Pantheon Report

Generated at 2018-10-03 05:50:04 (UTC).

Data path: GCE London on **ens4** (*local*) →GCE Iowa on **ens4** (*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 `time.google.com` and have been applied to correct the timestamps in logs.
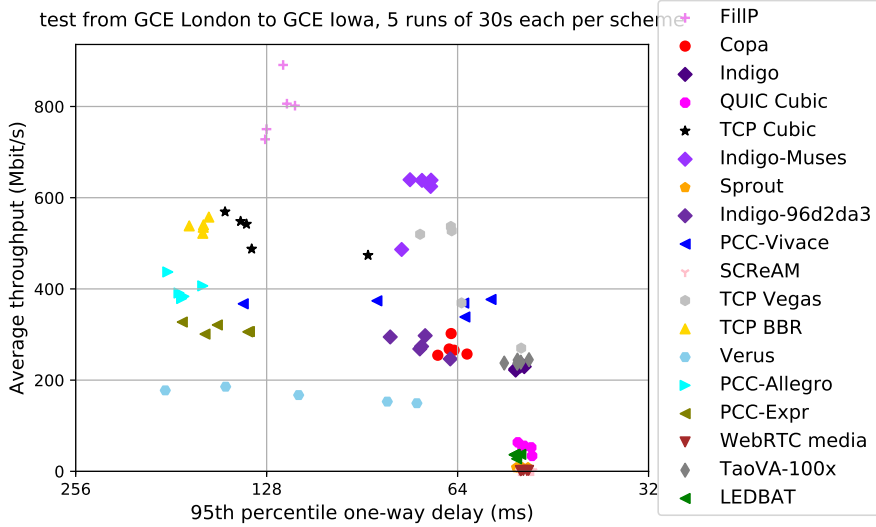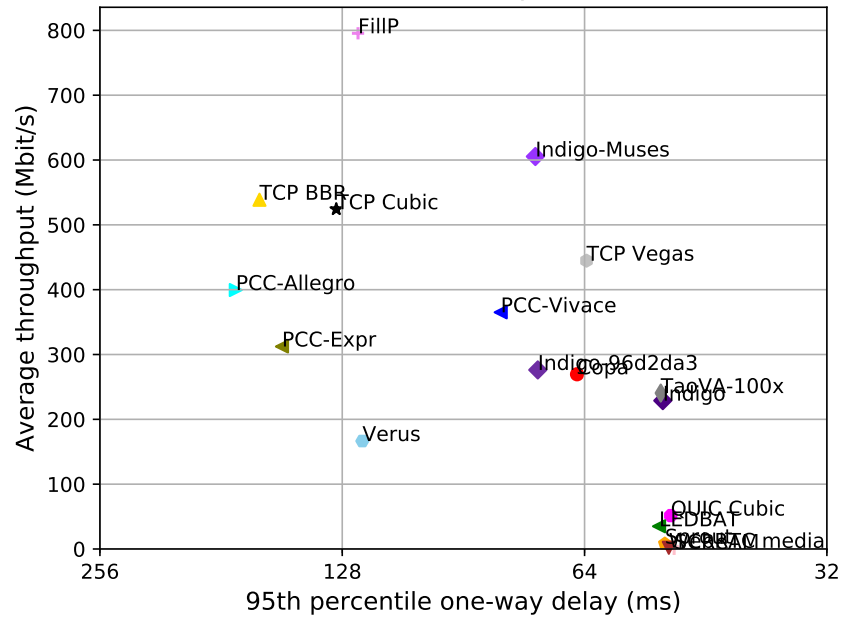
```
System info:
Linux 4.15.0-1019-gcp
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

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 GCE London to GCE Iowa, 5 runs of 30s each per scheme
(mean of all runs by scheme)

test from GCE London to GCE Iowa, 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	538.74	162.19	1.11
Copa	5	269.52	65.39	0.01
TCP Cubic	5	524.16	130.20	0.12
FillP	5	795.48	122.35	1.61
Indigo	5	228.86	51.17	0.00
Indigo-96d2da3	5	276.21	73.16	0.02
LEDBAT	5	35.02	51.72	0.00
Indigo-Muses	5	605.42	73.67	0.02
PCC-Allegro	5	399.46	173.55	3.95
PCC-Expr	5	312.32	152.09	7.78
QUIC Cubic	5	51.52	50.02	0.00
SCReAM	5	0.22	49.53	0.00
Sprout	5	8.23	50.87	0.00
TaoVA-100x	5	240.51	51.47	0.00
TCP Vegas	5	444.72	63.64	0.01
Verus	5	166.52	120.85	0.21
PCC-Vivace	5	365.09	81.35	0.14
WebRTC media	5	1.85	50.29	0.00

```
Run 1: Statistics of TCP BBR

Start at: 2018-10-03 02:22:55
End at: 2018-10-03 02:23:25
Local clock offset: -0.08 ms
Remote clock offset: -0.017 ms


# Below is generated by plot.py at 2018-10-03 04:45:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 522.04 Mbit/s
95th percentile per-packet one-way delay: 161.391 ms
Loss rate: 1.44%
-- Flow 1:
Average throughput: 522.04 Mbit/s
95th percentile per-packet one-way delay: 161.391 ms
Loss rate: 1.44%
```
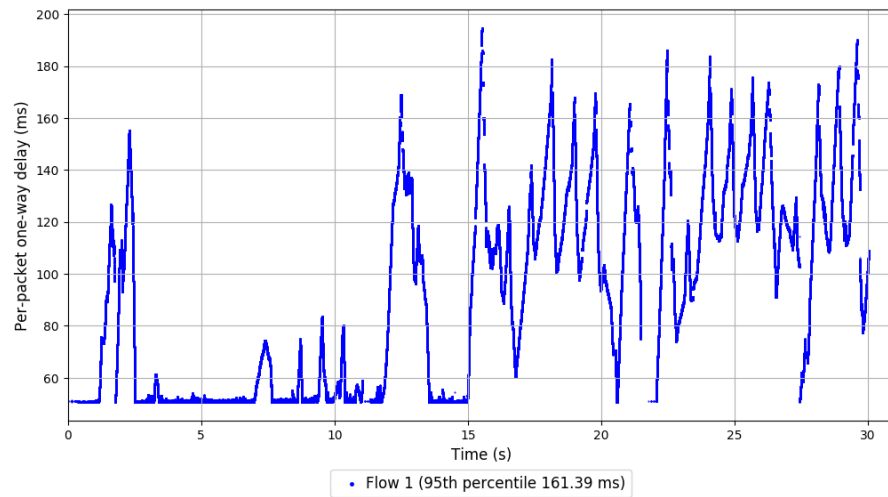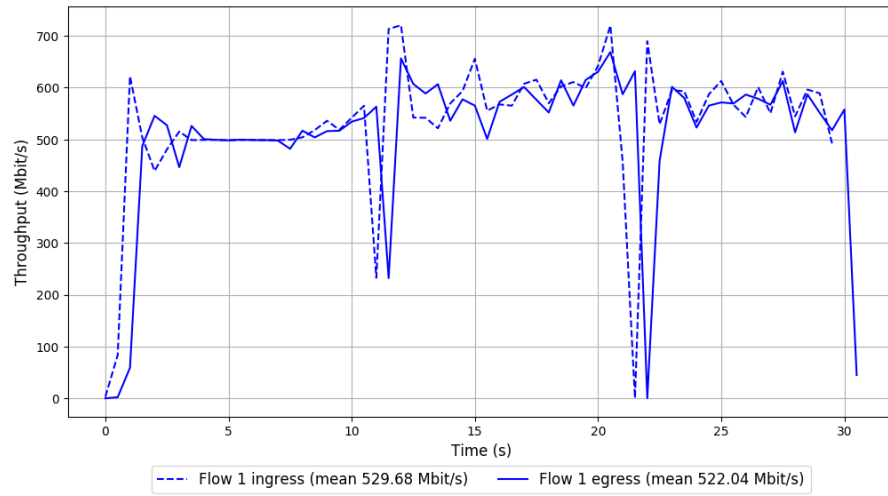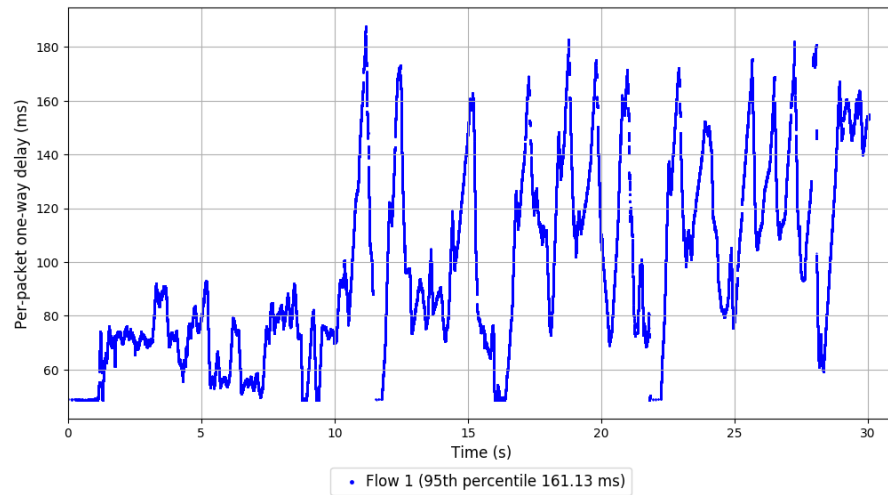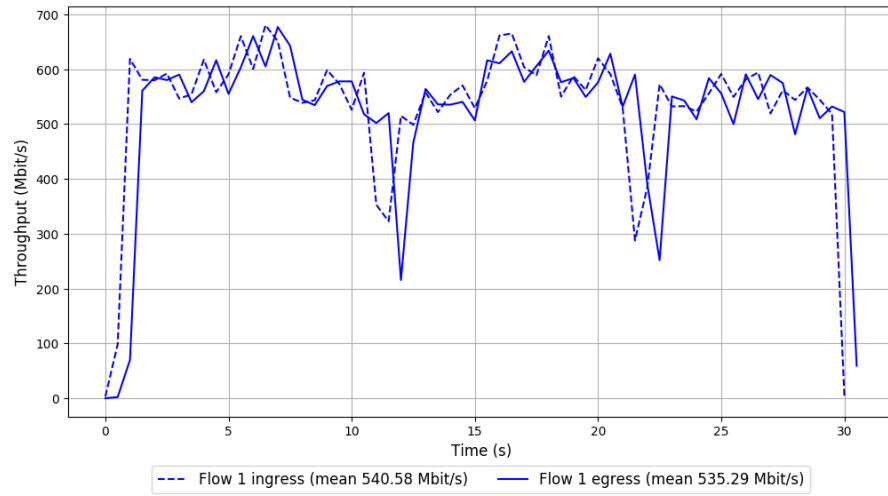
Run 1: Report of TCP BBR — Data Link

```
Run 2: Statistics of TCP BBR

Start at: 2018-10-03 02:47:55
End at: 2018-10-03 02:48:25
Local clock offset: -0.005 ms
Remote clock offset: -0.024 ms


# Below is generated by plot.py at 2018-10-03 04:45:32
# Datalink statistics
-- Total of 1 flow:
Average throughput: 535.29 Mbit/s
95th percentile per-packet one-way delay: 161.135 ms
Loss rate: 0.97%
-- Flow 1:
Average throughput: 535.29 Mbit/s
95th percentile per-packet one-way delay: 161.135 ms
Loss rate: 0.97%
```
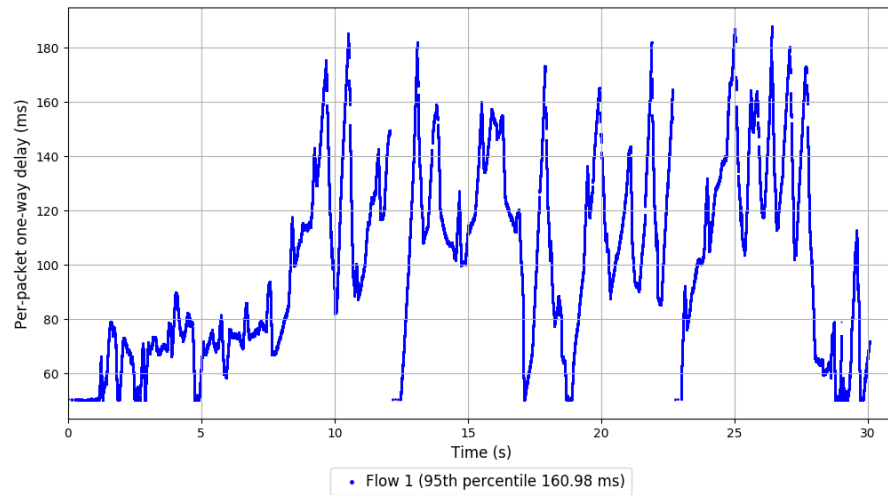
Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2018-10-03 03:13:03
End at: 2018-10-03 03:13:33
Local clock offset: -0.065 ms
Remote clock offset: -0.016 ms

# Below is generated by plot.py at 2018-10-03 04:45:37
# Datalink statistics
-- Total of 1 flow:
Average throughput: 540.55 Mbit/s
95th percentile per-packet one-way delay: 160.983 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 540.55 Mbit/s
95th percentile per-packet one-way delay: 160.983 ms
Loss rate: 0.71%
```
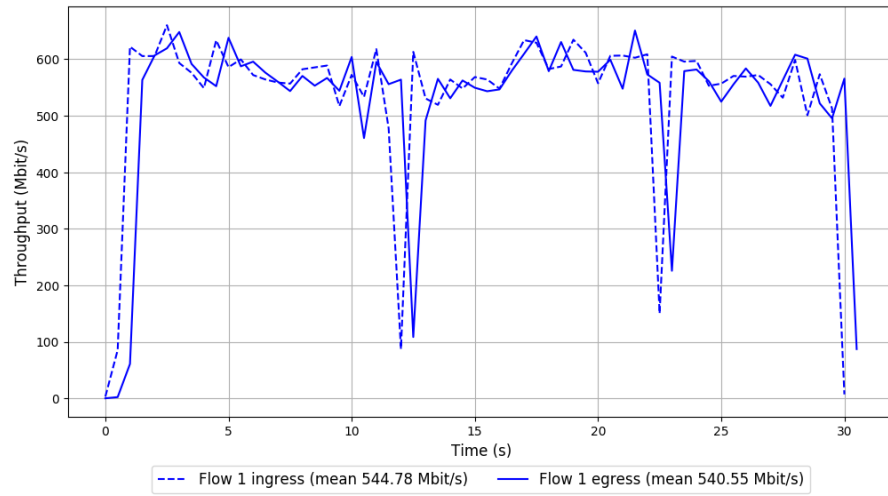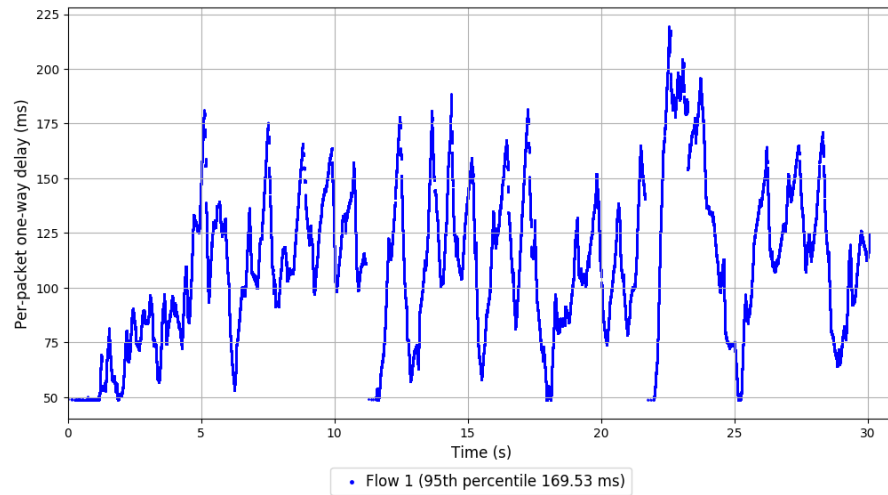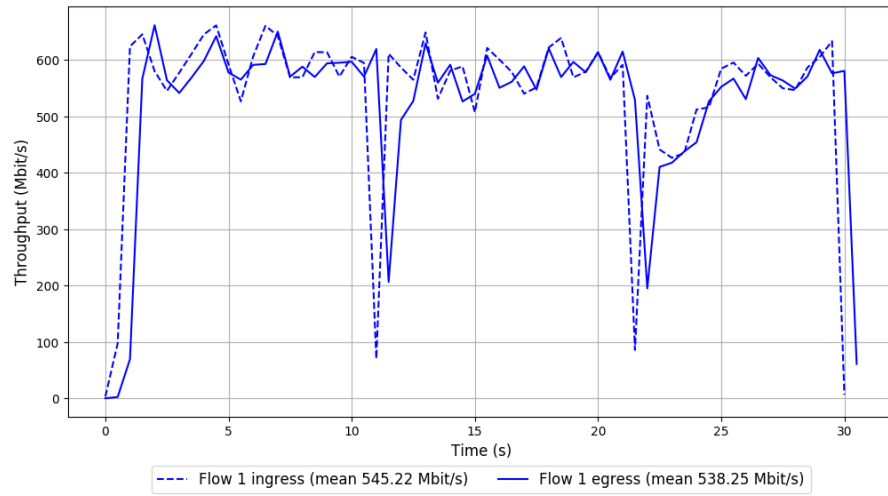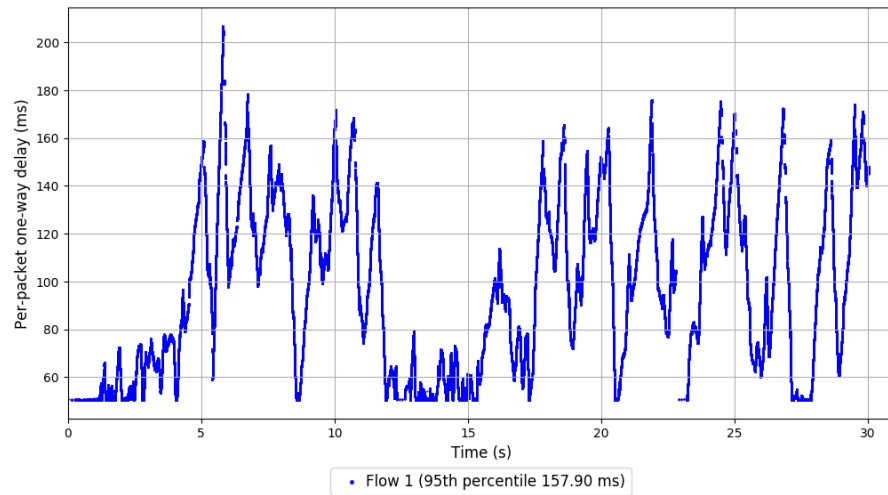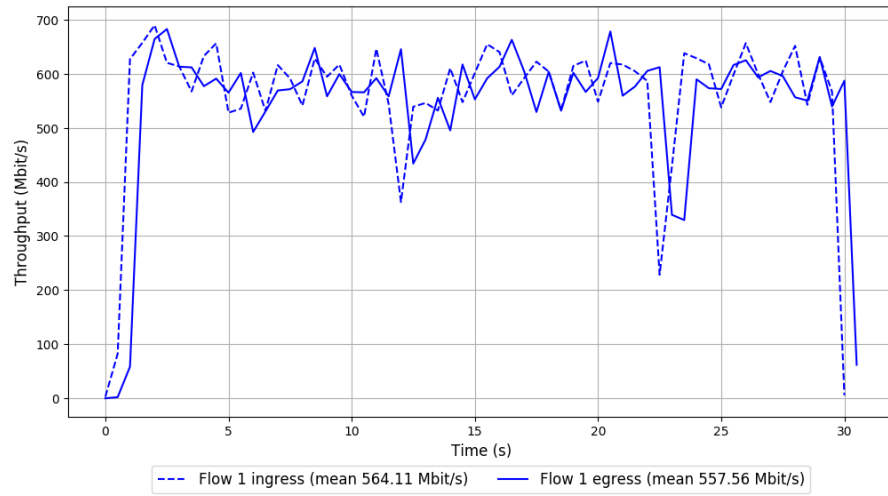
Run 3: Report of TCP BBR — Data Link

Flow 1 ingress (mean 544.78 Mbit/s)   Flow 1 egress (mean 540.55 Mbit/s)

Flow 1 (95th percentile 160.98 ms)

```
Run 4: Statistics of TCP BBR

Start at: 2018-10-03 03:38:06
End at: 2018-10-03 03:38:36
Local clock offset: -0.104 ms
Remote clock offset: -0.053 ms


# Below is generated by plot.py at 2018-10-03 04:45:39
# Datalink statistics
-- Total of 1 flow:
Average throughput: 538.25 Mbit/s
95th percentile per-packet one-way delay: 169.534 ms
Loss rate: 1.27%
-- Flow 1:
Average throughput: 538.25 Mbit/s
95th percentile per-packet one-way delay: 169.534 ms
Loss rate: 1.27%
```

Run 4: Report of TCP BBR — Data Link

Flow 1 ingress (mean 545.22 Mbit/s)   Flow 1 egress (mean 538.25 Mbit/s)

Flow 1 (95th percentile 169.53 ms)

```
Run 5: Statistics of TCP BBR

Start at: 2018-10-03 04:03:03
End at: 2018-10-03 04:03:33
Local clock offset: -0.122 ms
Remote clock offset: -0.112 ms


# Below is generated by plot.py at 2018-10-03 04:45:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 557.56 Mbit/s
95th percentile per-packet one-way delay: 157.900 ms
Loss rate: 1.16%
-- Flow 1:
Average throughput: 557.56 Mbit/s
95th percentile per-packet one-way delay: 157.900 ms
Loss rate: 1.16%
```
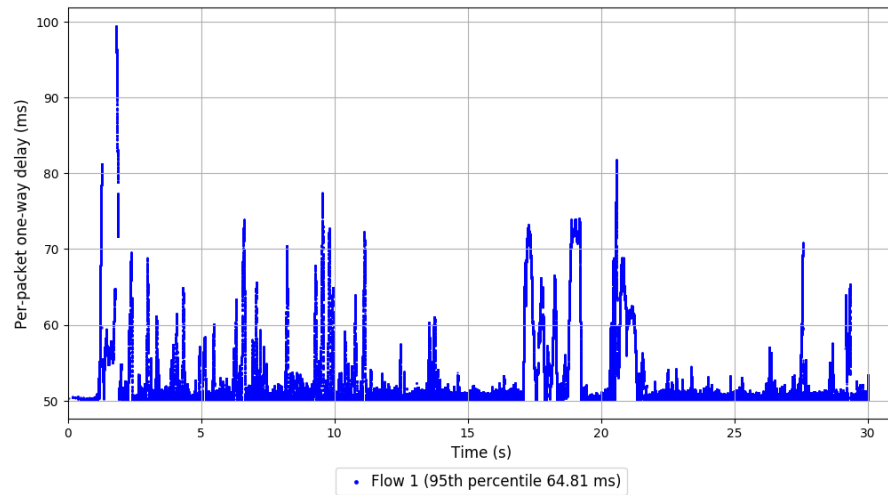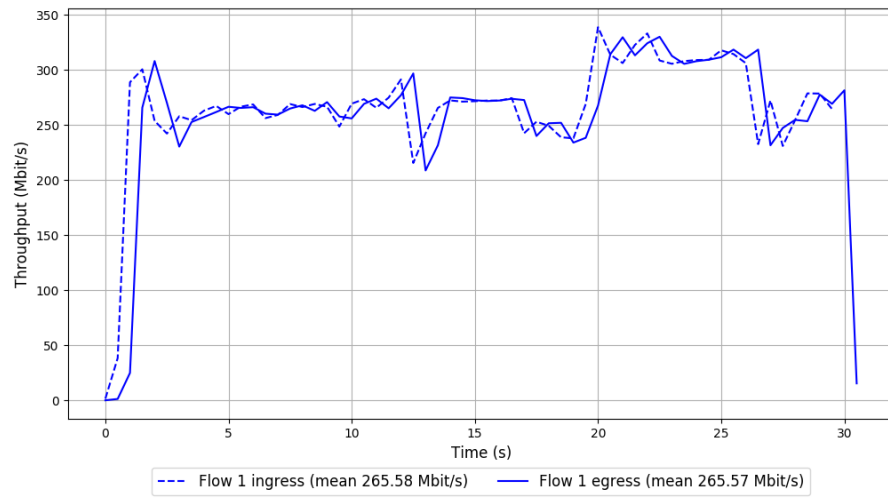
Run 5: Report of TCP BBR — Data Link

Flow 1 ingress (mean 564.11 Mbit/s) --- Flow 1 egress (mean 557.56 Mbit/s)
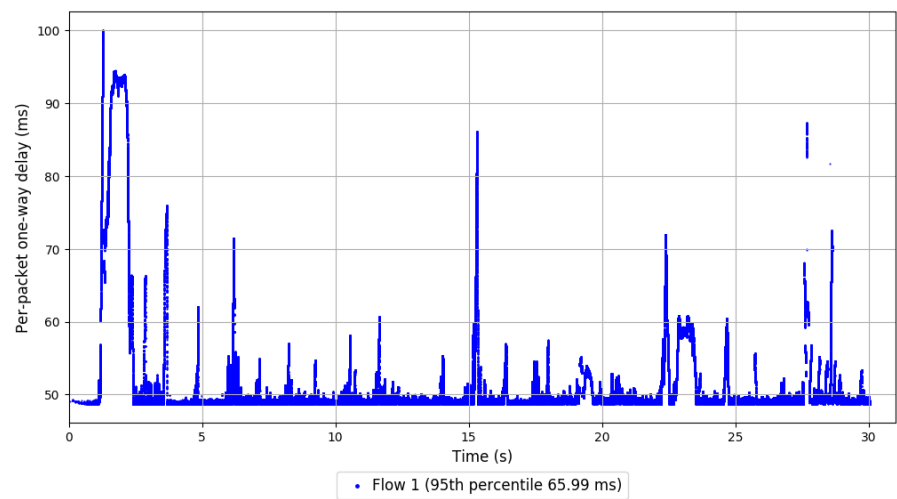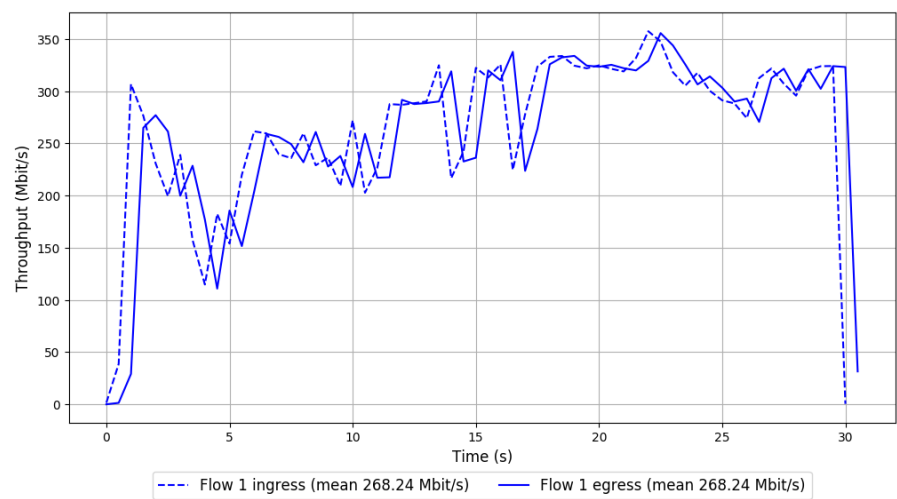

• Flow 1 (95th percentile 157.90 ms)

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```
Run 1: Statistics of Copa

Start at: 2018-10-03 02:26:03
End at: 2018-10-03 02:26:33
Local clock offset: -0.051 ms
Remote clock offset: -0.02 ms

# Below is generated by plot.py at 2018-10-03 04:45:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 265.57 Mbit/s
95th percentile per-packet one-way delay: 64.814 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 265.57 Mbit/s
95th percentile per-packet one-way delay: 64.814 ms
Loss rate: 0.00%
```

Run 1: Report of Copa — Data Link

```
Run 2: Statistics of Copa

Start at: 2018-10-03 02:51:01
End at: 2018-10-03 02:51:31
Local clock offset: 0.025 ms
Remote clock offset: 0.01 ms


# Below is generated by plot.py at 2018-10-03 04:45:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 268.24 Mbit/s
95th percentile per-packet one-way delay: 65.989 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 268.24 Mbit/s
95th percentile per-packet one-way delay: 65.989 ms
Loss rate: 0.00%
```
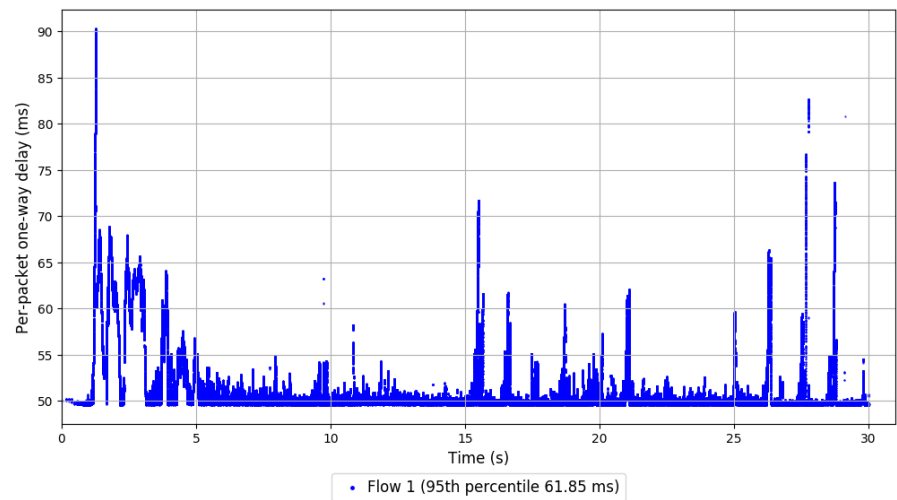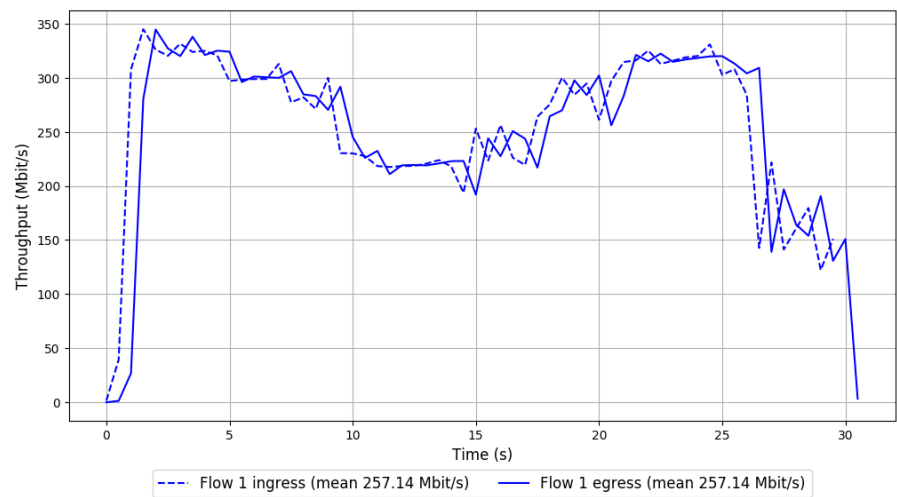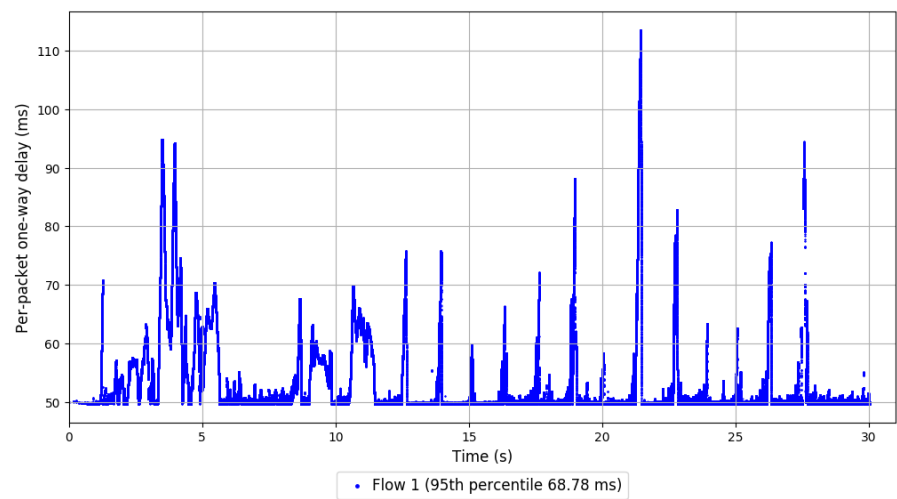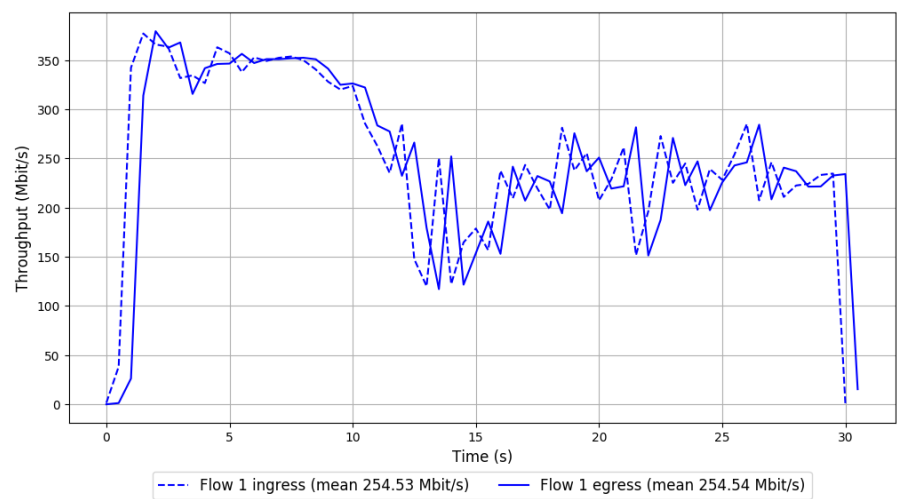
Run 2: Report of Copa — Data Link

```
Run 3: Statistics of Copa

Start at: 2018-10-03 03:16:04
End at: 2018-10-03 03:16:34
Local clock offset: -0.092 ms
Remote clock offset: 0.019 ms


# Below is generated by plot.py at 2018-10-03 04:45:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 257.14 Mbit/s
95th percentile per-packet one-way delay: 61.850 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 257.14 Mbit/s
95th percentile per-packet one-way delay: 61.850 ms
Loss rate: 0.00%
```
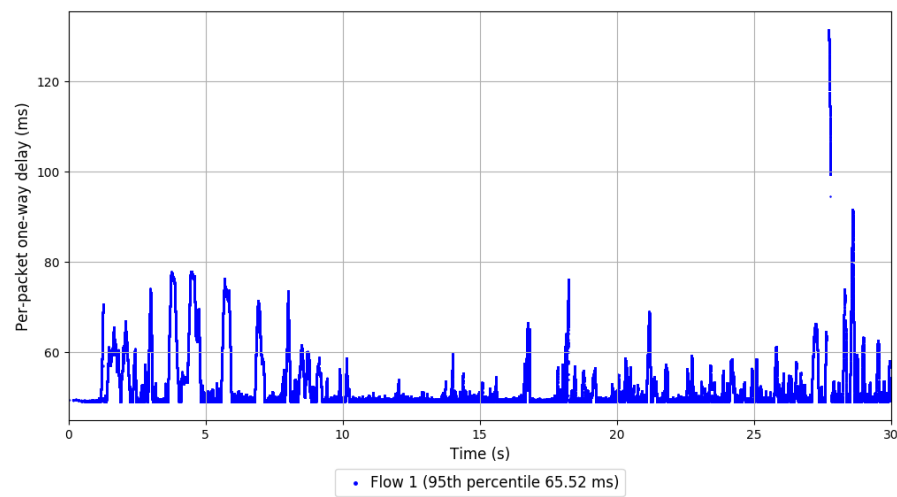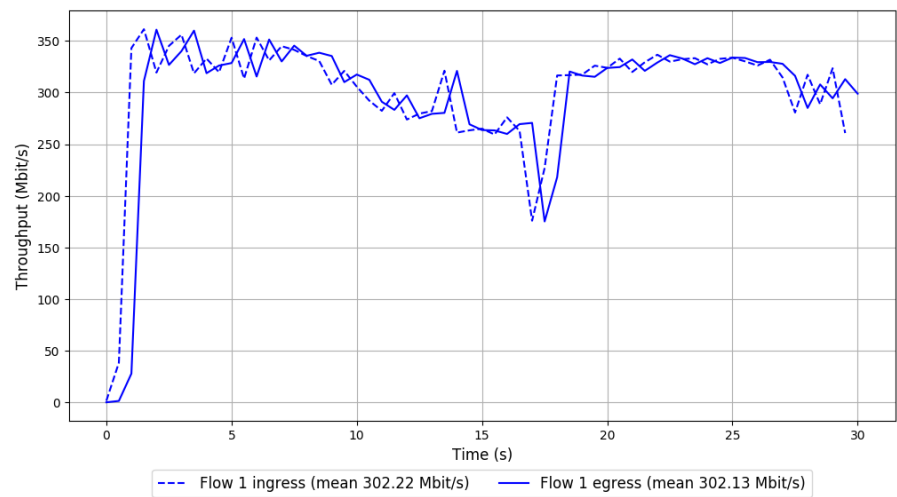
Run 3: Report of Copa — Data Link

Run 4: Statistics of Copa

Start at: 2018-10-03 03:41:09
End at: 2018-10-03 03:41:39
Local clock offset: -0.135 ms
Remote clock offset: -0.038 ms

Below is generated by plot.py at 2018-10-03 04:52:56
Datalink statistics
-- Total of 1 flow:
Average throughput: 254.54 Mbit/s
95th percentile per-packet one-way delay: 68.780 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 254.54 Mbit/s
95th percentile per-packet one-way delay: 68.780 ms
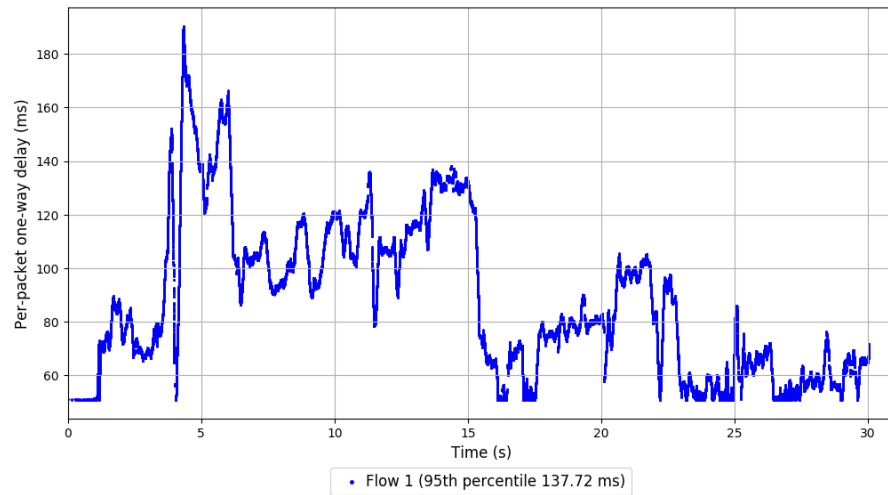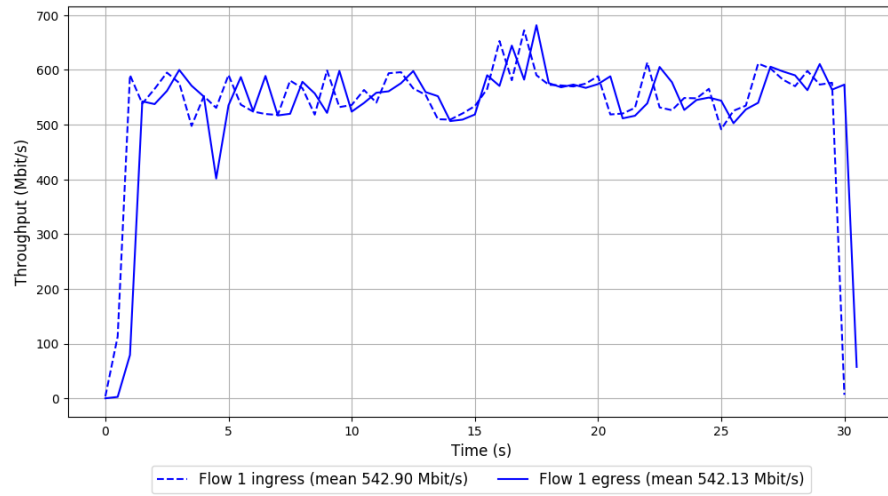Loss rate: 0.00%

Run 4: Report of Copa — Data Link

Flow 1 ingress (mean 254.53 Mbit/s) — — — Flow 1 egress (mean 254.54 Mbit/s)

• Flow 1 (95th percentile 68.78 ms)

```
Run 5: Statistics of Copa

Start at: 2018-10-03 04:06:12
End at: 2018-10-03 04:06:42
Local clock offset: 0.188 ms
Remote clock offset: -0.138 ms


# Below is generated by plot.py at 2018-10-03 04:53:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 302.13 Mbit/s
95th percentile per-packet one-way delay: 65.520 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 302.13 Mbit/s
95th percentile per-packet one-way delay: 65.520 ms
Loss rate: 0.03%
```
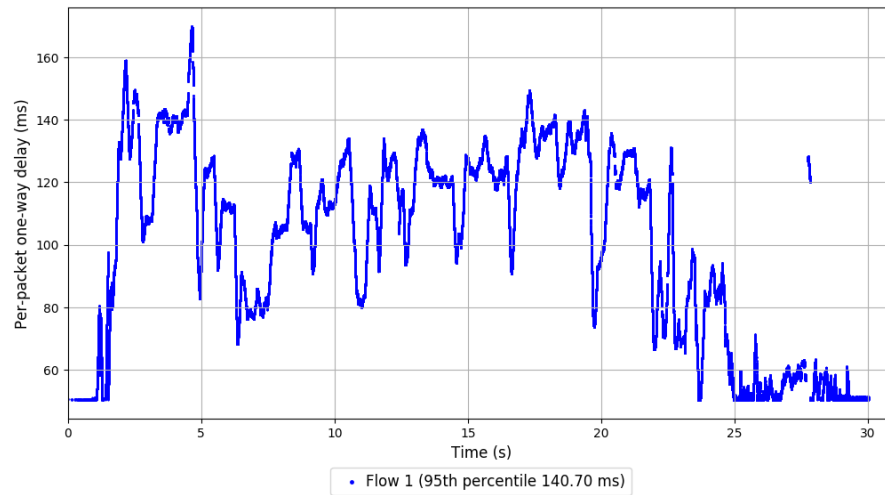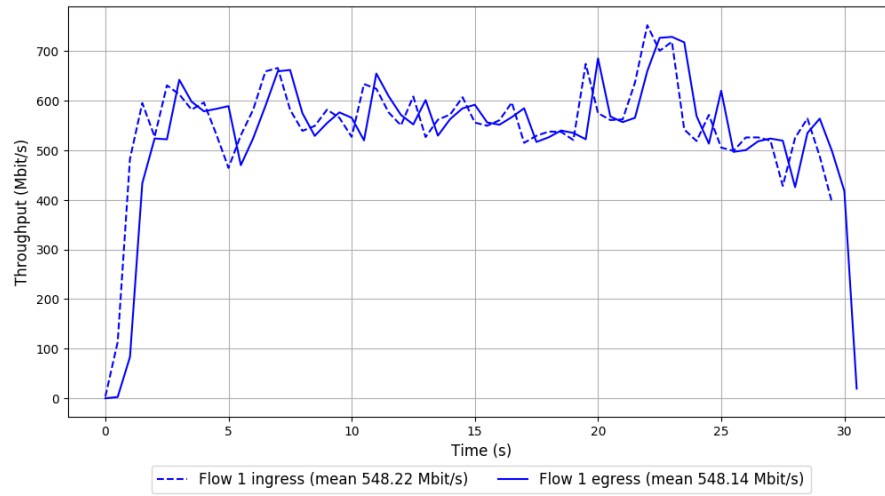
Run 5: Report of Copa — Data Link

```
Run 1: Statistics of TCP Cubic

Start at: 2018-10-03 02:24:30
End at: 2018-10-03 02:25:00
Local clock offset: -0.4 ms
Remote clock offset: -0.024 ms


# Below is generated by plot.py at 2018-10-03 04:53:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 542.13 Mbit/s
95th percentile per-packet one-way delay: 137.715 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 542.13 Mbit/s
95th percentile per-packet one-way delay: 137.715 ms
Loss rate: 0.14%
```
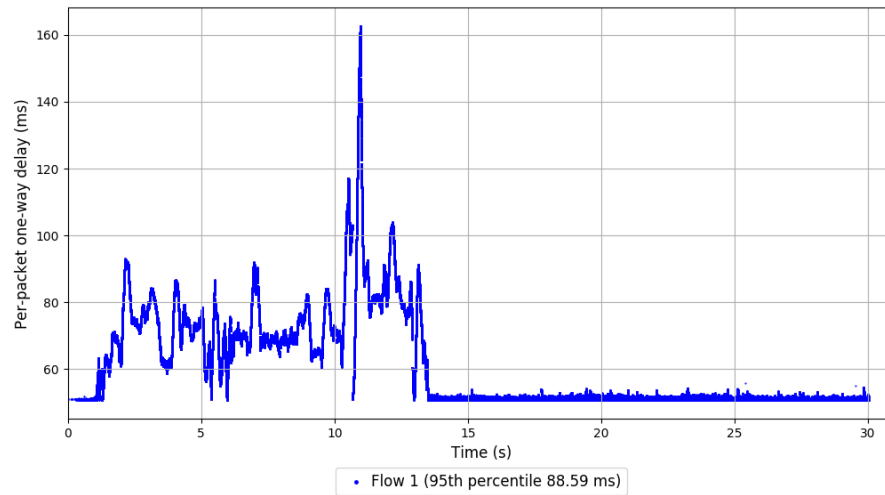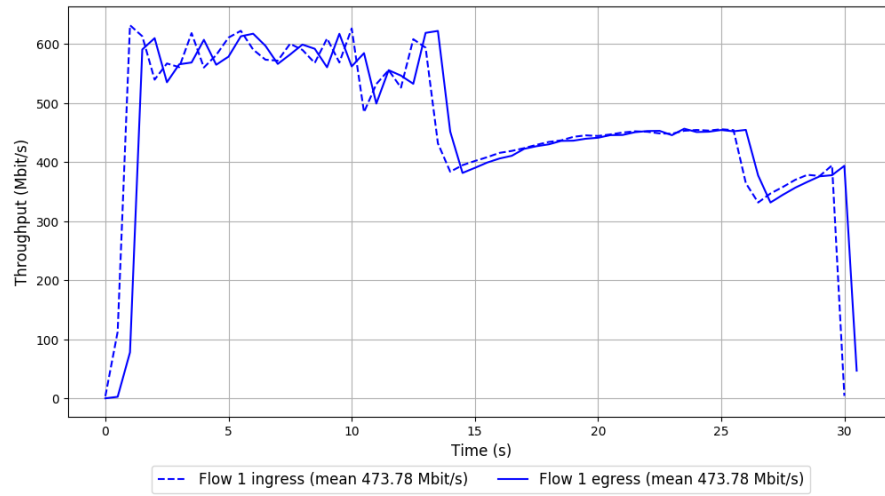
Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2018-10-03 02:49:28
End at: 2018-10-03 02:49:58
Local clock offset: 0.016 ms
Remote clock offset: -0.016 ms


# Below is generated by plot.py at 2018-10-03 04:54:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 548.14 Mbit/s
95th percentile per-packet one-way delay: 140.703 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 548.14 Mbit/s
95th percentile per-packet one-way delay: 140.703 ms
Loss rate: 0.01%
```

Run 2: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 548.22 Mbit/s)   Flow 1 egress (mean 548.14 Mbit/s)
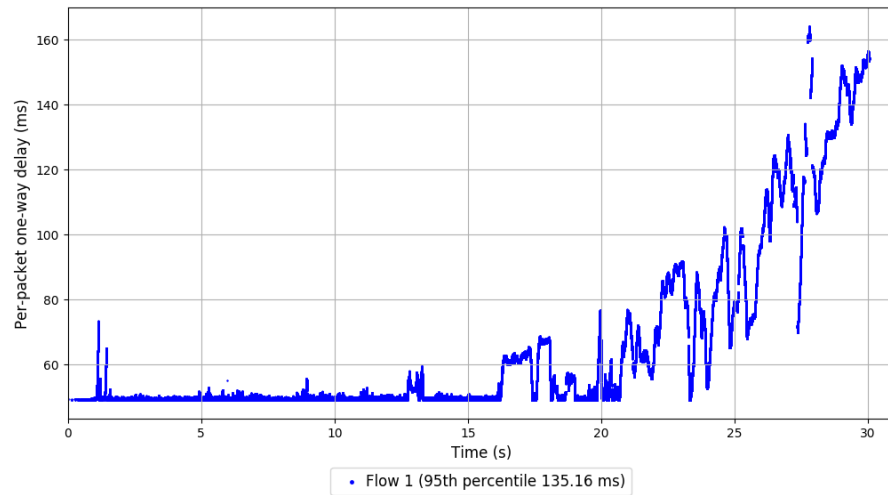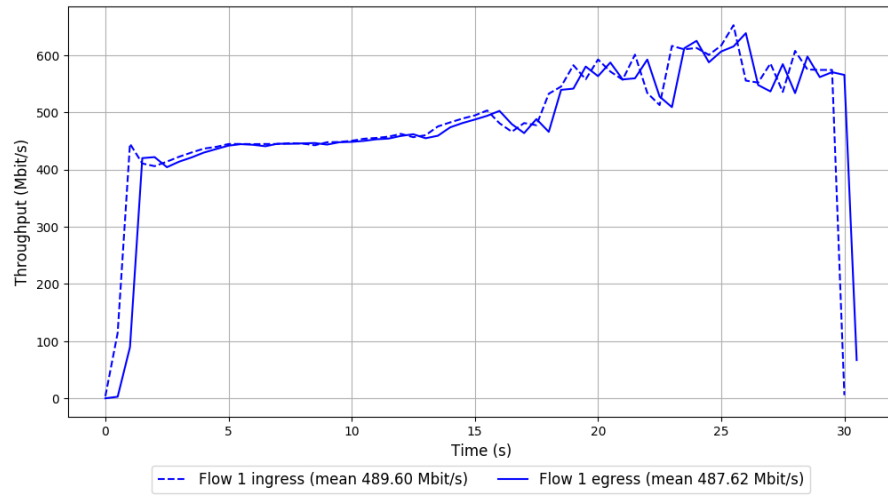

Flow 1 (95th percentile 140.70 ms)

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```
Run 3: Statistics of TCP Cubic

Start at: 2018-10-03 03:14:36
End at: 2018-10-03 03:15:06
Local clock offset: -0.096 ms
Remote clock offset: -0.013 ms


# Below is generated by plot.py at 2018-10-03 04:54:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 473.78 Mbit/s
95th percentile per-packet one-way delay: 88.587 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 473.78 Mbit/s
95th percentile per-packet one-way delay: 88.587 ms
Loss rate: 0.00%
```

Run 3: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 473.78 Mbit/s) — Flow 1 egress (mean 473.78 Mbit/s)
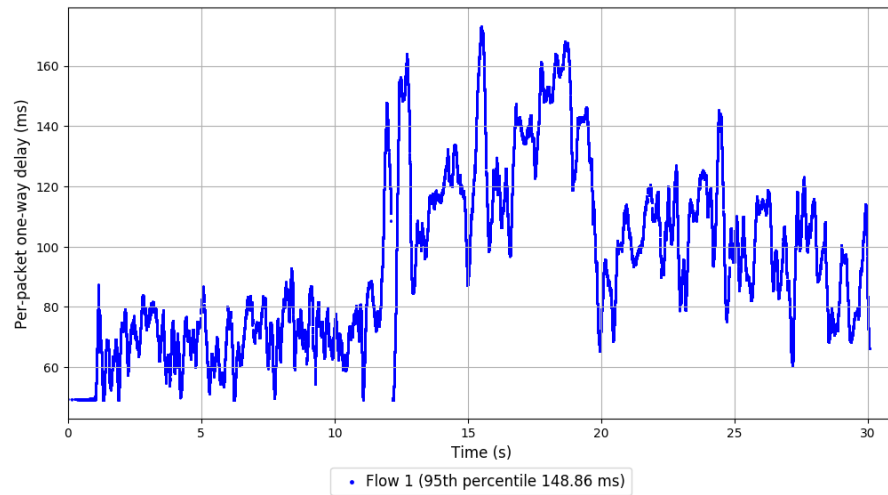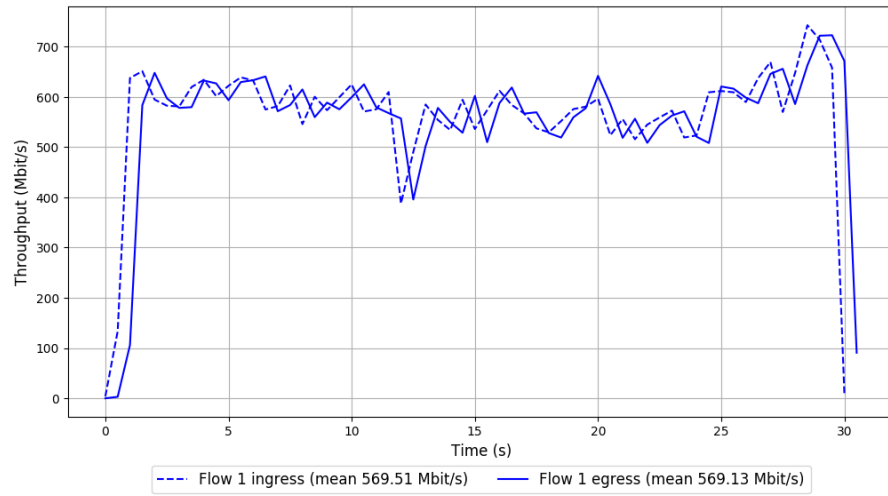

Flow 1 (95th percentile 88.59 ms)

```
Run 4: Statistics of TCP Cubic

Start at: 2018-10-03 03:39:39
End at: 2018-10-03 03:40:09
Local clock offset: -0.465 ms
Remote clock offset: -0.033 ms


# Below is generated by plot.py at 2018-10-03 04:54:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 487.62 Mbit/s
95th percentile per-packet one-way delay: 135.158 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 487.62 Mbit/s
95th percentile per-packet one-way delay: 135.158 ms
Loss rate: 0.40%
```
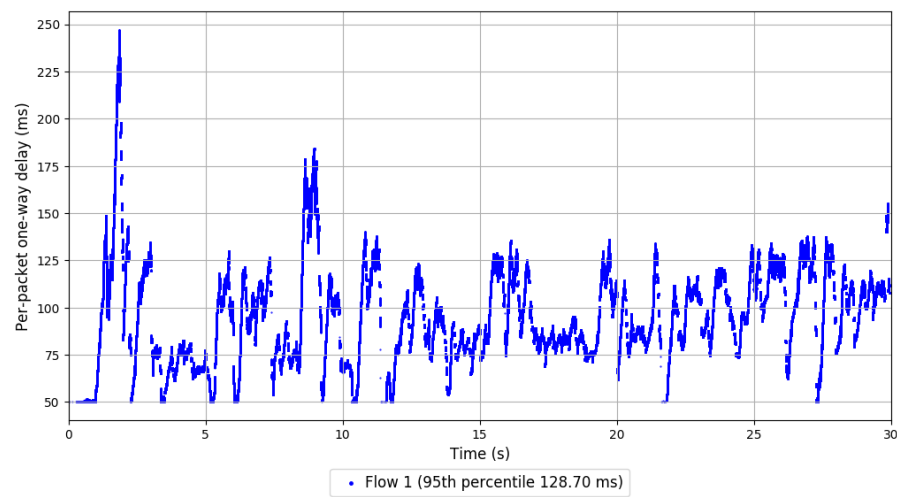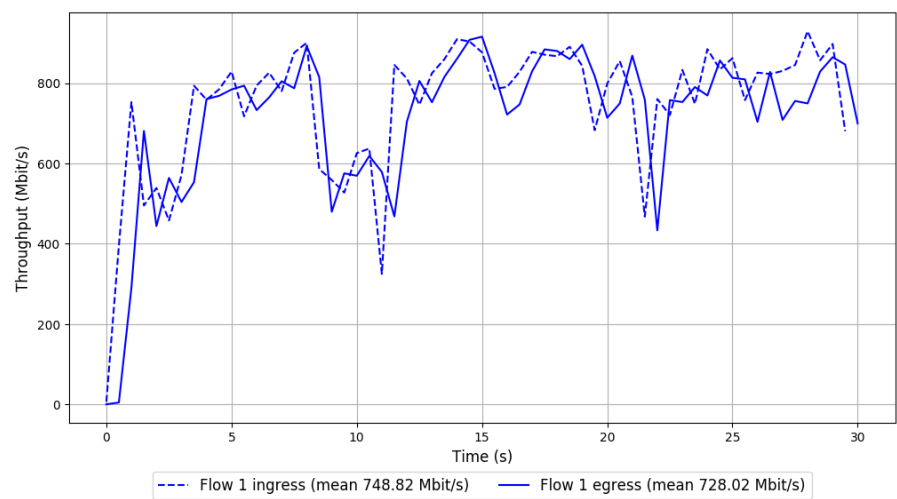
Run 4: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 489.60 Mbit/s)   Flow 1 egress (mean 487.62 Mbit/s)

Flow 1 (95th percentile 135.16 ms)

```
Run 5: Statistics of TCP Cubic

Start at: 2018-10-03 04:04:38
End at: 2018-10-03 04:05:08
Local clock offset: -0.465 ms
Remote clock offset: -0.076 ms


# Below is generated by plot.py at 2018-10-03 04:54:34
# Datalink statistics
-- Total of 1 flow:
Average throughput: 569.13 Mbit/s
95th percentile per-packet one-way delay: 148.862 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 569.13 Mbit/s
95th percentile per-packet one-way delay: 148.862 ms
Loss rate: 0.06%
```

Run 5: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 569.51 Mbit/s)   Flow 1 egress (mean 569.13 Mbit/s)

Flow 1 (95th percentile 148.86 ms)

```
Run 1: Statistics of FillP

Start at: 2018-10-03 02:46:21
End at: 2018-10-03 02:46:51
Local clock offset: 0.367 ms
Remote clock offset: -0.011 ms


# Below is generated by plot.py at 2018-10-03 04:59:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 728.02 Mbit/s
95th percentile per-packet one-way delay: 128.702 ms
Loss rate: 2.71%
-- Flow 1:
Average throughput: 728.02 Mbit/s
95th percentile per-packet one-way delay: 128.702 ms
Loss rate: 2.71%
```
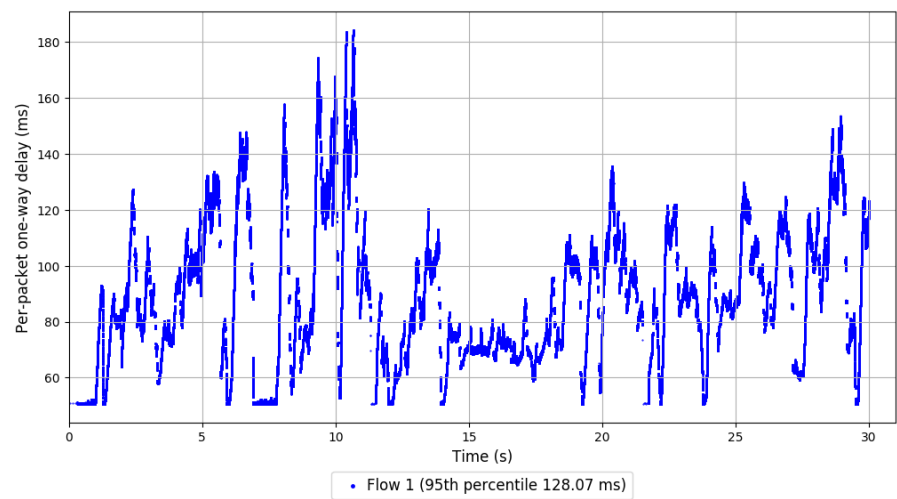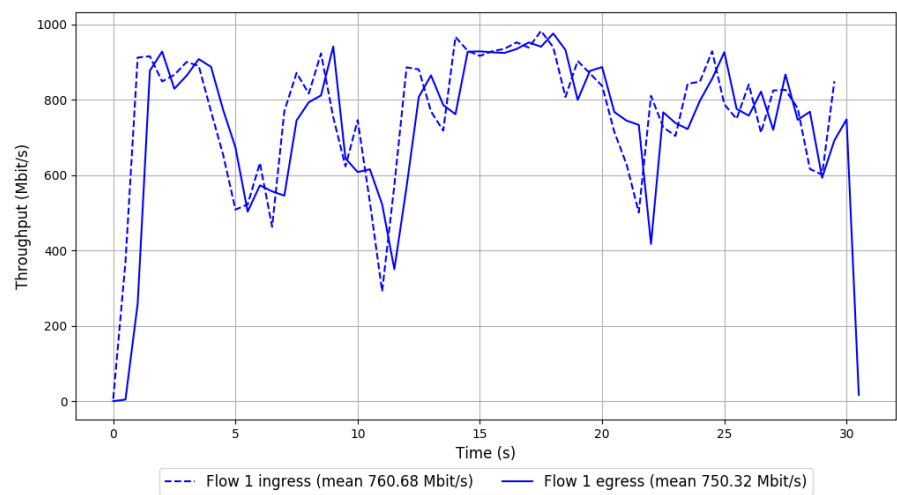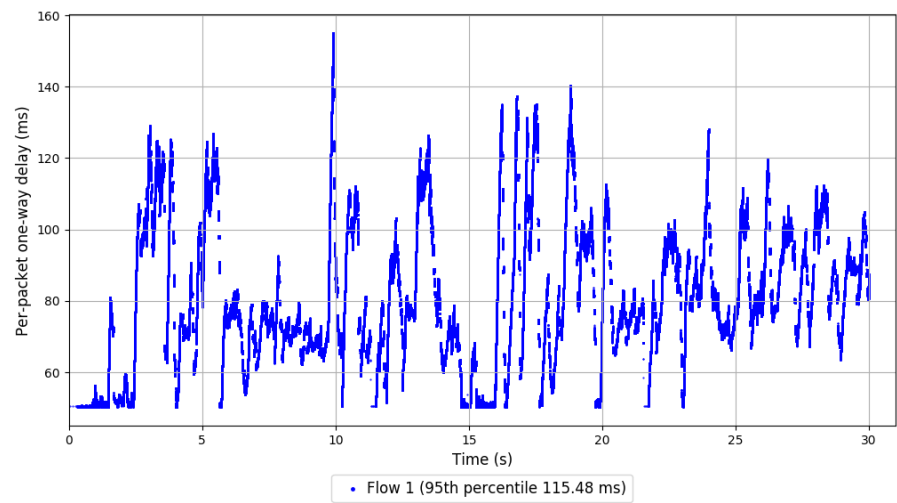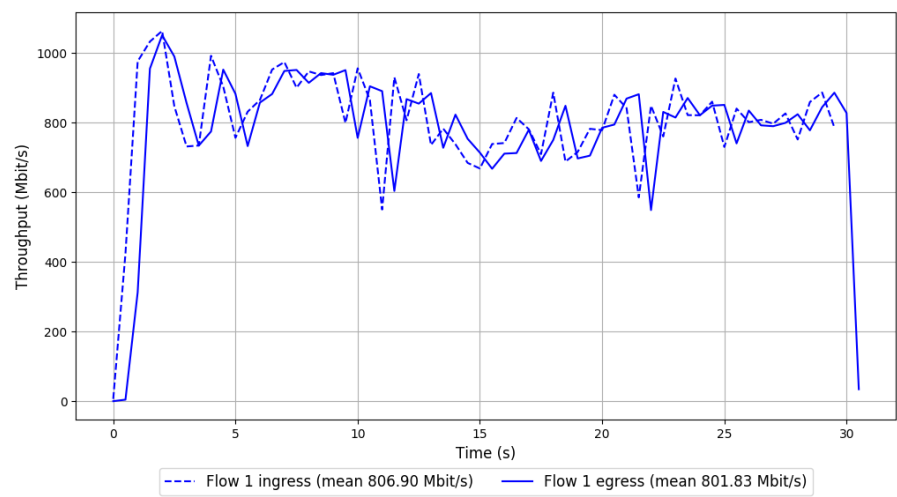
Run 1: Report of FillP — Data Link

Flow 1 ingress (mean 748.82 Mbit/s)   Flow 1 egress (mean 728.02 Mbit/s)

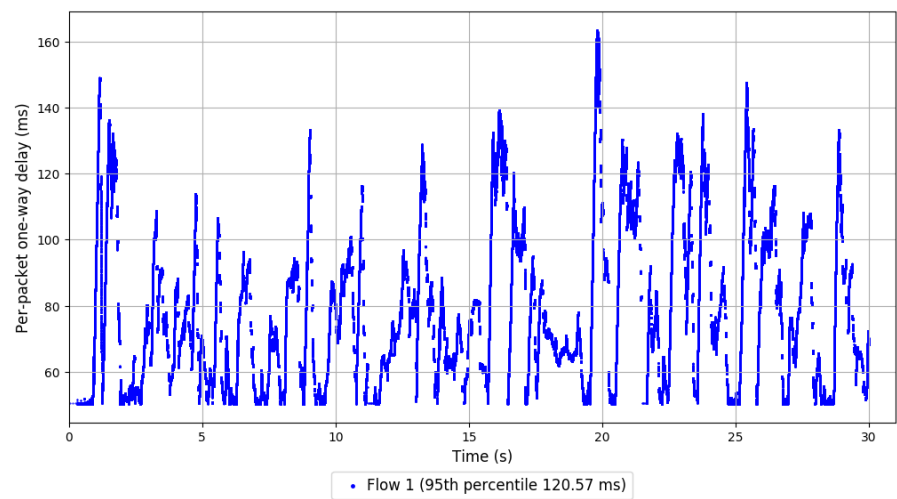
· Flow 1 (95th percentile 128.70 ms)

```
Run 2: Statistics of FillP

Start at: 2018-10-03 03:11:28
End at: 2018-10-03 03:11:59
Local clock offset: -0.107 ms
Remote clock offset: 0.009 ms


# Below is generated by plot.py at 2018-10-03 05:08:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 750.32 Mbit/s
95th percentile per-packet one-way delay: 128.071 ms
Loss rate: 1.36%
-- Flow 1:
Average throughput: 750.32 Mbit/s
95th percentile per-packet one-way delay: 128.071 ms
Loss rate: 1.36%
```
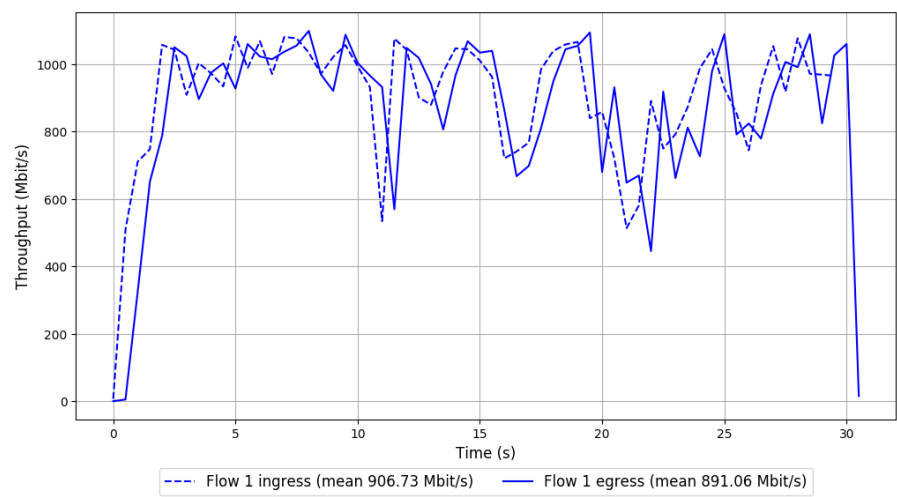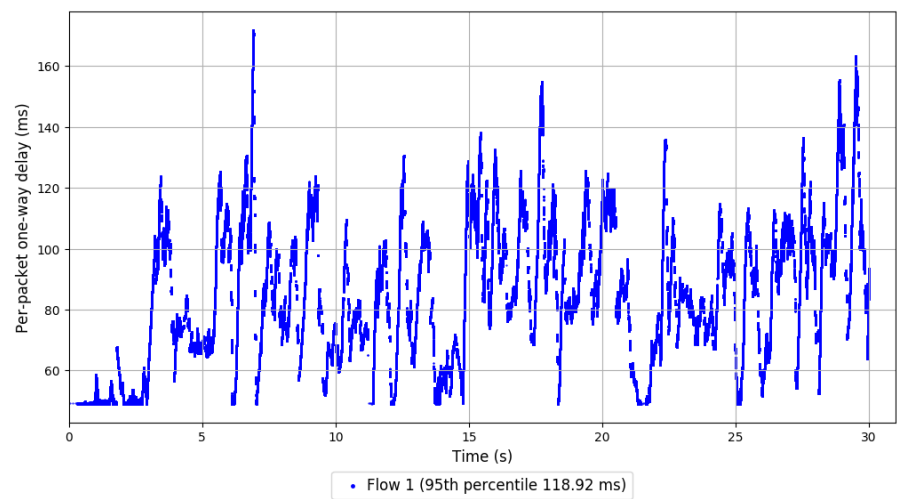
Run 2: Report of FillP — Data Link

```
Run 3: Statistics of FillP

Start at: 2018-10-03 03:36:30
End at: 2018-10-03 03:37:00
Local clock offset: -0.151 ms
Remote clock offset: -0.048 ms


# Below is generated by plot.py at 2018-10-03 05:09:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 801.83 Mbit/s
95th percentile per-packet one-way delay: 115.483 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 801.83 Mbit/s
95th percentile per-packet one-way delay: 115.483 ms
Loss rate: 0.63%
```
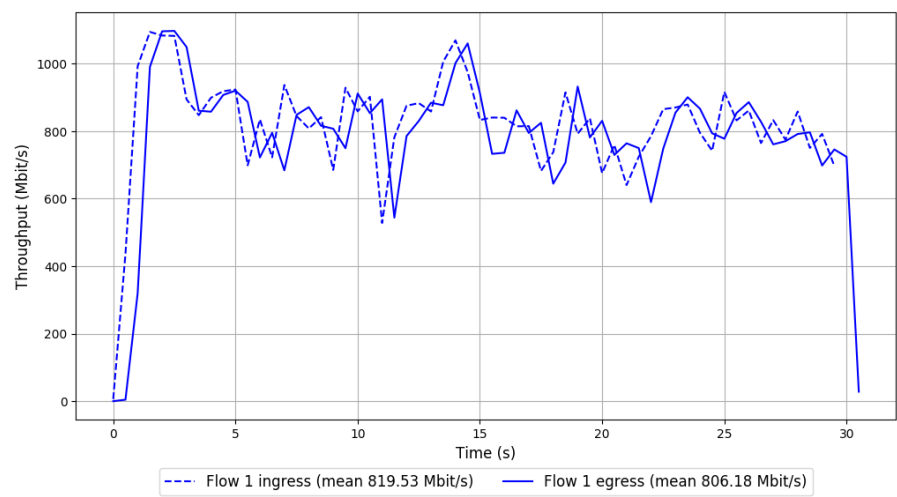
Run 3: Report of FillP — Data Link

```
Run 4: Statistics of FillP

Start at: 2018-10-03 04:01:24
End at: 2018-10-03 04:01:54
Local clock offset: 0.186 ms
Remote clock offset: -0.089 ms


# Below is generated by plot.py at 2018-10-03 05:11:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 891.06 Mbit/s
95th percentile per-packet one-way delay: 120.571 ms
Loss rate: 1.71%
-- Flow 1:
Average throughput: 891.06 Mbit/s
95th percentile per-packet one-way delay: 120.571 ms
Loss rate: 1.71%
```
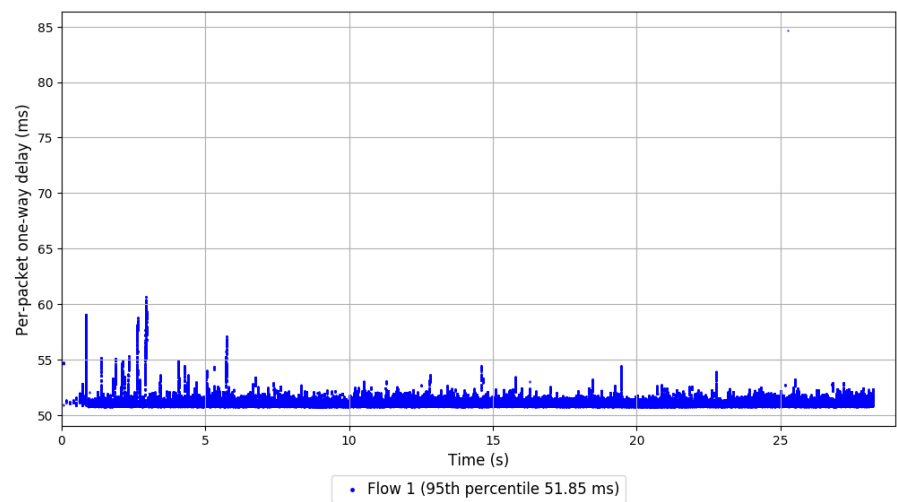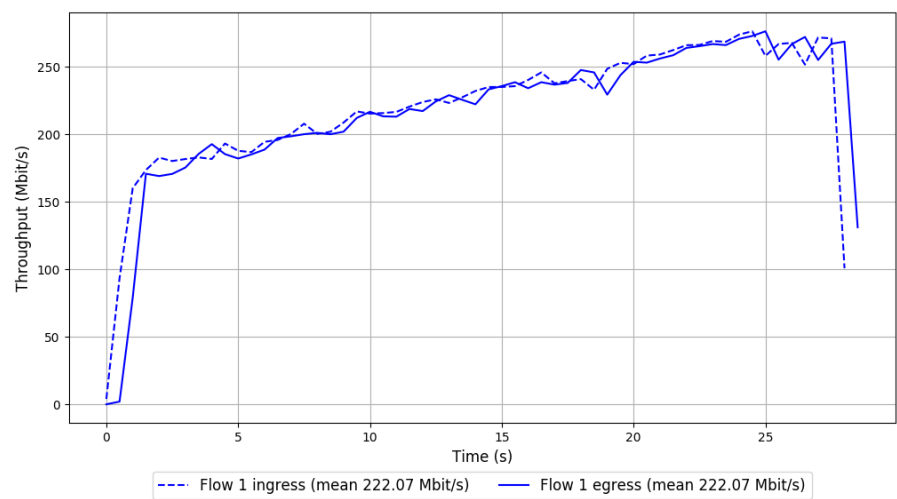
Run 4: Report of FillP — Data Link

```
Run 5: Statistics of FillP

Start at: 2018-10-03 04:26:34
End at: 2018-10-03 04:27:04
Local clock offset: 0.173 ms
Remote clock offset: -0.181 ms


# Below is generated by plot.py at 2018-10-03 05:11:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 806.18 Mbit/s
95th percentile per-packet one-way delay: 118.919 ms
Loss rate: 1.62%
-- Flow 1:
Average throughput: 806.18 Mbit/s
95th percentile per-packet one-way delay: 118.919 ms
Loss rate: 1.62%
```

Run 5: Report of FillP — Data Link

Flow 1 ingress (mean 819.53 Mbit/s)   Flow 1 egress (mean 806.18 Mbit/s)

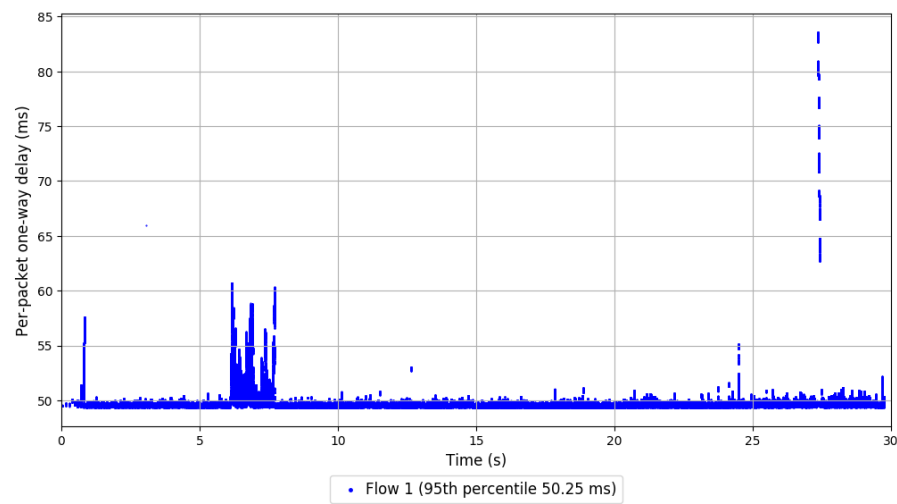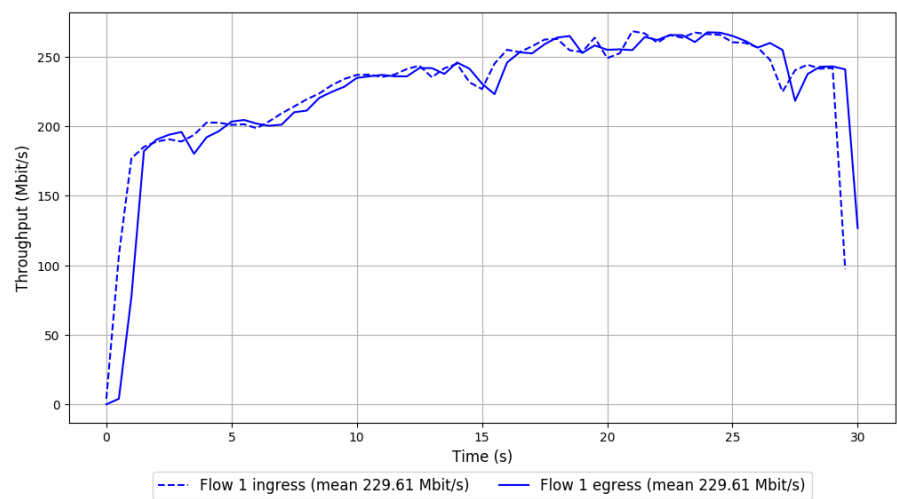Flow 1 (95th percentile 118.92 ms)

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```
Run 1: Statistics of Indigo

Start at: 2018-10-03 02:33:13
End at: 2018-10-03 02:33:43
Local clock offset: -0.361 ms
Remote clock offset: -0.022 ms


# Below is generated by plot.py at 2018-10-03 05:11:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 222.07 Mbit/s
95th percentile per-packet one-way delay: 51.846 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 222.07 Mbit/s
95th percentile per-packet one-way delay: 51.846 ms
Loss rate: 0.00%
```

Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2018-10-03 02:58:17
End at: 2018-10-03 02:58:47
Local clock offset: -0.049 ms
Remote clock offset: -0.028 ms


# Below is generated by plot.py at 2018-10-03 05:11:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 229.61 Mbit/s
95th percentile per-packet one-way delay: 50.249 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 229.61 Mbit/s
95th percentile per-packet one-way delay: 50.249 ms
Loss rate: 0.00%
```
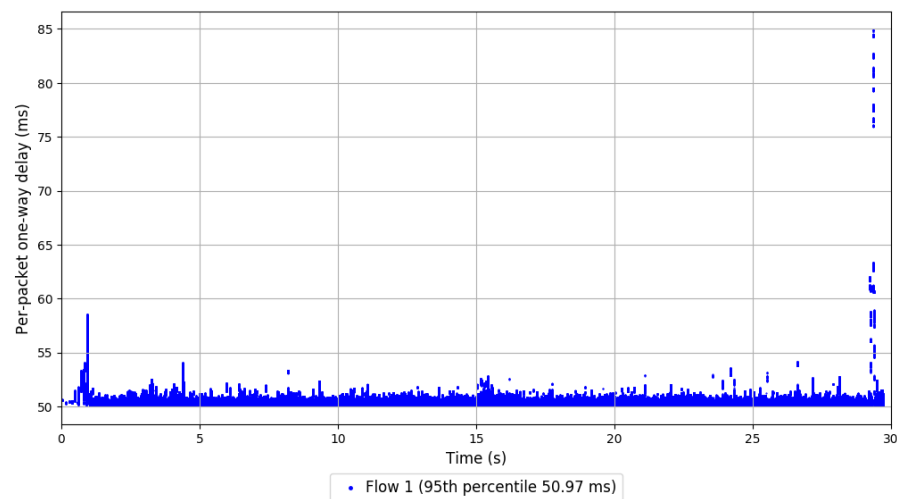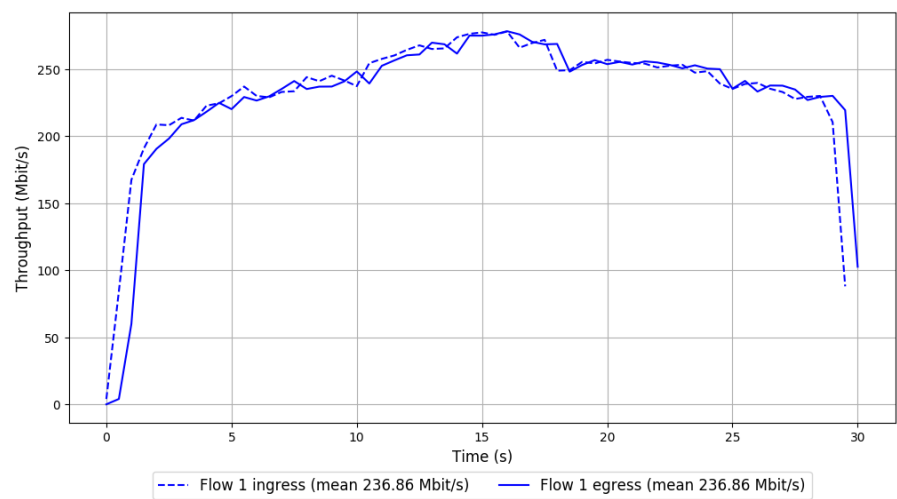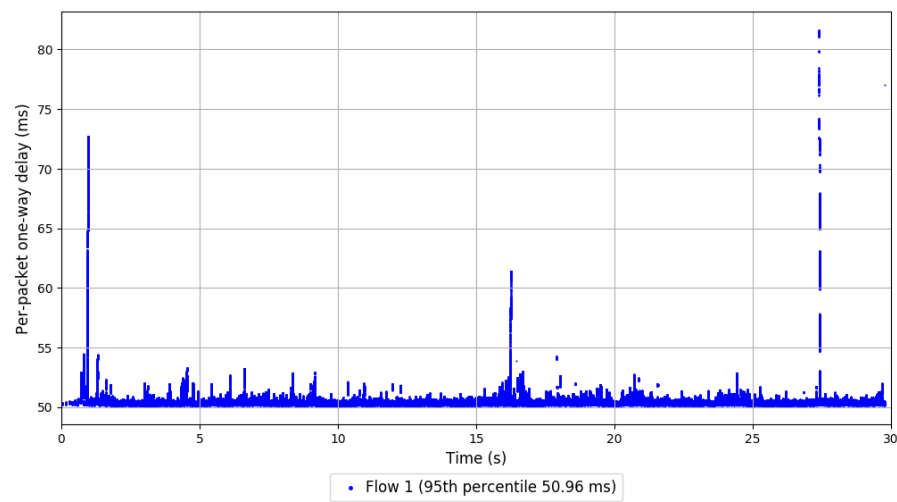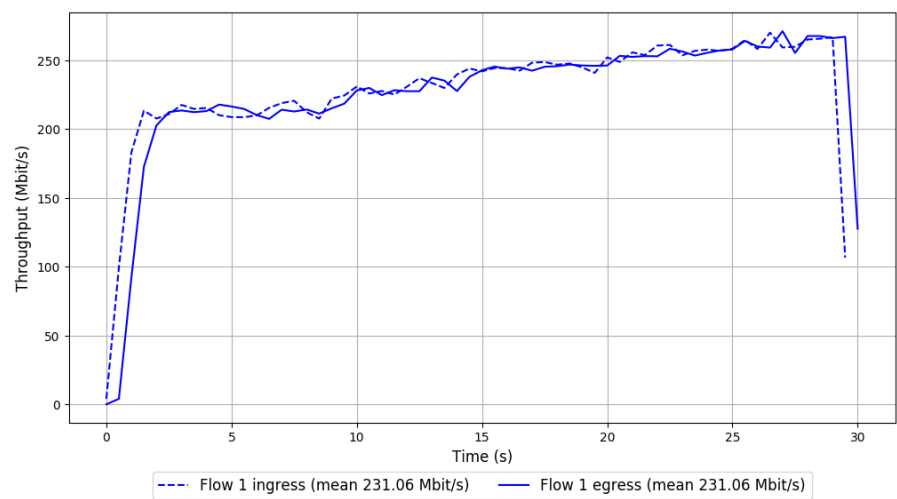
Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2018-10-03 03:23:17
End at: 2018-10-03 03:23:47
Local clock offset: -0.459 ms
Remote clock offset: 0.005 ms


# Below is generated by plot.py at 2018-10-03 05:11:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 236.86 Mbit/s
95th percentile per-packet one-way delay: 50.974 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 236.86 Mbit/s
95th percentile per-packet one-way delay: 50.974 ms
Loss rate: 0.00%
```
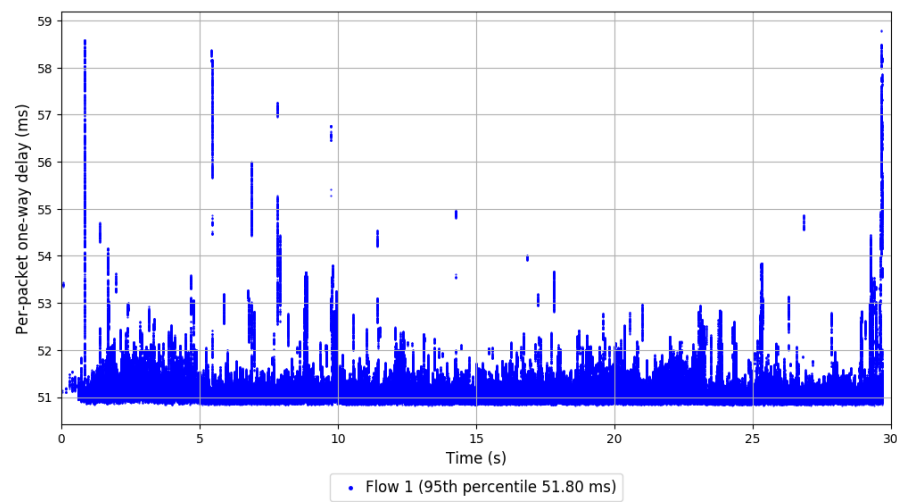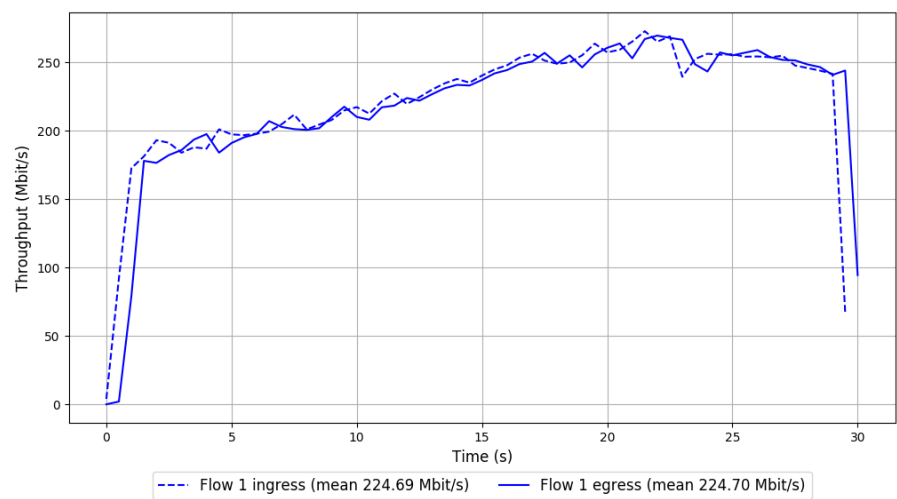
Run 3: Report of Indigo — Data Link

```
Run 4: Statistics of Indigo

Start at: 2018-10-03 03:48:15
End at: 2018-10-03 03:48:45
Local clock offset: -0.107 ms
Remote clock offset: -0.036 ms


# Below is generated by plot.py at 2018-10-03 05:11:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 231.06 Mbit/s
95th percentile per-packet one-way delay: 50.959 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 231.06 Mbit/s
95th percentile per-packet one-way delay: 50.959 ms
Loss rate: 0.00%
```

Run 4: Report of Indigo — Data Link

Flow 1 ingress (mean 231.06 Mbit/s)   Flow 1 egress (mean 231.06 Mbit/s)

Flow 1 (95th percentile 50.96 ms)

```
Run 5: Statistics of Indigo

Start at: 2018-10-03 04:13:16
End at: 2018-10-03 04:13:46
Local clock offset: -0.584 ms
Remote clock offset: -0.128 ms


# Below is generated by plot.py at 2018-10-03 05:11:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 224.70 Mbit/s
95th percentile per-packet one-way delay: 51.804 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 224.70 Mbit/s
95th percentile per-packet one-way delay: 51.804 ms
Loss rate: 0.00%
```
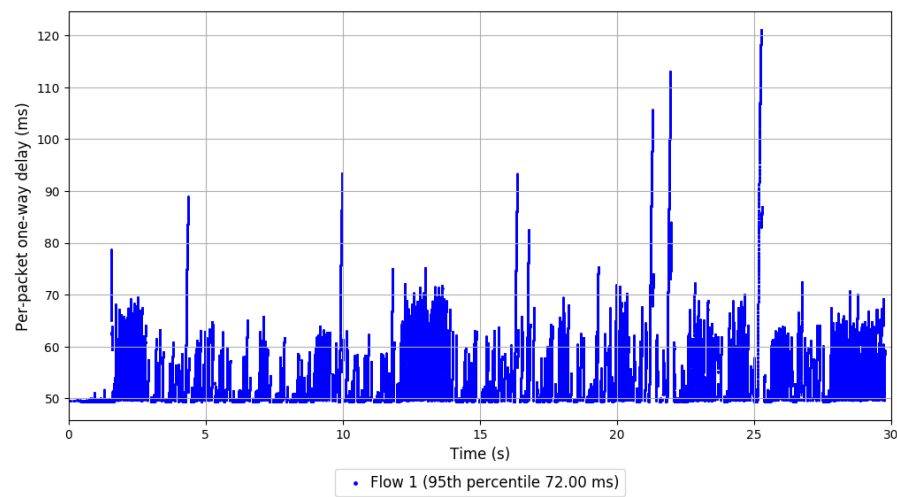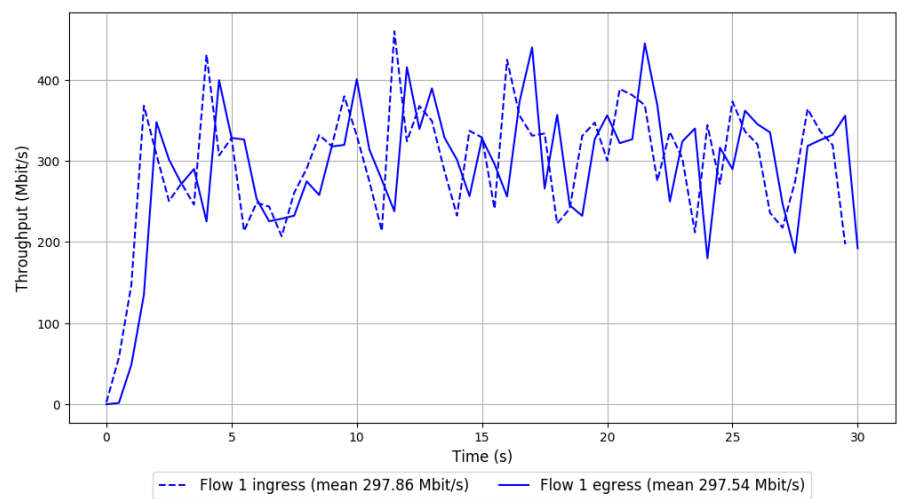
Run 5: Report of Indigo — Data Link

Flow 1 ingress (mean 224.69 Mbit/s)   Flow 1 egress (mean 224.70 Mbit/s)
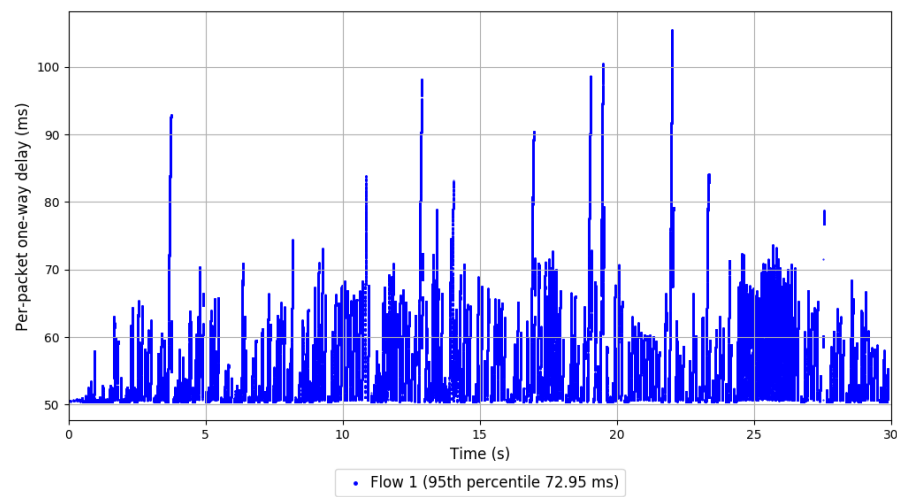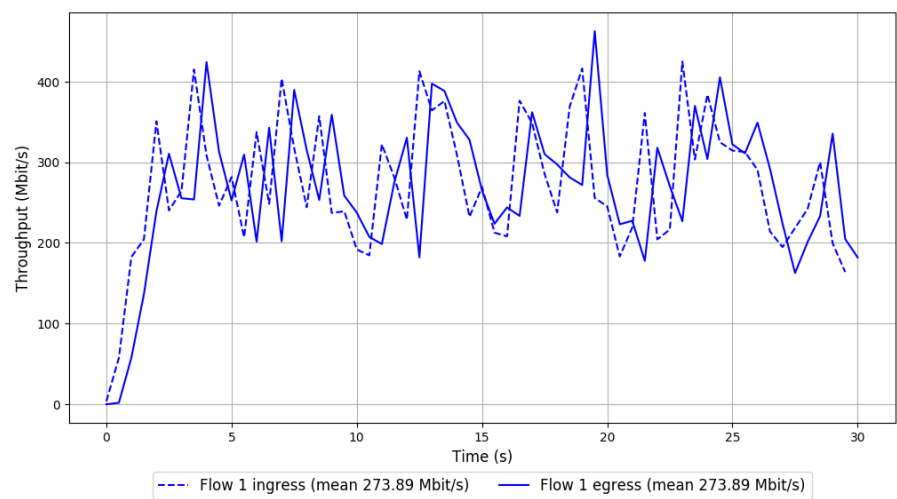

Flow 1 (95th percentile 51.80 ms)

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

Start at: 2018-10-03 02:38:43
End at: 2018-10-03 02:39:13
Local clock offset: -0.02 ms
Remote clock offset: -0.026 ms

# Below is generated by plot.py at 2018-10-03 05:11:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 297.54 Mbit/s
95th percentile per-packet one-way delay: 71.995 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 297.54 Mbit/s
95th percentile per-packet one-way delay: 71.995 ms
Loss rate: 0.09%
```

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

Flow 1 ingress (mean 297.86 Mbit/s)   Flow 1 egress (mean 297.54 Mbit/s)
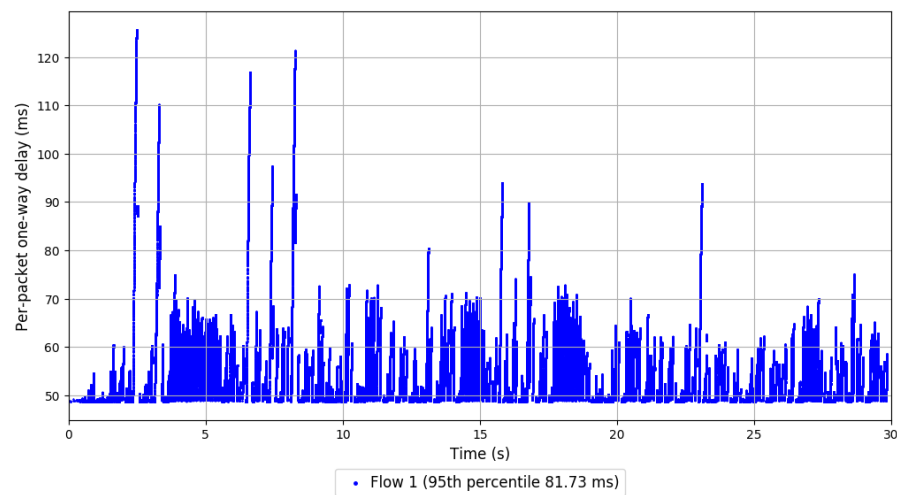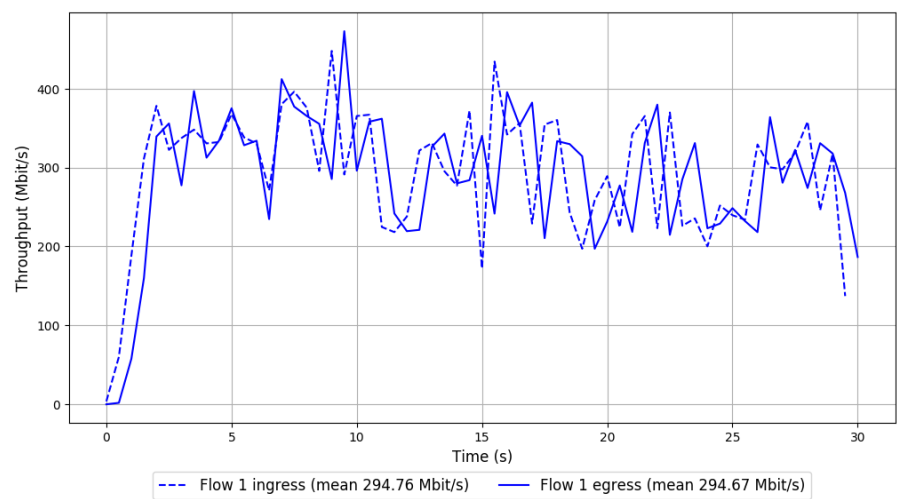

Flow 1 (95th percentile 72.00 ms)

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

Start at: 2018-10-03 03:03:49
End at: 2018-10-03 03:04:19
Local clock offset: -0.068 ms
Remote clock offset: -0.015 ms


# Below is generated by plot.py at 2018-10-03 05:11:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 273.89 Mbit/s
95th percentile per-packet one-way delay: 72.946 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 273.89 Mbit/s
95th percentile per-packet one-way delay: 72.946 ms
Loss rate: 0.00%
```
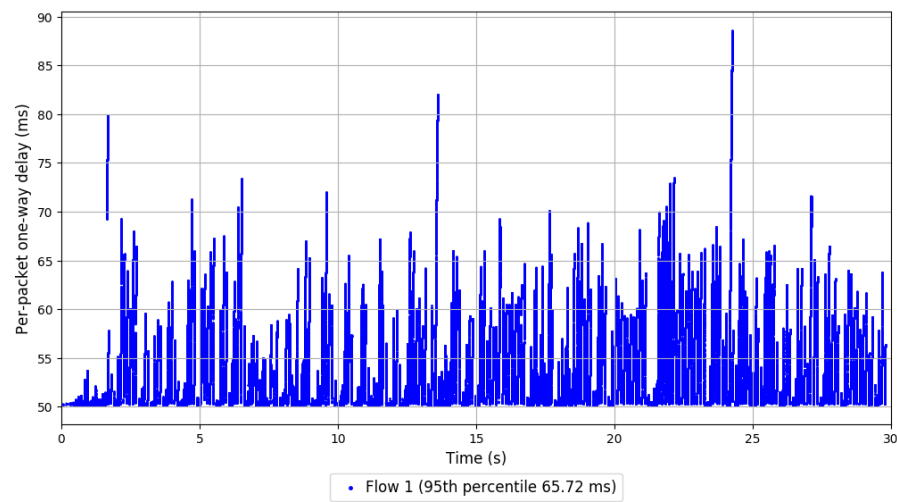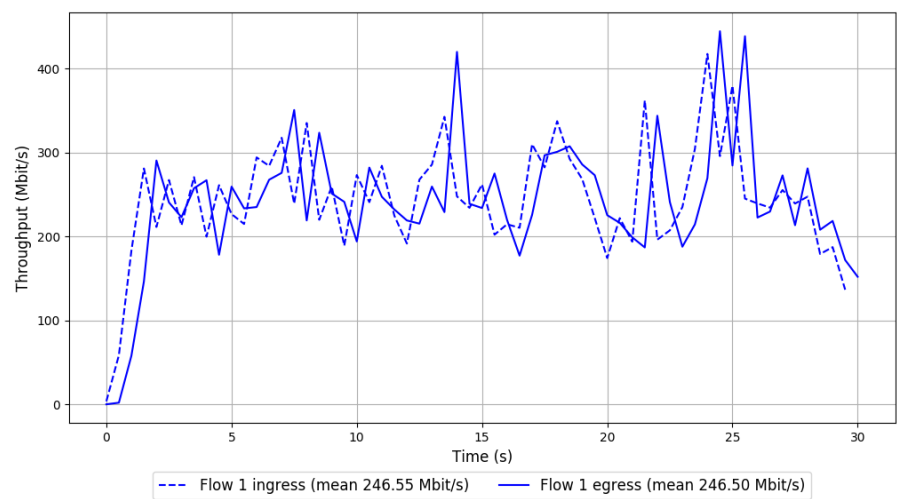
Run 2: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-10-03 03:28:49
End at: 2018-10-03 03:29:19
Local clock offset: -0.126 ms
Remote clock offset: -0.061 ms


# Below is generated by plot.py at 2018-10-03 05:11:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 294.67 Mbit/s
95th percentile per-packet one-way delay: 81.731 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 294.67 Mbit/s
95th percentile per-packet one-way delay: 81.731 ms
Loss rate: 0.00%
```

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

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

Start at: 2018-10-03 03:53:46
End at: 2018-10-03 03:54:16
Local clock offset: -0.162 ms
Remote clock offset: -0.096 ms


# Below is generated by plot.py at 2018-10-03 05:11:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 246.50 Mbit/s
95th percentile per-packet one-way delay: 65.722 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 246.50 Mbit/s
95th percentile per-packet one-way delay: 65.722 ms
Loss rate: 0.00%
```
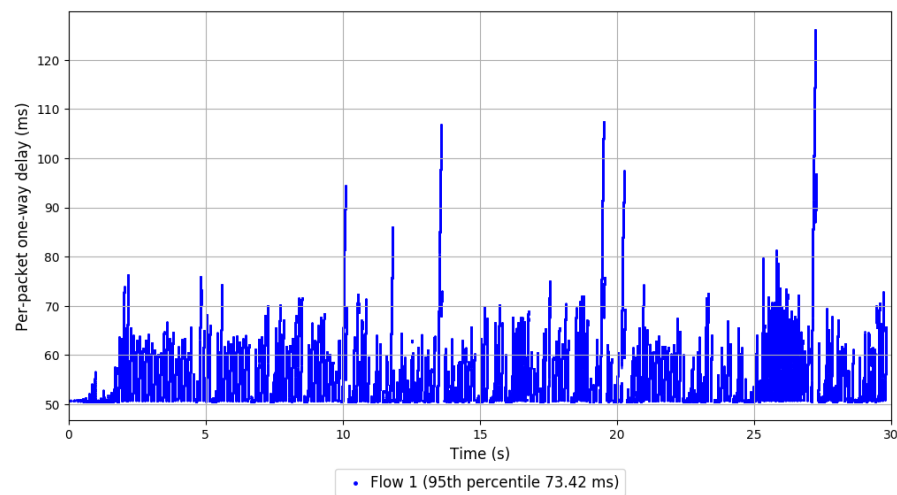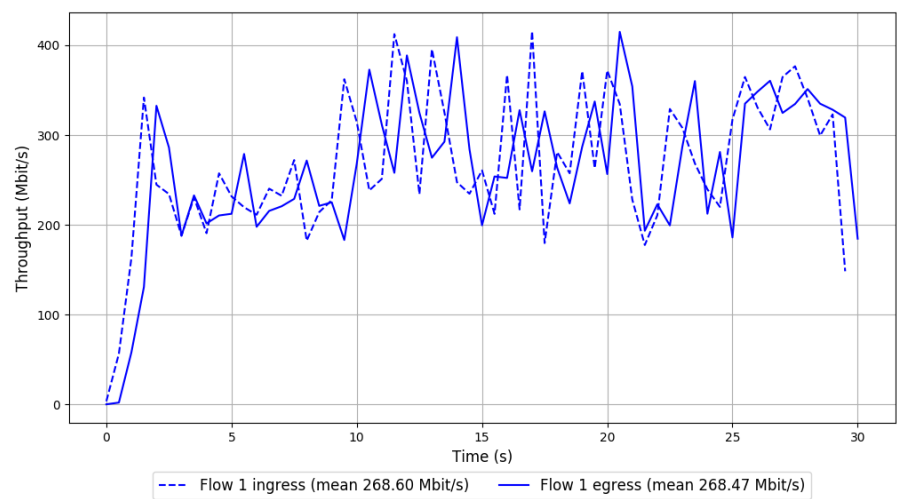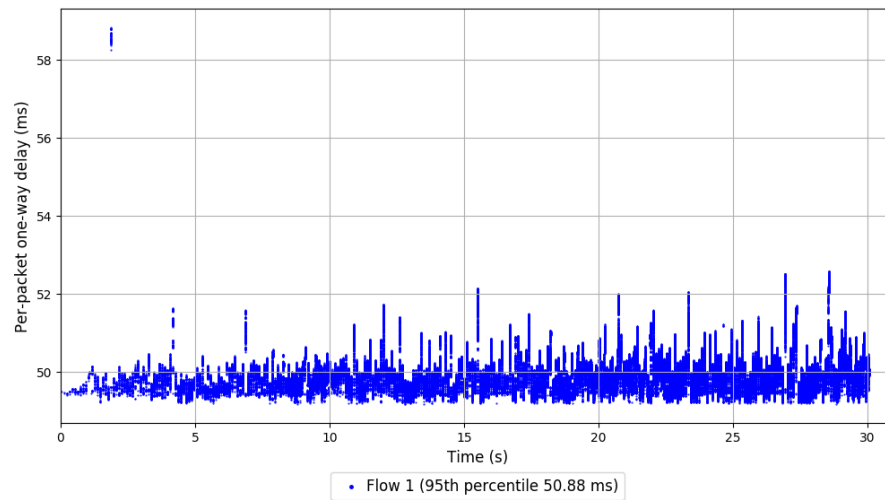
Run 4: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-10-03 04:18:51
End at: 2018-10-03 04:19:21
Local clock offset: -0.156 ms
Remote clock offset: -0.115 ms


# Below is generated by plot.py at 2018-10-03 05:12:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 268.47 Mbit/s
95th percentile per-packet one-way delay: 73.415 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 268.47 Mbit/s
95th percentile per-packet one-way delay: 73.415 ms
Loss rate: 0.00%
```
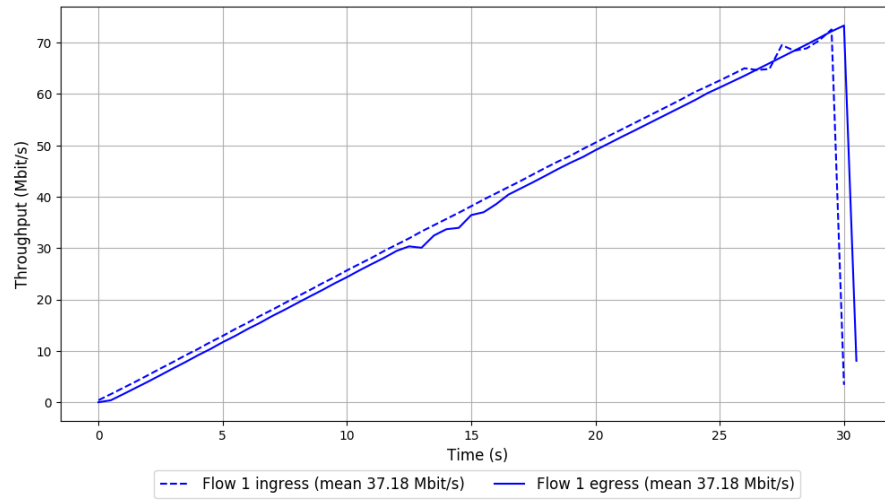
Run 5: Report of Indigo-96d2da3 — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2018-10-03 02:42:43
End at: 2018-10-03 02:43:13
Local clock offset: 0.337 ms
Remote clock offset: -0.012 ms

# Below is generated by plot.py at 2018-10-03 05:12:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 37.18 Mbit/s
95th percentile per-packet one-way delay: 50.880 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 37.18 Mbit/s
95th percentile per-packet one-way delay: 50.880 ms
Loss rate: 0.00%
```
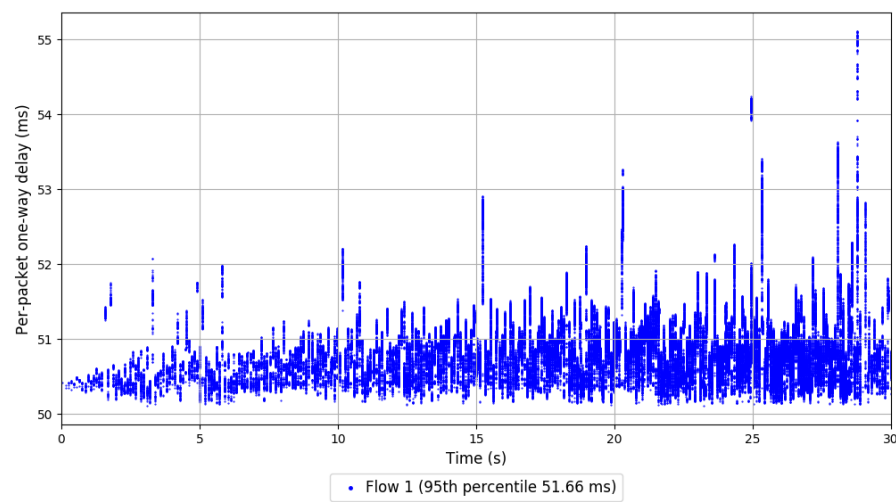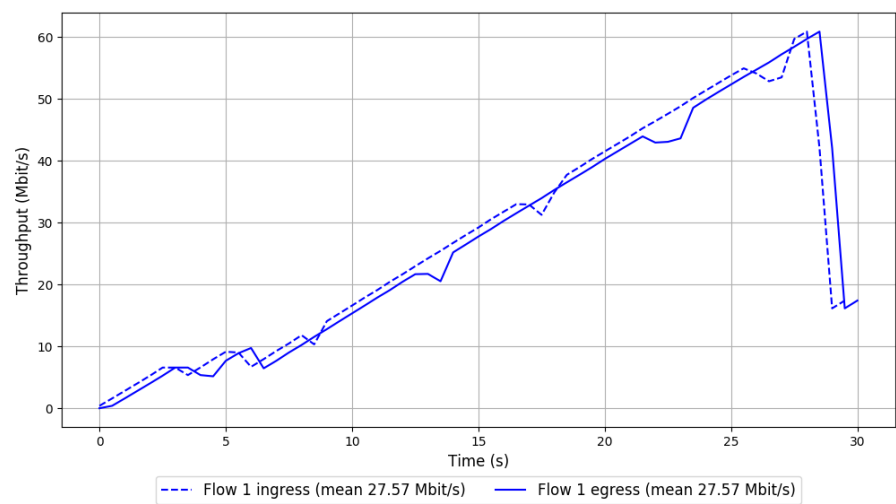
Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2018-10-03 03:07:48
End at: 2018-10-03 03:08:18
Local clock offset: -0.082 ms
Remote clock offset: -0.03 ms


# Below is generated by plot.py at 2018-10-03 05:12:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 27.57 Mbit/s
95th percentile per-packet one-way delay: 51.660 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 27.57 Mbit/s
95th percentile per-packet one-way delay: 51.660 ms
Loss rate: 0.00%
```

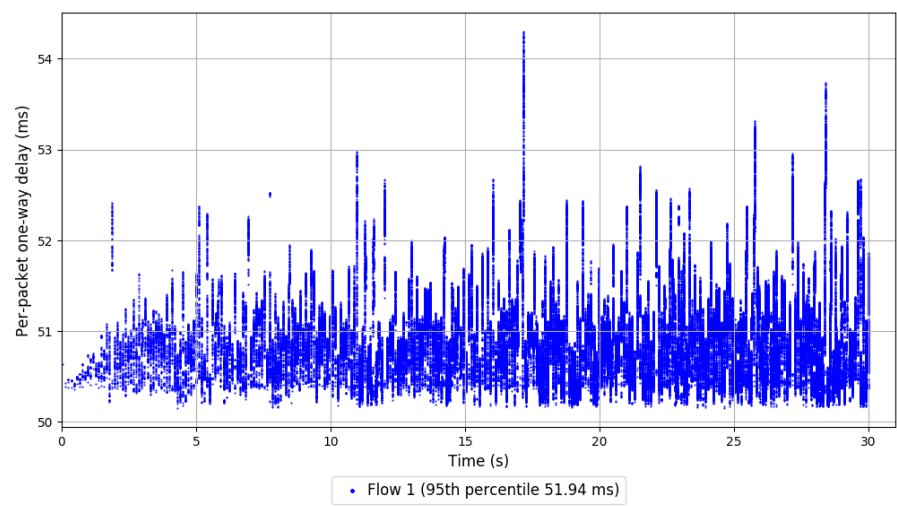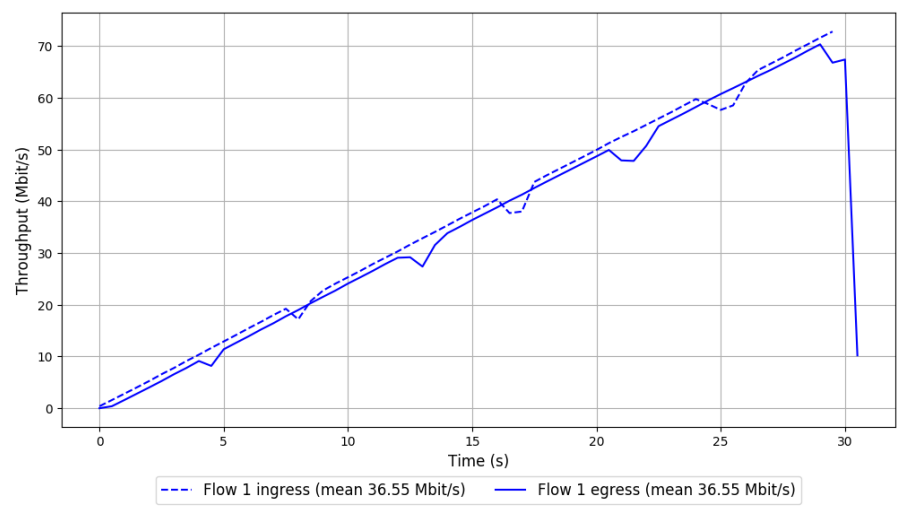Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2018-10-03 03:32:48
End at: 2018-10-03 03:33:18
Local clock offset: -0.14 ms
Remote clock offset: -0.026 ms

# Below is generated by plot.py at 2018-10-03 05:12:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 36.55 Mbit/s
95th percentile per-packet one-way delay: 51.943 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 36.55 Mbit/s
95th percentile per-packet one-way delay: 51.943 ms
Loss rate: 0.00%
```

Run 3: Report of LEDBAT — Data Link

Flow 1 ingress (mean 36.55 Mbit/s) --- Flow 1 egress (mean 36.55 Mbit/s)

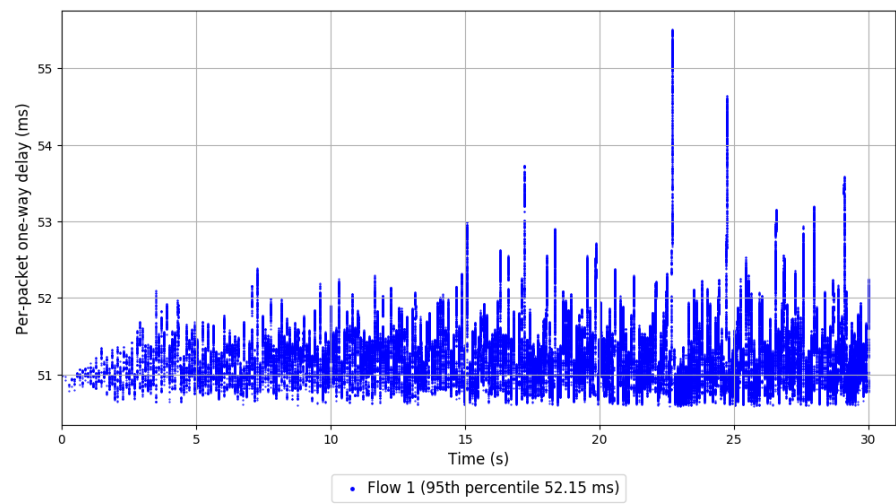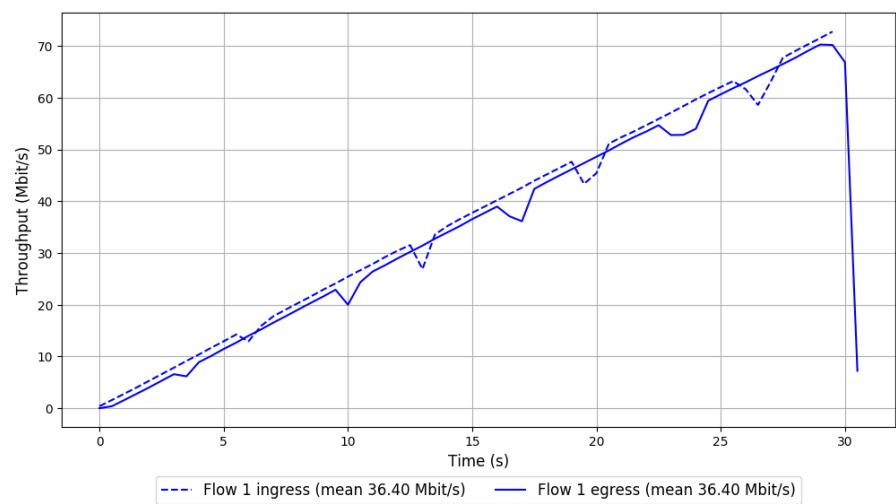• Flow 1 (95th percentile 51.94 ms)

```
Run 4: Statistics of LEDBAT

Start at: 2018-10-03 03:57:42
End at: 2018-10-03 03:58:12
Local clock offset: -0.157 ms
Remote clock offset: -0.056 ms

# Below is generated by plot.py at 2018-10-03 05:12:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 36.40 Mbit/s
95th percentile per-packet one-way delay: 52.151 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 36.40 Mbit/s
95th percentile per-packet one-way delay: 52.151 ms
Loss rate: 0.00%
```

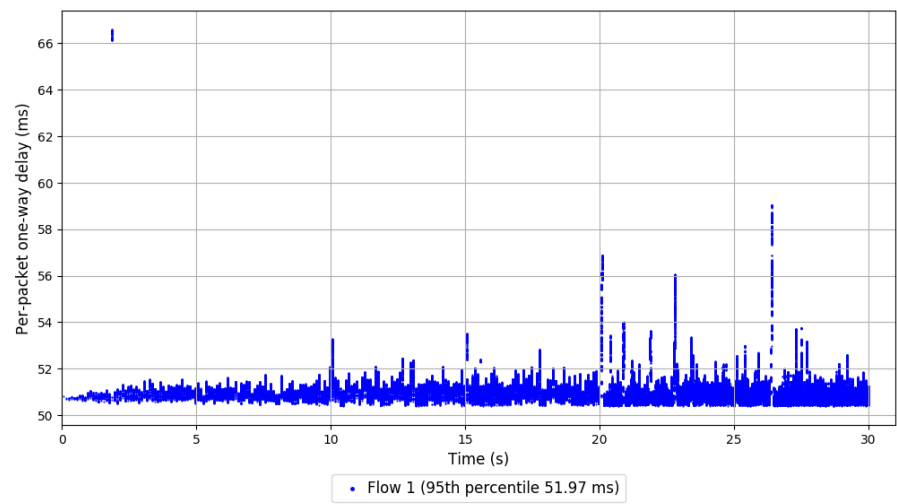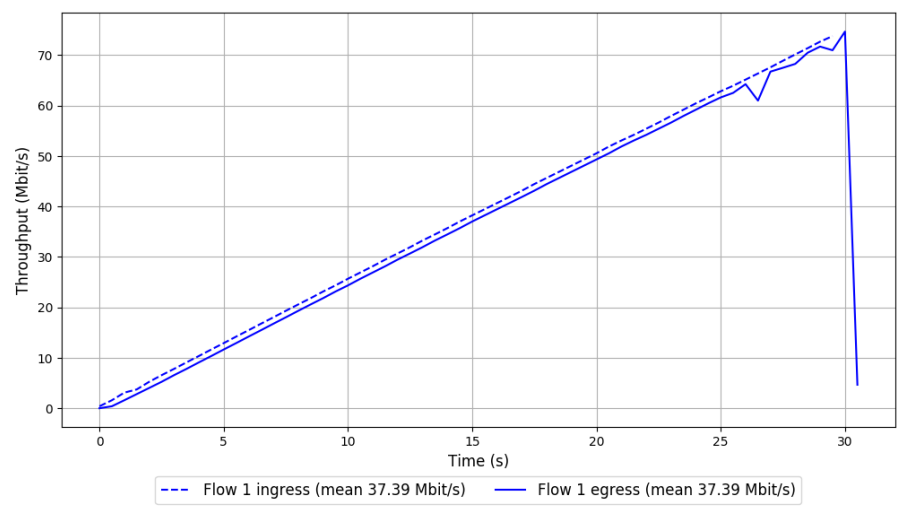Run 4: Report of LEDBAT — Data Link

```
Run 5: Statistics of LEDBAT

Start at: 2018-10-03 04:22:55
End at: 2018-10-03 04:23:25
Local clock offset: -0.168 ms
Remote clock offset: -0.164 ms


# Below is generated by plot.py at 2018-10-03 05:12:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 37.39 Mbit/s
95th percentile per-packet one-way delay: 51.968 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 37.39 Mbit/s
95th percentile per-packet one-way delay: 51.968 ms
Loss rate: 0.00%
```

Run 5: Report of LEDBAT — Data Link

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```
Run 1: Statistics of Indigo-Muses

Start at: 2018-10-03 02:31:43
End at: 2018-10-03 02:32:13
Local clock offset: -0.389 ms
Remote clock offset: -0.012 ms


# Below is generated by plot.py at 2018-10-03 05:17:32
# Datalink statistics
-- Total of 1 flow:
Average throughput: 486.47 Mbit/s
95th percentile per-packet one-way delay: 78.412 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 486.47 Mbit/s
95th percentile per-packet one-way delay: 78.412 ms
Loss rate: 0.02%
```
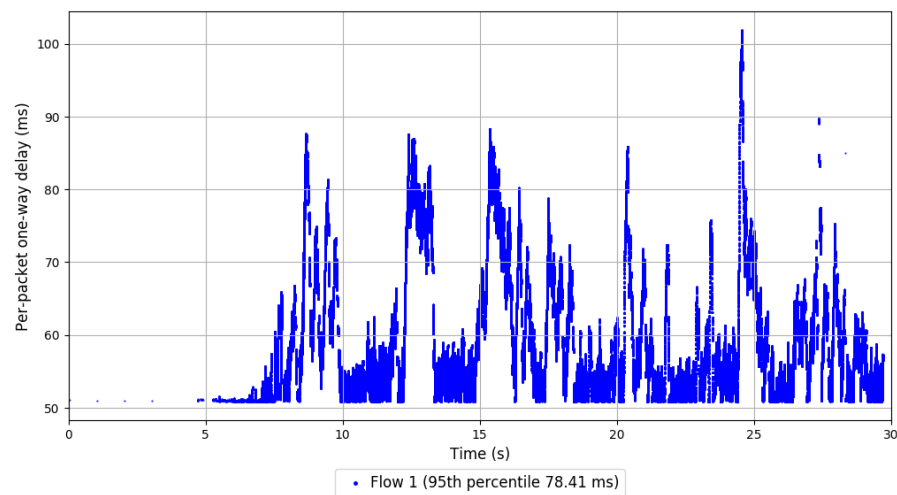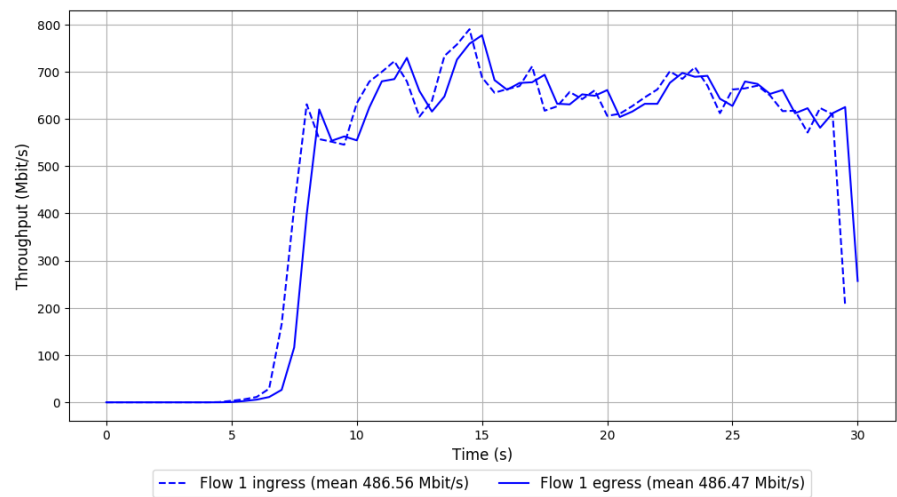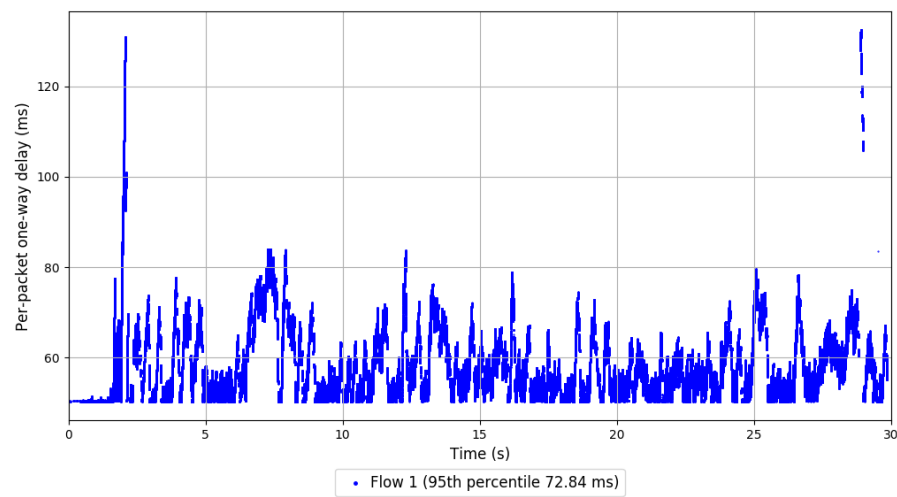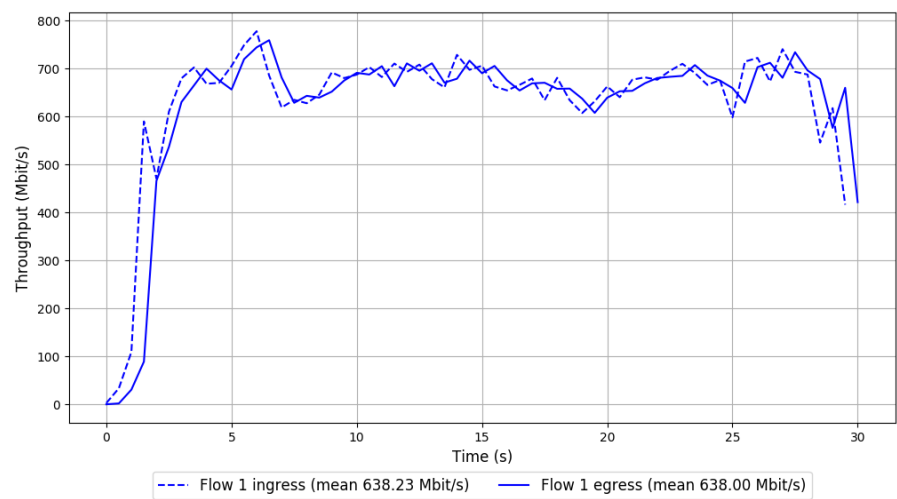
Run 1: Report of Indigo-Muses — Data Link

```
Run 2: Statistics of Indigo-Muses

Start at: 2018-10-03 02:56:42
End at: 2018-10-03 02:57:12
Local clock offset: -0.042 ms
Remote clock offset: -0.015 ms


# Below is generated by plot.py at 2018-10-03 05:21:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 638.00 Mbit/s
95th percentile per-packet one-way delay: 72.838 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 638.00 Mbit/s
95th percentile per-packet one-way delay: 72.838 ms
Loss rate: 0.04%
```

Run 2: Report of Indigo-Muses — Data Link

```
Run 3: Statistics of Indigo-Muses

Start at: 2018-10-03 03:21:42
End at: 2018-10-03 03:22:12
Local clock offset: -0.08 ms
Remote clock offset: 0.018 ms


# Below is generated by plot.py at 2018-10-03 05:21:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 639.44 Mbit/s
95th percentile per-packet one-way delay: 76.058 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 639.44 Mbit/s
95th percentile per-packet one-way delay: 76.058 ms
Loss rate: 0.01%
```
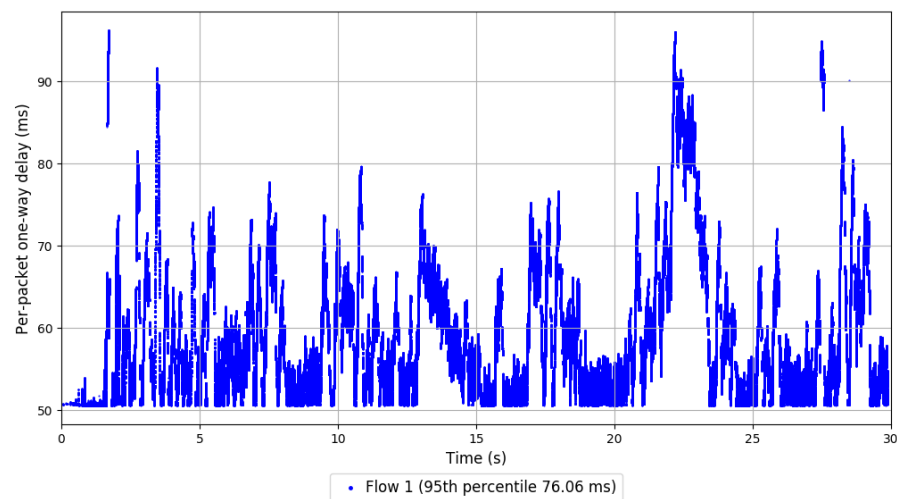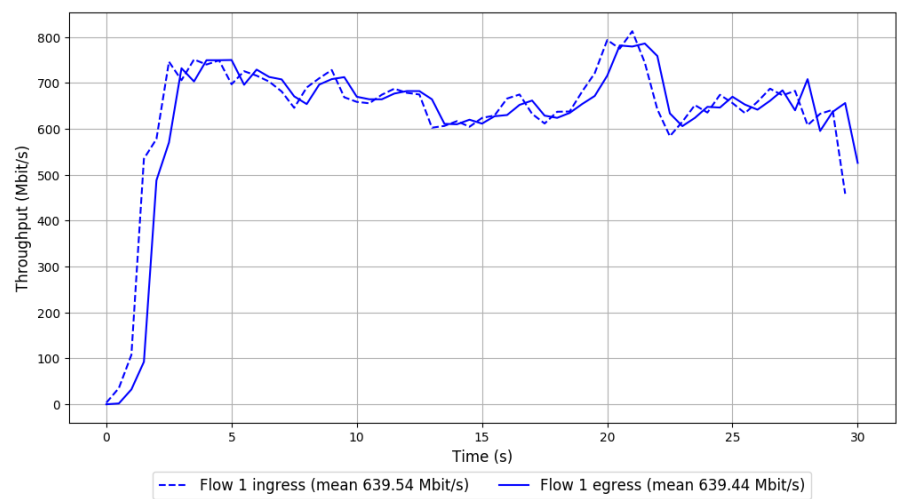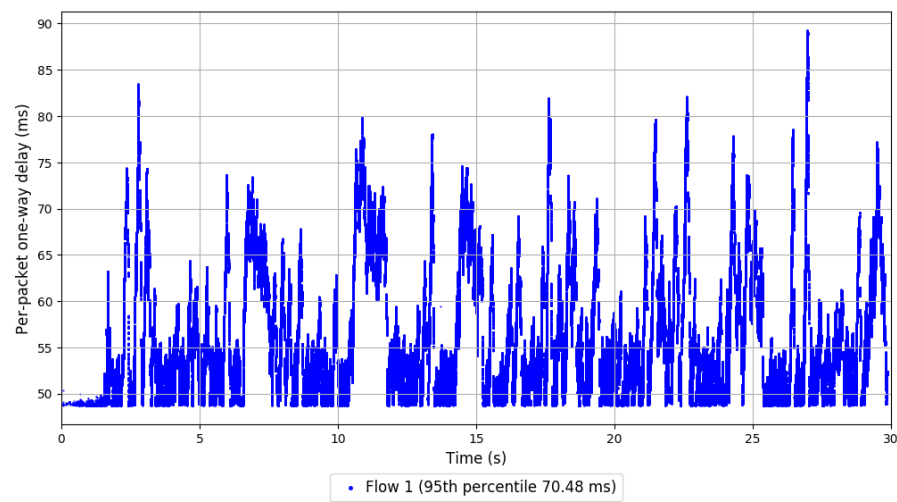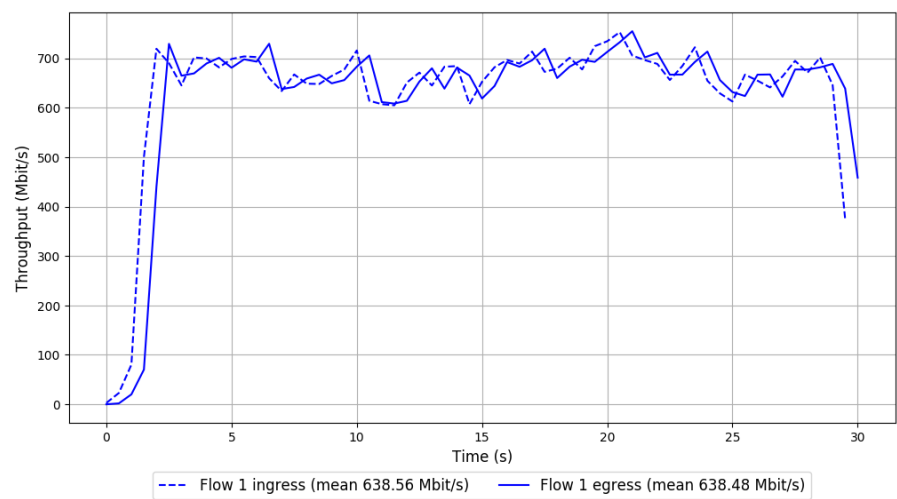
Run 3: Report of Indigo-Muses — Data Link

```
Run 4: Statistics of Indigo-Muses

Start at: 2018-10-03 03:46:39
End at: 2018-10-03 03:47:09
Local clock offset: -0.12 ms
Remote clock offset: -0.089 ms


# Below is generated by plot.py at 2018-10-03 05:21:31
# Datalink statistics
-- Total of 1 flow:
Average throughput: 638.48 Mbit/s
95th percentile per-packet one-way delay: 70.477 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 638.48 Mbit/s
95th percentile per-packet one-way delay: 70.477 ms
Loss rate: 0.00%
```

Run 4: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 638.56 Mbit/s)   Flow 1 egress (mean 638.48 Mbit/s)
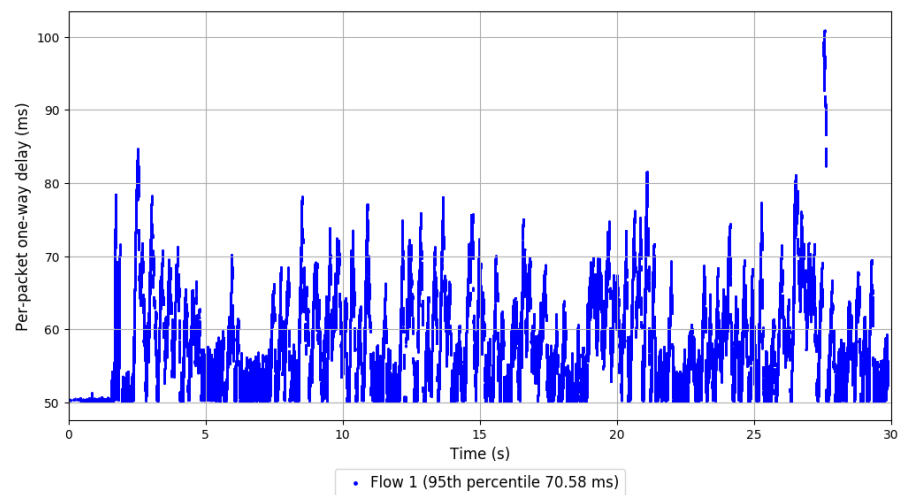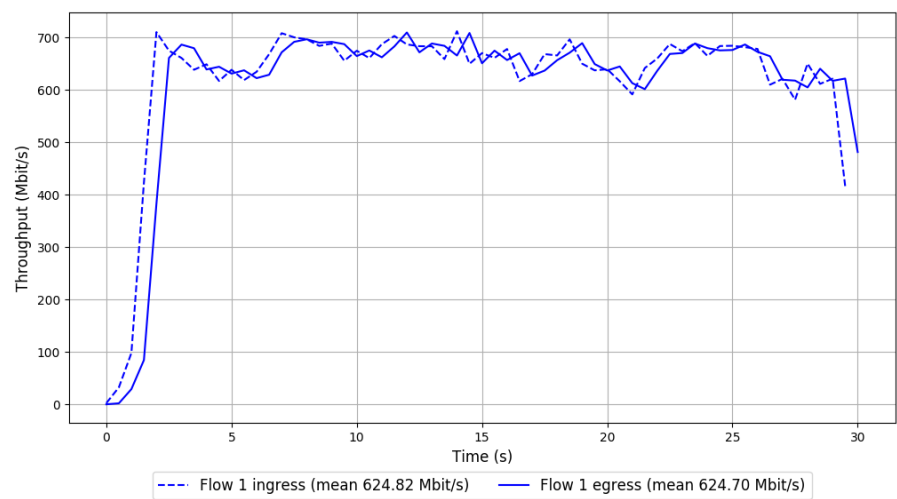

Flow 1 (95th percentile 70.48 ms)

```
Run 5: Statistics of Indigo-Muses

Start at: 2018-10-03 04:11:40
End at: 2018-10-03 04:12:10
Local clock offset: -0.16 ms
Remote clock offset: -0.134 ms


# Below is generated by plot.py at 2018-10-03 05:21:48
# Datalink statistics
-- Total of 1 flow:
Average throughput: 624.70 Mbit/s
95th percentile per-packet one-way delay: 70.579 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 624.70 Mbit/s
95th percentile per-packet one-way delay: 70.579 ms
Loss rate: 0.02%
```
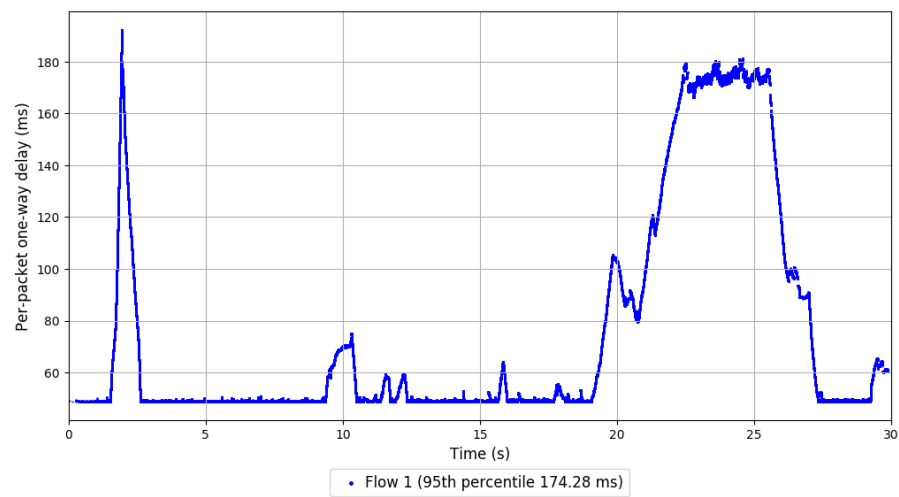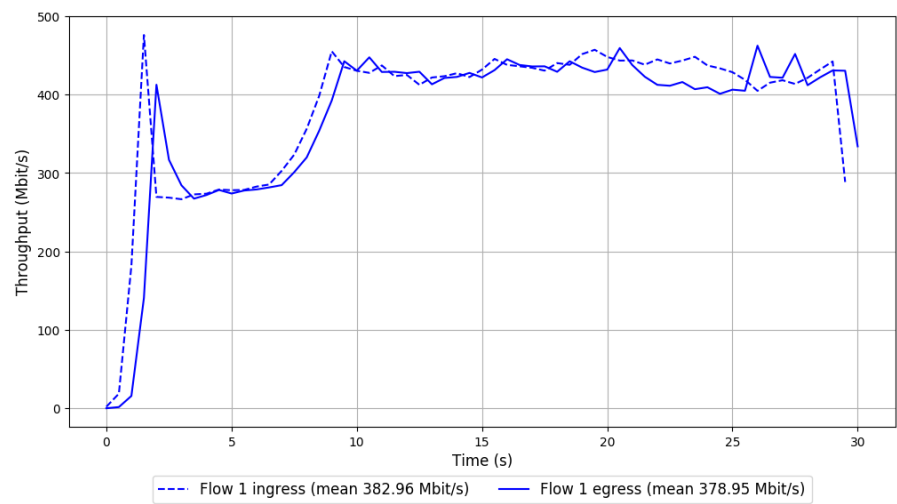
Run 5: Report of Indigo-Muses — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2018-10-03 02:37:12
End at: 2018-10-03 02:37:42
Local clock offset: -0.001 ms
Remote clock offset: 0.013 ms


# Below is generated by plot.py at 2018-10-03 05:23:31
# Datalink statistics
-- Total of 1 flow:
Average throughput: 378.95 Mbit/s
95th percentile per-packet one-way delay: 174.281 ms
Loss rate: 1.05%
-- Flow 1:
Average throughput: 378.95 Mbit/s
95th percentile per-packet one-way delay: 174.281 ms
Loss rate: 1.05%
```
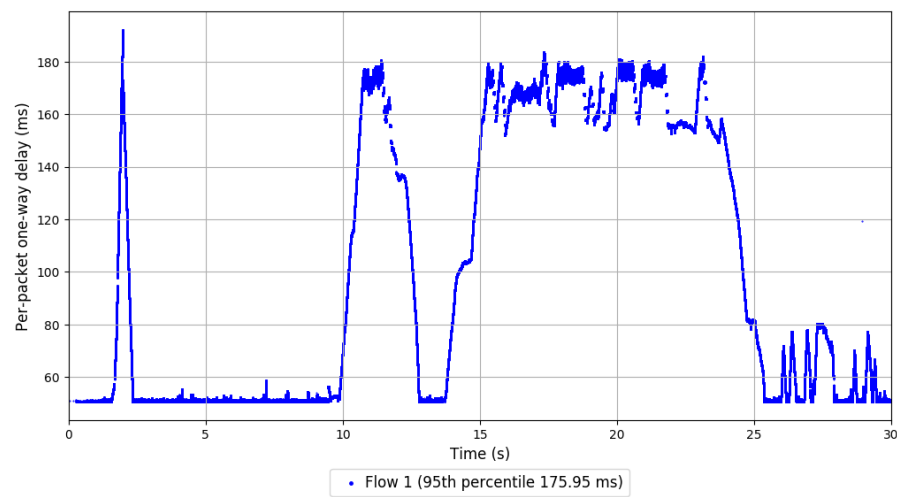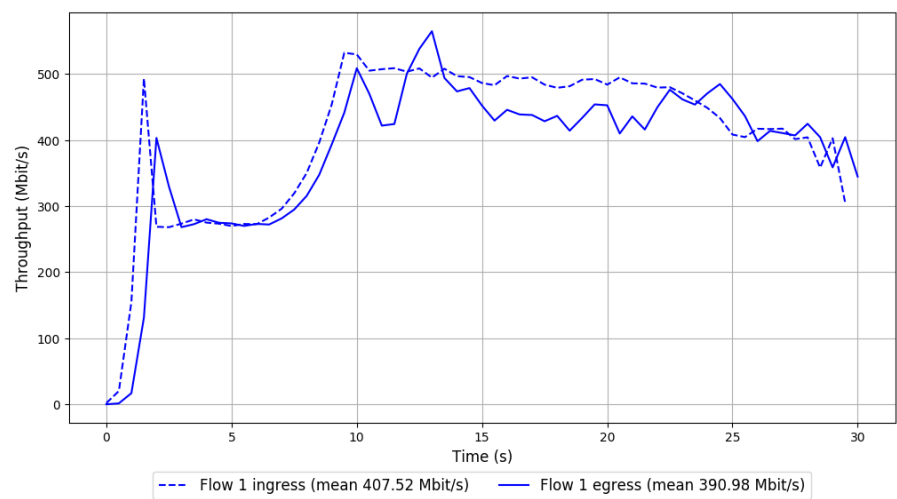
Run 1: Report of PCC-Allegro — Data Link

```
Run 2: Statistics of PCC-Allegro

Start at: 2018-10-03 03:02:19
End at: 2018-10-03 03:02:49
Local clock offset: -0.053 ms
Remote clock offset: -0.012 ms


# Below is generated by plot.py at 2018-10-03 05:24:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 390.98 Mbit/s
95th percentile per-packet one-way delay: 175.946 ms
Loss rate: 4.06%
-- Flow 1:
Average throughput: 390.98 Mbit/s
95th percentile per-packet one-way delay: 175.946 ms
Loss rate: 4.06%
```

Run 2: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 407.52 Mbit/s)   Flow 1 egress (mean 390.98 Mbit/s)

• Flow 1 (95th percentile 175.95 ms)

```
Run 3: Statistics of PCC-Allegro

Start at: 2018-10-03 03:27:18
End at: 2018-10-03 03:27:48
Local clock offset: -0.085 ms
Remote clock offset: -0.024 ms


# Below is generated by plot.py at 2018-10-03 05:24:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 406.66 Mbit/s
95th percentile per-packet one-way delay: 161.412 ms
Loss rate: 1.84%
-- Flow 1:
Average throughput: 406.66 Mbit/s
95th percentile per-packet one-way delay: 161.412 ms
Loss rate: 1.84%
```
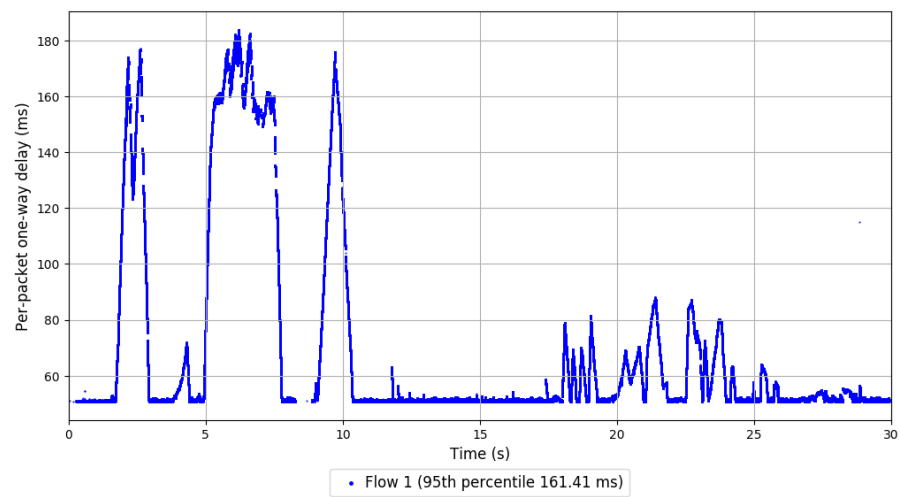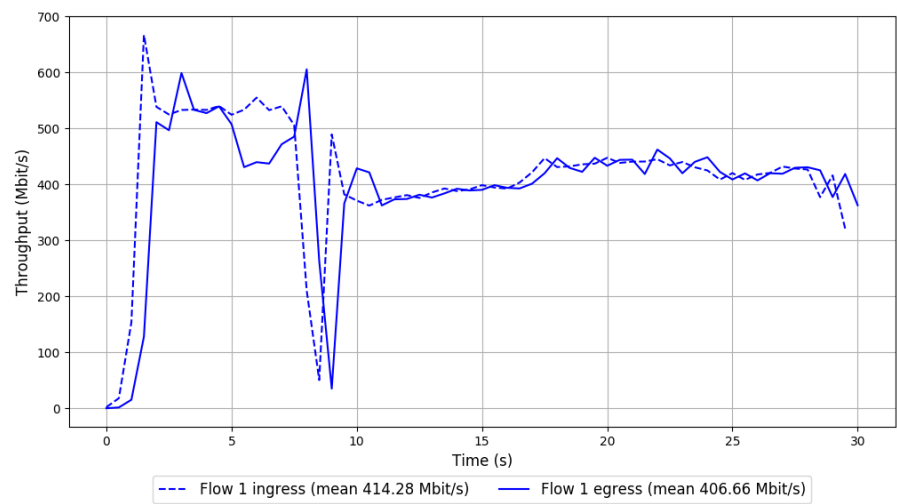
Run 3: Report of PCC-Allegro — Data Link

```
Run 4: Statistics of PCC-Allegro

Start at: 2018-10-03 03:52:15
End at: 2018-10-03 03:52:45
Local clock offset: -0.109 ms
Remote clock offset: -0.054 ms


# Below is generated by plot.py at 2018-10-03 05:30:47
# Datalink statistics
-- Total of 1 flow:
Average throughput: 383.55 Mbit/s
95th percentile per-packet one-way delay: 172.840 ms
Loss rate: 1.27%
-- Flow 1:
Average throughput: 383.55 Mbit/s
95th percentile per-packet one-way delay: 172.840 ms
Loss rate: 1.27%
```
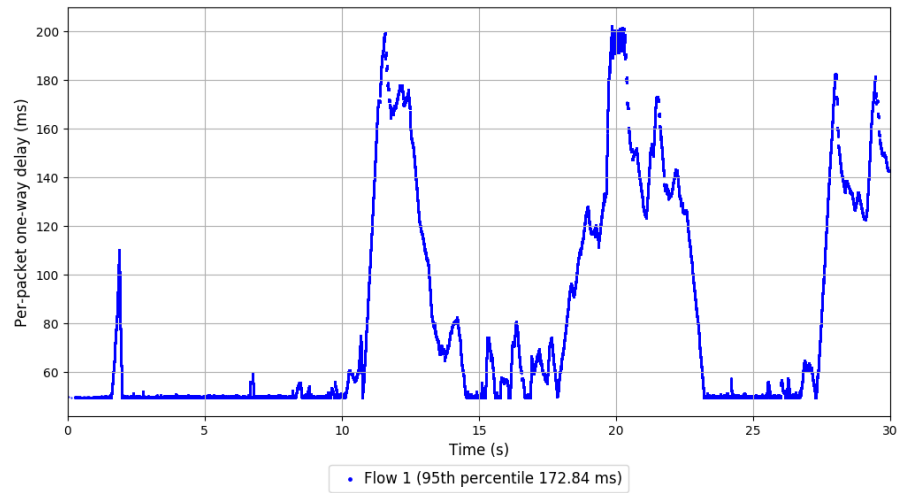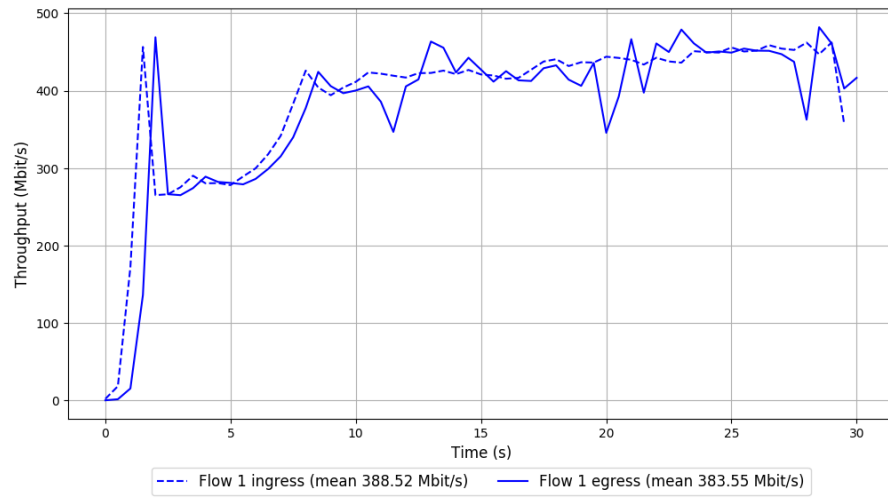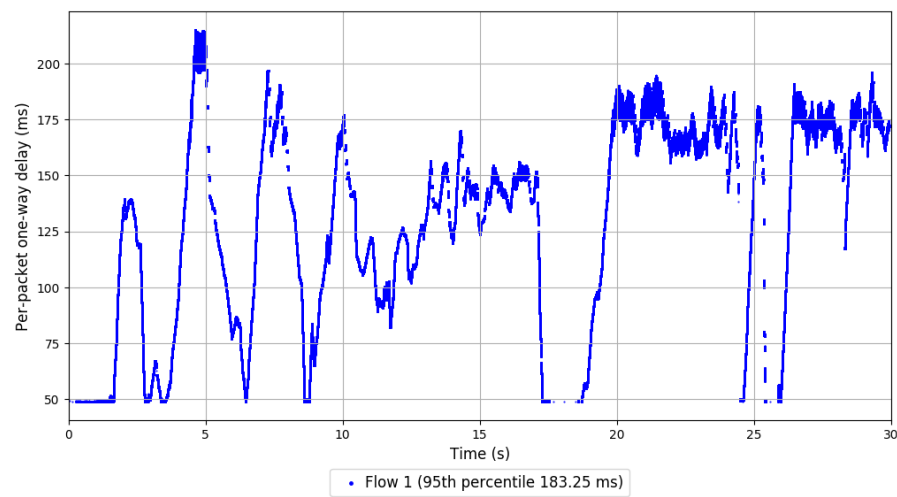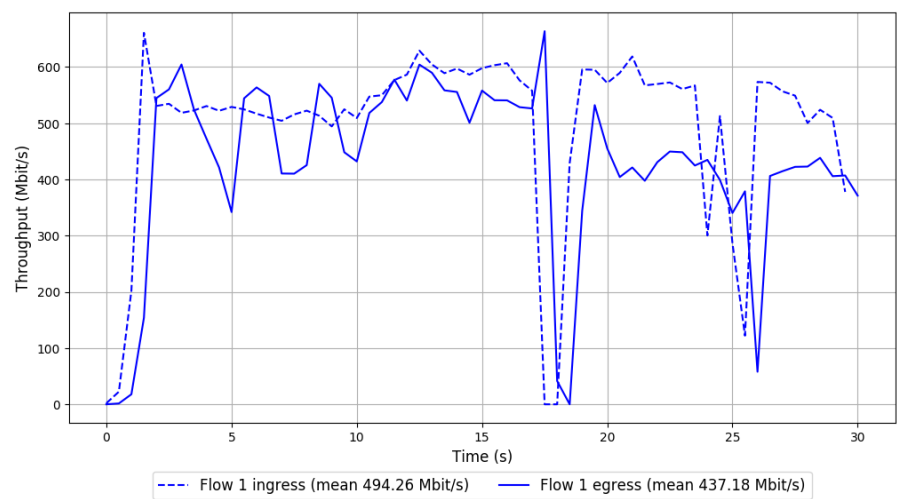
Run 4: Report of PCC-Allegro — Data Link

```
Run 5: Statistics of PCC-Allegro

Start at: 2018-10-03 04:17:15
End at: 2018-10-03 04:17:45
Local clock offset: -0.179 ms
Remote clock offset: -0.167 ms


# Below is generated by plot.py at 2018-10-03 05:35:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 437.18 Mbit/s
95th percentile per-packet one-way delay: 183.253 ms
Loss rate: 11.54%
-- Flow 1:
Average throughput: 437.18 Mbit/s
95th percentile per-packet one-way delay: 183.253 ms
Loss rate: 11.54%
```
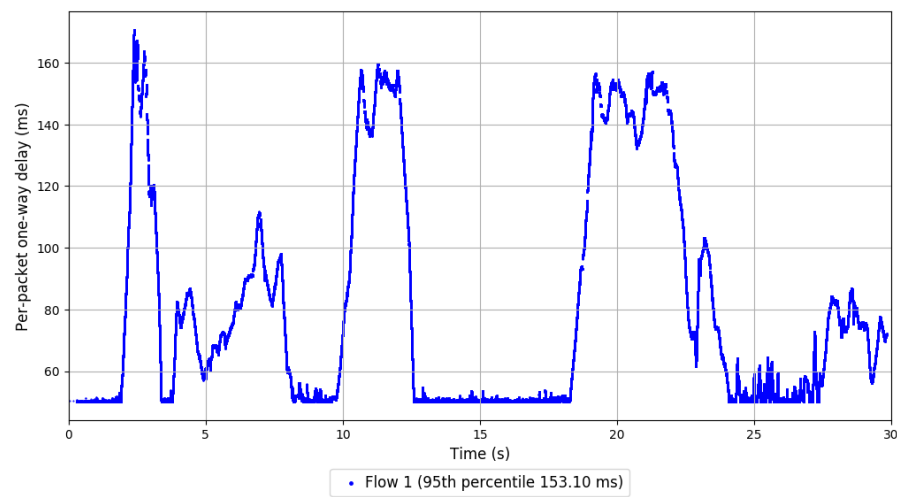
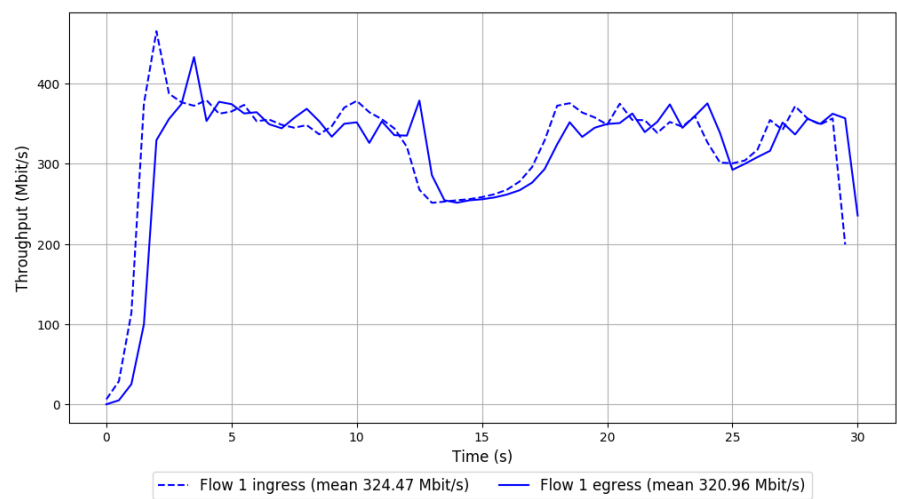Run 5: Report of PCC-Allegro — Data Link

```
Run 1: Statistics of PCC-Expr

Start at: 2018-10-03 02:41:09
End at: 2018-10-03 02:41:40
Local clock offset: 0.344 ms
Remote clock offset: 0.056 ms


# Below is generated by plot.py at 2018-10-03 05:35:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 320.96 Mbit/s
95th percentile per-packet one-way delay: 153.105 ms
Loss rate: 1.08%
-- Flow 1:
Average throughput: 320.96 Mbit/s
95th percentile per-packet one-way delay: 153.105 ms
Loss rate: 1.08%
```

Run 1: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 324.47 Mbit/s)   Flow 1 egress (mean 320.96 Mbit/s)
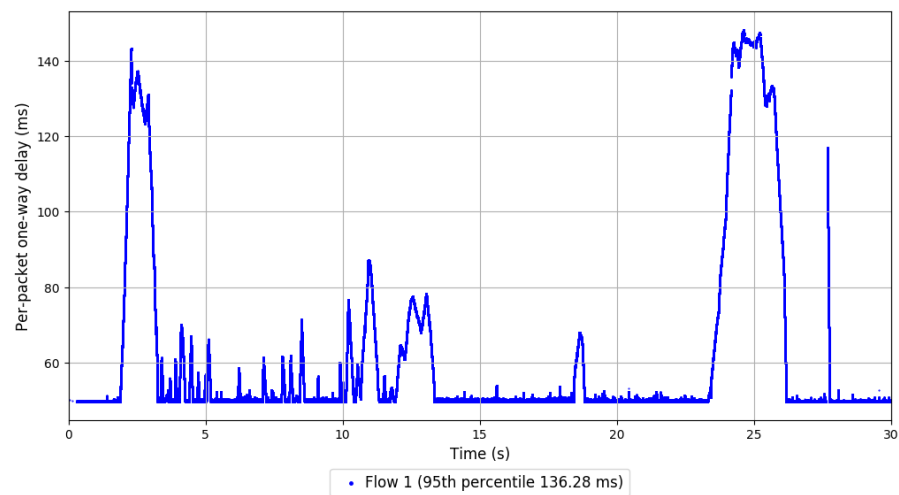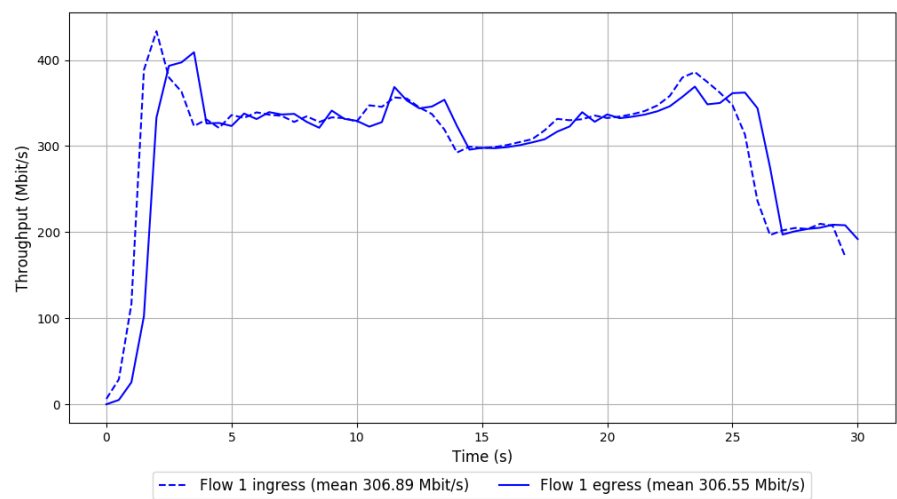

• Flow 1 (95th percentile 153.10 ms)

```
Run 2: Statistics of PCC-Expr

Start at: 2018-10-03 03:06:15
End at: 2018-10-03 03:06:45
Local clock offset: 0.287 ms
Remote clock offset: -0.007 ms


# Below is generated by plot.py at 2018-10-03 05:35:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 306.55 Mbit/s
95th percentile per-packet one-way delay: 136.283 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 306.55 Mbit/s
95th percentile per-packet one-way delay: 136.283 ms
Loss rate: 0.11%
```

Run 2: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 306.89 Mbit/s) — — —   Flow 1 egress (mean 306.55 Mbit/s) ———
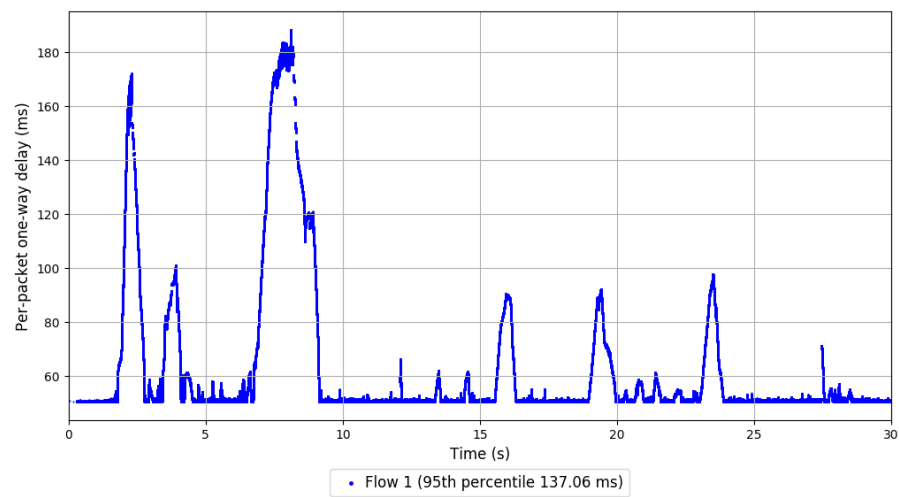

• Flow 1 (95th percentile 136.28 ms)

```
Run 3: Statistics of PCC-Expr

Start at: 2018-10-03 03:31:16
End at: 2018-10-03 03:31:46
Local clock offset: -0.14 ms
Remote clock offset: -0.029 ms


# Below is generated by plot.py at 2018-10-03 05:35:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 305.82 Mbit/s
95th percentile per-packet one-way delay: 137.061 ms
Loss rate: 1.06%
-- Flow 1:
Average throughput: 305.82 Mbit/s
95th percentile per-packet one-way delay: 137.061 ms
Loss rate: 1.06%
```
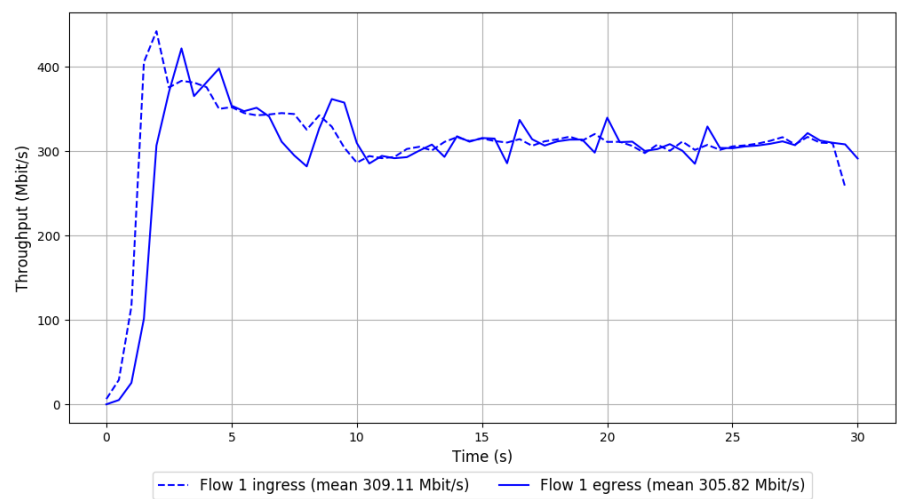
Run 3: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 309.11 Mbit/s)   Flow 1 egress (mean 305.82 Mbit/s)
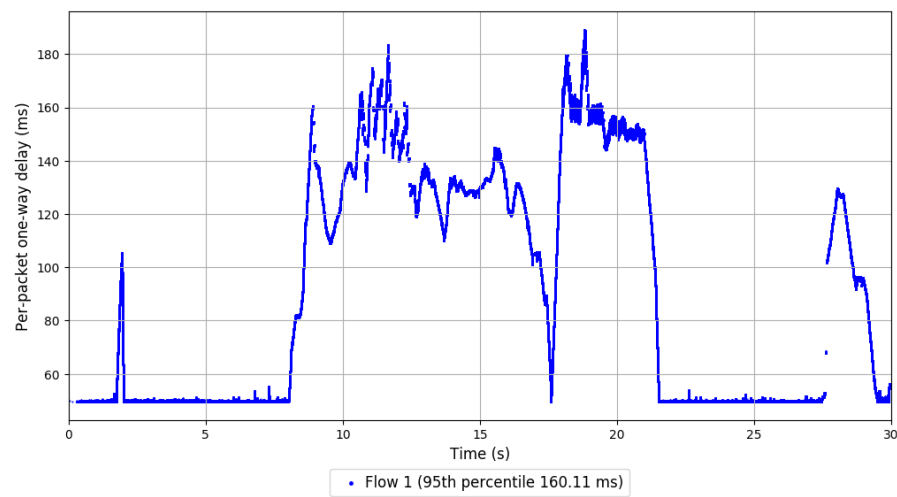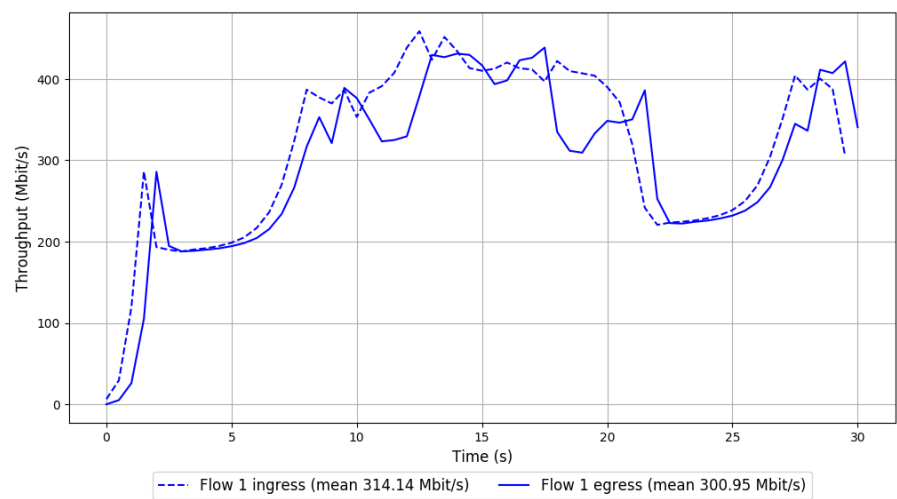

• Flow 1 (95th percentile 137.06 ms)

```
Run 4: Statistics of PCC-Expr

Start at: 2018-10-03 03:56:10
End at: 2018-10-03 03:56:40
Local clock offset: -0.151 ms
Remote clock offset: -0.083 ms


# Below is generated by plot.py at 2018-10-03 05:35:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 300.95 Mbit/s
95th percentile per-packet one-way delay: 160.107 ms
Loss rate: 4.20%
-- Flow 1:
Average throughput: 300.95 Mbit/s
95th percentile per-packet one-way delay: 160.107 ms
Loss rate: 4.20%
```

Run 4: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 314.14 Mbit/s) --- Flow 1 egress (mean 300.95 Mbit/s)
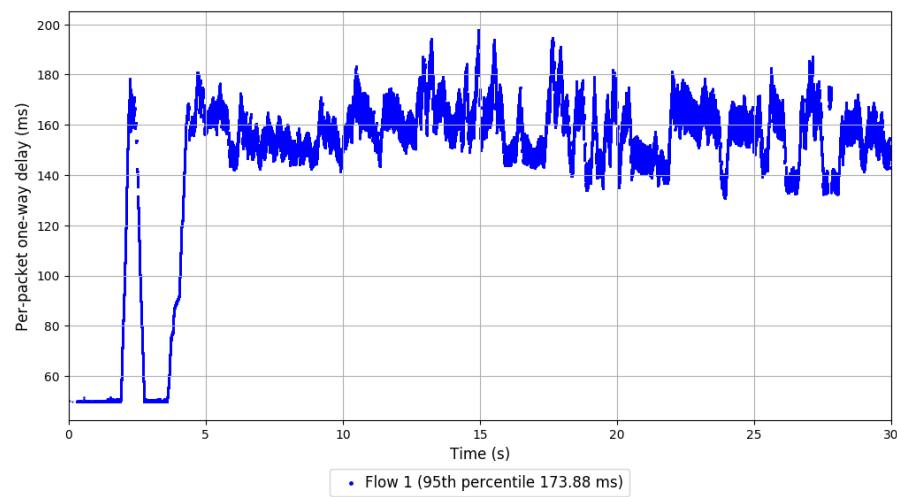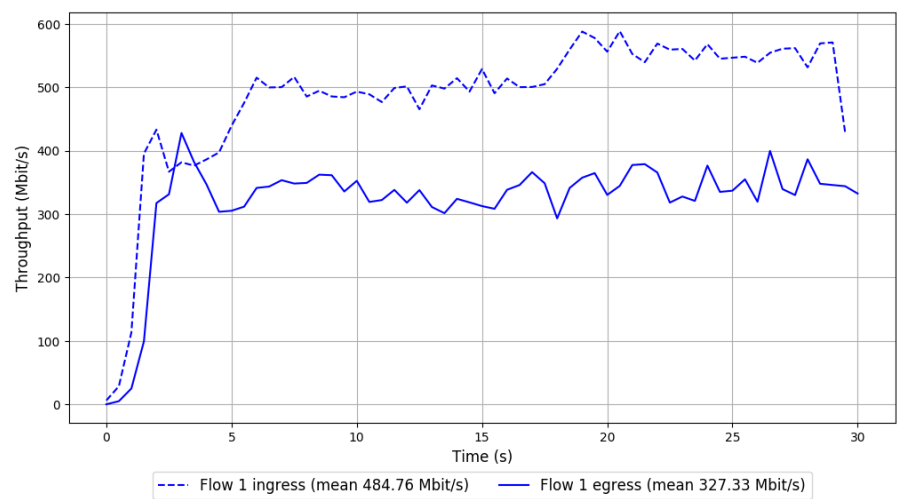

• Flow 1 (95th percentile 160.11 ms)

```
Run 5: Statistics of PCC-Expr

Start at: 2018-10-03 04:21:16
End at: 2018-10-03 04:21:46
Local clock offset: -0.536 ms
Remote clock offset: -0.167 ms


# Below is generated by plot.py at 2018-10-03 05:37:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 327.33 Mbit/s
95th percentile per-packet one-way delay: 173.875 ms
Loss rate: 32.47%
-- Flow 1:
Average throughput: 327.33 Mbit/s
95th percentile per-packet one-way delay: 173.875 ms
Loss rate: 32.47%
```

Run 5: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 484.76 Mbit/s) --- Flow 1 egress (mean 327.33 Mbit/s)

Flow 1 (95th percentile 173.88 ms)

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-10-03 02:43:53
End at: 2018-10-03 02:44:23
Local clock offset: 0.011 ms
Remote clock offset: -0.014 ms


# Below is generated by plot.py at 2018-10-03 05:37:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 33.90 Mbit/s
95th percentile per-packet one-way delay: 48.839 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 33.90 Mbit/s
95th percentile per-packet one-way delay: 48.839 ms
Loss rate: 0.00%
```
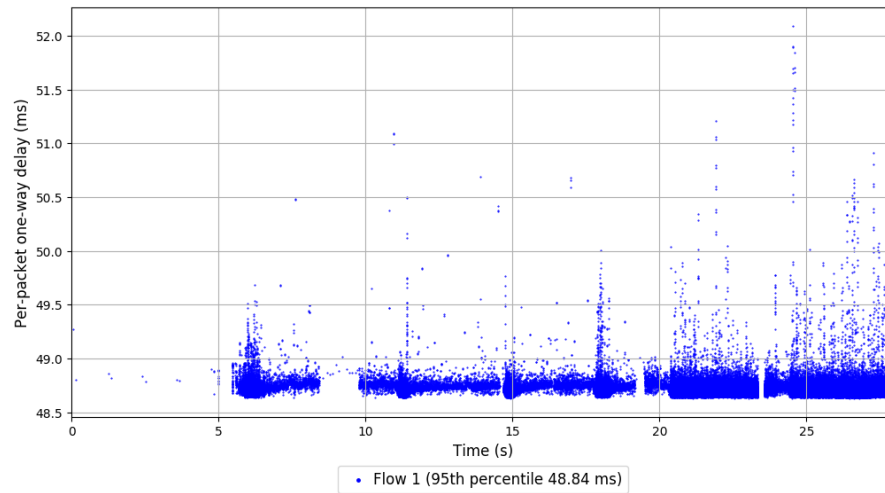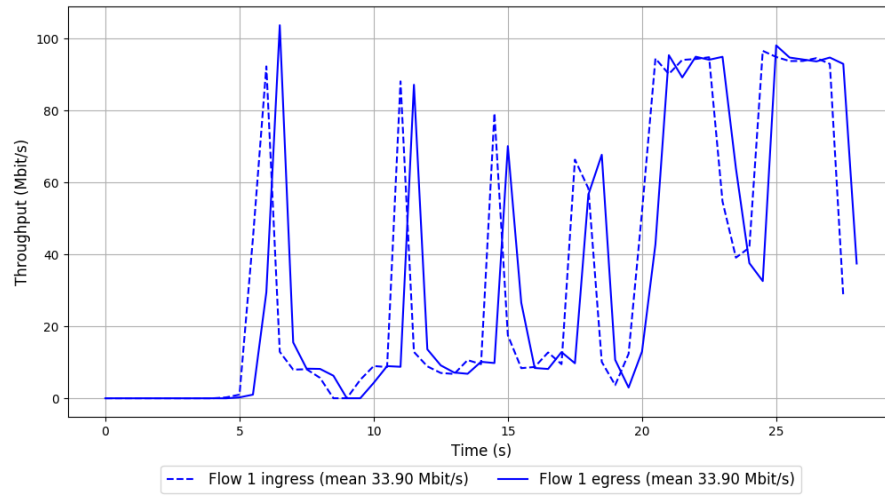
Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-10-03 03:08:57
End at: 2018-10-03 03:09:27
Local clock offset: -0.427 ms
Remote clock offset: -0.011 ms


# Below is generated by plot.py at 2018-10-03 05:37:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 63.51 Mbit/s
95th percentile per-packet one-way delay: 51.433 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 63.51 Mbit/s
95th percentile per-packet one-way delay: 51.433 ms
Loss rate: 0.00%
```
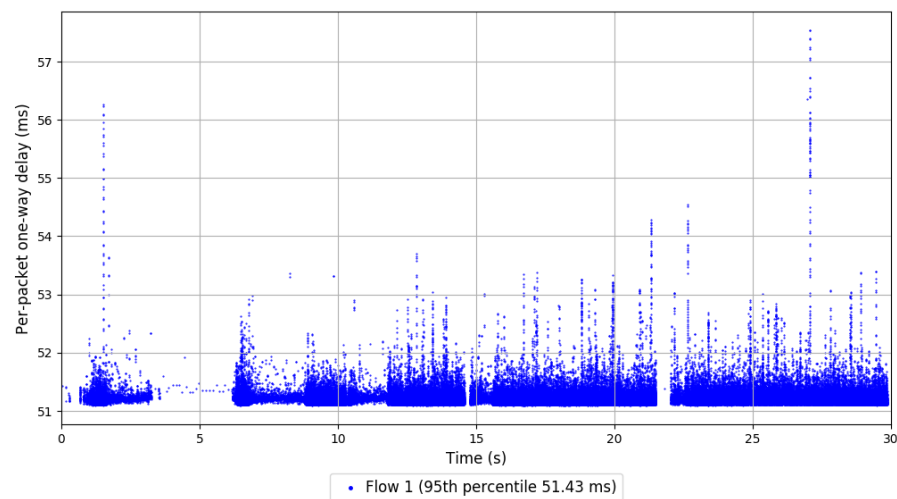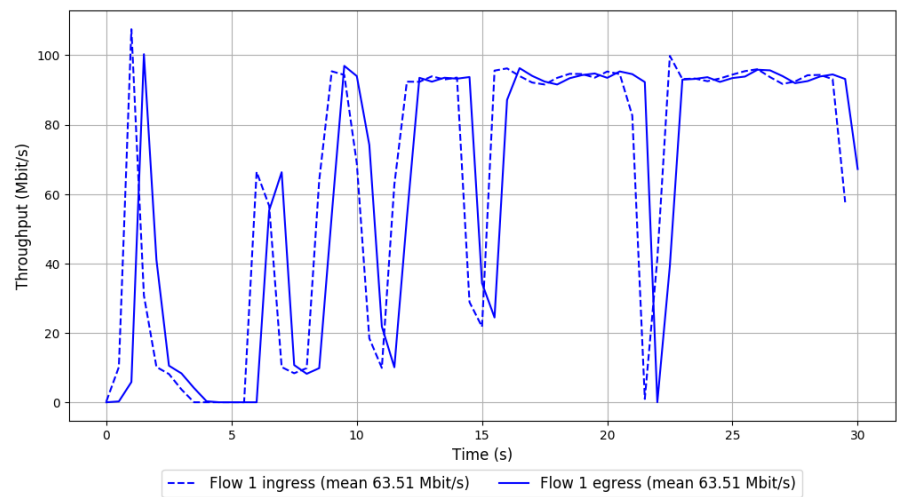
Run 2: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 63.51 Mbit/s) --- Flow 1 egress (mean 63.51 Mbit/s)

• Flow 1 (95th percentile 51.43 ms)

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-10-03 03:33:58
End at: 2018-10-03 03:34:28
Local clock offset: -0.074 ms
Remote clock offset: -0.053 ms


# Below is generated by plot.py at 2018-10-03 05:37:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 55.93 Mbit/s
95th percentile per-packet one-way delay: 50.253 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 55.93 Mbit/s
95th percentile per-packet one-way delay: 50.253 ms
Loss rate: 0.00%
```
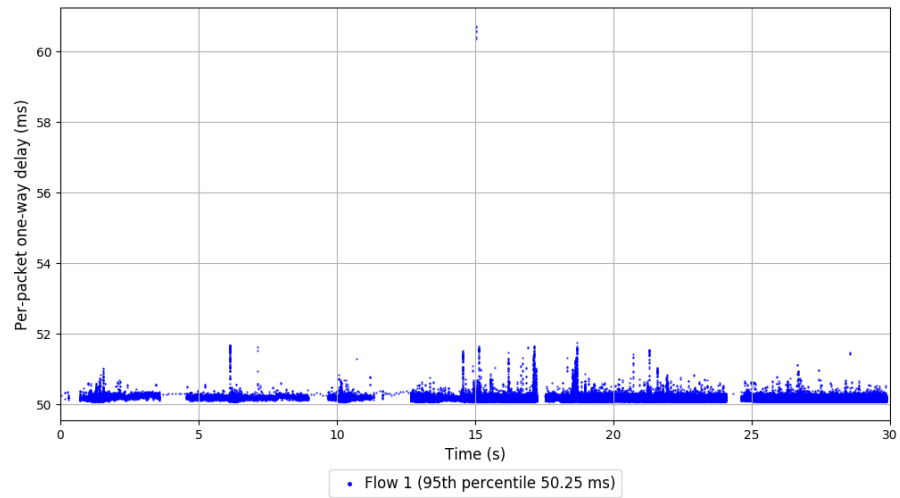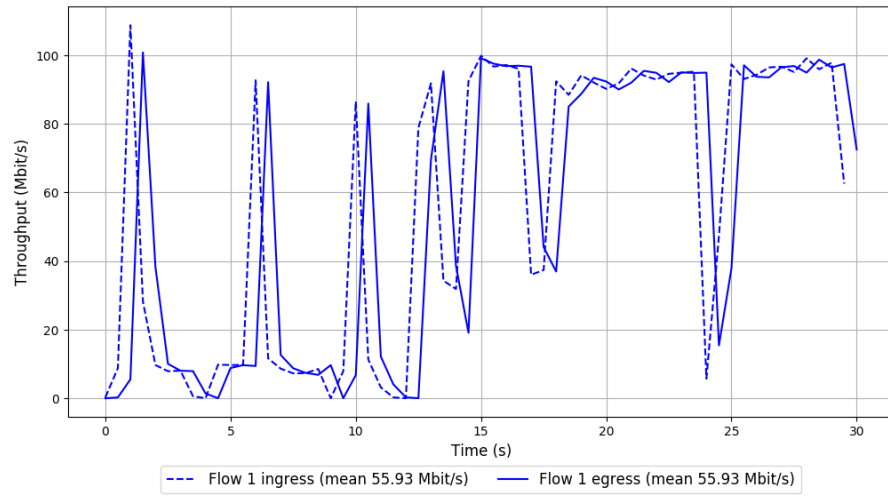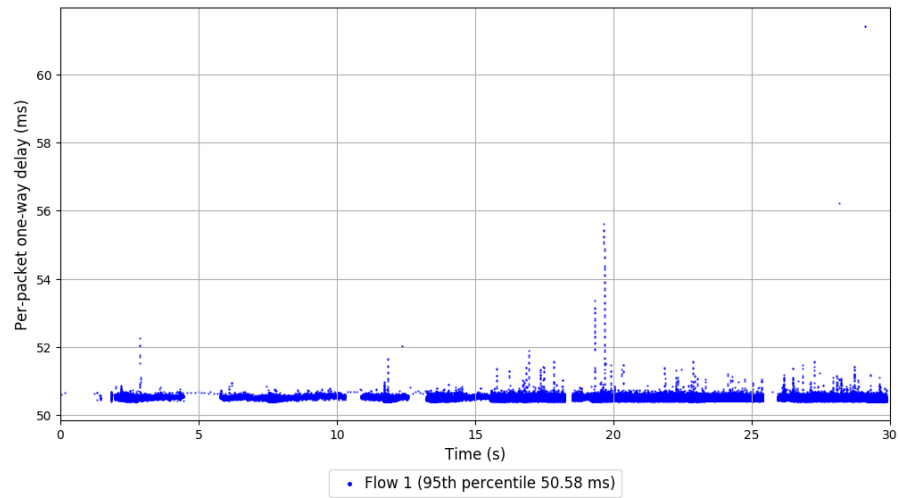
Run 3: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 55.93 Mbit/s)   Flow 1 egress (mean 55.93 Mbit/s)

Flow 1 (95th percentile 50.25 ms)

110

```
Run 4: Statistics of QUIC Cubic

Start at: 2018-10-03 03:58:52
End at: 2018-10-03 03:59:22
Local clock offset: -0.164 ms
Remote clock offset: -0.096 ms


# Below is generated by plot.py at 2018-10-03 05:37:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 51.79 Mbit/s
95th percentile per-packet one-way delay: 50.577 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 51.79 Mbit/s
95th percentile per-packet one-way delay: 50.577 ms
Loss rate: 0.00%
```
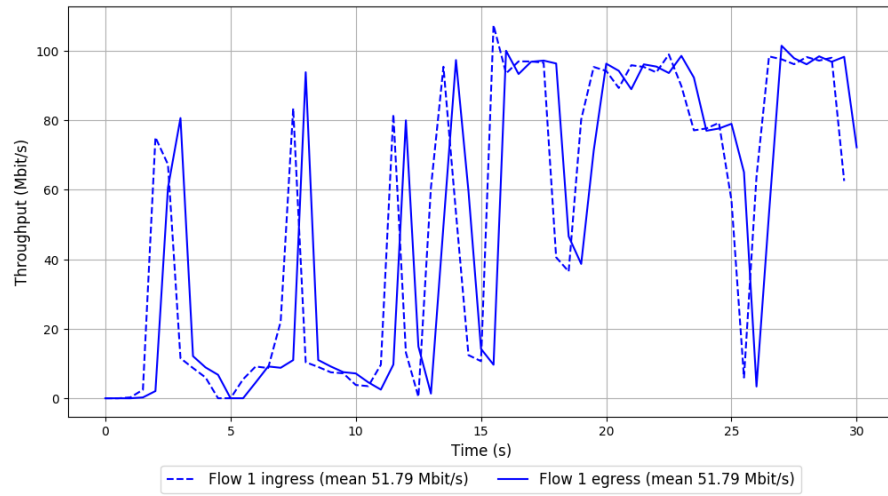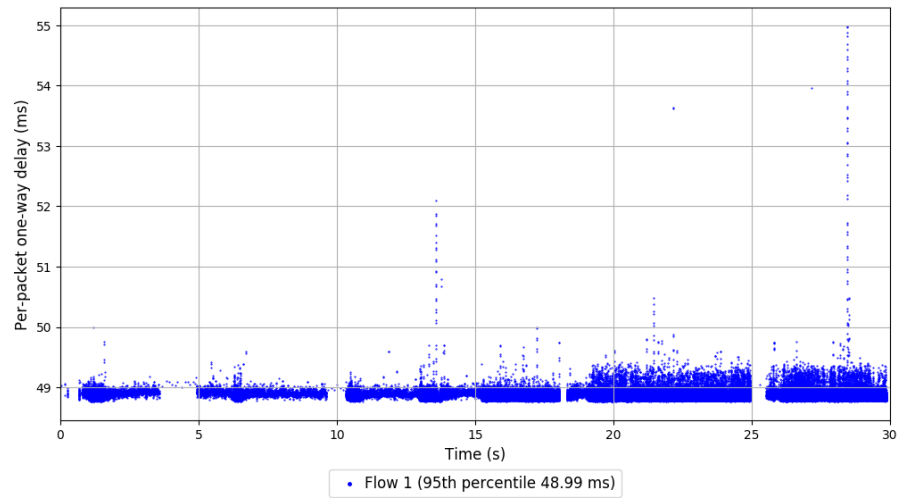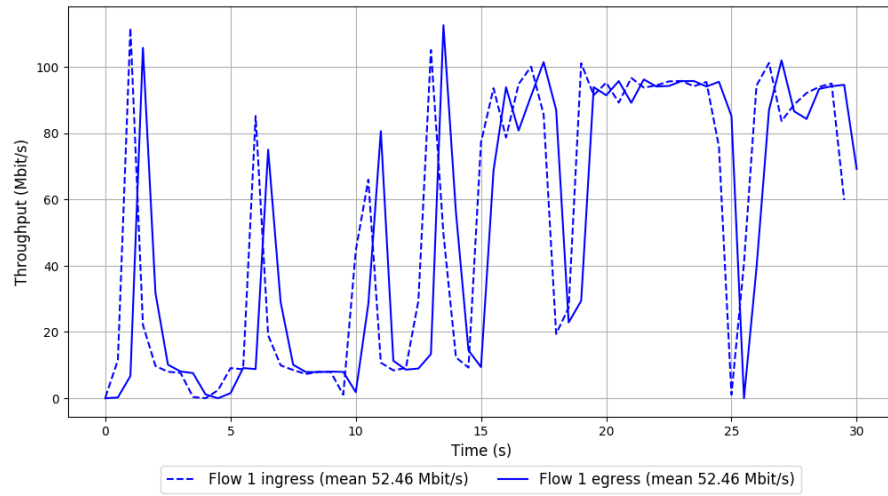
Run 4: Report of QUIC Cubic — Data Link

```
Run 5: Statistics of QUIC Cubic

Start at: 2018-10-03 04:24:05
End at: 2018-10-03 04:24:35
Local clock offset: -0.189 ms
Remote clock offset: -0.149 ms


# Below is generated by plot.py at 2018-10-03 05:37:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 52.46 Mbit/s
95th percentile per-packet one-way delay: 48.991 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 52.46 Mbit/s
95th percentile per-packet one-way delay: 48.991 ms
Loss rate: 0.00%
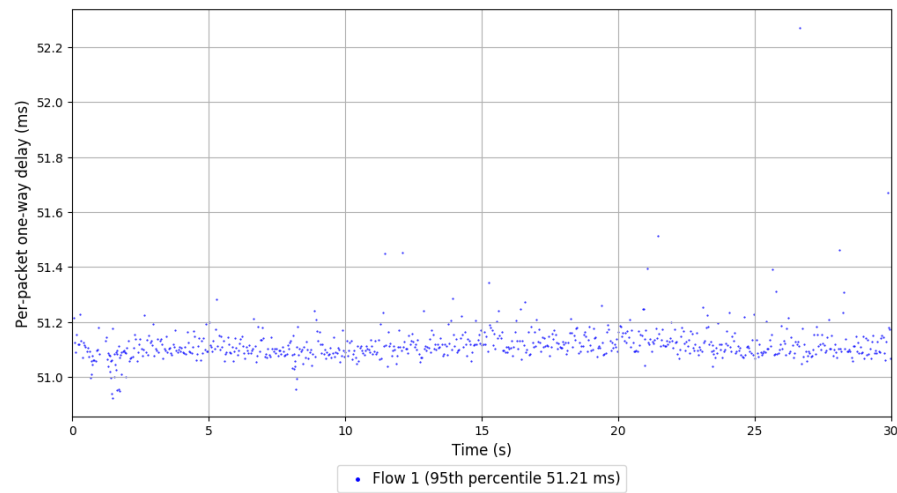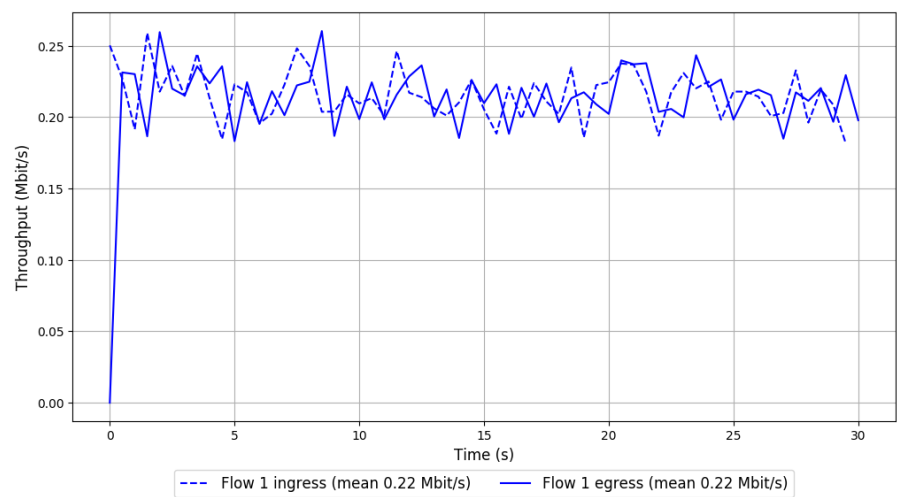```

Run 5: Report of QUIC Cubic — Data Link

```
Run 1: Statistics of SCReAM

Start at: 2018-10-03 02:36:06
End at: 2018-10-03 02:36:36
Local clock offset: -0.376 ms
Remote clock offset: 0.003 ms


# Below is generated by plot.py at 2018-10-03 05:37:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 51.208 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 51.208 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 51.21 ms)

```
Run 2: Statistics of SCReAM

Start at: 2018-10-03 03:01:12
End at: 2018-10-03 03:01:42
Local clock offset: -0.061 ms
Remote clock offset: 0.006 ms


# Below is generated by plot.py at 2018-10-03 05:37:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 49.083 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 49.083 ms
Loss rate: 0.00%
```
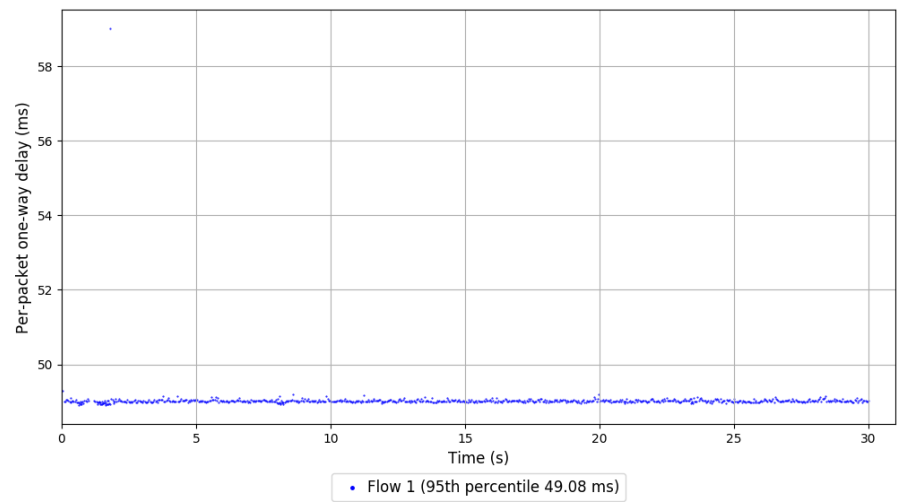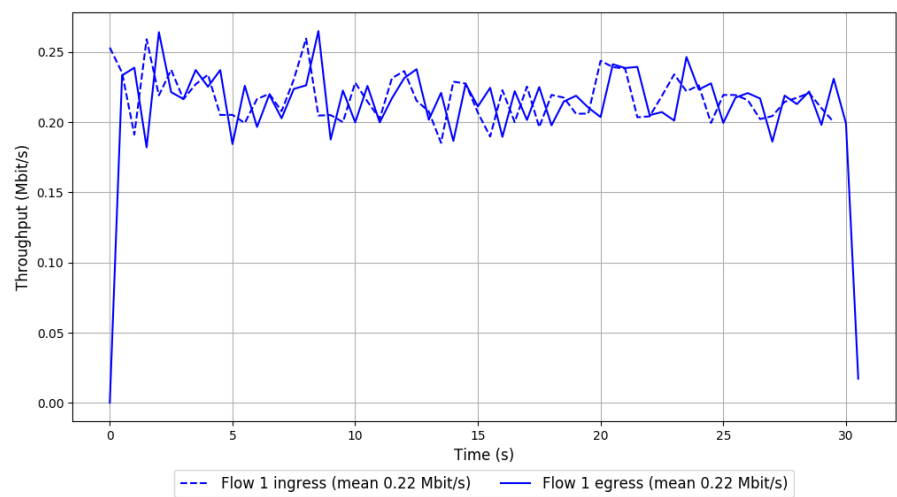
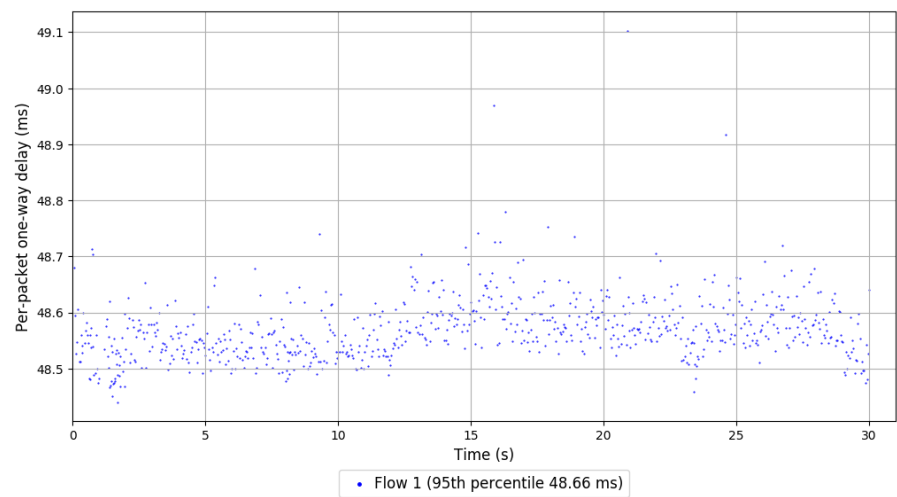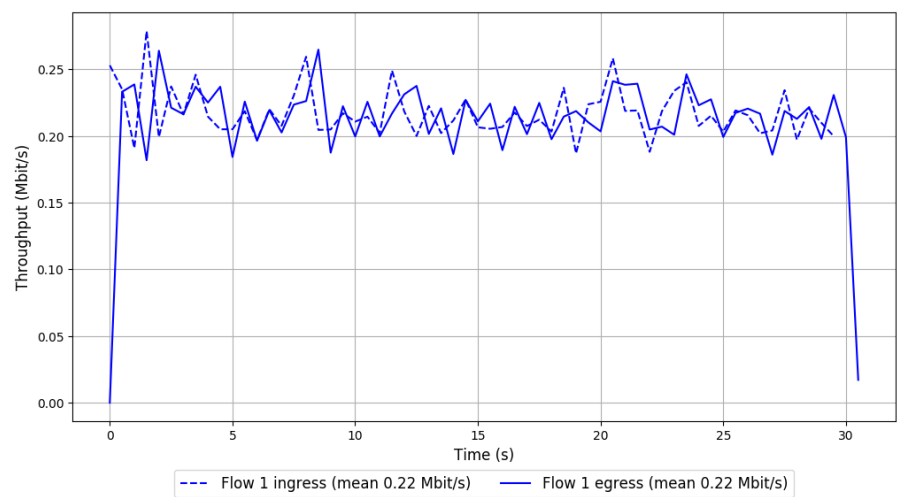Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2018-10-03 03:26:11
End at: 2018-10-03 03:26:41
Local clock offset: 0.281 ms
Remote clock offset: -0.026 ms


# Below is generated by plot.py at 2018-10-03 05:37:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 48.658 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 48.658 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)

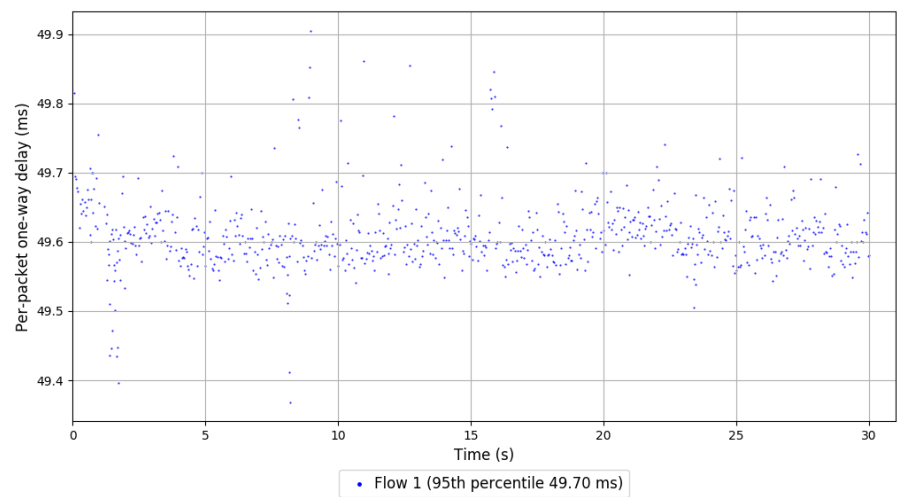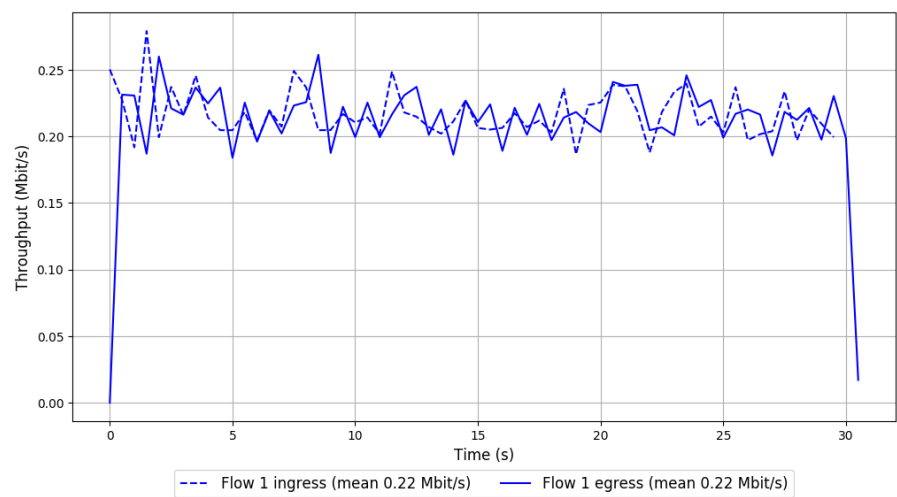Flow 1 (95th percentile 48.66 ms)

```
Run 4: Statistics of SCReAM

Start at: 2018-10-03 03:51:09
End at: 2018-10-03 03:51:39
Local clock offset: -0.116 ms
Remote clock offset: -0.047 ms


# Below is generated by plot.py at 2018-10-03 05:37:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 49.699 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 49.699 ms
Loss rate: 0.00%
```

Run 4: Report of SCReAM — Data Link

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

Flow 1 (95th percentile 49.70 ms)

```
Run 5: Statistics of SCReAM

Start at: 2018-10-03 04:16:09
End at: 2018-10-03 04:16:39
Local clock offset: -0.17 ms
Remote clock offset: -0.17 ms


# Below is generated by plot.py at 2018-10-03 05:37:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 49.025 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 49.025 ms
Loss rate: 0.00%
```
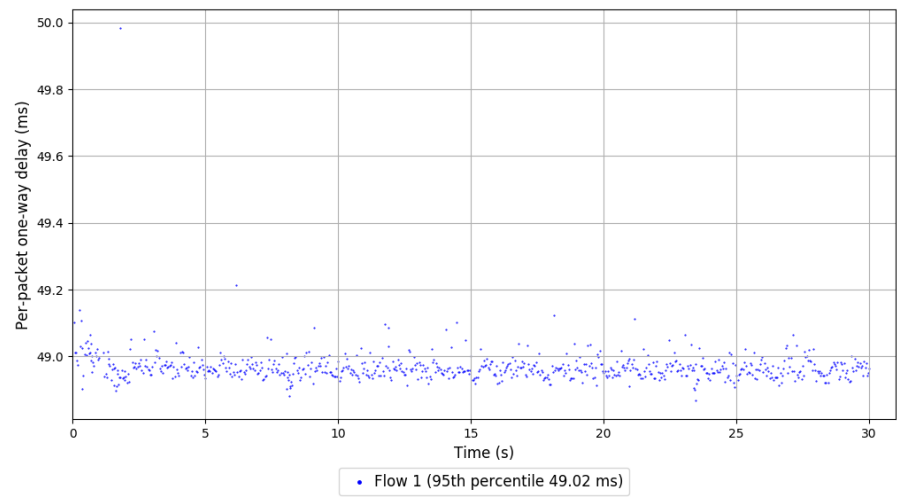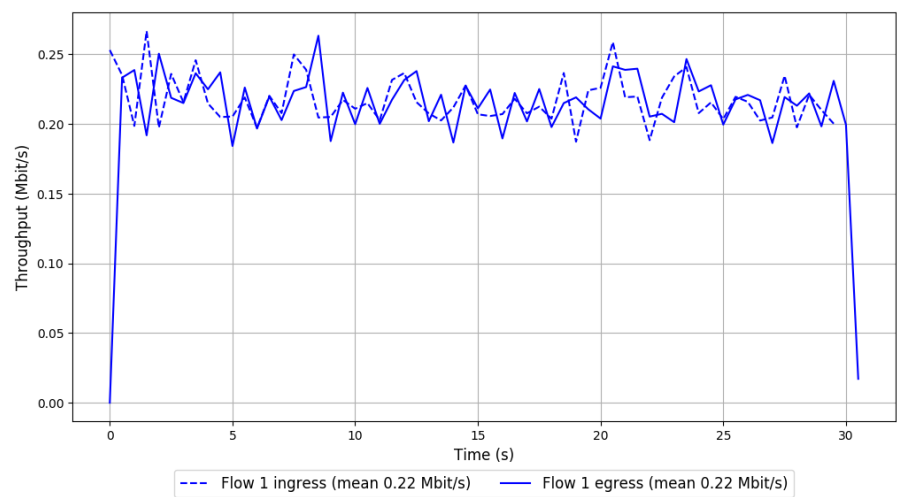
Run 5: Report of SCReAM — Data Link

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

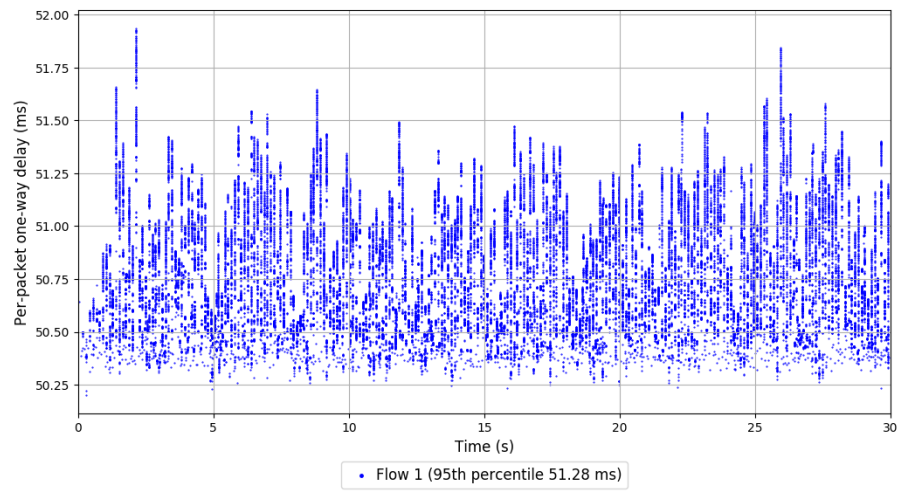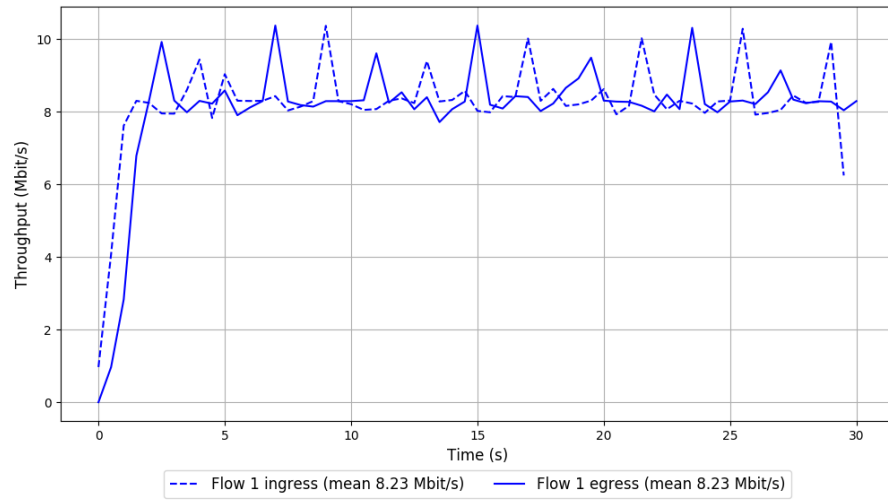• Flow 1 (95th percentile 49.02 ms)

```
Run 1: Statistics of Sprout

Start at: 2018-10-03 02:27:33
End at: 2018-10-03 02:28:03
Local clock offset: -0.025 ms
Remote clock offset: -0.012 ms


# Below is generated by plot.py at 2018-10-03 05:37:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.23 Mbit/s
95th percentile per-packet one-way delay: 51.279 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 8.23 Mbit/s
95th percentile per-packet one-way delay: 51.279 ms
Loss rate: 0.00%
```
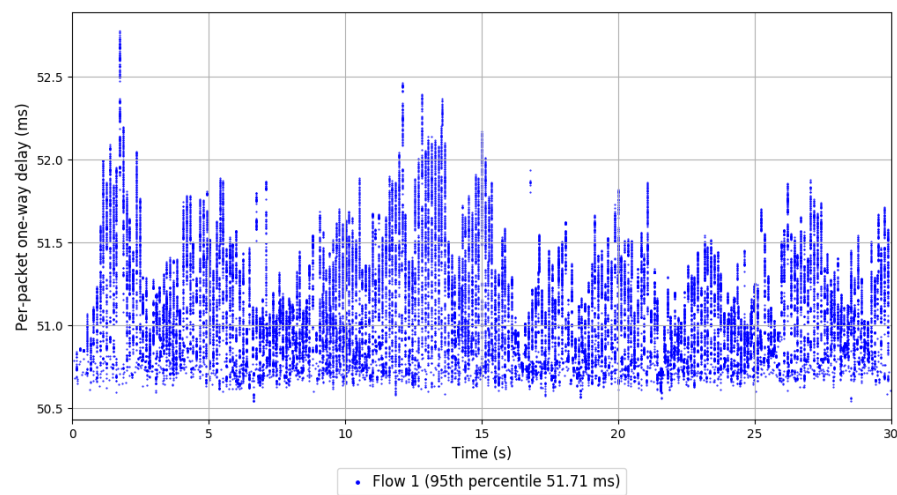
Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2018-10-03 02:52:31
End at: 2018-10-03 02:53:01
Local clock offset: -0.029 ms
Remote clock offset: 0.012 ms


# Below is generated by plot.py at 2018-10-03 05:37:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.21 Mbit/s
95th percentile per-packet one-way delay: 51.713 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 8.21 Mbit/s
95th percentile per-packet one-way delay: 51.713 ms
Loss rate: 0.00%
```
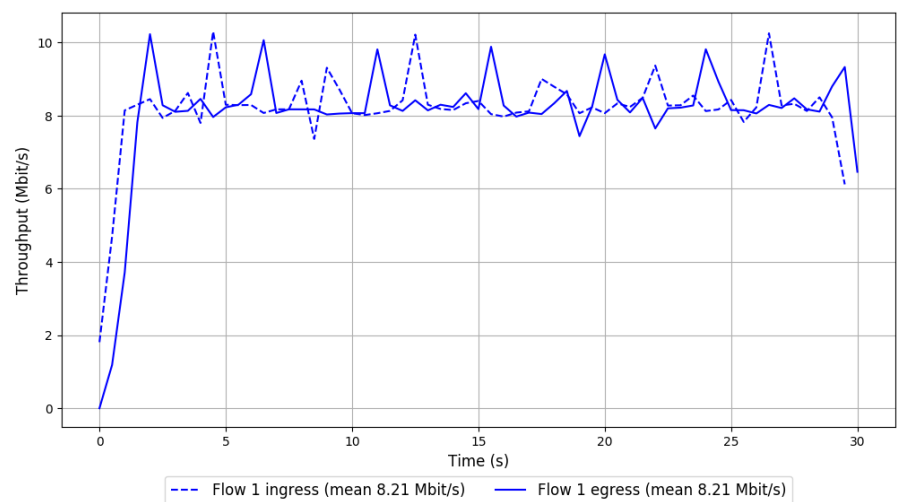
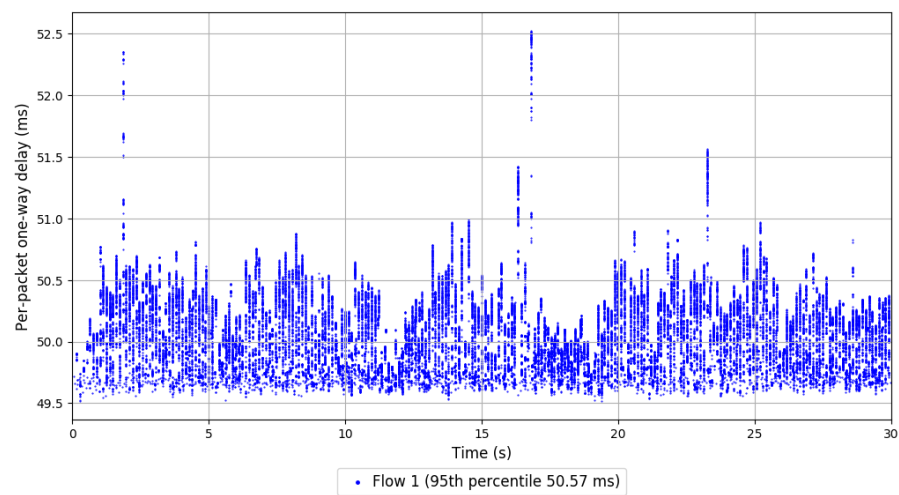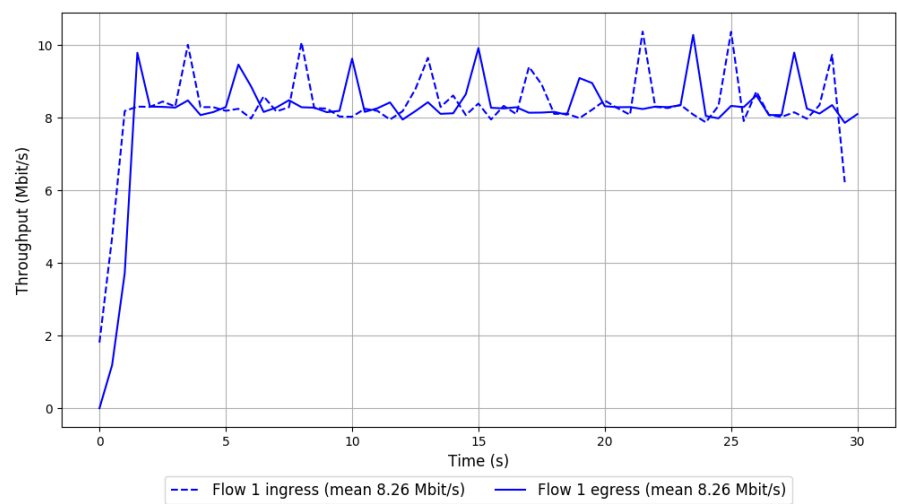Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2018-10-03 03:17:33
End at: 2018-10-03 03:18:03
Local clock offset: -0.106 ms
Remote clock offset: -0.046 ms


# Below is generated by plot.py at 2018-10-03 05:37:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.26 Mbit/s
95th percentile per-packet one-way delay: 50.573 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 8.26 Mbit/s
95th percentile per-packet one-way delay: 50.573 ms
Loss rate: 0.00%
```

Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2018-10-03 03:42:38
End at: 2018-10-03 03:43:08
Local clock offset: -0.125 ms
Remote clock offset: -0.05 ms


# Below is generated by plot.py at 2018-10-03 05:37:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.16 Mbit/s
95th percentile per-packet one-way delay: 51.217 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 8.16 Mbit/s
95th percentile per-packet one-way delay: 51.217 ms
Loss rate: 0.00%
```
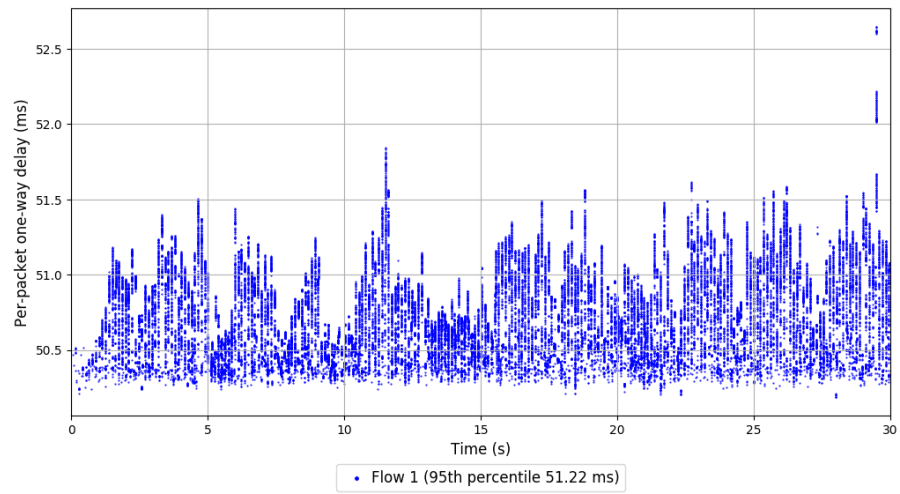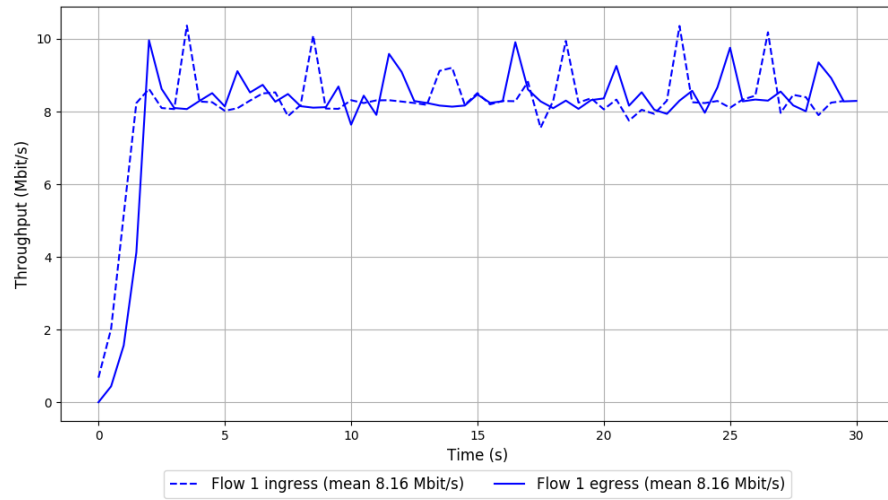
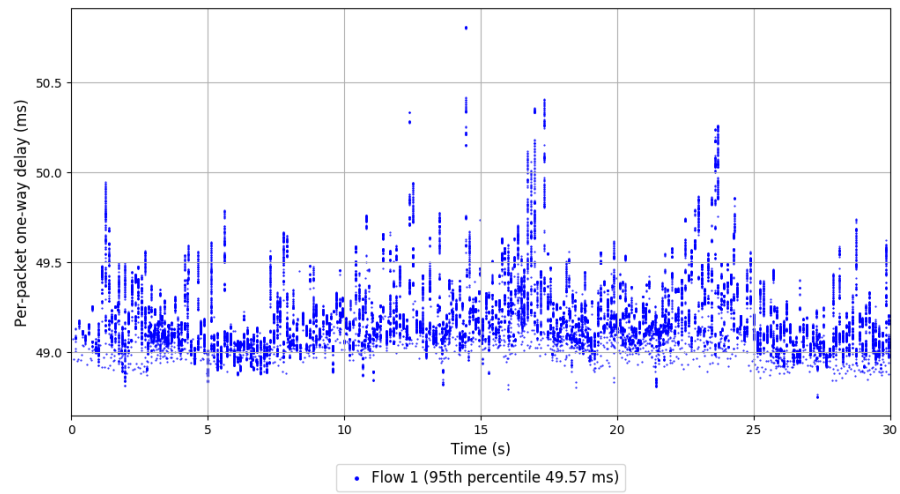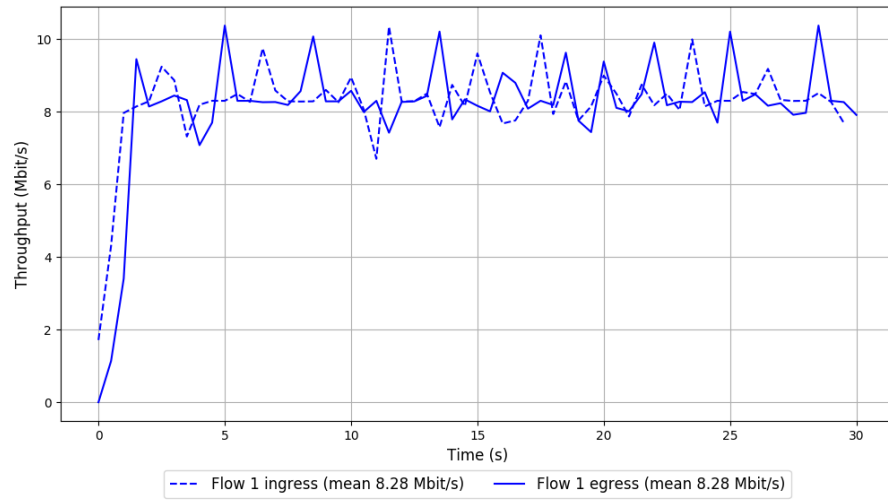## Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2018-10-03 04:07:45
End at: 2018-10-03 04:08:15
Local clock offset: -0.139 ms
Remote clock offset: -0.146 ms


# Below is generated by plot.py at 2018-10-03 05:37:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.28 Mbit/s
95th percentile per-packet one-way delay: 49.570 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 8.28 Mbit/s
95th percentile per-packet one-way delay: 49.570 ms
Loss rate: 0.00%
```

Run 5: Report of Sprout — Data Link

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

Start at: 2018-10-03 02:34:38
End at: 2018-10-03 02:35:08
Local clock offset: -0.38 ms
Remote clock offset: -0.002 ms


# Below is generated by plot.py at 2018-10-03 05:38:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 243.91 Mbit/s
95th percentile per-packet one-way delay: 51.506 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 243.91 Mbit/s
95th percentile per-packet one-way delay: 51.506 ms
Loss rate: 0.00%
```
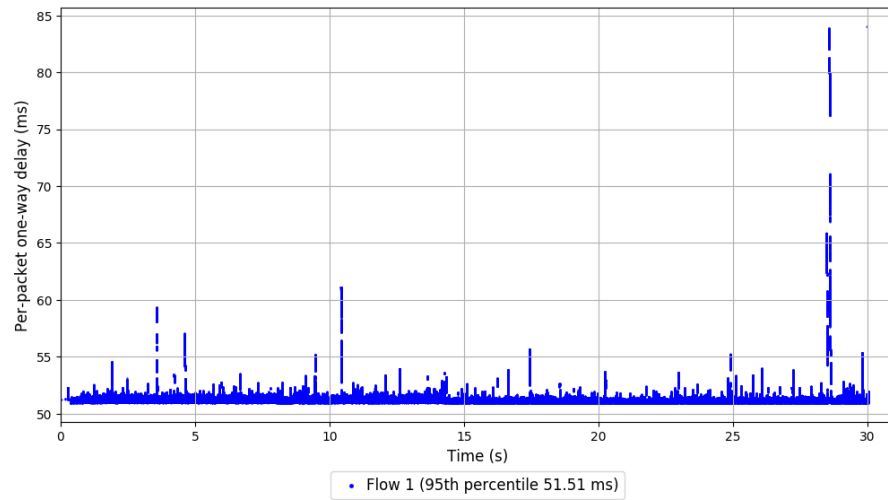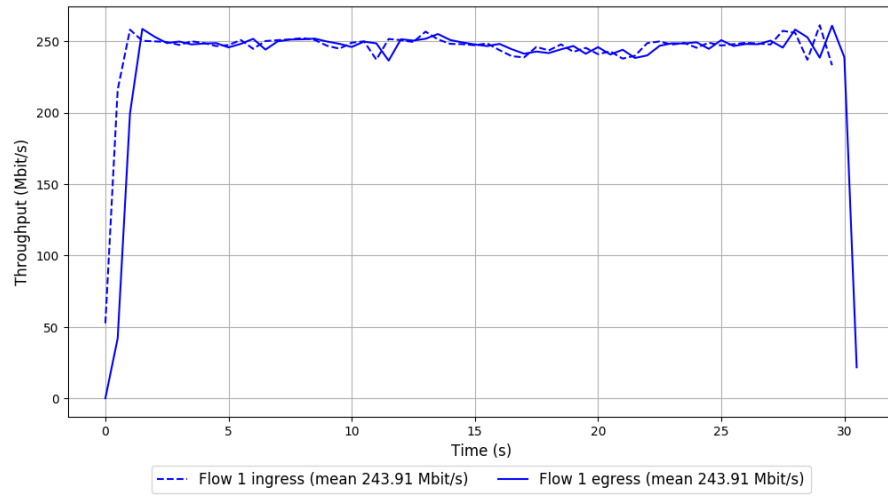
Run 1: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 243.91 Mbit/s) --- Flow 1 egress (mean 243.91 Mbit/s)

Flow 1 (95th percentile 51.51 ms)

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

Start at: 2018-10-03 02:59:44
End at: 2018-10-03 03:00:14
Local clock offset: -0.416 ms
Remote clock offset: -0.007 ms


# Below is generated by plot.py at 2018-10-03 05:38:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 244.82 Mbit/s
95th percentile per-packet one-way delay: 49.385 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 244.82 Mbit/s
95th percentile per-packet one-way delay: 49.385 ms
Loss rate: 0.00%
```
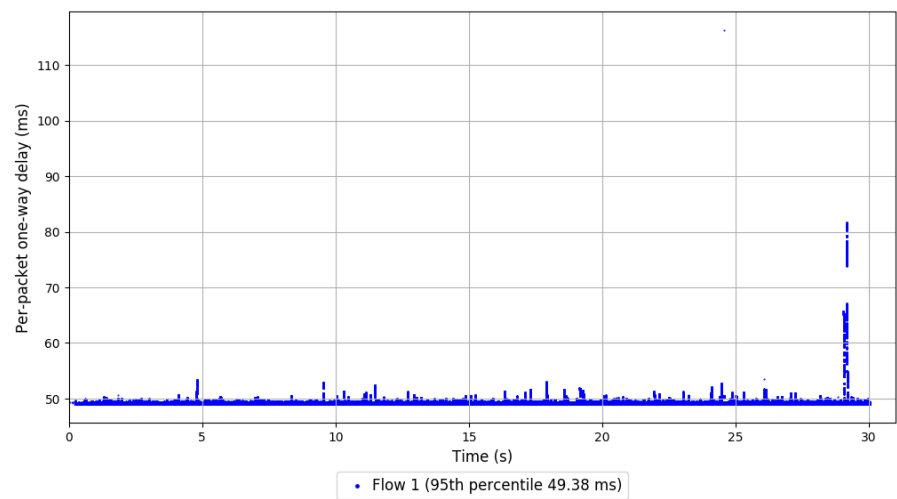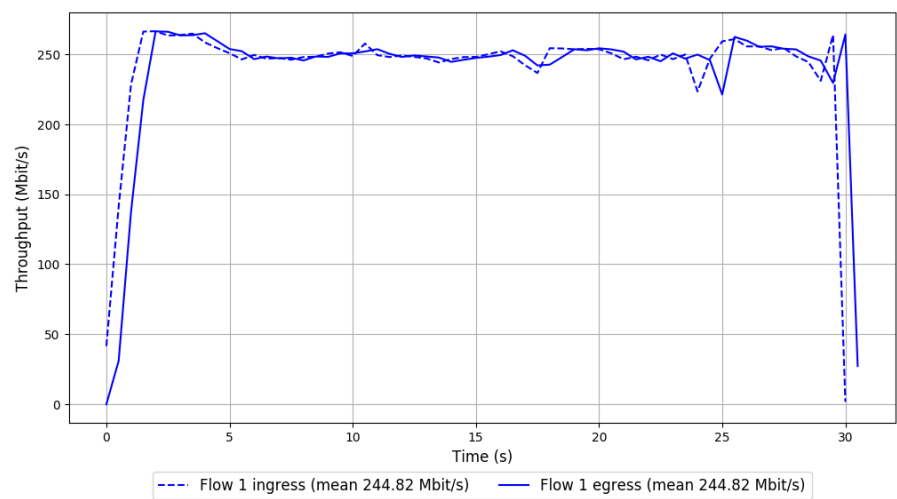
Run 2: Report of TaoVA-100x — Data Link

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

Start at: 2018-10-03 03:24:44
End at: 2018-10-03 03:25:14
Local clock offset: -0.073 ms
Remote clock offset: -0.036 ms


# Below is generated by plot.py at 2018-10-03 05:38:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 239.43 Mbit/s
95th percentile per-packet one-way delay: 50.880 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 239.43 Mbit/s
95th percentile per-packet one-way delay: 50.880 ms
Loss rate: 0.01%
```
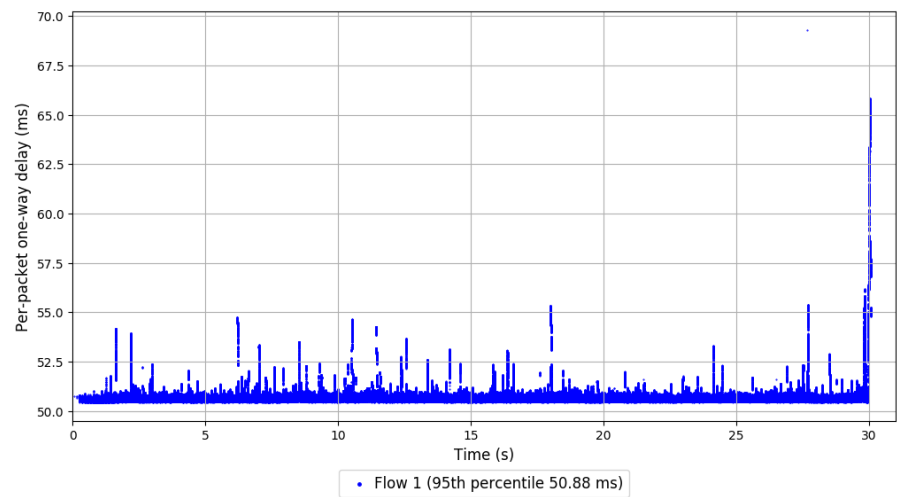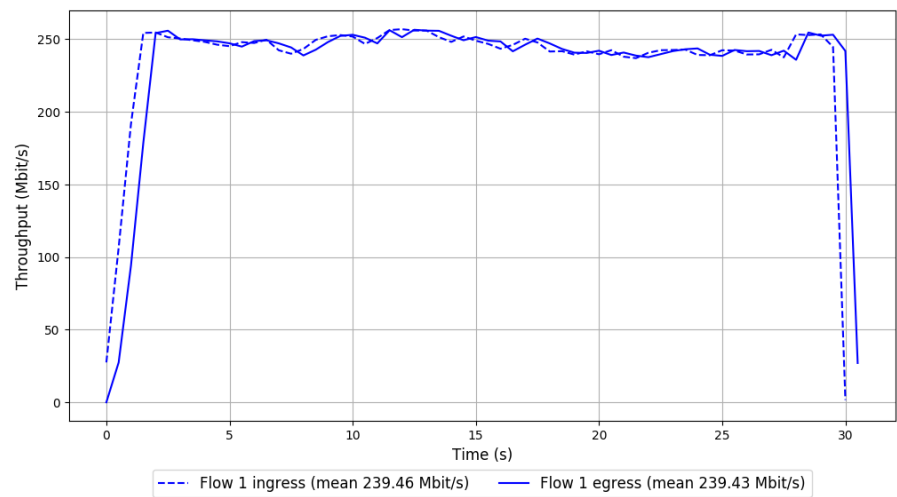
Run 3: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 239.46 Mbit/s)   Flow 1 egress (mean 239.43 Mbit/s)
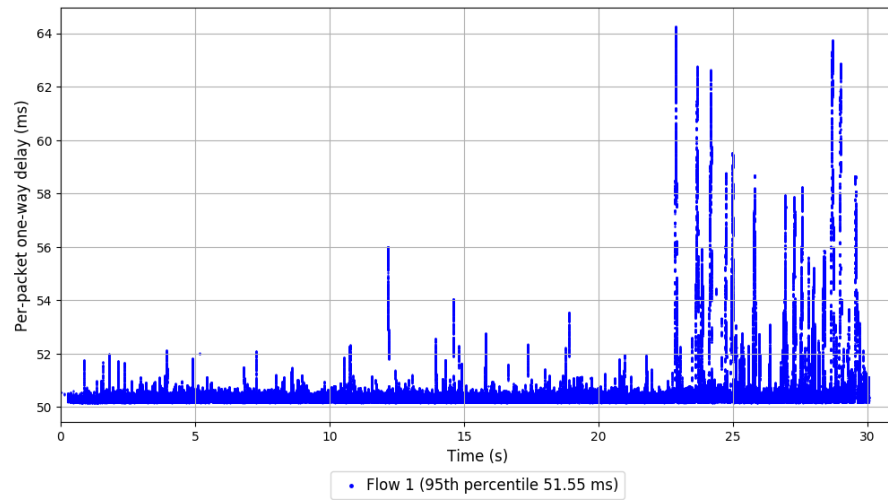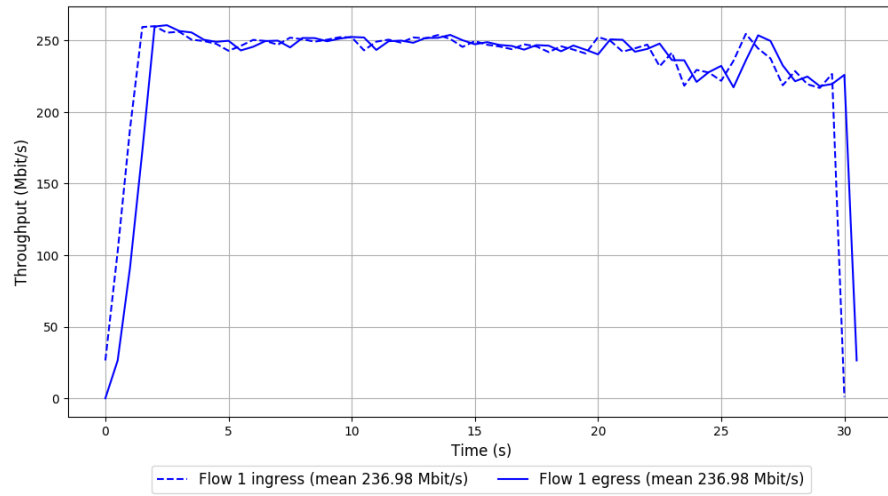

• Flow 1 (95th percentile 50.88 ms)

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

Start at: 2018-10-03 03:49:42
End at: 2018-10-03 03:50:12
Local clock offset: -0.121 ms
Remote clock offset: -0.037 ms


# Below is generated by plot.py at 2018-10-03 05:38:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 236.98 Mbit/s
95th percentile per-packet one-way delay: 51.545 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 236.98 Mbit/s
95th percentile per-packet one-way delay: 51.545 ms
Loss rate: 0.00%
```

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

Flow 1 ingress (mean 236.98 Mbit/s)   Flow 1 egress (mean 236.98 Mbit/s)
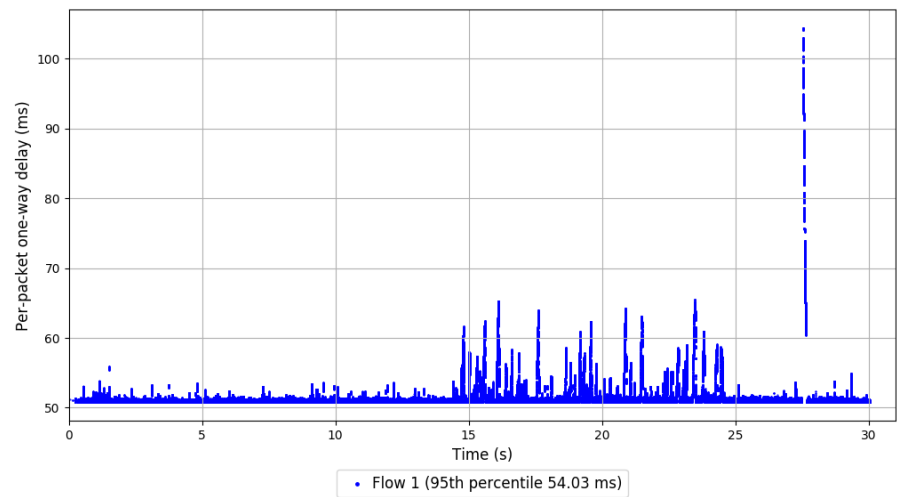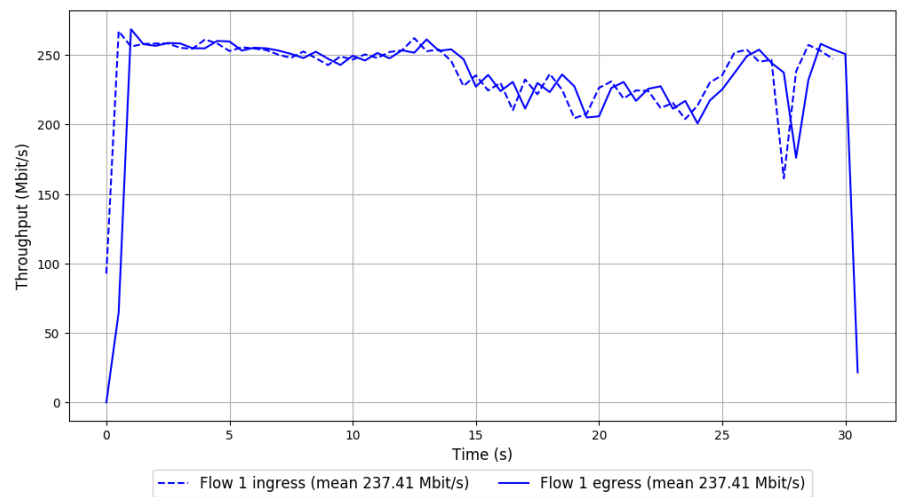

Flow 1 (95th percentile 51.55 ms)

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

Start at: 2018-10-03 04:14:42
End at: 2018-10-03 04:15:12
Local clock offset: -0.531 ms
Remote clock offset: -0.115 ms


# Below is generated by plot.py at 2018-10-03 05:38:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 237.41 Mbit/s
95th percentile per-packet one-way delay: 54.029 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 237.41 Mbit/s
95th percentile per-packet one-way delay: 54.029 ms
Loss rate: 0.00%
```

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

Flow 1 ingress (mean 237.41 Mbit/s)   ——— Flow 1 egress (mean 237.41 Mbit/s)
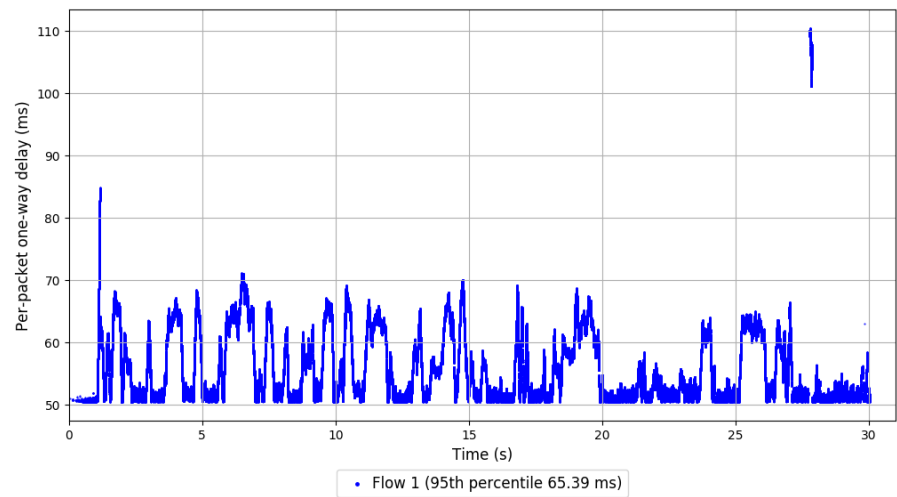

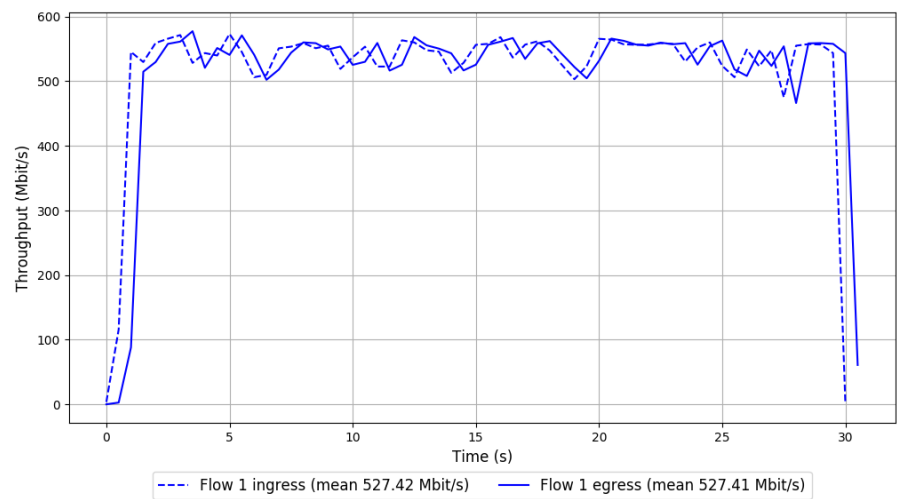• Flow 1 (95th percentile 54.03 ms)

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```
Run 1: Statistics of TCP Vegas

Start at: 2018-10-03 02:30:12
End at: 2018-10-03 02:30:42
Local clock offset: -0.031 ms
Remote clock offset: -0.022 ms


# Below is generated by plot.py at 2018-10-03 05:42:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 527.41 Mbit/s
95th percentile per-packet one-way delay: 65.386 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 527.41 Mbit/s
95th percentile per-packet one-way delay: 65.386 ms
Loss rate: 0.00%
```
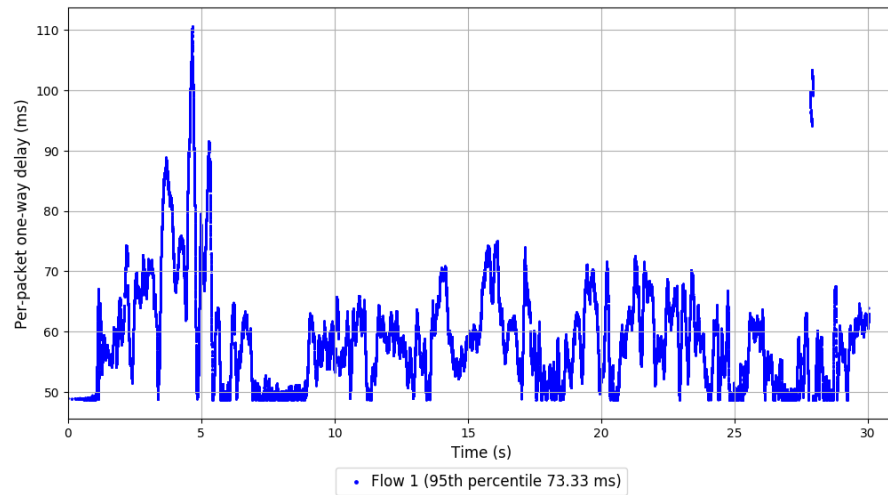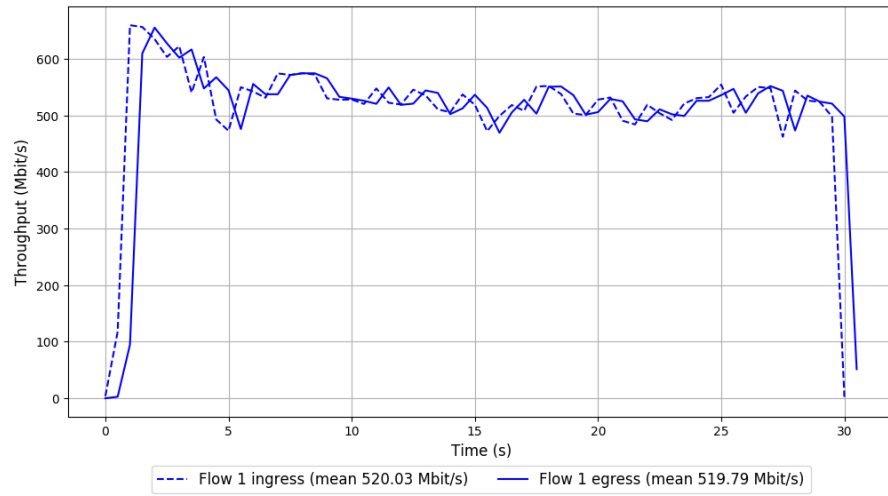
Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2018-10-03 02:55:10
End at: 2018-10-03 02:55:40
Local clock offset: -0.039 ms
Remote clock offset: -0.041 ms


# Below is generated by plot.py at 2018-10-03 05:45:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 519.79 Mbit/s
95th percentile per-packet one-way delay: 73.330 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 519.79 Mbit/s
95th percentile per-packet one-way delay: 73.330 ms
Loss rate: 0.04%
```

Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2018-10-03 03:20:10
End at: 2018-10-03 03:20:40
Local clock offset: -0.091 ms
Remote clock offset: -0.02 ms


# Below is generated by plot.py at 2018-10-03 05:46:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 536.91 Mbit/s
95th percentile per-packet one-way delay: 65.581 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 536.91 Mbit/s
95th percentile per-packet one-way delay: 65.581 ms
Loss rate: 0.00%
```
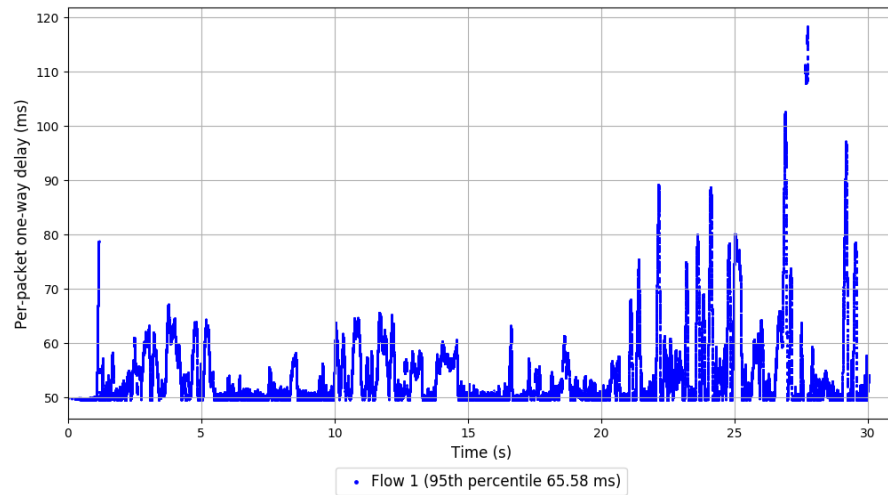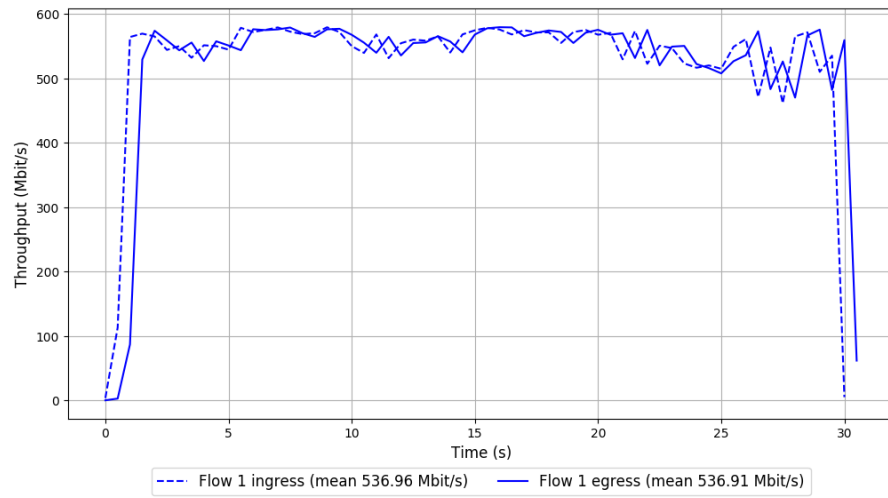
Run 3: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 536.96 Mbit/s)   Flow 1 egress (mean 536.91 Mbit/s)
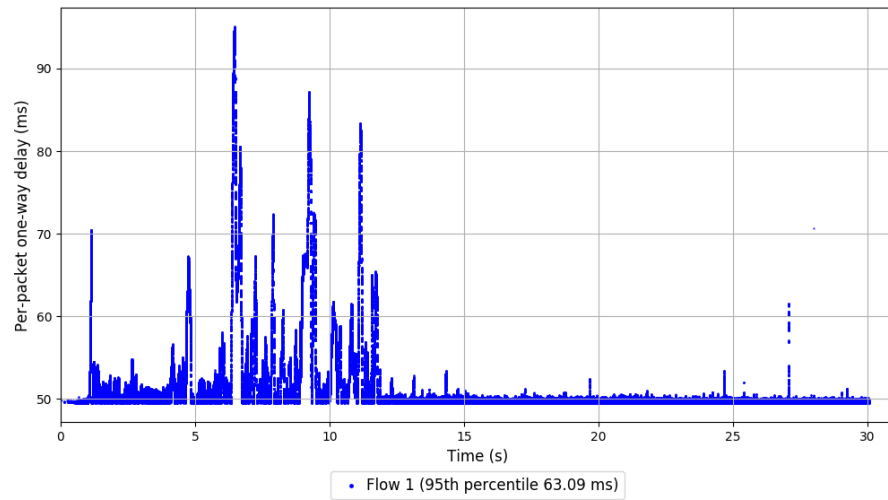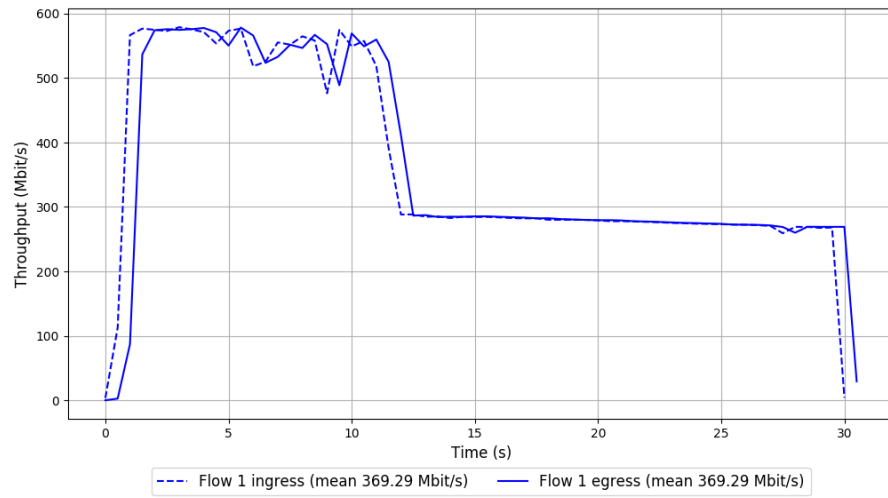

• Flow 1 (95th percentile 65.58 ms)

```
Run 4: Statistics of TCP Vegas

Start at: 2018-10-03 03:45:15
End at: 2018-10-03 03:45:45
Local clock offset: -0.114 ms
Remote clock offset: -0.061 ms


# Below is generated by plot.py at 2018-10-03 05:46:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 369.29 Mbit/s
95th percentile per-packet one-way delay: 63.093 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 369.29 Mbit/s
95th percentile per-packet one-way delay: 63.093 ms
Loss rate: 0.00%
```

Run 4: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 369.29 Mbit/s) --- Flow 1 egress (mean 369.29 Mbit/s)
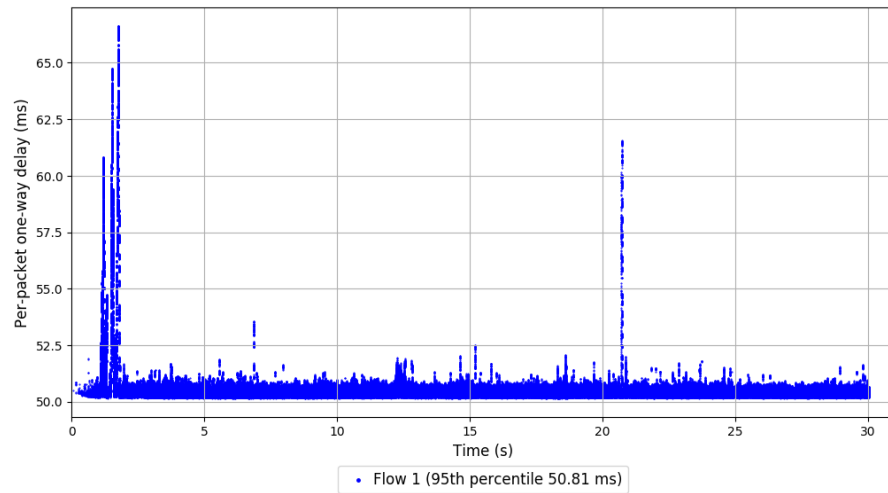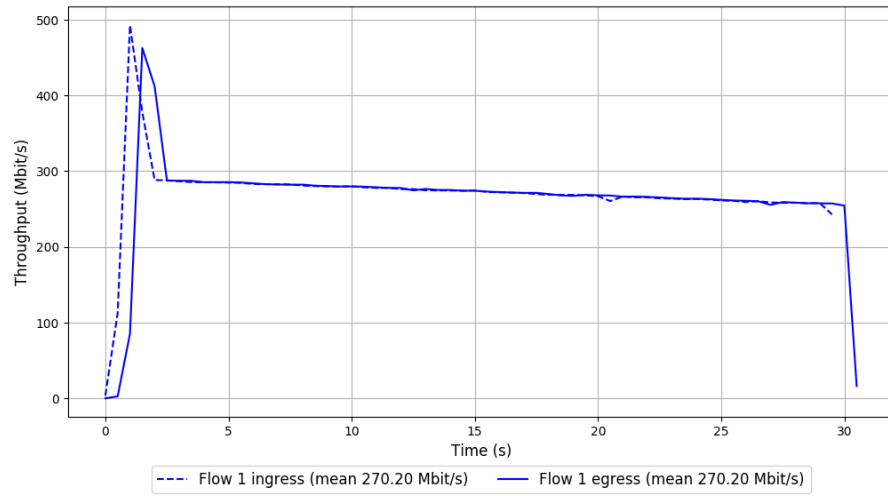

Flow 1 (95th percentile 63.09 ms)

```
Run 5: Statistics of TCP Vegas

Start at: 2018-10-03 04:10:20
End at: 2018-10-03 04:10:50
Local clock offset: -0.169 ms
Remote clock offset: -0.139 ms


# Below is generated by plot.py at 2018-10-03 05:46:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 270.20 Mbit/s
95th percentile per-packet one-way delay: 50.810 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 270.20 Mbit/s
95th percentile per-packet one-way delay: 50.810 ms
Loss rate: 0.00%
```
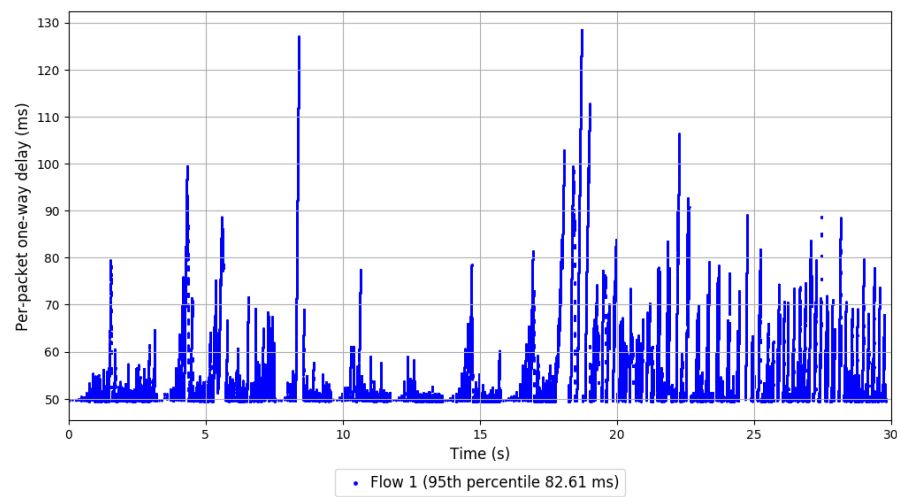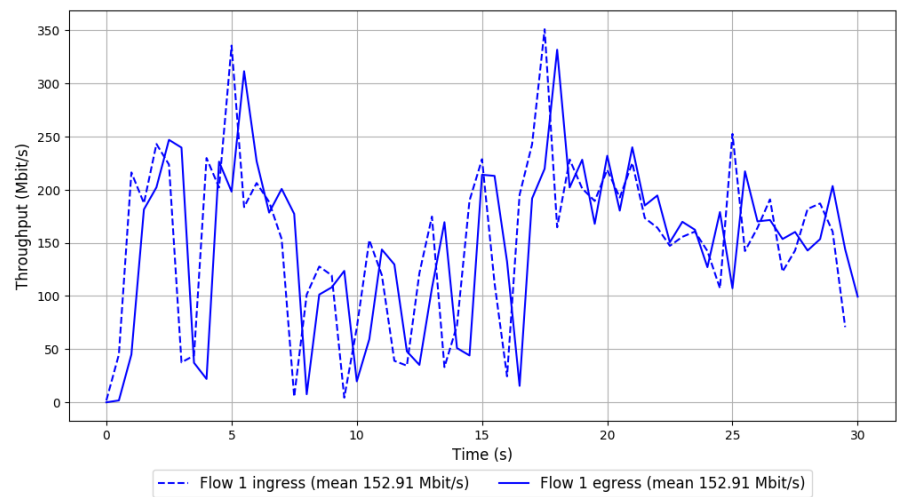
Run 5: Report of TCP Vegas — Data Link

```
Run 1: Statistics of Verus

Start at: 2018-10-03 02:45:01
End at: 2018-10-03 02:45:31
Local clock offset: -0.027 ms
Remote clock offset: -0.021 ms


# Below is generated by plot.py at 2018-10-03 05:46:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 152.91 Mbit/s
95th percentile per-packet one-way delay: 82.608 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 152.91 Mbit/s
95th percentile per-packet one-way delay: 82.608 ms
Loss rate: 0.00%
```

Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2018-10-03 03:10:06
End at: 2018-10-03 03:10:36
Local clock offset: -0.104 ms
Remote clock offset: -0.02 ms


# Below is generated by plot.py at 2018-10-03 05:46:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 167.20 Mbit/s
95th percentile per-packet one-way delay: 113.959 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 167.20 Mbit/s
95th percentile per-packet one-way delay: 113.959 ms
Loss rate: 0.05%
```
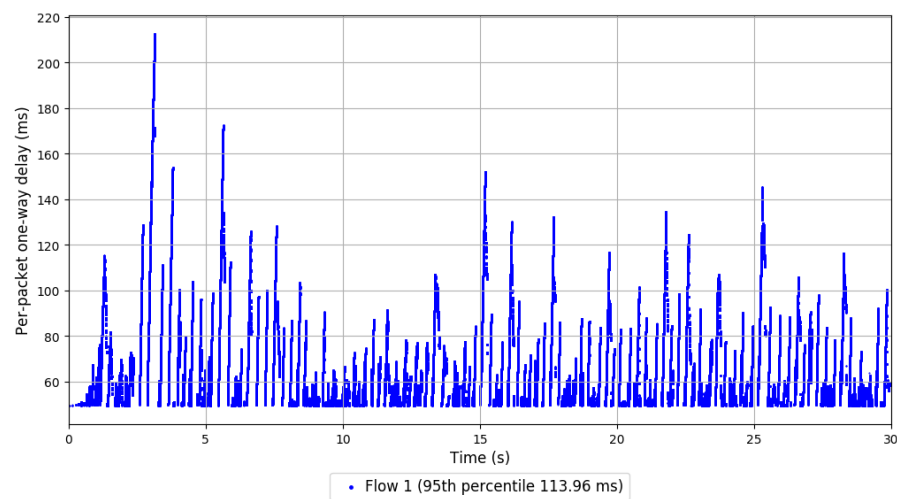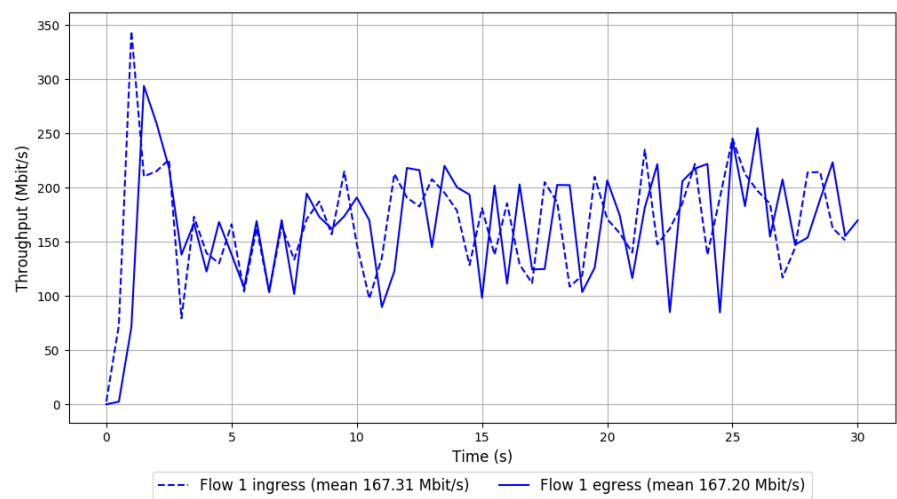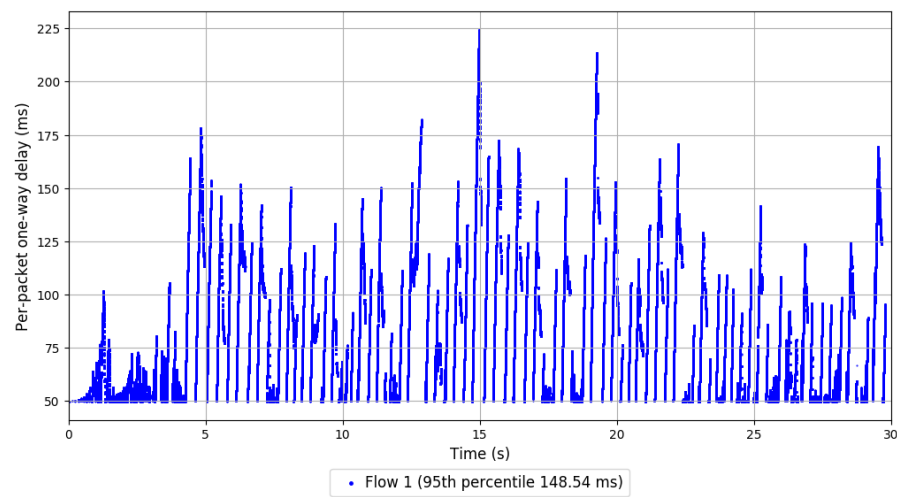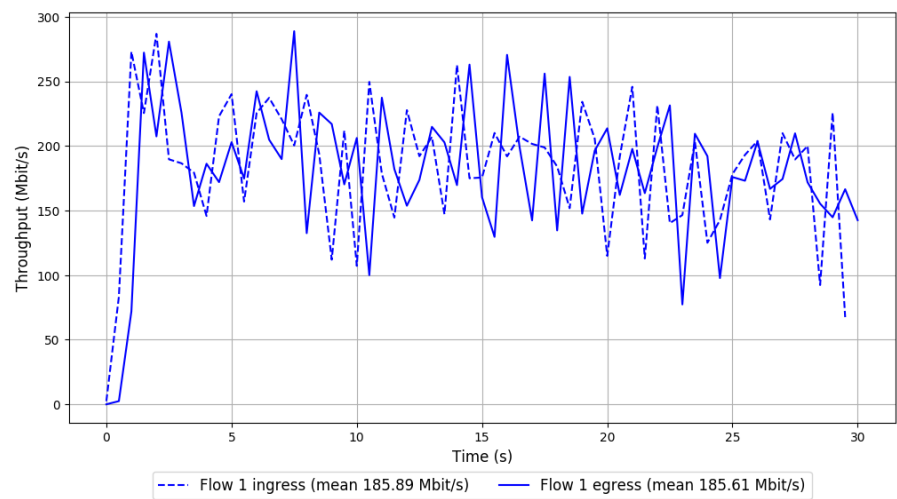
Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-10-03 03:35:07
End at: 2018-10-03 03:35:37
Local clock offset: 0.241 ms
Remote clock offset: -0.043 ms


# Below is generated by plot.py at 2018-10-03 05:46:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 185.61 Mbit/s
95th percentile per-packet one-way delay: 148.541 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 185.61 Mbit/s
95th percentile per-packet one-way delay: 148.541 ms
Loss rate: 0.00%
```
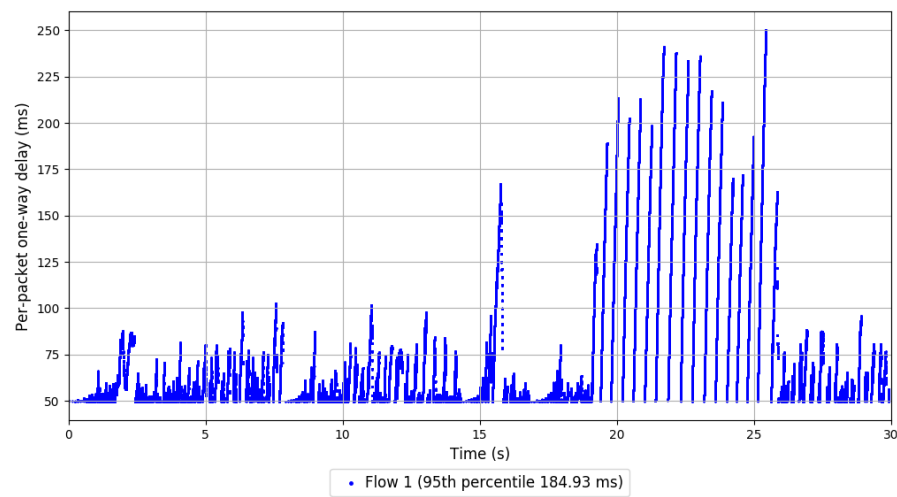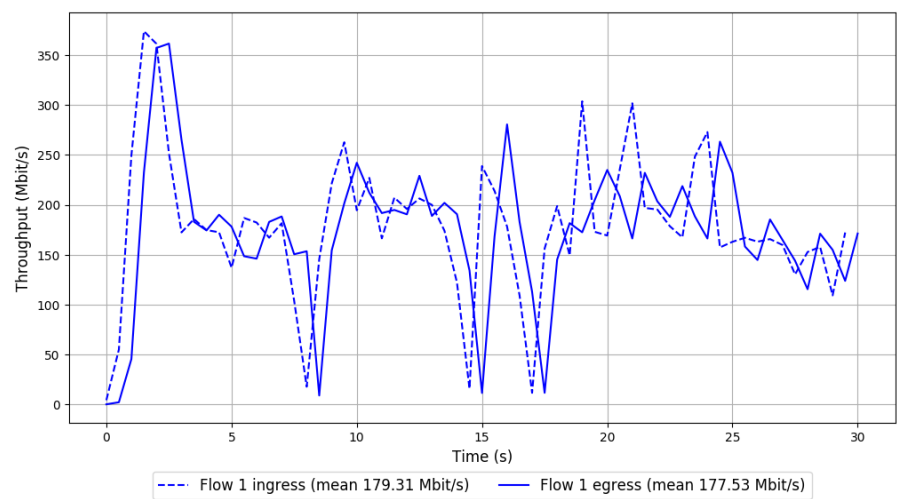
Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2018-10-03 04:00:01
End at: 2018-10-03 04:00:31
Local clock offset: -0.096 ms
Remote clock offset: -0.088 ms


# Below is generated by plot.py at 2018-10-03 05:48:02
# Datalink statistics
-- Total of 1 flow:
Average throughput: 177.53 Mbit/s
95th percentile per-packet one-way delay: 184.930 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 177.53 Mbit/s
95th percentile per-packet one-way delay: 184.930 ms
Loss rate: 0.98%
```
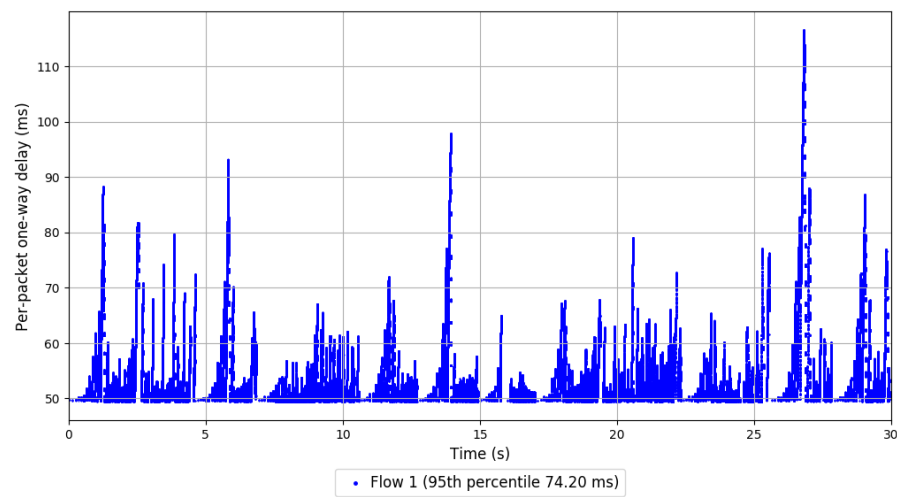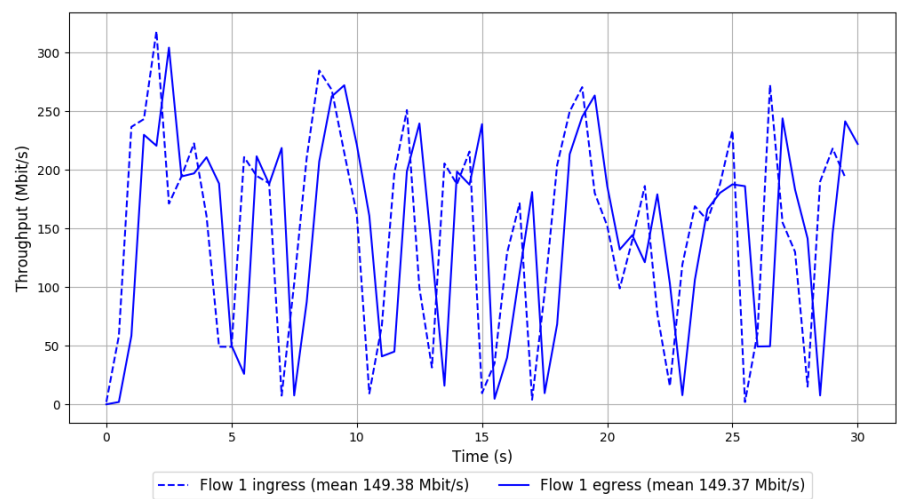
Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2018-10-03 04:25:14
End at: 2018-10-03 04:25:44
Local clock offset: -0.187 ms
Remote clock offset: -0.146 ms


# Below is generated by plot.py at 2018-10-03 05:48:02
# Datalink statistics
-- Total of 1 flow:
Average throughput: 149.37 Mbit/s
95th percentile per-packet one-way delay: 74.196 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 149.37 Mbit/s
95th percentile per-packet one-way delay: 74.196 ms
Loss rate: 0.00%
```

Run 5: Report of Verus — Data Link

Flow 1 ingress (mean 149.38 Mbit/s) ——— Flow 1 egress (mean 149.37 Mbit/s)

Flow 1 (95th percentile 74.20 ms)

```
Run 1: Statistics of PCC-Vivace

Start at: 2018-10-03 02:28:40
End at: 2018-10-03 02:29:10
Local clock offset: 0.32 ms
Remote clock offset: 0.025 ms


# Below is generated by plot.py at 2018-10-03 05:49:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 373.89 Mbit/s
95th percentile per-packet one-way delay: 85.792 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 373.89 Mbit/s
95th percentile per-packet one-way delay: 85.792 ms
Loss rate: 0.00%
```
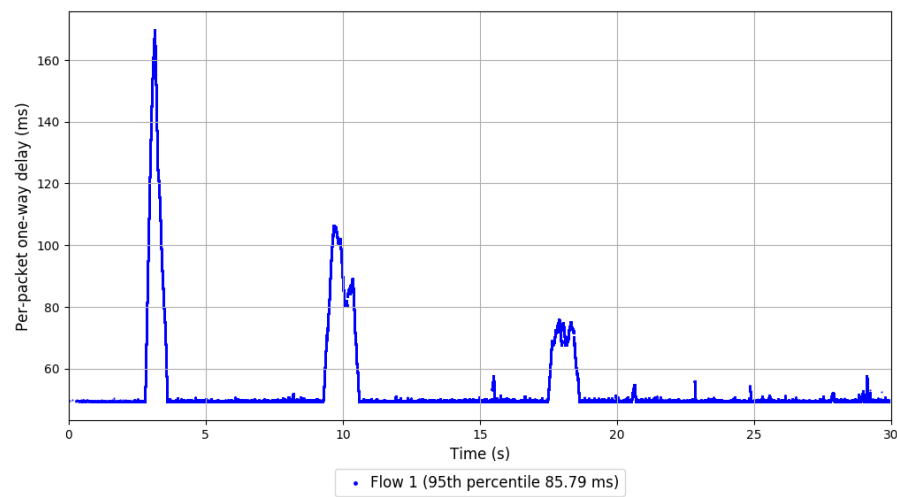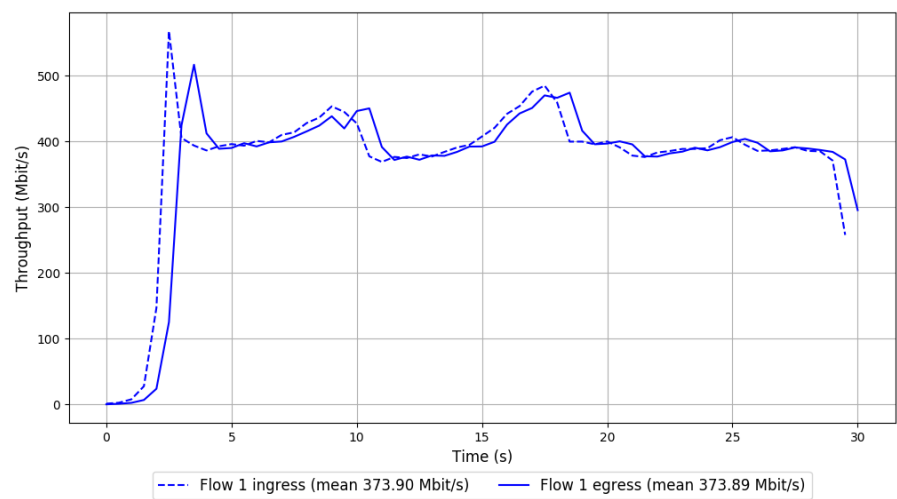
Run 1: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 373.90 Mbit/s)   Flow 1 egress (mean 373.89 Mbit/s)

Flow 1 (95th percentile 85.79 ms)

```
Run 2: Statistics of PCC-Vivace

Start at: 2018-10-03 02:53:39
End at: 2018-10-03 02:54:09
Local clock offset: -0.015 ms
Remote clock offset: -0.01 ms

# Below is generated by plot.py at 2018-10-03 05:49:57
# Datalink statistics
-- Total of 1 flow:
Average throughput: 376.88 Mbit/s
95th percentile per-packet one-way delay: 56.692 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 376.88 Mbit/s
95th percentile per-packet one-way delay: 56.692 ms
Loss rate: 0.39%
```
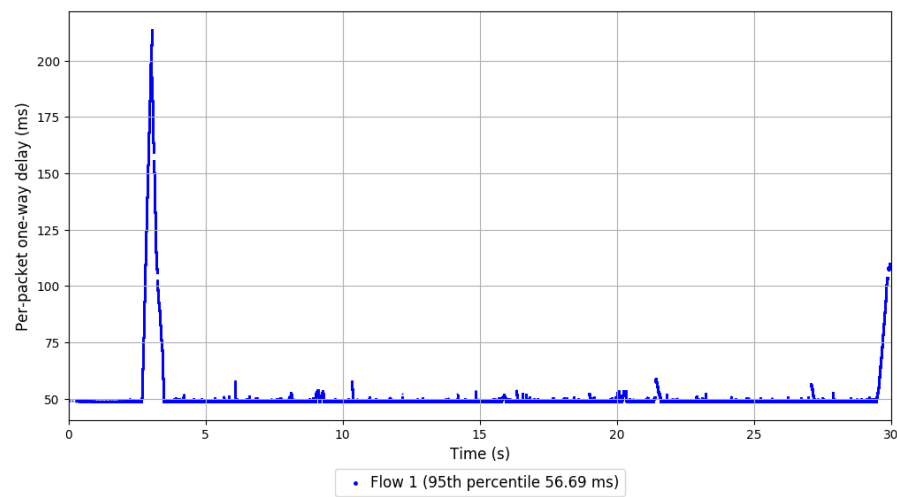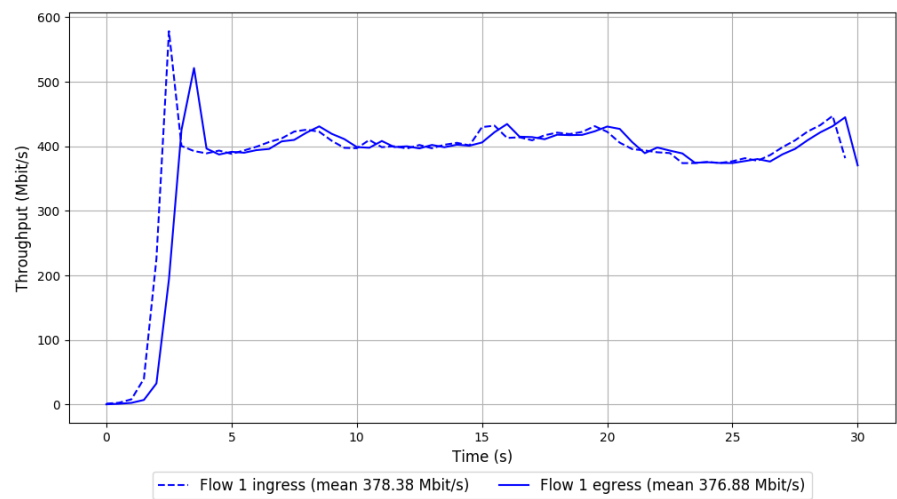
Run 2: Report of PCC-Vivace — Data Link

```
Run 3: Statistics of PCC-Vivace

Start at: 2018-10-03 03:18:40
End at: 2018-10-03 03:19:10
Local clock offset: -0.44 ms
Remote clock offset: 0.009 ms


# Below is generated by plot.py at 2018-10-03 05:50:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 367.37 Mbit/s
95th percentile per-packet one-way delay: 139.370 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 367.37 Mbit/s
95th percentile per-packet one-way delay: 139.370 ms
Loss rate: 0.16%
```
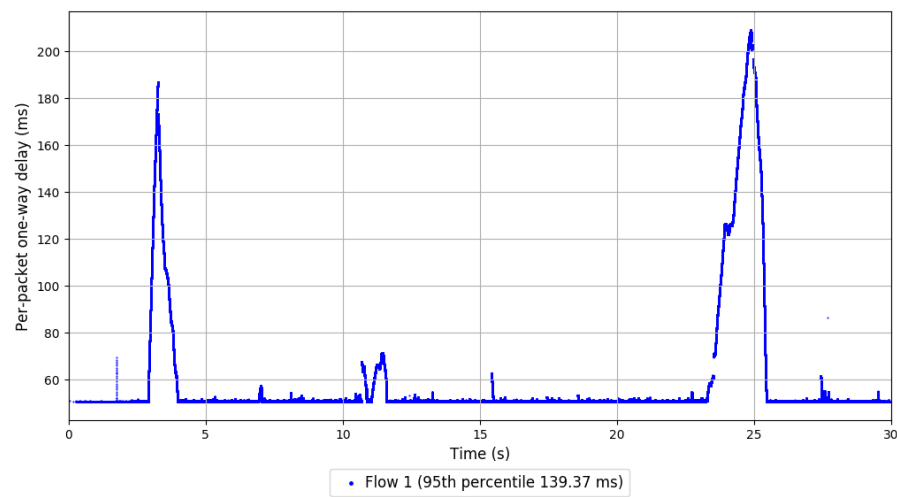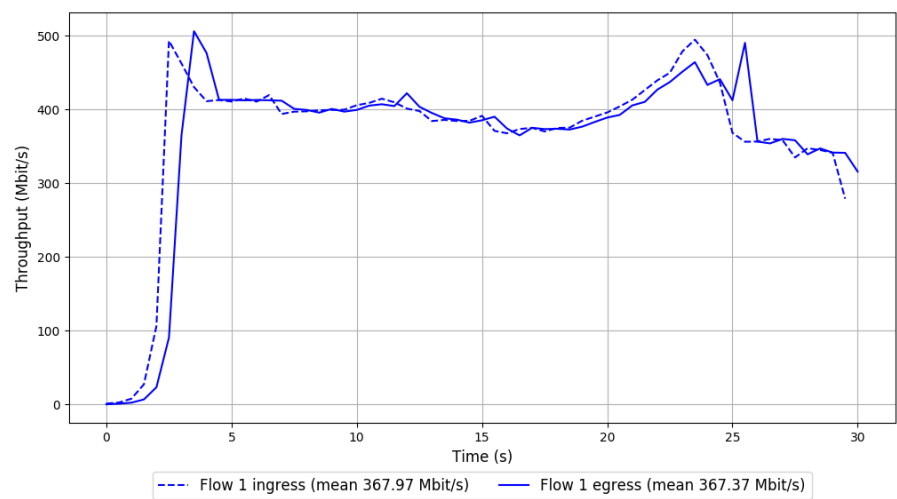
Run 3: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 367.97 Mbit/s) Flow 1 egress (mean 367.37 Mbit/s)
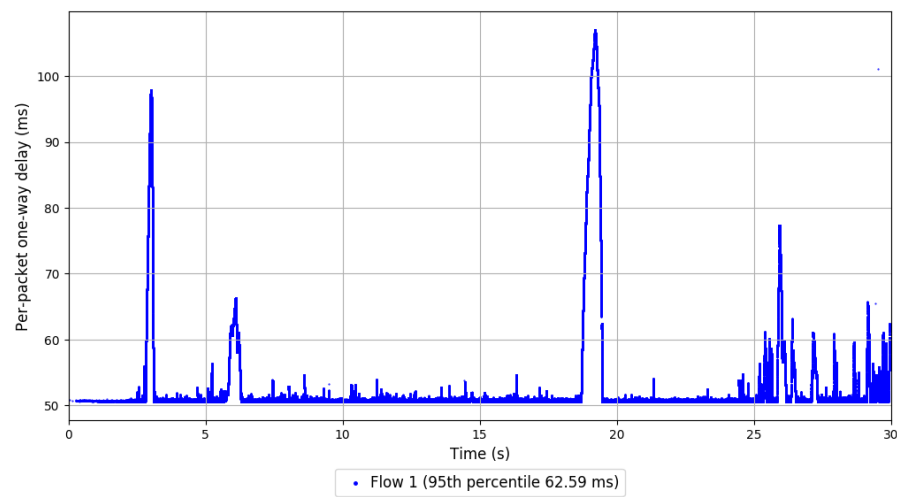

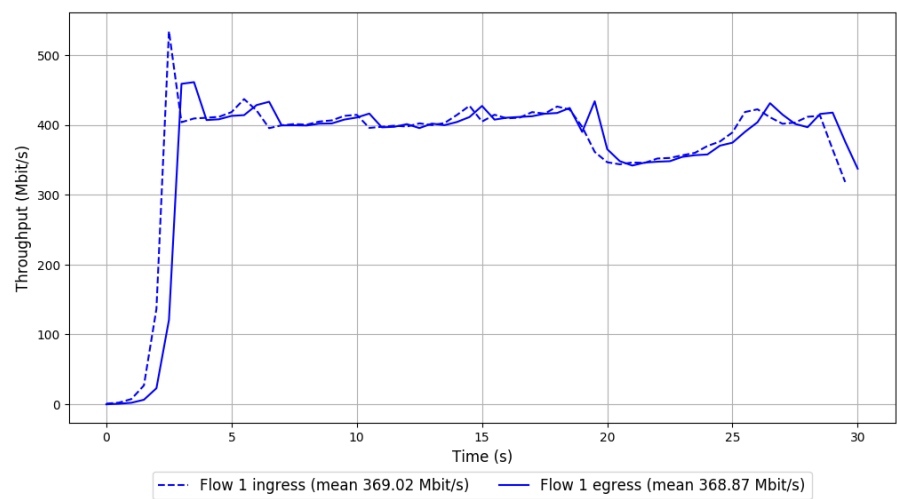
• Flow 1 (95th percentile 139.37 ms)

```
Run 4: Statistics of PCC-Vivace

Start at: 2018-10-03 03:43:45
End at: 2018-10-03 03:44:15
Local clock offset: -0.151 ms
Remote clock offset: -0.062 ms


# Below is generated by plot.py at 2018-10-03 05:50:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 368.87 Mbit/s
95th percentile per-packet one-way delay: 62.586 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 368.87 Mbit/s
95th percentile per-packet one-way delay: 62.586 ms
Loss rate: 0.04%
```

Run 4: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 369.02 Mbit/s) — — —   Flow 1 egress (mean 368.87 Mbit/s)

Flow 1 (95th percentile 62.59 ms)

```
Run 5: Statistics of PCC-Vivace

Start at: 2018-10-03 04:08:52
End at: 2018-10-03 04:09:22
Local clock offset: -0.5 ms
Remote clock offset: -0.141 ms


# Below is generated by plot.py at 2018-10-03 05:50:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 338.44 Mbit/s
95th percentile per-packet one-way delay: 62.332 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 338.44 Mbit/s
95th percentile per-packet one-way delay: 62.332 ms
Loss rate: 0.09%
```
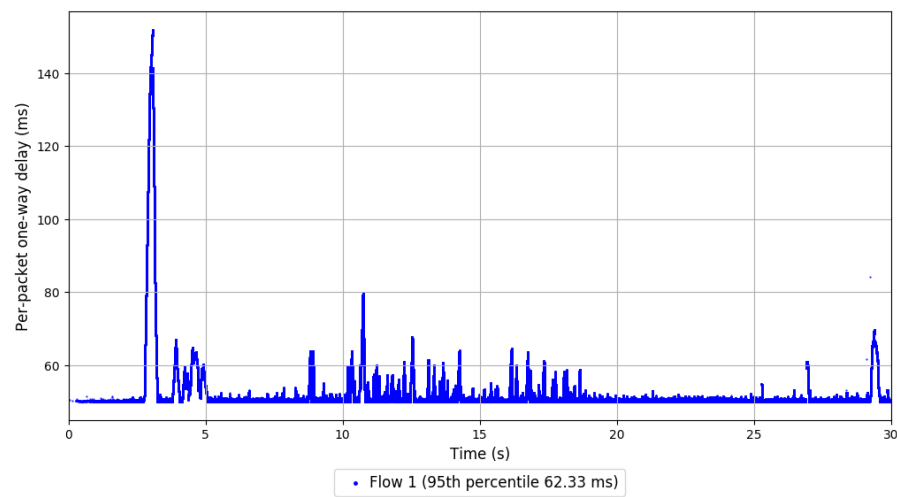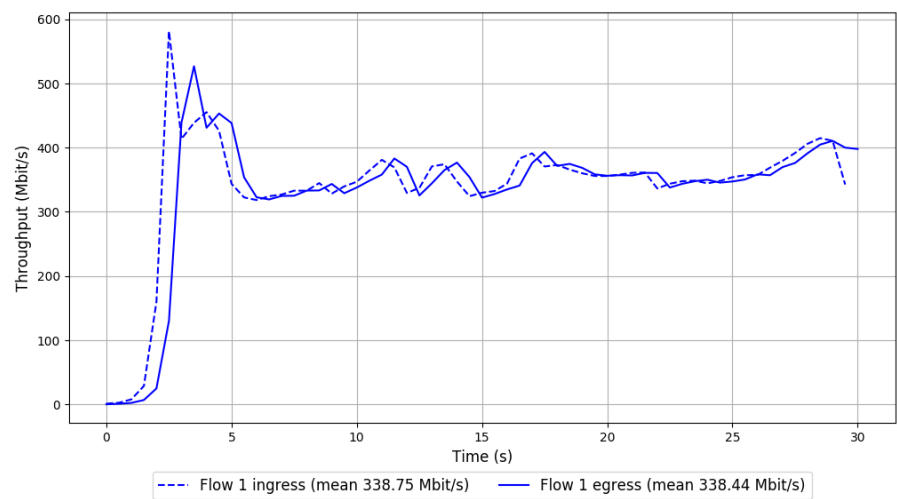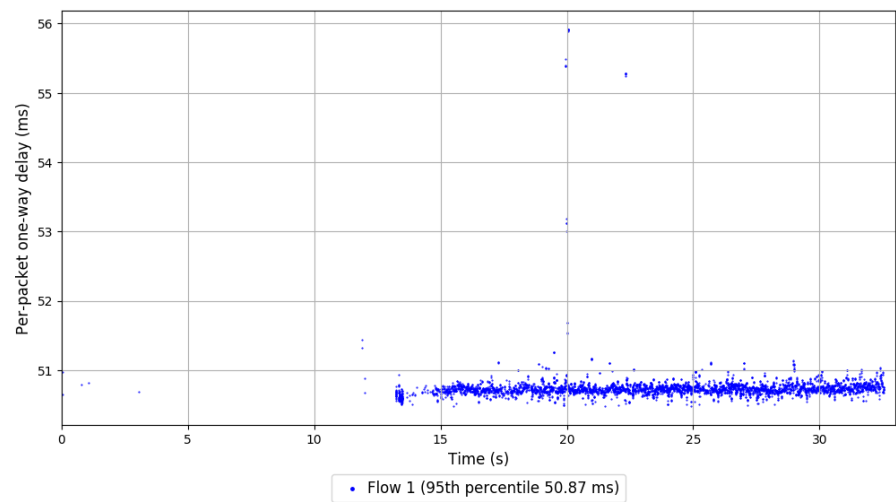
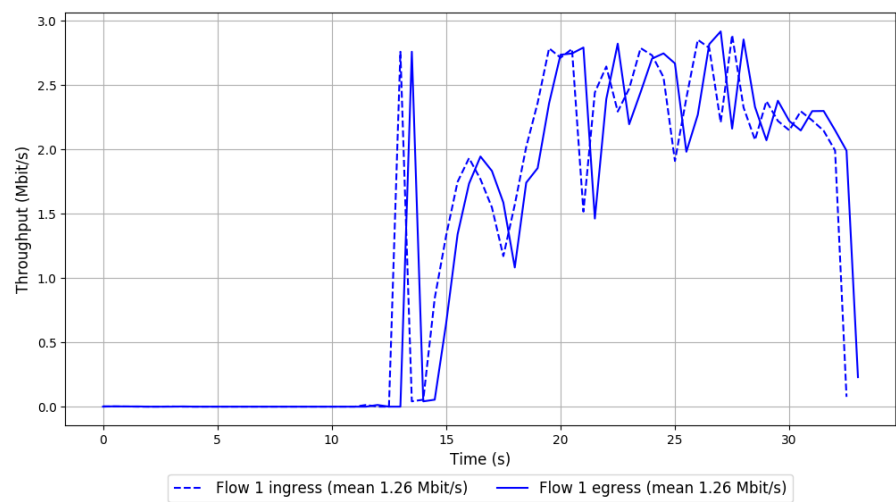Run 5: Report of PCC-Vivace — Data Link

```
Run 1: Statistics of WebRTC media

Start at: 2018-10-03 02:40:03
End at: 2018-10-03 02:40:33
Local clock offset: -0.353 ms
Remote clock offset: -0.006 ms


# Below is generated by plot.py at 2018-10-03 05:50:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.26 Mbit/s
95th percentile per-packet one-way delay: 50.869 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.26 Mbit/s
95th percentile per-packet one-way delay: 50.869 ms
Loss rate: 0.00%
```
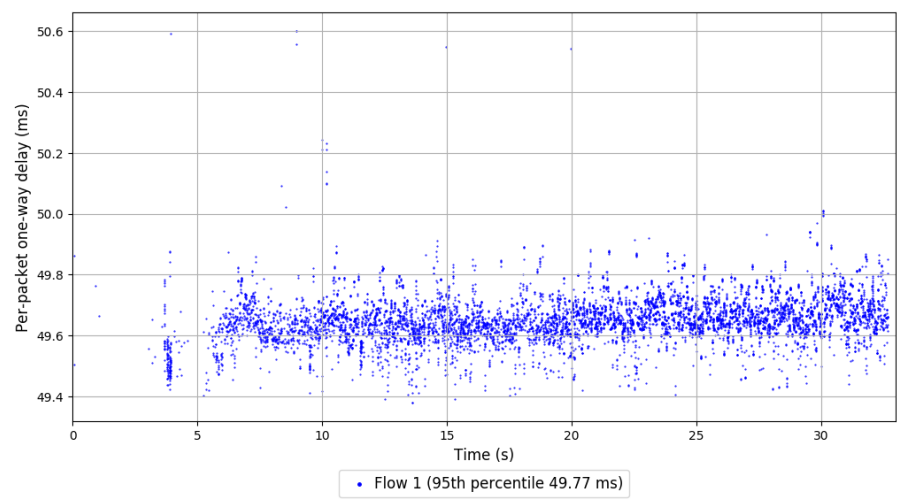
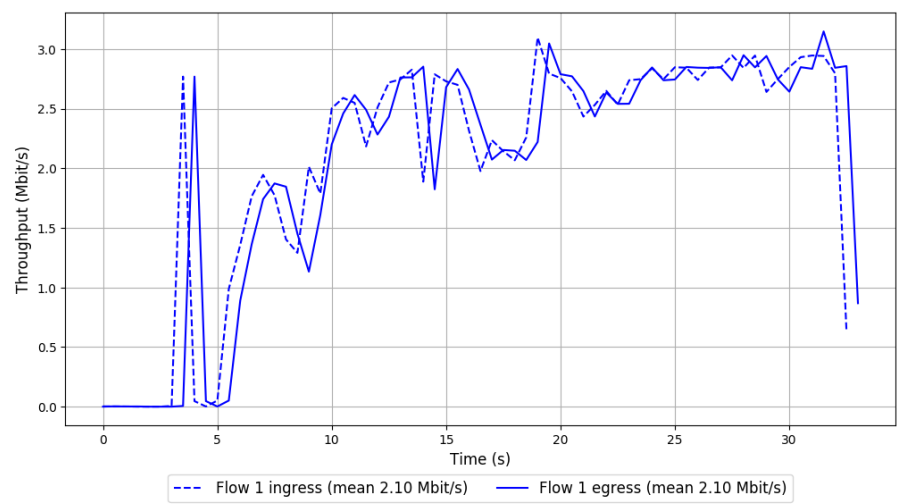Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2018-10-03 03:05:09
End at: 2018-10-03 03:05:39
Local clock offset: -0.067 ms
Remote clock offset: -0.043 ms


# Below is generated by plot.py at 2018-10-03 05:50:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.10 Mbit/s
95th percentile per-packet one-way delay: 49.774 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.10 Mbit/s
95th percentile per-packet one-way delay: 49.774 ms
Loss rate: 0.00%
```

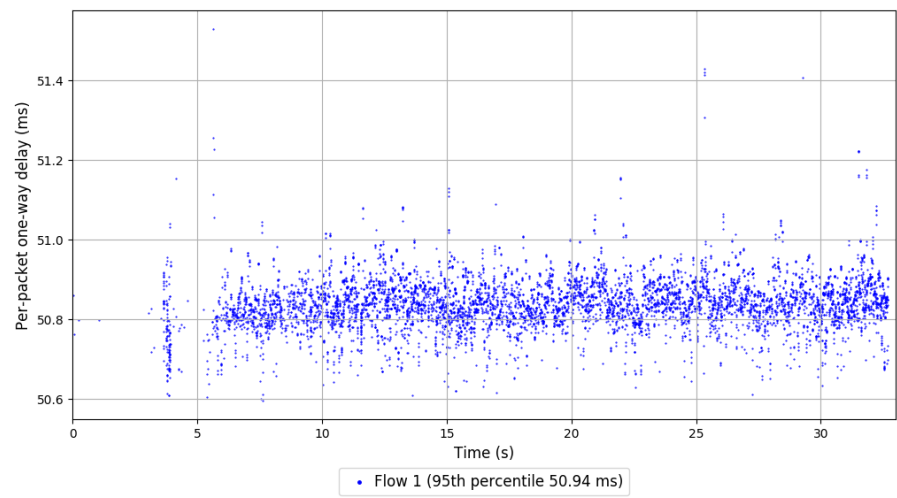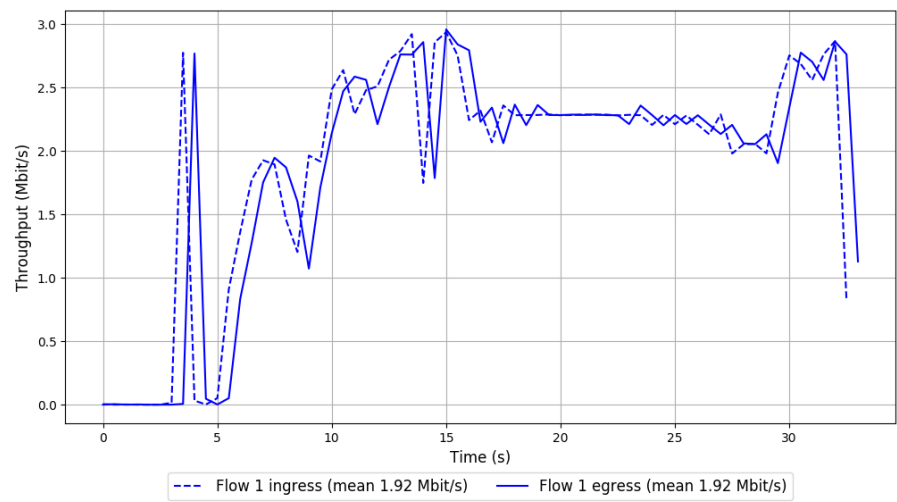Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-10-03 03:30:09
End at: 2018-10-03 03:30:39
Local clock offset: -0.474 ms
Remote clock offset: -0.016 ms


# Below is generated by plot.py at 2018-10-03 05:50:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.92 Mbit/s
95th percentile per-packet one-way delay: 50.939 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.92 Mbit/s
95th percentile per-packet one-way delay: 50.939 ms
Loss rate: 0.00%
```

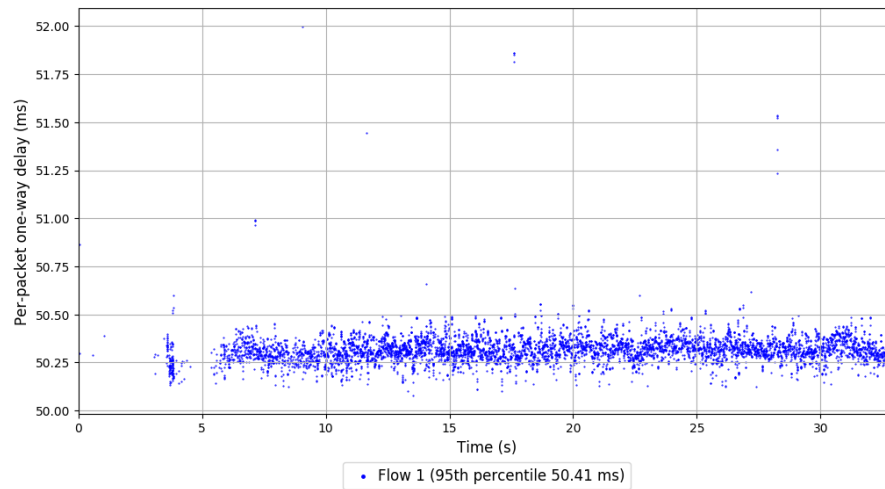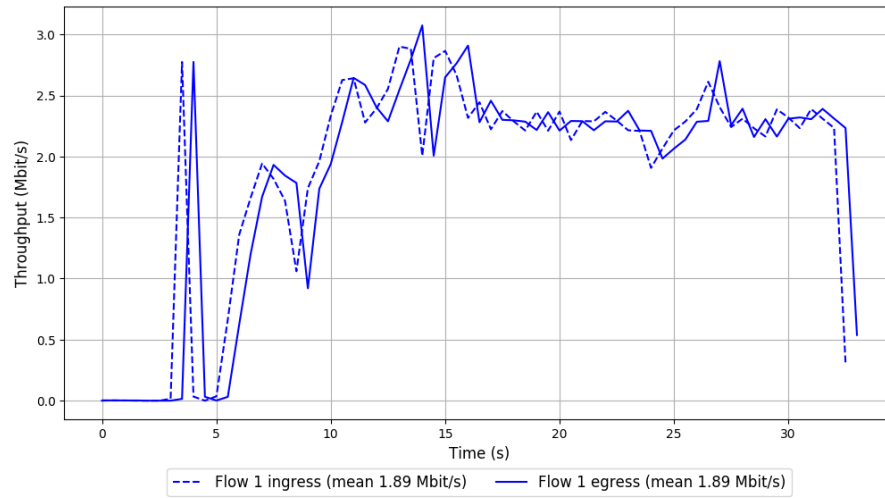Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2018-10-03 03:55:03
End at: 2018-10-03 03:55:33
Local clock offset: -0.129 ms
Remote clock offset: -0.065 ms


# Below is generated by plot.py at 2018-10-03 05:50:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.89 Mbit/s
95th percentile per-packet one-way delay: 50.414 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.89 Mbit/s
95th percentile per-packet one-way delay: 50.414 ms
Loss rate: 0.00%
```

Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2018-10-03 04:20:10
End at: 2018-10-03 04:20:40
Local clock offset: -0.512 ms
Remote clock offset: -0.149 ms


# Below is generated by plot.py at 2018-10-03 05:50:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.09 Mbit/s
95th percentile per-packet one-way delay: 49.469 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.09 Mbit/s
95th percentile per-packet one-way delay: 49.469 ms
Loss rate: 0.00%
```

Run 5: Report of WebRTC media — Data Link