Pantheon Report

Generated at 2018-10-10 04:05:56 (UTC).

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

Repeated the test of 18 congestion control schemes 5 times.

Each test lasted for 30 seconds running 1 flow.

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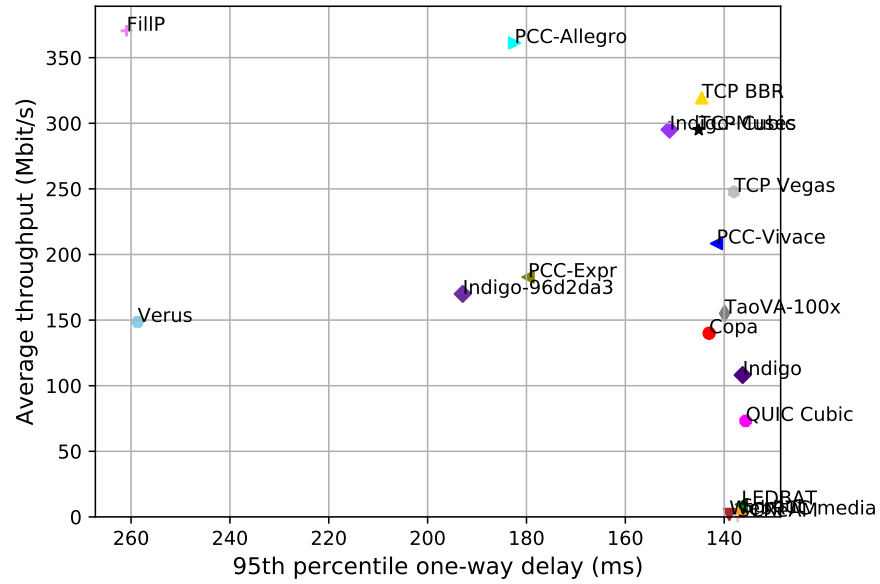
```
System info:
Linux 4.15.0-1023-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

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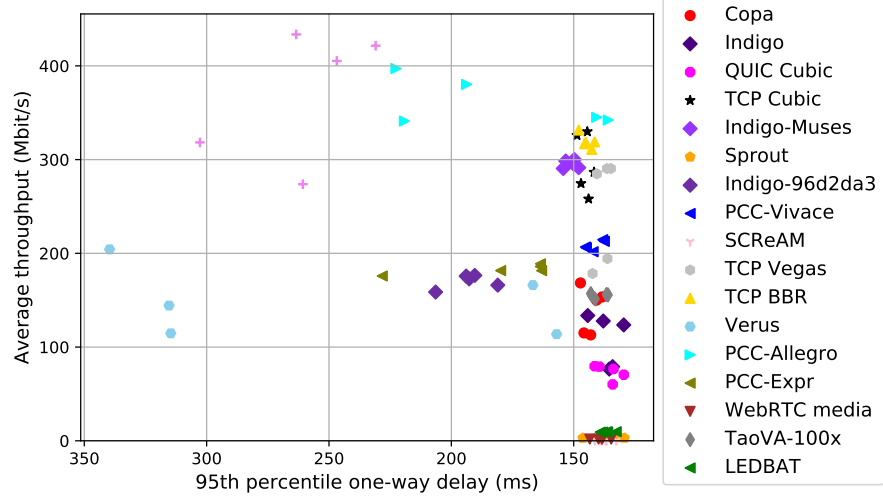
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851

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

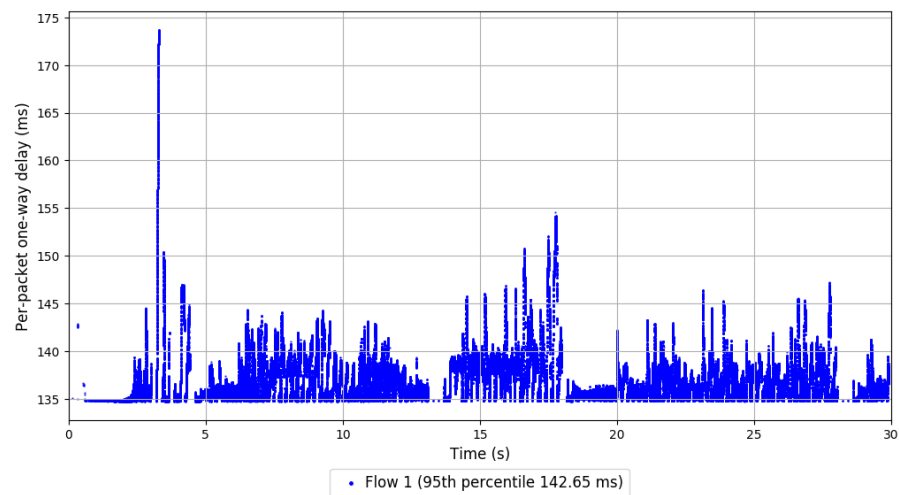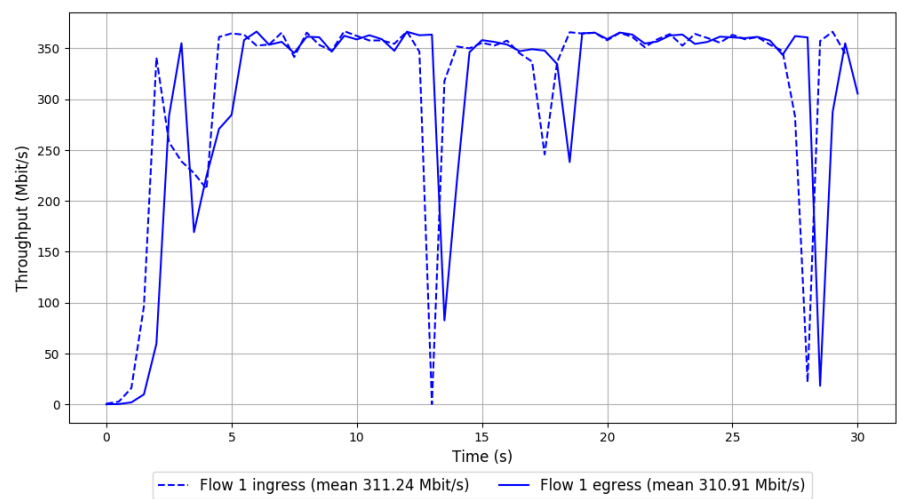test from Saudi Arabia to AWS India 2, 5 runs of 30s each per scheme

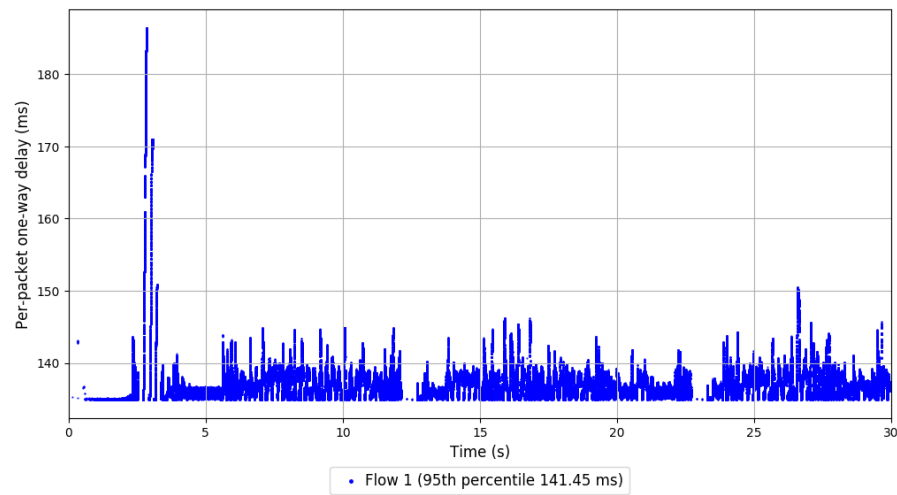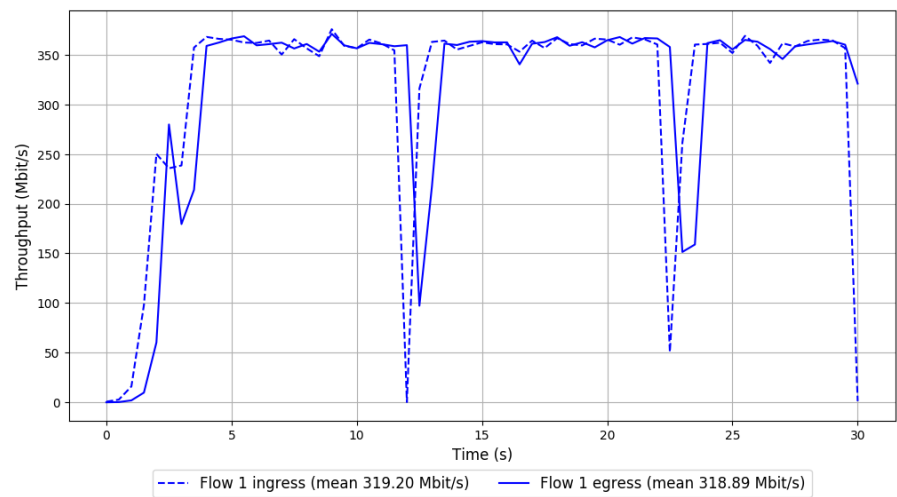| scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	5	319.36	144.54	0.73
Copa	5	140.00	143.04	0.52
TCP Cubic	5	294.98	145.15	0.72
FillP	5	370.49	260.91	1.97
Indigo	5	108.14	136.26	0.73
Indigo-96d2da3	5	169.94	192.91	1.08
LEDBAT	5	9.45	136.53	1.30
Indigo-Muses	5	295.14	151.05	0.98
PCC-Allegro	5	361.17	182.42	0.93
PCC-Expr	5	182.74	179.69	0.76
QUIC Cubic	5	73.19	135.65	0.51
SCReAM	5	0.22	137.28	0.64
Sprout	5	3.39	136.62	0.65
TaoVA-100x	5	155.05	139.91	0.68
TCP Vegas	5	247.69	138.05	0.64
Verus	5	148.61	258.67	0.82
PCC-Vivace	5	208.34	141.55	0.77
WebRTC media	5	1.86	138.96	0.74

```
Run 1: Statistics of TCP BBR

Start at: 2018-10-10 00:41:43
End at: 2018-10-10 00:42:13
Local clock offset: 2.764 ms
Remote clock offset: -38.629 ms


# Below is generated by plot.py at 2018-10-10 03:43:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 310.91 Mbit/s
95th percentile per-packet one-way delay: 142.649 ms
Loss rate: 0.76%
-- Flow 1:
Average throughput: 310.91 Mbit/s
95th percentile per-packet one-way delay: 142.649 ms
Loss rate: 0.76%
```
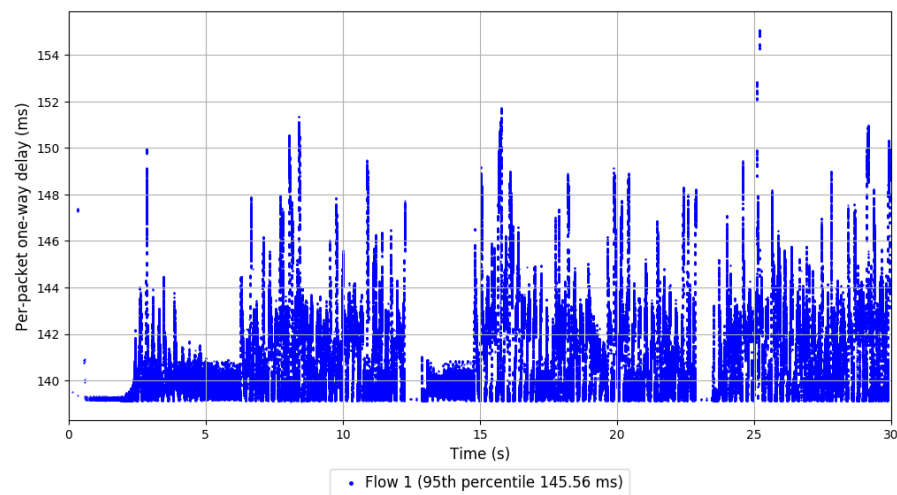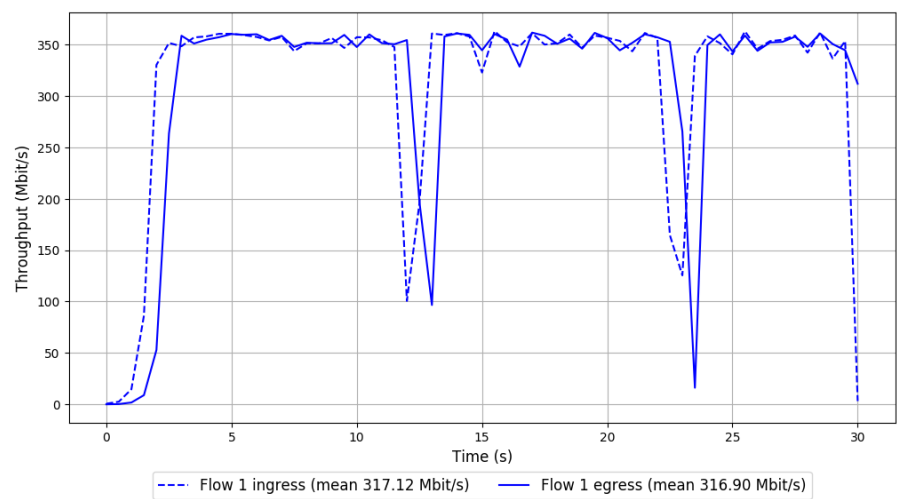
Run 1: Report of TCP BBR — Data Link

```
Run 2: Statistics of TCP BBR

Start at: 2018-10-10 01:18:42
End at: 2018-10-10 01:19:12
Local clock offset: 1.415 ms
Remote clock offset: -38.94 ms


# Below is generated by plot.py at 2018-10-10 03:43:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 318.89 Mbit/s
95th percentile per-packet one-way delay: 141.454 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 318.89 Mbit/s
95th percentile per-packet one-way delay: 141.454 ms
Loss rate: 0.74%
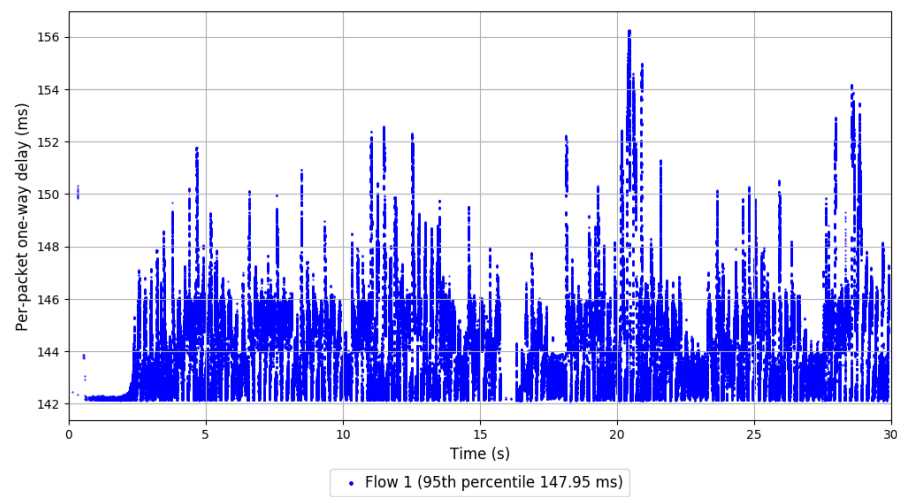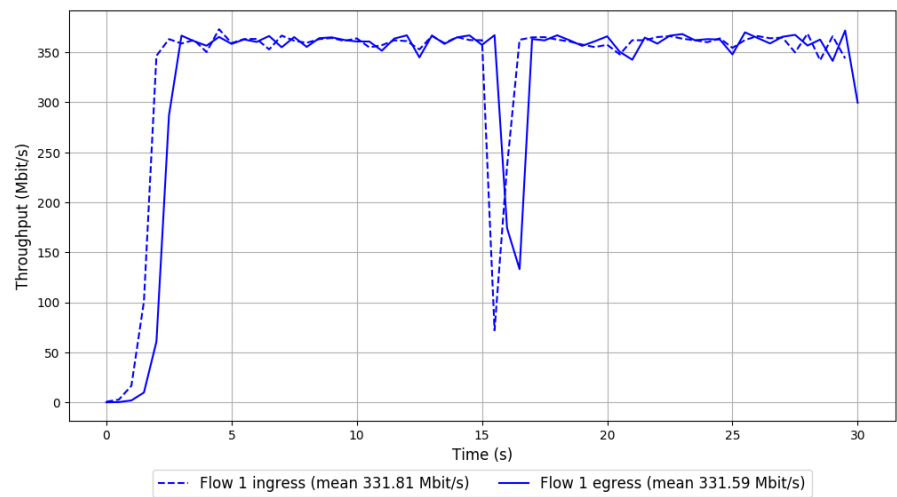```

Run 2: Report of TCP BBR — Data Link



Flow 1 ingress (mean 319.20 Mbit/s)     Flow 1 egress (mean 318.89 Mbit/s)



Flow 1 (95th percentile 141.45 ms)

8

```
Run 3: Statistics of TCP BBR

Start at: 2018-10-10 01:51:01
End at: 2018-10-10 01:51:31
Local clock offset: -0.007 ms
Remote clock offset: -44.663 ms

Below is generated by plot.py at 2018-10-10 03:43:17
Datalink statistics
-- Total of 1 flow:
Average throughput: 316.90 Mbit/s
95th percentile per-packet one-way delay: 145.561 ms
Loss rate: 0.72%
-- Flow 1:
Average throughput: 316.90 Mbit/s
95th percentile per-packet one-way delay: 145.561 ms
Loss rate: 0.72%
```
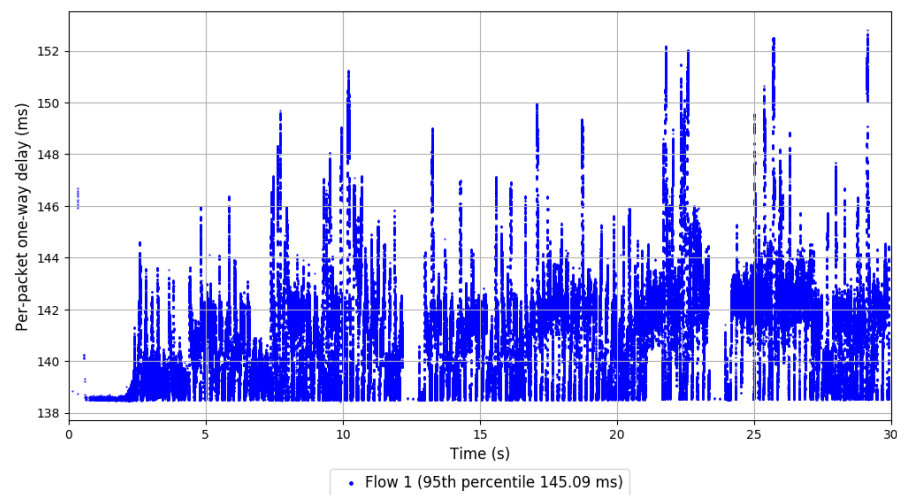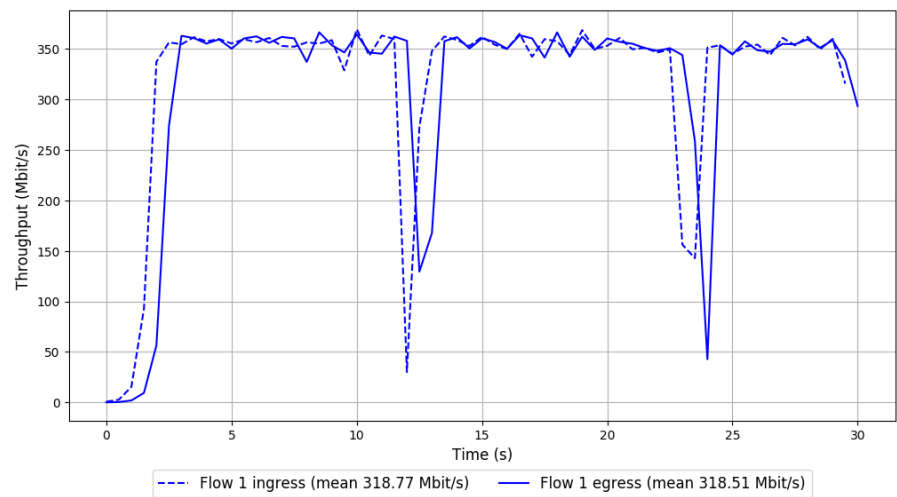
Run 3: Report of TCP BBR — Data Link

```
Run 4: Statistics of TCP BBR

Start at: 2018-10-10 02:34:07
End at: 2018-10-10 02:34:37
Local clock offset: 2.111 ms
Remote clock offset: -48.148 ms

Below is generated by plot.py at 2018-10-10 03:43:26
Datalink statistics
-- Total of 1 flow:
Average throughput: 331.59 Mbit/s
95th percentile per-packet one-way delay: 147.948 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 331.59 Mbit/s
95th percentile per-packet one-way delay: 147.948 ms
Loss rate: 0.71%
```
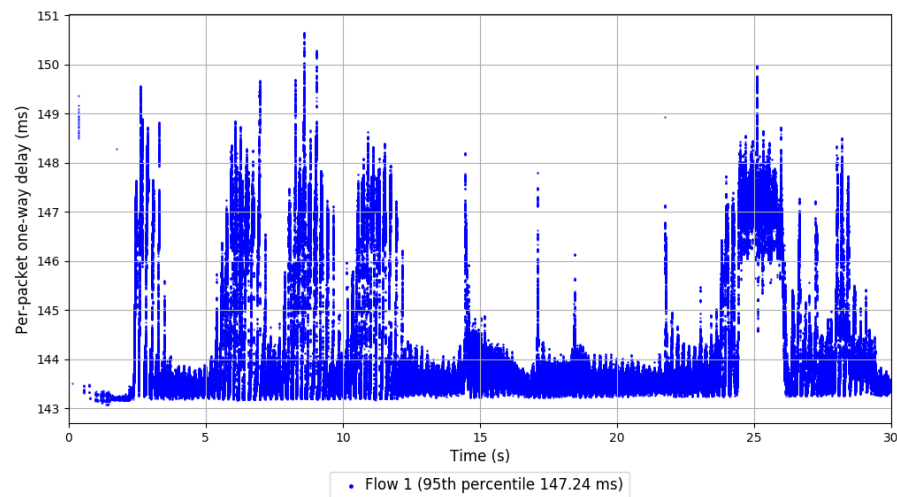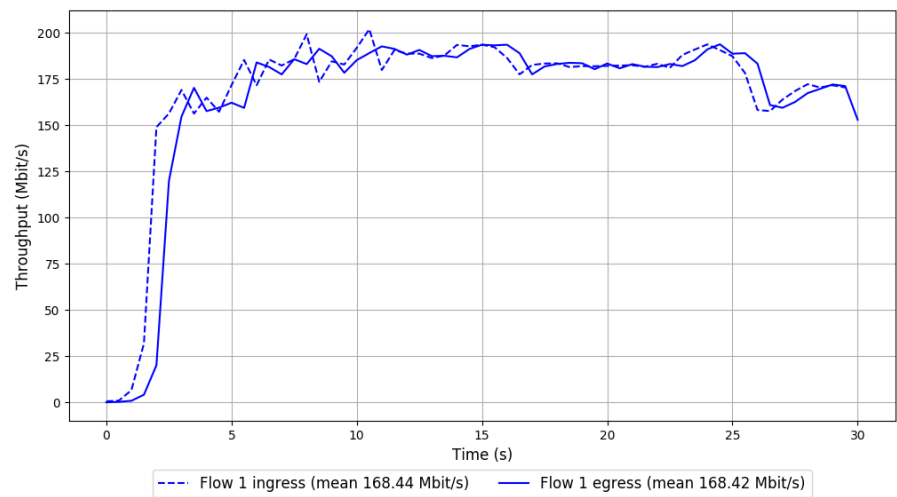
Run 4: Report of TCP BBR — Data Link



Flow 1 ingress (mean 331.81 Mbit/s) --- Flow 1 egress (mean 331.59 Mbit/s)



Flow 1 (95th percentile 147.95 ms)

```
Run 5: Statistics of TCP BBR

Start at: 2018-10-10 03:17:37
End at: 2018-10-10 03:18:07
Local clock offset: 2.352 ms
Remote clock offset: -41.259 ms

Below is generated by plot.py at 2018-10-10 03:43:26
Datalink statistics
-- Total of 1 flow:
Average throughput: 318.51 Mbit/s
95th percentile per-packet one-way delay: 145.087 ms
Loss rate: 0.73%
-- Flow 1:
Average throughput: 318.51 Mbit/s
95th percentile per-packet one-way delay: 145.087 ms
Loss rate: 0.73%
```
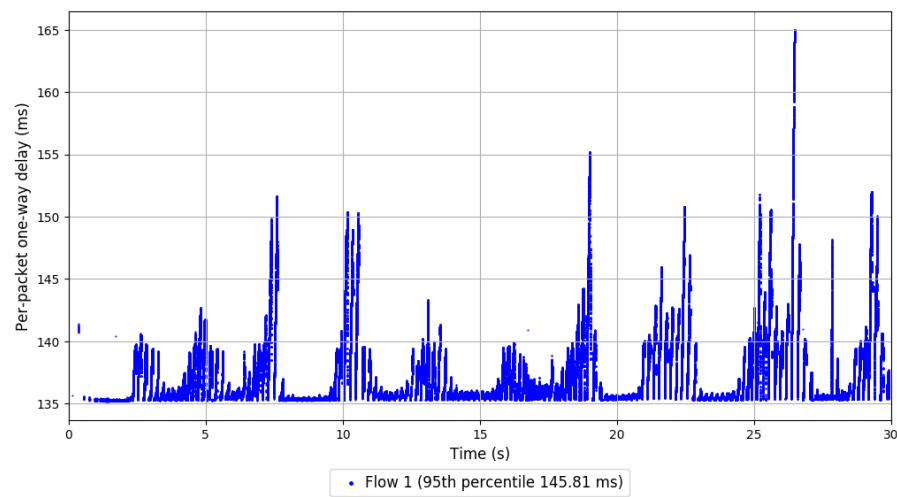
Run 5: Report of TCP BBR — Data Link



Flow 1 ingress (mean 318.77 Mbit/s)    Flow 1 egress (mean 318.51 Mbit/s)

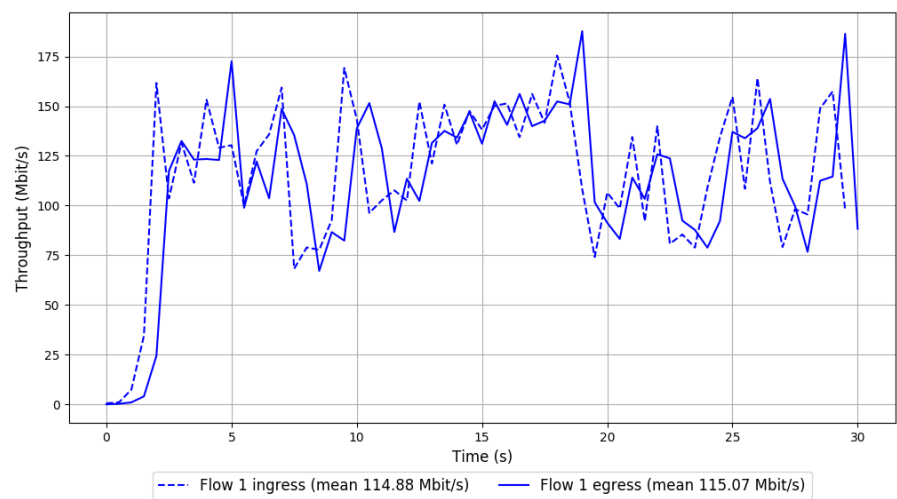

• Flow 1 (95th percentile 145.09 ms)

```
Run 1: Statistics of Copa

Start at: 2018-10-10 00:26:35
End at: 2018-10-10 00:27:05
Local clock offset: 3.031 ms
Remote clock offset: -47.999 ms

Below is generated by plot.py at 2018-10-10 03:43:26
Datalink statistics
-- Total of 1 flow:
Average throughput: 168.42 Mbit/s
95th percentile per-packet one-way delay: 147.242 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 168.42 Mbit/s
95th percentile per-packet one-way delay: 147.242 ms
Loss rate: 0.66%
```
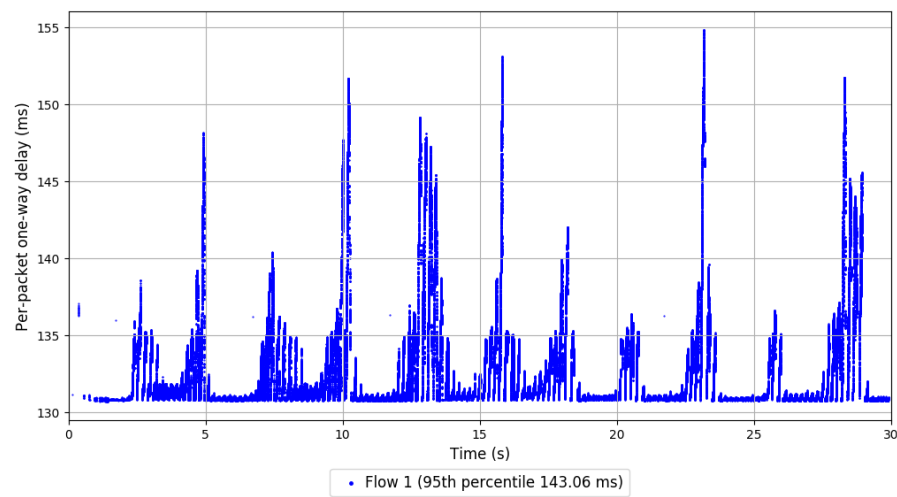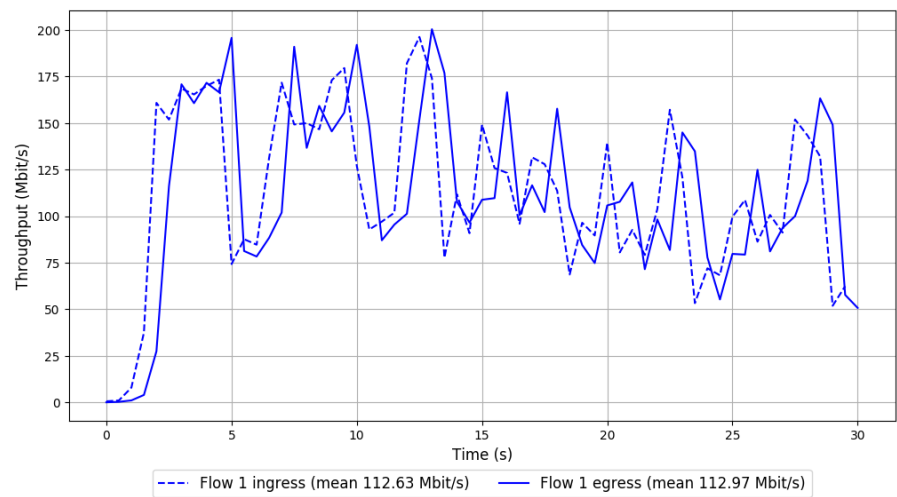
Run 1: Report of Copa — Data Link

```
Run 2: Statistics of Copa

Start at: 2018-10-10 00:58:47
End at: 2018-10-10 00:59:17
Local clock offset: 0.654 ms
Remote clock offset: -41.734 ms

Below is generated by plot.py at 2018-10-10 03:43:26
Datalink statistics
-- Total of 1 flow:
Average throughput: 115.07 Mbit/s
95th percentile per-packet one-way delay: 145.812 ms
Loss rate: 0.49%
-- Flow 1:
Average throughput: 115.07 Mbit/s
95th percentile per-packet one-way delay: 145.812 ms
Loss rate: 0.49%
```
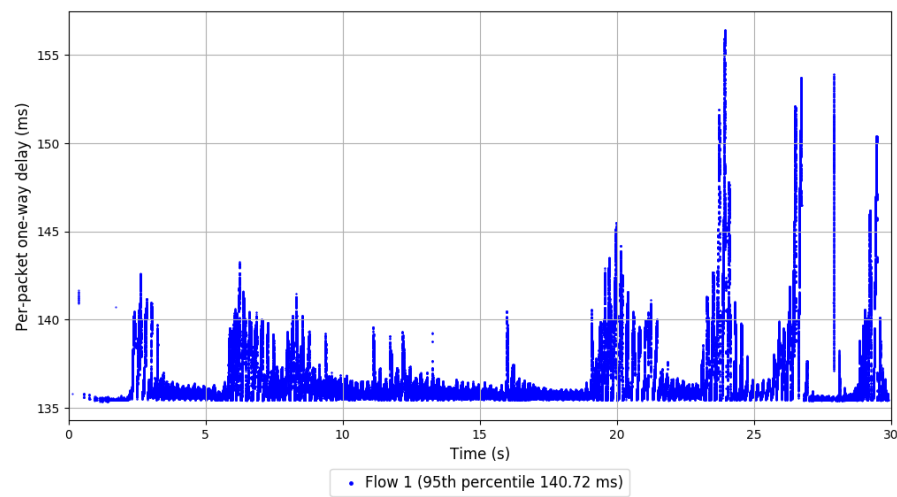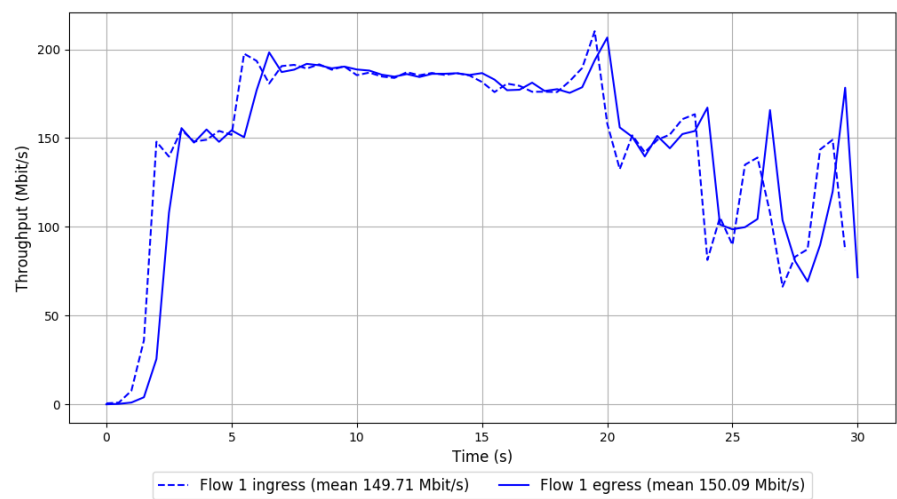
Run 2: Report of Copa — Data Link

```
Run 3: Statistics of Copa

Start at: 2018-10-10 01:36:01
End at: 2018-10-10 01:36:31
Local clock offset: 1.025 ms
Remote clock offset: -35.156 ms

Below is generated by plot.py at 2018-10-10 03:43:26
Datalink statistics
-- Total of 1 flow:
Average throughput: 112.97 Mbit/s
95th percentile per-packet one-way delay: 143.062 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 112.97 Mbit/s
95th percentile per-packet one-way delay: 143.062 ms
Loss rate: 0.34%
```
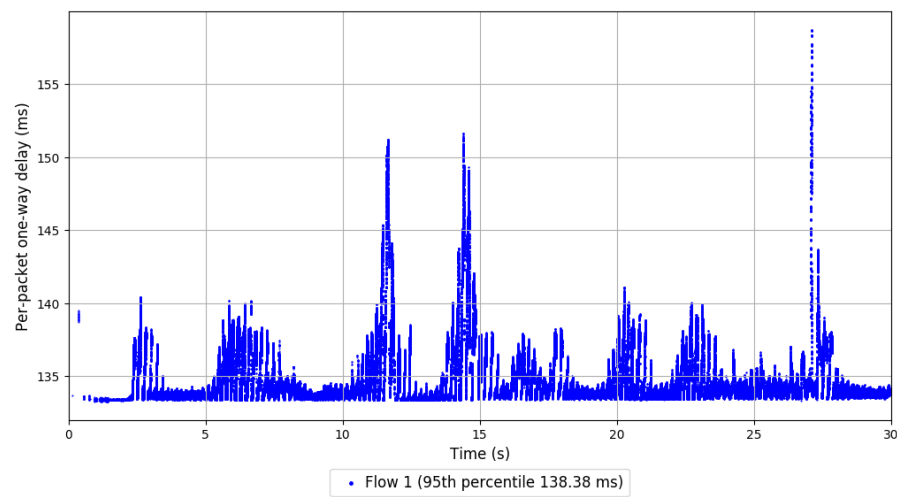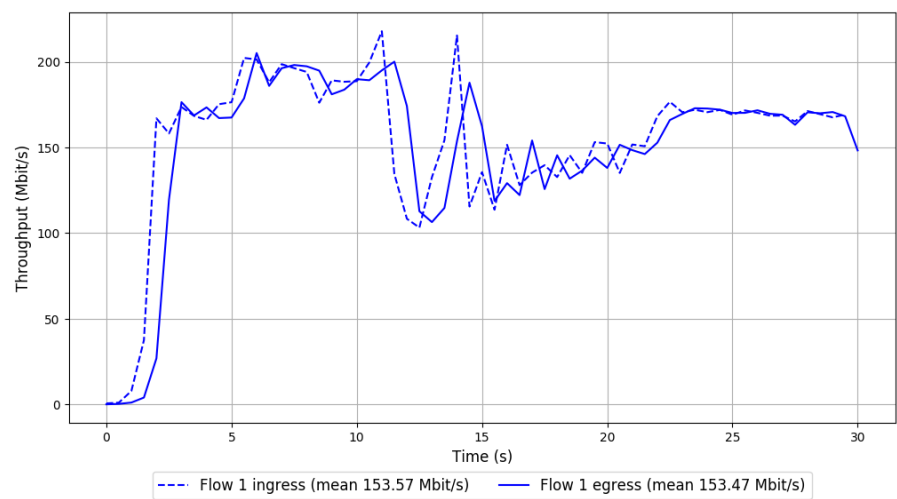
Run 3: Report of Copa — Data Link



Flow 1 ingress (mean 112.63 Mbit/s) ----  Flow 1 egress (mean 112.97 Mbit/s) ——



• Flow 1 (95th percentile 143.06 ms)

```
Run 4: Statistics of Copa

Start at: 2018-10-10 02:14:02
End at: 2018-10-10 02:14:32
Local clock offset: 1.956 ms
Remote clock offset: -40.007 ms

Below is generated by plot.py at 2018-10-10 03:45:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 150.09 Mbit/s
95th percentile per-packet one-way delay: 140.717 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 150.09 Mbit/s
95th percentile per-packet one-way delay: 140.717 ms
Loss rate: 0.40%
```
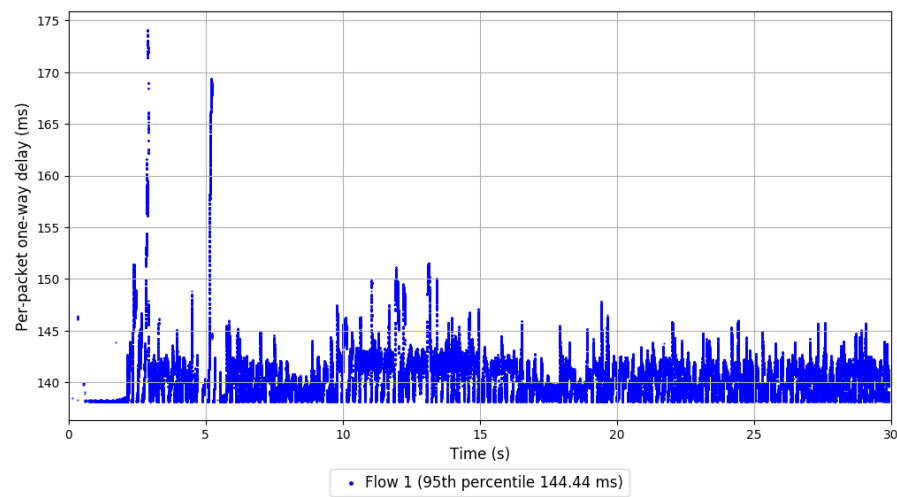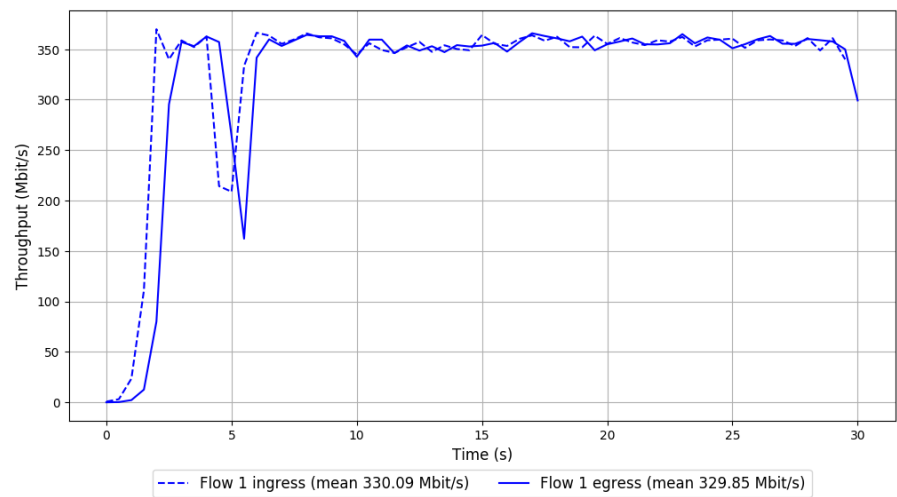
Run 4: Report of Copa — Data Link



Flow 1 ingress (mean 149.71 Mbit/s)    Flow 1 egress (mean 150.09 Mbit/s)



Flow 1 (95th percentile 140.72 ms)

```
Run 5: Statistics of Copa

Start at: 2018-10-10 03:02:21
End at: 2018-10-10 03:02:51
Local clock offset: 1.429 ms
Remote clock offset: -37.295 ms

Below is generated by plot.py at 2018-10-10 03:45:36
Datalink statistics
-- Total of 1 flow:
Average throughput: 153.47 Mbit/s
95th percentile per-packet one-way delay: 138.378 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 153.47 Mbit/s
95th percentile per-packet one-way delay: 138.378 ms
Loss rate: 0.71%
```
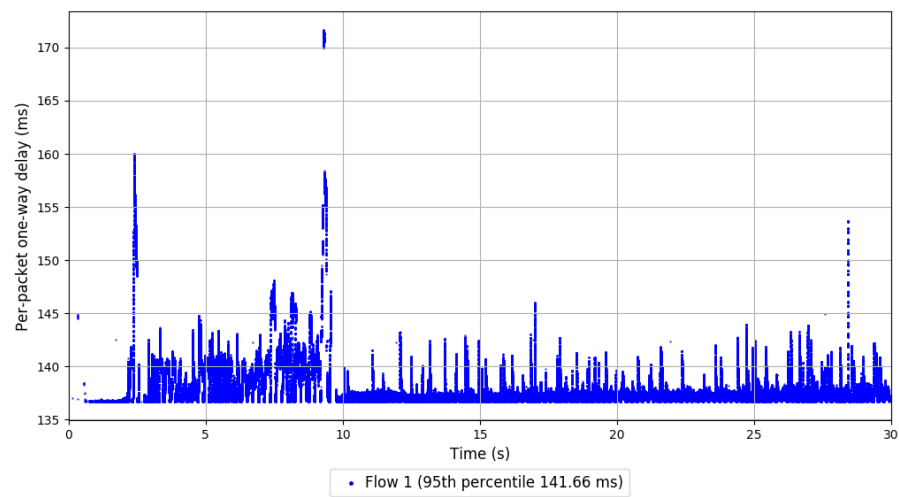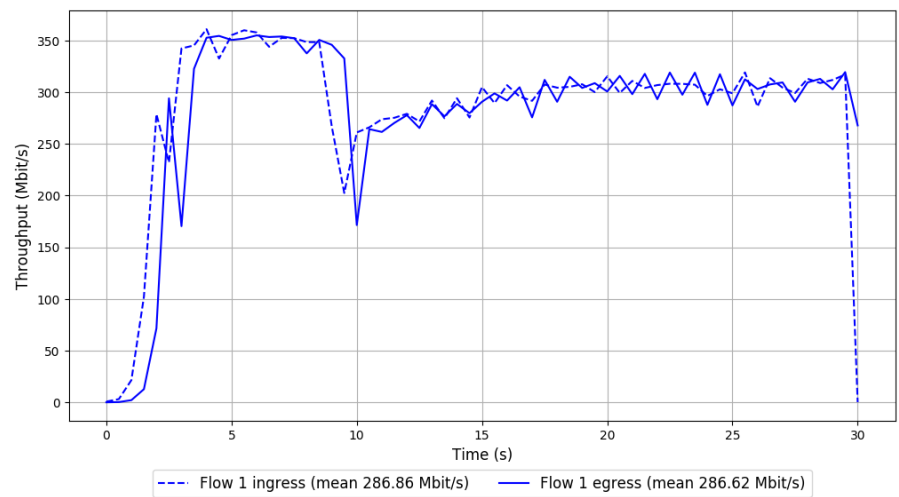
Run 5: Report of Copa — Data Link

```
Run 1: Statistics of TCP Cubic

Start at: 2018-10-10 00:37:26
End at: 2018-10-10 00:37:56
Local clock offset: 1.941 ms
Remote clock offset: -42.991 ms

Below is generated by plot.py at 2018-10-10 03:46:54
Datalink statistics
-- Total of 1 flow:
Average throughput: 329.85 Mbit/s
95th percentile per-packet one-way delay: 144.436 ms
Loss rate: 0.72%
-- Flow 1:
Average throughput: 329.85 Mbit/s
95th percentile per-packet one-way delay: 144.436 ms
Loss rate: 0.72%
```
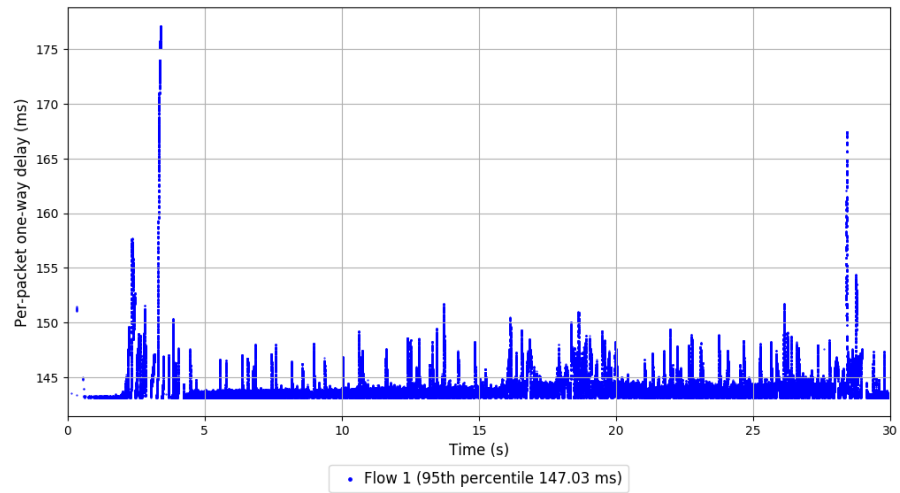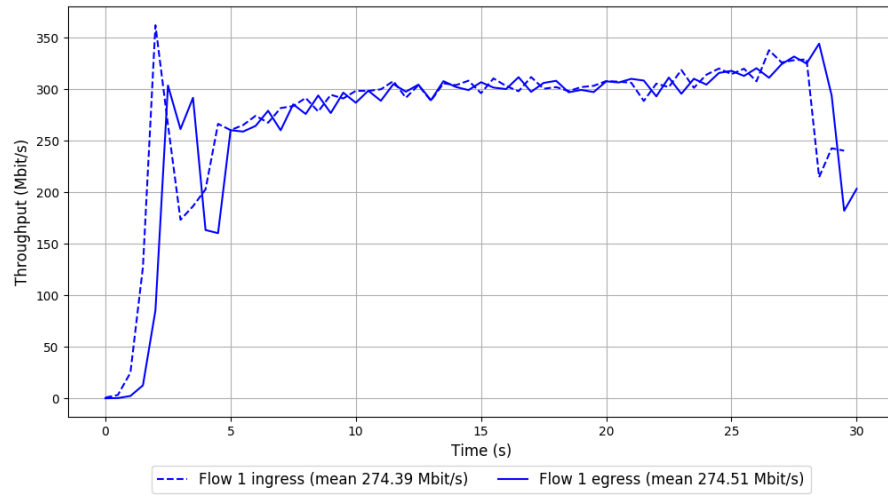
Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2018-10-10 01:09:18
End at: 2018-10-10 01:09:48
Local clock offset: 0.284 ms
Remote clock offset: -40.664 ms

Below is generated by plot.py at 2018-10-10 03:46:54
Datalink statistics
-- Total of 1 flow:
Average throughput: 286.62 Mbit/s
95th percentile per-packet one-way delay: 141.663 ms
Loss rate: 0.73%
-- Flow 1:
Average throughput: 286.62 Mbit/s
95th percentile per-packet one-way delay: 141.663 ms
Loss rate: 0.73%
```
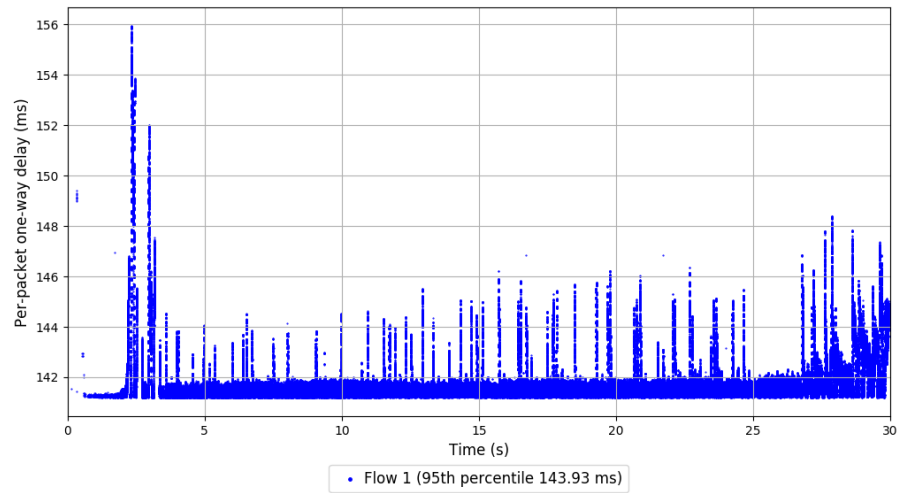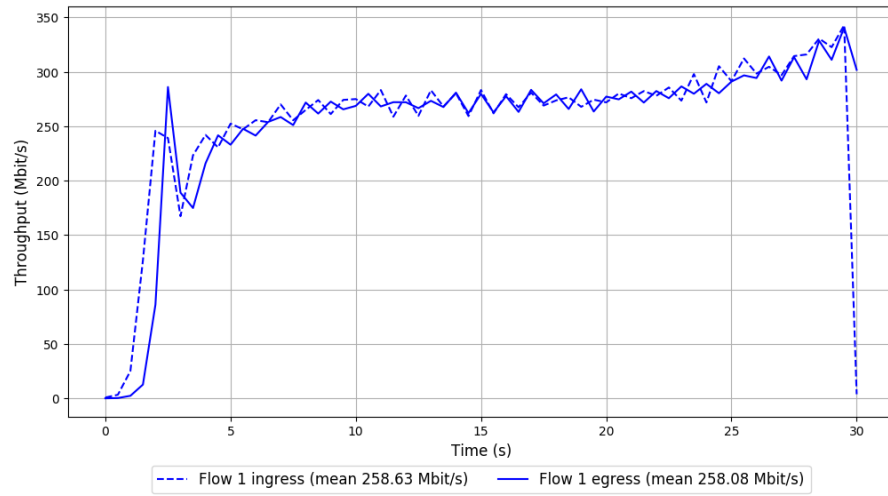
Run 2: Report of TCP Cubic — Data Link

```
Run 3: Statistics of TCP Cubic

Start at: 2018-10-10 01:46:51
End at: 2018-10-10 01:47:21
Local clock offset: 1.532 ms
Remote clock offset: -48.64 ms


# Below is generated by plot.py at 2018-10-10 03:46:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 274.51 Mbit/s
95th percentile per-packet one-way delay: 147.029 ms
Loss rate: 0.60%
-- Flow 1:
Average throughput: 274.51 Mbit/s
95th percentile per-packet one-way delay: 147.029 ms
Loss rate: 0.60%
```

Run 3: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 274.39 Mbit/s) --- Flow 1 egress (mean 274.51 Mbit/s)
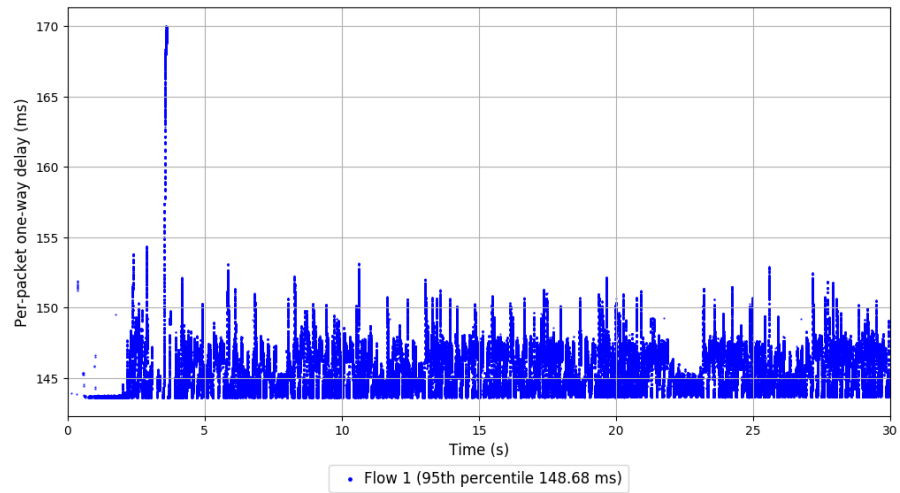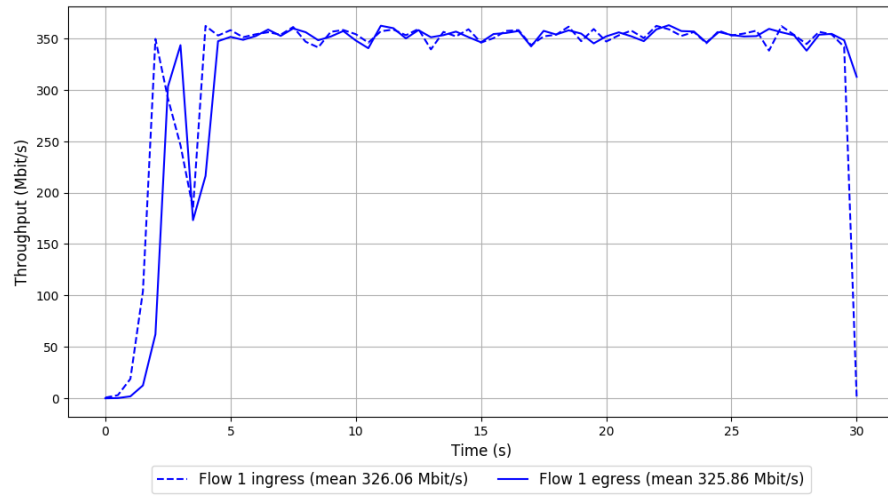

Flow 1 (95th percentile 147.03 ms)

```
Run 4: Statistics of TCP Cubic

Start at: 2018-10-10 02:30:24
End at: 2018-10-10 02:30:54
Local clock offset: 3.664 ms
Remote clock offset: -45.674 ms


# Below is generated by plot.py at 2018-10-10 03:46:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 258.08 Mbit/s
95th percentile per-packet one-way delay: 143.929 ms
Loss rate: 0.86%
-- Flow 1:
Average throughput: 258.08 Mbit/s
95th percentile per-packet one-way delay: 143.929 ms
Loss rate: 0.86%
```
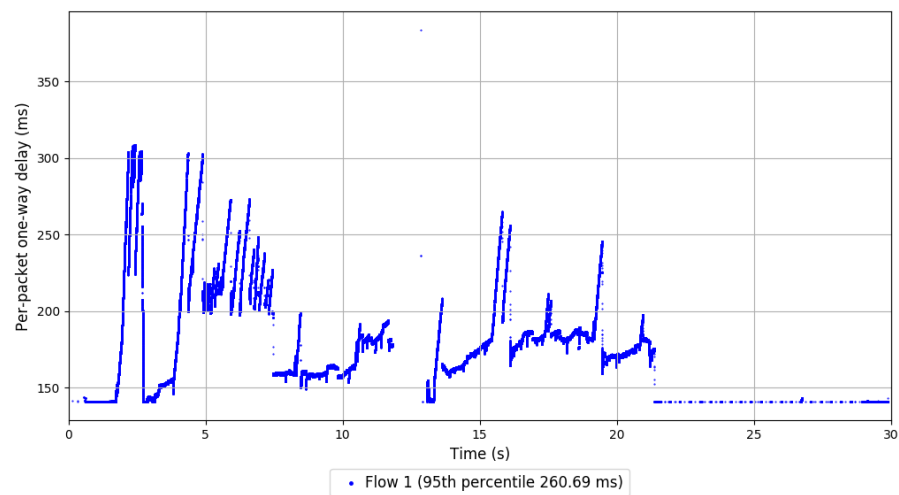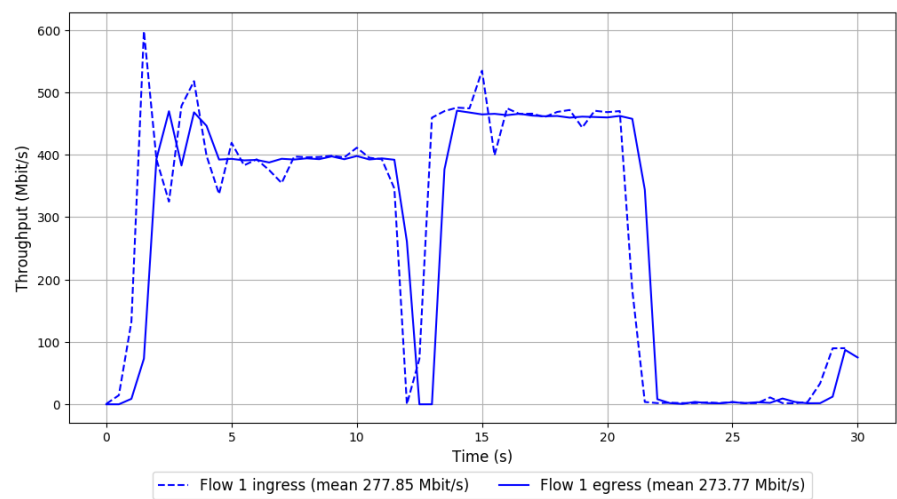
Run 4: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 258.63 Mbit/s)   Flow 1 egress (mean 258.08 Mbit/s)

• Flow 1 (95th percentile 143.93 ms)

```
Run 5: Statistics of TCP Cubic

Start at: 2018-10-10 03:13:21
End at: 2018-10-10 03:13:51
Local clock offset: 1.335 ms
Remote clock offset: -46.16 ms


# Below is generated by plot.py at 2018-10-10 03:46:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 325.86 Mbit/s
95th percentile per-packet one-way delay: 148.675 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 325.86 Mbit/s
95th percentile per-packet one-way delay: 148.675 ms
Loss rate: 0.71%
```

Run 5: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 326.06 Mbit/s) ----   Flow 1 egress (mean 325.86 Mbit/s) ——
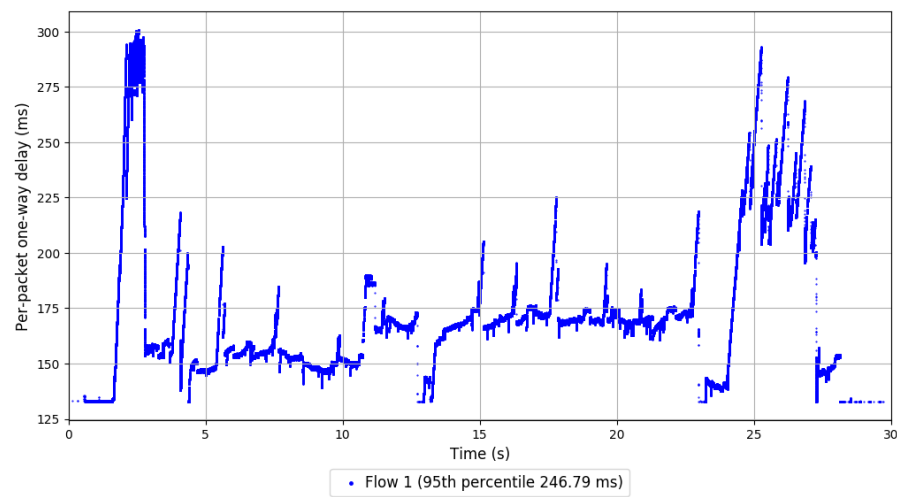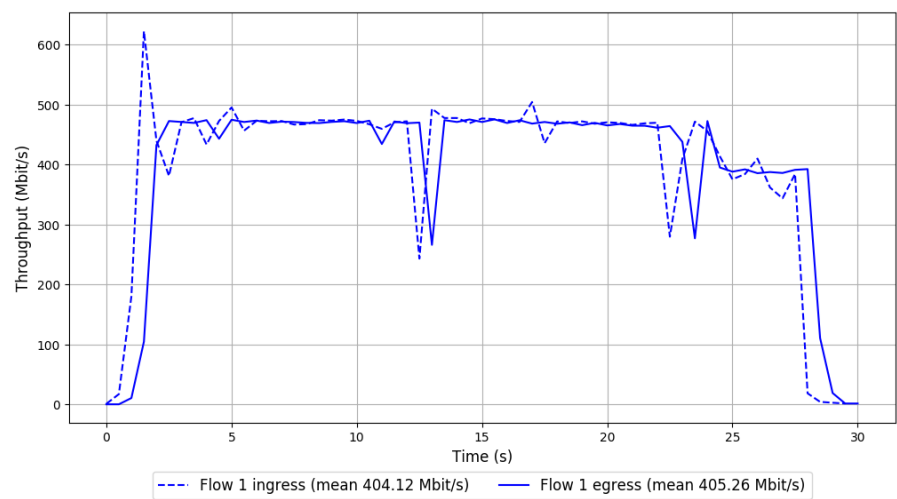

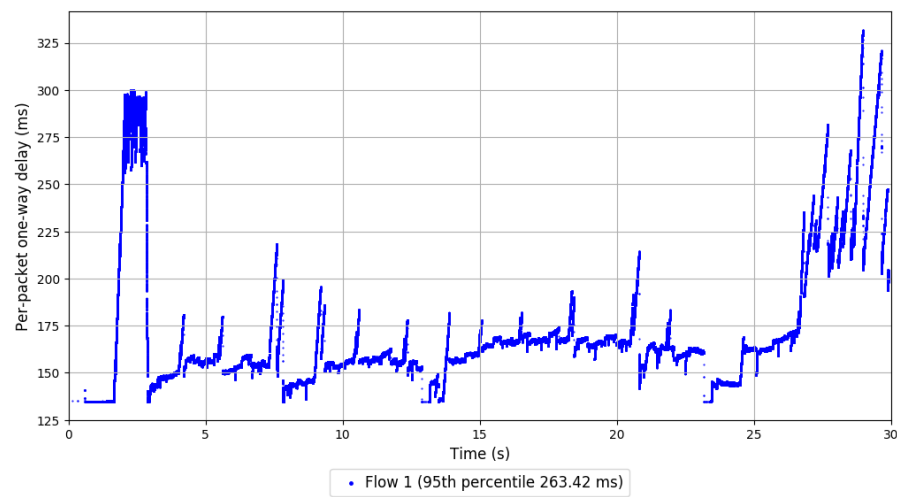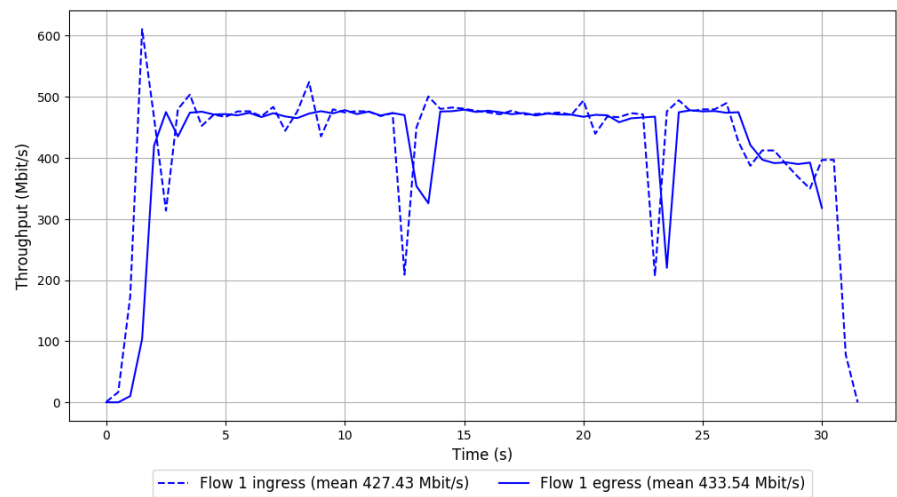
• Flow 1 (95th percentile 148.68 ms)

```
Run 1: Statistics of FillP

Start at: 2018-10-10 00:48:18
End at: 2018-10-10 00:48:48
Local clock offset: 2.749 ms
Remote clock offset: -44.501 ms

# Below is generated by plot.py at 2018-10-10 03:47:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 273.77 Mbit/s
95th percentile per-packet one-way delay: 260.686 ms
Loss rate: 2.10%
-- Flow 1:
Average throughput: 273.77 Mbit/s
95th percentile per-packet one-way delay: 260.686 ms
Loss rate: 2.10%
```

Run 1: Report of FillP — Data Link

Flow 1 ingress (mean 277.85 Mbit/s) --- Flow 1 egress (mean 273.77 Mbit/s)

Flow 1 (95th percentile 260.69 ms)

```
Run 2: Statistics of FillP

Start at: 2018-10-10 01:25:16
End at: 2018-10-10 01:25:46
Local clock offset: -1.774 ms
Remote clock offset: -38.515 ms


# Below is generated by plot.py at 2018-10-10 03:51:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 405.26 Mbit/s
95th percentile per-packet one-way delay: 246.790 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 405.26 Mbit/s
95th percentile per-packet one-way delay: 246.790 ms
Loss rate: 0.46%
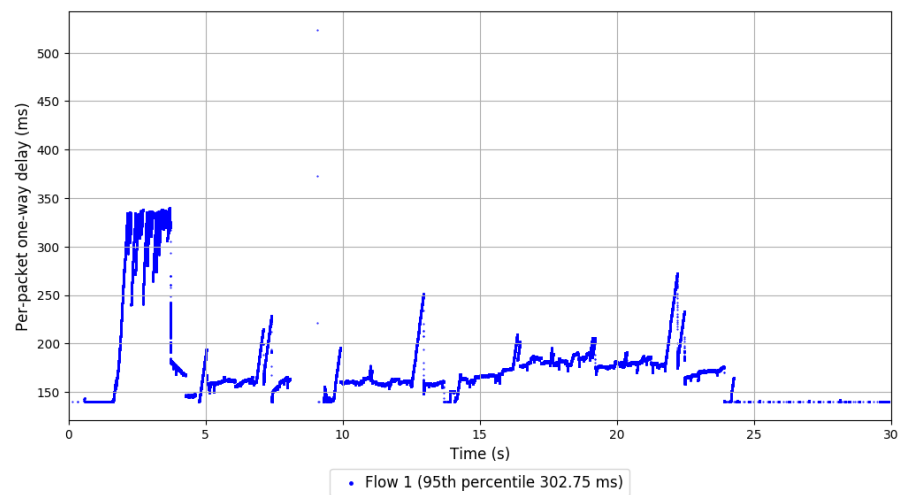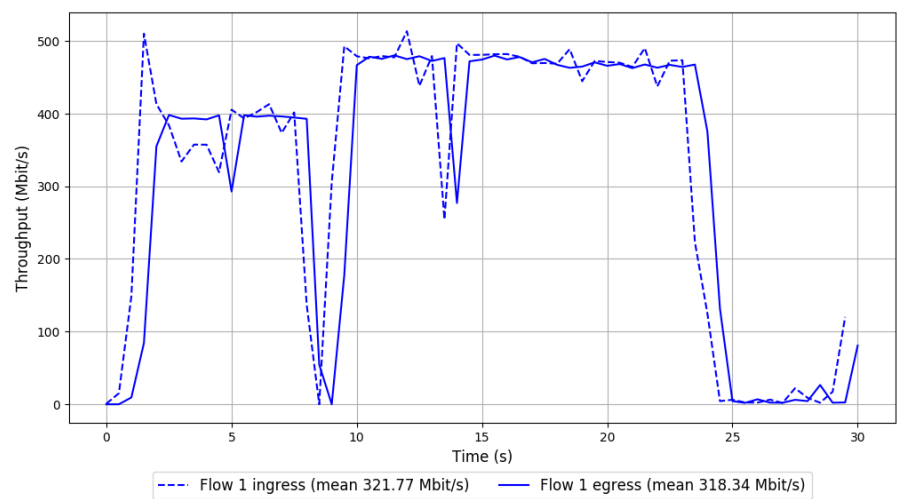```
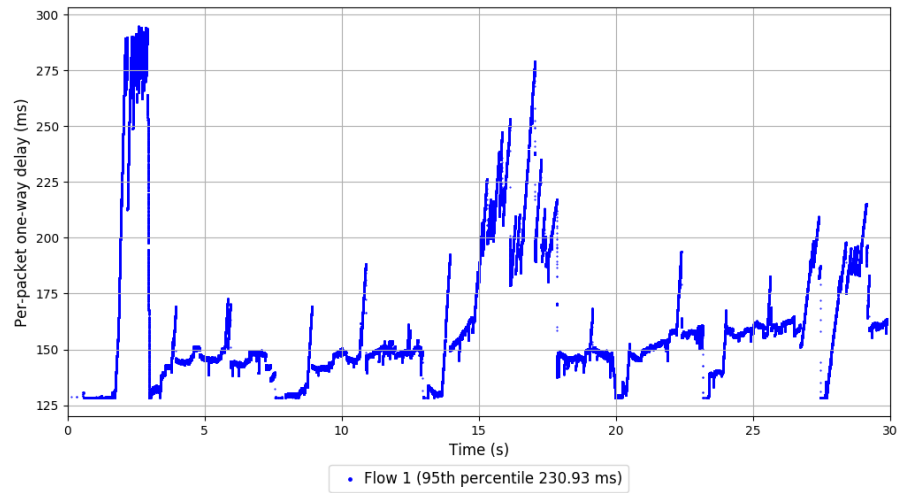
Run 2: Report of FillP — Data Link



Flow 1 ingress (mean 404.12 Mbit/s) — — —  Flow 1 egress (mean 405.26 Mbit/s)



• Flow 1 (95th percentile 246.79 ms)

```
Run 3: Statistics of FillP

Start at: 2018-10-10 01:57:37
End at: 2018-10-10 01:58:07
Local clock offset: 0.406 ms
Remote clock offset: -40.382 ms

Below is generated by plot.py at 2018-10-10 03:51:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 433.54 Mbit/s
95th percentile per-packet one-way delay: 263.422 ms
Loss rate: 4.30%
-- Flow 1:
Average throughput: 433.54 Mbit/s
95th percentile per-packet one-way delay: 263.422 ms
Loss rate: 4.30%
```
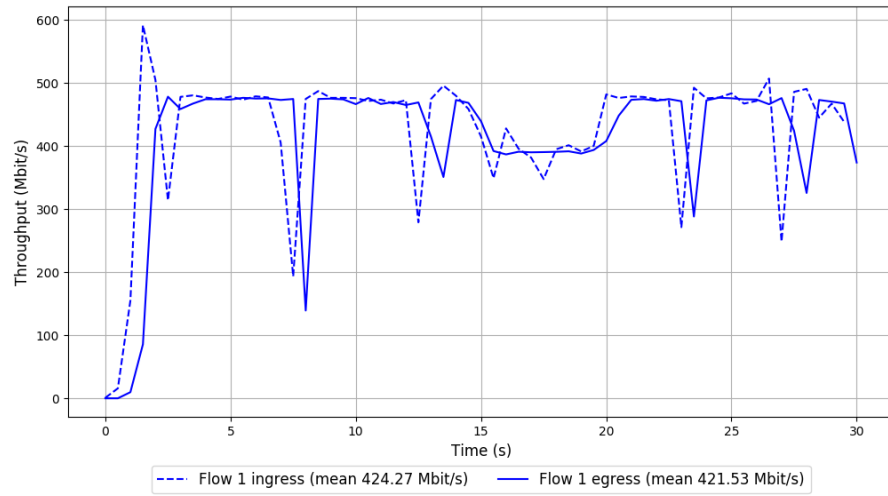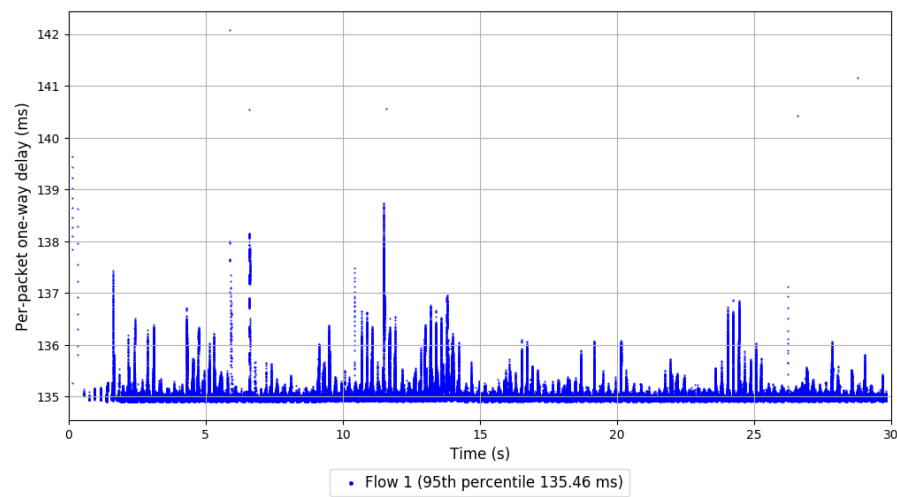
Run 3: Report of FillP — Data Link



Flow 1 ingress (mean 427.43 Mbit/s)    Flow 1 egress (mean 433.54 Mbit/s)



Flow 1 (95th percentile 263.42 ms)

40

```
Run 4: Statistics of FillP

Start at: 2018-10-10 02:51:50
End at: 2018-10-10 02:52:20
Local clock offset: 1.596 ms
Remote clock offset: -45.453 ms

Below is generated by plot.py at 2018-10-10 03:51:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 318.34 Mbit/s
95th percentile per-packet one-way delay: 302.748 ms
Loss rate: 1.71%
-- Flow 1:
Average throughput: 318.34 Mbit/s
95th percentile per-packet one-way delay: 302.748 ms
Loss rate: 1.71%
```
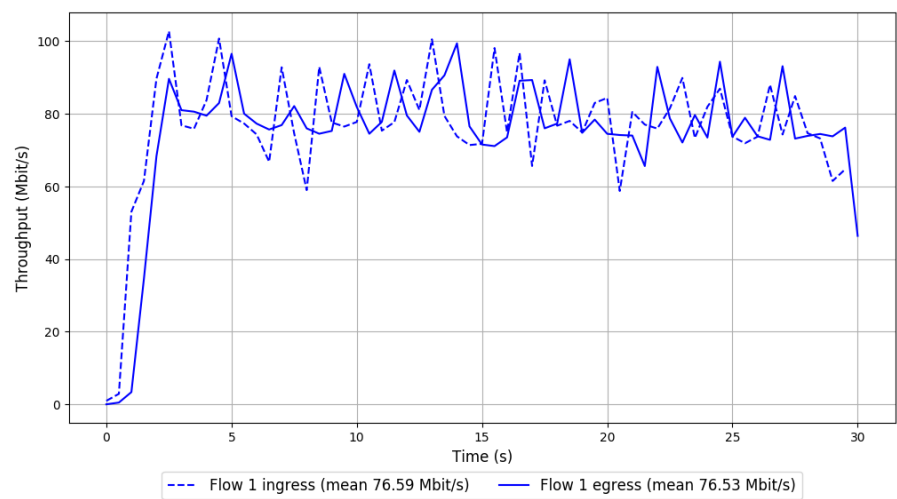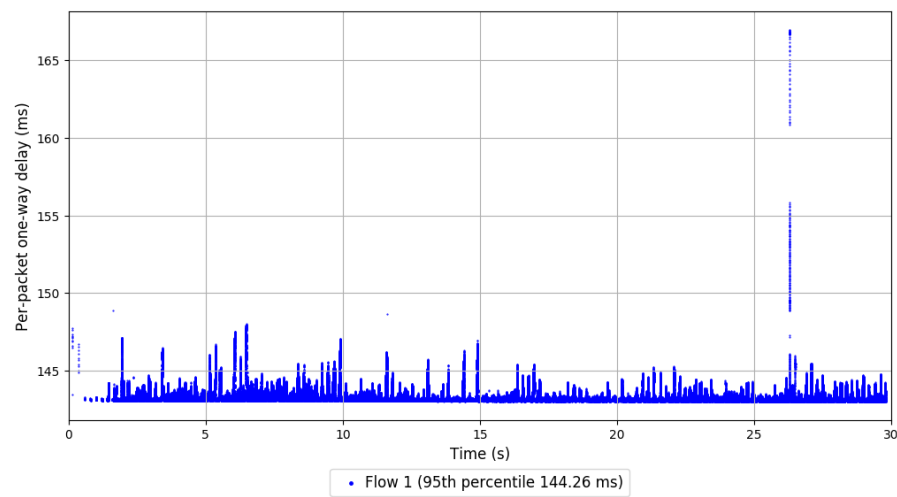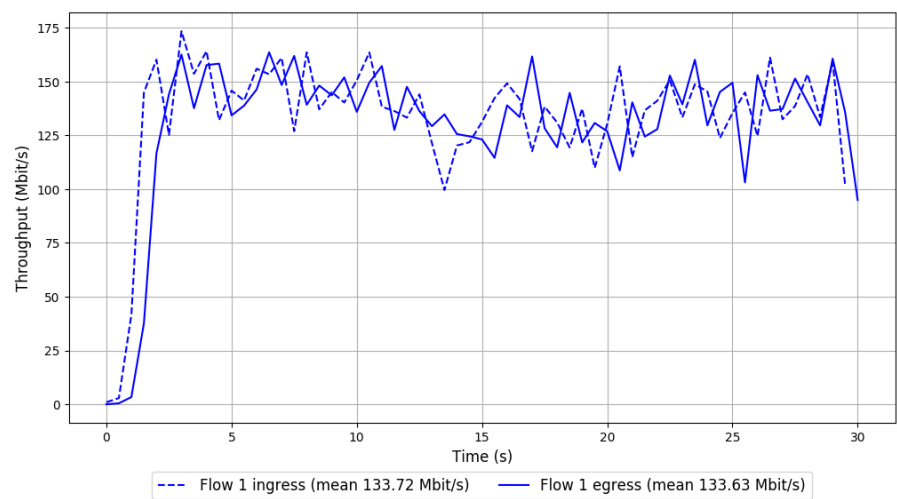
Run 4: Report of FillP — Data Link



Flow 1 ingress (mean 321.77 Mbit/s)     Flow 1 egress (mean 318.34 Mbit/s)



Flow 1 (95th percentile 302.75 ms)

```
Run 5: Statistics of FillP

Start at: 2018-10-10 03:24:10
End at: 2018-10-10 03:24:40
Local clock offset: 1.577 ms
Remote clock offset: -31.437 ms


# Below is generated by plot.py at 2018-10-10 03:52:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 421.53 Mbit/s
95th percentile per-packet one-way delay: 230.925 ms
Loss rate: 1.29%
-- Flow 1:
Average throughput: 421.53 Mbit/s
95th percentile per-packet one-way delay: 230.925 ms
Loss rate: 1.29%
```

Run 5: Report of FillP — Data Link

```
Run 1: Statistics of Indigo

Start at: 2018-10-10 00:51:22
End at: 2018-10-10 00:51:52
Local clock offset: 2.698 ms
Remote clock offset: -38.846 ms

# Below is generated by plot.py at 2018-10-10 03:52:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 76.53 Mbit/s
95th percentile per-packet one-way delay: 135.463 ms
Loss rate: 0.73%
-- Flow 1:
Average throughput: 76.53 Mbit/s
95th percentile per-packet one-way delay: 135.463 ms
Loss rate: 0.73%
```
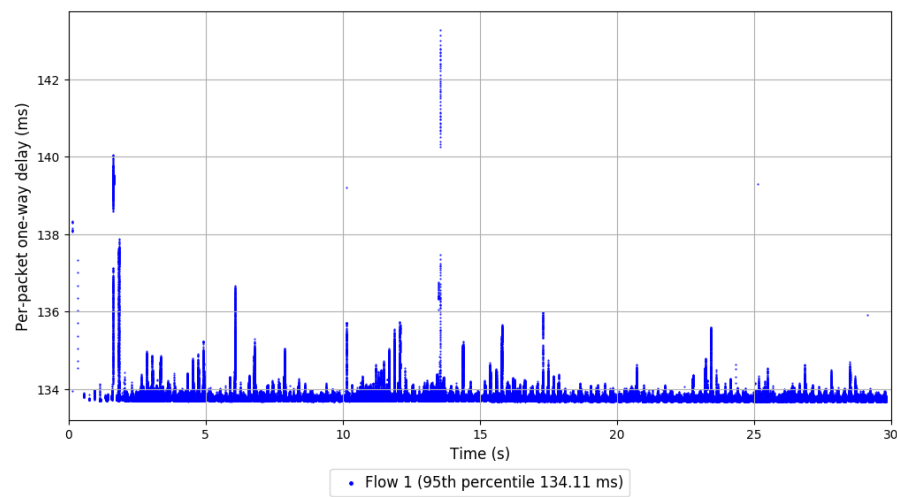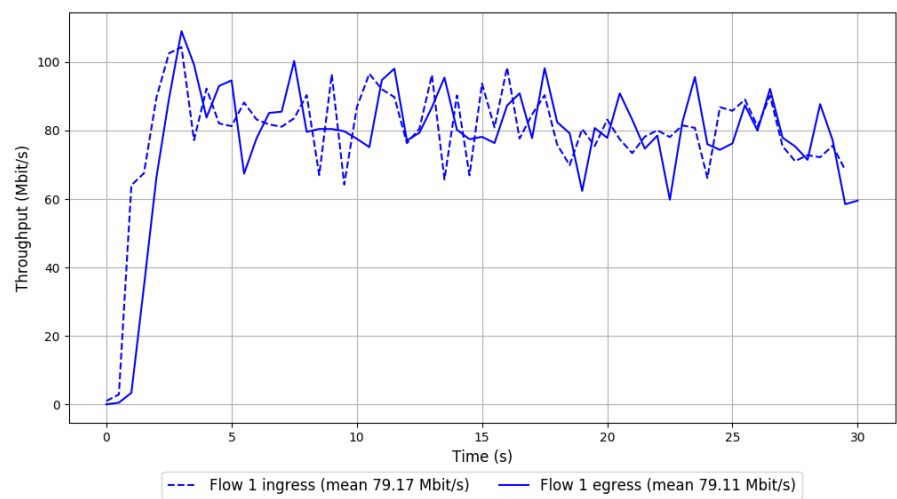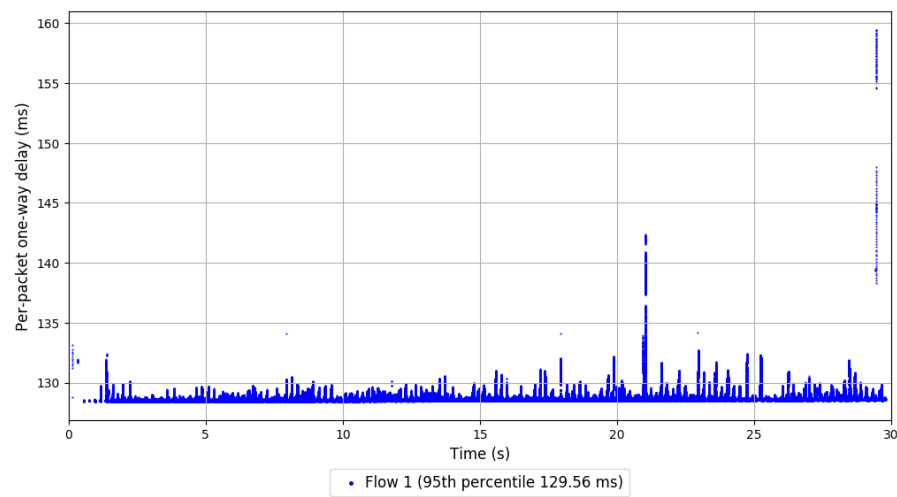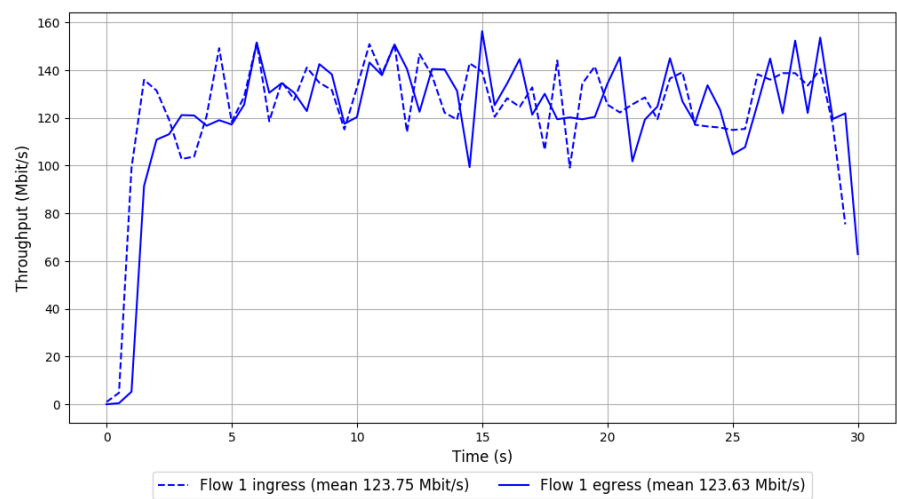
Run 1: Report of Indigo — Data Link

Flow 1 ingress (mean 76.59 Mbit/s)   Flow 1 egress (mean 76.53 Mbit/s)

Flow 1 (95th percentile 135.46 ms)

```
Run 2: Statistics of Indigo

Start at: 2018-10-10 01:28:41
End at: 2018-10-10 01:29:11
Local clock offset: -0.124 ms
Remote clock offset: -49.182 ms

# Below is generated by plot.py at 2018-10-10 03:52:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 133.63 Mbit/s
95th percentile per-packet one-way delay: 144.265 ms
Loss rate: 0.72%
-- Flow 1:
Average throughput: 133.63 Mbit/s
95th percentile per-packet one-way delay: 144.265 ms
Loss rate: 0.72%
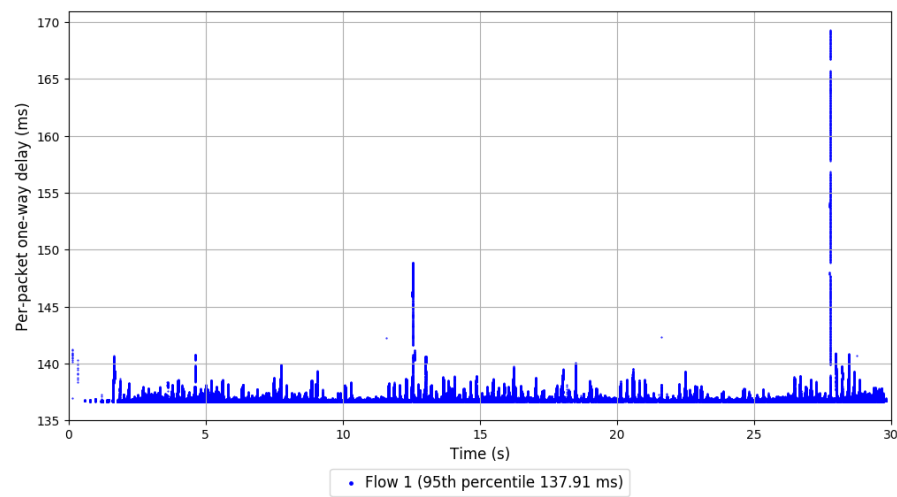```
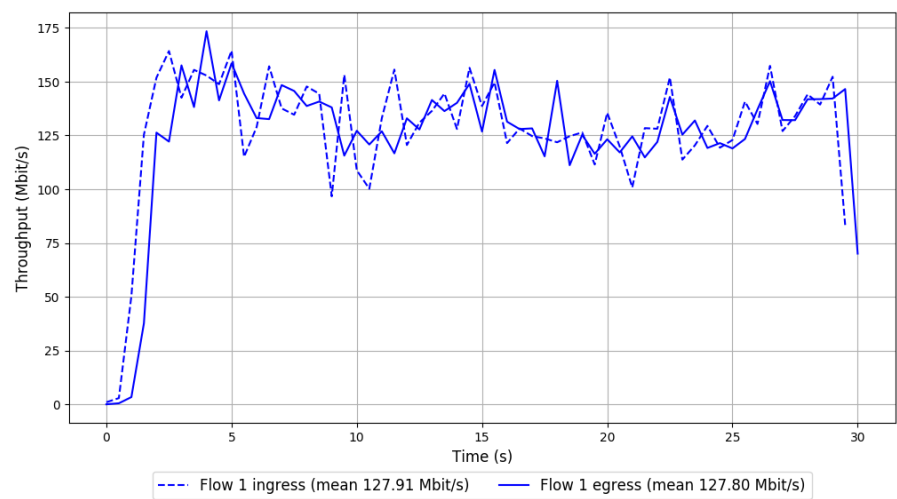
Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2018-10-10 02:01:12
End at: 2018-10-10 02:01:42
Local clock offset: 1.597 ms
Remote clock offset: -39.7 ms

Below is generated by plot.py at 2018-10-10 03:52:10
Datalink statistics
-- Total of 1 flow:
Average throughput: 79.11 Mbit/s
95th percentile per-packet one-way delay: 134.108 ms
Loss rate: 0.73%
-- Flow 1:
Average throughput: 79.11 Mbit/s
95th percentile per-packet one-way delay: 134.108 ms
Loss rate: 0.73%
```
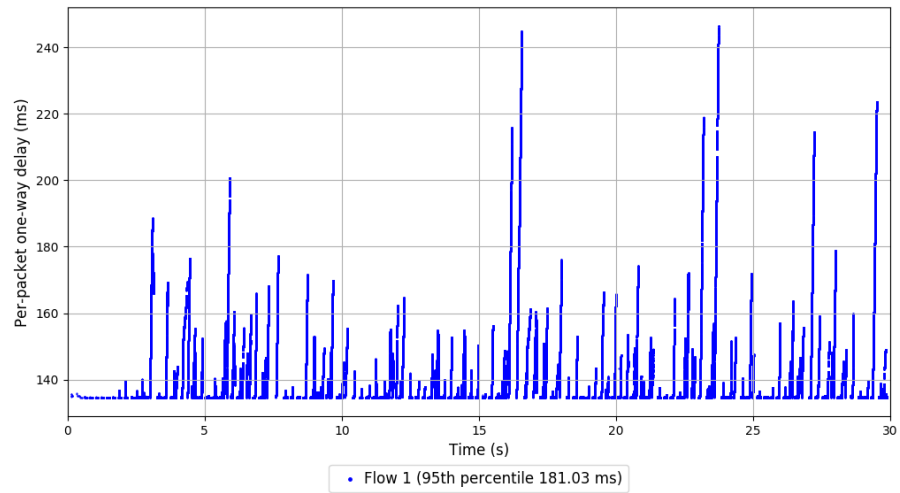
Run 3: Report of Indigo — Data Link

```
Run 4: Statistics of Indigo

Start at: 2018-10-10 02:55:02
End at: 2018-10-10 02:55:32
Local clock offset: 2.816 ms
Remote clock offset: -33.918 ms

Below is generated by plot.py at 2018-10-10 03:52:10
Datalink statistics
-- Total of 1 flow:
Average throughput: 123.63 Mbit/s
95th percentile per-packet one-way delay: 129.563 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 123.63 Mbit/s
95th percentile per-packet one-way delay: 129.563 ms
Loss rate: 0.74%
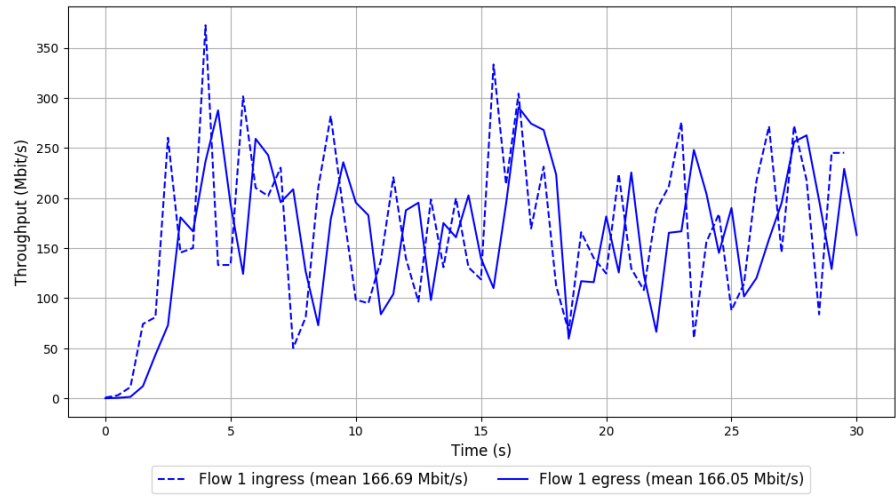```

Run 4: Report of Indigo — Data Link

52

```
Run 5: Statistics of Indigo

Start at: 2018-10-10 03:33:09
End at: 2018-10-10 03:33:39
Local clock offset: 0.545 ms
Remote clock offset: -39.254 ms

# Below is generated by plot.py at 2018-10-10 03:52:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 127.80 Mbit/s
95th percentile per-packet one-way delay: 137.913 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 127.80 Mbit/s
95th percentile per-packet one-way delay: 137.913 ms
Loss rate: 0.74%
```
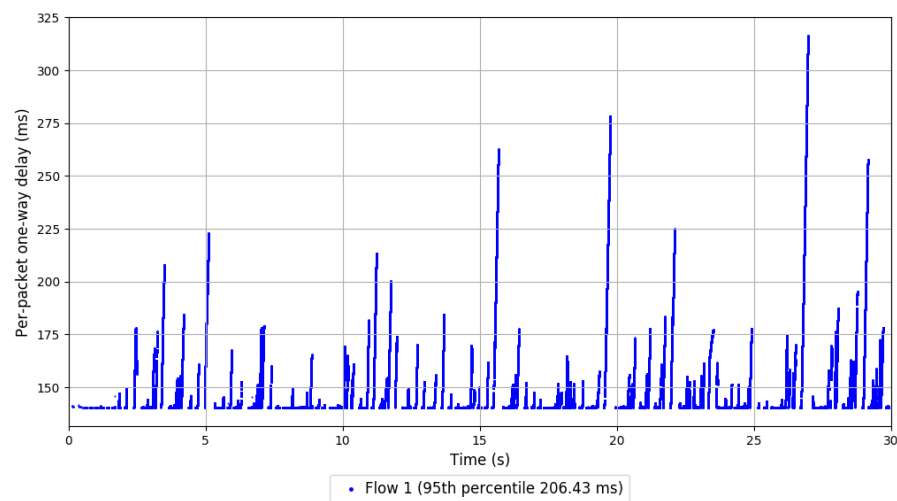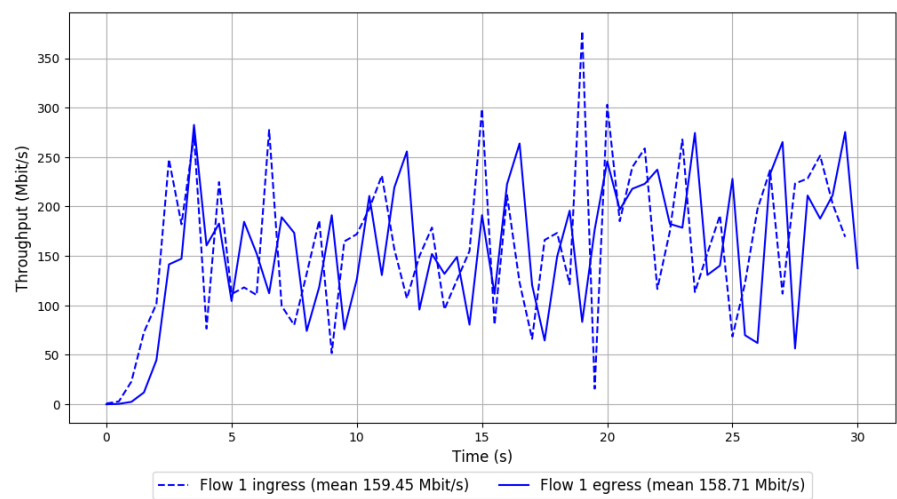
Run 5: Report of Indigo — Data Link

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

Start at: 2018-10-10 00:33:39
End at: 2018-10-10 00:34:09
Local clock offset: 1.182 ms
Remote clock offset: -40.491 ms


# Below is generated by plot.py at 2018-10-10 03:52:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 166.05 Mbit/s
95th percentile per-packet one-way delay: 181.031 ms
Loss rate: 1.13%
-- Flow 1:
Average throughput: 166.05 Mbit/s
95th percentile per-packet one-way delay: 181.031 ms
Loss rate: 1.13%
```
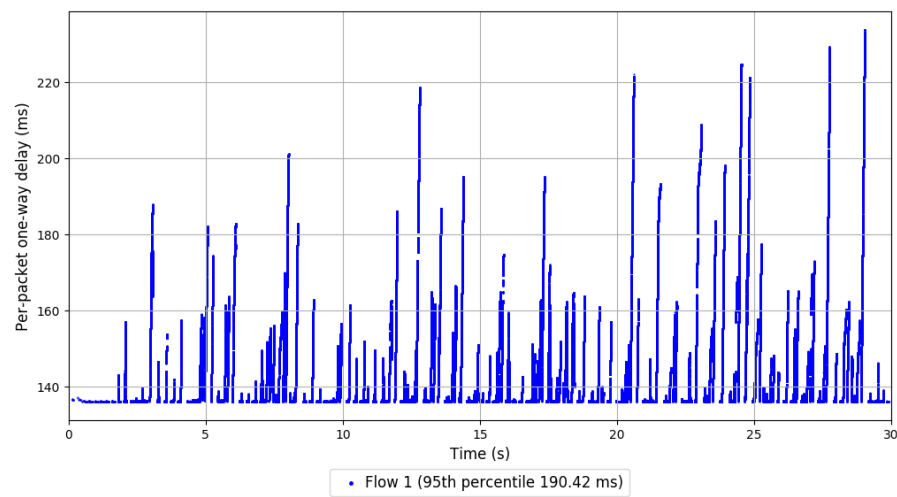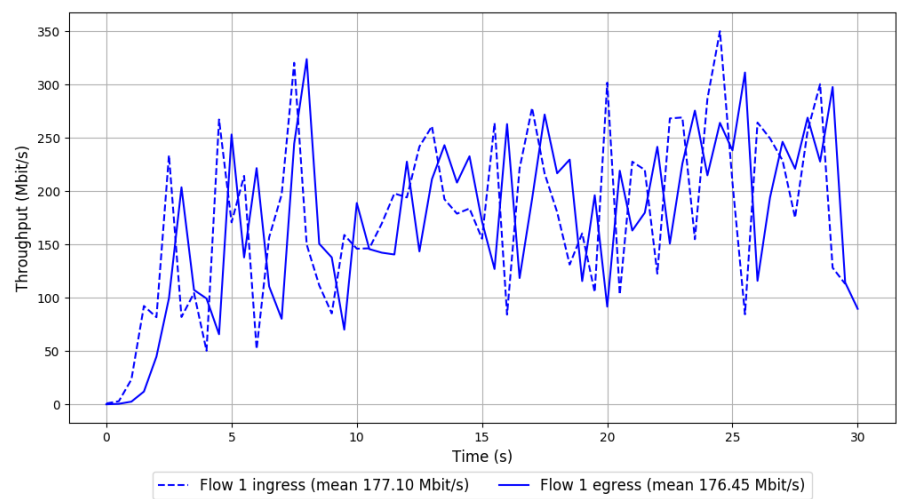
Run 1: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-10-10 01:05:32
End at: 2018-10-10 01:06:02
Local clock offset: -0.21 ms
Remote clock offset: -45.192 ms


# Below is generated by plot.py at 2018-10-10 03:52:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 158.71 Mbit/s
95th percentile per-packet one-way delay: 206.431 ms
Loss rate: 1.12%
-- Flow 1:
Average throughput: 158.71 Mbit/s
95th percentile per-packet one-way delay: 206.431 ms
Loss rate: 1.12%
```
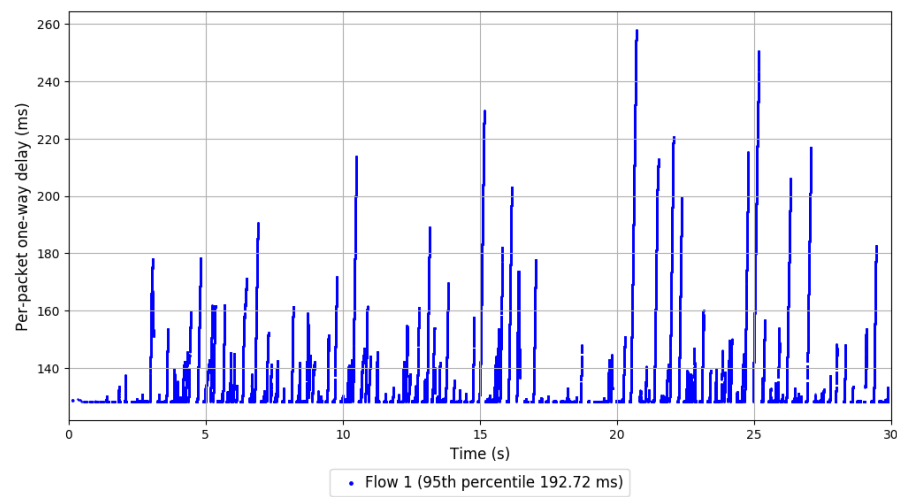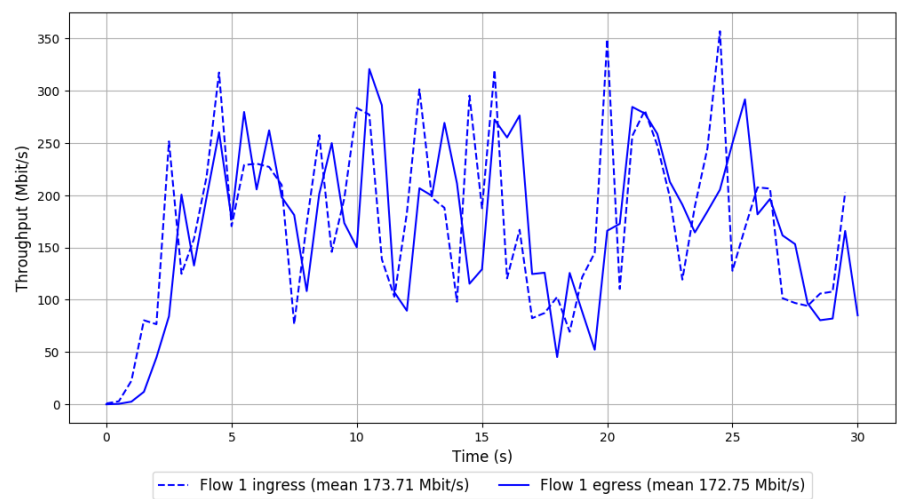
Run 2: Report of Indigo-96d2da3 — Data Link

Flow 1 ingress (mean 159.45 Mbit/s)   Flow 1 egress (mean 158.71 Mbit/s)
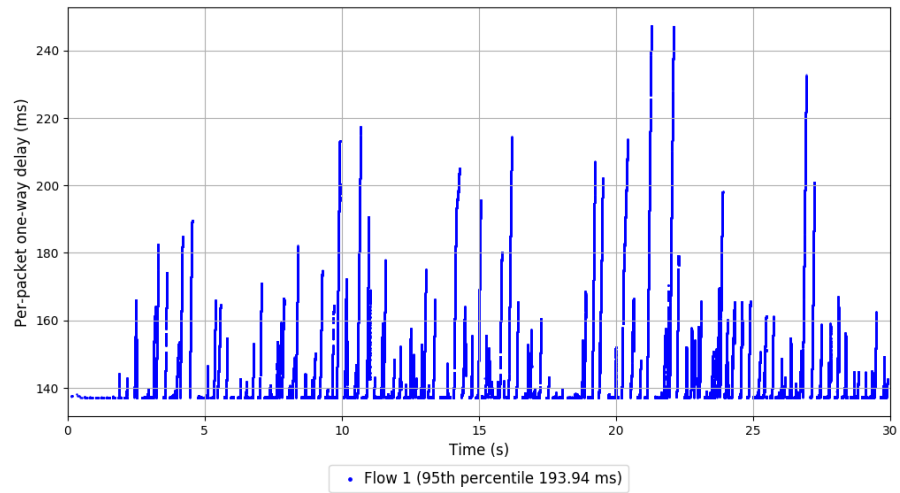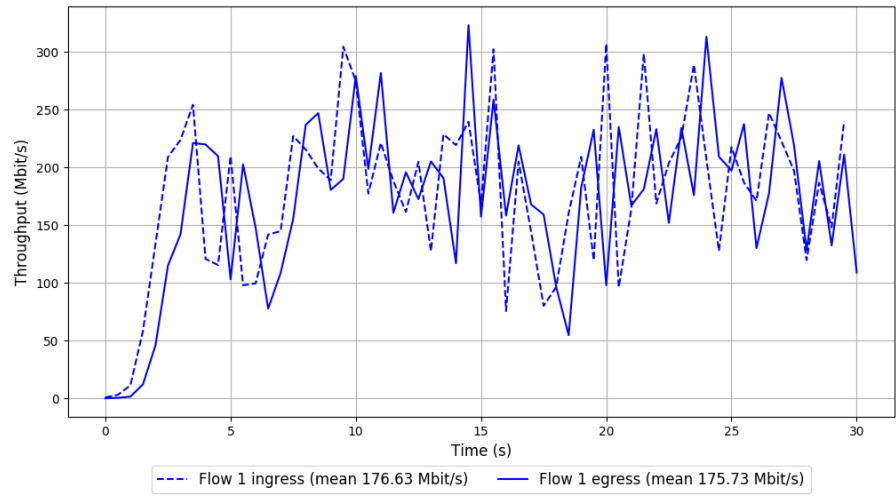

Flow 1 (95th percentile 206.43 ms)

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

Start at: 2018-10-10 01:43:02
End at: 2018-10-10 01:43:32
Local clock offset: 0.94 ms
Remote clock offset: -41.918 ms


# Below is generated by plot.py at 2018-10-10 03:52:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 176.45 Mbit/s
95th percentile per-packet one-way delay: 190.423 ms
Loss rate: 0.69%
-- Flow 1:
Average throughput: 176.45 Mbit/s
95th percentile per-packet one-way delay: 190.423 ms
Loss rate: 0.69%
```

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

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

Start at: 2018-10-10 02:26:35
End at: 2018-10-10 02:27:05
Local clock offset: 1.575 ms
Remote clock offset: -33.236 ms


# Below is generated by plot.py at 2018-10-10 03:52:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 172.75 Mbit/s
95th percentile per-packet one-way delay: 192.718 ms
Loss rate: 1.20%
-- Flow 1:
Average throughput: 172.75 Mbit/s
95th percentile per-packet one-way delay: 192.718 ms
Loss rate: 1.20%
```
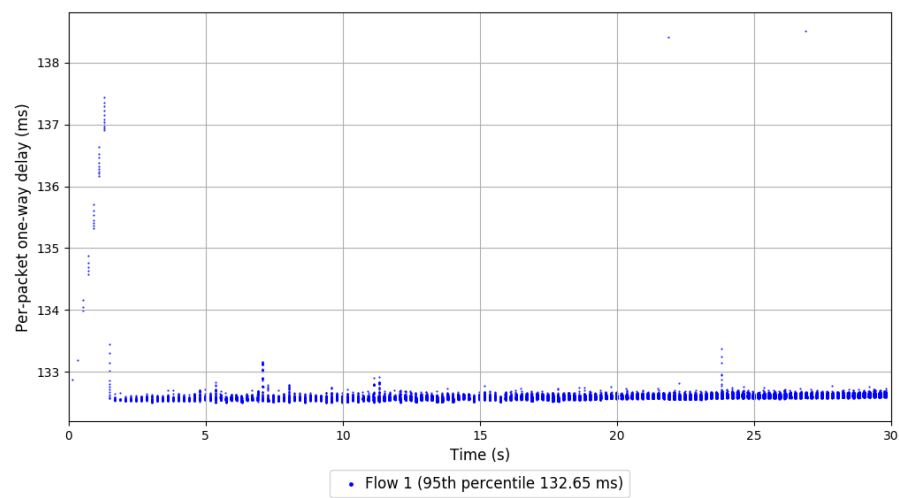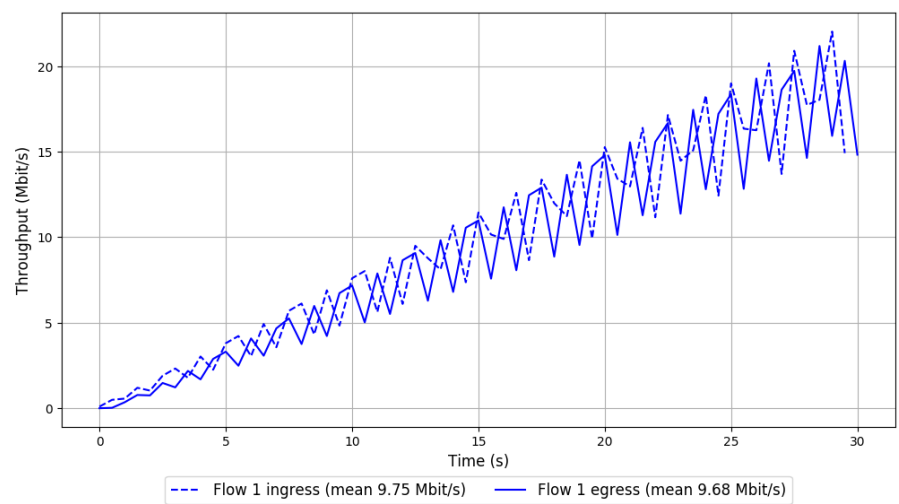
Run 4: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-10-10 03:09:33
End at: 2018-10-10 03:10:03
Local clock offset: -0.23 ms
Remote clock offset: -41.522 ms


# Below is generated by plot.py at 2018-10-10 03:52:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 175.73 Mbit/s
95th percentile per-packet one-way delay: 193.944 ms
Loss rate: 1.27%
-- Flow 1:
Average throughput: 175.73 Mbit/s
95th percentile per-packet one-way delay: 193.944 ms
Loss rate: 1.27%
```
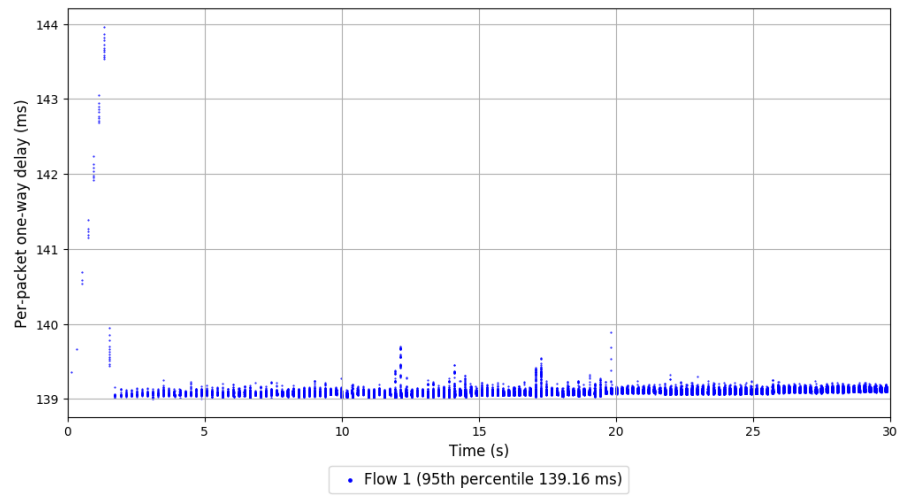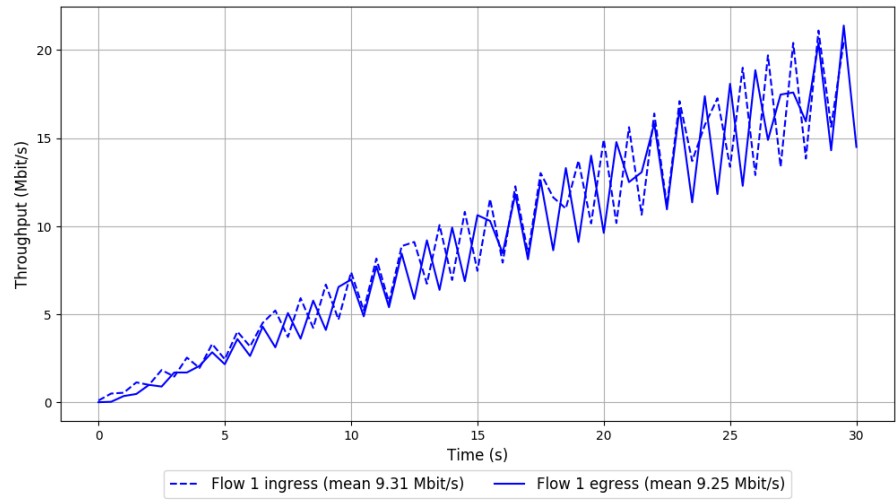
Run 5: Report of Indigo-96d2da3 — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2018-10-10 00:30:22
End at: 2018-10-10 00:30:52
Local clock offset: 3.698 ms
Remote clock offset: -37.728 ms

# Below is generated by plot.py at 2018-10-10 03:52:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.68 Mbit/s
95th percentile per-packet one-way delay: 132.649 ms
Loss rate: 1.29%
-- Flow 1:
Average throughput: 9.68 Mbit/s
95th percentile per-packet one-way delay: 132.649 ms
Loss rate: 1.29%
```

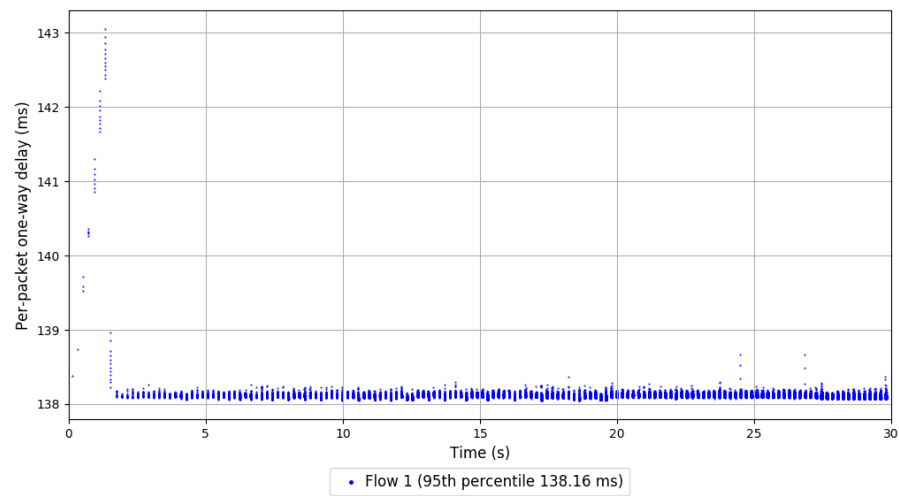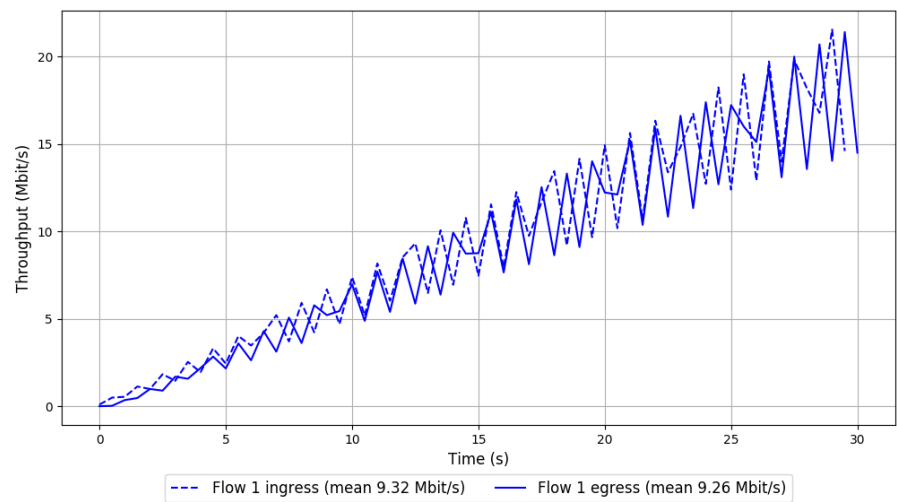# Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2018-10-10 01:02:14
End at: 2018-10-10 01:02:44
Local clock offset: 0.211 ms
Remote clock offset: -44.008 ms


# Below is generated by plot.py at 2018-10-10 03:52:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.25 Mbit/s
95th percentile per-packet one-way delay: 139.155 ms
Loss rate: 1.31%
-- Flow 1:
Average throughput: 9.25 Mbit/s
95th percentile per-packet one-way delay: 139.155 ms
Loss rate: 1.31%
```

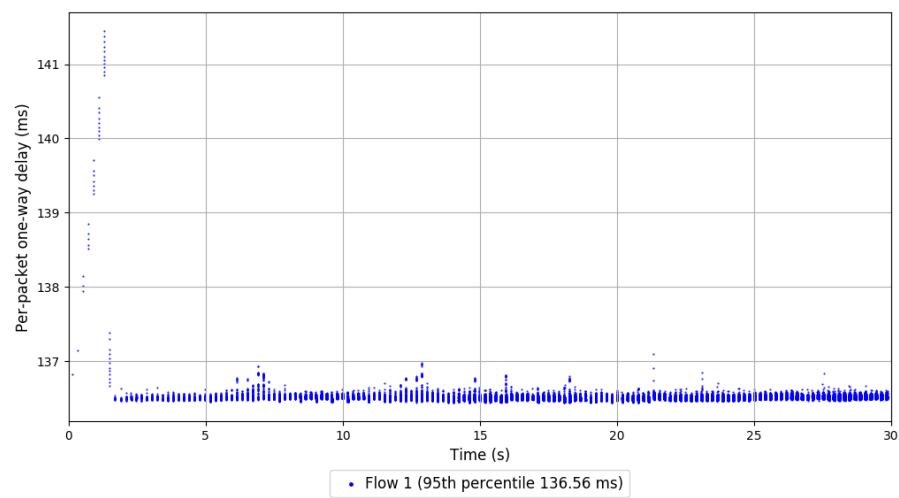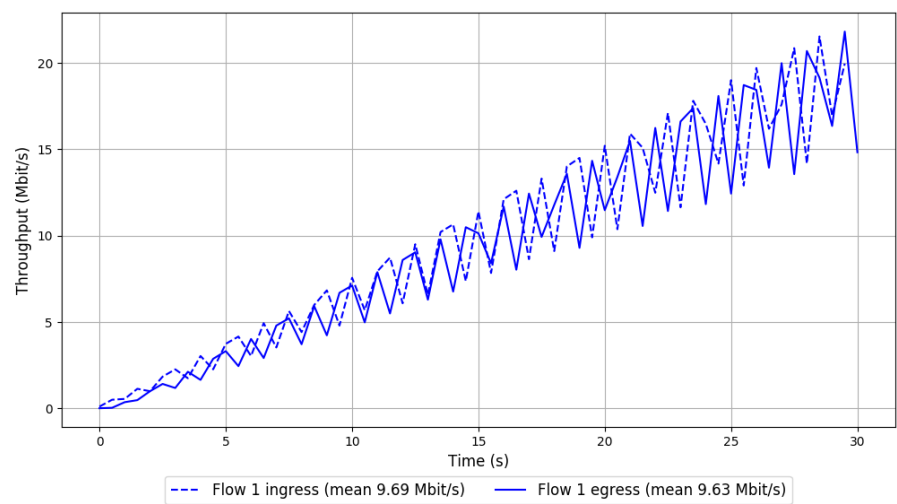Run 2: Report of LEDBAT — Data Link

Flow 1 ingress (mean 9.31 Mbit/s) --- Flow 1 egress (mean 9.25 Mbit/s)

• Flow 1 (95th percentile 139.16 ms)

```
Run 3: Statistics of LEDBAT

Start at: 2018-10-10 01:39:45
End at: 2018-10-10 01:40:15
Local clock offset: 0.562 ms
Remote clock offset: -43.021 ms


# Below is generated by plot.py at 2018-10-10 03:52:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.26 Mbit/s
95th percentile per-packet one-way delay: 138.155 ms
Loss rate: 1.31%
-- Flow 1:
Average throughput: 9.26 Mbit/s
95th percentile per-packet one-way delay: 138.155 ms
Loss rate: 1.31%
```

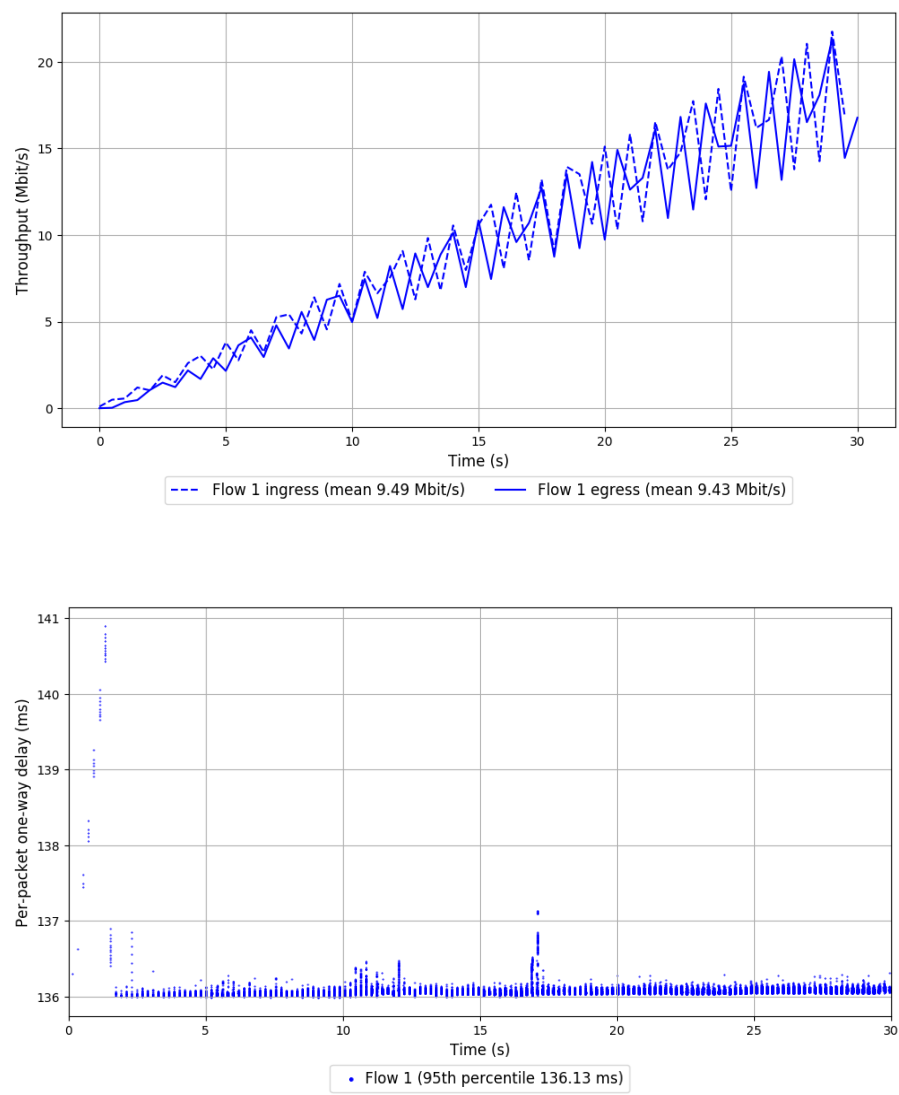Run 3: Report of LEDBAT — Data Link

Flow 1 ingress (mean 9.32 Mbit/s) — — — Flow 1 egress (mean 9.26 Mbit/s)

· Flow 1 (95th percentile 138.16 ms)

```
Run 4: Statistics of LEDBAT

Start at: 2018-10-10 02:17:48
End at: 2018-10-10 02:18:18
Local clock offset: 3.572 ms
Remote clock offset: -40.923 ms

# Below is generated by plot.py at 2018-10-10 03:52:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.63 Mbit/s
95th percentile per-packet one-way delay: 136.558 ms
Loss rate: 1.29%
-- Flow 1:
Average throughput: 9.63 Mbit/s
95th percentile per-packet one-way delay: 136.558 ms
Loss rate: 1.29%
```

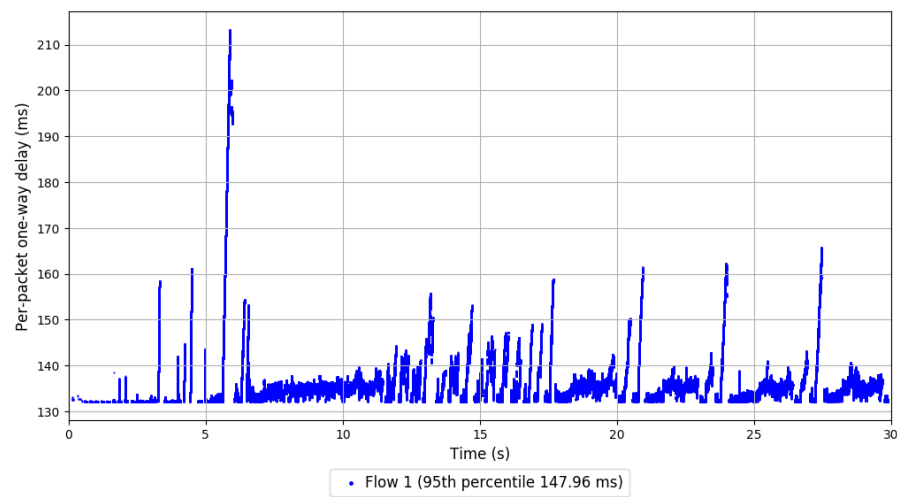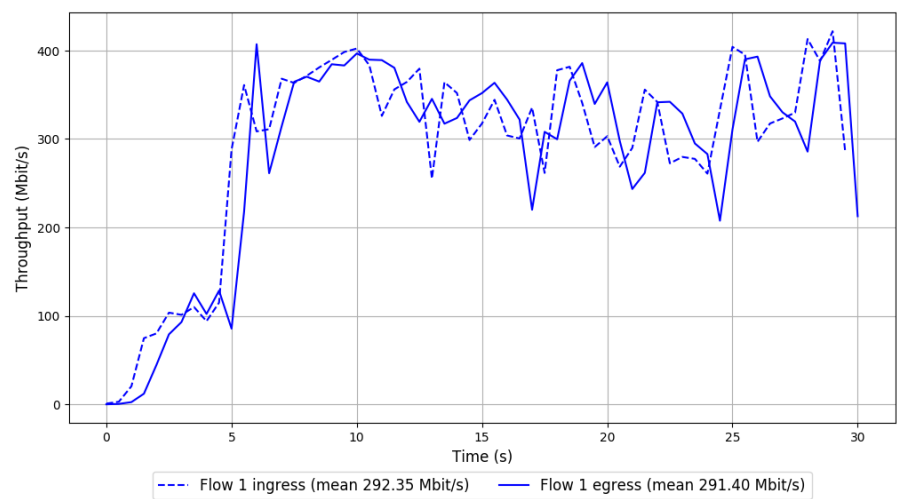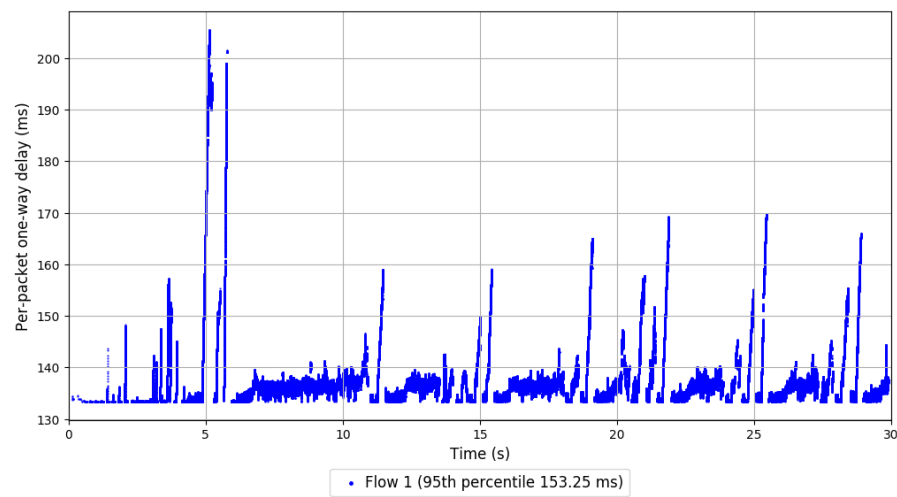# Run 4: Report of LEDBAT — Data Link

Flow 1 ingress (mean 9.69 Mbit/s)   Flow 1 egress (mean 9.63 Mbit/s)

Flow 1 (95th percentile 136.56 ms)

```
Run 5: Statistics of LEDBAT

Start at: 2018-10-10 03:06:15
End at: 2018-10-10 03:06:45
Local clock offset: 1.662 ms
Remote clock offset: -39.044 ms


# Below is generated by plot.py at 2018-10-10 03:52:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.43 Mbit/s
95th percentile per-packet one-way delay: 136.127 ms
Loss rate: 1.30%
-- Flow 1:
Average throughput: 9.43 Mbit/s
95th percentile per-packet one-way delay: 136.127 ms
Loss rate: 1.30%
```

Run 5: Report of LEDBAT — Data Link

Flow 1 ingress (mean 9.49 Mbit/s)　　Flow 1 egress (mean 9.43 Mbit/s)

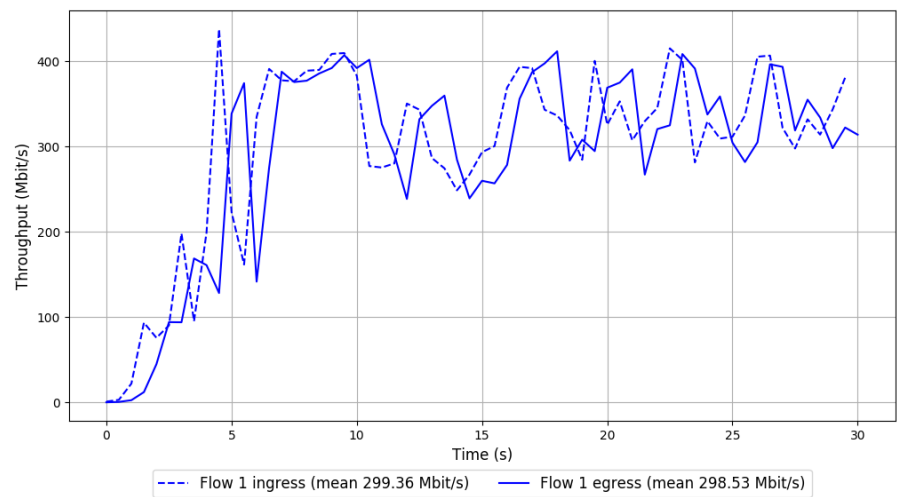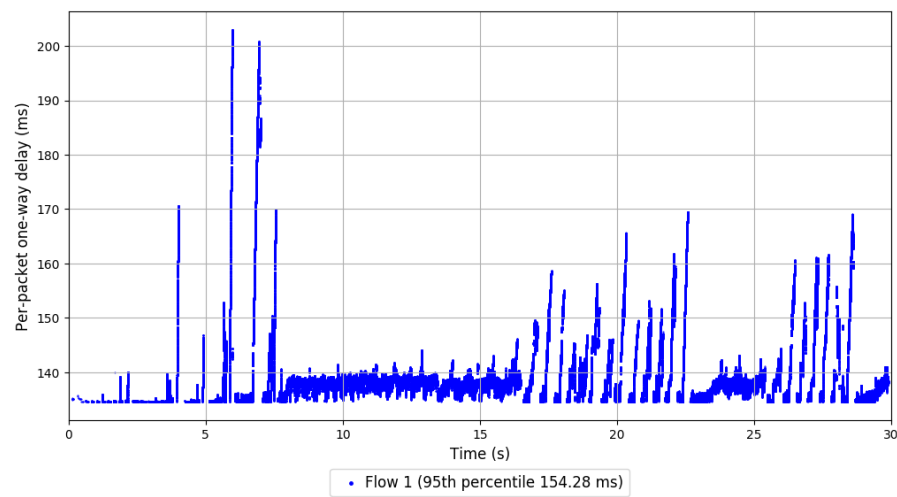Flow 1 (95th percentile 136.13 ms)

```
Run 1: Statistics of Indigo-Muses

Start at: 2018-10-10 00:31:35
End at: 2018-10-10 00:32:05
Local clock offset: 1.549 ms
Remote clock offset: -37.96 ms


# Below is generated by plot.py at 2018-10-10 03:54:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 291.40 Mbit/s
95th percentile per-packet one-way delay: 147.955 ms
Loss rate: 1.07%
-- Flow 1:
Average throughput: 291.40 Mbit/s
95th percentile per-packet one-way delay: 147.955 ms
Loss rate: 1.07%
```
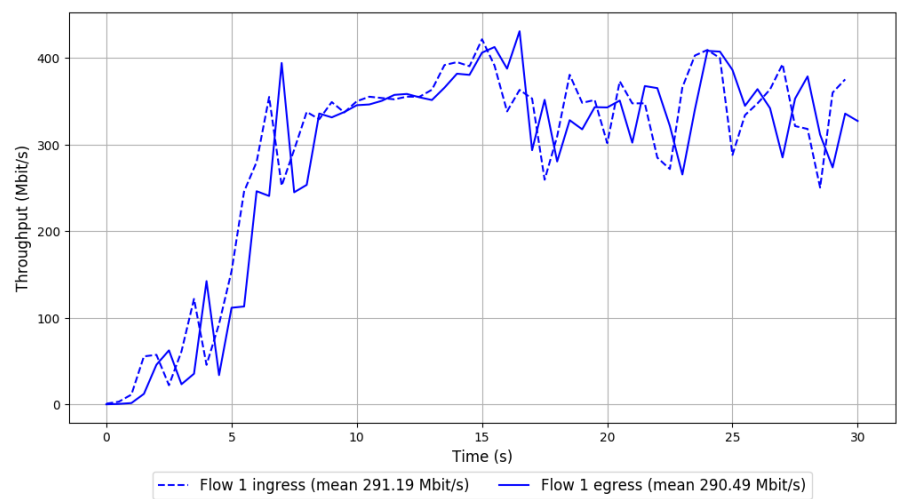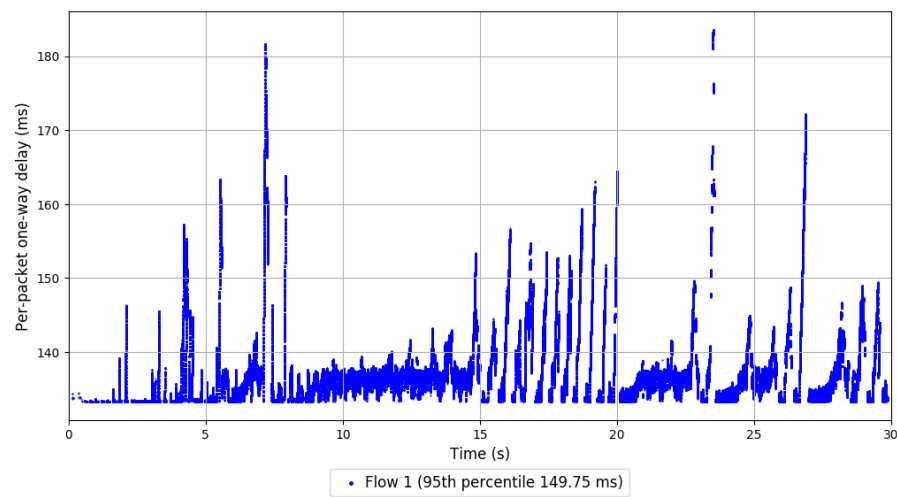
Run 1: Report of Indigo-Muses — Data Link

```
Run 2: Statistics of Indigo-Muses

Start at: 2018-10-10 01:03:26
End at: 2018-10-10 01:03:56
Local clock offset: 0.167 ms
Remote clock offset: -39.62 ms


# Below is generated by plot.py at 2018-10-10 03:54:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 298.53 Mbit/s
95th percentile per-packet one-way delay: 153.253 ms
Loss rate: 0.94%
-- Flow 1:
Average throughput: 298.53 Mbit/s
95th percentile per-packet one-way delay: 153.253 ms
Loss rate: 0.94%
```
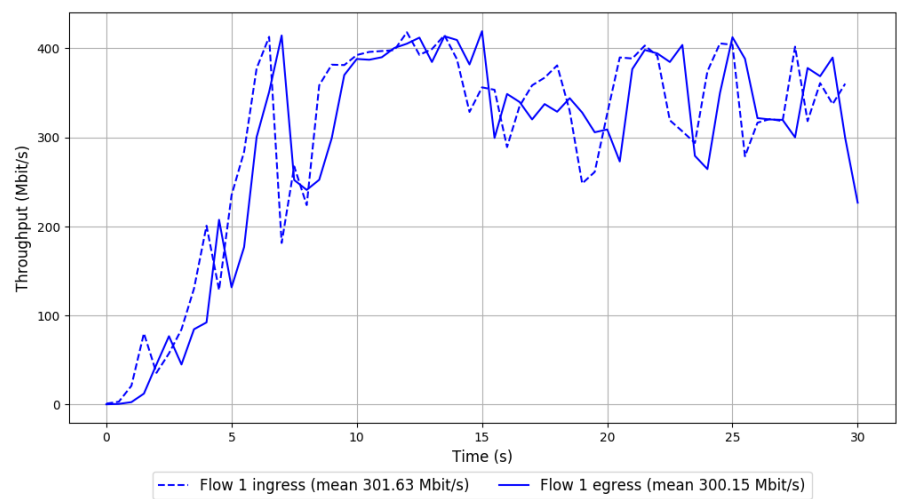
Run 2: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 299.36 Mbit/s)   Flow 1 egress (mean 298.53 Mbit/s)
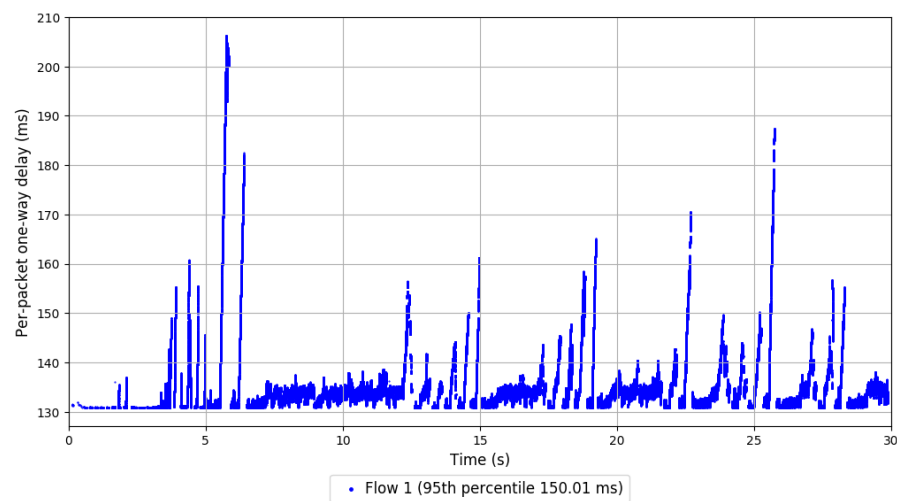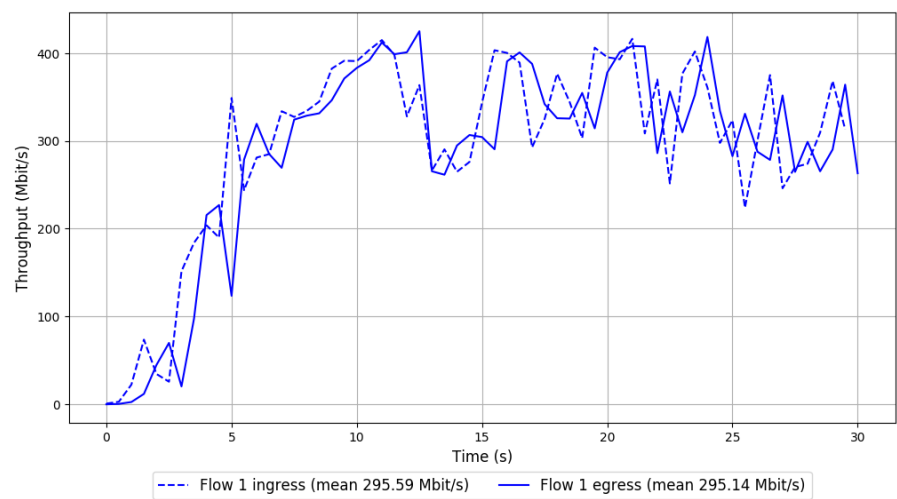

Flow 1 (95th percentile 153.25 ms)

```
Run 3: Statistics of Indigo-Muses

Start at: 2018-10-10 01:40:58
End at: 2018-10-10 01:41:28
Local clock offset: 0.994 ms
Remote clock offset: -38.854 ms


# Below is generated by plot.py at 2018-10-10 03:54:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 290.49 Mbit/s
95th percentile per-packet one-way delay: 154.278 ms
Loss rate: 0.90%
-- Flow 1:
Average throughput: 290.49 Mbit/s
95th percentile per-packet one-way delay: 154.278 ms
Loss rate: 0.90%
```
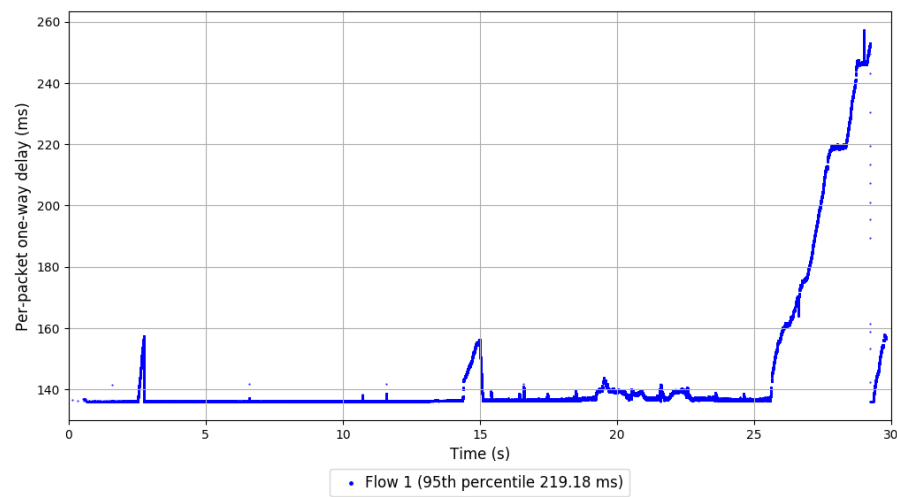
Run 3: Report of Indigo-Muses — Data Link

```
Run 4: Statistics of Indigo-Muses

Start at: 2018-10-10 02:19:01
End at: 2018-10-10 02:19:31
Local clock offset: 1.536 ms
Remote clock offset: -38.317 ms


# Below is generated by plot.py at 2018-10-10 03:54:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 300.15 Mbit/s
95th percentile per-packet one-way delay: 149.751 ms
Loss rate: 1.16%
-- Flow 1:
Average throughput: 300.15 Mbit/s
95th percentile per-packet one-way delay: 149.751 ms
Loss rate: 1.16%
```
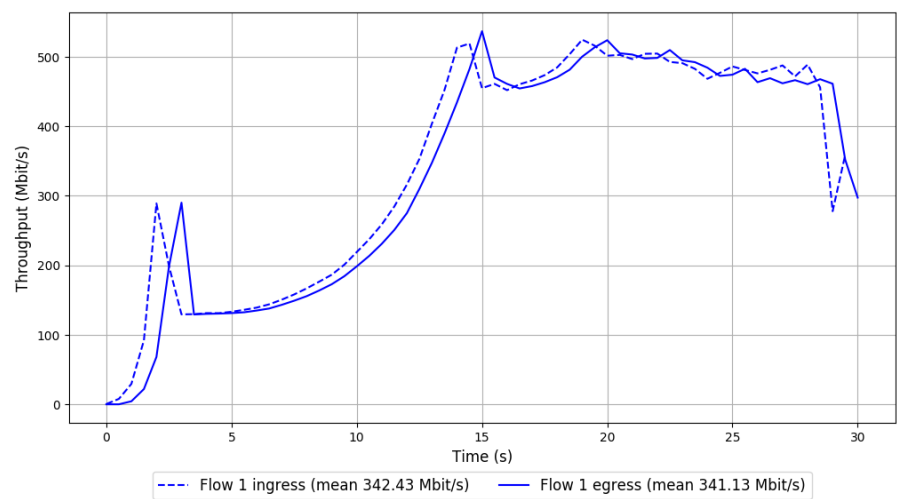
Run 4: Report of Indigo-Muses — Data Link

```
Run 5: Statistics of Indigo-Muses

Start at: 2018-10-10 03:07:28
End at: 2018-10-10 03:07:58
Local clock offset: 0.401 ms
Remote clock offset: -34.959 ms


# Below is generated by plot.py at 2018-10-10 03:54:26
# Datalink statistics
-- Total of 1 flow:
Average throughput: 295.14 Mbit/s
95th percentile per-packet one-way delay: 150.007 ms
Loss rate: 0.81%
-- Flow 1:
Average throughput: 295.14 Mbit/s
95th percentile per-packet one-way delay: 150.007 ms
Loss rate: 0.81%
```
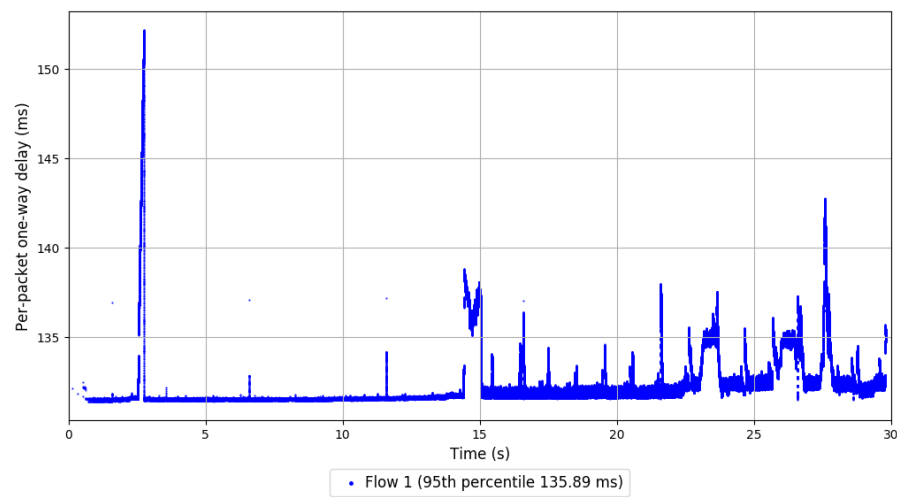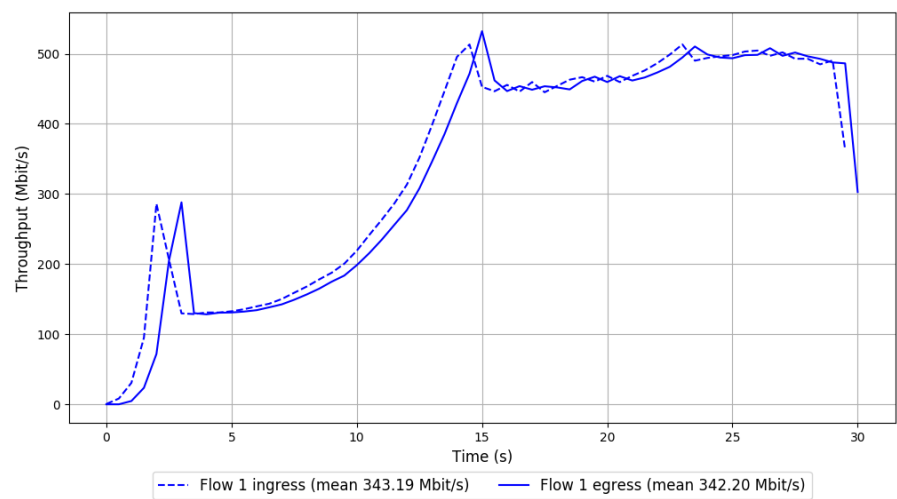
Run 5: Report of Indigo-Muses — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2018-10-10 00:52:52
End at: 2018-10-10 00:53:22
Local clock offset: 1.013 ms
Remote clock offset: -41.711 ms

# Below is generated by plot.py at 2018-10-10 03:55:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 341.13 Mbit/s
95th percentile per-packet one-way delay: 219.179 ms
Loss rate: 1.04%
-- Flow 1:
Average throughput: 341.13 Mbit/s
95th percentile per-packet one-way delay: 219.179 ms
Loss rate: 1.04%
```
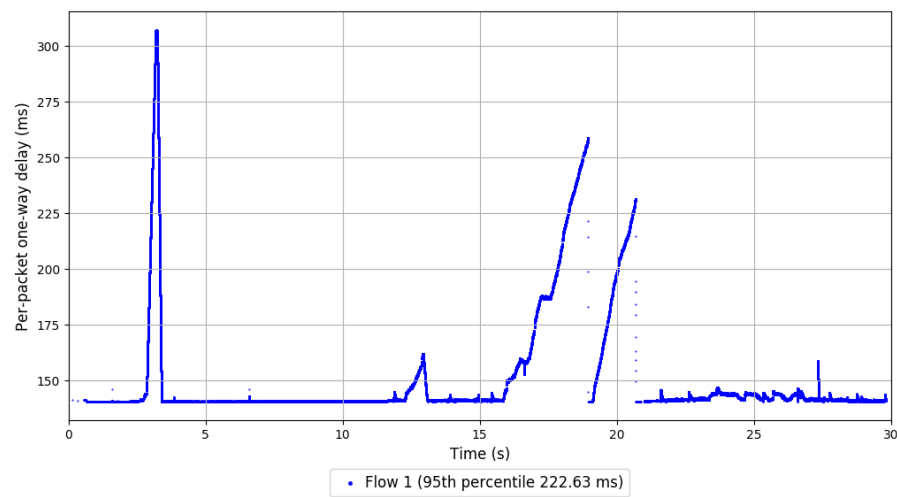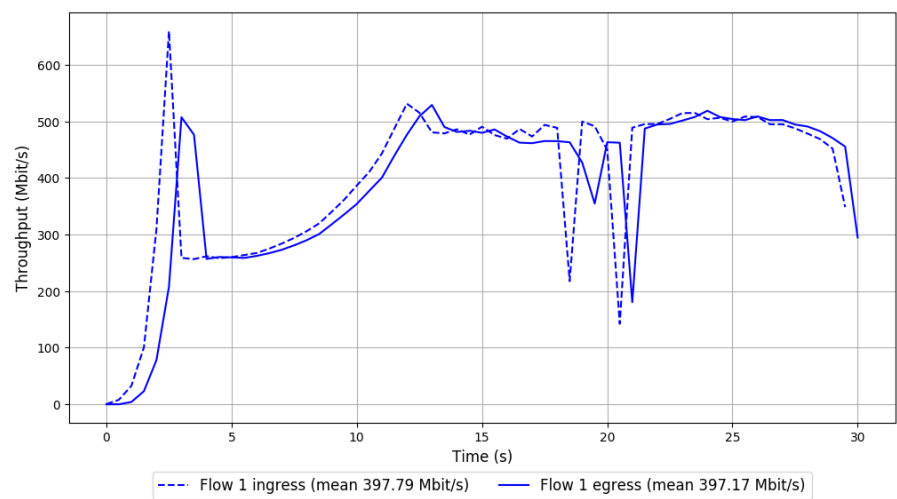
Run 1: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 342.43 Mbit/s)   Flow 1 egress (mean 341.13 Mbit/s)

Flow 1 (95th percentile 219.18 ms)

```
Run 2: Statistics of PCC-Allegro

Start at: 2018-10-10 01:30:25
End at: 2018-10-10 01:30:55
Local clock offset: -1.072 ms
Remote clock offset: -38.79 ms


# Below is generated by plot.py at 2018-10-10 03:55:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 342.20 Mbit/s
95th percentile per-packet one-way delay: 135.891 ms
Loss rate: 0.93%
-- Flow 1:
Average throughput: 342.20 Mbit/s
95th percentile per-packet one-way delay: 135.891 ms
Loss rate: 0.93%
```
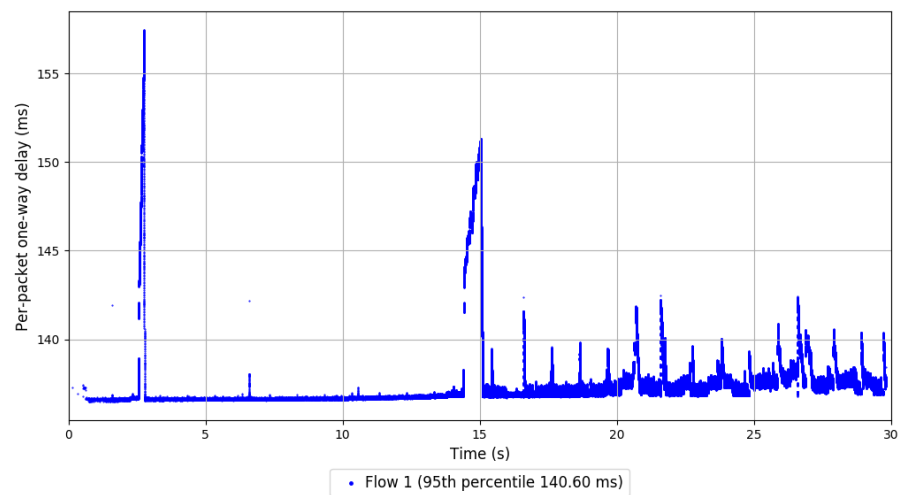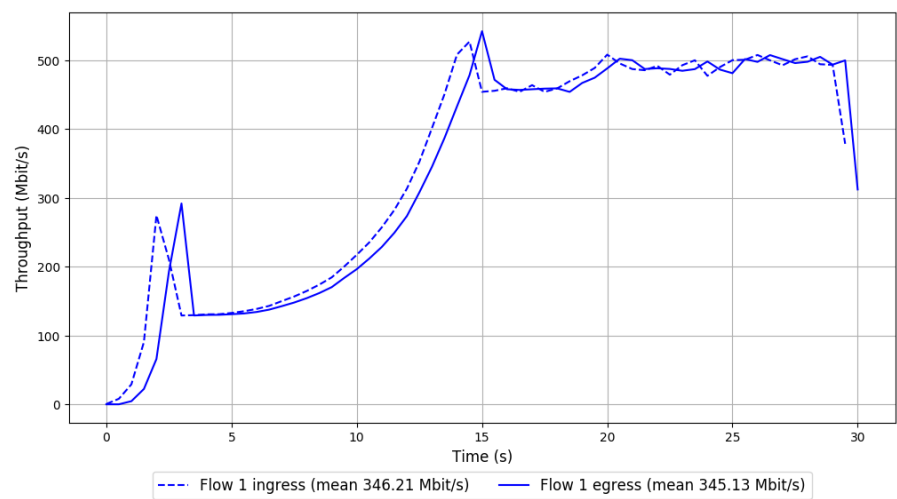
Run 2: Report of PCC-Allegro — Data Link

```
Run 3: Statistics of PCC-Allegro

Start at: 2018-10-10 02:02:42
End at: 2018-10-10 02:03:12
Local clock offset: 3.484 ms
Remote clock offset: -43.057 ms


# Below is generated by plot.py at 2018-10-10 03:56:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 397.17 Mbit/s
95th percentile per-packet one-way delay: 222.627 ms
Loss rate: 0.81%
-- Flow 1:
Average throughput: 397.17 Mbit/s
95th percentile per-packet one-way delay: 222.627 ms
Loss rate: 0.81%
```
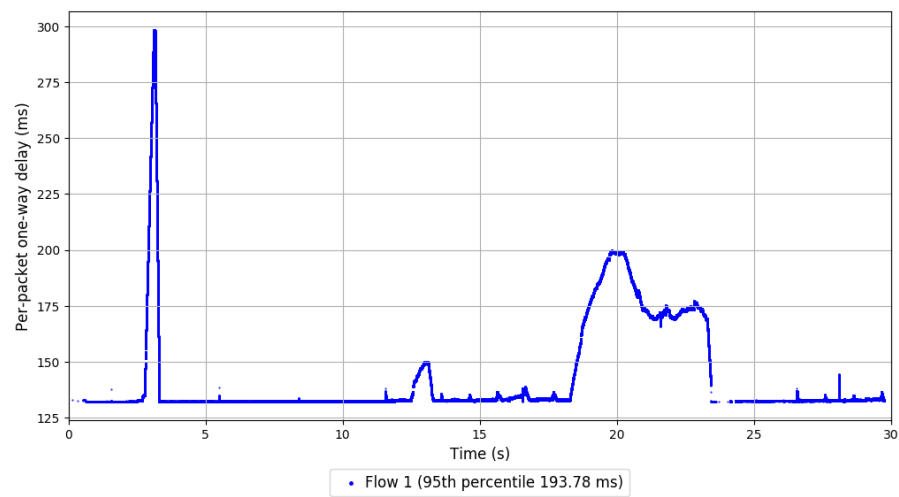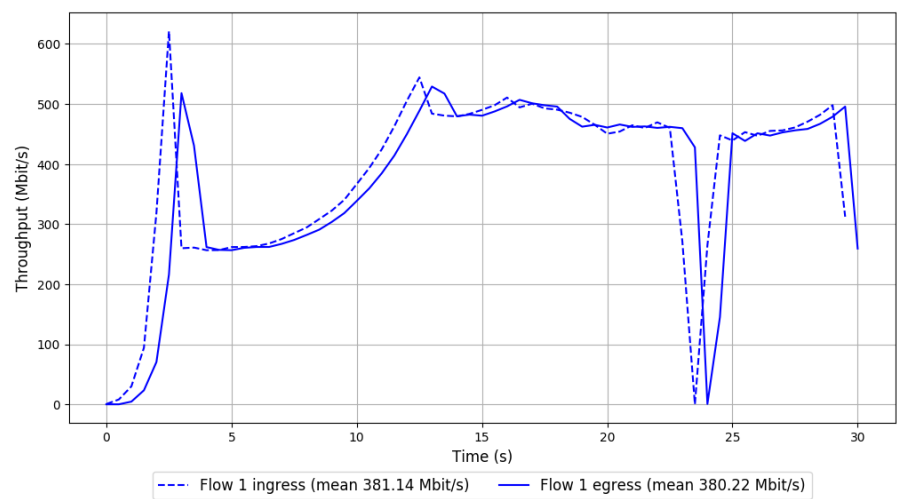
Run 3: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 397.79 Mbit/s)   Flow 1 egress (mean 397.17 Mbit/s)

Flow 1 (95th percentile 222.63 ms)

```
Run 4: Statistics of PCC-Allegro

Start at: 2018-10-10 02:56:43
End at: 2018-10-10 02:57:13
Local clock offset: 1.373 ms
Remote clock offset: -41.617 ms


# Below is generated by plot.py at 2018-10-10 03:58:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 345.13 Mbit/s
95th percentile per-packet one-way delay: 140.601 ms
Loss rate: 0.97%
-- Flow 1:
Average throughput: 345.13 Mbit/s
95th percentile per-packet one-way delay: 140.601 ms
Loss rate: 0.97%
```
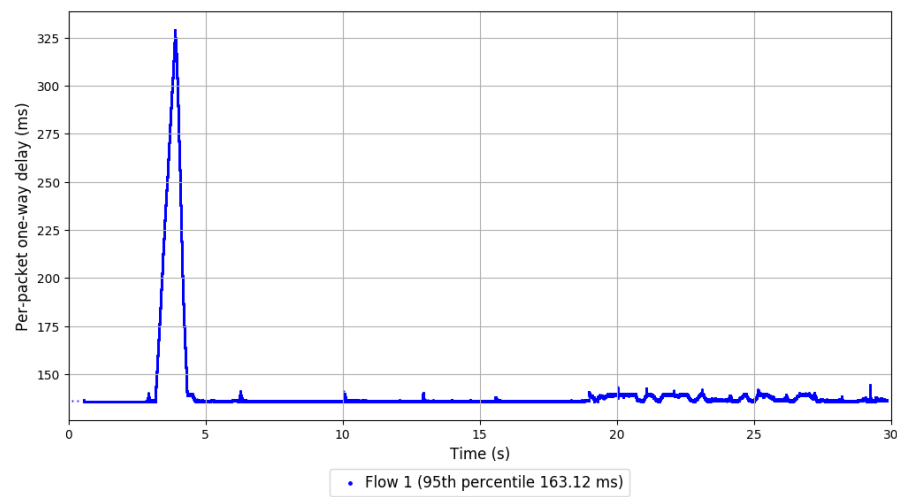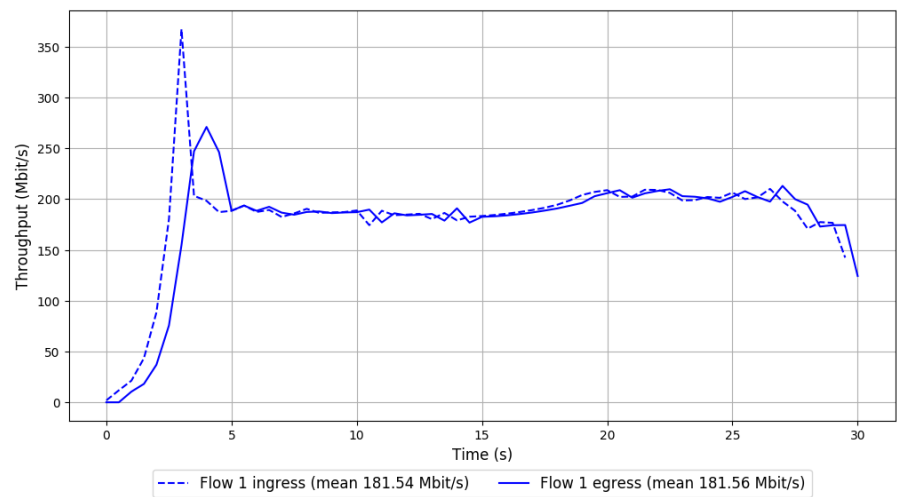
Run 4: Report of PCC-Allegro — Data Link

```
Run 5: Statistics of PCC-Allegro

Start at: 2018-10-10 03:34:51
End at: 2018-10-10 03:35:21
Local clock offset: 1.041 ms
Remote clock offset: -35.883 ms

# Below is generated by plot.py at 2018-10-10 03:58:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 380.22 Mbit/s
95th percentile per-packet one-way delay: 193.783 ms
Loss rate: 0.89%
-- Flow 1:
Average throughput: 380.22 Mbit/s
95th percentile per-packet one-way delay: 193.783 ms
Loss rate: 0.89%
```
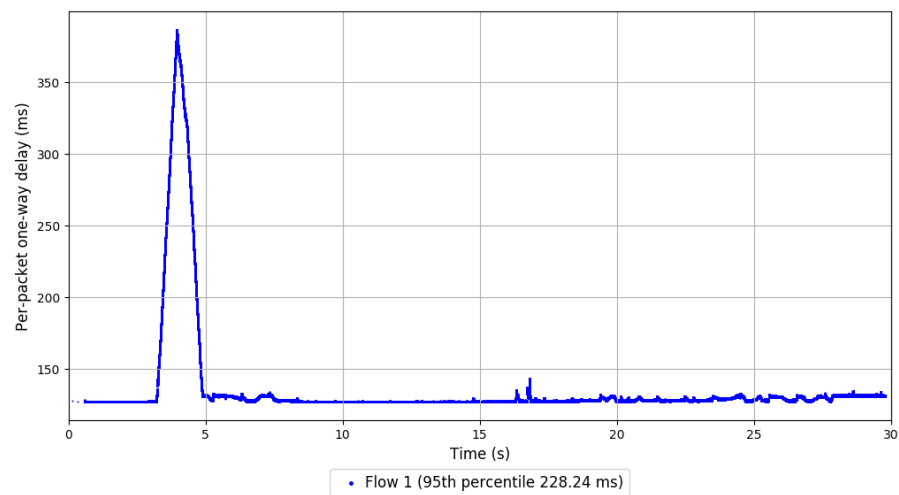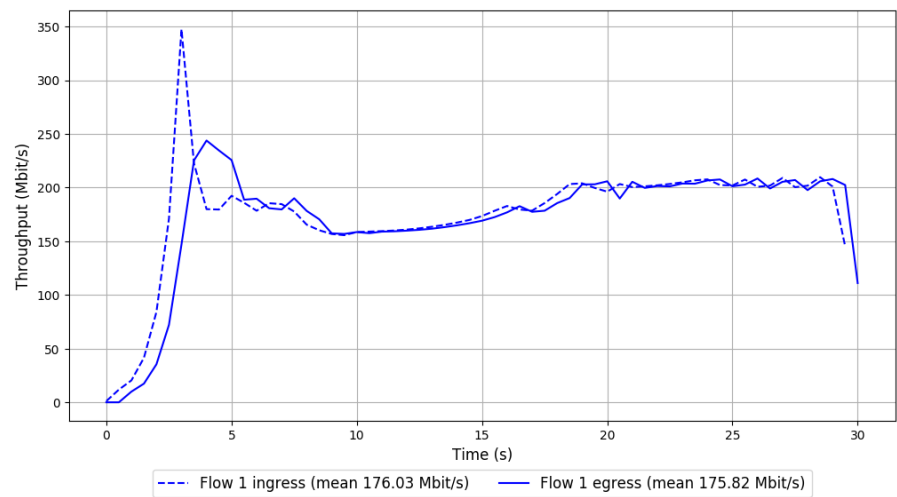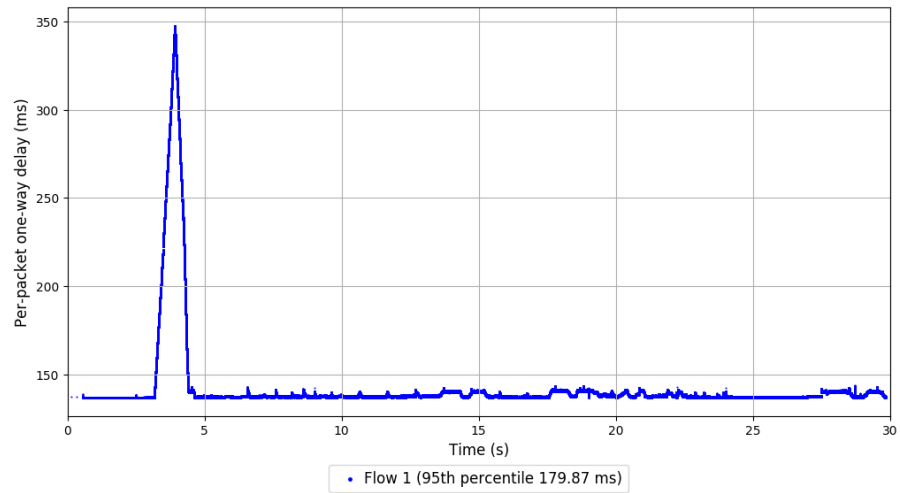
Run 5: Report of PCC-Allegro — Data Link

```
Run 1: Statistics of PCC-Expr

Start at: 2018-10-10 00:22:57
End at: 2018-10-10 00:23:27
Local clock offset: 3.585 ms
Remote clock offset: -40.545 ms

# Below is generated by plot.py at 2018-10-10 03:58:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 181.56 Mbit/s
95th percentile per-packet one-way delay: 163.123 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 181.56 Mbit/s
95th percentile per-packet one-way delay: 163.123 ms
Loss rate: 0.64%
```
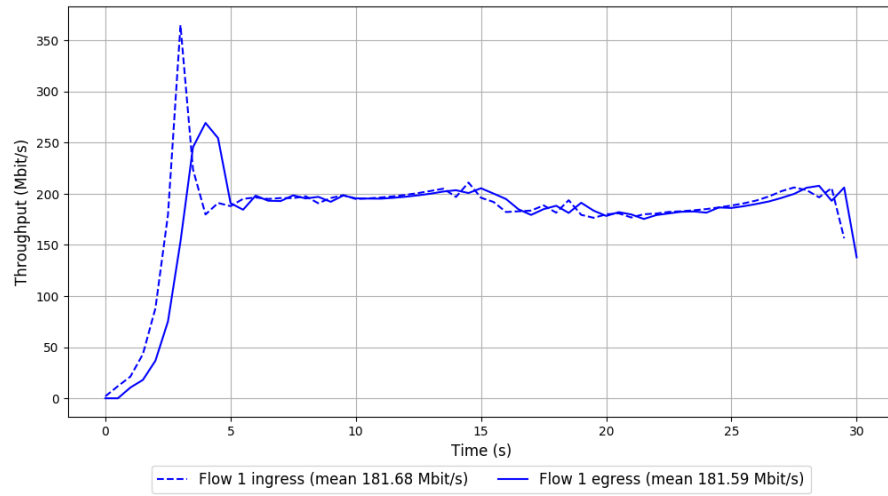
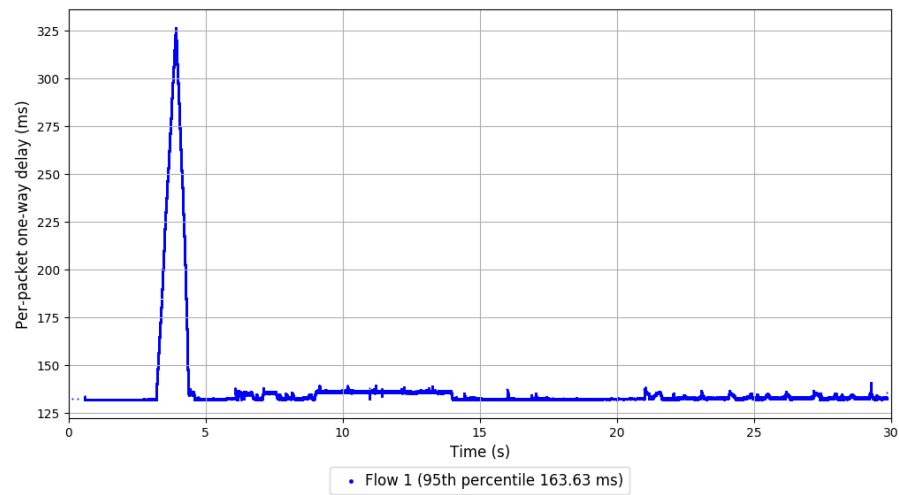Run 1: Report of PCC-Expr — Data Link

```
Run 2: Statistics of PCC-Expr

Start at: 2018-10-10 00:55:11
End at: 2018-10-10 00:55:41
Local clock offset: 2.539 ms
Remote clock offset: -32.655 ms


# Below is generated by plot.py at 2018-10-10 03:58:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 175.82 Mbit/s
95th percentile per-packet one-way delay: 228.240 ms
Loss rate: 0.83%
-- Flow 1:
Average throughput: 175.82 Mbit/s
95th percentile per-packet one-way delay: 228.240 ms
Loss rate: 0.83%
```
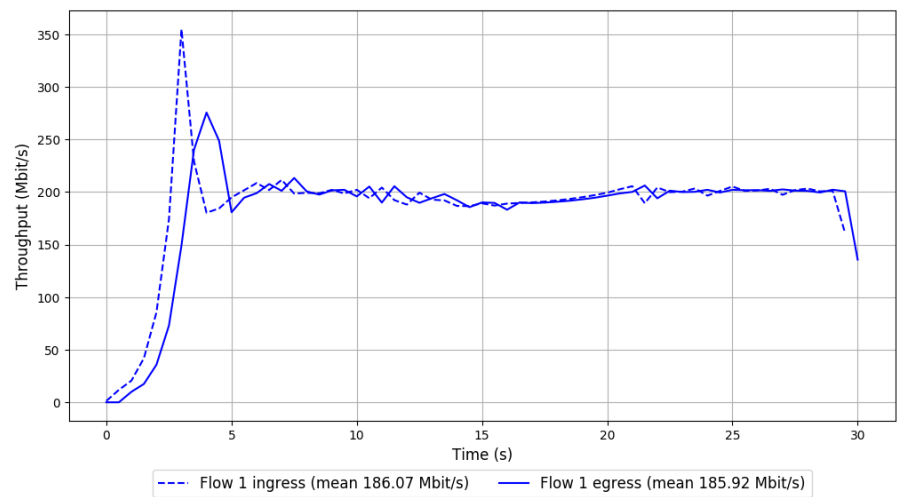
Run 2: Report of PCC-Expr — Data Link

```
Run 3: Statistics of PCC-Expr

Start at: 2018-10-10 01:32:24
End at: 2018-10-10 01:32:55
Local clock offset: -0.586 ms
Remote clock offset: -42.314 ms


# Below is generated by plot.py at 2018-10-10 03:58:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 181.59 Mbit/s
95th percentile per-packet one-way delay: 179.866 ms
Loss rate: 0.70%
-- Flow 1:
Average throughput: 181.59 Mbit/s
95th percentile per-packet one-way delay: 179.866 ms
Loss rate: 0.70%
```
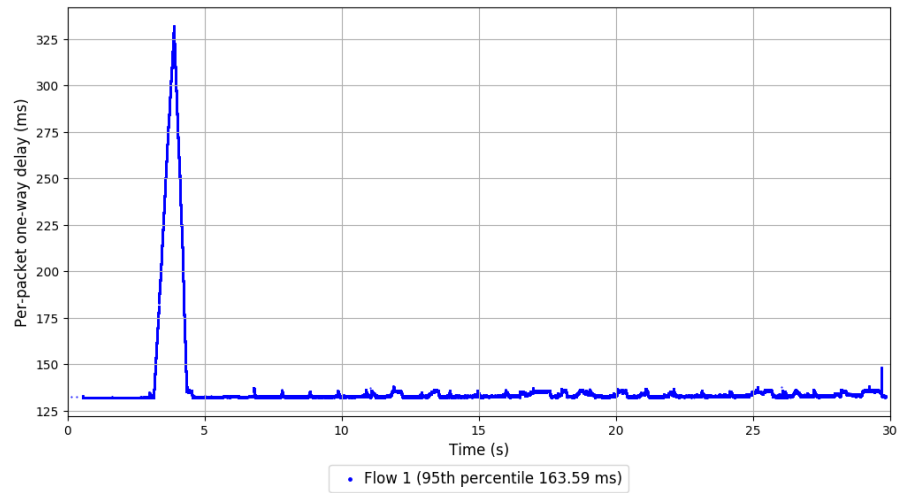
Run 3: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 181.68 Mbit/s)   Flow 1 egress (mean 181.59 Mbit/s)
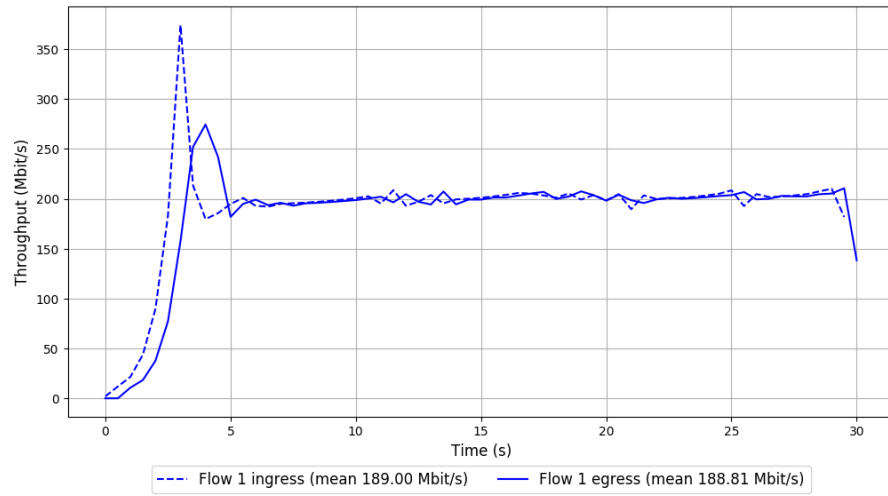

Flow 1 (95th percentile 179.87 ms)

```
Run 4: Statistics of PCC-Expr

Start at: 2018-10-10 02:04:48
End at: 2018-10-10 02:05:18
Local clock offset: 3.973 ms
Remote clock offset: -34.159 ms


# Below is generated by plot.py at 2018-10-10 03:59:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 185.92 Mbit/s
95th percentile per-packet one-way delay: 163.633 ms
Loss rate: 0.72%
-- Flow 1:
Average throughput: 185.92 Mbit/s
95th percentile per-packet one-way delay: 163.633 ms
Loss rate: 0.72%
```
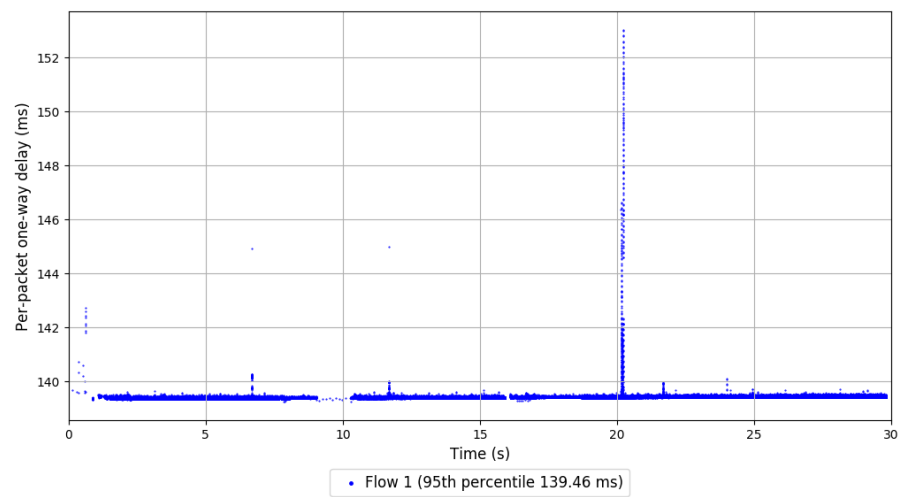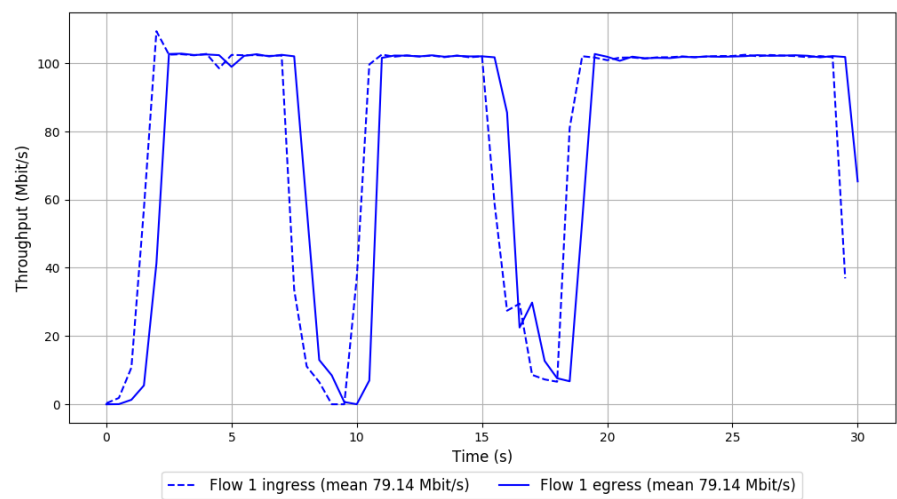
Run 4: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 186.07 Mbit/s) —— Flow 1 egress (mean 185.92 Mbit/s)

• Flow 1 (95th percentile 163.63 ms)

```
Run 5: Statistics of PCC-Expr

Start at: 2018-10-10 02:58:43
End at: 2018-10-10 02:59:13
Local clock offset: 1.578 ms
Remote clock offset: -37.971 ms


# Below is generated by plot.py at 2018-10-10 04:00:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 188.81 Mbit/s
95th percentile per-packet one-way delay: 163.592 ms
Loss rate: 0.89%
-- Flow 1:
Average throughput: 188.81 Mbit/s
95th percentile per-packet one-way delay: 163.592 ms
Loss rate: 0.89%
```

Run 5: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 189.00 Mbit/s) ---- Flow 1 egress (mean 188.81 Mbit/s) ——
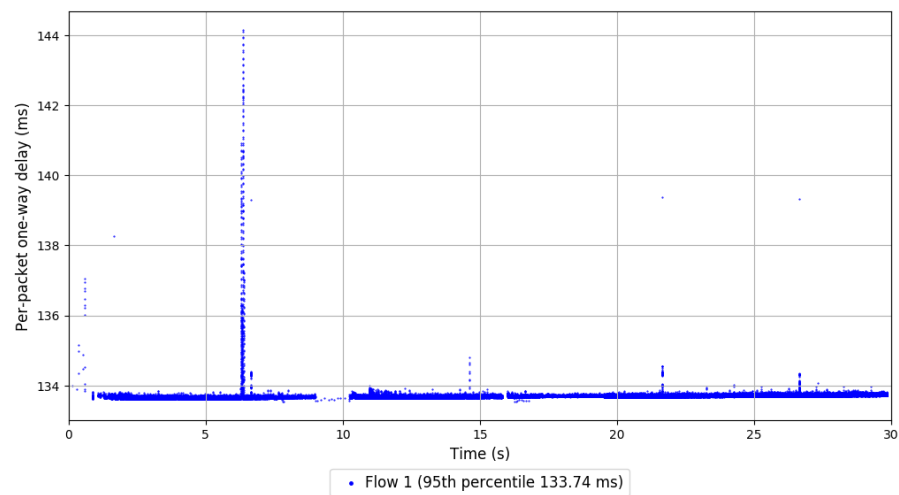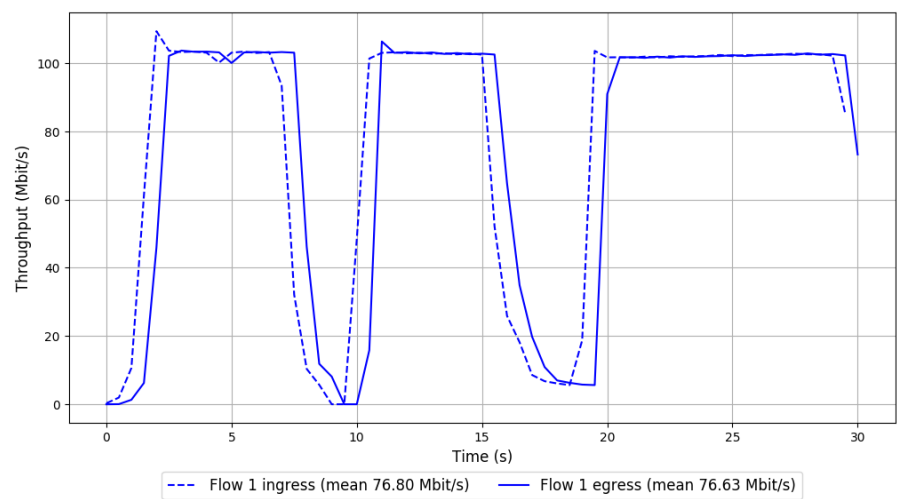

• Flow 1 (95th percentile 163.59 ms)

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-10-10 00:25:09
End at: 2018-10-10 00:25:39
Local clock offset: 5.51 ms
Remote clock offset: -41.963 ms


# Below is generated by plot.py at 2018-10-10 04:00:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 79.14 Mbit/s
95th percentile per-packet one-way delay: 139.464 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 79.14 Mbit/s
95th percentile per-packet one-way delay: 139.464 ms
Loss rate: 0.00%
```
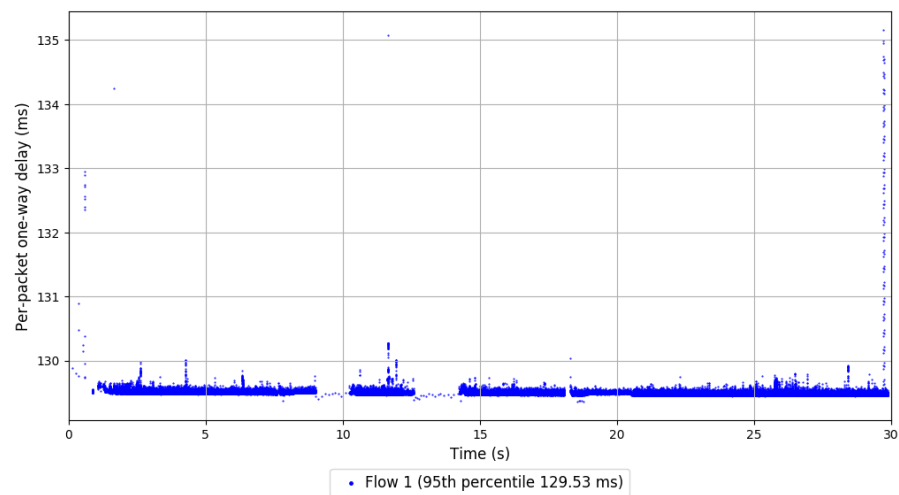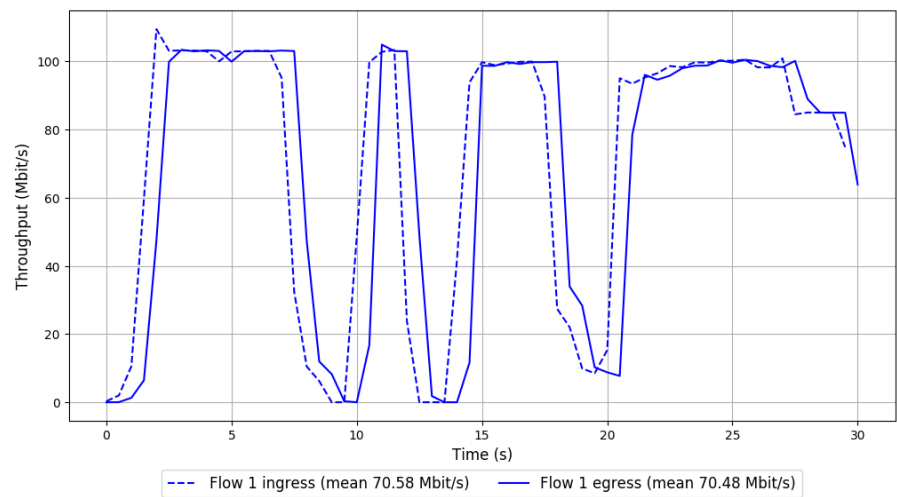
Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-10-10 00:57:22
End at: 2018-10-10 00:57:52
Local clock offset: 0.437 ms
Remote clock offset: -40.554 ms

# Below is generated by plot.py at 2018-10-10 04:00:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 76.63 Mbit/s
95th percentile per-packet one-way delay: 133.744 ms
Loss rate: 0.86%
-- Flow 1:
Average throughput: 76.63 Mbit/s
95th percentile per-packet one-way delay: 133.744 ms
Loss rate: 0.86%
```
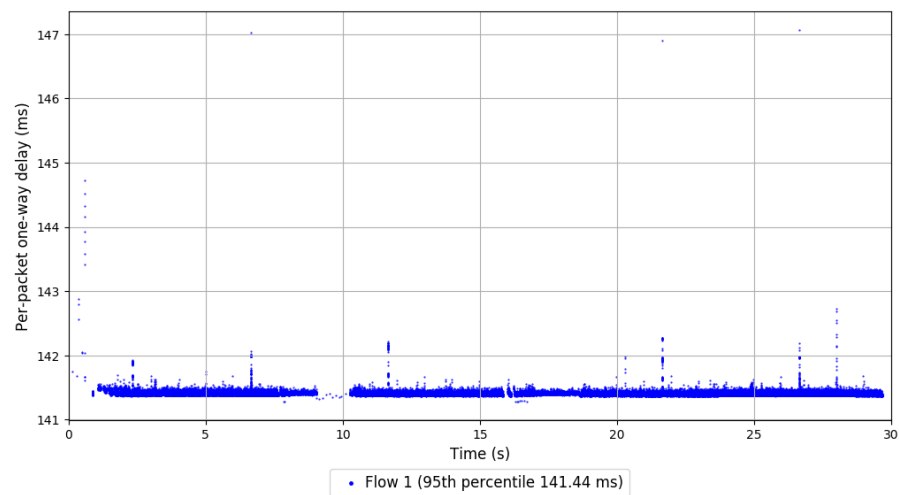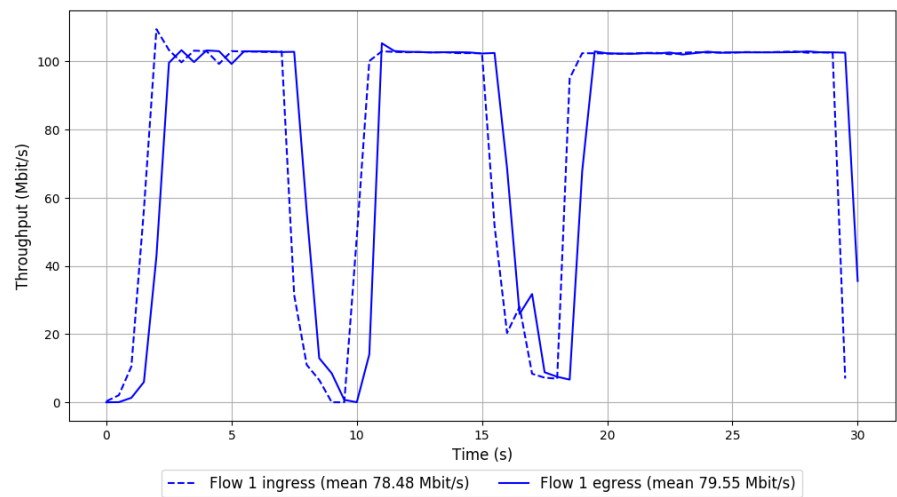
Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-10-10 01:34:37
End at: 2018-10-10 01:35:07
Local clock offset: -0.429 ms
Remote clock offset: -35.135 ms


# Below is generated by plot.py at 2018-10-10 04:00:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 70.48 Mbit/s
95th percentile per-packet one-way delay: 129.533 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 70.48 Mbit/s
95th percentile per-packet one-way delay: 129.533 ms
Loss rate: 0.78%
```
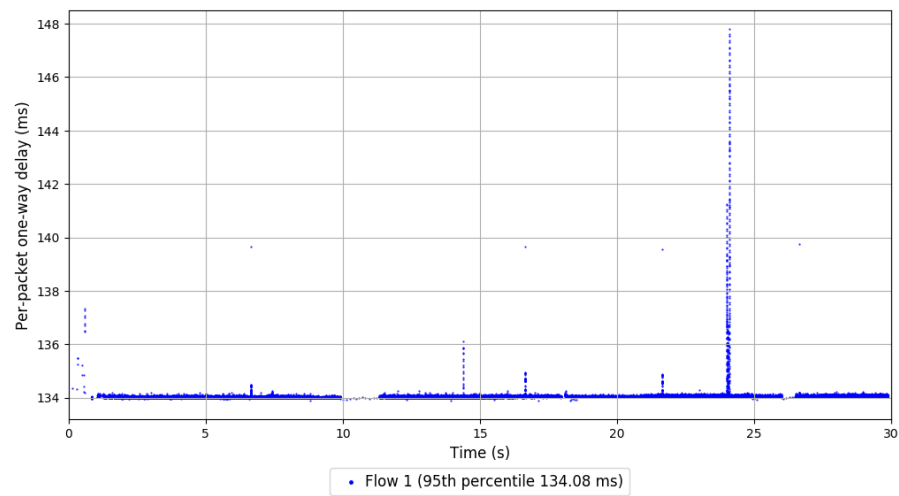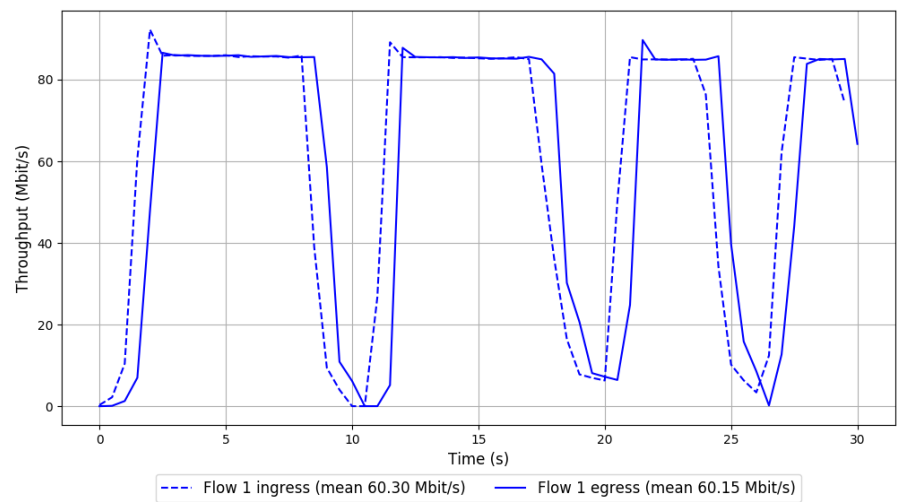
Run 3: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 70.58 Mbit/s) ——— Flow 1 egress (mean 70.48 Mbit/s)

• Flow 1 (95th percentile 129.53 ms)

```
Run 4: Statistics of QUIC Cubic

Start at: 2018-10-10 02:12:37
End at: 2018-10-10 02:13:07
Local clock offset: 2.38 ms
Remote clock offset: -45.427 ms


# Below is generated by plot.py at 2018-10-10 04:00:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 79.55 Mbit/s
95th percentile per-packet one-way delay: 141.439 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 79.55 Mbit/s
95th percentile per-packet one-way delay: 141.439 ms
Loss rate: 0.01%
```
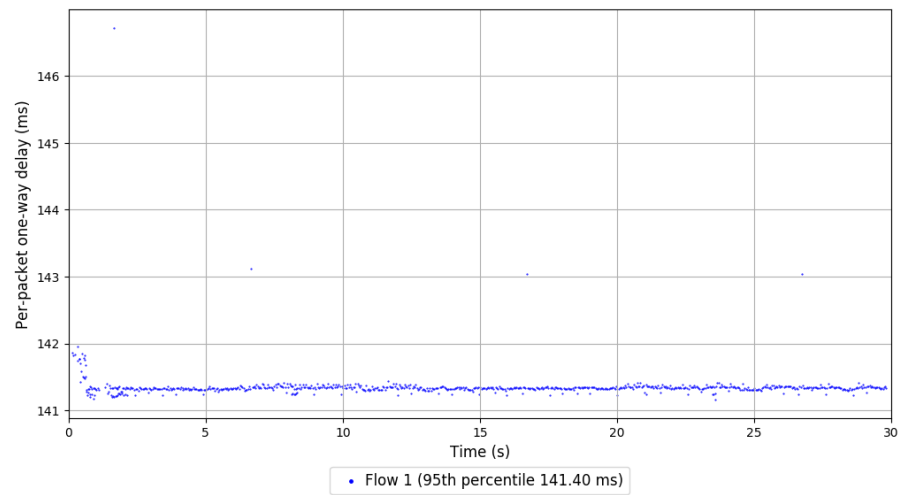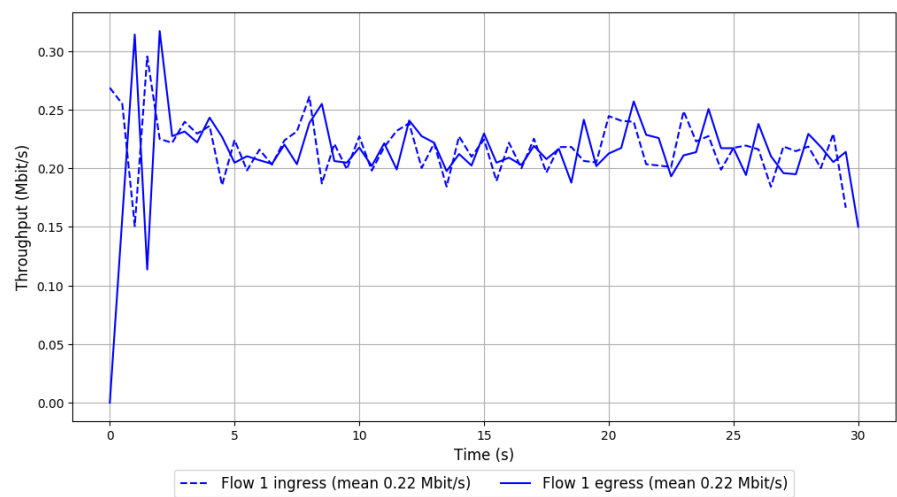
Run 4: Report of QUIC Cubic — Data Link

```
Run 5: Statistics of QUIC Cubic

Start at: 2018-10-10 03:00:59
End at: 2018-10-10 03:01:29
Local clock offset: 0.697 ms
Remote clock offset: -38.968 ms


# Below is generated by plot.py at 2018-10-10 04:00:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 60.15 Mbit/s
95th percentile per-packet one-way delay: 134.076 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 60.15 Mbit/s
95th percentile per-packet one-way delay: 134.076 ms
Loss rate: 0.91%
```
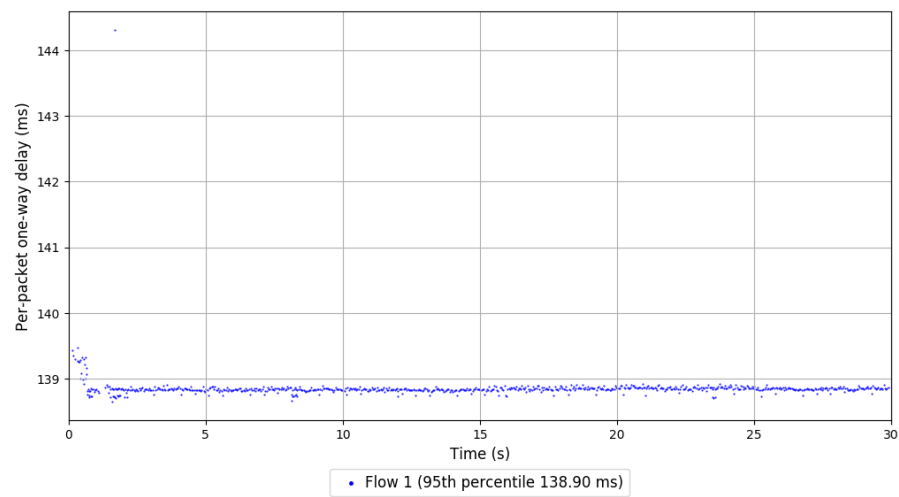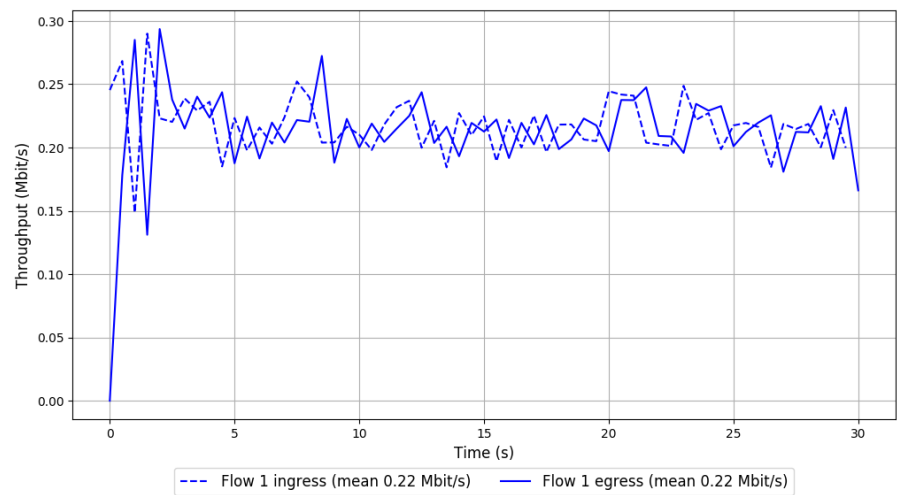
Run 5: Report of QUIC Cubic — Data Link

```
Run 1: Statistics of SCReAM

Start at: 2018-10-10 00:45:01
End at: 2018-10-10 00:45:31
Local clock offset: 1.973 ms
Remote clock offset: -45.761 ms


# Below is generated by plot.py at 2018-10-10 04:00:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 141.396 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 141.396 ms
Loss rate: 0.64%
```

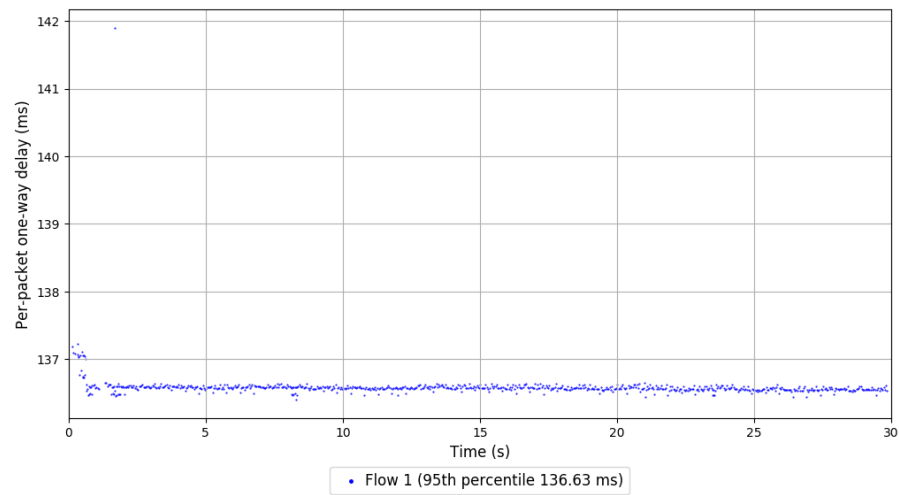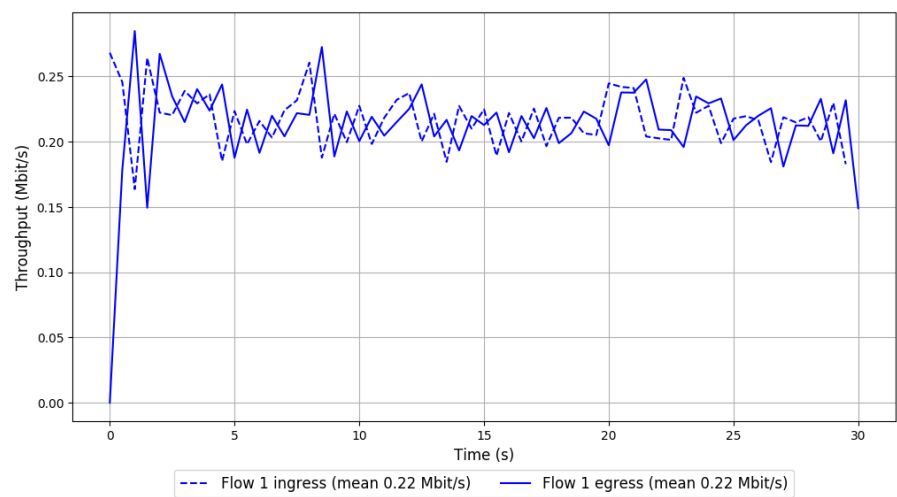# Run 1: Report of SCReAM — Data Link

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

Flow 1 (95th percentile 141.40 ms)

```
Run 2: Statistics of SCReAM

Start at: 2018-10-10 01:22:03
End at: 2018-10-10 01:22:33
Local clock offset: -1.774 ms
Remote clock offset: -44.175 ms


# Below is generated by plot.py at 2018-10-10 04:00:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 138.895 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 138.895 ms
Loss rate: 0.64%
```
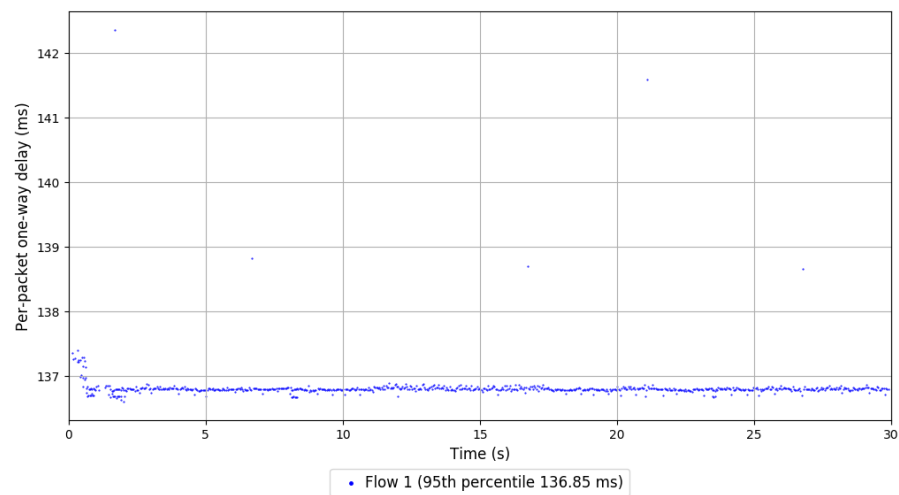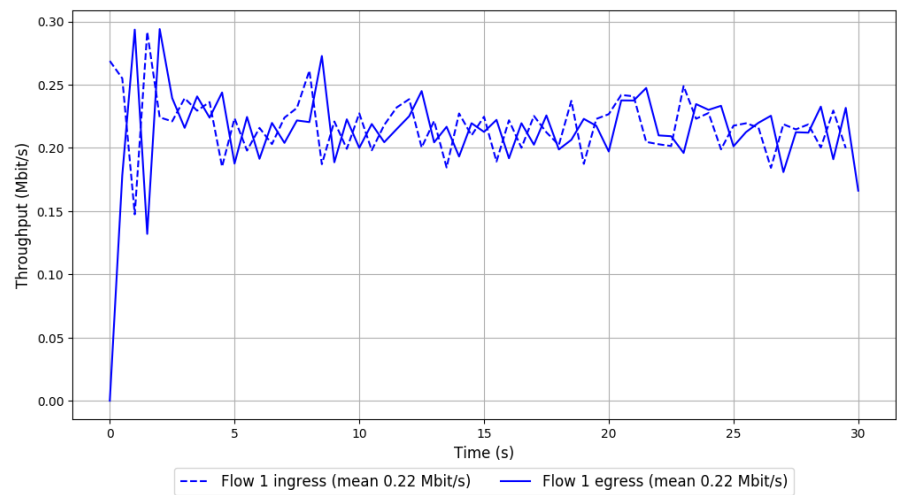
Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2018-10-10 01:54:20
End at: 2018-10-10 01:54:50
Local clock offset: 1.066 ms
Remote clock offset: -42.636 ms


# Below is generated by plot.py at 2018-10-10 04:00:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 136.630 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 136.630 ms
Loss rate: 0.64%
```

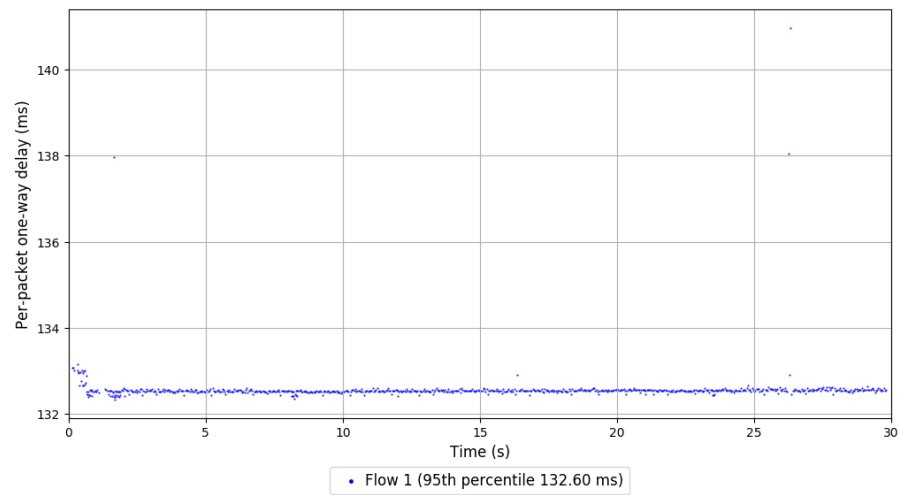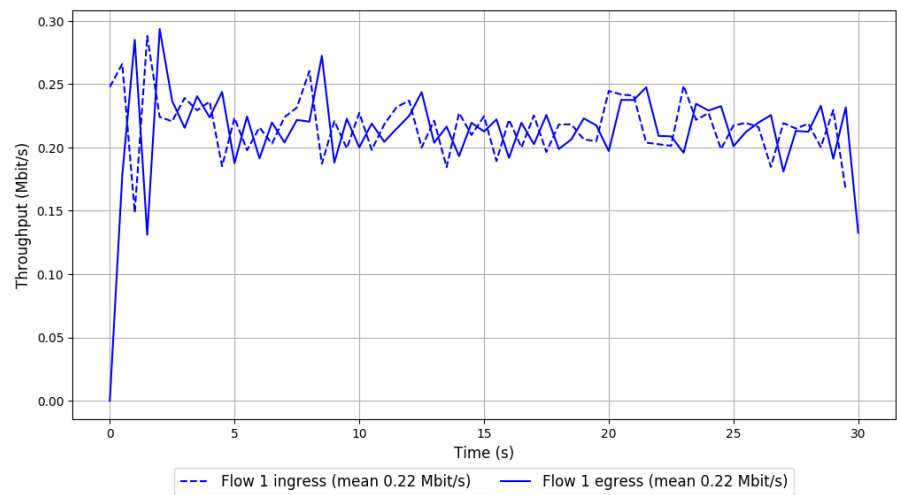# Run 3: Report of SCReAM — Data Link

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

Flow 1 (95th percentile 136.63 ms)

```
Run 4: Statistics of SCReAM

Start at: 2018-10-10 02:43:02
End at: 2018-10-10 02:43:32
Local clock offset: 2.01 ms
Remote clock offset: -41.482 ms

# Below is generated by plot.py at 2018-10-10 04:00:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 136.854 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 136.854 ms
Loss rate: 0.64%
```
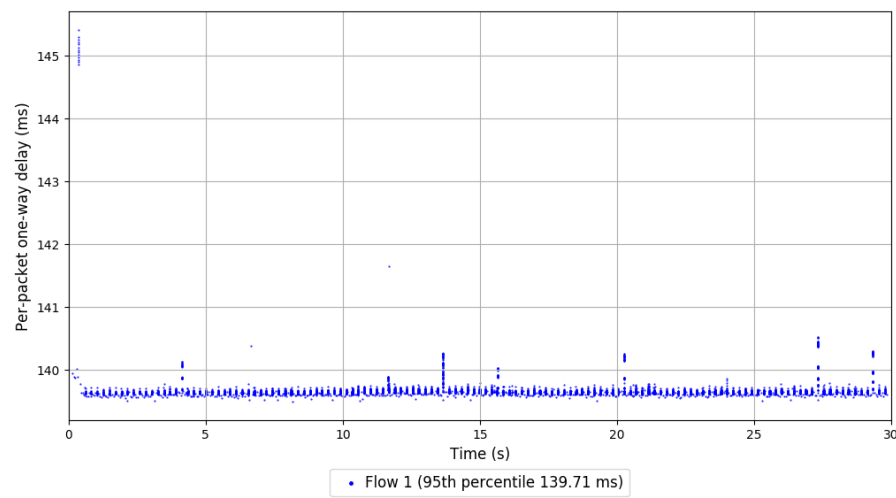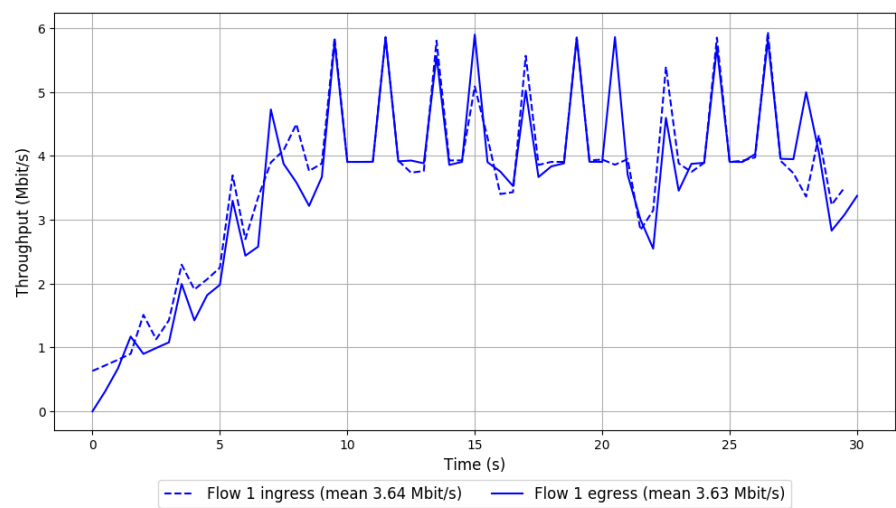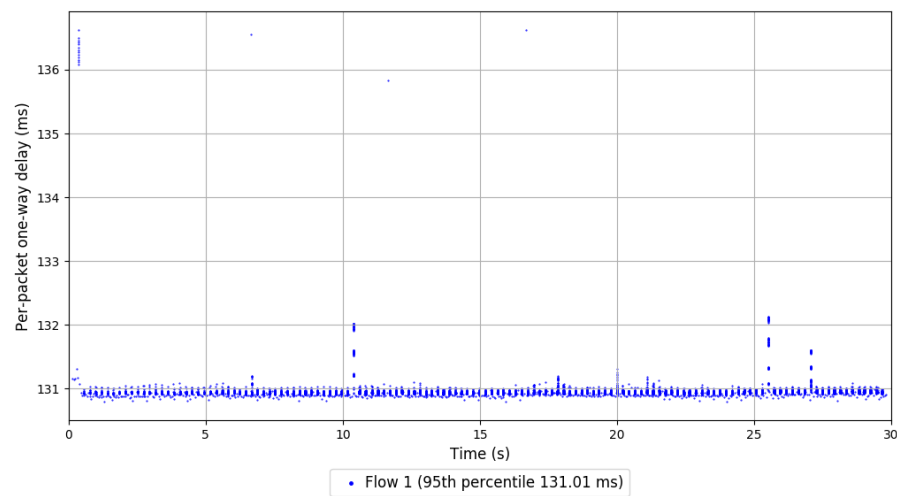
Run 4: Report of SCReAM — Data Link

```
Run 5: Statistics of SCReAM

Start at: 2018-10-10 03:20:55
End at: 2018-10-10 03:21:25
Local clock offset: 2.468 ms
Remote clock offset: -33.375 ms


# Below is generated by plot.py at 2018-10-10 04:00:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 132.603 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 132.603 ms
Loss rate: 0.64%
```

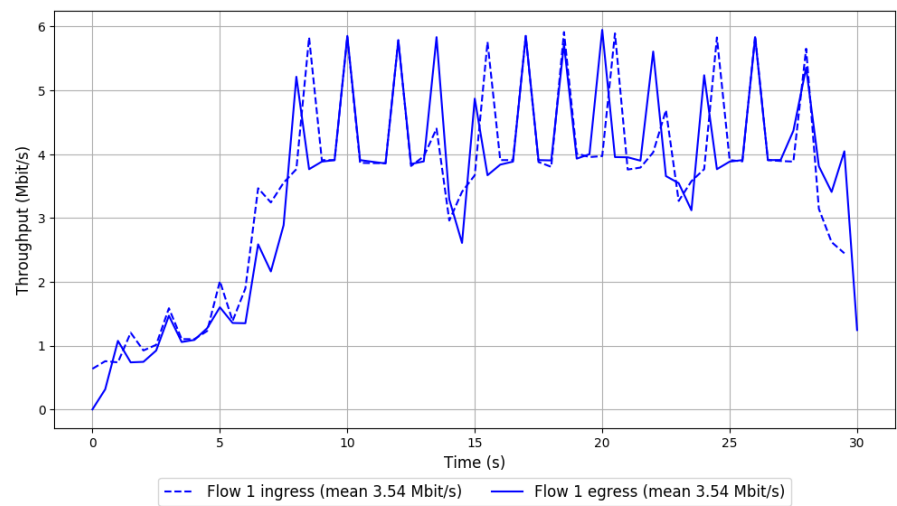Run 5: Report of SCReAM — Data Link

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```
Run 1: Statistics of Sprout

Start at: 2018-10-10 00:43:51
End at: 2018-10-10 00:44:21
Local clock offset: 3.515 ms
Remote clock offset: -42.723 ms


# Below is generated by plot.py at 2018-10-10 04:00:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.63 Mbit/s
95th percentile per-packet one-way delay: 139.714 ms
Loss rate: 0.82%
-- Flow 1:
Average throughput: 3.63 Mbit/s
95th percentile per-packet one-way delay: 139.714 ms
Loss rate: 0.82%
```

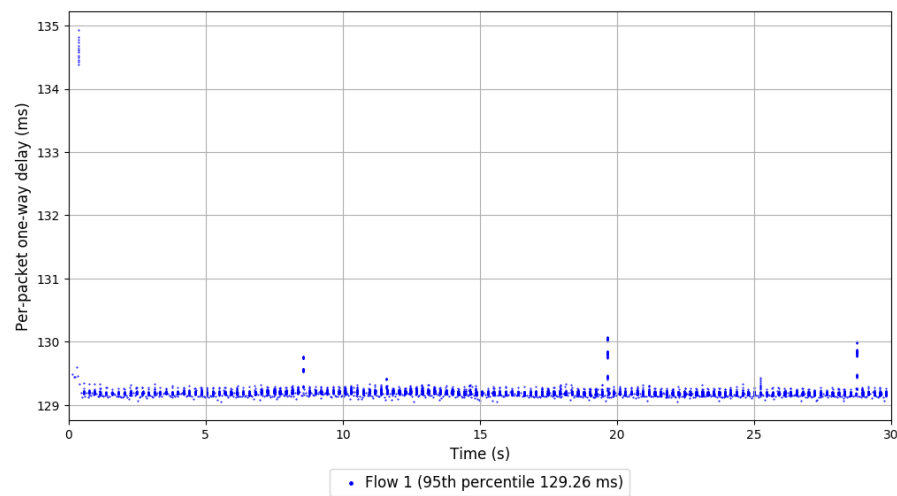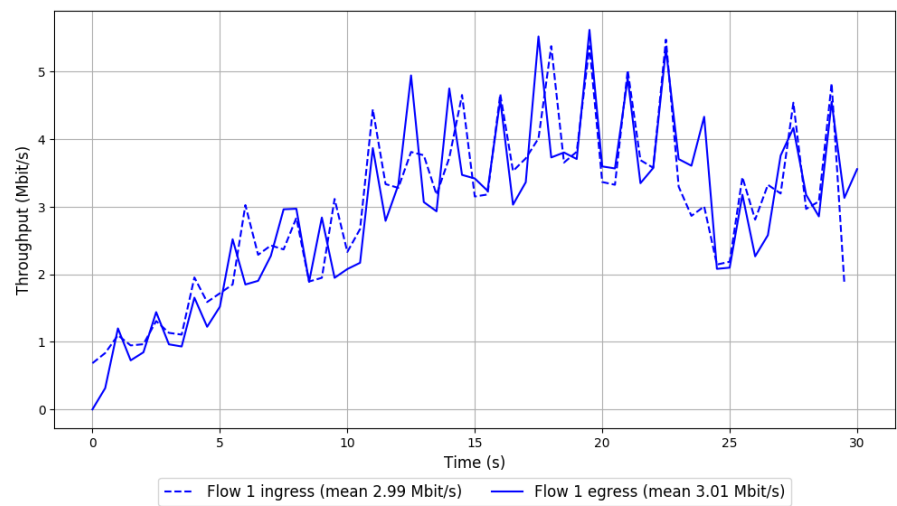Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2018-10-10 01:20:52
End at: 2018-10-10 01:21:22
Local clock offset: -1.758 ms
Remote clock offset: -38.009 ms


# Below is generated by plot.py at 2018-10-10 04:00:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.54 Mbit/s
95th percentile per-packet one-way delay: 131.013 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 3.54 Mbit/s
95th percentile per-packet one-way delay: 131.013 ms
Loss rate: 0.64%
```
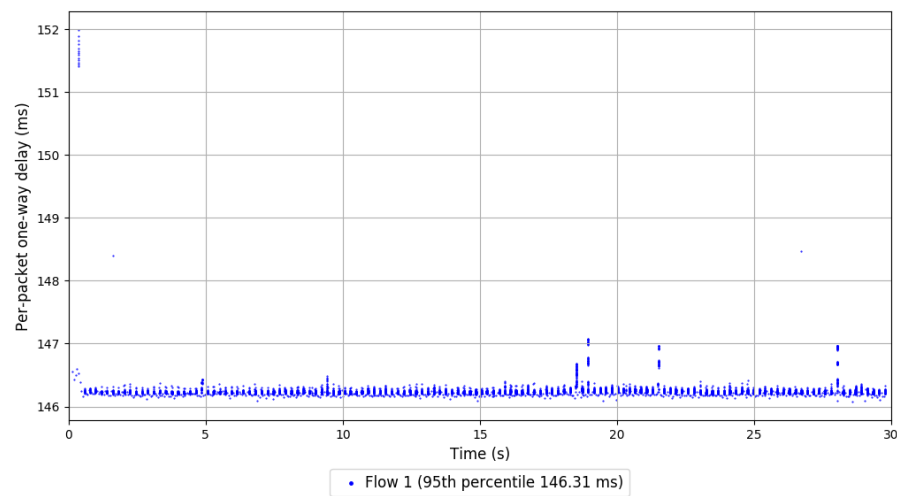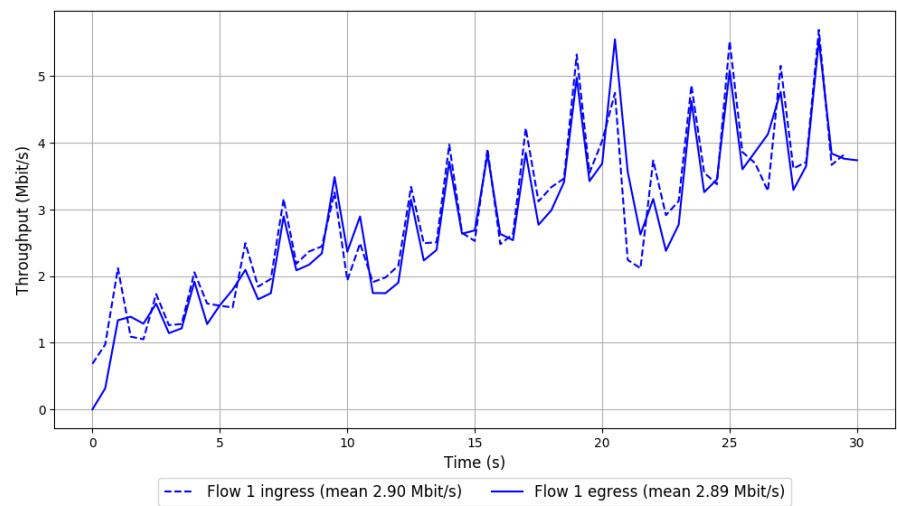
Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2018-10-10 01:53:09
End at: 2018-10-10 01:53:39
Local clock offset: 0.32 ms
Remote clock offset: -34.376 ms


# Below is generated by plot.py at 2018-10-10 04:00:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.01 Mbit/s
95th percentile per-packet one-way delay: 129.264 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 3.01 Mbit/s
95th percentile per-packet one-way delay: 129.264 ms
Loss rate: 0.00%
```

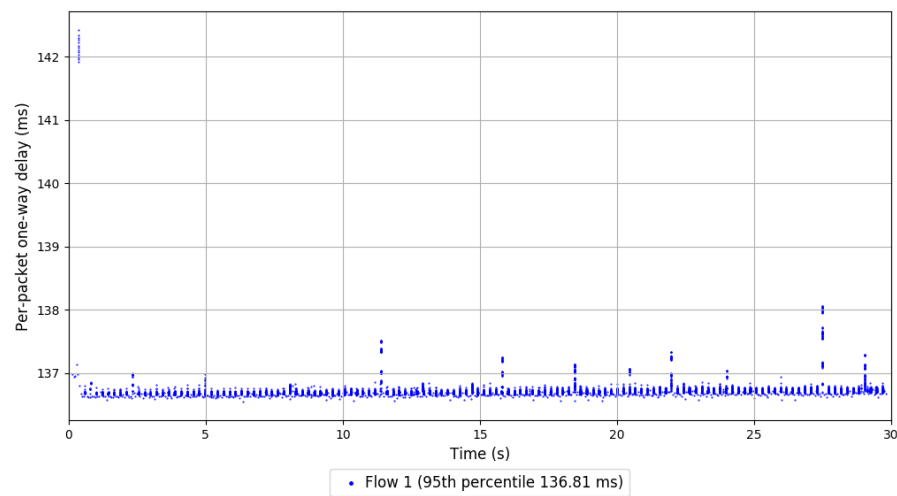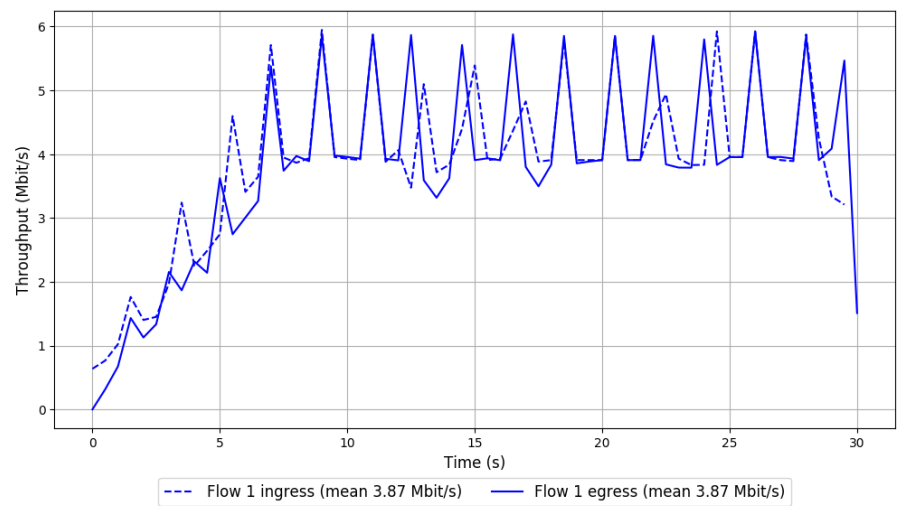## Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2018-10-10 02:41:52
End at: 2018-10-10 02:42:22
Local clock offset: 3.565 ms
Remote clock offset: -49.233 ms


# Below is generated by plot.py at 2018-10-10 04:00:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.89 Mbit/s
95th percentile per-packet one-way delay: 146.313 ms
Loss rate: 1.07%
-- Flow 1:
Average throughput: 2.89 Mbit/s
95th percentile per-packet one-way delay: 146.313 ms
Loss rate: 1.07%
```

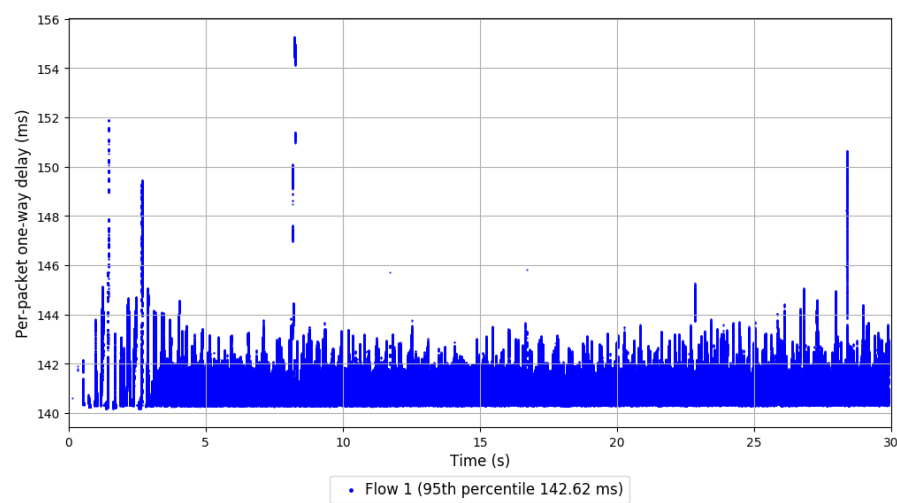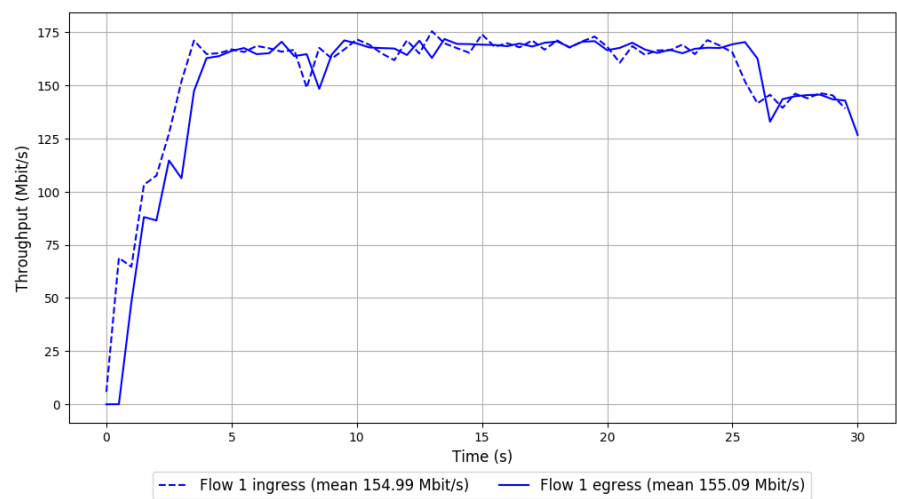Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2018-10-10 03:19:45
End at: 2018-10-10 03:20:15
Local clock offset: 1.987 ms
Remote clock offset: -37.954 ms


# Below is generated by plot.py at 2018-10-10 04:00:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.87 Mbit/s
95th percentile per-packet one-way delay: 136.806 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 3.87 Mbit/s
95th percentile per-packet one-way delay: 136.806 ms
Loss rate: 0.74%
```
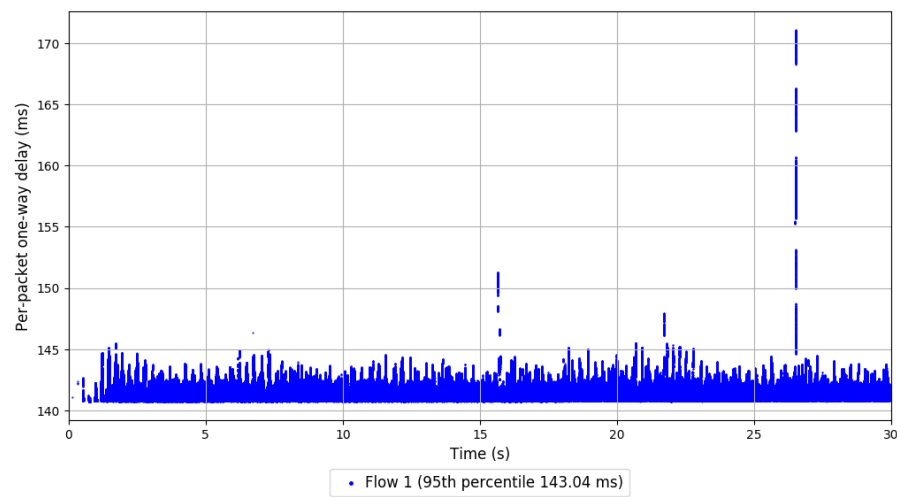
Run 5: Report of Sprout — Data Link

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

Start at: 2018-10-10 00:35:21
End at: 2018-10-10 00:35:51
Local clock offset: 1.894 ms
Remote clock offset: -45.196 ms


# Below is generated by plot.py at 2018-10-10 04:02:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 155.09 Mbit/s
95th percentile per-packet one-way delay: 142.615 ms
Loss rate: 0.59%
-- Flow 1:
Average throughput: 155.09 Mbit/s
95th percentile per-packet one-way delay: 142.615 ms
Loss rate: 0.59%
```
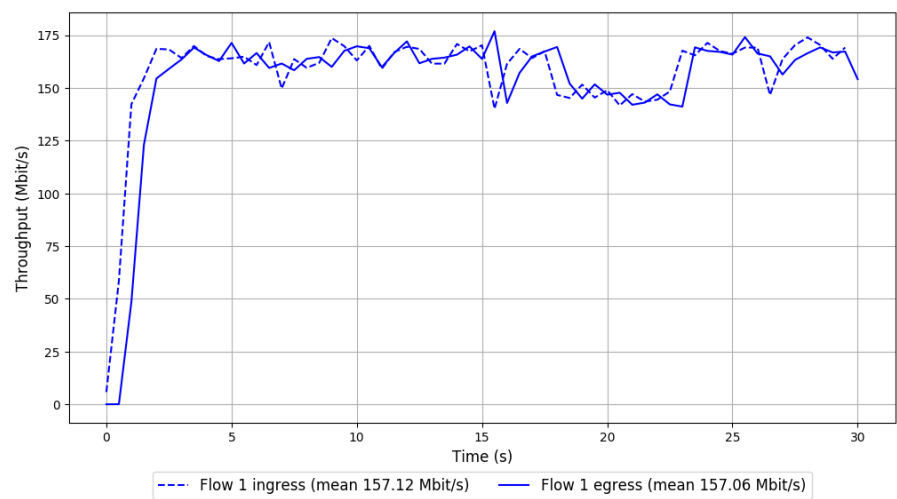
Run 1: Report of TaoVA-100x — Data Link

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

Start at: 2018-10-10 01:07:12
End at: 2018-10-10 01:07:42
Local clock offset: 1.663 ms
Remote clock offset: -43.534 ms


# Below is generated by plot.py at 2018-10-10 04:02:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 157.06 Mbit/s
95th percentile per-packet one-way delay: 143.038 ms
Loss rate: 0.69%
-- Flow 1:
Average throughput: 157.06 Mbit/s
95th percentile per-packet one-way delay: 143.038 ms
Loss rate: 0.69%
```

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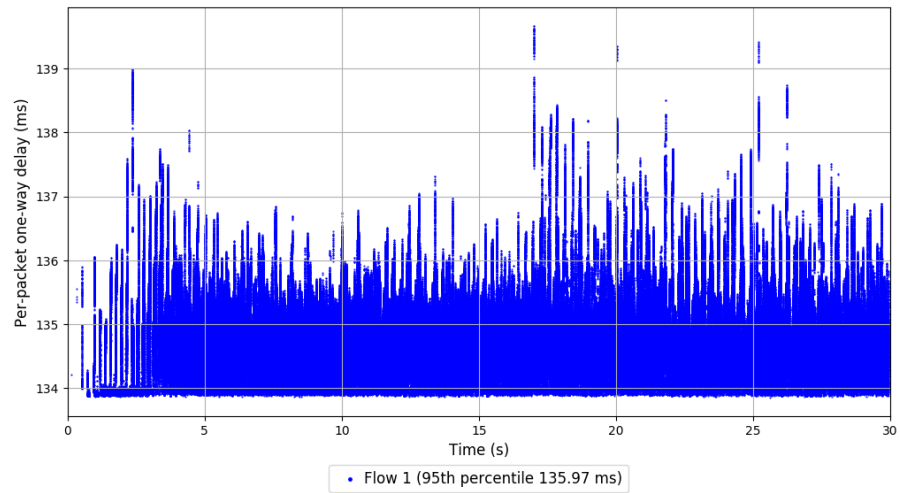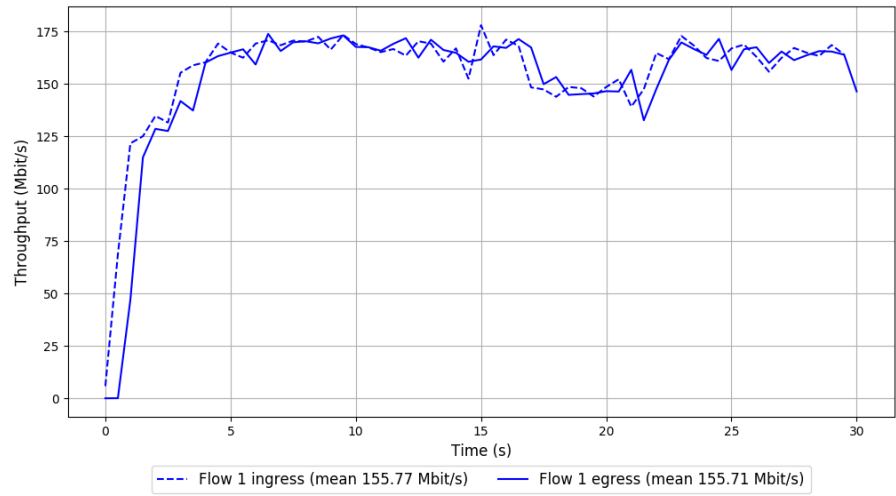

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```
Run 3: Statistics of TaoVA-100x

Start at: 2018-10-10 01:44:45
End at: 2018-10-10 01:45:15
Local clock offset: 1.165 ms
Remote clock offset: -39.737 ms


# Below is generated by plot.py at 2018-10-10 04:02:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 155.71 Mbit/s
95th percentile per-packet one-way delay: 135.973 ms
Loss rate: 0.68%
-- Flow 1:
Average throughput: 155.71 Mbit/s
95th percentile per-packet one-way delay: 135.973 ms
Loss rate: 0.68%
```
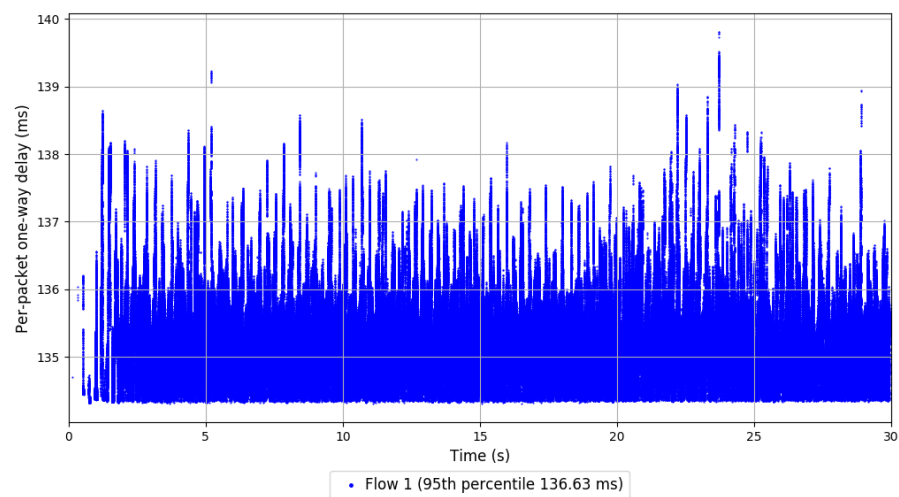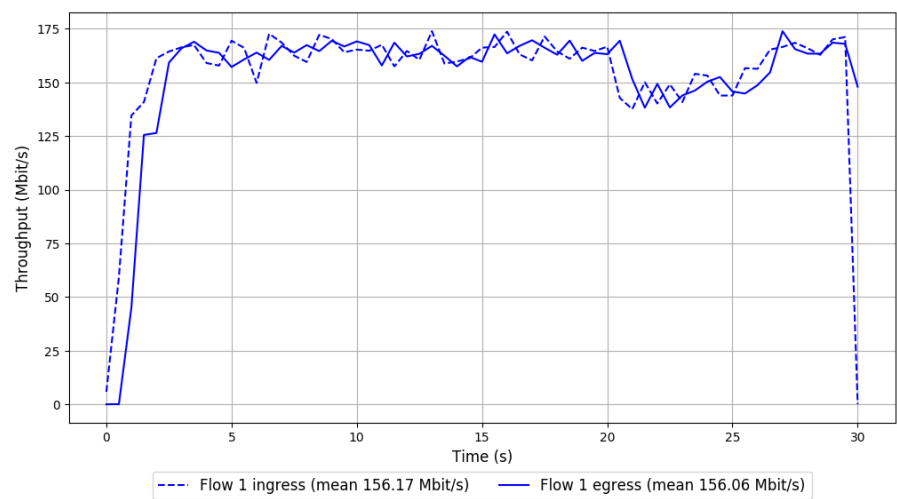
Run 3: Report of TaoVA-100x — Data Link

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

Start at: 2018-10-10 02:28:18
End at: 2018-10-10 02:28:48
Local clock offset: 1.71 ms
Remote clock offset: -39.132 ms


# Below is generated by plot.py at 2018-10-10 04:02:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 156.06 Mbit/s
95th percentile per-packet one-way delay: 136.626 ms
Loss rate: 0.73%
-- Flow 1:
Average throughput: 156.06 Mbit/s
95th percentile per-packet one-way delay: 136.626 ms
Loss rate: 0.73%
```

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

Flow 1 ingress (mean 156.17 Mbit/s) —— Flow 1 egress (mean 156.06 Mbit/s)
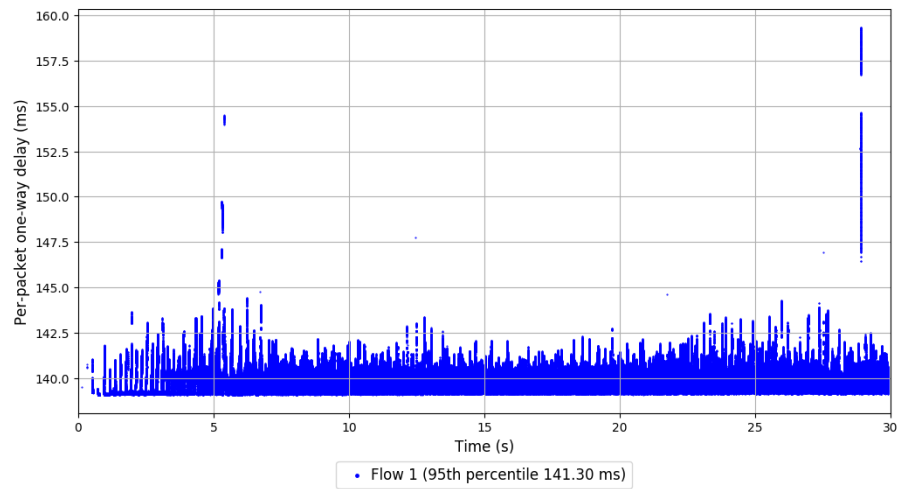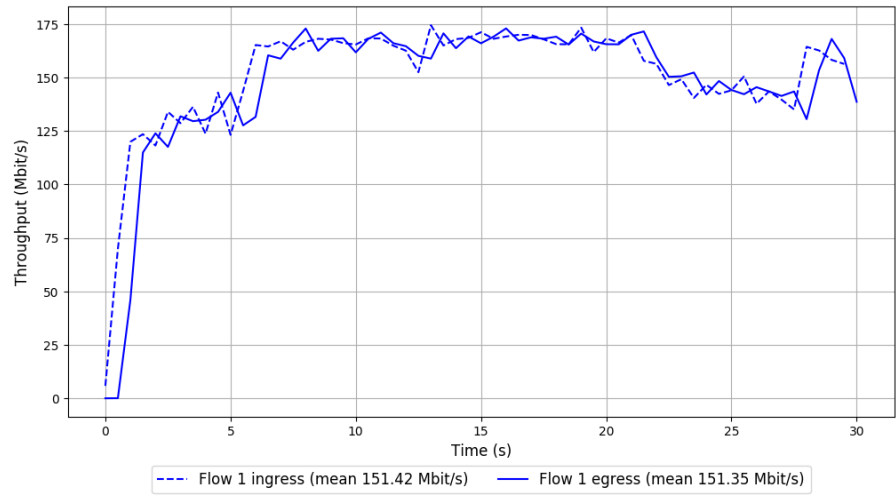

• Flow 1 (95th percentile 136.63 ms)

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

Start at: 2018-10-10 03:11:17
End at: 2018-10-10 03:11:47
Local clock offset: 0.766 ms
Remote clock offset: -43.999 ms


# Below is generated by plot.py at 2018-10-10 04:02:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 151.35 Mbit/s
95th percentile per-packet one-way delay: 141.299 ms
Loss rate: 0.69%
-- Flow 1:
Average throughput: 151.35 Mbit/s
95th percentile per-packet one-way delay: 141.299 ms
Loss rate: 0.69%
```
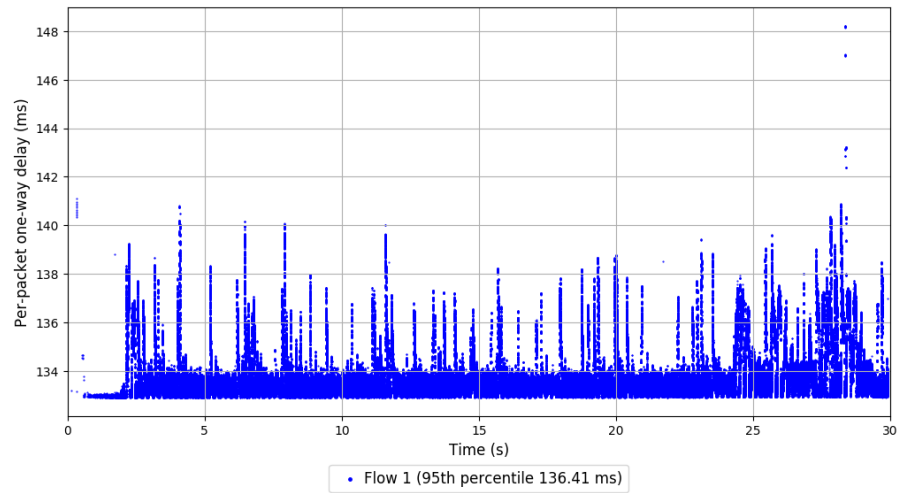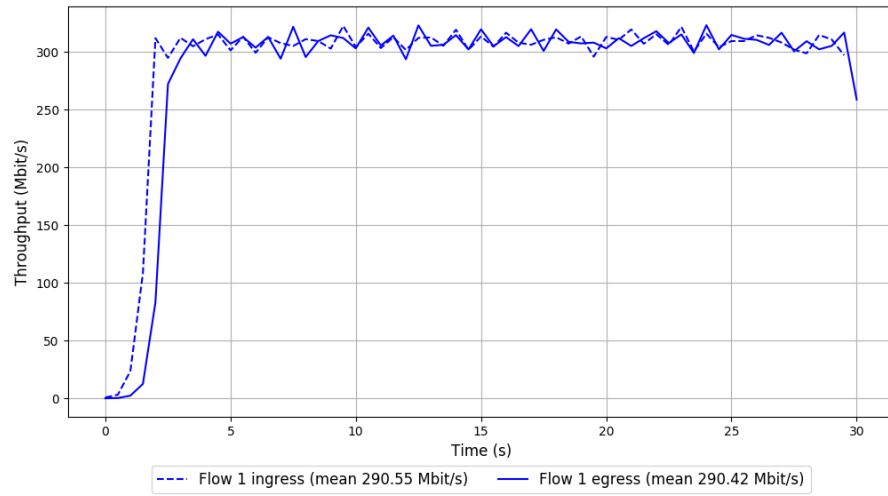
Run 5: Report of TaoVA-100x — Data Link

```
Run 1: Statistics of TCP Vegas

Start at: 2018-10-10 00:39:37
End at: 2018-10-10 00:40:07
Local clock offset: 2.292 ms
Remote clock offset: -37.408 ms


# Below is generated by plot.py at 2018-10-10 04:02:27
# Datalink statistics
-- Total of 1 flow:
Average throughput: 290.42 Mbit/s
95th percentile per-packet one-way delay: 136.408 ms
Loss rate: 0.69%
-- Flow 1:
Average throughput: 290.42 Mbit/s
95th percentile per-packet one-way delay: 136.408 ms
Loss rate: 0.69%
```
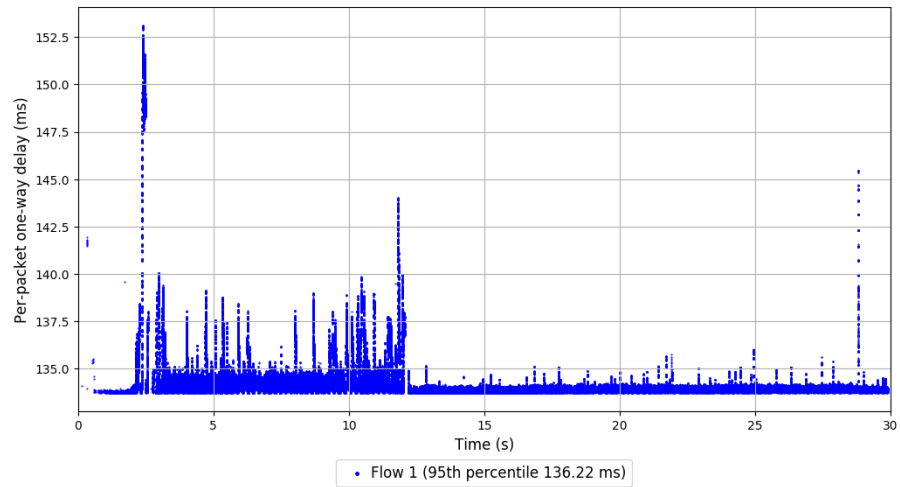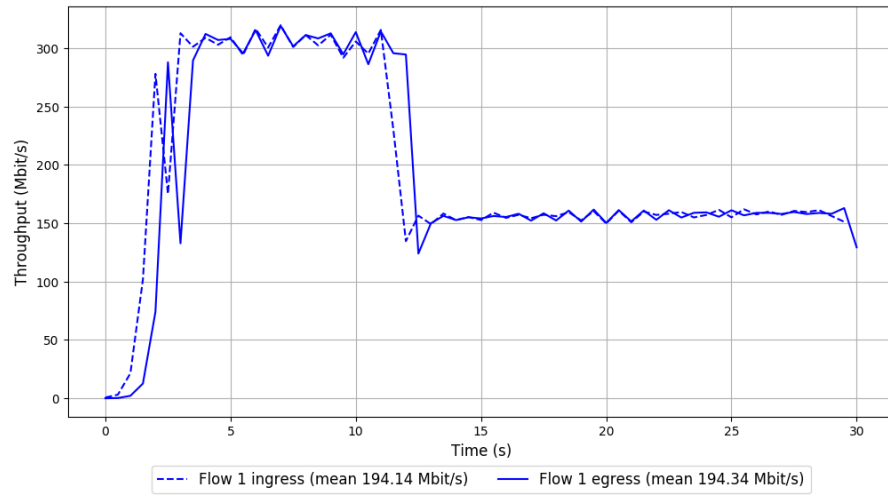
Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2018-10-10 01:16:56
End at: 2018-10-10 01:17:26
Local clock offset: -0.892 ms
Remote clock offset: -38.554 ms


# Below is generated by plot.py at 2018-10-10 04:02:27
# Datalink statistics
-- Total of 1 flow:
Average throughput: 194.34 Mbit/s
95th percentile per-packet one-way delay: 136.221 ms
Loss rate: 0.54%
-- Flow 1:
Average throughput: 194.34 Mbit/s
95th percentile per-packet one-way delay: 136.221 ms
Loss rate: 0.54%
```
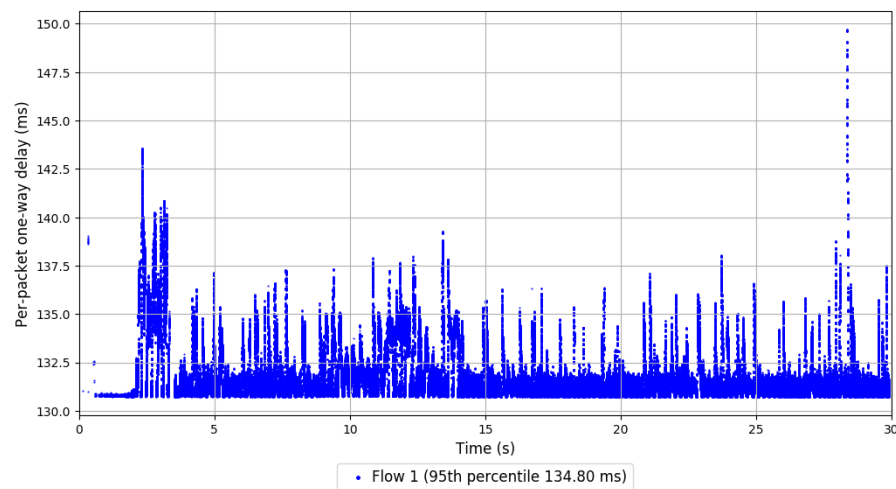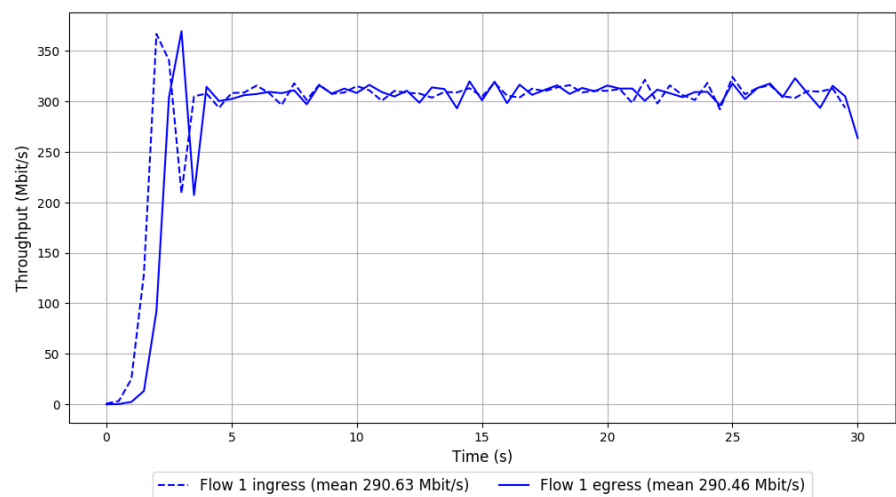
Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2018-10-10 01:48:54
End at: 2018-10-10 01:49:24
Local clock offset: 0.992 ms
Remote clock offset: -36.824 ms


# Below is generated by plot.py at 2018-10-10 04:03:41
# Datalink statistics
-- Total of 1 flow:
Average throughput: 290.46 Mbit/s
95th percentile per-packet one-way delay: 134.801 ms
Loss rate: 0.70%
-- Flow 1:
Average throughput: 290.46 Mbit/s
95th percentile per-packet one-way delay: 134.801 ms
Loss rate: 0.70%
```
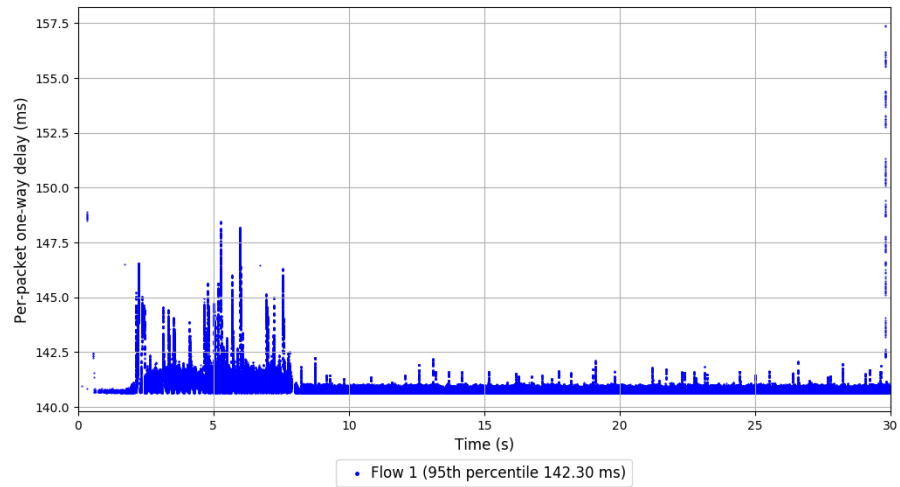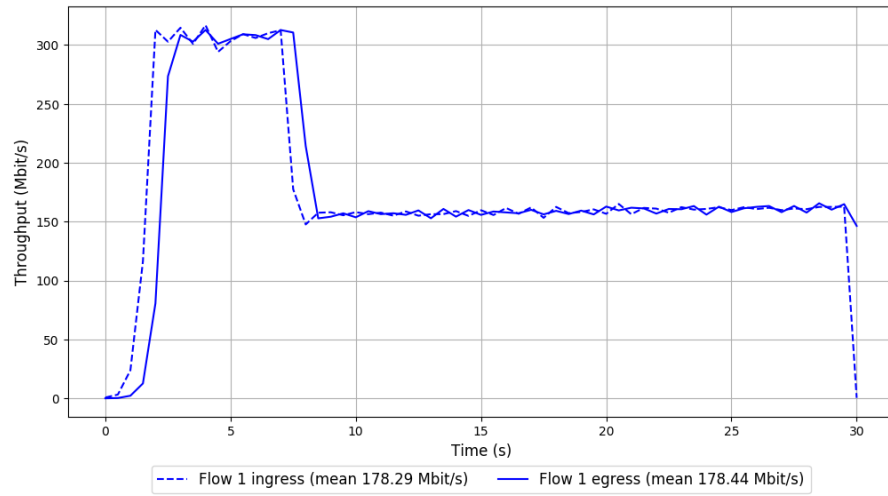
Run 3: Report of TCP Vegas — Data Link

```
Run 4: Statistics of TCP Vegas

Start at: 2018-10-10 02:32:23
End at: 2018-10-10 02:32:53
Local clock offset: 4.018 ms
Remote clock offset: -43.291 ms


# Below is generated by plot.py at 2018-10-10 04:04:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 178.44 Mbit/s
95th percentile per-packet one-way delay: 142.298 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 178.44 Mbit/s
95th percentile per-packet one-way delay: 142.298 ms
Loss rate: 0.56%
```
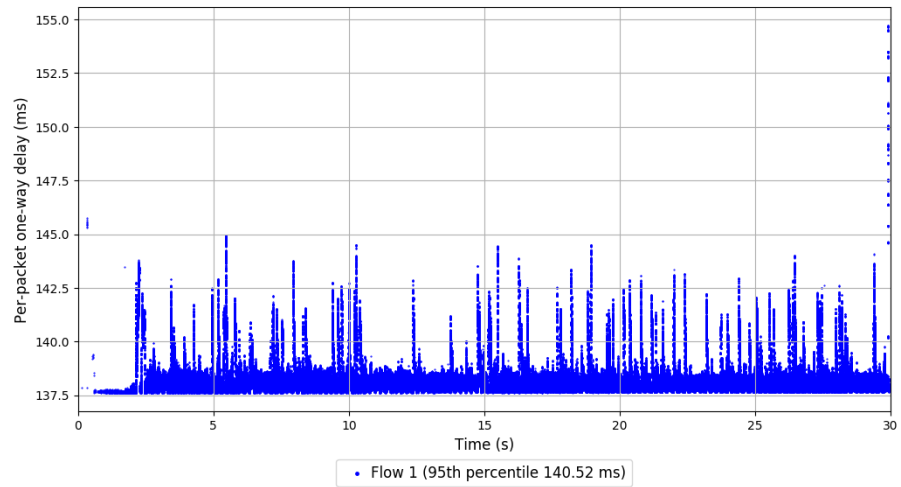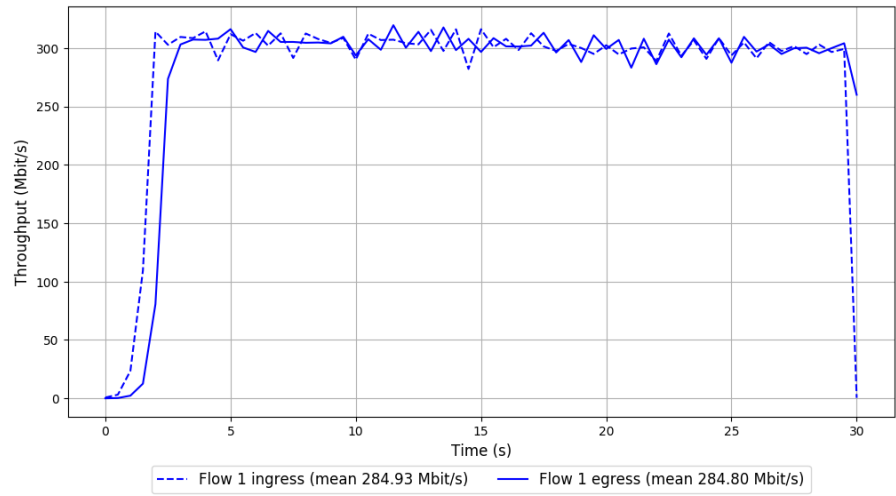
Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2018-10-10 03:15:33
End at: 2018-10-10 03:16:03
Local clock offset: 0.491 ms
Remote clock offset: -40.702 ms


# Below is generated by plot.py at 2018-10-10 04:05:18
# Datalink statistics
-- Total of 1 flow:
Average throughput: 284.80 Mbit/s
95th percentile per-packet one-way delay: 140.516 ms
Loss rate: 0.69%
-- Flow 1:
Average throughput: 284.80 Mbit/s
95th percentile per-packet one-way delay: 140.516 ms
Loss rate: 0.69%
```
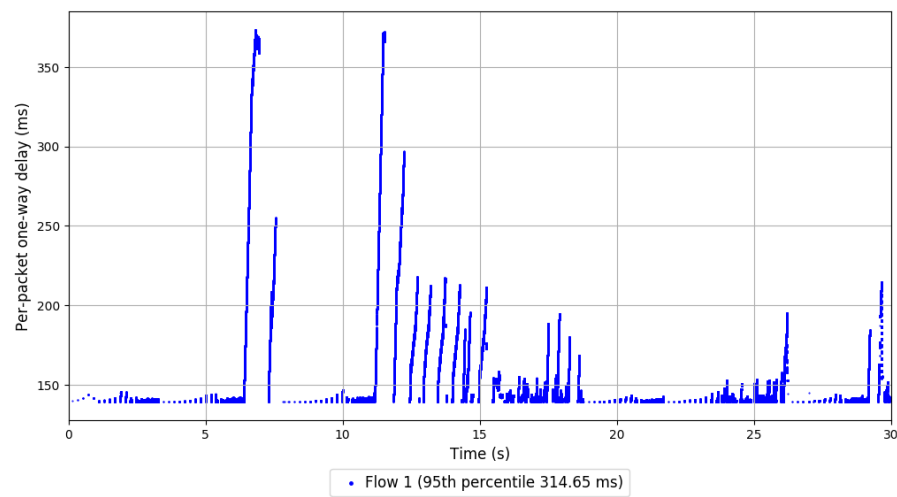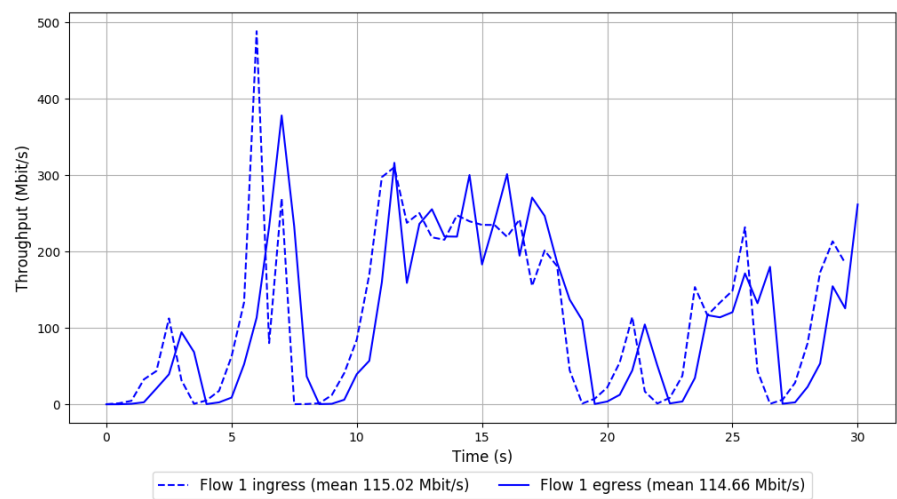
Run 5: Report of TCP Vegas — Data Link

```
Run 1: Statistics of Verus

Start at: 2018-10-10 00:28:45
End at: 2018-10-10 00:29:15
Local clock offset: 2.174 ms
Remote clock offset: -46.197 ms


# Below is generated by plot.py at 2018-10-10 04:05:18
# Datalink statistics
-- Total of 1 flow:
Average throughput: 114.66 Mbit/s
95th percentile per-packet one-way delay: 314.653 ms
Loss rate: 0.95%
-- Flow 1:
Average throughput: 114.66 Mbit/s
95th percentile per-packet one-way delay: 314.653 ms
Loss rate: 0.95%
```
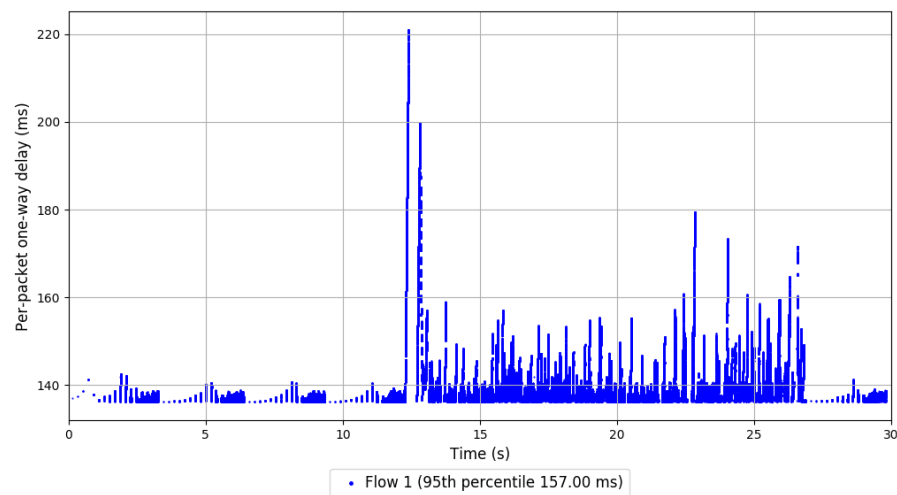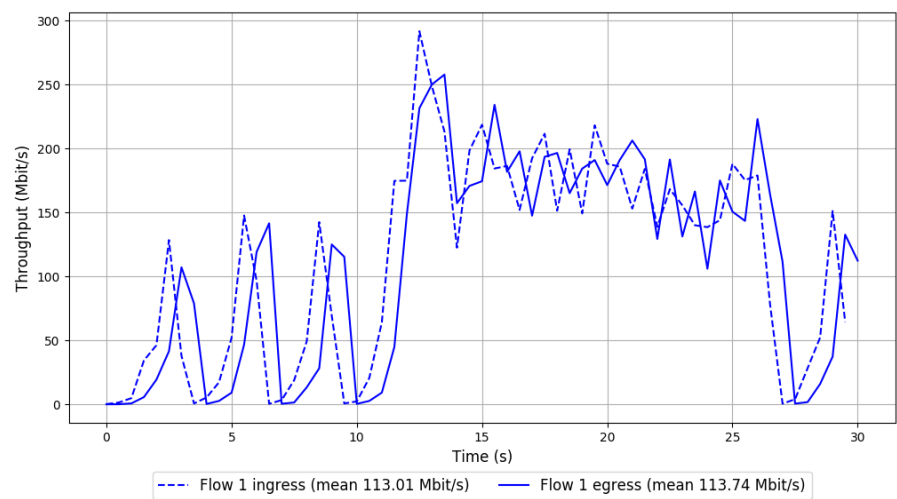
Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2018-10-10 01:00:36
End at: 2018-10-10 01:01:06
Local clock offset: 0.169 ms
Remote clock offset: -42.79 ms


# Below is generated by plot.py at 2018-10-10 04:05:18
# Datalink statistics
-- Total of 1 flow:
Average throughput: 113.74 Mbit/s
95th percentile per-packet one-way delay: 156.995 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 113.74 Mbit/s
95th percentile per-packet one-way delay: 156.995 ms
Loss rate: 0.00%
```
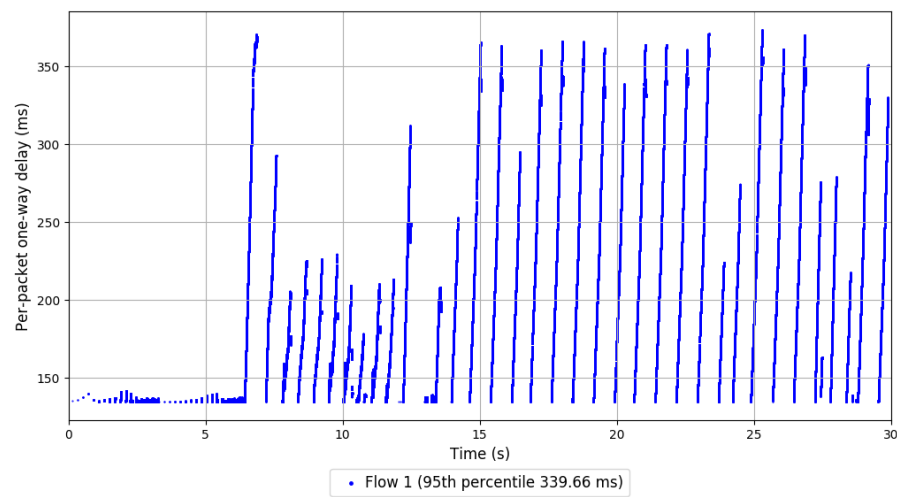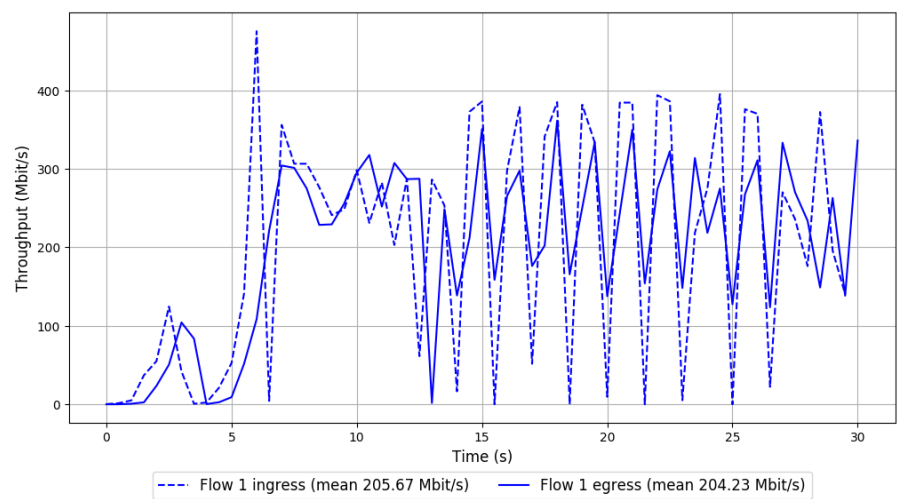
Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-10-10 01:37:50
End at: 2018-10-10 01:38:20
Local clock offset: 1.141 ms
Remote clock offset: -38.681 ms


# Below is generated by plot.py at 2018-10-10 04:05:18
# Datalink statistics
-- Total of 1 flow:
Average throughput: 204.23 Mbit/s
95th percentile per-packet one-way delay: 339.658 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 204.23 Mbit/s
95th percentile per-packet one-way delay: 339.658 ms
Loss rate: 0.05%
```
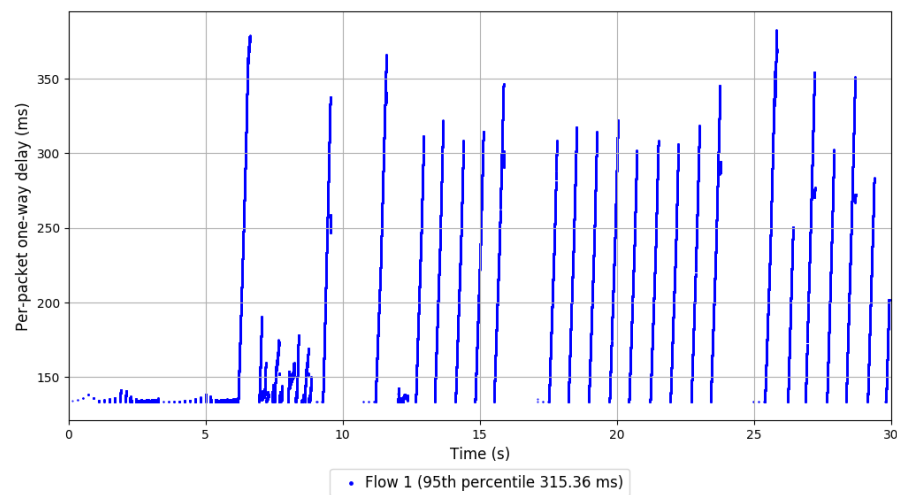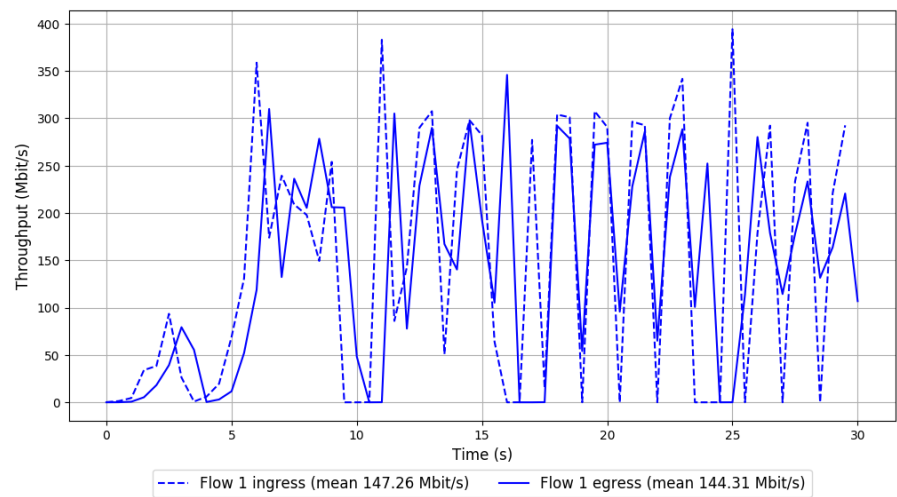
Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2018-10-10 02:16:05
End at: 2018-10-10 02:16:35
Local clock offset: 2.001 ms
Remote clock offset: -39.676 ms


# Below is generated by plot.py at 2018-10-10 04:05:18
# Datalink statistics
-- Total of 1 flow:
Average throughput: 144.31 Mbit/s
95th percentile per-packet one-way delay: 315.361 ms
Loss rate: 2.14%
-- Flow 1:
Average throughput: 144.31 Mbit/s
95th percentile per-packet one-way delay: 315.361 ms
Loss rate: 2.14%
```
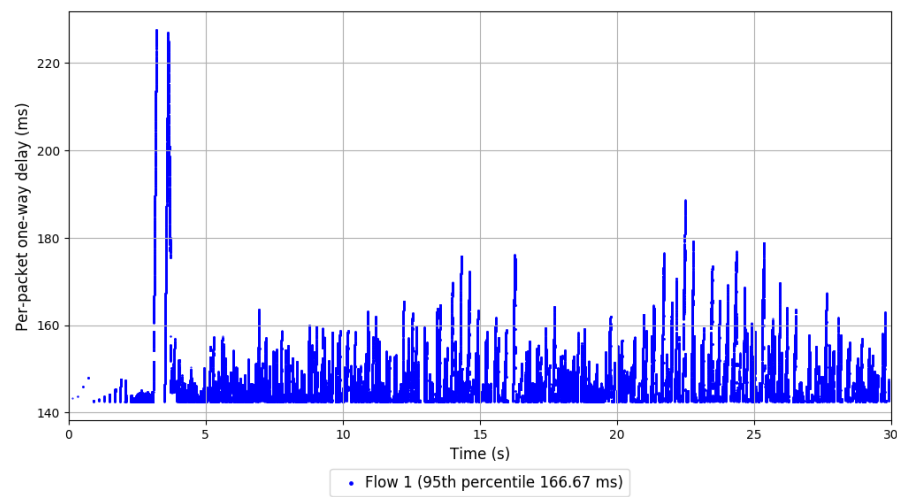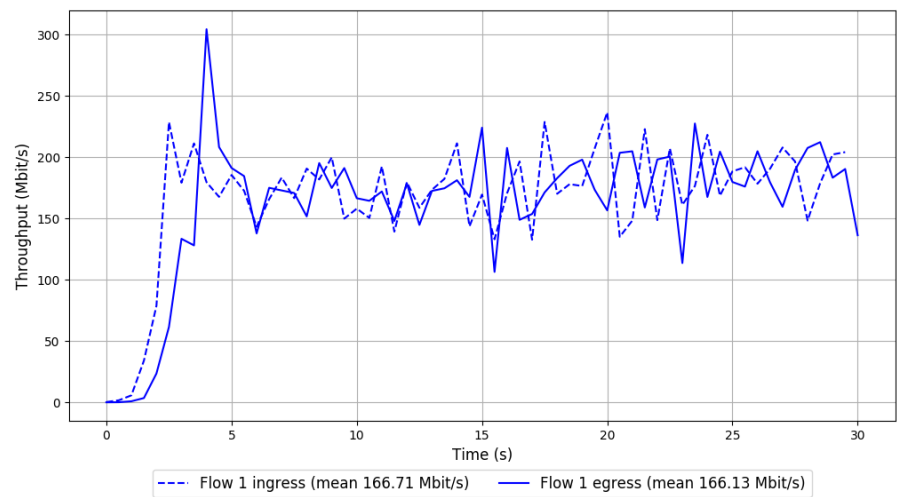
Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2018-10-10 03:04:25
End at: 2018-10-10 03:04:55
Local clock offset: 0.704 ms
Remote clock offset: -48.382 ms


# Below is generated by plot.py at 2018-10-10 04:05:18
# Datalink statistics
-- Total of 1 flow:
Average throughput: 166.13 Mbit/s
95th percentile per-packet one-way delay: 166.673 ms
Loss rate: 0.95%
-- Flow 1:
Average throughput: 166.13 Mbit/s
95th percentile per-packet one-way delay: 166.673 ms
Loss rate: 0.95%
```
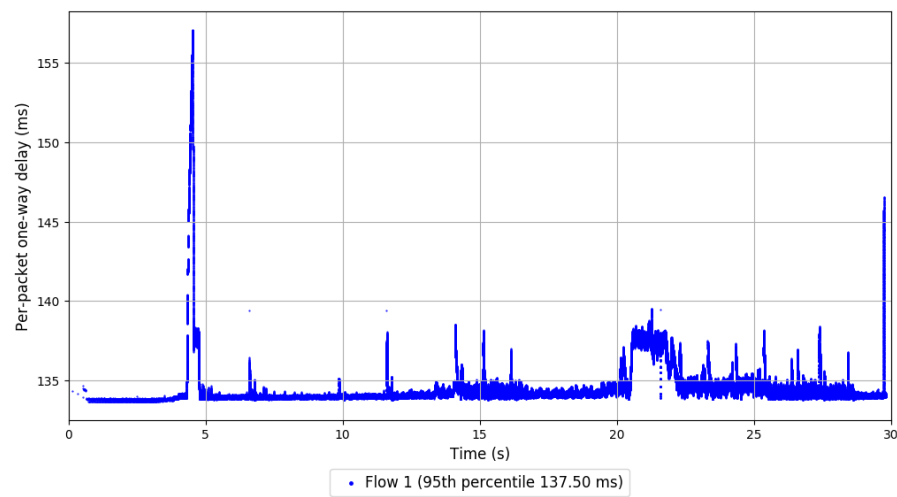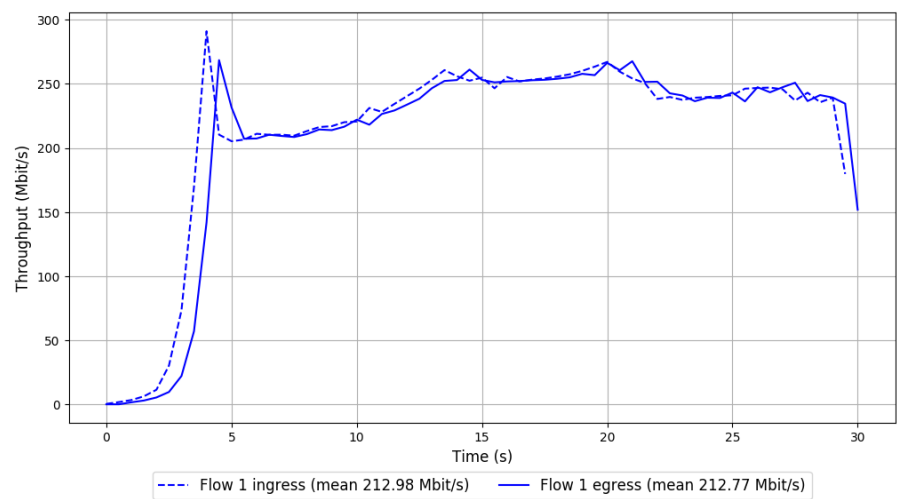
Run 5: Report of Verus — Data Link

```
Run 1: Statistics of PCC-Vivace

Start at: 2018-10-10 00:46:11
End at: 2018-10-10 00:46:41
Local clock offset: 1.226 ms
Remote clock offset: -39.023 ms


# Below is generated by plot.py at 2018-10-10 04:05:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 212.77 Mbit/s
95th percentile per-packet one-way delay: 137.495 ms
Loss rate: 0.75%
-- Flow 1:
Average throughput: 212.77 Mbit/s
95th percentile per-packet one-way delay: 137.495 ms
Loss rate: 0.75%
```

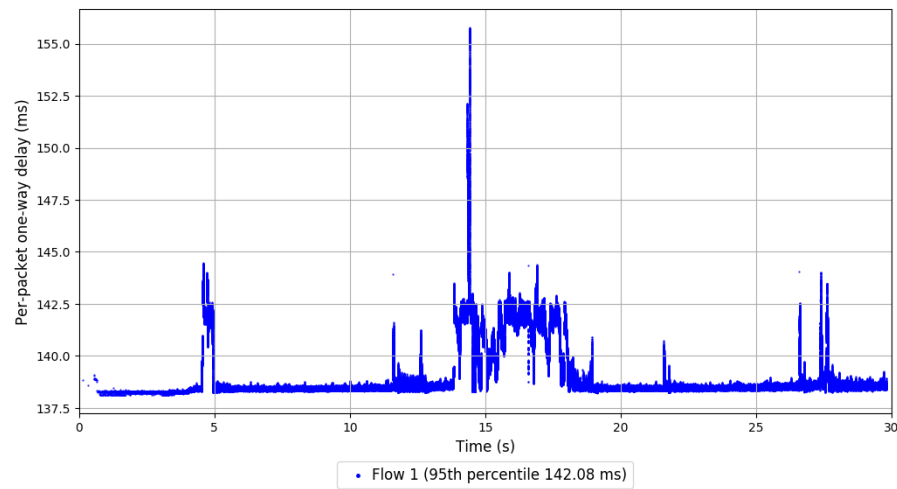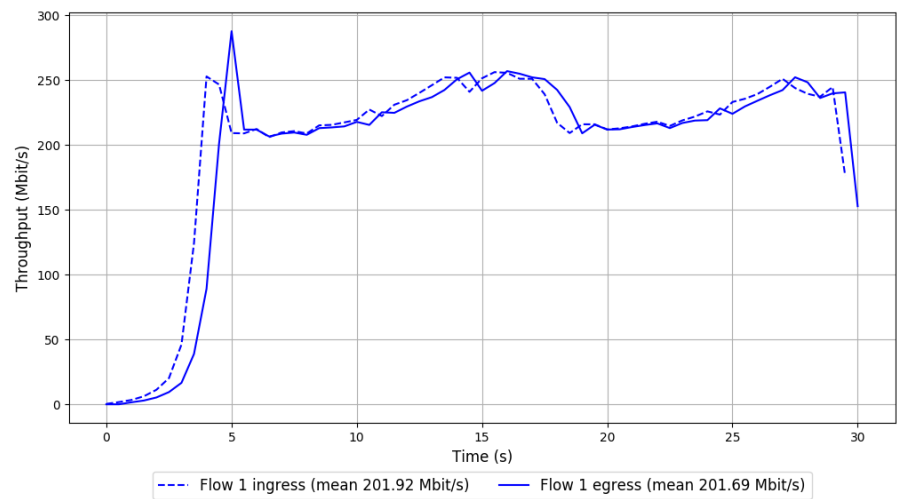Run 1: Report of PCC-Vivace — Data Link

```
Run 2: Statistics of PCC-Vivace

Start at: 2018-10-10 01:23:13
End at: 2018-10-10 01:23:43
Local clock offset: -0.634 ms
Remote clock offset: -44.175 ms


# Below is generated by plot.py at 2018-10-10 04:05:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 201.69 Mbit/s
95th percentile per-packet one-way delay: 142.077 ms
Loss rate: 0.76%
-- Flow 1:
Average throughput: 201.69 Mbit/s
95th percentile per-packet one-way delay: 142.077 ms
Loss rate: 0.76%
```

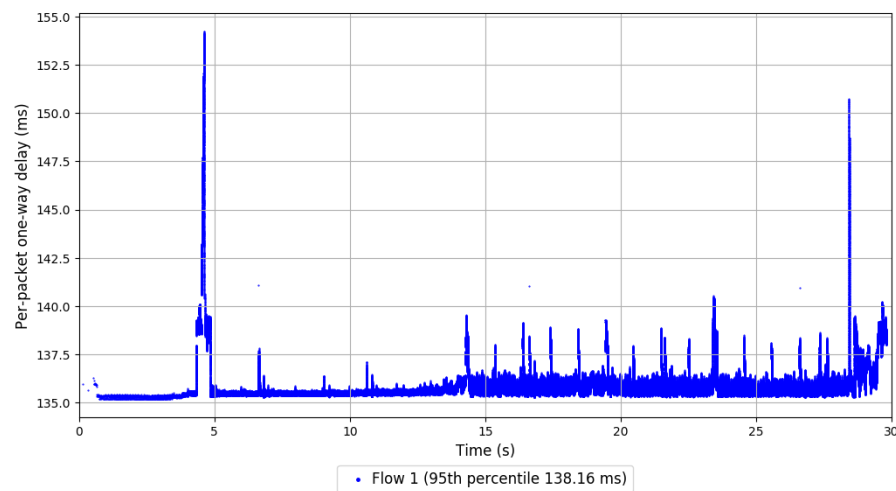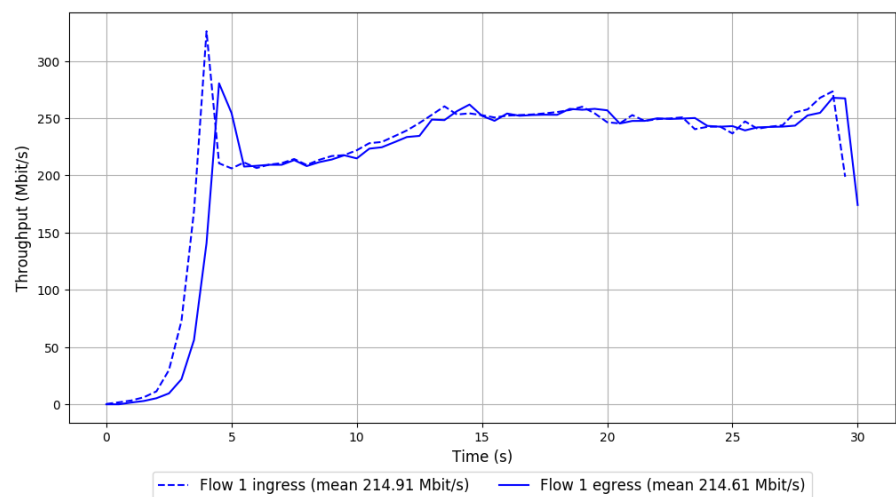# Run 2: Report of PCC-Vivace — Data Link

```
Run 3: Statistics of PCC-Vivace

Start at: 2018-10-10 01:55:29
End at: 2018-10-10 01:55:59
Local clock offset: 1.548 ms
Remote clock offset: -39.489 ms


# Below is generated by plot.py at 2018-10-10 04:05:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 214.61 Mbit/s
95th percentile per-packet one-way delay: 138.156 ms
Loss rate: 0.80%
-- Flow 1:
Average throughput: 214.61 Mbit/s
95th percentile per-packet one-way delay: 138.156 ms
Loss rate: 0.80%
```

Run 3: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 214.91 Mbit/s) —— Flow 1 egress (mean 214.61 Mbit/s)

• Flow 1 (95th percentile 138.16 ms)

```
Run 4: Statistics of PCC-Vivace

Start at: 2018-10-10 02:44:12
End at: 2018-10-10 02:44:42
Local clock offset: 2.7 ms
Remote clock offset: -45.51 ms


# Below is generated by plot.py at 2018-10-10 04:05:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 205.86 Mbit/s
95th percentile per-packet one-way delay: 144.831 ms
Loss rate: 0.75%
-- Flow 1:
Average throughput: 205.86 Mbit/s
95th percentile per-packet one-way delay: 144.831 ms
Loss rate: 0.75%
```
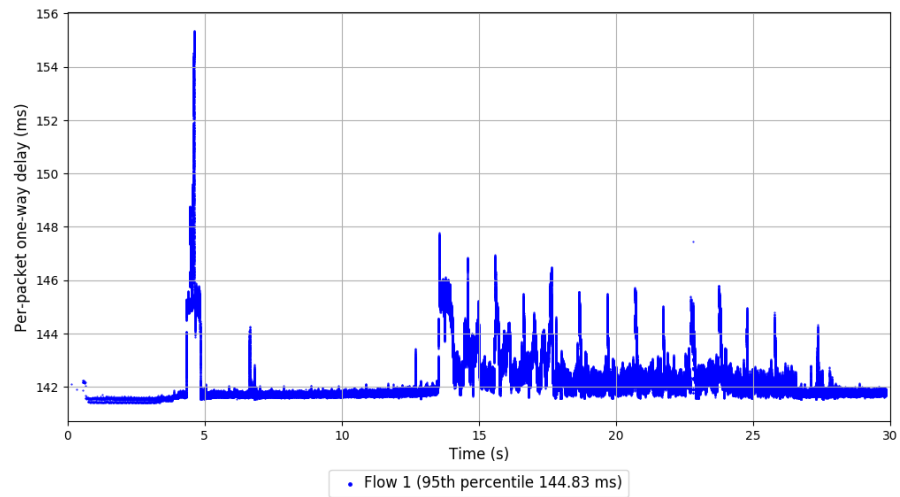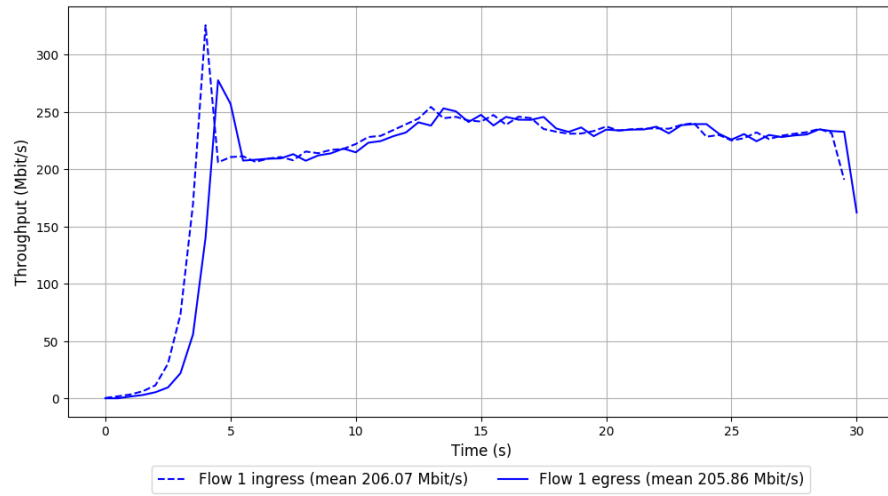
Run 4: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 206.07 Mbit/s) — Flow 1 egress (mean 205.86 Mbit/s)
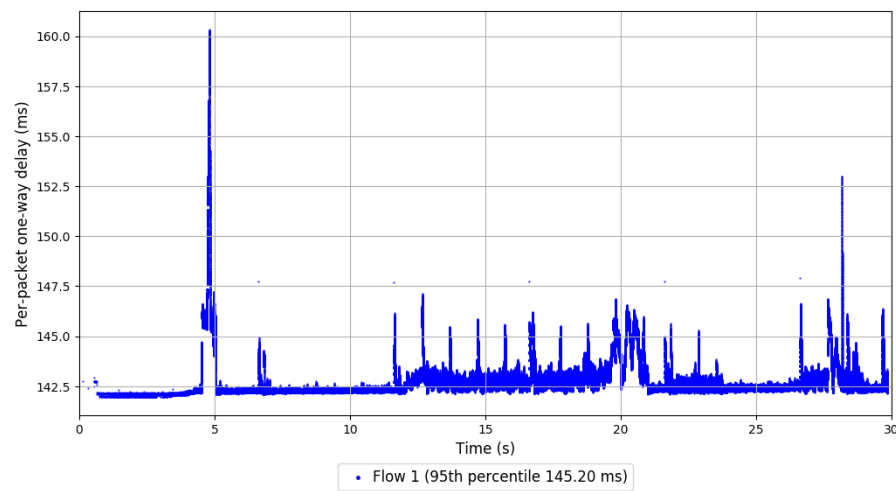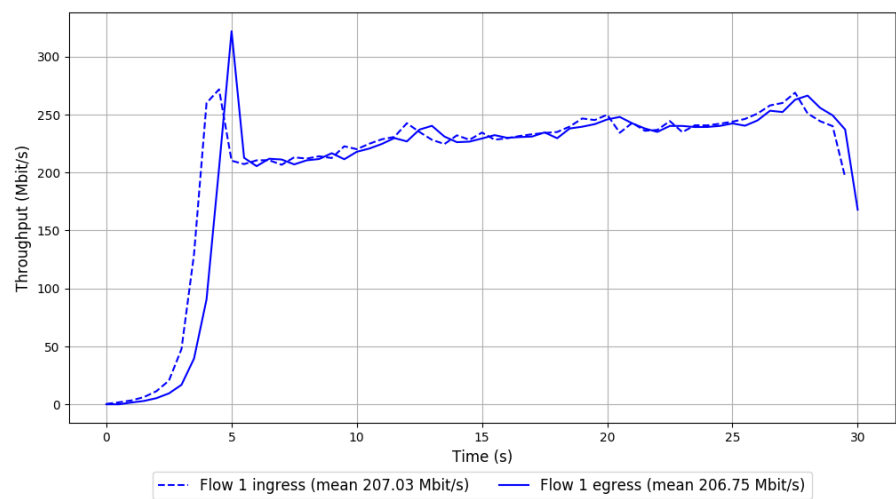

Flow 1 (95th percentile 144.83 ms)

```
Run 5: Statistics of PCC-Vivace

Start at: 2018-10-10 03:22:05
End at: 2018-10-10 03:22:35
Local clock offset: 1.631 ms
Remote clock offset: -43.677 ms


# Below is generated by plot.py at 2018-10-10 04:05:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 206.75 Mbit/s
95th percentile per-packet one-way delay: 145.201 ms
Loss rate: 0.79%
-- Flow 1:
Average throughput: 206.75 Mbit/s
95th percentile per-packet one-way delay: 145.201 ms
Loss rate: 0.79%
```

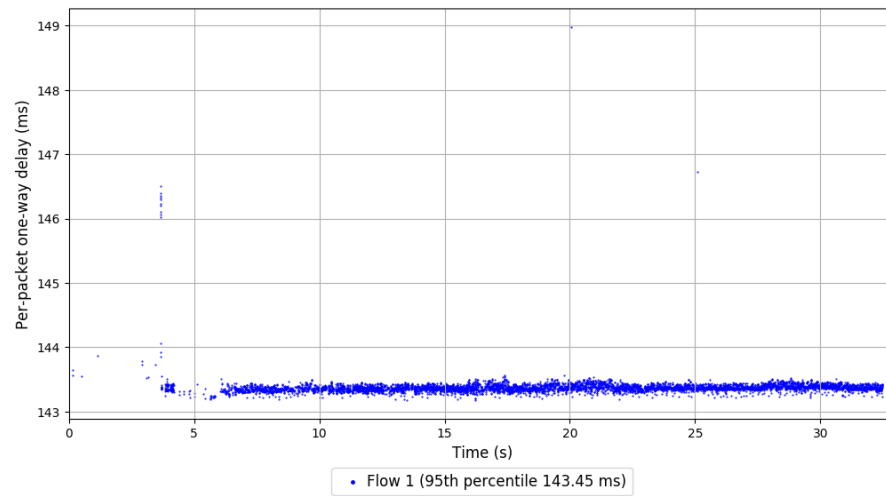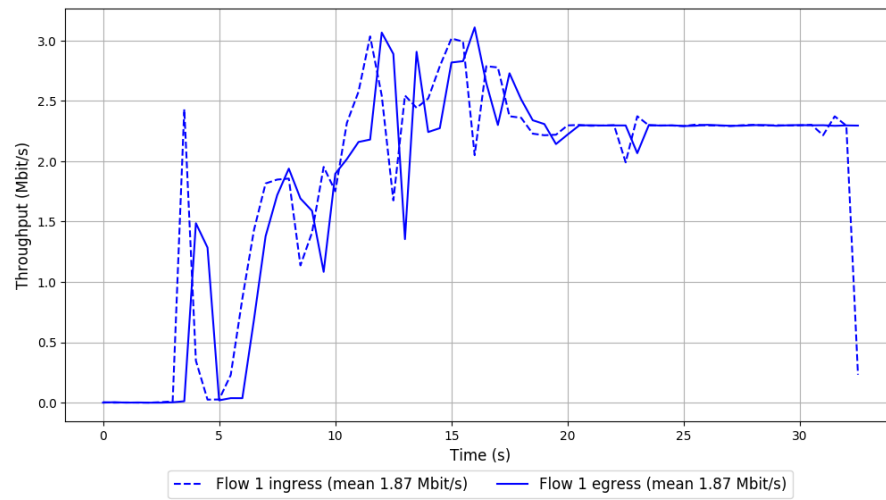Run 5: Report of PCC-Vivace — Data Link

```
Run 1: Statistics of WebRTC media

Start at: 2018-10-10 00:50:12
End at: 2018-10-10 00:50:42
Local clock offset: 1.497 ms
Remote clock offset: -48.287 ms


# Below is generated by plot.py at 2018-10-10 04:05:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.87 Mbit/s
95th percentile per-packet one-way delay: 143.448 ms
Loss rate: 0.75%
-- Flow 1:
Average throughput: 1.87 Mbit/s
95th percentile per-packet one-way delay: 143.448 ms
Loss rate: 0.75%
```

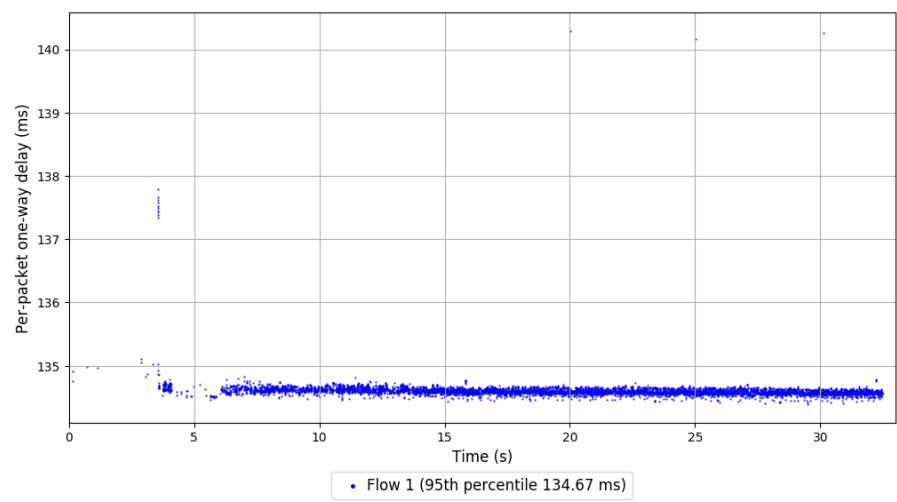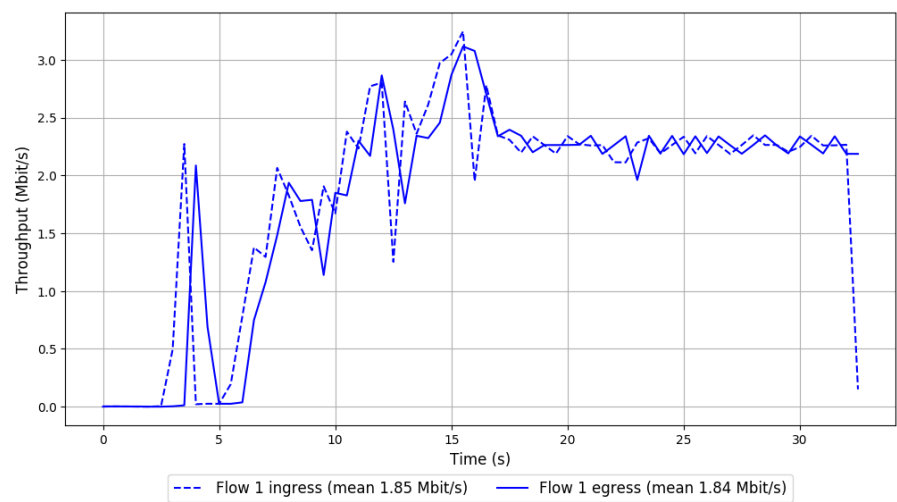Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2018-10-10 01:27:31
End at: 2018-10-10 01:28:01
Local clock offset: -0.158 ms
Remote clock offset: -38.934 ms


# Below is generated by plot.py at 2018-10-10 04:05:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.84 Mbit/s
95th percentile per-packet one-way delay: 134.673 ms
Loss rate: 0.75%
-- Flow 1:
Average throughput: 1.84 Mbit/s
95th percentile per-packet one-way delay: 134.673 ms
Loss rate: 0.75%
```

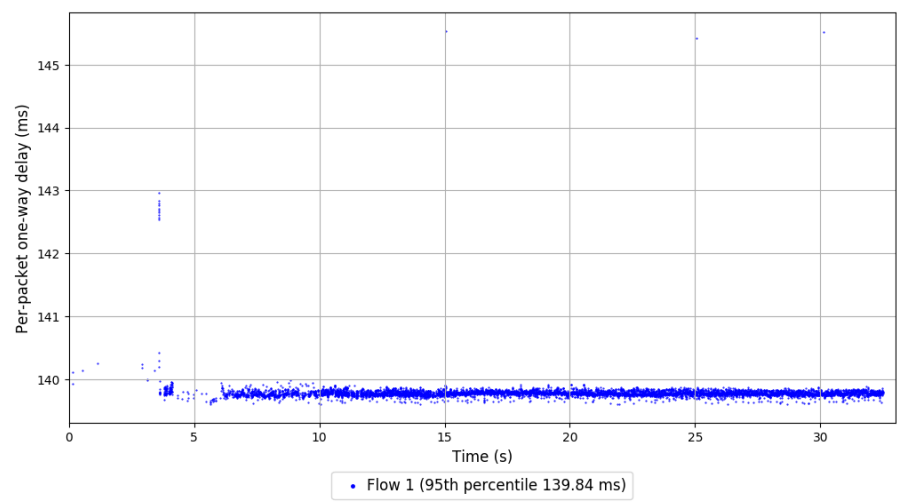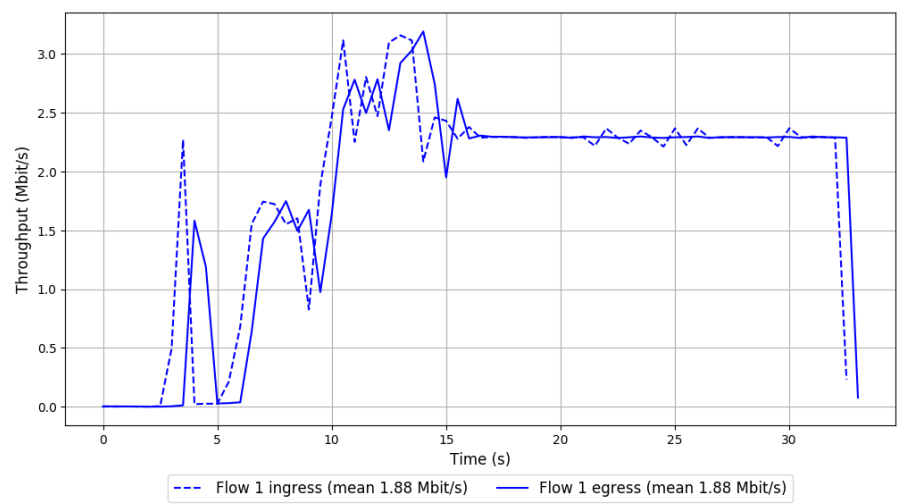Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-10-10 02:00:01
End at: 2018-10-10 02:00:32
Local clock offset: 2.72 ms
Remote clock offset: -43.221 ms


# Below is generated by plot.py at 2018-10-10 04:05:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.88 Mbit/s
95th percentile per-packet one-way delay: 139.845 ms
Loss rate: 0.69%
-- Flow 1:
Average throughput: 1.88 Mbit/s
95th percentile per-packet one-way delay: 139.845 ms
Loss rate: 0.69%
```

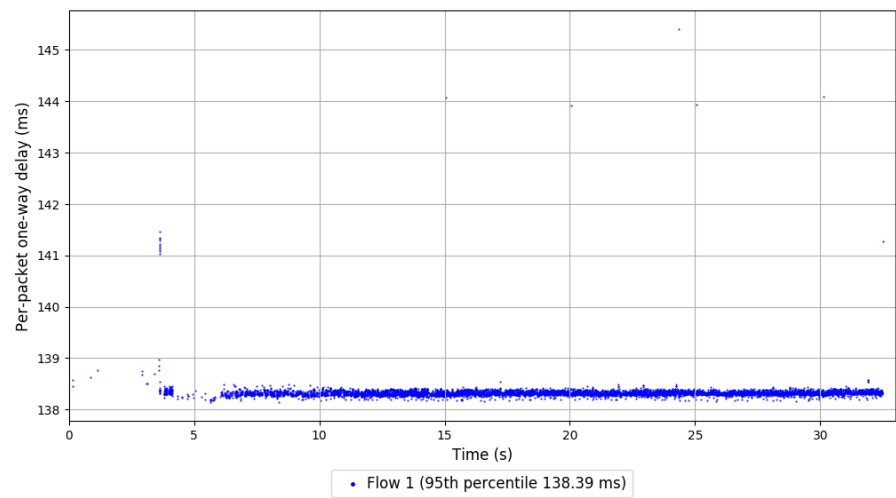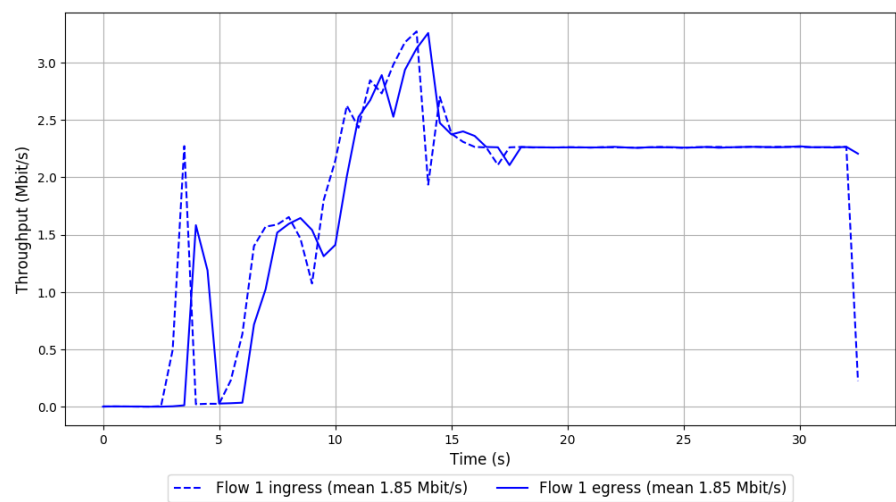Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2018-10-10 02:53:52
End at: 2018-10-10 02:54:22
Local clock offset: 2.601 ms
Remote clock offset: -44.155 ms


# Below is generated by plot.py at 2018-10-10 04:05:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.85 Mbit/s
95th percentile per-packet one-way delay: 138.390 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 1.85 Mbit/s
95th percentile per-packet one-way delay: 138.390 ms
Loss rate: 0.74%
```

Run 4: Report of WebRTC media — Data Link

Flow 1 ingress (mean 1.85 Mbit/s)   Flow 1 egress (mean 1.85 Mbit/s)

Flow 1 (95th percentile 138.39 ms)

```
Run 5: Statistics of WebRTC media

Start at: 2018-10-10 03:31:58
End at: 2018-10-10 03:32:28
Local clock offset: 1.053 ms
Remote clock offset: -40.418 ms


# Below is generated by plot.py at 2018-10-10 04:05:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.88 Mbit/s
95th percentile per-packet one-way delay: 138.439 ms
Loss rate: 0.75%
-- Flow 1:
Average throughput: 1.88 Mbit/s
95th percentile per-packet one-way delay: 138.439 ms
Loss rate: 0.75%
```

Run 5: Report of WebRTC media — Data Link

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