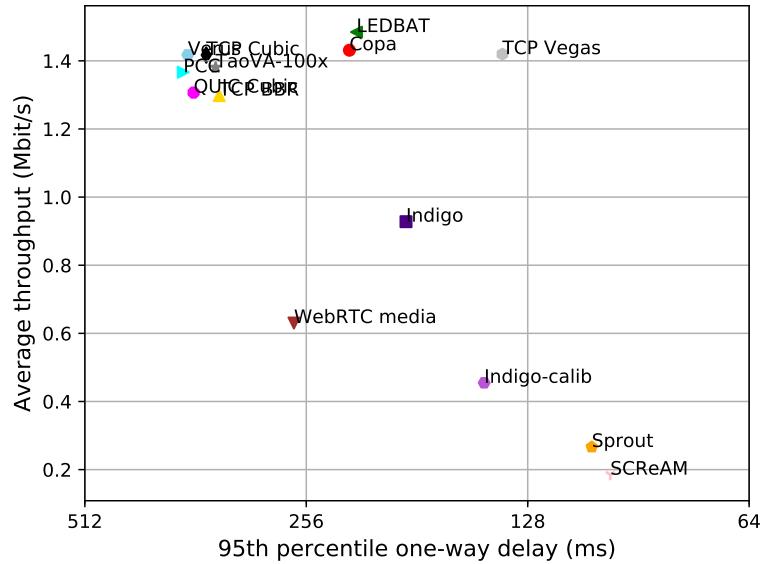


## Pantheon Report

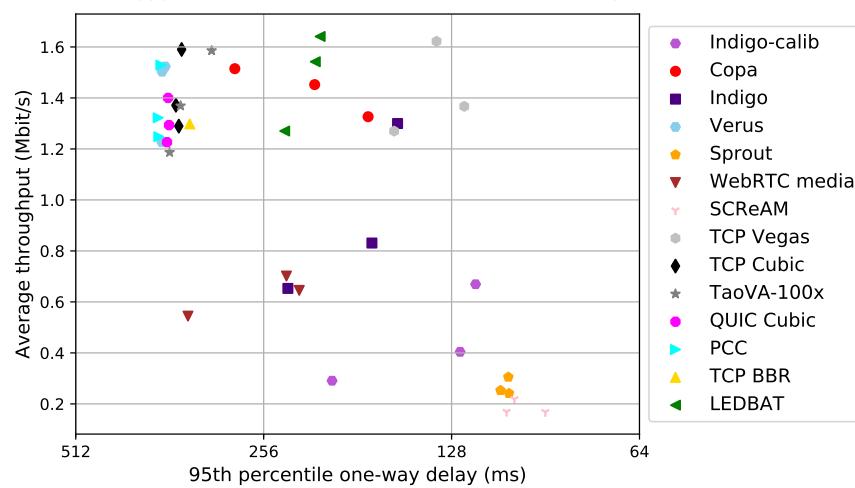
Generated at 2017-11-30 06:50:59 (UTC).  
Data path: India ppp0 (*remote*) → AWS India 1 Ethernet (*local*).  
Repeated the test of 14 congestion control schemes 3 times.  
Each test lasted for 30 seconds running 1 flow.  
Increased UDP receive buffer to 16 MB (default) and 32 MB (max).  
Tested BBR 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 India ppp0 to AWS India 1 Ethernet, 3 runs of 30s each per scheme  
(mean of all runs by scheme)



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



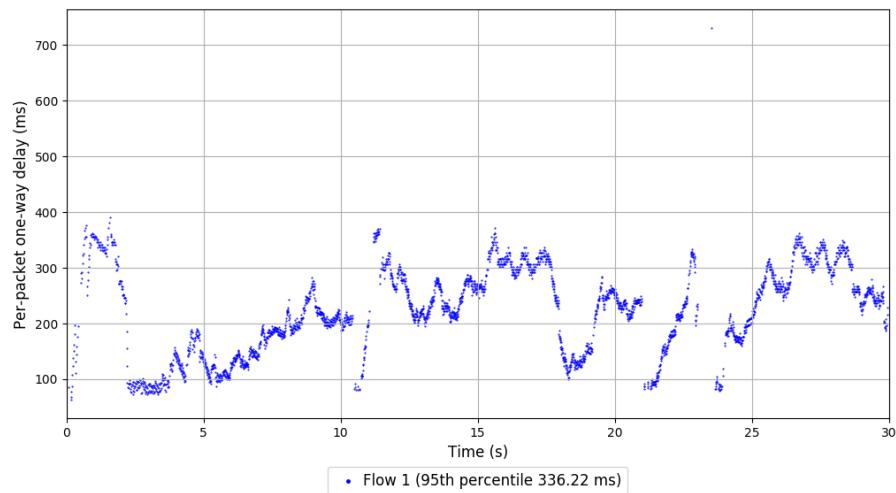
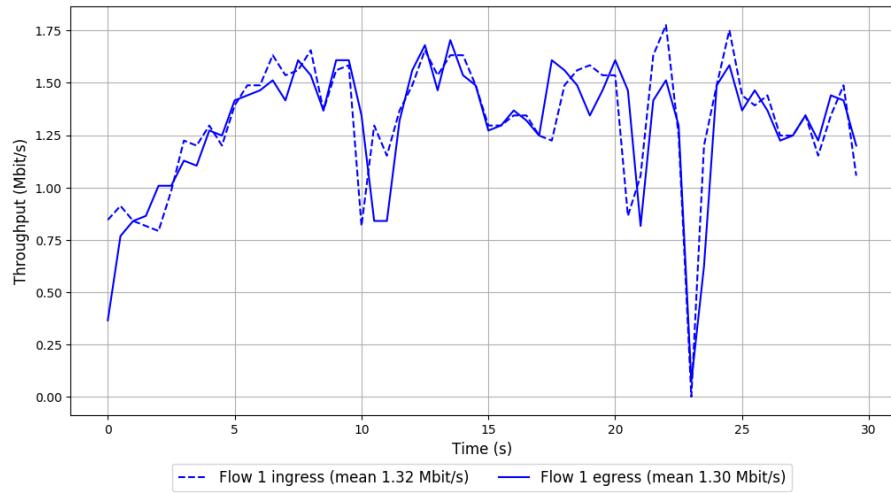
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	1	1.30	336.22	1.97
TCP Cubic	3	1.42	350.16	2.31
LEDBAT	3	1.48	218.80	0.62
PCC	3	1.37	376.21	80.54
QUIC Cubic	3	1.31	364.26	5.33
SCReAM	3	0.19	98.85	0.27
WebRTC media	3	0.63	266.11	2.36
Sprout	3	0.27	104.75	0.15
TaoVA-100x	3	1.38	340.06	5.46
TCP Vegas	3	1.42	138.56	0.53
Verus	3	1.42	371.02	18.50
Copa	3	1.43	223.67	0.70
Indigo	3	0.93	187.35	1.19
Indigo-calib	3	0.45	146.70	5.96

Run 1: Statistics of TCP BBR

```
Start at: 2017-11-30 05:23:05
End at: 2017-11-30 05:23:35
Local clock offset: -10.416 ms
Remote clock offset: -18.965 ms

# Below is generated by plot.py at 2017-11-30 06:50:32
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.30 Mbit/s
95th percentile per-packet one-way delay: 336.223 ms
Loss rate: 1.97%
-- Flow 1:
Average throughput: 1.30 Mbit/s
95th percentile per-packet one-way delay: 336.223 ms
Loss rate: 1.97%
```

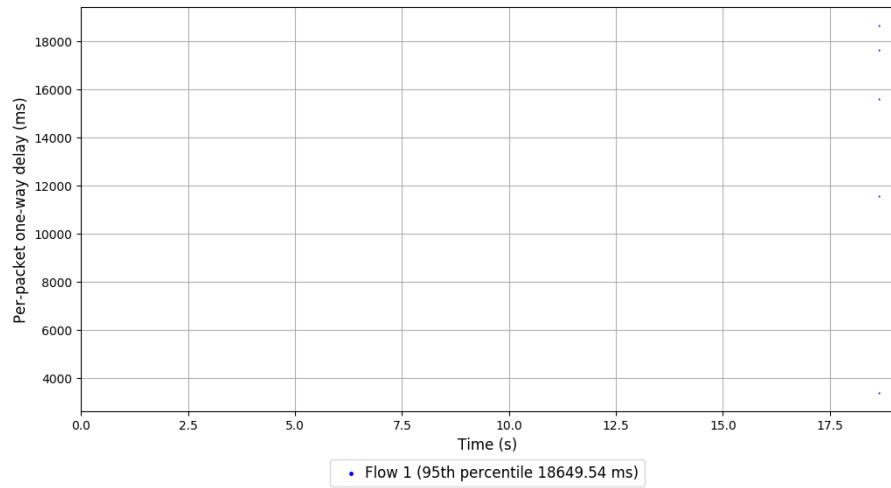
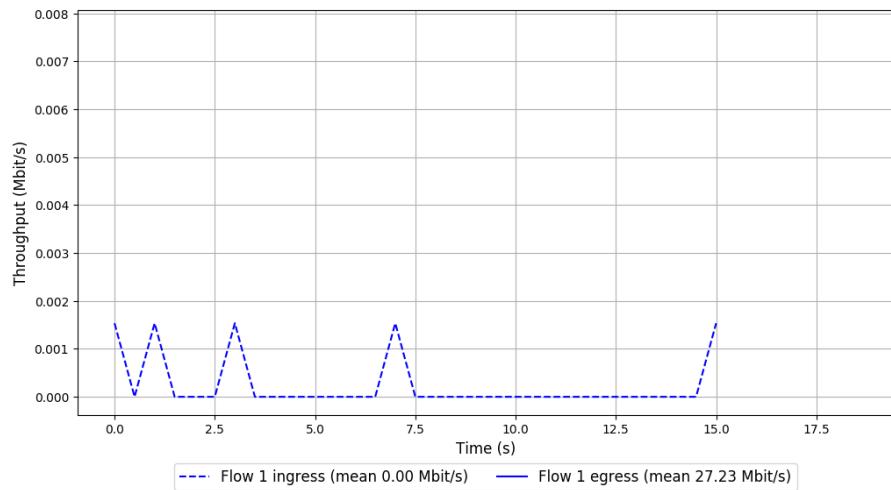
## Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2017-11-30 05:38:39  
End at: 2017-11-30 05:39:09  
Local clock offset: -7.271 ms  
Remote clock offset: -18.965 ms

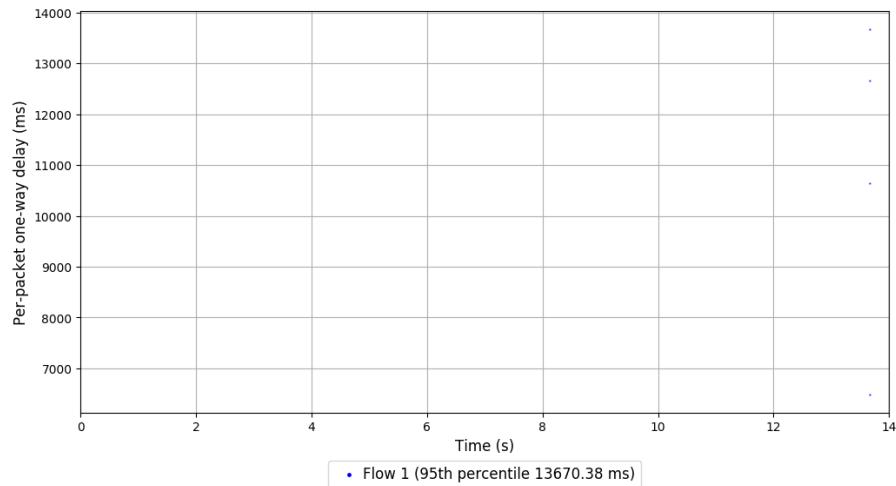
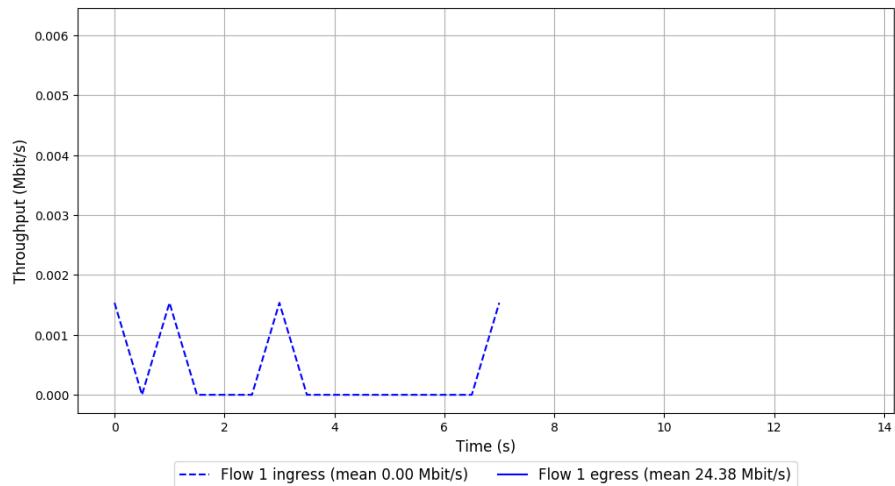
## Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2017-11-30 05:54:24  
End at: 2017-11-30 05:54:54  
Local clock offset: -11.34 ms  
Remote clock offset: -19.811 ms

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

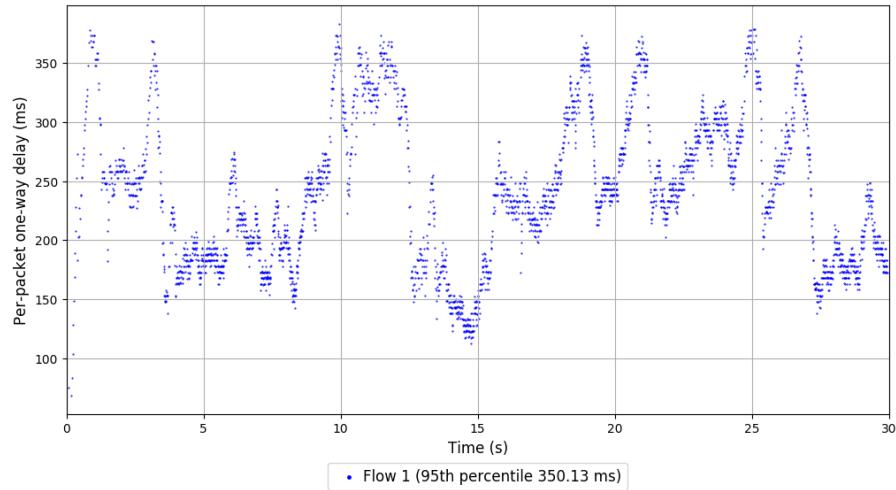
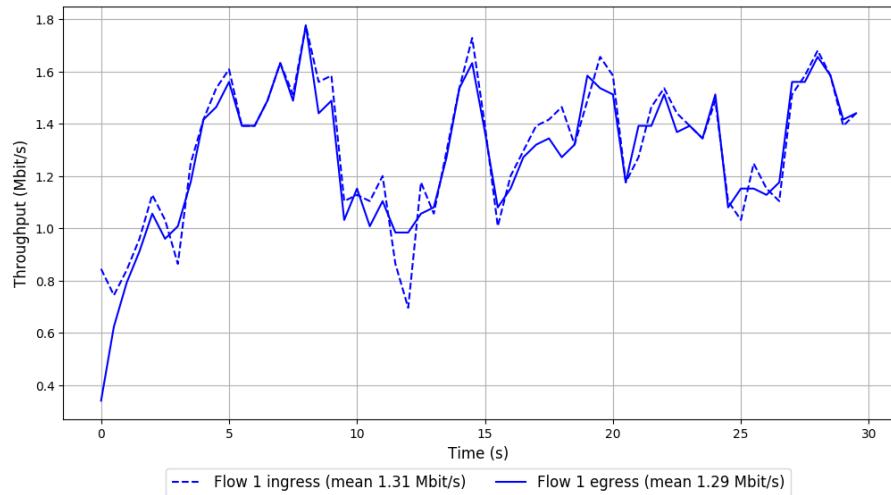


Run 1: Statistics of TCP Cubic

```
Start at: 2017-11-30 05:27:28
End at: 2017-11-30 05:27:58
Local clock offset: -12.9 ms
Remote clock offset: -18.977 ms

# Below is generated by plot.py at 2017-11-30 06:50:32
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.29 Mbit/s
95th percentile per-packet one-way delay: 350.126 ms
Loss rate: 2.05%
-- Flow 1:
Average throughput: 1.29 Mbit/s
95th percentile per-packet one-way delay: 350.126 ms
Loss rate: 2.05%
```

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

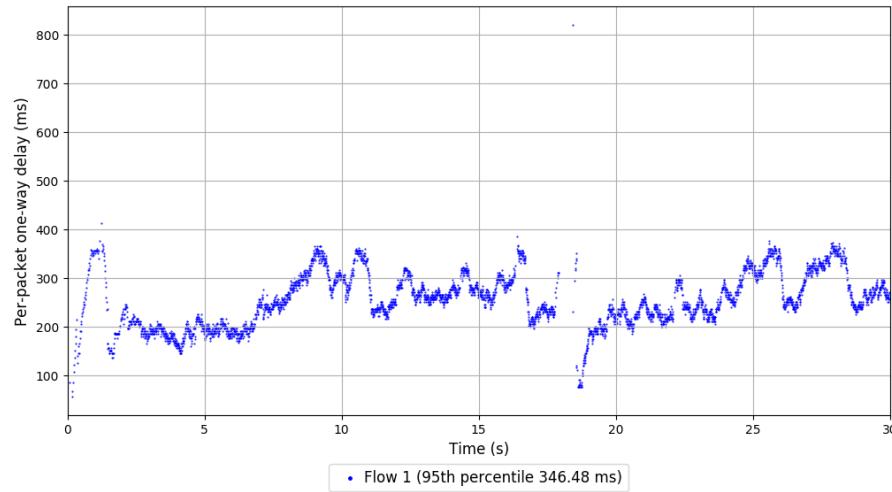
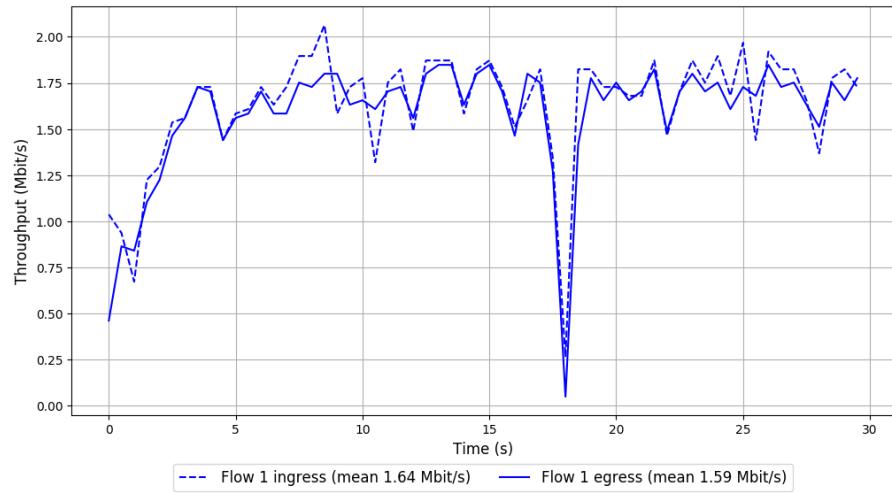


Run 2: Statistics of TCP Cubic

```
Start at: 2017-11-30 05:43:06
End at: 2017-11-30 05:43:36
Local clock offset: -11.105 ms
Remote clock offset: -19.742 ms

# Below is generated by plot.py at 2017-11-30 06:50:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.59 Mbit/s
95th percentile per-packet one-way delay: 346.482 ms
Loss rate: 2.99%
-- Flow 1:
Average throughput: 1.59 Mbit/s
95th percentile per-packet one-way delay: 346.482 ms
Loss rate: 2.99%
```

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

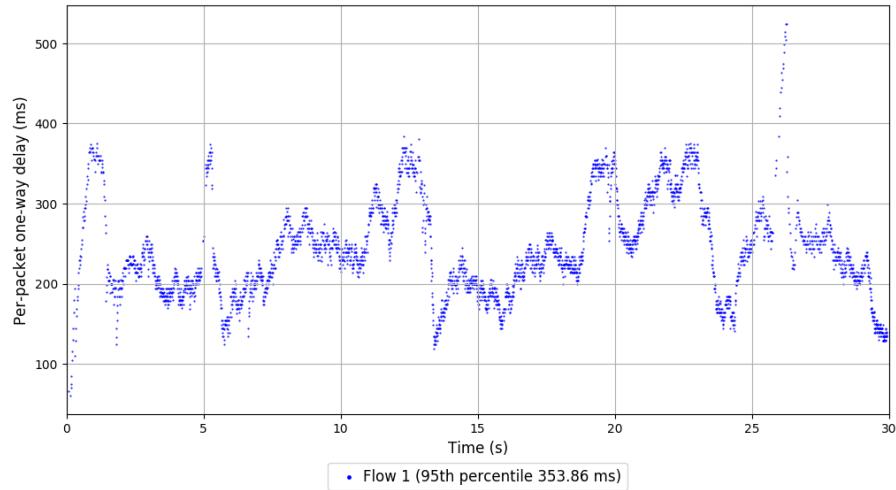
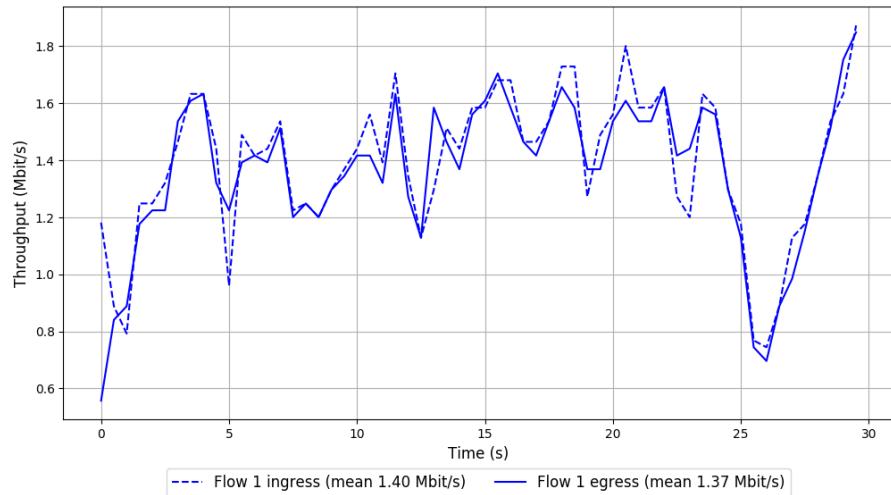


Run 3: Statistics of TCP Cubic

```
Start at: 2017-11-30 05:58:59
End at: 2017-11-30 05:59:29
Local clock offset: -11.822 ms
Remote clock offset: -18.643 ms

# Below is generated by plot.py at 2017-11-30 06:50:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.37 Mbit/s
95th percentile per-packet one-way delay: 353.862 ms
Loss rate: 1.90%
-- Flow 1:
Average throughput: 1.37 Mbit/s
95th percentile per-packet one-way delay: 353.862 ms
Loss rate: 1.90%
```

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

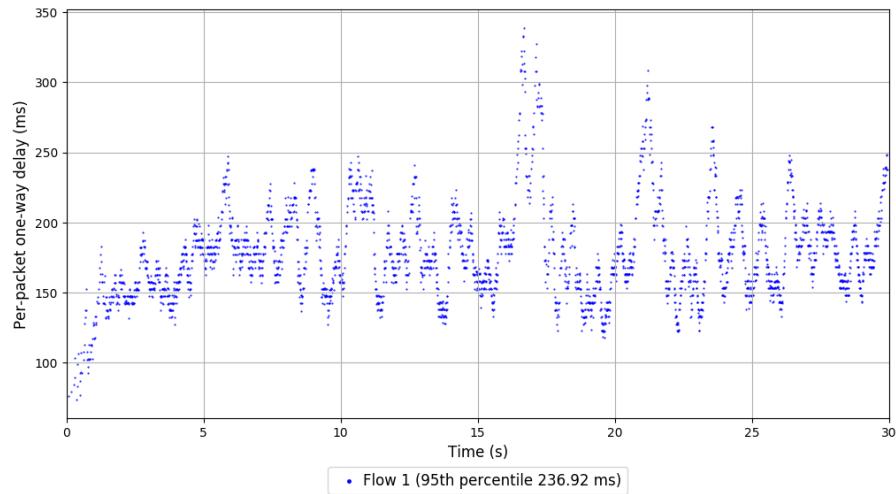
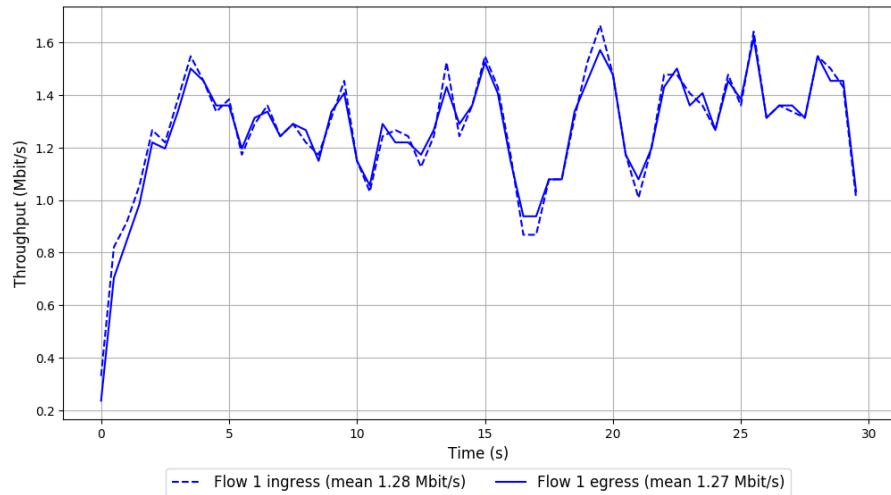


```
Run 1: Statistics of LEDBAT
```

```
Start at: 2017-11-30 05:17:28
End at: 2017-11-30 05:17:58
Local clock offset: -3.084 ms
Remote clock offset: -20.185 ms

# Below is generated by plot.py at 2017-11-30 06:50:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.27 Mbit/s
95th percentile per-packet one-way delay: 236.920 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 1.27 Mbit/s
95th percentile per-packet one-way delay: 236.920 ms
Loss rate: 0.65%
```

## Run 1: Report of LEDBAT — Data Link

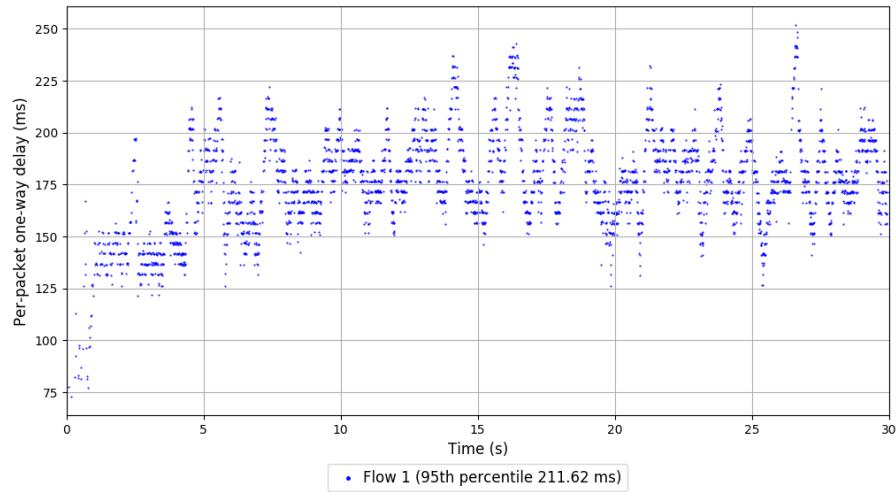
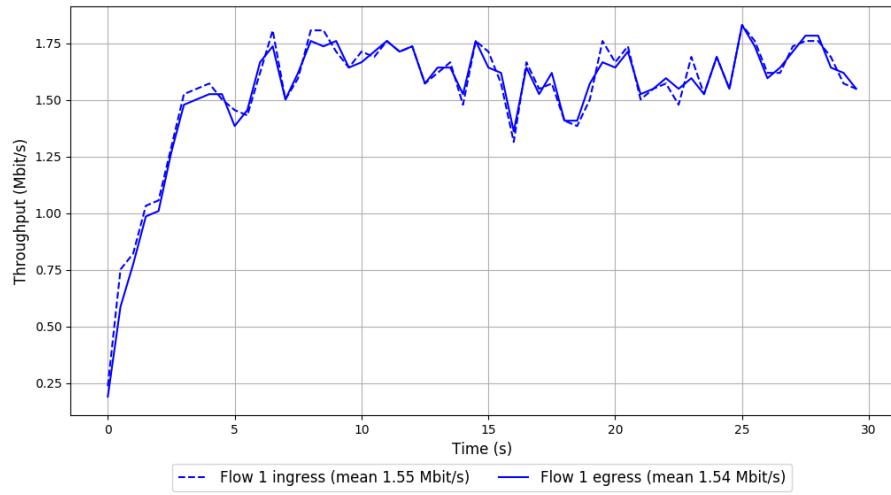


Run 2: Statistics of LEDBAT

```
Start at: 2017-11-30 05:33:00
End at: 2017-11-30 05:33:30
Local clock offset: -8.183 ms
Remote clock offset: -18.187 ms

# Below is generated by plot.py at 2017-11-30 06:50:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.54 Mbit/s
95th percentile per-packet one-way delay: 211.625 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 1.54 Mbit/s
95th percentile per-packet one-way delay: 211.625 ms
Loss rate: 0.63%
```

## Run 2: Report of LEDBAT — Data Link

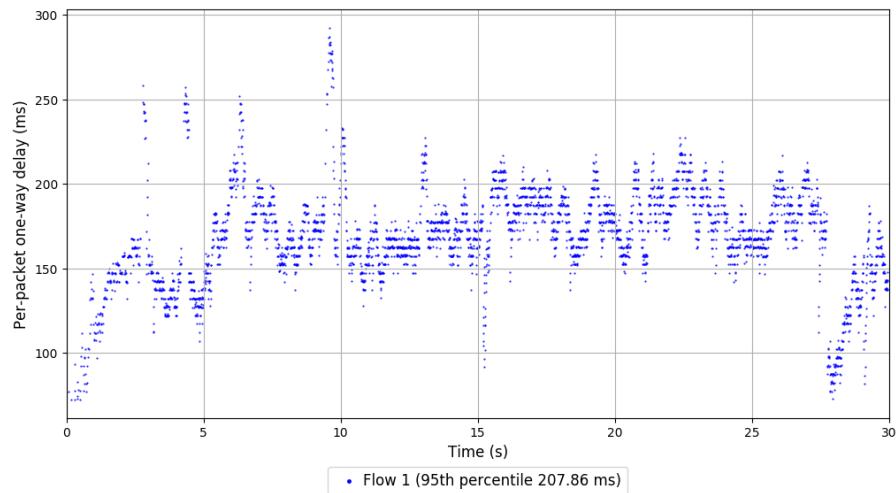
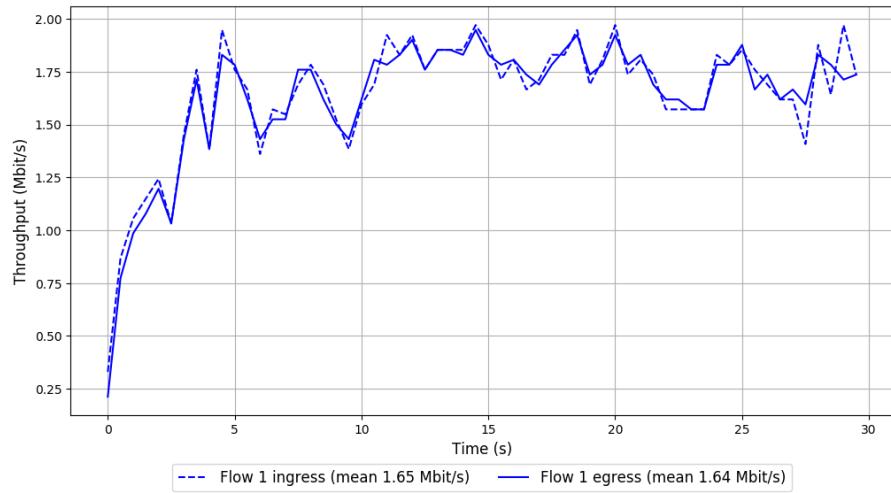


Run 3: Statistics of LEDBAT

```
Start at: 2017-11-30 05:48:40
End at: 2017-11-30 05:49:10
Local clock offset: -10.944 ms
Remote clock offset: -19.819 ms

# Below is generated by plot.py at 2017-11-30 06:50:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.64 Mbit/s
95th percentile per-packet one-way delay: 207.859 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 1.64 Mbit/s
95th percentile per-packet one-way delay: 207.859 ms
Loss rate: 0.57%
```

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

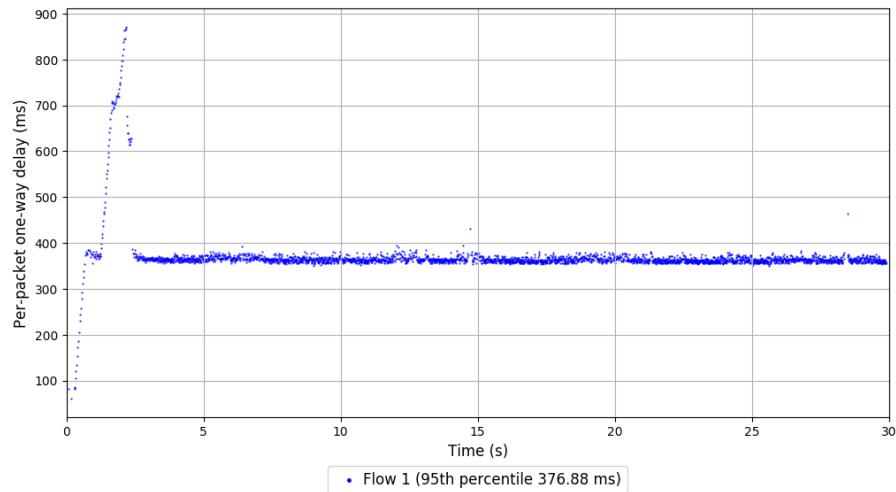
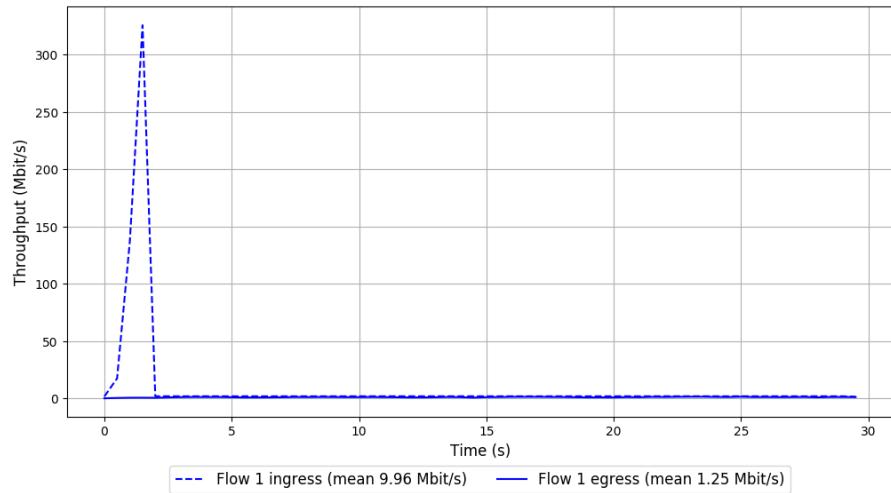


Run 1: Statistics of PCC

```
Start at: 2017-11-30 05:20:49
End at: 2017-11-30 05:21:19
Local clock offset: -9.568 ms
Remote clock offset: -19.465 ms

# Below is generated by plot.py at 2017-11-30 06:50:41
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.25 Mbit/s
95th percentile per-packet one-way delay: 376.876 ms
Loss rate: 87.50%
-- Flow 1:
Average throughput: 1.25 Mbit/s
95th percentile per-packet one-way delay: 376.876 ms
Loss rate: 87.50%
```

Run 1: Report of PCC — Data Link

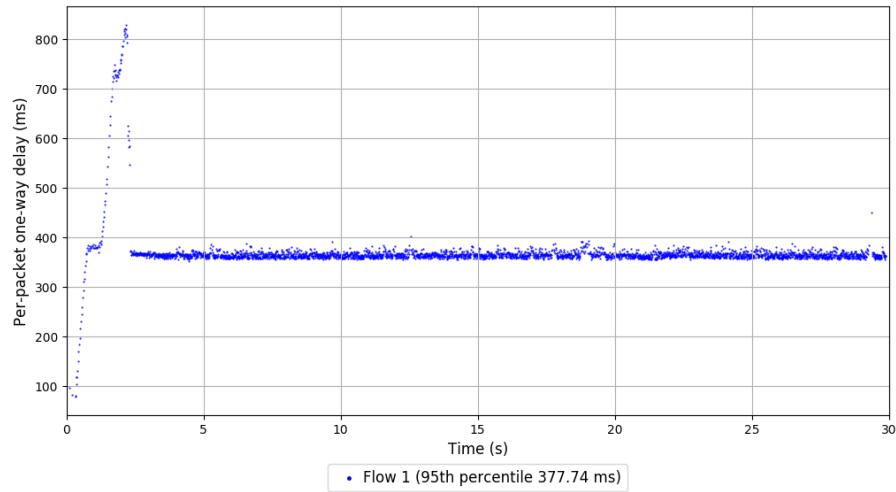
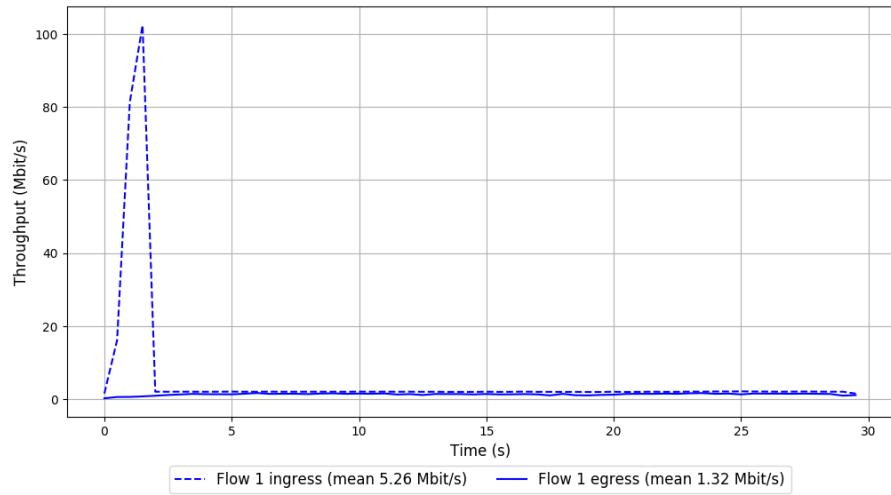


Run 2: Statistics of PCC

```
Start at: 2017-11-30 05:36:22
End at: 2017-11-30 05:36:52
Local clock offset: -5.29 ms
Remote clock offset: -17.832 ms

# Below is generated by plot.py at 2017-11-30 06:50:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.32 Mbit/s
95th percentile per-packet one-way delay: 377.742 ms
Loss rate: 74.93%
-- Flow 1:
Average throughput: 1.32 Mbit/s
95th percentile per-packet one-way delay: 377.742 ms
Loss rate: 74.93%
```

## Run 2: Report of PCC — Data Link

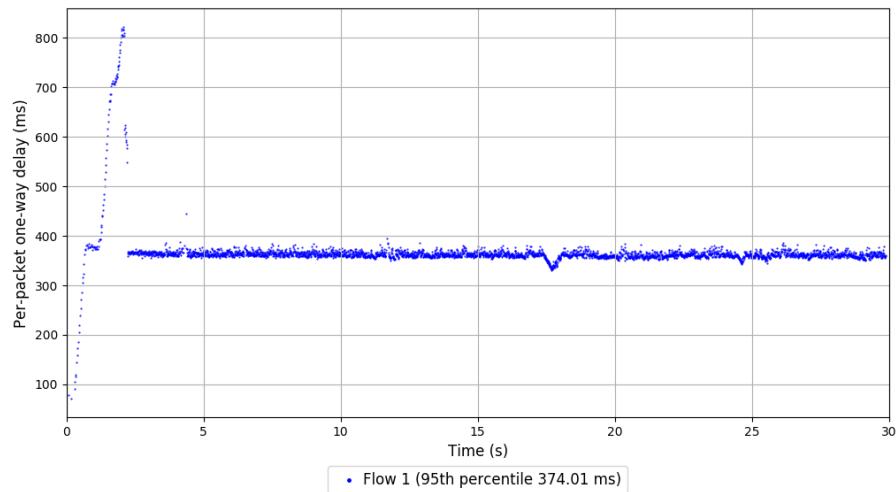
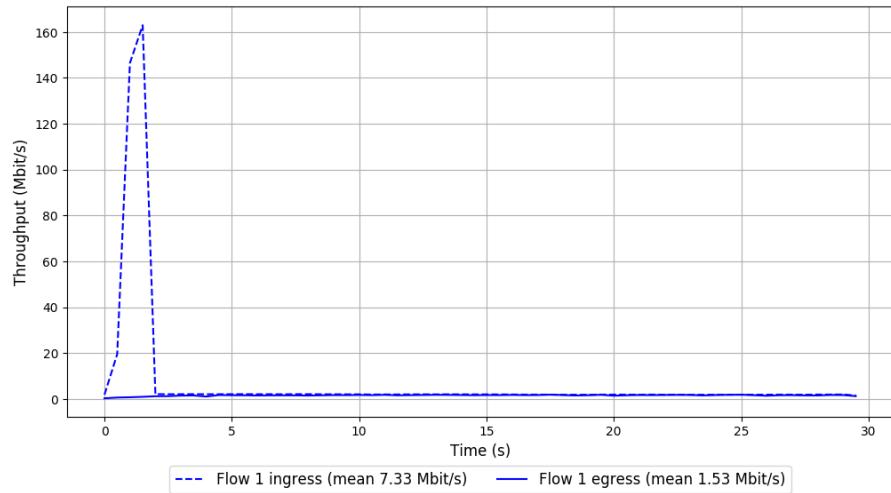


Run 3: Statistics of PCC

```
Start at: 2017-11-30 05:52:02
End at: 2017-11-30 05:52:32
Local clock offset: -12.804 ms
Remote clock offset: -18.323 ms

# Below is generated by plot.py at 2017-11-30 06:50:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.53 Mbit/s
95th percentile per-packet one-way delay: 374.014 ms
Loss rate: 79.19%
-- Flow 1:
Average throughput: 1.53 Mbit/s
95th percentile per-packet one-way delay: 374.014 ms
Loss rate: 79.19%
```

### Run 3: Report of PCC — Data Link

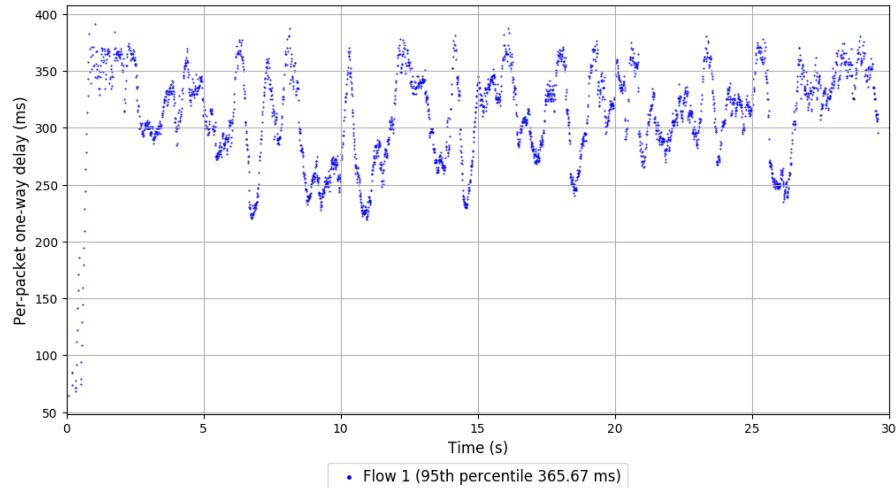
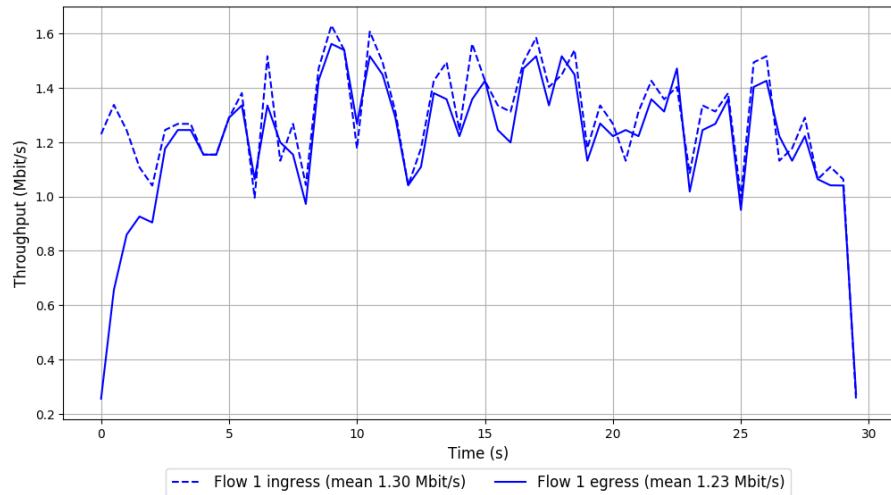


```
Run 1: Statistics of QUIC Cubic
```

```
Start at: 2017-11-30 05:18:37
End at: 2017-11-30 05:19:07
Local clock offset: -5.595 ms
Remote clock offset: -18.467 ms

# Below is generated by plot.py at 2017-11-30 06:50:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.23 Mbit/s
95th percentile per-packet one-way delay: 365.669 ms
Loss rate: 5.85%
-- Flow 1:
Average throughput: 1.23 Mbit/s
95th percentile per-packet one-way delay: 365.669 ms
Loss rate: 5.85%
```

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

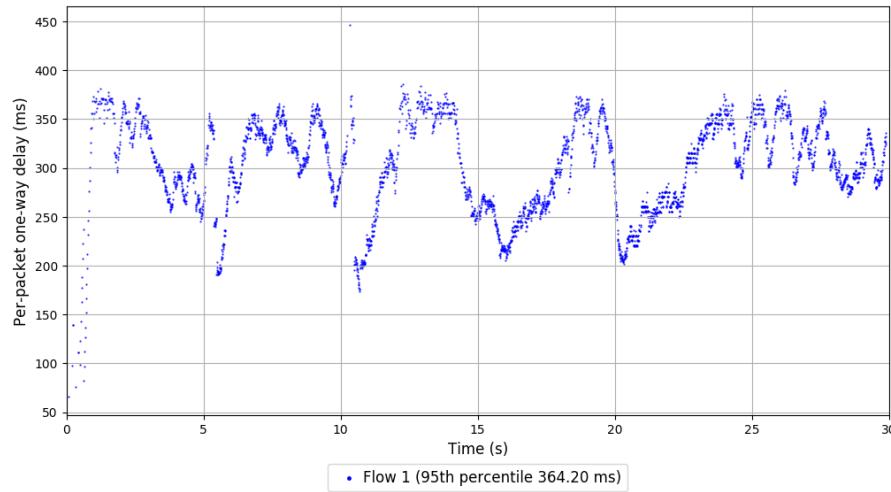
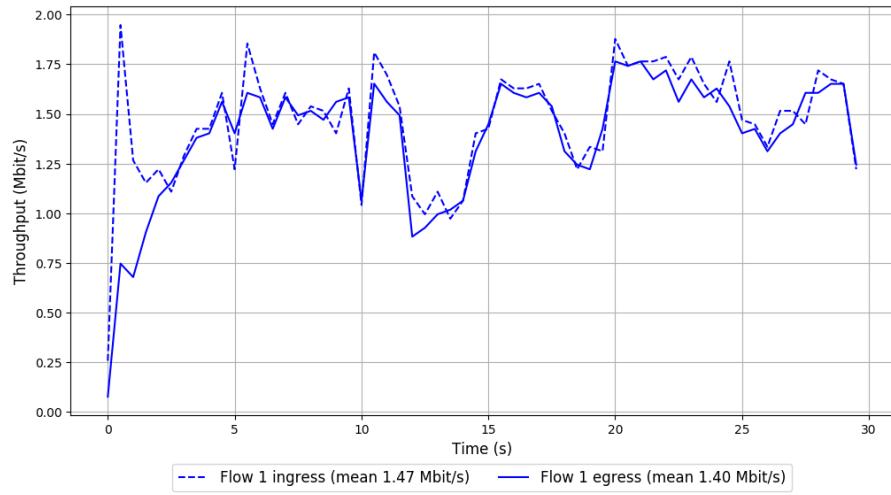


Run 2: Statistics of QUIC Cubic

```
Start at: 2017-11-30 05:34:05
End at: 2017-11-30 05:34:36
Local clock offset: -9.219 ms
Remote clock offset: -19.522 ms

# Below is generated by plot.py at 2017-11-30 06:50:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.40 Mbit/s
95th percentile per-packet one-way delay: 364.199 ms
Loss rate: 5.00%
-- Flow 1:
Average throughput: 1.40 Mbit/s
95th percentile per-packet one-way delay: 364.199 ms
Loss rate: 5.00%
```

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

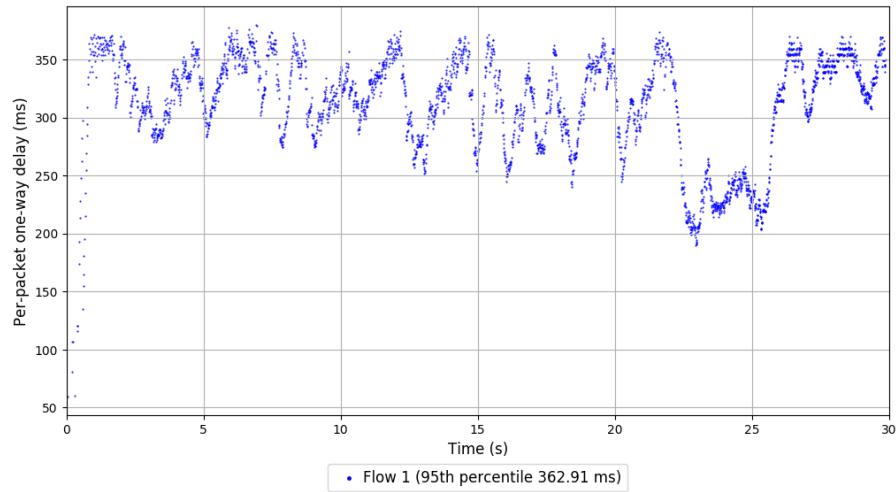
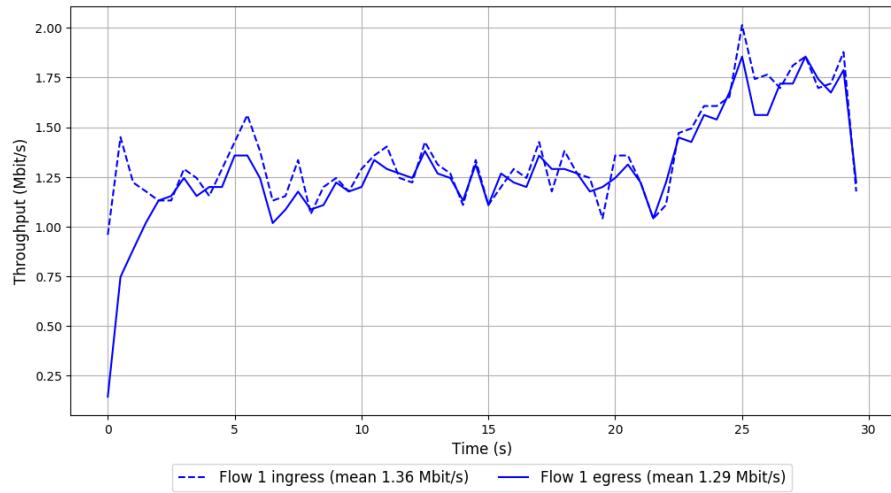


Run 3: Statistics of QUIC Cubic

```
Start at: 2017-11-30 05:49:47
End at: 2017-11-30 05:50:17
Local clock offset: -12.282 ms
Remote clock offset: -17.824 ms

# Below is generated by plot.py at 2017-11-30 06:50:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.29 Mbit/s
95th percentile per-packet one-way delay: 362.908 ms
Loss rate: 5.15%
-- Flow 1:
Average throughput: 1.29 Mbit/s
95th percentile per-packet one-way delay: 362.908 ms
Loss rate: 5.15%
```

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

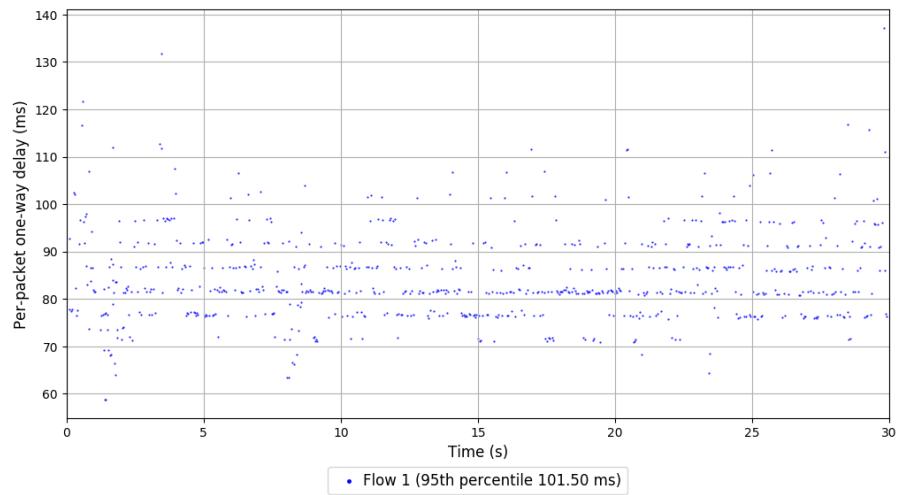
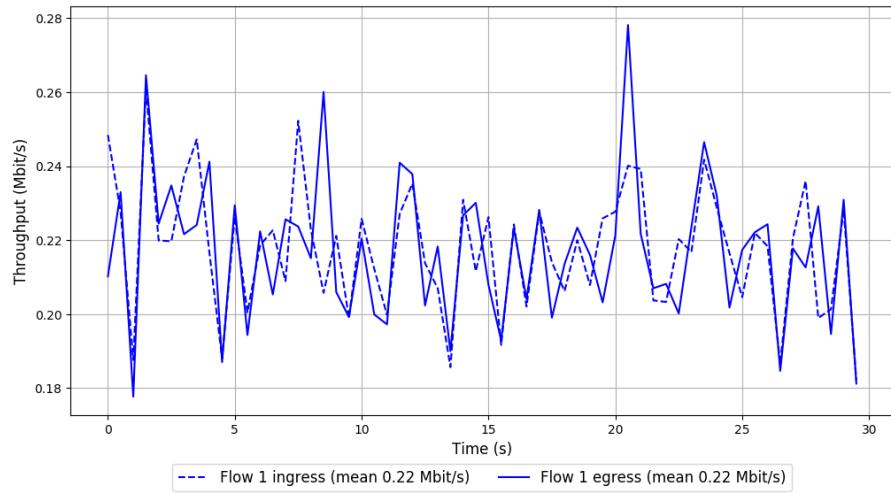


Run 1: Statistics of SCReAM

```
Start at: 2017-11-30 05:29:38
End at: 2017-11-30 05:30:08
Local clock offset: -11.868 ms
Remote clock offset: -19.353 ms

# Below is generated by plot.py at 2017-11-30 06:50:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 101.504 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 101.504 ms
Loss rate: 0.25%
```

## Run 1: Report of SCReAM — Data Link

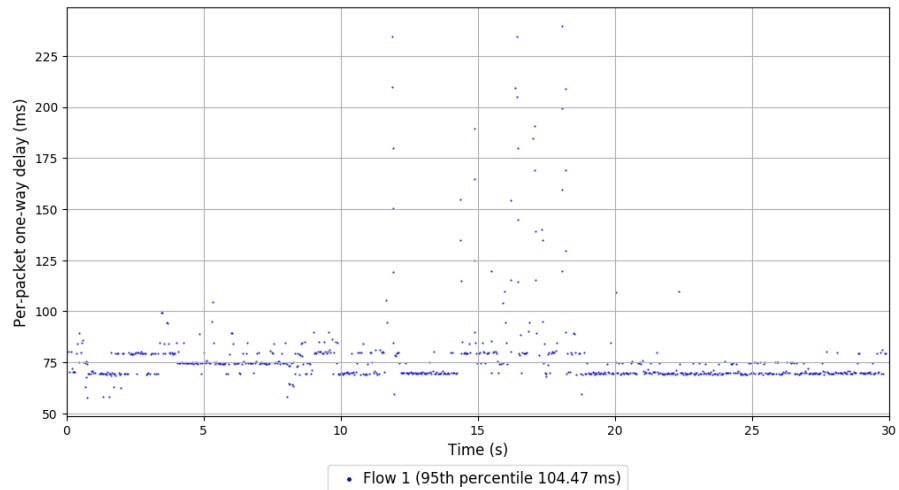
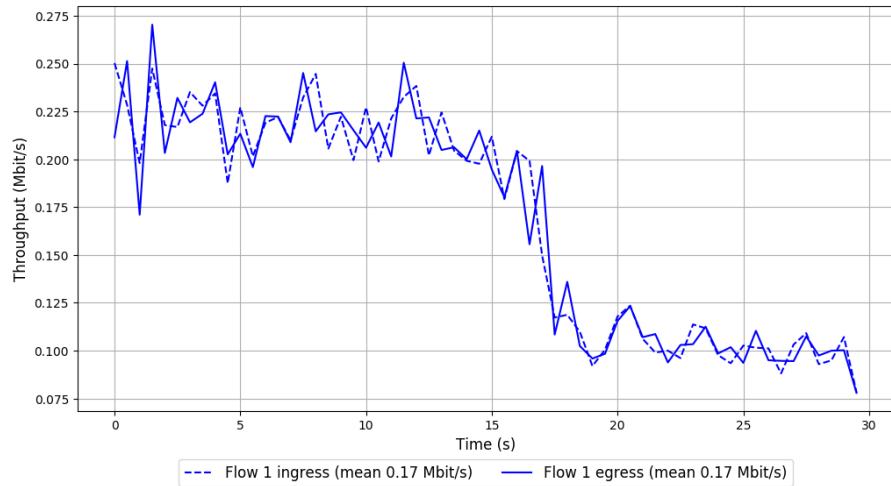


Run 2: Statistics of SCReAM

```
Start at: 2017-11-30 05:45:21
End at: 2017-11-30 05:45:51
Local clock offset: -8.789 ms
Remote clock offset: -20.046 ms

# Below is generated by plot.py at 2017-11-30 06:50:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 104.466 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 104.466 ms
Loss rate: 0.25%
```

## Run 2: Report of SCReAM — Data Link

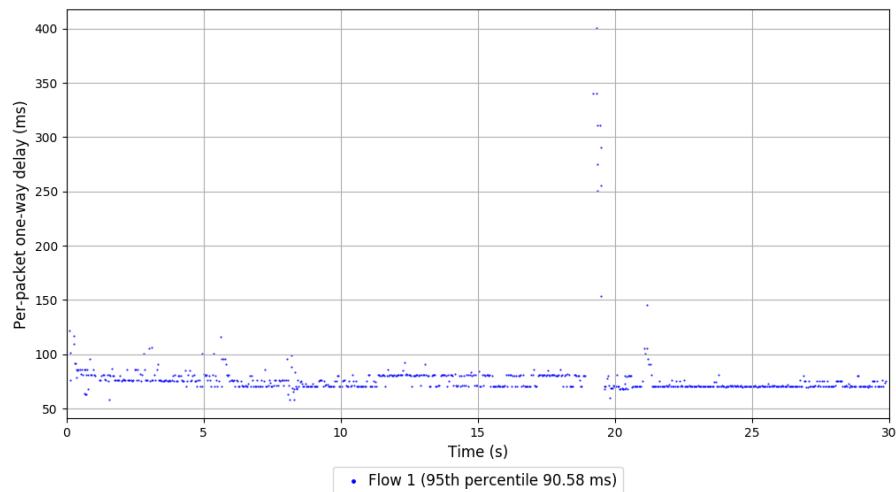
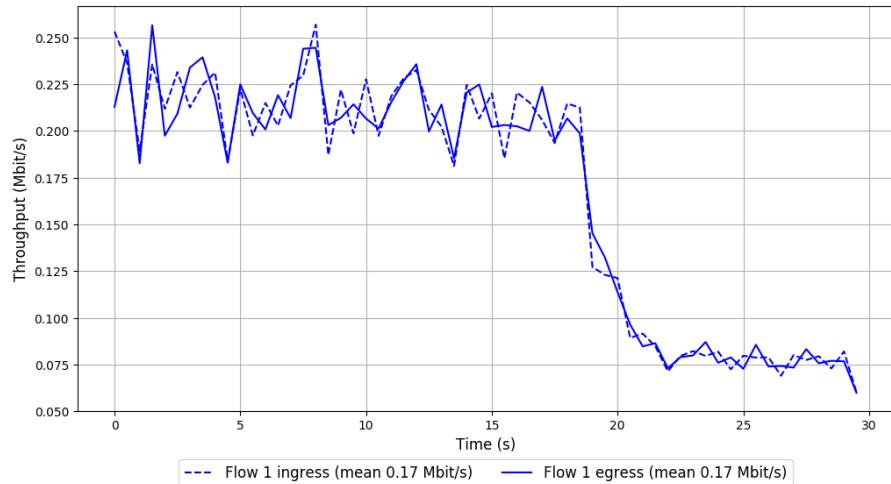


Run 3: Statistics of SCReAM

```
Start at: 2017-11-30 06:01:24
End at: 2017-11-30 06:01:54
Local clock offset: -10.776 ms
Remote clock offset: -17.918 ms

# Below is generated by plot.py at 2017-11-30 06:50:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 90.576 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 90.576 ms
Loss rate: 0.30%
```

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

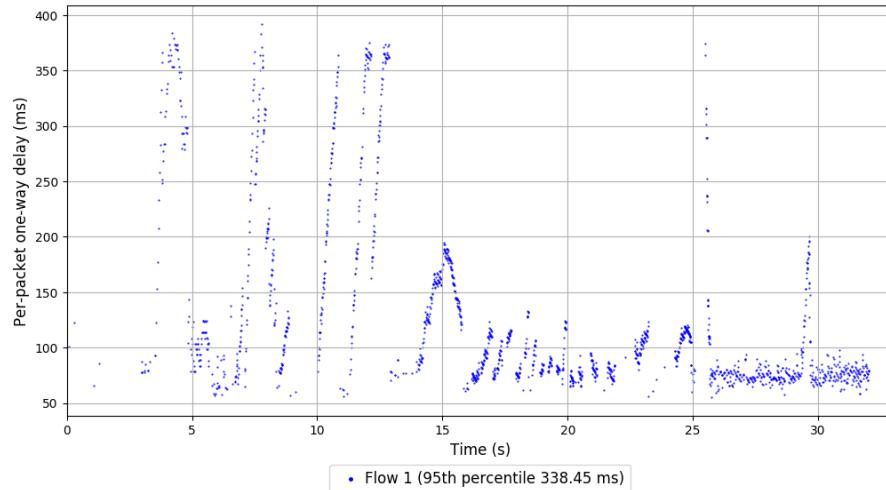
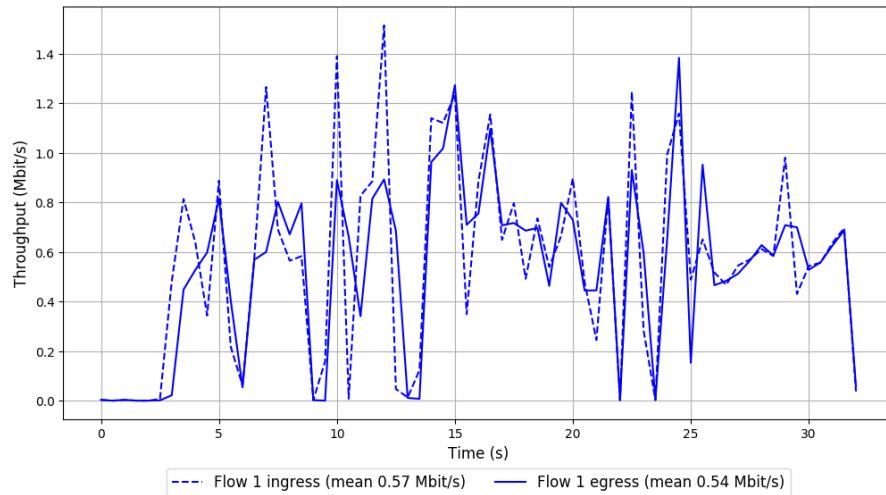


```
Run 1: Statistics of WebRTC media

Start at: 2017-11-30 05:24:11
End at: 2017-11-30 05:24:41
Local clock offset: -12.827 ms
Remote clock offset: -18.84 ms

# Below is generated by plot.py at 2017-11-30 06:50:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.54 Mbit/s
95th percentile per-packet one-way delay: 338.449 ms
Loss rate: 4.38%
-- Flow 1:
Average throughput: 0.54 Mbit/s
95th percentile per-packet one-way delay: 338.449 ms
Loss rate: 4.38%
```

### Run 1: Report of WebRTC media — Data Link

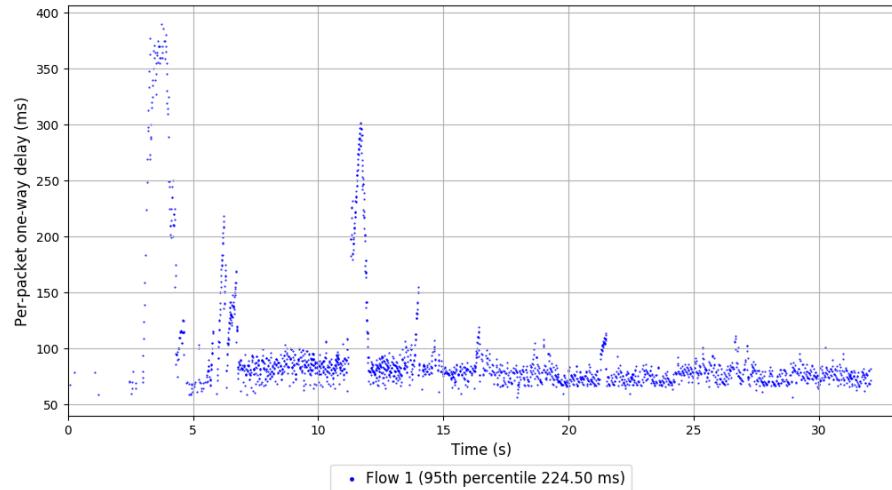
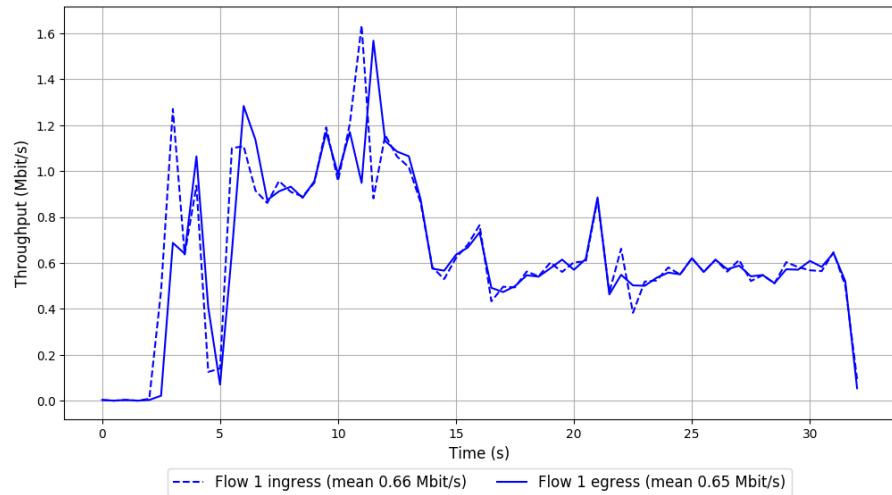


```
Run 2: Statistics of WebRTC media
```

```
Start at: 2017-11-30 05:39:43
End at: 2017-11-30 05:40:13
Local clock offset: -5.446 ms
Remote clock offset: -18.575 ms

# Below is generated by plot.py at 2017-11-30 06:50:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.65 Mbit/s
95th percentile per-packet one-way delay: 224.501 ms
Loss rate: 1.75%
-- Flow 1:
Average throughput: 0.65 Mbit/s
95th percentile per-packet one-way delay: 224.501 ms
Loss rate: 1.75%
```

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

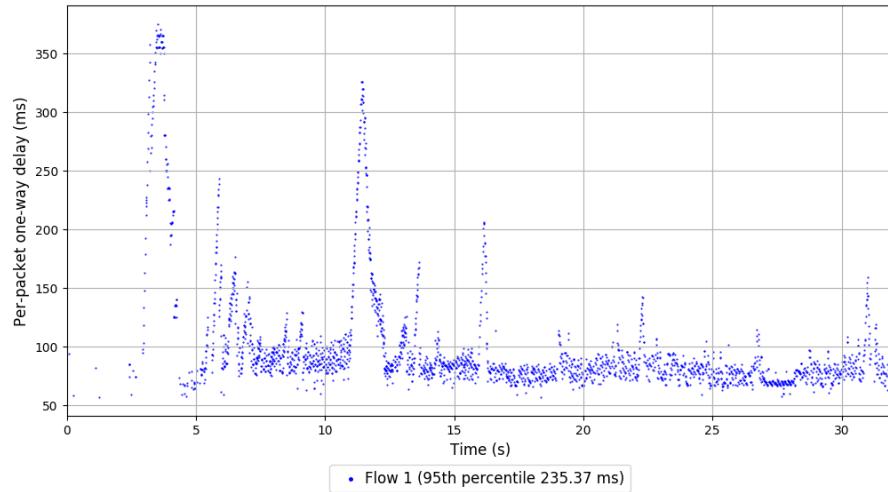
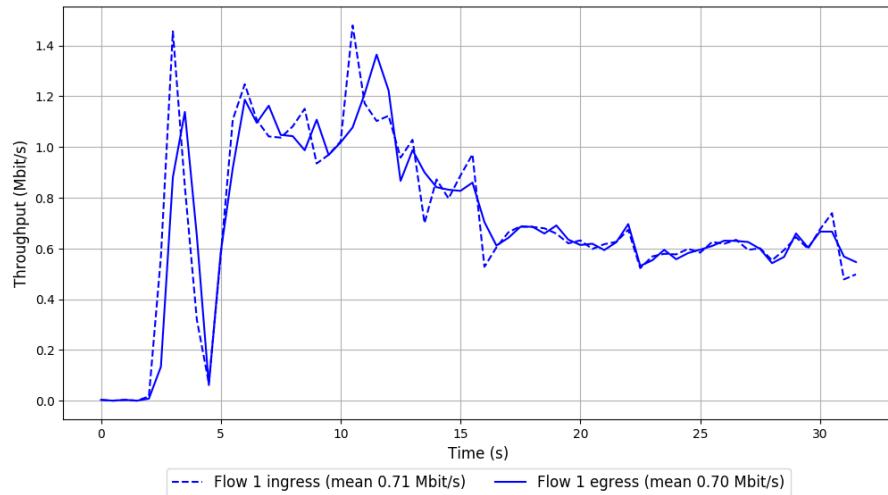


Run 3: Statistics of WebRTC media

```
Start at: 2017-11-30 05:55:34
End at: 2017-11-30 05:56:04
Local clock offset: -11.461 ms
Remote clock offset: -18.489 ms

# Below is generated by plot.py at 2017-11-30 06:50:44
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.70 Mbit/s
95th percentile per-packet one-way delay: 235.366 ms
Loss rate: 0.94%
-- Flow 1:
Average throughput: 0.70 Mbit/s
95th percentile per-packet one-way delay: 235.366 ms
Loss rate: 0.94%
```

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

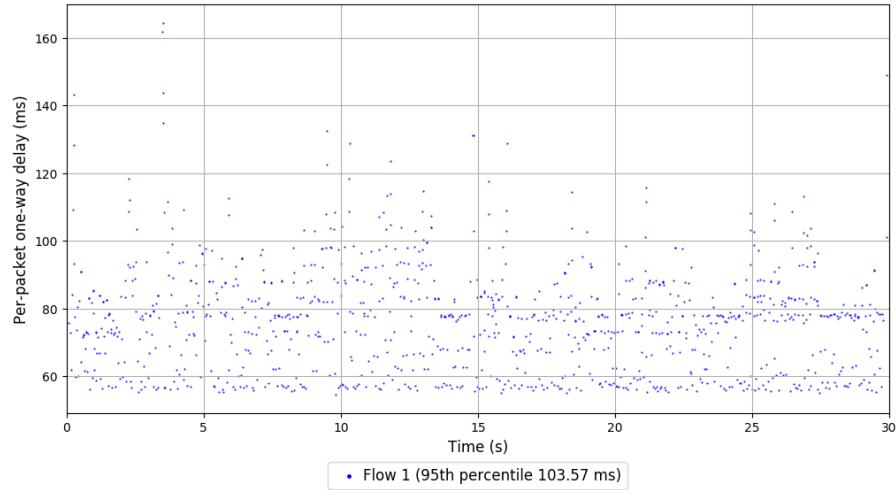
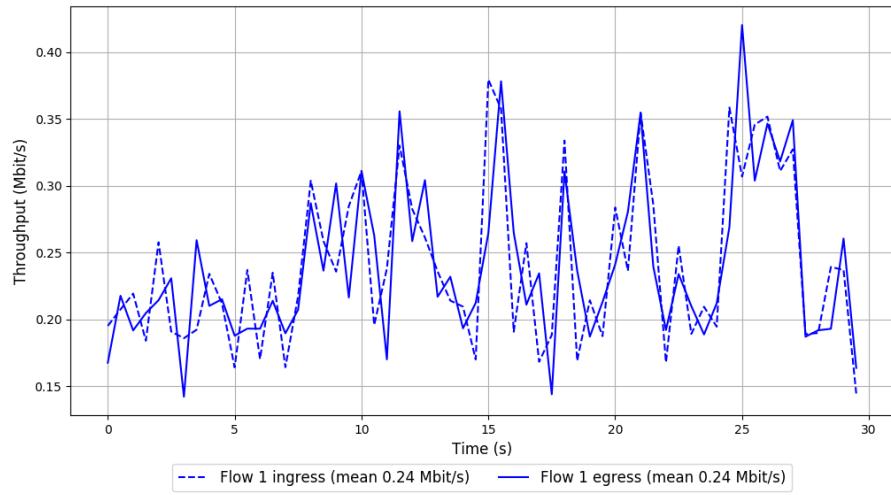


Run 1: Statistics of Sprout

```
Start at: 2017-11-30 05:25:17
End at: 2017-11-30 05:25:47
Local clock offset: -11.725 ms
Remote clock offset: -18.439 ms

# Below is generated by plot.py at 2017-11-30 06:50:44
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 103.570 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 103.570 ms
Loss rate: 0.17%
```

## Run 1: Report of Sprout — Data Link

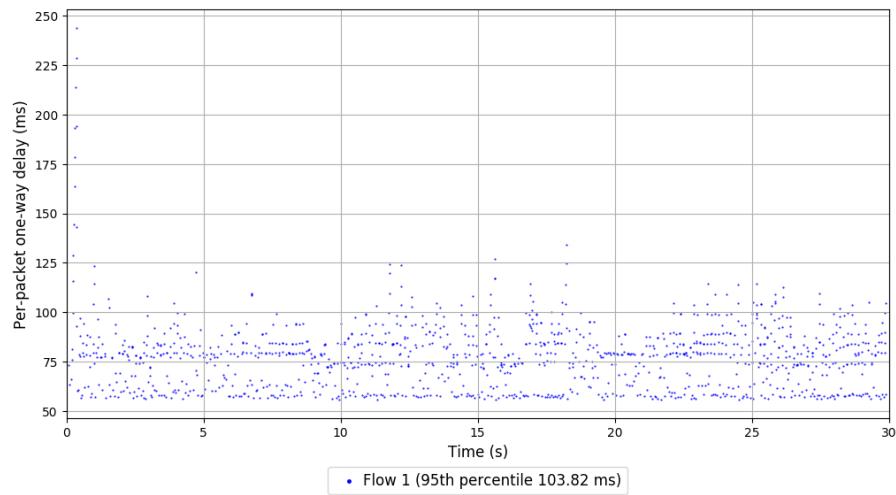
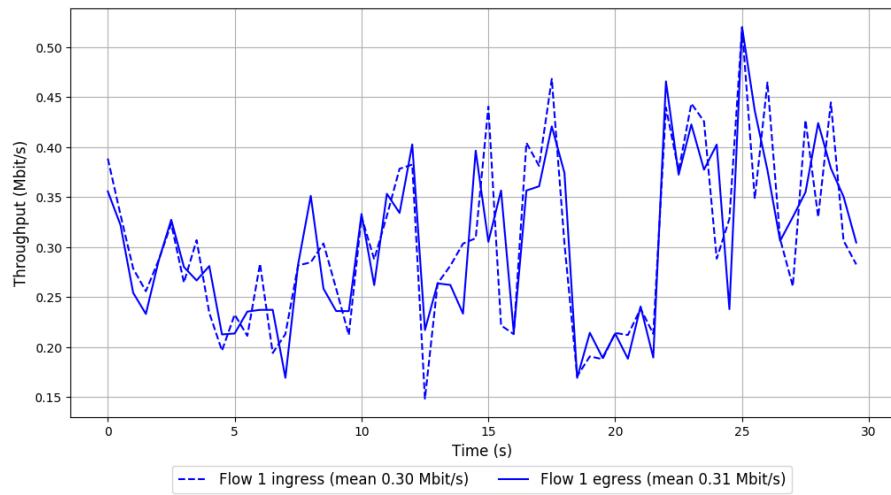


Run 2: Statistics of Sprout

```
Start at: 2017-11-30 05:40:51
End at: 2017-11-30 05:41:21
Local clock offset: -5.313 ms
Remote clock offset: -18.259 ms

# Below is generated by plot.py at 2017-11-30 06:50:44
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.31 Mbit/s
95th percentile per-packet one-way delay: 103.820 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 0.31 Mbit/s
95th percentile per-packet one-way delay: 103.820 ms
Loss rate: 0.12%
```

## Run 2: Report of Sprout — Data Link

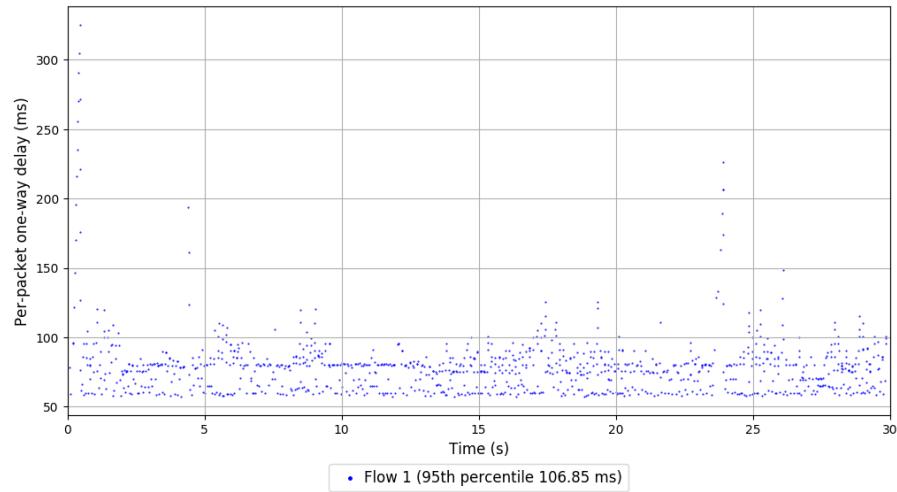
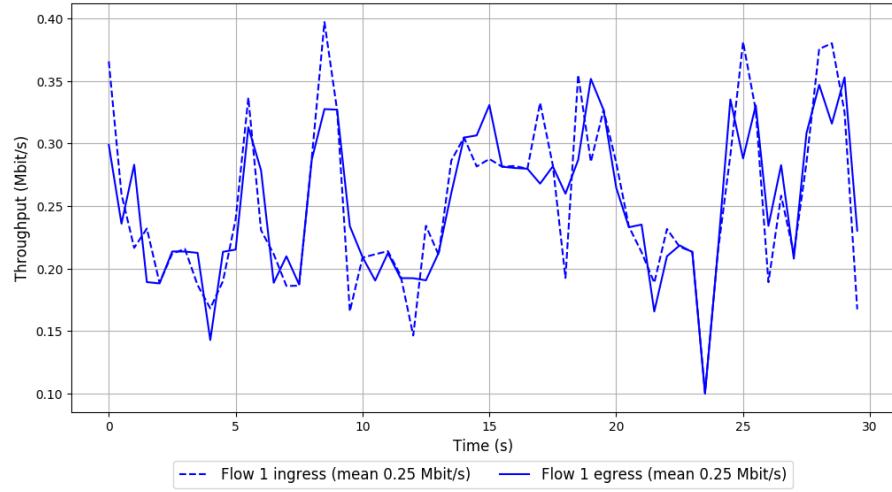


Run 3: Statistics of Sprout

```
Start at: 2017-11-30 05:56:48
End at: 2017-11-30 05:57:18
Local clock offset: -10.591 ms
Remote clock offset: -19.022 ms

# Below is generated by plot.py at 2017-11-30 06:50:44
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.25 Mbit/s
95th percentile per-packet one-way delay: 106.852 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 0.25 Mbit/s
95th percentile per-packet one-way delay: 106.852 ms
Loss rate: 0.16%
```

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

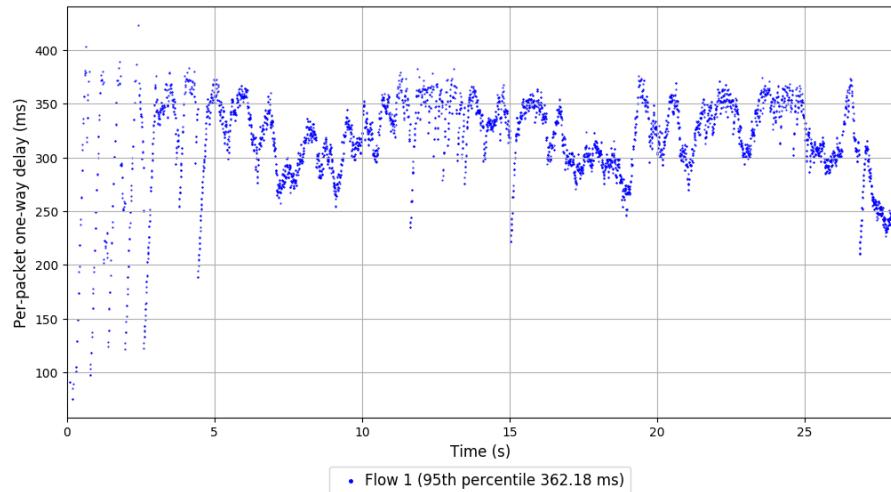
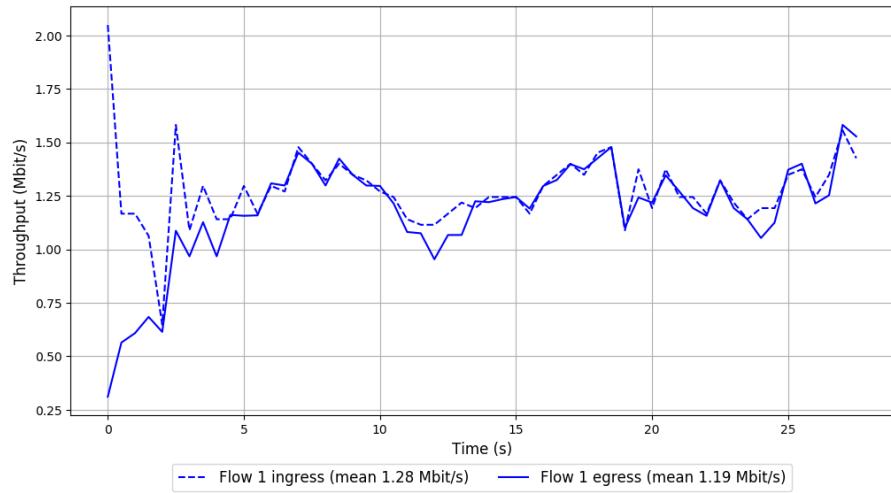


Run 1: Statistics of TaoVA-100x

```
Start at: 2017-11-30 05:26:22
End at: 2017-11-30 05:26:52
Local clock offset: -10.897 ms
Remote clock offset: -19.597 ms

# Below is generated by plot.py at 2017-11-30 06:50:48
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.19 Mbit/s
95th percentile per-packet one-way delay: 362.175 ms
Loss rate: 7.38%
-- Flow 1:
Average throughput: 1.19 Mbit/s
95th percentile per-packet one-way delay: 362.175 ms
Loss rate: 7.38%
```

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

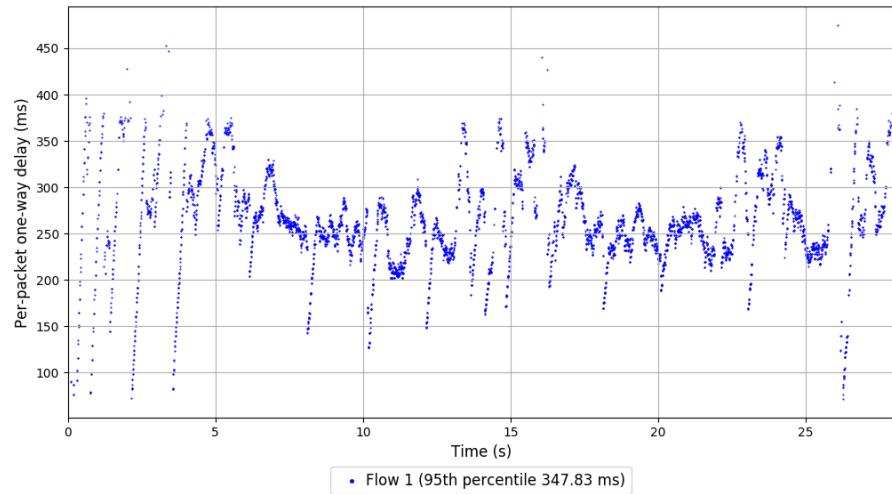
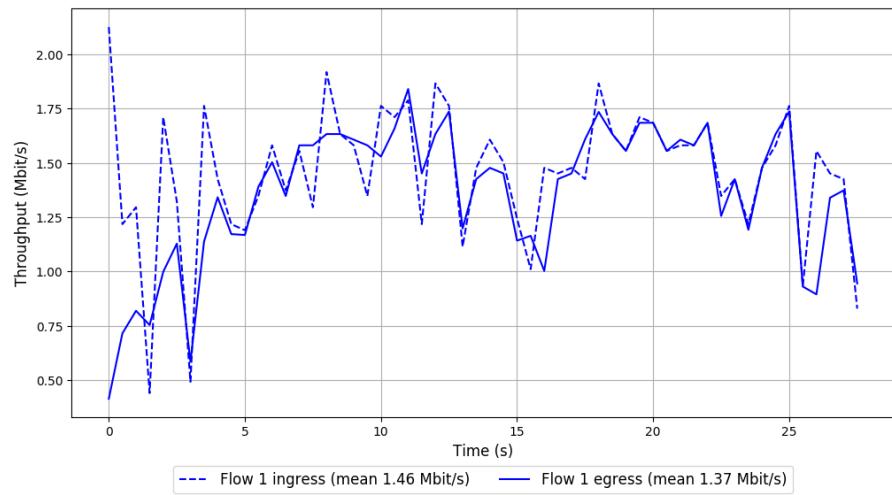


Run 2: Statistics of TaoVA-100x

```
Start at: 2017-11-30 05:41:59
End at: 2017-11-30 05:42:29
Local clock offset: -4.708 ms
Remote clock offset: -19.284 ms

# Below is generated by plot.py at 2017-11-30 06:50:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.37 Mbit/s
95th percentile per-packet one-way delay: 347.830 ms
Loss rate: 6.59%
-- Flow 1:
Average throughput: 1.37 Mbit/s
95th percentile per-packet one-way delay: 347.830 ms
Loss rate: 6.59%
```

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

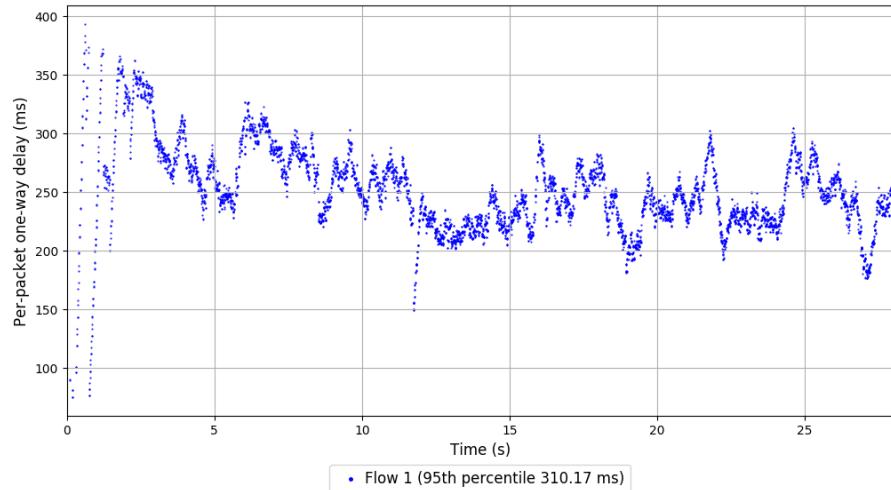
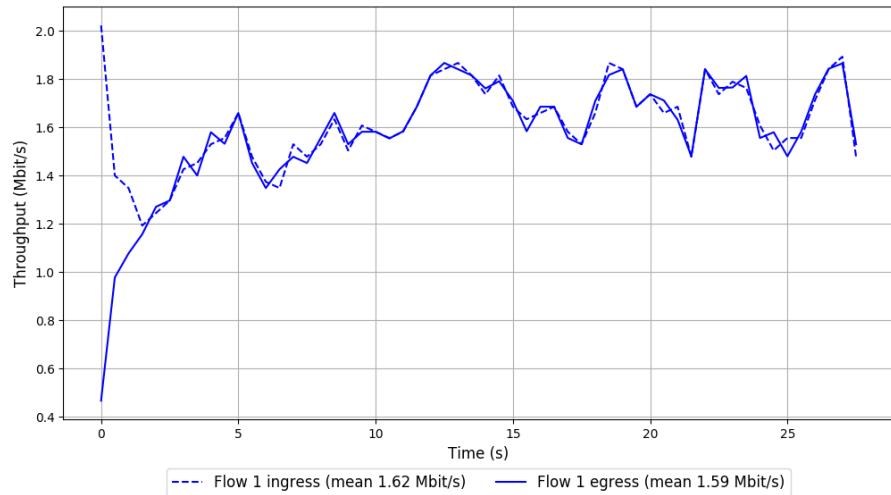


Run 3: Statistics of TaoVA-100x

```
Start at: 2017-11-30 05:57:53
End at: 2017-11-30 05:58:23
Local clock offset: -11.095 ms
Remote clock offset: -18.492 ms

# Below is generated by plot.py at 2017-11-30 06:50:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.59 Mbit/s
95th percentile per-packet one-way delay: 310.169 ms
Loss rate: 2.41%
-- Flow 1:
Average throughput: 1.59 Mbit/s
95th percentile per-packet one-way delay: 310.169 ms
Loss rate: 2.41%
```

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

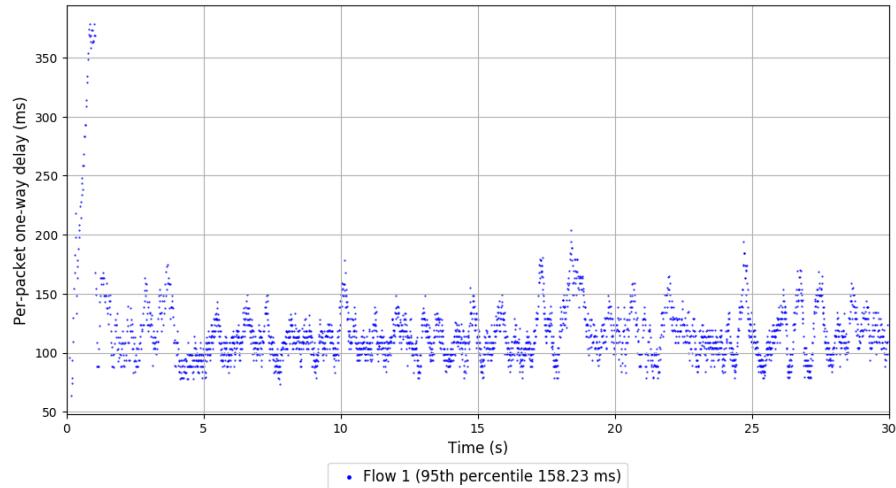
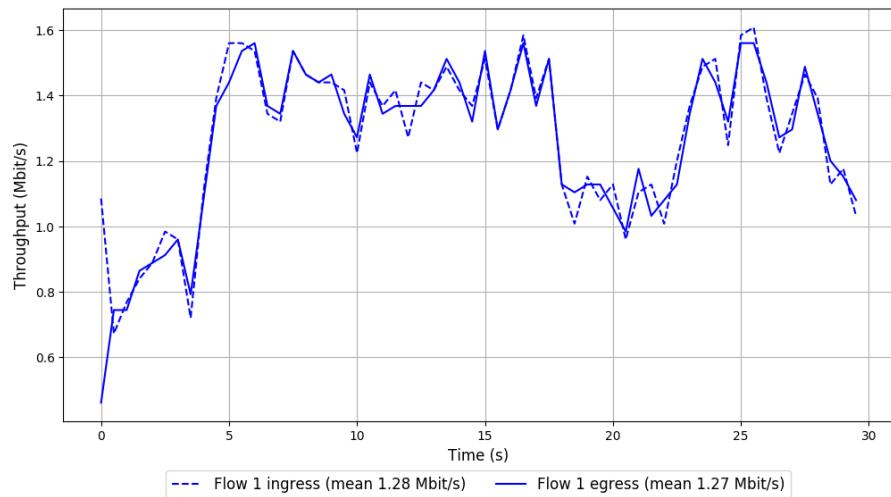


Run 1: Statistics of TCP Vegas

```
Start at: 2017-11-30 05:19:42
End at: 2017-11-30 05:20:12
Local clock offset: -5.117 ms
Remote clock offset: -19.507 ms

# Below is generated by plot.py at 2017-11-30 06:50:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.27 Mbit/s
95th percentile per-packet one-way delay: 158.227 ms
Loss rate: 0.82%
-- Flow 1:
Average throughput: 1.27 Mbit/s
95th percentile per-packet one-way delay: 158.227 ms
Loss rate: 0.82%
```

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

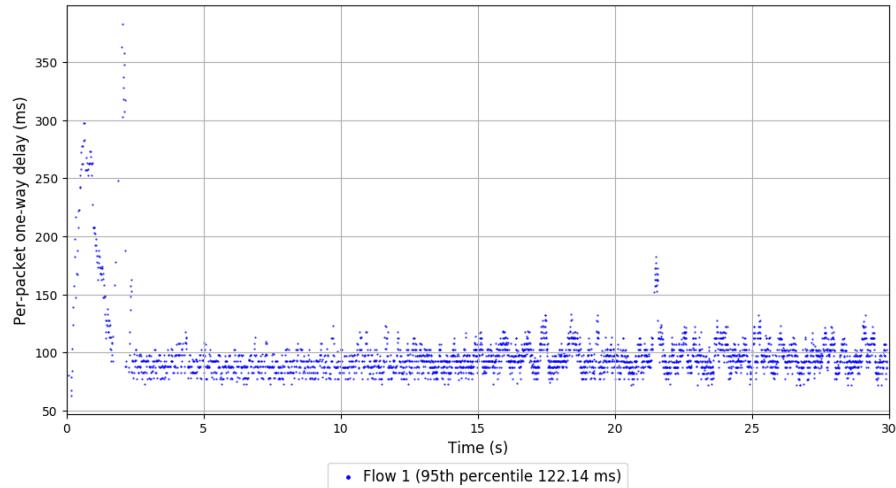
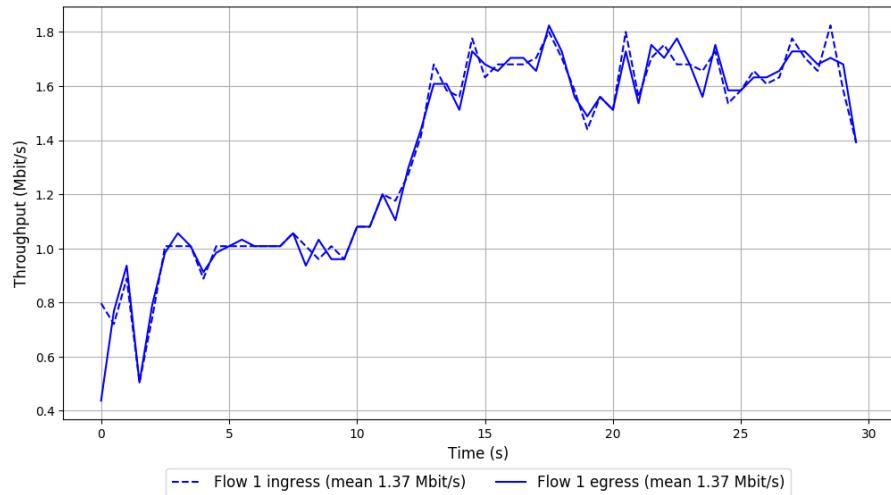


Run 2: Statistics of TCP Vegas

```
Start at: 2017-11-30 05:35:13
End at: 2017-11-30 05:35:43
Local clock offset: -6.132 ms
Remote clock offset: -19.374 ms

# Below is generated by plot.py at 2017-11-30 06:50:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.37 Mbit/s
95th percentile per-packet one-way delay: 122.143 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 1.37 Mbit/s
95th percentile per-packet one-way delay: 122.143 ms
Loss rate: 0.38%
```

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

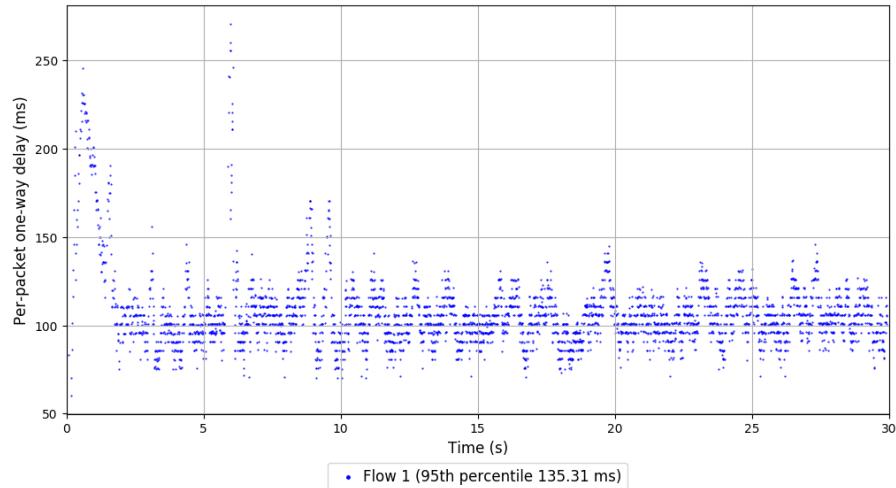
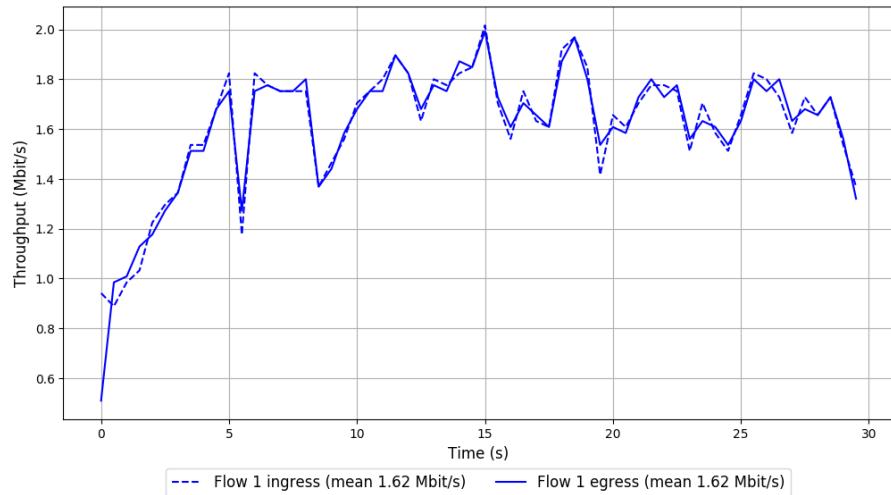


Run 3: Statistics of TCP Vegas

```
Start at: 2017-11-30 05:50:55
End at: 2017-11-30 05:51:25
Local clock offset: -12.52 ms
Remote clock offset: -18.387 ms

# Below is generated by plot.py at 2017-11-30 06:50:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.62 Mbit/s
95th percentile per-packet one-way delay: 135.310 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 1.62 Mbit/s
95th percentile per-packet one-way delay: 135.310 ms
Loss rate: 0.40%
```

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

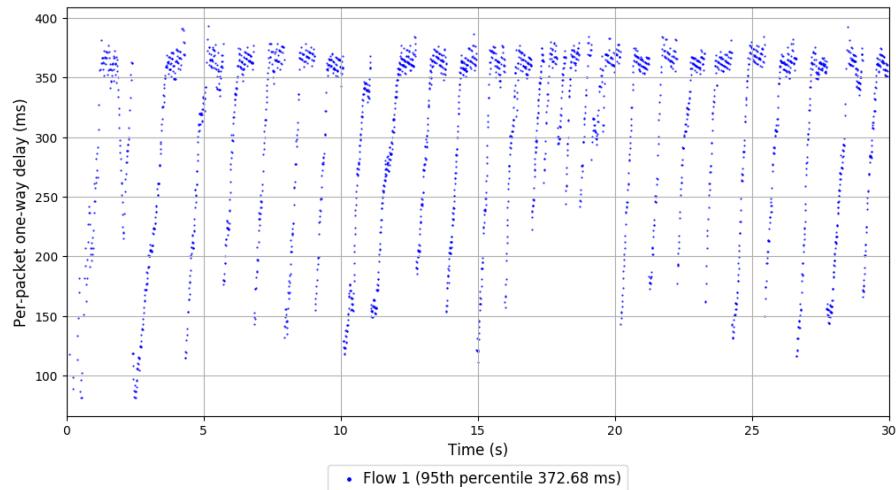
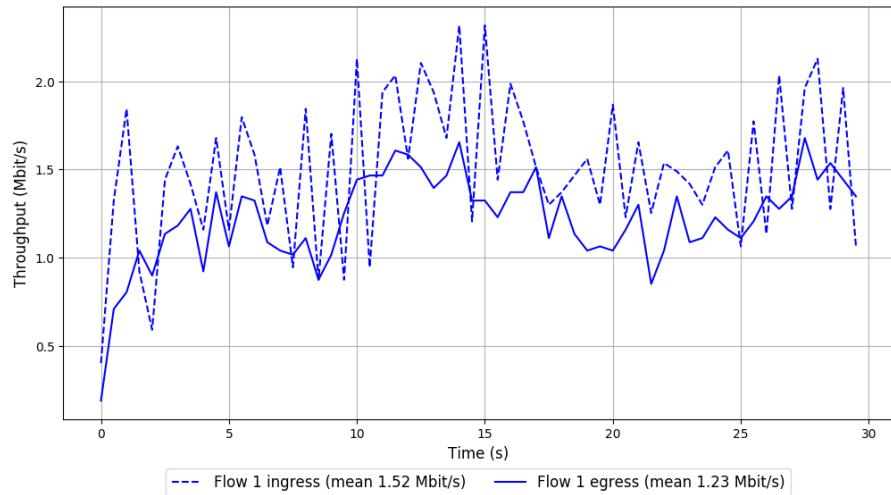


Run 1: Statistics of Verus

```
Start at: 2017-11-30 05:21:56
End at: 2017-11-30 05:22:26
Local clock offset: -9.903 ms
Remote clock offset: -20.038 ms

# Below is generated by plot.py at 2017-11-30 06:50:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.23 Mbit/s
95th percentile per-packet one-way delay: 372.677 ms
Loss rate: 19.01%
-- Flow 1:
Average throughput: 1.23 Mbit/s
95th percentile per-packet one-way delay: 372.677 ms
Loss rate: 19.01%
```

### Run 1: Report of Verus — Data Link

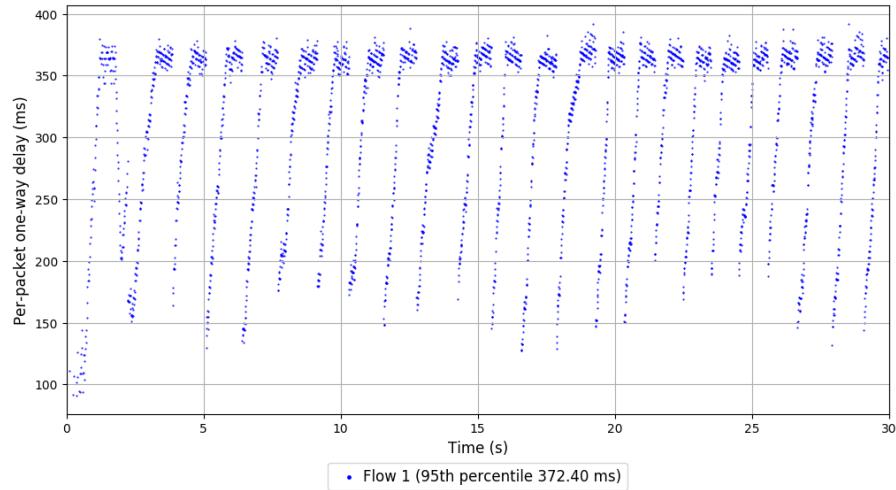
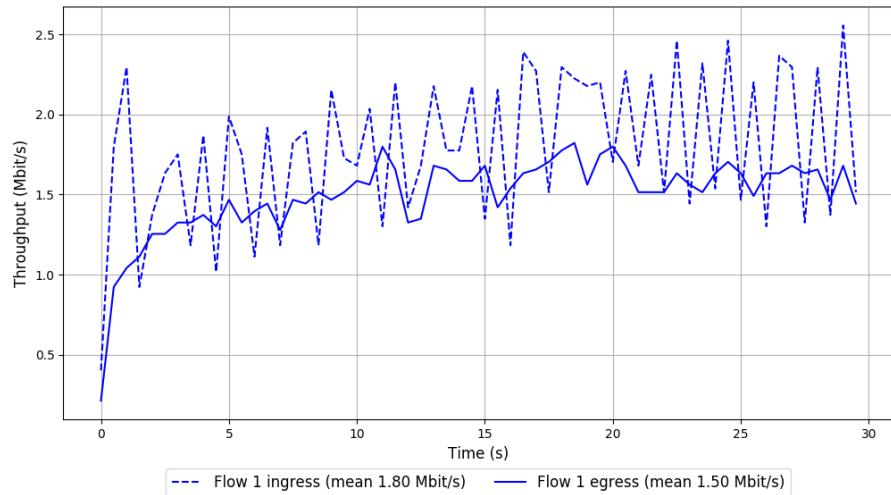


Run 2: Statistics of Verus

```
Start at: 2017-11-30 05:37:31
End at: 2017-11-30 05:38:01
Local clock offset: -4.594 ms
Remote clock offset: -20.742 ms

# Below is generated by plot.py at 2017-11-30 06:50:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.50 Mbit/s
95th percentile per-packet one-way delay: 372.401 ms
Loss rate: 16.32%
-- Flow 1:
Average throughput: 1.50 Mbit/s
95th percentile per-packet one-way delay: 372.401 ms
Loss rate: 16.32%
```

## Run 2: Report of Verus — Data Link

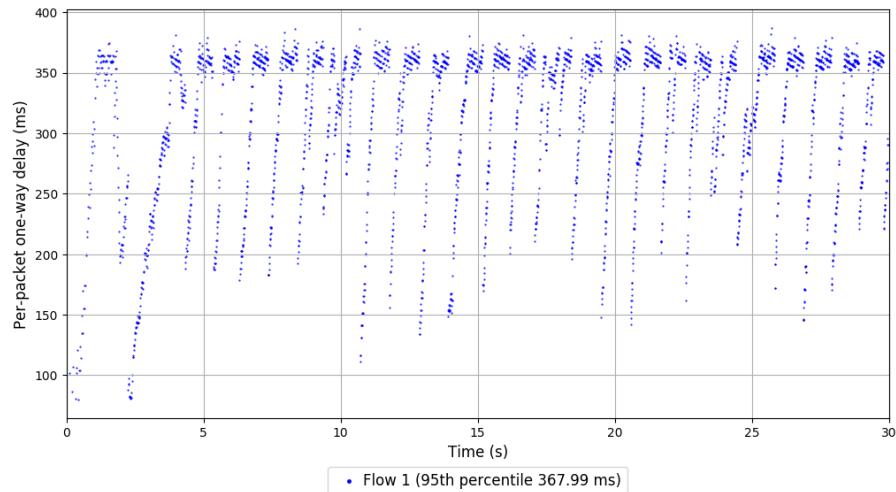
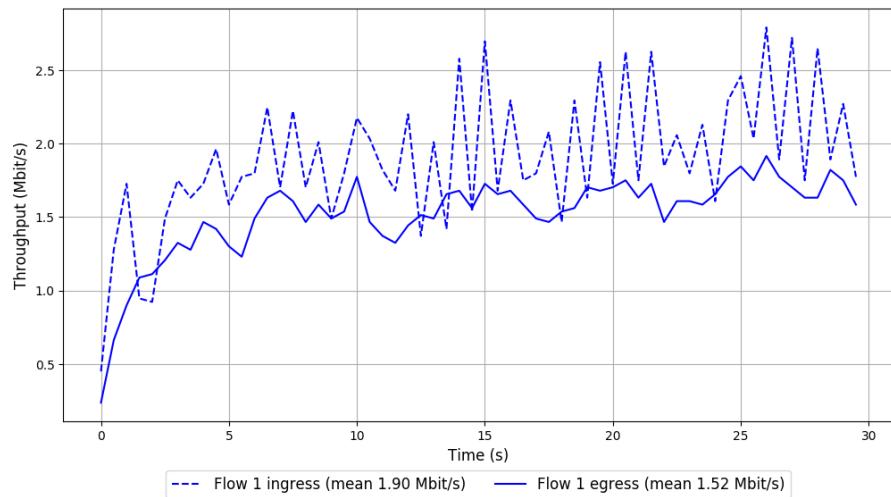


Run 3: Statistics of Verus

```
Start at: 2017-11-30 05:53:16
End at: 2017-11-30 05:53:46
Local clock offset: -13.373 ms
Remote clock offset: -18.635 ms

# Below is generated by plot.py at 2017-11-30 06:50:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.52 Mbit/s
95th percentile per-packet one-way delay: 367.985 ms
Loss rate: 20.17%
-- Flow 1:
Average throughput: 1.52 Mbit/s
95th percentile per-packet one-way delay: 367.985 ms
Loss rate: 20.17%
```

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

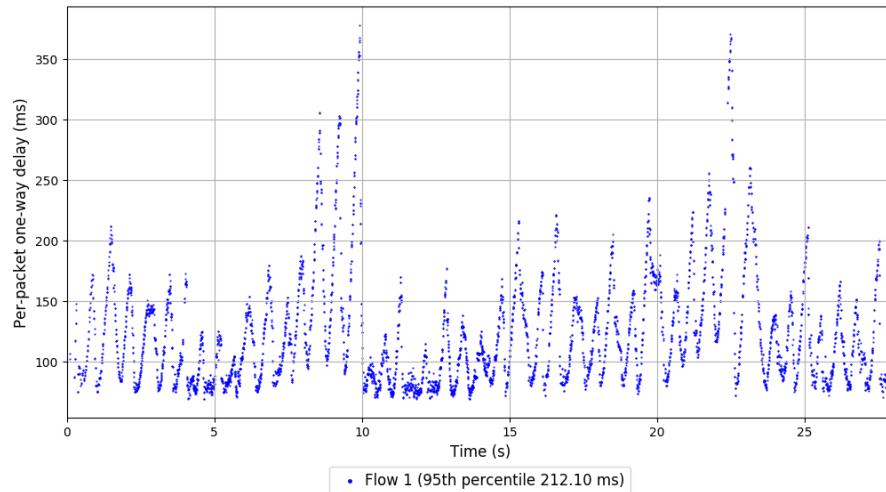
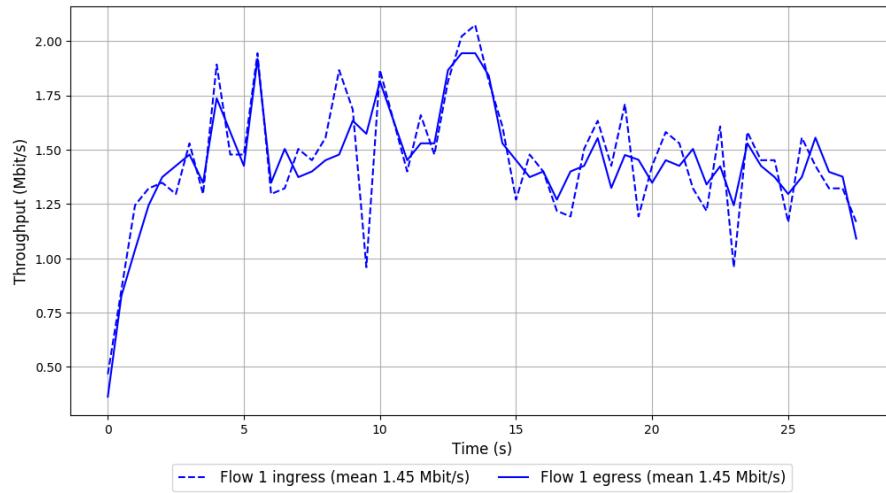


Run 1: Statistics of Copa

```
Start at: 2017-11-30 05:16:22
End at: 2017-11-30 05:16:52
Local clock offset: 1.963 ms
Remote clock offset: -19.539 ms

# Below is generated by plot.py at 2017-11-30 06:50:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.45 Mbit/s
95th percentile per-packet one-way delay: 212.097 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 1.45 Mbit/s
95th percentile per-packet one-way delay: 212.097 ms
Loss rate: 0.47%
```

## Run 1: Report of Copa — Data Link

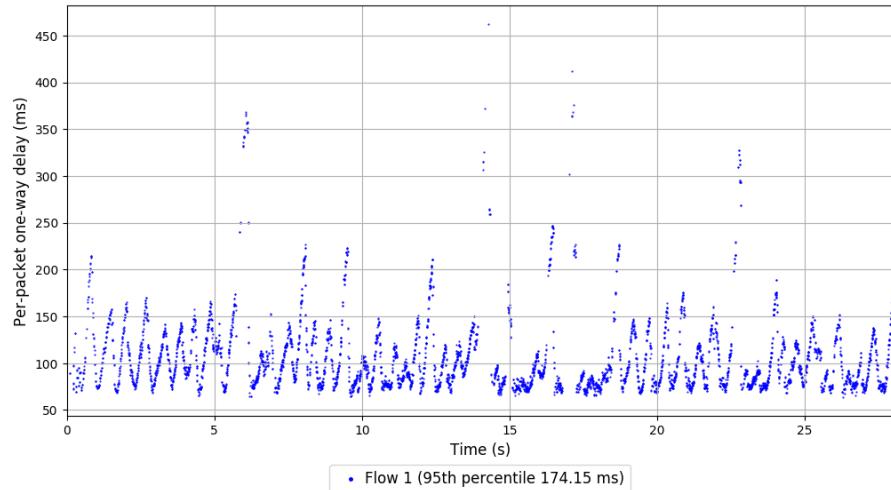
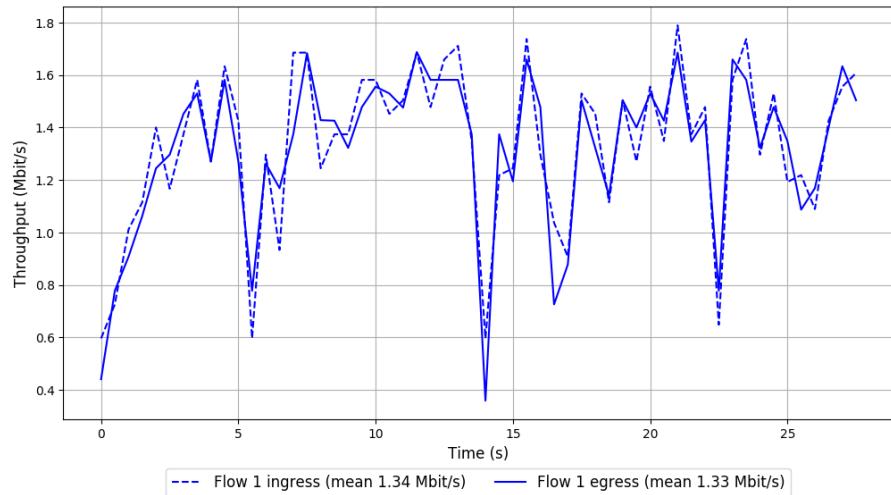


Run 2: Statistics of Copa

```
Start at: 2017-11-30 05:31:51
End at: 2017-11-30 05:32:21
Local clock offset: -10.63 ms
Remote clock offset: -17.644 ms

# Below is generated by plot.py at 2017-11-30 06:50:57
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.33 Mbit/s
95th percentile per-packet one-way delay: 174.154 ms
Loss rate: 1.06%
-- Flow 1:
Average throughput: 1.33 Mbit/s
95th percentile per-packet one-way delay: 174.154 ms
Loss rate: 1.06%
```

## Run 2: Report of Copa — Data Link

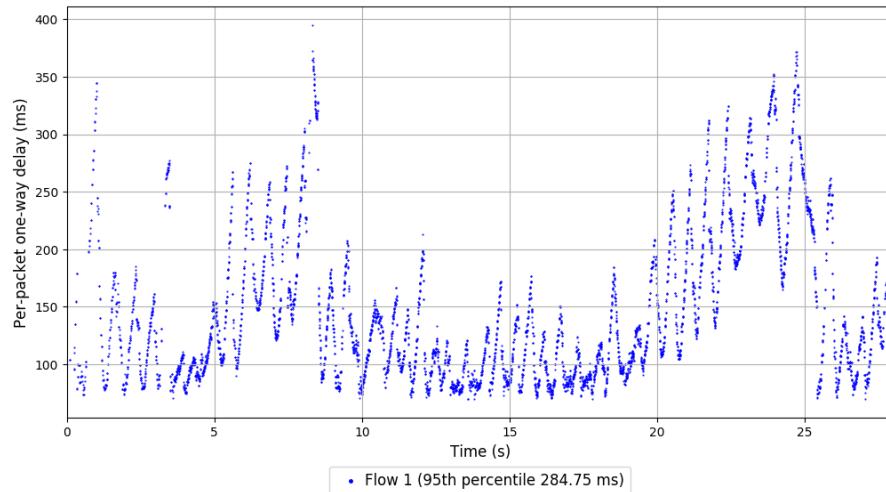
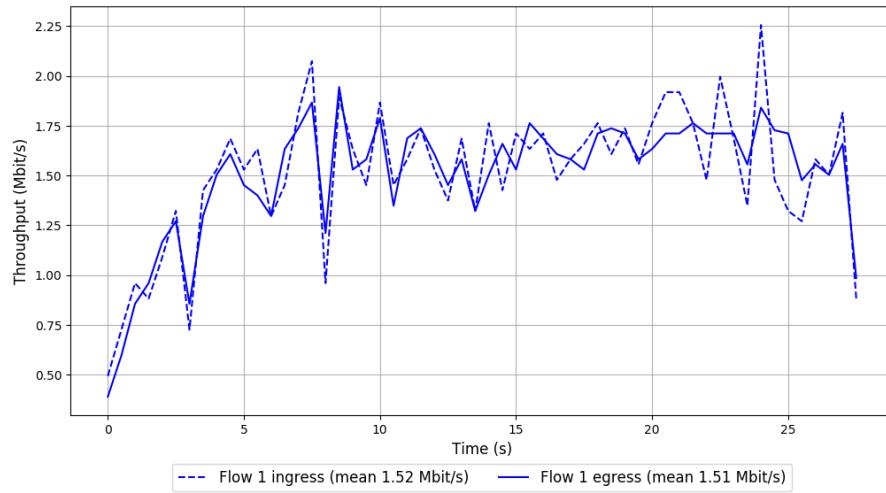


Run 3: Statistics of Copa

```
Start at: 2017-11-30 05:47:33
End at: 2017-11-30 05:48:03
Local clock offset: -7.681 ms
Remote clock offset: -18.539 ms

# Below is generated by plot.py at 2017-11-30 06:50:57
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.51 Mbit/s
95th percentile per-packet one-way delay: 284.749 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 1.51 Mbit/s
95th percentile per-packet one-way delay: 284.749 ms
Loss rate: 0.57%
```

### Run 3: Report of Copa — Data Link

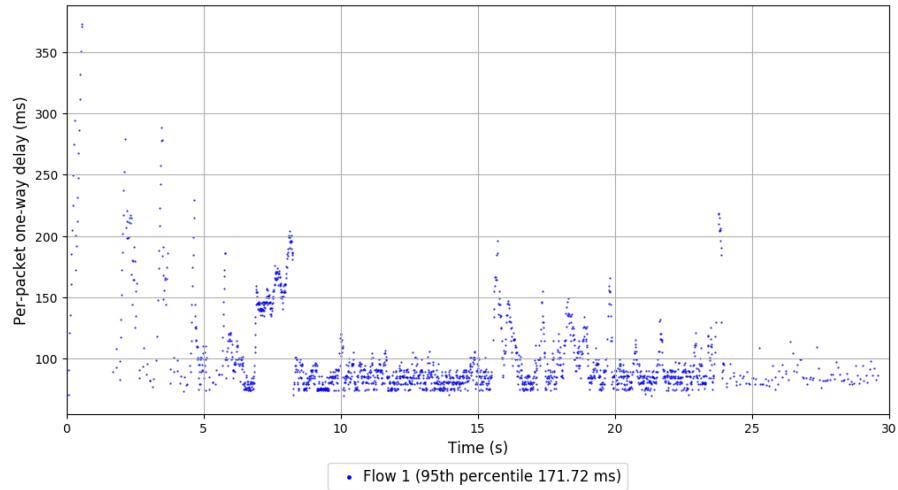
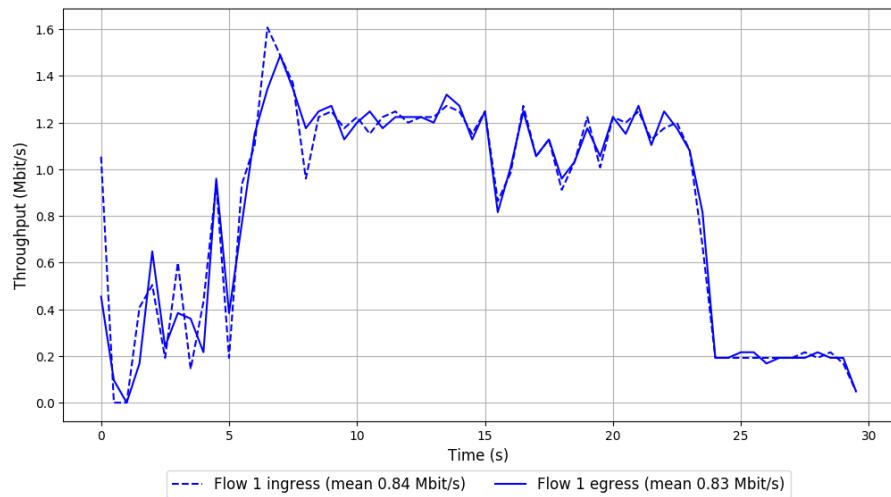


Run 1: Statistics of Indigo

```
Start at: 2017-11-30 05:28:33
End at: 2017-11-30 05:29:03
Local clock offset: -10.665 ms
Remote clock offset: -19.41 ms

# Below is generated by plot.py at 2017-11-30 06:50:57
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.83 Mbit/s
95th percentile per-packet one-way delay: 171.724 ms
Loss rate: 1.06%
-- Flow 1:
Average throughput: 0.83 Mbit/s
95th percentile per-packet one-way delay: 171.724 ms
Loss rate: 1.06%
```

## Run 1: Report of Indigo — Data Link

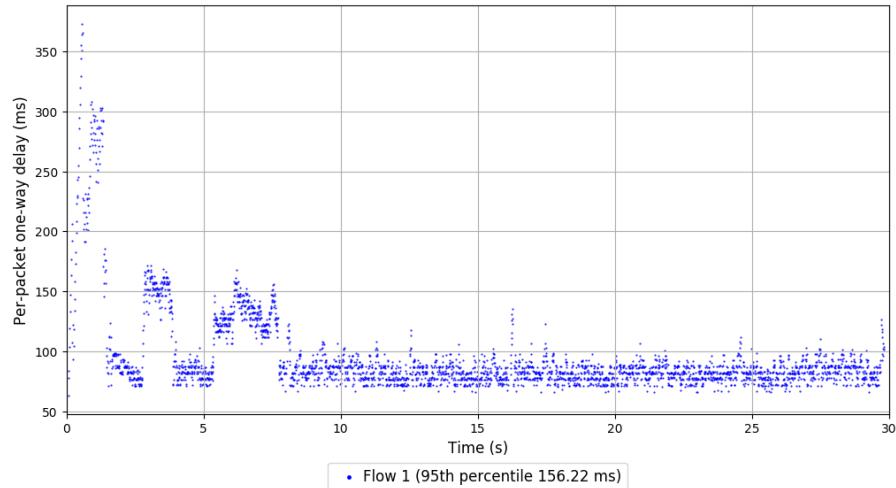
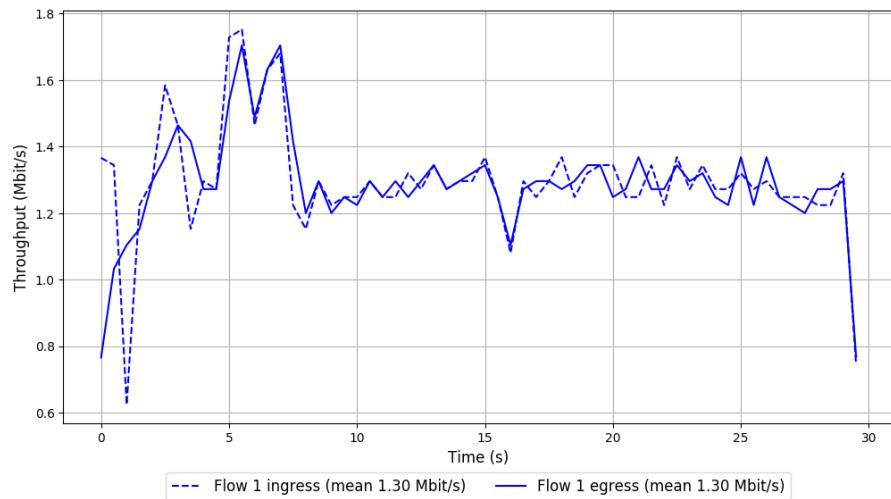


Run 2: Statistics of Indigo

```
Start at: 2017-11-30 05:44:14
End at: 2017-11-30 05:44:44
Local clock offset: -8.679 ms
Remote clock offset: -19.316 ms

# Below is generated by plot.py at 2017-11-30 06:50:57
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.30 Mbit/s
95th percentile per-packet one-way delay: 156.221 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 1.30 Mbit/s
95th percentile per-packet one-way delay: 156.221 ms
Loss rate: 0.56%
```

## Run 2: Report of Indigo — Data Link

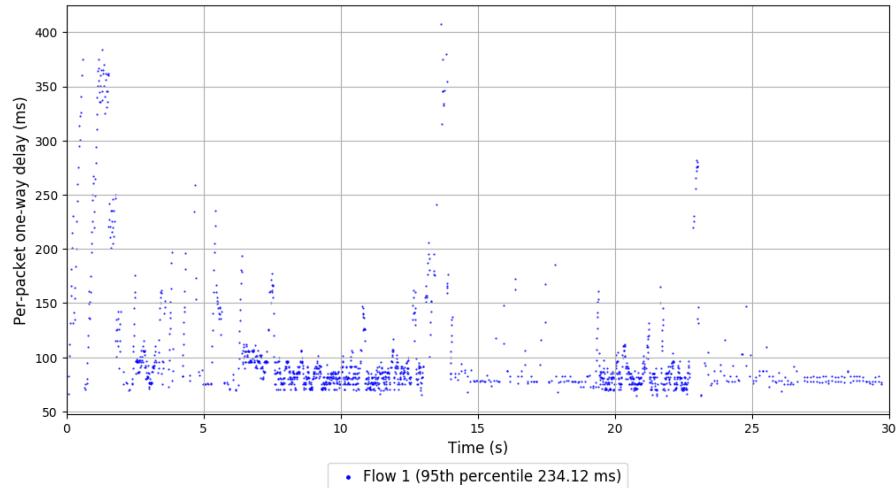
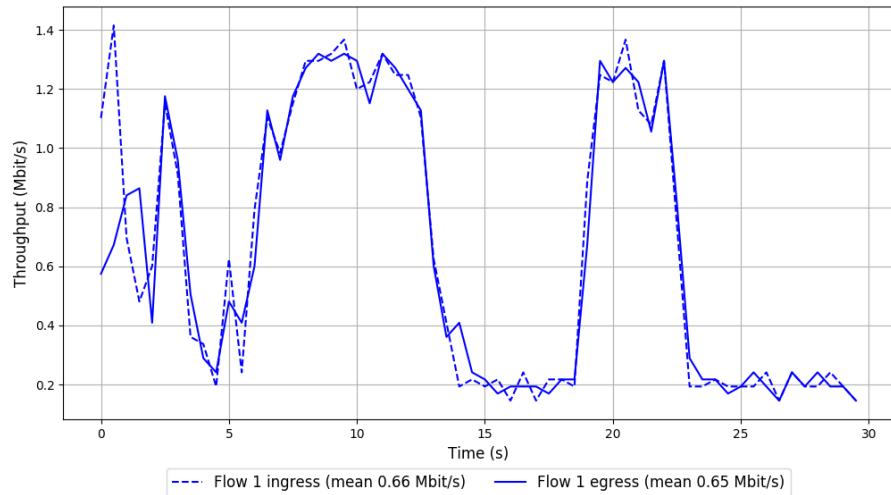


Run 3: Statistics of Indigo

```
Start at: 2017-11-30 06:00:07
End at: 2017-11-30 06:00:37
Local clock offset: -14.08 ms
Remote clock offset: -18.557 ms

# Below is generated by plot.py at 2017-11-30 06:50:57
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.65 Mbit/s
95th percentile per-packet one-way delay: 234.119 ms
Loss rate: 1.94%
-- Flow 1:
Average throughput: 0.65 Mbit/s
95th percentile per-packet one-way delay: 234.119 ms
Loss rate: 1.94%
```

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

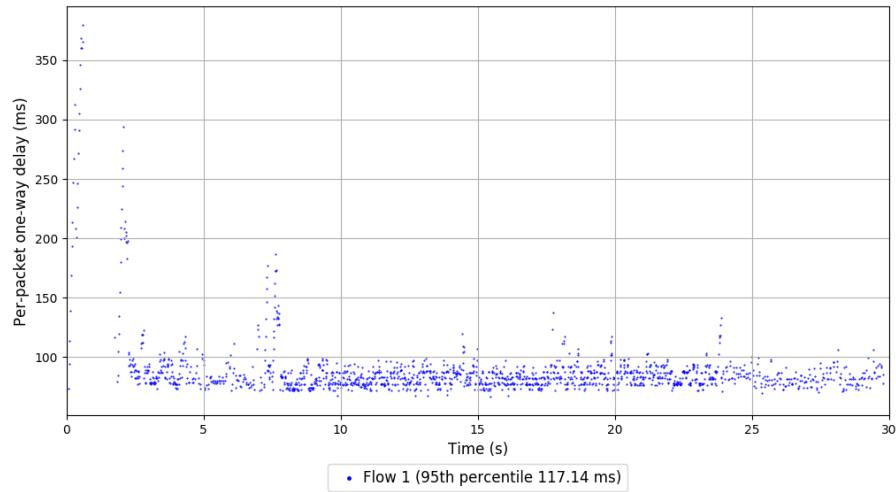
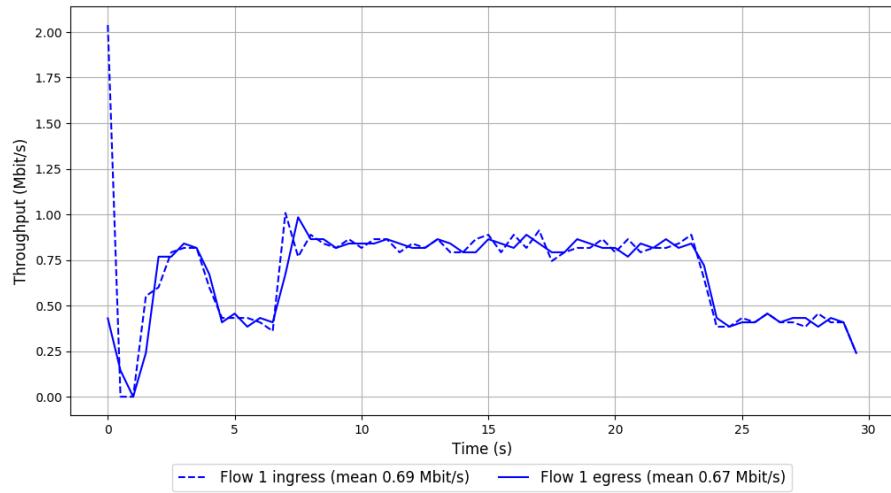


```
Run 1: Statistics of Indigo-calib

Start at: 2017-11-30 05:30:44
End at: 2017-11-30 05:31:14
Local clock offset: -9.545 ms
Remote clock offset: -18.2 ms

# Below is generated by plot.py at 2017-11-30 06:50:57
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.67 Mbit/s
95th percentile per-packet one-way delay: 117.142 ms
Loss rate: 3.77%
-- Flow 1:
Average throughput: 0.67 Mbit/s
95th percentile per-packet one-way delay: 117.142 ms
Loss rate: 3.77%
```

Run 1: Report of Indigo-calib — Data Link

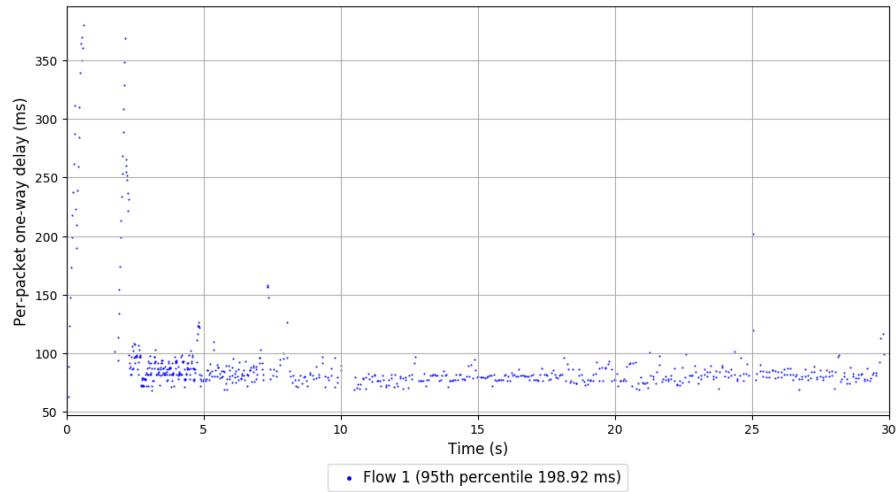
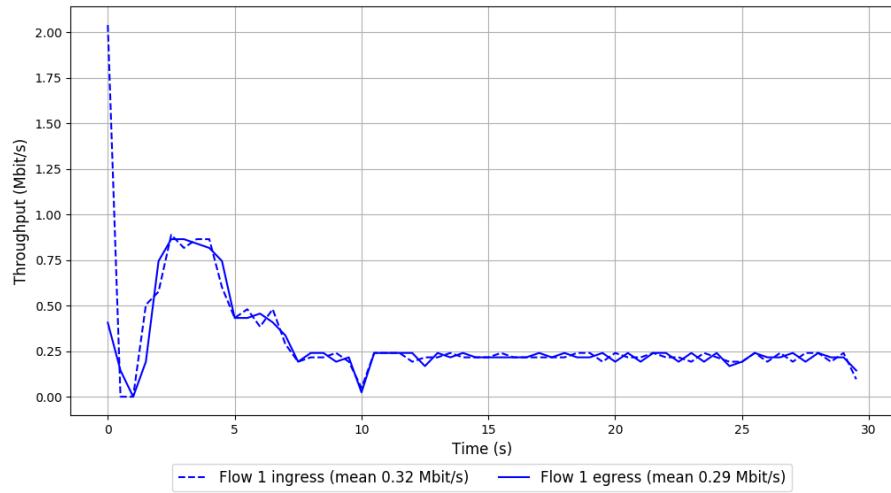


Run 2: Statistics of Indigo-calib

```
Start at: 2017-11-30 05:46:27
End at: 2017-11-30 05:46:57
Local clock offset: -7.278 ms
Remote clock offset: -18.204 ms

# Below is generated by plot.py at 2017-11-30 06:50:57
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.29 Mbit/s
95th percentile per-packet one-way delay: 198.922 ms
Loss rate: 7.92%
-- Flow 1:
Average throughput: 0.29 Mbit/s
95th percentile per-packet one-way delay: 198.922 ms
Loss rate: 7.92%
```

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



Run 3: Statistics of Indigo-calib

```
Start at: 2017-11-30 06:02:29
End at: 2017-11-30 06:02:59
Local clock offset: -12.261 ms
Remote clock offset: -17.627 ms

# Below is generated by plot.py at 2017-11-30 06:50:57
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.40 Mbit/s
95th percentile per-packet one-way delay: 124.032 ms
Loss rate: 6.18%
-- Flow 1:
Average throughput: 0.40 Mbit/s
95th percentile per-packet one-way delay: 124.032 ms
Loss rate: 6.18%
```

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

