Pantheon Report

Generated at 2018-11-30 18:03:57 (UTC).

Data path: GCE Tokyo on `ens4` (*remote*) →GCE Iowa on `ens4` (*local*).

Repeated the test of 19 congestion control schemes 5 times.

Each test lasted for 30 seconds running 1 flow.

NTP offsets were measured against `time.google.com` and have been applied to correct the timestamps in logs.
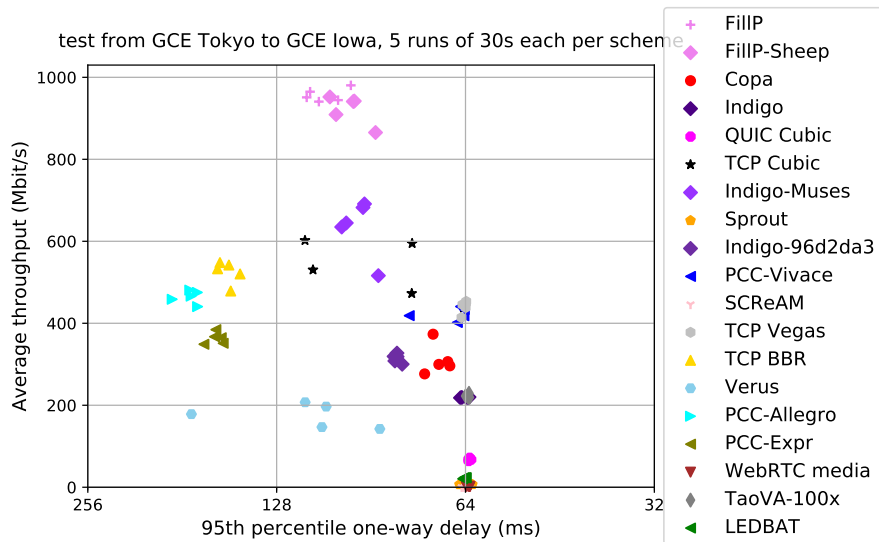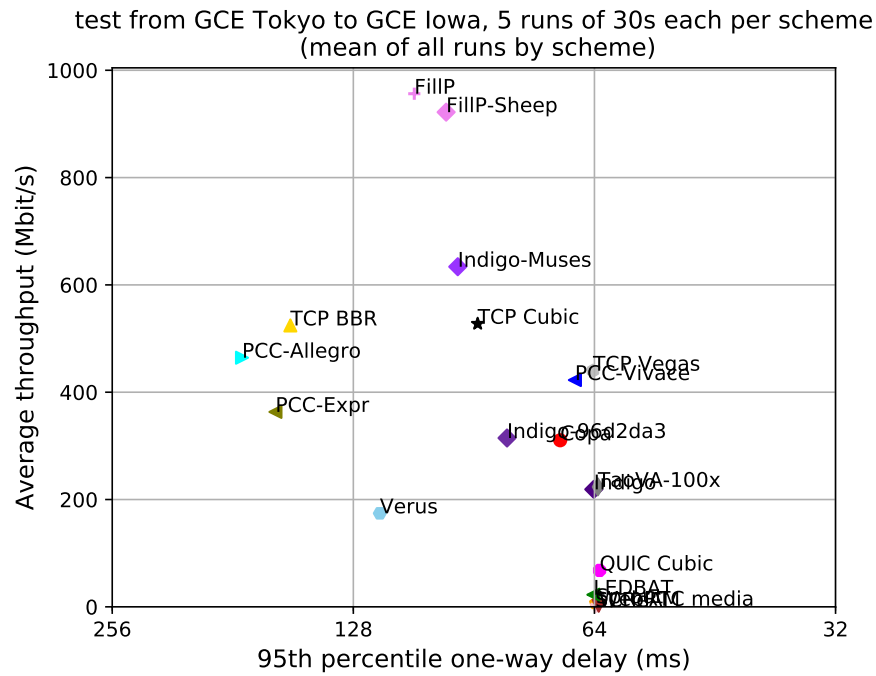
```
System info:
Linux 4.15.0-1024-gcp
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

Git summary:
branch: muses @ 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 GCE Tokyo to GCE Iowa, 5 runs of 30s each per scheme
(mean of all runs by scheme)

test from GCE Tokyo to GCE Iowa, 5 runs of 30s each per scheme

scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	5	524.45	153.40	1.27
Copa	5	310.42	70.62	0.39
TCP Cubic	5	527.53	89.53	0.50
FillP	5	956.29	107.42	0.89
FillP-Sheep	5	921.93	98.03	0.81
Indigo	5	218.95	64.12	0.44
Indigo-96d2da3	5	314.65	82.29	0.38
LEDBAT	5	22.61	64.20	0.73
Indigo-Muses	5	633.86	94.81	0.49
PCC-Allegro	5	464.29	176.27	3.04
PCC-Expr	5	363.28	160.14	5.83
QUIC Cubic	4	67.89	63.06	0.65
SCReAM	5	0.22	63.85	0.43
Sprout	5	6.76	63.74	0.32
TaoVA-100x	5	223.56	63.38	0.45
TCP Vegas	5	440.12	64.27	0.39
Verus	5	174.27	118.61	0.65
PCC-Vivace	5	422.67	67.70	0.53
WebRTC media	5	2.03	63.23	0.55

```
Run 1: Statistics of TCP BBR

Start at: 2018-11-30 14:07:04
End at: 2018-11-30 14:07:34
Local clock offset: -0.087 ms
Remote clock offset: -0.113 ms


# Below is generated by plot.py at 2018-11-30 16:36:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 548.13 Mbit/s
95th percentile per-packet one-way delay: 157.614 ms
Loss rate: 1.38%
-- Flow 1:
Average throughput: 548.13 Mbit/s
95th percentile per-packet one-way delay: 157.614 ms
Loss rate: 1.38%
```
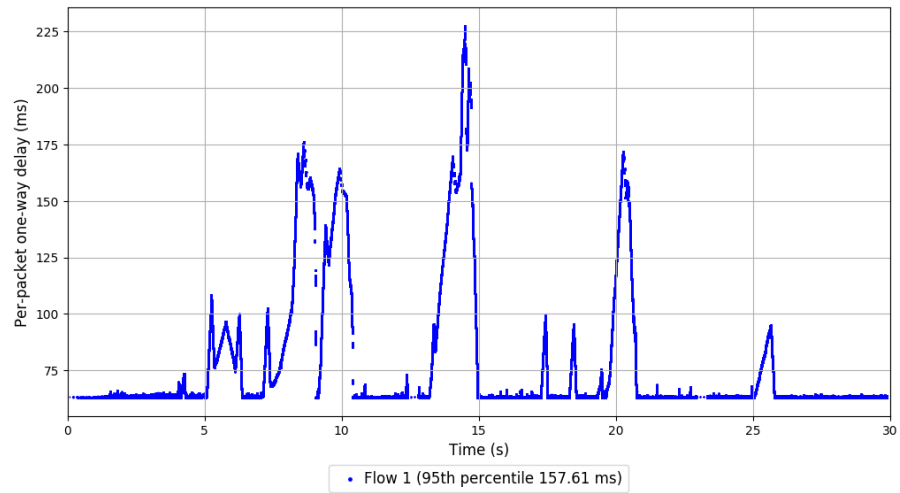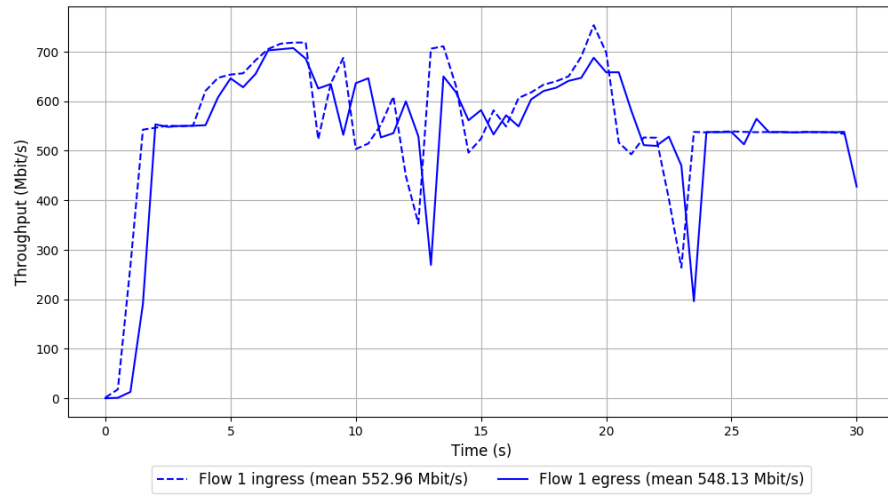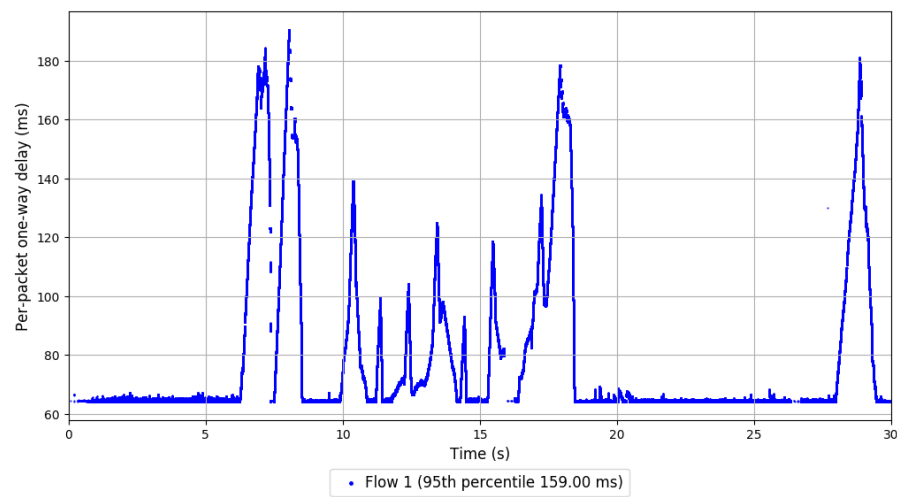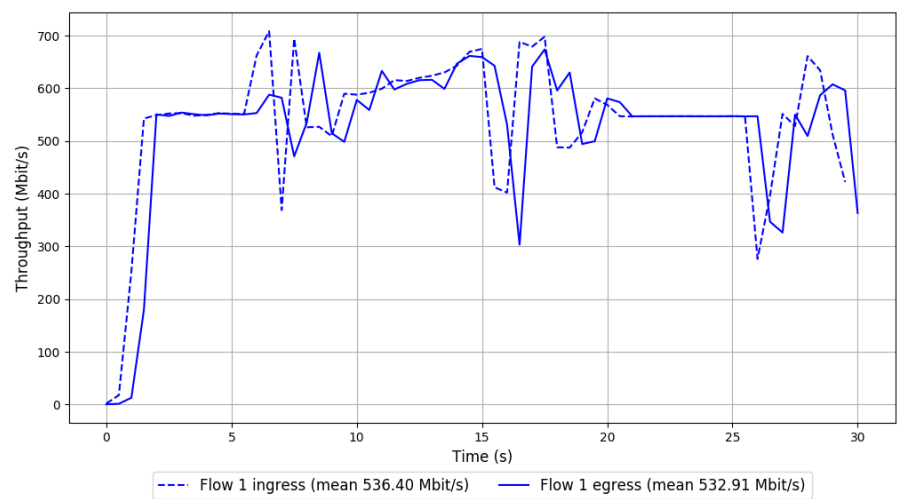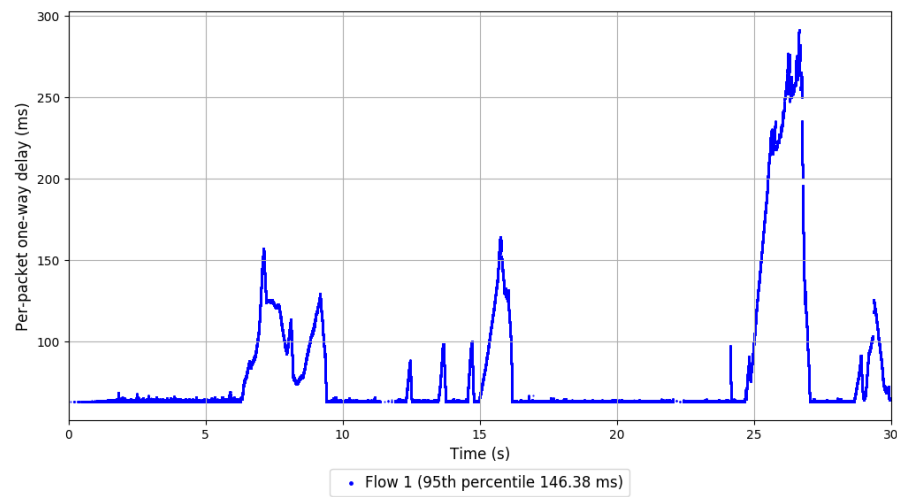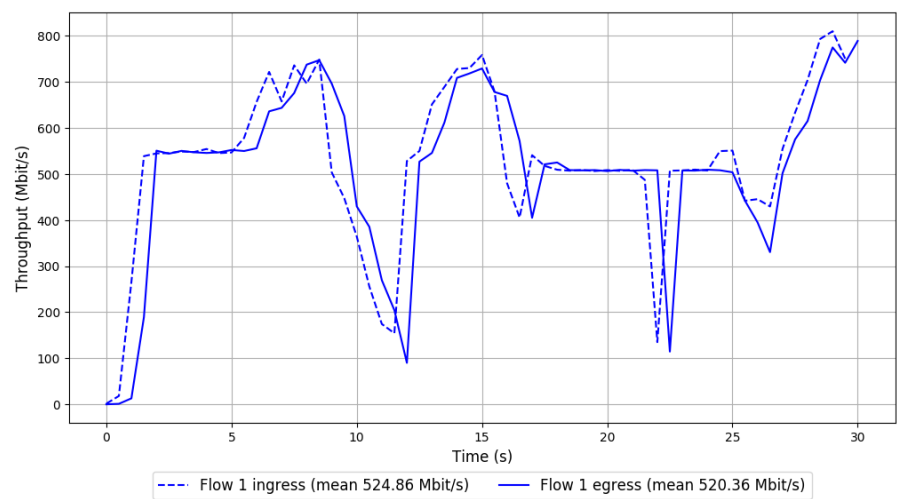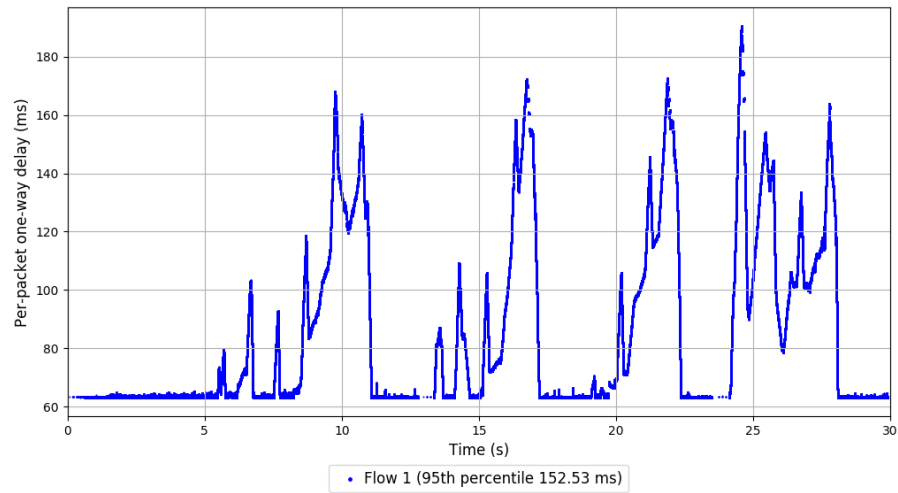
Run 1: Report of TCP BBR — Data Link

```
Run 2: Statistics of TCP BBR

Start at: 2018-11-30 14:35:00
End at: 2018-11-30 14:35:30
Local clock offset: -0.054 ms
Remote clock offset: -1.401 ms


# Below is generated by plot.py at 2018-11-30 16:36:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 532.91 Mbit/s
95th percentile per-packet one-way delay: 158.995 ms
Loss rate: 1.07%
-- Flow 1:
Average throughput: 532.91 Mbit/s
95th percentile per-packet one-way delay: 158.995 ms
Loss rate: 1.07%
```
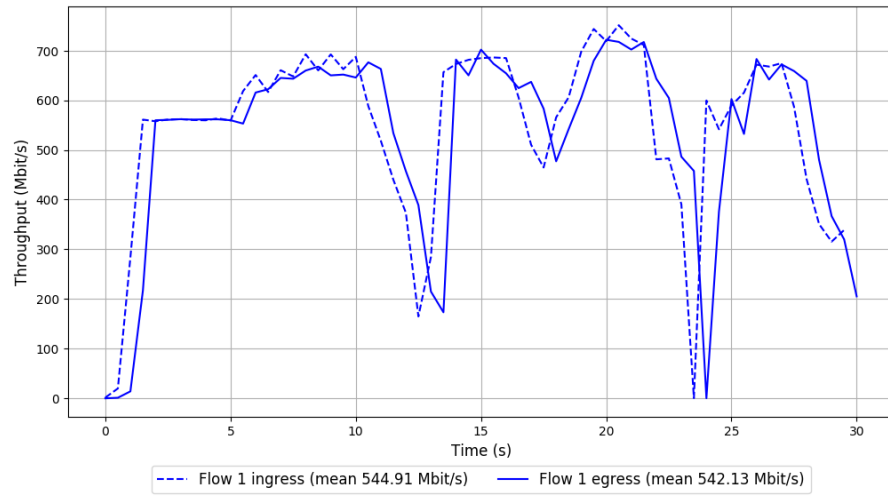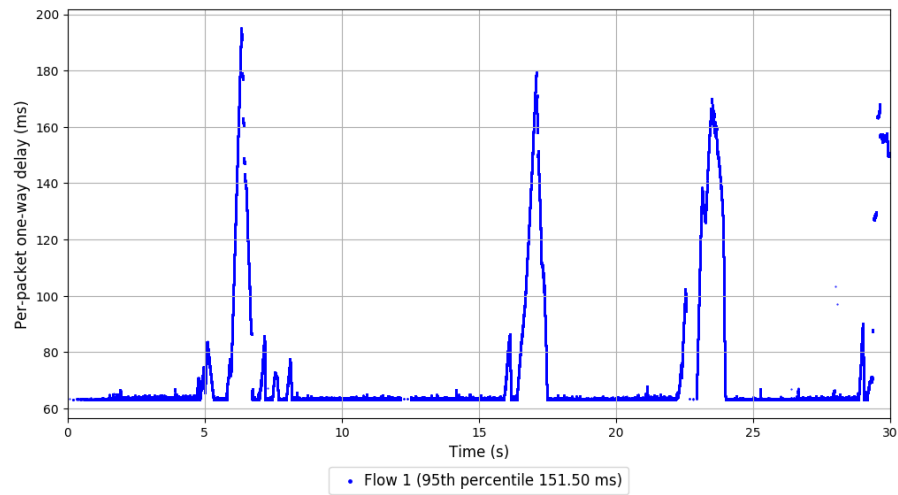
Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2018-11-30 15:02:58
End at: 2018-11-30 15:03:28
Local clock offset: -0.022 ms
Remote clock offset: 0.085 ms


# Below is generated by plot.py at 2018-11-30 16:36:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 520.36 Mbit/s
95th percentile per-packet one-way delay: 146.378 ms
Loss rate: 1.28%
-- Flow 1:
Average throughput: 520.36 Mbit/s
95th percentile per-packet one-way delay: 146.378 ms
Loss rate: 1.28%
```

Run 3: Report of TCP BBR — Data Link

Flow 1 ingress (mean 524.86 Mbit/s)   Flow 1 egress (mean 520.36 Mbit/s)

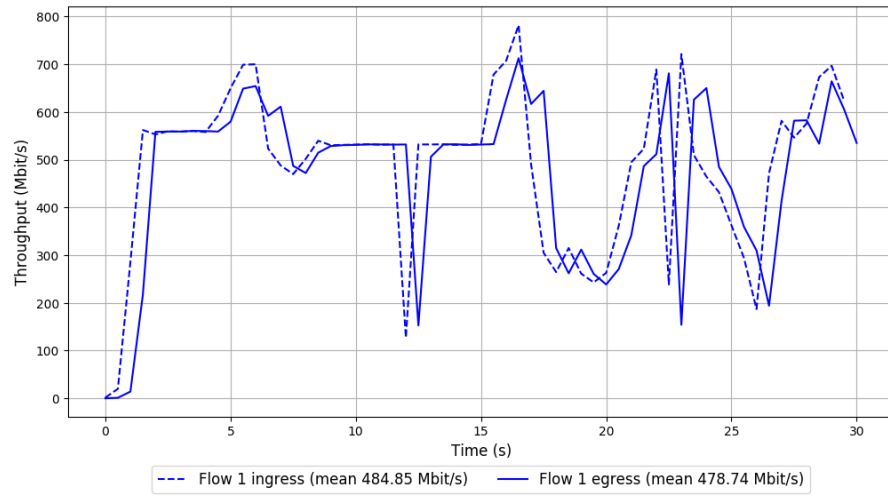

Flow 1 (95th percentile 146.38 ms)

```
Run 4: Statistics of TCP BBR

Start at: 2018-11-30 15:30:54
End at: 2018-11-30 15:31:24
Local clock offset: -0.099 ms
Remote clock offset: -0.138 ms


# Below is generated by plot.py at 2018-11-30 16:36:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 542.13 Mbit/s
95th percentile per-packet one-way delay: 152.533 ms
Loss rate: 0.93%
-- Flow 1:
Average throughput: 542.13 Mbit/s
95th percentile per-packet one-way delay: 152.533 ms
Loss rate: 0.93%
```
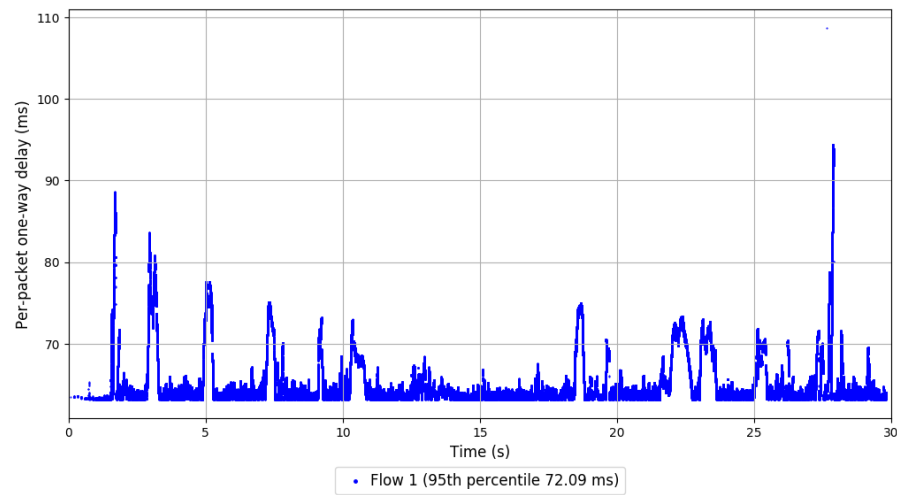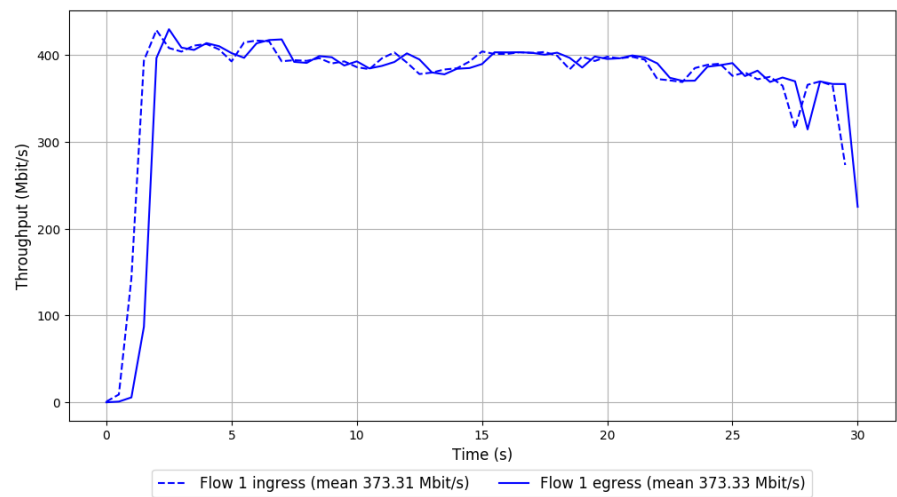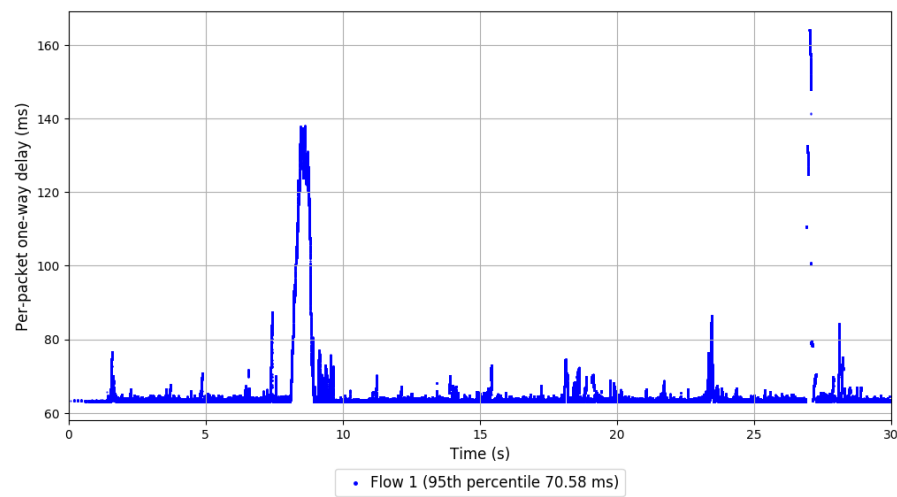
Run 4: Report of TCP BBR — Data Link

```
Run 5: Statistics of TCP BBR

Start at: 2018-11-30 15:58:41
End at: 2018-11-30 15:59:11
Local clock offset: -0.081 ms
Remote clock offset: -0.003 ms


# Below is generated by plot.py at 2018-11-30 16:36:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 478.74 Mbit/s
95th percentile per-packet one-way delay: 151.502 ms
Loss rate: 1.68%
-- Flow 1:
Average throughput: 478.74 Mbit/s
95th percentile per-packet one-way delay: 151.502 ms
Loss rate: 1.68%
```

Run 5: Report of TCP BBR — Data Link

Flow 1 ingress (mean 484.85 Mbit/s)   Flow 1 egress (mean 478.74 Mbit/s)

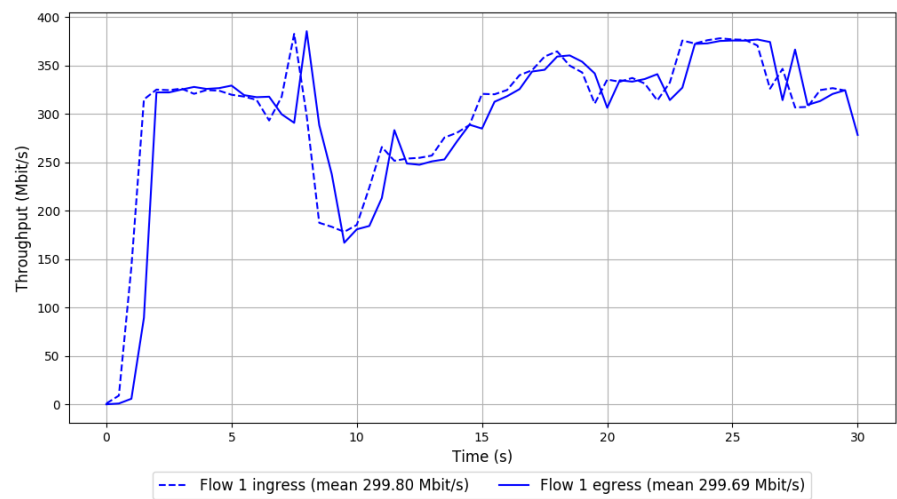
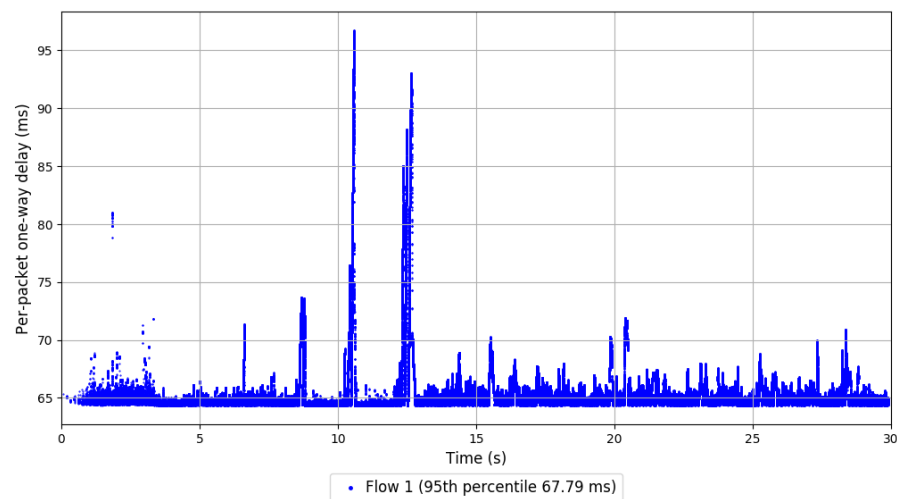
• Flow 1 (95th percentile 151.50 ms)

```
Run 1: Statistics of Copa

Start at: 2018-11-30 13:56:37
End at: 2018-11-30 13:57:07
Local clock offset: -0.075 ms
Remote clock offset: -0.349 ms

# Below is generated by plot.py at 2018-11-30 16:38:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 373.33 Mbit/s
95th percentile per-packet one-way delay: 72.086 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 373.33 Mbit/s
95th percentile per-packet one-way delay: 72.086 ms
Loss rate: 0.42%
```

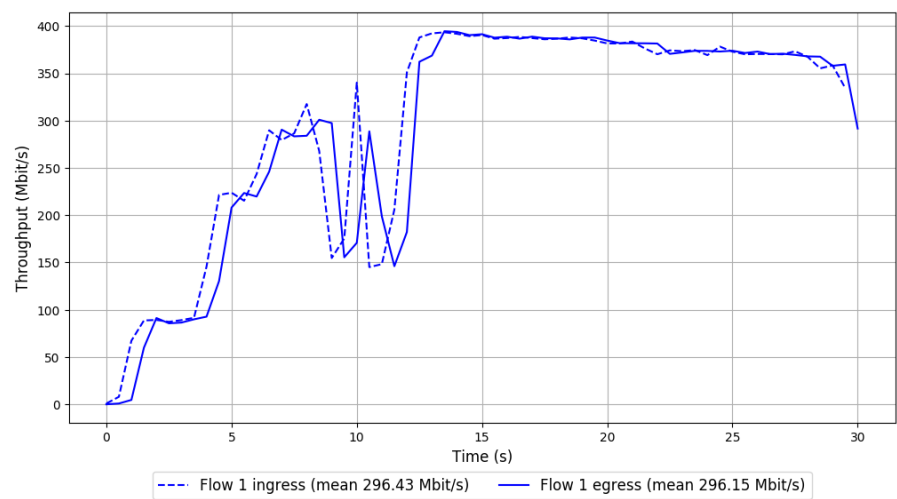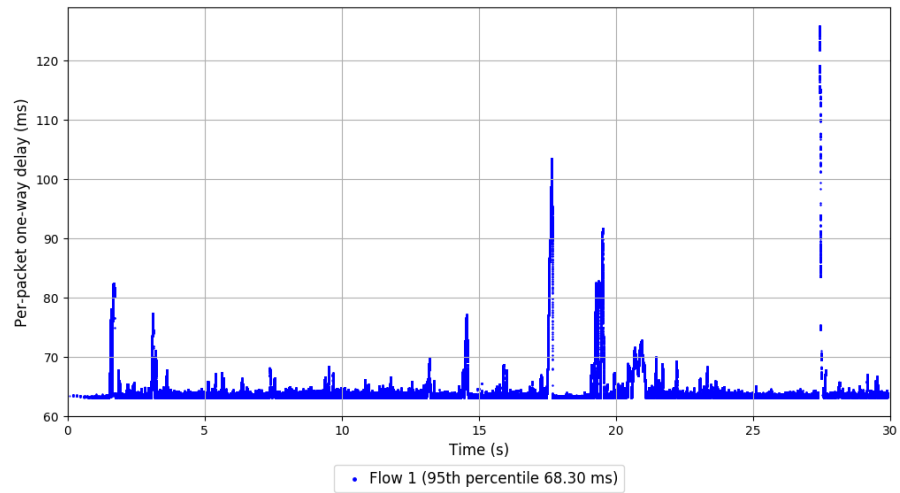Run 1: Report of Copa — Data Link

```
Run 2: Statistics of Copa

Start at: 2018-11-30 14:24:42
End at: 2018-11-30 14:25:12
Local clock offset: -0.052 ms
Remote clock offset: -0.157 ms


# Below is generated by plot.py at 2018-11-30 16:38:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 299.69 Mbit/s
95th percentile per-packet one-way delay: 70.579 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 299.69 Mbit/s
95th percentile per-packet one-way delay: 70.579 ms
Loss rate: 0.46%
```

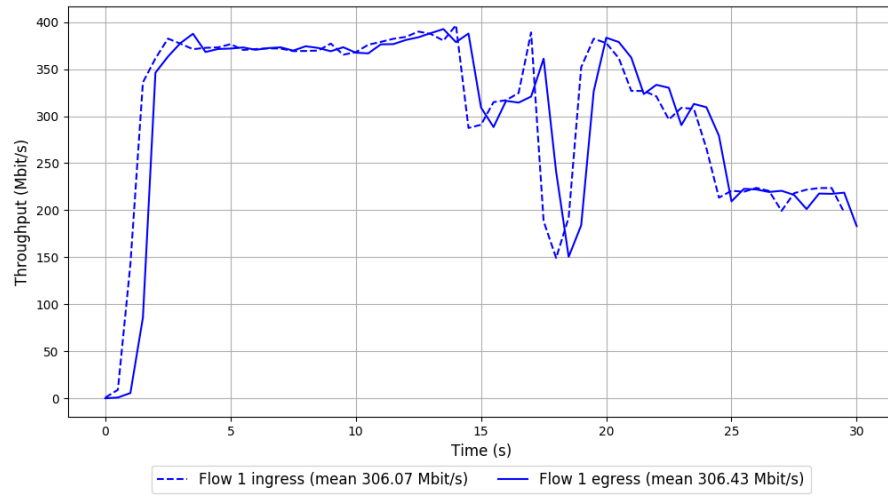Run 2: Report of Copa — Data Link

```
Run 3: Statistics of Copa

Start at: 2018-11-30 14:52:39
End at: 2018-11-30 14:53:09
Local clock offset: -0.102 ms
Remote clock offset: -1.549 ms


# Below is generated by plot.py at 2018-11-30 16:38:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 296.15 Mbit/s
95th percentile per-packet one-way delay: 67.790 ms
Loss rate: 0.52%
-- Flow 1:
Average throughput: 296.15 Mbit/s
95th percentile per-packet one-way delay: 67.790 ms
Loss rate: 0.52%
```

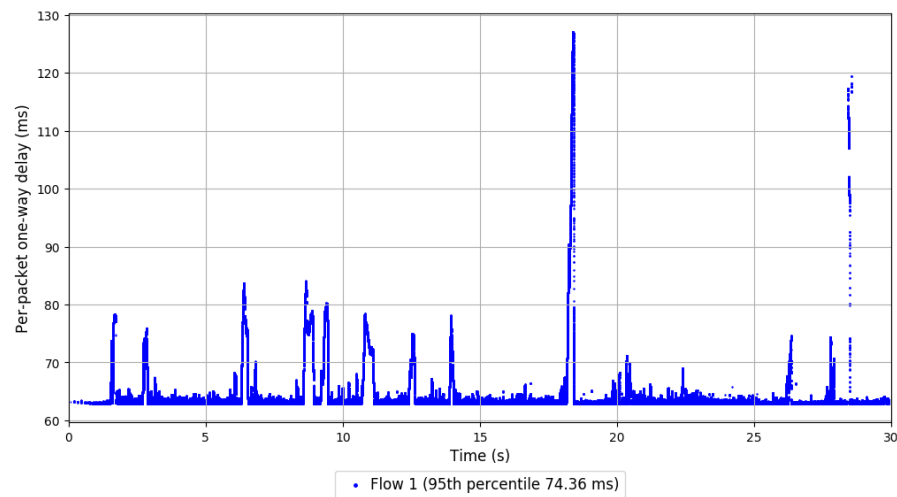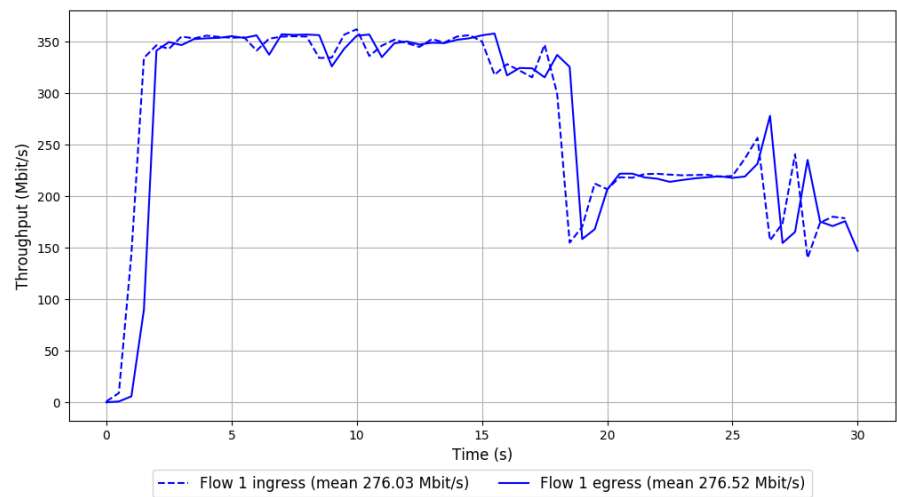# Run 3: Report of Copa — Data Link

```
Run 4: Statistics of Copa

Start at: 2018-11-30 15:20:38
End at: 2018-11-30 15:21:08
Local clock offset: -0.059 ms
Remote clock offset: -0.087 ms


# Below is generated by plot.py at 2018-11-30 16:45:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 306.43 Mbit/s
95th percentile per-packet one-way delay: 68.304 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 306.43 Mbit/s
95th percentile per-packet one-way delay: 68.304 ms
Loss rate: 0.30%
```

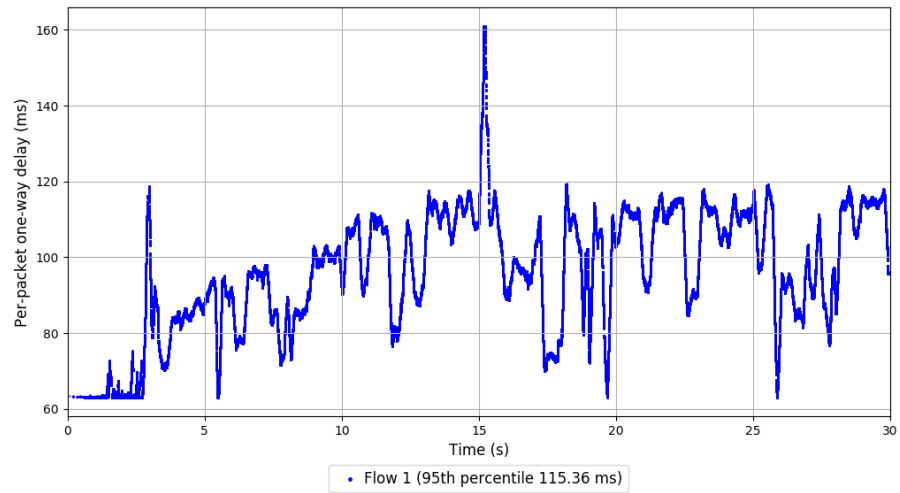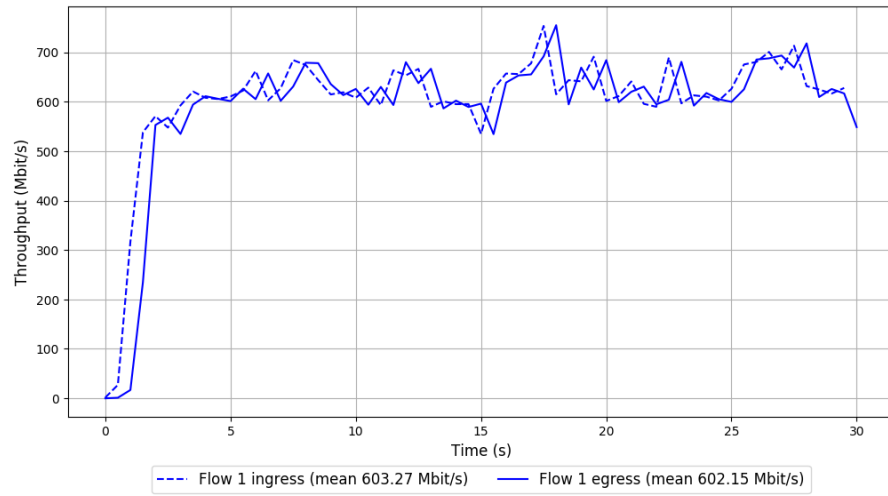Run 4: Report of Copa — Data Link

Flow 1 ingress (mean 306.07 Mbit/s) ----   Flow 1 egress (mean 306.43 Mbit/s) ——

Flow 1 (95th percentile 68.30 ms)

```
Run 5: Statistics of Copa

Start at: 2018-11-30 15:48:25
End at: 2018-11-30 15:48:55
Local clock offset: -0.085 ms
Remote clock offset: -0.019 ms


# Below is generated by plot.py at 2018-11-30 16:45:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 276.52 Mbit/s
95th percentile per-packet one-way delay: 74.356 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 276.52 Mbit/s
95th percentile per-packet one-way delay: 74.356 ms
Loss rate: 0.25%
```

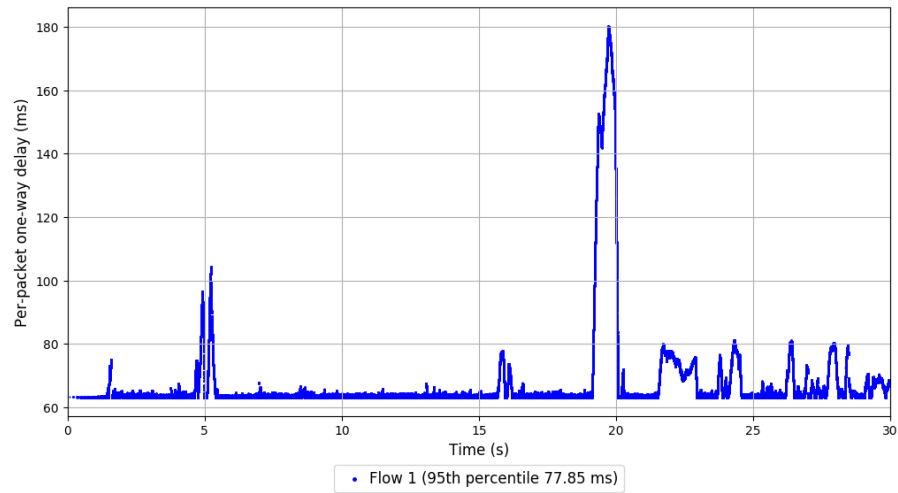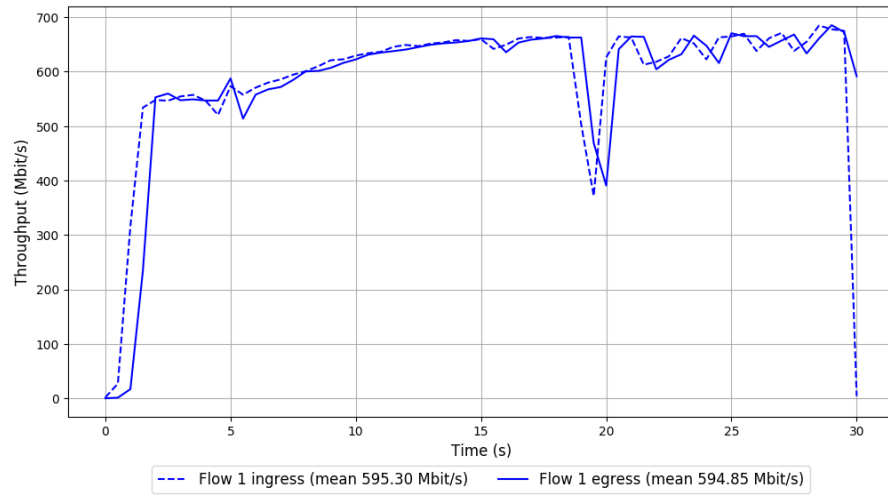Run 5: Report of Copa — Data Link

```
Run 1: Statistics of TCP Cubic

Start at: 2018-11-30 14:23:04
End at: 2018-11-30 14:23:34
Local clock offset: -0.027 ms
Remote clock offset: -0.002 ms

# Below is generated by plot.py at 2018-11-30 16:46:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 602.15 Mbit/s
95th percentile per-packet one-way delay: 115.356 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 602.15 Mbit/s
95th percentile per-packet one-way delay: 115.356 ms
Loss rate: 0.61%
```

Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2018-11-30 14:51:02
End at: 2018-11-30 14:51:32
Local clock offset: -0.076 ms
Remote clock offset: -0.103 ms

# Below is generated by plot.py at 2018-11-30 16:46:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 594.85 Mbit/s
95th percentile per-packet one-way delay: 77.852 ms
Loss rate: 0.50%
-- Flow 1:
Average throughput: 594.85 Mbit/s
95th percentile per-packet one-way delay: 77.852 ms
Loss rate: 0.50%
```

Run 2: Report of TCP Cubic — Data Link

```
Run 3: Statistics of TCP Cubic

Start at: 2018-11-30 15:19:04
End at: 2018-11-30 15:19:34
Local clock offset: -0.086 ms
Remote clock offset: 0.167 ms


# Below is generated by plot.py at 2018-11-30 16:46:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 530.43 Mbit/s
95th percentile per-packet one-way delay: 112.015 ms
Loss rate: 0.50%
-- Flow 1:
Average throughput: 530.43 Mbit/s
95th percentile per-packet one-way delay: 112.015 ms
Loss rate: 0.50%
```
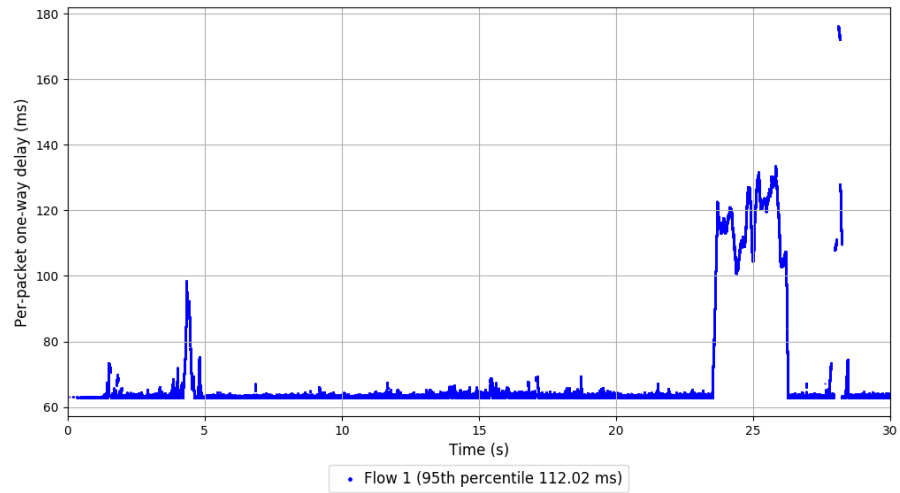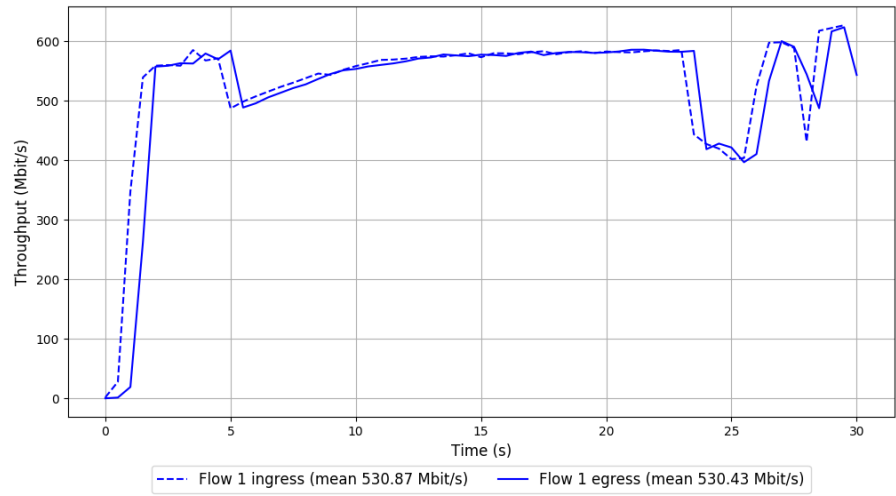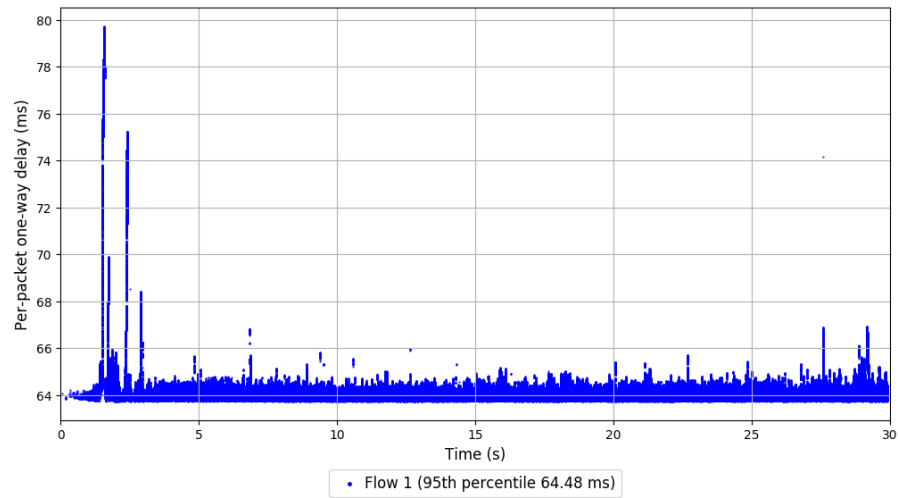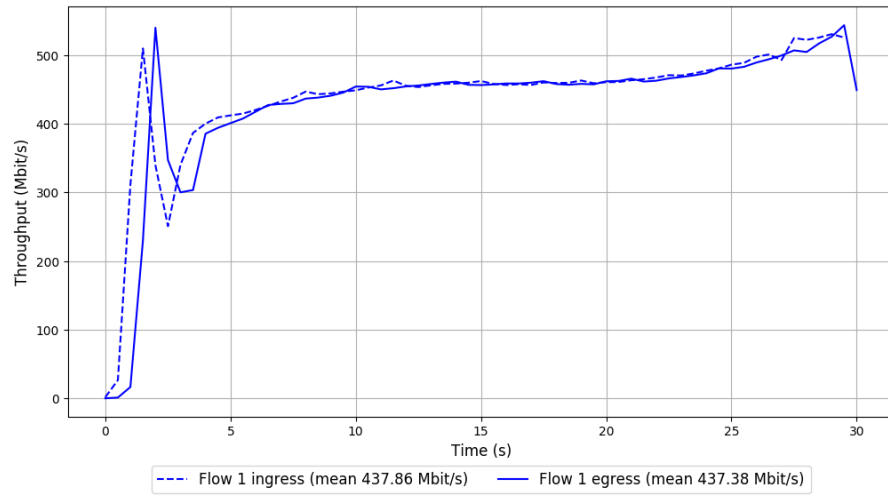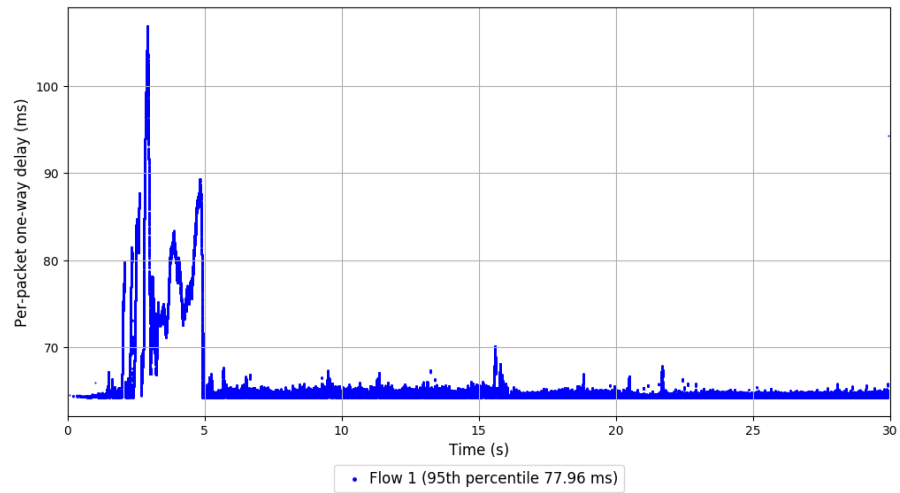
Run 3: Report of TCP Cubic — Data Link

```
Run 4: Statistics of TCP Cubic

Start at: 2018-11-30 15:46:55
End at: 2018-11-30 15:47:25
Local clock offset: -0.084 ms
Remote clock offset: -0.615 ms


# Below is generated by plot.py at 2018-11-30 16:46:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 437.38 Mbit/s
95th percentile per-packet one-way delay: 64.483 ms
Loss rate: 0.54%
-- Flow 1:
Average throughput: 437.38 Mbit/s
95th percentile per-packet one-way delay: 64.483 ms
Loss rate: 0.54%
```

Run 4: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 437.86 Mbit/s) --- Flow 1 egress (mean 437.38 Mbit/s)
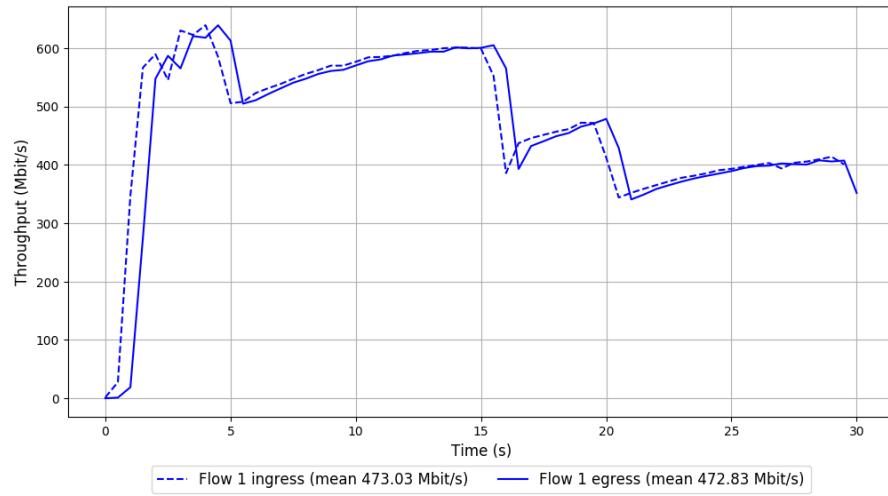

• Flow 1 (95th percentile 64.48 ms)

```
Run 5: Statistics of TCP Cubic

Start at: 2018-11-30 16:14:41
End at: 2018-11-30 16:15:11
Local clock offset: -0.067 ms
Remote clock offset: -1.211 ms


# Below is generated by plot.py at 2018-11-30 16:46:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 472.83 Mbit/s
95th percentile per-packet one-way delay: 77.961 ms
Loss rate: 0.37%
-- Flow 1:
Average throughput: 472.83 Mbit/s
95th percentile per-packet one-way delay: 77.961 ms
Loss rate: 0.37%
```

Run 5: Report of TCP Cubic — Data Link

```
Run 1: Statistics of FillP

Start at: 2018-11-30 14:03:49
End at: 2018-11-30 14:04:19
Local clock offset: -0.044 ms
Remote clock offset: -0.16 ms

# Below is generated by plot.py at 2018-11-30 16:56:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 940.72 Mbit/s
95th percentile per-packet one-way delay: 109.629 ms
Loss rate: 0.99%
-- Flow 1:
Average throughput: 940.72 Mbit/s
95th percentile per-packet one-way delay: 109.629 ms
Loss rate: 0.99%
```
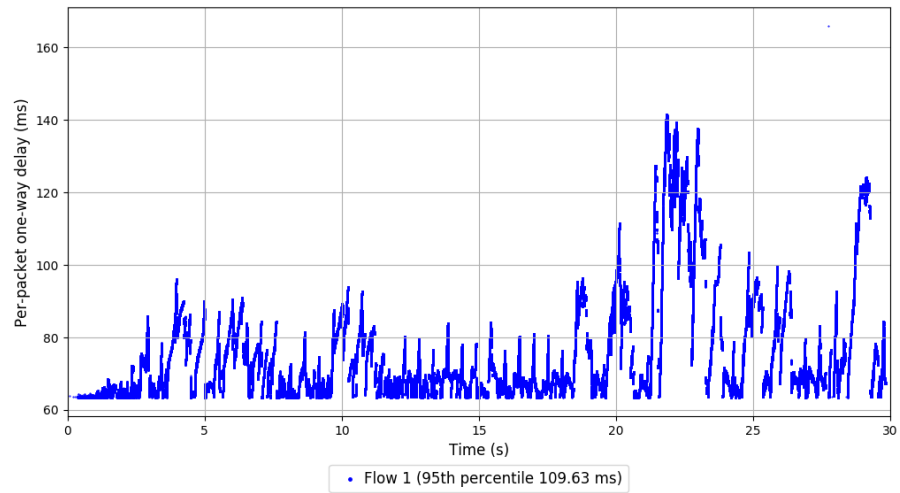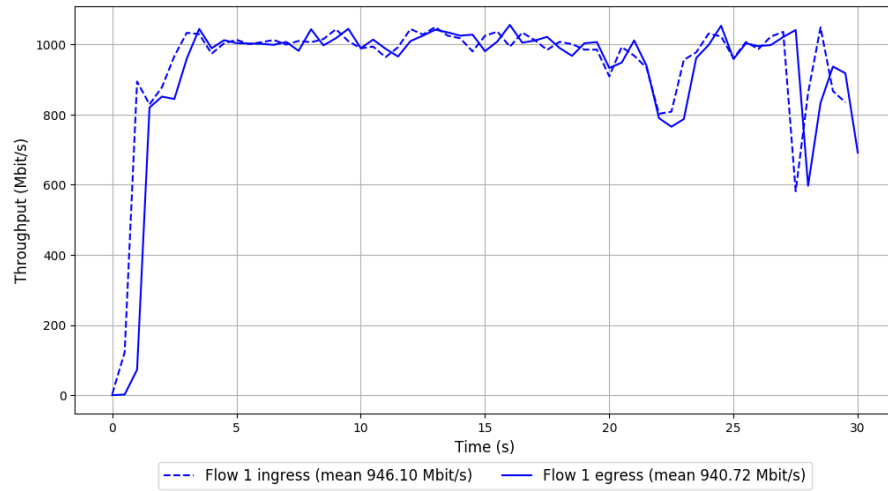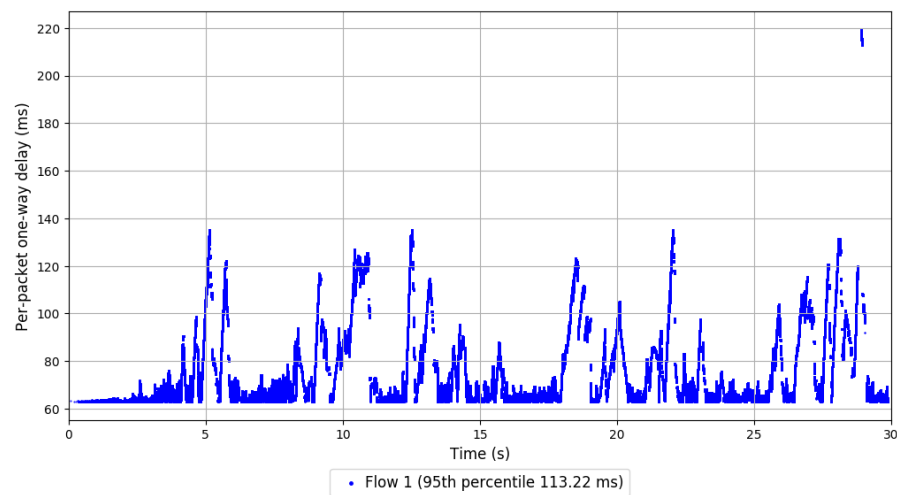
Run 1: Report of FillP — Data Link

Flow 1 ingress (mean 946.10 Mbit/s)   Flow 1 egress (mean 940.72 Mbit/s)

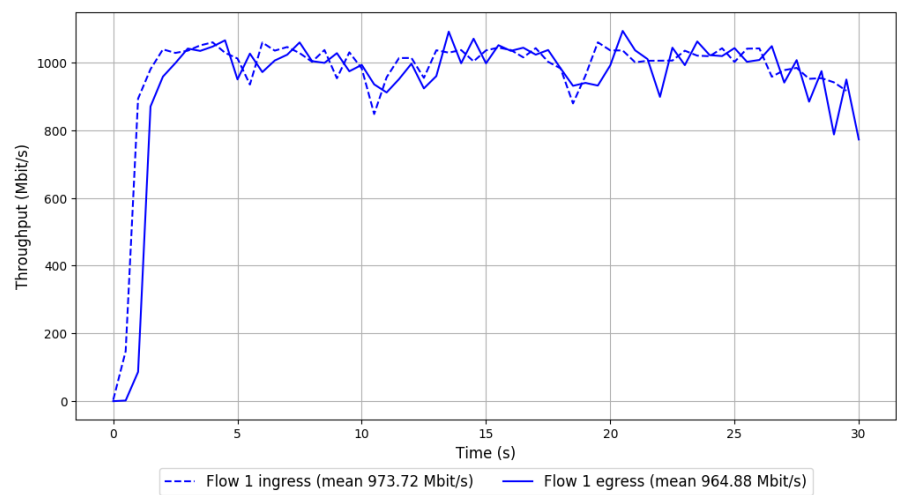• Flow 1 (95th percentile 109.63 ms)

```
Run 2: Statistics of FillP

Start at: 2018-11-30 14:31:44
End at: 2018-11-30 14:32:14
Local clock offset: -0.029 ms
Remote clock offset: -0.036 ms


# Below is generated by plot.py at 2018-11-30 17:05:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 964.88 Mbit/s
95th percentile per-packet one-way delay: 113.215 ms
Loss rate: 1.33%
-- Flow 1:
Average throughput: 964.88 Mbit/s
95th percentile per-packet one-way delay: 113.215 ms
Loss rate: 1.33%
```
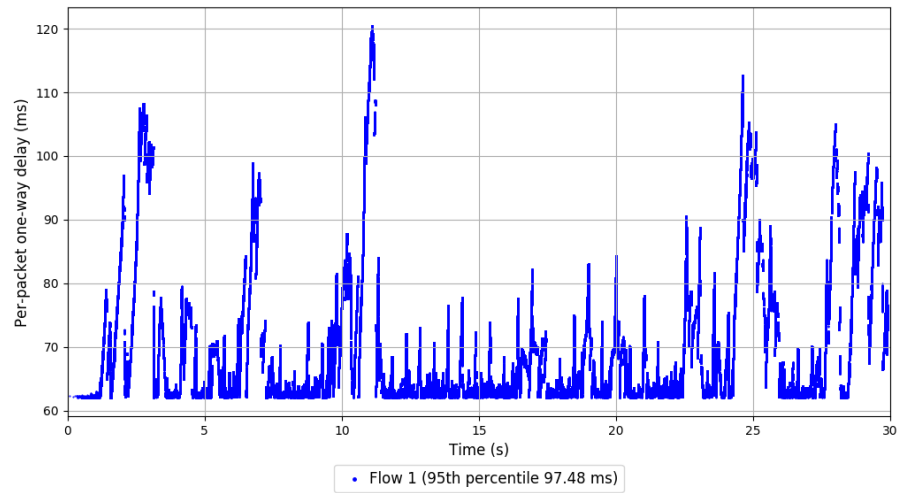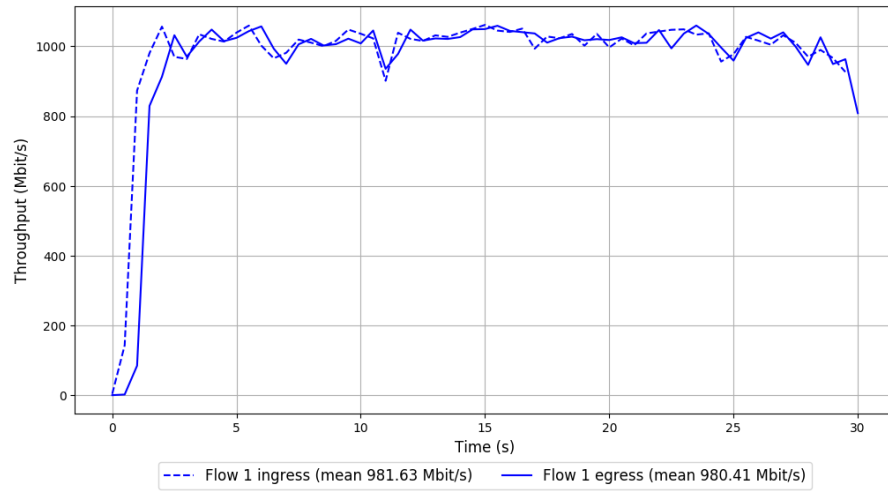
Run 2: Report of FillP — Data Link

Flow 1 ingress (mean 973.72 Mbit/s)   Flow 1 egress (mean 964.88 Mbit/s)
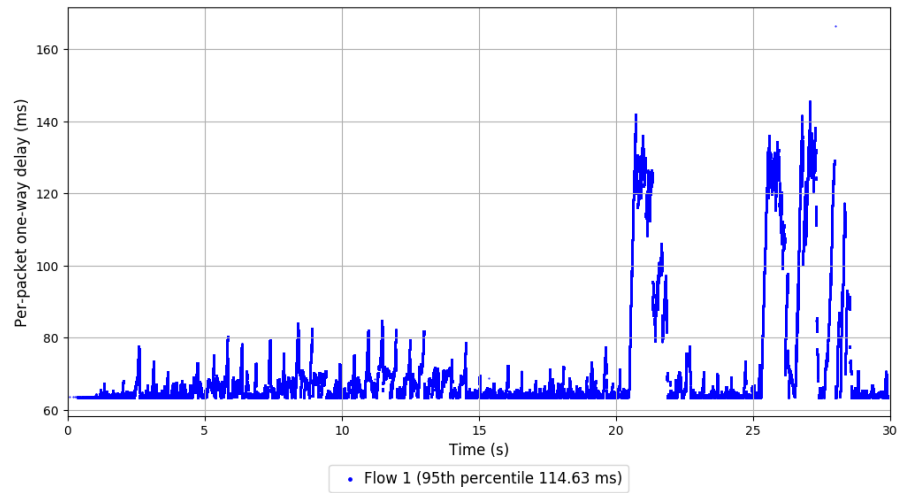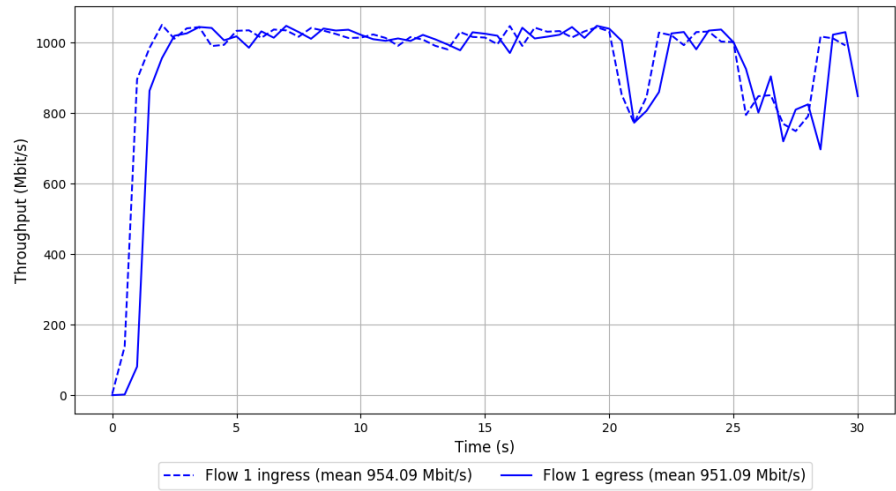

• Flow 1 (95th percentile 113.22 ms)

```
Run 3: Statistics of FillP

Start at: 2018-11-30 14:59:43
End at: 2018-11-30 15:00:13
Local clock offset: -0.041 ms
Remote clock offset: 0.707 ms


# Below is generated by plot.py at 2018-11-30 17:06:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 980.41 Mbit/s
95th percentile per-packet one-way delay: 97.481 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 980.41 Mbit/s
95th percentile per-packet one-way delay: 97.481 ms
Loss rate: 0.55%
```

Run 3: Report of FillP — Data Link

```
Run 4: Statistics of FillP

Start at: 2018-11-30 15:27:39
End at: 2018-11-30 15:28:09
Local clock offset: -0.085 ms
Remote clock offset: -0.645 ms


# Below is generated by plot.py at 2018-11-30 17:06:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 951.09 Mbit/s
95th percentile per-packet one-way delay: 114.634 ms
Loss rate: 0.76%
-- Flow 1:
Average throughput: 951.09 Mbit/s
95th percentile per-packet one-way delay: 114.634 ms
Loss rate: 0.76%
```

Run 4: Report of FillP — Data Link

```
Run 5: Statistics of FillP

Start at: 2018-11-30 15:55:28
End at: 2018-11-30 15:55:58
Local clock offset: -0.068 ms
Remote clock offset: 0.541 ms


# Below is generated by plot.py at 2018-11-30 17:06:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 944.34 Mbit/s
95th percentile per-packet one-way delay: 102.166 ms
Loss rate: 0.83%
-- Flow 1:
Average throughput: 944.34 Mbit/s
95th percentile per-packet one-way delay: 102.166 ms
Loss rate: 0.83%
```
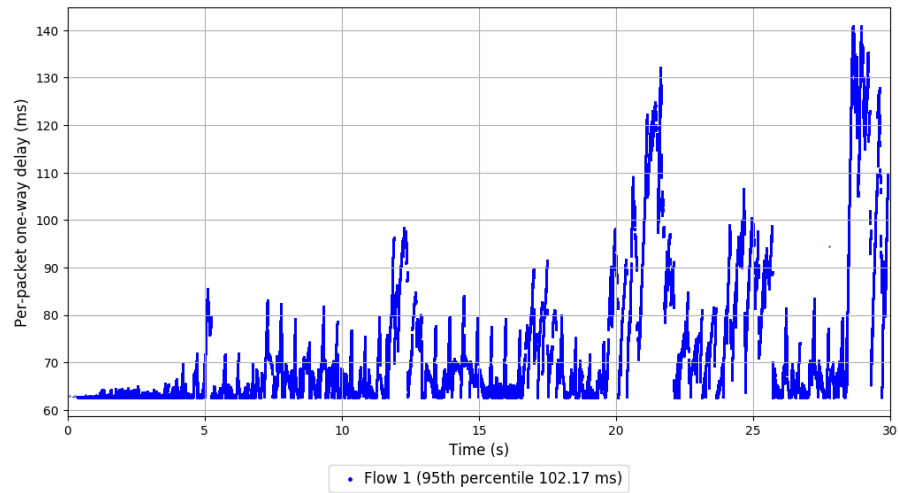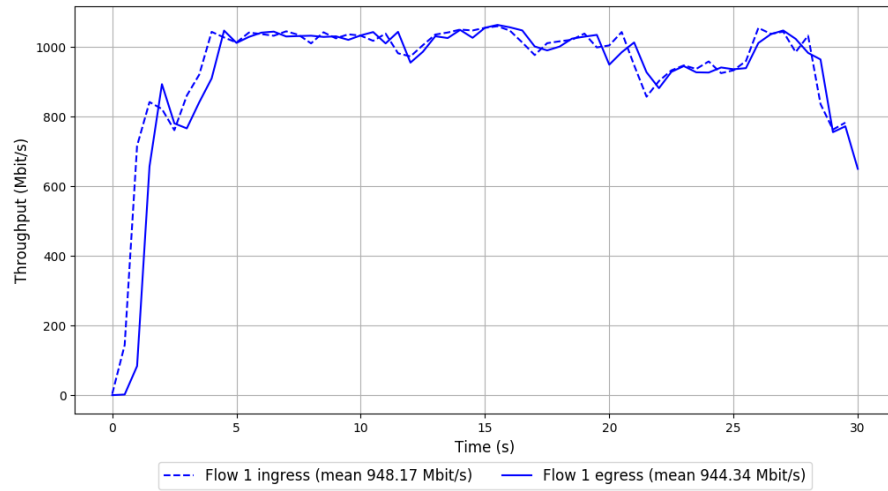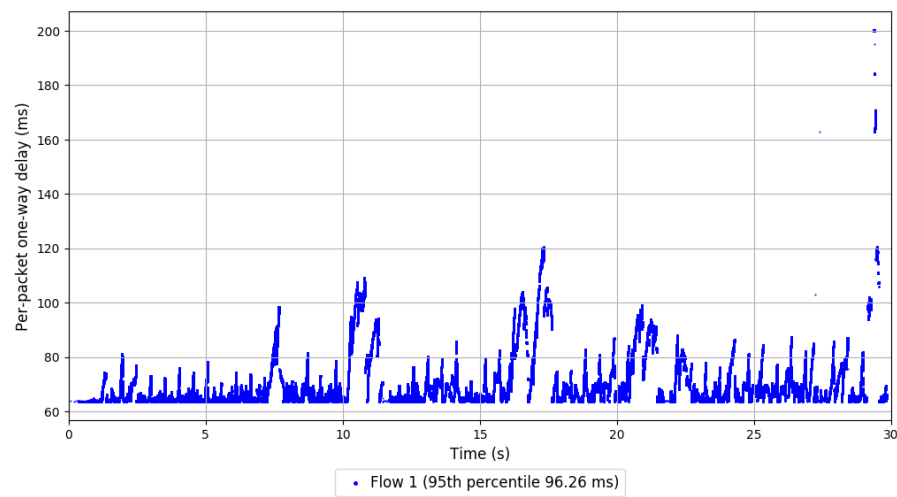
Run 5: Report of FillP — Data Link

Flow 1 ingress (mean 948.17 Mbit/s) — — — Flow 1 egress (mean 944.34 Mbit/s) ———
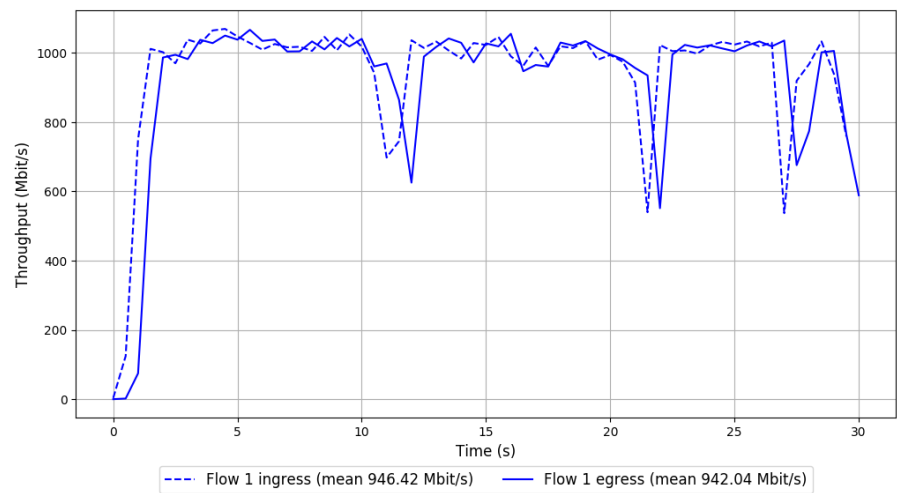

• Flow 1 (95th percentile 102.17 ms)

```
Run 1: Statistics of FillP-Sheep

Start at: 2018-11-30 14:15:40
End at: 2018-11-30 14:16:10
Local clock offset: -0.074 ms
Remote clock offset: -0.819 ms


# Below is generated by plot.py at 2018-11-30 17:06:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 942.04 Mbit/s
95th percentile per-packet one-way delay: 96.259 ms
Loss rate: 0.89%
-- Flow 1:
Average throughput: 942.04 Mbit/s
95th percentile per-packet one-way delay: 96.259 ms
Loss rate: 0.89%
```
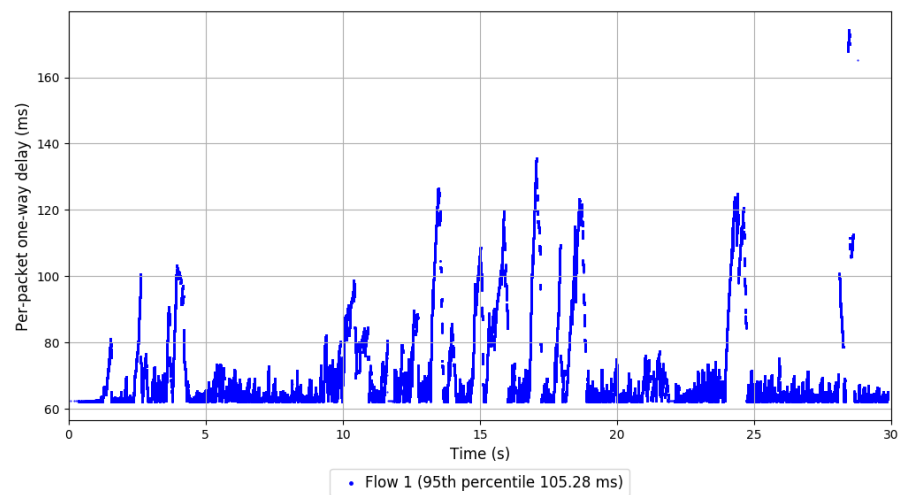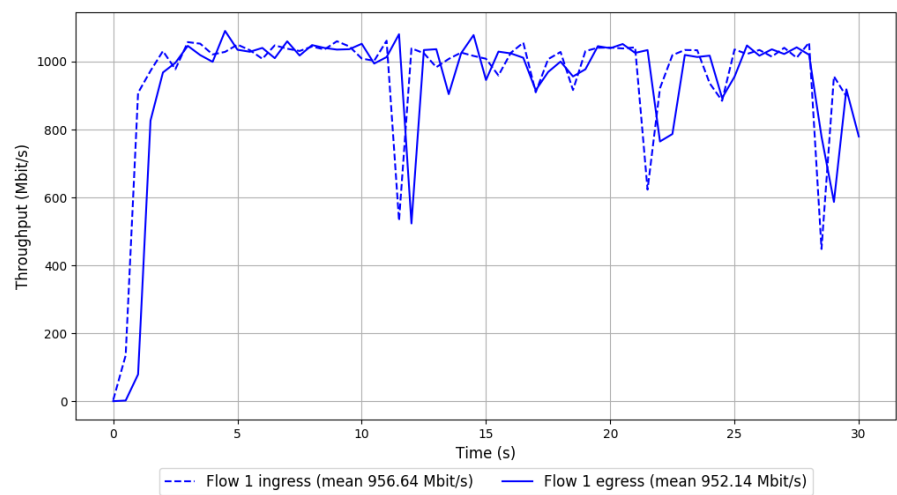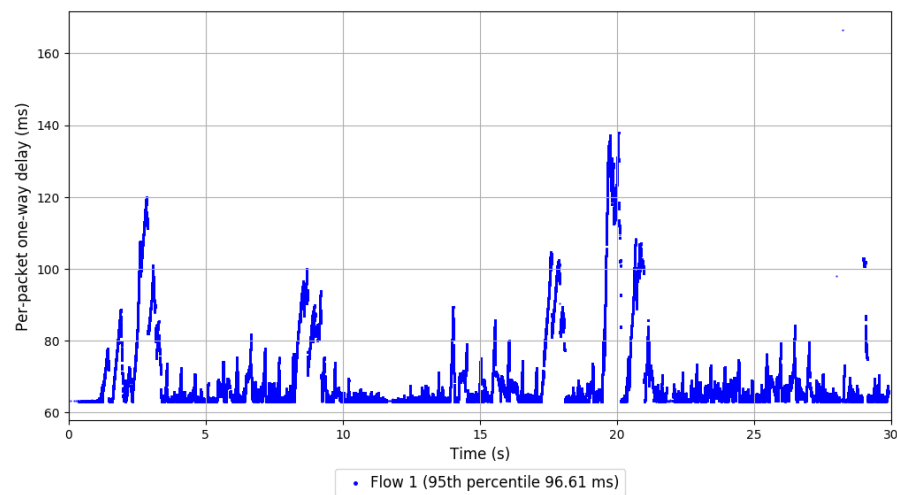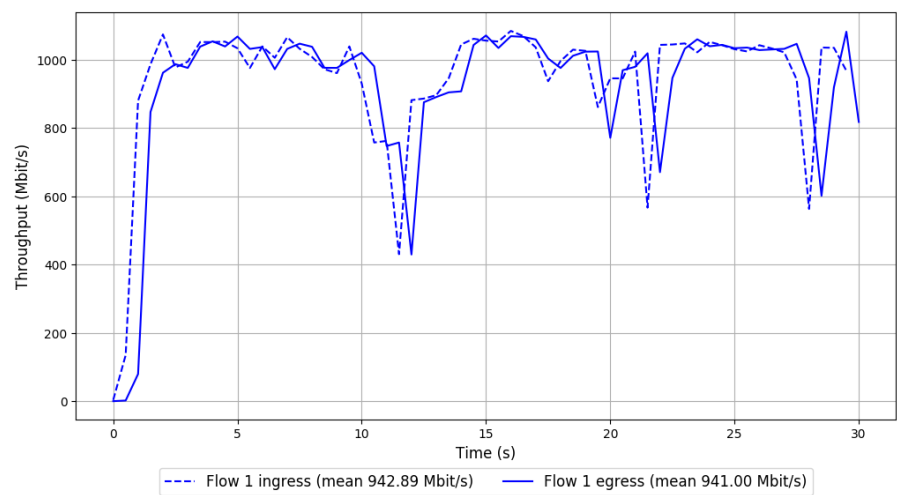
Run 1: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 946.42 Mbit/s)   Flow 1 egress (mean 942.04 Mbit/s)

Flow 1 (95th percentile 96.26 ms)

```
Run 2: Statistics of FillP-Sheep

Start at: 2018-11-30 14:43:43
End at: 2018-11-30 14:44:13
Local clock offset: -0.064 ms
Remote clock offset: 0.579 ms


# Below is generated by plot.py at 2018-11-30 17:07:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 952.14 Mbit/s
95th percentile per-packet one-way delay: 105.285 ms
Loss rate: 0.89%
-- Flow 1:
Average throughput: 952.14 Mbit/s
95th percentile per-packet one-way delay: 105.285 ms
Loss rate: 0.89%
```
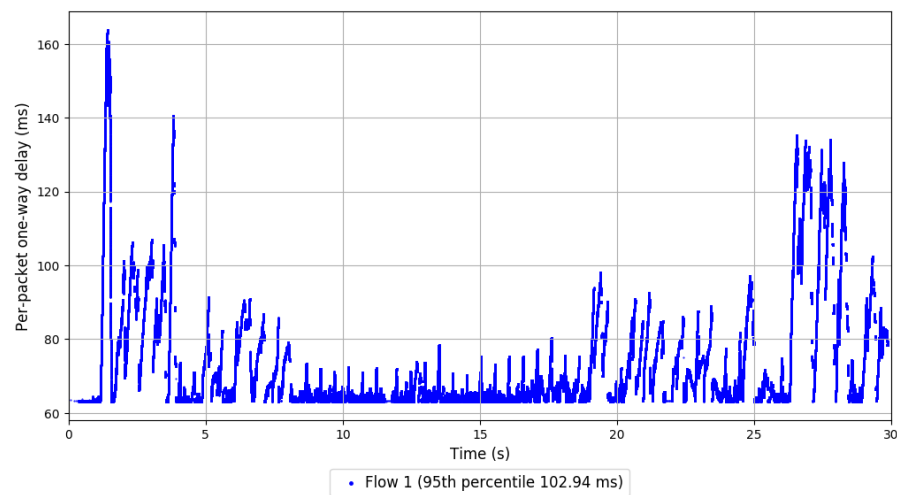
Run 2: Report of FillP-Sheep — Data Link

```
Run 3: Statistics of FillP-Sheep

Start at: 2018-11-30 15:11:42
End at: 2018-11-30 15:12:12
Local clock offset: -0.061 ms
Remote clock offset: -0.113 ms


# Below is generated by plot.py at 2018-11-30 17:07:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 941.00 Mbit/s
95th percentile per-packet one-way delay: 96.612 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 941.00 Mbit/s
95th percentile per-packet one-way delay: 96.612 ms
Loss rate: 0.62%
```

Run 3: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 942.89 Mbit/s) ----- Flow 1 egress (mean 941.00 Mbit/s) ———
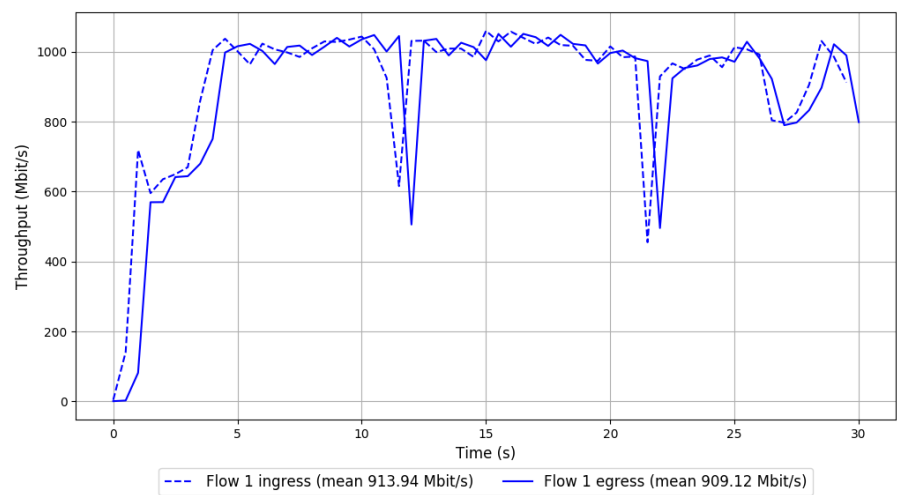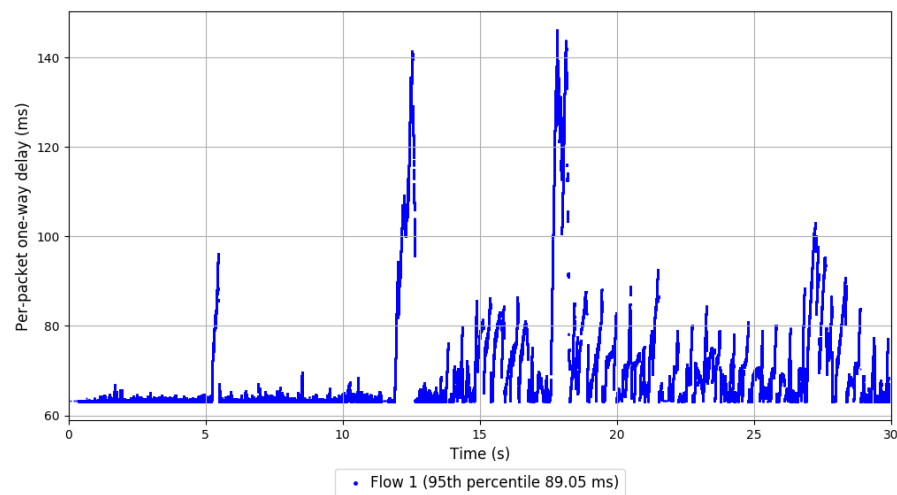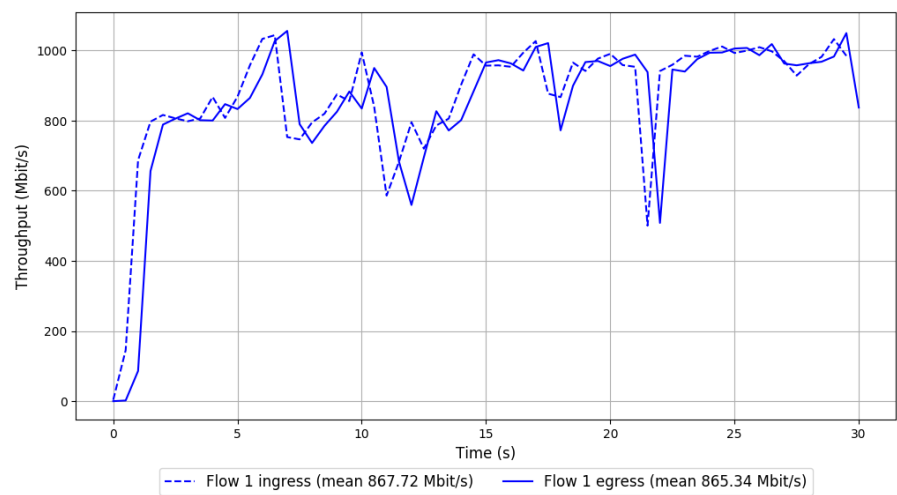

Flow 1 (95th percentile 96.61 ms)

```
Run 4: Statistics of FillP-Sheep

Start at: 2018-11-30 15:39:39
End at: 2018-11-30 15:40:09
Local clock offset: -0.098 ms
Remote clock offset: -0.015 ms


# Below is generated by plot.py at 2018-11-30 17:20:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 909.12 Mbit/s
95th percentile per-packet one-way delay: 102.935 ms
Loss rate: 0.95%
-- Flow 1:
Average throughput: 909.12 Mbit/s
95th percentile per-packet one-way delay: 102.935 ms
Loss rate: 0.95%
```

Run 4: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 913.94 Mbit/s)   Flow 1 egress (mean 909.12 Mbit/s)

• Flow 1 (95th percentile 102.94 ms)

```
Run 5: Statistics of FillP-Sheep

Start at: 2018-11-30 16:07:22
End at: 2018-11-30 16:07:52
Local clock offset: -0.047 ms
Remote clock offset: -0.167 ms


# Below is generated by plot.py at 2018-11-30 17:23:41
# Datalink statistics
-- Total of 1 flow:
Average throughput: 865.34 Mbit/s
95th percentile per-packet one-way delay: 89.046 ms
Loss rate: 0.69%
-- Flow 1:
Average throughput: 865.34 Mbit/s
95th percentile per-packet one-way delay: 89.046 ms
Loss rate: 0.69%
```
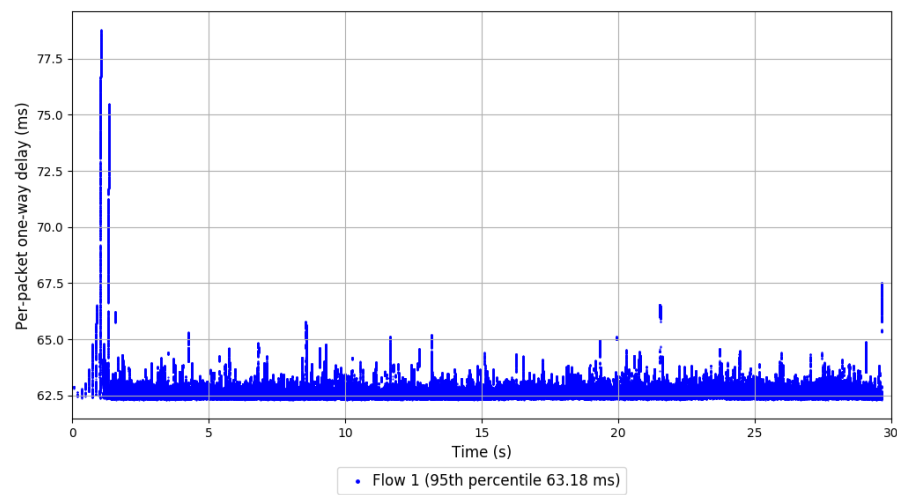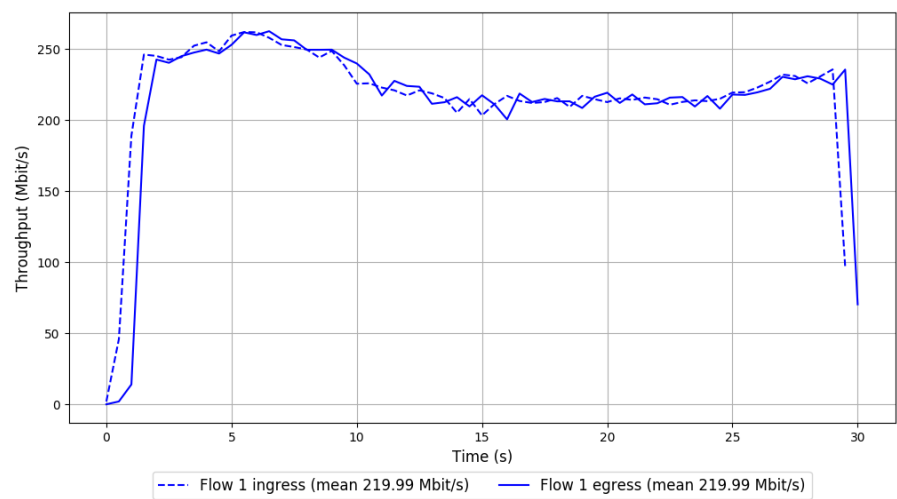
Run 5: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 867.72 Mbit/s) --- Flow 1 egress (mean 865.34 Mbit/s)
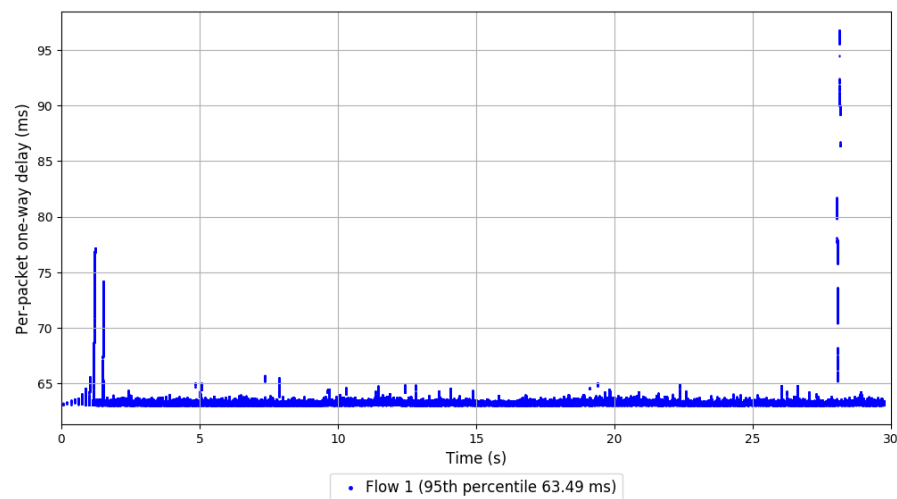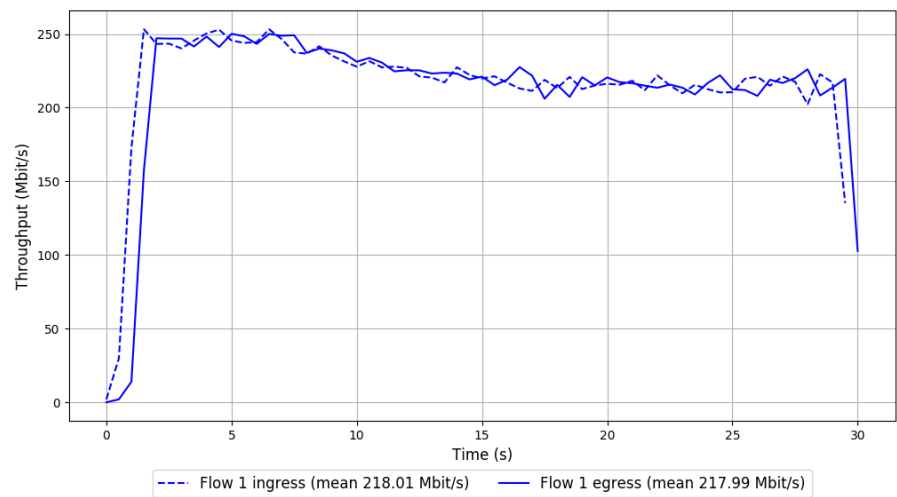

• Flow 1 (95th percentile 89.05 ms)

```
Run 1: Statistics of Indigo

Start at: 2018-11-30 14:14:11
End at: 2018-11-30 14:14:41
Local clock offset: -0.068 ms
Remote clock offset: 0.502 ms

# Below is generated by plot.py at 2018-11-30 17:23:41
# Datalink statistics
-- Total of 1 flow:
Average throughput: 219.99 Mbit/s
95th percentile per-packet one-way delay: 63.184 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 219.99 Mbit/s
95th percentile per-packet one-way delay: 63.184 ms
Loss rate: 0.44%
```

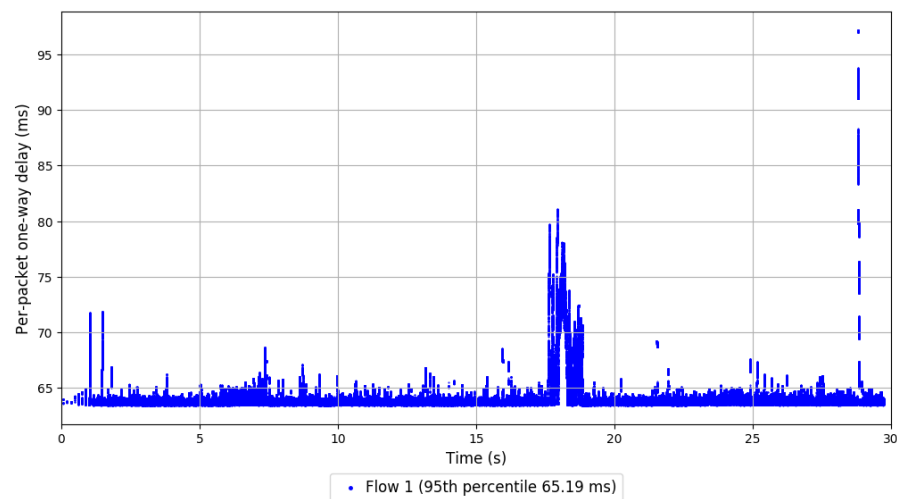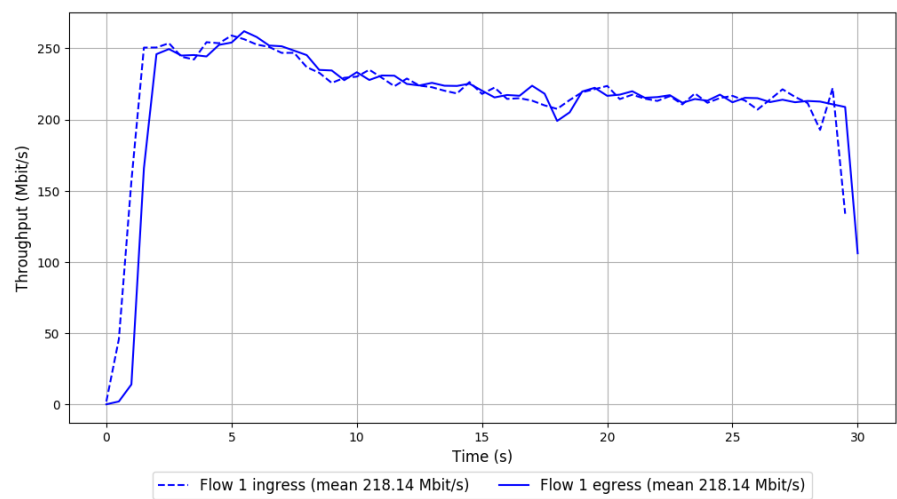Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2018-11-30 14:42:14
End at: 2018-11-30 14:42:44
Local clock offset: -0.047 ms
Remote clock offset: -0.057 ms


# Below is generated by plot.py at 2018-11-30 17:23:41
# Datalink statistics
-- Total of 1 flow:
Average throughput: 217.99 Mbit/s
95th percentile per-packet one-way delay: 63.492 ms
Loss rate: 0.43%
-- Flow 1:
Average throughput: 217.99 Mbit/s
95th percentile per-packet one-way delay: 63.492 ms
Loss rate: 0.43%
```

Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2018-11-30 15:10:14
End at: 2018-11-30 15:10:44
Local clock offset: -0.043 ms
Remote clock offset: -0.247 ms


# Below is generated by plot.py at 2018-11-30 17:23:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 218.14 Mbit/s
95th percentile per-packet one-way delay: 65.187 ms
Loss rate: 0.43%
-- Flow 1:
Average throughput: 218.14 Mbit/s
95th percentile per-packet one-way delay: 65.187 ms
Loss rate: 0.43%
```
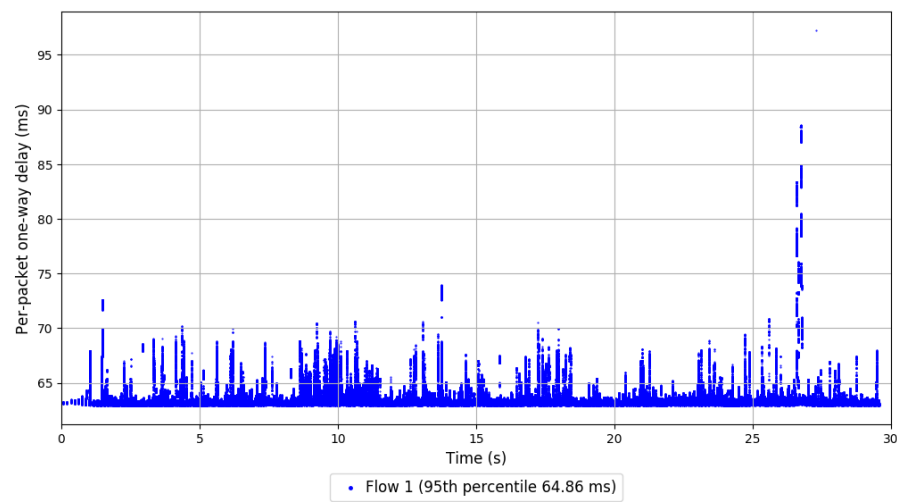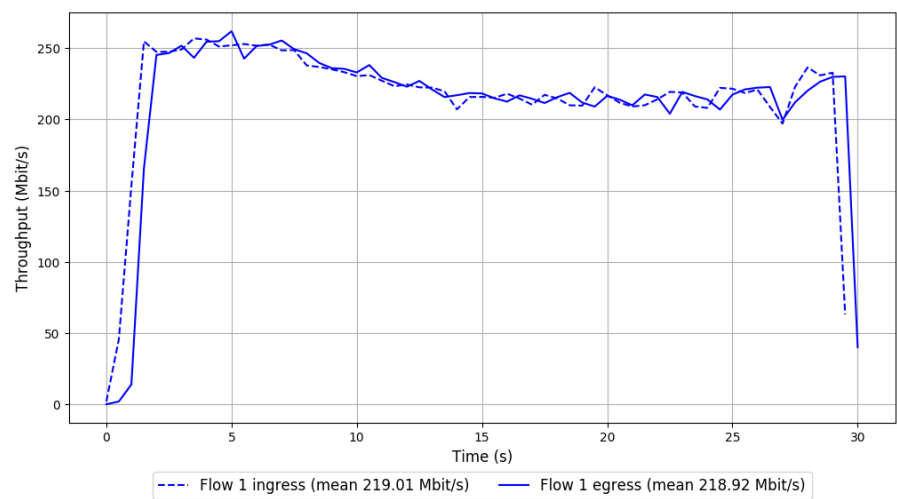
Run 3: Report of Indigo — Data Link

```
Run 4: Statistics of Indigo

Start at: 2018-11-30 15:38:11
End at: 2018-11-30 15:38:41
Local clock offset: -0.09 ms
Remote clock offset: 0.073 ms


# Below is generated by plot.py at 2018-11-30 17:23:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 218.92 Mbit/s
95th percentile per-packet one-way delay: 64.861 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 218.92 Mbit/s
95th percentile per-packet one-way delay: 64.861 ms
Loss rate: 0.47%
```
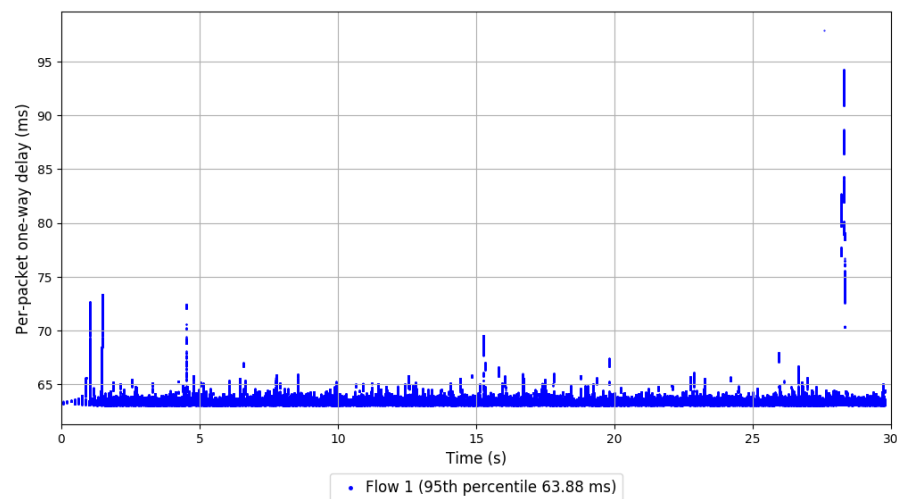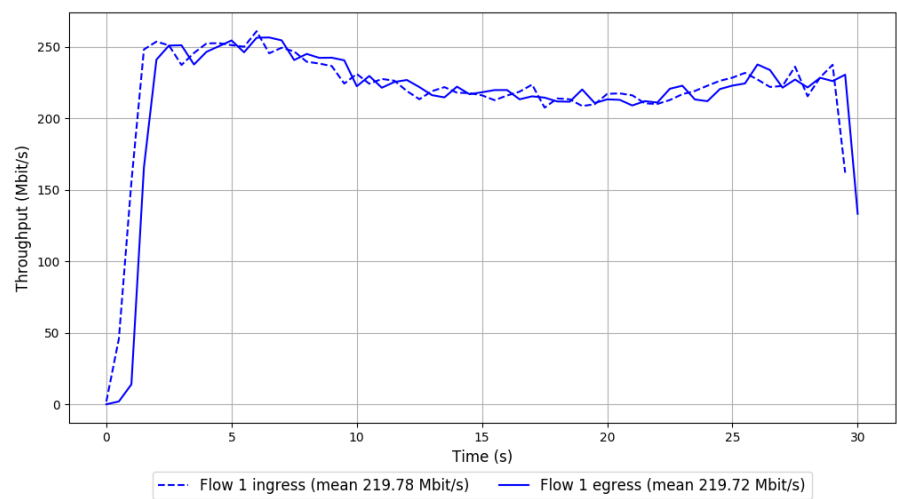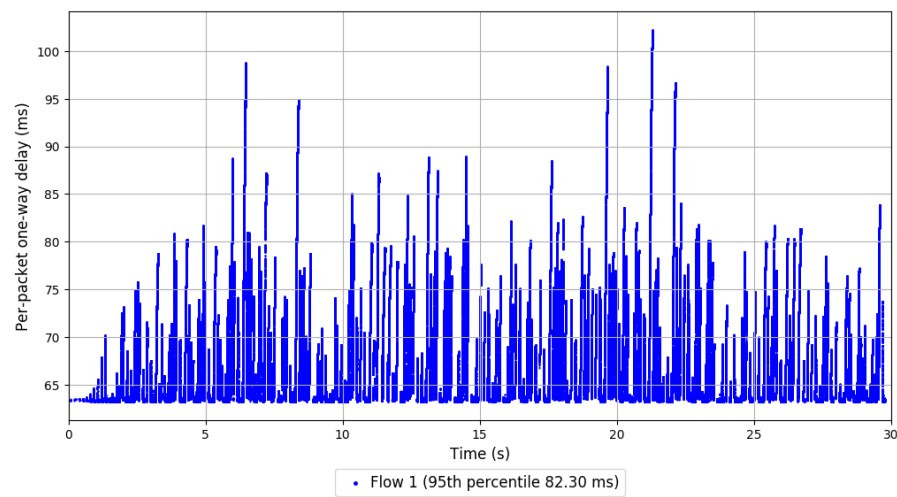
Run 4: Report of Indigo — Data Link

```
Run 5: Statistics of Indigo

Start at: 2018-11-30 16:05:53
End at: 2018-11-30 16:06:24
Local clock offset: -0.086 ms
Remote clock offset: 0.0 ms


# Below is generated by plot.py at 2018-11-30 17:23:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 219.72 Mbit/s
95th percentile per-packet one-way delay: 63.875 ms
Loss rate: 0.45%
-- Flow 1:
Average throughput: 219.72 Mbit/s
95th percentile per-packet one-way delay: 63.875 ms
Loss rate: 0.45%
```

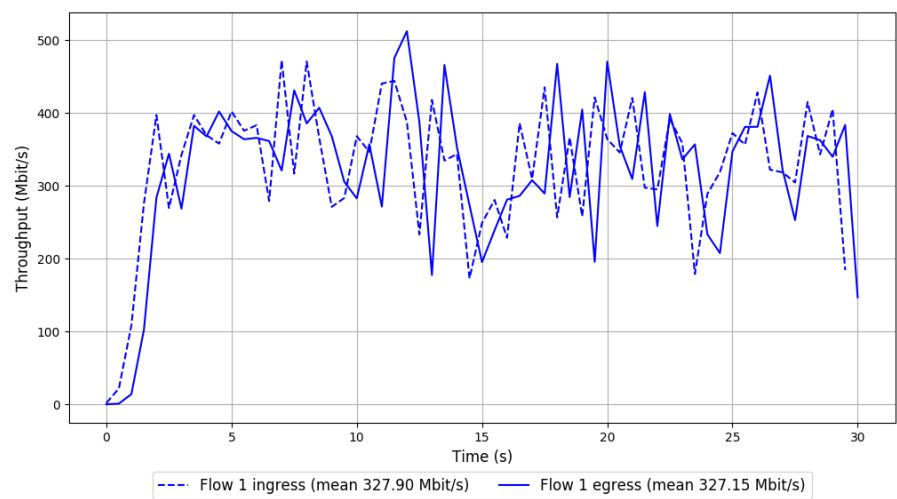# Run 5: Report of Indigo — Data Link

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

Start at: 2018-11-30 14:19:03
End at: 2018-11-30 14:19:33
Local clock offset: -0.056 ms
Remote clock offset: -0.237 ms


# Below is generated by plot.py at 2018-11-30 17:23:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 327.15 Mbit/s
95th percentile per-packet one-way delay: 82.303 ms
Loss rate: 0.60%
-- Flow 1:
Average throughput: 327.15 Mbit/s
95th percentile per-packet one-way delay: 82.303 ms
Loss rate: 0.60%
```

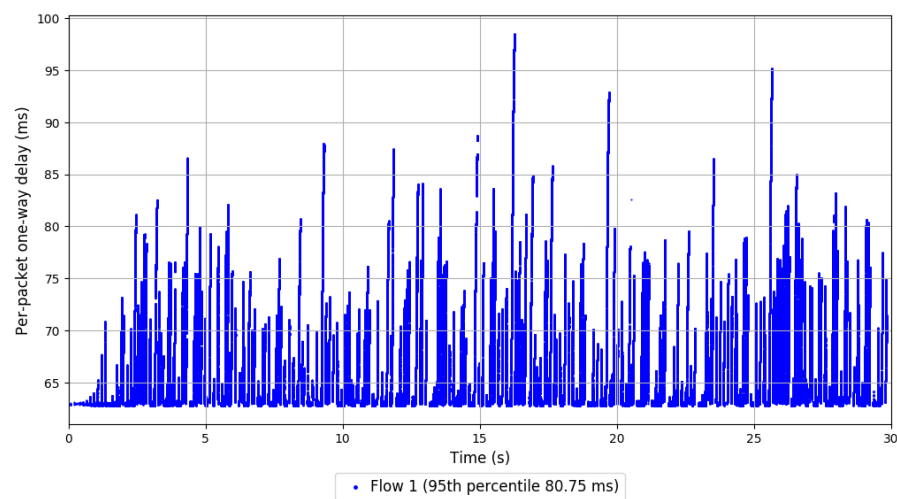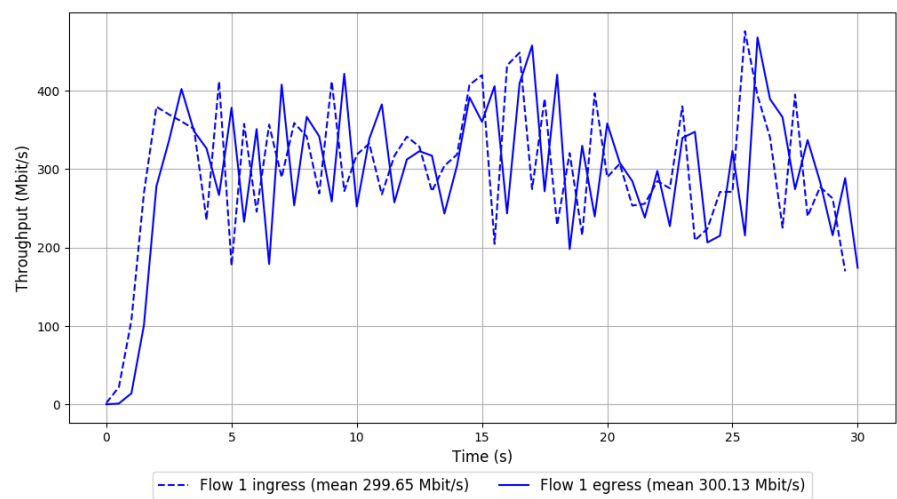Run 1: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-11-30 14:47:08
End at: 2018-11-30 14:47:39
Local clock offset: -0.061 ms
Remote clock offset: -0.186 ms


# Below is generated by plot.py at 2018-11-30 17:23:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 300.13 Mbit/s
95th percentile per-packet one-way delay: 80.748 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 300.13 Mbit/s
95th percentile per-packet one-way delay: 80.748 ms
Loss rate: 0.25%
```

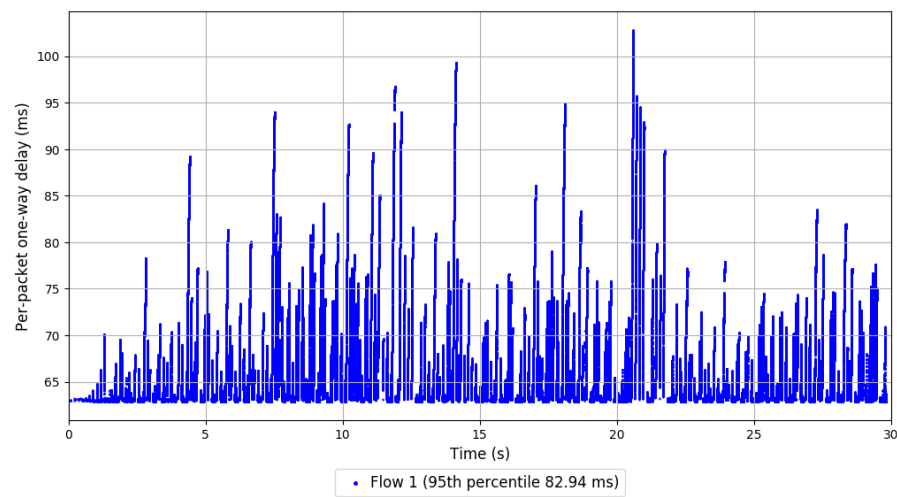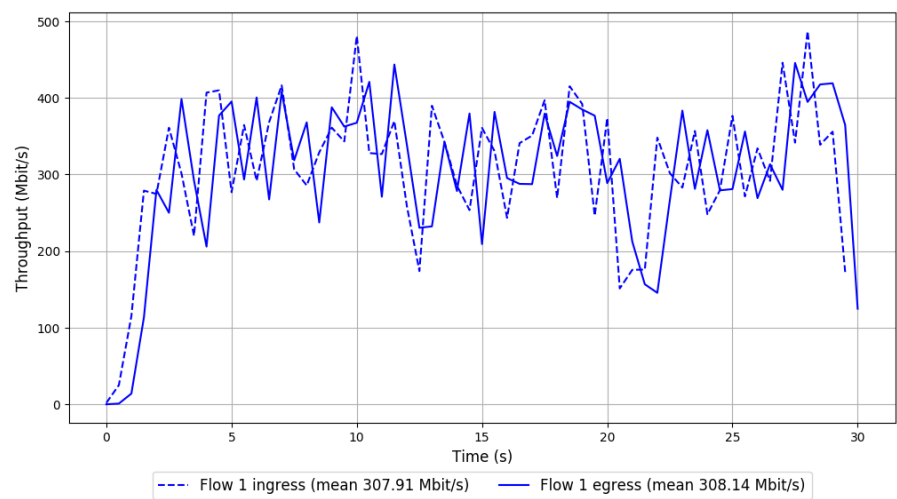Run 2: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-11-30 15:15:06
End at: 2018-11-30 15:15:36
Local clock offset: -0.037 ms
Remote clock offset: -0.076 ms


# Below is generated by plot.py at 2018-11-30 17:23:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 308.14 Mbit/s
95th percentile per-packet one-way delay: 82.939 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 308.14 Mbit/s
95th percentile per-packet one-way delay: 82.939 ms
Loss rate: 0.26%
```

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

Flow 1 ingress (mean 307.91 Mbit/s)   Flow 1 egress (mean 308.14 Mbit/s)
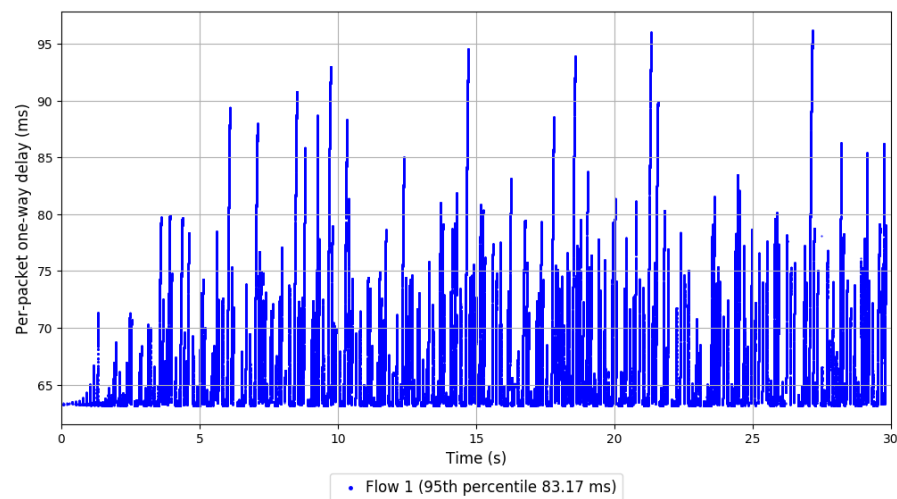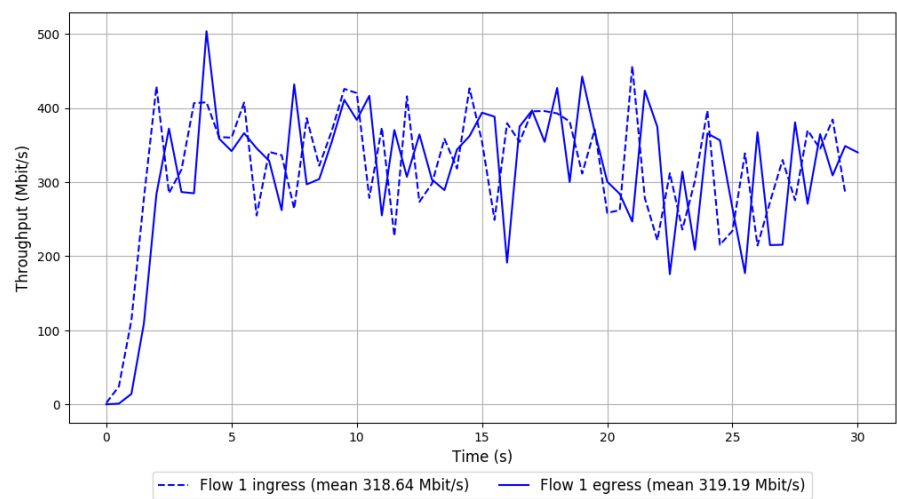

Flow 1 (95th percentile 82.94 ms)

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

Start at: 2018-11-30 15:43:00
End at: 2018-11-30 15:43:30
Local clock offset: -0.055 ms
Remote clock offset: -0.115 ms


# Below is generated by plot.py at 2018-11-30 17:23:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 319.19 Mbit/s
95th percentile per-packet one-way delay: 83.173 ms
Loss rate: 0.33%
-- Flow 1:
Average throughput: 319.19 Mbit/s
95th percentile per-packet one-way delay: 83.173 ms
Loss rate: 0.33%
```

Run 4: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-11-30 16:10:43
End at: 2018-11-30 16:11:13
Local clock offset: -0.066 ms
Remote clock offset: 0.027 ms


# Below is generated by plot.py at 2018-11-30 17:23:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 318.62 Mbit/s
95th percentile per-packet one-way delay: 82.265 ms
Loss rate: 0.45%
-- Flow 1:
Average throughput: 318.62 Mbit/s
95th percentile per-packet one-way delay: 82.265 ms
Loss rate: 0.45%
```
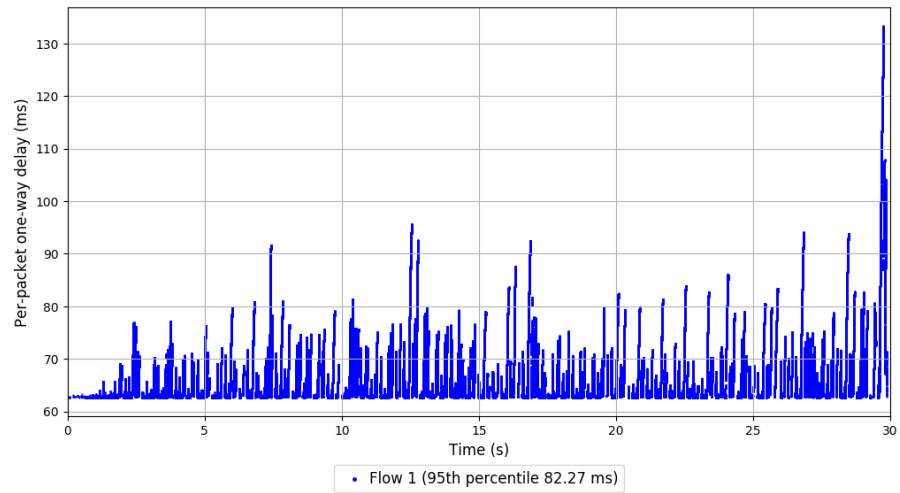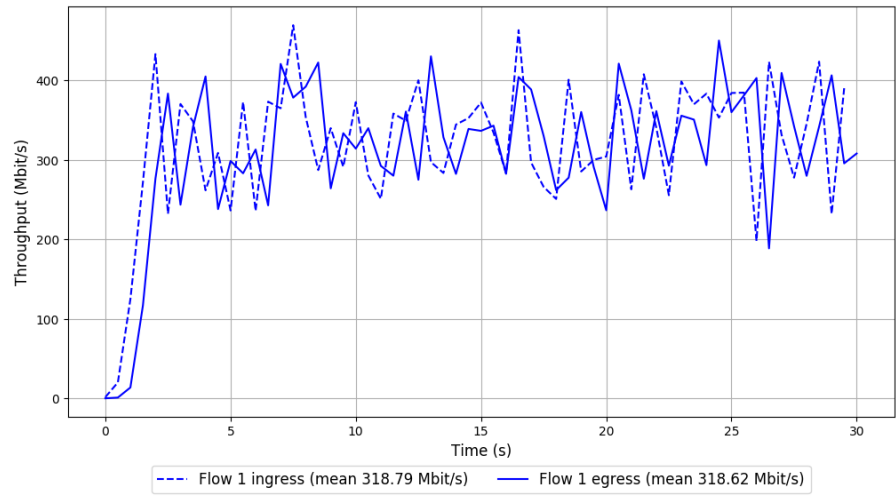
Run 5: Report of Indigo-96d2da3 — Data Link

Flow 1 ingress (mean 318.79 Mbit/s)   Flow 1 egress (mean 318.62 Mbit/s)
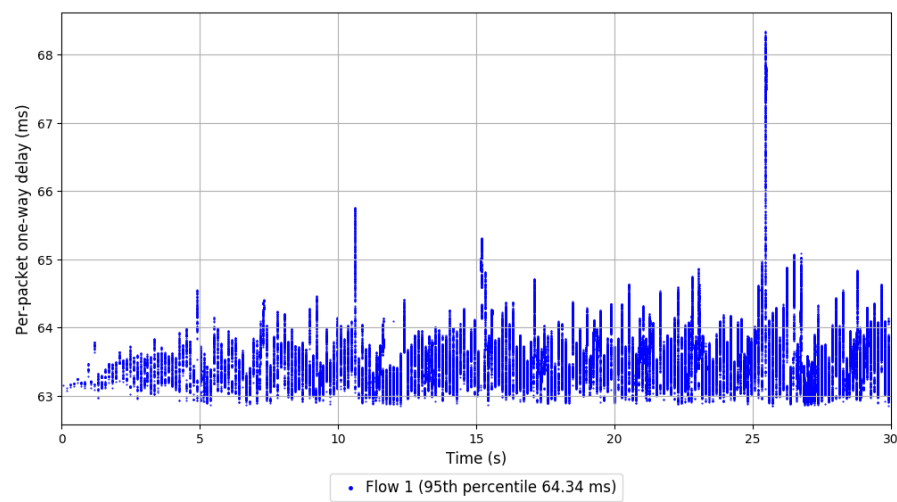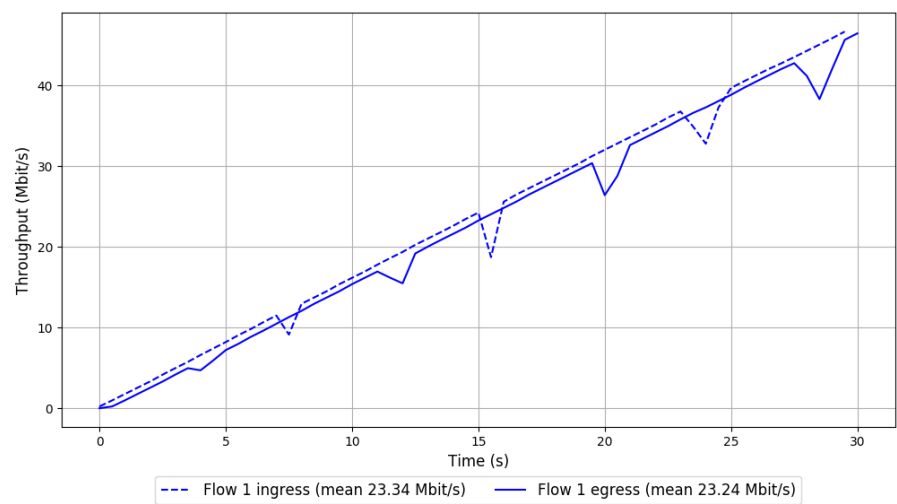

Flow 1 (95th percentile 82.27 ms)

```
Run 1: Statistics of LEDBAT

Start at: 2018-11-30 14:13:01
End at: 2018-11-30 14:13:31
Local clock offset: -0.087 ms
Remote clock offset: -0.045 ms

# Below is generated by plot.py at 2018-11-30 17:23:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 23.24 Mbit/s
95th percentile per-packet one-way delay: 64.343 ms
Loss rate: 0.84%
-- Flow 1:
Average throughput: 23.24 Mbit/s
95th percentile per-packet one-way delay: 64.343 ms
Loss rate: 0.84%
```

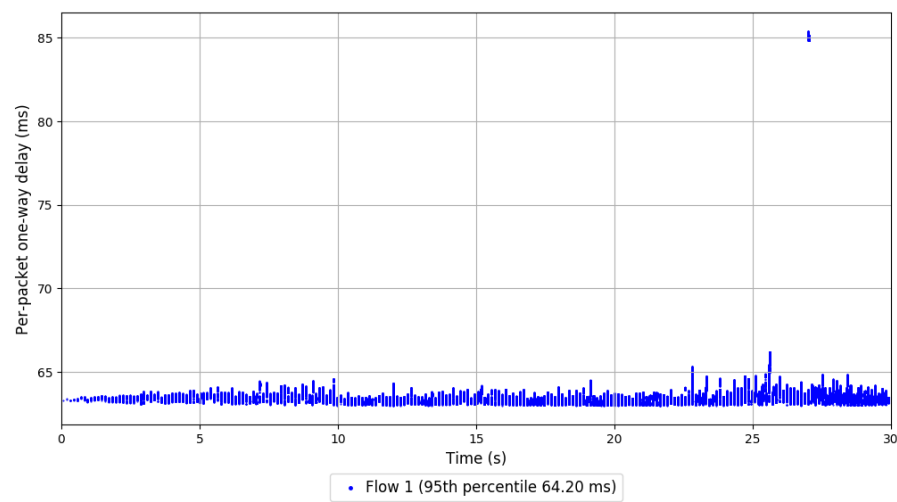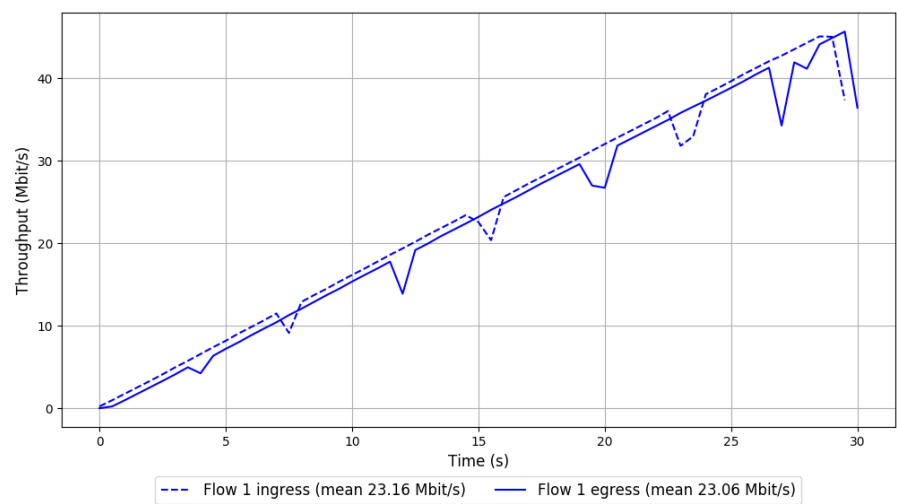Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2018-11-30 14:41:04
End at: 2018-11-30 14:41:34
Local clock offset: -0.038 ms
Remote clock offset: -0.009 ms


# Below is generated by plot.py at 2018-11-30 17:23:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 23.06 Mbit/s
95th percentile per-packet one-way delay: 64.205 ms
Loss rate: 0.84%
-- Flow 1:
Average throughput: 23.06 Mbit/s
95th percentile per-packet one-way delay: 64.205 ms
Loss rate: 0.84%
```

Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2018-11-30 15:09:04
End at: 2018-11-30 15:09:34
Local clock offset: 0.006 ms
Remote clock offset: -0.247 ms


# Below is generated by plot.py at 2018-11-30 17:23:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 20.46 Mbit/s
95th percentile per-packet one-way delay: 64.681 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 20.46 Mbit/s
95th percentile per-packet one-way delay: 64.681 ms
Loss rate: 0.30%
```
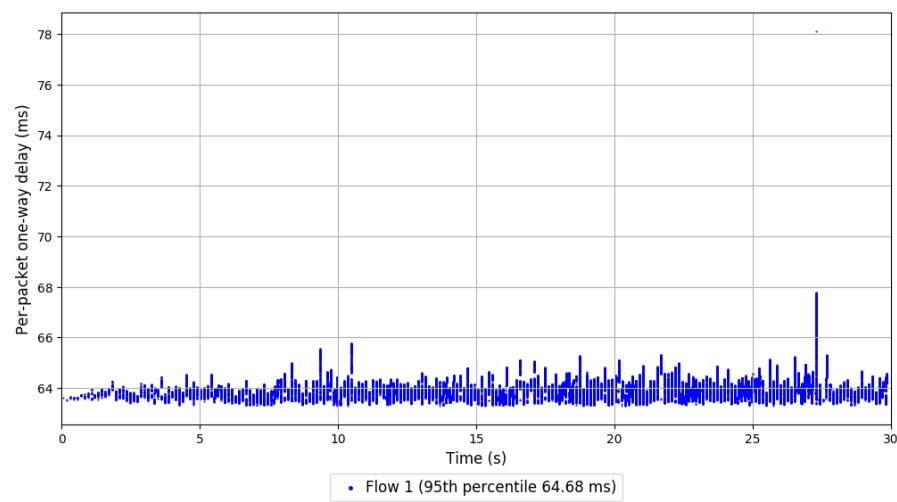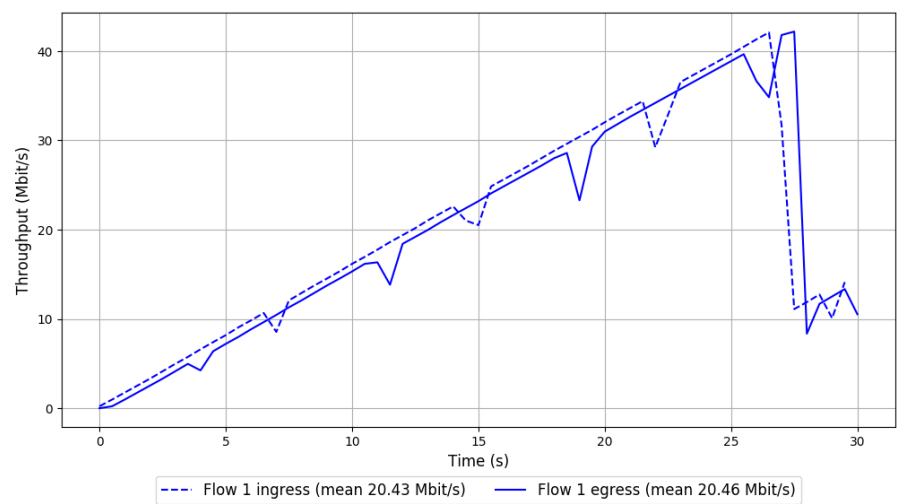
Run 3: Report of LEDBAT — Data Link

```
Run 4: Statistics of LEDBAT

Start at: 2018-11-30 15:37:00
End at: 2018-11-30 15:37:30
Local clock offset: -0.103 ms
Remote clock offset: 0.114 ms


# Below is generated by plot.py at 2018-11-30 17:23:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 23.21 Mbit/s
95th percentile per-packet one-way delay: 63.892 ms
Loss rate: 0.84%
-- Flow 1:
Average throughput: 23.21 Mbit/s
95th percentile per-packet one-way delay: 63.892 ms
Loss rate: 0.84%
```
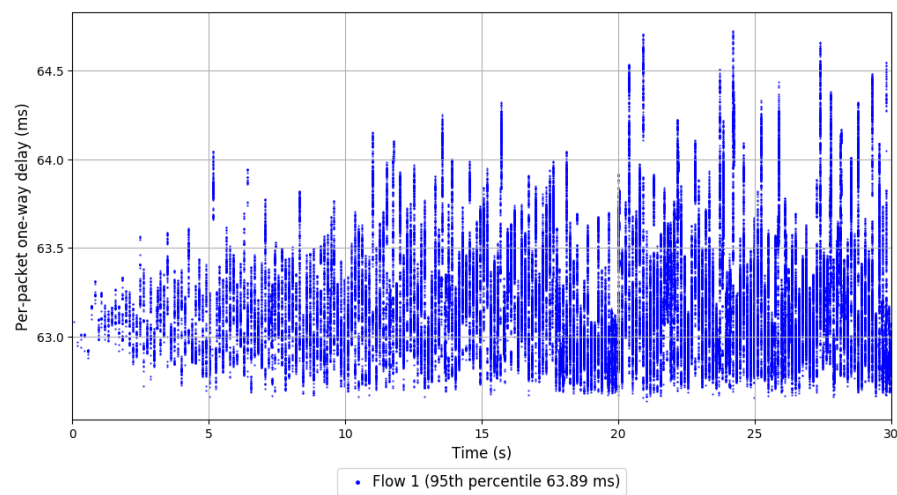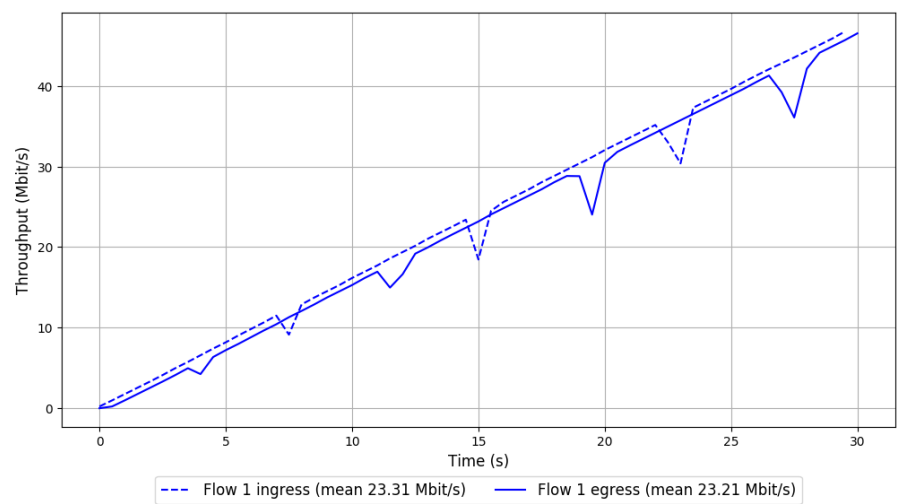
Run 4: Report of LEDBAT — Data Link

```
Run 5: Statistics of LEDBAT

Start at: 2018-11-30 16:04:43
End at: 2018-11-30 16:05:13
Local clock offset: -0.083 ms
Remote clock offset: 0.8 ms


# Below is generated by plot.py at 2018-11-30 17:23:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 23.09 Mbit/s
95th percentile per-packet one-way delay: 63.862 ms
Loss rate: 0.84%
-- Flow 1:
Average throughput: 23.09 Mbit/s
95th percentile per-packet one-way delay: 63.862 ms
Loss rate: 0.84%
```
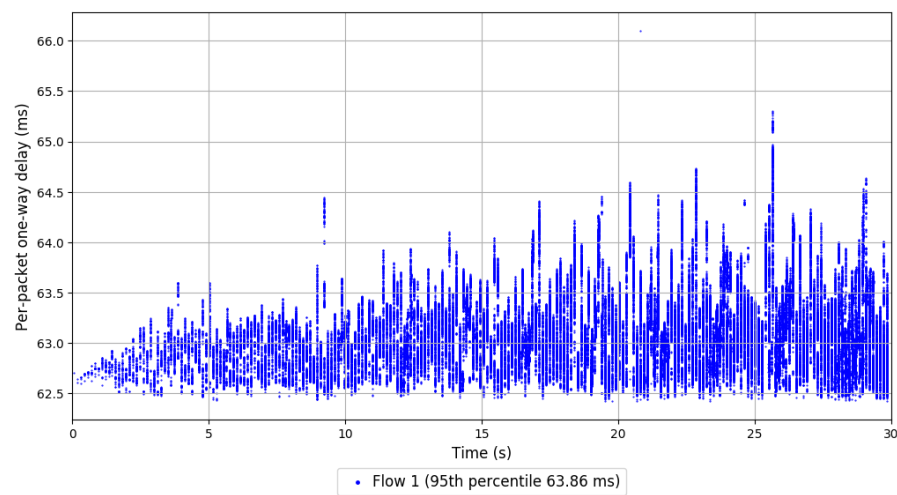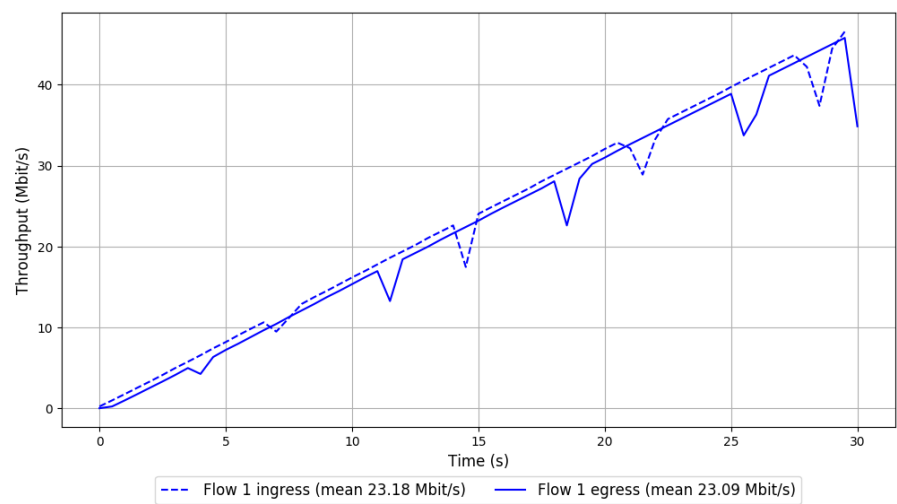
Run 5: Report of LEDBAT — Data Link

Flow 1 ingress (mean 23.18 Mbit/s) --- Flow 1 egress (mean 23.09 Mbit/s)

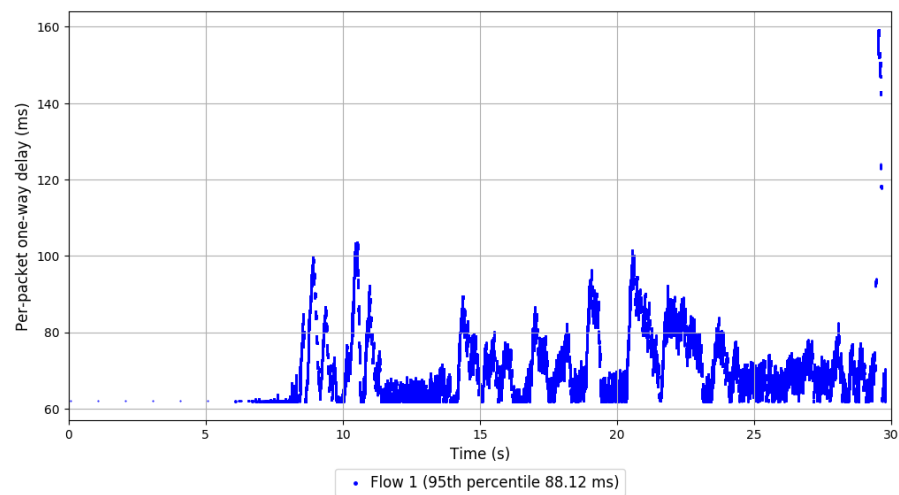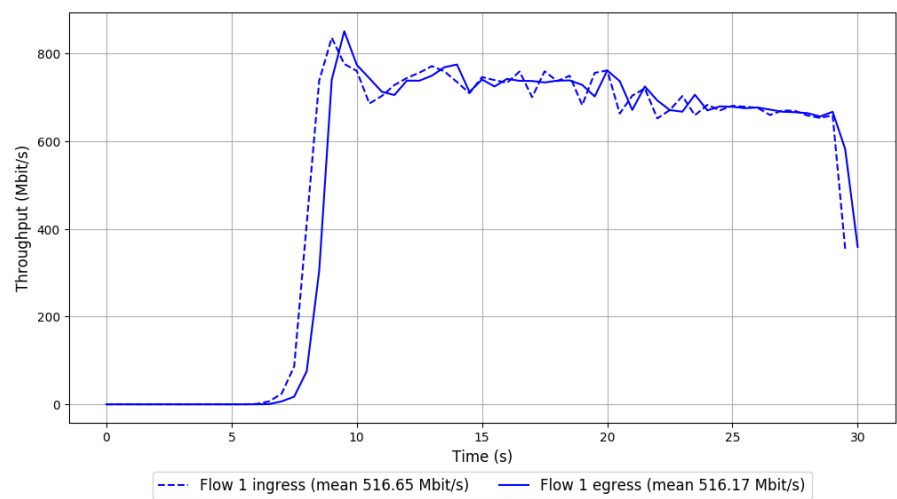Flow 1 (95th percentile 63.86 ms)

```
Run 1: Statistics of Indigo-Muses

Start at: 2018-11-30 14:11:27
End at: 2018-11-30 14:11:57
Local clock offset: -0.046 ms
Remote clock offset: 1.182 ms


# Below is generated by plot.py at 2018-11-30 17:25:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 516.17 Mbit/s
95th percentile per-packet one-way delay: 88.125 ms
Loss rate: 0.52%
-- Flow 1:
Average throughput: 516.17 Mbit/s
95th percentile per-packet one-way delay: 88.125 ms
Loss rate: 0.52%
```
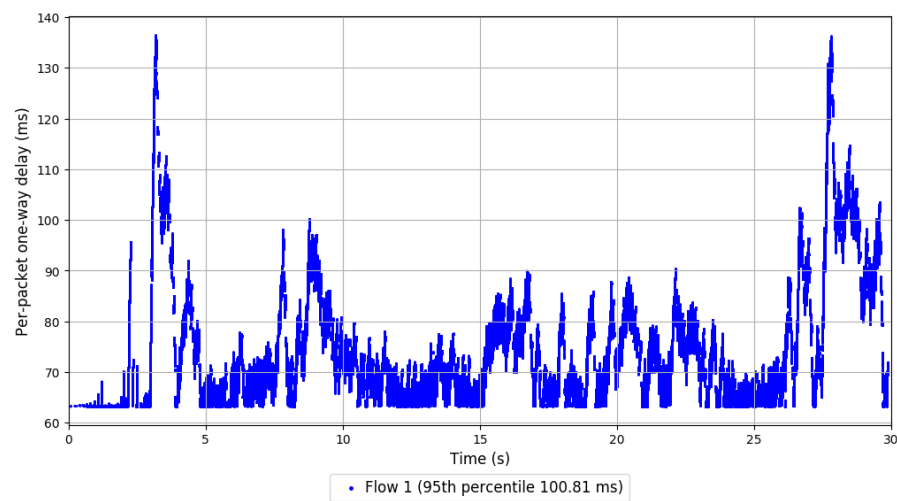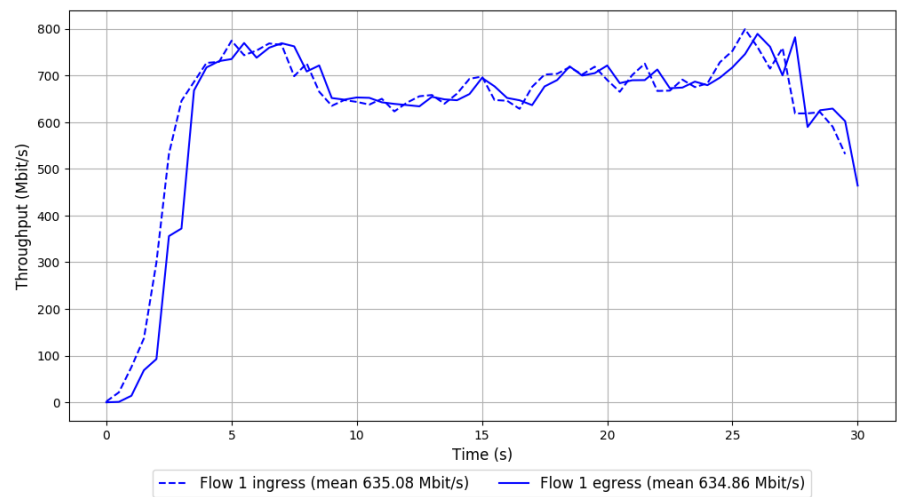
Run 1: Report of Indigo-Muses — Data Link

```
Run 2: Statistics of Indigo-Muses

Start at: 2018-11-30 14:39:24
End at: 2018-11-30 14:39:54
Local clock offset: -0.029 ms
Remote clock offset: -0.299 ms


# Below is generated by plot.py at 2018-11-30 17:27:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 634.86 Mbit/s
95th percentile per-packet one-way delay: 100.811 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 634.86 Mbit/s
95th percentile per-packet one-way delay: 100.811 ms
Loss rate: 0.46%
```

Run 2: Report of Indigo-Muses — Data Link

```
Run 3: Statistics of Indigo-Muses

Start at: 2018-11-30 15:07:23
End at: 2018-11-30 15:07:53
Local clock offset: -0.025 ms
Remote clock offset: -0.07 ms


# Below is generated by plot.py at 2018-11-30 17:31:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 682.37 Mbit/s
95th percentile per-packet one-way delay: 93.234 ms
Loss rate: 0.53%
-- Flow 1:
Average throughput: 682.37 Mbit/s
95th percentile per-packet one-way delay: 93.234 ms
Loss rate: 0.53%
```
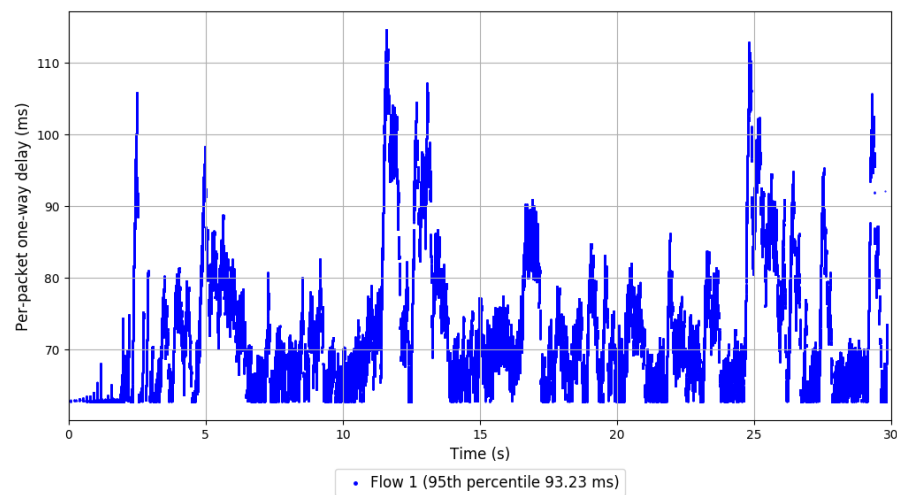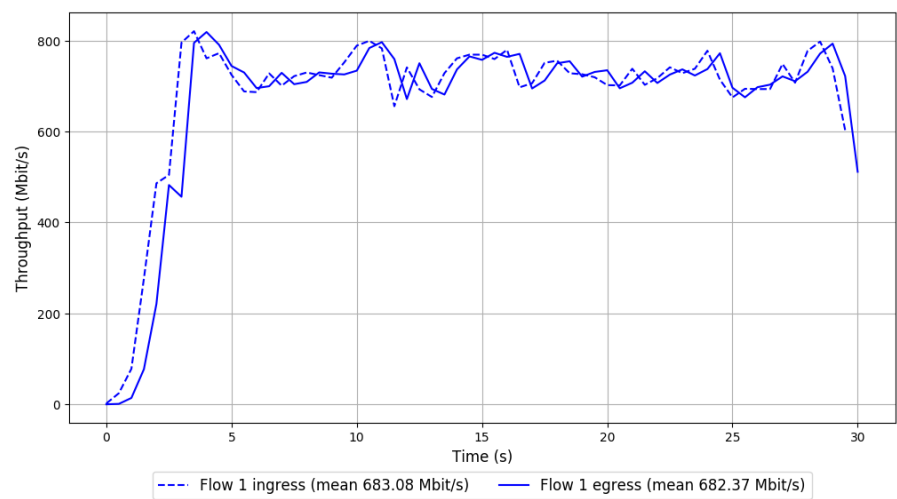
Run 3: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 683.08 Mbit/s) ---- Flow 1 egress (mean 682.37 Mbit/s) ——

Flow 1 (95th percentile 93.23 ms)

```
Run 4: Statistics of Indigo-Muses

Start at: 2018-11-30 15:35:21
End at: 2018-11-30 15:35:51
Local clock offset: -0.063 ms
Remote clock offset: 1.176 ms


# Below is generated by plot.py at 2018-11-30 17:31:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 644.74 Mbit/s
95th percentile per-packet one-way delay: 99.134 ms
Loss rate: 0.49%
-- Flow 1:
Average throughput: 644.74 Mbit/s
95th percentile per-packet one-way delay: 99.134 ms
Loss rate: 0.49%
```
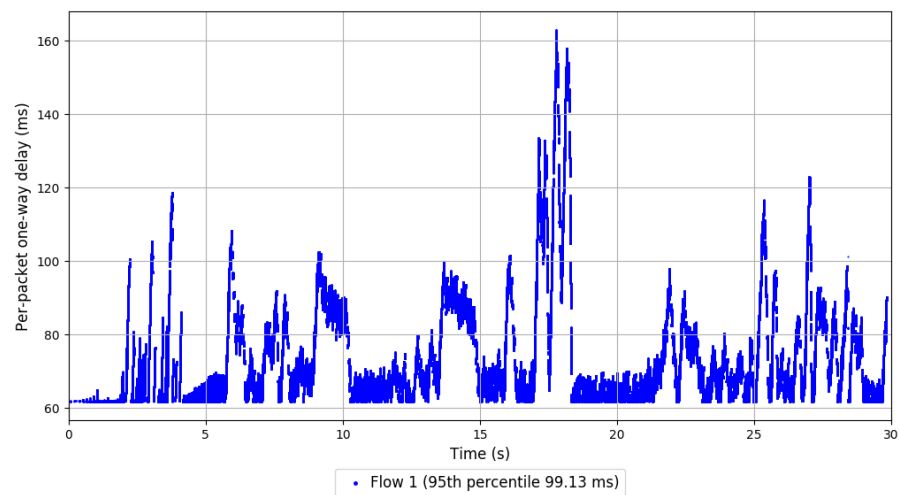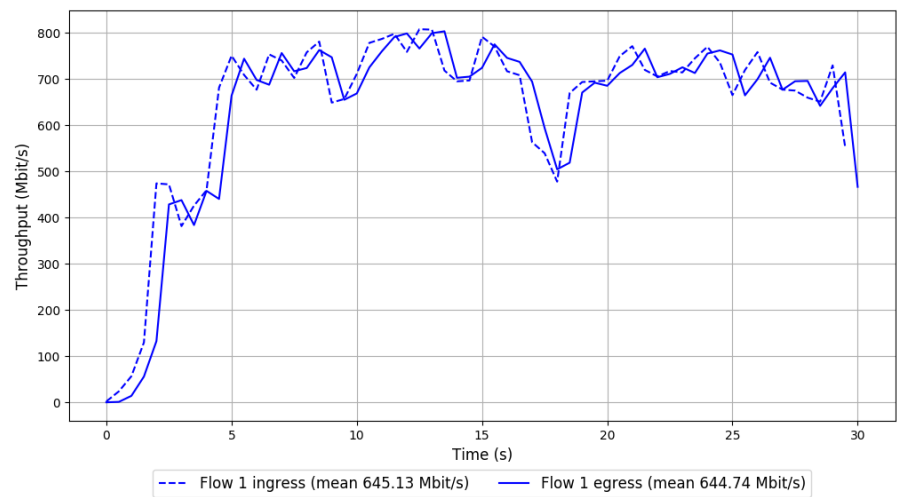
Run 4: Report of Indigo-Muses — Data Link

```
Run 5: Statistics of Indigo-Muses

Start at: 2018-11-30 16:03:01
End at: 2018-11-30 16:03:31
Local clock offset: -0.054 ms
Remote clock offset: 0.132 ms


# Below is generated by plot.py at 2018-11-30 17:32:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 691.14 Mbit/s
95th percentile per-packet one-way delay: 92.728 ms
Loss rate: 0.45%
-- Flow 1:
Average throughput: 691.14 Mbit/s
95th percentile per-packet one-way delay: 92.728 ms
Loss rate: 0.45%
```
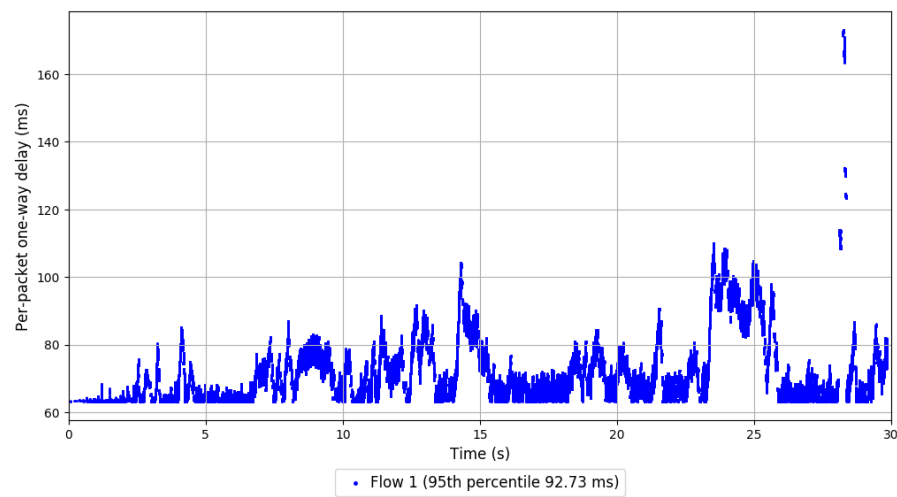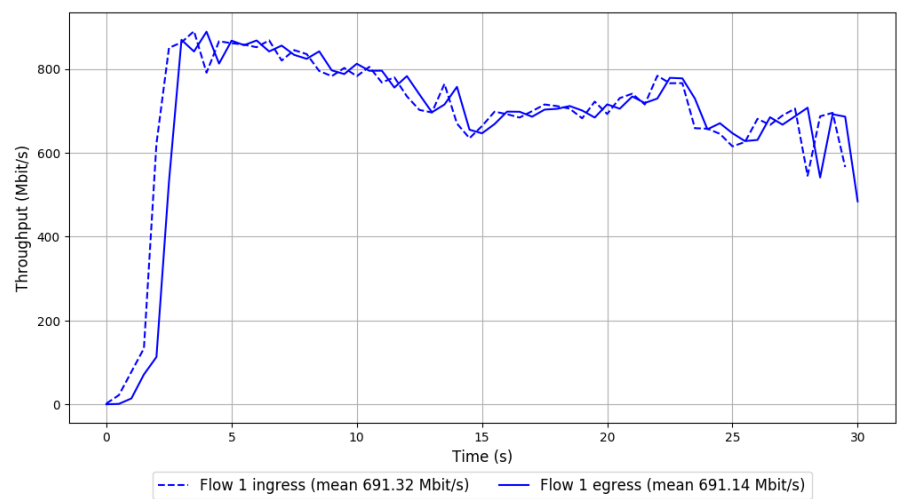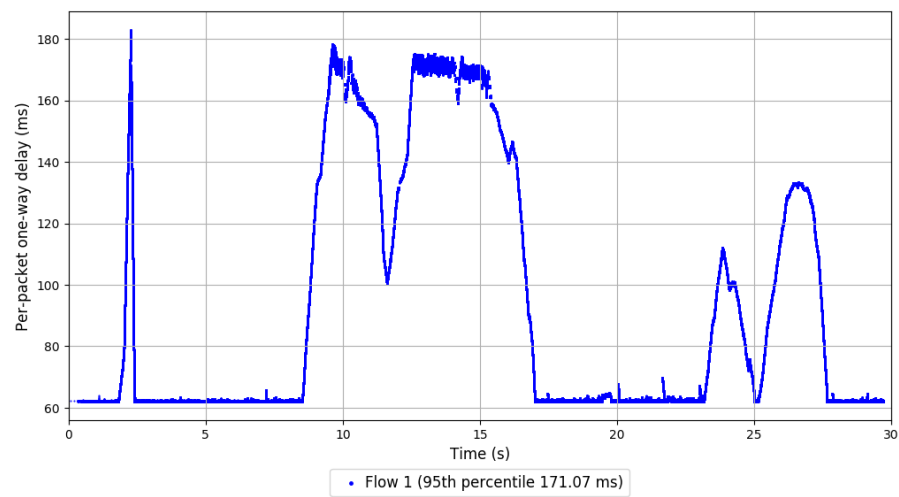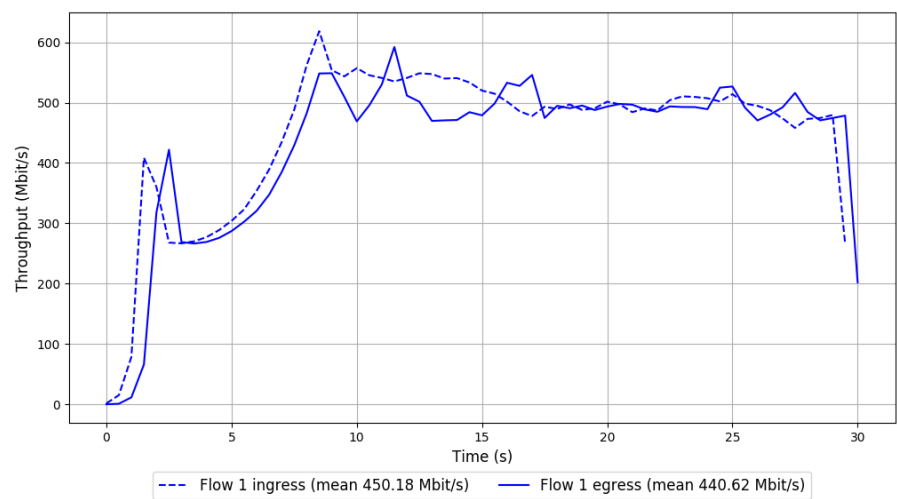
Run 5: Report of Indigo-Muses — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2018-11-30 14:17:26
End at: 2018-11-30 14:17:56
Local clock offset: -0.074 ms
Remote clock offset: 0.608 ms


# Below is generated by plot.py at 2018-11-30 17:33:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 440.62 Mbit/s
95th percentile per-packet one-way delay: 171.069 ms
Loss rate: 2.54%
-- Flow 1:
Average throughput: 440.62 Mbit/s
95th percentile per-packet one-way delay: 171.069 ms
Loss rate: 2.54%
```
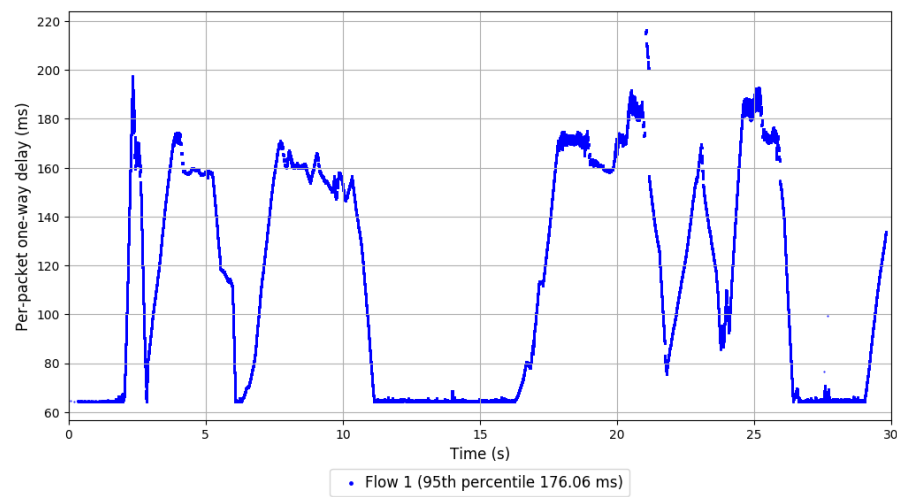
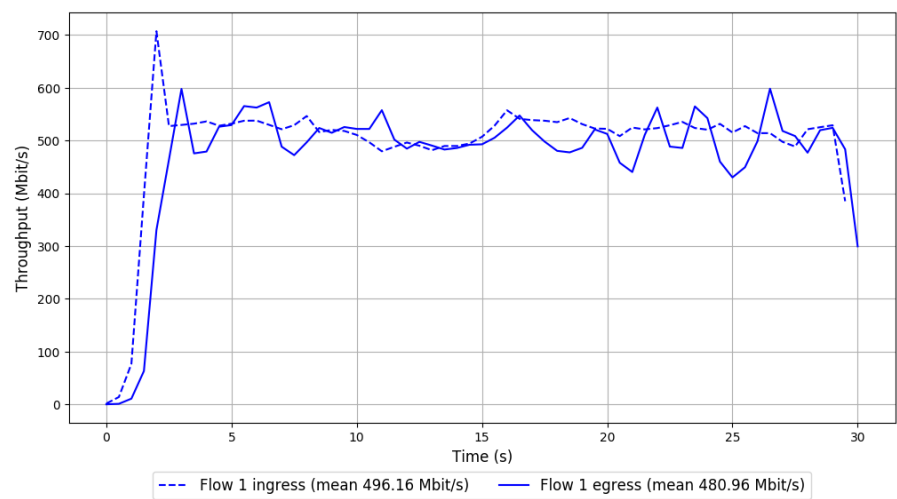Run 1: Report of PCC-Allegro — Data Link

```
Run 2: Statistics of PCC-Allegro

Start at: 2018-11-30 14:45:30
End at: 2018-11-30 14:46:00
Local clock offset: -0.036 ms
Remote clock offset: -1.336 ms


# Below is generated by plot.py at 2018-11-30 17:35:48
# Datalink statistics
-- Total of 1 flow:
Average throughput: 480.96 Mbit/s
95th percentile per-packet one-way delay: 176.056 ms
Loss rate: 3.48%
-- Flow 1:
Average throughput: 480.96 Mbit/s
95th percentile per-packet one-way delay: 176.056 ms
Loss rate: 3.48%
```

Run 2: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 496.16 Mbit/s) —— Flow 1 egress (mean 480.96 Mbit/s)
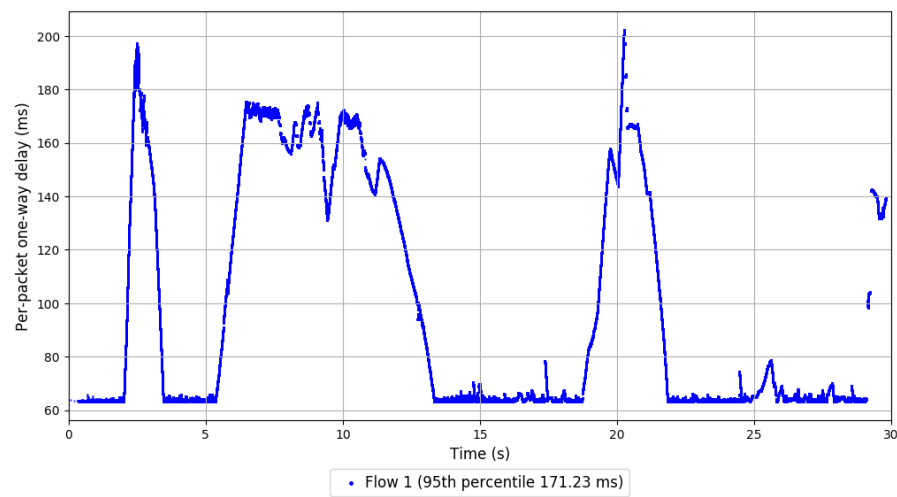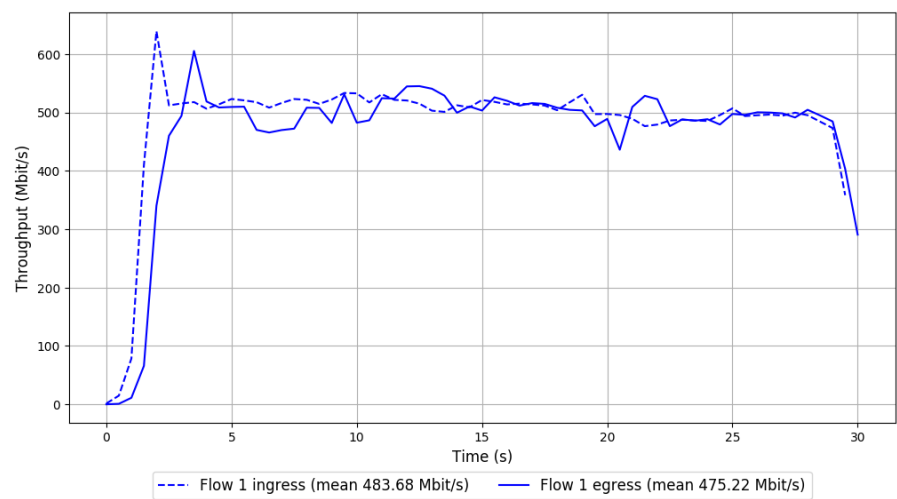

• Flow 1 (95th percentile 176.06 ms)

```
Run 3: Statistics of PCC-Allegro

Start at: 2018-11-30 15:13:27
End at: 2018-11-30 15:13:57
Local clock offset: -0.038 ms
Remote clock offset: -0.113 ms


# Below is generated by plot.py at 2018-11-30 17:40:48
# Datalink statistics
-- Total of 1 flow:
Average throughput: 475.22 Mbit/s
95th percentile per-packet one-way delay: 171.227 ms
Loss rate: 2.17%
-- Flow 1:
Average throughput: 475.22 Mbit/s
95th percentile per-packet one-way delay: 171.227 ms
Loss rate: 2.17%
```

Run 3: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 483.68 Mbit/s)   Flow 1 egress (mean 475.22 Mbit/s)
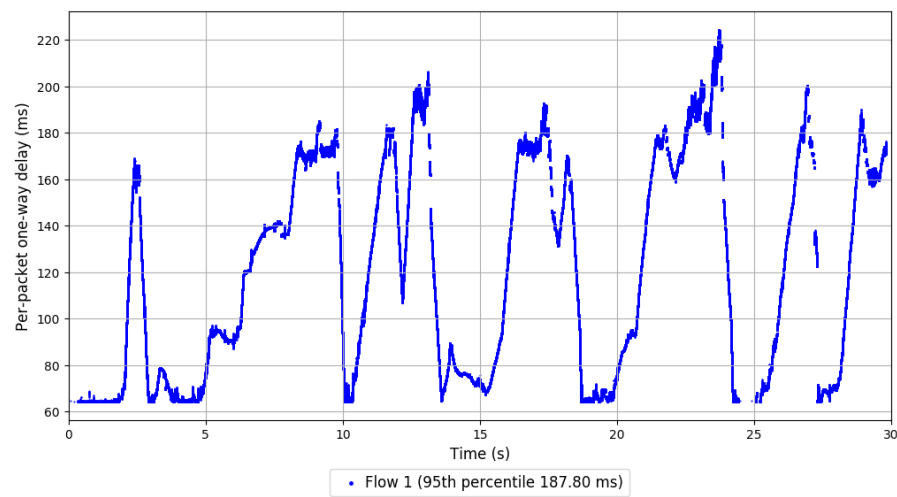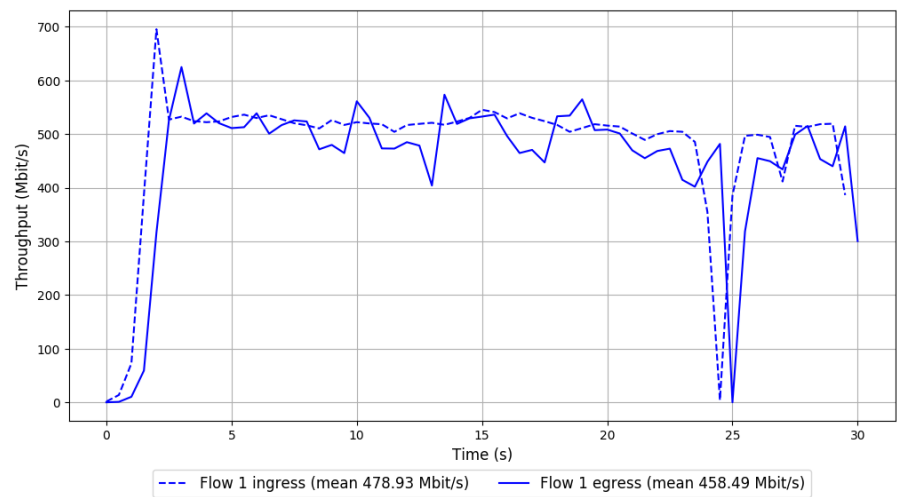

Flow 1 (95th percentile 171.23 ms)

```
Run 4: Statistics of PCC-Allegro

Start at: 2018-11-30 15:41:23
End at: 2018-11-30 15:41:53
Local clock offset: -0.072 ms
Remote clock offset: -1.375 ms


# Below is generated by plot.py at 2018-11-30 17:42:02
# Datalink statistics
-- Total of 1 flow:
Average throughput: 458.49 Mbit/s
95th percentile per-packet one-way delay: 187.796 ms
Loss rate: 4.67%
-- Flow 1:
Average throughput: 458.49 Mbit/s
95th percentile per-packet one-way delay: 187.796 ms
Loss rate: 4.67%
```

Run 4: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 478.93 Mbit/s)   Flow 1 egress (mean 458.49 Mbit/s)
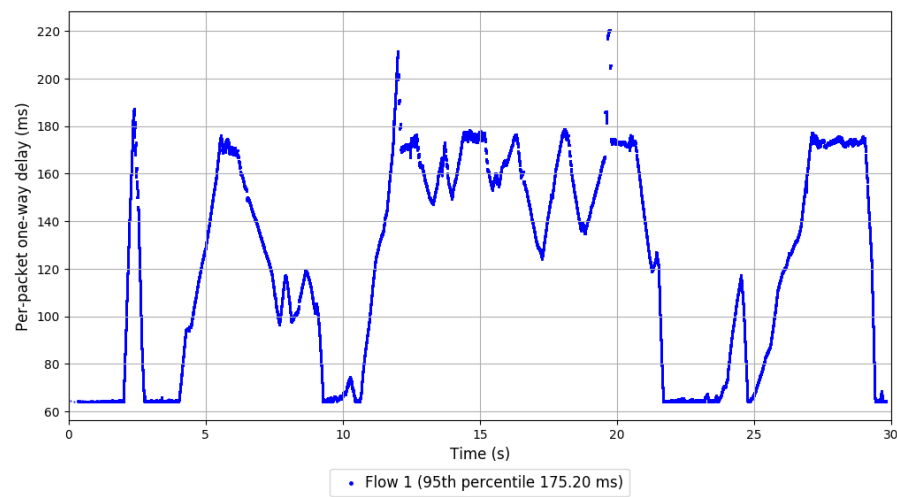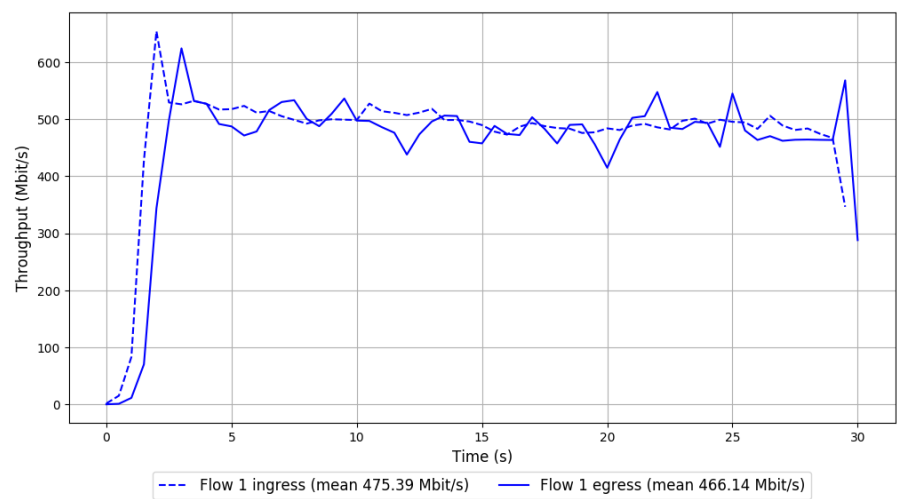

• Flow 1 (95th percentile 187.80 ms)

```
Run 5: Statistics of PCC-Allegro

Start at: 2018-11-30 16:09:05
End at: 2018-11-30 16:09:35
Local clock offset: -0.094 ms
Remote clock offset: -1.327 ms


# Below is generated by plot.py at 2018-11-30 17:44:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 466.14 Mbit/s
95th percentile per-packet one-way delay: 175.201 ms
Loss rate: 2.36%
-- Flow 1:
Average throughput: 466.14 Mbit/s
95th percentile per-packet one-way delay: 175.201 ms
Loss rate: 2.36%
```

Run 5: Report of PCC-Allegro — Data Link

```
Run 1: Statistics of PCC-Expr

Start at: 2018-11-30 13:59:29
End at: 2018-11-30 13:59:59
Local clock offset: -0.04 ms
Remote clock offset: -0.861 ms

# Below is generated by plot.py at 2018-11-30 17:44:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 364.77 Mbit/s
95th percentile per-packet one-way delay: 156.899 ms
Loss rate: 3.02%
-- Flow 1:
Average throughput: 364.77 Mbit/s
95th percentile per-packet one-way delay: 156.899 ms
Loss rate: 3.02%
```
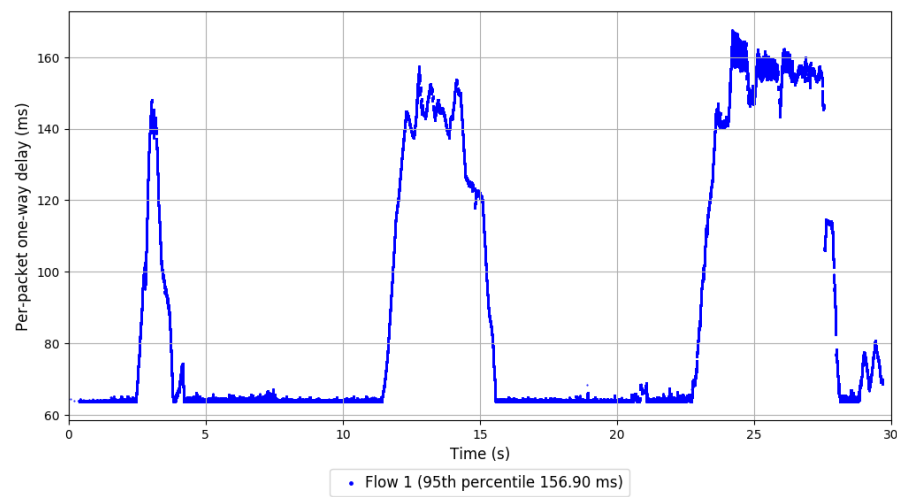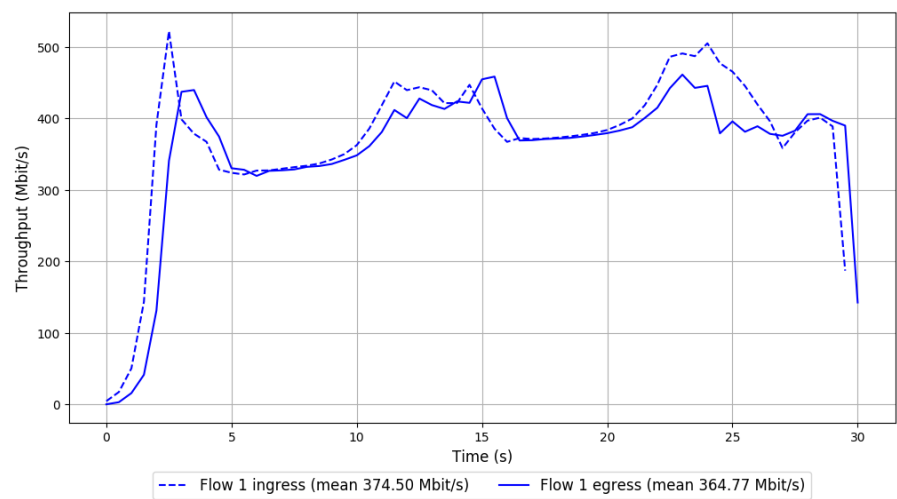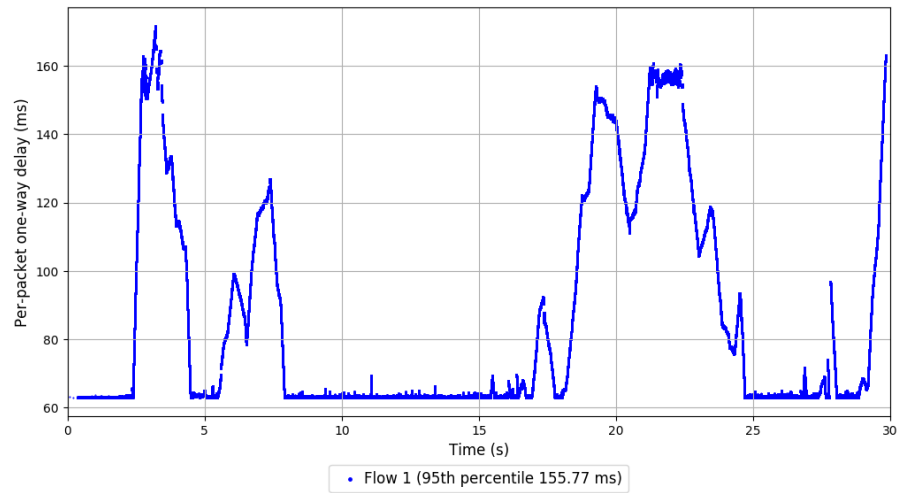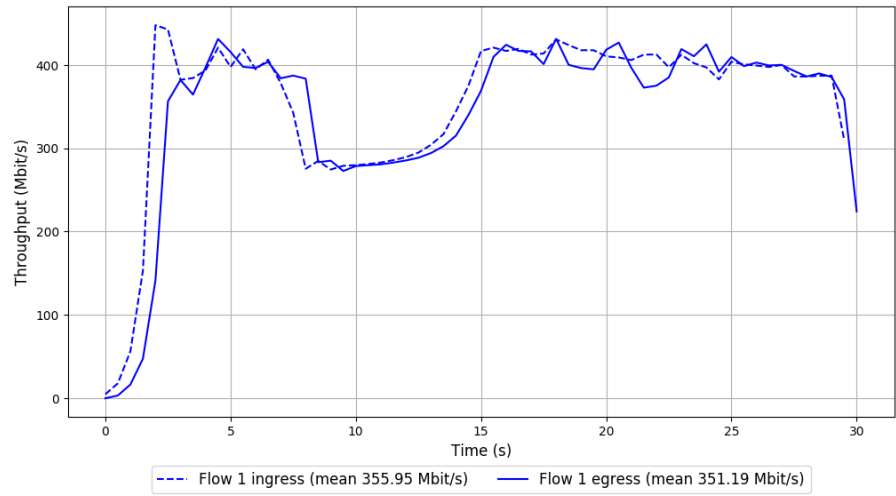
Run 1: Report of PCC-Expr — Data Link

```
Run 2: Statistics of PCC-Expr

Start at: 2018-11-30 14:27:26
End at: 2018-11-30 14:27:56
Local clock offset: -0.052 ms
Remote clock offset: -0.242 ms


# Below is generated by plot.py at 2018-11-30 17:44:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 351.19 Mbit/s
95th percentile per-packet one-way delay: 155.774 ms
Loss rate: 1.76%
-- Flow 1:
Average throughput: 351.19 Mbit/s
95th percentile per-packet one-way delay: 155.774 ms
Loss rate: 1.76%
```

Run 2: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 355.95 Mbit/s) --- Flow 1 egress (mean 351.19 Mbit/s)
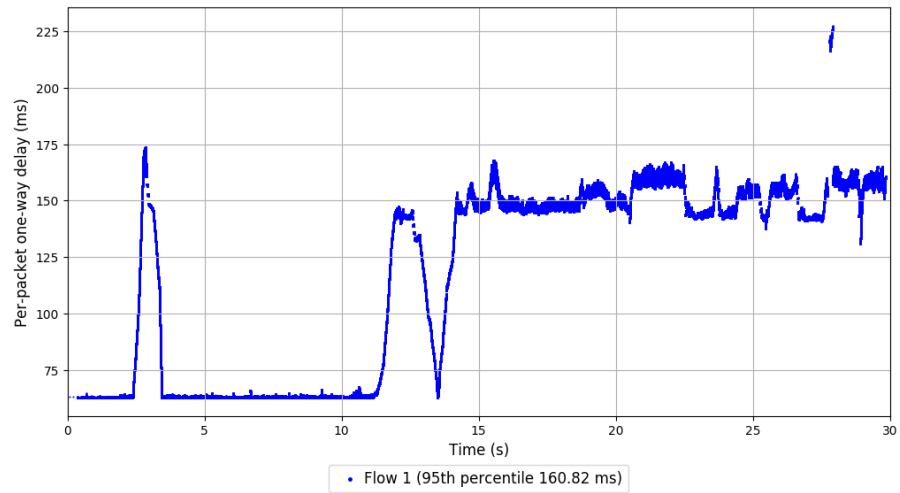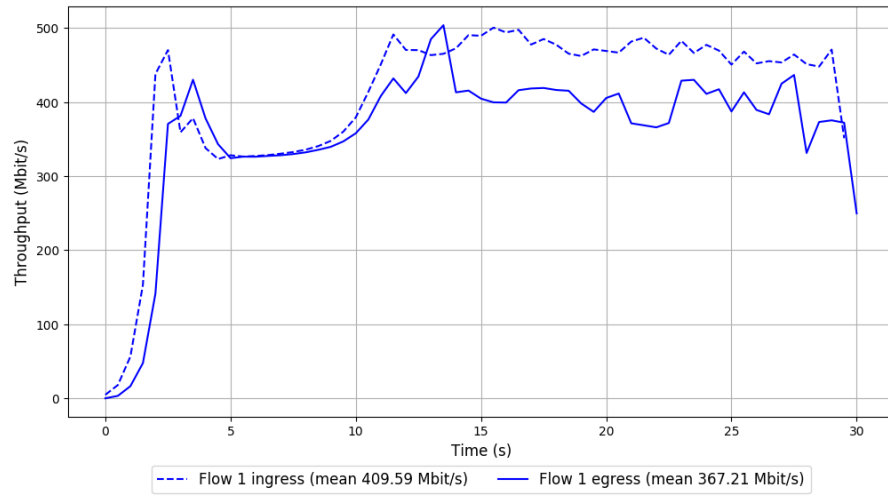

• Flow 1 (95th percentile 155.77 ms)

```
Run 3: Statistics of PCC-Expr

Start at: 2018-11-30 14:55:23
End at: 2018-11-30 14:55:53
Local clock offset: -0.049 ms
Remote clock offset: -0.043 ms


# Below is generated by plot.py at 2018-11-30 17:45:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 367.21 Mbit/s
95th percentile per-packet one-way delay: 160.823 ms
Loss rate: 10.73%
-- Flow 1:
Average throughput: 367.21 Mbit/s
95th percentile per-packet one-way delay: 160.823 ms
Loss rate: 10.73%
```

Run 3: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 409.59 Mbit/s) ——— Flow 1 egress (mean 367.21 Mbit/s)

• Flow 1 (95th percentile 160.82 ms)

```
Run 4: Statistics of PCC-Expr

Start at: 2018-11-30 15:23:22
End at: 2018-11-30 15:23:52
Local clock offset: -0.142 ms
Remote clock offset: 0.079 ms


# Below is generated by plot.py at 2018-11-30 17:46:44
# Datalink statistics
-- Total of 1 flow:
Average throughput: 348.77 Mbit/s
95th percentile per-packet one-way delay: 167.184 ms
Loss rate: 4.62%
-- Flow 1:
Average throughput: 348.77 Mbit/s
95th percentile per-packet one-way delay: 167.184 ms
Loss rate: 4.62%
```
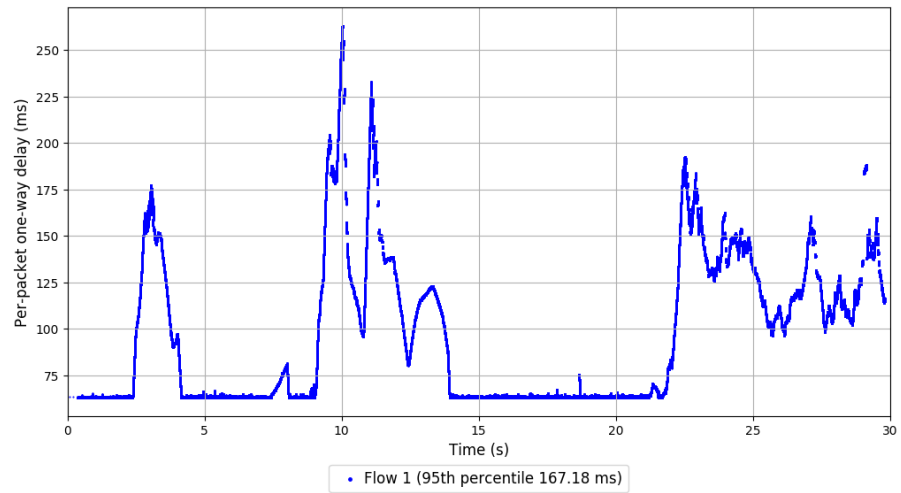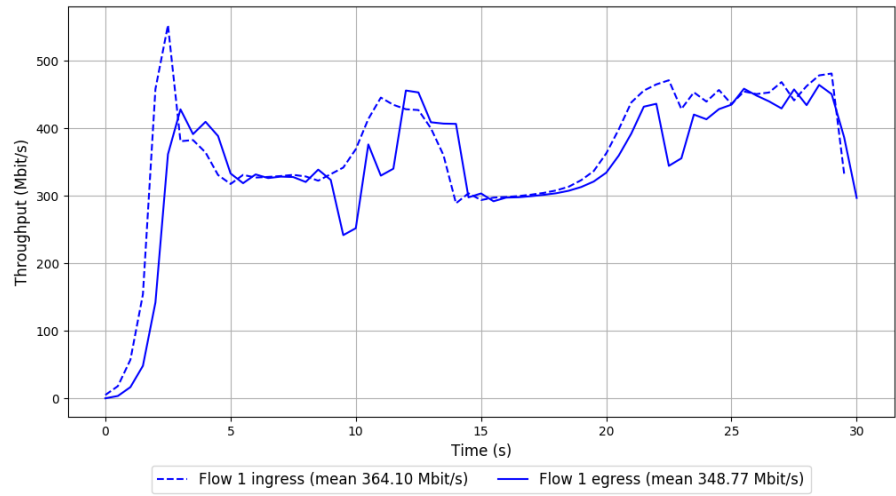
Run 4: Report of PCC-Expr — Data Link

```
Run 5: Statistics of PCC-Expr

Start at: 2018-11-30 15:51:06
End at: 2018-11-30 15:51:36
Local clock offset: -0.06 ms
Remote clock offset: -0.42 ms


# Below is generated by plot.py at 2018-11-30 17:50:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 384.48 Mbit/s
95th percentile per-packet one-way delay: 160.005 ms
Loss rate: 9.00%
-- Flow 1:
Average throughput: 384.48 Mbit/s
95th percentile per-packet one-way delay: 160.005 ms
Loss rate: 9.00%
```
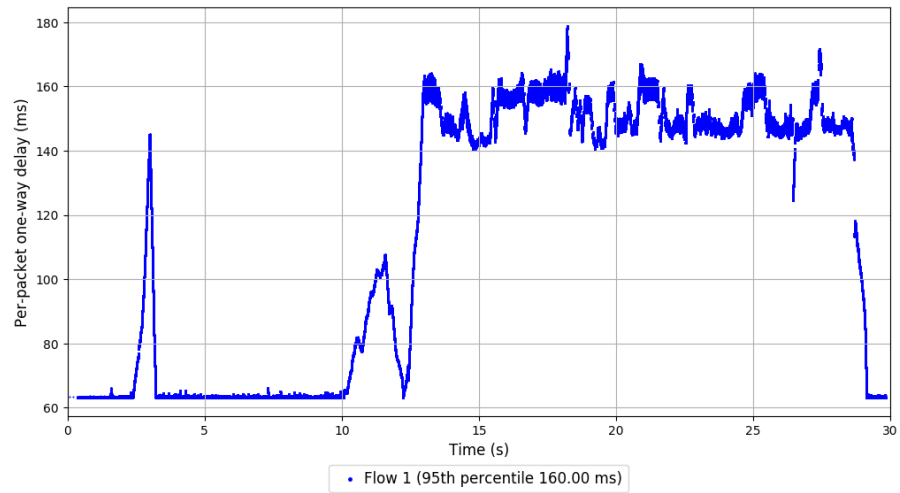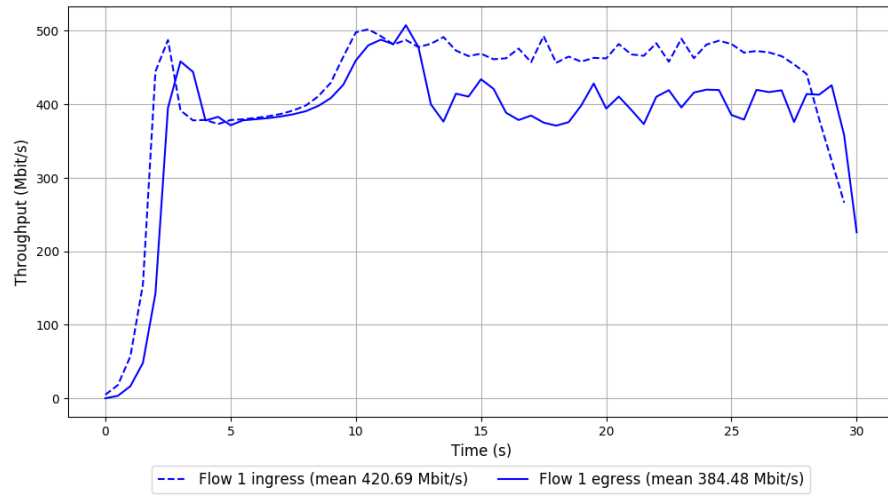
Run 5: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 420.69 Mbit/s) — — — — Flow 1 egress (mean 384.48 Mbit/s)

• Flow 1 (95th percentile 160.00 ms)
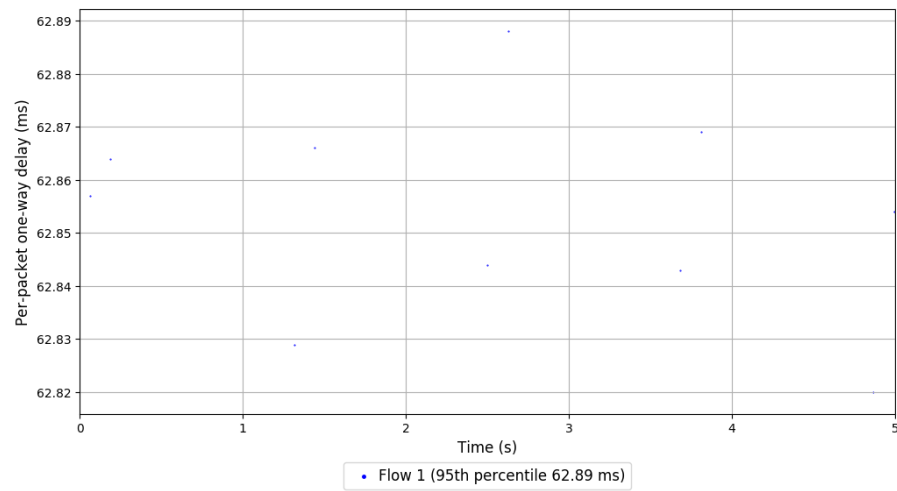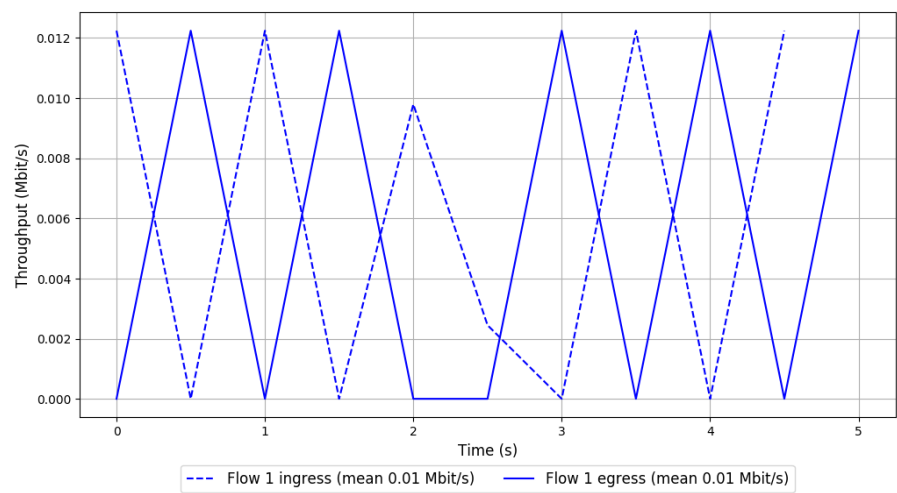
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Run 1: Statistics of QUIC Cubic

Start at: 2018-11-30 14:10:19
End at: 2018-11-30 14:10:49
Local clock offset: -0.074 ms
Remote clock offset: -0.075 ms

Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-11-30 14:38:13
End at: 2018-11-30 14:38:43
Local clock offset: -0.062 ms
Remote clock offset: 0.525 ms


# Below is generated by plot.py at 2018-11-30 17:50:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 67.49 Mbit/s
95th percentile per-packet one-way delay: 62.682 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 67.49 Mbit/s
95th percentile per-packet one-way delay: 62.682 ms
Loss rate: 0.65%
```
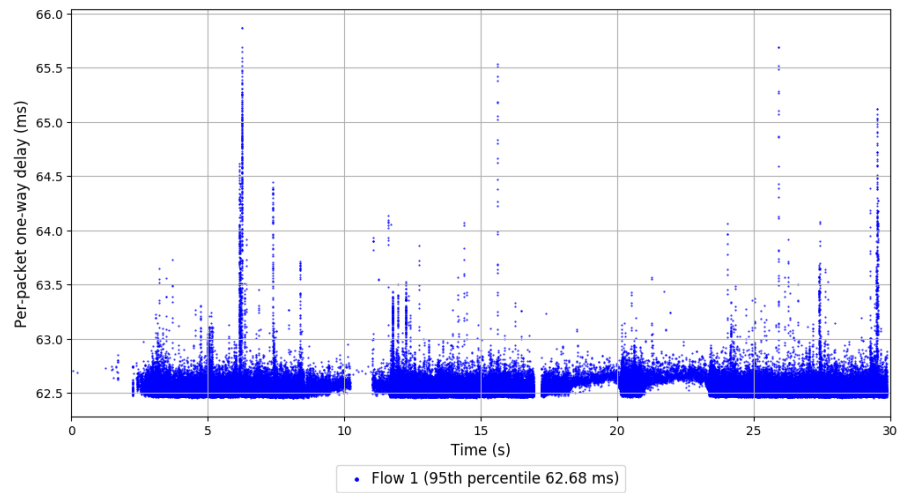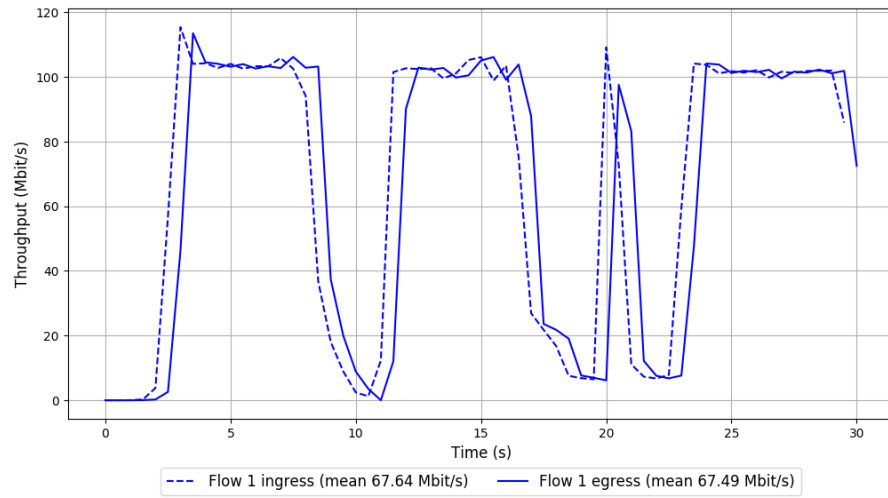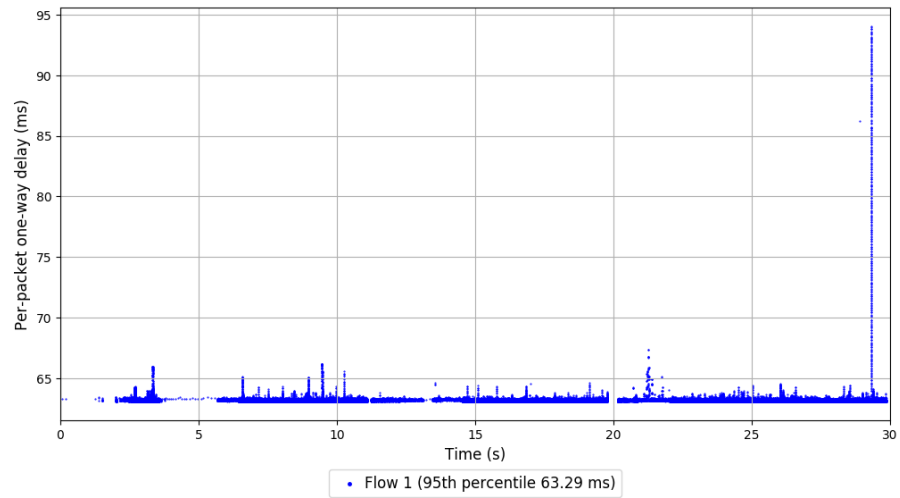
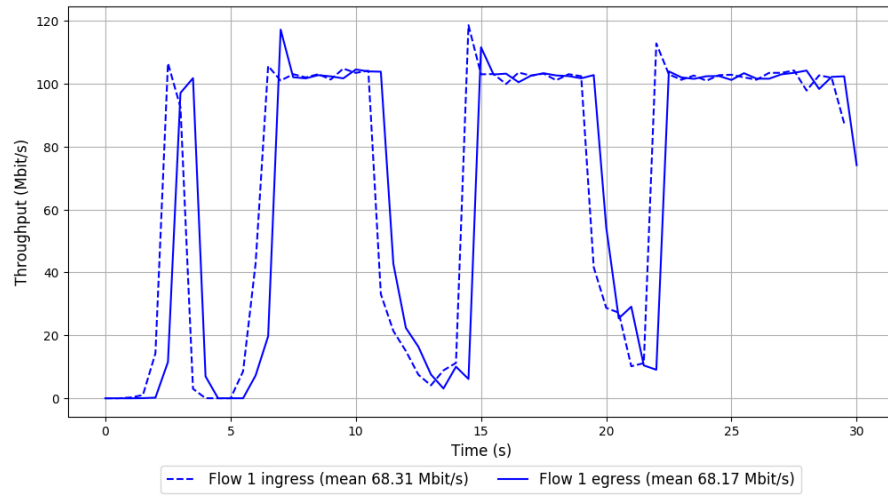Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-11-30 15:06:11
End at: 2018-11-30 15:06:41
Local clock offset: -0.012 ms
Remote clock offset: -0.064 ms


# Below is generated by plot.py at 2018-11-30 17:50:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 68.17 Mbit/s
95th percentile per-packet one-way delay: 63.286 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 68.17 Mbit/s
95th percentile per-packet one-way delay: 63.286 ms
Loss rate: 0.64%
```

Run 3: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 68.31 Mbit/s)   Flow 1 egress (mean 68.17 Mbit/s)
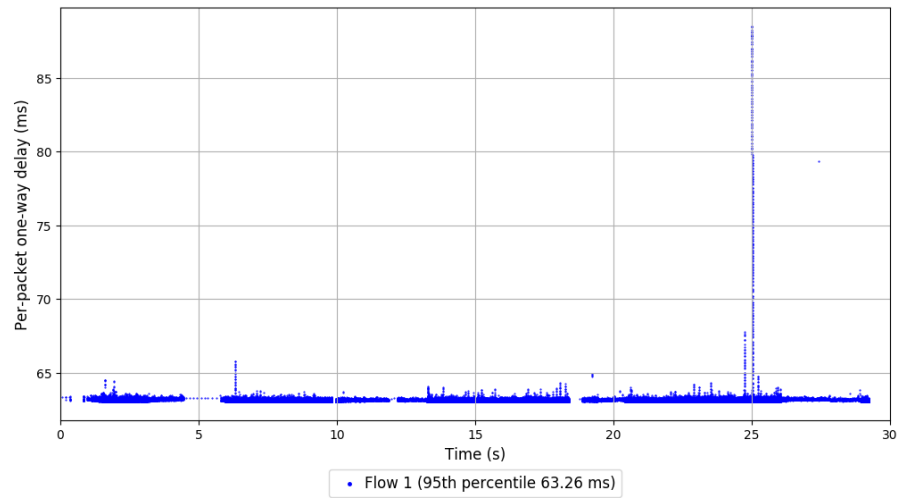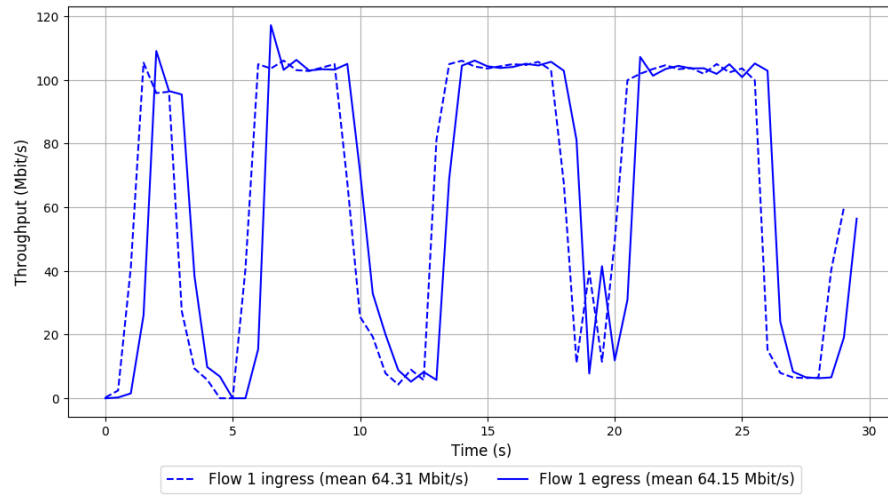

Flow 1 (95th percentile 63.29 ms)

```
Run 4: Statistics of QUIC Cubic

Start at: 2018-11-30 15:34:09
End at: 2018-11-30 15:34:39
Local clock offset: -0.098 ms
Remote clock offset: -0.088 ms


# Below is generated by plot.py at 2018-11-30 17:50:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 64.15 Mbit/s
95th percentile per-packet one-way delay: 63.263 ms
Loss rate: 0.68%
-- Flow 1:
Average throughput: 64.15 Mbit/s
95th percentile per-packet one-way delay: 63.263 ms
Loss rate: 0.68%
```

Run 4: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 64.31 Mbit/s) ---- Flow 1 egress (mean 64.15 Mbit/s) ——

• Flow 1 (95th percentile 63.26 ms)

```
Run 5: Statistics of QUIC Cubic

Start at: 2018-11-30 16:01:49
End at: 2018-11-30 16:02:19
Local clock offset: -0.065 ms
Remote clock offset: -0.21 ms


# Below is generated by plot.py at 2018-11-30 17:50:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 71.73 Mbit/s
95th percentile per-packet one-way delay: 63.023 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 71.73 Mbit/s
95th percentile per-packet one-way delay: 63.023 ms
Loss rate: 0.63%
```
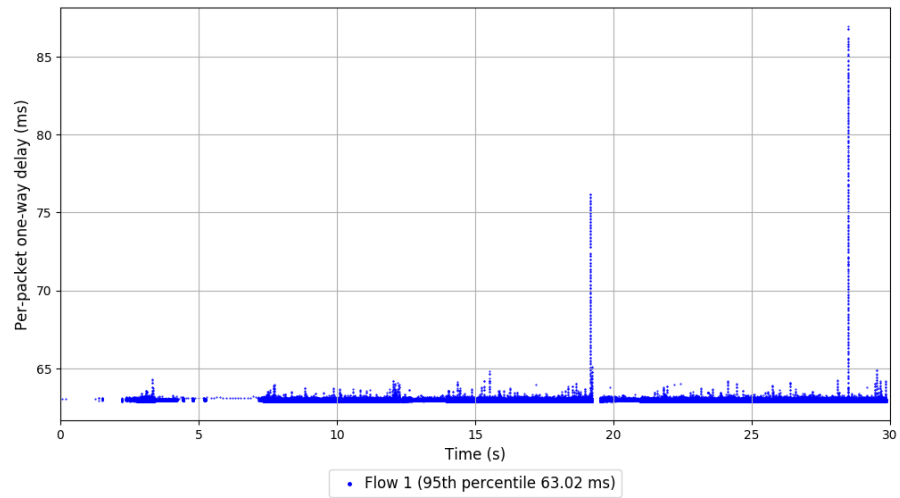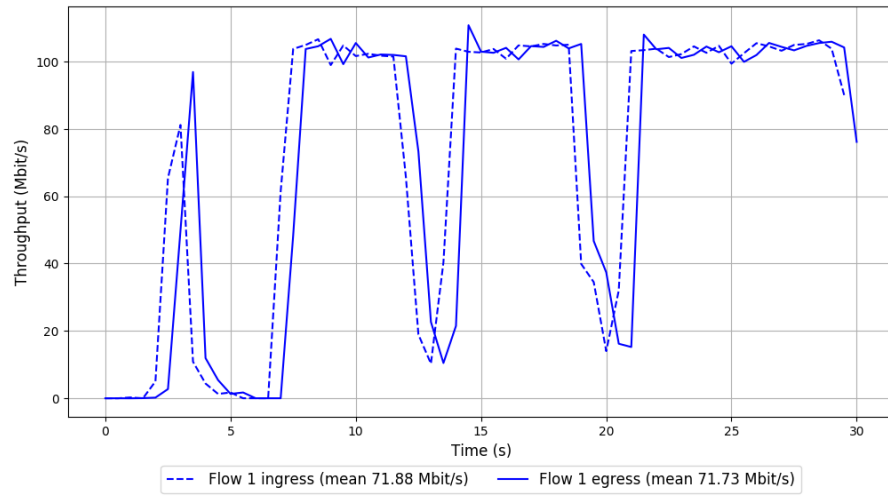
Run 5: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 71.88 Mbit/s) --- Flow 1 egress (mean 71.73 Mbit/s)
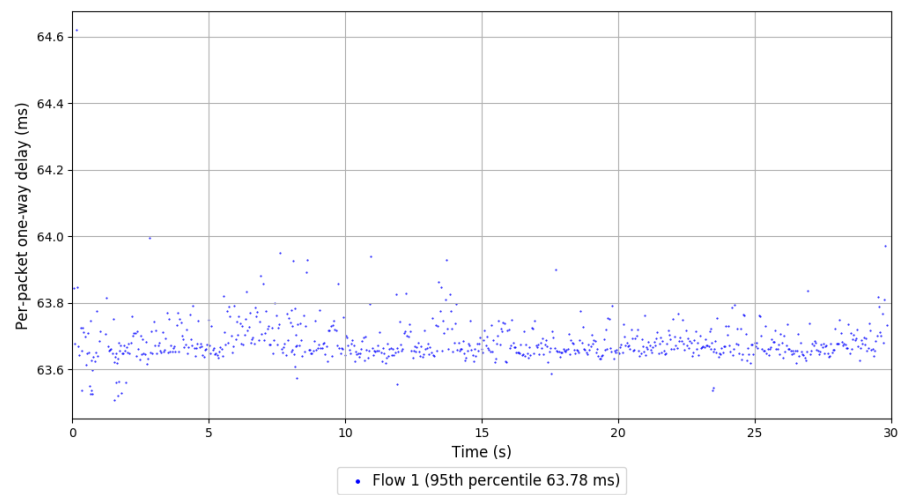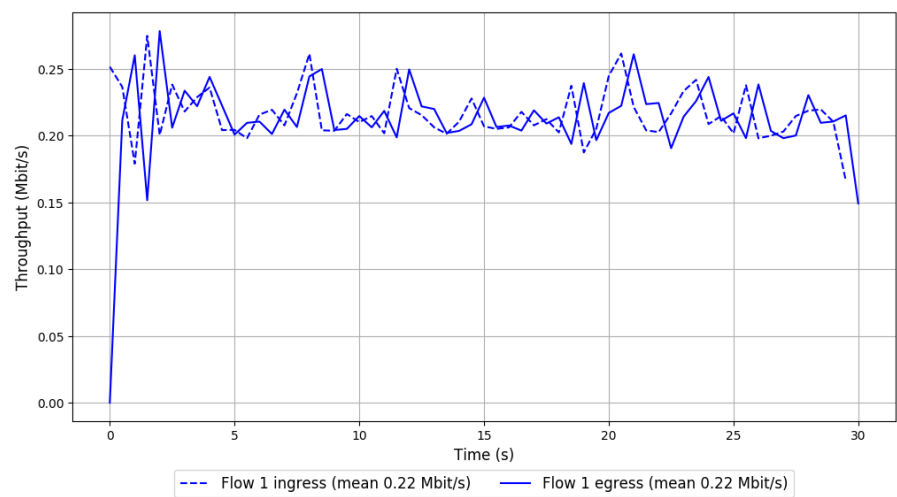

• Flow 1 (95th percentile 63.02 ms)

```
Run 1: Statistics of SCReAM

Start at: 2018-11-30 13:58:21
End at: 2018-11-30 13:58:51
Local clock offset: -0.074 ms
Remote clock offset: -0.957 ms


# Below is generated by plot.py at 2018-11-30 17:50:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 63.784 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 63.784 ms
Loss rate: 0.38%
```

Run 1: Report of SCReAM — Data Link

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

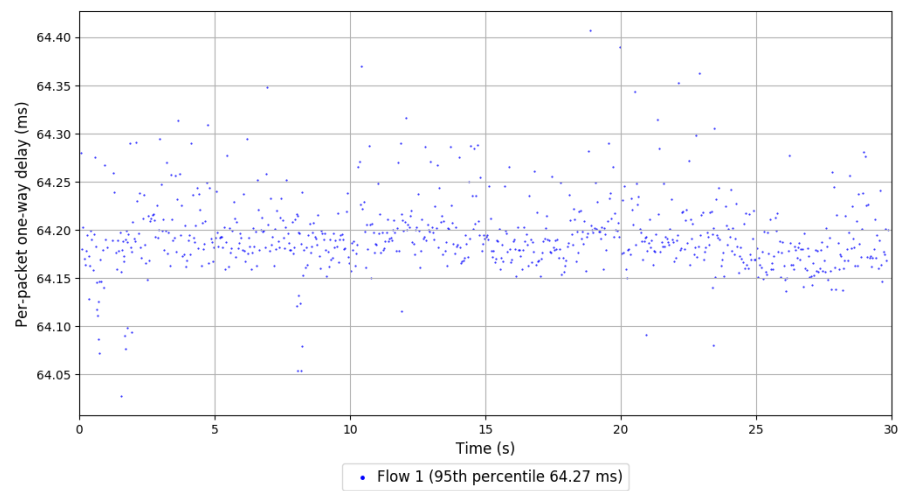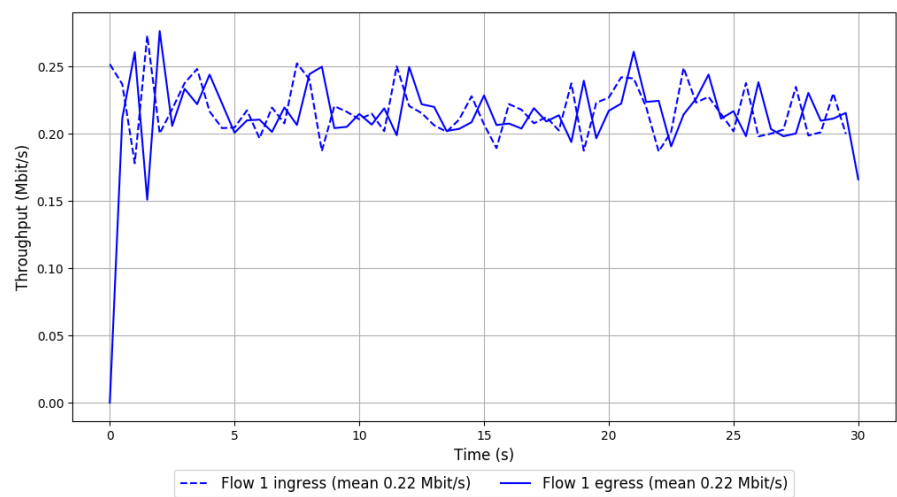Flow 1 (95th percentile 63.78 ms)

```
Run 2: Statistics of SCReAM

Start at: 2018-11-30 14:26:18
End at: 2018-11-30 14:26:48
Local clock offset: -0.065 ms
Remote clock offset: -1.279 ms


# Below is generated by plot.py at 2018-11-30 17:50:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 64.270 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 64.270 ms
Loss rate: 0.51%
```

Run 2: Report of SCReAM — Data Link

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

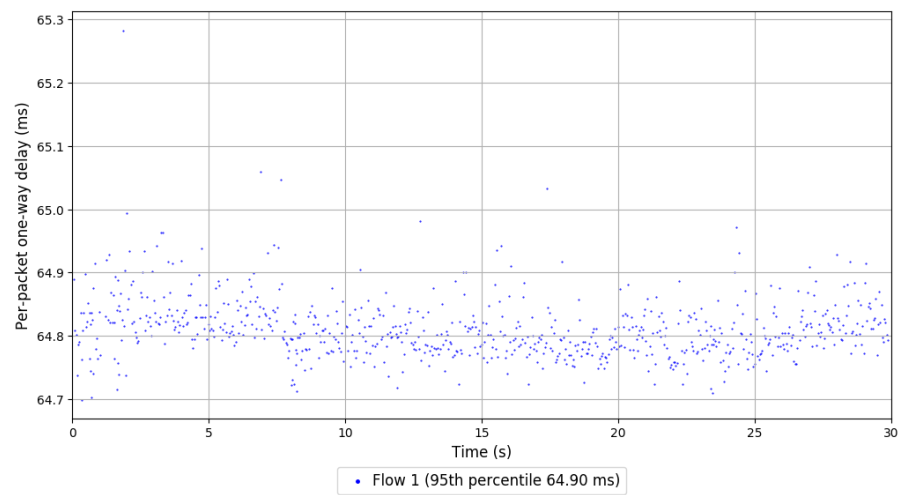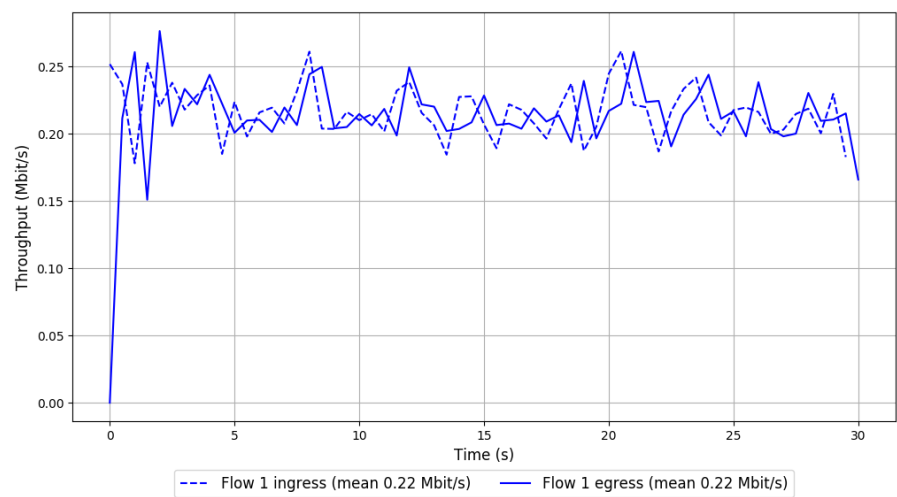Flow 1 (95th percentile 64.27 ms)

```
Run 3: Statistics of SCReAM

Start at: 2018-11-30 14:54:15
End at: 2018-11-30 14:54:45
Local clock offset: -0.034 ms
Remote clock offset: -1.543 ms


# Below is generated by plot.py at 2018-11-30 17:50:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 64.899 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 64.899 ms
Loss rate: 0.38%
```

Run 3: Report of SCReAM — Data Link

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

Flow 1 (95th percentile 64.90 ms)

```
Run 4: Statistics of SCReAM

Start at: 2018-11-30 15:22:14
End at: 2018-11-30 15:22:44
Local clock offset: -0.079 ms
Remote clock offset: 0.008 ms

# Below is generated by plot.py at 2018-11-30 17:50:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 62.964 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 62.964 ms
Loss rate: 0.51%
```
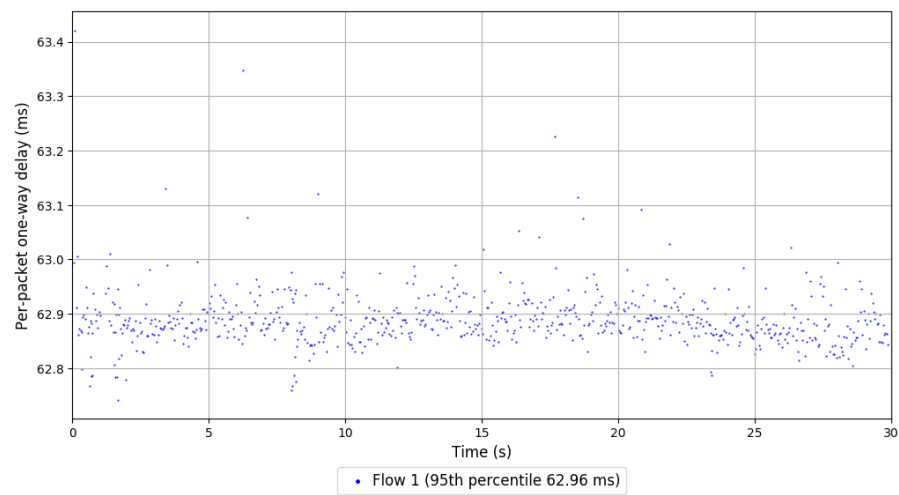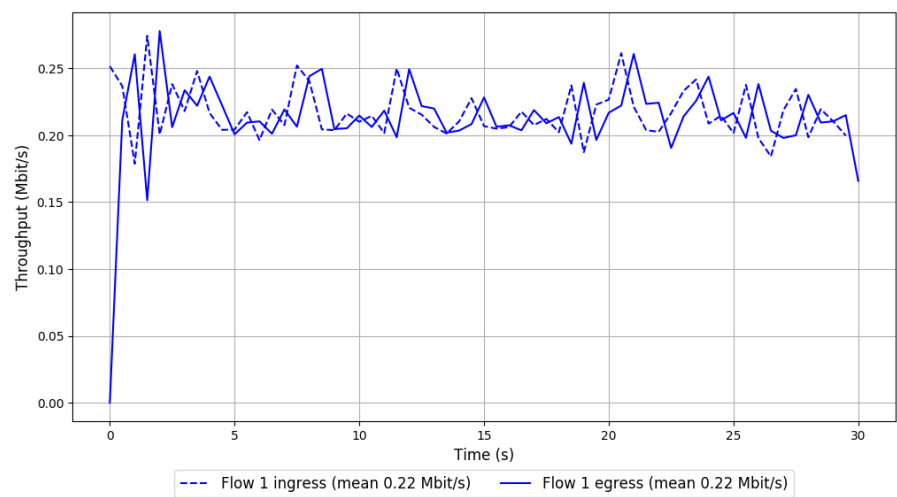
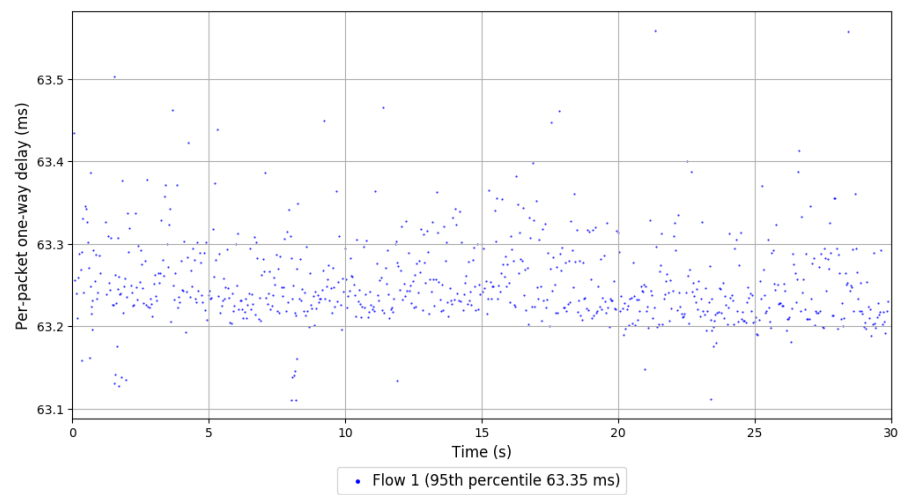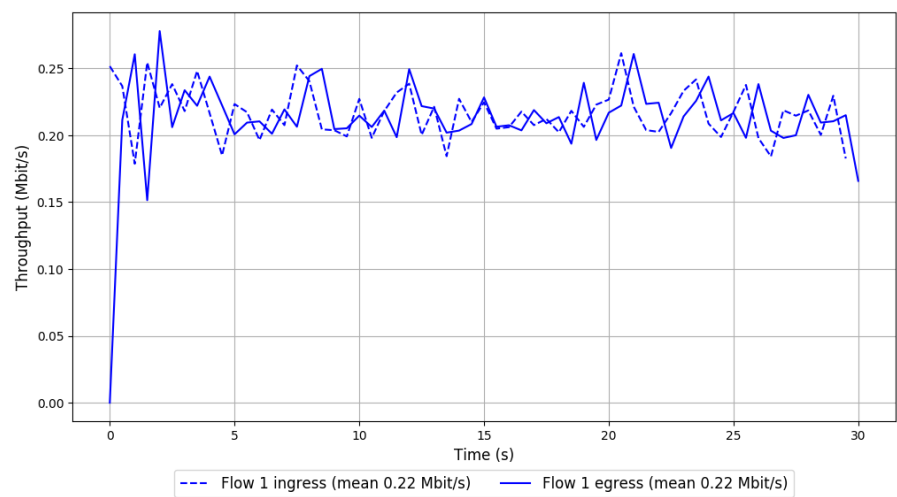Run 4: Report of SCReAM — Data Link

```
Run 5: Statistics of SCReAM

Start at: 2018-11-30 15:49:58
End at: 2018-11-30 15:50:28
Local clock offset: -0.076 ms
Remote clock offset: -0.144 ms

# Below is generated by plot.py at 2018-11-30 17:50:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 63.348 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 63.348 ms
Loss rate: 0.38%
```

Run 5: Report of SCReAM — Data Link

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

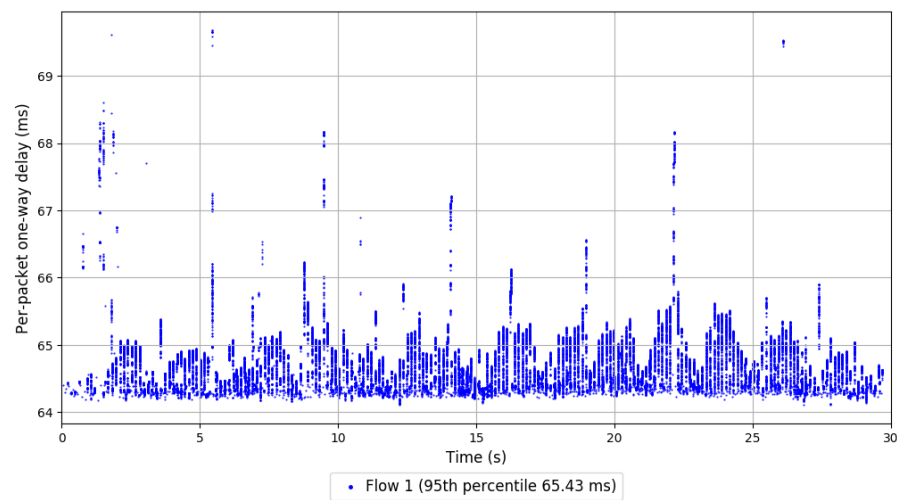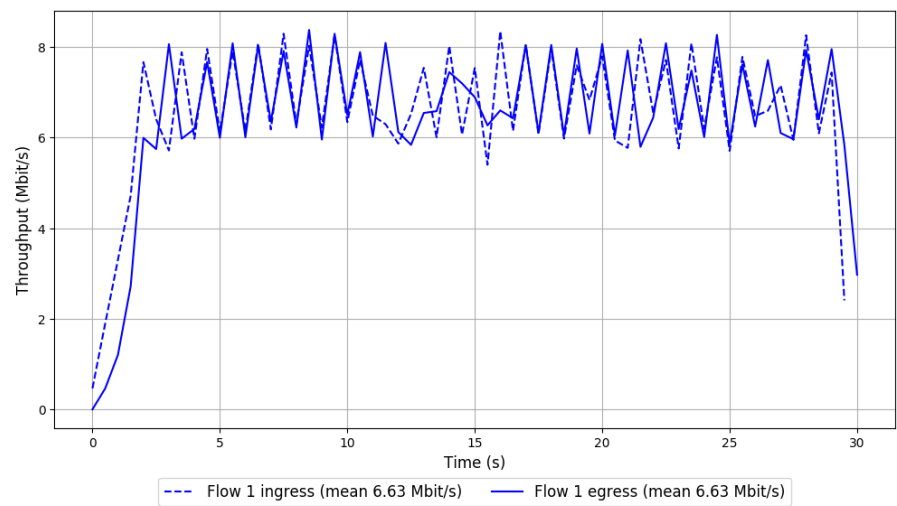Flow 1 (95th percentile 63.35 ms)

```
Run 1: Statistics of Sprout

Start at: 2018-11-30 14:20:27
End at: 2018-11-30 14:20:57
Local clock offset: -0.051 ms
Remote clock offset: -1.405 ms


# Below is generated by plot.py at 2018-11-30 17:50:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.63 Mbit/s
95th percentile per-packet one-way delay: 65.431 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 6.63 Mbit/s
95th percentile per-packet one-way delay: 65.431 ms
Loss rate: 0.26%
```

Run 1: Report of Sprout — Data Link

Flow 1 ingress (mean 6.63 Mbit/s) — Flow 1 egress (mean 6.63 Mbit/s)

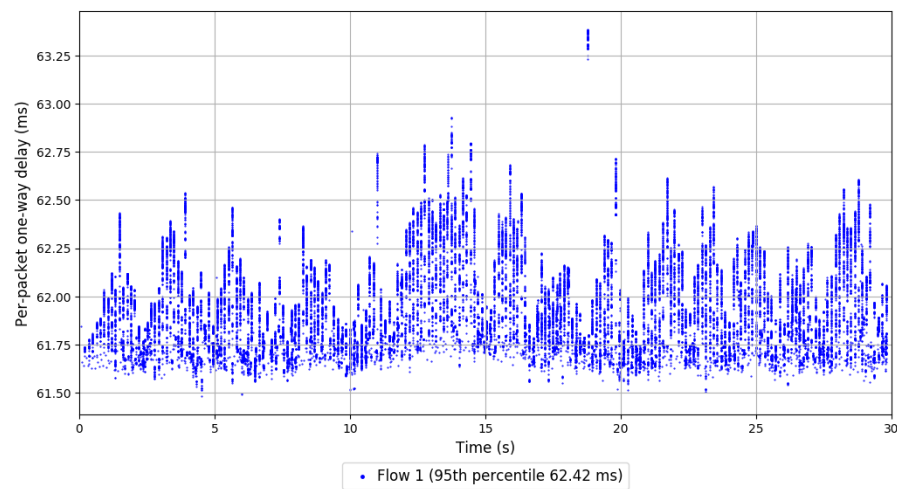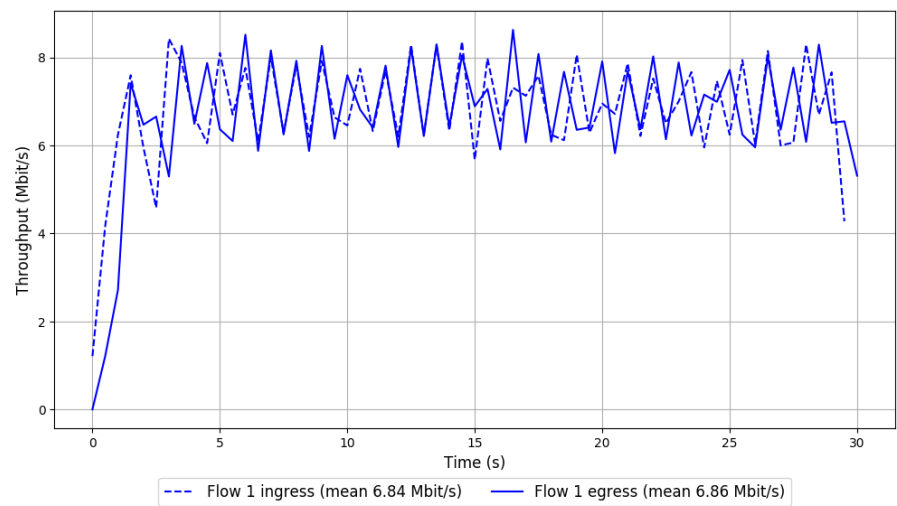• Flow 1 (95th percentile 65.43 ms)

```
Run 2: Statistics of Sprout

Start at: 2018-11-30 14:48:31
End at: 2018-11-30 14:49:01
Local clock offset: -0.045 ms
Remote clock offset: 1.162 ms


# Below is generated by plot.py at 2018-11-30 17:50:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.86 Mbit/s
95th percentile per-packet one-way delay: 62.417 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 6.86 Mbit/s
95th percentile per-packet one-way delay: 62.417 ms
Loss rate: 0.06%
```

Run 2: Report of Sprout — Data Link

Flow 1 ingress (mean 6.84 Mbit/s) ——— Flow 1 egress (mean 6.86 Mbit/s)

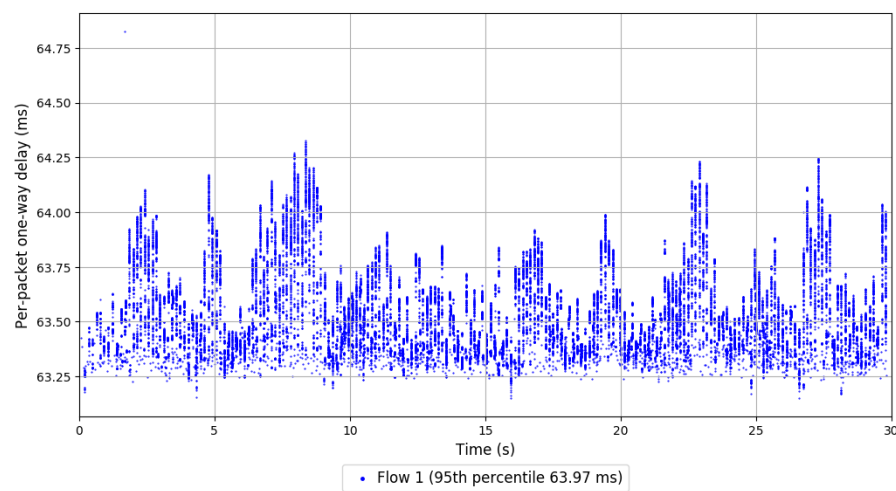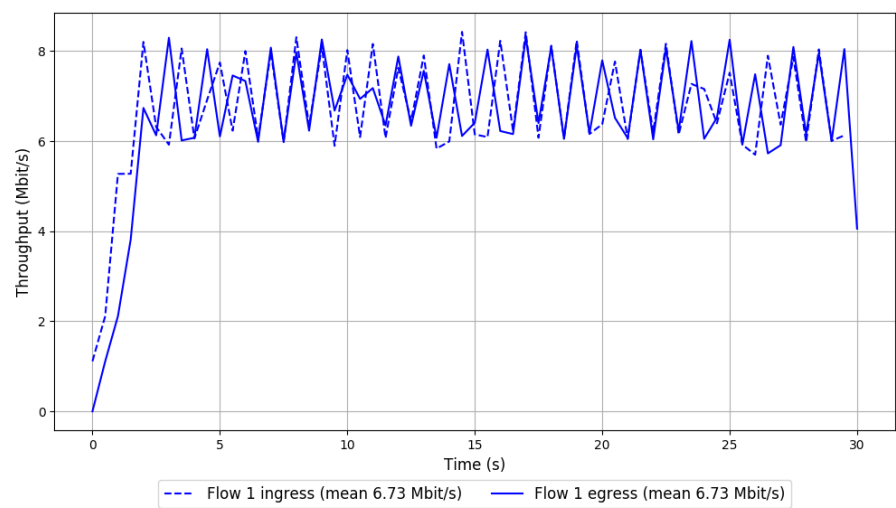• Flow 1 (95th percentile 62.42 ms)

```
Run 3: Statistics of Sprout

Start at: 2018-11-30 15:16:29
End at: 2018-11-30 15:16:59
Local clock offset: -0.096 ms
Remote clock offset: -0.135 ms


# Below is generated by plot.py at 2018-11-30 17:50:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.73 Mbit/s
95th percentile per-packet one-way delay: 63.966 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 6.73 Mbit/s
95th percentile per-packet one-way delay: 63.966 ms
Loss rate: 0.51%
```

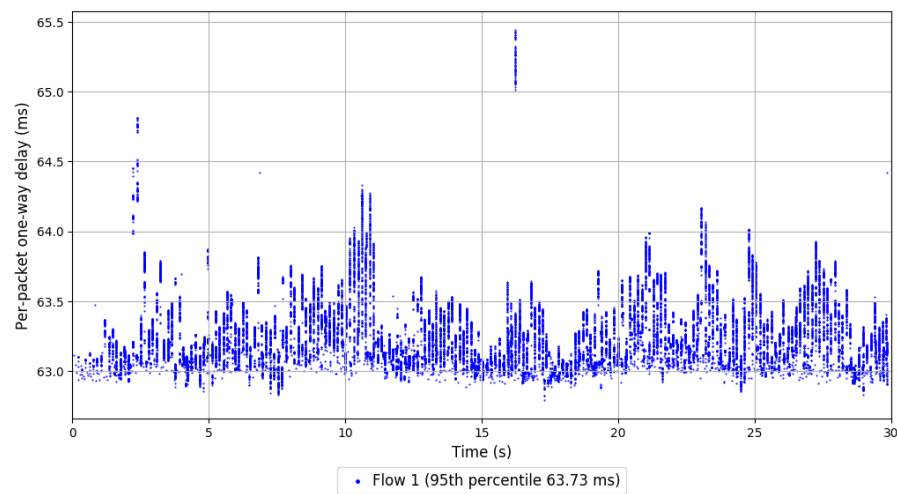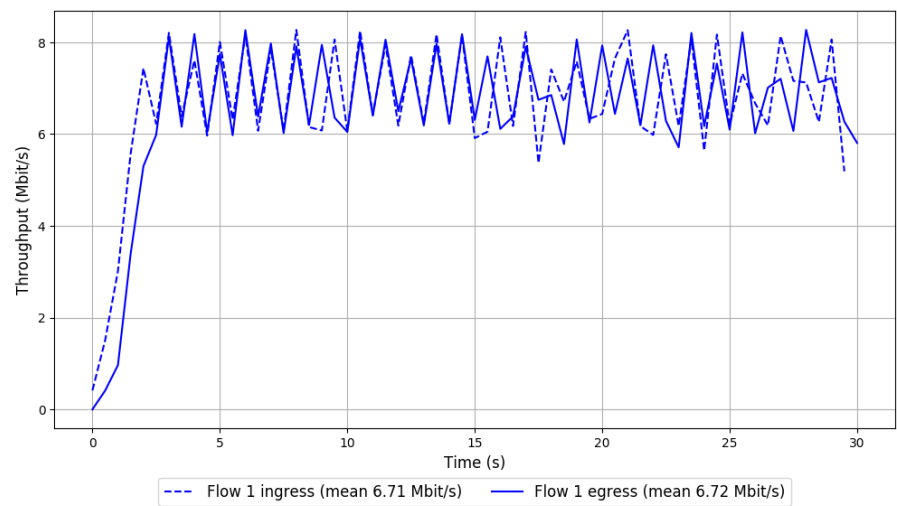Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2018-11-30 15:44:25
End at: 2018-11-30 15:44:55
Local clock offset: -0.097 ms
Remote clock offset: -0.018 ms


# Below is generated by plot.py at 2018-11-30 17:50:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.72 Mbit/s
95th percentile per-packet one-way delay: 63.730 ms
Loss rate: 0.29%
-- Flow 1:
Average throughput: 6.72 Mbit/s
95th percentile per-packet one-way delay: 63.730 ms
Loss rate: 0.29%
```

Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2018-11-30 16:12:07
End at: 2018-11-30 16:12:37
Local clock offset: -0.07 ms
Remote clock offset: 0.661 ms


# Below is generated by plot.py at 2018-11-30 17:50:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.84 Mbit/s
95th percentile per-packet one-way delay: 63.173 ms
Loss rate: 0.50%
-- Flow 1:
Average throughput: 6.84 Mbit/s
95th percentile per-packet one-way delay: 63.173 ms
Loss rate: 0.50%
```
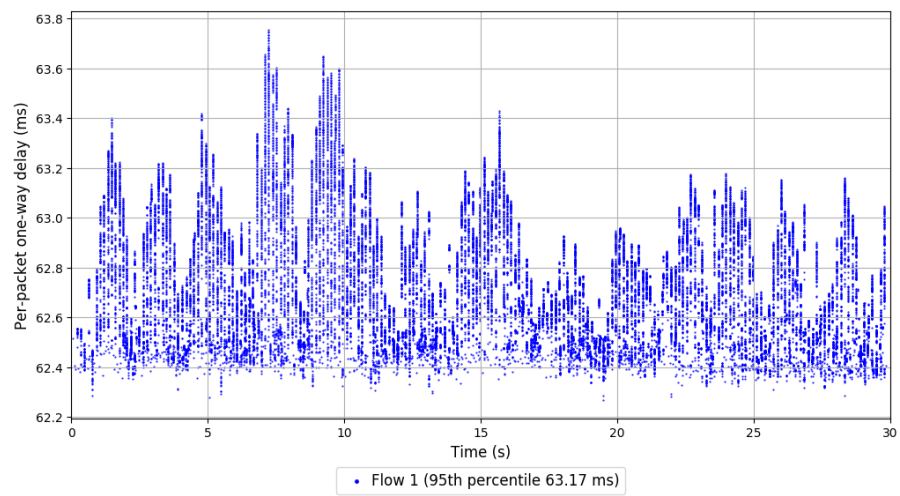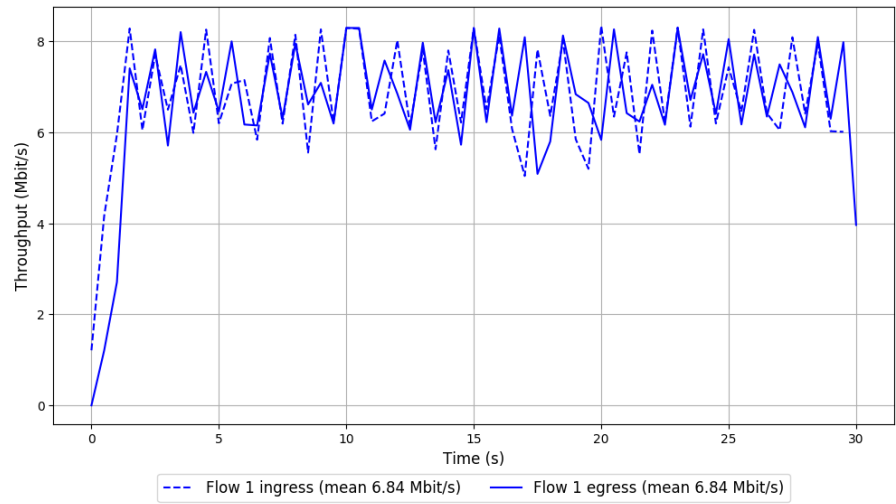
Run 5: Report of Sprout — Data Link

Flow 1 ingress (mean 6.84 Mbit/s) --- Flow 1 egress (mean 6.84 Mbit/s)
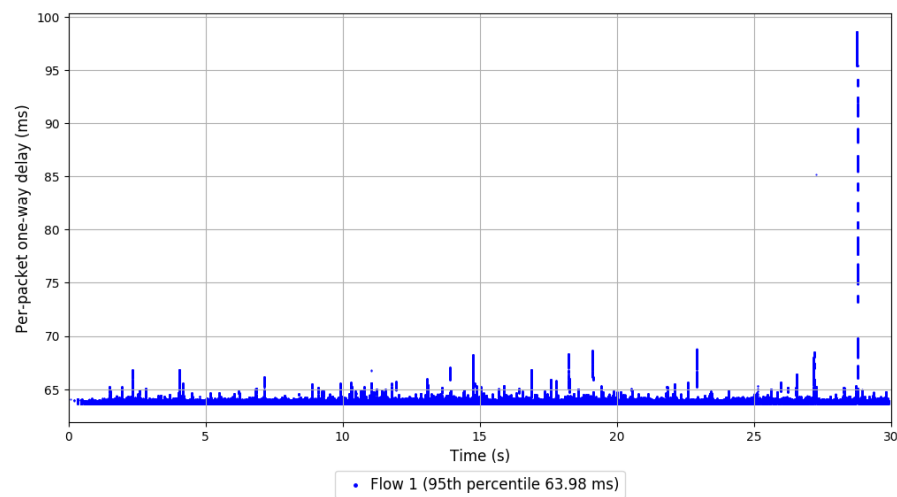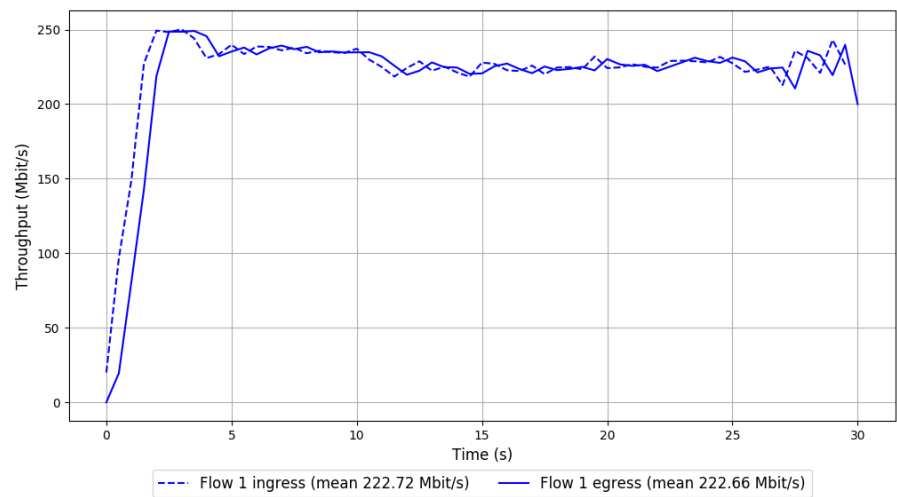

Flow 1 (95th percentile 63.17 ms)

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

Start at: 2018-11-30 14:05:35
End at: 2018-11-30 14:06:06
Local clock offset: -0.087 ms
Remote clock offset: -0.754 ms


# Below is generated by plot.py at 2018-11-30 17:51:36
# Datalink statistics
-- Total of 1 flow:
Average throughput: 222.66 Mbit/s
95th percentile per-packet one-way delay: 63.980 ms
Loss rate: 0.45%
-- Flow 1:
Average throughput: 222.66 Mbit/s
95th percentile per-packet one-way delay: 63.980 ms
Loss rate: 0.45%
```
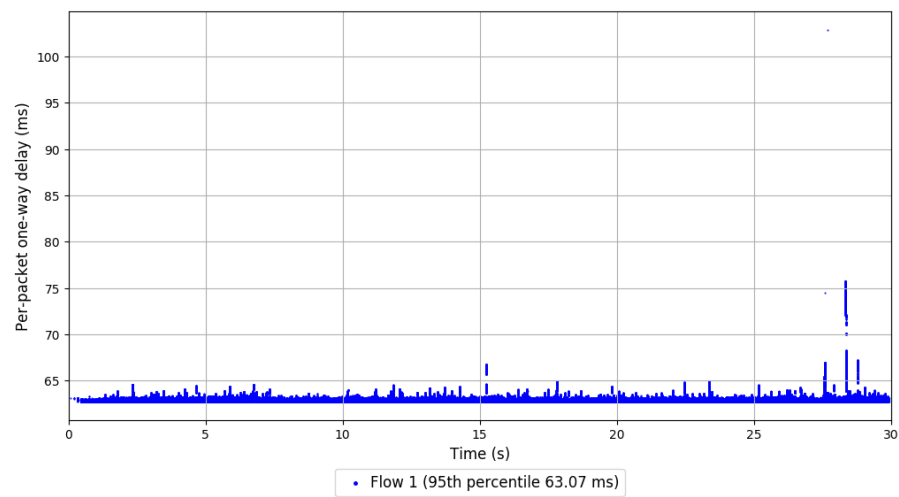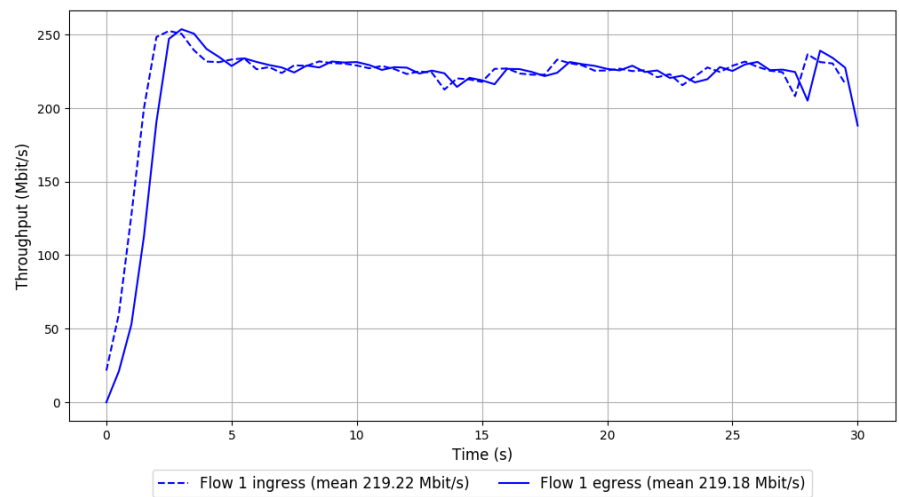
Run 1: Report of TaoVA-100x — Data Link

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

Start at: 2018-11-30 14:33:32
End at: 2018-11-30 14:34:02
Local clock offset: -0.059 ms
Remote clock offset: -0.127 ms


# Below is generated by plot.py at 2018-11-30 17:51:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 219.18 Mbit/s
95th percentile per-packet one-way delay: 63.067 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 219.18 Mbit/s
95th percentile per-packet one-way delay: 63.067 ms
Loss rate: 0.44%
```

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

Flow 1 ingress (mean 219.22 Mbit/s)   Flow 1 egress (mean 219.18 Mbit/s)
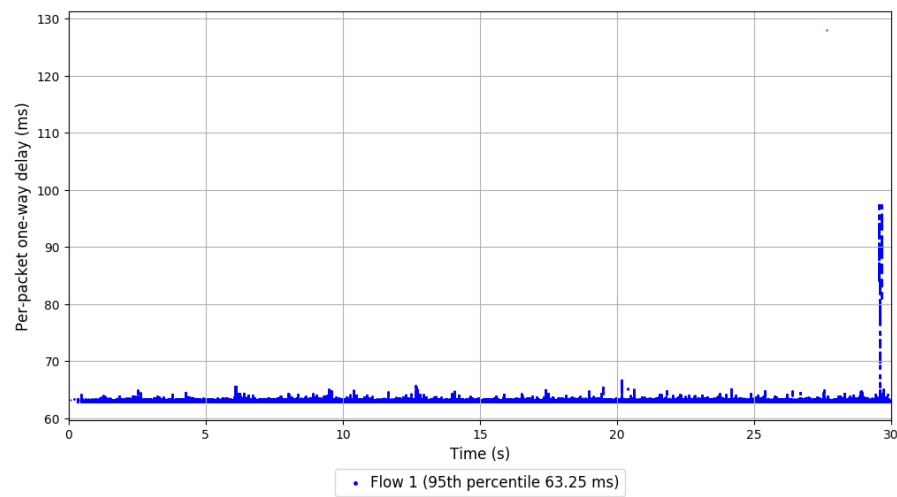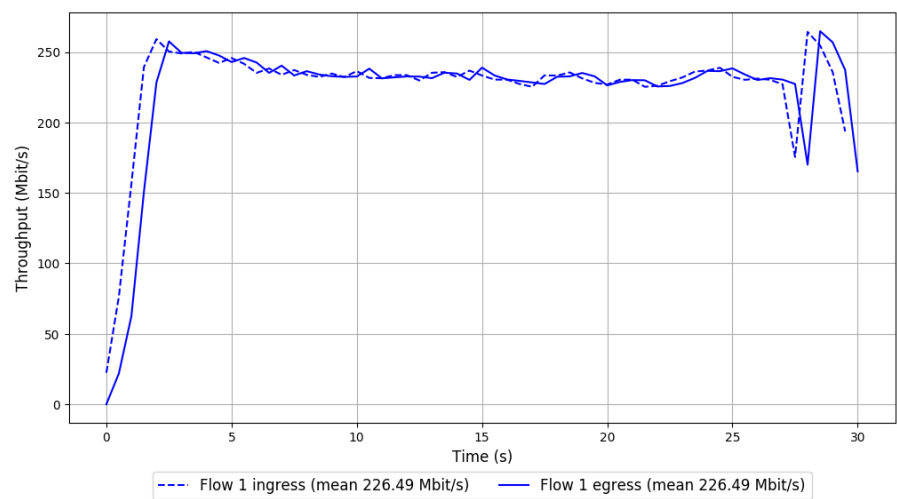

Flow 1 (95th percentile 63.07 ms)

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

Start at: 2018-11-30 15:01:30
End at: 2018-11-30 15:02:00
Local clock offset: -0.045 ms
Remote clock offset: -0.026 ms


# Below is generated by plot.py at 2018-11-30 17:51:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 226.49 Mbit/s
95th percentile per-packet one-way delay: 63.247 ms
Loss rate: 0.43%
-- Flow 1:
Average throughput: 226.49 Mbit/s
95th percentile per-packet one-way delay: 63.247 ms
Loss rate: 0.43%
```

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

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

Start at: 2018-11-30 15:29:26
End at: 2018-11-30 15:29:56
Local clock offset: -0.08 ms
Remote clock offset: 0.107 ms


# Below is generated by plot.py at 2018-11-30 17:52:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 229.15 Mbit/s
95th percentile per-packet one-way delay: 63.186 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 229.15 Mbit/s
95th percentile per-packet one-way delay: 63.186 ms
Loss rate: 0.47%
```
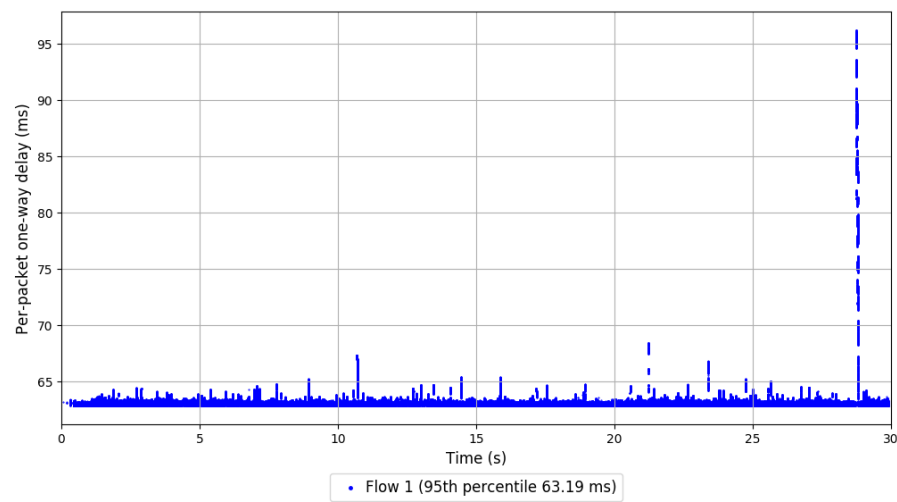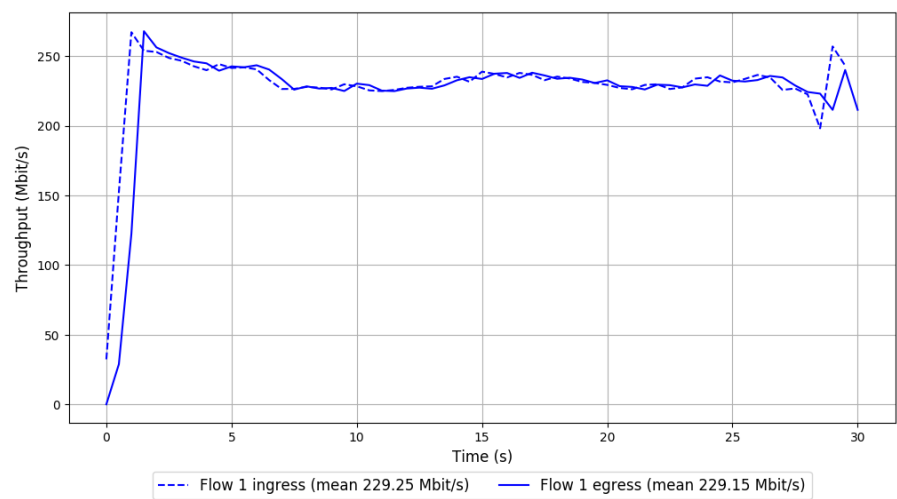
Run 4: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 229.25 Mbit/s)   Flow 1 egress (mean 229.15 Mbit/s)

Flow 1 (95th percentile 63.19 ms)

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

Start at: 2018-11-30 15:57:13
End at: 2018-11-30 15:57:43
Local clock offset: -0.06 ms
Remote clock offset: -0.185 ms


# Below is generated by plot.py at 2018-11-30 17:52:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 220.30 Mbit/s
95th percentile per-packet one-way delay: 63.408 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 220.30 Mbit/s
95th percentile per-packet one-way delay: 63.408 ms
Loss rate: 0.44%
```
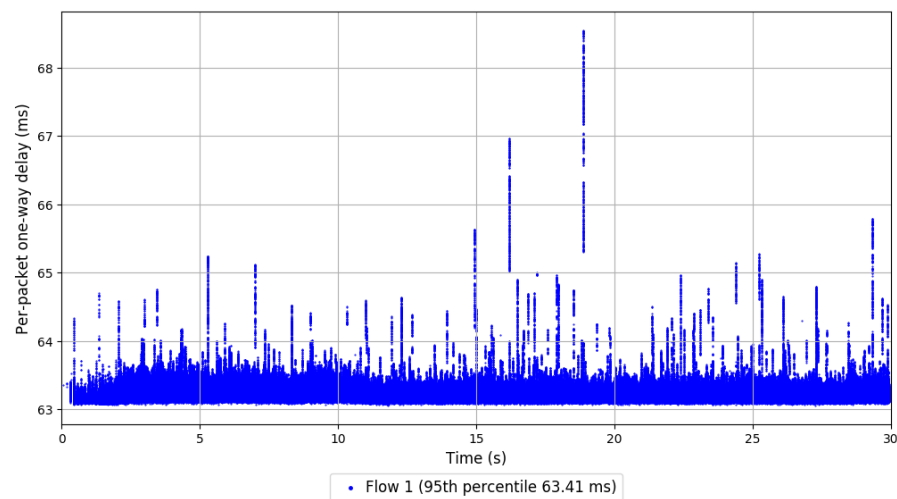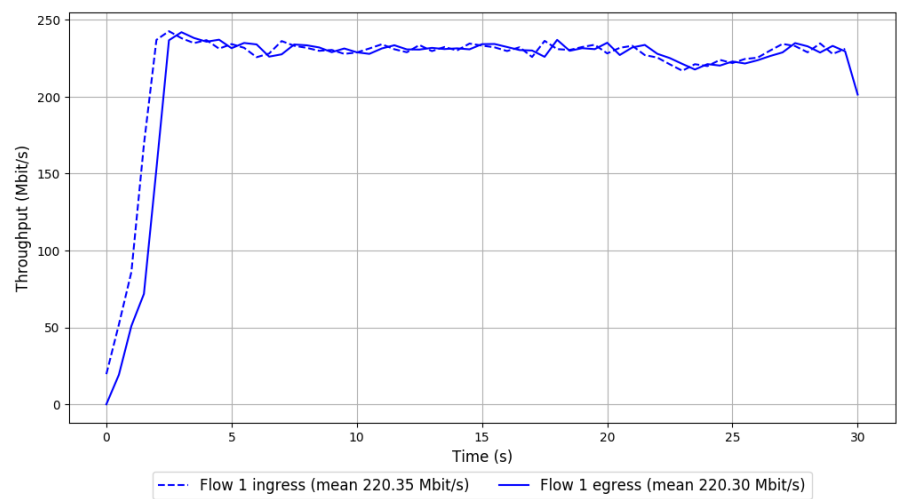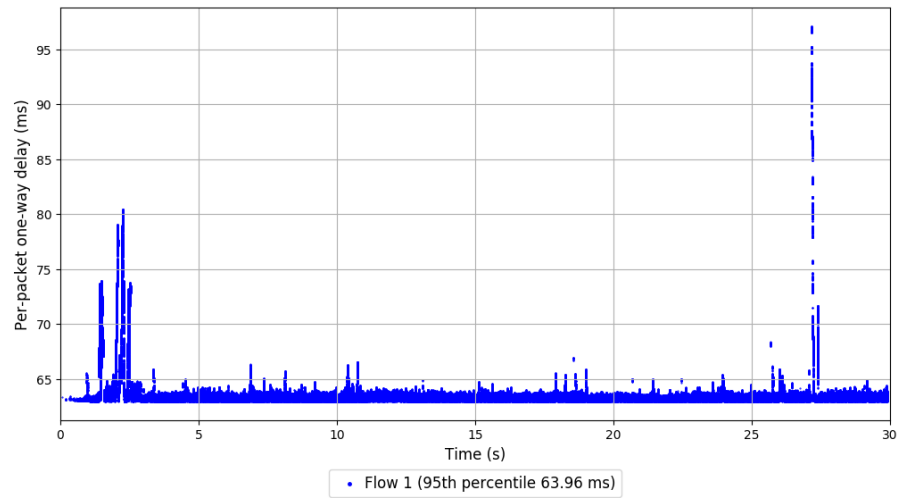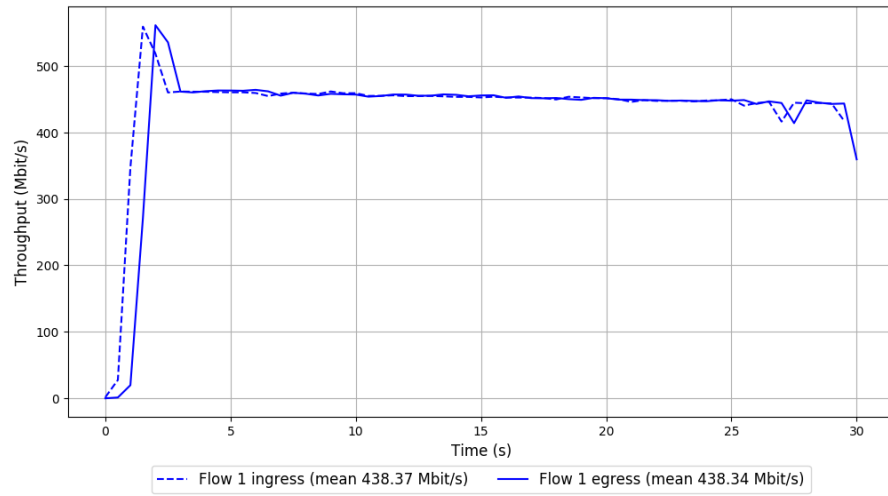
Run 5: Report of TaoVA-100x — Data Link

```
Run 1: Statistics of TCP Vegas

Start at: 2018-11-30 14:02:19
End at: 2018-11-30 14:02:49
Local clock offset: -0.047 ms
Remote clock offset: -0.269 ms


# Below is generated by plot.py at 2018-11-30 17:53:18
# Datalink statistics
-- Total of 1 flow:
Average throughput: 438.34 Mbit/s
95th percentile per-packet one-way delay: 63.959 ms
Loss rate: 0.43%
-- Flow 1:
Average throughput: 438.34 Mbit/s
95th percentile per-packet one-way delay: 63.959 ms
Loss rate: 0.43%
```
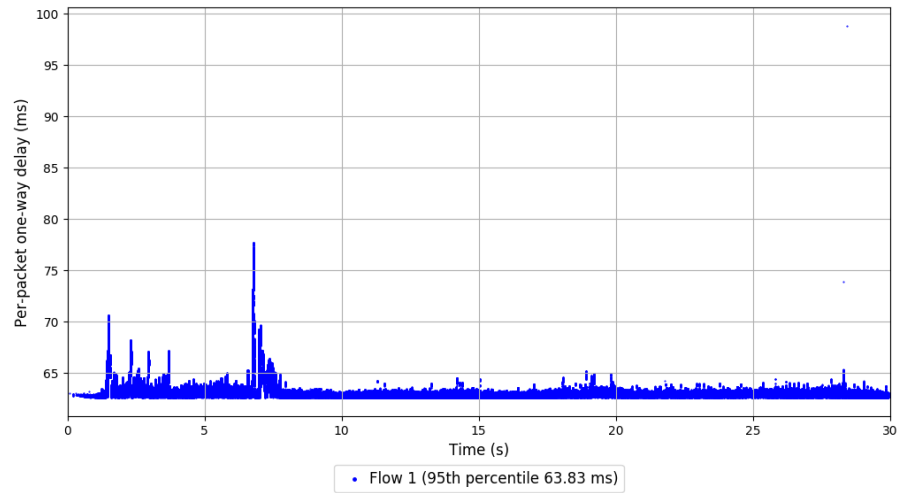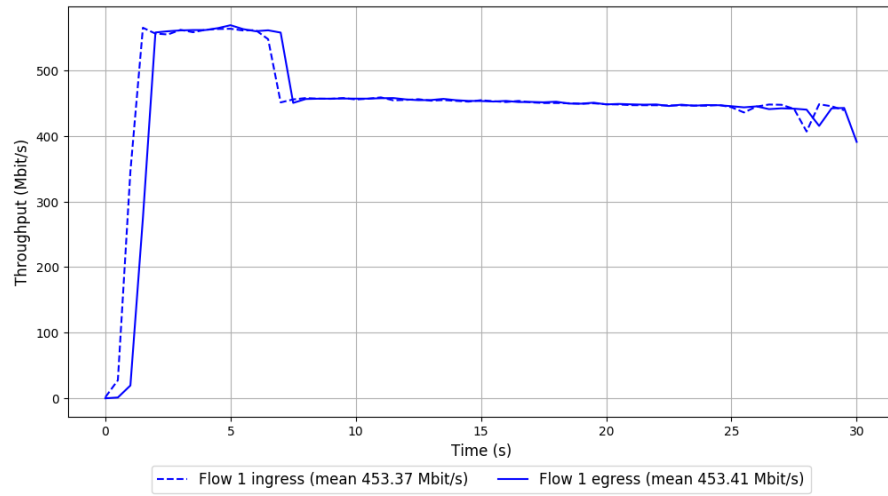
Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2018-11-30 14:30:15
End at: 2018-11-30 14:30:45
Local clock offset: -0.083 ms
Remote clock offset: 0.025 ms


# Below is generated by plot.py at 2018-11-30 17:54:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 453.41 Mbit/s
95th percentile per-packet one-way delay: 63.828 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 453.41 Mbit/s
95th percentile per-packet one-way delay: 63.828 ms
Loss rate: 0.41%
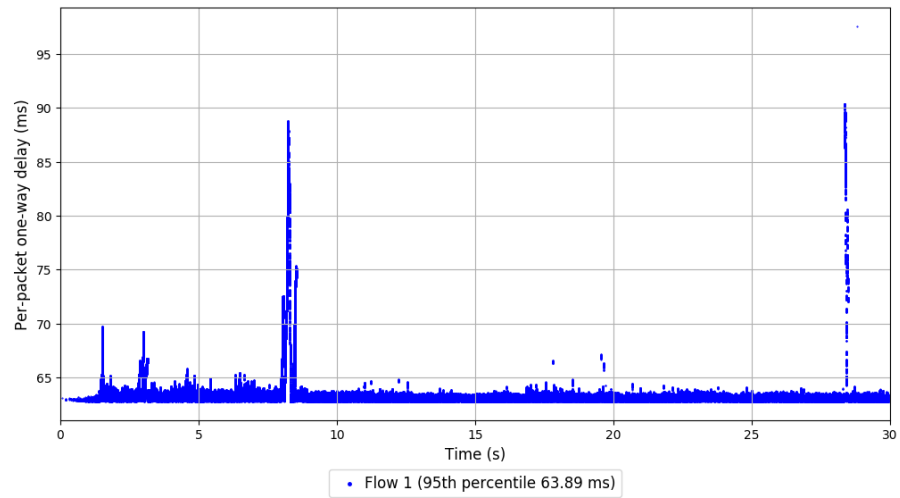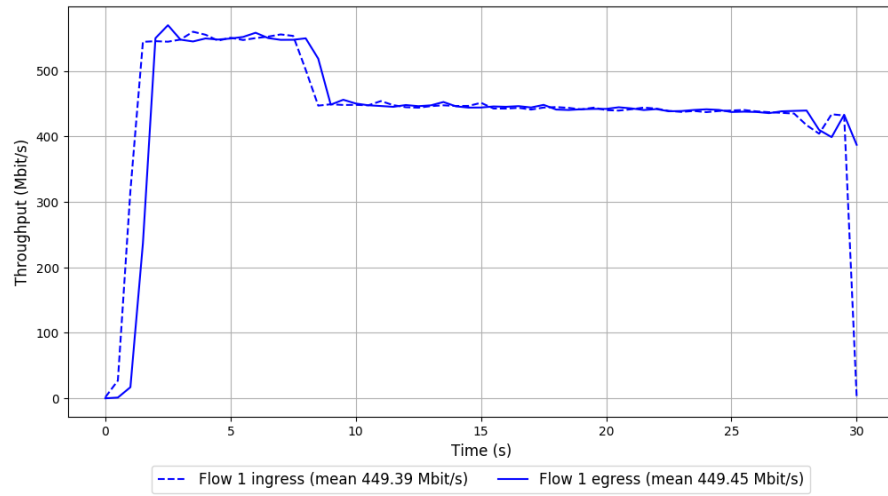```

Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2018-11-30 14:58:13
End at: 2018-11-30 14:58:43
Local clock offset: -0.051 ms
Remote clock offset: 0.045 ms


# Below is generated by plot.py at 2018-11-30 17:58:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 449.45 Mbit/s
95th percentile per-packet one-way delay: 63.889 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 449.45 Mbit/s
95th percentile per-packet one-way delay: 63.889 ms
Loss rate: 0.41%
```

Run 3: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 449.39 Mbit/s)   Flow 1 egress (mean 449.45 Mbit/s)
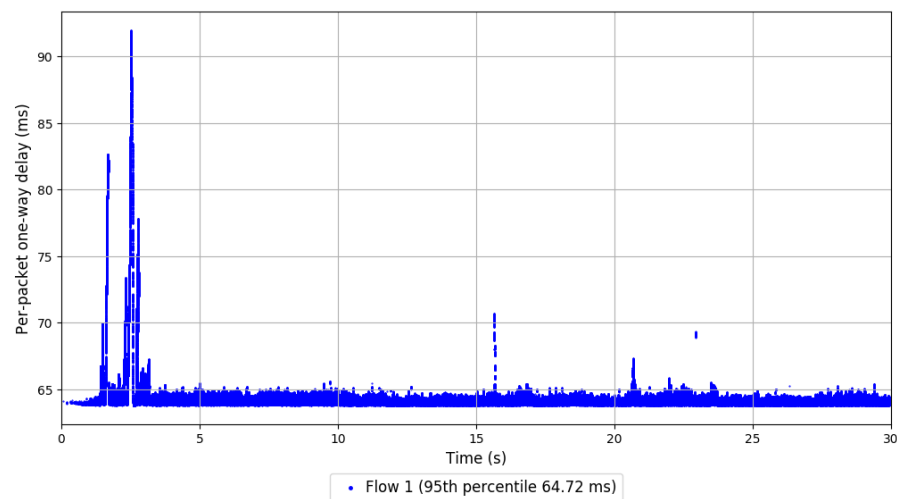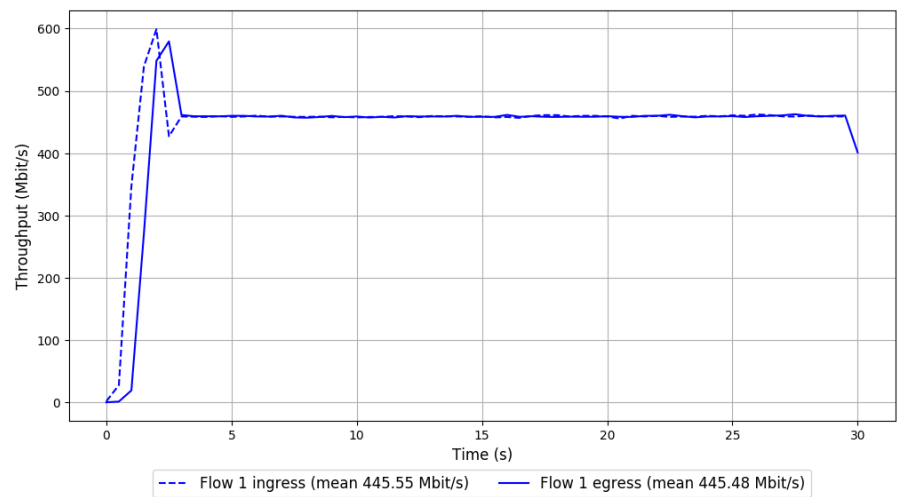

Flow 1 (95th percentile 63.89 ms)

```
Run 4: Statistics of TCP Vegas

Start at: 2018-11-30 15:26:09
End at: 2018-11-30 15:26:40
Local clock offset: -0.071 ms
Remote clock offset: -0.774 ms


# Below is generated by plot.py at 2018-11-30 17:59:36
# Datalink statistics
-- Total of 1 flow:
Average throughput: 445.48 Mbit/s
95th percentile per-packet one-way delay: 64.719 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 445.48 Mbit/s
95th percentile per-packet one-way delay: 64.719 ms
Loss rate: 0.44%
```
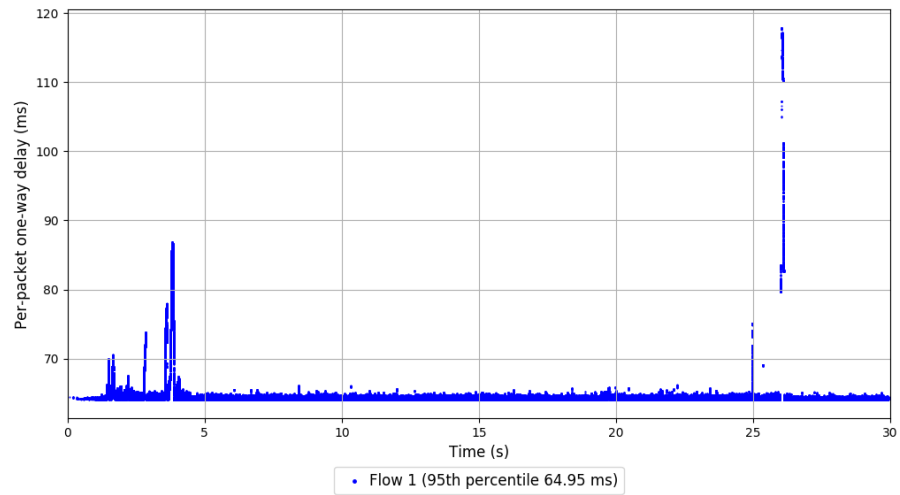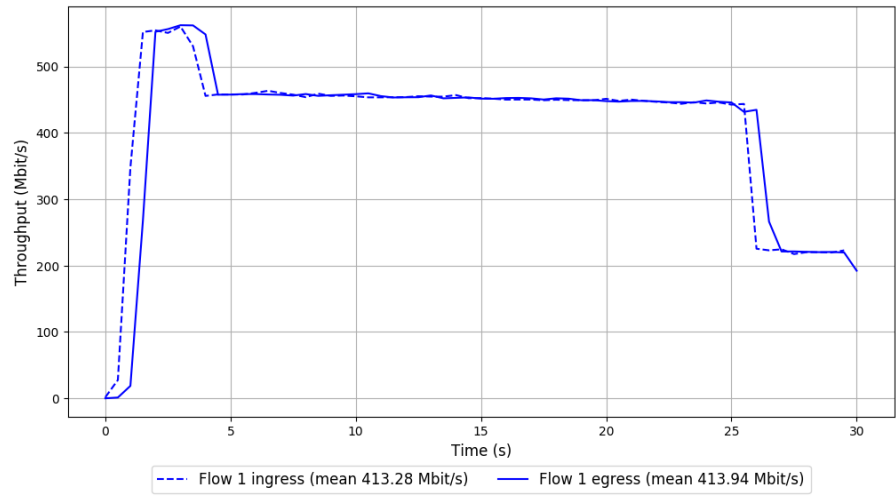
Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2018-11-30 15:53:59
End at: 2018-11-30 15:54:29
Local clock offset: -0.079 ms
Remote clock offset: -0.922 ms


# Below is generated by plot.py at 2018-11-30 17:59:36
# Datalink statistics
-- Total of 1 flow:
Average throughput: 413.94 Mbit/s
95th percentile per-packet one-way delay: 64.953 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 413.94 Mbit/s
95th percentile per-packet one-way delay: 64.953 ms
Loss rate: 0.26%
```

Run 5: Report of TCP Vegas — Data Link

```
Run 1: Statistics of Verus

Start at: 2018-11-30 14:21:36
End at: 2018-11-30 14:22:06
Local clock offset: -0.053 ms
Remote clock offset: 0.142 ms


# Below is generated by plot.py at 2018-11-30 17:59:36
# Datalink statistics
-- Total of 1 flow:
Average throughput: 207.28 Mbit/s
95th percentile per-packet one-way delay: 115.281 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 207.28 Mbit/s
95th percentile per-packet one-way delay: 115.281 ms
Loss rate: 0.51%
```
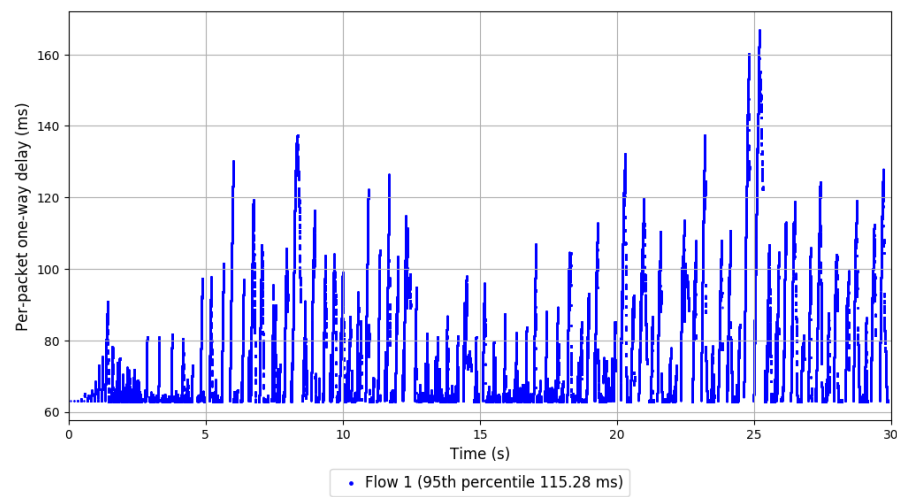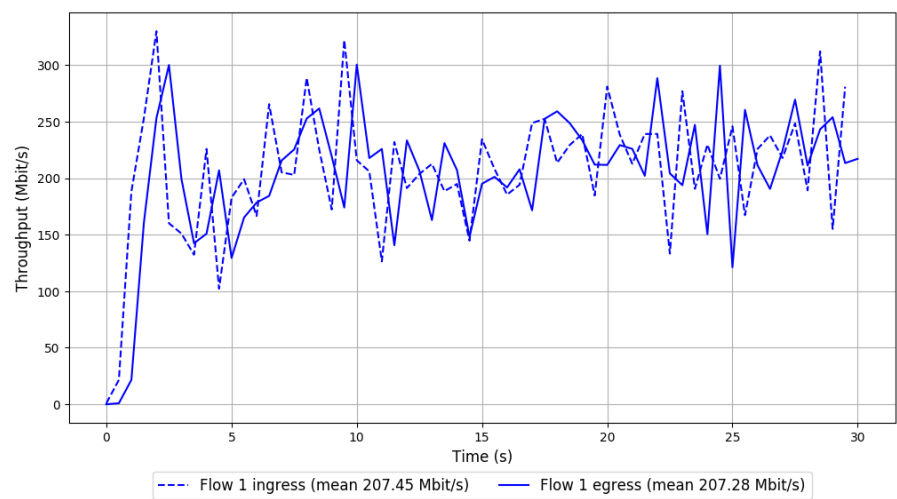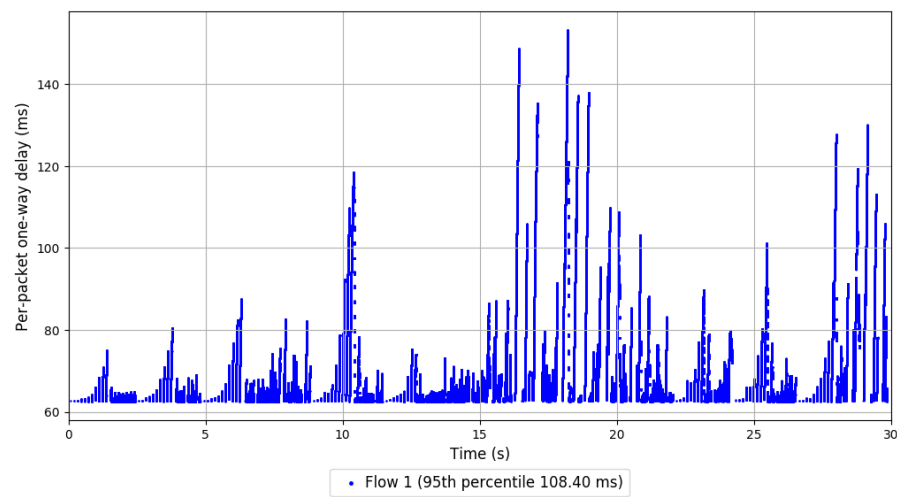
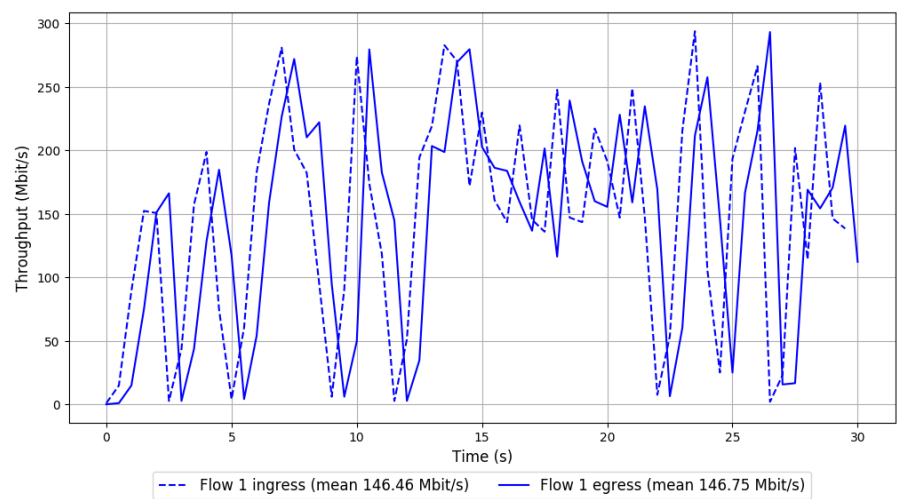## Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2018-11-30 14:49:40
End at: 2018-11-30 14:50:10
Local clock offset: -0.066 ms
Remote clock offset: 0.591 ms


# Below is generated by plot.py at 2018-11-30 17:59:36
# Datalink statistics
-- Total of 1 flow:
Average throughput: 146.75 Mbit/s
95th percentile per-packet one-way delay: 108.397 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 146.75 Mbit/s
95th percentile per-packet one-way delay: 108.397 ms
Loss rate: 0.41%
```
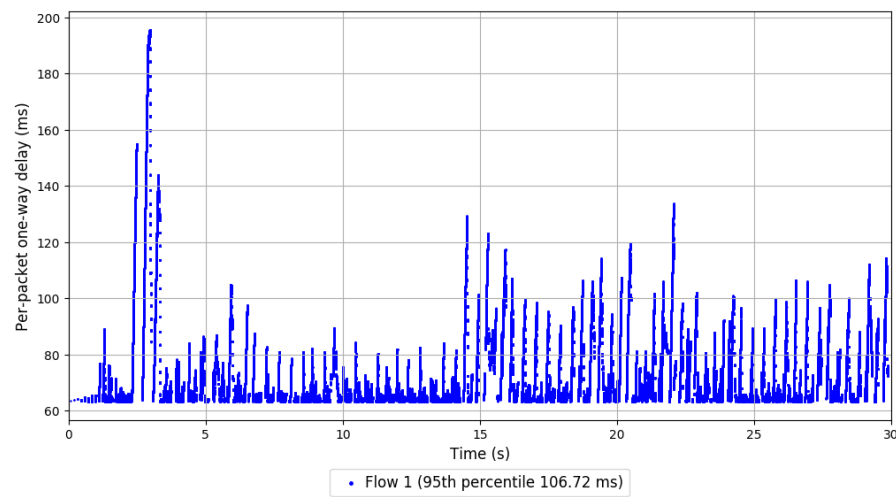
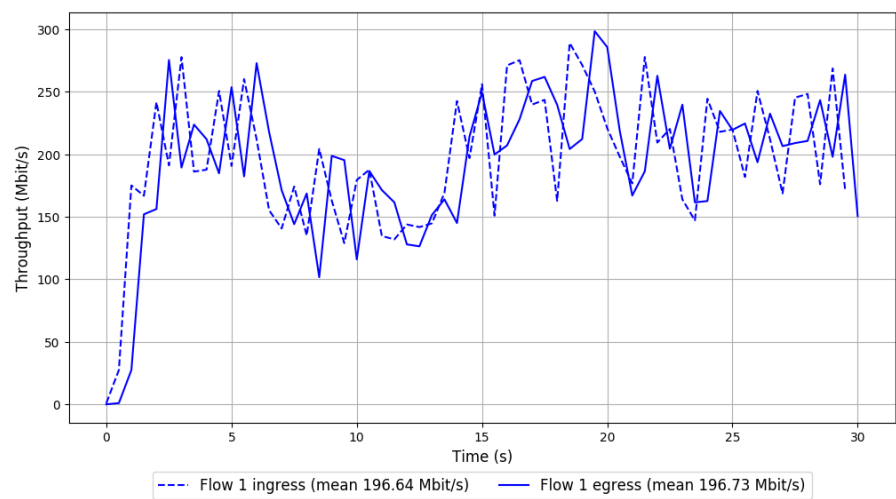## Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-11-30 15:17:38
End at: 2018-11-30 15:18:08
Local clock offset: -0.079 ms
Remote clock offset: 0.036 ms


# Below is generated by plot.py at 2018-11-30 17:59:36
# Datalink statistics
-- Total of 1 flow:
Average throughput: 196.73 Mbit/s
95th percentile per-packet one-way delay: 106.725 ms
Loss rate: 0.37%
-- Flow 1:
Average throughput: 196.73 Mbit/s
95th percentile per-packet one-way delay: 106.725 ms
Loss rate: 0.37%
```
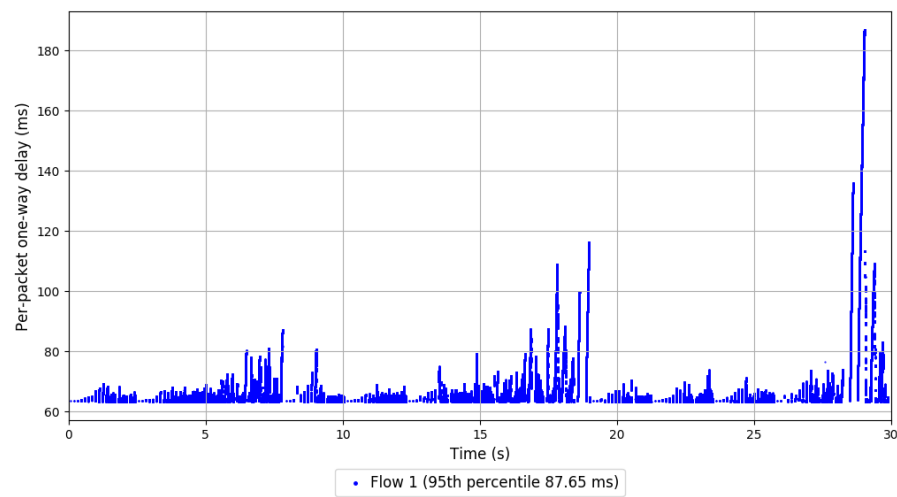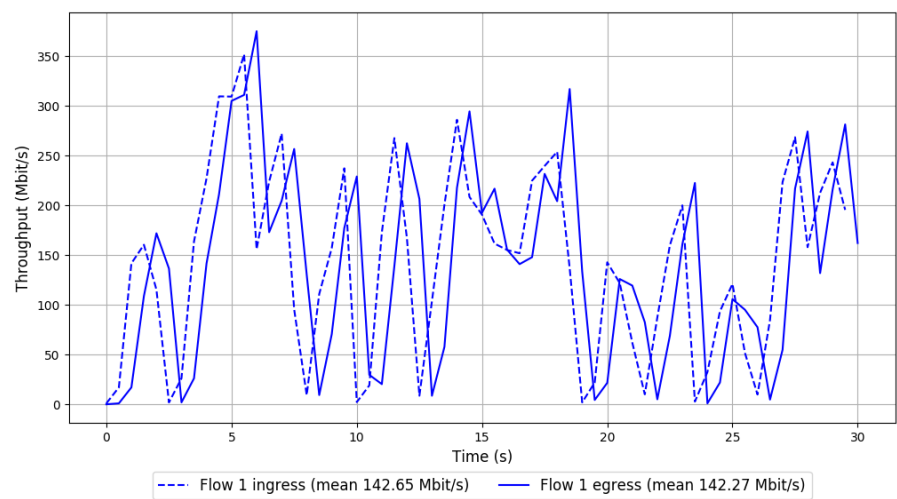
Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2018-11-30 15:45:34
End at: 2018-11-30 15:46:04
Local clock offset: -0.061 ms
Remote clock offset: -0.063 ms

# Below is generated by plot.py at 2018-11-30 17:59:36
# Datalink statistics
-- Total of 1 flow:
Average throughput: 142.27 Mbit/s
95th percentile per-packet one-way delay: 87.648 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 142.27 Mbit/s
95th percentile per-packet one-way delay: 87.648 ms
Loss rate: 0.63%
```
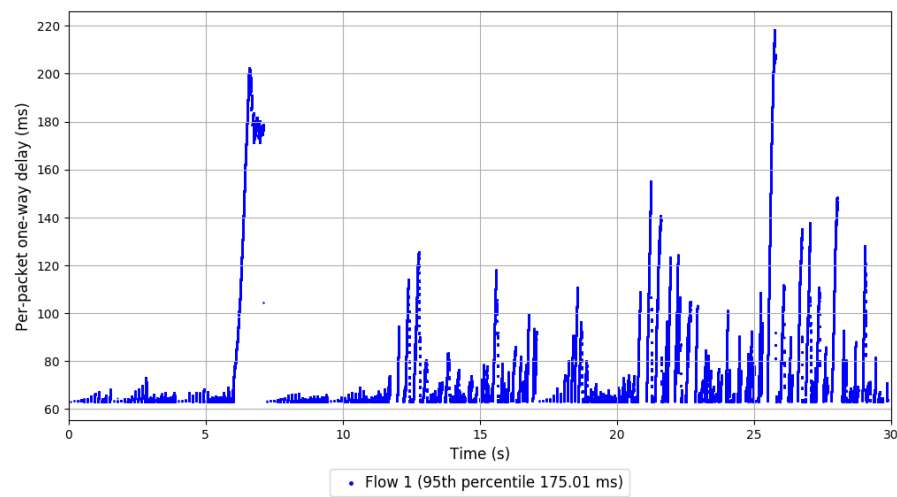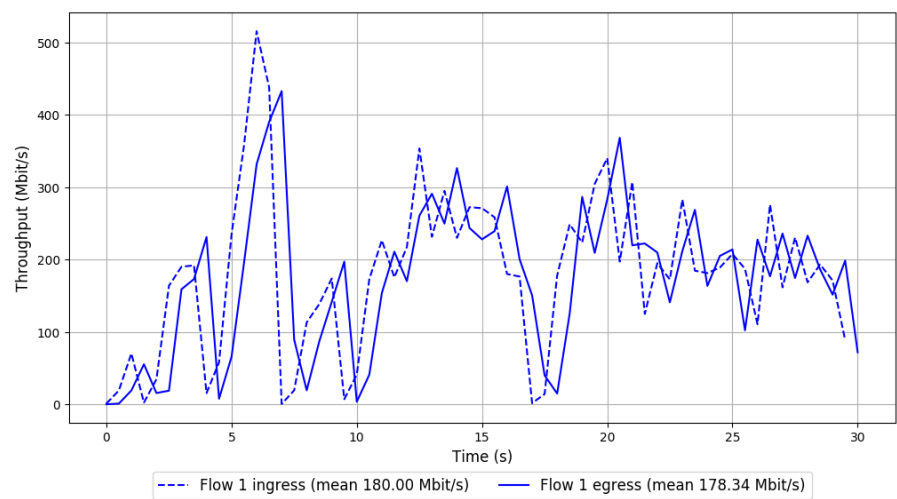
Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2018-11-30 16:13:16
End at: 2018-11-30 16:13:46
Local clock offset: -0.043 ms
Remote clock offset: -0.243 ms


# Below is generated by plot.py at 2018-11-30 18:00:45
# Datalink statistics
-- Total of 1 flow:
Average throughput: 178.34 Mbit/s
95th percentile per-packet one-way delay: 175.010 ms
Loss rate: 1.35%
-- Flow 1:
Average throughput: 178.34 Mbit/s
95th percentile per-packet one-way delay: 175.010 ms
Loss rate: 1.35%
```

Run 5: Report of Verus — Data Link

```
Run 1: Statistics of PCC-Vivace

Start at: 2018-11-30 14:08:42
End at: 2018-11-30 14:09:12
Local clock offset: -0.077 ms
Remote clock offset: 0.097 ms


# Below is generated by plot.py at 2018-11-30 18:03:32
# Datalink statistics
-- Total of 1 flow:
Average throughput: 418.40 Mbit/s
95th percentile per-packet one-way delay: 64.371 ms
Loss rate: 0.50%
-- Flow 1:
Average throughput: 418.40 Mbit/s
95th percentile per-packet one-way delay: 64.371 ms
Loss rate: 0.50%
```
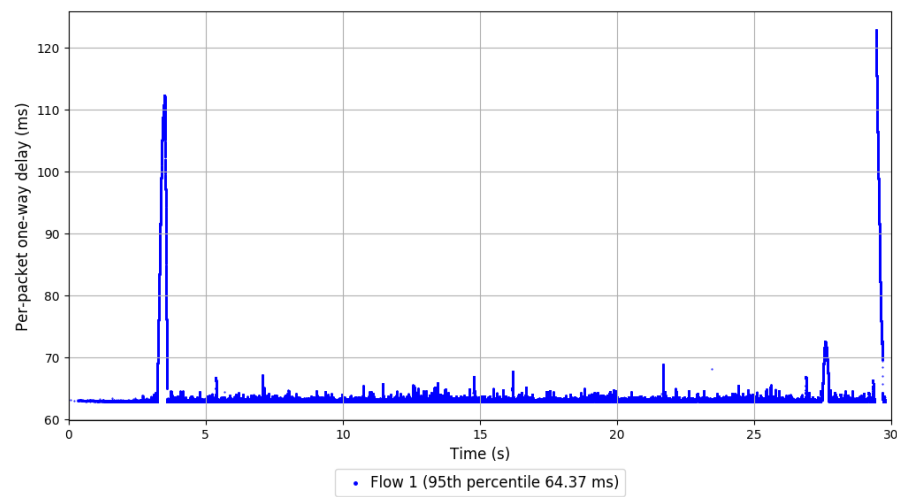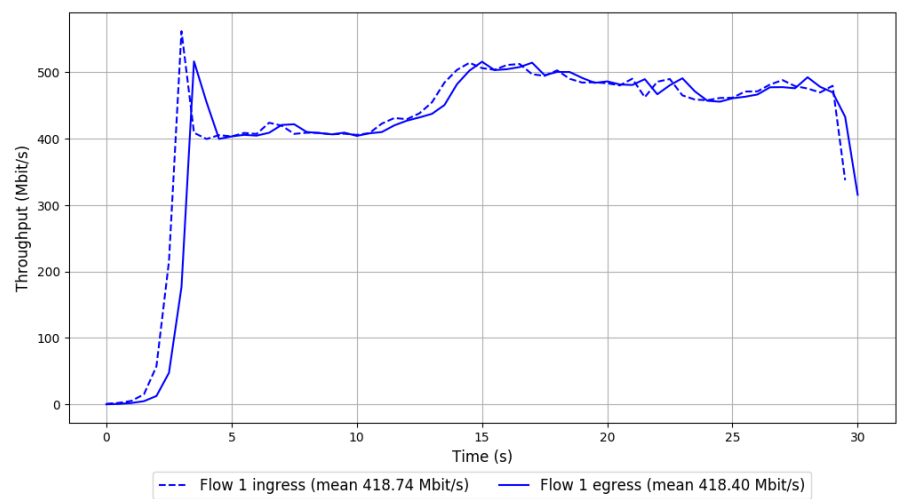
Run 1: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 418.74 Mbit/s) —— Flow 1 egress (mean 418.40 Mbit/s)

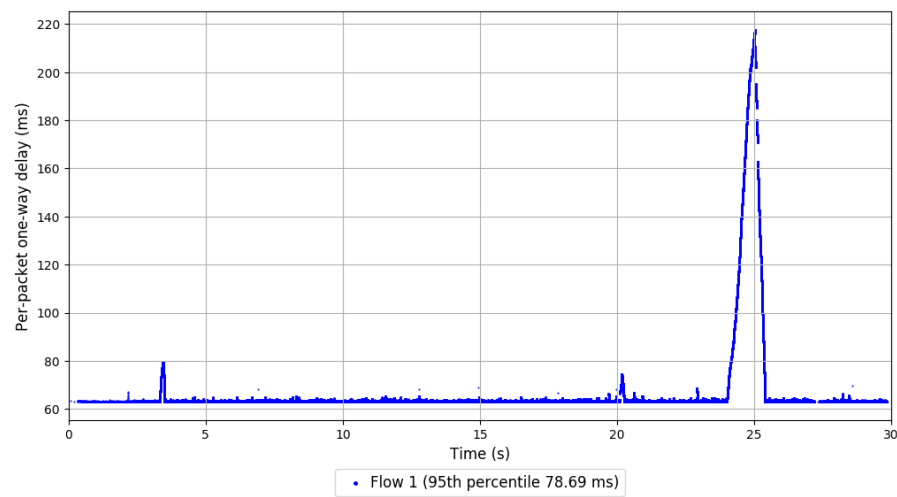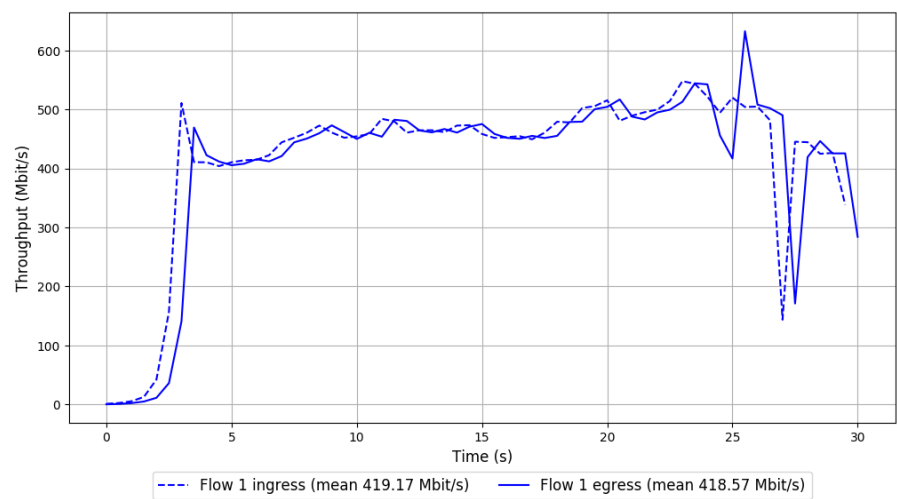• Flow 1 (95th percentile 64.37 ms)

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```
Run 2: Statistics of PCC-Vivace

Start at: 2018-11-30 14:36:36
End at: 2018-11-30 14:37:07
Local clock offset: -0.063 ms
Remote clock offset: -0.084 ms


# Below is generated by plot.py at 2018-11-30 18:03:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 418.57 Mbit/s
95th percentile per-packet one-way delay: 78.693 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 418.57 Mbit/s
95th percentile per-packet one-way delay: 78.693 ms
Loss rate: 0.57%
```

Run 2: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 419.17 Mbit/s)   Flow 1 egress (mean 418.57 Mbit/s)
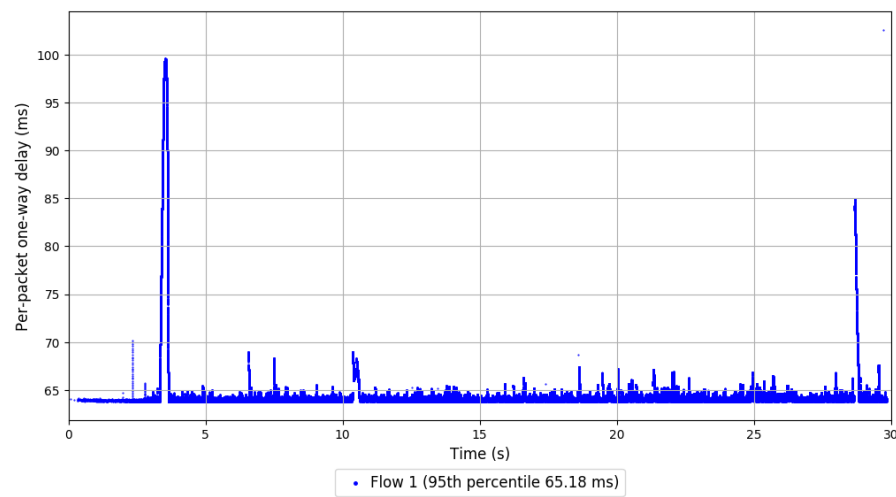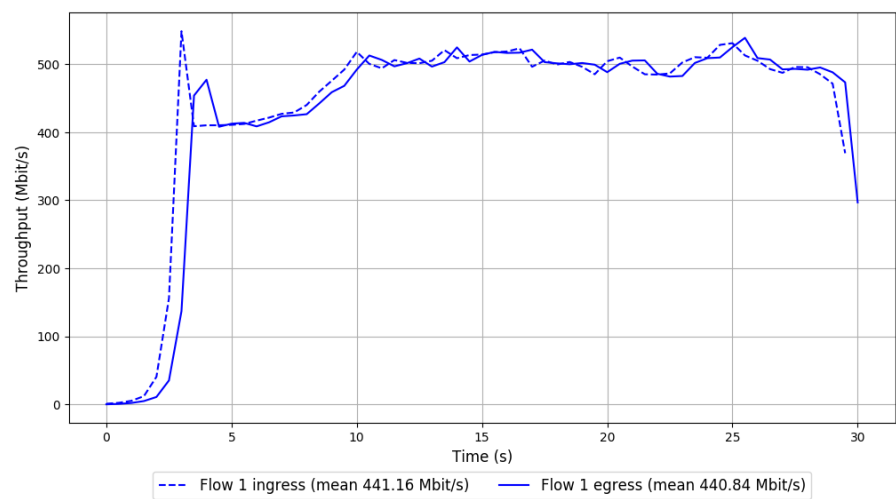

Flow 1 (95th percentile 78.69 ms)

```
Run 3: Statistics of PCC-Vivace

Start at: 2018-11-30 15:04:33
End at: 2018-11-30 15:05:03
Local clock offset: -0.078 ms
Remote clock offset: -0.841 ms


# Below is generated by plot.py at 2018-11-30 18:03:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 440.84 Mbit/s
95th percentile per-packet one-way delay: 65.180 ms
Loss rate: 0.50%
-- Flow 1:
Average throughput: 440.84 Mbit/s
95th percentile per-packet one-way delay: 65.180 ms
Loss rate: 0.50%
```

Run 3: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 441.16 Mbit/s) —— Flow 1 egress (mean 440.84 Mbit/s)

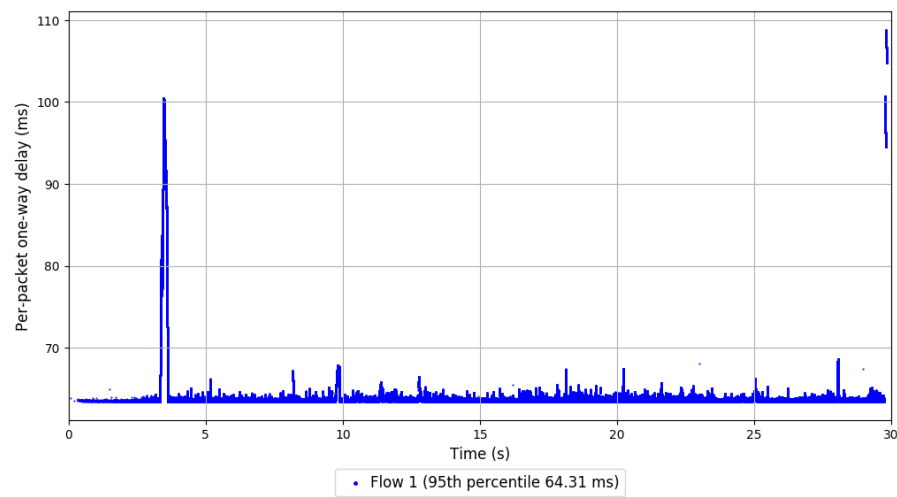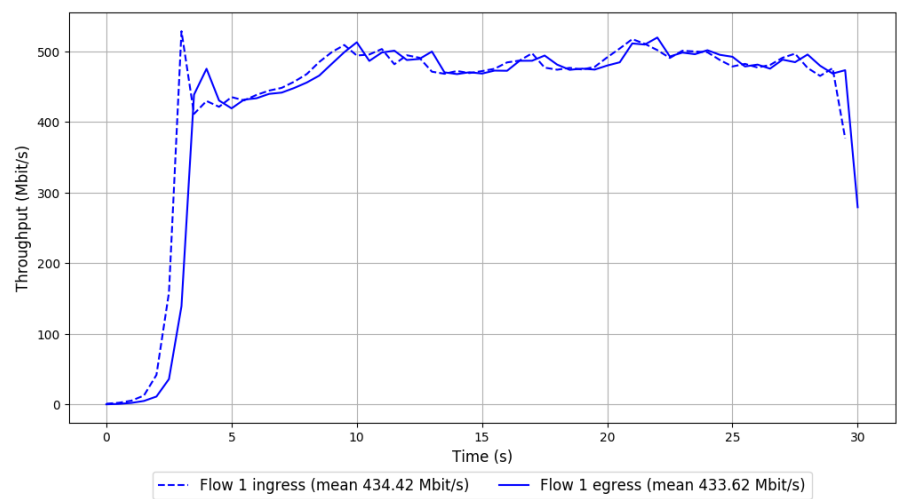

• Flow 1 (95th percentile 65.18 ms)

```
Run 4: Statistics of PCC-Vivace

Start at: 2018-11-30 15:32:31
End at: 2018-11-30 15:33:01
Local clock offset: -0.018 ms
Remote clock offset: -0.237 ms

# Below is generated by plot.py at 2018-11-30 18:03:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 433.62 Mbit/s
95th percentile per-packet one-way delay: 64.309 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 433.62 Mbit/s
95th percentile per-packet one-way delay: 64.309 ms
Loss rate: 0.61%
```

Run 4: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 434.42 Mbit/s) ---- Flow 1 egress (mean 433.62 Mbit/s)
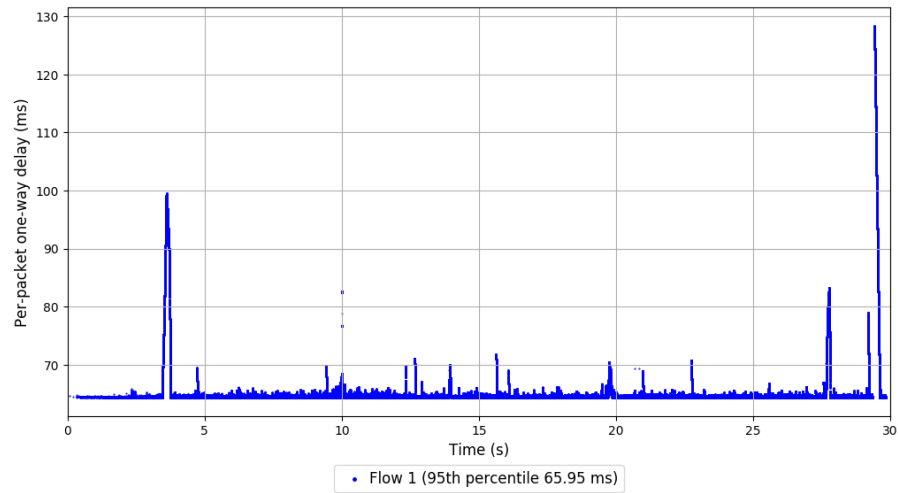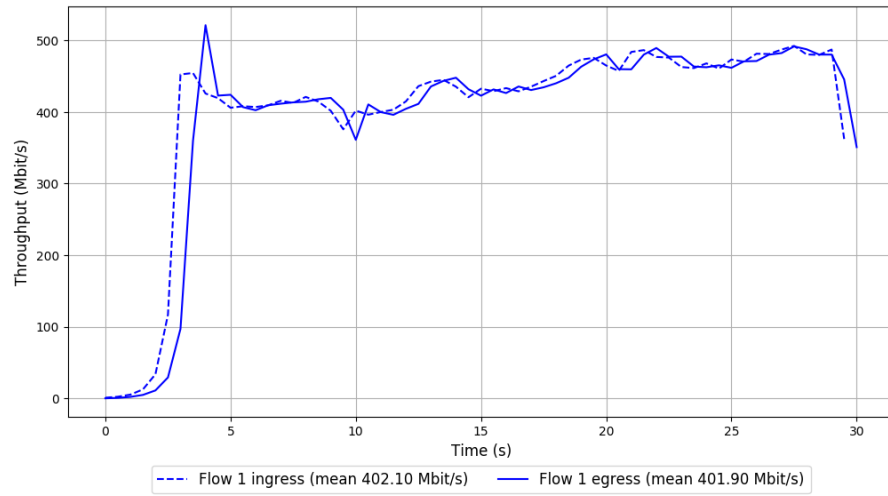

Flow 1 (95th percentile 64.31 ms)

```
Run 5: Statistics of PCC-Vivace

Start at: 2018-11-30 16:00:15
End at: 2018-11-30 16:00:45
Local clock offset: -0.054 ms
Remote clock offset: -1.413 ms


# Below is generated by plot.py at 2018-11-30 18:03:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 401.90 Mbit/s
95th percentile per-packet one-way delay: 65.954 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 401.90 Mbit/s
95th percentile per-packet one-way delay: 65.954 ms
Loss rate: 0.47%
```

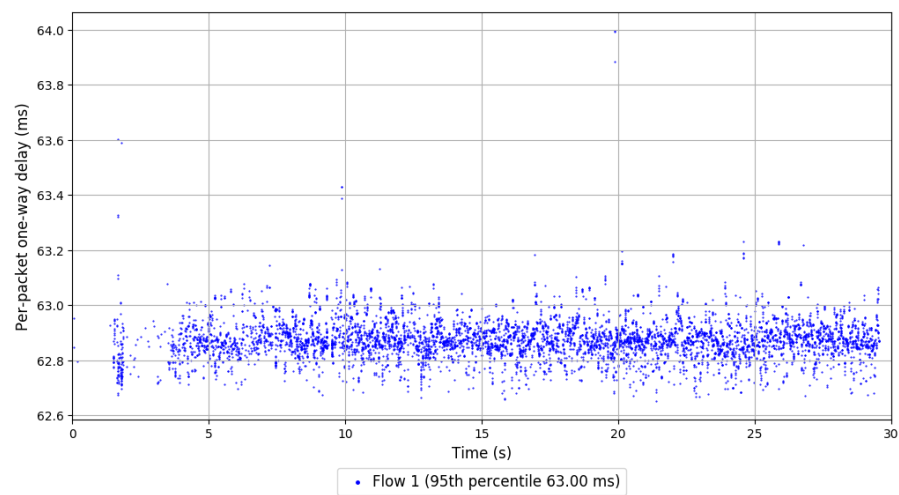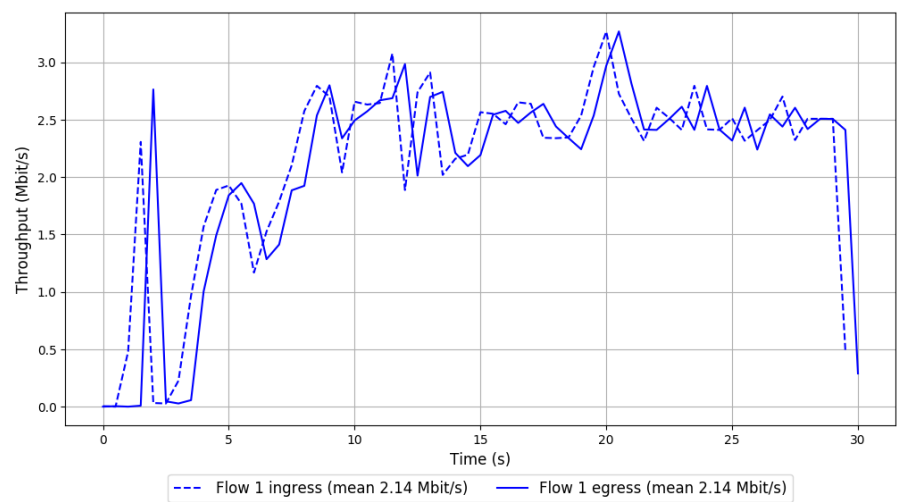# Run 5: Report of PCC-Vivace — Data Link

```
Run 1: Statistics of WebRTC media

Start at: 2018-11-30 14:01:11
End at: 2018-11-30 14:01:41
Local clock offset: -0.143 ms
Remote clock offset: -0.101 ms


# Below is generated by plot.py at 2018-11-30 18:03:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.14 Mbit/s
95th percentile per-packet one-way delay: 62.996 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 2.14 Mbit/s
95th percentile per-packet one-way delay: 62.996 ms
Loss rate: 0.46%
```

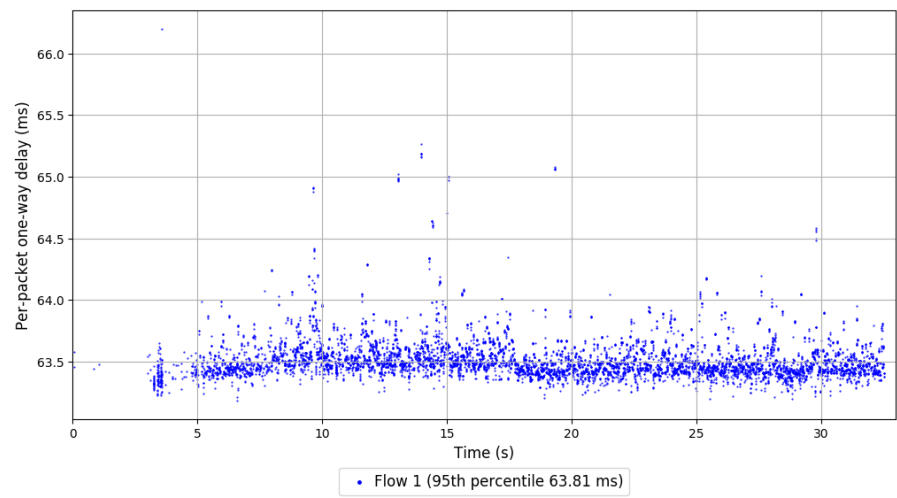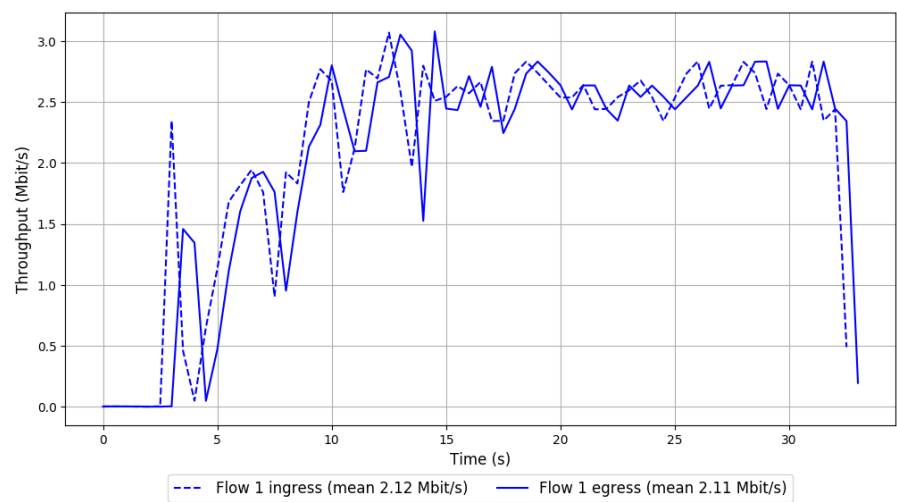Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2018-11-30 14:29:06
End at: 2018-11-30 14:29:36
Local clock offset: -0.029 ms
Remote clock offset: -0.239 ms


# Below is generated by plot.py at 2018-11-30 18:03:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.11 Mbit/s
95th percentile per-packet one-way delay: 63.808 ms
Loss rate: 0.50%
-- Flow 1:
Average throughput: 2.11 Mbit/s
95th percentile per-packet one-way delay: 63.808 ms
Loss rate: 0.50%
```

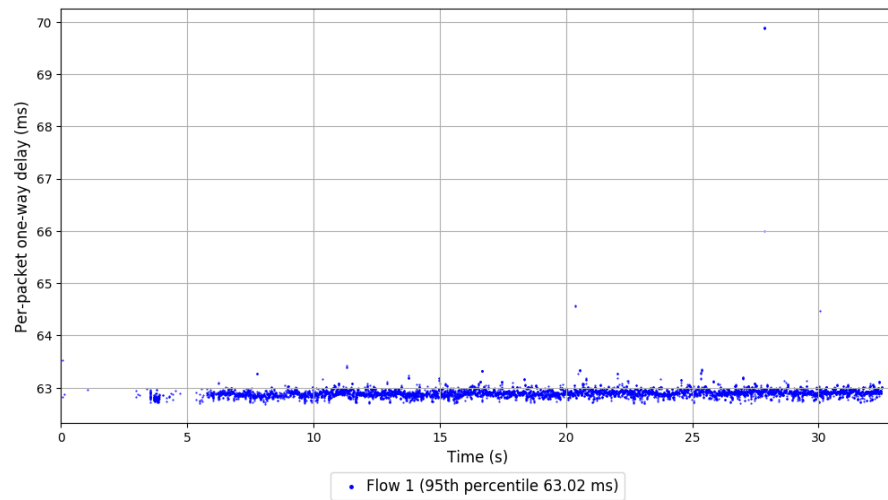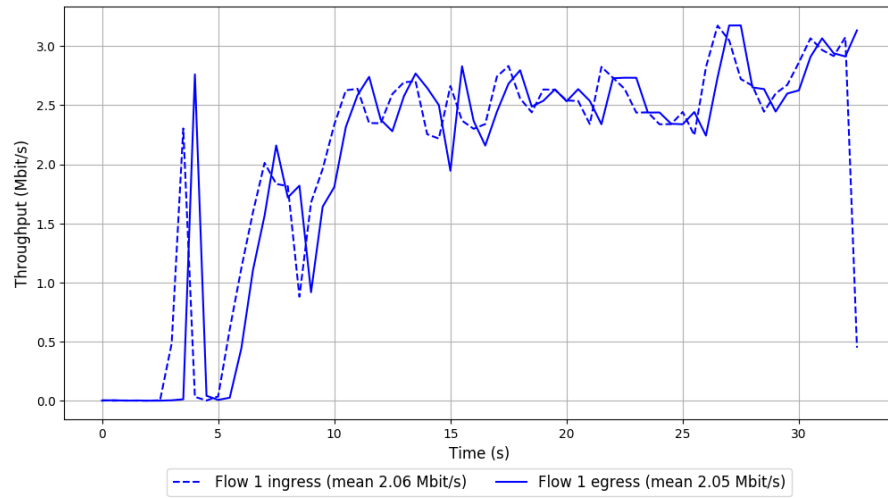Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-11-30 14:57:05
End at: 2018-11-30 14:57:35
Local clock offset: -0.06 ms
Remote clock offset: -0.067 ms


# Below is generated by plot.py at 2018-11-30 18:03:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.05 Mbit/s
95th percentile per-packet one-way delay: 63.015 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 2.05 Mbit/s
95th percentile per-packet one-way delay: 63.015 ms
Loss rate: 0.58%
```

Run 3: Report of WebRTC media — Data Link

Flow 1 ingress (mean 2.06 Mbit/s)   Flow 1 egress (mean 2.05 Mbit/s)
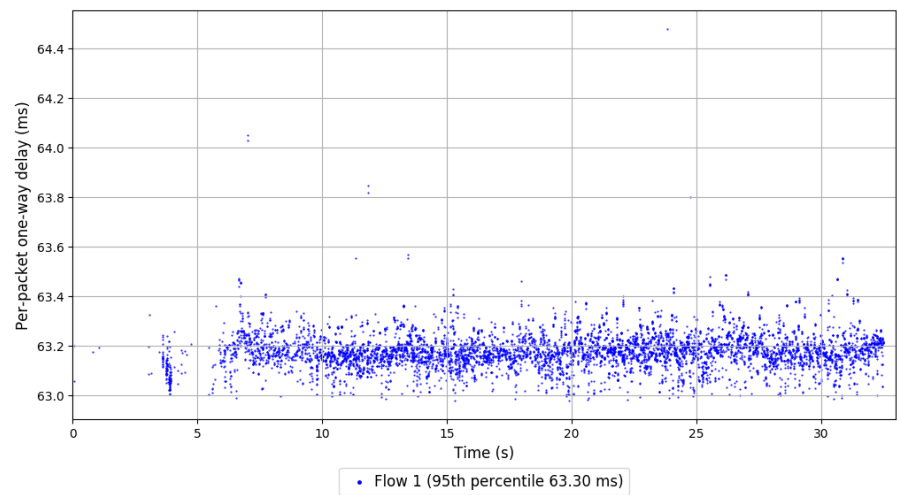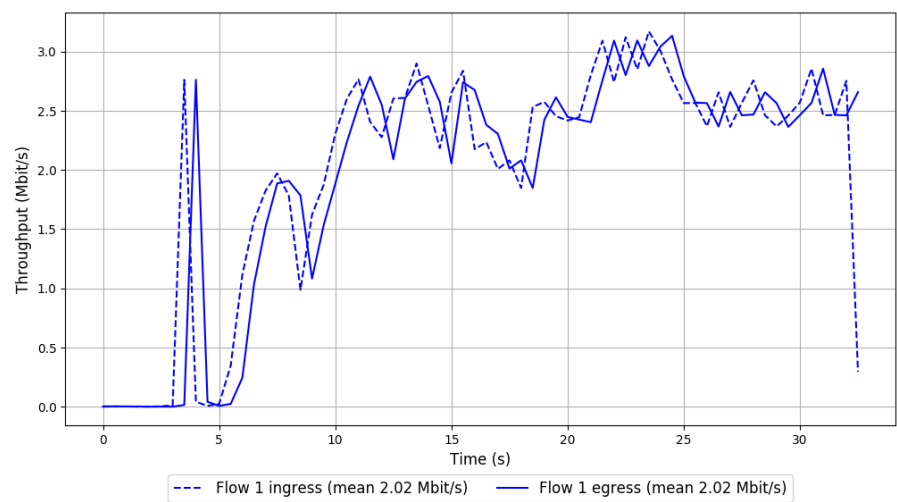

Flow 1 (95th percentile 63.02 ms)

```
Run 4: Statistics of WebRTC media

Start at: 2018-11-30 15:25:01
End at: 2018-11-30 15:25:31
Local clock offset: -0.087 ms
Remote clock offset: -0.187 ms


# Below is generated by plot.py at 2018-11-30 18:03:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.02 Mbit/s
95th percentile per-packet one-way delay: 63.295 ms
Loss rate: 0.52%
-- Flow 1:
Average throughput: 2.02 Mbit/s
95th percentile per-packet one-way delay: 63.295 ms
Loss rate: 0.52%
```

Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2018-11-30 15:52:51
End at: 2018-11-30 15:53:21
Local clock offset: -0.075 ms
Remote clock offset: -0.062 ms


# Below is generated by plot.py at 2018-11-30 18:03:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.82 Mbit/s
95th percentile per-packet one-way delay: 63.026 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 1.82 Mbit/s
95th percentile per-packet one-way delay: 63.026 ms
Loss rate: 0.71%
```

Run 5: Report of WebRTC media — Data Link