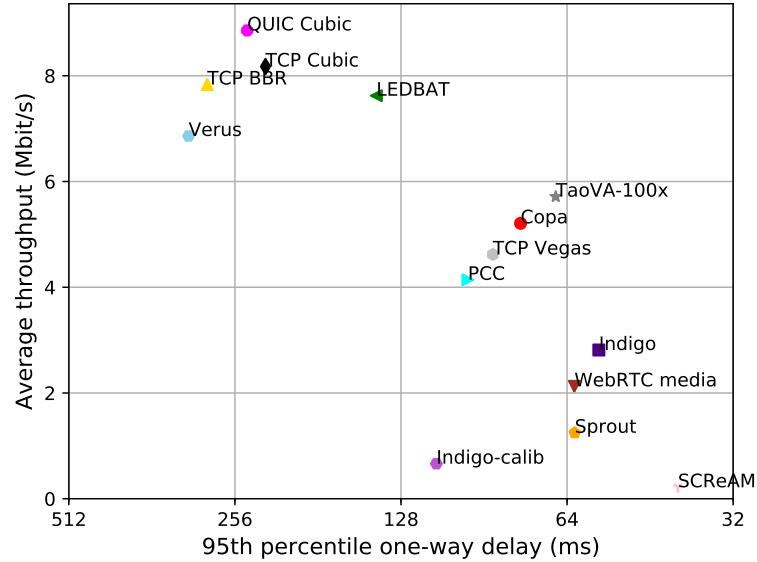


## Pantheon Report

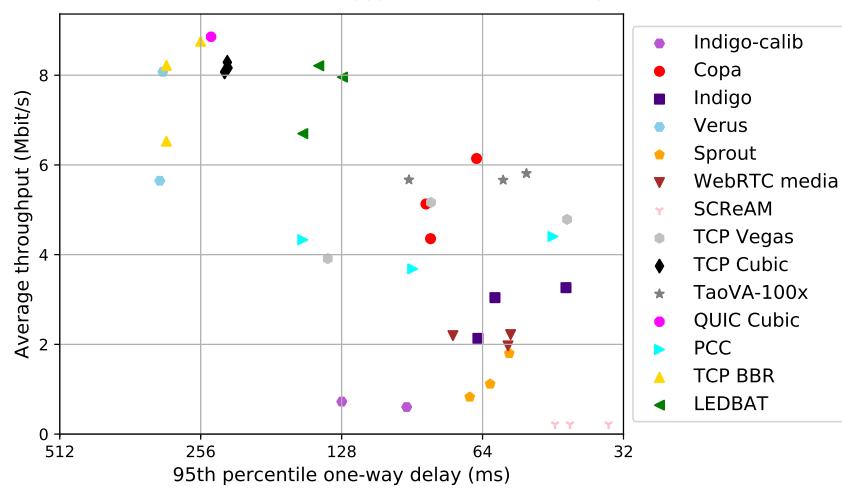
Generated at 2017-12-11 08:53:25 (UTC).  
Data path: AWS India 1 Ethernet (*local*) → India ppp0 (*remote*).  
Repeated the test of 14 congestion control schemes 3 times.  
Each test lasted for 30 seconds running 1 flow.  
Increased UDP receive buffer to 16 MB (default) and 32 MB (max).  
Tested BBR with qdisc of Fair Queuing (**fq**), and other schemes with the default Linux qdisc (**pfifo\_fast**).  
NTP offsets were measured against **nets.org.sg** and have been applied to correct the timestamps in logs.

Git summary:  
branch: **indigos** @ e3a57ad5ac5cfaca0e3f983c8dd4cc3509e0262  
**third\_party/calibrated\_koho** @ 3cb73c0d1c0322cdfae446ea37a522e53227db50  
M datagrump/sender.cc  
**third\_party/genericCC** @ b5b7c38e8391001927dc41c6cfa2627d03dde737  
**third\_party/indigo** @ b19f3730105f9aa95452552af924e3719b03cc55  
**third\_party/indigo-cellular** @ aee99e8eb842cb053f8c9a80e28cd256a930bbc2  
**third\_party/indigo-no-calib** @ 7224f2202e8a044d8306fa0b983ad84360c53d89  
**third\_party/indigo-no-cwnd** @ 3e58442c04028a11d7b02456e137604633ba2d6c  
**third\_party/indigo-no-delivery-rate** @ 57caa40858b964906edff4876d5a7e5bfff666c5  
**third\_party/indigo-no-queuing-delay** @ 03455460fd1a8ffbdad86fabb936fdca204b80db  
**third\_party/indigo-no-send-rate** @ b39dfa6b2c5f19cb7cd89626cb4f5bb81f9fecda  
**third\_party/koho\_cc** @ f0f2e693303aee82ea808e6928eac4f1083a6681  
M datagrump/sender.cc  
**third\_party/libutp** @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf  
**third\_party/pantheon-tunnel** @ baf443516dea3eeddeccaf9b916cc313273ca4f4  
**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/proto-quic** @ 77961f1a82733a86b42f1bc8143ebc978f3cff42  
**third\_party/scream** @ c3370fd7bd17265a79aeb34e4016ad23f5965885  
**third\_party/sourdough** @ f1a14bffe749737437f61b1eaeb30b267cde681  
**third\_party/sprout** @ 6f2efe6e088d91066a9f023df375eee2665089ce  
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/webrtc** @ a488197ddd041ace68a42849b2540ad834825f42

test from AWS India 1 Ethernet to India ppp0, 3 runs of 30s each per scheme  
(mean of all runs by scheme)



test from AWS India 1 Ethernet to India ppp0, 3 runs of 30s each per scheme



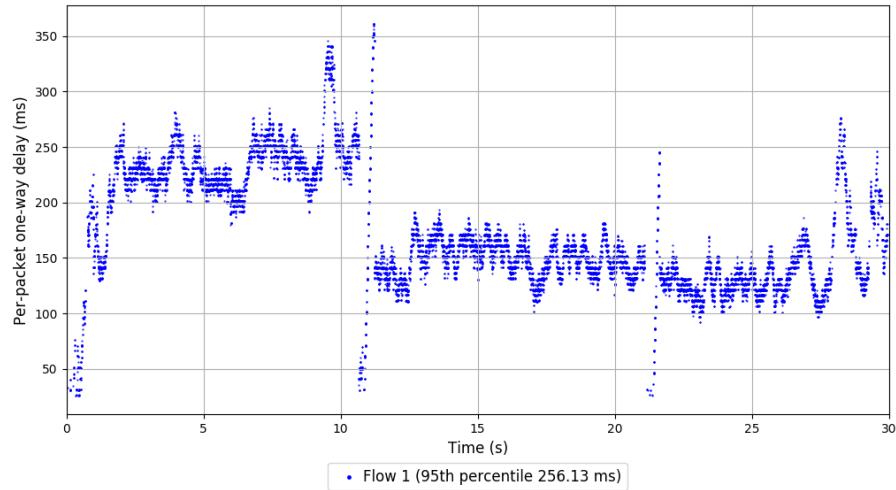
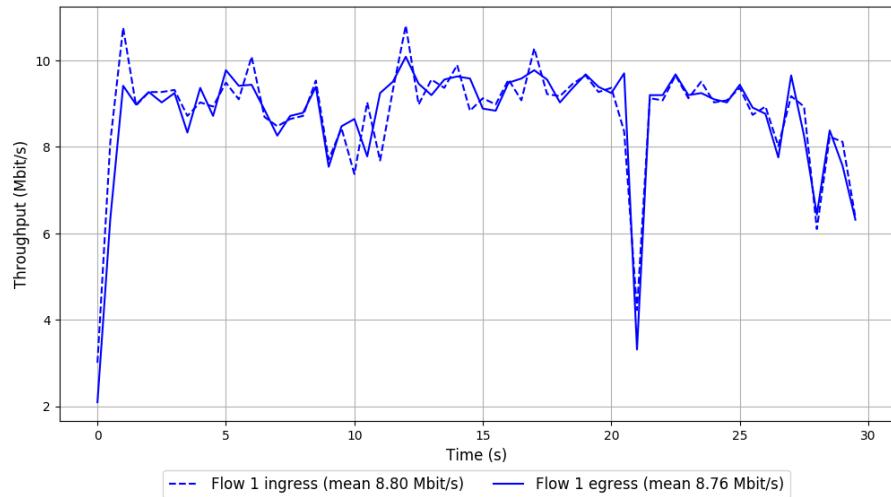
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	7.84	287.34	0.67
TCP Cubic	3	8.17	225.33	0.69
LEDBAT	3	7.62	141.89	0.48
PCC	3	4.14	96.82	0.19
QUIC Cubic	1	8.86	243.23	0.91
SCReAM	3	0.22	40.29	0.13
WebRTC media	3	2.13	62.08	0.21
Sprout	3	1.25	61.98	0.06
TaoVA-100x	3	5.71	67.11	0.24
TCP Vegas	3	4.62	87.25	0.24
Verus	2	6.87	310.69	0.70
Copa	3	5.21	77.70	0.15
Indigo	3	2.81	56.05	0.16
Indigo-calib	2	0.66	110.41	0.00

Run 1: Statistics of TCP BBR

```
Start at: 2017-12-11 08:14:12
End at: 2017-12-11 08:14:42
Local clock offset: -8.468 ms
Remote clock offset: -12.819 ms

# Below is generated by plot.py at 2017-12-11 08:52:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.76 Mbit/s
95th percentile per-packet one-way delay: 256.131 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 8.76 Mbit/s
95th percentile per-packet one-way delay: 256.131 ms
Loss rate: 0.63%
```

## Run 1: Report of TCP BBR — Data Link

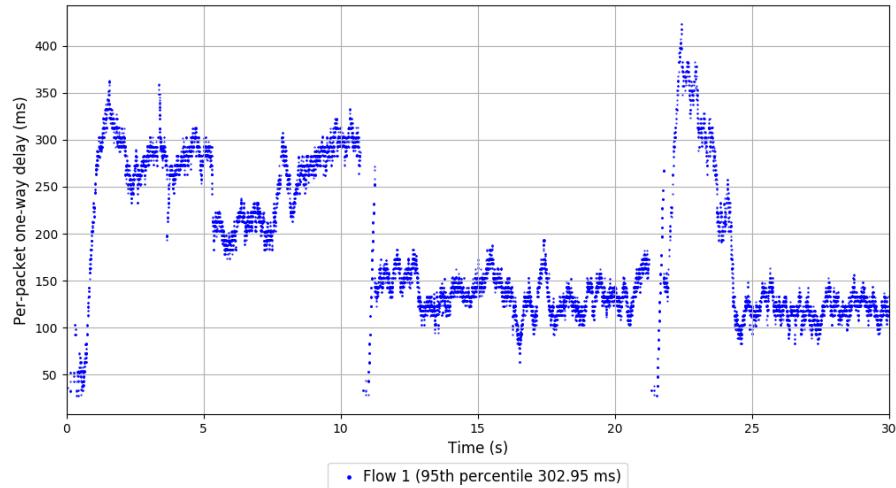
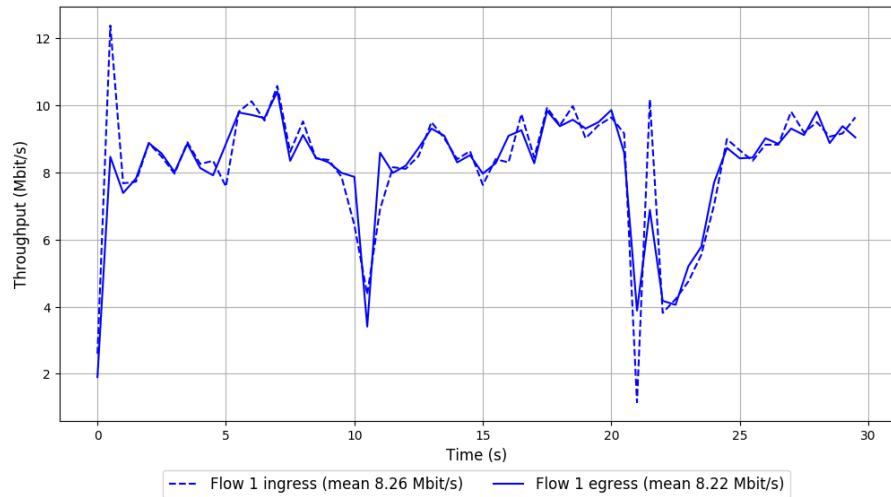


Run 2: Statistics of TCP BBR

```
Start at: 2017-12-11 08:29:25
End at: 2017-12-11 08:29:55
Local clock offset: -7.45 ms
Remote clock offset: -12.255 ms

# Below is generated by plot.py at 2017-12-11 08:52:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.22 Mbit/s
95th percentile per-packet one-way delay: 302.949 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 8.22 Mbit/s
95th percentile per-packet one-way delay: 302.949 ms
Loss rate: 0.66%
```

## Run 2: Report of TCP BBR — Data Link

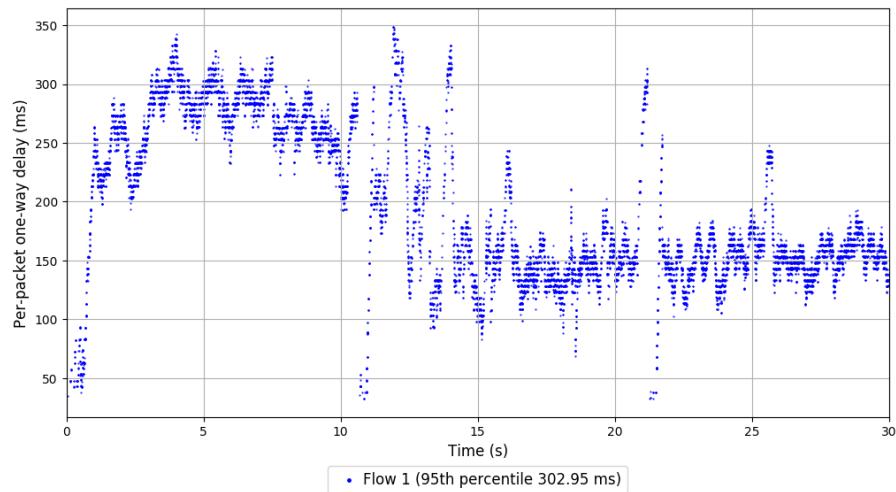
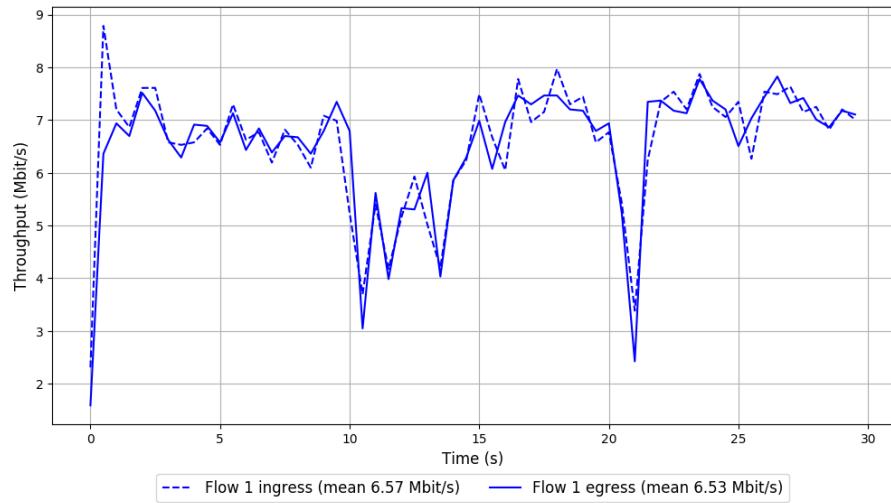


Run 3: Statistics of TCP BBR

```
Start at: 2017-12-11 08:44:42
End at: 2017-12-11 08:45:13
Local clock offset: -13.382 ms
Remote clock offset: -13.134 ms

# Below is generated by plot.py at 2017-12-11 08:52:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.53 Mbit/s
95th percentile per-packet one-way delay: 302.953 ms
Loss rate: 0.73%
-- Flow 1:
Average throughput: 6.53 Mbit/s
95th percentile per-packet one-way delay: 302.953 ms
Loss rate: 0.73%
```

### Run 3: Report of TCP BBR — Data Link

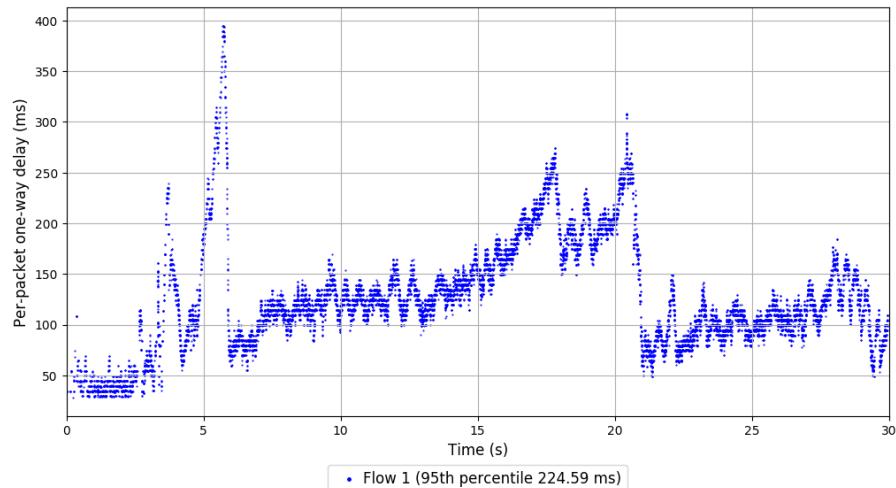
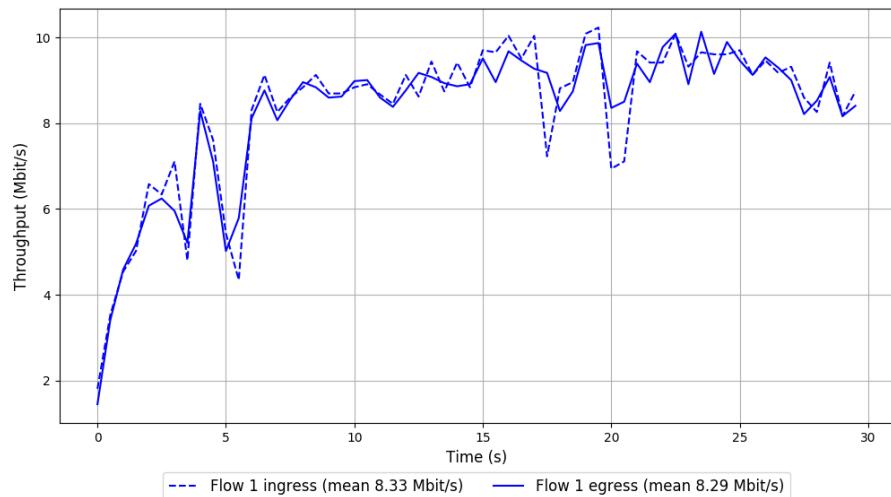


Run 1: Statistics of TCP Cubic

```
Start at: 2017-12-11 08:09:51
End at: 2017-12-11 08:10:21
Local clock offset: -6.514 ms
Remote clock offset: -12.923 ms

# Below is generated by plot.py at 2017-12-11 08:52:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.29 Mbit/s
95th percentile per-packet one-way delay: 224.589 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 8.29 Mbit/s
95th percentile per-packet one-way delay: 224.589 ms
Loss rate: 0.61%
```

### Run 1: Report of TCP Cubic — Data Link

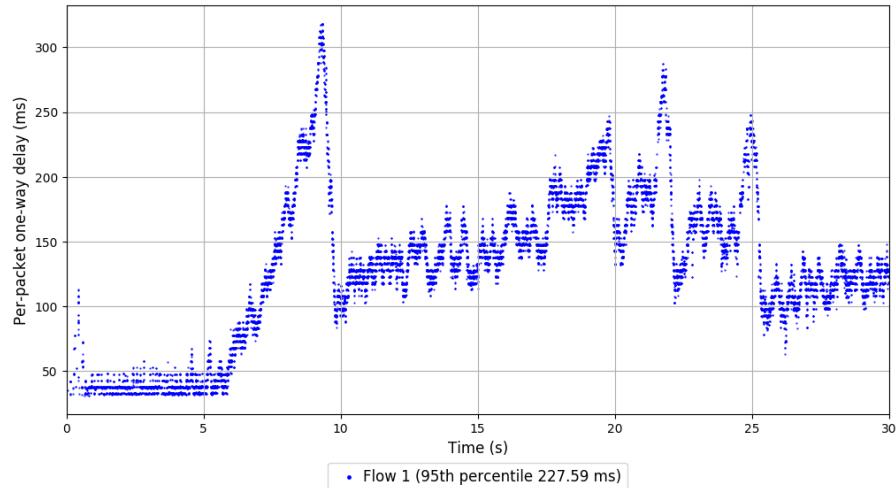
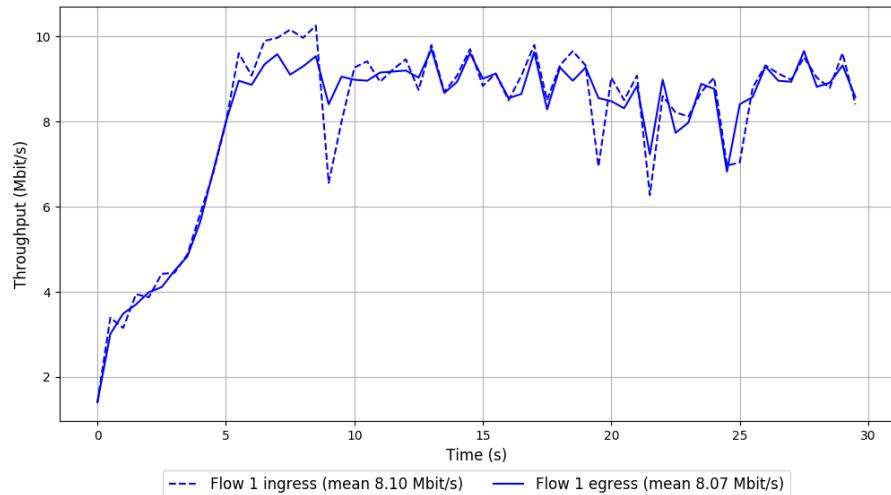


Run 2: Statistics of TCP Cubic

```
Start at: 2017-12-11 08:25:04
End at: 2017-12-11 08:25:34
Local clock offset: -7.834 ms
Remote clock offset: -11.258 ms

# Below is generated by plot.py at 2017-12-11 08:52:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.07 Mbit/s
95th percentile per-packet one-way delay: 227.594 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 8.07 Mbit/s
95th percentile per-packet one-way delay: 227.594 ms
Loss rate: 0.47%
```

## Run 2: Report of TCP Cubic — Data Link

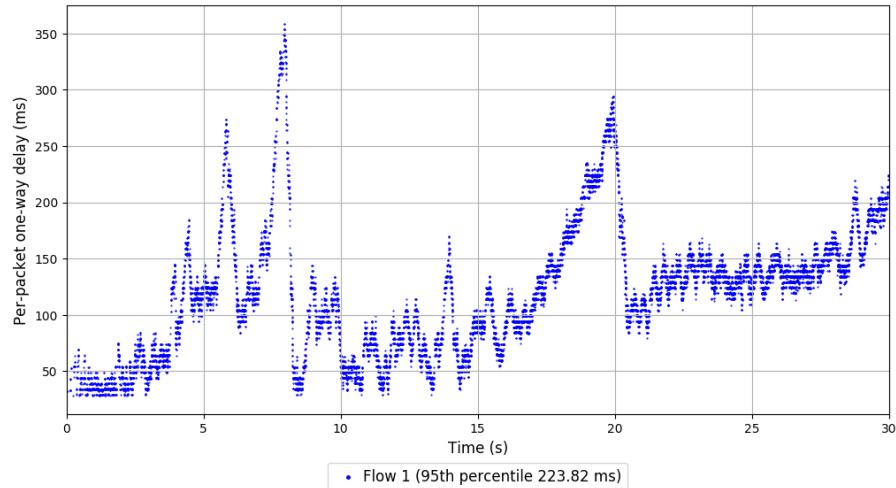
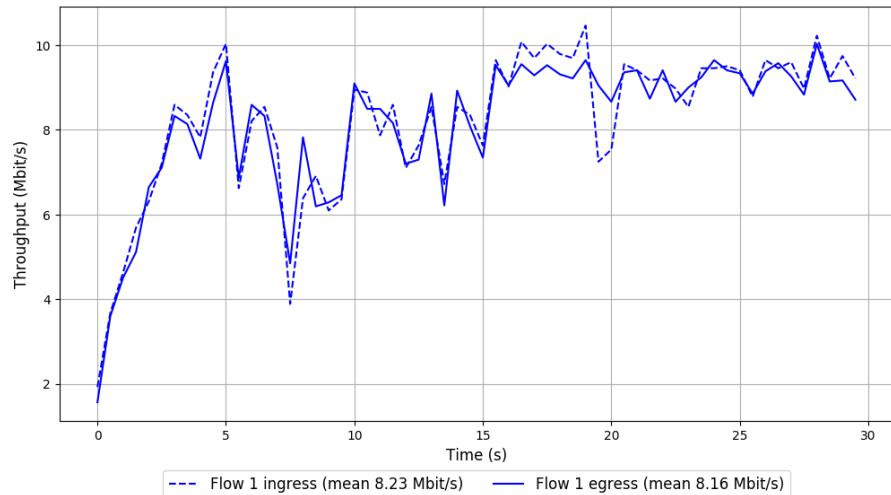


Run 3: Statistics of TCP Cubic

```
Start at: 2017-12-11 08:40:22
End at: 2017-12-11 08:40:52
Local clock offset: -9.709 ms
Remote clock offset: -14.028 ms

# Below is generated by plot.py at 2017-12-11 08:52:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.16 Mbit/s
95th percentile per-packet one-way delay: 223.820 ms
Loss rate: 0.99%
-- Flow 1:
Average throughput: 8.16 Mbit/s
95th percentile per-packet one-way delay: 223.820 ms
Loss rate: 0.99%
```

### Run 3: Report of TCP Cubic — Data Link

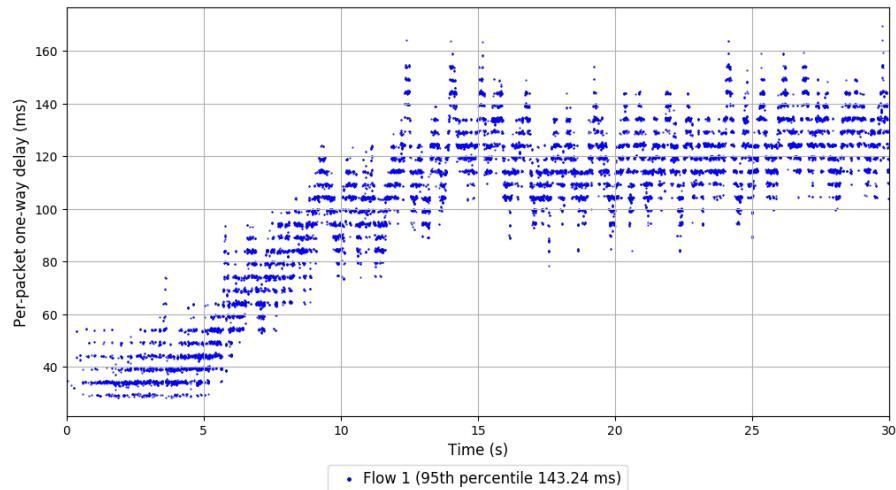
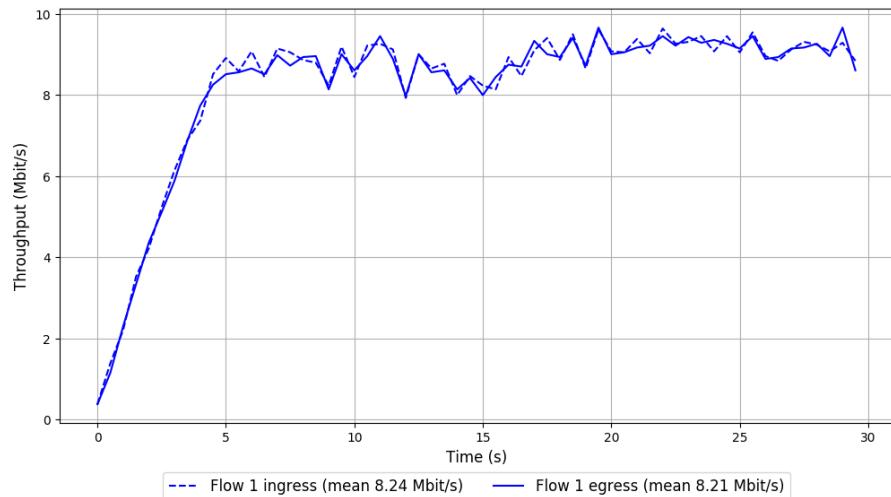


```
Run 1: Statistics of LEDBAT
```

```
Start at: 2017-12-11 08:07:41
End at: 2017-12-11 08:08:11
Local clock offset: -5.476 ms
Remote clock offset: -11.979 ms

# Below is generated by plot.py at 2017-12-11 08:52:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.21 Mbit/s
95th percentile per-packet one-way delay: 143.242 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 8.21 Mbit/s
95th percentile per-packet one-way delay: 143.242 ms
Loss rate: 0.47%
```

## Run 1: Report of LEDBAT — Data Link

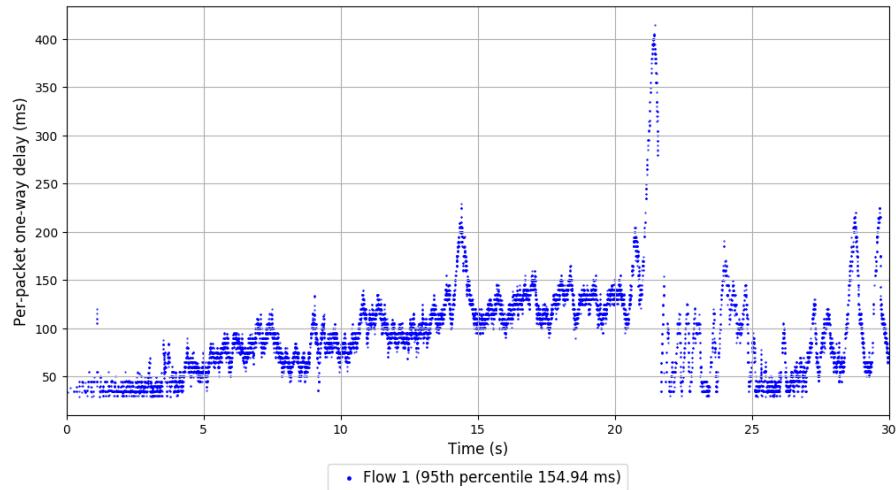
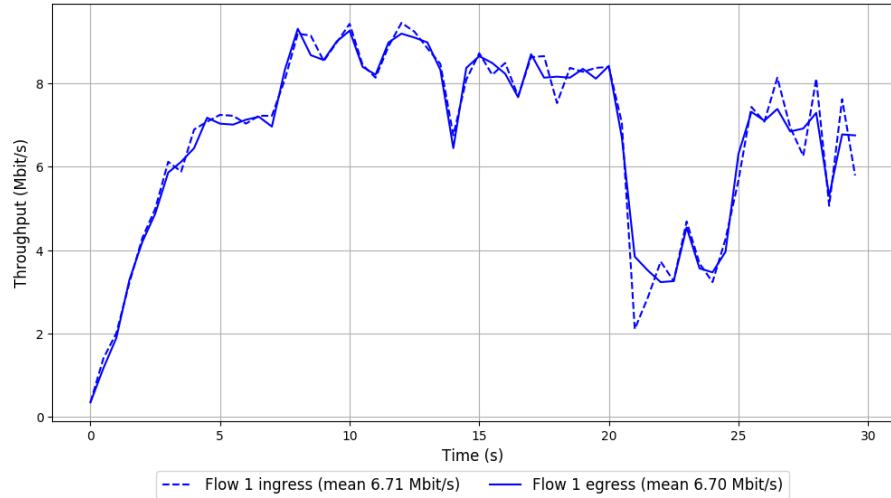


Run 2: Statistics of LEDBAT

```
Start at: 2017-12-11 08:22:54
End at: 2017-12-11 08:23:24
Local clock offset: -7.07 ms
Remote clock offset: -12.722 ms

# Below is generated by plot.py at 2017-12-11 08:52:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.70 Mbit/s
95th percentile per-packet one-way delay: 154.945 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 6.70 Mbit/s
95th percentile per-packet one-way delay: 154.945 ms
Loss rate: 0.30%
```

## Run 2: Report of LEDBAT — Data Link

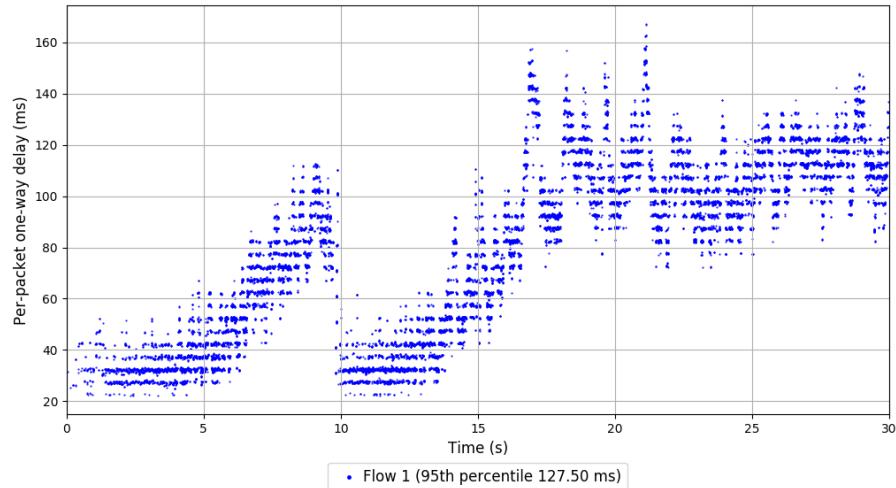
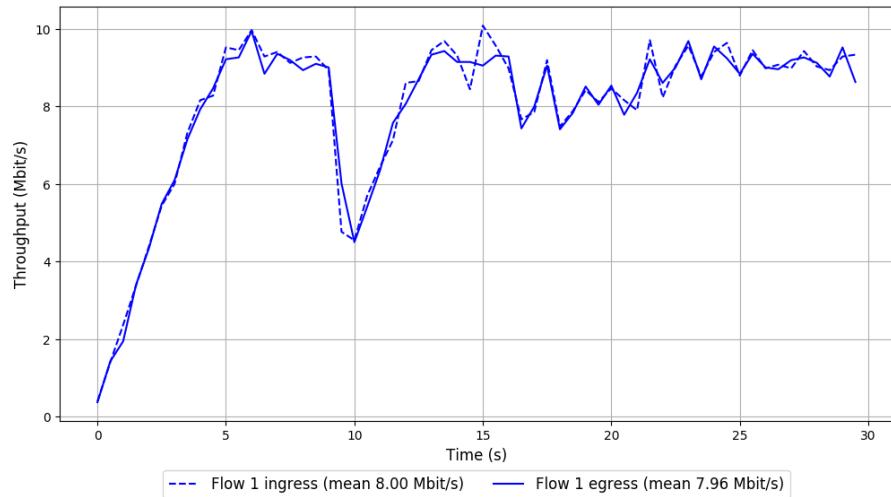


Run 3: Statistics of LEDBAT

```
Start at: 2017-12-11 08:38:10
End at: 2017-12-11 08:38:40
Local clock offset: -6.49 ms
Remote clock offset: -12.56 ms

# Below is generated by plot.py at 2017-12-11 08:53:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.96 Mbit/s
95th percentile per-packet one-way delay: 127.496 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 7.96 Mbit/s
95th percentile per-packet one-way delay: 127.496 ms
Loss rate: 0.66%
```

### Run 3: Report of LEDBAT — Data Link

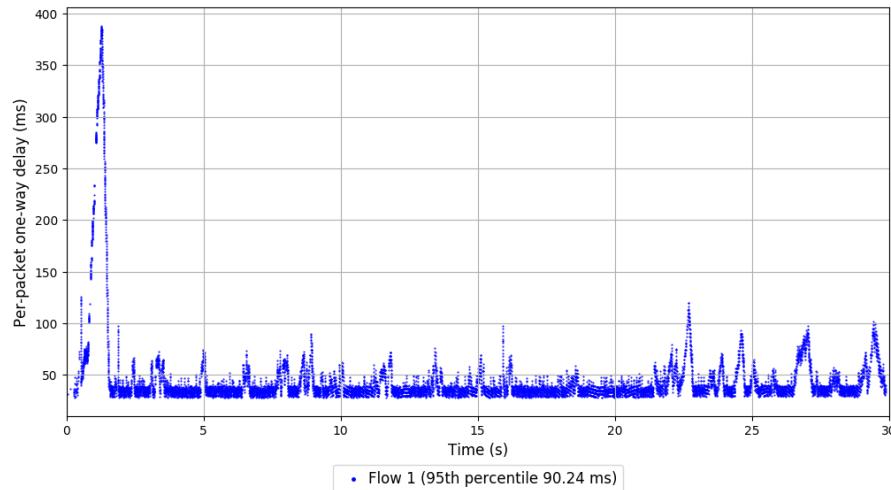
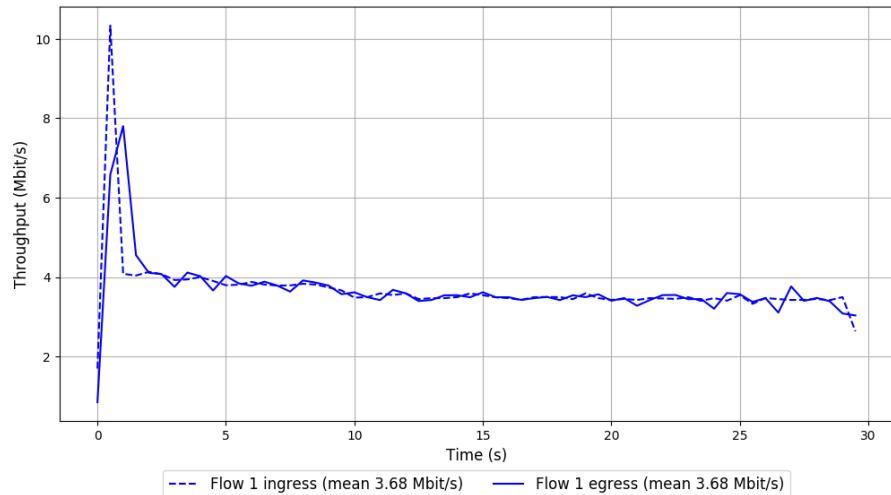


Run 1: Statistics of PCC

```
Start at: 2017-12-11 08:16:22
End at: 2017-12-11 08:16:52
Local clock offset: -10.813 ms
Remote clock offset: -12.068 ms

# Below is generated by plot.py at 2017-12-11 08:53:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.68 Mbit/s
95th percentile per-packet one-way delay: 90.237 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 3.68 Mbit/s
95th percentile per-packet one-way delay: 90.237 ms
Loss rate: 0.17%
```

### Run 1: Report of PCC — Data Link

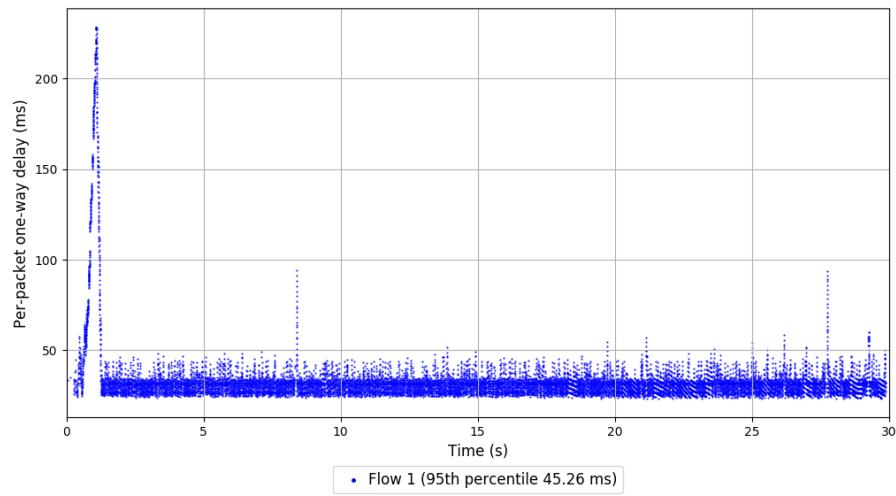
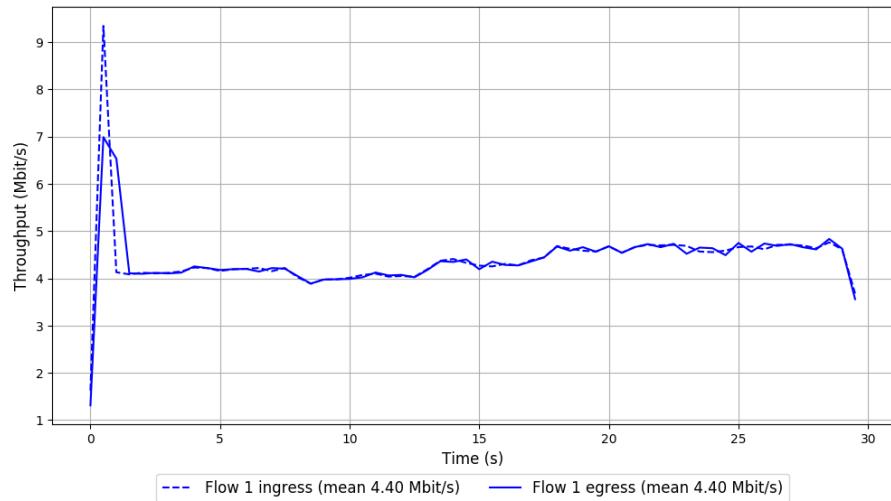


Run 2: Statistics of PCC

```
Start at: 2017-12-11 08:31:36
End at: 2017-12-11 08:32:06
Local clock offset: -6.492 ms
Remote clock offset: -12.111 ms

# Below is generated by plot.py at 2017-12-11 08:53:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.40 Mbit/s
95th percentile per-packet one-way delay: 45.256 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 4.40 Mbit/s
95th percentile per-packet one-way delay: 45.256 ms
Loss rate: 0.14%
```

## Run 2: Report of PCC — Data Link

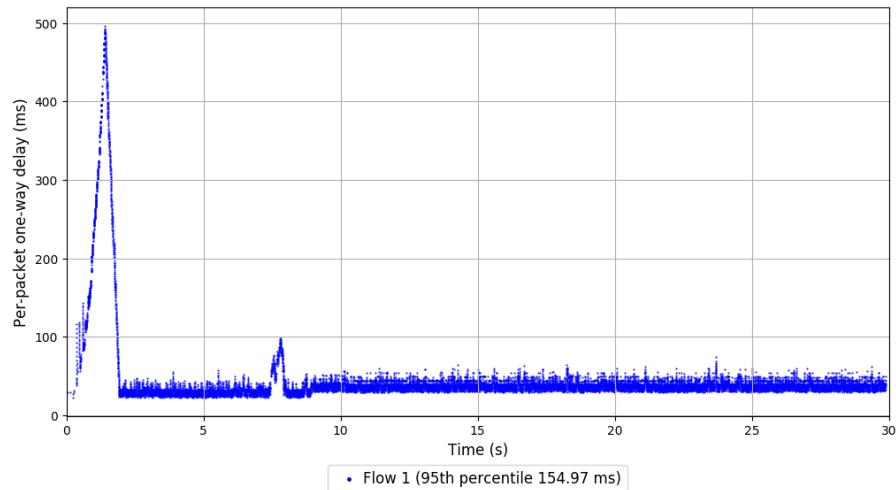
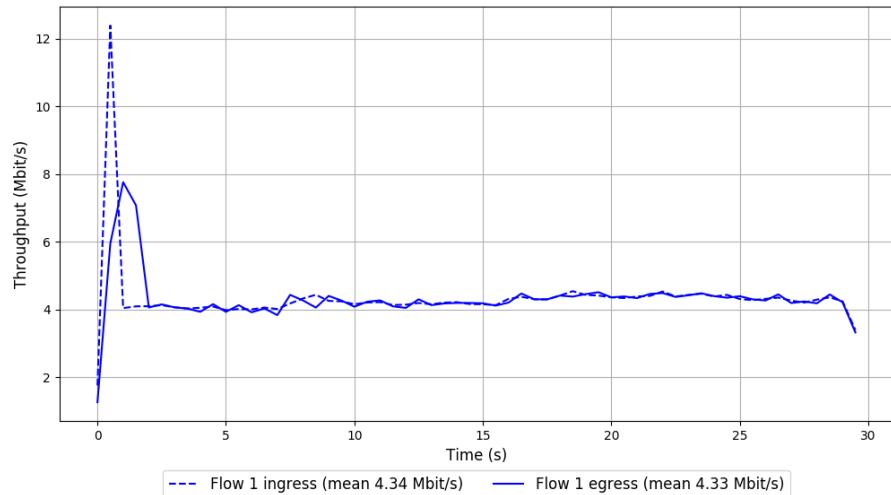


Run 3: Statistics of PCC

```
Start at: 2017-12-11 08:46:54
End at: 2017-12-11 08:47:24
Local clock offset: -11.548 ms
Remote clock offset: -13.424 ms

# Below is generated by plot.py at 2017-12-11 08:53:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.33 Mbit/s
95th percentile per-packet one-way delay: 154.971 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 4.33 Mbit/s
95th percentile per-packet one-way delay: 154.971 ms
Loss rate: 0.27%
```

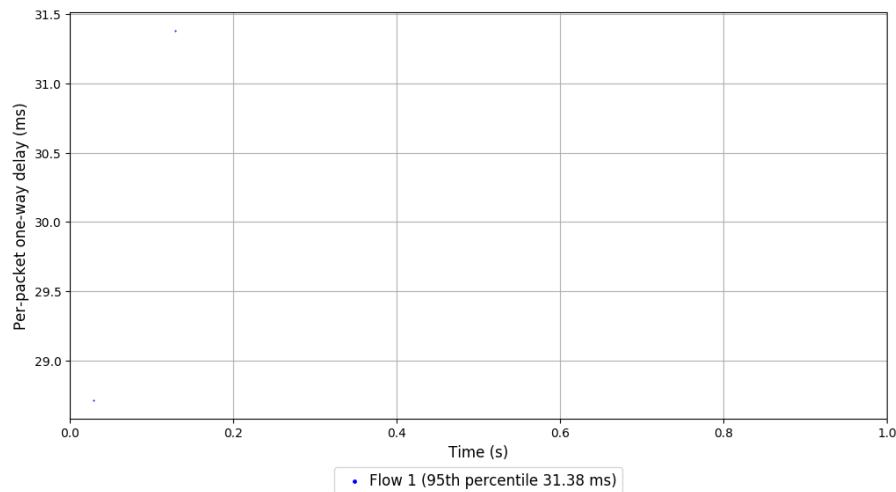
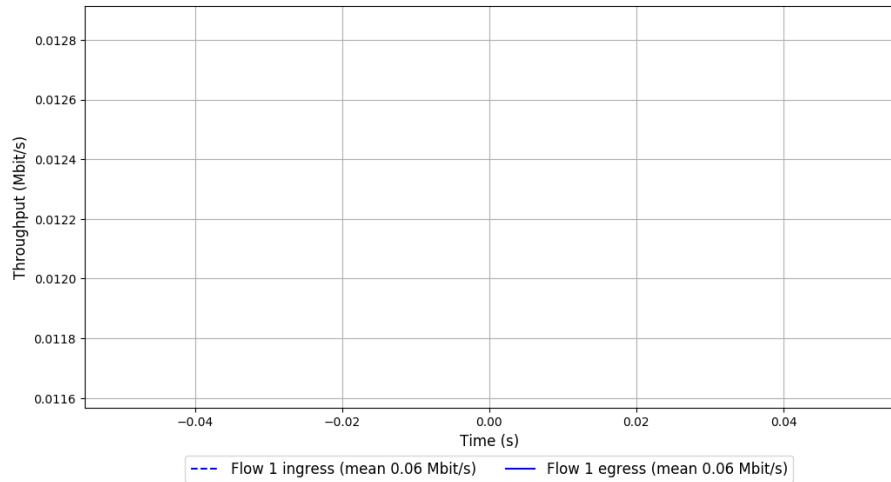
### Run 3: Report of PCC — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2017-12-11 08:15:17  
End at: 2017-12-11 08:15:47  
Local clock offset: -9.199 ms  
Remote clock offset: -12.648 ms

Run 1: Report of QUIC Cubic — Data Link

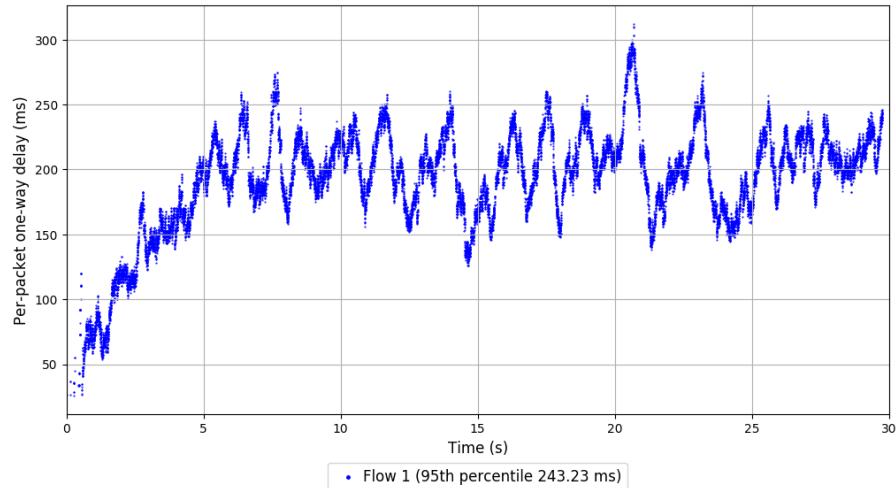
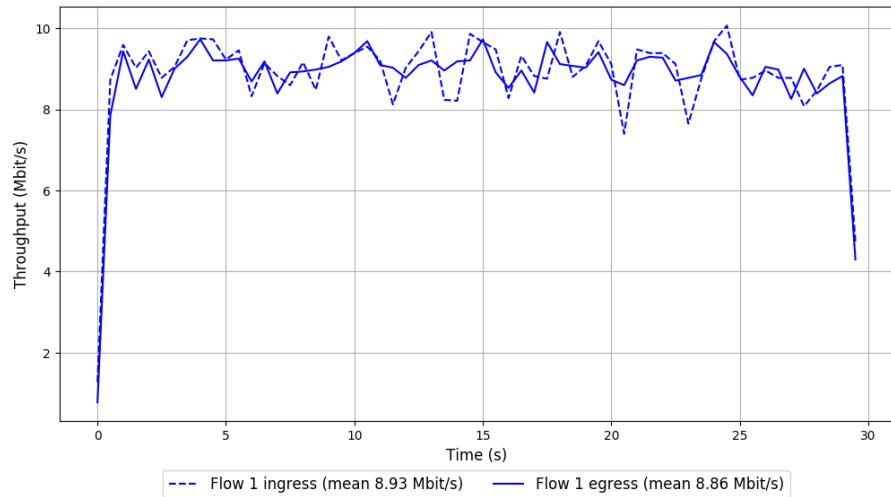


Run 2: Statistics of QUIC Cubic

```
Start at: 2017-12-11 08:30:31
End at: 2017-12-11 08:31:01
Local clock offset: -6.307 ms
Remote clock offset: -10.855 ms

# Below is generated by plot.py at 2017-12-11 08:53:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.86 Mbit/s
95th percentile per-packet one-way delay: 243.226 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 8.86 Mbit/s
95th percentile per-packet one-way delay: 243.226 ms
Loss rate: 0.91%
```

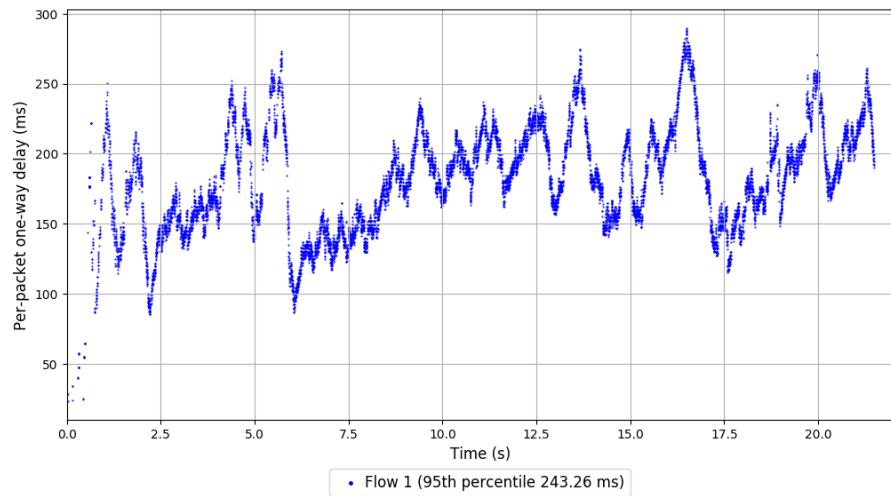
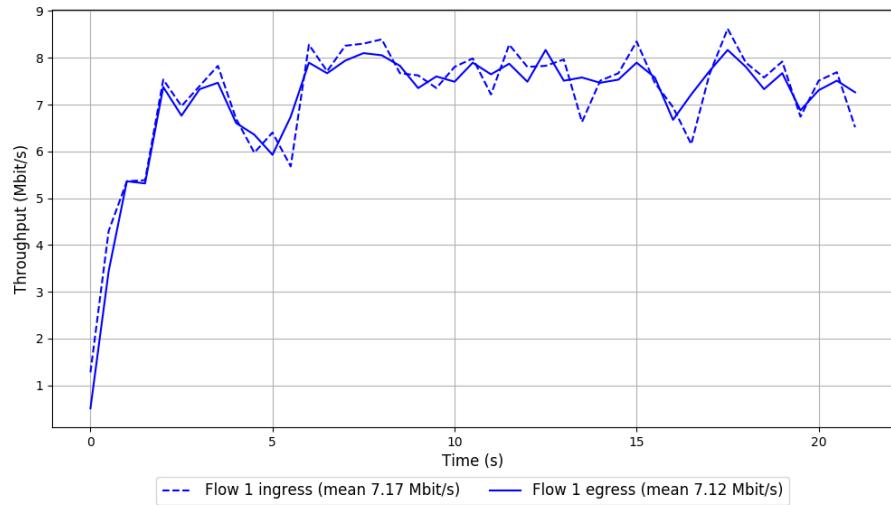
## Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2017-12-11 08:45:48  
End at: 2017-12-11 08:46:18  
Local clock offset: -11.437 ms  
Remote clock offset: -14.499 ms

### Run 3: Report of QUIC Cubic — Data Link

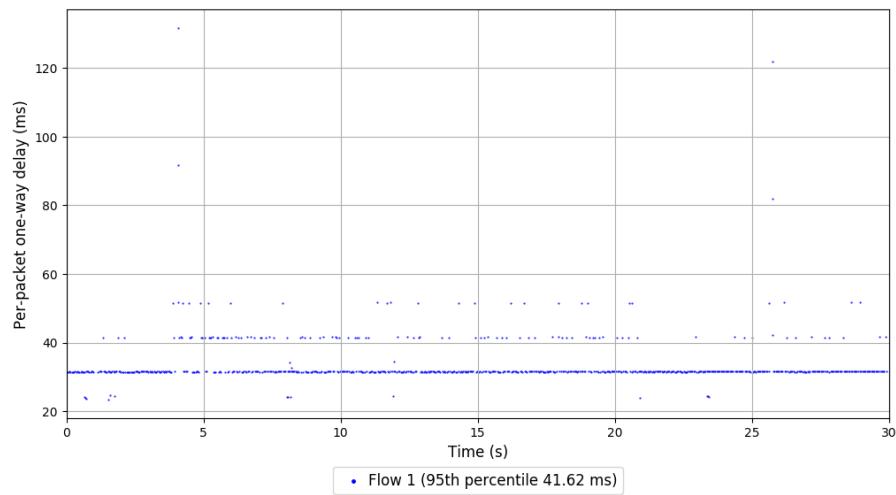
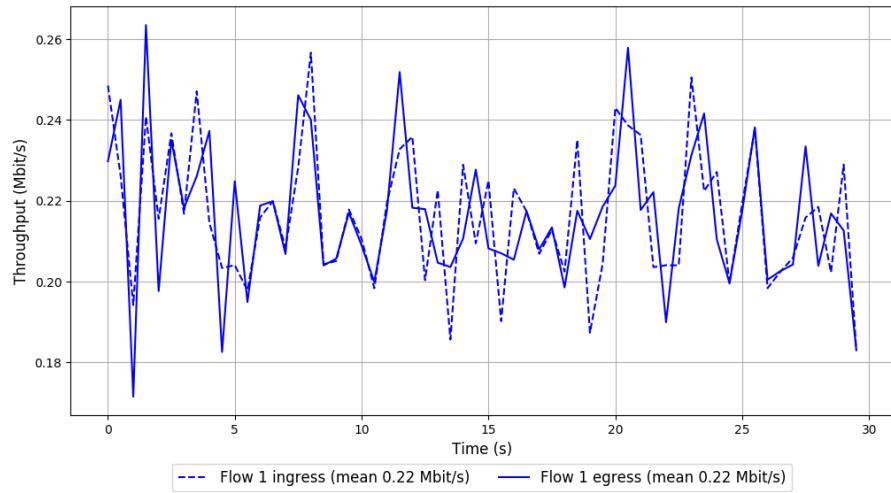


```
Run 1: Statistics of SCReAM
```

```
Start at: 2017-12-11 08:10:57
End at: 2017-12-11 08:11:27
Local clock offset: -6.193 ms
Remote clock offset: -12.325 ms

# Below is generated by plot.py at 2017-12-11 08:53:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 41.622 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 41.622 ms
Loss rate: 0.13%
```

Run 1: Report of SCReAM — Data Link

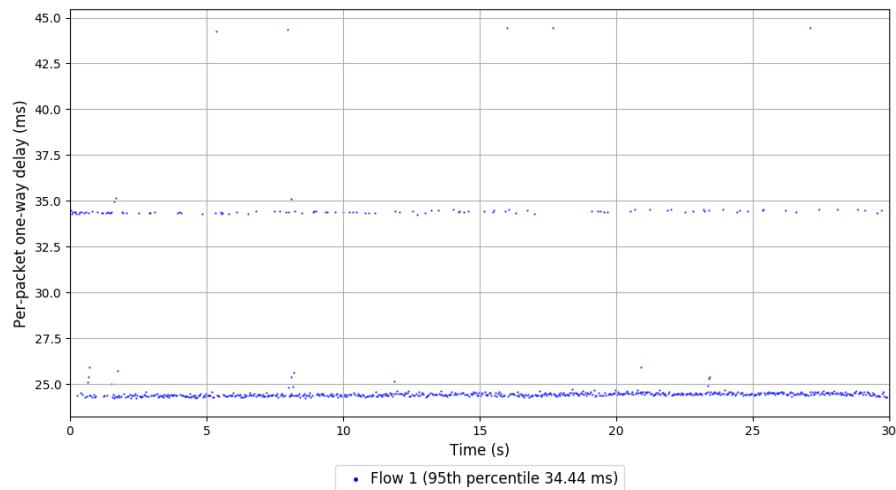
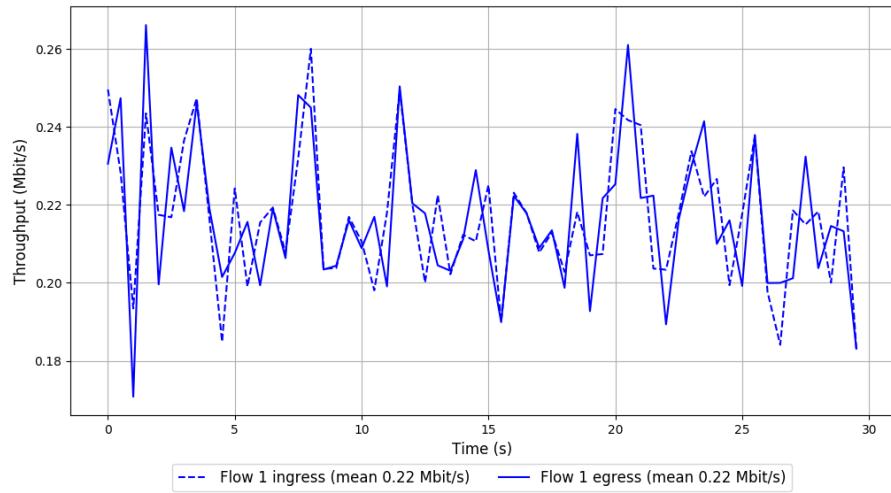


Run 2: Statistics of SCReAM

```
Start at: 2017-12-11 08:26:10
End at: 2017-12-11 08:26:40
Local clock offset: -5.941 ms
Remote clock offset: -11.995 ms

# Below is generated by plot.py at 2017-12-11 08:53:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 34.438 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 34.438 ms
Loss rate: 0.13%
```

## Run 2: Report of SCReAM — Data Link

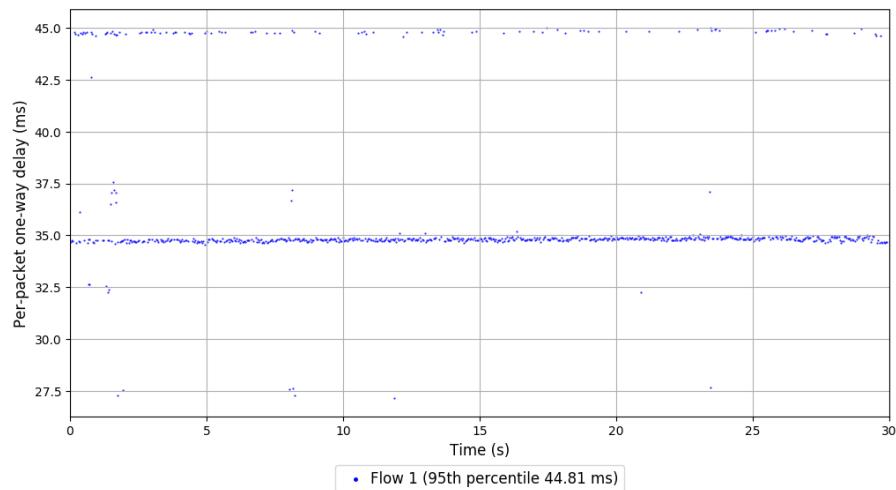
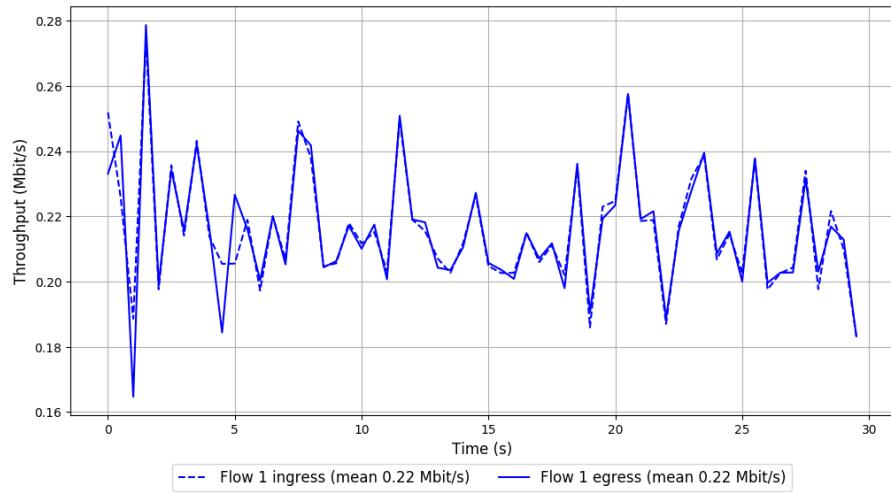


Run 3: Statistics of SCReAM

```
Start at: 2017-12-11 08:41:27
End at: 2017-12-11 08:41:57
Local clock offset: -11.75 ms
Remote clock offset: -12.436 ms

# Below is generated by plot.py at 2017-12-11 08:53:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 44.814 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 44.814 ms
Loss rate: 0.13%
```

### Run 3: Report of SCReAM — Data Link

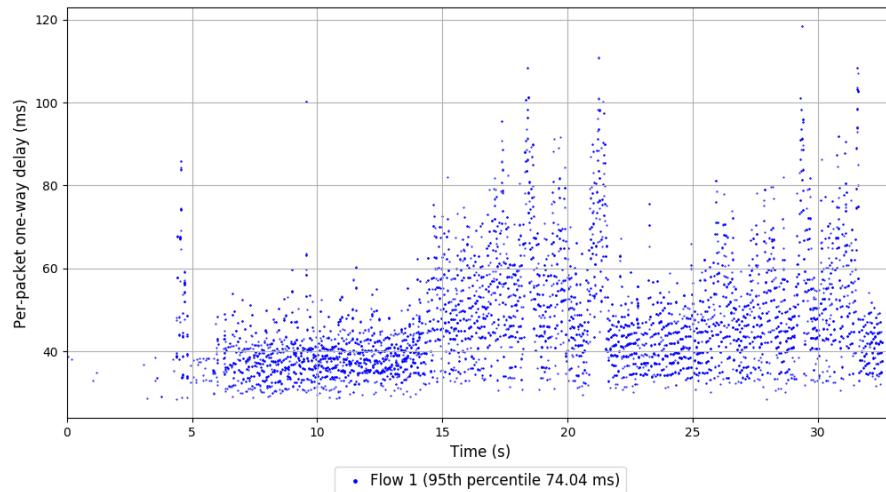
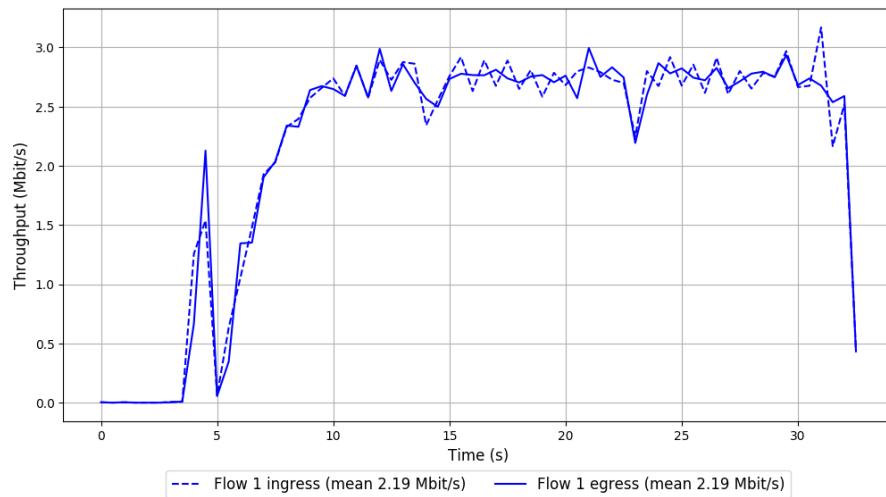


```
Run 1: Statistics of WebRTC media

Start at: 2017-12-11 08:12:02
End at: 2017-12-11 08:12:32
Local clock offset: -6.912 ms
Remote clock offset: -13.677 ms

# Below is generated by plot.py at 2017-12-11 08:53:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.19 Mbit/s
95th percentile per-packet one-way delay: 74.036 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 2.19 Mbit/s
95th percentile per-packet one-way delay: 74.036 ms
Loss rate: 0.16%
```

Run 1: Report of WebRTC media — Data Link

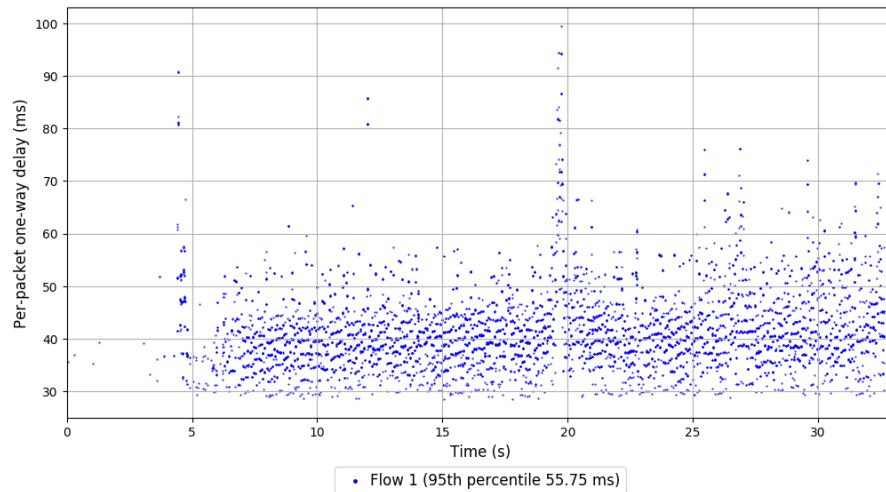
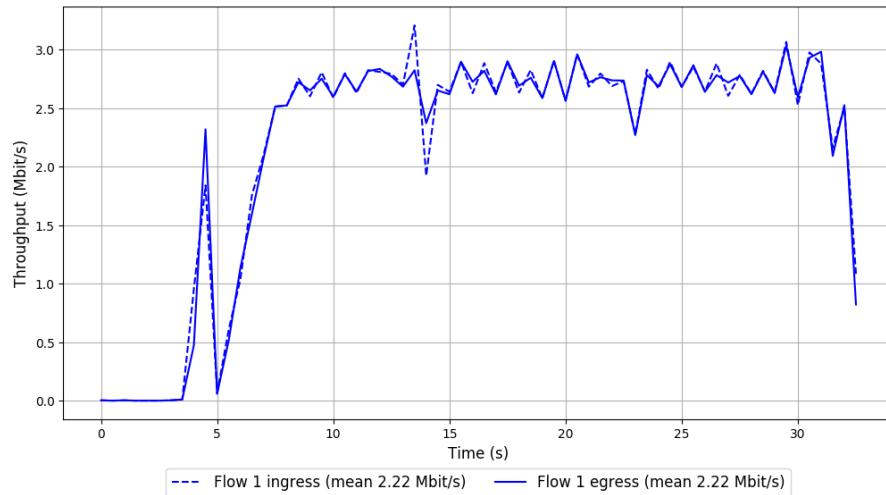


Run 2: Statistics of WebRTC media

```
Start at: 2017-12-11 08:27:15
End at: 2017-12-11 08:27:45
Local clock offset: -8.545 ms
Remote clock offset: -13.176 ms

# Below is generated by plot.py at 2017-12-11 08:53:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.22 Mbit/s
95th percentile per-packet one-way delay: 55.749 ms
Loss rate: 0.31%
-- Flow 1:
Average throughput: 2.22 Mbit/s
95th percentile per-packet one-way delay: 55.749 ms
Loss rate: 0.31%
```

## Run 2: Report of WebRTC media — Data Link

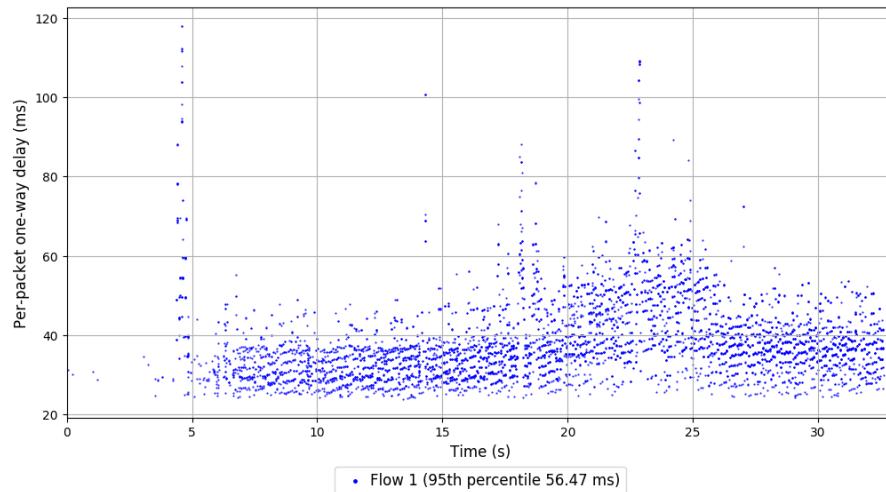
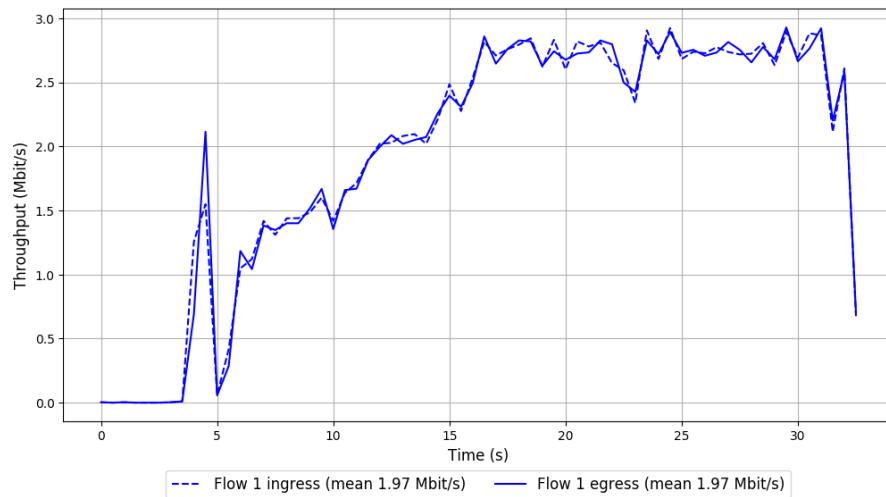


Run 3: Statistics of WebRTC media

```
Start at: 2017-12-11 08:42:32
End at: 2017-12-11 08:43:02
Local clock offset: -10.035 ms
Remote clock offset: -13.388 ms

# Below is generated by plot.py at 2017-12-11 08:53:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.97 Mbit/s
95th percentile per-packet one-way delay: 56.469 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 1.97 Mbit/s
95th percentile per-packet one-way delay: 56.469 ms
Loss rate: 0.16%
```

### Run 3: Report of WebRTC media — Data Link

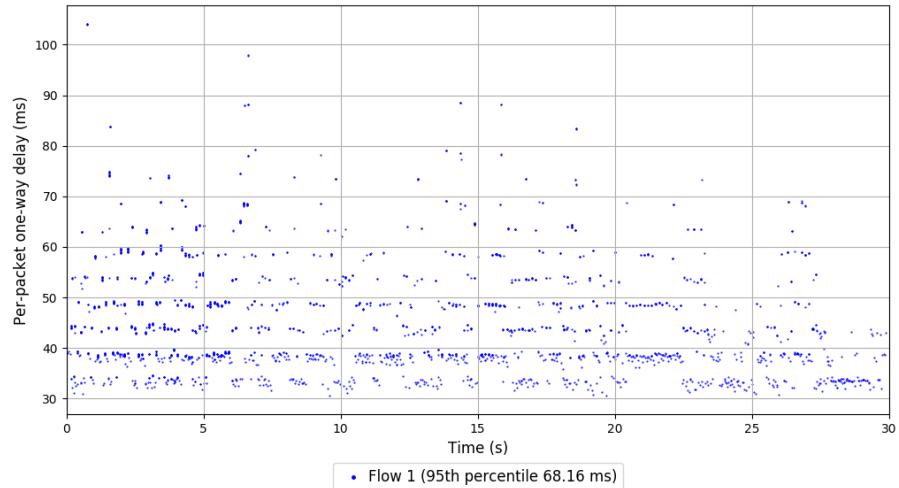
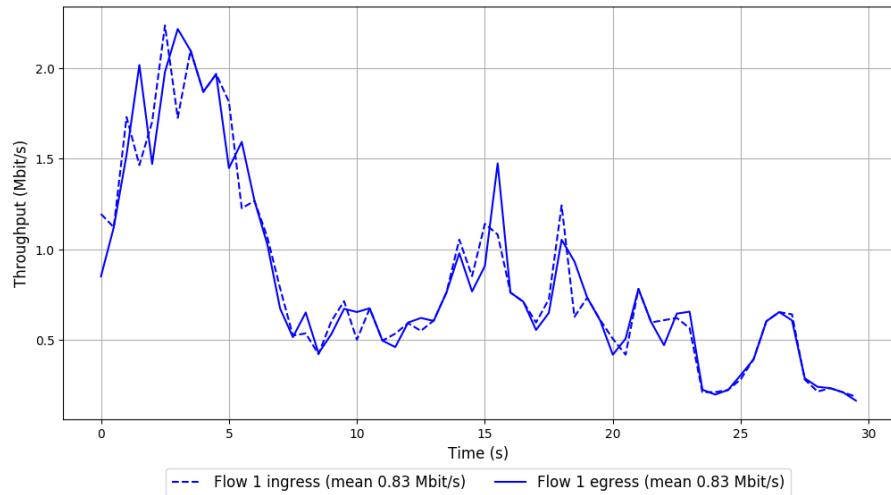


Run 1: Statistics of Sprout

```
Start at: 2017-12-11 08:13:07
End at: 2017-12-11 08:13:37
Local clock offset: -10.48 ms
Remote clock offset: -11.772 ms

# Below is generated by plot.py at 2017-12-11 08:53:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.83 Mbit/s
95th percentile per-packet one-way delay: 68.155 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 0.83 Mbit/s
95th percentile per-packet one-way delay: 68.155 ms
Loss rate: 0.05%
```

## Run 1: Report of Sprout — Data Link

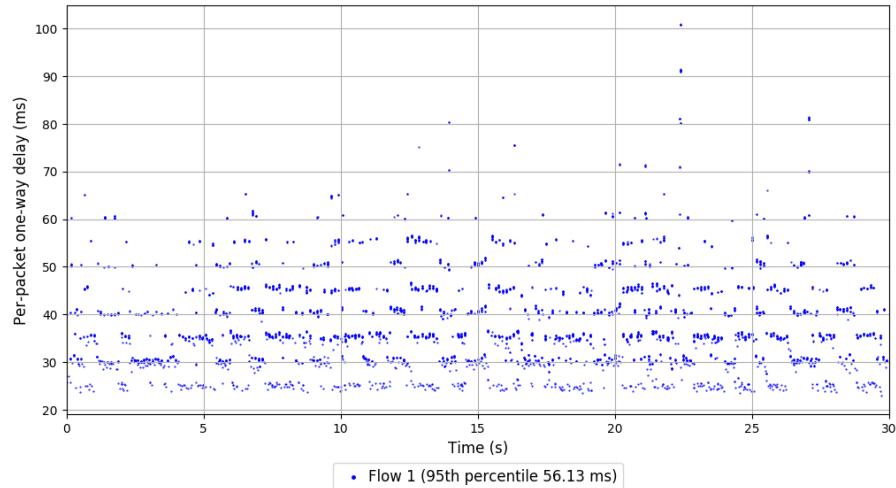
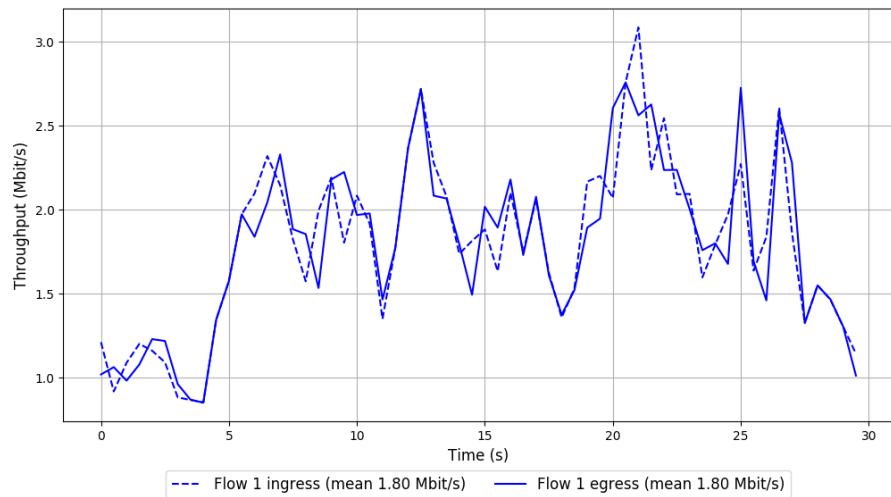


Run 2: Statistics of Sprout

```
Start at: 2017-12-11 08:28:20
End at: 2017-12-11 08:28:50
Local clock offset: -5.466 ms
Remote clock offset: -11.481 ms

# Below is generated by plot.py at 2017-12-11 08:53:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.80 Mbit/s
95th percentile per-packet one-way delay: 56.126 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 1.80 Mbit/s
95th percentile per-packet one-way delay: 56.126 ms
Loss rate: 0.12%
```

## Run 2: Report of Sprout — Data Link

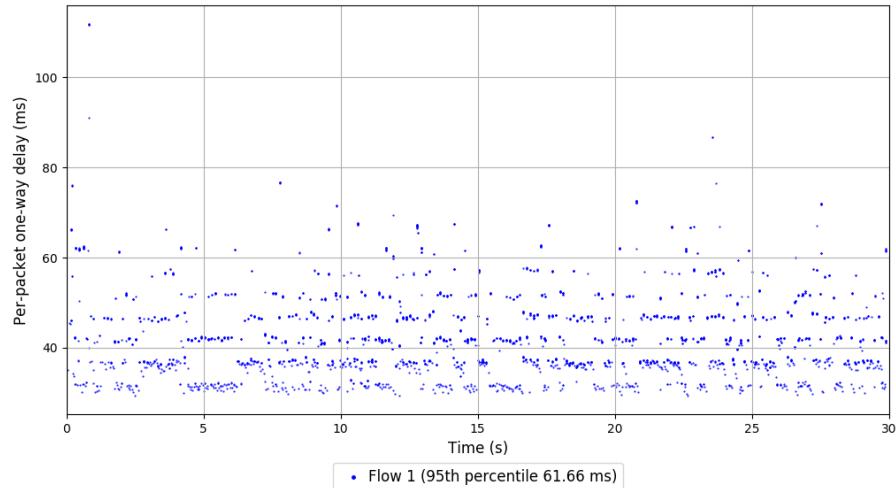
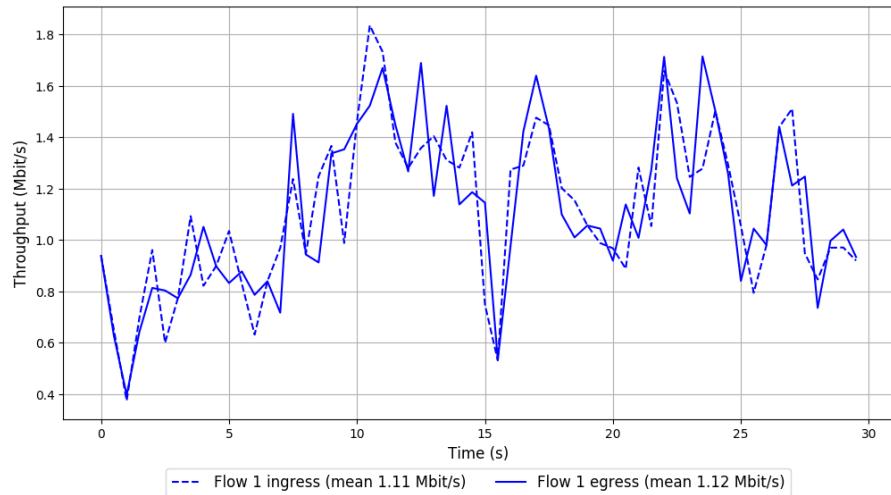


Run 3: Statistics of Sprout

```
Start at: 2017-12-11 08:43:37
End at: 2017-12-11 08:44:07
Local clock offset: -13.268 ms
Remote clock offset: -13.991 ms

# Below is generated by plot.py at 2017-12-11 08:53:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.12 Mbit/s
95th percentile per-packet one-way delay: 61.659 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.12 Mbit/s
95th percentile per-packet one-way delay: 61.659 ms
Loss rate: 0.00%
```

### Run 3: Report of Sprout — Data Link

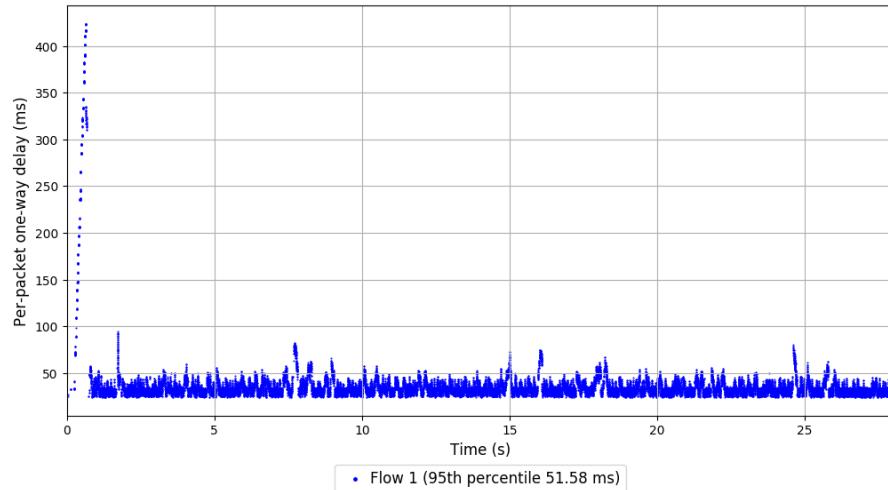
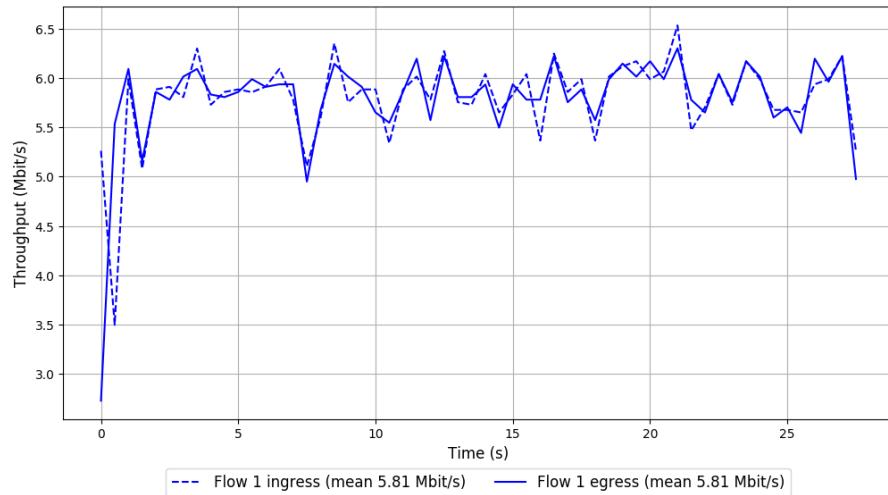


Run 1: Statistics of TaoVA-100x

```
Start at: 2017-12-11 08:06:35
End at: 2017-12-11 08:07:05
Local clock offset: -5.857 ms
Remote clock offset: -12.159 ms

# Below is generated by plot.py at 2017-12-11 08:53:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.81 Mbit/s
95th percentile per-packet one-way delay: 51.575 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 5.81 Mbit/s
95th percentile per-packet one-way delay: 51.575 ms
Loss rate: 0.19%
```

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

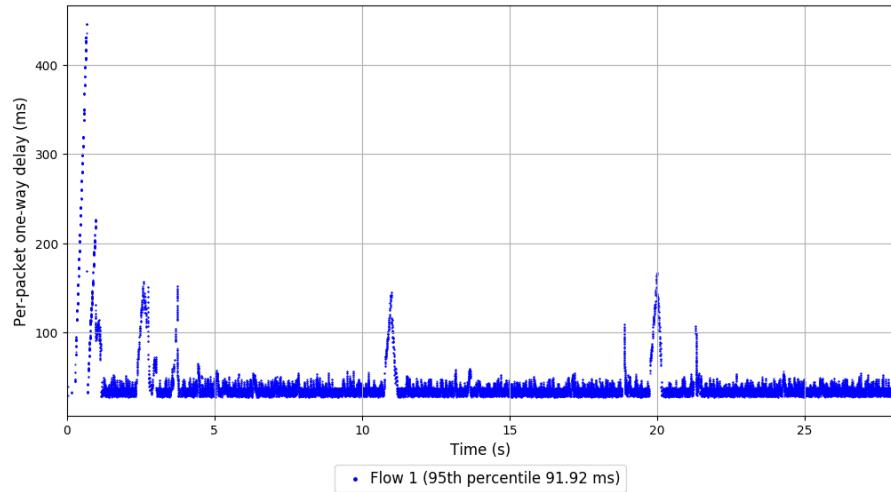
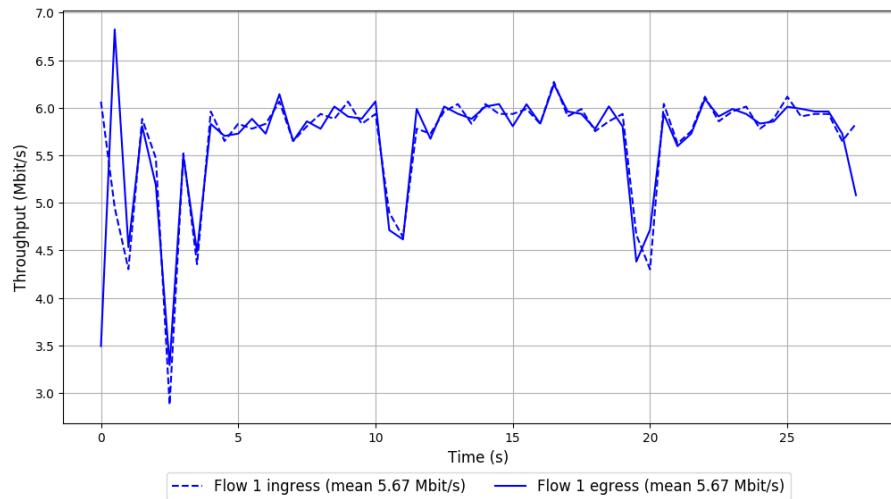


Run 2: Statistics of TaoVA-100x

```
Start at: 2017-12-11 08:21:48
End at: 2017-12-11 08:22:18
Local clock offset: -6.532 ms
Remote clock offset: -13.215 ms

# Below is generated by plot.py at 2017-12-11 08:53:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.67 Mbit/s
95th percentile per-packet one-way delay: 91.923 ms
Loss rate: 0.33%
-- Flow 1:
Average throughput: 5.67 Mbit/s
95th percentile per-packet one-way delay: 91.923 ms
Loss rate: 0.33%
```

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

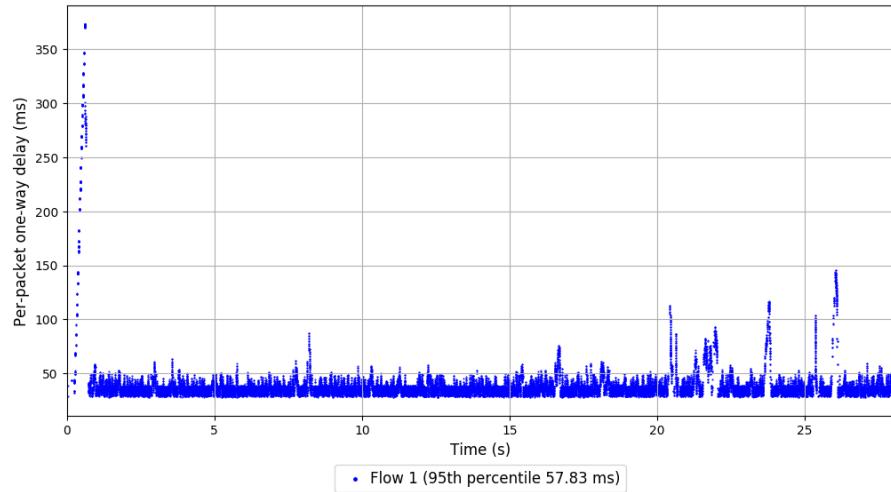
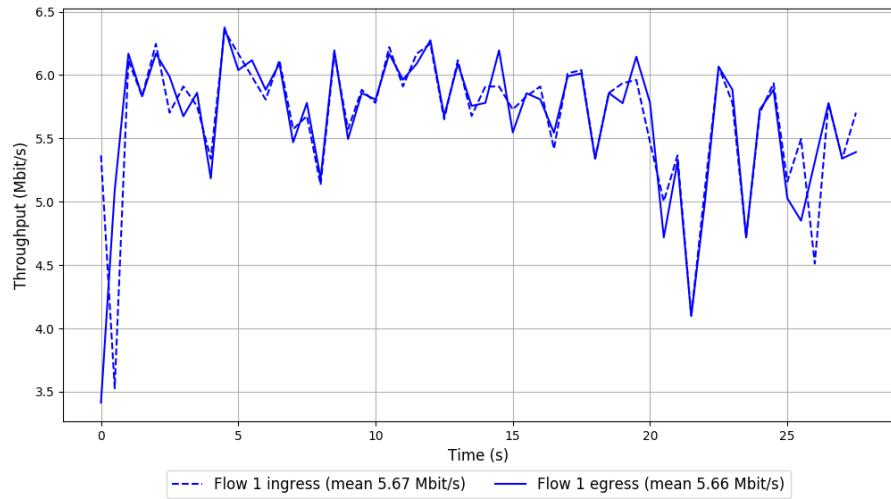


Run 3: Statistics of TaoVA-100x

```
Start at: 2017-12-11 08:37:03
End at: 2017-12-11 08:37:34
Local clock offset: -10.294 ms
Remote clock offset: -13.89 ms

# Below is generated by plot.py at 2017-12-11 08:53:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.66 Mbit/s
95th percentile per-packet one-way delay: 57.826 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 5.66 Mbit/s
95th percentile per-packet one-way delay: 57.826 ms
Loss rate: 0.20%
```

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

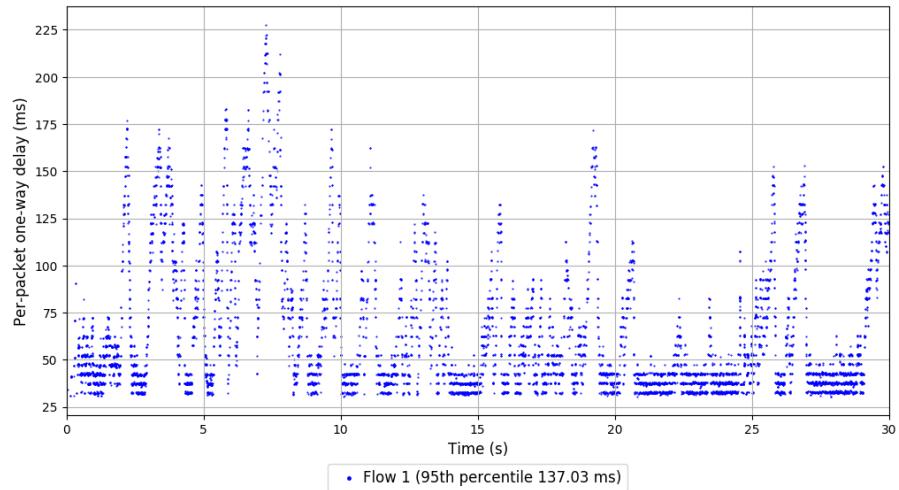
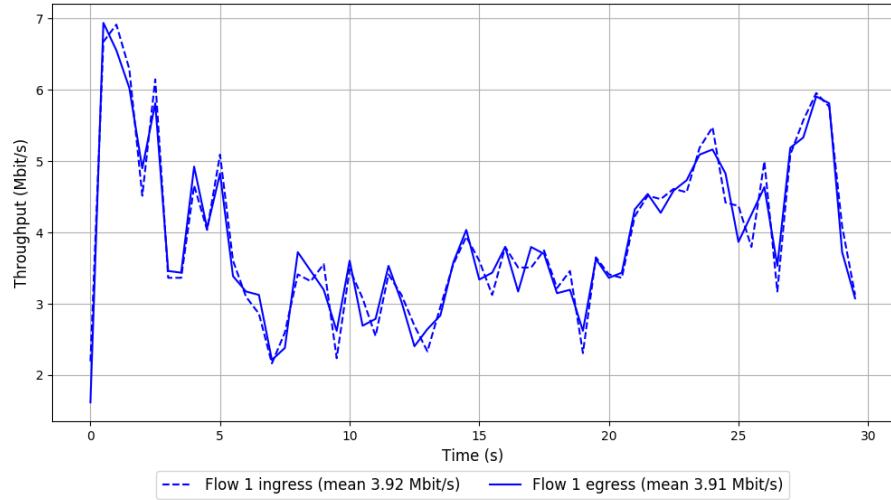


Run 1: Statistics of TCP Vegas

```
Start at: 2017-12-11 08:17:27
End at: 2017-12-11 08:17:57
Local clock offset: -8.603 ms
Remote clock offset: -12.733 ms

# Below is generated by plot.py at 2017-12-11 08:53:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.91 Mbit/s
95th percentile per-packet one-way delay: 137.029 ms
Loss rate: 0.36%
-- Flow 1:
Average throughput: 3.91 Mbit/s
95th percentile per-packet one-way delay: 137.029 ms
Loss rate: 0.36%
```

## Run 1: Report of TCP Vegas — Data Link

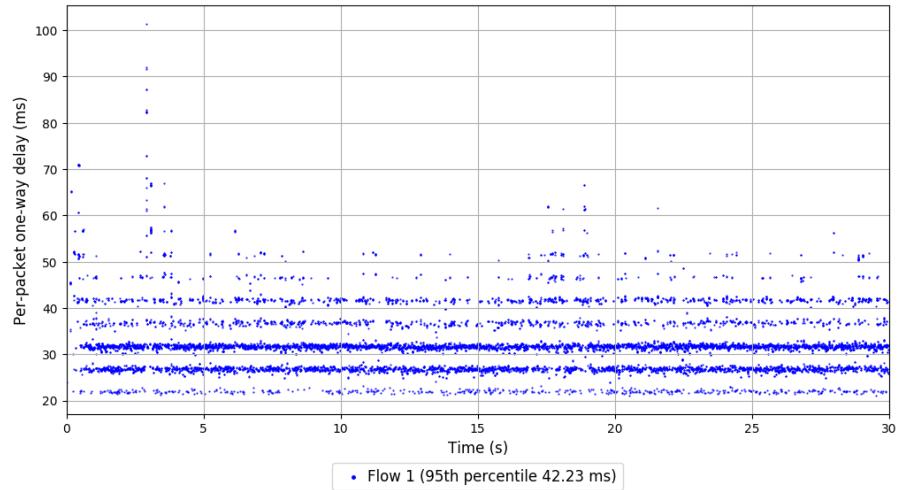
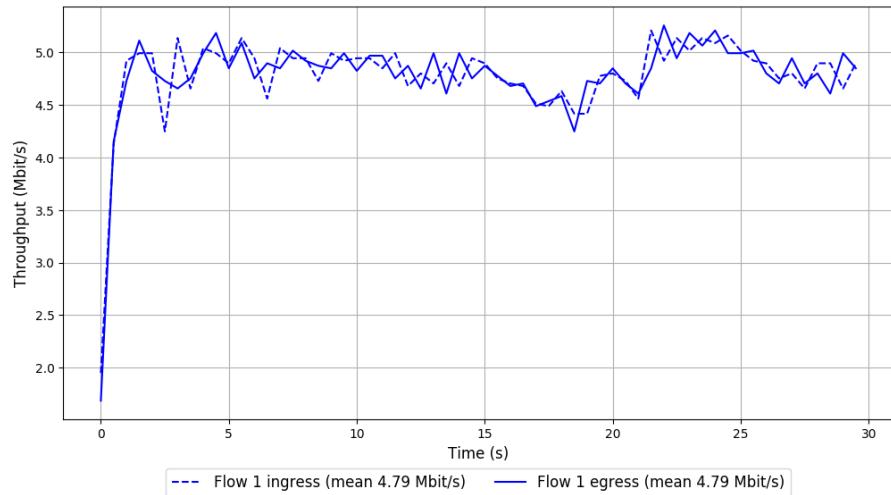


Run 2: Statistics of TCP Vegas

```
Start at: 2017-12-11 08:32:42
End at: 2017-12-11 08:33:12
Local clock offset: -6.832 ms
Remote clock offset: -12.895 ms

# Below is generated by plot.py at 2017-12-11 08:53:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.79 Mbit/s
95th percentile per-packet one-way delay: 42.233 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 4.79 Mbit/s
95th percentile per-packet one-way delay: 42.233 ms
Loss rate: 0.12%
```

## Run 2: Report of TCP Vegas — Data Link

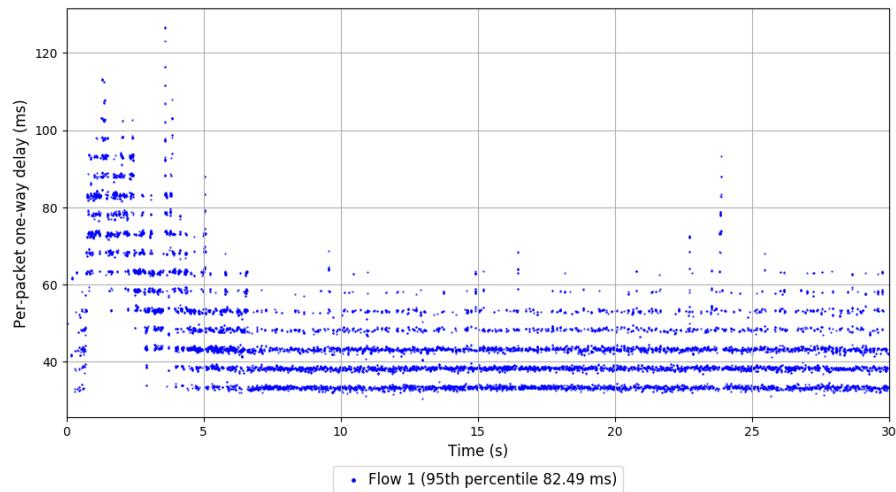
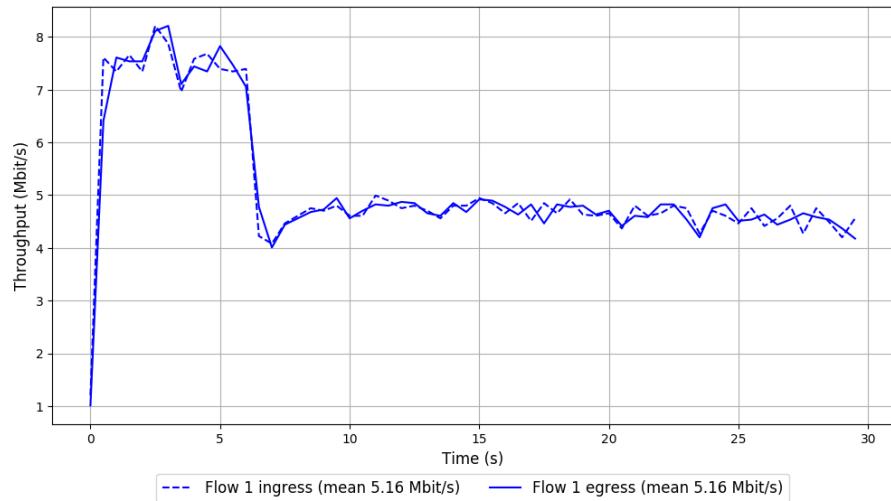


Run 3: Statistics of TCP Vegas

```
Start at: 2017-12-11 08:48:00
End at: 2017-12-11 08:48:30
Local clock offset: -12.044 ms
Remote clock offset: -15.419 ms

# Below is generated by plot.py at 2017-12-11 08:53:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.16 Mbit/s
95th percentile per-packet one-way delay: 82.489 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 5.16 Mbit/s
95th percentile per-packet one-way delay: 82.489 ms
Loss rate: 0.23%
```

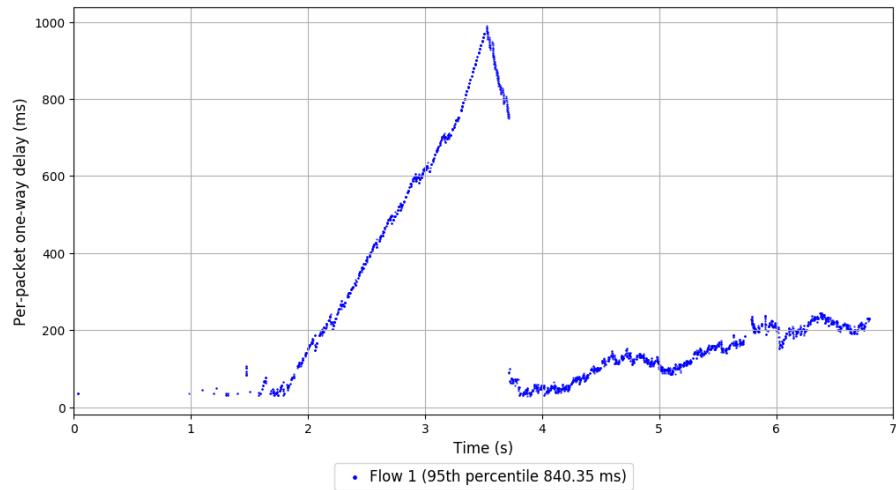
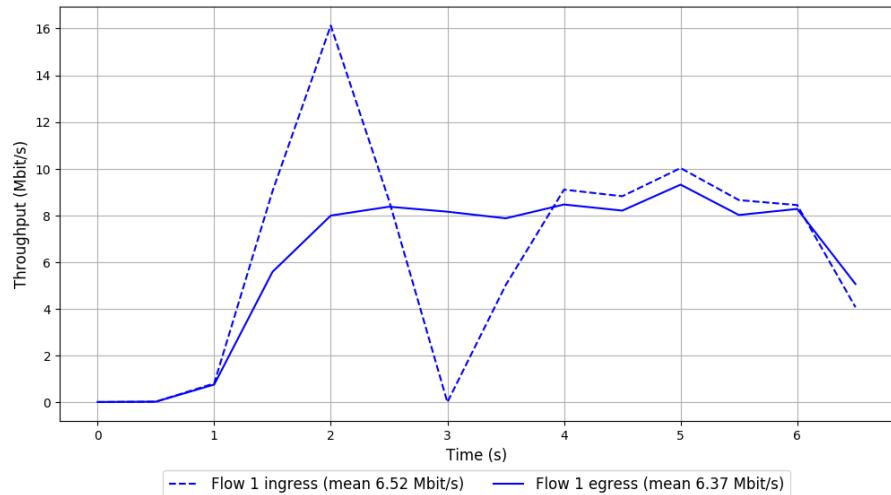
### Run 3: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

Start at: 2017-12-11 08:08:47  
End at: 2017-12-11 08:09:17  
Local clock offset: -8.581 ms  
Remote clock offset: -12.883 ms

## Run 1: Report of Verus — Data Link

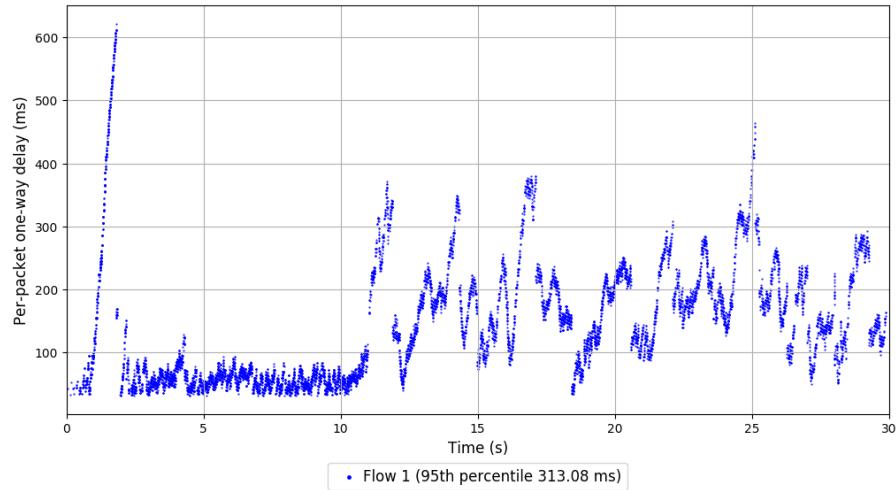
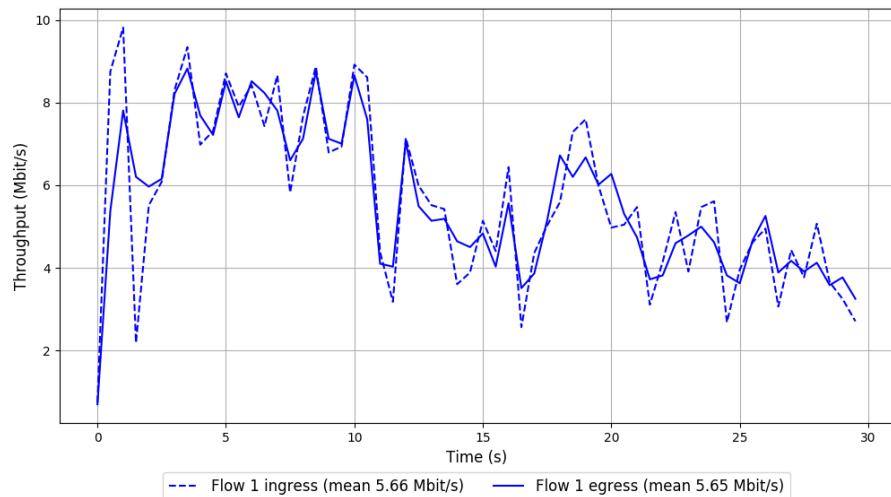


Run 2: Statistics of Verus

```
Start at: 2017-12-11 08:23:59
End at: 2017-12-11 08:24:29
Local clock offset: -6.323 ms
Remote clock offset: -12.523 ms

# Below is generated by plot.py at 2017-12-11 08:53:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.65 Mbit/s
95th percentile per-packet one-way delay: 313.078 ms
Loss rate: 0.36%
-- Flow 1:
Average throughput: 5.65 Mbit/s
95th percentile per-packet one-way delay: 313.078 ms
Loss rate: 0.36%
```

## Run 2: Report of Verus — Data Link

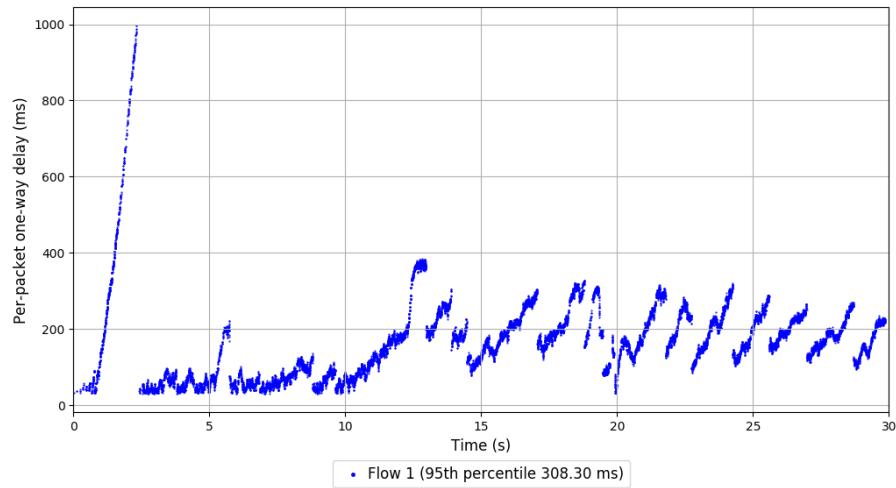
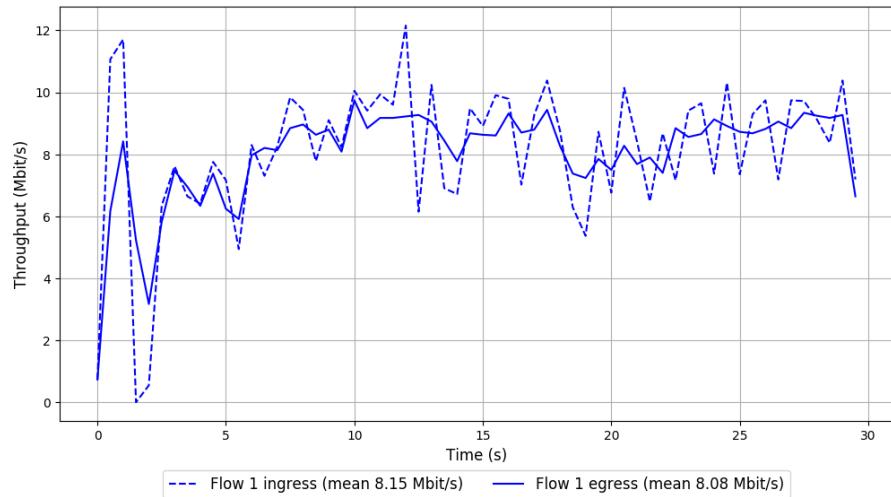


Run 3: Statistics of Verus

```
Start at: 2017-12-11 08:39:15
End at: 2017-12-11 08:39:45
Local clock offset: -11.791 ms
Remote clock offset: -12.518 ms

# Below is generated by plot.py at 2017-12-11 08:53:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.08 Mbit/s
95th percentile per-packet one-way delay: 308.300 ms
Loss rate: 1.03%
-- Flow 1:
Average throughput: 8.08 Mbit/s
95th percentile per-packet one-way delay: 308.300 ms
Loss rate: 1.03%
```

### Run 3: Report of Verus — Data Link

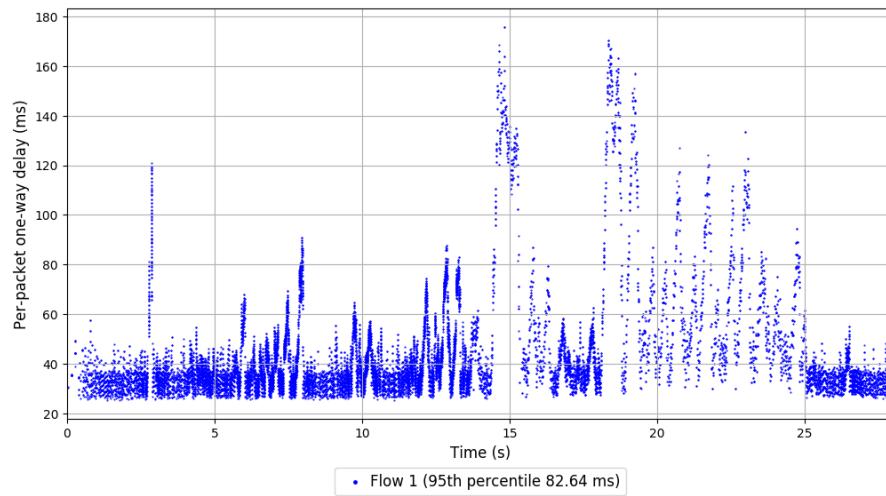
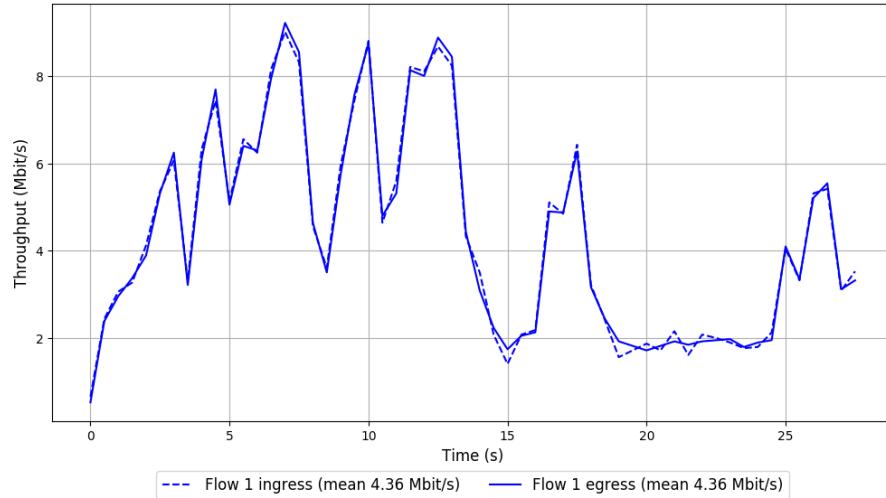


Run 1: Statistics of Copa

```
Start at: 2017-12-11 08:18:32
End at: 2017-12-11 08:19:02
Local clock offset: -7.78 ms
Remote clock offset: -11.291 ms

# Below is generated by plot.py at 2017-12-11 08:53:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.36 Mbit/s
95th percentile per-packet one-way delay: 82.645 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 4.36 Mbit/s
95th percentile per-packet one-way delay: 82.645 ms
Loss rate: 0.19%
```

## Run 1: Report of Copa — Data Link

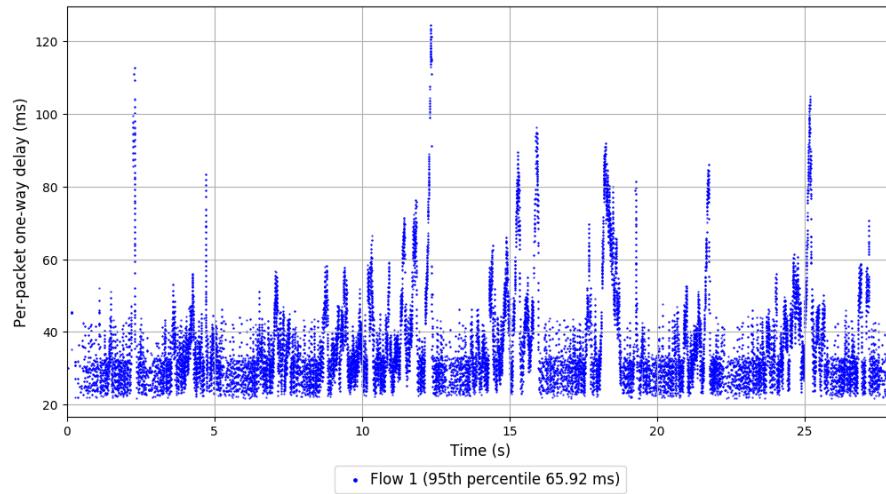
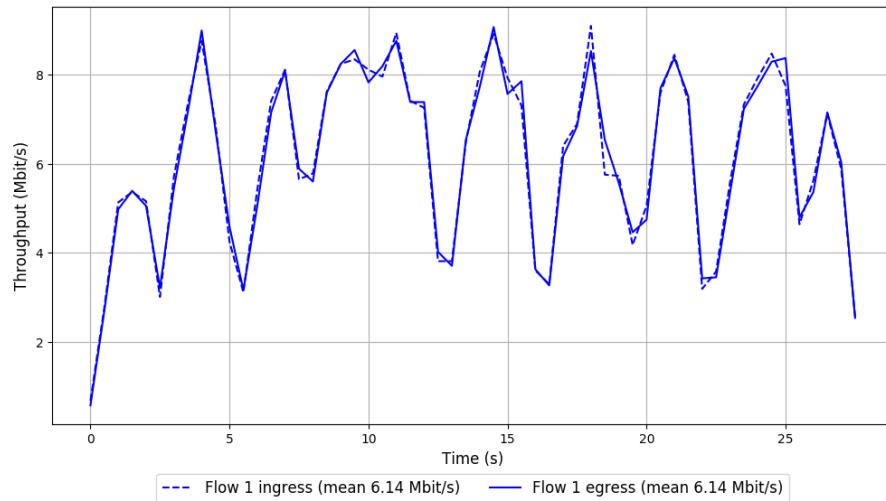


Run 2: Statistics of Copa

```
Start at: 2017-12-11 08:33:47
End at: 2017-12-11 08:34:17
Local clock offset: -8.16 ms
Remote clock offset: -14.013 ms

# Below is generated by plot.py at 2017-12-11 08:53:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.14 Mbit/s
95th percentile per-packet one-way delay: 65.917 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 6.14 Mbit/s
95th percentile per-packet one-way delay: 65.917 ms
Loss rate: 0.16%
```

## Run 2: Report of Copa — Data Link

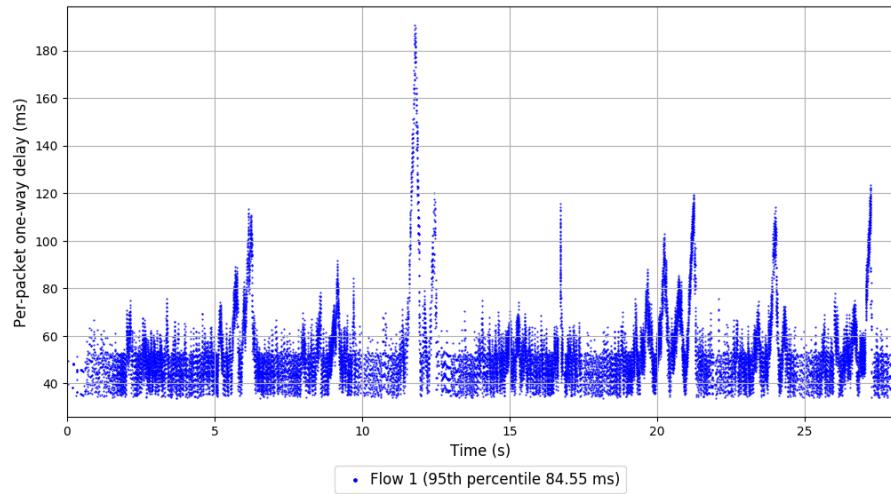
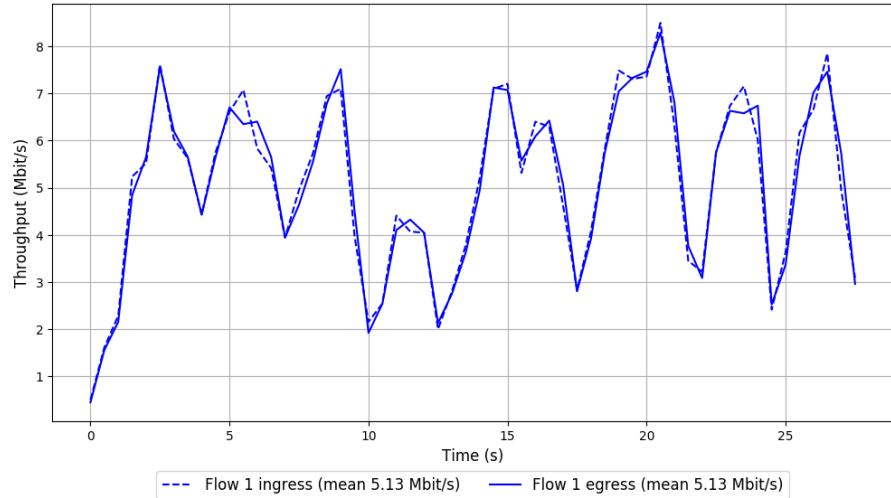


Run 3: Statistics of Copa

```
Start at: 2017-12-11 08:49:05
End at: 2017-12-11 08:49:35
Local clock offset: -13.767 ms
Remote clock offset: -14.198 ms

# Below is generated by plot.py at 2017-12-11 08:53:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.13 Mbit/s
95th percentile per-packet one-way delay: 84.552 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 5.13 Mbit/s
95th percentile per-packet one-way delay: 84.552 ms
Loss rate: 0.10%
```

### Run 3: Report of Copa — Data Link

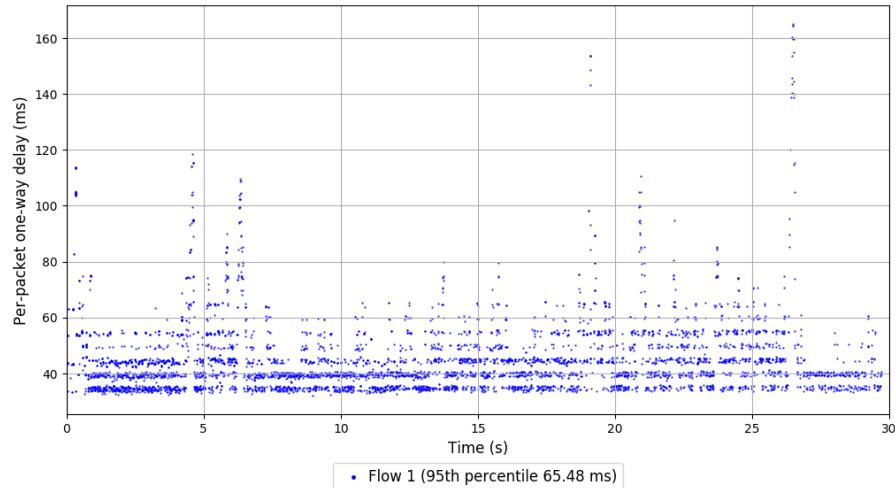
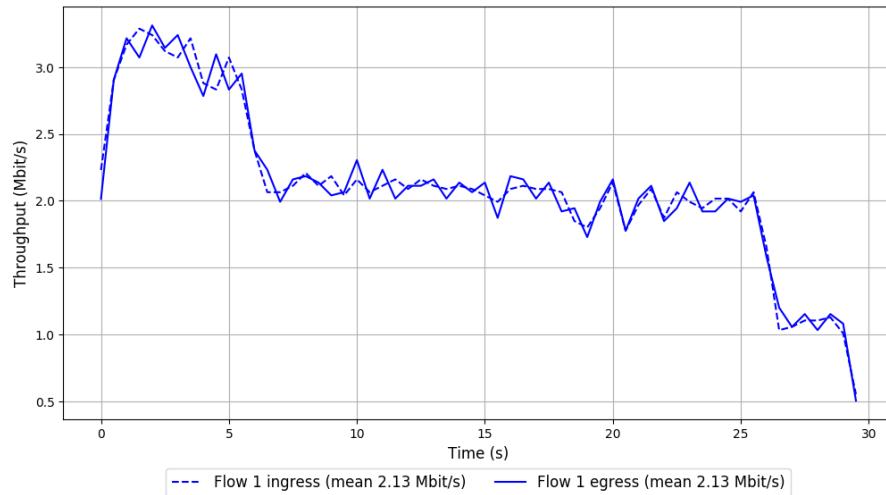


Run 1: Statistics of Indigo

```
Start at: 2017-12-11 08:19:38
End at: 2017-12-11 08:20:08
Local clock offset: -9.864 ms
Remote clock offset: -13.159 ms

# Below is generated by plot.py at 2017-12-11 08:53:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.13 Mbit/s
95th percentile per-packet one-way delay: 65.481 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 2.13 Mbit/s
95th percentile per-packet one-way delay: 65.481 ms
Loss rate: 0.06%
```

## Run 1: Report of Indigo — Data Link

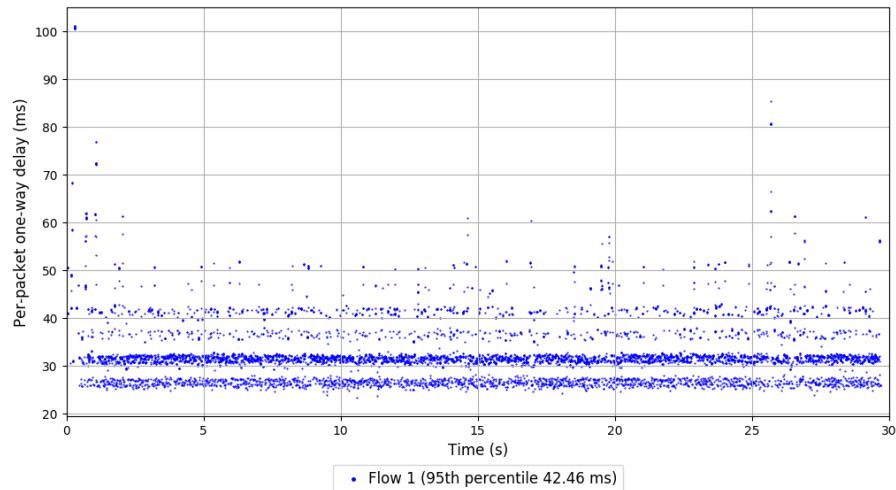
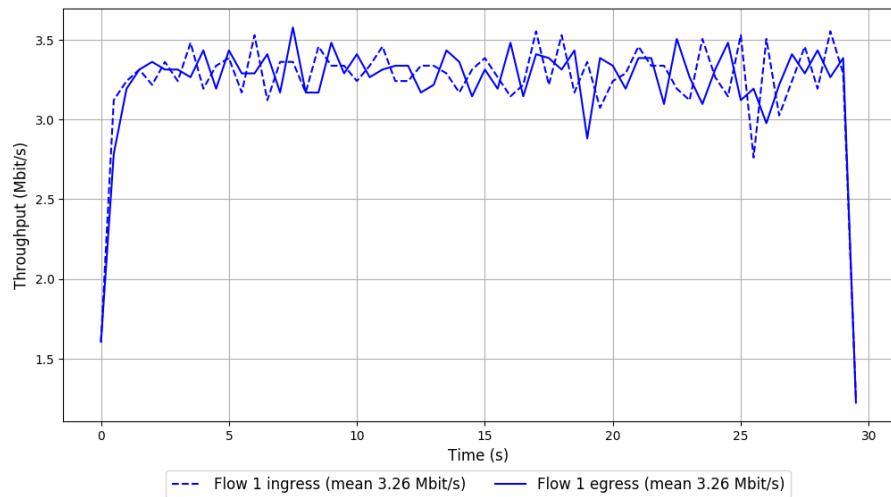


Run 2: Statistics of Indigo

```
Start at: 2017-12-11 08:34:53
End at: 2017-12-11 08:35:23
Local clock offset: -7.352 ms
Remote clock offset: -12.971 ms

# Below is generated by plot.py at 2017-12-11 08:53:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.26 Mbit/s
95th percentile per-packet one-way delay: 42.461 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 3.26 Mbit/s
95th percentile per-packet one-way delay: 42.461 ms
Loss rate: 0.19%
```

## Run 2: Report of Indigo — Data Link

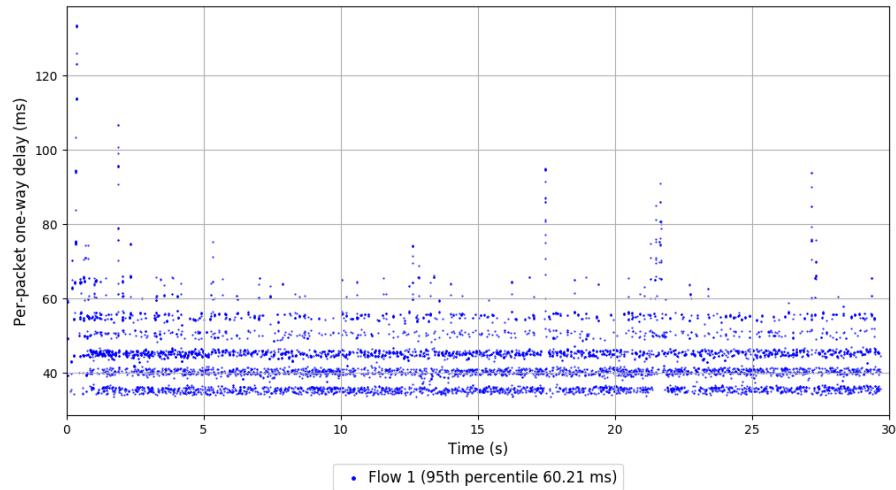
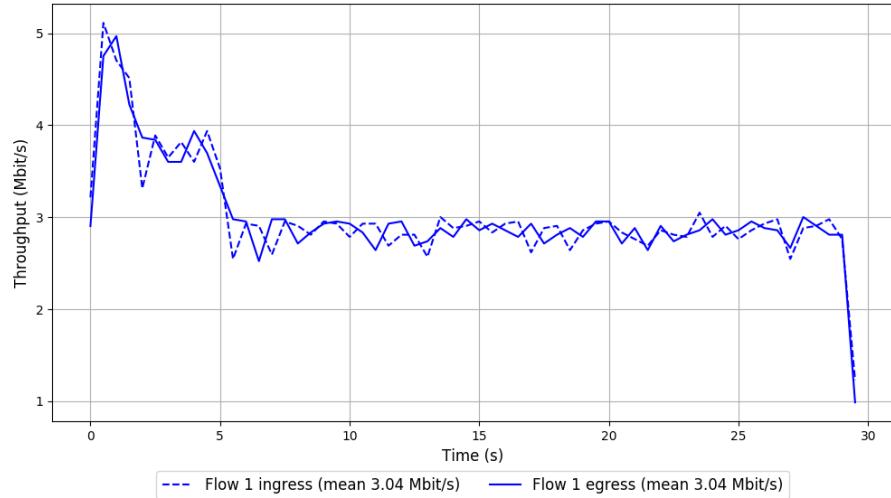


Run 3: Statistics of Indigo

```
Start at: 2017-12-11 08:50:13
End at: 2017-12-11 08:50:43
Local clock offset: -13.142 ms
Remote clock offset: -14.684 ms

# Below is generated by plot.py at 2017-12-11 08:53:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.04 Mbit/s
95th percentile per-packet one-way delay: 60.214 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 3.04 Mbit/s
95th percentile per-packet one-way delay: 60.214 ms
Loss rate: 0.24%
```

### Run 3: Report of Indigo — Data Link

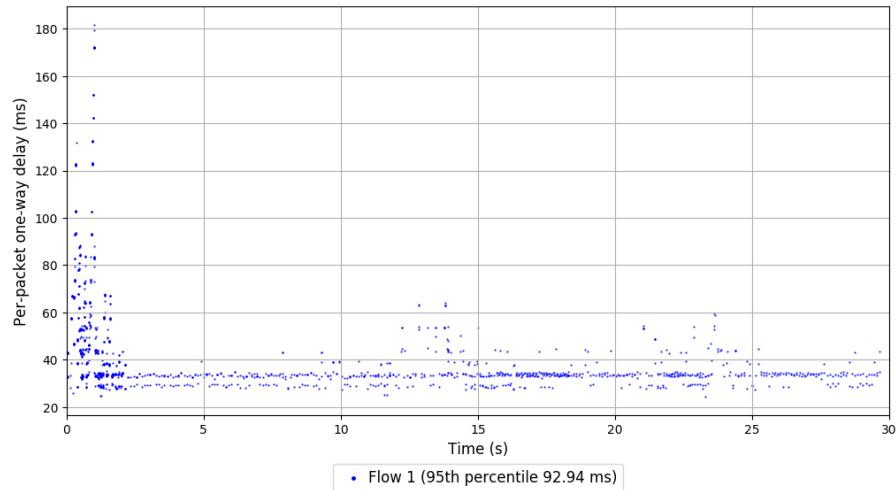
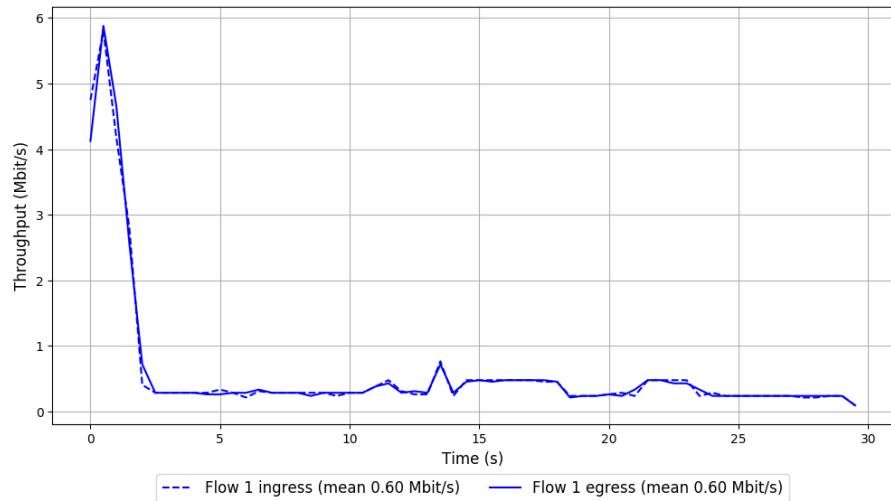


Run 1: Statistics of Indigo-calib

```
Start at: 2017-12-11 08:20:43
End at: 2017-12-11 08:21:13
Local clock offset: -6.189 ms
Remote clock offset: -11.475 ms

# Below is generated by plot.py at 2017-12-11 08:53:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 92.942 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 92.942 ms
Loss rate: 0.00%
```

## Run 1: Report of Indigo-calib — Data Link



Run 2: Statistics of Indigo-calib

Start at: 2017-12-11 08:35:58  
End at: 2017-12-11 08:36:29  
Local clock offset: -7.408 ms  
Remote clock offset: -12.218 ms

Run 2: Report of Indigo-calib — Data Link

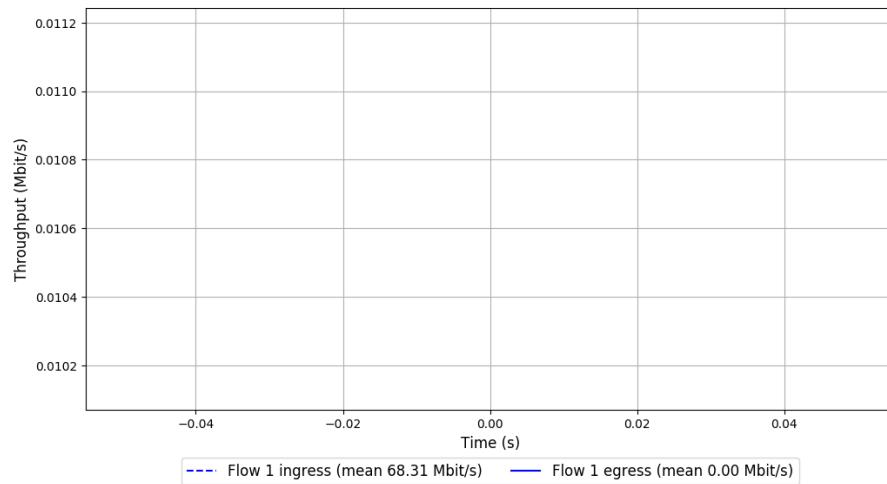


Figure is missing

Run 3: Statistics of Indigo-calib

```
Start at: 2017-12-11 08:51:19
End at: 2017-12-11 08:51:49
Local clock offset: -15.528 ms
Remote clock offset: -13.919 ms

# Below is generated by plot.py at 2017-12-11 08:53:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.72 Mbit/s
95th percentile per-packet one-way delay: 127.888 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.72 Mbit/s
95th percentile per-packet one-way delay: 127.888 ms
Loss rate: 0.00%
```

### Run 3: Report of Indigo-calib — Data Link

