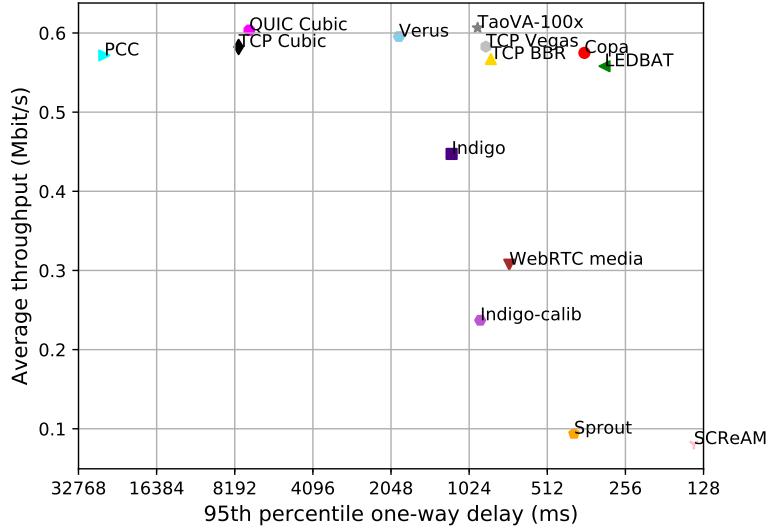


## Pantheon Report

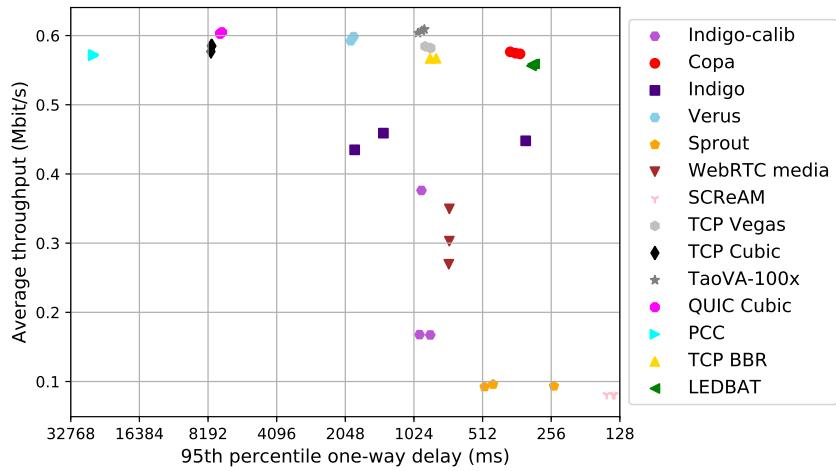
Generated at 2017-12-05 07:56:26 (UTC).  
Data path: Colombia ppp0 (*remote*) → AWS Brazil 2 Ethernet (*local*).  
Repeated the test of 14 congestion control schemes 3 times.  
Each test lasted for 30 seconds running 1 flow.  
Increased UDP receive buffer to 16 MB (default) and 32 MB (max).  
Tested BBR with qdisc of Fair Queuing (**fq**), and other schemes with the default Linux qdisc (**pfifo\_fast**).  
NTP offsets were measured against **gps.ntp.br** 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 Colombia ppp0 to AWS Brazil 2 Ethernet, 3 runs of 30s each per scheme  
(mean of all runs by scheme)



test from Colombia ppp0 to AWS Brazil 2 Ethernet, 3 runs of 30s each per scheme



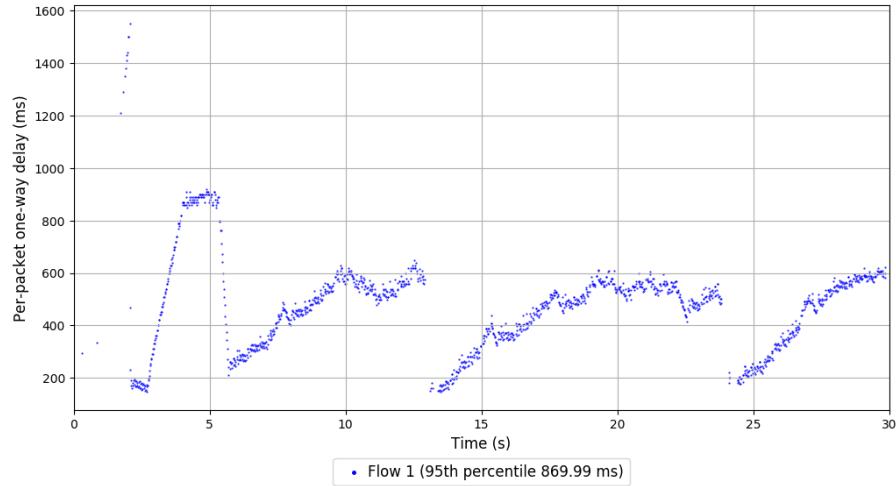
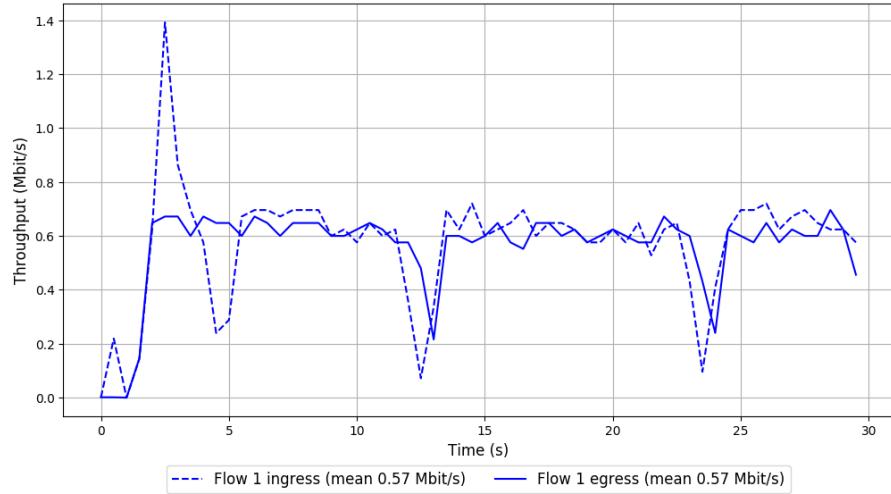
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	2	0.57	844.51	2.30
TCP Cubic	3	0.58	7916.87	30.92
LEDBAT	3	0.56	308.17	1.26
PCC	3	0.57	26056.97	98.58
QUIC Cubic	3	0.60	7204.44	29.13
SCReAM	3	0.08	139.51	0.66
WebRTC media	3	0.31	717.48	0.90
Sprout	3	0.09	403.87	1.54
TaoVA-100x	3	0.61	950.29	2.72
TCP Vegas	3	0.58	882.52	1.12
Verus	2	0.59	1910.07	5.80
Copa	3	0.57	368.28	1.24
Indigo	3	0.45	1196.30	14.69
Indigo-calib	3	0.24	928.32	5.89

Run 1: Statistics of TCP BBR

```
Start at: 2017-12-05 06:32:10
End at: 2017-12-05 06:32:40
Local clock offset: 1.444 ms
Remote clock offset: -6.926 ms

# Below is generated by plot.py at 2017-12-05 07:55:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 869.990 ms
Loss rate: 2.44%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 869.990 ms
Loss rate: 2.44%
```

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



Run 2: Statistics of TCP BBR

Start at: 2017-12-05 06:48:32

End at: 2017-12-05 06:49:02

Local clock offset: 1.747 ms

Remote clock offset: -0.813 ms

Run 2: Report of TCP BBR — Data Link

Figure is missing

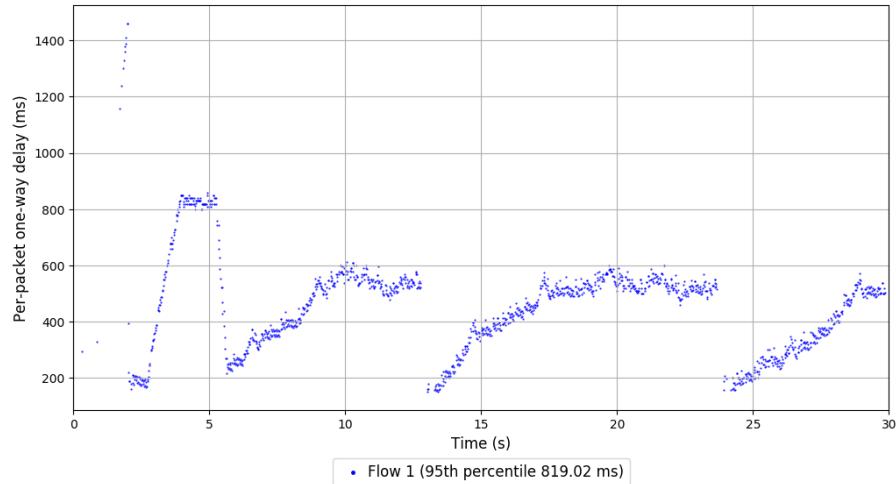
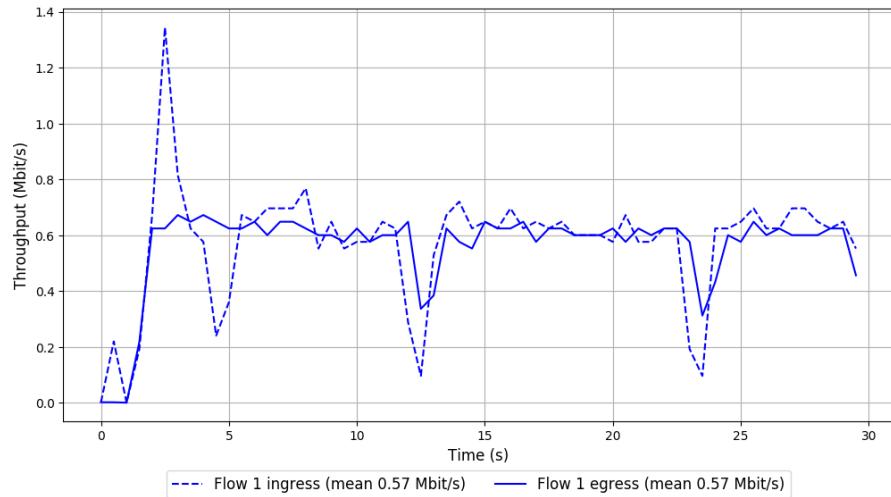
Figure is missing

Run 3: Statistics of TCP BBR

```
Start at: 2017-12-05 07:04:55
End at: 2017-12-05 07:05:25
Local clock offset: 1.42 ms
Remote clock offset: -5.775 ms

# Below is generated by plot.py at 2017-12-05 07:55:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 819.021 ms
Loss rate: 2.17%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 819.021 ms
Loss rate: 2.17%
```

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

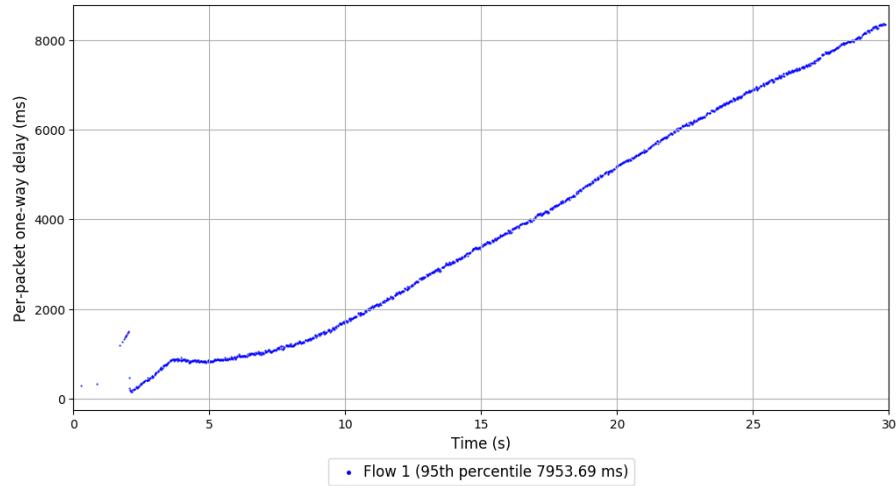
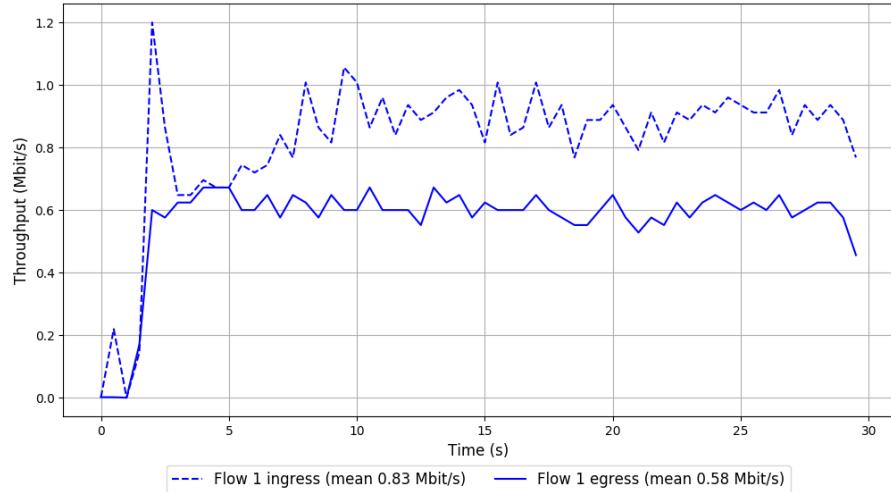


Run 1: Statistics of TCP Cubic

```
Start at: 2017-12-05 06:18:08
End at: 2017-12-05 06:18:38
Local clock offset: 0.371 ms
Remote clock offset: -2.36 ms

# Below is generated by plot.py at 2017-12-05 07:55:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 7953.686 ms
Loss rate: 30.93%
-- Flow 1:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 7953.686 ms
Loss rate: 30.93%
```

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

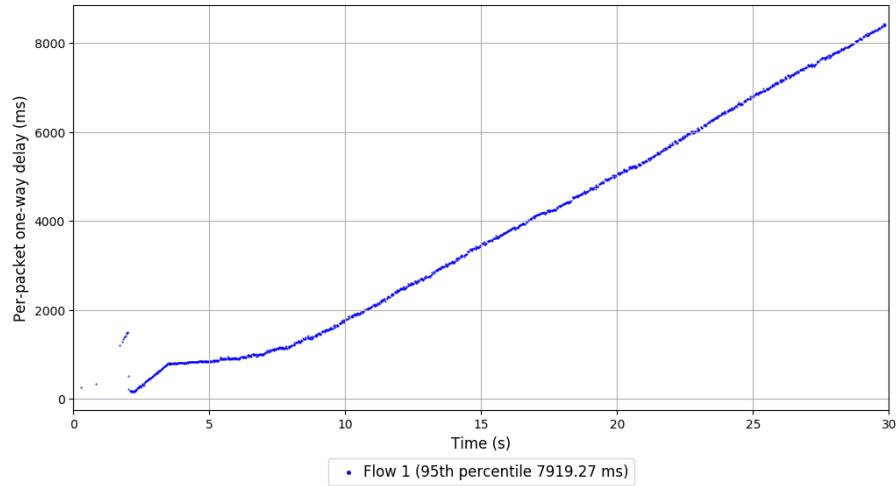
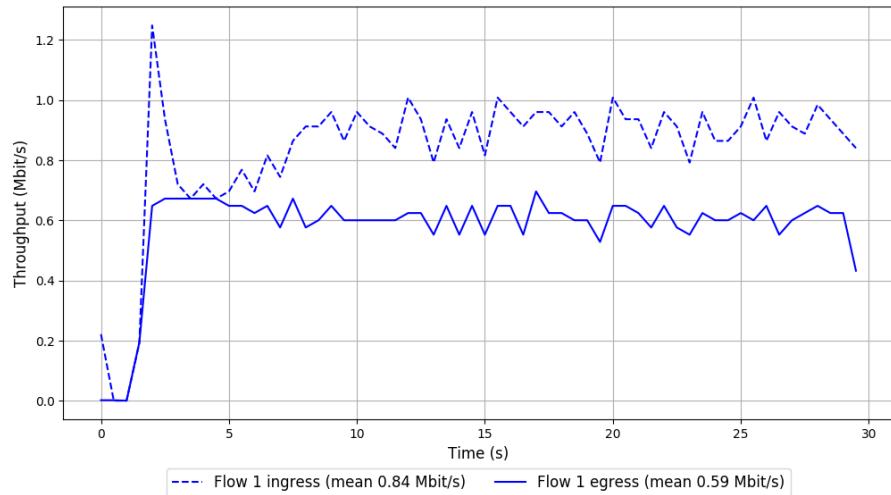


Run 2: Statistics of TCP Cubic

```
Start at: 2017-12-05 06:34:30
End at: 2017-12-05 06:35:00
Local clock offset: 1.539 ms
Remote clock offset: -6.392 ms

# Below is generated by plot.py at 2017-12-05 07:55:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 7919.265 ms
Loss rate: 30.89%
-- Flow 1:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 7919.265 ms
Loss rate: 30.89%
```

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

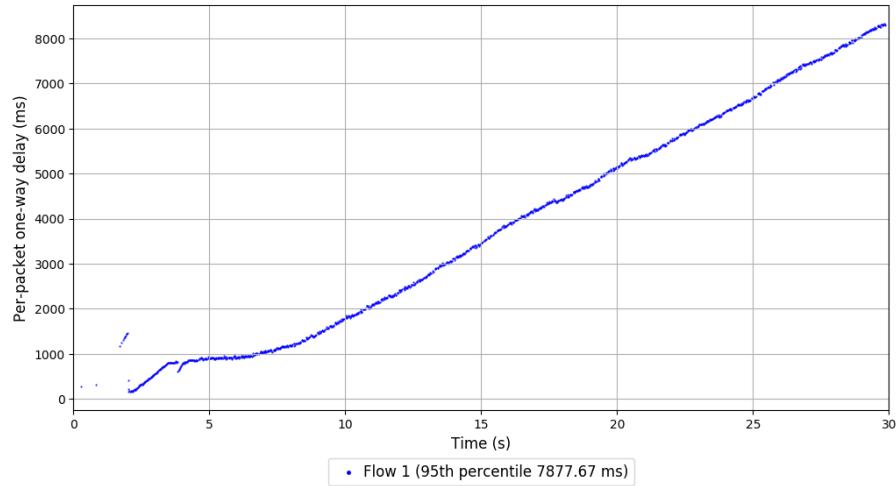
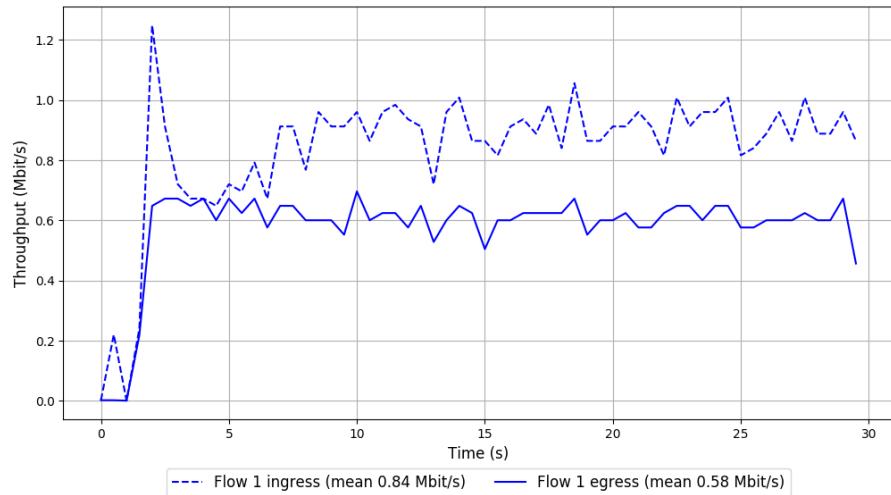


Run 3: Statistics of TCP Cubic

```
Start at: 2017-12-05 06:50:53
End at: 2017-12-05 06:51:23
Local clock offset: 1.807 ms
Remote clock offset: -0.556 ms

# Below is generated by plot.py at 2017-12-05 07:55:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 7877.673 ms
Loss rate: 30.94%
-- Flow 1:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 7877.673 ms
Loss rate: 30.94%
```

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

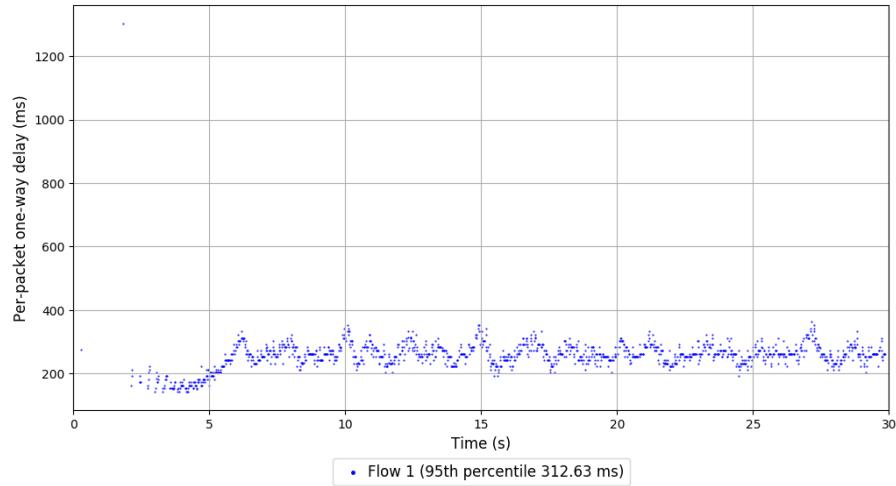
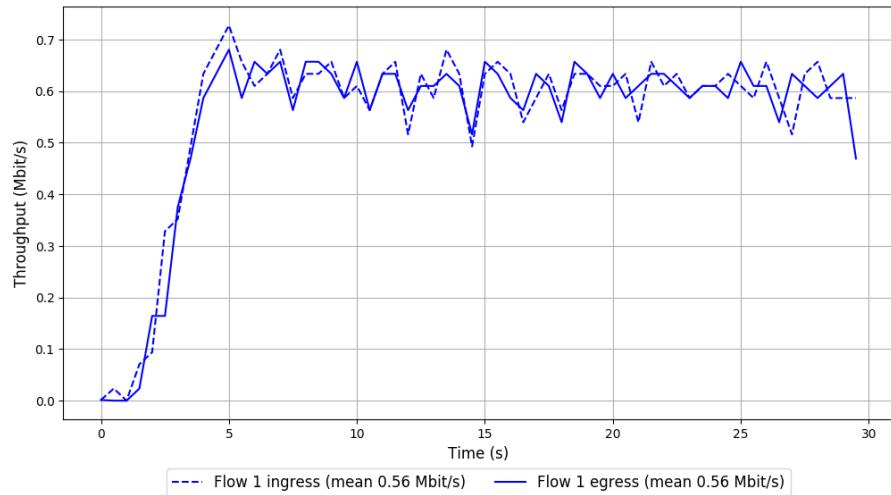


```
Run 1: Statistics of LEDBAT
```

```
Start at: 2017-12-05 06:31:00
End at: 2017-12-05 06:31:30
Local clock offset: 1.54 ms
Remote clock offset: -1.351 ms

# Below is generated by plot.py at 2017-12-05 07:55:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 312.627 ms
Loss rate: 1.27%
-- Flow 1:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 312.627 ms
Loss rate: 1.27%
```

## Run 1: Report of LEDBAT — Data Link

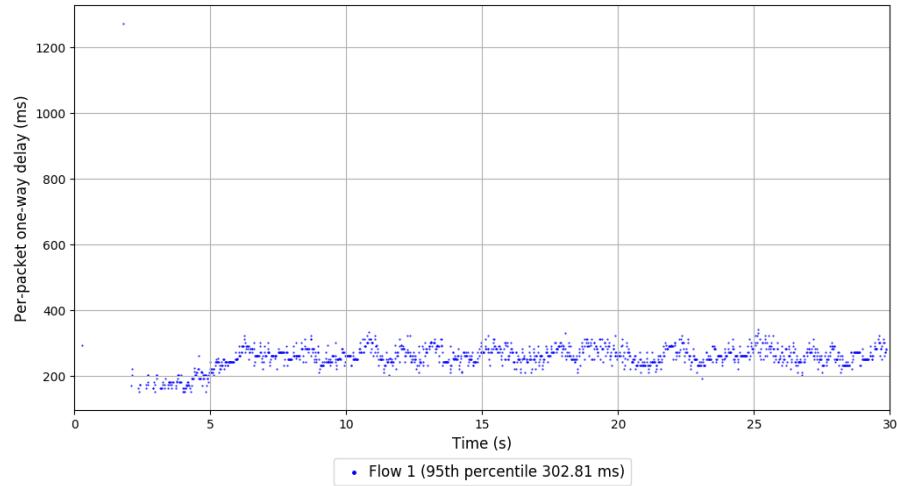
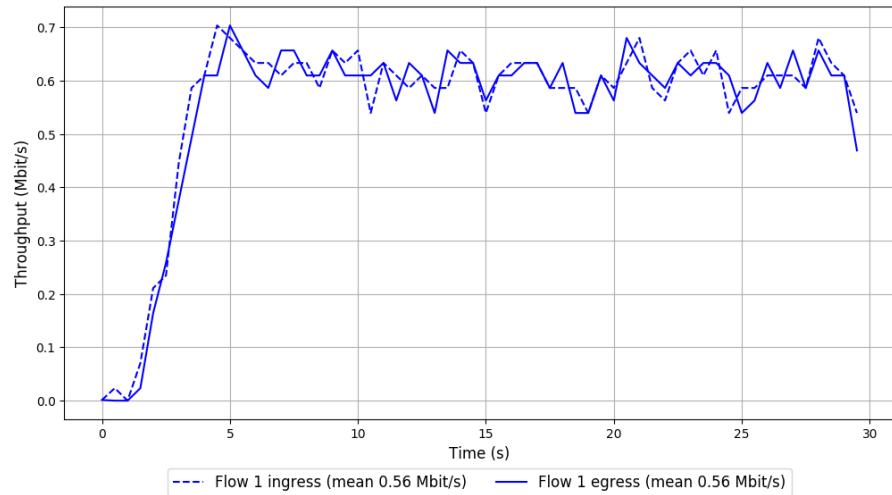


Run 2: Statistics of LEDBAT

```
Start at: 2017-12-05 06:47:22
End at: 2017-12-05 06:47:52
Local clock offset: 1.563 ms
Remote clock offset: -5.542 ms

# Below is generated by plot.py at 2017-12-05 07:55:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 302.805 ms
Loss rate: 1.26%
-- Flow 1:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 302.805 ms
Loss rate: 1.26%
```

## Run 2: Report of LEDBAT — Data Link

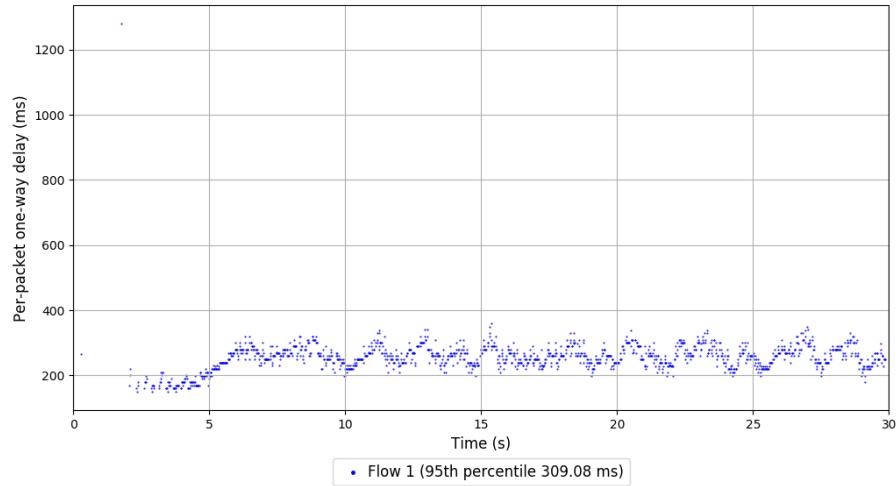
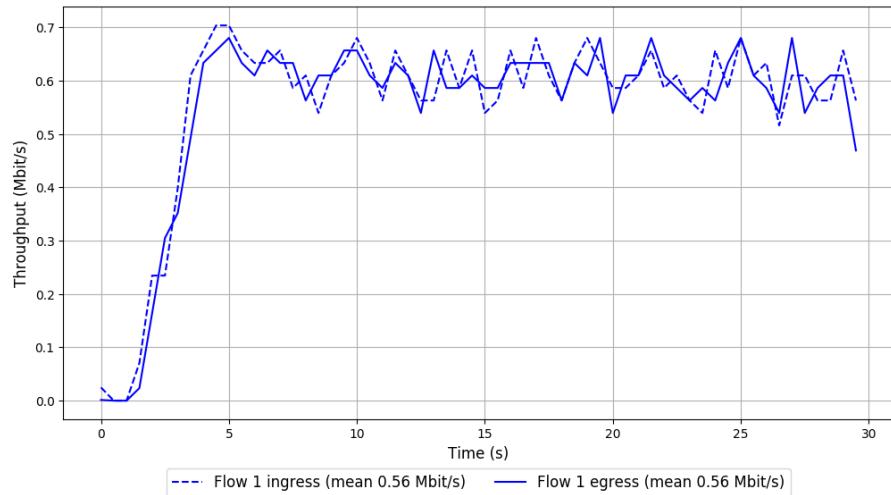


Run 3: Statistics of LEDBAT

```
Start at: 2017-12-05 07:03:45
End at: 2017-12-05 07:04:15
Local clock offset: 1.423 ms
Remote clock offset: -0.441 ms

# Below is generated by plot.py at 2017-12-05 07:56:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 309.084 ms
Loss rate: 1.26%
-- Flow 1:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 309.084 ms
Loss rate: 1.26%
```

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

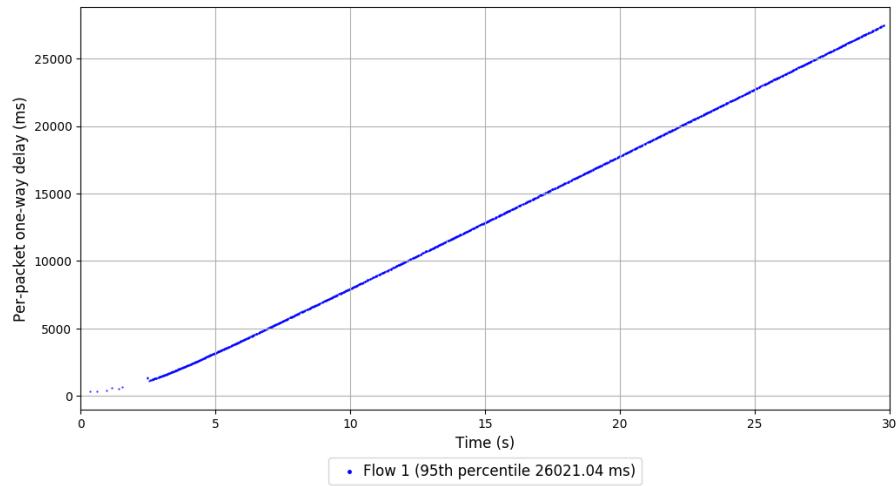
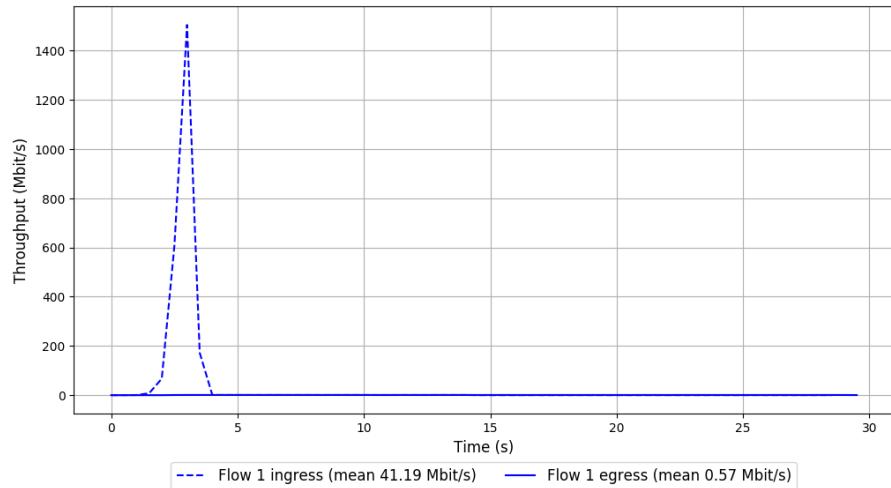


Run 1: Statistics of PCC

```
Start at: 2017-12-05 06:28:38
End at: 2017-12-05 06:29:08
Local clock offset: 1.838 ms
Remote clock offset: -6.196 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 26021.037 ms
Loss rate: 98.58%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 26021.037 ms
Loss rate: 98.58%
```

## Run 1: Report of PCC — Data Link

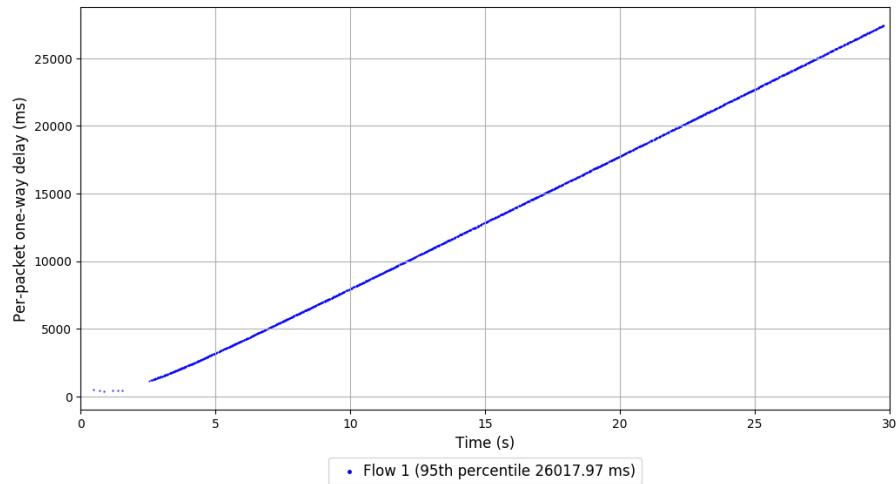
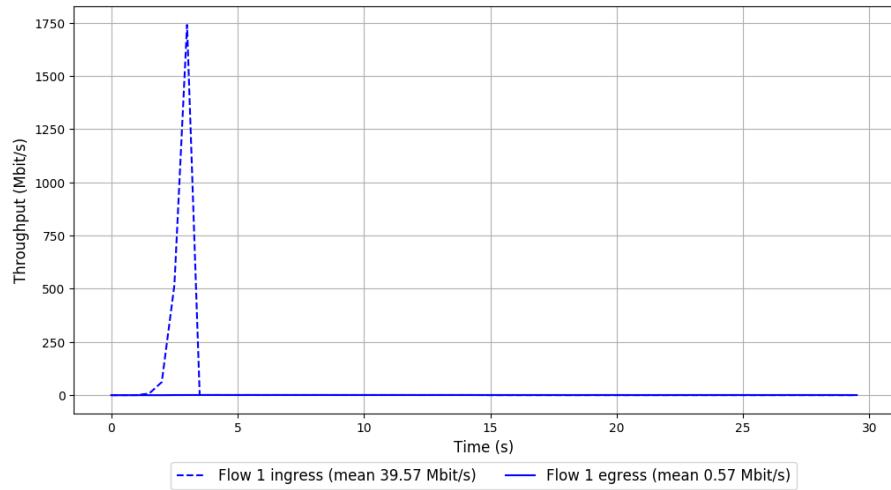


Run 2: Statistics of PCC

```
Start at: 2017-12-05 06:45:01
End at: 2017-12-05 06:45:31
Local clock offset: 1.457 ms
Remote clock offset: -0.968 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 26017.972 ms
Loss rate: 98.57%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 26017.972 ms
Loss rate: 98.57%
```

## Run 2: Report of PCC — Data Link

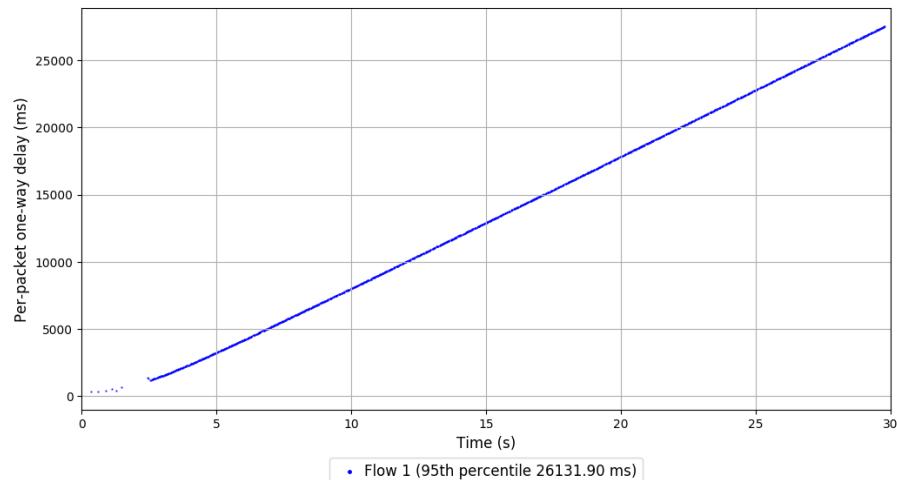
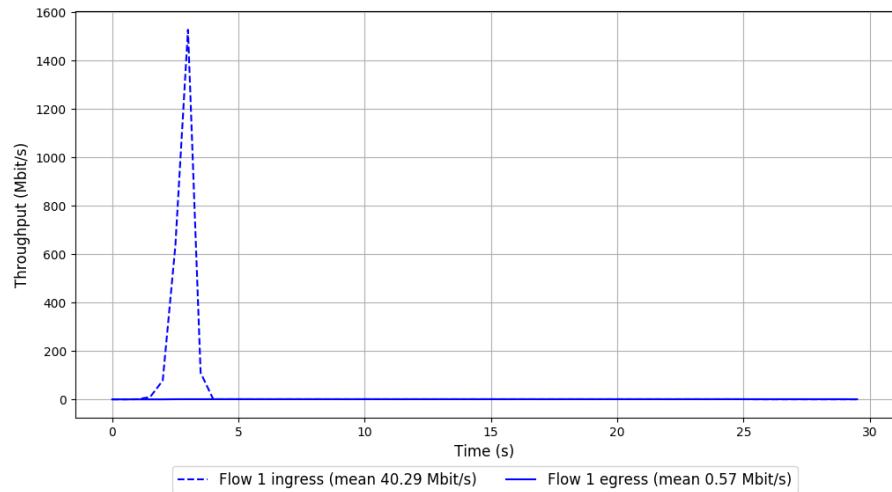


Run 3: Statistics of PCC

```
Start at: 2017-12-05 07:01:23
End at: 2017-12-05 07:01:53
Local clock offset: 1.572 ms
Remote clock offset: -6.241 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 26131.902 ms
Loss rate: 98.59%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 26131.902 ms
Loss rate: 98.59%
```

### Run 3: Report of PCC — Data Link

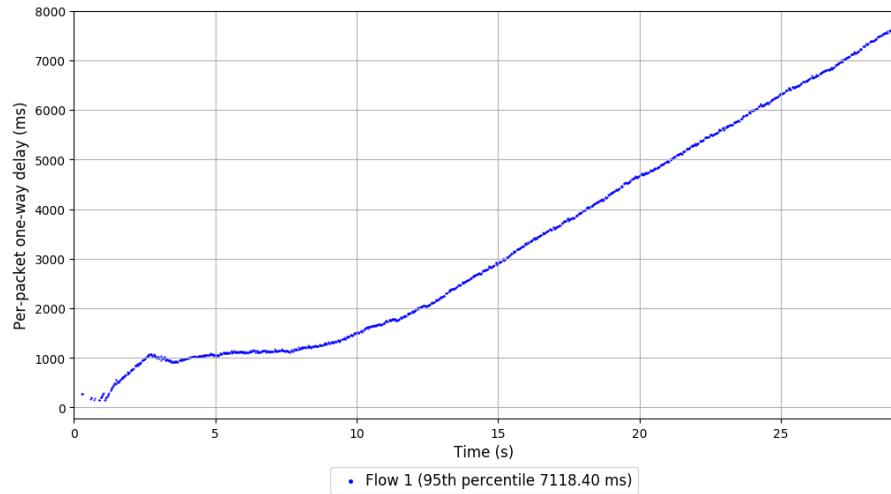
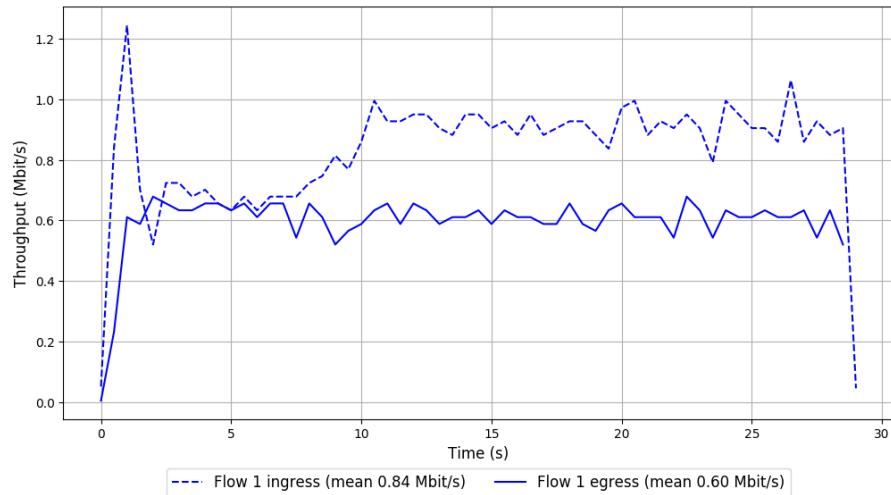


```
Run 1: Statistics of QUIC Cubic
```

```
Start at: 2017-12-05 06:33:20
End at: 2017-12-05 06:33:50
Local clock offset: 1.514 ms
Remote clock offset: -0.756 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 7118.402 ms
Loss rate: 29.05%
-- Flow 1:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 7118.402 ms
Loss rate: 29.05%
```

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

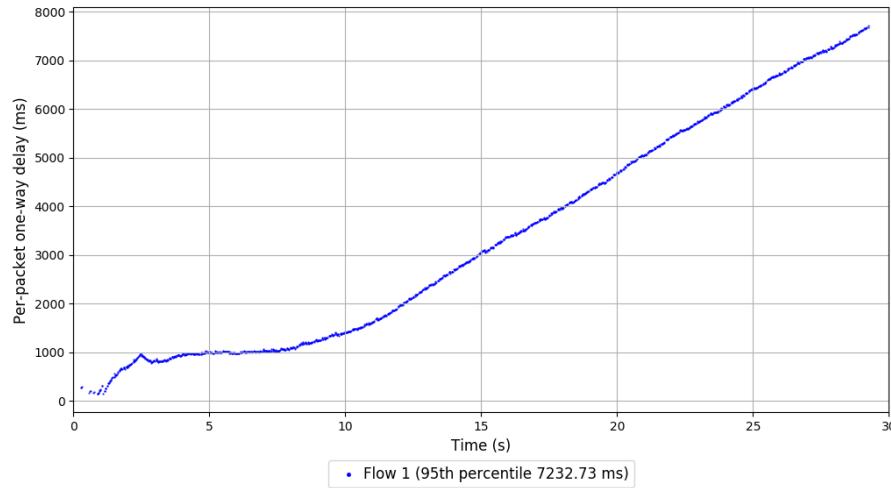
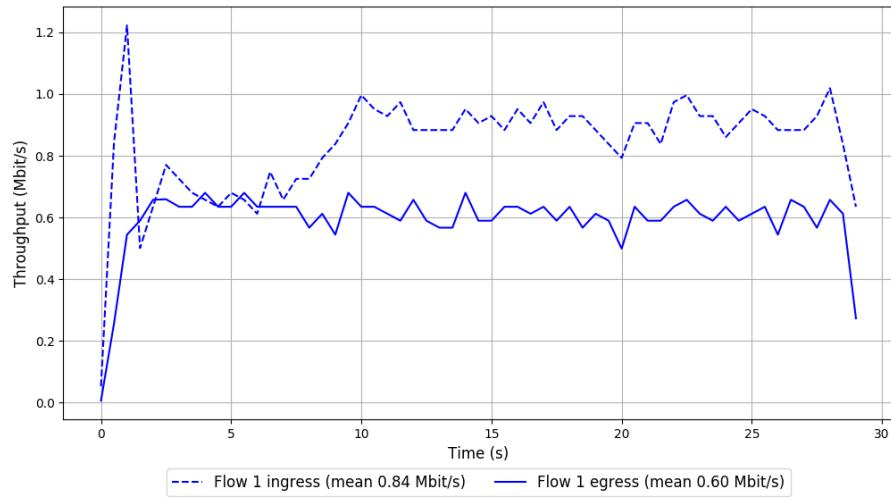


Run 2: Statistics of QUIC Cubic

```
Start at: 2017-12-05 06:49:42
End at: 2017-12-05 06:50:12
Local clock offset: 1.761 ms
Remote clock offset: -1.004 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 7232.729 ms
Loss rate: 29.21%
-- Flow 1:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 7232.729 ms
Loss rate: 29.21%
```

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

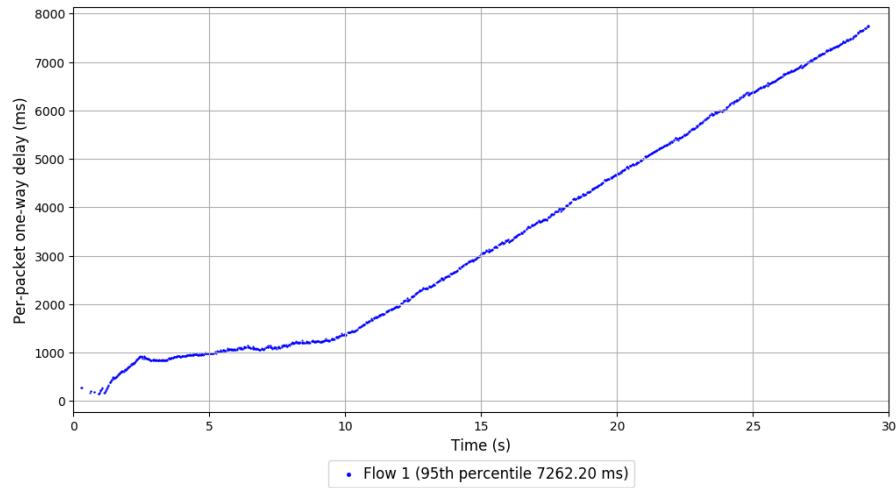
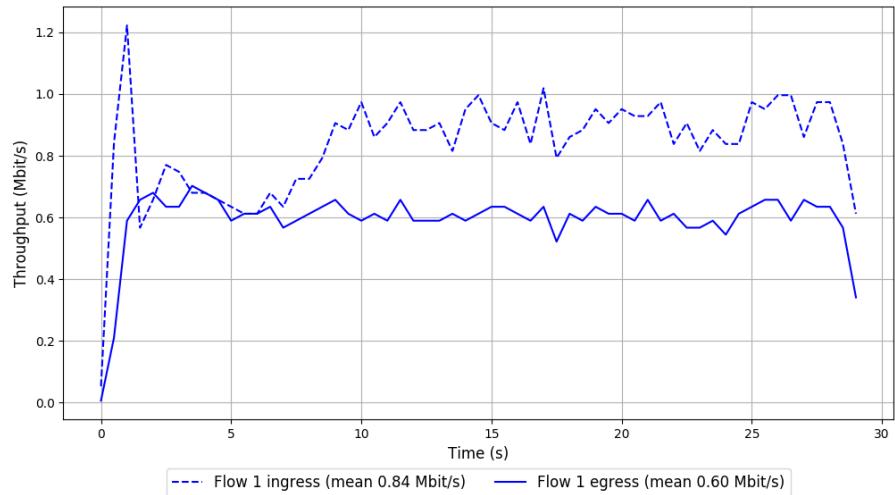


Run 3: Statistics of QUIC Cubic

```
Start at: 2017-12-05 07:06:05
End at: 2017-12-05 07:06:35
Local clock offset: 1.503 ms
Remote clock offset: -5.626 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 7262.202 ms
Loss rate: 29.12%
-- Flow 1:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 7262.202 ms
Loss rate: 29.12%
```

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

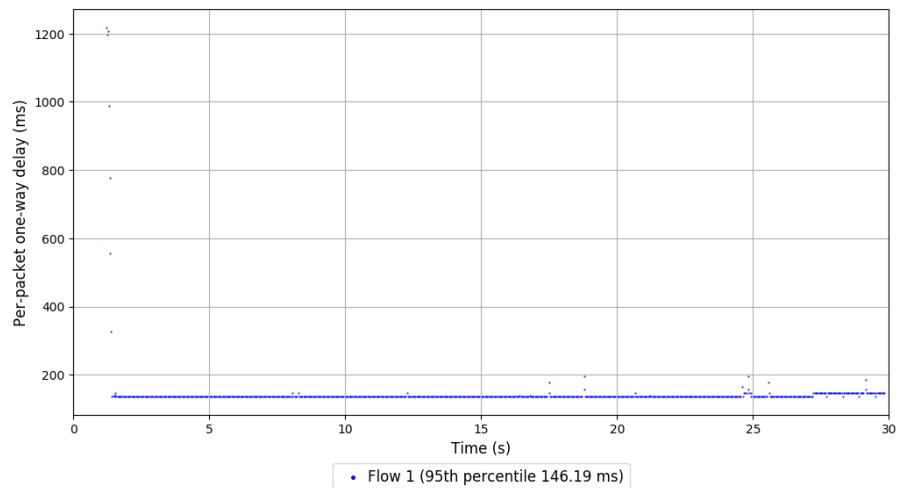
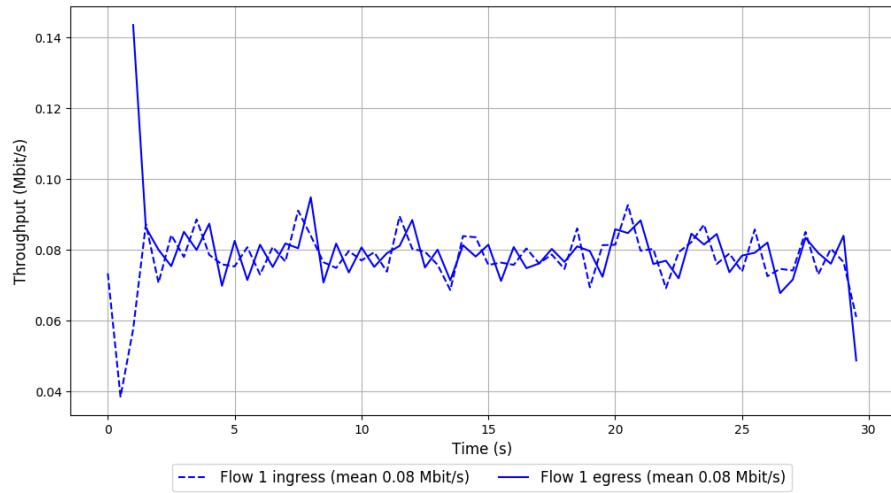


```
Run 1: Statistics of SCReAM
```

```
Start at: 2017-12-05 06:29:50
End at: 2017-12-05 06:30:20
Local clock offset: 1.714 ms
Remote clock offset: -6.974 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 146.186 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 146.186 ms
Loss rate: 0.66%
```

## Run 1: Report of SCReAM — Data Link

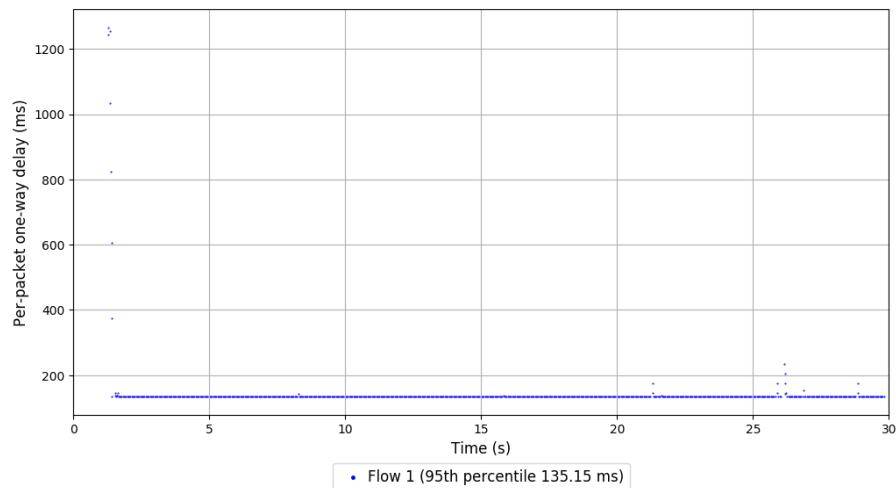
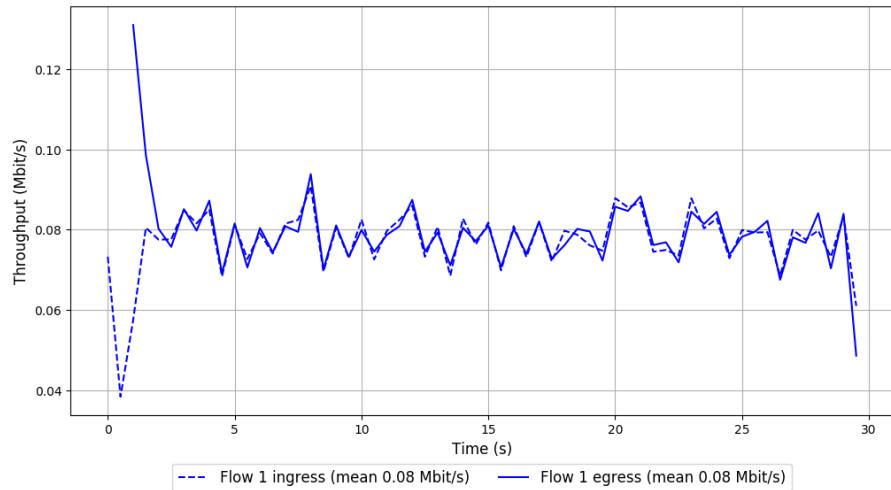


Run 2: Statistics of SCReAM

```
Start at: 2017-12-05 06:46:12
End at: 2017-12-05 06:46:42
Local clock offset: 1.539 ms
Remote clock offset: -5.648 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 135.145 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 135.145 ms
Loss rate: 0.66%
```

## Run 2: Report of SCReAM — Data Link

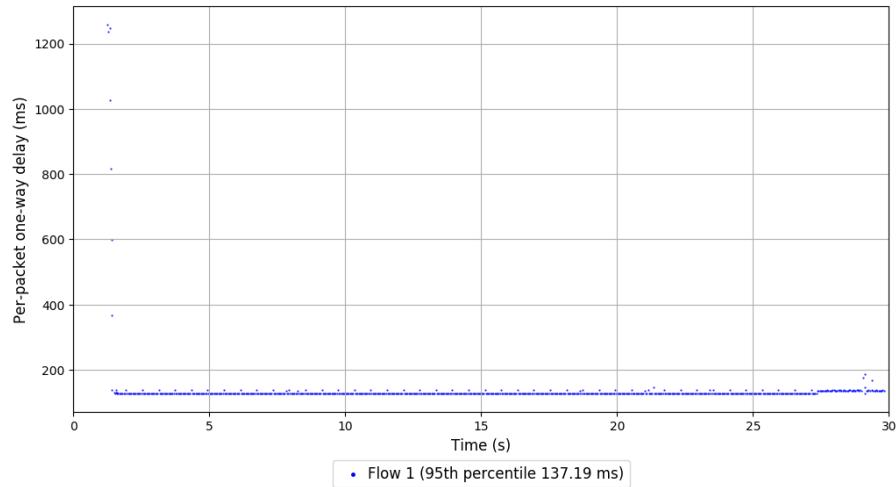
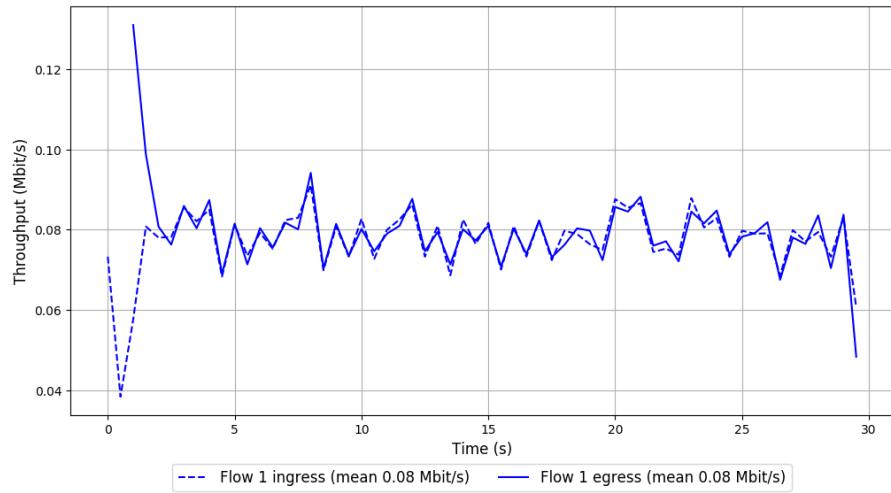


Run 3: Statistics of SCReAM

```
Start at: 2017-12-05 07:02:35
End at: 2017-12-05 07:03:05
Local clock offset: 1.459 ms
Remote clock offset: -0.523 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 137.185 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 137.185 ms
Loss rate: 0.65%
```

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

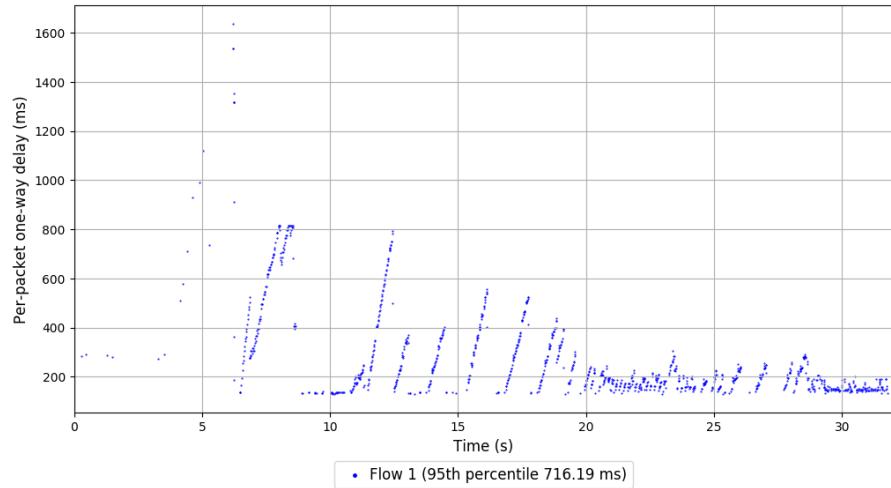
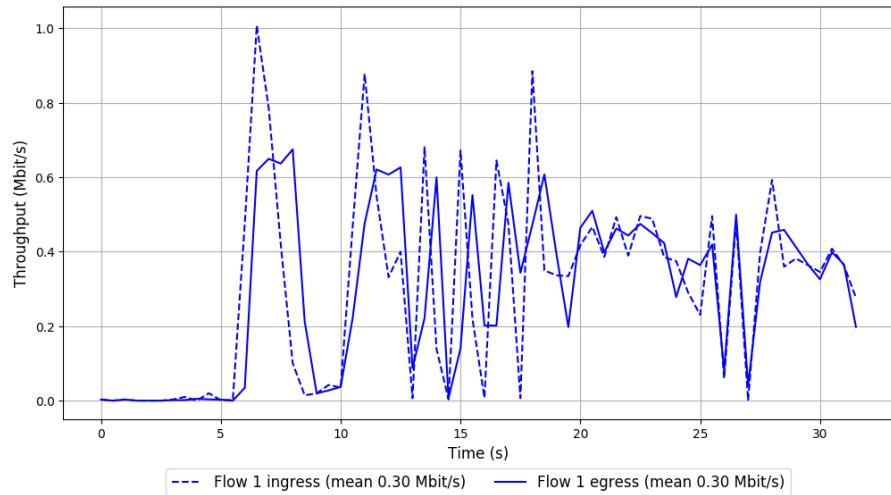


```
Run 1: Statistics of WebRTC media
```

```
Start at: 2017-12-05 06:26:18
End at: 2017-12-05 06:26:48
Local clock offset: 1.575 ms
Remote clock offset: -2.634 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 716.194 ms
Loss rate: 1.01%
-- Flow 1:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 716.194 ms
Loss rate: 1.01%
```

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

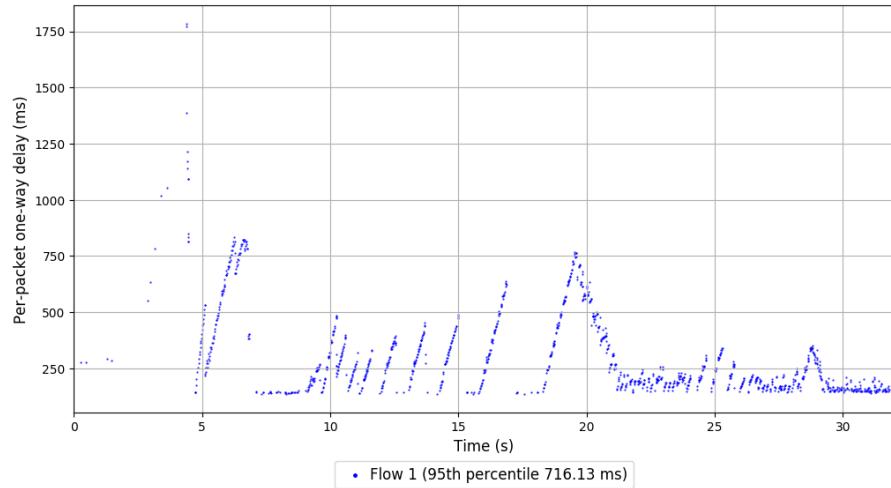
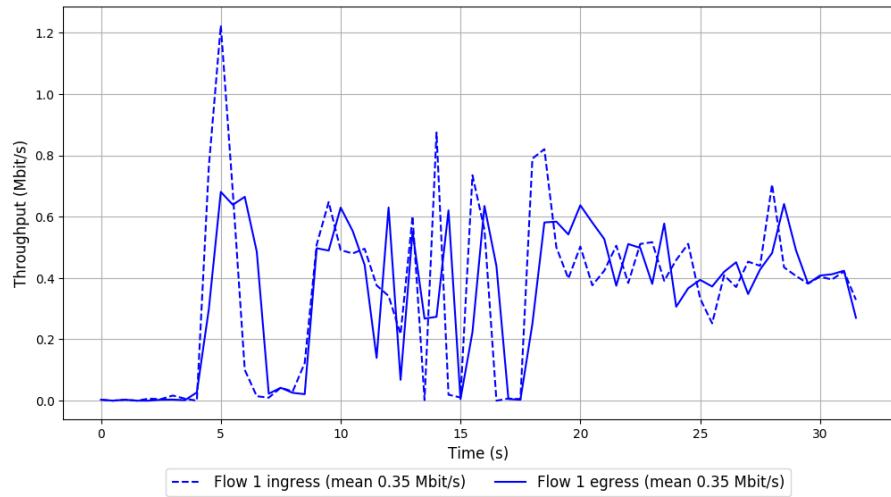


Run 2: Statistics of WebRTC media

```
Start at: 2017-12-05 06:42:40
End at: 2017-12-05 06:43:10
Local clock offset: 1.41 ms
Remote clock offset: -6.752 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.35 Mbit/s
95th percentile per-packet one-way delay: 716.126 ms
Loss rate: 0.84%
-- Flow 1:
Average throughput: 0.35 Mbit/s
95th percentile per-packet one-way delay: 716.126 ms
Loss rate: 0.84%
```

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

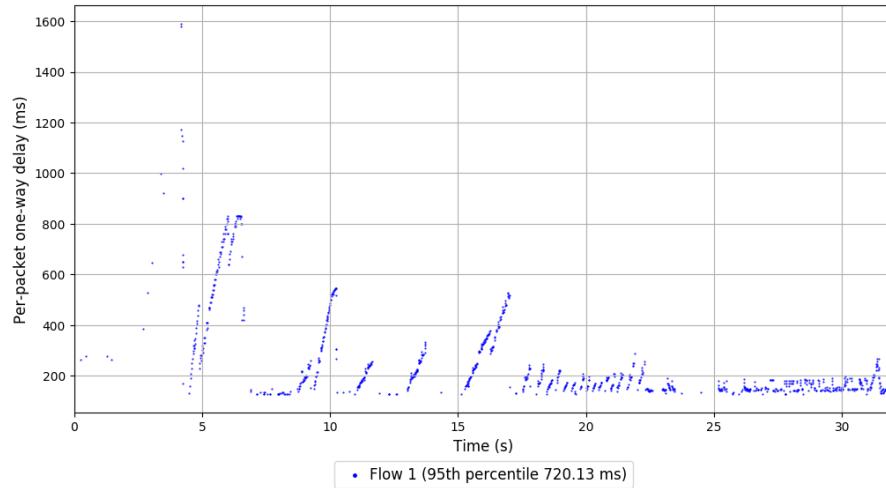
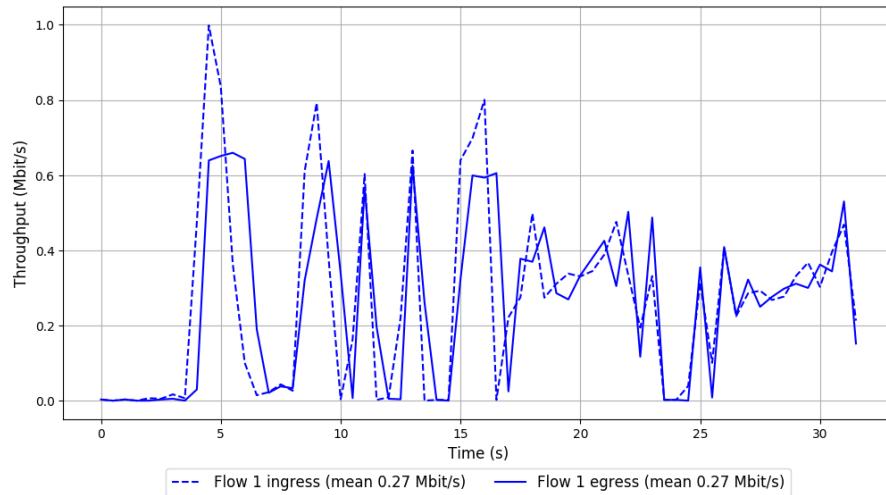


Run 3: Statistics of WebRTC media

```
Start at: 2017-12-05 06:59:03
End at: 2017-12-05 06:59:33
Local clock offset: 1.74 ms
Remote clock offset: -0.298 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.27 Mbit/s
95th percentile per-packet one-way delay: 720.128 ms
Loss rate: 0.84%
-- Flow 1:
Average throughput: 0.27 Mbit/s
95th percentile per-packet one-way delay: 720.128 ms
Loss rate: 0.84%
```

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

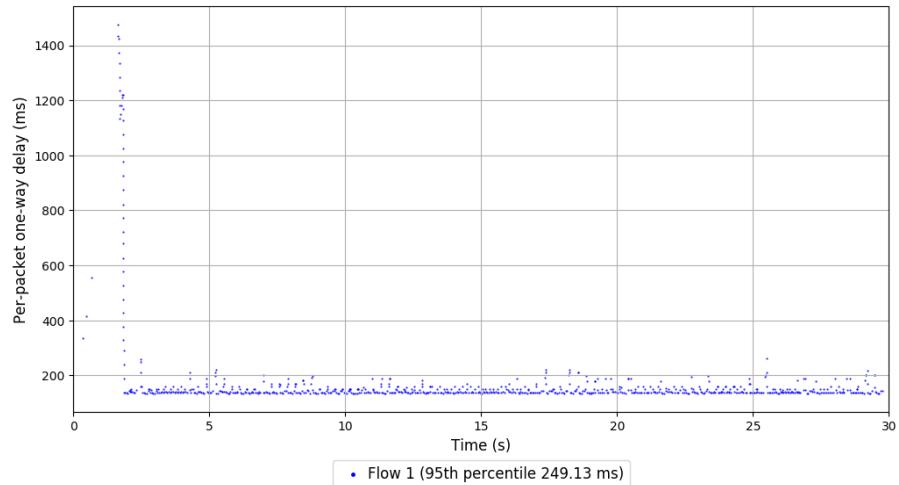
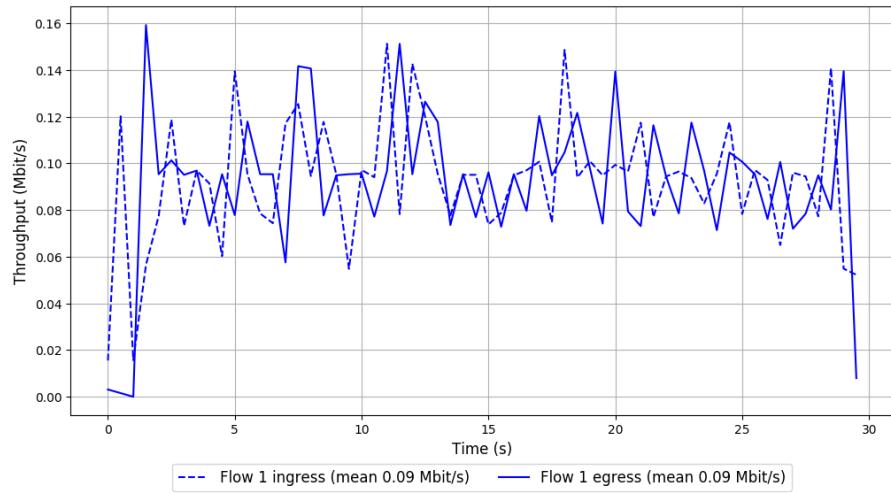


Run 1: Statistics of Sprout

```
Start at: 2017-12-05 06:23:58
End at: 2017-12-05 06:24:28
Local clock offset: 1.424 ms
Remote clock offset: -6.582 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 249.126 ms
Loss rate: 0.86%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 249.126 ms
Loss rate: 0.86%
```

## Run 1: Report of Sprout — Data Link

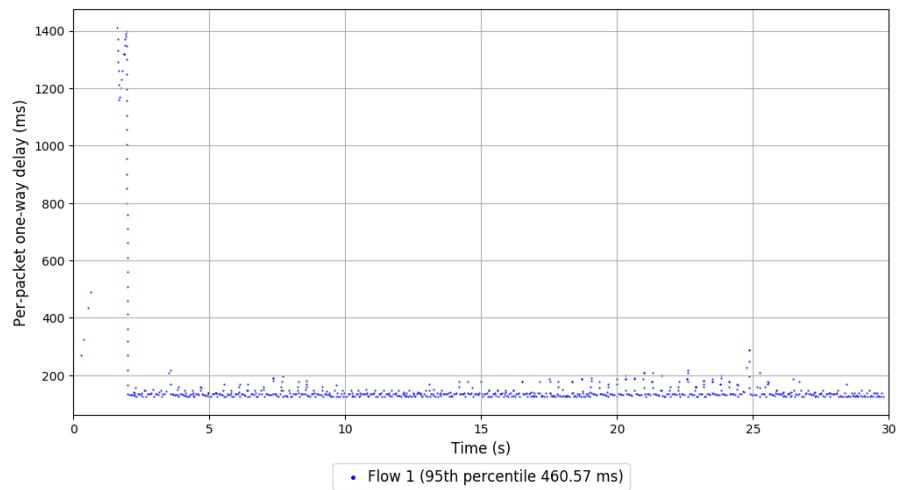
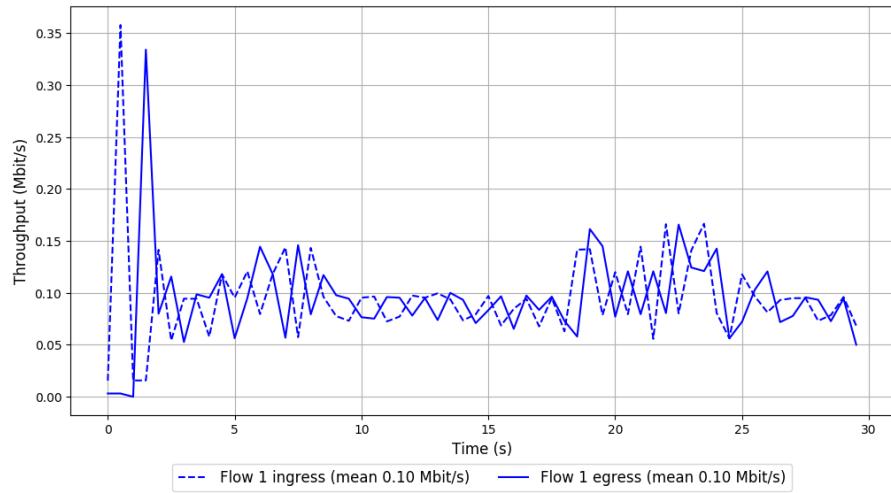


Run 2: Statistics of Sprout

```
Start at: 2017-12-05 06:40:20
End at: 2017-12-05 06:40:50
Local clock offset: 1.491 ms
Remote clock offset: -0.664 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 460.574 ms
Loss rate: 1.86%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 460.574 ms
Loss rate: 1.86%
```

## Run 2: Report of Sprout — Data Link

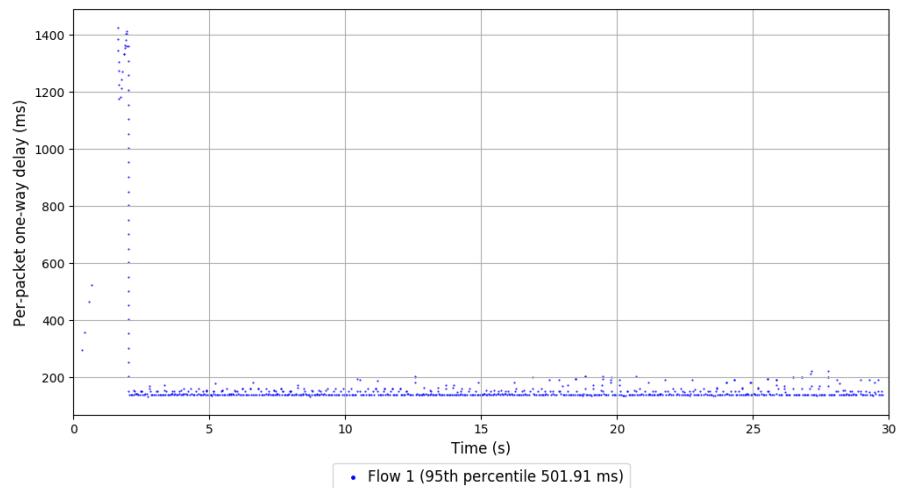
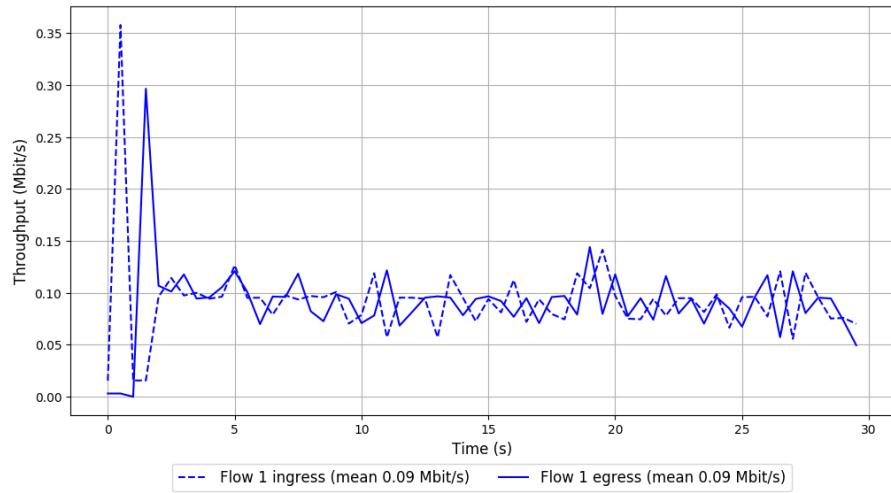


Run 3: Statistics of Sprout

```
Start at: 2017-12-05 06:56:43
End at: 2017-12-05 06:57:13
Local clock offset: 1.686 ms
Remote clock offset: -6.423 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 501.914 ms
Loss rate: 1.91%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 501.914 ms
Loss rate: 1.91%
```

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

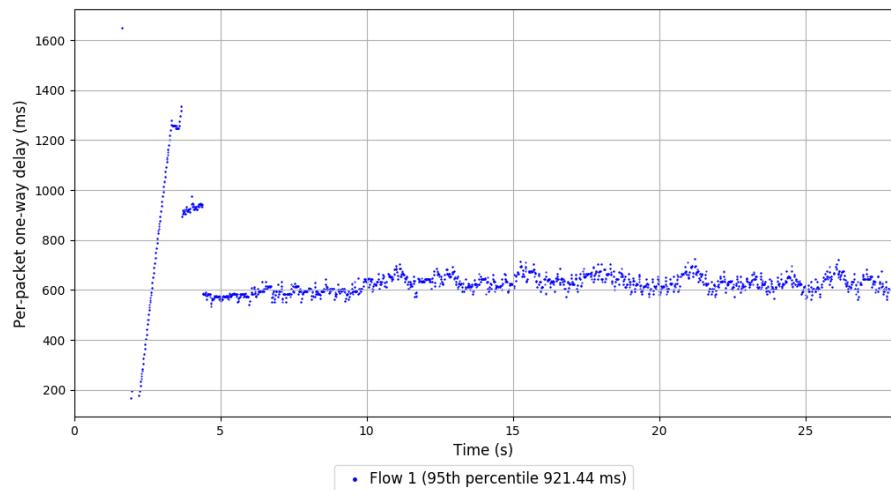
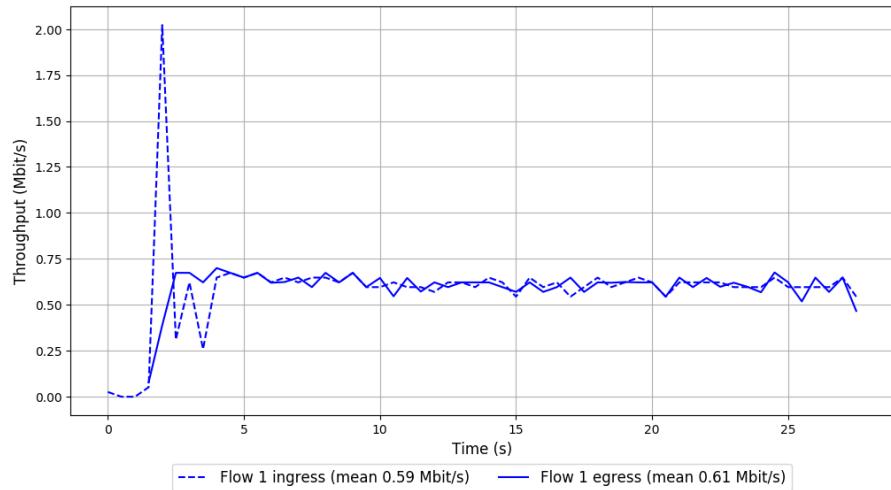


Run 1: Statistics of TaoVA-100x

```
Start at: 2017-12-05 06:20:28
End at: 2017-12-05 06:20:58
Local clock offset: 0.833 ms
Remote clock offset: -6.301 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.61 Mbit/s
95th percentile per-packet one-way delay: 921.436 ms
Loss rate: 2.76%
-- Flow 1:
Average throughput: 0.61 Mbit/s
95th percentile per-packet one-way delay: 921.436 ms
Loss rate: 2.76%
```

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

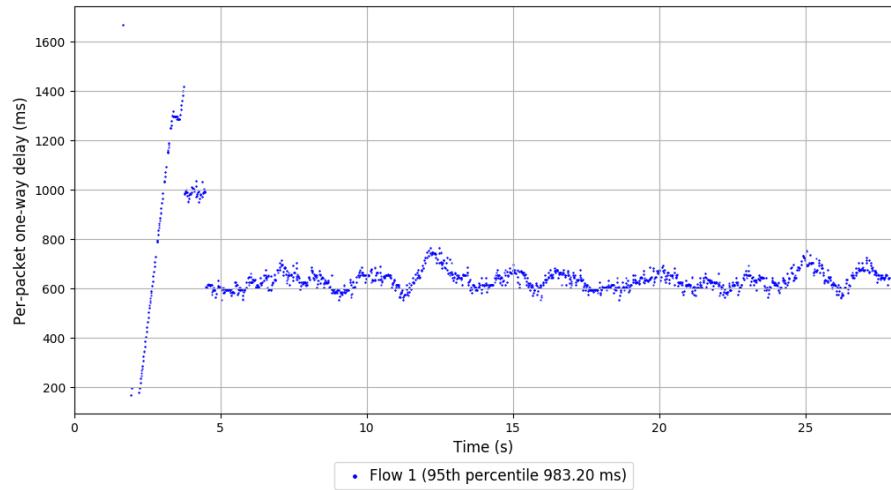
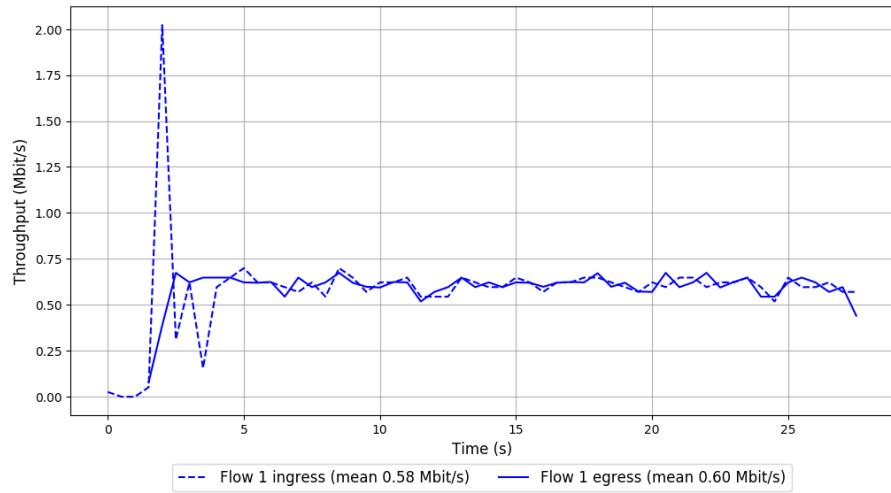


Run 2: Statistics of TaoVA-100x

```
Start at: 2017-12-05 06:36:50
End at: 2017-12-05 06:37:20
Local clock offset: 1.73 ms
Remote clock offset: -6.924 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 983.197 ms
Loss rate: 2.71%
-- Flow 1:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 983.197 ms
Loss rate: 2.71%
```

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

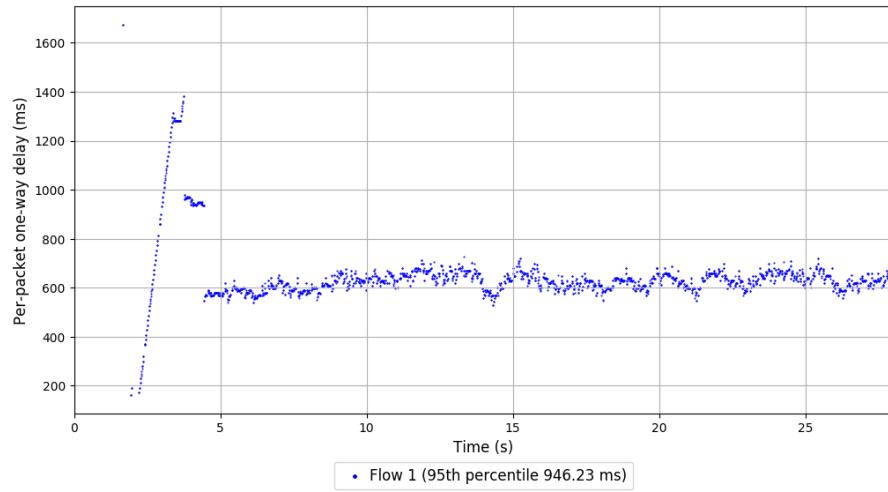
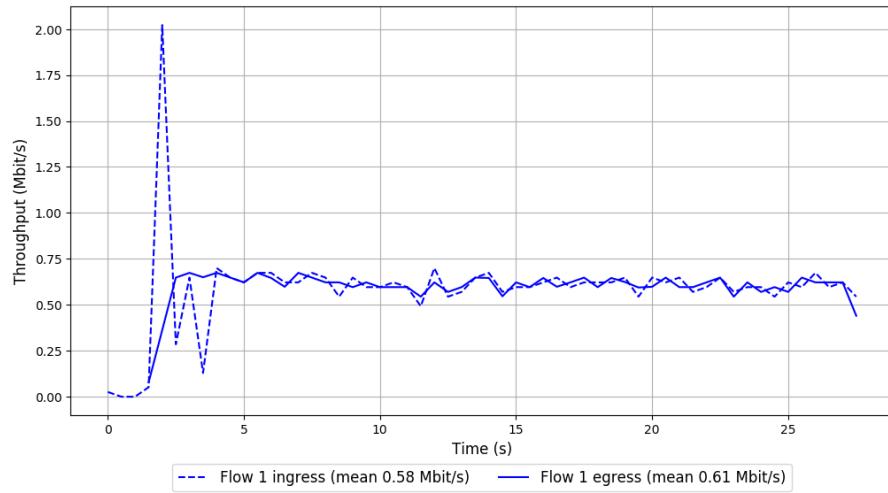


Run 3: Statistics of TaoVA-100x

```
Start at: 2017-12-05 06:53:13
End at: 2017-12-05 06:53:43
Local clock offset: 1.7 ms
Remote clock offset: -1.385 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.61 Mbit/s
95th percentile per-packet one-way delay: 946.234 ms
Loss rate: 2.69%
-- Flow 1:
Average throughput: 0.61 Mbit/s
95th percentile per-packet one-way delay: 946.234 ms
Loss rate: 2.69%
```

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

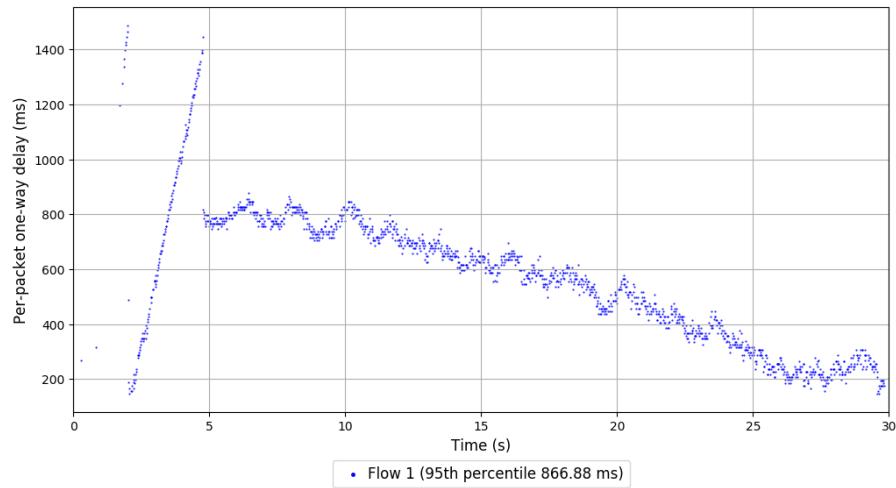
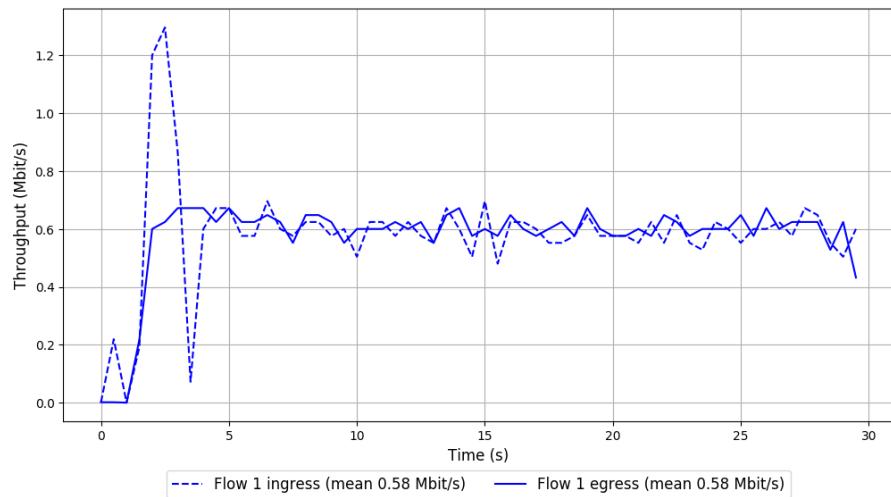


Run 1: Statistics of TCP Vegas

```
Start at: 2017-12-05 06:21:38
End at: 2017-12-05 06:22:08
Local clock offset: 1.219 ms
Remote clock offset: -2.688 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 866.879 ms
Loss rate: 1.10%
-- Flow 1:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 866.879 ms
Loss rate: 1.10%
```

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

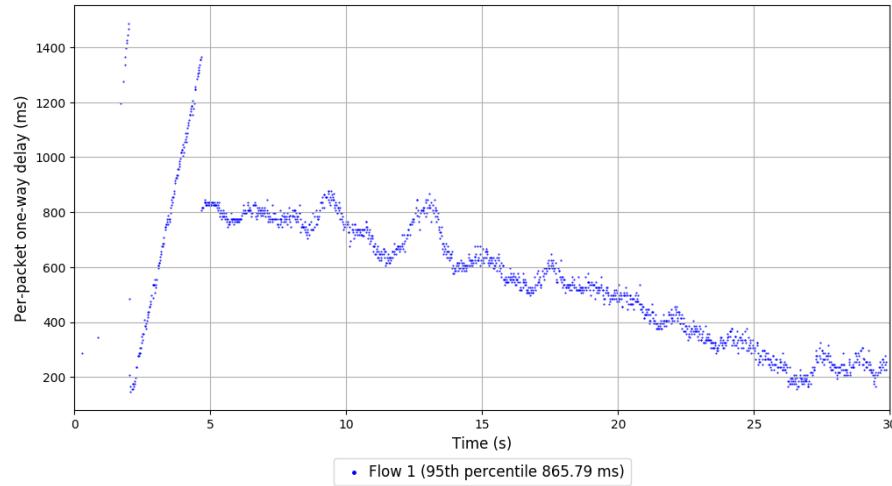
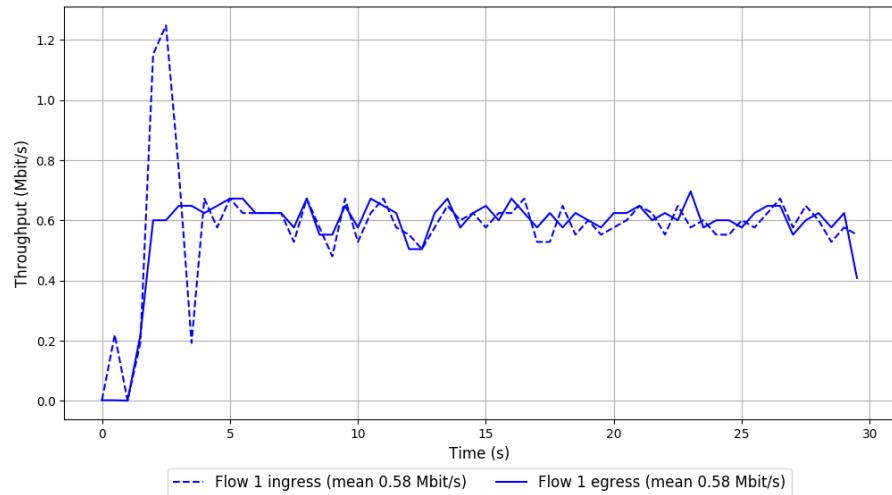


Run 2: Statistics of TCP Vegas

```
Start at: 2017-12-05 06:38:00
End at: 2017-12-05 06:38:30
Local clock offset: 1.805 ms
Remote clock offset: -1.236 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 865.786 ms
Loss rate: 1.10%
-- Flow 1:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 865.786 ms
Loss rate: 1.10%
```

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

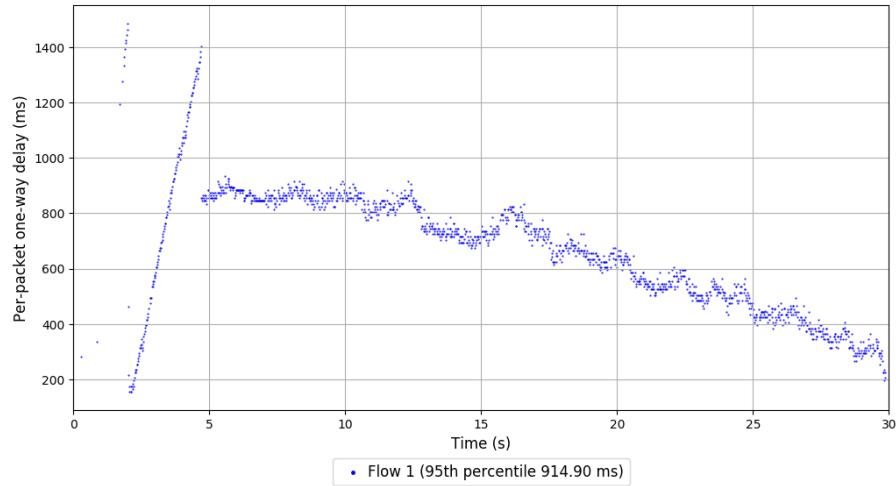
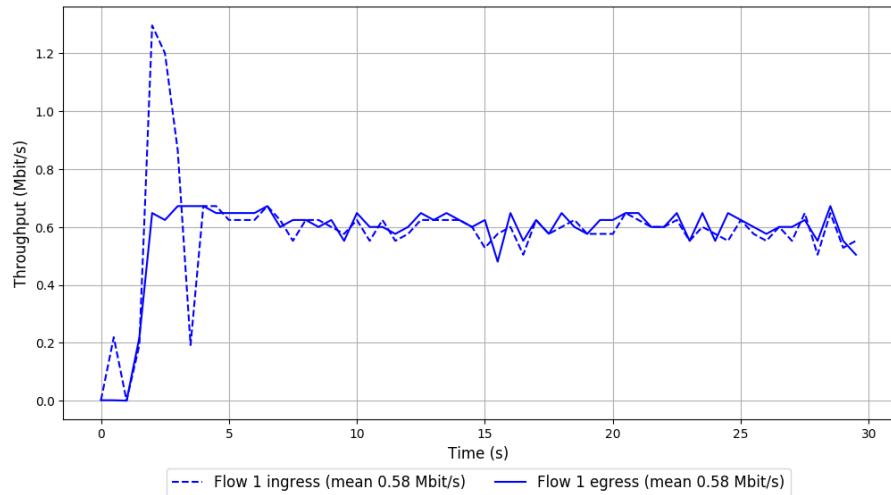


Run 3: Statistics of TCP Vegas

```
Start at: 2017-12-05 06:54:23
End at: 2017-12-05 06:54:53
Local clock offset: 1.661 ms
Remote clock offset: -6.469 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 914.903 ms
Loss rate: 1.17%
-- Flow 1:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 914.903 ms
Loss rate: 1.17%
```

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

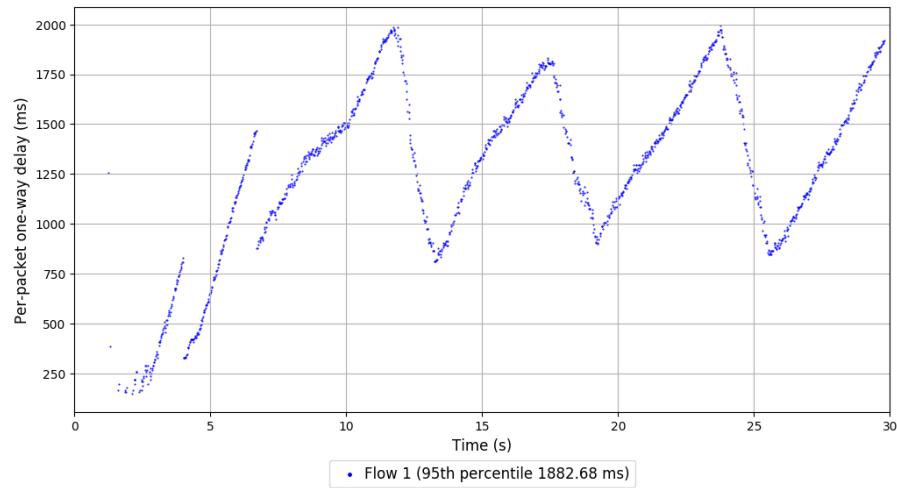
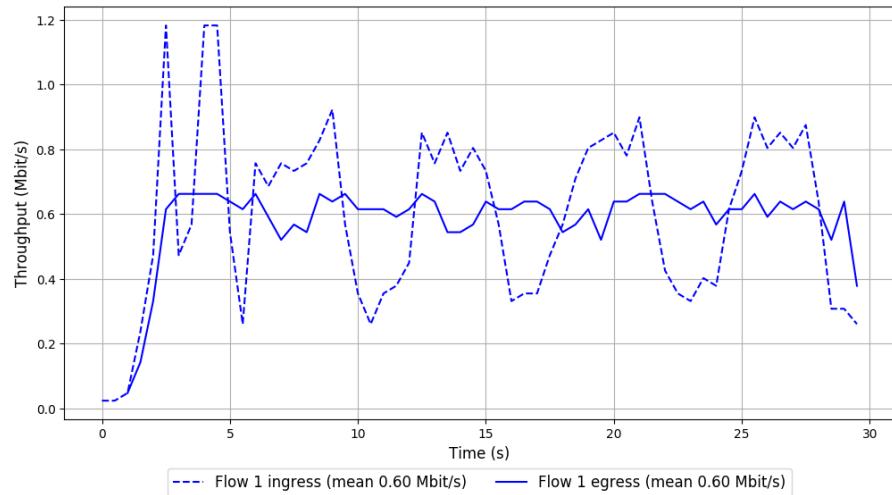


Run 1: Statistics of Verus

```
Start at: 2017-12-05 06:25:08
End at: 2017-12-05 06:25:38
Local clock offset: 1.488 ms
Remote clock offset: -7.51 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 1882.682 ms
Loss rate: 4.81%
-- Flow 1:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 1882.682 ms
Loss rate: 4.81%
```

## Run 1: Report of Verus — Data Link

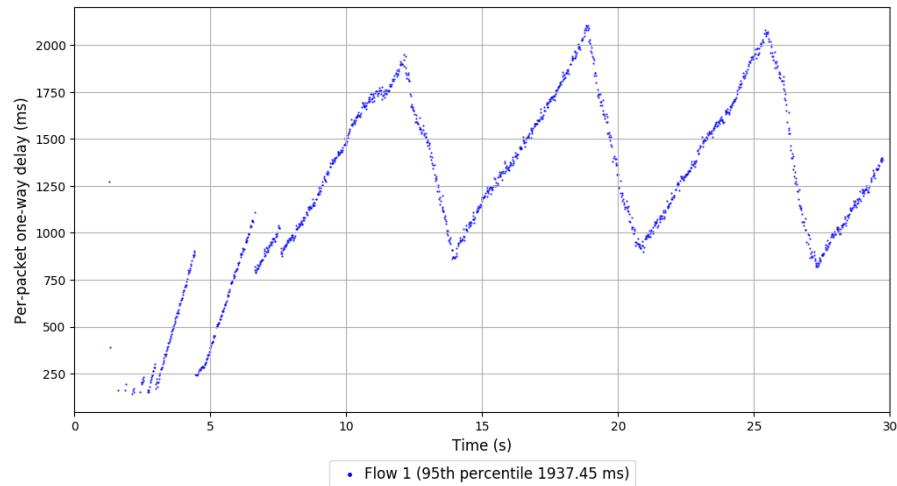
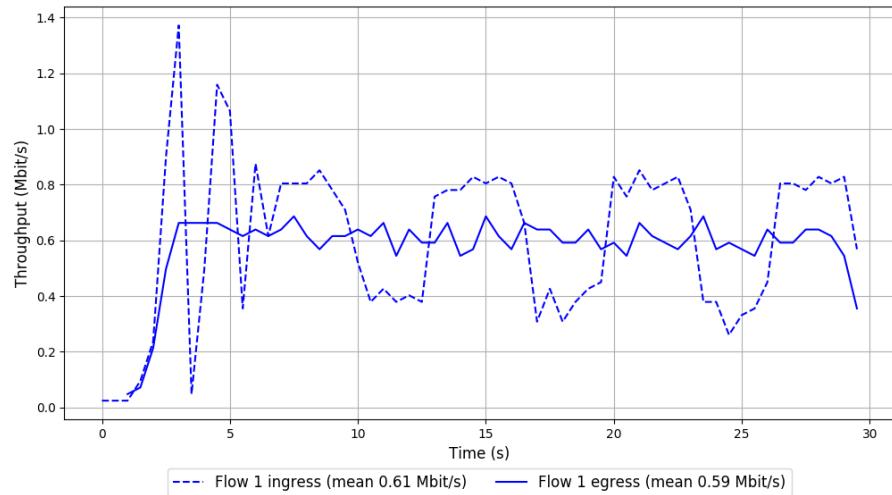


Run 2: Statistics of Verus

```
Start at: 2017-12-05 06:41:30
End at: 2017-12-05 06:42:00
Local clock offset: 1.401 ms
Remote clock offset: -1.93 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 1937.453 ms
Loss rate: 6.80%
-- Flow 1:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 1937.453 ms
Loss rate: 6.80%
```

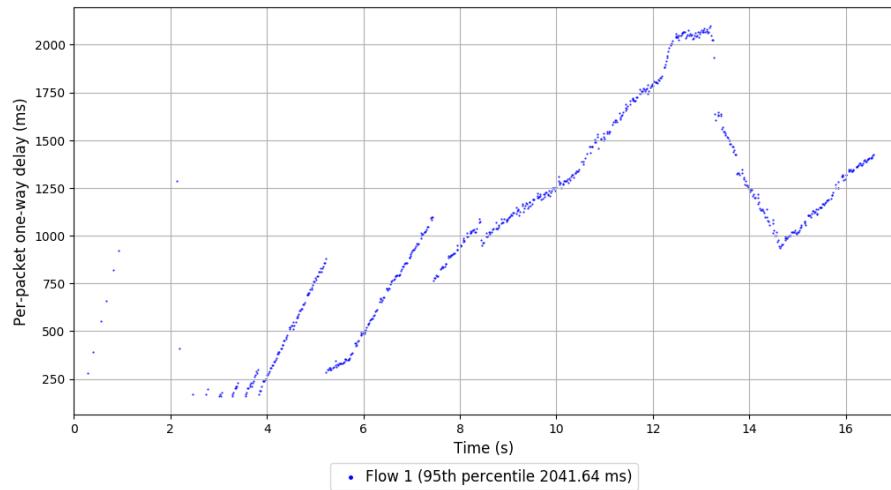
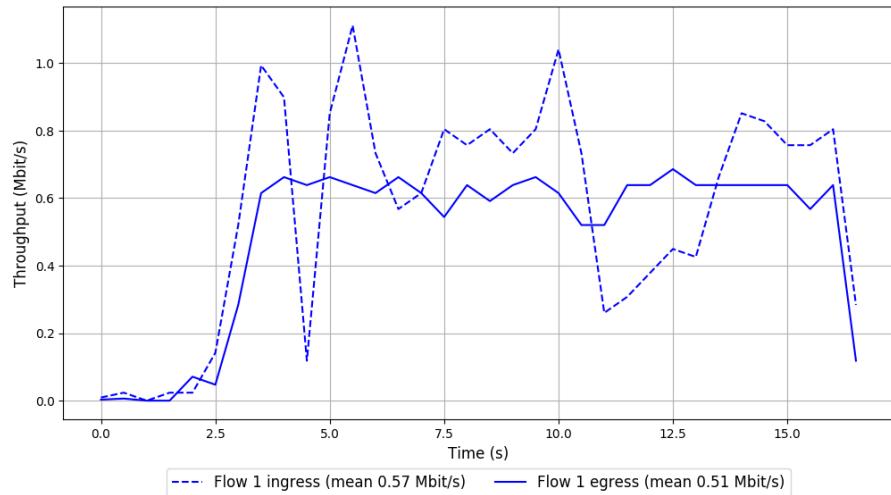
## Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2017-12-05 06:57:53  
End at: 2017-12-05 06:58:23  
Local clock offset: 1.706 ms  
Remote clock offset: -5.497 ms

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

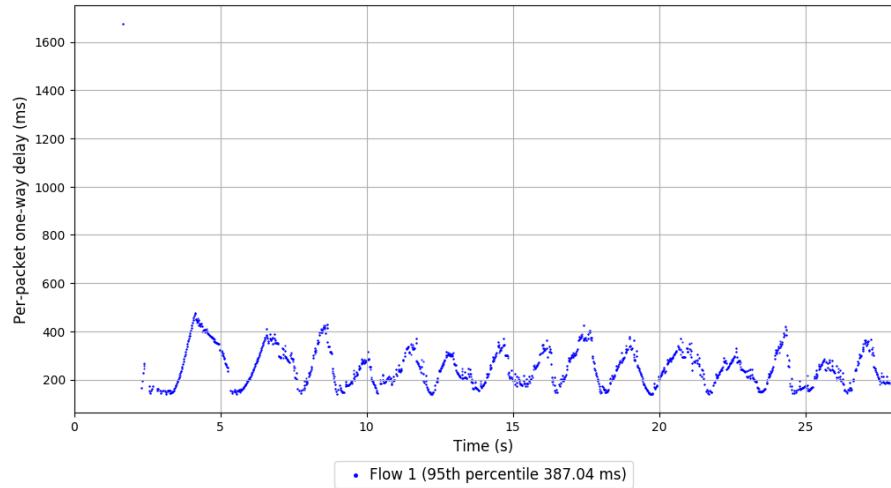
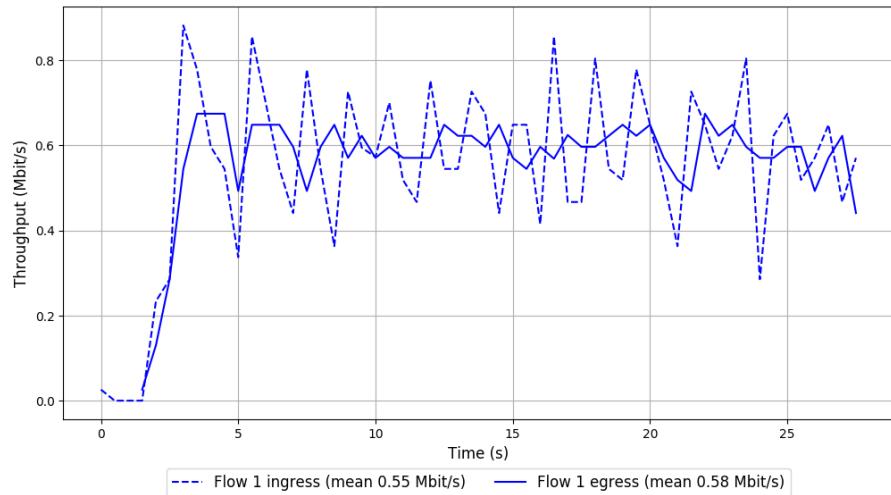


Run 1: Statistics of Copa

```
Start at: 2017-12-05 06:27:28
End at: 2017-12-05 06:27:58
Local clock offset: 1.723 ms
Remote clock offset: -1.826 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 387.035 ms
Loss rate: 1.10%
-- Flow 1:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 387.035 ms
Loss rate: 1.10%
```

## Run 1: Report of Copa — Data Link

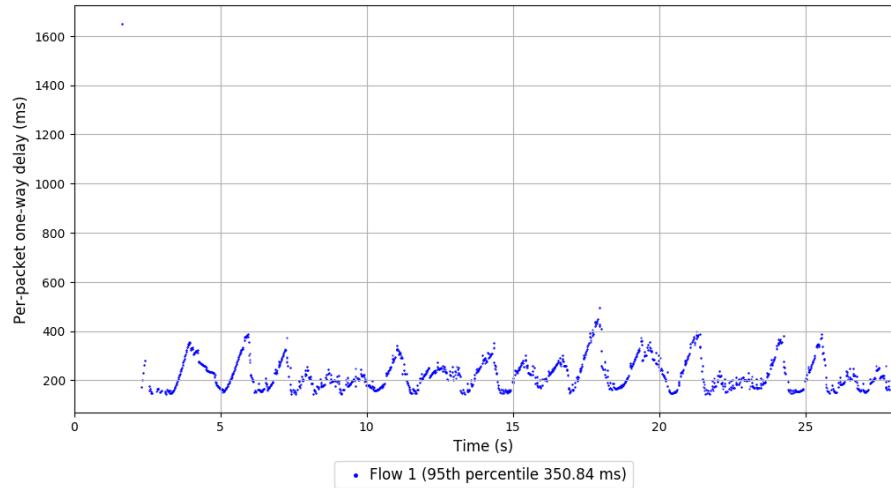
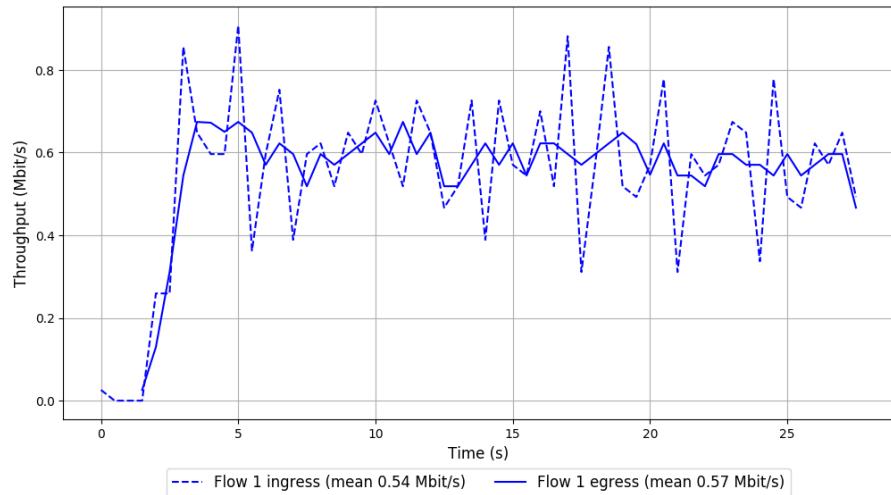


Run 2: Statistics of Copa

```
Start at: 2017-12-05 06:43:50
End at: 2017-12-05 06:44:20
Local clock offset: 1.413 ms
Remote clock offset: -5.793 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 350.842 ms
Loss rate: 0.94%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 350.842 ms
Loss rate: 0.94%
```

## Run 2: Report of Copa — Data Link

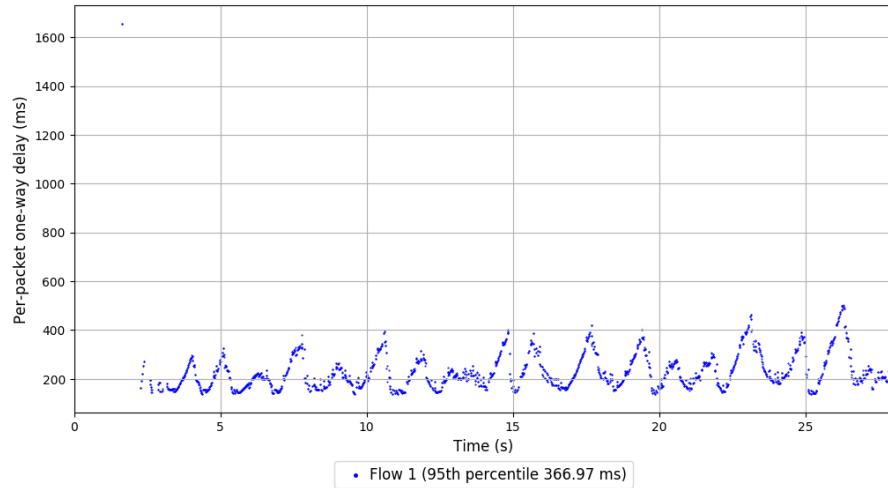
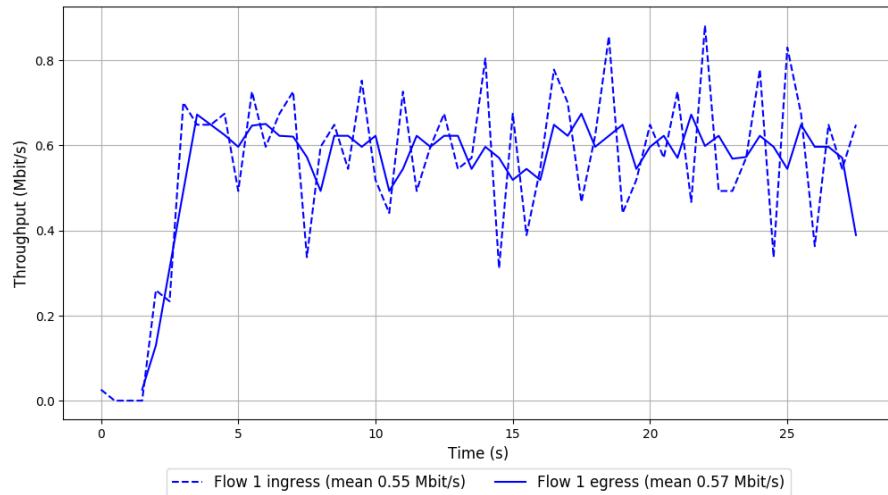


Run 3: Statistics of Copa

```
Start at: 2017-12-05 07:00:13
End at: 2017-12-05 07:00:43
Local clock offset: 1.629 ms
Remote clock offset: 0.51 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 366.968 ms
Loss rate: 1.69%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 366.968 ms
Loss rate: 1.69%
```

### Run 3: Report of Copa — Data Link

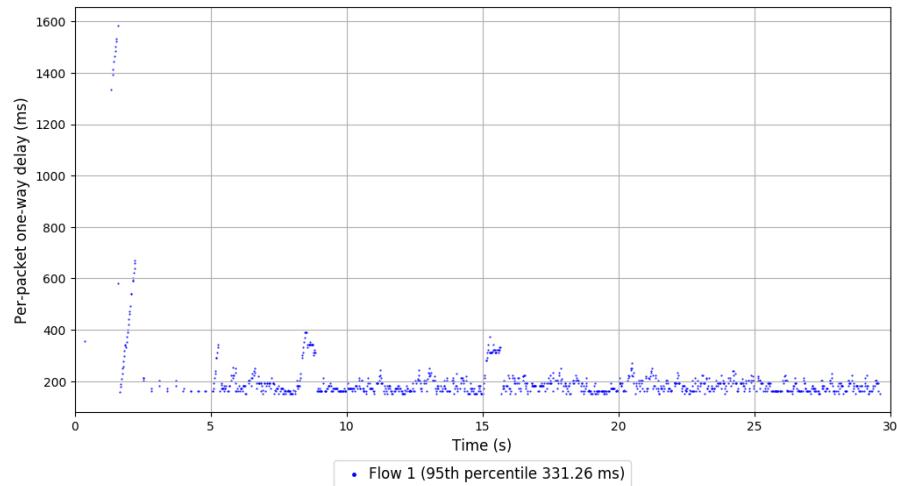
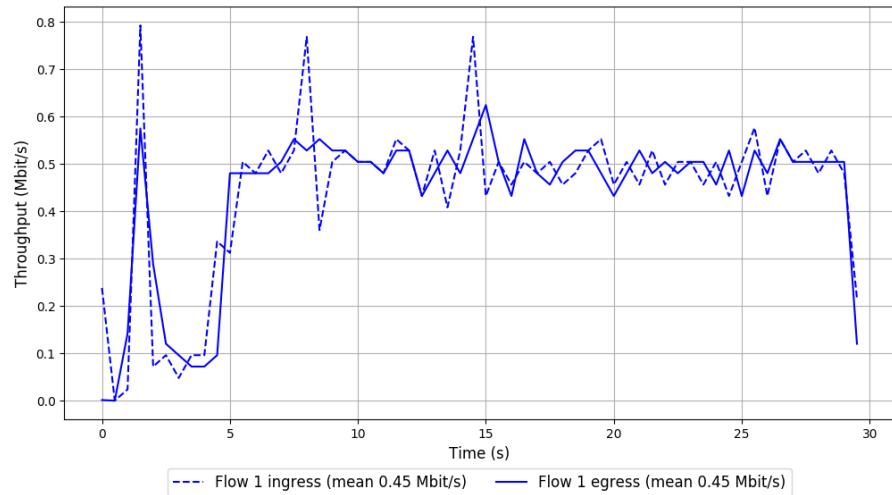


Run 1: Statistics of Indigo

```
Start at: 2017-12-05 06:22:48
End at: 2017-12-05 06:23:18
Local clock offset: 1.395 ms
Remote clock offset: -6.589 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 331.262 ms
Loss rate: 1.18%
-- Flow 1:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 331.262 ms
Loss rate: 1.18%
```

## Run 1: Report of Indigo — Data Link

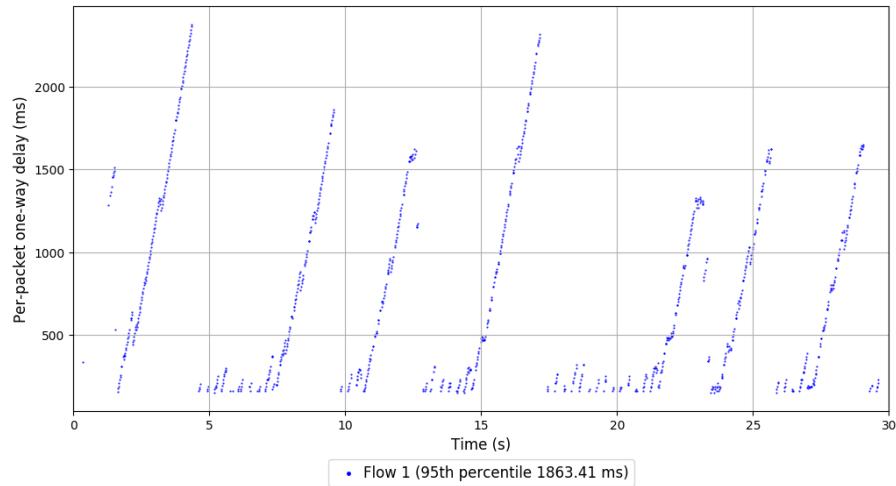
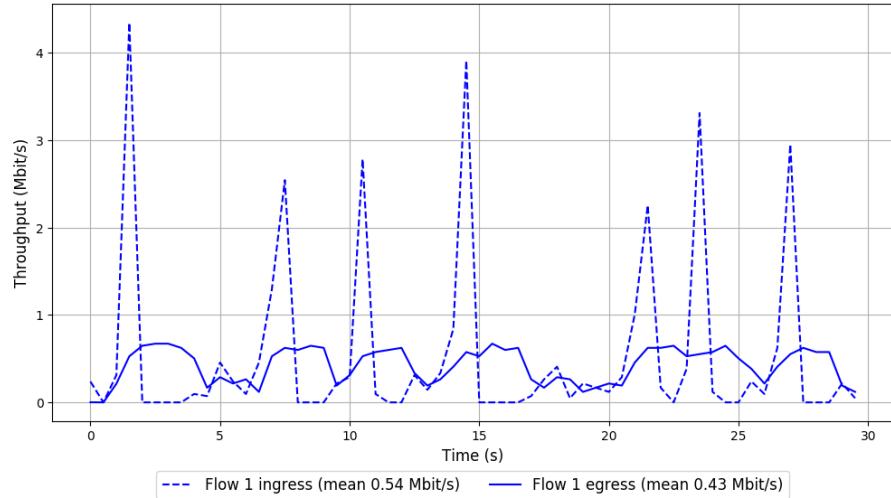


Run 2: Statistics of Indigo

```
Start at: 2017-12-05 06:39:10
End at: 2017-12-05 06:39:40
Local clock offset: 1.601 ms
Remote clock offset: -7.089 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 1863.413 ms
Loss rate: 20.64%
-- Flow 1:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 1863.413 ms
Loss rate: 20.64%
```

## Run 2: Report of Indigo — Data Link

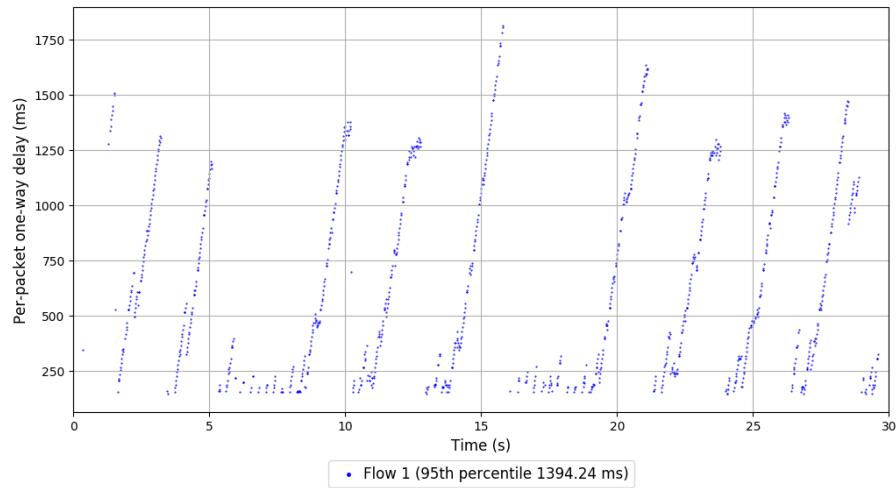
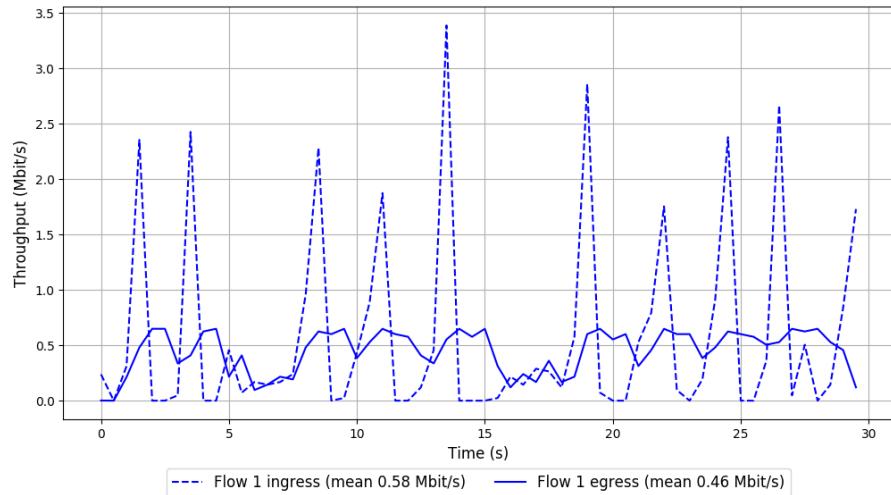


Run 3: Statistics of Indigo

```
Start at: 2017-12-05 06:55:33
End at: 2017-12-05 06:56:03
Local clock offset: 1.674 ms
Remote clock offset: -5.183 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.46 Mbit/s
95th percentile per-packet one-way delay: 1394.239 ms
Loss rate: 22.24%
-- Flow 1:
Average throughput: 0.46 Mbit/s
95th percentile per-packet one-way delay: 1394.239 ms
Loss rate: 22.24%
```

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

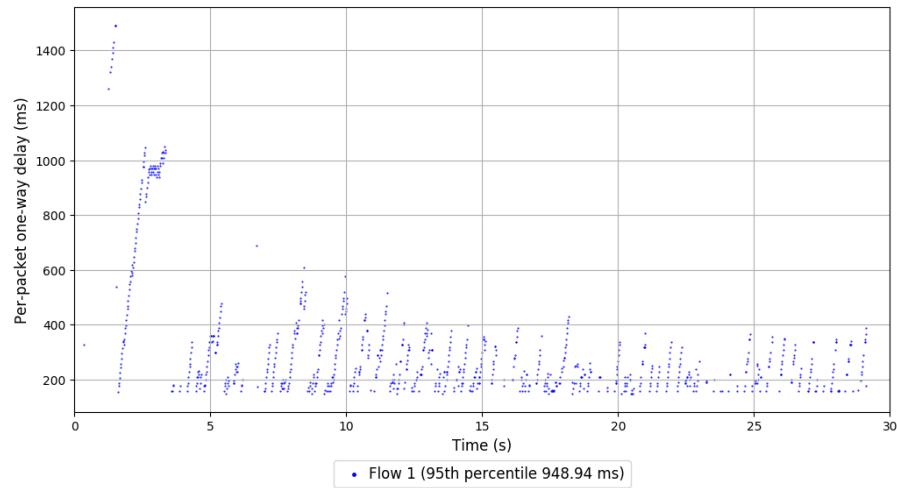
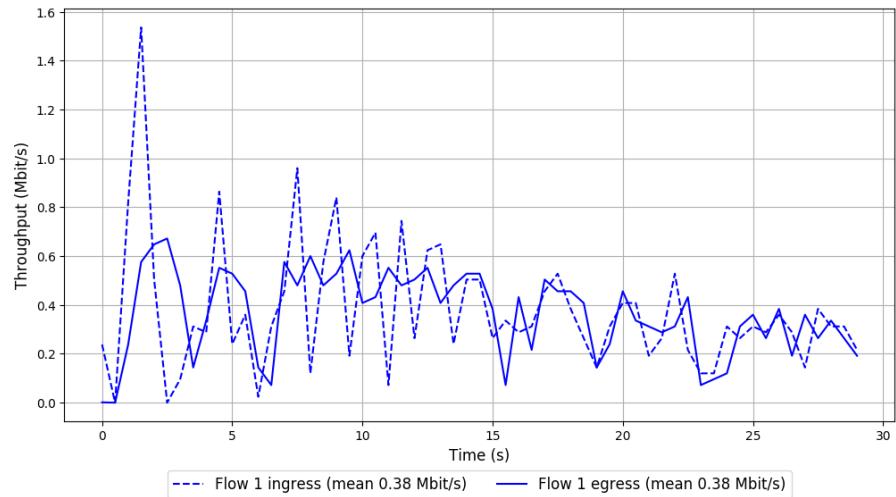


Run 1: Statistics of Indigo-calib

```
Start at: 2017-12-05 06:19:18
End at: 2017-12-05 06:19:48
Local clock offset: 0.587 ms
Remote clock offset: -6.824 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.38 Mbit/s
95th percentile per-packet one-way delay: 948.944 ms
Loss rate: 3.11%
-- Flow 1:
Average throughput: 0.38 Mbit/s
95th percentile per-packet one-way delay: 948.944 ms
Loss rate: 3.11%
```

Run 1: Report of Indigo-calib — Data Link

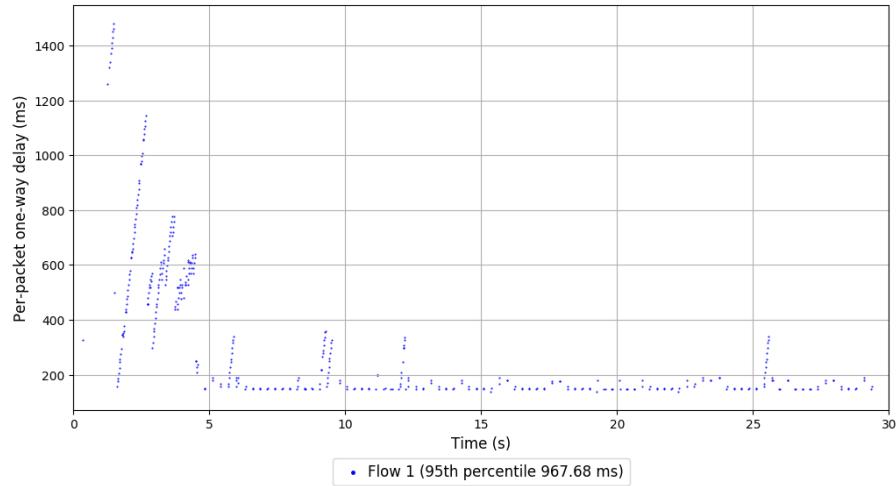
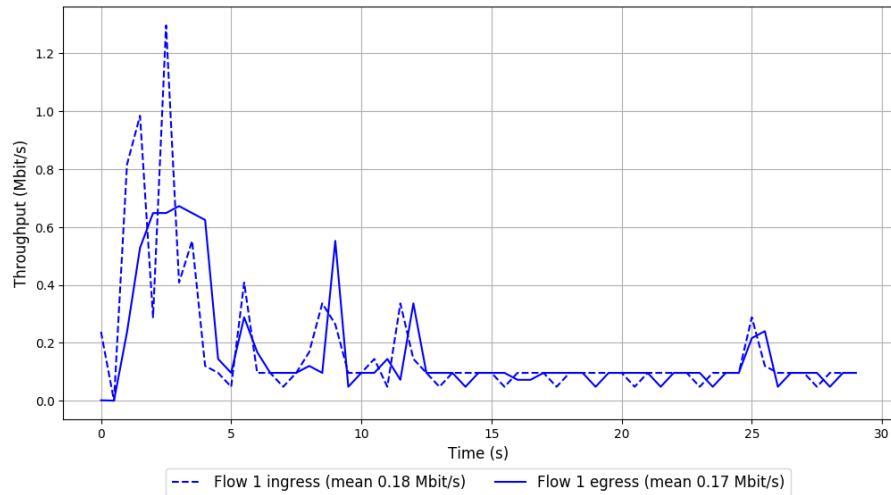


Run 2: Statistics of Indigo-calib

```
Start at: 2017-12-05 06:35:40
End at: 2017-12-05 06:36:10
Local clock offset: 1.688 ms
Remote clock offset: -1.239 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 967.679 ms
Loss rate: 6.45%
-- Flow 1:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 967.679 ms
Loss rate: 6.45%
```

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



Run 3: Statistics of Indigo-calib

```
Start at: 2017-12-05 06:52:03
End at: 2017-12-05 06:52:33
Local clock offset: 1.744 ms
Remote clock offset: -6.21 ms

# Below is generated by plot.py at 2017-12-05 07:56:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 868.331 ms
Loss rate: 8.11%
-- Flow 1:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 868.331 ms
Loss rate: 8.11%
```

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

