Pantheon Report

Generated at 2018-12-02 11:34:56 (UTC).

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

Repeated the test of 19 congestion control schemes 5 times.

Each test lasted for 30 seconds running 1 flow.

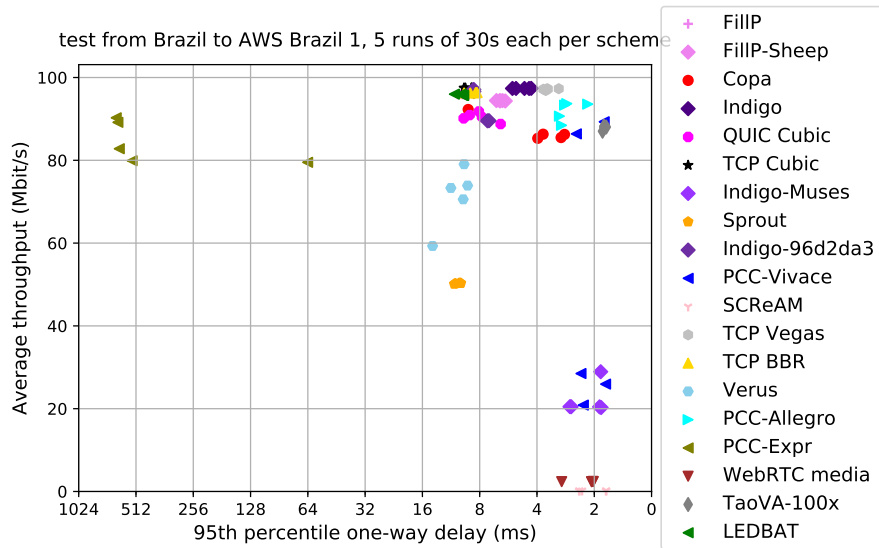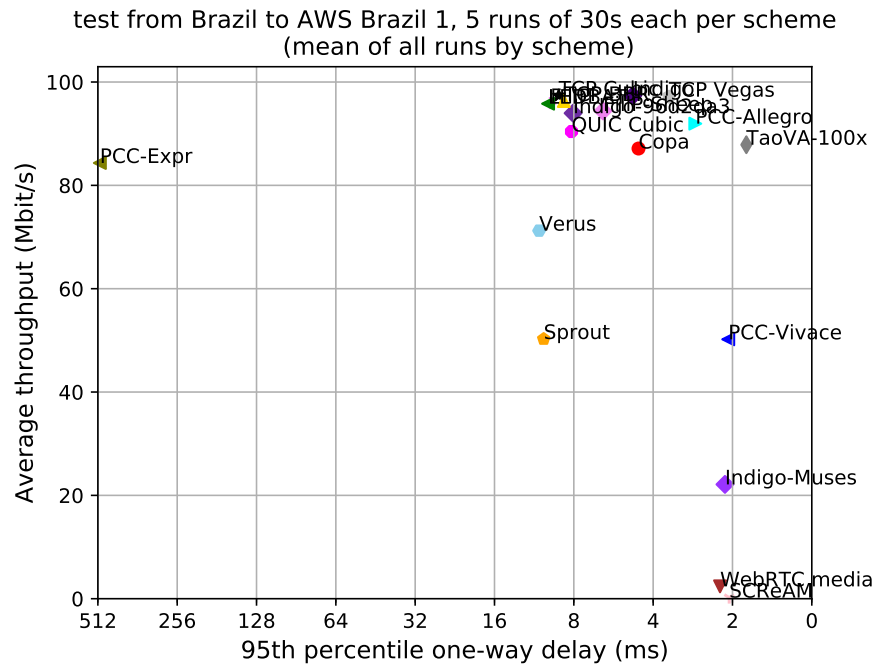NTP offsets were measured against `gps.ntp.br` and have been applied to correct the timestamps in logs.

```
System info:
Linux 4.15.0-1027-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

Git summary:
branch: muses @ 7b6dad87cde3ab65f7c4052140eb54098aa58e9d
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/indigo-96d2da3 @ 8413272d46f8aa0bcb967ed7048b6a8f994abb95
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
 M receiver/src/buffer.h
 M receiver/src/core.cpp
 M sender/src/buffer.h
 M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
 M src/ScreamClient
 M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
 M src/examples/cellsim.cc
 M src/examples/sproutbt2.cc
 M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
 M src/verus.hpp
 M tools/plot.py
```

```
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

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

test from Brazil to AWS Brazil 1, 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	96.33	8.73	0.05
Copa	5	87.13	4.55	0.01
TCP Cubic	5	97.38	9.13	0.05
FillP	5	95.93	9.82	0.04
FillP-Sheep	5	94.39	6.20	0.01
Indigo	5	97.37	4.78	0.02
Indigo-96d2da3	5	93.97	8.05	0.01
LEDBAT	5	95.80	10.02	0.08
Indigo-Muses	5	22.13	2.14	0.01
PCC-Allegro	5	91.94	2.77	0.01
PCC-Expr	5	84.33	503.26	3.01
QUIC Cubic	5	90.42	8.16	0.02
SCReAM	5	0.22	2.06	0.03
Sprout	5	50.27	10.41	0.01
TaoVA-100x	5	87.86	1.65	0.01
TCP Vegas	5	97.16	3.49	0.01
Verus	5	71.23	10.83	0.03
PCC-Vivace	5	50.20	2.08	0.02
WebRTC media	5	2.39	2.23	0.03

```
Run 1: Statistics of TCP BBR

Start at: 2018-12-02 09:53:58
End at: 2018-12-02 09:54:28
Local clock offset: -6.329 ms
Remote clock offset: 0.249 ms


# Below is generated by plot.py at 2018-12-02 11:23:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.35 Mbit/s
95th percentile per-packet one-way delay: 8.363 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 96.35 Mbit/s
95th percentile per-packet one-way delay: 8.363 ms
Loss rate: 0.03%
```
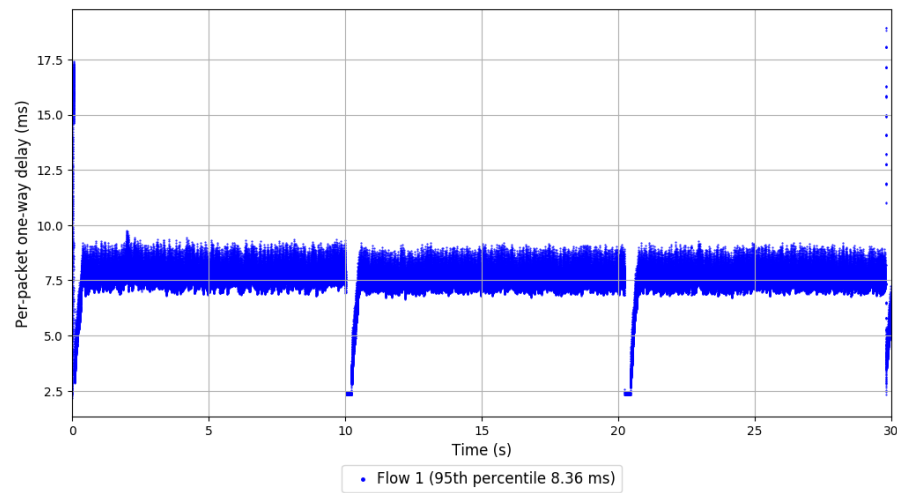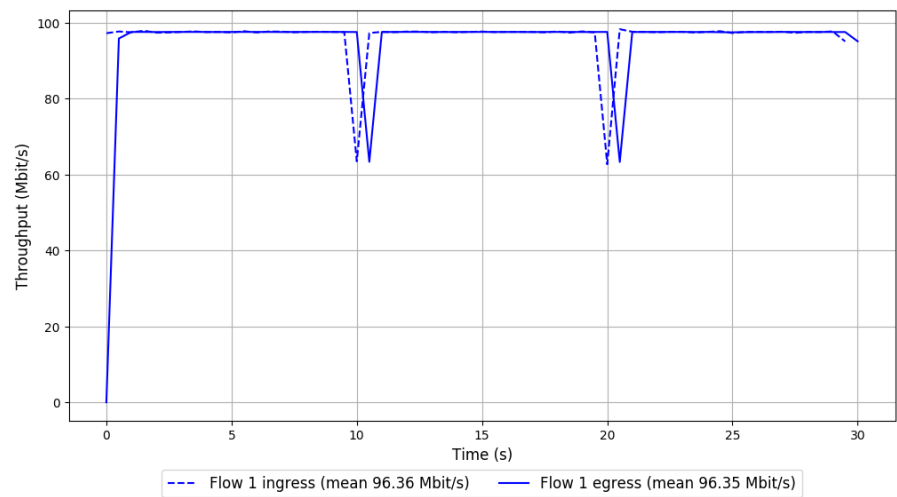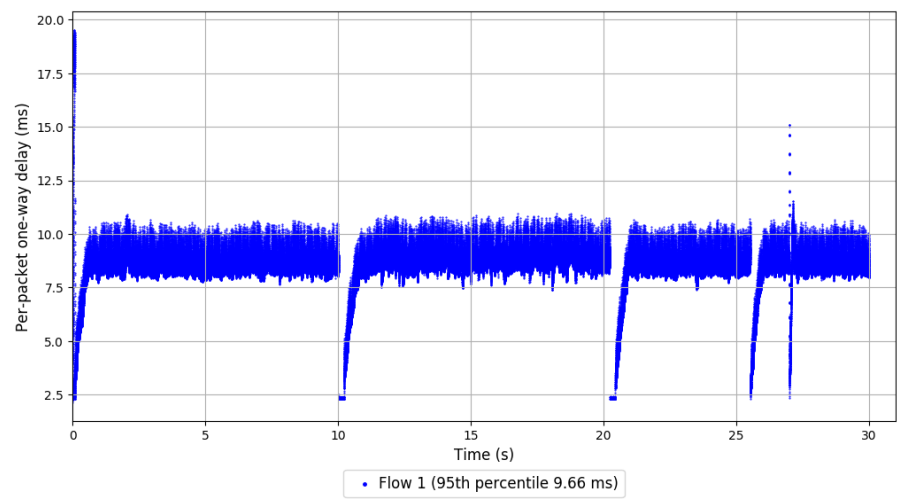
Run 1: Report of TCP BBR — Data Link

```
Run 2: Statistics of TCP BBR

Start at: 2018-12-02 10:15:25
End at: 2018-12-02 10:15:55
Local clock offset: -6.859 ms
Remote clock offset: 0.459 ms

# Below is generated by plot.py at 2018-12-02 11:23:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.28 Mbit/s
95th percentile per-packet one-way delay: 9.665 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 96.28 Mbit/s
95th percentile per-packet one-way delay: 9.665 ms
Loss rate: 0.08%
```
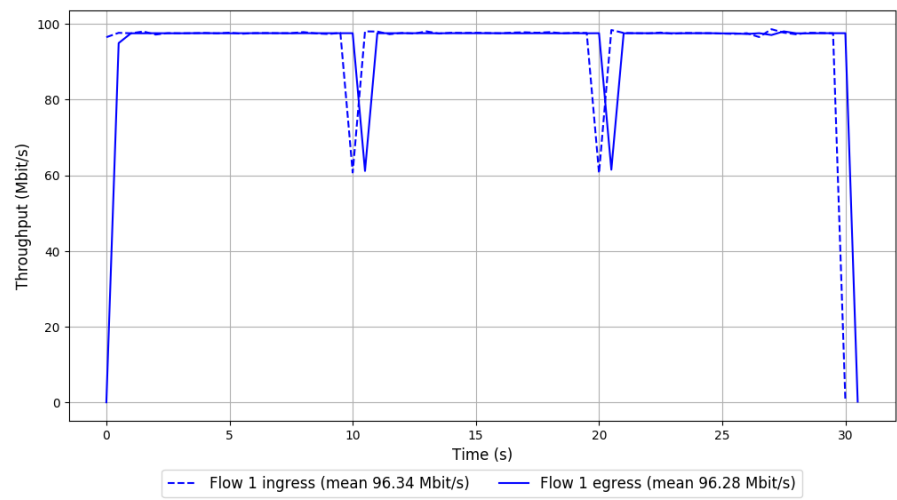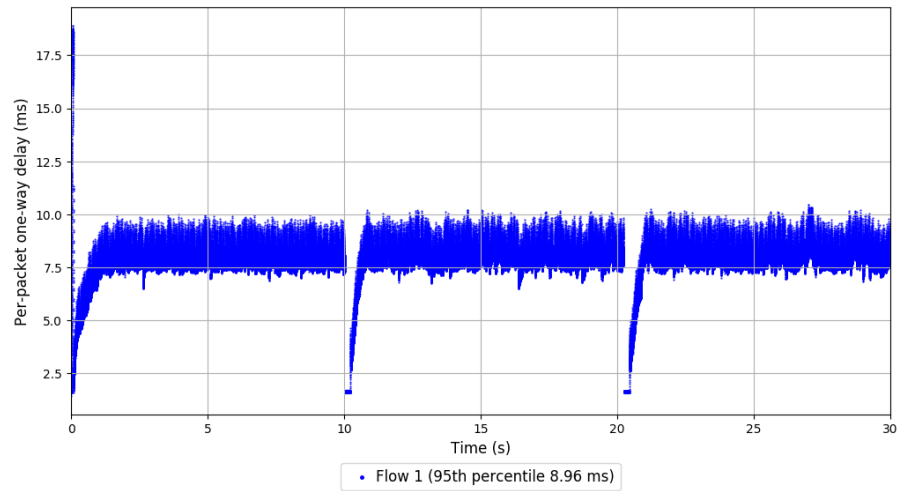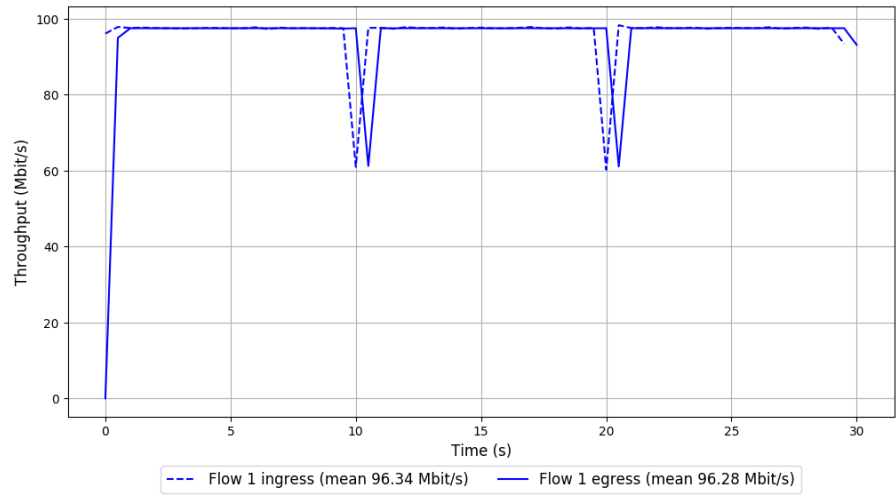
Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2018-12-02 10:36:50
End at: 2018-12-02 10:37:20
Local clock offset: -6.623 ms
Remote clock offset: 0.535 ms


# Below is generated by plot.py at 2018-12-02 11:23:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.28 Mbit/s
95th percentile per-packet one-way delay: 8.962 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 96.28 Mbit/s
95th percentile per-packet one-way delay: 8.962 ms
Loss rate: 0.08%
```
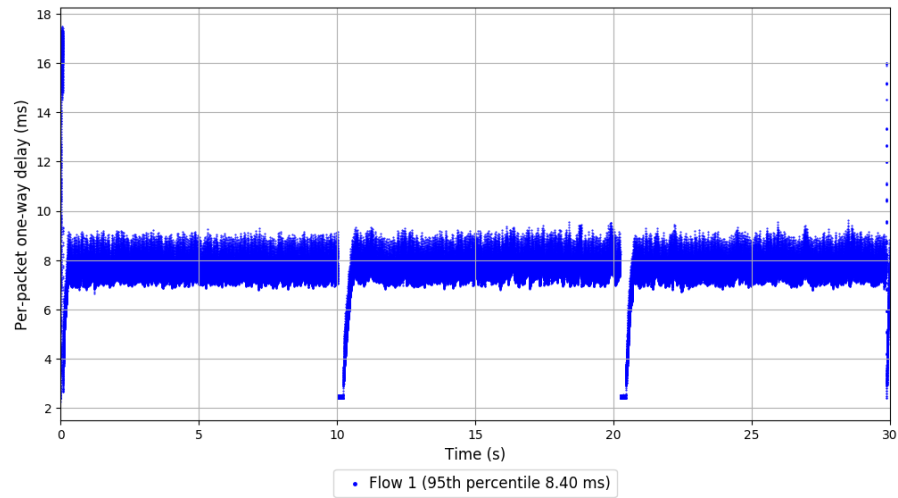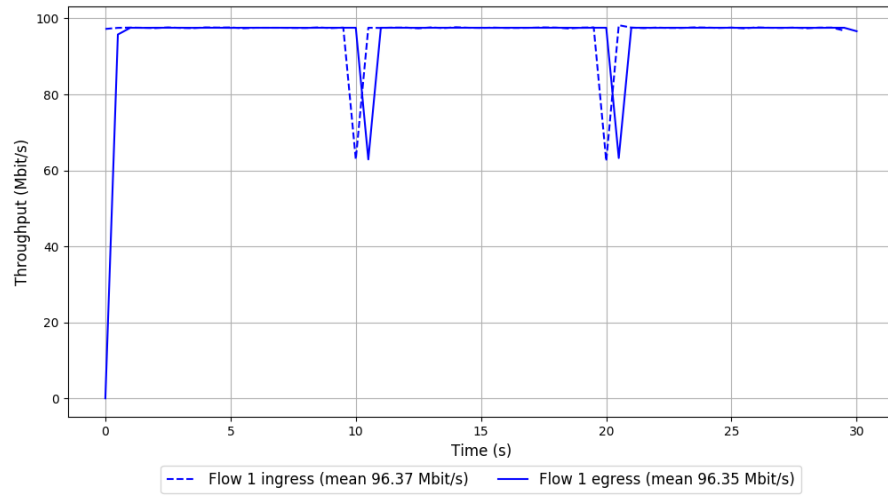
Run 3: Report of TCP BBR — Data Link

```
Run 4: Statistics of TCP BBR

Start at: 2018-12-02 10:58:20
End at: 2018-12-02 10:58:50
Local clock offset: -5.56 ms
Remote clock offset: 0.554 ms

# Below is generated by plot.py at 2018-12-02 11:23:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.35 Mbit/s
95th percentile per-packet one-way delay: 8.404 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 96.35 Mbit/s
95th percentile per-packet one-way delay: 8.404 ms
Loss rate: 0.03%
```
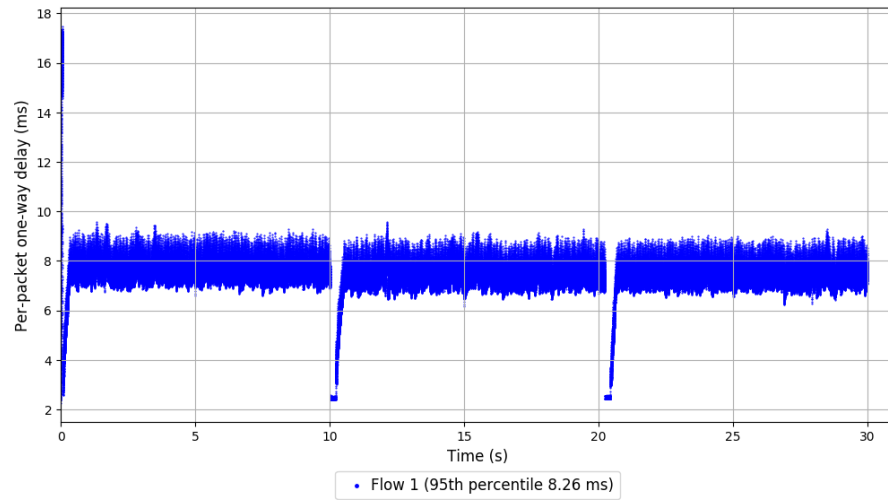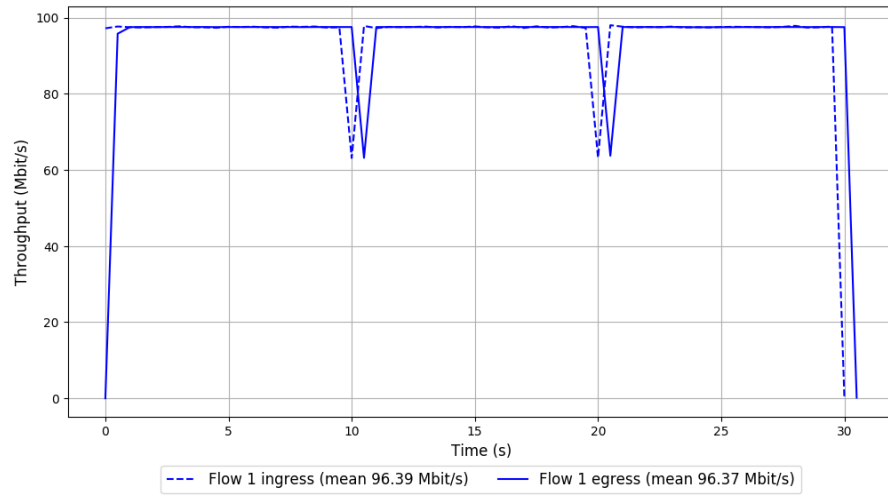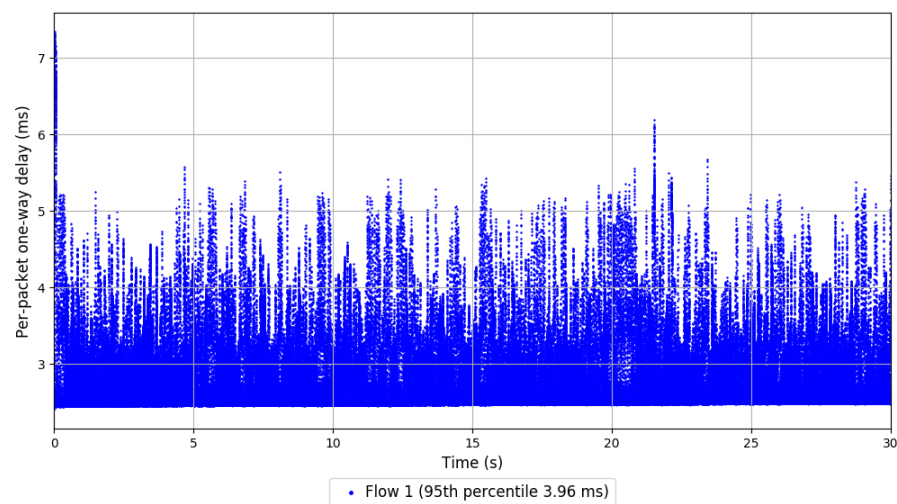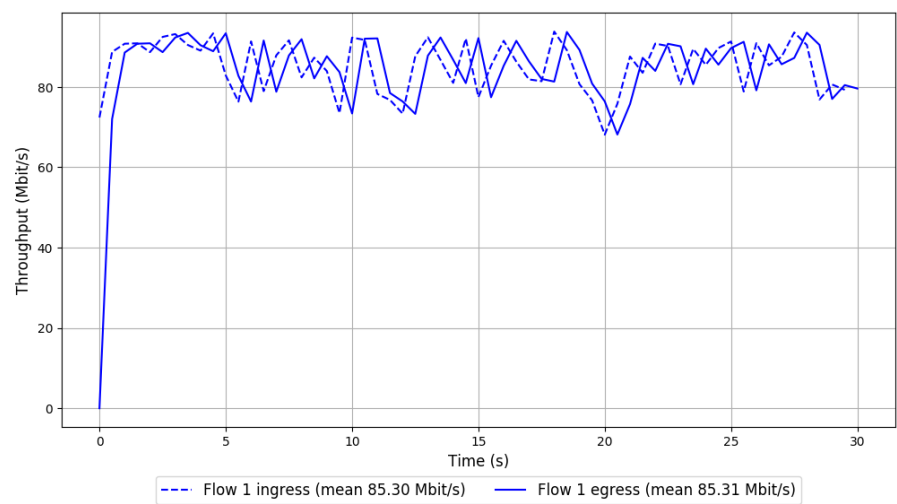
Run 4: Report of TCP BBR — Data Link

Flow 1 ingress (mean 96.37 Mbit/s) ——— Flow 1 egress (mean 96.35 Mbit/s)

• Flow 1 (95th percentile 8.40 ms)

```
Run 5: Statistics of TCP BBR

Start at: 2018-12-02 11:19:45
End at: 2018-12-02 11:20:15
Local clock offset: -5.798 ms
Remote clock offset: 0.591 ms


# Below is generated by plot.py at 2018-12-02 11:23:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.37 Mbit/s
95th percentile per-packet one-way delay: 8.259 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 96.37 Mbit/s
95th percentile per-packet one-way delay: 8.259 ms
Loss rate: 0.03%
```

Run 5: Report of TCP BBR — Data Link

Flow 1 ingress (mean 96.39 Mbit/s)   Flow 1 egress (mean 96.37 Mbit/s)

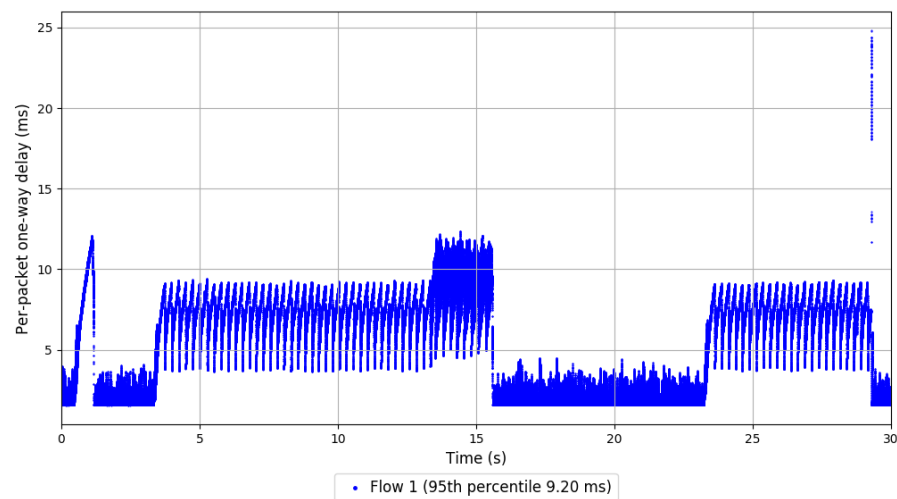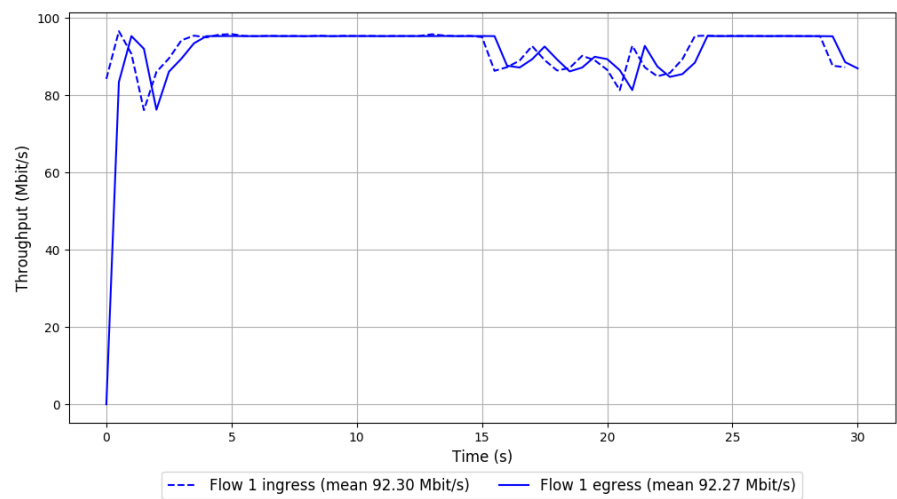Flow 1 (95th percentile 8.26 ms)

```
Run 1: Statistics of Copa

Start at: 2018-12-02 09:35:55
End at: 2018-12-02 09:36:25
Local clock offset: -5.675 ms
Remote clock offset: -0.008 ms

# Below is generated by plot.py at 2018-12-02 11:23:57
# Datalink statistics
-- Total of 1 flow:
Average throughput: 85.31 Mbit/s
95th percentile per-packet one-way delay: 3.963 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 85.31 Mbit/s
95th percentile per-packet one-way delay: 3.963 ms
Loss rate: 0.00%
```
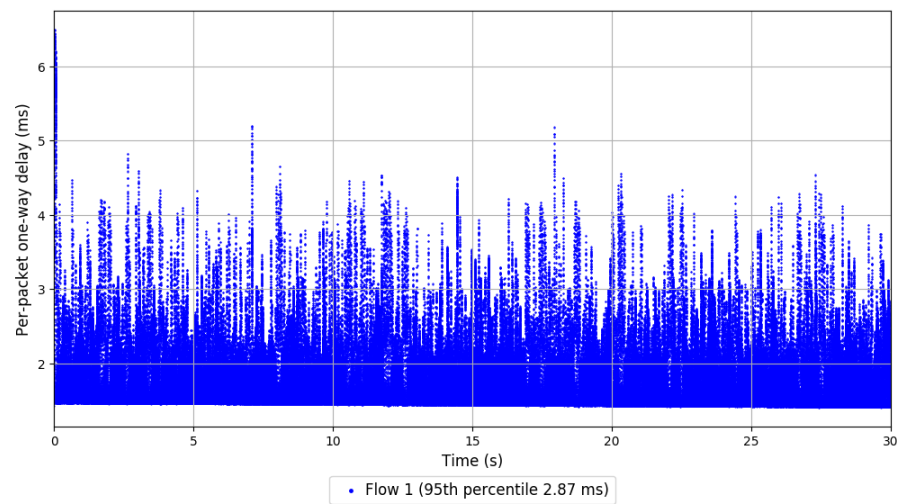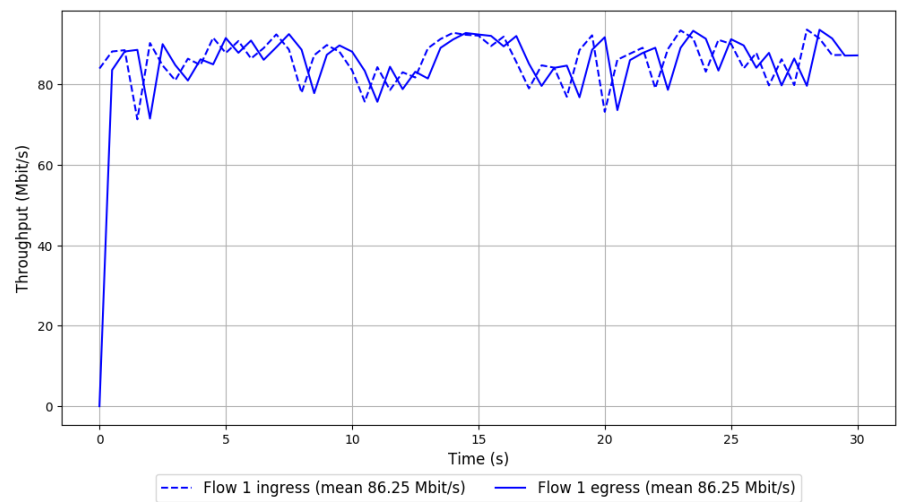
Run 1: Report of Copa — Data Link

Flow 1 ingress (mean 85.30 Mbit/s)   Flow 1 egress (mean 85.31 Mbit/s)

Flow 1 (95th percentile 3.96 ms)

```
Run 2: Statistics of Copa

Start at: 2018-12-02 09:57:24
End at: 2018-12-02 09:57:54
Local clock offset: -7.132 ms
Remote clock offset: 0.277 ms


# Below is generated by plot.py at 2018-12-02 11:24:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 92.27 Mbit/s
95th percentile per-packet one-way delay: 9.196 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 92.27 Mbit/s
95th percentile per-packet one-way delay: 9.196 ms
Loss rate: 0.04%
```

Run 2: Report of Copa — Data Link

Flow 1 ingress (mean 92.30 Mbit/s) —— Flow 1 egress (mean 92.27 Mbit/s)

• Flow 1 (95th percentile 9.20 ms)

```
Run 3: Statistics of Copa

Start at: 2018-12-02 10:18:50
End at: 2018-12-02 10:19:20
Local clock offset: -7.572 ms
Remote clock offset: 0.456 ms

# Below is generated by plot.py at 2018-12-02 11:24:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 86.25 Mbit/s
95th percentile per-packet one-way delay: 2.867 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 86.25 Mbit/s
95th percentile per-packet one-way delay: 2.867 ms
Loss rate: 0.01%
```
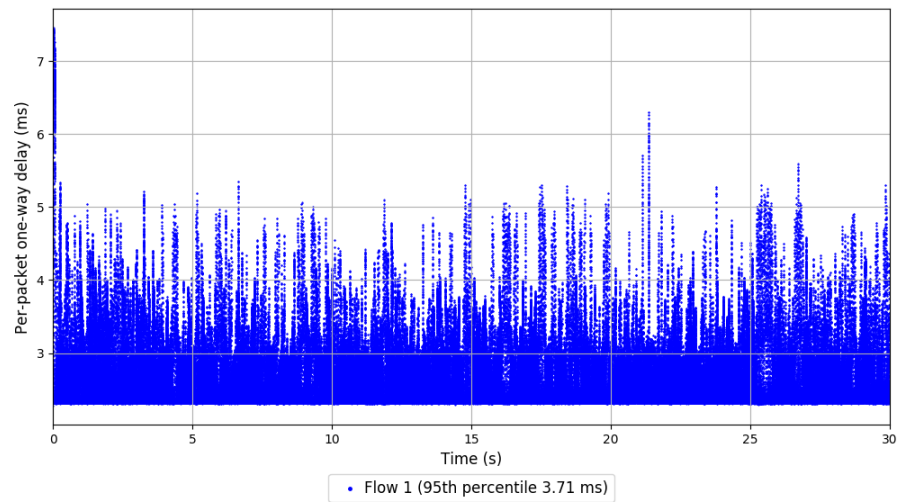
Run 3: Report of Copa — Data Link

```
Run 4: Statistics of Copa

Start at: 2018-12-02 10:40:16
End at: 2018-12-02 10:40:46
Local clock offset: -5.847 ms
Remote clock offset: 0.563 ms


# Below is generated by plot.py at 2018-12-02 11:25:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 86.31 Mbit/s
95th percentile per-packet one-way delay: 3.714 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 86.31 Mbit/s
95th percentile per-packet one-way delay: 3.714 ms
Loss rate: 0.01%
```
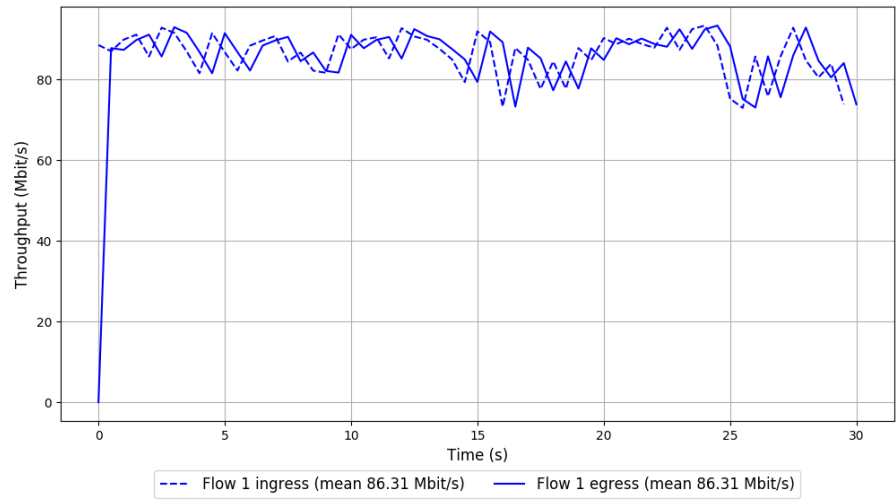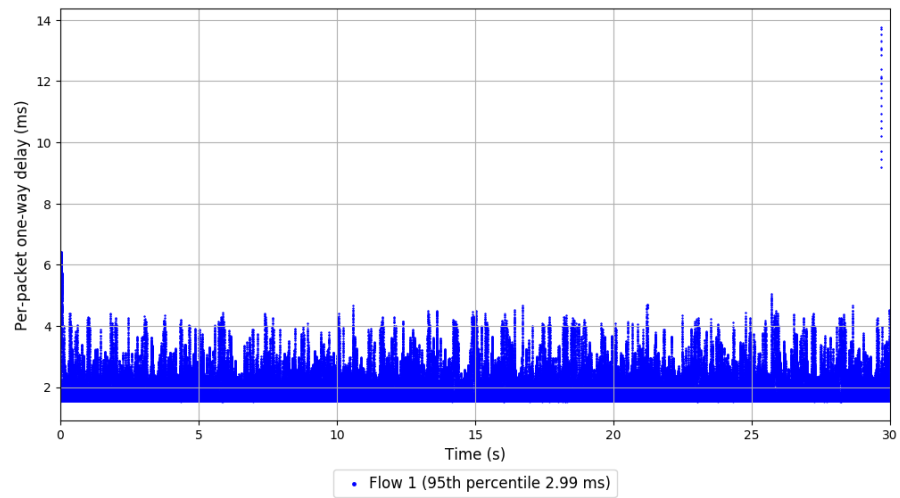
Run 4: Report of Copa — Data Link

```
Run 5: Statistics of Copa

Start at: 2018-12-02 11:01:45
End at: 2018-12-02 11:02:15
Local clock offset: -6.372 ms
Remote clock offset: 0.547 ms


# Below is generated by plot.py at 2018-12-02 11:25:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 85.50 Mbit/s
95th percentile per-packet one-way delay: 2.989 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 85.50 Mbit/s
95th percentile per-packet one-way delay: 2.989 ms
Loss rate: 0.01%
```
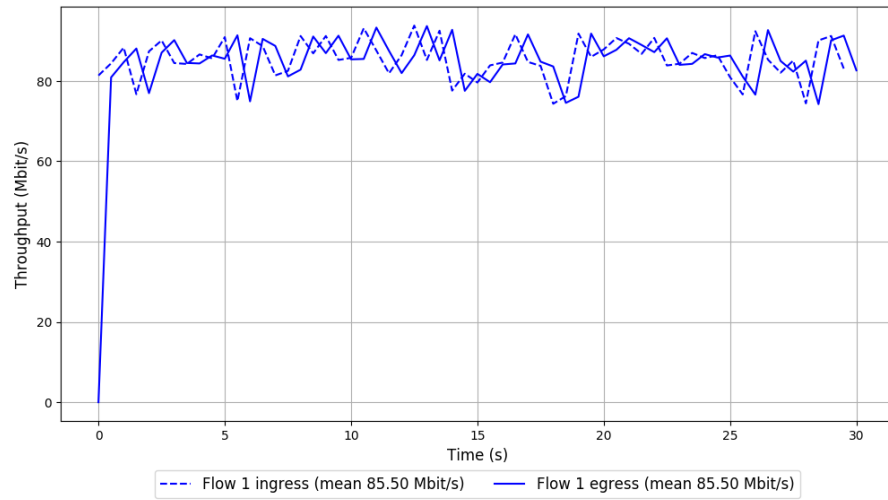
Run 5: Report of Copa — Data Link

```
Run 1: Statistics of TCP Cubic

Start at: 2018-12-02 09:46:10
End at: 2018-12-02 09:46:40
Local clock offset: -6.233 ms
Remote clock offset: 0.114 ms


# Below is generated by plot.py at 2018-12-02 11:25:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.48 Mbit/s
95th percentile per-packet one-way delay: 9.676 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 97.48 Mbit/s
95th percentile per-packet one-way delay: 9.676 ms
Loss rate: 0.06%
```
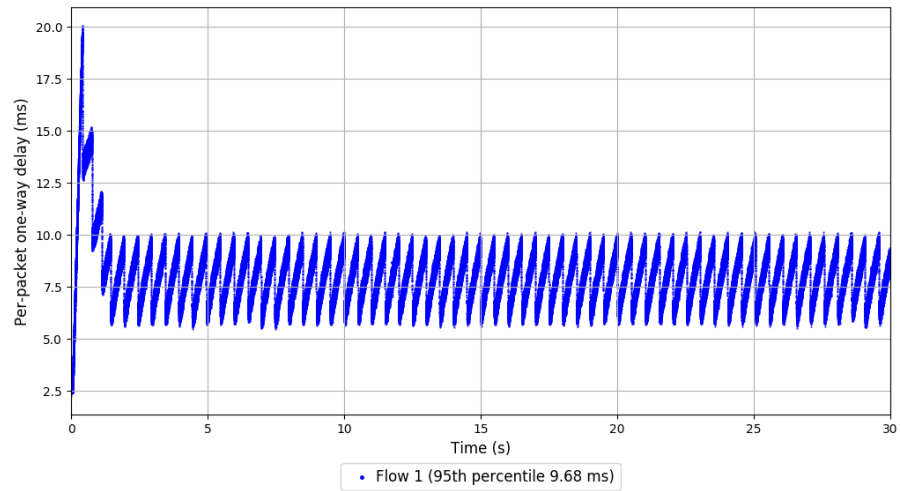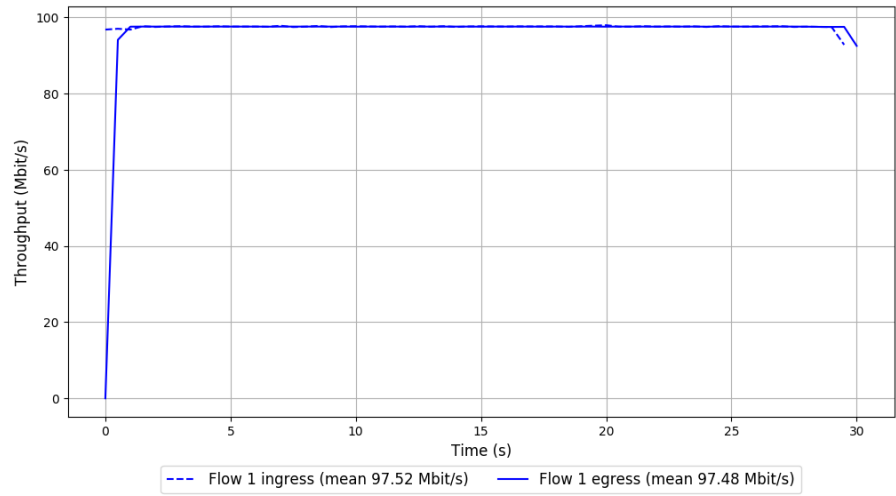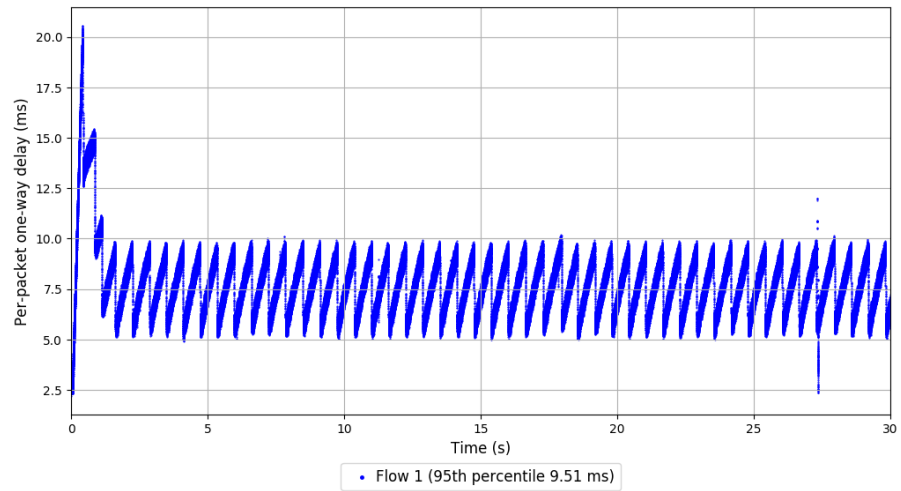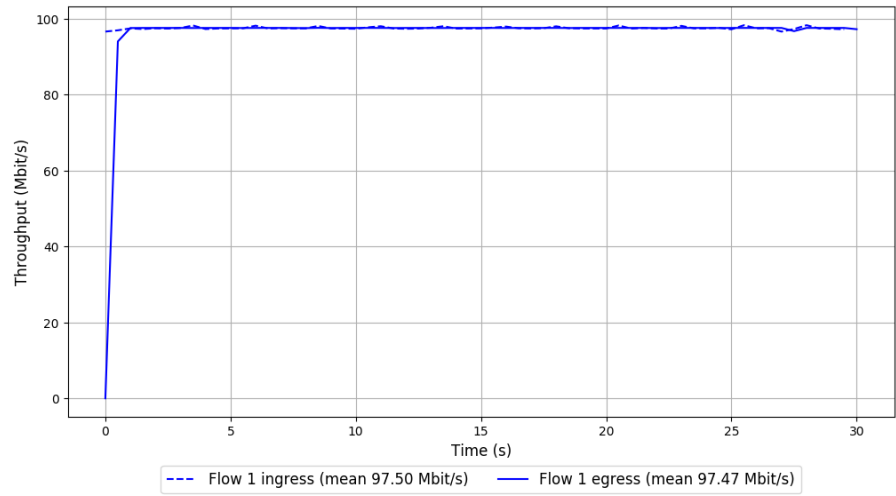
Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2018-12-02 10:07:36
End at: 2018-12-02 10:08:06
Local clock offset: -6.602 ms
Remote clock offset: 0.392 ms


# Below is generated by plot.py at 2018-12-02 11:25:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.47 Mbit/s
95th percentile per-packet one-way delay: 9.508 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 97.47 Mbit/s
95th percentile per-packet one-way delay: 9.508 ms
Loss rate: 0.04%
```
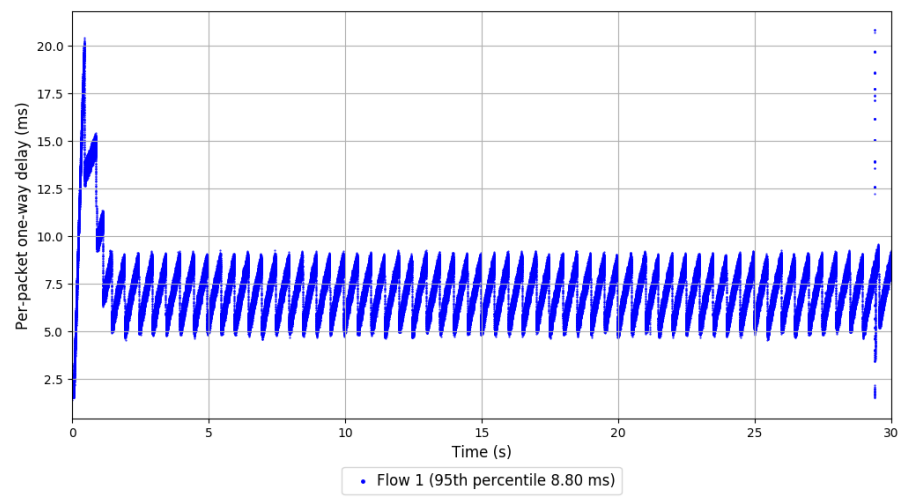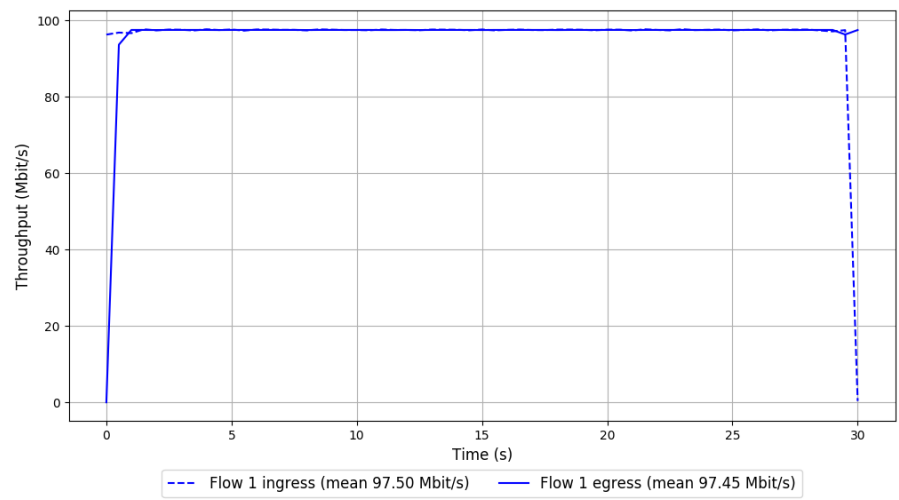
Run 2: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 97.50 Mbit/s)   —— Flow 1 egress (mean 97.47 Mbit/s)

• Flow 1 (95th percentile 9.51 ms)

```
Run 3: Statistics of TCP Cubic

Start at: 2018-12-02 10:29:01
End at: 2018-12-02 10:29:31
Local clock offset: -6.828 ms
Remote clock offset: 0.526 ms


# Below is generated by plot.py at 2018-12-02 11:25:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.45 Mbit/s
95th percentile per-packet one-way delay: 8.796 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 97.45 Mbit/s
95th percentile per-packet one-way delay: 8.796 ms
Loss rate: 0.06%
```
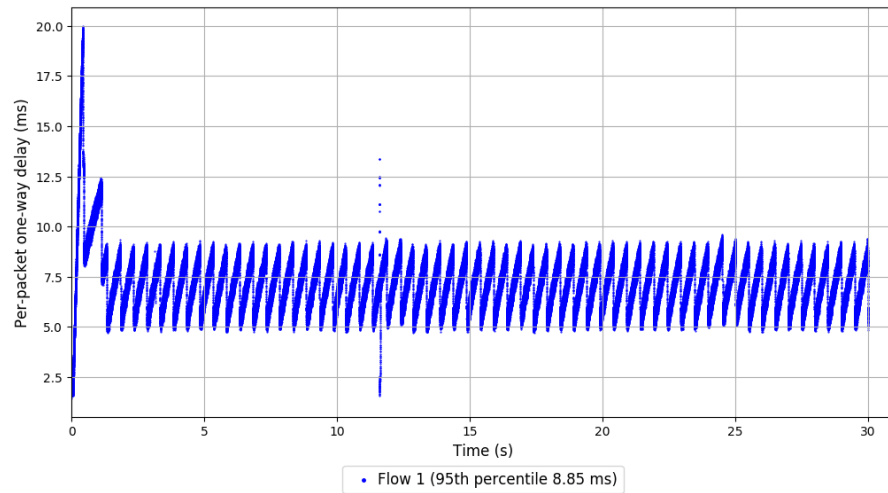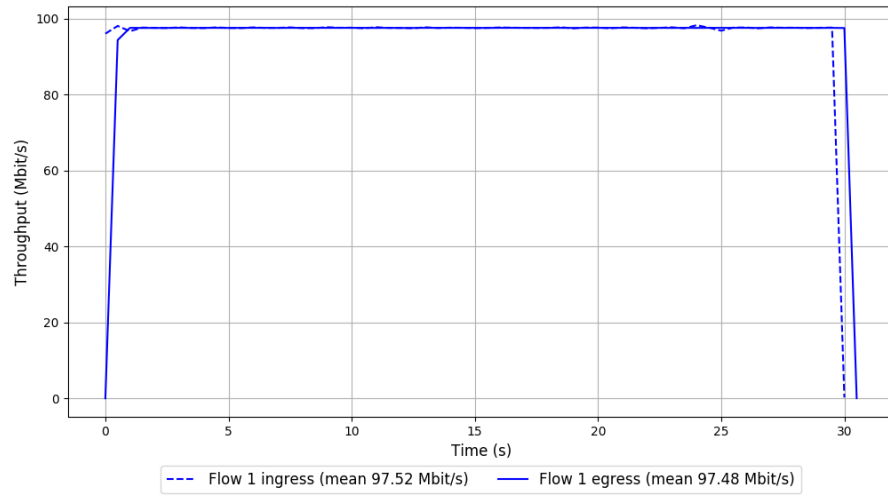
Run 3: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 97.50 Mbit/s)   Flow 1 egress (mean 97.45 Mbit/s)

• Flow 1 (95th percentile 8.80 ms)

```
Run 4: Statistics of TCP Cubic

Start at: 2018-12-02 10:50:31
End at: 2018-12-02 10:51:01
Local clock offset: -6.525 ms
Remote clock offset: 0.555 ms


# Below is generated by plot.py at 2018-12-02 11:25:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.48 Mbit/s
95th percentile per-packet one-way delay: 8.845 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 97.48 Mbit/s
95th percentile per-packet one-way delay: 8.845 ms
Loss rate: 0.05%
```
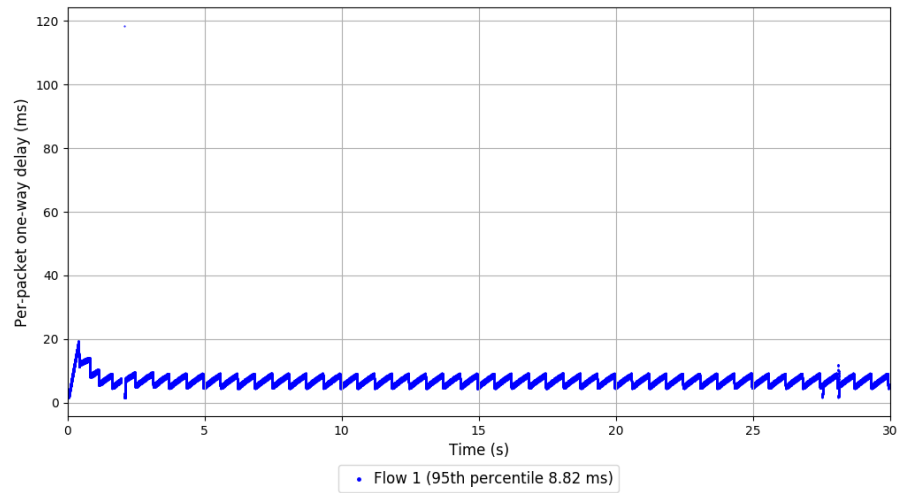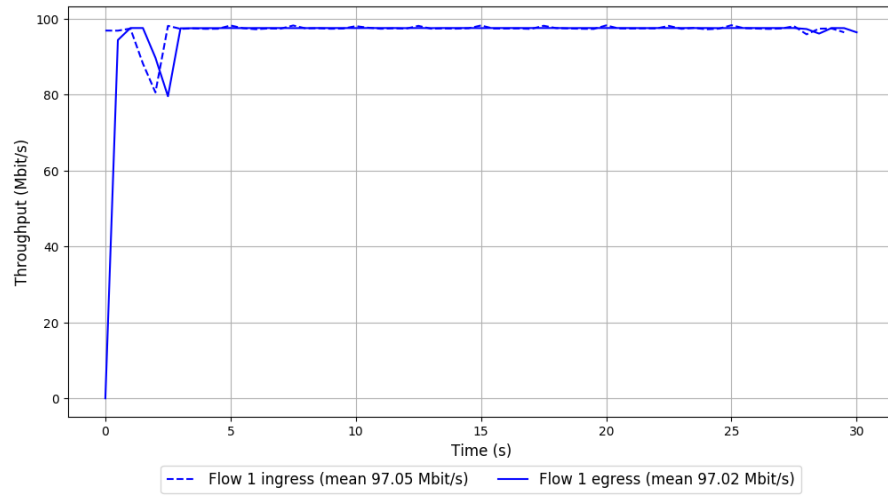
Run 4: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 97.52 Mbit/s)   Flow 1 egress (mean 97.48 Mbit/s)

• Flow 1 (95th percentile 8.85 ms)

```
Run 5: Statistics of TCP Cubic

Start at: 2018-12-02 11:11:56
End at: 2018-12-02 11:12:26
Local clock offset: -6.313 ms
Remote clock offset: 0.502 ms


# Below is generated by plot.py at 2018-12-02 11:25:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.02 Mbit/s
95th percentile per-packet one-way delay: 8.820 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 97.02 Mbit/s
95th percentile per-packet one-way delay: 8.820 ms
Loss rate: 0.04%
```
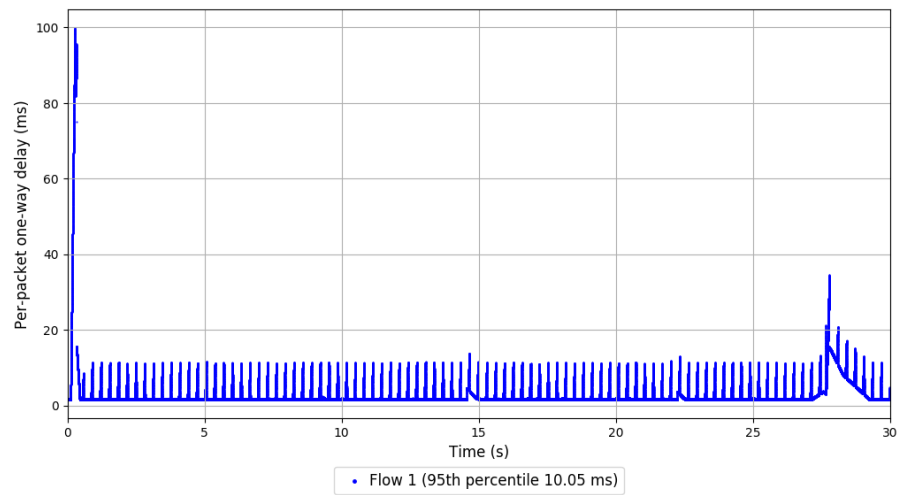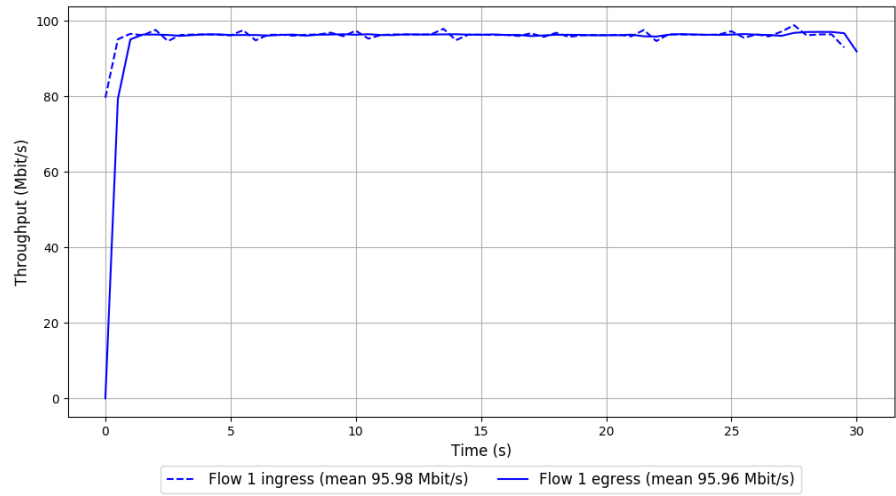
Run 5: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 97.05 Mbit/s)   Flow 1 egress (mean 97.02 Mbit/s)

Flow 1 (95th percentile 8.82 ms)

```
Run 1: Statistics of FillP

Start at: 2018-12-02 09:42:49
End at: 2018-12-02 09:43:19
Local clock offset: -6.855 ms
Remote clock offset: 0.06 ms


# Below is generated by plot.py at 2018-12-02 11:25:34
# Datalink statistics
-- Total of 1 flow:
Average throughput: 95.96 Mbit/s
95th percentile per-packet one-way delay: 10.053 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 95.96 Mbit/s
95th percentile per-packet one-way delay: 10.053 ms
Loss rate: 0.03%
```
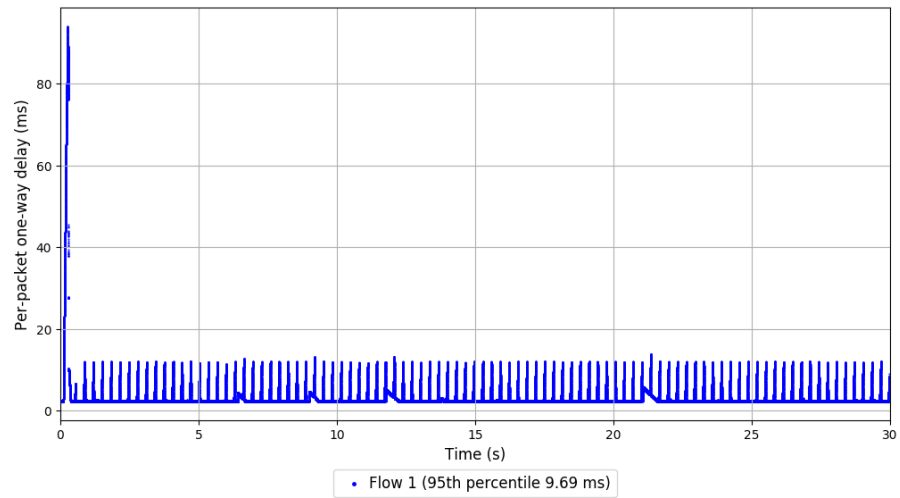
Run 1: Report of FillP — Data Link

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```
Run 2: Statistics of FillP

Start at: 2018-12-02 10:04:15
End at: 2018-12-02 10:04:45
Local clock offset: -6.512 ms
Remote clock offset: 0.344 ms


# Below is generated by plot.py at 2018-12-02 11:25:41
# Datalink statistics
-- Total of 1 flow:
Average throughput: 95.90 Mbit/s
95th percentile per-packet one-way delay: 9.687 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 95.90 Mbit/s
95th percentile per-packet one-way delay: 9.687 ms
Loss rate: 0.06%
```
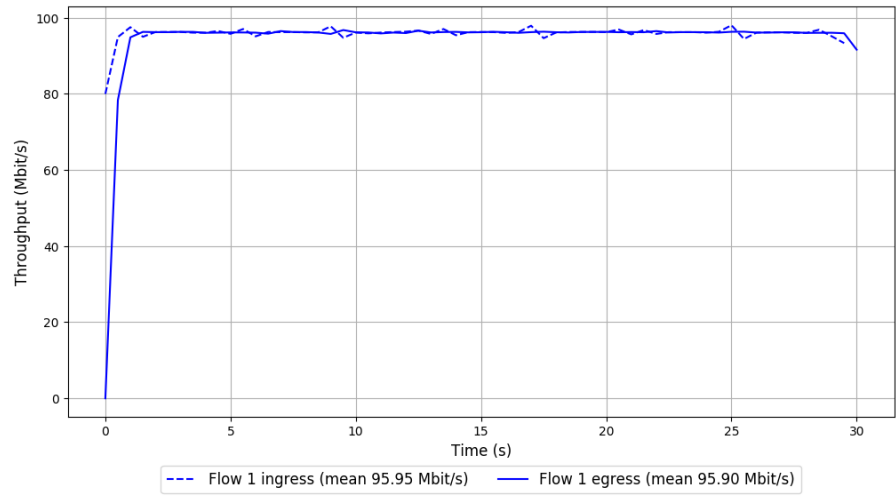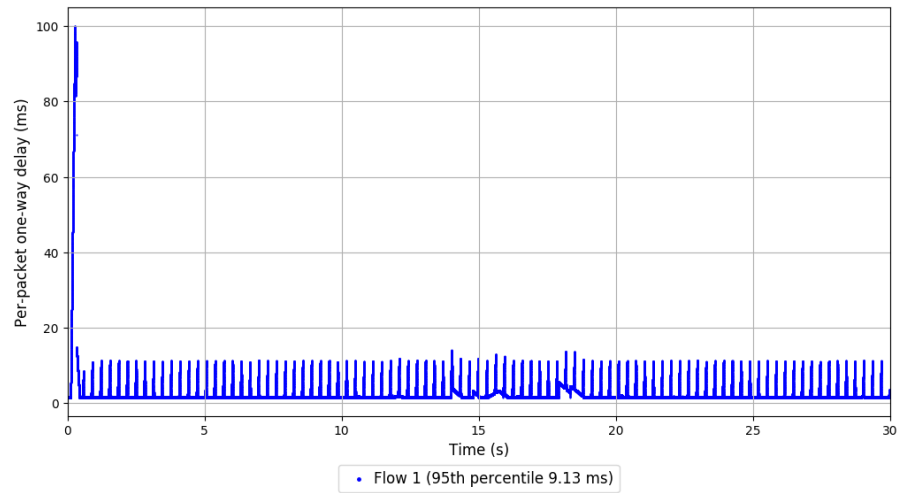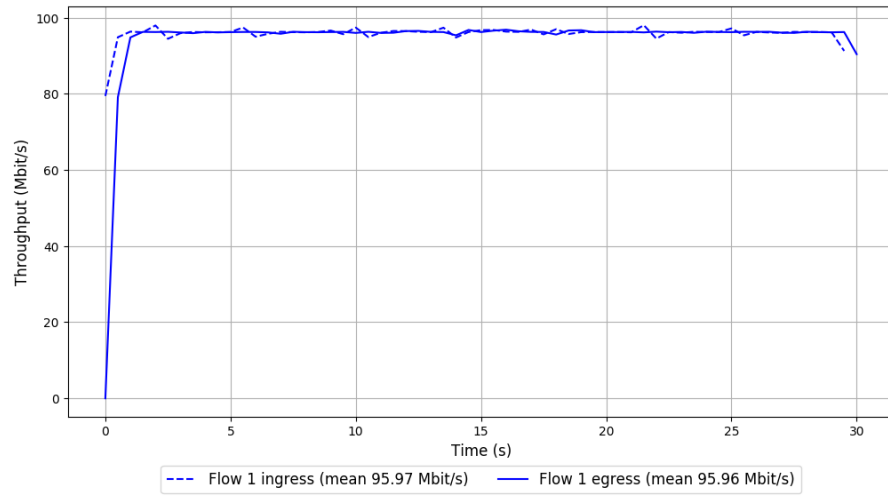
Run 2: Report of FillP — Data Link

Flow 1 ingress (mean 95.95 Mbit/s) --- Flow 1 egress (mean 95.90 Mbit/s)

Flow 1 (95th percentile 9.69 ms)

```
Run 3: Statistics of FillP

Start at: 2018-12-02 10:25:41
End at: 2018-12-02 10:26:11
Local clock offset: -6.917 ms
Remote clock offset: 0.482 ms


# Below is generated by plot.py at 2018-12-02 11:25:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 95.96 Mbit/s
95th percentile per-packet one-way delay: 9.135 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 95.96 Mbit/s
95th percentile per-packet one-way delay: 9.135 ms
Loss rate: 0.02%
```
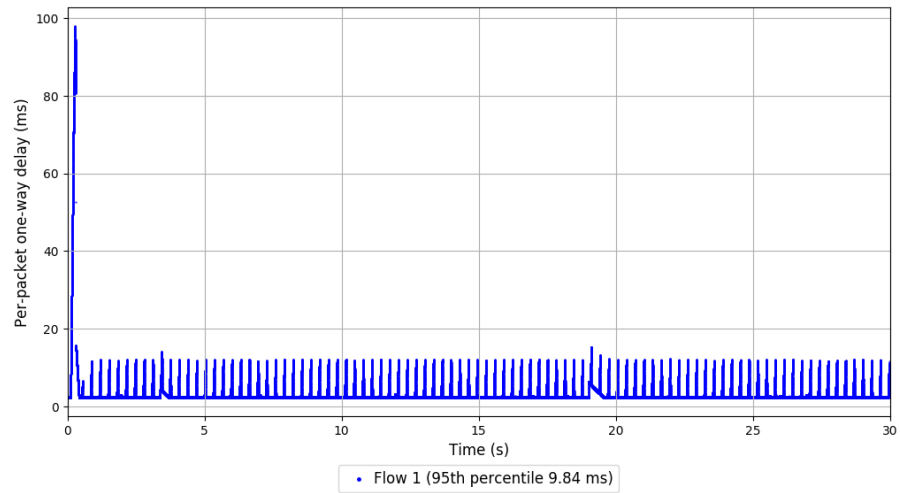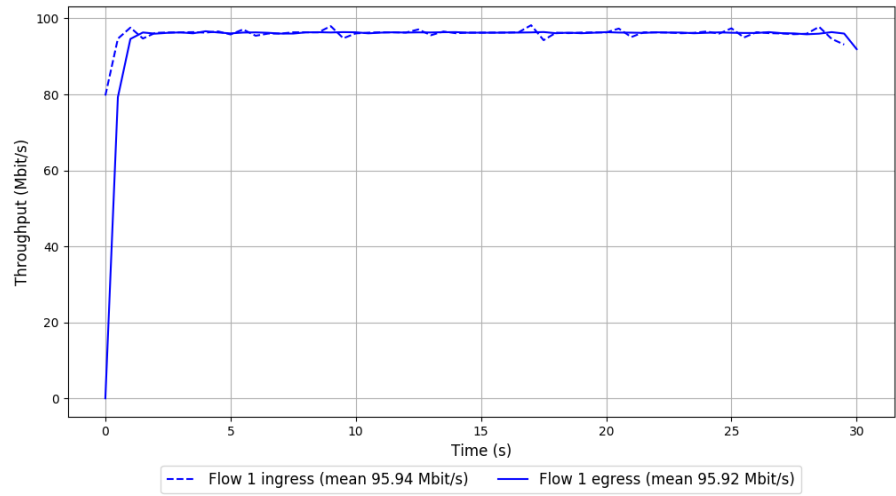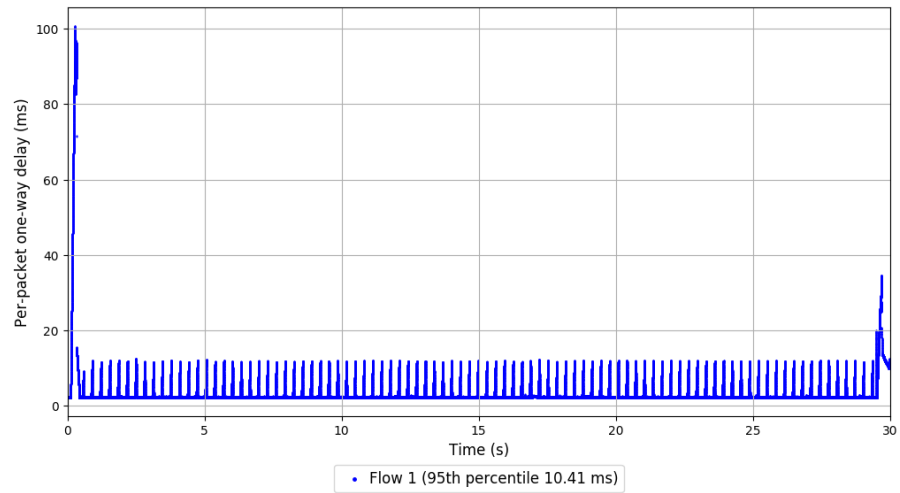
Run 3: Report of FillP — Data Link

Flow 1 ingress (mean 95.97 Mbit/s) — — — Flow 1 egress (mean 95.96 Mbit/s)

Flow 1 (95th percentile 9.13 ms)

```
Run 4: Statistics of FillP

Start at: 2018-12-02 10:47:10
End at: 2018-12-02 10:47:40
Local clock offset: -5.859 ms
Remote clock offset: 0.52 ms


# Below is generated by plot.py at 2018-12-02 11:25:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 95.92 Mbit/s
95th percentile per-packet one-way delay: 9.837 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 95.92 Mbit/s
95th percentile per-packet one-way delay: 9.837 ms
Loss rate: 0.03%
```
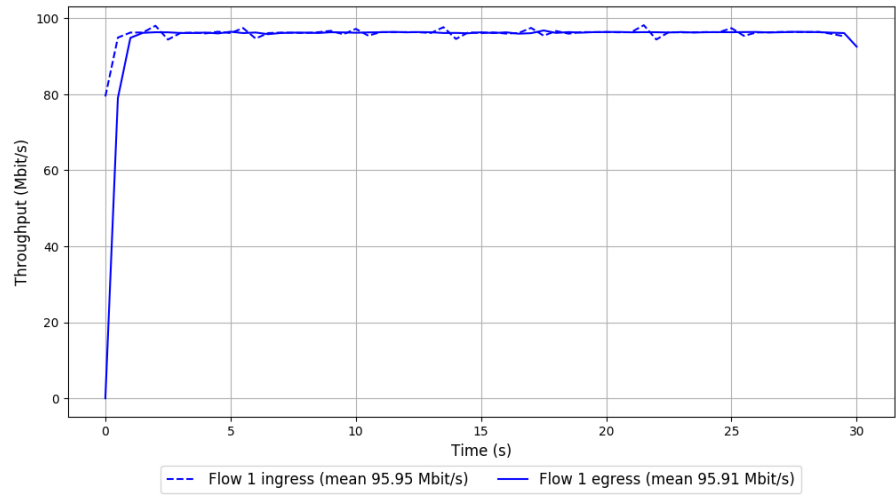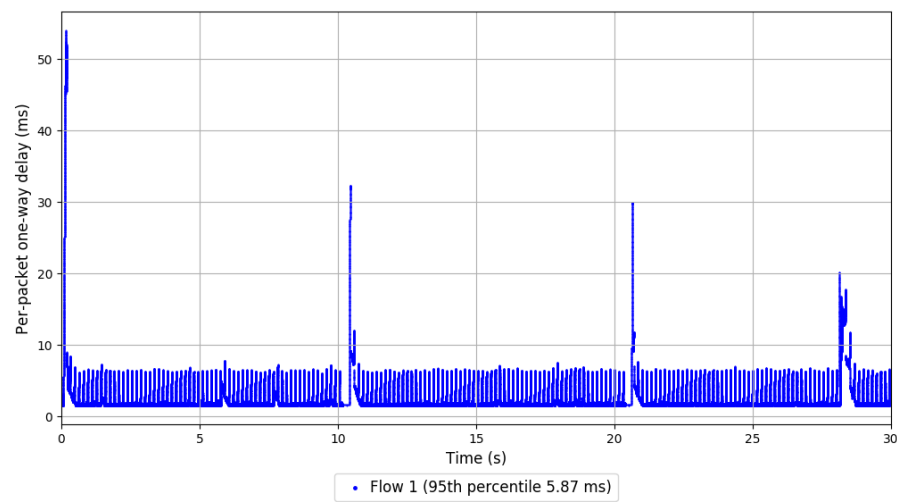
Run 4: Report of FillP — Data Link

Flow 1 ingress (mean 95.94 Mbit/s) --- Flow 1 egress (mean 95.92 Mbit/s)

• Flow 1 (95th percentile 9.84 ms)

```
Run 5: Statistics of FillP

Start at: 2018-12-02 11:08:35
End at: 2018-12-02 11:09:05
Local clock offset: -5.475 ms
Remote clock offset: 0.662 ms


# Below is generated by plot.py at 2018-12-02 11:26:27
# Datalink statistics
-- Total of 1 flow:
Average throughput: 95.91 Mbit/s
95th percentile per-packet one-way delay: 10.411 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 95.91 Mbit/s
95th percentile per-packet one-way delay: 10.411 ms
Loss rate: 0.06%
```
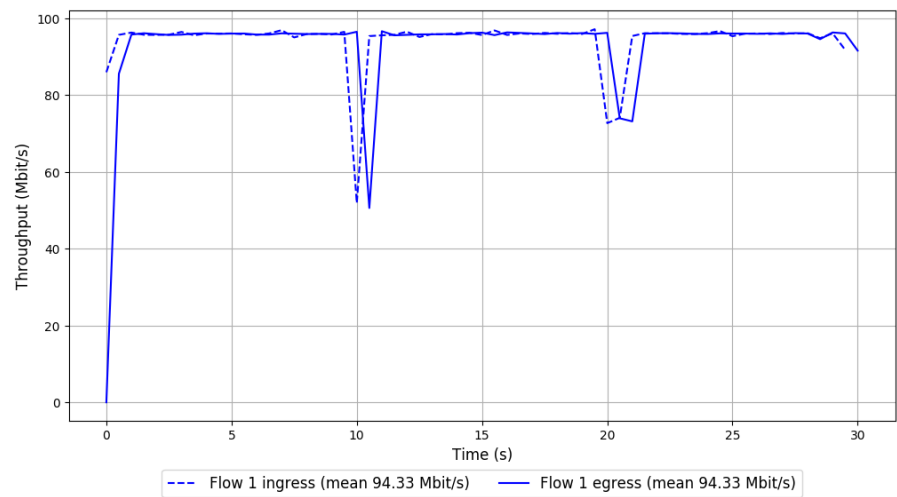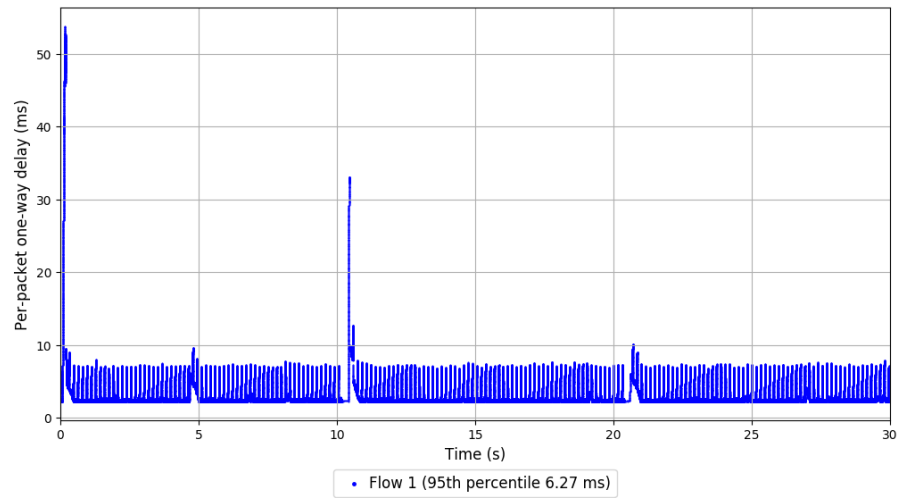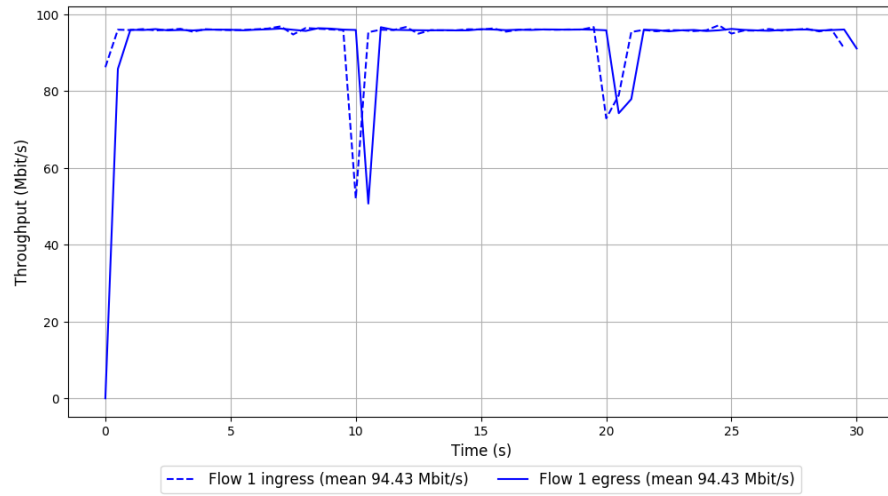
Run 5: Report of FillP — Data Link

Flow 1 ingress (mean 95.95 Mbit/s) ----   Flow 1 egress (mean 95.91 Mbit/s) ——

Flow 1 (95th percentile 10.41 ms)

```
Run 1: Statistics of FillP-Sheep

Start at: 2018-12-02 09:41:42
End at: 2018-12-02 09:42:12
Local clock offset: -6.802 ms
Remote clock offset: 0.034 ms


# Below is generated by plot.py at 2018-12-02 11:26:27
# Datalink statistics
-- Total of 1 flow:
Average throughput: 94.33 Mbit/s
95th percentile per-packet one-way delay: 5.868 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 94.33 Mbit/s
95th percentile per-packet one-way delay: 5.868 ms
Loss rate: 0.01%
```
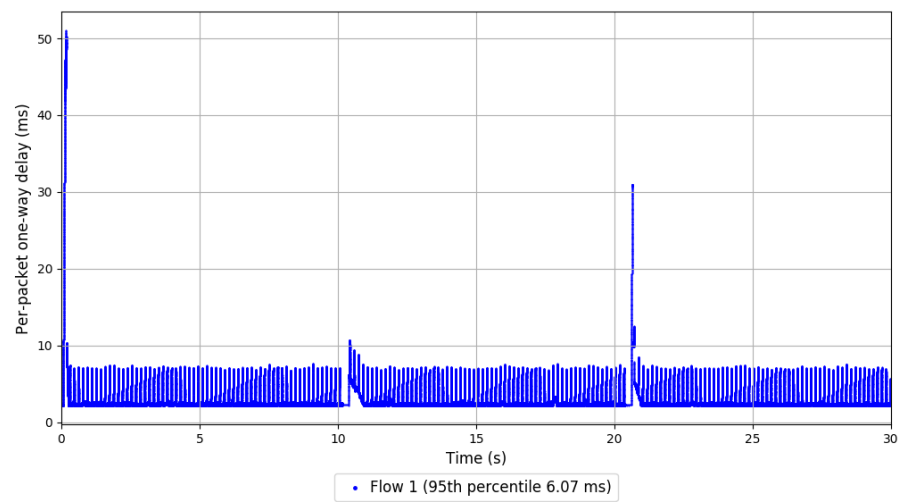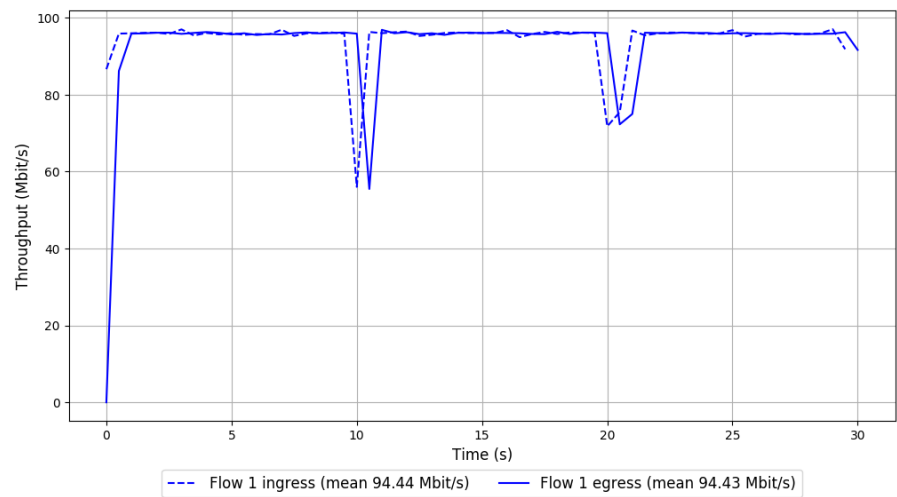
Run 1: Report of FillP-Sheep — Data Link

```
Run 2: Statistics of FillP-Sheep

Start at: 2018-12-02 10:03:08
End at: 2018-12-02 10:03:38
Local clock offset: -6.475 ms
Remote clock offset: 0.324 ms


# Below is generated by plot.py at 2018-12-02 11:26:27
# Datalink statistics
-- Total of 1 flow:
Average throughput: 94.43 Mbit/s
95th percentile per-packet one-way delay: 6.266 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 94.43 Mbit/s
95th percentile per-packet one-way delay: 6.266 ms
Loss rate: 0.01%
```
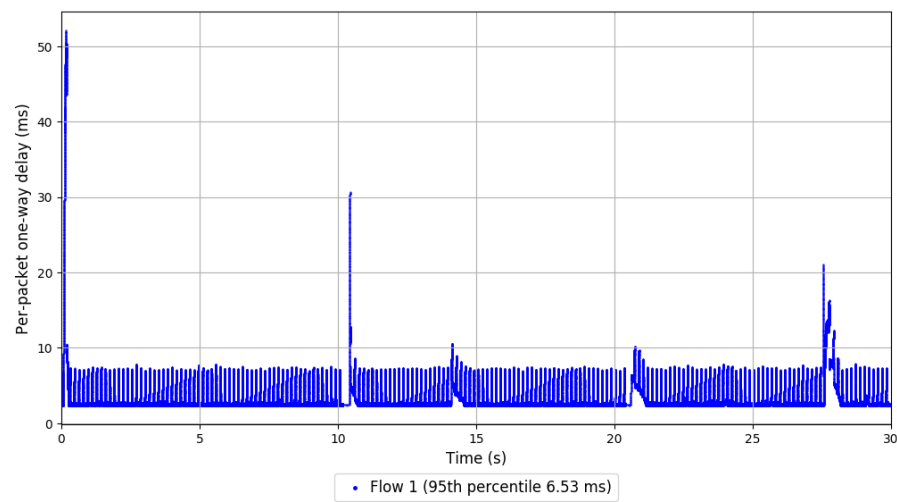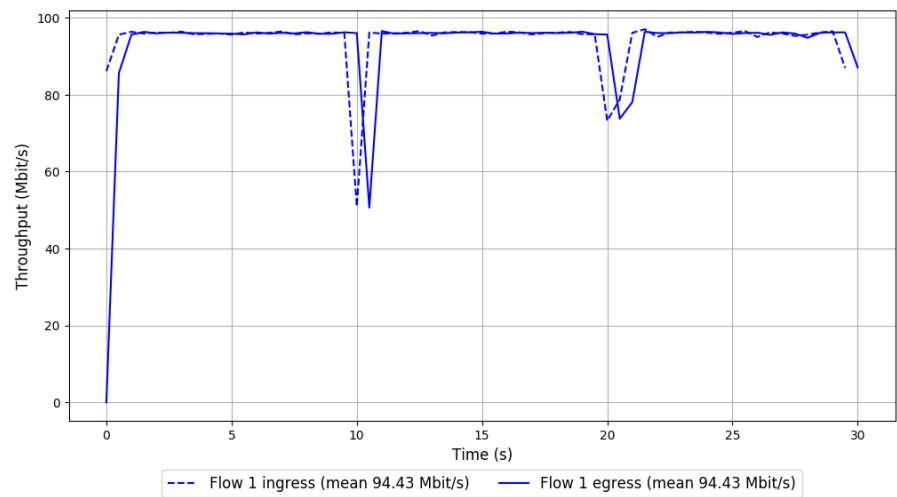
Run 2: Report of FillP-Sheep — Data Link

```
Run 3: Statistics of FillP-Sheep

Start at: 2018-12-02 10:24:33
End at: 2018-12-02 10:25:03
Local clock offset: -6.211 ms
Remote clock offset: 0.513 ms


# Below is generated by plot.py at 2018-12-02 11:26:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 94.43 Mbit/s
95th percentile per-packet one-way delay: 6.074 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 94.43 Mbit/s
95th percentile per-packet one-way delay: 6.074 ms
Loss rate: 0.03%
```
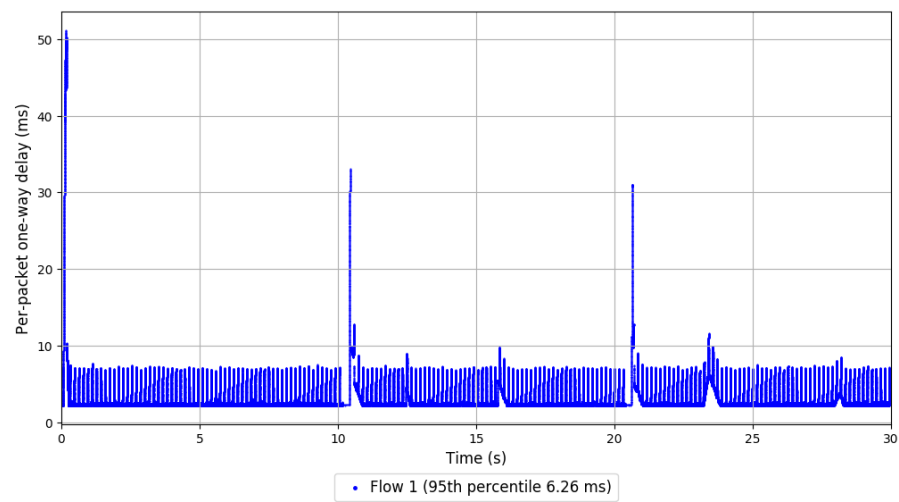
Run 3: Report of FillP-Sheep — Data Link

```
Run 4: Statistics of FillP-Sheep

Start at: 2018-12-02 10:46:02
End at: 2018-12-02 10:46:32
Local clock offset: -5.866 ms
Remote clock offset: 0.404 ms


# Below is generated by plot.py at 2018-12-02 11:26:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 94.43 Mbit/s
95th percentile per-packet one-way delay: 6.534 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 94.43 Mbit/s
95th percentile per-packet one-way delay: 6.534 ms
Loss rate: 0.01%
```

Run 4: Report of FillP-Sheep — Data Link

```
Run 5: Statistics of FillP-Sheep

Start at: 2018-12-02 11:07:28
End at: 2018-12-02 11:07:58
Local clock offset: -5.481 ms
Remote clock offset: 0.633 ms


# Below is generated by plot.py at 2018-12-02 11:27:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 94.35 Mbit/s
95th percentile per-packet one-way delay: 6.262 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 94.35 Mbit/s
95th percentile per-packet one-way delay: 6.262 ms
Loss rate: 0.01%
```
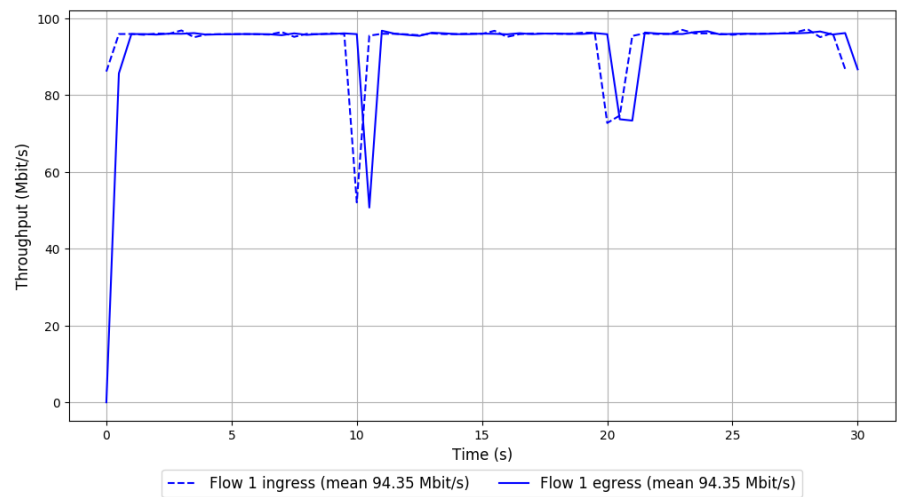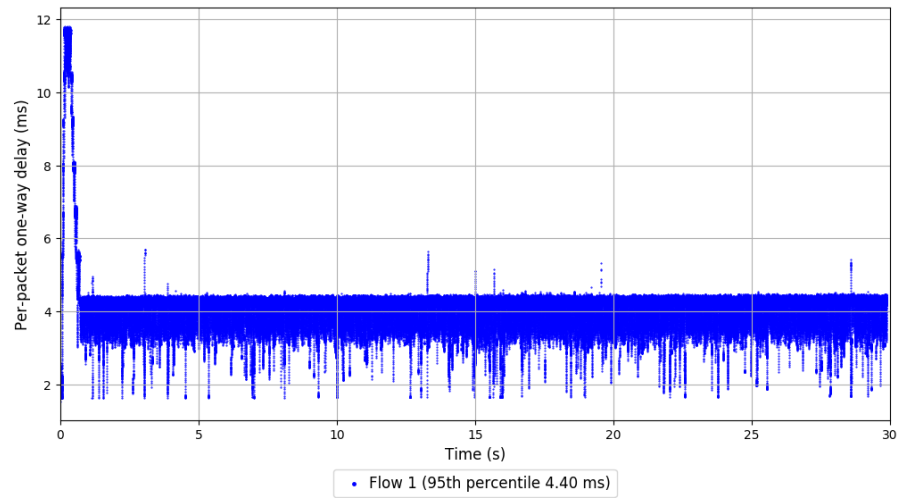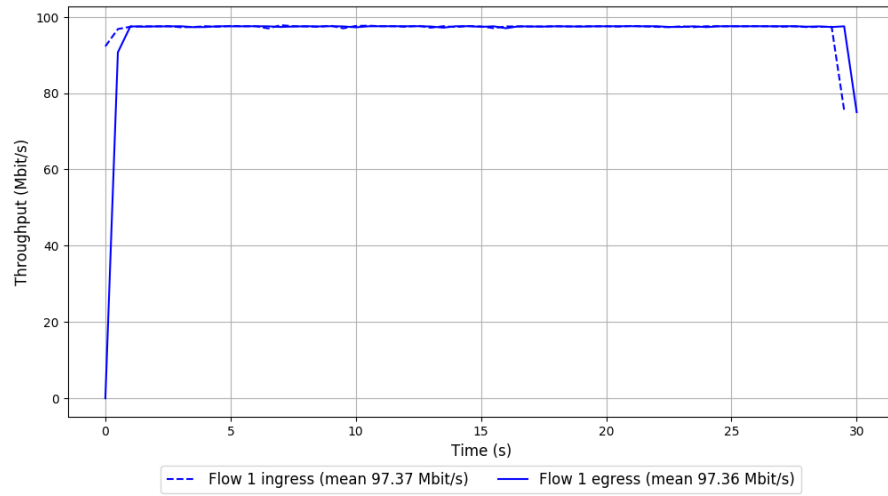
Run 5: Report of FillP-Sheep — Data Link

```
Run 1: Statistics of Indigo

Start at: 2018-12-02 09:33:38
End at: 2018-12-02 09:34:08
Local clock offset: -6.246 ms
Remote clock offset: 0.054 ms


# Below is generated by plot.py at 2018-12-02 11:27:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.36 Mbit/s
95th percentile per-packet one-way delay: 4.402 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 97.36 Mbit/s
95th percentile per-packet one-way delay: 4.402 ms
Loss rate: 0.02%
```
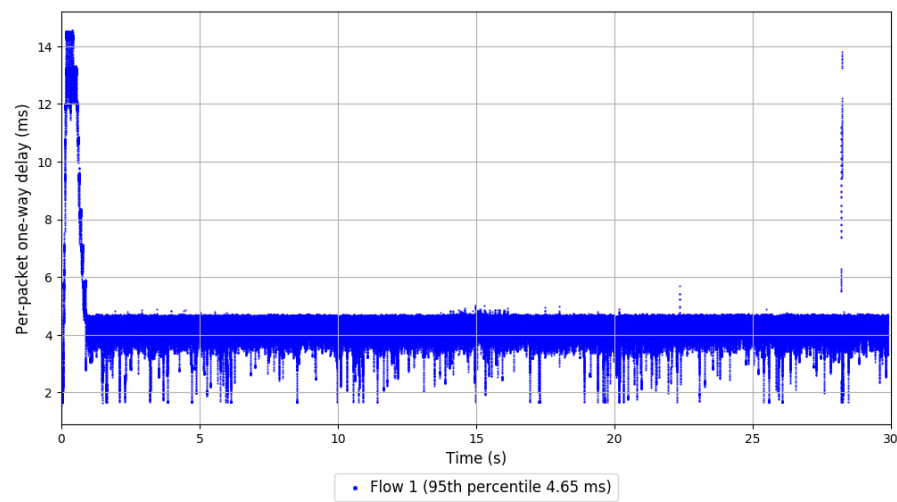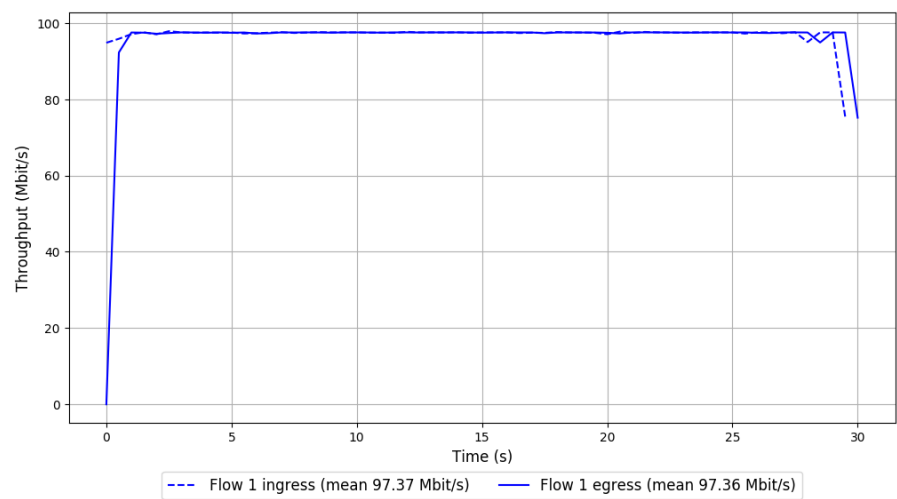
Run 1: Report of Indigo — Data Link

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

Flow 1 (95th percentile 4.40 ms)

```
Run 2: Statistics of Indigo

Start at: 2018-12-02 09:55:06
End at: 2018-12-02 09:55:36
Local clock offset: -7.109 ms
Remote clock offset: 0.173 ms


# Below is generated by plot.py at 2018-12-02 11:27:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.36 Mbit/s
95th percentile per-packet one-way delay: 4.654 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 97.36 Mbit/s
95th percentile per-packet one-way delay: 4.654 ms
Loss rate: 0.02%
```
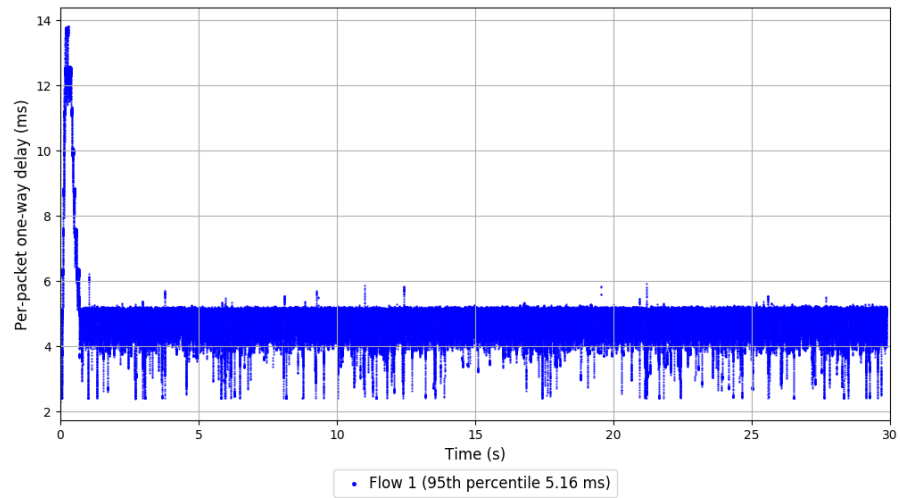
Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2018-12-02 10:16:33
End at: 2018-12-02 10:17:03
Local clock offset: -6.842 ms
Remote clock offset: 0.403 ms


# Below is generated by plot.py at 2018-12-02 11:27:36
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.37 Mbit/s
95th percentile per-packet one-way delay: 5.156 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 97.37 Mbit/s
95th percentile per-packet one-way delay: 5.156 ms
Loss rate: 0.02%
```
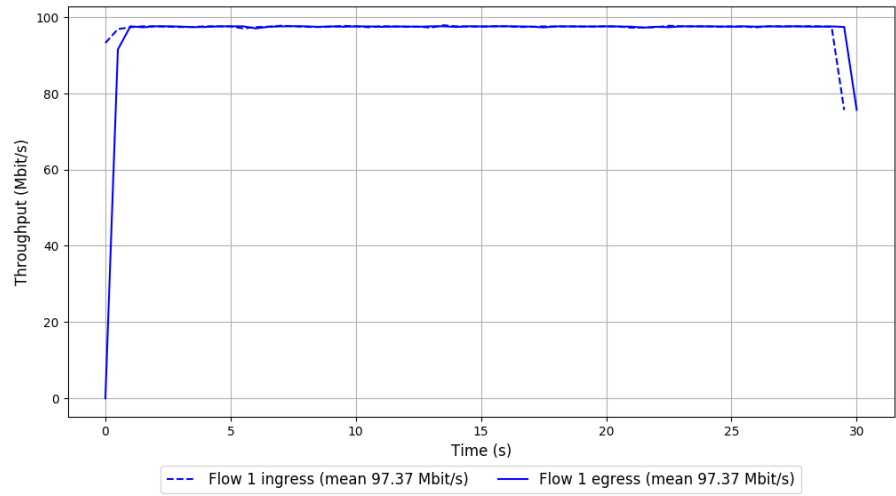
Run 3: Report of Indigo — Data Link

```
Run 4: Statistics of Indigo

Start at: 2018-12-02 10:37:58
End at: 2018-12-02 10:38:28
Local clock offset: -6.686 ms
Remote clock offset: 0.514 ms

# Below is generated by plot.py at 2018-12-02 11:27:37
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.39 Mbit/s
95th percentile per-packet one-way delay: 4.290 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 97.39 Mbit/s
95th percentile per-packet one-way delay: 4.290 ms
Loss rate: 0.02%
```
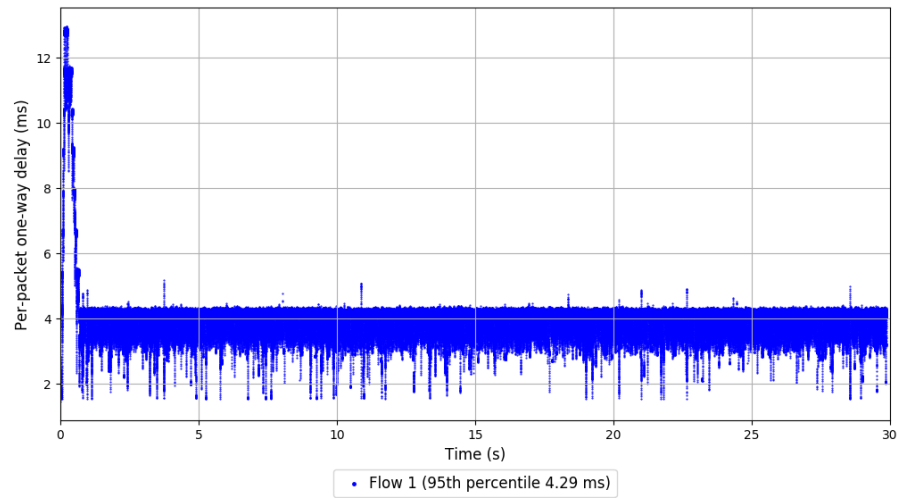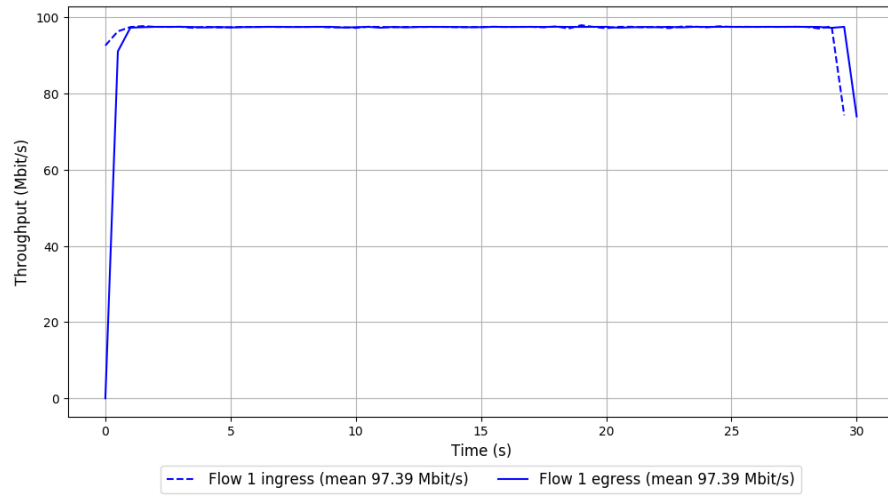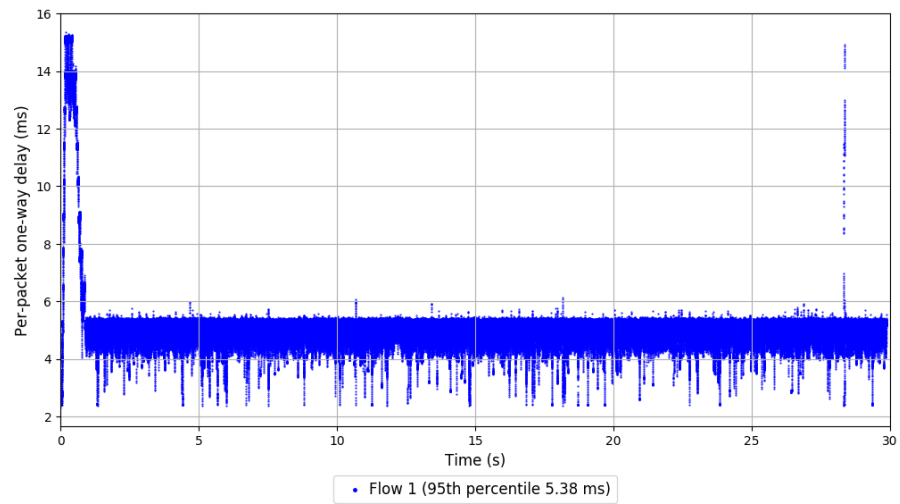
Run 4: Report of Indigo — Data Link

```
Run 5: Statistics of Indigo

Start at: 2018-12-02 10:59:28
End at: 2018-12-02 10:59:58
Local clock offset: -5.548 ms
Remote clock offset: 0.566 ms


# Below is generated by plot.py at 2018-12-02 11:27:38
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.36 Mbit/s
95th percentile per-packet one-way delay: 5.383 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 97.36 Mbit/s
95th percentile per-packet one-way delay: 5.383 ms
Loss rate: 0.02%
```
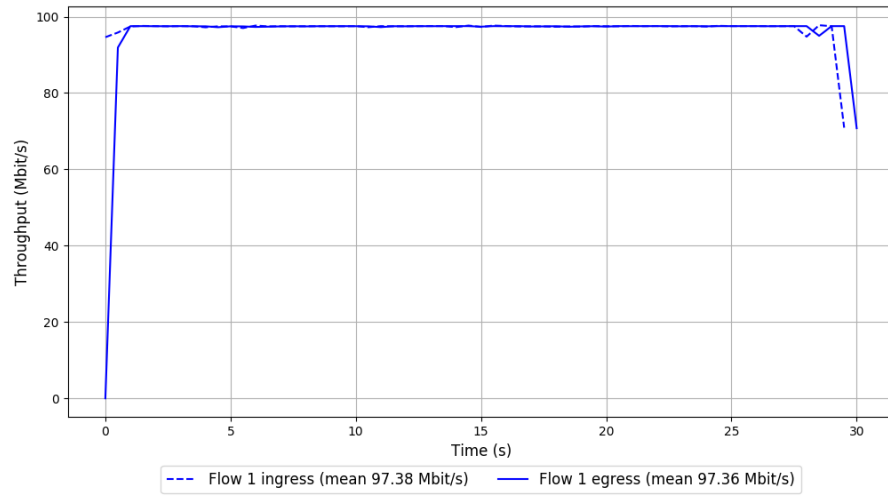
Run 5: Report of Indigo — Data Link

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

Start at: 2018-12-02 09:40:34
End at: 2018-12-02 09:41:04
Local clock offset: -5.976 ms
Remote clock offset: 0.088 ms

# Below is generated by plot.py at 2018-12-02 11:27:41
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.09 Mbit/s
95th percentile per-packet one-way delay: 8.588 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.09 Mbit/s
95th percentile per-packet one-way delay: 8.588 ms
Loss rate: 0.01%
```
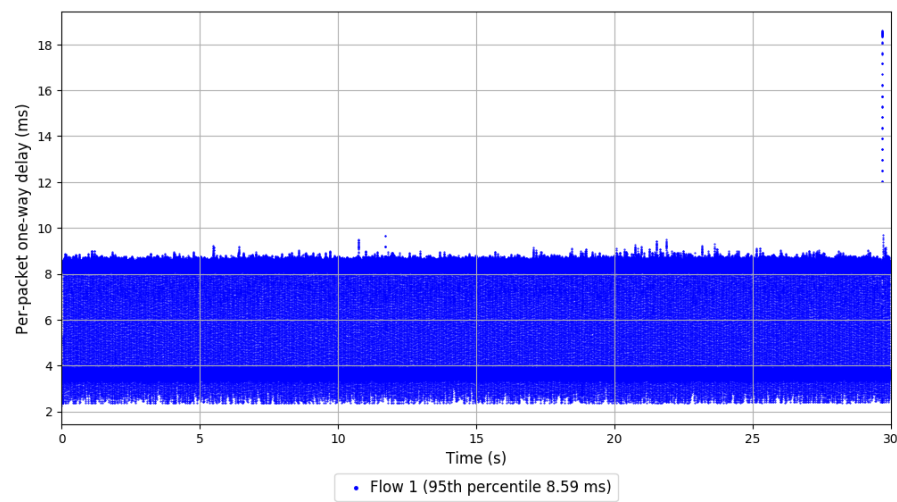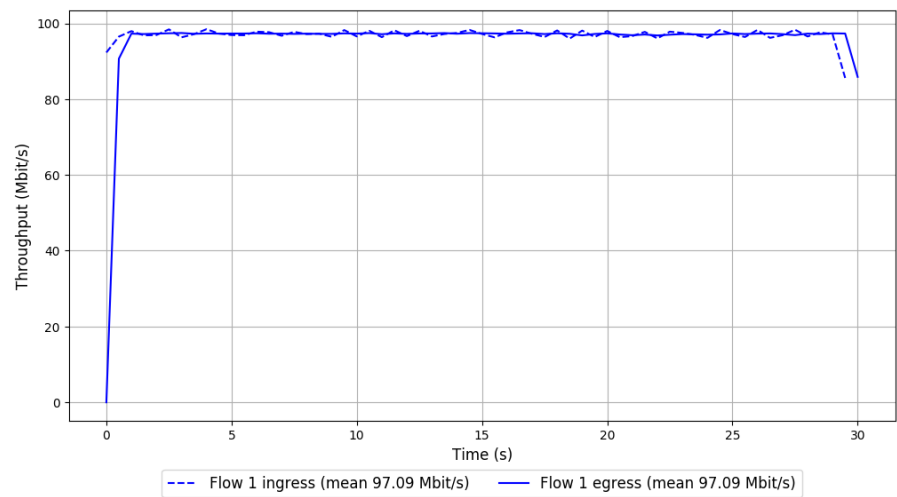
Run 1: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-12-02 10:02:00
End at: 2018-12-02 10:02:30
Local clock offset: -6.454 ms
Remote clock offset: 0.244 ms


# Below is generated by plot.py at 2018-12-02 11:28:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.05 Mbit/s
95th percentile per-packet one-way delay: 8.656 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 97.05 Mbit/s
95th percentile per-packet one-way delay: 8.656 ms
Loss rate: 0.03%
```
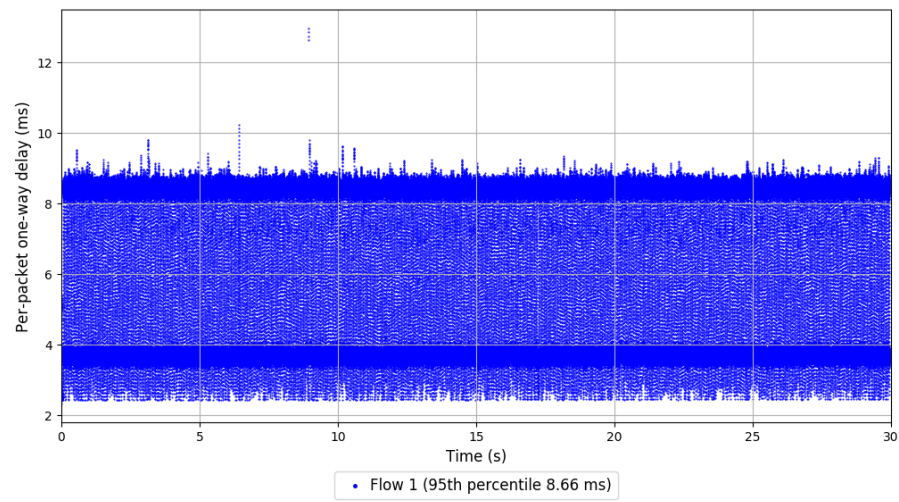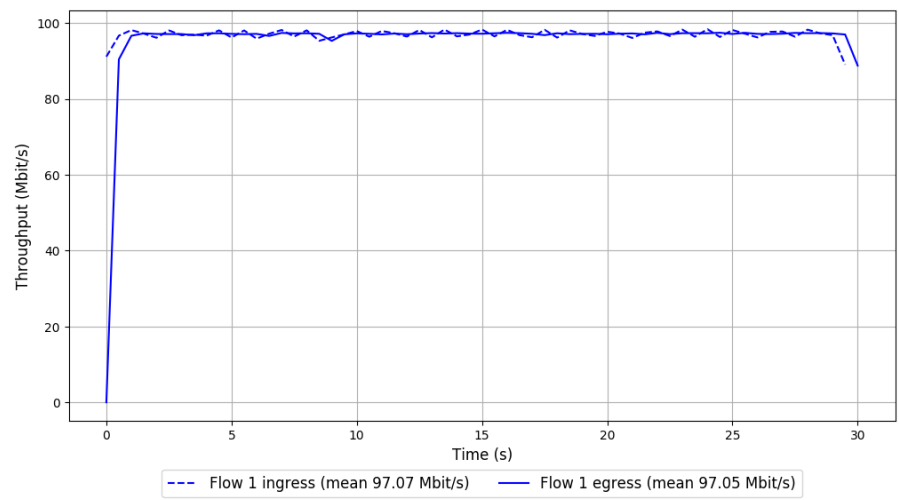
Run 2: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-12-02 10:23:25
End at: 2018-12-02 10:23:55
Local clock offset: -7.065 ms
Remote clock offset: 0.539 ms


# Below is generated by plot.py at 2018-12-02 11:28:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 89.57 Mbit/s
95th percentile per-packet one-way delay: 7.148 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 89.57 Mbit/s
95th percentile per-packet one-way delay: 7.148 ms
Loss rate: 0.01%
```
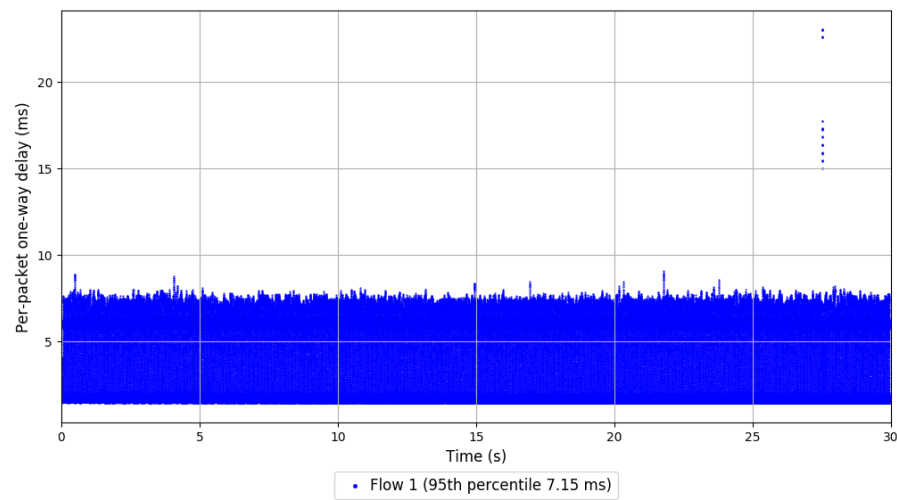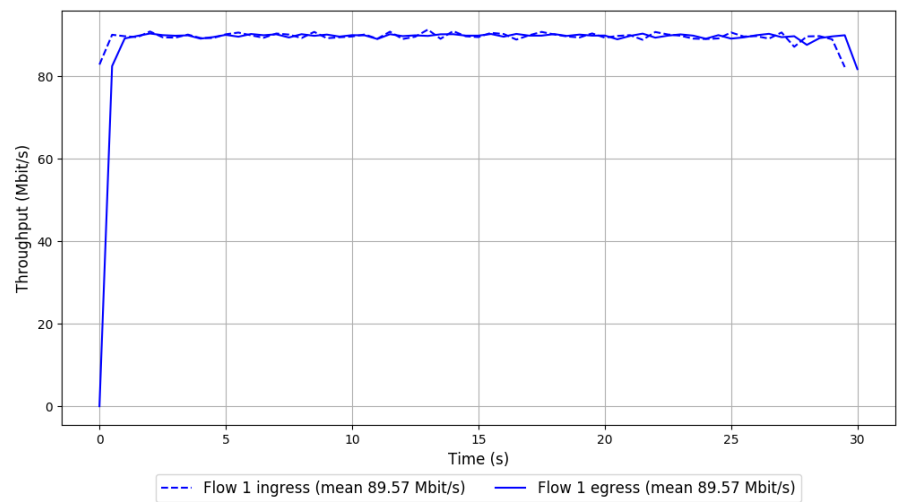
Run 3: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-12-02 10:44:54
End at: 2018-12-02 10:45:24
Local clock offset: -5.854 ms
Remote clock offset: 0.509 ms


# Below is generated by plot.py at 2018-12-02 11:28:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.61 Mbit/s
95th percentile per-packet one-way delay: 8.584 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 96.61 Mbit/s
95th percentile per-packet one-way delay: 8.584 ms
Loss rate: 0.01%
```
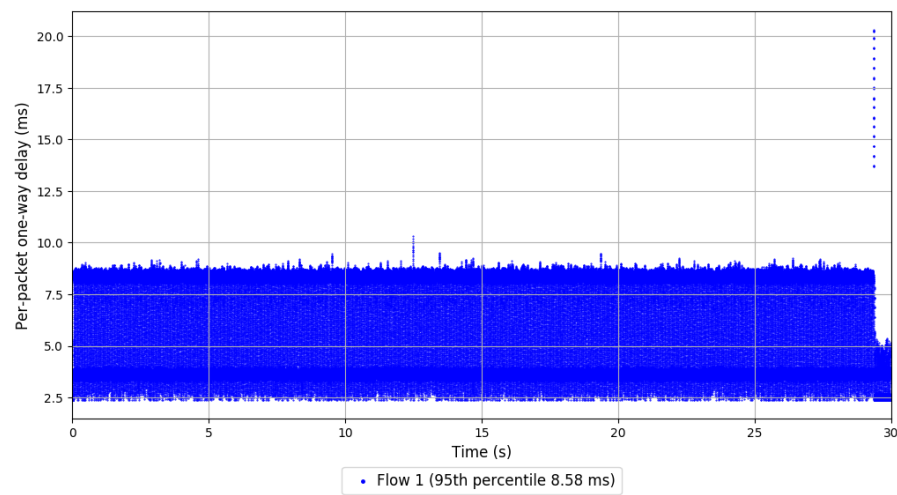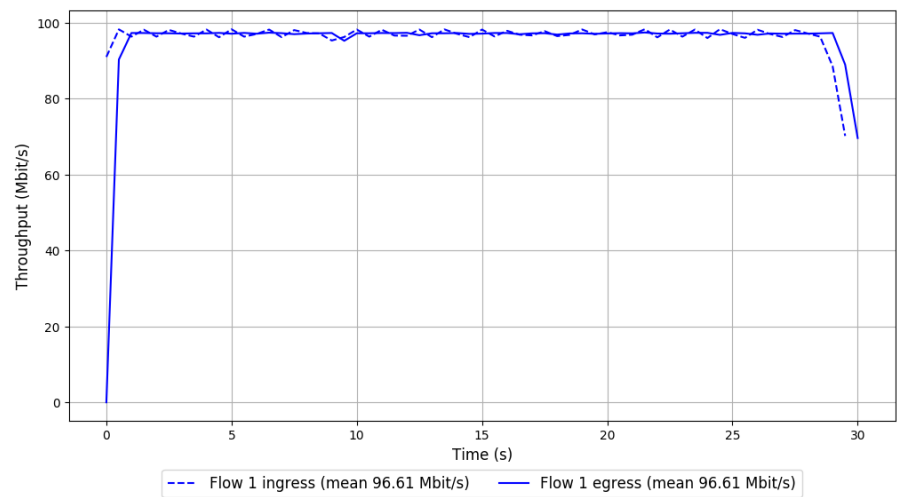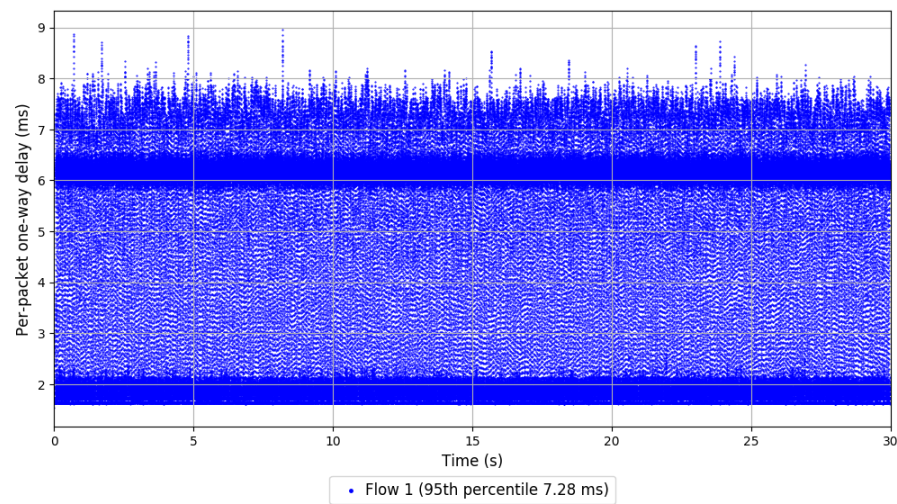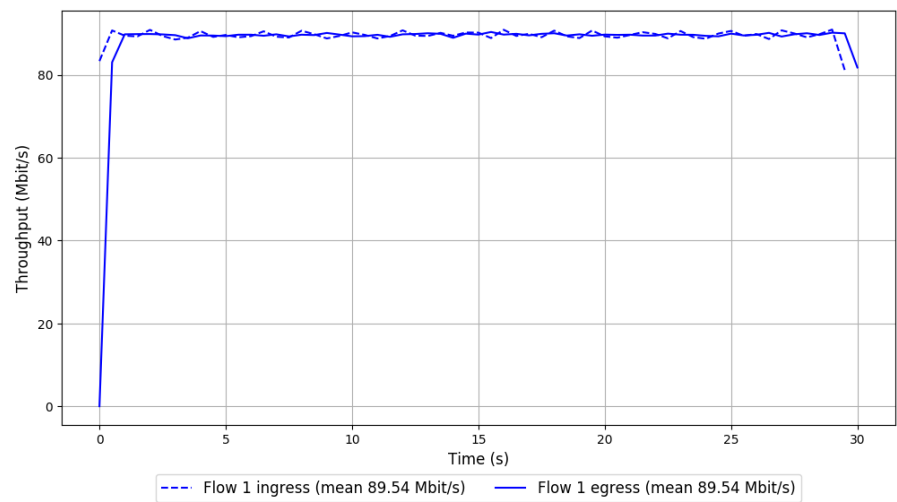
Run 4: Report of Indigo-96d2da3 — Data Link

Flow 1 ingress (mean 96.61 Mbit/s) ----   Flow 1 egress (mean 96.61 Mbit/s) ——

Flow 1 (95th percentile 8.58 ms) •

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

Start at: 2018-12-02 11:06:20
End at: 2018-12-02 11:06:50
Local clock offset: -6.254 ms
Remote clock offset: 0.572 ms


# Below is generated by plot.py at 2018-12-02 11:28:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 89.54 Mbit/s
95th percentile per-packet one-way delay: 7.284 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 89.54 Mbit/s
95th percentile per-packet one-way delay: 7.284 ms
Loss rate: 0.01%
```

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

```
Run 1: Statistics of LEDBAT

Start at: 2018-12-02 09:50:40
End at: 2018-12-02 09:51:10
Local clock offset: -7.071 ms
Remote clock offset: 0.227 ms


# Below is generated by plot.py at 2018-12-02 11:28:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 95.66 Mbit/s
95th percentile per-packet one-way delay: 9.715 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 95.66 Mbit/s
95th percentile per-packet one-way delay: 9.715 ms
Loss rate: 0.07%
```
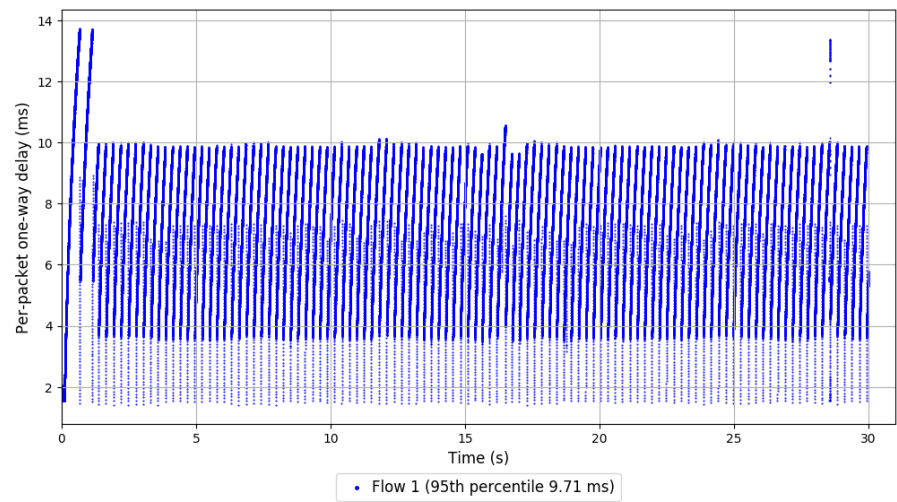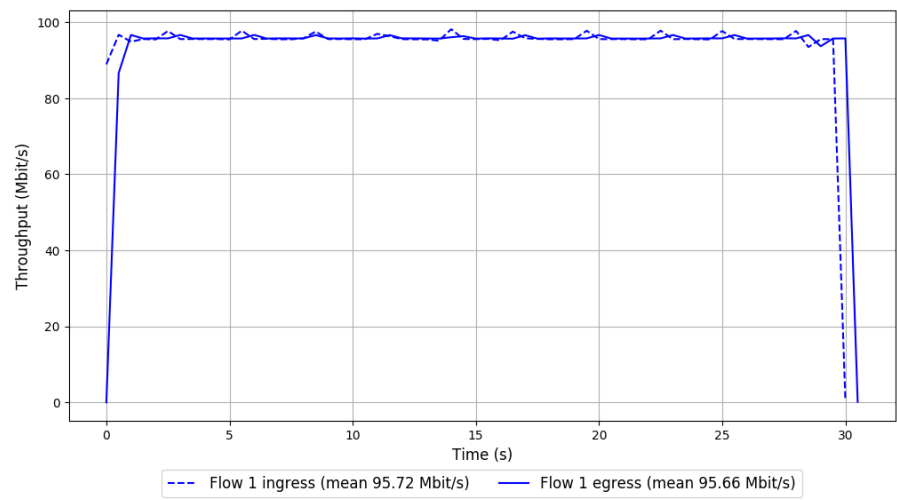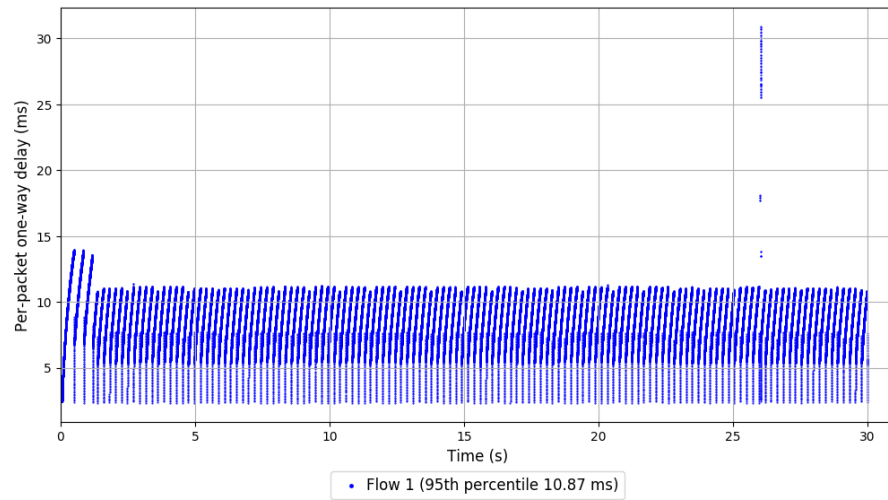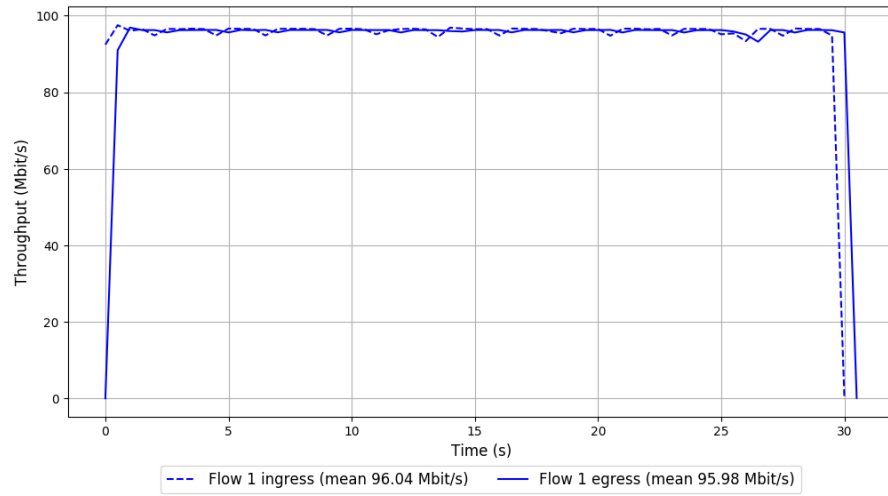
Run 1: Report of LEDBAT — Data Link

Flow 1 ingress (mean 95.72 Mbit/s)   Flow 1 egress (mean 95.66 Mbit/s)

Flow 1 (95th percentile 9.71 ms)

```
Run 2: Statistics of LEDBAT

Start at: 2018-12-02 10:12:06
End at: 2018-12-02 10:12:36
Local clock offset: -6.716 ms
Remote clock offset: 0.321 ms


# Below is generated by plot.py at 2018-12-02 11:28:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 95.98 Mbit/s
95th percentile per-packet one-way delay: 10.871 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 95.98 Mbit/s
95th percentile per-packet one-way delay: 10.871 ms
Loss rate: 0.08%
```
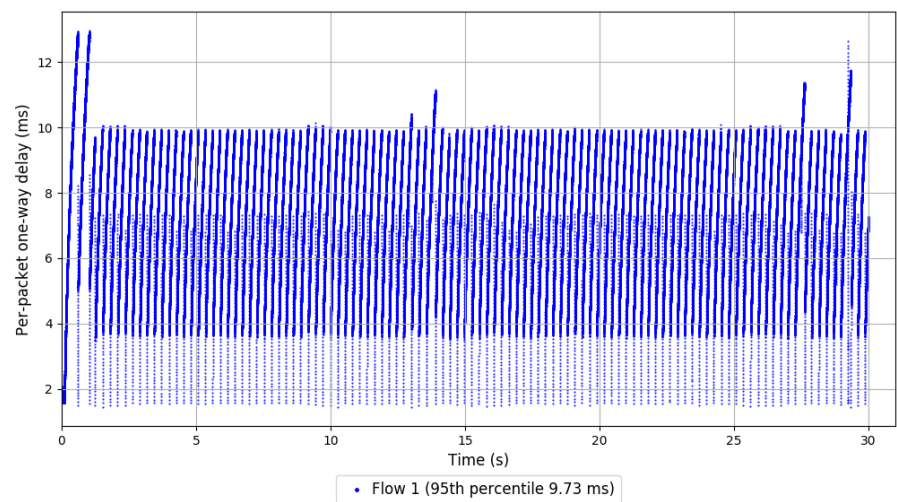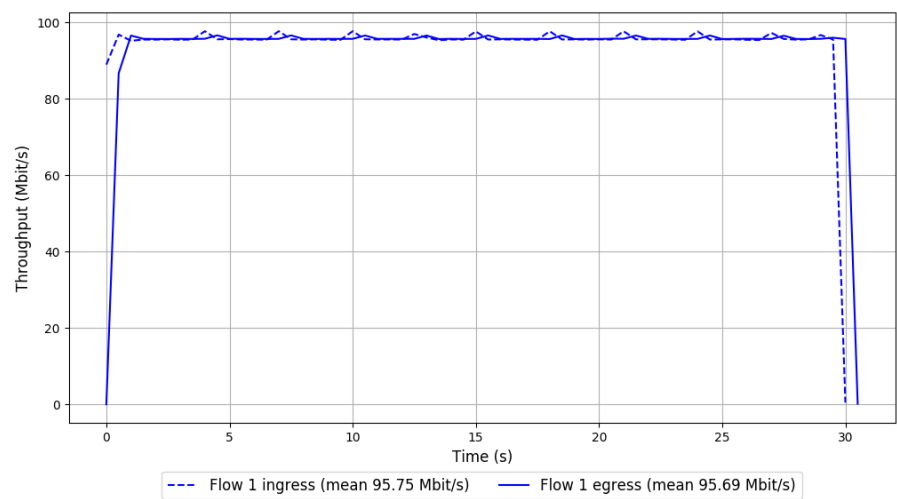
Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2018-12-02 10:33:32
End at: 2018-12-02 10:34:02
Local clock offset: -6.674 ms
Remote clock offset: 0.531 ms


# Below is generated by plot.py at 2018-12-02 11:28:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 95.69 Mbit/s
95th percentile per-packet one-way delay: 9.730 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 95.69 Mbit/s
95th percentile per-packet one-way delay: 9.730 ms
Loss rate: 0.07%
```

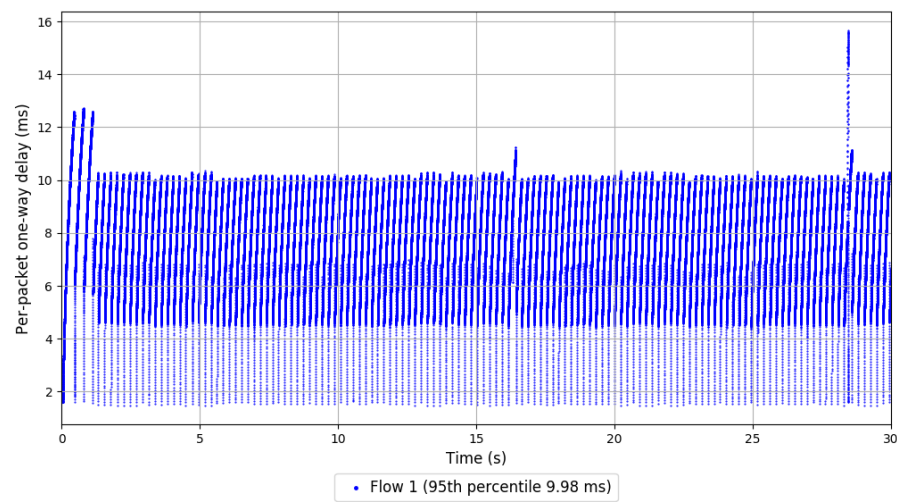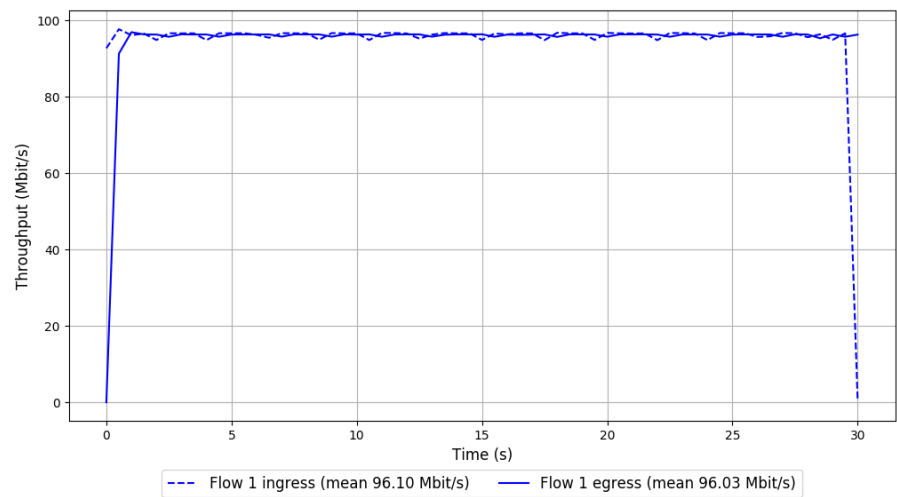Run 3: Report of LEDBAT — Data Link

```
Run 4: Statistics of LEDBAT

Start at: 2018-12-02 10:55:01
End at: 2018-12-02 10:55:31
Local clock offset: -6.458 ms
Remote clock offset: 0.526 ms


# Below is generated by plot.py at 2018-12-02 11:28:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.03 Mbit/s
95th percentile per-packet one-way delay: 9.982 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 96.03 Mbit/s
95th percentile per-packet one-way delay: 9.982 ms
Loss rate: 0.08%
```
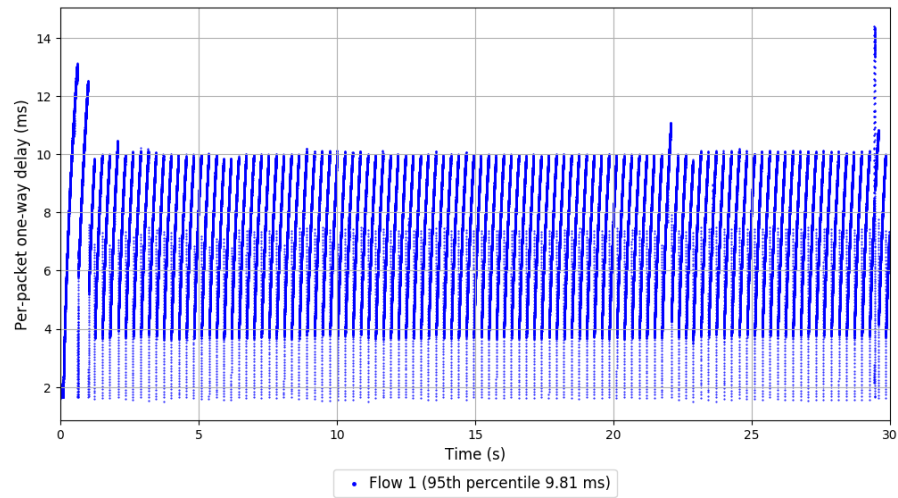
Run 4: Report of LEDBAT — Data Link

Flow 1 ingress (mean 96.10 Mbit/s)   Flow 1 egress (mean 96.03 Mbit/s)

Flow 1 (95th percentile 9.98 ms)

```
Run 5: Statistics of LEDBAT

Start at: 2018-12-02 11:16:26
End at: 2018-12-02 11:16:56
Local clock offset: -6.258 ms
Remote clock offset: 0.588 ms


# Below is generated by plot.py at 2018-12-02 11:29:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 95.66 Mbit/s
95th percentile per-packet one-way delay: 9.807 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 95.66 Mbit/s
95th percentile per-packet one-way delay: 9.807 ms
Loss rate: 0.08%
```
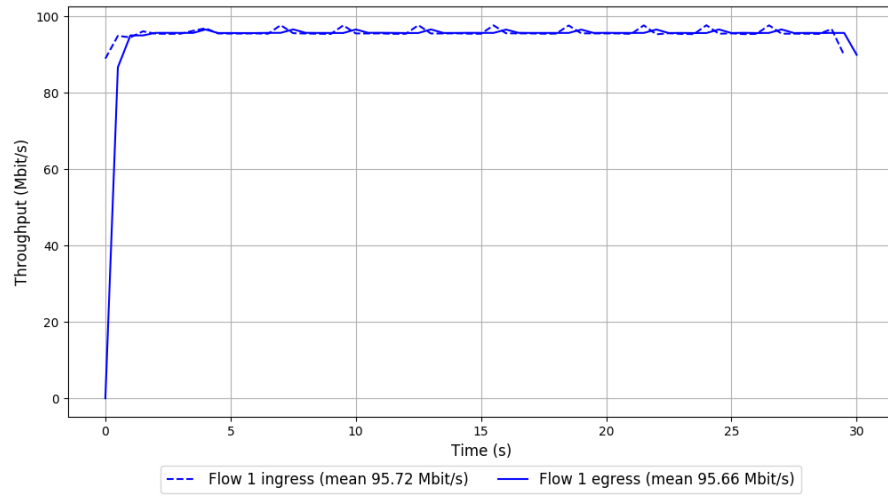
Run 5: Report of LEDBAT — Data Link

Flow 1 ingress (mean 95.72 Mbit/s) --- Flow 1 egress (mean 95.66 Mbit/s)
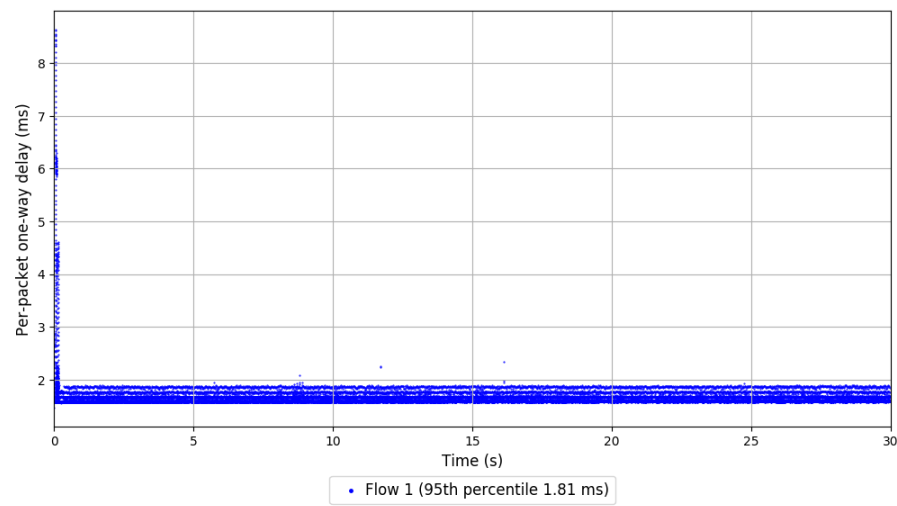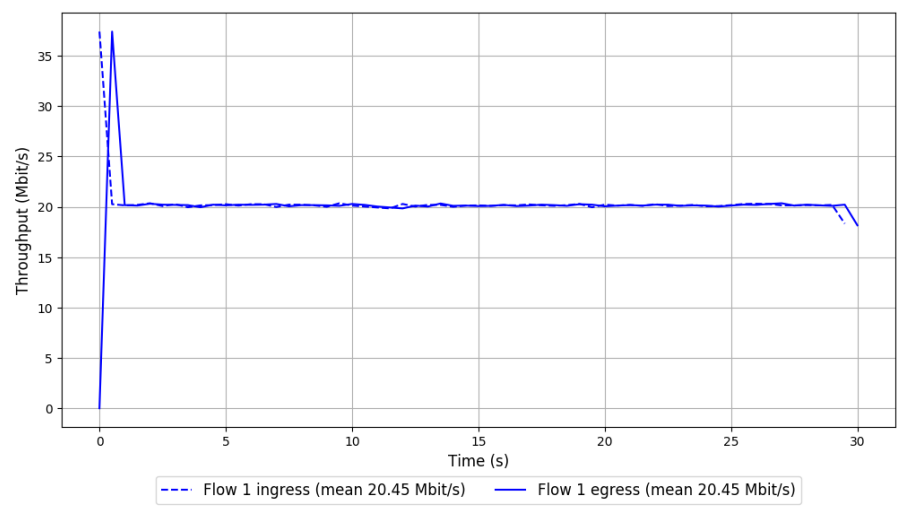

• Flow 1 (95th percentile 9.81 ms)

```
Run 1: Statistics of Indigo-Muses

Start at: 2018-12-02 09:51:49
End at: 2018-12-02 09:52:19
Local clock offset: -7.093 ms
Remote clock offset: 0.19 ms

# Below is generated by plot.py at 2018-12-02 11:29:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 20.45 Mbit/s
95th percentile per-packet one-way delay: 1.815 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 20.45 Mbit/s
95th percentile per-packet one-way delay: 1.815 ms
Loss rate: 0.02%
```
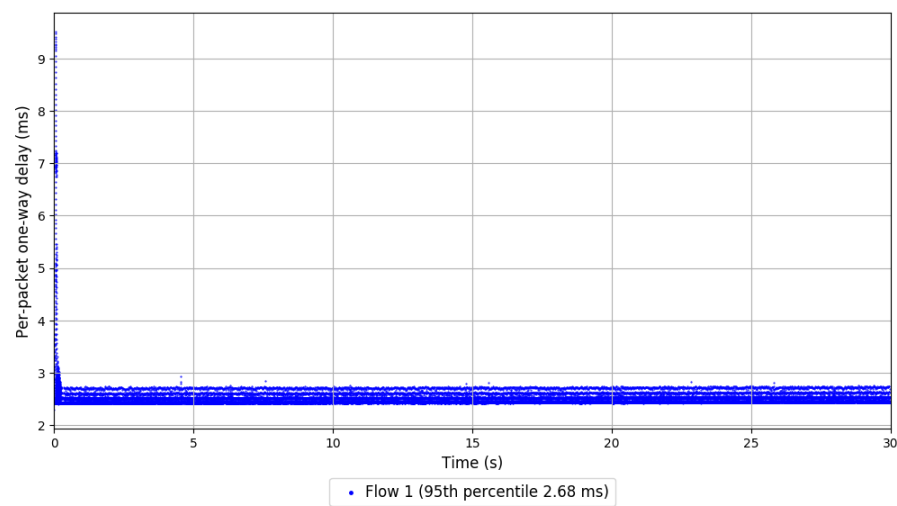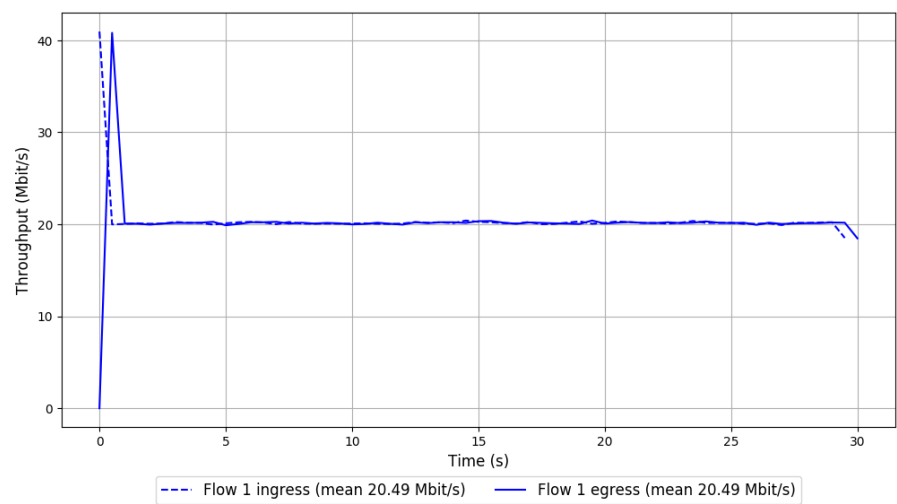
Run 1: Report of Indigo-Muses — Data Link

```
Run 2: Statistics of Indigo-Muses

Start at: 2018-12-02 10:13:15
End at: 2018-12-02 10:13:45
Local clock offset: -6.735 ms
Remote clock offset: 0.364 ms


# Below is generated by plot.py at 2018-12-02 11:29:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 20.49 Mbit/s
95th percentile per-packet one-way delay: 2.684 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 20.49 Mbit/s
95th percentile per-packet one-way delay: 2.684 ms
Loss rate: 0.01%
```
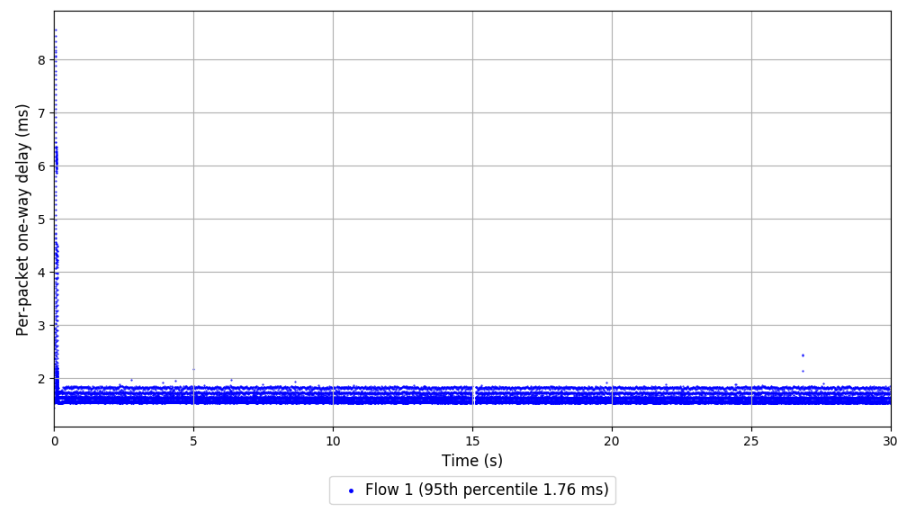
Run 2: Report of Indigo-Muses — Data Link

```
Run 3: Statistics of Indigo-Muses

Start at: 2018-12-02 10:34:41
End at: 2018-12-02 10:35:11
Local clock offset: -6.656 ms
Remote clock offset: 0.587 ms


# Below is generated by plot.py at 2018-12-02 11:29:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 20.28 Mbit/s
95th percentile per-packet one-way delay: 1.761 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 20.28 Mbit/s
95th percentile per-packet one-way delay: 1.761 ms
Loss rate: 0.01%
```
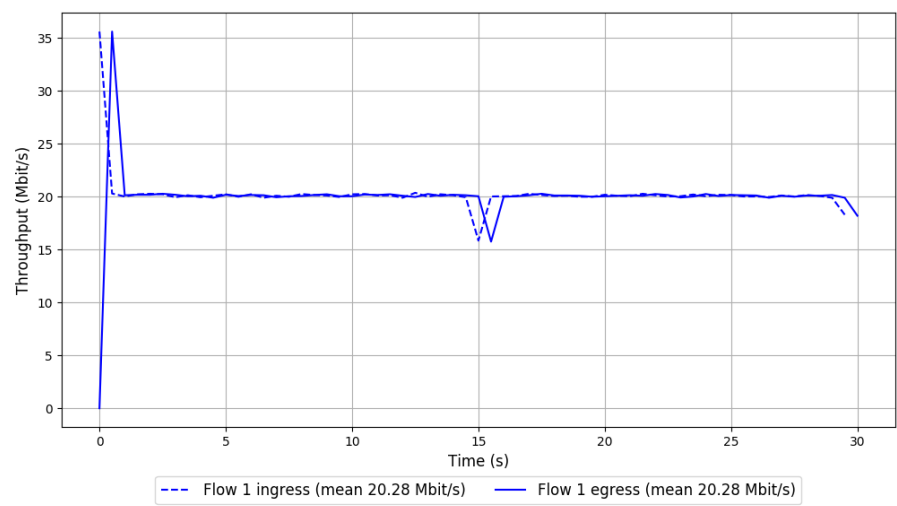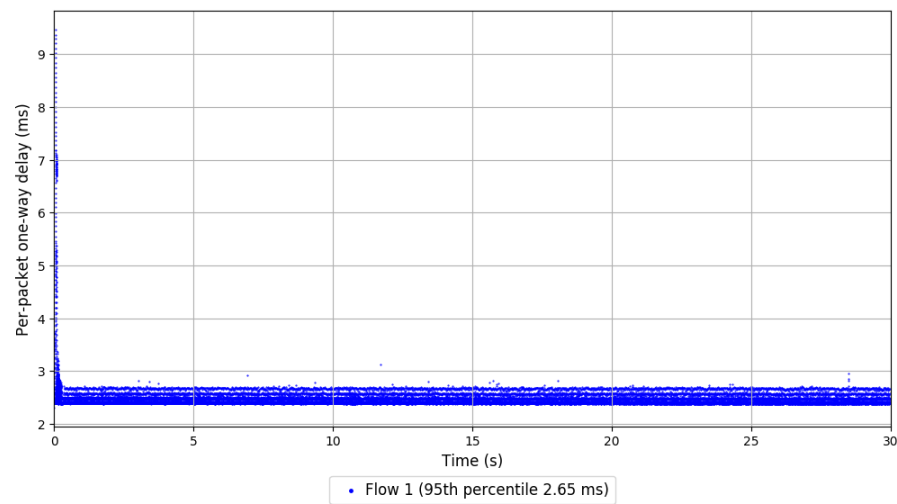
Run 3: Report of Indigo-Muses — Data Link

```
Run 4: Statistics of Indigo-Muses

Start at: 2018-12-02 10:56:10
End at: 2018-12-02 10:56:40
Local clock offset: -5.603 ms
Remote clock offset: 0.551 ms


# Below is generated by plot.py at 2018-12-02 11:29:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 20.48 Mbit/s
95th percentile per-packet one-way delay: 2.645 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 20.48 Mbit/s
95th percentile per-packet one-way delay: 2.645 ms
Loss rate: 0.02%
```
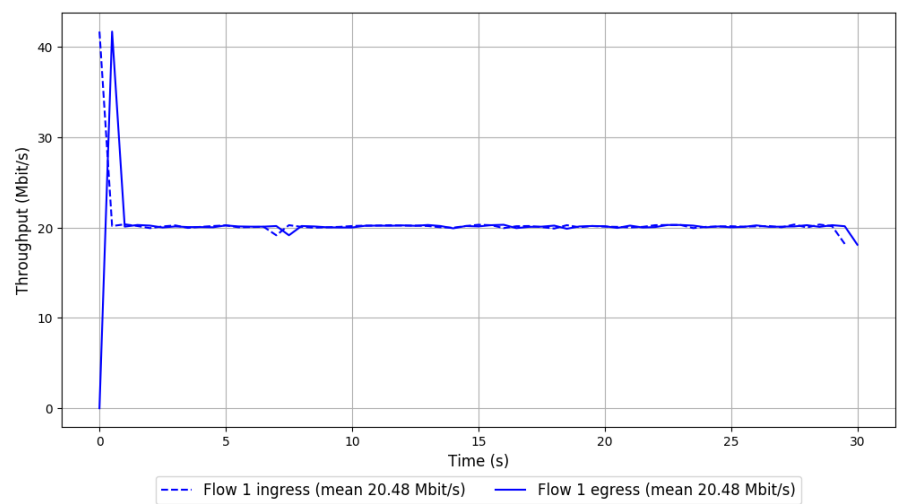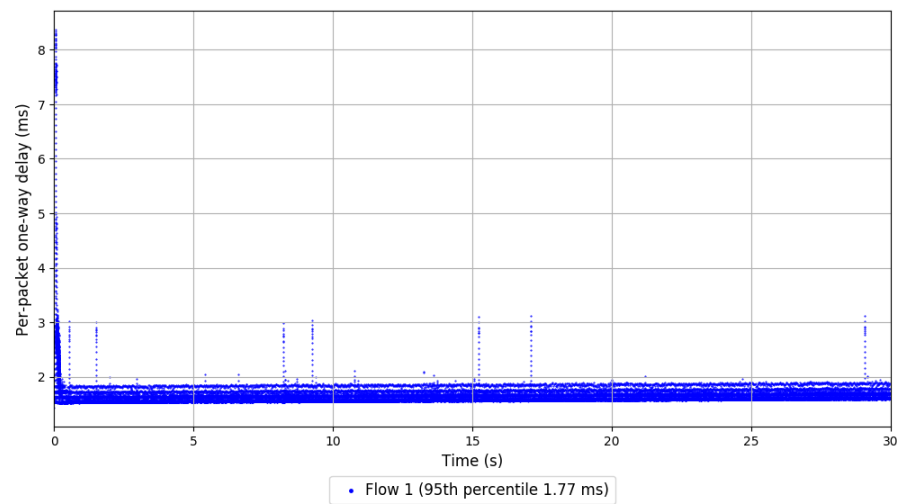
Run 4: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 20.48 Mbit/s)   Flow 1 egress (mean 20.48 Mbit/s)

• Flow 1 (95th percentile 2.65 ms)

```
Run 5: Statistics of Indigo-Muses

Start at: 2018-12-02 11:17:36
End at: 2018-12-02 11:18:06
Local clock offset: -6.322 ms
Remote clock offset: 0.671 ms

# Below is generated by plot.py at 2018-12-02 11:29:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 28.93 Mbit/s
95th percentile per-packet one-way delay: 1.775 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 28.93 Mbit/s
95th percentile per-packet one-way delay: 1.775 ms
Loss rate: 0.01%
```
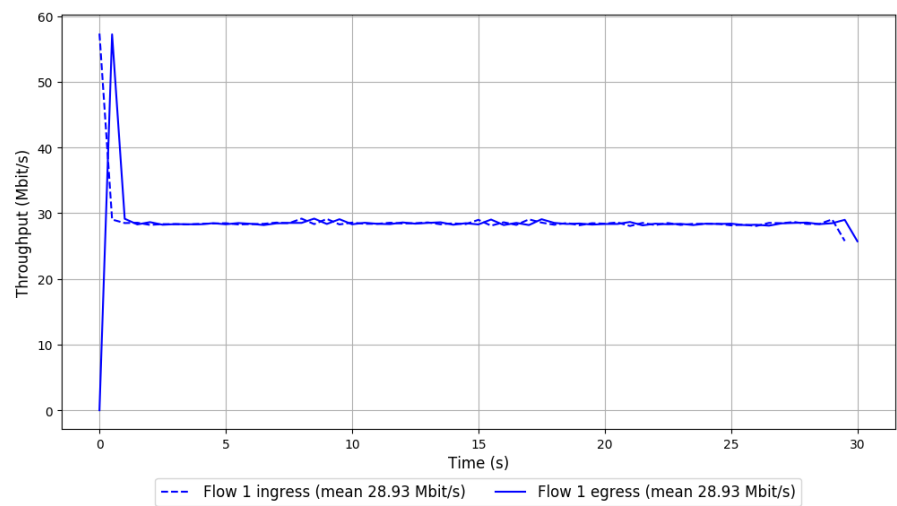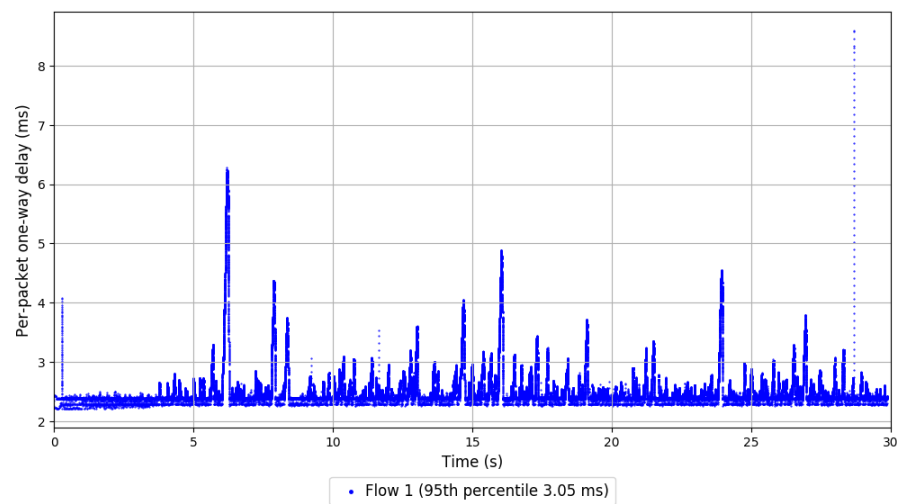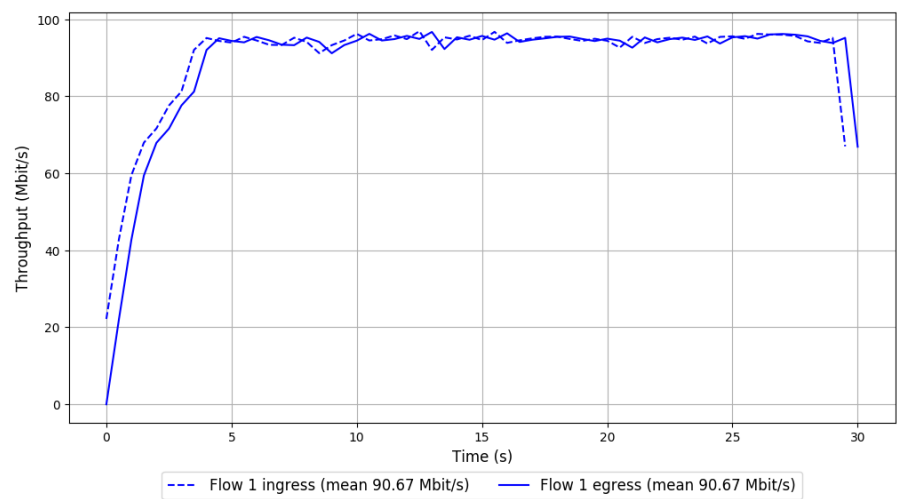
Run 5: Report of Indigo-Muses — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2018-12-02 09:49:33
End at: 2018-12-02 09:50:03
Local clock offset: -6.313 ms
Remote clock offset: 0.145 ms


# Below is generated by plot.py at 2018-12-02 11:29:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 90.67 Mbit/s
95th percentile per-packet one-way delay: 3.048 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 90.67 Mbit/s
95th percentile per-packet one-way delay: 3.048 ms
Loss rate: 0.01%
```

Run 1: Report of PCC-Allegro — Data Link

```
Run 2: Statistics of PCC-Allegro

Start at: 2018-12-02 10:10:59
End at: 2018-12-02 10:11:29
Local clock offset: -6.687 ms
Remote clock offset: 0.348 ms


# Below is generated by plot.py at 2018-12-02 11:29:45
# Datalink statistics
-- Total of 1 flow:
Average throughput: 88.45 Mbit/s
95th percentile per-packet one-way delay: 2.972 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 88.45 Mbit/s
95th percentile per-packet one-way delay: 2.972 ms
Loss rate: 0.01%
```
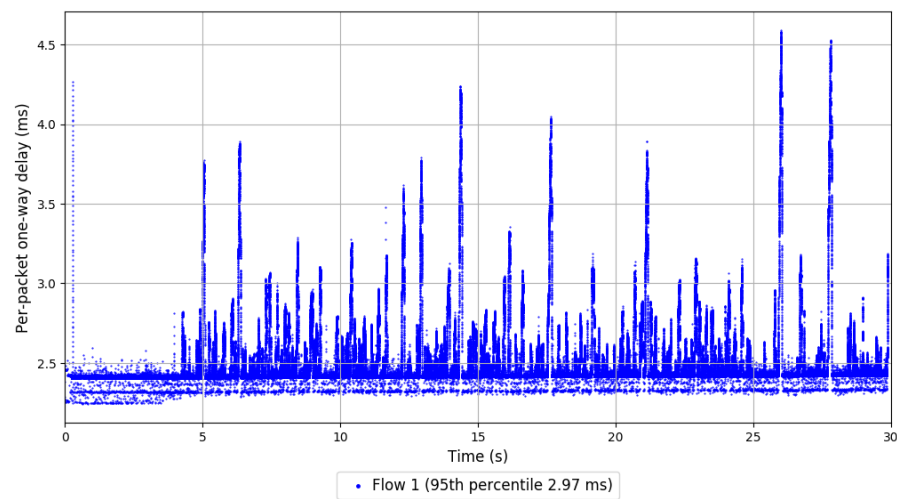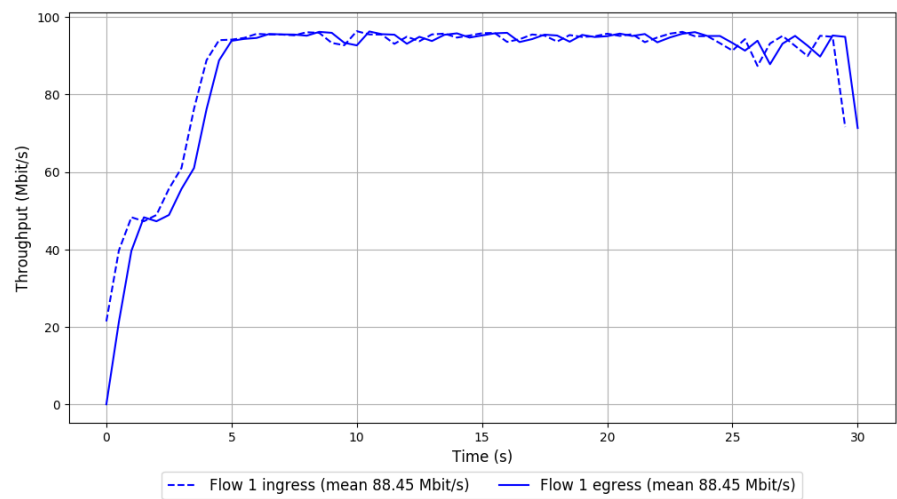
Run 2: Report of PCC-Allegro — Data Link

```
Run 3: Statistics of PCC-Allegro

Start at: 2018-12-02 10:32:25
End at: 2018-12-02 10:32:55
Local clock offset: -6.681 ms
Remote clock offset: 0.538 ms

# Below is generated by plot.py at 2018-12-02 11:29:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 93.57 Mbit/s
95th percentile per-packet one-way delay: 2.165 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 93.57 Mbit/s
95th percentile per-packet one-way delay: 2.165 ms
Loss rate: 0.01%
```
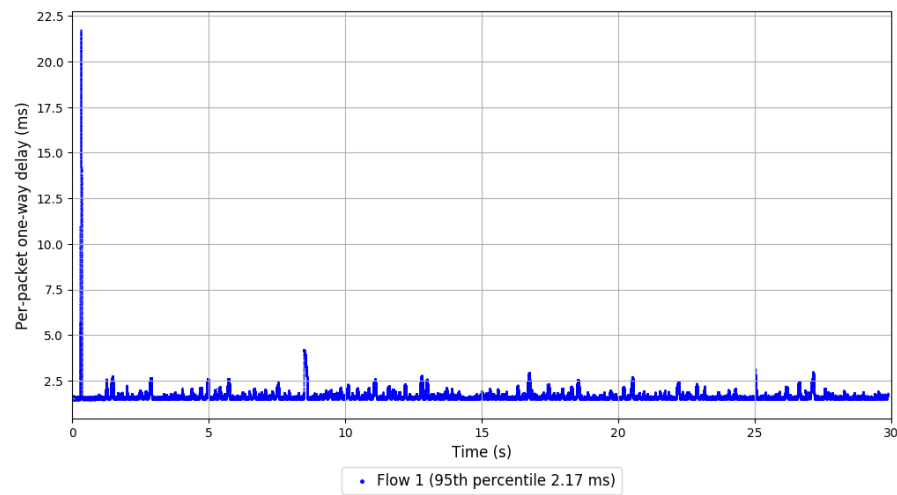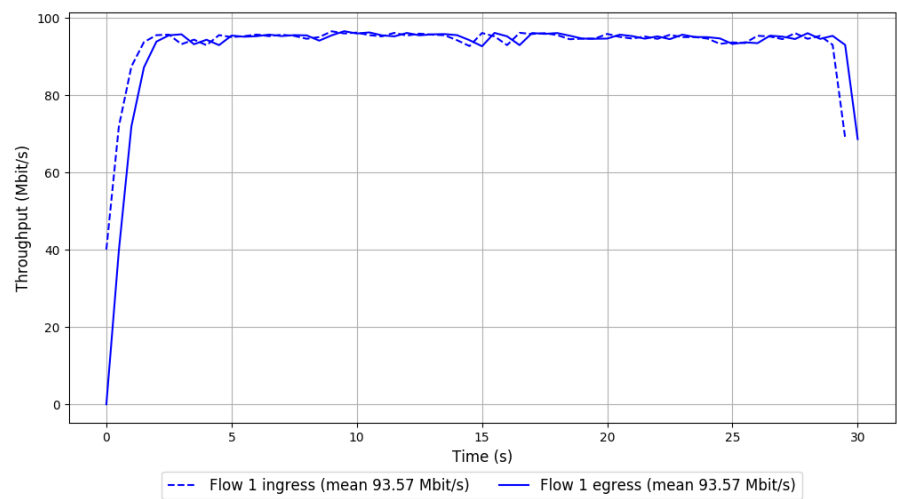
Run 3: Report of PCC-Allegro — Data Link

```
Run 4: Statistics of PCC-Allegro

Start at: 2018-12-02 10:53:54
End at: 2018-12-02 10:54:24
Local clock offset: -6.419 ms
Remote clock offset: 0.456 ms

# Below is generated by plot.py at 2018-12-02 11:29:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 93.33 Mbit/s
95th percentile per-packet one-way delay: 2.863 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 93.33 Mbit/s
95th percentile per-packet one-way delay: 2.863 ms
Loss rate: 0.01%
```
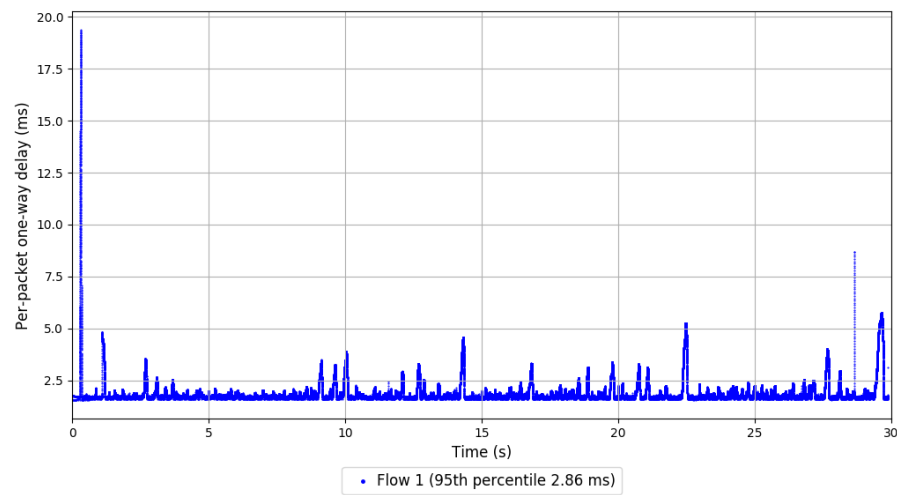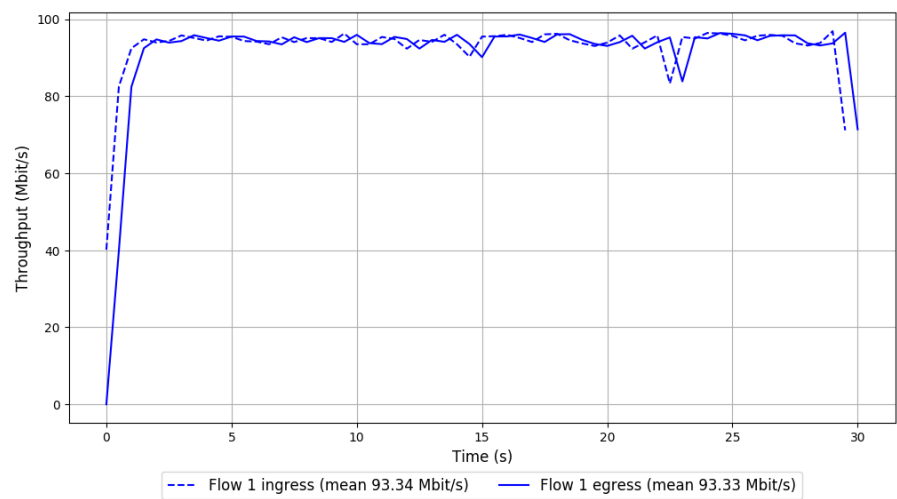
Run 4: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 93.34 Mbit/s) Flow 1 egress (mean 93.33 Mbit/s)

Flow 1 (95th percentile 2.86 ms)

```
Run 5: Statistics of PCC-Allegro

Start at: 2018-12-02 11:15:19
End at: 2018-12-02 11:15:49
Local clock offset: -6.255 ms
Remote clock offset: 0.537 ms


# Below is generated by plot.py at 2018-12-02 11:29:57
# Datalink statistics
-- Total of 1 flow:
Average throughput: 93.68 Mbit/s
95th percentile per-packet one-way delay: 2.788 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 93.68 Mbit/s
95th percentile per-packet one-way delay: 2.788 ms
Loss rate: 0.01%
```
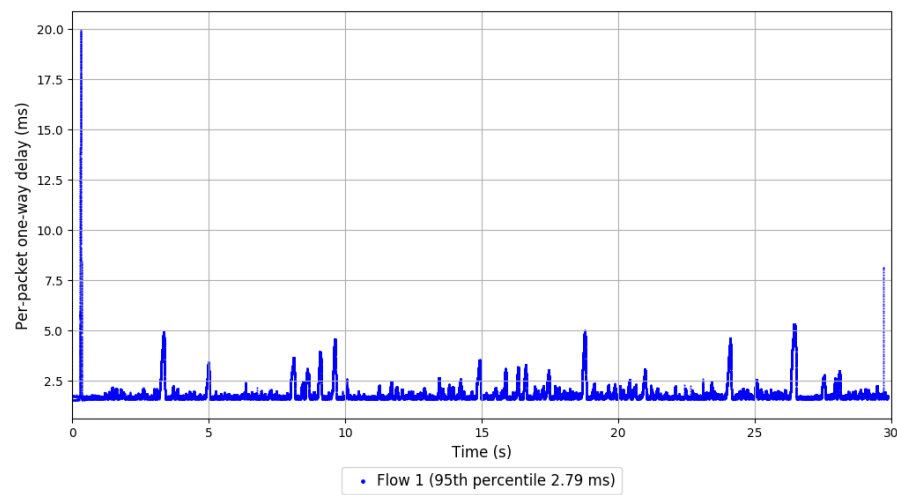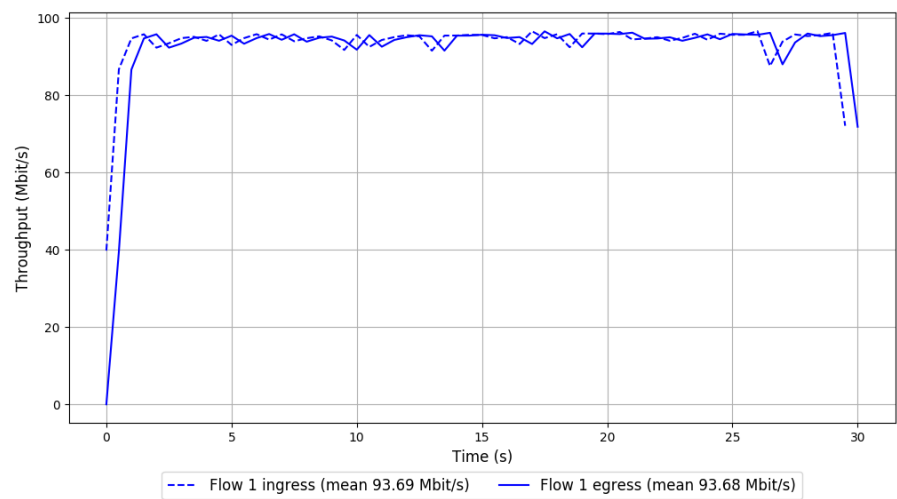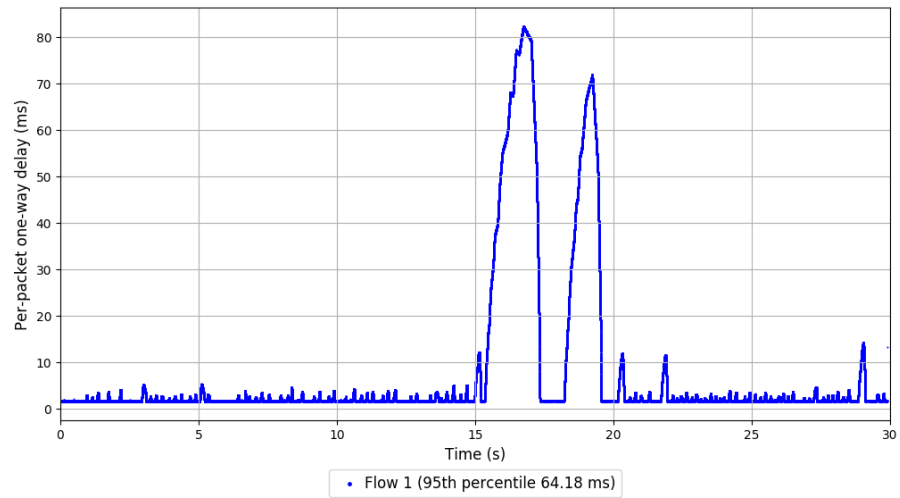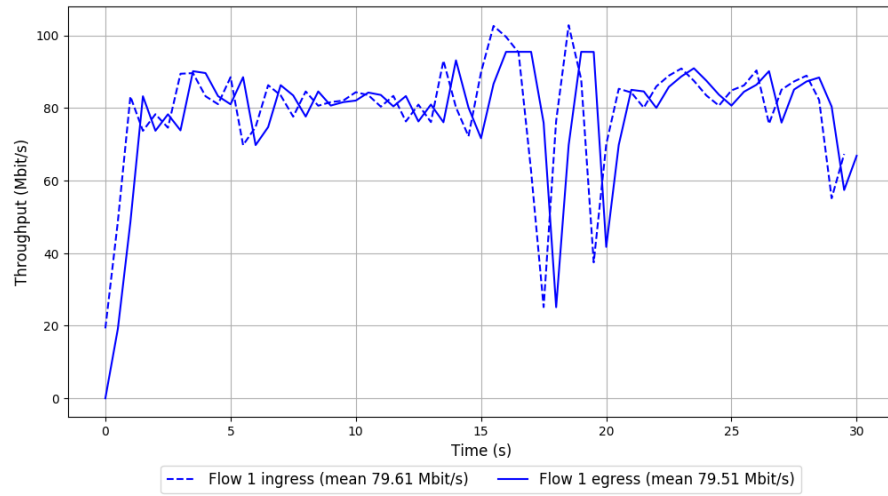
Run 5: Report of PCC-Allegro — Data Link

```
Run 1: Statistics of PCC-Expr

Start at: 2018-12-02 09:47:18
End at: 2018-12-02 09:47:48
Local clock offset: -7.138 ms
Remote clock offset: 0.037 ms

# Below is generated by plot.py at 2018-12-02 11:30:31
# Datalink statistics
-- Total of 1 flow:
Average throughput: 79.51 Mbit/s
95th percentile per-packet one-way delay: 64.183 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 79.51 Mbit/s
95th percentile per-packet one-way delay: 64.183 ms
Loss rate: 0.10%
```

Run 1: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 79.61 Mbit/s)   Flow 1 egress (mean 79.51 Mbit/s)

• Flow 1 (95th percentile 64.18 ms)

```
Run 2: Statistics of PCC-Expr

Start at: 2018-12-02 10:08:44
End at: 2018-12-02 10:09:14
Local clock offset: -6.612 ms
Remote clock offset: 0.388 ms


# Below is generated by plot.py at 2018-12-02 11:30:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 90.27 Mbit/s
95th percentile per-packet one-way delay: 650.715 ms
Loss rate: 2.12%
-- Flow 1:
Average throughput: 90.27 Mbit/s
95th percentile per-packet one-way delay: 650.715 ms
Loss rate: 2.12%
```
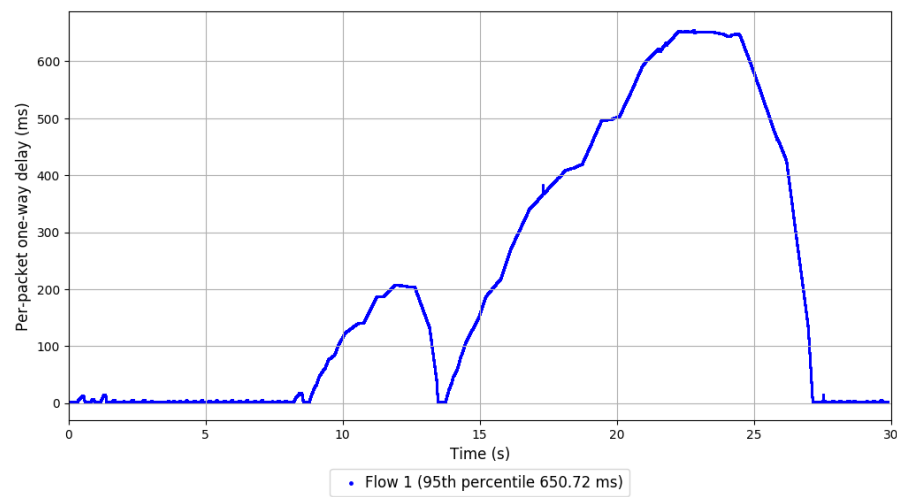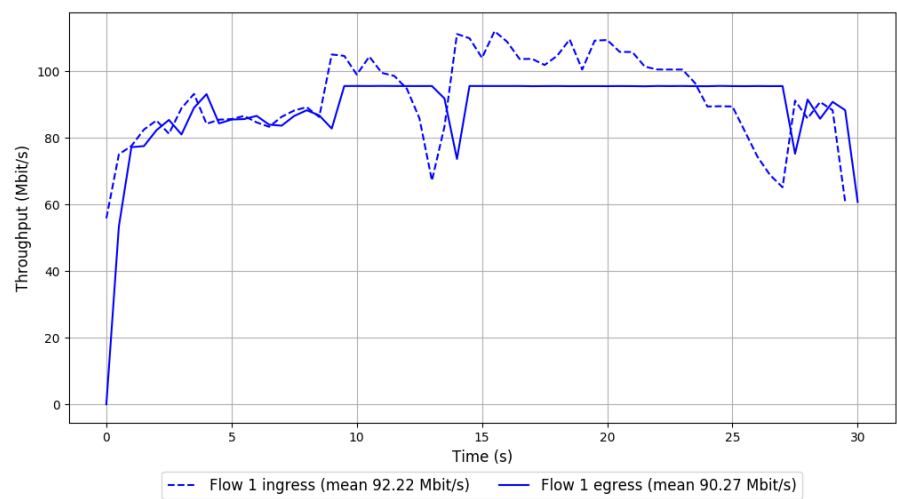
Run 2: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 92.22 Mbit/s)   Flow 1 egress (mean 90.27 Mbit/s)

Flow 1 (95th percentile 650.72 ms)

```
Run 3: Statistics of PCC-Expr

Start at: 2018-12-02 10:30:10
End at: 2018-12-02 10:30:40
Local clock offset: -5.975 ms
Remote clock offset: 0.471 ms


# Below is generated by plot.py at 2018-12-02 11:31:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 89.17 Mbit/s
95th percentile per-packet one-way delay: 637.523 ms
Loss rate: 5.26%
-- Flow 1:
Average throughput: 89.17 Mbit/s
95th percentile per-packet one-way delay: 637.523 ms
Loss rate: 5.26%
```
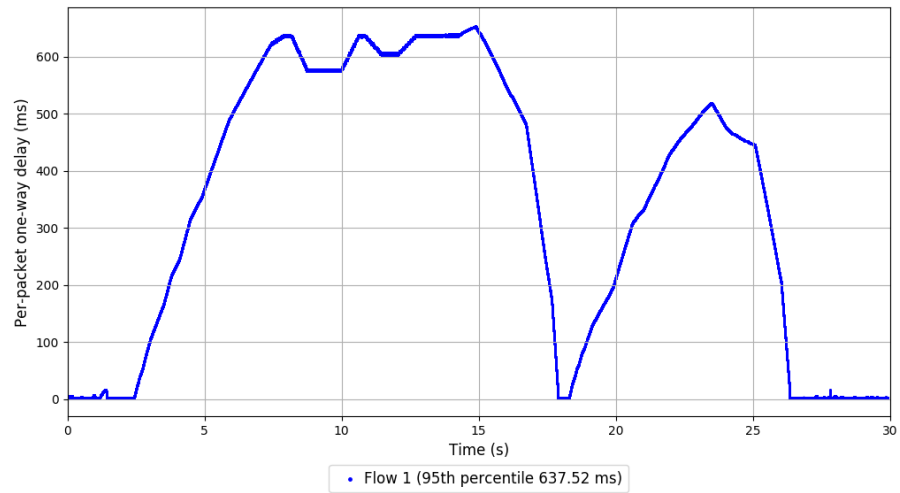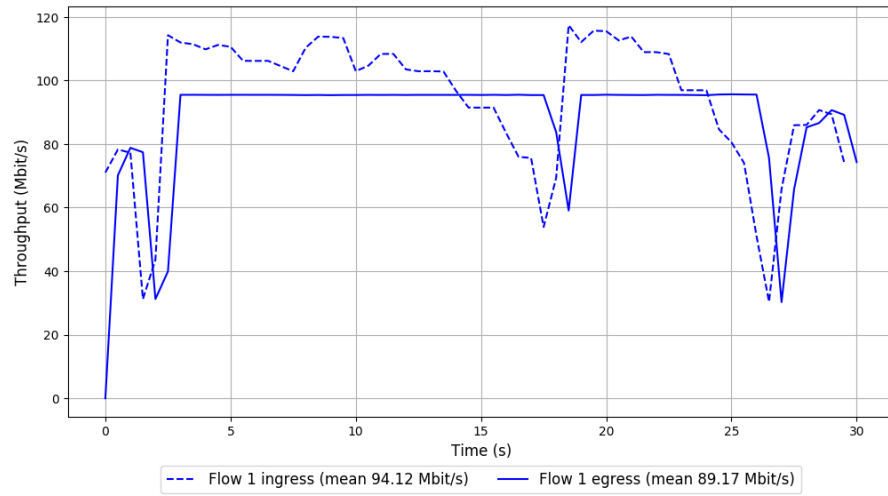
Run 3: Report of PCC-Expr — Data Link

```
Run 4: Statistics of PCC-Expr

Start at: 2018-12-02 10:51:39
End at: 2018-12-02 10:52:09
Local clock offset: -5.716 ms
Remote clock offset: 0.553 ms

# Below is generated by plot.py at 2018-12-02 11:31:26
# Datalink statistics
-- Total of 1 flow:
Average throughput: 79.90 Mbit/s
95th percentile per-packet one-way delay: 536.903 ms
Loss rate: 3.68%
-- Flow 1:
Average throughput: 79.90 Mbit/s
95th percentile per-packet one-way delay: 536.903 ms
Loss rate: 3.68%
```
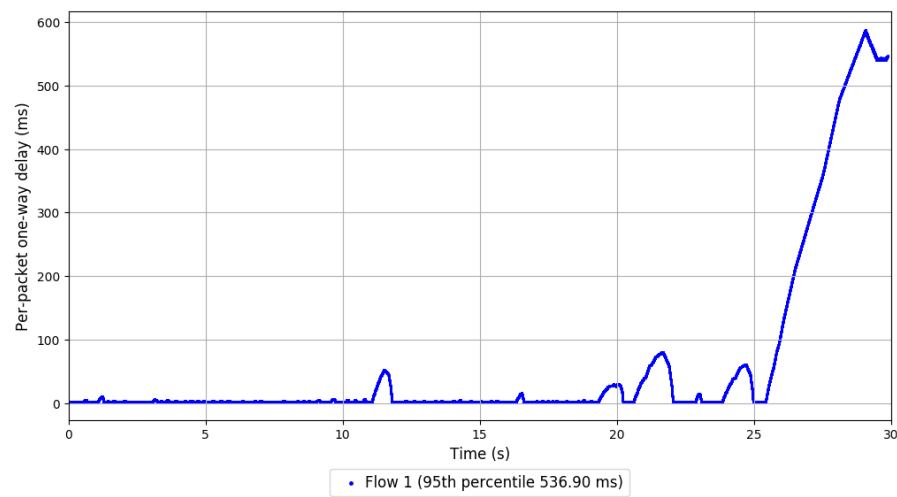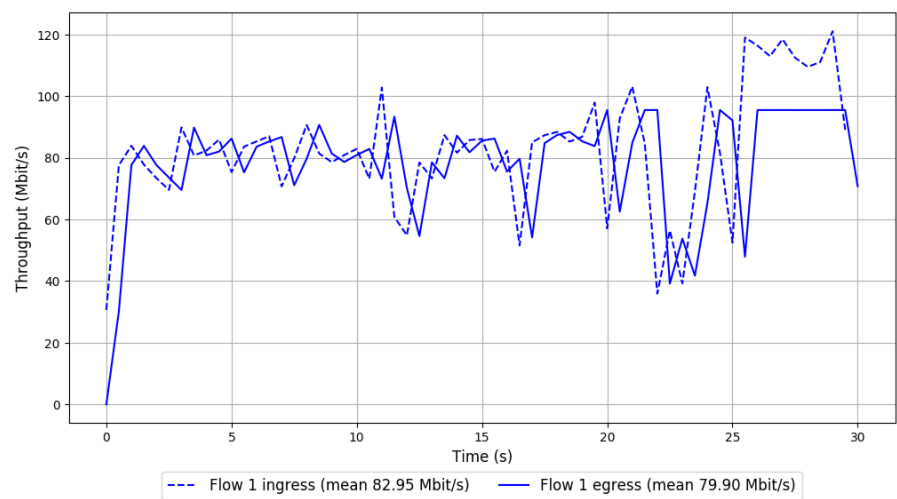
Run 4: Report of PCC-Expr — Data Link

```
Run 5: Statistics of PCC-Expr

Start at: 2018-12-02 11:13:04
End at: 2018-12-02 11:13:34
Local clock offset: -6.26 ms
Remote clock offset: 0.615 ms


# Below is generated by plot.py at 2018-12-02 11:31:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 82.80 Mbit/s
95th percentile per-packet one-way delay: 626.979 ms
Loss rate: 3.91%
-- Flow 1:
Average throughput: 82.80 Mbit/s
95th percentile per-packet one-way delay: 626.979 ms
Loss rate: 3.91%
```
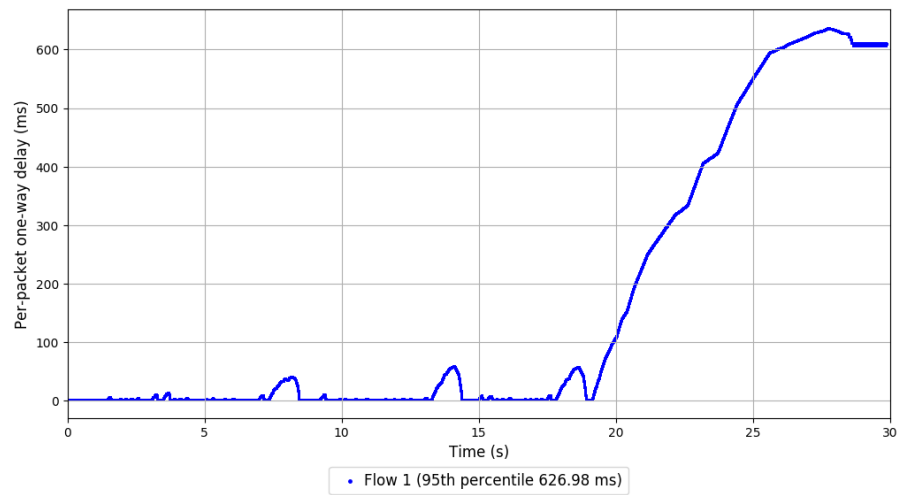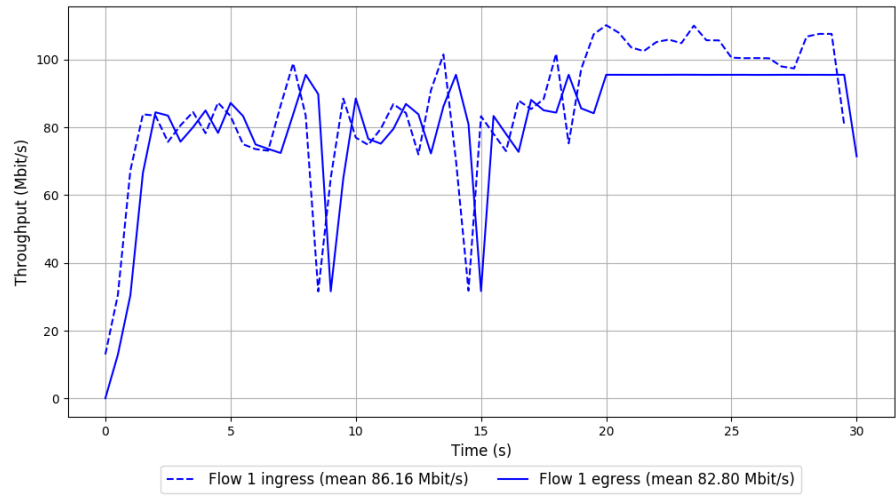
Run 5: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 86.16 Mbit/s)   Flow 1 egress (mean 82.80 Mbit/s)

• Flow 1 (95th percentile 626.98 ms)

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-12-02 09:45:02
End at: 2018-12-02 09:45:32
Local clock offset: -6.964 ms
Remote clock offset: 0.081 ms


# Below is generated by plot.py at 2018-12-02 11:31:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 90.46 Mbit/s
95th percentile per-packet one-way delay: 7.780 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 90.46 Mbit/s
95th percentile per-packet one-way delay: 7.780 ms
Loss rate: 0.01%
```
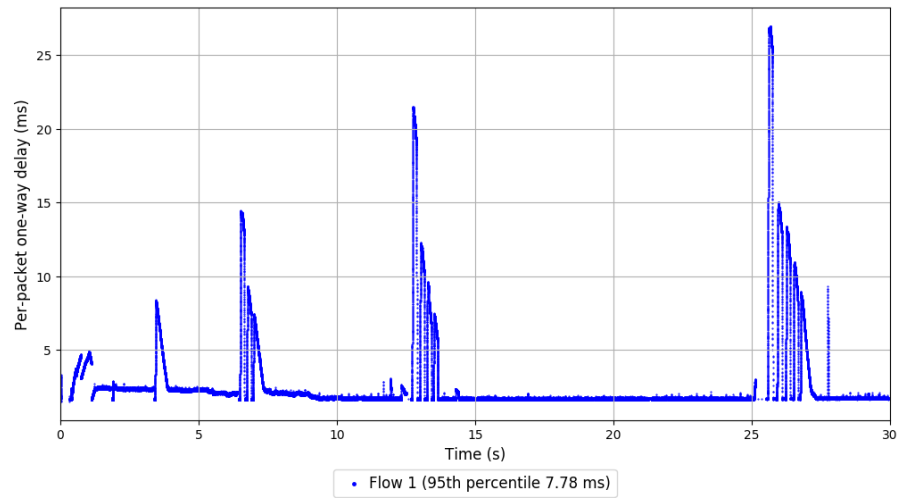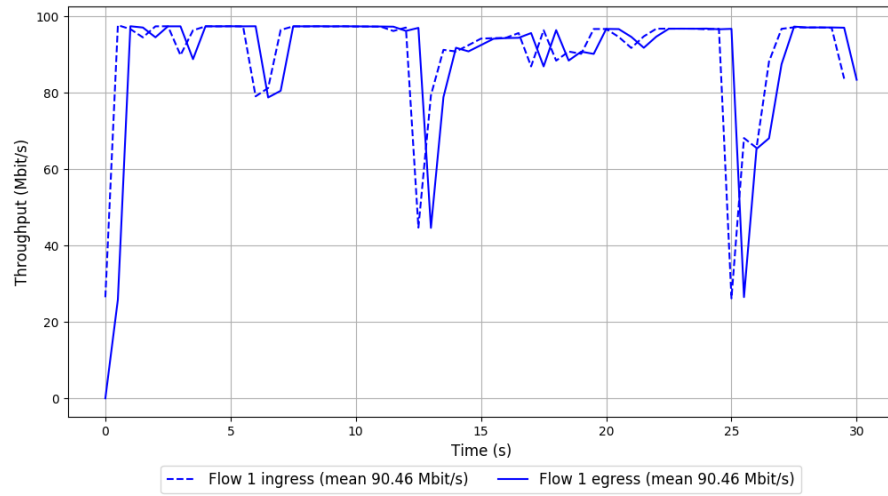
Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-12-02 10:06:28
End at: 2018-12-02 10:06:58
Local clock offset: -6.641 ms
Remote clock offset: 0.314 ms


# Below is generated by plot.py at 2018-12-02 11:31:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 88.76 Mbit/s
95th percentile per-packet one-way delay: 6.211 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 88.76 Mbit/s
95th percentile per-packet one-way delay: 6.211 ms
Loss rate: 0.02%
```
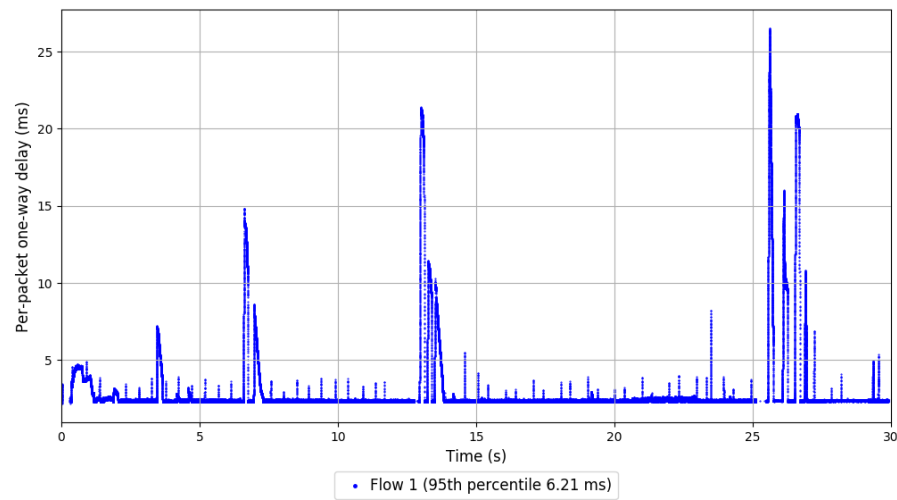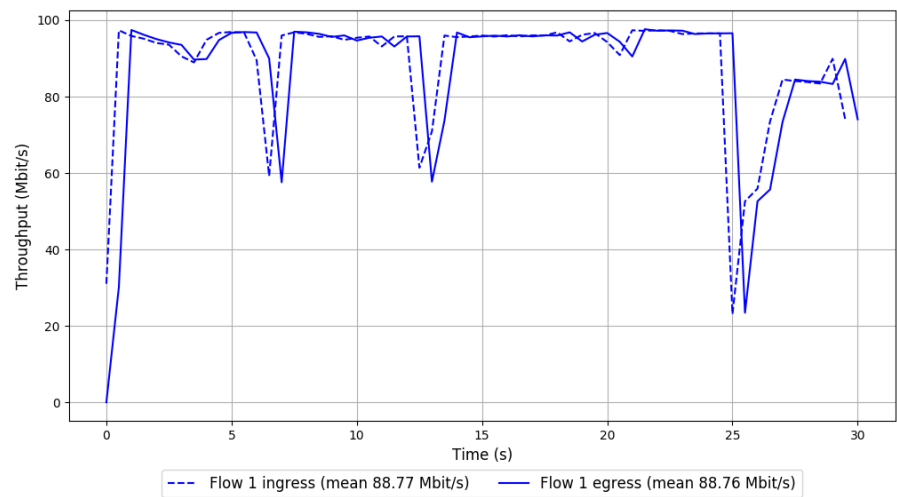
Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-12-02 10:27:53
End at: 2018-12-02 10:28:24
Local clock offset: -6.042 ms
Remote clock offset: 0.488 ms


# Below is generated by plot.py at 2018-12-02 11:31:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 90.94 Mbit/s
95th percentile per-packet one-way delay: 9.034 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 90.94 Mbit/s
95th percentile per-packet one-way delay: 9.034 ms
Loss rate: 0.02%
```
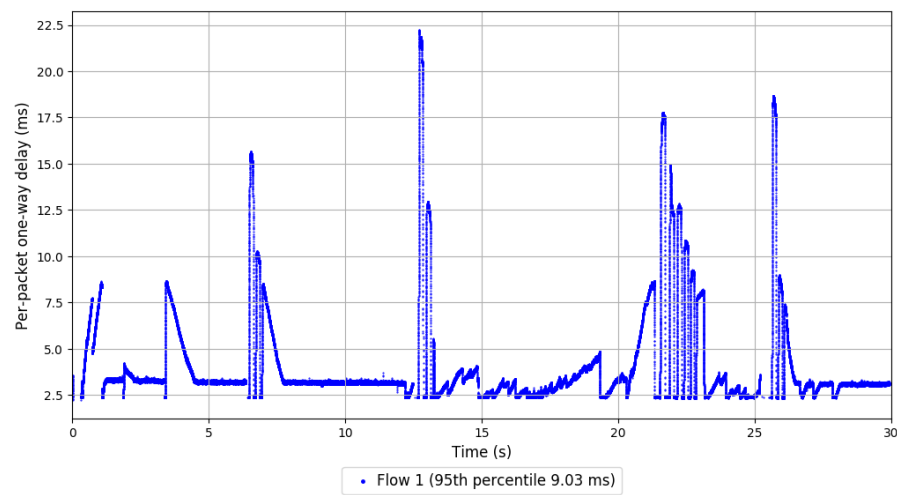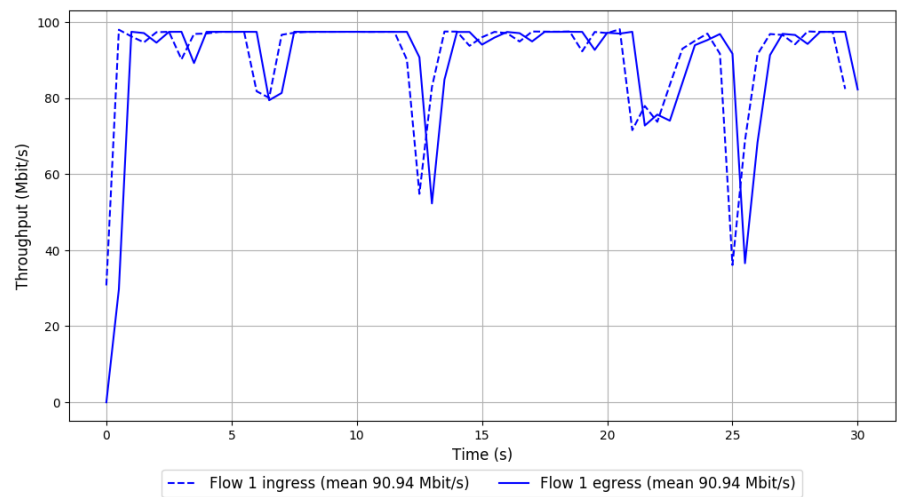
Run 3: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 90.94 Mbit/s) ---- Flow 1 egress (mean 90.94 Mbit/s)

Flow 1 (95th percentile 9.03 ms)

```
Run 4: Statistics of QUIC Cubic

Start at: 2018-12-02 10:49:23
End at: 2018-12-02 10:49:53
Local clock offset: -6.563 ms
Remote clock offset: 0.61 ms


# Below is generated by plot.py at 2018-12-02 11:31:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 91.80 Mbit/s
95th percentile per-packet one-way delay: 8.083 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 91.80 Mbit/s
95th percentile per-packet one-way delay: 8.083 ms
Loss rate: 0.02%
```
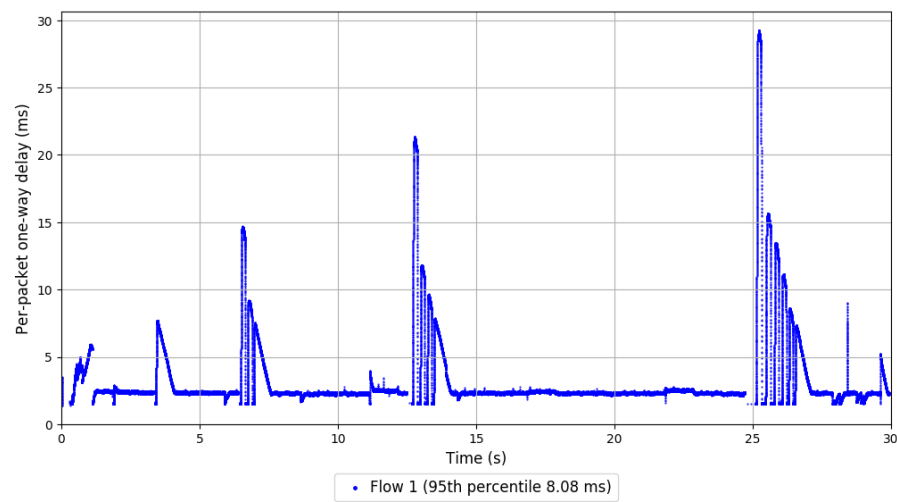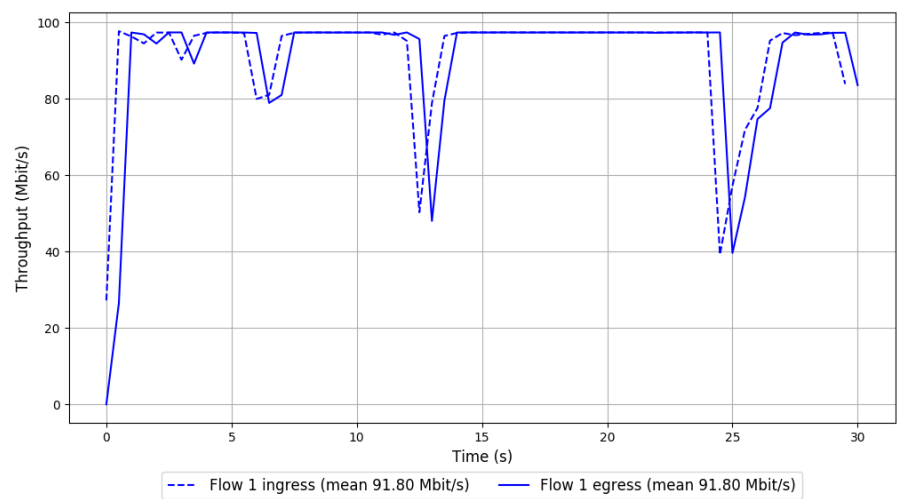
Run 4: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 91.80 Mbit/s)   Flow 1 egress (mean 91.80 Mbit/s)

Flow 1 (95th percentile 8.08 ms)

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```
Run 5: Statistics of QUIC Cubic

Start at: 2018-12-02 11:10:48
End at: 2018-12-02 11:11:18
Local clock offset: -6.253 ms
Remote clock offset: 0.569 ms


# Below is generated by plot.py at 2018-12-02 11:32:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 90.13 Mbit/s
95th percentile per-packet one-way delay: 9.713 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 90.13 Mbit/s
95th percentile per-packet one-way delay: 9.713 ms
Loss rate: 0.03%
```
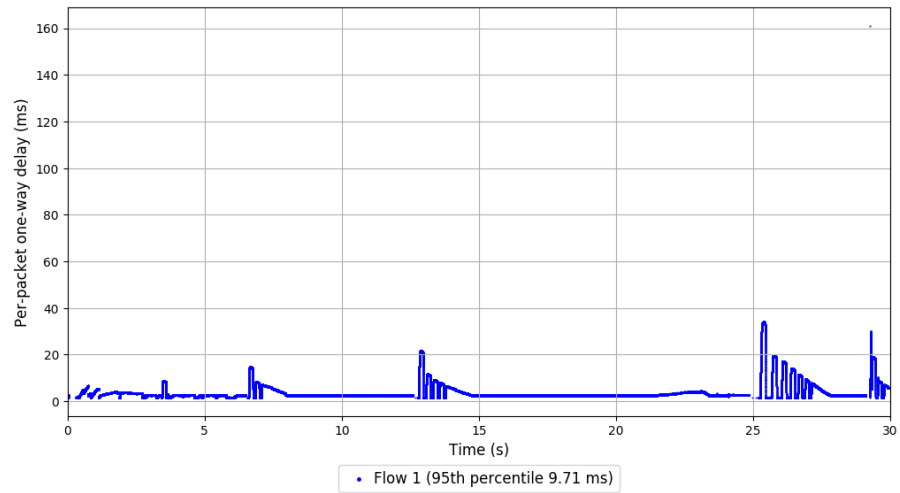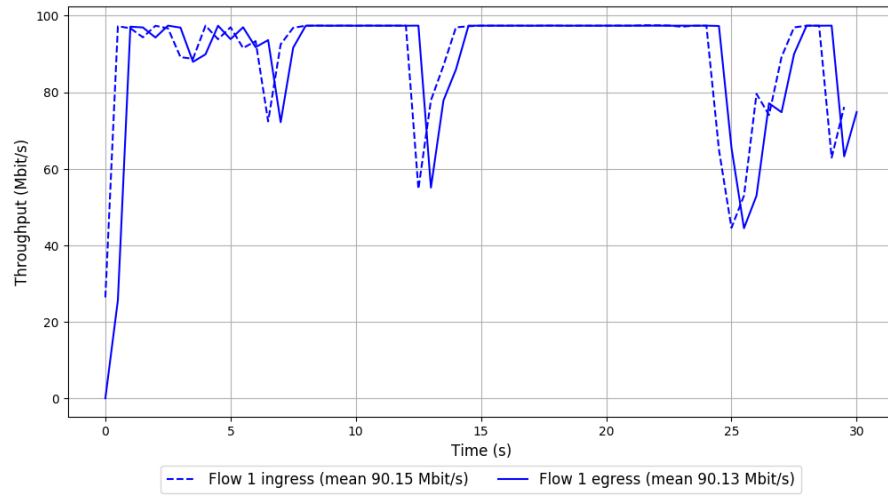
Run 5: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 90.15 Mbit/s)   Flow 1 egress (mean 90.13 Mbit/s)

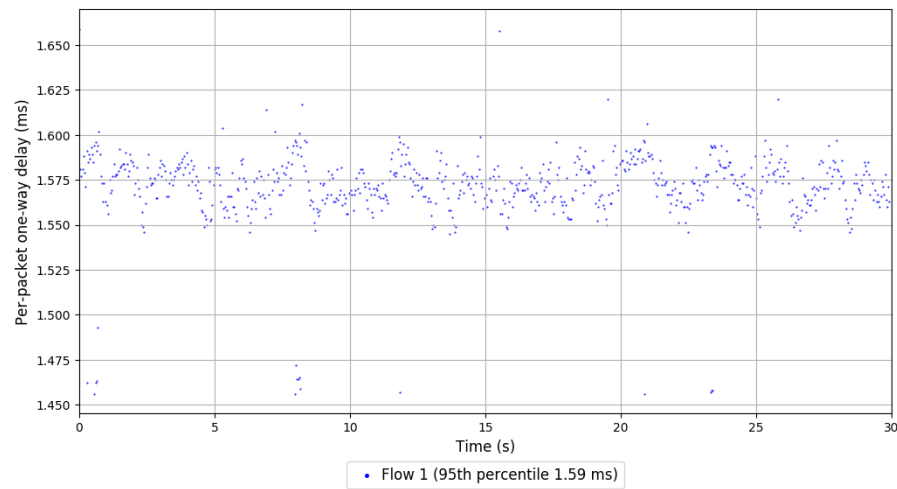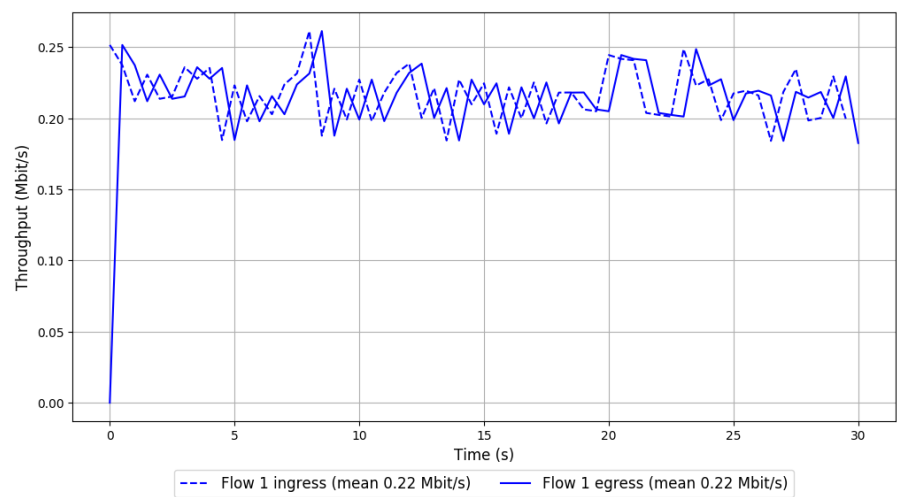
• Flow 1 (95th percentile 9.71 ms)

```
Run 1: Statistics of SCReAM

Start at: 2018-12-02 09:48:29
End at: 2018-12-02 09:48:59
Local clock offset: -7.151 ms
Remote clock offset: 0.091 ms


# Below is generated by plot.py at 2018-12-02 11:32:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.593 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.593 ms
Loss rate: 0.13%
```

Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: 2018-12-02 10:09:55
End at: 2018-12-02 10:10:25
Local clock offset: -6.654 ms
Remote clock offset: 0.36 ms


# Below is generated by plot.py at 2018-12-02 11:32:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.403 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.403 ms
Loss rate: 0.00%
```
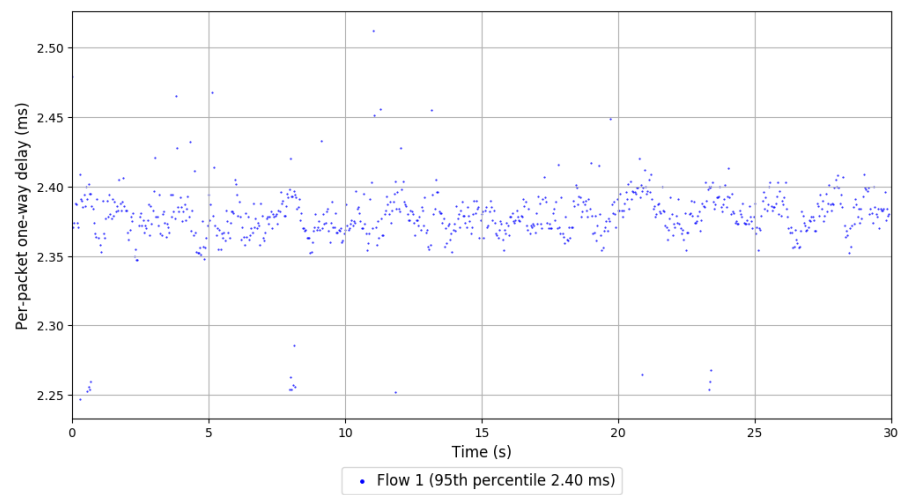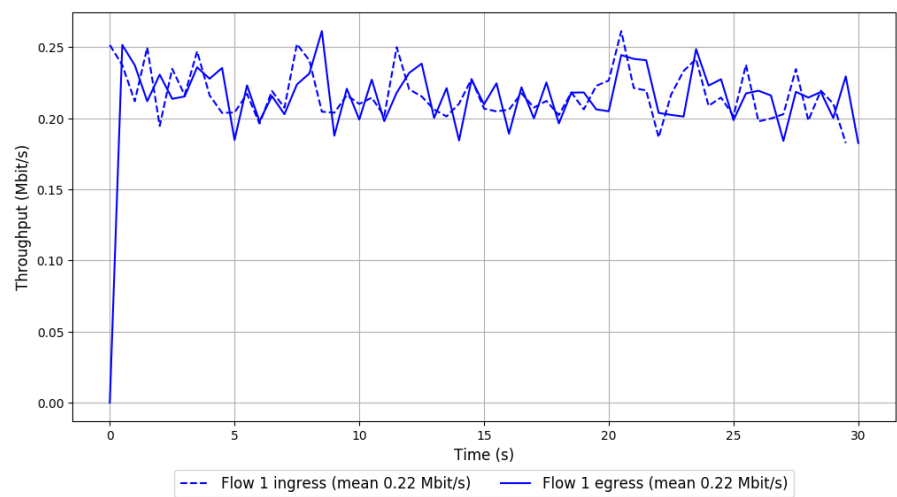
Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2018-12-02 10:31:20
End at: 2018-12-02 10:31:50
Local clock offset: -5.945 ms
Remote clock offset: 0.486 ms


# Below is generated by plot.py at 2018-12-02 11:32:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.396 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.396 ms
Loss rate: 0.00%
```
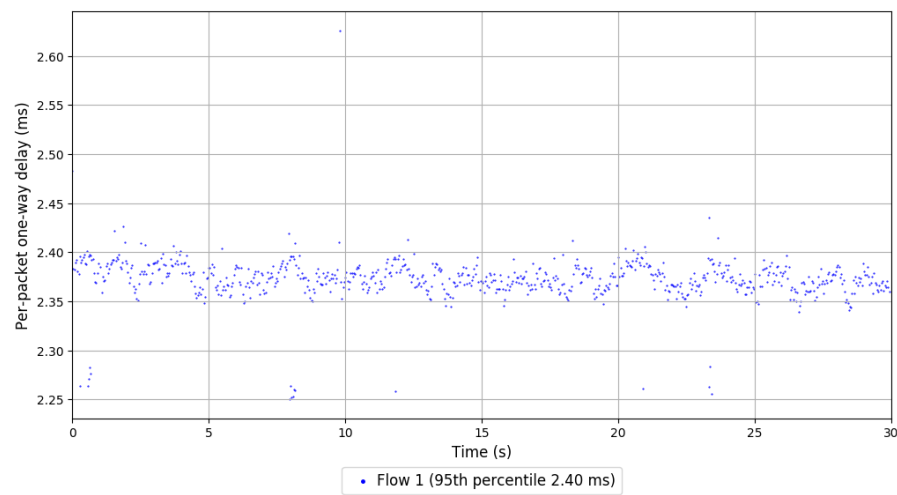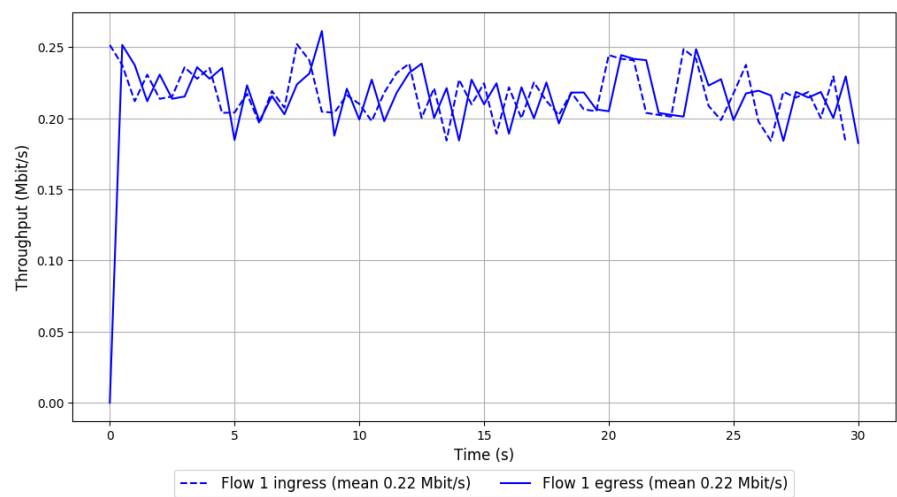
Run 3: Report of SCReAM — Data Link

```
Run 4: Statistics of SCReAM

Start at: 2018-12-02 10:52:50
End at: 2018-12-02 10:53:20
Local clock offset: -5.671 ms
Remote clock offset: 0.626 ms


# Below is generated by plot.py at 2018-12-02 11:32:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.318 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.318 ms
Loss rate: 0.00%
```
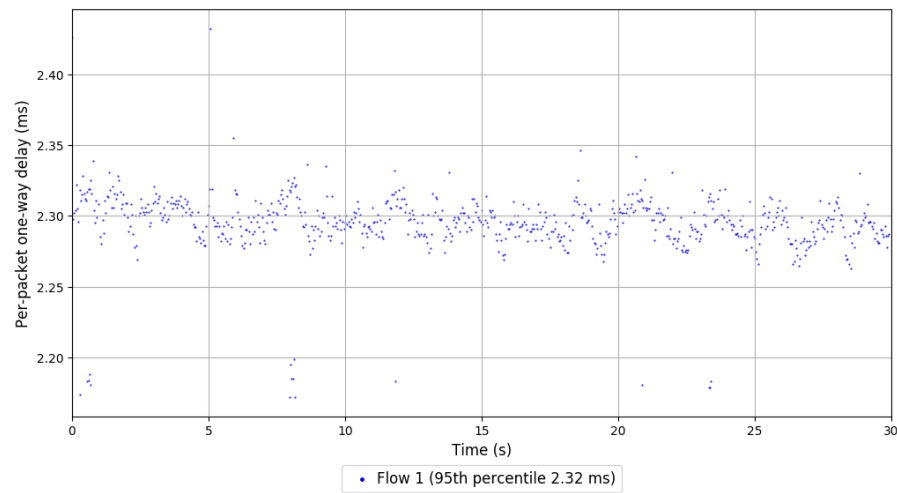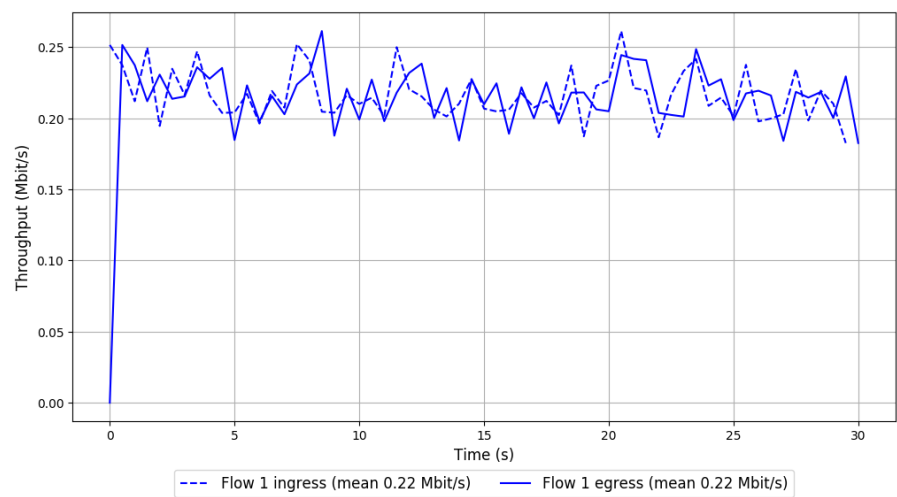
Run 4: Report of SCReAM — Data Link

```
Run 5: Statistics of SCReAM

Start at: 2018-12-02 11:14:15
End at: 2018-12-02 11:14:45
Local clock offset: -6.256 ms
Remote clock offset: 0.653 ms


# Below is generated by plot.py at 2018-12-02 11:32:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.580 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.580 ms
Loss rate: 0.00%
```
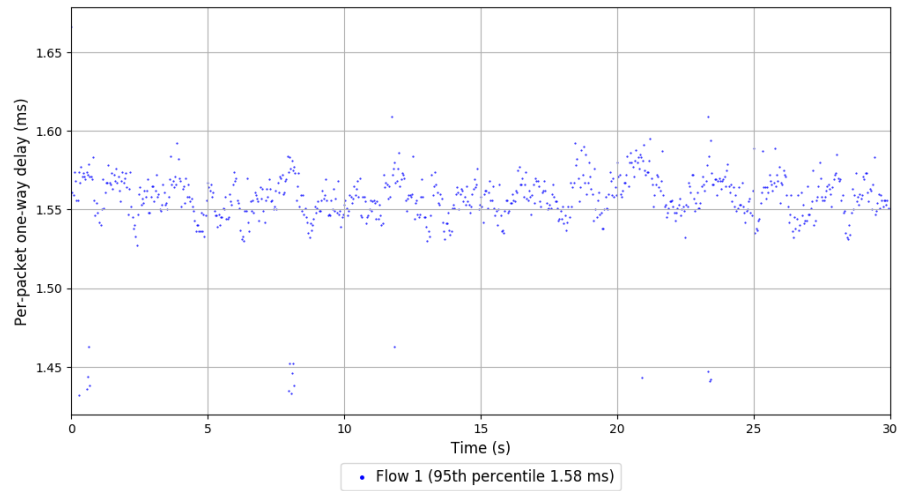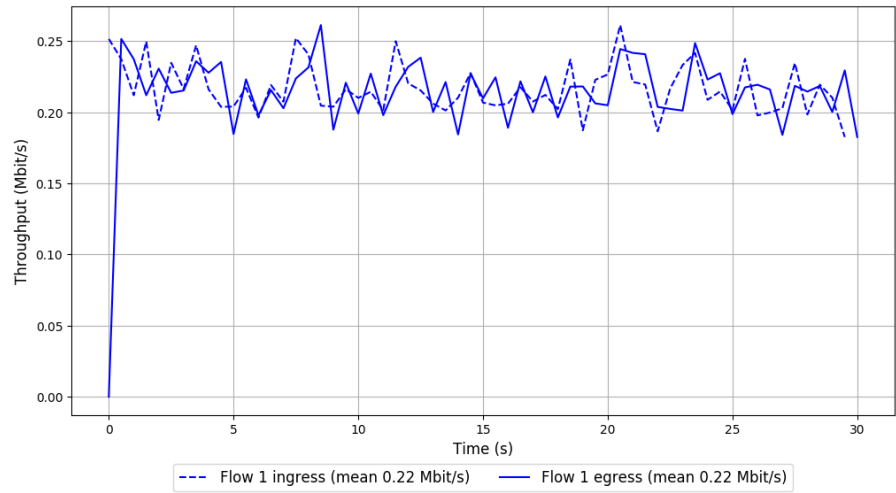
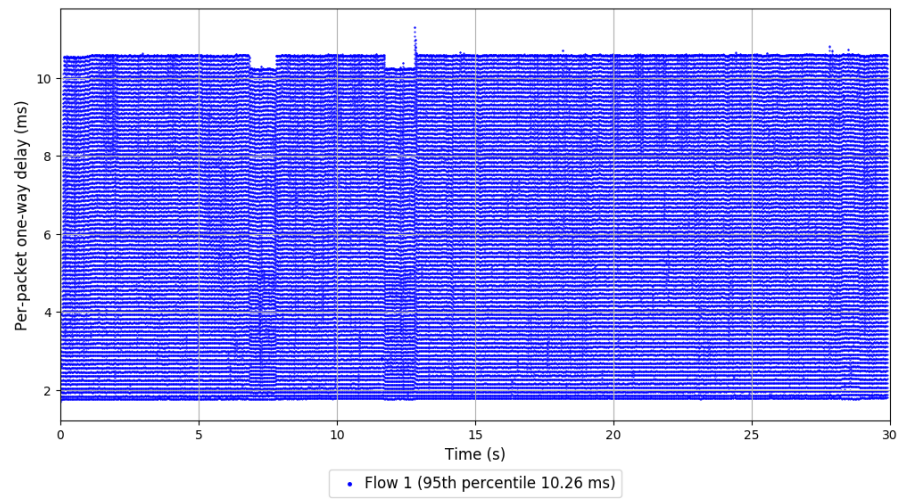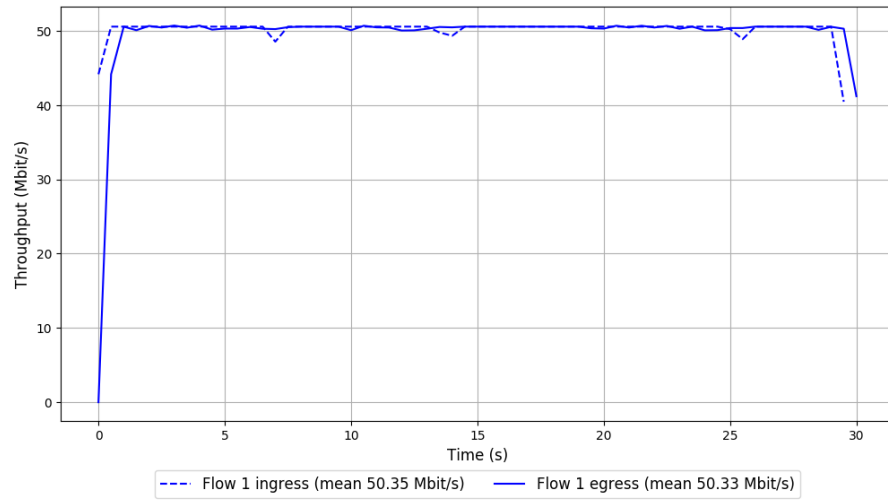# Run 5: Report of SCReAM — Data Link

```
Run 1: Statistics of Sprout

Start at: 2018-12-02 09:43:57
End at: 2018-12-02 09:44:27
Local clock offset: -6.918 ms
Remote clock offset: -0.028 ms


# Below is generated by plot.py at 2018-12-02 11:32:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 50.33 Mbit/s
95th percentile per-packet one-way delay: 10.259 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.33 Mbit/s
95th percentile per-packet one-way delay: 10.259 ms
Loss rate: 0.00%
```

Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2018-12-02 10:05:23
End at: 2018-12-02 10:05:53
Local clock offset: -6.6 ms
Remote clock offset: 0.397 ms


# Below is generated by plot.py at 2018-12-02 11:32:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 50.24 Mbit/s
95th percentile per-packet one-way delay: 10.740 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.24 Mbit/s
95th percentile per-packet one-way delay: 10.740 ms
Loss rate: 0.00%
```
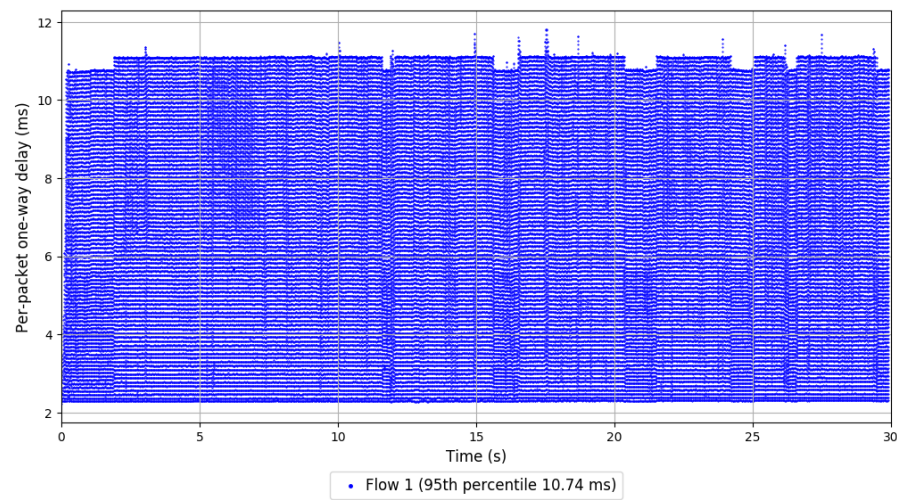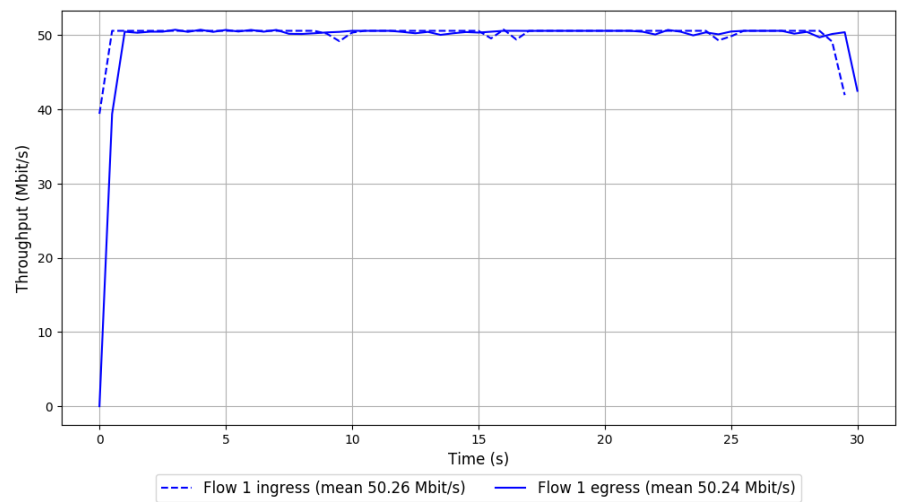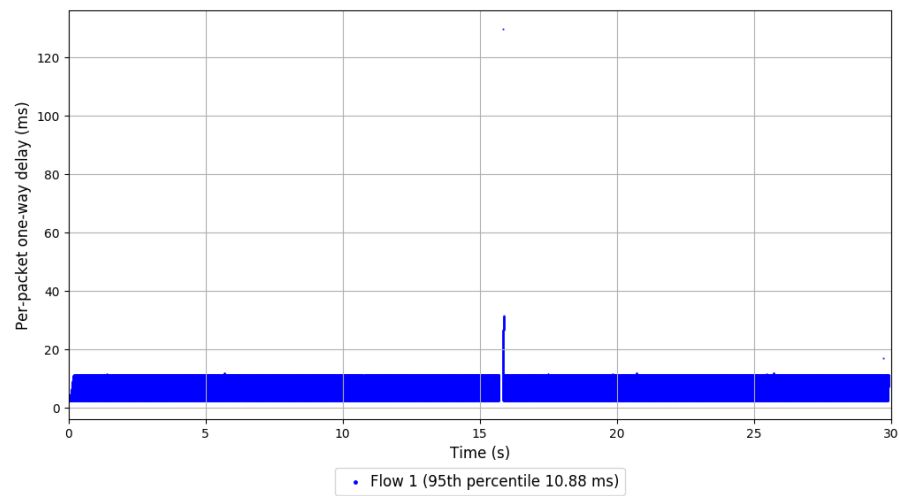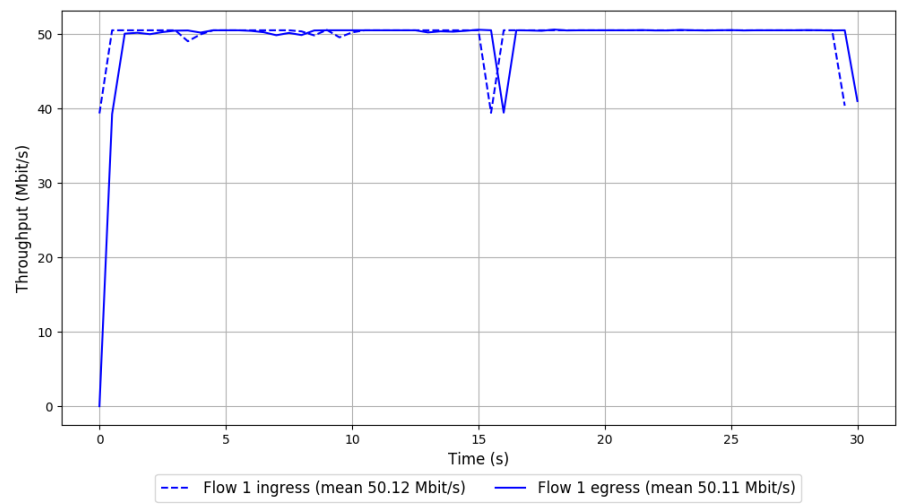
Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2018-12-02 10:26:48
End at: 2018-12-02 10:27:18
Local clock offset: -6.085 ms
Remote clock offset: 0.509 ms


# Below is generated by plot.py at 2018-12-02 11:32:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 50.11 Mbit/s
95th percentile per-packet one-way delay: 10.877 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.11 Mbit/s
95th percentile per-packet one-way delay: 10.877 ms
Loss rate: 0.00%
```

Run 3: Report of Sprout — Data Link

Flow 1 ingress (mean 50.12 Mbit/s) --- Flow 1 egress (mean 50.11 Mbit/s)
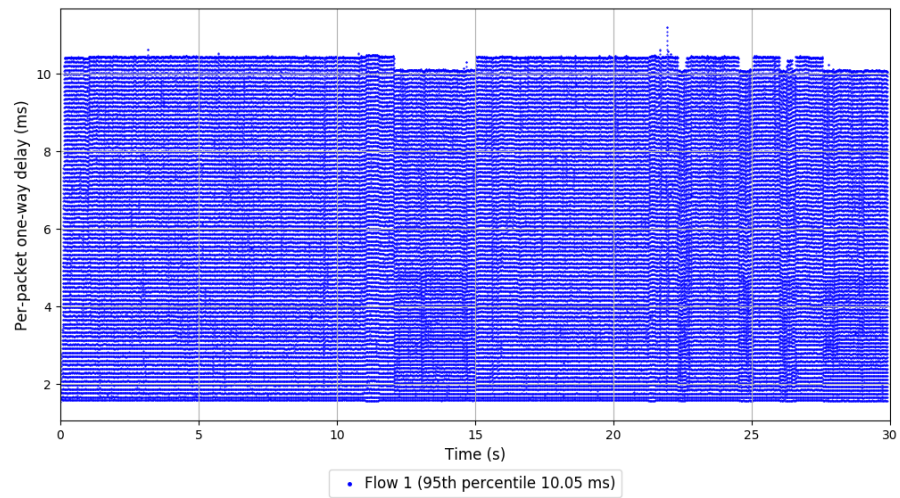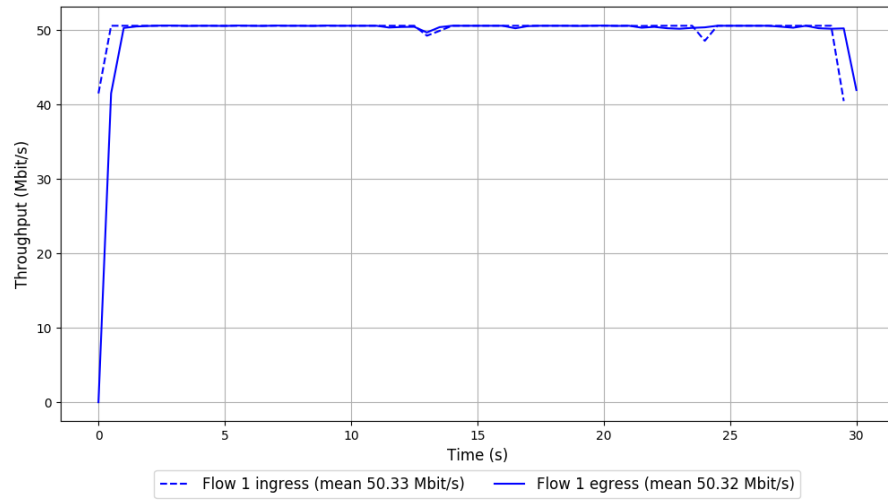

Flow 1 (95th percentile 10.88 ms)

```
Run 4: Statistics of Sprout

Start at: 2018-12-02 10:48:17
End at: 2018-12-02 10:48:47
Local clock offset: -6.672 ms
Remote clock offset: 0.492 ms


# Below is generated by plot.py at 2018-12-02 11:32:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 50.32 Mbit/s
95th percentile per-packet one-way delay: 10.050 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.32 Mbit/s
95th percentile per-packet one-way delay: 10.050 ms
Loss rate: 0.00%
```

Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2018-12-02 11:09:42
End at: 2018-12-02 11:10:12
Local clock offset: -6.259 ms
Remote clock offset: 0.604 ms


# Below is generated by plot.py at 2018-12-02 11:32:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 50.33 Mbit/s
95th percentile per-packet one-way delay: 10.130 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 50.33 Mbit/s
95th percentile per-packet one-way delay: 10.130 ms
Loss rate: 0.06%
```
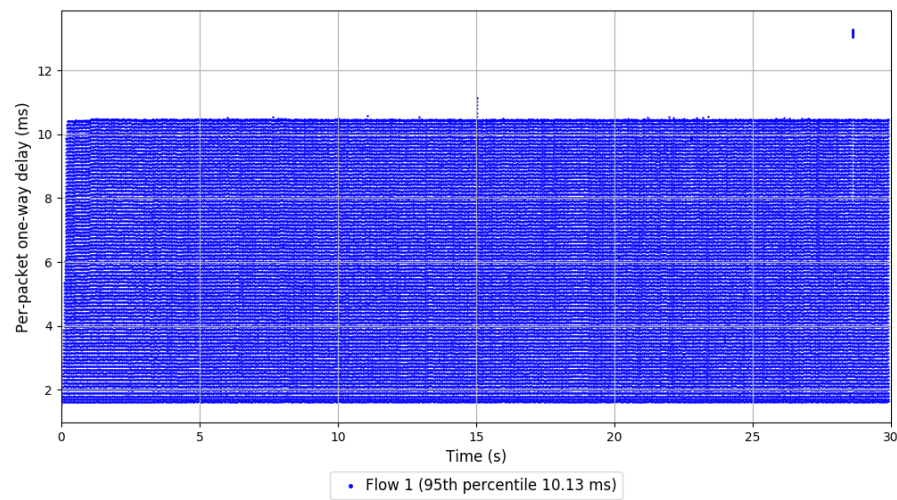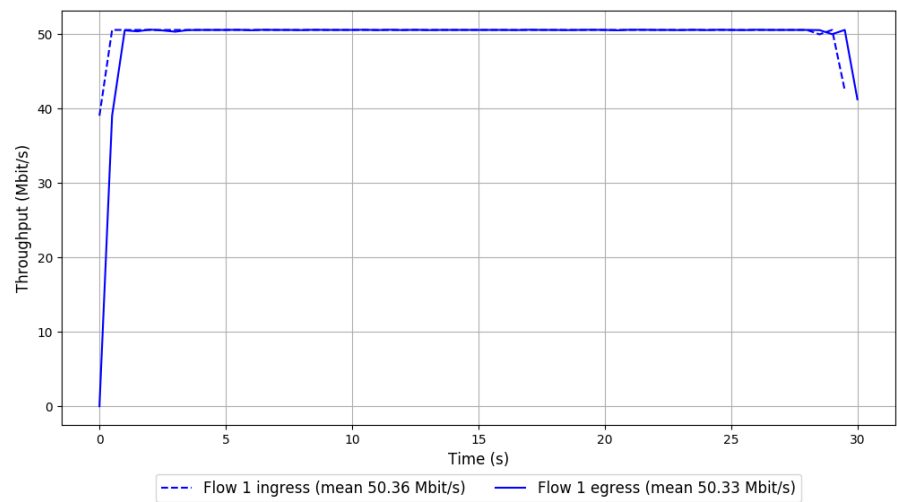
Run 5: Report of Sprout — Data Link

Flow 1 ingress (mean 50.36 Mbit/s)   Flow 1 egress (mean 50.33 Mbit/s)
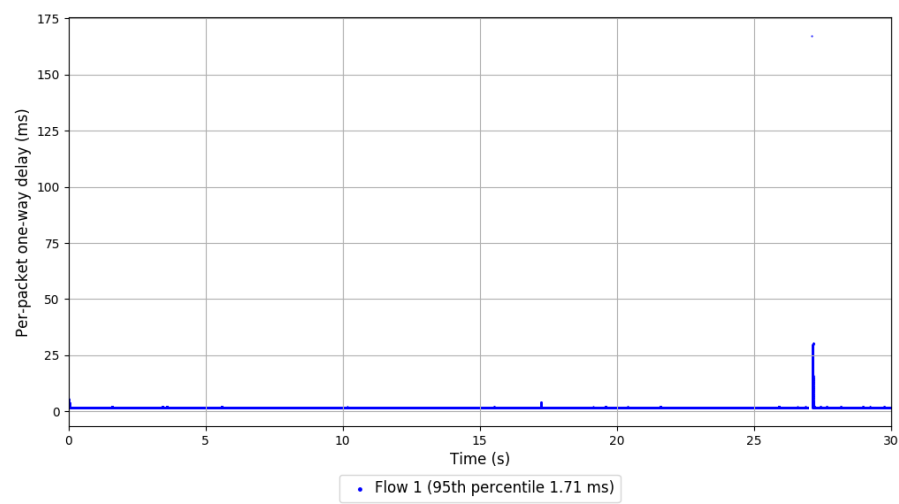

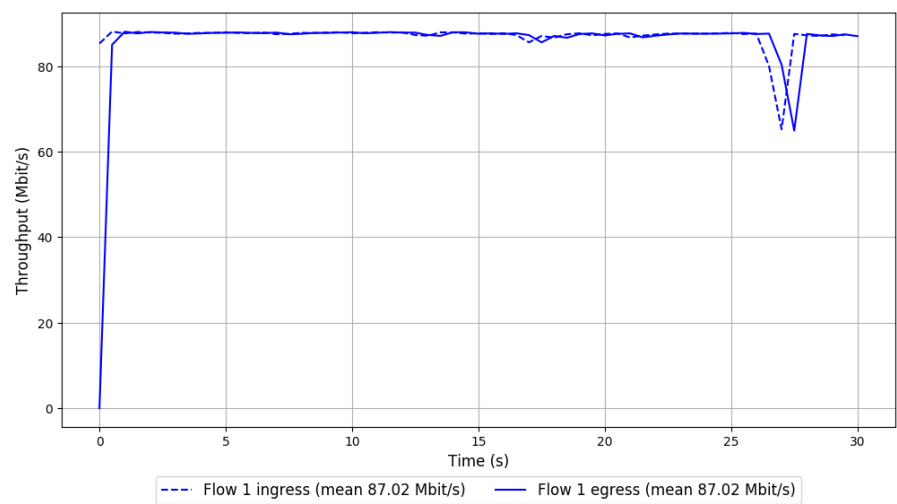• Flow 1 (95th percentile 10.13 ms)

144

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

Start at: 2018-12-02 09:38:15
End at: 2018-12-02 09:38:45
Local clock offset: -6.598 ms
Remote clock offset: 0.031 ms


# Below is generated by plot.py at 2018-12-02 11:33:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 87.02 Mbit/s
95th percentile per-packet one-way delay: 1.712 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 87.02 Mbit/s
95th percentile per-packet one-way delay: 1.712 ms
Loss rate: 0.01%
```

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

Flow 1 ingress (mean 87.02 Mbit/s) ----   Flow 1 egress (mean 87.02 Mbit/s) ——

Flow 1 (95th percentile 1.71 ms)

146

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

Start at: 2018-12-02 09:59:41
End at: 2018-12-02 10:00:11
Local clock offset: -7.177 ms
Remote clock offset: 0.273 ms


# Below is generated by plot.py at 2018-12-02 11:33:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 88.02 Mbit/s
95th percentile per-packet one-way delay: 1.663 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 88.02 Mbit/s
95th percentile per-packet one-way delay: 1.663 ms
Loss rate: 0.01%
```
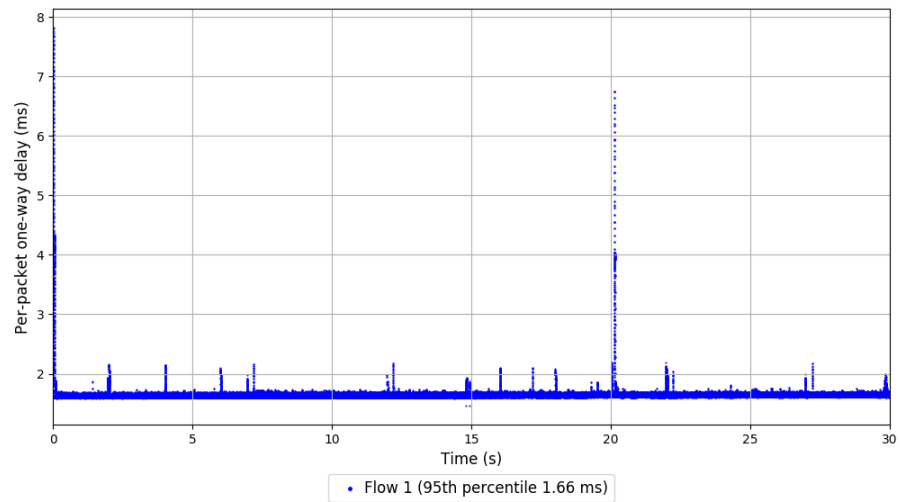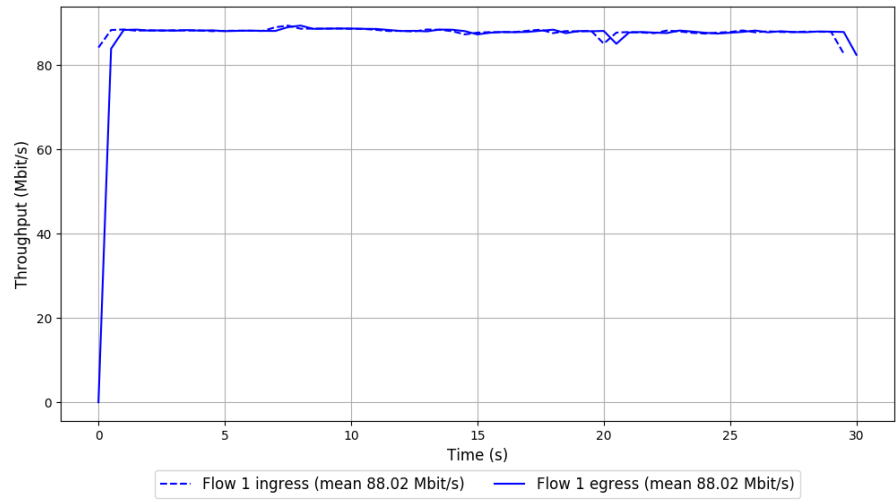
Run 2: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 88.02 Mbit/s) ---- Flow 1 egress (mean 88.02 Mbit/s) ——

Flow 1 (95th percentile 1.66 ms)

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

Start at: 2018-12-02 10:21:06
End at: 2018-12-02 10:21:36
Local clock offset: -7.271 ms
Remote clock offset: 0.453 ms


# Below is generated by plot.py at 2018-12-02 11:33:44
# Datalink statistics
-- Total of 1 flow:
Average throughput: 88.04 Mbit/s
95th percentile per-packet one-way delay: 1.582 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 88.04 Mbit/s
95th percentile per-packet one-way delay: 1.582 ms
Loss rate: 0.01%
```
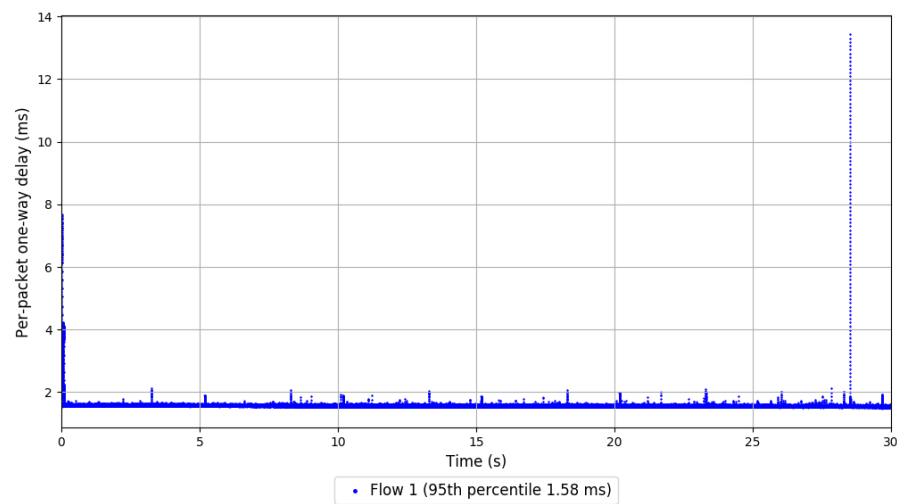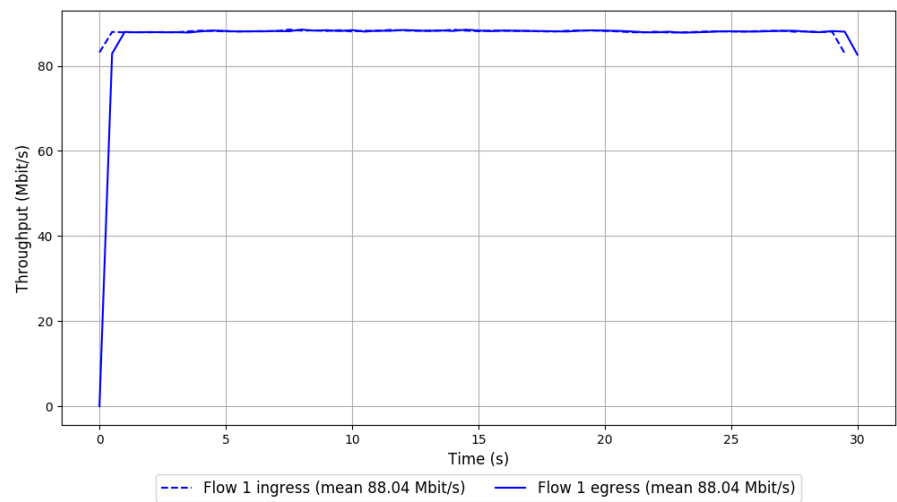
Run 3: Report of TaoVA-100x — Data Link

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

Start at: 2018-12-02 10:42:35
End at: 2018-12-02 10:43:06
Local clock offset: -6.615 ms
Remote clock offset: 0.523 ms


# Below is generated by plot.py at 2018-12-02 11:33:48
# Datalink statistics
-- Total of 1 flow:
Average throughput: 88.01 Mbit/s
95th percentile per-packet one-way delay: 1.632 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 88.01 Mbit/s
95th percentile per-packet one-way delay: 1.632 ms
Loss rate: 0.01%
```
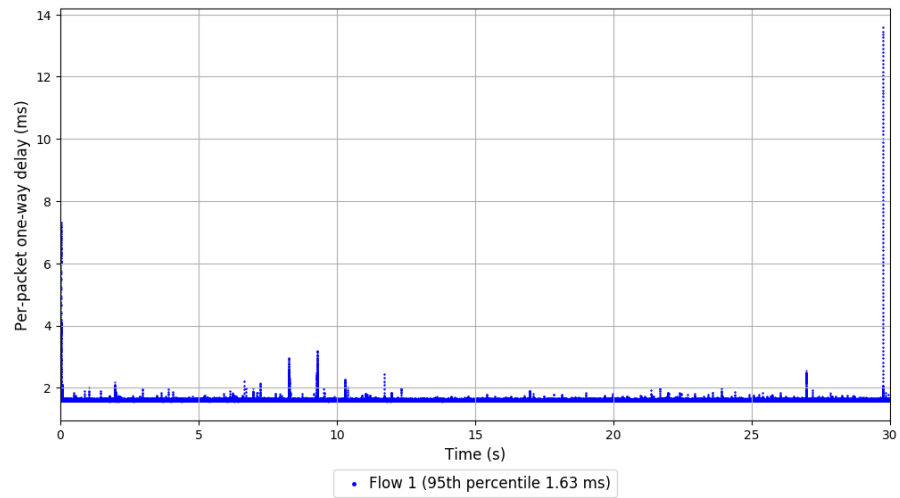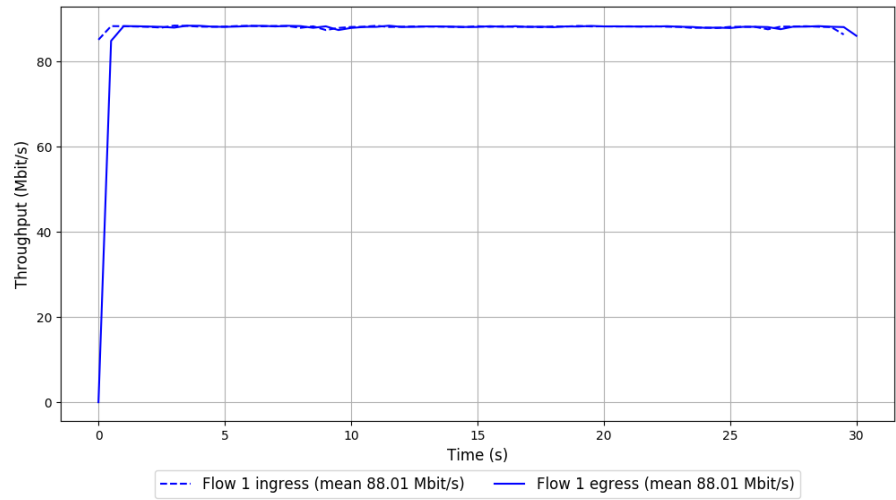
Run 4: Report of TaoVA-100x — Data Link

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

Start at: 2018-12-02 11:04:01
End at: 2018-12-02 11:04:31
Local clock offset: -6.277 ms
Remote clock offset: 0.564 ms


# Below is generated by plot.py at 2018-12-02 11:33:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 88.23 Mbit/s
95th percentile per-packet one-way delay: 1.664 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 88.23 Mbit/s
95th percentile per-packet one-way delay: 1.664 ms
Loss rate: 0.01%
```
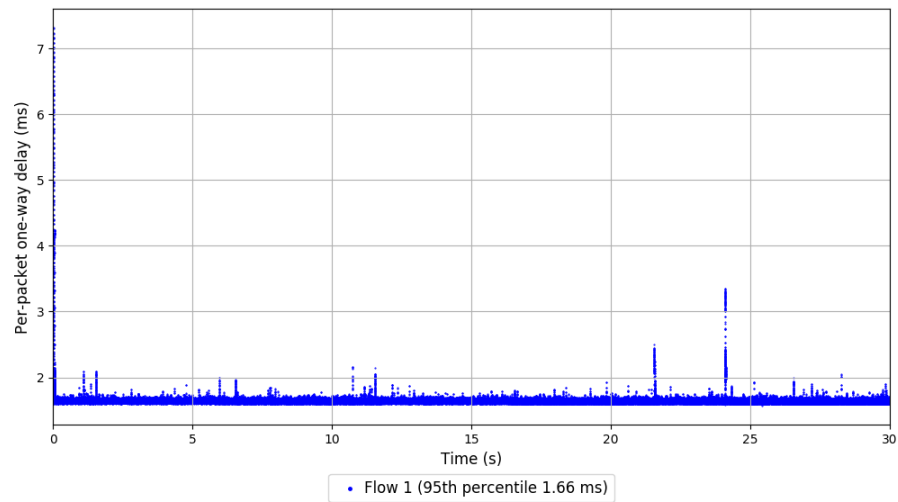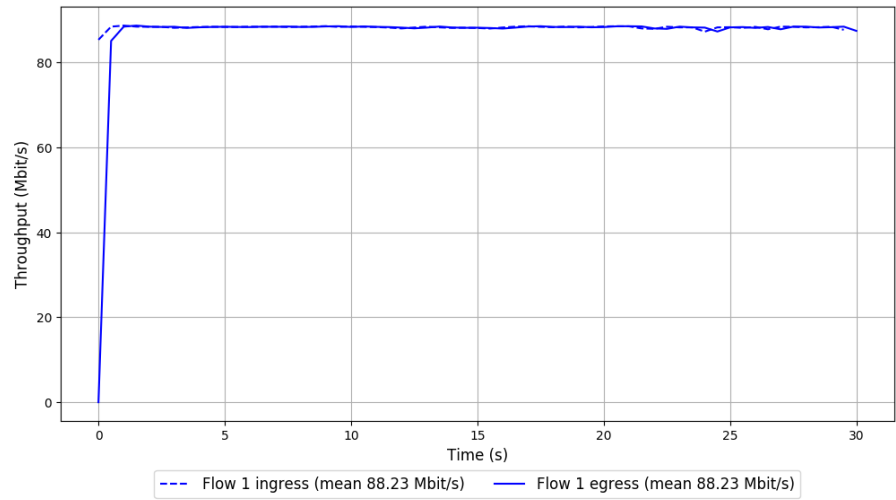
Run 5: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 88.23 Mbit/s)   Flow 1 egress (mean 88.23 Mbit/s)
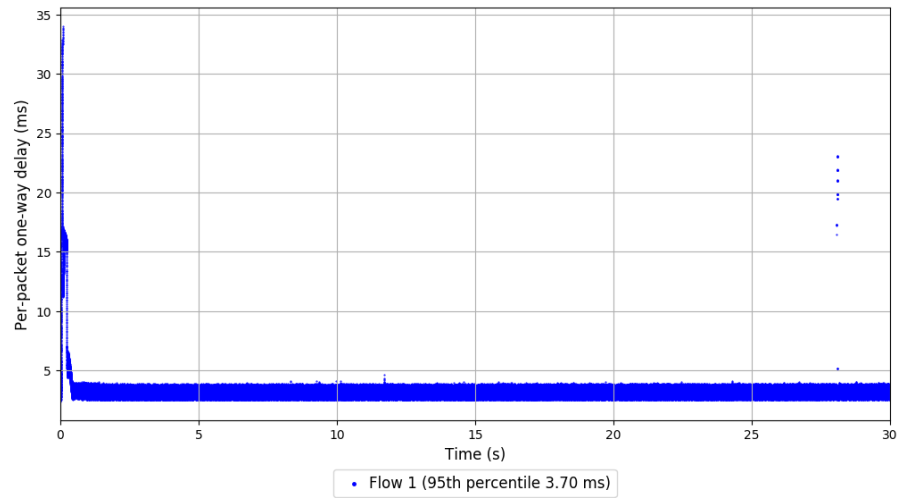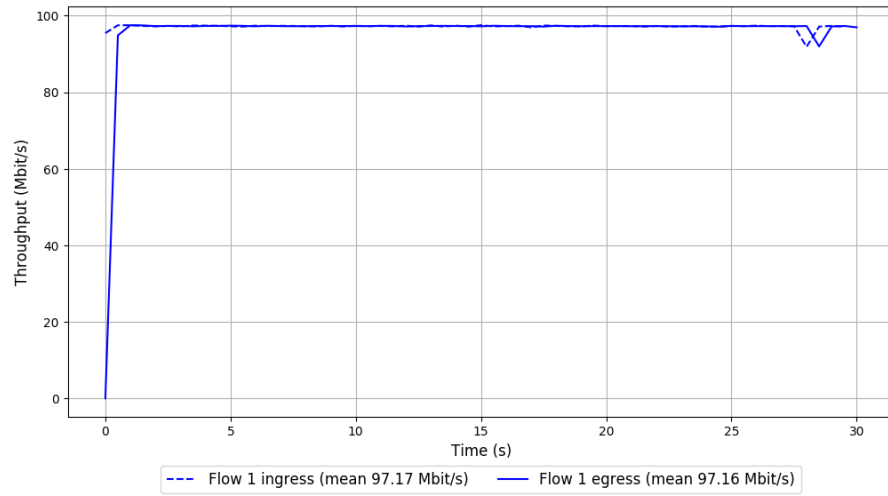

Flow 1 (95th percentile 1.66 ms)

```
Run 1: Statistics of TCP Vegas

Start at: 2018-12-02 09:34:47
End at: 2018-12-02 09:35:17
Local clock offset: -5.595 ms
Remote clock offset: -0.066 ms


# Below is generated by plot.py at 2018-12-02 11:33:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.16 Mbit/s
95th percentile per-packet one-way delay: 3.703 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.16 Mbit/s
95th percentile per-packet one-way delay: 3.703 ms
Loss rate: 0.01%
```

Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2018-12-02 09:56:16
End at: 2018-12-02 09:56:46
Local clock offset: -6.364 ms
Remote clock offset: 0.218 ms


# Below is generated by plot.py at 2018-12-02 11:33:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.86 Mbit/s
95th percentile per-packet one-way delay: 3.597 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 96.86 Mbit/s
95th percentile per-packet one-way delay: 3.597 ms
Loss rate: 0.01%
```
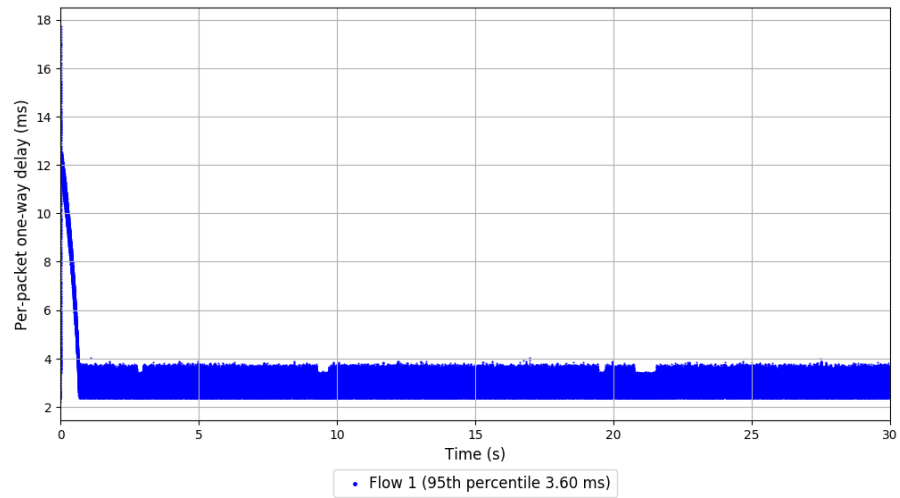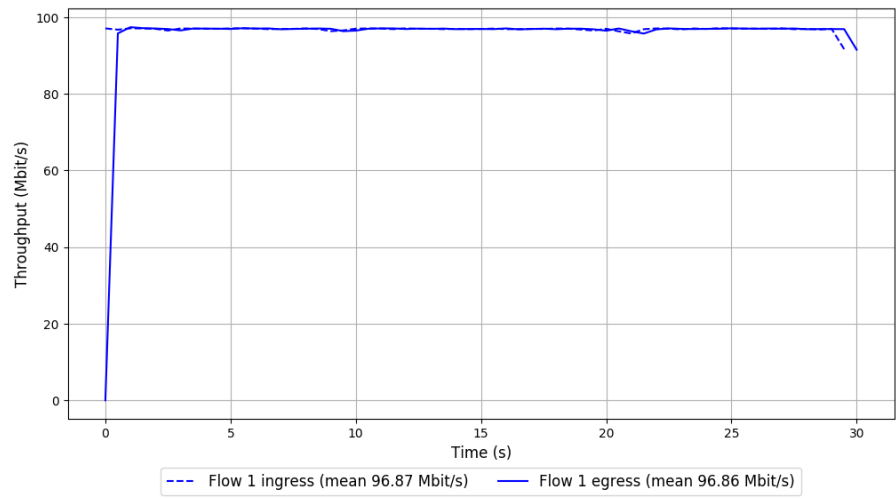
Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2018-12-02 10:17:42
End at: 2018-12-02 10:18:12
Local clock offset: -6.874 ms
Remote clock offset: 0.479 ms


# Below is generated by plot.py at 2018-12-02 11:33:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.22 Mbit/s
95th percentile per-packet one-way delay: 3.508 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.22 Mbit/s
95th percentile per-packet one-way delay: 3.508 ms
Loss rate: 0.01%
```
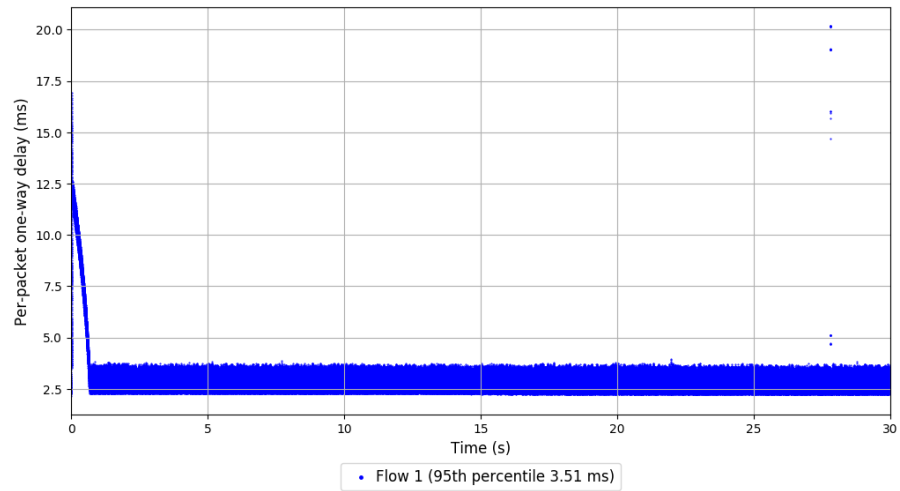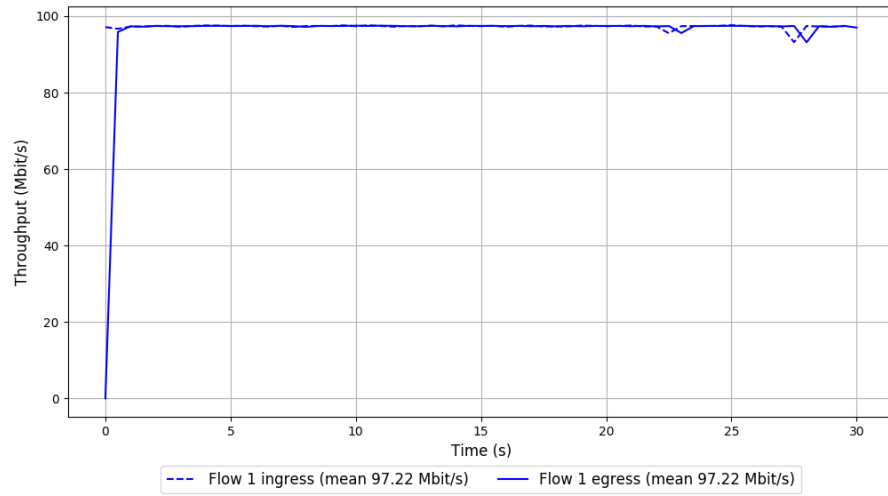
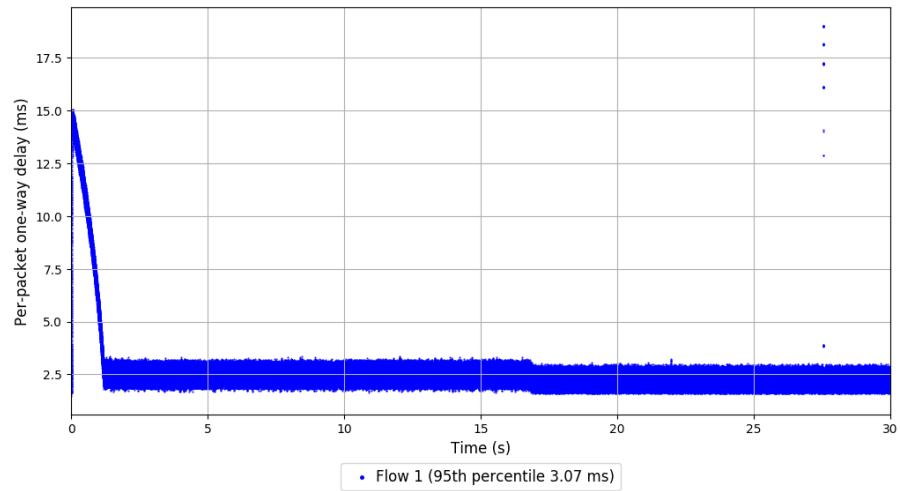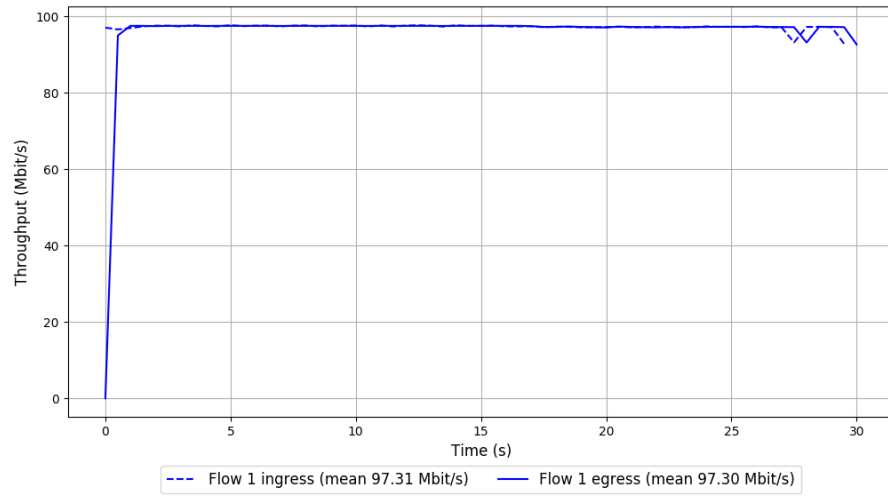Run 3: Report of TCP Vegas — Data Link

```
Run 4: Statistics of TCP Vegas

Start at: 2018-12-02 10:39:08
End at: 2018-12-02 10:39:38
Local clock offset: -6.598 ms
Remote clock offset: 0.528 ms


# Below is generated by plot.py at 2018-12-02 11:34:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.30 Mbit/s
95th percentile per-packet one-way delay: 3.073 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.30 Mbit/s
95th percentile per-packet one-way delay: 3.073 ms
Loss rate: 0.01%
```

Run 4: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 97.31 Mbit/s)   Flow 1 egress (mean 97.30 Mbit/s)

Flow 1 (95th percentile 3.07 ms)

```
Run 5: Statistics of TCP Vegas

Start at: 2018-12-02 11:00:37
End at: 2018-12-02 11:01:07
Local clock offset: -5.554 ms
Remote clock offset: 0.612 ms


# Below is generated by plot.py at 2018-12-02 11:34:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 97.27 Mbit/s
95th percentile per-packet one-way delay: 3.546 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 97.27 Mbit/s
95th percentile per-packet one-way delay: 3.546 ms
Loss rate: 0.01%
```
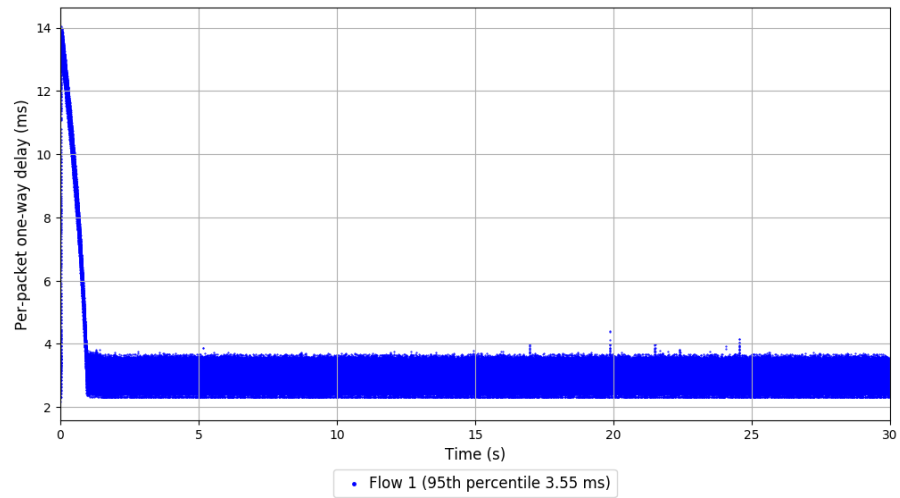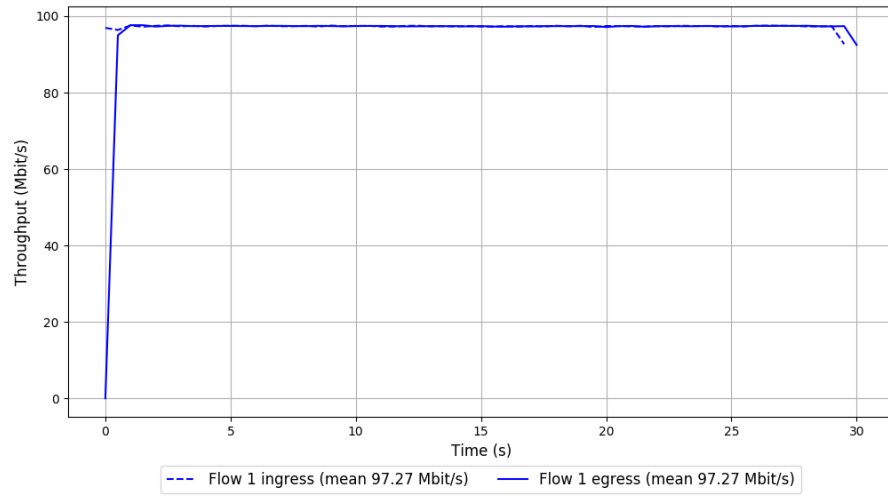
Run 5: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 97.27 Mbit/s) — — —   Flow 1 egress (mean 97.27 Mbit/s) ———

• Flow 1 (95th percentile 3.55 ms)

```
Run 1: Statistics of Verus

Start at: 2018-12-02 09:39:26
End at: 2018-12-02 09:39:56
Local clock offset: -5.899 ms
Remote clock offset: 0.072 ms


# Below is generated by plot.py at 2018-12-02 11:34:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 73.32 Mbit/s
95th percentile per-packet one-way delay: 11.340 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 73.32 Mbit/s
95th percentile per-packet one-way delay: 11.340 ms
Loss rate: 0.06%
```
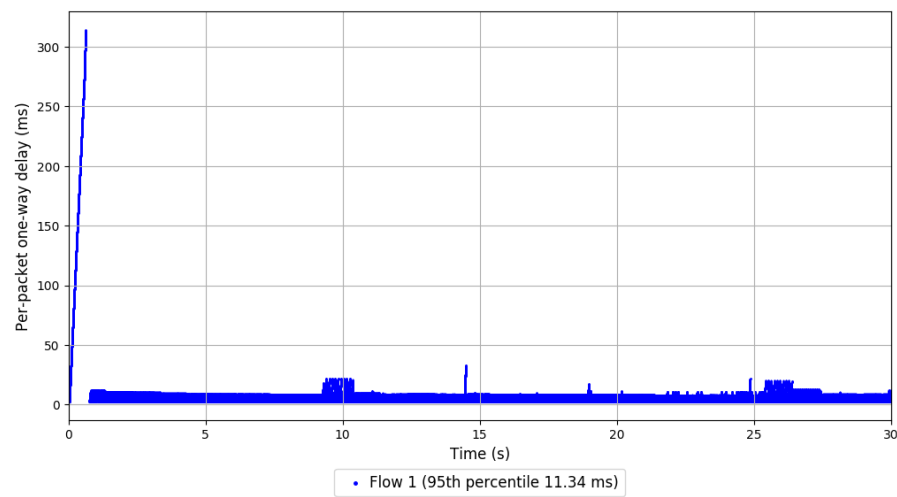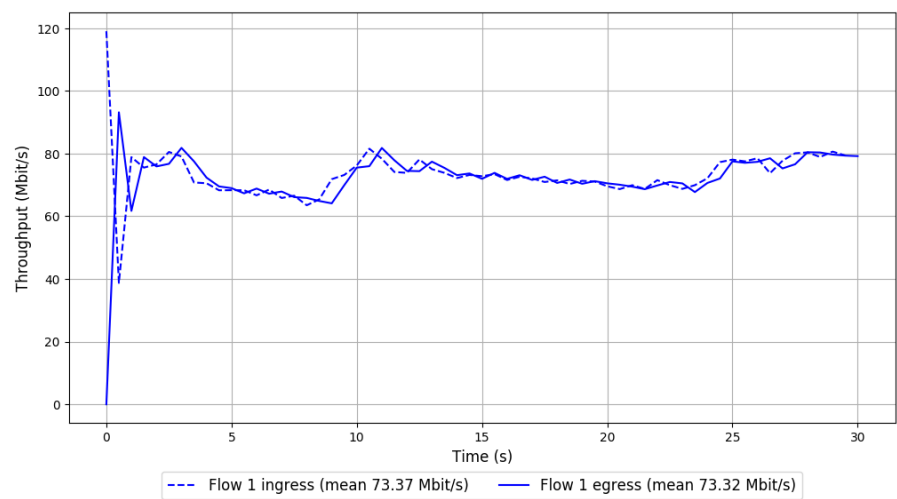
Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2018-12-02 10:00:52
End at: 2018-12-02 10:01:22
Local clock offset: -7.209 ms
Remote clock offset: 0.331 ms


# Below is generated by plot.py at 2018-12-02 11:34:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 73.90 Mbit/s
95th percentile per-packet one-way delay: 9.261 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 73.90 Mbit/s
95th percentile per-packet one-way delay: 9.261 ms
Loss rate: 0.05%
```
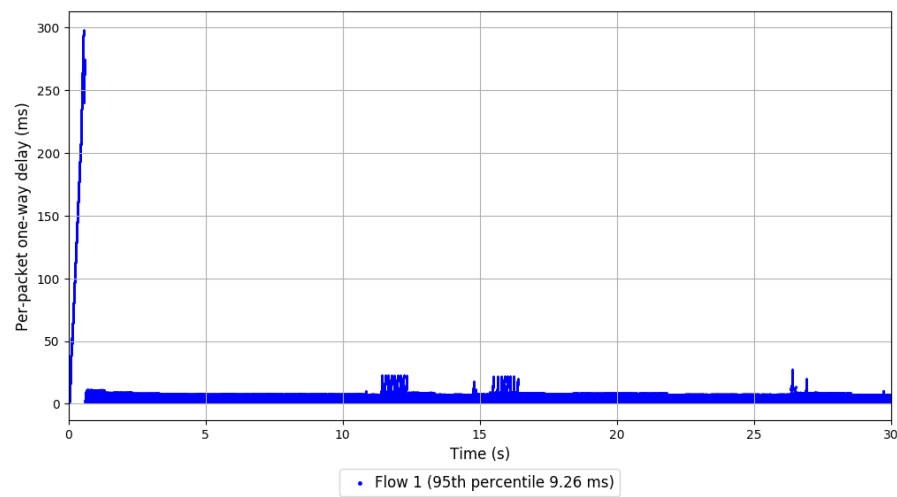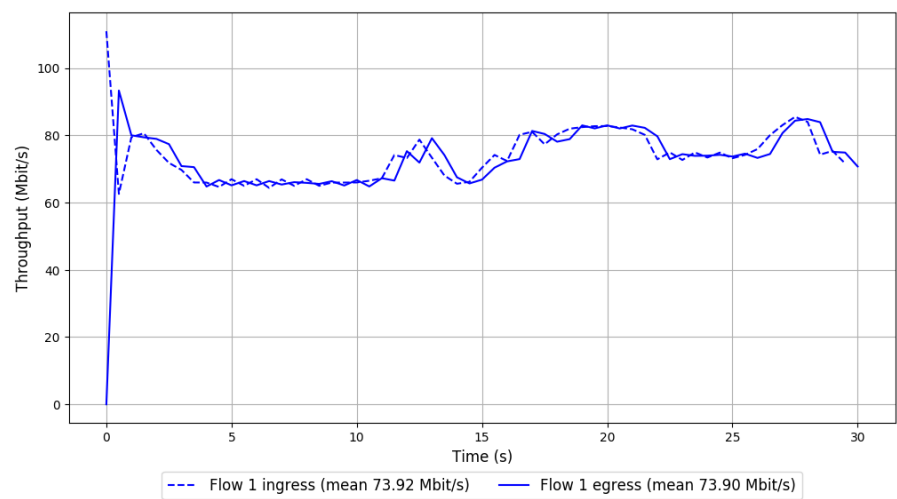
Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-12-02 10:22:17
End at: 2018-12-02 10:22:47
Local clock offset: -7.131 ms
Remote clock offset: 0.388 ms


# Below is generated by plot.py at 2018-12-02 11:34:44
# Datalink statistics
-- Total of 1 flow:
Average throughput: 79.05 Mbit/s
95th percentile per-packet one-way delay: 9.663 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 79.05 Mbit/s
95th percentile per-packet one-way delay: 9.663 ms
Loss rate: 0.03%
```
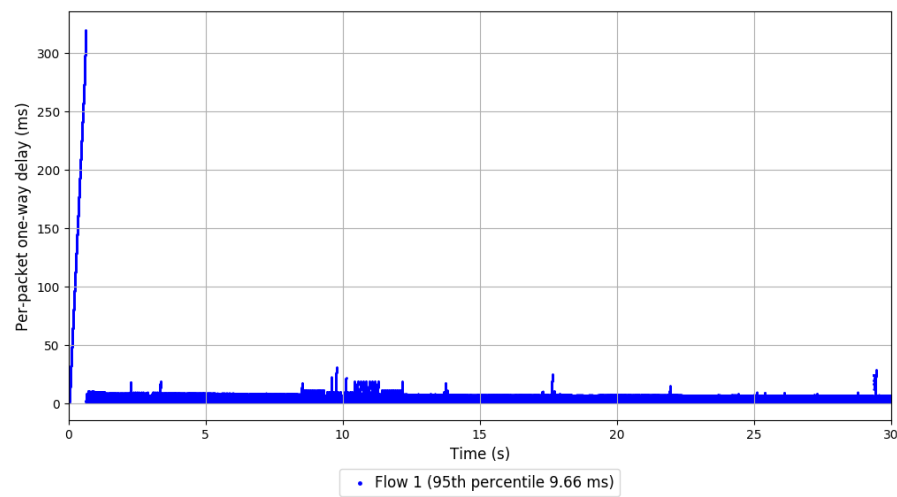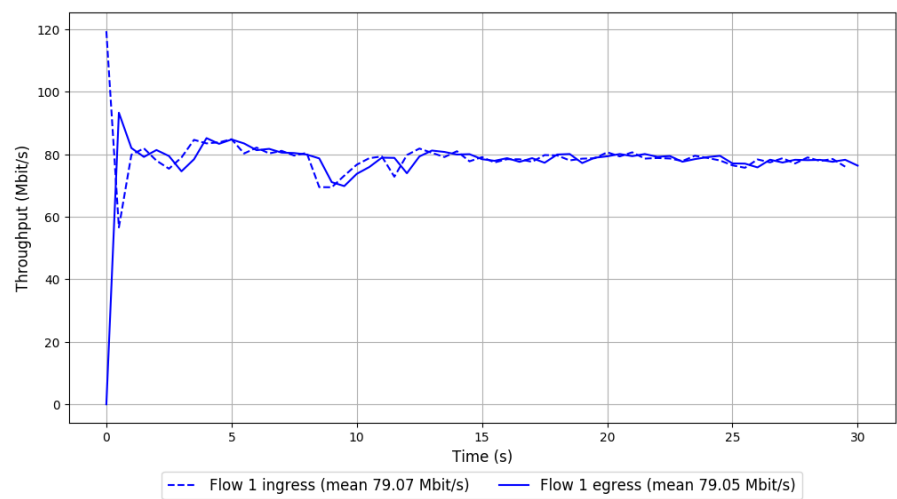
Run 3: Report of Verus — Data Link

Flow 1 ingress (mean 79.07 Mbit/s)   Flow 1 egress (mean 79.05 Mbit/s)

Flow 1 (95th percentile 9.66 ms)

```
Run 4: Statistics of Verus

Start at: 2018-12-02 10:43:46
End at: 2018-12-02 10:44:16
Local clock offset: -6.614 ms
Remote clock offset: 0.505 ms


# Below is generated by plot.py at 2018-12-02 11:34:44
# Datalink statistics
-- Total of 1 flow:
Average throughput: 70.58 Mbit/s
95th percentile per-packet one-way delay: 9.766 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 70.58 Mbit/s
95th percentile per-packet one-way delay: 9.766 ms
Loss rate: 0.02%
```
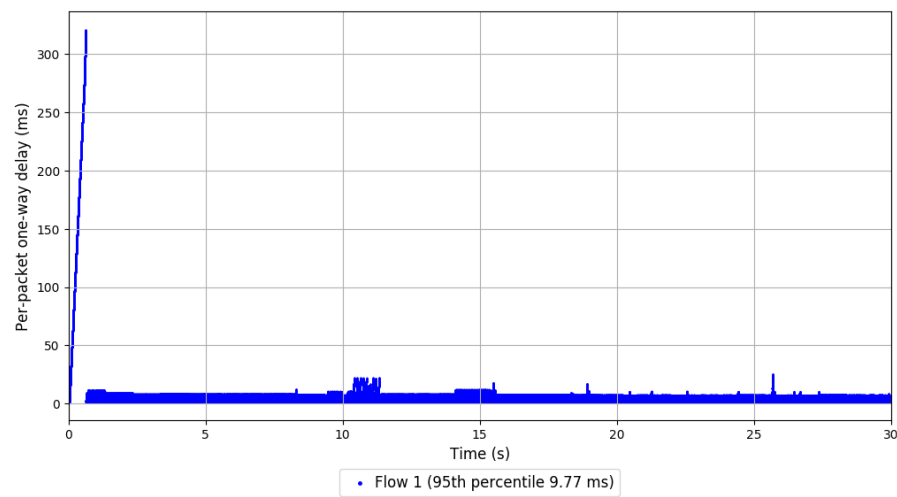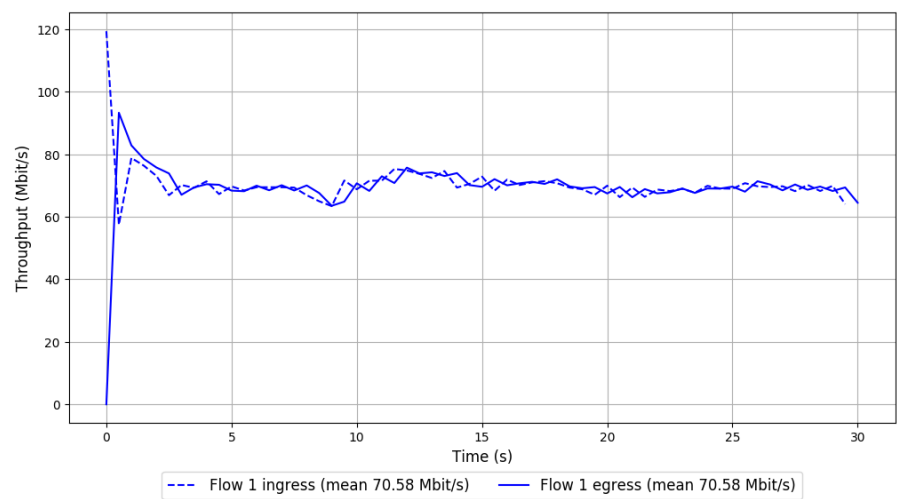
Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2018-12-02 11:05:12
End at: 2018-12-02 11:05:42
Local clock offset: -5.518 ms
Remote clock offset: 0.513 ms


# Below is generated by plot.py at 2018-12-02 11:34:44
# Datalink statistics
-- Total of 1 flow:
Average throughput: 59.31 Mbit/s
95th percentile per-packet one-way delay: 14.145 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 59.31 Mbit/s
95th percentile per-packet one-way delay: 14.145 ms
Loss rate: 0.01%
```
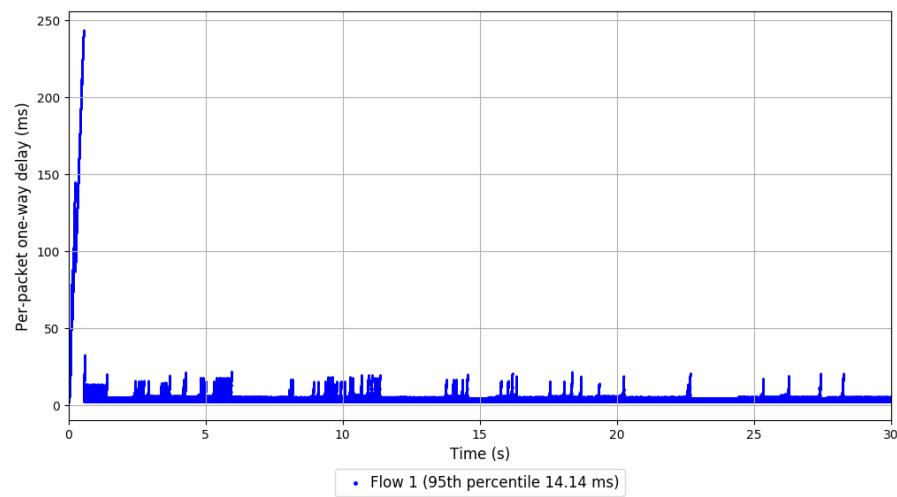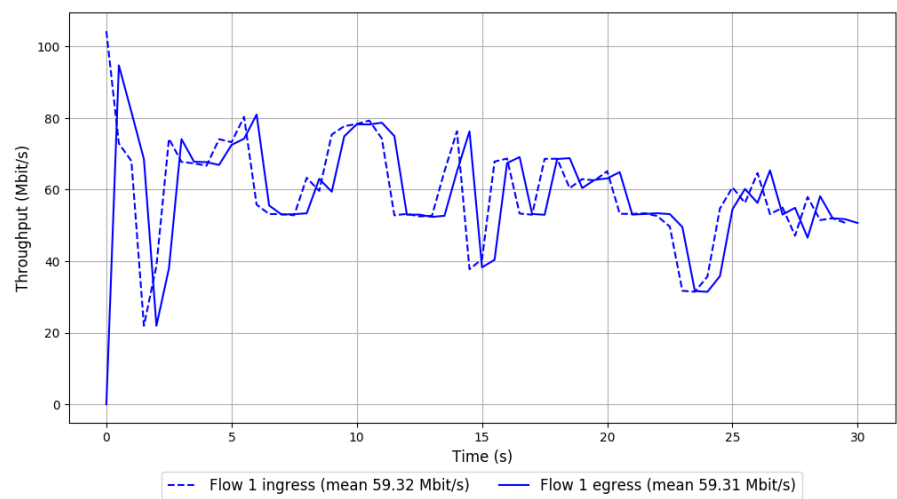
Run 5: Report of Verus — Data Link

Flow 1 ingress (mean 59.32 Mbit/s)   Flow 1 egress (mean 59.31 Mbit/s)

Flow 1 (95th percentile 14.14 ms)

```
Run 1: Statistics of PCC-Vivace

Start at: 2018-12-02 09:37:06
End at: 2018-12-02 09:37:36
Local clock offset: -6.522 ms
Remote clock offset: 0.108 ms


# Below is generated by plot.py at 2018-12-02 11:34:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 89.31 Mbit/s
95th percentile per-packet one-way delay: 1.655 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 89.31 Mbit/s
95th percentile per-packet one-way delay: 1.655 ms
Loss rate: 0.02%
```
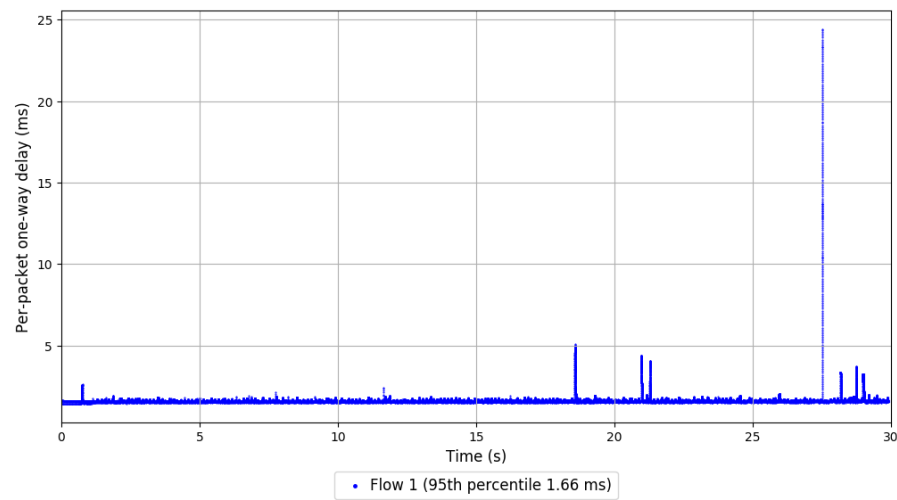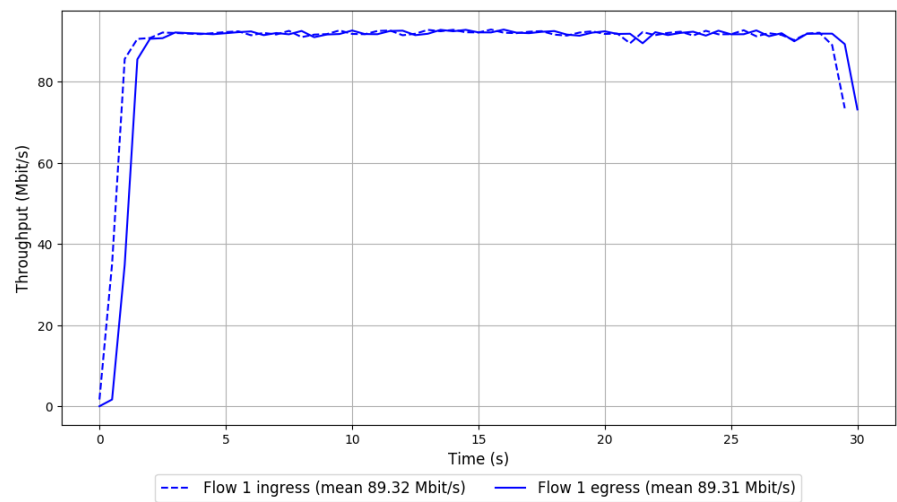
Run 1: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 89.32 Mbit/s)   Flow 1 egress (mean 89.31 Mbit/s)

Flow 1 (95th percentile 1.66 ms)

```
Run 2: Statistics of PCC-Vivace

Start at: 2018-12-02 09:58:35
End at: 2018-12-02 09:59:05
Local clock offset: -6.379 ms
Remote clock offset: 0.322 ms


# Below is generated by plot.py at 2018-12-02 11:34:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 28.49 Mbit/s
95th percentile per-packet one-way delay: 2.350 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 28.49 Mbit/s
95th percentile per-packet one-way delay: 2.350 ms
Loss rate: 0.03%
```
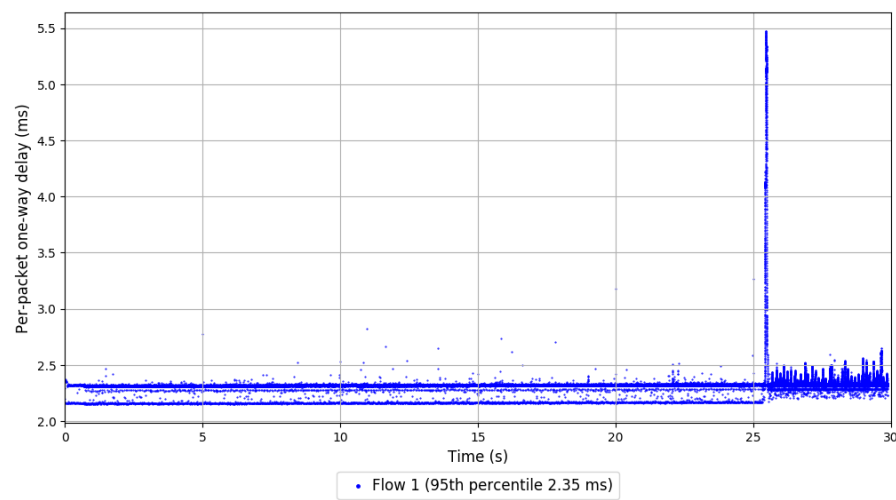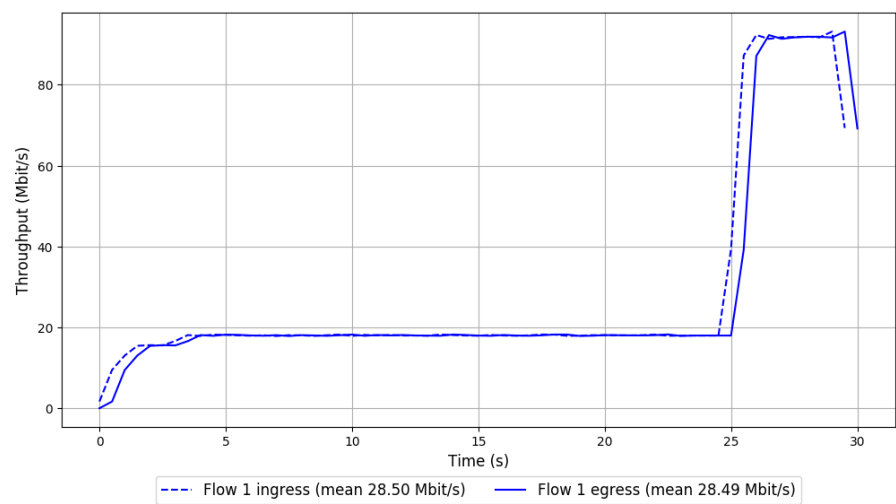
Run 2: Report of PCC-Vivace — Data Link

```
Run 3: Statistics of PCC-Vivace

Start at: 2018-12-02 10:20:01
End at: 2018-12-02 10:20:31
Local clock offset: -6.587 ms
Remote clock offset: 0.502 ms


# Below is generated by plot.py at 2018-12-02 11:34:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 20.87 Mbit/s
95th percentile per-packet one-way delay: 2.284 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 20.87 Mbit/s
95th percentile per-packet one-way delay: 2.284 ms
Loss rate: 0.01%
```
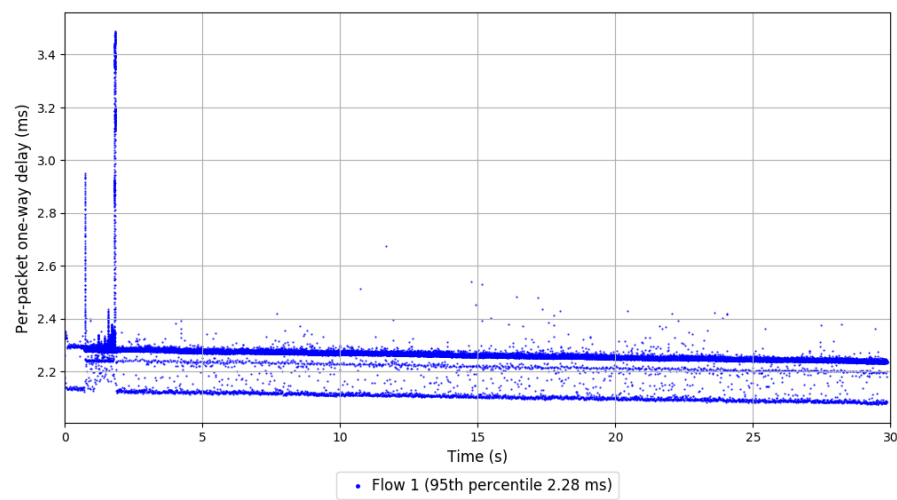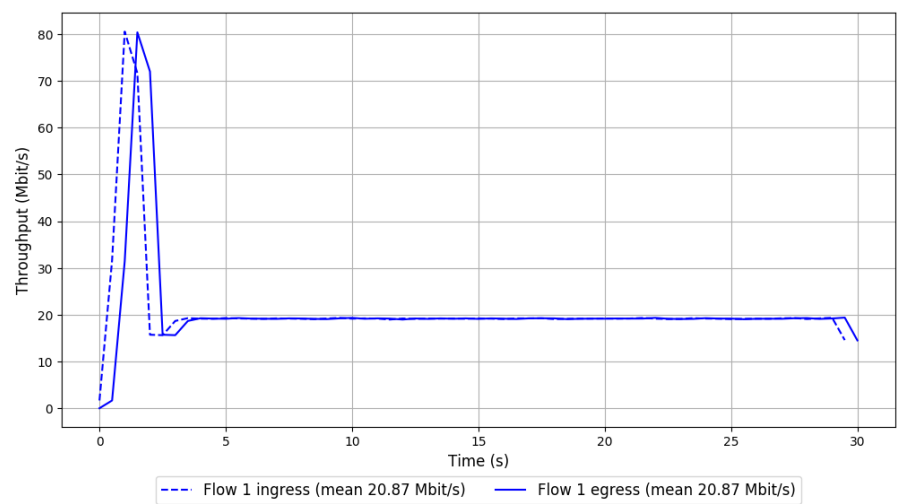
Run 3: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 20.87 Mbit/s)   Flow 1 egress (mean 20.87 Mbit/s)

Flow 1 (95th percentile 2.28 ms)

```
Run 4: Statistics of PCC-Vivace

Start at: 2018-12-02 10:41:26
End at: 2018-12-02 10:41:56
Local clock offset: -5.838 ms
Remote clock offset: 0.52 ms


# Below is generated by plot.py at 2018-12-02 11:34:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 86.39 Mbit/s
95th percentile per-packet one-way delay: 2.485 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 86.39 Mbit/s
95th percentile per-packet one-way delay: 2.485 ms
Loss rate: 0.01%
```
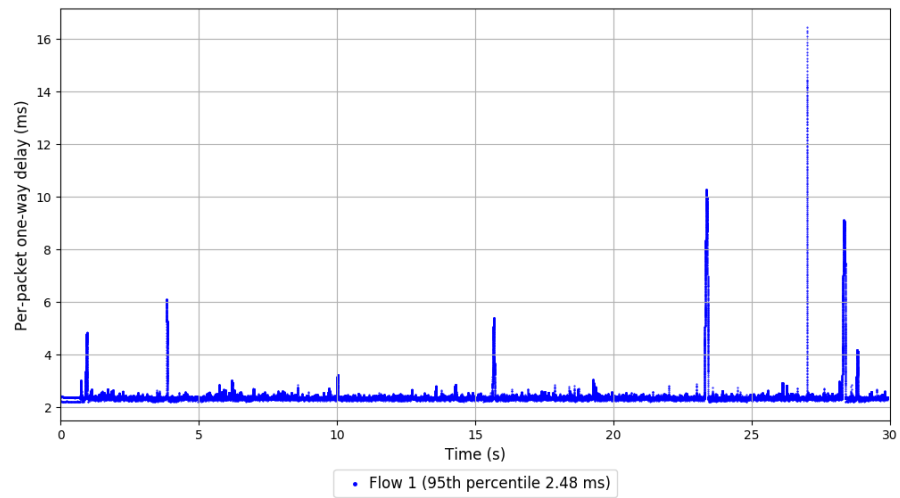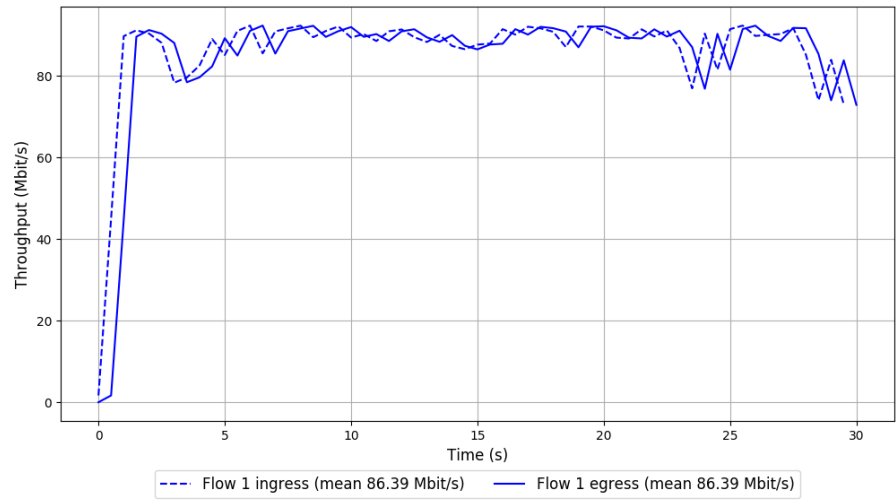
Run 4: Report of PCC-Vivace — Data Link

```
Run 5: Statistics of PCC-Vivace

Start at: 2018-12-02 11:02:56
End at: 2018-12-02 11:03:26
Local clock offset: -6.307 ms
Remote clock offset: 0.556 ms

# Below is generated by plot.py at 2018-12-02 11:34:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 25.94 Mbit/s
95th percentile per-packet one-way delay: 1.606 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 25.94 Mbit/s
95th percentile per-packet one-way delay: 1.606 ms
Loss rate: 0.01%
```
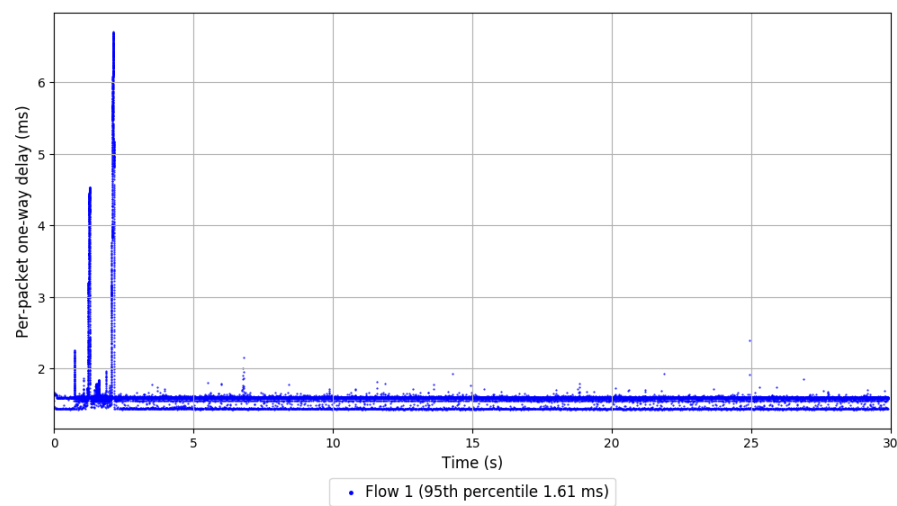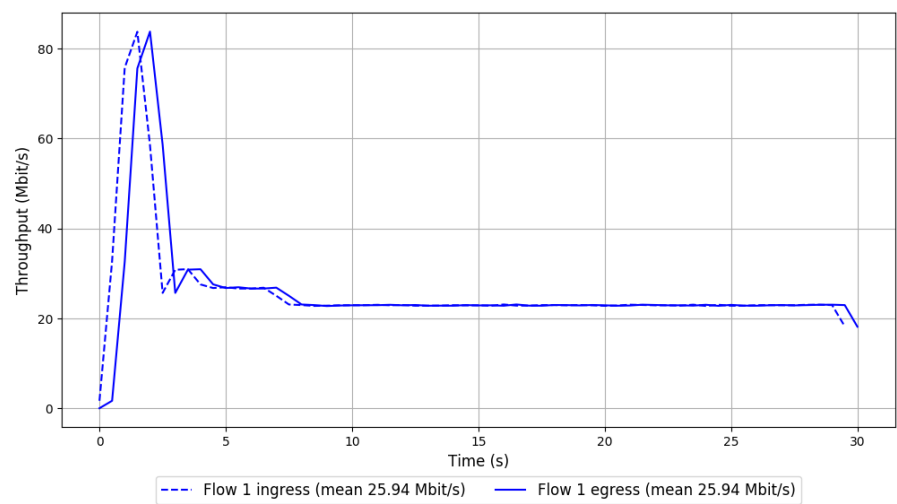
Run 5: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 25.94 Mbit/s)   Flow 1 egress (mean 25.94 Mbit/s)

• Flow 1 (95th percentile 1.61 ms)

```
Run 1: Statistics of WebRTC media

Start at: 2018-12-02 09:52:54
End at: 2018-12-02 09:53:24
Local clock offset: -7.095 ms
Remote clock offset: 0.243 ms


# Below is generated by plot.py at 2018-12-02 11:34:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.41 Mbit/s
95th percentile per-packet one-way delay: 2.025 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 2.41 Mbit/s
95th percentile per-packet one-way delay: 2.025 ms
Loss rate: 0.08%
```
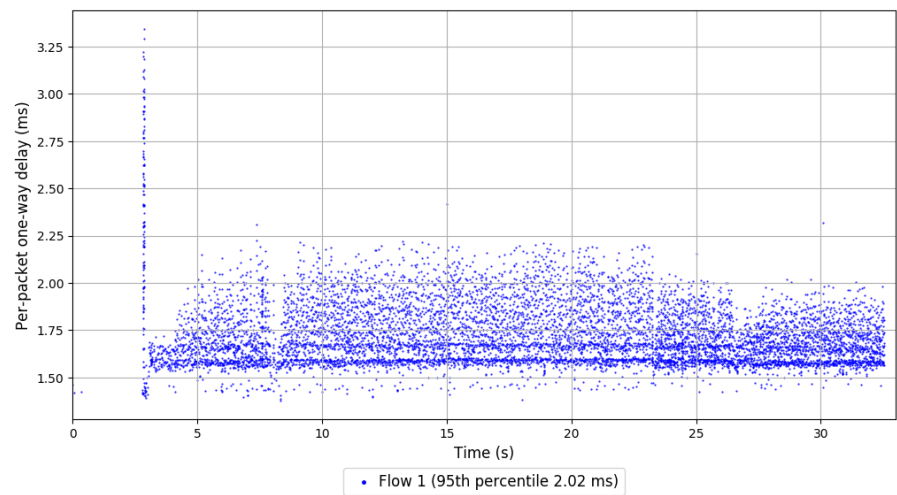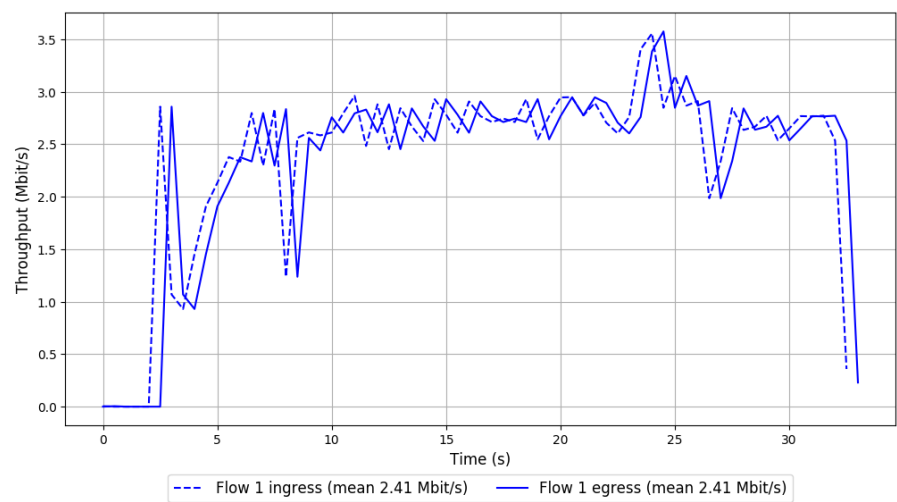
Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2018-12-02 10:14:20
End at: 2018-12-02 10:14:50
Local clock offset: -7.533 ms
Remote clock offset: 0.397 ms


# Below is generated by plot.py at 2018-12-02 11:34:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.35 Mbit/s
95th percentile per-packet one-way delay: 2.059 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.35 Mbit/s
95th percentile per-packet one-way delay: 2.059 ms
Loss rate: 0.00%
```
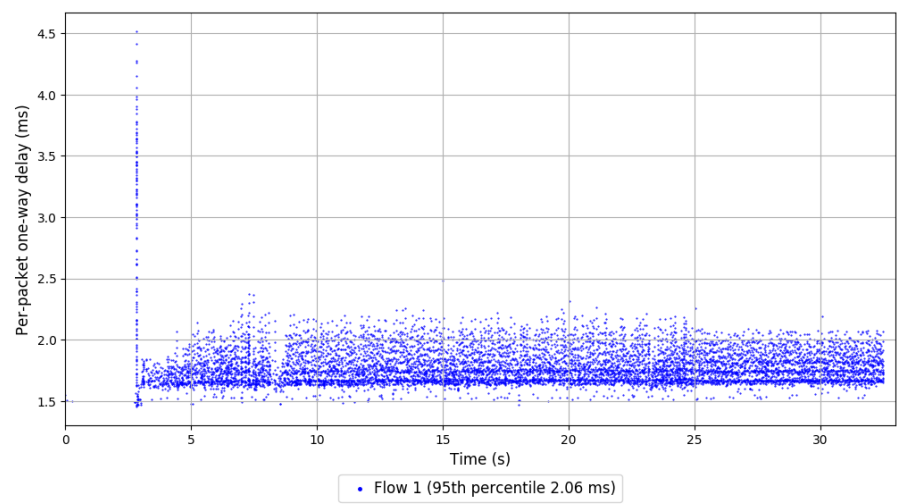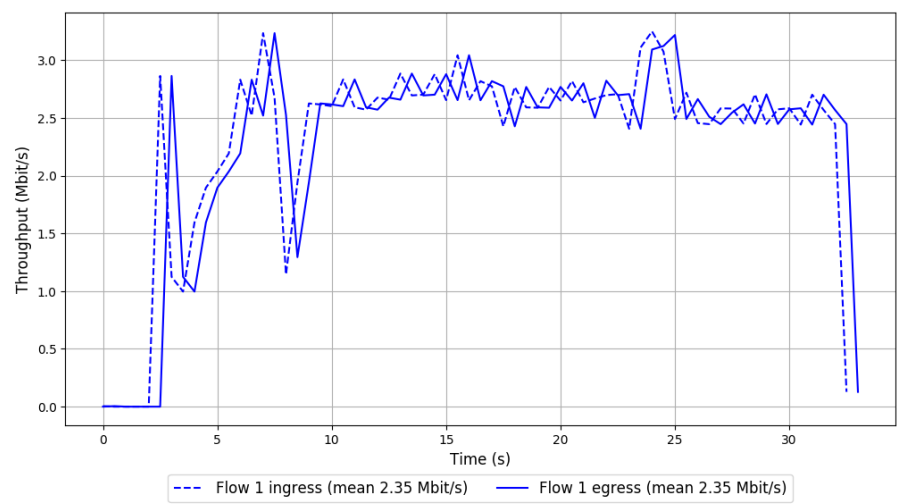
Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-12-02 10:35:46
End at: 2018-12-02 10:36:16
Local clock offset: -6.701 ms
Remote clock offset: 0.448 ms


# Below is generated by plot.py at 2018-12-02 11:34:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.42 Mbit/s
95th percentile per-packet one-way delay: 2.032 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.42 Mbit/s
95th percentile per-packet one-way delay: 2.032 ms
Loss rate: 0.00%
```
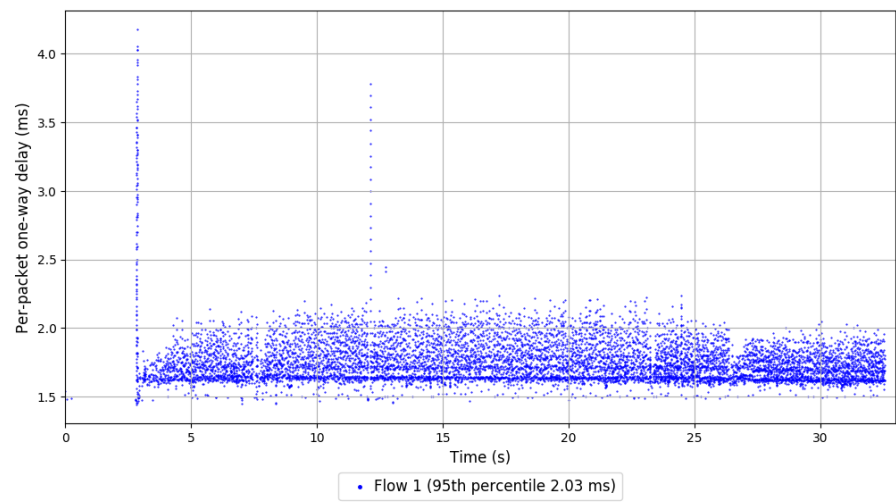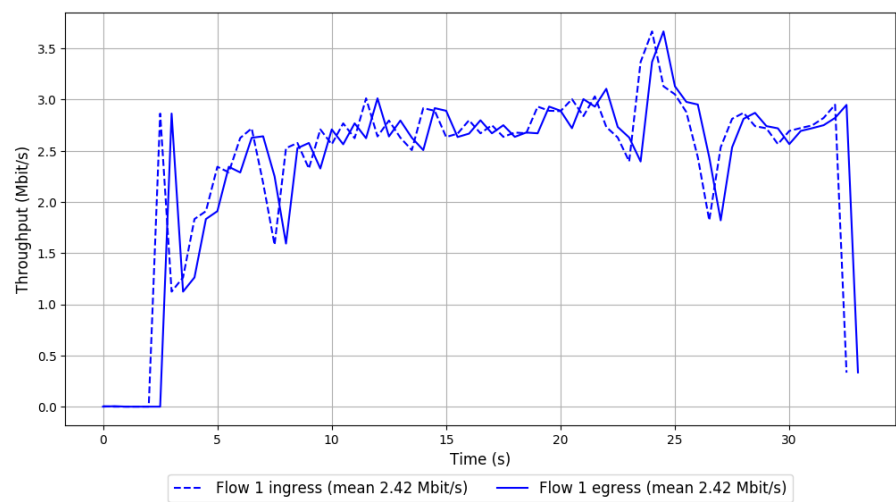
Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2018-12-02 10:57:15
End at: 2018-12-02 10:57:45
Local clock offset: -6.354 ms
Remote clock offset: 0.561 ms


# Below is generated by plot.py at 2018-12-02 11:34:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.38 Mbit/s
95th percentile per-packet one-way delay: 2.067 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 2.38 Mbit/s
95th percentile per-packet one-way delay: 2.067 ms
Loss rate: 0.07%
```
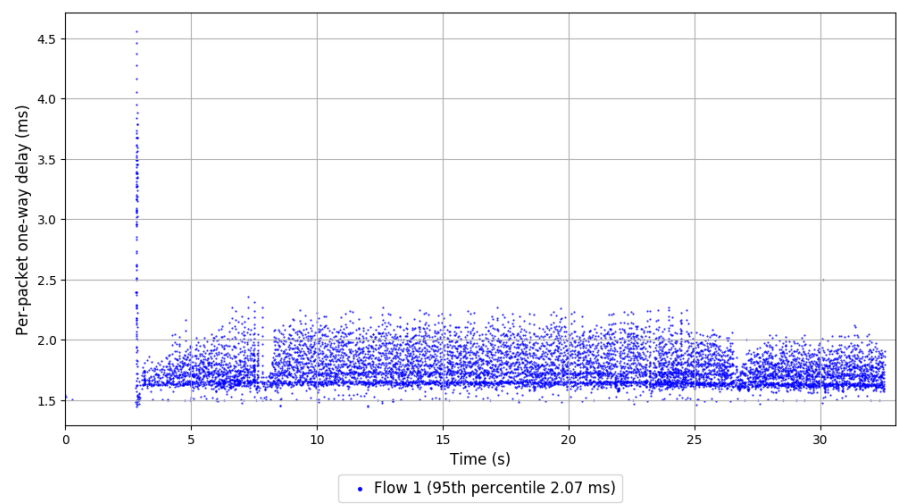
Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2018-12-02 11:18:41
End at: 2018-12-02 11:19:11
Local clock offset: -5.601 ms
Remote clock offset: 0.597 ms


# Below is generated by plot.py at 2018-12-02 11:34:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.38 Mbit/s
95th percentile per-packet one-way delay: 2.967 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.38 Mbit/s
95th percentile per-packet one-way delay: 2.967 ms
Loss rate: 0.00%
```
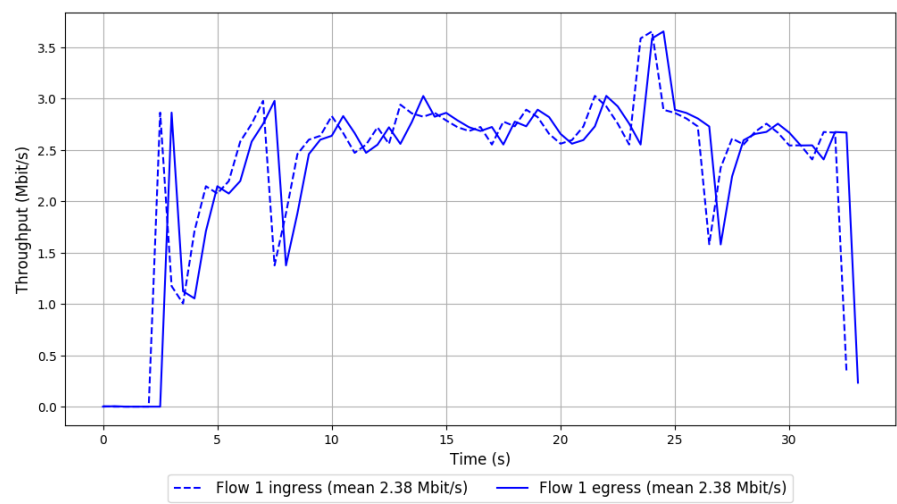
Run 5: Report of WebRTC media — Data Link