Pantheon Report

Generated at 2018-12-02 12:53:56 (UTC).

Data path: Stanford on eno1 (*remote*) →AWS India 2 on ens5 (*local*).

Repeated the test of 19 congestion control schemes 5 times.

Each test lasted for 30 seconds running 1 flow.

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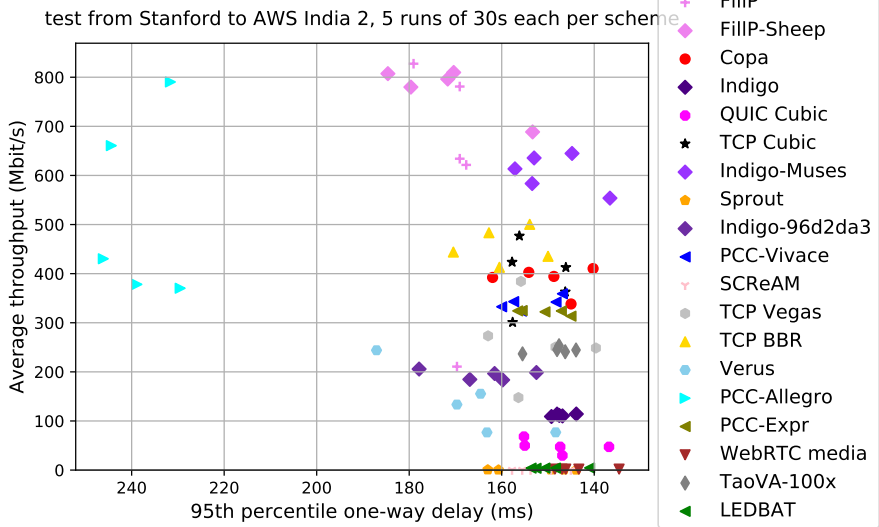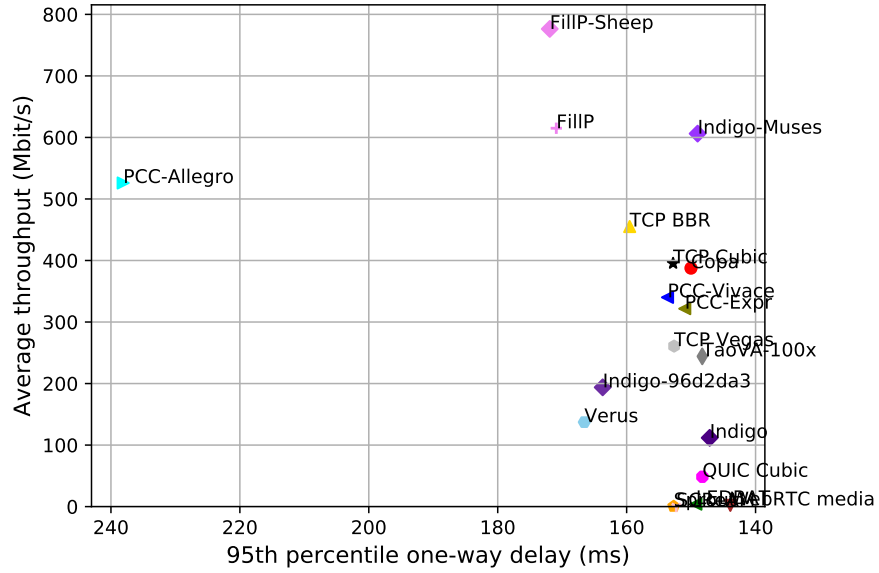
```
System info:
Linux 4.15.0-1027-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

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 Stanford to AWS India 2, 5 runs of 30s each per scheme
(mean of all runs by scheme)

test from Stanford to AWS India 2, 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	455.23	159.53	1.35
Copa	5	387.58	150.02	1.11
TCP Cubic	5	395.38	152.79	1.19
FillP	5	614.95	170.91	0.75
FillP-Sheep	5	776.36	171.93	0.94
Indigo	5	111.79	147.12	1.07
Indigo-96d2da3	5	193.85	163.72	0.73
LEDBAT	5	4.03	149.26	1.87
Indigo-Muses	5	606.21	148.99	1.01
PCC-Allegro	5	525.97	238.10	1.19
PCC-Expr	5	321.72	150.99	1.13
QUIC Cubic	5	48.48	148.25	1.14
SCReAM	5	0.19	152.30	0.95
Sprout	5	0.54	152.71	1.24
TaoVA-100x	5	244.17	148.27	0.96
TCP Vegas	5	260.84	152.64	1.08
Verus	5	137.29	166.57	1.71
PCC-Vivace	5	340.10	153.66	1.29
WebRTC media	5	1.97	143.91	1.27

```
Run 1: Statistics of TCP BBR

Start at: 2018-12-02 09:55:12
End at: 2018-12-02 09:55:42
Local clock offset: -0.912 ms
Remote clock offset: 0.125 ms


# Below is generated by plot.py at 2018-12-02 12:13:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 500.49 Mbit/s
95th percentile per-packet one-way delay: 153.948 ms
Loss rate: 1.17%
-- Flow 1:
Average throughput: 500.49 Mbit/s
95th percentile per-packet one-way delay: 153.948 ms
Loss rate: 1.17%
```
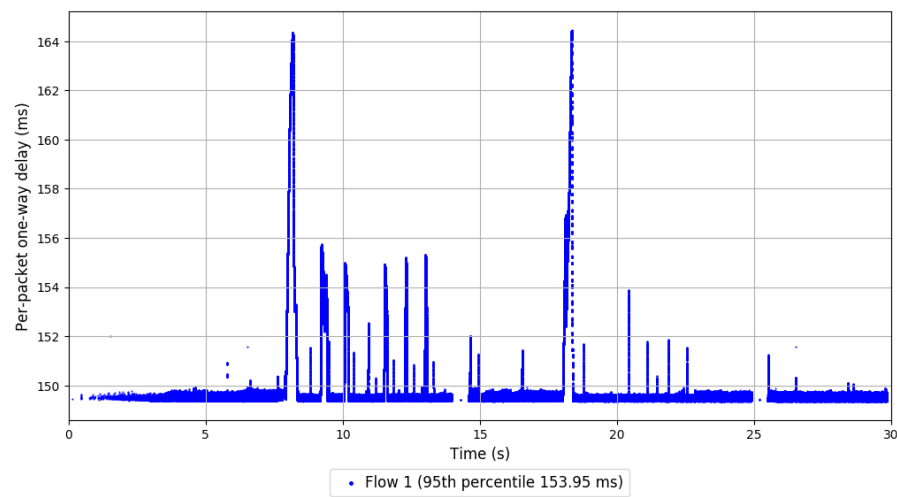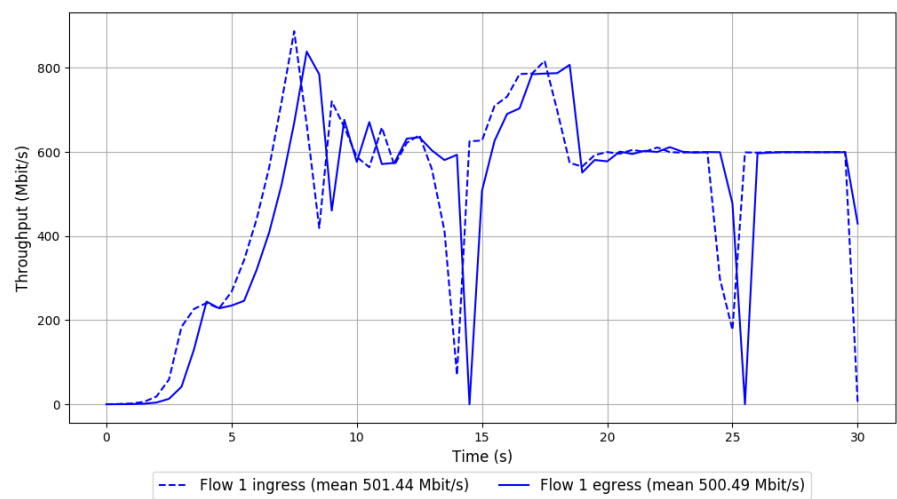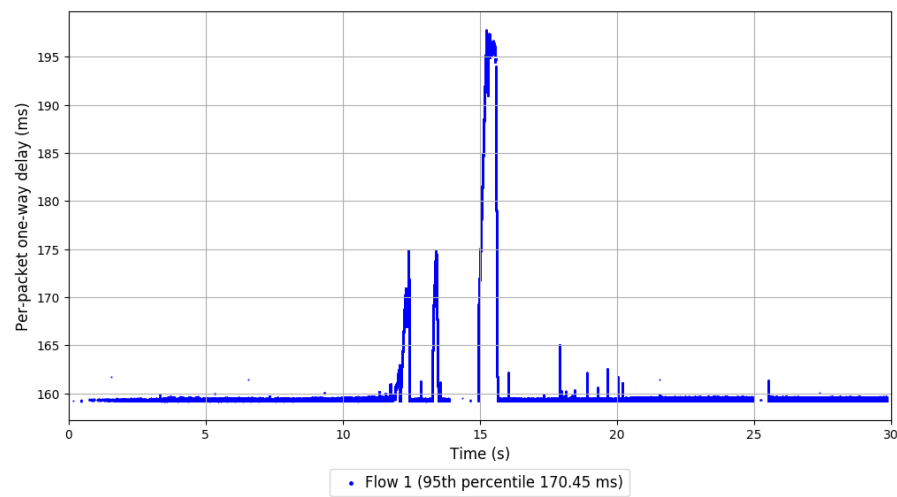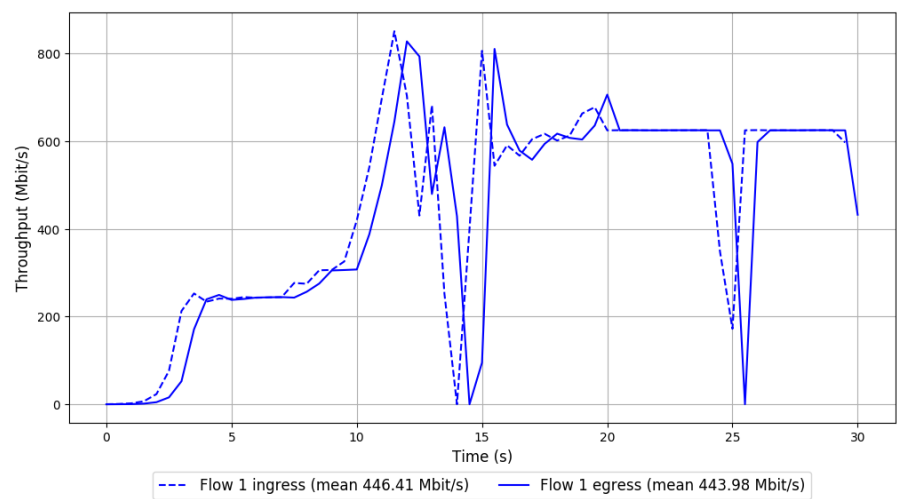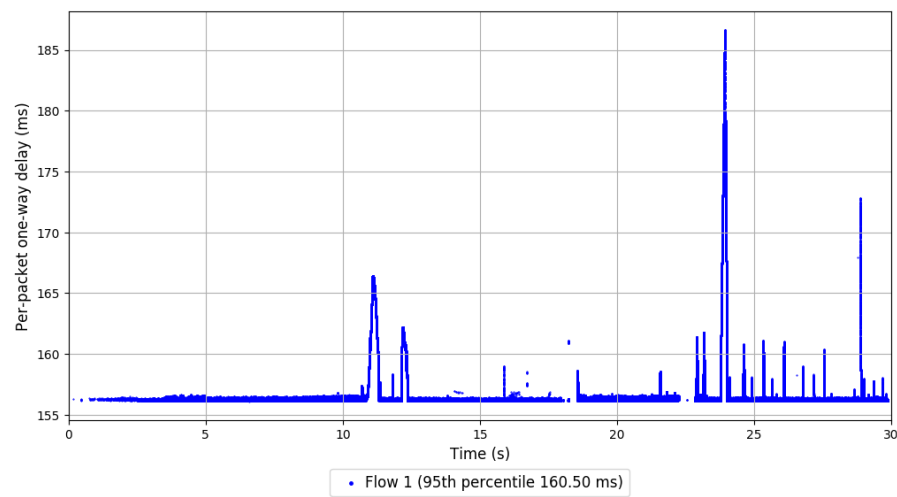
Run 1: Report of TCP BBR — Data Link

```
Run 2: Statistics of TCP BBR

Start at: 2018-12-02 10:25:00
End at: 2018-12-02 10:25:30
Local clock offset: 11.234 ms
Remote clock offset: 0.123 ms


# Below is generated by plot.py at 2018-12-02 12:13:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 443.98 Mbit/s
95th percentile per-packet one-way delay: 170.453 ms
Loss rate: 1.51%
-- Flow 1:
Average throughput: 443.98 Mbit/s
95th percentile per-packet one-way delay: 170.453 ms
Loss rate: 1.51%
```

Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2018-12-02 10:54:46
End at: 2018-12-02 10:55:16
Local clock offset: 6.593 ms
Remote clock offset: 0.073 ms


# Below is generated by plot.py at 2018-12-02 12:13:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 412.99 Mbit/s
95th percentile per-packet one-way delay: 160.497 ms
Loss rate: 1.40%
-- Flow 1:
Average throughput: 412.99 Mbit/s
95th percentile per-packet one-way delay: 160.497 ms
Loss rate: 1.40%
```
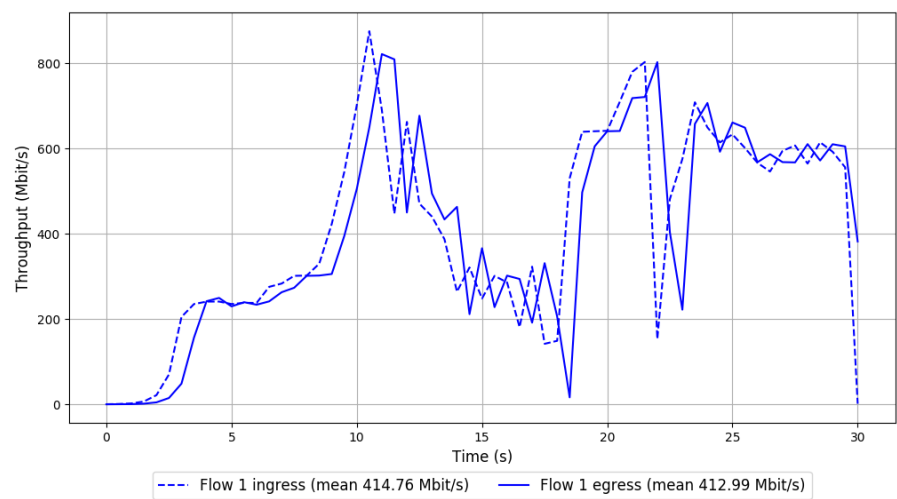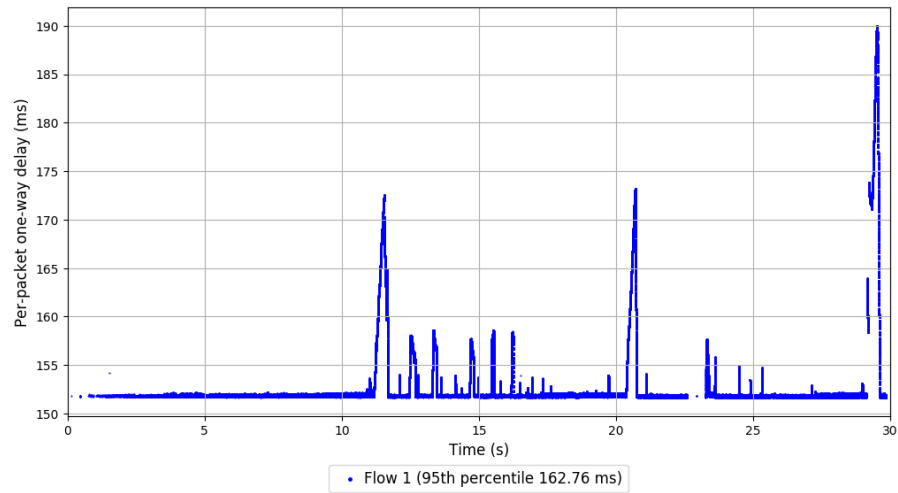
Run 3: Report of TCP BBR — Data Link

```
Run 4: Statistics of TCP BBR

Start at: 2018-12-02 11:24:31
End at: 2018-12-02 11:25:01
Local clock offset: 7.577 ms
Remote clock offset: 0.092 ms


# Below is generated by plot.py at 2018-12-02 12:13:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 483.34 Mbit/s
95th percentile per-packet one-way delay: 162.762 ms
Loss rate: 1.15%
-- Flow 1:
Average throughput: 483.34 Mbit/s
95th percentile per-packet one-way delay: 162.762 ms
Loss rate: 1.15%
```
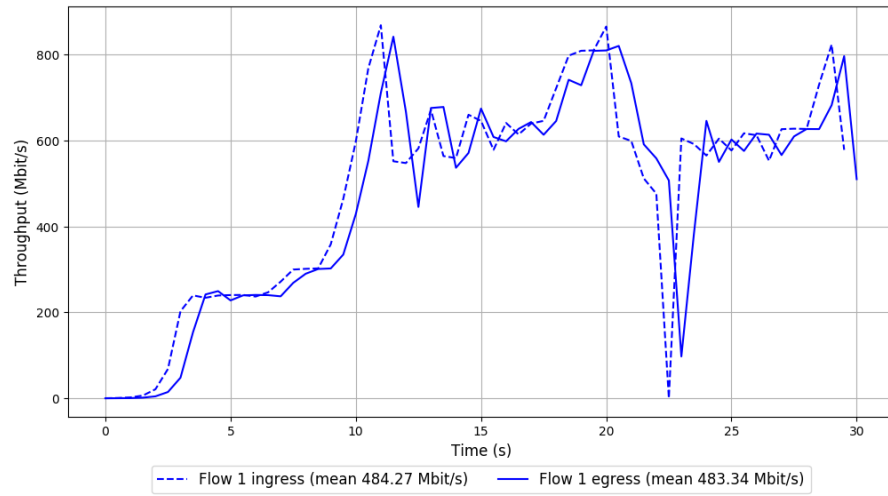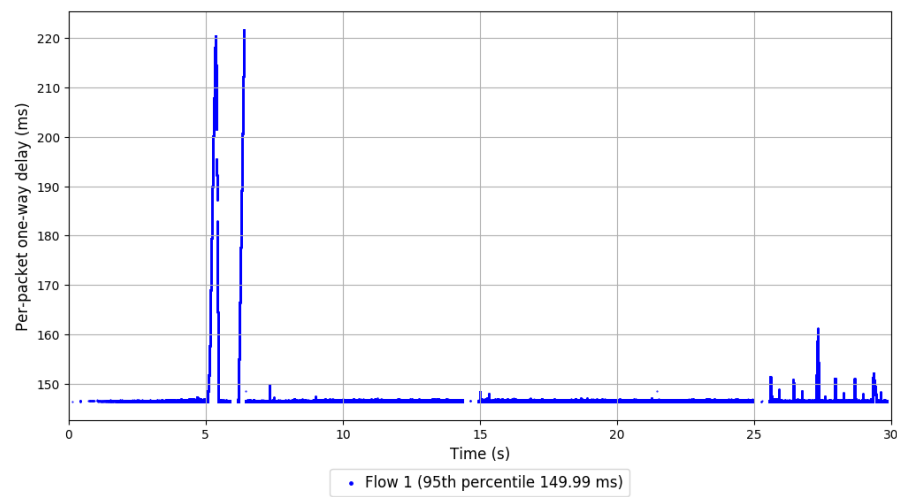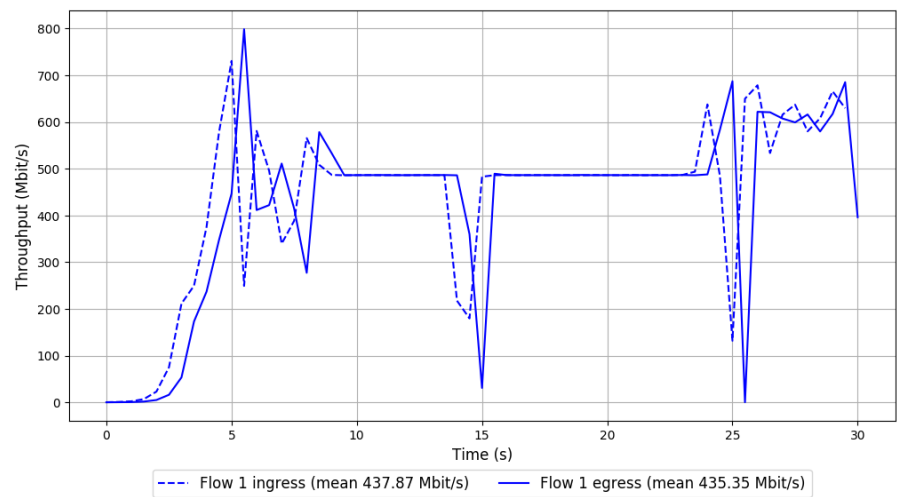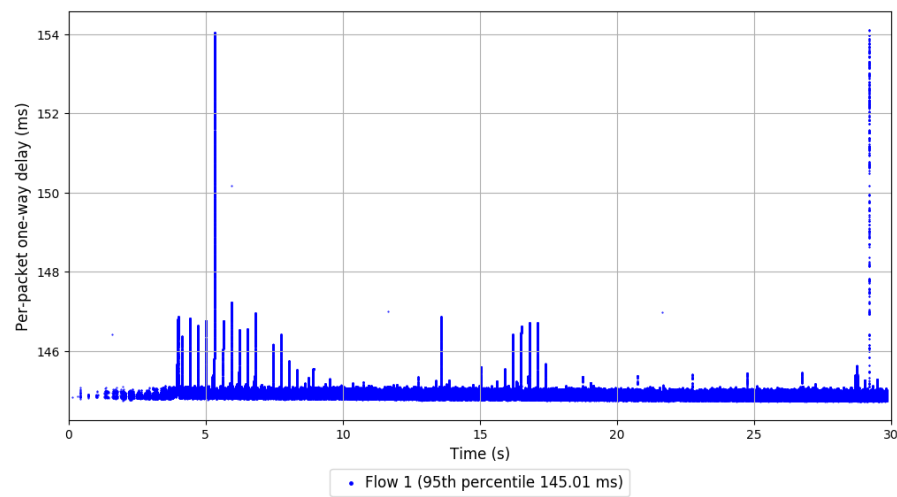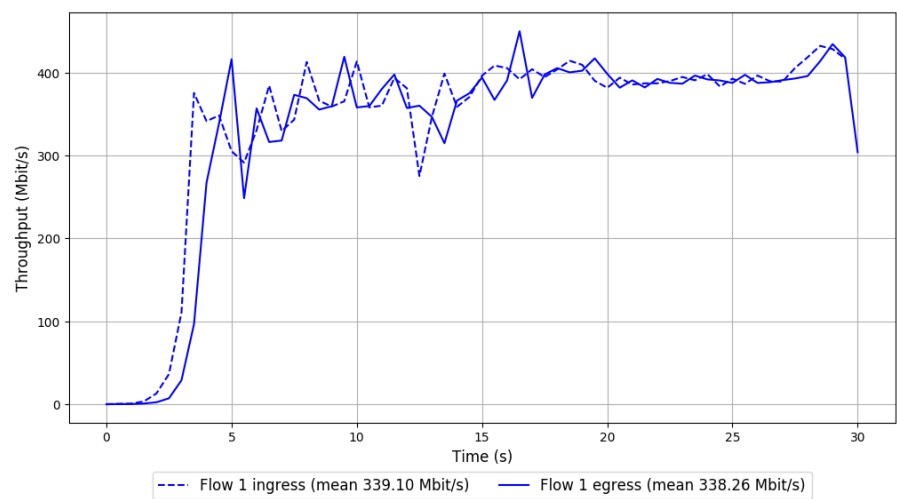
Run 4: Report of TCP BBR — Data Link

Flow 1 ingress (mean 484.27 Mbit/s) ----- Flow 1 egress (mean 483.34 Mbit/s) —

Flow 1 (95th percentile 162.76 ms)

```
Run 5: Statistics of TCP BBR

Start at: 2018-12-02 11:54:18
End at: 2018-12-02 11:54:49
Local clock offset: 7.993 ms
Remote clock offset: 0.007 ms


# Below is generated by plot.py at 2018-12-02 12:13:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 435.35 Mbit/s
95th percentile per-packet one-way delay: 149.988 ms
Loss rate: 1.51%
-- Flow 1:
Average throughput: 435.35 Mbit/s
95th percentile per-packet one-way delay: 149.988 ms
Loss rate: 1.51%
```

Run 5: Report of TCP BBR — Data Link

```
Run 1: Statistics of Copa

Start at: 2018-12-02 09:48:29
End at: 2018-12-02 09:48:59
Local clock offset: -3.912 ms
Remote clock offset: -0.004 ms

# Below is generated by plot.py at 2018-12-02 12:14:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 338.26 Mbit/s
95th percentile per-packet one-way delay: 145.014 ms
Loss rate: 1.21%
-- Flow 1:
Average throughput: 338.26 Mbit/s
95th percentile per-packet one-way delay: 145.014 ms
Loss rate: 1.21%
```

Run 1: Report of Copa — Data Link

```
Run 2: Statistics of Copa

Start at: 2018-12-02 10:18:07
End at: 2018-12-02 10:18:37
Local clock offset: 1.085 ms
Remote clock offset: 0.162 ms


# Below is generated by plot.py at 2018-12-02 12:16:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 410.38 Mbit/s
95th percentile per-packet one-way delay: 140.245 ms
Loss rate: 1.05%
-- Flow 1:
Average throughput: 410.38 Mbit/s
95th percentile per-packet one-way delay: 140.245 ms
Loss rate: 1.05%
```
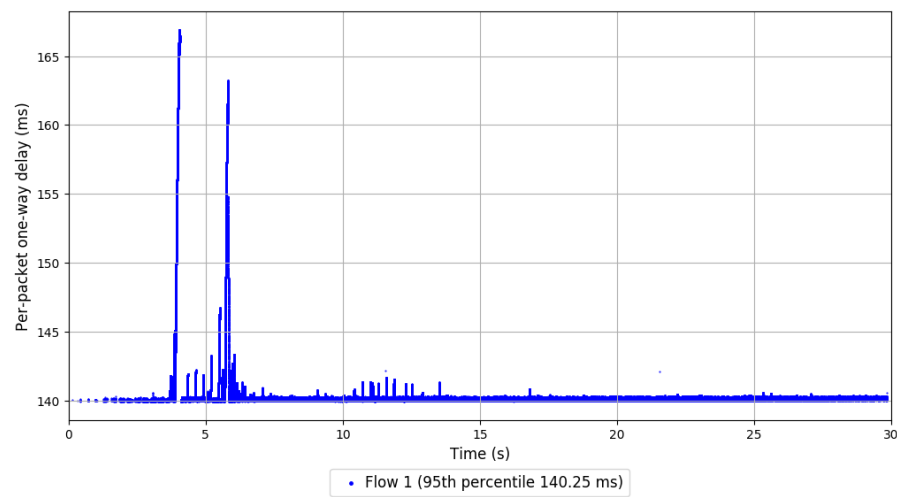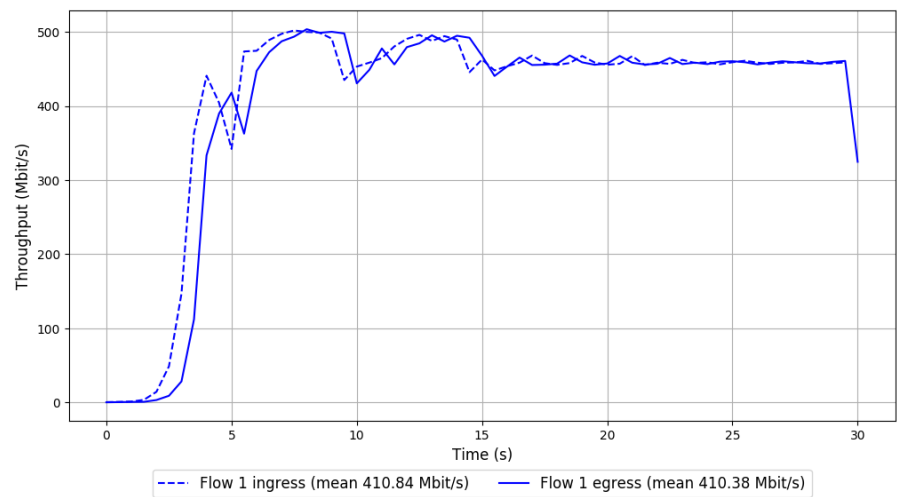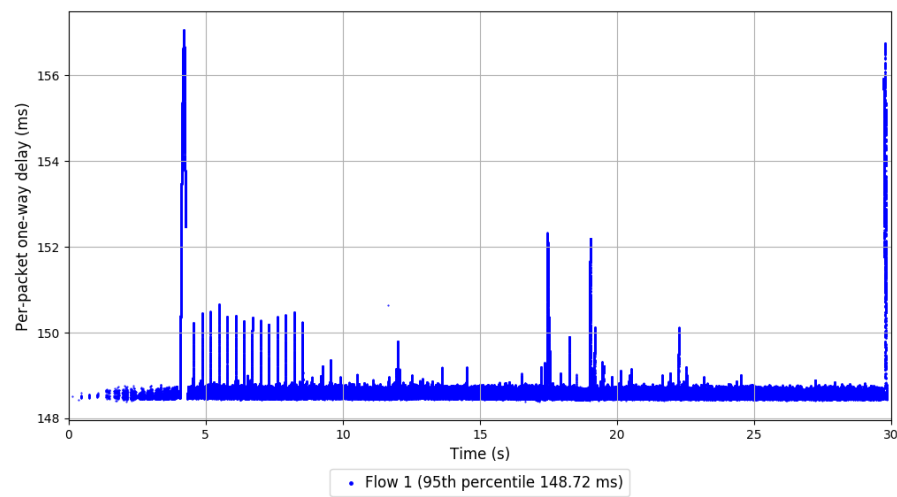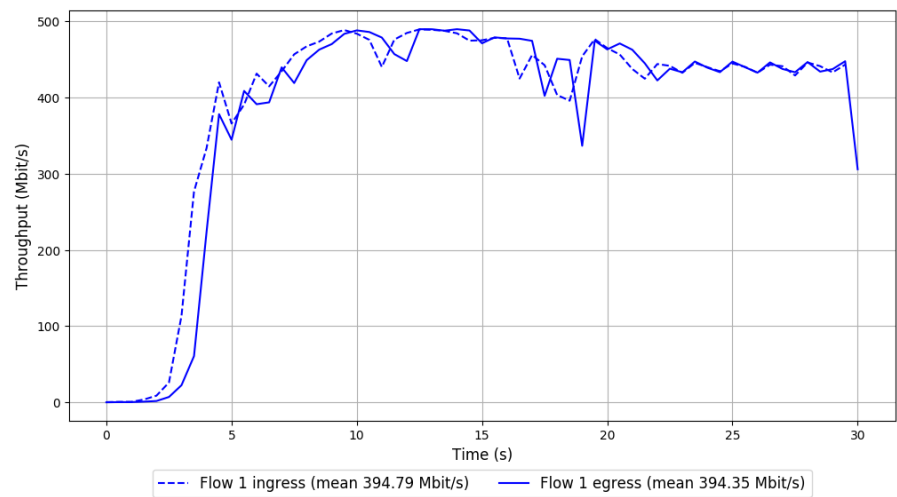
Run 2: Report of Copa — Data Link

```
Run 3: Statistics of Copa

Start at: 2018-12-02 10:47:53
End at: 2018-12-02 10:48:23
Local clock offset: -4.837 ms
Remote clock offset: 0.184 ms


# Below is generated by plot.py at 2018-12-02 12:16:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 394.35 Mbit/s
95th percentile per-packet one-way delay: 148.724 ms
Loss rate: 1.10%
-- Flow 1:
Average throughput: 394.35 Mbit/s
95th percentile per-packet one-way delay: 148.724 ms
Loss rate: 1.10%
```
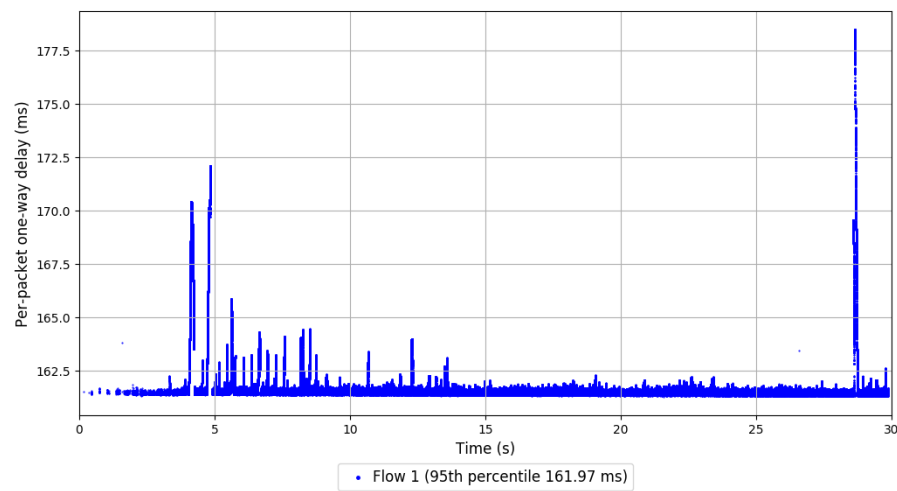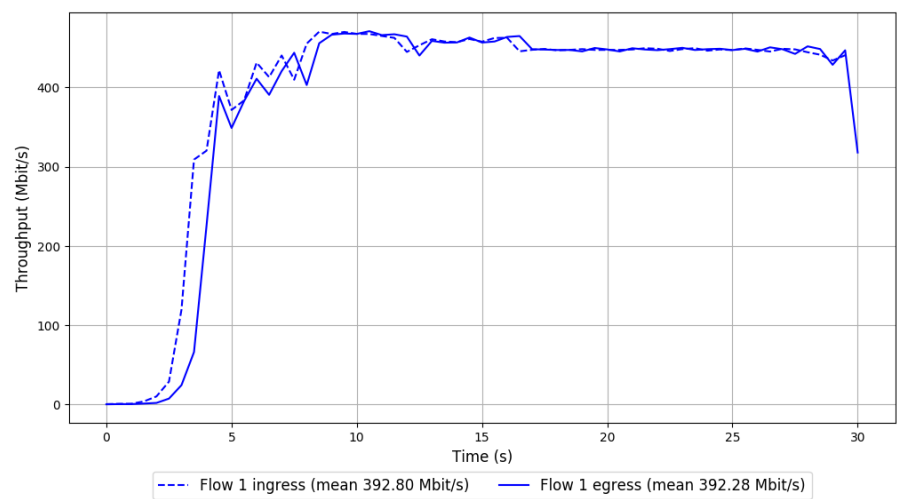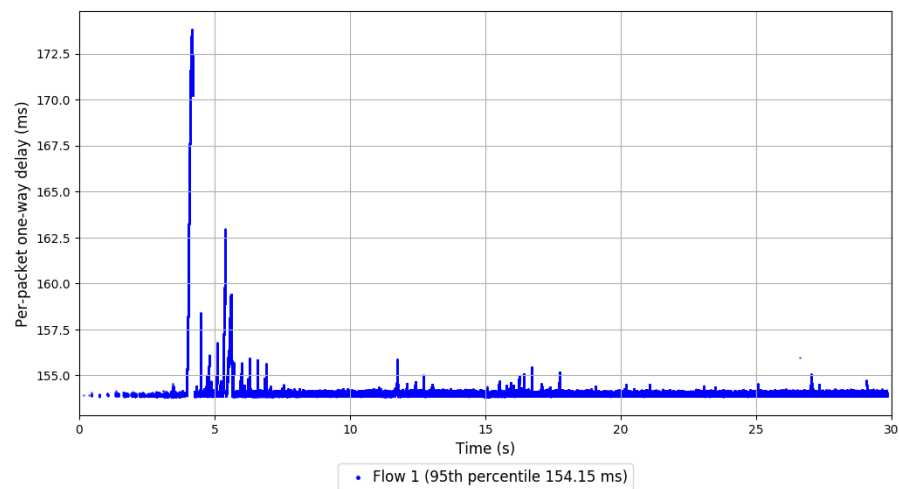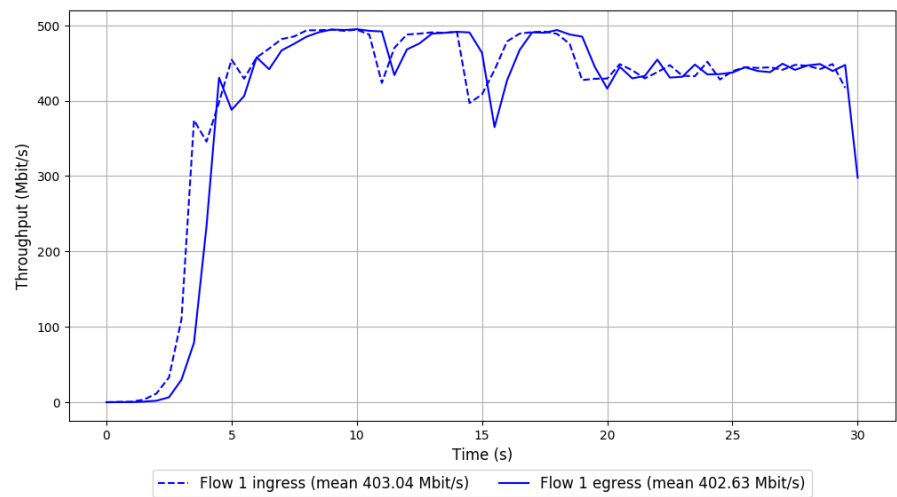
Run 3: Report of Copa — Data Link

Flow 1 ingress (mean 394.79 Mbit/s)   Flow 1 egress (mean 394.35 Mbit/s)

· Flow 1 (95th percentile 148.72 ms)

```
Run 4: Statistics of Copa

Start at: 2018-12-02 11:17:34
End at: 2018-12-02 11:18:04
Local clock offset: 10.622 ms
Remote clock offset: 0.137 ms


# Below is generated by plot.py at 2018-12-02 12:20:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 392.28 Mbit/s
95th percentile per-packet one-way delay: 161.975 ms
Loss rate: 1.11%
-- Flow 1:
Average throughput: 392.28 Mbit/s
95th percentile per-packet one-way delay: 161.975 ms
Loss rate: 1.11%
```

Run 4: Report of Copa — Data Link

Flow 1 ingress (mean 392.80 Mbit/s)   Flow 1 egress (mean 392.28 Mbit/s)

Flow 1 (95th percentile 161.97 ms)

```
Run 5: Statistics of Copa

Start at: 2018-12-02 11:47:27
End at: 2018-12-02 11:47:57
Local clock offset: 8.486 ms
Remote clock offset: -0.012 ms

# Below is generated by plot.py at 2018-12-02 12:20:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 402.63 Mbit/s
95th percentile per-packet one-way delay: 154.148 ms
Loss rate: 1.07%
-- Flow 1:
Average throughput: 402.63 Mbit/s
95th percentile per-packet one-way delay: 154.148 ms
Loss rate: 1.07%
```
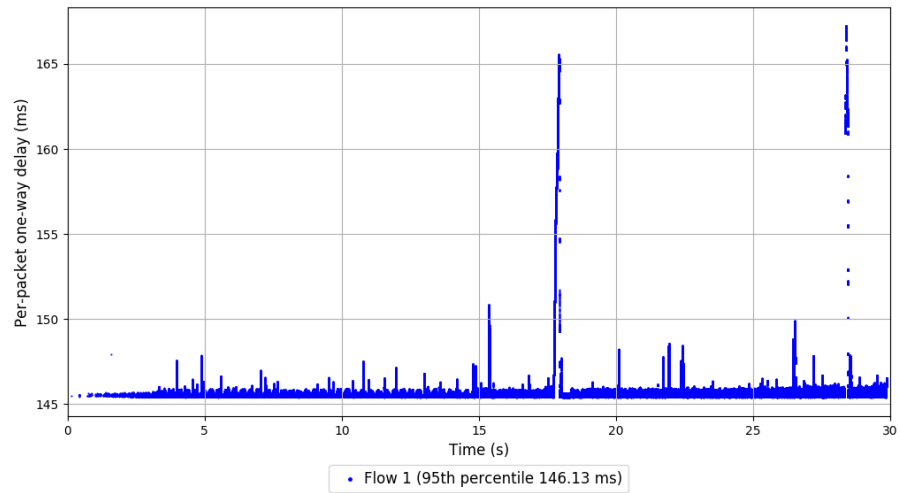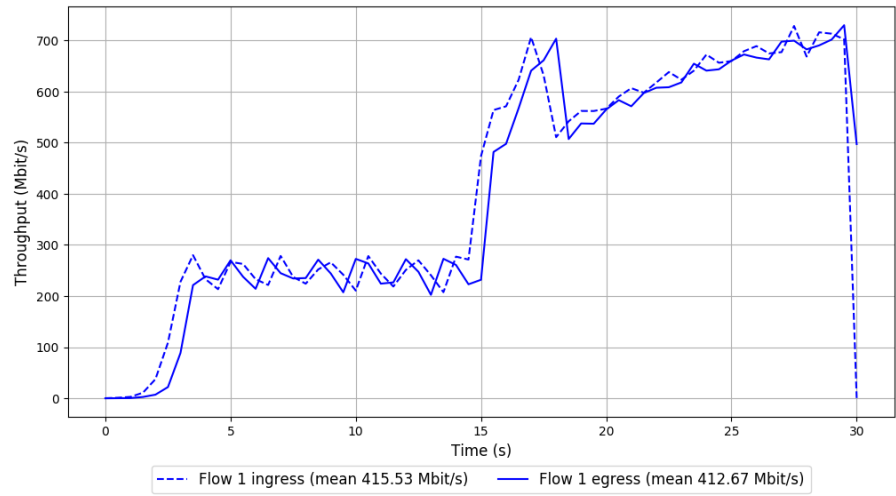
Run 5: Report of Copa — Data Link

```
Run 1: Statistics of TCP Cubic

Start at: 2018-12-02 09:58:46
End at: 2018-12-02 09:59:16
Local clock offset: 7.587 ms
Remote clock offset: 0.206 ms


# Below is generated by plot.py at 2018-12-02 12:20:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 412.67 Mbit/s
95th percentile per-packet one-way delay: 146.133 ms
Loss rate: 1.62%
-- Flow 1:
Average throughput: 412.67 Mbit/s
95th percentile per-packet one-way delay: 146.133 ms
Loss rate: 1.62%
```

Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2018-12-02 10:28:27
End at: 2018-12-02 10:28:57
Local clock offset: 7.229 ms
Remote clock offset: 0.127 ms


# Below is generated by plot.py at 2018-12-02 12:20:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 362.90 Mbit/s
95th percentile per-packet one-way delay: 146.252 ms
Loss rate: 1.14%
-- Flow 1:
Average throughput: 362.90 Mbit/s
95th percentile per-packet one-way delay: 146.252 ms
Loss rate: 1.14%
```
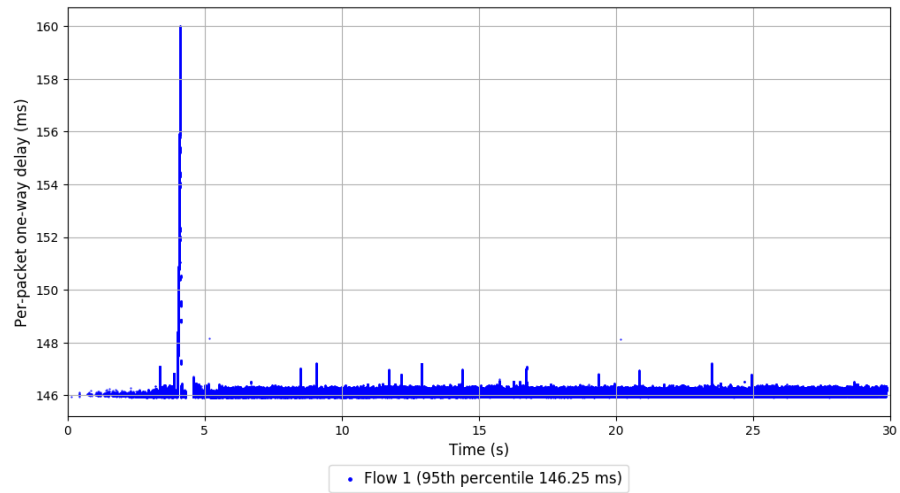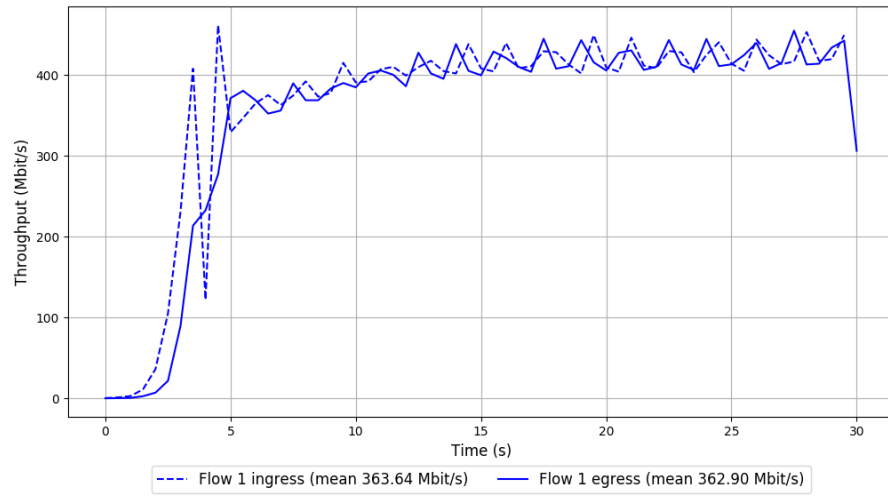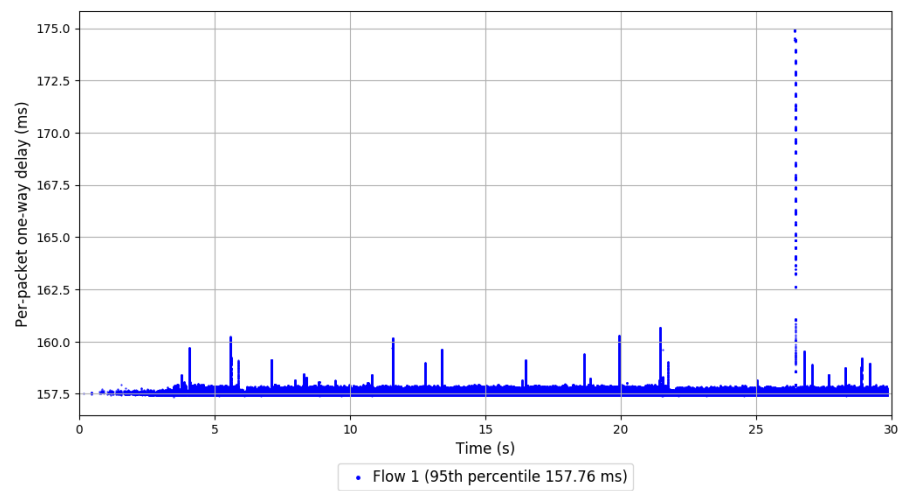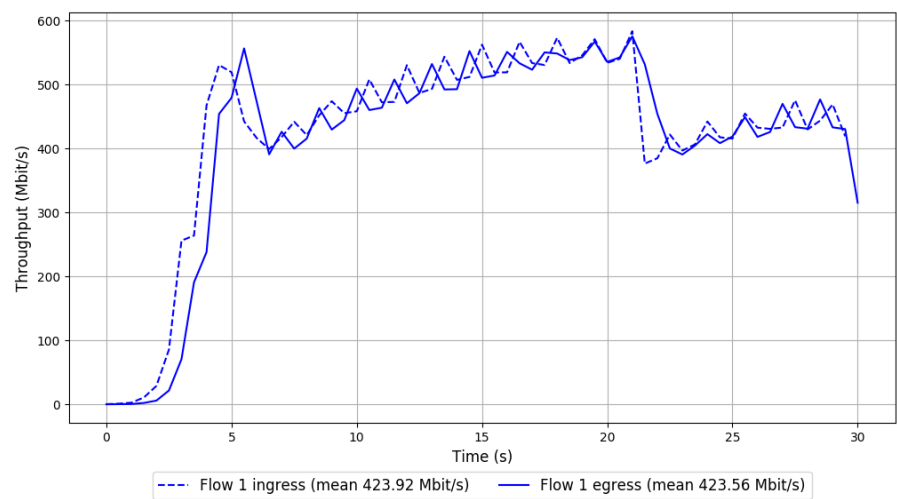
Run 2: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 363.64 Mbit/s)   Flow 1 egress (mean 362.90 Mbit/s)

Flow 1 (95th percentile 146.25 ms)

28

```
Run 3: Statistics of TCP Cubic

Start at: 2018-12-02 10:58:18
End at: 2018-12-02 10:58:48
Local clock offset: 6.651 ms
Remote clock offset: 0.169 ms


# Below is generated by plot.py at 2018-12-02 12:20:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 423.56 Mbit/s
95th percentile per-packet one-way delay: 157.756 ms
Loss rate: 1.06%
-- Flow 1:
Average throughput: 423.56 Mbit/s
95th percentile per-packet one-way delay: 157.756 ms
Loss rate: 1.06%
```
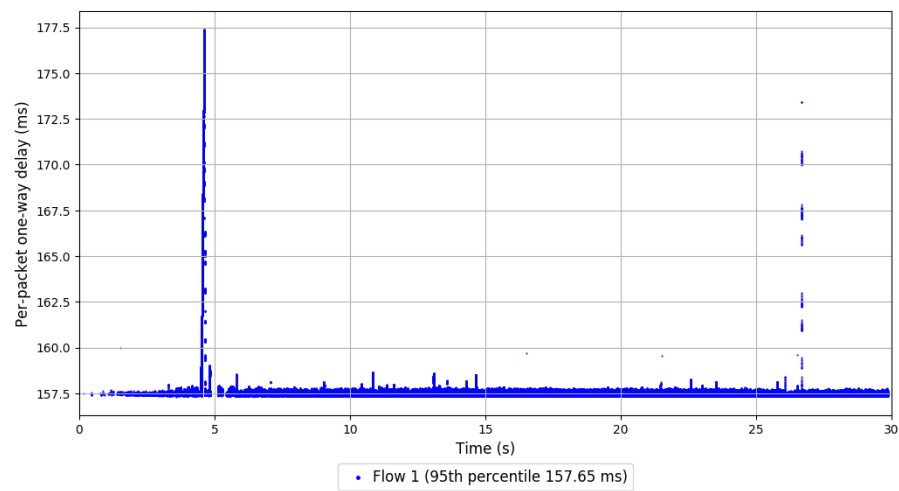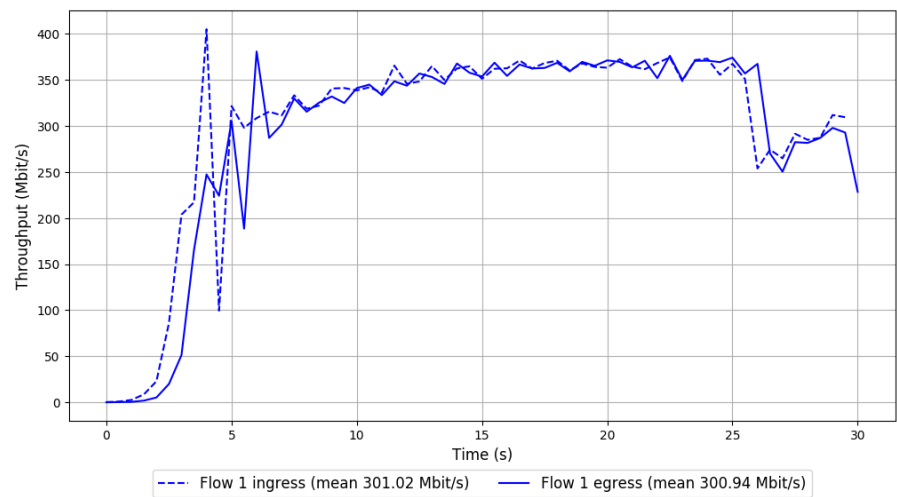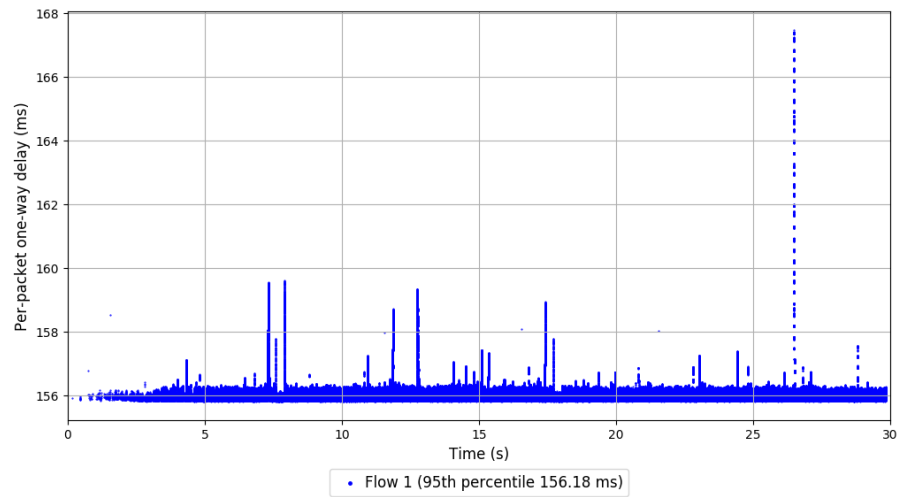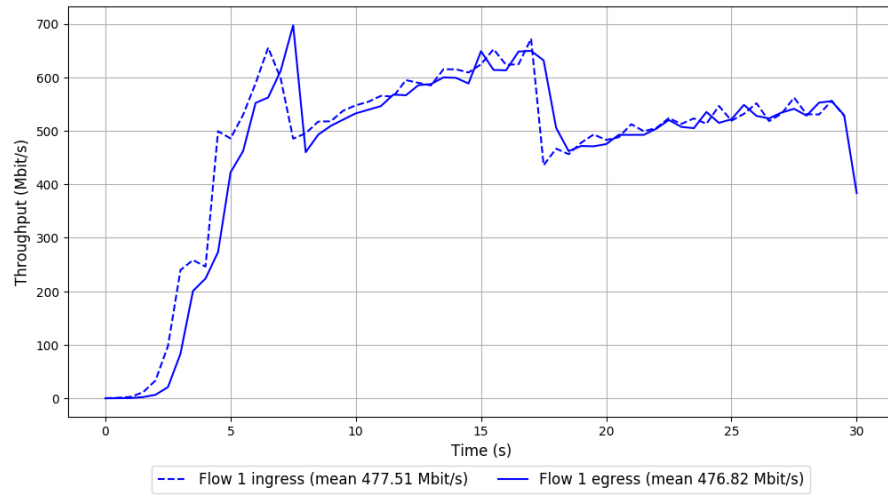
Run 3: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 423.92 Mbit/s)   —— Flow 1 egress (mean 423.56 Mbit/s)

• Flow 1 (95th percentile 157.76 ms)

```
Run 4: Statistics of TCP Cubic

Start at: 2018-12-02 11:28:05
End at: 2018-12-02 11:28:35
Local clock offset: 7.572 ms
Remote clock offset: 0.056 ms


# Below is generated by plot.py at 2018-12-02 12:20:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 300.94 Mbit/s
95th percentile per-packet one-way delay: 157.648 ms
Loss rate: 1.01%
-- Flow 1:
Average throughput: 300.94 Mbit/s
95th percentile per-packet one-way delay: 157.648 ms
Loss rate: 1.01%
```

Run 4: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 301.02 Mbit/s)   Flow 1 egress (mean 300.94 Mbit/s)

Flow 1 (95th percentile 157.65 ms)

```
Run 5: Statistics of TCP Cubic

Start at: 2018-12-02 11:57:49
End at: 2018-12-02 11:58:19
Local clock offset: 9.009 ms
Remote clock offset: -0.026 ms


# Below is generated by plot.py at 2018-12-02 12:20:57
# Datalink statistics
-- Total of 1 flow:
Average throughput: 476.82 Mbit/s
95th percentile per-packet one-way delay: 156.181 ms
Loss rate: 1.11%
-- Flow 1:
Average throughput: 476.82 Mbit/s
95th percentile per-packet one-way delay: 156.181 ms
Loss rate: 1.11%
```
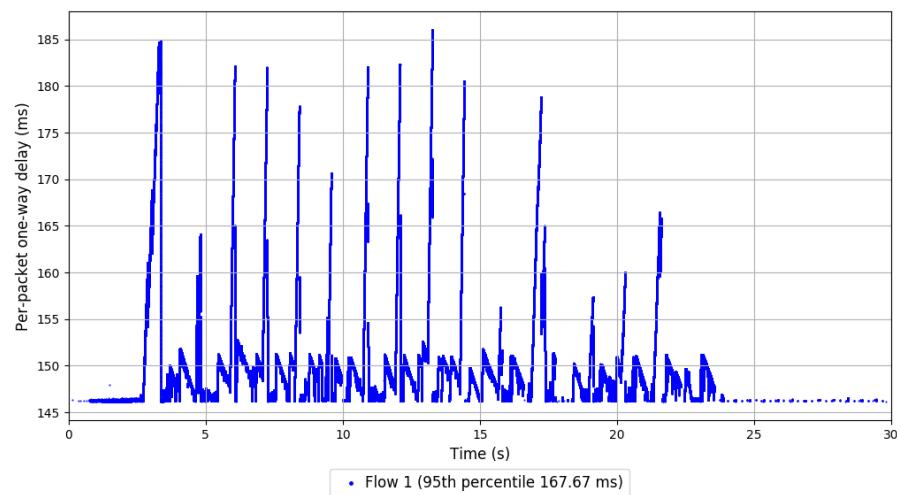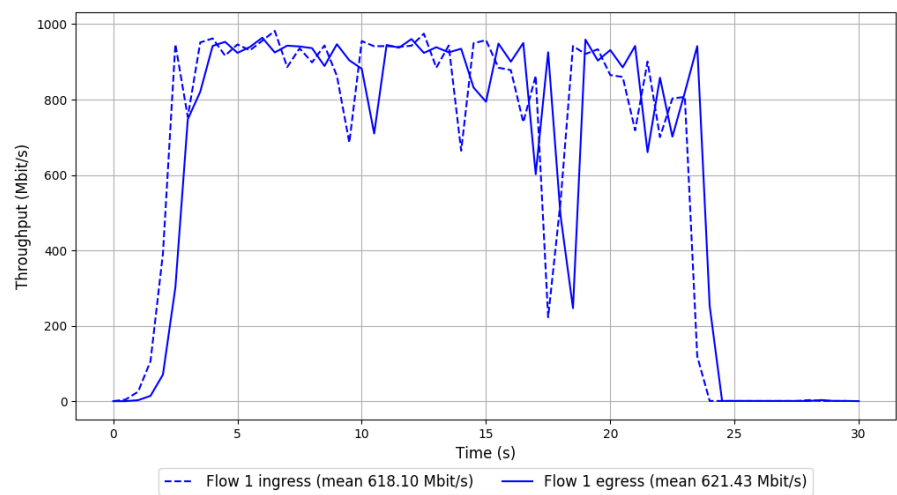
Run 5: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 477.51 Mbit/s) Flow 1 egress (mean 476.82 Mbit/s)

Flow 1 (95th percentile 156.18 ms)

```
Run 1: Statistics of FillP

Start at: 2018-12-02 10:01:49
End at: 2018-12-02 10:02:19
Local clock offset: 7.458 ms
Remote clock offset: 0.286 ms


# Below is generated by plot.py at 2018-12-02 12:24:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 621.43 Mbit/s
95th percentile per-packet one-way delay: 167.673 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 621.43 Mbit/s
95th percentile per-packet one-way delay: 167.673 ms
Loss rate: 0.00%
```
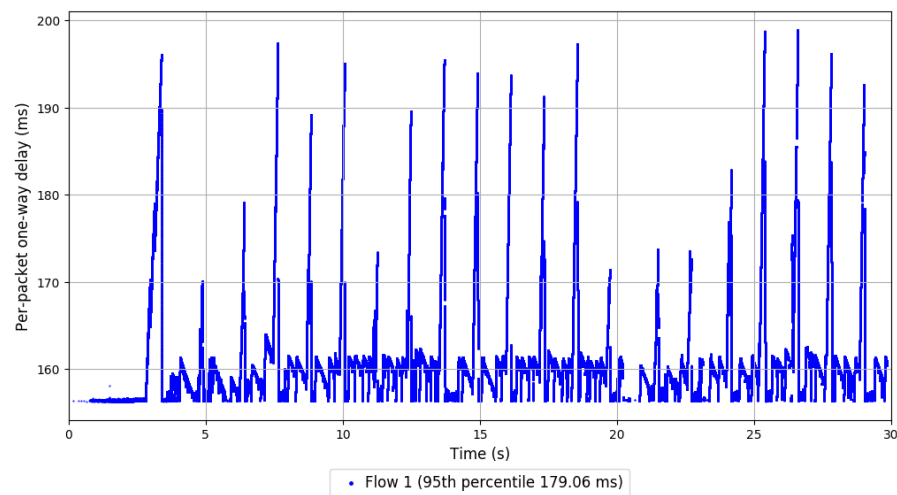
Run 1: Report of FillP — Data Link

```
Run 2: Statistics of FillP

Start at: 2018-12-02 10:31:31
End at: 2018-12-02 10:32:01
Local clock offset: 8.142 ms
Remote clock offset: 0.165 ms


# Below is generated by plot.py at 2018-12-02 12:27:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 827.51 Mbit/s
95th percentile per-packet one-way delay: 179.060 ms
Loss rate: 1.16%
-- Flow 1:
Average throughput: 827.51 Mbit/s
95th percentile per-packet one-way delay: 179.060 ms
Loss rate: 1.16%
```
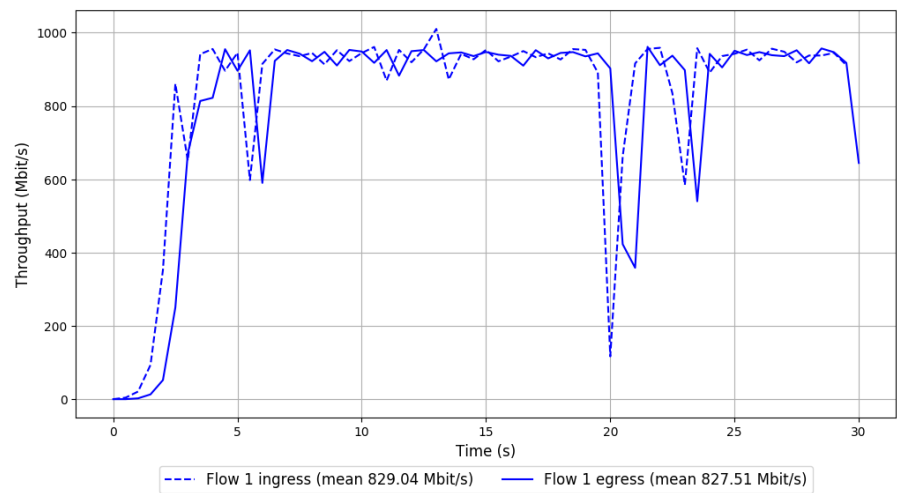
Run 2: Report of FillP — Data Link

```
Run 3: Statistics of FillP

Start at: 2018-12-02 11:01:25
End at: 2018-12-02 11:01:55
Local clock offset: -1.216 ms
Remote clock offset: 0.102 ms


# Below is generated by plot.py at 2018-12-02 12:27:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 210.71 Mbit/s
95th percentile per-packet one-way delay: 169.675 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 210.71 Mbit/s
95th percentile per-packet one-way delay: 169.675 ms
Loss rate: 0.01%
```
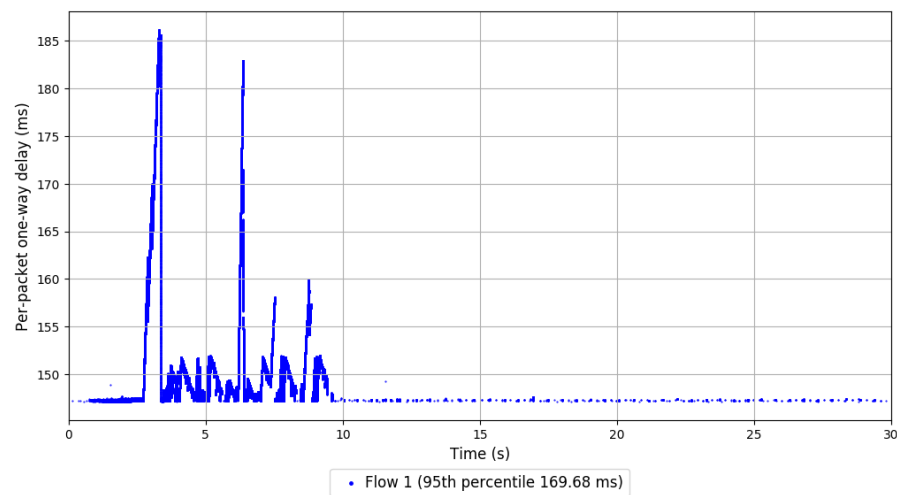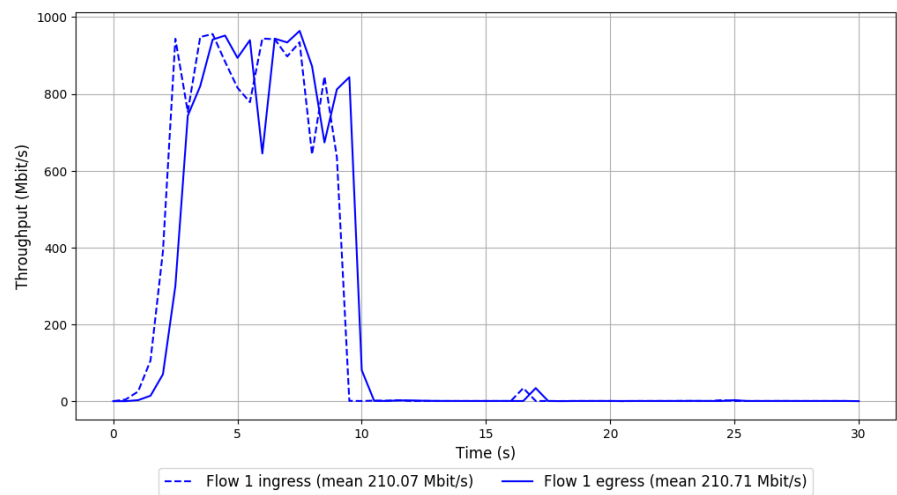
Run 3: Report of FillP — Data Link

```
Run 4: Statistics of FillP

Start at: 2018-12-02 11:31:02
End at: 2018-12-02 11:31:32
Local clock offset: -0.215 ms
Remote clock offset: 0.057 ms


# Below is generated by plot.py at 2018-12-02 12:28:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 781.03 Mbit/s
95th percentile per-packet one-way delay: 169.077 ms
Loss rate: 1.18%
-- Flow 1:
Average throughput: 781.03 Mbit/s
95th percentile per-packet one-way delay: 169.077 ms
Loss rate: 1.18%
```
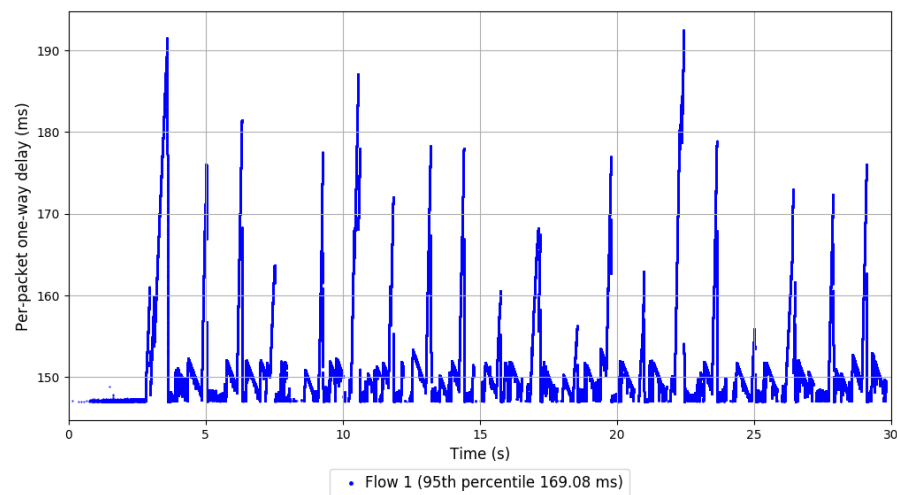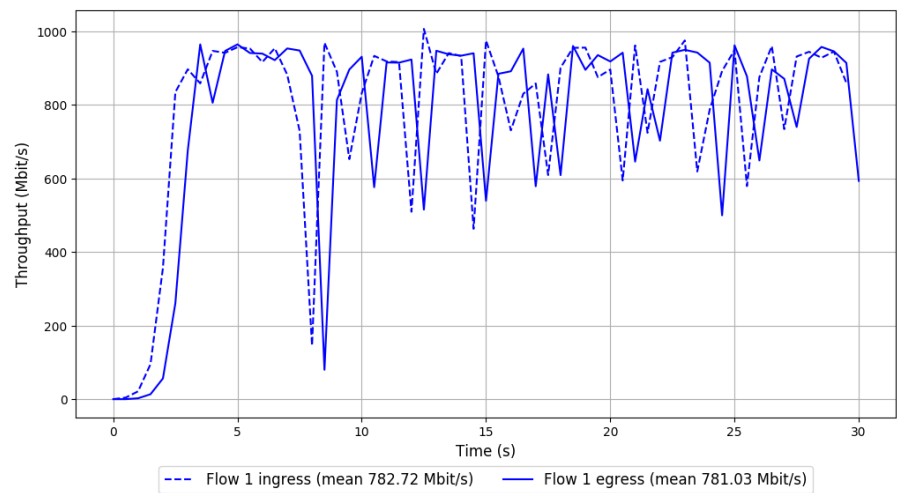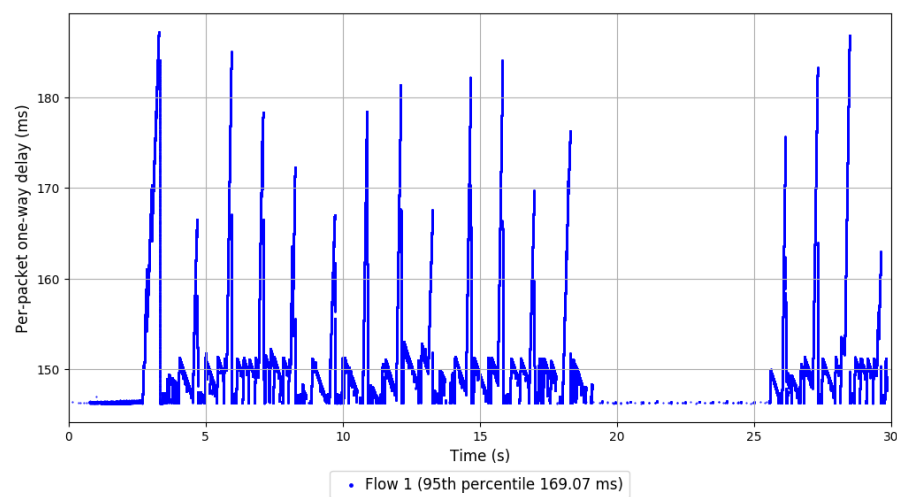
Run 4: Report of FillP — Data Link

Flow 1 ingress (mean 782.72 Mbit/s) — Flow 1 egress (mean 781.03 Mbit/s)

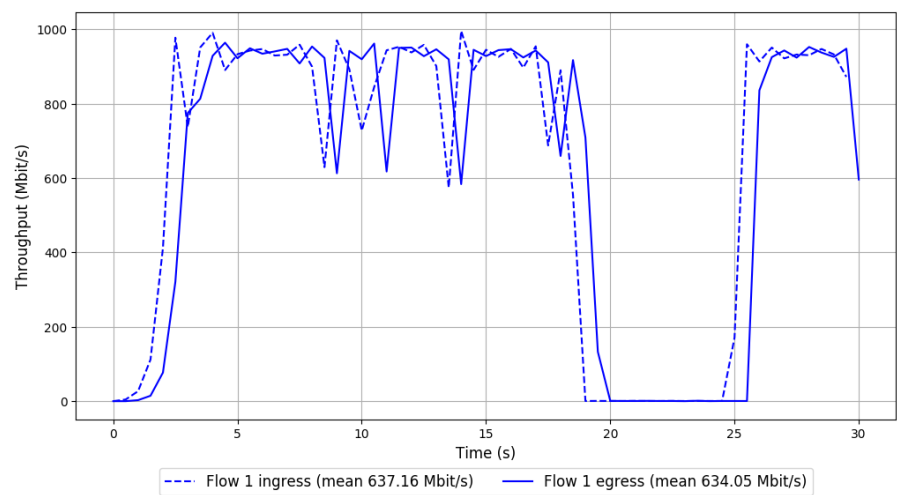Flow 1 (95th percentile 169.08 ms)

```
Run 5: Statistics of FillP

Start at: 2018-12-02 12:01:05
End at: 2018-12-02 12:01:35
Local clock offset: 7.859 ms
Remote clock offset: -0.024 ms


# Below is generated by plot.py at 2018-12-02 12:28:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 634.05 Mbit/s
95th percentile per-packet one-way delay: 169.074 ms
Loss rate: 1.42%
-- Flow 1:
Average throughput: 634.05 Mbit/s
95th percentile per-packet one-way delay: 169.074 ms
Loss rate: 1.42%
```

Run 5: Report of FillP — Data Link

```
Run 1: Statistics of FillP-Sheep

Start at: 2018-12-02 09:56:57
End at: 2018-12-02 09:57:27
Local clock offset: 7.204 ms
Remote clock offset: 0.187 ms


# Below is generated by plot.py at 2018-12-02 12:30:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 796.29 Mbit/s
95th percentile per-packet one-way delay: 171.679 ms
Loss rate: 1.17%
-- Flow 1:
Average throughput: 796.29 Mbit/s
95th percentile per-packet one-way delay: 171.679 ms
Loss rate: 1.17%
```
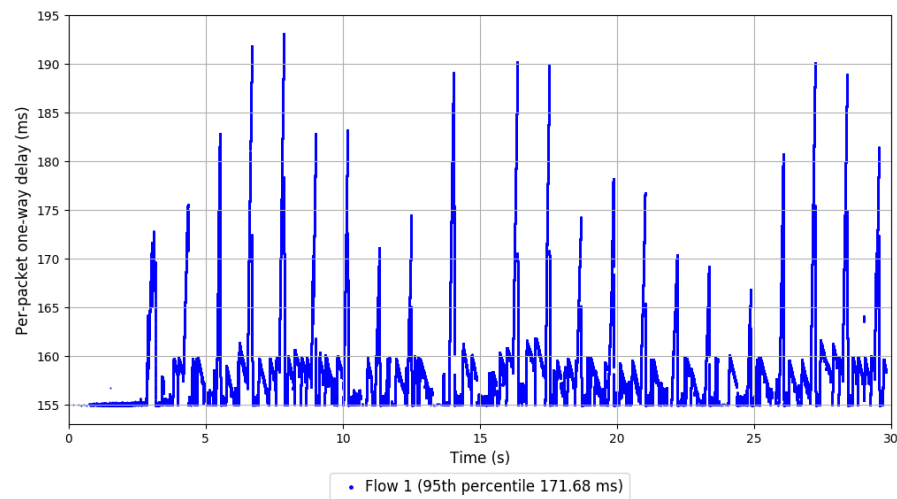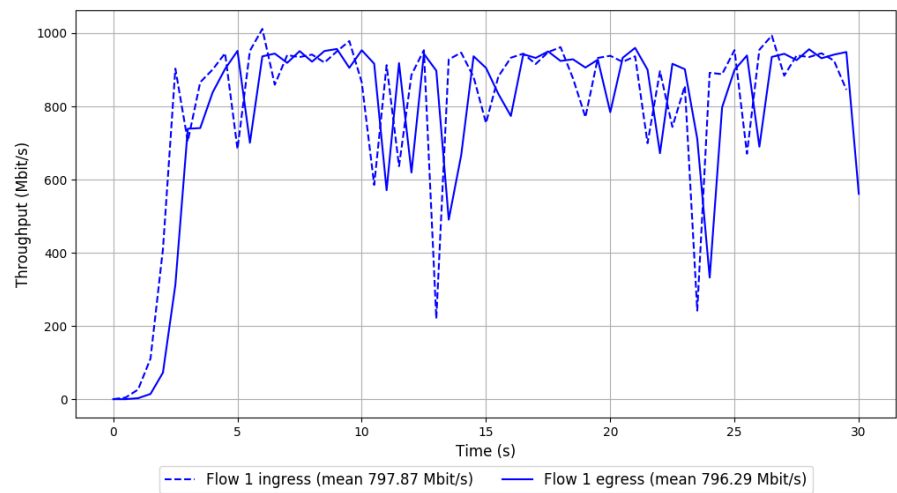
Run 1: Report of FillP-Sheep — Data Link

```
Run 2: Statistics of FillP-Sheep

Start at: 2018-12-02 10:26:42
End at: 2018-12-02 10:27:12
Local clock offset: -0.713 ms
Remote clock offset: 0.135 ms


# Below is generated by plot.py at 2018-12-02 12:30:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 688.58 Mbit/s
95th percentile per-packet one-way delay: 153.326 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 688.58 Mbit/s
95th percentile per-packet one-way delay: 153.326 ms
Loss rate: 0.00%
```
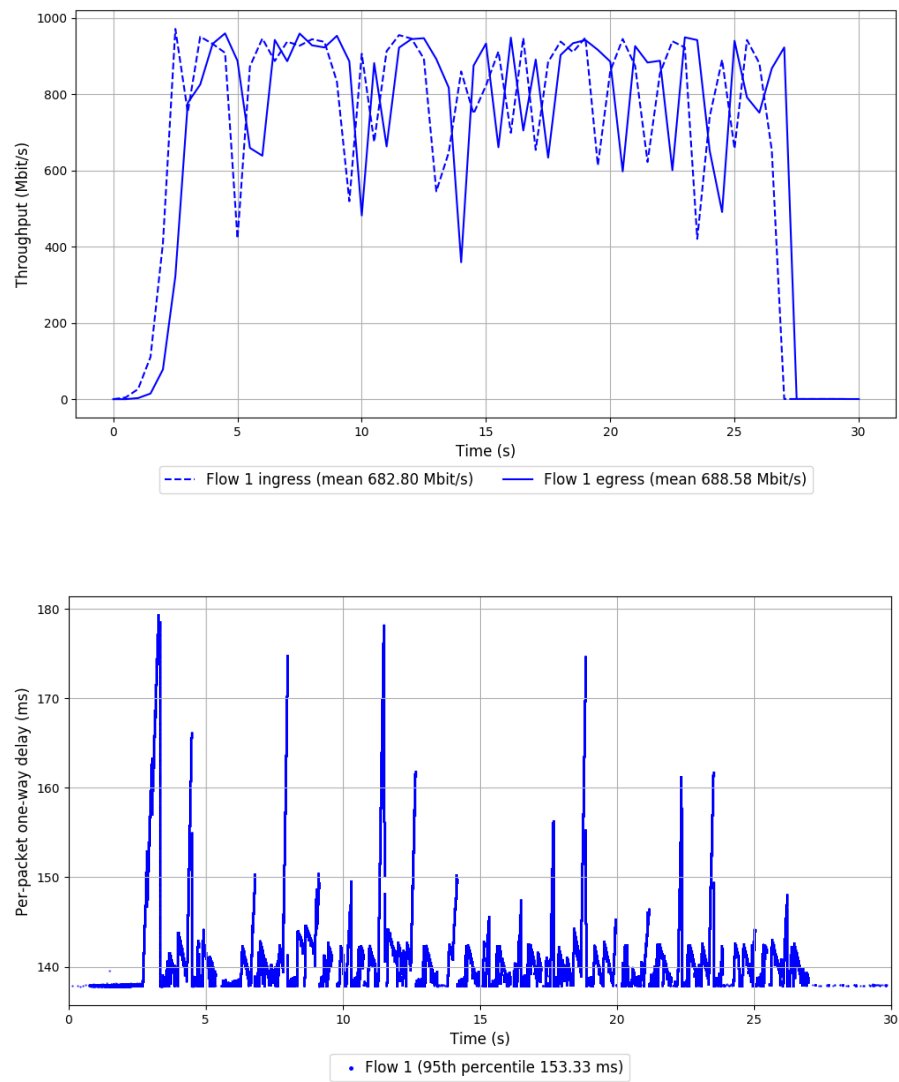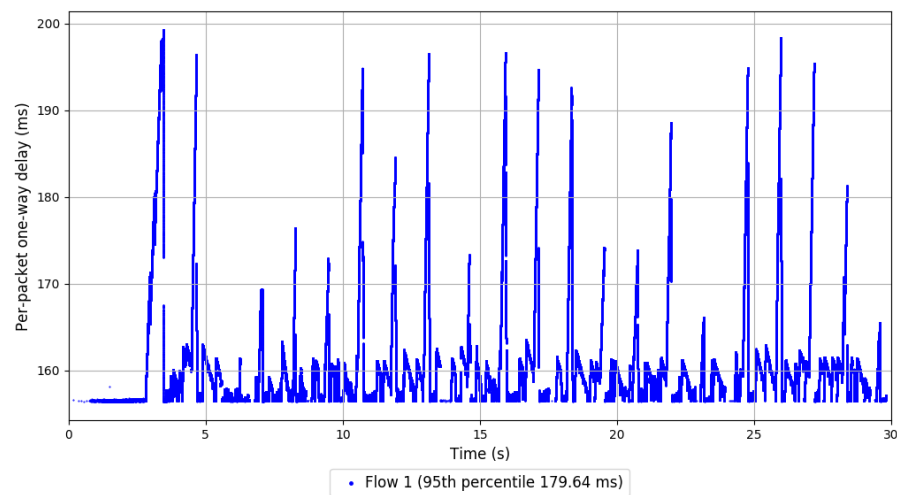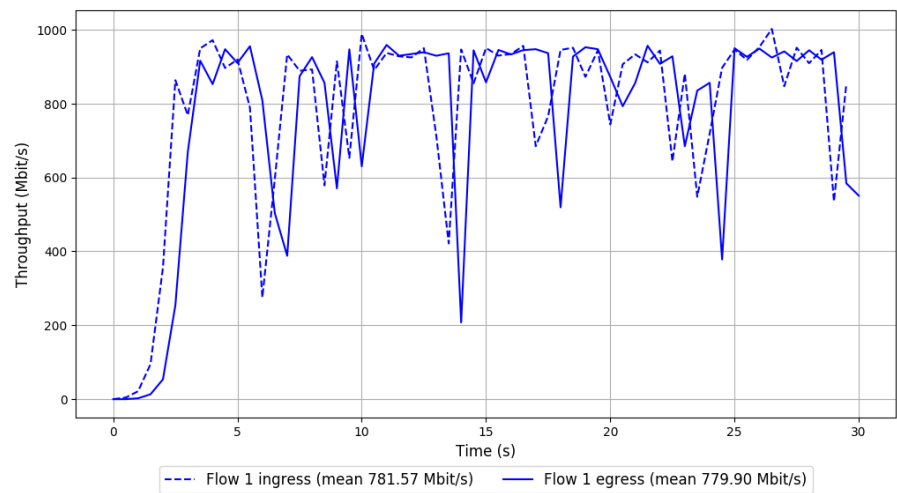
Run 2: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 682.80 Mbit/s) --- Flow 1 egress (mean 688.58 Mbit/s)

- Flow 1 (95th percentile 153.33 ms)

48

```
Run 3: Statistics of FillP-Sheep

Start at: 2018-12-02 10:56:27
End at: 2018-12-02 10:56:57
Local clock offset: 6.883 ms
Remote clock offset: 0.069 ms


# Below is generated by plot.py at 2018-12-02 12:31:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 779.90 Mbit/s
95th percentile per-packet one-way delay: 179.638 ms
Loss rate: 1.19%
-- Flow 1:
Average throughput: 779.90 Mbit/s
95th percentile per-packet one-way delay: 179.638 ms
Loss rate: 1.19%
```
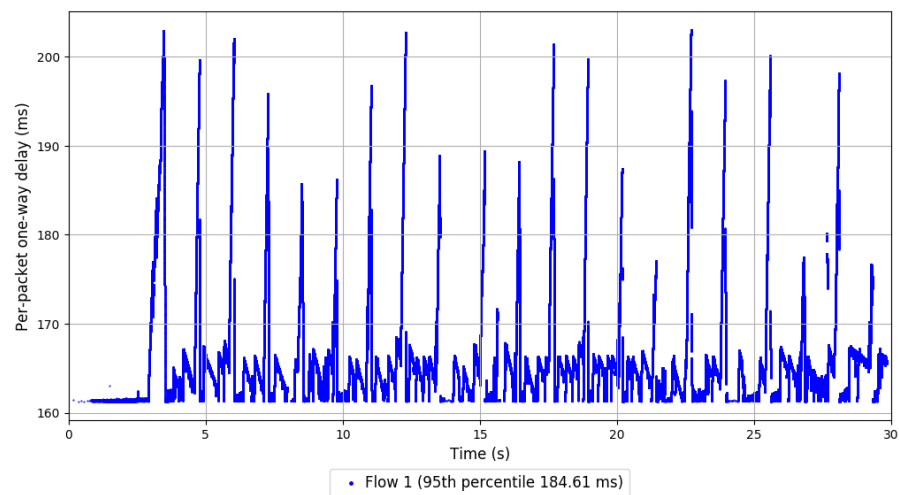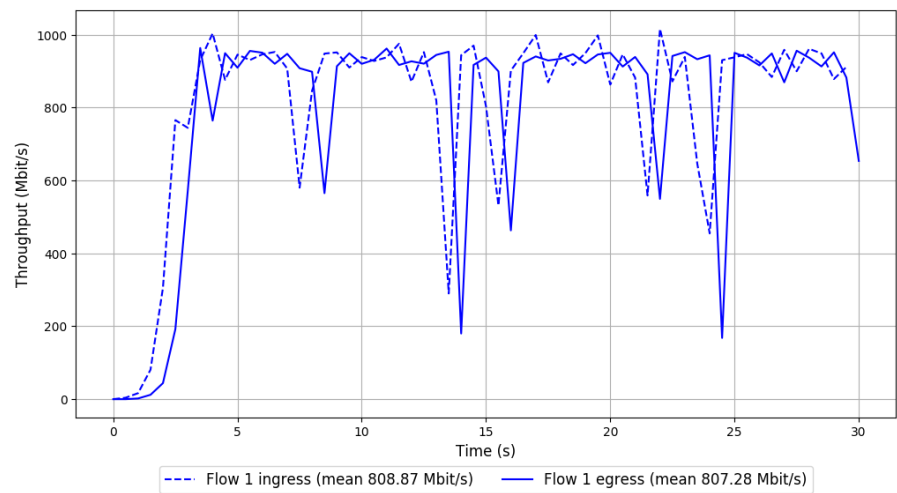
Run 3: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 781.57 Mbit/s) ----   Flow 1 egress (mean 779.90 Mbit/s) ——
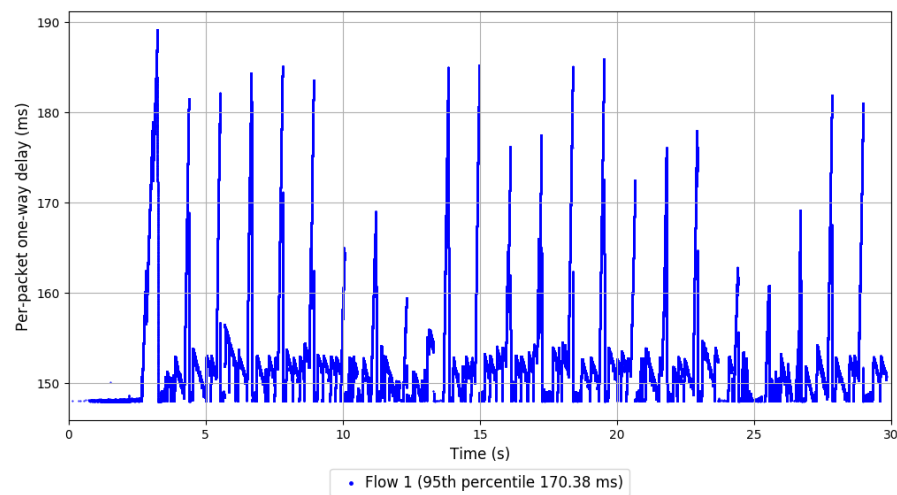

• Flow 1 (95th percentile 179.64 ms)

```
Run 4: Statistics of FillP-Sheep

Start at: 2018-12-02 11:26:15
End at: 2018-12-02 11:26:45
Local clock offset: 8.612 ms
Remote clock offset: 0.078 ms


# Below is generated by plot.py at 2018-12-02 12:32:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 807.28 Mbit/s
95th percentile per-packet one-way delay: 184.606 ms
Loss rate: 1.18%
-- Flow 1:
Average throughput: 807.28 Mbit/s
95th percentile per-packet one-way delay: 184.606 ms
Loss rate: 1.18%
```
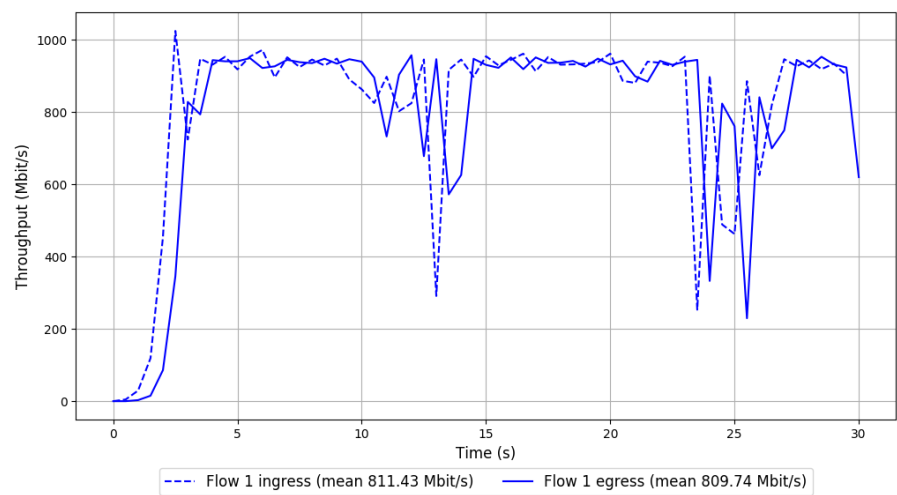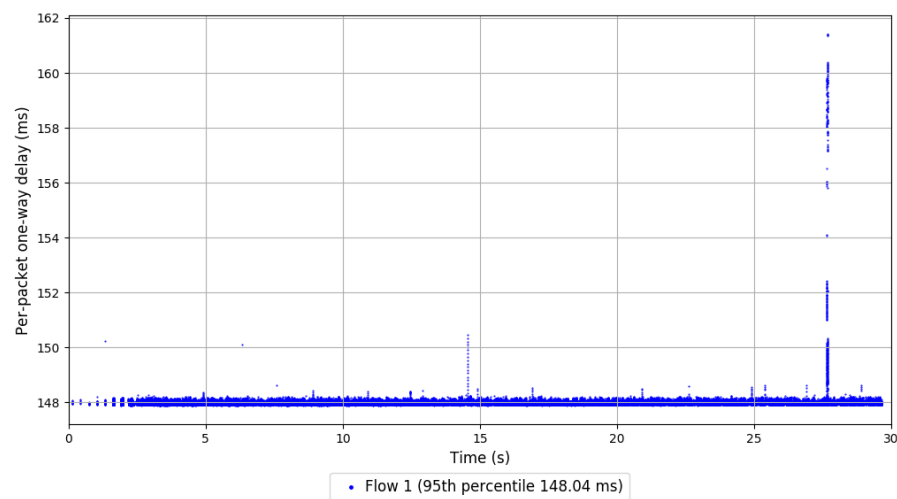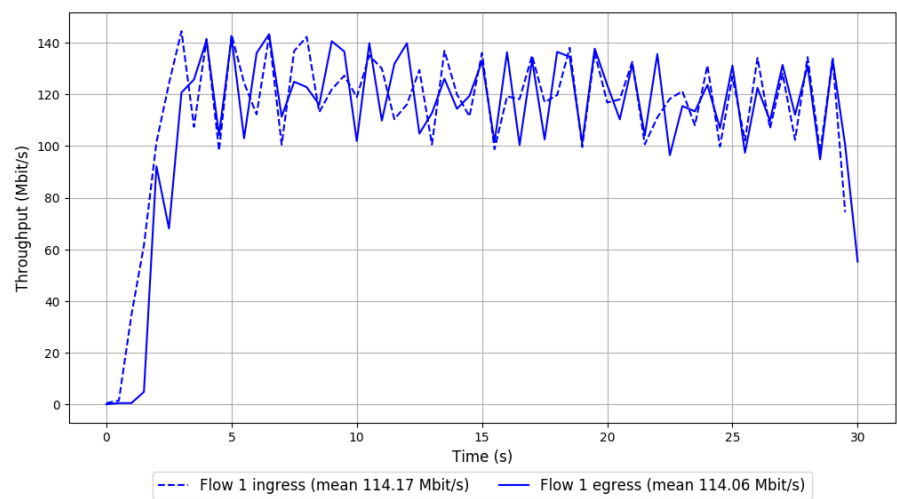
Run 4: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 808.87 Mbit/s)   Flow 1 egress (mean 807.28 Mbit/s)

• Flow 1 (95th percentile 184.61 ms)

```
Run 5: Statistics of FillP-Sheep

Start at: 2018-12-02 11:56:00
End at: 2018-12-02 11:56:30
Local clock offset: 7.918 ms
Remote clock offset: -0.003 ms


# Below is generated by plot.py at 2018-12-02 12:35:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 809.74 Mbit/s
95th percentile per-packet one-way delay: 170.383 ms
Loss rate: 1.15%
-- Flow 1:
Average throughput: 809.74 Mbit/s
95th percentile per-packet one-way delay: 170.383 ms
Loss rate: 1.15%
```

Run 5: Report of FillP-Sheep — Data Link

```
Run 1: Statistics of Indigo

Start at: 2018-12-02 09:39:33
End at: 2018-12-02 09:40:03
Local clock offset: 6.226 ms
Remote clock offset: -0.245 ms


# Below is generated by plot.py at 2018-12-02 12:35:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 114.06 Mbit/s
95th percentile per-packet one-way delay: 148.037 ms
Loss rate: 1.05%
-- Flow 1:
Average throughput: 114.06 Mbit/s
95th percentile per-packet one-way delay: 148.037 ms
Loss rate: 1.05%
```
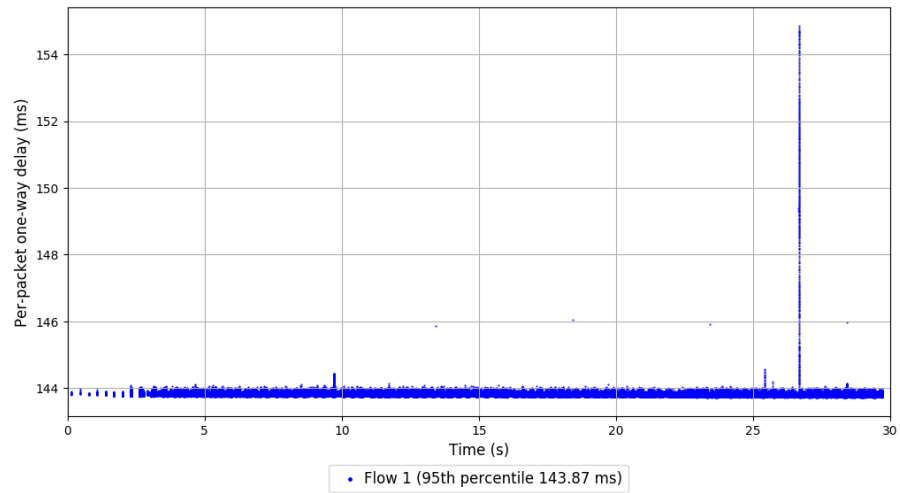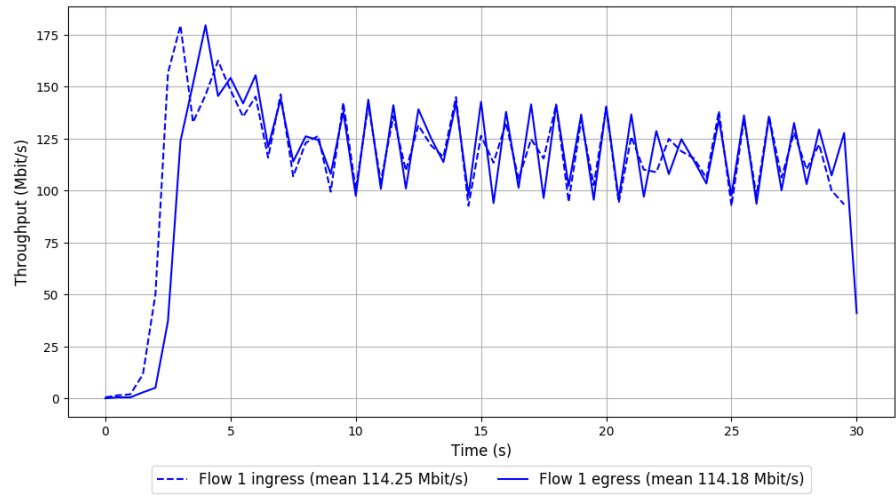
Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2018-12-02 10:09:24
End at: 2018-12-02 10:09:54
Local clock offset: -3.449 ms
Remote clock offset: 0.396 ms


# Below is generated by plot.py at 2018-12-02 12:35:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 114.18 Mbit/s
95th percentile per-packet one-way delay: 143.874 ms
Loss rate: 1.04%
-- Flow 1:
Average throughput: 114.18 Mbit/s
95th percentile per-packet one-way delay: 143.874 ms
Loss rate: 1.04%
```
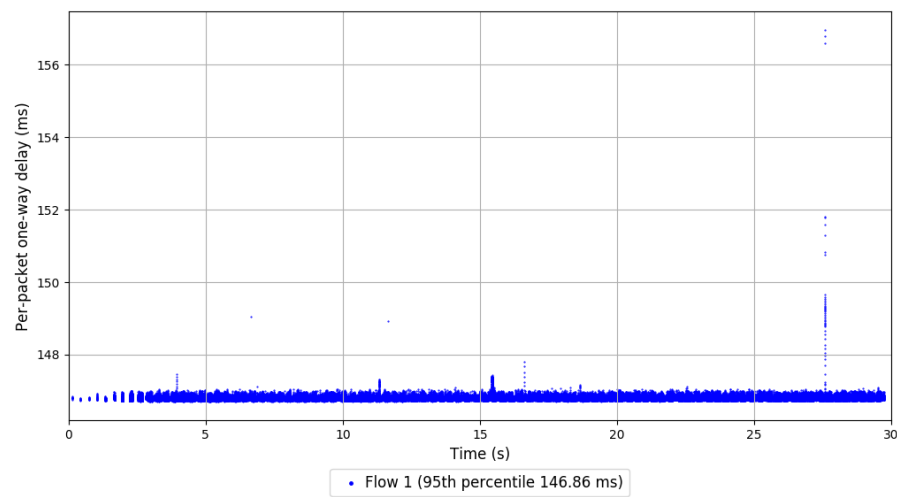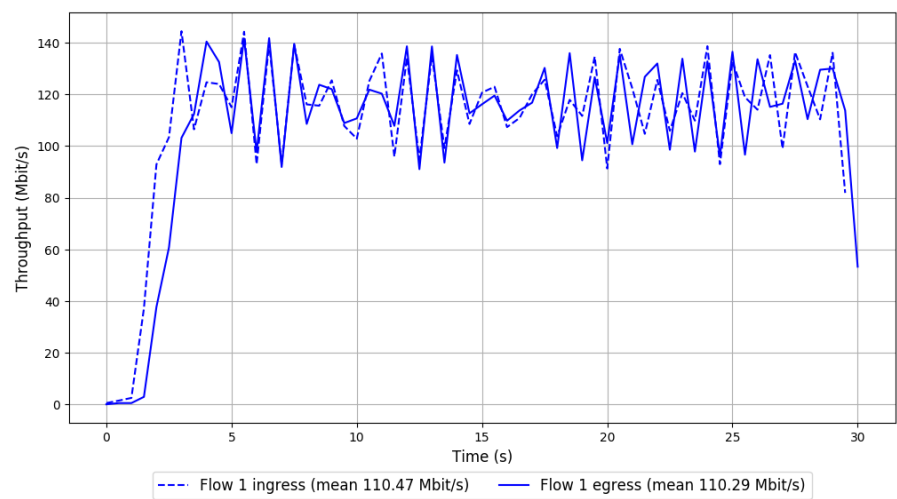
Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2018-12-02 10:39:14
End at: 2018-12-02 10:39:44
Local clock offset: 6.643 ms
Remote clock offset: 0.293 ms


# Below is generated by plot.py at 2018-12-02 12:35:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 110.29 Mbit/s
95th percentile per-packet one-way delay: 146.863 ms
Loss rate: 1.09%
-- Flow 1:
Average throughput: 110.29 Mbit/s
95th percentile per-packet one-way delay: 146.863 ms
Loss rate: 1.09%
```
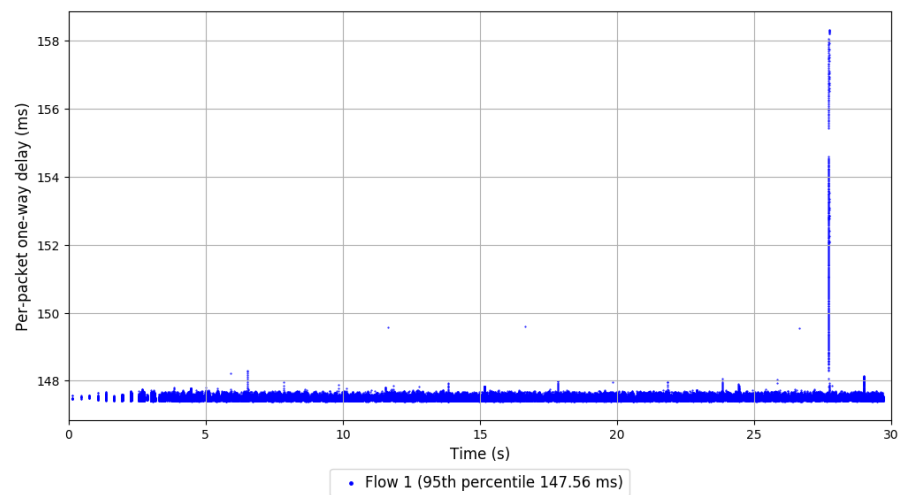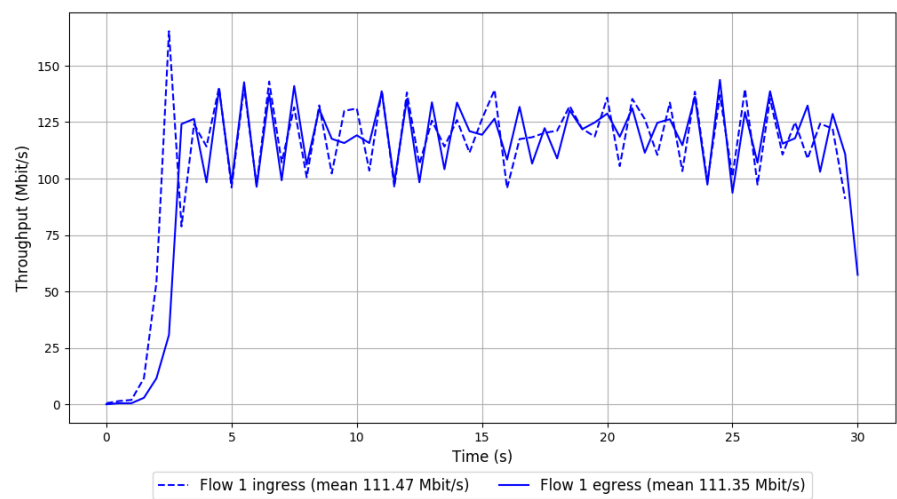
Run 3: Report of Indigo — Data Link

```
Run 4: Statistics of Indigo

Start at: 2018-12-02 11:08:44
End at: 2018-12-02 11:09:14
Local clock offset: 7.687 ms
Remote clock offset: 0.138 ms


# Below is generated by plot.py at 2018-12-02 12:35:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 111.35 Mbit/s
95th percentile per-packet one-way delay: 147.562 ms
Loss rate: 1.05%
-- Flow 1:
Average throughput: 111.35 Mbit/s
95th percentile per-packet one-way delay: 147.562 ms
Loss rate: 1.05%
```
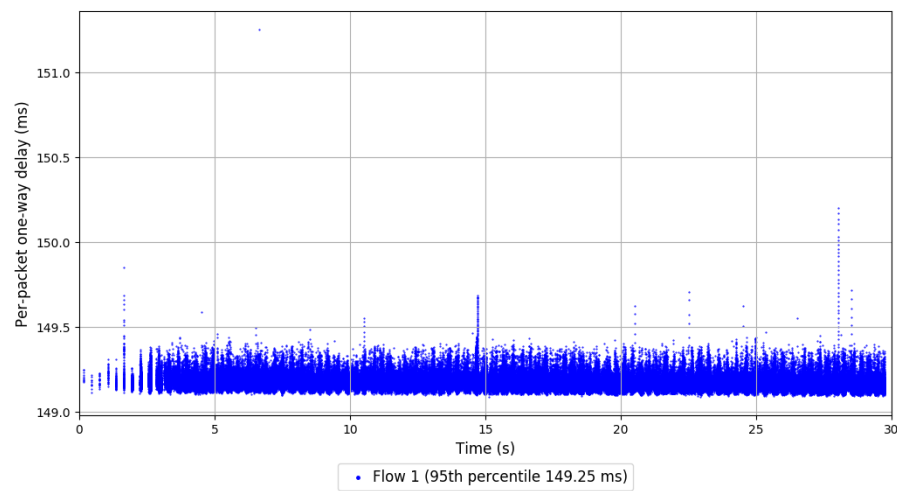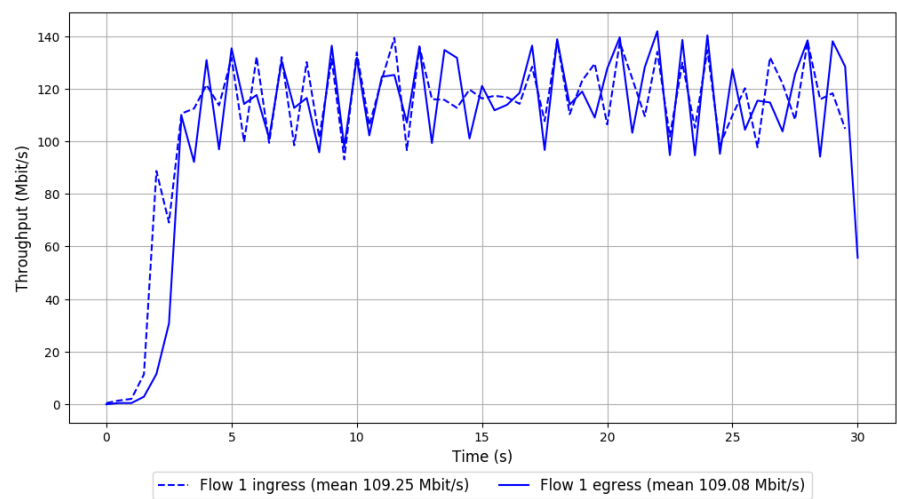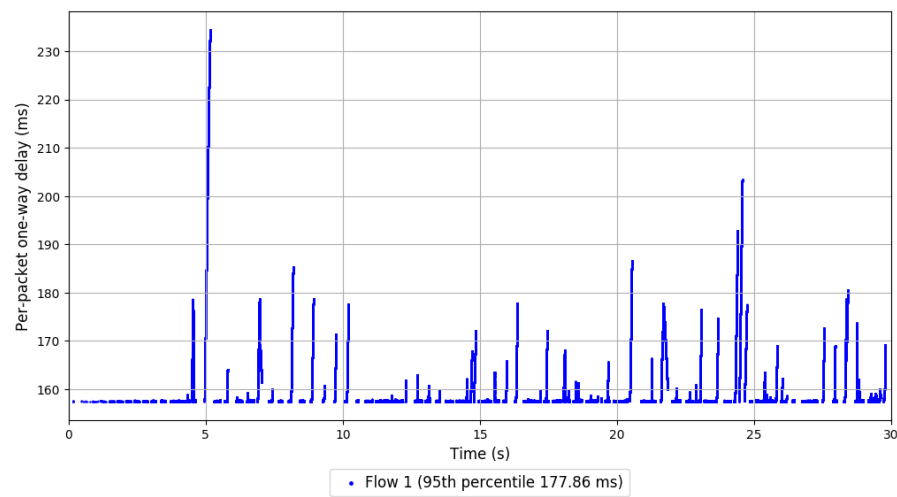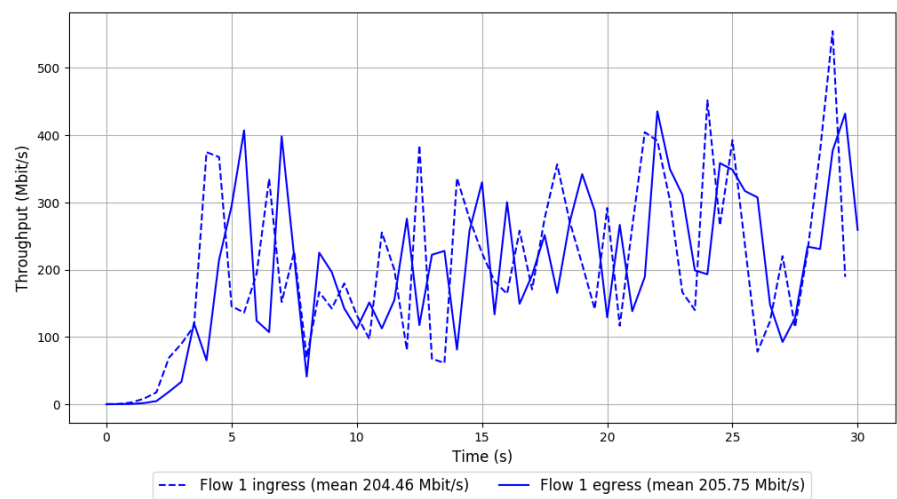
Run 4: Report of Indigo — Data Link

Flow 1 ingress (mean 111.47 Mbit/s)   Flow 1 egress (mean 111.35 Mbit/s)

Flow 1 (95th percentile 147.56 ms)

```
Run 5: Statistics of Indigo

Start at: 2018-12-02 11:38:41
End at: 2018-12-02 11:39:11
Local clock offset: 0.98 ms
Remote clock offset: 0.027 ms


# Below is generated by plot.py at 2018-12-02 12:35:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 109.08 Mbit/s
95th percentile per-packet one-way delay: 149.248 ms
Loss rate: 1.13%
-- Flow 1:
Average throughput: 109.08 Mbit/s
95th percentile per-packet one-way delay: 149.248 ms
Loss rate: 1.13%
```

Run 5: Report of Indigo — Data Link

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

Start at: 2018-12-02 09:35:01
End at: 2018-12-02 09:35:31
Local clock offset: 7.333 ms
Remote clock offset: -0.293 ms

# Below is generated by plot.py at 2018-12-02 12:35:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 205.75 Mbit/s
95th percentile per-packet one-way delay: 177.859 ms
Loss rate: 0.43%
-- Flow 1:
Average throughput: 205.75 Mbit/s
95th percentile per-packet one-way delay: 177.859 ms
Loss rate: 0.43%
```

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

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

Start at: 2018-12-02 10:04:52
End at: 2018-12-02 10:05:22
Local clock offset: 0.669 ms
Remote clock offset: 0.359 ms


# Below is generated by plot.py at 2018-12-02 12:35:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 198.68 Mbit/s
95th percentile per-packet one-way delay: 152.497 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 198.68 Mbit/s
95th percentile per-packet one-way delay: 152.497 ms
Loss rate: 0.46%
```
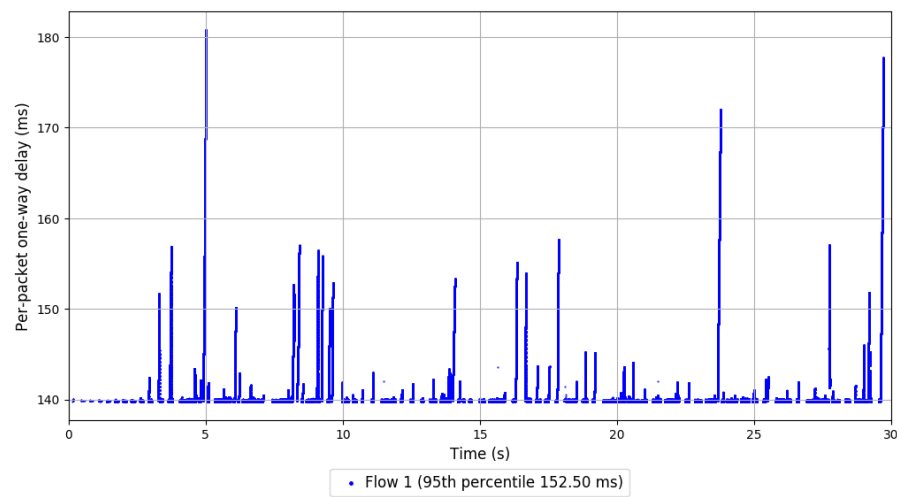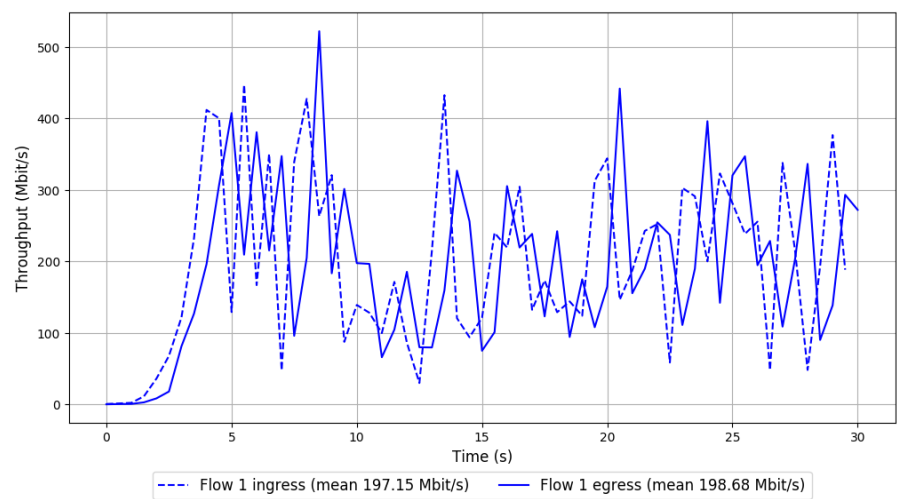
Run 2: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-12-02 10:34:41
End at: 2018-12-02 10:35:11
Local clock offset: 6.866 ms
Remote clock offset: 0.303 ms


# Below is generated by plot.py at 2018-12-02 12:35:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 184.62 Mbit/s
95th percentile per-packet one-way delay: 166.894 ms
Loss rate: 1.49%
-- Flow 1:
Average throughput: 184.62 Mbit/s
95th percentile per-packet one-way delay: 166.894 ms
Loss rate: 1.49%
```
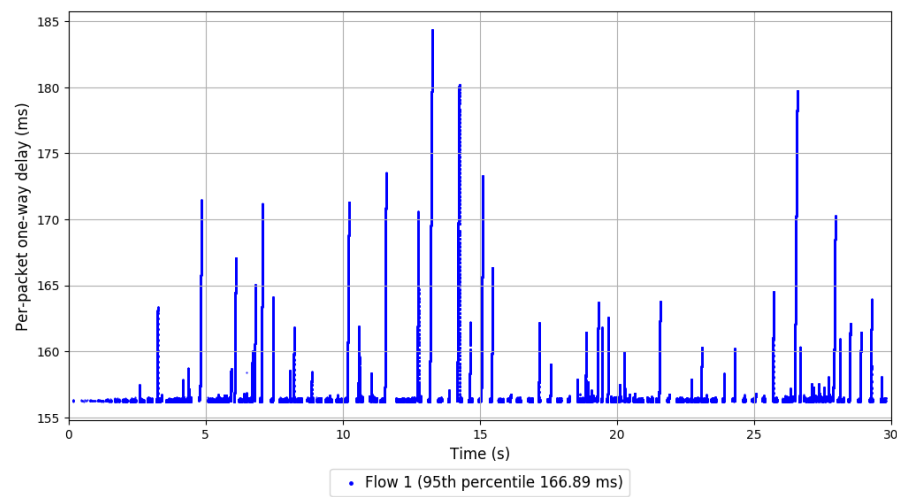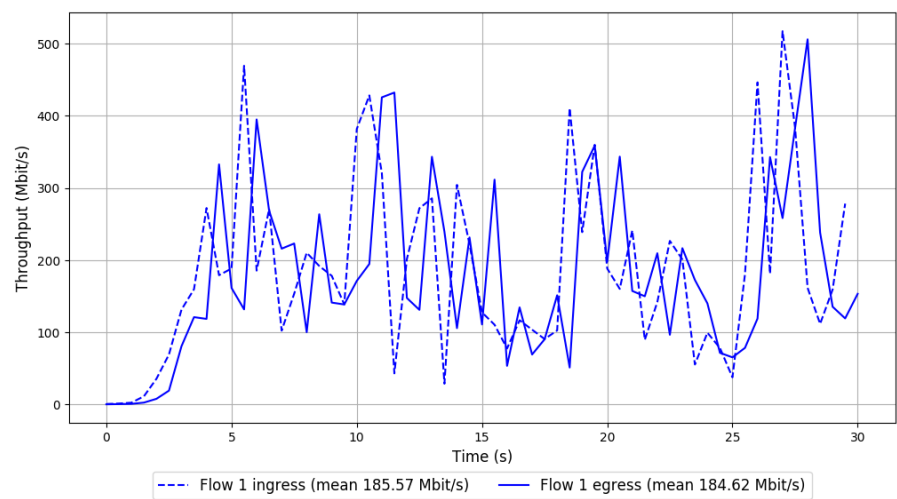
Run 3: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-12-02 11:04:13
End at: 2018-12-02 11:04:43
Local clock offset: -5.568 ms
Remote clock offset: 0.103 ms


# Below is generated by plot.py at 2018-12-02 12:35:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 183.53 Mbit/s
95th percentile per-packet one-way delay: 159.796 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 183.53 Mbit/s
95th percentile per-packet one-way delay: 159.796 ms
Loss rate: 0.56%
```
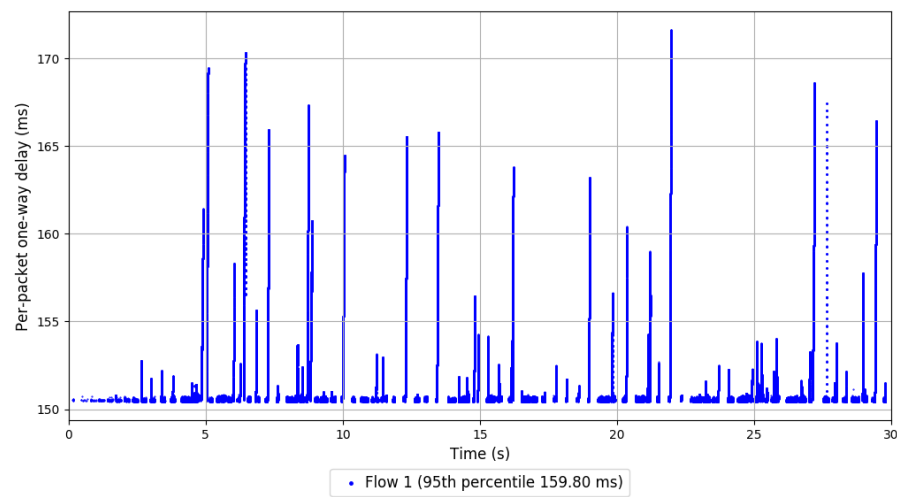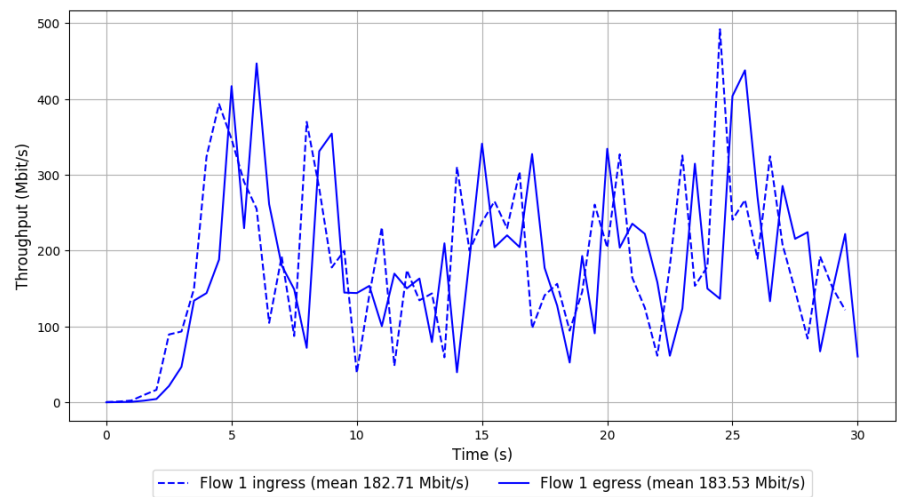
Run 4: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-12-02 11:34:11
End at: 2018-12-02 11:34:41
Local clock offset: 7.876 ms
Remote clock offset: 0.025 ms


# Below is generated by plot.py at 2018-12-02 12:35:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 196.65 Mbit/s
95th percentile per-packet one-way delay: 161.541 ms
Loss rate: 0.73%
-- Flow 1:
Average throughput: 196.65 Mbit/s
95th percentile per-packet one-way delay: 161.541 ms
Loss rate: 0.73%
```
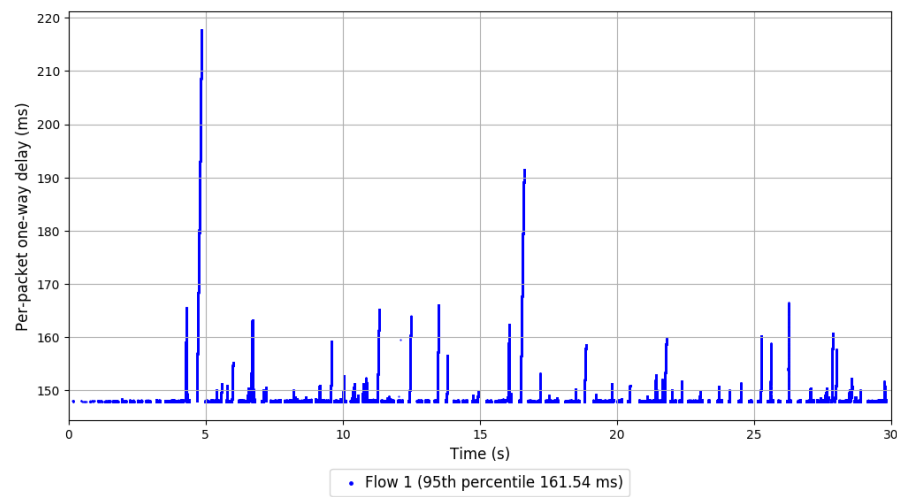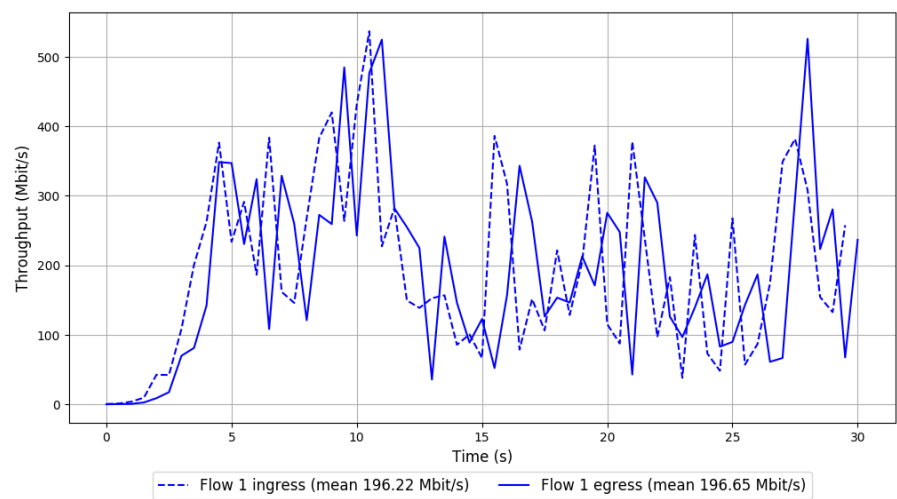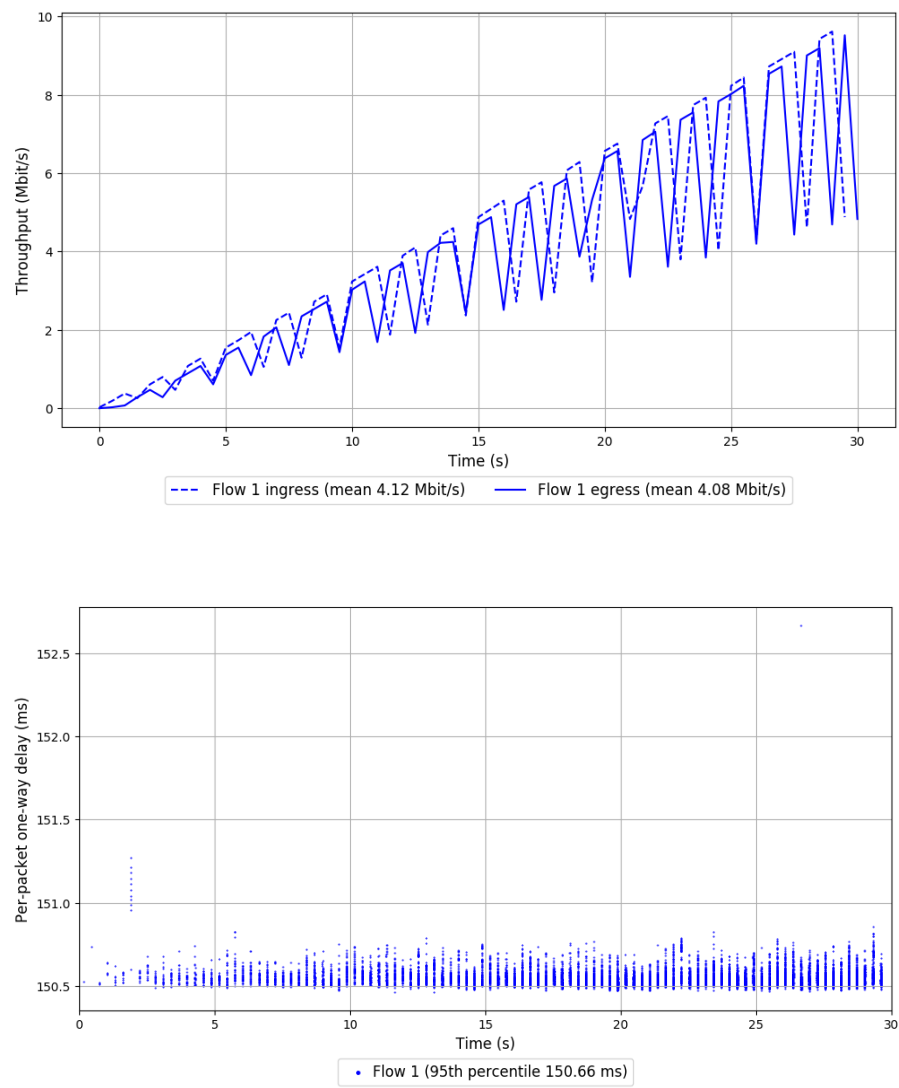
Run 5: Report of Indigo-96d2da3 — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2018-12-02 09:33:41
End at: 2018-12-02 09:34:11
Local clock offset: -0.694 ms
Remote clock offset: -0.282 ms

# Below is generated by plot.py at 2018-12-02 12:35:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.08 Mbit/s
95th percentile per-packet one-way delay: 150.660 ms
Loss rate: 1.99%
-- Flow 1:
Average throughput: 4.08 Mbit/s
95th percentile per-packet one-way delay: 150.660 ms
Loss rate: 1.99%
```

Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2018-12-02 10:03:32
End at: 2018-12-02 10:04:02
Local clock offset: 7.592 ms
Remote clock offset: 0.317 ms


# Below is generated by plot.py at 2018-12-02 12:35:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.98 Mbit/s
95th percentile per-packet one-way delay: 153.654 ms
Loss rate: 2.01%
-- Flow 1:
Average throughput: 3.98 Mbit/s
95th percentile per-packet one-way delay: 153.654 ms
Loss rate: 2.01%
```
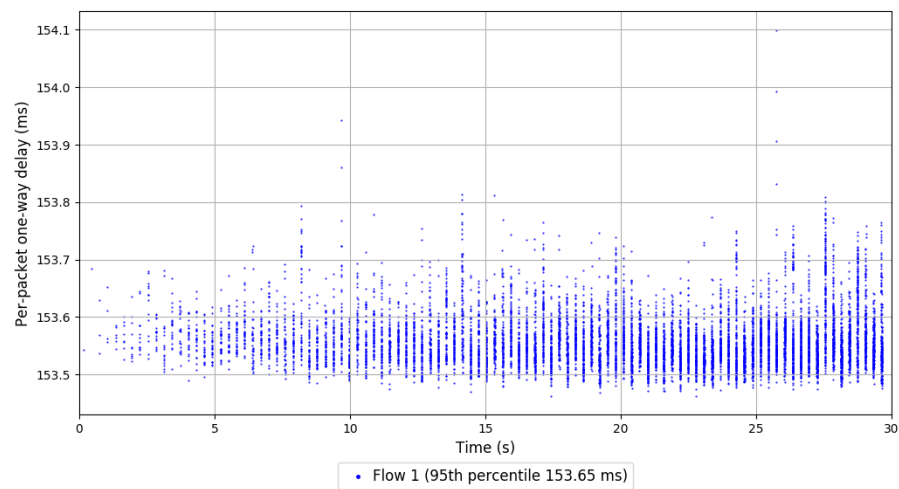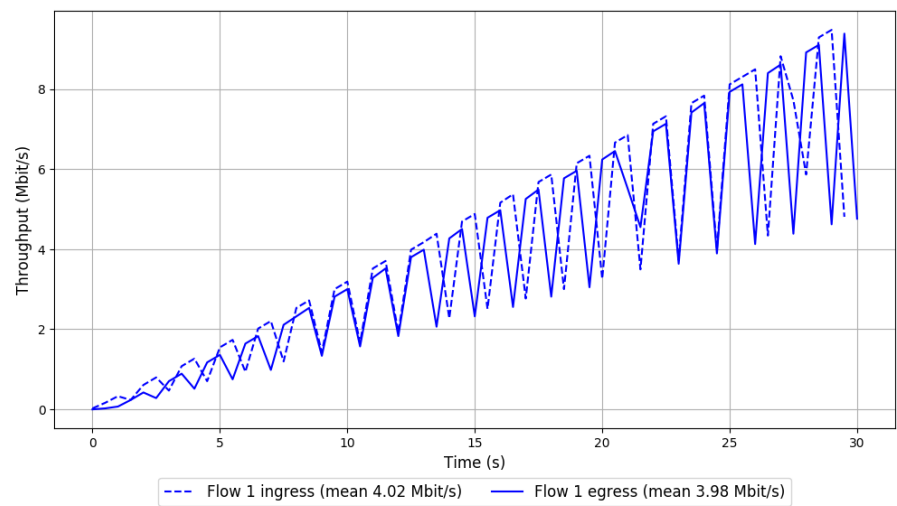
Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2018-12-02 10:33:22
End at: 2018-12-02 10:33:52
Local clock offset: 7.145 ms
Remote clock offset: 0.278 ms


# Below is generated by plot.py at 2018-12-02 12:35:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.06 Mbit/s
95th percentile per-packet one-way delay: 148.384 ms
Loss rate: 1.99%
-- Flow 1:
Average throughput: 4.06 Mbit/s
95th percentile per-packet one-way delay: 148.384 ms
Loss rate: 1.99%
```
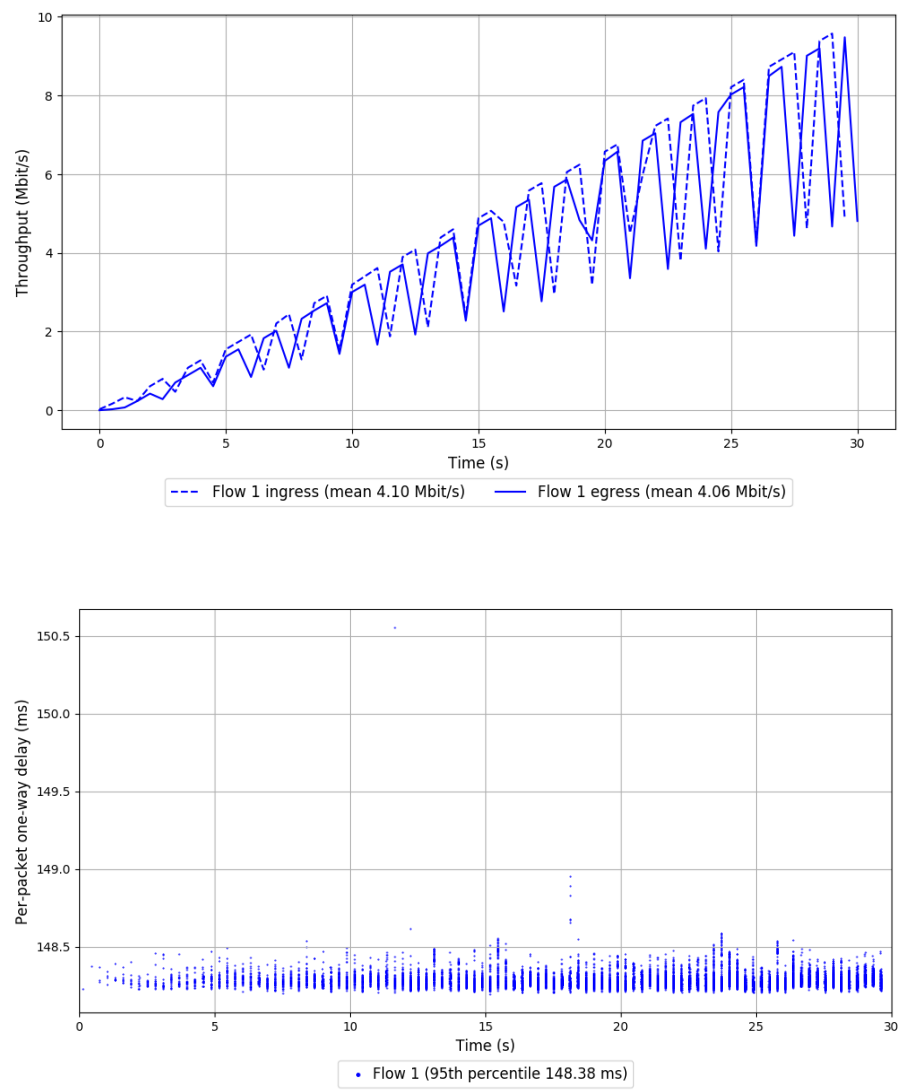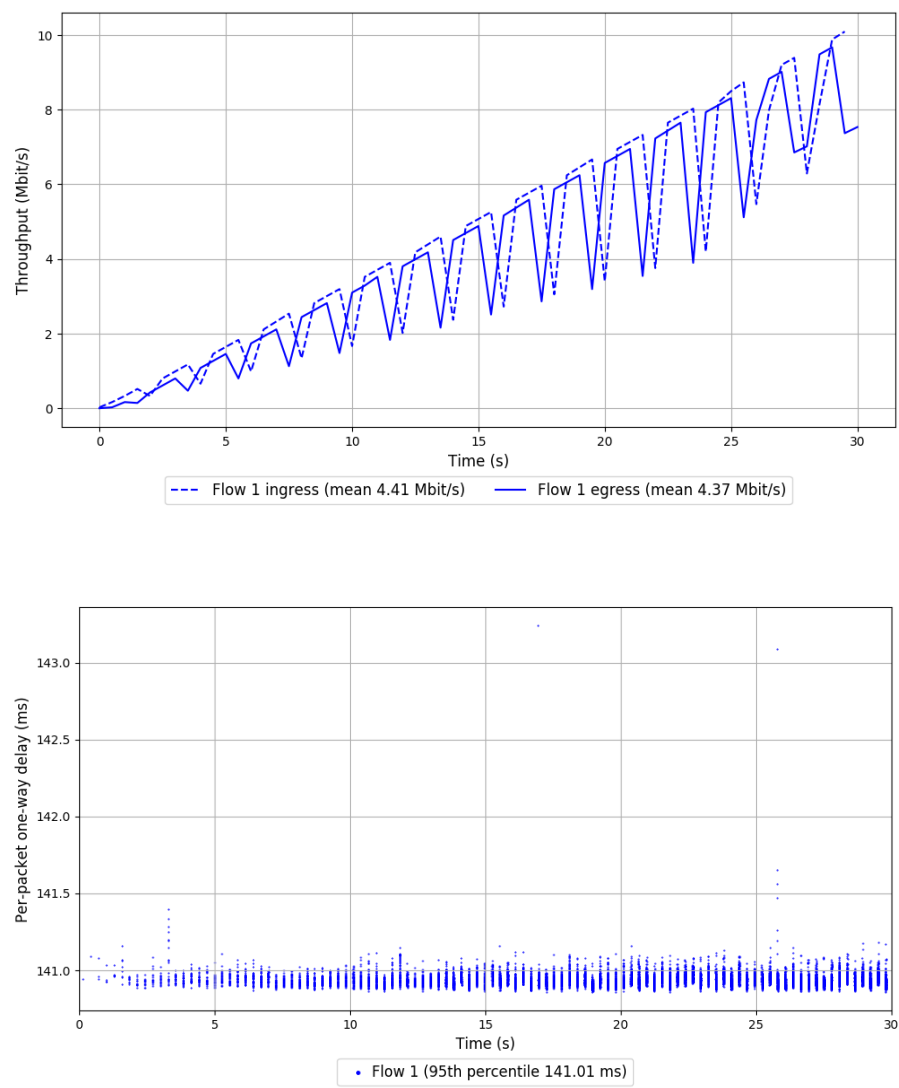
Run 3: Report of LEDBAT — Data Link

Flow 1 ingress (mean 4.10 Mbit/s) --- Flow 1 egress (mean 4.06 Mbit/s)

Flow 1 (95th percentile 148.38 ms)

```
Run 4: Statistics of LEDBAT

Start at: 2018-12-02 11:02:53
End at: 2018-12-02 11:03:23
Local clock offset: -0.363 ms
Remote clock offset: 0.115 ms

# Below is generated by plot.py at 2018-12-02 12:35:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.37 Mbit/s
95th percentile per-packet one-way delay: 141.009 ms
Loss rate: 1.92%
-- Flow 1:
Average throughput: 4.37 Mbit/s
95th percentile per-packet one-way delay: 141.009 ms
Loss rate: 1.92%
```
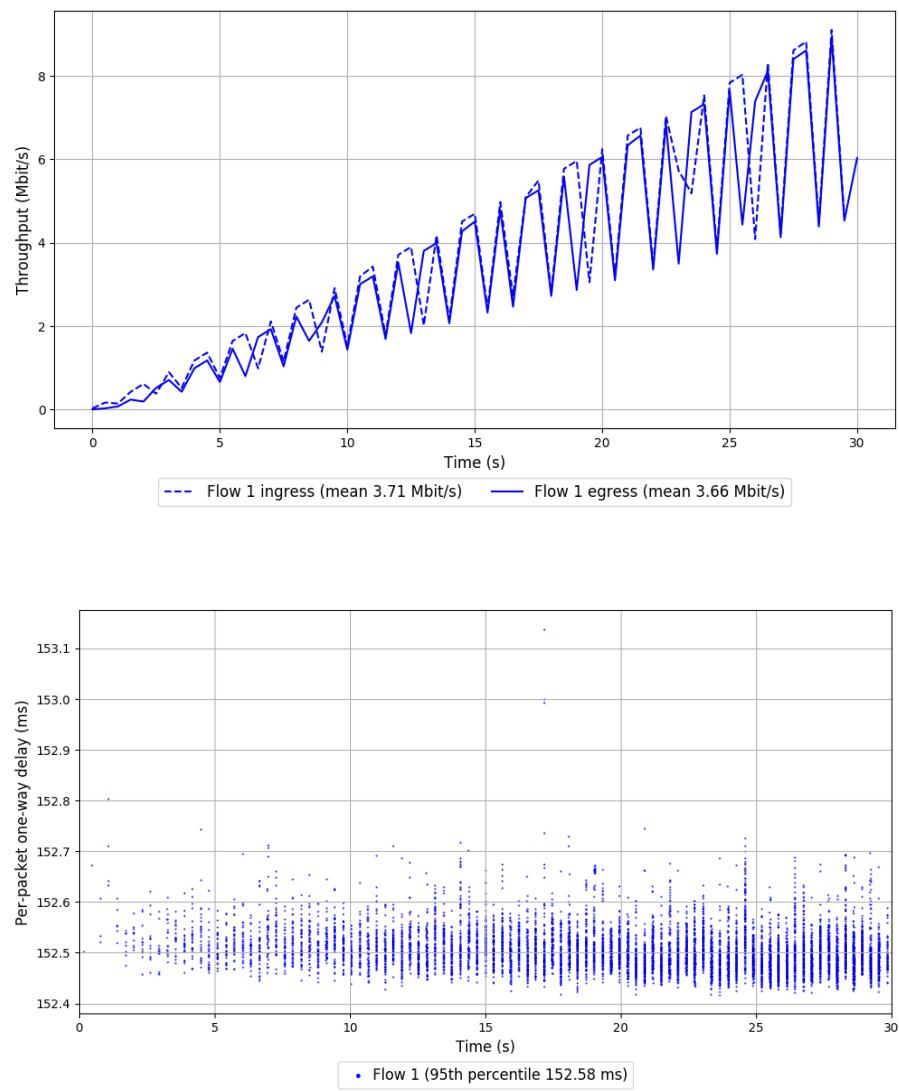
Run 4: Report of LEDBAT — Data Link

Flow 1 ingress (mean 4.41 Mbit/s)   Flow 1 egress (mean 4.37 Mbit/s)

Flow 1 (95th percentile 141.01 ms)

```
Run 5: Statistics of LEDBAT

Start at: 2018-12-02 11:32:51
End at: 2018-12-02 11:33:21
Local clock offset: -2.371 ms
Remote clock offset: 0.044 ms


# Below is generated by plot.py at 2018-12-02 12:35:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.66 Mbit/s
95th percentile per-packet one-way delay: 152.582 ms
Loss rate: 1.44%
-- Flow 1:
Average throughput: 3.66 Mbit/s
95th percentile per-packet one-way delay: 152.582 ms
Loss rate: 1.44%
```

Run 5: Report of LEDBAT — Data Link

```
Run 1: Statistics of Indigo-Muses

Start at: 2018-12-02 09:42:18
End at: 2018-12-02 09:42:48
Local clock offset: 7.364 ms
Remote clock offset: -0.166 ms


# Below is generated by plot.py at 2018-12-02 12:38:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 613.37 Mbit/s
95th percentile per-packet one-way delay: 157.138 ms
Loss rate: 1.07%
-- Flow 1:
Average throughput: 613.37 Mbit/s
95th percentile per-packet one-way delay: 157.138 ms
Loss rate: 1.07%
```
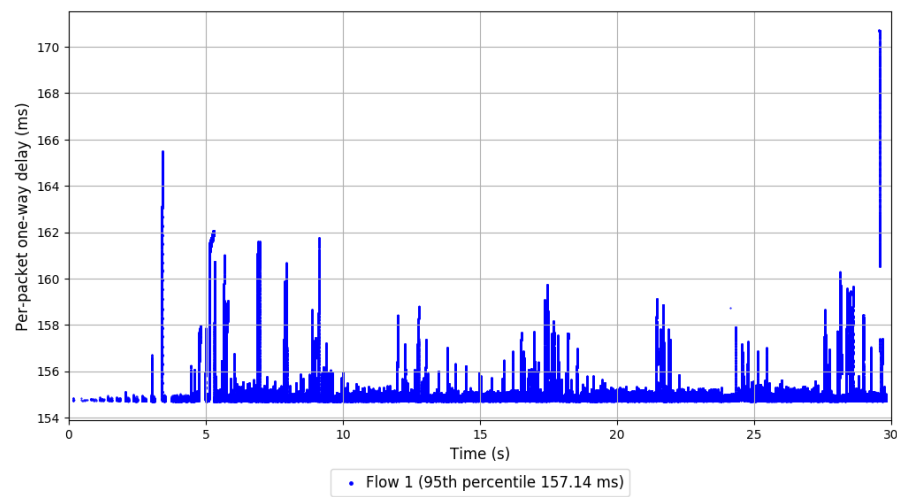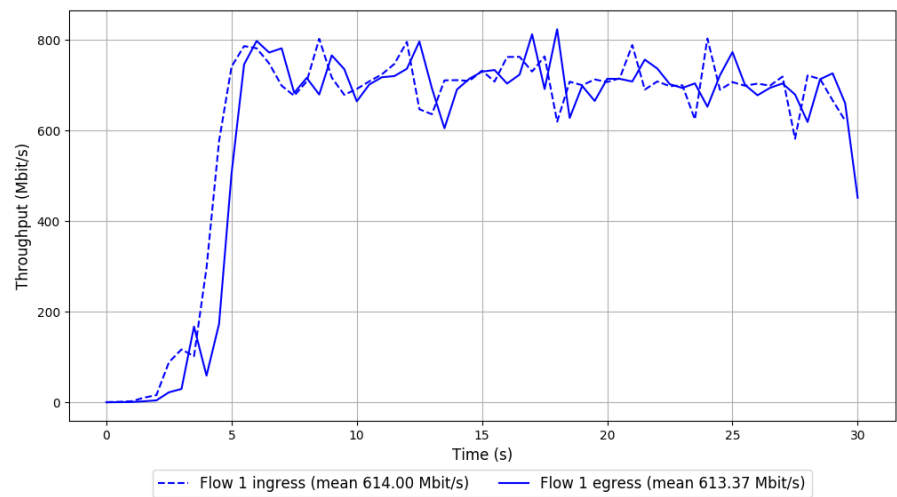
Run 1: Report of Indigo-Muses — Data Link

```
Run 2: Statistics of Indigo-Muses

Start at: 2018-12-02 10:12:09
End at: 2018-12-02 10:12:39
Local clock offset: 9.117 ms
Remote clock offset: 0.277 ms


# Below is generated by plot.py at 2018-12-02 12:38:34
# Datalink statistics
-- Total of 1 flow:
Average throughput: 635.60 Mbit/s
95th percentile per-packet one-way delay: 152.996 ms
Loss rate: 1.03%
-- Flow 1:
Average throughput: 635.60 Mbit/s
95th percentile per-packet one-way delay: 152.996 ms
Loss rate: 1.03%
```
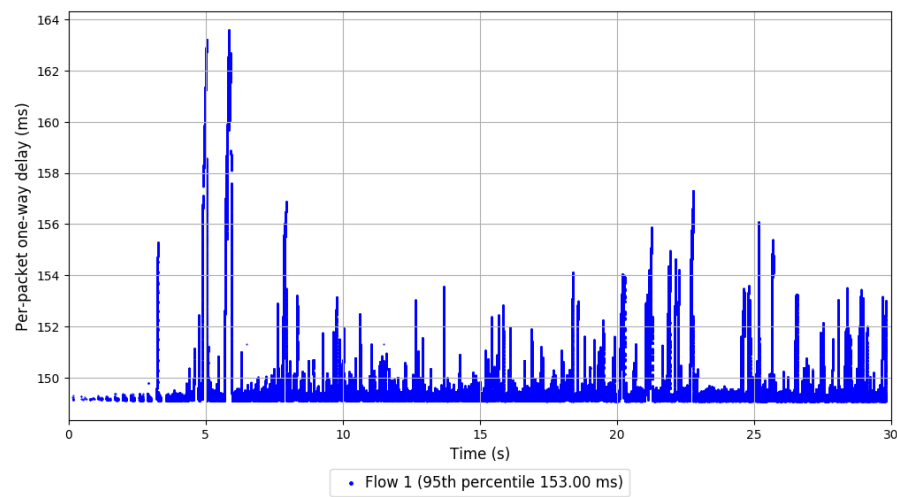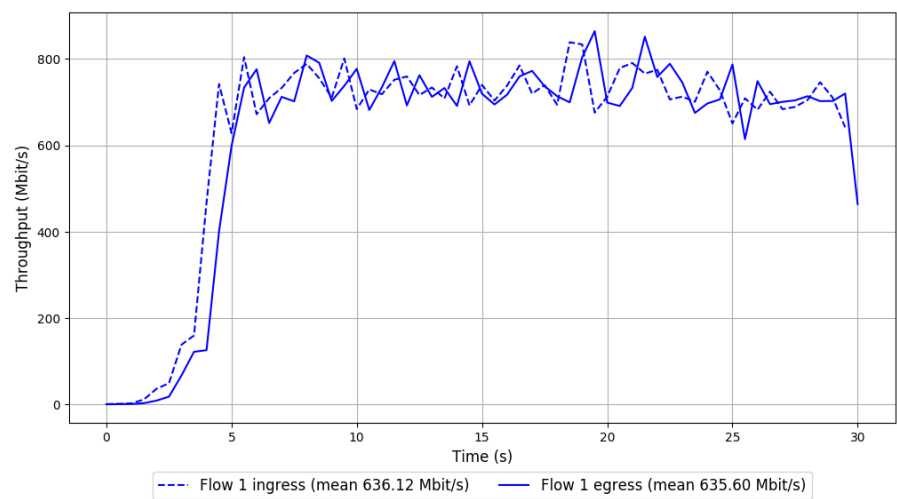
Run 2: Report of Indigo-Muses — Data Link

```
Run 3: Statistics of Indigo-Muses

Start at: 2018-12-02 10:41:59
End at: 2018-12-02 10:42:29
Local clock offset: -5.596 ms
Remote clock offset: 0.294 ms


# Below is generated by plot.py at 2018-12-02 12:38:34
# Datalink statistics
-- Total of 1 flow:
Average throughput: 553.78 Mbit/s
95th percentile per-packet one-way delay: 136.603 ms
Loss rate: 1.04%
-- Flow 1:
Average throughput: 553.78 Mbit/s
95th percentile per-packet one-way delay: 136.603 ms
Loss rate: 1.04%
```
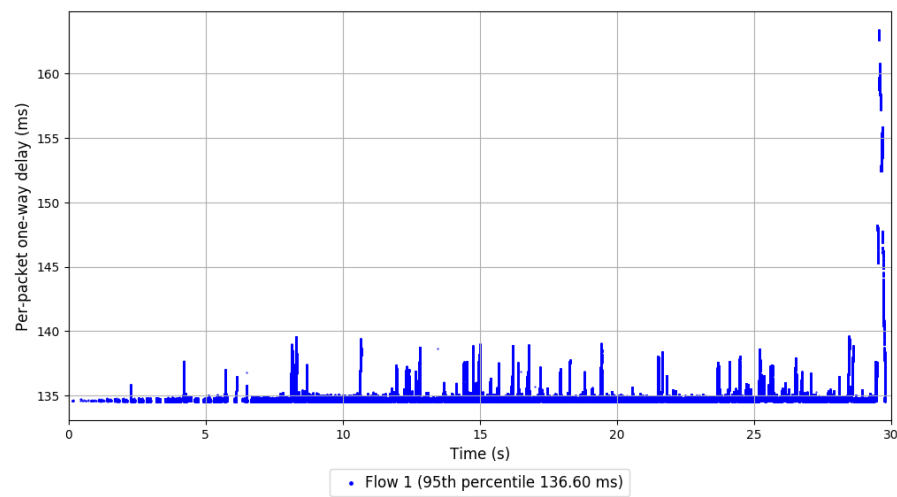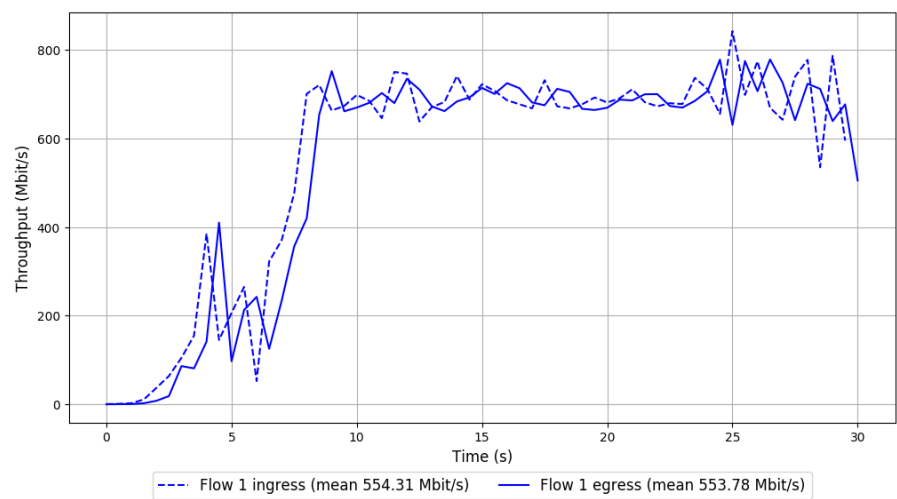
Run 3: Report of Indigo-Muses — Data Link

```
Run 4: Statistics of Indigo-Muses

Start at: 2018-12-02 11:11:29
End at: 2018-12-02 11:11:59
Local clock offset: 6.935 ms
Remote clock offset: 0.224 ms


# Below is generated by plot.py at 2018-12-02 12:38:34
# Datalink statistics
-- Total of 1 flow:
Average throughput: 583.50 Mbit/s
95th percentile per-packet one-way delay: 153.419 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 583.50 Mbit/s
95th percentile per-packet one-way delay: 153.419 ms
Loss rate: 0.77%
```
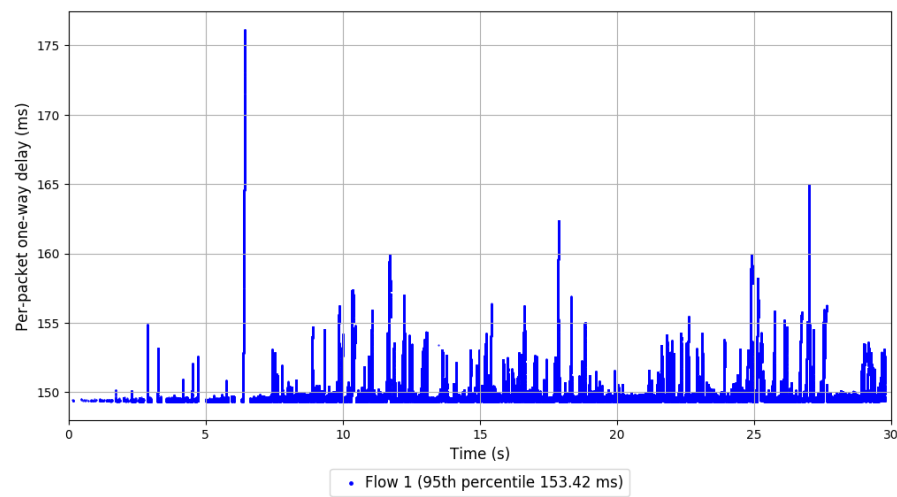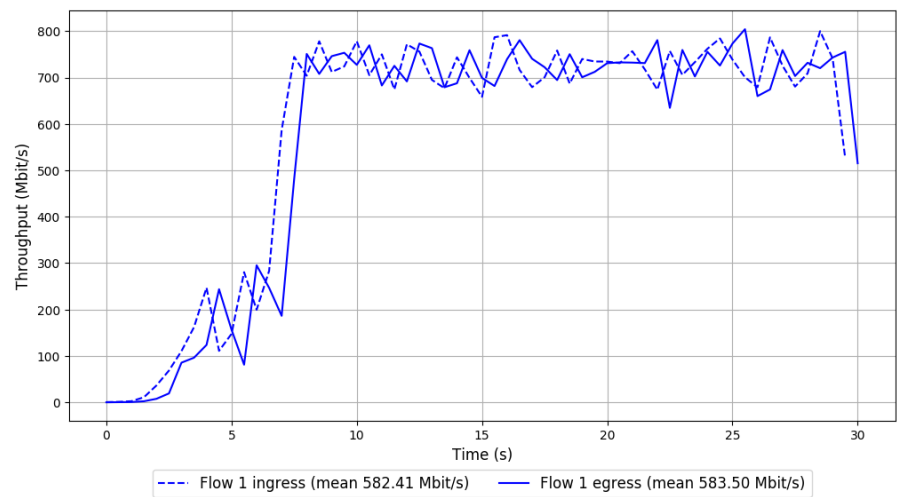
Run 4: Report of Indigo-Muses — Data Link

```
Run 5: Statistics of Indigo-Muses

Start at: 2018-12-02 11:41:26
End at: 2018-12-02 11:41:56
Local clock offset: 1.132 ms
Remote clock offset: 0.005 ms


# Below is generated by plot.py at 2018-12-02 12:39:34
# Datalink statistics
-- Total of 1 flow:
Average throughput: 644.80 Mbit/s
95th percentile per-packet one-way delay: 144.799 ms
Loss rate: 1.14%
-- Flow 1:
Average throughput: 644.80 Mbit/s
95th percentile per-packet one-way delay: 144.799 ms
Loss rate: 1.14%
```
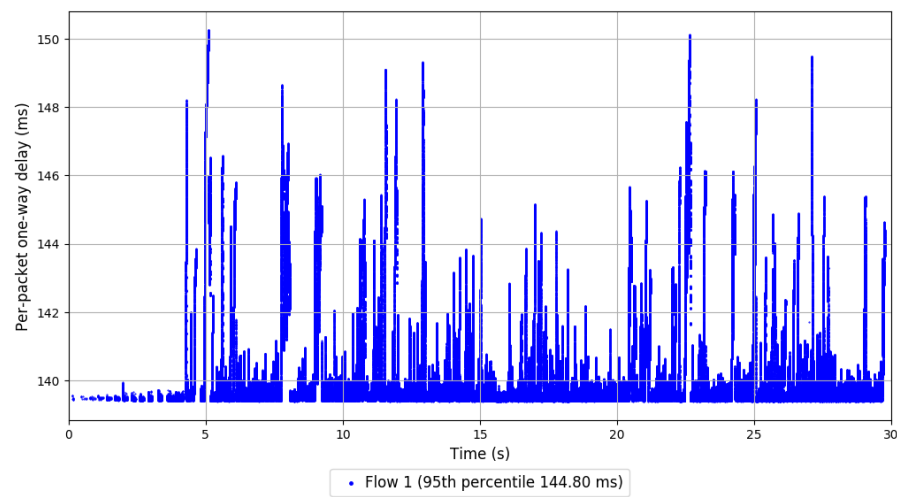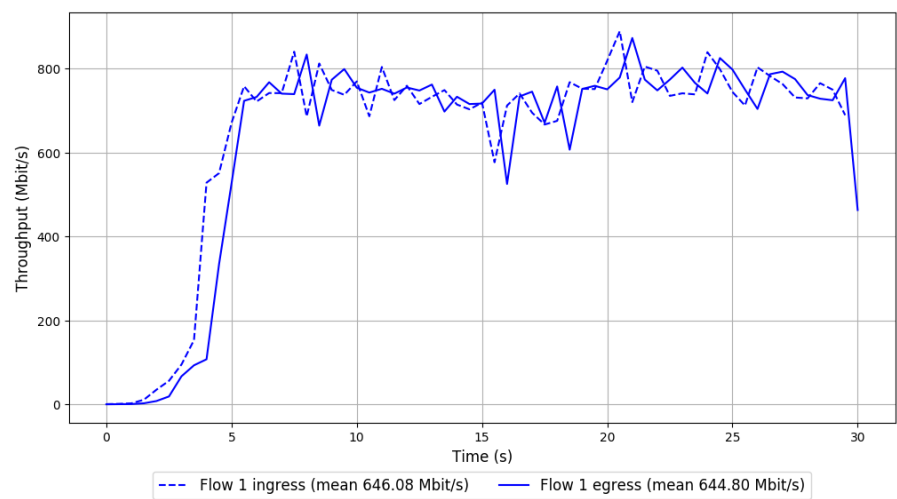
Run 5: Report of Indigo-Muses — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2018-12-02 09:45:24
End at: 2018-12-02 09:45:54
Local clock offset: 6.349 ms
Remote clock offset: -0.043 ms


# Below is generated by plot.py at 2018-12-02 12:40:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 790.36 Mbit/s
95th percentile per-packet one-way delay: 231.623 ms
Loss rate: 1.17%
-- Flow 1:
Average throughput: 790.36 Mbit/s
95th percentile per-packet one-way delay: 231.623 ms
Loss rate: 1.17%
```
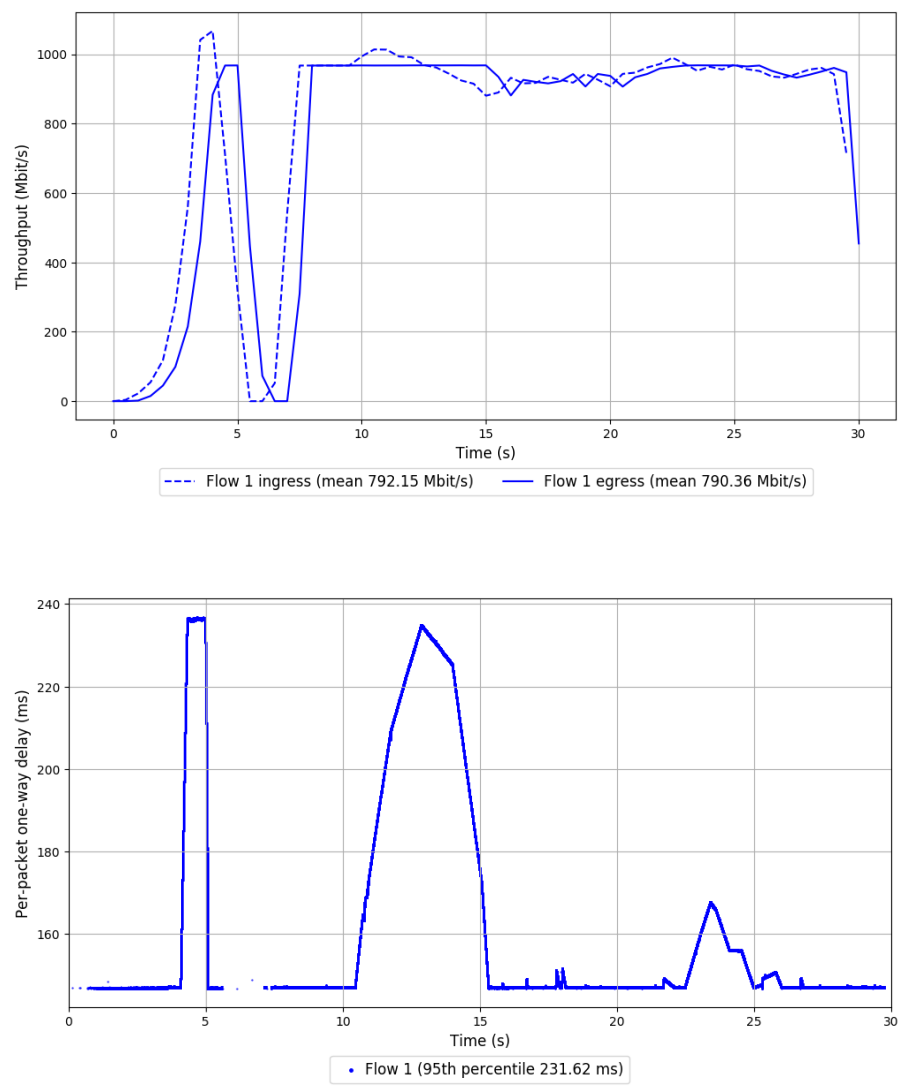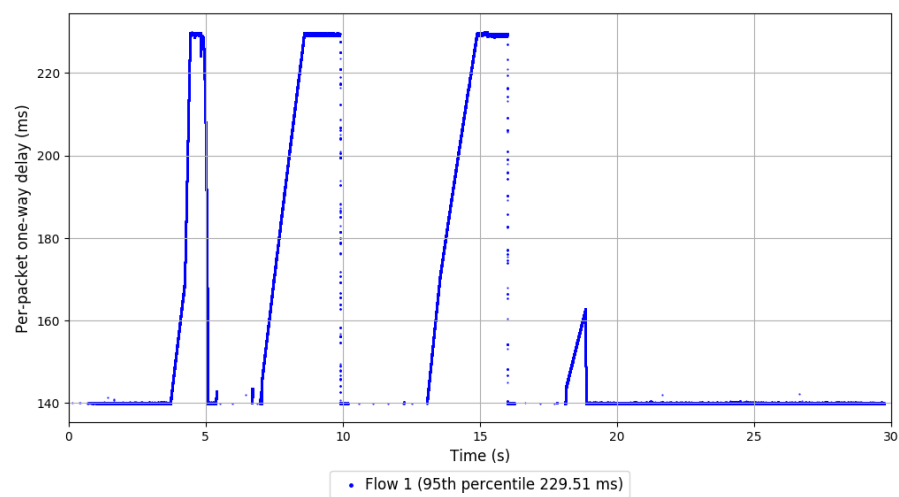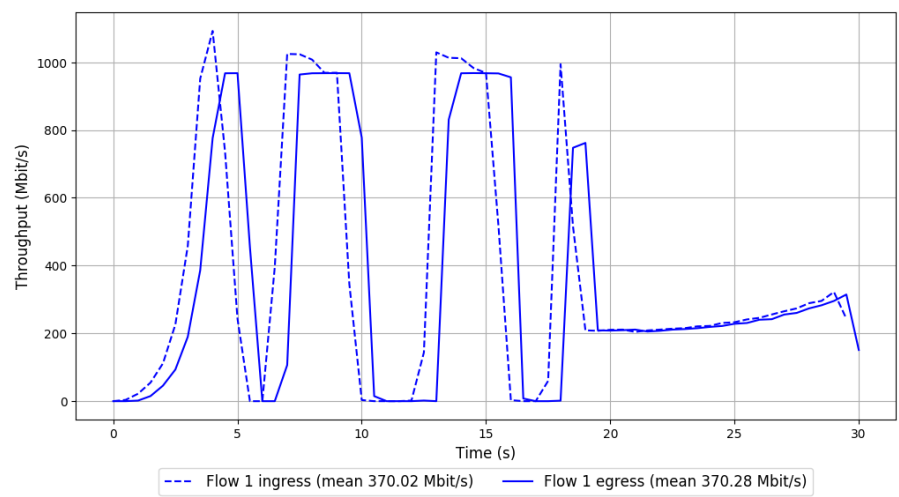
Run 1: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 792.15 Mbit/s) ----   Flow 1 egress (mean 790.36 Mbit/s) ——

• Flow 1 (95th percentile 231.62 ms)

```
Run 2: Statistics of PCC-Allegro

Start at: 2018-12-02 10:15:16
End at: 2018-12-02 10:15:46
Local clock offset: 1.146 ms
Remote clock offset: 0.179 ms


# Below is generated by plot.py at 2018-12-02 12:40:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 370.28 Mbit/s
95th percentile per-packet one-way delay: 229.511 ms
Loss rate: 0.88%
-- Flow 1:
Average throughput: 370.28 Mbit/s
95th percentile per-packet one-way delay: 229.511 ms
Loss rate: 0.88%
```

Run 2: Report of PCC-Allegro — Data Link

```
Run 3: Statistics of PCC-Allegro

Start at: 2018-12-02 10:45:02
End at: 2018-12-02 10:45:32
Local clock offset: 6.571 ms
Remote clock offset: 0.206 ms


# Below is generated by plot.py at 2018-12-02 12:40:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 378.16 Mbit/s
95th percentile per-packet one-way delay: 238.858 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 378.16 Mbit/s
95th percentile per-packet one-way delay: 238.858 ms
Loss rate: 0.91%
```
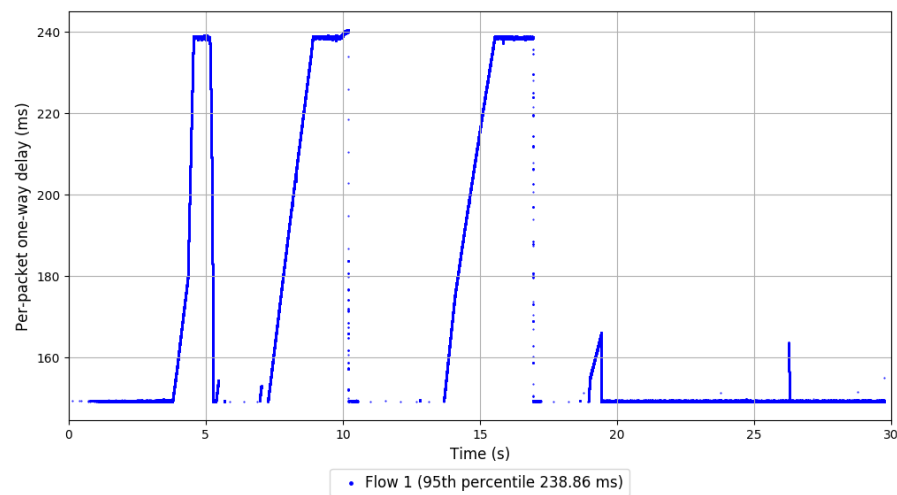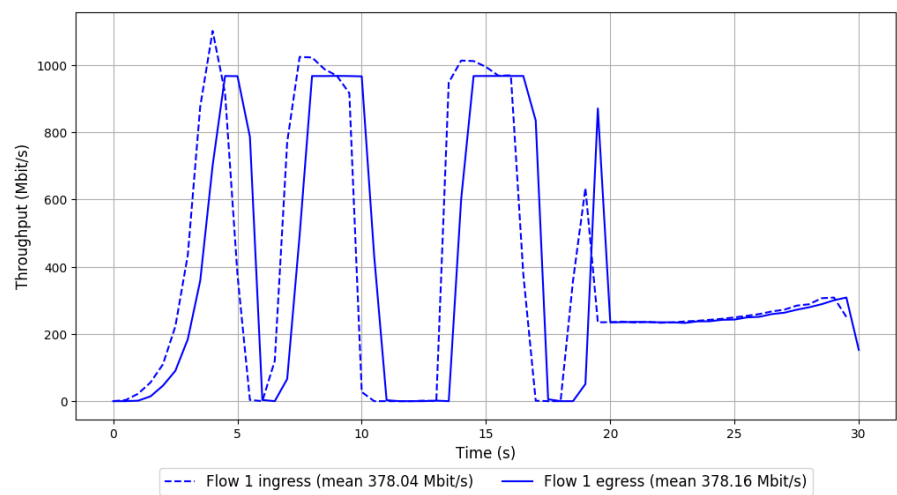
Run 3: Report of PCC-Allegro — Data Link

```
Run 4: Statistics of PCC-Allegro

Start at: 2018-12-02 11:14:33
End at: 2018-12-02 11:15:03
Local clock offset: 6.961 ms
Remote clock offset: 0.111 ms


# Below is generated by plot.py at 2018-12-02 12:44:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 660.70 Mbit/s
95th percentile per-packet one-way delay: 244.396 ms
Loss rate: 1.49%
-- Flow 1:
Average throughput: 660.70 Mbit/s
95th percentile per-packet one-way delay: 244.396 ms
Loss rate: 1.49%
```
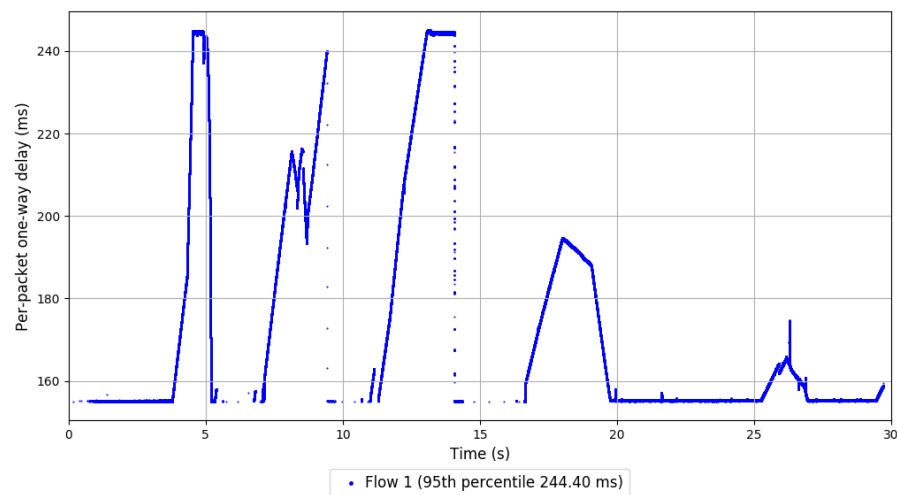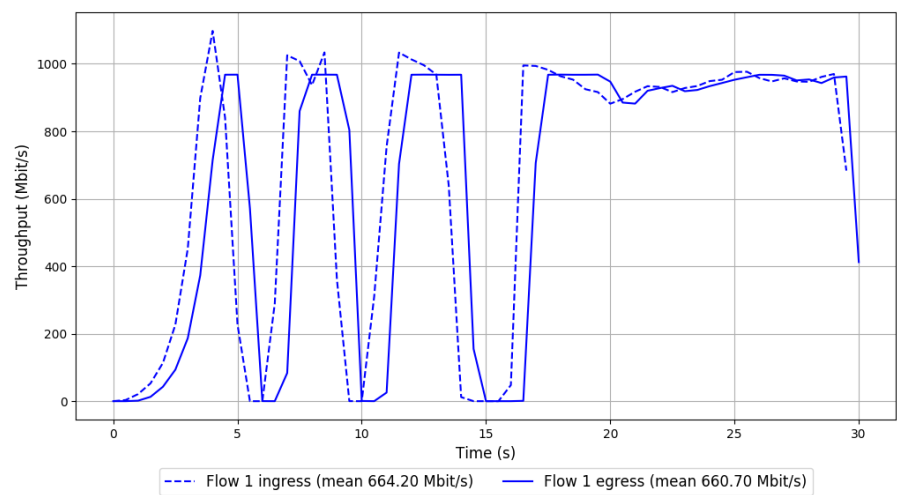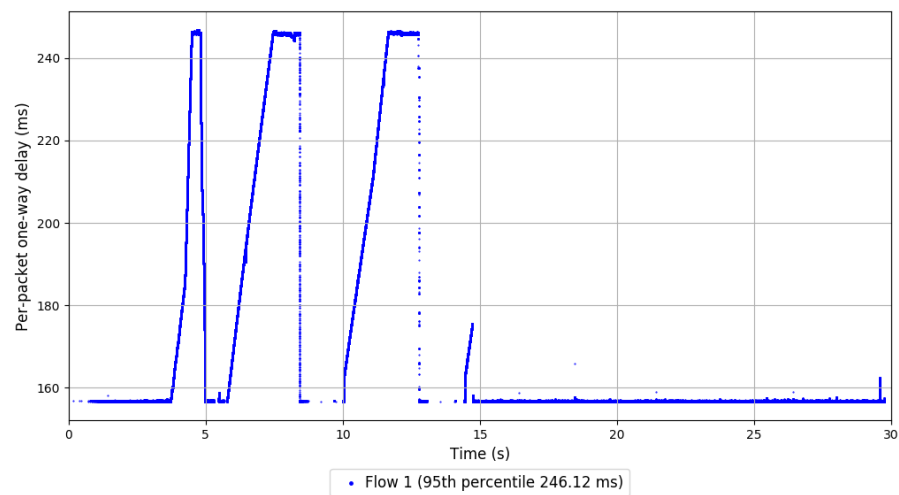
Run 4: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 664.20 Mbit/s)   Flow 1 egress (mean 660.70 Mbit/s)

Flow 1 (95th percentile 244.40 ms)

```
Run 5: Statistics of PCC-Allegro

Start at: 2018-12-02 11:44:34
End at: 2018-12-02 11:45:04
Local clock offset: 8.591 ms
Remote clock offset: 0.038 ms


# Below is generated by plot.py at 2018-12-02 12:44:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 430.34 Mbit/s
95th percentile per-packet one-way delay: 246.125 ms
Loss rate: 1.51%
-- Flow 1:
Average throughput: 430.34 Mbit/s
95th percentile per-packet one-way delay: 246.125 ms
Loss rate: 1.51%
```
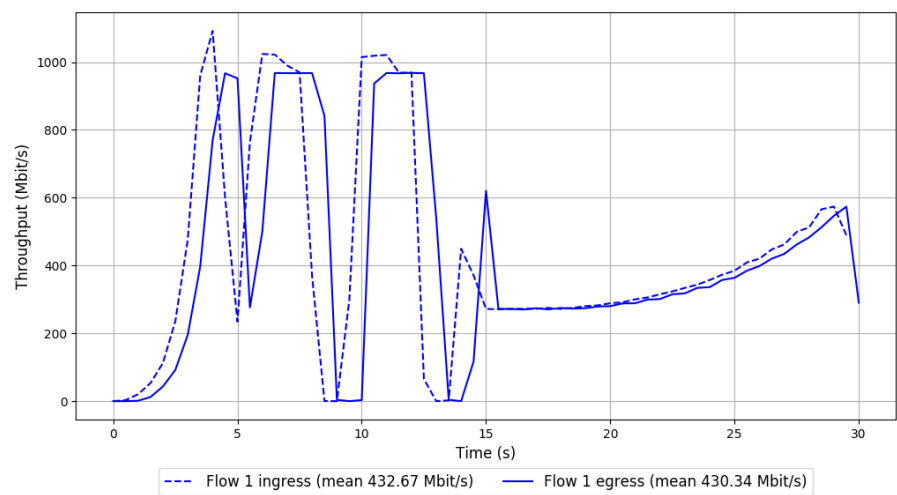
Run 5: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 432.67 Mbit/s) — Flow 1 egress (mean 430.34 Mbit/s)
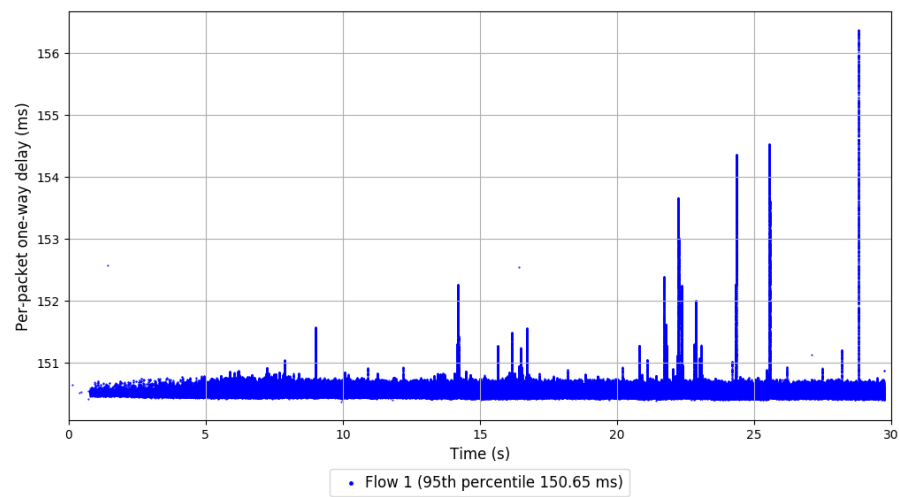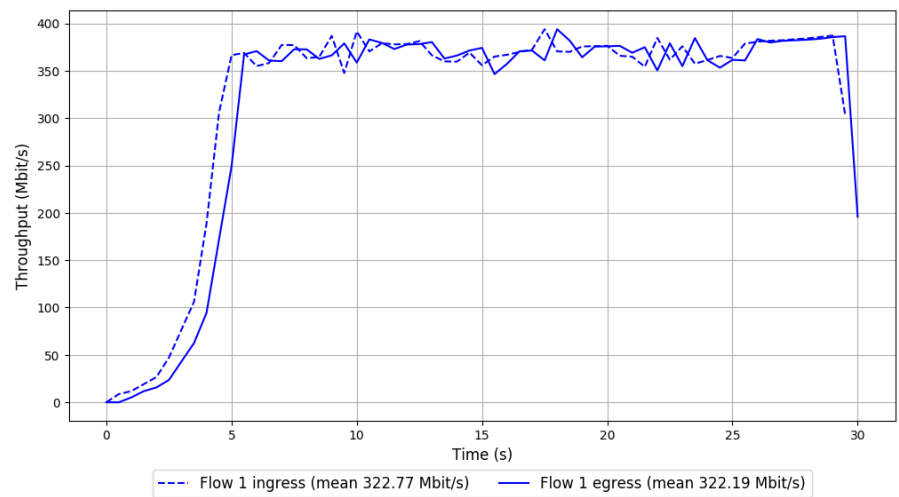

· Flow 1 (95th percentile 246.12 ms)

```
Run 1: Statistics of PCC-Expr

Start at: 2018-12-02 09:53:25
End at: 2018-12-02 09:53:55
Local clock offset: -0.073 ms
Remote clock offset: 0.058 ms

# Below is generated by plot.py at 2018-12-02 12:45:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 322.19 Mbit/s
95th percentile per-packet one-way delay: 150.653 ms
Loss rate: 1.16%
-- Flow 1:
Average throughput: 322.19 Mbit/s
95th percentile per-packet one-way delay: 150.653 ms
Loss rate: 1.16%
```
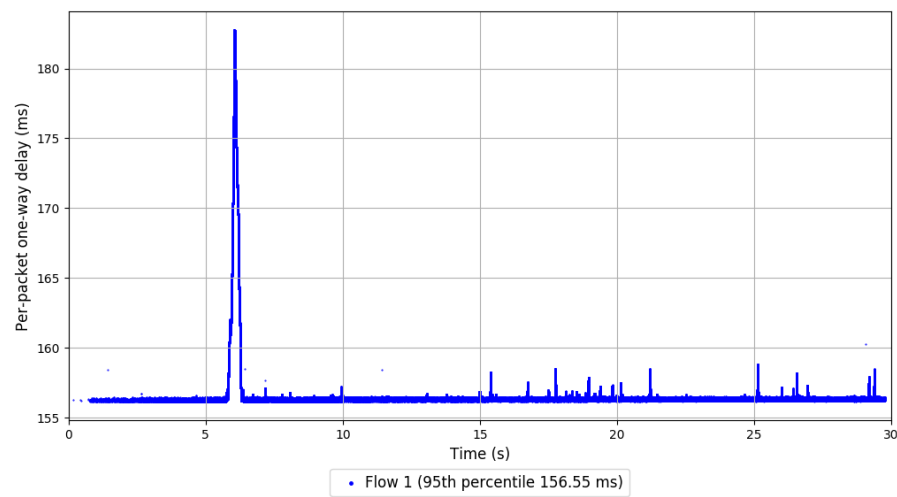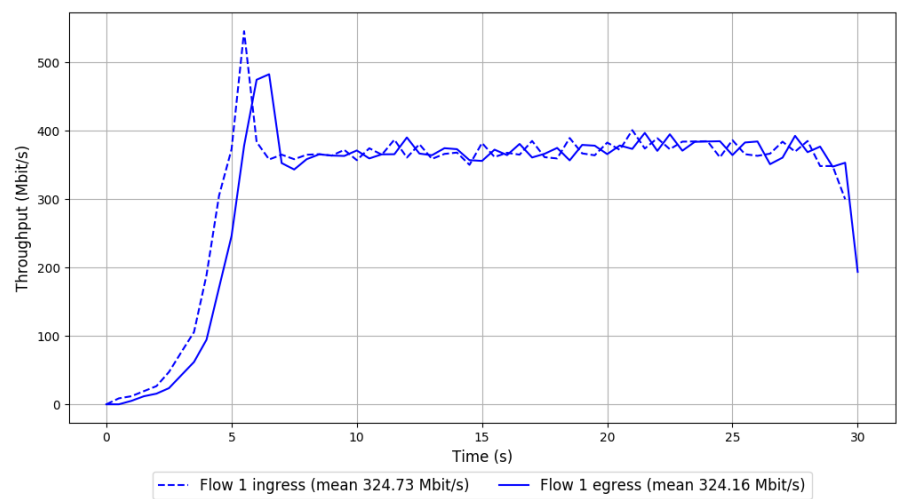
Run 1: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 322.77 Mbit/s)   Flow 1 egress (mean 322.19 Mbit/s)

Flow 1 (95th percentile 150.65 ms)

```
Run 2: Statistics of PCC-Expr

Start at: 2018-12-02 10:23:13
End at: 2018-12-02 10:23:43
Local clock offset: 8.415 ms
Remote clock offset: 0.095 ms


# Below is generated by plot.py at 2018-12-02 12:45:26
# Datalink statistics
-- Total of 1 flow:
Average throughput: 324.16 Mbit/s
95th percentile per-packet one-way delay: 156.553 ms
Loss rate: 1.15%
-- Flow 1:
Average throughput: 324.16 Mbit/s
95th percentile per-packet one-way delay: 156.553 ms
Loss rate: 1.15%
```

Run 2: Report of PCC-Expr — Data Link

```
Run 3: Statistics of PCC-Expr

Start at: 2018-12-02 10:52:59
End at: 2018-12-02 10:53:29
Local clock offset: 6.833 ms
Remote clock offset: 0.136 ms


# Below is generated by plot.py at 2018-12-02 12:45:37
# Datalink statistics
-- Total of 1 flow:
Average throughput: 324.04 Mbit/s
95th percentile per-packet one-way delay: 147.118 ms
Loss rate: 1.08%
-- Flow 1:
Average throughput: 324.04 Mbit/s
95th percentile per-packet one-way delay: 147.118 ms
Loss rate: 1.08%
```
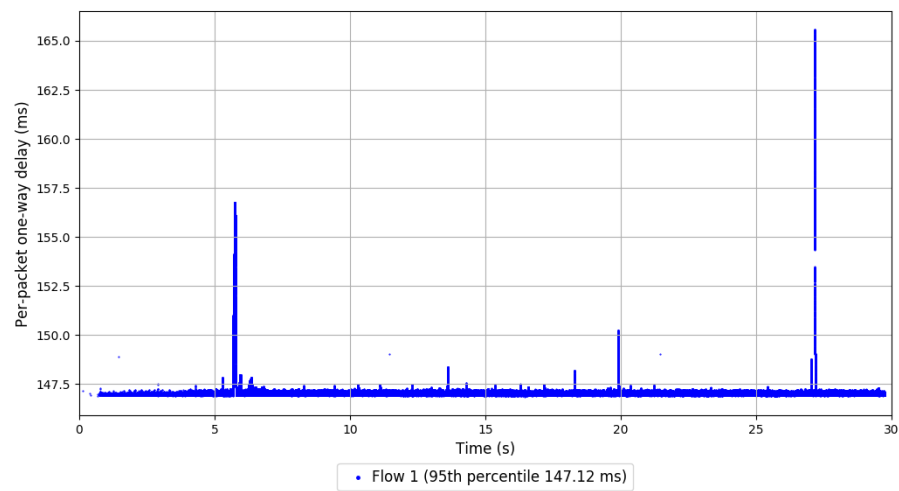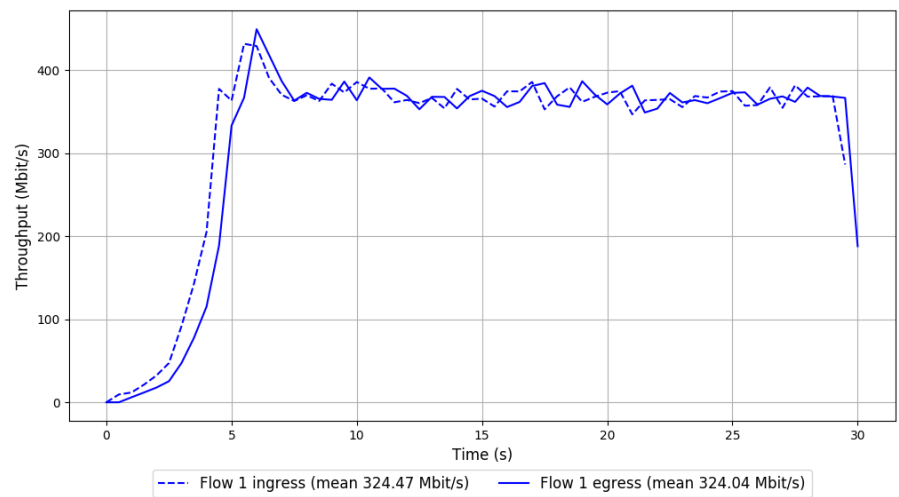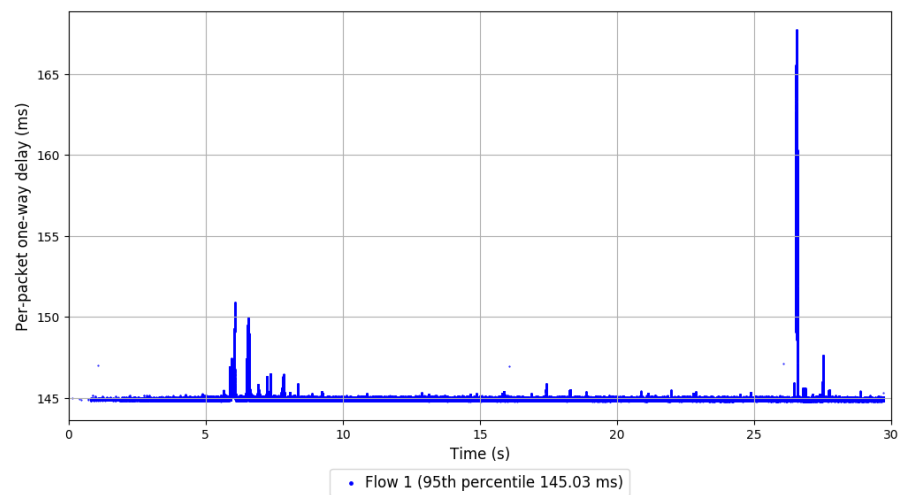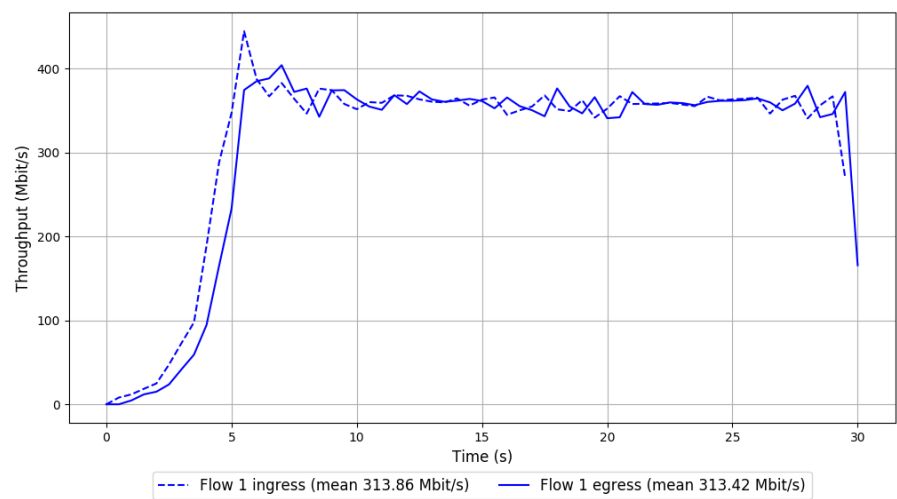
Run 3: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 324.47 Mbit/s) --- Flow 1 egress (mean 324.04 Mbit/s)

Flow 1 (95th percentile 147.12 ms)

```
Run 4: Statistics of PCC-Expr

Start at: 2018-12-02 11:22:45
End at: 2018-12-02 11:23:15
Local clock offset: -2.955 ms
Remote clock offset: 0.062 ms


# Below is generated by plot.py at 2018-12-02 12:46:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 313.42 Mbit/s
95th percentile per-packet one-way delay: 145.028 ms
Loss rate: 1.11%
-- Flow 1:
Average throughput: 313.42 Mbit/s
95th percentile per-packet one-way delay: 145.028 ms
Loss rate: 1.11%
```
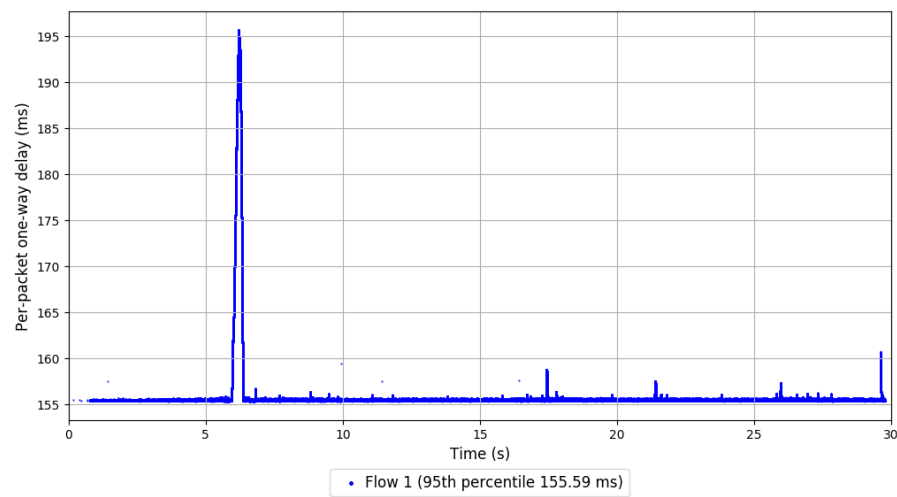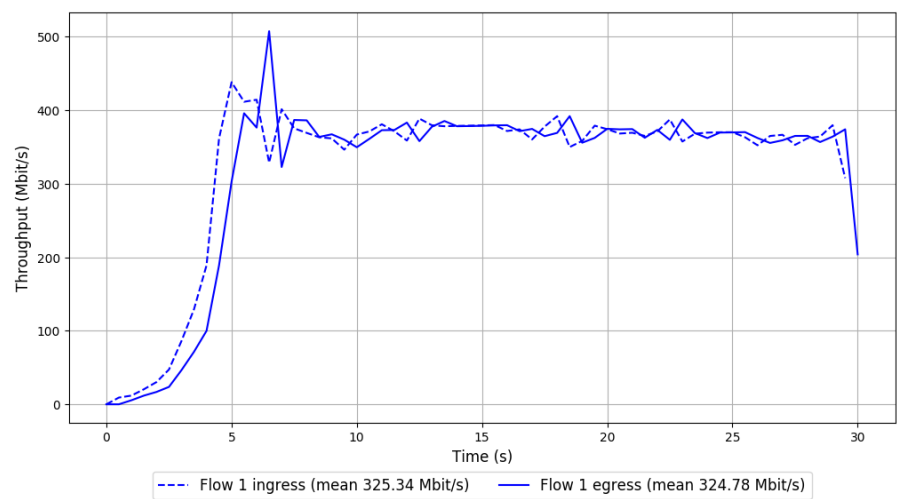
Run 4: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 313.86 Mbit/s)   Flow 1 egress (mean 313.42 Mbit/s)

Flow 1 (95th percentile 145.03 ms)

```
Run 5: Statistics of PCC-Expr

Start at: 2018-12-02 11:52:32
End at: 2018-12-02 11:53:02
Local clock offset: 8.233 ms
Remote clock offset: 0.016 ms


# Below is generated by plot.py at 2018-12-02 12:46:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 324.78 Mbit/s
95th percentile per-packet one-way delay: 155.585 ms
Loss rate: 1.14%
-- Flow 1:
Average throughput: 324.78 Mbit/s
95th percentile per-packet one-way delay: 155.585 ms
Loss rate: 1.14%
```
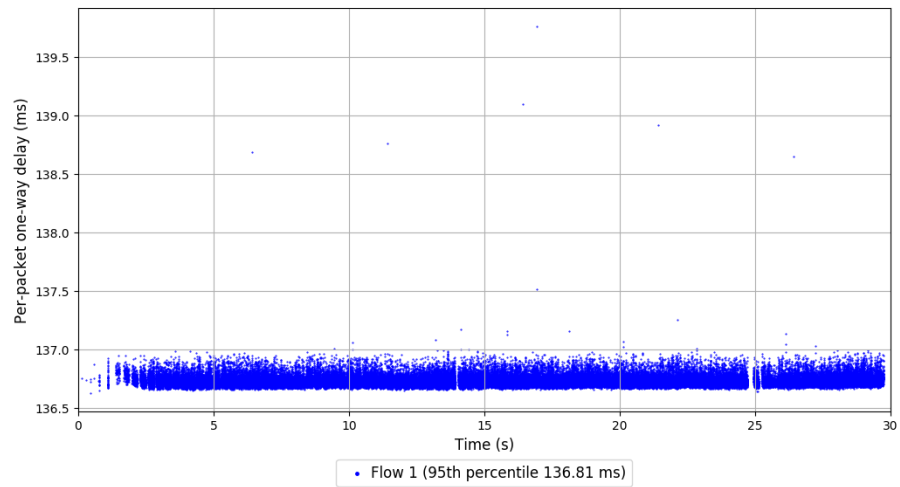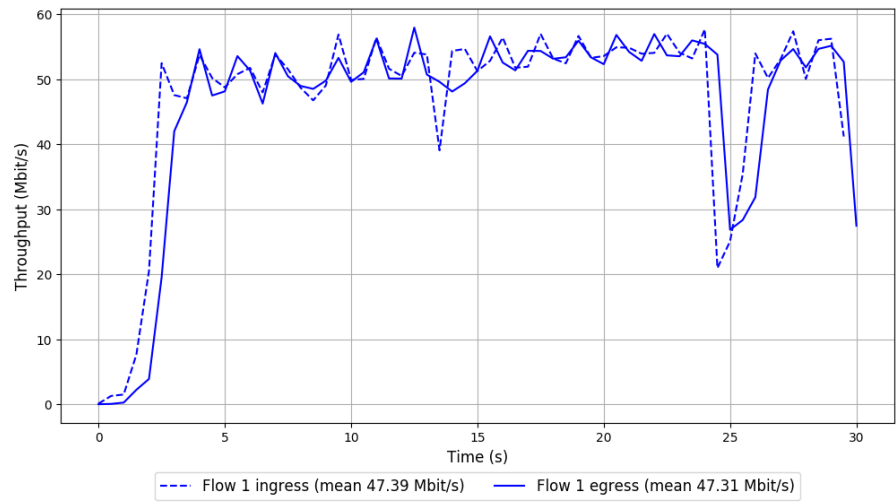
Run 5: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 325.34 Mbit/s)   Flow 1 egress (mean 324.78 Mbit/s)

• Flow 1 (95th percentile 155.59 ms)

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-12-02 09:36:29
End at: 2018-12-02 09:36:59
Local clock offset: -4.998 ms
Remote clock offset: -0.267 ms


# Below is generated by plot.py at 2018-12-02 12:46:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 47.31 Mbit/s
95th percentile per-packet one-way delay: 136.806 ms
Loss rate: 1.12%
-- Flow 1:
Average throughput: 47.31 Mbit/s
95th percentile per-packet one-way delay: 136.806 ms
Loss rate: 1.12%
```

Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-12-02 10:06:20
End at: 2018-12-02 10:06:50
Local clock offset: 7.736 ms
Remote clock offset: 0.364 ms


# Below is generated by plot.py at 2018-12-02 12:46:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 29.70 Mbit/s
95th percentile per-packet one-way delay: 146.885 ms
Loss rate: 1.17%
-- Flow 1:
Average throughput: 29.70 Mbit/s
95th percentile per-packet one-way delay: 146.885 ms
Loss rate: 1.17%
```
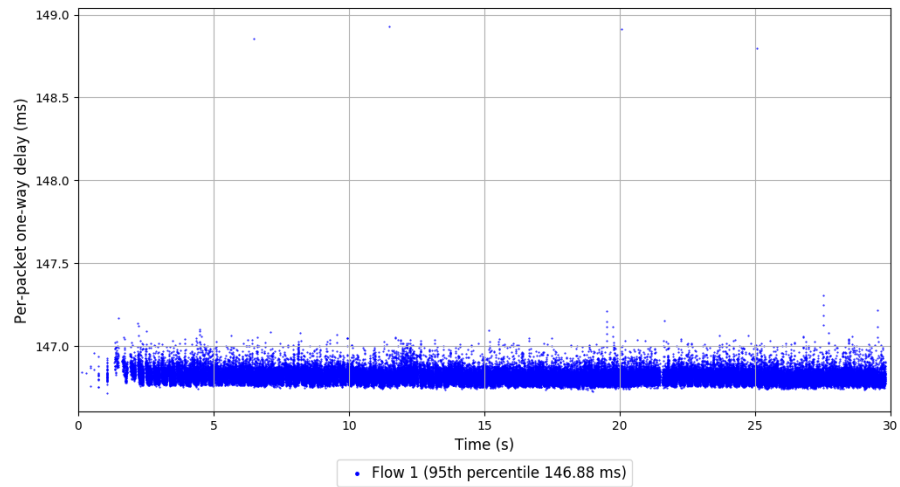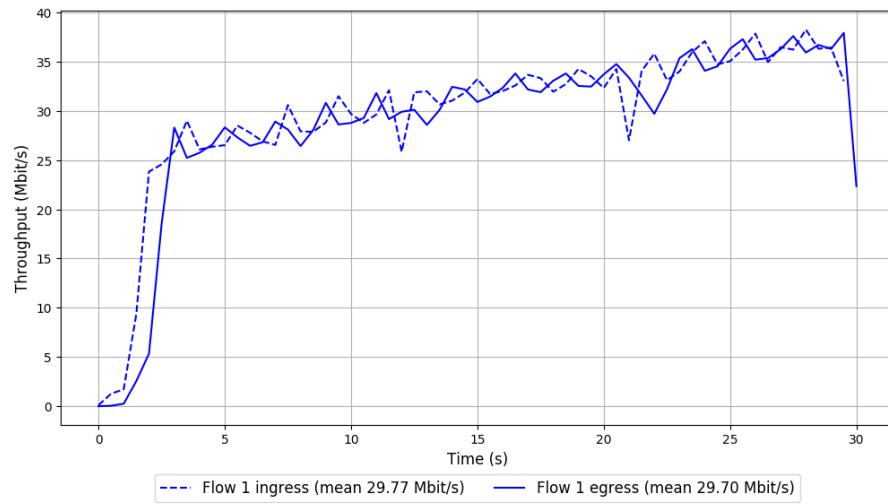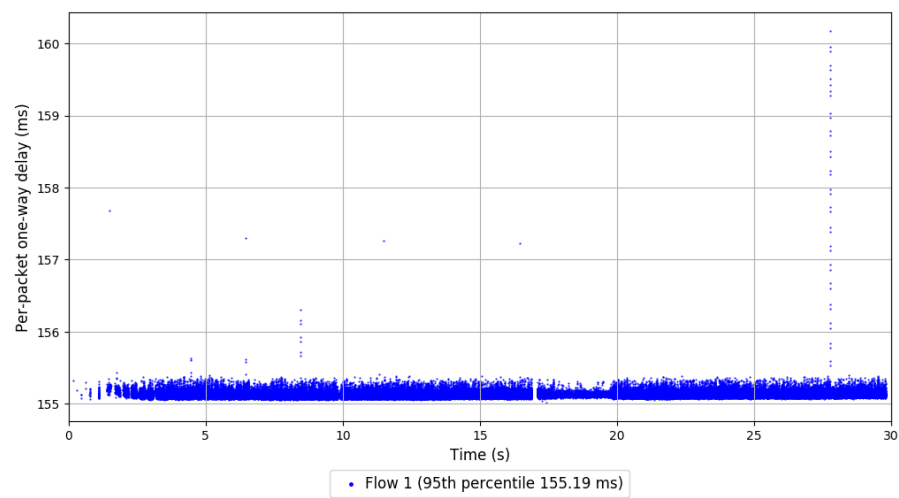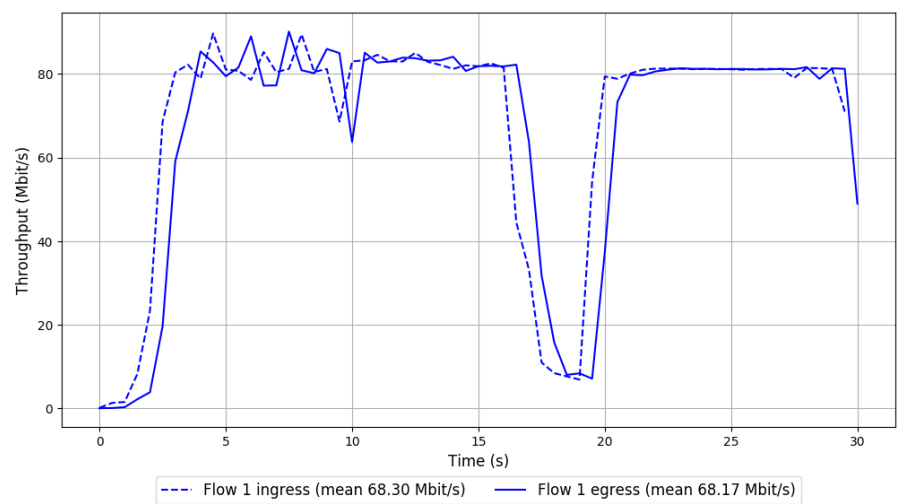
Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-12-02 10:36:09
End at: 2018-12-02 10:36:39
Local clock offset: 6.676 ms
Remote clock offset: 0.2 ms


# Below is generated by plot.py at 2018-12-02 12:46:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 68.17 Mbit/s
95th percentile per-packet one-way delay: 155.188 ms
Loss rate: 1.16%
-- Flow 1:
Average throughput: 68.17 Mbit/s
95th percentile per-packet one-way delay: 155.188 ms
Loss rate: 1.16%
```
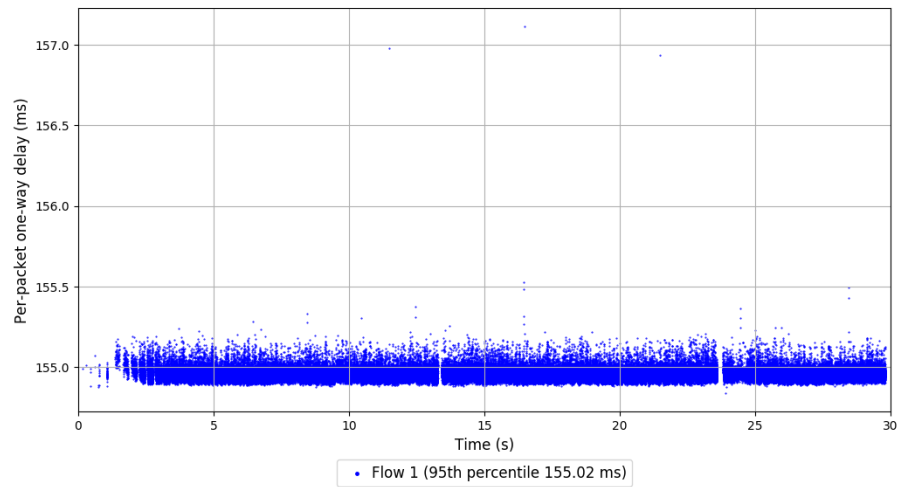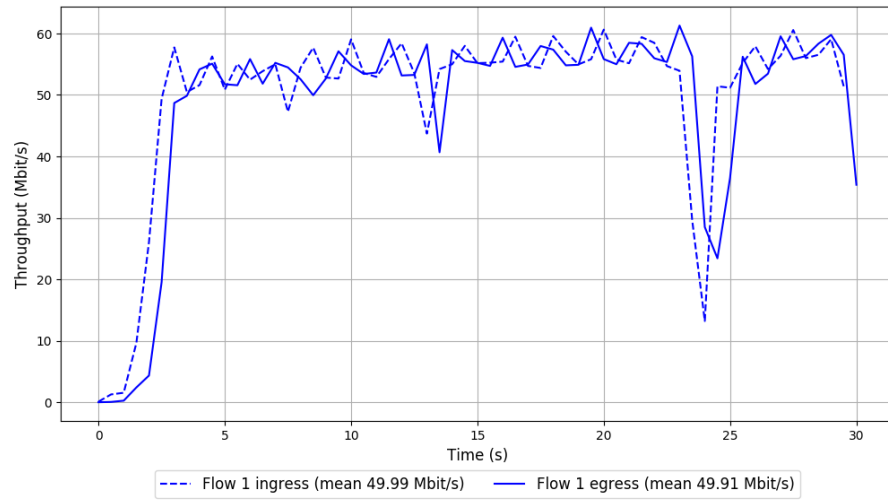
Run 3: Report of QUIC Cubic — Data Link

```
Run 4: Statistics of QUIC Cubic

Start at: 2018-12-02 11:05:41
End at: 2018-12-02 11:06:11
Local clock offset: 6.881 ms
Remote clock offset: 0.164 ms


# Below is generated by plot.py at 2018-12-02 12:46:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 49.91 Mbit/s
95th percentile per-packet one-way delay: 155.023 ms
Loss rate: 1.12%
-- Flow 1:
Average throughput: 49.91 Mbit/s
95th percentile per-packet one-way delay: 155.023 ms
Loss rate: 1.12%
```
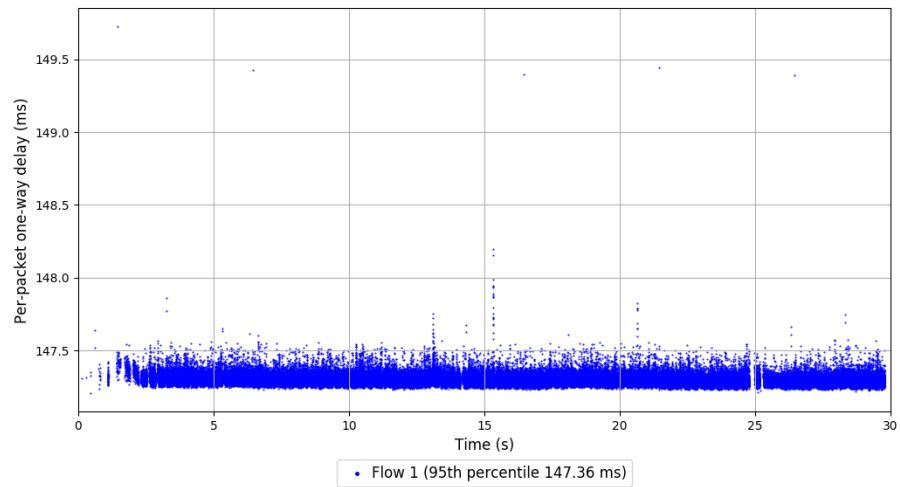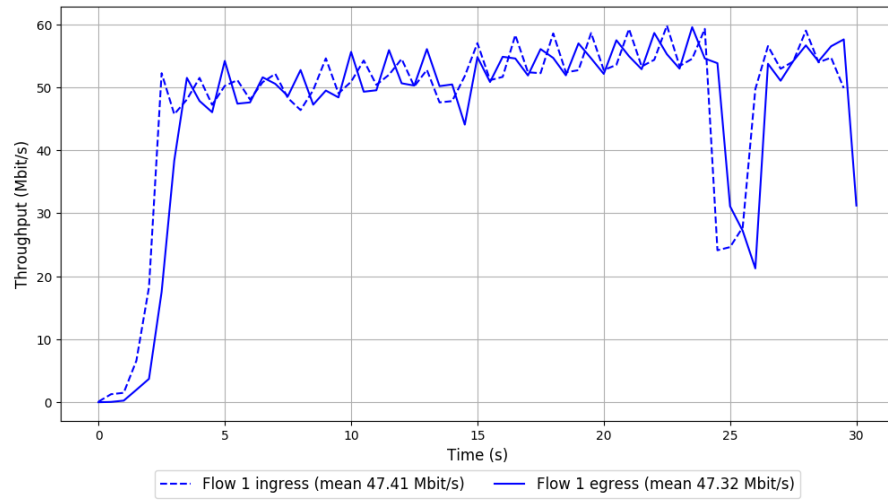
Run 4: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 49.99 Mbit/s) — — — Flow 1 egress (mean 49.91 Mbit/s)

Flow 1 (95th percentile 155.02 ms)

```
Run 5: Statistics of QUIC Cubic

Start at: 2018-12-02 11:35:39
End at: 2018-12-02 11:36:09
Local clock offset: 0.859 ms
Remote clock offset: 0.023 ms


# Below is generated by plot.py at 2018-12-02 12:46:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 47.32 Mbit/s
95th percentile per-packet one-way delay: 147.362 ms
Loss rate: 1.14%
-- Flow 1:
Average throughput: 47.32 Mbit/s
95th percentile per-packet one-way delay: 147.362 ms
Loss rate: 1.14%
```

Run 5: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 47.41 Mbit/s) ----   Flow 1 egress (mean 47.32 Mbit/s) ——
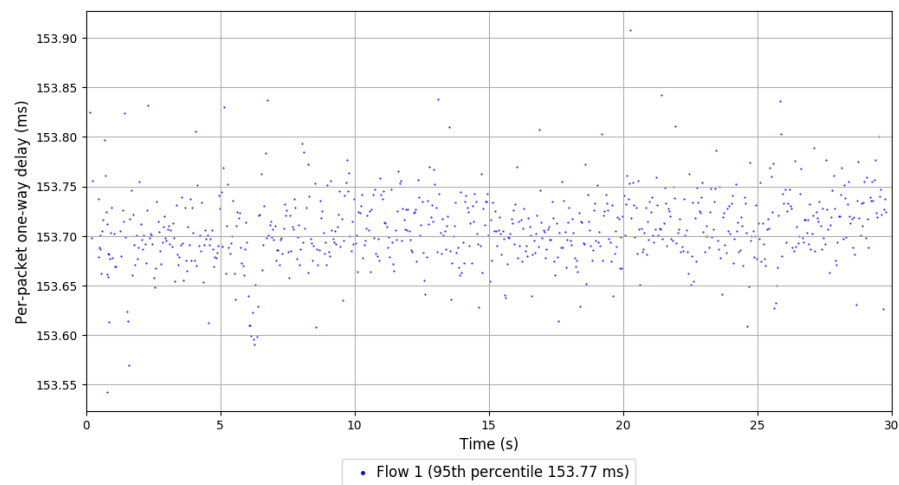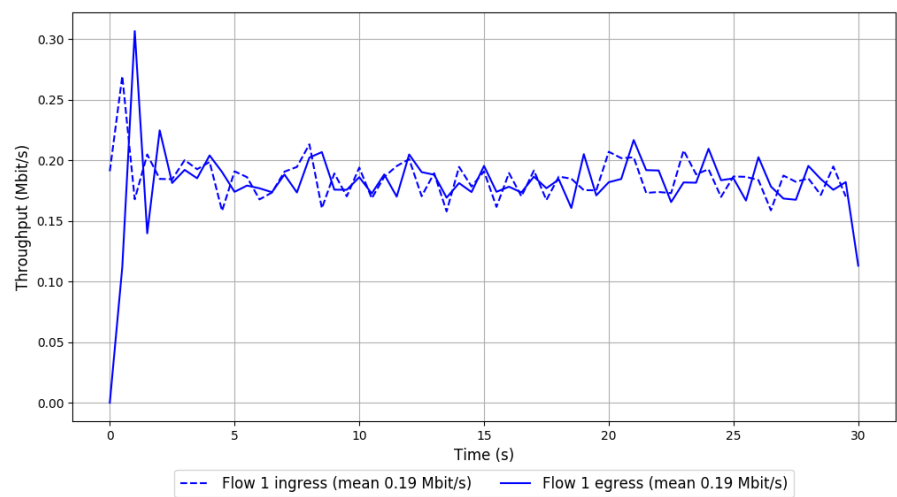

Flow 1 (95th percentile 147.36 ms) •

```
Run 1: Statistics of SCReAM

Start at: 2018-12-02 09:44:06
End at: 2018-12-02 09:44:36
Local clock offset: 6.247 ms
Remote clock offset: -0.092 ms


# Below is generated by plot.py at 2018-12-02 12:46:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 153.767 ms
Loss rate: 1.03%
-- Flow 1:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 153.767 ms
Loss rate: 1.03%
```
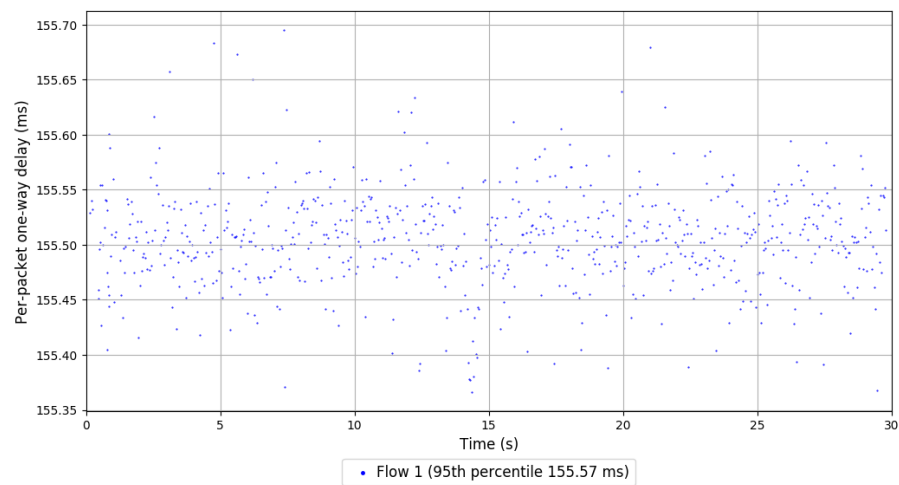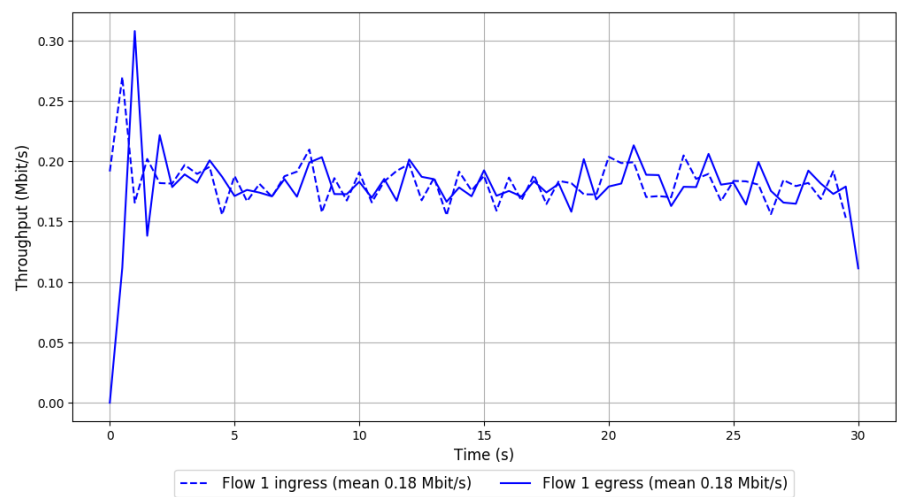
Run 1: Report of SCReAM — Data Link

Flow 1 ingress (mean 0.19 Mbit/s) — Flow 1 egress (mean 0.19 Mbit/s)

Flow 1 (95th percentile 153.77 ms)

```
Run 2: Statistics of SCReAM

Start at: 2018-12-02 10:13:58
End at: 2018-12-02 10:14:28
Local clock offset: 8.195 ms
Remote clock offset: 0.225 ms


# Below is generated by plot.py at 2018-12-02 12:46:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 155.572 ms
Loss rate: 0.90%
-- Flow 1:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 155.572 ms
Loss rate: 0.90%
```

Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2018-12-02 10:43:44
End at: 2018-12-02 10:44:14
Local clock offset: -5.627 ms
Remote clock offset: 0.266 ms


# Below is generated by plot.py at 2018-12-02 12:46:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 149.345 ms
Loss rate: 1.03%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 149.345 ms
Loss rate: 1.03%
```
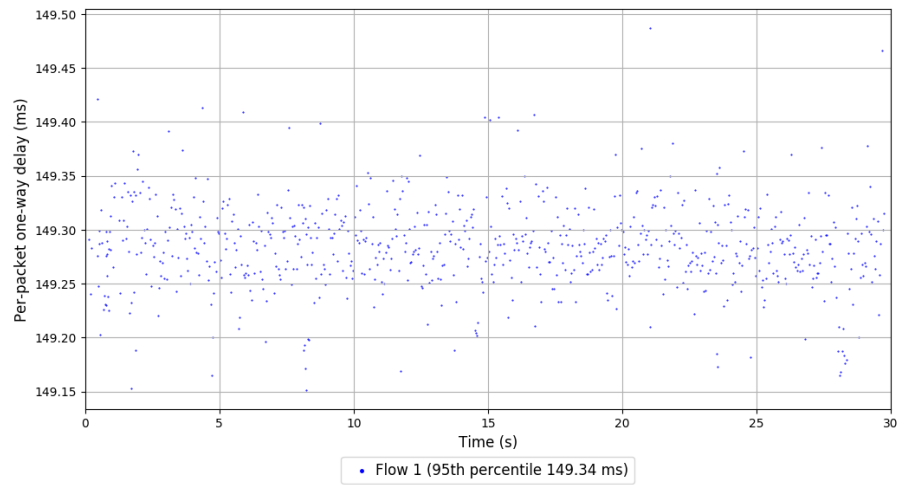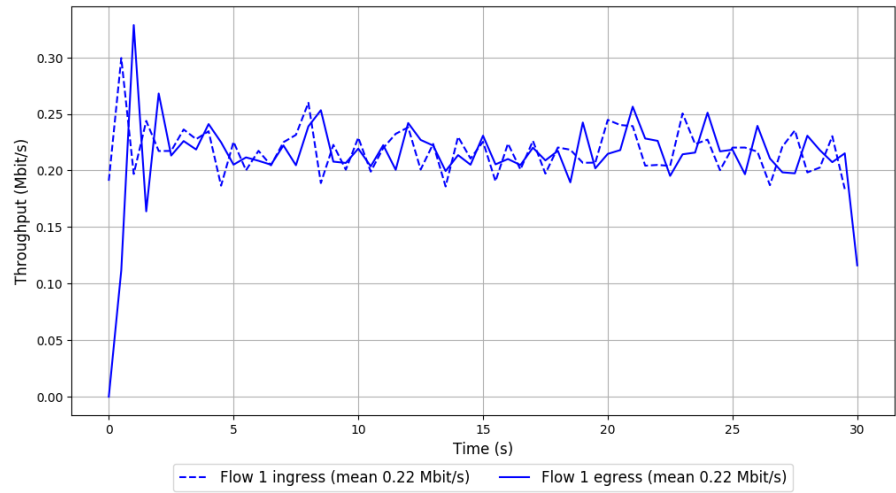
Run 3: Report of SCReAM — Data Link

```
Run 4: Statistics of SCReAM

Start at: 2018-12-02 11:13:15
End at: 2018-12-02 11:13:45
Local clock offset: 7.941 ms
Remote clock offset: 0.131 ms


# Below is generated by plot.py at 2018-12-02 12:46:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 157.766 ms
Loss rate: 0.90%
-- Flow 1:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 157.766 ms
Loss rate: 0.90%
```
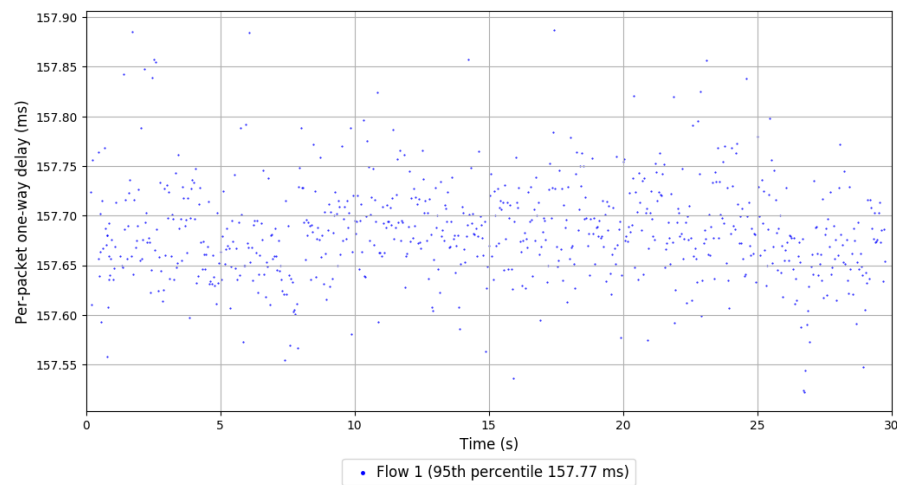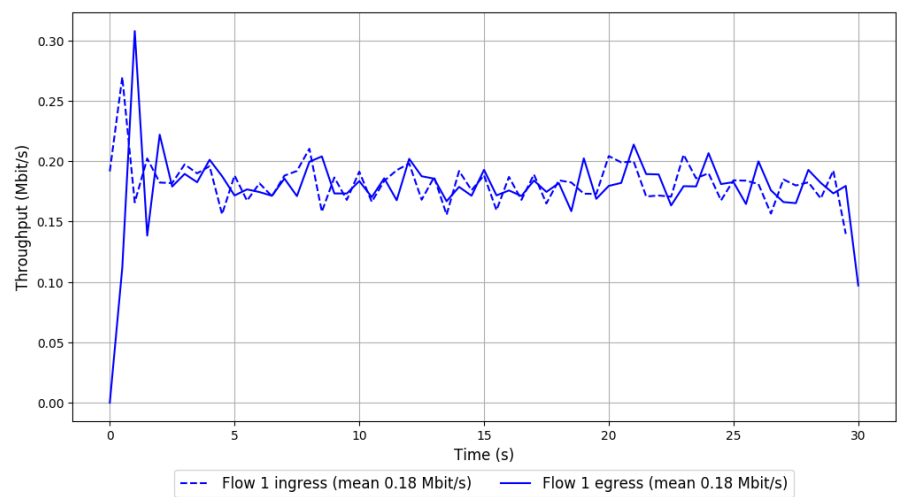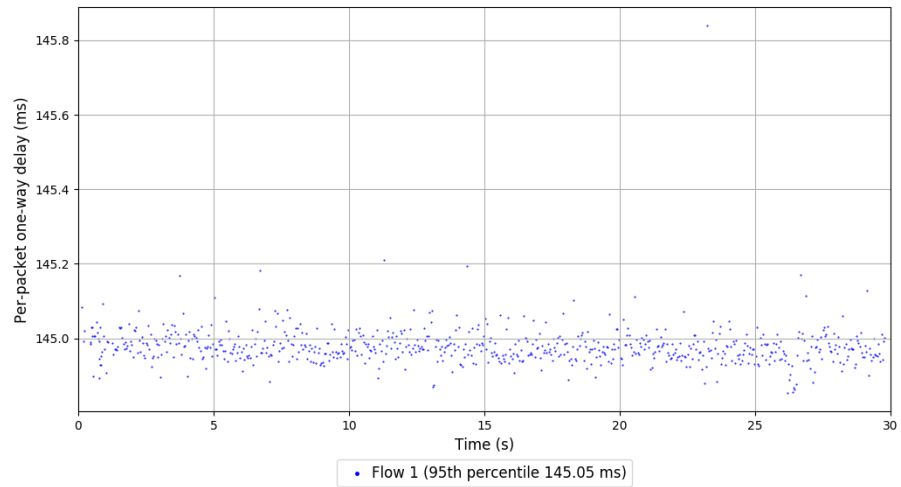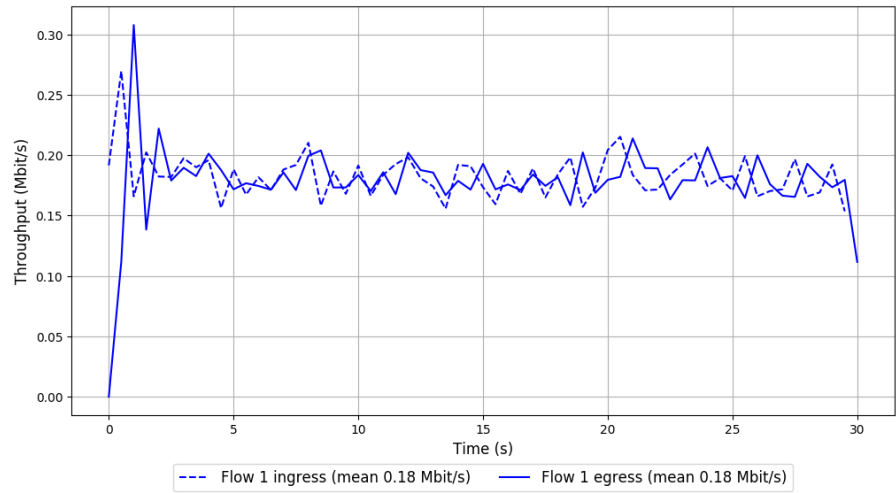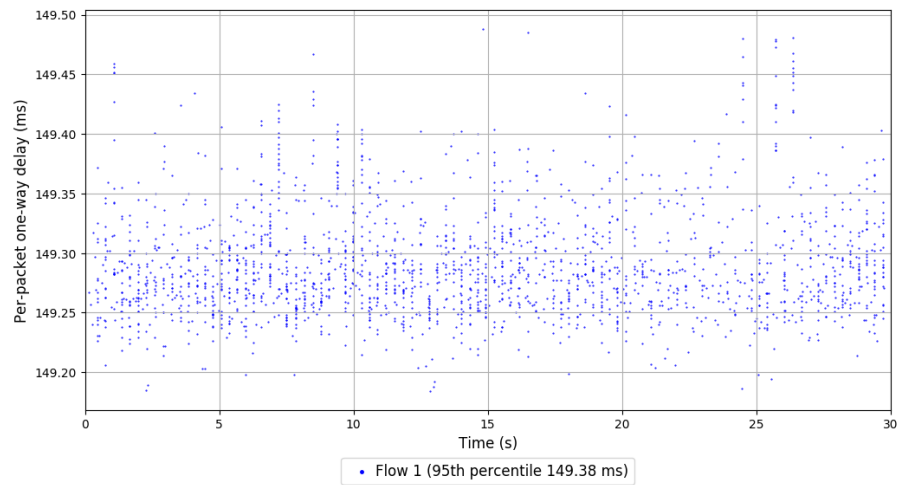
Run 4: Report of SCReAM — Data Link

Flow 1 ingress (mean 0.18 Mbit/s) — — —   Flow 1 egress (mean 0.18 Mbit/s) ———

Flow 1 (95th percentile 157.77 ms)

```
Run 5: Statistics of SCReAM

Start at: 2018-12-02 11:43:15
End at: 2018-12-02 11:43:45
Local clock offset: -3.235 ms
Remote clock offset: 0.01 ms


# Below is generated by plot.py at 2018-12-02 12:46:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 145.047 ms
Loss rate: 0.89%
-- Flow 1:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 145.047 ms
Loss rate: 0.89%
```

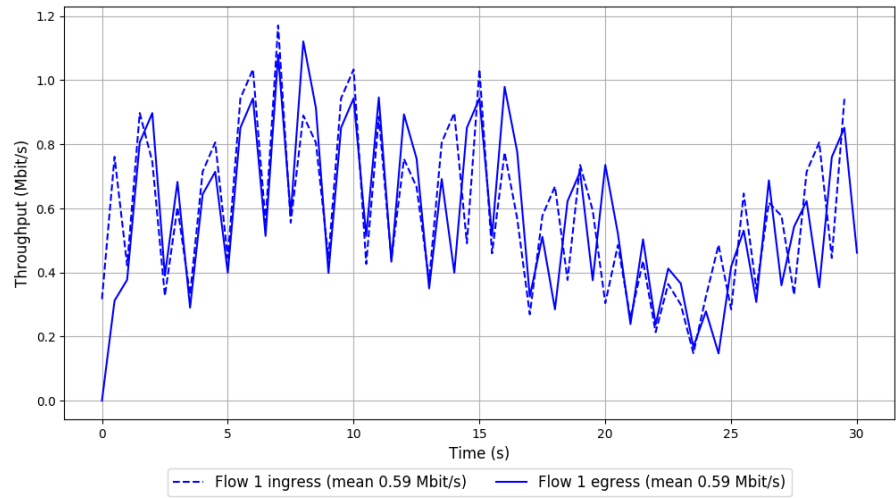## Run 5: Report of SCReAM — Data Link

```
Run 1: Statistics of Sprout

Start at: 2018-12-02 09:40:59
End at: 2018-12-02 09:41:29
Local clock offset: 7.486 ms
Remote clock offset: -0.193 ms

# Below is generated by plot.py at 2018-12-02 12:46:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 149.379 ms
Loss rate: 1.36%
-- Flow 1:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 149.379 ms
Loss rate: 1.36%
```

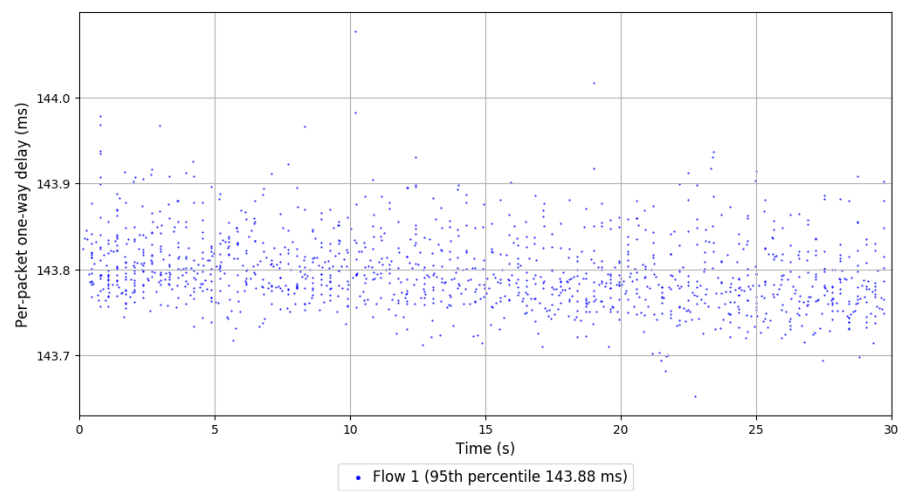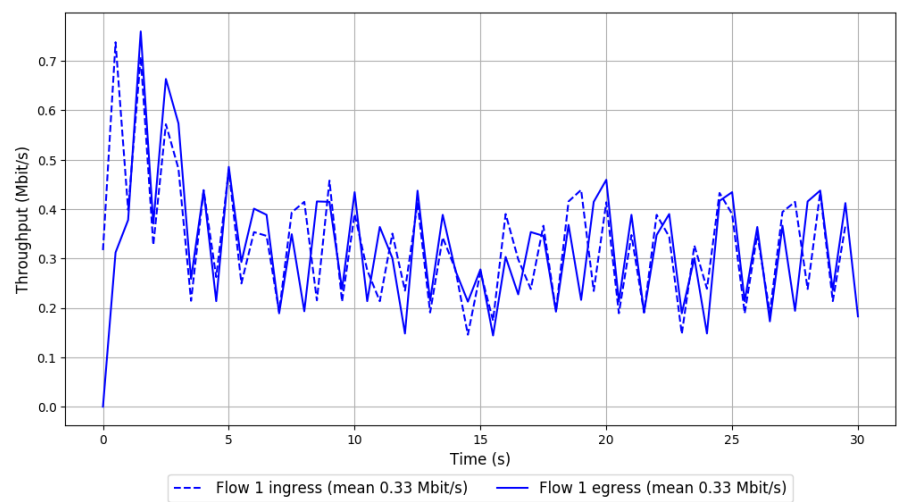Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2018-12-02 10:10:50
End at: 2018-12-02 10:11:20
Local clock offset: -4.449 ms
Remote clock offset: 0.421 ms


# Below is generated by plot.py at 2018-12-02 12:46:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 143.880 ms
Loss rate: 0.95%
-- Flow 1:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 143.880 ms
Loss rate: 0.95%
```

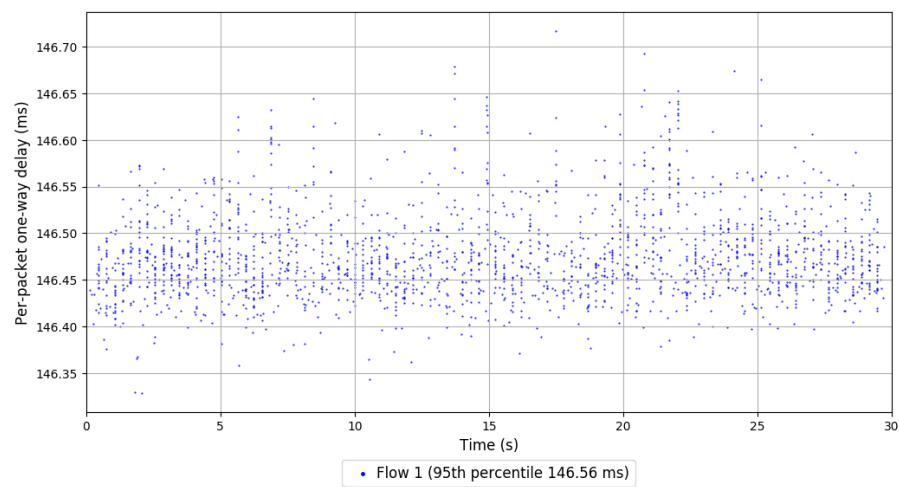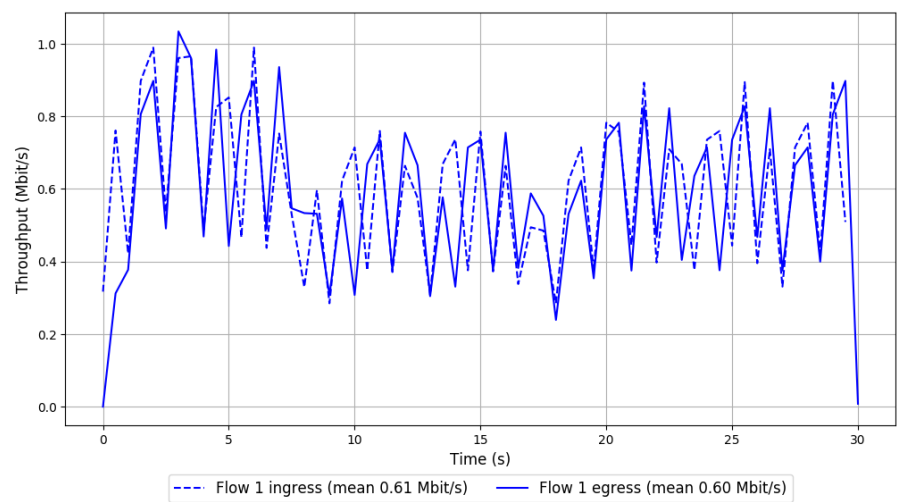## Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2018-12-02 10:40:40
End at: 2018-12-02 10:41:10
Local clock offset: 6.632 ms
Remote clock offset: 0.269 ms


# Below is generated by plot.py at 2018-12-02 12:46:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 146.565 ms
Loss rate: 1.39%
-- Flow 1:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 146.565 ms
Loss rate: 1.39%
```

Run 3: Report of Sprout — Data Link

Flow 1 ingress (mean 0.61 Mbit/s) --- Flow 1 egress (mean 0.60 Mbit/s)

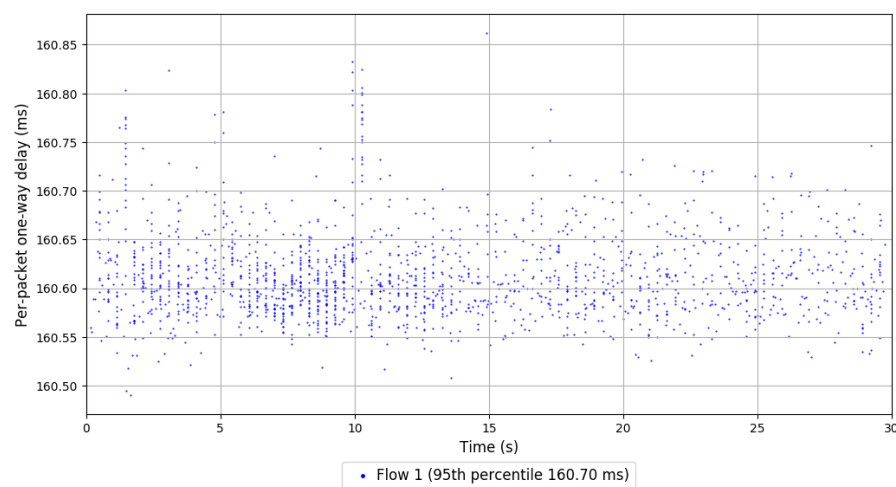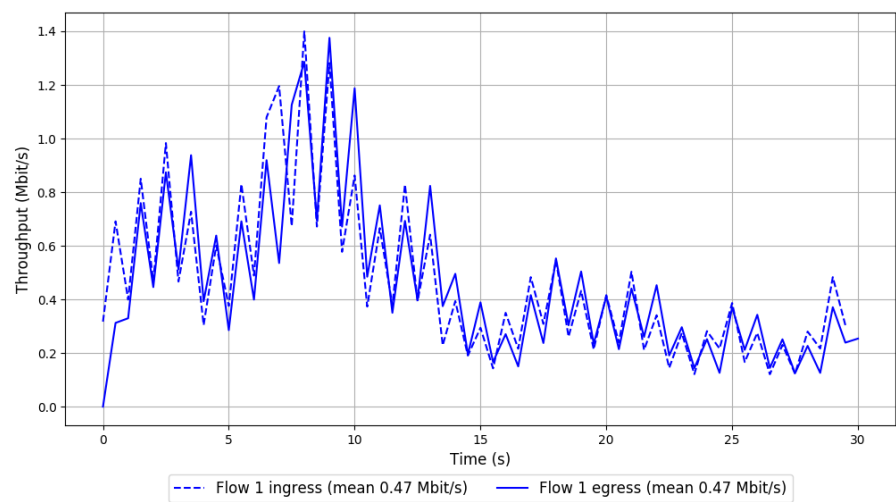Flow 1 (95th percentile 146.56 ms)

```
Run 4: Statistics of Sprout

Start at: 2018-12-02 11:10:10
End at: 2018-12-02 11:10:40
Local clock offset: 6.888 ms
Remote clock offset: 0.095 ms


# Below is generated by plot.py at 2018-12-02 12:46:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.47 Mbit/s
95th percentile per-packet one-way delay: 160.696 ms
Loss rate: 1.08%
-- Flow 1:
Average throughput: 0.47 Mbit/s
95th percentile per-packet one-way delay: 160.696 ms
Loss rate: 1.08%
```
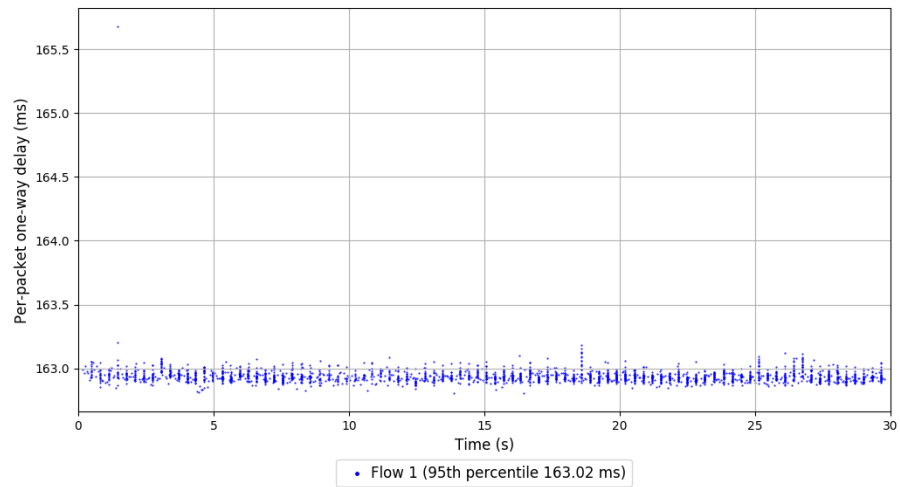
Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2018-12-02 11:40:07
End at: 2018-12-02 11:40:37
Local clock offset: 13.474 ms
Remote clock offset: 0.033 ms


# Below is generated by plot.py at 2018-12-02 12:46:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.73 Mbit/s
95th percentile per-packet one-way delay: 163.016 ms
Loss rate: 1.41%
-- Flow 1:
Average throughput: 0.73 Mbit/s
95th percentile per-packet one-way delay: 163.016 ms
Loss rate: 1.41%
```
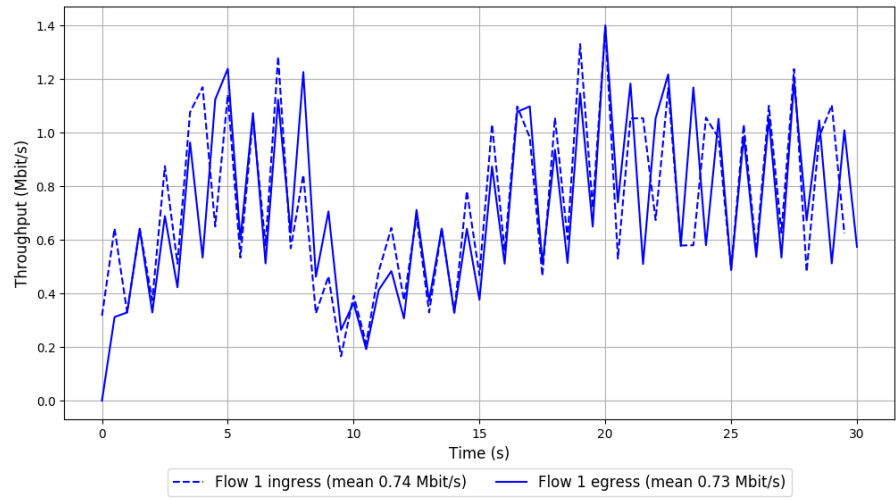
Run 5: Report of Sprout — Data Link

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

Start at: 2018-12-02 09:51:44
End at: 2018-12-02 09:52:14
Local clock offset: 7.95 ms
Remote clock offset: 0.039 ms


# Below is generated by plot.py at 2018-12-02 12:49:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 253.25 Mbit/s
95th percentile per-packet one-way delay: 147.609 ms
Loss rate: 0.97%
-- Flow 1:
Average throughput: 253.25 Mbit/s
95th percentile per-packet one-way delay: 147.609 ms
Loss rate: 0.97%
```
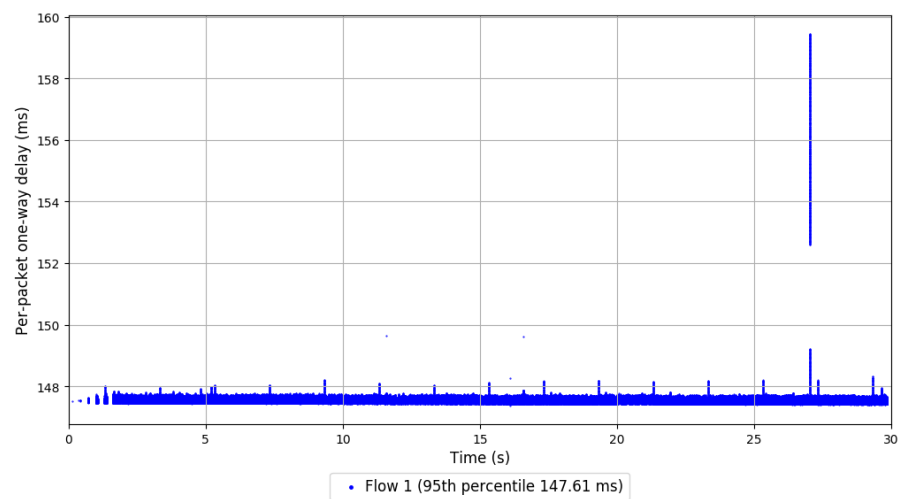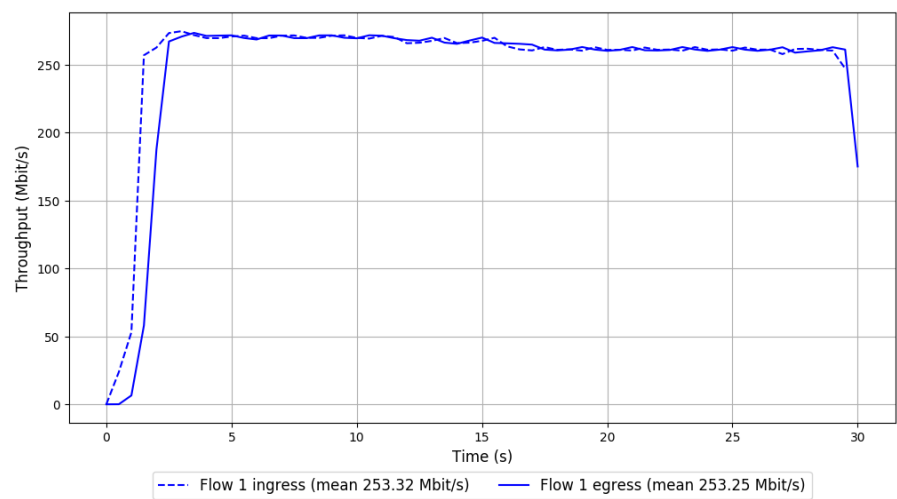
Run 1: Report of TaoVA-100x — Data Link

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

Start at: 2018-12-02 10:21:33
End at: 2018-12-02 10:22:03
Local clock offset: -4.931 ms
Remote clock offset: 0.126 ms


# Below is generated by plot.py at 2018-12-02 12:49:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 244.56 Mbit/s
95th percentile per-packet one-way delay: 143.935 ms
Loss rate: 0.92%
-- Flow 1:
Average throughput: 244.56 Mbit/s
95th percentile per-packet one-way delay: 143.935 ms
Loss rate: 0.92%
```
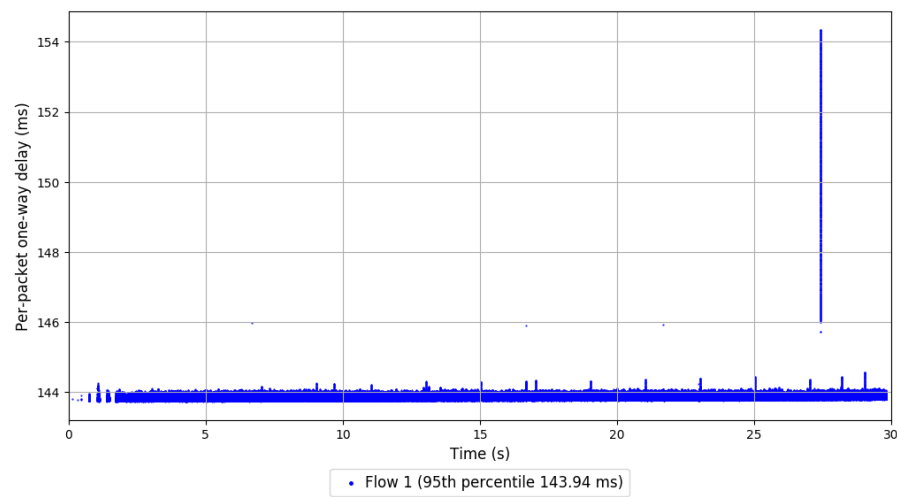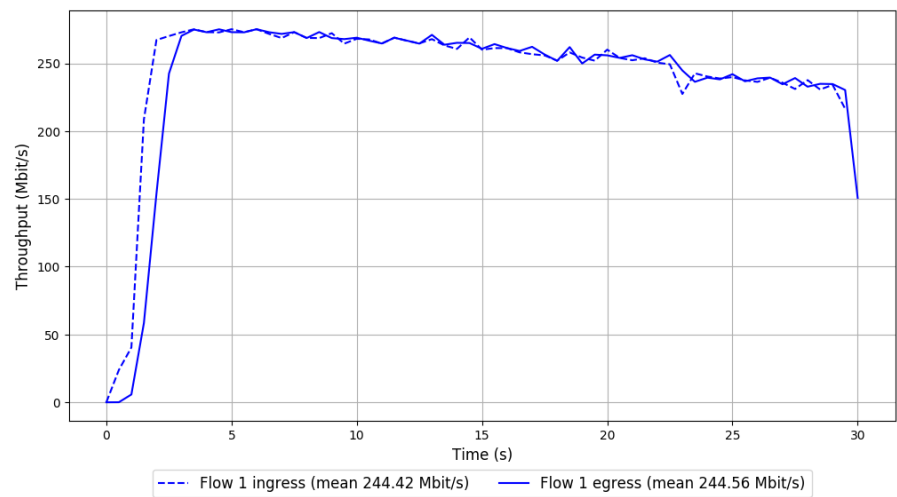
Run 2: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 244.42 Mbit/s) --- Flow 1 egress (mean 244.56 Mbit/s)

• Flow 1 (95th percentile 143.94 ms)

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

Start at: 2018-12-02 10:51:19
End at: 2018-12-02 10:51:49
Local clock offset: -0.563 ms
Remote clock offset: 0.082 ms


# Below is generated by plot.py at 2018-12-02 12:49:36
# Datalink statistics
-- Total of 1 flow:
Average throughput: 245.35 Mbit/s
95th percentile per-packet one-way delay: 148.036 ms
Loss rate: 0.97%
-- Flow 1:
Average throughput: 245.35 Mbit/s
95th percentile per-packet one-way delay: 148.036 ms
Loss rate: 0.97%
```
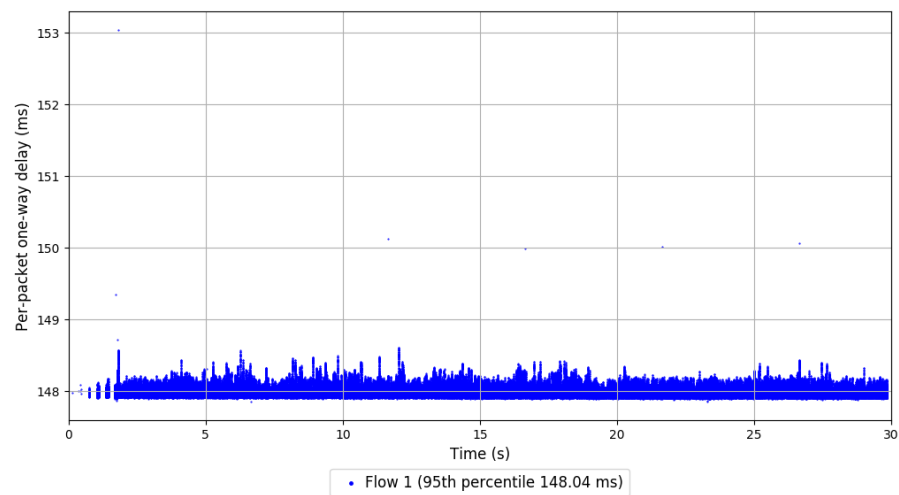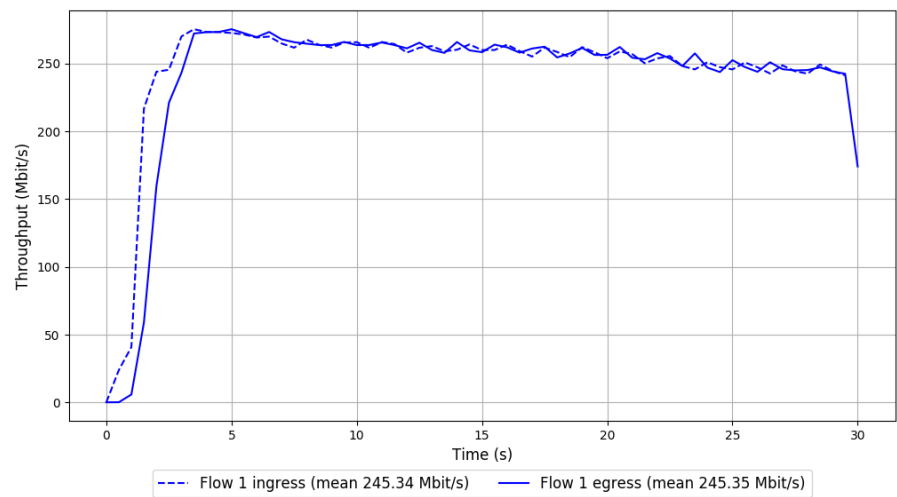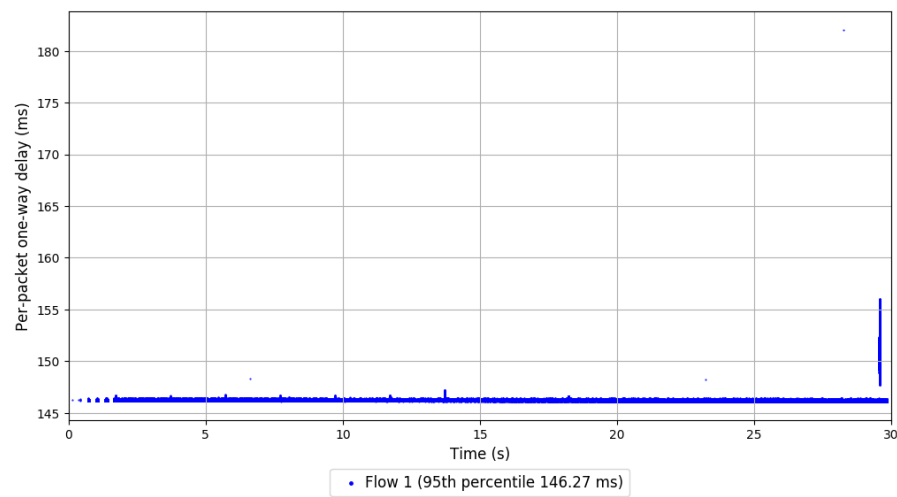
Run 3: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 245.34 Mbit/s)   Flow 1 egress (mean 245.35 Mbit/s)

Flow 1 (95th percentile 148.04 ms)

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

Start at: 2018-12-02 11:21:04
End at: 2018-12-02 11:21:34
Local clock offset: 6.897 ms
Remote clock offset: 0.104 ms


# Below is generated by plot.py at 2018-12-02 12:50:27
# Datalink statistics
-- Total of 1 flow:
Average throughput: 241.00 Mbit/s
95th percentile per-packet one-way delay: 146.270 ms
Loss rate: 0.94%
-- Flow 1:
Average throughput: 241.00 Mbit/s
95th percentile per-packet one-way delay: 146.270 ms
Loss rate: 0.94%
```
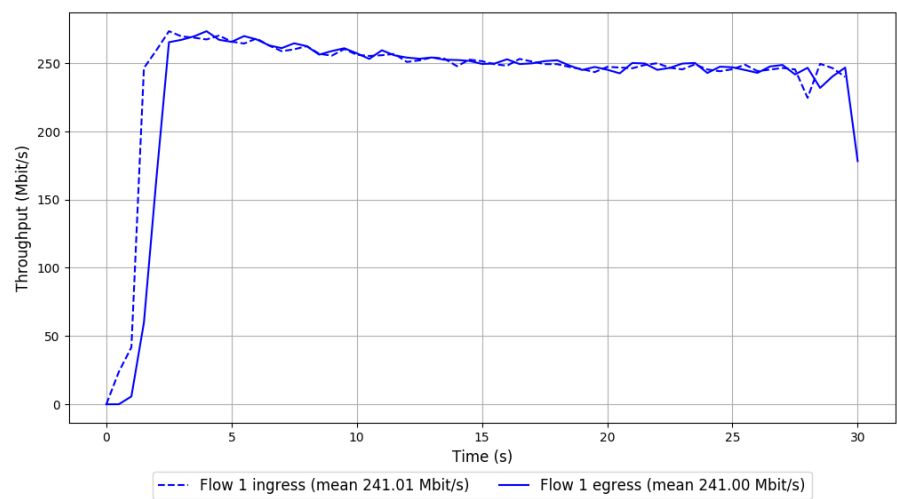
Run 4: Report of TaoVA-100x — Data Link

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

Start at: 2018-12-02 11:50:52
End at: 2018-12-02 11:51:22
Local clock offset: 8.327 ms
Remote clock offset: 0.04 ms


# Below is generated by plot.py at 2018-12-02 12:50:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 236.68 Mbit/s
95th percentile per-packet one-way delay: 155.504 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 236.68 Mbit/s
95th percentile per-packet one-way delay: 155.504 ms
Loss rate: 0.98%
```
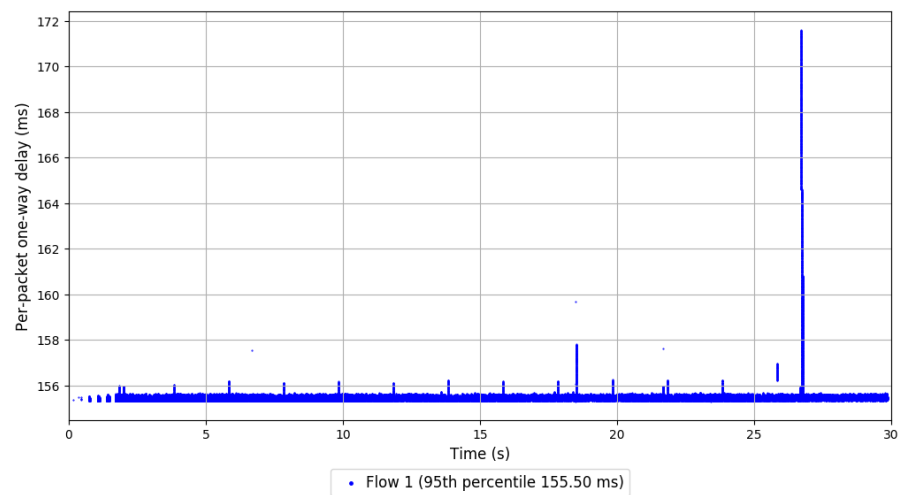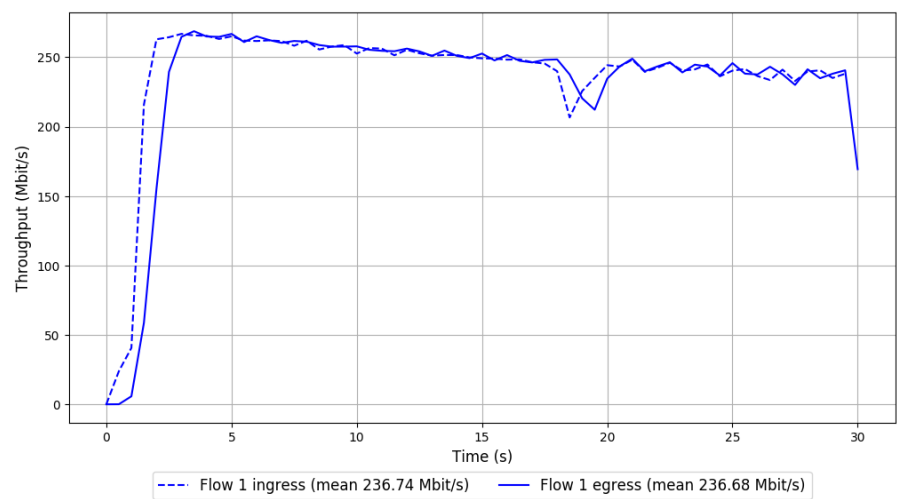
Run 5: Report of TaoVA-100x — Data Link

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```
Run 1: Statistics of TCP Vegas

Start at: 2018-12-02 09:50:18
End at: 2018-12-02 09:50:48
Local clock offset: 6.519 ms
Remote clock offset: 0.052 ms


# Below is generated by plot.py at 2018-12-02 12:50:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 147.59 Mbit/s
95th percentile per-packet one-way delay: 156.388 ms
Loss rate: 1.05%
-- Flow 1:
Average throughput: 147.59 Mbit/s
95th percentile per-packet one-way delay: 156.388 ms
Loss rate: 1.05%
```
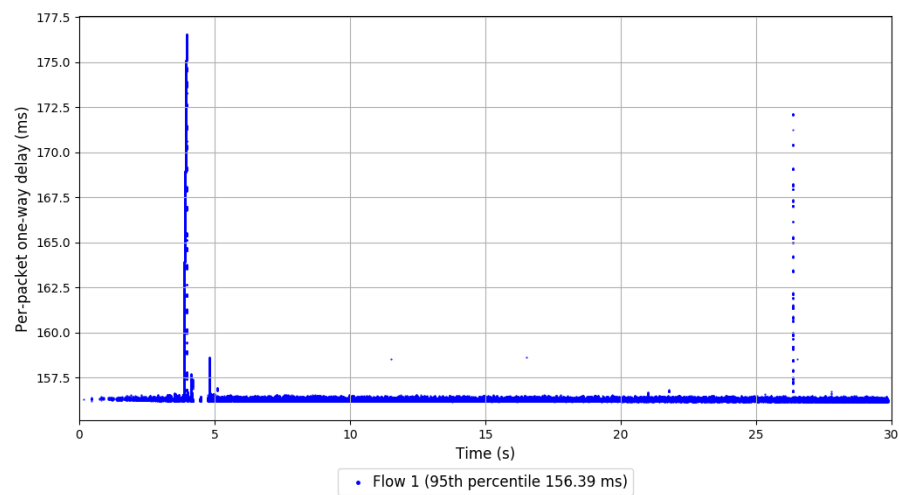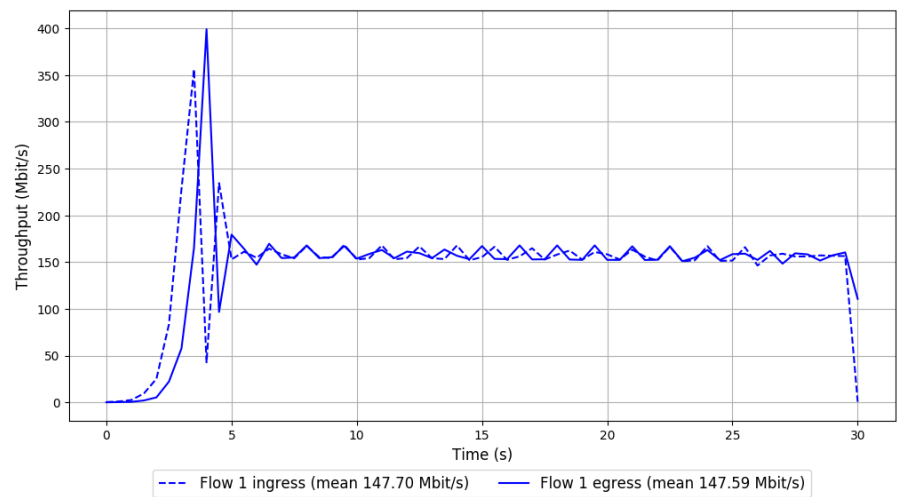
Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2018-12-02 10:20:02
End at: 2018-12-02 10:20:32
Local clock offset: 0.666 ms
Remote clock offset: 0.126 ms


# Below is generated by plot.py at 2018-12-02 12:50:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 250.42 Mbit/s
95th percentile per-packet one-way delay: 148.380 ms
Loss rate: 1.10%
-- Flow 1:
Average throughput: 250.42 Mbit/s
95th percentile per-packet one-way delay: 148.380 ms
Loss rate: 1.10%
```
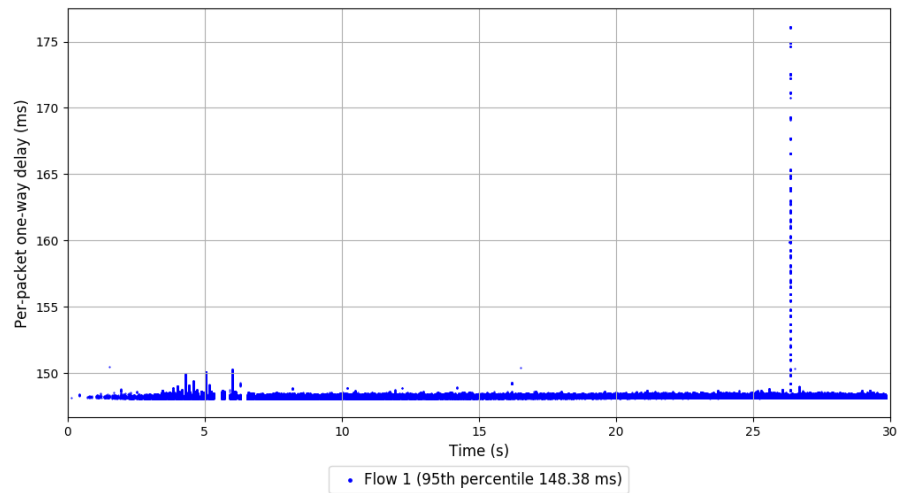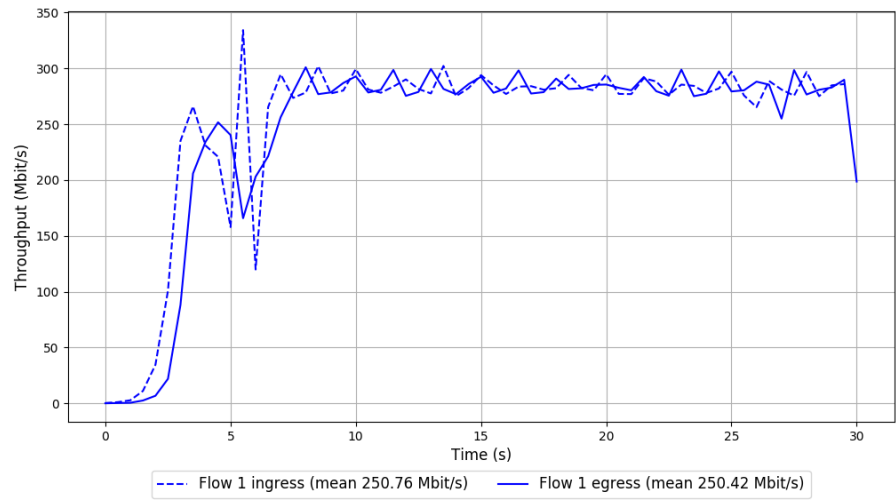
Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2018-12-02 10:49:47
End at: 2018-12-02 10:50:17
Local clock offset: 6.71 ms
Remote clock offset: 0.192 ms


# Below is generated by plot.py at 2018-12-02 12:50:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 273.32 Mbit/s
95th percentile per-packet one-way delay: 162.947 ms
Loss rate: 1.11%
-- Flow 1:
Average throughput: 273.32 Mbit/s
95th percentile per-packet one-way delay: 162.947 ms
Loss rate: 1.11%
```
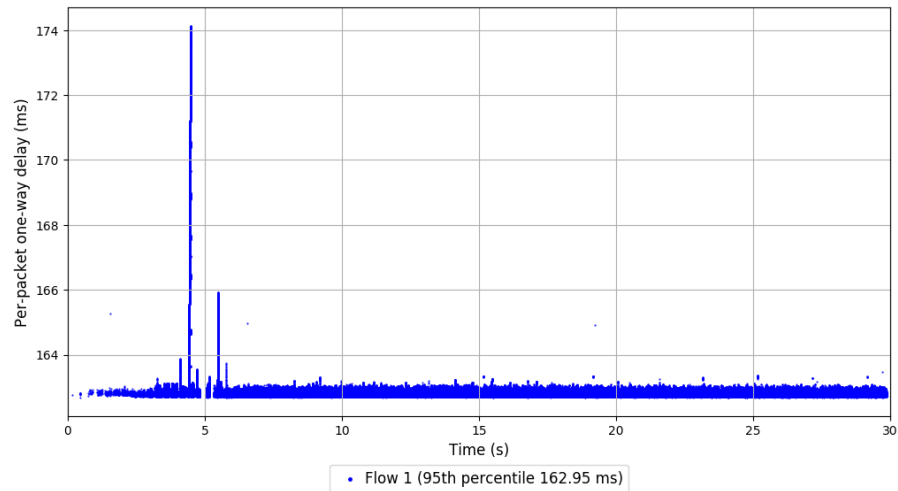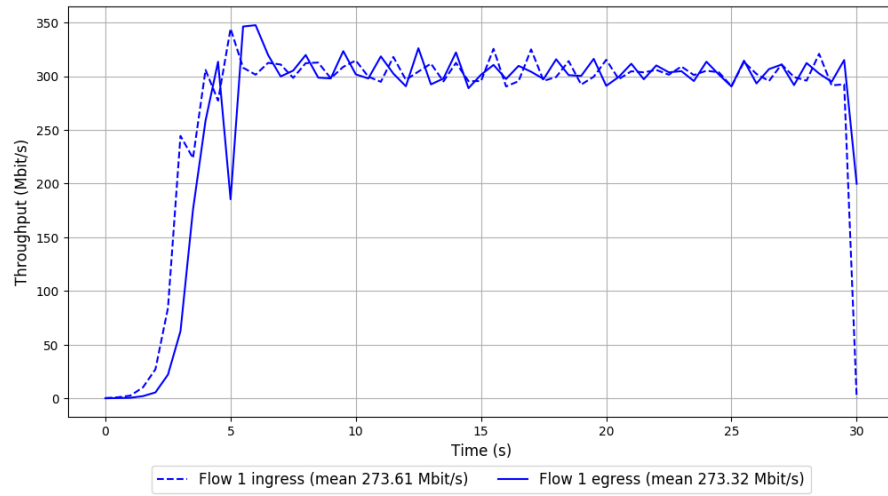
Run 3: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 273.61 Mbit/s)   Flow 1 egress (mean 273.32 Mbit/s)

Flow 1 (95th percentile 162.95 ms)

```
Run 4: Statistics of TCP Vegas

Start at: 2018-12-02 11:19:27
End at: 2018-12-02 11:19:57
Local clock offset: 8.155 ms
Remote clock offset: 0.197 ms


# Below is generated by plot.py at 2018-12-02 12:51:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 384.26 Mbit/s
95th percentile per-packet one-way delay: 155.848 ms
Loss rate: 1.11%
-- Flow 1:
Average throughput: 384.26 Mbit/s
95th percentile per-packet one-way delay: 155.848 ms
Loss rate: 1.11%
```
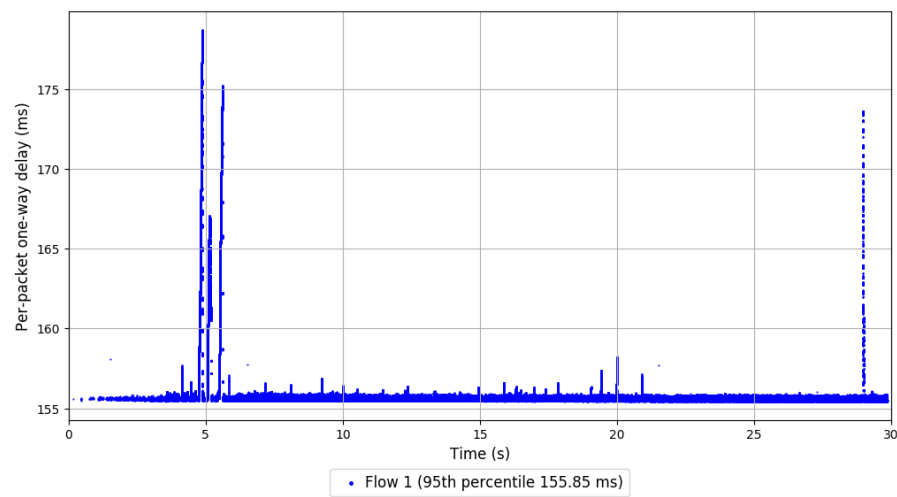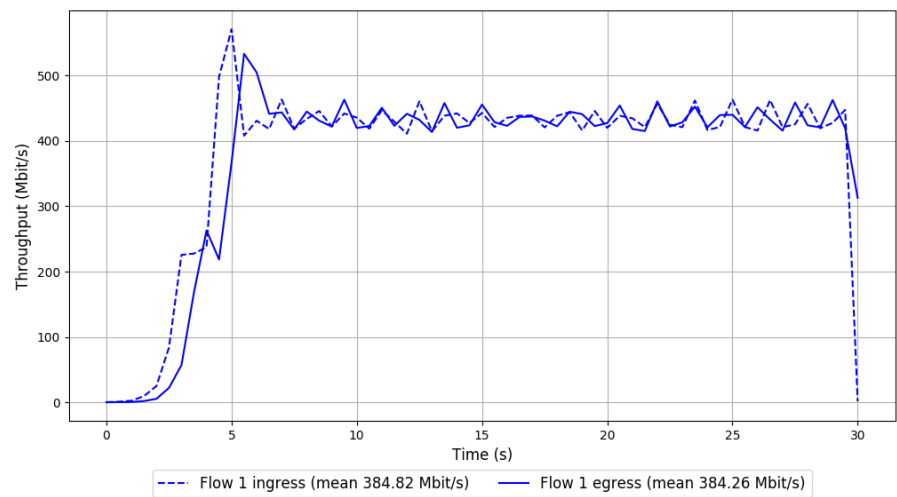
Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2018-12-02 11:49:21
End at: 2018-12-02 11:49:51
Local clock offset: 1.318 ms
Remote clock offset: 0.178 ms


# Below is generated by plot.py at 2018-12-02 12:51:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 248.60 Mbit/s
95th percentile per-packet one-way delay: 139.637 ms
Loss rate: 1.02%
-- Flow 1:
Average throughput: 248.60 Mbit/s
95th percentile per-packet one-way delay: 139.637 ms
Loss rate: 1.02%
```
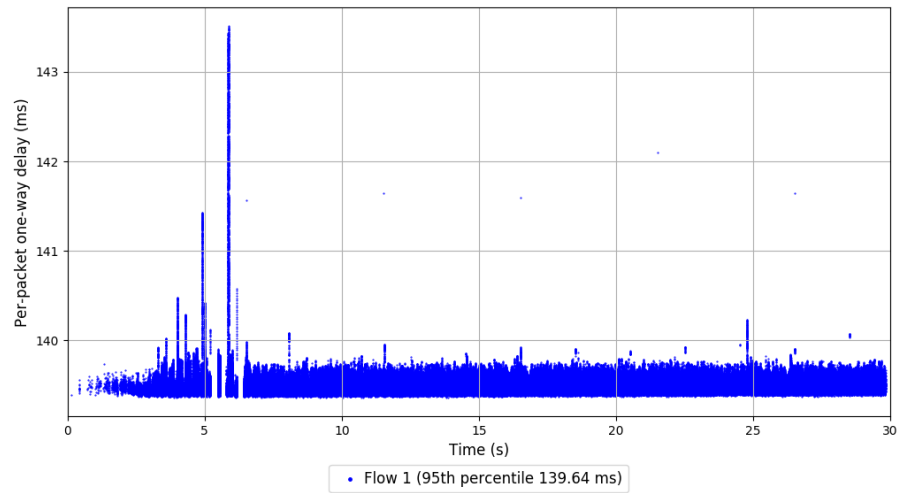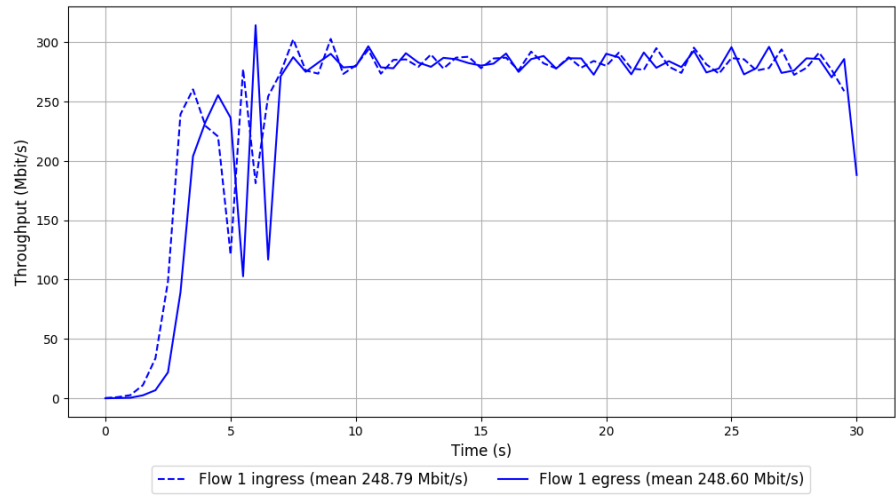
Run 5: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 248.79 Mbit/s)   Flow 1 egress (mean 248.60 Mbit/s)

Flow 1 (95th percentile 139.64 ms)

```
Run 1: Statistics of Verus

Start at: 2018-12-02 10:00:25
End at: 2018-12-02 10:00:55
Local clock offset: 7.585 ms
Remote clock offset: 0.226 ms


# Below is generated by plot.py at 2018-12-02 12:51:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 76.86 Mbit/s
95th percentile per-packet one-way delay: 148.329 ms
Loss rate: 1.95%
-- Flow 1:
Average throughput: 76.86 Mbit/s
95th percentile per-packet one-way delay: 148.329 ms
Loss rate: 1.95%
```
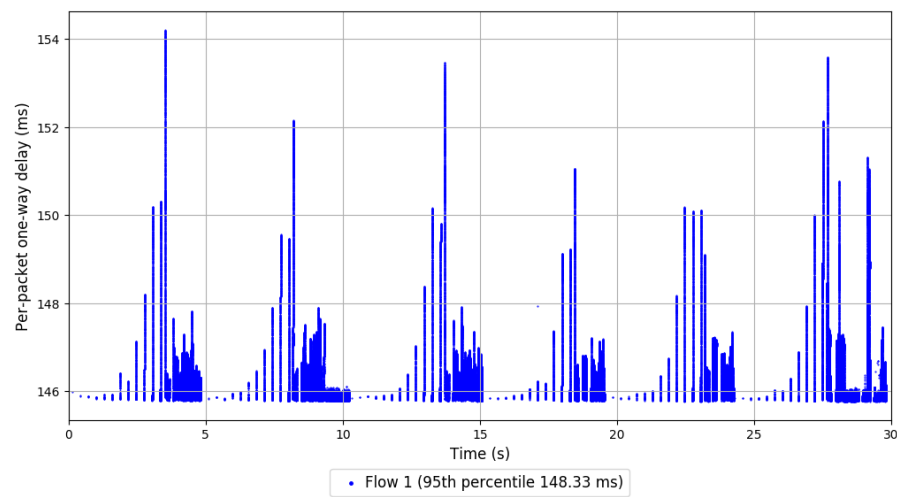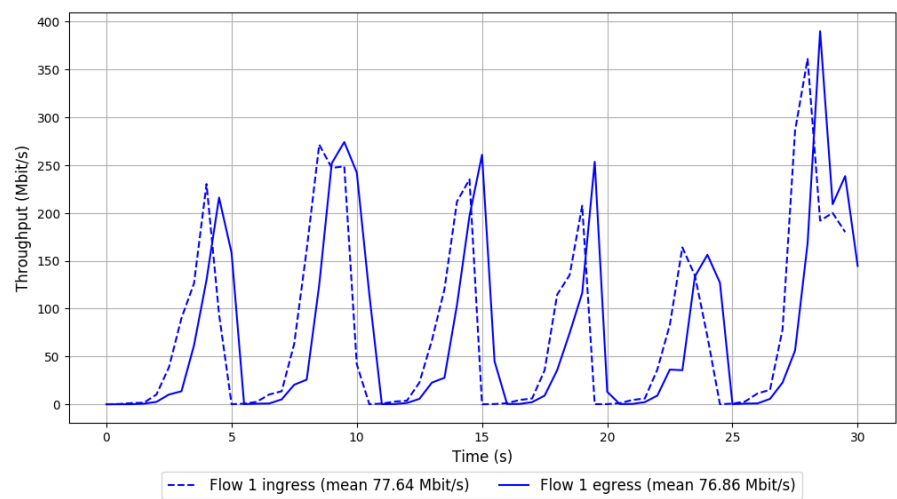
Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2018-12-02 10:30:03
End at: 2018-12-02 10:30:33
Local clock offset: 7.98 ms
Remote clock offset: 0.155 ms


# Below is generated by plot.py at 2018-12-02 12:51:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 133.42 Mbit/s
95th percentile per-packet one-way delay: 169.686 ms
Loss rate: 0.52%
-- Flow 1:
Average throughput: 133.42 Mbit/s
95th percentile per-packet one-way delay: 169.686 ms
Loss rate: 0.52%
```
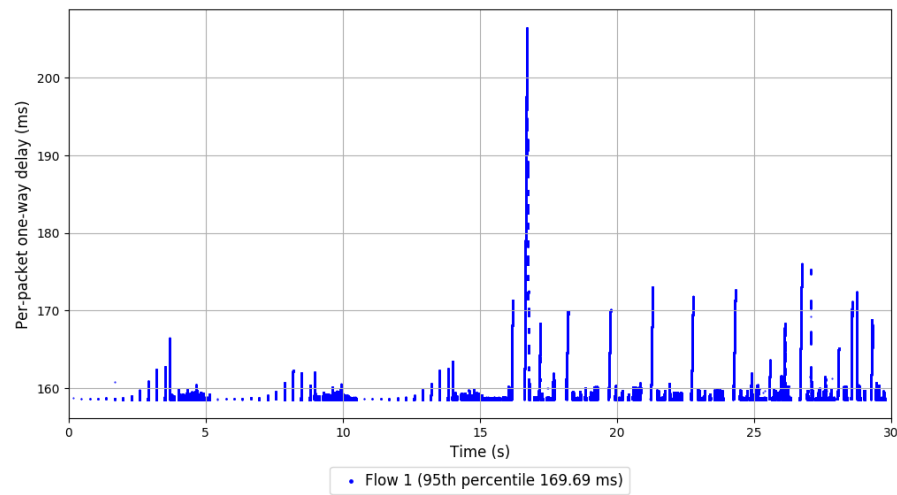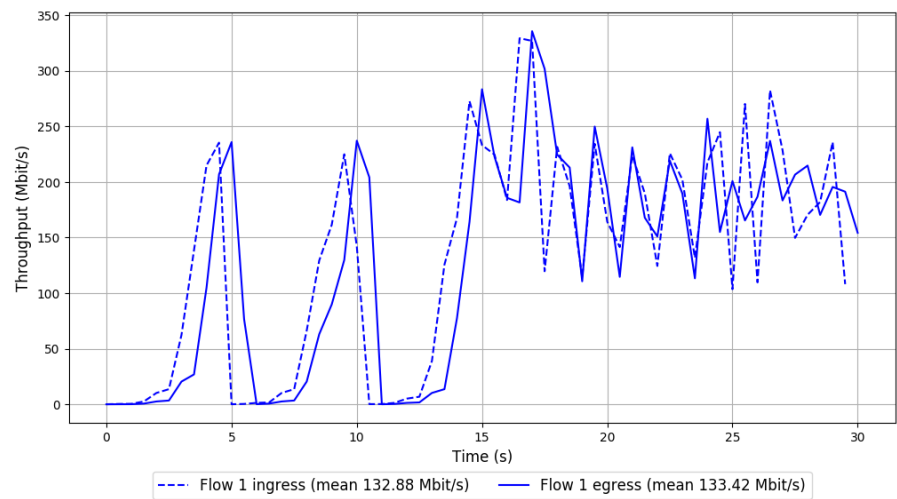
Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-12-02 10:59:56
End at: 2018-12-02 11:00:26
Local clock offset: 7.964 ms
Remote clock offset: 0.112 ms


# Below is generated by plot.py at 2018-12-02 12:51:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 155.44 Mbit/s
95th percentile per-packet one-way delay: 164.567 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 155.44 Mbit/s
95th percentile per-packet one-way delay: 164.567 ms
Loss rate: 0.03%
```
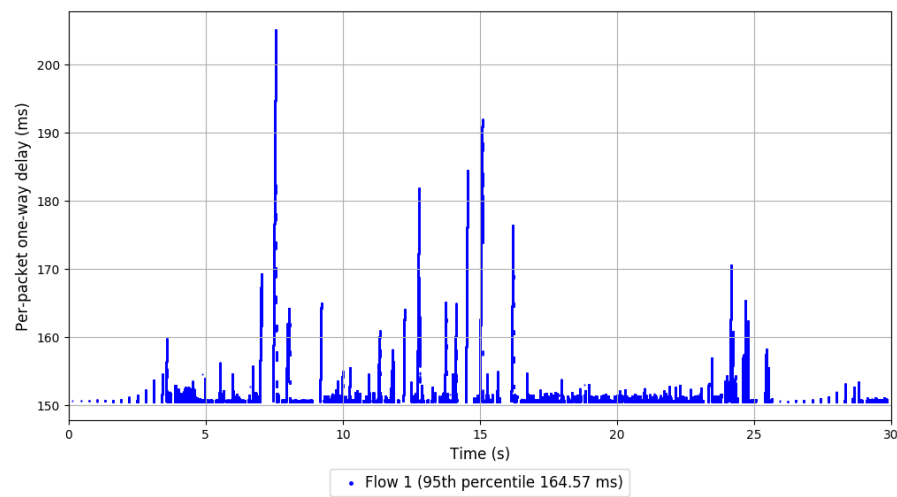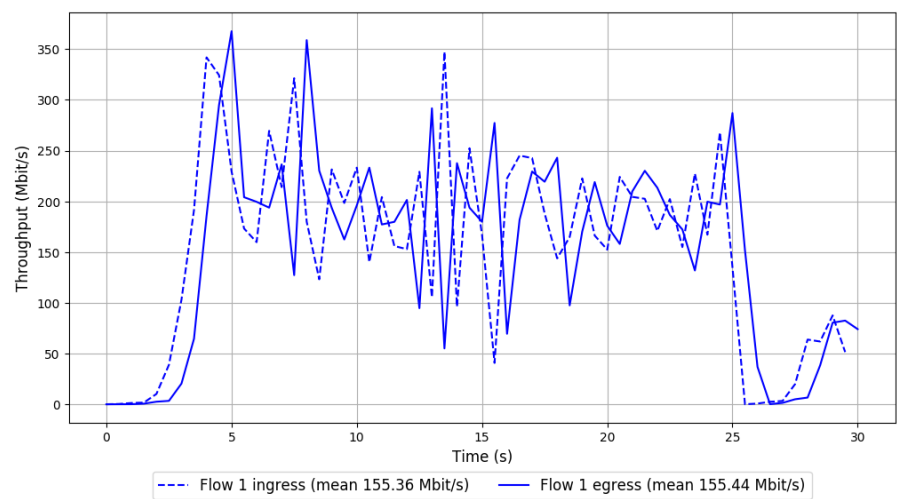
Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2018-12-02 11:29:38
End at: 2018-12-02 11:30:08
Local clock offset: 11.721 ms
Remote clock offset: 0.139 ms


# Below is generated by plot.py at 2018-12-02 12:51:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 76.73 Mbit/s
95th percentile per-packet one-way delay: 163.190 ms
Loss rate: 2.78%
-- Flow 1:
Average throughput: 76.73 Mbit/s
95th percentile per-packet one-way delay: 163.190 ms
Loss rate: 2.78%
```
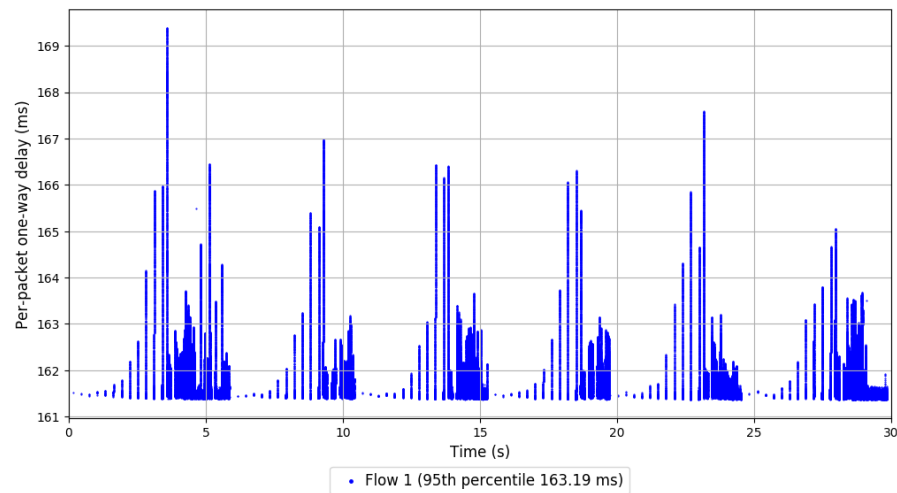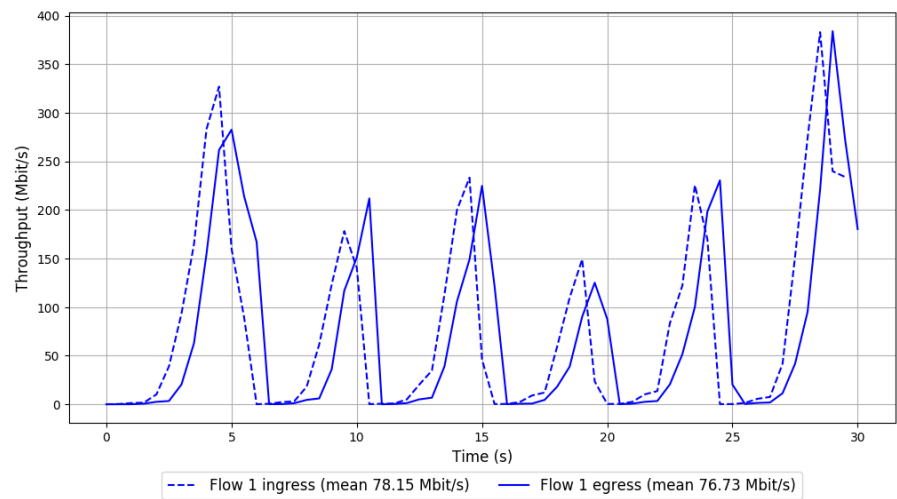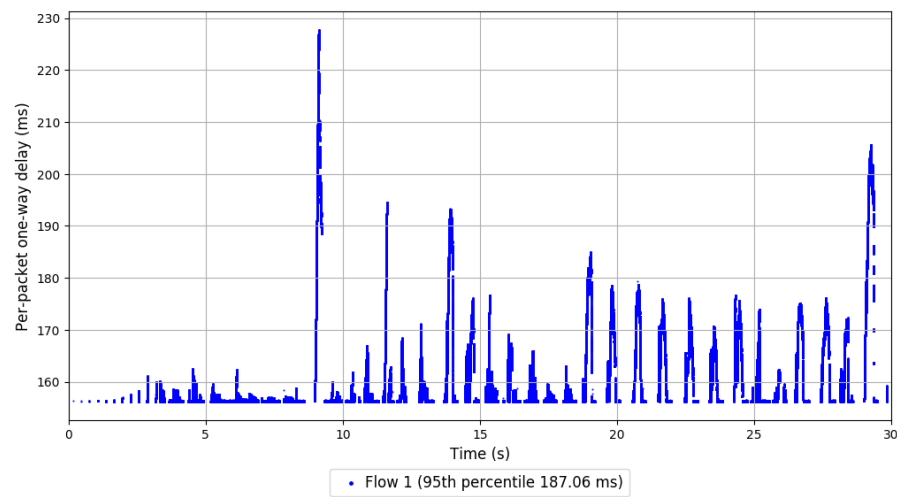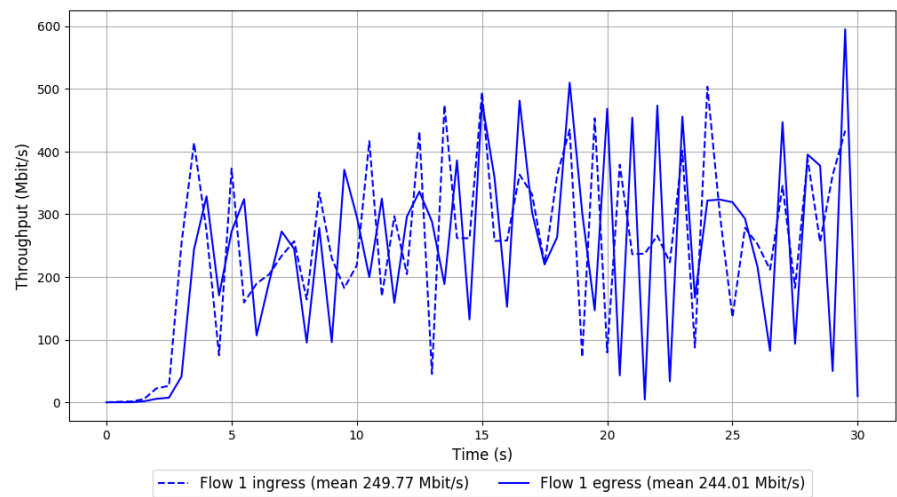
Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2018-12-02 11:59:30
End at: 2018-12-02 12:00:00
Local clock offset: 8.979 ms
Remote clock offset: -0.015 ms


# Below is generated by plot.py at 2018-12-02 12:52:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 244.01 Mbit/s
95th percentile per-packet one-way delay: 187.065 ms
Loss rate: 3.26%
-- Flow 1:
Average throughput: 244.01 Mbit/s
95th percentile per-packet one-way delay: 187.065 ms
Loss rate: 3.26%
```

Run 5: Report of Verus — Data Link

Flow 1 ingress (mean 249.77 Mbit/s)   Flow 1 egress (mean 244.01 Mbit/s)
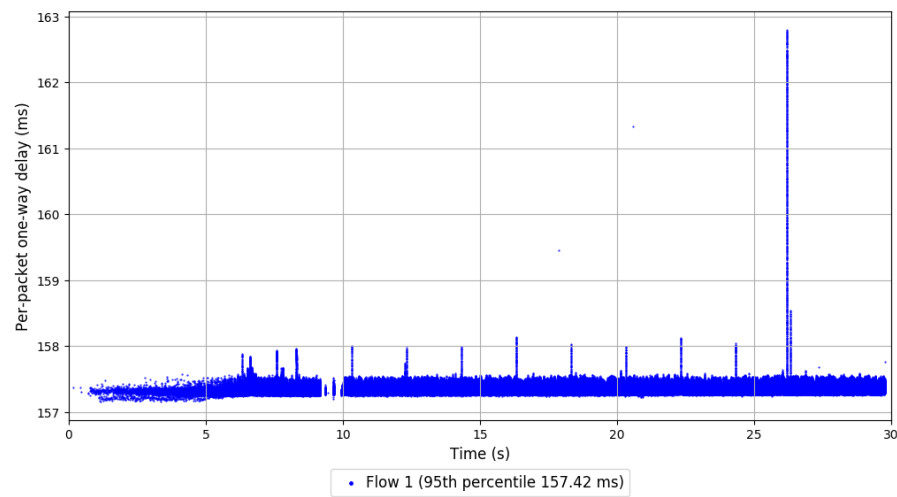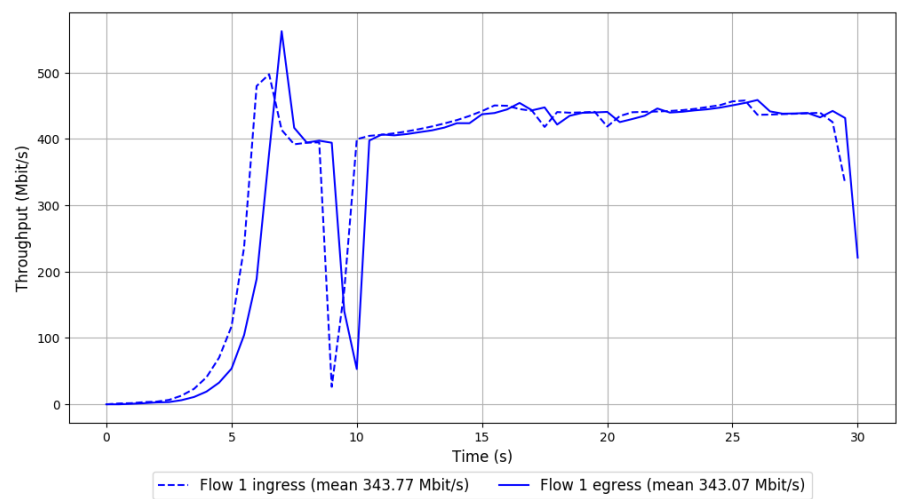

Flow 1 (95th percentile 187.06 ms)

```
Run 1: Statistics of PCC-Vivace

Start at: 2018-12-02 09:37:51
End at: 2018-12-02 09:38:21
Local clock offset: 6.193 ms
Remote clock offset: -0.122 ms


# Below is generated by plot.py at 2018-12-02 12:53:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 343.07 Mbit/s
95th percentile per-packet one-way delay: 157.417 ms
Loss rate: 1.18%
-- Flow 1:
Average throughput: 343.07 Mbit/s
95th percentile per-packet one-way delay: 157.417 ms
Loss rate: 1.18%
```

Run 1: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 343.77 Mbit/s) — — — Flow 1 egress (mean 343.07 Mbit/s)

Flow 1 (95th percentile 157.42 ms)

```
Run 2: Statistics of PCC-Vivace

Start at: 2018-12-02 10:07:41
End at: 2018-12-02 10:08:11
Local clock offset: 7.763 ms
Remote clock offset: 0.434 ms


# Below is generated by plot.py at 2018-12-02 12:53:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 359.04 Mbit/s
95th percentile per-packet one-way delay: 146.883 ms
Loss rate: 1.10%
-- Flow 1:
Average throughput: 359.04 Mbit/s
95th percentile per-packet one-way delay: 146.883 ms
Loss rate: 1.10%
```
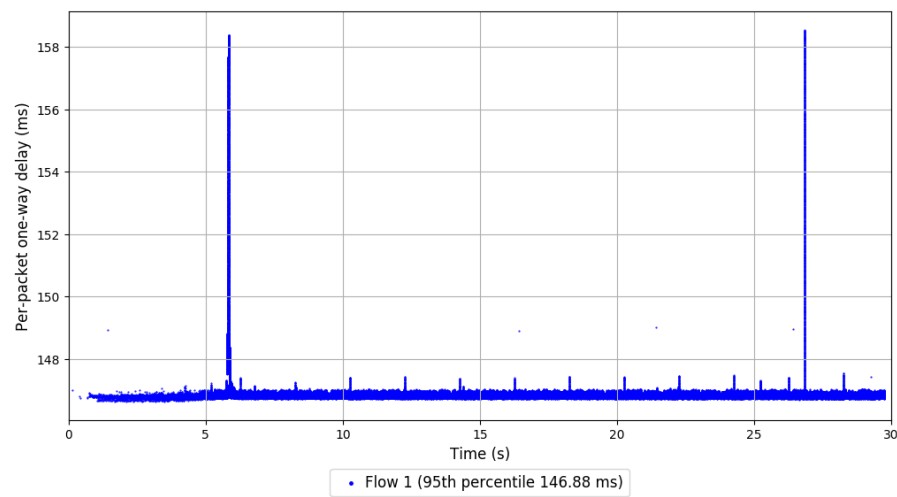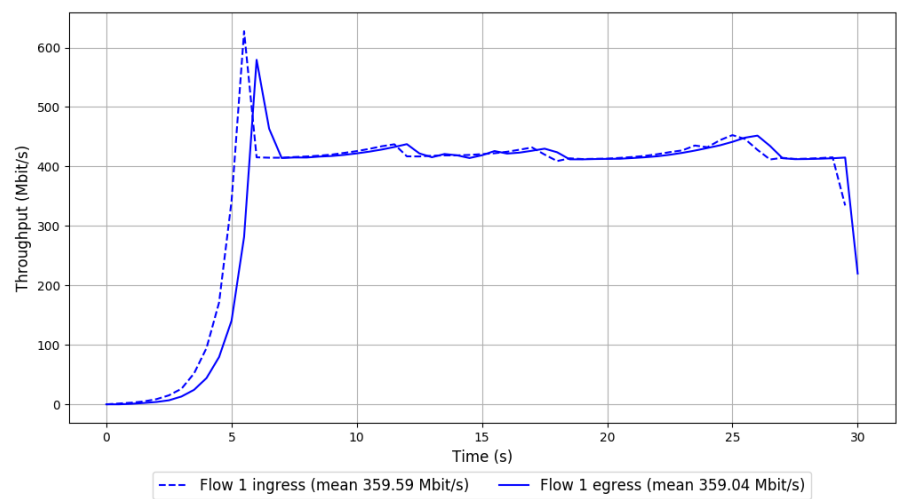
Run 2: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 359.59 Mbit/s)   Flow 1 egress (mean 359.04 Mbit/s)

Flow 1 (95th percentile 146.88 ms)

```
Run 3: Statistics of PCC-Vivace

Start at: 2018-12-02 10:37:32
End at: 2018-12-02 10:38:02
Local clock offset: 6.985 ms
Remote clock offset: 0.329 ms


# Below is generated by plot.py at 2018-12-02 12:53:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 342.10 Mbit/s
95th percentile per-packet one-way delay: 148.263 ms
Loss rate: 1.25%
-- Flow 1:
Average throughput: 342.10 Mbit/s
95th percentile per-packet one-way delay: 148.263 ms
Loss rate: 1.25%
```
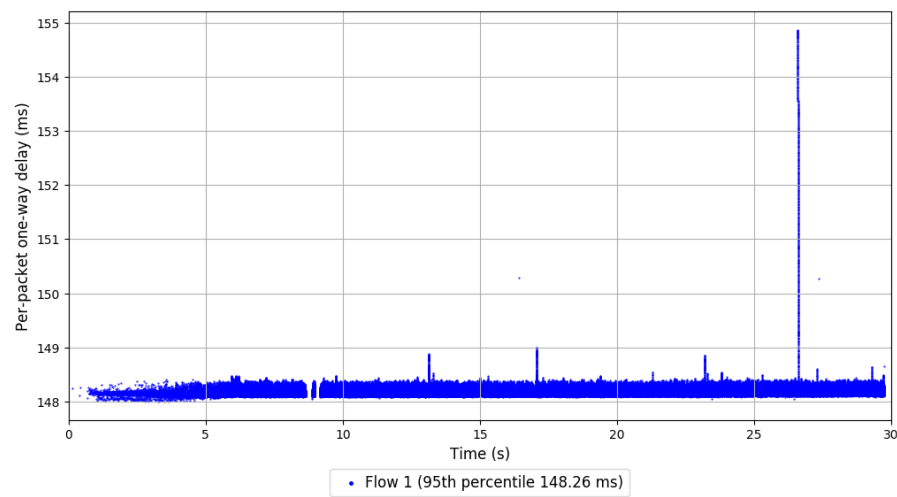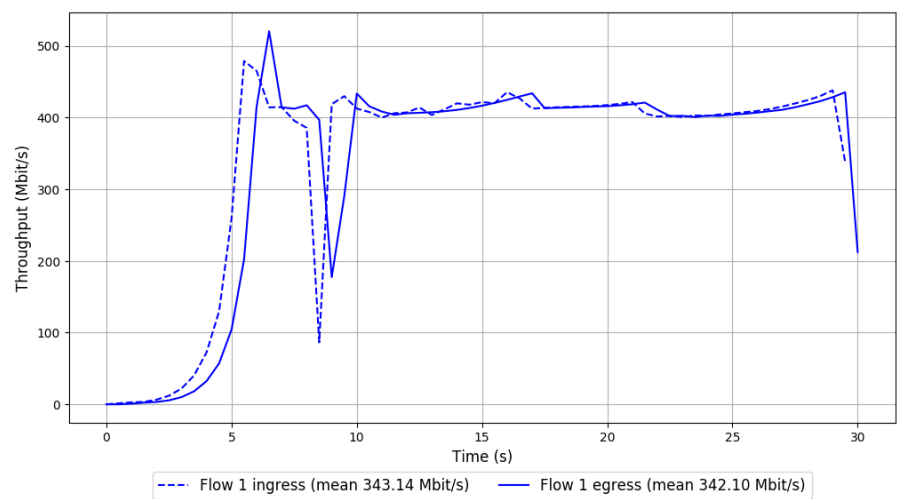
Run 3: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 343.14 Mbit/s) — — — Flow 1 egress (mean 342.10 Mbit/s)

Flow 1 (95th percentile 148.26 ms)

```
Run 4: Statistics of PCC-Vivace

Start at: 2018-12-02 11:07:03
End at: 2018-12-02 11:07:33
Local clock offset: 6.624 ms
Remote clock offset: 0.122 ms


# Below is generated by plot.py at 2018-12-02 12:53:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 332.57 Mbit/s
95th percentile per-packet one-way delay: 160.015 ms
Loss rate: 1.62%
-- Flow 1:
Average throughput: 332.57 Mbit/s
95th percentile per-packet one-way delay: 160.015 ms
Loss rate: 1.62%
```
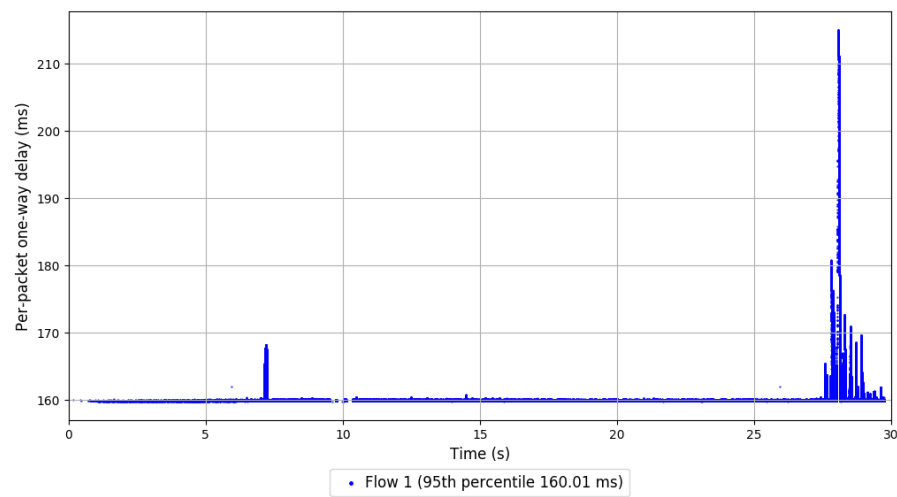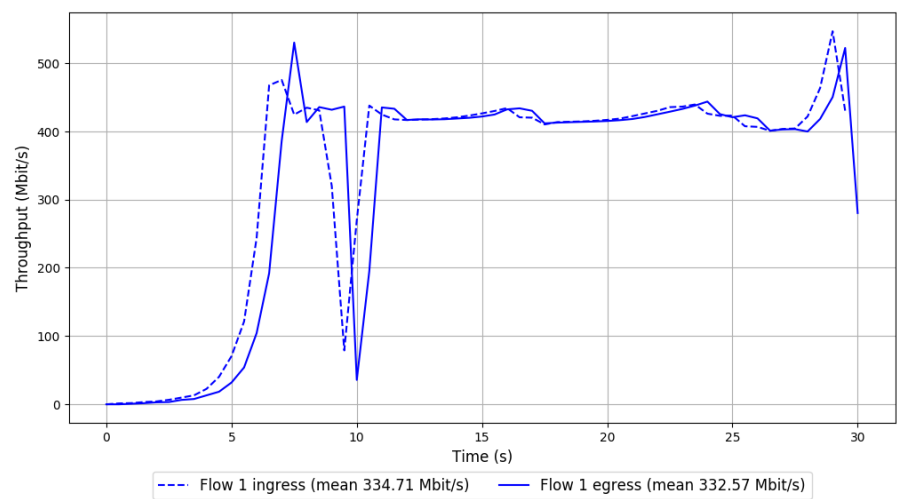
Run 4: Report of PCC-Vivace — Data Link

```
Run 5: Statistics of PCC-Vivace

Start at: 2018-12-02 11:37:01
End at: 2018-12-02 11:37:31
Local clock offset: 1.043 ms
Remote clock offset: 0.164 ms


# Below is generated by plot.py at 2018-12-02 12:53:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 323.70 Mbit/s
95th percentile per-packet one-way delay: 155.727 ms
Loss rate: 1.29%
-- Flow 1:
Average throughput: 323.70 Mbit/s
95th percentile per-packet one-way delay: 155.727 ms
Loss rate: 1.29%
```
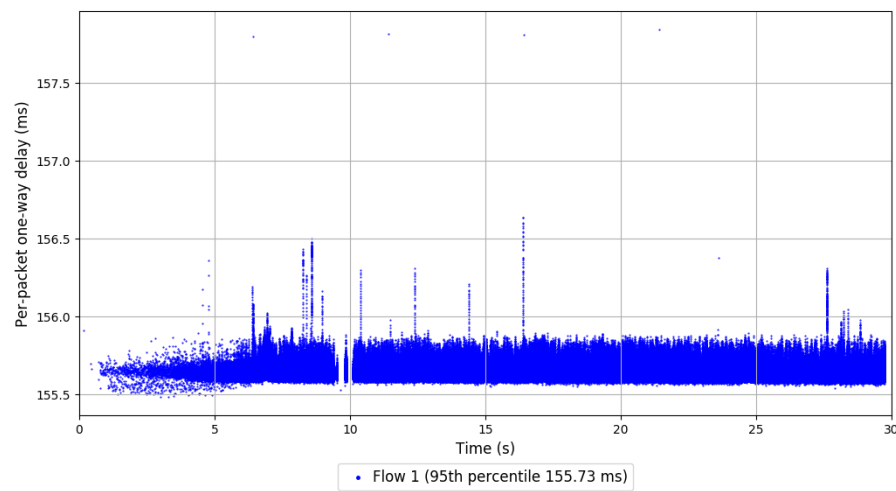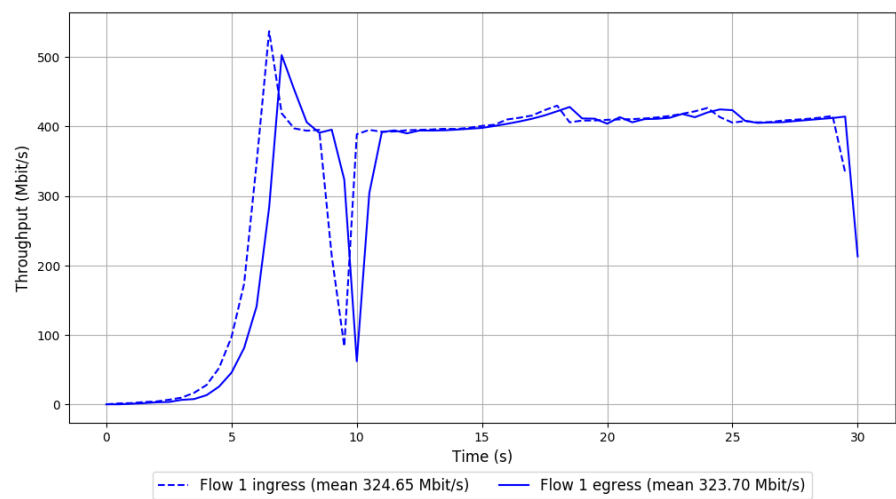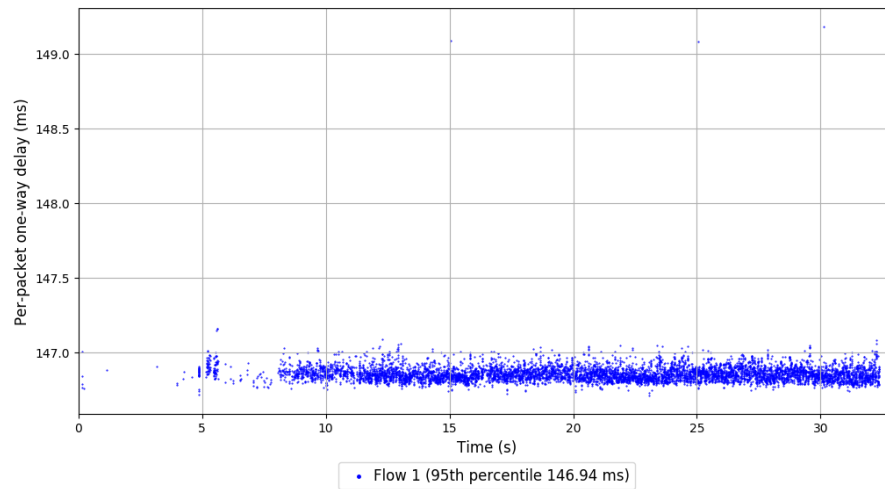
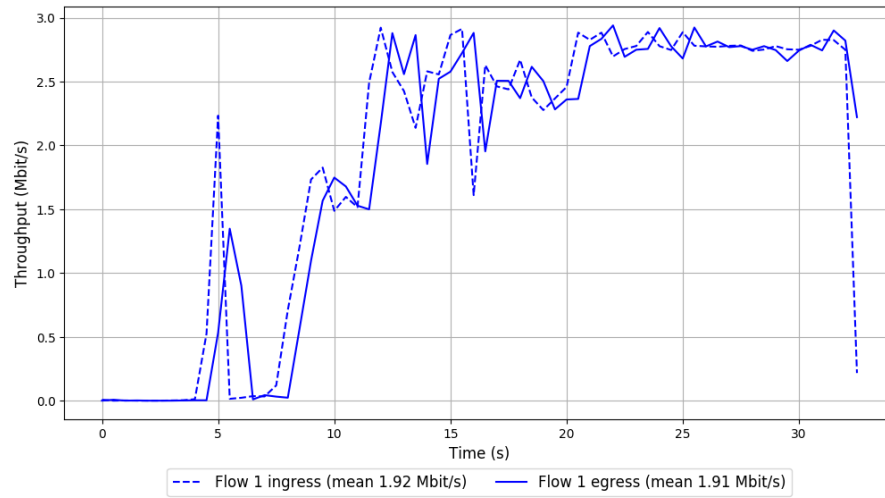# Run 5: Report of PCC-Vivace — Data Link

```
Run 1: Statistics of WebRTC media

Start at: 2018-12-02 09:47:10
End at: 2018-12-02 09:47:40
Local clock offset: 6.174 ms
Remote clock offset: -0.087 ms


# Below is generated by plot.py at 2018-12-02 12:53:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.91 Mbit/s
95th percentile per-packet one-way delay: 146.945 ms
Loss rate: 1.28%
-- Flow 1:
Average throughput: 1.91 Mbit/s
95th percentile per-packet one-way delay: 146.945 ms
Loss rate: 1.28%
```

Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2018-12-02 10:16:48
End at: 2018-12-02 10:17:18
Local clock offset: -2.315 ms
Remote clock offset: 0.205 ms


# Below is generated by plot.py at 2018-12-02 12:53:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.97 Mbit/s
95th percentile per-packet one-way delay: 143.329 ms
Loss rate: 1.28%
-- Flow 1:
Average throughput: 1.97 Mbit/s
95th percentile per-packet one-way delay: 143.329 ms
Loss rate: 1.28%
```
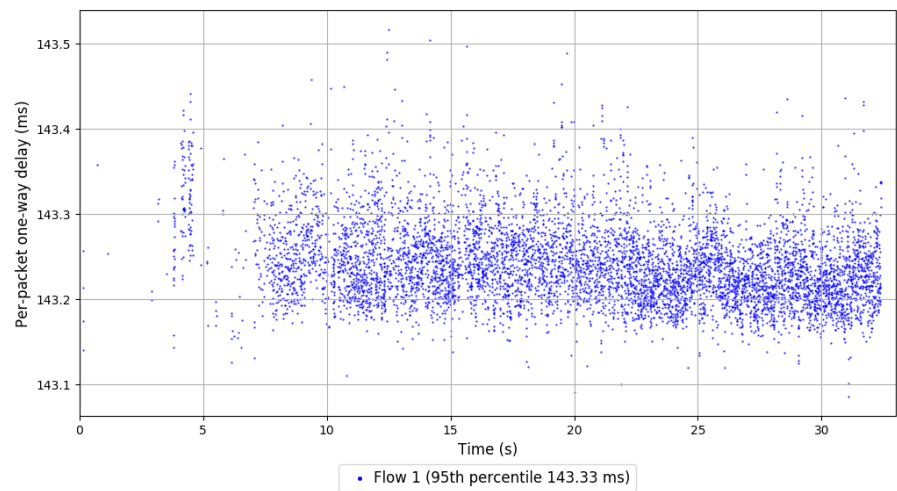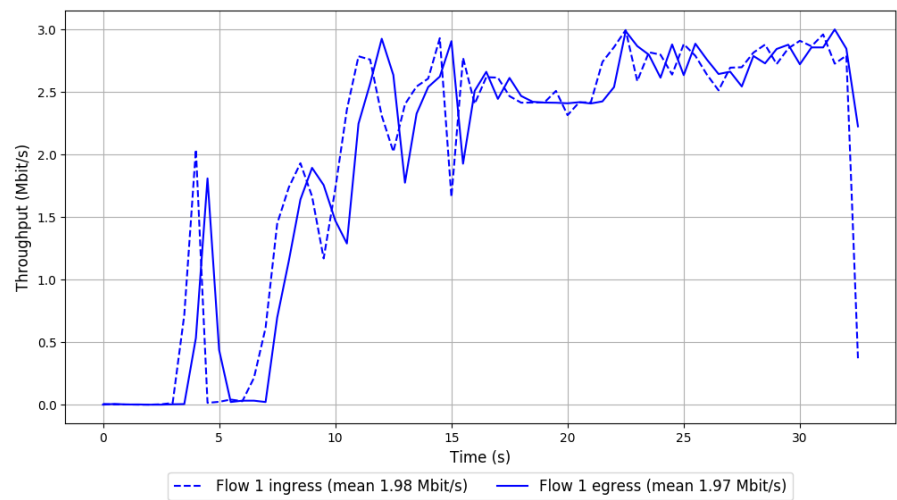
Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-12-02 10:46:34
End at: 2018-12-02 10:47:04
Local clock offset: -4.863 ms
Remote clock offset: 0.185 ms

# Below is generated by plot.py at 2018-12-02 12:53:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.98 Mbit/s
95th percentile per-packet one-way delay: 146.158 ms
Loss rate: 1.28%
-- Flow 1:
Average throughput: 1.98 Mbit/s
95th percentile per-packet one-way delay: 146.158 ms
Loss rate: 1.28%
```
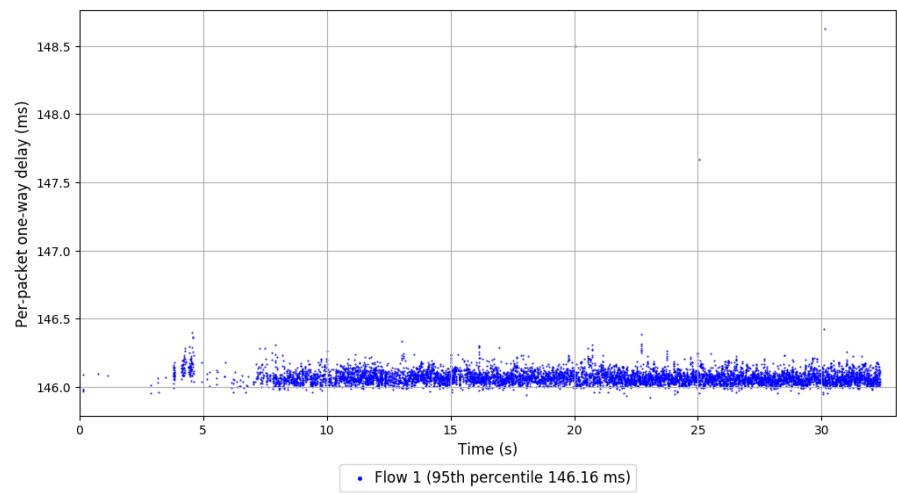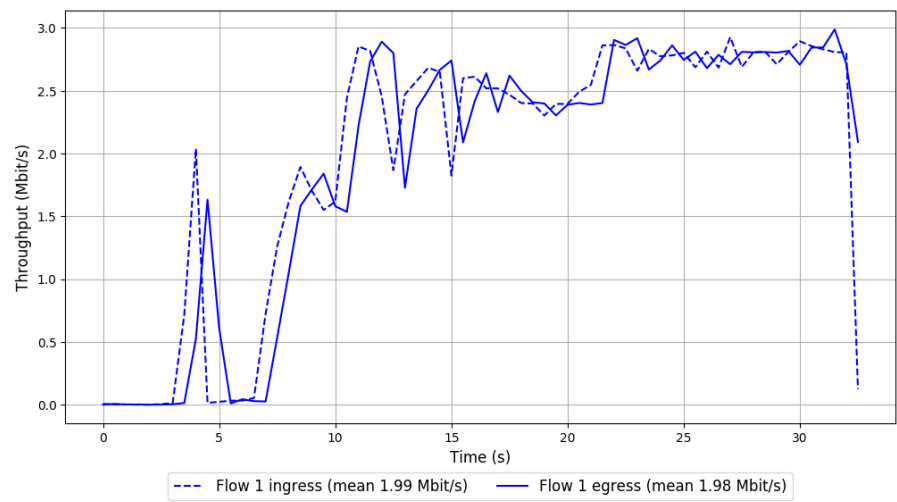
Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2018-12-02 11:16:15
End at: 2018-12-02 11:16:45
Local clock offset: -5.639 ms
Remote clock offset: 0.152 ms


# Below is generated by plot.py at 2018-12-02 12:53:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.99 Mbit/s
95th percentile per-packet one-way delay: 134.620 ms
Loss rate: 1.28%
-- Flow 1:
Average throughput: 1.99 Mbit/s
95th percentile per-packet one-way delay: 134.620 ms
Loss rate: 1.28%
```
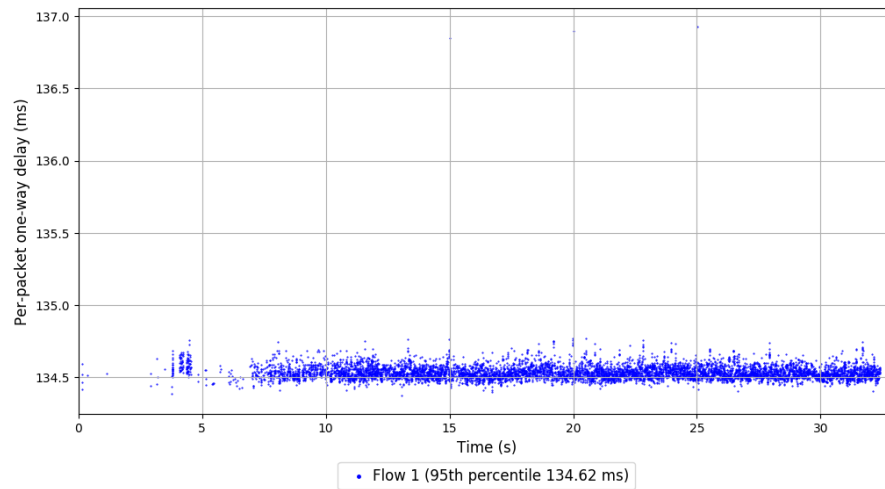
Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2018-12-02 11:46:08
End at: 2018-12-02 11:46:38
Local clock offset: 0.359 ms
Remote clock offset: 0.022 ms


# Below is generated by plot.py at 2018-12-02 12:53:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.99 Mbit/s
95th percentile per-packet one-way delay: 148.505 ms
Loss rate: 1.25%
-- Flow 1:
Average throughput: 1.99 Mbit/s
95th percentile per-packet one-way delay: 148.505 ms
Loss rate: 1.25%
```
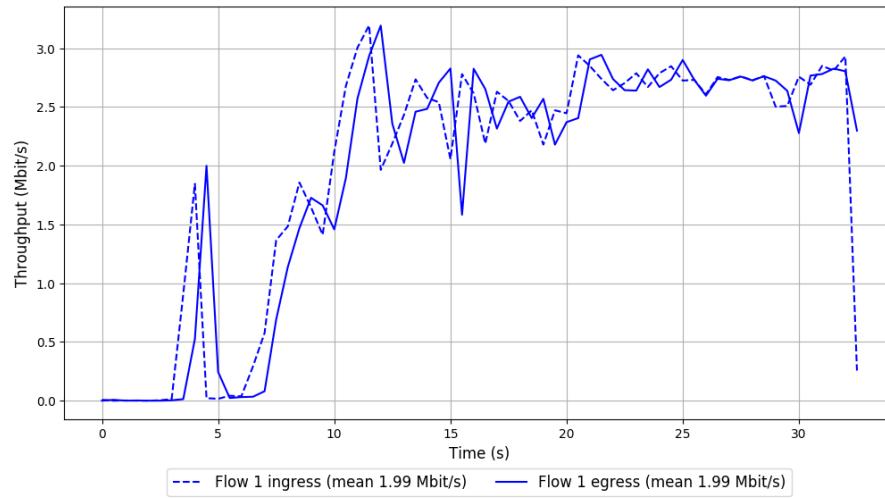
Run 5: Report of WebRTC media — Data Link