Pantheon Report

Generated at 2018-10-09 20:52:12 (UTC).

Data path: AWS India 2 on `ens5` (*local*) →Saudi Arabia on `enp2s0` (*remote*).

Repeated the test of 18 congestion control schemes 5 times.

Each test lasted for 30 seconds running 1 flow.

NTP offsets were measured against `nets.org.sg` and have been applied to correct the timestamps in logs.
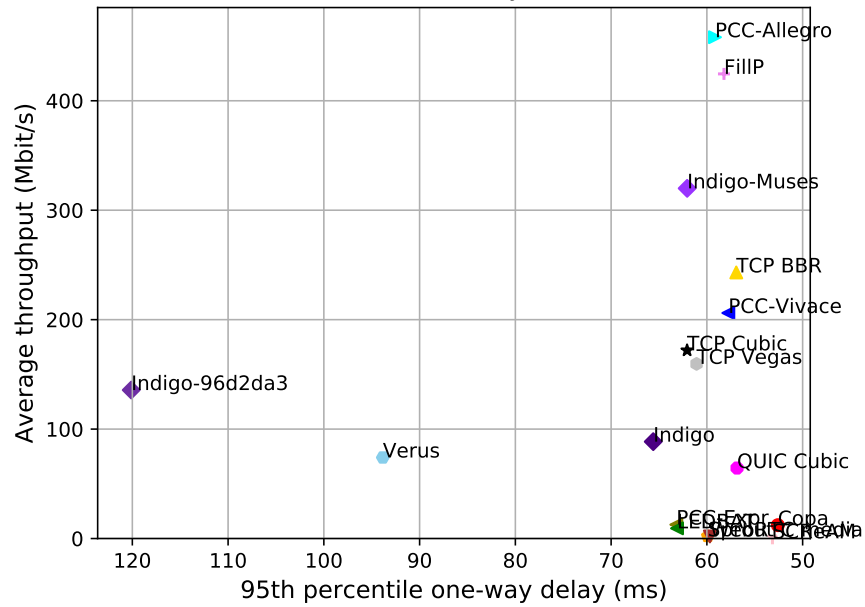
```
System info:
Linux 4.15.0-1023-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

Git summary:
branch: muses @ 2e19c0464530faa92c63f8217c9971438a26a3be
third_party/fillp @ 5332fc9127c63565e13f4933b336c02d1aabdac6
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/indigo-96d2da3 @ 8413272d46f8aa0bcb967ed7048b6a8f994abb95
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
 M receiver/src/buffer.h
 M receiver/src/core.cpp
 M sender/src/buffer.h
 M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
 M src/ScreamClient
 M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
 M src/examples/cellsim.cc
 M src/examples/sproutbt2.cc
 M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
 M src/verus.hpp
 M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
```
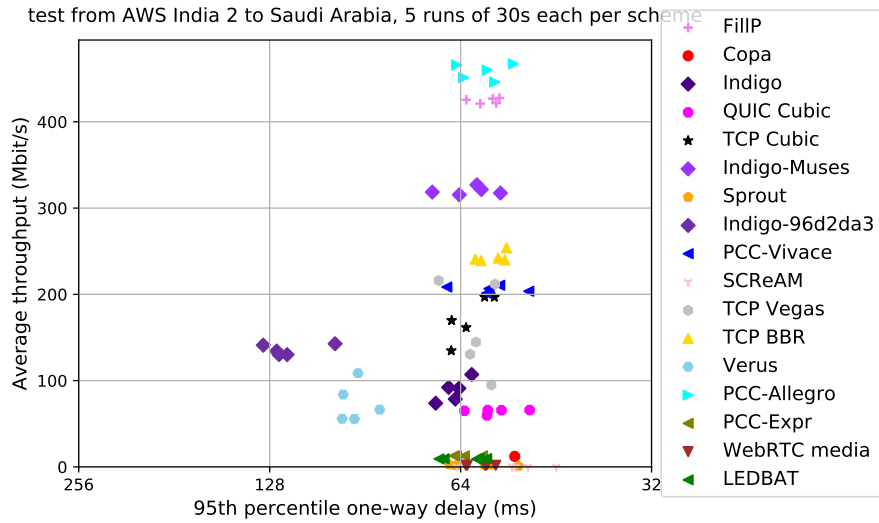
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851

test from AWS India 2 to Saudi Arabia, 5 runs of 30s each per scheme
(mean of all runs by scheme)

test from AWS India 2 to Saudi Arabia, 5 runs of 30s each per scheme

3

scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	5	243.14	56.93	6.86
Copa	1	12.21	52.59	54.60
TCP Cubic	5	171.95	62.07	0.73
FillP	5	424.55	58.22	10.91
Indigo	5	88.54	65.60	0.05
Indigo-96d2da3	5	135.69	120.12	37.03
LEDBAT	5	9.32	63.12	0.01
Indigo-Muses	5	319.98	62.06	31.38
PCC-Allegro	5	458.08	59.15	3.88
PCC-Expr	4	12.72	63.19	34.87
QUIC Cubic	5	64.41	56.85	0.00
SCReAM	5	0.22	53.15	0.00
Sprout	5	2.07	59.92	0.01
TaoVA-100x	0	N/A	N/A	N/A
TCP Vegas	5	159.59	61.08	0.62
Verus	5	74.05	93.84	57.06
PCC-Vivace	5	206.09	57.76	0.96
WebRTC media	5	1.88	59.69	0.00

```
Run 1: Statistics of TCP BBR

Start at: 2018-10-09 18:17:41
End at: 2018-10-09 18:18:11
Local clock offset: -3.52 ms
Remote clock offset: -46.317 ms


# Below is generated by plot.py at 2018-10-09 20:35:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 239.84 Mbit/s
95th percentile per-packet one-way delay: 54.529 ms
Loss rate: 7.92%
-- Flow 1:
Average throughput: 239.84 Mbit/s
95th percentile per-packet one-way delay: 54.529 ms
Loss rate: 7.92%
```
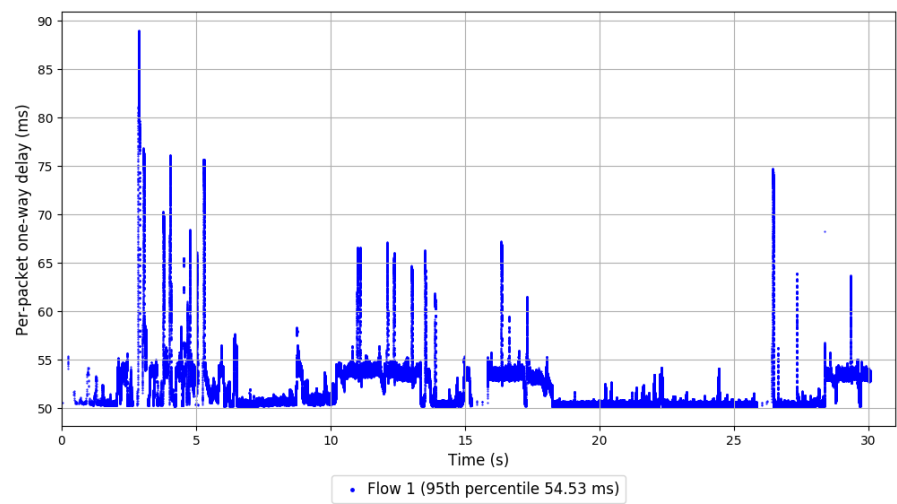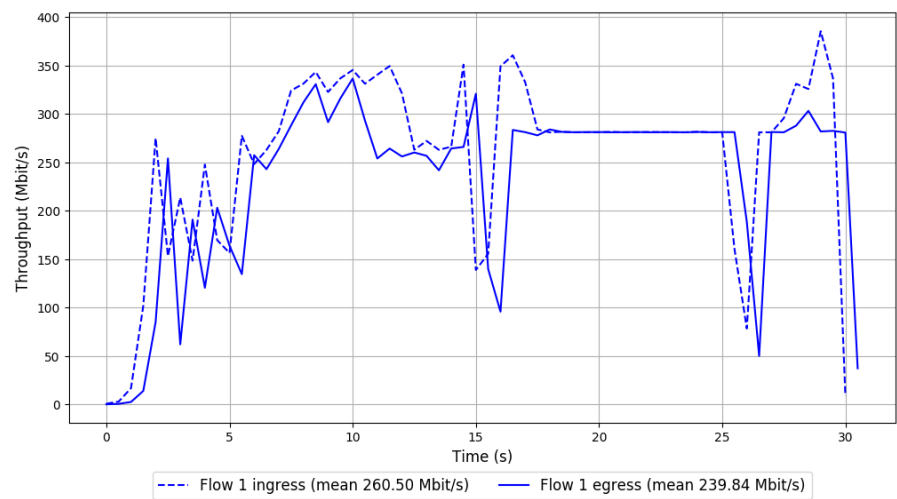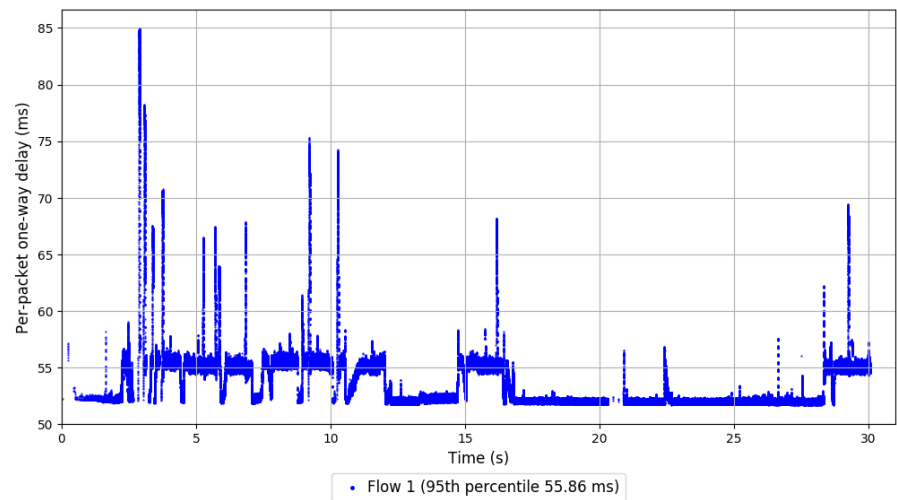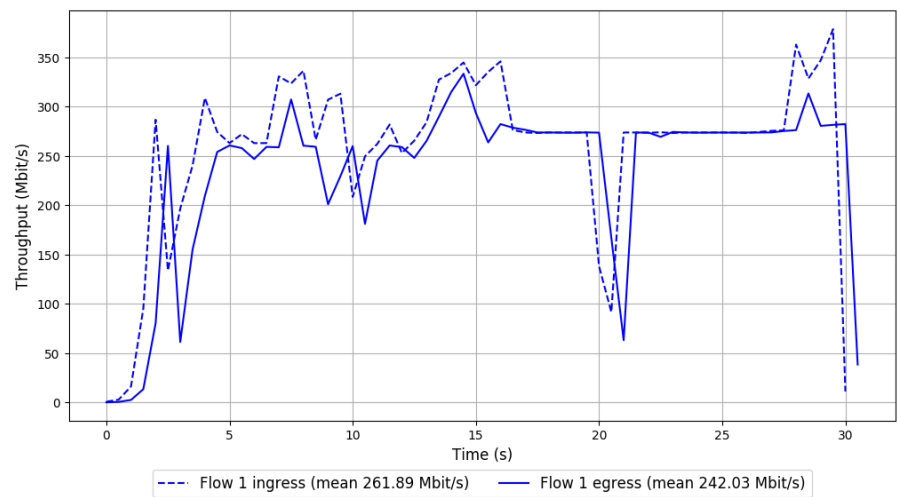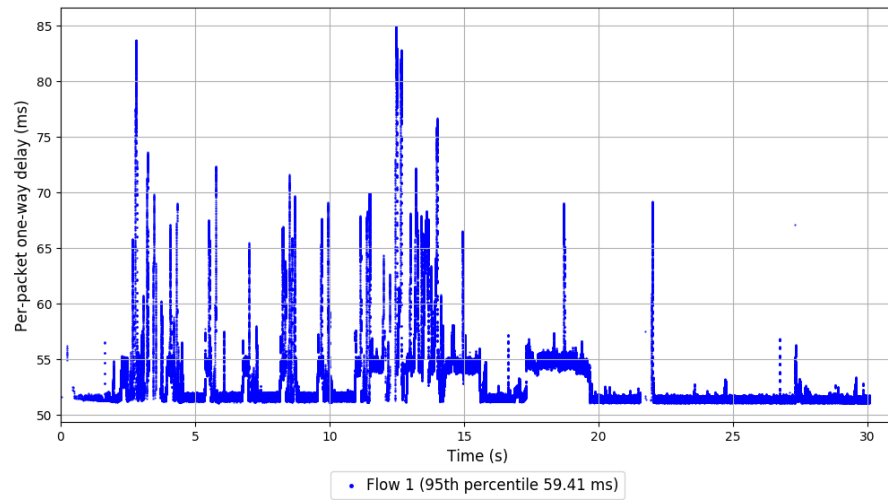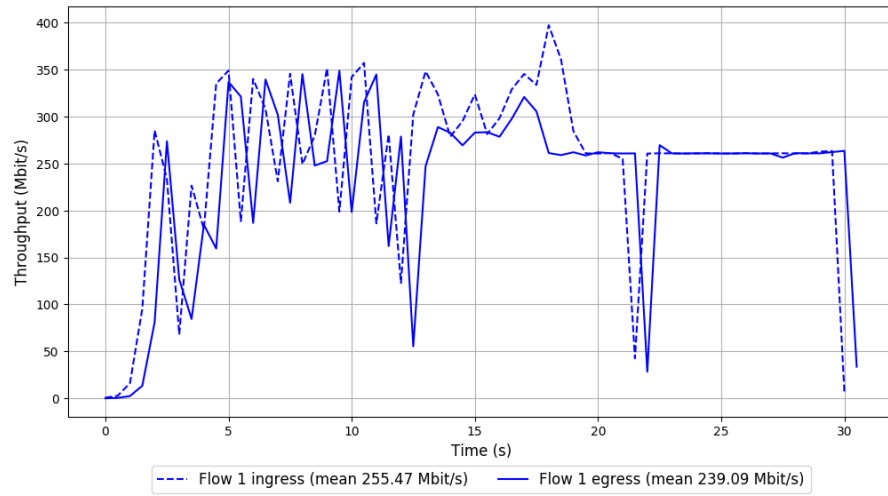
Run 1: Report of TCP BBR — Data Link

Flow 1 ingress (mean 260.50 Mbit/s)   Flow 1 egress (mean 239.84 Mbit/s)
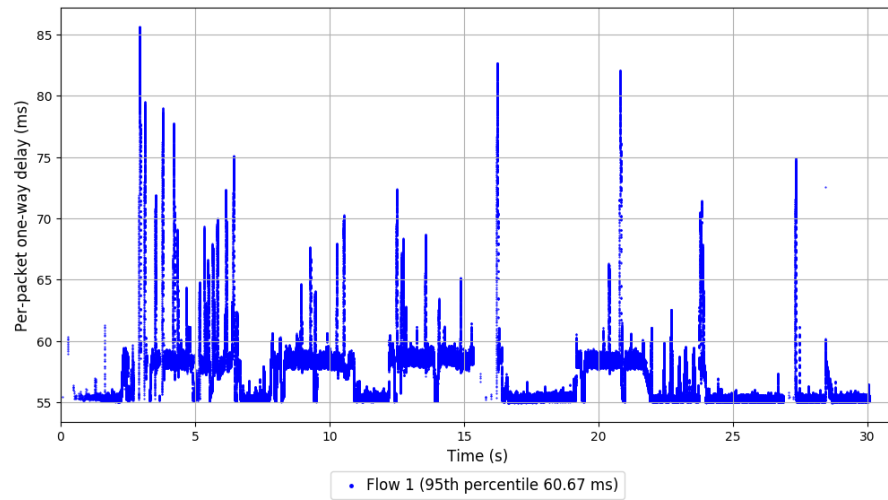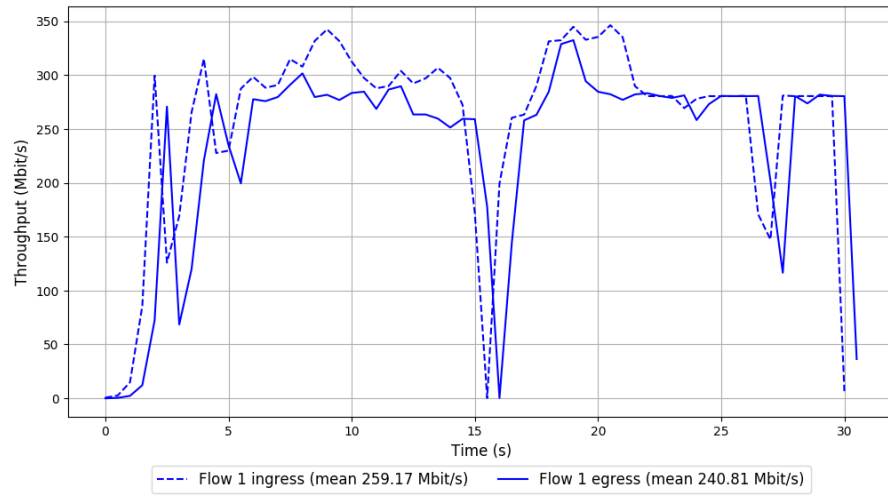

Flow 1 (95th percentile 54.53 ms)

```
Run 2: Statistics of TCP BBR

Start at: 2018-10-09 18:46:32
End at: 2018-10-09 18:47:02
Local clock offset: -12.308 ms
Remote clock offset: -45.387 ms


# Below is generated by plot.py at 2018-10-09 20:35:47
# Datalink statistics
-- Total of 1 flow:
Average throughput: 242.03 Mbit/s
95th percentile per-packet one-way delay: 55.863 ms
Loss rate: 7.57%
-- Flow 1:
Average throughput: 242.03 Mbit/s
95th percentile per-packet one-way delay: 55.863 ms
Loss rate: 7.57%
```

Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2018-10-09 19:20:25
End at: 2018-10-09 19:20:55
Local clock offset: -5.291 ms
Remote clock offset: -44.85 ms


# Below is generated by plot.py at 2018-10-09 20:35:47
# Datalink statistics
-- Total of 1 flow:
Average throughput: 239.09 Mbit/s
95th percentile per-packet one-way delay: 59.408 ms
Loss rate: 6.41%
-- Flow 1:
Average throughput: 239.09 Mbit/s
95th percentile per-packet one-way delay: 59.408 ms
Loss rate: 6.41%
```
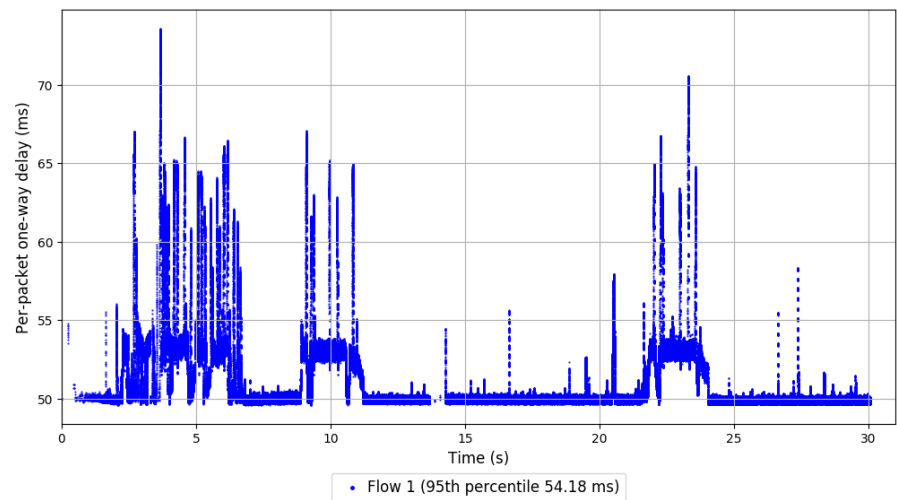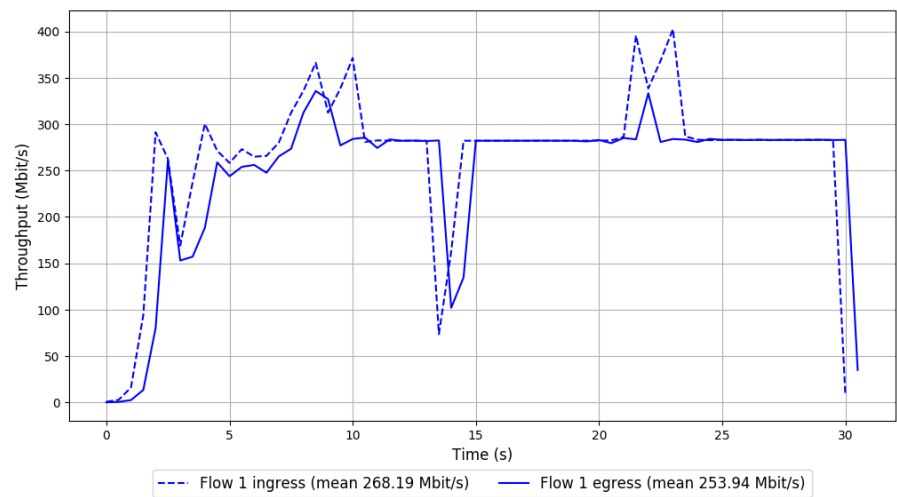
Run 3: Report of TCP BBR — Data Link

```
Run 4: Statistics of TCP BBR

Start at: 2018-10-09 19:49:18
End at: 2018-10-09 19:49:48
Local clock offset: -2.891 ms
Remote clock offset: -45.324 ms

# Below is generated by plot.py at 2018-10-09 20:35:47
# Datalink statistics
-- Total of 1 flow:
Average throughput: 240.81 Mbit/s
95th percentile per-packet one-way delay: 60.669 ms
Loss rate: 7.09%
-- Flow 1:
Average throughput: 240.81 Mbit/s
95th percentile per-packet one-way delay: 60.669 ms
Loss rate: 7.09%
```
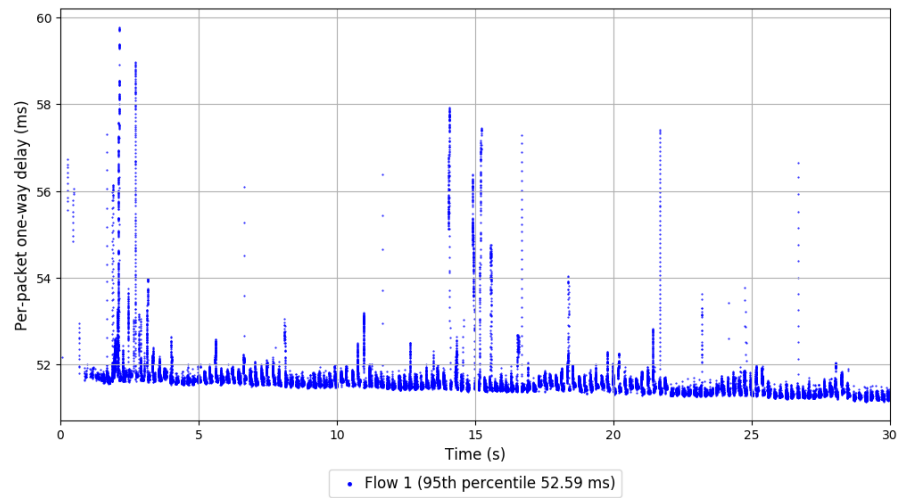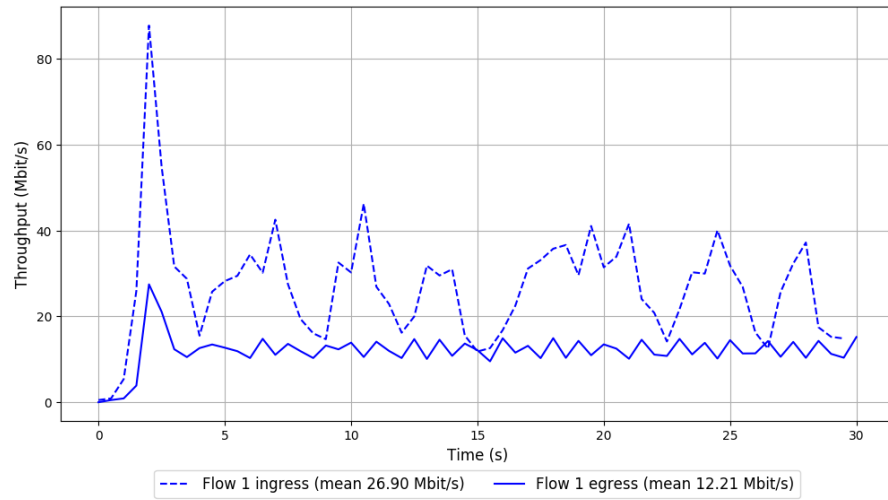
Run 4: Report of TCP BBR — Data Link

```
Run 5: Statistics of TCP BBR

Start at: 2018-10-09 20:23:56
End at: 2018-10-09 20:24:26
Local clock offset: -3.7 ms
Remote clock offset: -48.173 ms

# Below is generated by plot.py at 2018-10-09 20:35:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 253.94 Mbit/s
95th percentile per-packet one-way delay: 54.180 ms
Loss rate: 5.32%
-- Flow 1:
Average throughput: 253.94 Mbit/s
95th percentile per-packet one-way delay: 54.180 ms
Loss rate: 5.32%
```

Run 5: Report of TCP BBR — Data Link

Flow 1 ingress (mean 268.19 Mbit/s) ---- Flow 1 egress (mean 253.94 Mbit/s)

• Flow 1 (95th percentile 54.18 ms)

```
Run 1: Statistics of Copa

Start at: 2018-10-09 18:10:42
End at: 2018-10-09 18:11:12
Local clock offset: -5.525 ms
Remote clock offset: -46.623 ms


# Below is generated by plot.py at 2018-10-09 20:35:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.21 Mbit/s
95th percentile per-packet one-way delay: 52.588 ms
Loss rate: 54.60%
-- Flow 1:
Average throughput: 12.21 Mbit/s
95th percentile per-packet one-way delay: 52.588 ms
Loss rate: 54.60%
```
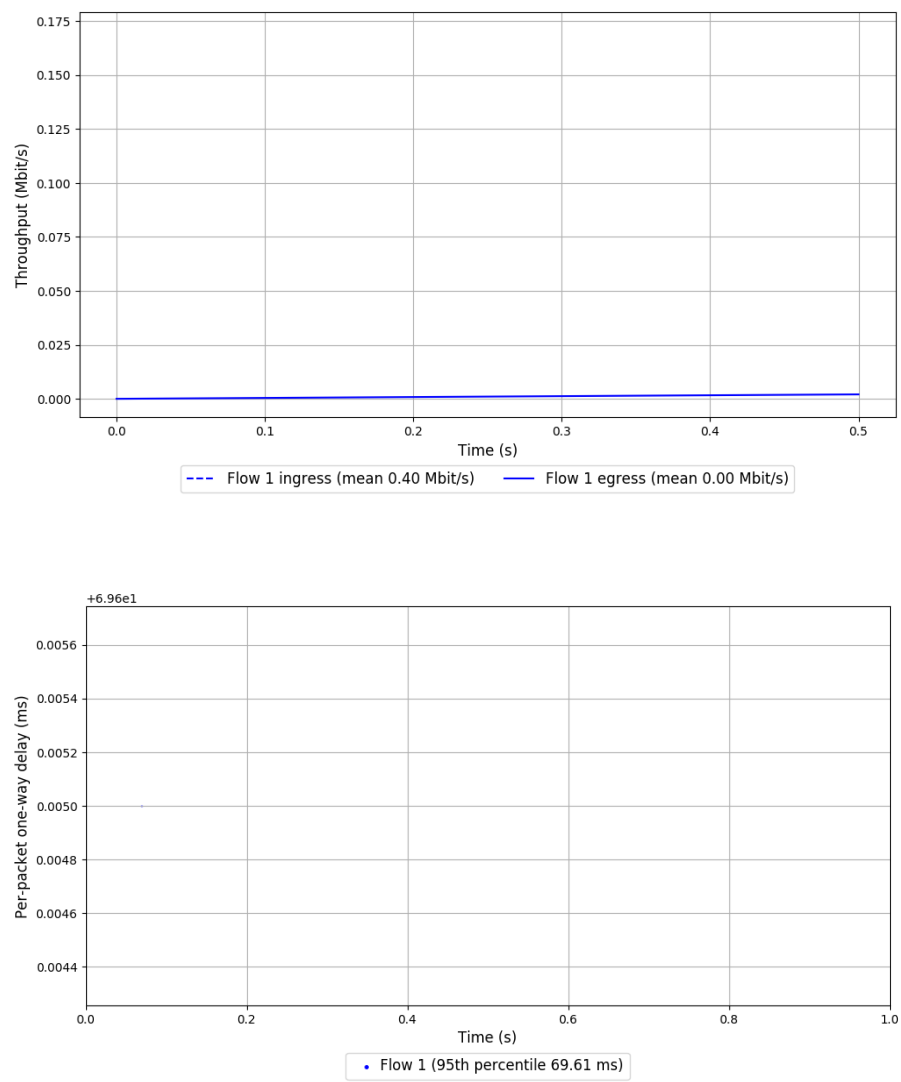
Run 1: Report of Copa — Data Link

```
Run 2: Statistics of Copa

Start at: 2018-10-09 18:39:32
End at: 2018-10-09 18:40:02
Local clock offset: -7.811 ms
Remote clock offset: -40.858 ms
```

Run 2: Report of Copa — Data Link

```
Run 3: Statistics of Copa

Start at: 2018-10-09 19:13:35
End at: 2018-10-09 19:14:06
Local clock offset: -11.662 ms
Remote clock offset: -34.603 ms
```
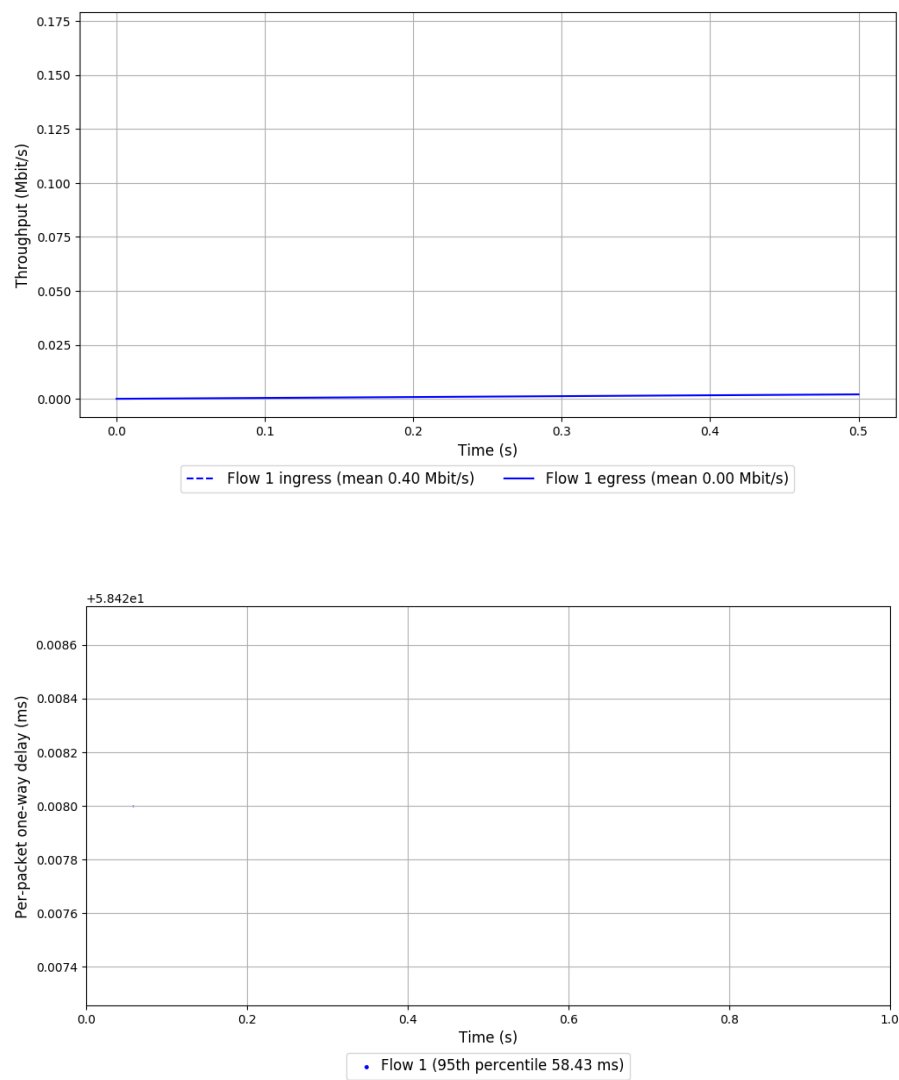
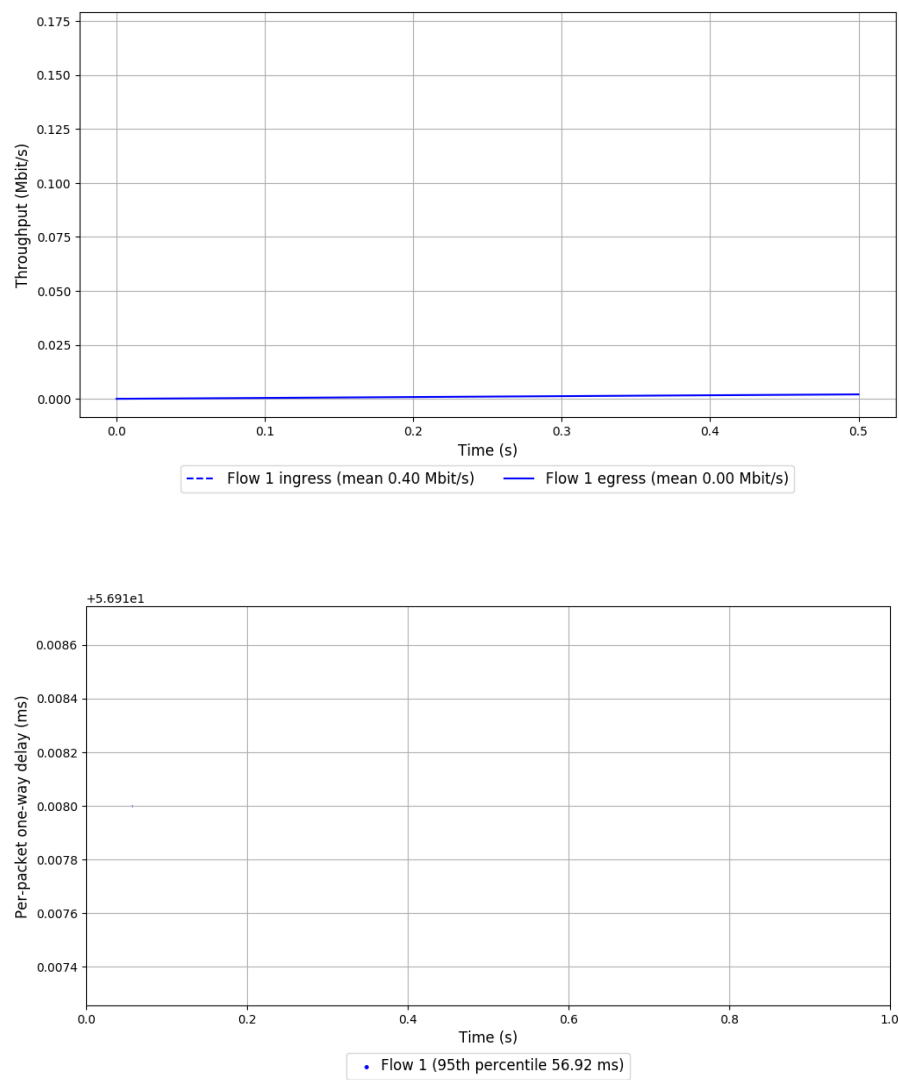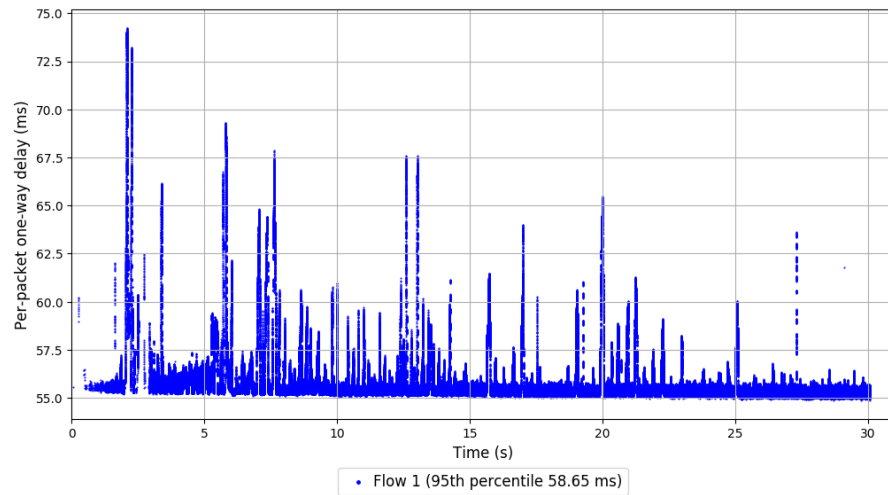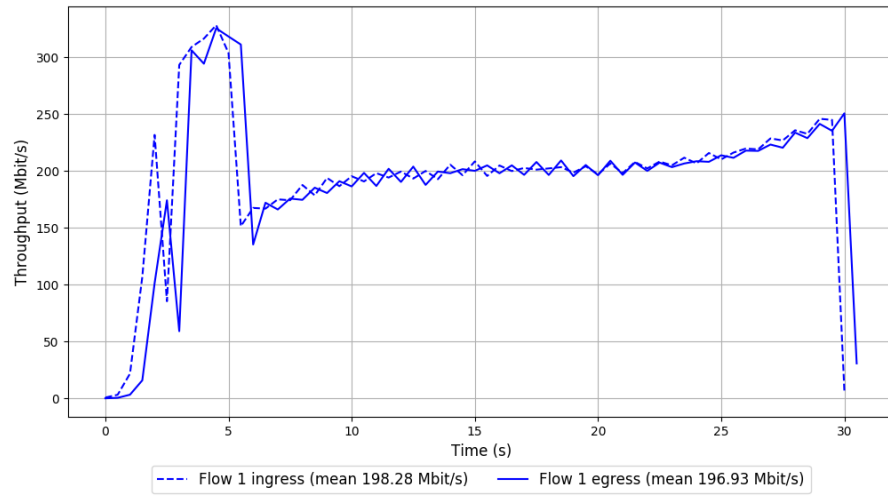Run 3: Report of Copa — Data Link

```
Run 4: Statistics of Copa

Start at: 2018-10-09 19:42:21
End at: 2018-10-09 19:42:51
Local clock offset: -2.556 ms
Remote clock offset: -40.133 ms
```

Run 4: Report of Copa — Data Link

```
Run 5: Statistics of Copa

Start at: 2018-10-09 20:17:04
End at: 2018-10-09 20:17:34
Local clock offset: -3.665 ms
Remote clock offset: -41.894 ms
```

Run 5: Report of Copa — Data Link

Flow 1 ingress (mean 0.40 Mbit/s)   Flow 1 egress (mean 0.00 Mbit/s)
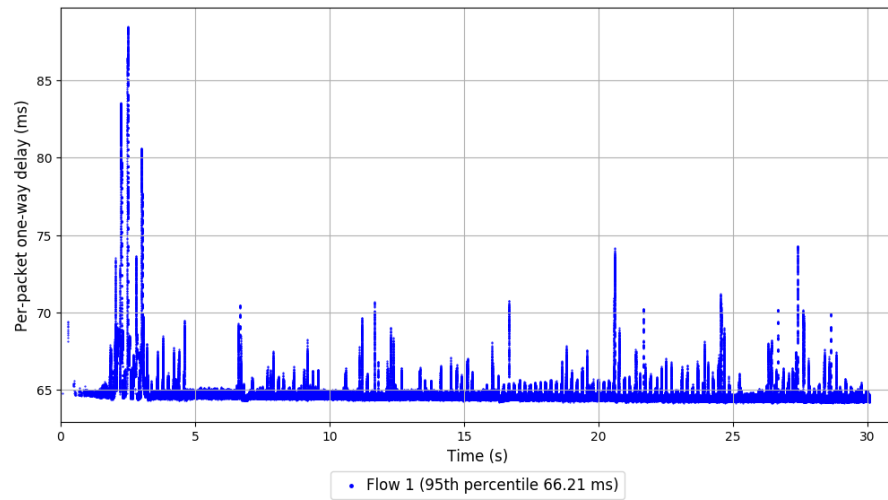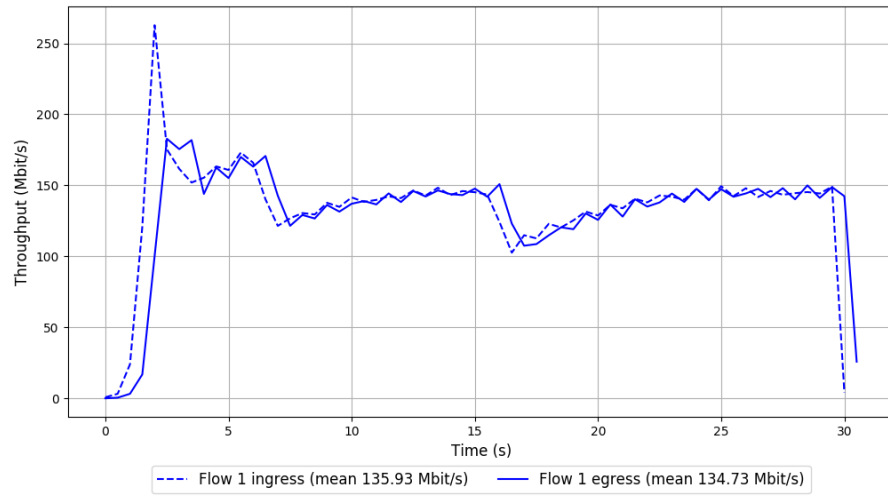

Flow 1 (95th percentile 56.92 ms)

```
Run 1: Statistics of TCP Cubic

Start at: 2018-10-09 18:21:57
End at: 2018-10-09 18:22:27
Local clock offset: -7.502 ms
Remote clock offset: -45.873 ms


# Below is generated by plot.py at 2018-10-09 20:35:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 196.93 Mbit/s
95th percentile per-packet one-way delay: 58.652 ms
Loss rate: 0.69%
-- Flow 1:
Average throughput: 196.93 Mbit/s
95th percentile per-packet one-way delay: 58.652 ms
Loss rate: 0.69%
```
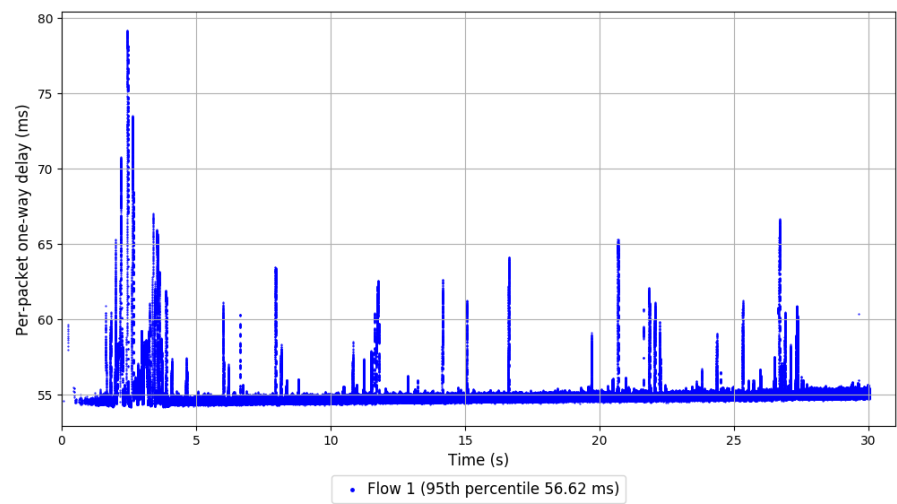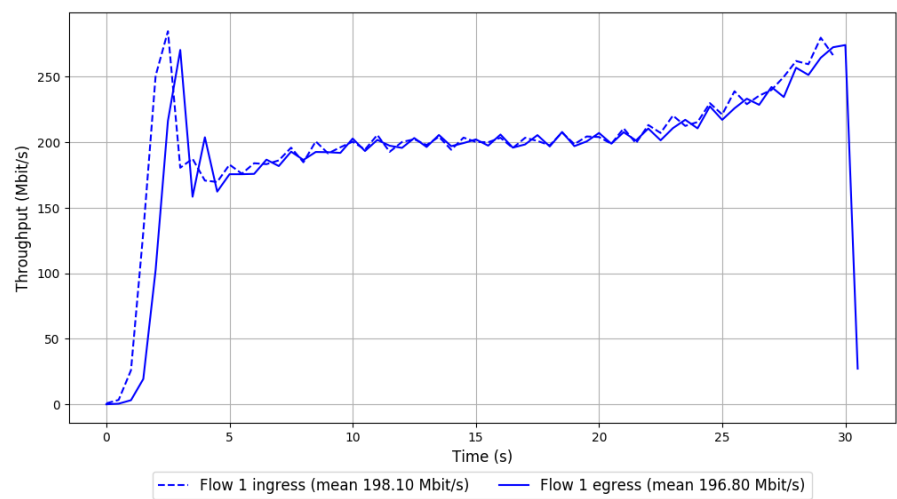
Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2018-10-09 18:50:51
End at: 2018-10-09 18:51:21
Local clock offset: -15.317 ms
Remote clock offset: -33.58 ms


# Below is generated by plot.py at 2018-10-09 20:35:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 134.73 Mbit/s
95th percentile per-packet one-way delay: 66.210 ms
Loss rate: 0.89%
-- Flow 1:
Average throughput: 134.73 Mbit/s
95th percentile per-packet one-way delay: 66.210 ms
Loss rate: 0.89%
```

Run 2: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 135.93 Mbit/s) ---- Flow 1 egress (mean 134.73 Mbit/s)
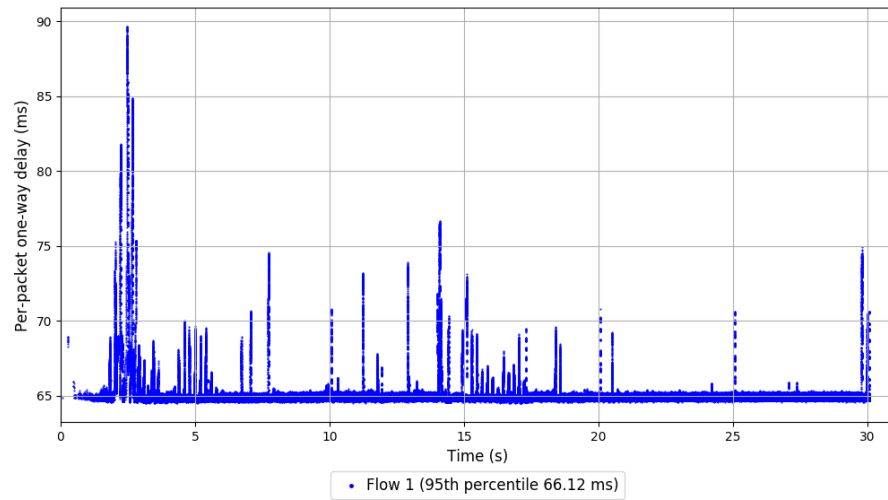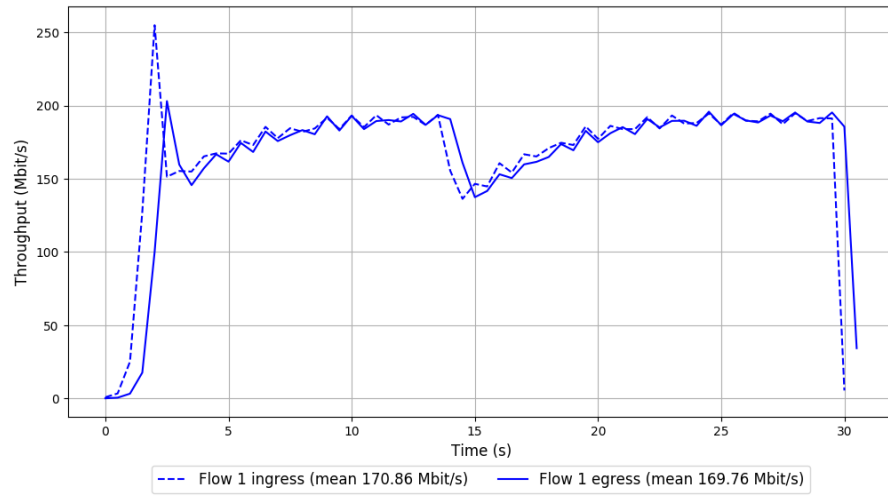

• Flow 1 (95th percentile 66.21 ms)

```
Run 3: Statistics of TCP Cubic

Start at: 2018-10-09 19:24:39
End at: 2018-10-09 19:25:09
Local clock offset: -7.963 ms
Remote clock offset: -43.224 ms


# Below is generated by plot.py at 2018-10-09 20:35:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 196.80 Mbit/s
95th percentile per-packet one-way delay: 56.619 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 196.80 Mbit/s
95th percentile per-packet one-way delay: 56.619 ms
Loss rate: 0.65%
```
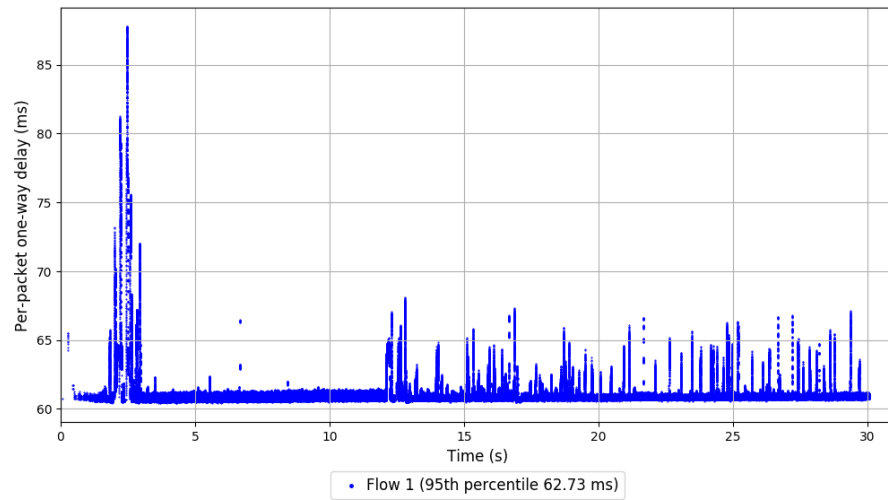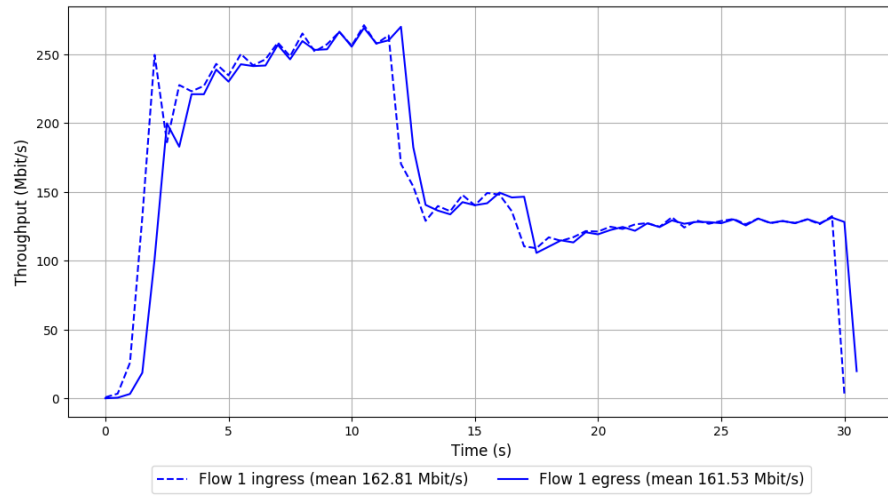
Run 3: Report of TCP Cubic — Data Link

```
Run 4: Statistics of TCP Cubic

Start at: 2018-10-09 19:59:27
End at: 2018-10-09 19:59:57
Local clock offset: -2.529 ms
Remote clock offset: -33.495 ms


# Below is generated by plot.py at 2018-10-09 20:36:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 169.76 Mbit/s
95th percentile per-packet one-way delay: 66.121 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 169.76 Mbit/s
95th percentile per-packet one-way delay: 66.121 ms
Loss rate: 0.64%
```
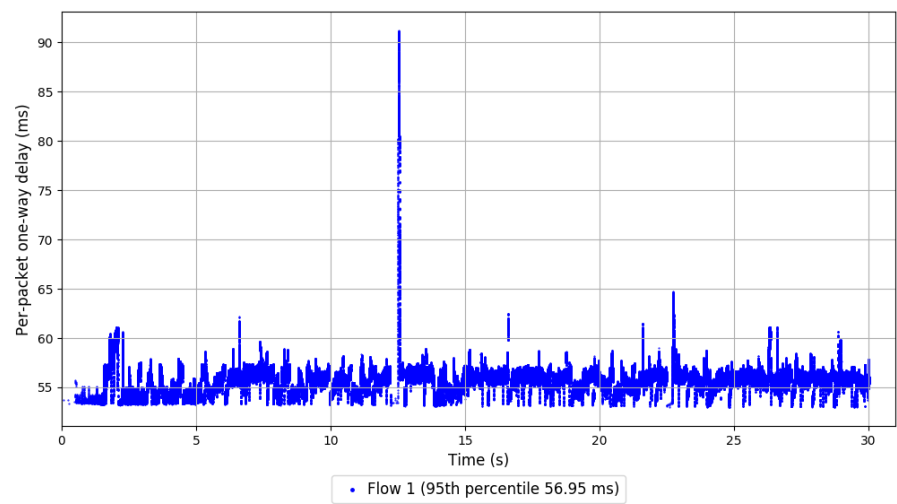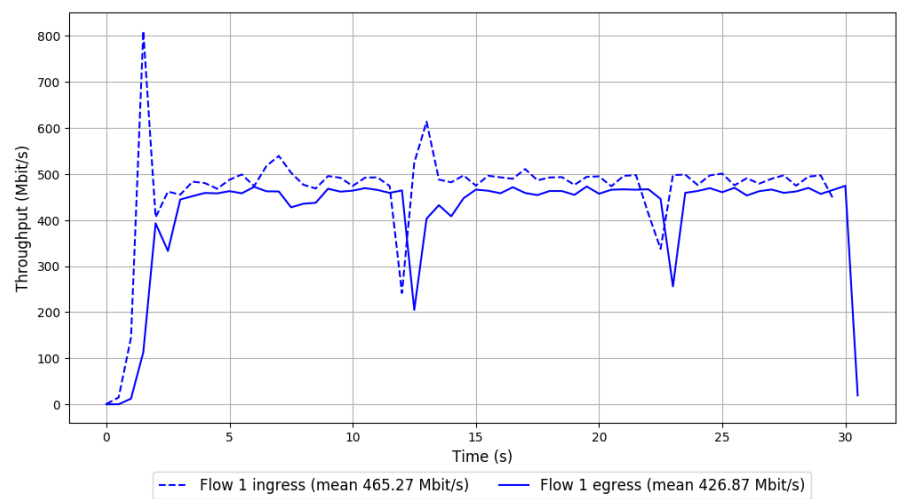
Run 4: Report of TCP Cubic — Data Link

```
Run 5: Statistics of TCP Cubic

Start at: 2018-10-09 20:28:15
End at: 2018-10-09 20:28:45
Local clock offset: -8.971 ms
Remote clock offset: -43.91 ms


# Below is generated by plot.py at 2018-10-09 20:36:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 161.53 Mbit/s
95th percentile per-packet one-way delay: 62.733 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 161.53 Mbit/s
95th percentile per-packet one-way delay: 62.733 ms
Loss rate: 0.78%
```

Run 5: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 162.81 Mbit/s)   Flow 1 egress (mean 161.53 Mbit/s)
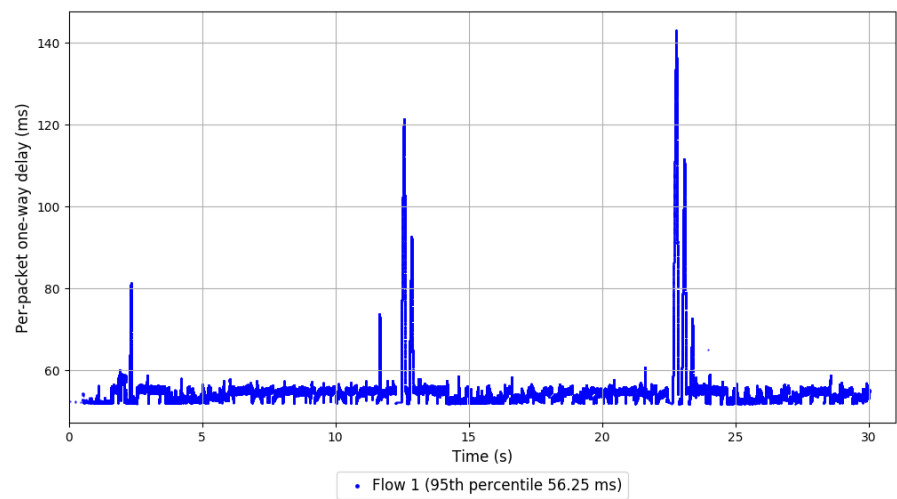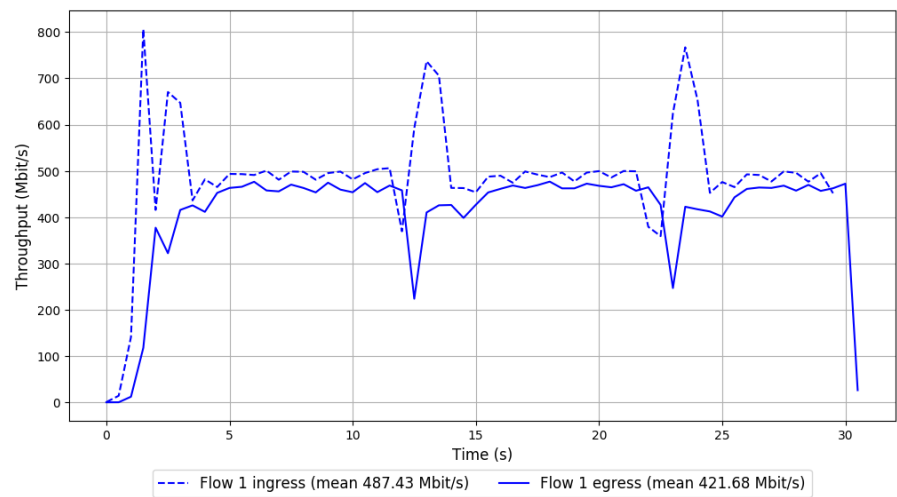

Flow 1 (95th percentile 62.73 ms)

```
Run 1: Statistics of FillP

Start at: 2018-10-09 18:08:21
End at: 2018-10-09 18:08:51
Local clock offset: -1.835 ms
Remote clock offset: -43.23 ms


# Below is generated by plot.py at 2018-10-09 20:41:38
# Datalink statistics
-- Total of 1 flow:
Average throughput: 426.87 Mbit/s
95th percentile per-packet one-way delay: 56.946 ms
Loss rate: 8.24%
-- Flow 1:
Average throughput: 426.87 Mbit/s
95th percentile per-packet one-way delay: 56.946 ms
Loss rate: 8.24%
```
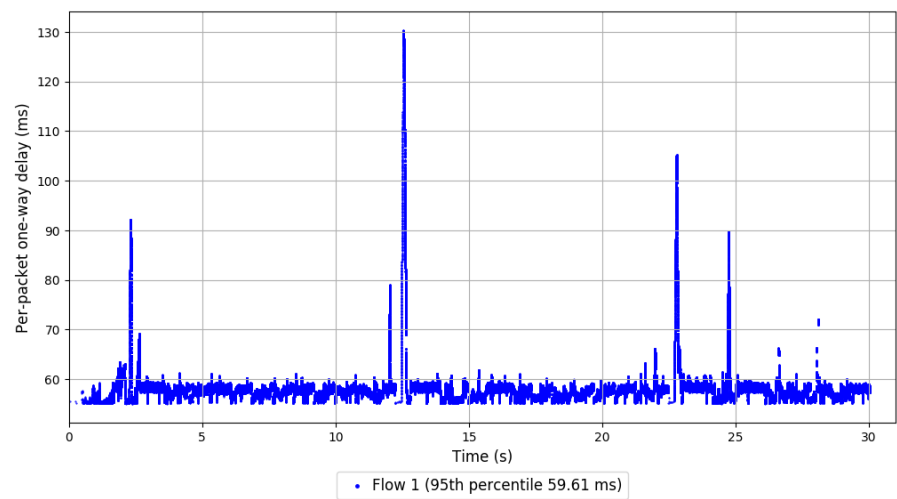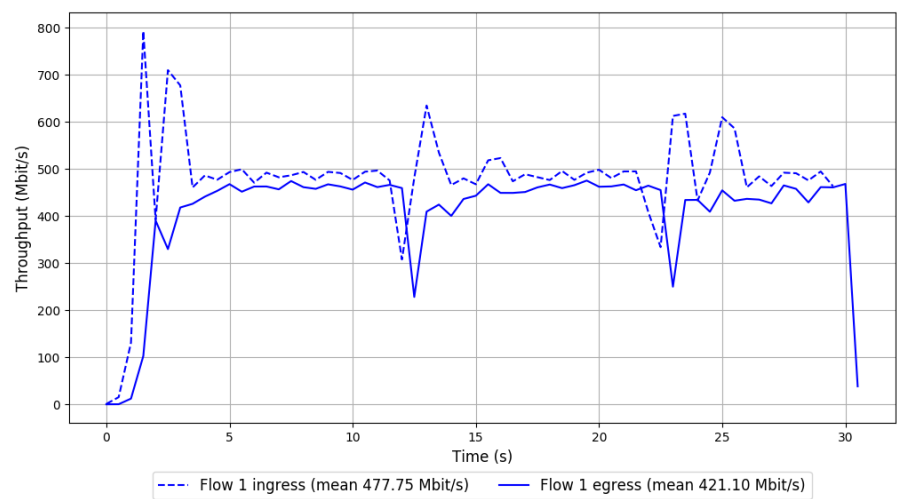
Run 1: Report of FillP — Data Link

```
Run 2: Statistics of FillP

Start at: 2018-10-09 18:37:12
End at: 2018-10-09 18:37:42
Local clock offset: -9.141 ms
Remote clock offset: -46.188 ms

# Below is generated by plot.py at 2018-10-09 20:41:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 421.68 Mbit/s
95th percentile per-packet one-way delay: 56.248 ms
Loss rate: 13.48%
-- Flow 1:
Average throughput: 421.68 Mbit/s
95th percentile per-packet one-way delay: 56.248 ms
Loss rate: 13.48%
```
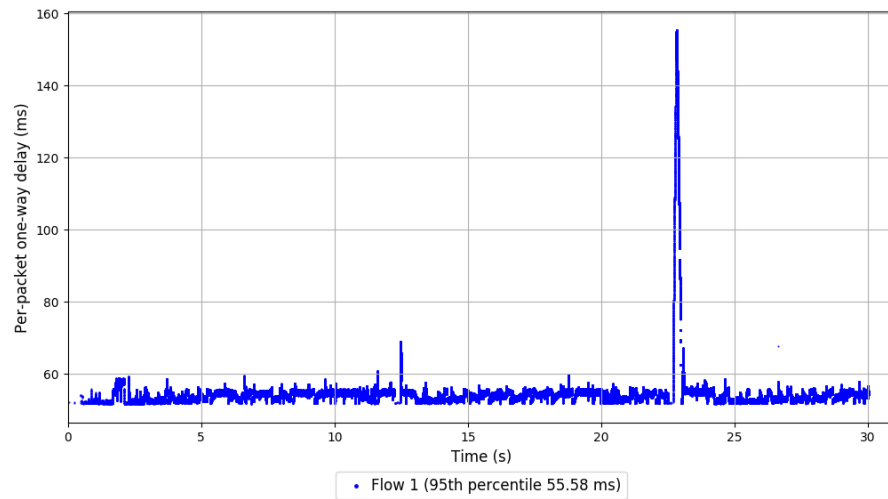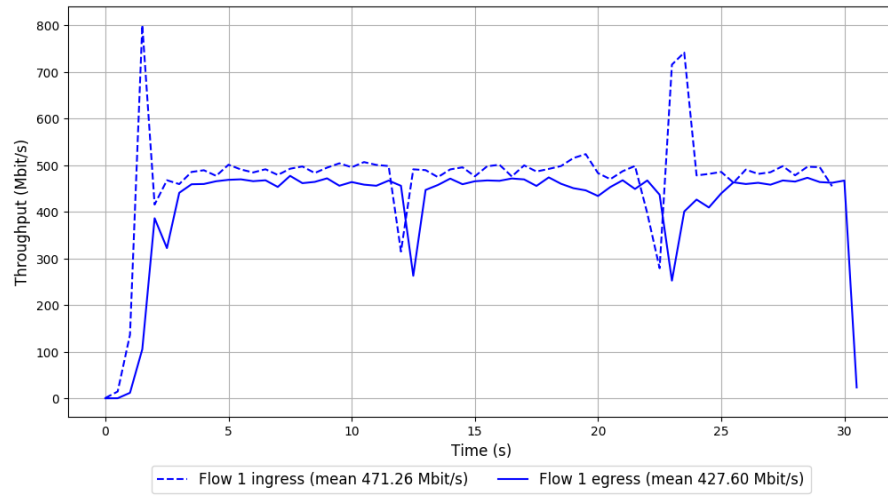
Run 2: Report of FillP — Data Link

```
Run 3: Statistics of FillP

Start at: 2018-10-09 19:11:15
End at: 2018-10-09 19:11:45
Local clock offset: -3.925 ms
Remote clock offset: -40.532 ms

# Below is generated by plot.py at 2018-10-09 20:41:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 421.10 Mbit/s
95th percentile per-packet one-way delay: 59.608 ms
Loss rate: 11.85%
-- Flow 1:
Average throughput: 421.10 Mbit/s
95th percentile per-packet one-way delay: 59.608 ms
Loss rate: 11.85%
```
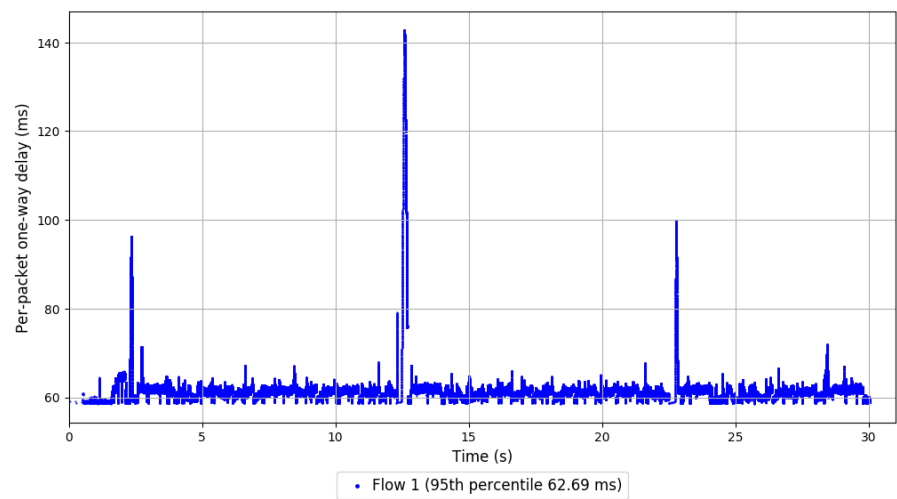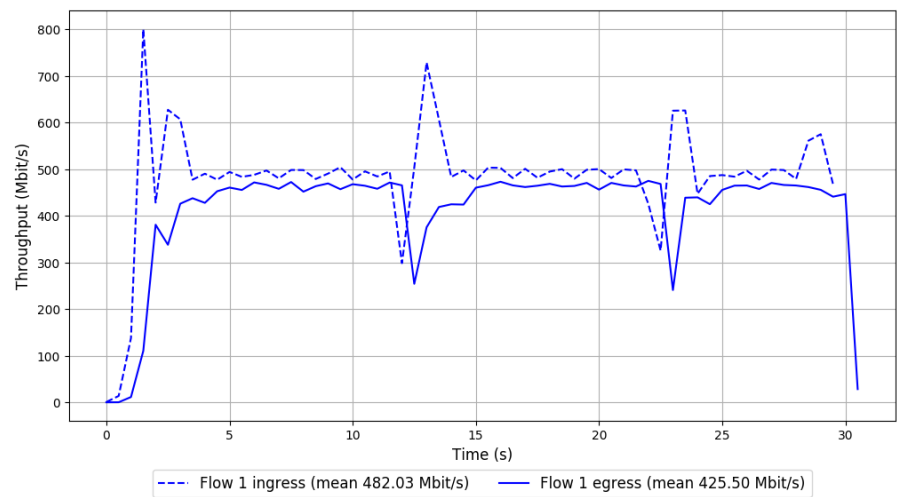
Run 3: Report of FillP — Data Link

```
Run 4: Statistics of FillP

Start at: 2018-10-09 19:40:00
End at: 2018-10-09 19:40:30
Local clock offset: -1.408 ms
Remote clock offset: -45.096 ms


# Below is generated by plot.py at 2018-10-09 20:41:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 427.60 Mbit/s
95th percentile per-packet one-way delay: 55.584 ms
Loss rate: 9.26%
-- Flow 1:
Average throughput: 427.60 Mbit/s
95th percentile per-packet one-way delay: 55.584 ms
Loss rate: 9.26%
```
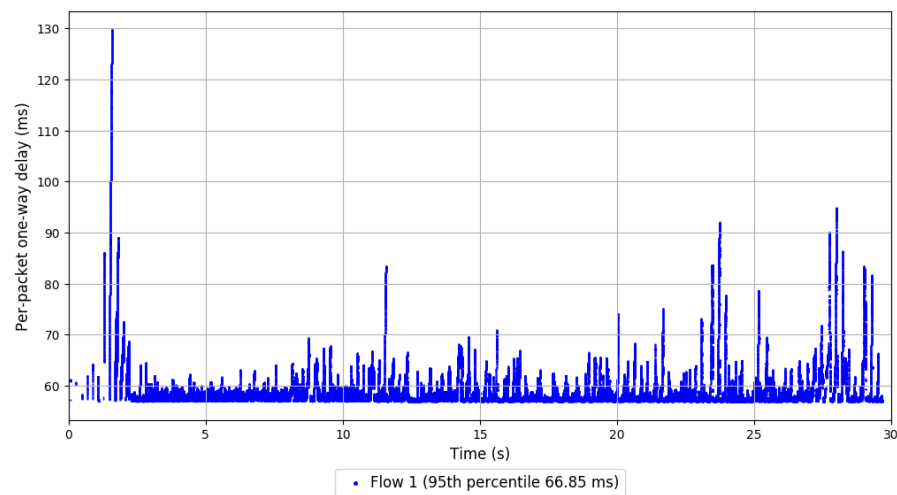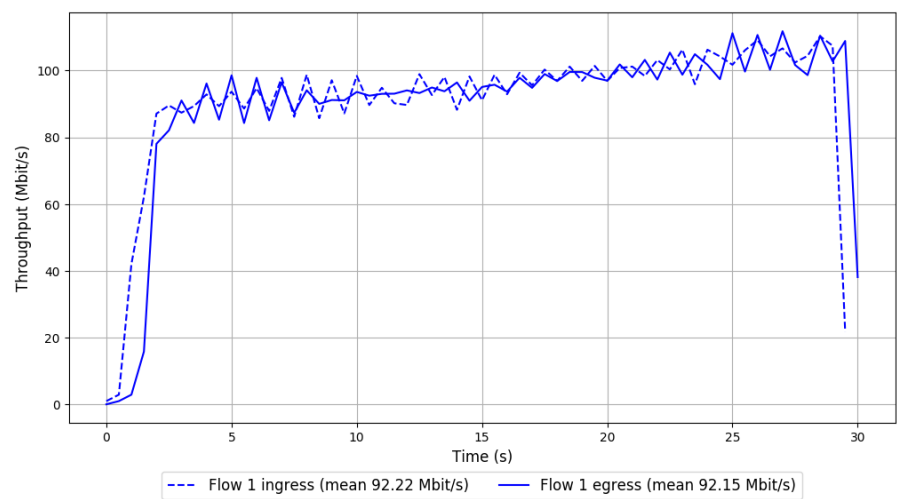
Run 4: Report of FillP — Data Link

```
Run 5: Statistics of FillP

Start at: 2018-10-09 20:14:43
End at: 2018-10-09 20:15:13
Local clock offset: -3.725 ms
Remote clock offset: -42.389 ms


# Below is generated by plot.py at 2018-10-09 20:41:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 425.50 Mbit/s
95th percentile per-packet one-way delay: 62.690 ms
Loss rate: 11.73%
-- Flow 1:
Average throughput: 425.50 Mbit/s
95th percentile per-packet one-way delay: 62.690 ms
Loss rate: 11.73%
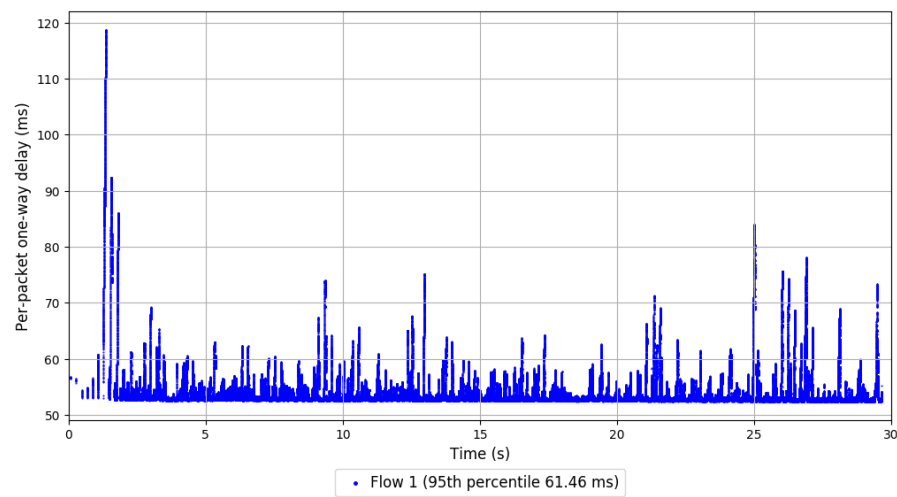```
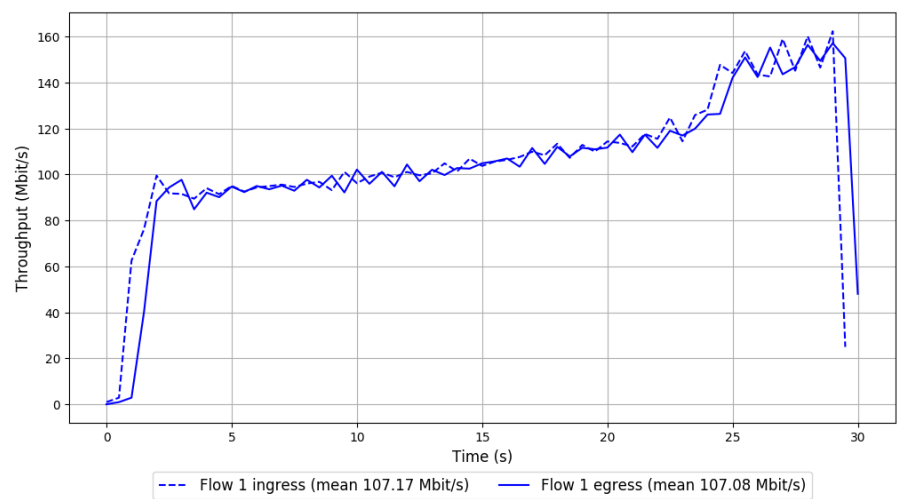
Run 5: Report of FillP — Data Link

```
Run 1: Statistics of Indigo

Start at: 2018-10-09 18:16:08
End at: 2018-10-09 18:16:38
Local clock offset: -5.469 ms
Remote clock offset: -43.985 ms

Below is generated by plot.py at 2018-10-09 20:41:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 92.15 Mbit/s
95th percentile per-packet one-way delay: 66.849 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 92.15 Mbit/s
95th percentile per-packet one-way delay: 66.849 ms
Loss rate: 0.08%
```
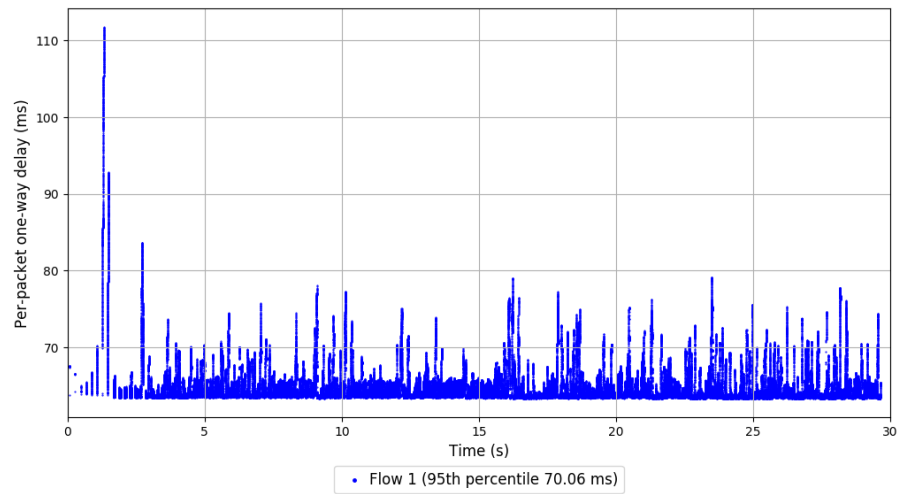
Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2018-10-09 18:44:56
End at: 2018-10-09 18:45:26
Local clock offset: -10.334 ms
Remote clock offset: -43.553 ms

Below is generated by plot.py at 2018-10-09 20:41:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 107.08 Mbit/s
95th percentile per-packet one-way delay: 61.461 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 107.08 Mbit/s
95th percentile per-packet one-way delay: 61.461 ms
Loss rate: 0.08%
```
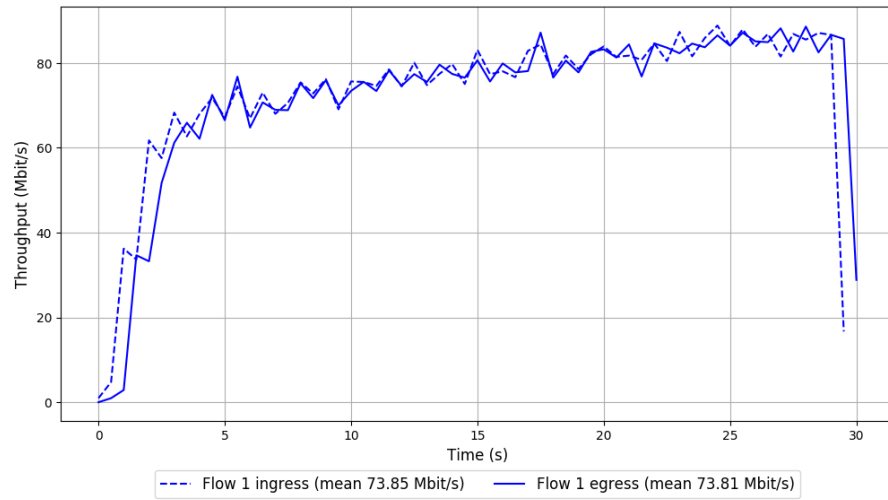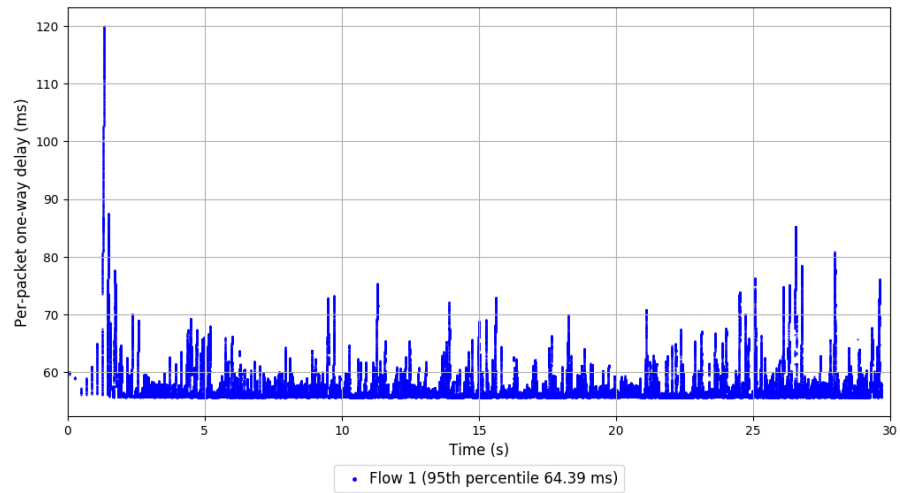
Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2018-10-09 19:18:56
End at: 2018-10-09 19:19:26
Local clock offset: -6.356 ms
Remote clock offset: -33.667 ms

Below is generated by plot.py at 2018-10-09 20:41:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 73.81 Mbit/s
95th percentile per-packet one-way delay: 70.059 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 73.81 Mbit/s
95th percentile per-packet one-way delay: 70.059 ms
Loss rate: 0.05%
```
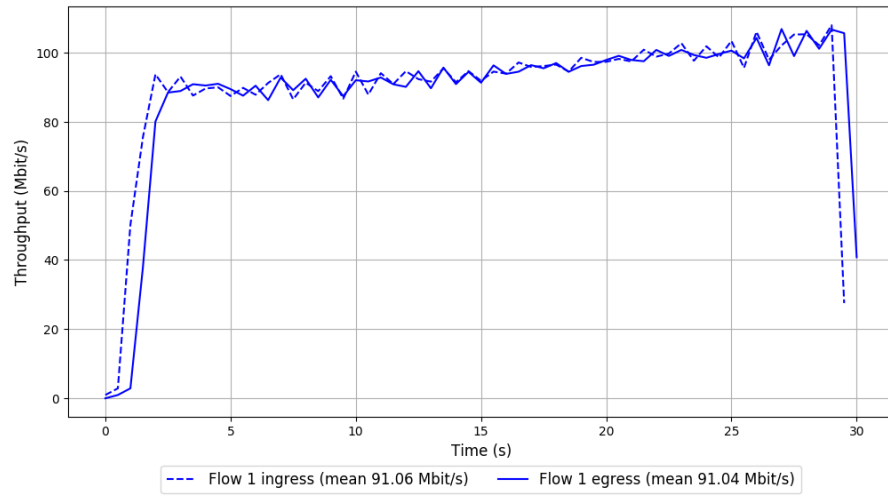
Run 3: Report of Indigo — Data Link

```
Run 4: Statistics of Indigo

Start at: 2018-10-09 19:47:45
End at: 2018-10-09 19:48:15
Local clock offset: -0.502 ms
Remote clock offset: -39.845 ms

Below is generated by plot.py at 2018-10-09 20:41:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 91.04 Mbit/s
95th percentile per-packet one-way delay: 64.387 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 91.04 Mbit/s
95th percentile per-packet one-way delay: 64.387 ms
Loss rate: 0.03%
```
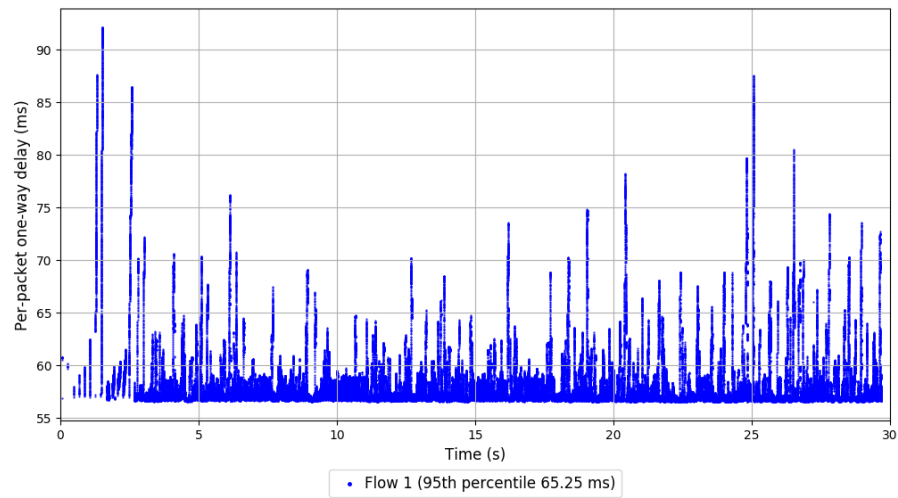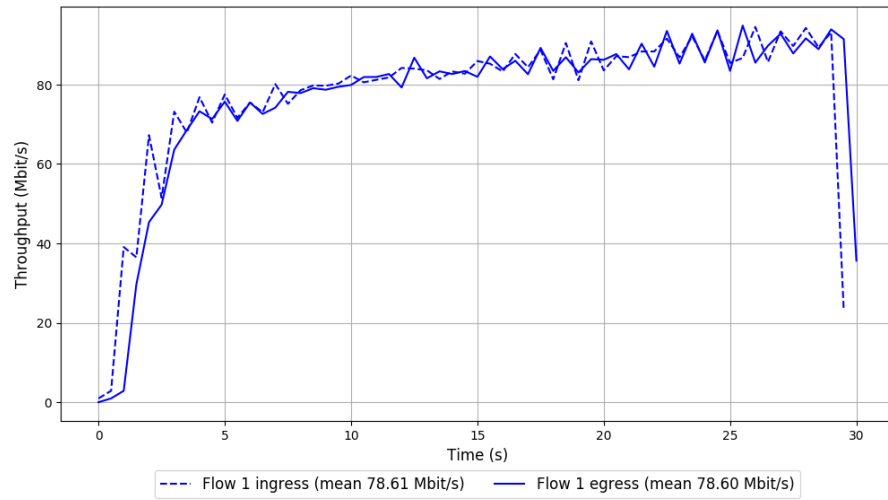
Run 4: Report of Indigo — Data Link

```
Run 5: Statistics of Indigo

Start at: 2018-10-09 20:22:26
End at: 2018-10-09 20:22:56
Local clock offset: -3.428 ms
Remote clock offset: -43.293 ms

Below is generated by plot.py at 2018-10-09 20:41:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 78.60 Mbit/s
95th percentile per-packet one-way delay: 65.249 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 78.60 Mbit/s
95th percentile per-packet one-way delay: 65.249 ms
Loss rate: 0.02%
```
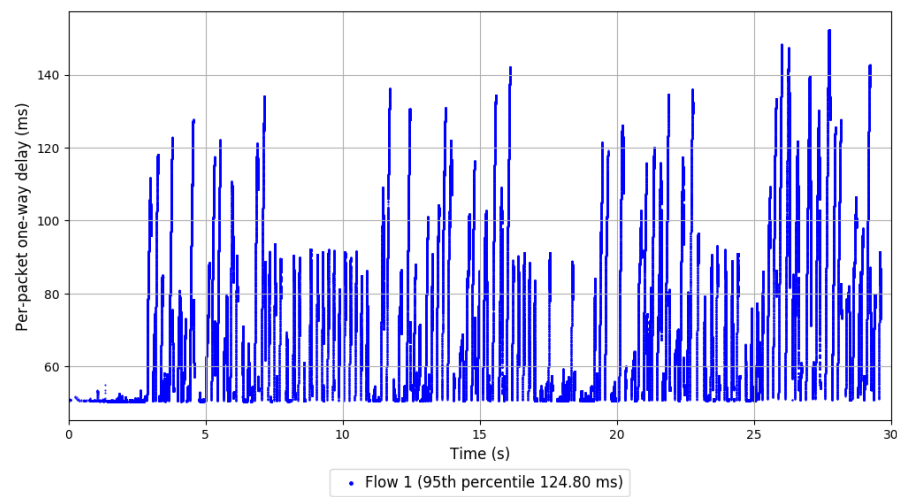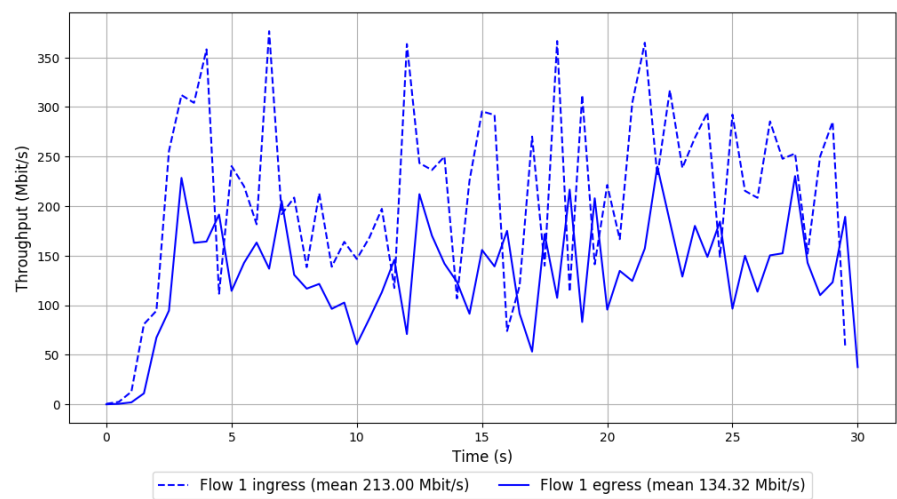
Run 5: Report of Indigo — Data Link

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

Start at: 2018-10-09 18:11:57
End at: 2018-10-09 18:12:27
Local clock offset: -4.776 ms
Remote clock offset: -46.545 ms

# Below is generated by plot.py at 2018-10-09 20:41:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 134.32 Mbit/s
95th percentile per-packet one-way delay: 124.795 ms
Loss rate: 36.89%
-- Flow 1:
Average throughput: 134.32 Mbit/s
95th percentile per-packet one-way delay: 124.795 ms
Loss rate: 36.89%
```

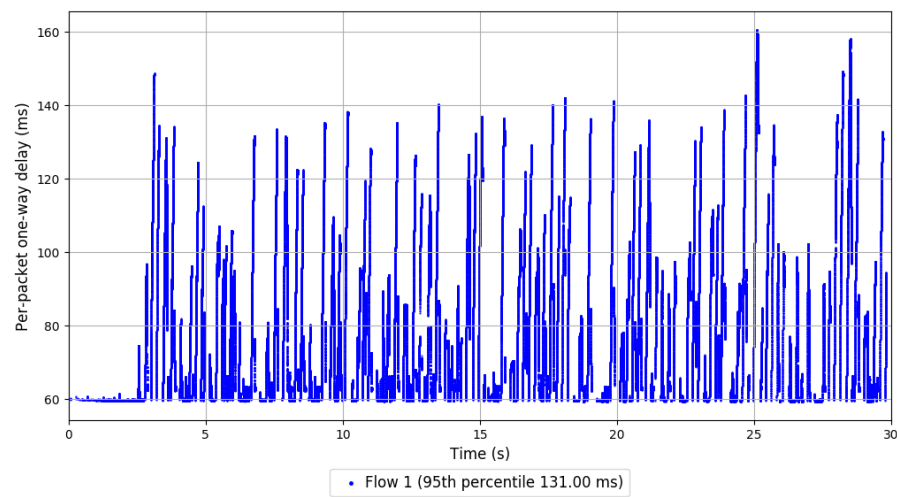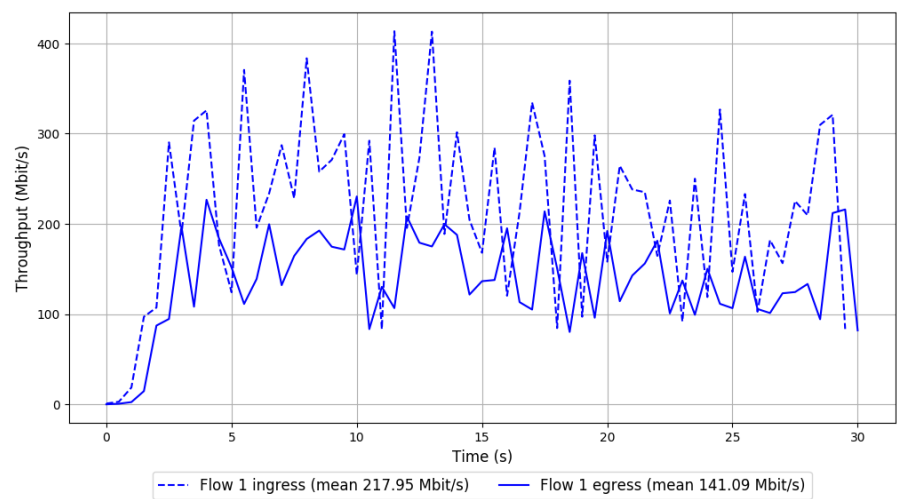Run 1: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-10-09 18:40:41
End at: 2018-10-09 18:41:11
Local clock offset: -10.894 ms
Remote clock offset: -39.33 ms


# Below is generated by plot.py at 2018-10-09 20:41:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 141.09 Mbit/s
95th percentile per-packet one-way delay: 131.005 ms
Loss rate: 35.19%
-- Flow 1:
Average throughput: 141.09 Mbit/s
95th percentile per-packet one-way delay: 131.005 ms
Loss rate: 35.19%
```

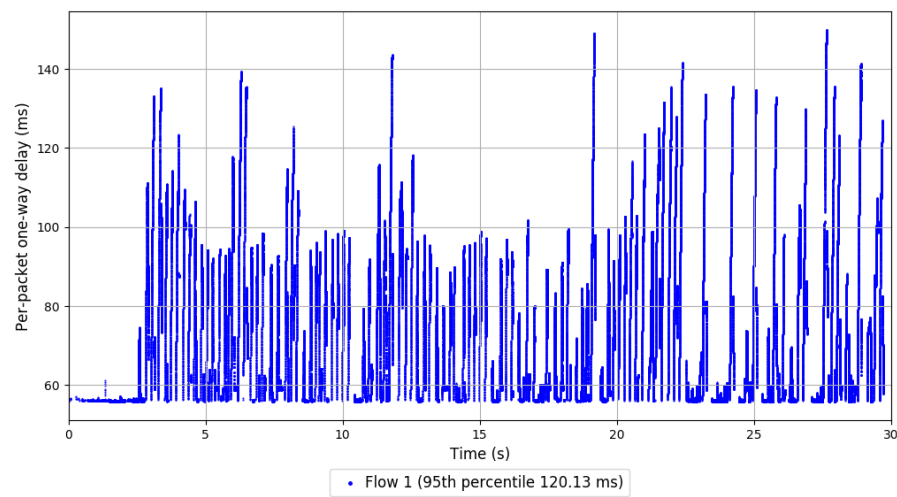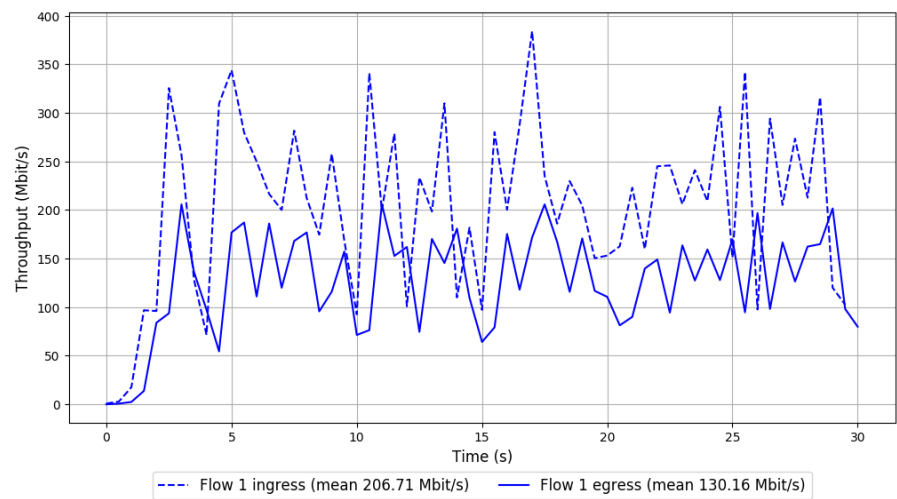Run 2: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-10-09 19:14:45
End at: 2018-10-09 19:15:15
Local clock offset: -6.265 ms
Remote clock offset: -44.941 ms


# Below is generated by plot.py at 2018-10-09 20:41:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 130.16 Mbit/s
95th percentile per-packet one-way delay: 120.130 ms
Loss rate: 37.03%
-- Flow 1:
Average throughput: 130.16 Mbit/s
95th percentile per-packet one-way delay: 120.130 ms
Loss rate: 37.03%
```

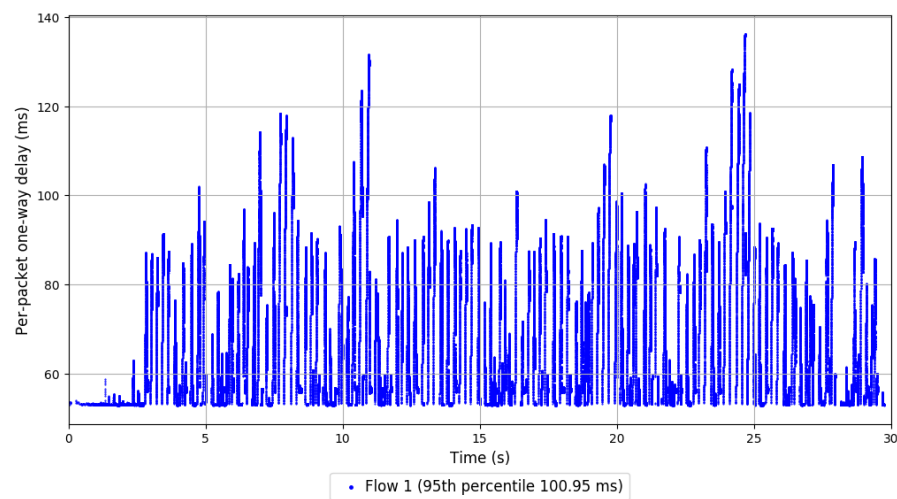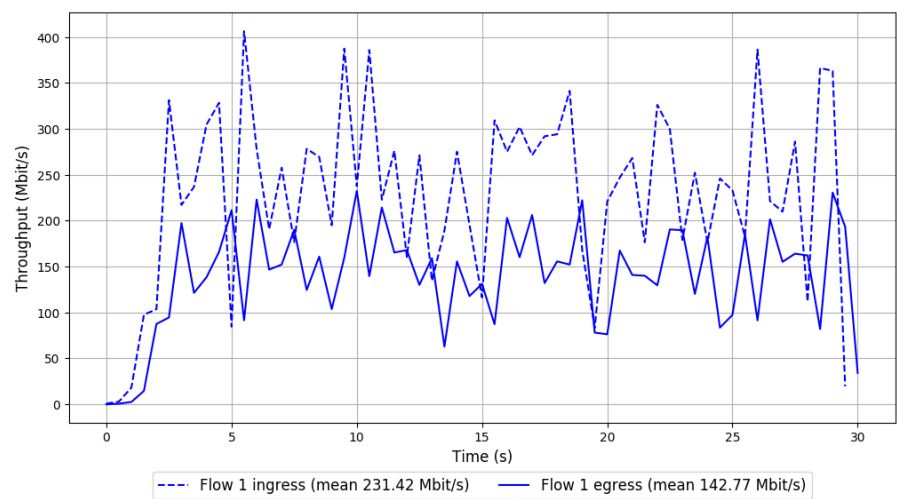Run 3: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-10-09 19:43:30
End at: 2018-10-09 19:44:00
Local clock offset: -2.254 ms
Remote clock offset: -44.748 ms


# Below is generated by plot.py at 2018-10-09 20:41:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 142.77 Mbit/s
95th percentile per-packet one-way delay: 100.949 ms
Loss rate: 38.31%
-- Flow 1:
Average throughput: 142.77 Mbit/s
95th percentile per-packet one-way delay: 100.949 ms
Loss rate: 38.31%
```

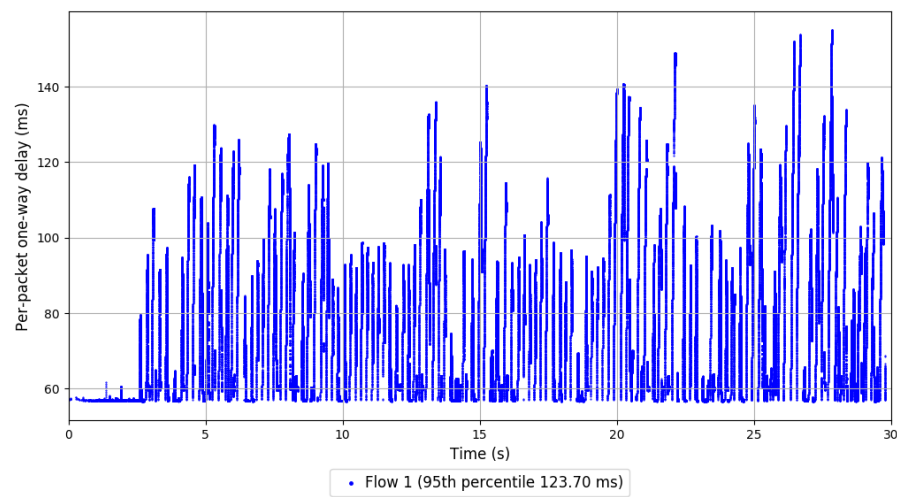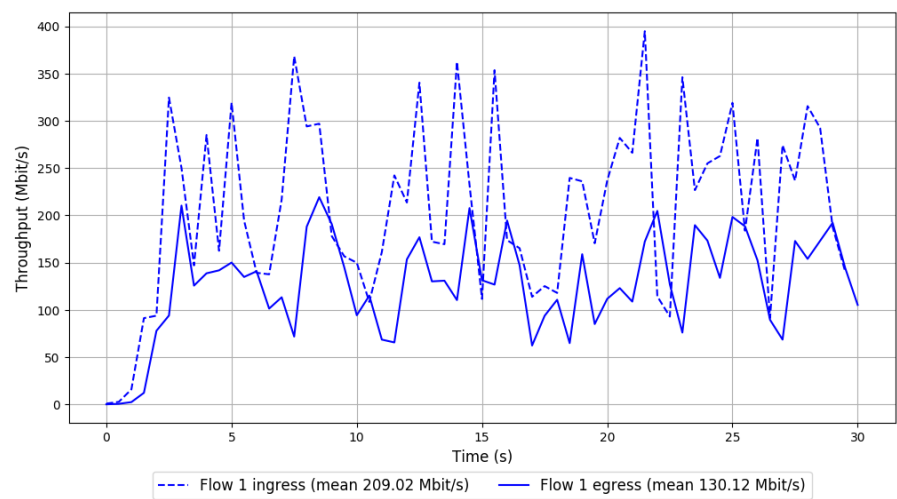# Run 4: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-10-09 20:18:14
End at: 2018-10-09 20:18:44
Local clock offset: -5.078 ms
Remote clock offset: -45.034 ms


# Below is generated by plot.py at 2018-10-09 20:41:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 130.12 Mbit/s
95th percentile per-packet one-way delay: 123.700 ms
Loss rate: 37.73%
-- Flow 1:
Average throughput: 130.12 Mbit/s
95th percentile per-packet one-way delay: 123.700 ms
Loss rate: 37.73%
```

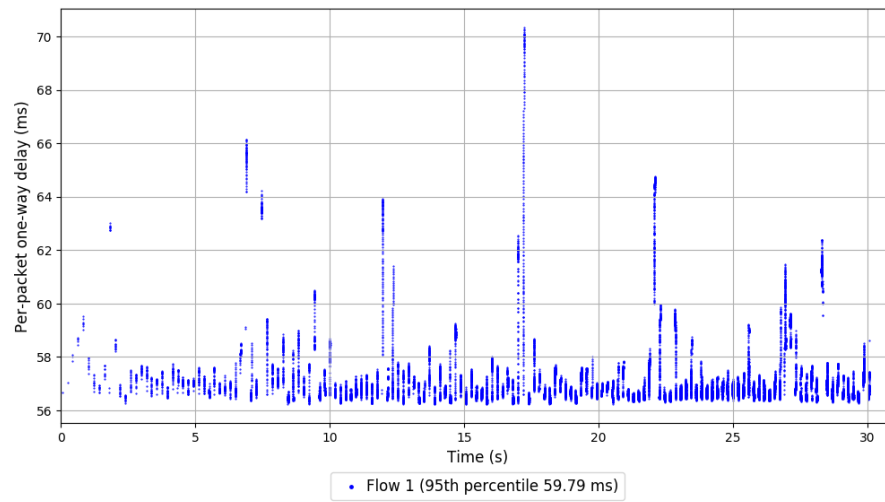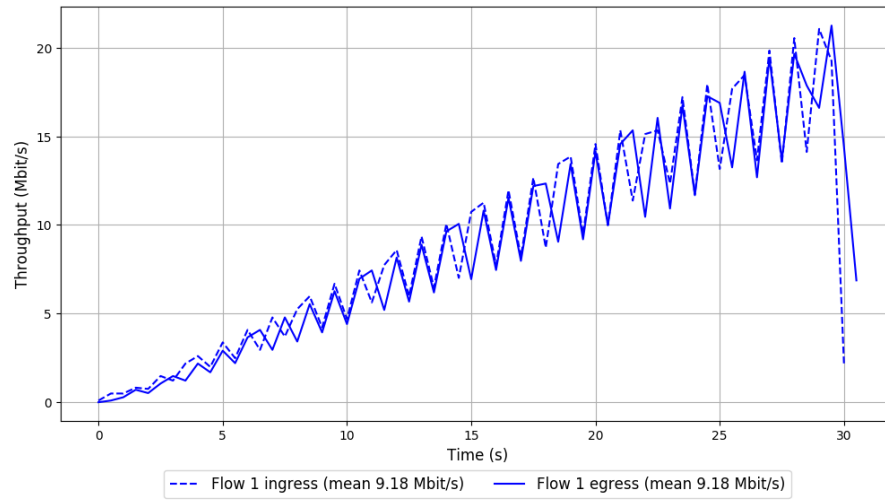Run 5: Report of Indigo-96d2da3 — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2018-10-09 18:14:55
End at: 2018-10-09 18:15:25
Local clock offset: -2.565 ms
Remote clock offset: -39.519 ms


# Below is generated by plot.py at 2018-10-09 20:41:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.18 Mbit/s
95th percentile per-packet one-way delay: 59.793 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 9.18 Mbit/s
95th percentile per-packet one-way delay: 59.793 ms
Loss rate: 0.03%
```

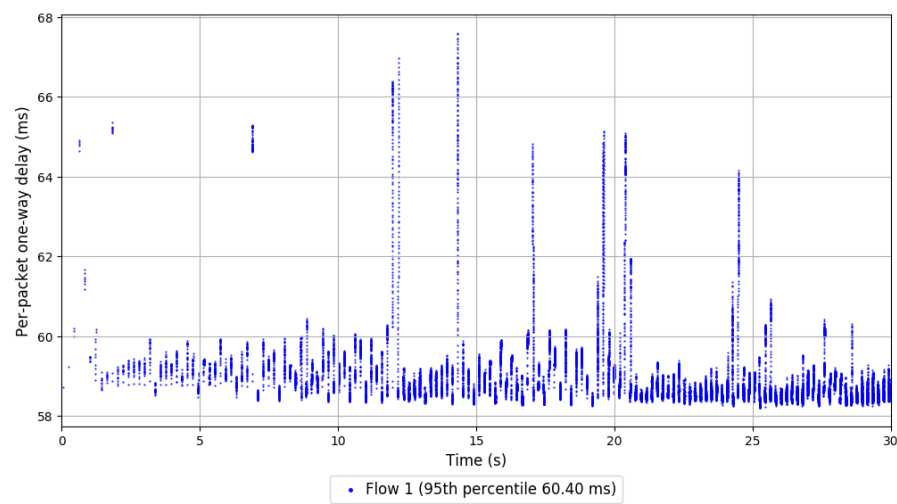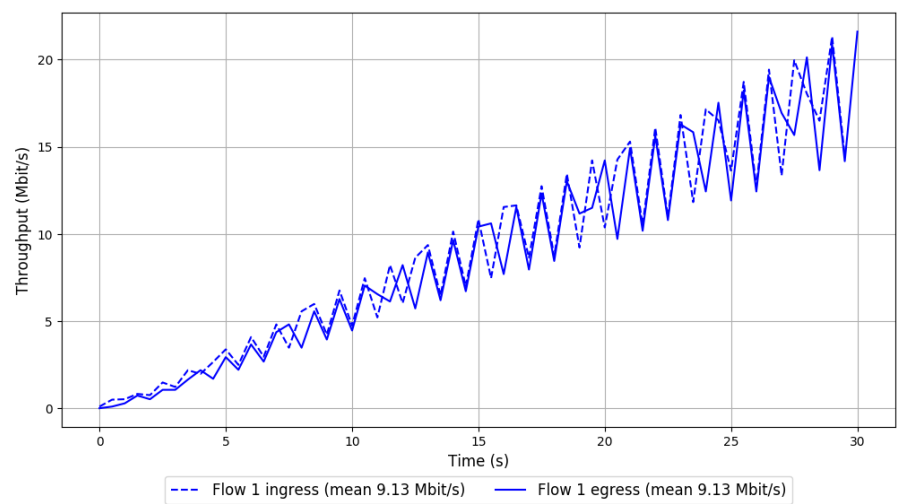Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2018-10-09 18:43:44
End at: 2018-10-09 18:44:14
Local clock offset: -10.599 ms
Remote clock offset: -40.728 ms


# Below is generated by plot.py at 2018-10-09 20:41:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.13 Mbit/s
95th percentile per-packet one-way delay: 60.403 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 9.13 Mbit/s
95th percentile per-packet one-way delay: 60.403 ms
Loss rate: 0.00%
```
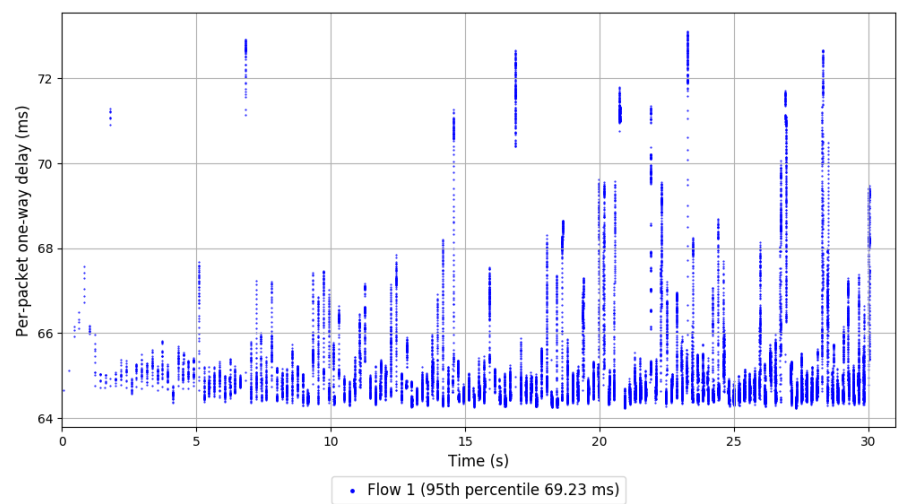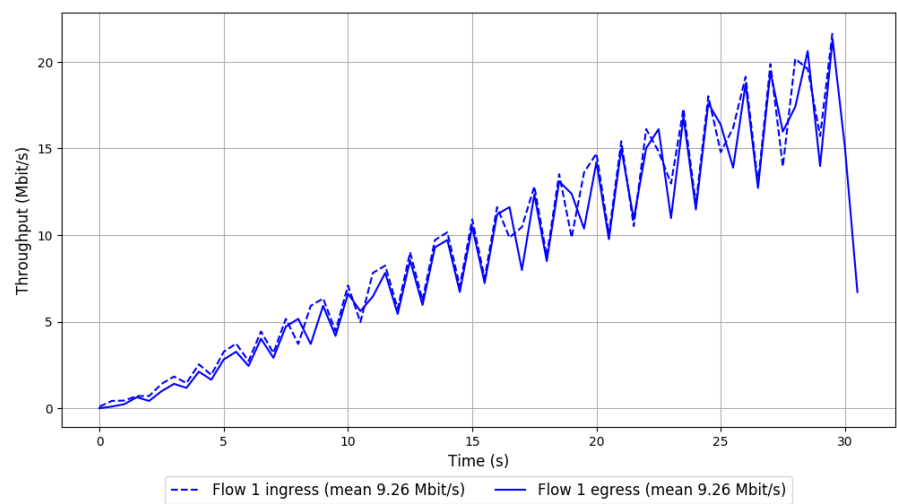
Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2018-10-09 19:17:44
End at: 2018-10-09 19:18:14
Local clock offset: -6.387 ms
Remote clock offset: -33.407 ms


# Below is generated by plot.py at 2018-10-09 20:41:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.26 Mbit/s
95th percentile per-packet one-way delay: 69.227 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 9.26 Mbit/s
95th percentile per-packet one-way delay: 69.227 ms
Loss rate: 0.00%
```

Run 3: Report of LEDBAT — Data Link

Flow 1 ingress (mean 9.26 Mbit/s)   Flow 1 egress (mean 9.26 Mbit/s)

Flow 1 (95th percentile 69.23 ms)

```
Run 4: Statistics of LEDBAT

Start at: 2018-10-09 19:46:33
End at: 2018-10-09 19:47:03
Local clock offset: -3.311 ms
Remote clock offset: -34.197 ms


# Below is generated by plot.py at 2018-10-09 20:41:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.35 Mbit/s
95th percentile per-packet one-way delay: 67.947 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 9.35 Mbit/s
95th percentile per-packet one-way delay: 67.947 ms
Loss rate: 0.00%
```
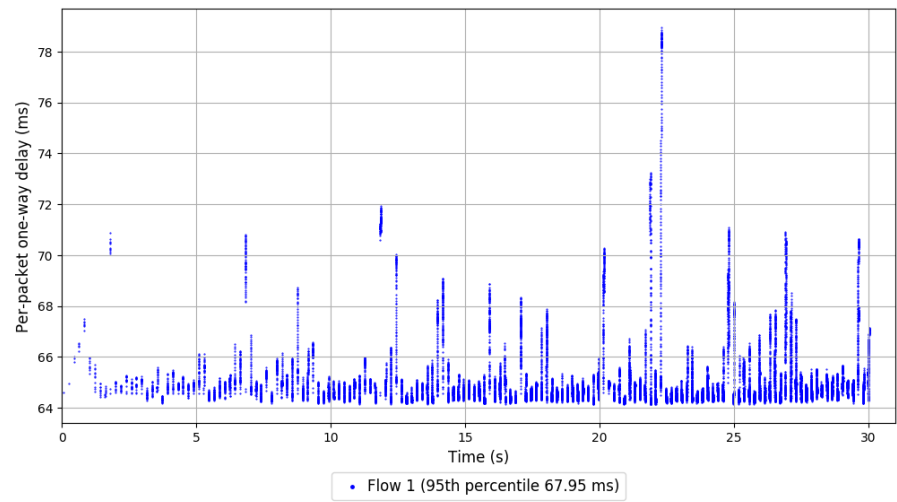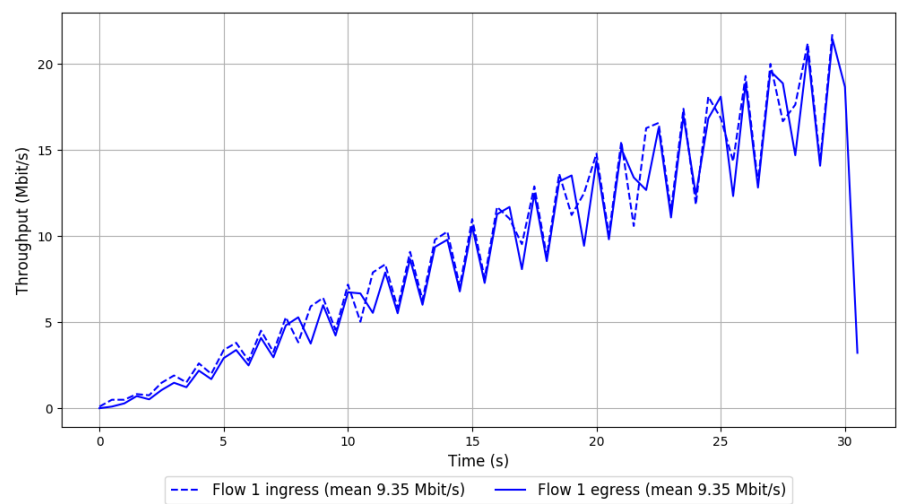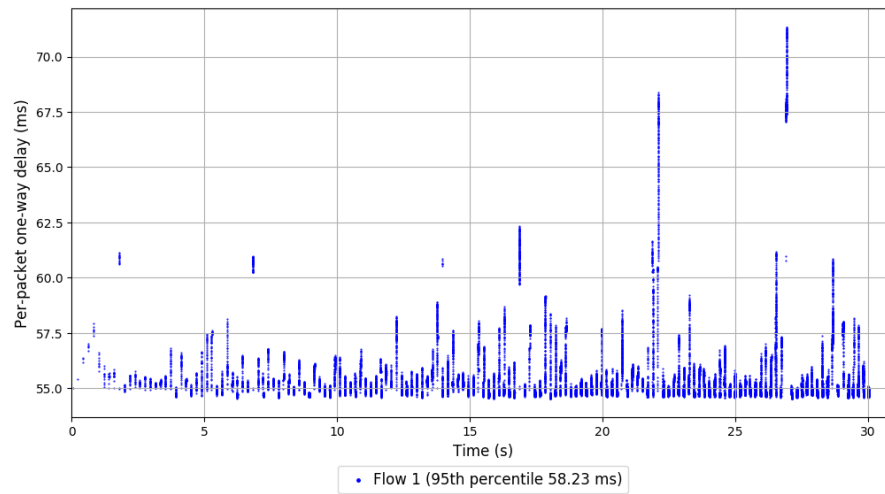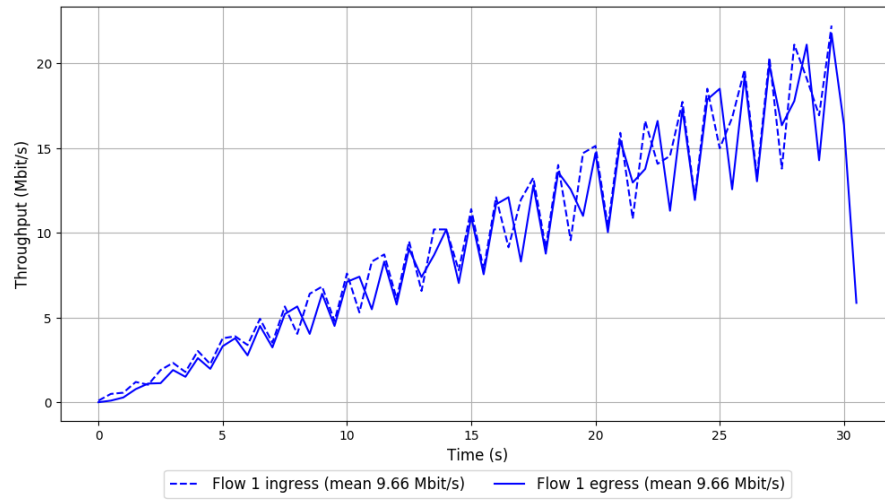
Run 4: Report of LEDBAT — Data Link

```
Run 5: Statistics of LEDBAT

Start at: 2018-10-09 20:21:13
End at: 2018-10-09 20:21:43
Local clock offset: -3.539 ms
Remote clock offset: -43.115 ms


# Below is generated by plot.py at 2018-10-09 20:41:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.66 Mbit/s
95th percentile per-packet one-way delay: 58.228 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 9.66 Mbit/s
95th percentile per-packet one-way delay: 58.228 ms
Loss rate: 0.00%
```

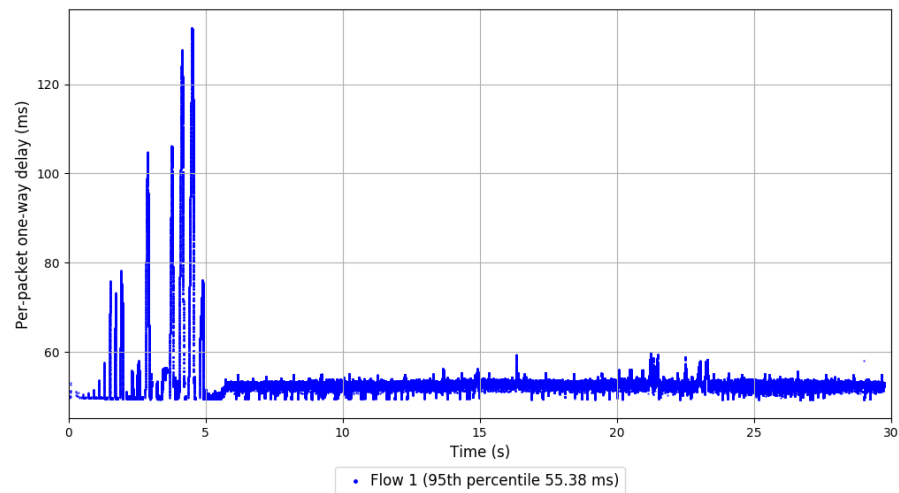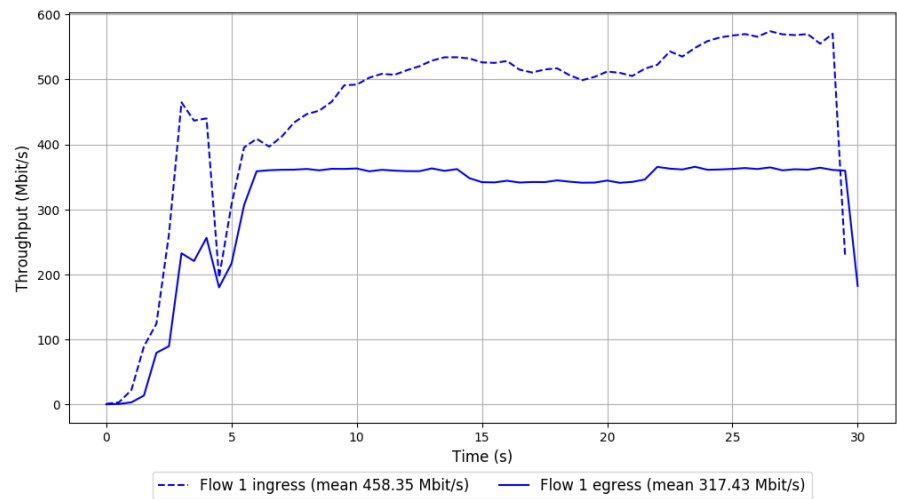Run 5: Report of LEDBAT — Data Link

```
Run 1: Statistics of Indigo-Muses

Start at: 2018-10-09 18:19:43
End at: 2018-10-09 18:20:13
Local clock offset: -3.421 ms
Remote clock offset: -46.152 ms


# Below is generated by plot.py at 2018-10-09 20:45:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 317.43 Mbit/s
95th percentile per-packet one-way delay: 55.385 ms
Loss rate: 30.74%
-- Flow 1:
Average throughput: 317.43 Mbit/s
95th percentile per-packet one-way delay: 55.385 ms
Loss rate: 30.74%
```
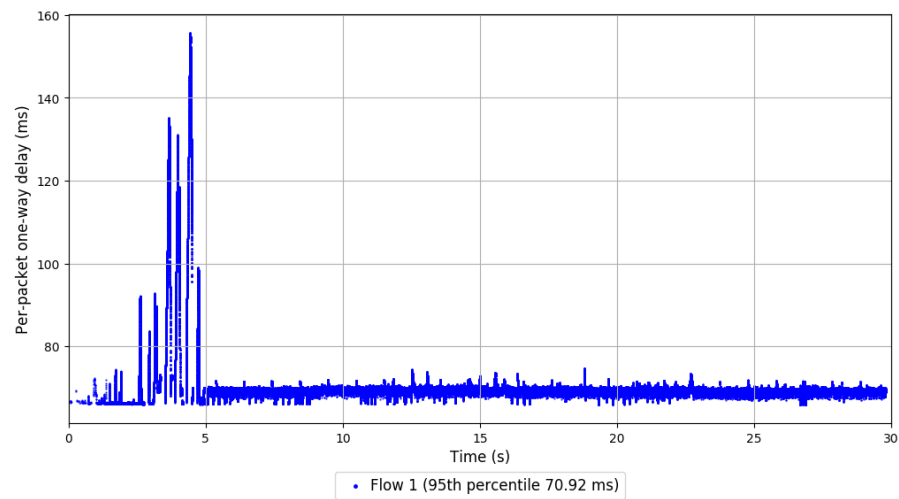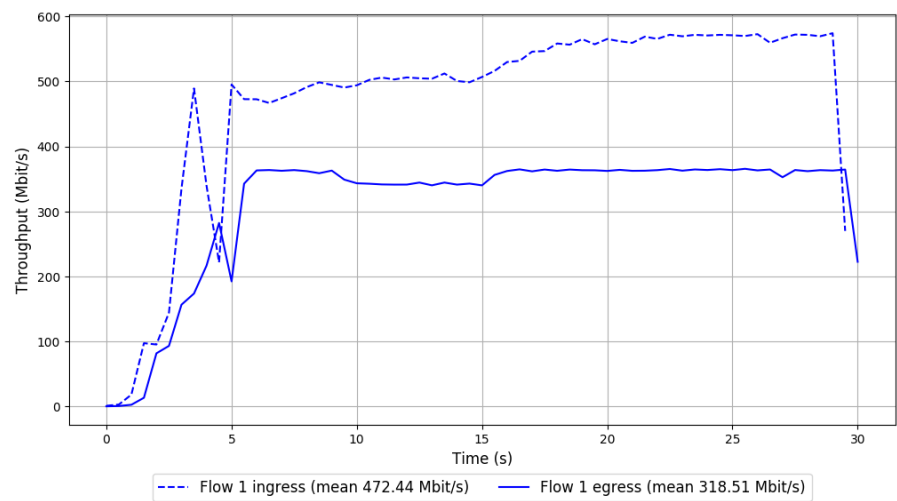
Run 1: Report of Indigo-Muses — Data Link

```
Run 2: Statistics of Indigo-Muses

Start at: 2018-10-09 18:48:36
End at: 2018-10-09 18:49:06
Local clock offset: -13.541 ms
Remote clock offset: -33.748 ms


# Below is generated by plot.py at 2018-10-09 20:45:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 318.51 Mbit/s
95th percentile per-packet one-way delay: 70.925 ms
Loss rate: 32.58%
-- Flow 1:
Average throughput: 318.51 Mbit/s
95th percentile per-packet one-way delay: 70.925 ms
Loss rate: 32.58%
```

Run 2: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 472.44 Mbit/s)   Flow 1 egress (mean 318.51 Mbit/s)
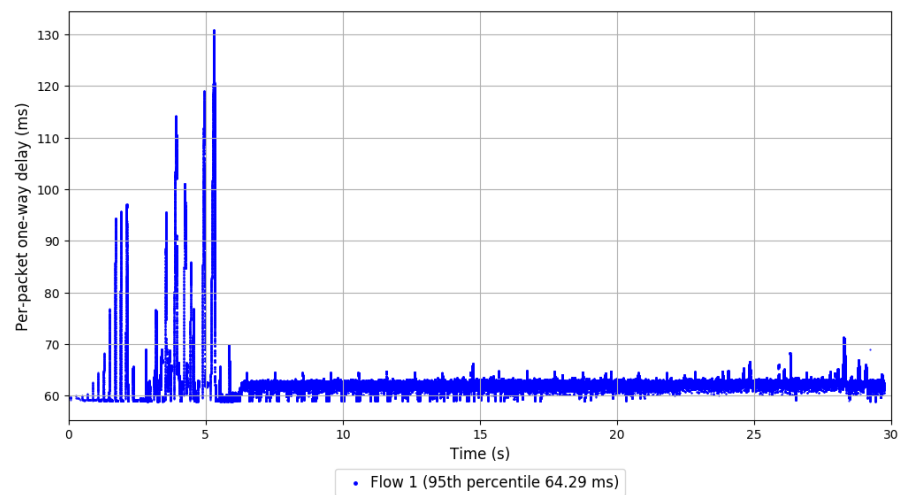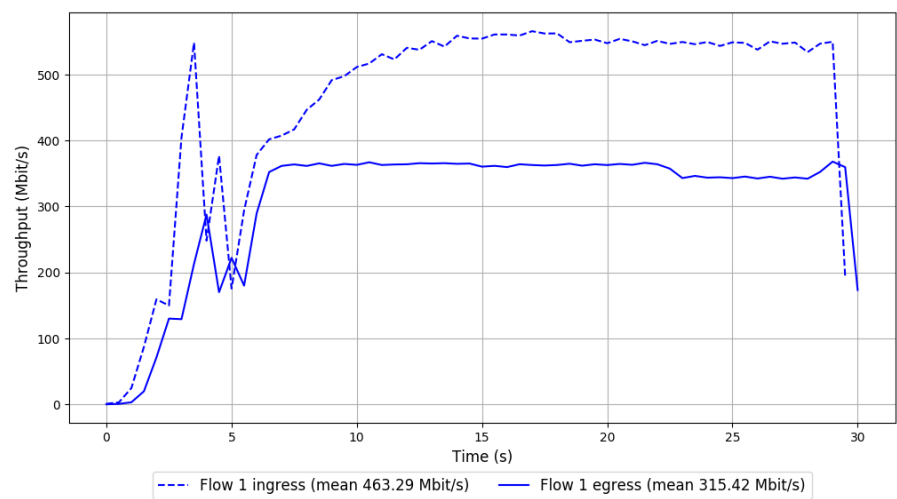

Flow 1 (95th percentile 70.92 ms)

```
Run 3: Statistics of Indigo-Muses

Start at: 2018-10-09 19:22:26
End at: 2018-10-09 19:22:56
Local clock offset: -7.446 ms
Remote clock offset: -38.861 ms

# Below is generated by plot.py at 2018-10-09 20:45:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 315.42 Mbit/s
95th percentile per-packet one-way delay: 64.294 ms
Loss rate: 31.91%
-- Flow 1:
Average throughput: 315.42 Mbit/s
95th percentile per-packet one-way delay: 64.294 ms
Loss rate: 31.91%
```
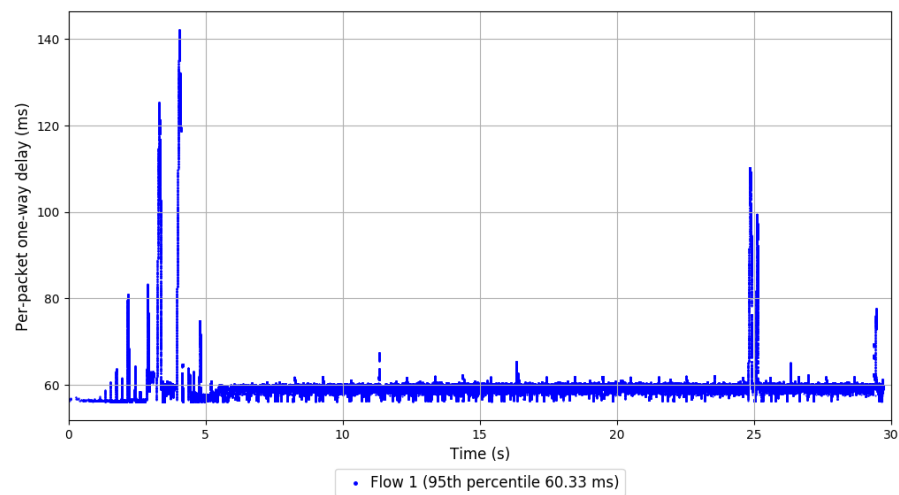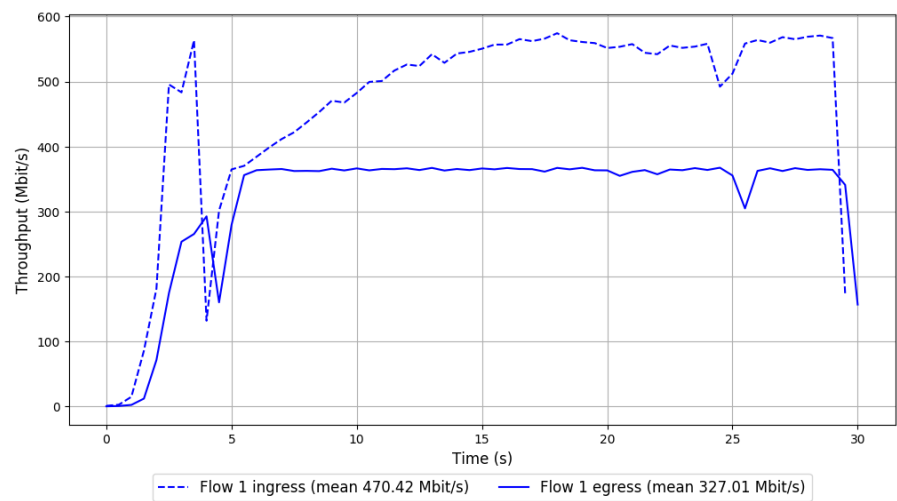
Run 3: Report of Indigo-Muses — Data Link

```
Run 4: Statistics of Indigo-Muses

Start at: 2018-10-09 19:57:11
End at: 2018-10-09 19:57:41
Local clock offset: -3.721 ms
Remote clock offset: -45.026 ms


# Below is generated by plot.py at 2018-10-09 20:46:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 327.01 Mbit/s
95th percentile per-packet one-way delay: 60.332 ms
Loss rate: 30.51%
-- Flow 1:
Average throughput: 327.01 Mbit/s
95th percentile per-packet one-way delay: 60.332 ms
Loss rate: 30.51%
```
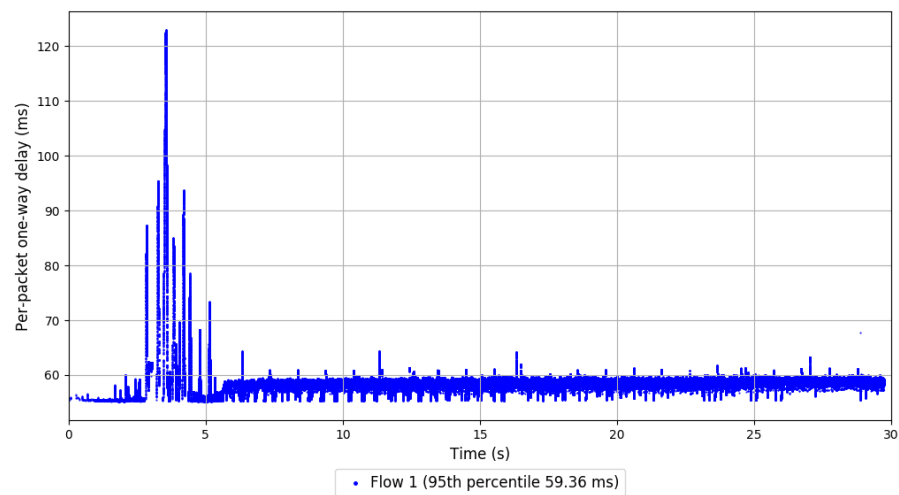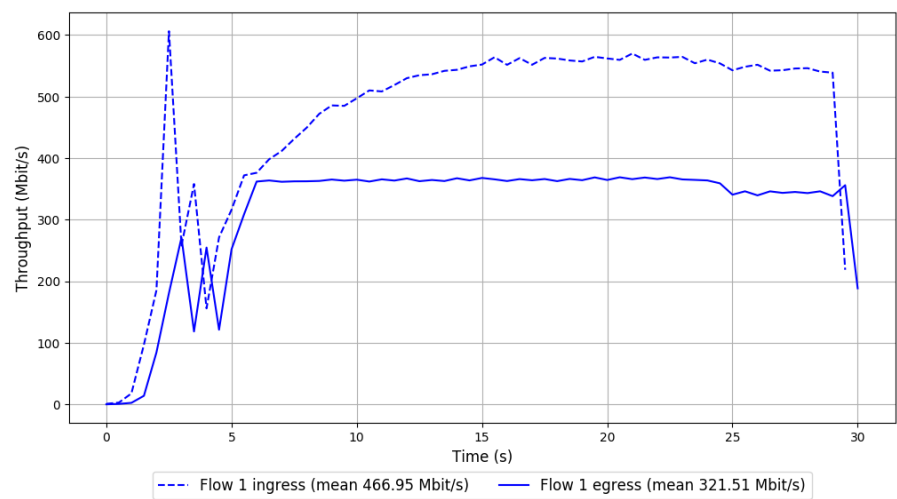
Run 4: Report of Indigo-Muses — Data Link

```
Run 5: Statistics of Indigo-Muses

Start at: 2018-10-09 20:26:00
End at: 2018-10-09 20:26:30
Local clock offset: -2.624 ms
Remote clock offset: -44.761 ms


# Below is generated by plot.py at 2018-10-09 20:46:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 321.51 Mbit/s
95th percentile per-packet one-way delay: 59.359 ms
Loss rate: 31.14%
-- Flow 1:
Average throughput: 321.51 Mbit/s
95th percentile per-packet one-way delay: 59.359 ms
Loss rate: 31.14%
```
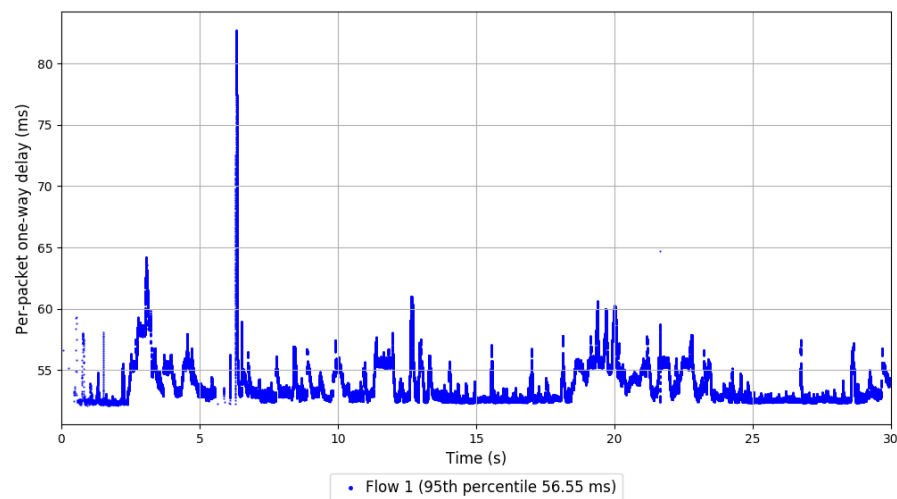
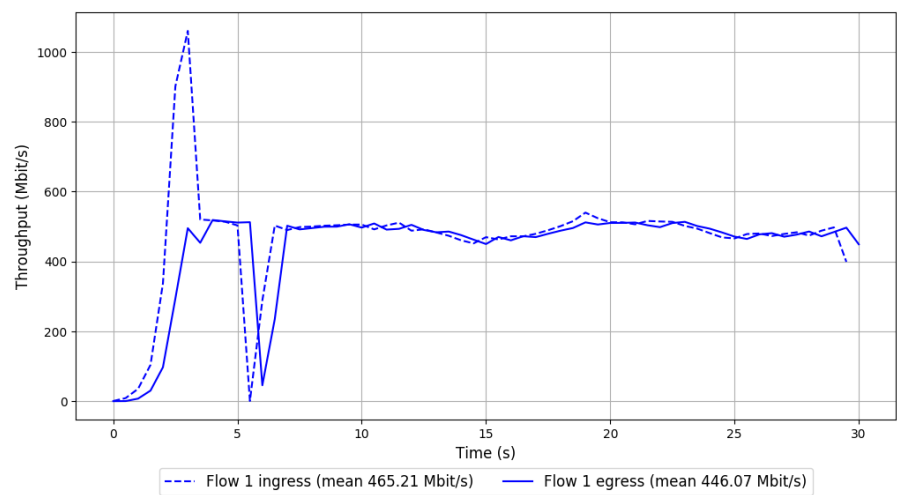Run 5: Report of Indigo-Muses — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2018-10-09 18:04:40
End at: 2018-10-09 18:05:10
Local clock offset: -2.76 ms
Remote clock offset: -46.547 ms


# Below is generated by plot.py at 2018-10-09 20:47:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 446.07 Mbit/s
95th percentile per-packet one-way delay: 56.552 ms
Loss rate: 4.12%
-- Flow 1:
Average throughput: 446.07 Mbit/s
95th percentile per-packet one-way delay: 56.552 ms
Loss rate: 4.12%
```

Run 1: Report of PCC-Allegro — Data Link

```
Run 2: Statistics of PCC-Allegro

Start at: 2018-10-09 18:33:20
End at: 2018-10-09 18:33:50
Local clock offset: -8.171 ms
Remote clock offset: -48.907 ms


# Below is generated by plot.py at 2018-10-09 20:47:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 467.20 Mbit/s
95th percentile per-packet one-way delay: 52.859 ms
Loss rate: 3.96%
-- Flow 1:
Average throughput: 467.20 Mbit/s
95th percentile per-packet one-way delay: 52.859 ms
Loss rate: 3.96%
```
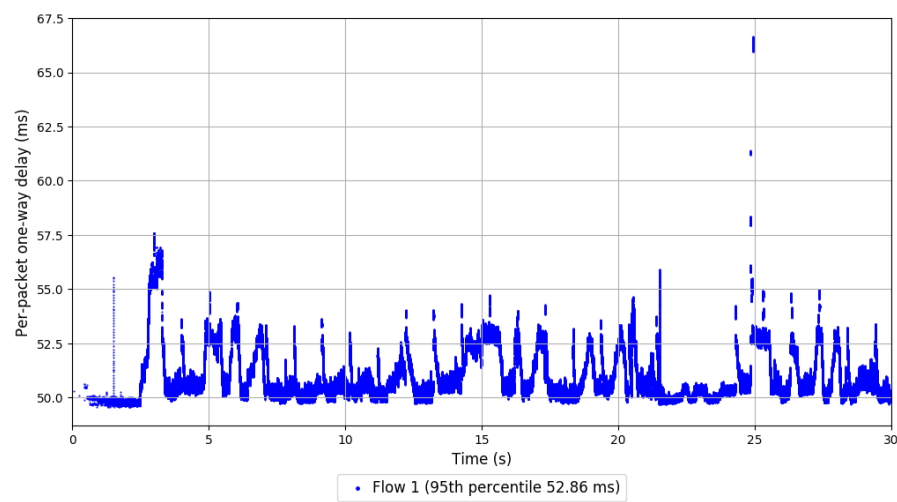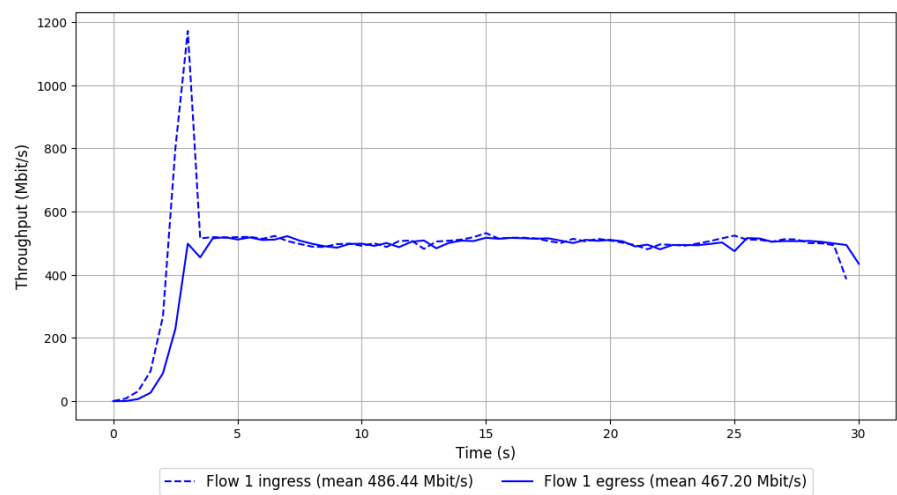
Run 2: Report of PCC-Allegro — Data Link

```
Run 3: Statistics of PCC-Allegro

Start at: 2018-10-09 19:01:55
End at: 2018-10-09 19:02:25
Local clock offset: -7.113 ms
Remote clock offset: -38.929 ms


# Below is generated by plot.py at 2018-10-09 20:47:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 451.23 Mbit/s
95th percentile per-packet one-way delay: 63.330 ms
Loss rate: 3.94%
-- Flow 1:
Average throughput: 451.23 Mbit/s
95th percentile per-packet one-way delay: 63.330 ms
Loss rate: 3.94%
```
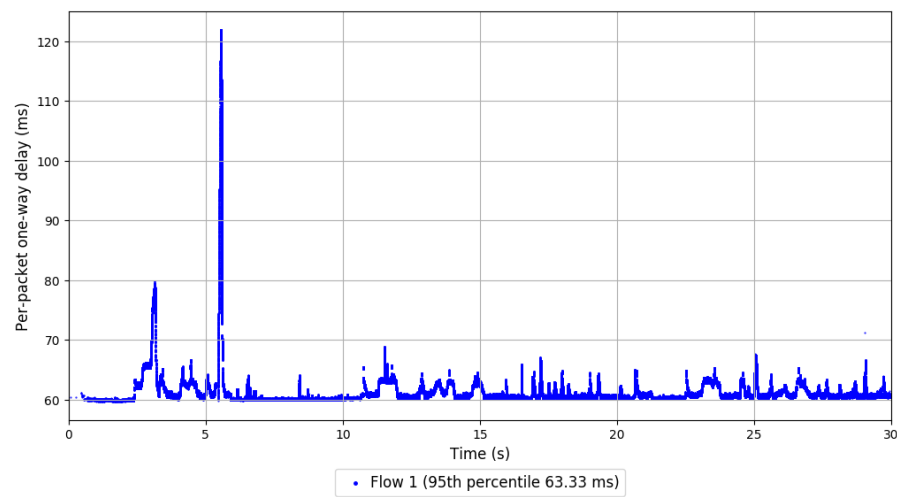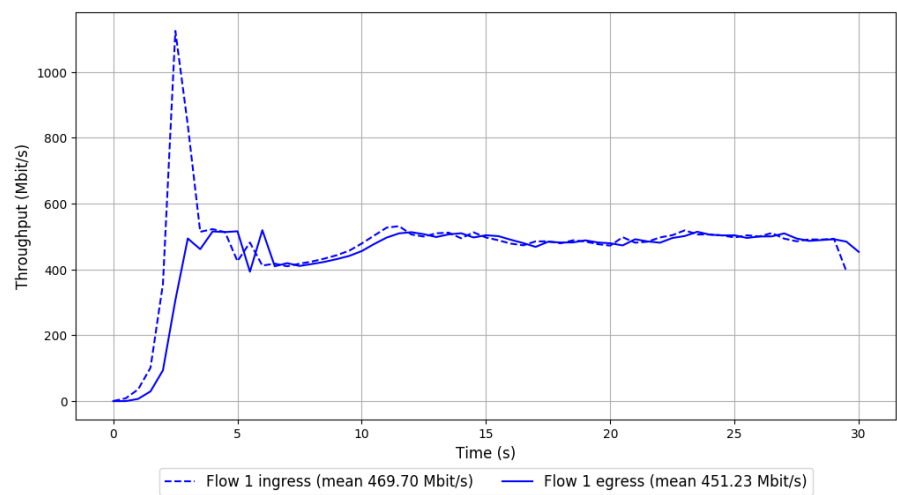
Run 3: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 469.70 Mbit/s)   Flow 1 egress (mean 451.23 Mbit/s)

• Flow 1 (95th percentile 63.33 ms)

```
Run 4: Statistics of PCC-Allegro

Start at: 2018-10-09 19:35:52
End at: 2018-10-09 19:36:22
Local clock offset: -2.867 ms
Remote clock offset: -36.172 ms


# Below is generated by plot.py at 2018-10-09 20:50:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 465.86 Mbit/s
95th percentile per-packet one-way delay: 64.913 ms
Loss rate: 3.64%
-- Flow 1:
Average throughput: 465.86 Mbit/s
95th percentile per-packet one-way delay: 64.913 ms
Loss rate: 3.64%
```
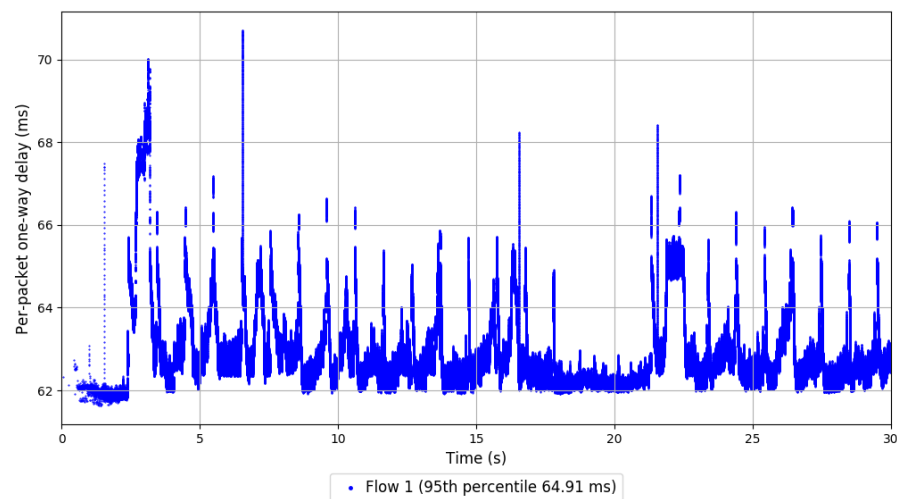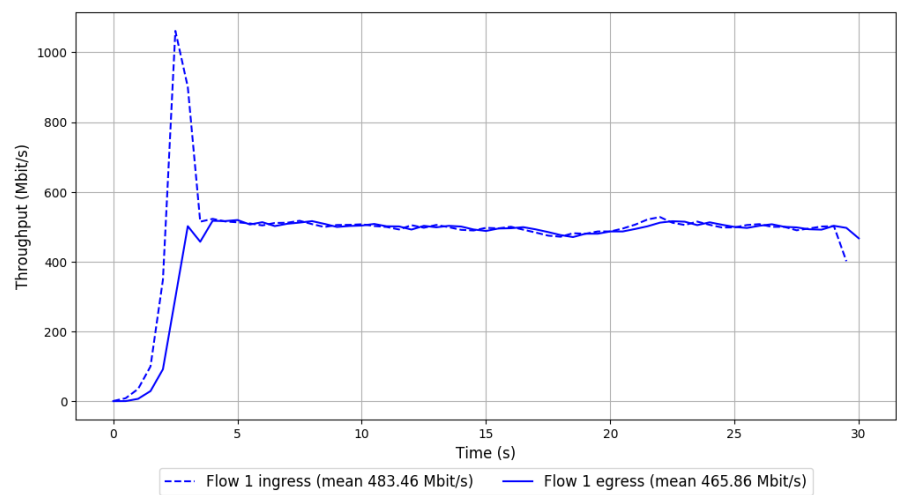
Run 4: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 483.46 Mbit/s) —— Flow 1 egress (mean 465.86 Mbit/s)

• Flow 1 (95th percentile 64.91 ms)

```
Run 5: Statistics of PCC-Allegro

Start at: 2018-10-09 20:10:37
End at: 2018-10-09 20:11:07
Local clock offset: -2.477 ms
Remote clock offset: -42.694 ms


# Below is generated by plot.py at 2018-10-09 20:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 460.02 Mbit/s
95th percentile per-packet one-way delay: 58.101 ms
Loss rate: 3.76%
-- Flow 1:
Average throughput: 460.02 Mbit/s
95th percentile per-packet one-way delay: 58.101 ms
Loss rate: 3.76%
```
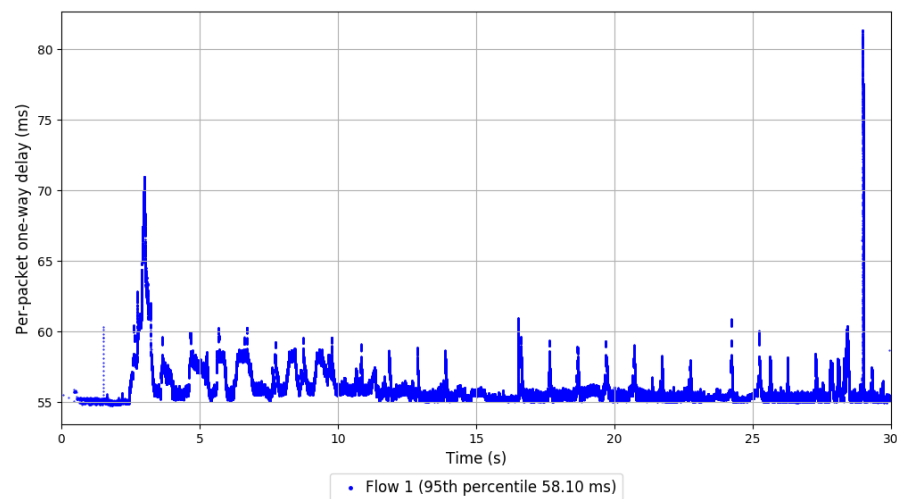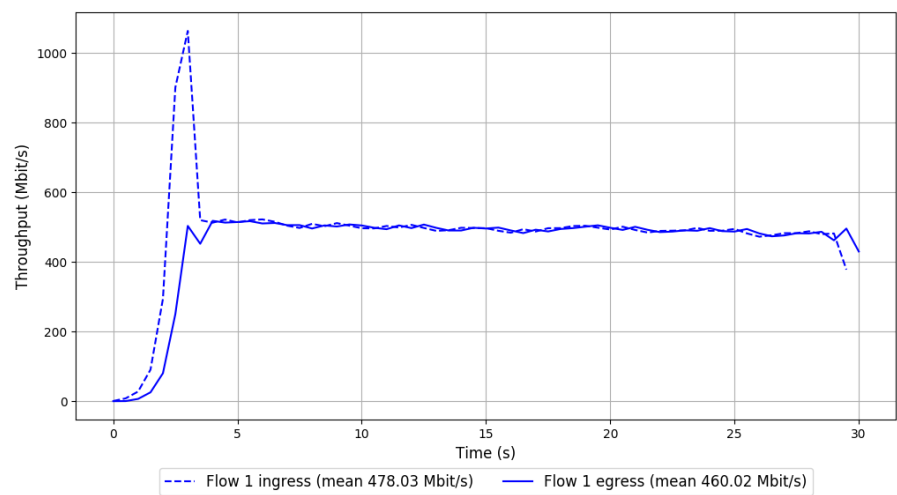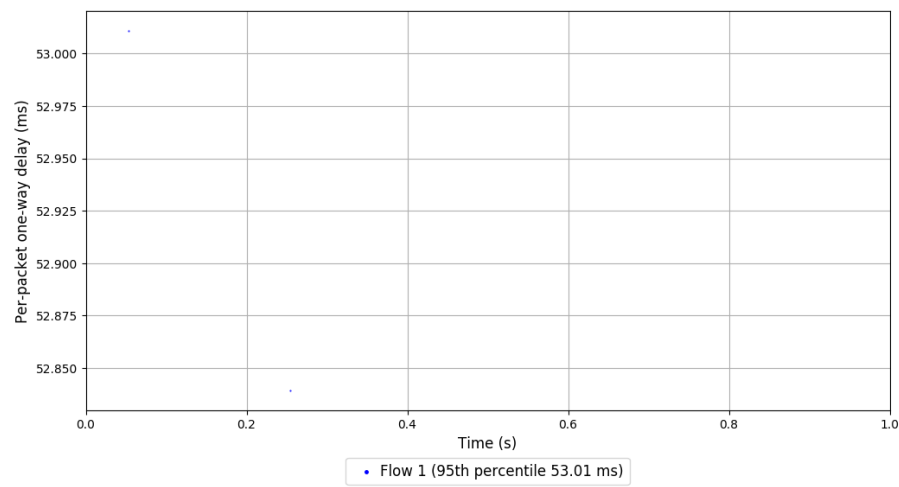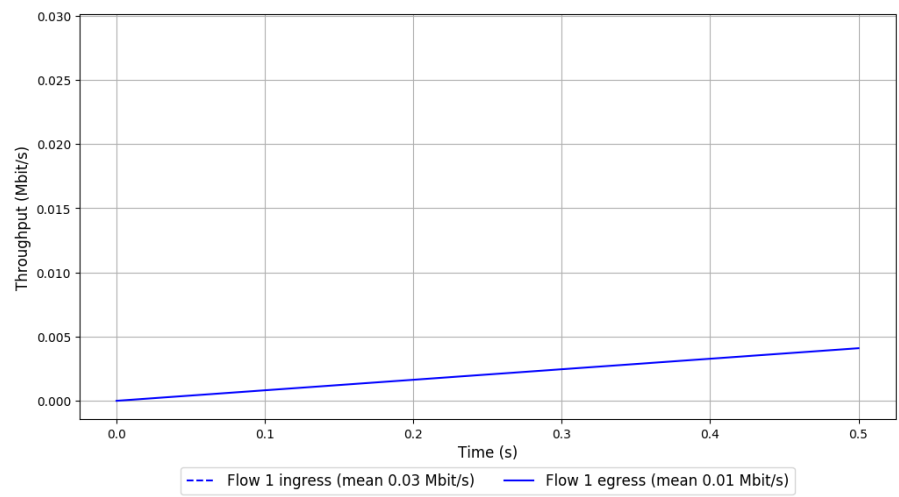
Run 5: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 478.03 Mbit/s)   Flow 1 egress (mean 460.02 Mbit/s)

• Flow 1 (95th percentile 58.10 ms)

94

```
Run 1: Statistics of PCC-Expr

Start at: 2018-10-09 18:02:20
End at: 2018-10-09 18:02:50
Local clock offset: -2.482 ms
Remote clock offset: -46.108 ms
```

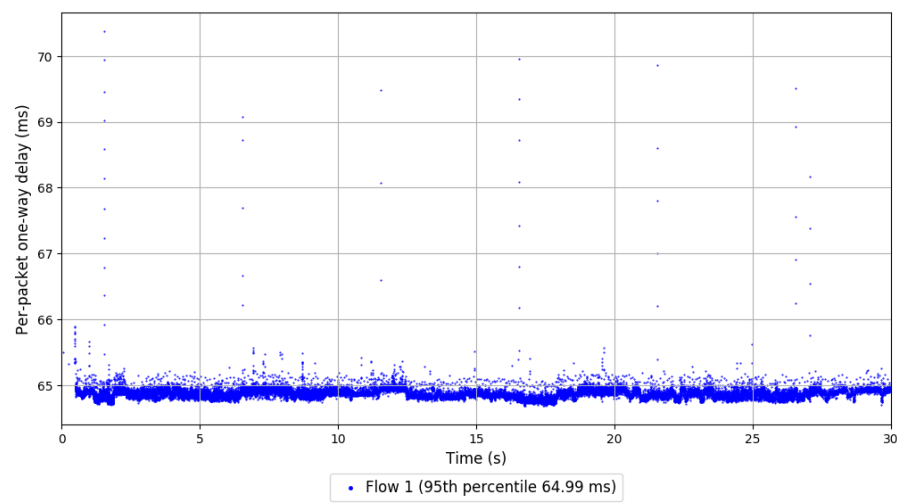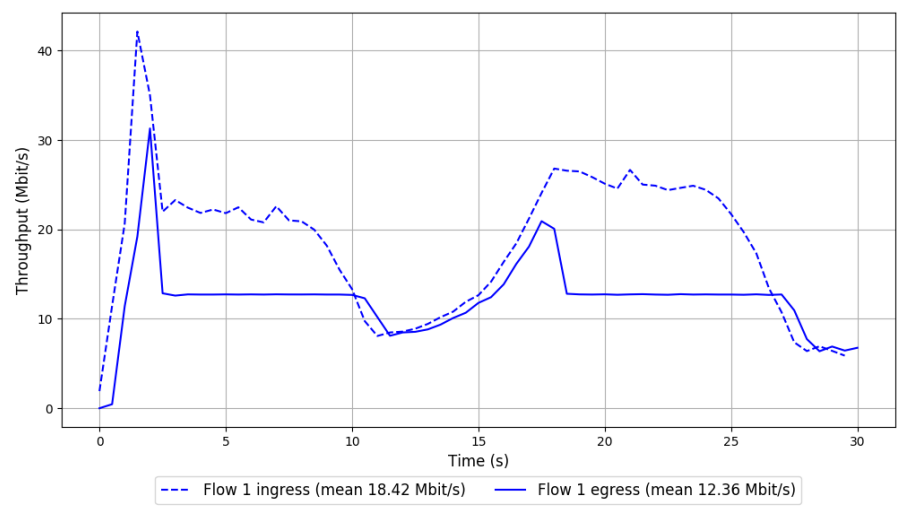# Run 1: Report of PCC-Expr — Data Link

```
Run 2: Statistics of PCC-Expr

Start at: 2018-10-09 18:30:57
End at: 2018-10-09 18:31:27
Local clock offset: -8.571 ms
Remote clock offset: -34.545 ms


# Below is generated by plot.py at 2018-10-09 20:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.36 Mbit/s
95th percentile per-packet one-way delay: 64.986 ms
Loss rate: 32.93%
-- Flow 1:
Average throughput: 12.36 Mbit/s
95th percentile per-packet one-way delay: 64.986 ms
Loss rate: 32.93%
```

Run 2: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 18.42 Mbit/s) --- Flow 1 egress (mean 12.36 Mbit/s)
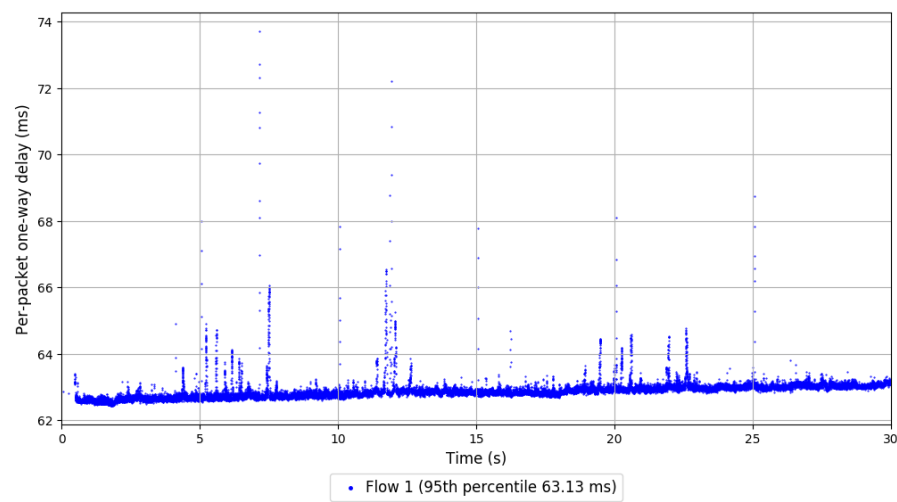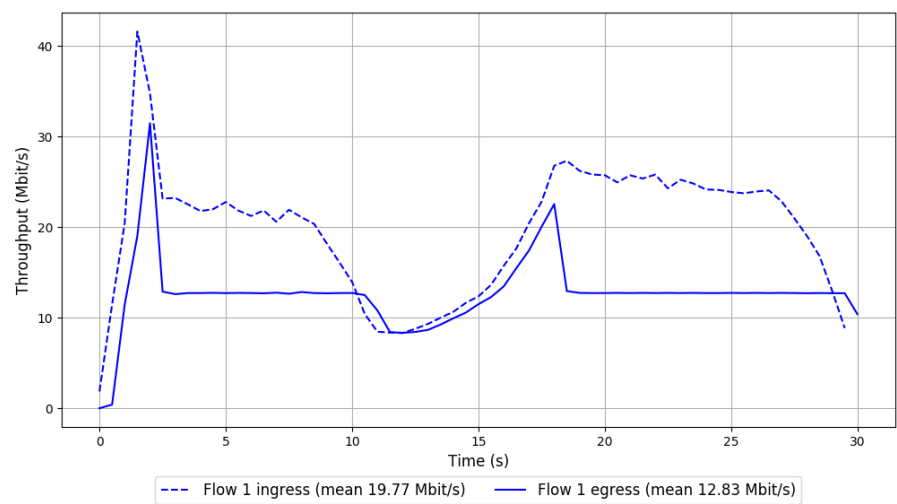

• Flow 1 (95th percentile 64.99 ms)

```
Run 3: Statistics of PCC-Expr

Start at: 2018-10-09 18:59:32
End at: 2018-10-09 19:00:02
Local clock offset: -10.696 ms
Remote clock offset: -36.048 ms


# Below is generated by plot.py at 2018-10-09 20:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.83 Mbit/s
95th percentile per-packet one-way delay: 63.132 ms
Loss rate: 35.10%
-- Flow 1:
Average throughput: 12.83 Mbit/s
95th percentile per-packet one-way delay: 63.132 ms
Loss rate: 35.10%
```
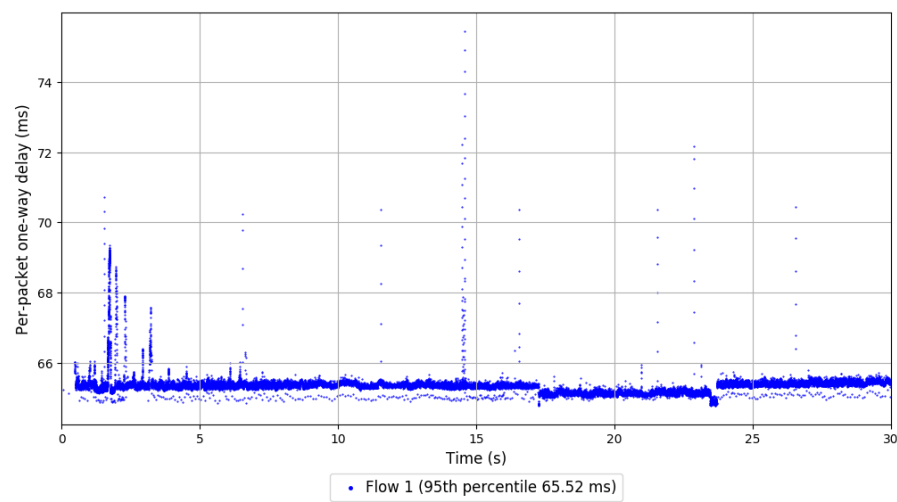
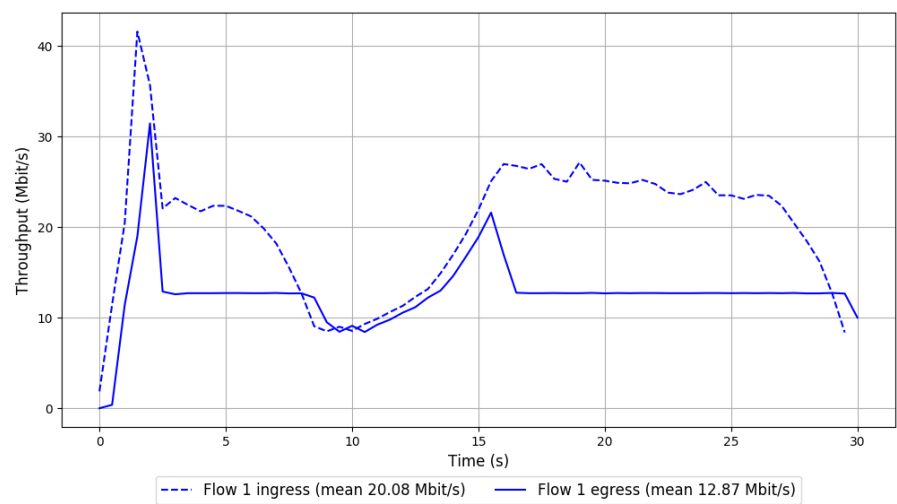# Run 3: Report of PCC-Expr — Data Link

```
Run 4: Statistics of PCC-Expr

Start at: 2018-10-09 19:33:28
End at: 2018-10-09 19:33:58
Local clock offset: -2.737 ms
Remote clock offset: -32.55 ms


# Below is generated by plot.py at 2018-10-09 20:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.87 Mbit/s
95th percentile per-packet one-way delay: 65.521 ms
Loss rate: 35.87%
-- Flow 1:
Average throughput: 12.87 Mbit/s
95th percentile per-packet one-way delay: 65.521 ms
Loss rate: 35.87%
```

Run 4: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 20.08 Mbit/s) Flow 1 egress (mean 12.87 Mbit/s)

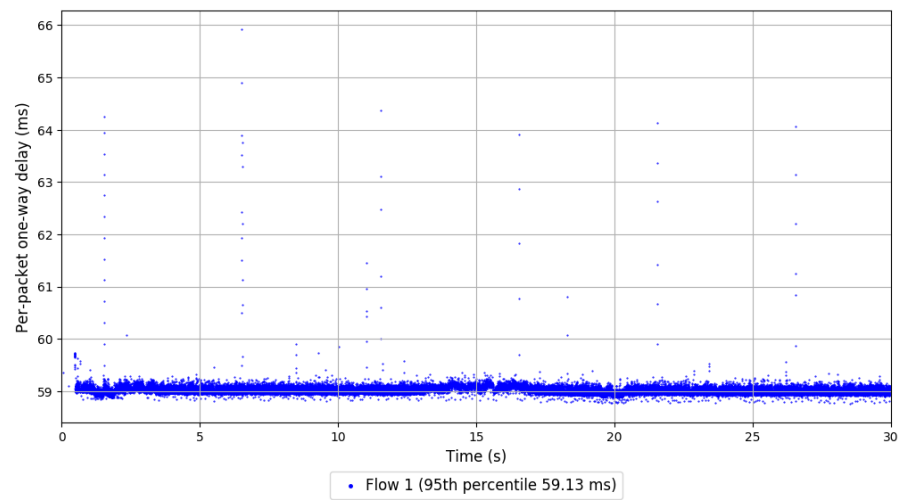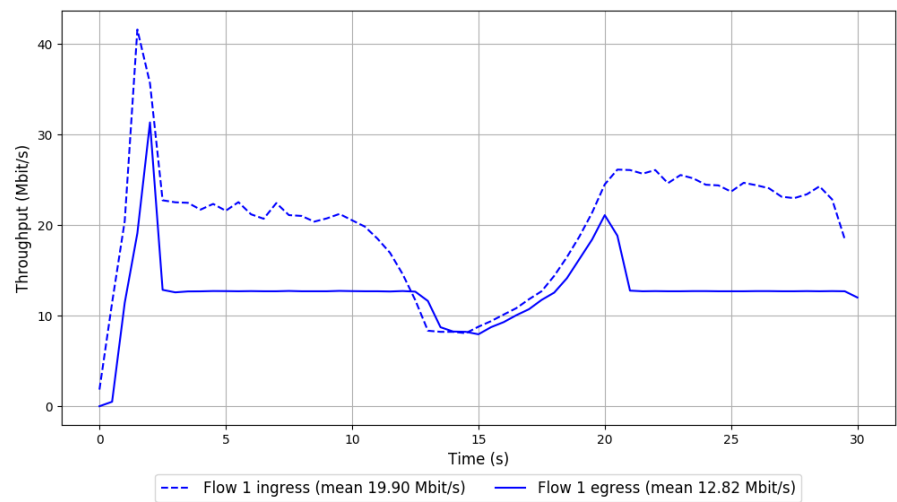
• Flow 1 (95th percentile 65.52 ms)

```
Run 5: Statistics of PCC-Expr

Start at: 2018-10-09 20:08:13
End at: 2018-10-09 20:08:43
Local clock offset: -1.271 ms
Remote clock offset: -37.812 ms


# Below is generated by plot.py at 2018-10-09 20:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.82 Mbit/s
95th percentile per-packet one-way delay: 59.135 ms
Loss rate: 35.59%
-- Flow 1:
Average throughput: 12.82 Mbit/s
95th percentile per-packet one-way delay: 59.135 ms
Loss rate: 35.59%
```
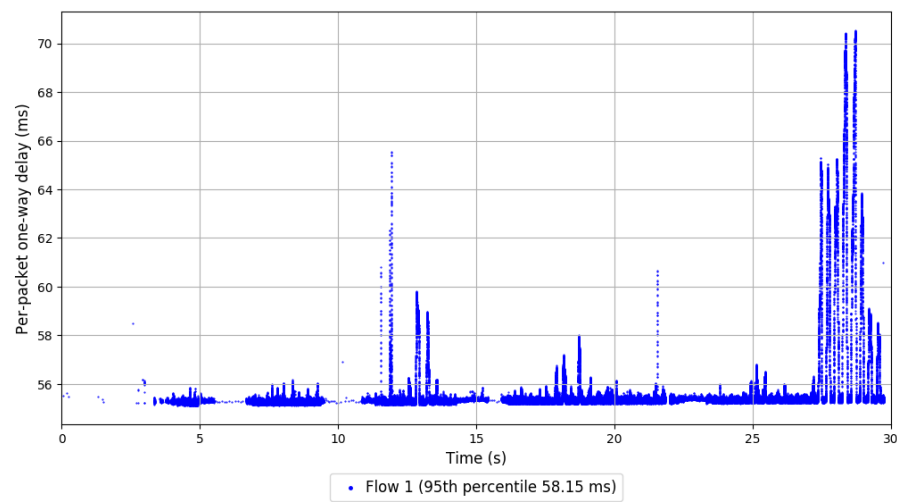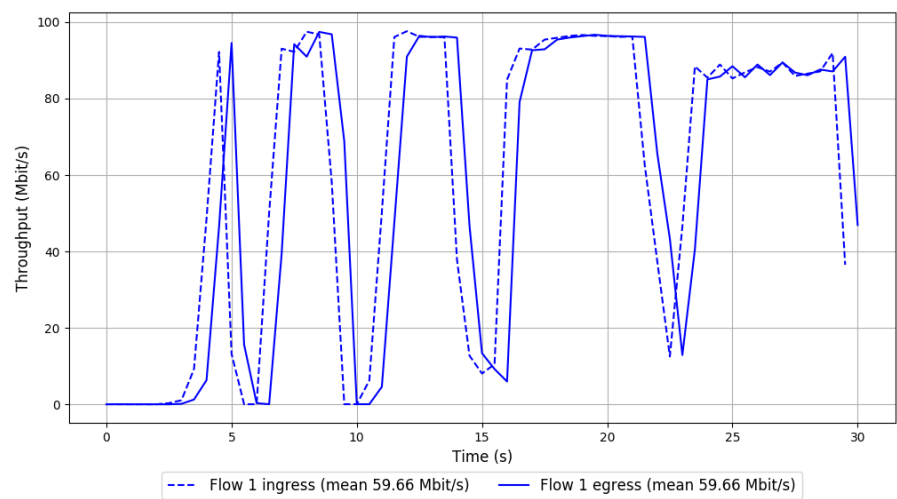
Run 5: Report of PCC-Expr — Data Link

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-10-09 18:13:34
End at: 2018-10-09 18:14:04
Local clock offset: -4.128 ms
Remote clock offset: -42.088 ms


# Below is generated by plot.py at 2018-10-09 20:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 59.66 Mbit/s
95th percentile per-packet one-way delay: 58.152 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 59.66 Mbit/s
95th percentile per-packet one-way delay: 58.152 ms
Loss rate: 0.00%
```

Run 1: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 59.66 Mbit/s)   Flow 1 egress (mean 59.66 Mbit/s)
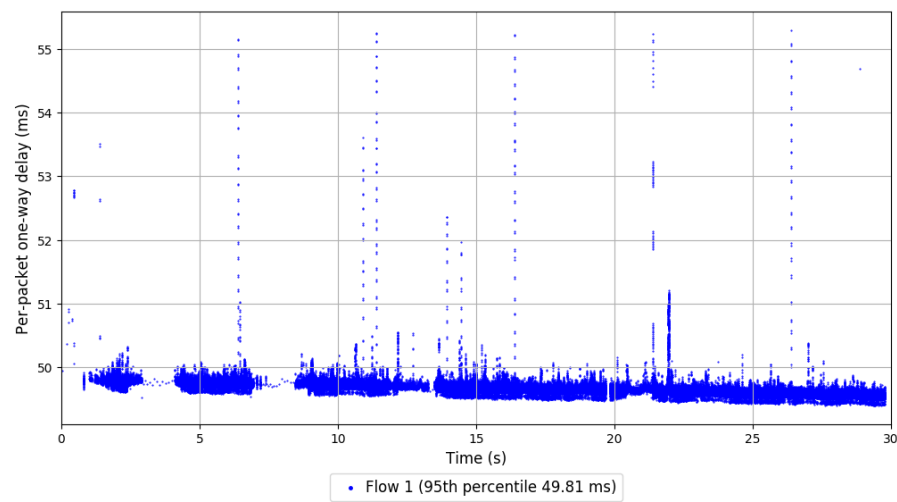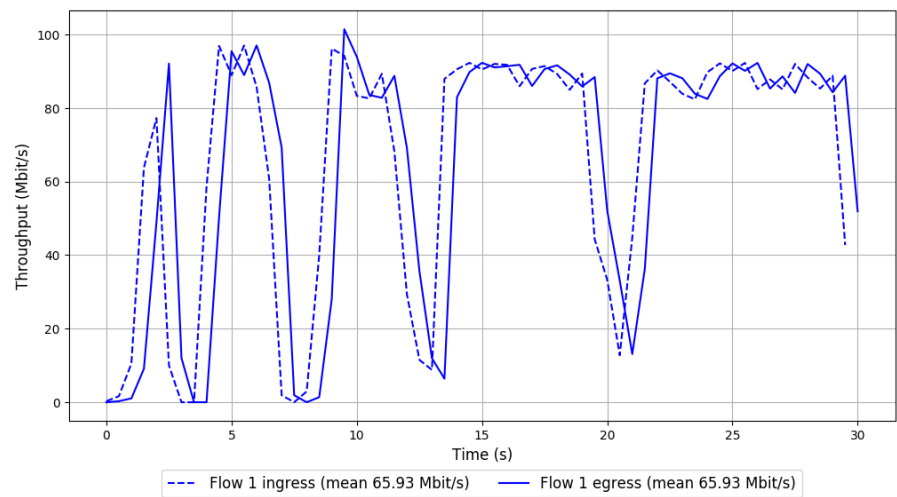

Flow 1 (95th percentile 58.15 ms)

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-10-09 18:42:20
End at: 2018-10-09 18:42:50
Local clock offset: -8.485 ms
Remote clock offset: -45.975 ms


# Below is generated by plot.py at 2018-10-09 20:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 65.93 Mbit/s
95th percentile per-packet one-way delay: 49.813 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 65.93 Mbit/s
95th percentile per-packet one-way delay: 49.813 ms
Loss rate: 0.00%
```
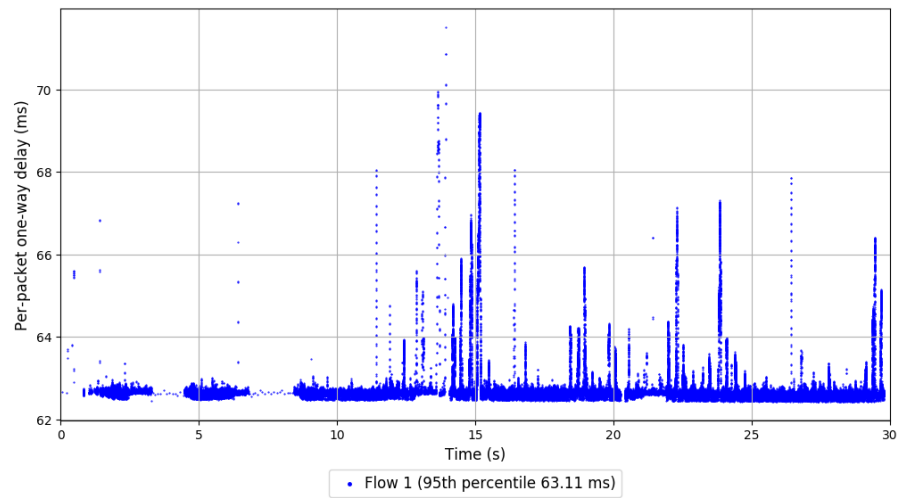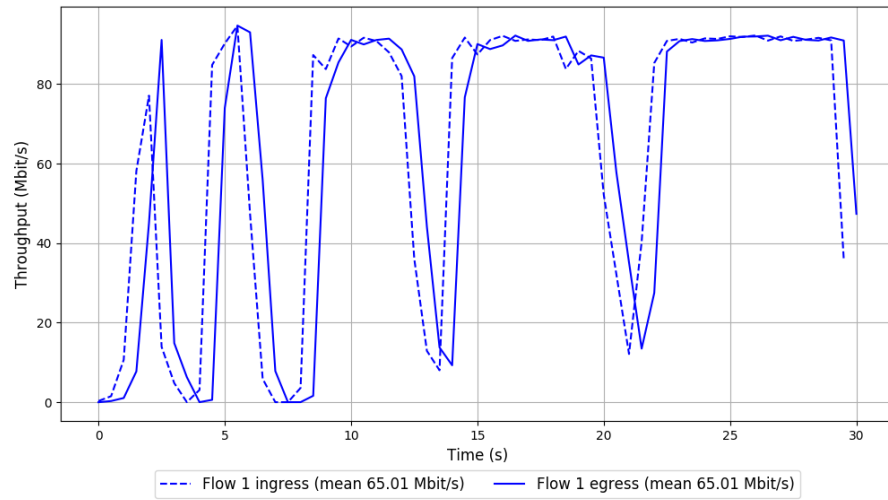
Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-10-09 19:16:21
End at: 2018-10-09 19:16:51
Local clock offset: -6.134 ms
Remote clock offset: -35.382 ms


# Below is generated by plot.py at 2018-10-09 20:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 65.01 Mbit/s
95th percentile per-packet one-way delay: 63.113 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 65.01 Mbit/s
95th percentile per-packet one-way delay: 63.113 ms
Loss rate: 0.00%
```
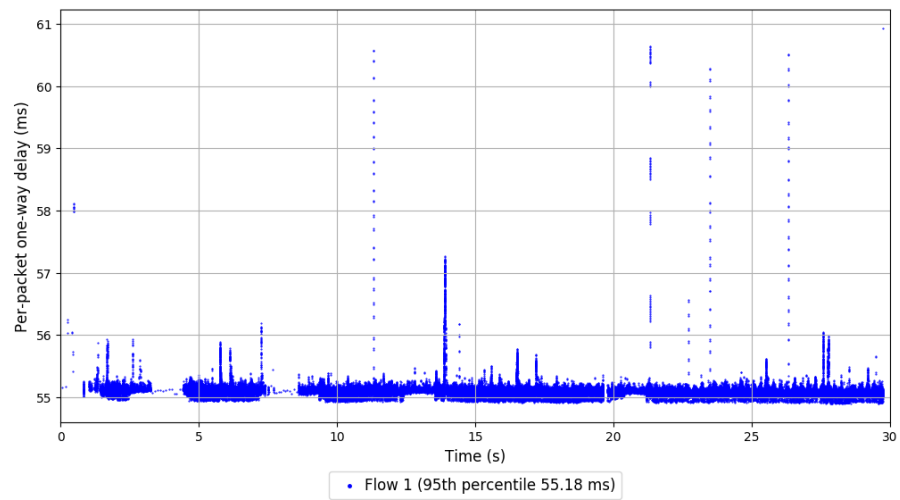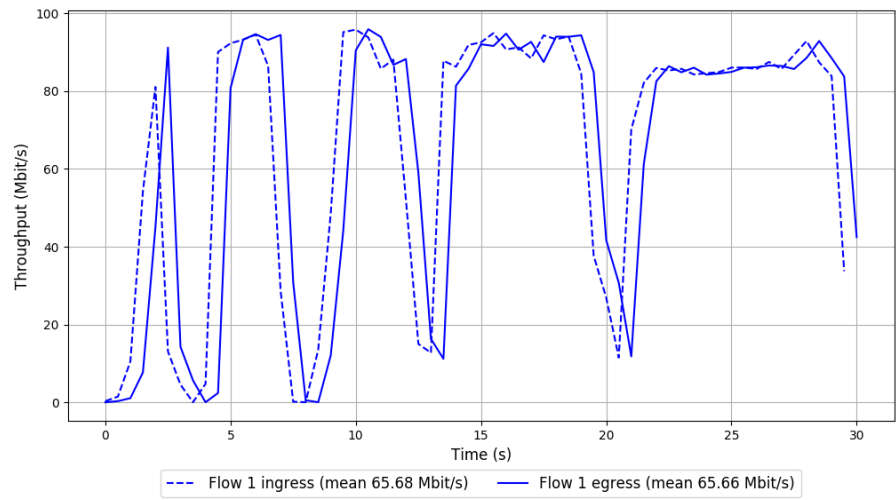
Run 3: Report of QUIC Cubic — Data Link

```
Run 4: Statistics of QUIC Cubic

Start at: 2018-10-09 19:45:09
End at: 2018-10-09 19:45:39
Local clock offset: -2.791 ms
Remote clock offset: -45.474 ms


# Below is generated by plot.py at 2018-10-09 20:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 65.66 Mbit/s
95th percentile per-packet one-way delay: 55.177 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 65.66 Mbit/s
95th percentile per-packet one-way delay: 55.177 ms
Loss rate: 0.01%
```

Run 4: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 65.68 Mbit/s) ----- Flow 1 egress (mean 65.66 Mbit/s) ———
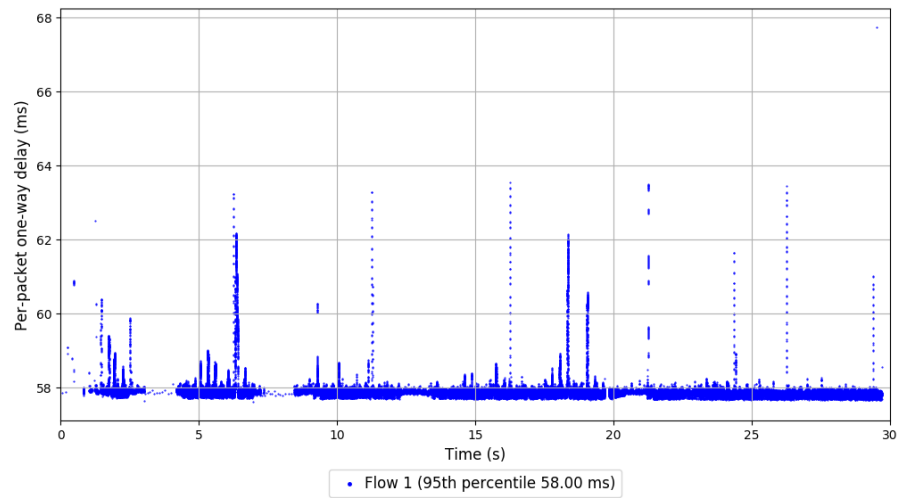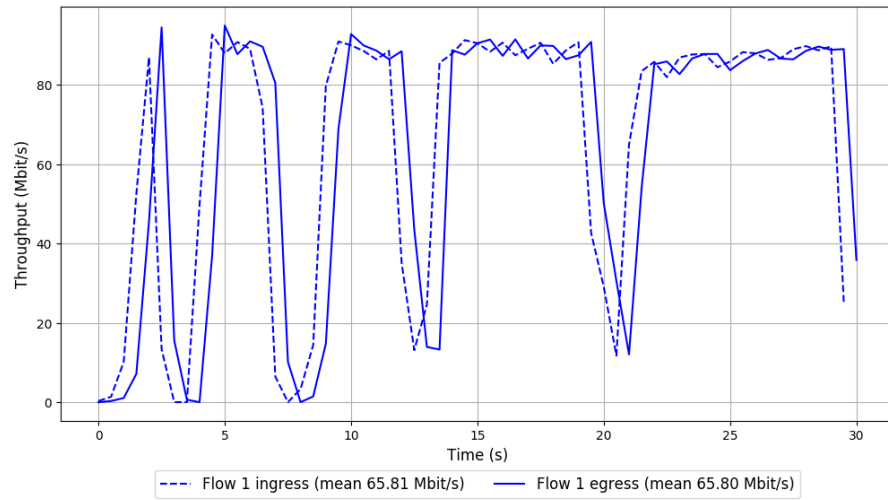

Flow 1 (95th percentile 55.18 ms)

```
Run 5: Statistics of QUIC Cubic

Start at: 2018-10-09 20:19:50
End at: 2018-10-09 20:20:20
Local clock offset: -4.17 ms
Remote clock offset: -43.282 ms


# Below is generated by plot.py at 2018-10-09 20:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 65.80 Mbit/s
95th percentile per-packet one-way delay: 57.999 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 65.80 Mbit/s
95th percentile per-packet one-way delay: 57.999 ms
Loss rate: 0.01%
```
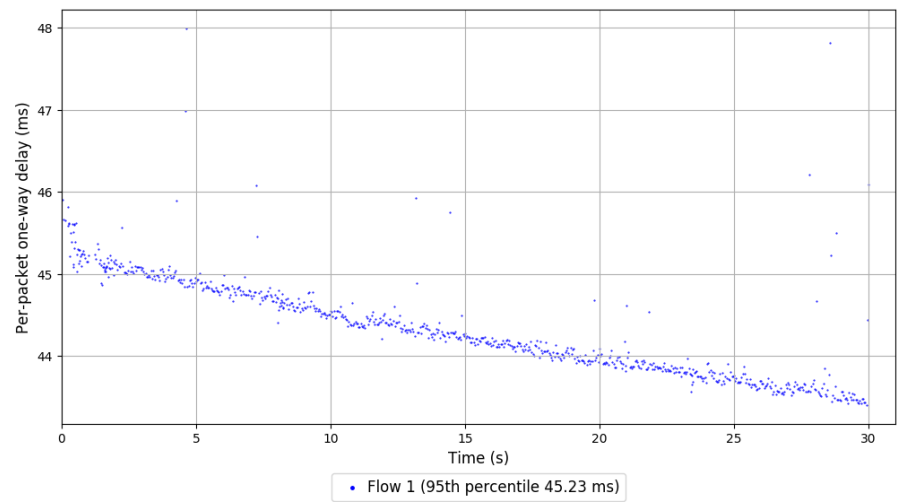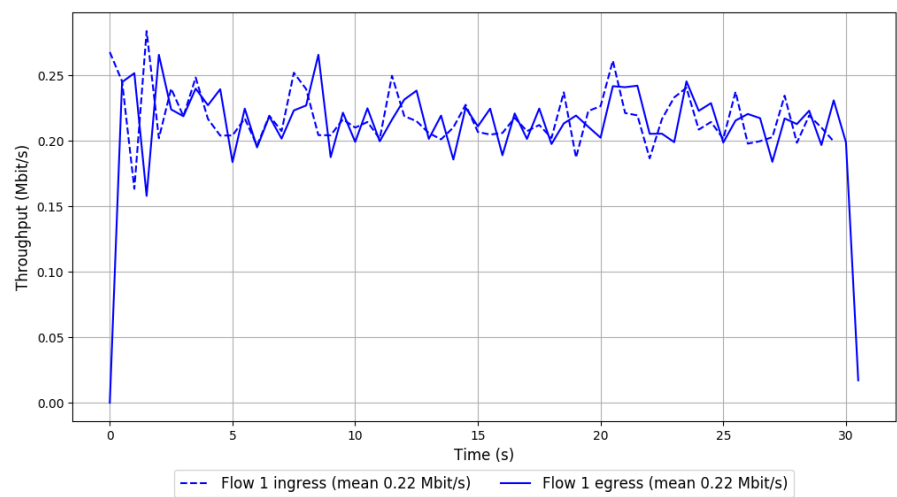
Run 5: Report of QUIC Cubic — Data Link

```
Run 1: Statistics of SCReAM

Start at: 2018-10-09 17:56:13
End at: 2018-10-09 17:56:43
Local clock offset: 15.456 ms
Remote clock offset: -38.392 ms

# Below is generated by plot.py at 2018-10-09 20:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 45.226 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 45.226 ms
Loss rate: 0.00%
```

Run 1: Report of SCReAM — Data Link

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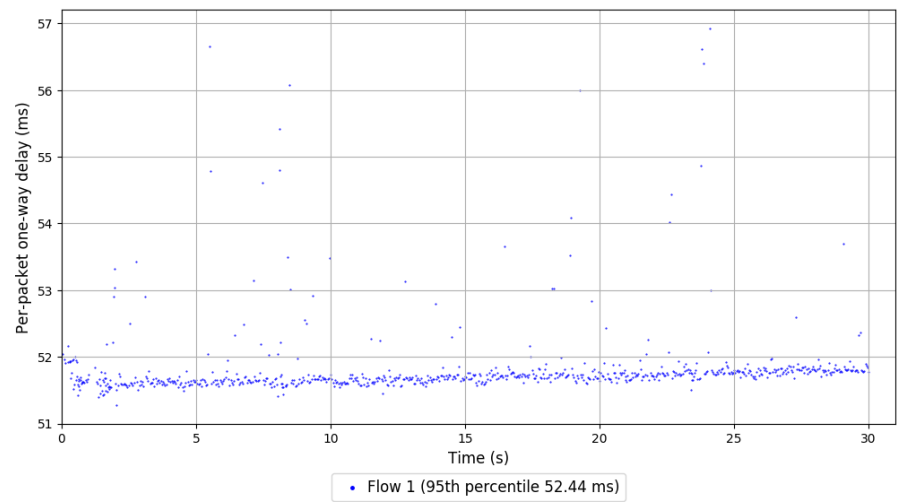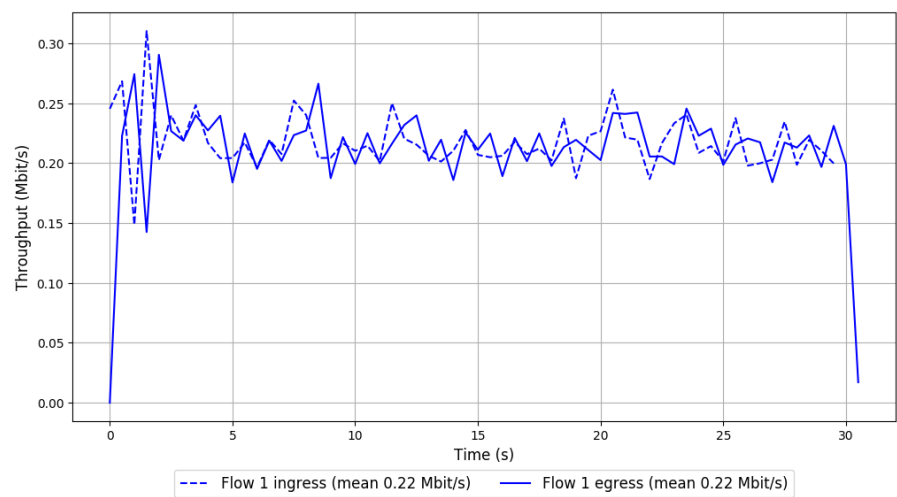

Flow 1 (95th percentile 45.23 ms)

116

```
Run 2: Statistics of SCReAM

Start at: 2018-10-09 18:24:54
End at: 2018-10-09 18:25:24
Local clock offset: -8.496 ms
Remote clock offset: -46.499 ms


# Below is generated by plot.py at 2018-10-09 20:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 52.435 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 52.435 ms
Loss rate: 0.00%
```
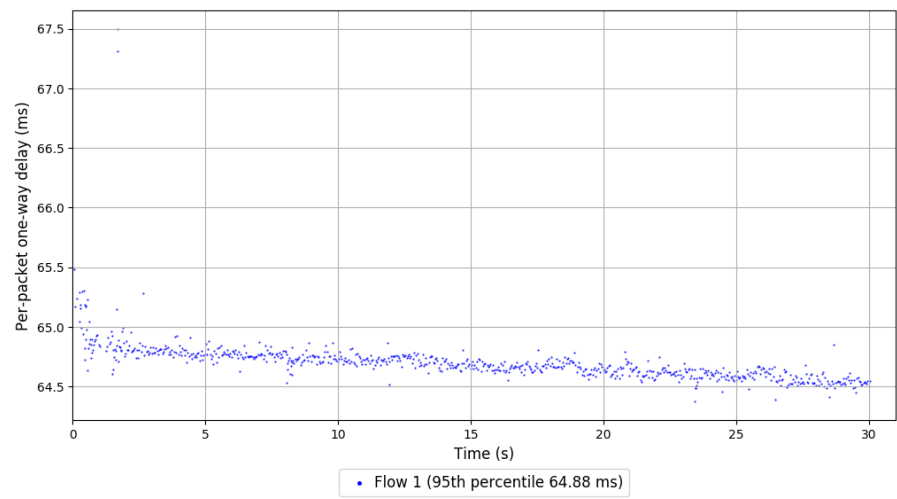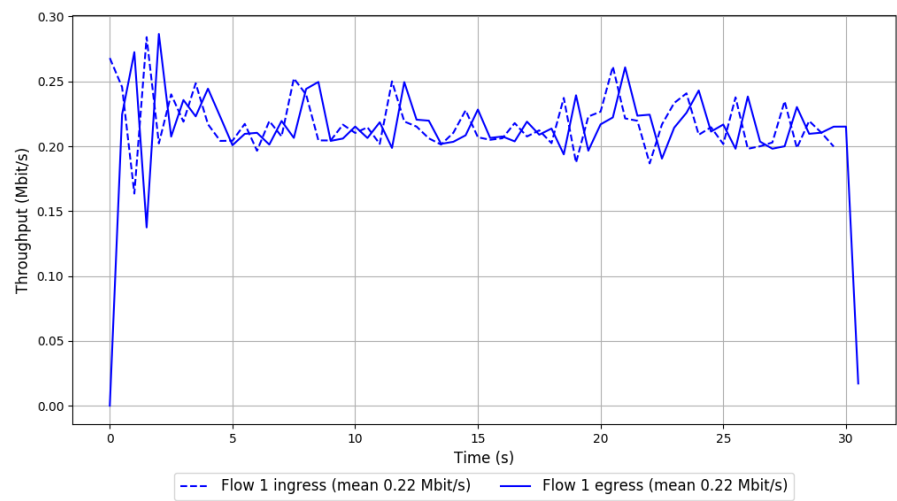
Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2018-10-09 18:53:36
End at: 2018-10-09 18:54:06
Local clock offset: -16.675 ms
Remote clock offset: -33.07 ms


# Below is generated by plot.py at 2018-10-09 20:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 64.879 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 64.879 ms
Loss rate: 0.00%
```

Run 3: Report of SCReAM — Data Link

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

Flow 1 (95th percentile 64.88 ms)

```
Run 4: Statistics of SCReAM

Start at: 2018-10-09 19:27:37
End at: 2018-10-09 19:28:07
Local clock offset: -5.278 ms
Remote clock offset: -47.608 ms


# Below is generated by plot.py at 2018-10-09 20:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 50.125 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 50.125 ms
Loss rate: 0.00%
```
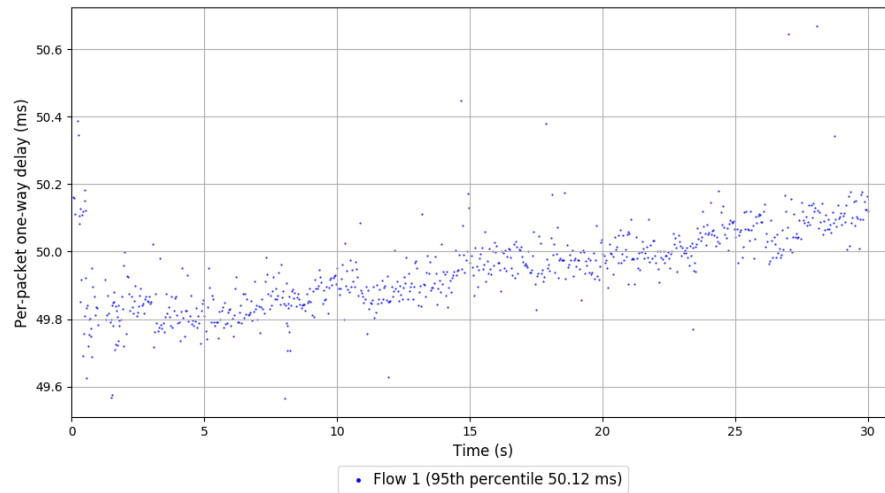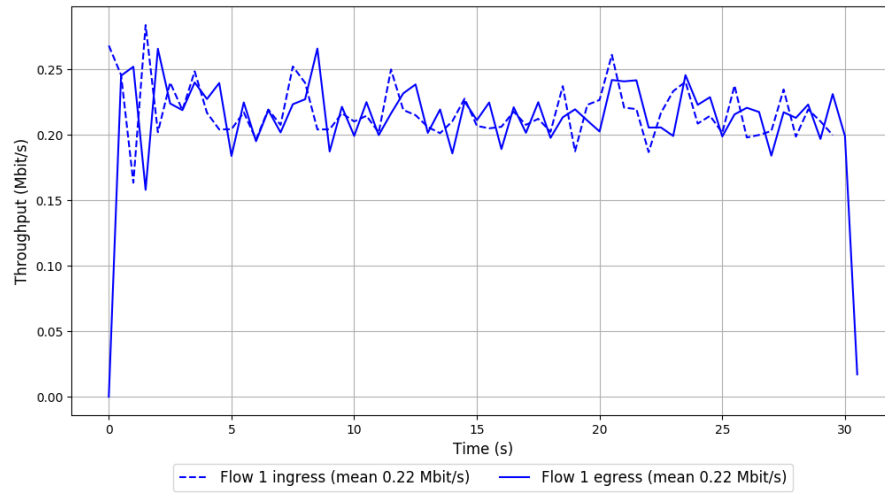
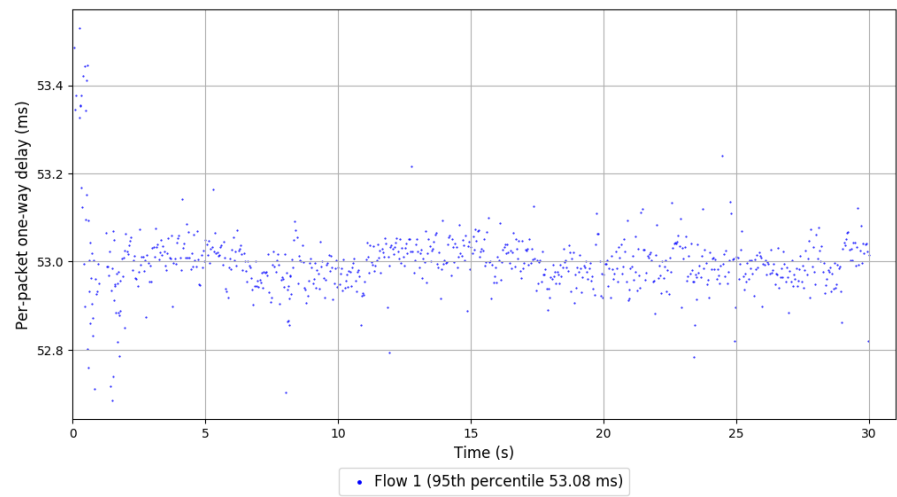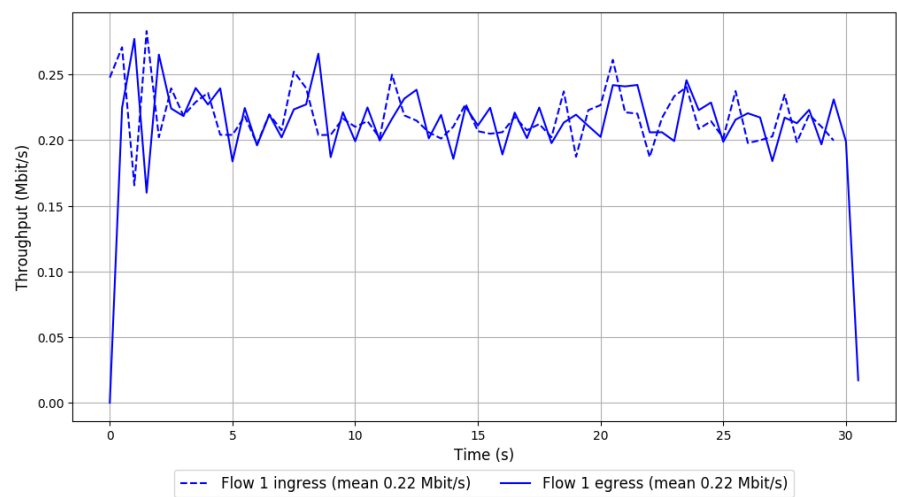Run 4: Report of SCReAM — Data Link

```
Run 5: Statistics of SCReAM

Start at: 2018-10-09 20:02:20
End at: 2018-10-09 20:02:50
Local clock offset: -2.275 ms
Remote clock offset: -44.82 ms


# Below is generated by plot.py at 2018-10-09 20:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 53.084 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 53.084 ms
Loss rate: 0.00%
```
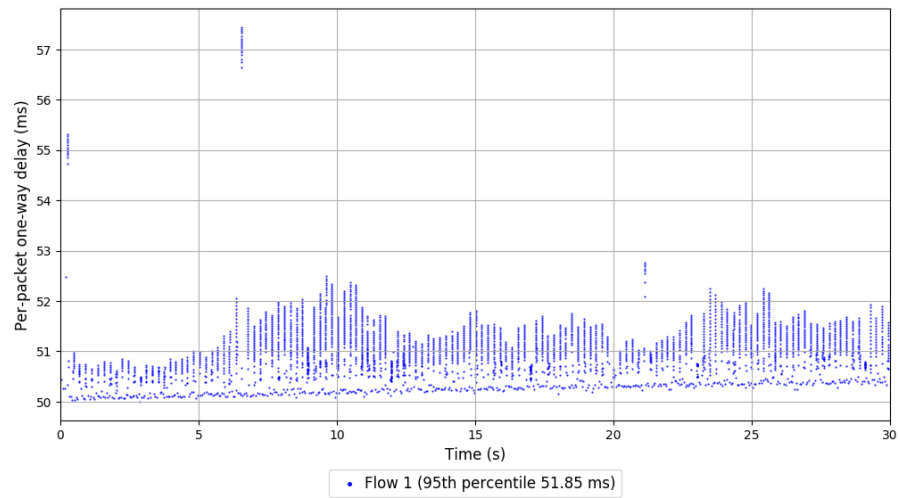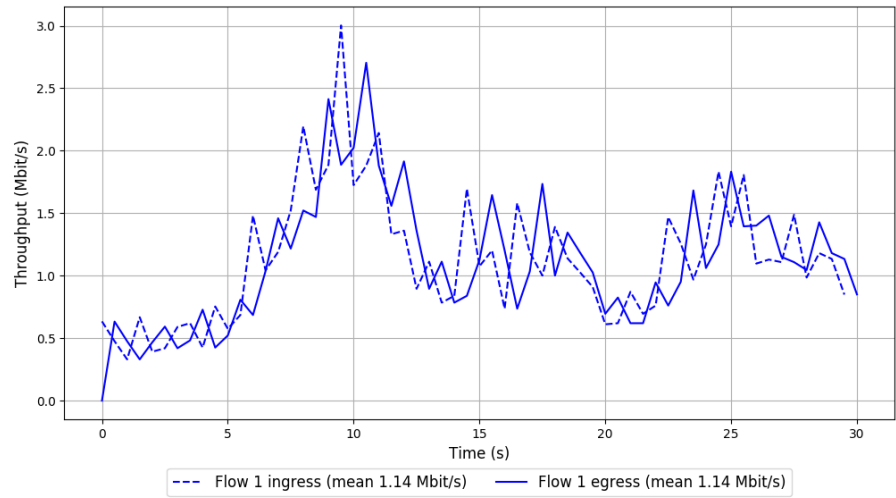
Run 5: Report of SCReAM — Data Link

```
Run 1: Statistics of Sprout

Start at: 2018-10-09 18:03:30
End at: 2018-10-09 18:04:00
Local clock offset: -3.207 ms
Remote clock offset: -48.889 ms


# Below is generated by plot.py at 2018-10-09 20:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.14 Mbit/s
95th percentile per-packet one-way delay: 51.852 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.14 Mbit/s
95th percentile per-packet one-way delay: 51.852 ms
Loss rate: 0.00%
```
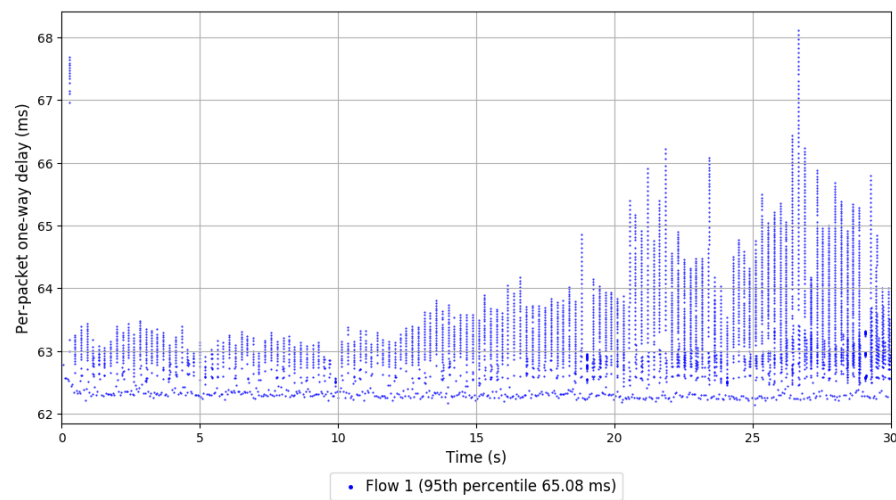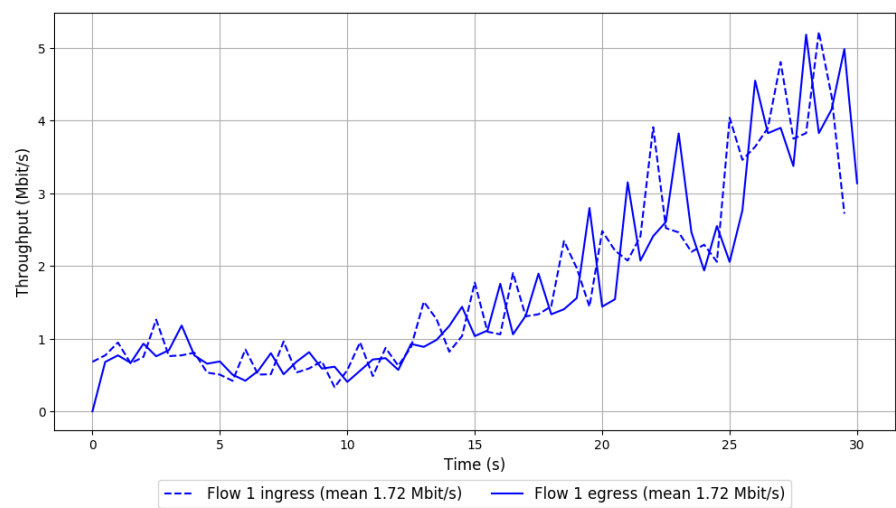
Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2018-10-09 18:32:10
End at: 2018-10-09 18:32:40
Local clock offset: -5.518 ms
Remote clock offset: -33.678 ms


# Below is generated by plot.py at 2018-10-09 20:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.72 Mbit/s
95th percentile per-packet one-way delay: 65.083 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.72 Mbit/s
95th percentile per-packet one-way delay: 65.083 ms
Loss rate: 0.00%
```

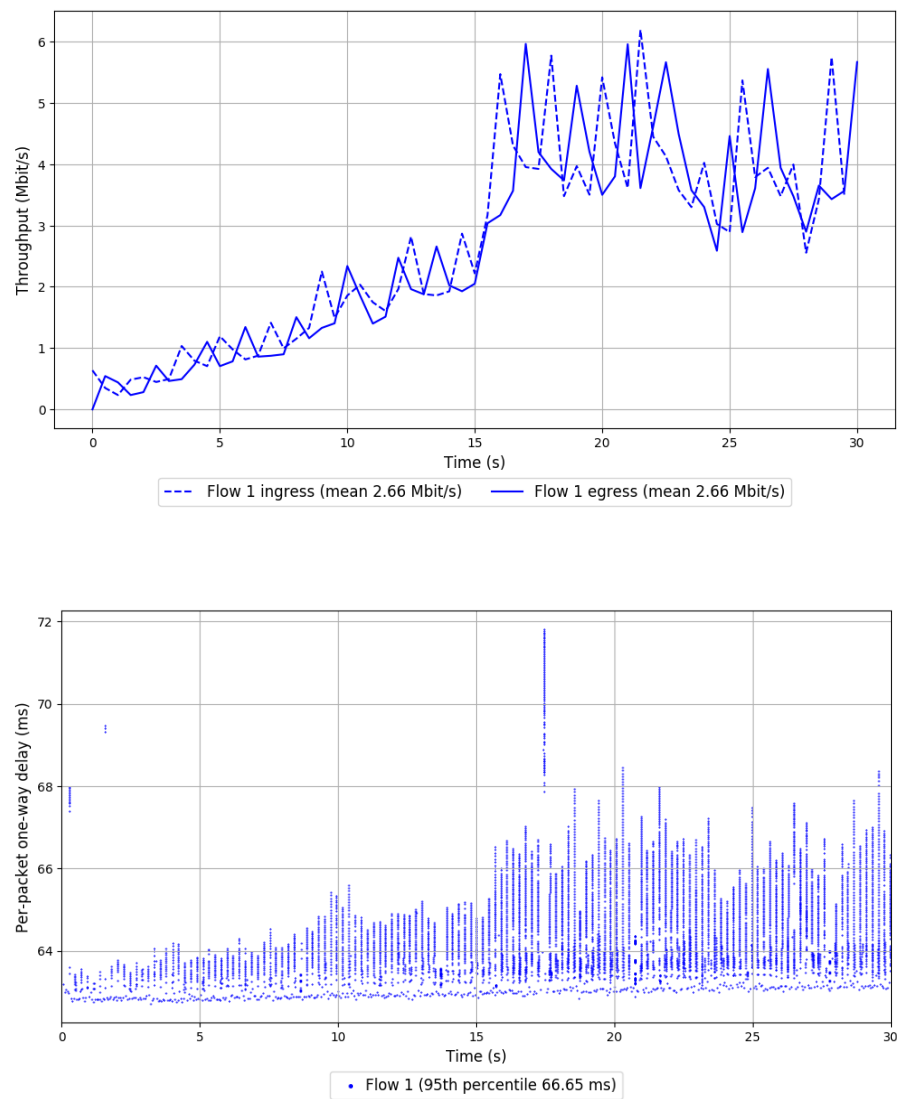# Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2018-10-09 19:00:45
End at: 2018-10-09 19:01:15
Local clock offset: -10.322 ms
Remote clock offset: -36.713 ms


# Below is generated by plot.py at 2018-10-09 20:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.66 Mbit/s
95th percentile per-packet one-way delay: 66.649 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.66 Mbit/s
95th percentile per-packet one-way delay: 66.649 ms
Loss rate: 0.00%
```

Run 3: Report of Sprout — Data Link

Flow 1 ingress (mean 2.66 Mbit/s) Flow 1 egress (mean 2.66 Mbit/s)
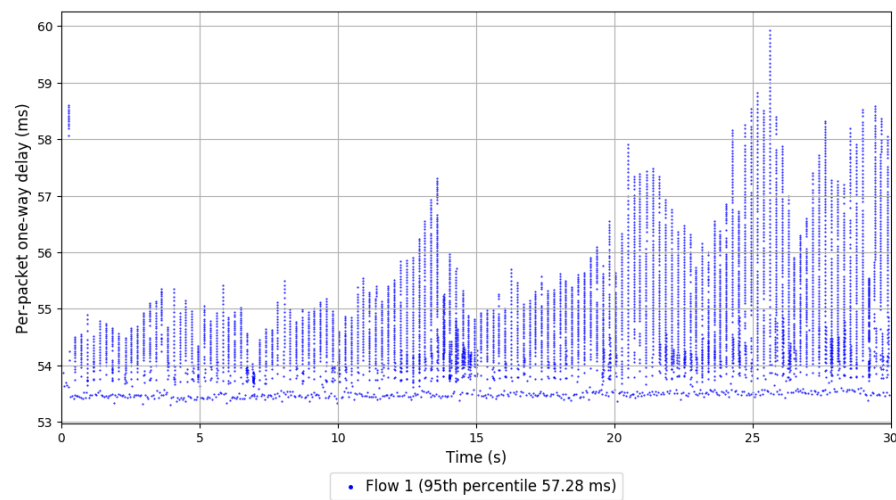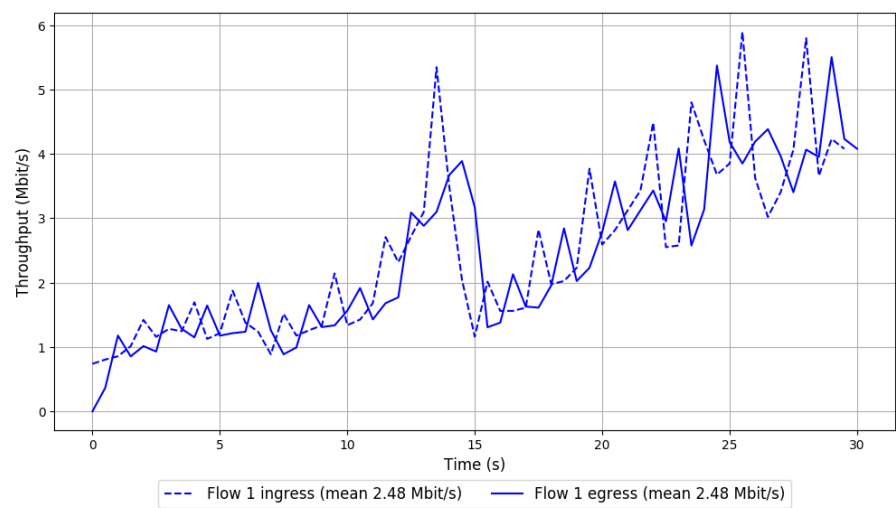

• Flow 1 (95th percentile 66.65 ms)

```
Run 4: Statistics of Sprout

Start at: 2018-10-09 19:34:41
End at: 2018-10-09 19:35:11
Local clock offset: -3.419 ms
Remote clock offset: -47.349 ms

# Below is generated by plot.py at 2018-10-09 20:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.48 Mbit/s
95th percentile per-packet one-way delay: 57.284 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 2.48 Mbit/s
95th percentile per-packet one-way delay: 57.284 ms
Loss rate: 0.06%
```

Run 4: Report of Sprout — Data Link

Flow 1 ingress (mean 2.48 Mbit/s) — — —   Flow 1 egress (mean 2.48 Mbit/s) ———
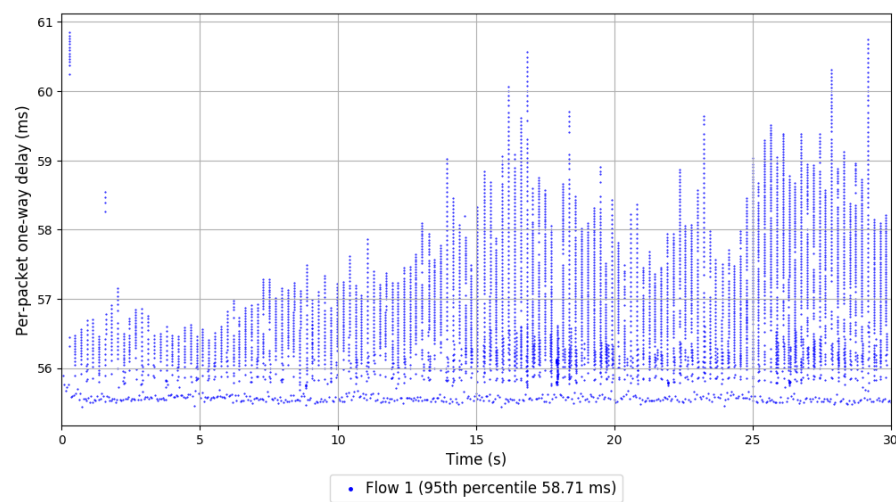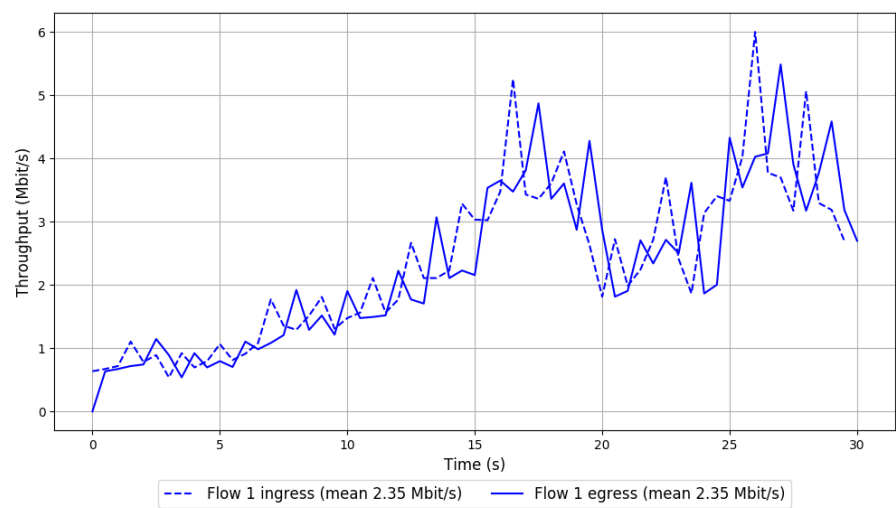

• Flow 1 (95th percentile 57.28 ms)

```
Run 5: Statistics of Sprout

Start at: 2018-10-09 20:09:26
End at: 2018-10-09 20:09:56
Local clock offset: -3.266 ms
Remote clock offset: -42.776 ms


# Below is generated by plot.py at 2018-10-09 20:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.35 Mbit/s
95th percentile per-packet one-way delay: 58.713 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.35 Mbit/s
95th percentile per-packet one-way delay: 58.713 ms
Loss rate: 0.00%
```

Run 5: Report of Sprout — Data Link
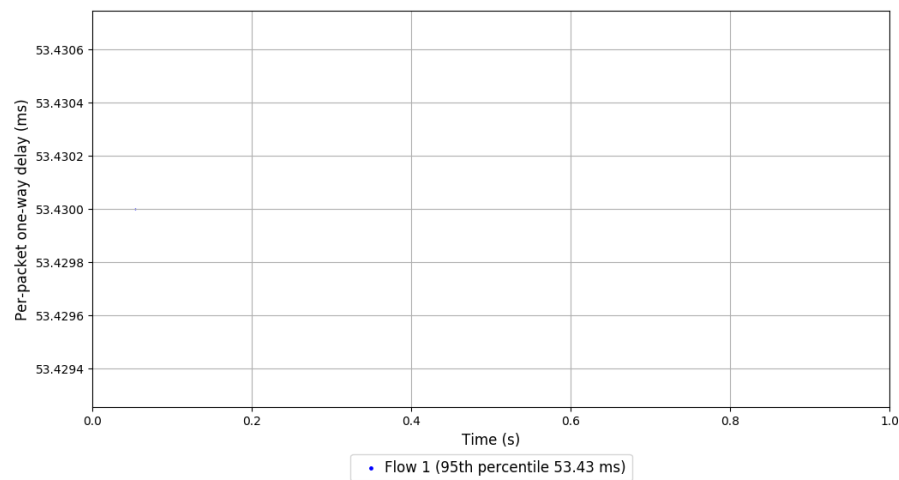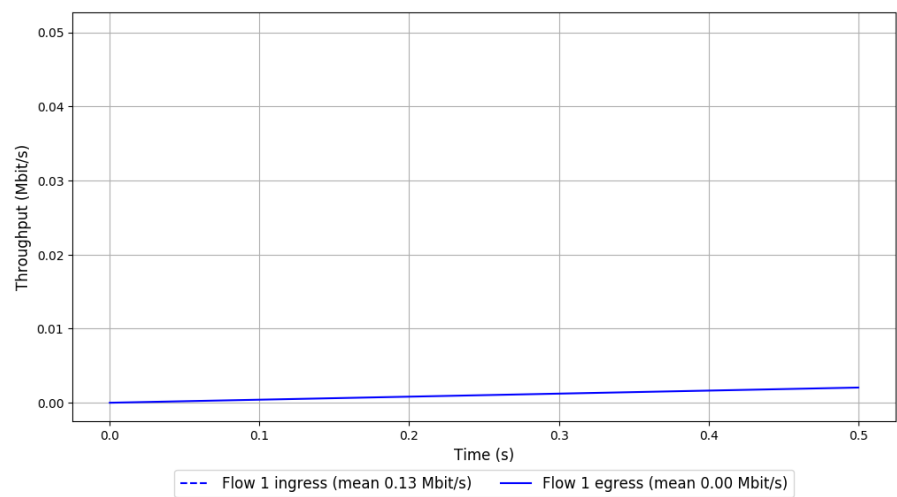
```
Run 1: Statistics of TaoVA-100x

Start at: 2018-10-09 18:23:45
End at: 2018-10-09 18:24:15
Local clock offset: -8.495 ms
Remote clock offset: -45.983 ms
```

Run 1: Report of TaoVA-100x — Data Link
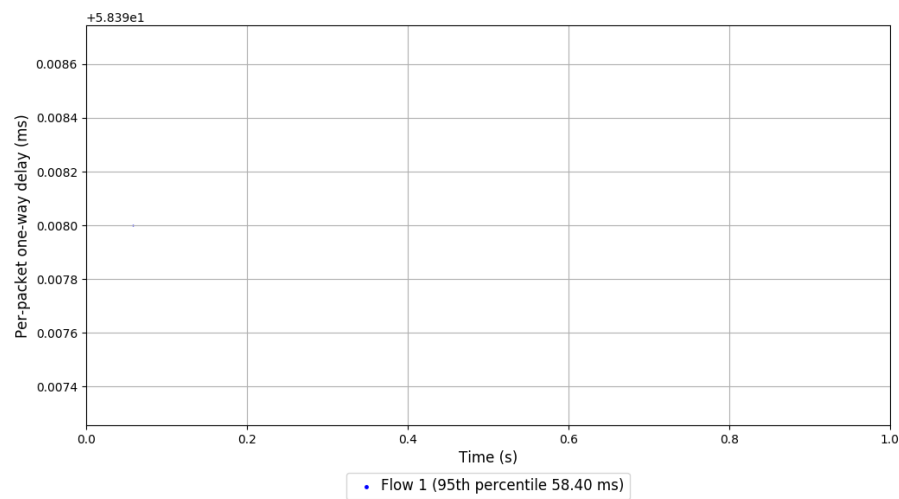
```
Run 2: Statistics of TaoVA-100x

Start at: 2018-10-09 18:52:27
End at: 2018-10-09 18:52:57
Local clock offset: -16.499 ms
Remote clock offset: -42.969 ms
```
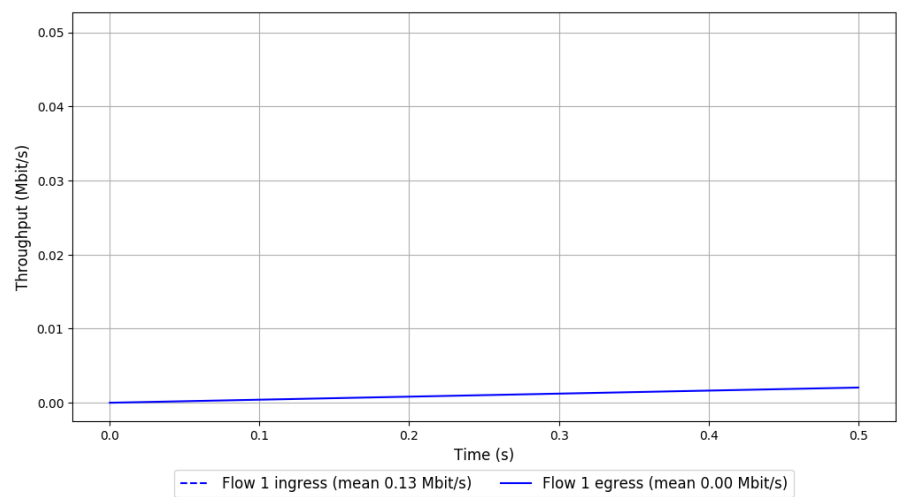
Run 2: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 0.13 Mbit/s) ———— Flow 1 egress (mean 0.00 Mbit/s)

• Flow 1 (95th percentile 58.40 ms)
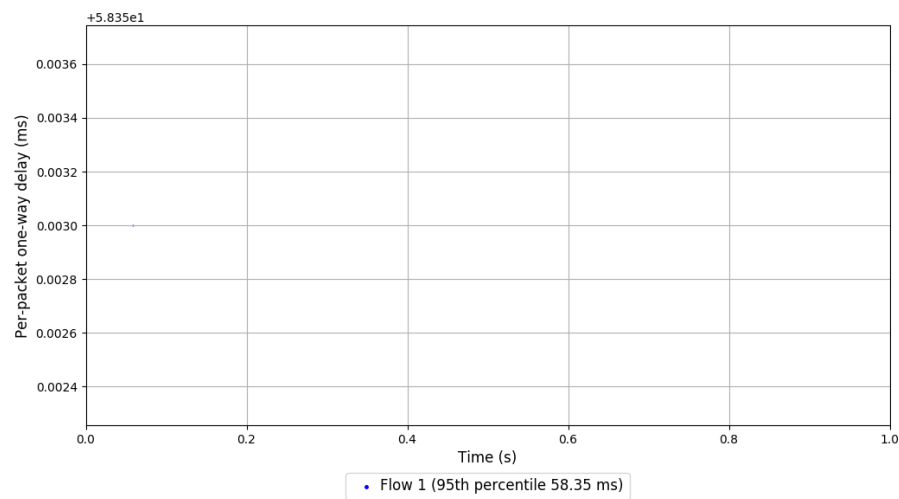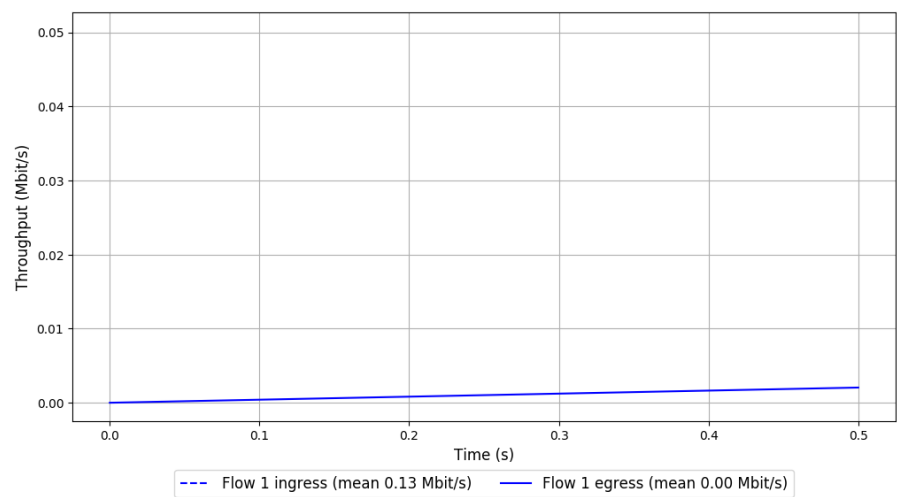
```
Run 3: Statistics of TaoVA-100x

Start at: 2018-10-09 19:26:27
End at: 2018-10-09 19:26:57
Local clock offset: -6.868 ms
Remote clock offset: -40.637 ms
```

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

Flow 1 ingress (mean 0.13 Mbit/s)   Flow 1 egress (mean 0.00 Mbit/s)

Flow 1 (95th percentile 58.35 ms)
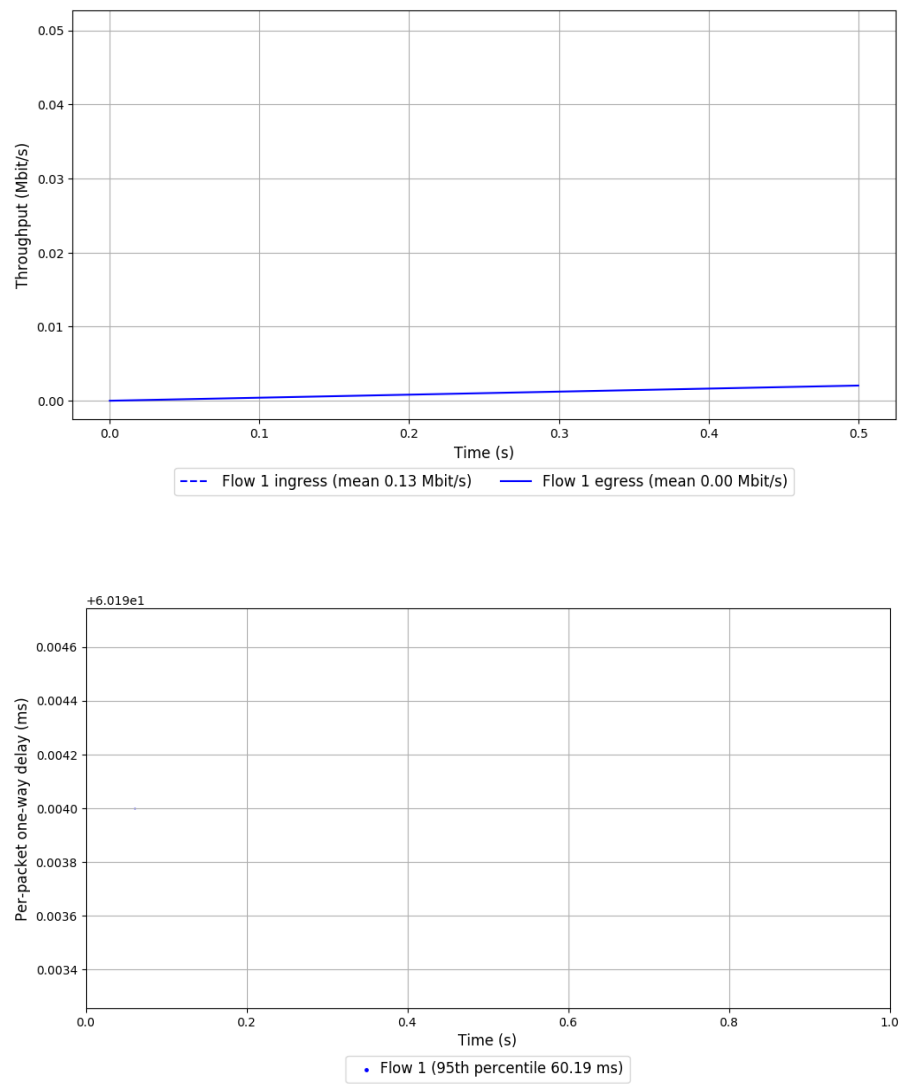
Run 4: Statistics of TaoVA-100x

Start at: 2018-10-09 20:01:10
End at: 2018-10-09 20:01:40
Local clock offset: -2.799 ms
Remote clock offset: -38.236 ms

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

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

Start at: 2018-10-09 20:29:56
End at: 2018-10-09 20:30:26
Local clock offset: 0.282 ms
Remote clock offset: -41.827 ms
```
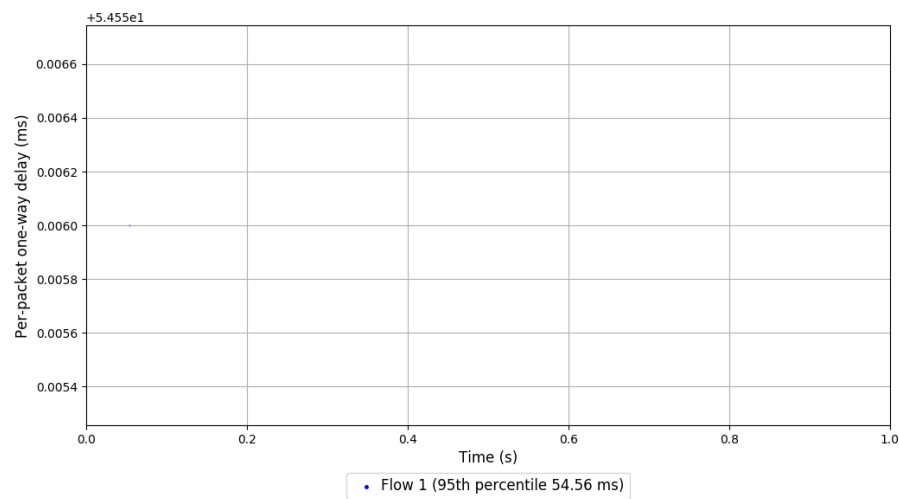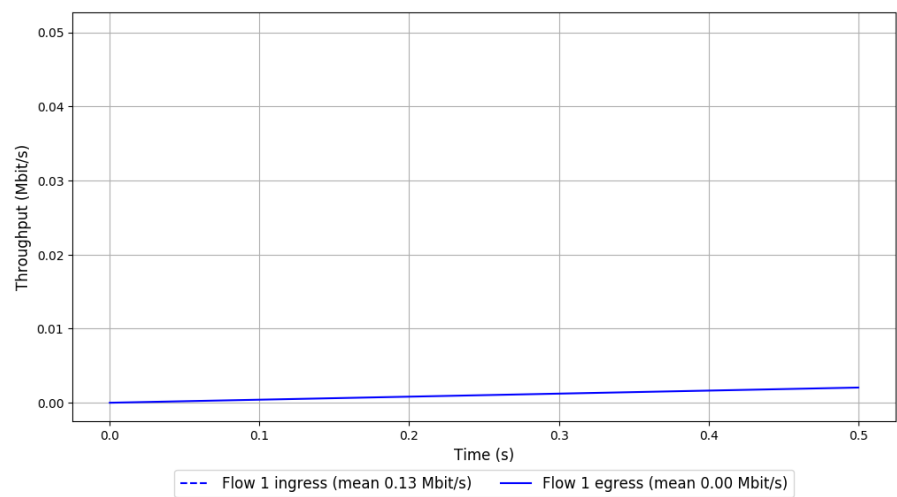
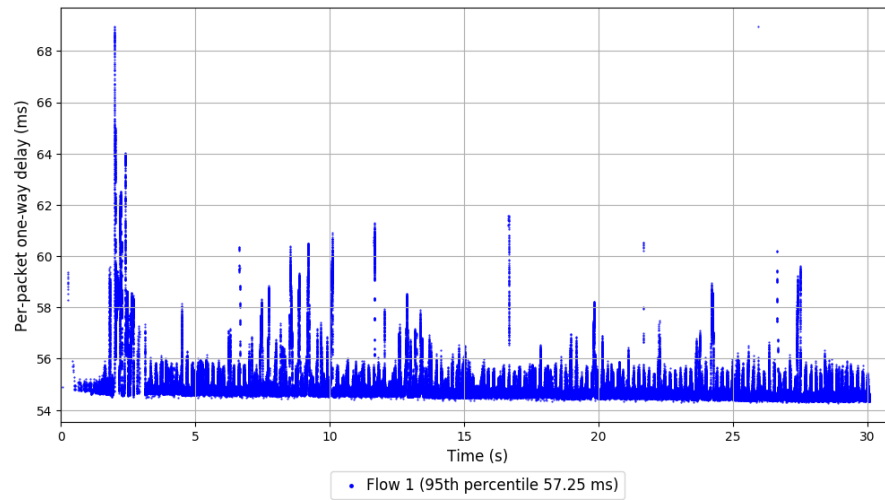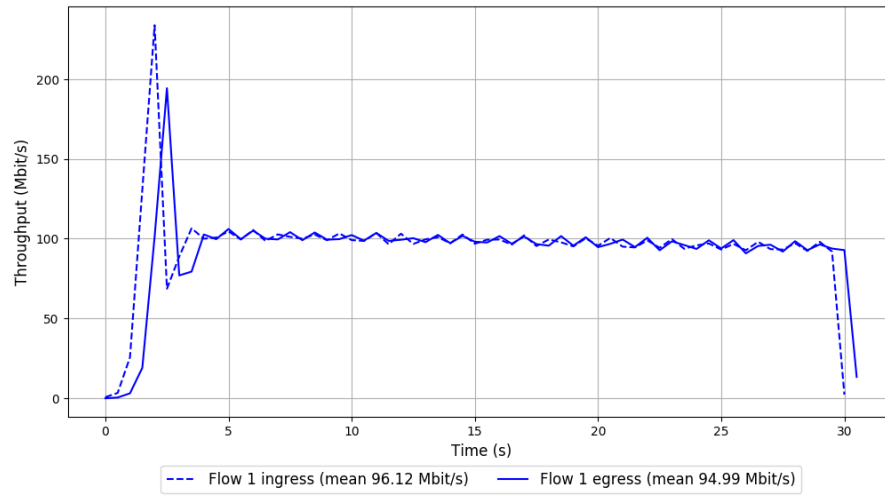# Run 5: Report of TaoVA-100x — Data Link

Run 1: Statistics of TCP Vegas

Start at: 2018-10-09 18:06:53
End at: 2018-10-09 18:07:23
Local clock offset: -1.026 ms
Remote clock offset: -42.045 ms

Below is generated by plot.py at 2018-10-09 20:51:14
Datalink statistics
-- Total of 1 flow:
Average throughput: 94.99 Mbit/s
95th percentile per-packet one-way delay: 57.248 ms
Loss rate: 1.17%
-- Flow 1:
Average throughput: 94.99 Mbit/s
95th percentile per-packet one-way delay: 57.248 ms
Loss rate: 1.17%

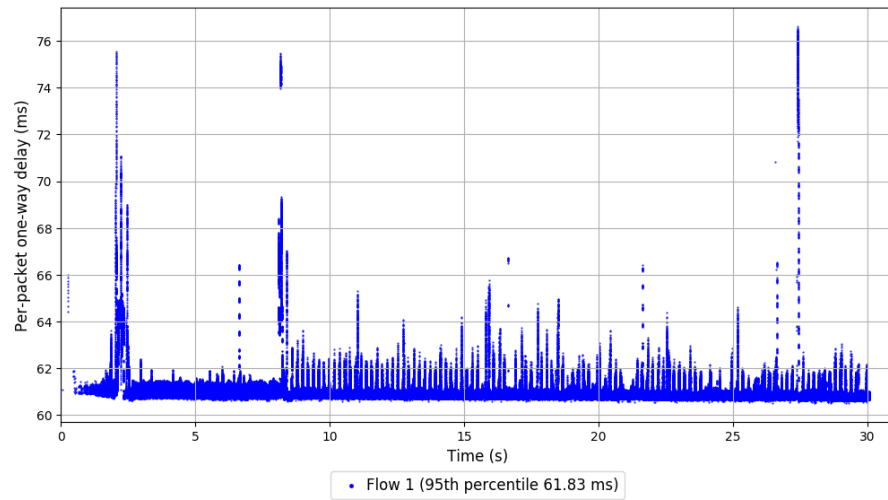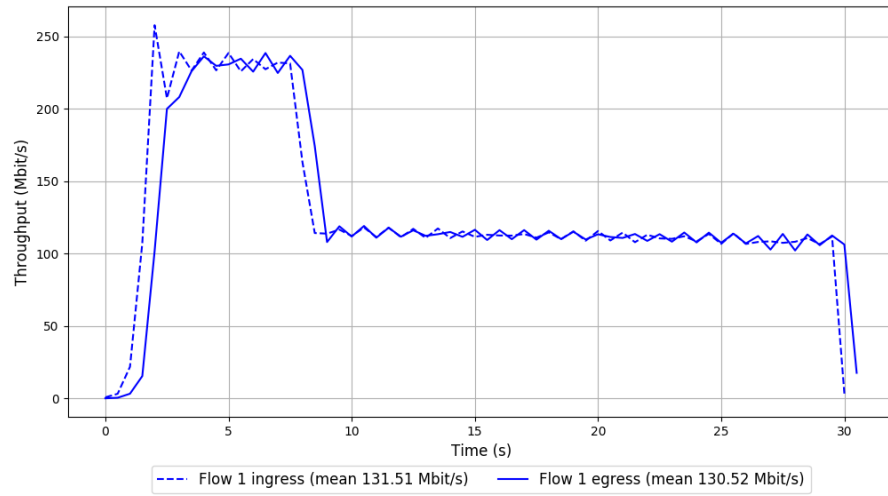Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2018-10-09 18:35:37
End at: 2018-10-09 18:36:07
Local clock offset: -8.373 ms
Remote clock offset: -39.97 ms


# Below is generated by plot.py at 2018-10-09 20:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 130.52 Mbit/s
95th percentile per-packet one-way delay: 61.827 ms
Loss rate: 0.76%
-- Flow 1:
Average throughput: 130.52 Mbit/s
95th percentile per-packet one-way delay: 61.827 ms
Loss rate: 0.76%
```

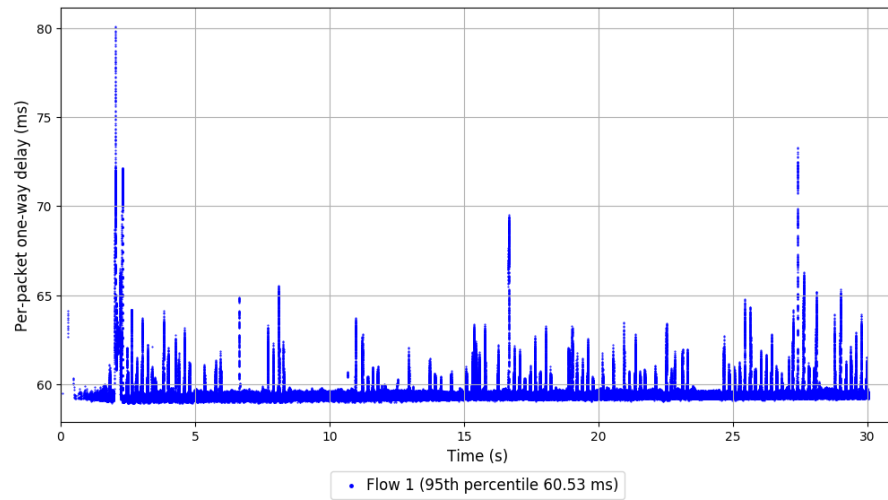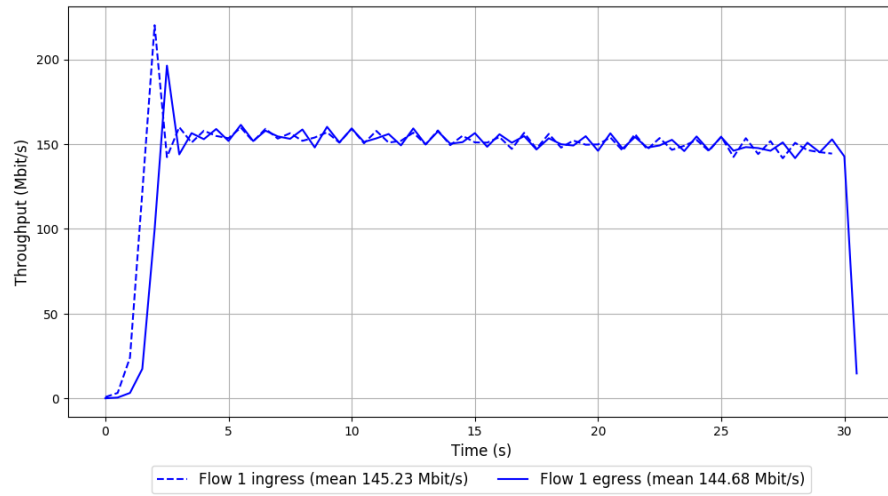Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2018-10-09 19:04:10
End at: 2018-10-09 19:04:40
Local clock offset: -7.71 ms
Remote clock offset: -39.174 ms


# Below is generated by plot.py at 2018-10-09 20:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 144.68 Mbit/s
95th percentile per-packet one-way delay: 60.534 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 144.68 Mbit/s
95th percentile per-packet one-way delay: 60.534 ms
Loss rate: 0.38%
```

Run 3: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 145.23 Mbit/s)   Flow 1 egress (mean 144.68 Mbit/s)
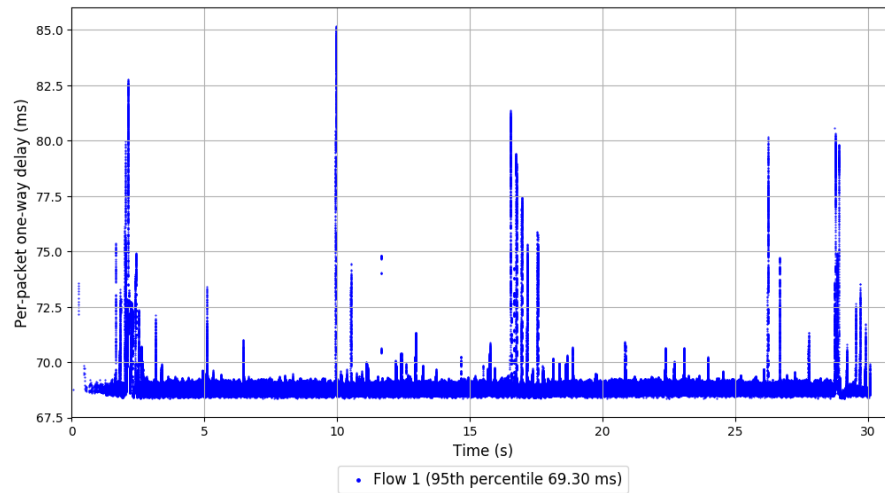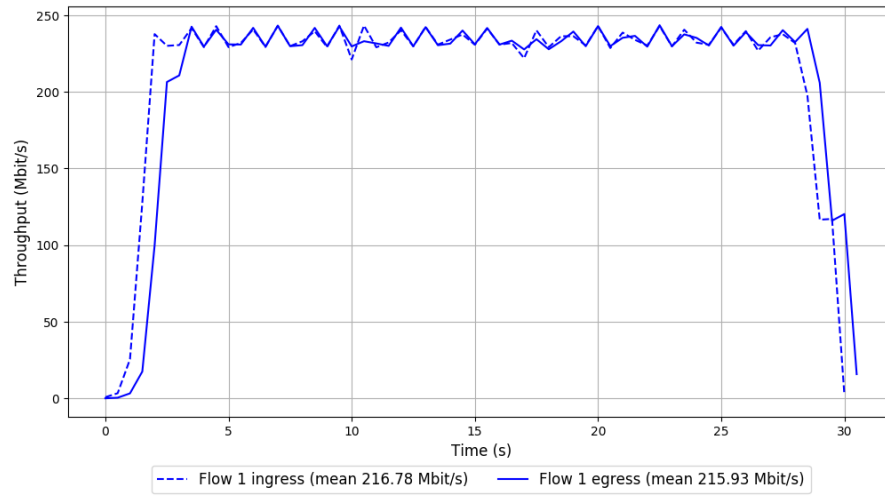

Flow 1 (95th percentile 60.53 ms)

```
Run 4: Statistics of TCP Vegas

Start at: 2018-10-09 19:38:08
End at: 2018-10-09 19:38:38
Local clock offset: -2.893 ms
Remote clock offset: -29.811 ms


# Below is generated by plot.py at 2018-10-09 20:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 215.93 Mbit/s
95th percentile per-packet one-way delay: 69.299 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 215.93 Mbit/s
95th percentile per-packet one-way delay: 69.299 ms
Loss rate: 0.39%
```

Run 4: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 216.78 Mbit/s)   Flow 1 egress (mean 215.93 Mbit/s)
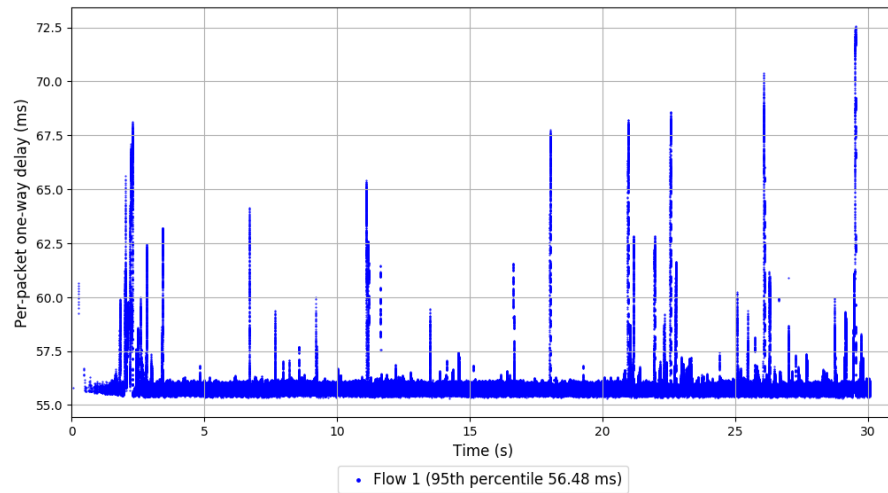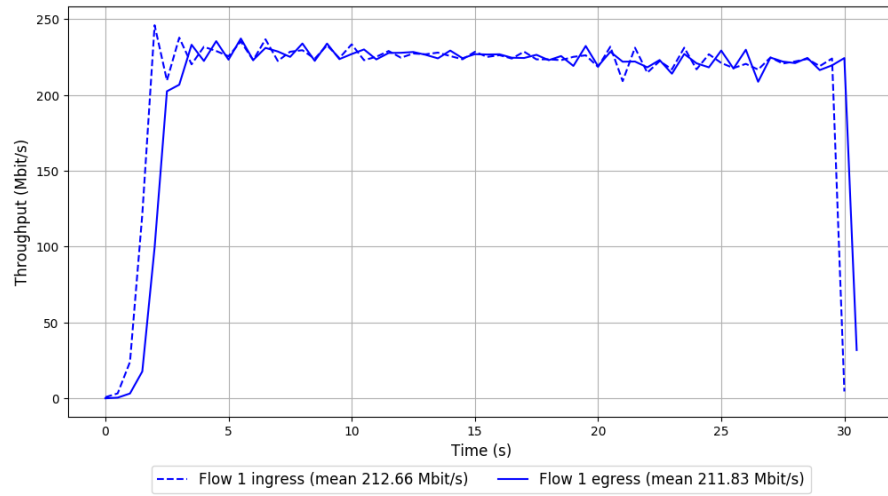

Flow 1 (95th percentile 69.30 ms)

```
Run 5: Statistics of TCP Vegas

Start at: 2018-10-09 20:12:52
End at: 2018-10-09 20:13:22
Local clock offset: -2.509 ms
Remote clock offset: -41.981 ms


# Below is generated by plot.py at 2018-10-09 20:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 211.83 Mbit/s
95th percentile per-packet one-way delay: 56.478 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 211.83 Mbit/s
95th percentile per-packet one-way delay: 56.478 ms
Loss rate: 0.39%
```

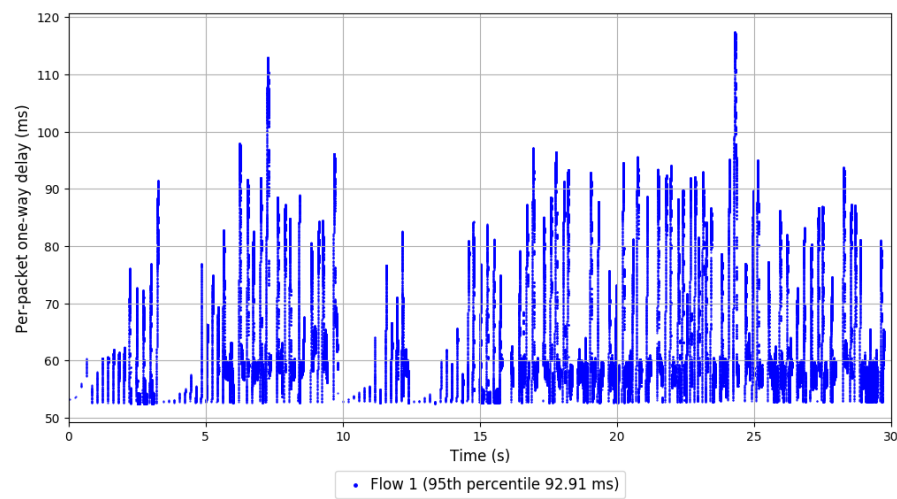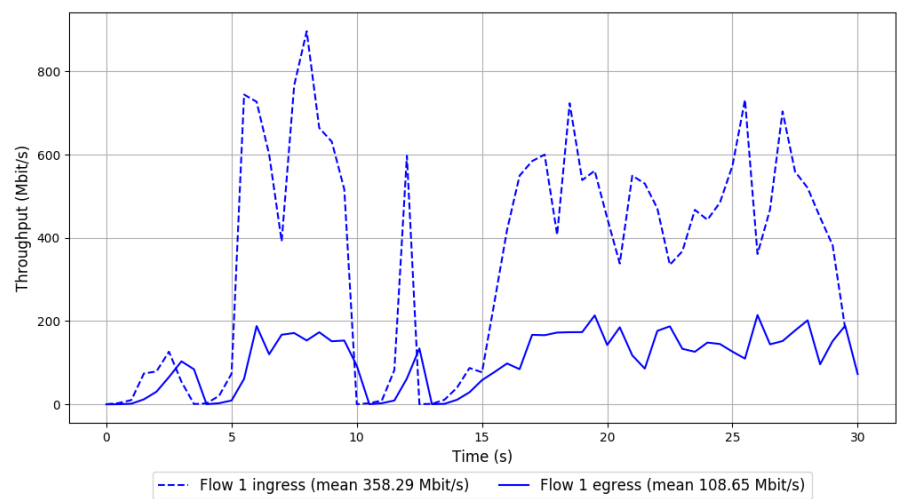Run 5: Report of TCP Vegas — Data Link

```
Run 1: Statistics of Verus

Start at: 2018-10-09 17:59:29
End at: 2018-10-09 17:59:59
Local clock offset: -7.323 ms
Remote clock offset: -52.477 ms


# Below is generated by plot.py at 2018-10-09 20:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 108.65 Mbit/s
95th percentile per-packet one-way delay: 92.906 ms
Loss rate: 69.66%
-- Flow 1:
Average throughput: 108.65 Mbit/s
95th percentile per-packet one-way delay: 92.906 ms
Loss rate: 69.66%
```
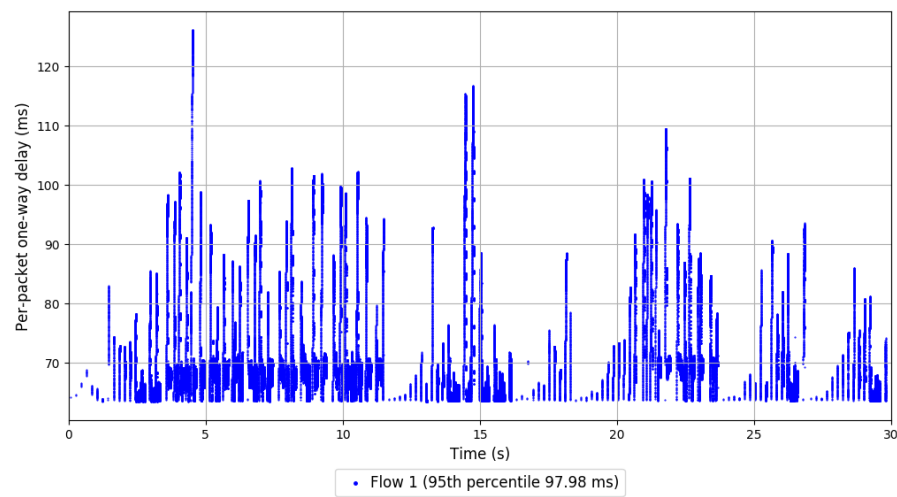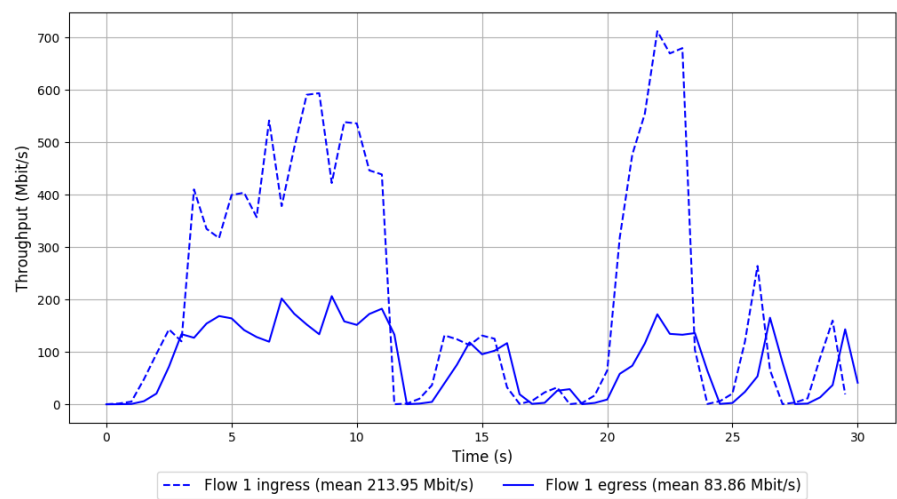
Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2018-10-09 18:28:13
End at: 2018-10-09 18:28:43
Local clock offset: -6.152 ms
Remote clock offset: -33.384 ms


# Below is generated by plot.py at 2018-10-09 20:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 83.86 Mbit/s
95th percentile per-packet one-way delay: 97.982 ms
Loss rate: 60.80%
-- Flow 1:
Average throughput: 83.86 Mbit/s
95th percentile per-packet one-way delay: 97.982 ms
Loss rate: 60.80%
```

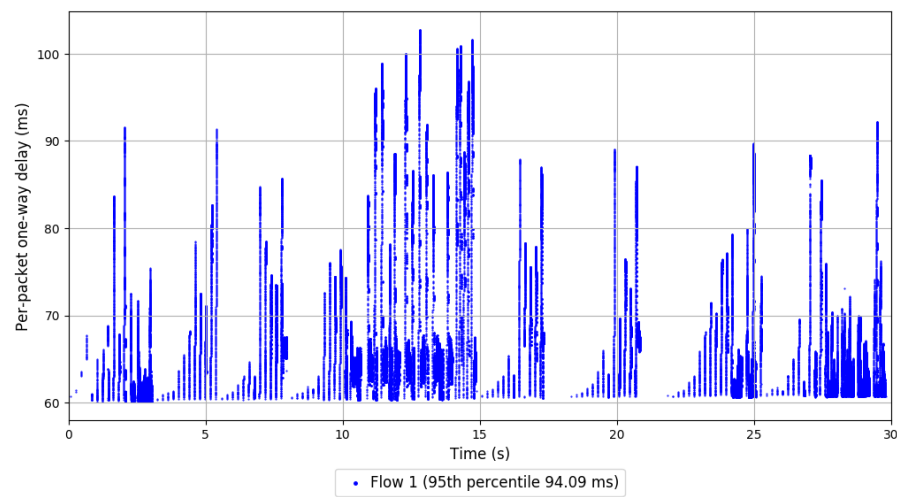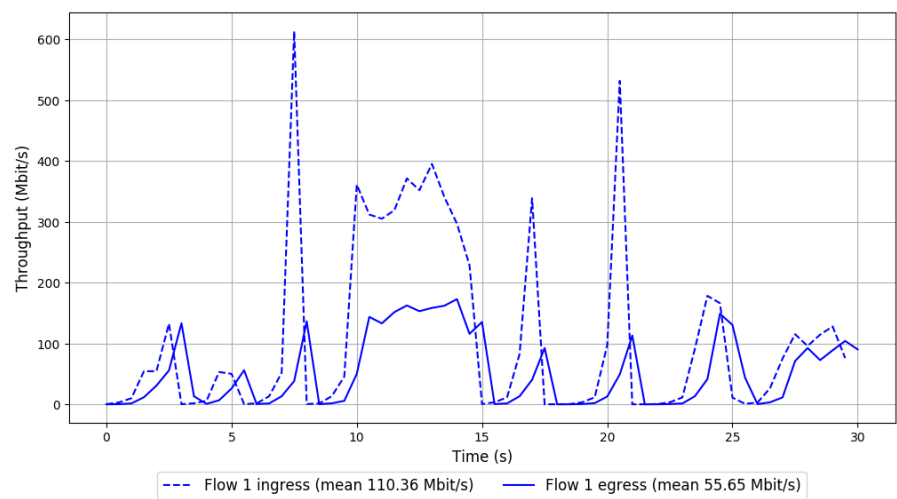## Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-10-09 18:56:52
End at: 2018-10-09 18:57:22
Local clock offset: -14.693 ms
Remote clock offset: -39.33 ms


# Below is generated by plot.py at 2018-10-09 20:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 55.65 Mbit/s
95th percentile per-packet one-way delay: 94.088 ms
Loss rate: 49.58%
-- Flow 1:
Average throughput: 55.65 Mbit/s
95th percentile per-packet one-way delay: 94.088 ms
Loss rate: 49.58%
```
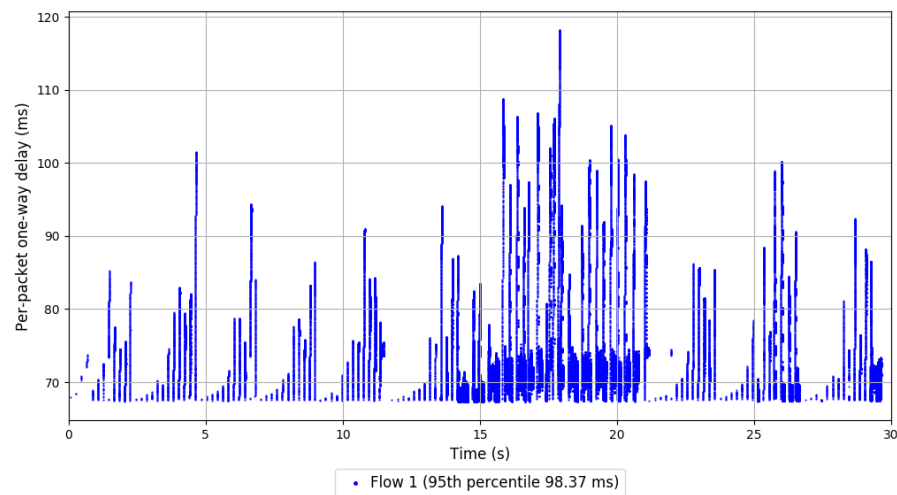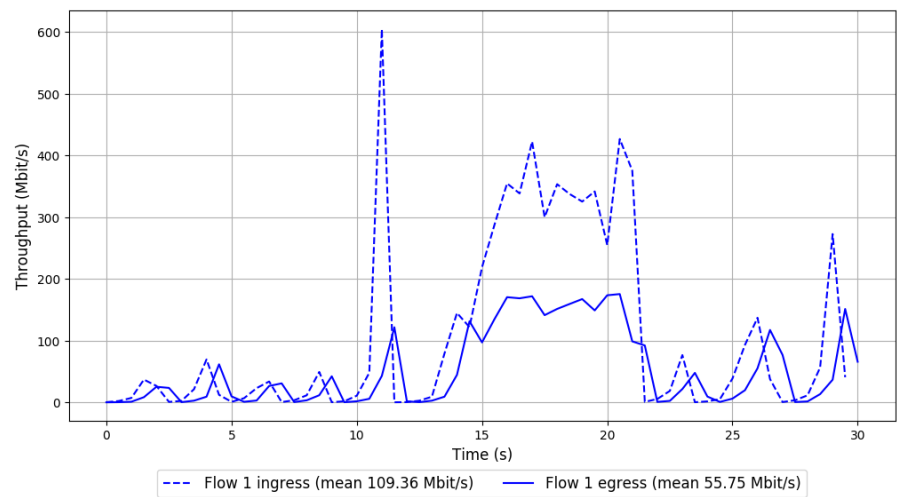
Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2018-10-09 19:30:53
End at: 2018-10-09 19:31:23
Local clock offset: -4.542 ms
Remote clock offset: -33.451 ms


# Below is generated by plot.py at 2018-10-09 20:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 55.75 Mbit/s
95th percentile per-packet one-way delay: 98.366 ms
Loss rate: 49.01%
-- Flow 1:
Average throughput: 55.75 Mbit/s
95th percentile per-packet one-way delay: 98.366 ms
Loss rate: 49.01%
```
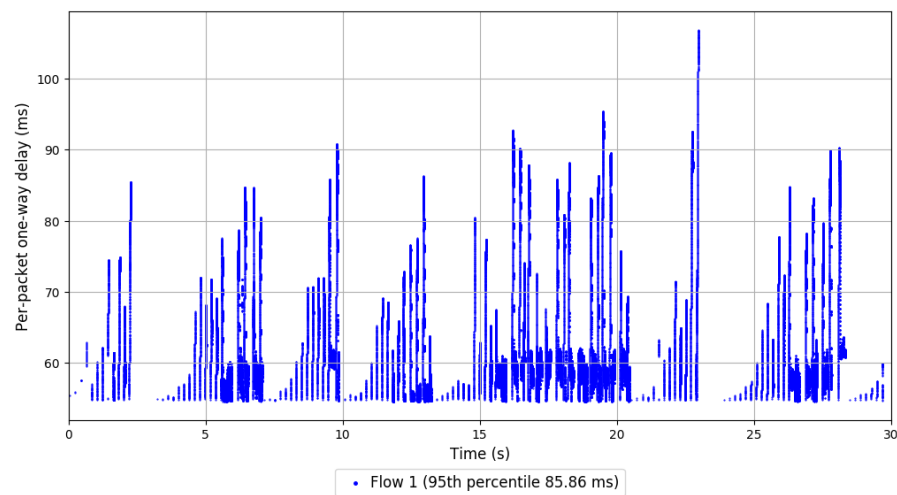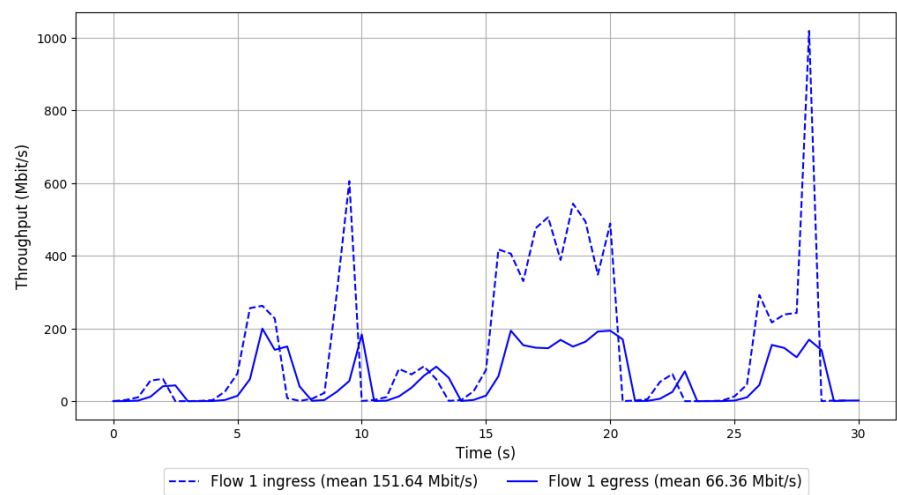
Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2018-10-09 20:05:34
End at: 2018-10-09 20:06:04
Local clock offset: -1.445 ms
Remote clock offset: -42.361 ms


# Below is generated by plot.py at 2018-10-09 20:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 66.36 Mbit/s
95th percentile per-packet one-way delay: 85.864 ms
Loss rate: 56.23%
-- Flow 1:
Average throughput: 66.36 Mbit/s
95th percentile per-packet one-way delay: 85.864 ms
Loss rate: 56.23%
```

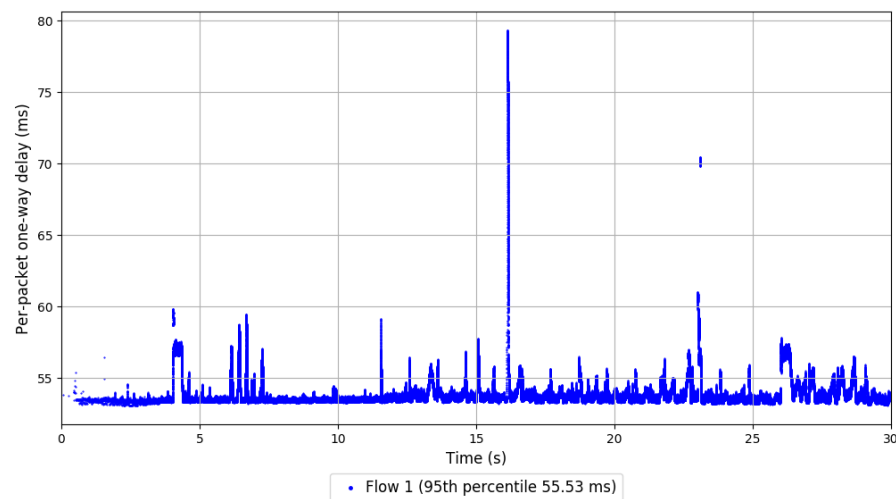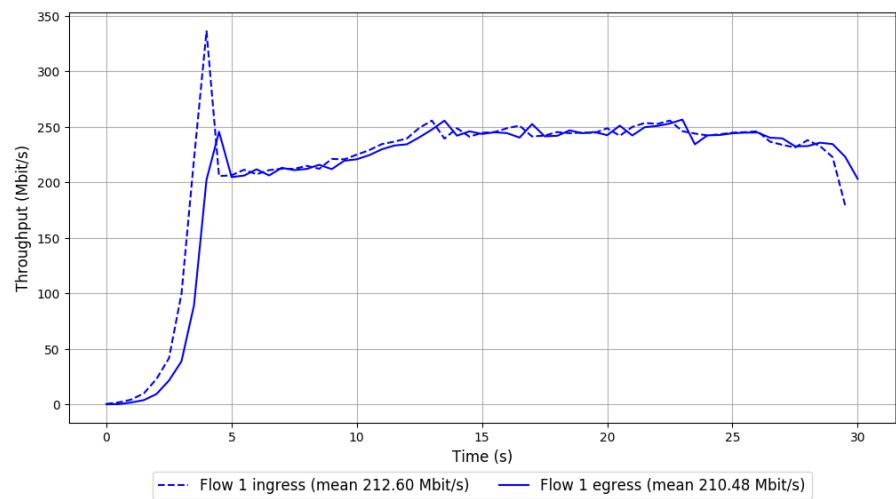Run 5: Report of Verus — Data Link

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```
Run 1: Statistics of PCC-Vivace

Start at: 2018-10-09 17:57:23
End at: 2018-10-09 17:57:53
Local clock offset: -1.834 ms
Remote clock offset: -46.667 ms


# Below is generated by plot.py at 2018-10-09 20:52:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 210.48 Mbit/s
95th percentile per-packet one-way delay: 55.535 ms
Loss rate: 1.00%
-- Flow 1:
Average throughput: 210.48 Mbit/s
95th percentile per-packet one-way delay: 55.535 ms
Loss rate: 1.00%
```

Run 1: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 212.60 Mbit/s)   Flow 1 egress (mean 210.48 Mbit/s)
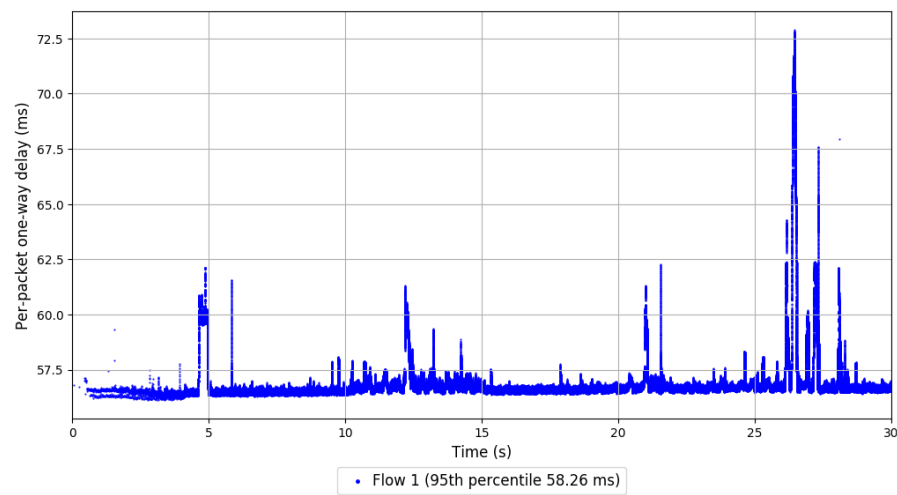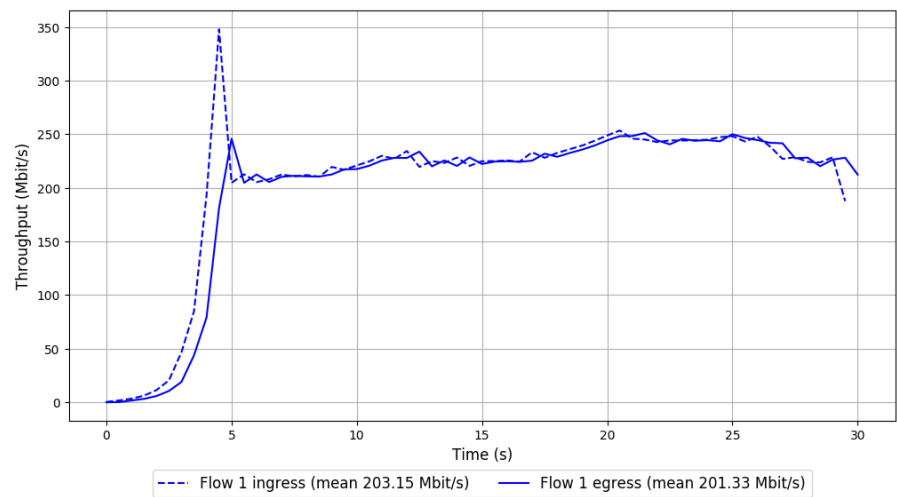

Flow 1 (95th percentile 55.53 ms)

```
Run 2: Statistics of PCC-Vivace

Start at: 2018-10-09 18:26:09
End at: 2018-10-09 18:26:39
Local clock offset: -6.295 ms
Remote clock offset: -39.892 ms


# Below is generated by plot.py at 2018-10-09 20:52:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 201.33 Mbit/s
95th percentile per-packet one-way delay: 58.259 ms
Loss rate: 0.90%
-- Flow 1:
Average throughput: 201.33 Mbit/s
95th percentile per-packet one-way delay: 58.259 ms
Loss rate: 0.90%
```

Run 2: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 203.15 Mbit/s)   Flow 1 egress (mean 201.33 Mbit/s)
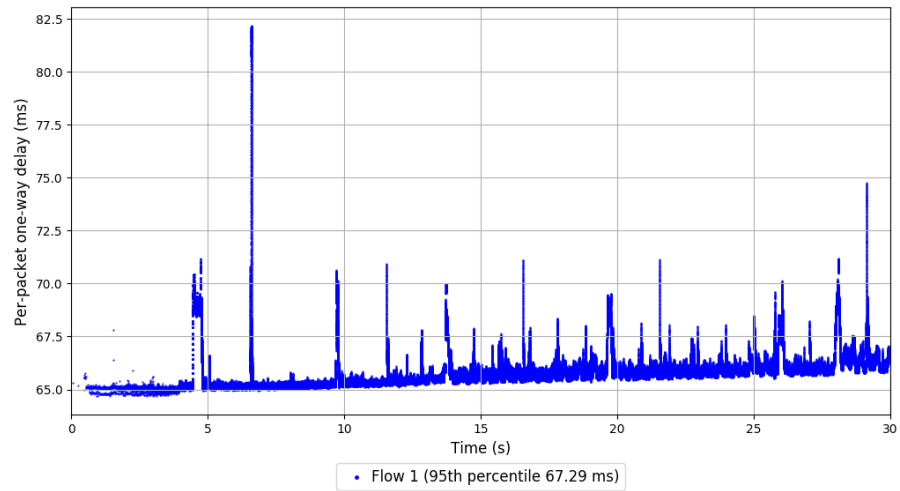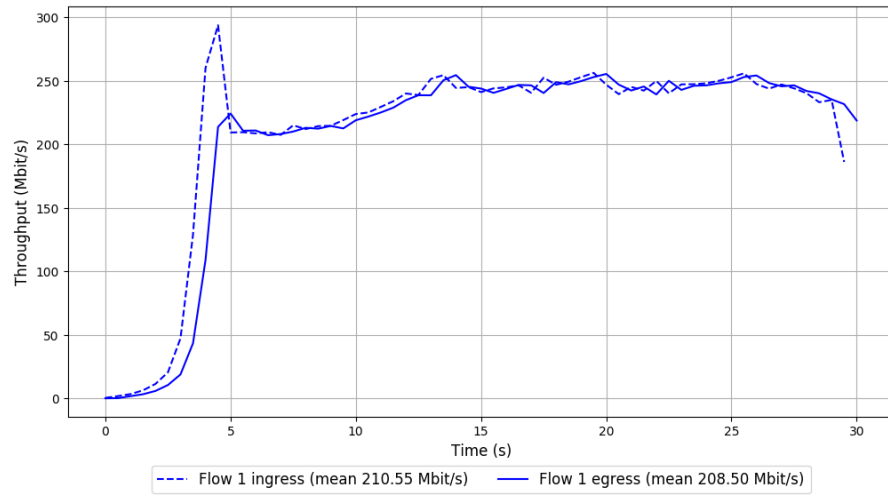

Flow 1 (95th percentile 58.26 ms)

```
Run 3: Statistics of PCC-Vivace

Start at: 2018-10-09 18:54:46
End at: 2018-10-09 18:55:16
Local clock offset: -16.651 ms
Remote clock offset: -32.778 ms


# Below is generated by plot.py at 2018-10-09 20:52:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 208.50 Mbit/s
95th percentile per-packet one-way delay: 67.291 ms
Loss rate: 0.97%
-- Flow 1:
Average throughput: 208.50 Mbit/s
95th percentile per-packet one-way delay: 67.291 ms
Loss rate: 0.97%
```

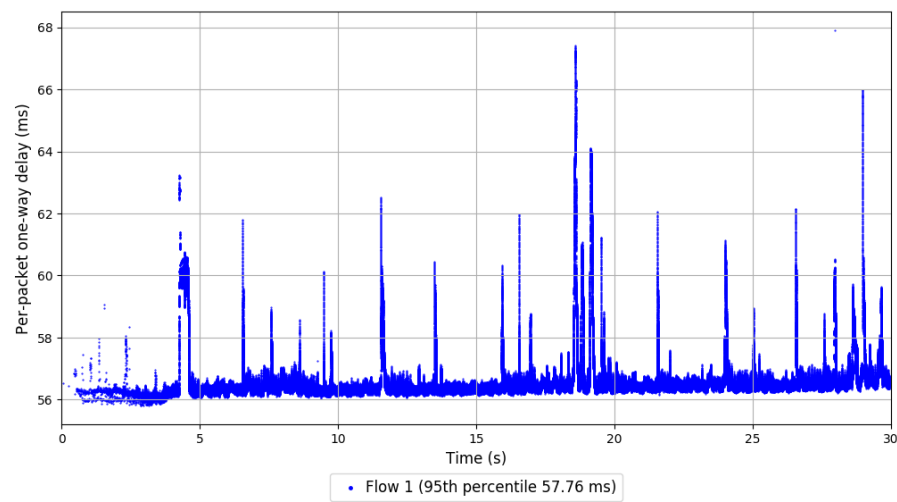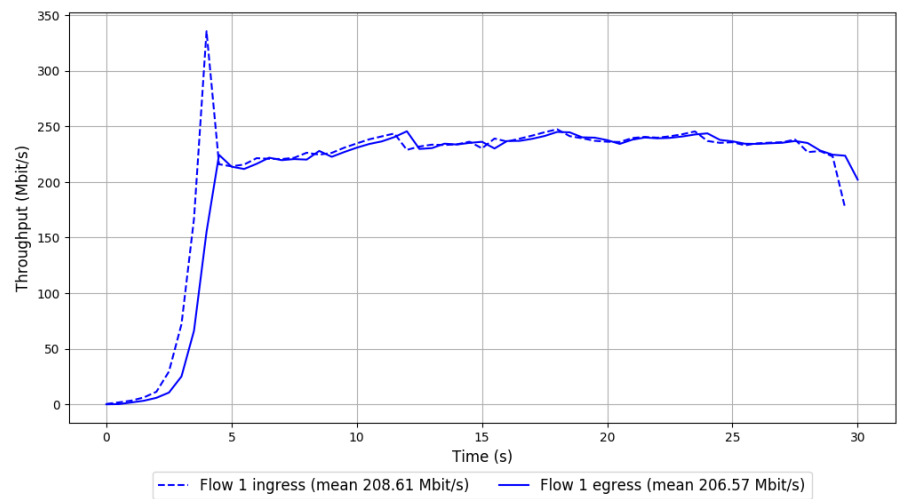# Run 3: Report of PCC-Vivace — Data Link

```
Run 4: Statistics of PCC-Vivace

Start at: 2018-10-09 19:28:47
End at: 2018-10-09 19:29:17
Local clock offset: -5.64 ms
Remote clock offset: -45.181 ms


# Below is generated by plot.py at 2018-10-09 20:52:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 206.57 Mbit/s
95th percentile per-packet one-way delay: 57.759 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 206.57 Mbit/s
95th percentile per-packet one-way delay: 57.759 ms
Loss rate: 0.98%
```

Run 4: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 208.61 Mbit/s)   Flow 1 egress (mean 206.57 Mbit/s)
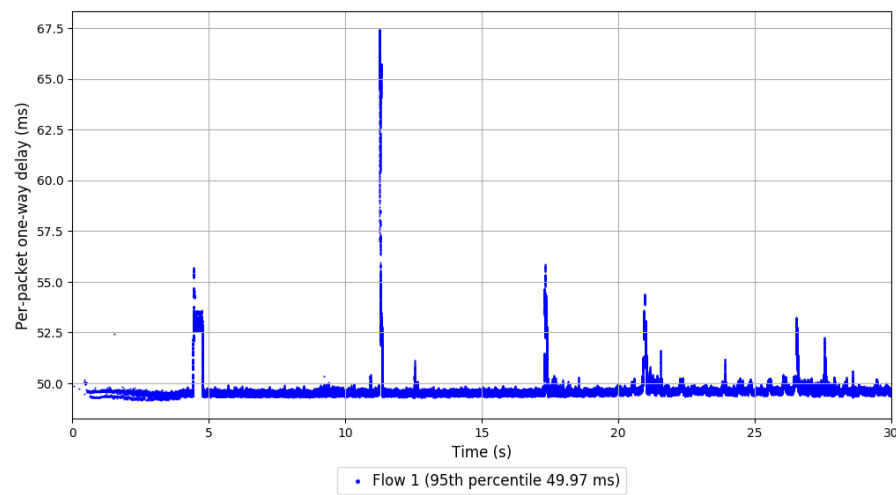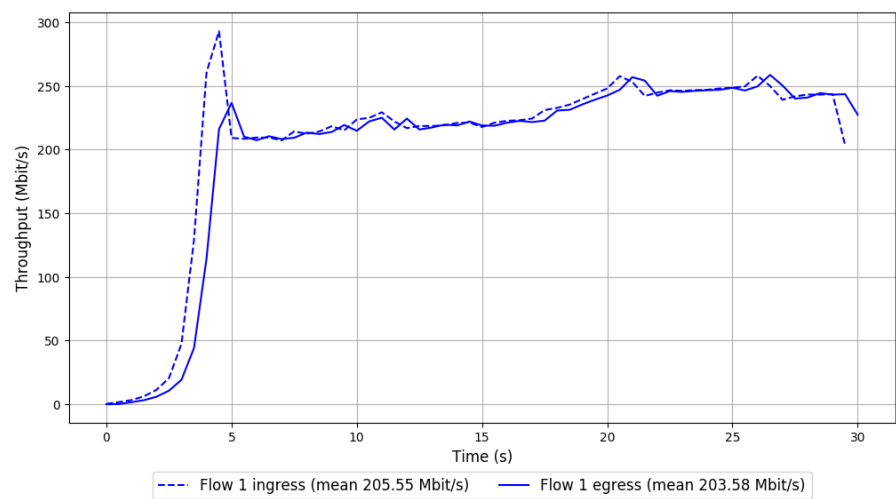

Flow 1 (95th percentile 57.76 ms)

```
Run 5: Statistics of PCC-Vivace

Start at: 2018-10-09 20:03:30
End at: 2018-10-09 20:04:00
Local clock offset: -1.964 ms
Remote clock offset: -48.17 ms


# Below is generated by plot.py at 2018-10-09 20:52:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 203.58 Mbit/s
95th percentile per-packet one-way delay: 49.970 ms
Loss rate: 0.96%
-- Flow 1:
Average throughput: 203.58 Mbit/s
95th percentile per-packet one-way delay: 49.970 ms
Loss rate: 0.96%
```

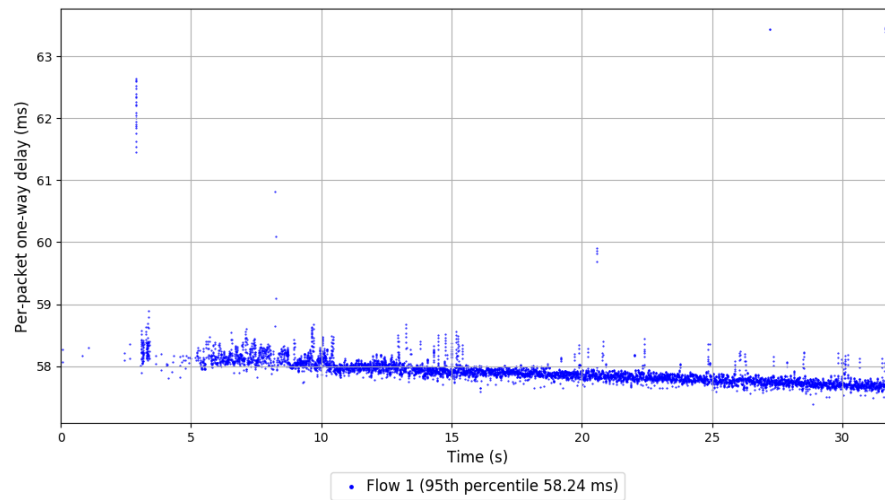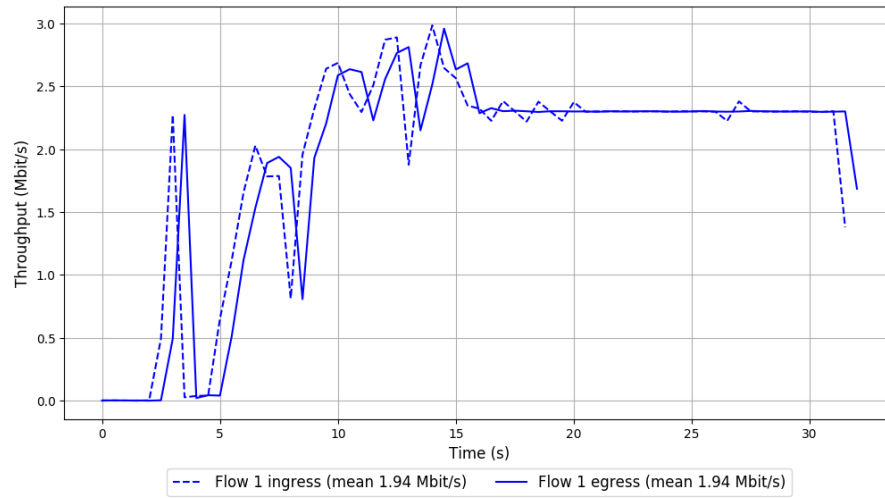Run 5: Report of PCC-Vivace — Data Link

```
Run 1: Statistics of WebRTC media

Start at: 2018-10-09 18:01:10
End at: 2018-10-09 18:01:40
Local clock offset: -1.443 ms
Remote clock offset: -43.53 ms


# Below is generated by plot.py at 2018-10-09 20:52:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.94 Mbit/s
95th percentile per-packet one-way delay: 58.241 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.94 Mbit/s
95th percentile per-packet one-way delay: 58.241 ms
Loss rate: 0.00%
```

Run 1: Report of WebRTC media — Data Link

Flow 1 ingress (mean 1.94 Mbit/s)   Flow 1 egress (mean 1.94 Mbit/s)
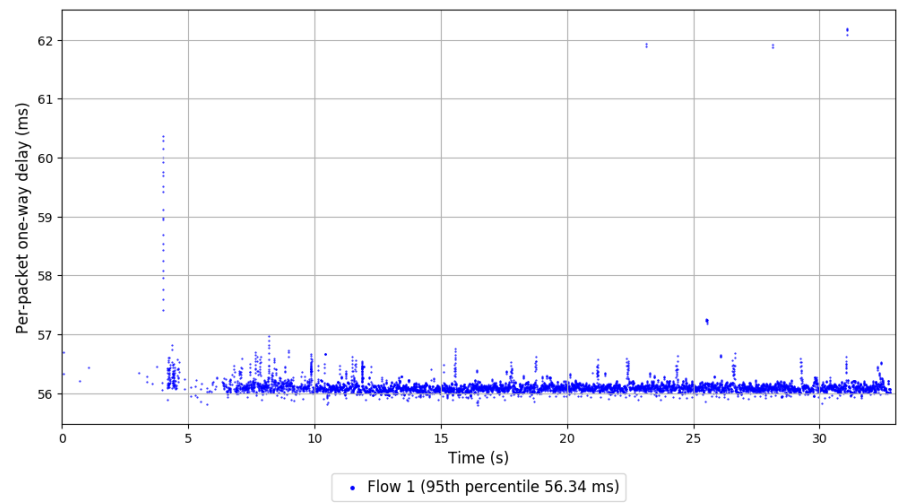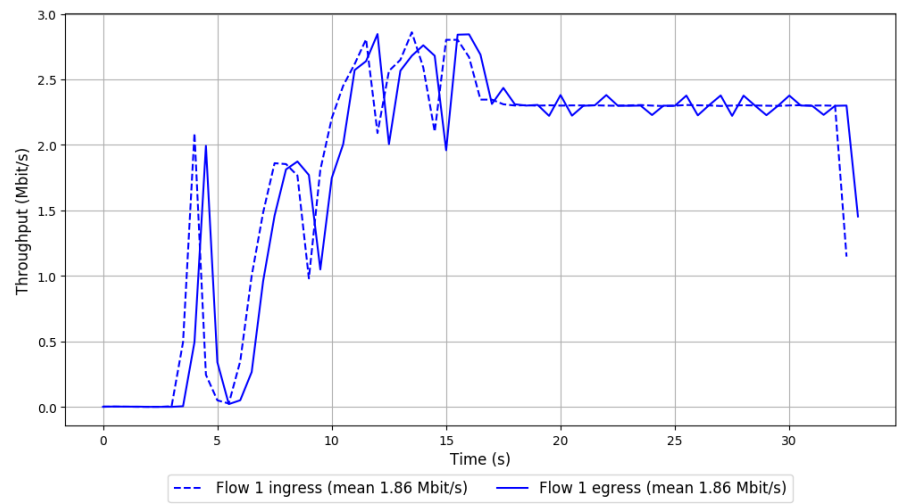

Flow 1 (95th percentile 58.24 ms)

```
Run 2: Statistics of WebRTC media

Start at: 2018-10-09 18:29:46
End at: 2018-10-09 18:30:16
Local clock offset: -8.004 ms
Remote clock offset: -42.793 ms


# Below is generated by plot.py at 2018-10-09 20:52:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.86 Mbit/s
95th percentile per-packet one-way delay: 56.336 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.86 Mbit/s
95th percentile per-packet one-way delay: 56.336 ms
Loss rate: 0.00%
```

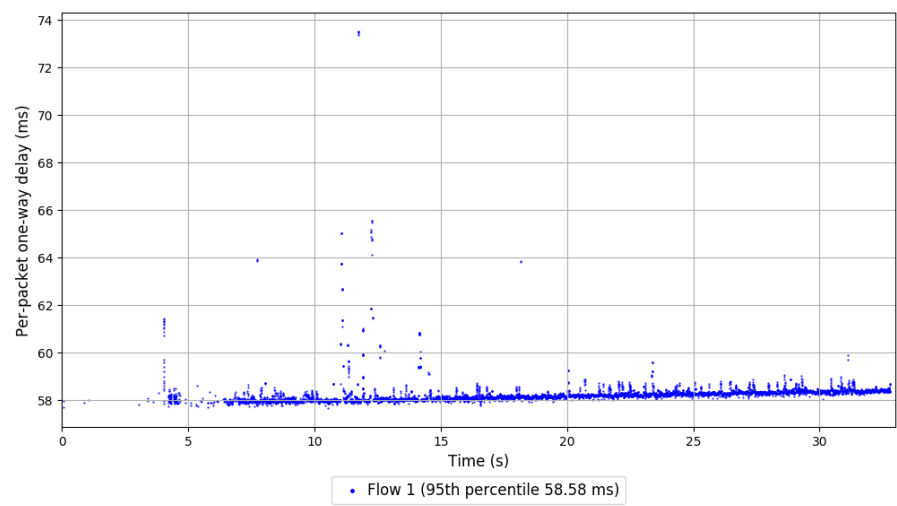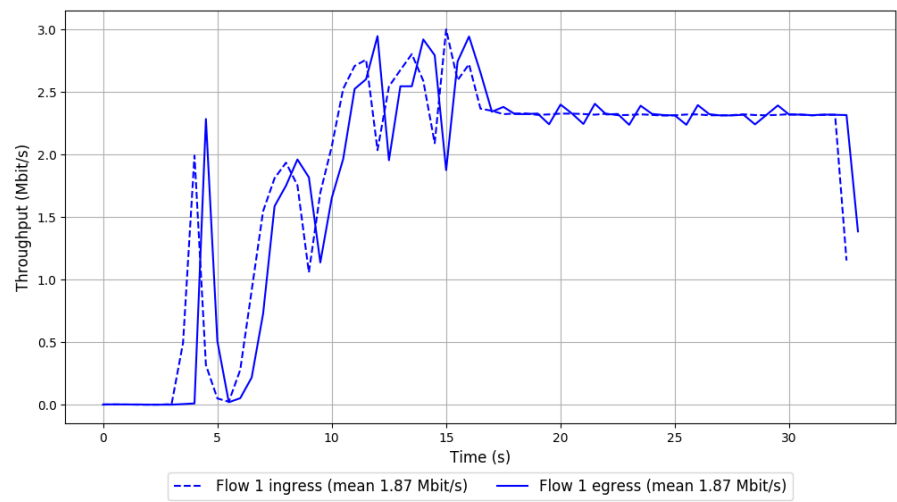Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-10-09 18:58:16
End at: 2018-10-09 18:58:46
Local clock offset: -12.3 ms
Remote clock offset: -40.721 ms


# Below is generated by plot.py at 2018-10-09 20:52:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.87 Mbit/s
95th percentile per-packet one-way delay: 58.583 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.87 Mbit/s
95th percentile per-packet one-way delay: 58.583 ms
Loss rate: 0.00%
```

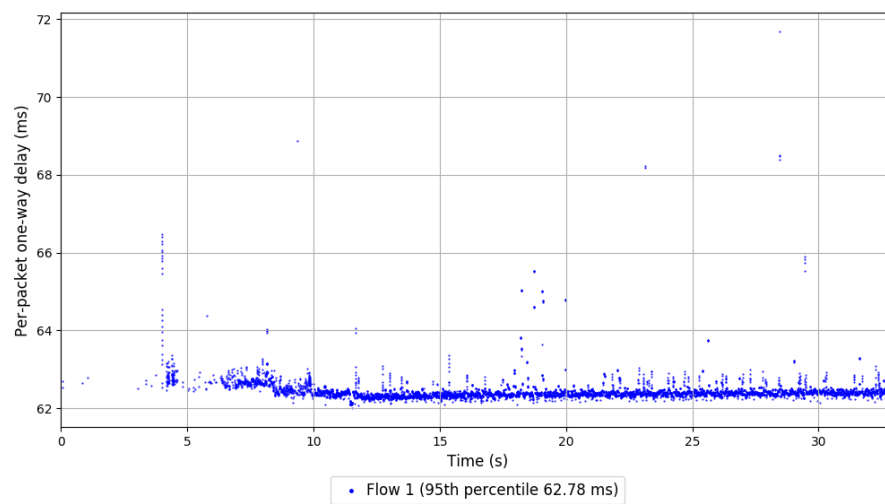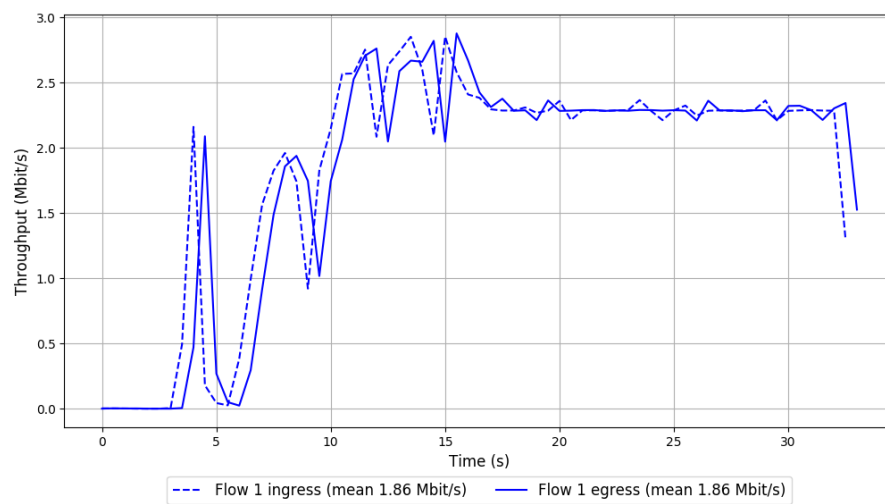Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2018-10-09 19:32:17
End at: 2018-10-09 19:32:47
Local clock offset: -4.089 ms
Remote clock offset: -36.456 ms


# Below is generated by plot.py at 2018-10-09 20:52:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.86 Mbit/s
95th percentile per-packet one-way delay: 62.785 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.86 Mbit/s
95th percentile per-packet one-way delay: 62.785 ms
Loss rate: 0.00%
```

Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2018-10-09 20:07:02
End at: 2018-10-09 20:07:32
Local clock offset: -3.283 ms
Remote clock offset: -38.963 ms


# Below is generated by plot.py at 2018-10-09 20:52:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.86 Mbit/s
95th percentile per-packet one-way delay: 62.490 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.86 Mbit/s
95th percentile per-packet one-way delay: 62.490 ms
Loss rate: 0.00%
```

Run 5: Report of WebRTC media — Data Link

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