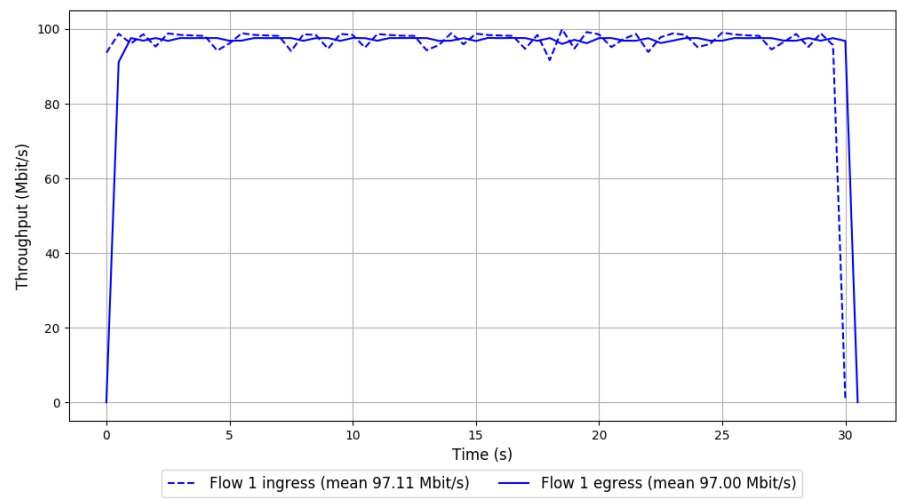
Run 4: Report of LEDBAT — Data Link

Flow 1 ingress (mean 97.11 Mbit/s)   Flow 1 egress (mean 97.00 Mbit/s)

Flow 1 (95th percentile 29.26 ms)

```
Run 5: Statistics of LEDBAT

Start at: 2018-12-10 23:39:07
End at: 2018-12-10 23:39:37
Local clock offset: -4.266 ms
Remote clock offset: 0.499 ms


# Below is generated by plot.py at 2018-12-10 23:46:38
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.21 Mbit/s
95th percentile per-packet one-way delay: 30.587 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.21 Mbit/s
95th percentile per-packet one-way delay: 30.587 ms
Loss rate: 0.01%
```
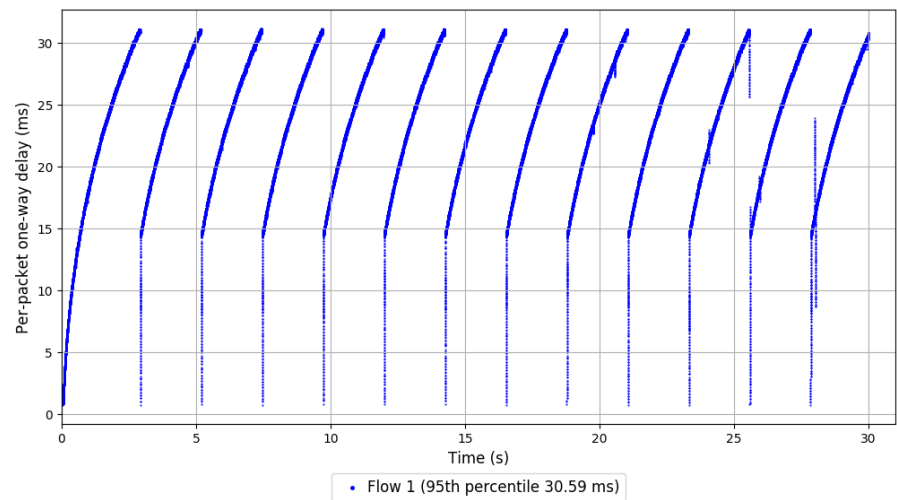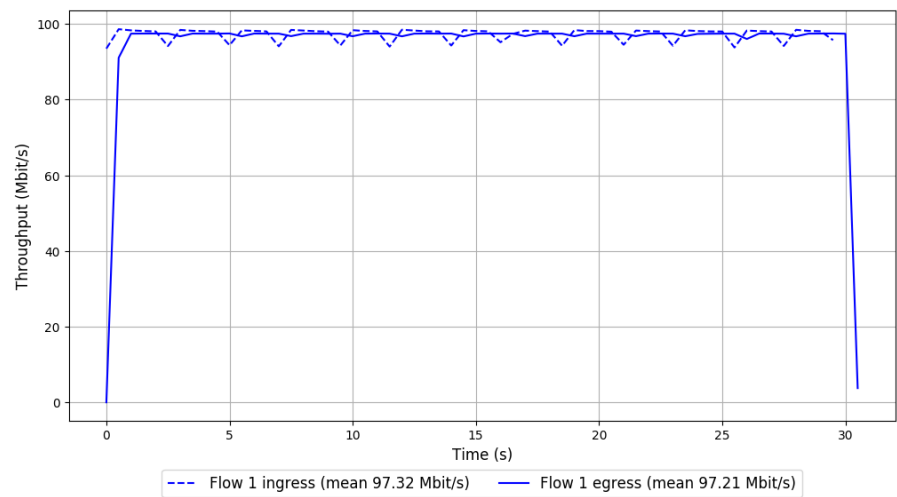
Run 5: Report of LEDBAT — Data Link

Flow 1 ingress (mean 97.32 Mbit/s)   Flow 1 egress (mean 97.21 Mbit/s)
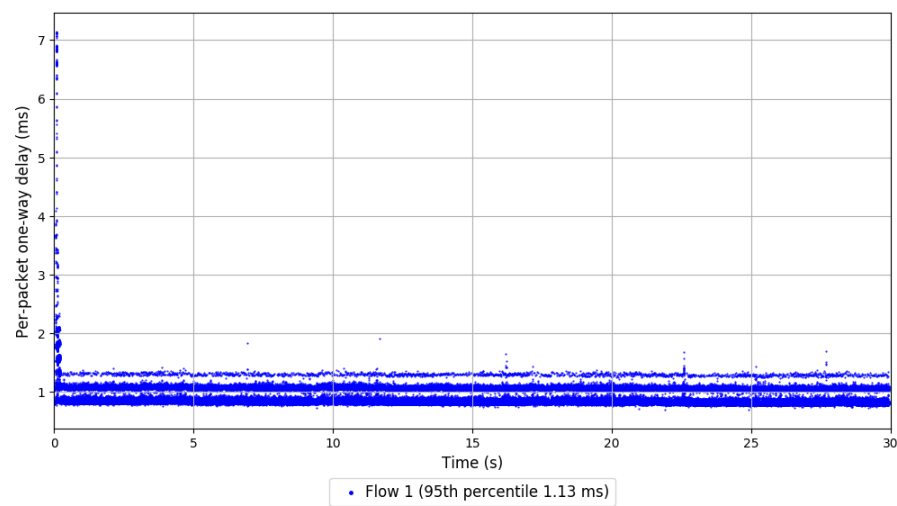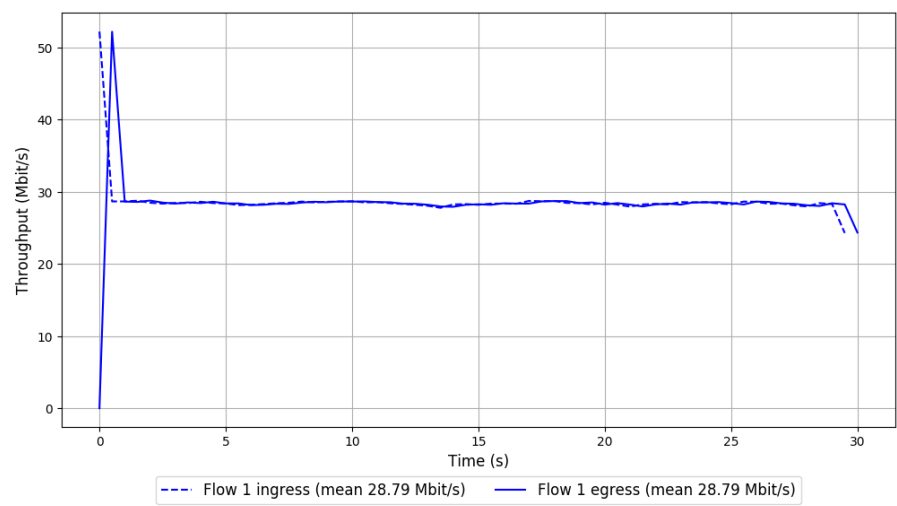

Flow 1 (95th percentile 30.59 ms)

```
Run 1: Statistics of Indigo-Muses

Start at: 2018-12-10 22:11:08
End at: 2018-12-10 22:11:38
Local clock offset: -4.493 ms
Remote clock offset: -0.029 ms


# Below is generated by plot.py at 2018-12-10 23:46:38
# Datalink statistics
-- Total of 1 flow:
Average throughput: 28.79 Mbit/s
95th percentile per-packet one-way delay: 1.130 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 28.79 Mbit/s
95th percentile per-packet one-way delay: 1.130 ms
Loss rate: 0.00%
```

Run 1: Report of Indigo-Muses — Data Link

```
Run 2: Statistics of Indigo-Muses

Start at: 2018-12-10 22:32:17
End at: 2018-12-10 22:32:47
Local clock offset: -5.17 ms
Remote clock offset: 0.169 ms


# Below is generated by plot.py at 2018-12-10 23:46:38
# Datalink statistics
-- Total of 1 flow:
Average throughput: 28.84 Mbit/s
95th percentile per-packet one-way delay: 2.743 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 28.84 Mbit/s
95th percentile per-packet one-way delay: 2.743 ms
Loss rate: 0.01%
```
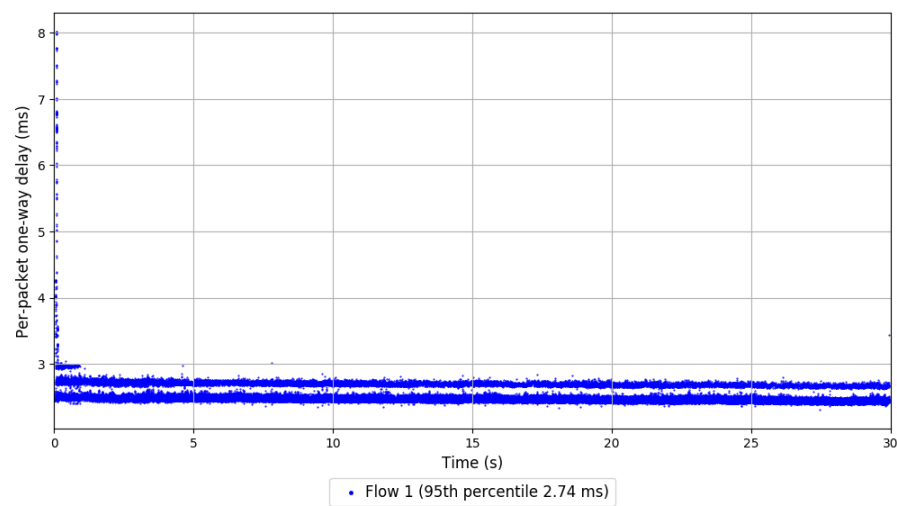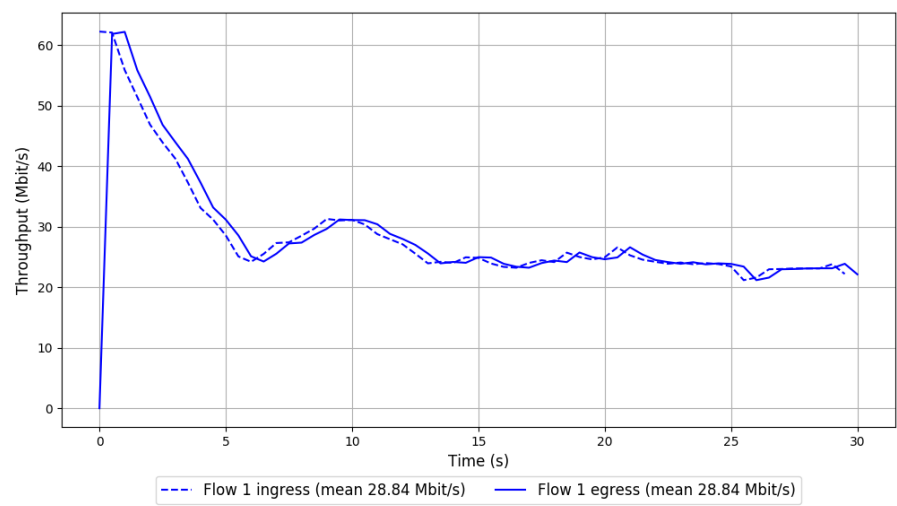
Run 2: Report of Indigo-Muses — Data Link

```
Run 3: Statistics of Indigo-Muses

Start at: 2018-12-10 22:53:27
End at: 2018-12-10 22:53:57
Local clock offset: -5.656 ms
Remote clock offset: 0.311 ms


# Below is generated by plot.py at 2018-12-10 23:46:38
# Datalink statistics
-- Total of 1 flow:
Average throughput: 26.45 Mbit/s
95th percentile per-packet one-way delay: 2.836 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 26.45 Mbit/s
95th percentile per-packet one-way delay: 2.836 ms
Loss rate: 0.00%
```
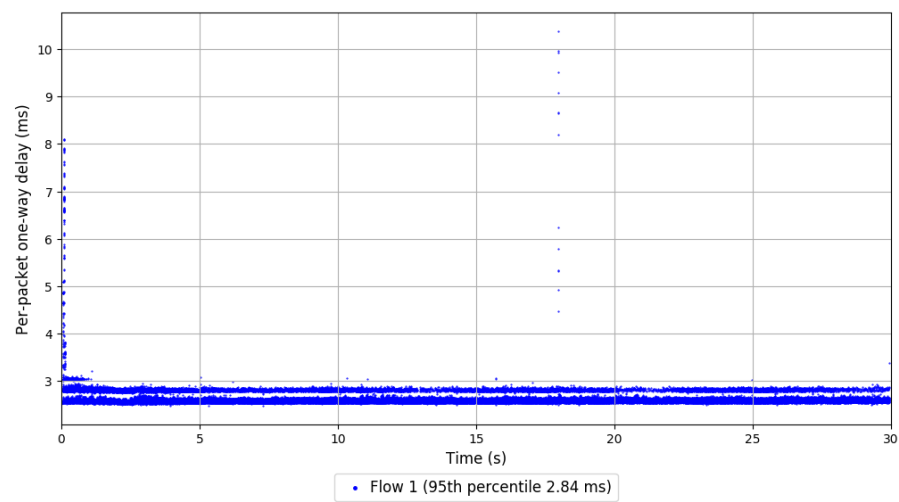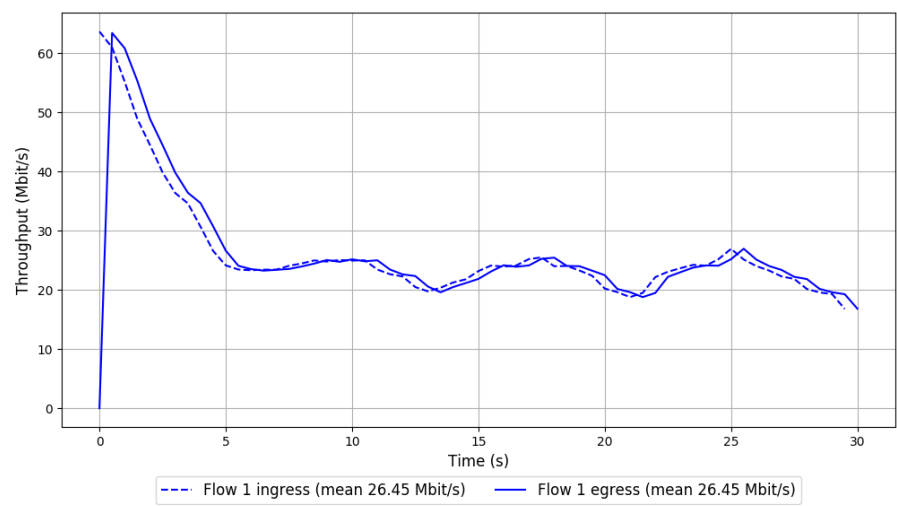
Run 3: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 26.45 Mbit/s)   Flow 1 egress (mean 26.45 Mbit/s)

Flow 1 (95th percentile 2.84 ms)

```
Run 4: Statistics of Indigo-Muses

Start at: 2018-12-10 23:14:37
End at: 2018-12-10 23:15:07
Local clock offset: -2.594 ms
Remote clock offset: 0.386 ms


# Below is generated by plot.py at 2018-12-10 23:46:38
# Datalink statistics
-- Total of 1 flow:
Average throughput: 26.49 Mbit/s
95th percentile per-packet one-way delay: 3.773 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 26.49 Mbit/s
95th percentile per-packet one-way delay: 3.773 ms
Loss rate: 0.00%
```
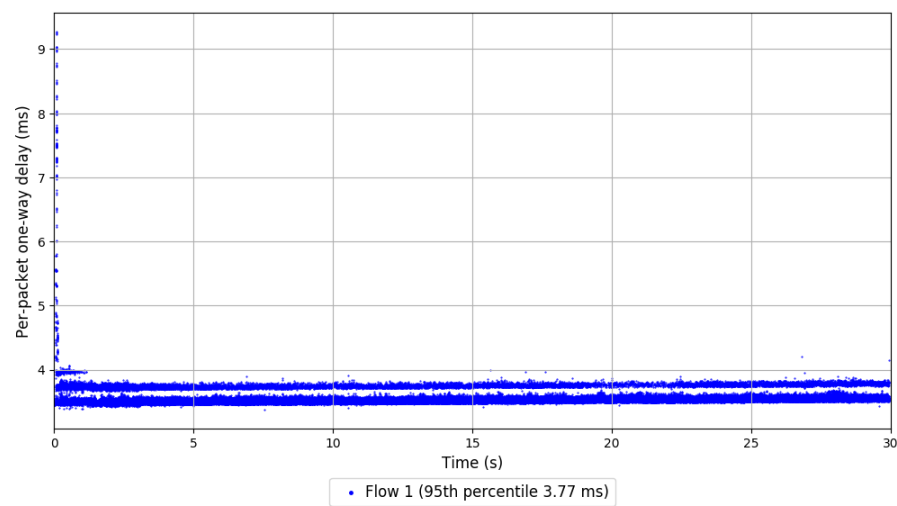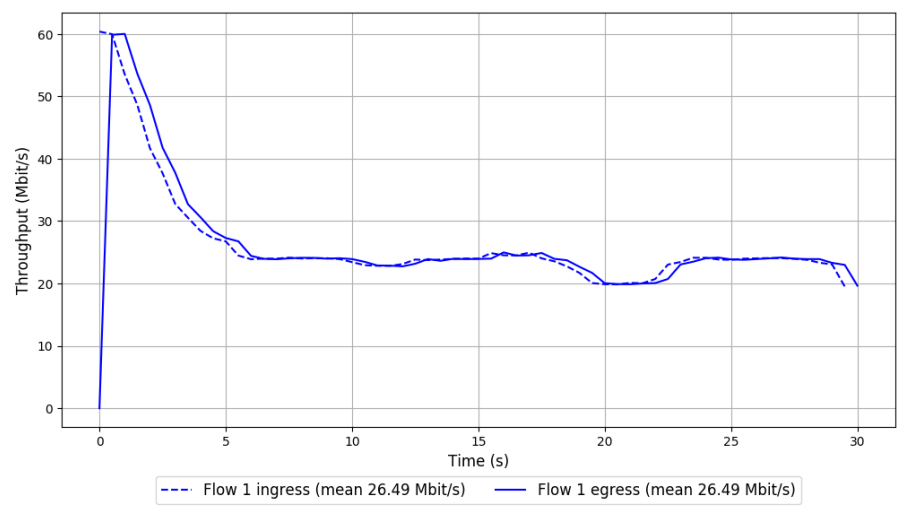
Run 4: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 26.49 Mbit/s)   Flow 1 egress (mean 26.49 Mbit/s)

Flow 1 (95th percentile 3.77 ms)

```
Run 5: Statistics of Indigo-Muses

Start at: 2018-12-10 23:35:49
End at: 2018-12-10 23:36:19
Local clock offset: -4.567 ms
Remote clock offset: 0.397 ms


# Below is generated by plot.py at 2018-12-10 23:46:38
# Datalink statistics
-- Total of 1 flow:
Average throughput: 28.99 Mbit/s
95th percentile per-packet one-way delay: 1.894 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 28.99 Mbit/s
95th percentile per-packet one-way delay: 1.894 ms
Loss rate: 0.00%
```
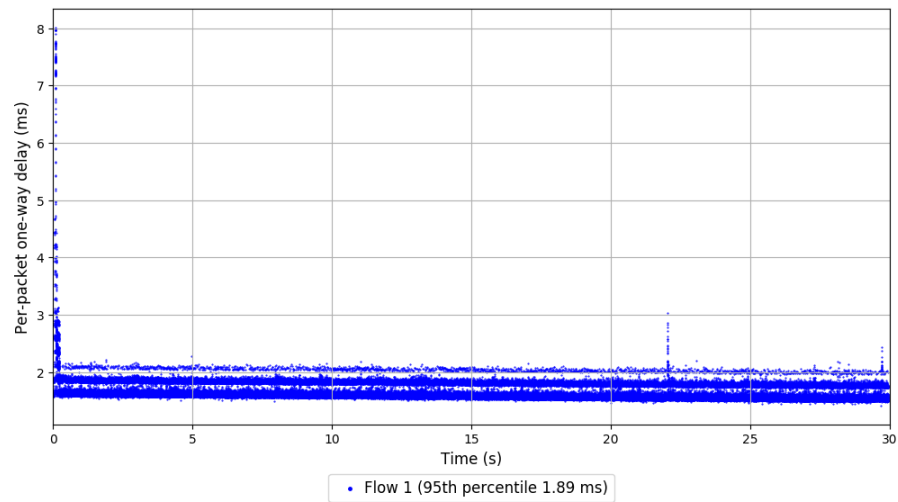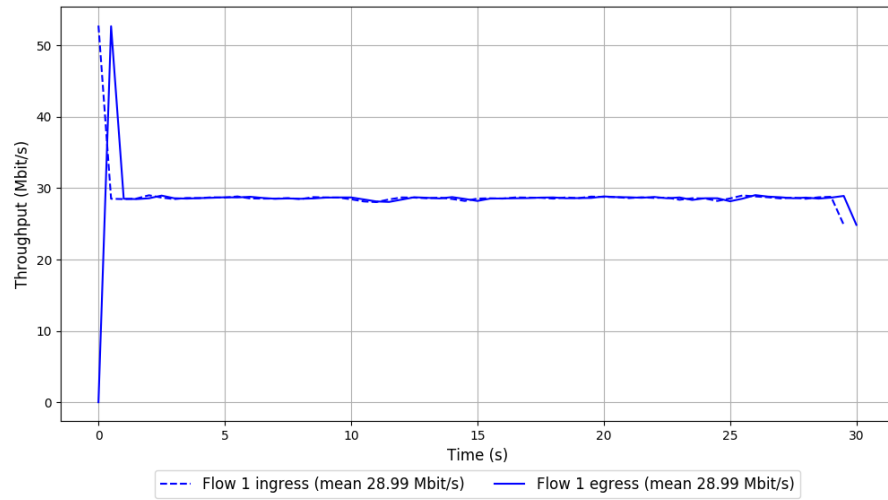
Run 5: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 28.99 Mbit/s)   Flow 1 egress (mean 28.99 Mbit/s)

• Flow 1 (95th percentile 1.89 ms)

```
Run 1: Statistics of PCC-Allegro

Start at: 2018-12-10 22:05:34
End at: 2018-12-10 22:06:04
Local clock offset: -3.774 ms
Remote clock offset: -0.004 ms


# Below is generated by plot.py at 2018-12-10 23:47:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 87.54 Mbit/s
95th percentile per-packet one-way delay: 2.007 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 87.54 Mbit/s
95th percentile per-packet one-way delay: 2.007 ms
Loss rate: 0.00%
```
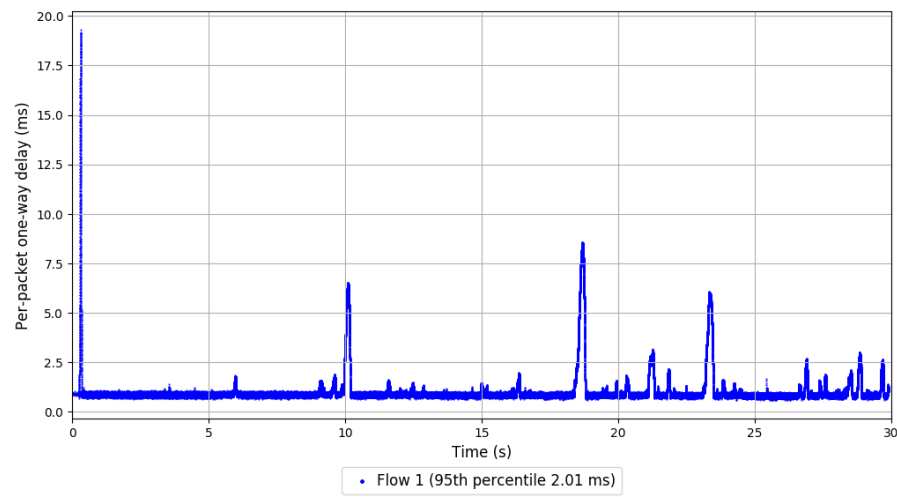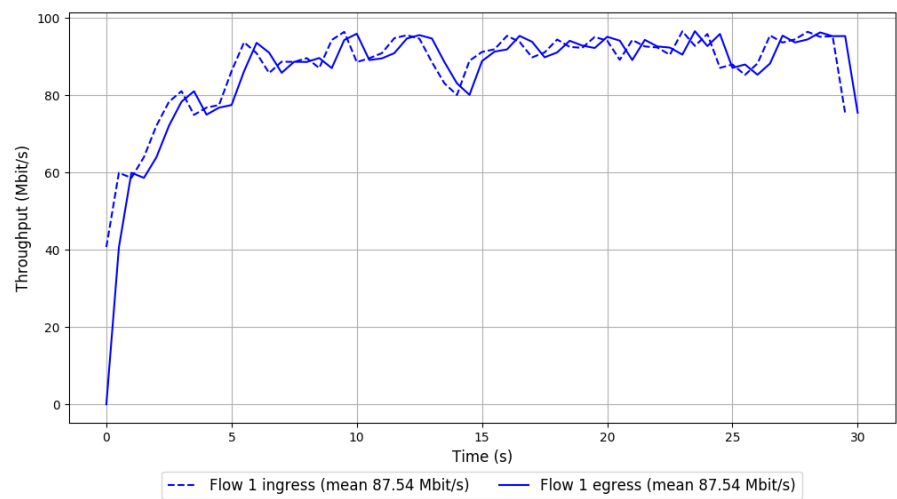
Run 1: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 87.54 Mbit/s) ---- Flow 1 egress (mean 87.54 Mbit/s)

• Flow 1 (95th percentile 2.01 ms)

```
Run 2: Statistics of PCC-Allegro

Start at: 2018-12-10 22:26:44
End at: 2018-12-10 22:27:14
Local clock offset: -5.212 ms
Remote clock offset: 0.172 ms


# Below is generated by plot.py at 2018-12-10 23:47:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 72.74 Mbit/s
95th percentile per-packet one-way delay: 4.054 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 72.74 Mbit/s
95th percentile per-packet one-way delay: 4.054 ms
Loss rate: 0.01%
```
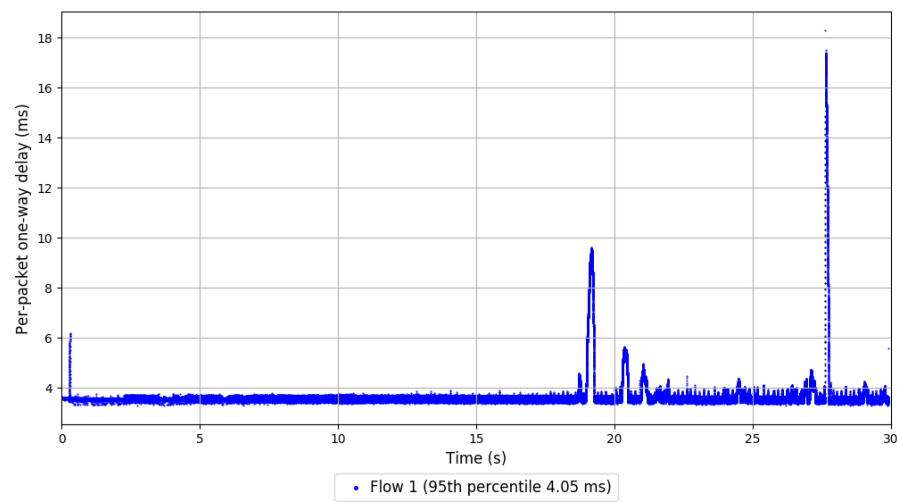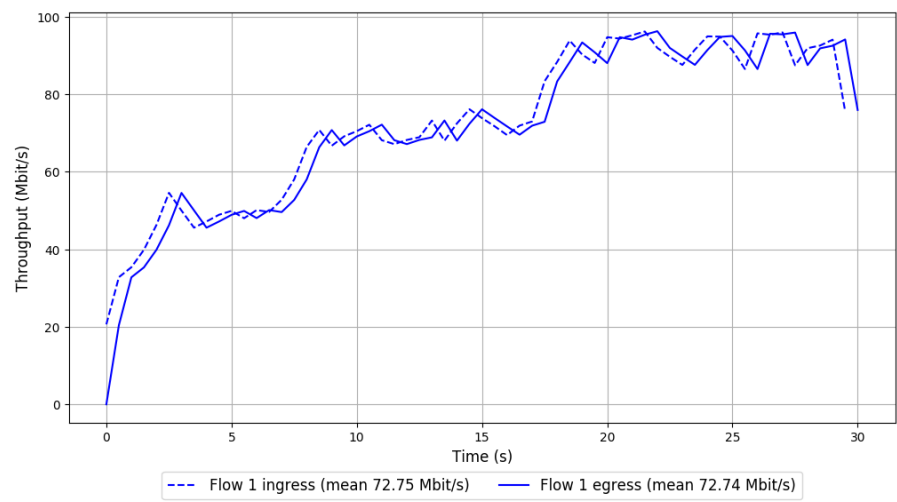
Run 2: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 72.75 Mbit/s) —— Flow 1 egress (mean 72.74 Mbit/s)

• Flow 1 (95th percentile 4.05 ms)

```
Run 3: Statistics of PCC-Allegro

Start at: 2018-12-10 22:47:53
End at: 2018-12-10 22:48:23
Local clock offset: -5.758 ms
Remote clock offset: 0.299 ms


# Below is generated by plot.py at 2018-12-10 23:47:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 86.12 Mbit/s
95th percentile per-packet one-way delay: 4.687 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 86.12 Mbit/s
95th percentile per-packet one-way delay: 4.687 ms
Loss rate: 0.00%
```
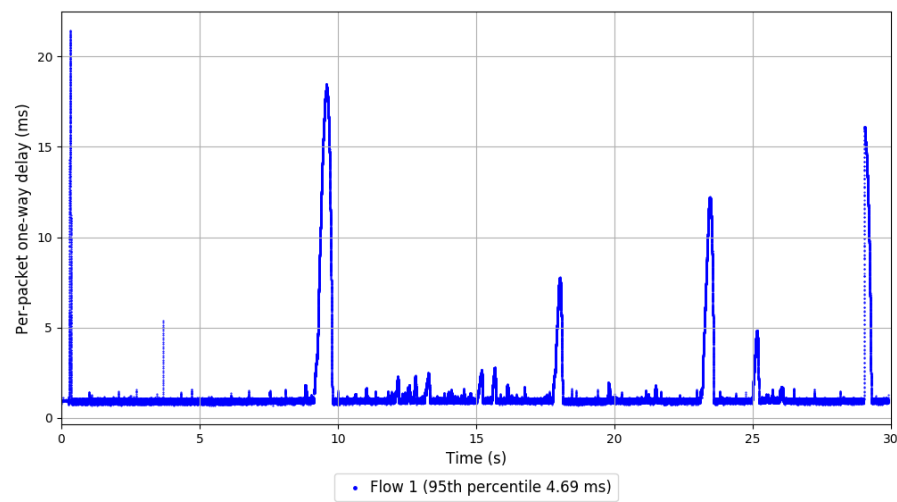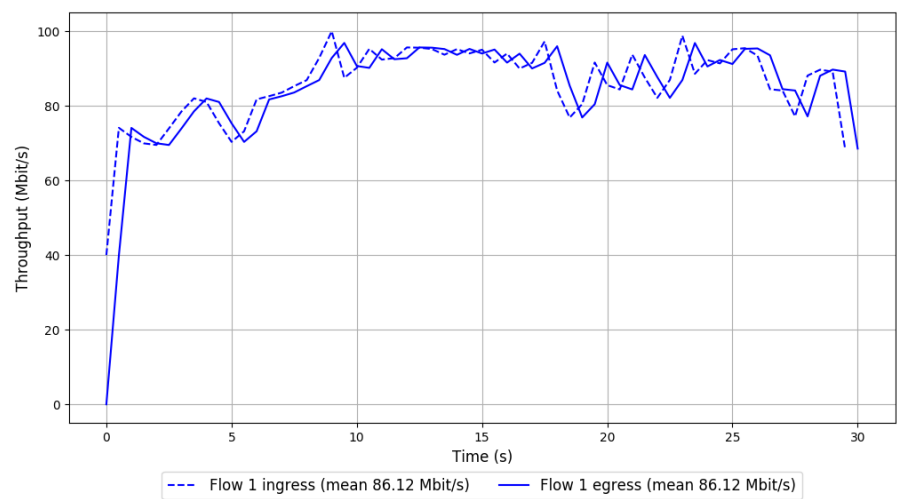
Run 3: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 86.12 Mbit/s)   Flow 1 egress (mean 86.12 Mbit/s)

Flow 1 (95th percentile 4.69 ms)

```
Run 4: Statistics of PCC-Allegro

Start at: 2018-12-10 23:09:03
End at: 2018-12-10 23:09:33
Local clock offset: -3.448 ms
Remote clock offset: 0.426 ms

# Below is generated by plot.py at 2018-12-10 23:47:27
# Datalink statistics
-- Total of 1 flow:
Average throughput: 86.13 Mbit/s
95th percentile per-packet one-way delay: 4.518 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 86.13 Mbit/s
95th percentile per-packet one-way delay: 4.518 ms
Loss rate: 0.01%
```
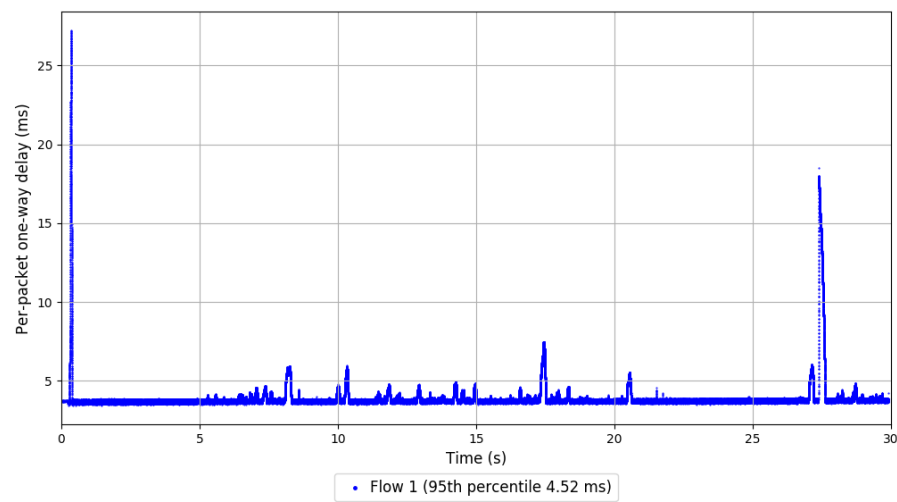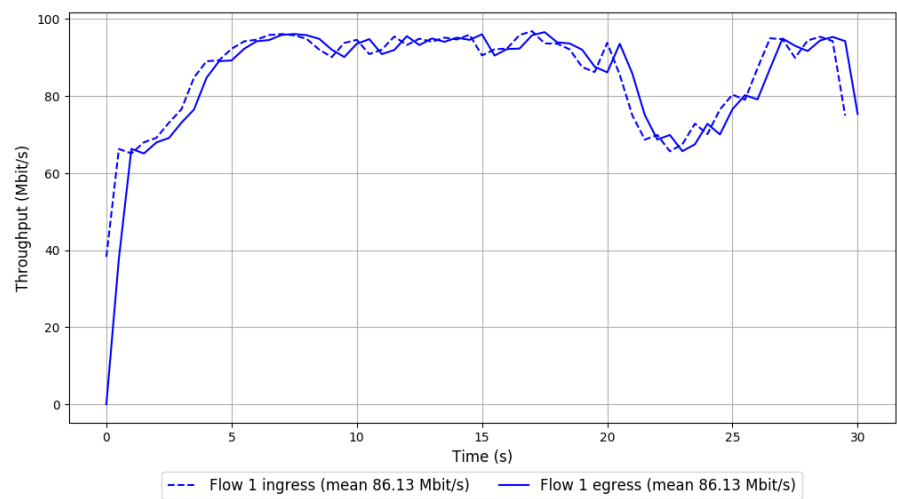
Run 4: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 86.13 Mbit/s) ——— Flow 1 egress (mean 86.13 Mbit/s)

• Flow 1 (95th percentile 4.52 ms)

```
Run 5: Statistics of PCC-Allegro

Start at: 2018-12-10 23:30:15
End at: 2018-12-10 23:30:45
Local clock offset: -1.905 ms
Remote clock offset: 0.43 ms


# Below is generated by plot.py at 2018-12-10 23:47:32
# Datalink statistics
-- Total of 1 flow:
Average throughput: 89.47 Mbit/s
95th percentile per-packet one-way delay: 3.412 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 89.47 Mbit/s
95th percentile per-packet one-way delay: 3.412 ms
Loss rate: 0.00%
```
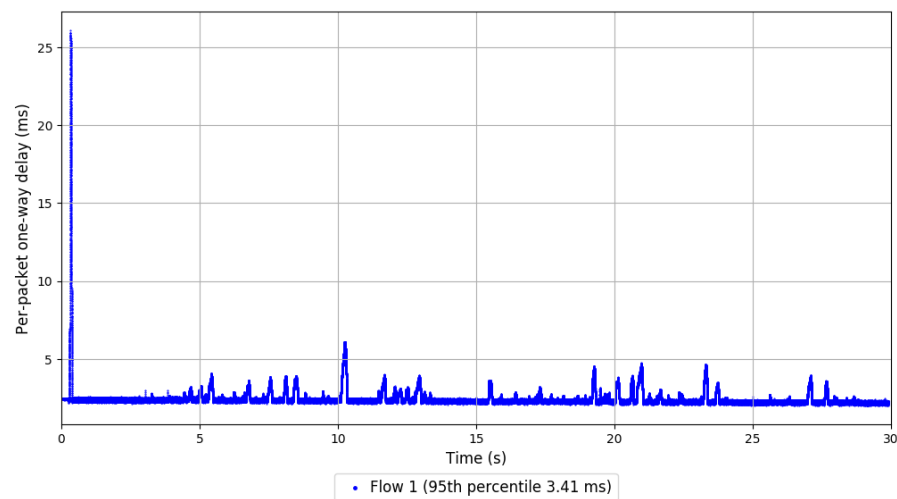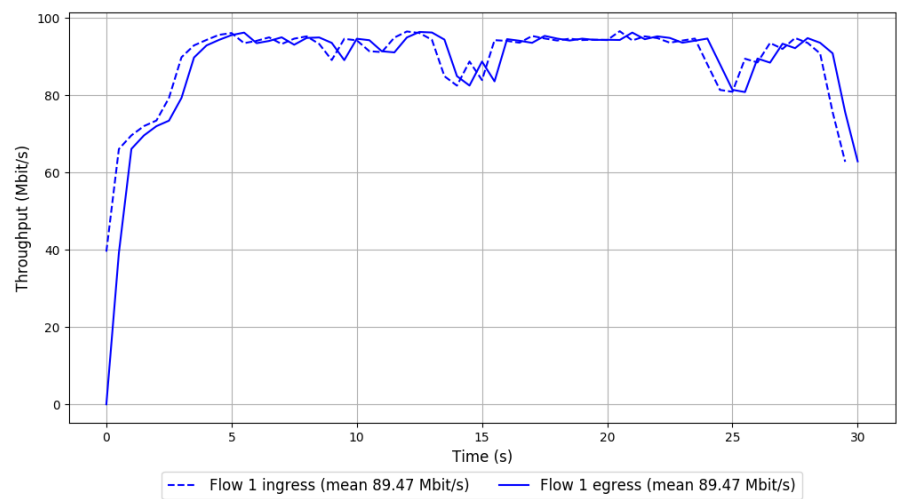
Run 5: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 89.47 Mbit/s) --- Flow 1 egress (mean 89.47 Mbit/s)

Flow 1 (95th percentile 3.41 ms)
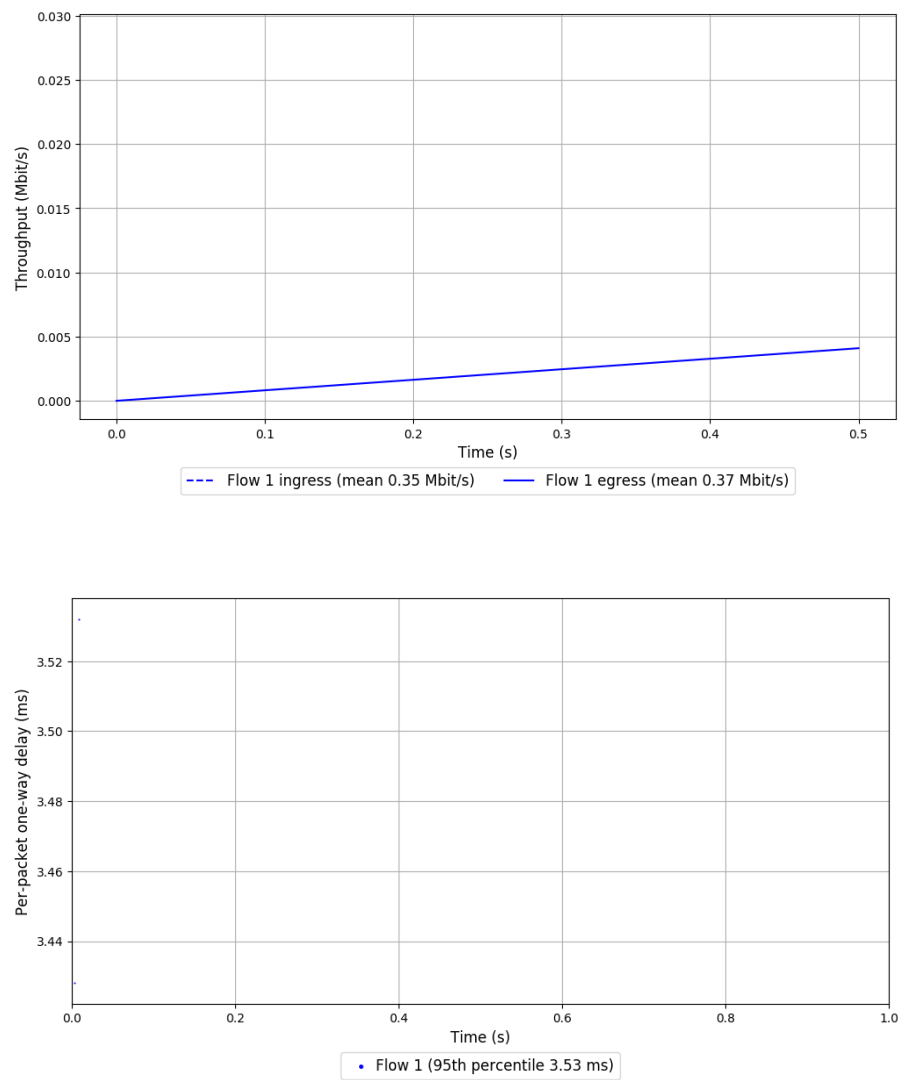
```
Run 1: Statistics of PCC-Expr

Start at: 2018-12-10 21:54:24
End at: 2018-12-10 21:54:54
Local clock offset: -1.834 ms
Remote clock offset: -0.132 ms
```

Run 1: Report of PCC-Expr — Data Link

```
Run 2: Statistics of PCC-Expr

Start at: 2018-12-10 22:15:35
End at: 2018-12-10 22:16:05
Local clock offset: -4.641 ms
Remote clock offset: 0.025 ms


# Below is generated by plot.py at 2018-12-10 23:47:32
# Datalink statistics
-- Total of 1 flow:
Average throughput: 13.11 Mbit/s
95th percentile per-packet one-way delay: 2.642 ms
Loss rate: 15.92%
-- Flow 1:
Average throughput: 13.11 Mbit/s
95th percentile per-packet one-way delay: 2.642 ms
Loss rate: 15.92%
```
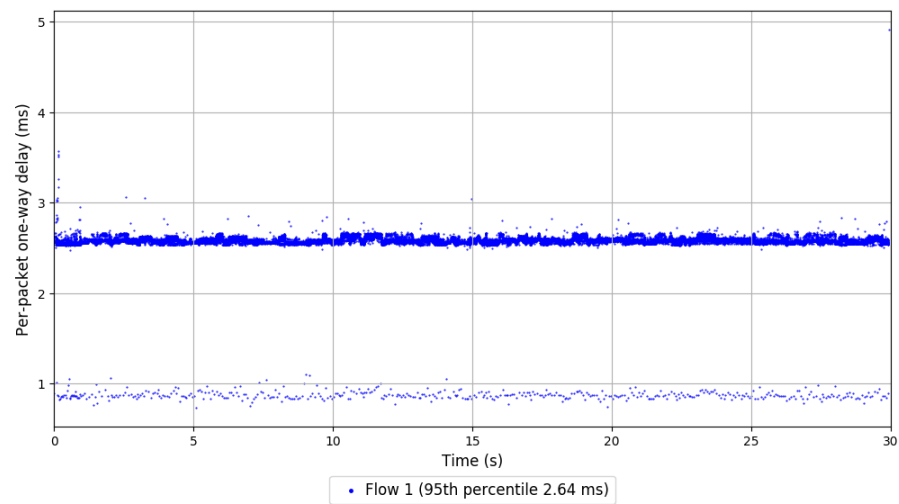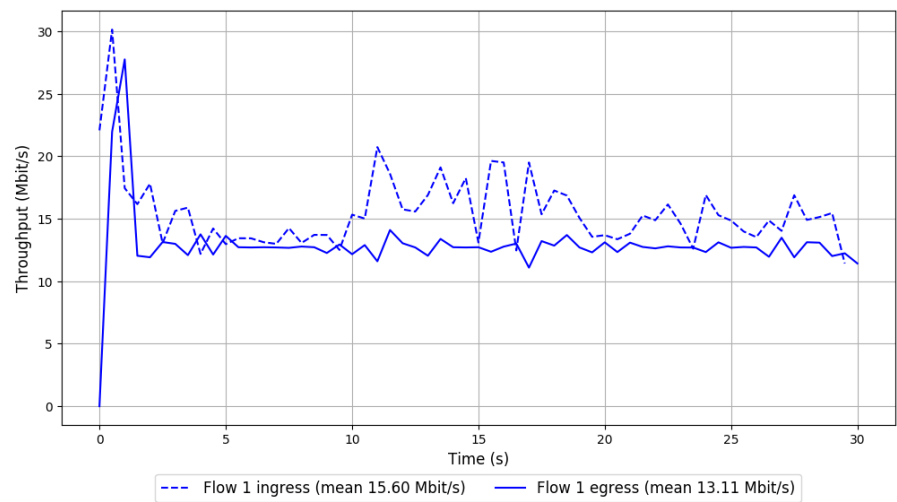
Run 2: Report of PCC-Expr — Data Link

```
Run 3: Statistics of PCC-Expr

Start at: 2018-12-10 22:36:45
End at: 2018-12-10 22:37:15
Local clock offset: -6.478 ms
Remote clock offset: 0.217 ms


# Below is generated by plot.py at 2018-12-10 23:47:32
# Datalink statistics
-- Total of 1 flow:
Average throughput: 13.11 Mbit/s
95th percentile per-packet one-way delay: 1.821 ms
Loss rate: 23.07%
-- Flow 1:
Average throughput: 13.11 Mbit/s
95th percentile per-packet one-way delay: 1.821 ms
Loss rate: 23.07%
```
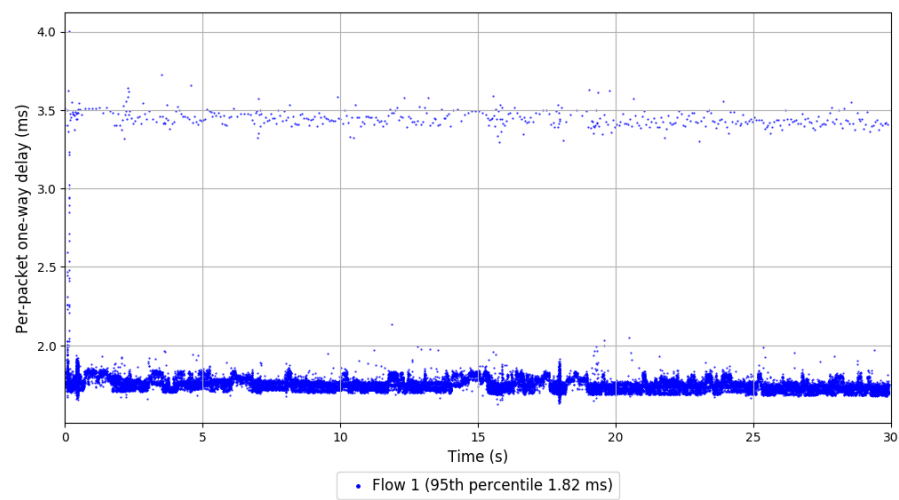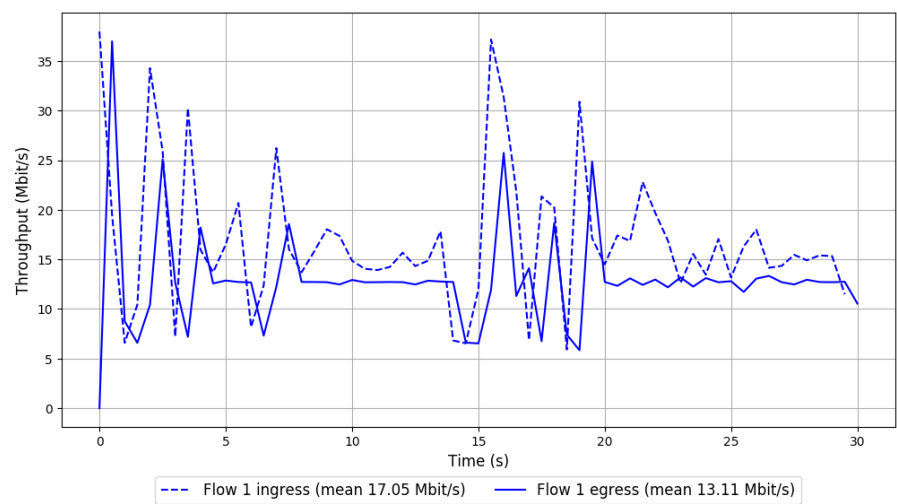
Run 3: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 17.05 Mbit/s) --- Flow 1 egress (mean 13.11 Mbit/s)

Flow 1 (95th percentile 1.82 ms)

```
Run 4: Statistics of PCC-Expr

Start at: 2018-12-10 22:57:55
End at: 2018-12-10 22:58:25
Local clock offset: -6.152 ms
Remote clock offset: 0.334 ms


# Below is generated by plot.py at 2018-12-10 23:47:32
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.72 Mbit/s
95th percentile per-packet one-way delay: 3.782 ms
Loss rate: 39.41%
-- Flow 1:
Average throughput: 12.72 Mbit/s
95th percentile per-packet one-way delay: 3.782 ms
Loss rate: 39.41%
```
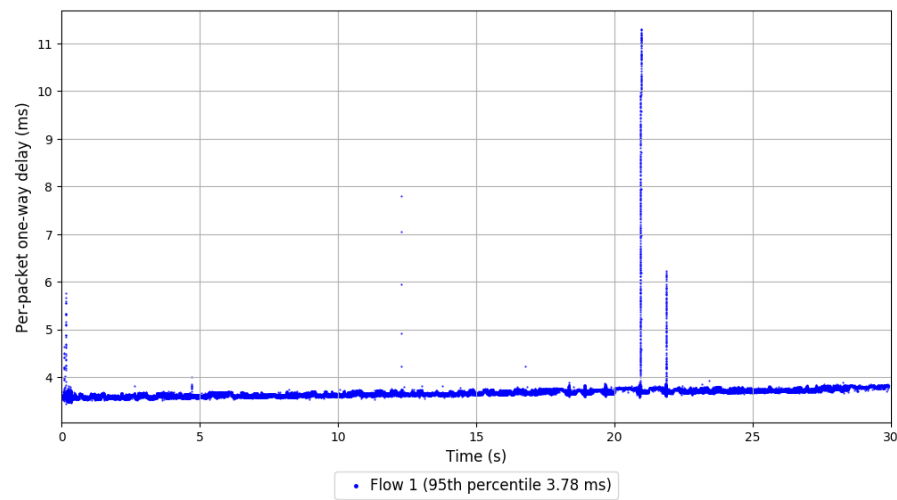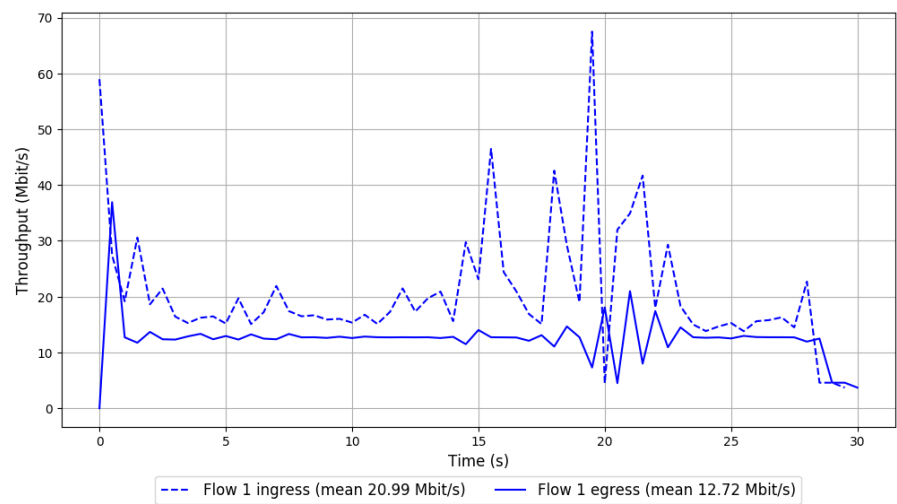
Run 4: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 20.99 Mbit/s) --- Flow 1 egress (mean 12.72 Mbit/s)

Flow 1 (95th percentile 3.78 ms)

```
Run 5: Statistics of PCC-Expr

Start at: 2018-12-10 23:19:04
End at: 2018-12-10 23:19:35
Local clock offset: -1.19 ms
Remote clock offset: 0.43 ms


# Below is generated by plot.py at 2018-12-10 23:47:32
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.29 Mbit/s
95th percentile per-packet one-way delay: 9.535 ms
Loss rate: 45.88%
-- Flow 1:
Average throughput: 12.29 Mbit/s
95th percentile per-packet one-way delay: 9.535 ms
Loss rate: 45.88%
```
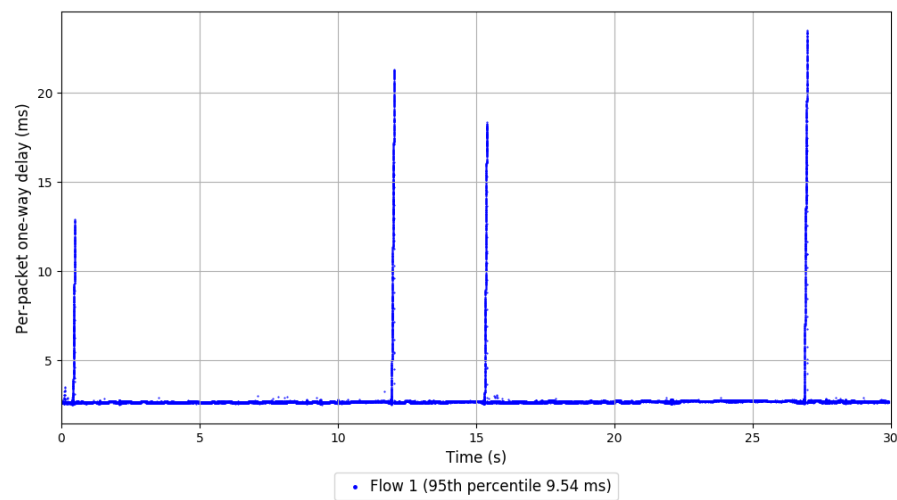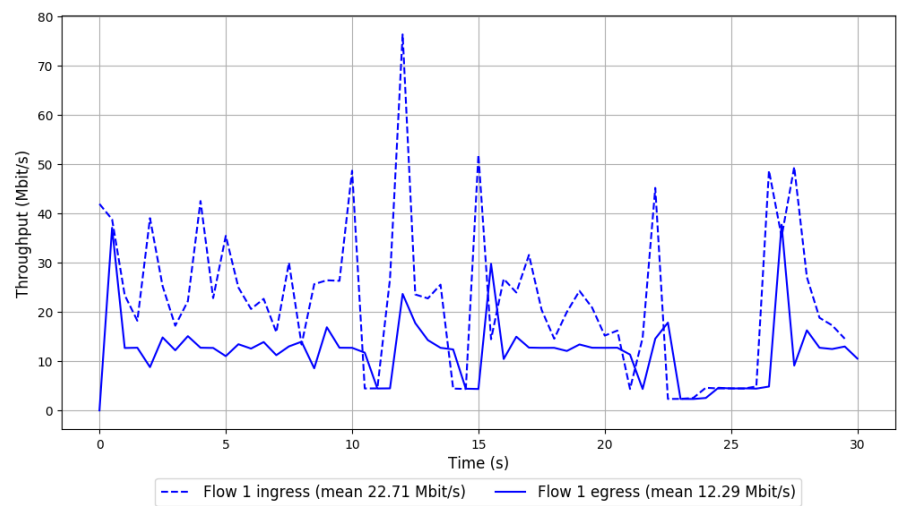
Run 5: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 22.71 Mbit/s) --- Flow 1 egress (mean 12.29 Mbit/s)

Flow 1 (95th percentile 9.54 ms)

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-12-10 22:07:49
End at: 2018-12-10 22:08:19
Local clock offset: -5.027 ms
Remote clock offset: -0.055 ms


# Below is generated by plot.py at 2018-12-10 23:47:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 76.85 Mbit/s
95th percentile per-packet one-way delay: 3.637 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 76.85 Mbit/s
95th percentile per-packet one-way delay: 3.637 ms
Loss rate: 0.06%
```
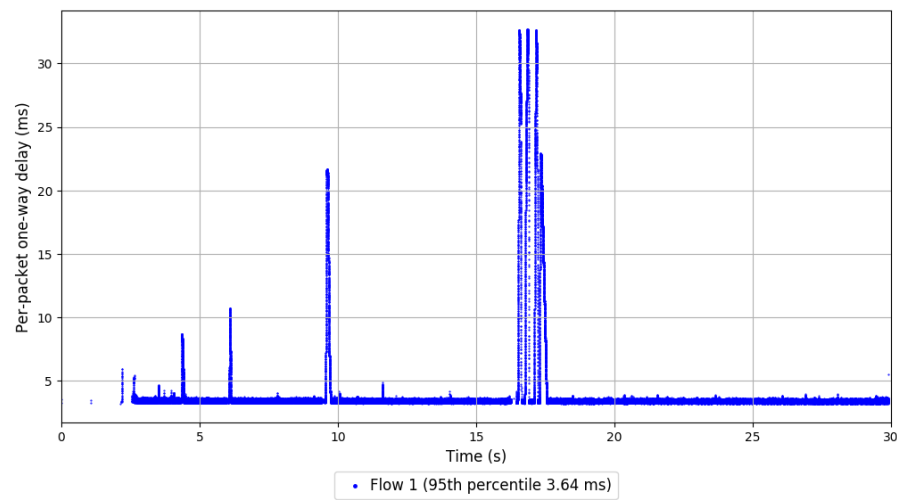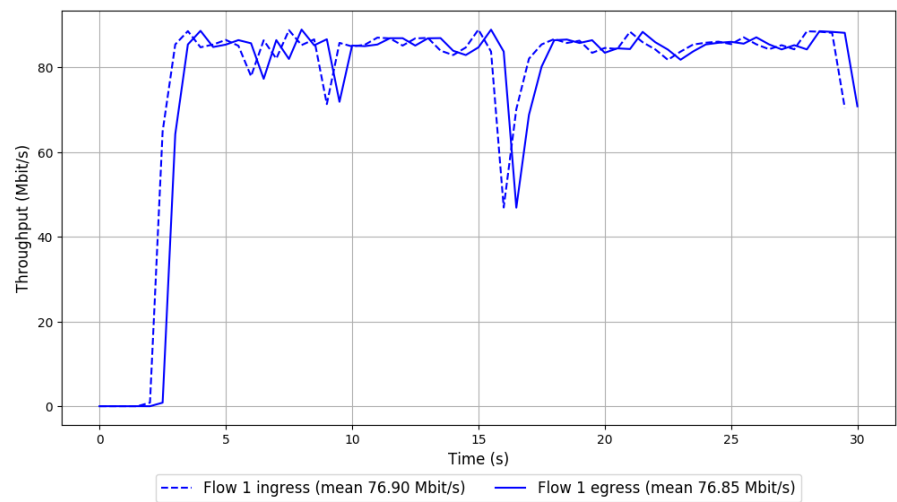
Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-12-10 22:28:58
End at: 2018-12-10 22:29:28
Local clock offset: -5.577 ms
Remote clock offset: 0.067 ms


# Below is generated by plot.py at 2018-12-10 23:47:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 79.21 Mbit/s
95th percentile per-packet one-way delay: 3.454 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 79.21 Mbit/s
95th percentile per-packet one-way delay: 3.454 ms
Loss rate: 0.25%
```
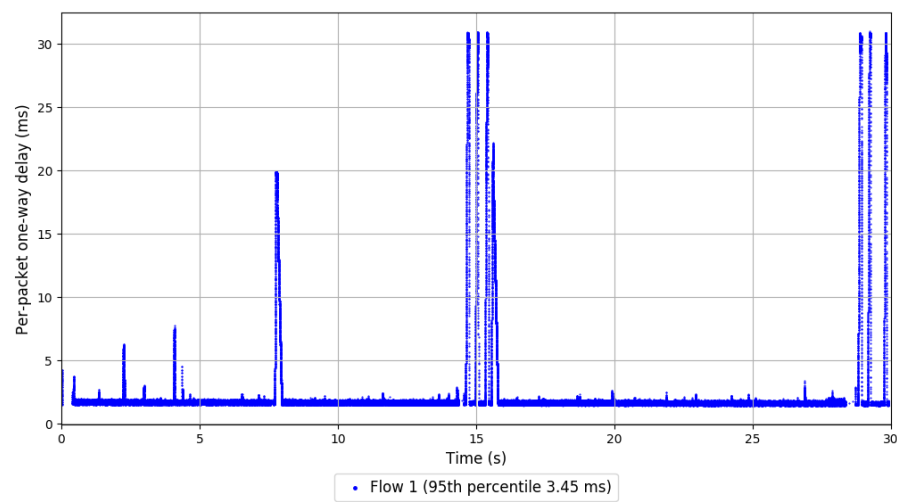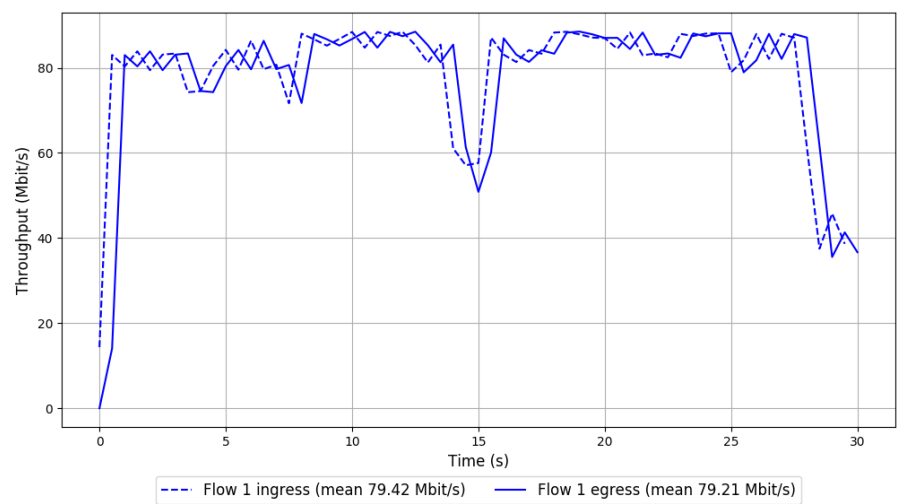
Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-12-10 22:50:08
End at: 2018-12-10 22:50:38
Local clock offset: -5.794 ms
Remote clock offset: 0.32 ms


# Below is generated by plot.py at 2018-12-10 23:48:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 79.03 Mbit/s
95th percentile per-packet one-way delay: 2.450 ms
Loss rate: 0.22%
-- Flow 1:
Average throughput: 79.03 Mbit/s
95th percentile per-packet one-way delay: 2.450 ms
Loss rate: 0.22%
```
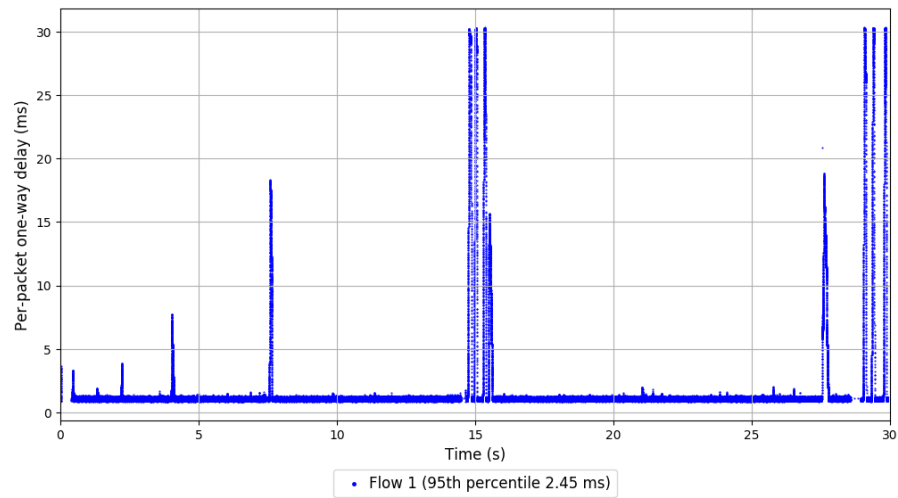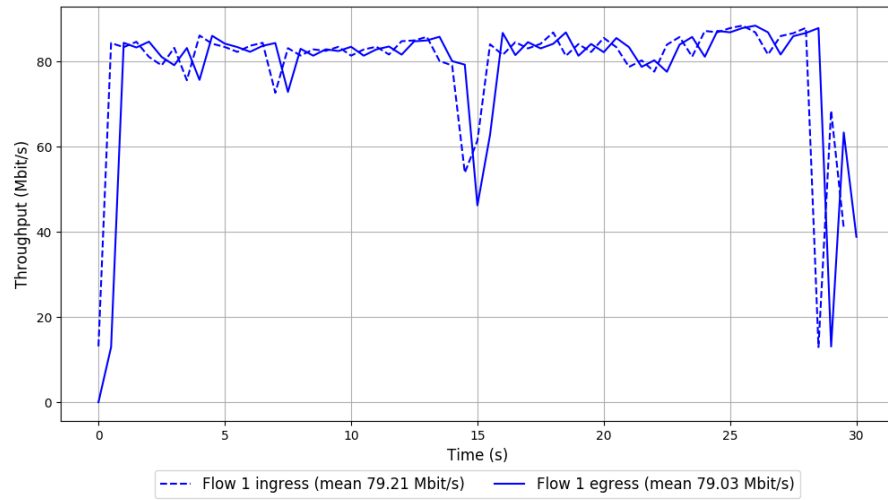
Run 3: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 79.21 Mbit/s)   Flow 1 egress (mean 79.03 Mbit/s)

Flow 1 (95th percentile 2.45 ms)

```
Run 4: Statistics of QUIC Cubic

Start at: 2018-12-10 23:11:18
End at: 2018-12-10 23:11:48
Local clock offset: -2.159 ms
Remote clock offset: 0.428 ms


# Below is generated by plot.py at 2018-12-10 23:48:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 77.93 Mbit/s
95th percentile per-packet one-way delay: 8.662 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 77.93 Mbit/s
95th percentile per-packet one-way delay: 8.662 ms
Loss rate: 0.39%
```
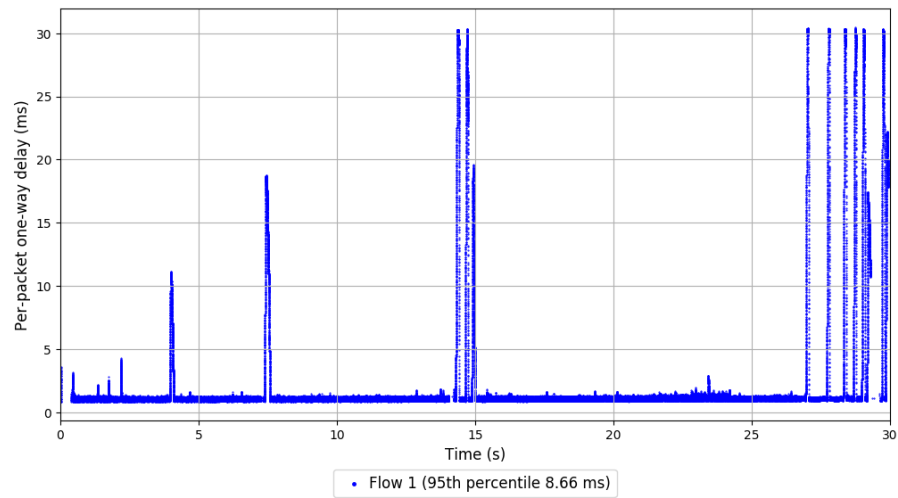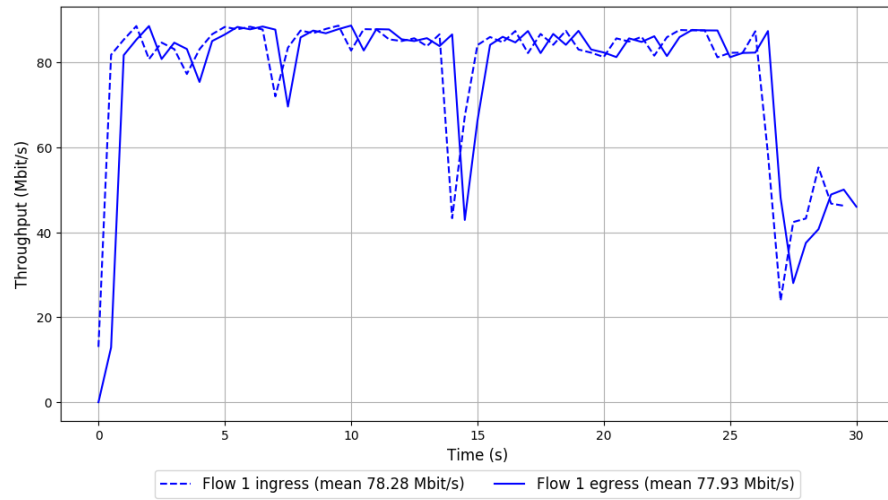
Run 4: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 78.28 Mbit/s)   Flow 1 egress (mean 77.93 Mbit/s)

Flow 1 (95th percentile 8.66 ms)

```
Run 5: Statistics of QUIC Cubic

Start at: 2018-12-10 23:32:30
End at: 2018-12-10 23:33:00
Local clock offset: -3.631 ms
Remote clock offset: 0.459 ms


# Below is generated by plot.py at 2018-12-10 23:48:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 79.47 Mbit/s
95th percentile per-packet one-way delay: 4.632 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 79.47 Mbit/s
95th percentile per-packet one-way delay: 4.632 ms
Loss rate: 0.16%
```
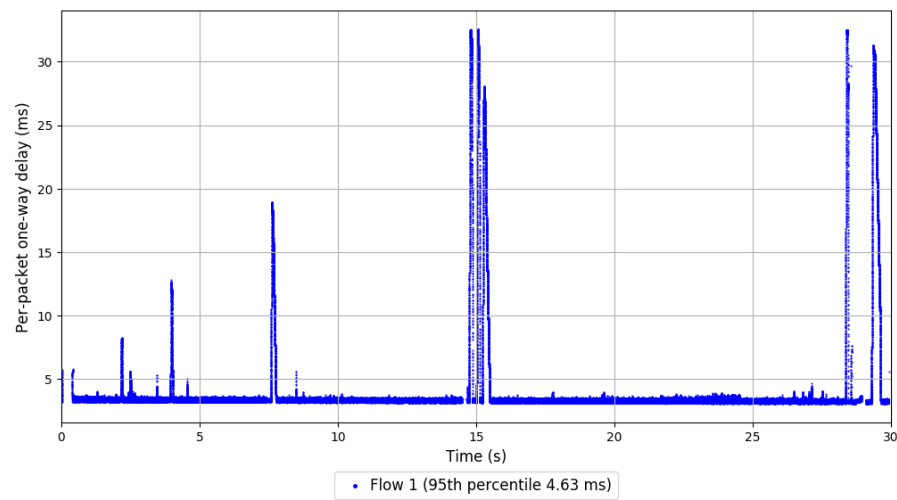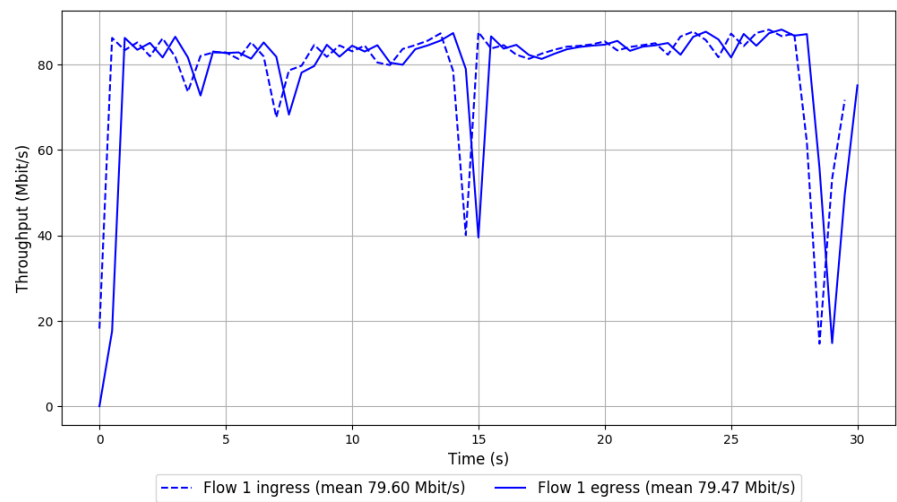
Run 5: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 79.60 Mbit/s)   Flow 1 egress (mean 79.47 Mbit/s)
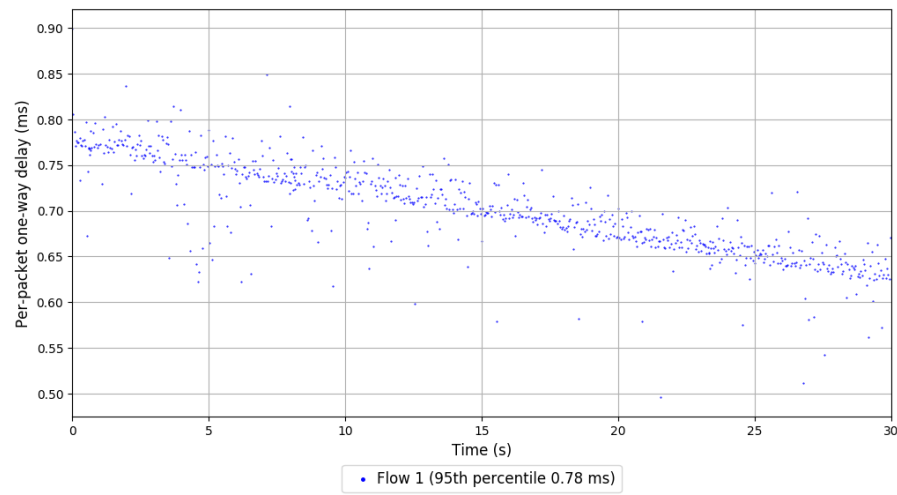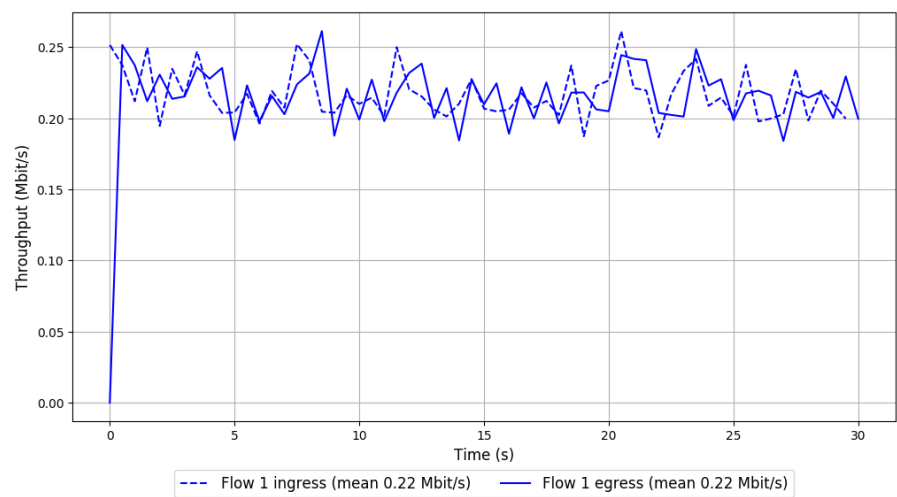

• Flow 1 (95th percentile 4.63 ms)

```
Run 1: Statistics of SCReAM

Start at: 2018-12-10 22:02:17
End at: 2018-12-10 22:02:47
Local clock offset: -2.91 ms
Remote clock offset: -0.054 ms


# Below is generated by plot.py at 2018-12-10 23:48:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 0.778 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 0.778 ms
Loss rate: 0.00%
```

Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: 2018-12-10 22:23:28
End at: 2018-12-10 22:23:58
Local clock offset: -4.489 ms
Remote clock offset: 0.052 ms


# Below is generated by plot.py at 2018-12-10 23:48:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.630 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.630 ms
Loss rate: 0.00%
```
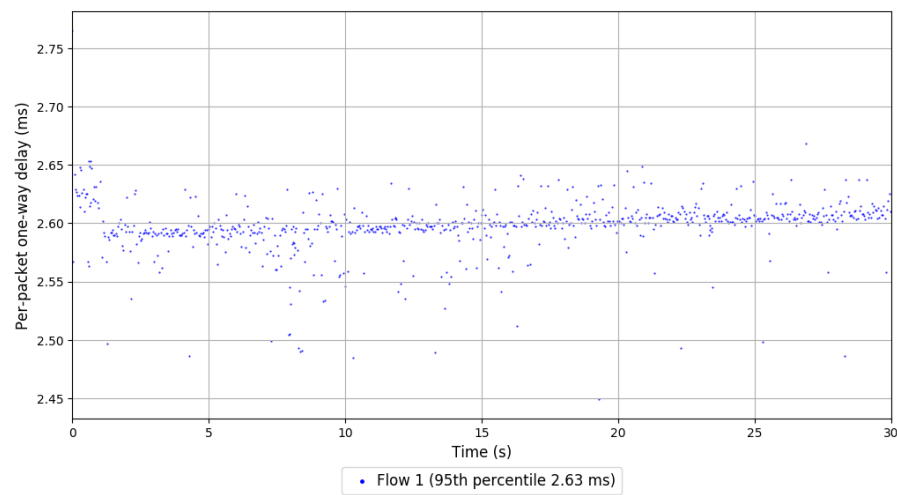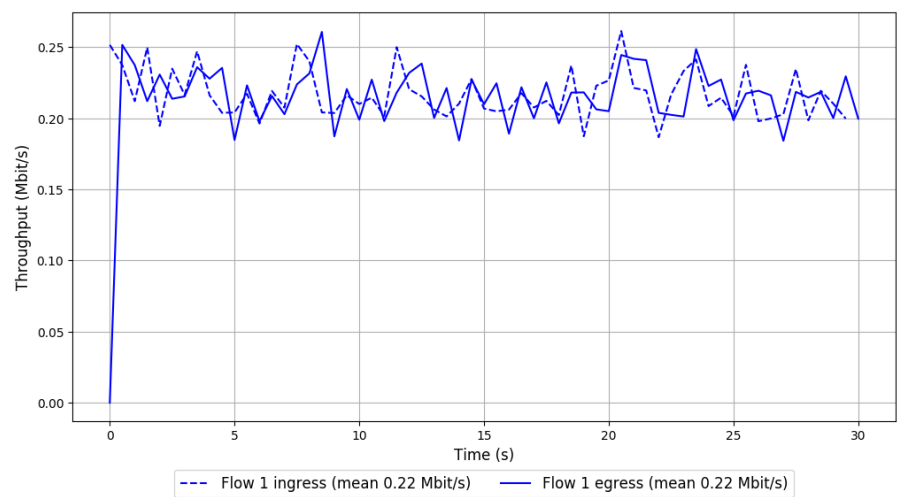
Run 2: Report of SCReAM — Data Link

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

Flow 1 (95th percentile 2.63 ms)

```
Run 3: Statistics of SCReAM

Start at: 2018-12-10 22:44:38
End at: 2018-12-10 22:45:08
Local clock offset: -6.663 ms
Remote clock offset: 0.333 ms


# Below is generated by plot.py at 2018-12-10 23:48:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 3.595 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 3.595 ms
Loss rate: 0.00%
```
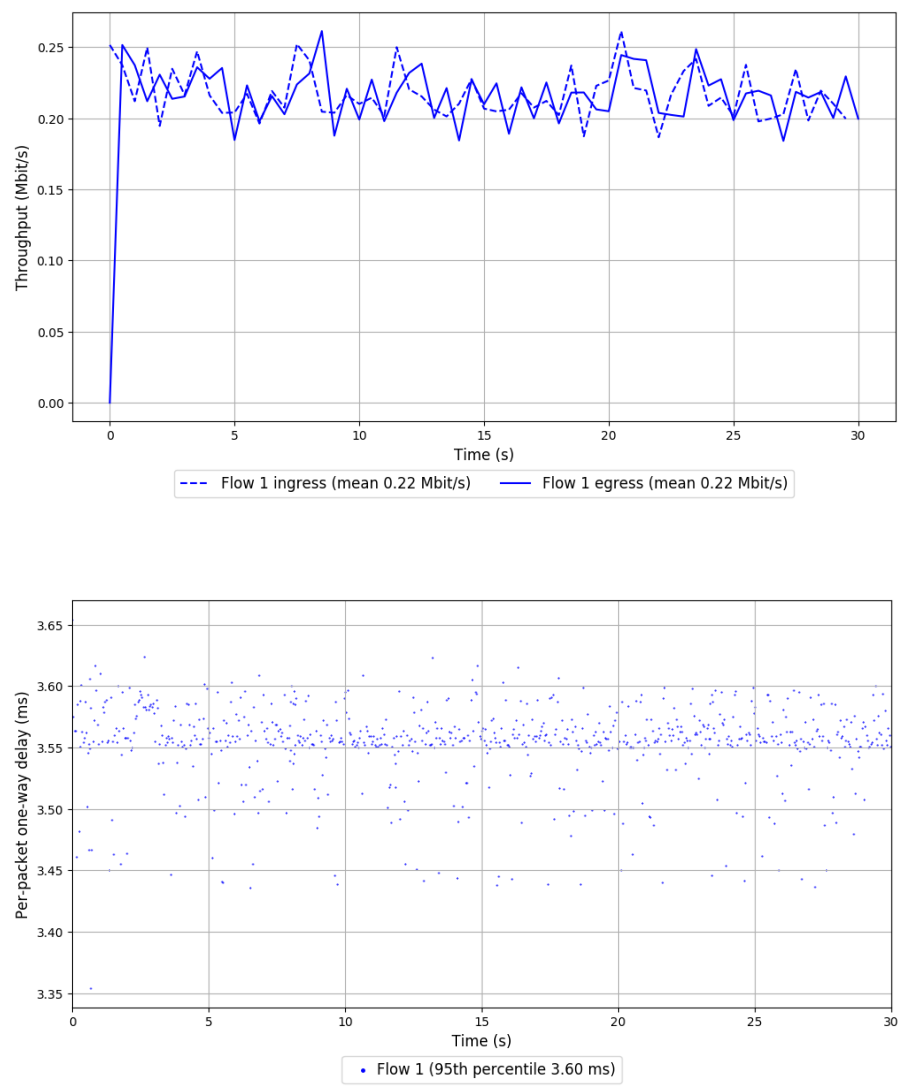
Run 3: Report of SCReAM — Data Link

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

Flow 1 (95th percentile 3.60 ms)

```
Run 4: Statistics of SCReAM

Start at: 2018-12-10 23:05:48
End at: 2018-12-10 23:06:18
Local clock offset: -3.975 ms
Remote clock offset: 0.397 ms


# Below is generated by plot.py at 2018-12-10 23:48:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 3.693 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 3.693 ms
Loss rate: 0.00%
```
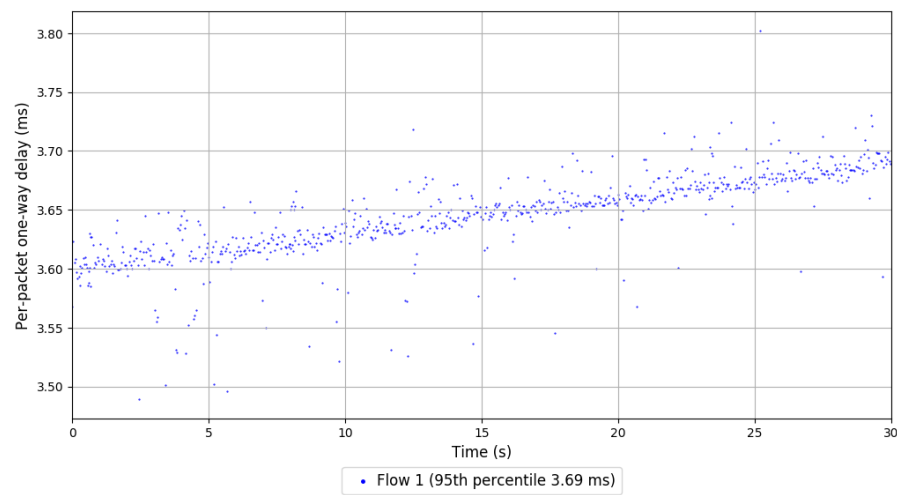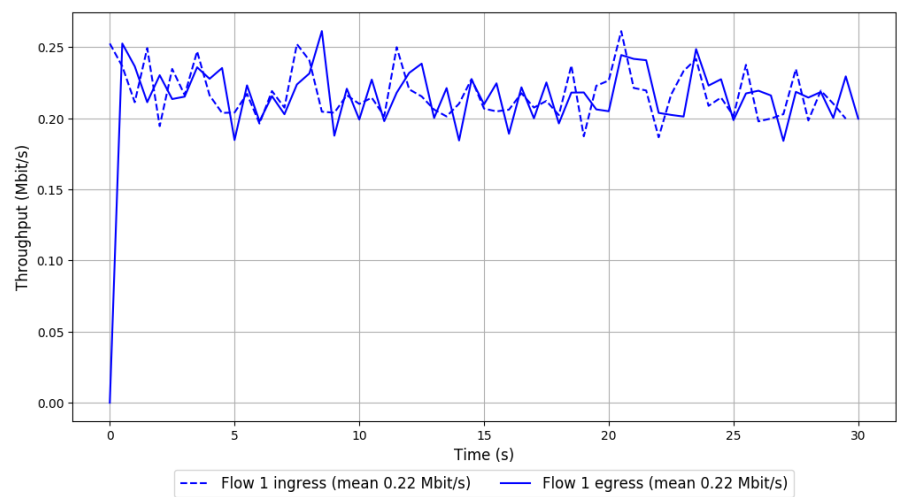
Run 4: Report of SCReAM — Data Link

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

Flow 1 (95th percentile 3.69 ms)

```
Run 5: Statistics of SCReAM

Start at: 2018-12-10 23:26:58
End at: 2018-12-10 23:27:28
Local clock offset: -1.344 ms
Remote clock offset: 0.458 ms


# Below is generated by plot.py at 2018-12-10 23:48:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.804 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.804 ms
Loss rate: 0.00%
```
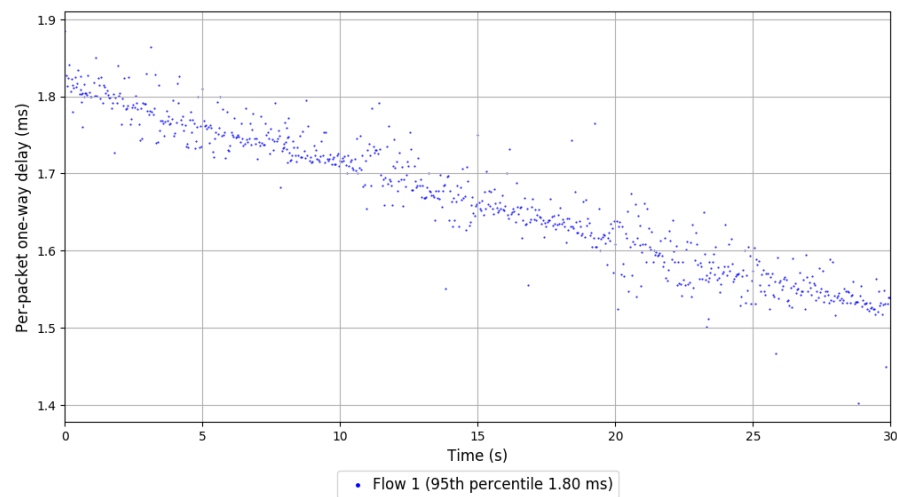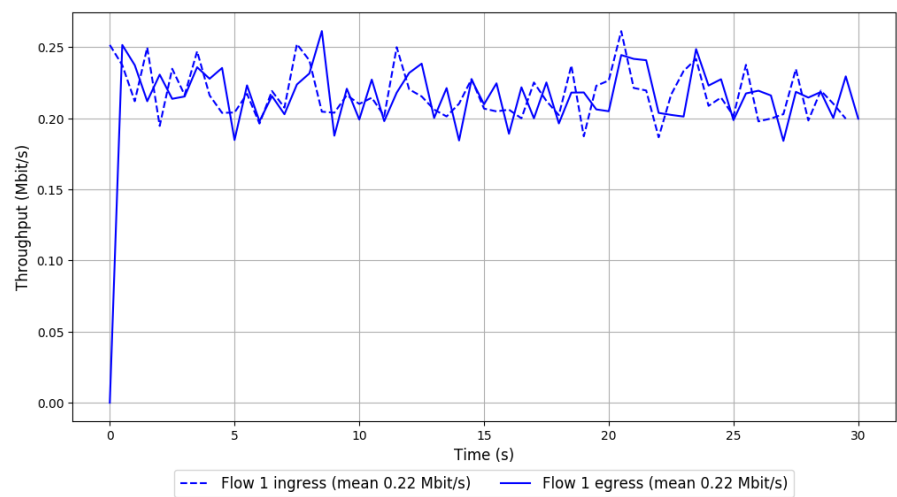
Run 5: Report of SCReAM — Data Link

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

• Flow 1 (95th percentile 1.80 ms)

```
Run 1: Statistics of Sprout

Start at: 2018-12-10 21:57:45
End at: 2018-12-10 21:58:15
Local clock offset: -1.756 ms
Remote clock offset: -0.028 ms


# Below is generated by plot.py at 2018-12-10 23:48:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 50.26 Mbit/s
95th percentile per-packet one-way delay: 10.863 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.26 Mbit/s
95th percentile per-packet one-way delay: 10.863 ms
Loss rate: 0.00%
```
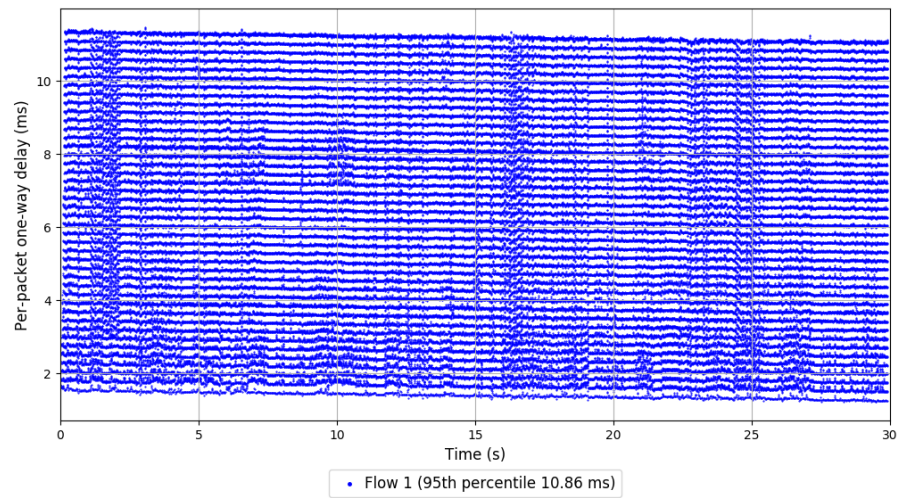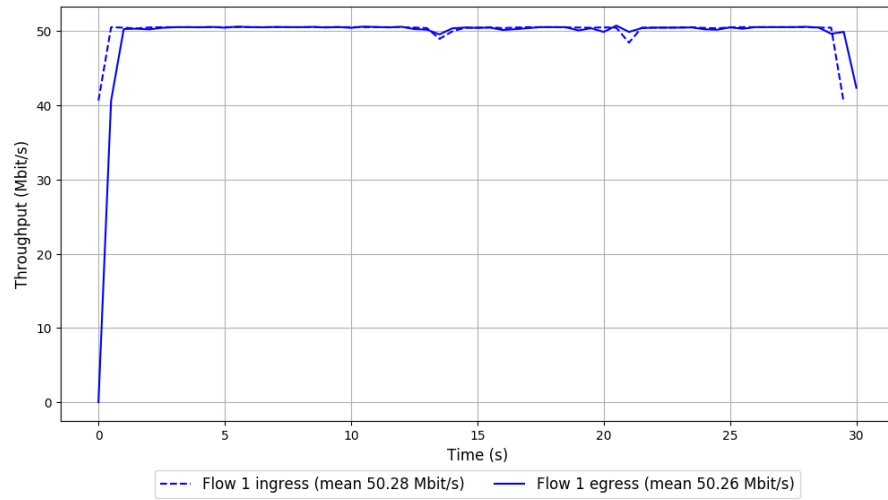
Run 1: Report of Sprout — Data Link

Flow 1 ingress (mean 50.28 Mbit/s)   Flow 1 egress (mean 50.26 Mbit/s)

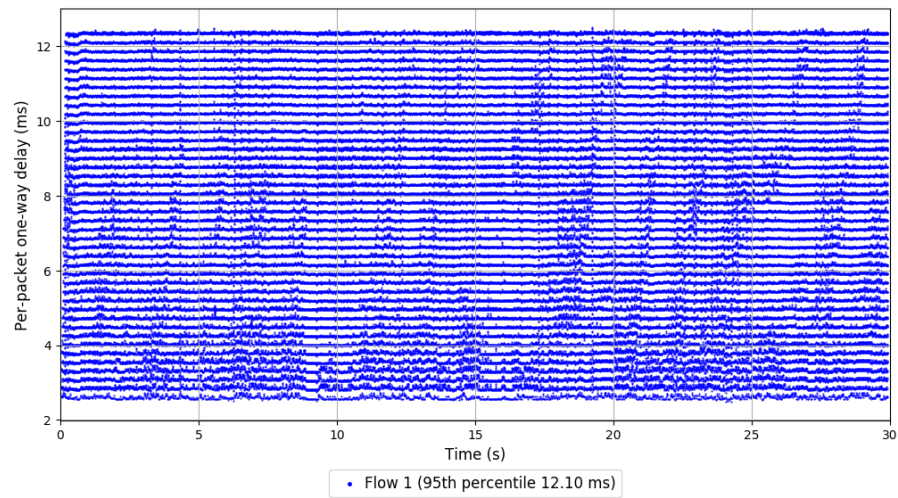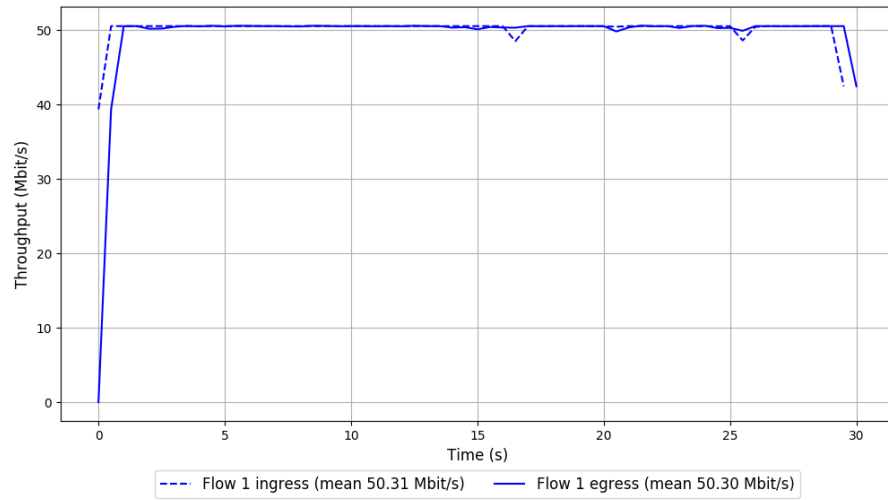Flow 1 (95th percentile 10.86 ms)

```
Run 2: Statistics of Sprout

Start at: 2018-12-10 22:18:56
End at: 2018-12-10 22:19:26
Local clock offset: -4.632 ms
Remote clock offset: 0.059 ms


# Below is generated by plot.py at 2018-12-10 23:48:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 50.30 Mbit/s
95th percentile per-packet one-way delay: 12.095 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.30 Mbit/s
95th percentile per-packet one-way delay: 12.095 ms
Loss rate: 0.00%
```

Run 2: Report of Sprout — Data Link

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

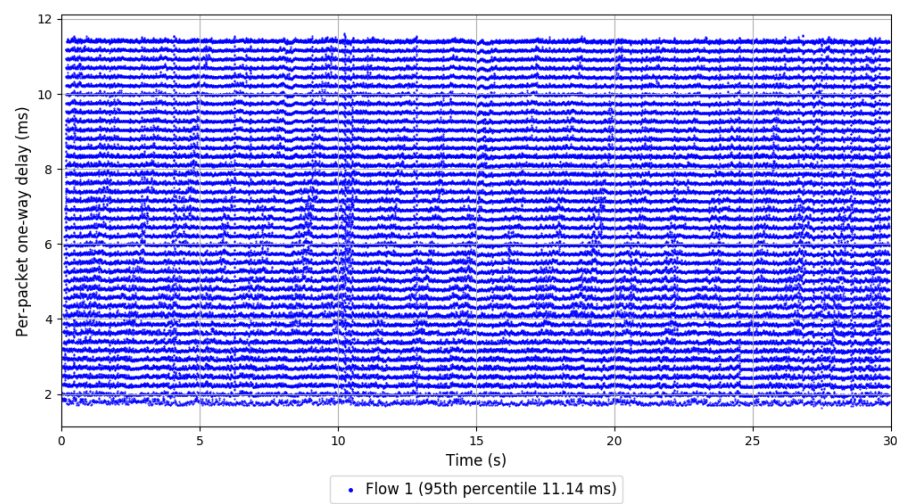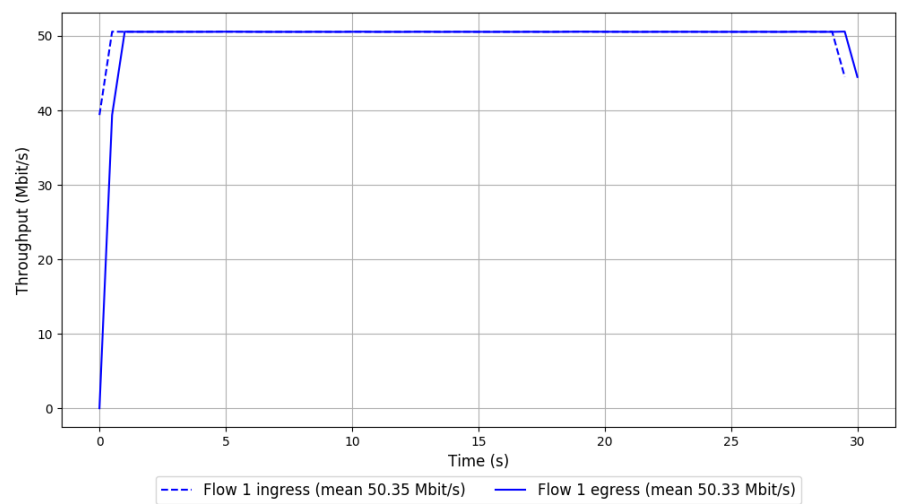• Flow 1 (95th percentile 12.10 ms)

138

```
Run 3: Statistics of Sprout

Start at: 2018-12-10 22:40:06
End at: 2018-12-10 22:40:36
Local clock offset: -6.608 ms
Remote clock offset: 0.255 ms


# Below is generated by plot.py at 2018-12-10 23:48:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 50.33 Mbit/s
95th percentile per-packet one-way delay: 11.139 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.33 Mbit/s
95th percentile per-packet one-way delay: 11.139 ms
Loss rate: 0.00%
```

Run 3: Report of Sprout — Data Link

Flow 1 ingress (mean 50.35 Mbit/s) ——— Flow 1 egress (mean 50.33 Mbit/s)

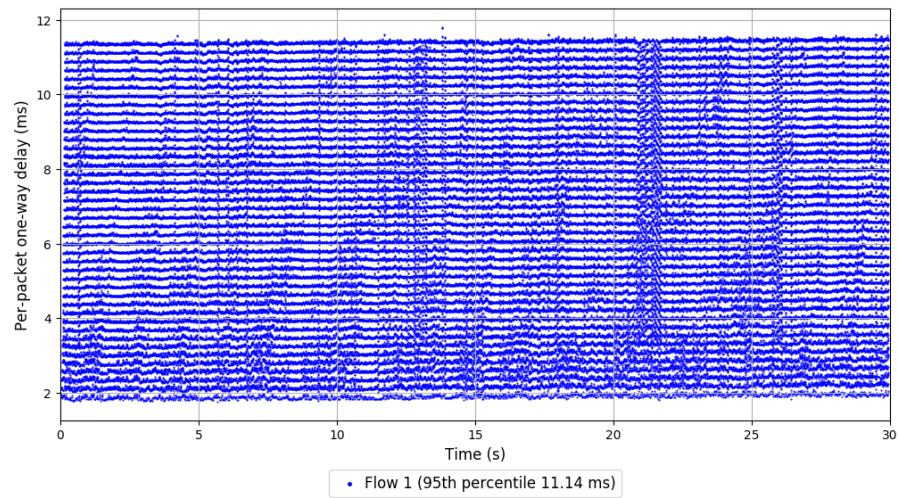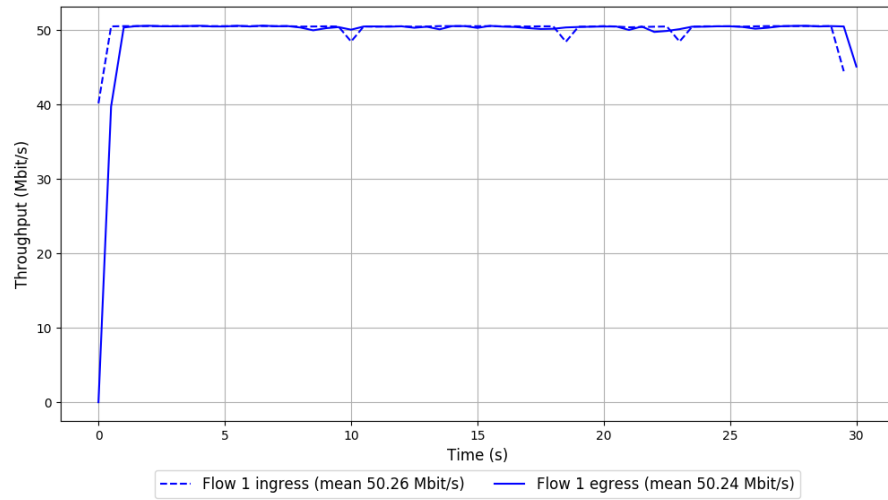• Flow 1 (95th percentile 11.14 ms)

```
Run 4: Statistics of Sprout

Start at: 2018-12-10 23:01:16
End at: 2018-12-10 23:01:46
Local clock offset: -5.032 ms
Remote clock offset: 0.341 ms


# Below is generated by plot.py at 2018-12-10 23:48:26
# Datalink statistics
-- Total of 1 flow:
Average throughput: 50.24 Mbit/s
95th percentile per-packet one-way delay: 11.142 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.24 Mbit/s
95th percentile per-packet one-way delay: 11.142 ms
Loss rate: 0.00%
```
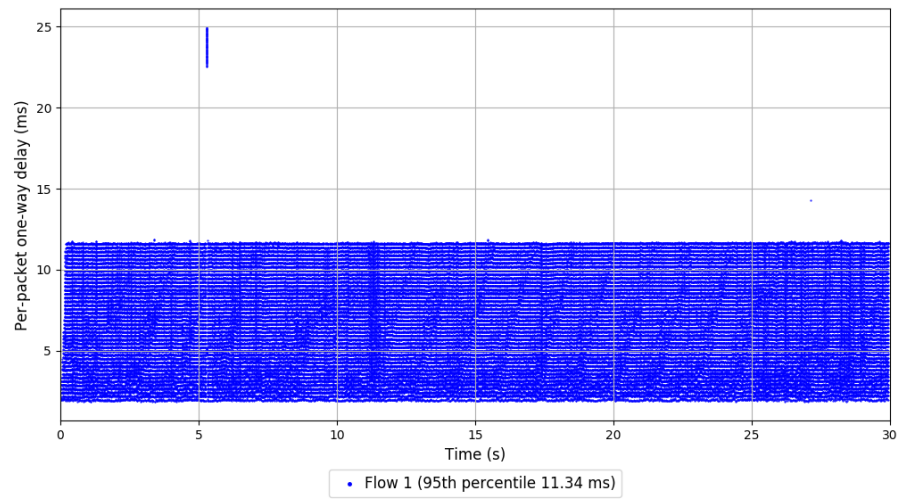
Run 4: Report of Sprout — Data Link

Flow 1 ingress (mean 50.26 Mbit/s) ----   Flow 1 egress (mean 50.24 Mbit/s) ——

• Flow 1 (95th percentile 11.14 ms)

```
Run 5: Statistics of Sprout

Start at: 2018-12-10 23:22:26
End at: 2018-12-10 23:22:56
Local clock offset: -1.812 ms
Remote clock offset: 0.485 ms


# Below is generated by plot.py at 2018-12-10 23:48:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 50.24 Mbit/s
95th percentile per-packet one-way delay: 11.341 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.24 Mbit/s
95th percentile per-packet one-way delay: 11.341 ms
Loss rate: 0.00%
```
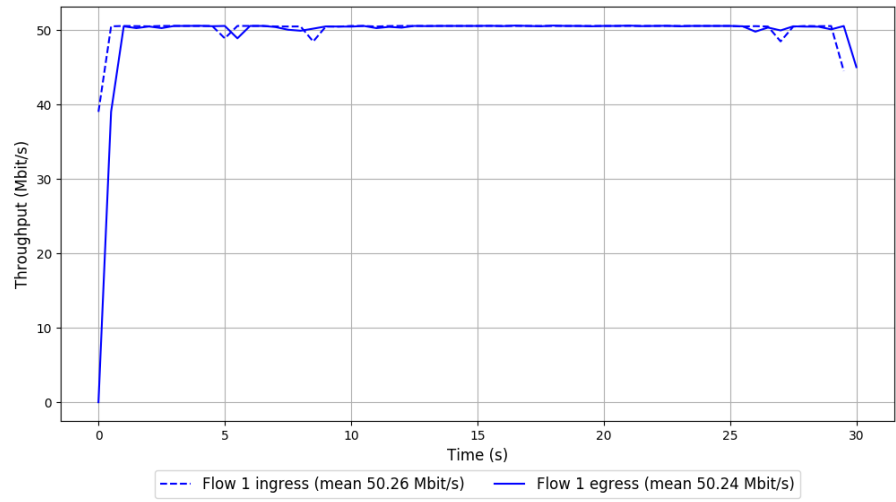
Run 5: Report of Sprout — Data Link
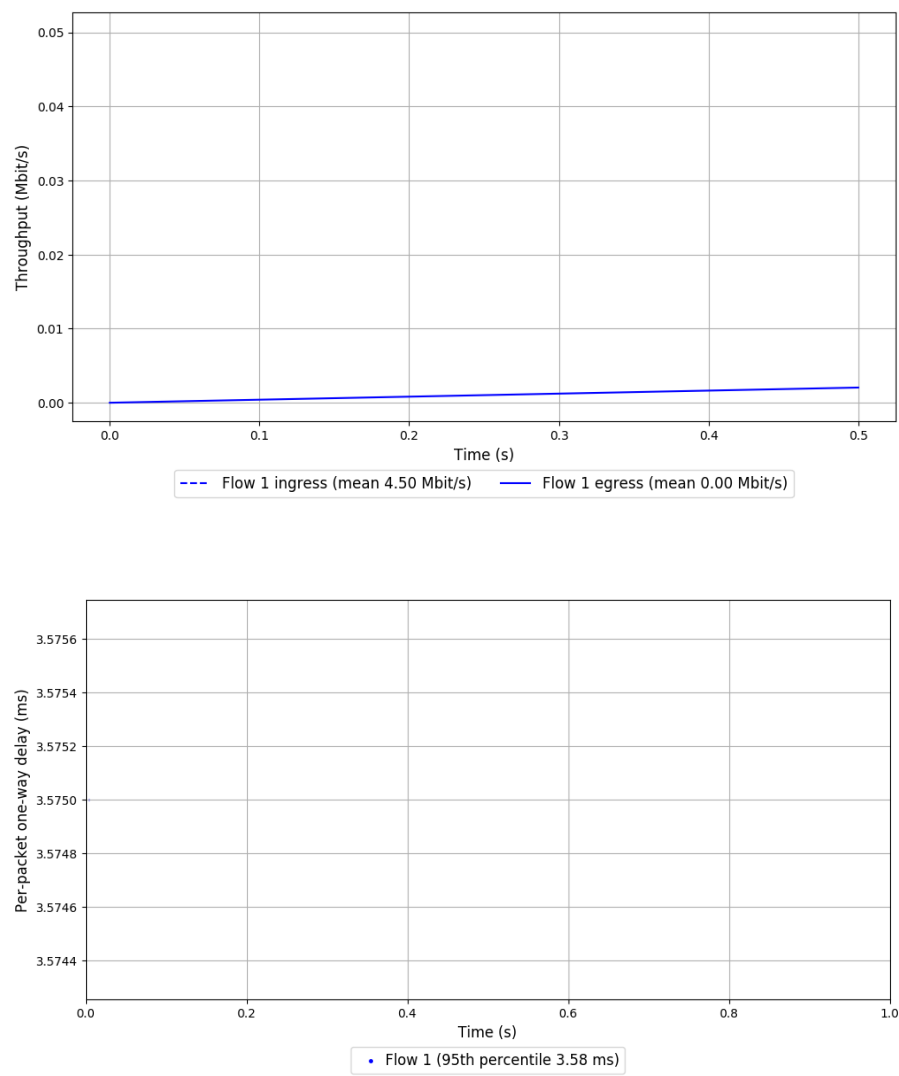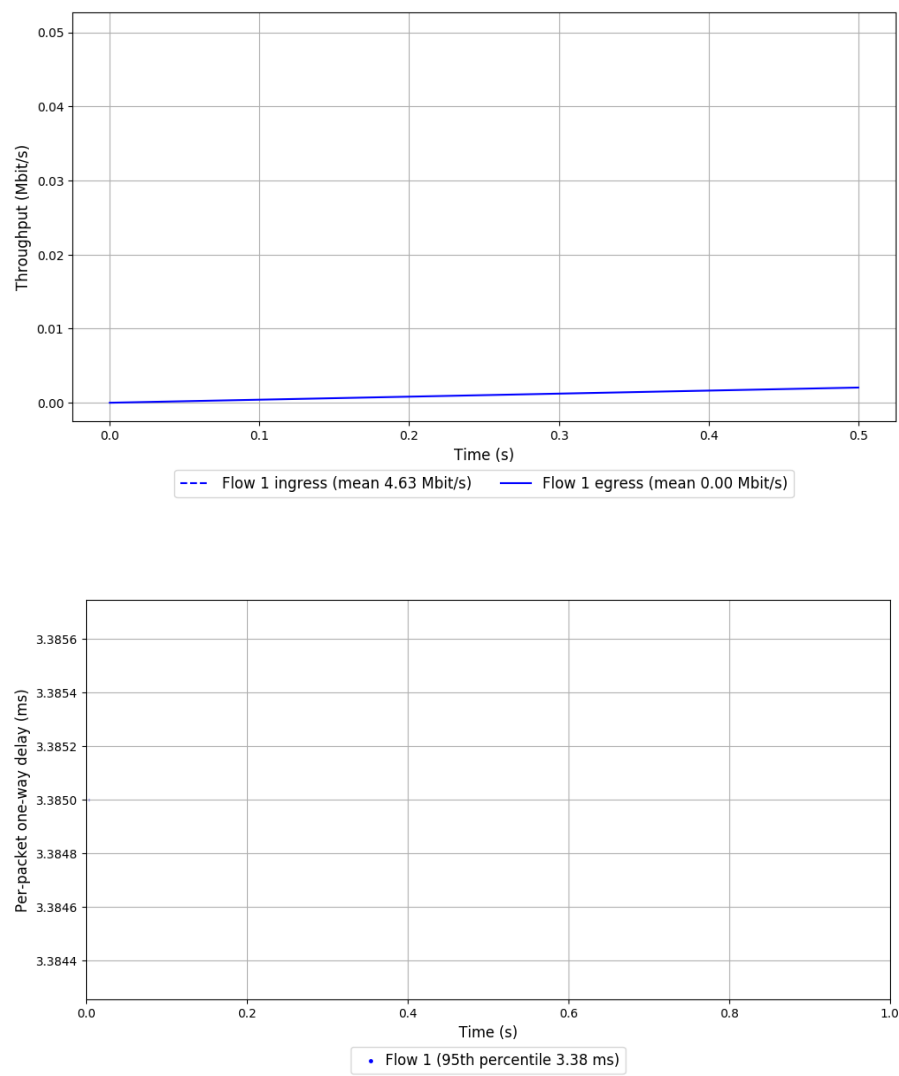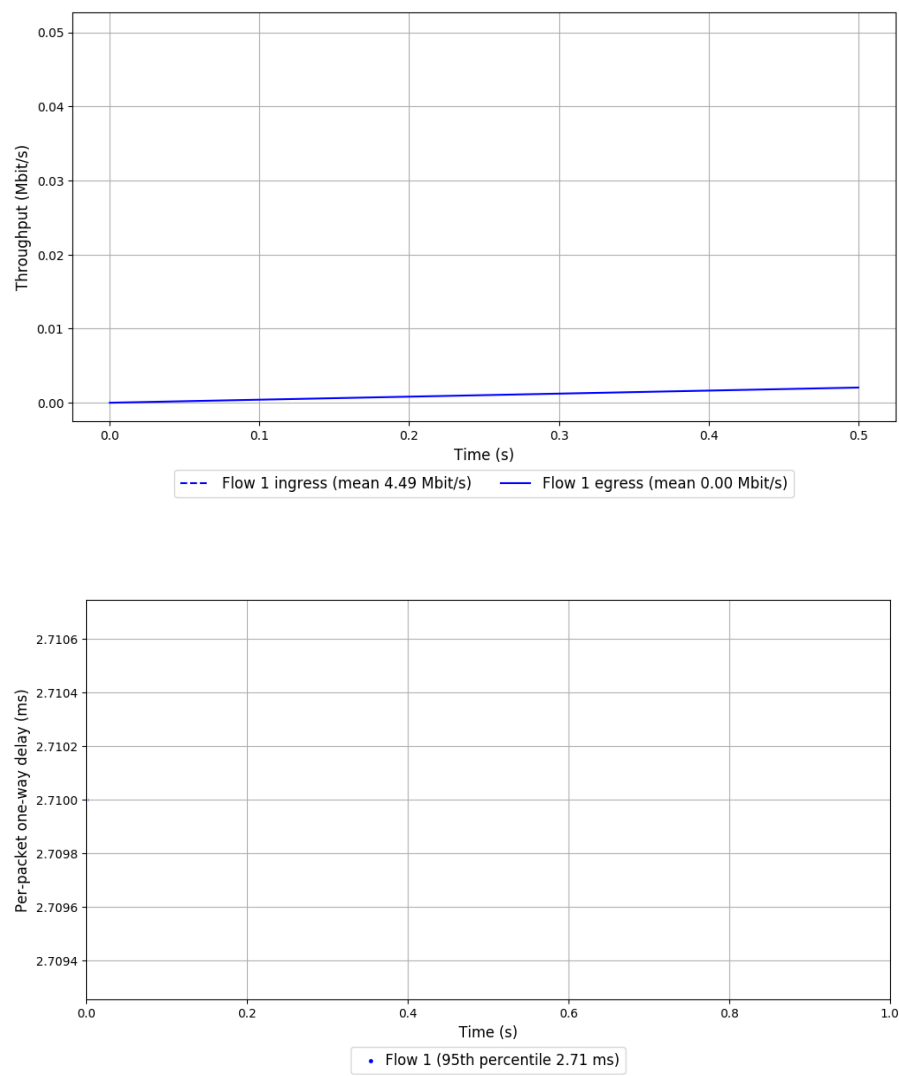
```
Run 1: Statistics of TaoVA-100x

Start at: 2018-12-10 22:10:03
End at: 2018-12-10 22:10:33
Local clock offset: -5.293 ms
Remote clock offset: -0.032 ms
```

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

Flow 1 ingress (mean 4.50 Mbit/s)   Flow 1 egress (mean 0.00 Mbit/s)

Flow 1 (95th percentile 3.58 ms)

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

Start at: 2018-12-10 22:31:13
End at: 2018-12-10 22:31:43
Local clock offset: -5.941 ms
Remote clock offset: 0.139 ms
```

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

Flow 1 ingress (mean 4.63 Mbit/s) --- Flow 1 egress (mean 0.00 Mbit/s)

Flow 1 (95th percentile 3.38 ms)

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

Start at: 2018-12-10 22:52:23
End at: 2018-12-10 22:52:53
Local clock offset: -5.679 ms
Remote clock offset: 0.279 ms
```

Run 3: Report of TaoVA-100x — Data Link
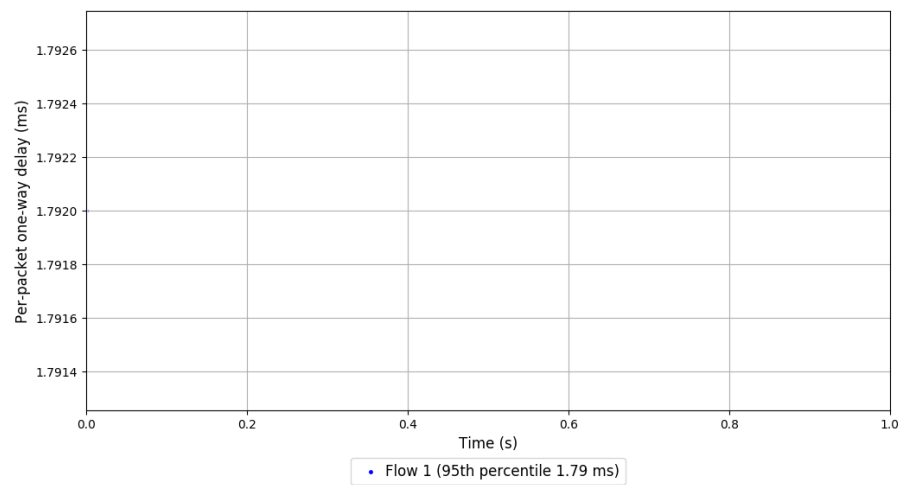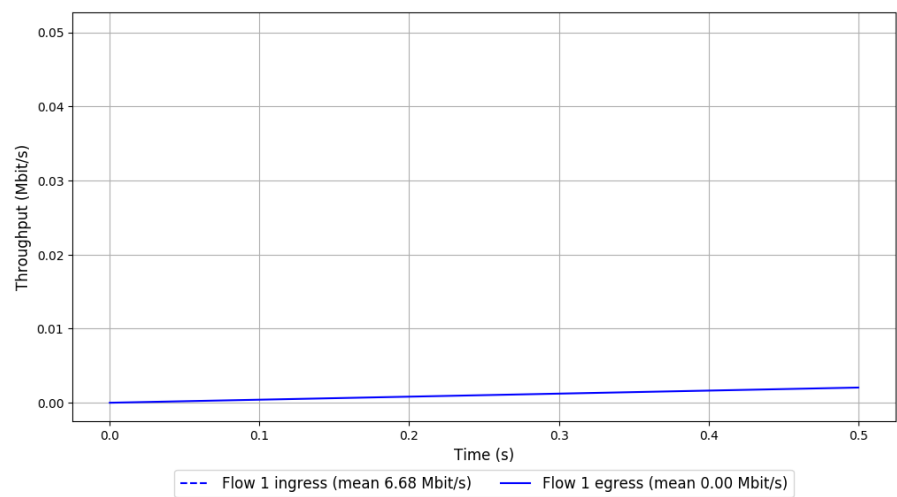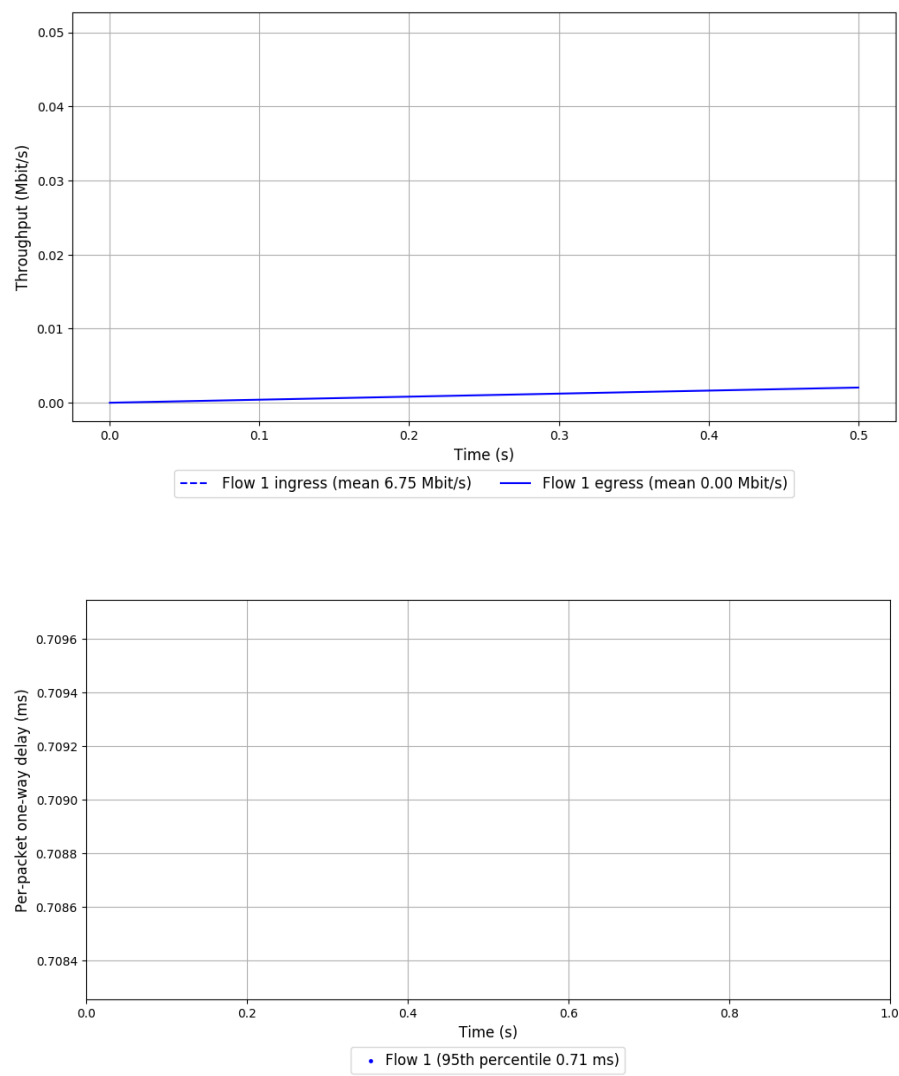
Run 4: Statistics of TaoVA-100x

Start at: 2018-12-10 23:13:33
End at: 2018-12-10 23:14:03
Local clock offset: -2.739 ms
Remote clock offset: 0.351 ms

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

Flow 1 ingress (mean 6.68 Mbit/s)   Flow 1 egress (mean 0.00 Mbit/s)

• Flow 1 (95th percentile 1.79 ms)

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

Start at: 2018-12-10 23:34:45
End at: 2018-12-10 23:35:15
Local clock offset: -3.365 ms
Remote clock offset: 0.469 ms
```

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

```
Run 1: Statistics of TCP Vegas

Start at: 2018-12-10 21:56:37
End at: 2018-12-10 21:57:07
Local clock offset: -1.562 ms
Remote clock offset: -0.119 ms


# Below is generated by plot.py at 2018-12-10 23:49:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.47 Mbit/s
95th percentile per-packet one-way delay: 3.264 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 97.47 Mbit/s
95th percentile per-packet one-way delay: 3.264 ms
Loss rate: 0.00%
```
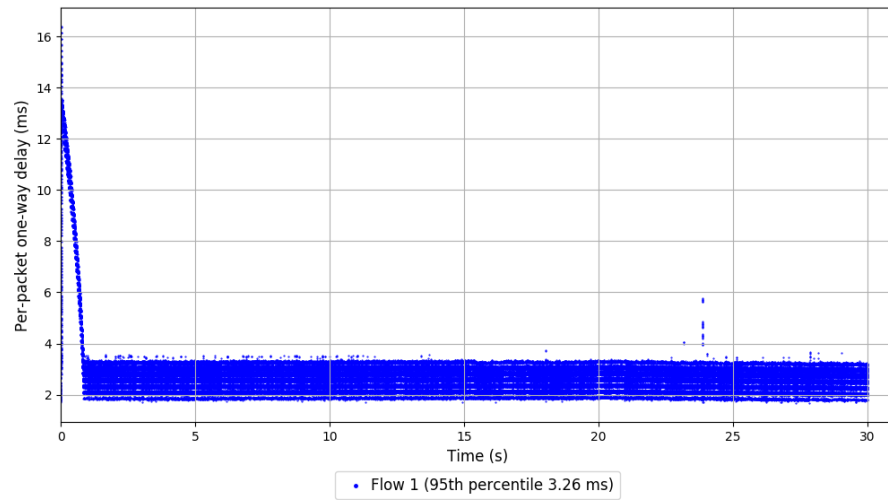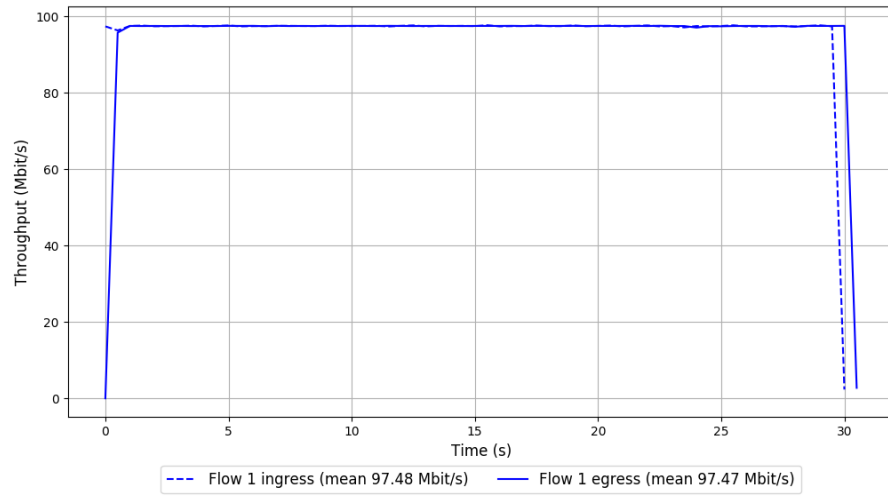
Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2018-12-10 22:17:48
End at: 2018-12-10 22:18:18
Local clock offset: -5.53 ms
Remote clock offset: 0.006 ms


# Below is generated by plot.py at 2018-12-10 23:49:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.34 Mbit/s
95th percentile per-packet one-way delay: 7.543 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 97.34 Mbit/s
95th percentile per-packet one-way delay: 7.543 ms
Loss rate: 0.00%
```
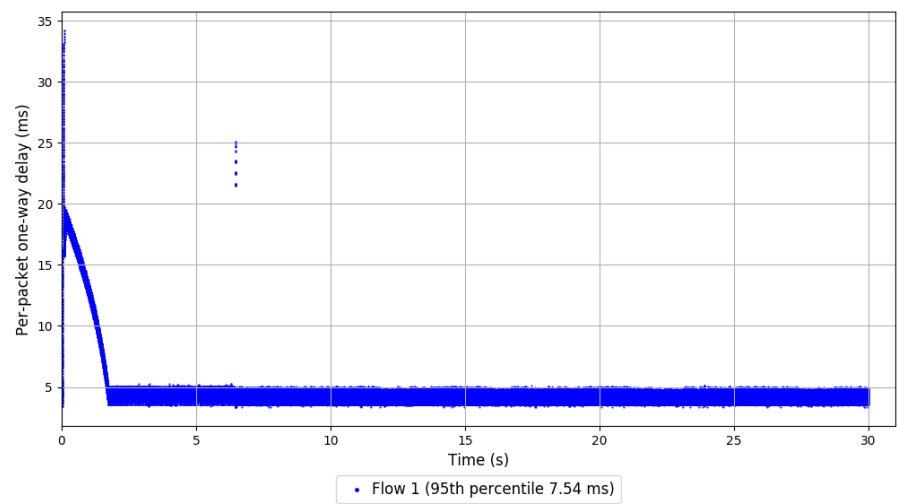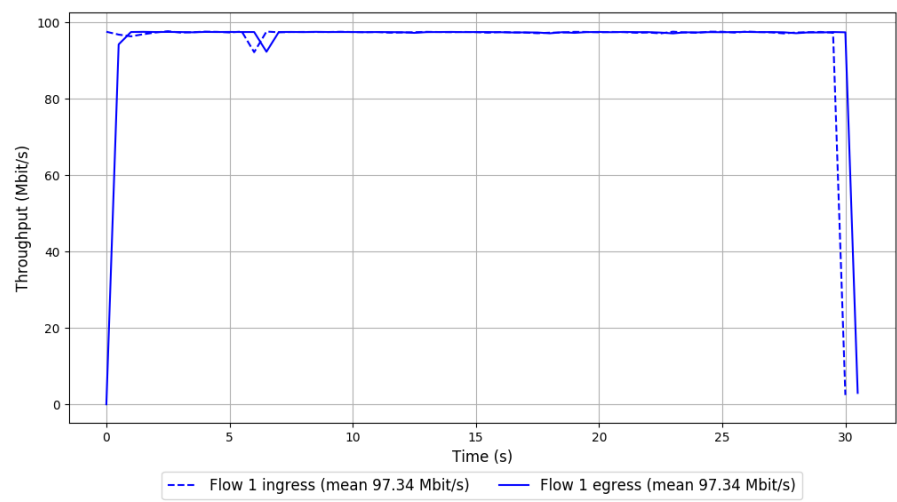
Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2018-12-10 22:38:58
End at: 2018-12-10 22:39:28
Local clock offset: -6.56 ms
Remote clock offset: 0.234 ms


# Below is generated by plot.py at 2018-12-10 23:49:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.46 Mbit/s
95th percentile per-packet one-way delay: 4.795 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.46 Mbit/s
95th percentile per-packet one-way delay: 4.795 ms
Loss rate: 0.01%
```
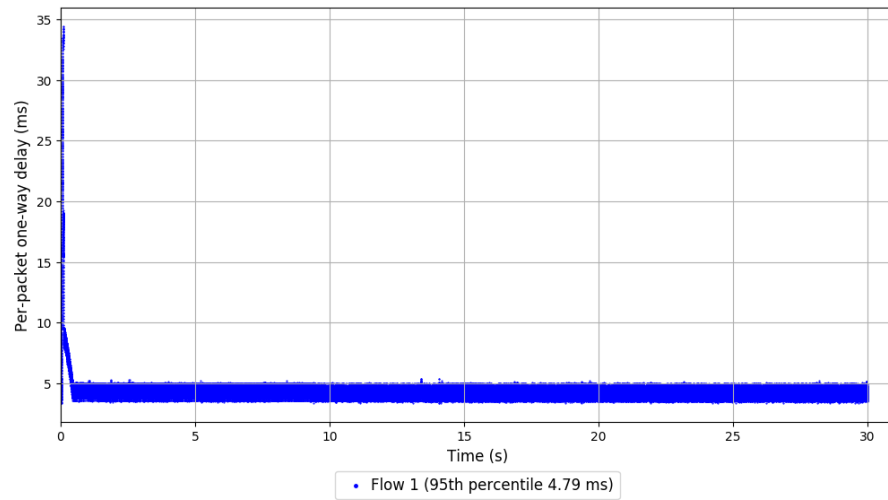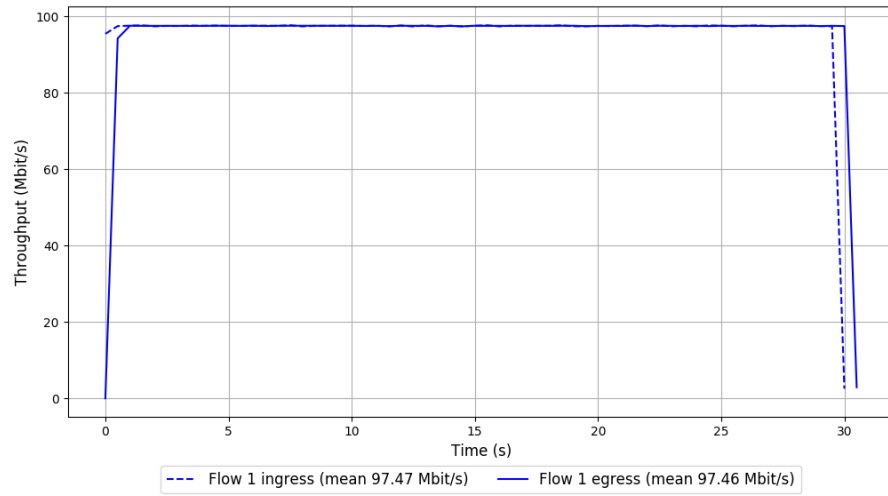
Run 3: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 97.47 Mbit/s) — — — Flow 1 egress (mean 97.46 Mbit/s)

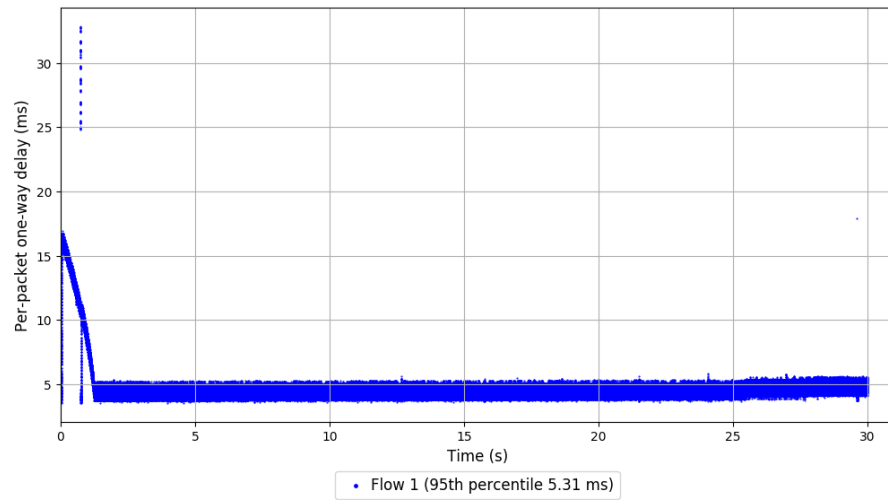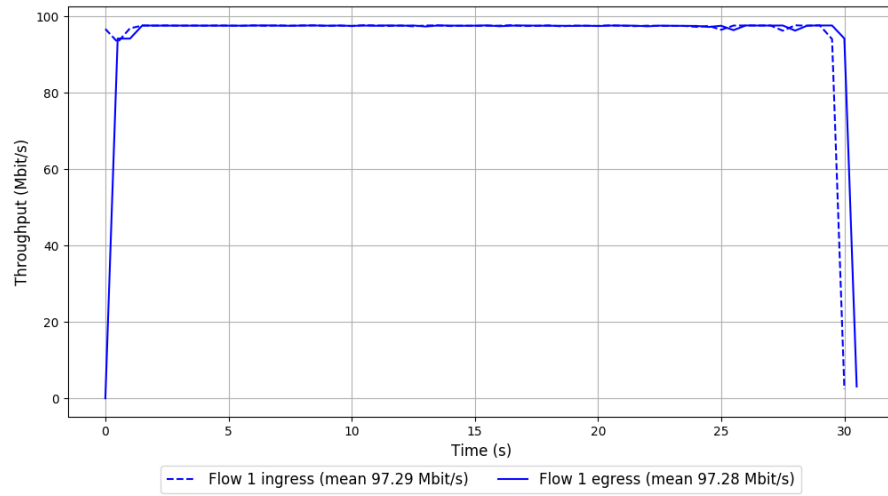

Flow 1 (95th percentile 4.79 ms)

Run 4: Statistics of TCP Vegas

Start at: 2018-12-10 23:00:08
End at: 2018-12-10 23:00:38
Local clock offset: -5.436 ms
Remote clock offset: 0.347 ms

Below is generated by plot.py at 2018-12-10 23:49:15
Datalink statistics
-- Total of 1 flow:
Average throughput: 97.28 Mbit/s
95th percentile per-packet one-way delay: 5.312 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 97.28 Mbit/s
95th percentile per-packet one-way delay: 5.312 ms
Loss rate: 0.00%

Run 4: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 97.29 Mbit/s) --- Flow 1 egress (mean 97.28 Mbit/s)

Flow 1 (95th percentile 5.31 ms)

```
Run 5: Statistics of TCP Vegas

Start at: 2018-12-10 23:21:18
End at: 2018-12-10 23:21:48
Local clock offset: -0.996 ms
Remote clock offset: 0.377 ms


# Below is generated by plot.py at 2018-12-10 23:49:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.45 Mbit/s
95th percentile per-packet one-way delay: 2.432 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 97.45 Mbit/s
95th percentile per-packet one-way delay: 2.432 ms
Loss rate: 0.00%
```
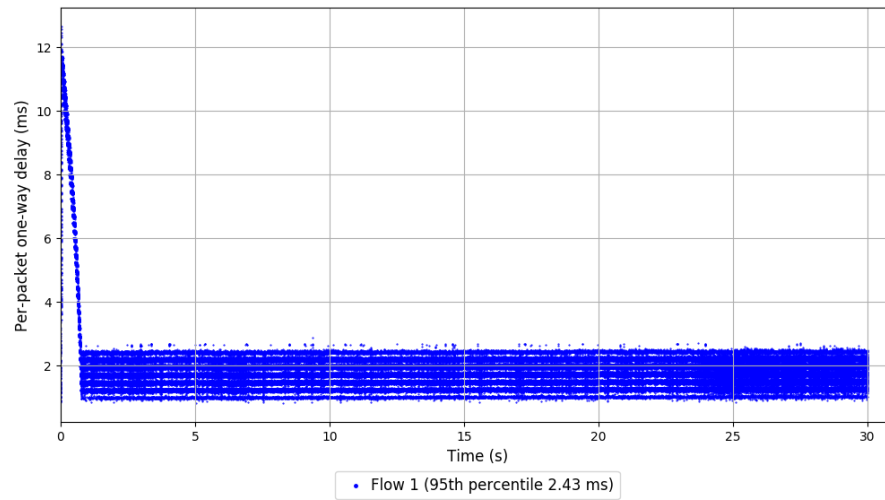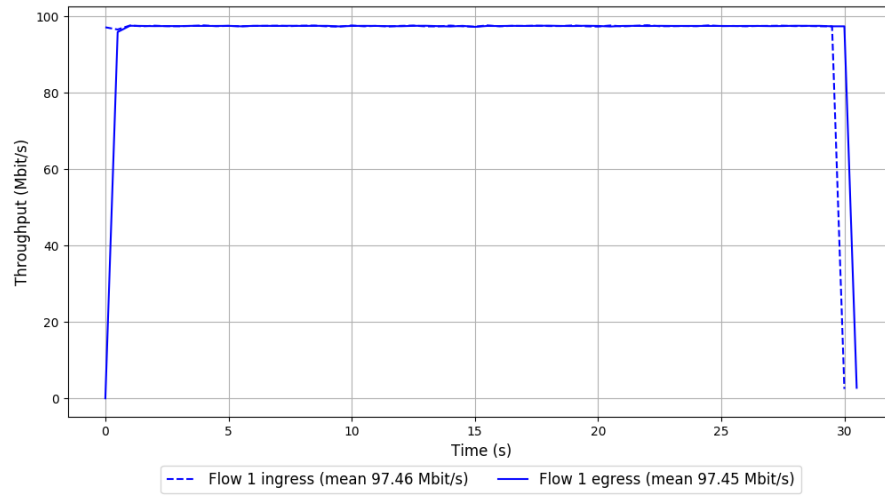
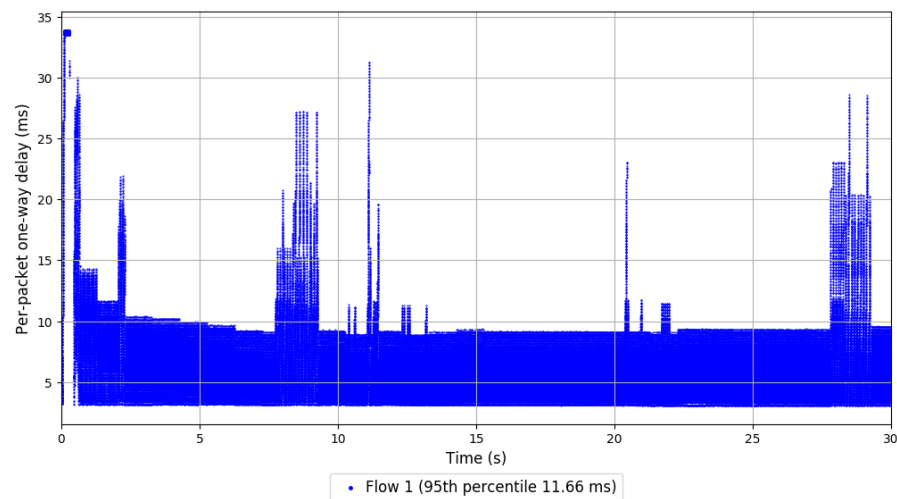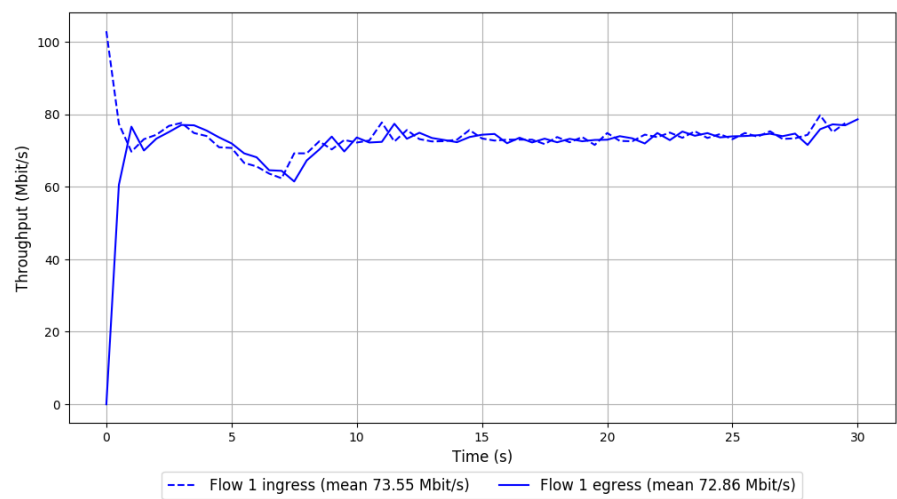Run 5: Report of TCP Vegas — Data Link

```
Run 1: Statistics of Verus

Start at: 2018-12-10 22:04:26
End at: 2018-12-10 22:04:56
Local clock offset: -4.446 ms
Remote clock offset: -0.169 ms


# Below is generated by plot.py at 2018-12-10 23:49:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 72.86 Mbit/s
95th percentile per-packet one-way delay: 11.658 ms
Loss rate: 0.93%
-- Flow 1:
Average throughput: 72.86 Mbit/s
95th percentile per-packet one-way delay: 11.658 ms
Loss rate: 0.93%
```

Run 1: Report of Verus — Data Link

Flow 1 ingress (mean 73.55 Mbit/s) — — —   Flow 1 egress (mean 72.86 Mbit/s) ———

• Flow 1 (95th percentile 11.66 ms)

```
Run 2: Statistics of Verus

Start at: 2018-12-10 22:25:37
End at: 2018-12-10 22:26:07
Local clock offset: -4.469 ms
Remote clock offset: 0.158 ms


# Below is generated by plot.py at 2018-12-10 23:49:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 45.62 Mbit/s
95th percentile per-packet one-way delay: 8.987 ms
Loss rate: 1.45%
-- Flow 1:
Average throughput: 45.62 Mbit/s
95th percentile per-packet one-way delay: 8.987 ms
Loss rate: 1.45%
```
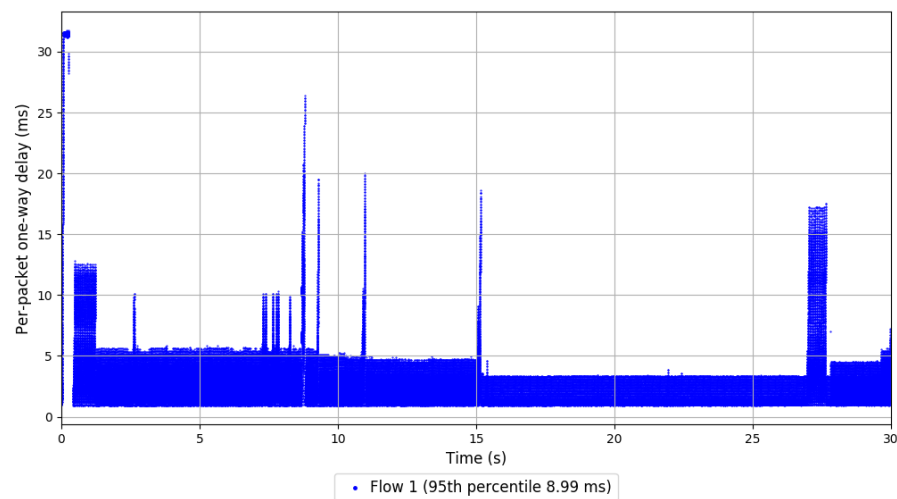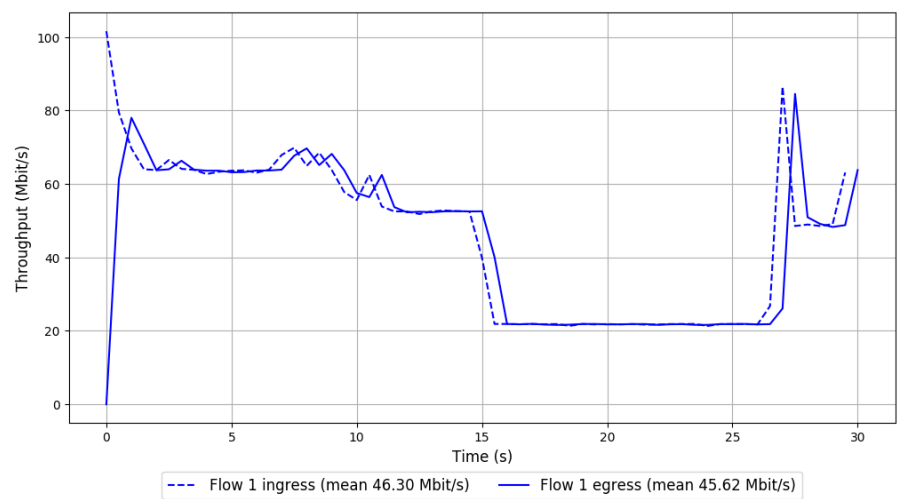
Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-12-10 22:46:47
End at: 2018-12-10 22:47:17
Local clock offset: -5.784 ms
Remote clock offset: 0.299 ms


# Below is generated by plot.py at 2018-12-10 23:49:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 38.79 Mbit/s
95th percentile per-packet one-way delay: 9.446 ms
Loss rate: 1.70%
-- Flow 1:
Average throughput: 38.79 Mbit/s
95th percentile per-packet one-way delay: 9.446 ms
Loss rate: 1.70%
```
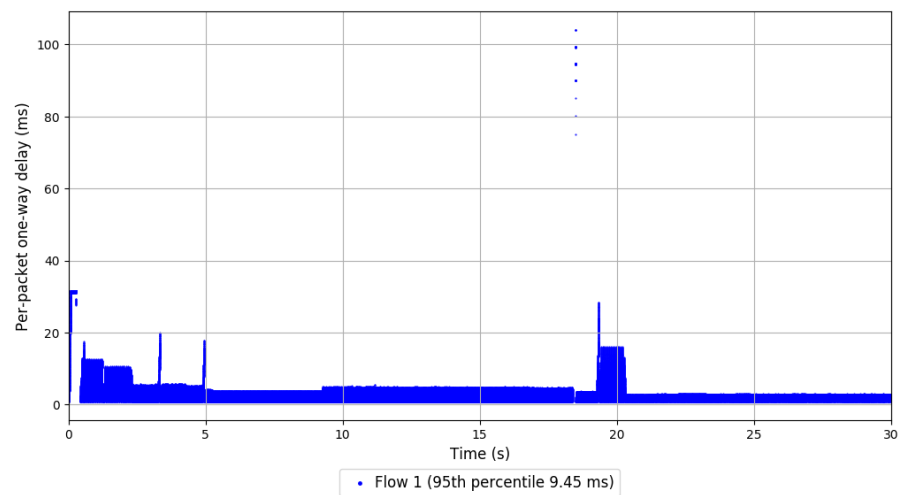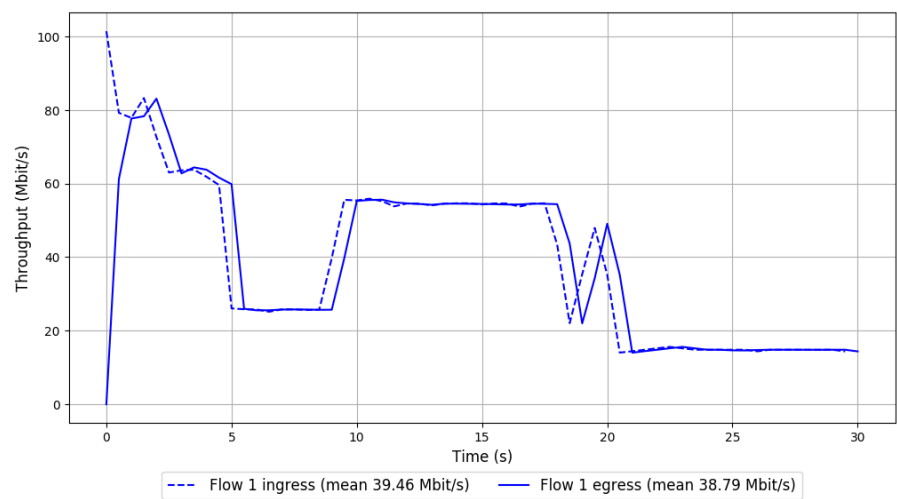
Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2018-12-10 23:07:57
End at: 2018-12-10 23:08:27
Local clock offset: -3.553 ms
Remote clock offset: 0.42 ms


# Below is generated by plot.py at 2018-12-10 23:49:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 36.57 Mbit/s
95th percentile per-packet one-way delay: 11.294 ms
Loss rate: 1.82%
-- Flow 1:
Average throughput: 36.57 Mbit/s
95th percentile per-packet one-way delay: 11.294 ms
Loss rate: 1.82%
```
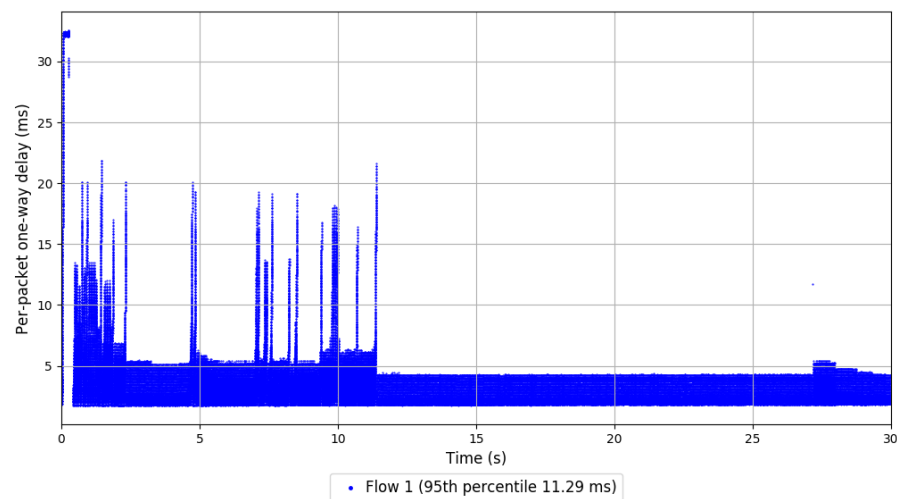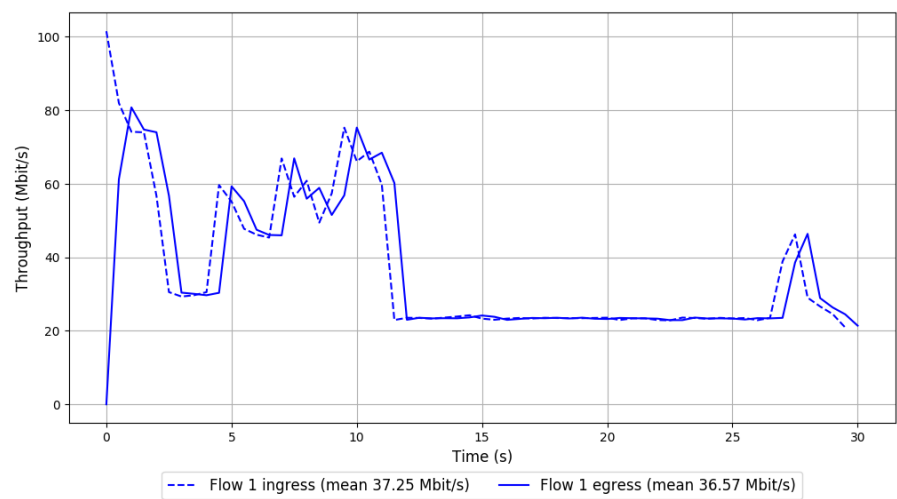
Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2018-12-10 23:29:07
End at: 2018-12-10 23:29:37
Local clock offset: -2.261 ms
Remote clock offset: 0.393 ms


# Below is generated by plot.py at 2018-12-10 23:49:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 73.98 Mbit/s
95th percentile per-packet one-way delay: 11.604 ms
Loss rate: 0.92%
-- Flow 1:
Average throughput: 73.98 Mbit/s
95th percentile per-packet one-way delay: 11.604 ms
Loss rate: 0.92%
```
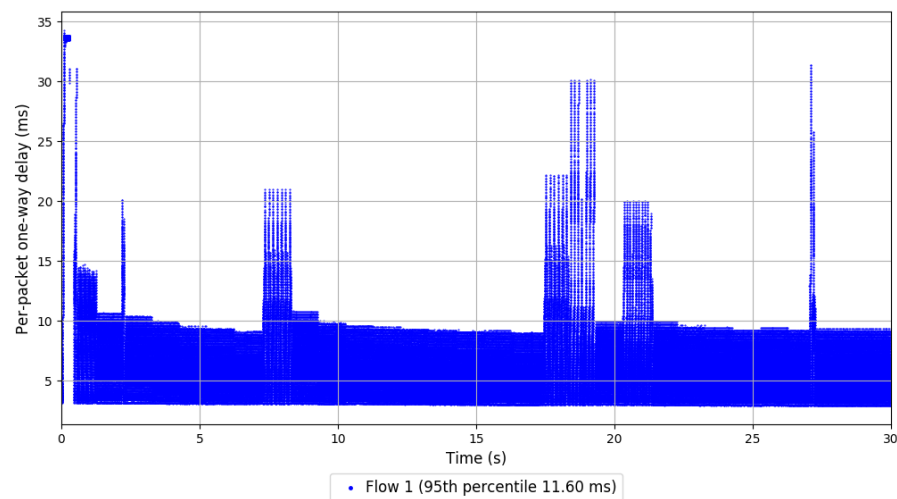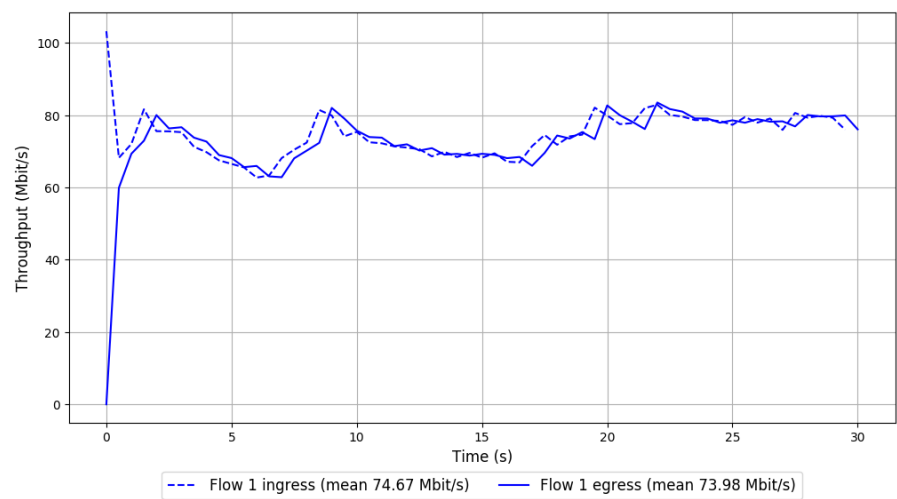
Run 5: Report of Verus — Data Link

Flow 1 ingress (mean 74.67 Mbit/s)   Flow 1 egress (mean 73.98 Mbit/s)
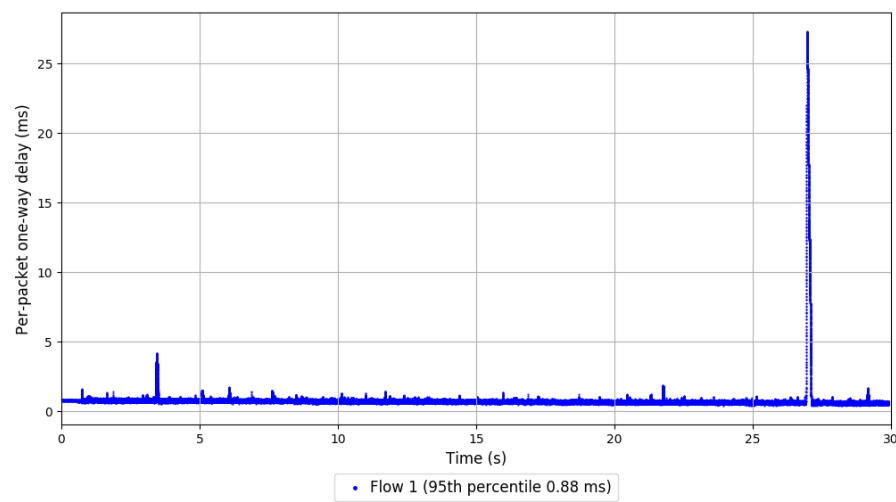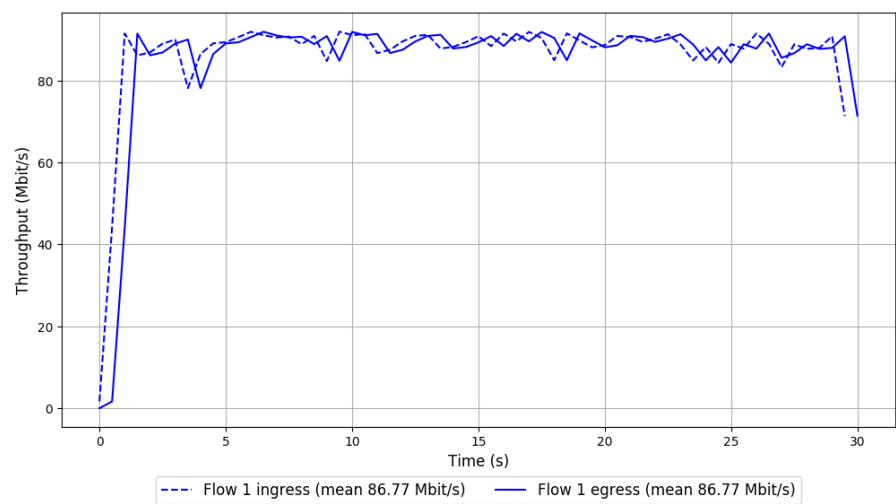

Flow 1 (95th percentile 11.60 ms)

```
Run 1: Statistics of PCC-Vivace

Start at: 2018-12-10 22:00:00
End at: 2018-12-10 22:00:30
Local clock offset: -2.072 ms
Remote clock offset: -0.014 ms


# Below is generated by plot.py at 2018-12-10 23:50:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 86.77 Mbit/s
95th percentile per-packet one-way delay: 0.882 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 86.77 Mbit/s
95th percentile per-packet one-way delay: 0.882 ms
Loss rate: 0.00%
```

Run 1: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 86.77 Mbit/s) —— Flow 1 egress (mean 86.77 Mbit/s)

Flow 1 (95th percentile 0.88 ms)

```
Run 2: Statistics of PCC-Vivace

Start at: 2018-12-10 22:21:11
End at: 2018-12-10 22:21:41
Local clock offset: -4.632 ms
Remote clock offset: 0.041 ms


# Below is generated by plot.py at 2018-12-10 23:50:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 84.80 Mbit/s
95th percentile per-packet one-way delay: 1.114 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 84.80 Mbit/s
95th percentile per-packet one-way delay: 1.114 ms
Loss rate: 0.00%
```
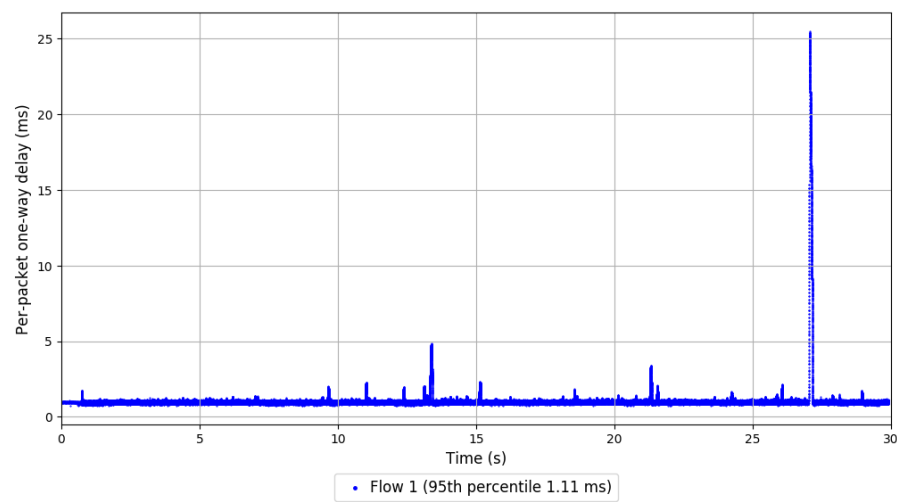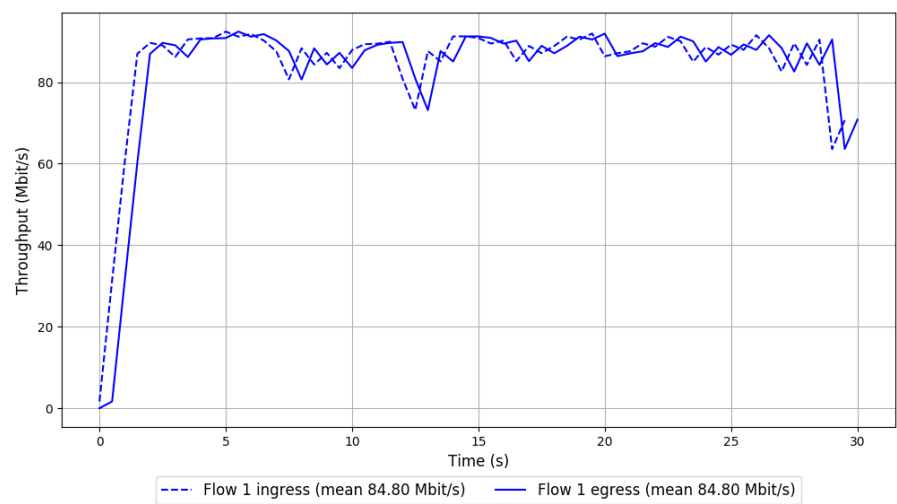
Run 2: Report of PCC-Vivace — Data Link

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```
Run 3: Statistics of PCC-Vivace

Start at: 2018-12-10 22:42:21
End at: 2018-12-10 22:42:51
Local clock offset: -6.672 ms
Remote clock offset: 0.221 ms


# Below is generated by plot.py at 2018-12-10 23:50:02
# Datalink statistics
-- Total of 1 flow:
Average throughput: 89.37 Mbit/s
95th percentile per-packet one-way delay: 3.577 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 89.37 Mbit/s
95th percentile per-packet one-way delay: 3.577 ms
Loss rate: 0.01%
```
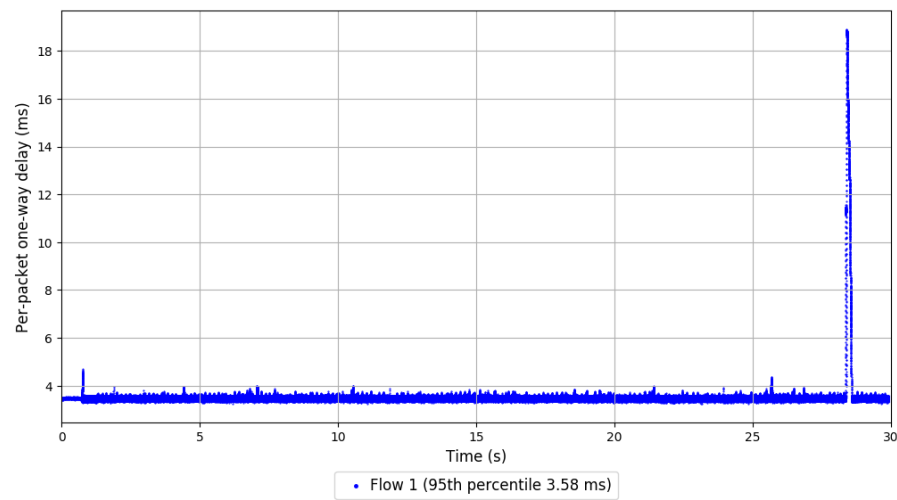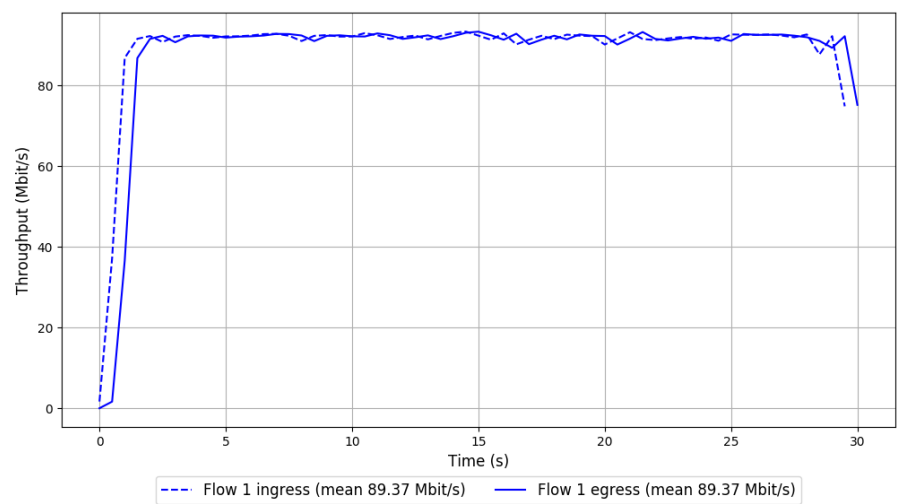
Run 3: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 89.37 Mbit/s) — Flow 1 egress (mean 89.37 Mbit/s)

• Flow 1 (95th percentile 3.58 ms)

```
Run 4: Statistics of PCC-Vivace

Start at: 2018-12-10 23:03:31
End at: 2018-12-10 23:04:01
Local clock offset: -4.549 ms
Remote clock offset: 0.431 ms


# Below is generated by plot.py at 2018-12-10 23:50:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 84.87 Mbit/s
95th percentile per-packet one-way delay: 2.265 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 84.87 Mbit/s
95th percentile per-packet one-way delay: 2.265 ms
Loss rate: 0.00%
```
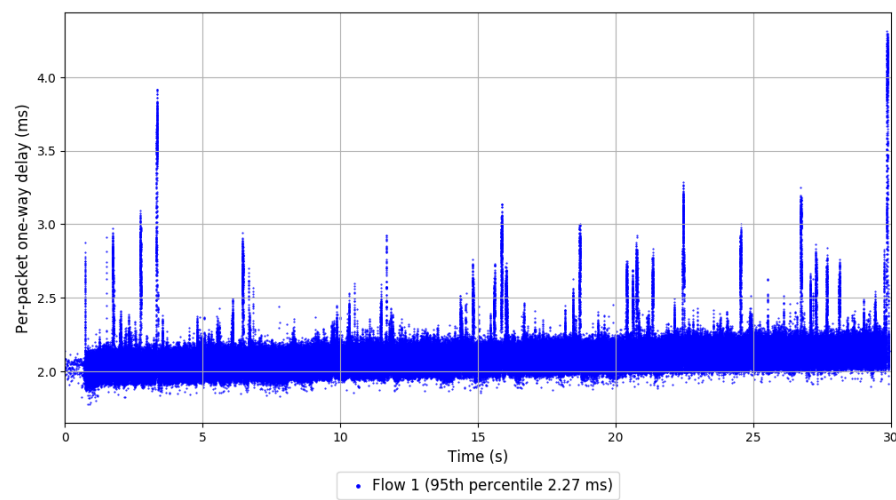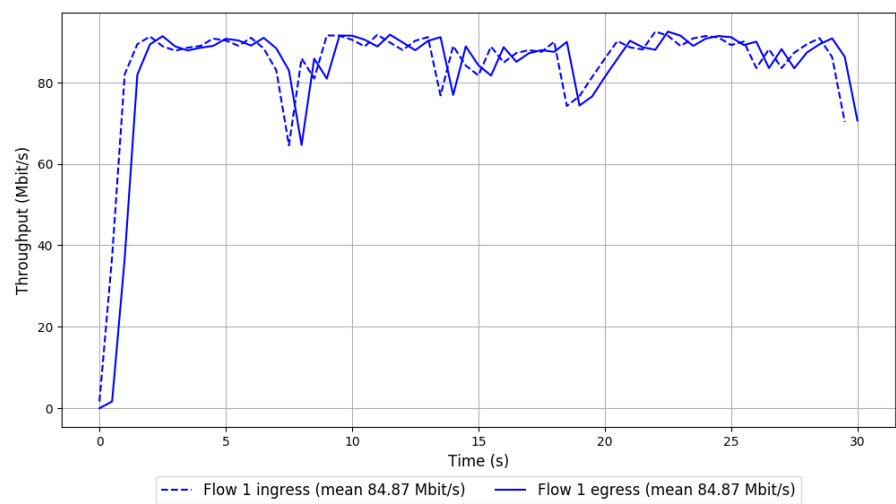
Run 4: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 84.87 Mbit/s) ----- Flow 1 egress (mean 84.87 Mbit/s)

Flow 1 (95th percentile 2.27 ms)

```
Run 5: Statistics of PCC-Vivace

Start at: 2018-12-10 23:24:41
End at: 2018-12-10 23:25:11
Local clock offset: -1.537 ms
Remote clock offset: 0.353 ms


# Below is generated by plot.py at 2018-12-10 23:50:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 89.43 Mbit/s
95th percentile per-packet one-way delay: 3.580 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 89.43 Mbit/s
95th percentile per-packet one-way delay: 3.580 ms
Loss rate: 0.01%
```
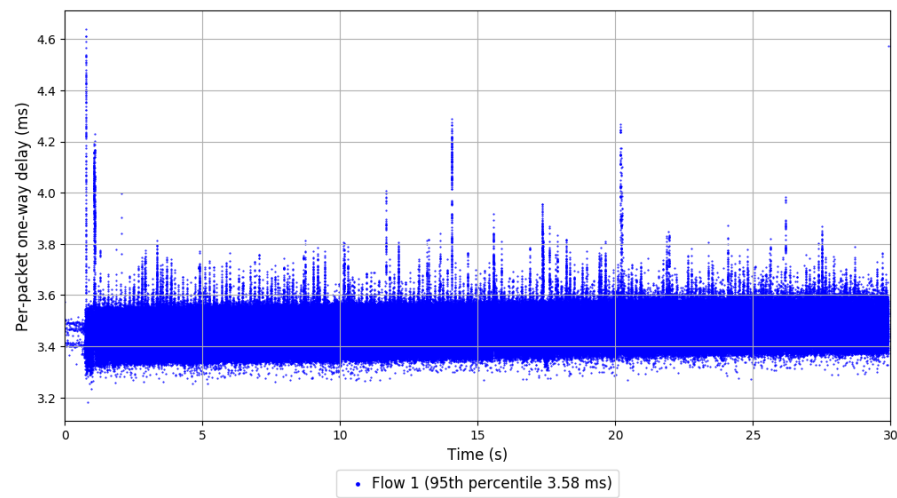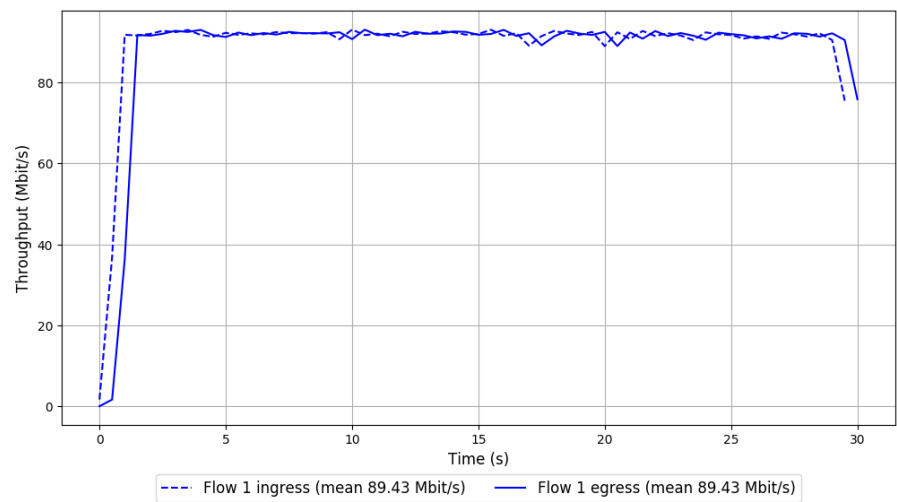
Run 5: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 89.43 Mbit/s) — — — Flow 1 egress (mean 89.43 Mbit/s)
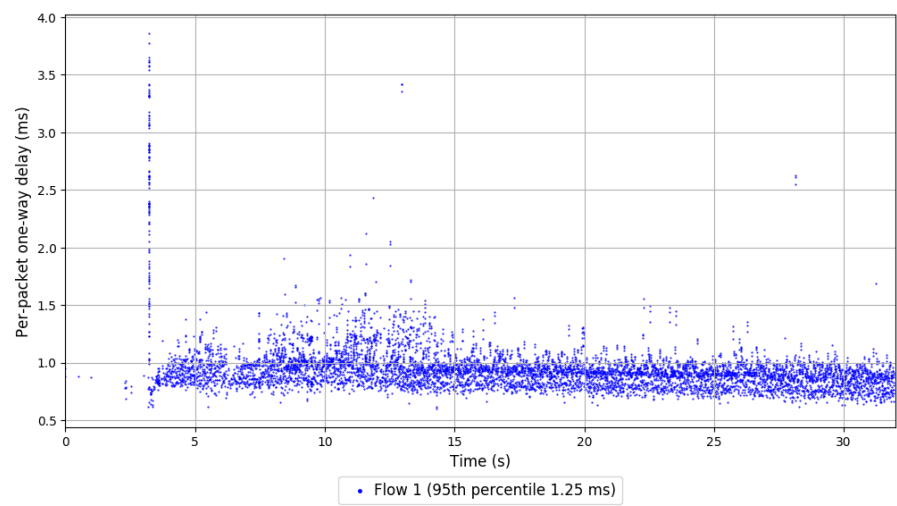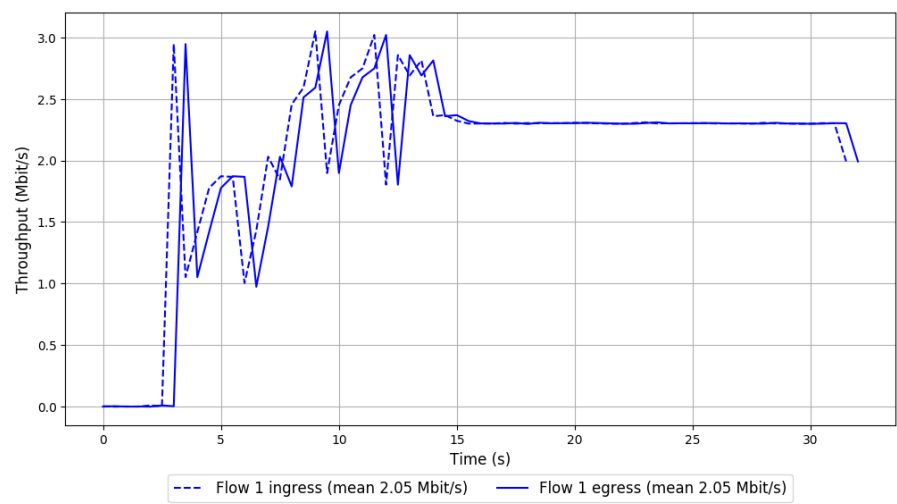

• Flow 1 (95th percentile 3.58 ms)

```
Run 1: Statistics of WebRTC media

Start at: 2018-12-10 22:03:21
End at: 2018-12-10 22:03:51
Local clock offset: -3.293 ms
Remote clock offset: -0.087 ms


# Below is generated by plot.py at 2018-12-10 23:50:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.05 Mbit/s
95th percentile per-packet one-way delay: 1.248 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.05 Mbit/s
95th percentile per-packet one-way delay: 1.248 ms
Loss rate: 0.00%
```

Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2018-12-10 22:24:33
End at: 2018-12-10 22:25:03
Local clock offset: -4.449 ms
Remote clock offset: 0.101 ms


# Below is generated by plot.py at 2018-12-10 23:50:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 3.279 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 3.279 ms
Loss rate: 0.06%
```
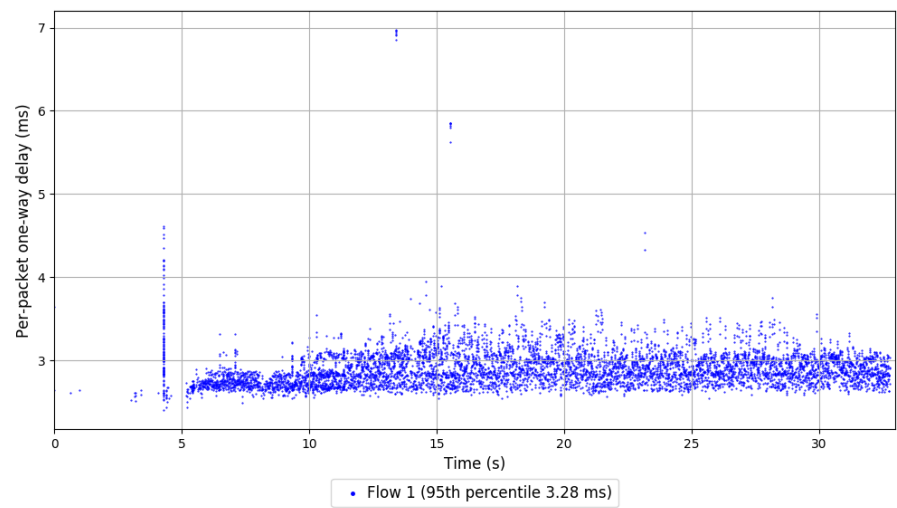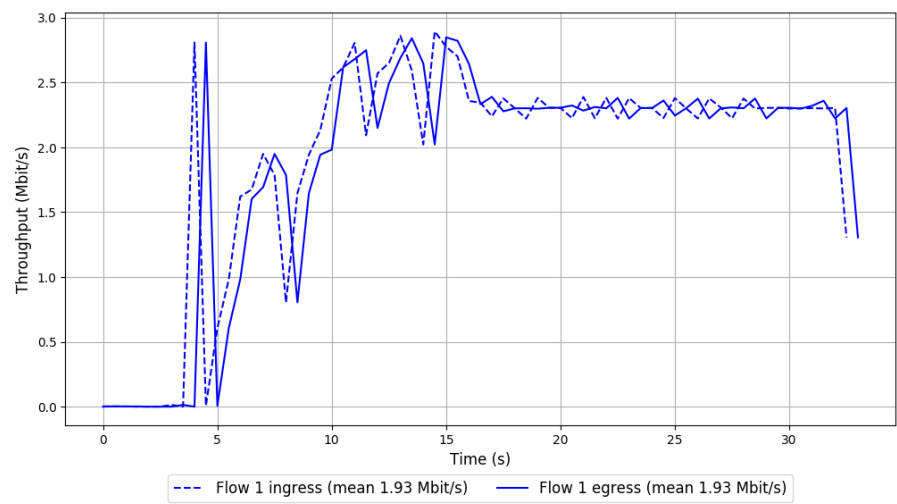
Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-12-10 22:45:42
End at: 2018-12-10 22:46:12
Local clock offset: -5.779 ms
Remote clock offset: 0.296 ms


# Below is generated by plot.py at 2018-12-10 23:50:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 3.243 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 3.243 ms
Loss rate: 0.00%
```
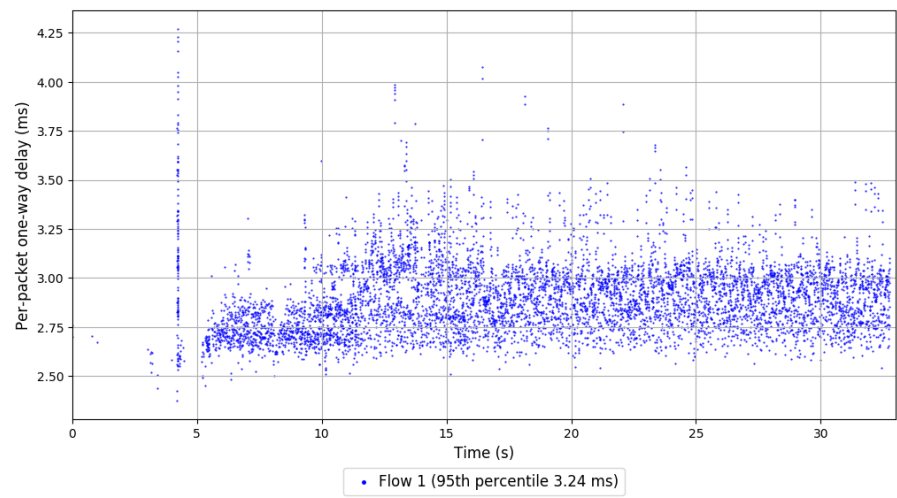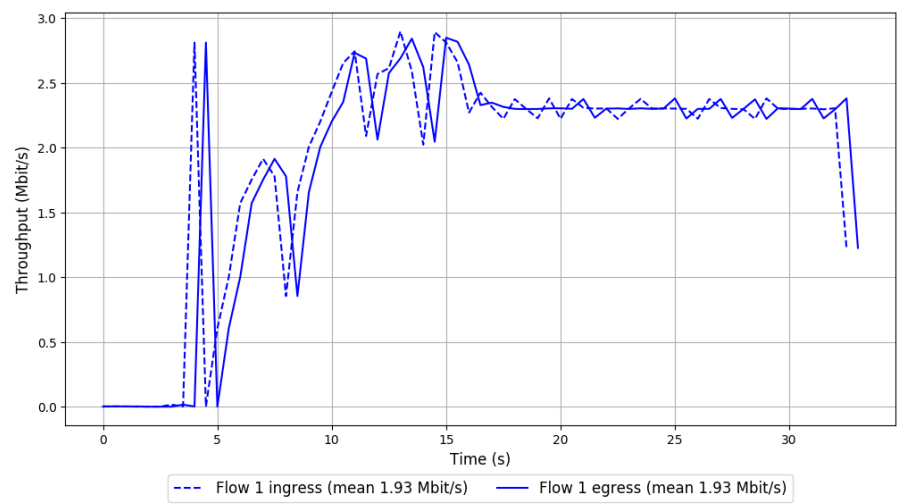
Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2018-12-10 23:06:52
End at: 2018-12-10 23:07:22
Local clock offset: -3.763 ms
Remote clock offset: 0.371 ms


# Below is generated by plot.py at 2018-12-10 23:50:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.92 Mbit/s
95th percentile per-packet one-way delay: 2.461 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.92 Mbit/s
95th percentile per-packet one-way delay: 2.461 ms
Loss rate: 0.00%
```
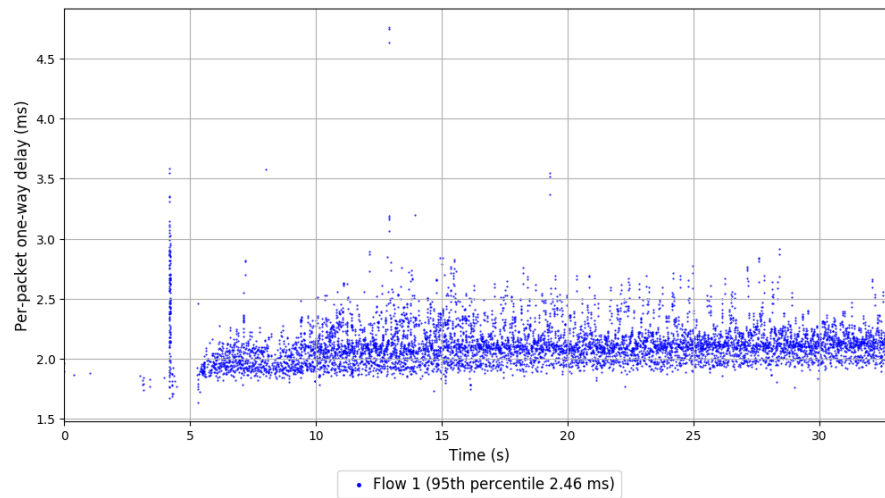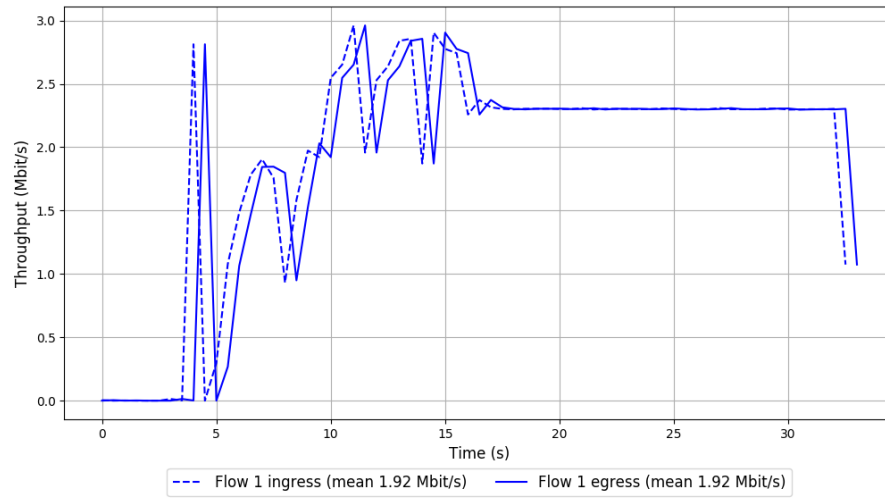
Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2018-12-10 23:28:02
End at: 2018-12-10 23:28:32
Local clock offset: -1.71 ms
Remote clock offset: 0.443 ms


# Below is generated by plot.py at 2018-12-10 23:50:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 1.913 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 1.913 ms
Loss rate: 0.00%
```

Run 5: Report of WebRTC media — Data Link