Pantheon Report

Generated at 2018-11-30 05:48:09 (UTC).

Data path: AWS India 1 on `ens5` (*local*) →India on `em1` (*remote*).

Repeated the test of 19 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.
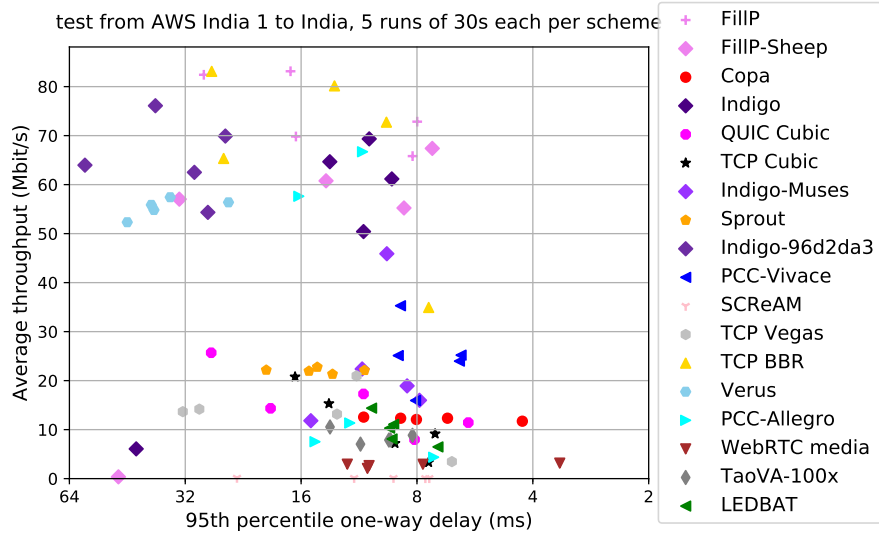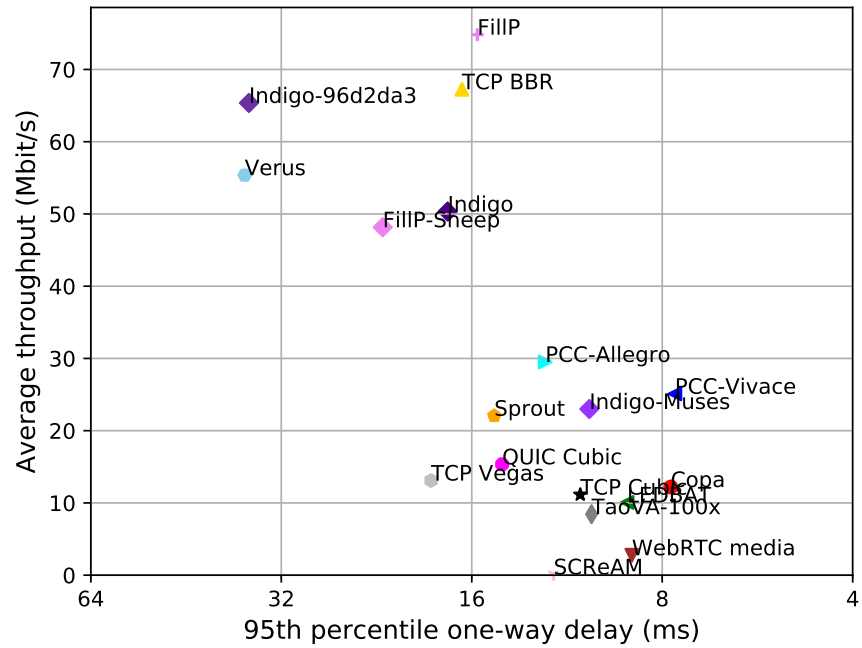
```
System info:
Linux 4.15.0-1027-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

Git summary:
branch: muses @ 7b6dad87cde3ab65f7c4052140eb54098aa58e9d
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/indigo-96d2da3 @ 8413272d46f8aa0bcb967ed7048b6a8f994abb95
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
 M receiver/src/buffer.h
 M receiver/src/core.cpp
 M sender/src/buffer.h
 M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
 M src/ScreamClient
 M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
 M src/examples/cellsim.cc
 M src/examples/sproutbt2.cc
 M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
 M src/verus.hpp
 M tools/plot.py
```

```
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

test from AWS India 1 to India, 5 runs of 30s each per scheme (mean of all runs by scheme)

test from AWS India 1 to India, 5 runs of 30s each per scheme

Legend:
- FillP
- FillP-Sheep
- Copa
- Indigo
- QUIC Cubic
- TCP Cubic
- Indigo-Muses
- Sprout
- Indigo-96d2da3
- PCC-Vivace
- SCReAM
- TCP Vegas
- TCP BBR
- Verus
- PCC-Allegro
- WebRTC media
- TaoVA-100x
- LEDBAT

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	67.26	16.58	11.68
Copa	5	12.20	7.76	43.78
TCP Cubic	5	11.15	10.78	1.40
FillP	5	74.81	15.68	14.87
FillP-Sheep	5	48.16	22.12	18.09
Indigo	5	50.33	17.47	8.31
Indigo-96d2da3	5	65.37	36.00	34.19
LEDBAT	5	10.06	9.09	1.50
Indigo-Muses	5	23.00	10.43	6.76
PCC-Allegro	5	29.52	12.24	4.32
PCC-Expr	0	N/A	N/A	N/A
QUIC Cubic	5	15.35	14.32	2.63
SCReAM	5	0.12	11.88	2.36
Sprout	5	22.06	14.74	5.15
TaoVA-100x	5	8.44	10.35	77.02
TCP Vegas	5	13.09	18.55	1.18
Verus	5	55.37	36.56	35.00
PCC-Vivace	5	25.10	7.64	4.52
WebRTC media	5	2.76	8.93	2.38

```
Run 1: Statistics of TCP BBR

Start at: 2018-11-30 04:15:52
End at: 2018-11-30 04:16:22
Local clock offset: 0.476 ms
Remote clock offset: -2.515 ms

# Below is generated by plot.py at 2018-11-30 05:43:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 34.93 Mbit/s
95th percentile per-packet one-way delay: 7.459 ms
Loss rate: 15.67%
-- Flow 1:
Average throughput: 34.93 Mbit/s
95th percentile per-packet one-way delay: 7.459 ms
Loss rate: 15.67%
```
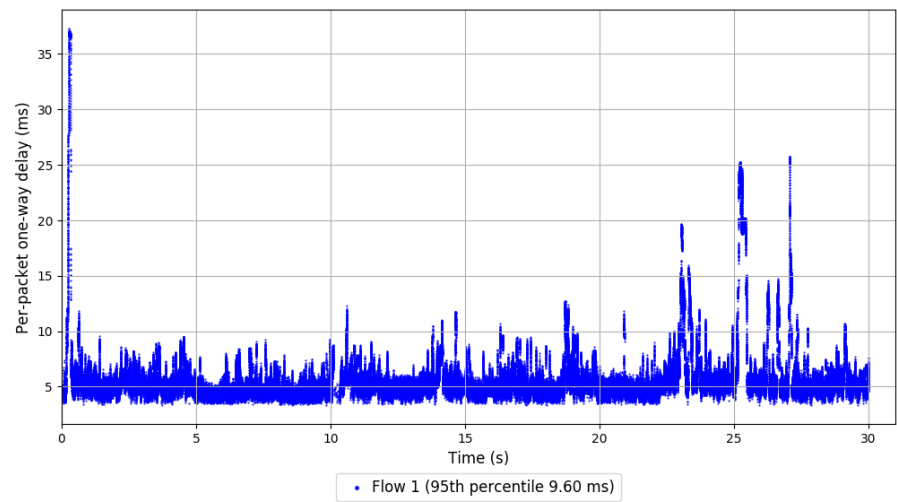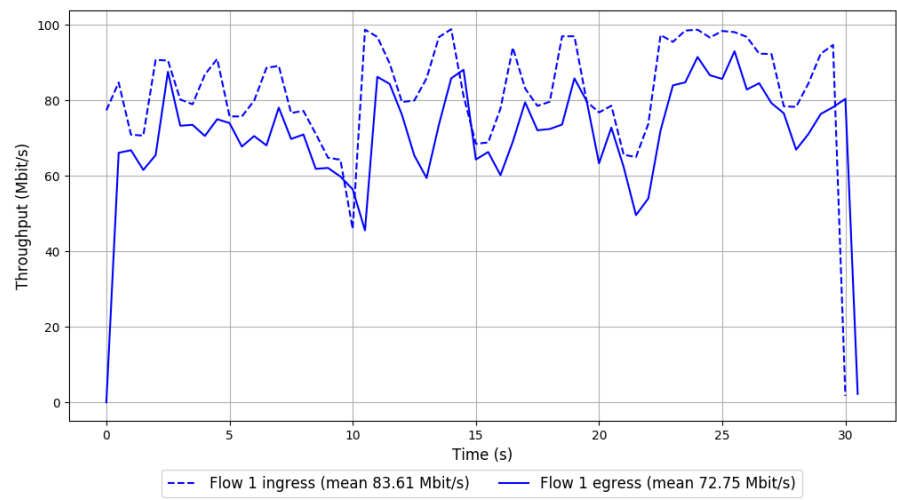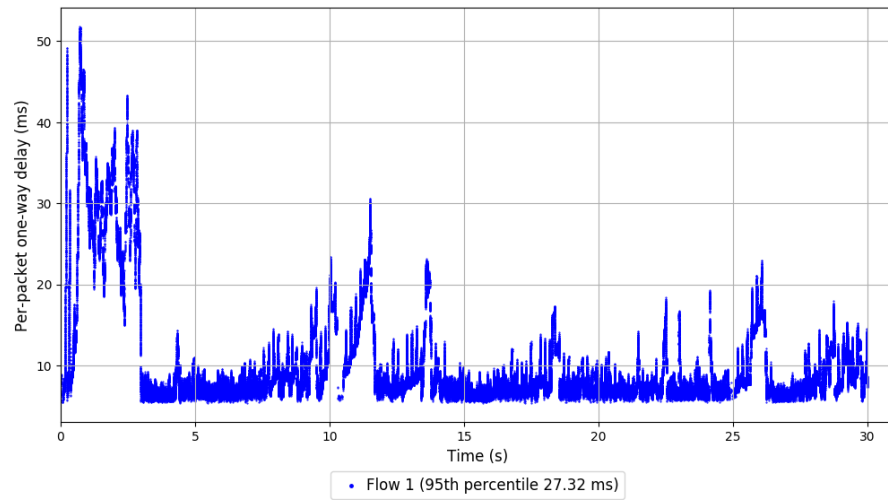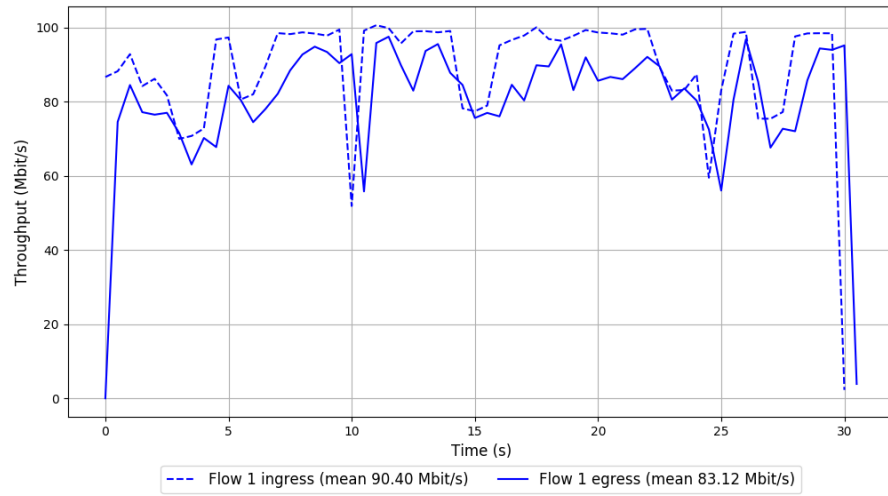
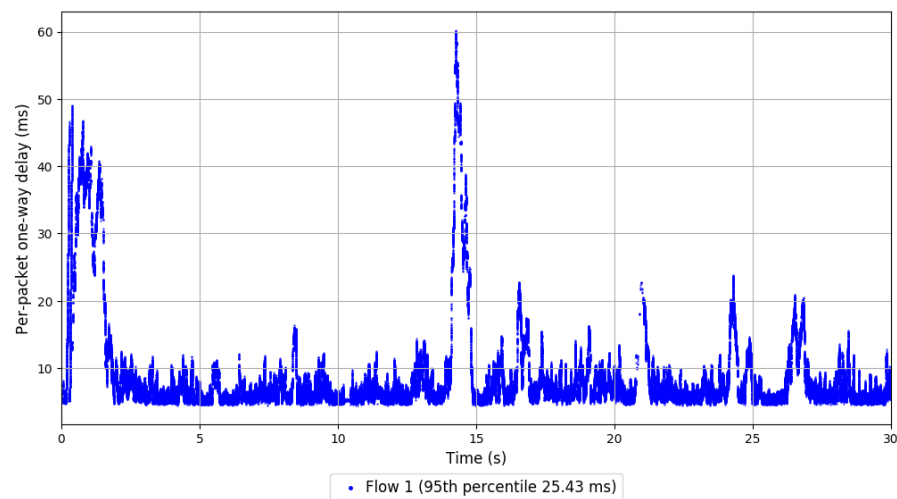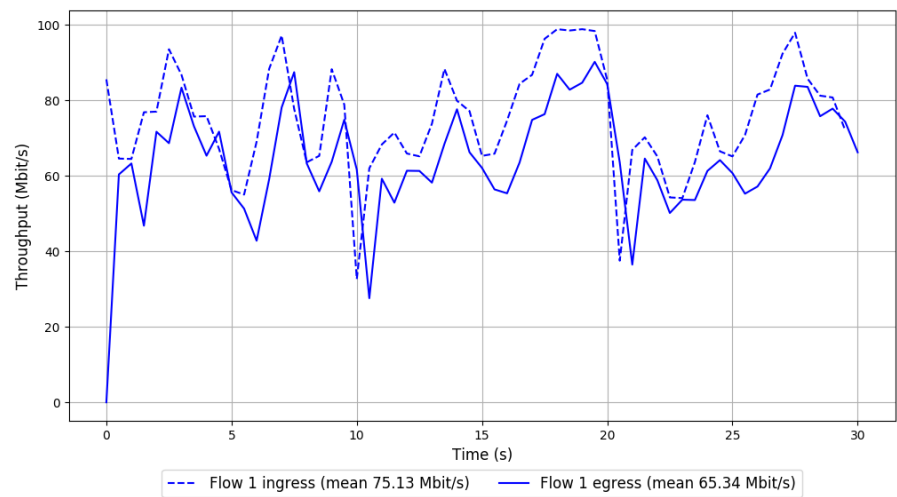Run 1: Report of TCP BBR — Data Link

```
Run 2: Statistics of TCP BBR

Start at: 2018-11-30 04:37:08
End at: 2018-11-30 04:37:38
Local clock offset: 2.672 ms
Remote clock offset: -4.476 ms


# Below is generated by plot.py at 2018-11-30 05:43:47
# Datalink statistics
-- Total of 1 flow:
Average throughput: 72.75 Mbit/s
95th percentile per-packet one-way delay: 9.604 ms
Loss rate: 12.99%
-- Flow 1:
Average throughput: 72.75 Mbit/s
95th percentile per-packet one-way delay: 9.604 ms
Loss rate: 12.99%
```

Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2018-11-30 04:58:15
End at: 2018-11-30 04:58:45
Local clock offset: 1.777 ms
Remote clock offset: -4.232 ms


# Below is generated by plot.py at 2018-11-30 05:43:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 83.12 Mbit/s
95th percentile per-packet one-way delay: 27.321 ms
Loss rate: 8.05%
-- Flow 1:
Average throughput: 83.12 Mbit/s
95th percentile per-packet one-way delay: 27.321 ms
Loss rate: 8.05%
```
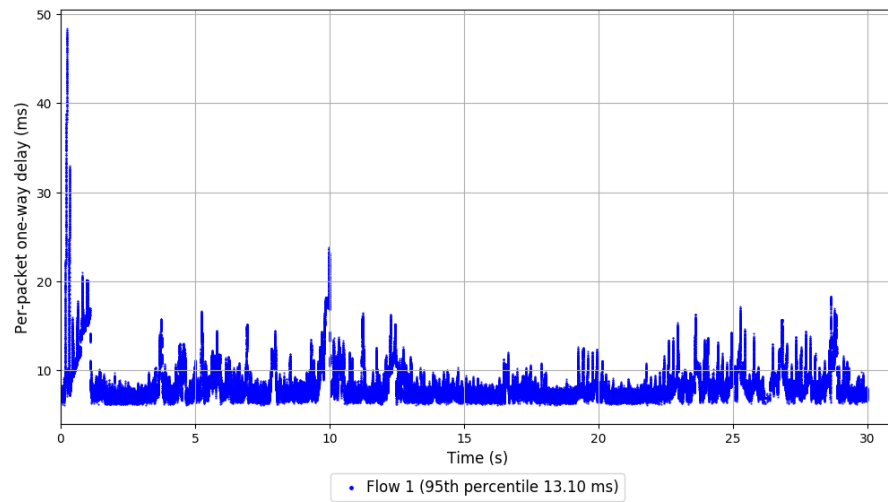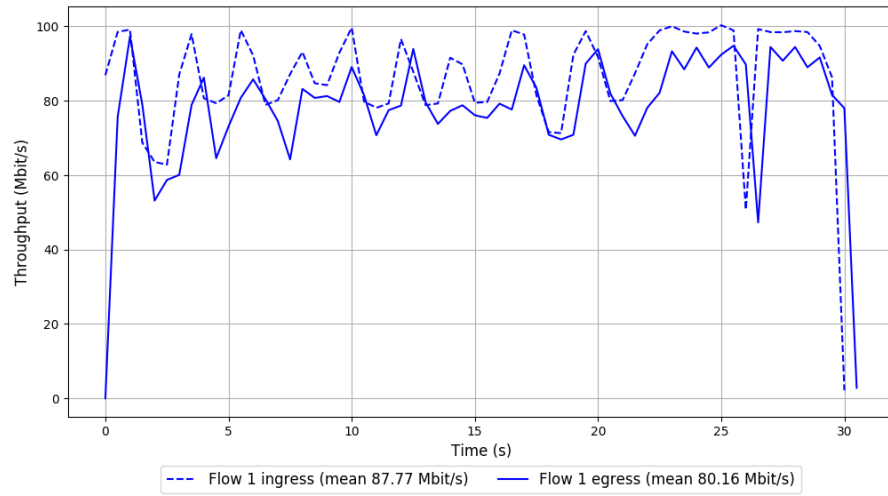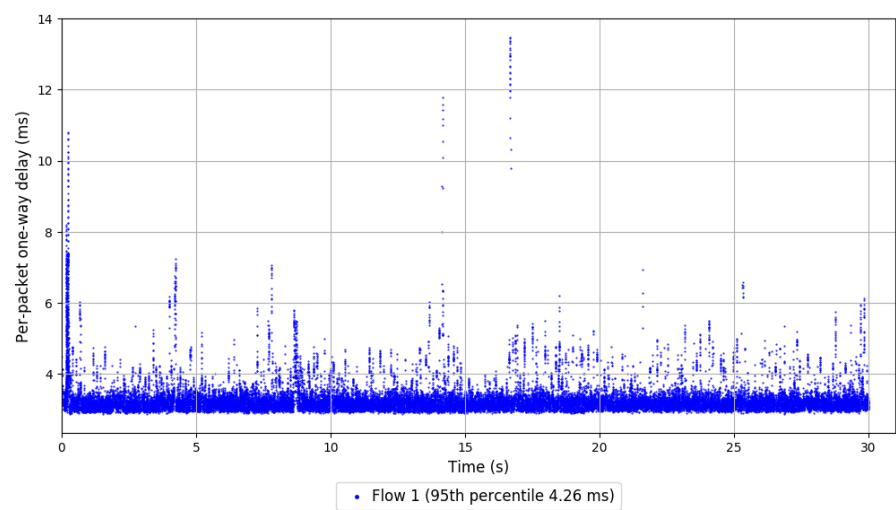
Run 3: Report of TCP BBR — Data Link

```
Run 4: Statistics of TCP BBR

Start at: 2018-11-30 05:19:51
End at: 2018-11-30 05:20:21
Local clock offset: 2.367 ms
Remote clock offset: -4.823 ms


# Below is generated by plot.py at 2018-11-30 05:43:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 65.34 Mbit/s
95th percentile per-packet one-way delay: 25.434 ms
Loss rate: 13.02%
-- Flow 1:
Average throughput: 65.34 Mbit/s
95th percentile per-packet one-way delay: 25.434 ms
Loss rate: 13.02%
```
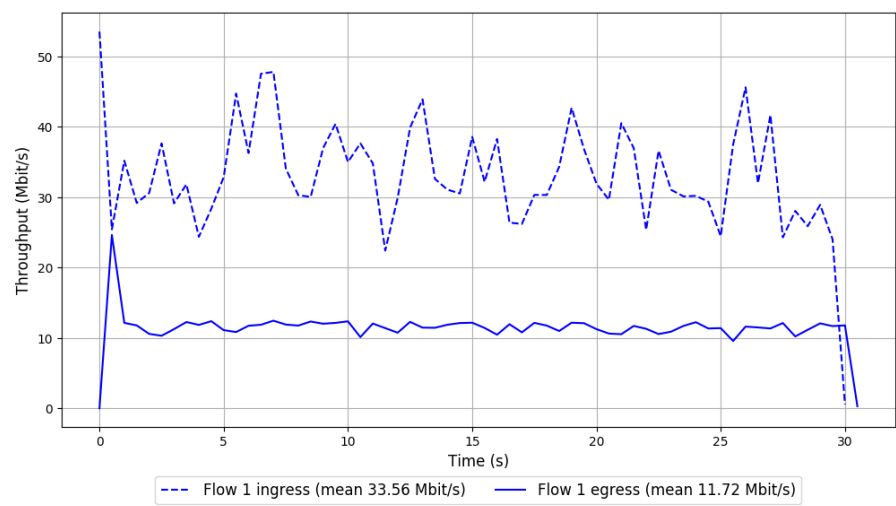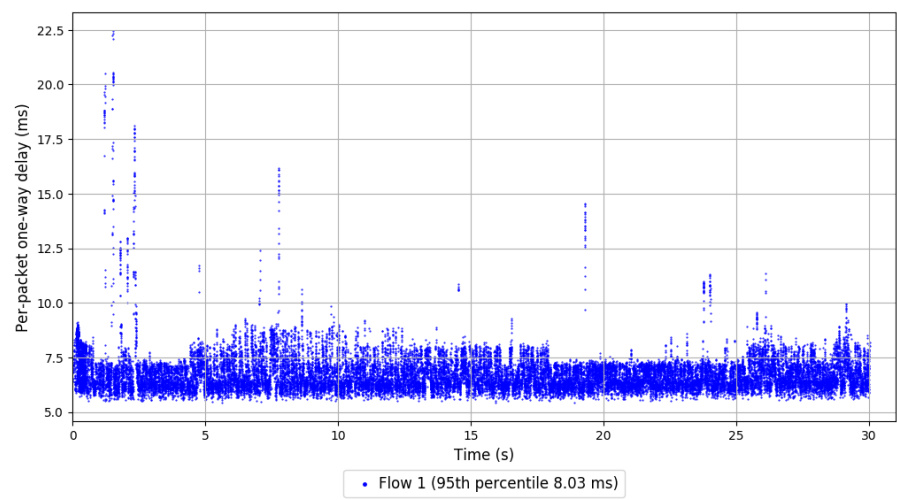
Run 4: Report of TCP BBR — Data Link

Flow 1 ingress (mean 75.13 Mbit/s)   Flow 1 egress (mean 65.34 Mbit/s)

Flow 1 (95th percentile 25.43 ms)

```
Run 5: Statistics of TCP BBR

Start at: 2018-11-30 05:41:28
End at: 2018-11-30 05:41:58
Local clock offset: 0.273 ms
Remote clock offset: -5.928 ms


# Below is generated by plot.py at 2018-11-30 05:43:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 80.16 Mbit/s
95th percentile per-packet one-way delay: 13.104 ms
Loss rate: 8.67%
-- Flow 1:
Average throughput: 80.16 Mbit/s
95th percentile per-packet one-way delay: 13.104 ms
Loss rate: 8.67%
```

Run 5: Report of TCP BBR — Data Link

Flow 1 ingress (mean 87.77 Mbit/s)   Flow 1 egress (mean 80.16 Mbit/s)

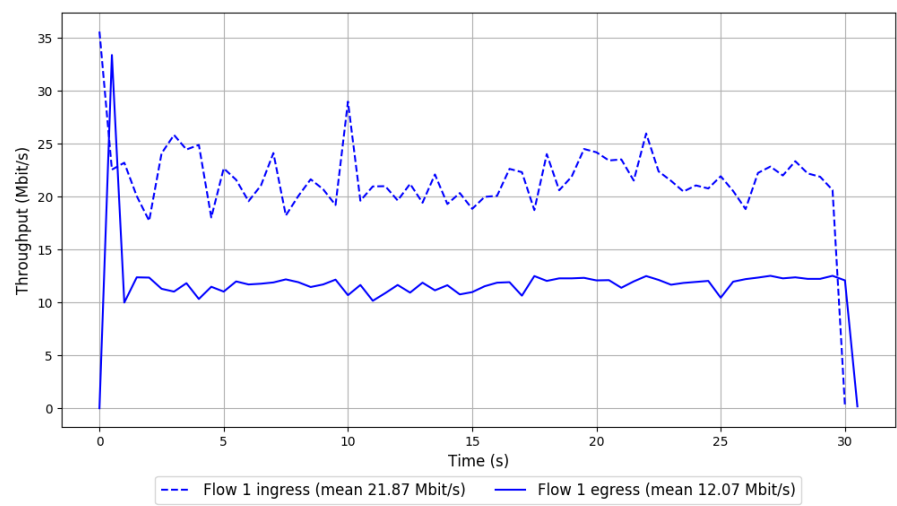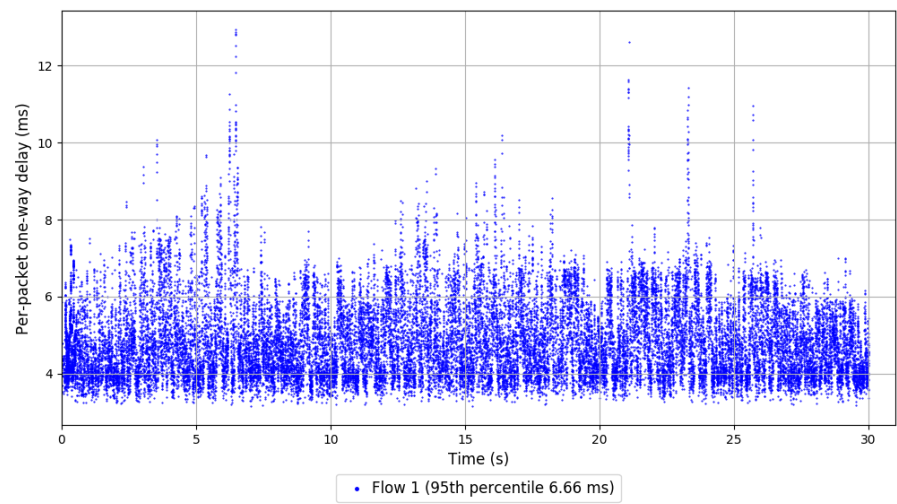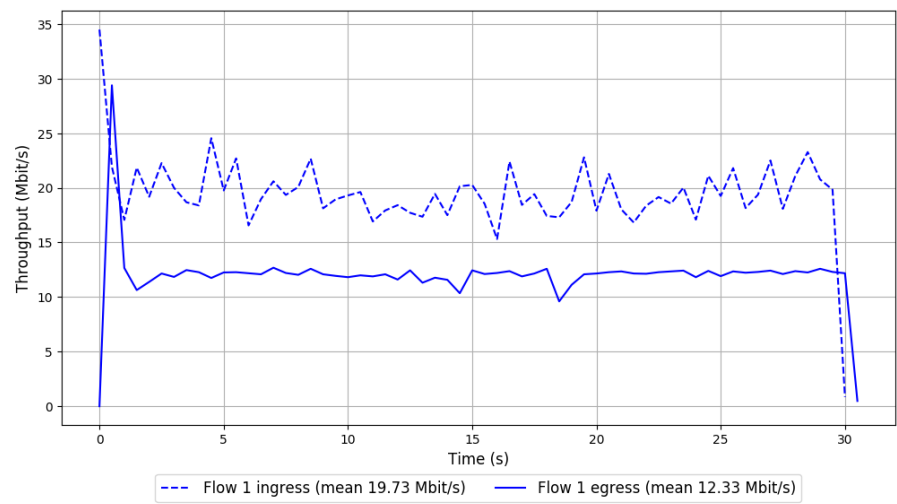Flow 1 (95th percentile 13.10 ms)

```
Run 1: Statistics of Copa

Start at: 2018-11-30 04:07:59
End at: 2018-11-30 04:08:29
Local clock offset: 2.713 ms
Remote clock offset: -1.798 ms

# Below is generated by plot.py at 2018-11-30 05:43:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.72 Mbit/s
95th percentile per-packet one-way delay: 4.259 ms
Loss rate: 65.08%
-- Flow 1:
Average throughput: 11.72 Mbit/s
95th percentile per-packet one-way delay: 4.259 ms
Loss rate: 65.08%
```
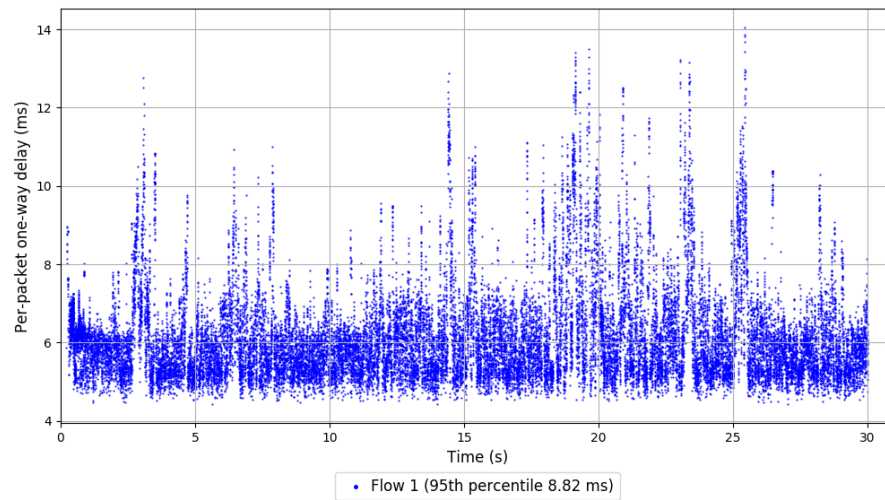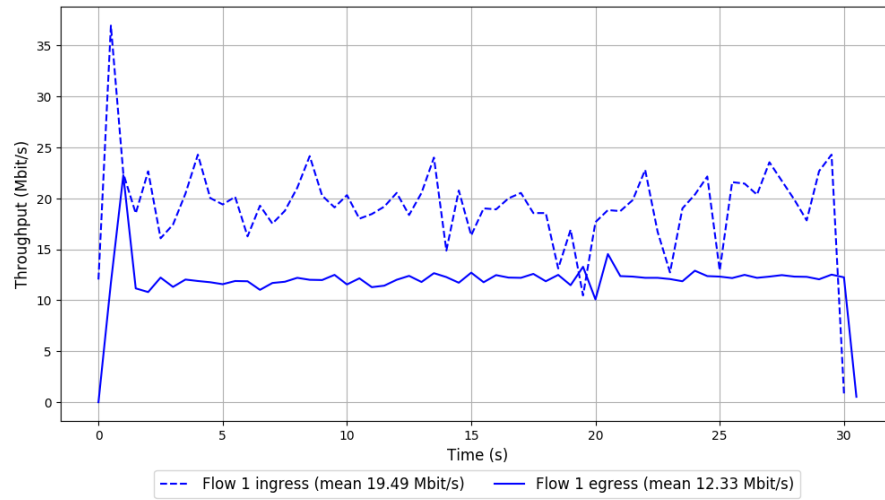
Run 1: Report of Copa — Data Link

```
Run 2: Statistics of Copa

Start at: 2018-11-30 04:29:19
End at: 2018-11-30 04:29:49
Local clock offset: 1.863 ms
Remote clock offset: -2.557 ms


# Below is generated by plot.py at 2018-11-30 05:43:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.07 Mbit/s
95th percentile per-packet one-way delay: 8.026 ms
Loss rate: 44.81%
-- Flow 1:
Average throughput: 12.07 Mbit/s
95th percentile per-packet one-way delay: 8.026 ms
Loss rate: 44.81%
```
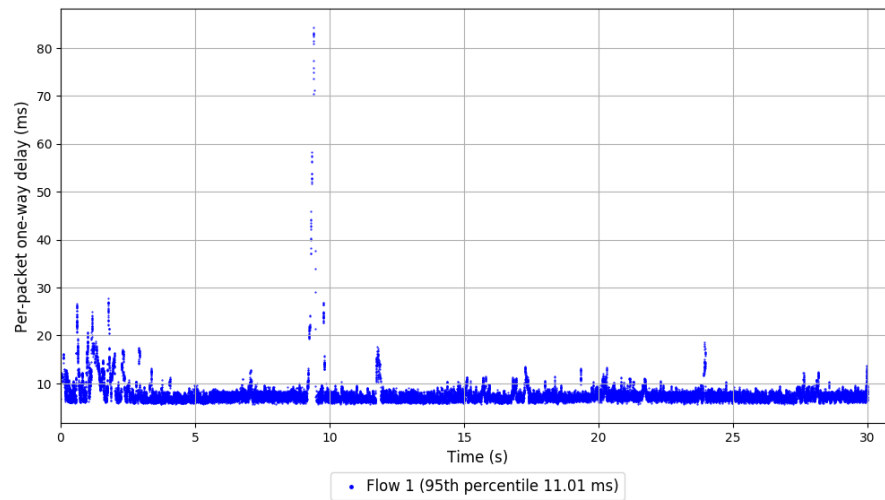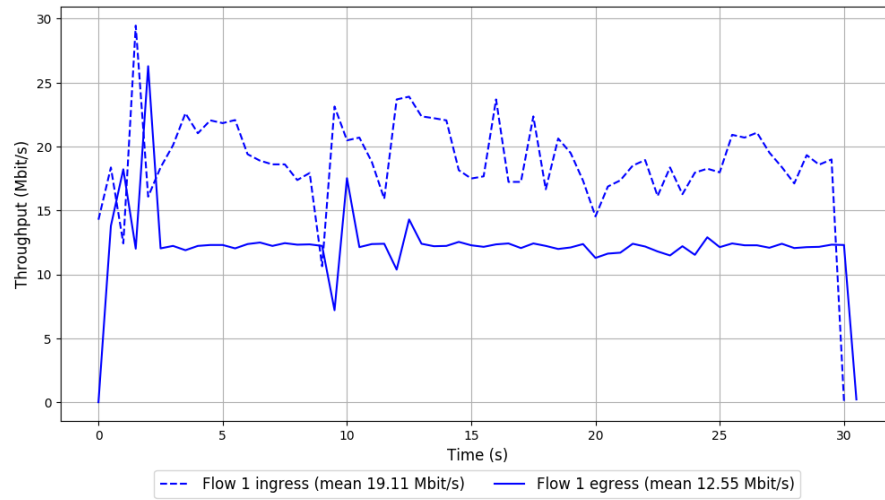
Run 2: Report of Copa — Data Link

```
Run 3: Statistics of Copa

Start at: 2018-11-30 04:50:32
End at: 2018-11-30 04:51:02
Local clock offset: 4.316 ms
Remote clock offset: -3.779 ms

# Below is generated by plot.py at 2018-11-30 05:43:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.33 Mbit/s
95th percentile per-packet one-way delay: 6.664 ms
Loss rate: 37.52%
-- Flow 1:
Average throughput: 12.33 Mbit/s
95th percentile per-packet one-way delay: 6.664 ms
Loss rate: 37.52%
```
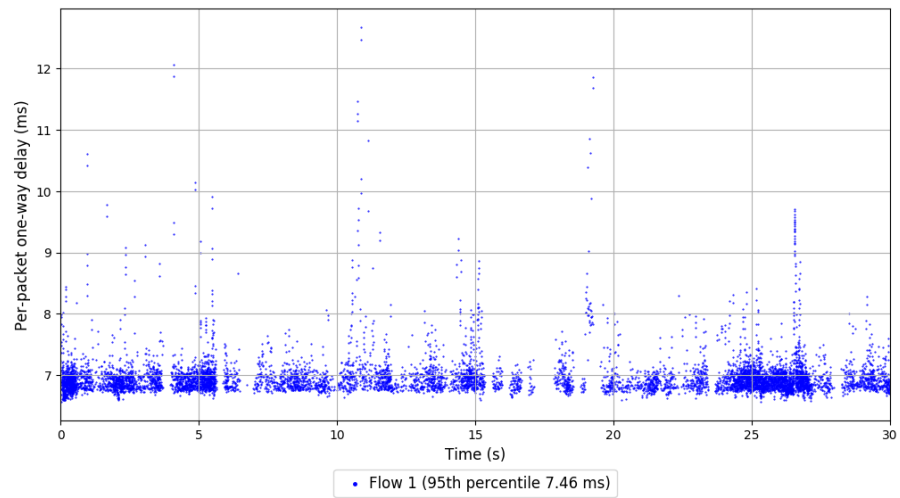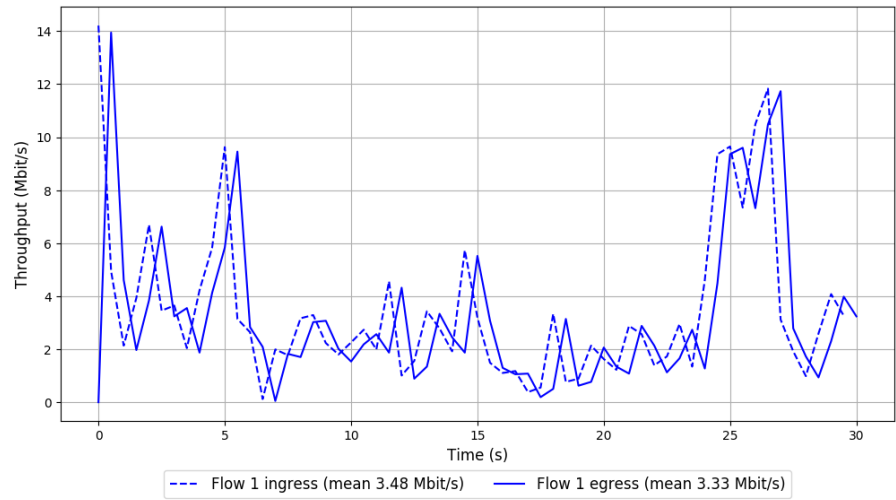
Run 3: Report of Copa — Data Link

Flow 1 ingress (mean 19.73 Mbit/s) --- Flow 1 egress (mean 12.33 Mbit/s)

Flow 1 (95th percentile 6.66 ms)

```
Run 4: Statistics of Copa

Start at: 2018-11-30 05:11:54
End at: 2018-11-30 05:12:24
Local clock offset: 2.979 ms
Remote clock offset: -4.351 ms

# Below is generated by plot.py at 2018-11-30 05:43:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.33 Mbit/s
95th percentile per-packet one-way delay: 8.821 ms
Loss rate: 37.19%
-- Flow 1:
Average throughput: 12.33 Mbit/s
95th percentile per-packet one-way delay: 8.821 ms
Loss rate: 37.19%
```
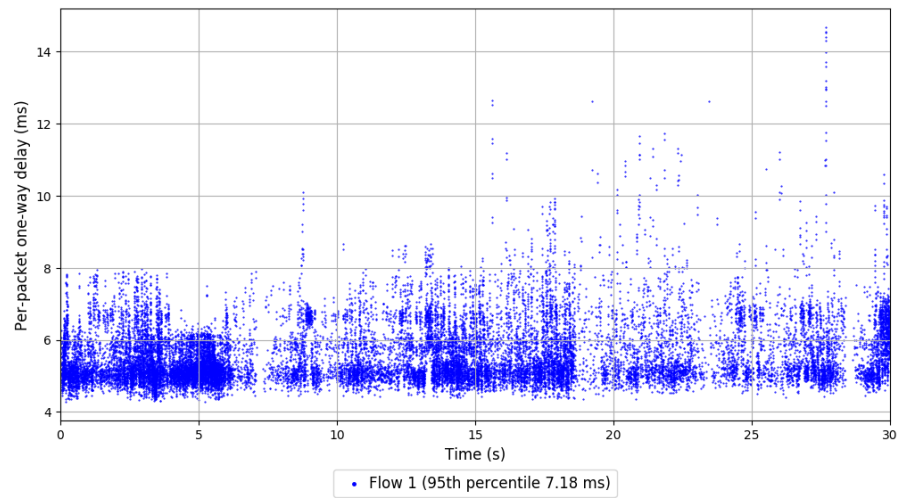
Run 4: Report of Copa — Data Link

```
Run 5: Statistics of Copa

Start at: 2018-11-30 05:33:41
End at: 2018-11-30 05:34:11
Local clock offset: -0.173 ms
Remote clock offset: -6.475 ms

# Below is generated by plot.py at 2018-11-30 05:43:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.55 Mbit/s
95th percentile per-packet one-way delay: 11.006 ms
Loss rate: 34.30%
-- Flow 1:
Average throughput: 12.55 Mbit/s
95th percentile per-packet one-way delay: 11.006 ms
Loss rate: 34.30%
```

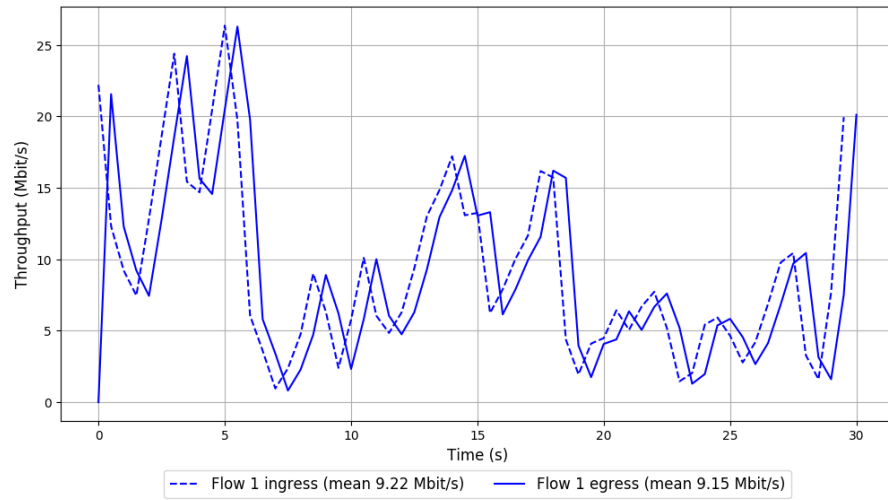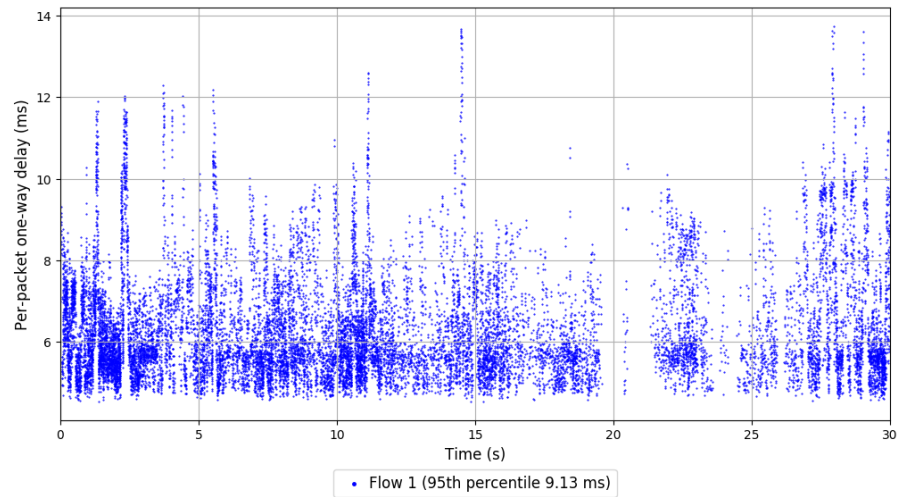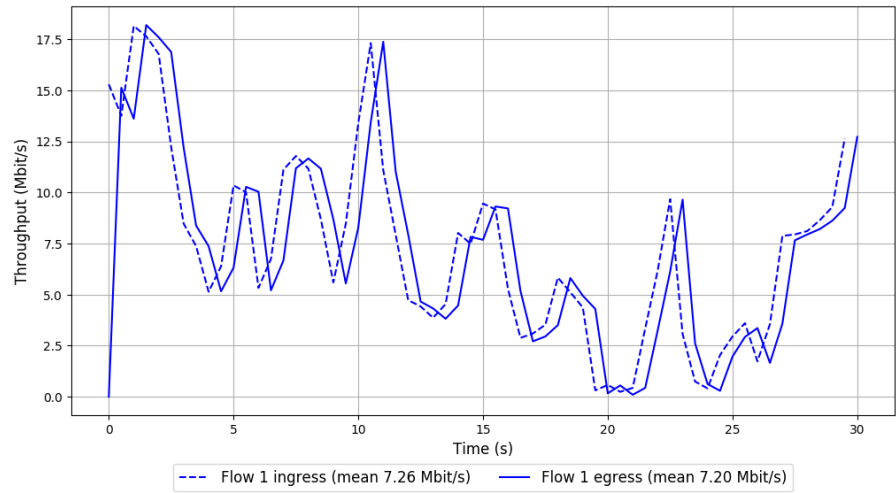Run 5: Report of Copa — Data Link

```
Run 1: Statistics of TCP Cubic

Start at: 2018-11-30 04:05:15
End at: 2018-11-30 04:05:45
Local clock offset: 0.882 ms
Remote clock offset: -0.938 ms


# Below is generated by plot.py at 2018-11-30 05:43:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.33 Mbit/s
95th percentile per-packet one-way delay: 7.463 ms
Loss rate: 4.46%
-- Flow 1:
Average throughput: 3.33 Mbit/s
95th percentile per-packet one-way delay: 7.463 ms
Loss rate: 4.46%
```
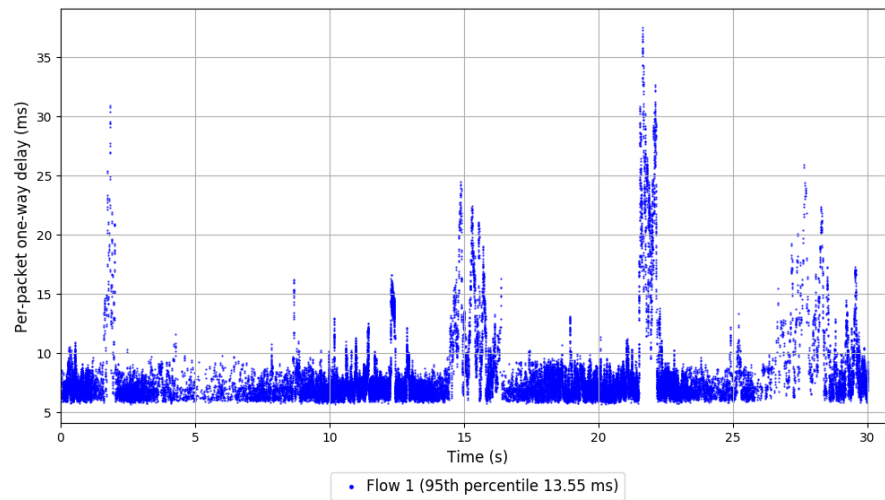
Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2018-11-30 04:27:05
End at: 2018-11-30 04:27:35
Local clock offset: 2.609 ms
Remote clock offset: -2.742 ms

# Below is generated by plot.py at 2018-11-30 05:43:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.15 Mbit/s
95th percentile per-packet one-way delay: 7.178 ms
Loss rate: 0.79%
-- Flow 1:
Average throughput: 9.15 Mbit/s
95th percentile per-packet one-way delay: 7.178 ms
Loss rate: 0.79%
```

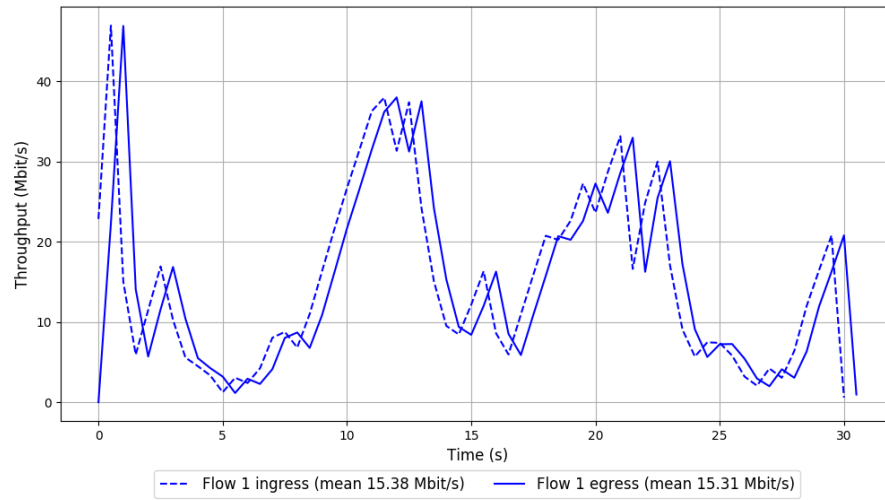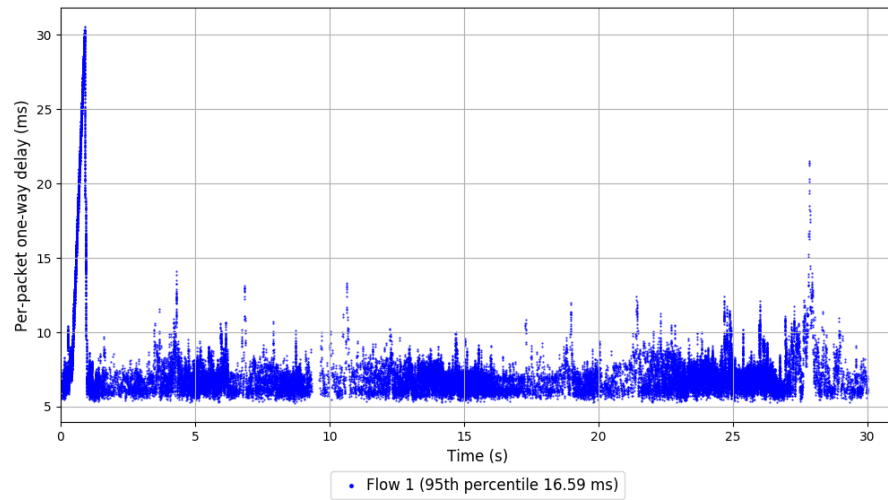Run 2: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 9.22 Mbit/s) — — — Flow 1 egress (mean 9.15 Mbit/s)

• Flow 1 (95th percentile 7.18 ms)

```
Run 3: Statistics of TCP Cubic

Start at: 2018-11-30 04:48:18
End at: 2018-11-30 04:48:48
Local clock offset: 3.783 ms
Remote clock offset: -4.045 ms


# Below is generated by plot.py at 2018-11-30 05:43:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.20 Mbit/s
95th percentile per-packet one-way delay: 9.128 ms
Loss rate: 0.83%
-- Flow 1:
Average throughput: 7.20 Mbit/s
95th percentile per-packet one-way delay: 9.128 ms
Loss rate: 0.83%
```

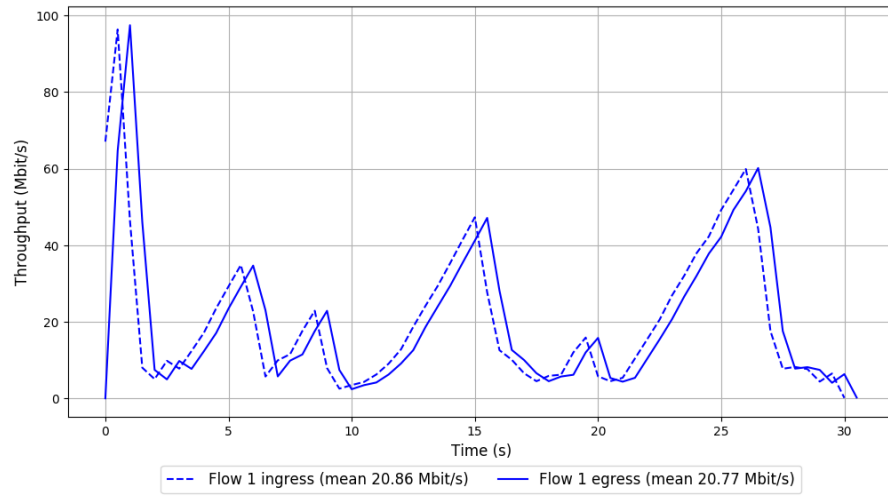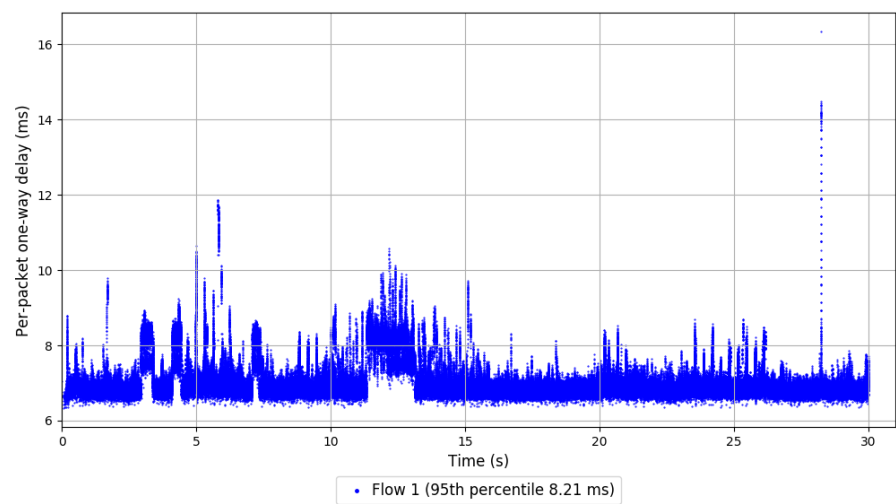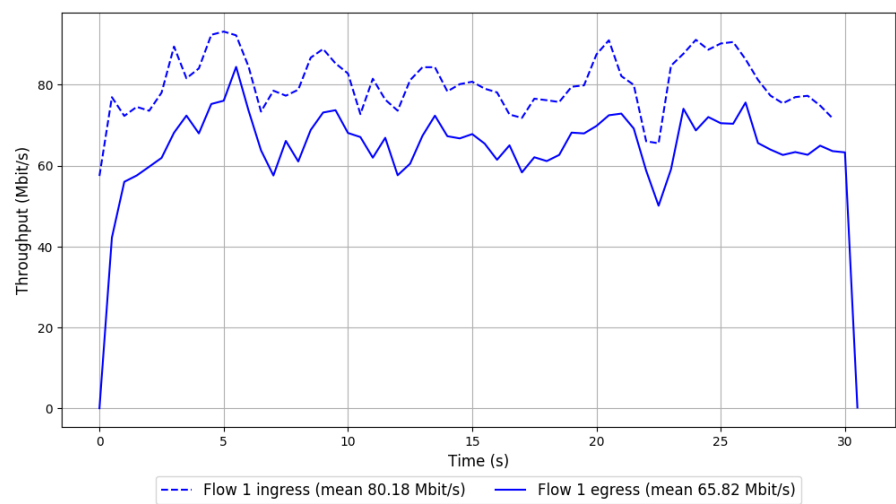Run 3: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 7.26 Mbit/s)   Flow 1 egress (mean 7.20 Mbit/s)

Flow 1 (95th percentile 9.13 ms)

```
Run 4: Statistics of TCP Cubic

Start at: 2018-11-30 05:09:37
End at: 2018-11-30 05:10:07
Local clock offset: 1.663 ms
Remote clock offset: -5.388 ms


# Below is generated by plot.py at 2018-11-30 05:43:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 15.31 Mbit/s
95th percentile per-packet one-way delay: 13.548 ms
Loss rate: 0.49%
-- Flow 1:
Average throughput: 15.31 Mbit/s
95th percentile per-packet one-way delay: 13.548 ms
Loss rate: 0.49%
```
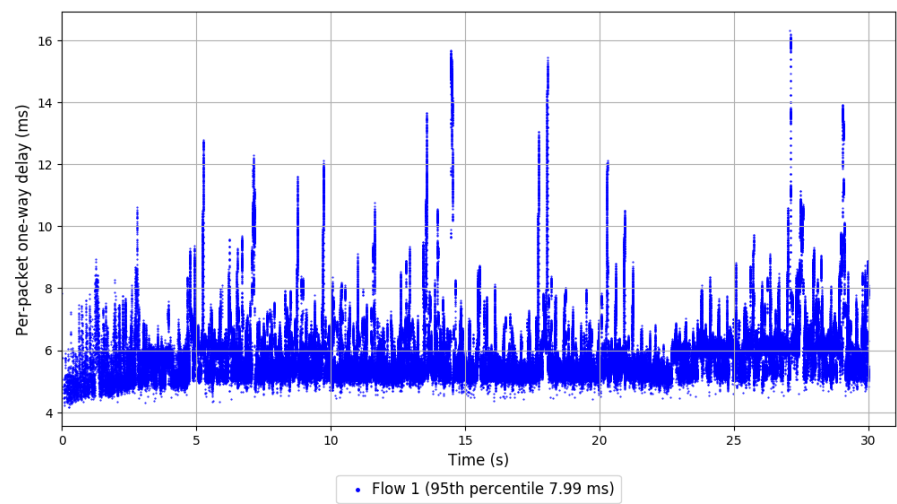
Run 4: Report of TCP Cubic — Data Link

```
Run 5: Statistics of TCP Cubic

Start at: 2018-11-30 05:31:23
End at: 2018-11-30 05:31:53
Local clock offset: 0.552 ms
Remote clock offset: -6.069 ms


# Below is generated by plot.py at 2018-11-30 05:43:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 20.77 Mbit/s
95th percentile per-packet one-way delay: 16.587 ms
Loss rate: 0.43%
-- Flow 1:
Average throughput: 20.77 Mbit/s
95th percentile per-packet one-way delay: 16.587 ms
Loss rate: 0.43%
```

Run 5: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 20.86 Mbit/s) ------ Flow 1 egress (mean 20.77 Mbit/s) ——
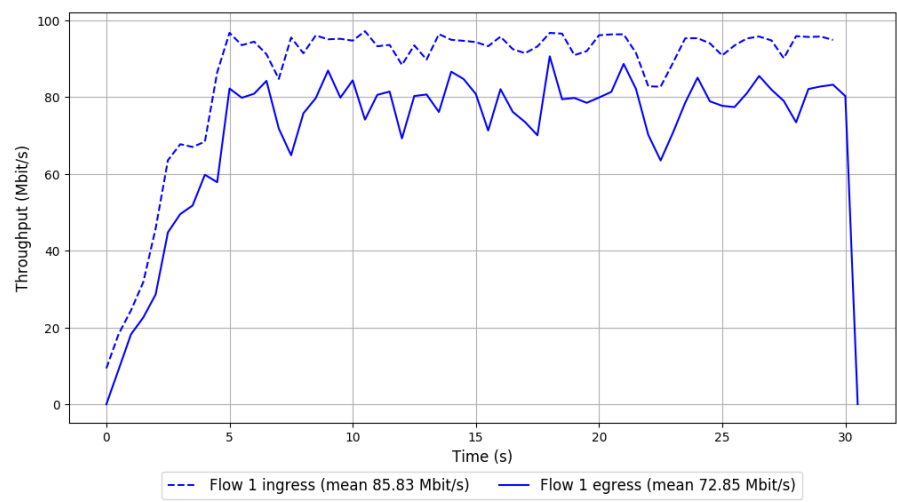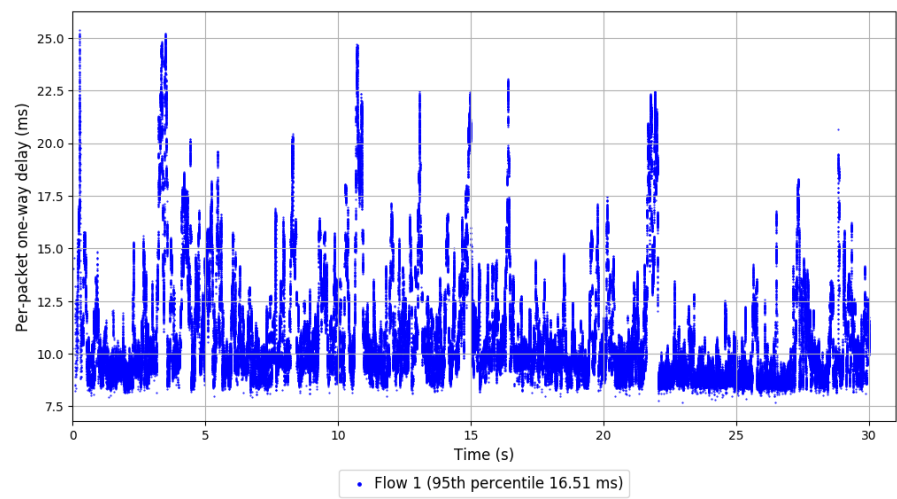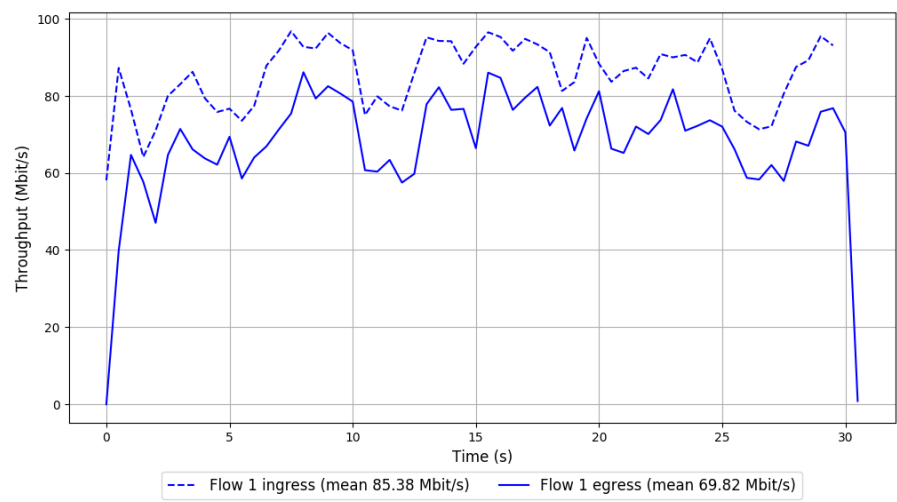

• Flow 1 (95th percentile 16.59 ms)

```
Run 1: Statistics of FillP

Start at: 2018-11-30 04:06:49
End at: 2018-11-30 04:07:19
Local clock offset: -1.135 ms
Remote clock offset: -1.902 ms


# Below is generated by plot.py at 2018-11-30 05:44:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 65.82 Mbit/s
95th percentile per-packet one-way delay: 8.213 ms
Loss rate: 17.91%
-- Flow 1:
Average throughput: 65.82 Mbit/s
95th percentile per-packet one-way delay: 8.213 ms
Loss rate: 17.91%
```

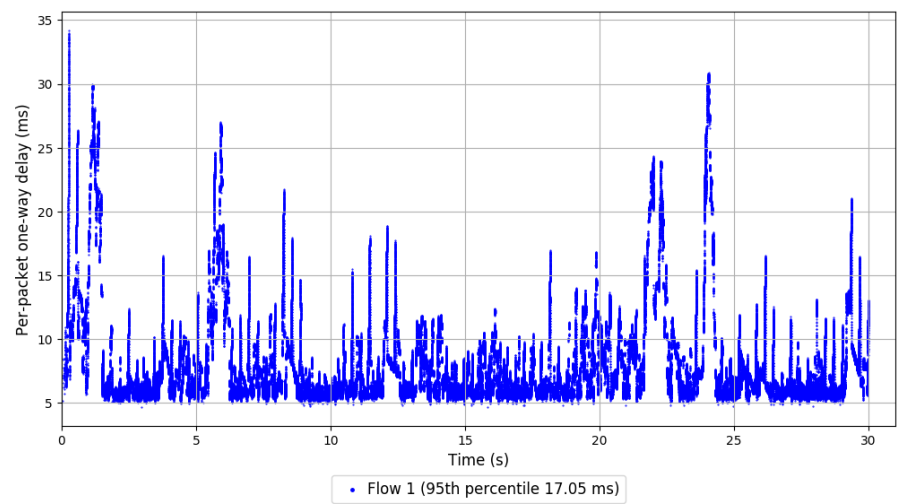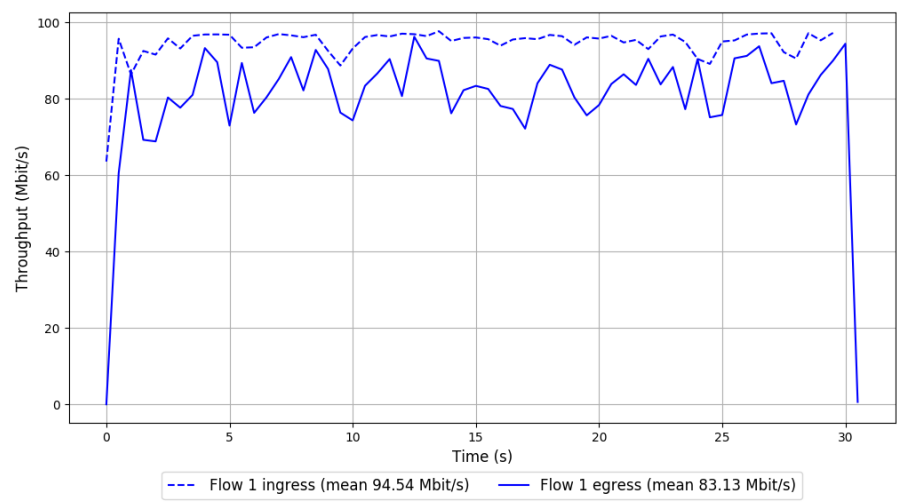Run 1: Report of FillP — Data Link

```
Run 2: Statistics of FillP

Start at: 2018-11-30 04:28:10
End at: 2018-11-30 04:28:40
Local clock offset: 2.95 ms
Remote clock offset: -2.397 ms


# Below is generated by plot.py at 2018-11-30 05:44:27
# Datalink statistics
-- Total of 1 flow:
Average throughput: 72.85 Mbit/s
95th percentile per-packet one-way delay: 7.989 ms
Loss rate: 15.13%
-- Flow 1:
Average throughput: 72.85 Mbit/s
95th percentile per-packet one-way delay: 7.989 ms
Loss rate: 15.13%
```
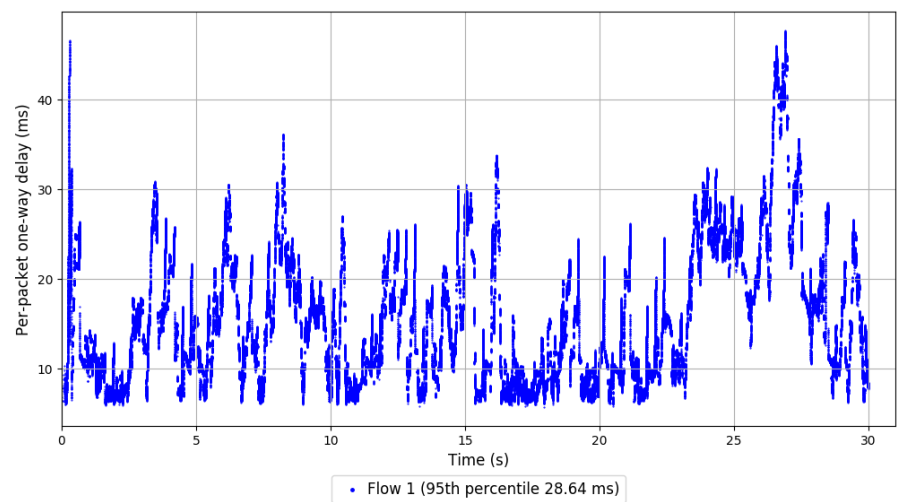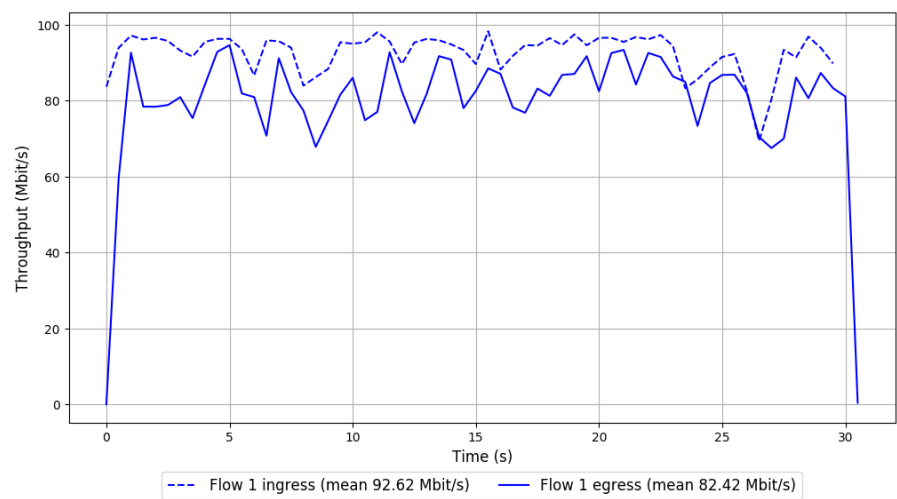
Run 2: Report of FillP — Data Link

Flow 1 ingress (mean 85.83 Mbit/s) --- Flow 1 egress (mean 72.85 Mbit/s)

Flow 1 (95th percentile 7.99 ms)

```
Run 3: Statistics of FillP

Start at: 2018-11-30 04:49:24
End at: 2018-11-30 04:49:54
Local clock offset: 1.155 ms
Remote clock offset: -3.409 ms


# Below is generated by plot.py at 2018-11-30 05:44:31
# Datalink statistics
-- Total of 1 flow:
Average throughput: 69.82 Mbit/s
95th percentile per-packet one-way delay: 16.506 ms
Loss rate: 18.22%
-- Flow 1:
Average throughput: 69.82 Mbit/s
95th percentile per-packet one-way delay: 16.506 ms
Loss rate: 18.22%
```

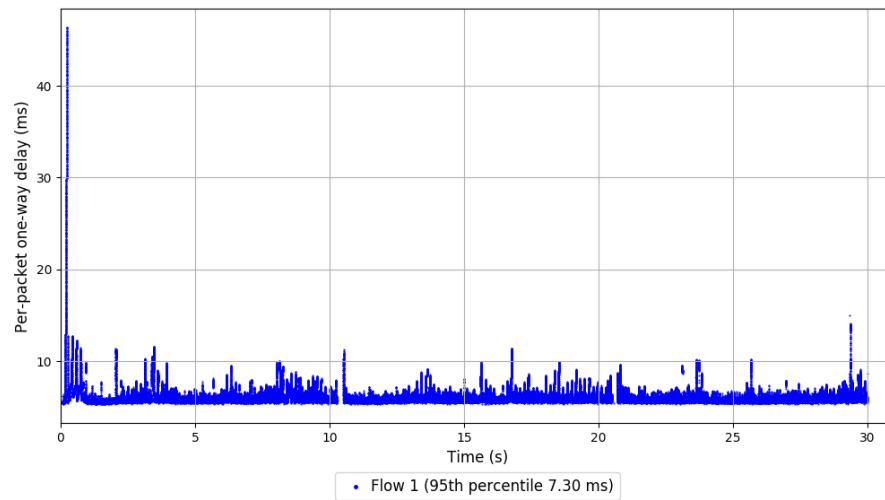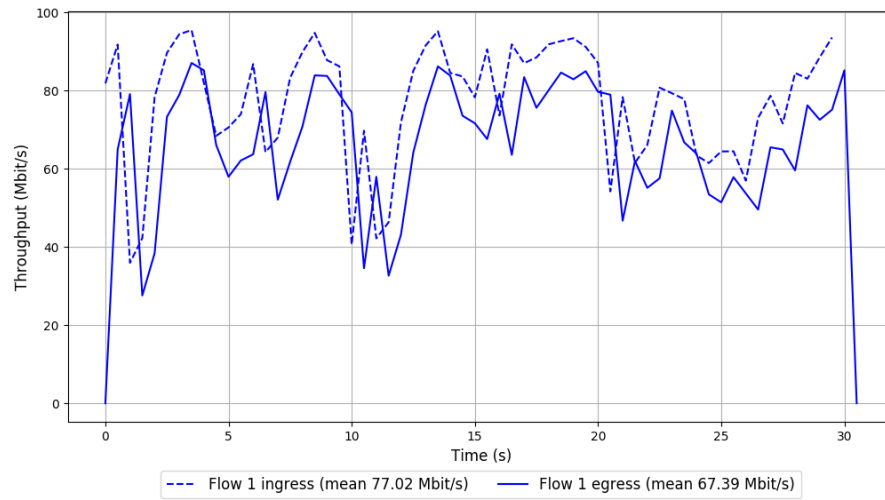Run 3: Report of FillP — Data Link

```
Run 4: Statistics of FillP

Start at: 2018-11-30 05:10:44
End at: 2018-11-30 05:11:14
Local clock offset: 2.757 ms
Remote clock offset: -4.362 ms


# Below is generated by plot.py at 2018-11-30 05:44:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 83.13 Mbit/s
95th percentile per-packet one-way delay: 17.046 ms
Loss rate: 12.06%
-- Flow 1:
Average throughput: 83.13 Mbit/s
95th percentile per-packet one-way delay: 17.046 ms
Loss rate: 12.06%
```

Run 4: Report of FillP — Data Link

```
Run 5: Statistics of FillP

Start at: 2018-11-30 05:32:30
End at: 2018-11-30 05:33:00
Local clock offset: 0.991 ms
Remote clock offset: -5.206 ms


# Below is generated by plot.py at 2018-11-30 05:44:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 82.42 Mbit/s
95th percentile per-packet one-way delay: 28.636 ms
Loss rate: 11.01%
-- Flow 1:
Average throughput: 82.42 Mbit/s
95th percentile per-packet one-way delay: 28.636 ms
Loss rate: 11.01%
```
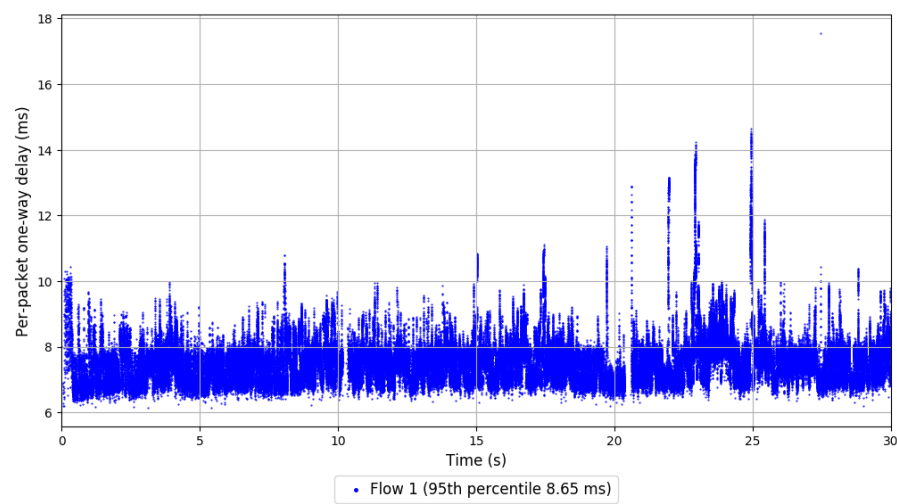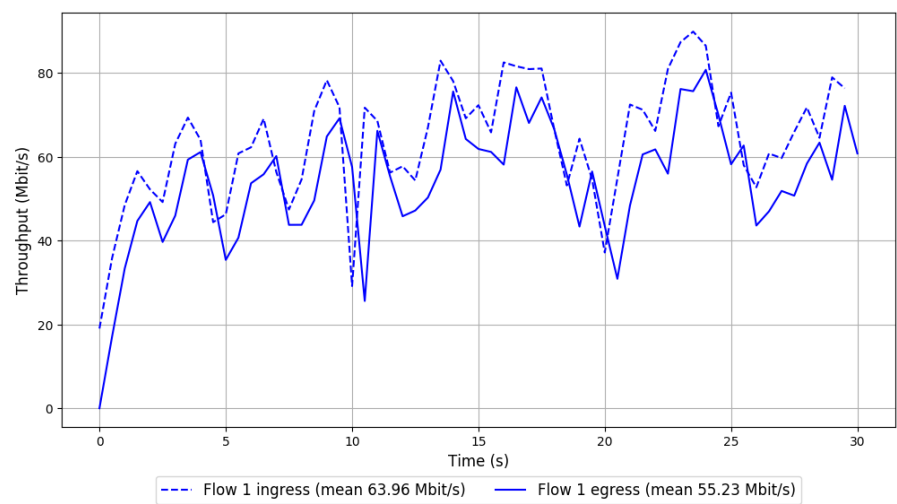
Run 5: Report of FillP — Data Link

Flow 1 ingress (mean 92.62 Mbit/s)   Flow 1 egress (mean 82.42 Mbit/s)

Flow 1 (95th percentile 28.64 ms)

```
Run 1: Statistics of FillP-Sheep

Start at: 2018-11-30 03:59:37
End at: 2018-11-30 04:00:07
Local clock offset: 1.078 ms
Remote clock offset: -1.634 ms


# Below is generated by plot.py at 2018-11-30 05:44:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 67.39 Mbit/s
95th percentile per-packet one-way delay: 7.300 ms
Loss rate: 12.49%
-- Flow 1:
Average throughput: 67.39 Mbit/s
95th percentile per-packet one-way delay: 7.300 ms
Loss rate: 12.49%
```
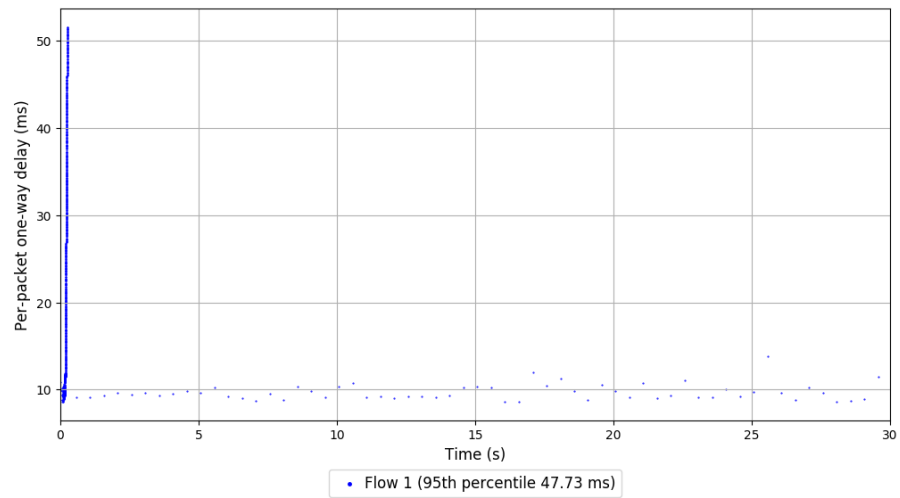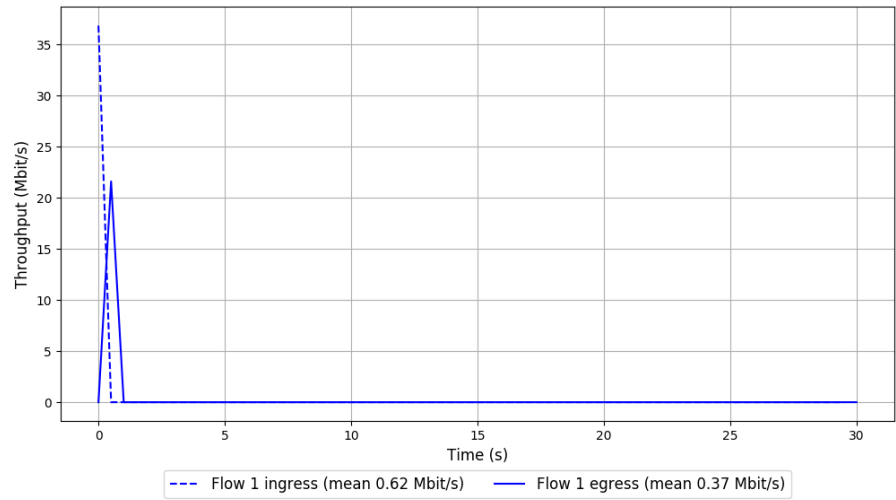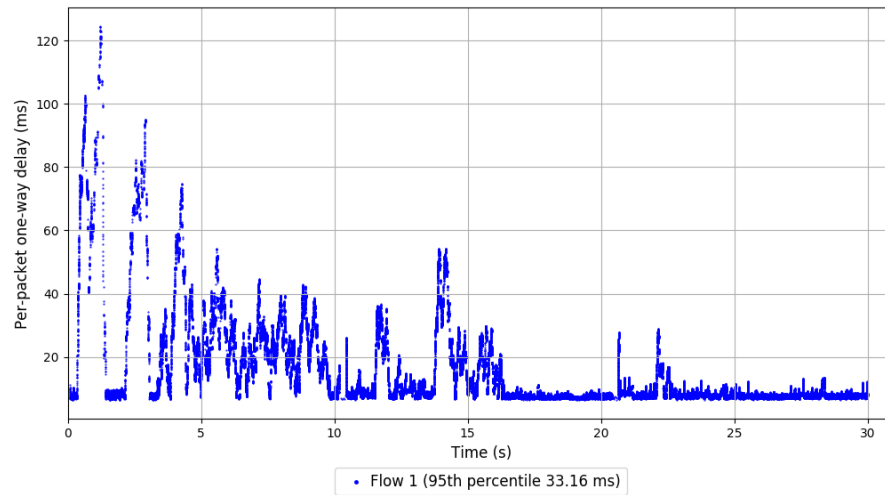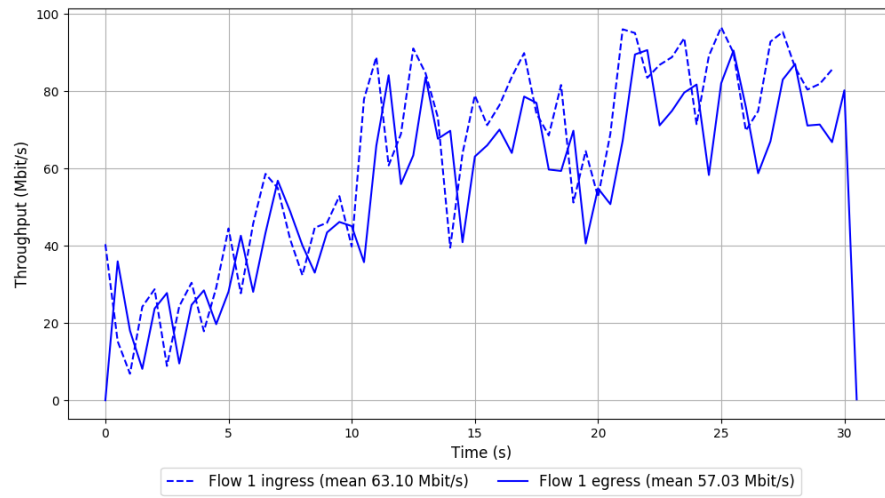
Run 1: Report of FillP-Sheep — Data Link

```
Run 2: Statistics of FillP-Sheep

Start at: 2018-11-30 04:21:30
End at: 2018-11-30 04:22:00
Local clock offset: 1.777 ms
Remote clock offset: -2.21 ms


# Below is generated by plot.py at 2018-11-30 05:44:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 55.23 Mbit/s
95th percentile per-packet one-way delay: 8.647 ms
Loss rate: 13.66%
-- Flow 1:
Average throughput: 55.23 Mbit/s
95th percentile per-packet one-way delay: 8.647 ms
Loss rate: 13.66%
```

Run 2: Report of FillP-Sheep — Data Link

```
Run 3: Statistics of FillP-Sheep

Start at: 2018-11-30 04:42:47
End at: 2018-11-30 04:43:17
Local clock offset: -0.33 ms
Remote clock offset: -3.82 ms


# Below is generated by plot.py at 2018-11-30 05:44:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.37 Mbit/s
95th percentile per-packet one-way delay: 47.733 ms
Loss rate: 41.24%
-- Flow 1:
Average throughput: 0.37 Mbit/s
95th percentile per-packet one-way delay: 47.733 ms
Loss rate: 41.24%
```
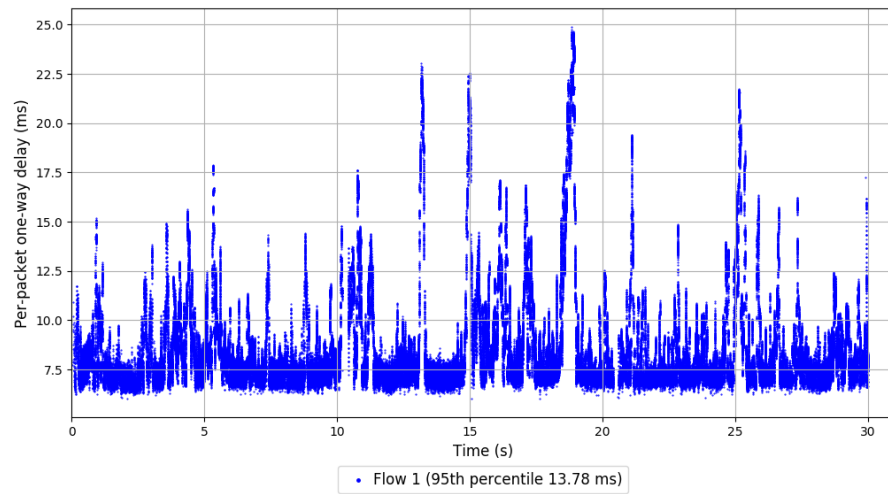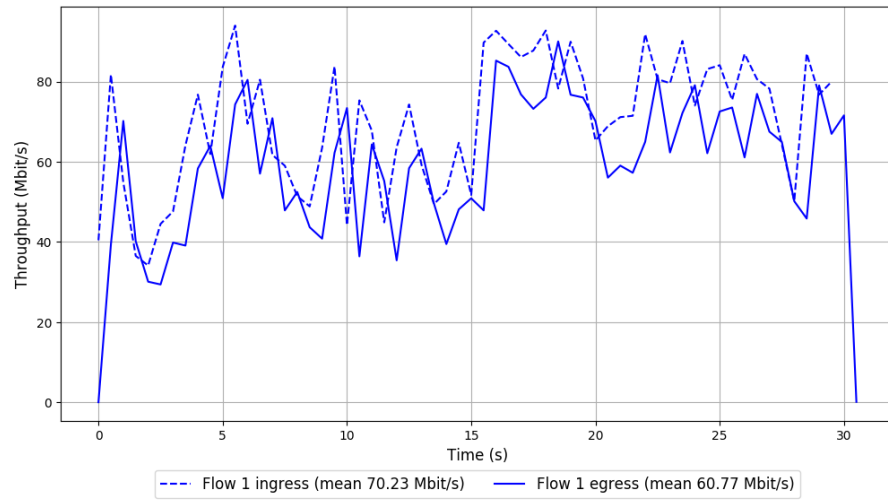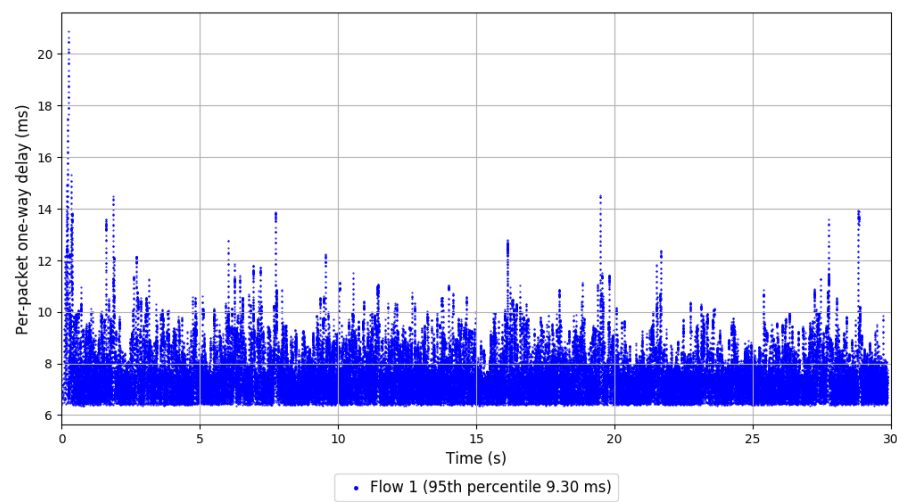
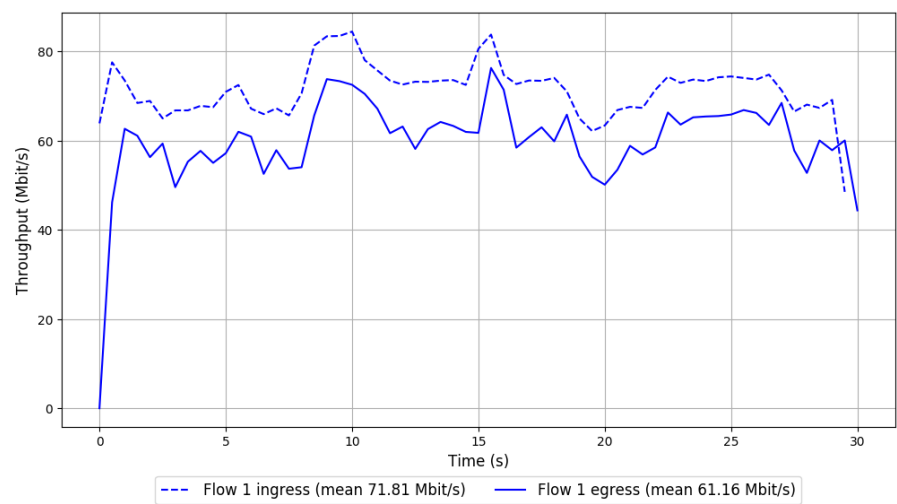Run 3: Report of FillP-Sheep — Data Link

```
Run 4: Statistics of FillP-Sheep

Start at: 2018-11-30 05:04:02
End at: 2018-11-30 05:04:32
Local clock offset: 1.613 ms
Remote clock offset: -4.764 ms


# Below is generated by plot.py at 2018-11-30 05:44:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 57.03 Mbit/s
95th percentile per-packet one-way delay: 33.158 ms
Loss rate: 9.61%
-- Flow 1:
Average throughput: 57.03 Mbit/s
95th percentile per-packet one-way delay: 33.158 ms
Loss rate: 9.61%
```

Run 4: Report of FillP-Sheep — Data Link

```
Run 5: Statistics of FillP-Sheep

Start at: 2018-11-30 05:25:39
End at: 2018-11-30 05:26:09
Local clock offset: 0.409 ms
Remote clock offset: -5.336 ms


# Below is generated by plot.py at 2018-11-30 05:45:18
# Datalink statistics
-- Total of 1 flow:
Average throughput: 60.77 Mbit/s
95th percentile per-packet one-way delay: 13.784 ms
Loss rate: 13.46%
-- Flow 1:
Average throughput: 60.77 Mbit/s
95th percentile per-packet one-way delay: 13.784 ms
Loss rate: 13.46%
```
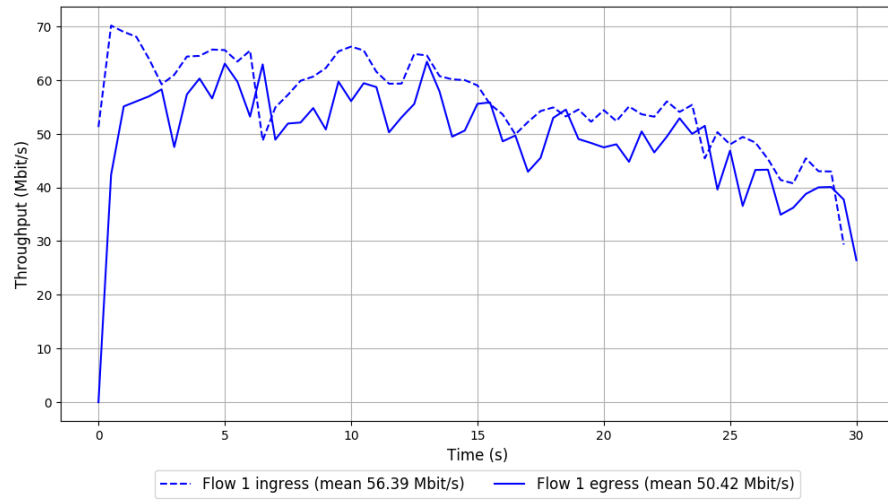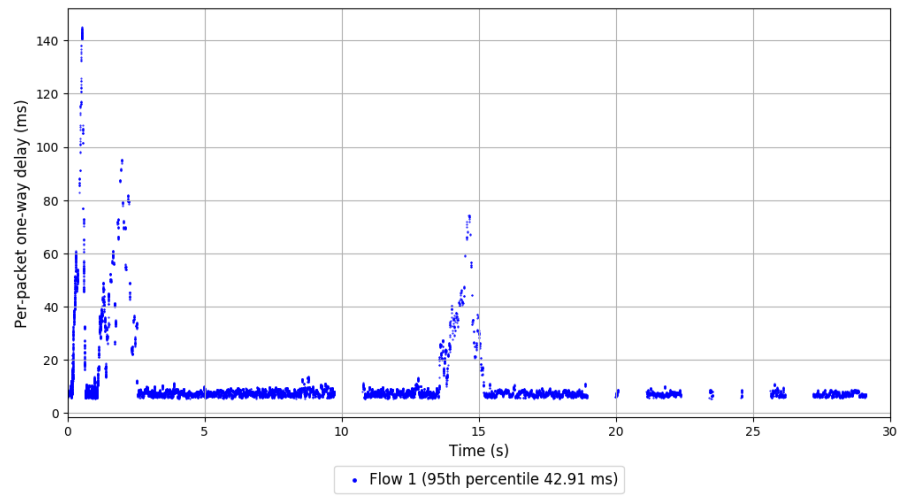
Run 5: Report of FillP-Sheep — Data Link

```
Run 1: Statistics of Indigo

Start at: 2018-11-30 04:11:21
End at: 2018-11-30 04:11:51
Local clock offset: -0.255 ms
Remote clock offset: -1.383 ms


# Below is generated by plot.py at 2018-11-30 05:45:18
# Datalink statistics
-- Total of 1 flow:
Average throughput: 61.16 Mbit/s
95th percentile per-packet one-way delay: 9.299 ms
Loss rate: 14.83%
-- Flow 1:
Average throughput: 61.16 Mbit/s
95th percentile per-packet one-way delay: 9.299 ms
Loss rate: 14.83%
```

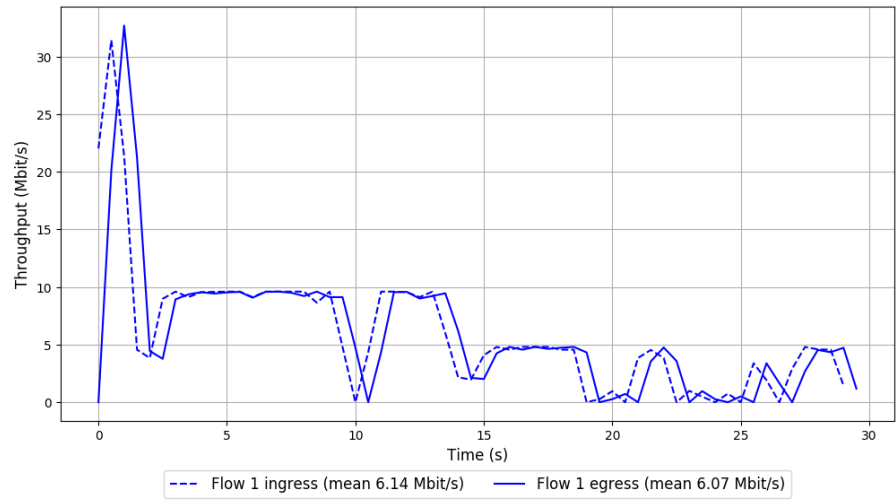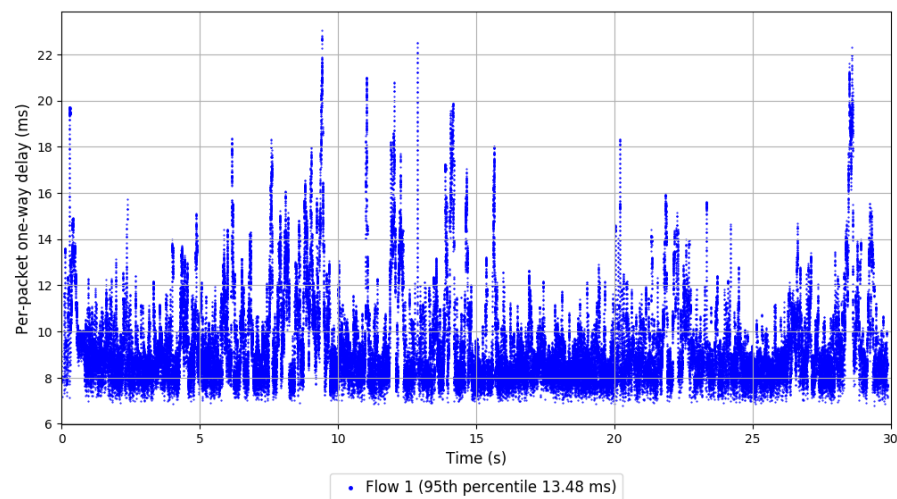Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2018-11-30 04:32:40
End at: 2018-11-30 04:33:10
Local clock offset: 0.733 ms
Remote clock offset: -4.017 ms


# Below is generated by plot.py at 2018-11-30 05:45:18
# Datalink statistics
-- Total of 1 flow:
Average throughput: 50.42 Mbit/s
95th percentile per-packet one-way delay: 11.014 ms
Loss rate: 10.59%
-- Flow 1:
Average throughput: 50.42 Mbit/s
95th percentile per-packet one-way delay: 11.014 ms
Loss rate: 10.59%
```
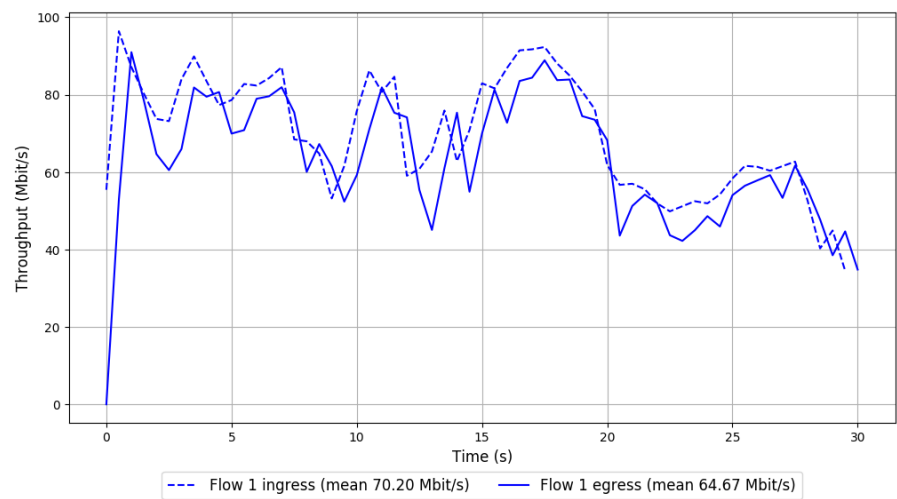
Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2018-11-30 04:53:50
End at: 2018-11-30 04:54:20
Local clock offset: 2.633 ms
Remote clock offset: -4.419 ms


# Below is generated by plot.py at 2018-11-30 05:45:18
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.07 Mbit/s
95th percentile per-packet one-way delay: 42.914 ms
Loss rate: 1.20%
-- Flow 1:
Average throughput: 6.07 Mbit/s
95th percentile per-packet one-way delay: 42.914 ms
Loss rate: 1.20%
```
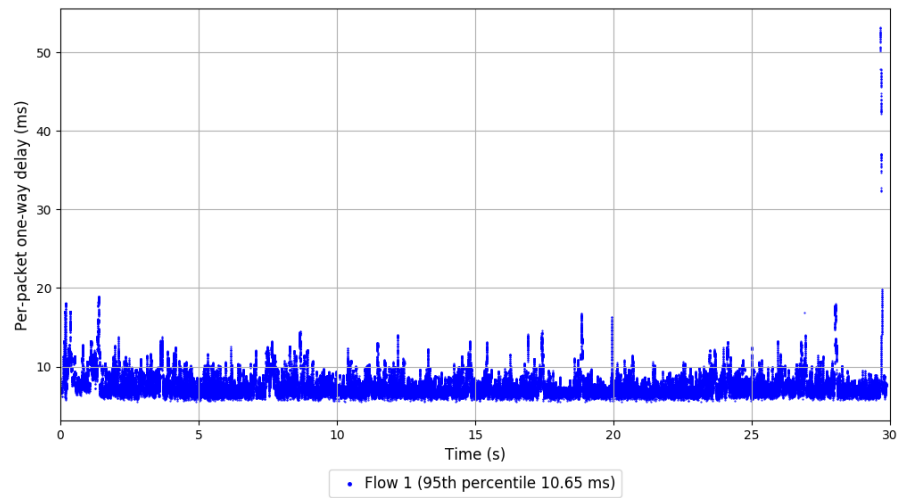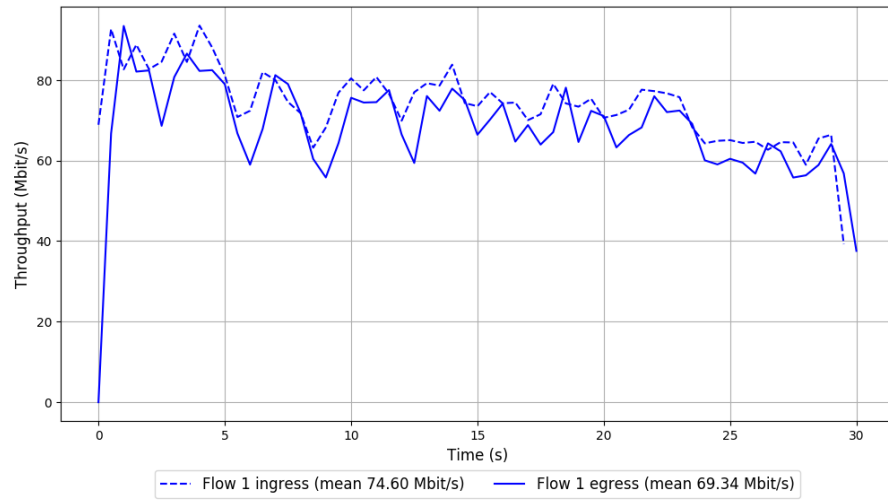
Run 3: Report of Indigo — Data Link

```
Run 4: Statistics of Indigo

Start at: 2018-11-30 05:15:14
End at: 2018-11-30 05:15:44
Local clock offset: 2.515 ms
Remote clock offset: -3.589 ms


# Below is generated by plot.py at 2018-11-30 05:45:38
# Datalink statistics
-- Total of 1 flow:
Average throughput: 64.67 Mbit/s
95th percentile per-packet one-way delay: 13.476 ms
Loss rate: 7.88%
-- Flow 1:
Average throughput: 64.67 Mbit/s
95th percentile per-packet one-way delay: 13.476 ms
Loss rate: 7.88%
```

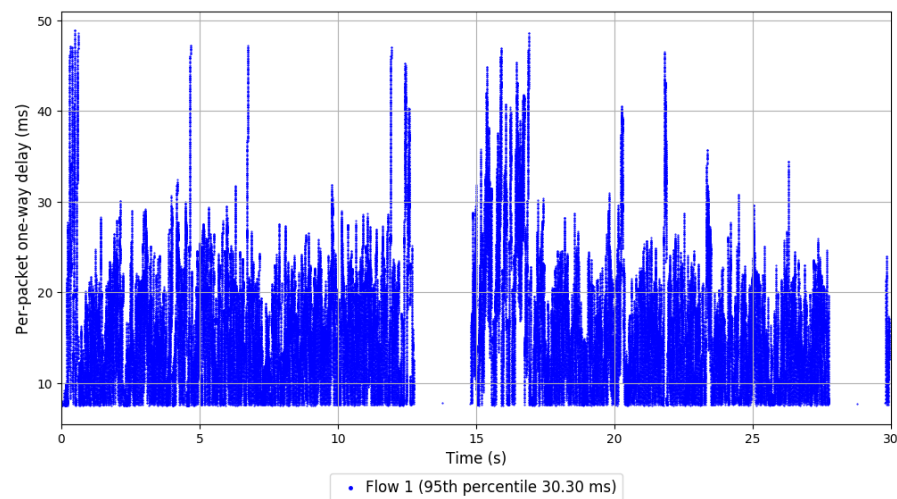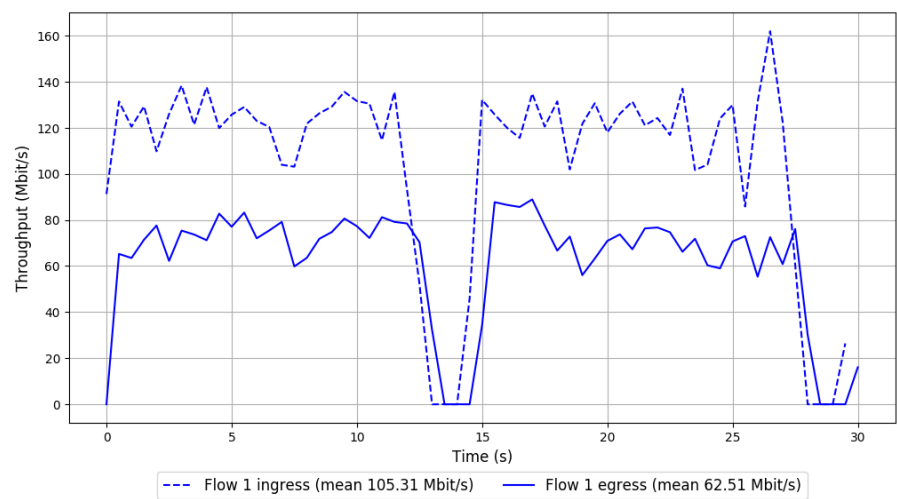Run 4: Report of Indigo — Data Link

```
Run 5: Statistics of Indigo

Start at: 2018-11-30 05:36:58
End at: 2018-11-30 05:37:28
Local clock offset: 0.894 ms
Remote clock offset: -5.724 ms


# Below is generated by plot.py at 2018-11-30 05:45:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 69.34 Mbit/s
95th percentile per-packet one-way delay: 10.646 ms
Loss rate: 7.06%
-- Flow 1:
Average throughput: 69.34 Mbit/s
95th percentile per-packet one-way delay: 10.646 ms
Loss rate: 7.06%
```
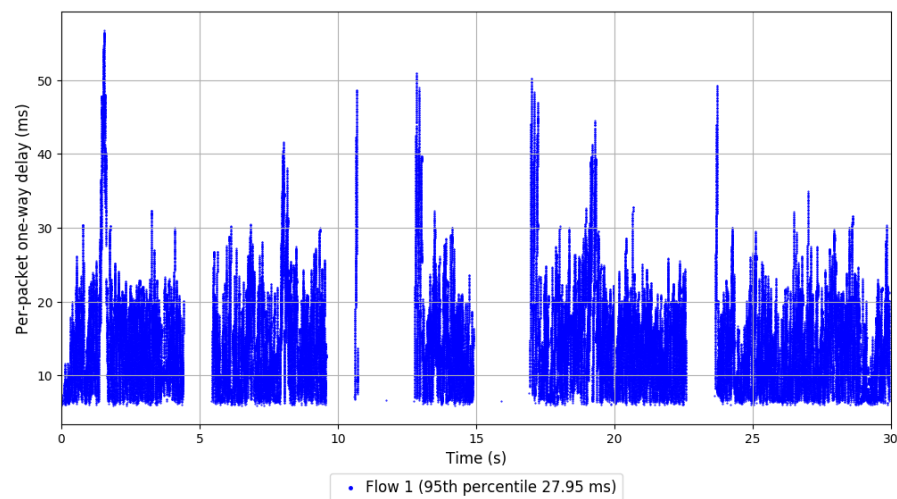
Run 5: Report of Indigo — Data Link

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

Start at: 2018-11-30 03:58:27
End at: 2018-11-30 03:58:57
Local clock offset: -2.293 ms
Remote clock offset: -2.868 ms

# Below is generated by plot.py at 2018-11-30 05:45:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 62.51 Mbit/s
95th percentile per-packet one-way delay: 30.301 ms
Loss rate: 40.63%
-- Flow 1:
Average throughput: 62.51 Mbit/s
95th percentile per-packet one-way delay: 30.301 ms
Loss rate: 40.63%
```

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

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

Start at: 2018-11-30 04:20:17
End at: 2018-11-30 04:20:47
Local clock offset: 1.42 ms
Remote clock offset: -2.655 ms


# Below is generated by plot.py at 2018-11-30 05:45:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 54.34 Mbit/s
95th percentile per-packet one-way delay: 27.950 ms
Loss rate: 41.43%
-- Flow 1:
Average throughput: 54.34 Mbit/s
95th percentile per-packet one-way delay: 27.950 ms
Loss rate: 41.43%
```
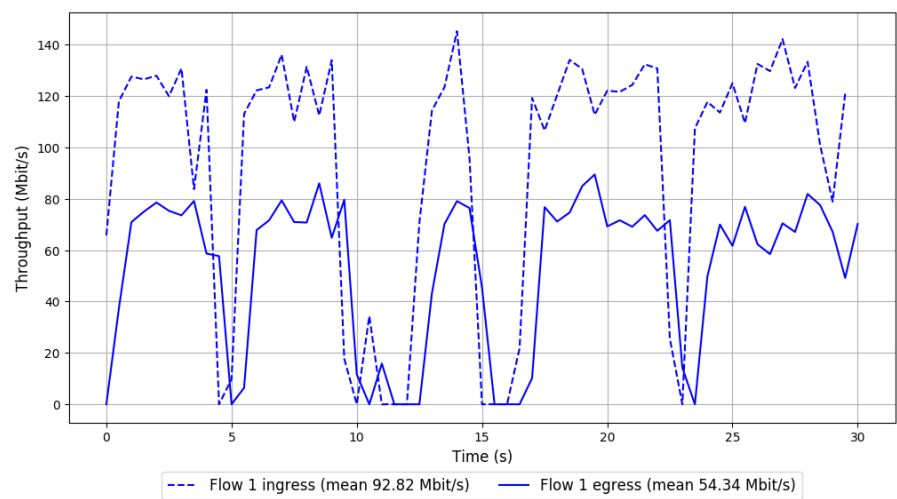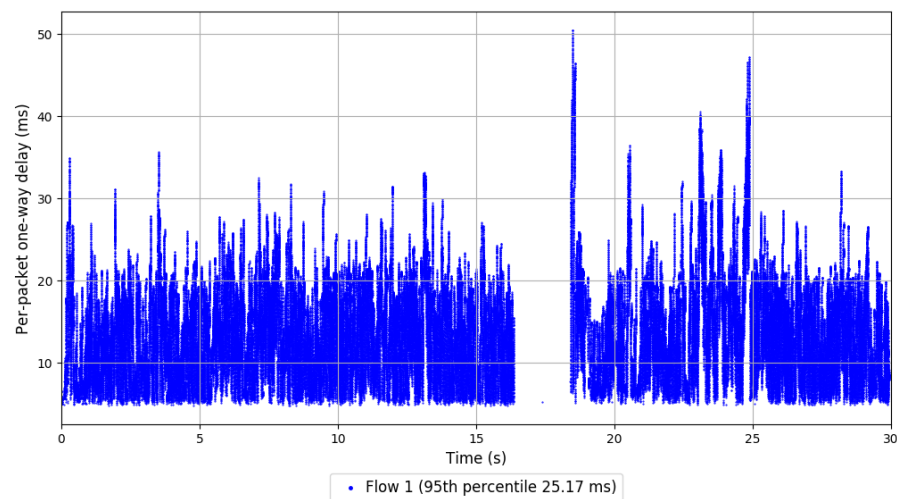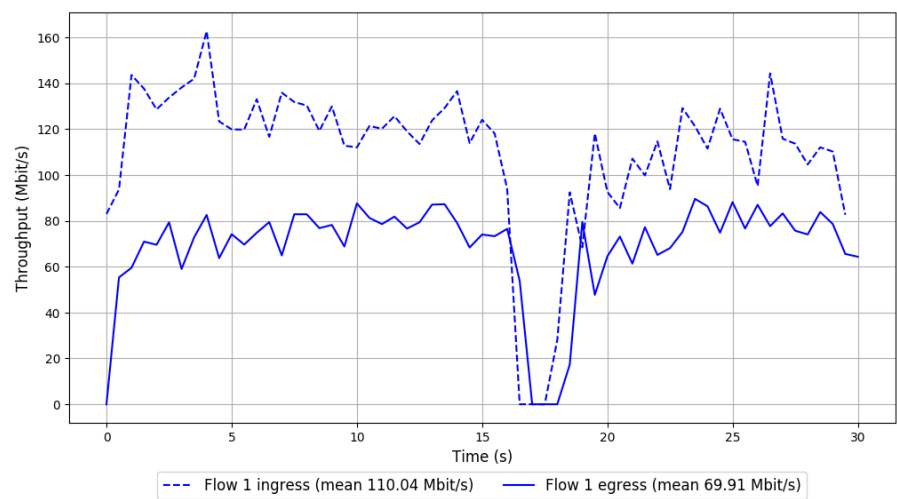
Run 2: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-11-30 04:41:36
End at: 2018-11-30 04:42:06
Local clock offset: 2.167 ms
Remote clock offset: -3.898 ms


# Below is generated by plot.py at 2018-11-30 05:46:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 69.91 Mbit/s
95th percentile per-packet one-way delay: 25.174 ms
Loss rate: 36.46%
-- Flow 1:
Average throughput: 69.91 Mbit/s
95th percentile per-packet one-way delay: 25.174 ms
Loss rate: 36.46%
```
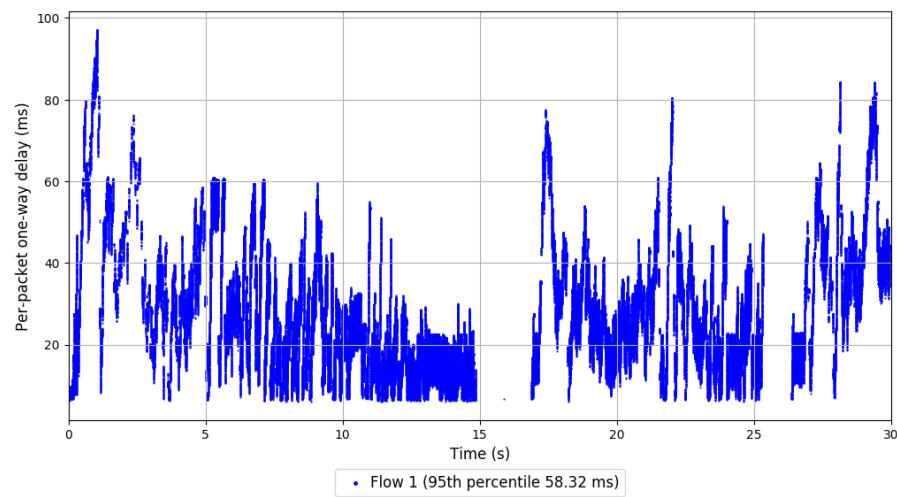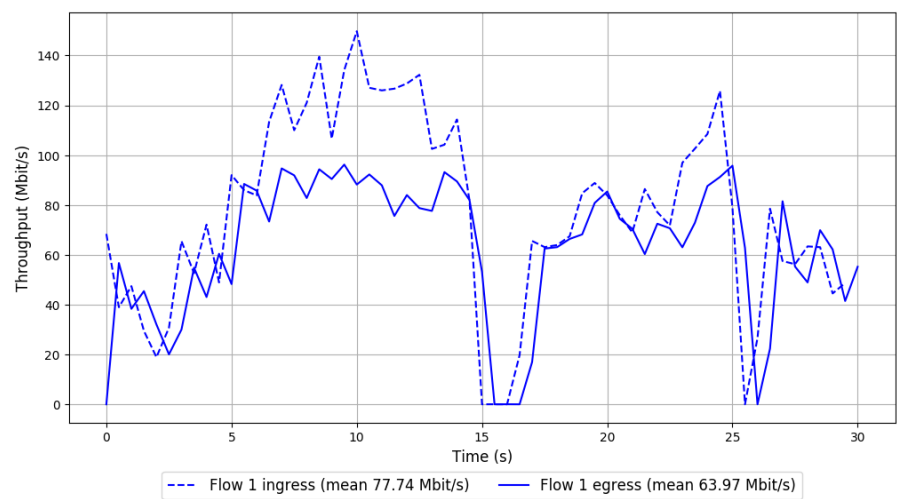
Run 3: Report of Indigo-96d2da3 — Data Link

Flow 1 ingress (mean 110.04 Mbit/s)   Flow 1 egress (mean 69.91 Mbit/s)

Flow 1 (95th percentile 25.17 ms)

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

Start at: 2018-11-30 05:02:52
End at: 2018-11-30 05:03:22
Local clock offset: 1.365 ms
Remote clock offset: -4.131 ms


# Below is generated by plot.py at 2018-11-30 05:46:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 63.97 Mbit/s
95th percentile per-packet one-way delay: 58.318 ms
Loss rate: 17.61%
-- Flow 1:
Average throughput: 63.97 Mbit/s
95th percentile per-packet one-way delay: 58.318 ms
Loss rate: 17.61%
```
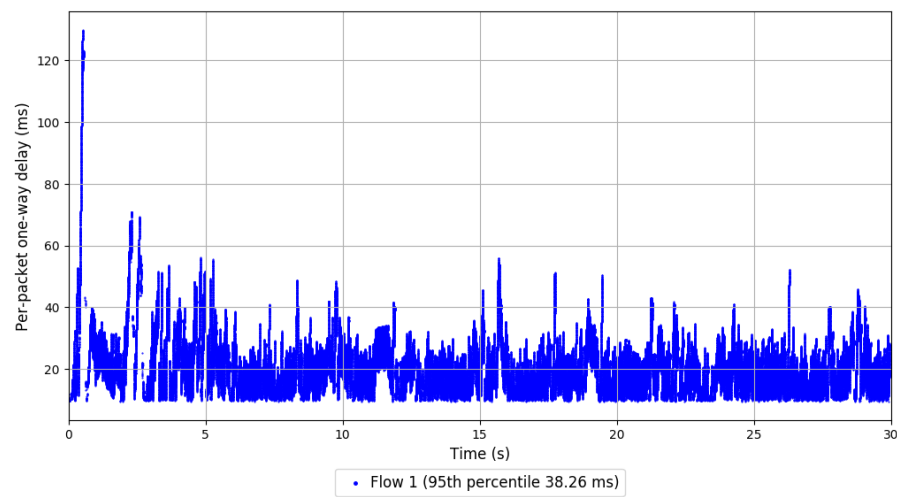
Run 4: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-11-30 05:24:23
End at: 2018-11-30 05:24:53
Local clock offset: -1.24 ms
Remote clock offset: -4.678 ms


# Below is generated by plot.py at 2018-11-30 05:46:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 76.10 Mbit/s
95th percentile per-packet one-way delay: 38.259 ms
Loss rate: 34.81%
-- Flow 1:
Average throughput: 76.10 Mbit/s
95th percentile per-packet one-way delay: 38.259 ms
Loss rate: 34.81%
```
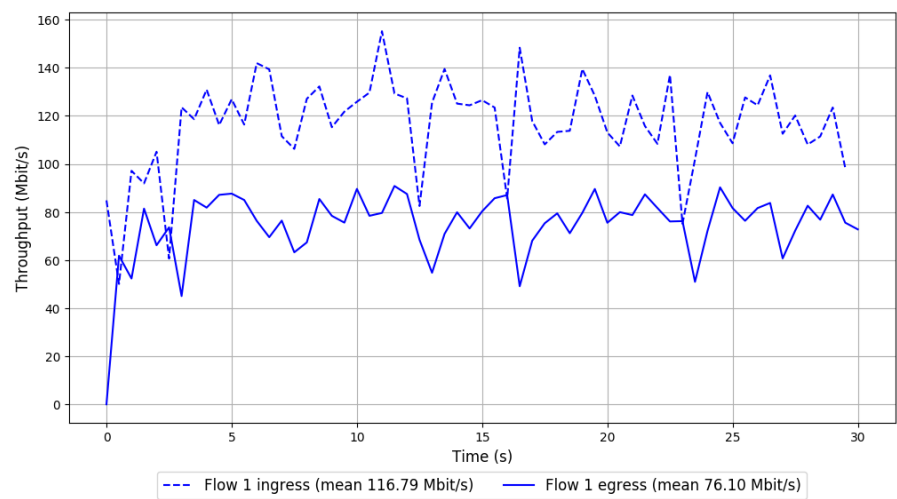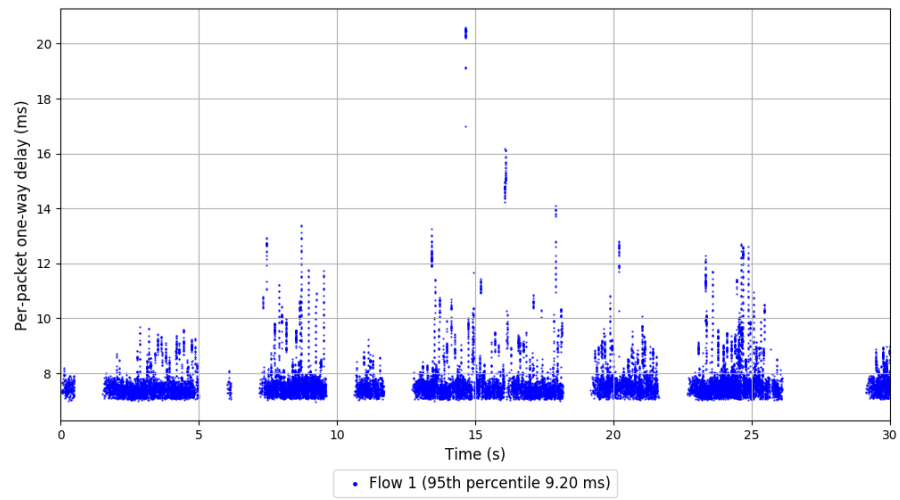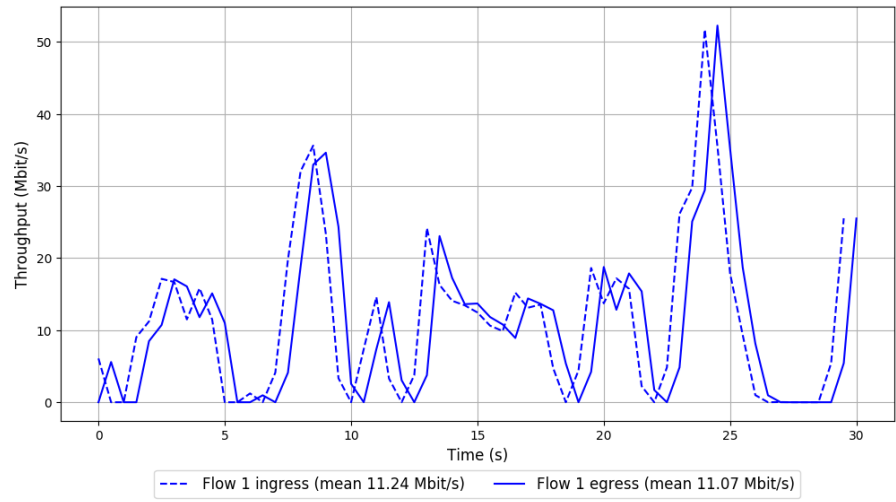
Run 5: Report of Indigo-96d2da3 — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2018-11-30 04:04:09
End at: 2018-11-30 04:04:39
Local clock offset: 0.272 ms
Remote clock offset: -1.075 ms


# Below is generated by plot.py at 2018-11-30 05:46:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.07 Mbit/s
95th percentile per-packet one-way delay: 9.199 ms
Loss rate: 1.50%
-- Flow 1:
Average throughput: 11.07 Mbit/s
95th percentile per-packet one-way delay: 9.199 ms
Loss rate: 1.50%
```
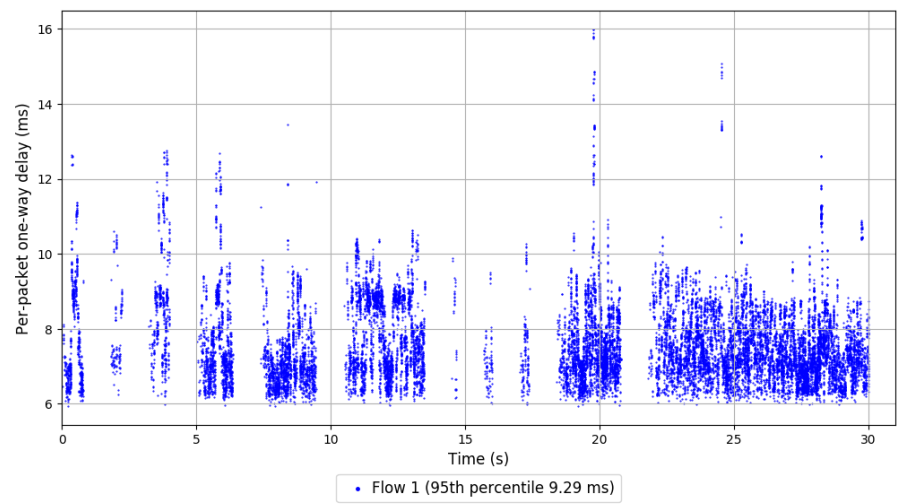
Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2018-11-30 04:25:59
End at: 2018-11-30 04:26:29
Local clock offset: 2.028 ms
Remote clock offset: -2.66 ms


# Below is generated by plot.py at 2018-11-30 05:46:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.09 Mbit/s
95th percentile per-packet one-way delay: 9.288 ms
Loss rate: 2.05%
-- Flow 1:
Average throughput: 8.09 Mbit/s
95th percentile per-packet one-way delay: 9.288 ms
Loss rate: 2.05%
```
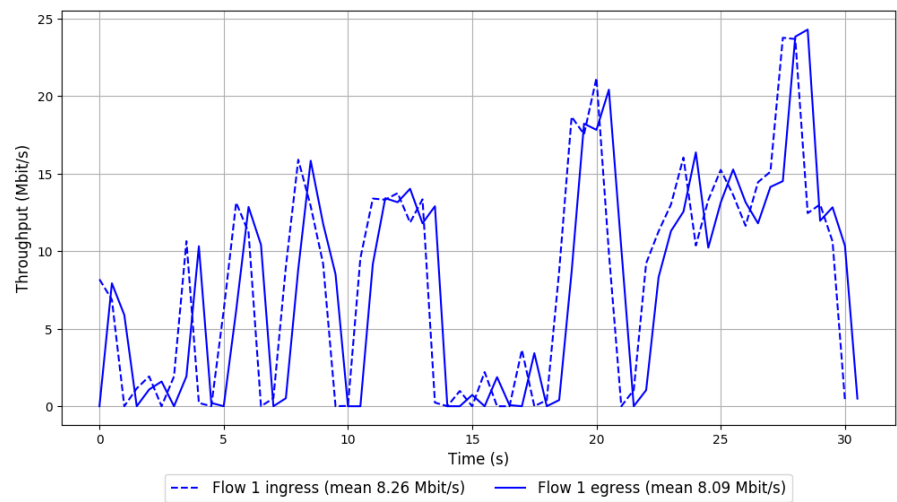
Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2018-11-30 04:47:13
End at: 2018-11-30 04:47:43
Local clock offset: 3.275 ms
Remote clock offset: -4.83 ms

# Below is generated by plot.py at 2018-11-30 05:46:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.47 Mbit/s
95th percentile per-packet one-way delay: 7.058 ms
Loss rate: 2.17%
-- Flow 1:
Average throughput: 6.47 Mbit/s
95th percentile per-packet one-way delay: 7.058 ms
Loss rate: 2.17%
```
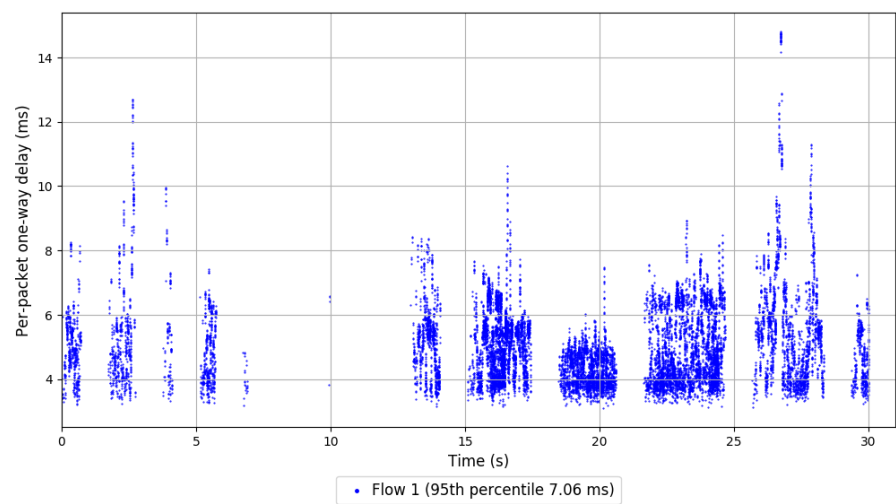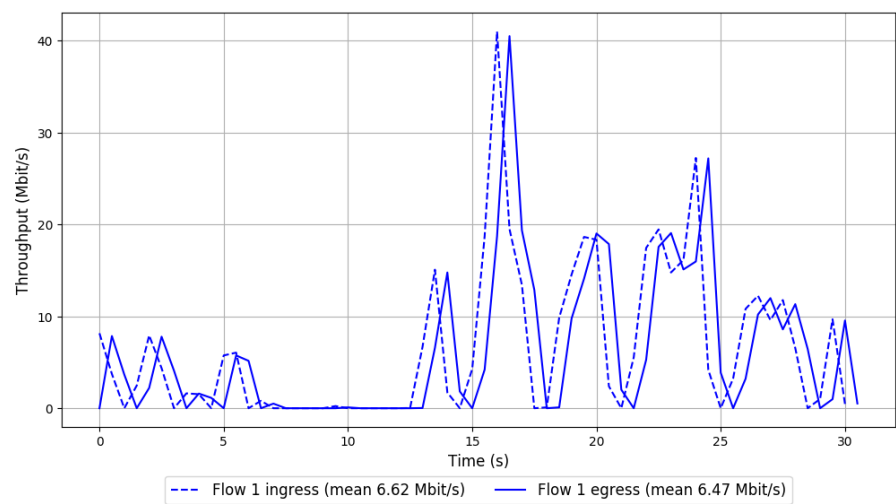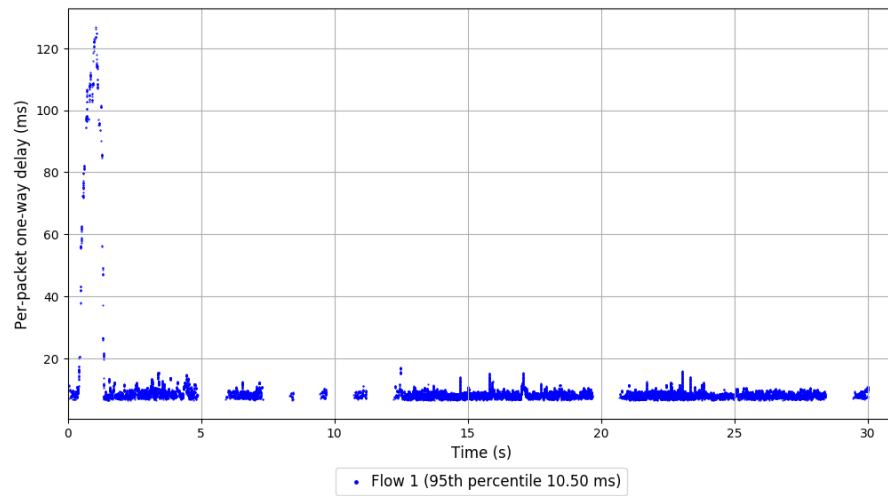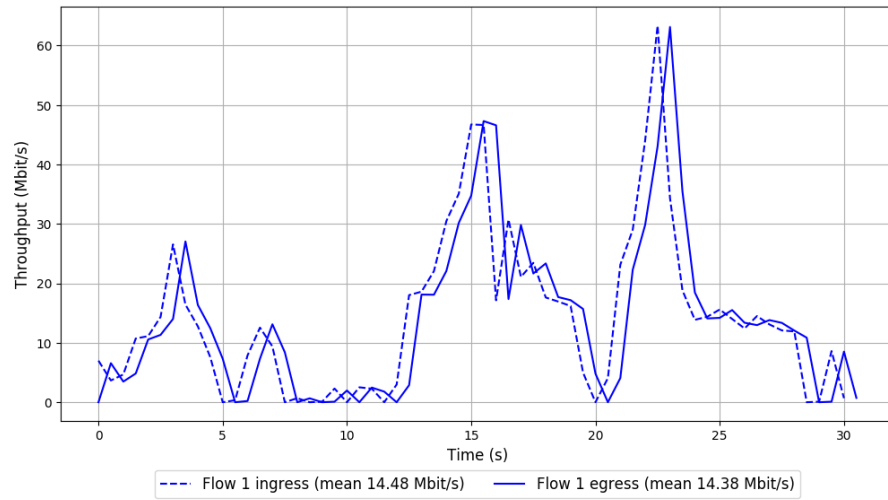
Run 3: Report of LEDBAT — Data Link

Flow 1 ingress (mean 6.62 Mbit/s)   Flow 1 egress (mean 6.47 Mbit/s)
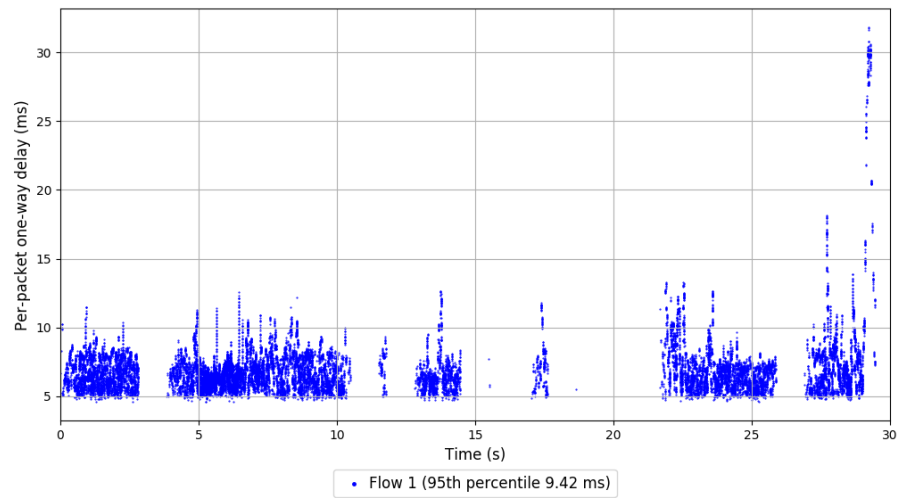

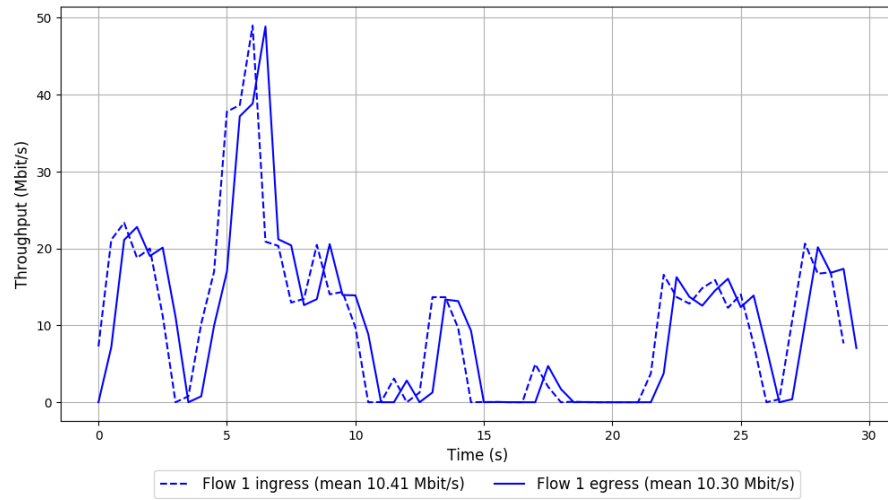
Flow 1 (95th percentile 7.06 ms)

```
Run 4: Statistics of LEDBAT

Start at: 2018-11-30 05:08:31
End at: 2018-11-30 05:09:01
Local clock offset: 0.552 ms
Remote clock offset: -5.667 ms


# Below is generated by plot.py at 2018-11-30 05:46:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 14.38 Mbit/s
95th percentile per-packet one-way delay: 10.498 ms
Loss rate: 0.72%
-- Flow 1:
Average throughput: 14.38 Mbit/s
95th percentile per-packet one-way delay: 10.498 ms
Loss rate: 0.72%
```

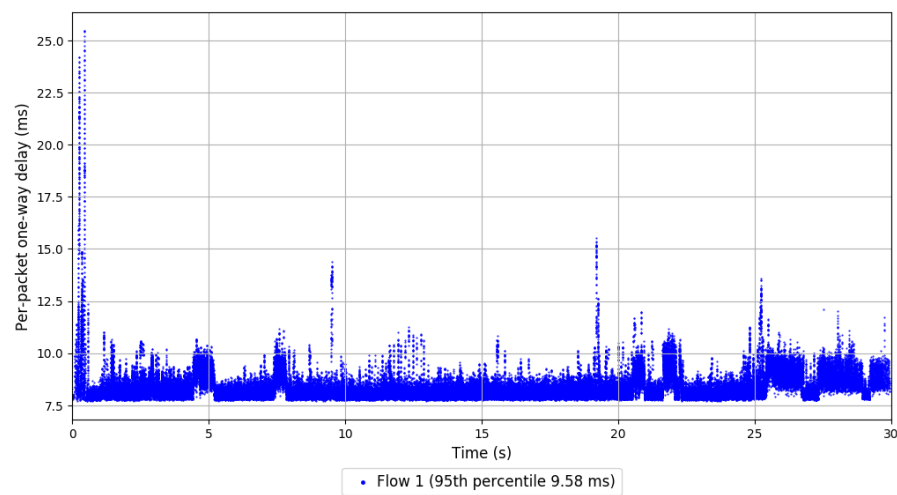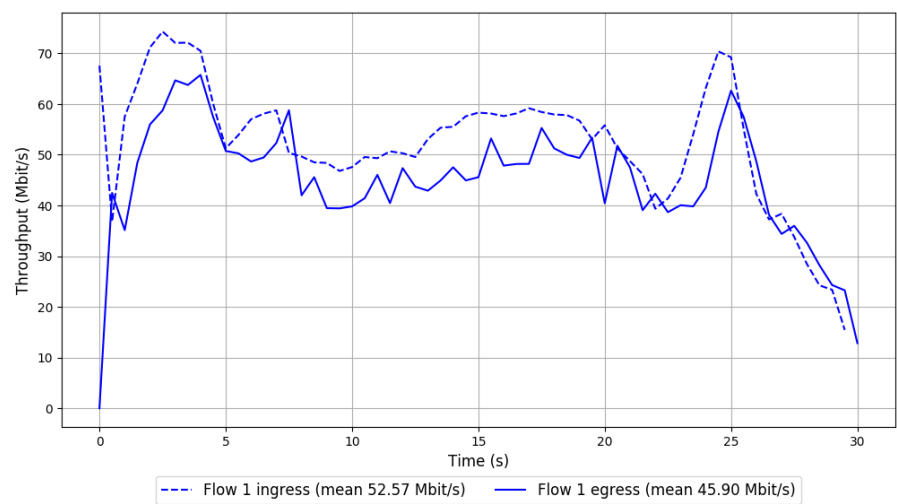Run 4: Report of LEDBAT — Data Link

```
Run 5: Statistics of LEDBAT

Start at: 2018-11-30 05:30:16
End at: 2018-11-30 05:30:46
Local clock offset: 2.155 ms
Remote clock offset: -5.206 ms


# Below is generated by plot.py at 2018-11-30 05:46:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 10.30 Mbit/s
95th percentile per-packet one-way delay: 9.424 ms
Loss rate: 1.08%
-- Flow 1:
Average throughput: 10.30 Mbit/s
95th percentile per-packet one-way delay: 9.424 ms
Loss rate: 1.08%
```

Run 5: Report of LEDBAT — Data Link

Flow 1 ingress (mean 10.41 Mbit/s) --- Flow 1 egress (mean 10.30 Mbit/s)
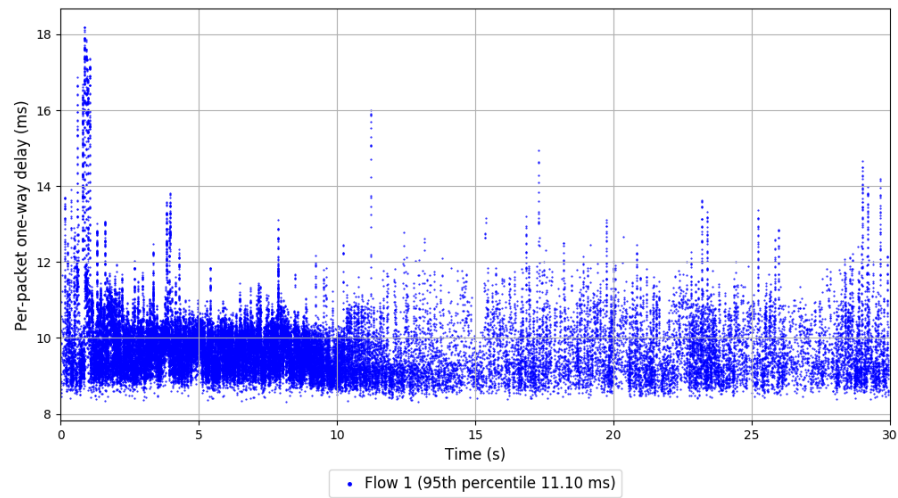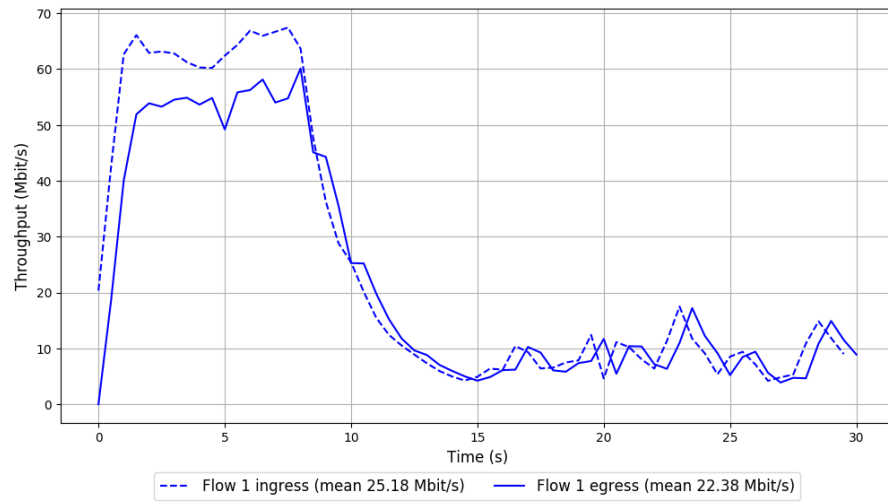

• Flow 1 (95th percentile 9.42 ms)

```
Run 1: Statistics of Indigo-Muses

Start at: 2018-11-30 04:09:06
End at: 2018-11-30 04:09:36
Local clock offset: -0.559 ms
Remote clock offset: -1.431 ms


# Below is generated by plot.py at 2018-11-30 05:46:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 45.90 Mbit/s
95th percentile per-packet one-way delay: 9.581 ms
Loss rate: 12.69%
-- Flow 1:
Average throughput: 45.90 Mbit/s
95th percentile per-packet one-way delay: 9.581 ms
Loss rate: 12.69%
```
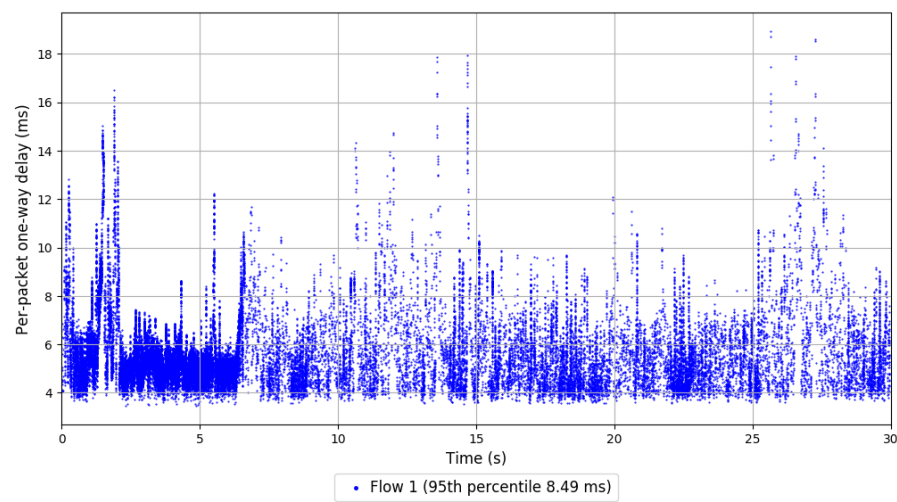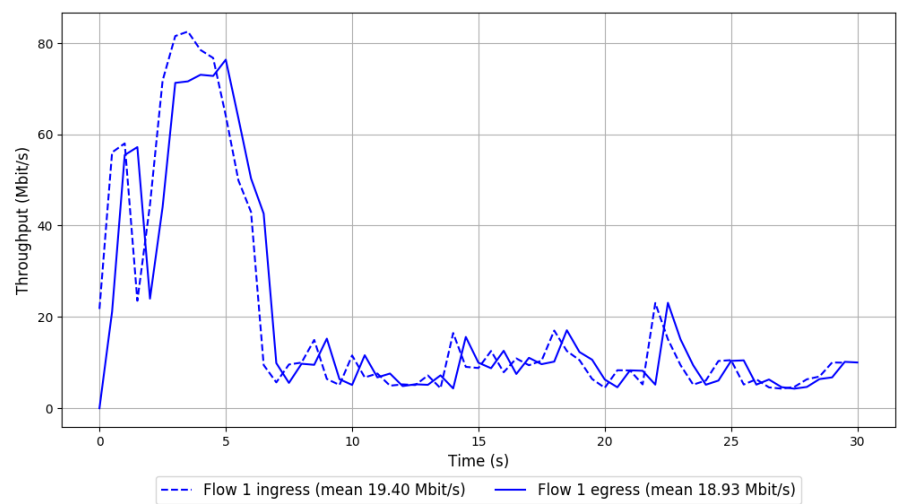
Run 1: Report of Indigo-Muses — Data Link

```
Run 2: Statistics of Indigo-Muses

Start at: 2018-11-30 04:30:26
End at: 2018-11-30 04:30:56
Local clock offset: 0.221 ms
Remote clock offset: -2.642 ms


# Below is generated by plot.py at 2018-11-30 05:46:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 22.38 Mbit/s
95th percentile per-packet one-way delay: 11.104 ms
Loss rate: 11.11%
-- Flow 1:
Average throughput: 22.38 Mbit/s
95th percentile per-packet one-way delay: 11.104 ms
Loss rate: 11.11%
```
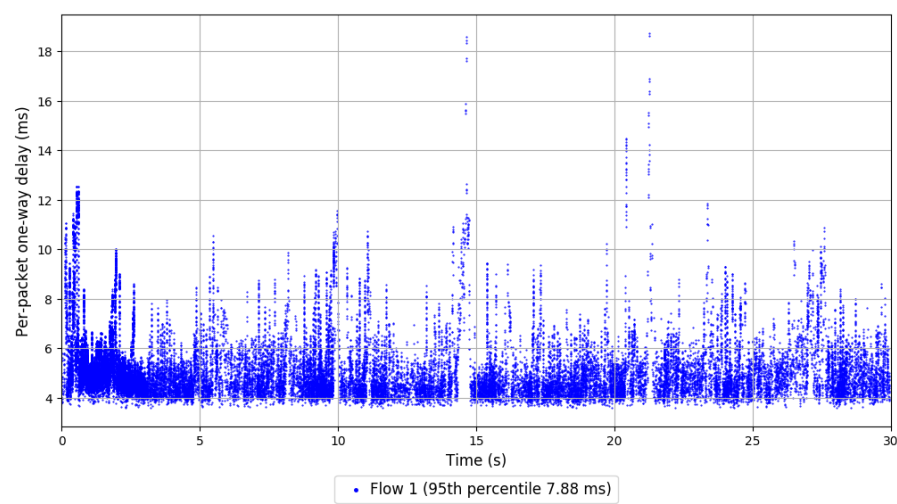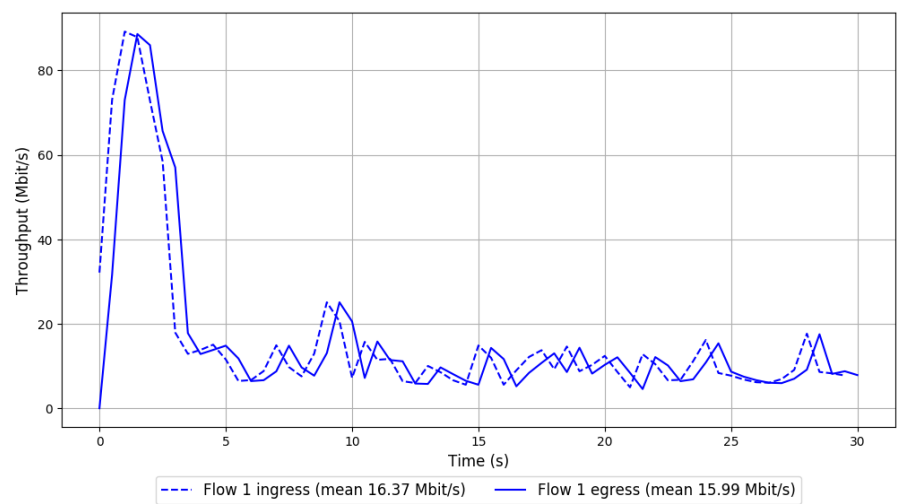
Run 2: Report of Indigo-Muses — Data Link

```
Run 3: Statistics of Indigo-Muses

Start at: 2018-11-30 04:51:38
End at: 2018-11-30 04:52:08
Local clock offset: 3.306 ms
Remote clock offset: -4.429 ms


# Below is generated by plot.py at 2018-11-30 05:46:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 18.93 Mbit/s
95th percentile per-packet one-way delay: 8.486 ms
Loss rate: 2.46%
-- Flow 1:
Average throughput: 18.93 Mbit/s
95th percentile per-packet one-way delay: 8.486 ms
Loss rate: 2.46%
```
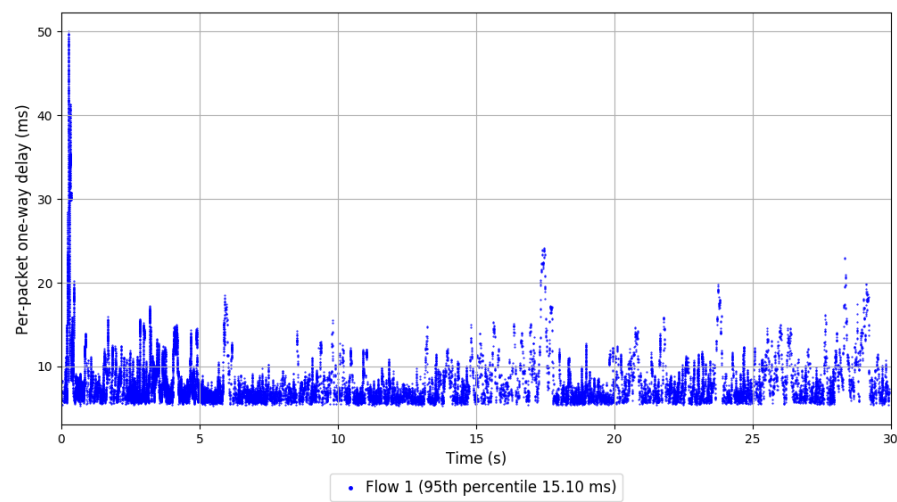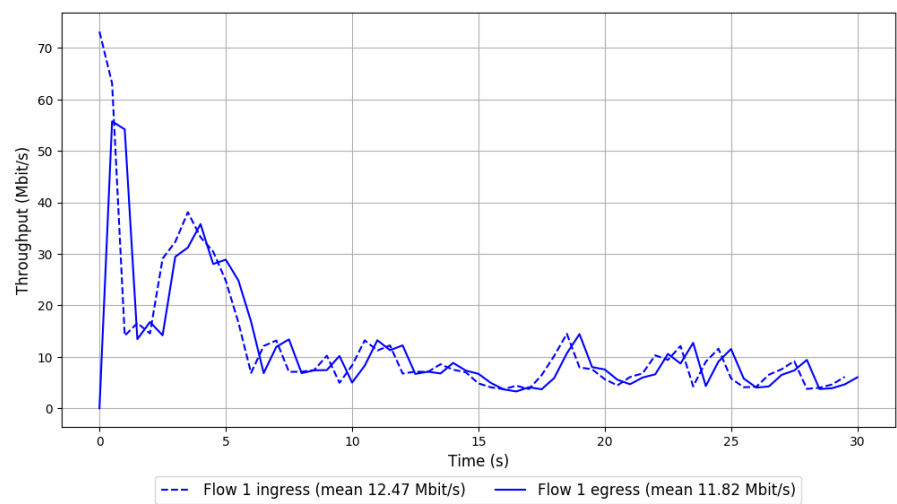
Run 3: Report of Indigo-Muses — Data Link

```
Run 4: Statistics of Indigo-Muses

Start at: 2018-11-30 05:13:01
End at: 2018-11-30 05:13:31
Local clock offset: 3.851 ms
Remote clock offset: -4.273 ms


# Below is generated by plot.py at 2018-11-30 05:46:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 15.99 Mbit/s
95th percentile per-packet one-way delay: 7.880 ms
Loss rate: 2.35%
-- Flow 1:
Average throughput: 15.99 Mbit/s
95th percentile per-packet one-way delay: 7.880 ms
Loss rate: 2.35%
```

Run 4: Report of Indigo-Muses — Data Link

```
Run 5: Statistics of Indigo-Muses

Start at: 2018-11-30 05:34:47
End at: 2018-11-30 05:35:17
Local clock offset: 3.226 ms
Remote clock offset: -4.635 ms


# Below is generated by plot.py at 2018-11-30 05:46:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.82 Mbit/s
95th percentile per-packet one-way delay: 15.096 ms
Loss rate: 5.19%
-- Flow 1:
Average throughput: 11.82 Mbit/s
95th percentile per-packet one-way delay: 15.096 ms
Loss rate: 5.19%
```
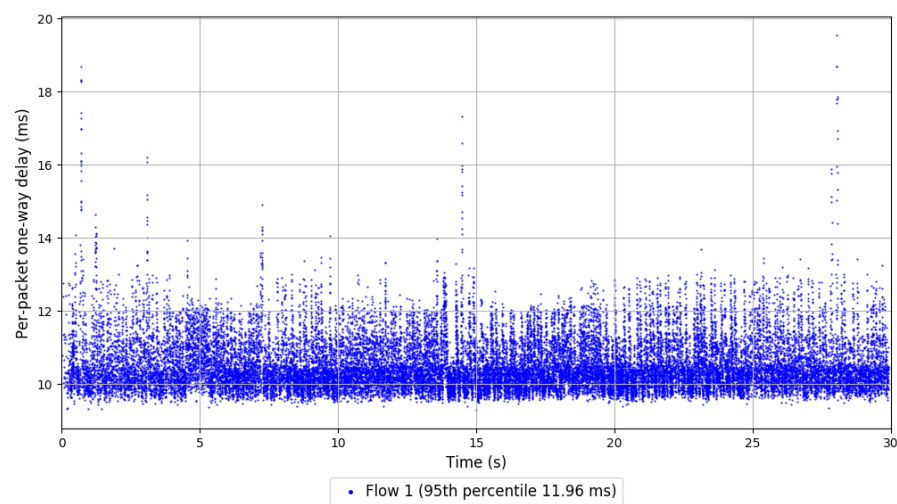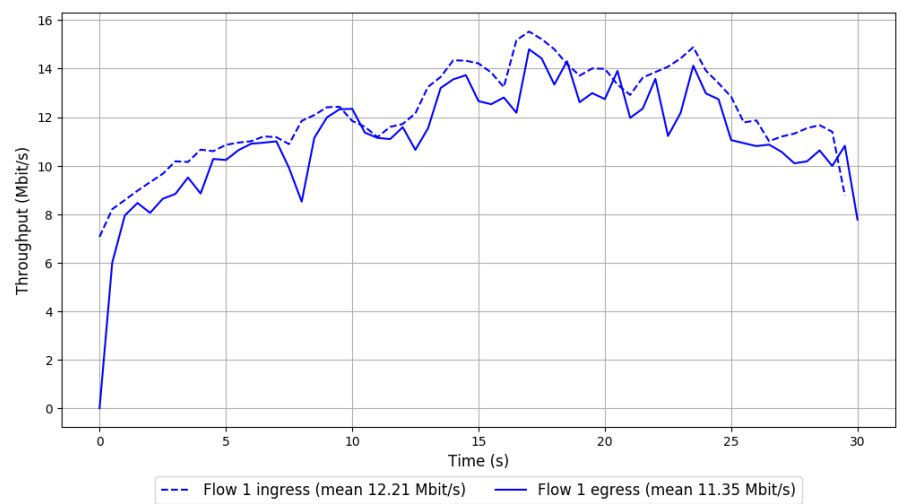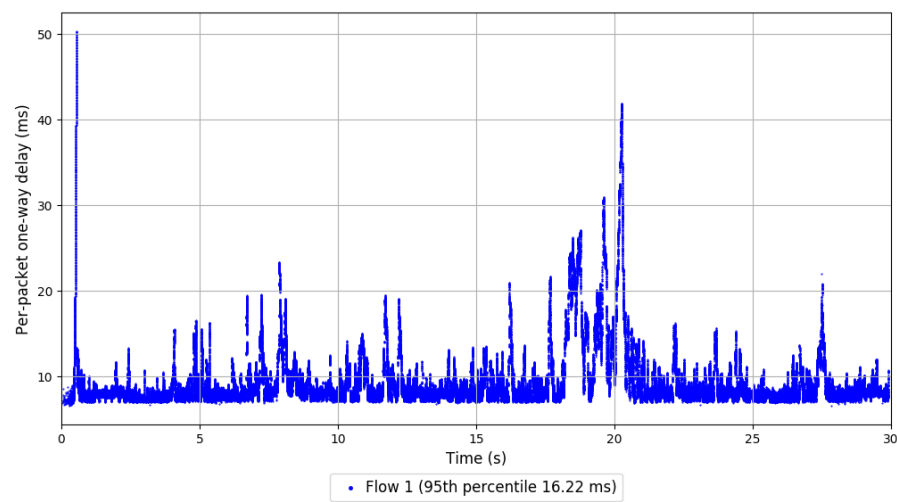
Run 5: Report of Indigo-Muses — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2018-11-30 04:14:46
End at: 2018-11-30 04:15:16
Local clock offset: -2.287 ms
Remote clock offset: -1.82 ms


# Below is generated by plot.py at 2018-11-30 05:46:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.35 Mbit/s
95th percentile per-packet one-way delay: 11.959 ms
Loss rate: 7.01%
-- Flow 1:
Average throughput: 11.35 Mbit/s
95th percentile per-packet one-way delay: 11.959 ms
Loss rate: 7.01%
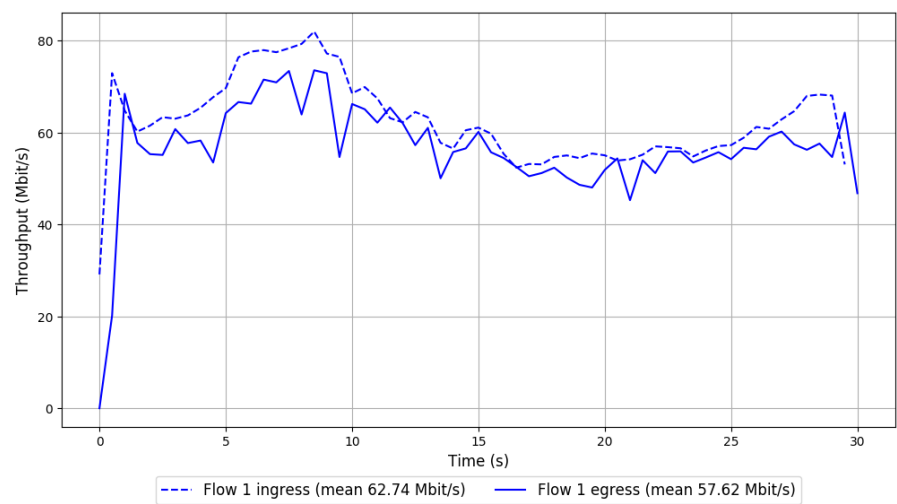```
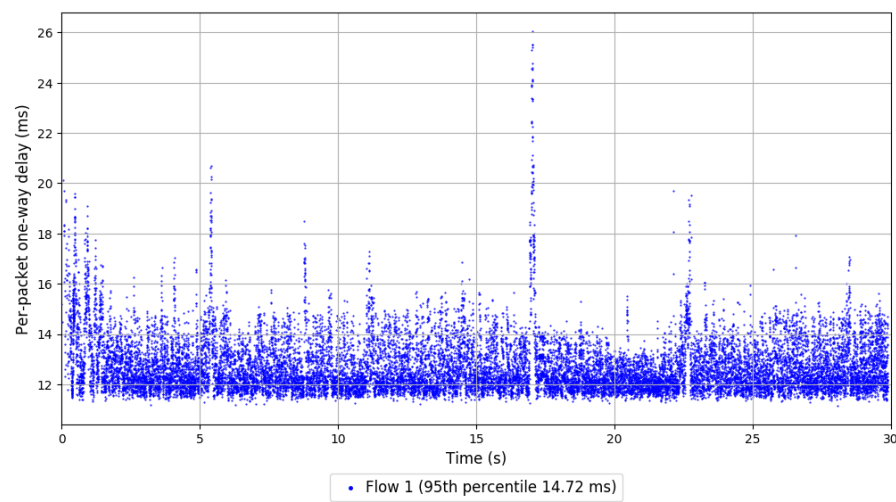
Run 1: Report of PCC-Allegro — Data Link

```
Run 2: Statistics of PCC-Allegro

Start at: 2018-11-30 04:36:01
End at: 2018-11-30 04:36:31
Local clock offset: 1.791 ms
Remote clock offset: -2.117 ms


# Below is generated by plot.py at 2018-11-30 05:47:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 57.62 Mbit/s
95th percentile per-packet one-way delay: 16.219 ms
Loss rate: 8.15%
-- Flow 1:
Average throughput: 57.62 Mbit/s
95th percentile per-packet one-way delay: 16.219 ms
Loss rate: 8.15%
```

Run 2: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 62.74 Mbit/s)   Flow 1 egress (mean 57.62 Mbit/s)
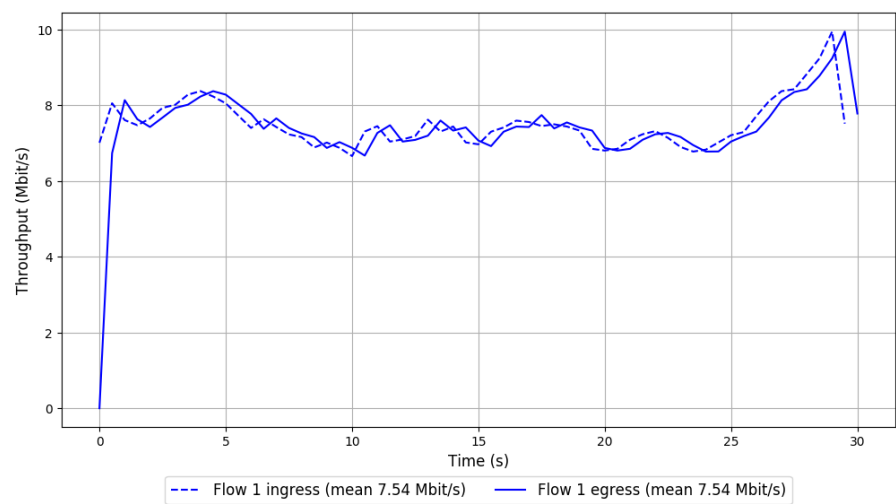

Flow 1 (95th percentile 16.22 ms)

```
Run 3: Statistics of PCC-Allegro

Start at: 2018-11-30 04:57:09
End at: 2018-11-30 04:57:39
Local clock offset: -6.551 ms
Remote clock offset: -6.619 ms


# Below is generated by plot.py at 2018-11-30 05:47:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.54 Mbit/s
95th percentile per-packet one-way delay: 14.722 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.54 Mbit/s
95th percentile per-packet one-way delay: 14.722 ms
Loss rate: 0.00%
```
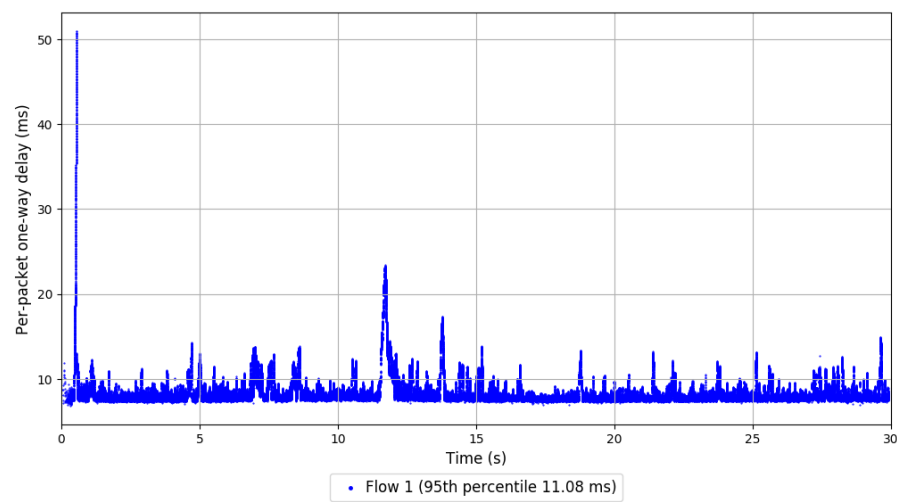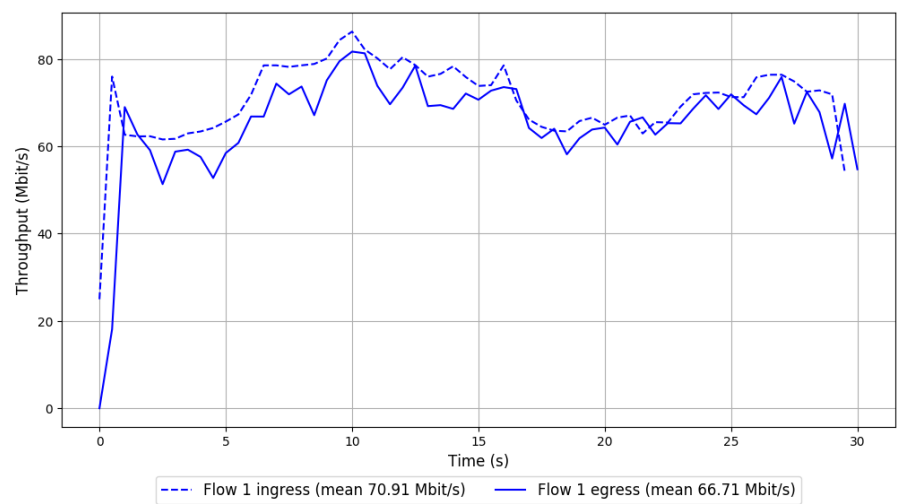
Run 3: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 7.54 Mbit/s)   Flow 1 egress (mean 7.54 Mbit/s)

Flow 1 (95th percentile 14.72 ms)

```
Run 4: Statistics of PCC-Allegro

Start at: 2018-11-30 05:18:42
End at: 2018-11-30 05:19:12
Local clock offset: 0.385 ms
Remote clock offset: -4.406 ms


# Below is generated by plot.py at 2018-11-30 05:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 66.71 Mbit/s
95th percentile per-packet one-way delay: 11.078 ms
Loss rate: 5.93%
-- Flow 1:
Average throughput: 66.71 Mbit/s
95th percentile per-packet one-way delay: 11.078 ms
Loss rate: 5.93%
```

Run 4: Report of PCC-Allegro — Data Link

```
Run 5: Statistics of PCC-Allegro

Start at: 2018-11-30 05:40:22
End at: 2018-11-30 05:40:52
Local clock offset: 3.916 ms
Remote clock offset: -6.017 ms


# Below is generated by plot.py at 2018-11-30 05:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.37 Mbit/s
95th percentile per-packet one-way delay: 7.238 ms
Loss rate: 0.49%
-- Flow 1:
Average throughput: 4.37 Mbit/s
95th percentile per-packet one-way delay: 7.238 ms
Loss rate: 0.49%
```
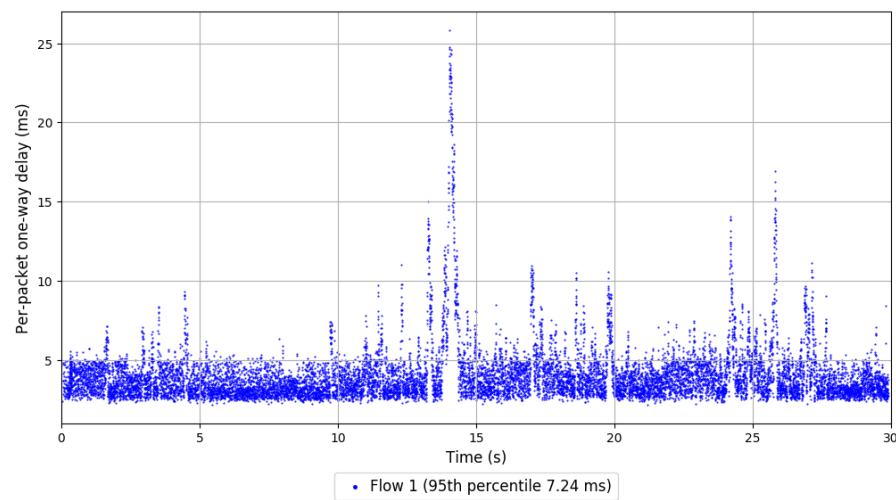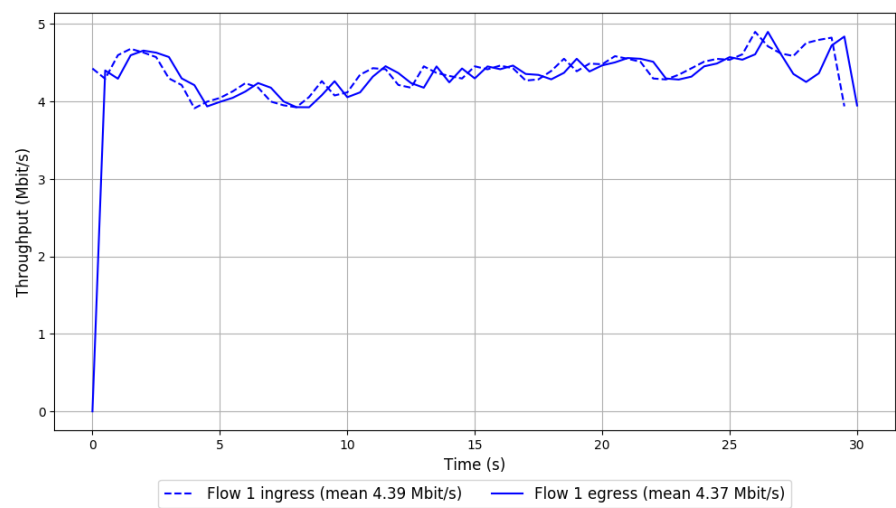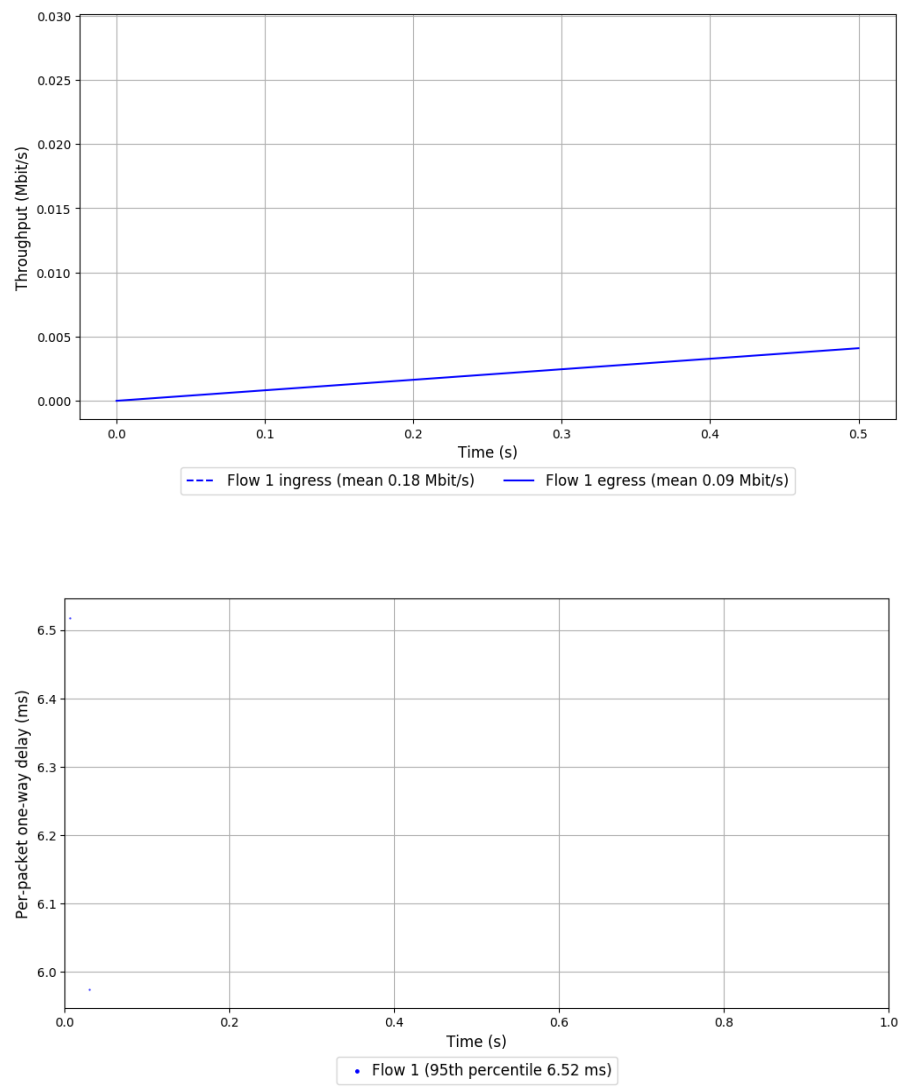
Run 5: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 4.39 Mbit/s) ----- Flow 1 egress (mean 4.37 Mbit/s)

• Flow 1 (95th percentile 7.24 ms)

```
Run 1: Statistics of PCC-Expr

Start at: 2018-11-30 04:01:53
End at: 2018-11-30 04:02:23
Local clock offset: -0.813 ms
Remote clock offset: -3.103 ms
```

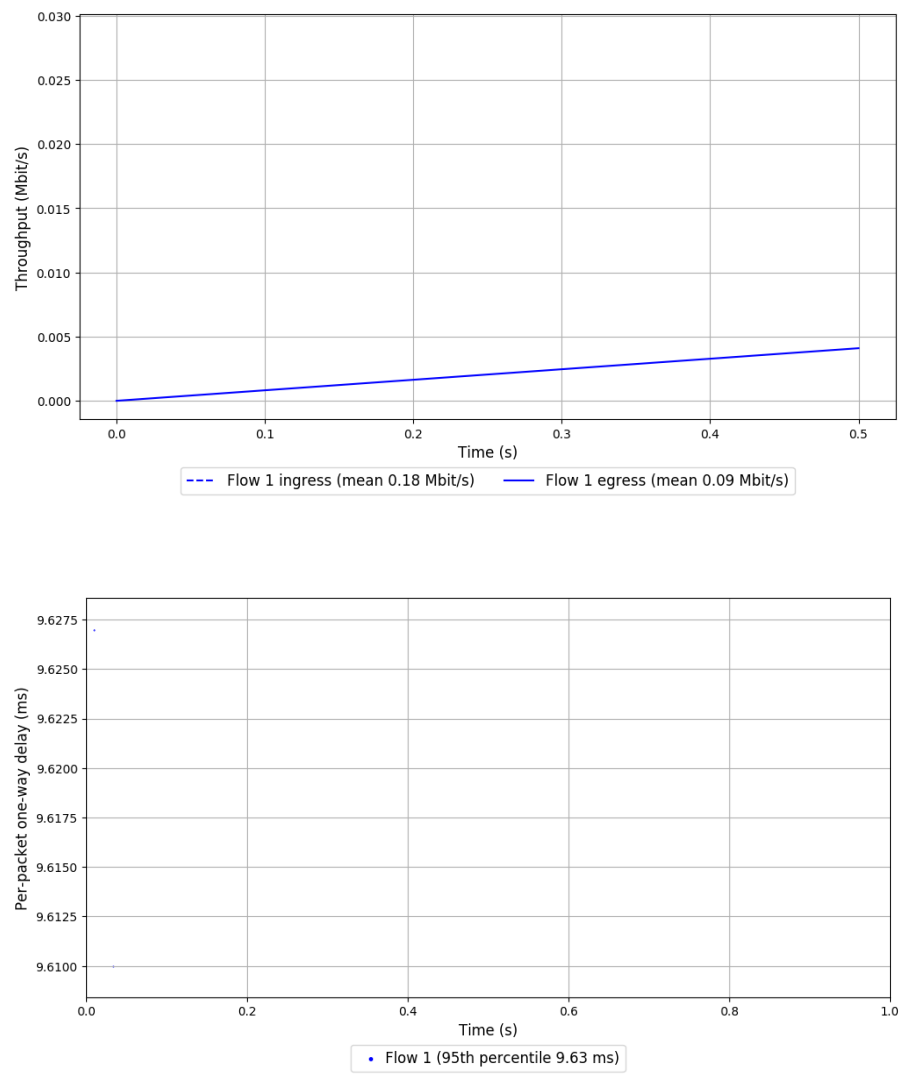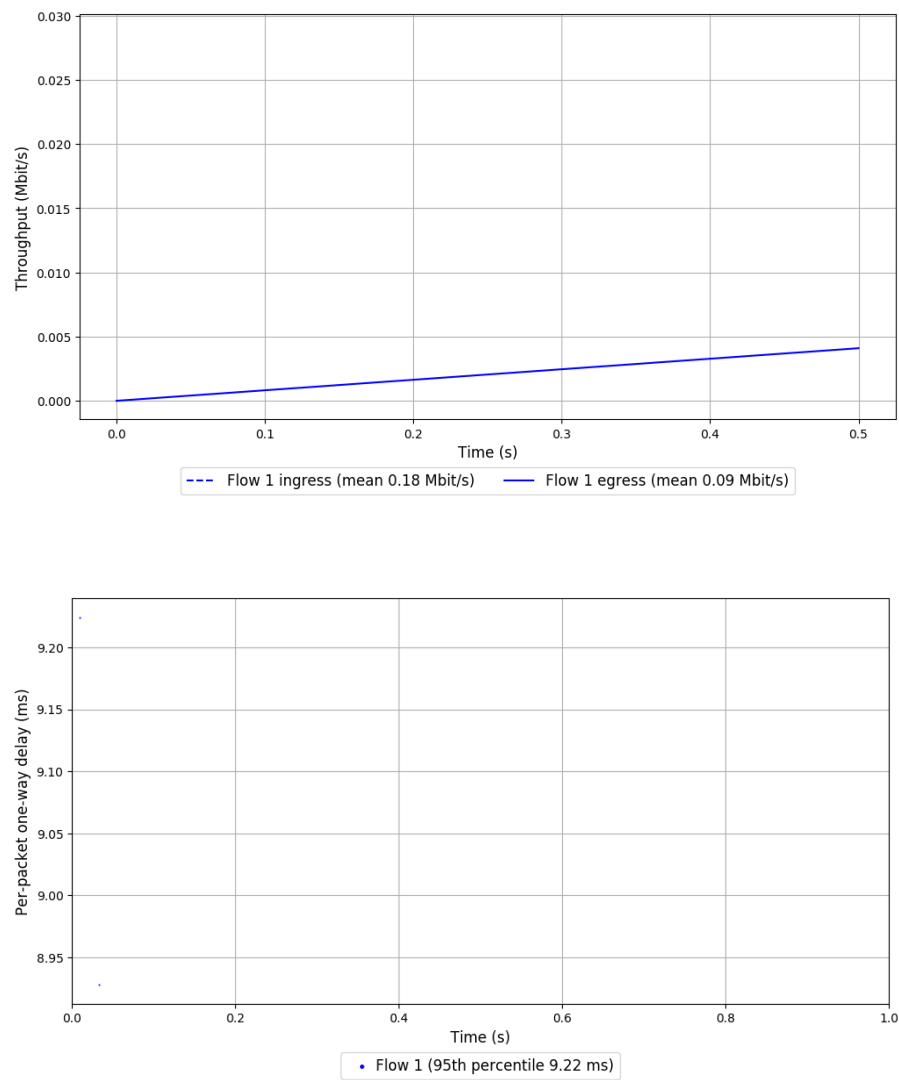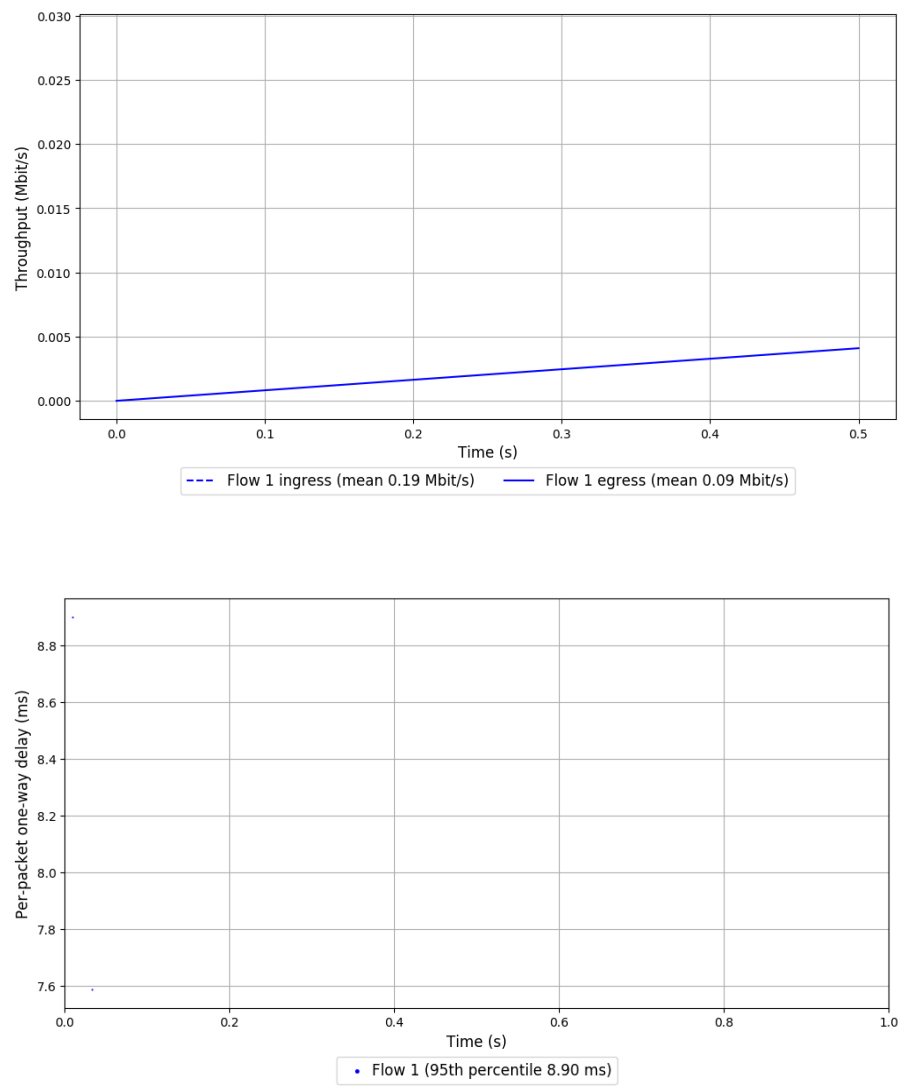# Run 1: Report of PCC-Expr — Data Link
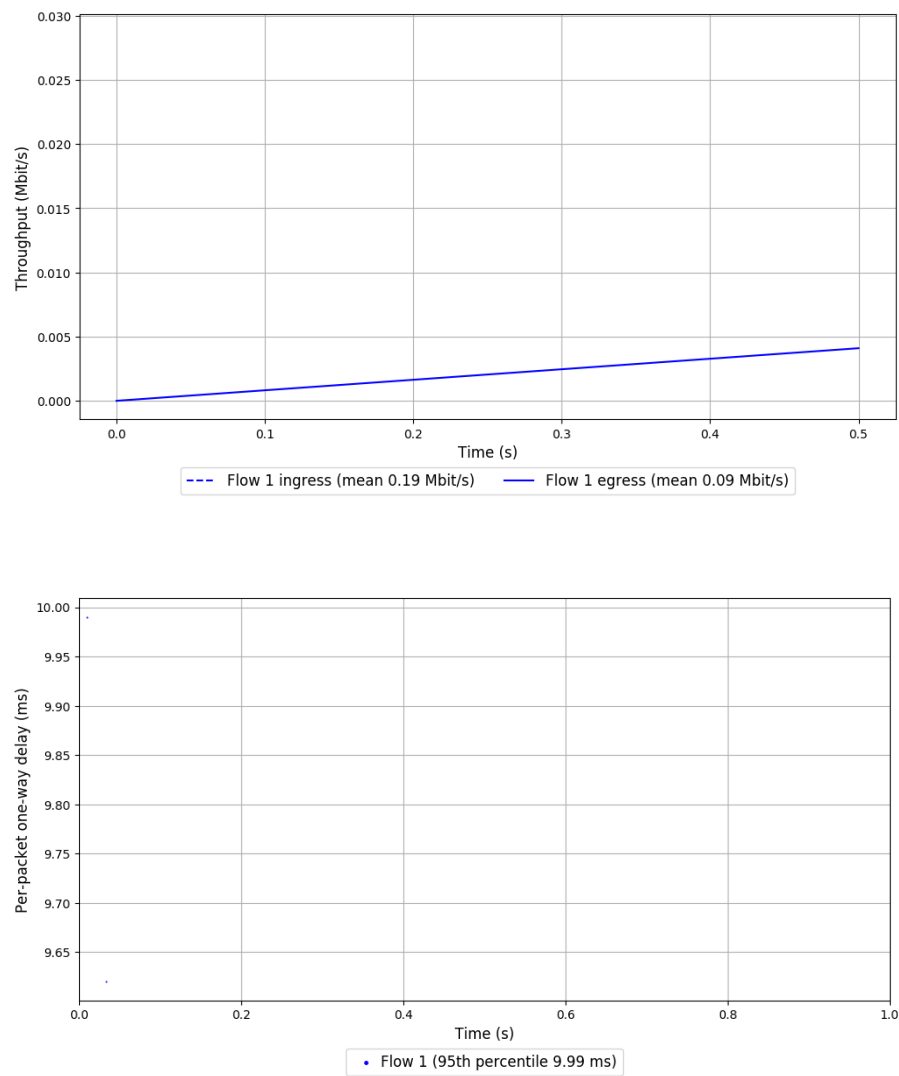
```
Run 2: Statistics of PCC-Expr

Start at: 2018-11-30 04:23:44
End at: 2018-11-30 04:24:14
Local clock offset: -0.859 ms
Remote clock offset: -1.93 ms
```

Run 2: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 0.18 Mbit/s)   Flow 1 egress (mean 0.09 Mbit/s)

Flow 1 (95th percentile 9.63 ms)

```
Run 3: Statistics of PCC-Expr

Start at: 2018-11-30 04:44:57
End at: 2018-11-30 04:45:27
Local clock offset: 0.646 ms
Remote clock offset: -3.572 ms
```
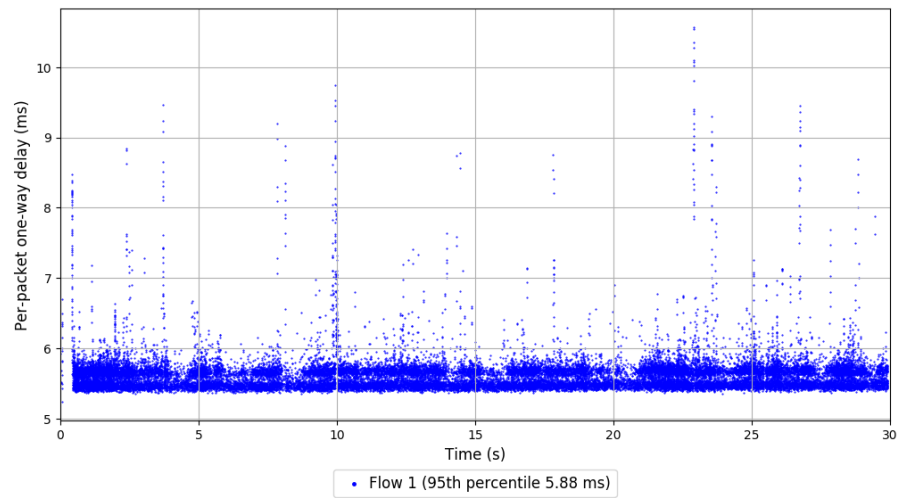
Run 3: Report of PCC-Expr — Data Link

```
Run 4: Statistics of PCC-Expr

Start at: 2018-11-30 05:06:16
End at: 2018-11-30 05:06:46
Local clock offset: 0.957 ms
Remote clock offset: -4.939 ms
```

Run 4: Report of PCC-Expr — Data Link

```
Run 5: Statistics of PCC-Expr

Start at: 2018-11-30 05:27:54
End at: 2018-11-30 05:28:24
Local clock offset: -0.206 ms
Remote clock offset: -4.322 ms
```
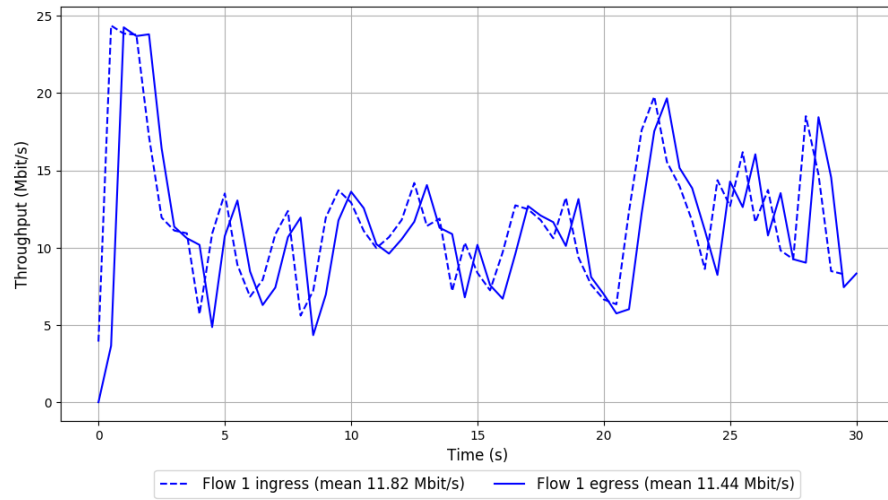
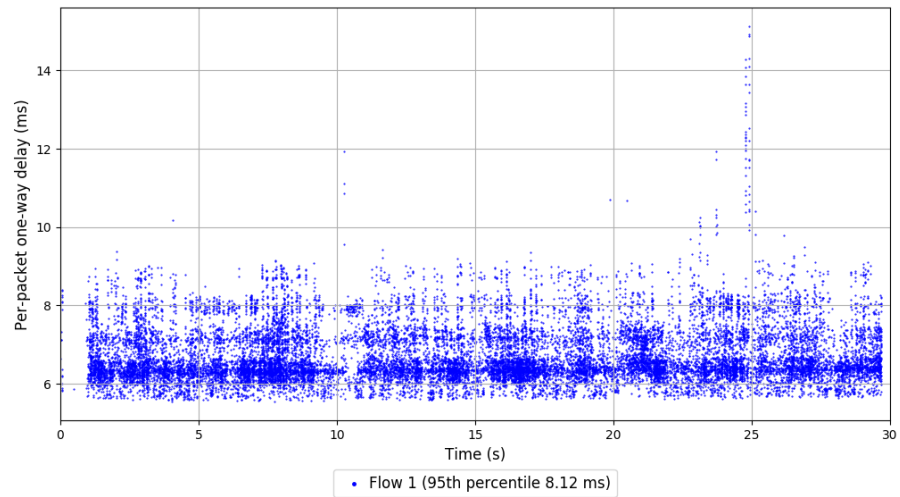# Run 5: Report of PCC-Expr — Data Link

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-11-30 03:55:10
End at: 2018-11-30 03:55:40
Local clock offset: -2.155 ms
Remote clock offset: -3.553 ms

# Below is generated by plot.py at 2018-11-30 05:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.44 Mbit/s
95th percentile per-packet one-way delay: 5.885 ms
Loss rate: 3.25%
-- Flow 1:
Average throughput: 11.44 Mbit/s
95th percentile per-packet one-way delay: 5.885 ms
Loss rate: 3.25%
```
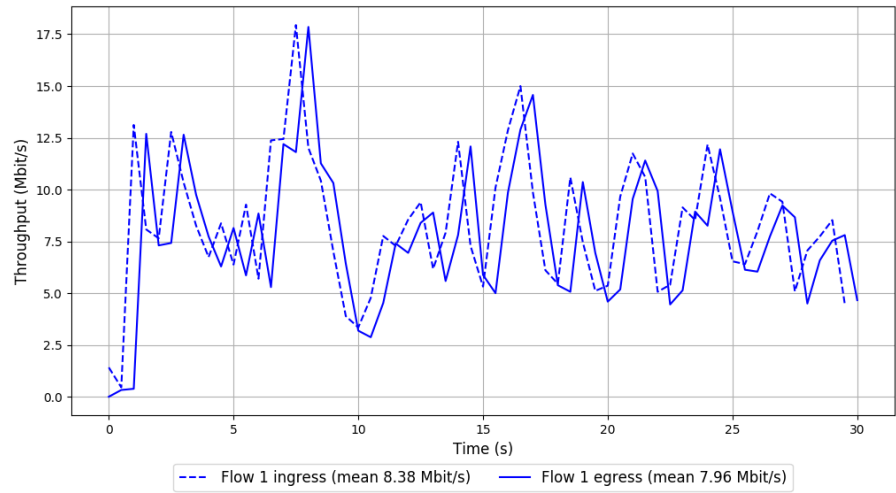
Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-11-30 04:17:00
End at: 2018-11-30 04:17:30
Local clock offset: -0.167 ms
Remote clock offset: -2.765 ms


# Below is generated by plot.py at 2018-11-30 05:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.96 Mbit/s
95th percentile per-packet one-way delay: 8.117 ms
Loss rate: 5.01%
-- Flow 1:
Average throughput: 7.96 Mbit/s
95th percentile per-packet one-way delay: 8.117 ms
Loss rate: 5.01%
```
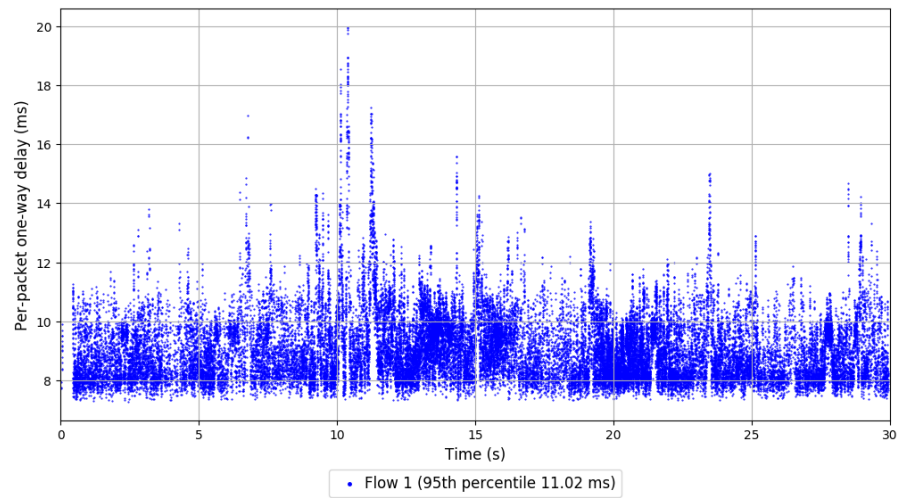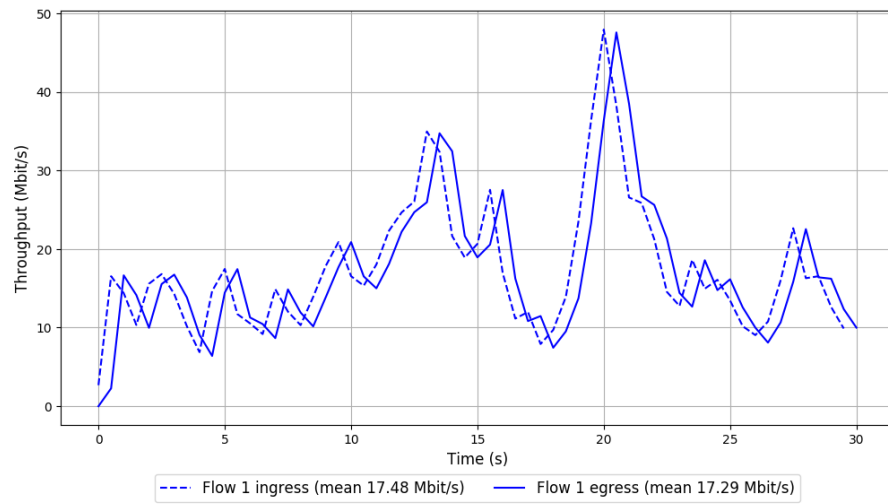
Run 2: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 8.38 Mbit/s) — — —   Flow 1 egress (mean 7.96 Mbit/s) ———

• Flow 1 (95th percentile 8.12 ms)

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-11-30 04:38:17
End at: 2018-11-30 04:38:47
Local clock offset: 0.612 ms
Remote clock offset: -2.64 ms


# Below is generated by plot.py at 2018-11-30 05:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 17.29 Mbit/s
95th percentile per-packet one-way delay: 11.015 ms
Loss rate: 1.10%
-- Flow 1:
Average throughput: 17.29 Mbit/s
95th percentile per-packet one-way delay: 11.015 ms
Loss rate: 1.10%
```

Run 3: Report of QUIC Cubic — Data Link

```
Run 4: Statistics of QUIC Cubic

Start at: 2018-11-30 04:59:33
End at: 2018-11-30 05:00:03
Local clock offset: 2.236 ms
Remote clock offset: -3.954 ms


# Below is generated by plot.py at 2018-11-30 05:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 25.69 Mbit/s
95th percentile per-packet one-way delay: 27.400 ms
Loss rate: 1.70%
-- Flow 1:
Average throughput: 25.69 Mbit/s
95th percentile per-packet one-way delay: 27.400 ms
Loss rate: 1.70%
```
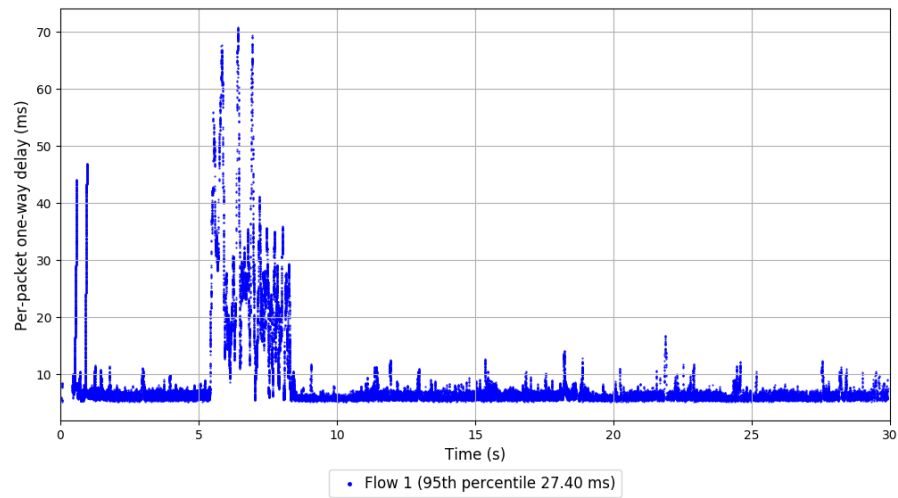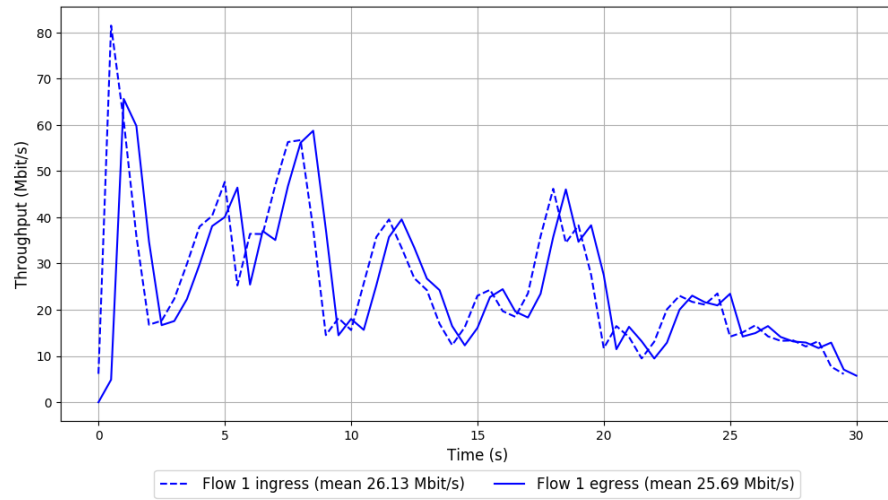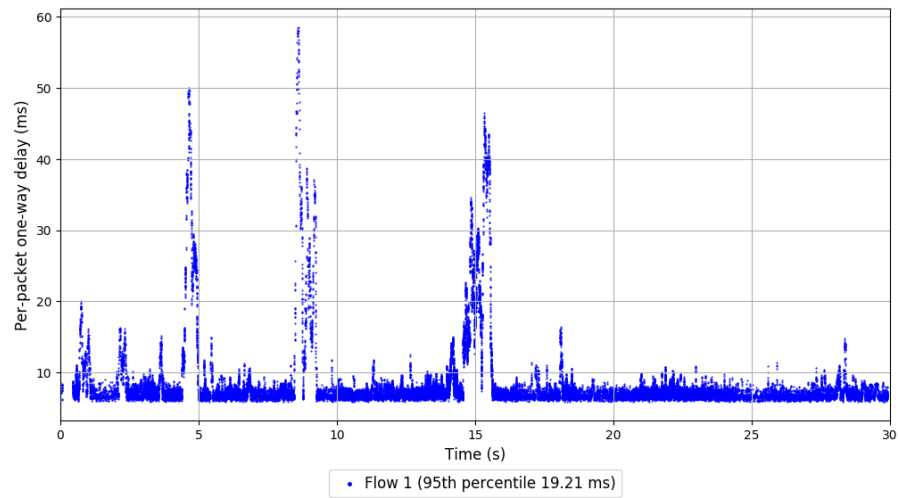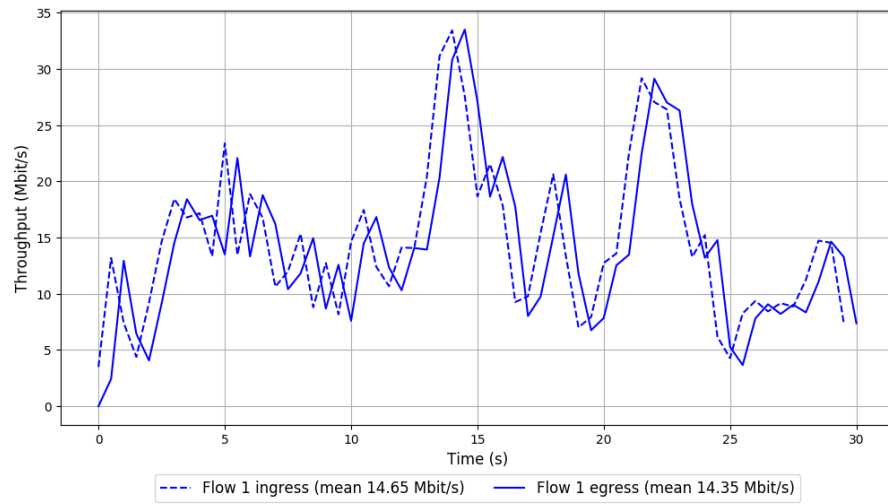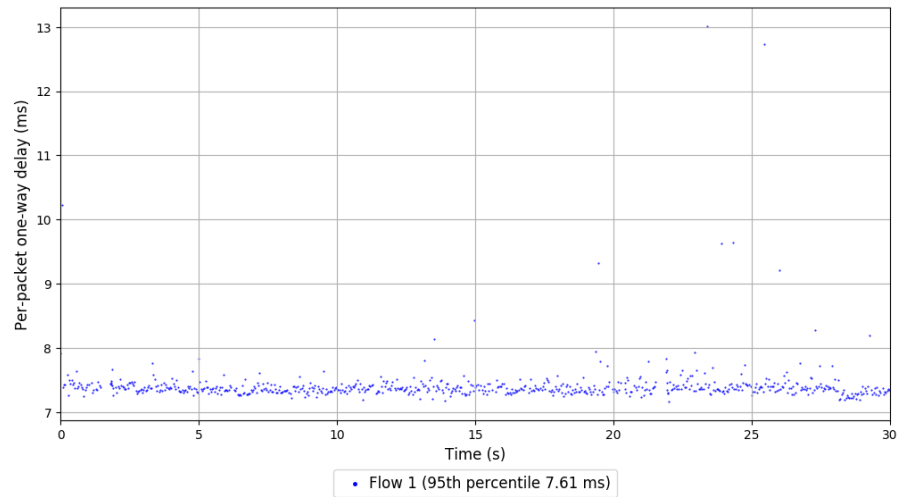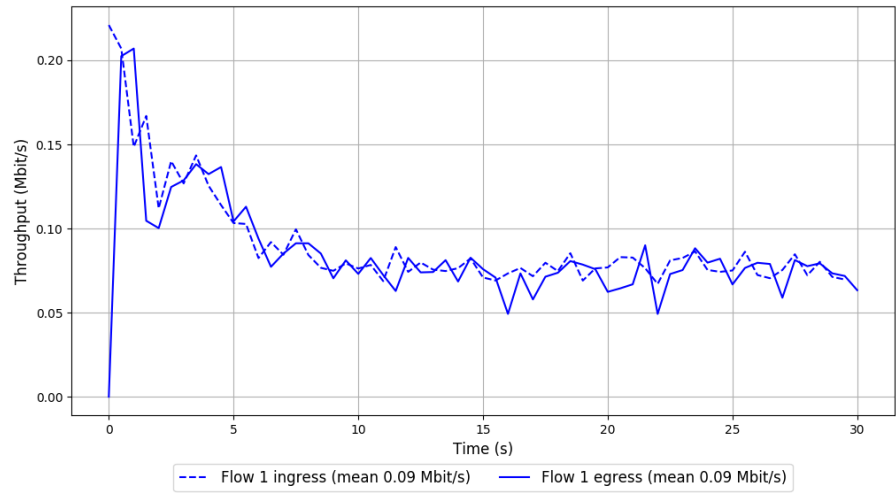
Run 4: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 26.13 Mbit/s)   Flow 1 egress (mean 25.69 Mbit/s)

• Flow 1 (95th percentile 27.40 ms)

```
Run 5: Statistics of QUIC Cubic

Start at: 2018-11-30 05:21:04
End at: 2018-11-30 05:21:34
Local clock offset: 1.107 ms
Remote clock offset: -4.642 ms


# Below is generated by plot.py at 2018-11-30 05:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 14.35 Mbit/s
95th percentile per-packet one-way delay: 19.208 ms
Loss rate: 2.08%
-- Flow 1:
Average throughput: 14.35 Mbit/s
95th percentile per-packet one-way delay: 19.208 ms
Loss rate: 2.08%
```
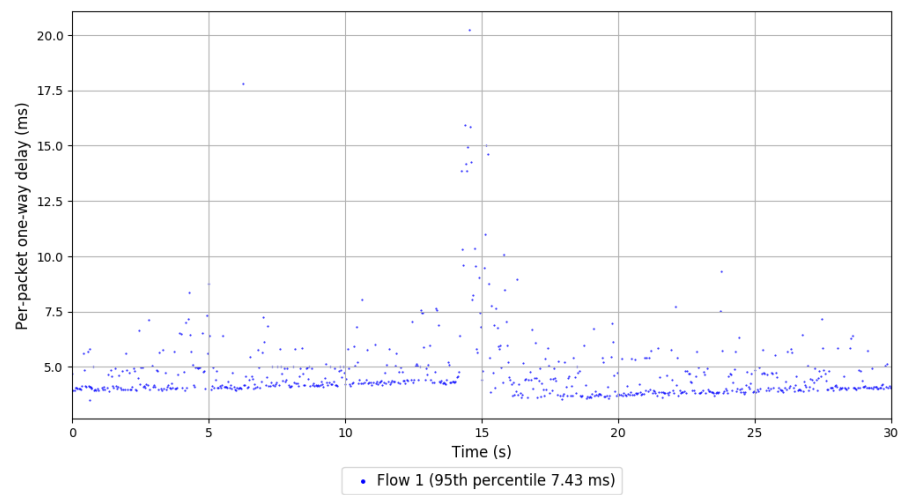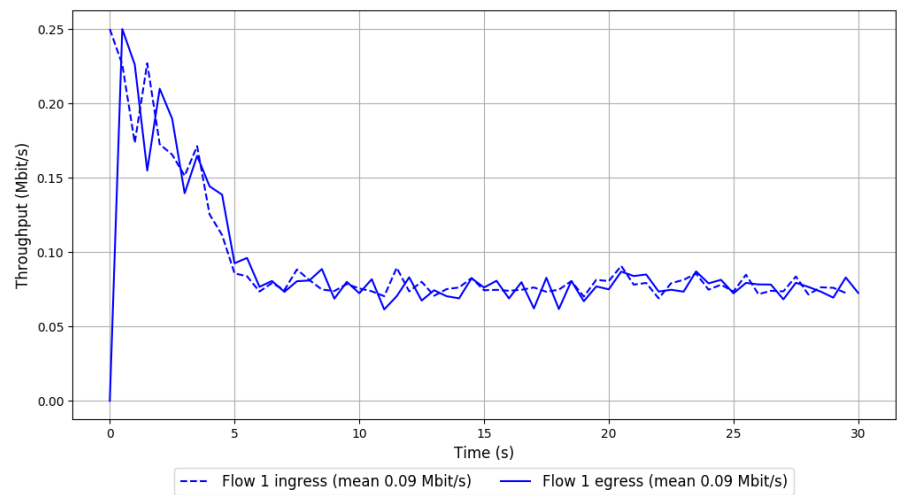
Run 5: Report of QUIC Cubic — Data Link

```
Run 1: Statistics of SCReAM

Start at: 2018-11-30 04:00:48
End at: 2018-11-30 04:01:18
Local clock offset: -1.145 ms
Remote clock offset: -1.015 ms


# Below is generated by plot.py at 2018-11-30 05:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 7.609 ms
Loss rate: 5.19%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 7.609 ms
Loss rate: 5.19%
```
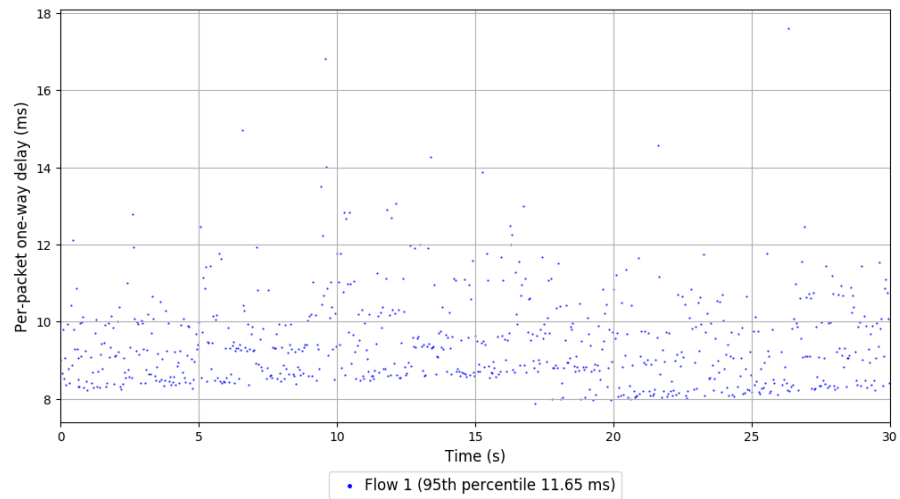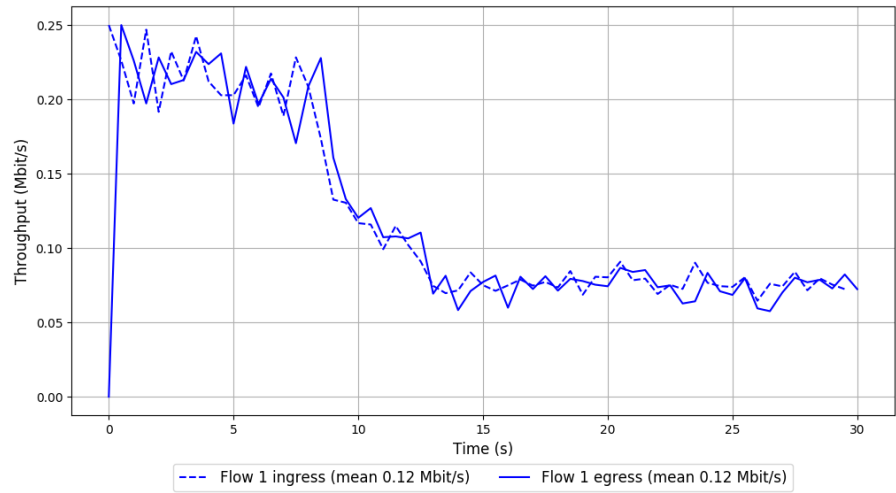
Run 1: Report of SCReAM — Data Link

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

Flow 1 (95th percentile 7.61 ms)

```
Run 2: Statistics of SCReAM

Start at: 2018-11-30 04:22:39
End at: 2018-11-30 04:23:09
Local clock offset: 3.699 ms
Remote clock offset: -3.034 ms


# Below is generated by plot.py at 2018-11-30 05:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 7.433 ms
Loss rate: 1.91%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 7.433 ms
Loss rate: 1.91%
```

Run 2: Report of SCReAM — Data Link

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

Flow 1 (95th percentile 7.43 ms)

```
Run 3: Statistics of SCReAM

Start at: 2018-11-30 04:43:52
End at: 2018-11-30 04:44:22
Local clock offset: -0.719 ms
Remote clock offset: -3.842 ms


# Below is generated by plot.py at 2018-11-30 05:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.12 Mbit/s
95th percentile per-packet one-way delay: 11.651 ms
Loss rate: 1.92%
-- Flow 1:
Average throughput: 0.12 Mbit/s
95th percentile per-packet one-way delay: 11.651 ms
Loss rate: 1.92%
```
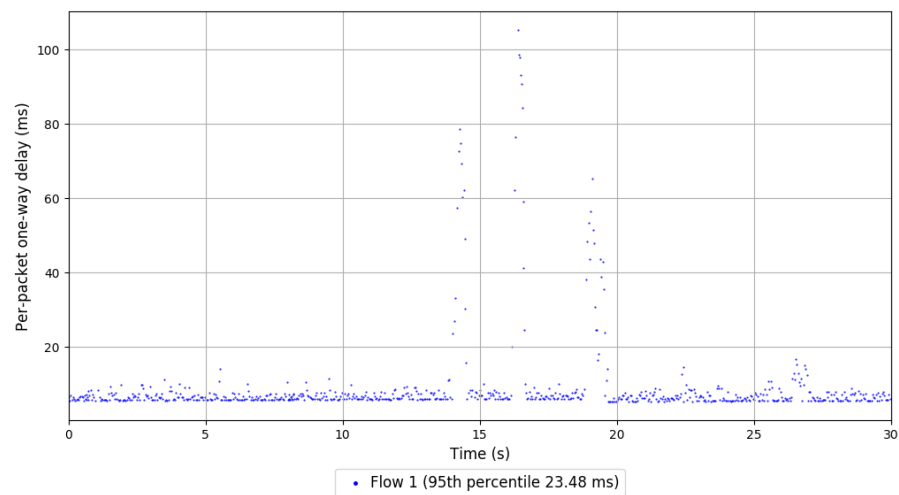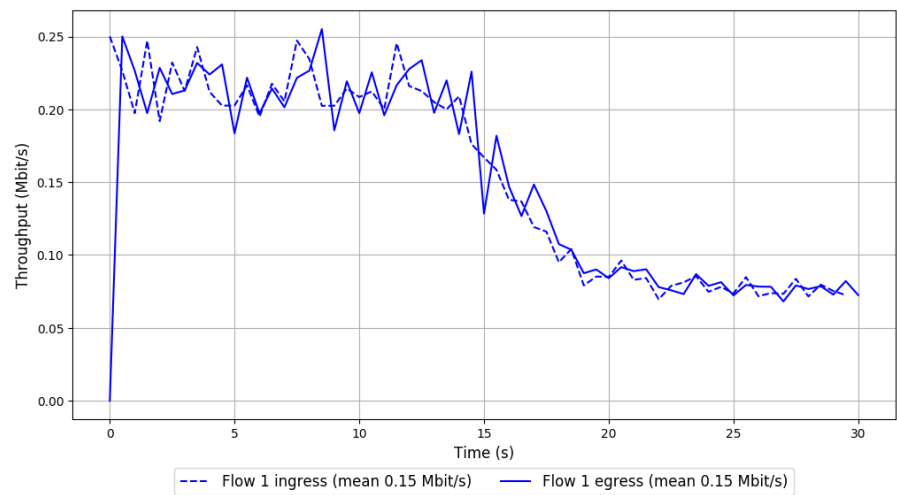
Run 3: Report of SCReAM — Data Link

Flow 1 ingress (mean 0.12 Mbit/s) — — — Flow 1 egress (mean 0.12 Mbit/s) ———

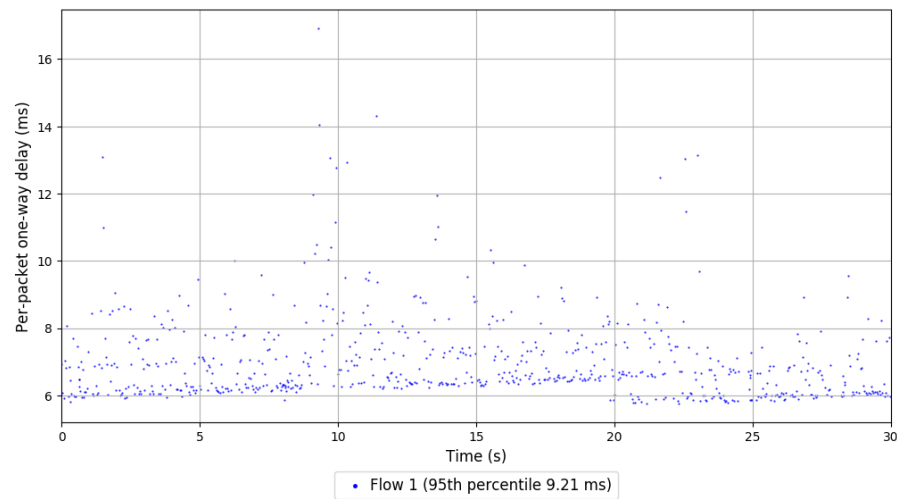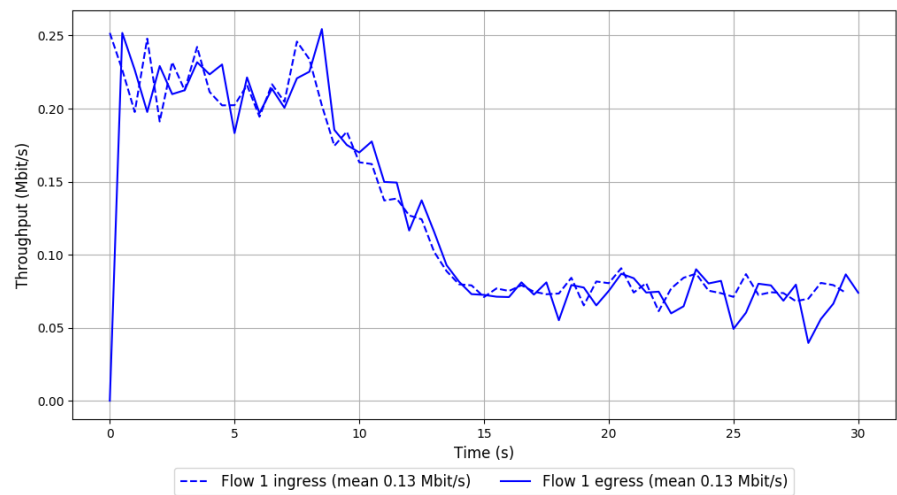
• Flow 1 (95th percentile 11.65 ms)

```
Run 4: Statistics of SCReAM

Start at: 2018-11-30 05:05:11
End at: 2018-11-30 05:05:41
Local clock offset: 1.911 ms
Remote clock offset: -4.47 ms


# Below is generated by plot.py at 2018-11-30 05:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 23.484 ms
Loss rate: 0.36%
-- Flow 1:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 23.484 ms
Loss rate: 0.36%
```
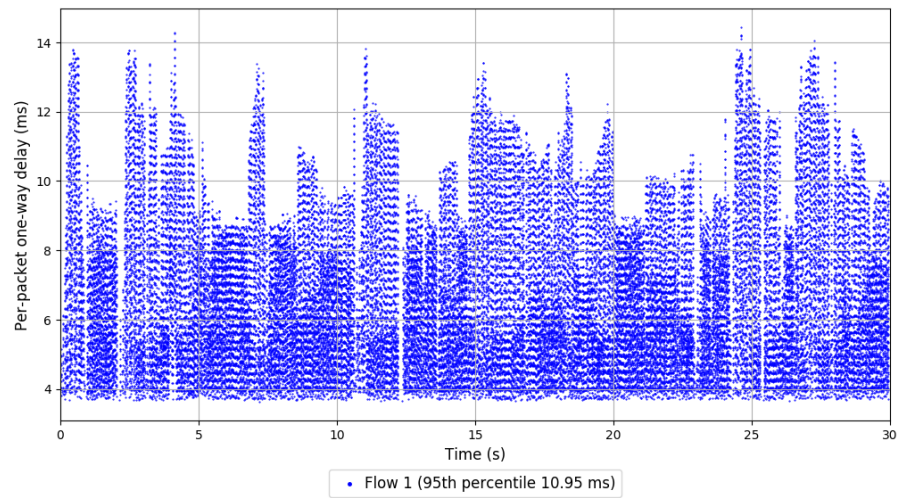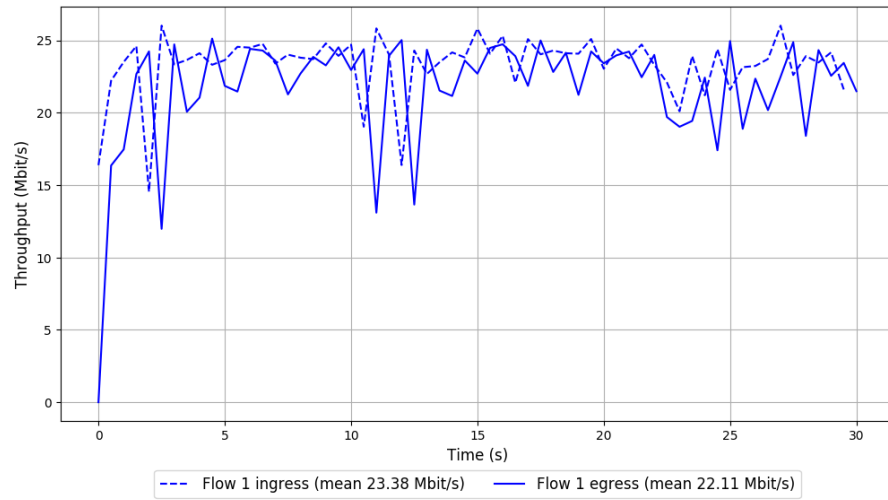
Run 4: Report of SCReAM — Data Link

```
Run 5: Statistics of SCReAM

Start at: 2018-11-30 05:26:49
End at: 2018-11-30 05:27:19
Local clock offset: 1.228 ms
Remote clock offset: -6.062 ms

# Below is generated by plot.py at 2018-11-30 05:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 9.207 ms
Loss rate: 2.44%
-- Flow 1:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 9.207 ms
Loss rate: 2.44%
```
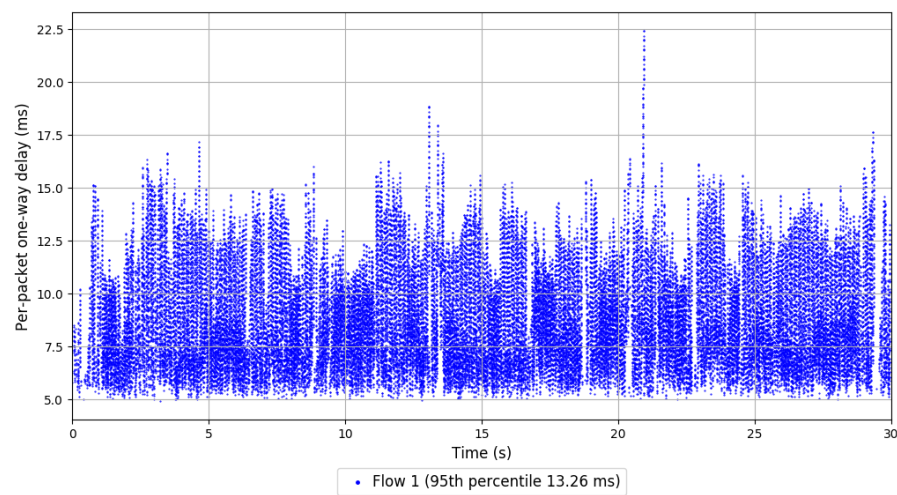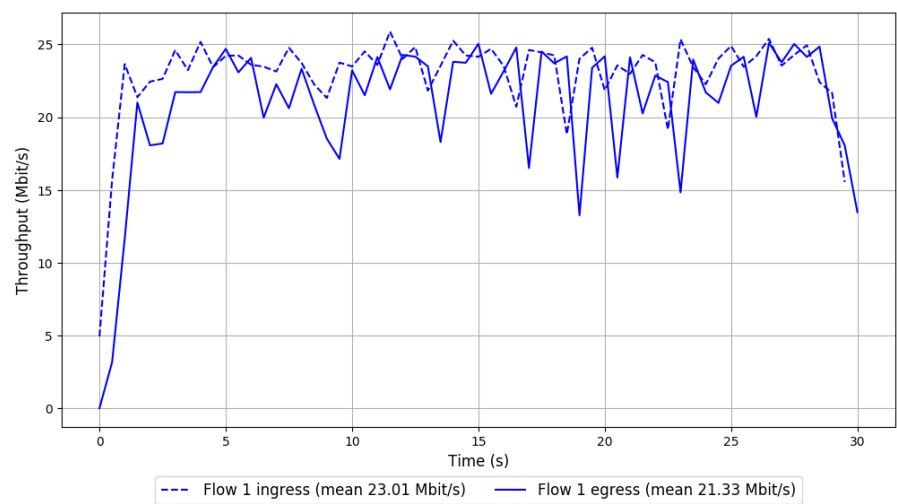
Run 5: Report of SCReAM — Data Link

```
Run 1: Statistics of Sprout

Start at: 2018-11-30 03:56:16
End at: 2018-11-30 03:56:46
Local clock offset: -0.254 ms
Remote clock offset: -3.515 ms

# Below is generated by plot.py at 2018-11-30 05:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 22.11 Mbit/s
95th percentile per-packet one-way delay: 10.953 ms
Loss rate: 5.42%
-- Flow 1:
Average throughput: 22.11 Mbit/s
95th percentile per-packet one-way delay: 10.953 ms
Loss rate: 5.42%
```

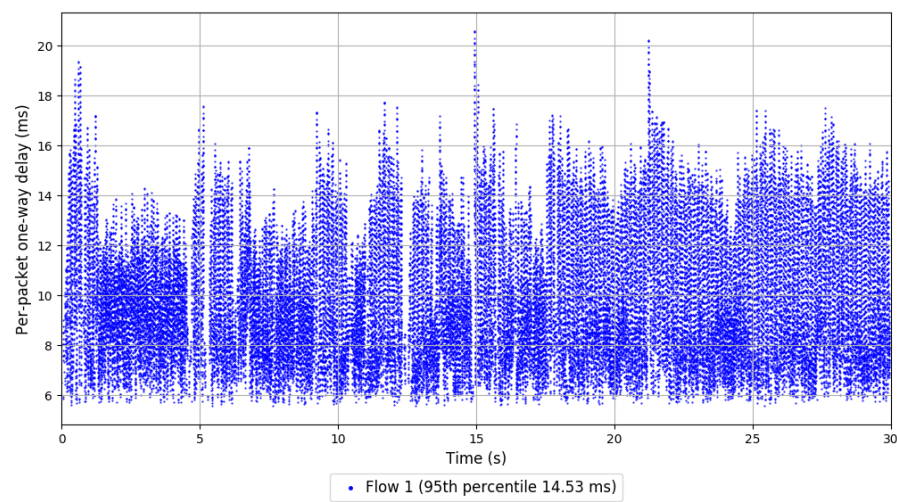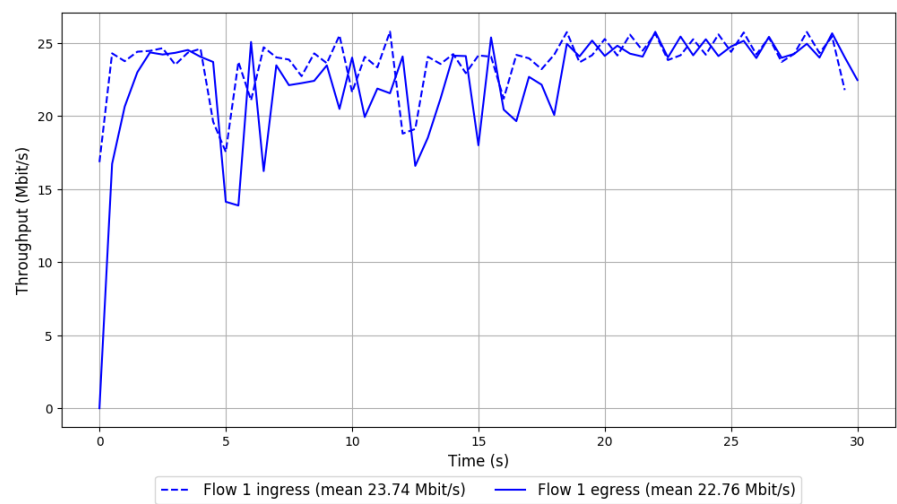Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2018-11-30 04:18:05
End at: 2018-11-30 04:18:35
Local clock offset: 1.493 ms
Remote clock offset: -2.038 ms


# Below is generated by plot.py at 2018-11-30 05:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 21.33 Mbit/s
95th percentile per-packet one-way delay: 13.260 ms
Loss rate: 7.30%
-- Flow 1:
Average throughput: 21.33 Mbit/s
95th percentile per-packet one-way delay: 13.260 ms
Loss rate: 7.30%
```

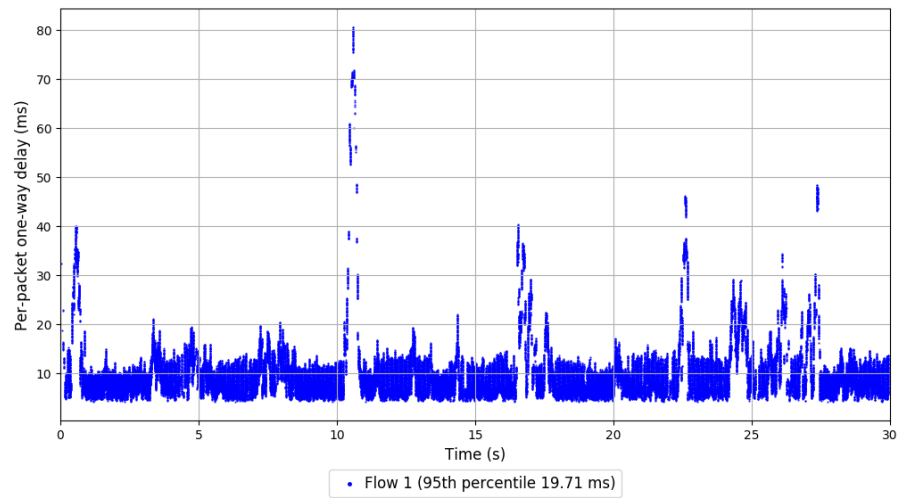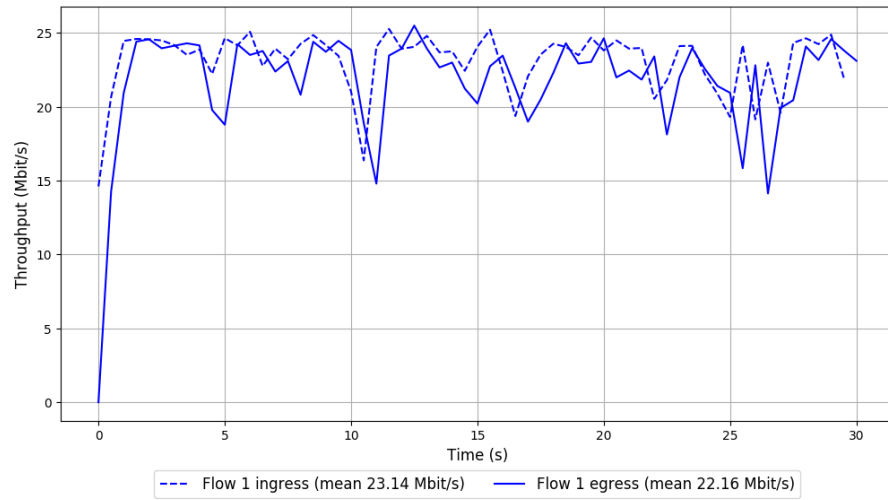Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2018-11-30 04:39:23
End at: 2018-11-30 04:39:53
Local clock offset: 2.525 ms
Remote clock offset: -2.641 ms


# Below is generated by plot.py at 2018-11-30 05:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 22.76 Mbit/s
95th percentile per-packet one-way delay: 14.525 ms
Loss rate: 4.11%
-- Flow 1:
Average throughput: 22.76 Mbit/s
95th percentile per-packet one-way delay: 14.525 ms
Loss rate: 4.11%
```

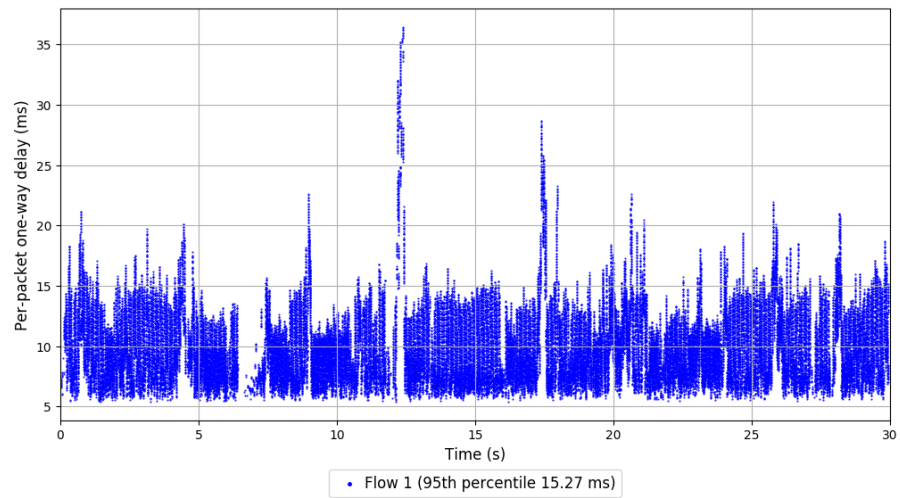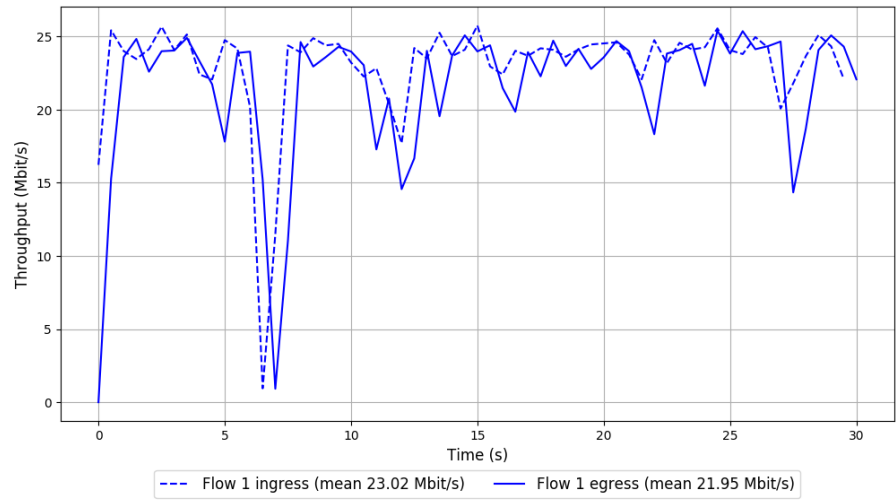## Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2018-11-30 05:00:40
End at: 2018-11-30 05:01:10
Local clock offset: 4.164 ms
Remote clock offset: -4.288 ms


# Below is generated by plot.py at 2018-11-30 05:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 22.16 Mbit/s
95th percentile per-packet one-way delay: 19.708 ms
Loss rate: 4.29%
-- Flow 1:
Average throughput: 22.16 Mbit/s
95th percentile per-packet one-way delay: 19.708 ms
Loss rate: 4.29%
```

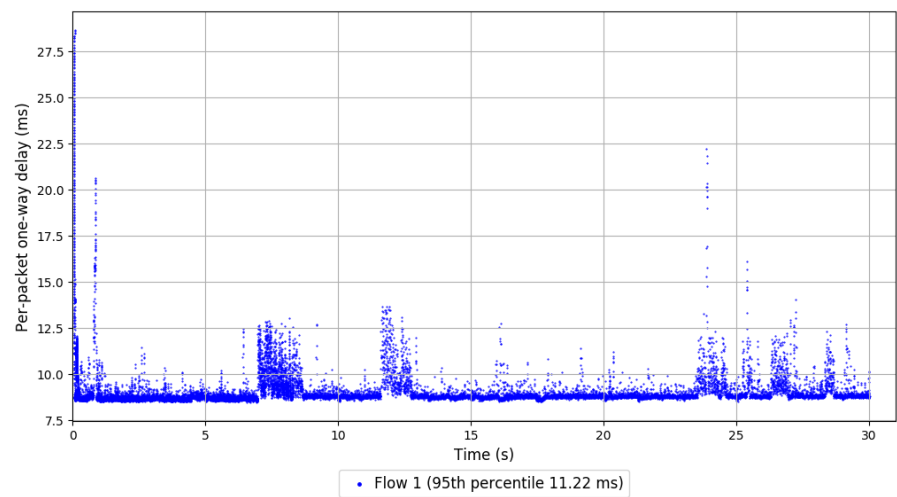## Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2018-11-30 05:22:12
End at: 2018-11-30 05:22:42
Local clock offset: 1.389 ms
Remote clock offset: -5.013 ms


# Below is generated by plot.py at 2018-11-30 05:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 21.95 Mbit/s
95th percentile per-packet one-way delay: 15.267 ms
Loss rate: 4.64%
-- Flow 1:
Average throughput: 21.95 Mbit/s
95th percentile per-packet one-way delay: 15.267 ms
Loss rate: 4.64%
```

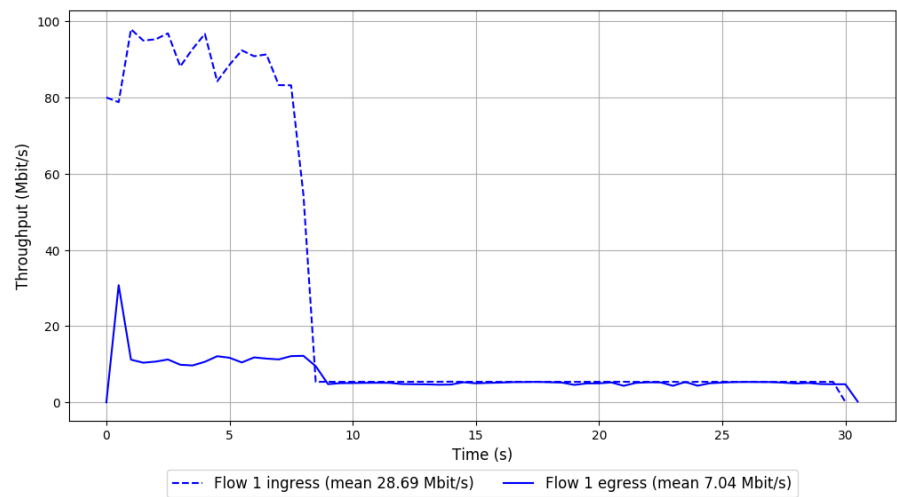Run 5: Report of Sprout — Data Link

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

Start at: 2018-11-30 04:10:16
End at: 2018-11-30 04:10:46
Local clock offset: -2.241 ms
Remote clock offset: -1.224 ms


# Below is generated by plot.py at 2018-11-30 05:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.04 Mbit/s
95th percentile per-packet one-way delay: 11.217 ms
Loss rate: 75.46%
-- Flow 1:
Average throughput: 7.04 Mbit/s
95th percentile per-packet one-way delay: 11.217 ms
Loss rate: 75.46%
```

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

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

Start at: 2018-11-30 04:31:33
End at: 2018-11-30 04:32:03
Local clock offset: 3.761 ms
Remote clock offset: -2.534 ms


# Below is generated by plot.py at 2018-11-30 05:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.84 Mbit/s
95th percentile per-packet one-way delay: 8.218 ms
Loss rate: 83.07%
-- Flow 1:
Average throughput: 8.84 Mbit/s
95th percentile per-packet one-way delay: 8.218 ms
Loss rate: 83.07%
```
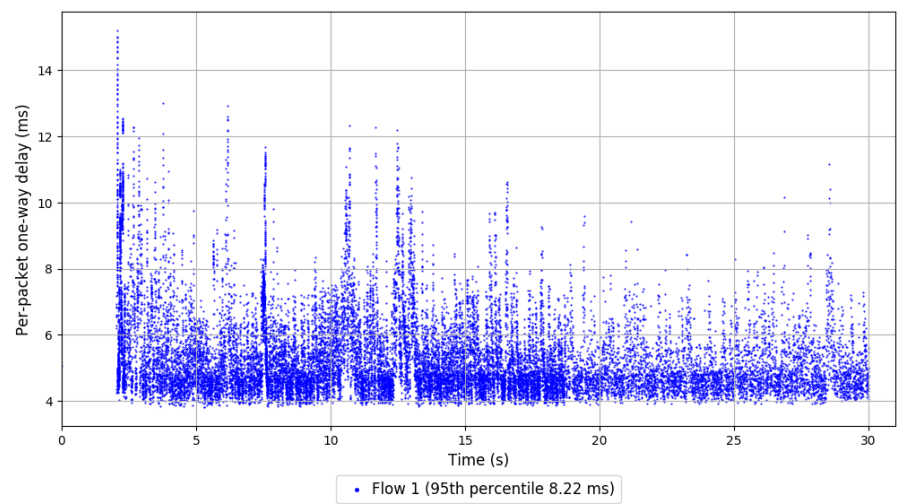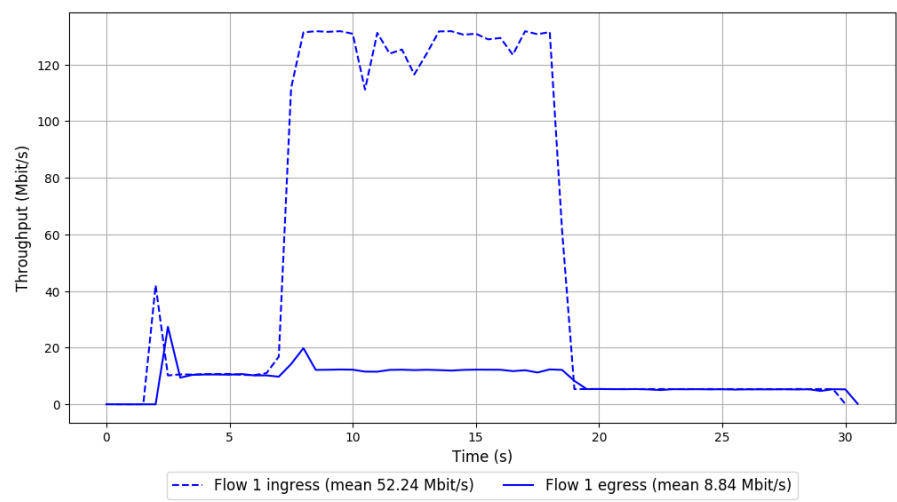
Run 2: Report of TaoVA-100x — Data Link

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

Start at: 2018-11-30 04:52:44
End at: 2018-11-30 04:53:14
Local clock offset: 0.994 ms
Remote clock offset: -4.266 ms


# Below is generated by plot.py at 2018-11-30 05:47:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.87 Mbit/s
95th percentile per-packet one-way delay: 9.462 ms
Loss rate: 73.10%
-- Flow 1:
Average throughput: 7.87 Mbit/s
95th percentile per-packet one-way delay: 9.462 ms
Loss rate: 73.10%
```
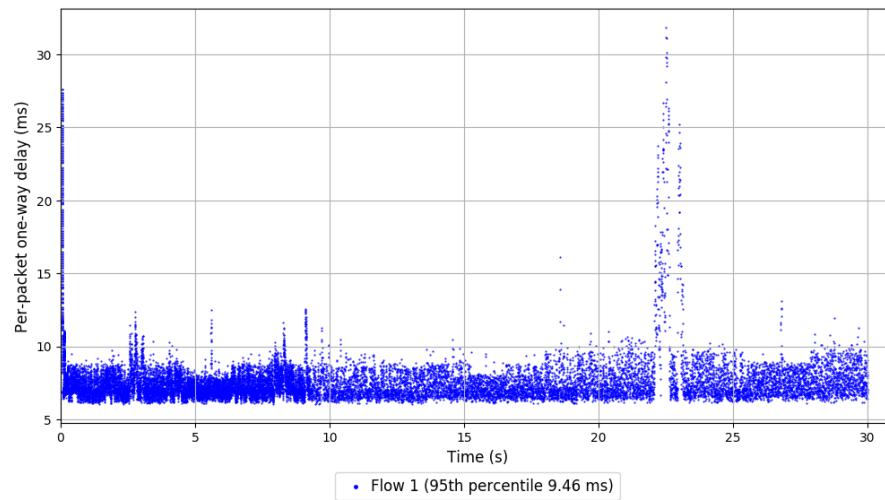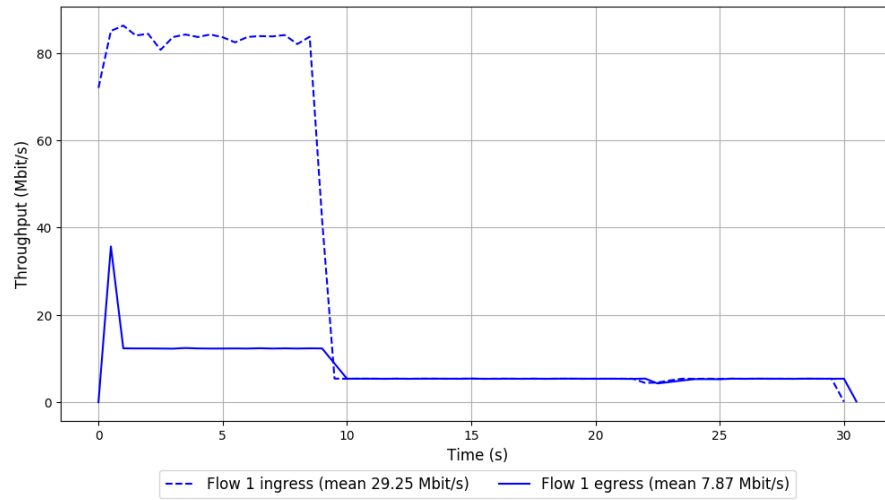
Run 3: Report of TaoVA-100x — Data Link

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

Start at: 2018-11-30 05:14:08
End at: 2018-11-30 05:14:38
Local clock offset: 1.233 ms
Remote clock offset: -4.621 ms


# Below is generated by plot.py at 2018-11-30 05:47:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 10.54 Mbit/s
95th percentile per-packet one-way delay: 13.460 ms
Loss rate: 80.42%
-- Flow 1:
Average throughput: 10.54 Mbit/s
95th percentile per-packet one-way delay: 13.460 ms
Loss rate: 80.42%
```
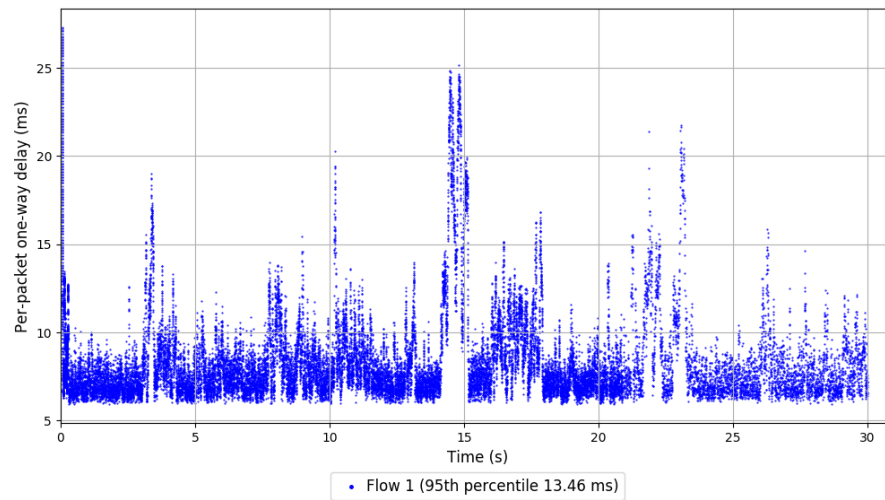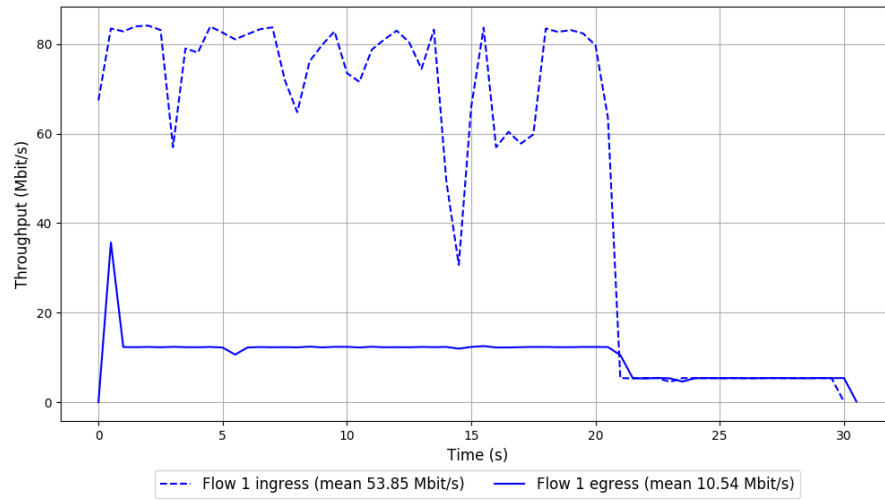
Run 4: Report of TaoVA-100x — Data Link

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

Start at: 2018-11-30 05:35:52
End at: 2018-11-30 05:36:22
Local clock offset: 1.665 ms
Remote clock offset: -5.05 ms


# Below is generated by plot.py at 2018-11-30 05:47:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.91 Mbit/s
95th percentile per-packet one-way delay: 9.374 ms
Loss rate: 73.03%
-- Flow 1:
Average throughput: 7.91 Mbit/s
95th percentile per-packet one-way delay: 9.374 ms
Loss rate: 73.03%
```
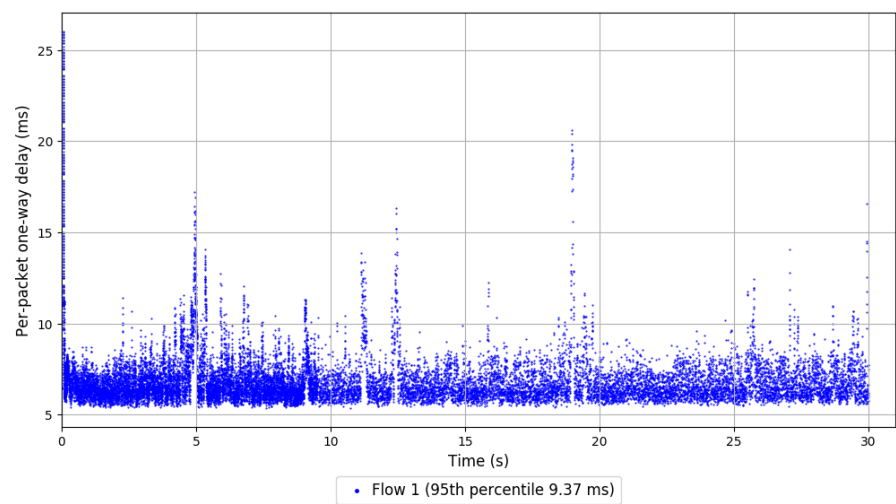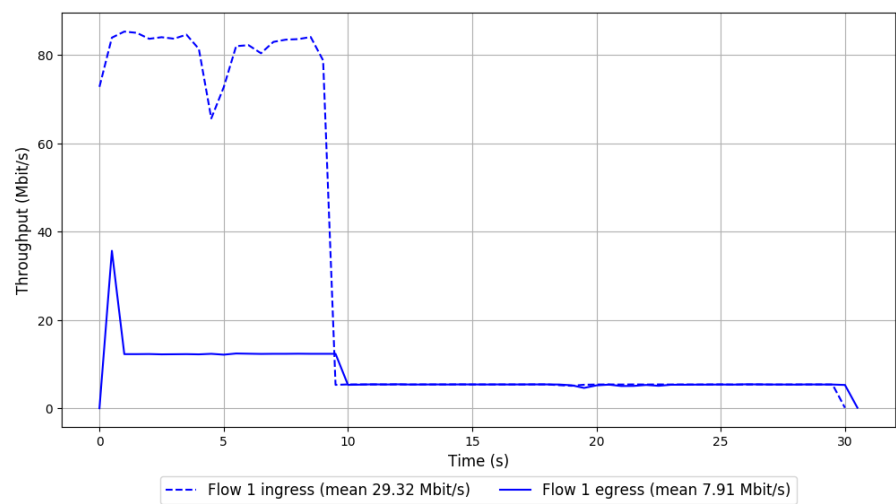
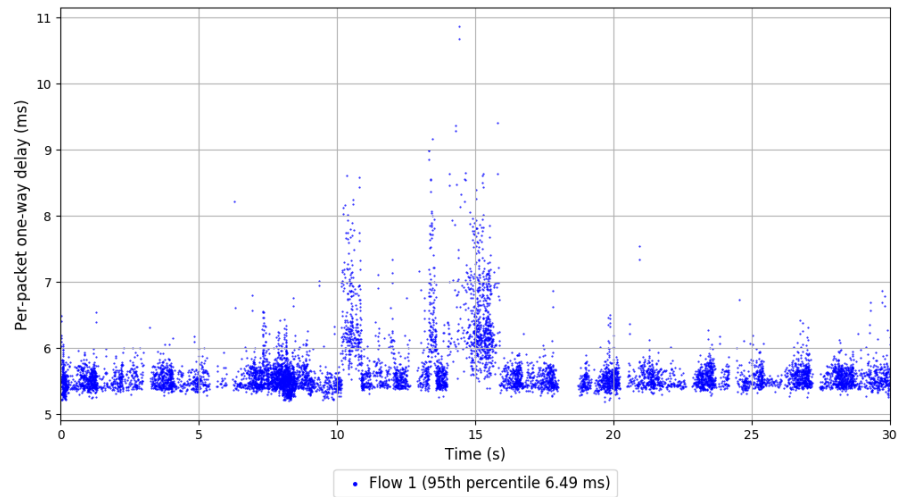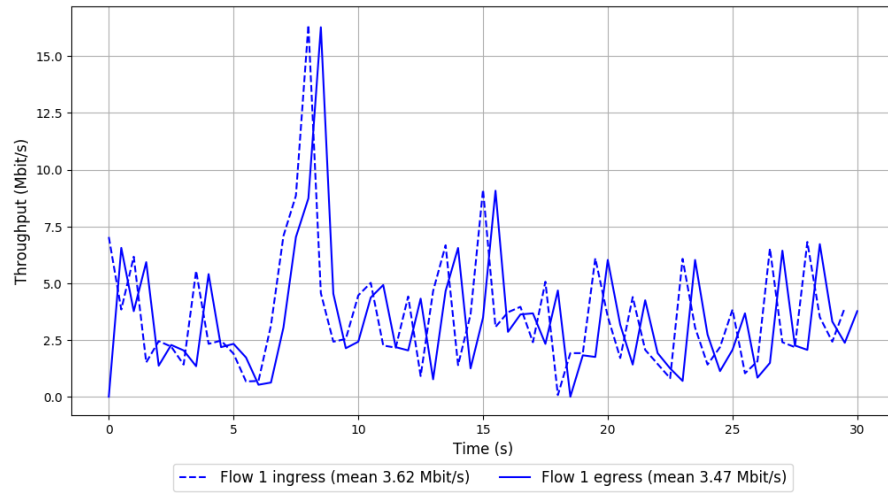## Run 5: Report of TaoVA-100x — Data Link

```
Run 1: Statistics of TCP Vegas

Start at: 2018-11-30 04:12:33
End at: 2018-11-30 04:13:03
Local clock offset: 0.133 ms
Remote clock offset: -2.178 ms


# Below is generated by plot.py at 2018-11-30 05:47:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.47 Mbit/s
95th percentile per-packet one-way delay: 6.492 ms
Loss rate: 4.05%
-- Flow 1:
Average throughput: 3.47 Mbit/s
95th percentile per-packet one-way delay: 6.492 ms
Loss rate: 4.05%
```

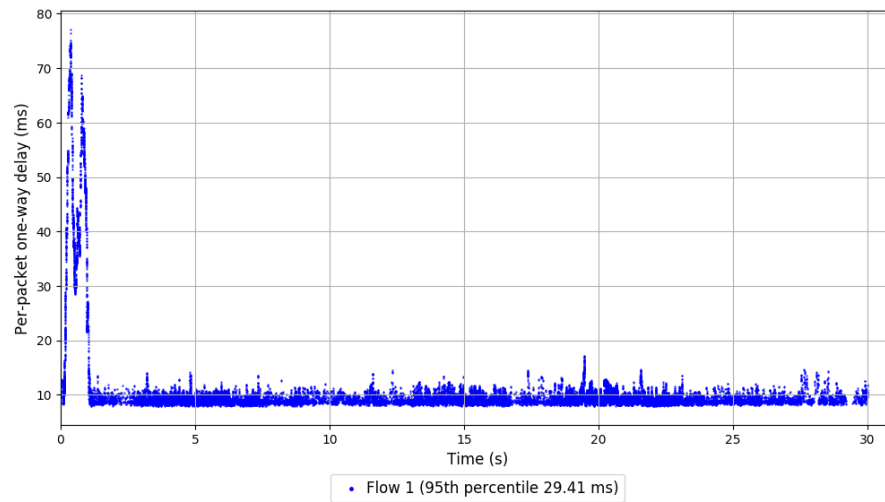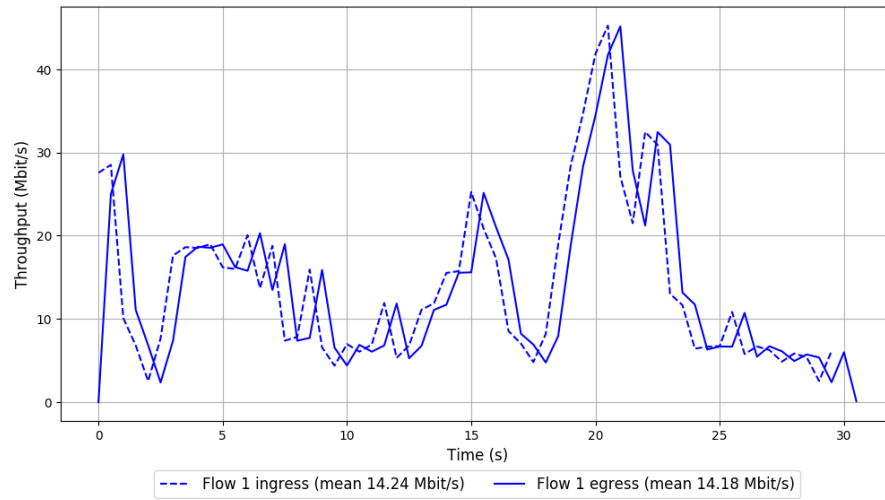Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2018-11-30 04:33:49
End at: 2018-11-30 04:34:19
Local clock offset: 0.324 ms
Remote clock offset: -2.057 ms


# Below is generated by plot.py at 2018-11-30 05:47:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 14.18 Mbit/s
95th percentile per-packet one-way delay: 29.415 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 14.18 Mbit/s
95th percentile per-packet one-way delay: 29.415 ms
Loss rate: 0.40%
```
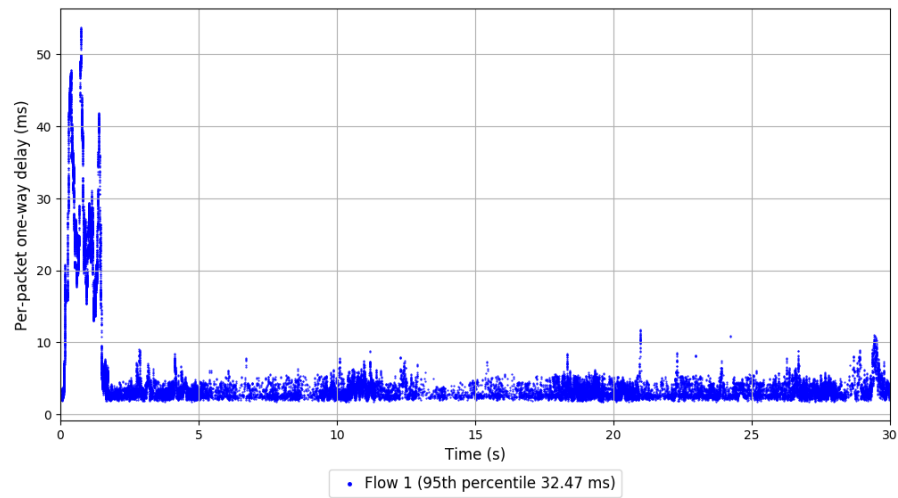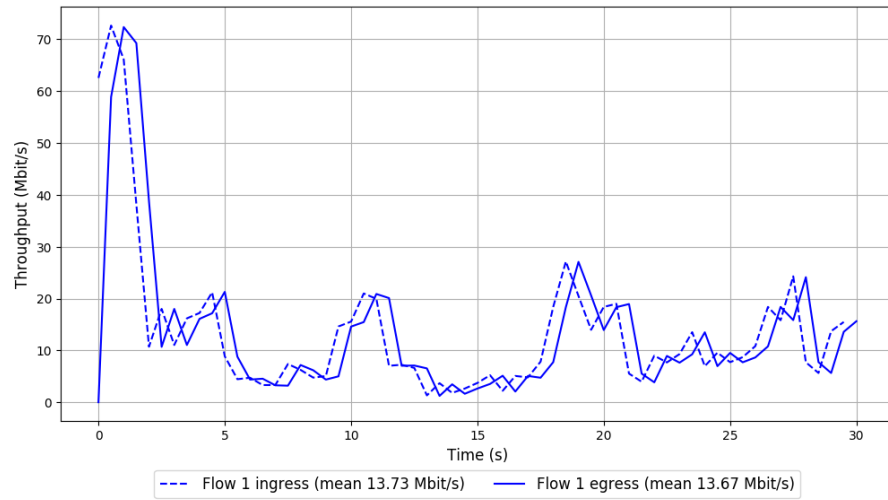
Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2018-11-30 04:54:56
End at: 2018-11-30 04:55:26
Local clock offset: 4.419 ms
Remote clock offset: -5.137 ms


# Below is generated by plot.py at 2018-11-30 05:47:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 13.67 Mbit/s
95th percentile per-packet one-way delay: 32.474 ms
Loss rate: 0.43%
-- Flow 1:
Average throughput: 13.67 Mbit/s
95th percentile per-packet one-way delay: 32.474 ms
Loss rate: 0.43%
```
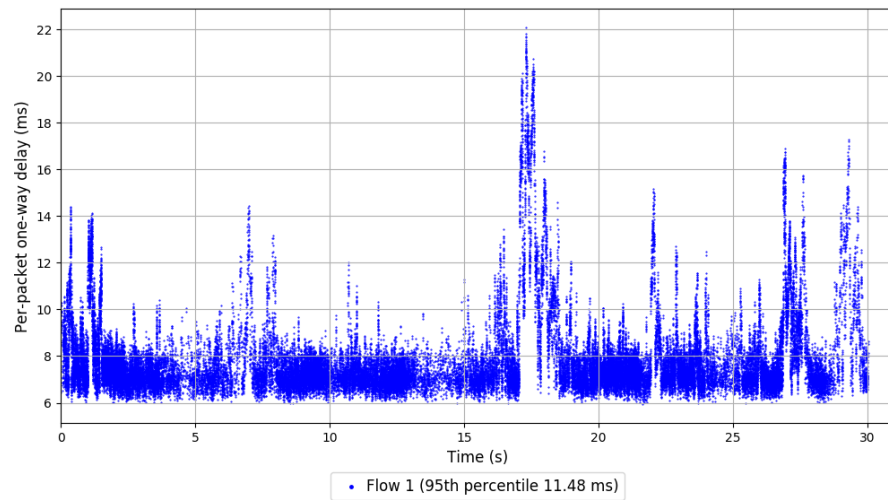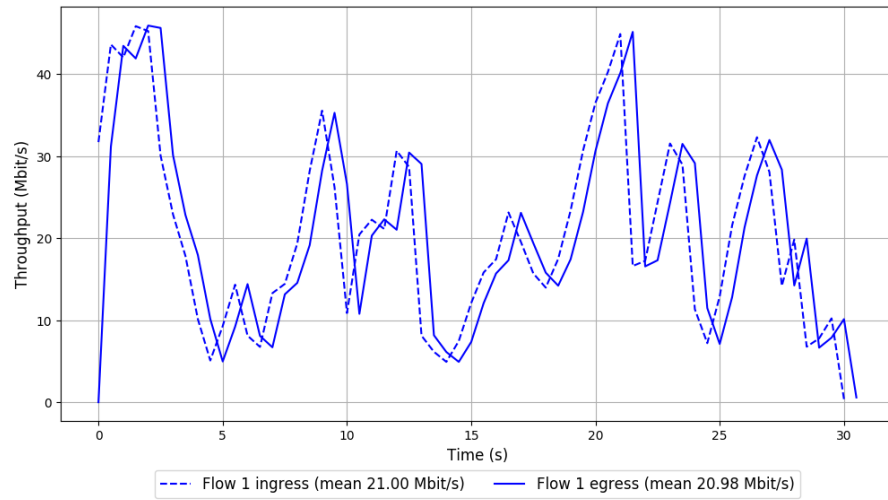
Run 3: Report of TCP Vegas — Data Link

```
Run 4: Statistics of TCP Vegas

Start at: 2018-11-30 05:16:27
End at: 2018-11-30 05:16:57
Local clock offset: 2.196 ms
Remote clock offset: -4.746 ms


# Below is generated by plot.py at 2018-11-30 05:47:22
# Datalink statistics
-- Total of 1 flow:
Average throughput: 20.98 Mbit/s
95th percentile per-packet one-way delay: 11.483 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 20.98 Mbit/s
95th percentile per-packet one-way delay: 11.483 ms
Loss rate: 0.09%
```

Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2018-11-30 05:38:08
End at: 2018-11-30 05:38:38
Local clock offset: 1.462 ms
Remote clock offset: -6.19 ms


# Below is generated by plot.py at 2018-11-30 05:47:22
# Datalink statistics
-- Total of 1 flow:
Average throughput: 13.16 Mbit/s
95th percentile per-packet one-way delay: 12.908 ms
Loss rate: 0.93%
-- Flow 1:
Average throughput: 13.16 Mbit/s
95th percentile per-packet one-way delay: 12.908 ms
Loss rate: 0.93%
```
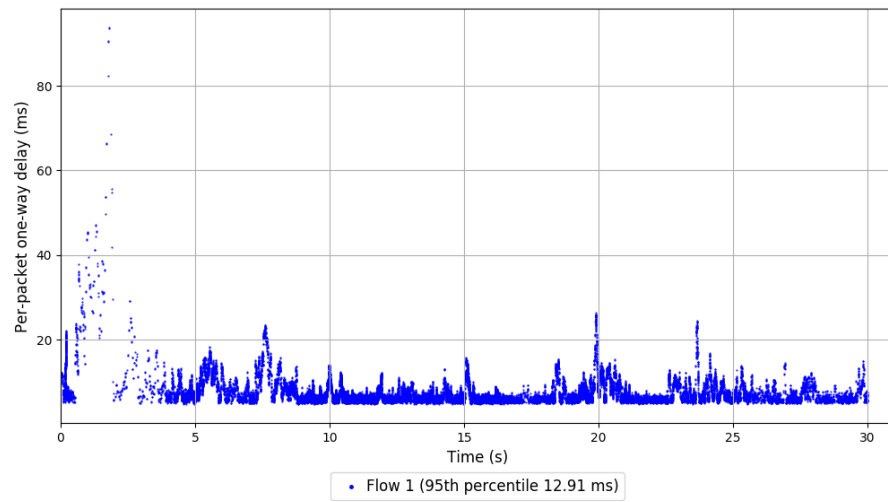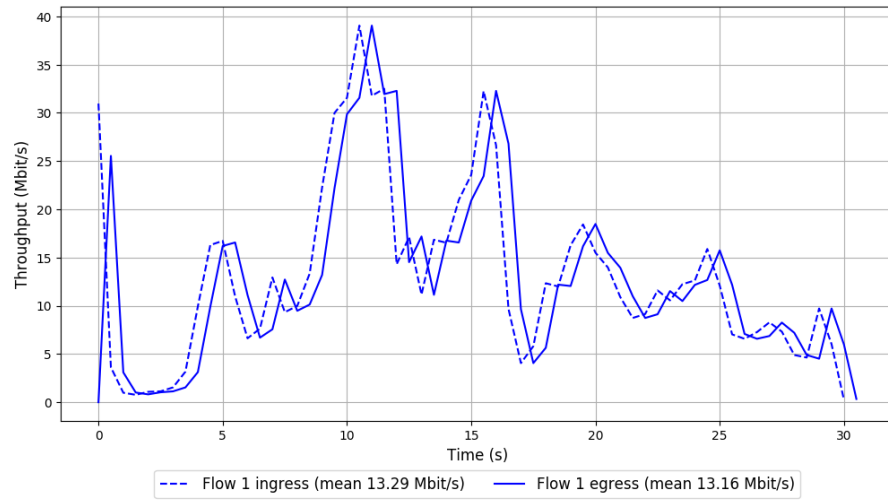
Run 5: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 13.29 Mbit/s)   Flow 1 egress (mean 13.16 Mbit/s)

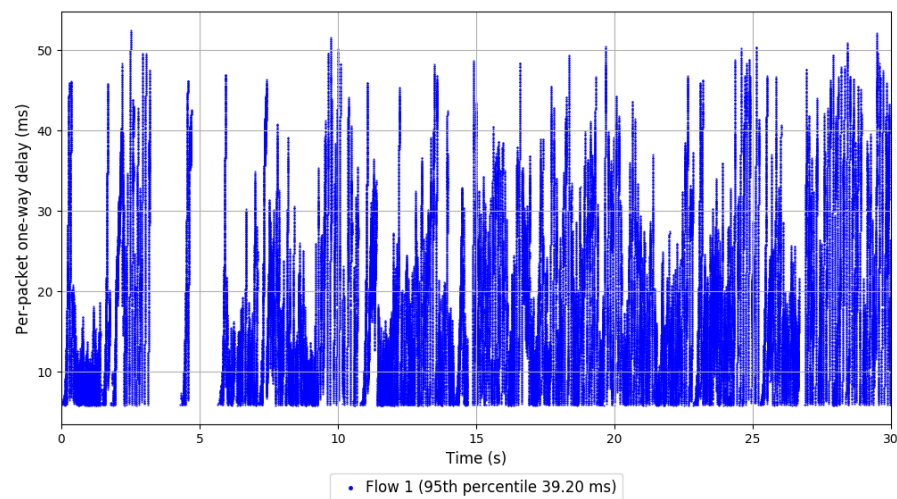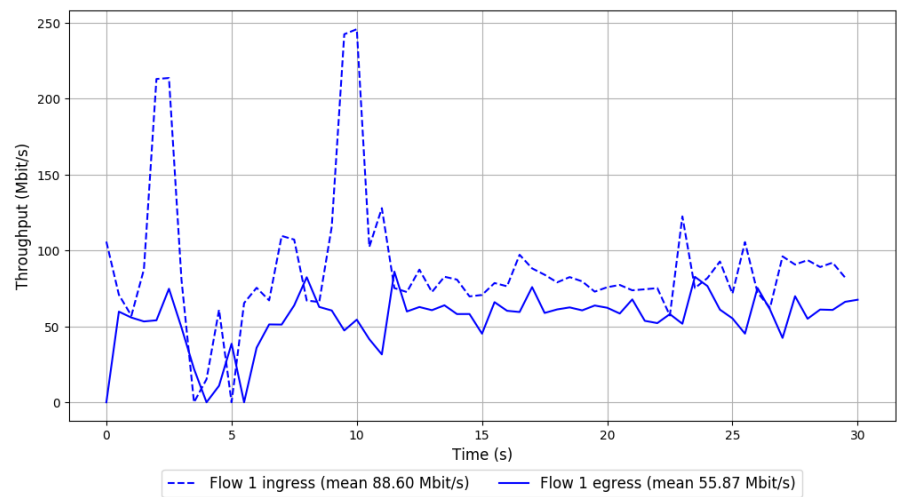Flow 1 (95th percentile 12.91 ms)

```
Run 1: Statistics of Verus

Start at: 2018-11-30 04:02:58
End at: 2018-11-30 04:03:28
Local clock offset: 0.691 ms
Remote clock offset: -1.904 ms


# Below is generated by plot.py at 2018-11-30 05:48:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 55.87 Mbit/s
95th percentile per-packet one-way delay: 39.203 ms
Loss rate: 36.92%
-- Flow 1:
Average throughput: 55.87 Mbit/s
95th percentile per-packet one-way delay: 39.203 ms
Loss rate: 36.92%
```

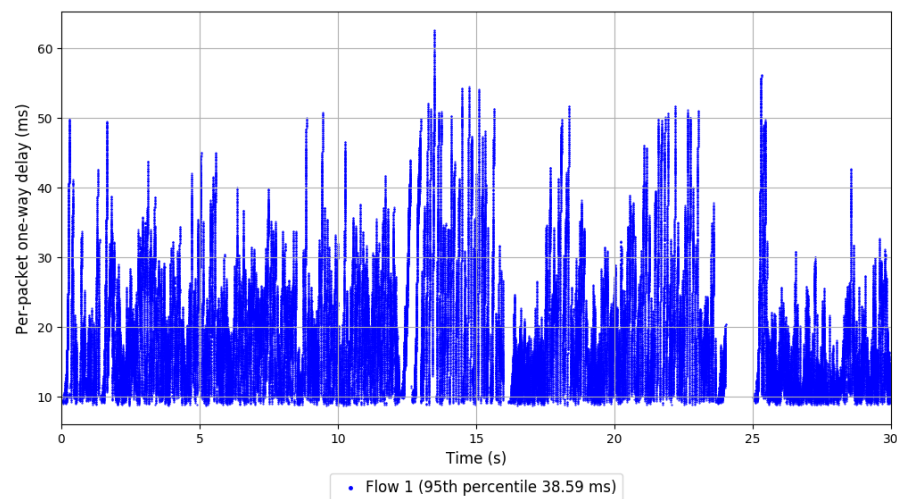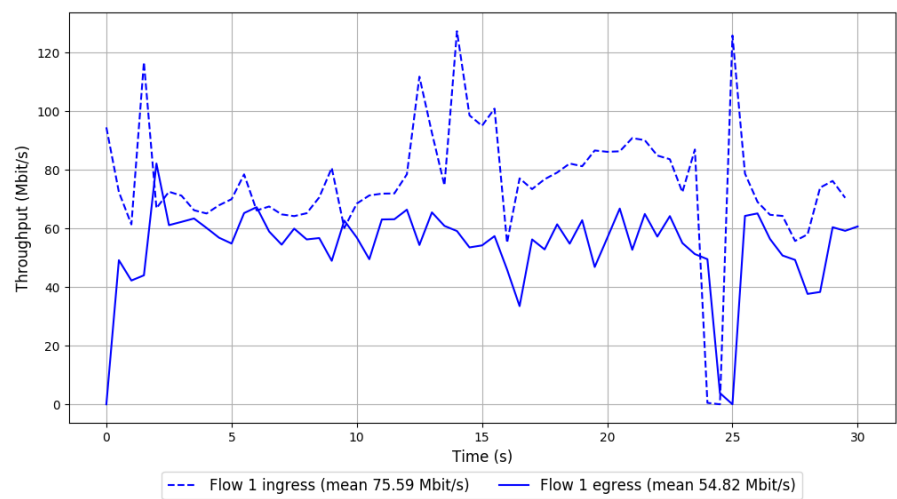Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2018-11-30 04:24:48
End at: 2018-11-30 04:25:18
Local clock offset: -0.721 ms
Remote clock offset: -2.432 ms


# Below is generated by plot.py at 2018-11-30 05:48:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 54.82 Mbit/s
95th percentile per-packet one-way delay: 38.594 ms
Loss rate: 27.47%
-- Flow 1:
Average throughput: 54.82 Mbit/s
95th percentile per-packet one-way delay: 38.594 ms
Loss rate: 27.47%
```
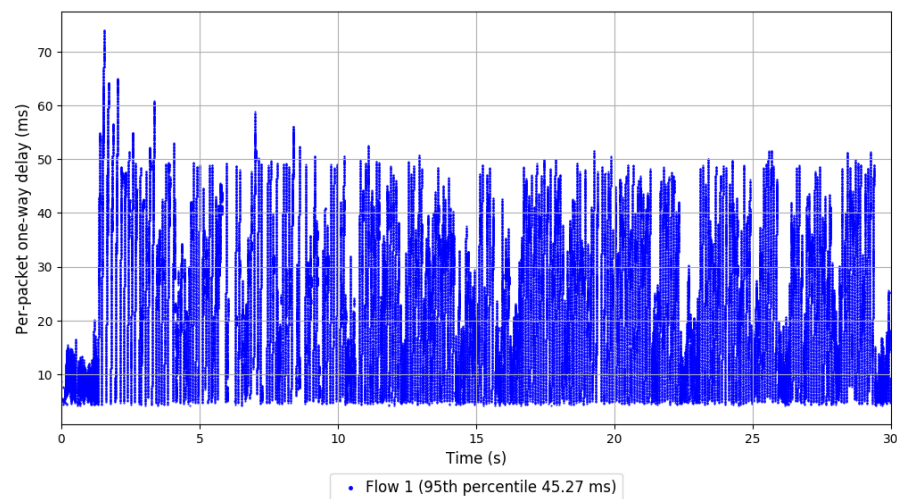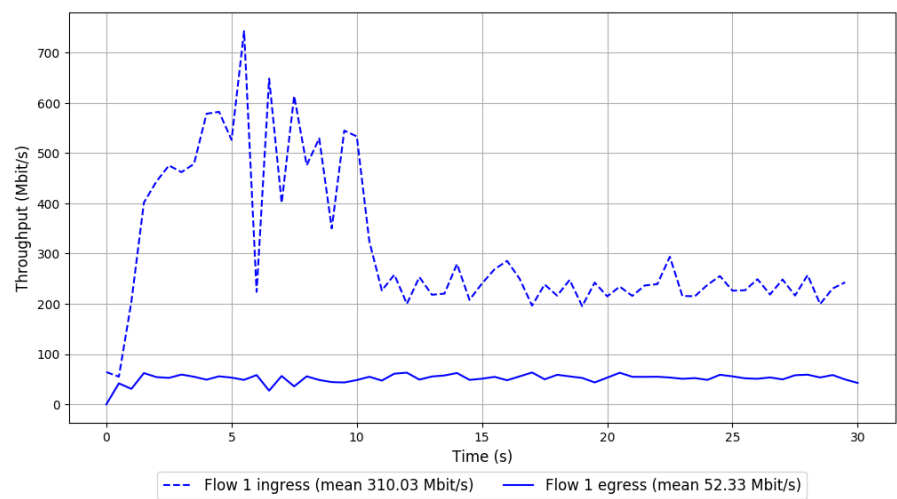
Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-11-30 04:46:02
End at: 2018-11-30 04:46:32
Local clock offset: 2.714 ms
Remote clock offset: -4.338 ms


# Below is generated by plot.py at 2018-11-30 05:48:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 52.33 Mbit/s
95th percentile per-packet one-way delay: 45.273 ms
Loss rate: 83.12%
-- Flow 1:
Average throughput: 52.33 Mbit/s
95th percentile per-packet one-way delay: 45.273 ms
Loss rate: 83.12%
```

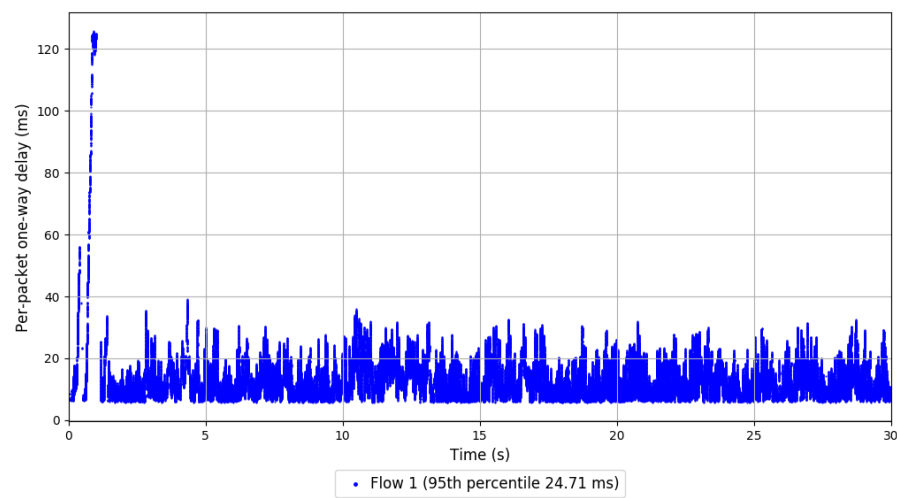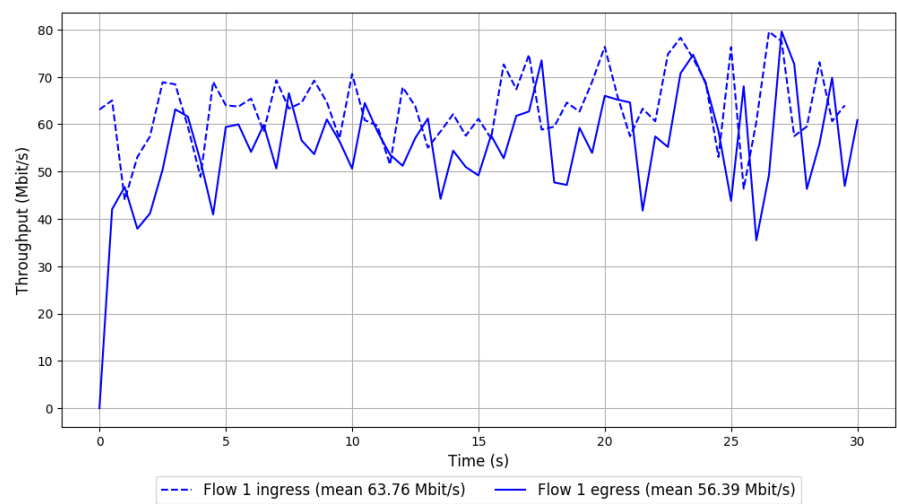# Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2018-11-30 05:07:21
End at: 2018-11-30 05:07:51
Local clock offset: 1.802 ms
Remote clock offset: -4.158 ms


# Below is generated by plot.py at 2018-11-30 05:48:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 56.39 Mbit/s
95th percentile per-packet one-way delay: 24.706 ms
Loss rate: 11.56%
-- Flow 1:
Average throughput: 56.39 Mbit/s
95th percentile per-packet one-way delay: 24.706 ms
Loss rate: 11.56%
```

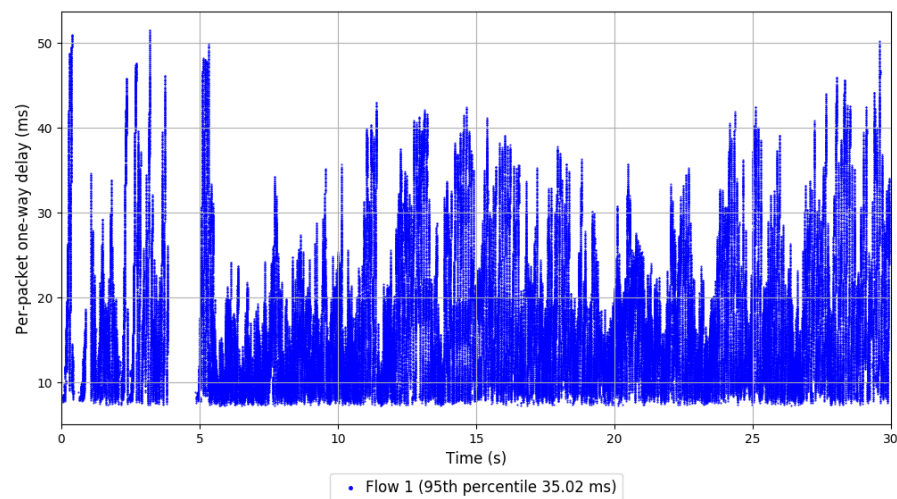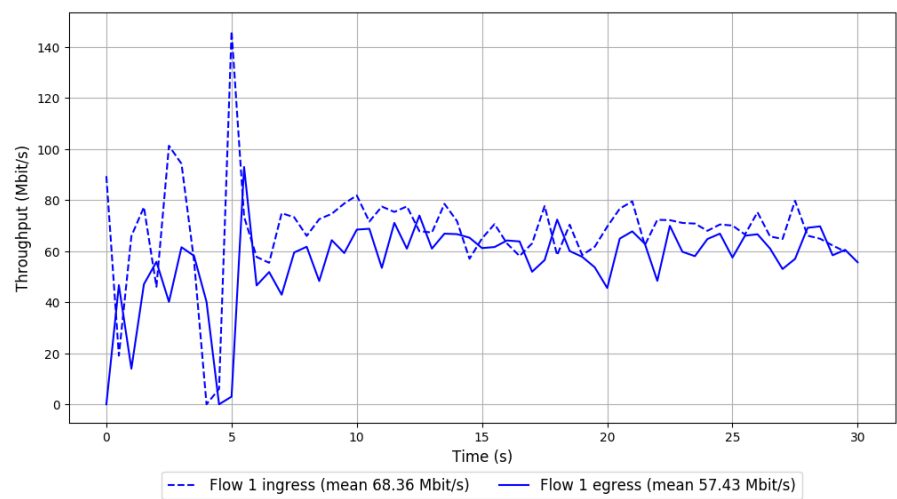Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2018-11-30 05:28:59
End at: 2018-11-30 05:29:29
Local clock offset: 0.249 ms
Remote clock offset: -4.306 ms


# Below is generated by plot.py at 2018-11-30 05:48:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 57.43 Mbit/s
95th percentile per-packet one-way delay: 35.017 ms
Loss rate: 15.94%
-- Flow 1:
Average throughput: 57.43 Mbit/s
95th percentile per-packet one-way delay: 35.017 ms
Loss rate: 15.94%
```

Run 5: Report of Verus — Data Link

```
Run 1: Statistics of PCC-Vivace

Start at: 2018-11-30 04:13:38
End at: 2018-11-30 04:14:08
Local clock offset: -0.793 ms
Remote clock offset: -2.98 ms


# Below is generated by plot.py at 2018-11-30 05:48:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 23.98 Mbit/s
95th percentile per-packet one-way delay: 6.207 ms
Loss rate: 8.89%
-- Flow 1:
Average throughput: 23.98 Mbit/s
95th percentile per-packet one-way delay: 6.207 ms
Loss rate: 8.89%
```
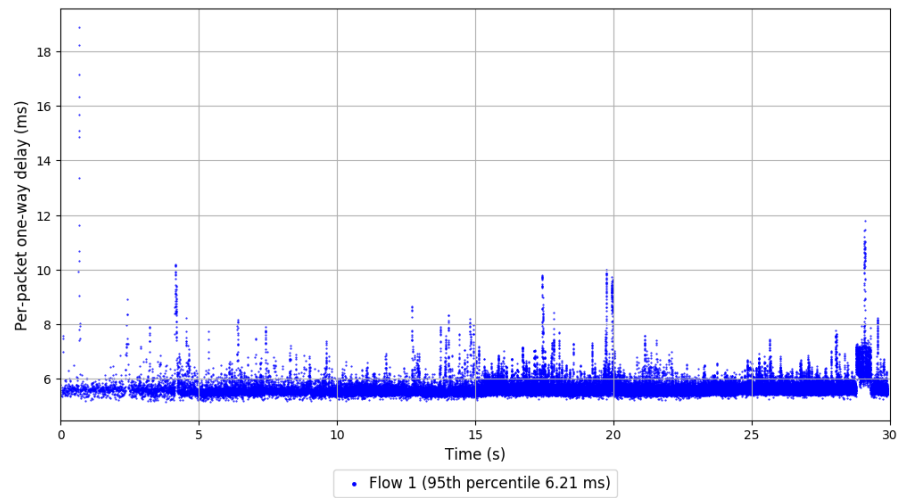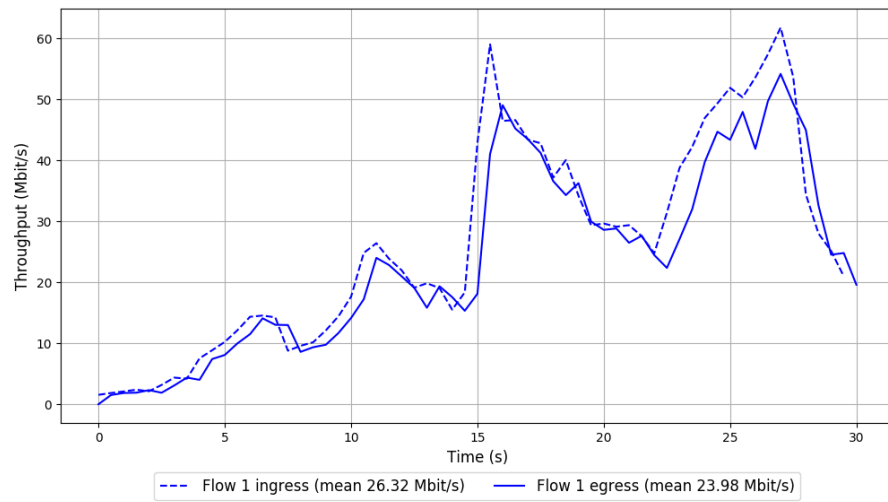
Run 1: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 26.32 Mbit/s)   Flow 1 egress (mean 23.98 Mbit/s)

Flow 1 (95th percentile 6.21 ms)

```
Run 2: Statistics of PCC-Vivace

Start at: 2018-11-30 04:34:55
End at: 2018-11-30 04:35:25
Local clock offset: 2.647 ms
Remote clock offset: -2.677 ms


# Below is generated by plot.py at 2018-11-30 05:48:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 15.94 Mbit/s
95th percentile per-packet one-way delay: 8.070 ms
Loss rate: 2.00%
-- Flow 1:
Average throughput: 15.94 Mbit/s
95th percentile per-packet one-way delay: 8.070 ms
Loss rate: 2.00%
```
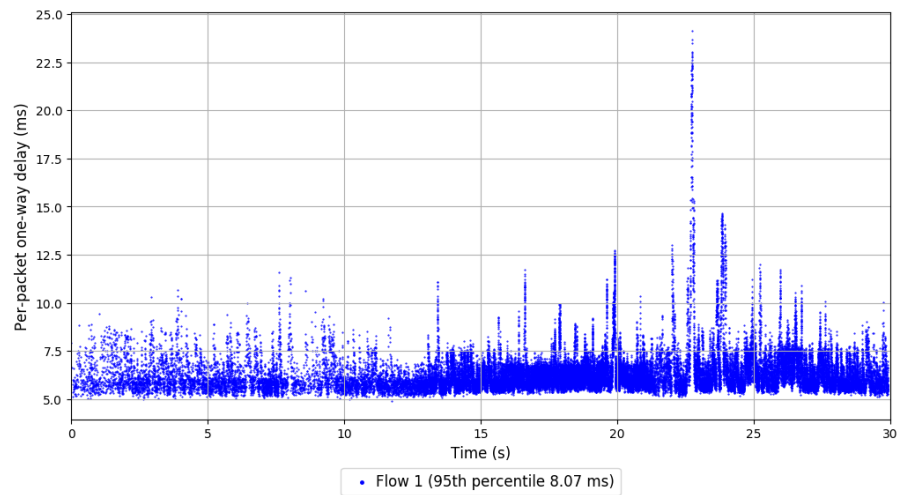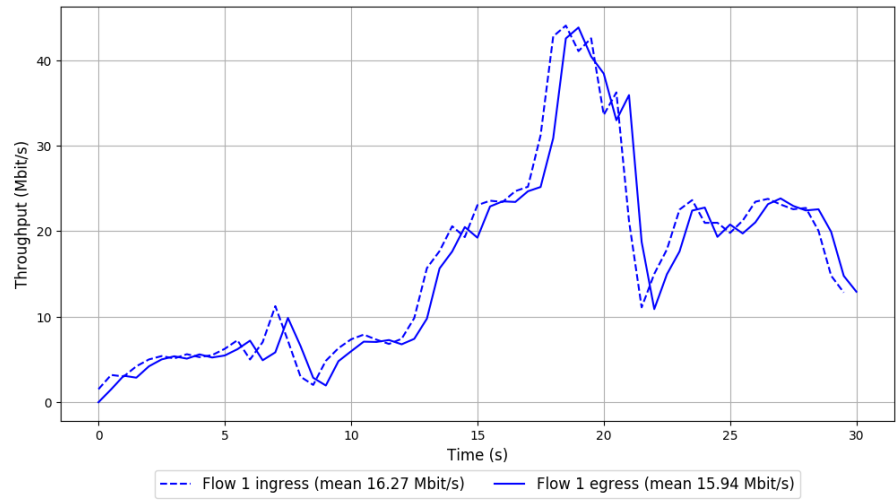
Run 2: Report of PCC-Vivace — Data Link

```
Run 3: Statistics of PCC-Vivace

Start at: 2018-11-30 04:56:02
End at: 2018-11-30 04:56:32
Local clock offset: 1.611 ms
Remote clock offset: -6.533 ms


# Below is generated by plot.py at 2018-11-30 05:48:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 25.20 Mbit/s
95th percentile per-packet one-way delay: 6.146 ms
Loss rate: 0.50%
-- Flow 1:
Average throughput: 25.20 Mbit/s
95th percentile per-packet one-way delay: 6.146 ms
Loss rate: 0.50%
```
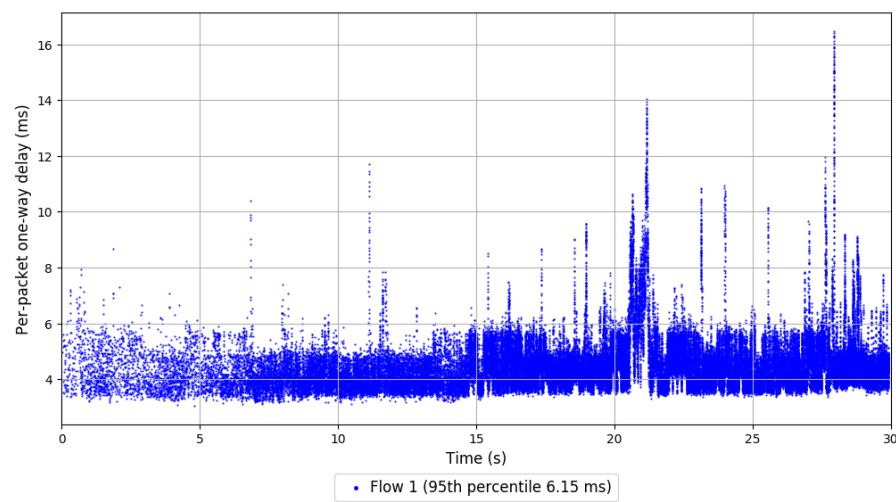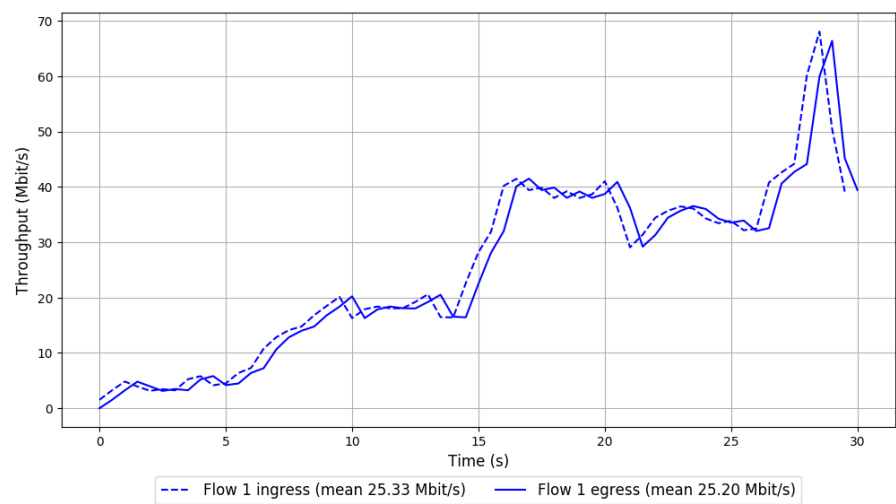
Run 3: Report of PCC-Vivace — Data Link

```
Run 4: Statistics of PCC-Vivace

Start at: 2018-11-30 05:17:33
End at: 2018-11-30 05:18:03
Local clock offset: 1.318 ms
Remote clock offset: -4.404 ms


# Below is generated by plot.py at 2018-11-30 05:48:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 35.28 Mbit/s
95th percentile per-packet one-way delay: 8.831 ms
Loss rate: 6.92%
-- Flow 1:
Average throughput: 35.28 Mbit/s
95th percentile per-packet one-way delay: 8.831 ms
Loss rate: 6.92%
```
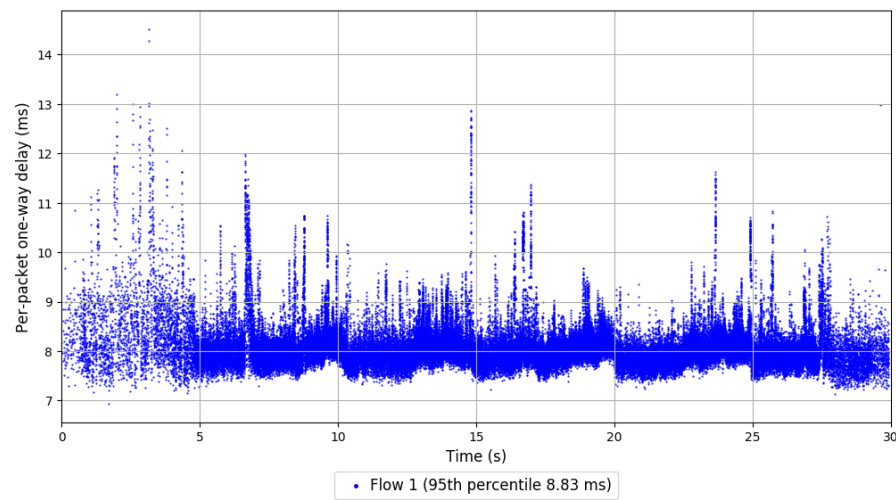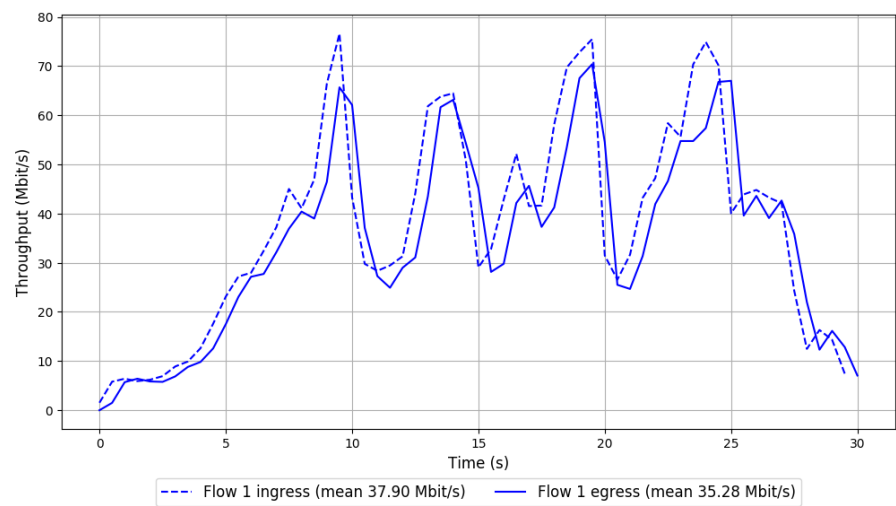
Run 4: Report of PCC-Vivace — Data Link

```
Run 5: Statistics of PCC-Vivace

Start at: 2018-11-30 05:39:14
End at: 2018-11-30 05:39:44
Local clock offset: 2.165 ms
Remote clock offset: -5.847 ms


# Below is generated by plot.py at 2018-11-30 05:48:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 25.12 Mbit/s
95th percentile per-packet one-way delay: 8.951 ms
Loss rate: 4.28%
-- Flow 1:
Average throughput: 25.12 Mbit/s
95th percentile per-packet one-way delay: 8.951 ms
Loss rate: 4.28%
```
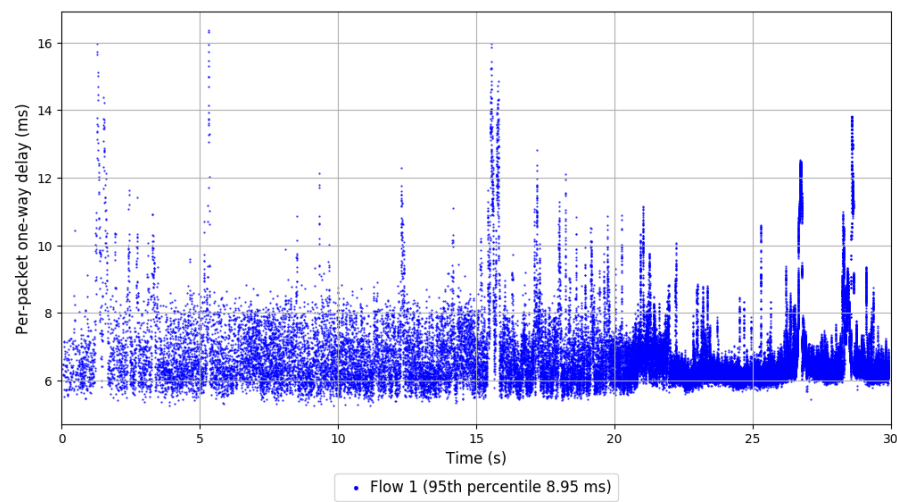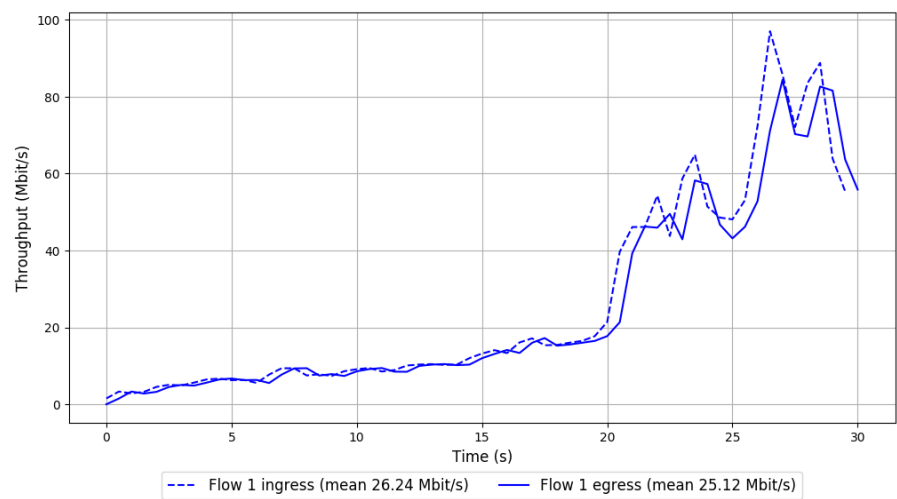
Run 5: Report of PCC-Vivace — Data Link

```
Run 1: Statistics of WebRTC media

Start at: 2018-11-30 03:57:22
End at: 2018-11-30 03:57:52
Local clock offset: 1.31 ms
Remote clock offset: -3.583 ms

# Below is generated by plot.py at 2018-11-30 05:48:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.16 Mbit/s
95th percentile per-packet one-way delay: 3.405 ms
Loss rate: 2.29%
-- Flow 1:
Average throughput: 3.16 Mbit/s
95th percentile per-packet one-way delay: 3.405 ms
Loss rate: 2.29%
```
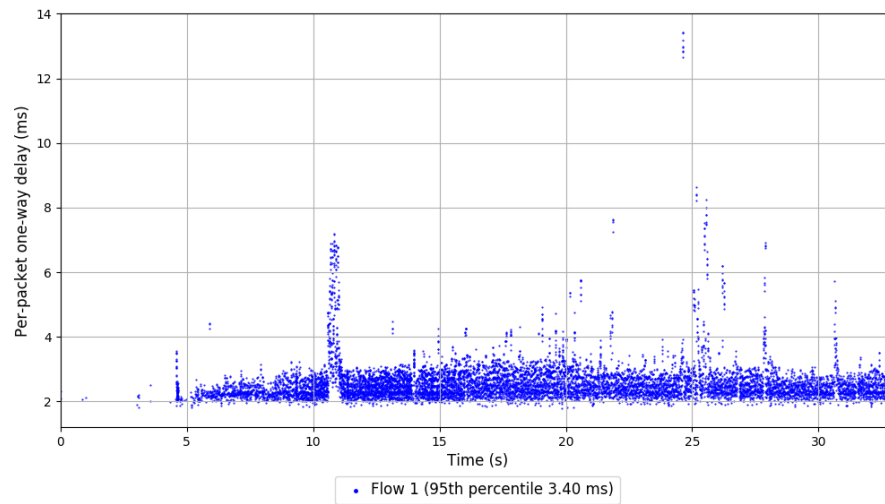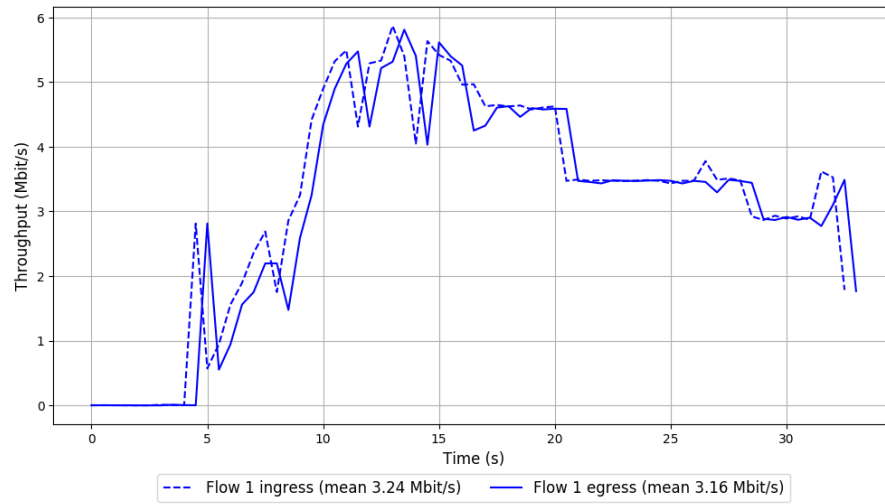
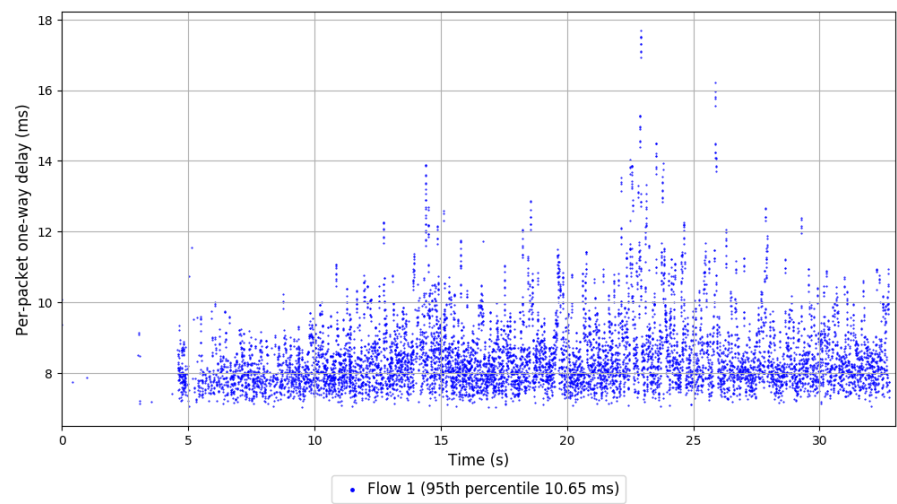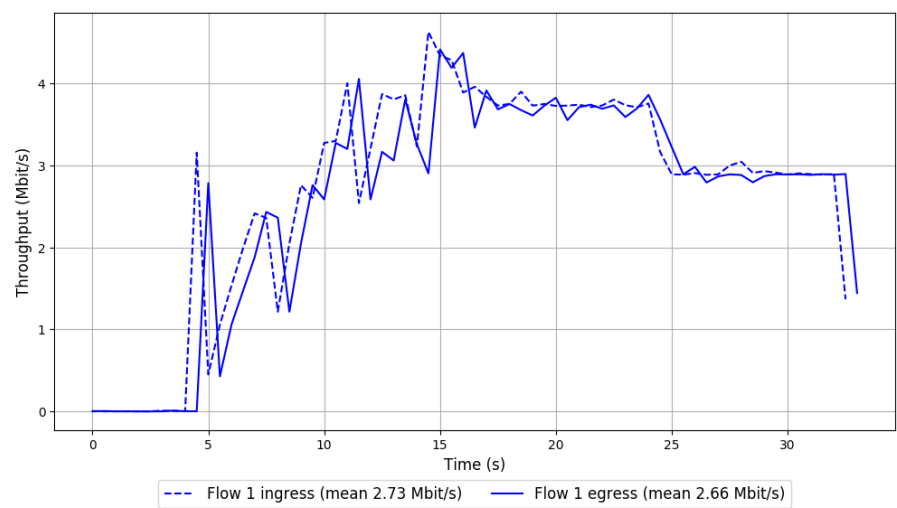Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2018-11-30 04:19:12
End at: 2018-11-30 04:19:42
Local clock offset: -1.247 ms
Remote clock offset: -2.828 ms


# Below is generated by plot.py at 2018-11-30 05:48:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.66 Mbit/s
95th percentile per-packet one-way delay: 10.654 ms
Loss rate: 2.47%
-- Flow 1:
Average throughput: 2.66 Mbit/s
95th percentile per-packet one-way delay: 10.654 ms
Loss rate: 2.47%
```

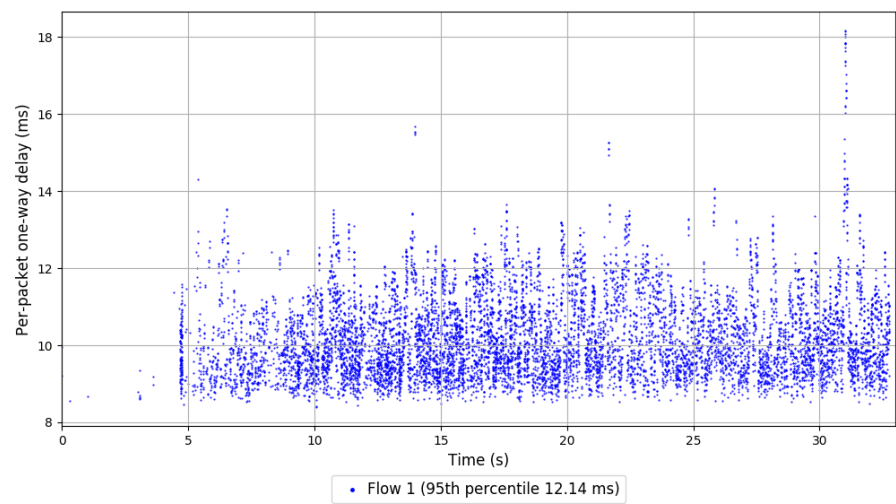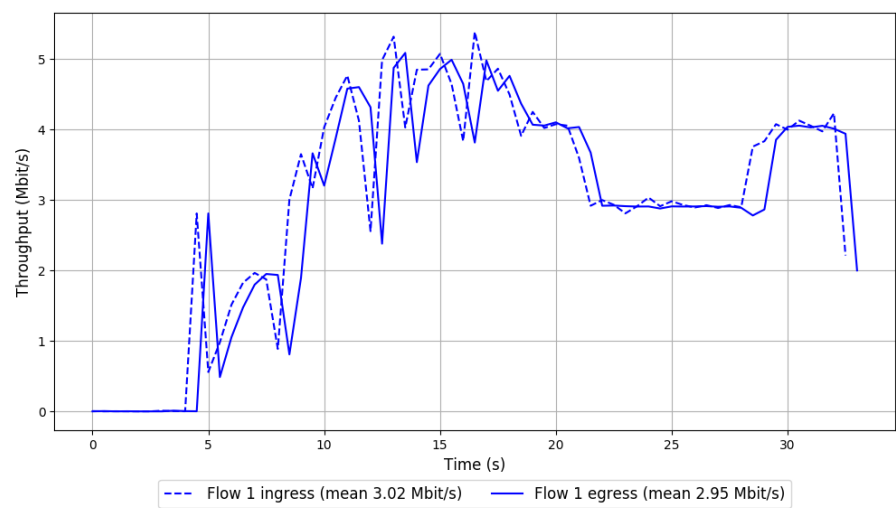Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-11-30 04:40:31
End at: 2018-11-30 04:41:01
Local clock offset: -0.152 ms
Remote clock offset: -2.414 ms


# Below is generated by plot.py at 2018-11-30 05:48:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.95 Mbit/s
95th percentile per-packet one-way delay: 12.136 ms
Loss rate: 2.53%
-- Flow 1:
Average throughput: 2.95 Mbit/s
95th percentile per-packet one-way delay: 12.136 ms
Loss rate: 2.53%
```

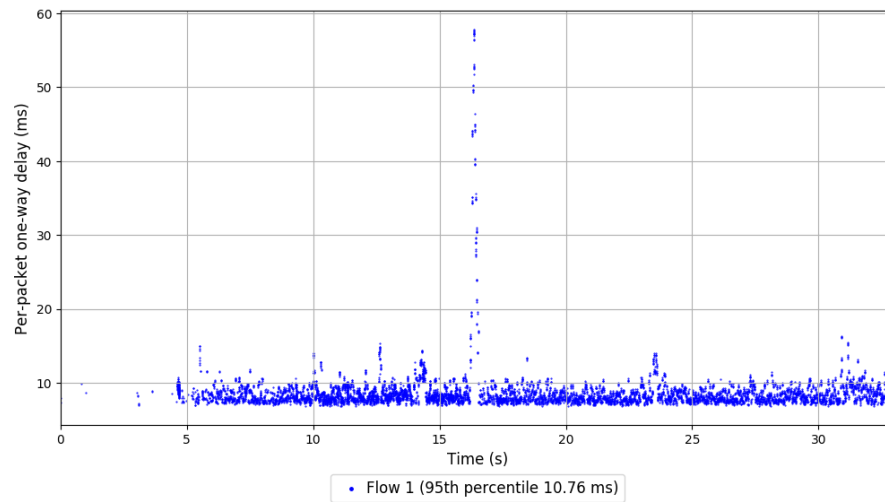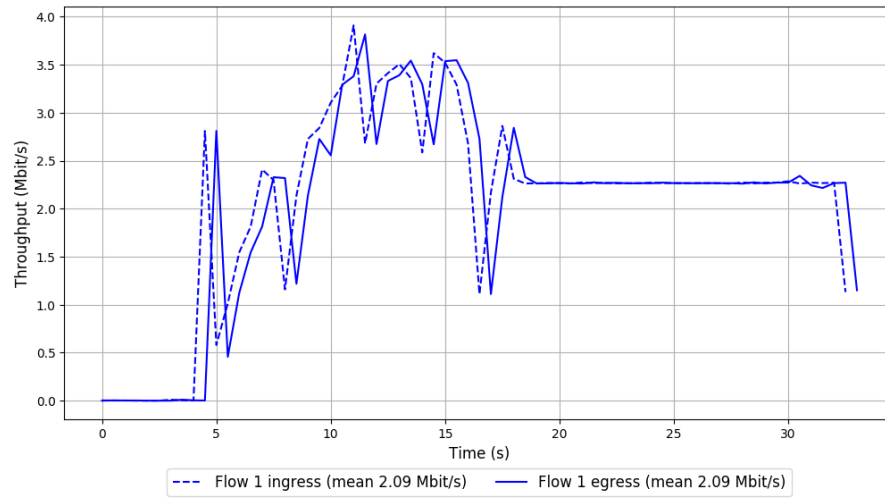Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2018-11-30 05:01:46
End at: 2018-11-30 05:02:16
Local clock offset: 0.859 ms
Remote clock offset: -4.855 ms


# Below is generated by plot.py at 2018-11-30 05:48:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.09 Mbit/s
95th percentile per-packet one-way delay: 10.759 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 2.09 Mbit/s
95th percentile per-packet one-way delay: 10.759 ms
Loss rate: 0.07%
```

Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2018-11-30 05:23:18
End at: 2018-11-30 05:23:48
Local clock offset: 2.669 ms
Remote clock offset: -4.349 ms

# Below is generated by plot.py at 2018-11-30 05:48:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.94 Mbit/s
95th percentile per-packet one-way delay: 7.721 ms
Loss rate: 4.55%
-- Flow 1:
Average throughput: 2.94 Mbit/s
95th percentile per-packet one-way delay: 7.721 ms
Loss rate: 4.55%
```

Run 5: Report of WebRTC media — Data Link