Pantheon Report

Generated at 2018-09-07 12:06:12 (UTC).

Data path: AWS California 2 on ens5 (*local*) →Mexico on em1 (*remote*).

Repeated the test of 18 congestion control schemes 5 times.

Each test lasted for 30 seconds running 1 flow.

NTP offsets were measured against time.stanford.edu and have been applied to correct the timestamps in logs.
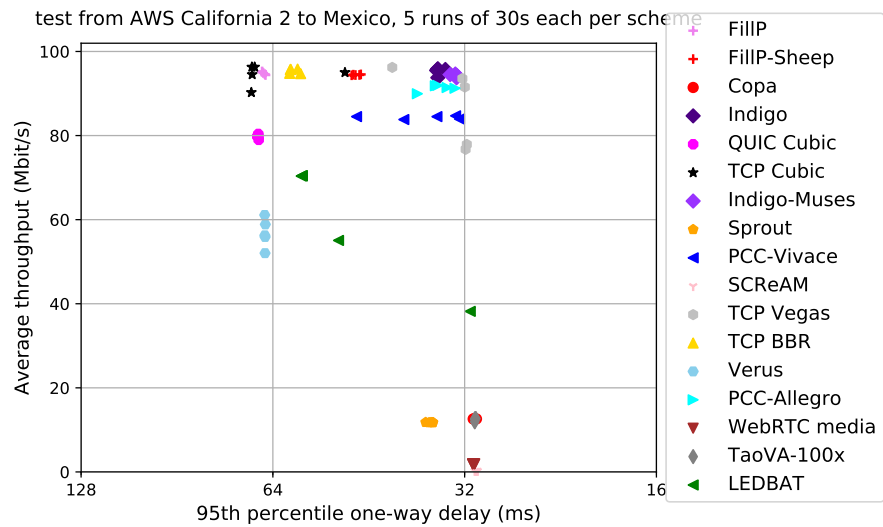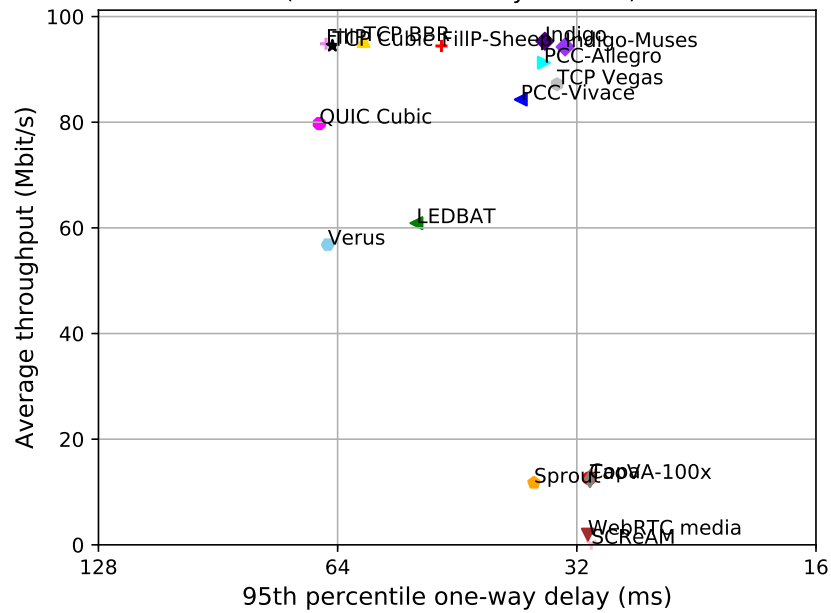
```
System info:
Linux 4.15.0-1020-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
net.ipv4.tcp_mem = 536870912 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 California 2 to Mexico, 5 runs of 30s each per scheme
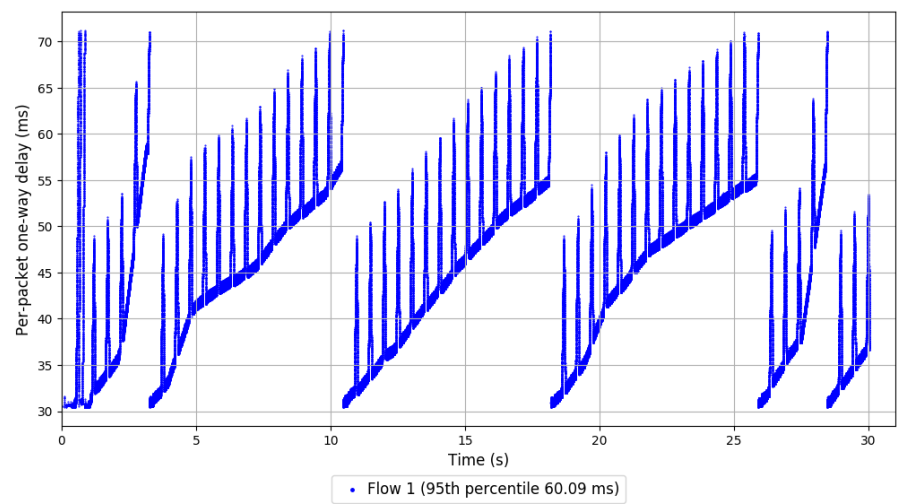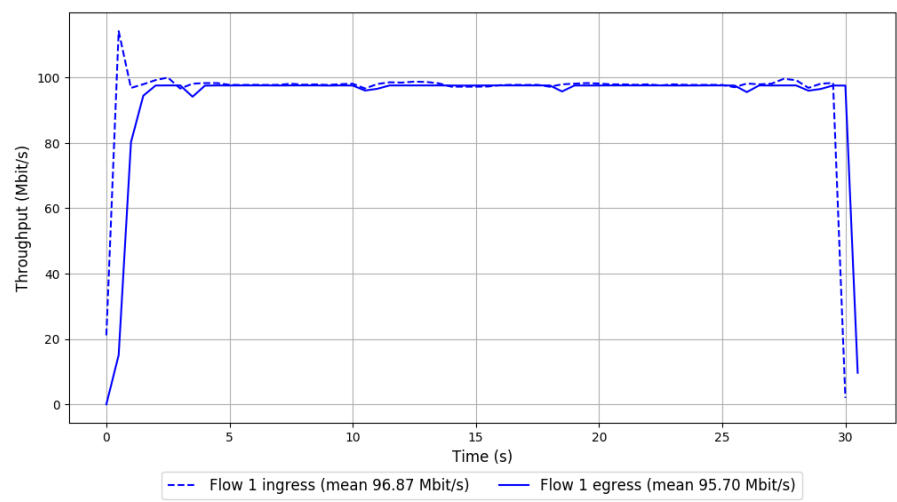(mean of all runs by scheme)

test from AWS California 2 to Mexico, 5 runs of 30s each per scheme

3

scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	5	95.36	59.35	1.04
Copa	4	12.61	30.87	71.65
TCP Cubic	5	94.47	64.97	0.68
FillP	5	94.86	66.19	9.47
FillP-Sheep	5	94.44	47.37	0.97
Indigo	5	95.33	35.11	0.04
LEDBAT	5	60.90	50.94	0.02
Indigo-Muses	5	94.25	33.10	0.18
PCC-Allegro	5	91.28	35.21	0.70
PCC-Expr	0	N/A	N/A	N/A
QUIC Cubic	5	79.75	67.49	1.81
SCReAM	5	0.21	30.68	0.00
Sprout	5	11.77	36.23	0.02
TaoVA-100x	5	12.50	30.80	69.26
TCP Vegas	5	87.19	33.89	0.61
Verus	5	56.83	65.85	22.00
PCC-Vivace	5	84.29	37.64	0.01
WebRTC media	5	1.93	30.99	0.00

```
Run 1: Statistics of TCP BBR

Start at: 2018-09-07 10:05:29
End at: 2018-09-07 10:05:59
Local clock offset: 0.719 ms
Remote clock offset: -2.097 ms

# Below is generated by plot.py at 2018-09-07 11:58:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 95.70 Mbit/s
95th percentile per-packet one-way delay: 60.085 ms
Loss rate: 1.18%
-- Flow 1:
Average throughput: 95.70 Mbit/s
95th percentile per-packet one-way delay: 60.085 ms
Loss rate: 1.18%
```
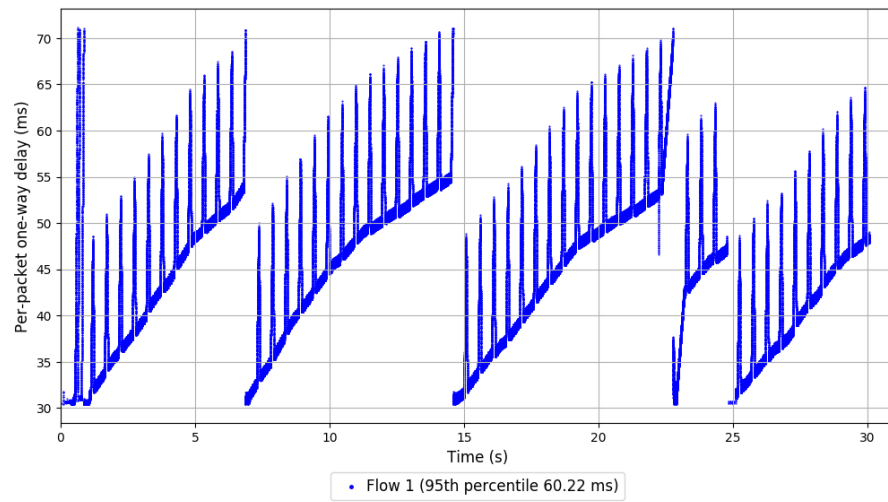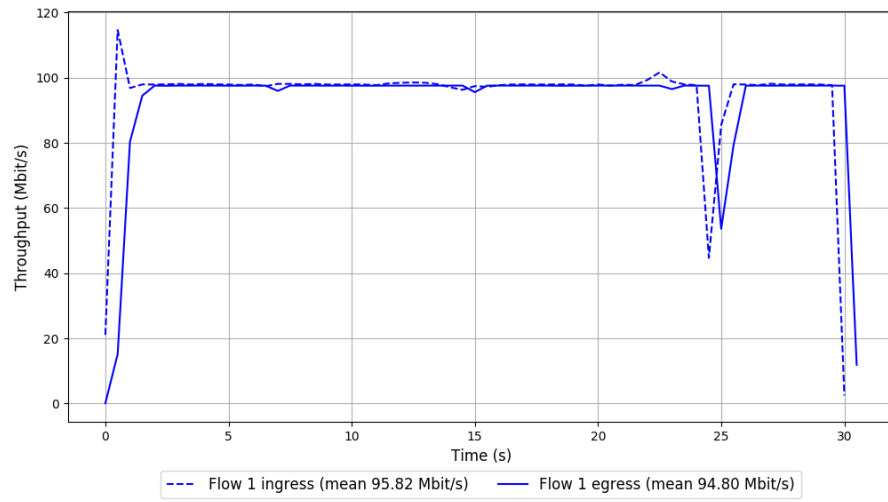
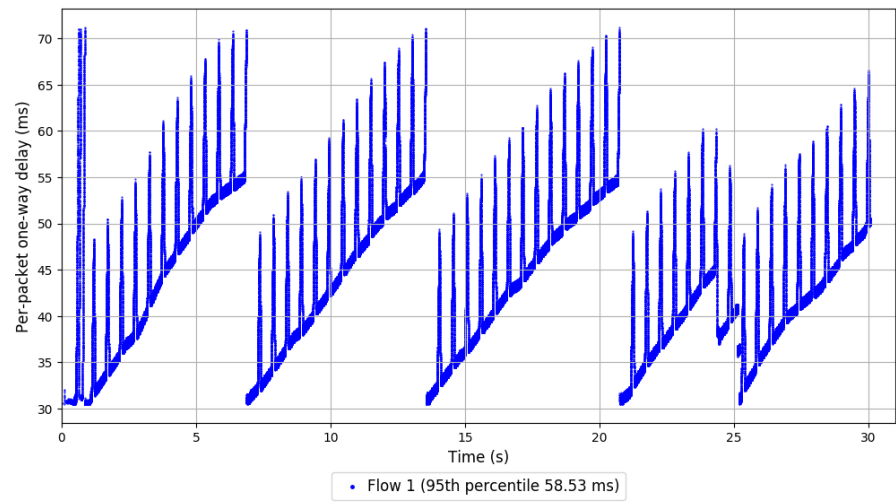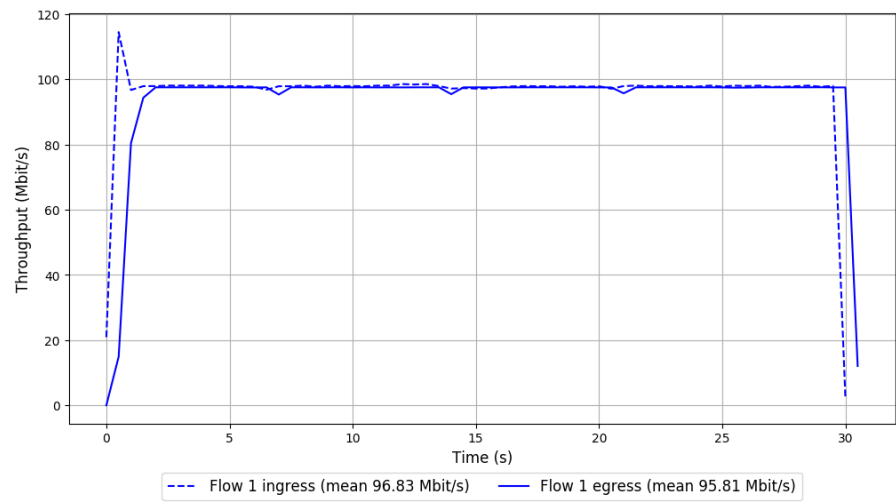Run 1: Report of TCP BBR — Data Link

```
Run 2: Statistics of TCP BBR

Start at: 2018-09-07 10:28:58
End at: 2018-09-07 10:29:28
Local clock offset: 1.268 ms
Remote clock offset: -1.409 ms


# Below is generated by plot.py at 2018-09-07 11:58:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 94.80 Mbit/s
95th percentile per-packet one-way delay: 60.224 ms
Loss rate: 1.00%
-- Flow 1:
Average throughput: 94.80 Mbit/s
95th percentile per-packet one-way delay: 60.224 ms
Loss rate: 1.00%
```

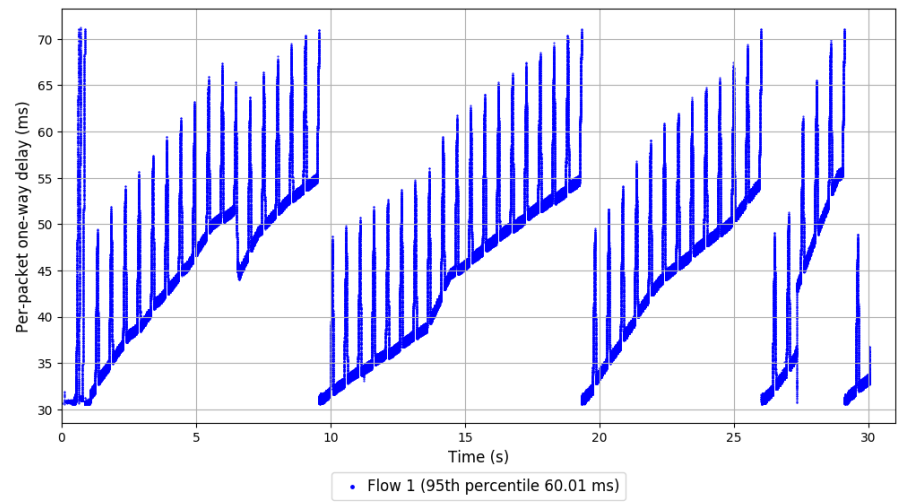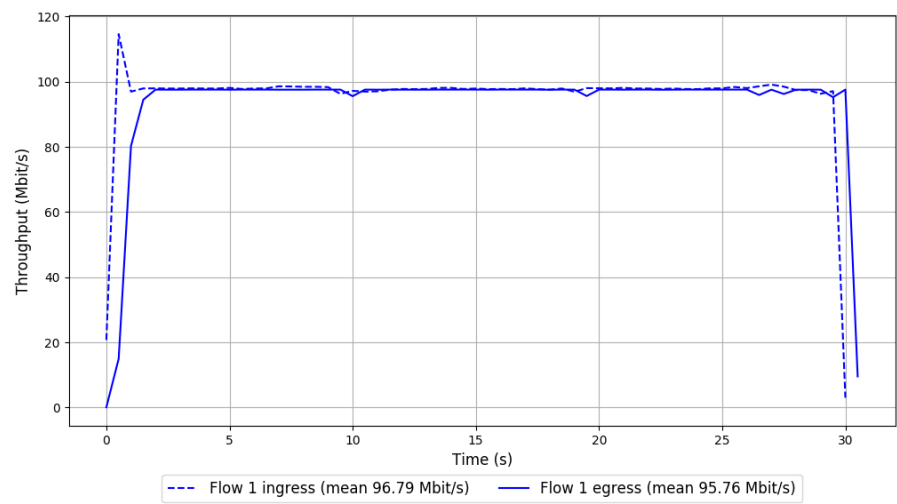Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2018-09-07 10:52:39
End at: 2018-09-07 10:53:09
Local clock offset: 1.076 ms
Remote clock offset: -0.821 ms


# Below is generated by plot.py at 2018-09-07 11:58:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 95.81 Mbit/s
95th percentile per-packet one-way delay: 58.534 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 95.81 Mbit/s
95th percentile per-packet one-way delay: 58.534 ms
Loss rate: 0.98%
```

Run 3: Report of TCP BBR — Data Link

```
Run 4: Statistics of TCP BBR

Start at: 2018-09-07 11:16:09
End at: 2018-09-07 11:16:39
Local clock offset: 0.768 ms
Remote clock offset: -0.051 ms


# Below is generated by plot.py at 2018-09-07 11:58:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 95.76 Mbit/s
95th percentile per-packet one-way delay: 60.006 ms
Loss rate: 1.05%
-- Flow 1:
Average throughput: 95.76 Mbit/s
95th percentile per-packet one-way delay: 60.006 ms
Loss rate: 1.05%
```

Run 4: Report of TCP BBR — Data Link

```
Run 5: Statistics of TCP BBR

Start at: 2018-09-07 11:39:44
End at: 2018-09-07 11:40:14
Local clock offset: 0.588 ms
Remote clock offset: 0.043 ms

# Below is generated by plot.py at 2018-09-07 11:58:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 94.73 Mbit/s
95th percentile per-packet one-way delay: 57.896 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 94.73 Mbit/s
95th percentile per-packet one-way delay: 57.896 ms
Loss rate: 0.98%
```
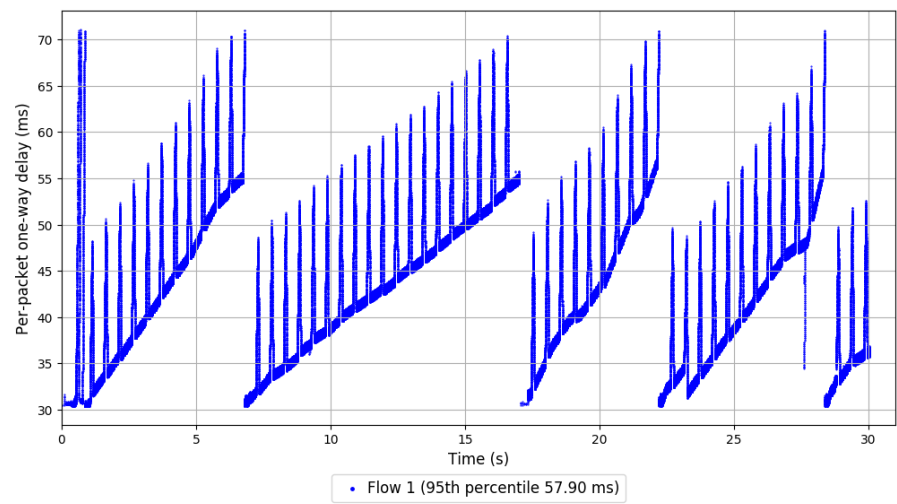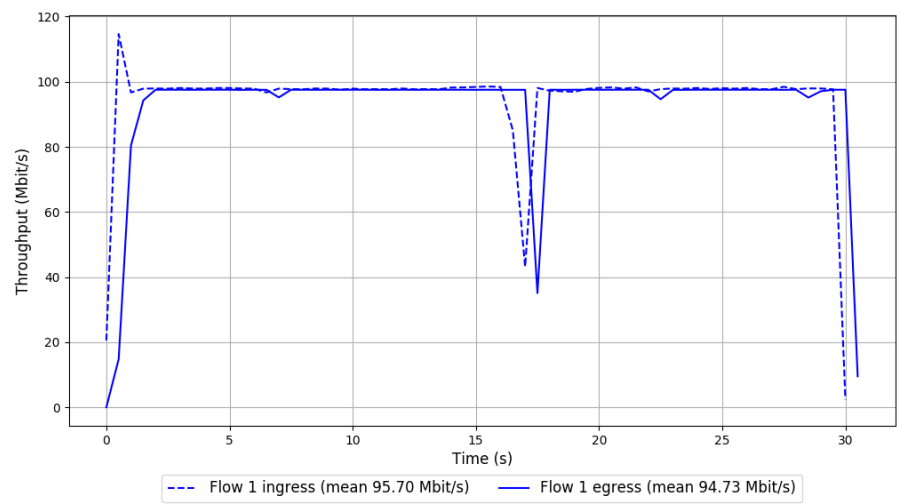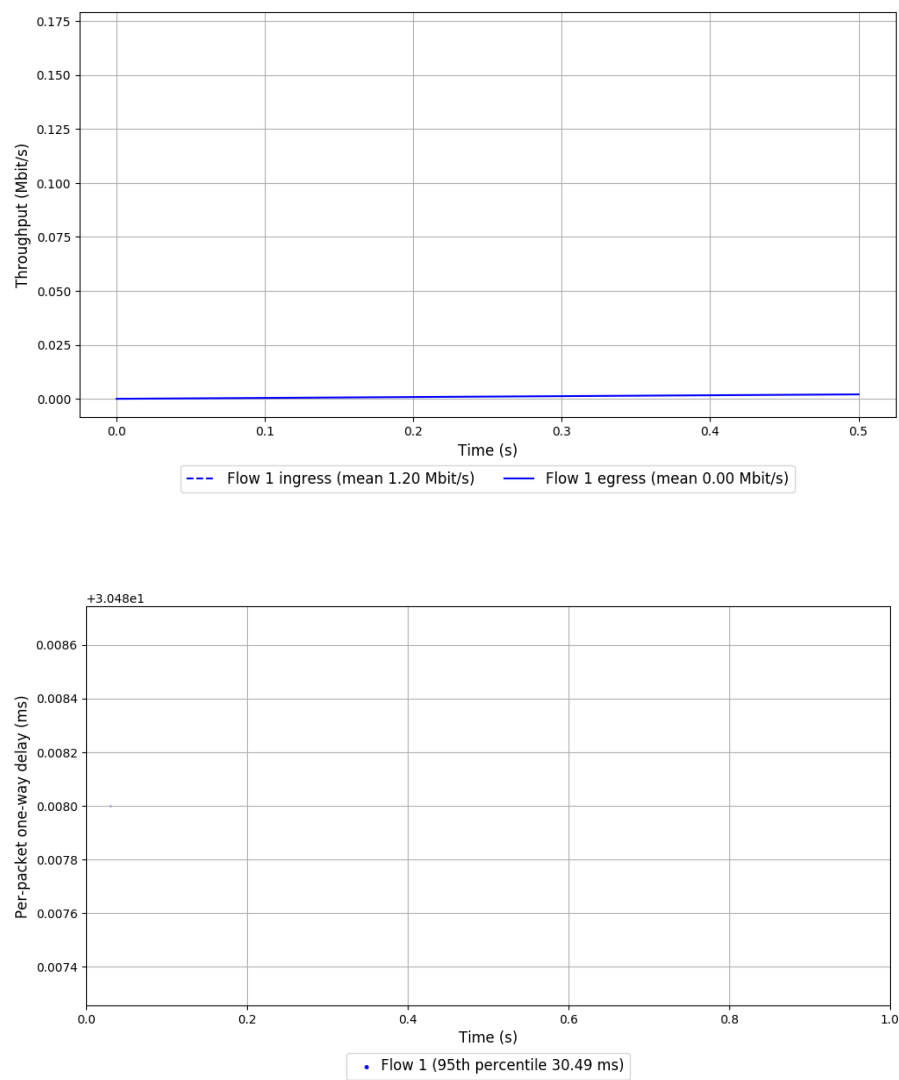
Run 5: Report of TCP BBR — Data Link

```
Run 1: Statistics of Copa

Start at: 2018-09-07 10:02:54
End at: 2018-09-07 10:03:24
Local clock offset: 0.755 ms
Remote clock offset: -2.16 ms
```
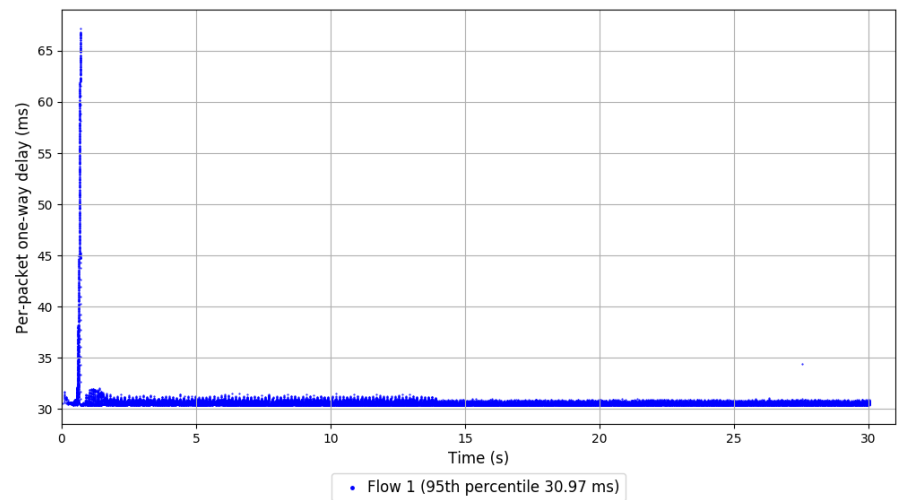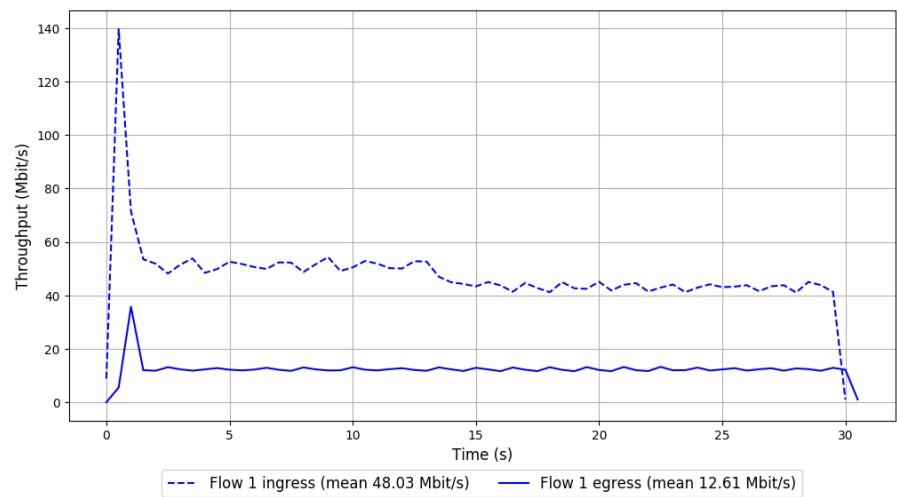
Run 1: Report of Copa — Data Link

Flow 1 ingress (mean 1.20 Mbit/s) --- Flow 1 egress (mean 0.00 Mbit/s)

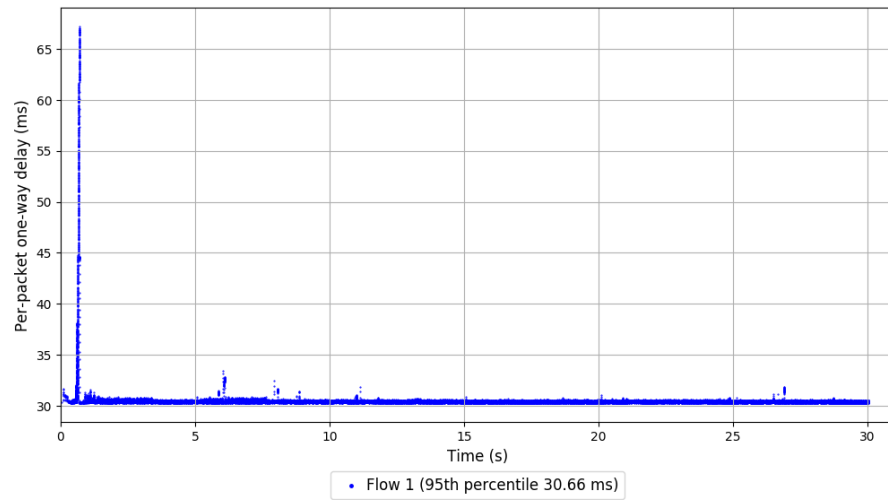Flow 1 (95th percentile 30.49 ms)

```
Run 2: Statistics of Copa

Start at: 2018-09-07 10:26:22
End at: 2018-09-07 10:26:52
Local clock offset: 1.202 ms
Remote clock offset: -1.537 ms


# Below is generated by plot.py at 2018-09-07 11:58:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.61 Mbit/s
95th percentile per-packet one-way delay: 30.967 ms
Loss rate: 73.74%
-- Flow 1:
Average throughput: 12.61 Mbit/s
95th percentile per-packet one-way delay: 30.967 ms
Loss rate: 73.74%
```

Run 2: Report of Copa — Data Link

Flow 1 ingress (mean 48.03 Mbit/s)   Flow 1 egress (mean 12.61 Mbit/s)

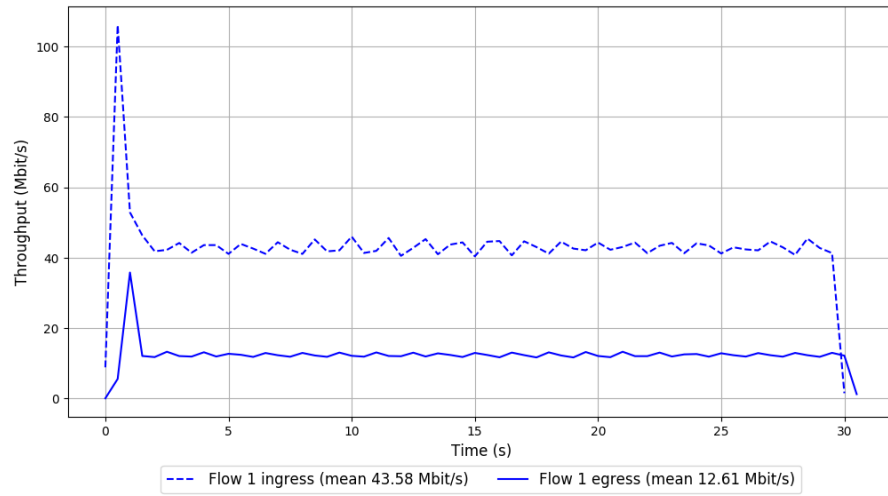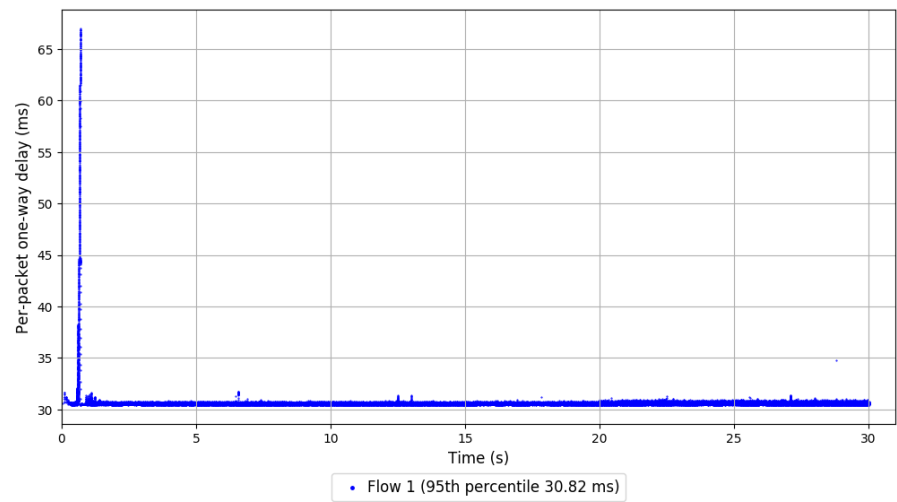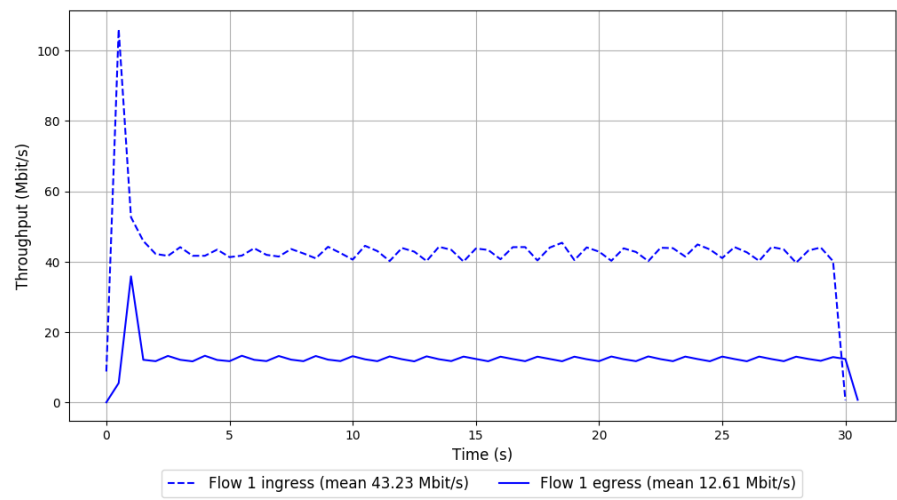Flow 1 (95th percentile 30.97 ms)

```
Run 3: Statistics of Copa

Start at: 2018-09-07 10:50:03
End at: 2018-09-07 10:50:33
Local clock offset: 1.239 ms
Remote clock offset: -0.931 ms

# Below is generated by plot.py at 2018-09-07 11:58:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.61 Mbit/s
95th percentile per-packet one-way delay: 30.662 ms
Loss rate: 71.06%
-- Flow 1:
Average throughput: 12.61 Mbit/s
95th percentile per-packet one-way delay: 30.662 ms
Loss rate: 71.06%
```

Run 3: Report of Copa — Data Link

Flow 1 ingress (mean 43.58 Mbit/s)   Flow 1 egress (mean 12.61 Mbit/s)

Flow 1 (95th percentile 30.66 ms)

```
Run 4: Statistics of Copa

Start at: 2018-09-07 11:13:33
End at: 2018-09-07 11:14:04
Local clock offset: 0.798 ms
Remote clock offset: -0.237 ms


# Below is generated by plot.py at 2018-09-07 11:58:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.61 Mbit/s
95th percentile per-packet one-way delay: 30.821 ms
Loss rate: 70.84%
-- Flow 1:
Average throughput: 12.61 Mbit/s
95th percentile per-packet one-way delay: 30.821 ms
Loss rate: 70.84%
```
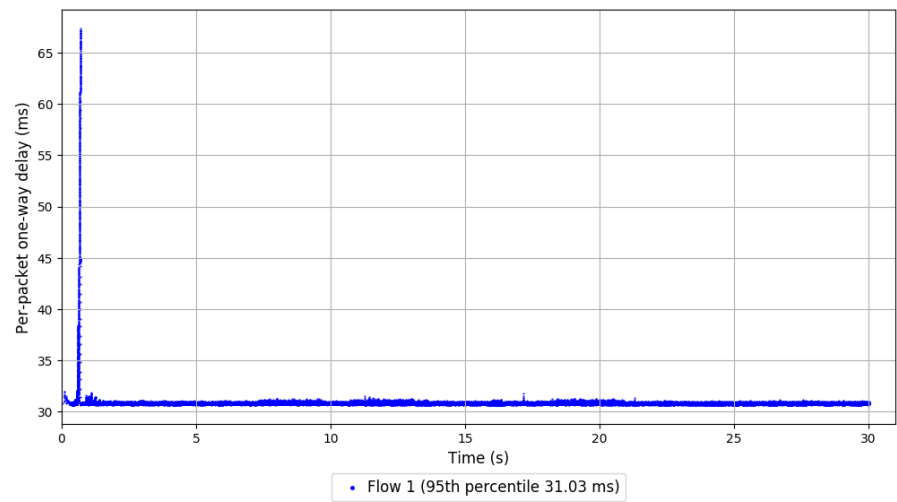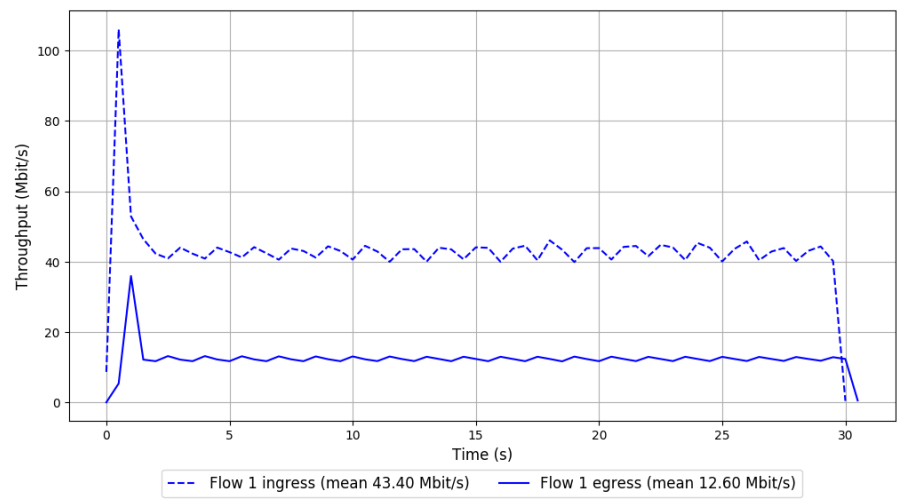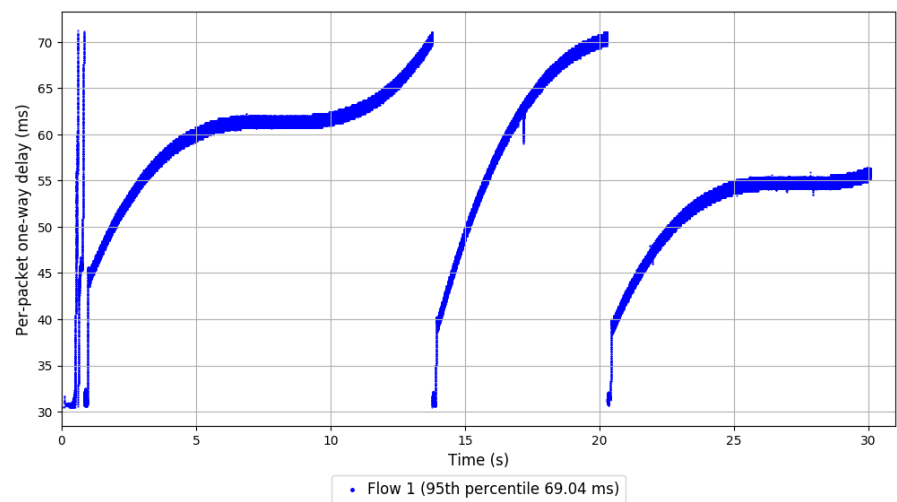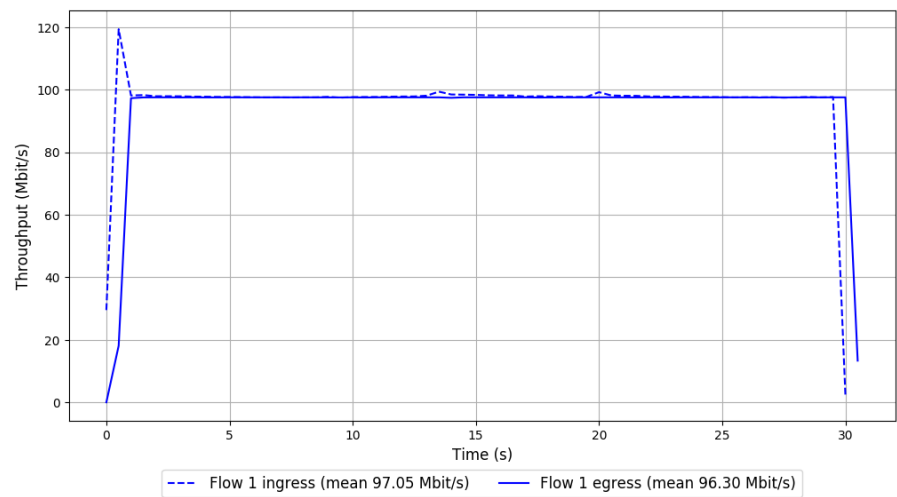
Run 4: Report of Copa — Data Link

Flow 1 ingress (mean 43.23 Mbit/s)   Flow 1 egress (mean 12.61 Mbit/s)

Flow 1 (95th percentile 30.82 ms)

```
Run 5: Statistics of Copa

Start at: 2018-09-07 11:37:08
End at: 2018-09-07 11:37:38
Local clock offset: 0.593 ms
Remote clock offset: 0.273 ms


# Below is generated by plot.py at 2018-09-07 11:58:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.60 Mbit/s
95th percentile per-packet one-way delay: 31.028 ms
Loss rate: 70.96%
-- Flow 1:
Average throughput: 12.60 Mbit/s
95th percentile per-packet one-way delay: 31.028 ms
Loss rate: 70.96%
```

Run 5: Report of Copa — Data Link

Flow 1 ingress (mean 43.40 Mbit/s)   Flow 1 egress (mean 12.60 Mbit/s)

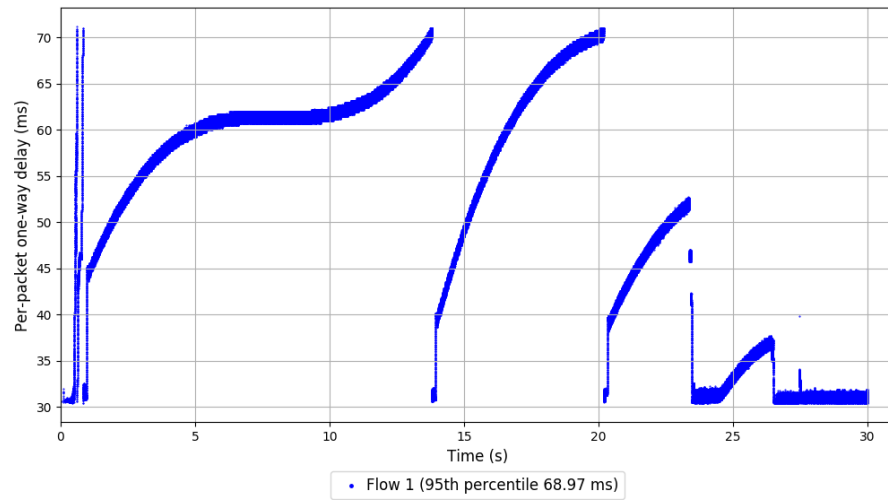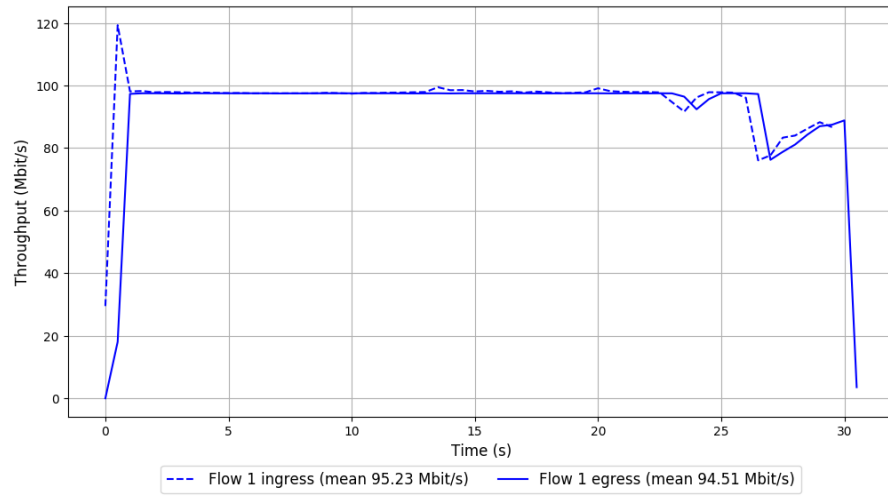Flow 1 (95th percentile 31.03 ms)

```
Run 1: Statistics of TCP Cubic

Start at: 2018-09-07 10:21:05
End at: 2018-09-07 10:21:35
Local clock offset: 1.009 ms
Remote clock offset: -1.633 ms

# Below is generated by plot.py at 2018-09-07 11:58:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.30 Mbit/s
95th percentile per-packet one-way delay: 69.044 ms
Loss rate: 0.69%
-- Flow 1:
Average throughput: 96.30 Mbit/s
95th percentile per-packet one-way delay: 69.044 ms
Loss rate: 0.69%
```

Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2018-09-07 10:44:41
End at: 2018-09-07 10:45:11
Local clock offset: 1.455 ms
Remote clock offset: -1.077 ms


# Below is generated by plot.py at 2018-09-07 11:58:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 94.51 Mbit/s
95th percentile per-packet one-way delay: 68.972 ms
Loss rate: 0.75%
-- Flow 1:
Average throughput: 94.51 Mbit/s
95th percentile per-packet one-way delay: 68.972 ms
Loss rate: 0.75%
```
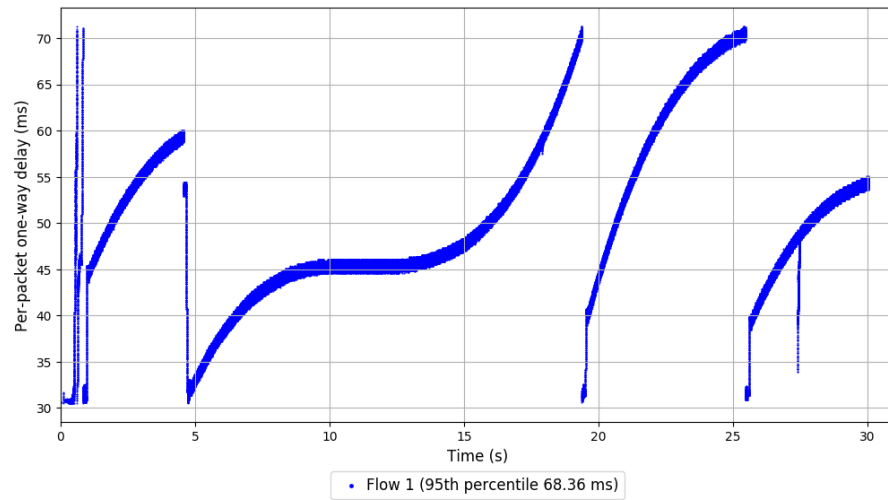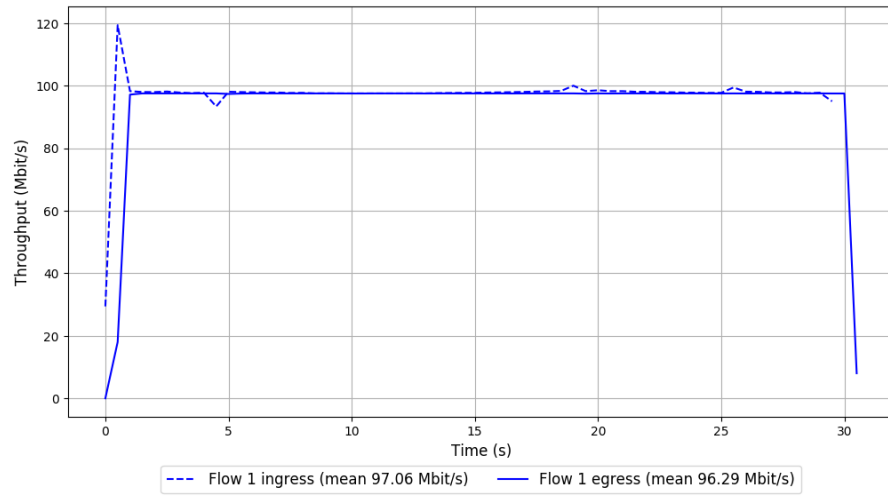
Run 2: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 95.23 Mbit/s) ——— Flow 1 egress (mean 94.51 Mbit/s)

· Flow 1 (95th percentile 68.97 ms)

```
Run 3: Statistics of TCP Cubic

Start at: 2018-09-07 11:08:16
End at: 2018-09-07 11:08:46
Local clock offset: 0.853 ms
Remote clock offset: -0.26 ms


# Below is generated by plot.py at 2018-09-07 11:58:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.29 Mbit/s
95th percentile per-packet one-way delay: 68.359 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 96.29 Mbit/s
95th percentile per-packet one-way delay: 68.359 ms
Loss rate: 0.71%
```
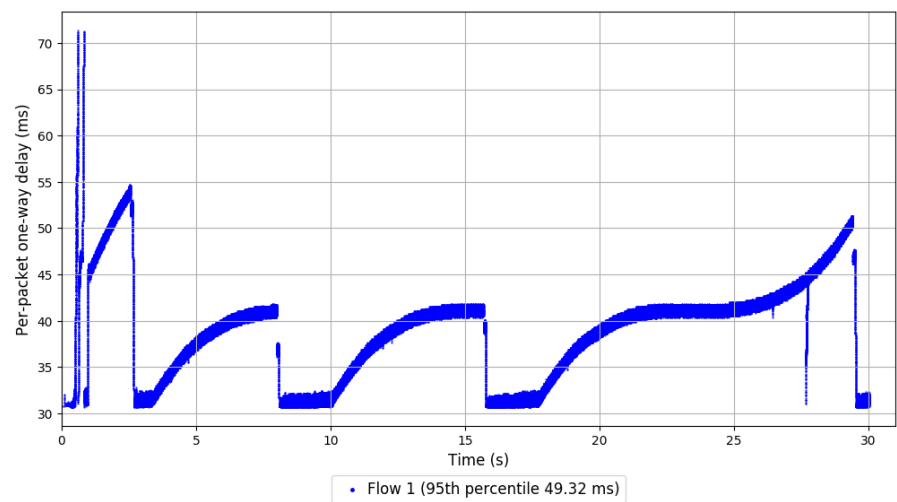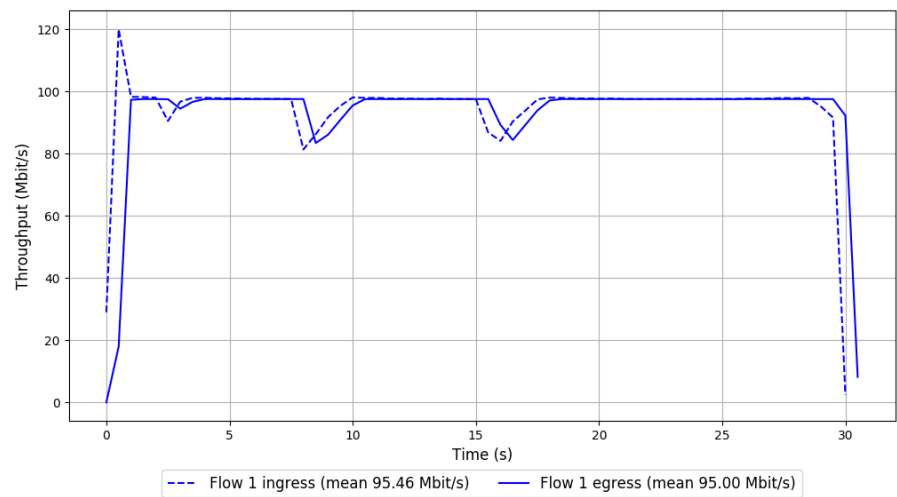
Run 3: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 97.06 Mbit/s)   Flow 1 egress (mean 96.29 Mbit/s)

Flow 1 (95th percentile 68.36 ms)

```
Run 4: Statistics of TCP Cubic

Start at: 2018-09-07 11:31:49
End at: 2018-09-07 11:32:19
Local clock offset: 0.633 ms
Remote clock offset: 0.248 ms


# Below is generated by plot.py at 2018-09-07 11:59:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 95.00 Mbit/s
95th percentile per-packet one-way delay: 49.318 ms
Loss rate: 0.48%
-- Flow 1:
Average throughput: 95.00 Mbit/s
95th percentile per-packet one-way delay: 49.318 ms
Loss rate: 0.48%
```
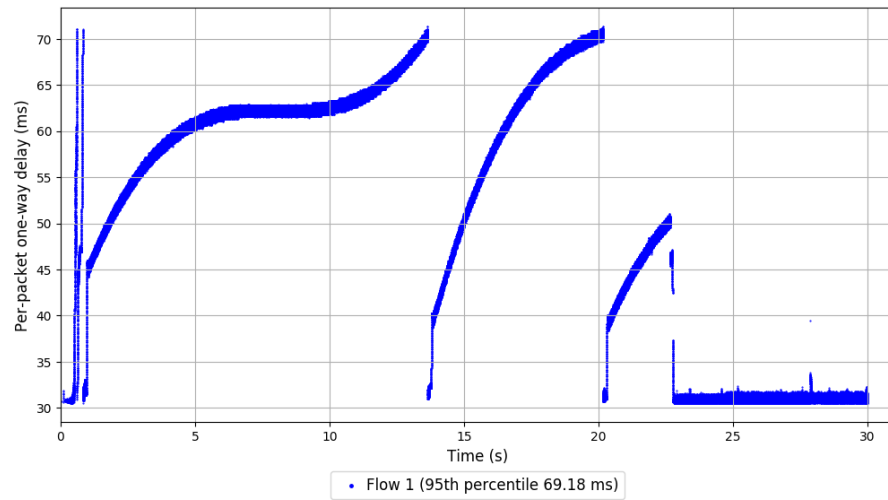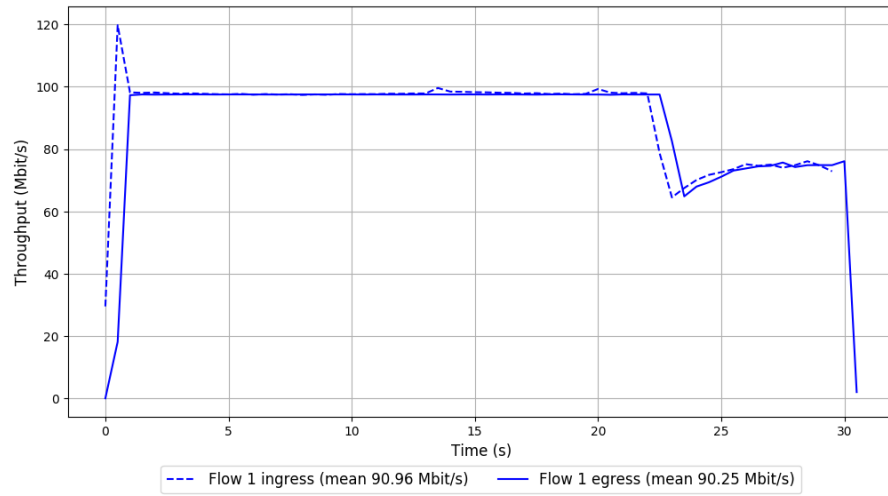
Run 4: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 95.46 Mbit/s)   Flow 1 egress (mean 95.00 Mbit/s)

Flow 1 (95th percentile 49.32 ms)

```
Run 5: Statistics of TCP Cubic

Start at: 2018-09-07 11:55:27
End at: 2018-09-07 11:55:57
Local clock offset: 0.219 ms
Remote clock offset: 0.423 ms


# Below is generated by plot.py at 2018-09-07 11:59:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 90.25 Mbit/s
95th percentile per-packet one-way delay: 69.176 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 90.25 Mbit/s
95th percentile per-packet one-way delay: 69.176 ms
Loss rate: 0.77%
```
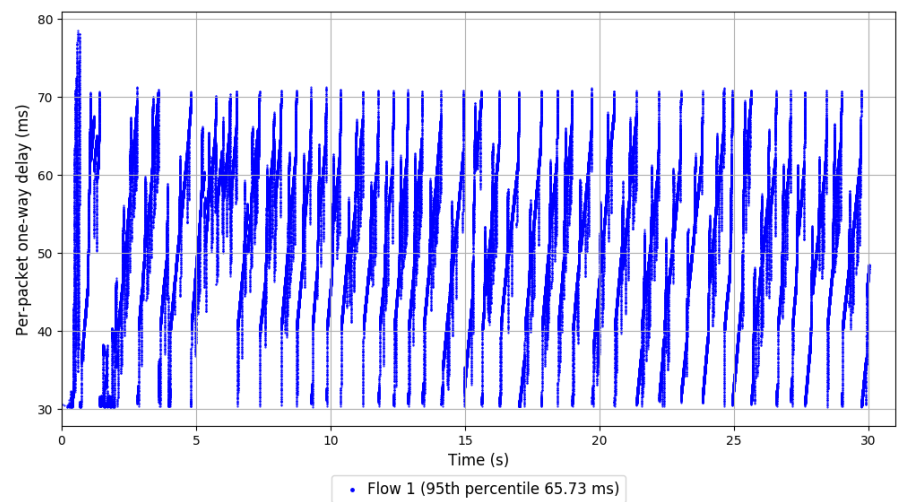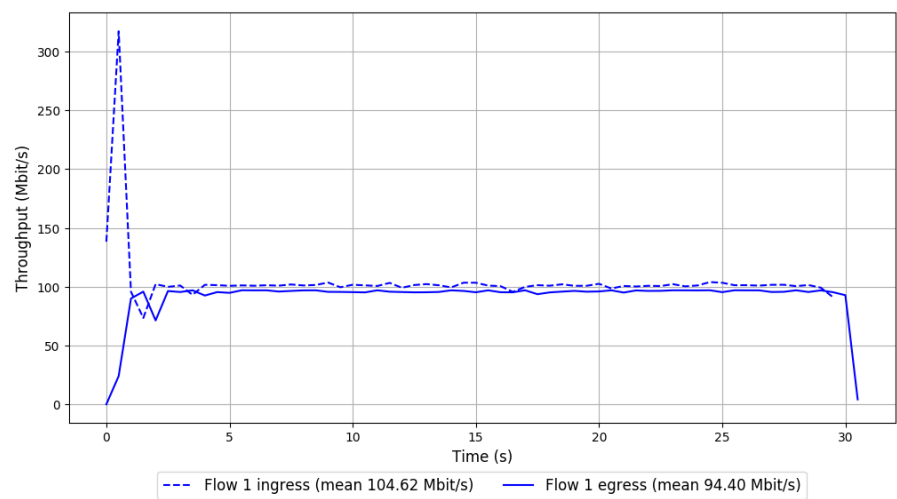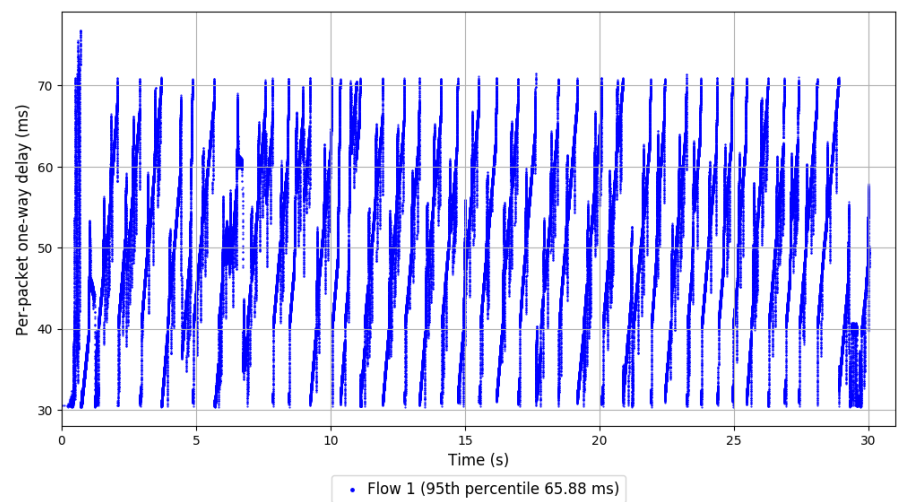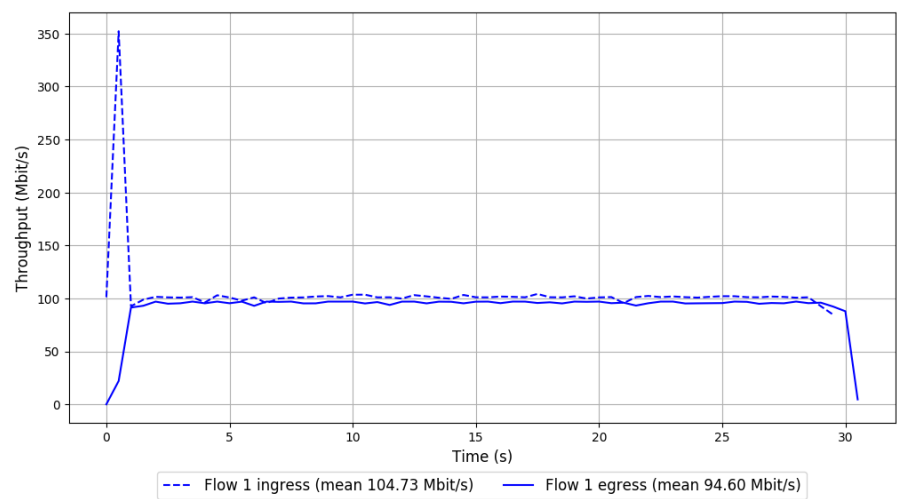
Run 5: Report of TCP Cubic — Data Link

```
Run 1: Statistics of FillP

Start at: 2018-09-07 09:58:56
End at: 2018-09-07 09:59:26
Local clock offset: 0.763 ms
Remote clock offset: -2.28 ms


# Below is generated by plot.py at 2018-09-07 11:59:47
# Datalink statistics
-- Total of 1 flow:
Average throughput: 94.40 Mbit/s
95th percentile per-packet one-way delay: 65.726 ms
Loss rate: 9.72%
-- Flow 1:
Average throughput: 94.40 Mbit/s
95th percentile per-packet one-way delay: 65.726 ms
Loss rate: 9.72%
```
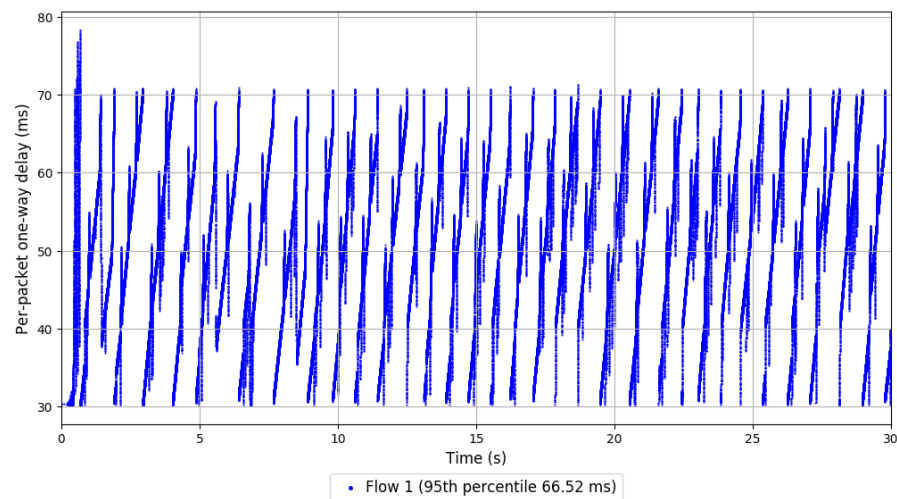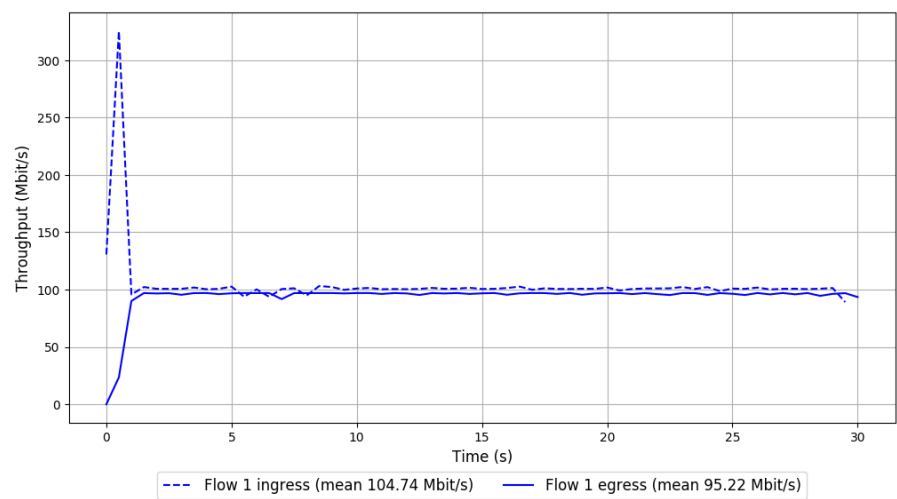
Run 1: Report of FillP — Data Link

Flow 1 ingress (mean 104.62 Mbit/s) ----- Flow 1 egress (mean 94.40 Mbit/s) ———

Flow 1 (95th percentile 65.73 ms)

```
Run 2: Statistics of FillP

Start at: 2018-09-07 10:22:24
End at: 2018-09-07 10:22:54
Local clock offset: 1.047 ms
Remote clock offset: -1.634 ms


# Below is generated by plot.py at 2018-09-07 11:59:47
# Datalink statistics
-- Total of 1 flow:
Average throughput: 94.60 Mbit/s
95th percentile per-packet one-way delay: 65.883 ms
Loss rate: 9.61%
-- Flow 1:
Average throughput: 94.60 Mbit/s
95th percentile per-packet one-way delay: 65.883 ms
Loss rate: 9.61%
```
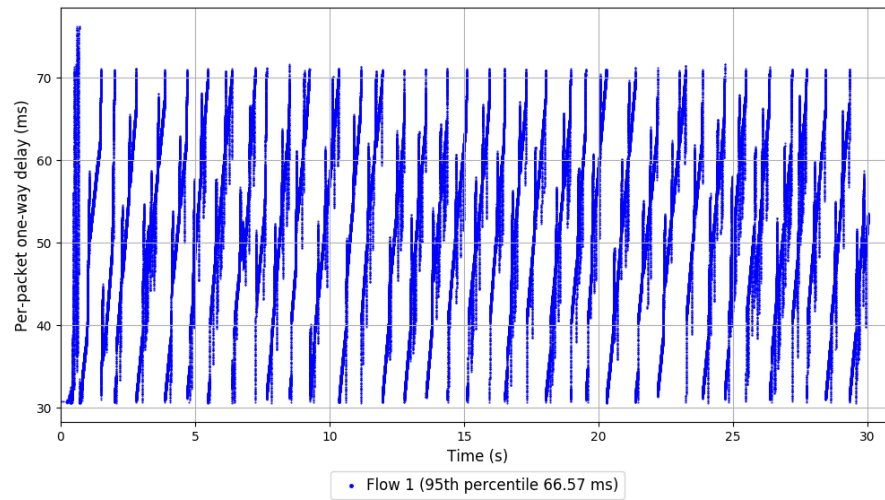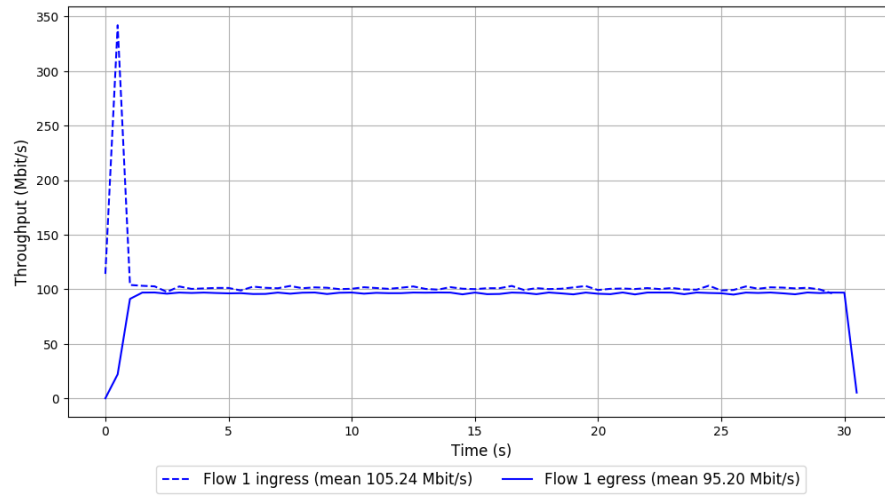
Run 2: Report of FillP — Data Link

Flow 1 ingress (mean 104.73 Mbit/s)   Flow 1 egress (mean 94.60 Mbit/s)

• Flow 1 (95th percentile 65.88 ms)

```
Run 3: Statistics of FillP

Start at: 2018-09-07 10:46:03
End at: 2018-09-07 10:46:33
Local clock offset: 1.424 ms
Remote clock offset: -1.018 ms


# Below is generated by plot.py at 2018-09-07 11:59:48
# Datalink statistics
-- Total of 1 flow:
Average throughput: 95.22 Mbit/s
95th percentile per-packet one-way delay: 66.520 ms
Loss rate: 9.06%
-- Flow 1:
Average throughput: 95.22 Mbit/s
95th percentile per-packet one-way delay: 66.520 ms
Loss rate: 9.06%
```
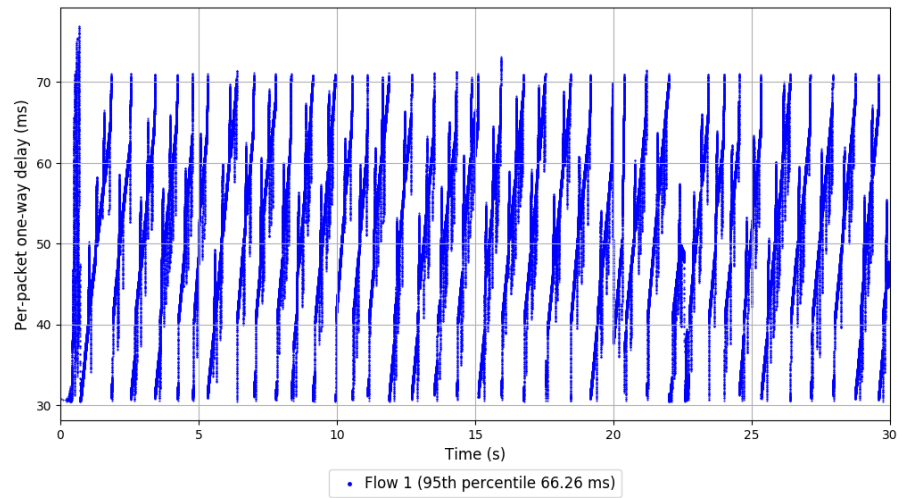
Run 3: Report of FillP — Data Link

Flow 1 ingress (mean 104.74 Mbit/s) ----- Flow 1 egress (mean 95.22 Mbit/s)

• Flow 1 (95th percentile 66.52 ms)

```
Run 4: Statistics of FillP

Start at: 2018-09-07 11:09:36
End at: 2018-09-07 11:10:06
Local clock offset: 0.833 ms
Remote clock offset: -0.132 ms


# Below is generated by plot.py at 2018-09-07 12:00:02
# Datalink statistics
-- Total of 1 flow:
Average throughput: 95.20 Mbit/s
95th percentile per-packet one-way delay: 66.568 ms
Loss rate: 9.47%
-- Flow 1:
Average throughput: 95.20 Mbit/s
95th percentile per-packet one-way delay: 66.568 ms
Loss rate: 9.47%
```
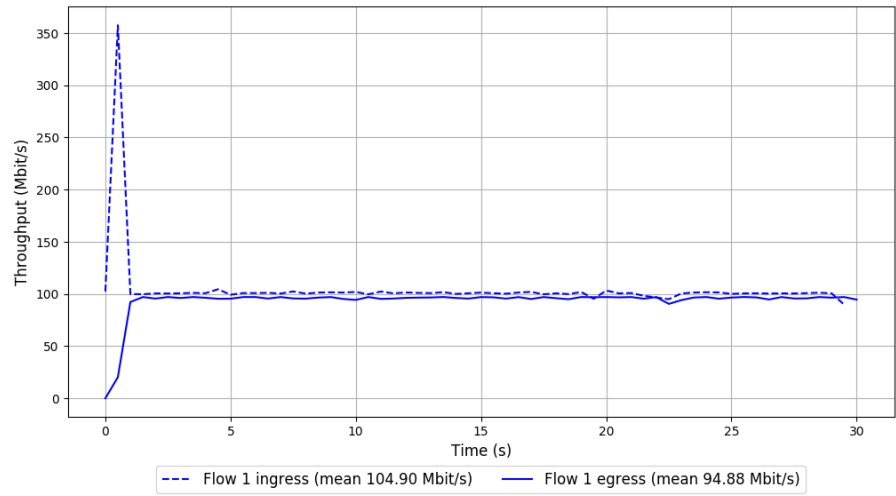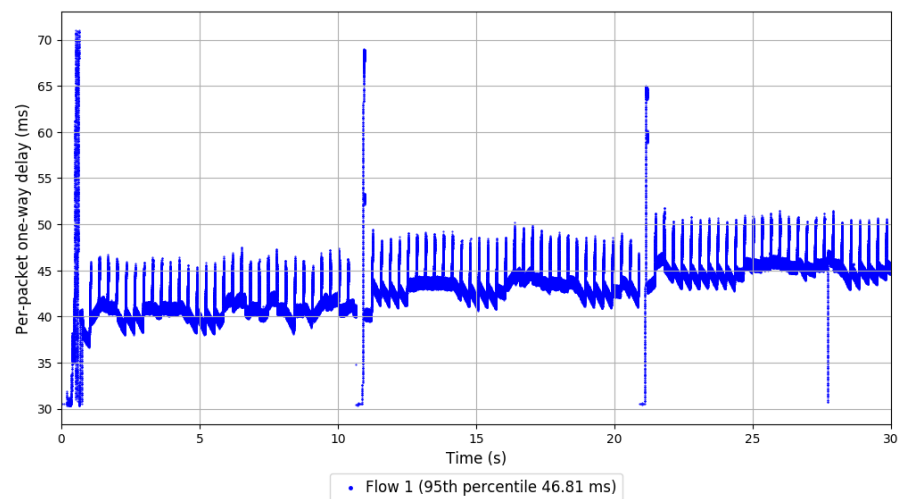
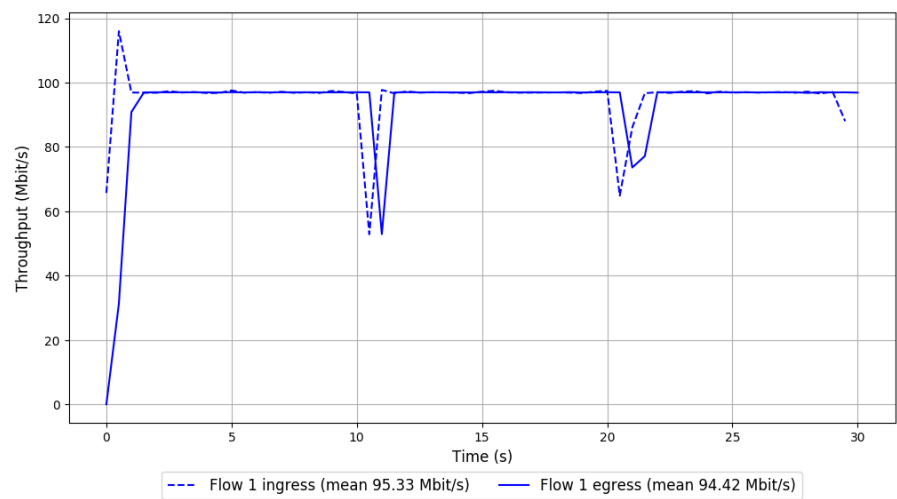Run 4: Report of FillP — Data Link

```
Run 5: Statistics of FillP

Start at: 2018-09-07 11:33:08
End at: 2018-09-07 11:33:38
Local clock offset: 0.62 ms
Remote clock offset: 0.188 ms


# Below is generated by plot.py at 2018-09-07 12:00:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 94.88 Mbit/s
95th percentile per-packet one-way delay: 66.258 ms
Loss rate: 9.50%
-- Flow 1:
Average throughput: 94.88 Mbit/s
95th percentile per-packet one-way delay: 66.258 ms
Loss rate: 9.50%
```

Run 5: Report of FillP — Data Link

Flow 1 ingress (mean 104.90 Mbit/s) --- Flow 1 egress (mean 94.88 Mbit/s)

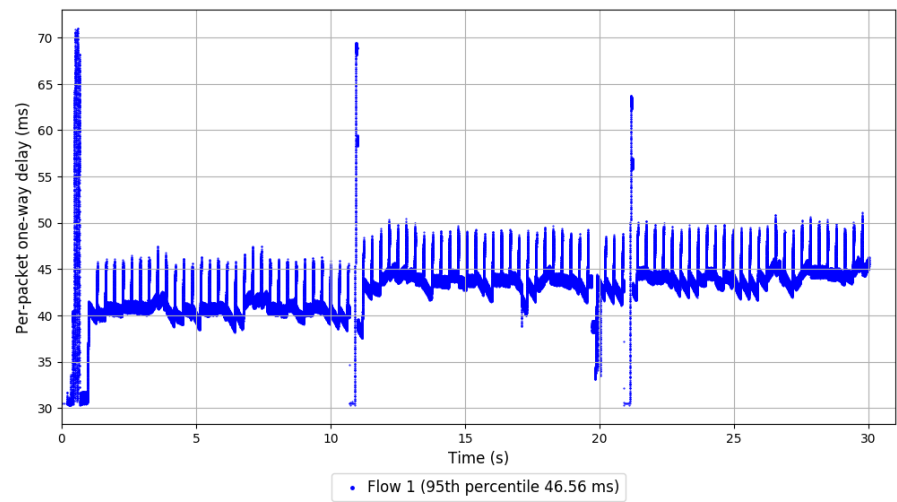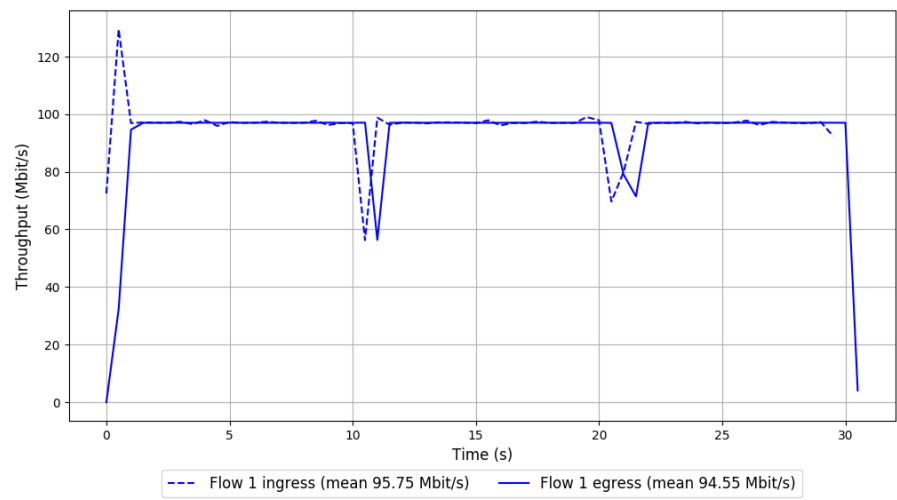• Flow 1 (95th percentile 66.26 ms)

```
Run 1: Statistics of FillP-Sheep

Start at: 2018-09-07 10:17:13
End at: 2018-09-07 10:17:43
Local clock offset: 0.713 ms
Remote clock offset: -1.816 ms


# Below is generated by plot.py at 2018-09-07 12:00:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 94.42 Mbit/s
95th percentile per-packet one-way delay: 46.807 ms
Loss rate: 0.90%
-- Flow 1:
Average throughput: 94.42 Mbit/s
95th percentile per-packet one-way delay: 46.807 ms
Loss rate: 0.90%
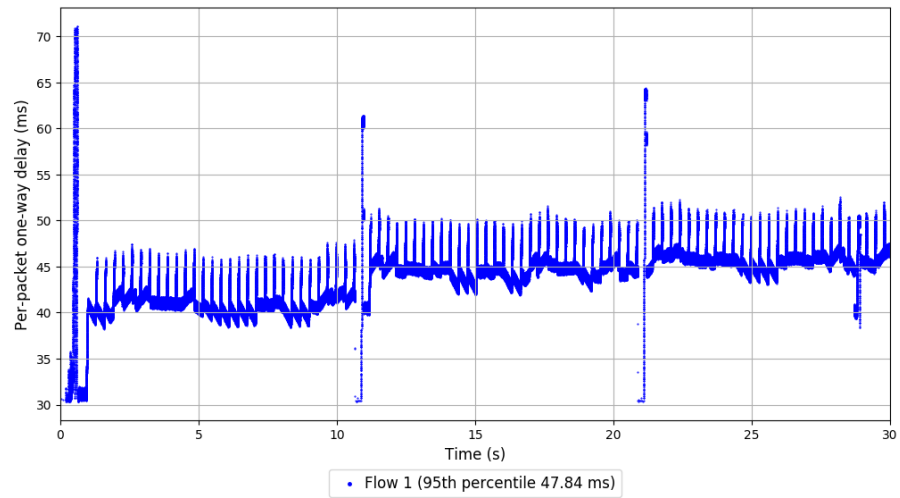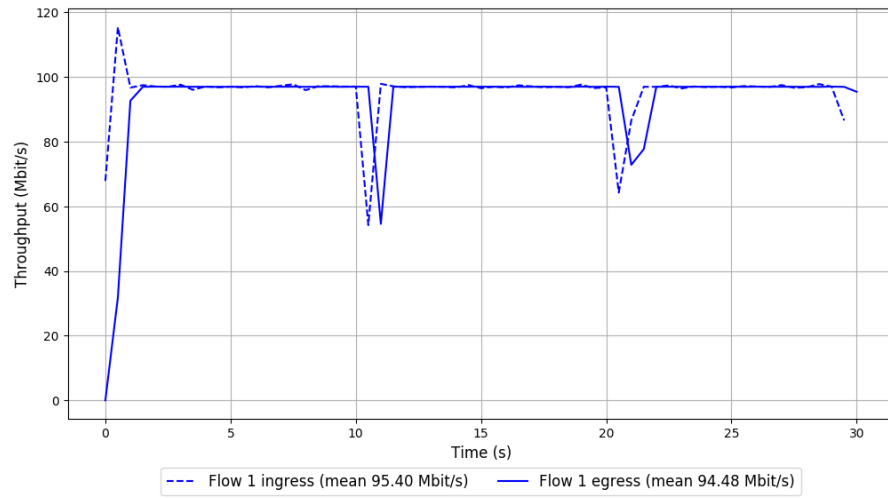```

# Run 1: Report of FillP-Sheep — Data Link

```
Run 2: Statistics of FillP-Sheep

Start at: 2018-09-07 10:40:46
End at: 2018-09-07 10:41:16
Local clock offset: 1.354 ms
Remote clock offset: -1.166 ms

Below is generated by plot.py at 2018-09-07 12:00:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 94.55 Mbit/s
95th percentile per-packet one-way delay: 46.565 ms
Loss rate: 1.20%
-- Flow 1:
Average throughput: 94.55 Mbit/s
95th percentile per-packet one-way delay: 46.565 ms
Loss rate: 1.20%
```
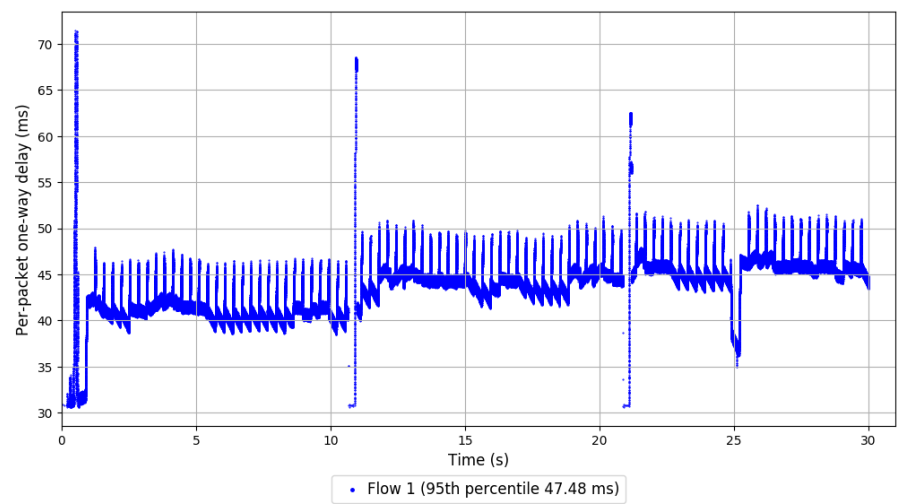
Run 2: Report of FillP-Sheep — Data Link

```
Run 3: Statistics of FillP-Sheep

Start at: 2018-09-07 11:04:25
End at: 2018-09-07 11:04:55
Local clock offset: 0.889 ms
Remote clock offset: -0.477 ms

Below is generated by plot.py at 2018-09-07 12:00:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 94.48 Mbit/s
95th percentile per-packet one-way delay: 47.844 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 94.48 Mbit/s
95th percentile per-packet one-way delay: 47.844 ms
Loss rate: 0.91%
```
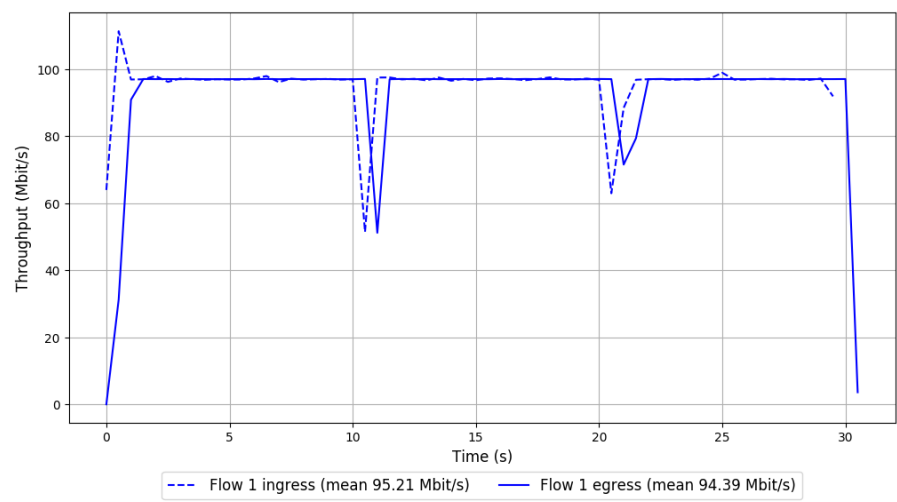
Run 3: Report of FillP-Sheep — Data Link

```
Run 4: Statistics of FillP-Sheep

Start at: 2018-09-07 11:27:56
End at: 2018-09-07 11:28:26
Local clock offset: 0.665 ms
Remote clock offset: 0.249 ms

Below is generated by plot.py at 2018-09-07 12:01:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 94.39 Mbit/s
95th percentile per-packet one-way delay: 47.478 ms
Loss rate: 0.81%
-- Flow 1:
Average throughput: 94.39 Mbit/s
95th percentile per-packet one-way delay: 47.478 ms
Loss rate: 0.81%
```
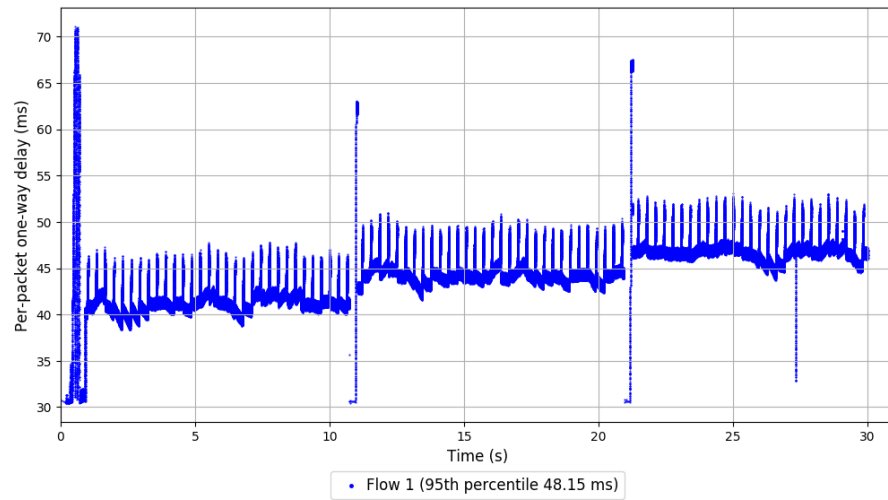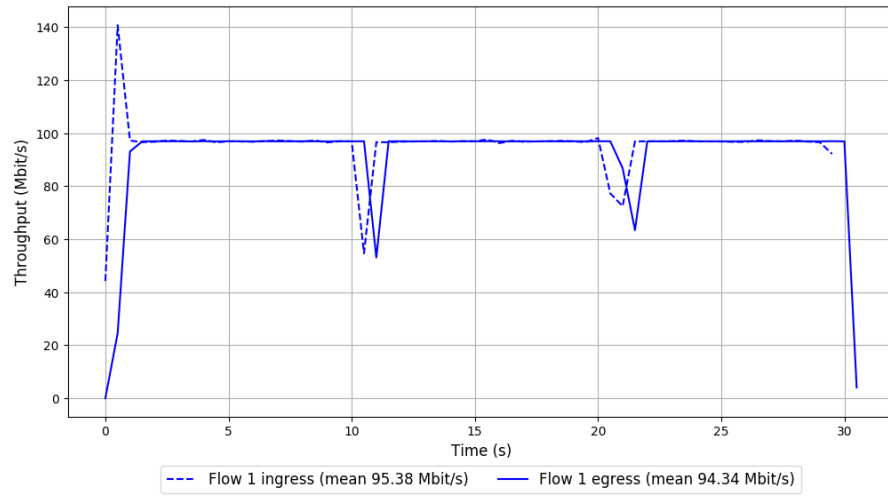
Run 4: Report of FillP-Sheep — Data Link



Flow 1 ingress (mean 95.21 Mbit/s) --- Flow 1 egress (mean 94.39 Mbit/s)



• Flow 1 (95th percentile 47.48 ms)

```
Run 5: Statistics of FillP-Sheep

Start at: 2018-09-07 11:51:34
End at: 2018-09-07 11:52:04
Local clock offset: 0.319 ms
Remote clock offset: 0.376 ms

Below is generated by plot.py at 2018-09-07 12:01:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 94.34 Mbit/s
95th percentile per-packet one-way delay: 48.147 ms
Loss rate: 1.04%
-- Flow 1:
Average throughput: 94.34 Mbit/s
95th percentile per-packet one-way delay: 48.147 ms
Loss rate: 1.04%
```
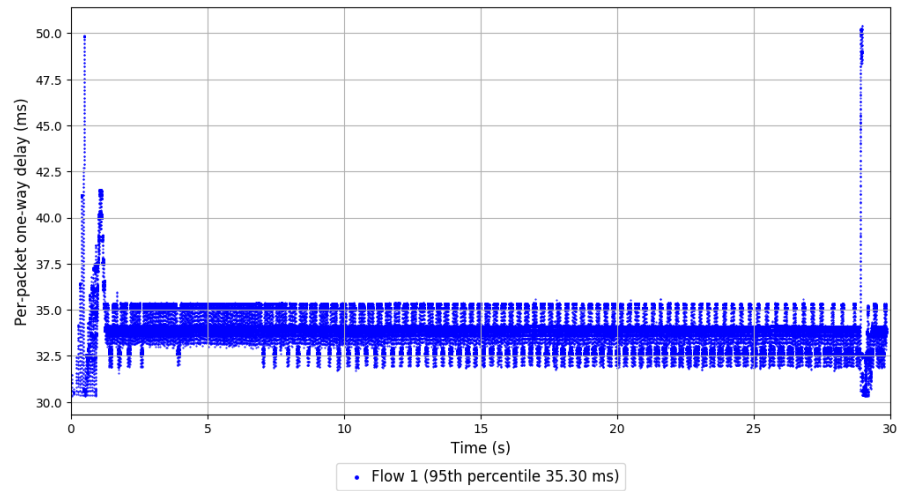
Run 5: Report of FillP-Sheep — Data Link

```
Run 1: Statistics of Indigo

Start at: 2018-09-07 10:11:55
End at: 2018-09-07 10:12:25
Local clock offset: 0.704 ms
Remote clock offset: -1.983 ms

Below is generated by plot.py at 2018-09-07 12:01:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 95.77 Mbit/s
95th percentile per-packet one-way delay: 35.304 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 95.77 Mbit/s
95th percentile per-packet one-way delay: 35.304 ms
Loss rate: 0.00%
```
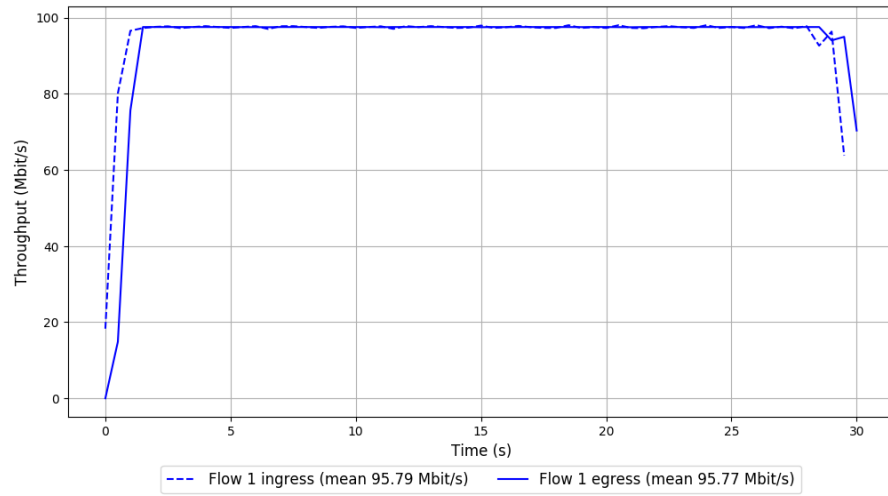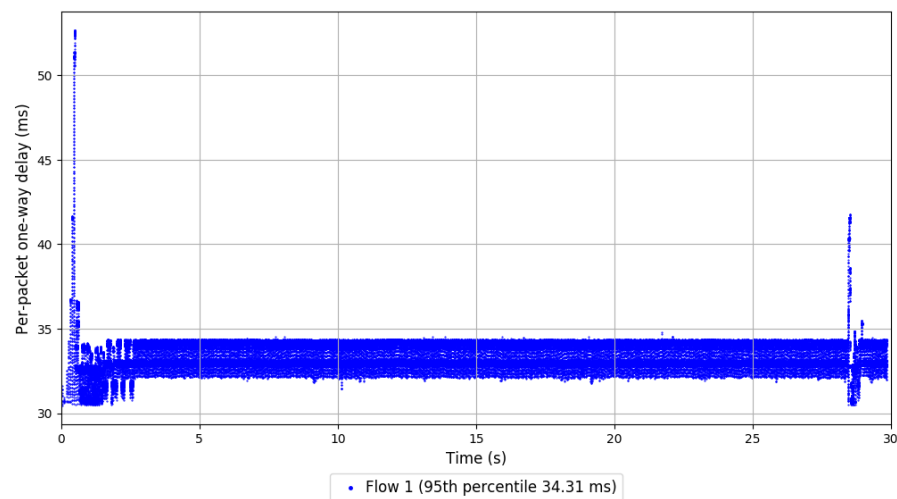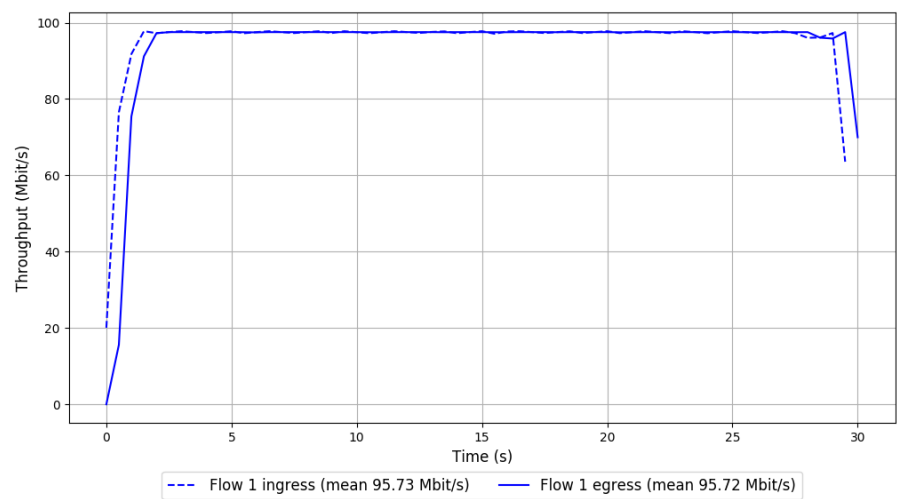
Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2018-09-07 10:35:24
End at: 2018-09-07 10:35:54
Local clock offset: 1.374 ms
Remote clock offset: -1.176 ms

Below is generated by plot.py at 2018-09-07 12:01:14
Datalink statistics
-- Total of 1 flow:
Average throughput: 95.72 Mbit/s
95th percentile per-packet one-way delay: 34.308 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 95.72 Mbit/s
95th percentile per-packet one-way delay: 34.308 ms
Loss rate: 0.00%
```
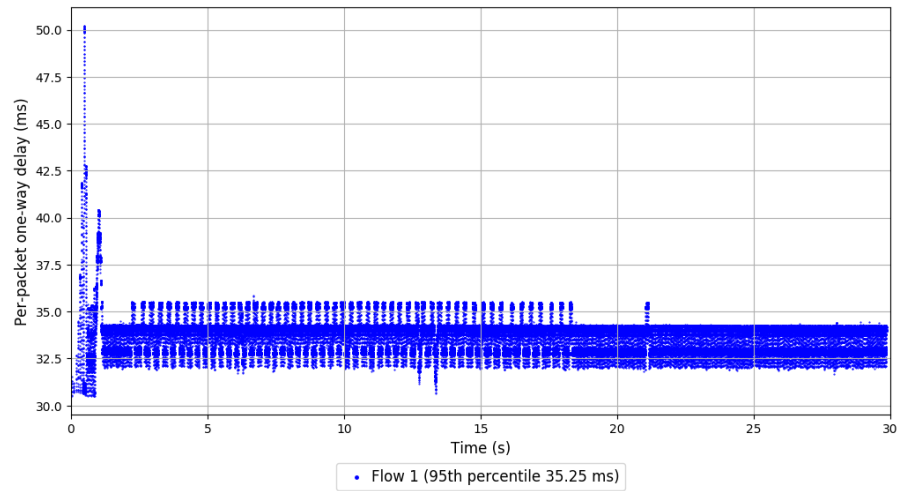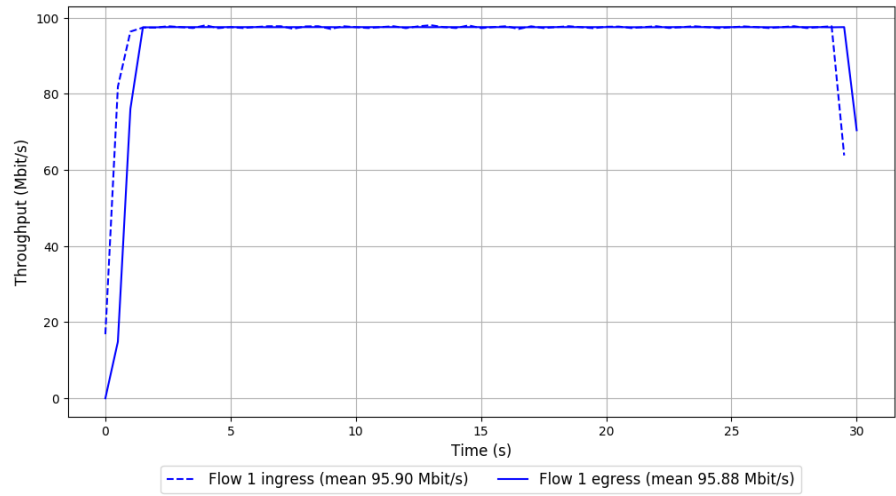
Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2018-09-07 10:59:06
End at: 2018-09-07 10:59:36
Local clock offset: 0.885 ms
Remote clock offset: -0.647 ms


# Below is generated by plot.py at 2018-09-07 12:01:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 95.88 Mbit/s
95th percentile per-packet one-way delay: 35.250 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 95.88 Mbit/s
95th percentile per-packet one-way delay: 35.250 ms
Loss rate: 0.01%
```

Run 3: Report of Indigo — Data Link

```
Run 4: Statistics of Indigo

Start at: 2018-09-07 11:22:36
End at: 2018-09-07 11:23:06
Local clock offset: 0.608 ms
Remote clock offset: 0.124 ms


# Below is generated by plot.py at 2018-09-07 12:01:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 93.77 Mbit/s
95th percentile per-packet one-way delay: 35.259 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 93.77 Mbit/s
95th percentile per-packet one-way delay: 35.259 ms
Loss rate: 0.15%
```
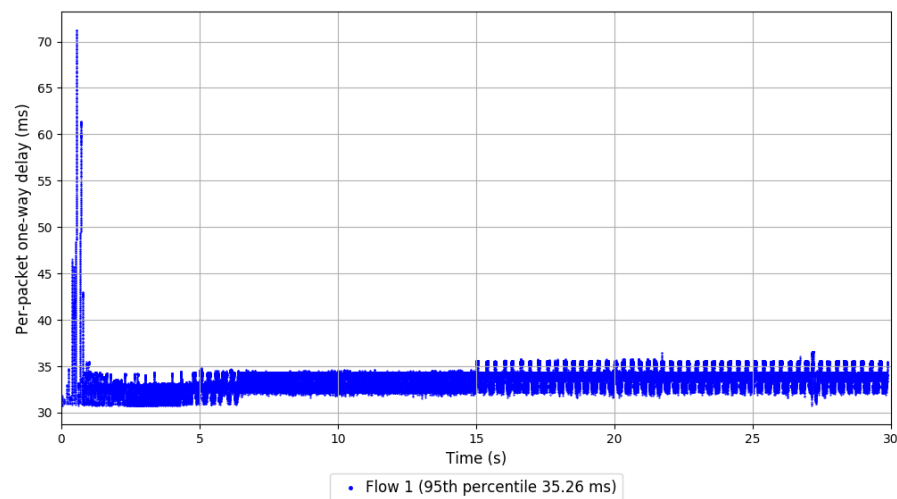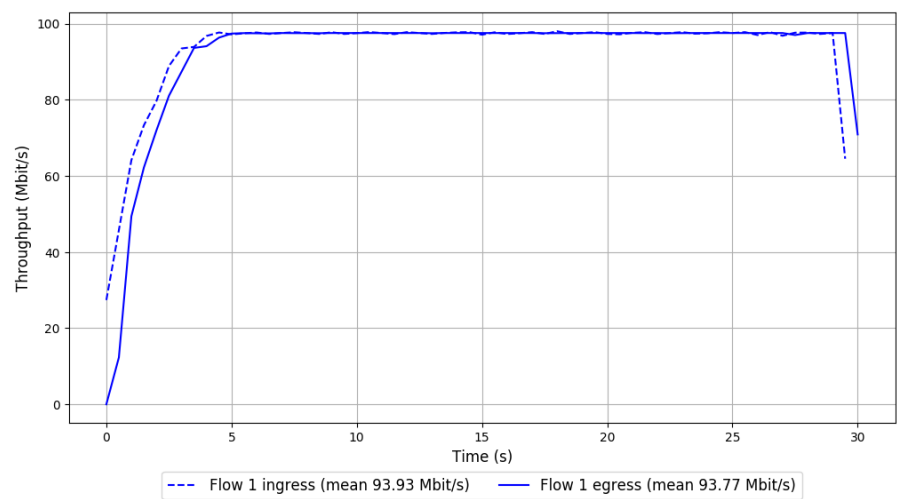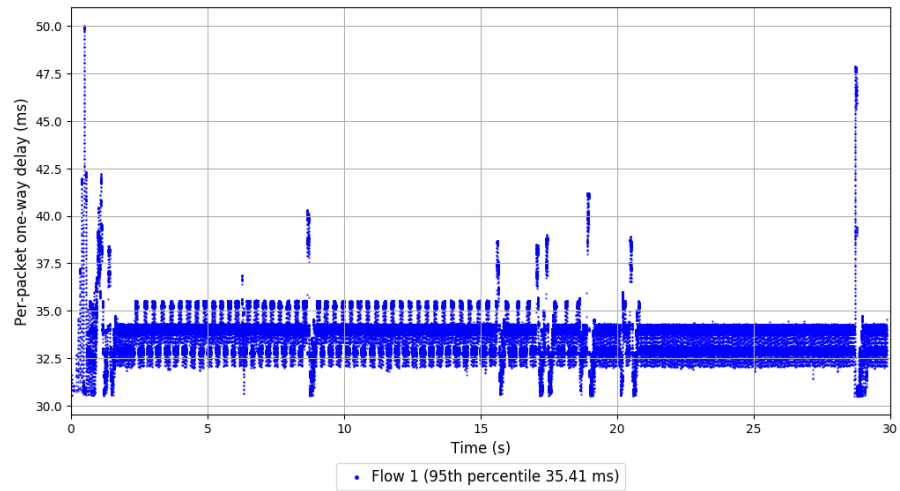
Run 4: Report of Indigo — Data Link

```
Run 5: Statistics of Indigo

Start at: 2018-09-07 11:46:14
End at: 2018-09-07 11:46:44
Local clock offset: 0.514 ms
Remote clock offset: 0.317 ms


# Below is generated by plot.py at 2018-09-07 12:01:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 95.50 Mbit/s
95th percentile per-packet one-way delay: 35.410 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 95.50 Mbit/s
95th percentile per-packet one-way delay: 35.410 ms
Loss rate: 0.04%
```
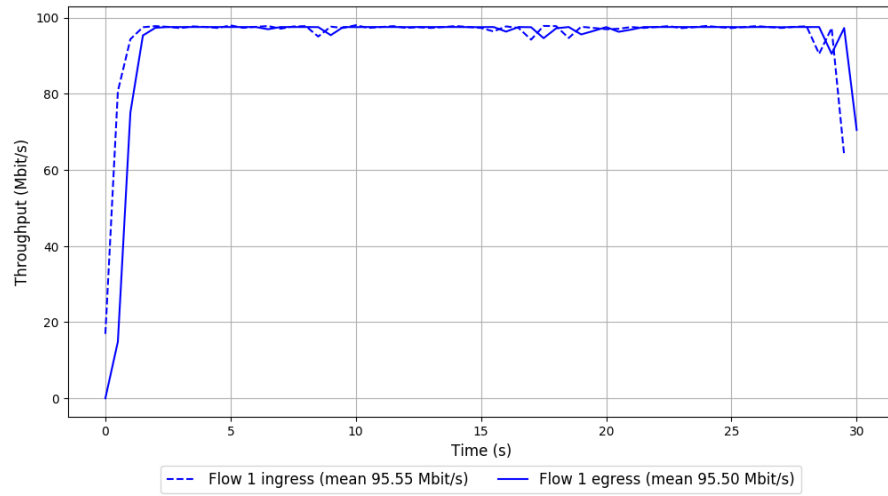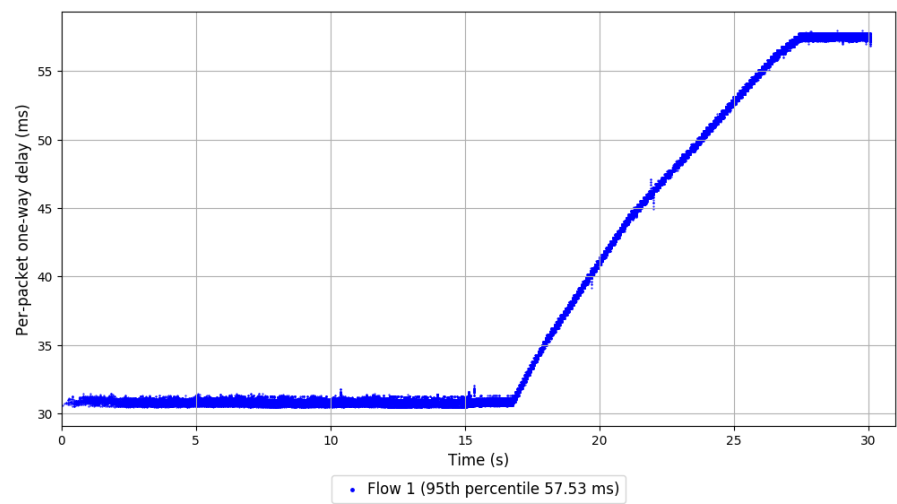
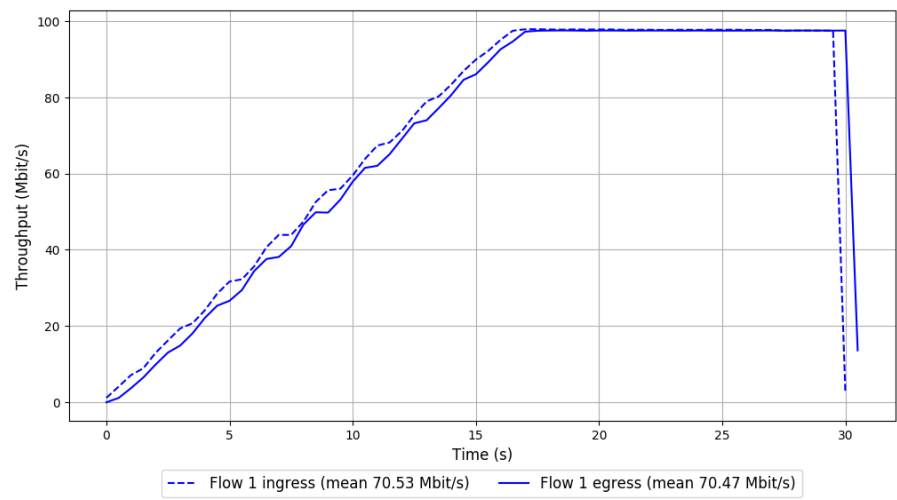## Run 5: Report of Indigo — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2018-09-07 10:04:09
End at: 2018-09-07 10:04:39
Local clock offset: 0.651 ms
Remote clock offset: -2.17 ms


# Below is generated by plot.py at 2018-09-07 12:01:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 70.47 Mbit/s
95th percentile per-packet one-way delay: 57.533 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 70.47 Mbit/s
95th percentile per-packet one-way delay: 57.533 ms
Loss rate: 0.00%
```

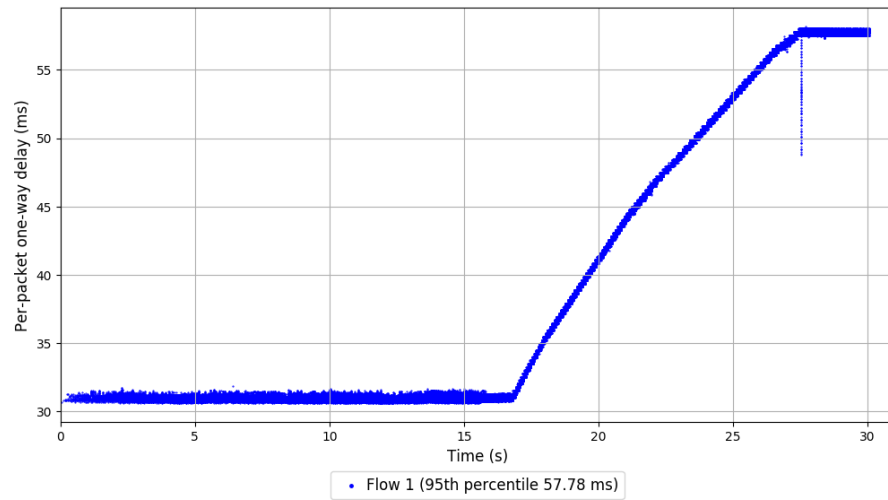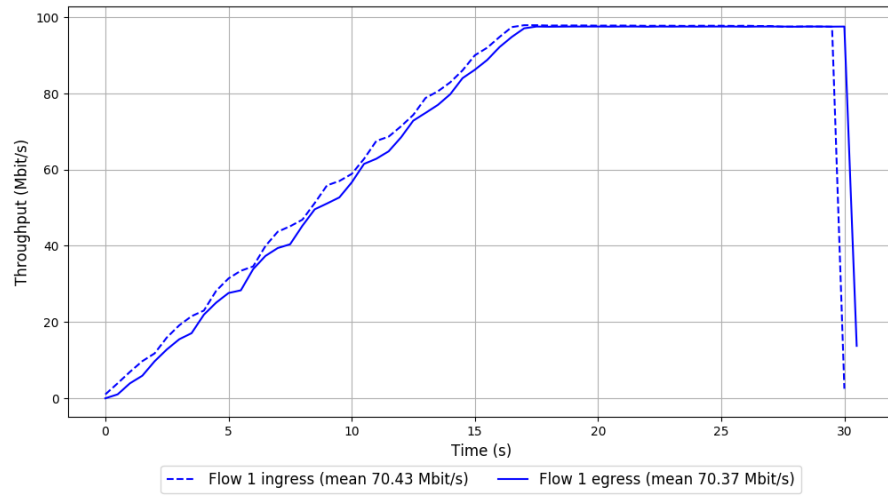# Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2018-09-07 10:27:39
End at: 2018-09-07 10:28:09
Local clock offset: 1.138 ms
Remote clock offset: -1.315 ms


# Below is generated by plot.py at 2018-09-07 12:01:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 70.37 Mbit/s
95th percentile per-packet one-way delay: 57.777 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 70.37 Mbit/s
95th percentile per-packet one-way delay: 57.777 ms
Loss rate: 0.00%
```

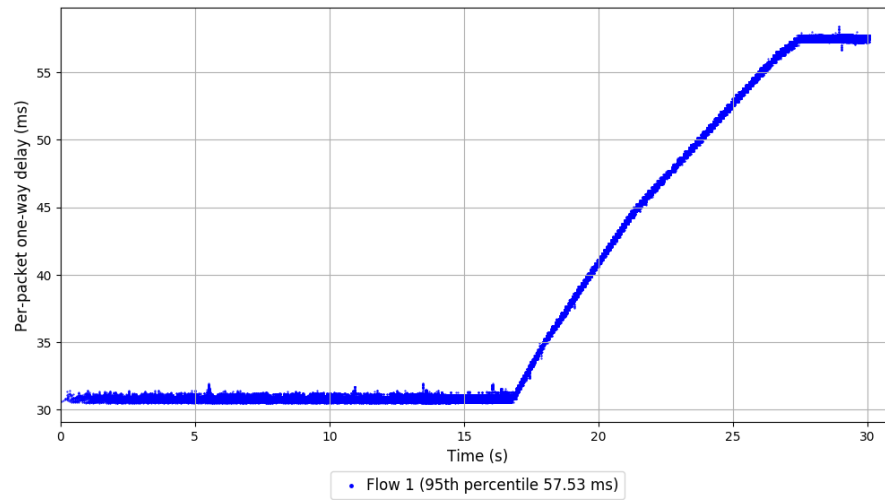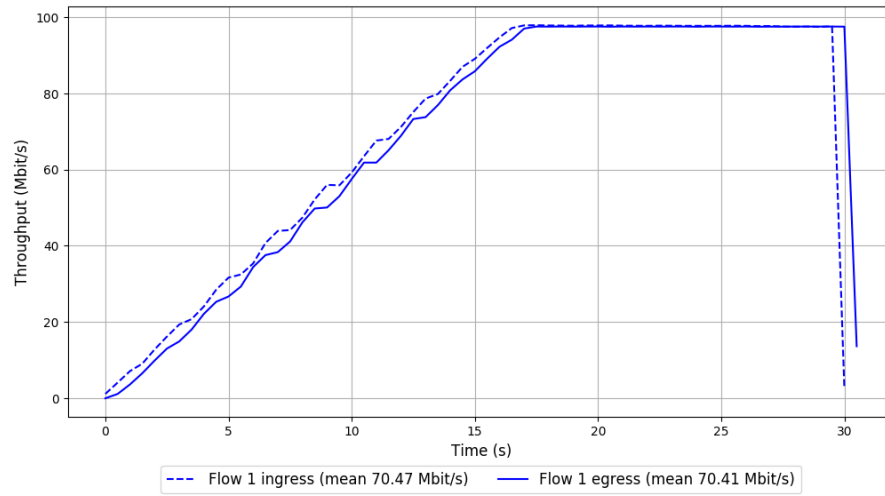Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2018-09-07 10:51:19
End at: 2018-09-07 10:51:49
Local clock offset: 1.169 ms
Remote clock offset: -0.841 ms


# Below is generated by plot.py at 2018-09-07 12:02:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 70.41 Mbit/s
95th percentile per-packet one-way delay: 57.531 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 70.41 Mbit/s
95th percentile per-packet one-way delay: 57.531 ms
Loss rate: 0.00%
```

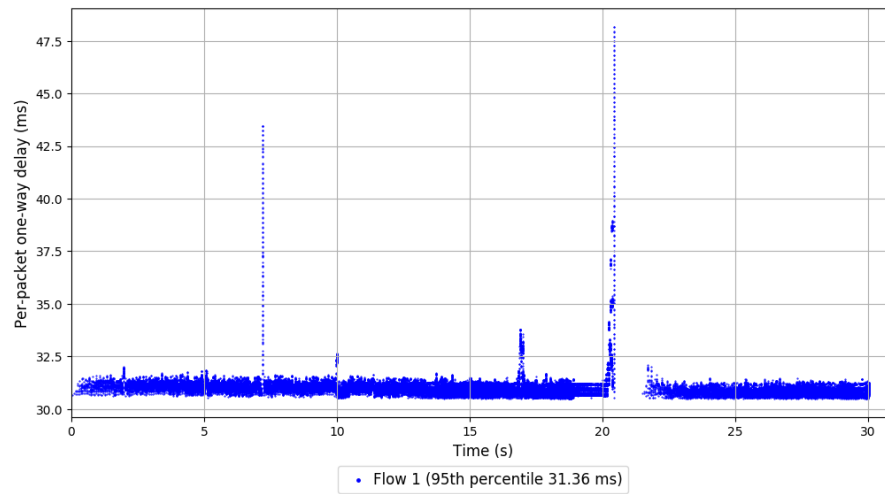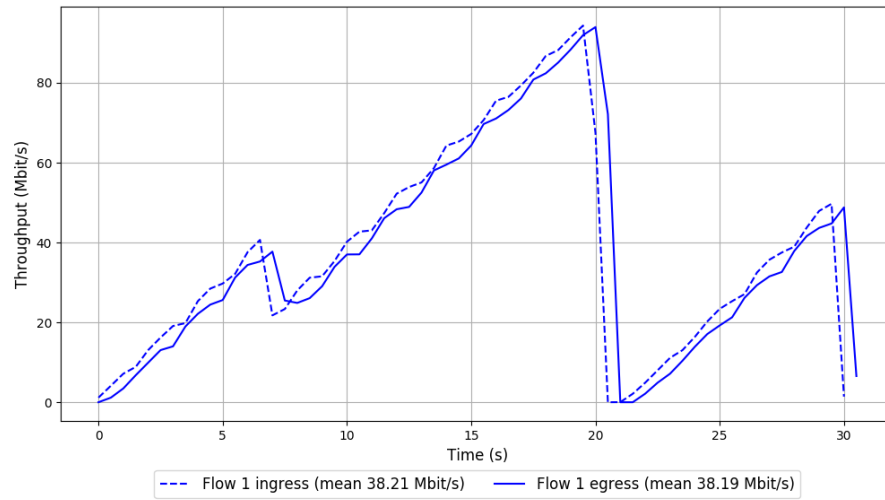# Run 3: Report of LEDBAT — Data Link

```
Run 4: Statistics of LEDBAT

Start at: 2018-09-07 11:14:51
End at: 2018-09-07 11:15:21
Local clock offset: 0.778 ms
Remote clock offset: -0.069 ms


# Below is generated by plot.py at 2018-09-07 12:02:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 38.19 Mbit/s
95th percentile per-packet one-way delay: 31.362 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 38.19 Mbit/s
95th percentile per-packet one-way delay: 31.362 ms
Loss rate: 0.05%
```

Run 4: Report of LEDBAT — Data Link

```
Run 5: Statistics of LEDBAT

Start at: 2018-09-07 11:38:25
End at: 2018-09-07 11:38:55
Local clock offset: 0.599 ms
Remote clock offset: 0.23 ms


# Below is generated by plot.py at 2018-09-07 12:02:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 55.06 Mbit/s
95th percentile per-packet one-way delay: 50.483 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 55.06 Mbit/s
95th percentile per-packet one-way delay: 50.483 ms
Loss rate: 0.06%
```
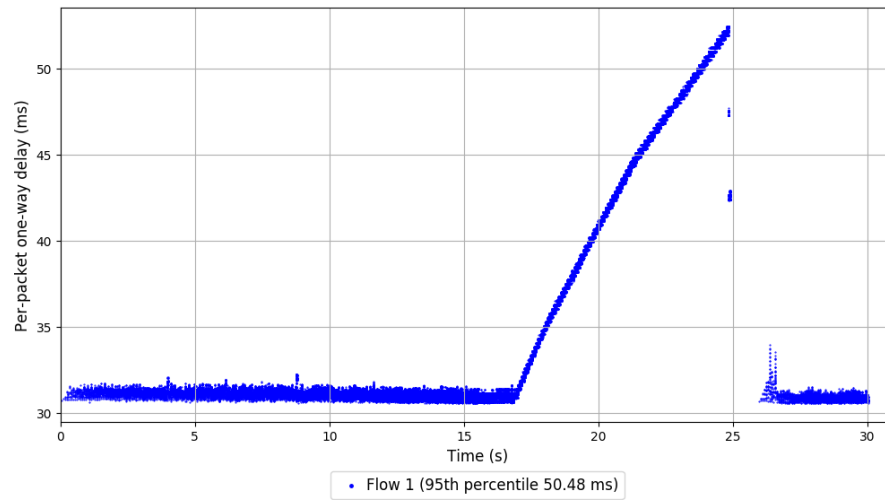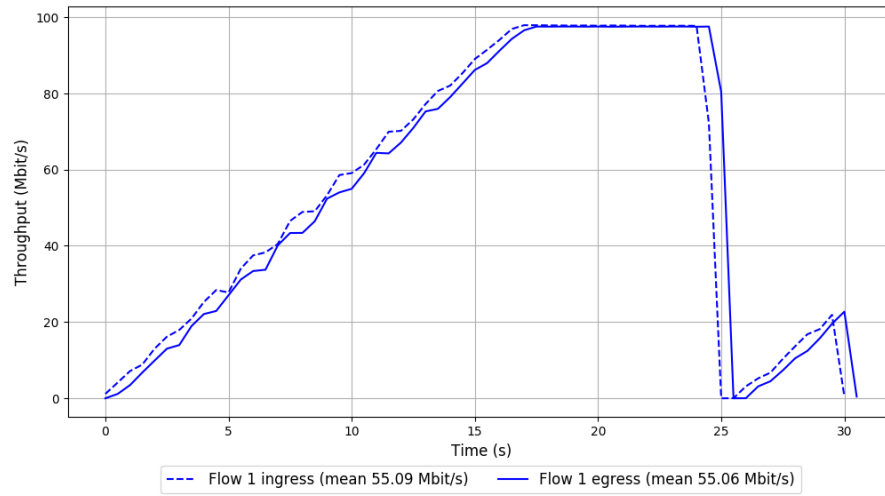
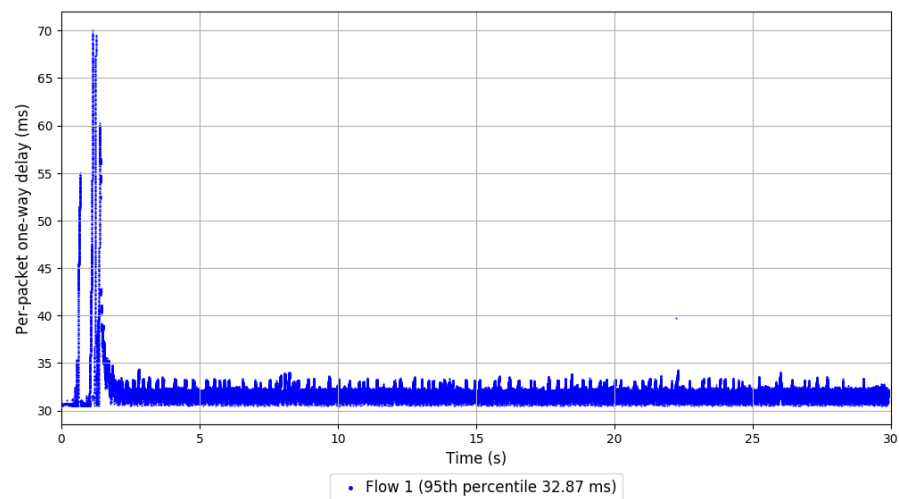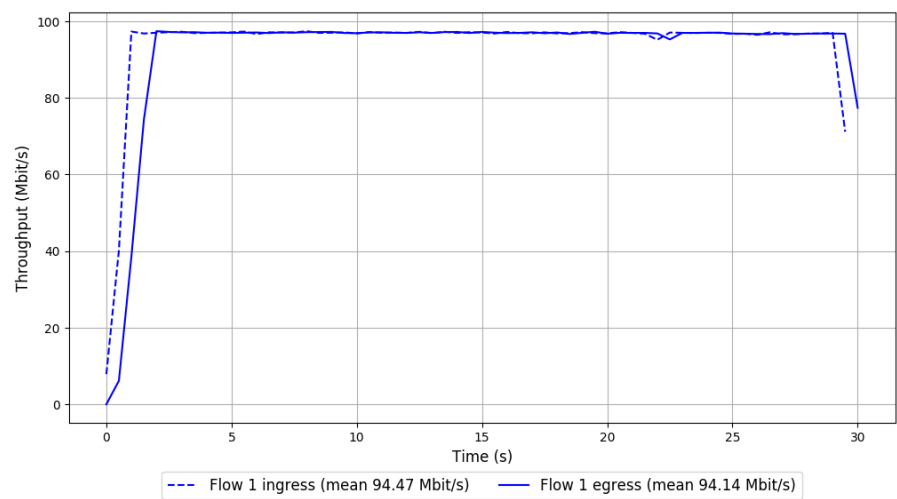Run 5: Report of LEDBAT — Data Link

```
Run 1: Statistics of Indigo-Muses

Start at: 2018-09-07 10:14:35
End at: 2018-09-07 10:15:05
Local clock offset: 0.606 ms
Remote clock offset: -1.865 ms


# Below is generated by plot.py at 2018-09-07 12:02:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 94.14 Mbit/s
95th percentile per-packet one-way delay: 32.872 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 94.14 Mbit/s
95th percentile per-packet one-way delay: 32.872 ms
Loss rate: 0.34%
```
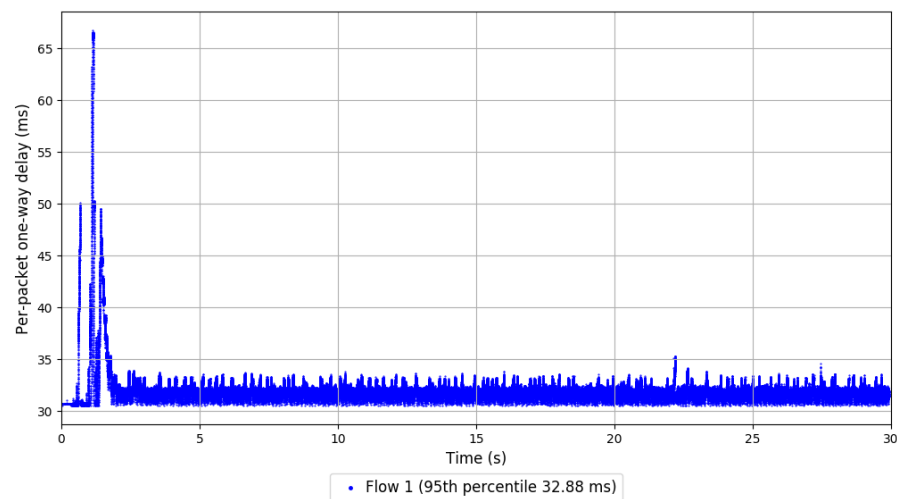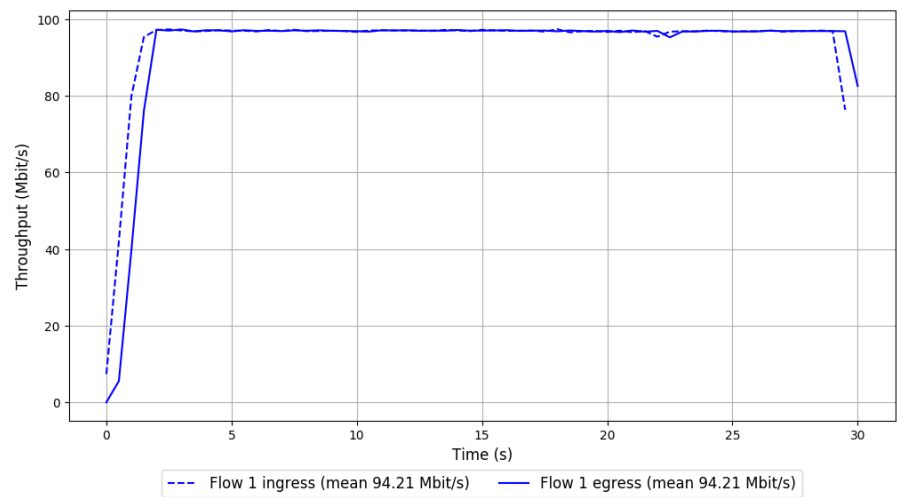
Run 1: Report of Indigo-Muses — Data Link

```
Run 2: Statistics of Indigo-Muses

Start at: 2018-09-07 10:38:05
End at: 2018-09-07 10:38:35
Local clock offset: 1.316 ms
Remote clock offset: -1.191 ms


# Below is generated by plot.py at 2018-09-07 12:02:34
# Datalink statistics
-- Total of 1 flow:
Average throughput: 94.21 Mbit/s
95th percentile per-packet one-way delay: 32.879 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 94.21 Mbit/s
95th percentile per-packet one-way delay: 32.879 ms
Loss rate: 0.00%
```

Run 2: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 94.21 Mbit/s)   Flow 1 egress (mean 94.21 Mbit/s)
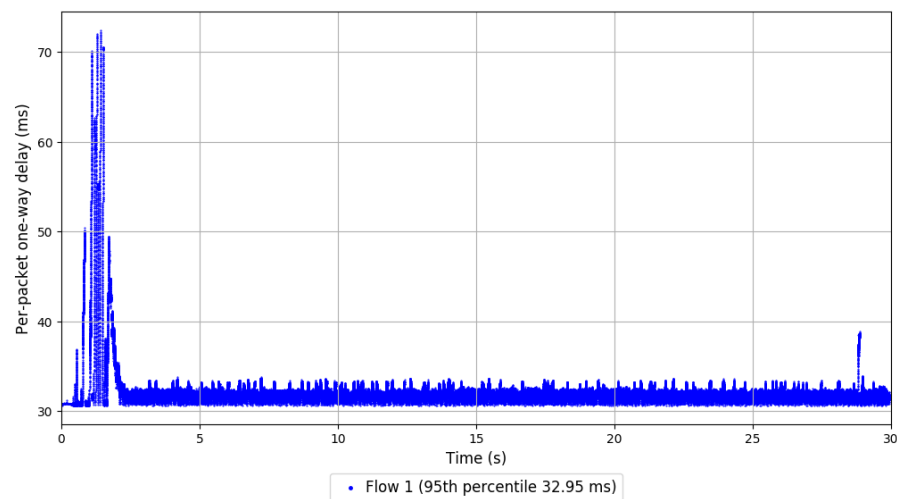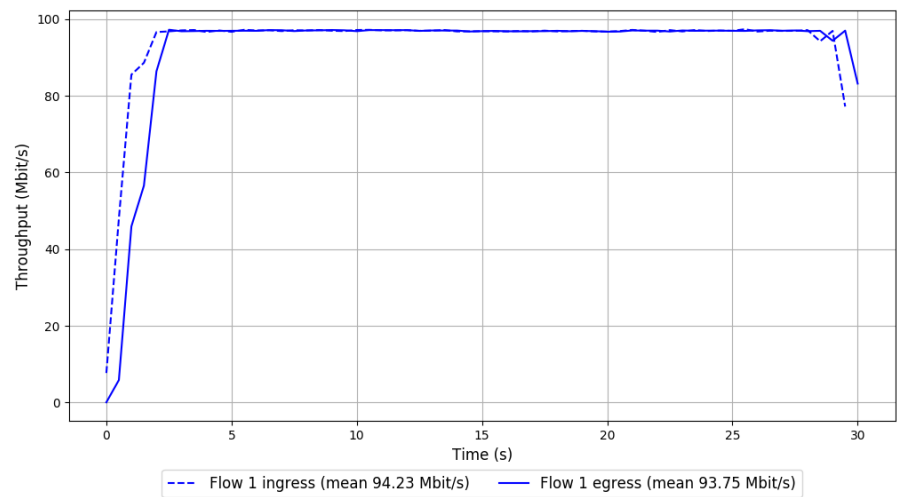

Flow 1 (95th percentile 32.88 ms)

```
Run 3: Statistics of Indigo-Muses

Start at: 2018-09-07 11:01:46
End at: 2018-09-07 11:02:16
Local clock offset: 0.835 ms
Remote clock offset: -0.452 ms


# Below is generated by plot.py at 2018-09-07 12:02:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 93.75 Mbit/s
95th percentile per-packet one-way delay: 32.953 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 93.75 Mbit/s
95th percentile per-packet one-way delay: 32.953 ms
Loss rate: 0.51%
```

Run 3: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 94.23 Mbit/s) — Flow 1 egress (mean 93.75 Mbit/s)

• Flow 1 (95th percentile 32.95 ms)

Run 4: Statistics of Indigo-Muses

Start at: 2018-09-07 11:25:17
End at: 2018-09-07 11:25:47
Local clock offset: 0.685 ms
Remote clock offset: 0.042 ms

Below is generated by plot.py at 2018-09-07 12:03:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 94.51 Mbit/s
95th percentile per-packet one-way delay: 33.717 ms
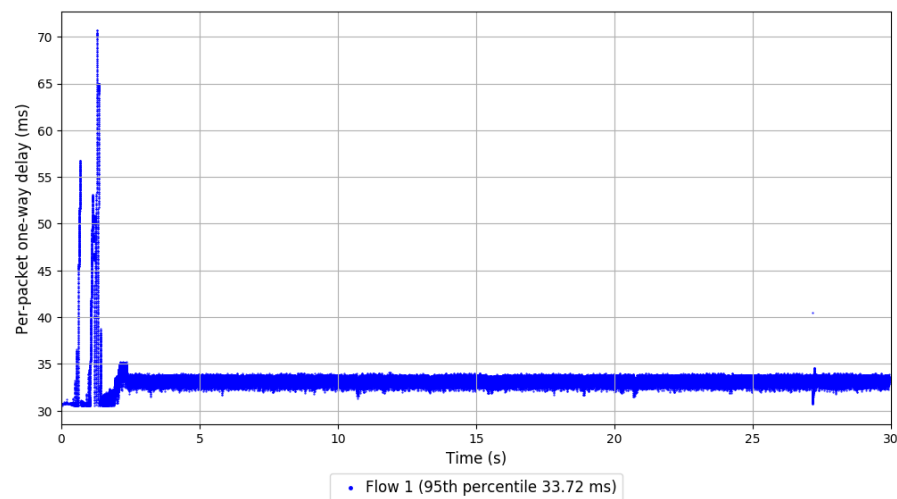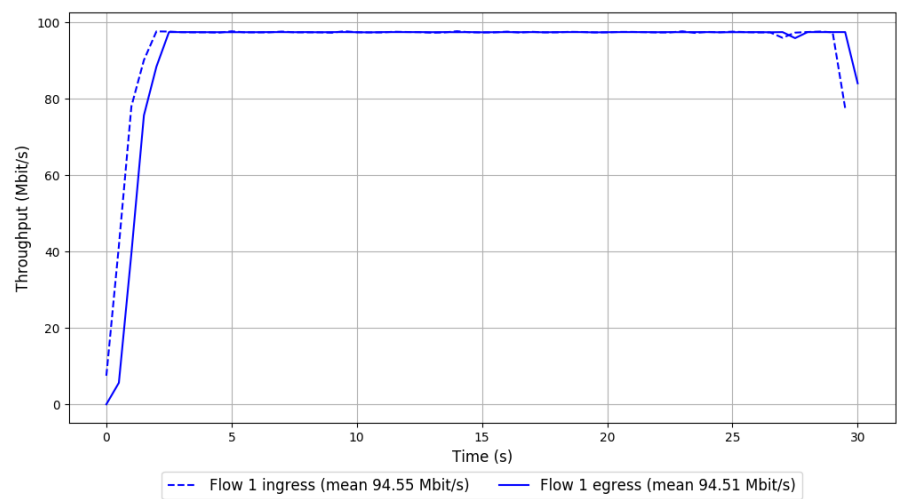Loss rate: 0.03%
-- Flow 1:
Average throughput: 94.51 Mbit/s
95th percentile per-packet one-way delay: 33.717 ms
Loss rate: 0.03%

Run 4: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 94.55 Mbit/s) —— Flow 1 egress (mean 94.51 Mbit/s)

• Flow 1 (95th percentile 33.72 ms)

```
Run 5: Statistics of Indigo-Muses

Start at: 2018-09-07 11:48:55
End at: 2018-09-07 11:49:25
Local clock offset: 0.401 ms
Remote clock offset: 0.513 ms


# Below is generated by plot.py at 2018-09-07 12:03:02
# Datalink statistics
-- Total of 1 flow:
Average throughput: 94.64 Mbit/s
95th percentile per-packet one-way delay: 33.092 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 94.64 Mbit/s
95th percentile per-packet one-way delay: 33.092 ms
Loss rate: 0.00%
```
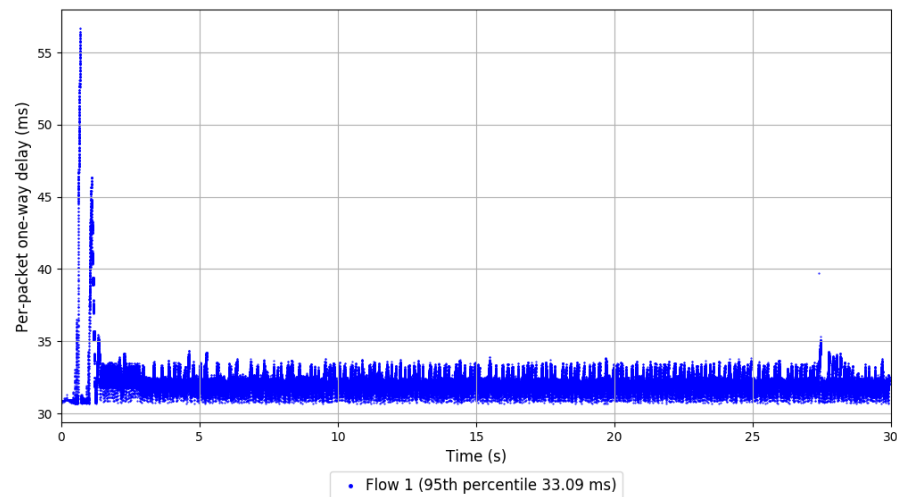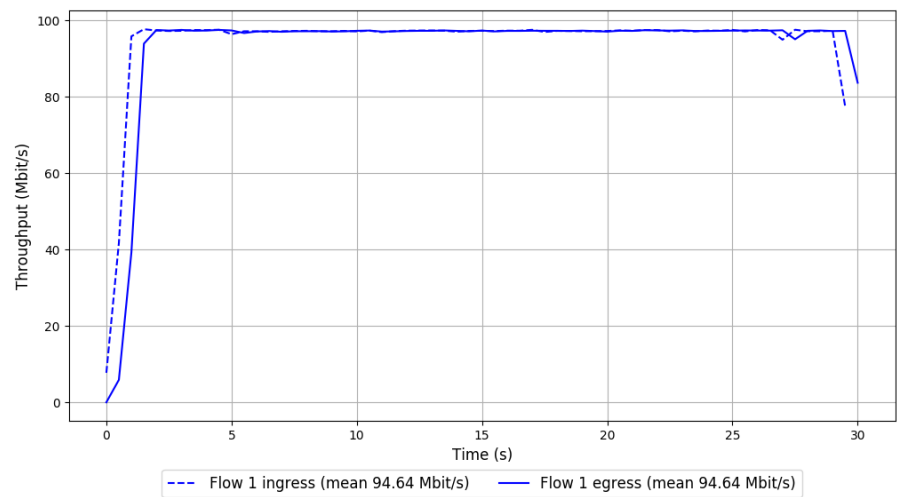
Run 5: Report of Indigo-Muses — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2018-09-07 10:00:15
End at: 2018-09-07 10:00:45
Local clock offset: 0.663 ms
Remote clock offset: -2.272 ms


# Below is generated by plot.py at 2018-09-07 12:03:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 89.95 Mbit/s
95th percentile per-packet one-way delay: 37.963 ms
Loss rate: 0.68%
-- Flow 1:
Average throughput: 89.95 Mbit/s
95th percentile per-packet one-way delay: 37.963 ms
Loss rate: 0.68%
```
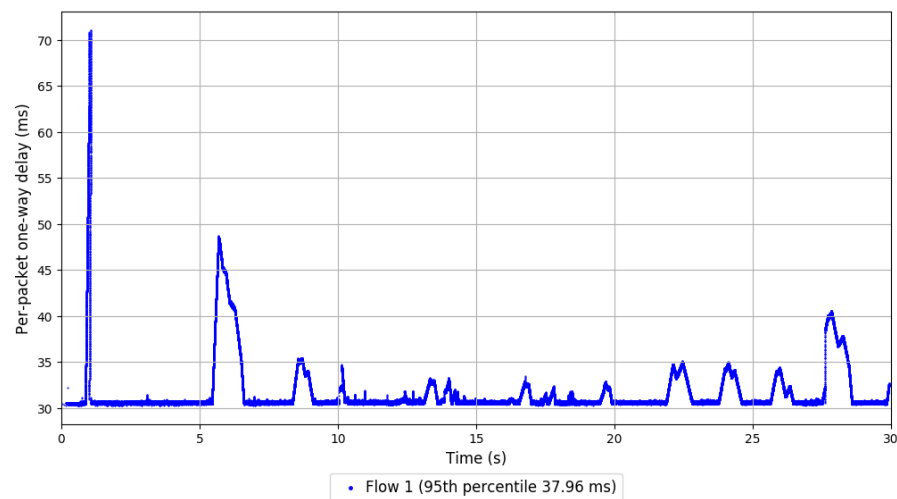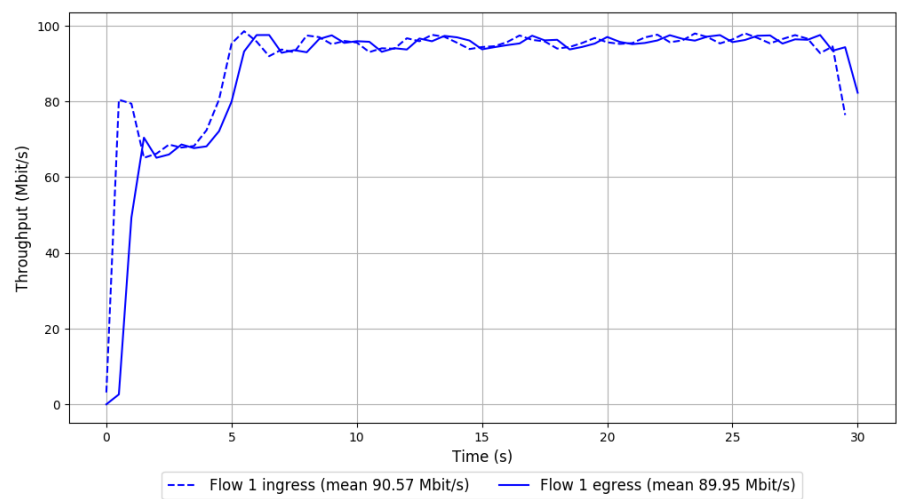
Run 1: Report of PCC-Allegro — Data Link

```
Run 2: Statistics of PCC-Allegro

Start at: 2018-09-07 10:23:43
End at: 2018-09-07 10:24:13
Local clock offset: 1.093 ms
Remote clock offset: -1.544 ms


# Below is generated by plot.py at 2018-09-07 12:03:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 91.84 Mbit/s
95th percentile per-packet one-way delay: 35.574 ms
Loss rate: 0.70%
-- Flow 1:
Average throughput: 91.84 Mbit/s
95th percentile per-packet one-way delay: 35.574 ms
Loss rate: 0.70%
```
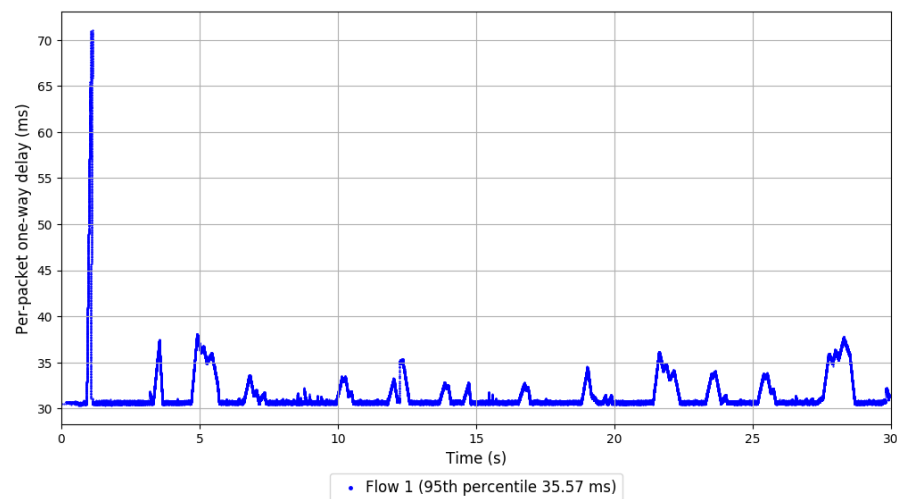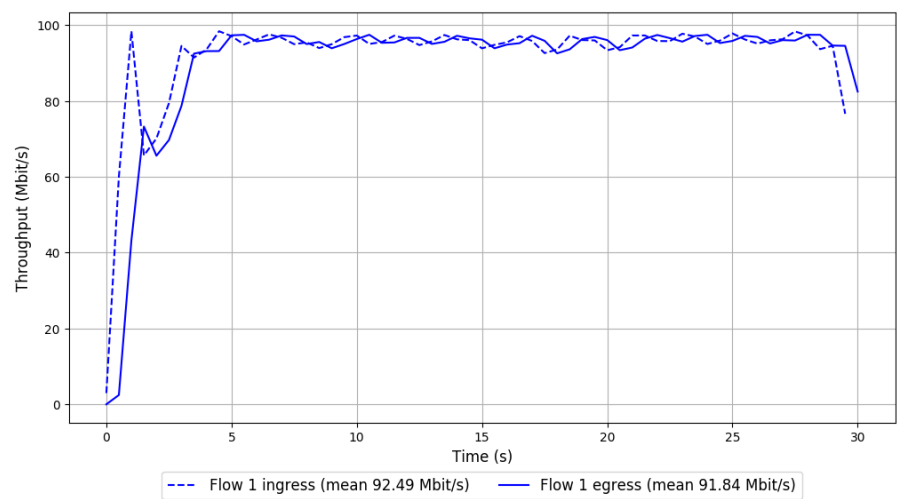
Run 2: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 92.49 Mbit/s)   Flow 1 egress (mean 91.84 Mbit/s)

Flow 1 (95th percentile 35.57 ms)

```
Run 3: Statistics of PCC-Allegro

Start at: 2018-09-07 10:47:23
End at: 2018-09-07 10:47:53
Local clock offset: 1.344 ms
Remote clock offset: -0.997 ms


# Below is generated by plot.py at 2018-09-07 12:03:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 91.25 Mbit/s
95th percentile per-packet one-way delay: 33.133 ms
Loss rate: 0.73%
-- Flow 1:
Average throughput: 91.25 Mbit/s
95th percentile per-packet one-way delay: 33.133 ms
Loss rate: 0.73%
```
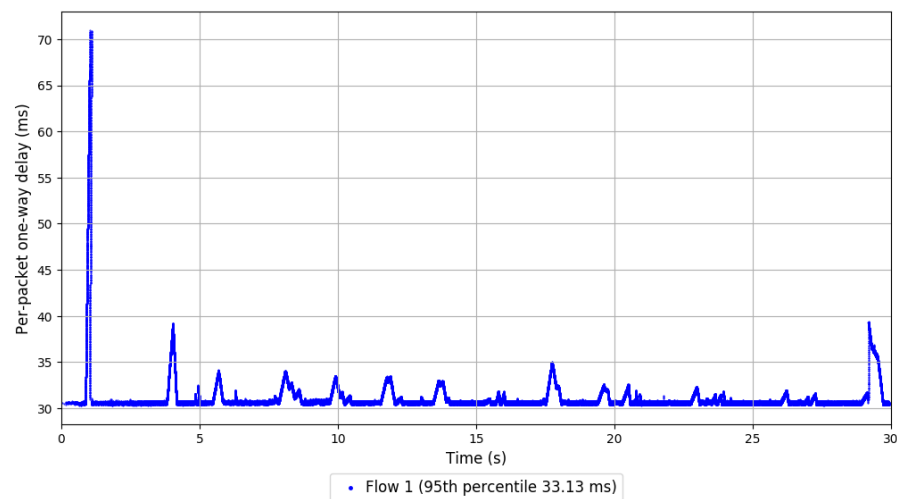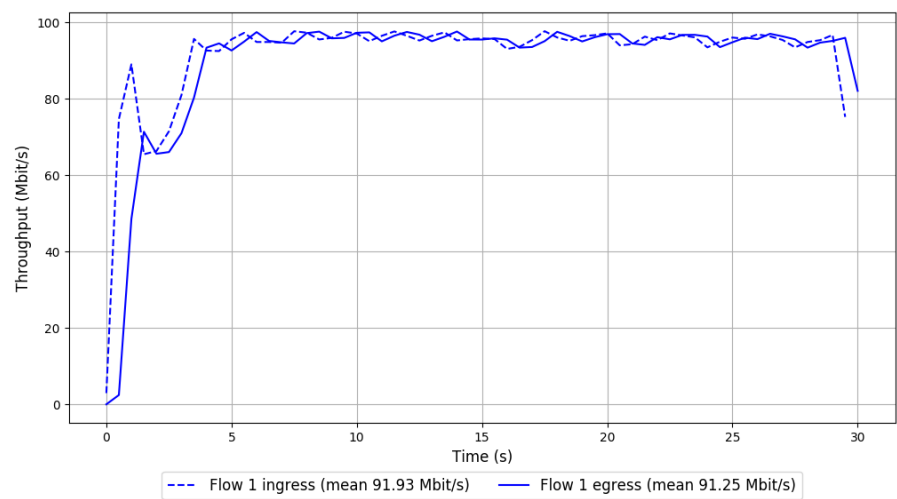
Run 3: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 91.93 Mbit/s)   Flow 1 egress (mean 91.25 Mbit/s)

Flow 1 (95th percentile 33.13 ms)

```
Run 4: Statistics of PCC-Allegro

Start at: 2018-09-07 11:10:55
End at: 2018-09-07 11:11:25
Local clock offset: 0.821 ms
Remote clock offset: -0.313 ms


# Below is generated by plot.py at 2018-09-07 12:03:36
# Datalink statistics
-- Total of 1 flow:
Average throughput: 91.93 Mbit/s
95th percentile per-packet one-way delay: 35.275 ms
Loss rate: 0.72%
-- Flow 1:
Average throughput: 91.93 Mbit/s
95th percentile per-packet one-way delay: 35.275 ms
Loss rate: 0.72%
```
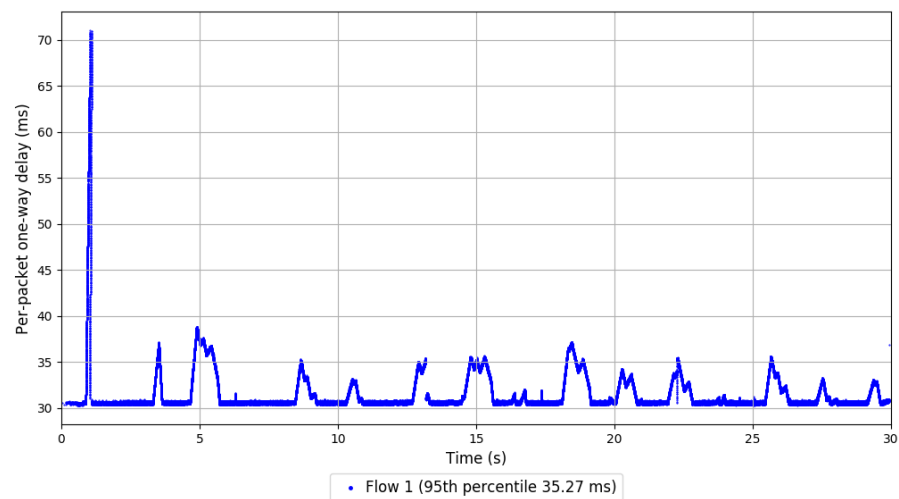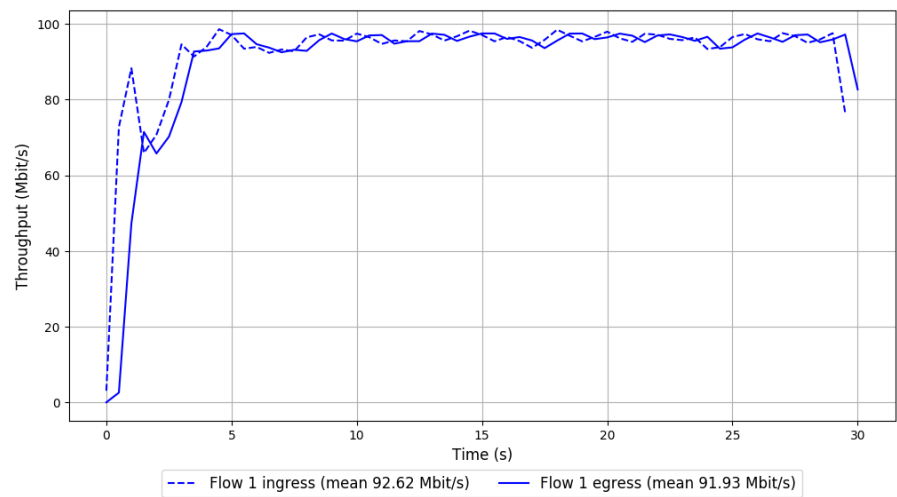
Run 4: Report of PCC-Allegro — Data Link

```
Run 5: Statistics of PCC-Allegro

Start at: 2018-09-07 11:34:28
End at: 2018-09-07 11:34:58
Local clock offset: 0.616 ms
Remote clock offset: -0.011 ms


# Below is generated by plot.py at 2018-09-07 12:03:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 91.42 Mbit/s
95th percentile per-packet one-way delay: 34.091 ms
Loss rate: 0.68%
-- Flow 1:
Average throughput: 91.42 Mbit/s
95th percentile per-packet one-way delay: 34.091 ms
Loss rate: 0.68%
```
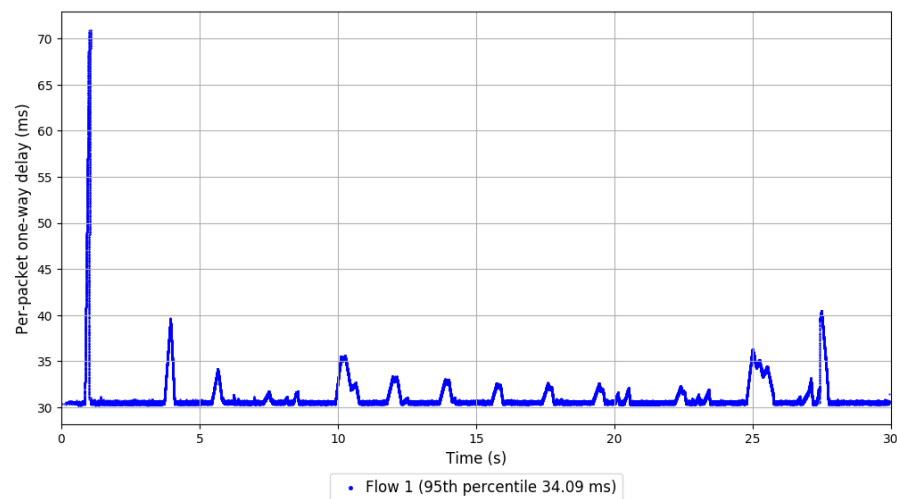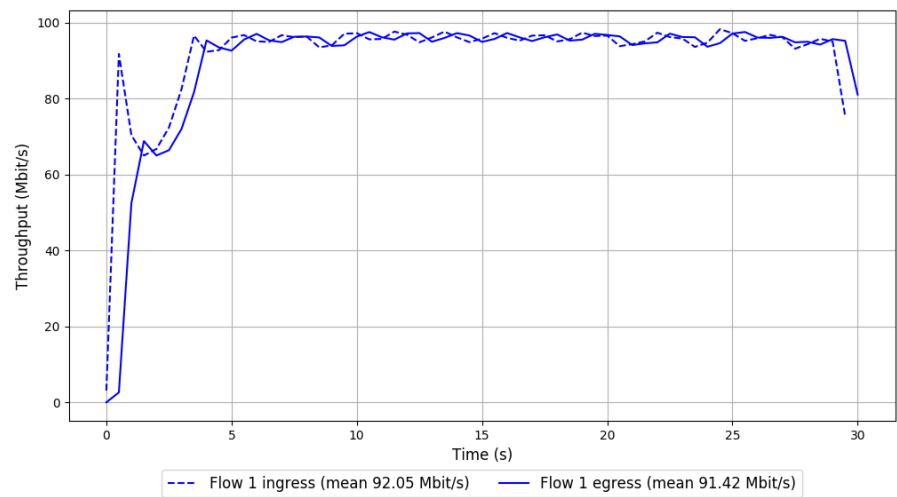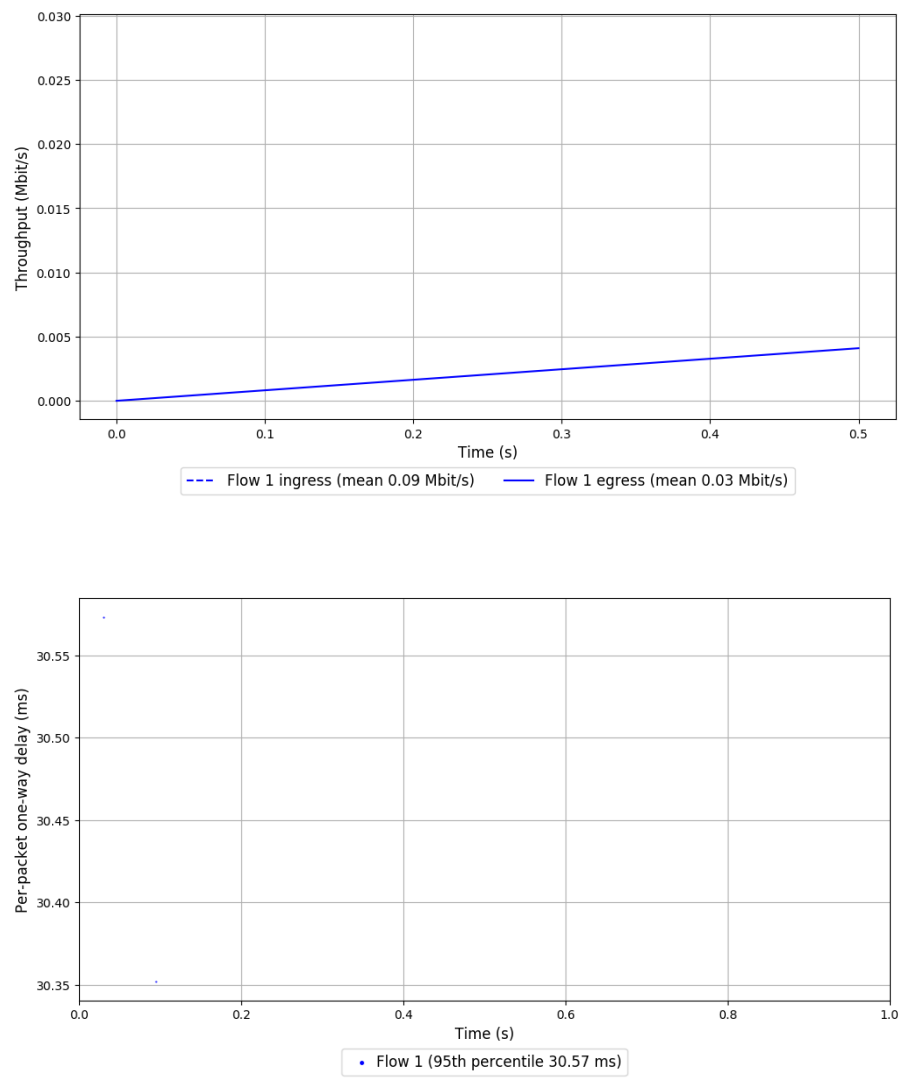
Run 5: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 92.05 Mbit/s)   Flow 1 egress (mean 91.42 Mbit/s)

Flow 1 (95th percentile 34.09 ms)

```
Run 1: Statistics of PCC-Expr

Start at: 2018-09-07 10:18:32
End at: 2018-09-07 10:19:02
Local clock offset: 0.867 ms
Remote clock offset: -1.775 ms
```

Run 1: Report of PCC-Expr — Data Link

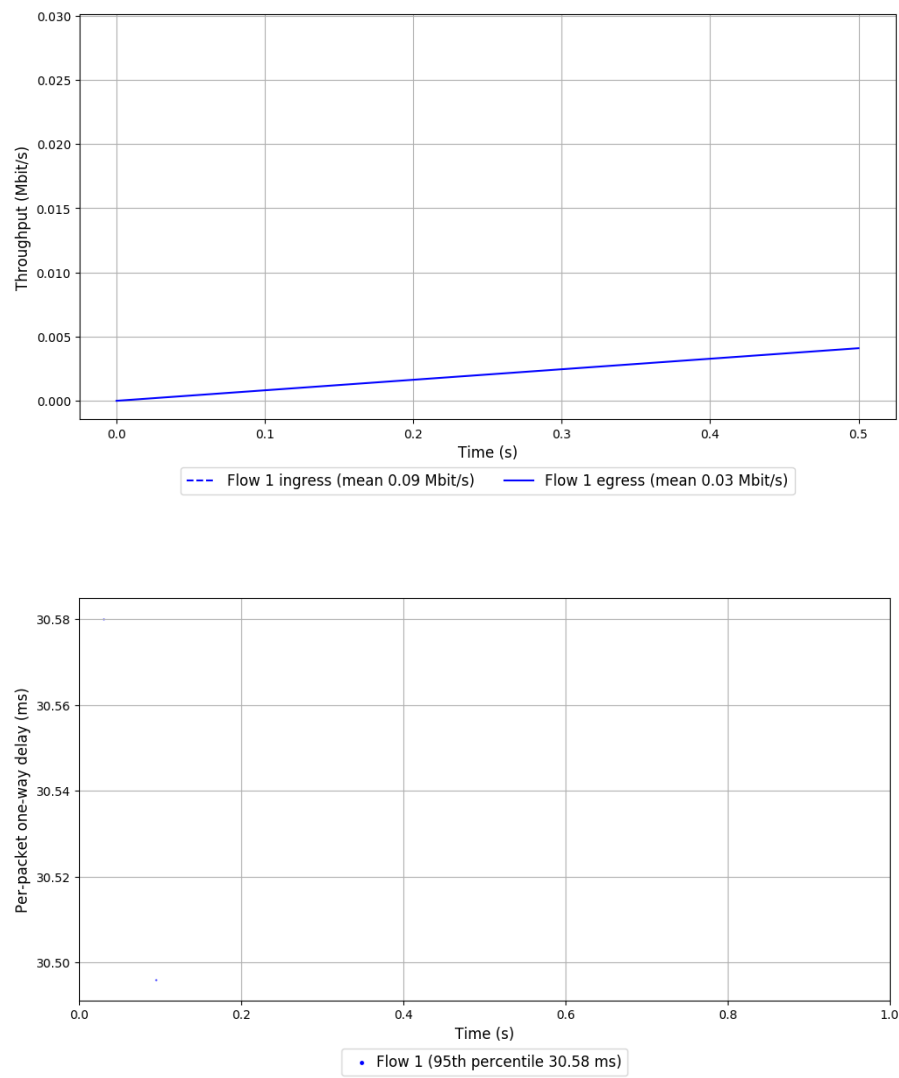```
Run 2: Statistics of PCC-Expr

Start at: 2018-09-07 10:42:09
End at: 2018-09-07 10:42:39
Local clock offset: 1.446 ms
Remote clock offset: -1.041 ms
```

Run 2: Report of PCC-Expr — Data Link

```
Run 3: Statistics of PCC-Expr

Start at: 2018-09-07 11:05:44
End at: 2018-09-07 11:06:14
Local clock offset: 0.883 ms
Remote clock offset: -0.246 ms
```
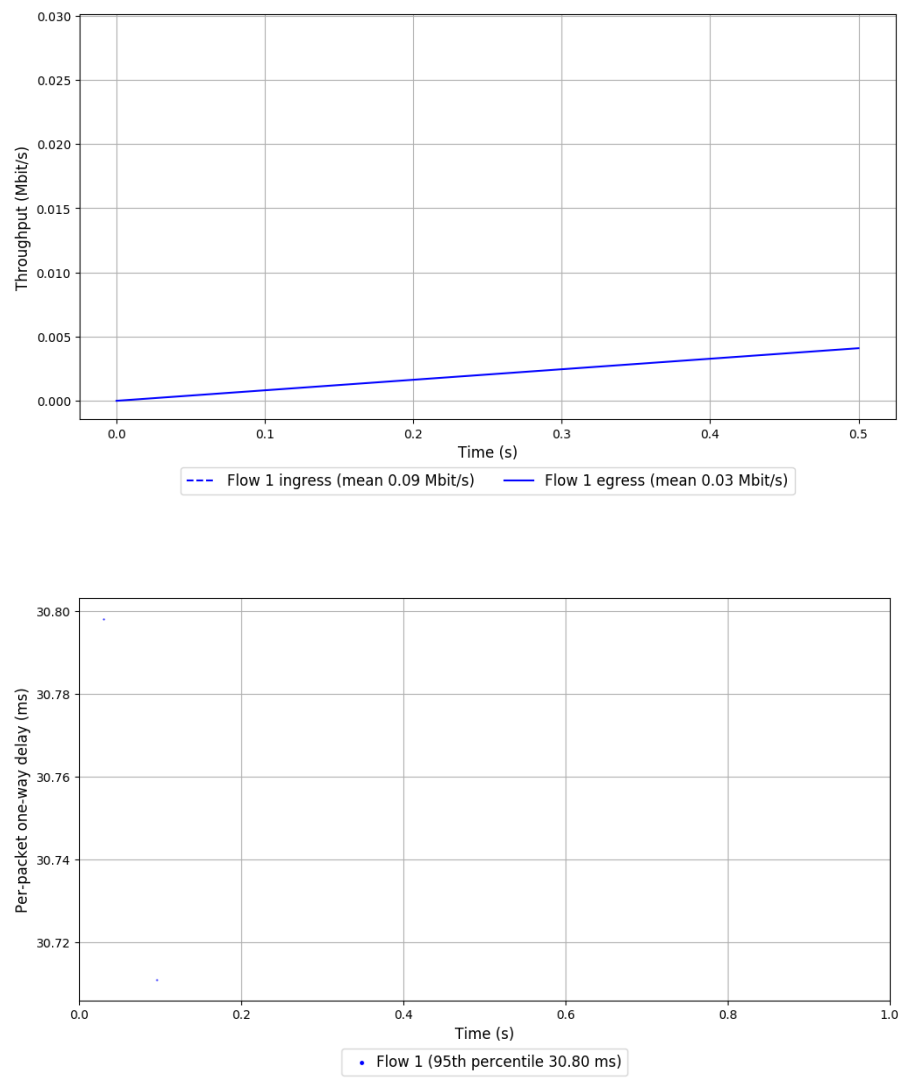
Run 3: Report of PCC-Expr — Data Link

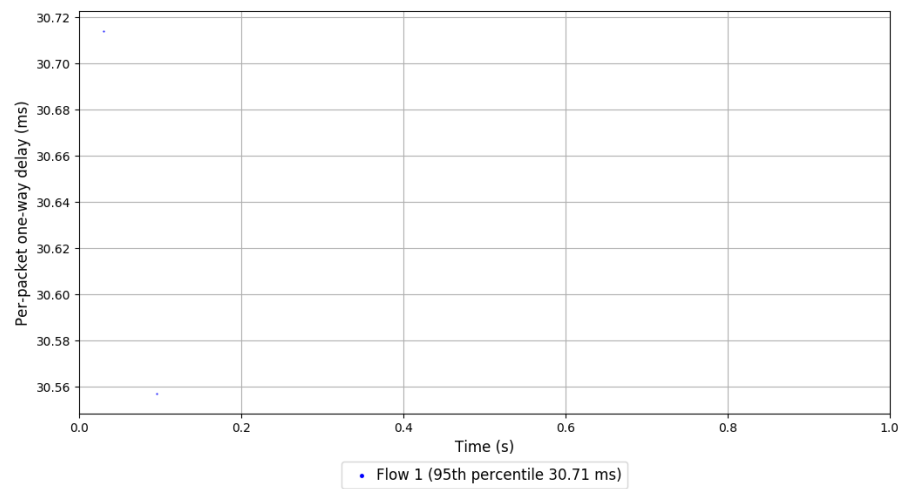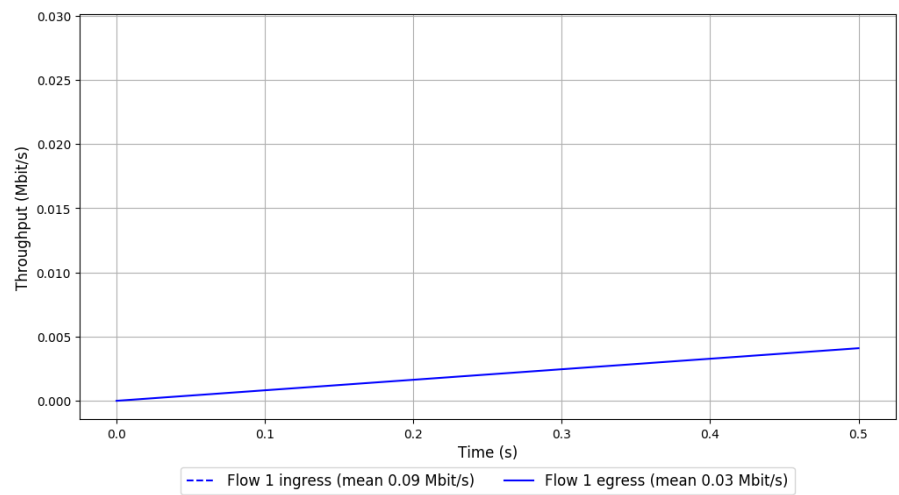Run 4: Statistics of PCC-Expr

Start at: 2018-09-07 11:29:15
End at: 2018-09-07 11:29:45
Local clock offset: 0.647 ms
Remote clock offset: 0.125 ms

Run 4: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 0.09 Mbit/s)   Flow 1 egress (mean 0.03 Mbit/s)

Flow 1 (95th percentile 30.71 ms)
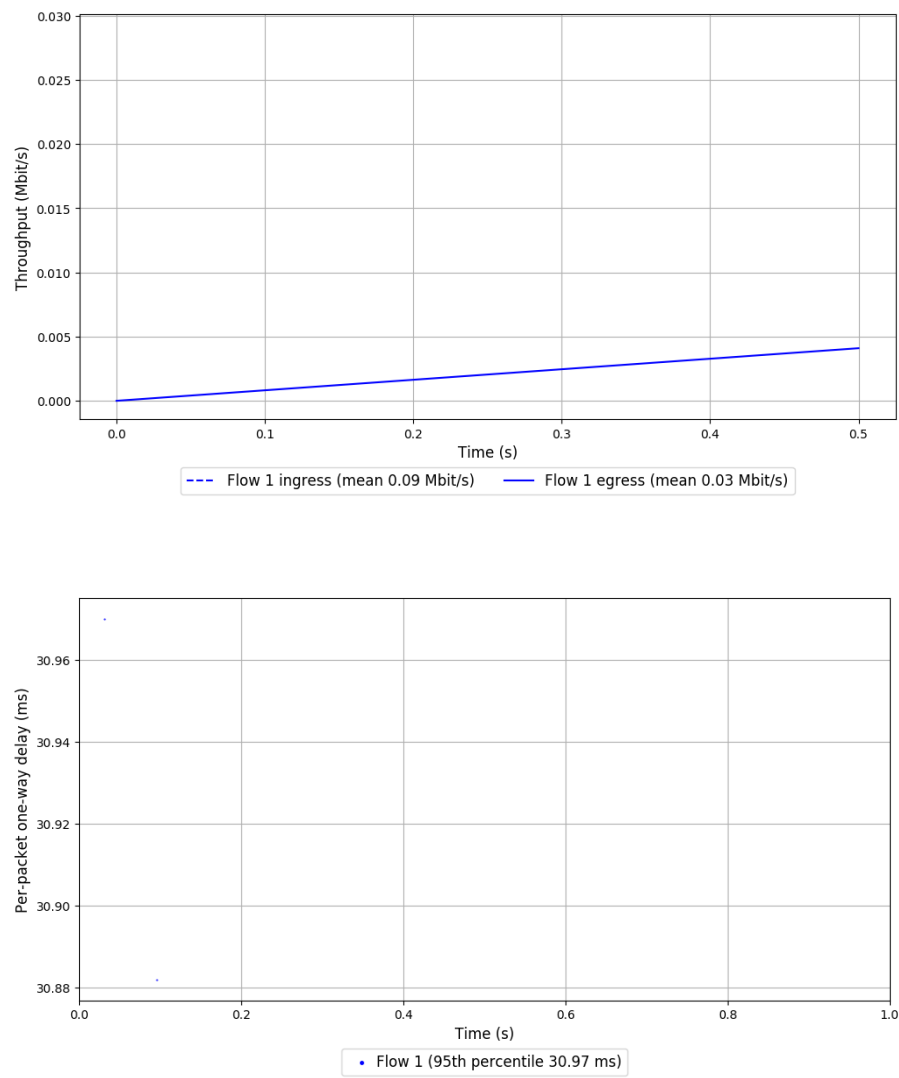
```
Run 5: Statistics of PCC-Expr

Start at: 2018-09-07 11:52:54
End at: 2018-09-07 11:53:24
Local clock offset: 0.167 ms
Remote clock offset: 0.495 ms
```

Run 5: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 0.09 Mbit/s) --- Flow 1 egress (mean 0.03 Mbit/s)

Flow 1 (95th percentile 30.97 ms)

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-09-07 10:13:16
End at: 2018-09-07 10:13:46
Local clock offset: 0.68 ms
Remote clock offset: -1.847 ms


# Below is generated by plot.py at 2018-09-07 12:04:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 78.99 Mbit/s
95th percentile per-packet one-way delay: 67.369 ms
Loss rate: 1.83%
-- Flow 1:
Average throughput: 78.99 Mbit/s
95th percentile per-packet one-way delay: 67.369 ms
Loss rate: 1.83%
```
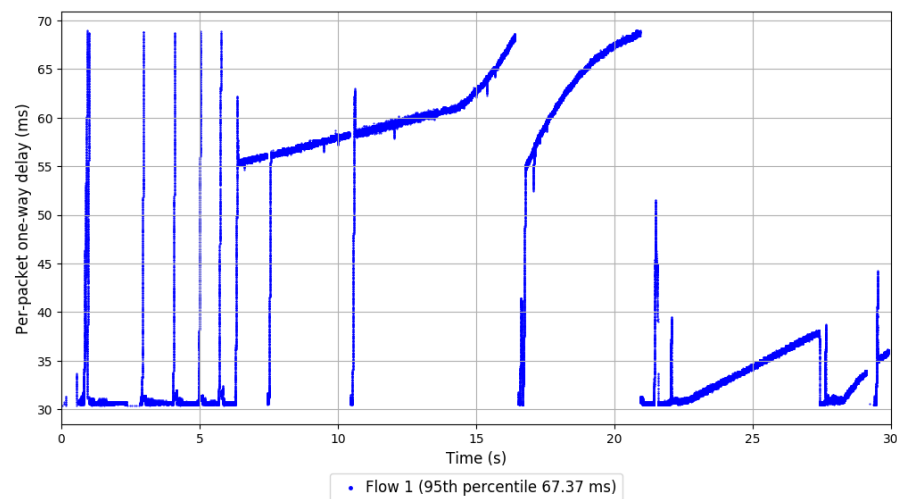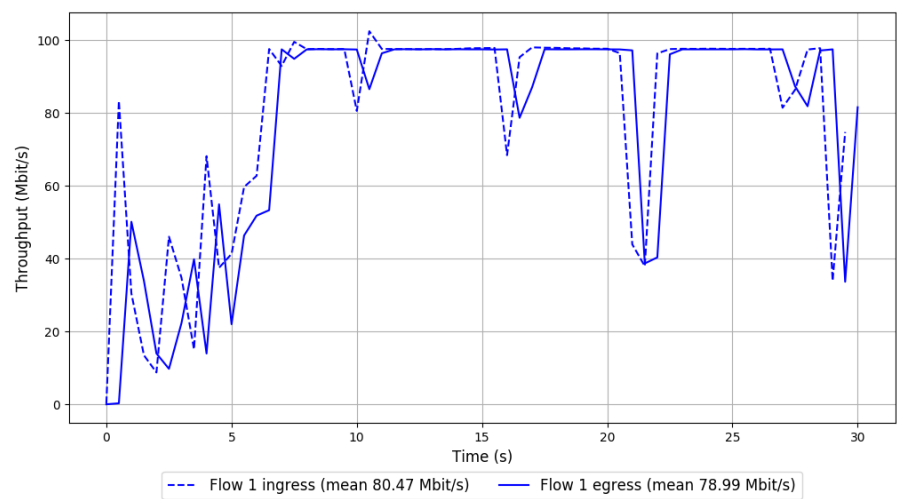
Run 1: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 80.47 Mbit/s)   Flow 1 egress (mean 78.99 Mbit/s)

Flow 1 (95th percentile 67.37 ms)

Run 2: Statistics of QUIC Cubic

Start at: 2018-09-07 10:36:45
End at: 2018-09-07 10:37:15
Local clock offset: 1.371 ms
Remote clock offset: -1.295 ms

Below is generated by plot.py at 2018-09-07 12:04:07
Datalink statistics
-- Total of 1 flow:
Average throughput: 79.61 Mbit/s
95th percentile per-packet one-way delay: 67.435 ms
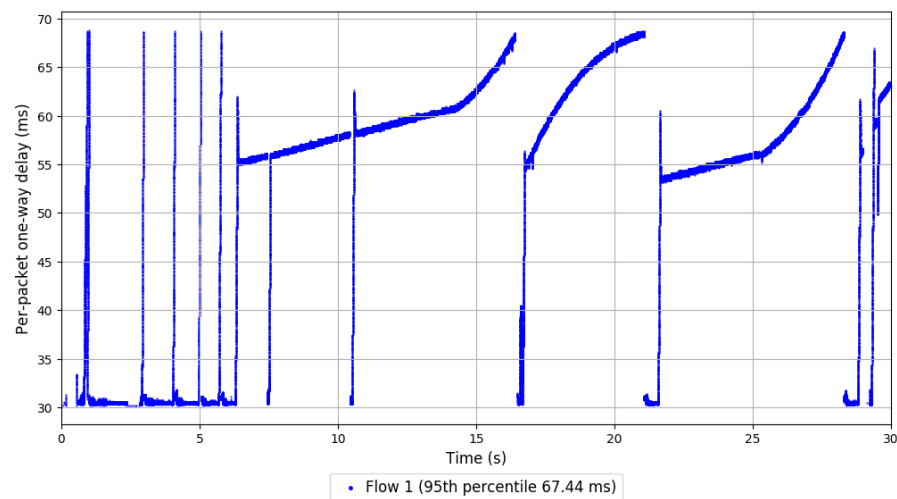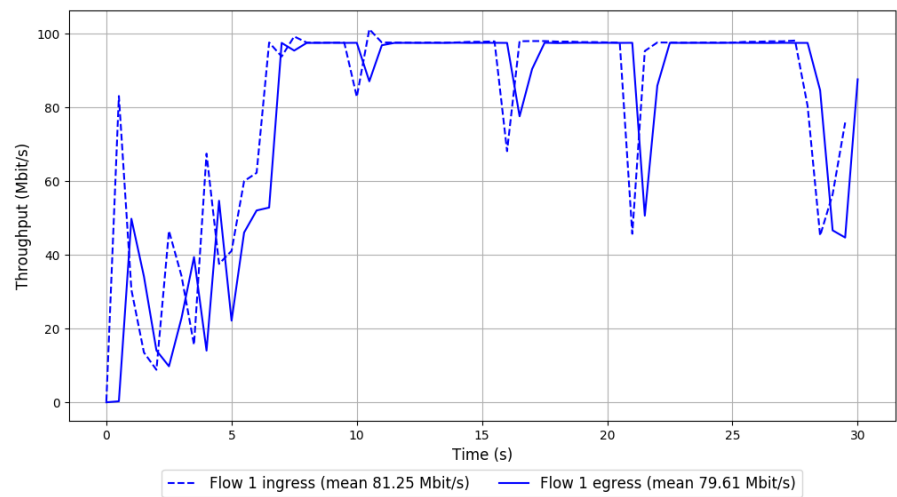Loss rate: 1.91%
-- Flow 1:
Average throughput: 79.61 Mbit/s
95th percentile per-packet one-way delay: 67.435 ms
Loss rate: 1.91%

Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-09-07 11:00:27
End at: 2018-09-07 11:00:57
Local clock offset: 0.864 ms
Remote clock offset: -0.371 ms


# Below is generated by plot.py at 2018-09-07 12:04:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 79.80 Mbit/s
95th percentile per-packet one-way delay: 67.709 ms
Loss rate: 1.79%
-- Flow 1:
Average throughput: 79.80 Mbit/s
95th percentile per-packet one-way delay: 67.709 ms
Loss rate: 1.79%
```
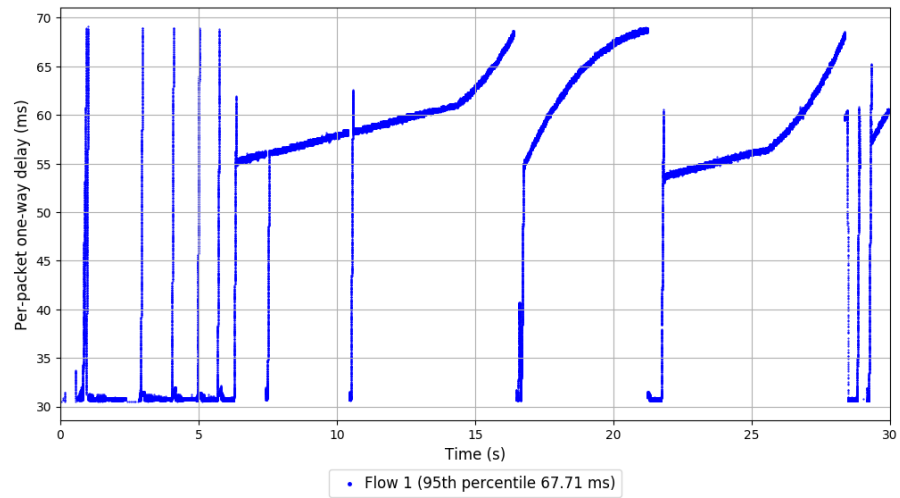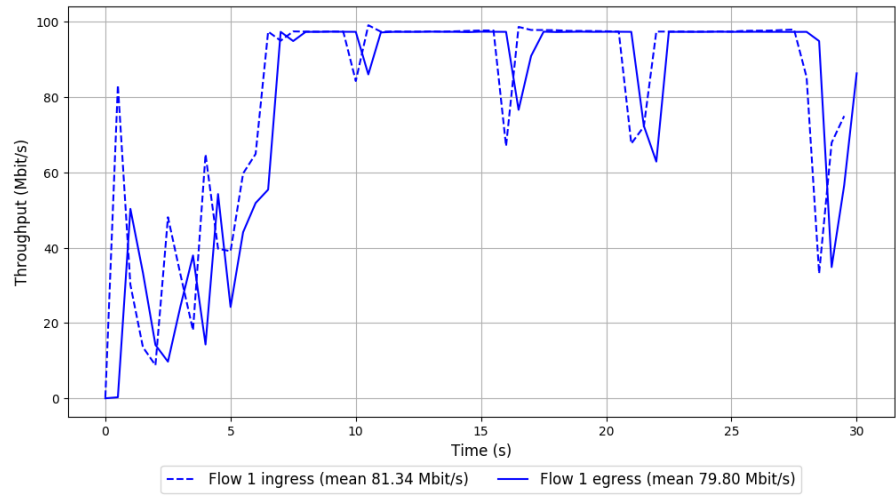
Run 3: Report of QUIC Cubic — Data Link

```
Run 4: Statistics of QUIC Cubic

Start at: 2018-09-07 11:23:58
End at: 2018-09-07 11:24:28
Local clock offset: 0.602 ms
Remote clock offset: 0.089 ms


# Below is generated by plot.py at 2018-09-07 12:04:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 79.98 Mbit/s
95th percentile per-packet one-way delay: 67.455 ms
Loss rate: 1.77%
-- Flow 1:
Average throughput: 79.98 Mbit/s
95th percentile per-packet one-way delay: 67.455 ms
Loss rate: 1.77%
```
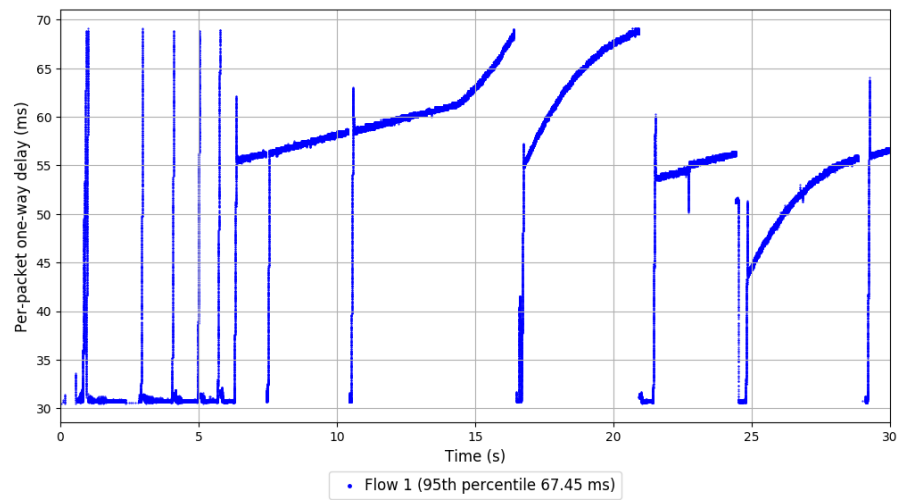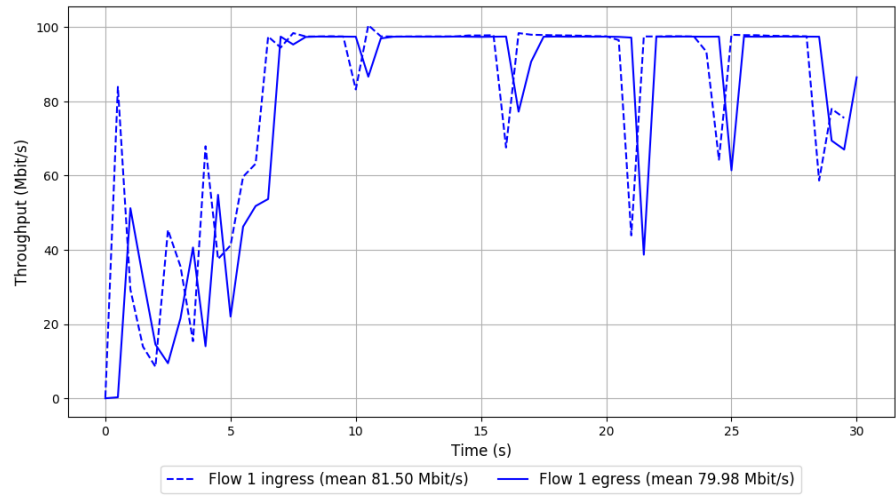
Run 4: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 81.50 Mbit/s) --- Flow 1 egress (mean 79.98 Mbit/s)

• Flow 1 (95th percentile 67.45 ms)

```
Run 5: Statistics of QUIC Cubic

Start at: 2018-09-07 11:47:35
End at: 2018-09-07 11:48:05
Local clock offset: 0.454 ms
Remote clock offset: 0.408 ms


# Below is generated by plot.py at 2018-09-07 12:04:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 80.38 Mbit/s
95th percentile per-packet one-way delay: 67.467 ms
Loss rate: 1.77%
-- Flow 1:
Average throughput: 80.38 Mbit/s
95th percentile per-packet one-way delay: 67.467 ms
Loss rate: 1.77%
```
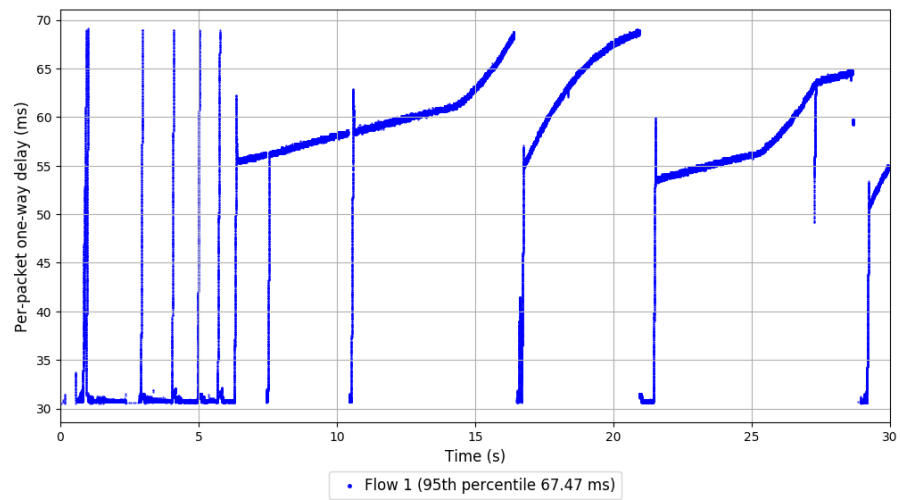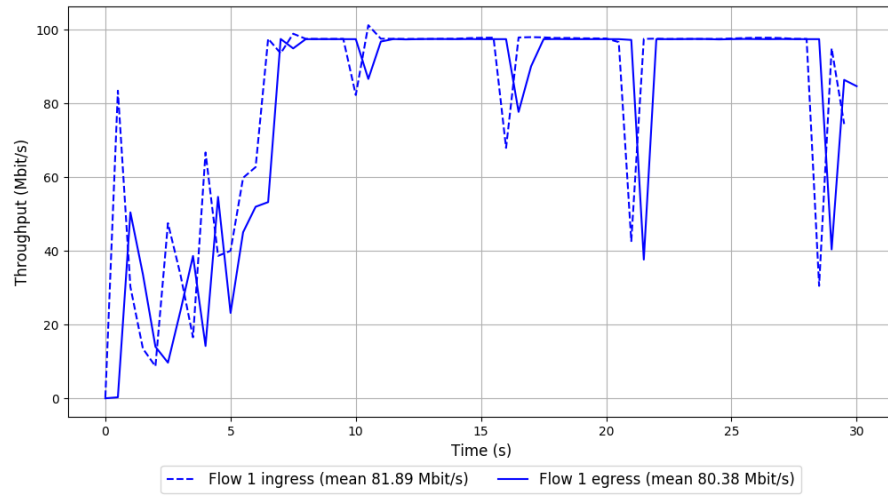
Run 5: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 81.89 Mbit/s)   Flow 1 egress (mean 80.38 Mbit/s)
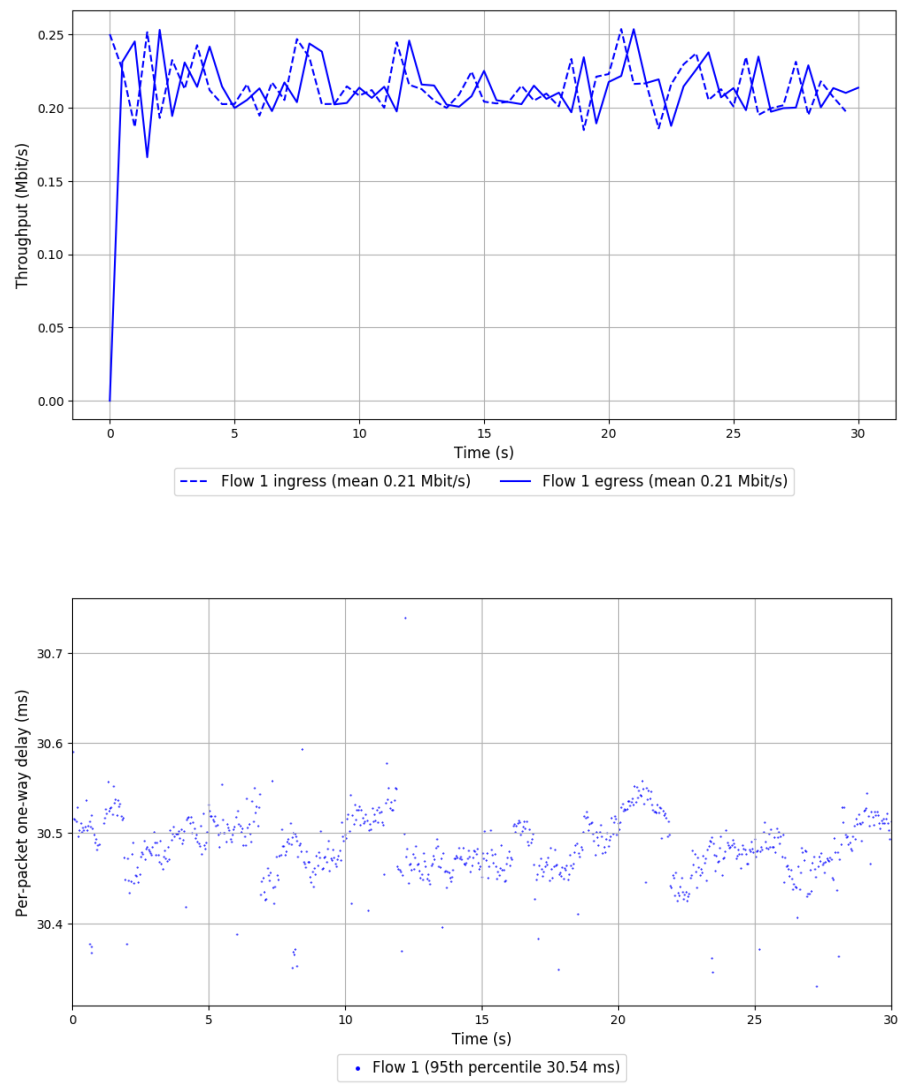

• Flow 1 (95th percentile 67.47 ms)

```
Run 1: Statistics of SCReAM

Start at: 2018-09-07 10:08:07
End at: 2018-09-07 10:08:37
Local clock offset: 0.717 ms
Remote clock offset: -2.112 ms


# Below is generated by plot.py at 2018-09-07 12:04:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 30.535 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 30.535 ms
Loss rate: 0.00%
```

Run 1: Report of SCReAM — Data Link

Flow 1 ingress (mean 0.21 Mbit/s)   Flow 1 egress (mean 0.21 Mbit/s)

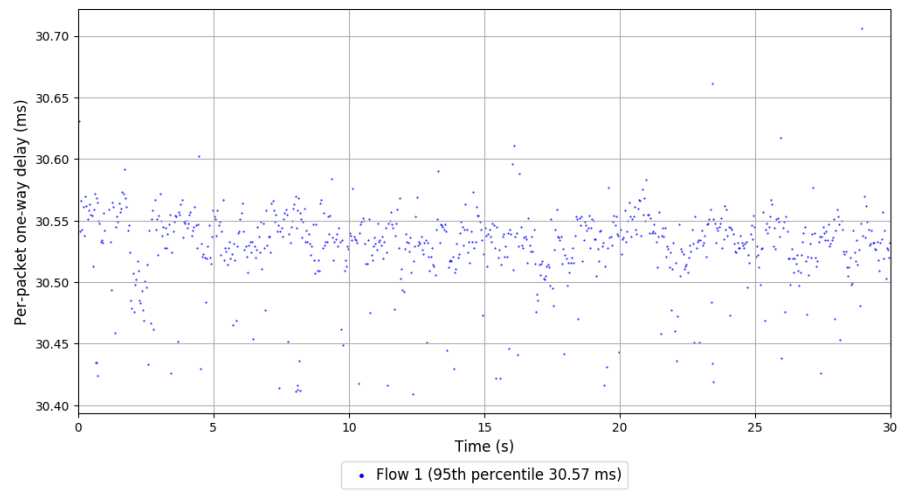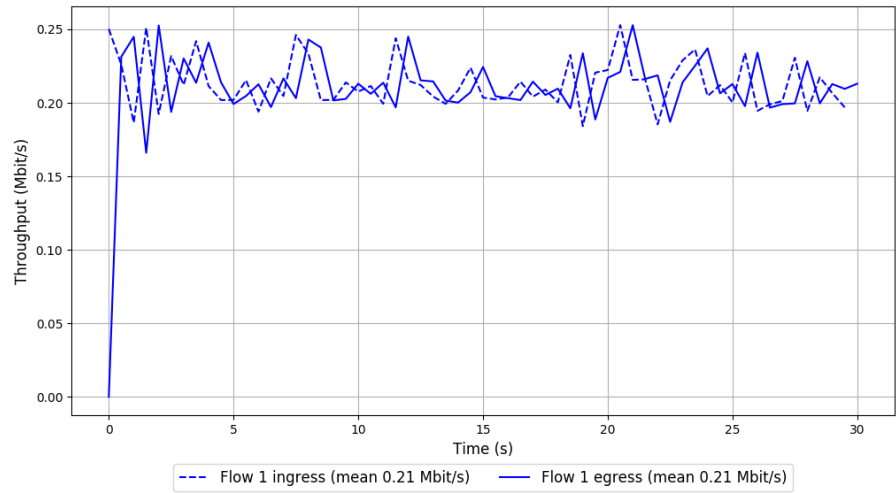Flow 1 (95th percentile 30.54 ms)

```
Run 2: Statistics of SCReAM

Start at: 2018-09-07 10:31:37
End at: 2018-09-07 10:32:07
Local clock offset: 1.301 ms
Remote clock offset: -1.368 ms


# Below is generated by plot.py at 2018-09-07 12:04:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 30.566 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 30.566 ms
Loss rate: 0.00%
```

Run 2: Report of SCReAM — Data Link

Flow 1 ingress (mean 0.21 Mbit/s)   Flow 1 egress (mean 0.21 Mbit/s)

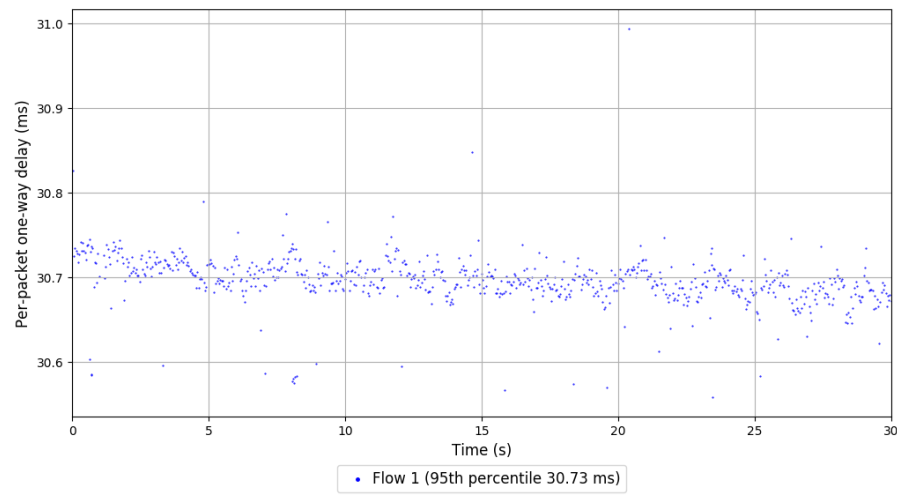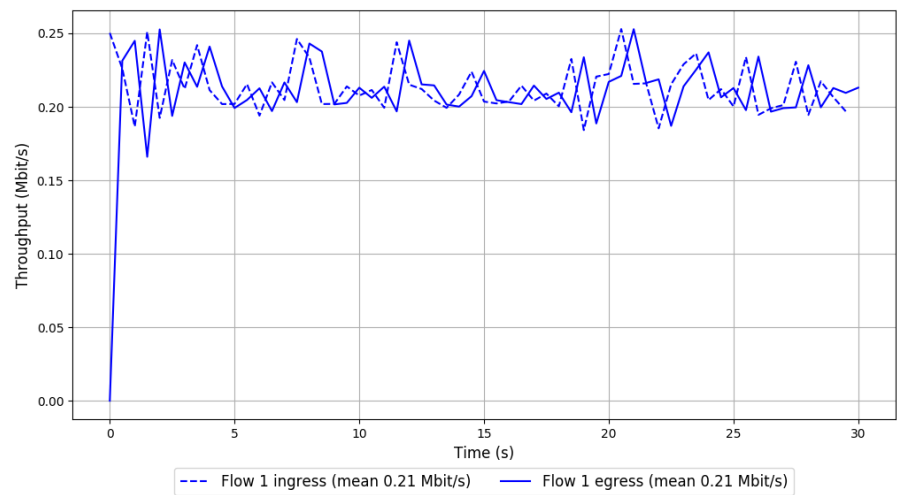Flow 1 (95th percentile 30.57 ms)

```
Run 3: Statistics of SCReAM

Start at: 2018-09-07 10:55:18
End at: 2018-09-07 10:55:48
Local clock offset: 1.051 ms
Remote clock offset: -0.662 ms


# Below is generated by plot.py at 2018-09-07 12:04:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 30.733 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 30.733 ms
Loss rate: 0.00%
```
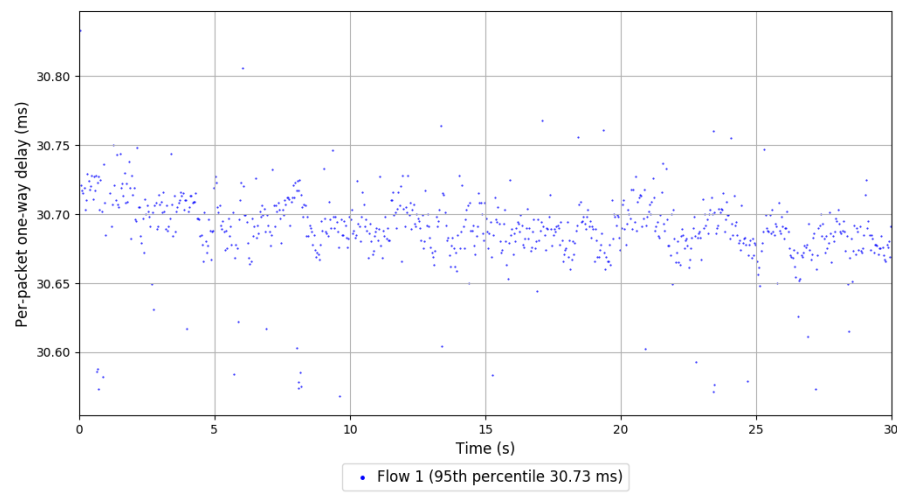
Run 3: Report of SCReAM — Data Link

Flow 1 ingress (mean 0.21 Mbit/s) --- Flow 1 egress (mean 0.21 Mbit/s)

Flow 1 (95th percentile 30.73 ms)

```
Run 4: Statistics of SCReAM

Start at: 2018-09-07 11:18:48
End at: 2018-09-07 11:19:18
Local clock offset: 0.749 ms
Remote clock offset: 0.009 ms


# Below is generated by plot.py at 2018-09-07 12:04:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 30.725 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 30.725 ms
Loss rate: 0.00%
```
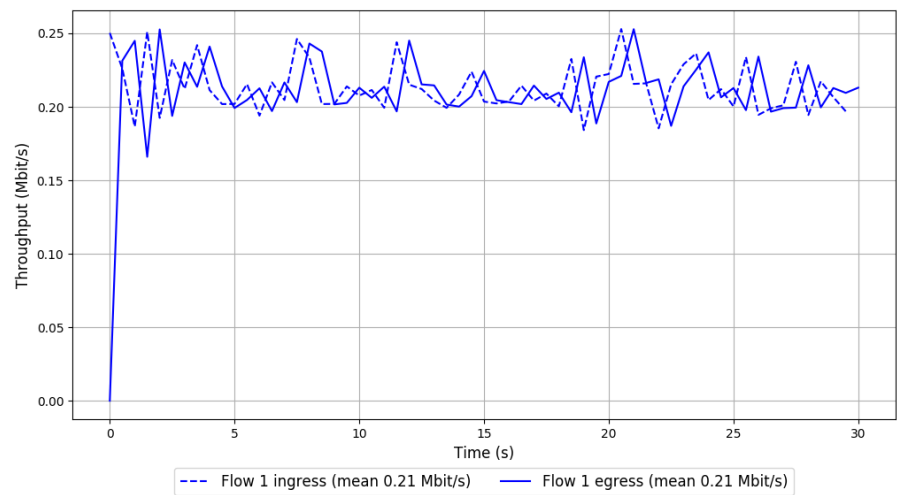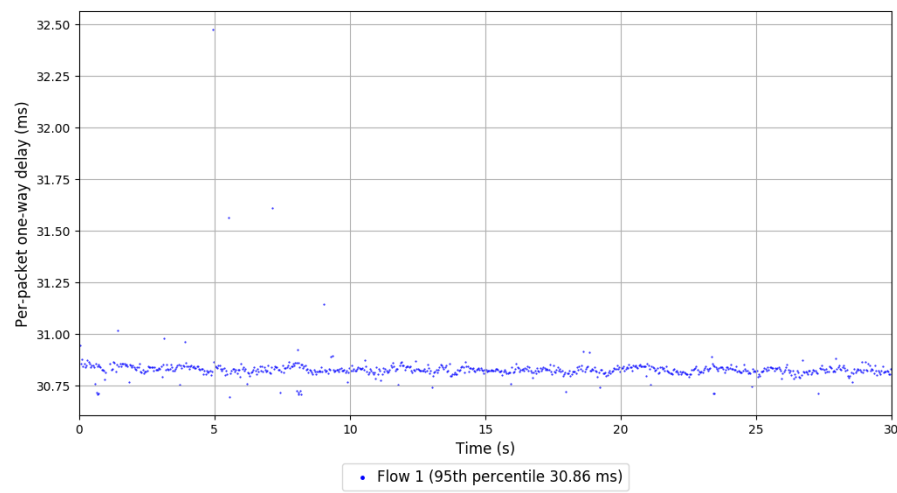
Run 4: Report of SCReAM — Data Link

Flow 1 ingress (mean 0.21 Mbit/s) --- Flow 1 egress (mean 0.21 Mbit/s)

Flow 1 (95th percentile 30.73 ms)

```
Run 5: Statistics of SCReAM

Start at: 2018-09-07 11:42:25
End at: 2018-09-07 11:42:55
Local clock offset: 0.486 ms
Remote clock offset: 0.336 ms


# Below is generated by plot.py at 2018-09-07 12:04:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 30.855 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 30.855 ms
Loss rate: 0.00%
```
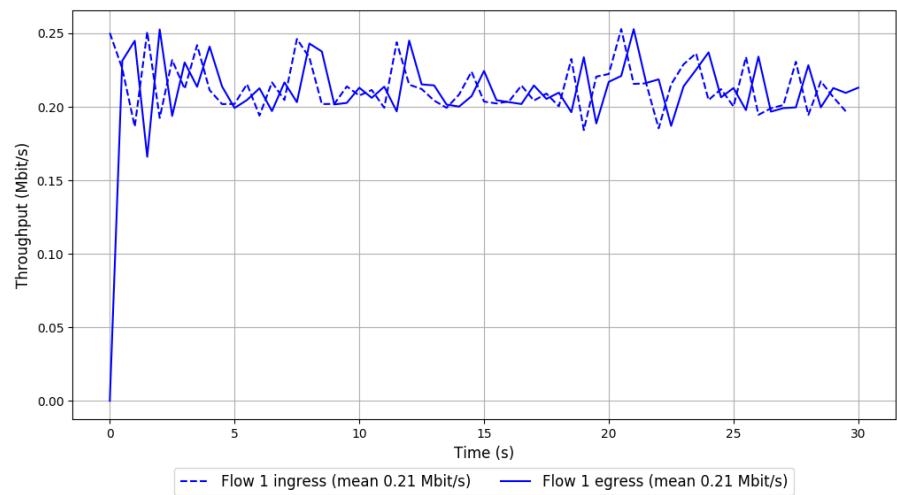
Run 5: Report of SCReAM — Data Link

Flow 1 ingress (mean 0.21 Mbit/s) — Flow 1 egress (mean 0.21 Mbit/s)

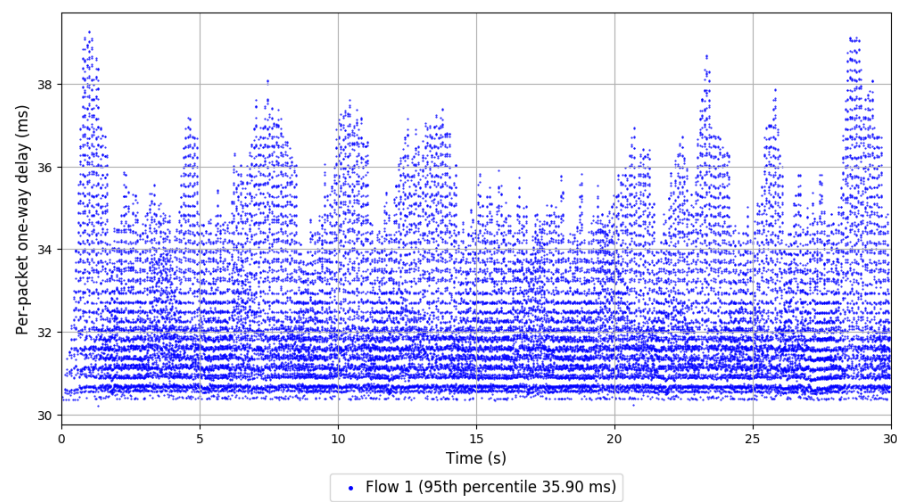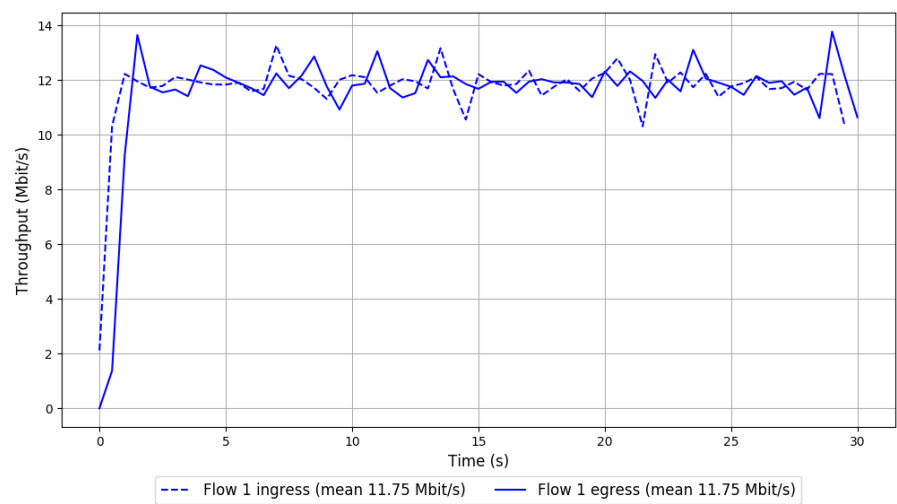Flow 1 (95th percentile 30.86 ms)

```
Run 1: Statistics of Sprout

Start at: 2018-09-07 10:10:39
End at: 2018-09-07 10:11:09
Local clock offset: 0.713 ms
Remote clock offset: -2.083 ms


# Below is generated by plot.py at 2018-09-07 12:04:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.75 Mbit/s
95th percentile per-packet one-way delay: 35.896 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 11.75 Mbit/s
95th percentile per-packet one-way delay: 35.896 ms
Loss rate: 0.00%
```

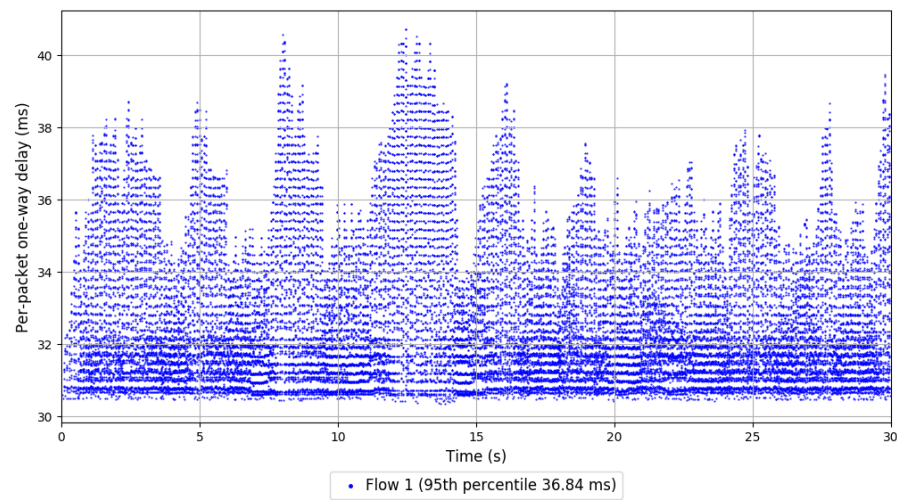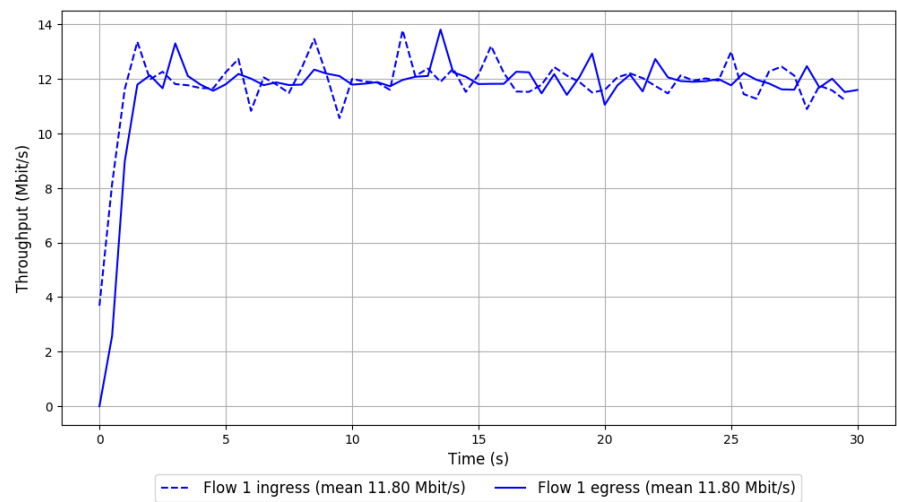Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2018-09-07 10:34:08
End at: 2018-09-07 10:34:38
Local clock offset: 1.339 ms
Remote clock offset: -1.315 ms


# Below is generated by plot.py at 2018-09-07 12:04:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.80 Mbit/s
95th percentile per-packet one-way delay: 36.843 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 11.80 Mbit/s
95th percentile per-packet one-way delay: 36.843 ms
Loss rate: 0.00%
```

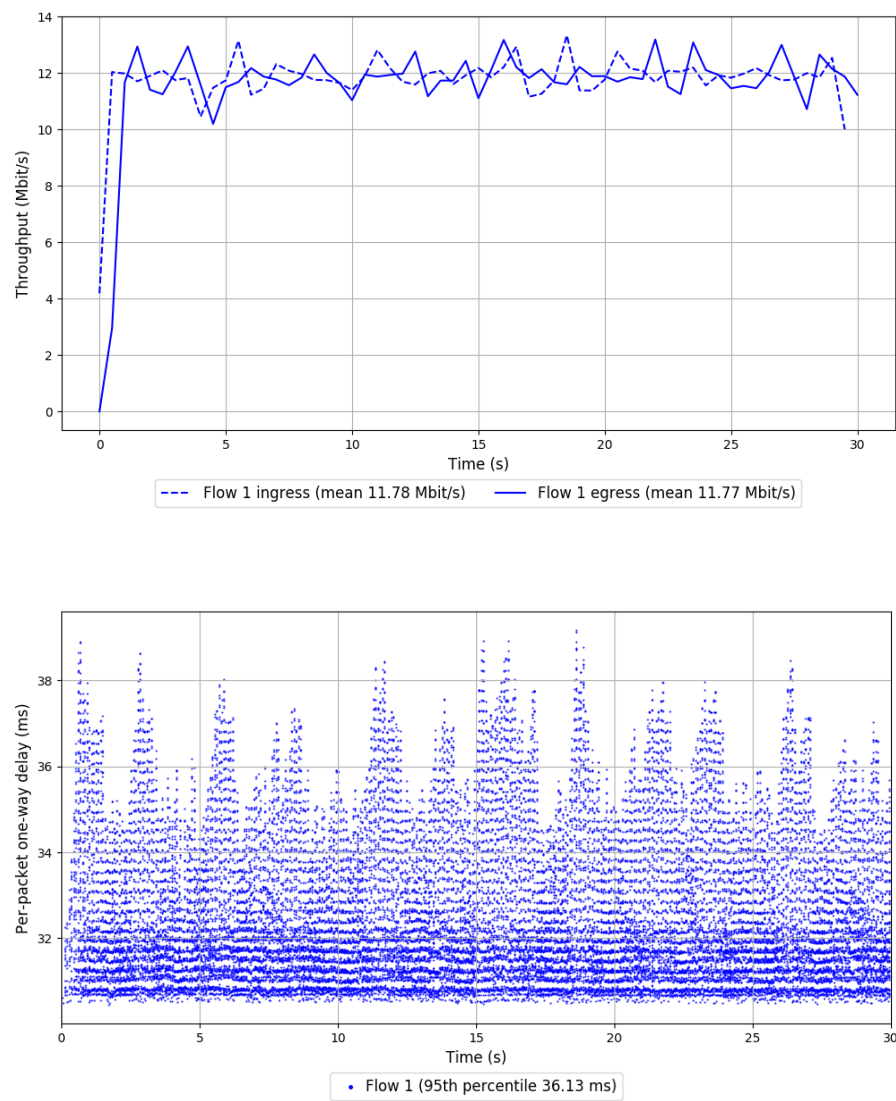Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2018-09-07 10:57:50
End at: 2018-09-07 10:58:20
Local clock offset: 0.912 ms
Remote clock offset: -0.723 ms


# Below is generated by plot.py at 2018-09-07 12:04:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.77 Mbit/s
95th percentile per-packet one-way delay: 36.127 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 11.77 Mbit/s
95th percentile per-packet one-way delay: 36.127 ms
Loss rate: 0.10%
```

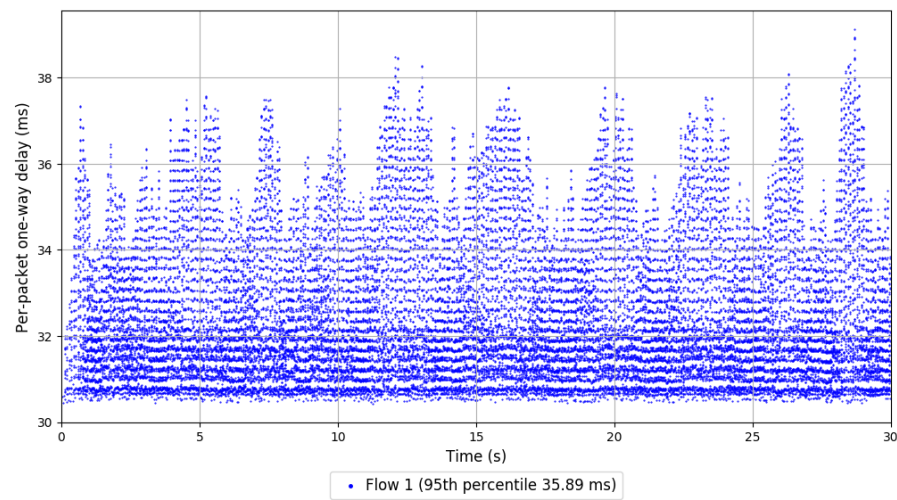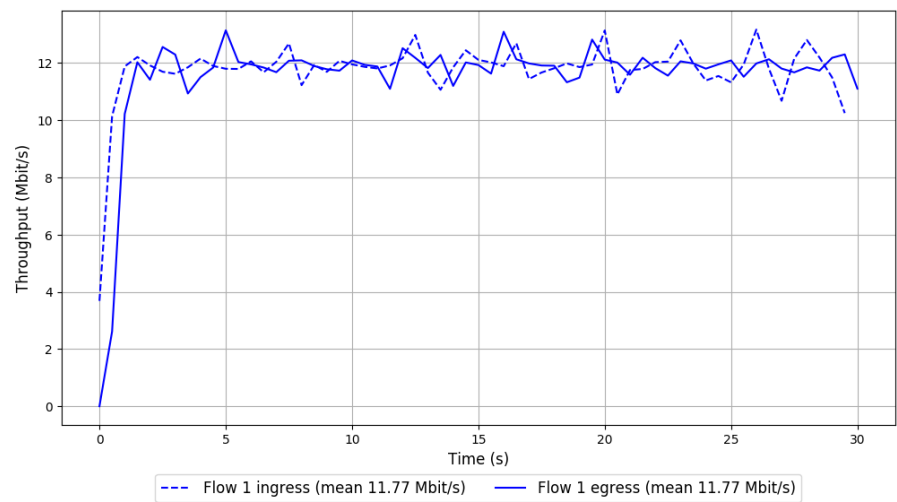## Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2018-09-07 11:21:20
End at: 2018-09-07 11:21:50
Local clock offset: 0.733 ms
Remote clock offset: -0.088 ms


# Below is generated by plot.py at 2018-09-07 12:04:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.77 Mbit/s
95th percentile per-packet one-way delay: 35.890 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 11.77 Mbit/s
95th percentile per-packet one-way delay: 35.890 ms
Loss rate: 0.00%
```
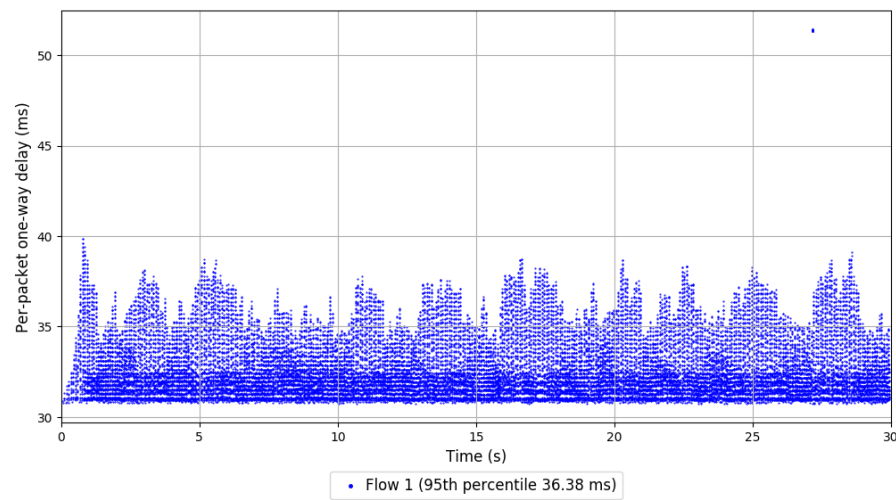
Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2018-09-07 11:44:57
End at: 2018-09-07 11:45:27
Local clock offset: 0.447 ms
Remote clock offset: 0.37 ms


# Below is generated by plot.py at 2018-09-07 12:04:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.74 Mbit/s
95th percentile per-packet one-way delay: 36.385 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 11.74 Mbit/s
95th percentile per-packet one-way delay: 36.385 ms
Loss rate: 0.00%
```
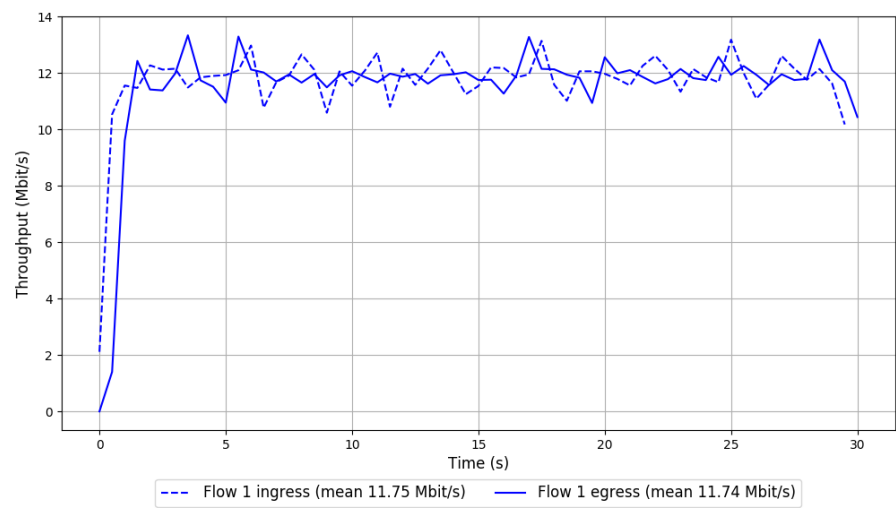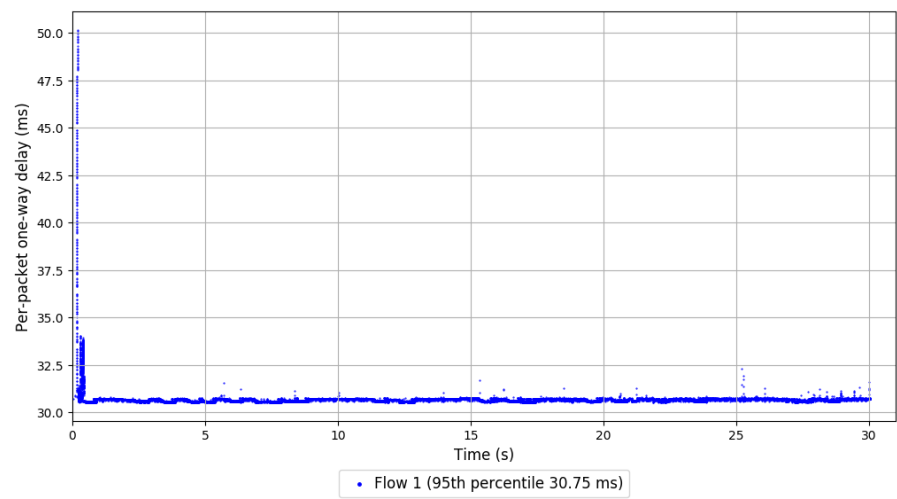
Run 5: Report of Sprout — Data Link

Flow 1 ingress (mean 11.75 Mbit/s) --- Flow 1 egress (mean 11.74 Mbit/s)

Flow 1 (95th percentile 36.38 ms)

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

Start at: 2018-09-07 10:19:48
End at: 2018-09-07 10:20:18
Local clock offset: 0.868 ms
Remote clock offset: -1.692 ms


# Below is generated by plot.py at 2018-09-07 12:04:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.68 Mbit/s
95th percentile per-packet one-way delay: 30.750 ms
Loss rate: 77.48%
-- Flow 1:
Average throughput: 12.68 Mbit/s
95th percentile per-packet one-way delay: 30.750 ms
Loss rate: 77.48%
```
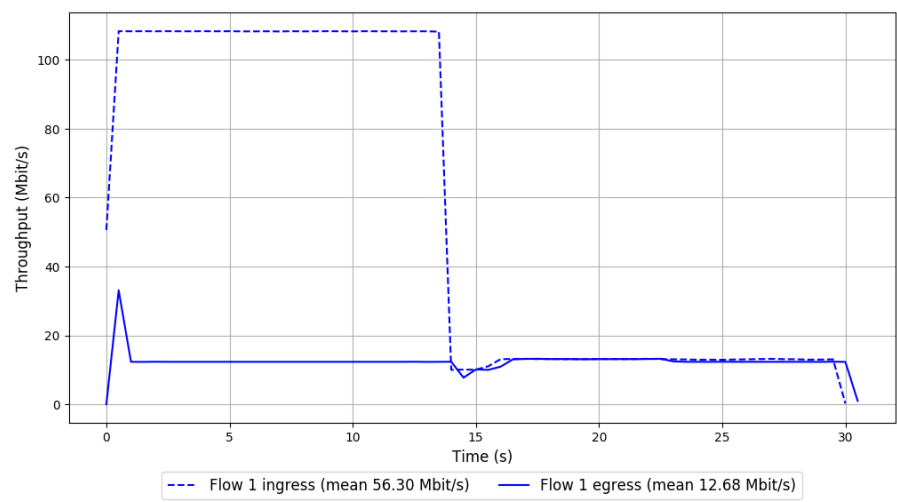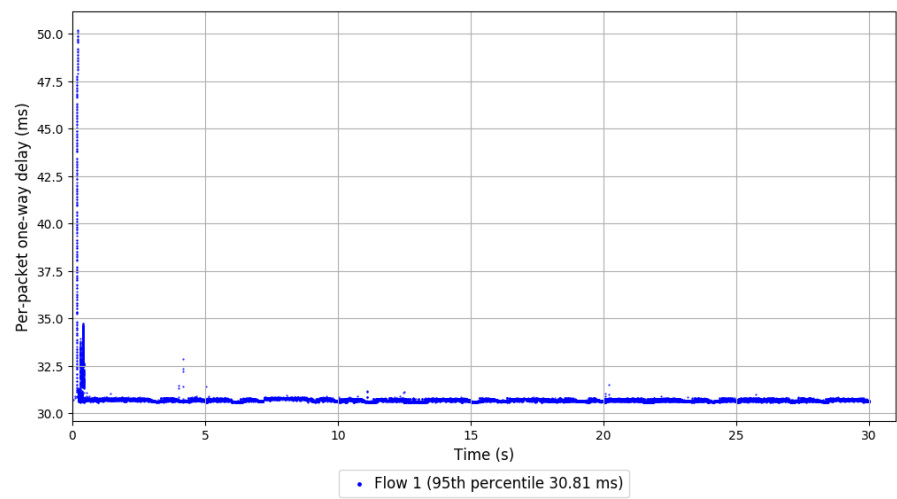
Run 1: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 56.30 Mbit/s) --- Flow 1 egress (mean 12.68 Mbit/s)

Flow 1 (95th percentile 30.75 ms)

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

Start at: 2018-09-07 10:43:24
End at: 2018-09-07 10:43:54
Local clock offset: 1.379 ms
Remote clock offset: -0.978 ms


# Below is generated by plot.py at 2018-09-07 12:04:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.63 Mbit/s
95th percentile per-packet one-way delay: 30.814 ms
Loss rate: 63.18%
-- Flow 1:
Average throughput: 12.63 Mbit/s
95th percentile per-packet one-way delay: 30.814 ms
Loss rate: 63.18%
```
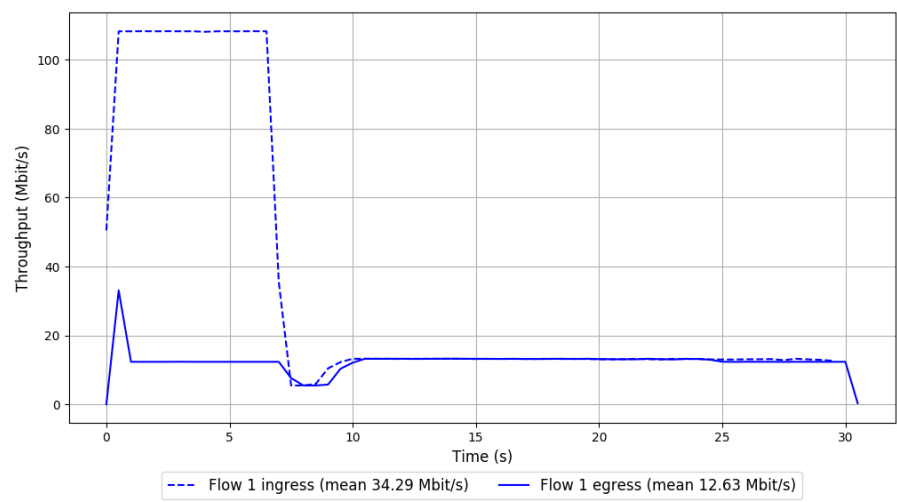
Run 2: Report of TaoVA-100x — Data Link

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

Start at: 2018-09-07 11:06:59
End at: 2018-09-07 11:07:29
Local clock offset: 0.87 ms
Remote clock offset: -0.204 ms


# Below is generated by plot.py at 2018-09-07 12:04:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.92 Mbit/s
95th percentile per-packet one-way delay: 30.852 ms
Loss rate: 64.36%
-- Flow 1:
Average throughput: 11.92 Mbit/s
95th percentile per-packet one-way delay: 30.852 ms
Loss rate: 64.36%
```
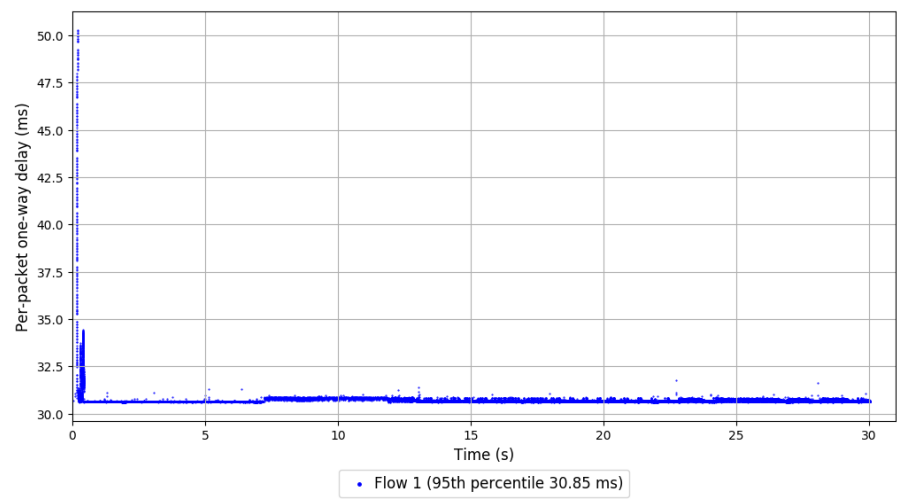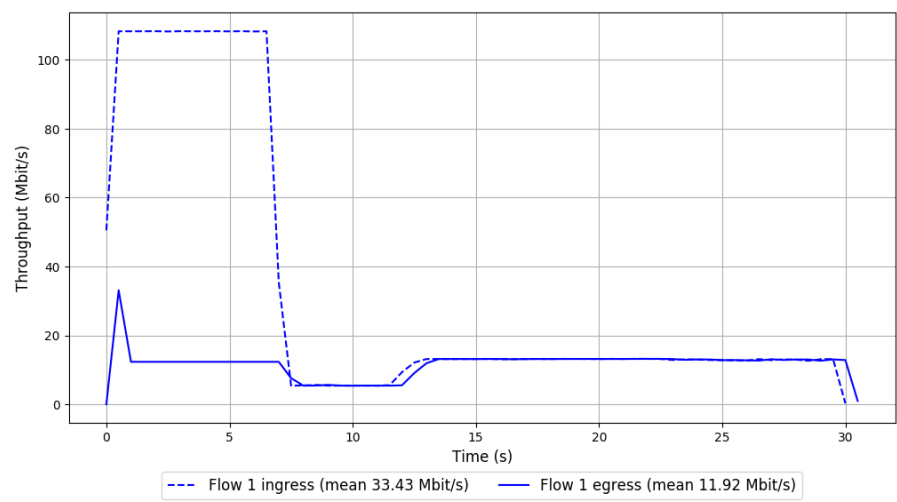
Run 3: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 33.43 Mbit/s) ----   Flow 1 egress (mean 11.92 Mbit/s) ——
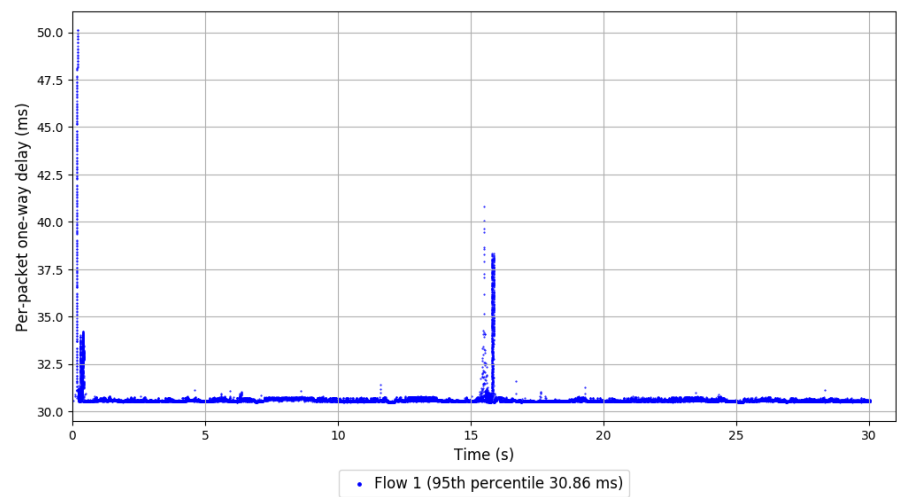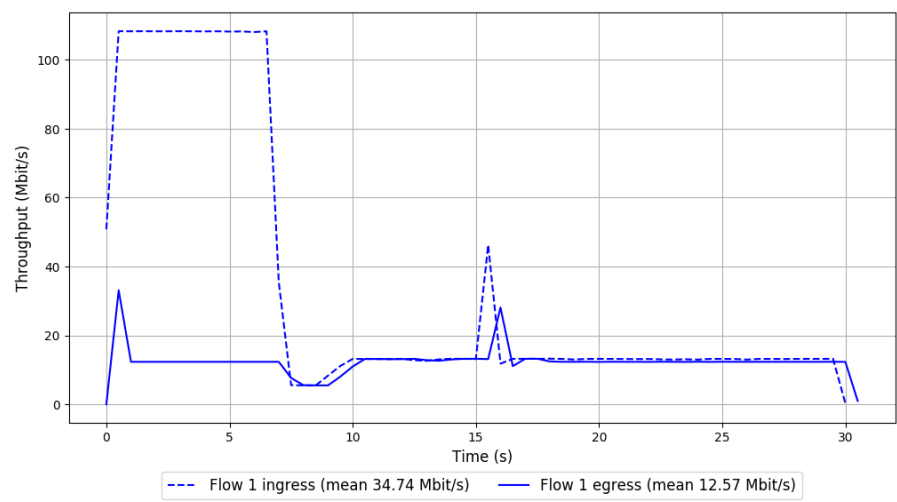

Flow 1 (95th percentile 30.85 ms)

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

Start at: 2018-09-07 11:30:31
End at: 2018-09-07 11:31:01
Local clock offset: 0.551 ms
Remote clock offset: -0.036 ms


# Below is generated by plot.py at 2018-09-07 12:04:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.57 Mbit/s
95th percentile per-packet one-way delay: 30.856 ms
Loss rate: 63.80%
-- Flow 1:
Average throughput: 12.57 Mbit/s
95th percentile per-packet one-way delay: 30.856 ms
Loss rate: 63.80%
```

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

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

Start at: 2018-09-07 11:54:10
End at: 2018-09-07 11:54:40
Local clock offset: 0.151 ms
Remote clock offset: 0.236 ms


# Below is generated by plot.py at 2018-09-07 12:04:26
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.68 Mbit/s
95th percentile per-packet one-way delay: 30.742 ms
Loss rate: 77.49%
-- Flow 1:
Average throughput: 12.68 Mbit/s
95th percentile per-packet one-way delay: 30.742 ms
Loss rate: 77.49%
```
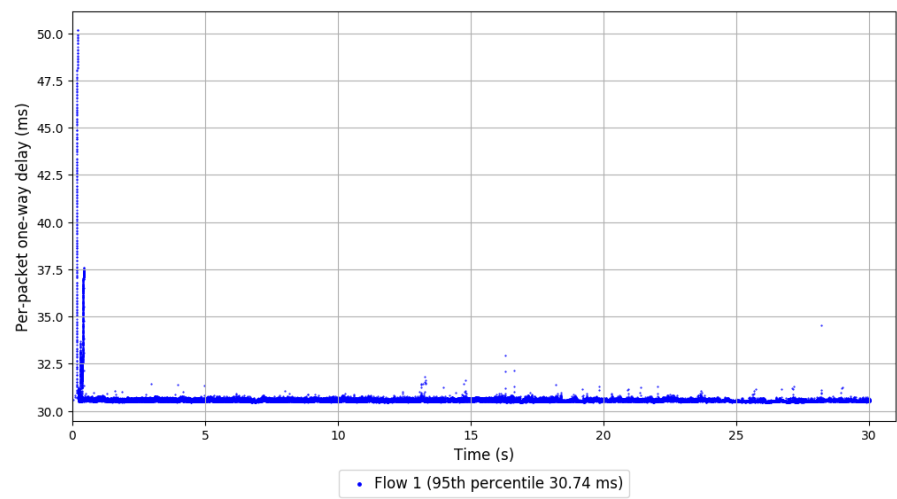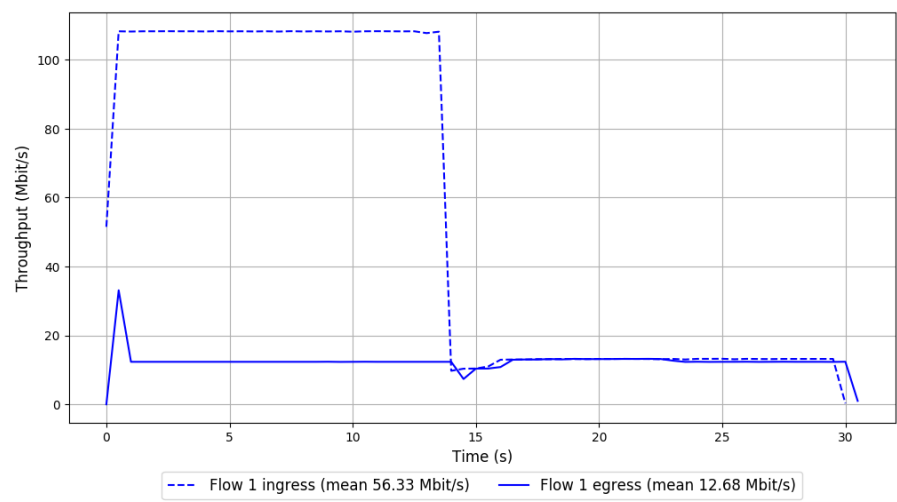
Run 5: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 56.33 Mbit/s) --- Flow 1 egress (mean 12.68 Mbit/s)
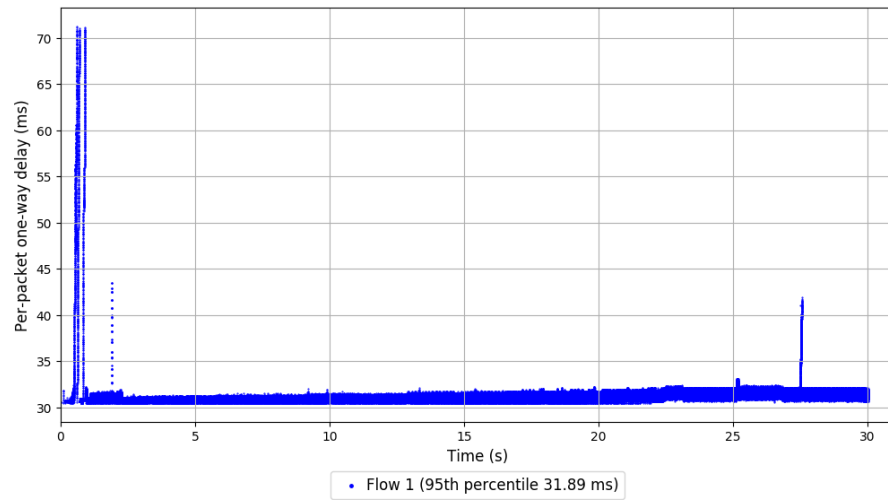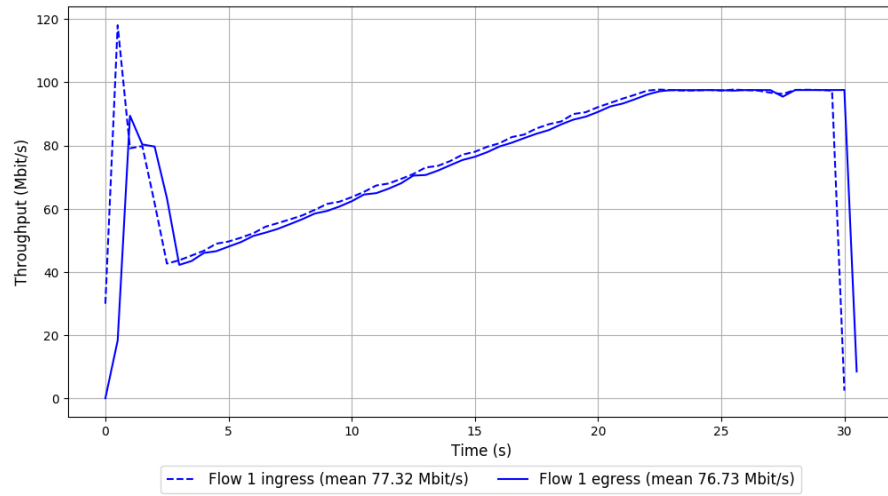

Flow 1 (95th percentile 30.74 ms)

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```
Run 1: Statistics of TCP Vegas

Start at: 2018-09-07 10:06:48
End at: 2018-09-07 10:07:18
Local clock offset: 0.638 ms
Remote clock offset: -2.069 ms


# Below is generated by plot.py at 2018-09-07 12:05:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 76.73 Mbit/s
95th percentile per-packet one-way delay: 31.887 ms
Loss rate: 0.76%
-- Flow 1:
Average throughput: 76.73 Mbit/s
95th percentile per-packet one-way delay: 31.887 ms
Loss rate: 0.76%
```
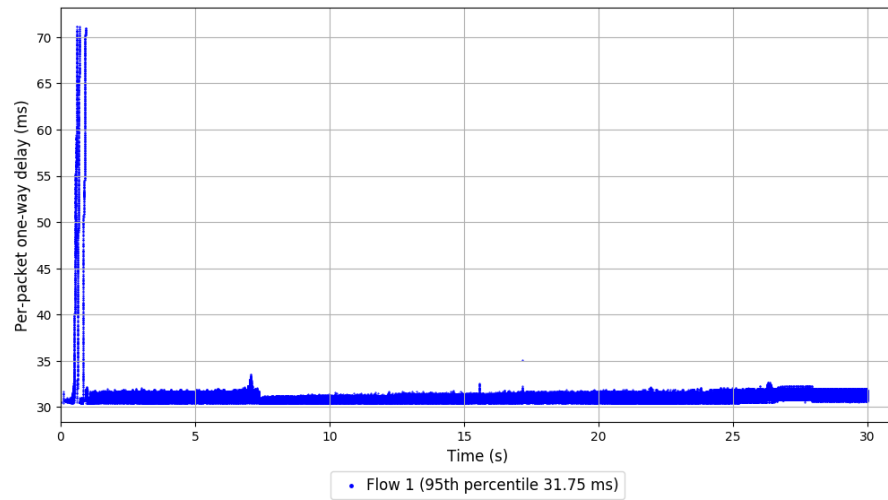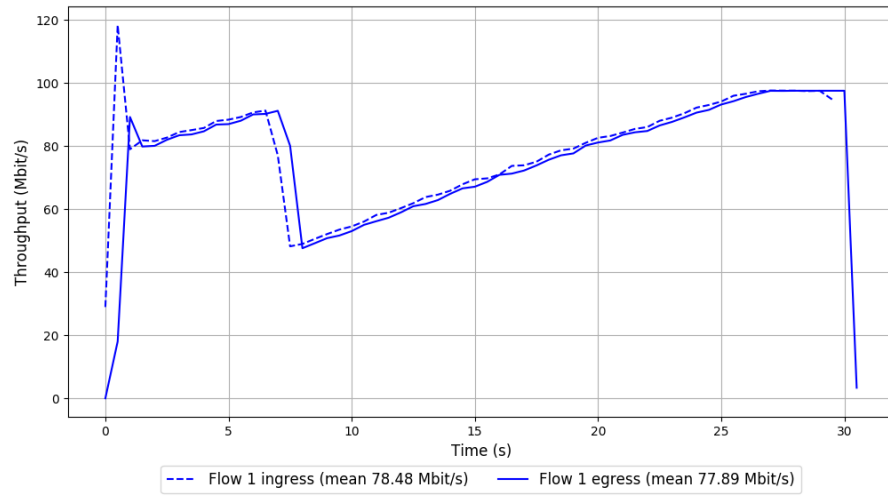
Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2018-09-07 10:30:18
End at: 2018-09-07 10:30:48
Local clock offset: 1.273 ms
Remote clock offset: -1.413 ms


# Below is generated by plot.py at 2018-09-07 12:05:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 77.89 Mbit/s
95th percentile per-packet one-way delay: 31.750 ms
Loss rate: 0.75%
-- Flow 1:
Average throughput: 77.89 Mbit/s
95th percentile per-packet one-way delay: 31.750 ms
Loss rate: 0.75%
```

Run 2: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 78.48 Mbit/s) ——— Flow 1 egress (mean 77.89 Mbit/s)
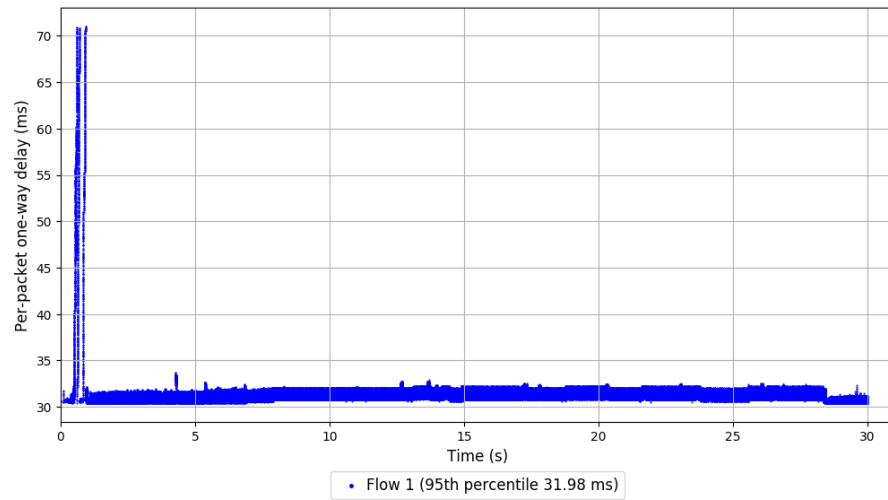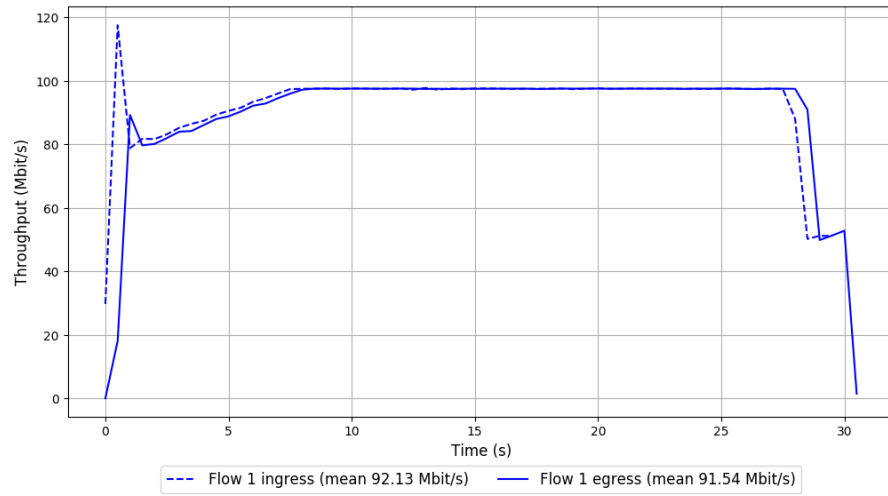

• Flow 1 (95th percentile 31.75 ms)

```
Run 3: Statistics of TCP Vegas

Start at: 2018-09-07 10:53:59
End at: 2018-09-07 10:54:29
Local clock offset: 1.097 ms
Remote clock offset: -0.801 ms


# Below is generated by plot.py at 2018-09-07 12:05:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 91.54 Mbit/s
95th percentile per-packet one-way delay: 31.977 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 91.54 Mbit/s
95th percentile per-packet one-way delay: 31.977 ms
Loss rate: 0.64%
```

Run 3: Report of TCP Vegas — Data Link

```
Run 4: Statistics of TCP Vegas

Start at: 2018-09-07 11:17:28
End at: 2018-09-07 11:17:59
Local clock offset: 0.667 ms
Remote clock offset: 0.031 ms


# Below is generated by plot.py at 2018-09-07 12:05:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 93.56 Mbit/s
95th percentile per-packet one-way delay: 32.263 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 93.56 Mbit/s
95th percentile per-packet one-way delay: 32.263 ms
Loss rate: 0.62%
```
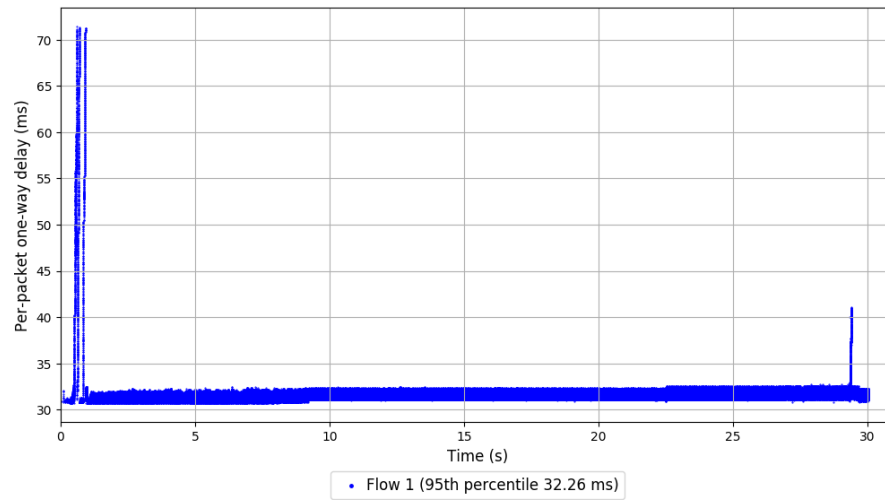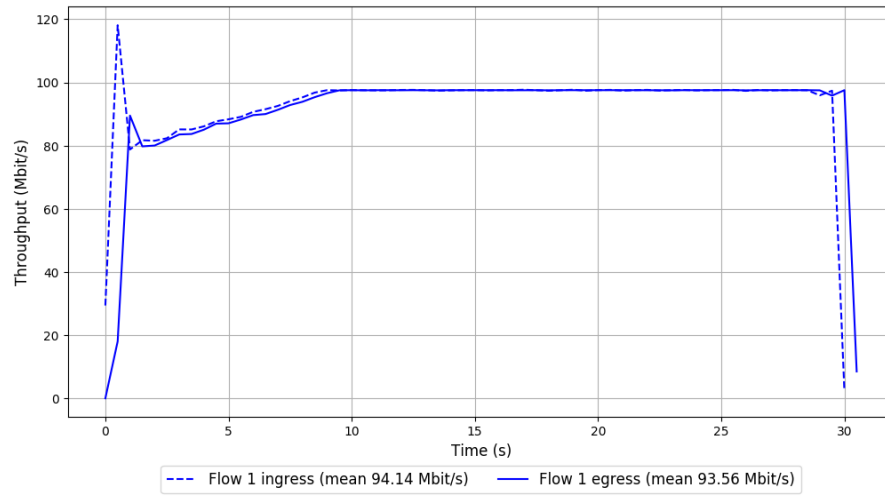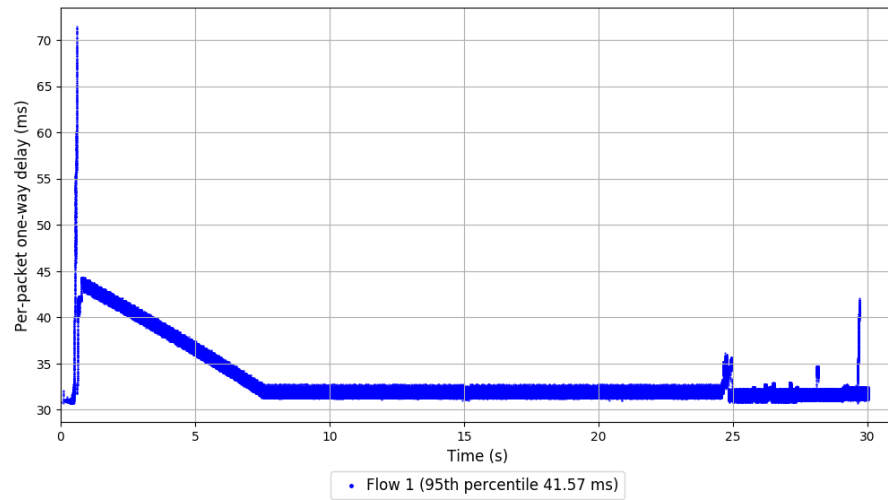
Run 4: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 94.14 Mbit/s)   Flow 1 egress (mean 93.56 Mbit/s)

Flow 1 (95th percentile 32.26 ms)

```
Run 5: Statistics of TCP Vegas

Start at: 2018-09-07 11:41:04
End at: 2018-09-07 11:41:34
Local clock offset: 0.479 ms
Remote clock offset: 0.279 ms


# Below is generated by plot.py at 2018-09-07 12:05:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 96.21 Mbit/s
95th percentile per-packet one-way delay: 41.570 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 96.21 Mbit/s
95th percentile per-packet one-way delay: 41.570 ms
Loss rate: 0.27%
```
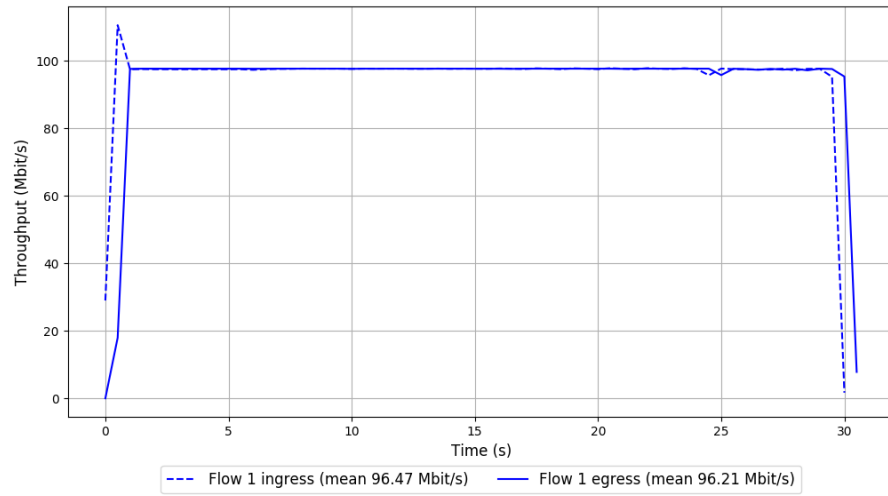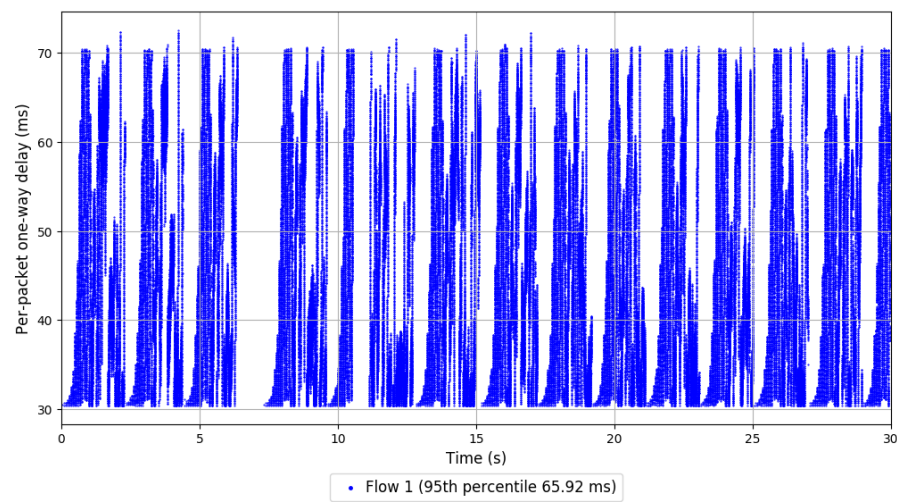
Run 5: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 96.47 Mbit/s) --- Flow 1 egress (mean 96.21 Mbit/s)

Flow 1 (95th percentile 41.57 ms)

```
Run 1: Statistics of Verus

Start at: 2018-09-07 10:15:54
End at: 2018-09-07 10:16:24
Local clock offset: 0.718 ms
Remote clock offset: -1.82 ms


# Below is generated by plot.py at 2018-09-07 12:05:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 61.11 Mbit/s
95th percentile per-packet one-way delay: 65.920 ms
Loss rate: 22.38%
-- Flow 1:
Average throughput: 61.11 Mbit/s
95th percentile per-packet one-way delay: 65.920 ms
Loss rate: 22.38%
```
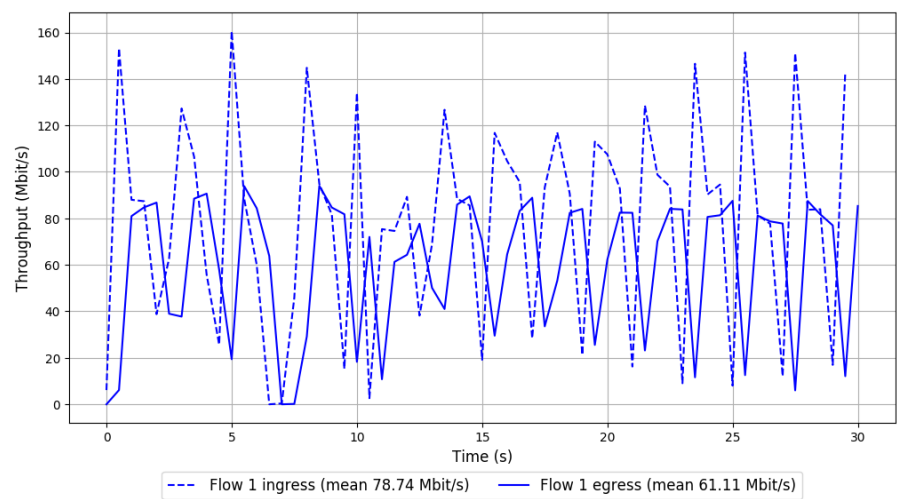
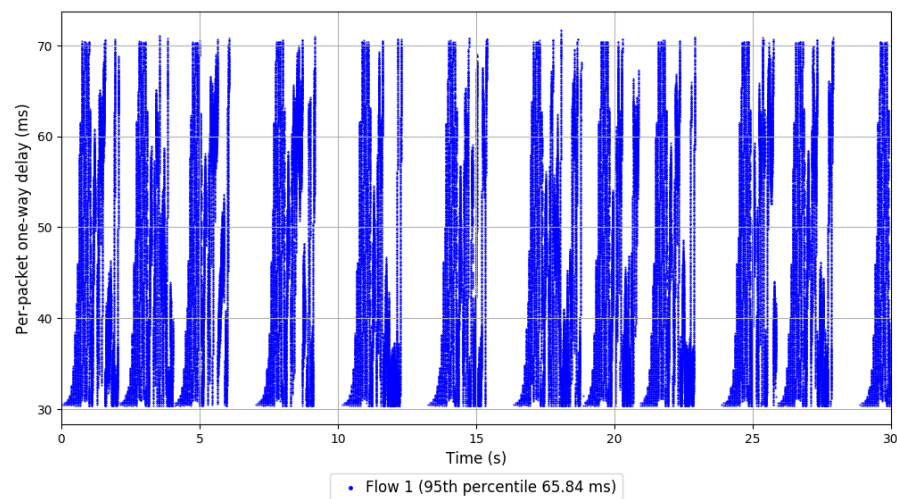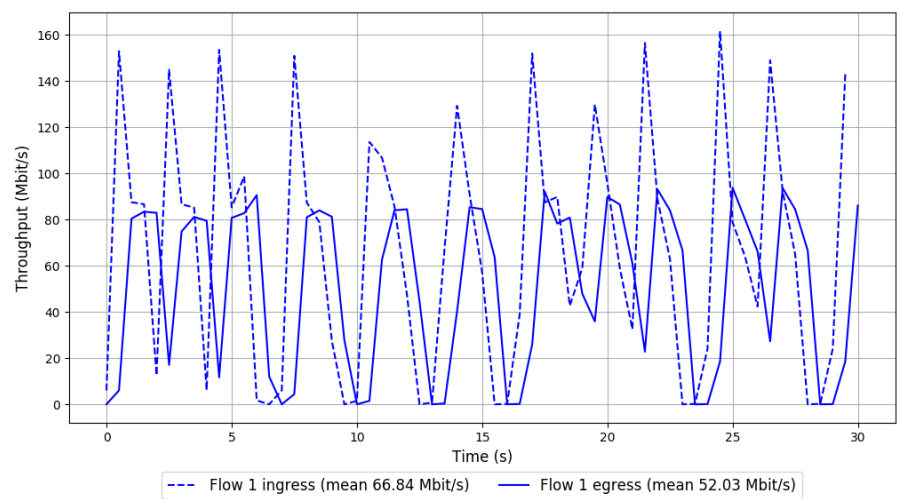Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2018-09-07 10:39:24
End at: 2018-09-07 10:39:54
Local clock offset: 1.407 ms
Remote clock offset: -1.198 ms


# Below is generated by plot.py at 2018-09-07 12:05:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 52.03 Mbit/s
95th percentile per-packet one-way delay: 65.842 ms
Loss rate: 22.14%
-- Flow 1:
Average throughput: 52.03 Mbit/s
95th percentile per-packet one-way delay: 65.842 ms
Loss rate: 22.14%
```

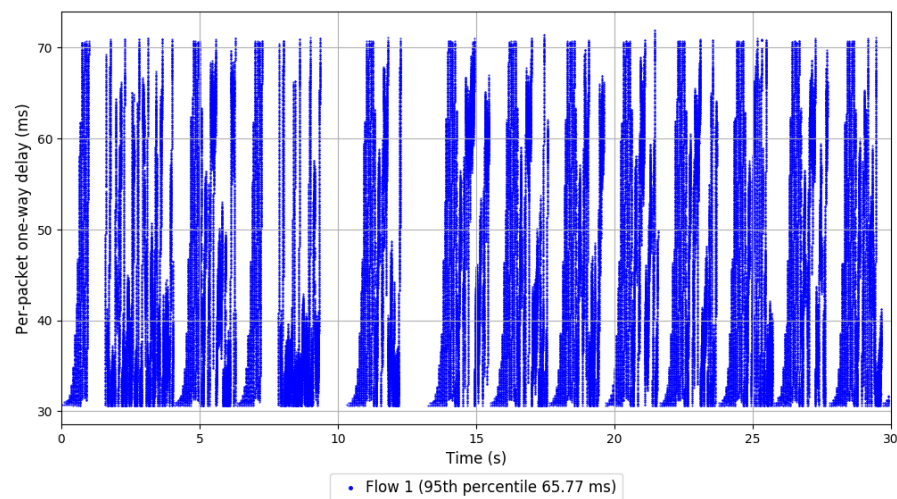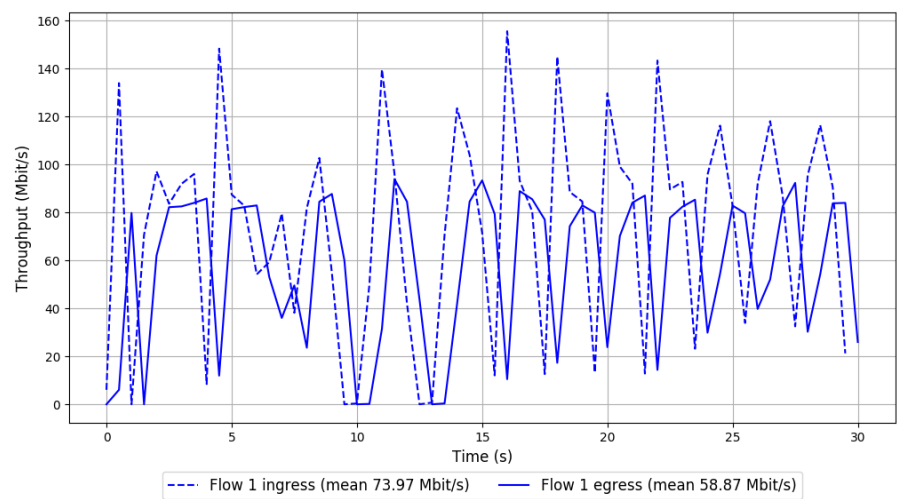Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-09-07 11:03:05
End at: 2018-09-07 11:03:35
Local clock offset: 0.818 ms
Remote clock offset: -0.355 ms


# Below is generated by plot.py at 2018-09-07 12:05:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 58.87 Mbit/s
95th percentile per-packet one-way delay: 65.767 ms
Loss rate: 20.41%
-- Flow 1:
Average throughput: 58.87 Mbit/s
95th percentile per-packet one-way delay: 65.767 ms
Loss rate: 20.41%
```

Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2018-09-07 11:26:37
End at: 2018-09-07 11:27:07
Local clock offset: 0.672 ms
Remote clock offset: 0.049 ms


# Below is generated by plot.py at 2018-09-07 12:05:44
# Datalink statistics
-- Total of 1 flow:
Average throughput: 56.27 Mbit/s
95th percentile per-packet one-way delay: 65.887 ms
Loss rate: 22.37%
-- Flow 1:
Average throughput: 56.27 Mbit/s
95th percentile per-packet one-way delay: 65.887 ms
Loss rate: 22.37%
```
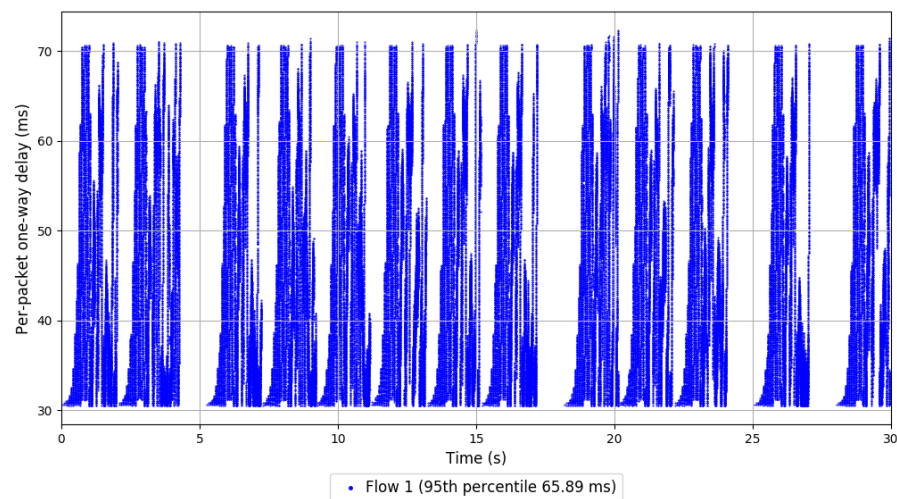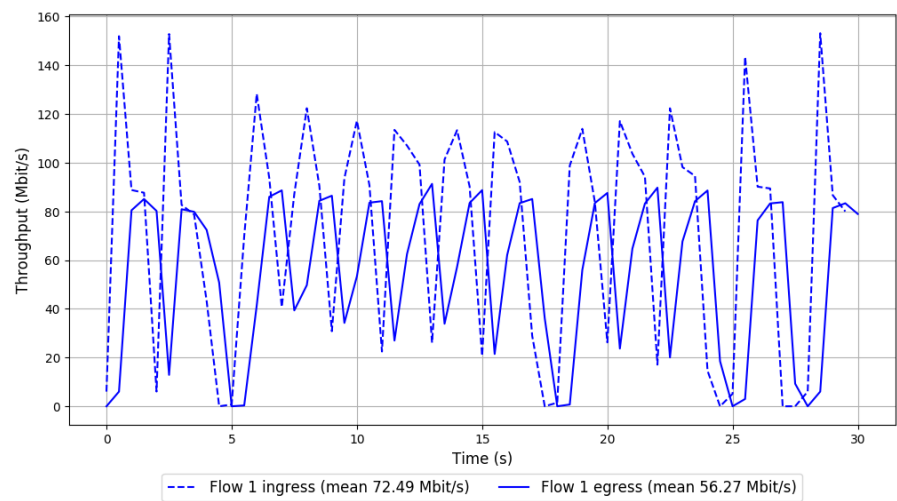
Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2018-09-07 11:50:15
End at: 2018-09-07 11:50:45
Local clock offset: 0.276 ms
Remote clock offset: 0.334 ms


# Below is generated by plot.py at 2018-09-07 12:05:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 55.89 Mbit/s
95th percentile per-packet one-way delay: 65.824 ms
Loss rate: 22.71%
-- Flow 1:
Average throughput: 55.89 Mbit/s
95th percentile per-packet one-way delay: 65.824 ms
Loss rate: 22.71%
```
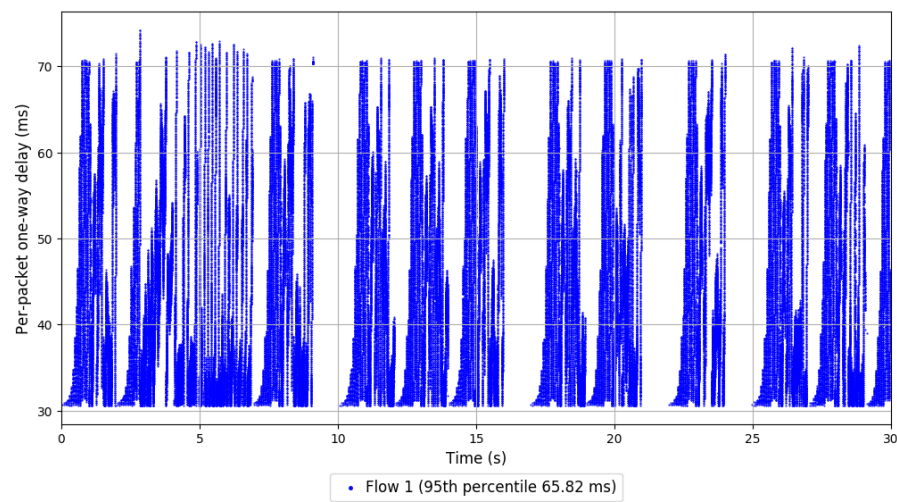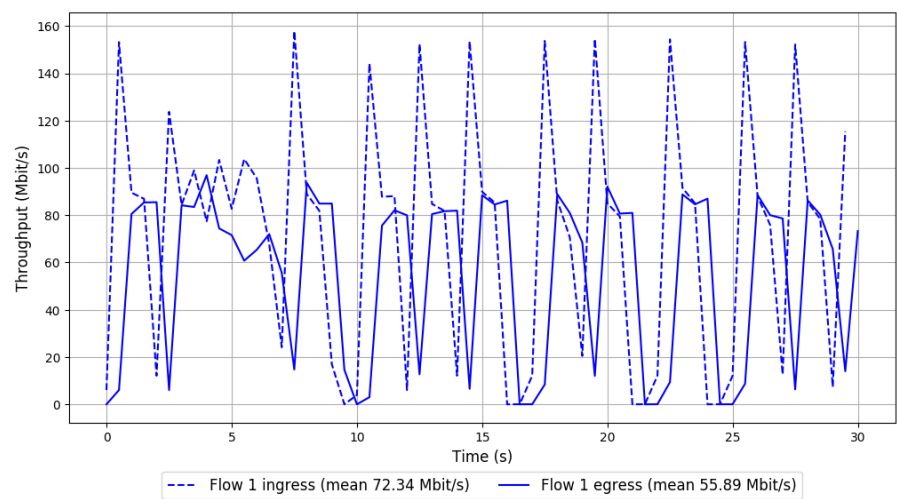
Run 5: Report of Verus — Data Link

```
Run 1: Statistics of PCC-Vivace

Start at: 2018-09-07 10:01:34
End at: 2018-09-07 10:02:04
Local clock offset: 0.759 ms
Remote clock offset: -2.209 ms


# Below is generated by plot.py at 2018-09-07 12:06:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 83.81 Mbit/s
95th percentile per-packet one-way delay: 39.870 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 83.81 Mbit/s
95th percentile per-packet one-way delay: 39.870 ms
Loss rate: 0.00%
```
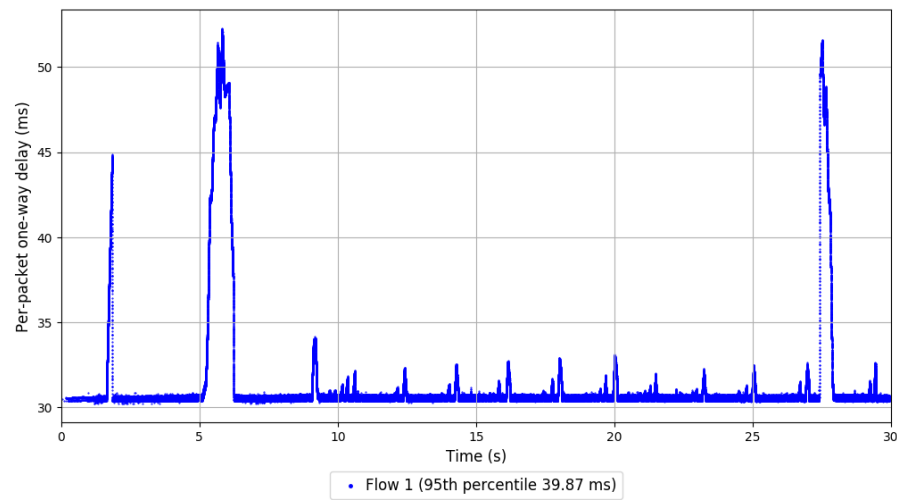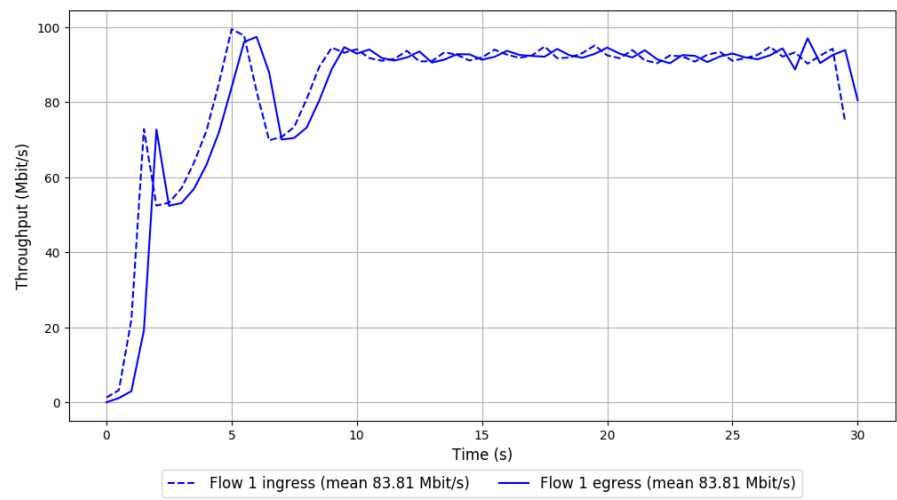
Run 1: Report of PCC-Vivace — Data Link

```
Run 2: Statistics of PCC-Vivace

Start at: 2018-09-07 10:25:02
End at: 2018-09-07 10:25:32
Local clock offset: 1.141 ms
Remote clock offset: -1.583 ms


# Below is generated by plot.py at 2018-09-07 12:06:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 84.69 Mbit/s
95th percentile per-packet one-way delay: 33.069 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 84.69 Mbit/s
95th percentile per-packet one-way delay: 33.069 ms
Loss rate: 0.03%
```
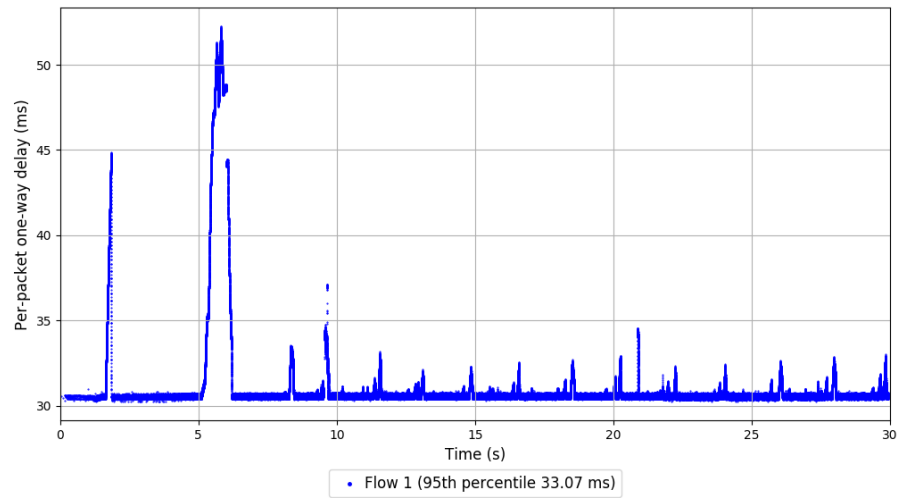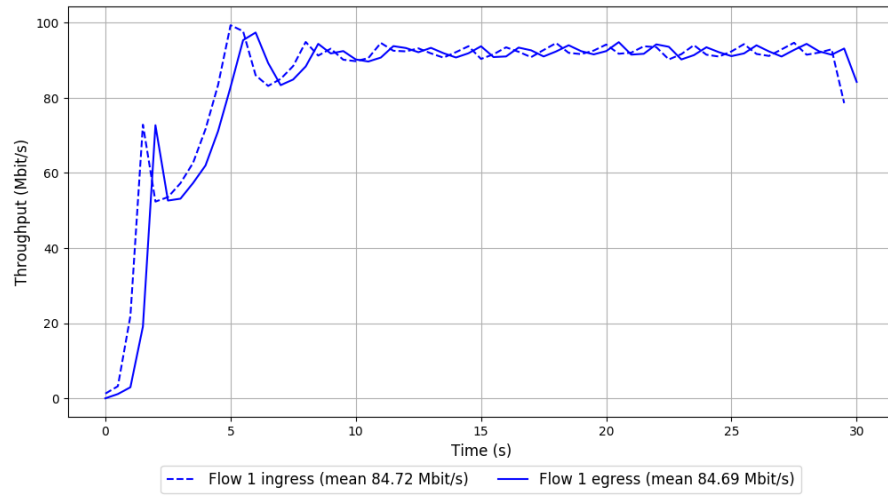
Run 2: Report of PCC-Vivace — Data Link

```
Run 3: Statistics of PCC-Vivace

Start at: 2018-09-07 10:48:42
End at: 2018-09-07 10:49:12
Local clock offset: 1.289 ms
Remote clock offset: -0.927 ms


# Below is generated by plot.py at 2018-09-07 12:06:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 83.94 Mbit/s
95th percentile per-packet one-way delay: 32.607 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 83.94 Mbit/s
95th percentile per-packet one-way delay: 32.607 ms
Loss rate: 0.00%
```
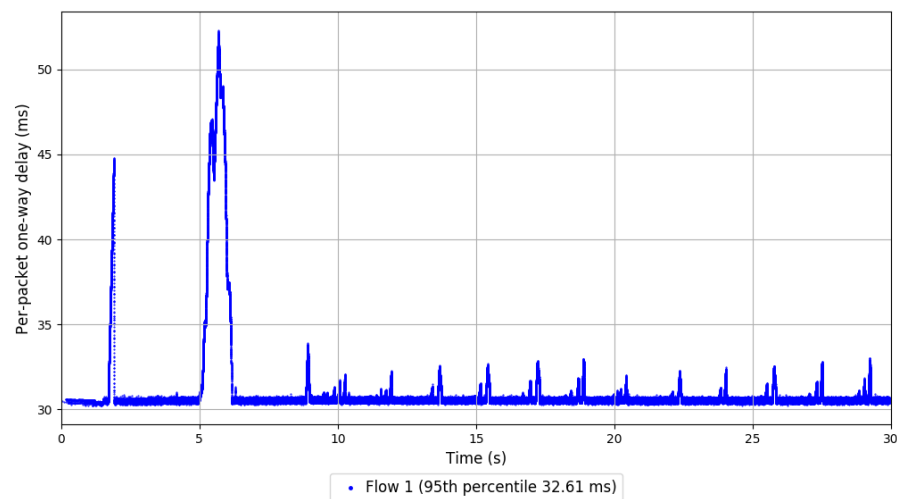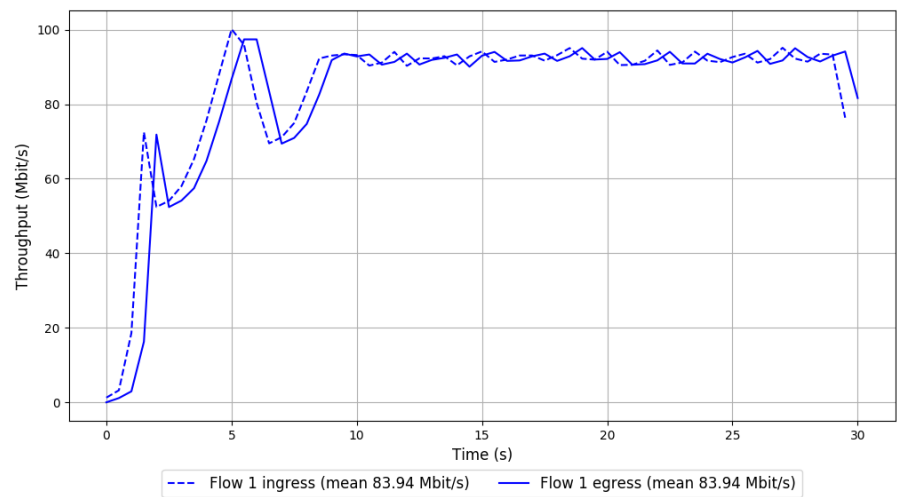
Run 3: Report of PCC-Vivace — Data Link

```
Run 4: Statistics of PCC-Vivace

Start at: 2018-09-07 11:12:13
End at: 2018-09-07 11:12:43
Local clock offset: 0.808 ms
Remote clock offset: -0.134 ms


# Below is generated by plot.py at 2018-09-07 12:06:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 84.51 Mbit/s
95th percentile per-packet one-way delay: 47.302 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 84.51 Mbit/s
95th percentile per-packet one-way delay: 47.302 ms
Loss rate: 0.00%
```
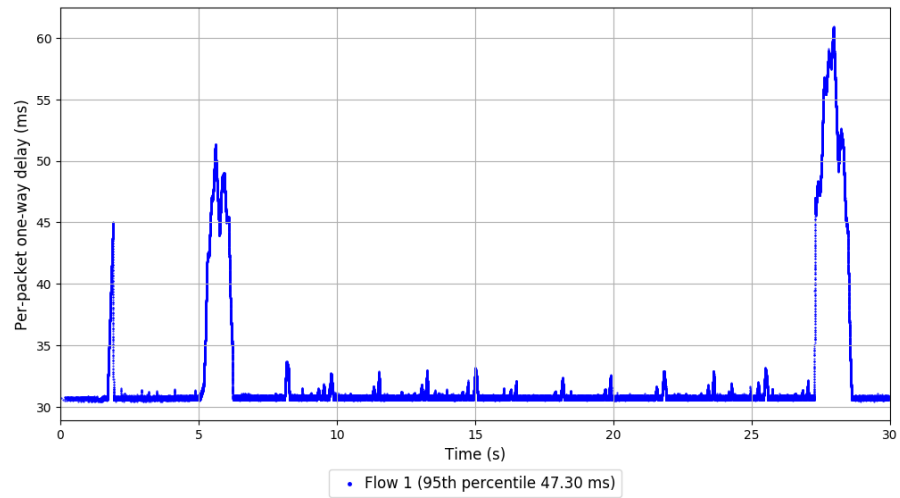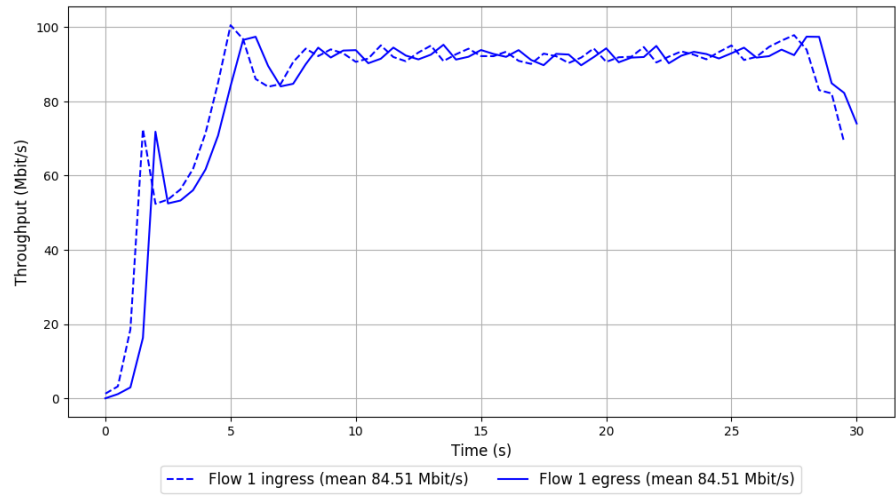
Run 4: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 84.51 Mbit/s) --- Flow 1 egress (mean 84.51 Mbit/s)

Flow 1 (95th percentile 47.30 ms)

```
Run 5: Statistics of PCC-Vivace

Start at: 2018-09-07 11:35:47
End at: 2018-09-07 11:36:17
Local clock offset: 0.61 ms
Remote clock offset: 0.068 ms


# Below is generated by plot.py at 2018-09-07 12:06:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 84.51 Mbit/s
95th percentile per-packet one-way delay: 35.376 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 84.51 Mbit/s
95th percentile per-packet one-way delay: 35.376 ms
Loss rate: 0.00%
```
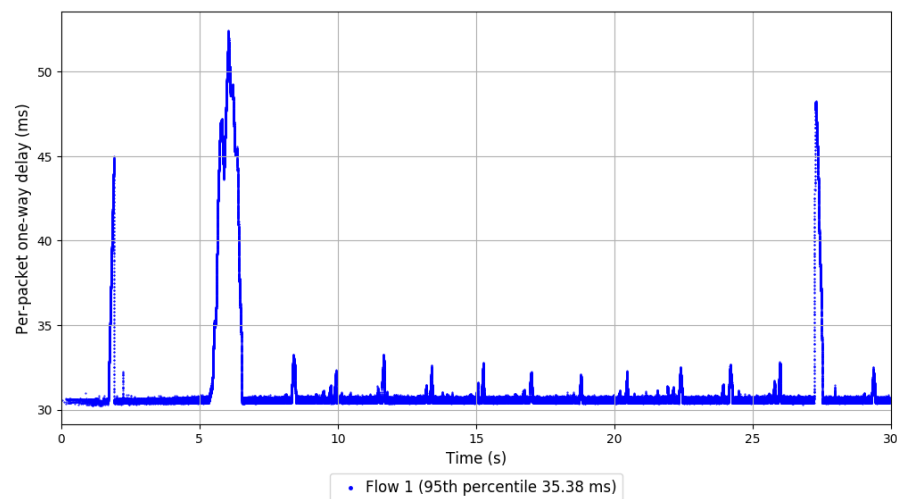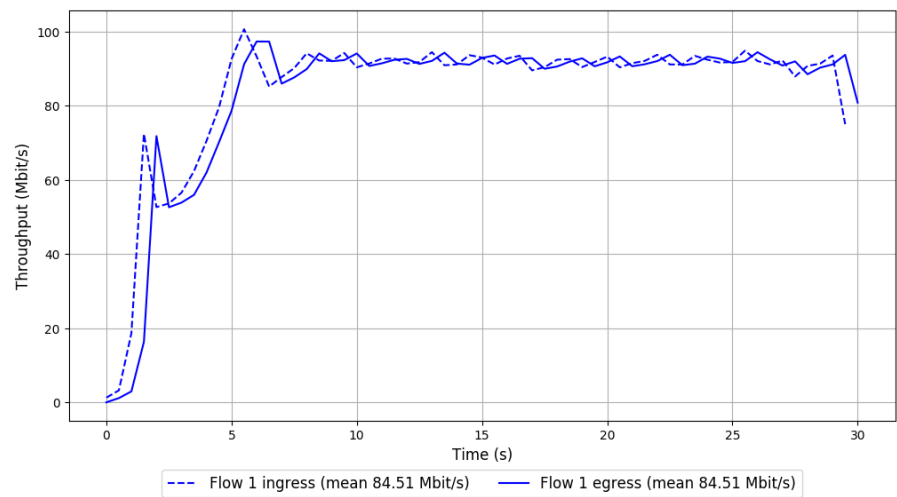
Run 5: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 84.51 Mbit/s) --- Flow 1 egress (mean 84.51 Mbit/s)

Flow 1 (95th percentile 35.38 ms)

```
Run 1: Statistics of WebRTC media

Start at: 2018-09-07 10:09:23
End at: 2018-09-07 10:09:53
Local clock offset: 0.703 ms
Remote clock offset: -2.063 ms


# Below is generated by plot.py at 2018-09-07 12:06:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 30.880 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 30.880 ms
Loss rate: 0.00%
```
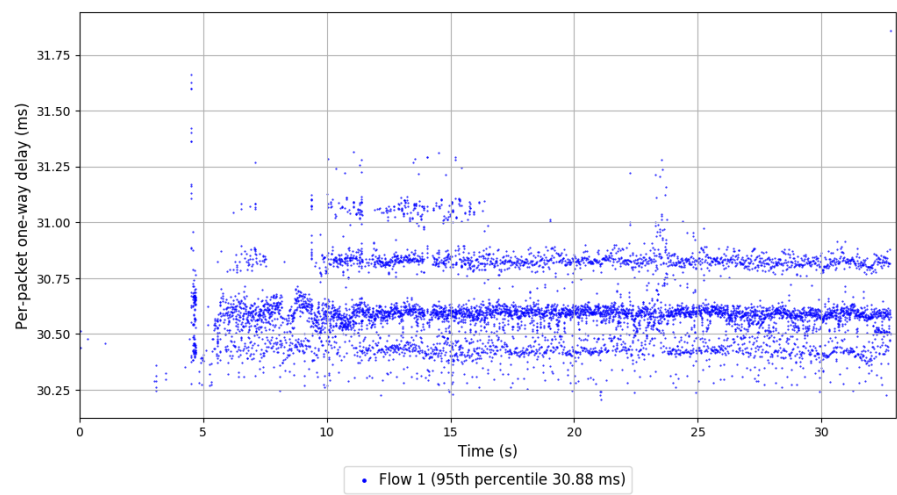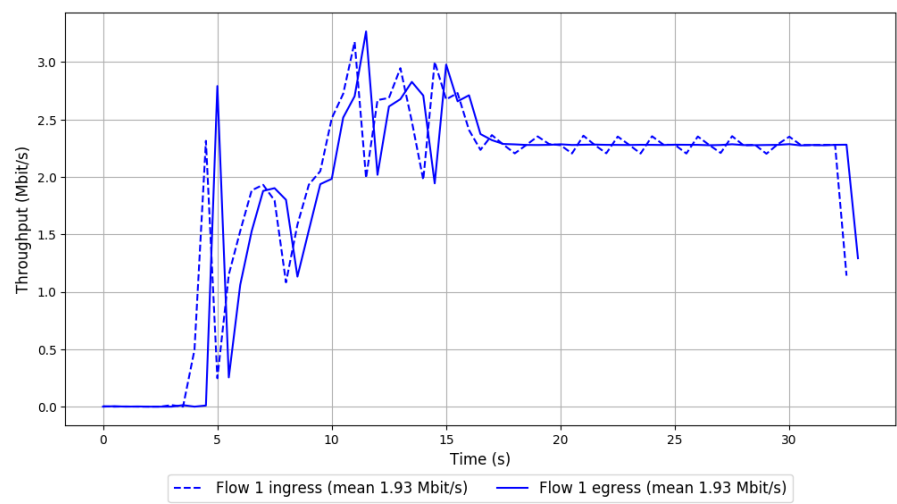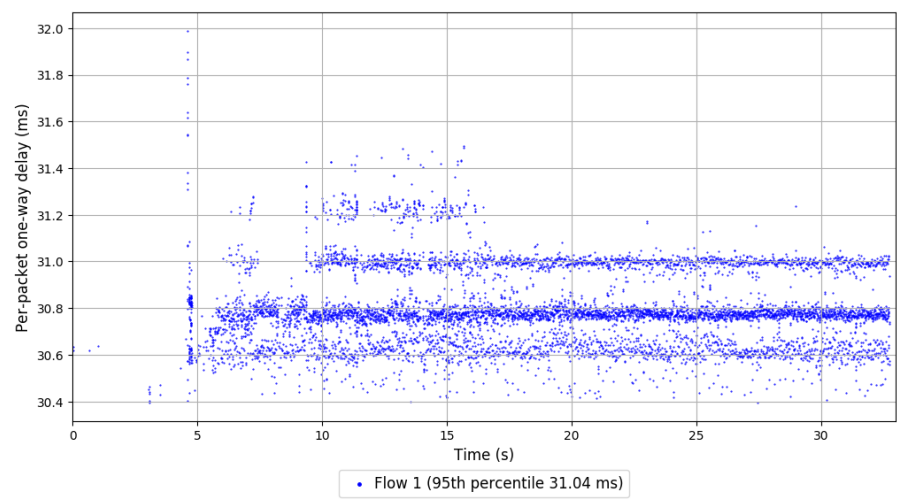
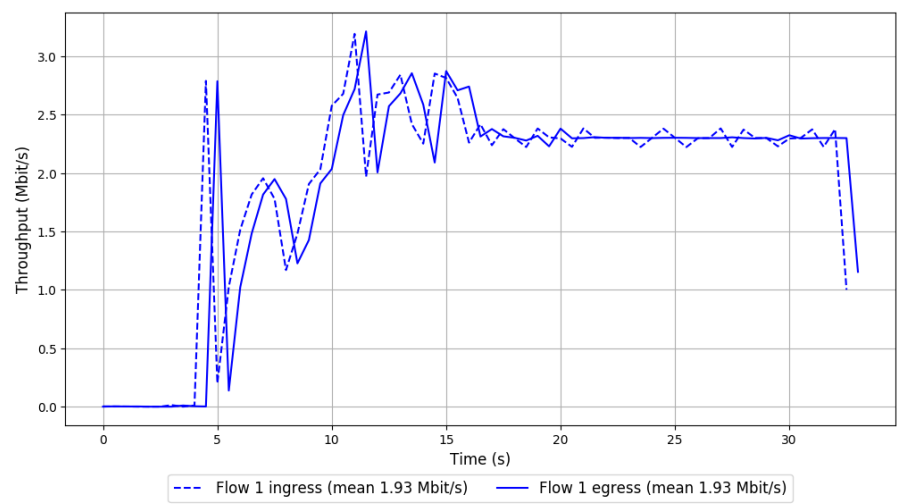Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2018-09-07 10:32:52
End at: 2018-09-07 10:33:22
Local clock offset: 1.287 ms
Remote clock offset: -1.251 ms


# Below is generated by plot.py at 2018-09-07 12:06:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 31.036 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 31.036 ms
Loss rate: 0.00%
```

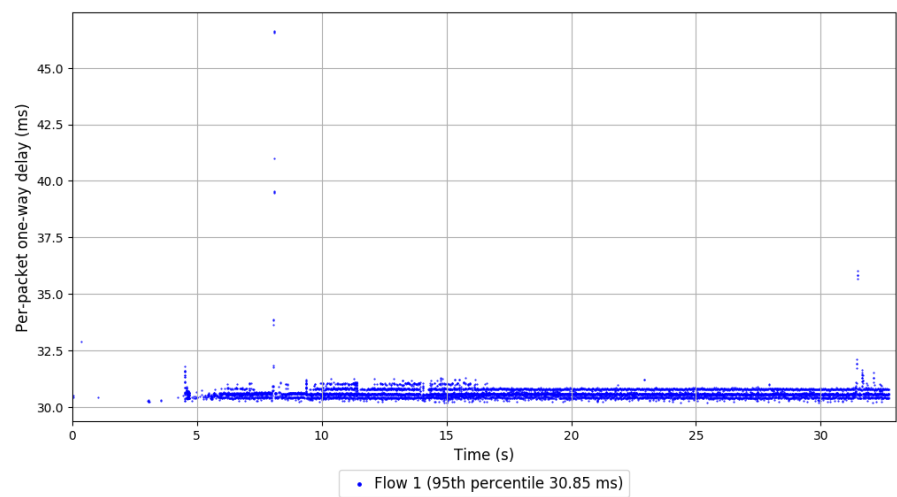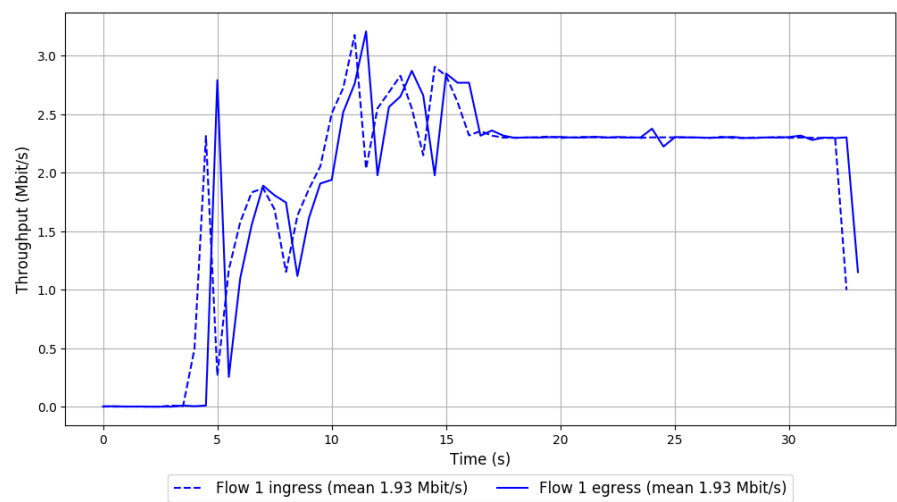Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-09-07 10:56:34
End at: 2018-09-07 10:57:04
Local clock offset: 1.044 ms
Remote clock offset: -0.714 ms


# Below is generated by plot.py at 2018-09-07 12:06:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 30.853 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 30.853 ms
Loss rate: 0.00%
```

Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2018-09-07 11:20:04
End at: 2018-09-07 11:20:34
Local clock offset: 0.748 ms
Remote clock offset: 0.051 ms


# Below is generated by plot.py at 2018-09-07 12:06:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 31.101 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 31.101 ms
Loss rate: 0.00%
```
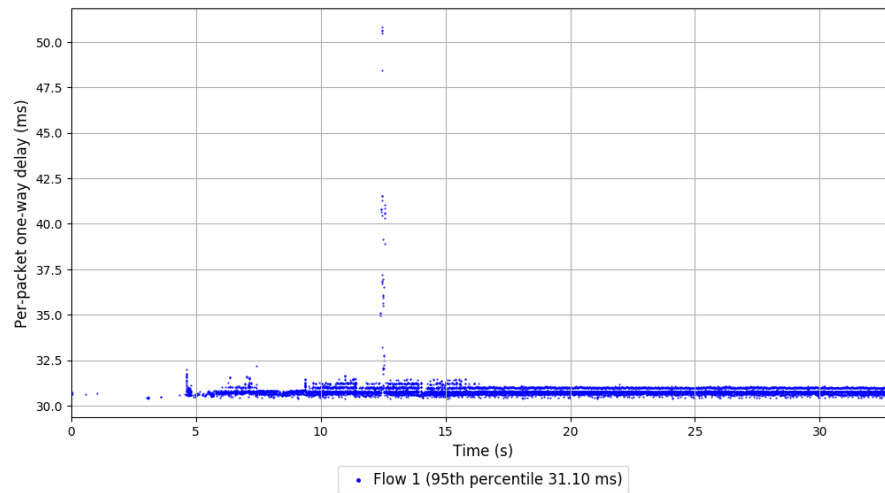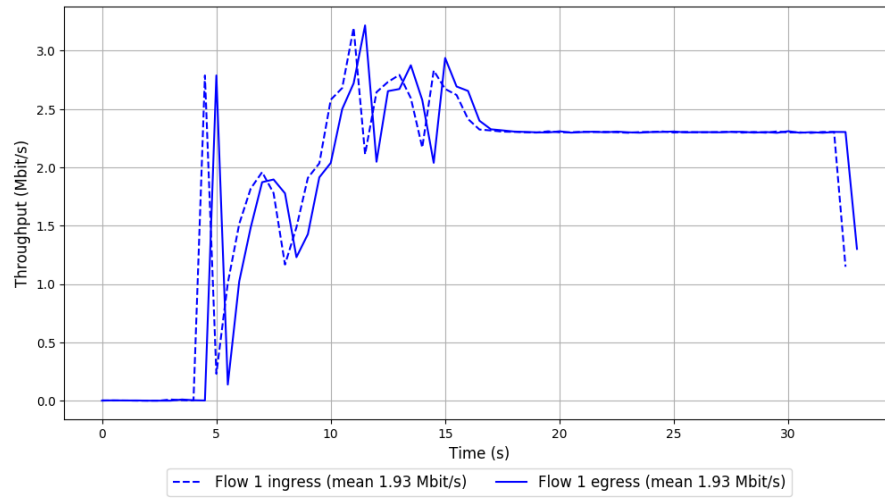
Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2018-09-07 11:43:41
End at: 2018-09-07 11:44:11
Local clock offset: 0.537 ms
Remote clock offset: 0.34 ms


# Below is generated by plot.py at 2018-09-07 12:06:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 31.087 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 31.087 ms
Loss rate: 0.00%
```

Run 5: Report of WebRTC media — Data Link