Pantheon Report

Generated at 2018-09-07 12:35:26 (UTC).

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

Repeated the test of 18 congestion control schemes 5 times.

Each test lasted for 30 seconds running 1 flow.

NTP offsets were measured against `nets.org.sg` and have been applied to correct the timestamps in logs.
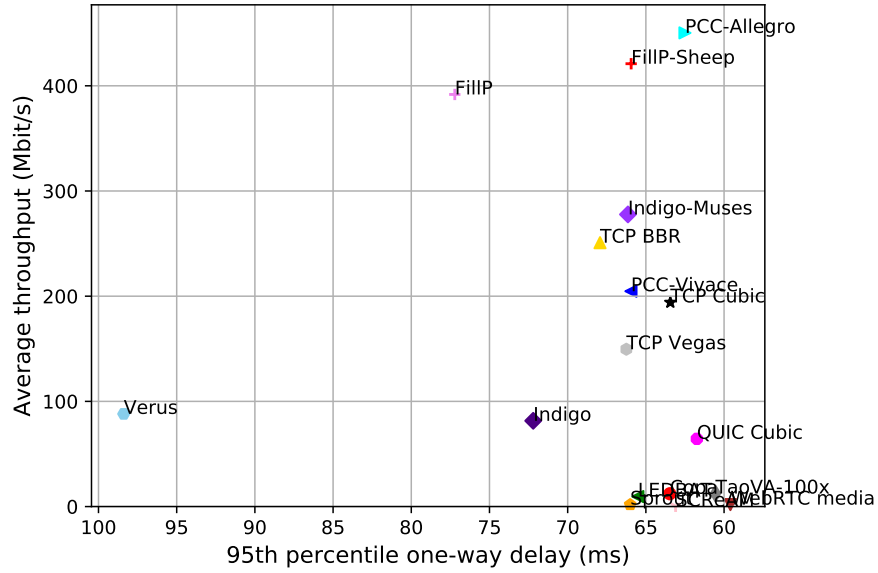
```
System info:
Linux 4.15.0-1020-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
net.ipv4.tcp_mem = 536870912 536870912 536870912

Git summary:
branch: muses @ e0a9b05ad97d268013b7cc9a9c95637b593a1b4c
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 7631aea3923a3598767c87765ae5103aca0678d3
third_party/pantheon-tunnel @ cbfce6db5ff5740dafe1771f813cd646339e1952
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
 M receiver/src/buffer.h
 M receiver/src/core.cpp
 M sender/src/buffer.h
 M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
 M src/ScreamClient
 M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
 M src/examples/cellsim.cc
 M src/examples/sproutbt2.cc
 M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
 M src/verus.hpp
 M tools/plot.py
```
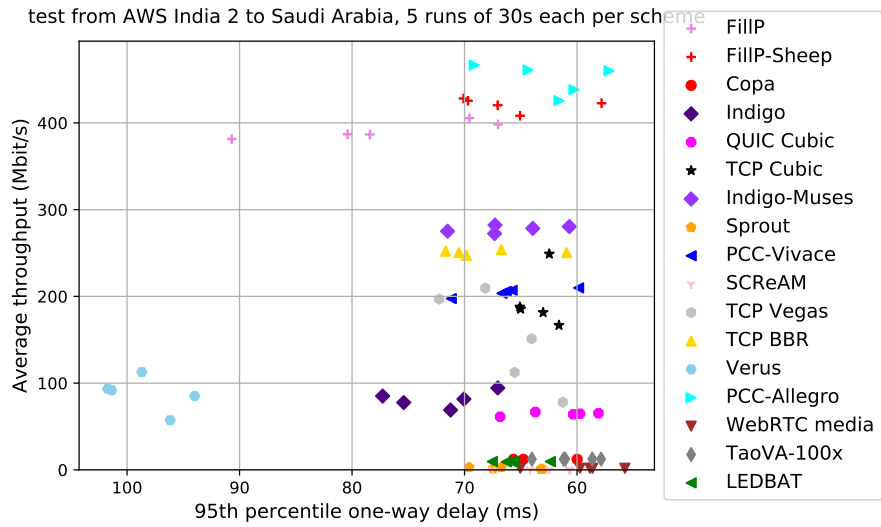
```
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

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

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

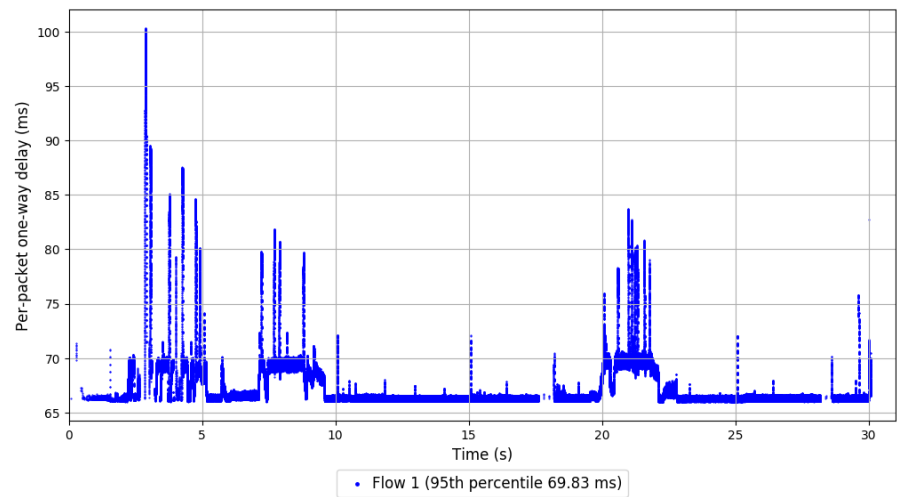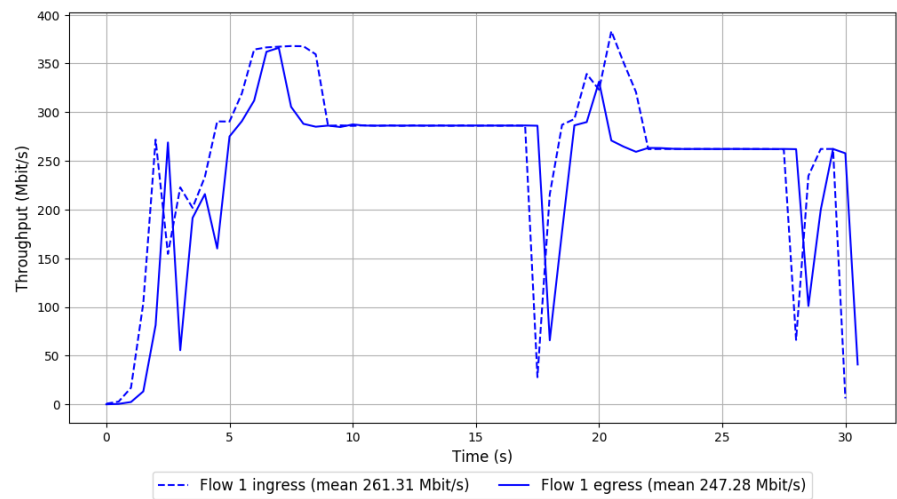| scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	5	250.87	67.93	6.75
Copa	3	12.20	63.47	60.36
TCP Cubic	5	194.06	63.44	0.71
FillP	5	391.78	77.22	21.90
FillP-Sheep	5	420.99	65.94	10.87
Indigo	5	81.54	72.20	0.15
LEDBAT	5	9.51	65.51	0.00
Indigo-Muses	5	277.73	66.15	9.51
PCC-Allegro	5	450.30	62.50	3.95
PCC-Expr	0	N/A	N/A	N/A
QUIC Cubic	5	64.38	61.74	0.00
SCReAM	5	0.22	63.10	0.00
Sprout	5	1.87	66.00	0.00
TaoVA-100x	5	12.40	60.55	18.71
TCP Vegas	5	149.56	66.25	0.61
Verus	5	88.11	98.39	59.33
PCC-Vivace	5	204.72	65.96	0.89
WebRTC media	5	1.87	59.60	0.00

```
Run 1: Statistics of TCP BBR

Start at: 2018-09-07 10:23:52
End at: 2018-09-07 10:24:22
Local clock offset: 1.785 ms
Remote clock offset: -35.632 ms


# Below is generated by plot.py at 2018-09-07 12:16:41
# Datalink statistics
-- Total of 1 flow:
Average throughput: 250.47 Mbit/s
95th percentile per-packet one-way delay: 60.927 ms
Loss rate: 5.59%
-- Flow 1:
Average throughput: 250.47 Mbit/s
95th percentile per-packet one-way delay: 60.927 ms
Loss rate: 5.59%
```
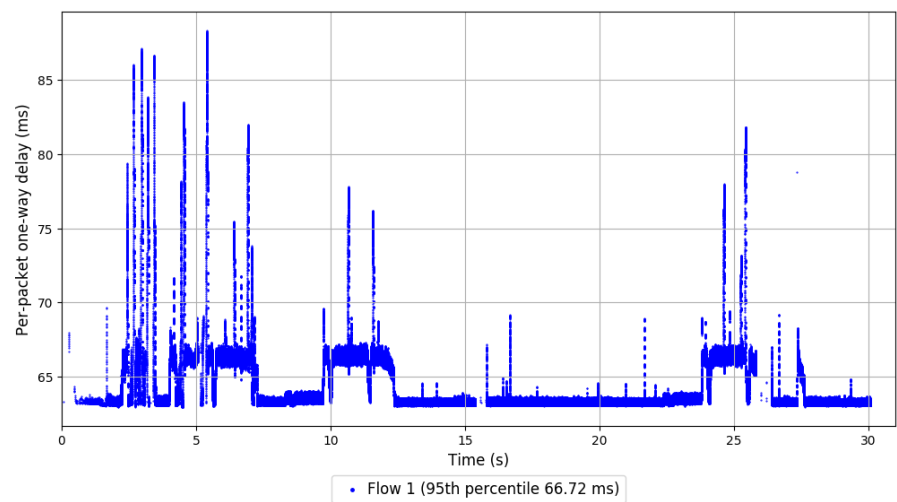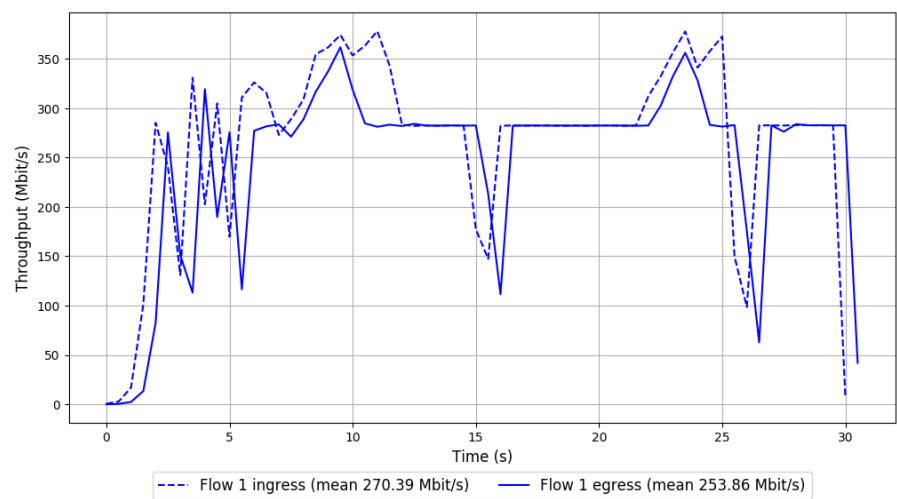
Run 1: Report of TCP BBR — Data Link

```
Run 2: Statistics of TCP BBR

Start at: 2018-09-07 10:47:01
End at: 2018-09-07 10:47:32
Local clock offset: -4.505 ms
Remote clock offset: -33.094 ms


# Below is generated by plot.py at 2018-09-07 12:16:41
# Datalink statistics
-- Total of 1 flow:
Average throughput: 247.28 Mbit/s
95th percentile per-packet one-way delay: 69.832 ms
Loss rate: 5.37%
-- Flow 1:
Average throughput: 247.28 Mbit/s
95th percentile per-packet one-way delay: 69.832 ms
Loss rate: 5.37%
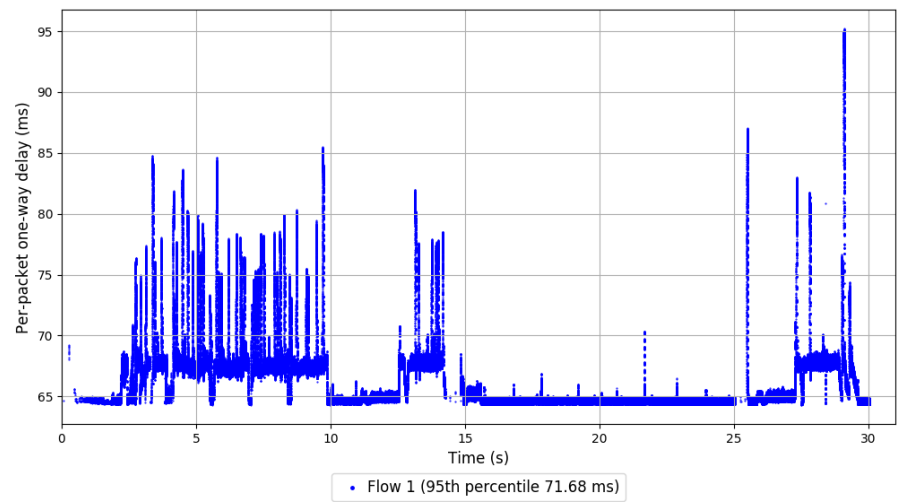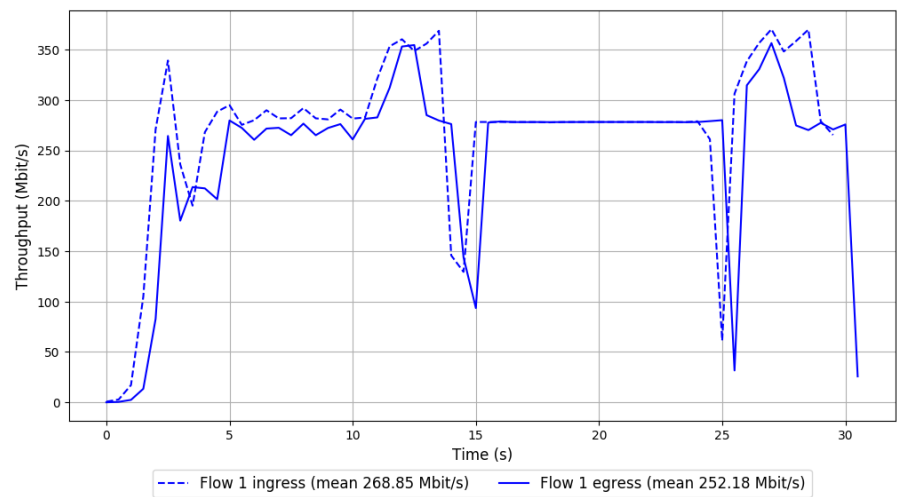```

Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2018-09-07 11:10:09
End at: 2018-09-07 11:10:39
Local clock offset: 0.975 ms
Remote clock offset: -31.35 ms

Below is generated by plot.py at 2018-09-07 12:16:45
Datalink statistics
-- Total of 1 flow:
Average throughput: 253.86 Mbit/s
95th percentile per-packet one-way delay: 66.724 ms
Loss rate: 6.12%
-- Flow 1:
Average throughput: 253.86 Mbit/s
95th percentile per-packet one-way delay: 66.724 ms
Loss rate: 6.12%
```
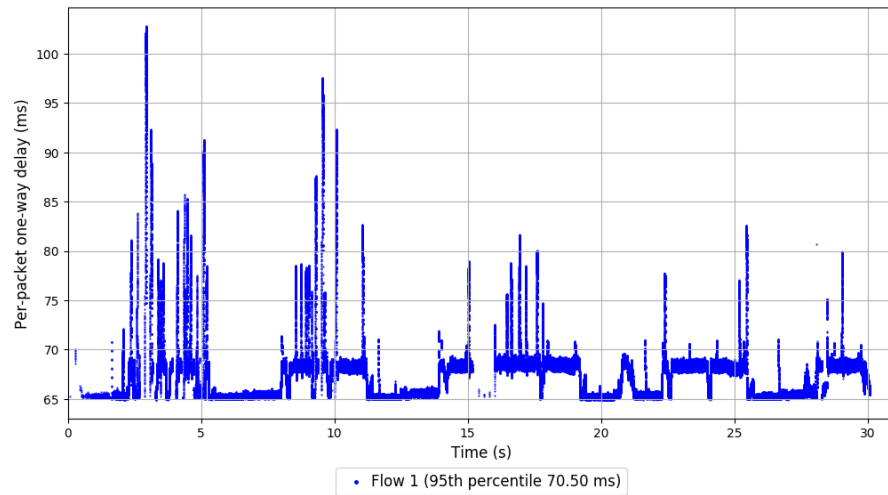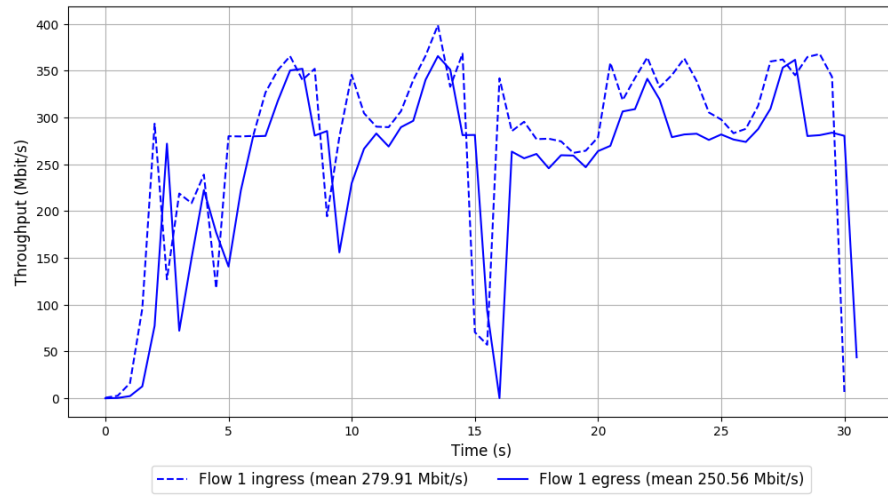
Run 3: Report of TCP BBR — Data Link



Flow 1 ingress (mean 270.39 Mbit/s) — Flow 1 egress (mean 253.86 Mbit/s)



Flow 1 (95th percentile 66.72 ms)

```
Run 4: Statistics of TCP BBR

Start at: 2018-09-07 11:38:47
End at: 2018-09-07 11:39:17
Local clock offset: -1.282 ms
Remote clock offset: -31.826 ms


# Below is generated by plot.py at 2018-09-07 12:16:45
# Datalink statistics
-- Total of 1 flow:
Average throughput: 252.18 Mbit/s
95th percentile per-packet one-way delay: 71.678 ms
Loss rate: 6.20%
-- Flow 1:
Average throughput: 252.18 Mbit/s
95th percentile per-packet one-way delay: 71.678 ms
Loss rate: 6.20%
```

Run 4: Report of TCP BBR — Data Link

Flow 1 ingress (mean 268.85 Mbit/s) --- Flow 1 egress (mean 252.18 Mbit/s)
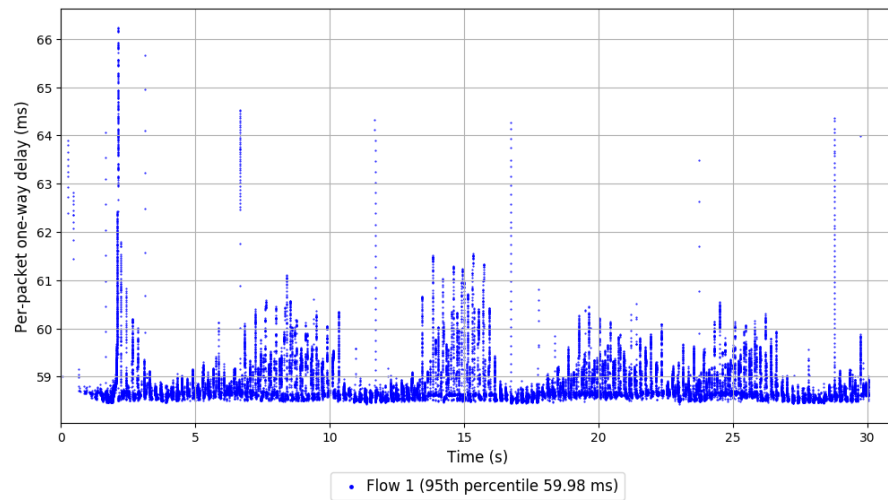

Flow 1 (95th percentile 71.68 ms)

```
Run 5: Statistics of TCP BBR

Start at: 2018-09-07 12:07:40
End at: 2018-09-07 12:08:10
Local clock offset: -2.765 ms
Remote clock offset: -30.108 ms


# Below is generated by plot.py at 2018-09-07 12:16:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 250.56 Mbit/s
95th percentile per-packet one-way delay: 70.500 ms
Loss rate: 10.48%
-- Flow 1:
Average throughput: 250.56 Mbit/s
95th percentile per-packet one-way delay: 70.500 ms
Loss rate: 10.48%
```

Run 5: Report of TCP BBR — Data Link

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```
Run 1: Statistics of Copa

Start at: 2018-09-07 10:10:52
End at: 2018-09-07 10:11:22
Local clock offset: 3.045 ms
Remote clock offset: -31.635 ms
```
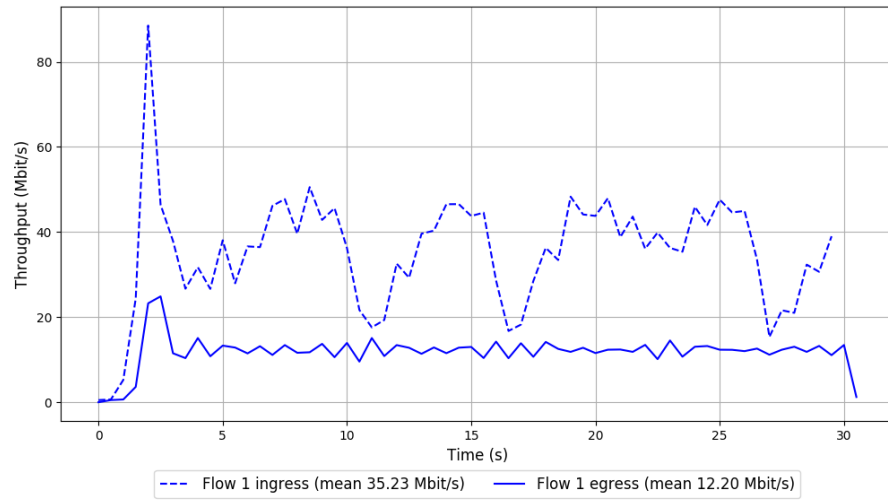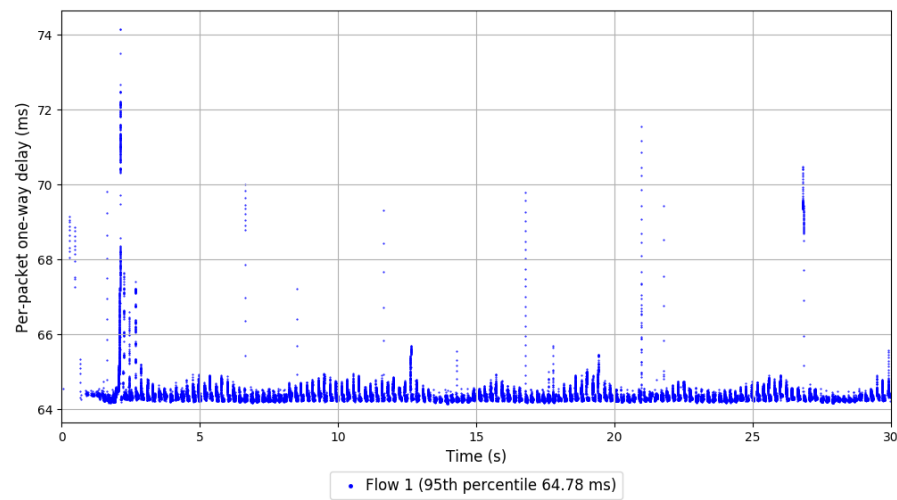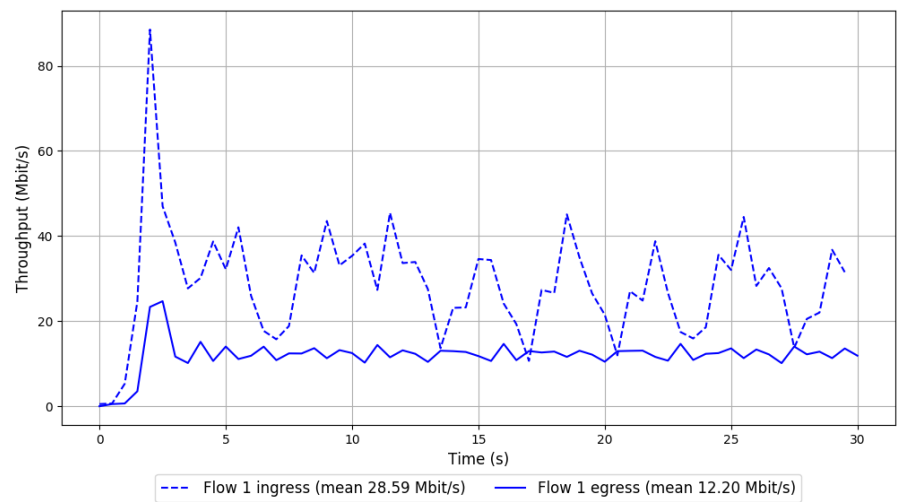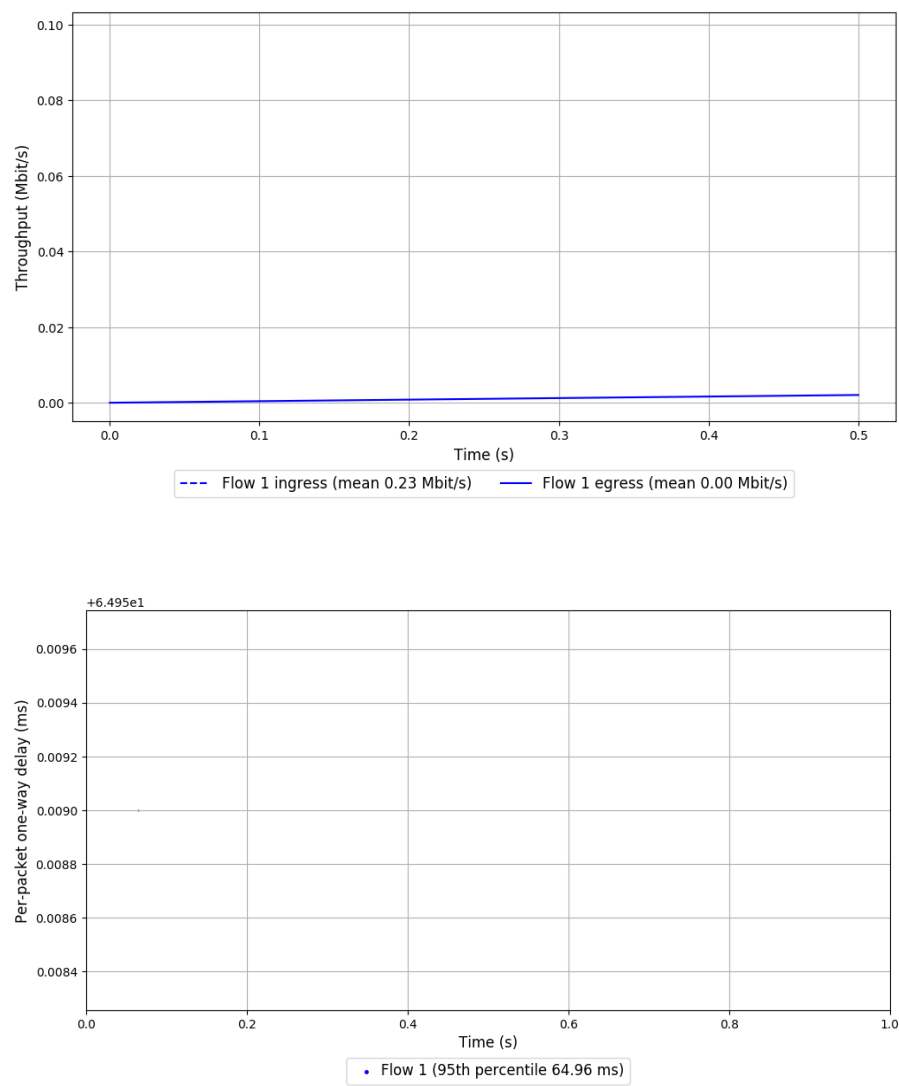
Run 1: Report of Copa — Data Link

Flow 1 ingress (mean 0.34 Mbit/s) --- Flow 1 egress (mean 0.00 Mbit/s)

Flow 1 (95th percentile 61.06 ms)

```
Run 2: Statistics of Copa

Start at: 2018-09-07 10:34:07
End at: 2018-09-07 10:34:37
Local clock offset: -0.472 ms
Remote clock offset: -36.544 ms


# Below is generated by plot.py at 2018-09-07 12:16:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.20 Mbit/s
95th percentile per-packet one-way delay: 59.985 ms
Loss rate: 65.37%
-- Flow 1:
Average throughput: 12.20 Mbit/s
95th percentile per-packet one-way delay: 59.985 ms
Loss rate: 65.37%
```

Run 2: Report of Copa — Data Link

Flow 1 ingress (mean 35.23 Mbit/s)   Flow 1 egress (mean 12.20 Mbit/s)

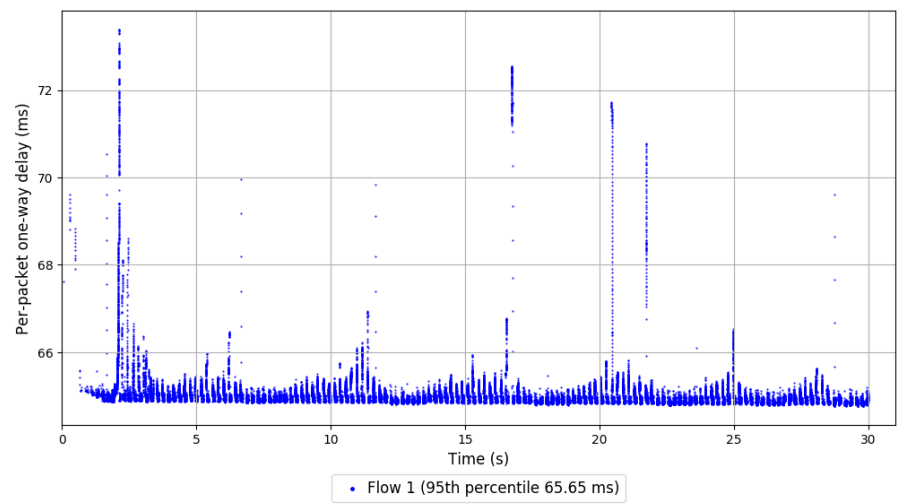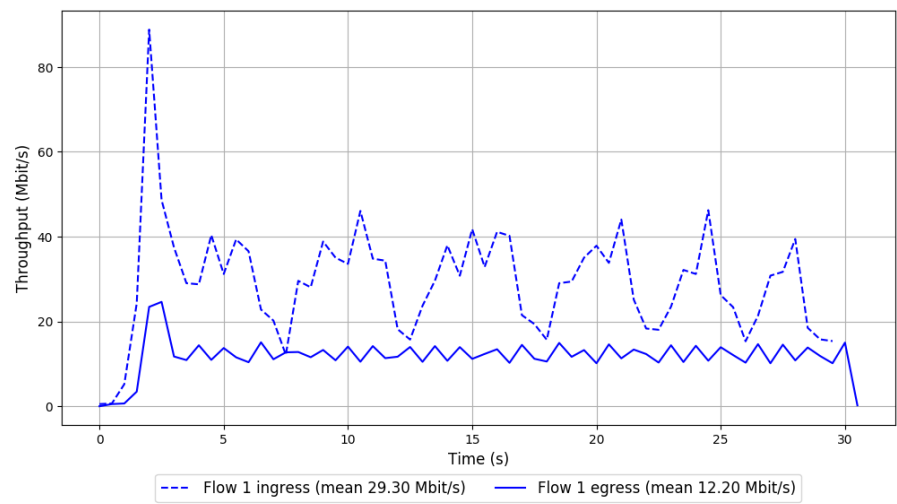Flow 1 (95th percentile 59.98 ms)

```
Run 3: Statistics of Copa

Start at: 2018-09-07 10:57:15
End at: 2018-09-07 10:57:45
Local clock offset: -0.518 ms
Remote clock offset: -31.393 ms


# Below is generated by plot.py at 2018-09-07 12:16:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.20 Mbit/s
95th percentile per-packet one-way delay: 64.780 ms
Loss rate: 57.33%
-- Flow 1:
Average throughput: 12.20 Mbit/s
95th percentile per-packet one-way delay: 64.780 ms
Loss rate: 57.33%
```
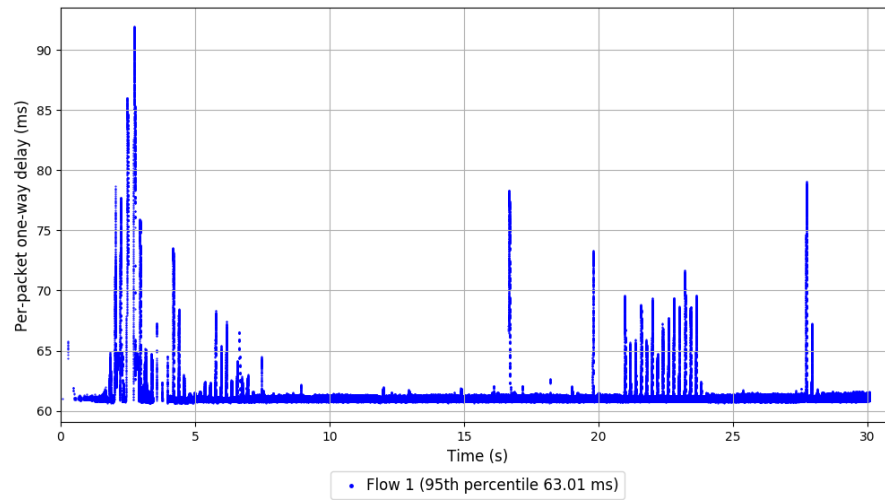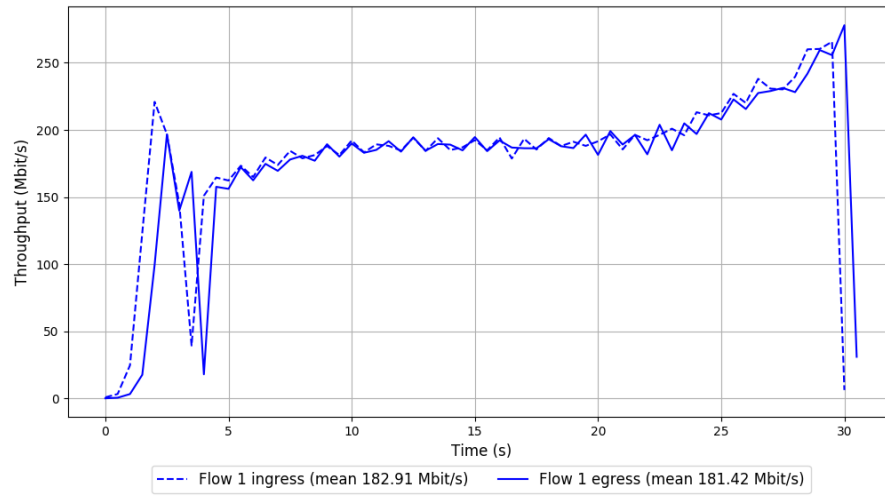
Run 3: Report of Copa — Data Link

```
Run 4: Statistics of Copa

Start at: 2018-09-07 11:25:51
End at: 2018-09-07 11:26:21
Local clock offset: 1.73 ms
Remote clock offset: -31.096 ms
```

Run 4: Report of Copa — Data Link

```
Run 5: Statistics of Copa

Start at: 2018-09-07 11:49:02
End at: 2018-09-07 11:49:32
Local clock offset: -1.03 ms
Remote clock offset: -30.353 ms


# Below is generated by plot.py at 2018-09-07 12:16:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.20 Mbit/s
95th percentile per-packet one-way delay: 65.646 ms
Loss rate: 58.37%
-- Flow 1:
Average throughput: 12.20 Mbit/s
95th percentile per-packet one-way delay: 65.646 ms
Loss rate: 58.37%
```
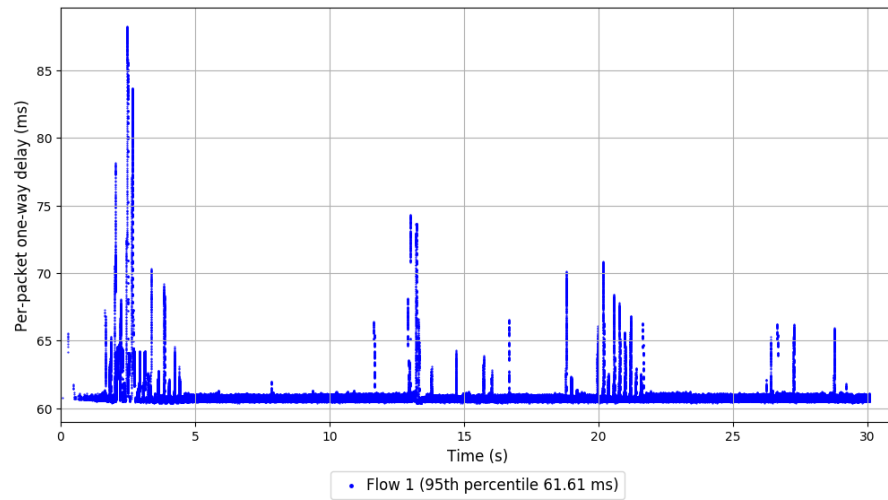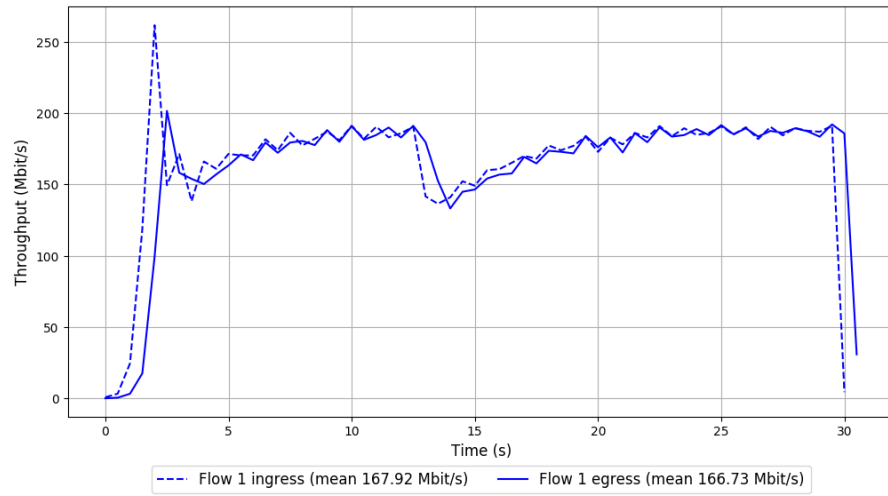
Run 5: Report of Copa — Data Link

```
Run 1: Statistics of TCP Cubic

Start at: 2018-09-07 10:02:43
End at: 2018-09-07 10:03:13
Local clock offset: 1.632 ms
Remote clock offset: -32.161 ms


# Below is generated by plot.py at 2018-09-07 12:16:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 181.42 Mbit/s
95th percentile per-packet one-way delay: 63.013 ms
Loss rate: 0.81%
-- Flow 1:
Average throughput: 181.42 Mbit/s
95th percentile per-packet one-way delay: 63.013 ms
Loss rate: 0.81%
```
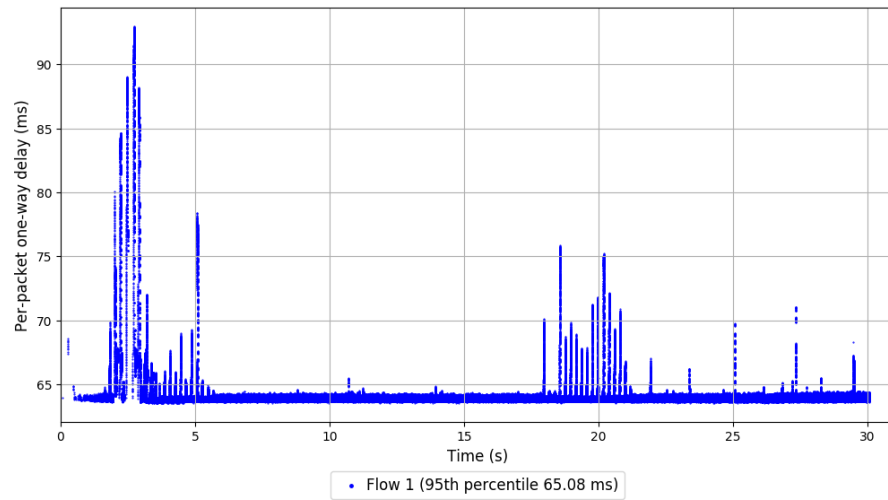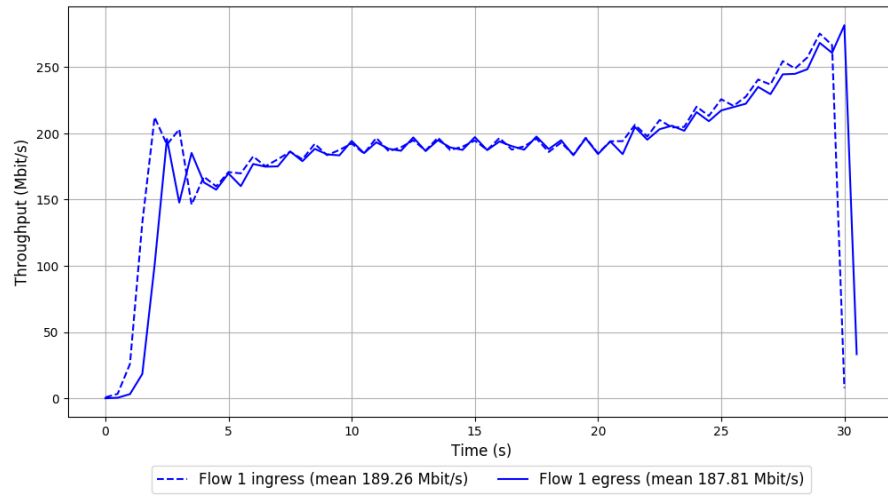
Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2018-09-07 10:31:24
End at: 2018-09-07 10:31:54
Local clock offset: -1.871 ms
Remote clock offset: -35.643 ms


# Below is generated by plot.py at 2018-09-07 12:16:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 166.73 Mbit/s
95th percentile per-packet one-way delay: 61.606 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 166.73 Mbit/s
95th percentile per-packet one-way delay: 61.606 ms
Loss rate: 0.71%
```
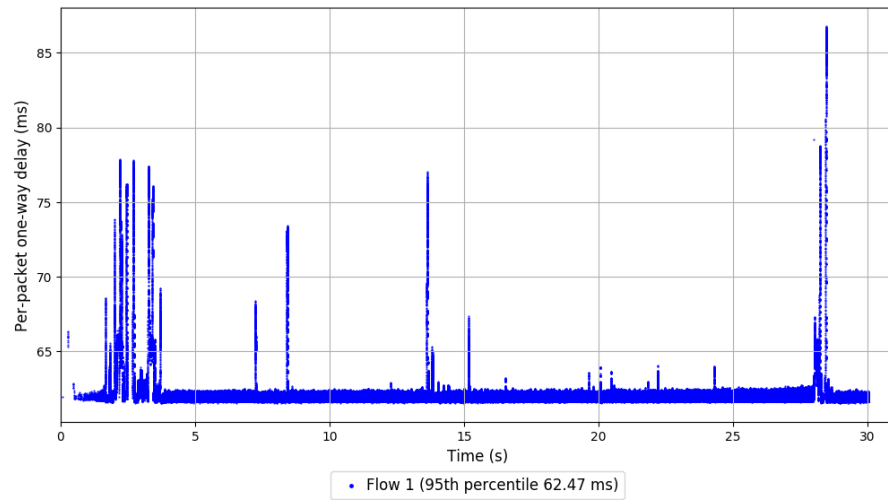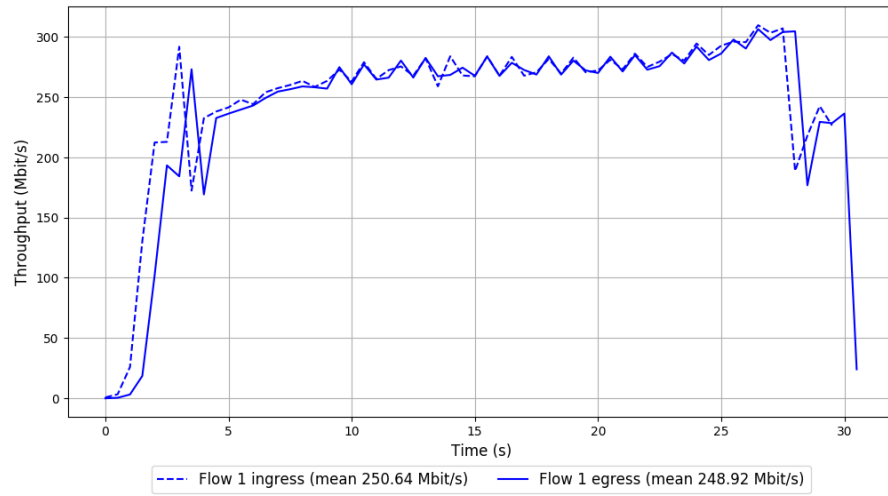
Run 2: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 167.92 Mbit/s) --- Flow 1 egress (mean 166.73 Mbit/s)

Flow 1 (95th percentile 61.61 ms)

```
Run 3: Statistics of TCP Cubic

Start at: 2018-09-07 10:54:33
End at: 2018-09-07 10:55:03
Local clock offset: -1.44 ms
Remote clock offset: -32.682 ms


# Below is generated by plot.py at 2018-09-07 12:16:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 187.81 Mbit/s
95th percentile per-packet one-way delay: 65.085 ms
Loss rate: 0.76%
-- Flow 1:
Average throughput: 187.81 Mbit/s
95th percentile per-packet one-way delay: 65.085 ms
Loss rate: 0.76%
```
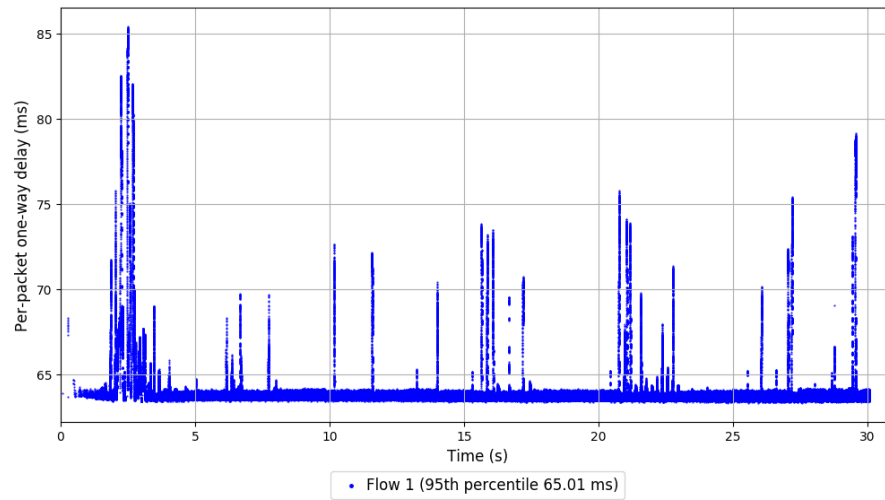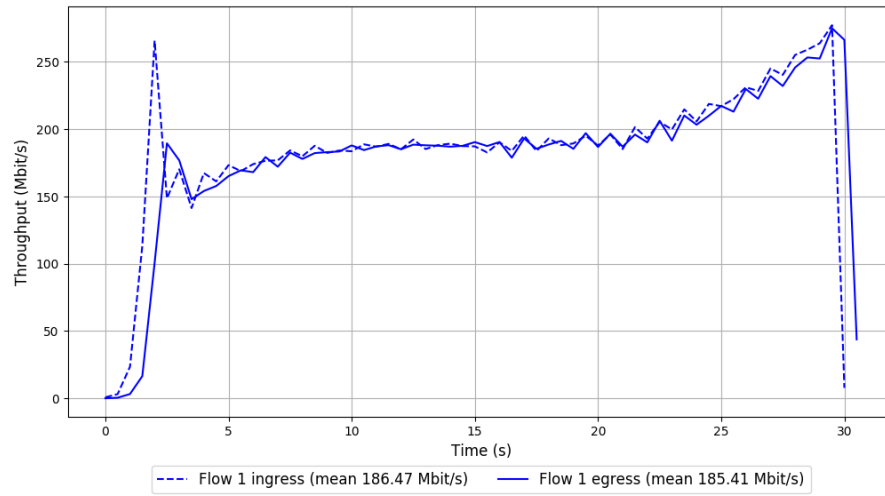
Run 3: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 189.26 Mbit/s)   Flow 1 egress (mean 187.81 Mbit/s)

Flow 1 (95th percentile 65.08 ms)

```
Run 4: Statistics of TCP Cubic

Start at: 2018-09-07 11:17:41
End at: 2018-09-07 11:18:11
Local clock offset: 3.448 ms
Remote clock offset: -30.069 ms


# Below is generated by plot.py at 2018-09-07 12:18:26
# Datalink statistics
-- Total of 1 flow:
Average throughput: 248.92 Mbit/s
95th percentile per-packet one-way delay: 62.465 ms
Loss rate: 0.68%
-- Flow 1:
Average throughput: 248.92 Mbit/s
95th percentile per-packet one-way delay: 62.465 ms
Loss rate: 0.68%
```
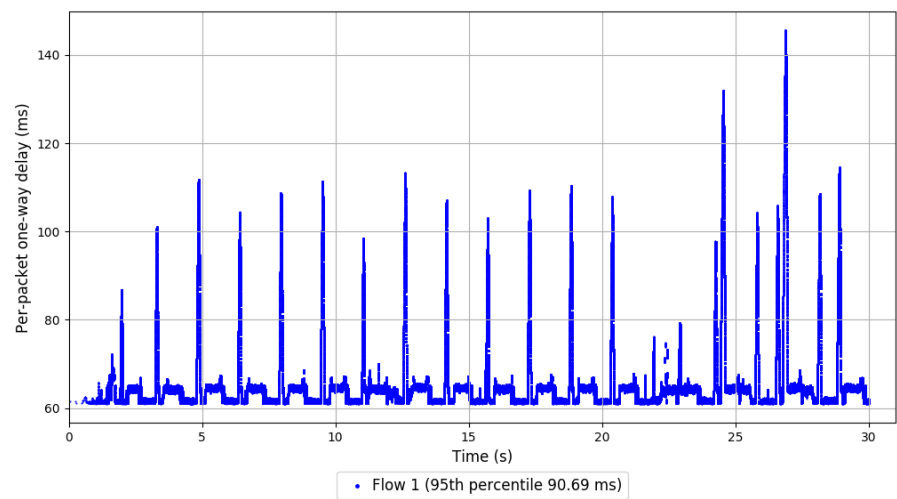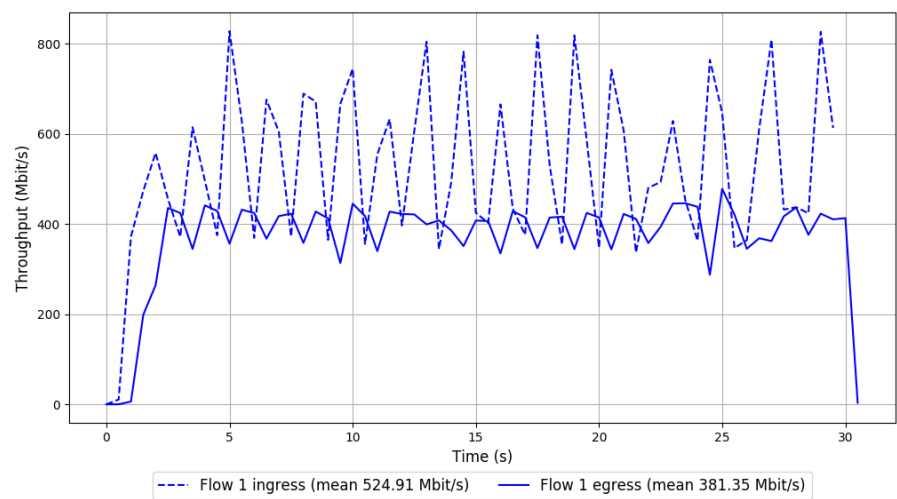
Run 4: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 250.64 Mbit/s)   Flow 1 egress (mean 248.92 Mbit/s)

Flow 1 (95th percentile 62.47 ms)

```
Run 5: Statistics of TCP Cubic

Start at: 2018-09-07 11:46:18
End at: 2018-09-07 11:46:48
Local clock offset: -2.066 ms
Remote clock offset: -35.56 ms


# Below is generated by plot.py at 2018-09-07 12:18:26
# Datalink statistics
-- Total of 1 flow:
Average throughput: 185.41 Mbit/s
95th percentile per-packet one-way delay: 65.011 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 185.41 Mbit/s
95th percentile per-packet one-way delay: 65.011 ms
Loss rate: 0.58%
```

Run 5: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 186.47 Mbit/s) --- Flow 1 egress (mean 185.41 Mbit/s)
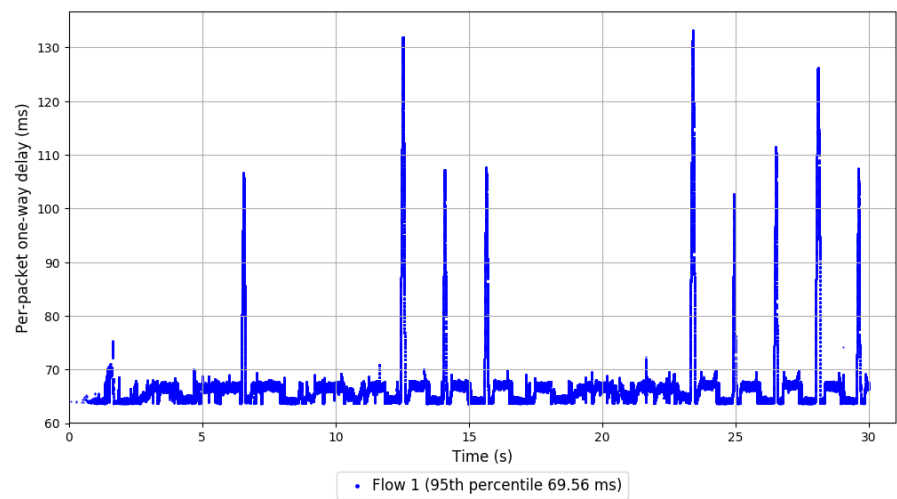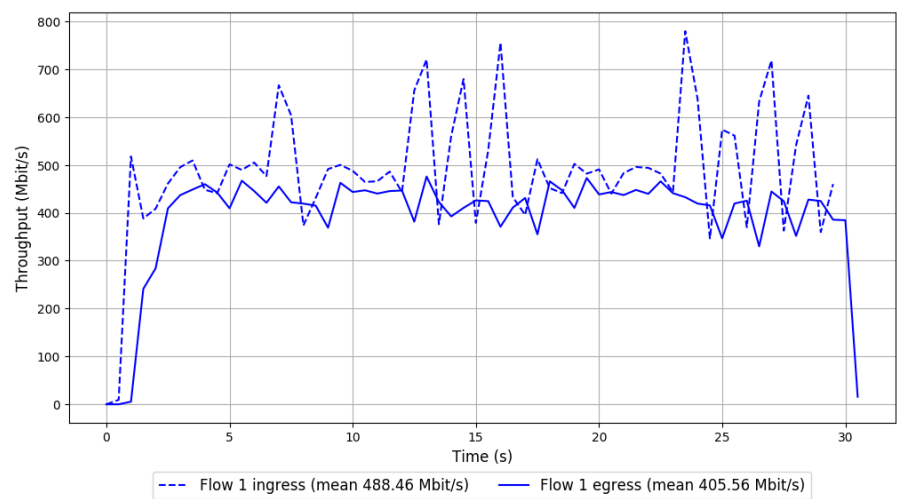

Flow 1 (95th percentile 65.01 ms)

```
Run 1: Statistics of FillP

Start at: 2018-09-07 10:25:15
End at: 2018-09-07 10:25:45
Local clock offset: -0.595 ms
Remote clock offset: -33.943 ms


# Below is generated by plot.py at 2018-09-07 12:21:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 381.35 Mbit/s
95th percentile per-packet one-way delay: 90.695 ms
Loss rate: 27.35%
-- Flow 1:
Average throughput: 381.35 Mbit/s
95th percentile per-packet one-way delay: 90.695 ms
Loss rate: 27.35%
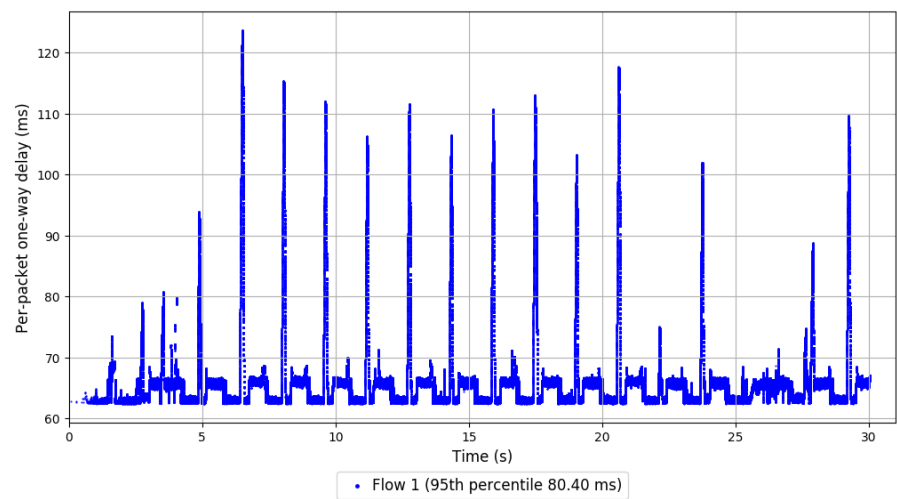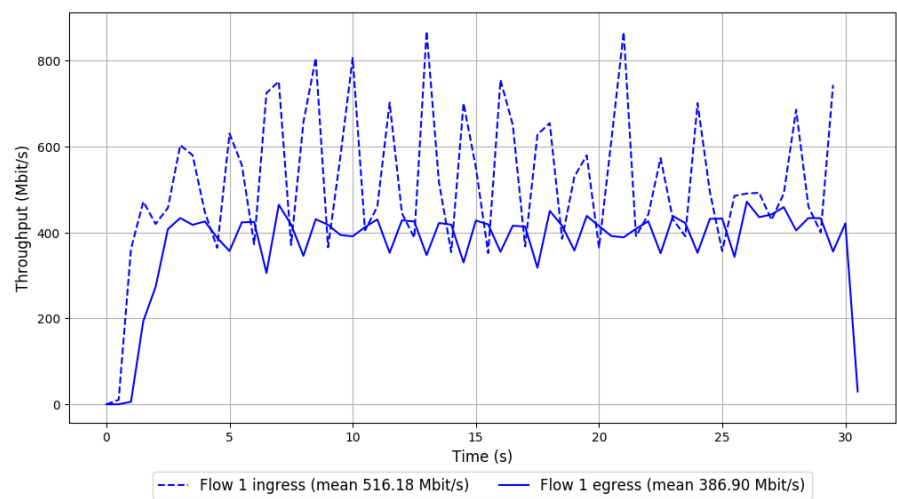```
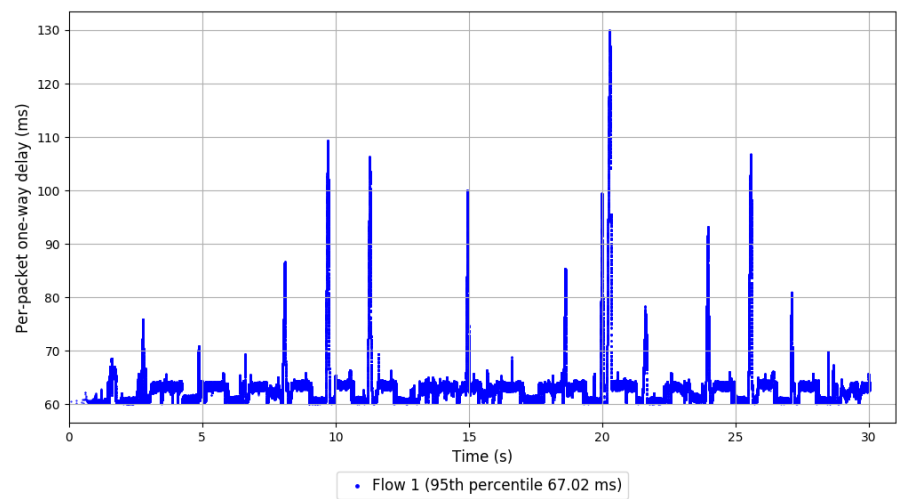
Run 1: Report of FillP — Data Link

```
Run 2: Statistics of FillP

Start at: 2018-09-07 10:48:25
End at: 2018-09-07 10:48:55
Local clock offset: 0.364 ms
Remote clock offset: -30.662 ms

Below is generated by plot.py at 2018-09-07 12:22:26
Datalink statistics
-- Total of 1 flow:
Average throughput: 405.56 Mbit/s
95th percentile per-packet one-way delay: 69.562 ms
Loss rate: 16.97%
-- Flow 1:
Average throughput: 405.56 Mbit/s
95th percentile per-packet one-way delay: 69.562 ms
Loss rate: 16.97%
```
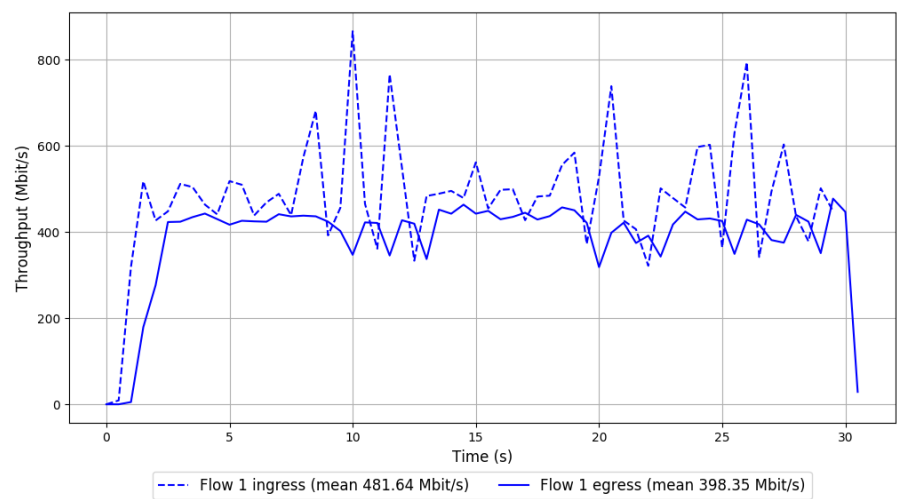
Run 2: Report of FillP — Data Link

```
Run 3: Statistics of FillP

Start at: 2018-09-07 11:11:32
End at: 2018-09-07 11:12:02
Local clock offset: 2.858 ms
Remote clock offset: -32.153 ms

Below is generated by plot.py at 2018-09-07 12:22:26
Datalink statistics
-- Total of 1 flow:
Average throughput: 386.90 Mbit/s
95th percentile per-packet one-way delay: 80.399 ms
Loss rate: 25.04%
-- Flow 1:
Average throughput: 386.90 Mbit/s
95th percentile per-packet one-way delay: 80.399 ms
Loss rate: 25.04%
```
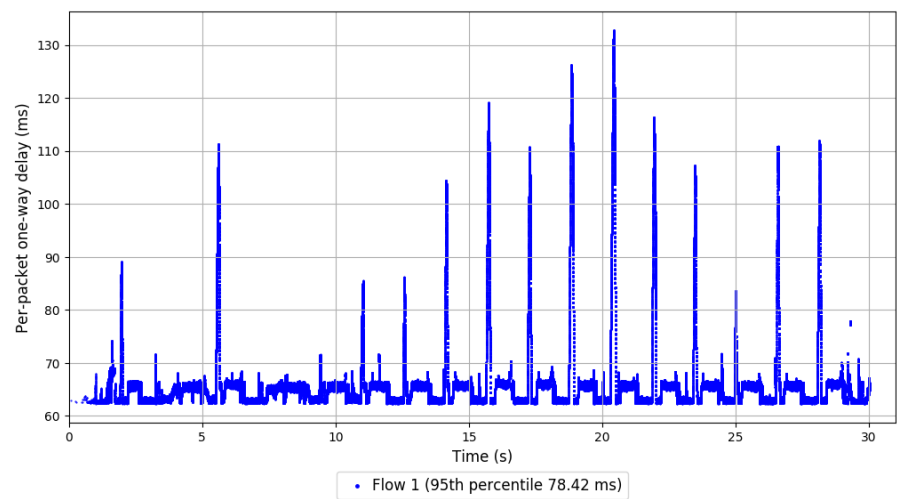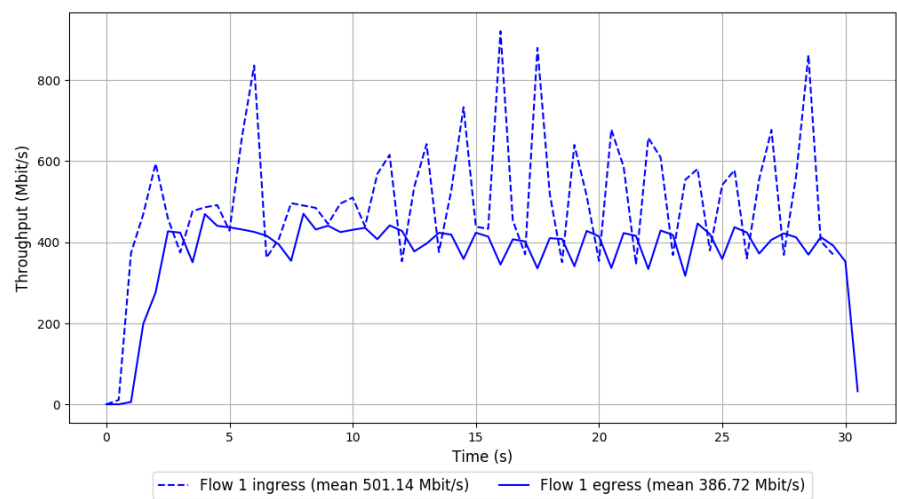
Run 3: Report of FillP — Data Link

```
Run 4: Statistics of FillP

Start at: 2018-09-07 11:40:10
End at: 2018-09-07 11:40:40
Local clock offset: 1.611 ms
Remote clock offset: -35.589 ms


# Below is generated by plot.py at 2018-09-07 12:22:26
# Datalink statistics
-- Total of 1 flow:
Average throughput: 398.35 Mbit/s
95th percentile per-packet one-way delay: 67.016 ms
Loss rate: 17.29%
-- Flow 1:
Average throughput: 398.35 Mbit/s
95th percentile per-packet one-way delay: 67.016 ms
Loss rate: 17.29%
```

Run 4: Report of FillP — Data Link

Flow 1 ingress (mean 481.64 Mbit/s) — Flow 1 egress (mean 398.35 Mbit/s)

• Flow 1 (95th percentile 67.02 ms)

```
Run 5: Statistics of FillP

Start at: 2018-09-07 12:09:04
End at: 2018-09-07 12:09:34
Local clock offset: -2.092 ms
Remote clock offset: -31.789 ms


# Below is generated by plot.py at 2018-09-07 12:22:26
# Datalink statistics
-- Total of 1 flow:
Average throughput: 386.72 Mbit/s
95th percentile per-packet one-way delay: 78.417 ms
Loss rate: 22.83%
-- Flow 1:
Average throughput: 386.72 Mbit/s
95th percentile per-packet one-way delay: 78.417 ms
Loss rate: 22.83%
```
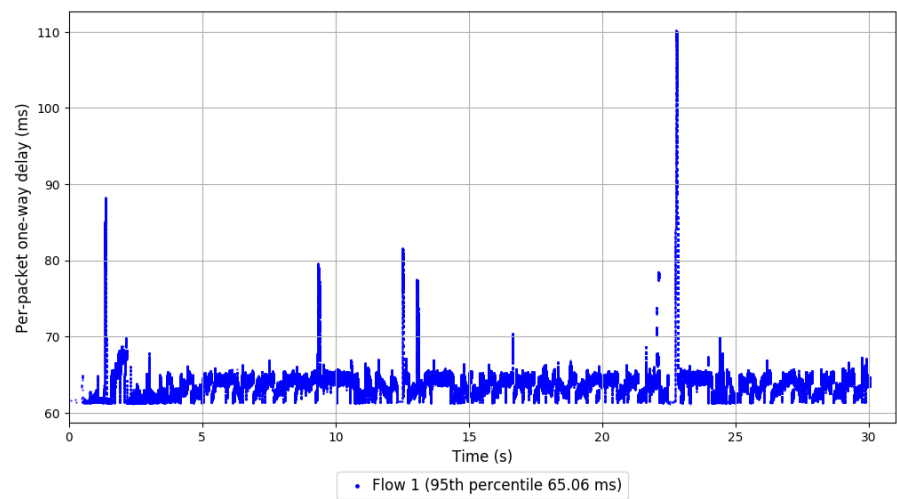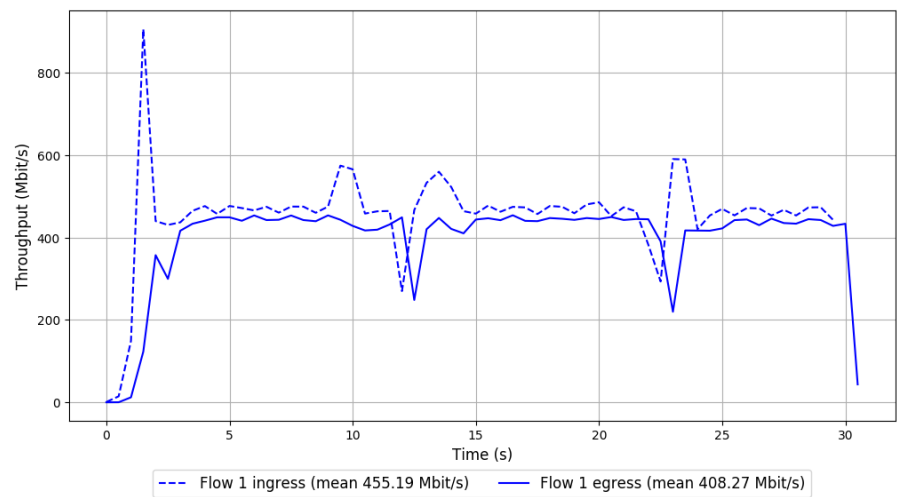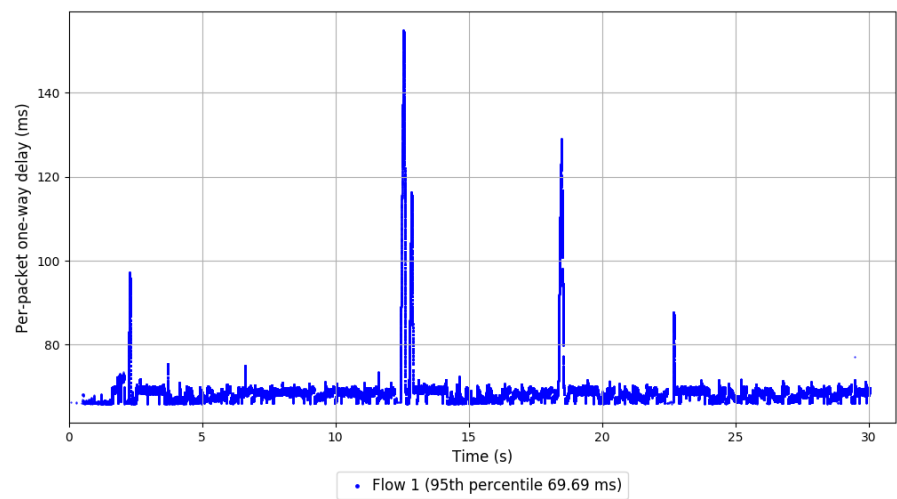
Run 5: Report of FillP — Data Link

Flow 1 ingress (mean 501.14 Mbit/s) --- Flow 1 egress (mean 386.72 Mbit/s)
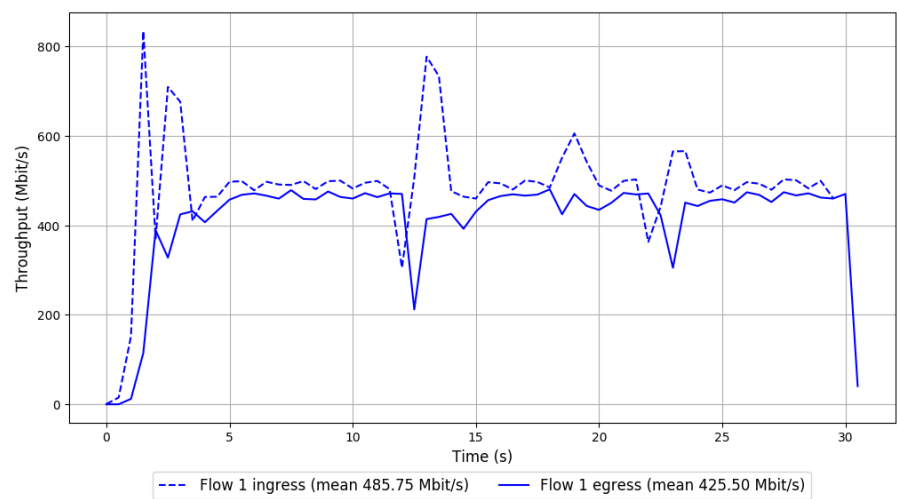

Flow 1 (95th percentile 78.42 ms)

```
Run 1: Statistics of FillP-Sheep

Start at: 2018-09-07 10:21:16
End at: 2018-09-07 10:21:46
Local clock offset: 1.472 ms
Remote clock offset: -31.993 ms


# Below is generated by plot.py at 2018-09-07 12:22:26
# Datalink statistics
-- Total of 1 flow:
Average throughput: 408.27 Mbit/s
95th percentile per-packet one-way delay: 65.059 ms
Loss rate: 10.30%
-- Flow 1:
Average throughput: 408.27 Mbit/s
95th percentile per-packet one-way delay: 65.059 ms
Loss rate: 10.30%
```
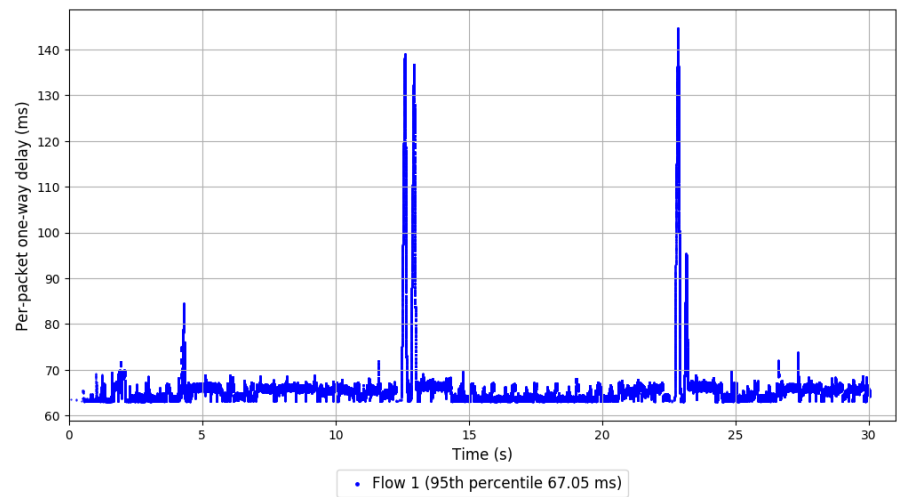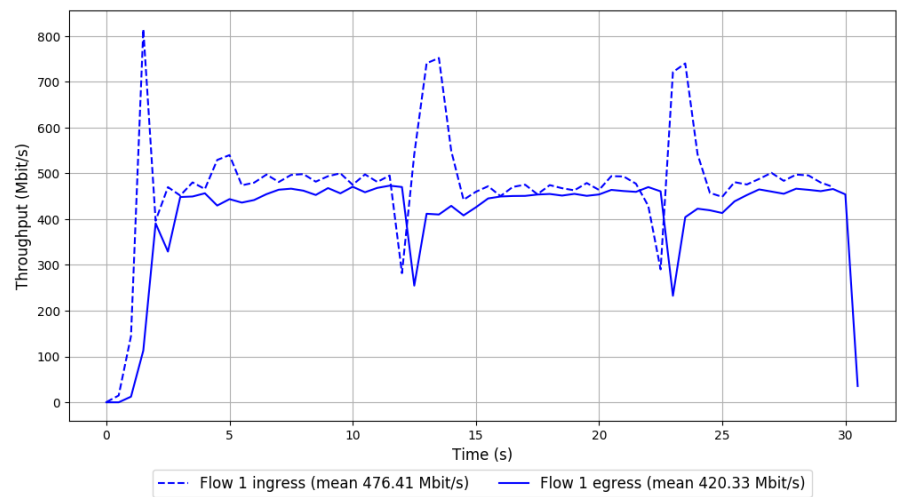
Run 1: Report of FillP-Sheep — Data Link

```
Run 2: Statistics of FillP-Sheep

Start at: 2018-09-07 10:44:23
End at: 2018-09-07 10:44:53
Local clock offset: -0.042 ms
Remote clock offset: -30.974 ms


# Below is generated by plot.py at 2018-09-07 12:24:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 425.50 Mbit/s
95th percentile per-packet one-way delay: 69.693 ms
Loss rate: 12.39%
-- Flow 1:
Average throughput: 425.50 Mbit/s
95th percentile per-packet one-way delay: 69.693 ms
Loss rate: 12.39%
```
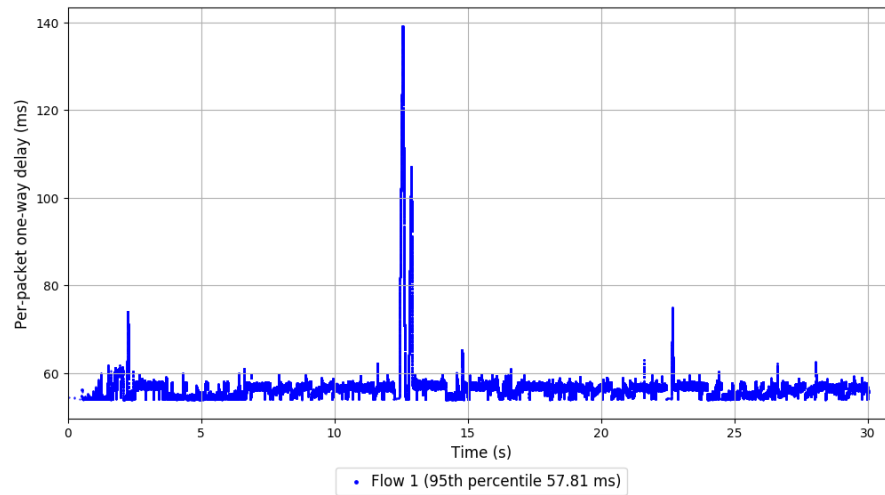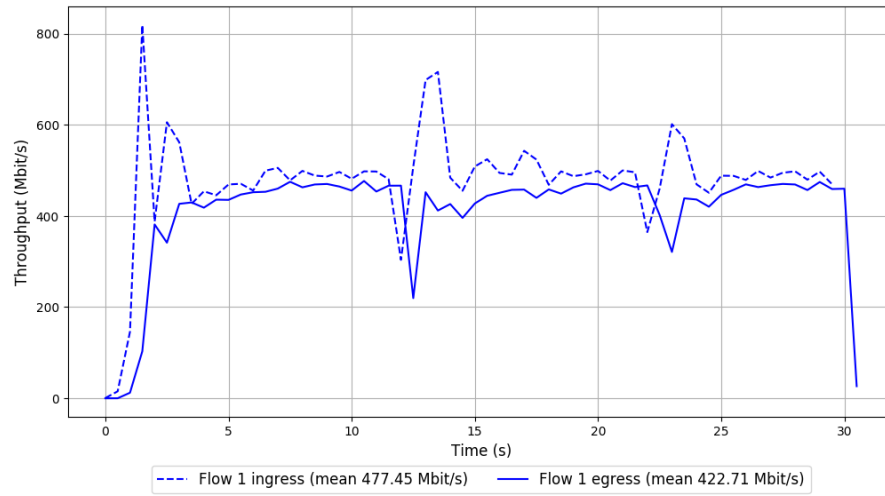
Run 2: Report of FillP-Sheep — Data Link

```
Run 3: Statistics of FillP-Sheep

Start at: 2018-09-07 11:07:32
End at: 2018-09-07 11:08:02
Local clock offset: -0.238 ms
Remote clock offset: -34.689 ms


# Below is generated by plot.py at 2018-09-07 12:24:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 420.33 Mbit/s
95th percentile per-packet one-way delay: 67.049 ms
Loss rate: 11.77%
-- Flow 1:
Average throughput: 420.33 Mbit/s
95th percentile per-packet one-way delay: 67.049 ms
Loss rate: 11.77%
```
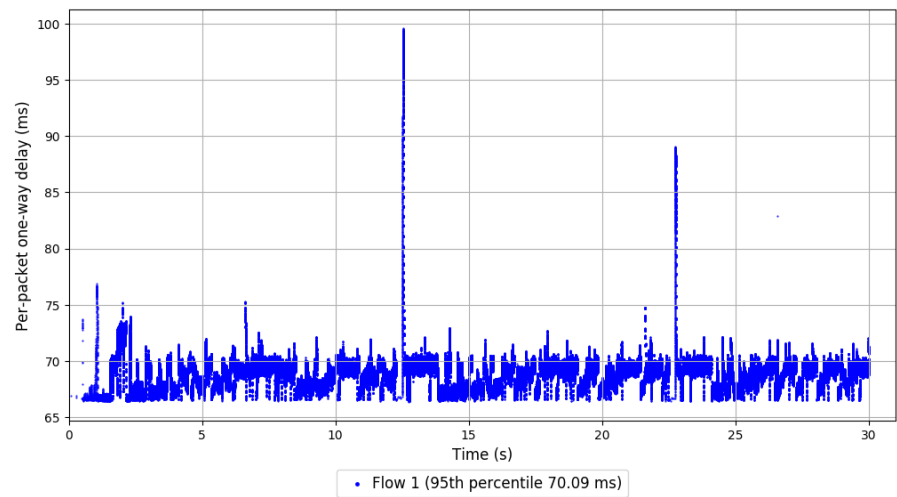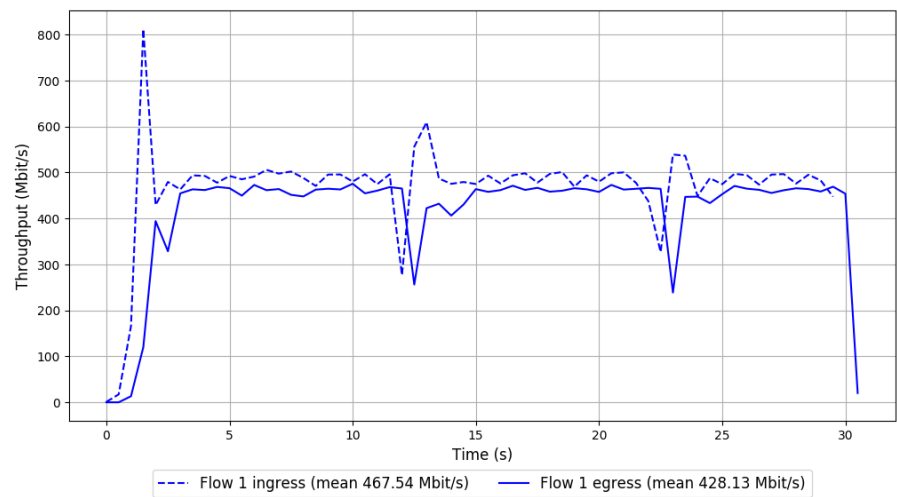
Run 3: Report of FillP-Sheep — Data Link

```
Run 4: Statistics of FillP-Sheep

Start at: 2018-09-07 11:36:09
End at: 2018-09-07 11:36:39
Local clock offset: 3.737 ms
Remote clock offset: -37.238 ms


# Below is generated by plot.py at 2018-09-07 12:28:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 422.71 Mbit/s
95th percentile per-packet one-way delay: 57.815 ms
Loss rate: 11.46%
-- Flow 1:
Average throughput: 422.71 Mbit/s
95th percentile per-packet one-way delay: 57.815 ms
Loss rate: 11.46%
```
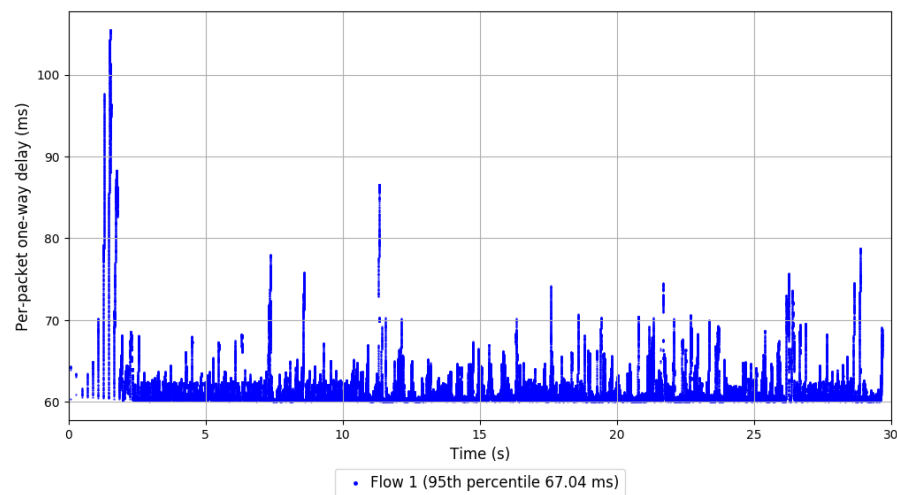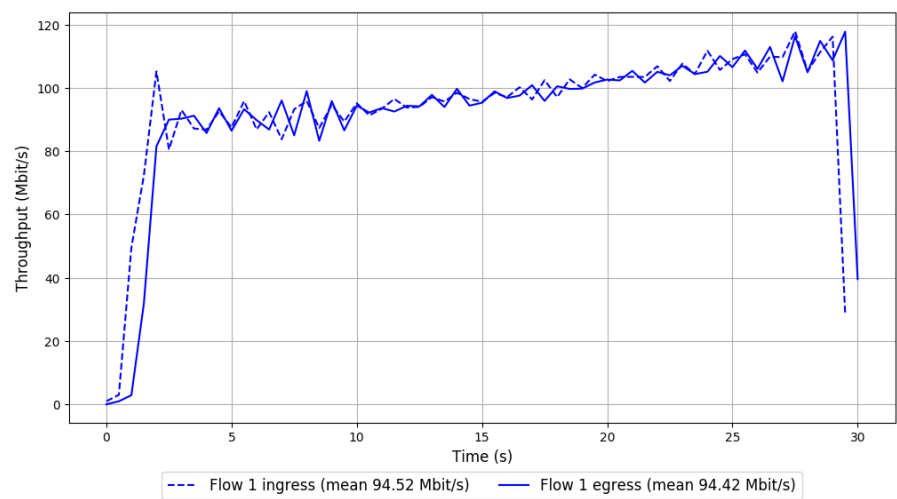
Run 4: Report of FillP-Sheep — Data Link

```
Run 5: Statistics of FillP-Sheep

Start at: 2018-09-07 12:05:02
End at: 2018-09-07 12:05:32
Local clock offset: -0.139 ms
Remote clock offset: -28.427 ms


# Below is generated by plot.py at 2018-09-07 12:28:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 428.13 Mbit/s
95th percentile per-packet one-way delay: 70.090 ms
Loss rate: 8.43%
-- Flow 1:
Average throughput: 428.13 Mbit/s
95th percentile per-packet one-way delay: 70.090 ms
Loss rate: 8.43%
```
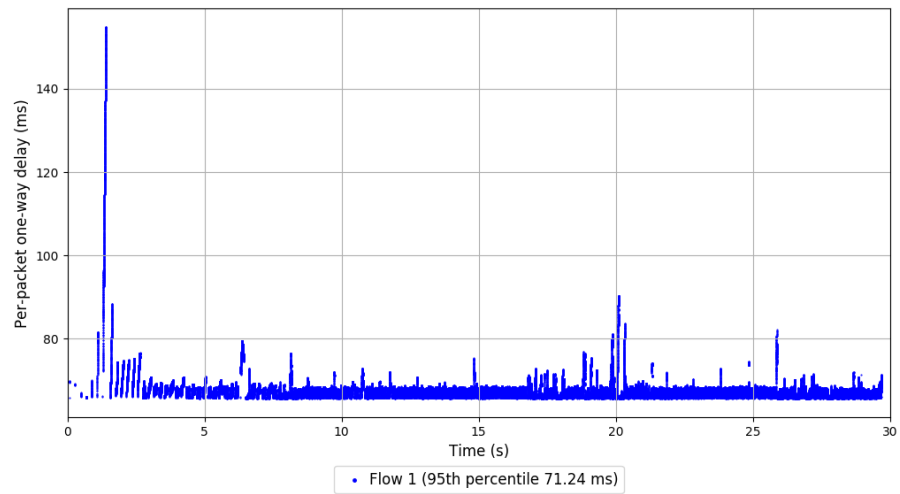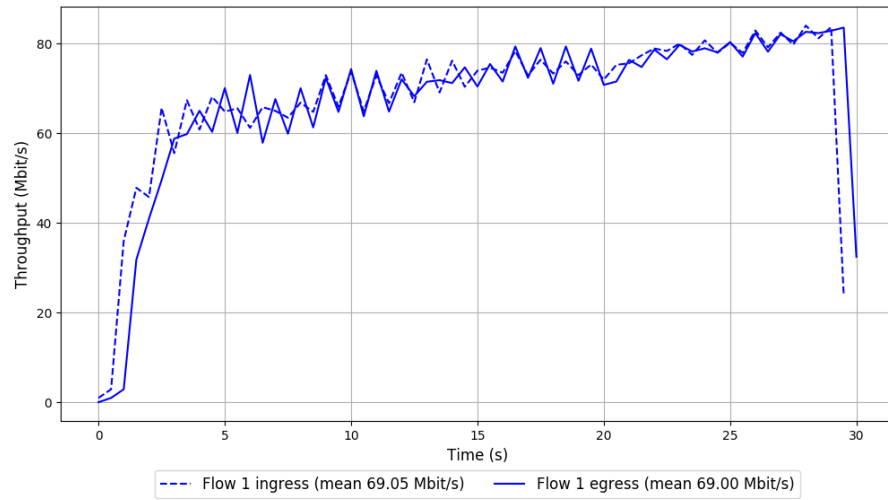
Run 5: Report of FillP-Sheep — Data Link

```
Run 1: Statistics of Indigo

Start at: 2018-09-07 10:17:16
End at: 2018-09-07 10:17:46
Local clock offset: -0.802 ms
Remote clock offset: -35.752 ms


# Below is generated by plot.py at 2018-09-07 12:28:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 94.42 Mbit/s
95th percentile per-packet one-way delay: 67.043 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 94.42 Mbit/s
95th percentile per-packet one-way delay: 67.043 ms
Loss rate: 0.08%
```
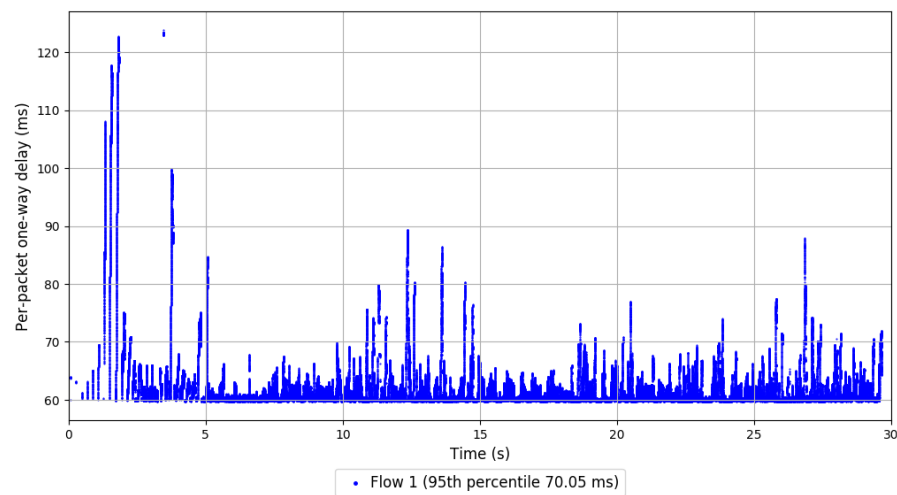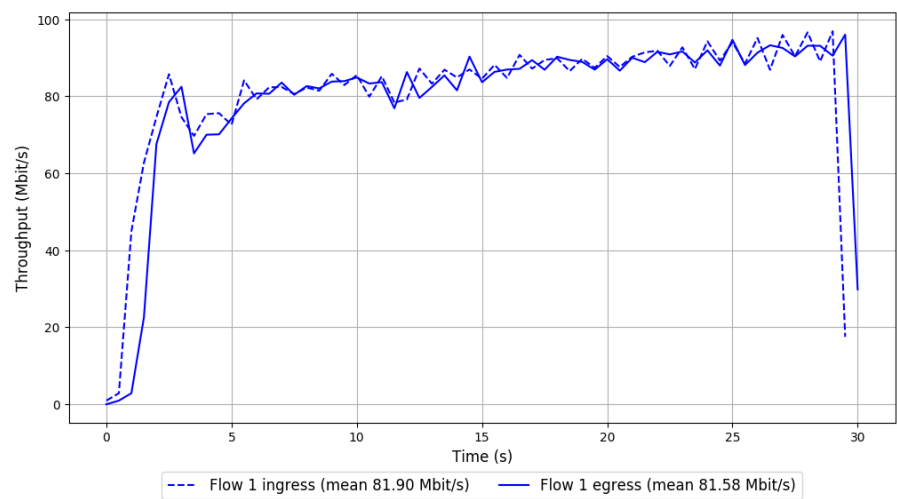
Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2018-09-07 10:40:27
End at: 2018-09-07 10:40:57
Local clock offset: -1.963 ms
Remote clock offset: -33.223 ms


# Below is generated by plot.py at 2018-09-07 12:28:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 69.00 Mbit/s
95th percentile per-packet one-way delay: 71.241 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 69.00 Mbit/s
95th percentile per-packet one-way delay: 71.241 ms
Loss rate: 0.09%
```
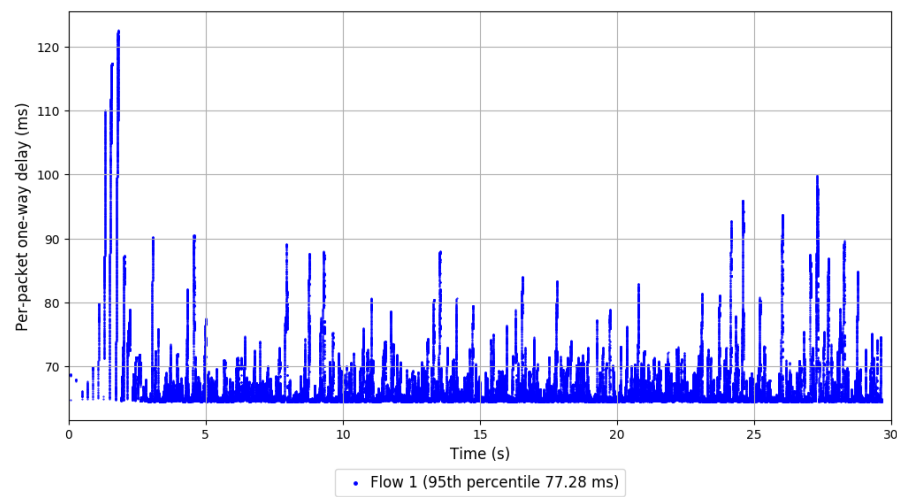
Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2018-09-07 11:03:32
End at: 2018-09-07 11:04:02
Local clock offset: 2.661 ms
Remote clock offset: -35.103 ms


# Below is generated by plot.py at 2018-09-07 12:28:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 81.58 Mbit/s
95th percentile per-packet one-way delay: 70.052 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 81.58 Mbit/s
95th percentile per-packet one-way delay: 70.052 ms
Loss rate: 0.39%
```

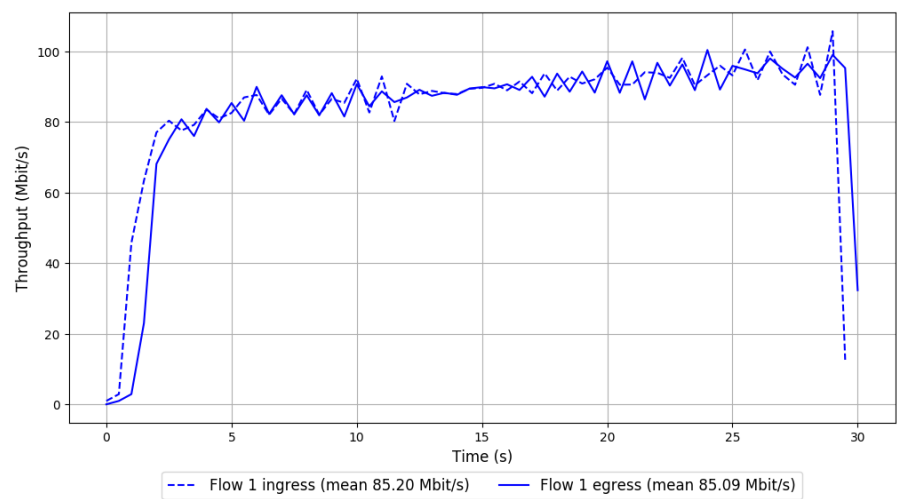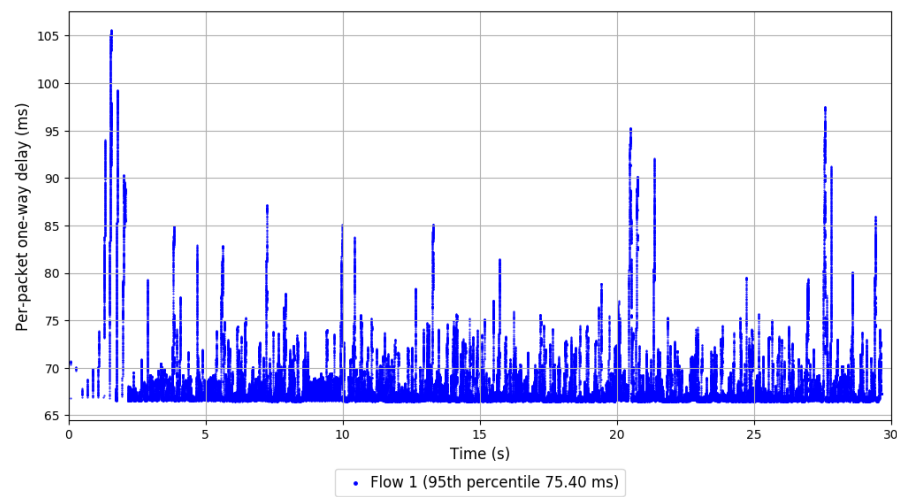Run 3: Report of Indigo — Data Link

```
Run 4: Statistics of Indigo

Start at: 2018-09-07 11:32:11
End at: 2018-09-07 11:32:41
Local clock offset: -1.619 ms
Remote clock offset: -34.997 ms


# Below is generated by plot.py at 2018-09-07 12:28:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 85.09 Mbit/s
95th percentile per-packet one-way delay: 77.280 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 85.09 Mbit/s
95th percentile per-packet one-way delay: 77.280 ms
Loss rate: 0.13%
```

Run 4: Report of Indigo — Data Link

Flow 1 ingress (mean 85.20 Mbit/s)   Flow 1 egress (mean 85.09 Mbit/s)

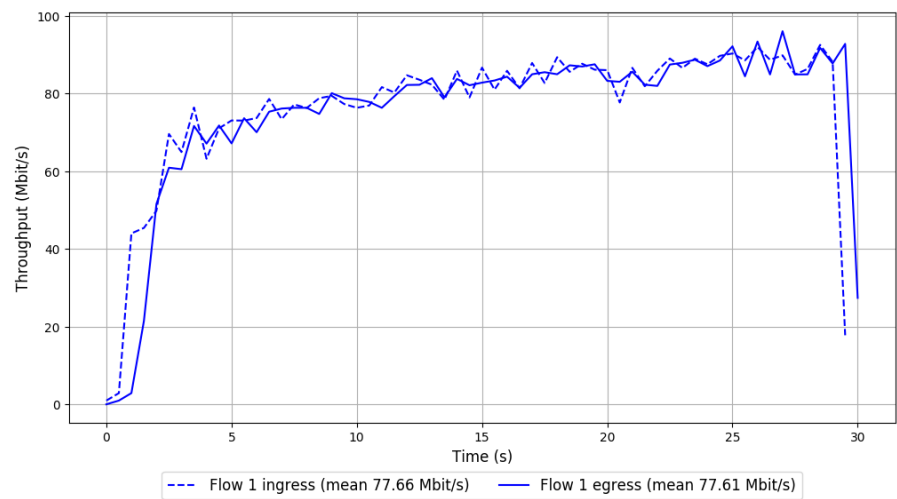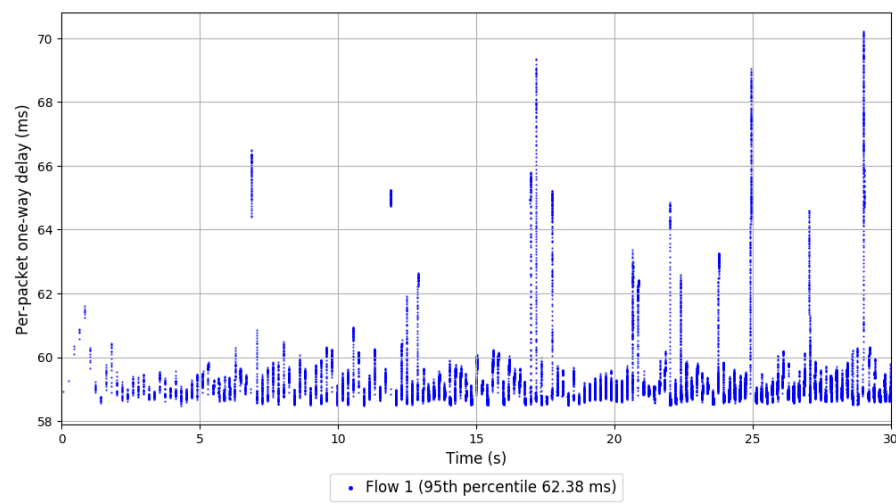Flow 1 (95th percentile 77.28 ms)

```
Run 5: Statistics of Indigo

Start at: 2018-09-07 12:00:51
End at: 2018-09-07 12:01:21
Local clock offset: -2.983 ms
Remote clock offset: -31.558 ms


# Below is generated by plot.py at 2018-09-07 12:28:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 77.61 Mbit/s
95th percentile per-packet one-way delay: 75.404 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 77.61 Mbit/s
95th percentile per-packet one-way delay: 75.404 ms
Loss rate: 0.06%
```
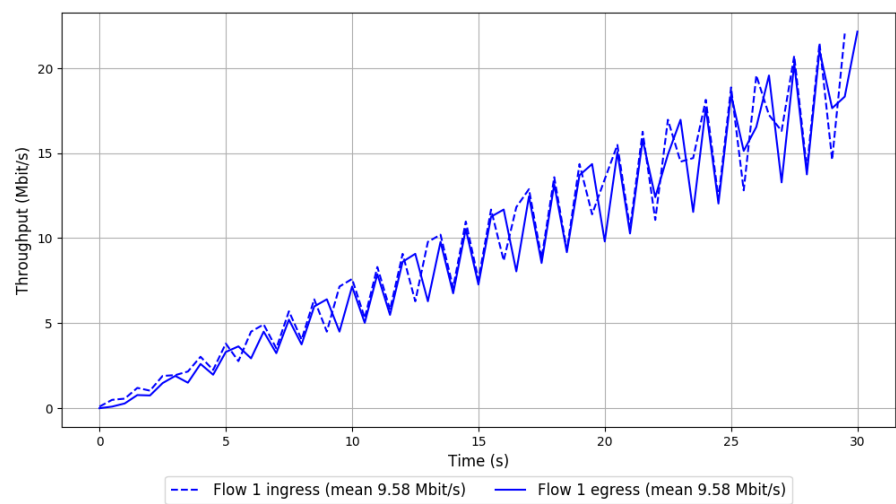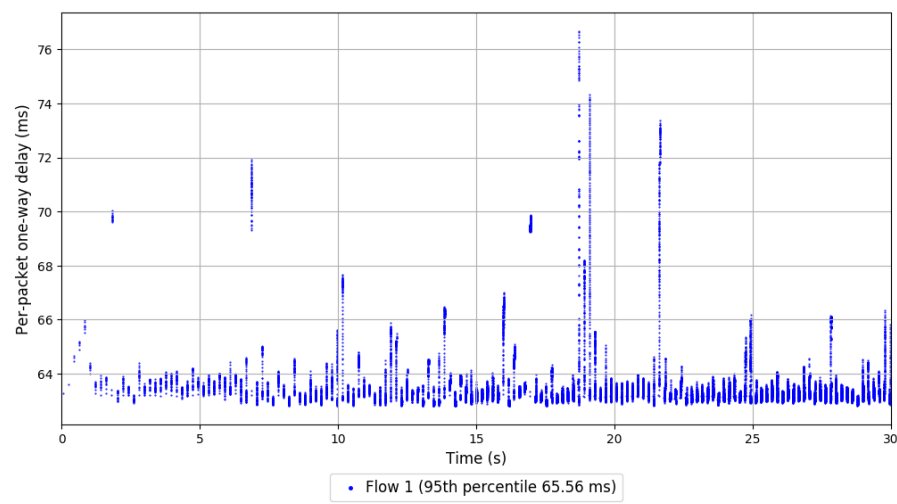
Run 5: Report of Indigo — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2018-09-07 10:12:01
End at: 2018-09-07 10:12:31
Local clock offset: 1.182 ms
Remote clock offset: -35.626 ms


# Below is generated by plot.py at 2018-09-07 12:28:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.58 Mbit/s
95th percentile per-packet one-way delay: 62.375 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 9.58 Mbit/s
95th percentile per-packet one-way delay: 62.375 ms
Loss rate: 0.00%
```

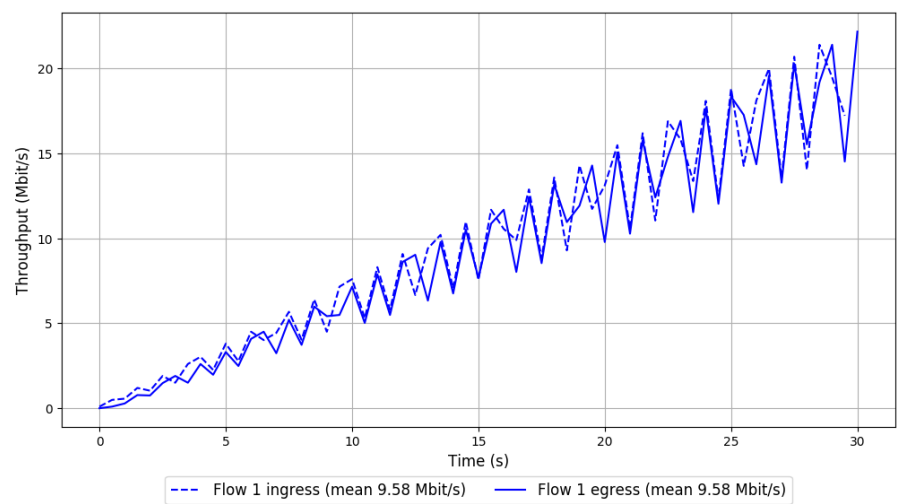Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2018-09-07 10:35:19
End at: 2018-09-07 10:35:49
Local clock offset: -1.594 ms
Remote clock offset: -33.023 ms

# Below is generated by plot.py at 2018-09-07 12:28:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.58 Mbit/s
95th percentile per-packet one-way delay: 65.555 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 9.58 Mbit/s
95th percentile per-packet one-way delay: 65.555 ms
Loss rate: 0.00%
```

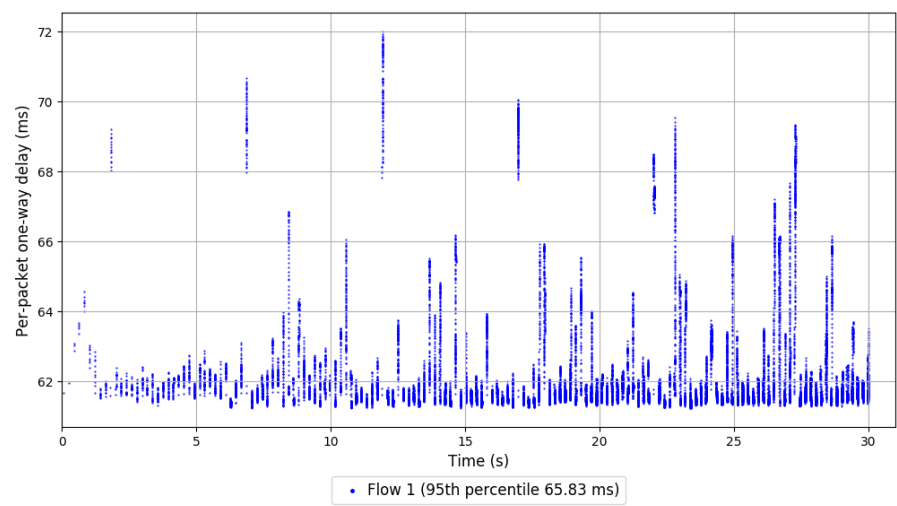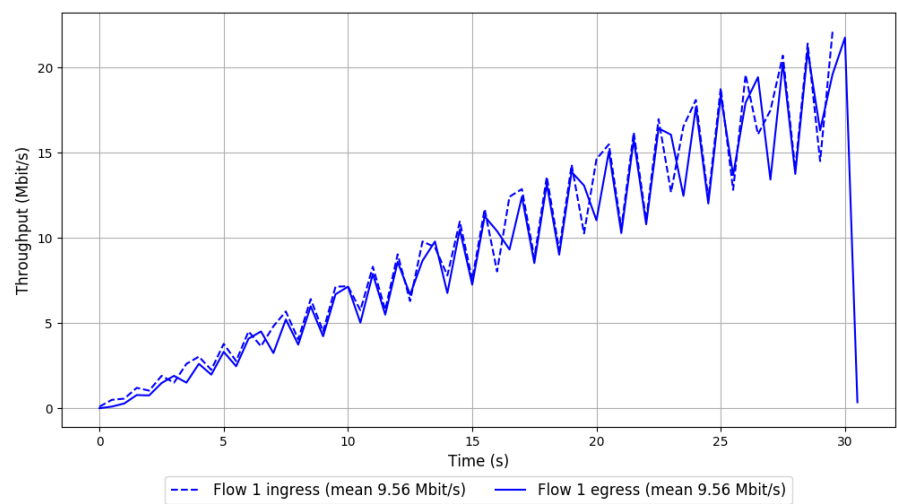Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2018-09-07 10:58:27
End at: 2018-09-07 10:58:57
Local clock offset: -2.755 ms
Remote clock offset: -36.447 ms


# Below is generated by plot.py at 2018-09-07 12:28:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.56 Mbit/s
95th percentile per-packet one-way delay: 65.829 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 9.56 Mbit/s
95th percentile per-packet one-way delay: 65.829 ms
Loss rate: 0.00%
```

Run 3: Report of LEDBAT — Data Link

Flow 1 ingress (mean 9.56 Mbit/s) --- Flow 1 egress (mean 9.56 Mbit/s)

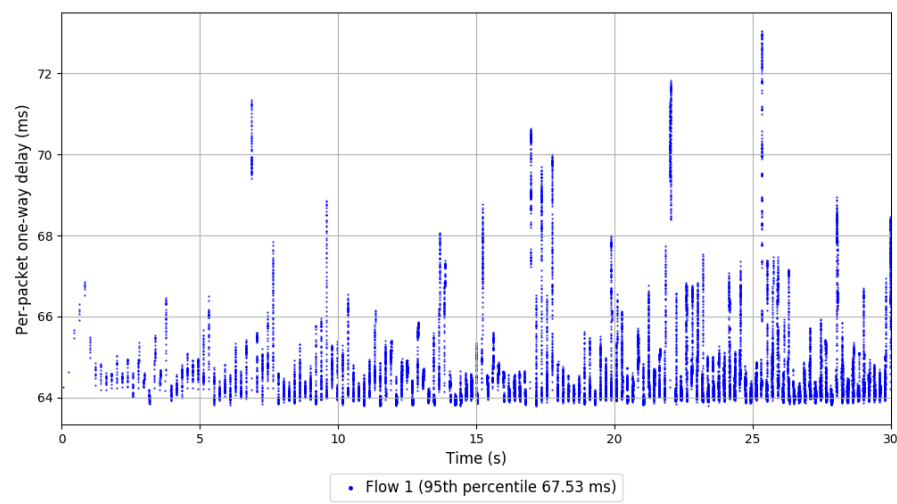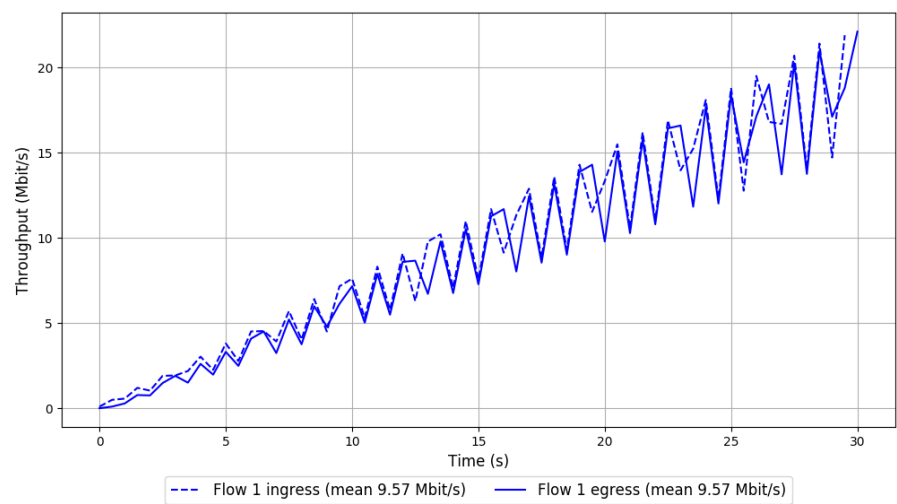Flow 1 (95th percentile 65.83 ms)

```
Run 4: Statistics of LEDBAT

Start at: 2018-09-07 11:27:01
End at: 2018-09-07 11:27:31
Local clock offset: 0.572 ms
Remote clock offset: -30.804 ms


# Below is generated by plot.py at 2018-09-07 12:28:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.57 Mbit/s
95th percentile per-packet one-way delay: 67.531 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 9.57 Mbit/s
95th percentile per-packet one-way delay: 67.531 ms
Loss rate: 0.00%
```

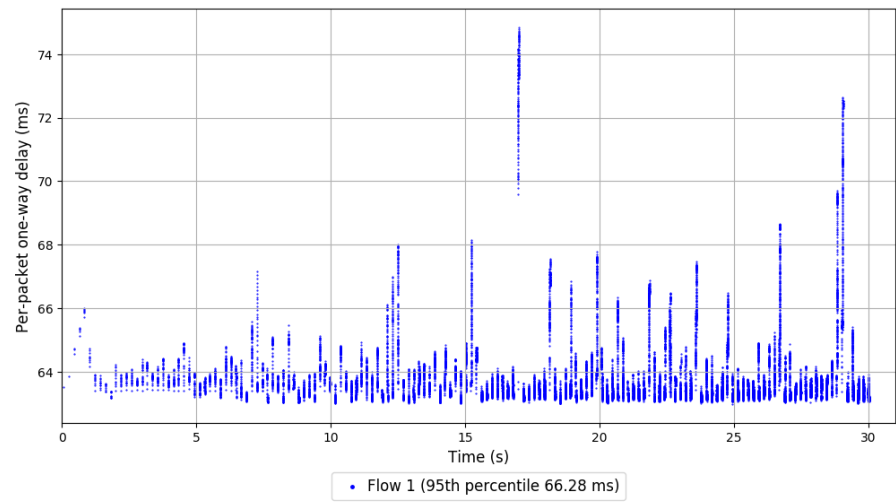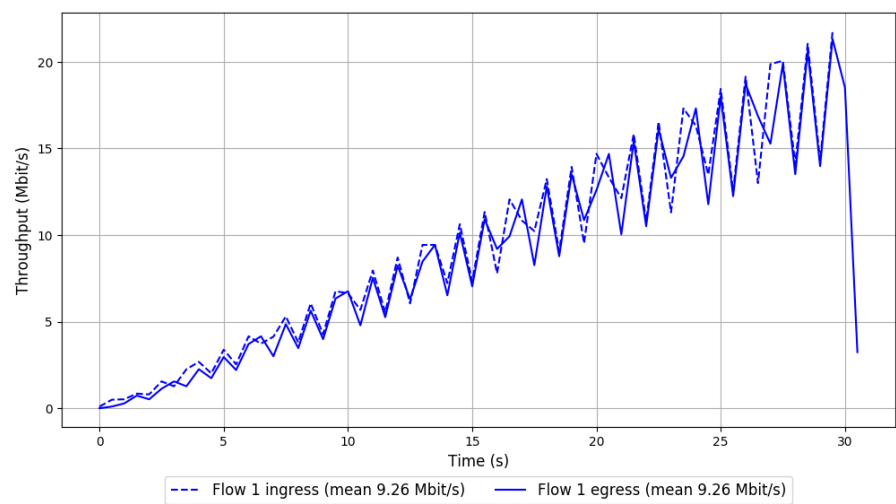Run 4: Report of LEDBAT — Data Link

```
Run 5: Statistics of LEDBAT

Start at: 2018-09-07 11:50:14
End at: 2018-09-07 11:50:44
Local clock offset: -2.515 ms
Remote clock offset: -33.356 ms


# Below is generated by plot.py at 2018-09-07 12:28:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.26 Mbit/s
95th percentile per-packet one-way delay: 66.281 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 9.26 Mbit/s
95th percentile per-packet one-way delay: 66.281 ms
Loss rate: 0.00%
```

Run 5: Report of LEDBAT — Data Link

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

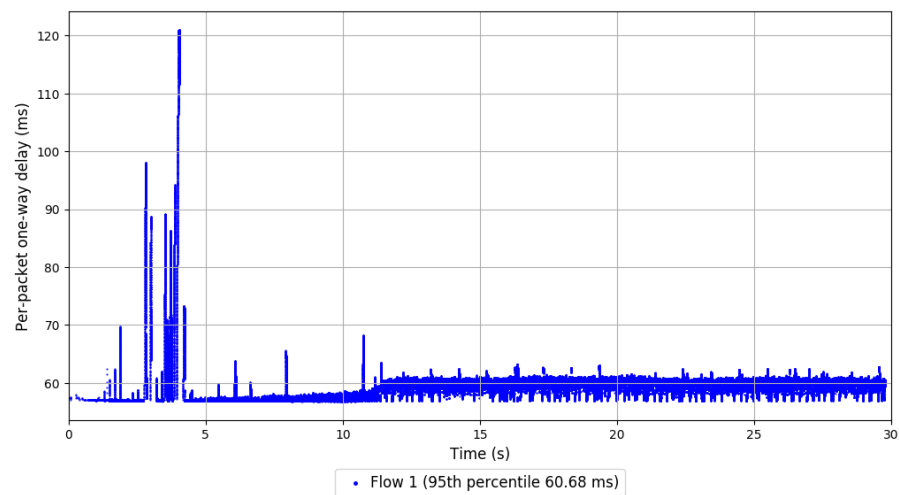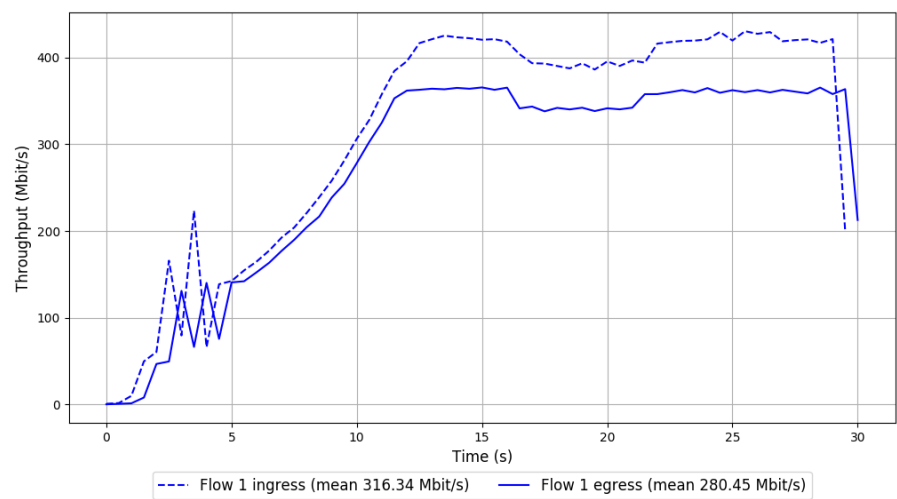· Flow 1 (95th percentile 66.28 ms)

```
Run 1: Statistics of Indigo-Muses

Start at: 2018-09-07 10:04:02
End at: 2018-09-07 10:04:32
Local clock offset: 2.527 ms
Remote clock offset: -35.373 ms


# Below is generated by plot.py at 2018-09-07 12:28:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 280.45 Mbit/s
95th percentile per-packet one-way delay: 60.682 ms
Loss rate: 11.34%
-- Flow 1:
Average throughput: 280.45 Mbit/s
95th percentile per-packet one-way delay: 60.682 ms
Loss rate: 11.34%
```
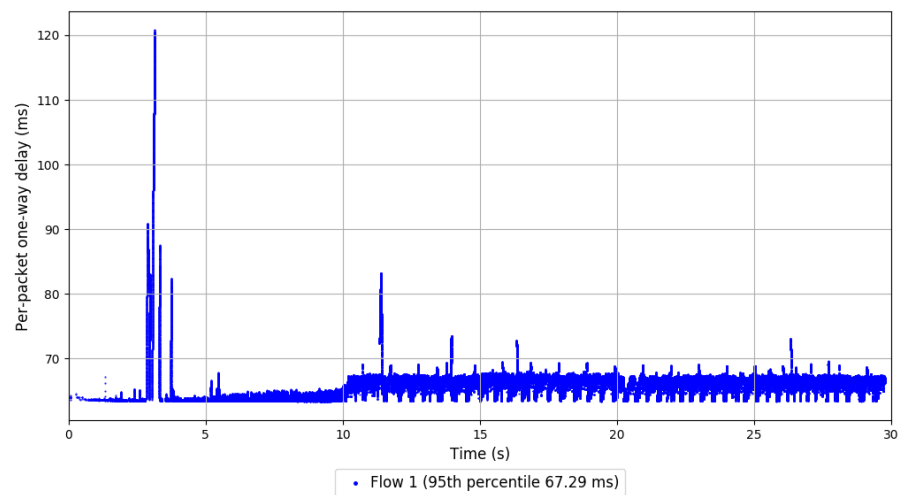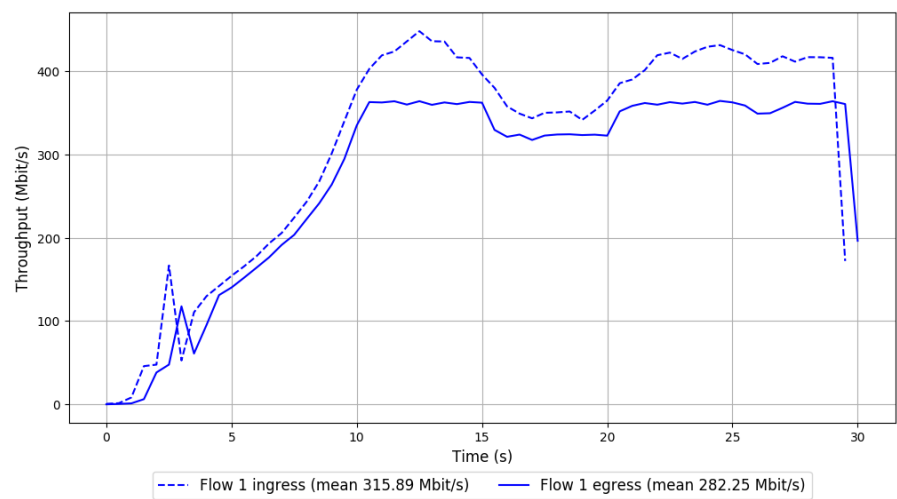
Run 1: Report of Indigo-Muses — Data Link

```
Run 2: Statistics of Indigo-Muses

Start at: 2018-09-07 10:32:42
End at: 2018-09-07 10:33:12
Local clock offset: -1.964 ms
Remote clock offset: -35.424 ms


# Below is generated by plot.py at 2018-09-07 12:28:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 282.25 Mbit/s
95th percentile per-packet one-way delay: 67.289 ms
Loss rate: 10.65%
-- Flow 1:
Average throughput: 282.25 Mbit/s
95th percentile per-packet one-way delay: 67.289 ms
Loss rate: 10.65%
```

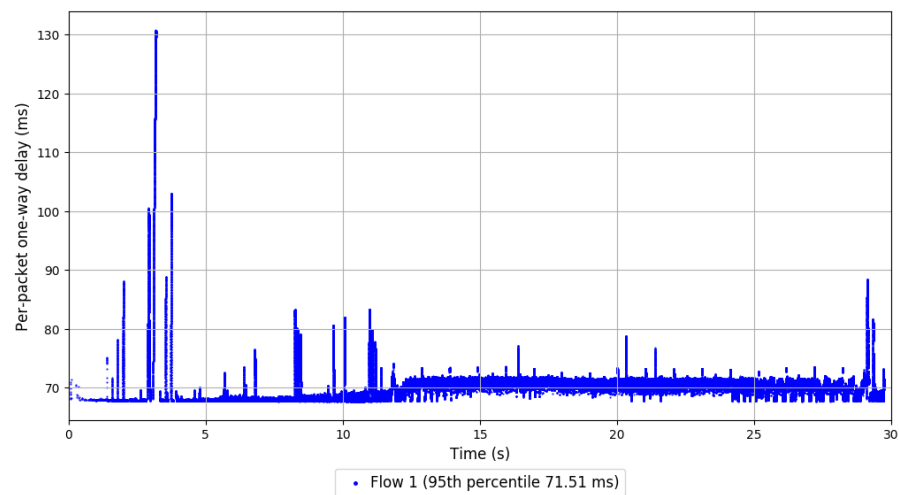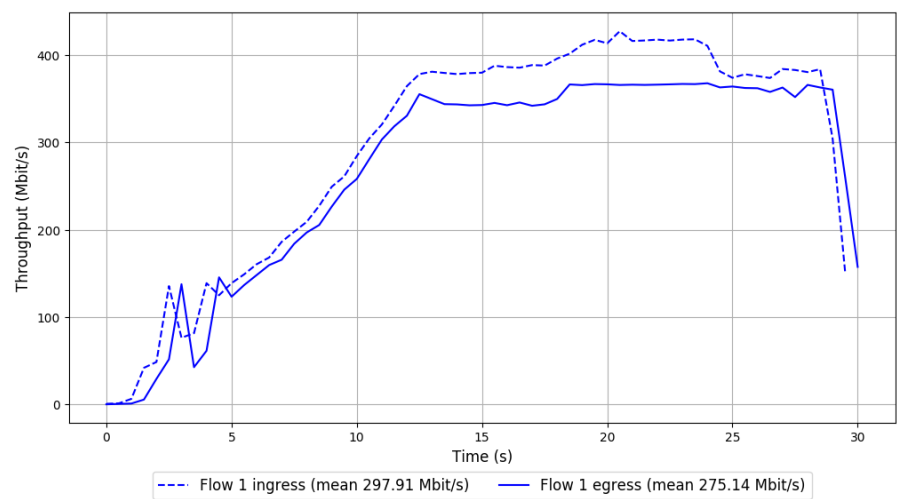## Run 2: Report of Indigo-Muses — Data Link

```
Run 3: Statistics of Indigo-Muses

Start at: 2018-09-07 10:55:52
End at: 2018-09-07 10:56:22
Local clock offset: -3.835 ms
Remote clock offset: -31.366 ms


# Below is generated by plot.py at 2018-09-07 12:28:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 275.14 Mbit/s
95th percentile per-packet one-way delay: 71.508 ms
Loss rate: 7.64%
-- Flow 1:
Average throughput: 275.14 Mbit/s
95th percentile per-packet one-way delay: 71.508 ms
Loss rate: 7.64%
```

Run 3: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 297.91 Mbit/s)   Flow 1 egress (mean 275.14 Mbit/s)
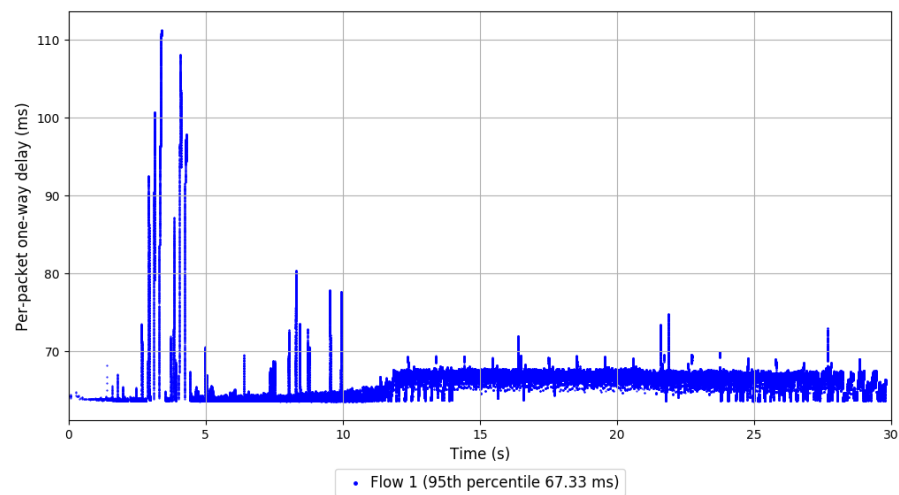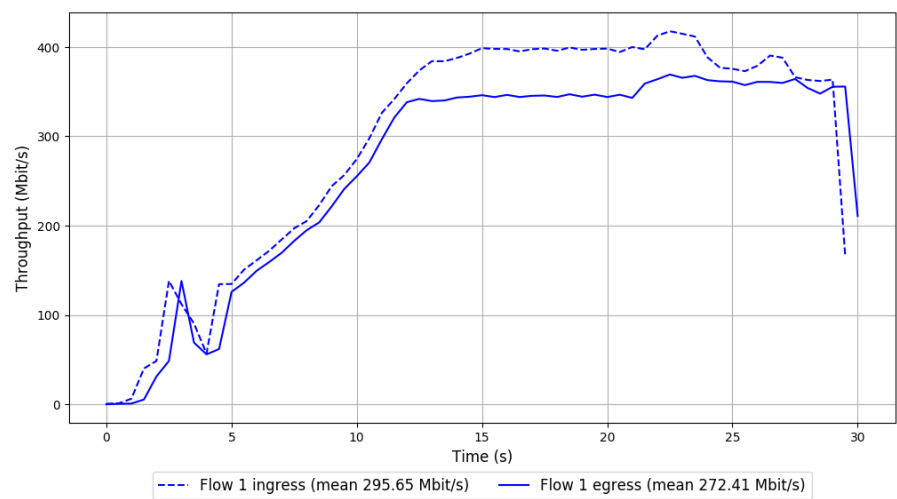

Flow 1 (95th percentile 71.51 ms)

```
Run 4: Statistics of Indigo-Muses

Start at: 2018-09-07 11:19:02
End at: 2018-09-07 11:19:32
Local clock offset: -0.695 ms
Remote clock offset: -32.54 ms


# Below is generated by plot.py at 2018-09-07 12:28:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 272.41 Mbit/s
95th percentile per-packet one-way delay: 67.326 ms
Loss rate: 7.85%
-- Flow 1:
Average throughput: 272.41 Mbit/s
95th percentile per-packet one-way delay: 67.326 ms
Loss rate: 7.85%
```

Run 4: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 295.65 Mbit/s)   Flow 1 egress (mean 272.41 Mbit/s)
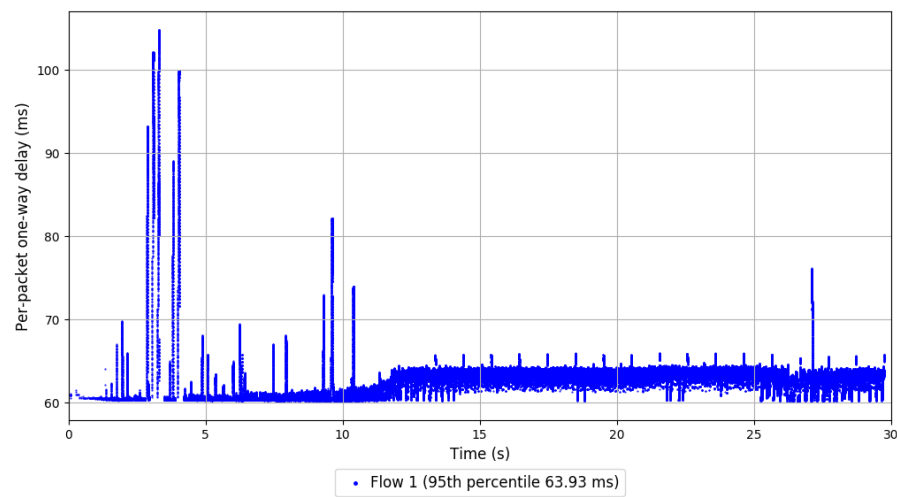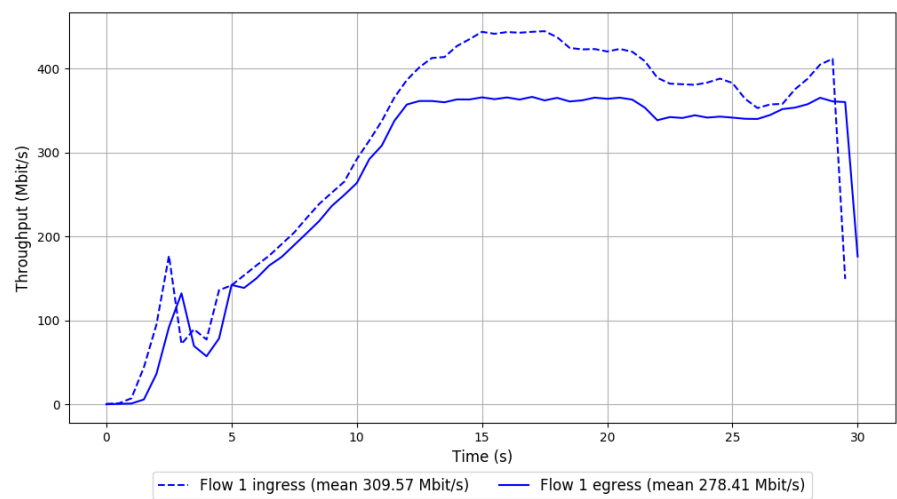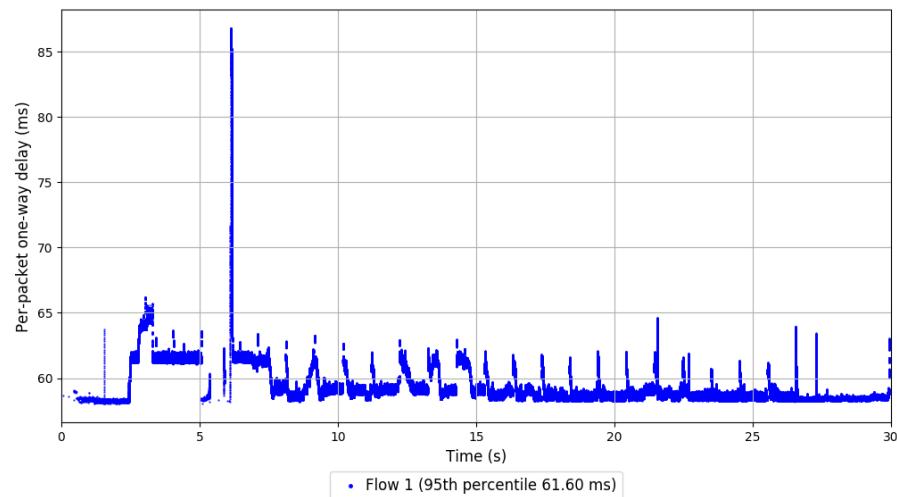

Flow 1 (95th percentile 67.33 ms)

```
Run 5: Statistics of Indigo-Muses

Start at: 2018-09-07 11:47:38
End at: 2018-09-07 11:48:08
Local clock offset: 2.608 ms
Remote clock offset: -31.557 ms


# Below is generated by plot.py at 2018-09-07 12:28:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 278.41 Mbit/s
95th percentile per-packet one-way delay: 63.929 ms
Loss rate: 10.05%
-- Flow 1:
Average throughput: 278.41 Mbit/s
95th percentile per-packet one-way delay: 63.929 ms
Loss rate: 10.05%
```
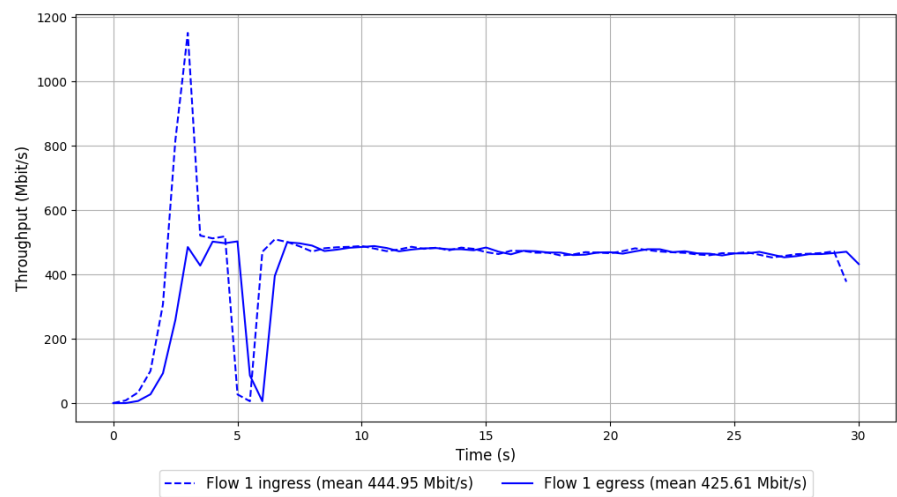
Run 5: Report of Indigo-Muses — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2018-09-07 10:18:32
End at: 2018-09-07 10:19:02
Local clock offset: 1.408 ms
Remote clock offset: -35.258 ms


# Below is generated by plot.py at 2018-09-07 12:30:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 425.61 Mbit/s
95th percentile per-packet one-way delay: 61.601 ms
Loss rate: 4.33%
-- Flow 1:
Average throughput: 425.61 Mbit/s
95th percentile per-packet one-way delay: 61.601 ms
Loss rate: 4.33%
```
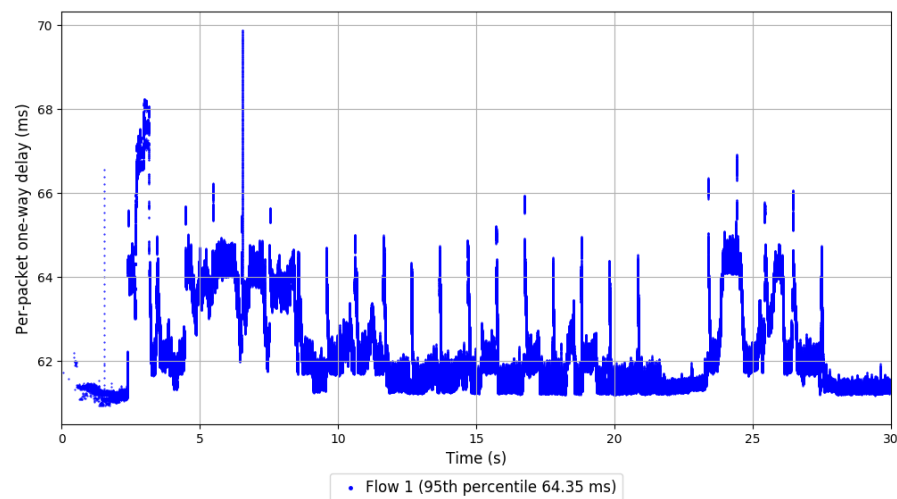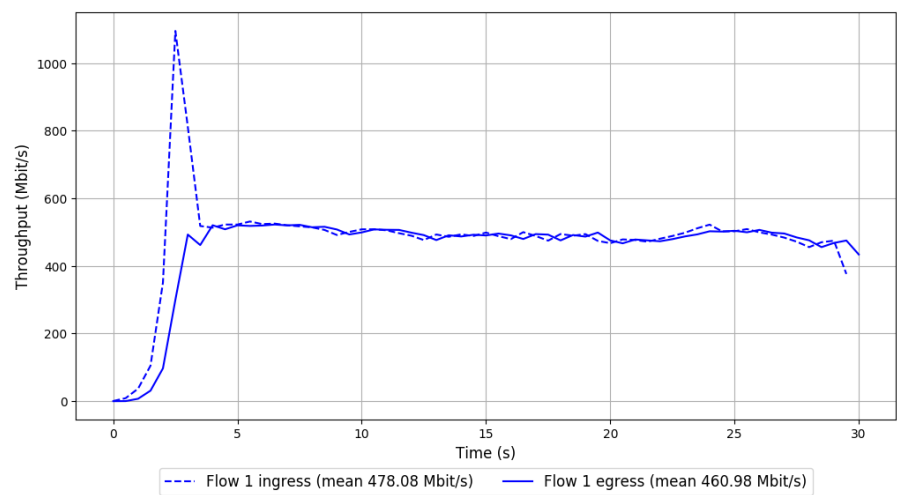
Run 1: Report of PCC-Allegro — Data Link

```
Run 2: Statistics of PCC-Allegro

Start at: 2018-09-07 10:41:42
End at: 2018-09-07 10:42:12
Local clock offset: -2.793 ms
Remote clock offset: -36.109 ms


# Below is generated by plot.py at 2018-09-07 12:32:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 460.98 Mbit/s
95th percentile per-packet one-way delay: 64.351 ms
Loss rate: 3.58%
-- Flow 1:
Average throughput: 460.98 Mbit/s
95th percentile per-packet one-way delay: 64.351 ms
Loss rate: 3.58%
```

Run 2: Report of PCC-Allegro — Data Link

```
Run 3: Statistics of PCC-Allegro

Start at: 2018-09-07 11:04:48
End at: 2018-09-07 11:05:18
Local clock offset: -3.656 ms
Remote clock offset: -32.69 ms


# Below is generated by plot.py at 2018-09-07 12:33:02
# Datalink statistics
-- Total of 1 flow:
Average throughput: 466.65 Mbit/s
95th percentile per-packet one-way delay: 69.132 ms
Loss rate: 3.73%
-- Flow 1:
Average throughput: 466.65 Mbit/s
95th percentile per-packet one-way delay: 69.132 ms
Loss rate: 3.73%
```
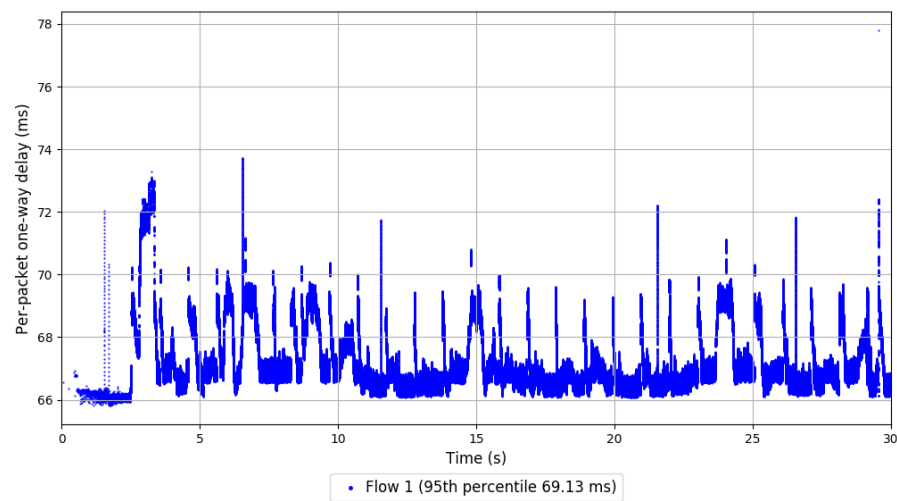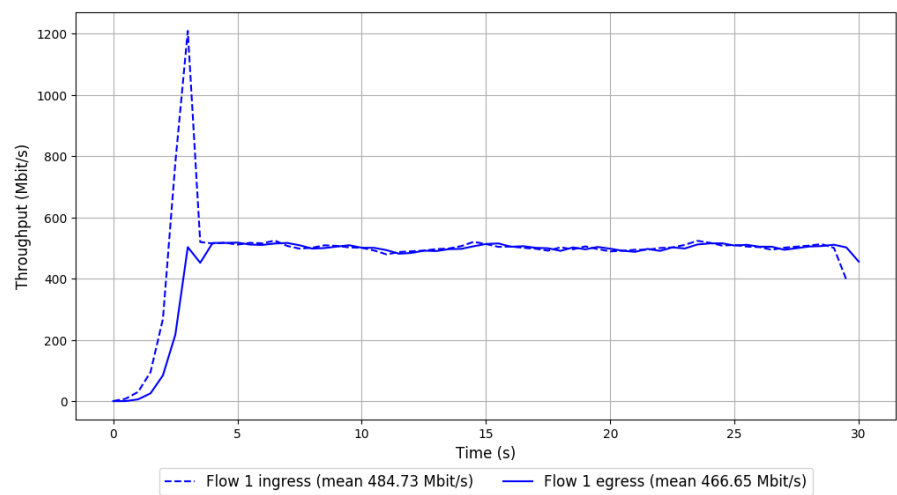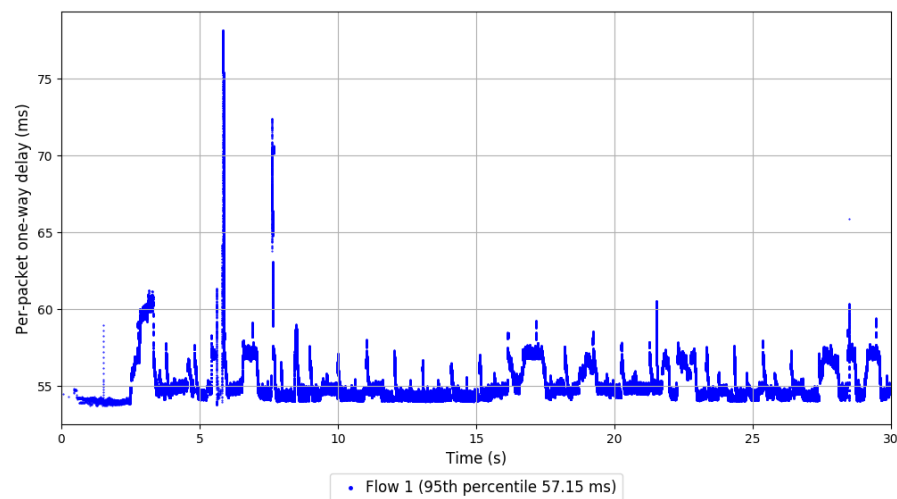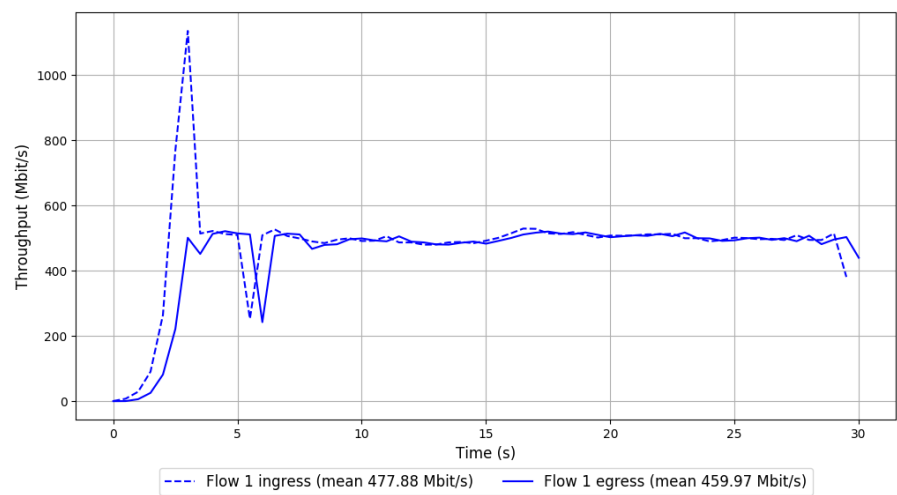
Run 3: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 484.73 Mbit/s)   Flow 1 egress (mean 466.65 Mbit/s)

• Flow 1 (95th percentile 69.13 ms)

```
Run 4: Statistics of PCC-Allegro

Start at: 2018-09-07 11:33:27
End at: 2018-09-07 11:33:57
Local clock offset: 3.731 ms
Remote clock offset: -37.327 ms


# Below is generated by plot.py at 2018-09-07 12:33:02
# Datalink statistics
-- Total of 1 flow:
Average throughput: 459.97 Mbit/s
95th percentile per-packet one-way delay: 57.148 ms
Loss rate: 3.75%
-- Flow 1:
Average throughput: 459.97 Mbit/s
95th percentile per-packet one-way delay: 57.148 ms
Loss rate: 3.75%
```

Run 4: Report of PCC-Allegro — Data Link

```
Run 5: Statistics of PCC-Allegro

Start at: 2018-09-07 12:02:15
End at: 2018-09-07 12:02:45
Local clock offset: 1.094 ms
Remote clock offset: -35.004 ms

# Below is generated by plot.py at 2018-09-07 12:33:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 438.30 Mbit/s
95th percentile per-packet one-way delay: 60.265 ms
Loss rate: 4.35%
-- Flow 1:
Average throughput: 438.30 Mbit/s
95th percentile per-packet one-way delay: 60.265 ms
Loss rate: 4.35%
```
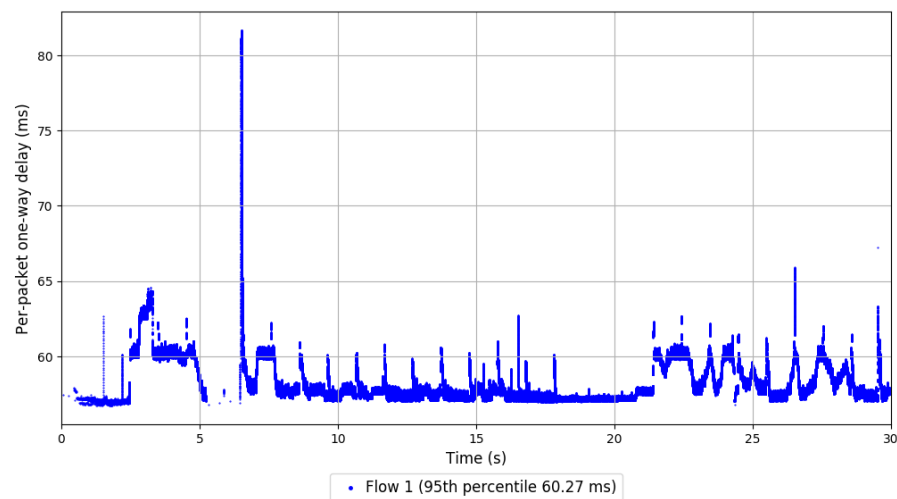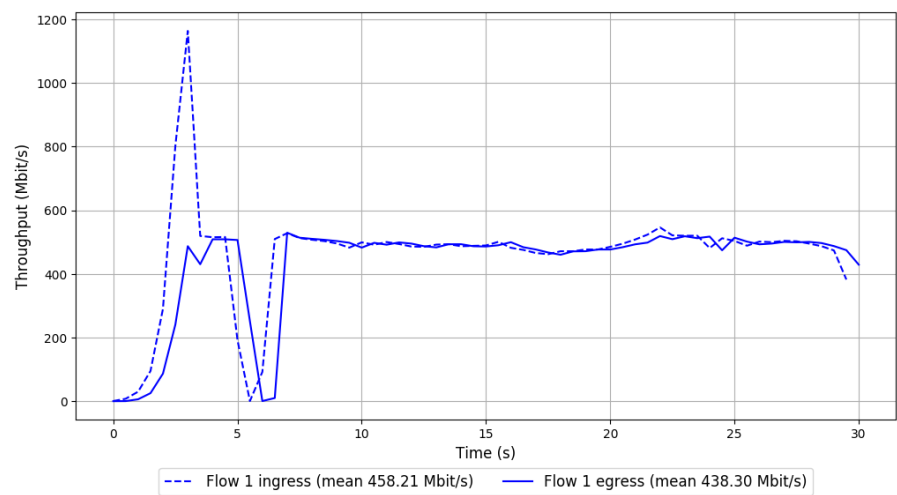
Run 5: Report of PCC-Allegro — Data Link
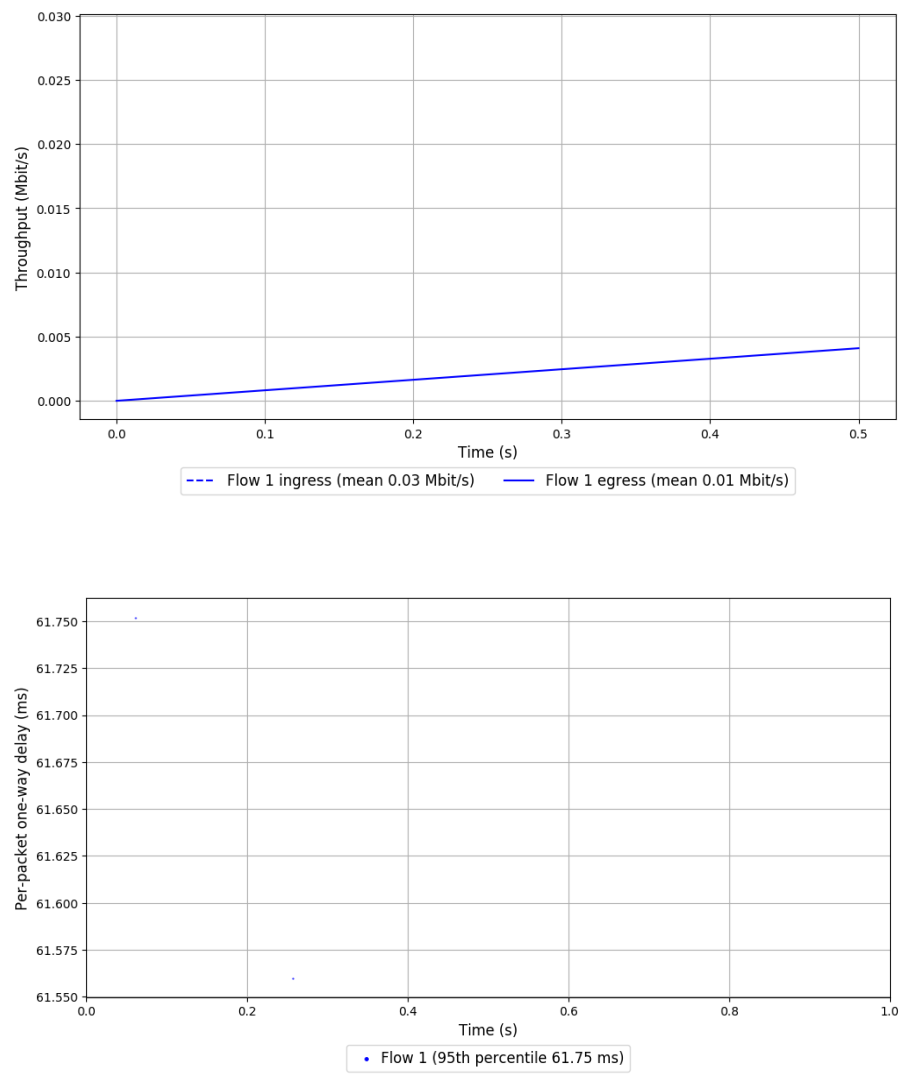
```
Run 1: Statistics of PCC-Expr

Start at: 2018-09-07 10:00:22
End at: 2018-09-07 10:00:52
Local clock offset: 0.818 ms
Remote clock offset: -34.76 ms
```
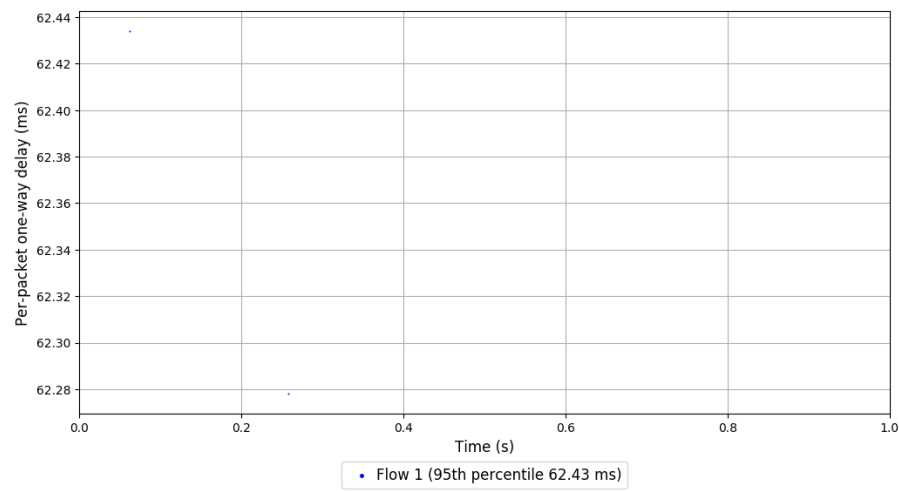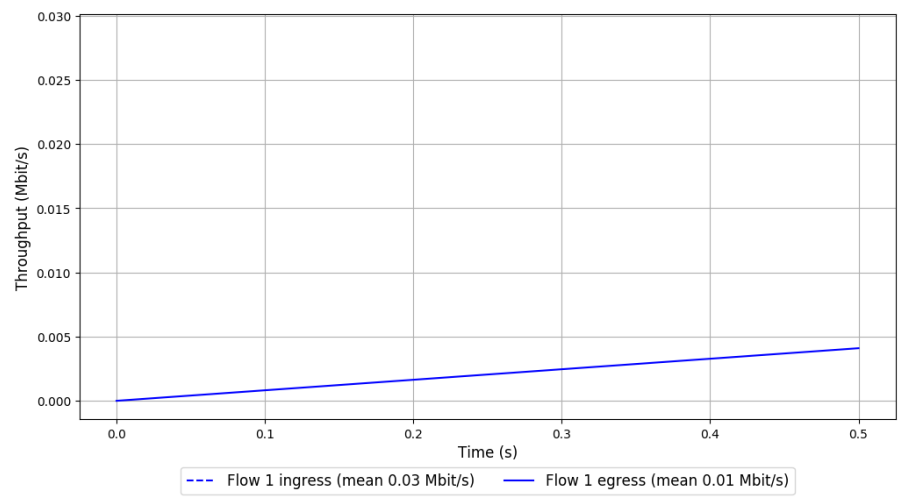
Run 1: Report of PCC-Expr — Data Link

```
Run 2: Statistics of PCC-Expr

Start at: 2018-09-07 10:29:03
End at: 2018-09-07 10:29:33
Local clock offset: 2.01 ms
Remote clock offset: -32.881 ms
```
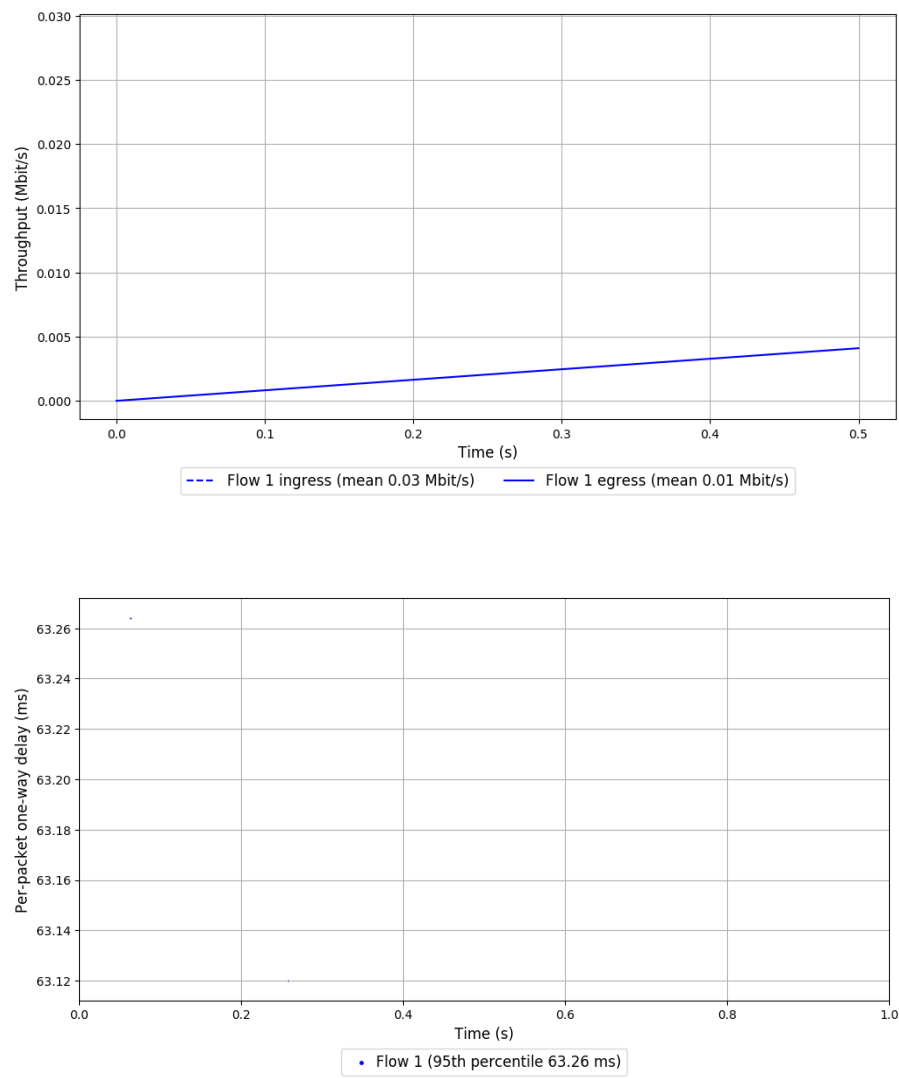
Run 2: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 0.03 Mbit/s)   Flow 1 egress (mean 0.01 Mbit/s)

Flow 1 (95th percentile 62.43 ms)

```
Run 3: Statistics of PCC-Expr

Start at: 2018-09-07 10:52:12
End at: 2018-09-07 10:52:42
Local clock offset: -4.1 ms
Remote clock offset: -36.071 ms
```
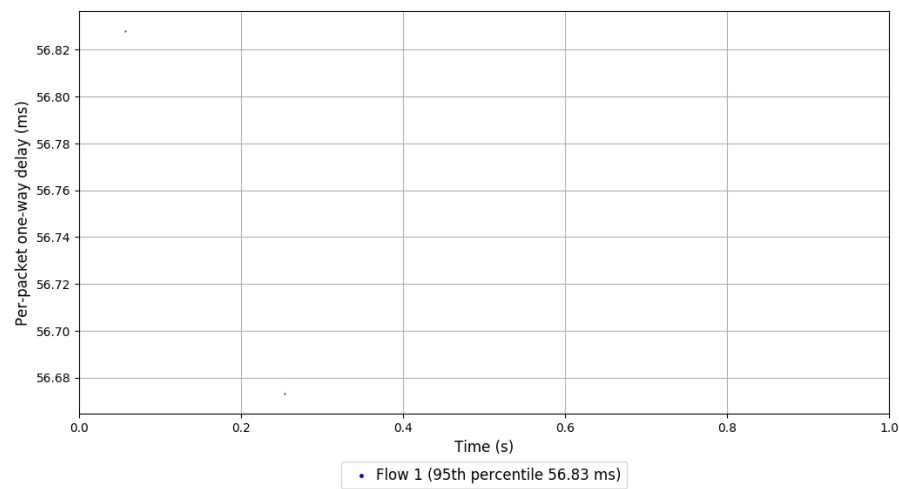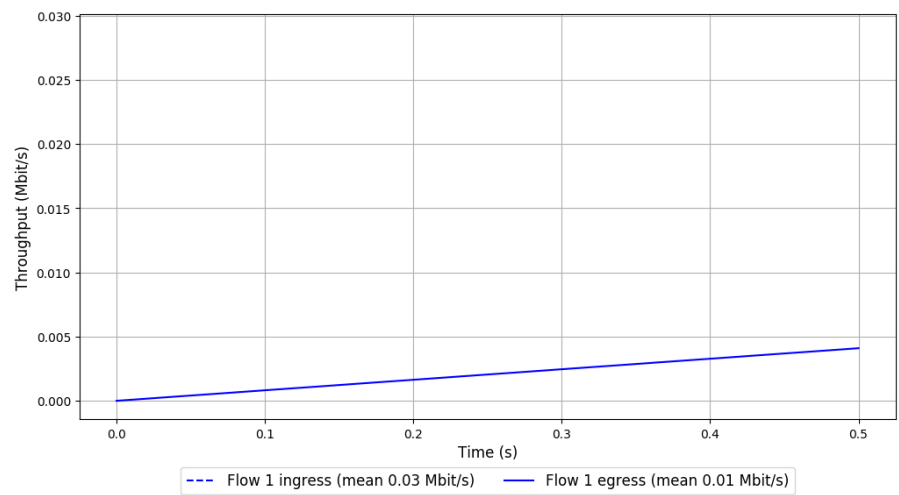
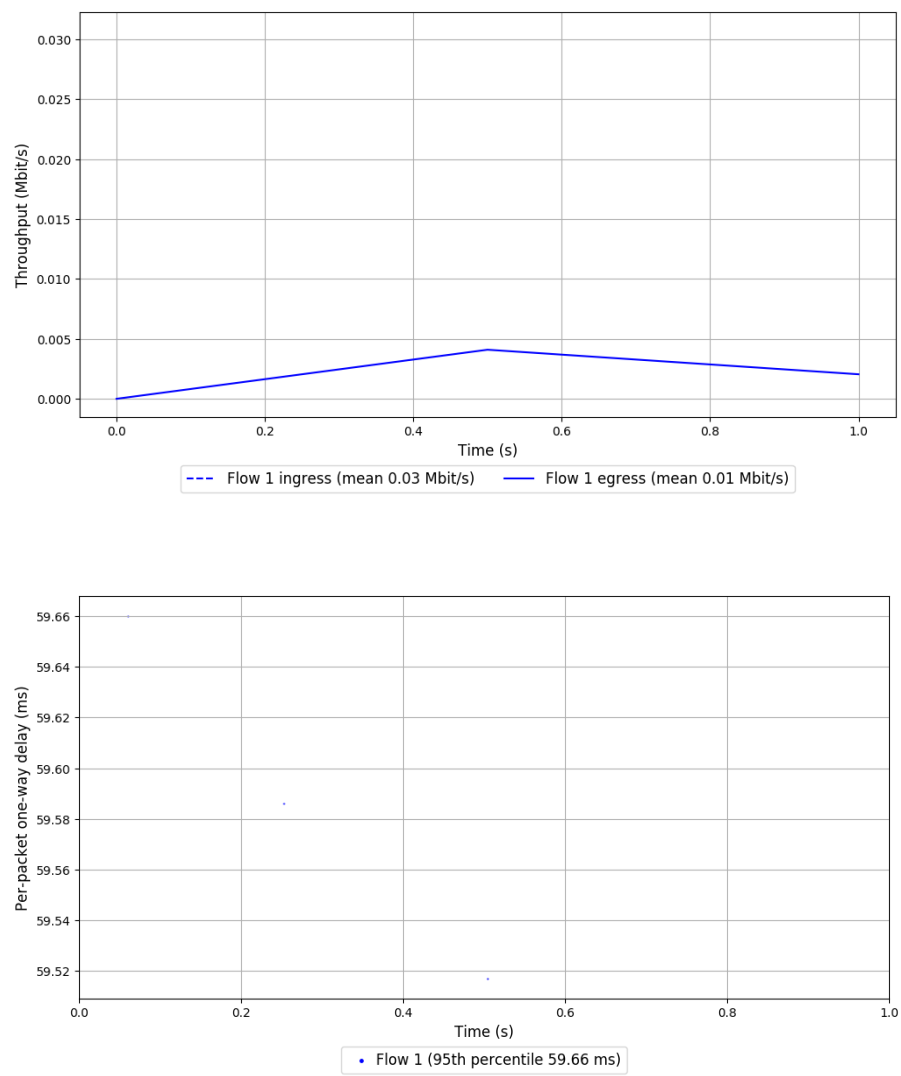# Run 3: Report of PCC-Expr — Data Link

```
Run 4: Statistics of PCC-Expr

Start at: 2018-09-07 11:15:19
End at: 2018-09-07 11:15:49
Local clock offset: 4.065 ms
Remote clock offset: -37.126 ms
```

Run 4: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 0.03 Mbit/s) --- Flow 1 egress (mean 0.01 Mbit/s)

Flow 1 (95th percentile 56.83 ms)

```
Run 5: Statistics of PCC-Expr

Start at: 2018-09-07 11:43:57
End at: 2018-09-07 11:44:27
Local clock offset: 0.528 ms
Remote clock offset: -35.224 ms
```

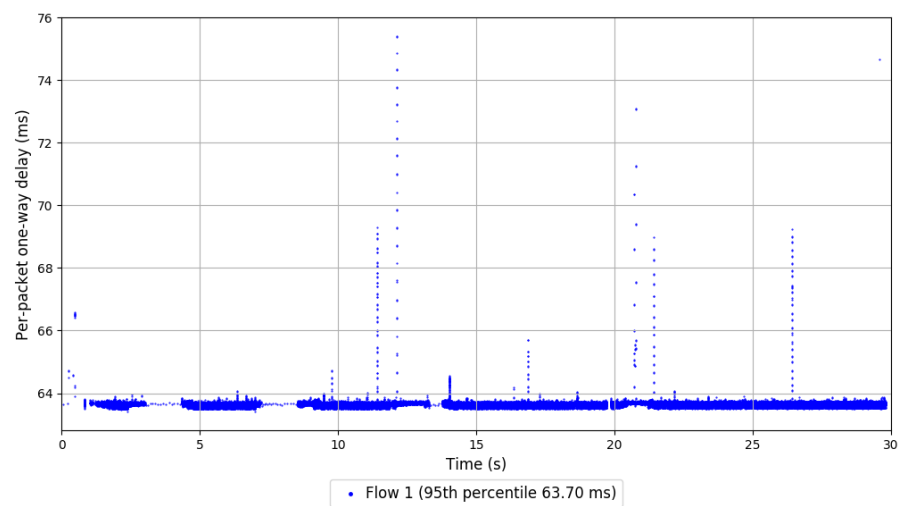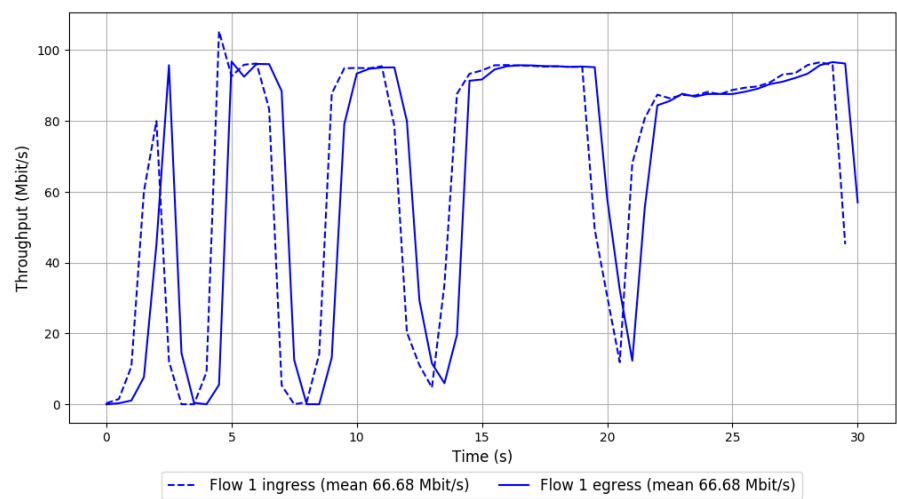# Run 5: Report of PCC-Expr — Data Link

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-09-07 10:13:17
End at: 2018-09-07 10:13:47
Local clock offset: 1.37 ms
Remote clock offset: -30.296 ms


# Below is generated by plot.py at 2018-09-07 12:33:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 66.68 Mbit/s
95th percentile per-packet one-way delay: 63.702 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 66.68 Mbit/s
95th percentile per-packet one-way delay: 63.702 ms
Loss rate: 0.00%
```
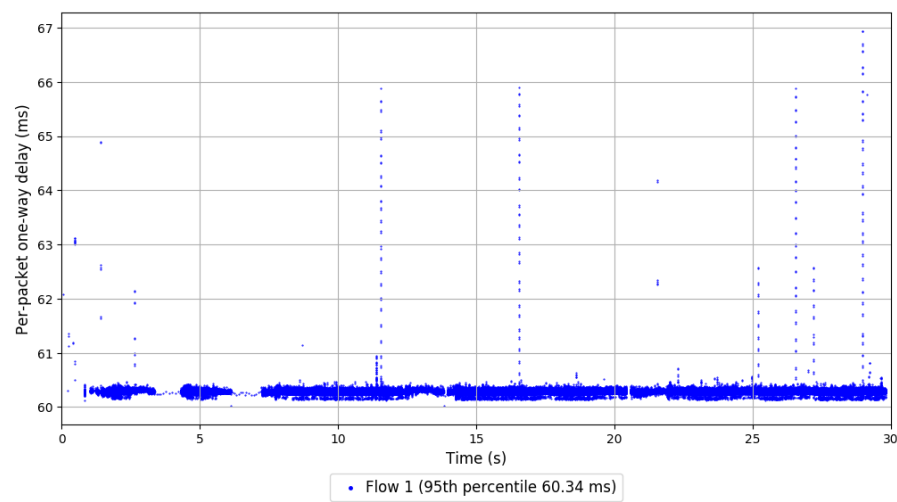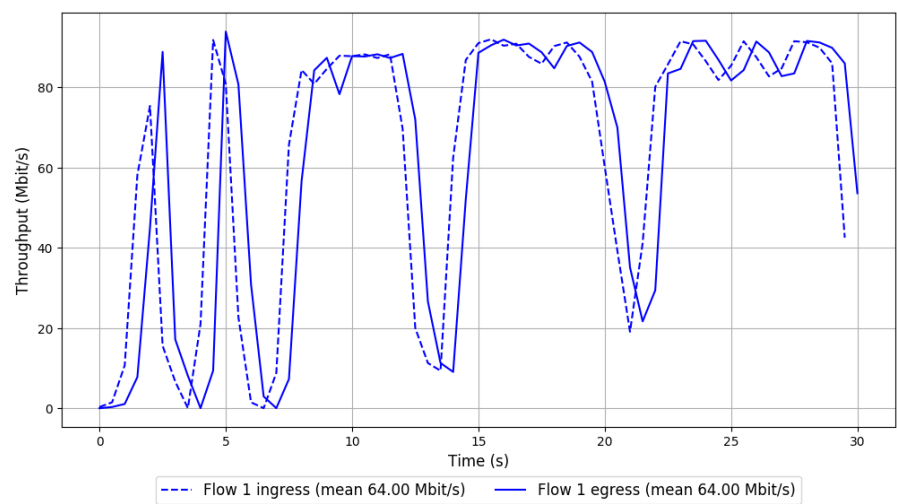
Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-09-07 10:36:30
End at: 2018-09-07 10:37:00
Local clock offset: -1.674 ms
Remote clock offset: -35.927 ms


# Below is generated by plot.py at 2018-09-07 12:33:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 64.00 Mbit/s
95th percentile per-packet one-way delay: 60.336 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 64.00 Mbit/s
95th percentile per-packet one-way delay: 60.336 ms
Loss rate: 0.00%
```

Run 2: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 64.00 Mbit/s)   Flow 1 egress (mean 64.00 Mbit/s)

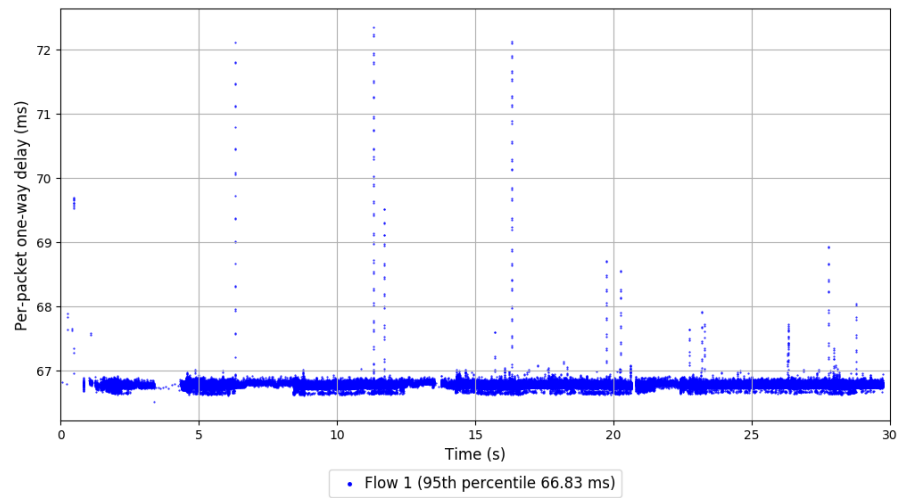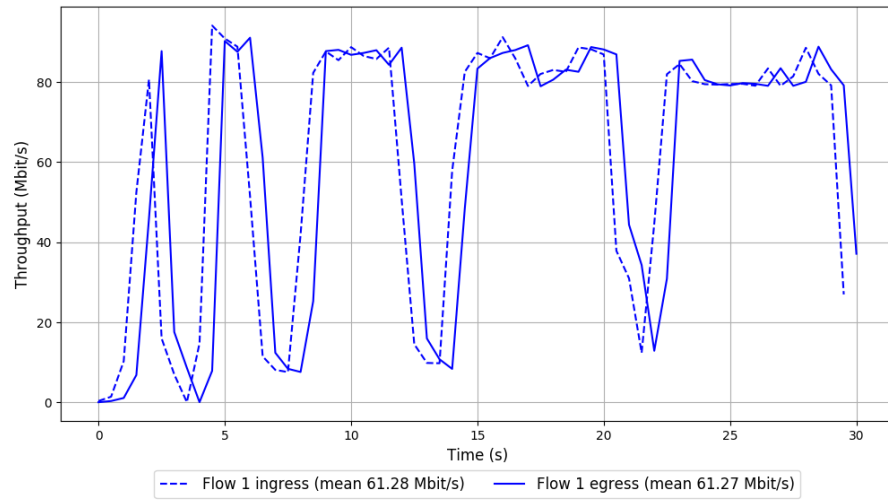

Flow 1 (95th percentile 60.34 ms)

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-09-07 10:59:39
End at: 2018-09-07 11:00:09
Local clock offset: -0.814 ms
Remote clock offset: -31.878 ms


# Below is generated by plot.py at 2018-09-07 12:33:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 61.27 Mbit/s
95th percentile per-packet one-way delay: 66.833 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 61.27 Mbit/s
95th percentile per-packet one-way delay: 66.833 ms
Loss rate: 0.01%
```
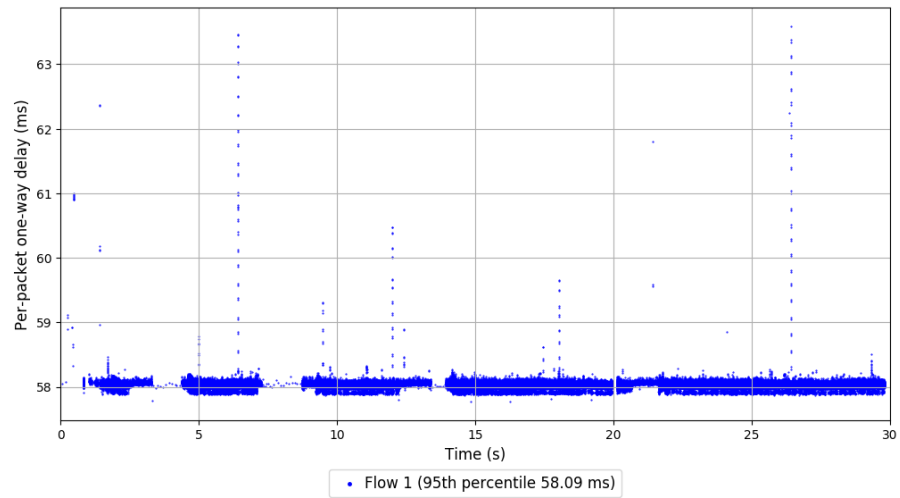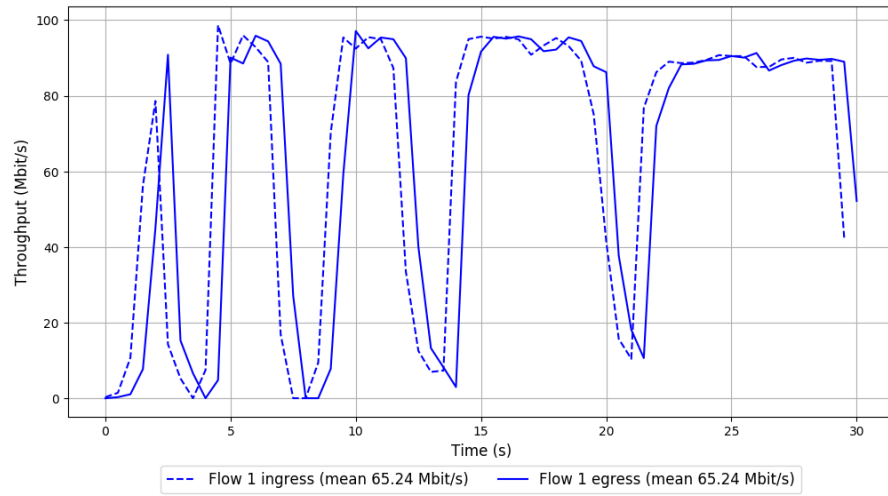
Run 3: Report of QUIC Cubic — Data Link

```
Run 4: Statistics of QUIC Cubic

Start at: 2018-09-07 11:28:16
End at: 2018-09-07 11:28:46
Local clock offset: 4.175 ms
Remote clock offset: -35.369 ms


# Below is generated by plot.py at 2018-09-07 12:33:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 65.24 Mbit/s
95th percentile per-packet one-way delay: 58.089 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 65.24 Mbit/s
95th percentile per-packet one-way delay: 58.089 ms
Loss rate: 0.01%
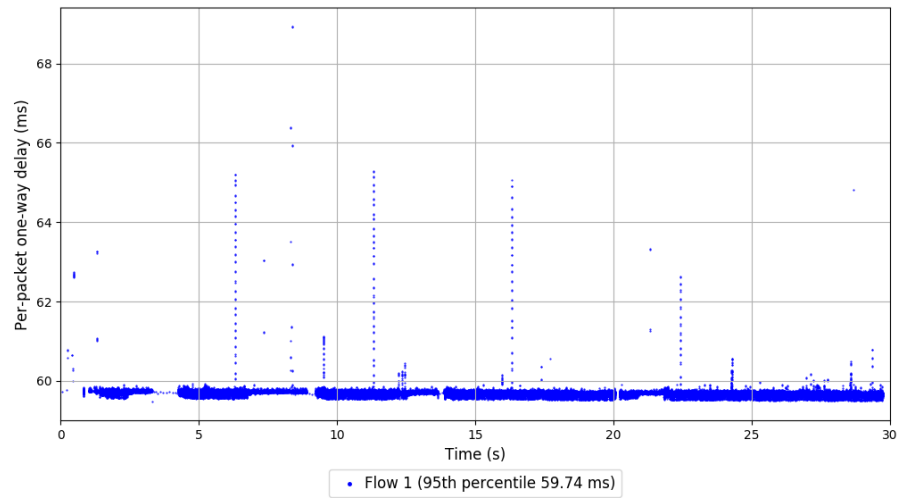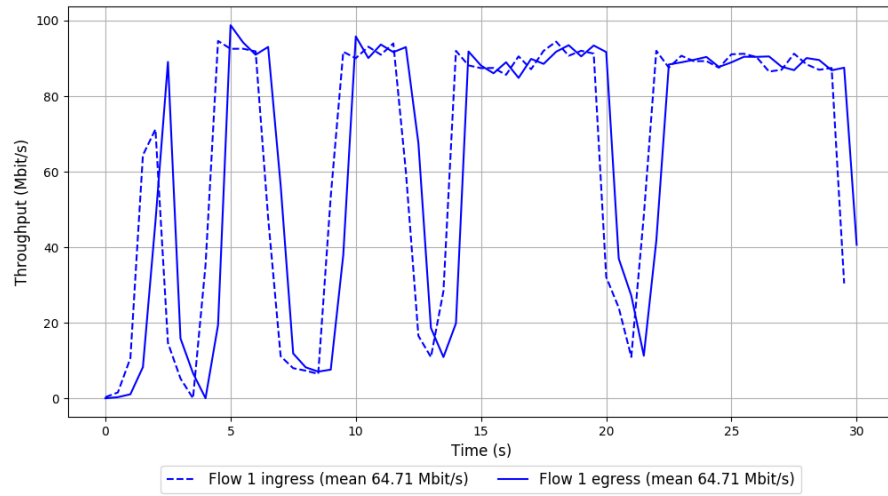```

# Run 4: Report of QUIC Cubic — Data Link

```
Run 5: Statistics of QUIC Cubic

Start at: 2018-09-07 11:51:25
End at: 2018-09-07 11:51:55
Local clock offset: 2.596 ms
Remote clock offset: -31.509 ms

Below is generated by plot.py at 2018-09-07 12:33:04
Datalink statistics
-- Total of 1 flow:
Average throughput: 64.71 Mbit/s
95th percentile per-packet one-way delay: 59.738 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 64.71 Mbit/s
95th percentile per-packet one-way delay: 59.738 ms
Loss rate: 0.00%
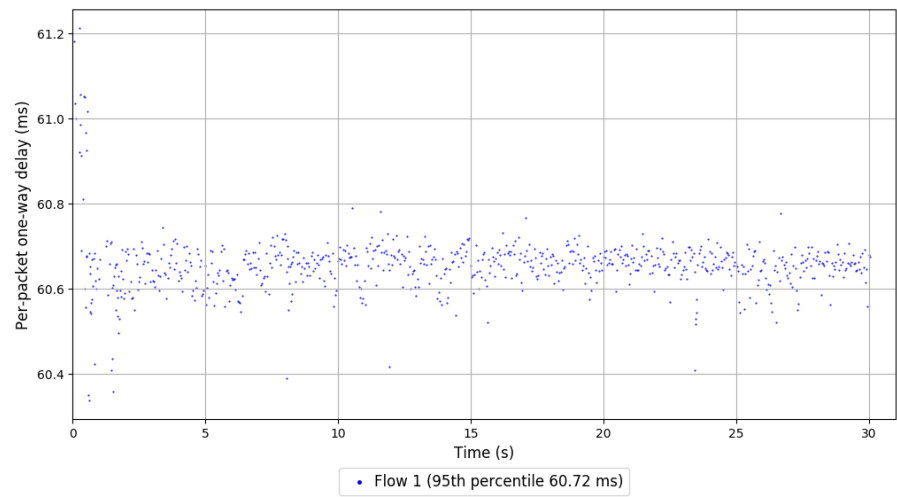```
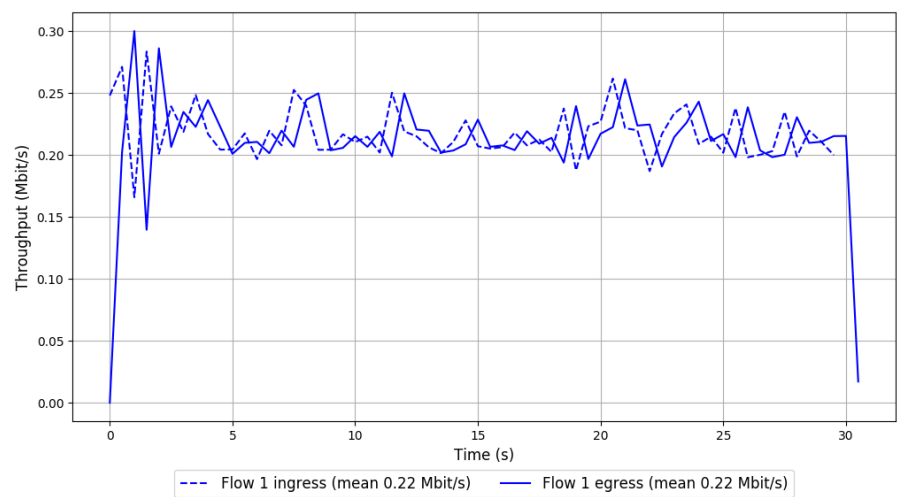
Run 5: Report of QUIC Cubic — Data Link

```
Run 1: Statistics of SCReAM

Start at: 2018-09-07 10:26:42
End at: 2018-09-07 10:27:13
Local clock offset: 0.308 ms
Remote clock offset: -33.797 ms


# Below is generated by plot.py at 2018-09-07 12:33:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.716 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.716 ms
Loss rate: 0.00%
```

Run 1: Report of SCReAM — Data Link

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

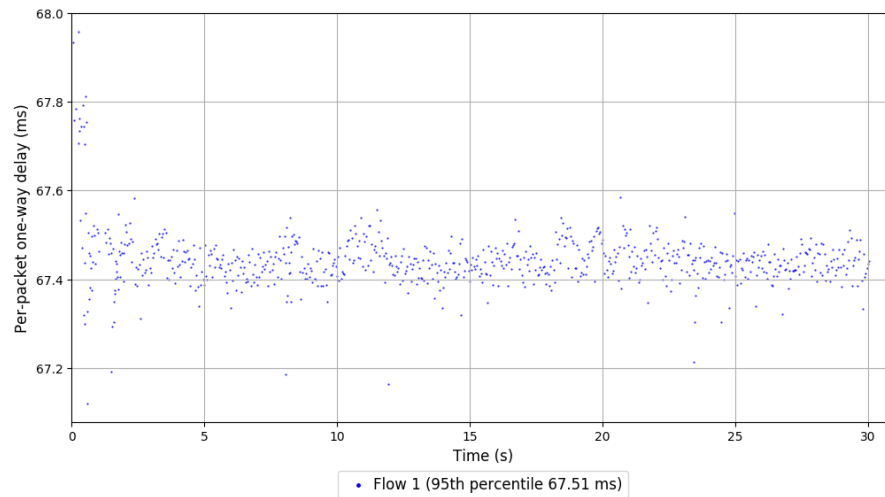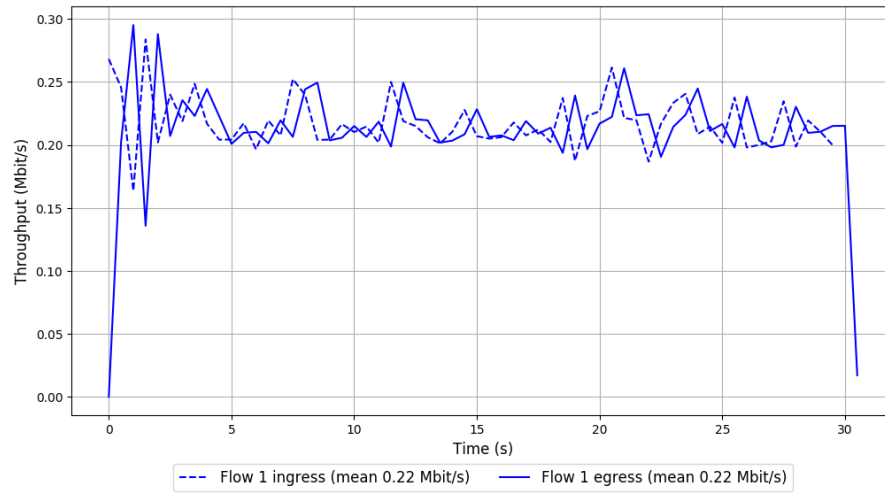Flow 1 (95th percentile 60.72 ms)

```
Run 2: Statistics of SCReAM

Start at: 2018-09-07 10:49:52
End at: 2018-09-07 10:50:22
Local clock offset: -1.88 ms
Remote clock offset: -29.339 ms


# Below is generated by plot.py at 2018-09-07 12:33:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 67.514 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 67.514 ms
Loss rate: 0.00%
```

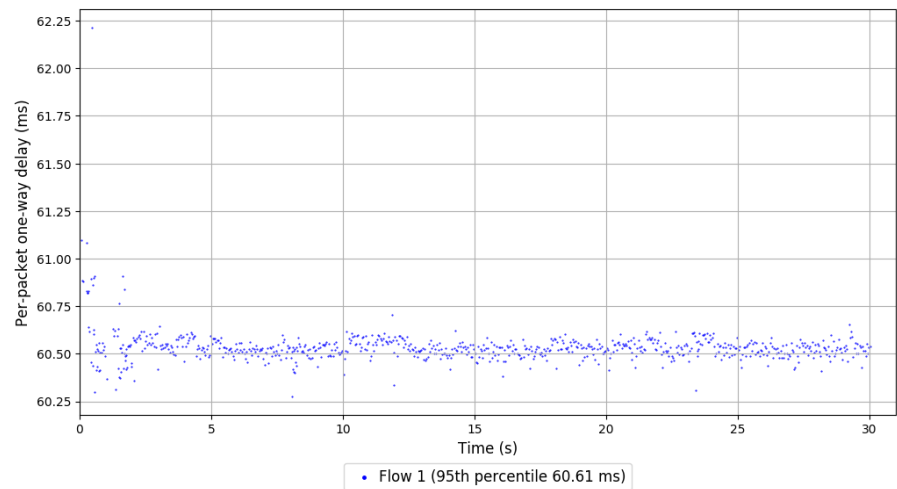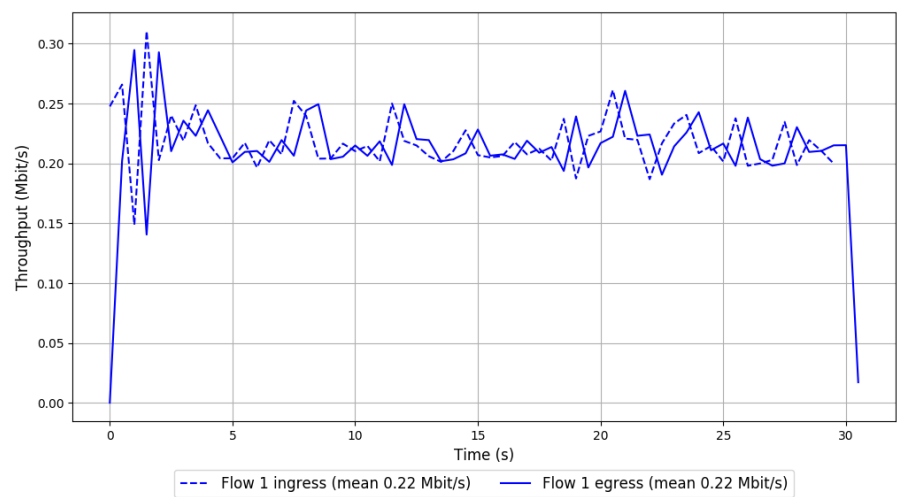## Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2018-09-07 11:12:58
End at: 2018-09-07 11:13:28
Local clock offset: 3.564 ms
Remote clock offset: -31.437 ms


# Below is generated by plot.py at 2018-09-07 12:33:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.609 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.609 ms
Loss rate: 0.00%
```

Run 3: Report of SCReAM — Data Link

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

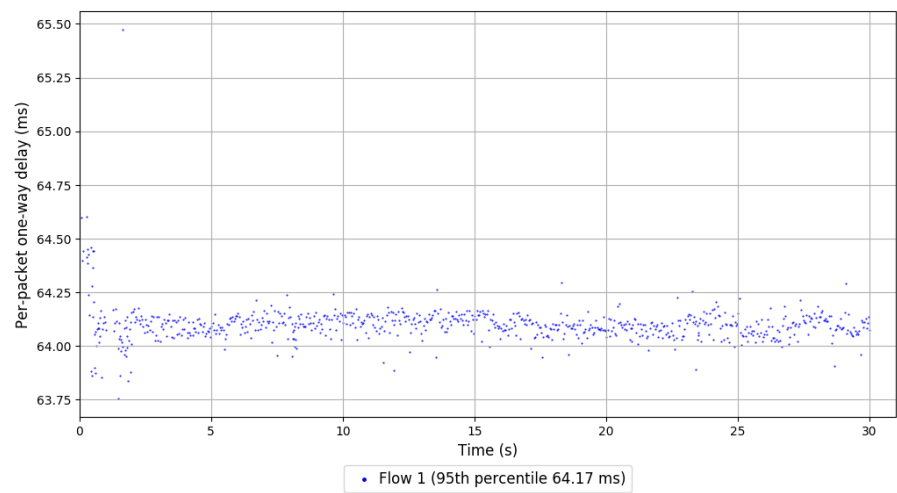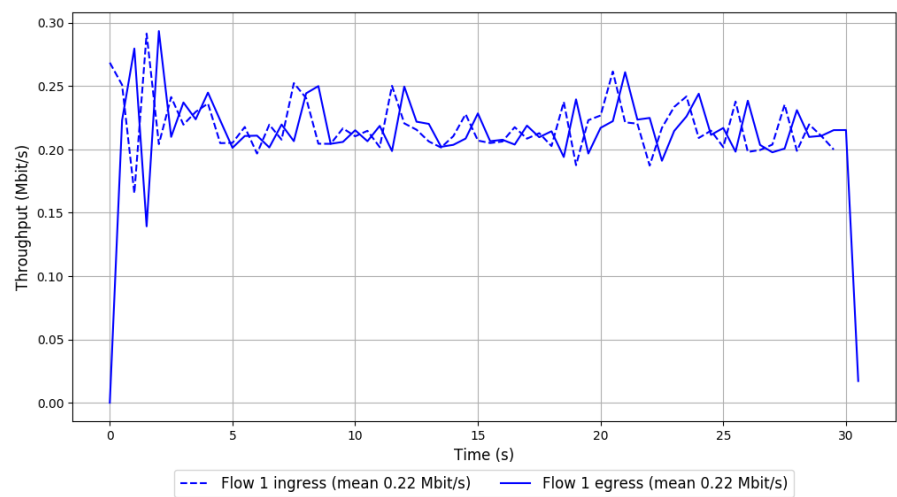• Flow 1 (95th percentile 60.61 ms)

```
Run 4: Statistics of SCReAM

Start at: 2018-09-07 11:41:37
End at: 2018-09-07 11:42:07
Local clock offset: 0.491 ms
Remote clock offset: -33.509 ms


# Below is generated by plot.py at 2018-09-07 12:33:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 64.173 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 64.173 ms
Loss rate: 0.00%
```

Run 4: Report of SCReAM — Data Link

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

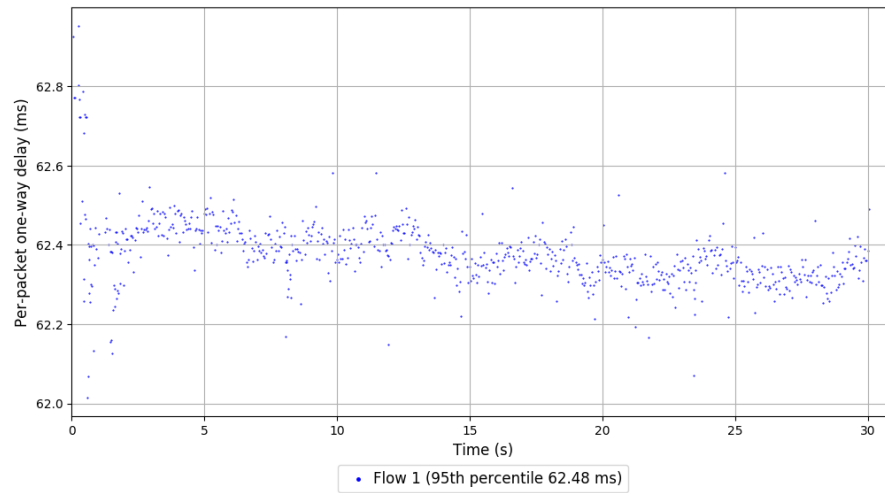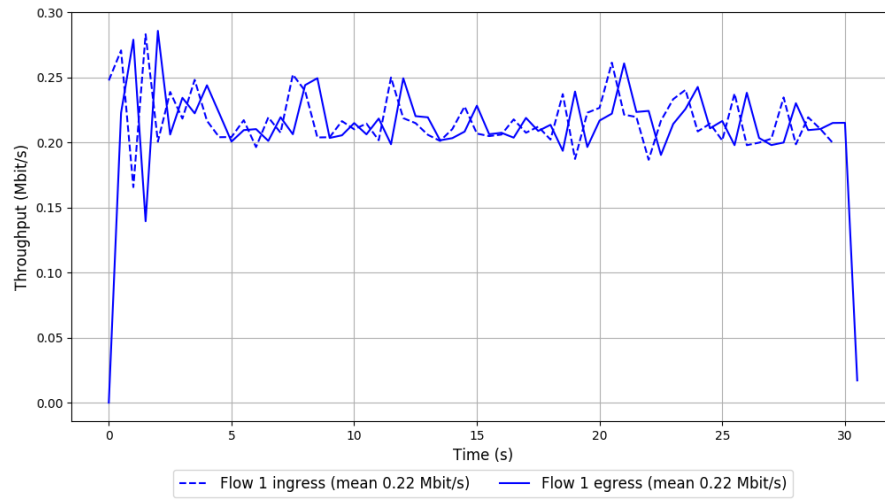Flow 1 (95th percentile 64.17 ms)

```
Run 5: Statistics of SCReAM

Start at: 2018-09-07 12:10:31
End at: 2018-09-07 12:11:01
Local clock offset: -0.304 ms
Remote clock offset: -30.268 ms


# Below is generated by plot.py at 2018-09-07 12:33:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 62.485 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 62.485 ms
Loss rate: 0.00%
```

Run 5: Report of SCReAM — Data Link

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

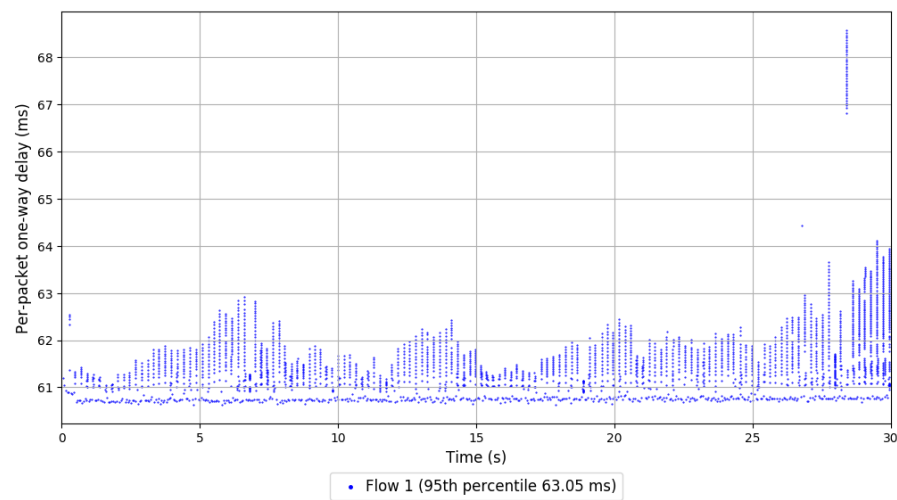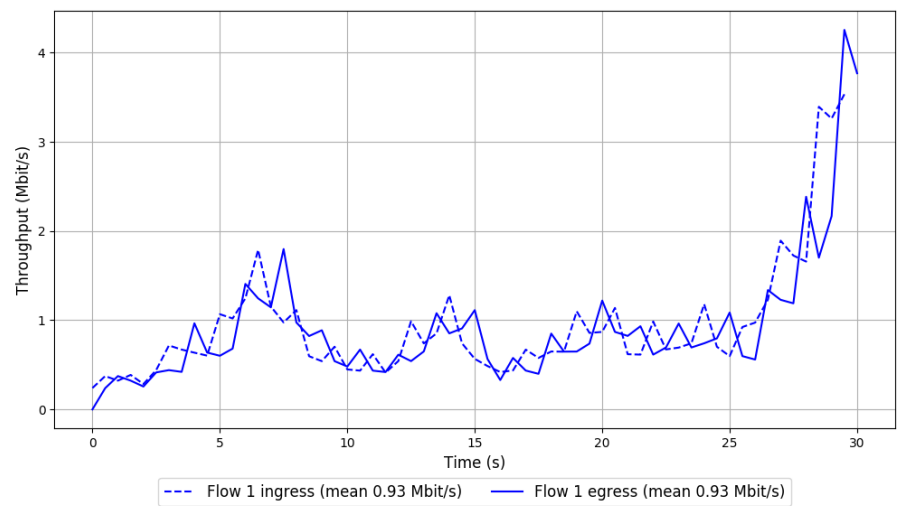Flow 1 (95th percentile 62.48 ms)

```
Run 1: Statistics of Sprout

Start at: 2018-09-07 09:59:12
End at: 2018-09-07 09:59:42
Local clock offset: 1.222 ms
Remote clock offset: -32.404 ms


# Below is generated by plot.py at 2018-09-07 12:33:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.93 Mbit/s
95th percentile per-packet one-way delay: 63.045 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.93 Mbit/s
95th percentile per-packet one-way delay: 63.045 ms
Loss rate: 0.00%
```

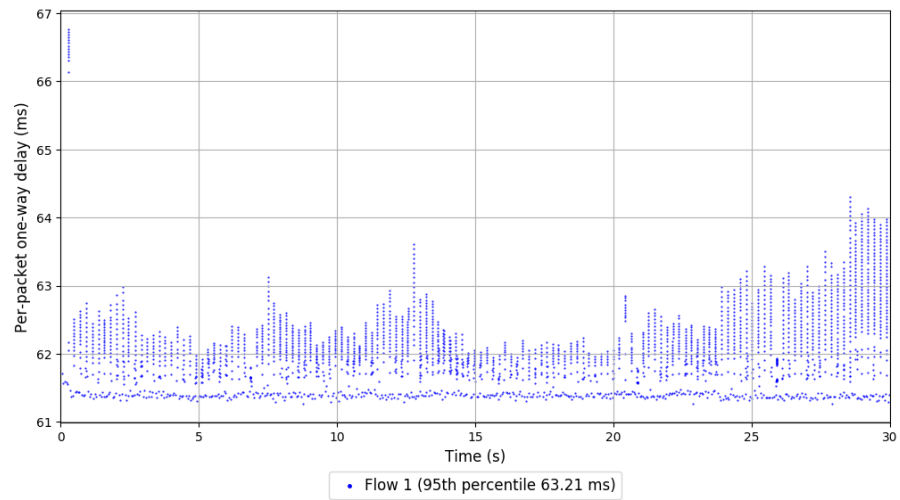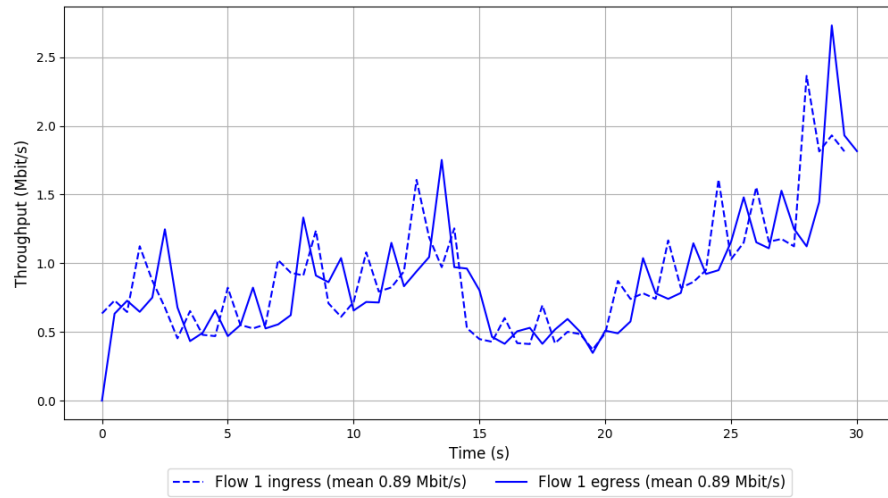## Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2018-09-07 10:27:53
End at: 2018-09-07 10:28:23
Local clock offset: -2.57 ms
Remote clock offset: -35.666 ms


# Below is generated by plot.py at 2018-09-07 12:33:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.89 Mbit/s
95th percentile per-packet one-way delay: 63.213 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.89 Mbit/s
95th percentile per-packet one-way delay: 63.213 ms
Loss rate: 0.00%
```

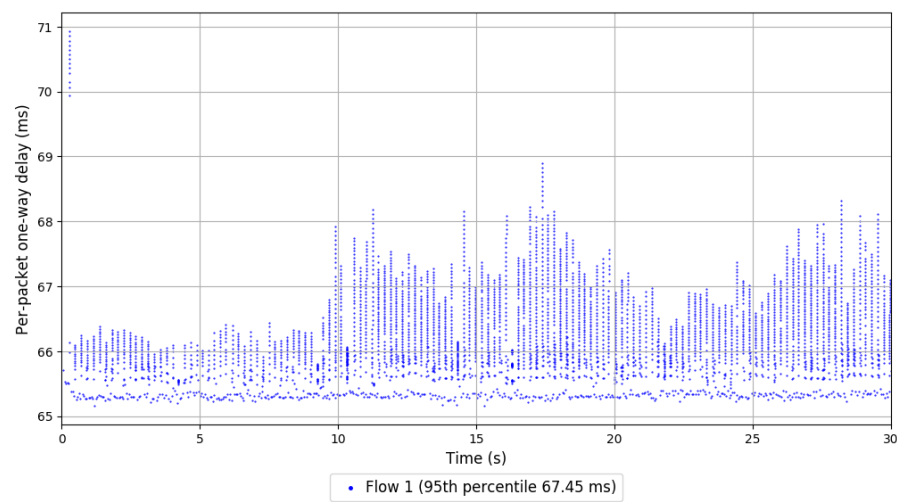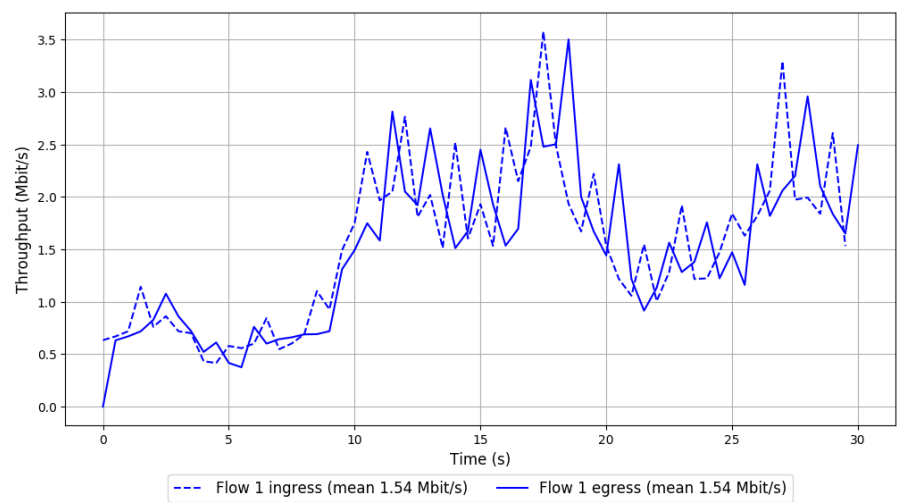Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2018-09-07 10:51:01
End at: 2018-09-07 10:51:31
Local clock offset: -3.796 ms
Remote clock offset: -33.17 ms


# Below is generated by plot.py at 2018-09-07 12:33:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.54 Mbit/s
95th percentile per-packet one-way delay: 67.455 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.54 Mbit/s
95th percentile per-packet one-way delay: 67.455 ms
Loss rate: 0.00%
```

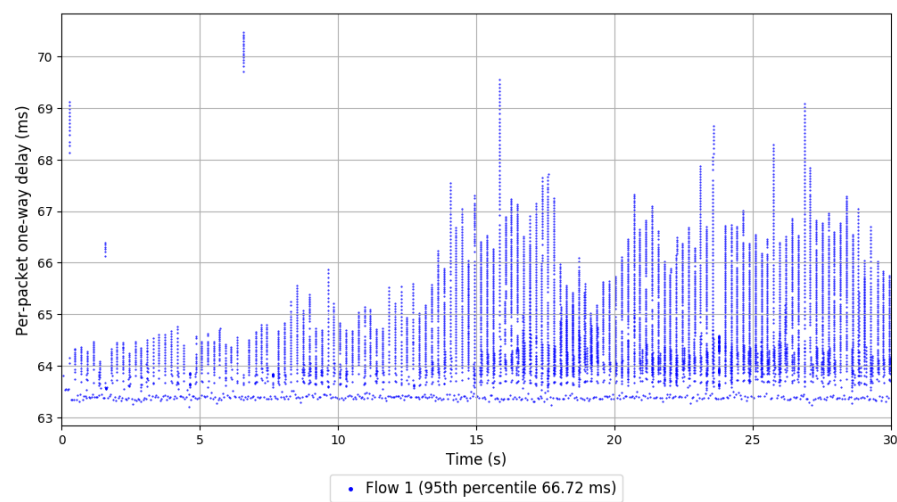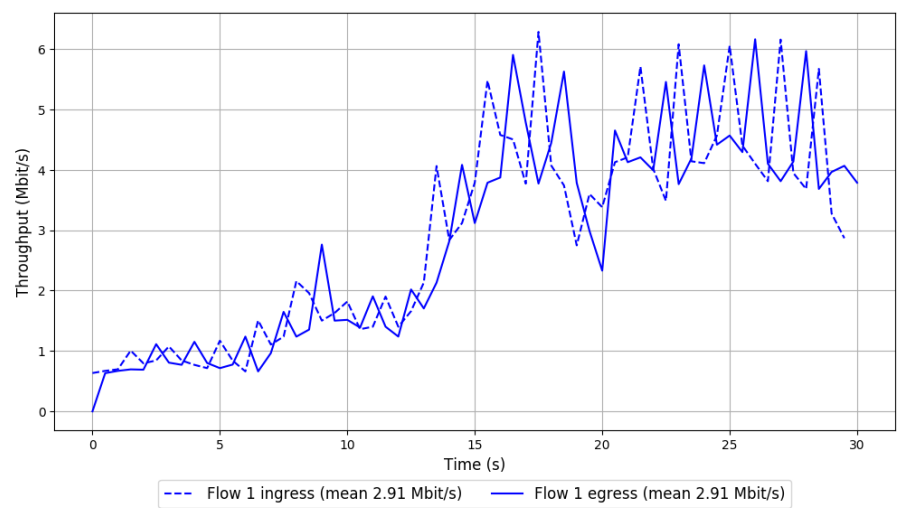Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2018-09-07 11:14:08
End at: 2018-09-07 11:14:38
Local clock offset: -0.382 ms
Remote clock offset: -32.085 ms

# Below is generated by plot.py at 2018-09-07 12:33:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.91 Mbit/s
95th percentile per-packet one-way delay: 66.719 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.91 Mbit/s
95th percentile per-packet one-way delay: 66.719 ms
Loss rate: 0.00%
```

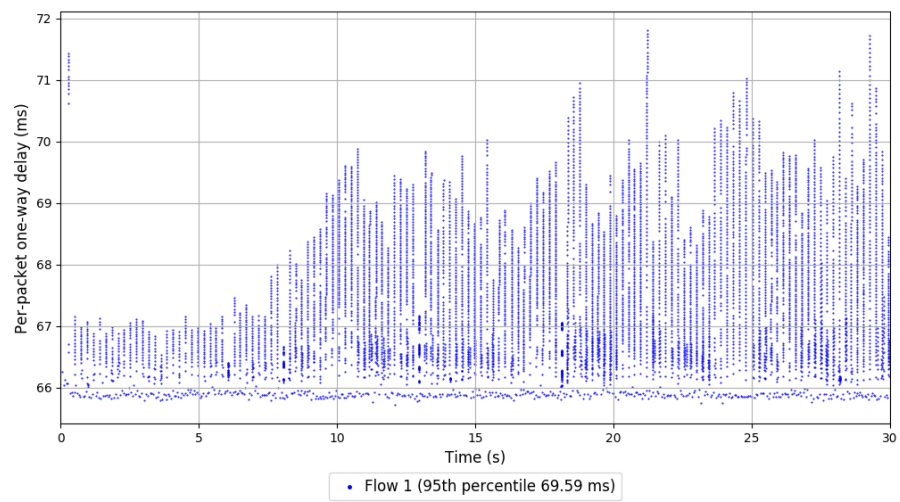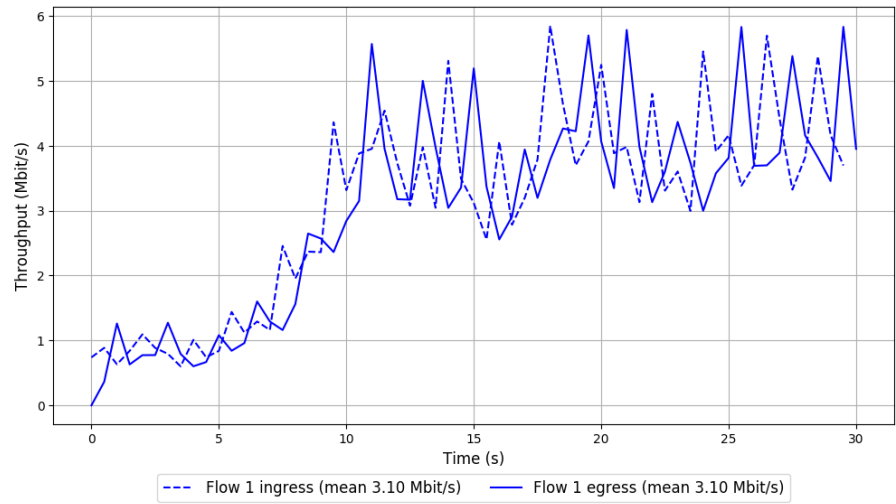# Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2018-09-07 11:42:46
End at: 2018-09-07 11:43:17
Local clock offset: -1.418 ms
Remote clock offset: -32.93 ms


# Below is generated by plot.py at 2018-09-07 12:33:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.10 Mbit/s
95th percentile per-packet one-way delay: 69.592 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 3.10 Mbit/s
95th percentile per-packet one-way delay: 69.592 ms
Loss rate: 0.00%
```

Run 5: Report of Sprout — Data Link

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

Start at: 2018-09-07 10:01:32
End at: 2018-09-07 10:02:02
Local clock offset: 1.048 ms
Remote clock offset: -32.62 ms


# Below is generated by plot.py at 2018-09-07 12:33:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.39 Mbit/s
95th percentile per-packet one-way delay: 64.009 ms
Loss rate: 24.09%
-- Flow 1:
Average throughput: 12.39 Mbit/s
95th percentile per-packet one-way delay: 64.009 ms
Loss rate: 24.09%
```
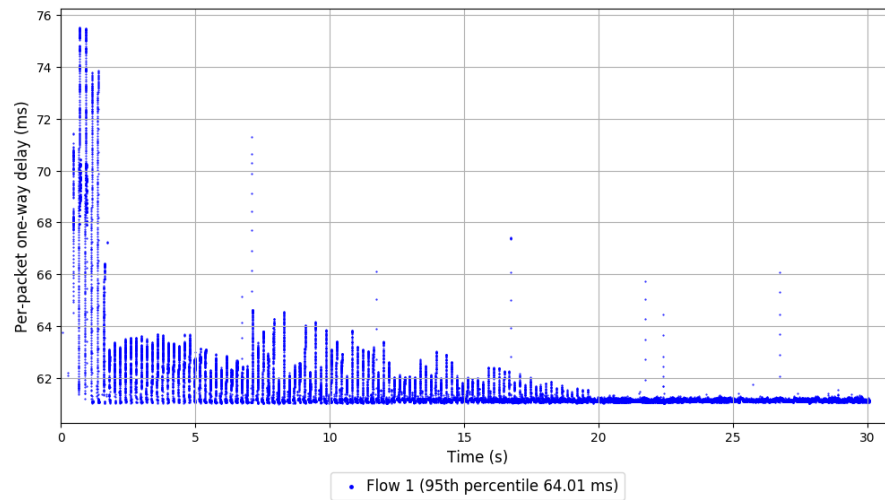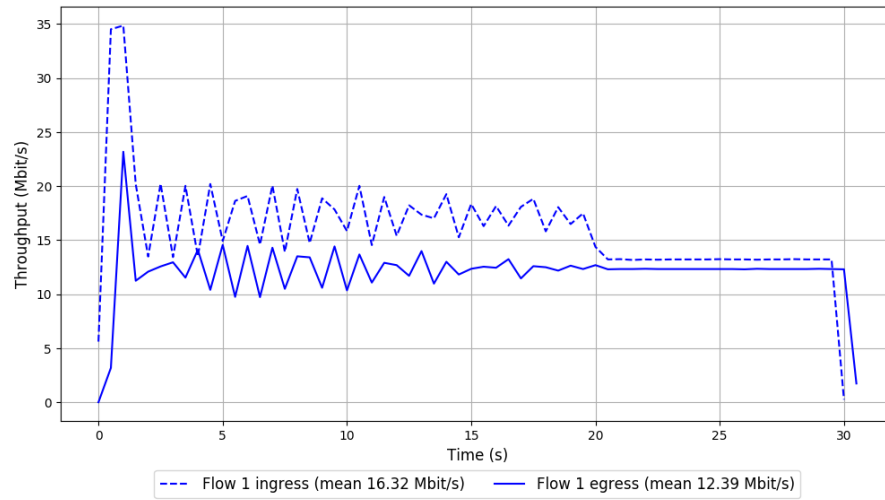
Run 1: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 16.32 Mbit/s)   Flow 1 egress (mean 12.39 Mbit/s)
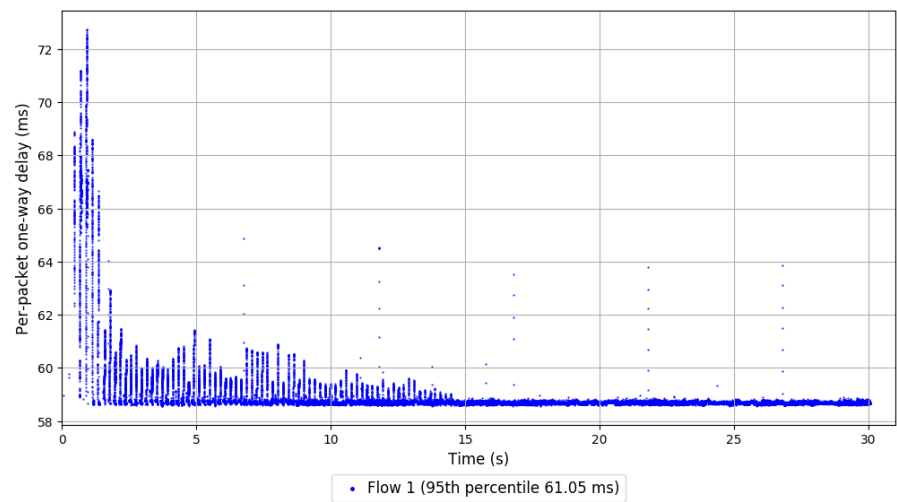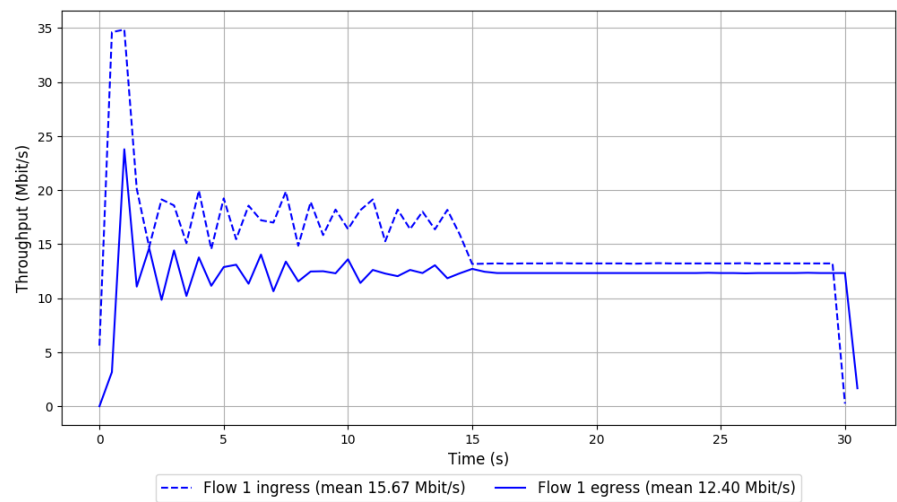

Flow 1 (95th percentile 64.01 ms)

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

Start at: 2018-09-07 10:30:13
End at: 2018-09-07 10:30:43
Local clock offset: 0.094 ms
Remote clock offset: -35.894 ms


# Below is generated by plot.py at 2018-09-07 12:33:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.40 Mbit/s
95th percentile per-packet one-way delay: 61.052 ms
Loss rate: 20.87%
-- Flow 1:
Average throughput: 12.40 Mbit/s
95th percentile per-packet one-way delay: 61.052 ms
Loss rate: 20.87%
```
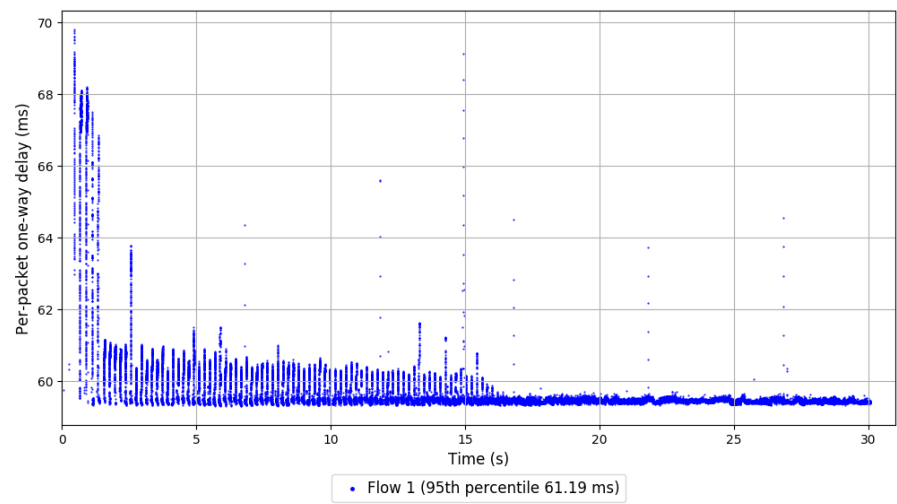
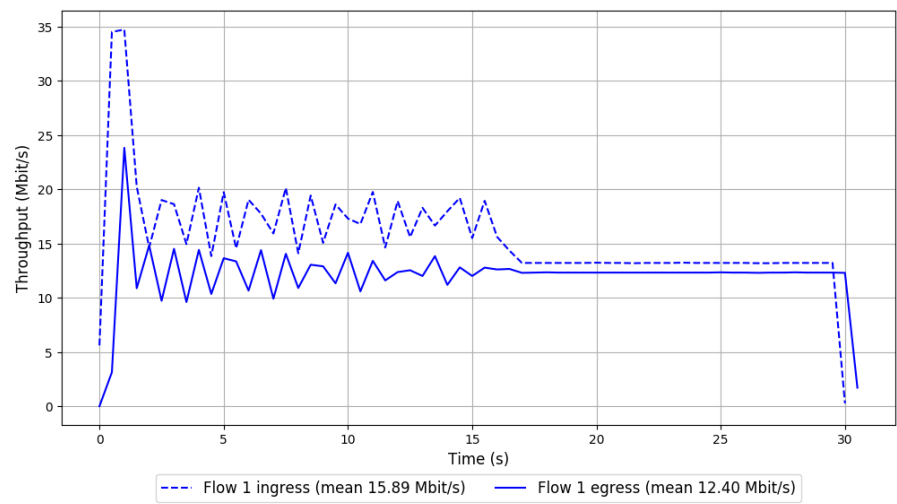## Run 2: Report of TaoVA-100x — Data Link

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

Start at: 2018-09-07 10:53:22
End at: 2018-09-07 10:53:52
Local clock offset: -0.275 ms
Remote clock offset: -35.929 ms


# Below is generated by plot.py at 2018-09-07 12:33:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.40 Mbit/s
95th percentile per-packet one-way delay: 61.189 ms
Loss rate: 21.96%
-- Flow 1:
Average throughput: 12.40 Mbit/s
95th percentile per-packet one-way delay: 61.189 ms
Loss rate: 21.96%
```

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

Flow 1 ingress (mean 15.89 Mbit/s)   Flow 1 egress (mean 12.40 Mbit/s)
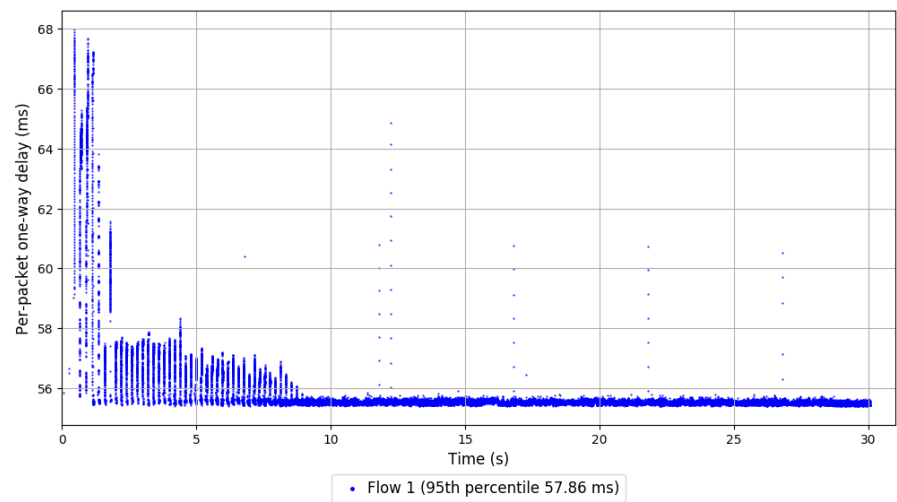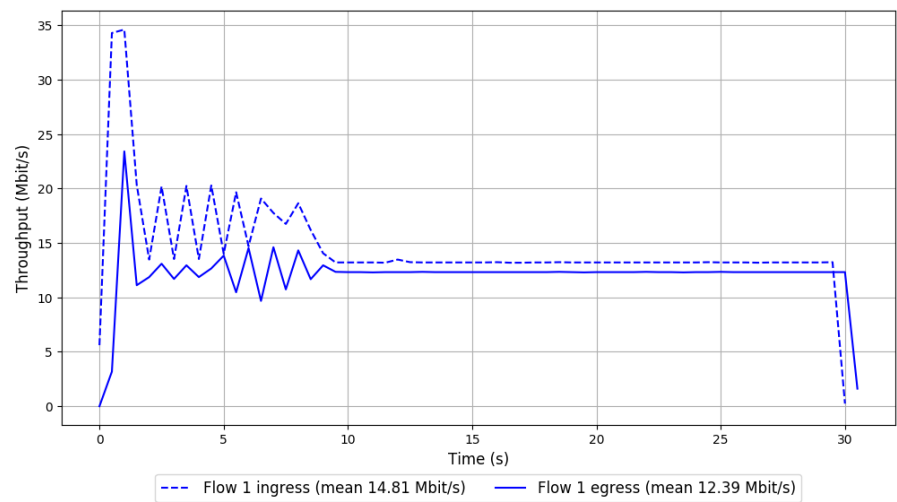

Flow 1 (95th percentile 61.19 ms)

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

Start at: 2018-09-07 11:16:29
End at: 2018-09-07 11:16:59
Local clock offset: 0.801 ms
Remote clock offset: -39.103 ms


# Below is generated by plot.py at 2018-09-07 12:33:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.39 Mbit/s
95th percentile per-packet one-way delay: 57.860 ms
Loss rate: 16.35%
-- Flow 1:
Average throughput: 12.39 Mbit/s
95th percentile per-packet one-way delay: 57.860 ms
Loss rate: 16.35%
```

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

Flow 1 ingress (mean 14.81 Mbit/s)   Flow 1 egress (mean 12.39 Mbit/s)
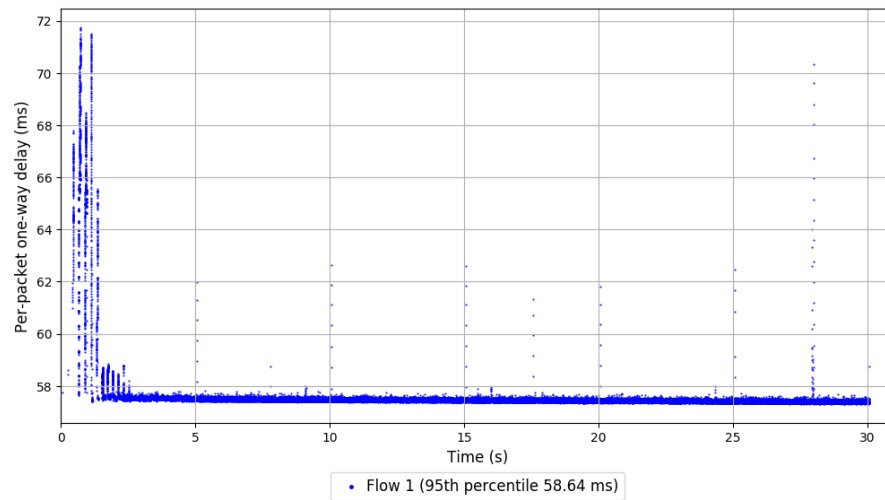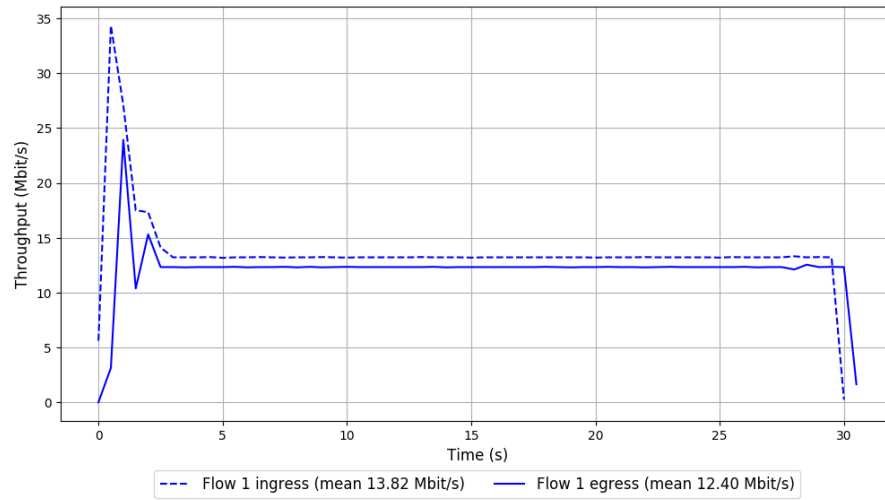

Flow 1 (95th percentile 57.86 ms)

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

Start at: 2018-09-07 11:45:06
End at: 2018-09-07 11:45:36
Local clock offset: 2.849 ms
Remote clock offset: -34.765 ms


# Below is generated by plot.py at 2018-09-07 12:33:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.40 Mbit/s
95th percentile per-packet one-way delay: 58.641 ms
Loss rate: 10.28%
-- Flow 1:
Average throughput: 12.40 Mbit/s
95th percentile per-packet one-way delay: 58.641 ms
Loss rate: 10.28%
```
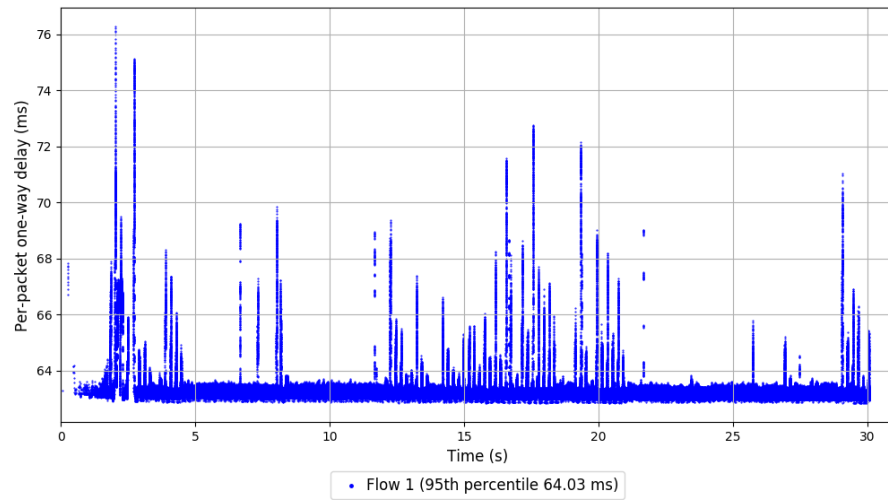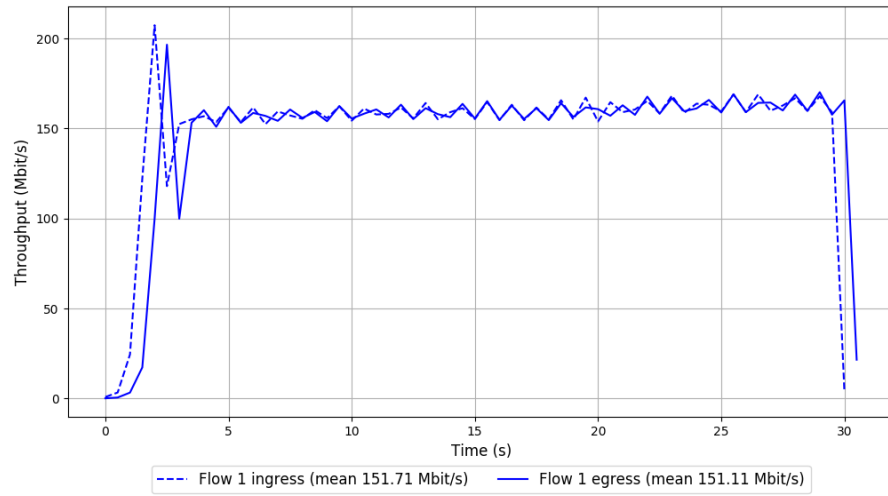
Run 5: Report of TaoVA-100x — Data Link

```
Run 1: Statistics of TCP Vegas

Start at: 2018-09-07 10:15:58
End at: 2018-09-07 10:16:28
Local clock offset: 1.43 ms
Remote clock offset: -30.729 ms


# Below is generated by plot.py at 2018-09-07 12:33:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 151.11 Mbit/s
95th percentile per-packet one-way delay: 64.030 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 151.11 Mbit/s
95th percentile per-packet one-way delay: 64.030 ms
Loss rate: 0.39%
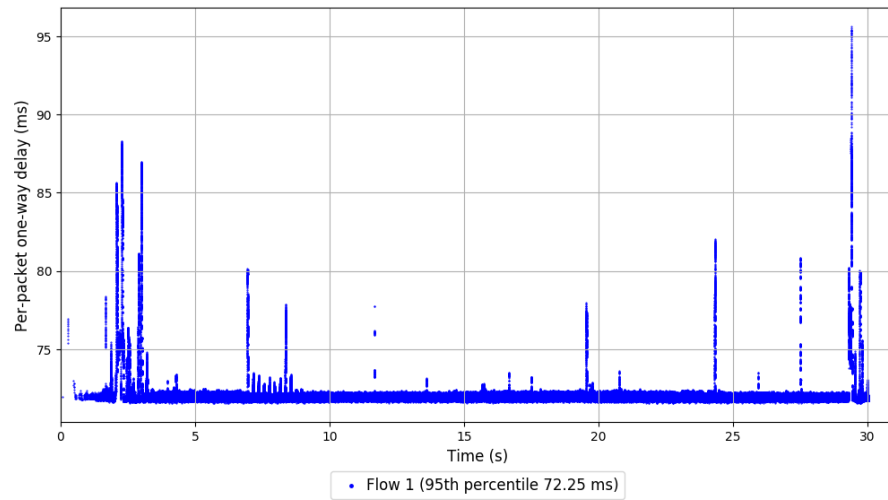```

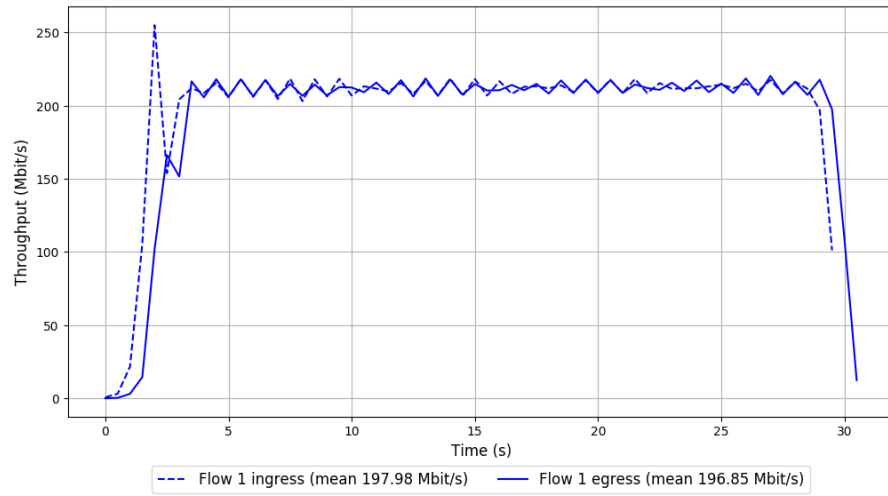Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2018-09-07 10:39:08
End at: 2018-09-07 10:39:38
Local clock offset: -4.458 ms
Remote clock offset: -30.315 ms

Below is generated by plot.py at 2018-09-07 12:33:04
Datalink statistics
-- Total of 1 flow:
Average throughput: 196.85 Mbit/s
95th percentile per-packet one-way delay: 72.247 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 196.85 Mbit/s
95th percentile per-packet one-way delay: 72.247 ms
Loss rate: 0.58%
```
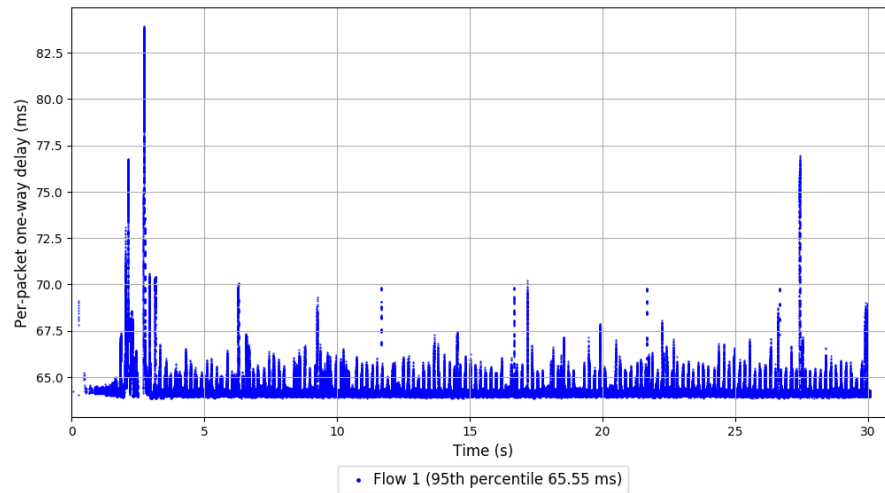
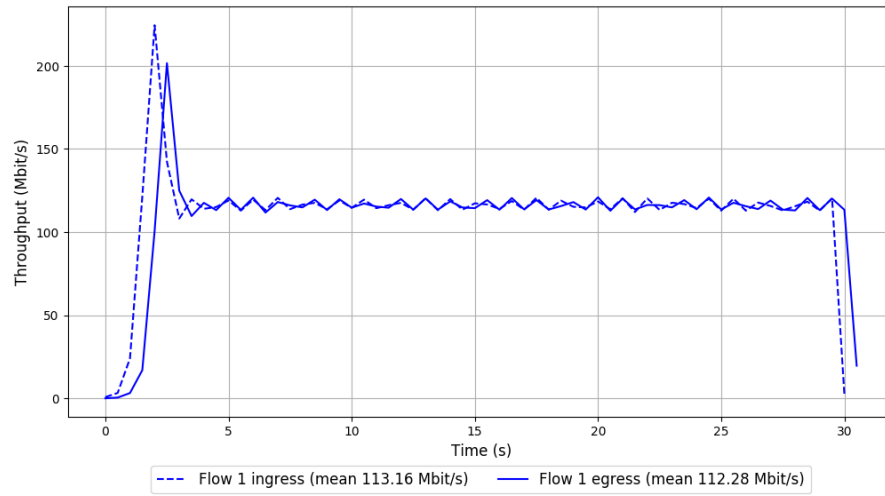Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2018-09-07 11:02:16
End at: 2018-09-07 11:02:46
Local clock offset: -0.914 ms
Remote clock offset: -32.19 ms


# Below is generated by plot.py at 2018-09-07 12:33:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 112.28 Mbit/s
95th percentile per-packet one-way delay: 65.548 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 112.28 Mbit/s
95th percentile per-packet one-way delay: 65.548 ms
Loss rate: 0.77%
```

Run 3: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 113.16 Mbit/s) — Flow 1 egress (mean 112.28 Mbit/s)
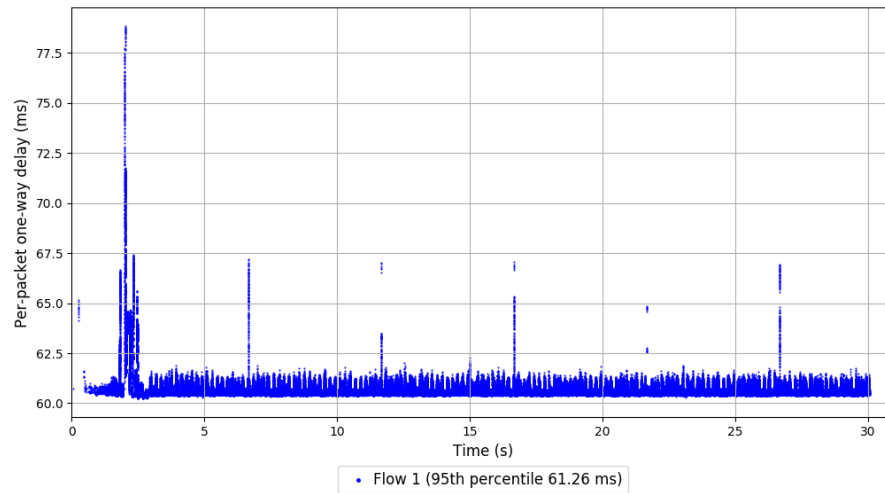
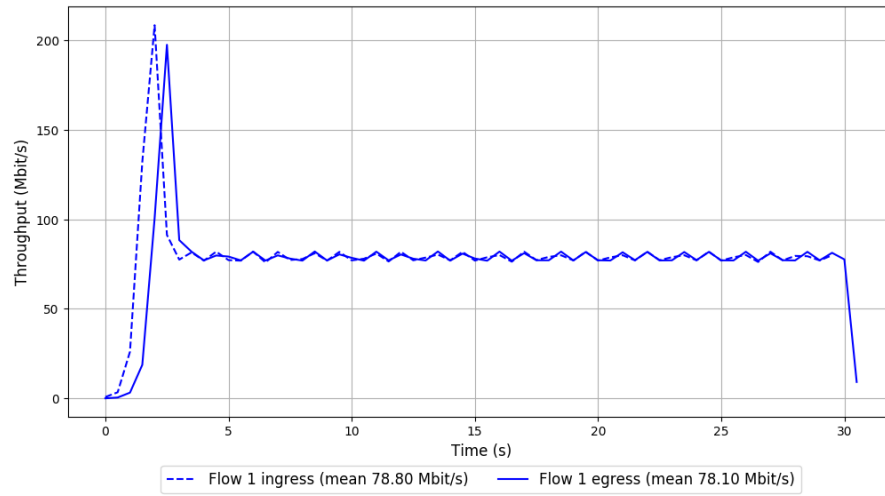

• Flow 1 (95th percentile 65.55 ms)

```
Run 4: Statistics of TCP Vegas

Start at: 2018-09-07 11:30:56
End at: 2018-09-07 11:31:26
Local clock offset: -0.049 ms
Remote clock offset: -34.821 ms


# Below is generated by plot.py at 2018-09-07 12:33:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 78.10 Mbit/s
95th percentile per-packet one-way delay: 61.262 ms
Loss rate: 0.89%
-- Flow 1:
Average throughput: 78.10 Mbit/s
95th percentile per-packet one-way delay: 61.262 ms
Loss rate: 0.89%
```
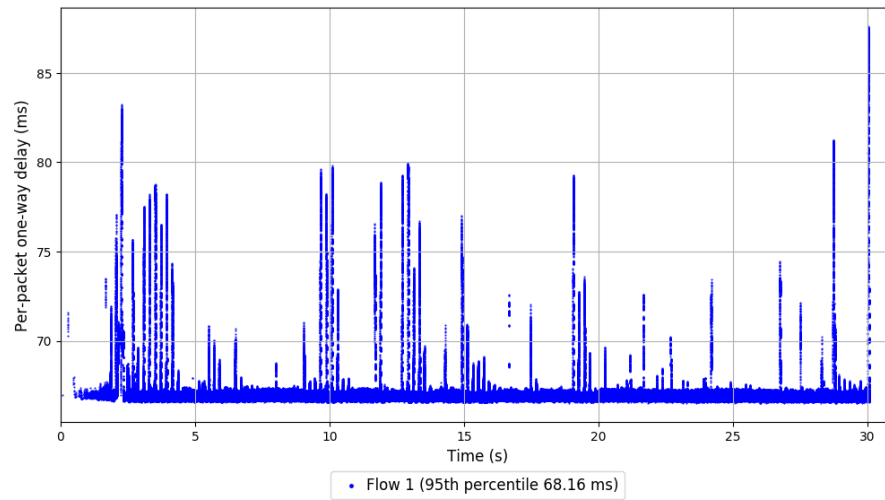
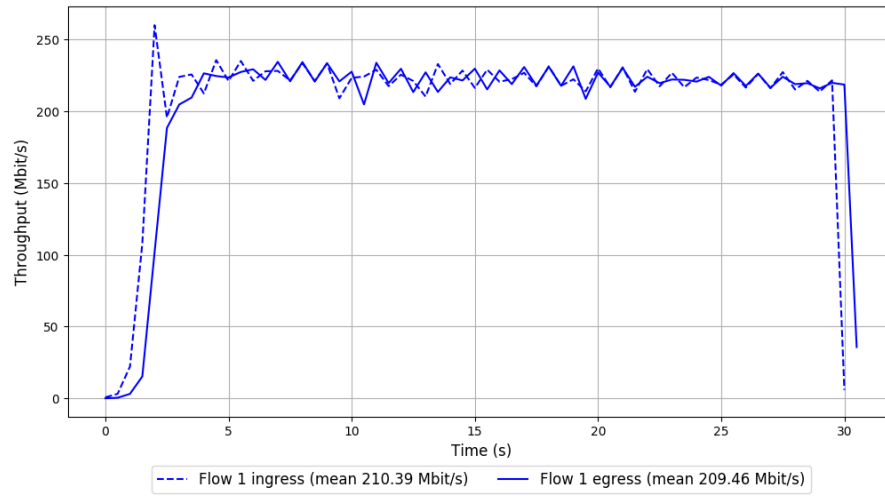Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2018-09-07 11:54:03
End at: 2018-09-07 11:54:33
Local clock offset: -1.63 ms
Remote clock offset: -30.644 ms


# Below is generated by plot.py at 2018-09-07 12:33:44
# Datalink statistics
-- Total of 1 flow:
Average throughput: 209.46 Mbit/s
95th percentile per-packet one-way delay: 68.156 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 209.46 Mbit/s
95th percentile per-packet one-way delay: 68.156 ms
Loss rate: 0.44%
```

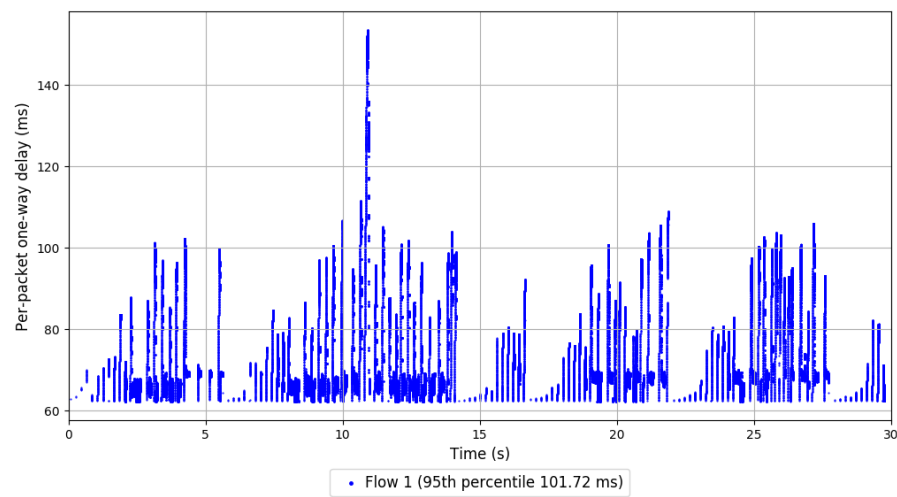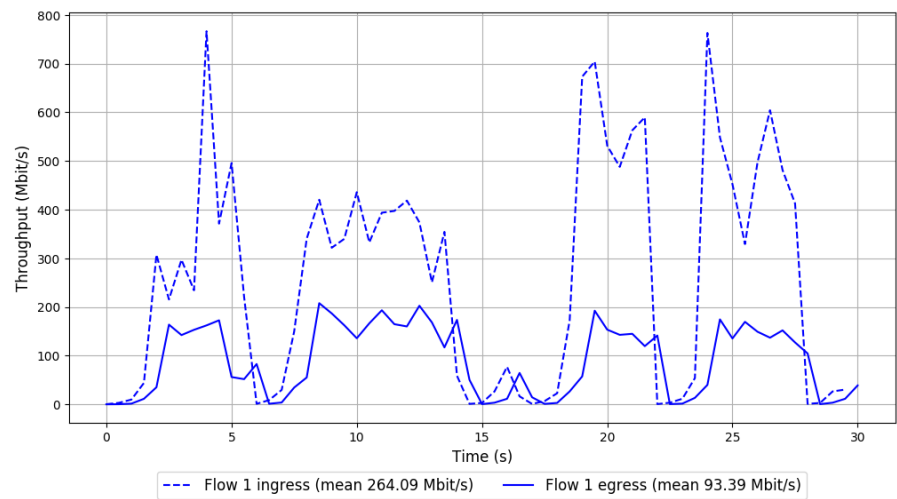Run 5: Report of TCP Vegas — Data Link

```
Run 1: Statistics of Verus

Start at: 2018-09-07 10:19:58
End at: 2018-09-07 10:20:28
Local clock offset: -0.442 ms
Remote clock offset: -35.761 ms


# Below is generated by plot.py at 2018-09-07 12:33:44
# Datalink statistics
-- Total of 1 flow:
Average throughput: 93.39 Mbit/s
95th percentile per-packet one-way delay: 101.720 ms
Loss rate: 64.63%
-- Flow 1:
Average throughput: 93.39 Mbit/s
95th percentile per-packet one-way delay: 101.720 ms
Loss rate: 64.63%
```
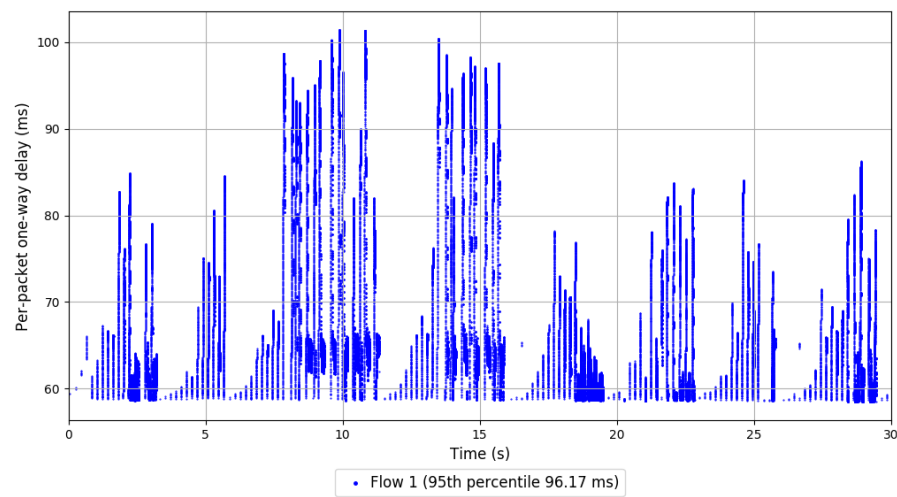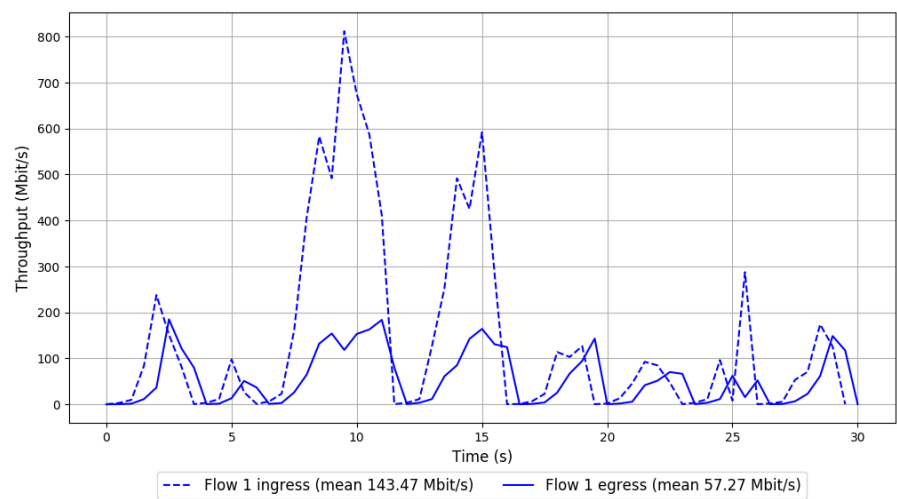
Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2018-09-07 10:43:08
End at: 2018-09-07 10:43:38
Local clock offset: -0.174 ms
Remote clock offset: -35.982 ms


# Below is generated by plot.py at 2018-09-07 12:33:44
# Datalink statistics
-- Total of 1 flow:
Average throughput: 57.27 Mbit/s
95th percentile per-packet one-way delay: 96.171 ms
Loss rate: 60.08%
-- Flow 1:
Average throughput: 57.27 Mbit/s
95th percentile per-packet one-way delay: 96.171 ms
Loss rate: 60.08%
```

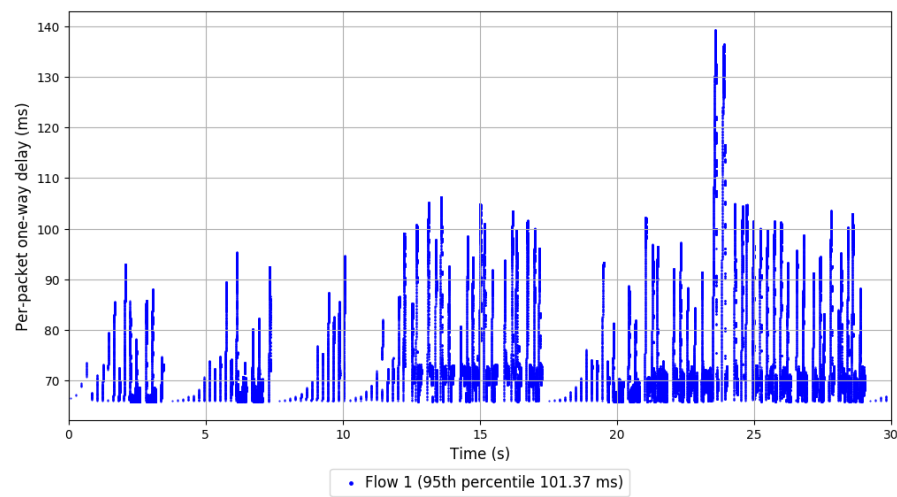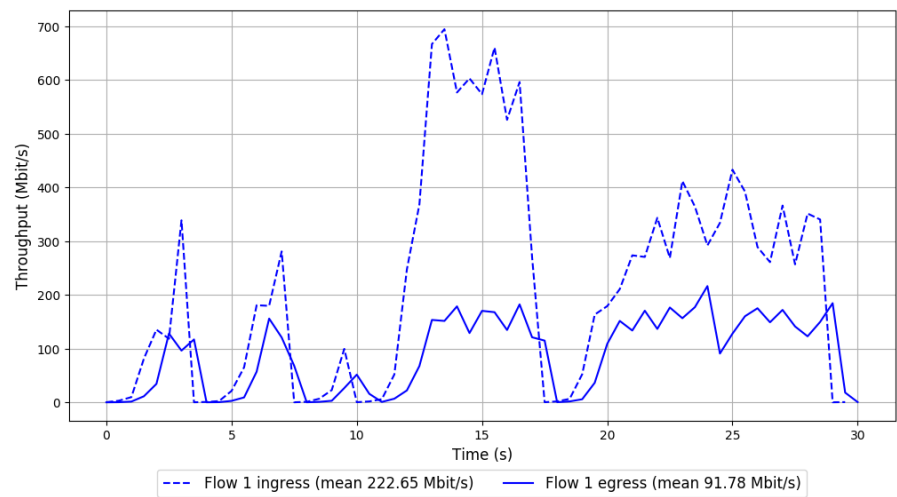## Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-09-07 11:06:14
End at: 2018-09-07 11:06:44
Local clock offset: 0.871 ms
Remote clock offset: -28.392 ms


# Below is generated by plot.py at 2018-09-07 12:34:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 91.78 Mbit/s
95th percentile per-packet one-way delay: 101.373 ms
Loss rate: 58.78%
-- Flow 1:
Average throughput: 91.78 Mbit/s
95th percentile per-packet one-way delay: 101.373 ms
Loss rate: 58.78%
```

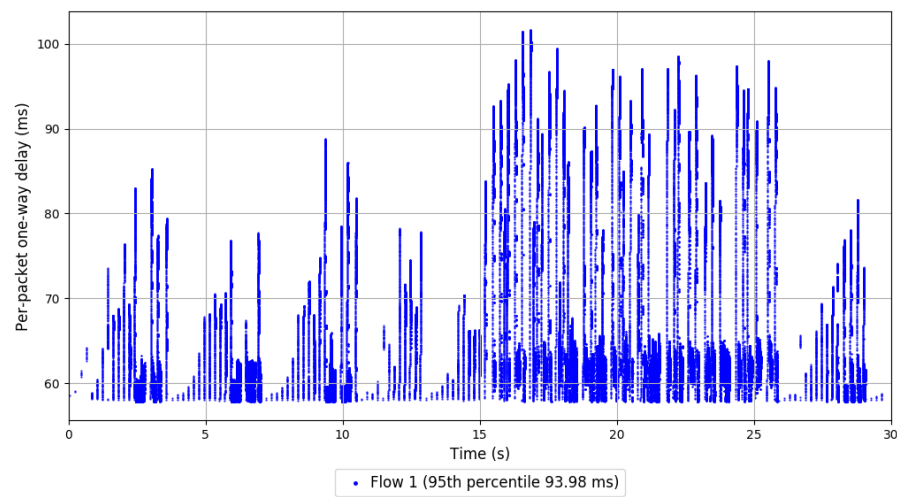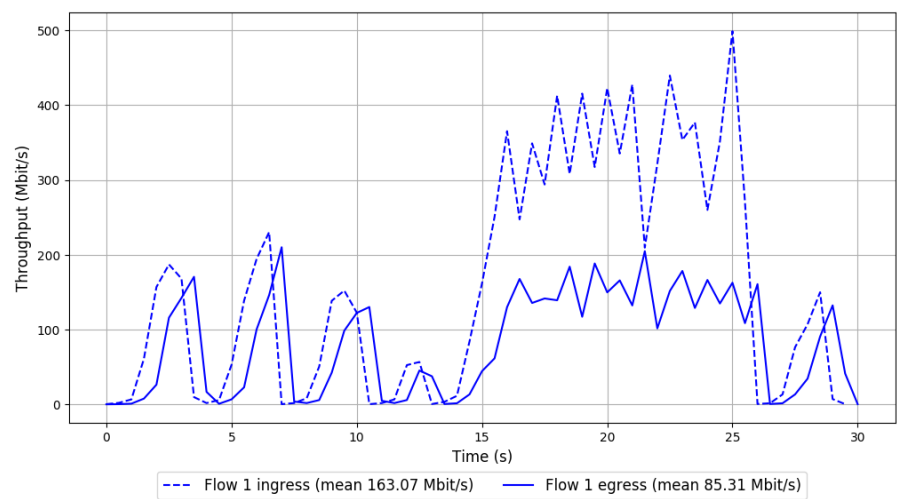## Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2018-09-07 11:34:53
End at: 2018-09-07 11:35:23
Local clock offset: 1.935 ms
Remote clock offset: -35.429 ms

# Below is generated by plot.py at 2018-09-07 12:34:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 85.31 Mbit/s
95th percentile per-packet one-way delay: 93.982 ms
Loss rate: 47.68%
-- Flow 1:
Average throughput: 85.31 Mbit/s
95th percentile per-packet one-way delay: 93.982 ms
Loss rate: 47.68%
```

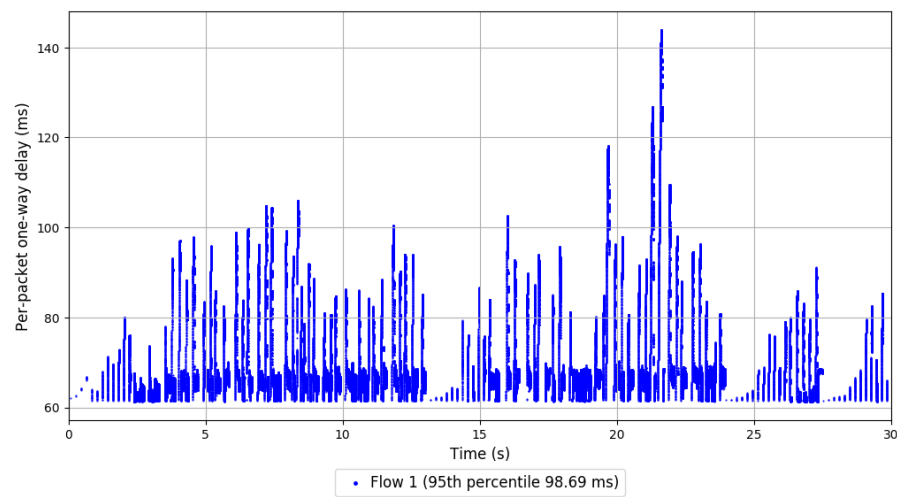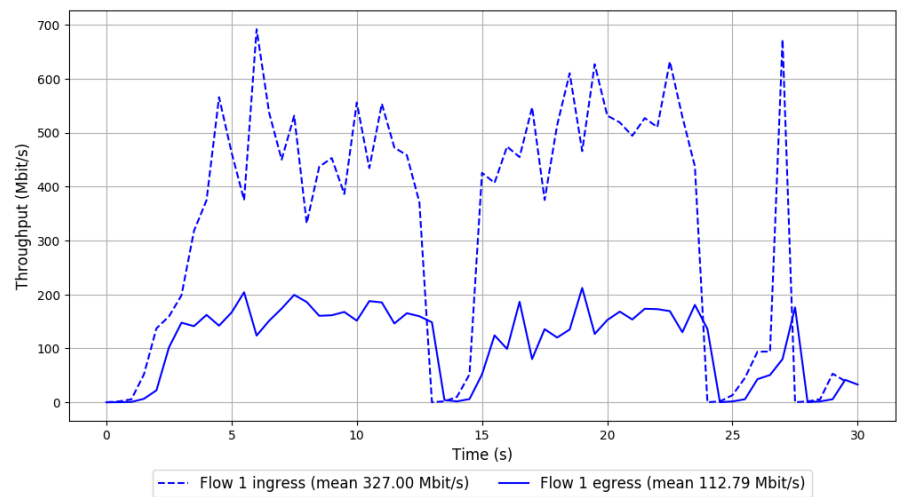## Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2018-09-07 12:03:42
End at: 2018-09-07 12:04:12
Local clock offset: -0.18 ms
Remote clock offset: -31.507 ms


# Below is generated by plot.py at 2018-09-07 12:34:57
# Datalink statistics
-- Total of 1 flow:
Average throughput: 112.79 Mbit/s
95th percentile per-packet one-way delay: 98.689 ms
Loss rate: 65.50%
-- Flow 1:
Average throughput: 112.79 Mbit/s
95th percentile per-packet one-way delay: 98.689 ms
Loss rate: 65.50%
```
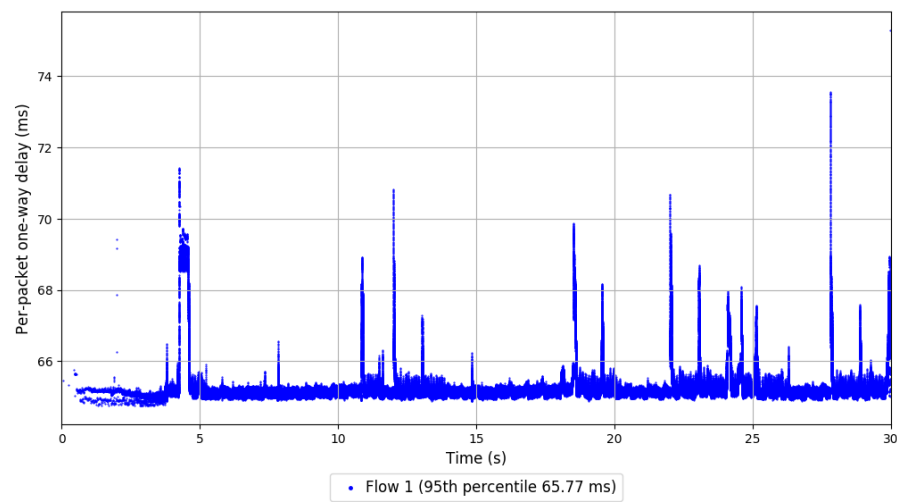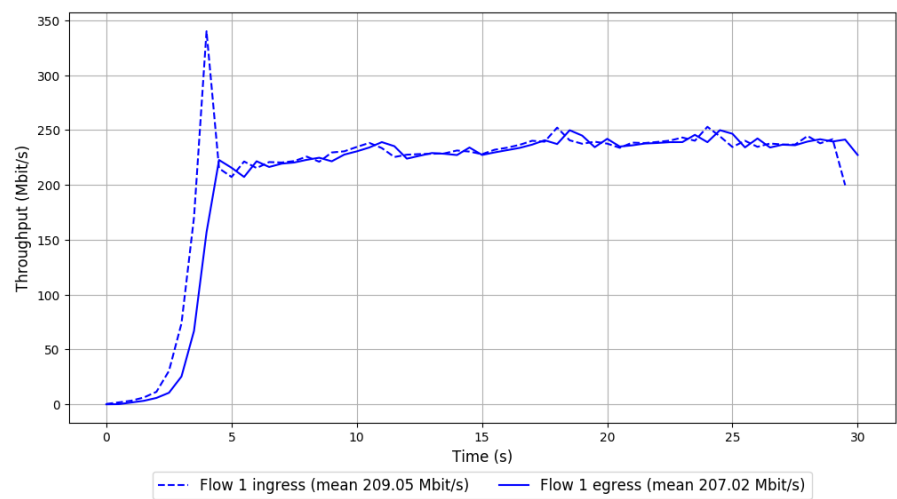
Run 5: Report of Verus — Data Link

```
Run 1: Statistics of PCC-Vivace

Start at: 2018-09-07 10:14:34
End at: 2018-09-07 10:15:04
Local clock offset: 1.512 ms
Remote clock offset: -28.828 ms


# Below is generated by plot.py at 2018-09-07 12:35:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 207.02 Mbit/s
95th percentile per-packet one-way delay: 65.769 ms
Loss rate: 0.96%
-- Flow 1:
Average throughput: 207.02 Mbit/s
95th percentile per-packet one-way delay: 65.769 ms
Loss rate: 0.96%
```

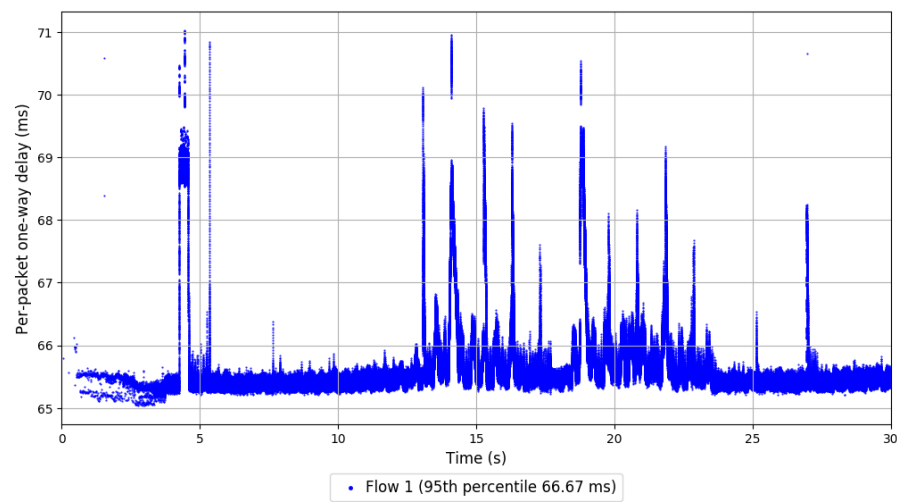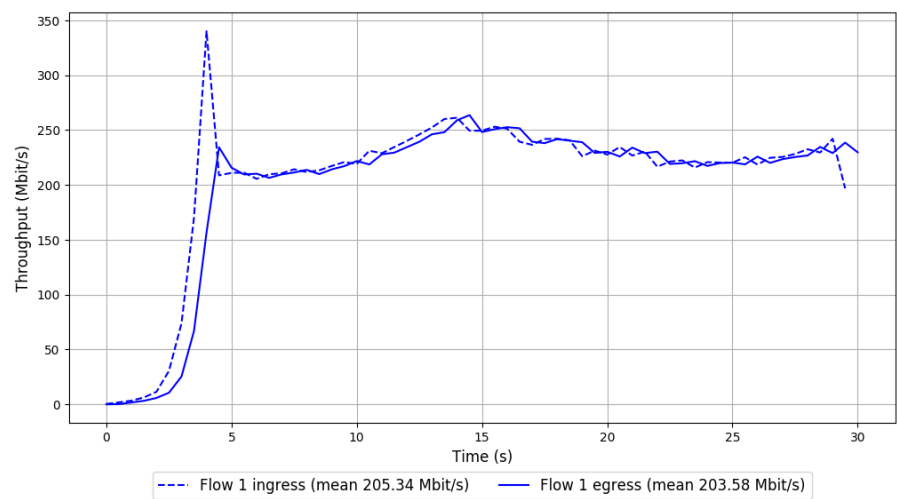# Run 1: Report of PCC-Vivace — Data Link

```
Run 2: Statistics of PCC-Vivace

Start at: 2018-09-07 10:37:44
End at: 2018-09-07 10:38:14
Local clock offset: -3.506 ms
Remote clock offset: -32.655 ms


# Below is generated by plot.py at 2018-09-07 12:35:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 203.58 Mbit/s
95th percentile per-packet one-way delay: 66.674 ms
Loss rate: 0.86%
-- Flow 1:
Average throughput: 203.58 Mbit/s
95th percentile per-packet one-way delay: 66.674 ms
Loss rate: 0.86%
```

Run 2: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 205.34 Mbit/s) — Flow 1 egress (mean 203.58 Mbit/s)
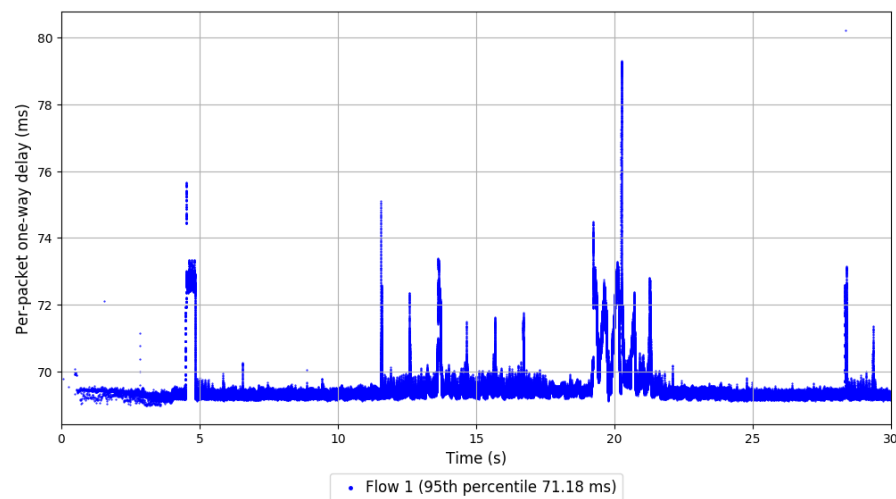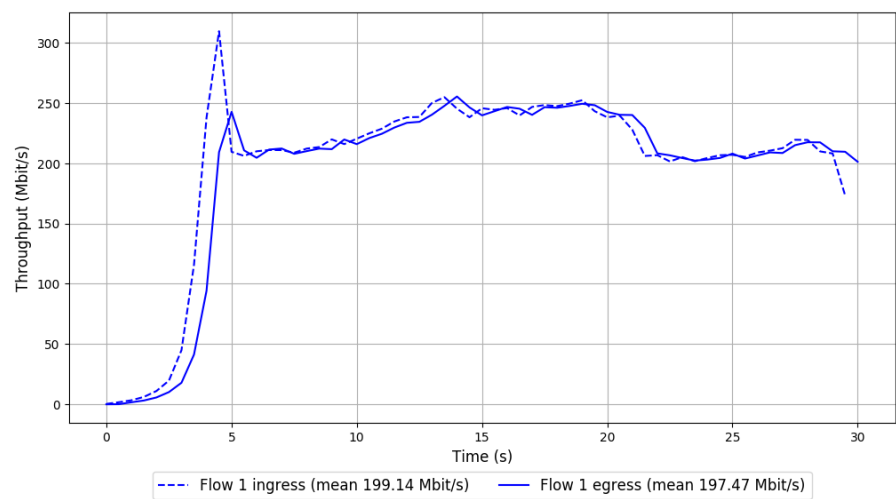

Flow 1 (95th percentile 66.67 ms)

```
Run 3: Statistics of PCC-Vivace

Start at: 2018-09-07 11:00:54
End at: 2018-09-07 11:01:24
Local clock offset: -2.049 ms
Remote clock offset: -30.47 ms


# Below is generated by plot.py at 2018-09-07 12:35:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 197.47 Mbit/s
95th percentile per-packet one-way delay: 71.182 ms
Loss rate: 0.85%
-- Flow 1:
Average throughput: 197.47 Mbit/s
95th percentile per-packet one-way delay: 71.182 ms
Loss rate: 0.85%
```

Run 3: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 199.14 Mbit/s)   Flow 1 egress (mean 197.47 Mbit/s)
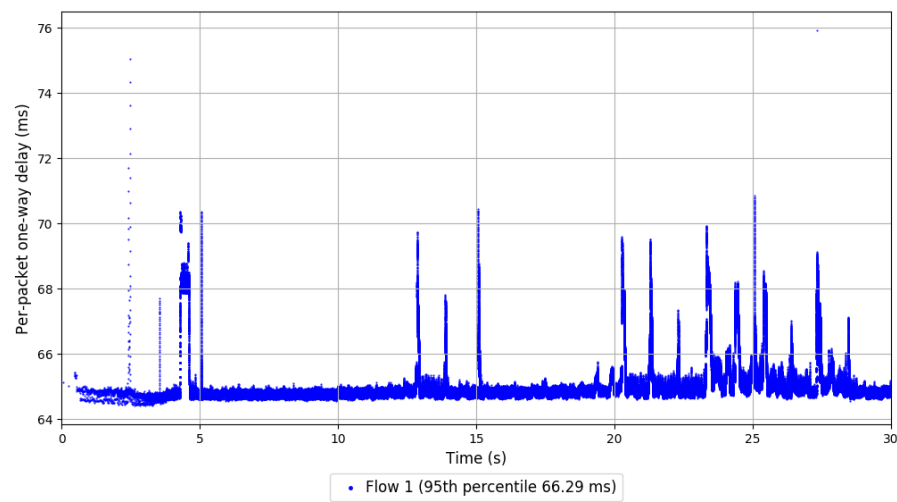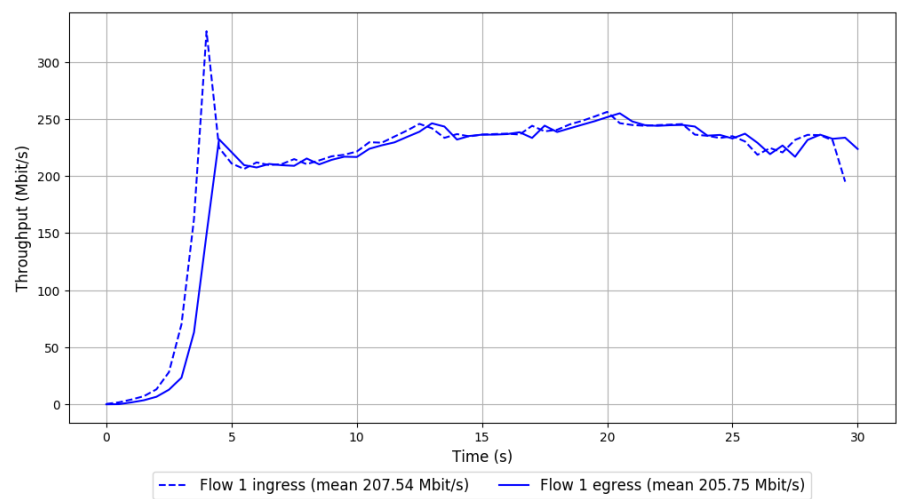

Flow 1 (95th percentile 71.18 ms)

```
Run 4: Statistics of PCC-Vivace

Start at: 2018-09-07 11:29:32
End at: 2018-09-07 11:30:02
Local clock offset: -0.107 ms
Remote clock offset: -32.832 ms


# Below is generated by plot.py at 2018-09-07 12:35:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 205.75 Mbit/s
95th percentile per-packet one-way delay: 66.292 ms
Loss rate: 0.87%
-- Flow 1:
Average throughput: 205.75 Mbit/s
95th percentile per-packet one-way delay: 66.292 ms
Loss rate: 0.87%
```

Run 4: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 207.54 Mbit/s)   Flow 1 egress (mean 205.75 Mbit/s)
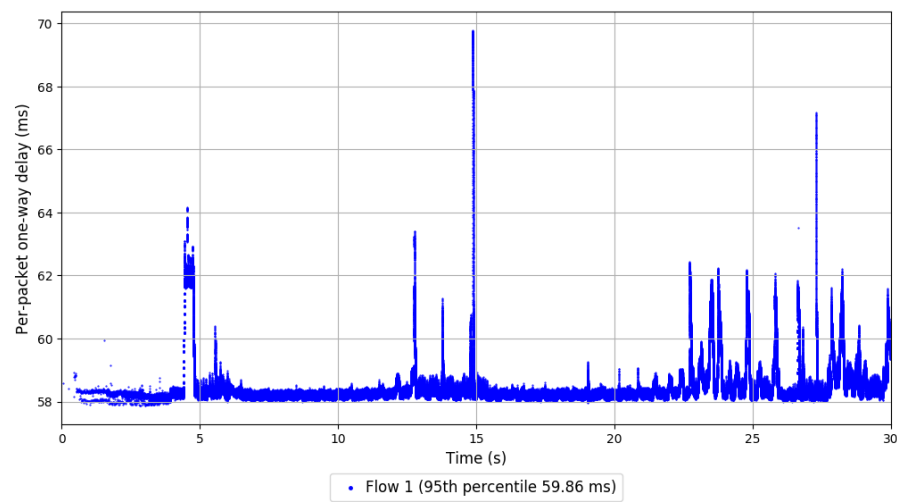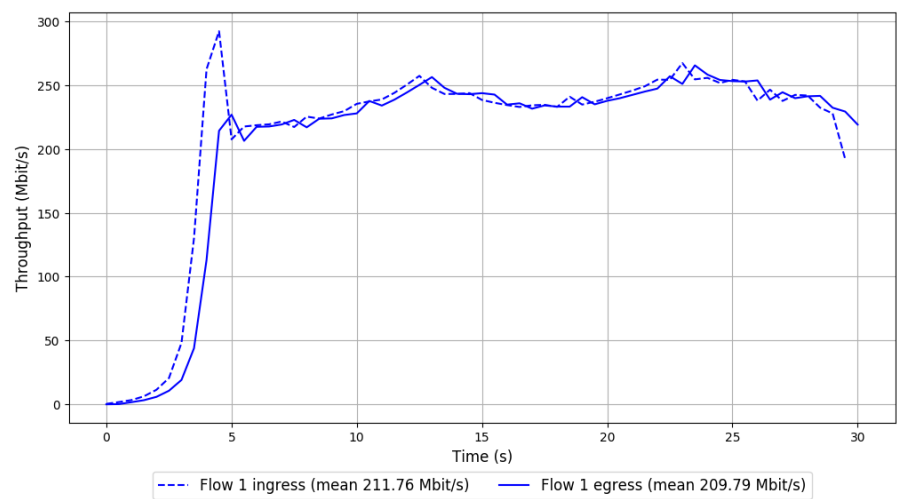

Flow 1 (95th percentile 66.29 ms)

```
Run 5: Statistics of PCC-Vivace

Start at: 2018-09-07 11:52:39
End at: 2018-09-07 11:53:09
Local clock offset: 0.178 ms
Remote clock offset: -35.207 ms


# Below is generated by plot.py at 2018-09-07 12:35:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 209.79 Mbit/s
95th percentile per-packet one-way delay: 59.862 ms
Loss rate: 0.93%
-- Flow 1:
Average throughput: 209.79 Mbit/s
95th percentile per-packet one-way delay: 59.862 ms
Loss rate: 0.93%
```

Run 5: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 211.76 Mbit/s) — Flow 1 egress (mean 209.79 Mbit/s)
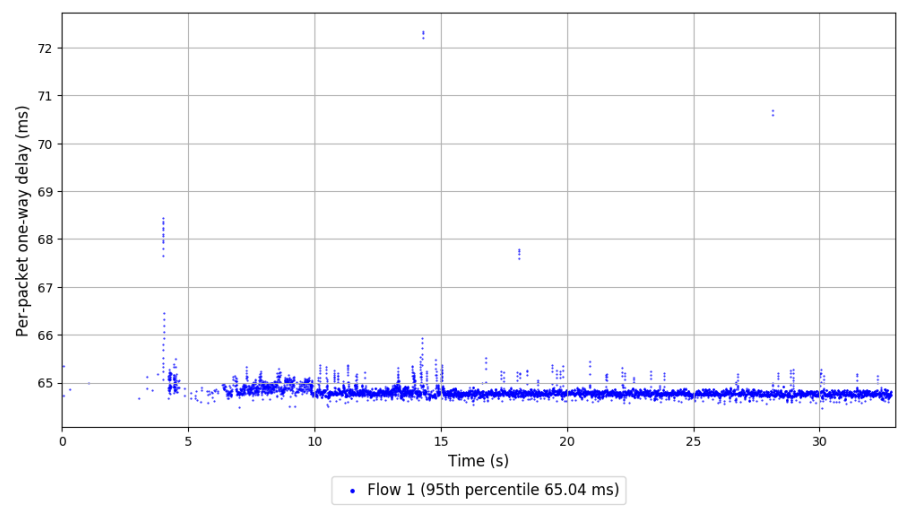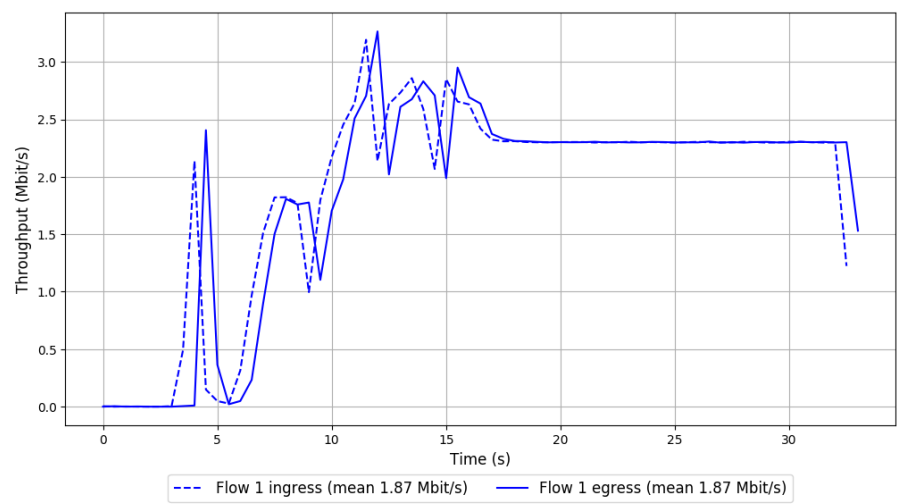

Flow 1 (95th percentile 59.86 ms)

```
Run 1: Statistics of WebRTC media

Start at: 2018-09-07 10:22:42
End at: 2018-09-07 10:23:12
Local clock offset: 0.949 ms
Remote clock offset: -31.645 ms

# Below is generated by plot.py at 2018-09-07 12:35:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.87 Mbit/s
95th percentile per-packet one-way delay: 65.038 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.87 Mbit/s
95th percentile per-packet one-way delay: 65.038 ms
Loss rate: 0.00%
```

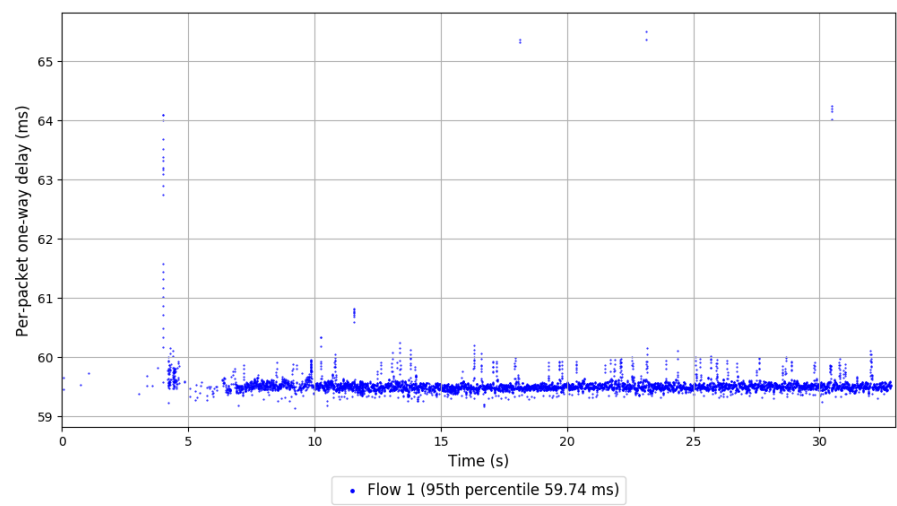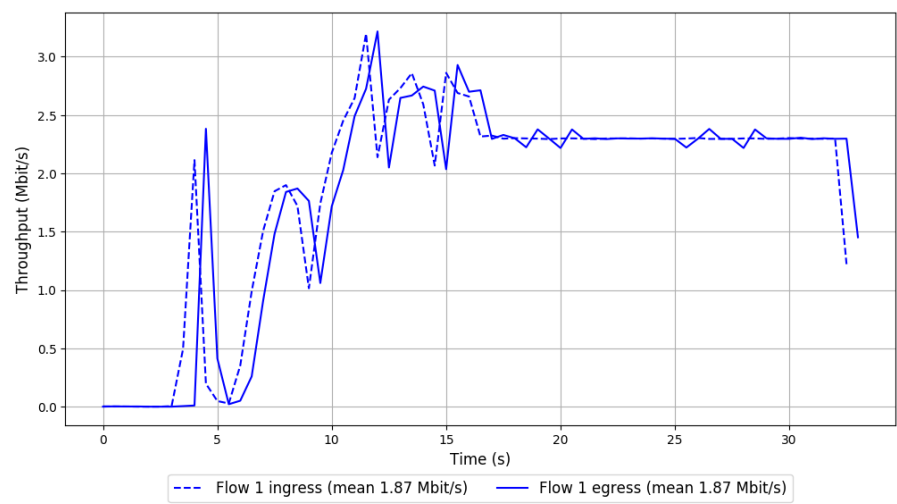Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2018-09-07 10:45:51
End at: 2018-09-07 10:46:21
Local clock offset: -1.352 ms
Remote clock offset: -36.495 ms


# Below is generated by plot.py at 2018-09-07 12:35:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.87 Mbit/s
95th percentile per-packet one-way delay: 59.737 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.87 Mbit/s
95th percentile per-packet one-way delay: 59.737 ms
Loss rate: 0.00%
```

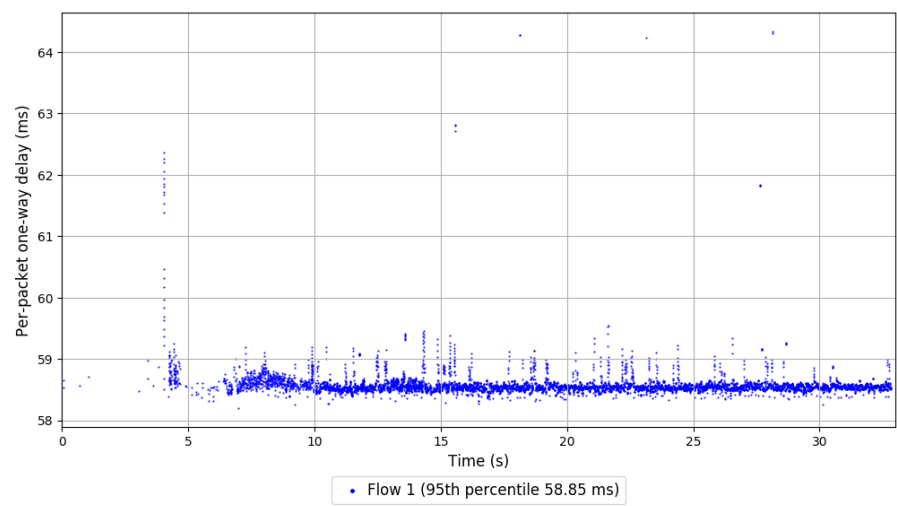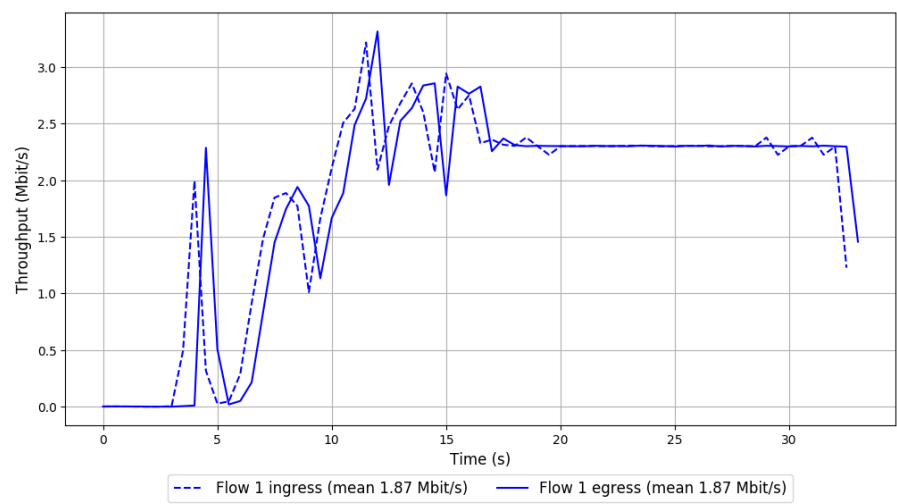Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-09-07 11:08:58
End at: 2018-09-07 11:09:28
Local clock offset: 1.809 ms
Remote clock offset: -35.104 ms


# Below is generated by plot.py at 2018-09-07 12:35:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.87 Mbit/s
95th percentile per-packet one-way delay: 58.847 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.87 Mbit/s
95th percentile per-packet one-way delay: 58.847 ms
Loss rate: 0.00%
```

Run 3: Report of WebRTC media — Data Link

Flow 1 ingress (mean 1.87 Mbit/s) ---- Flow 1 egress (mean 1.87 Mbit/s) ——
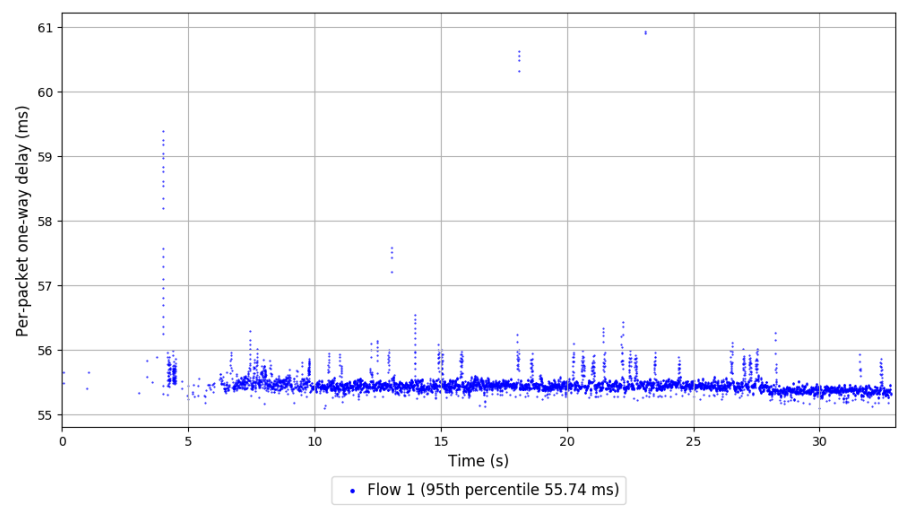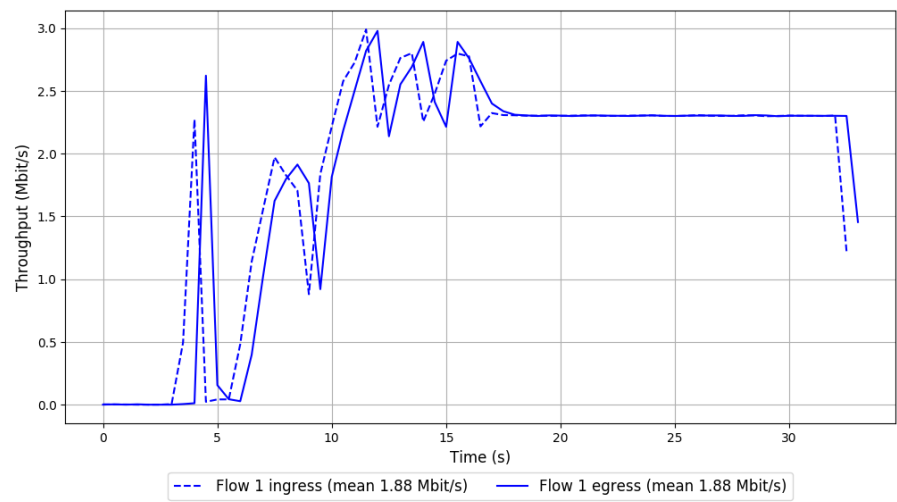

Flow 1 (95th percentile 58.85 ms)

```
Run 4: Statistics of WebRTC media

Start at: 2018-09-07 11:37:36
End at: 2018-09-07 11:38:06
Local clock offset: 0.2 ms
Remote clock offset: -39.667 ms


# Below is generated by plot.py at 2018-09-07 12:35:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.88 Mbit/s
95th percentile per-packet one-way delay: 55.743 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.88 Mbit/s
95th percentile per-packet one-way delay: 55.743 ms
Loss rate: 0.00%
```

Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2018-09-07 12:06:29
End at: 2018-09-07 12:06:59
Local clock offset: -0.523 ms
Remote clock offset: -34.694 ms


# Below is generated by plot.py at 2018-09-07 12:35:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.88 Mbit/s
95th percentile per-packet one-way delay: 58.614 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.88 Mbit/s
95th percentile per-packet one-way delay: 58.614 ms
Loss rate: 0.00%
```

Run 5: Report of WebRTC media — Data Link