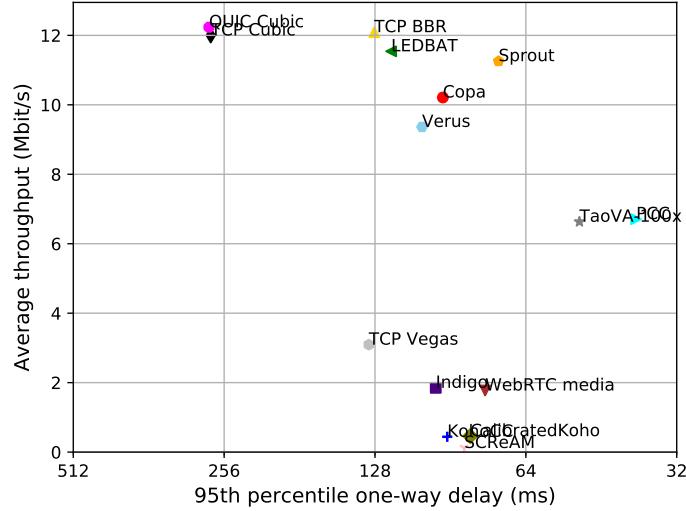


## Pantheon Report

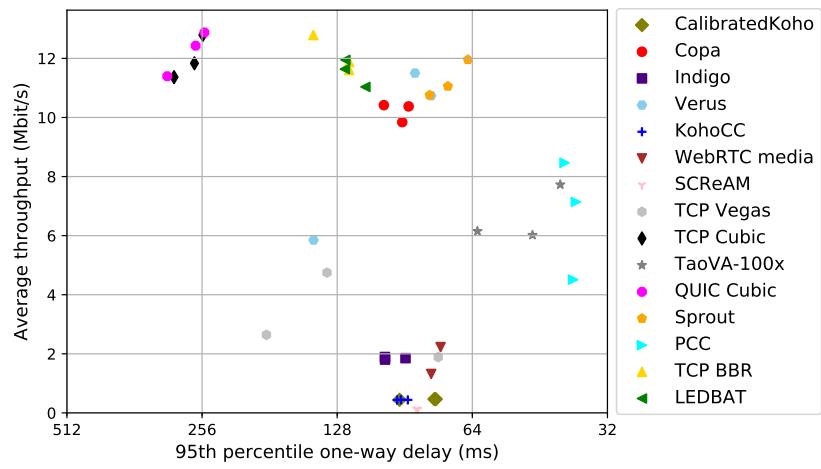
Generated at 2017-08-31 14:04:50 (UTC).  
Data path: Stanford ppp0 (*remote*) → AWS California 1 Ethernet (*local*).  
Repeated the test of 15 congestion control schemes 3 times.  
Each test lasted for 30 seconds running 1 flow.  
Increased UDP receive buffer to 16 MB (default) and 32 MB (max).  
Tested BBR with qdisc of Fair Queuing (**fq**), and other schemes with the default Linux qdisc (**pfifo\_fast**).  
NTP offsets were measured against `time.stanford.edu` and have been applied to correct the timestamps in logs.

```
Git summary:  
branch: master @ 5ea146acdebe79f5b9acfb2d9044554a7d2582ea  
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50  
  M datagrump/sender.cc  
third_party/genericCC @ f7ca42f251bf49b432bb71de6d13fa903515c366  
third_party/indigo @ 7ddb4adf480966042c0438984cb22a298bfa635f  
third_party/koho_cc @ f0f2e693303aee82ea808e6928eac4f1083a6681  
  M datagrump/sender.cc  
third_party/libutp @ b3465b942e2826f2b179aab4a906ce6bb7cf3cf  
third_party/pantheon-tunnel @ baf443516dea3eeddeccaf9b916cc313273ca4f4  
  M scripts/merge-tunnel-logs  
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 @ f1a14bffe749737437f61b1eaeeb30b267cde681  
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 Stanford ppp0 to AWS California 1 Ethernet, 3 runs of 30s each per scheme  
(mean of all runs by scheme)



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



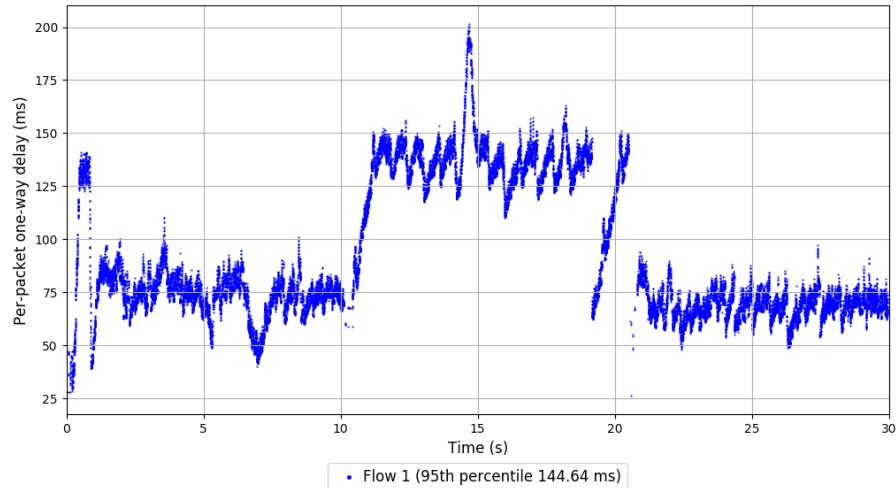
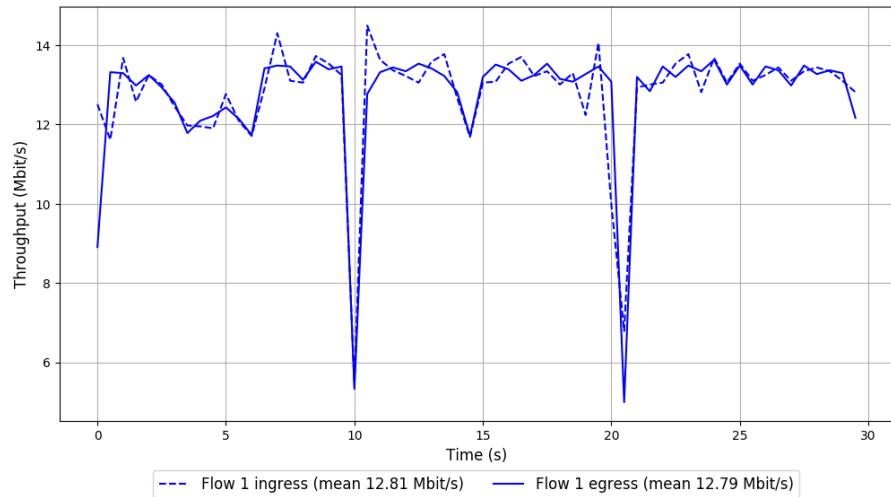
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	12.09	128.46	0.43
CalibratedKoho	3	0.46	82.63	0.61
Copa	3	10.21	93.72	0.36
TCP Cubic	3	12.00	272.26	1.00
Indigo	3	1.85	96.83	0.22
KohoCC	3	0.44	91.85	0.78
LEDBAT	3	11.54	118.86	0.47
PCC	3	6.71	38.55	0.17
QUIC Cubic	3	12.24	274.49	1.66
SCReAM	2	0.11	84.95	0.22
Sprout	3	11.26	72.57	1.25
TaoVA-100x	3	6.63	50.03	0.66
TCP Vegas	3	3.09	131.69	0.24
Verus	3	9.36	103.14	13.52
WebRTC media	2	1.77	77.17	0.23

Run 1: Statistics of TCP BBR

```
Start at: 2017-08-31 12:27:04
End at: 2017-08-31 12:27:34
Local clock offset: 0.876 ms
Remote clock offset: -2.443 ms

# Below is generated by plot.py at 2017-08-31 14:04:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.79 Mbit/s
95th percentile per-packet one-way delay: 144.636 ms
Loss rate: 0.32%
-- Flow 1:
Average throughput: 12.79 Mbit/s
95th percentile per-packet one-way delay: 144.636 ms
Loss rate: 0.32%
```

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

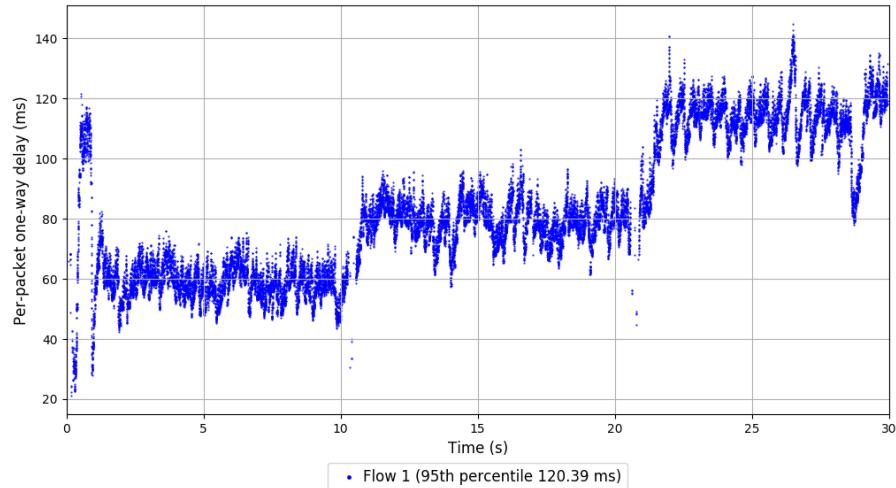
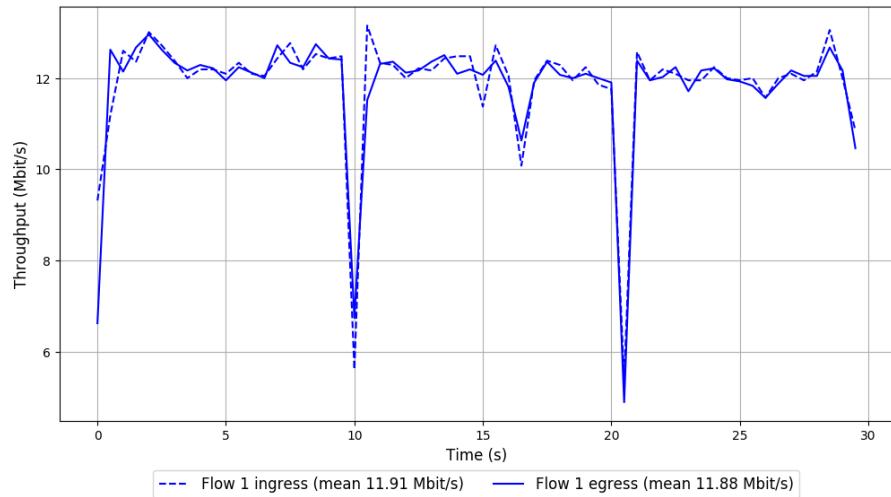


Run 2: Statistics of TCP BBR

```
Start at: 2017-08-31 12:44:44
End at: 2017-08-31 12:45:14
Local clock offset: 0.874 ms
Remote clock offset: -2.415 ms

# Below is generated by plot.py at 2017-08-31 14:04:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.88 Mbit/s
95th percentile per-packet one-way delay: 120.387 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 11.88 Mbit/s
95th percentile per-packet one-way delay: 120.387 ms
Loss rate: 0.47%
```

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

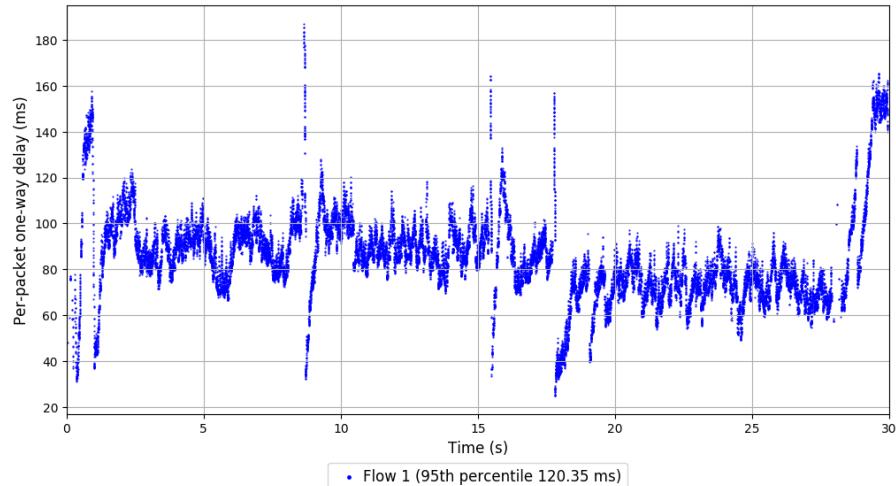
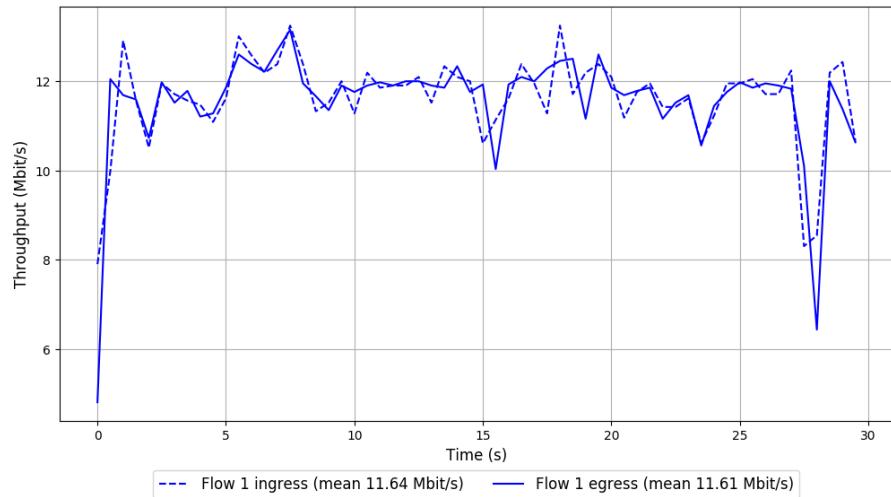


Run 3: Statistics of TCP BBR

```
Start at: 2017-08-31 13:02:25
End at: 2017-08-31 13:02:55
Local clock offset: 0.996 ms
Remote clock offset: -2.261 ms

# Below is generated by plot.py at 2017-08-31 14:04:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.61 Mbit/s
95th percentile per-packet one-way delay: 120.350 ms
Loss rate: 0.50%
-- Flow 1:
Average throughput: 11.61 Mbit/s
95th percentile per-packet one-way delay: 120.350 ms
Loss rate: 0.50%
```

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

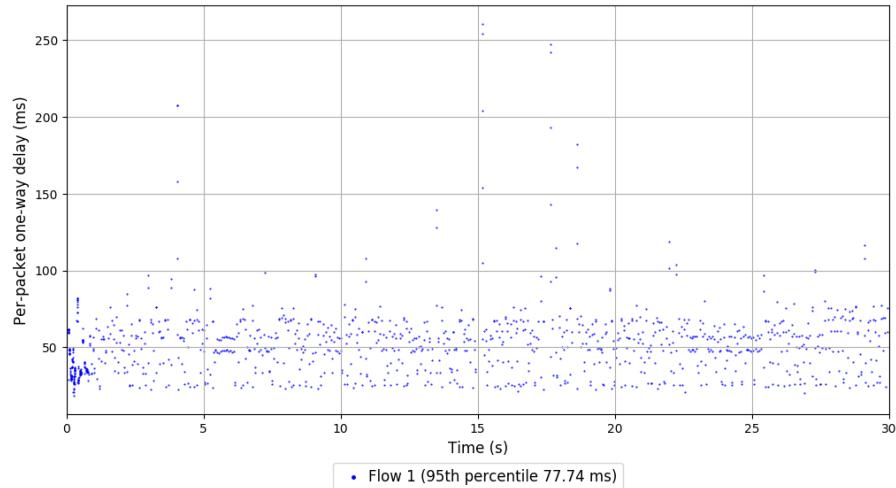
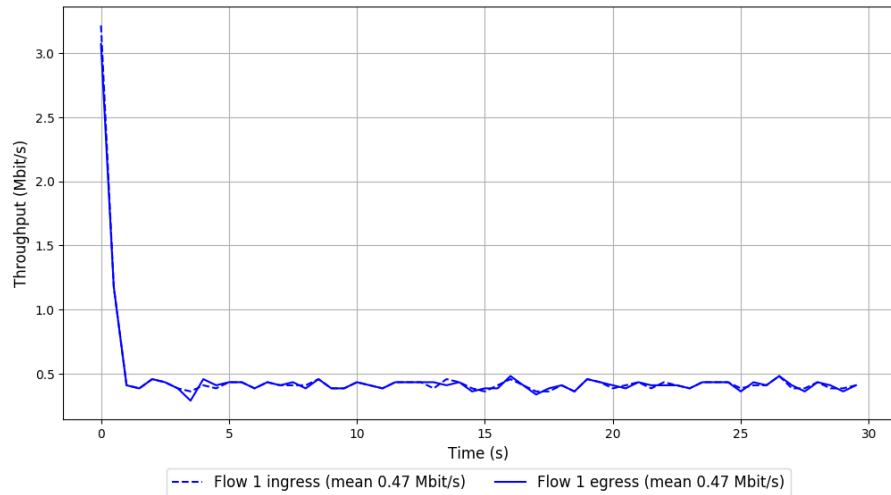


```
Run 1: Statistics of CalibratedKoho
```

```
Start at: 2017-08-31 12:17:39
End at: 2017-08-31 12:18:09
Local clock offset: 0.879 ms
Remote clock offset: -2.509 ms

# Below is generated by plot.py at 2017-08-31 14:04:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.47 Mbit/s
95th percentile per-packet one-way delay: 77.739 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 0.47 Mbit/s
95th percentile per-packet one-way delay: 77.739 ms
Loss rate: 0.51%
```

Run 1: Report of CalibratedKoho — Data Link

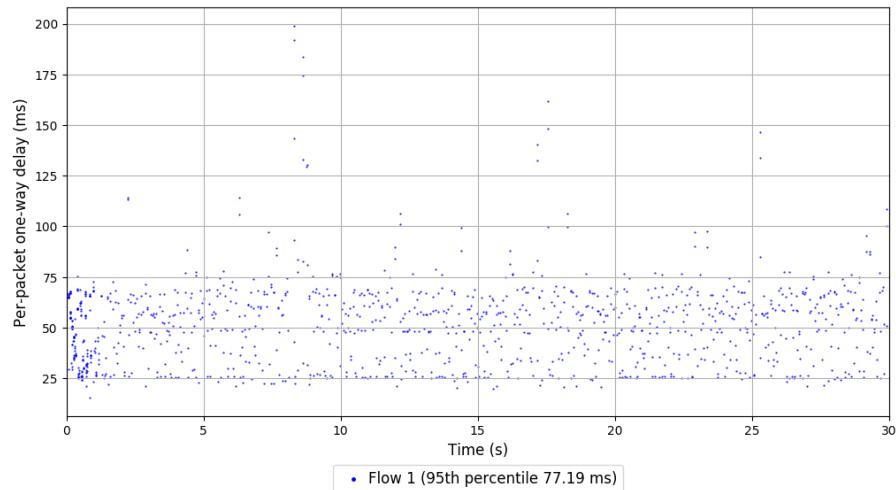
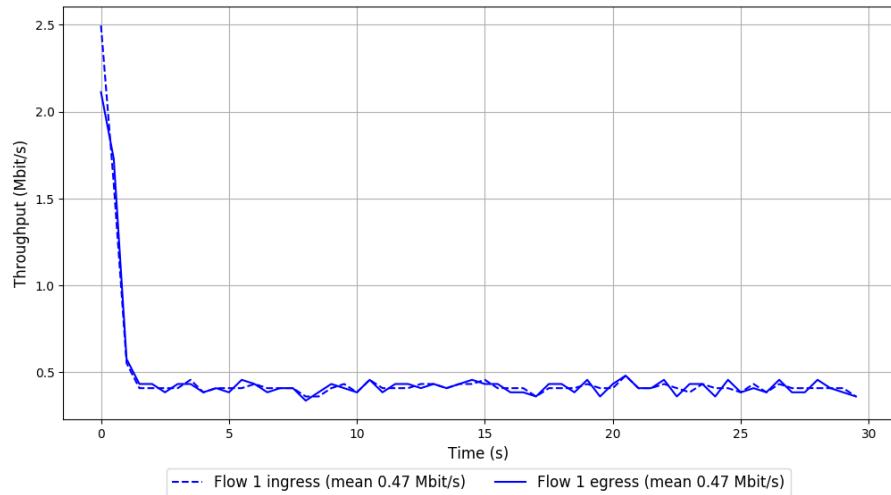


Run 2: Statistics of CalibratedKoho

```
Start at: 2017-08-31 12:35:20
End at: 2017-08-31 12:35:50
Local clock offset: 0.872 ms
Remote clock offset: -2.311 ms

# Below is generated by plot.py at 2017-08-31 14:04:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.47 Mbit/s
95th percentile per-packet one-way delay: 77.193 ms
Loss rate: 0.68%
-- Flow 1:
Average throughput: 0.47 Mbit/s
95th percentile per-packet one-way delay: 77.193 ms
Loss rate: 0.68%
```

Run 2: Report of CalibratedKoho — Data Link

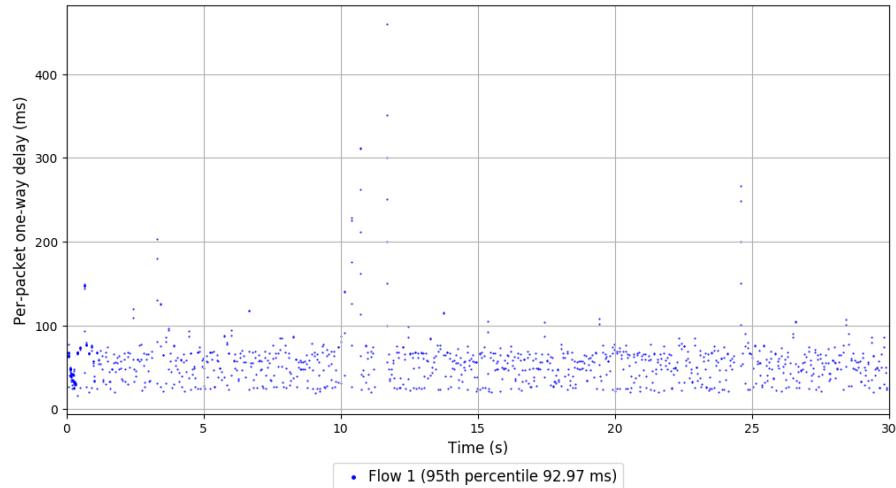
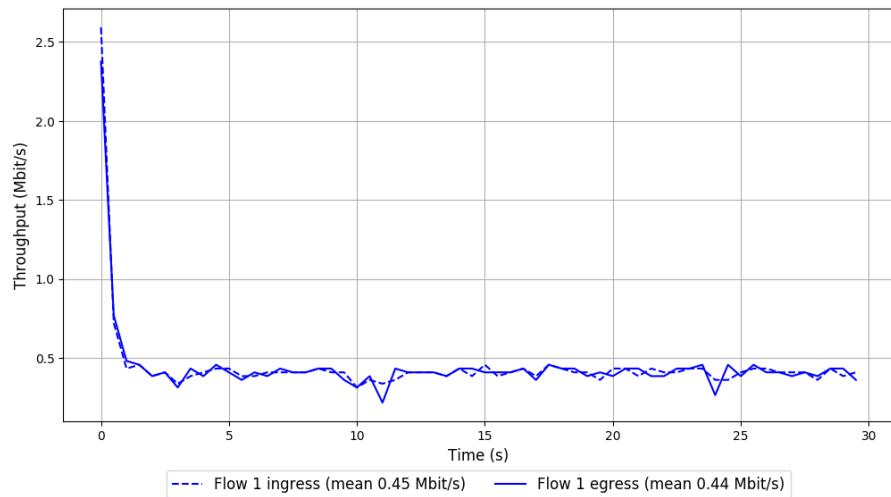


```
Run 3: Statistics of CalibratedKoho
```

```
Start at: 2017-08-31 12:53:00
End at: 2017-08-31 12:53:30
Local clock offset: 0.892 ms
Remote clock offset: -2.485 ms

# Below is generated by plot.py at 2017-08-31 14:04:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 92.966 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 92.966 ms
Loss rate: 0.63%
```

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

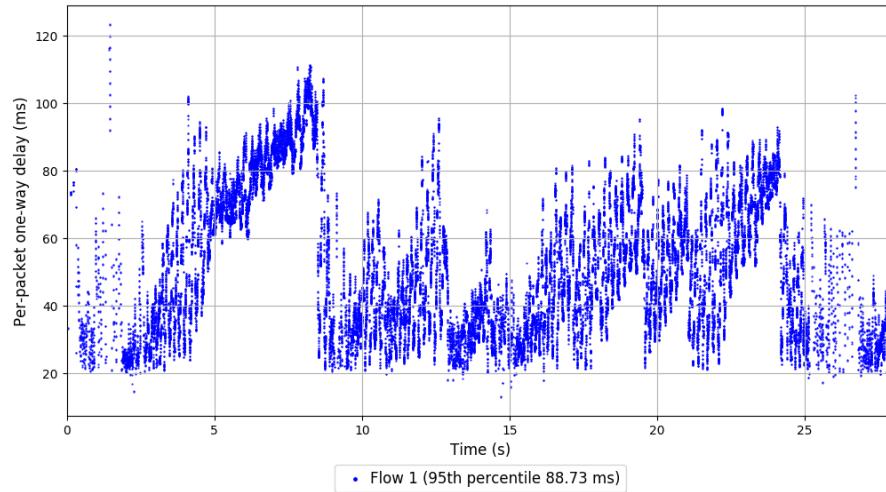
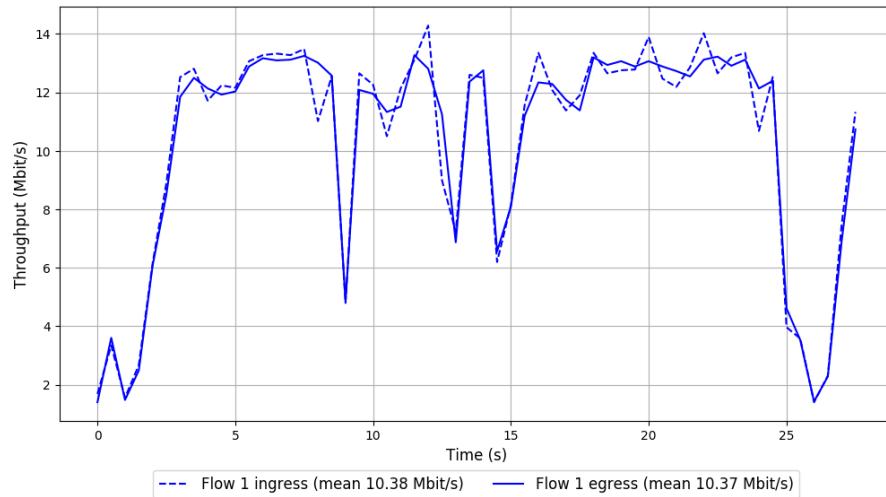


Run 1: Statistics of Copa

```
Start at: 2017-08-31 12:28:15
End at: 2017-08-31 12:28:45
Local clock offset: 0.955 ms
Remote clock offset: -2.313 ms

# Below is generated by plot.py at 2017-08-31 14:04:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 10.37 Mbit/s
95th percentile per-packet one-way delay: 88.726 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 10.37 Mbit/s
95th percentile per-packet one-way delay: 88.726 ms
Loss rate: 0.25%
```

### Run 1: Report of Copa — Data Link

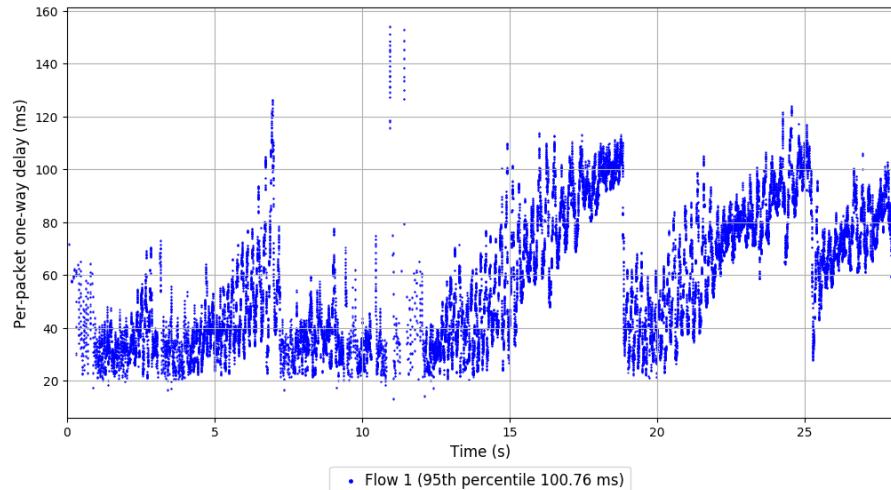
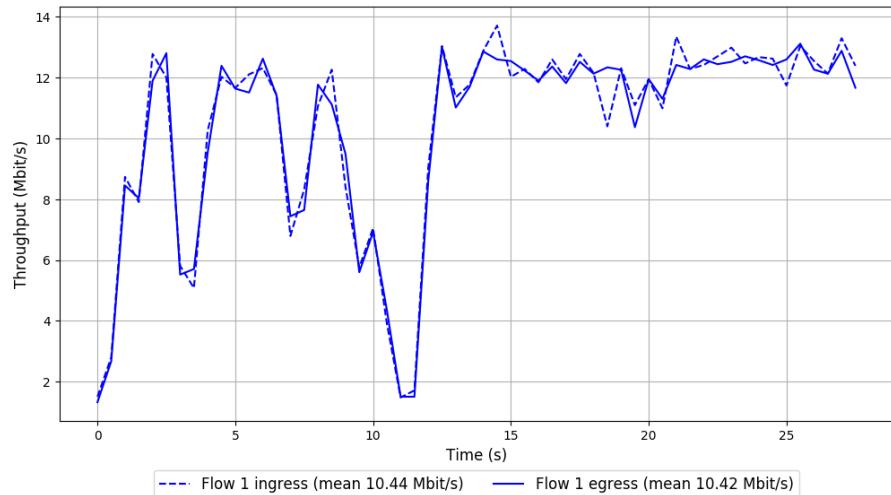


Run 2: Statistics of Copa

```
Start at: 2017-08-31 12:45:55
End at: 2017-08-31 12:46:25
Local clock offset: 0.945 ms
Remote clock offset: -2.449 ms

# Below is generated by plot.py at 2017-08-31 14:04:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 10.42 Mbit/s
95th percentile per-packet one-way delay: 100.758 ms
Loss rate: 0.52%
-- Flow 1:
Average throughput: 10.42 Mbit/s
95th percentile per-packet one-way delay: 100.758 ms
Loss rate: 0.52%
```

## Run 2: Report of Copa — Data Link

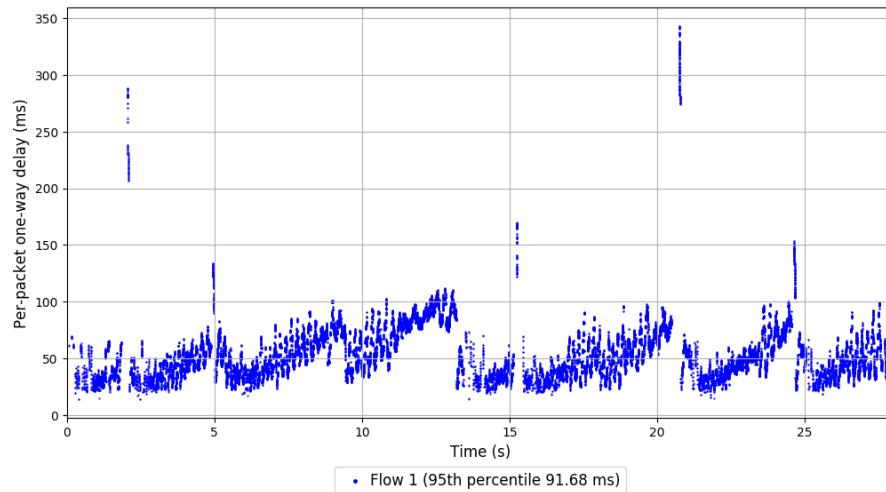
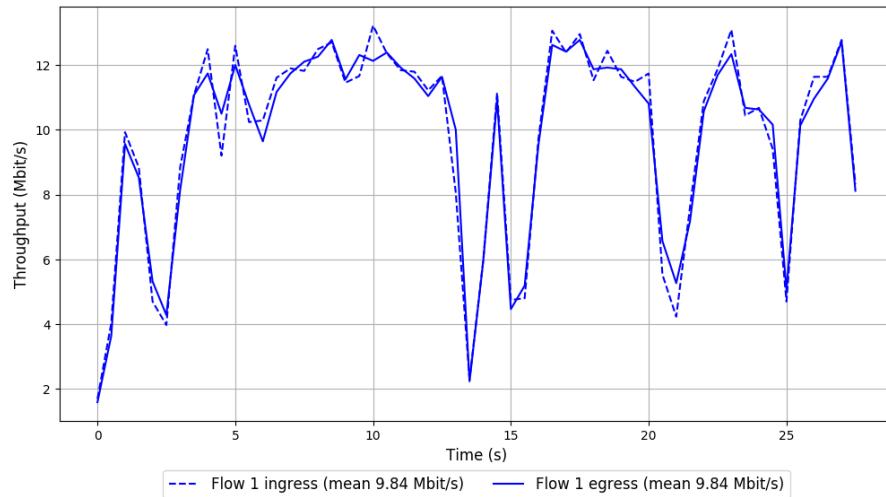


Run 3: Statistics of Copa

```
Start at: 2017-08-31 13:03:36
End at: 2017-08-31 13:04:06
Local clock offset: 0.917 ms
Remote clock offset: -2.243 ms

# Below is generated by plot.py at 2017-08-31 14:04:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.84 Mbit/s
95th percentile per-packet one-way delay: 91.678 ms
Loss rate: 0.31%
-- Flow 1:
Average throughput: 9.84 Mbit/s
95th percentile per-packet one-way delay: 91.678 ms
Loss rate: 0.31%
```

### Run 3: Report of Copa — Data Link

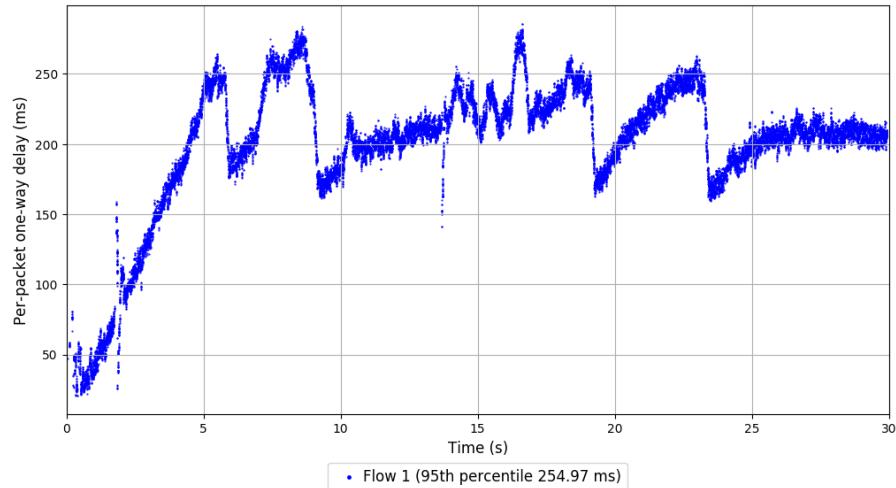
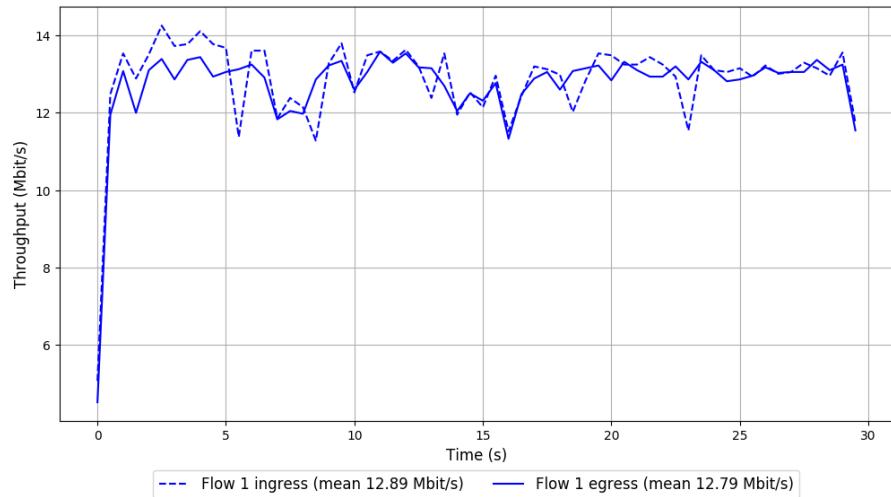


```
Run 1: Statistics of TCP Cubic
```

```
Start at: 2017-08-31 12:32:58
End at: 2017-08-31 12:33:28
Local clock offset: 0.975 ms
Remote clock offset: -2.404 ms

# Below is generated by plot.py at 2017-08-31 14:04:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.79 Mbit/s
95th percentile per-packet one-way delay: 254.966 ms
Loss rate: 0.95%
-- Flow 1:
Average throughput: 12.79 Mbit/s
95th percentile per-packet one-way delay: 254.966 ms
Loss rate: 0.95%
```

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

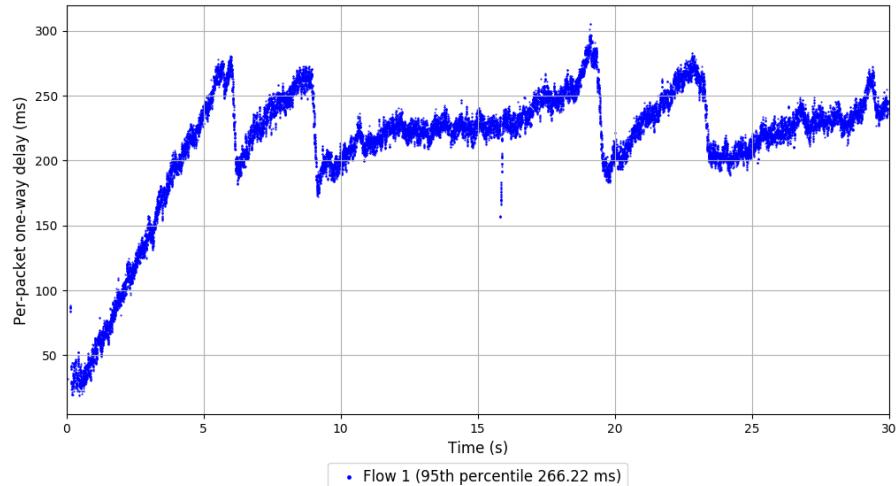
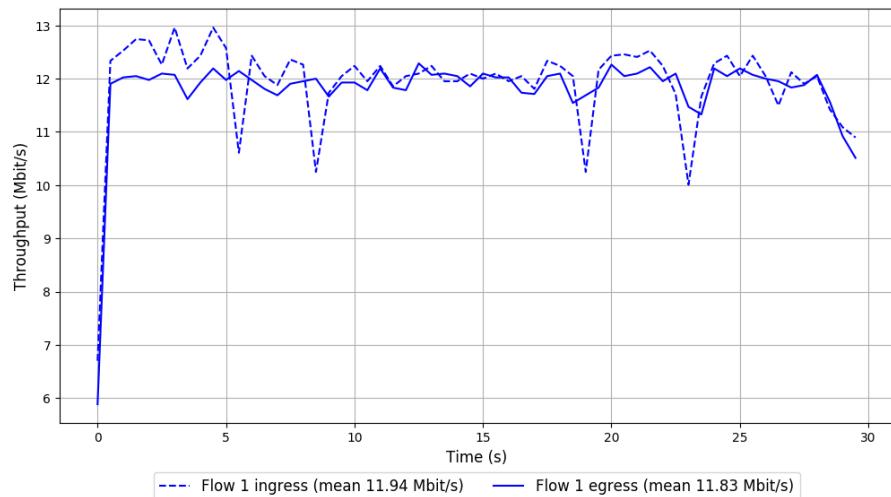


Run 2: Statistics of TCP Cubic

```
Start at: 2017-08-31 12:50:38
End at: 2017-08-31 12:51:08
Local clock offset: 0.965 ms
Remote clock offset: -2.447 ms

# Below is generated by plot.py at 2017-08-31 14:04:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.83 Mbit/s
95th percentile per-packet one-way delay: 266.221 ms
Loss rate: 1.00%
-- Flow 1:
Average throughput: 11.83 Mbit/s
95th percentile per-packet one-way delay: 266.221 ms
Loss rate: 1.00%
```

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

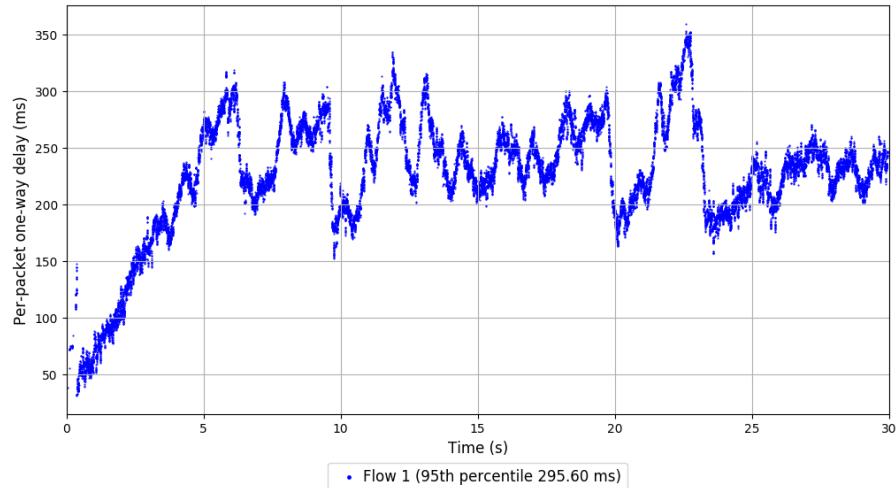
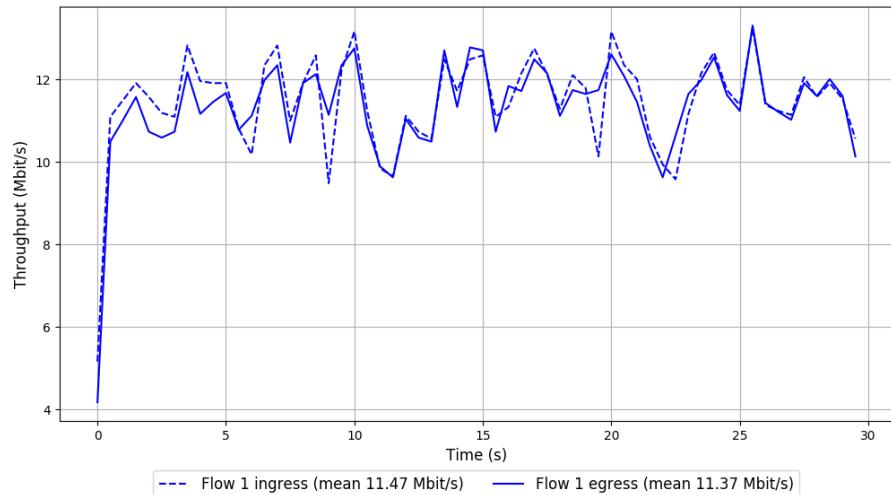


Run 3: Statistics of TCP Cubic

```
Start at: 2017-08-31 13:08:18
End at: 2017-08-31 13:08:49
Local clock offset: 0.919 ms
Remote clock offset: -2.159 ms

# Below is generated by plot.py at 2017-08-31 14:04:18
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.37 Mbit/s
95th percentile per-packet one-way delay: 295.604 ms
Loss rate: 1.05%
-- Flow 1:
Average throughput: 11.37 Mbit/s
95th percentile per-packet one-way delay: 295.604 ms
Loss rate: 1.05%
```

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

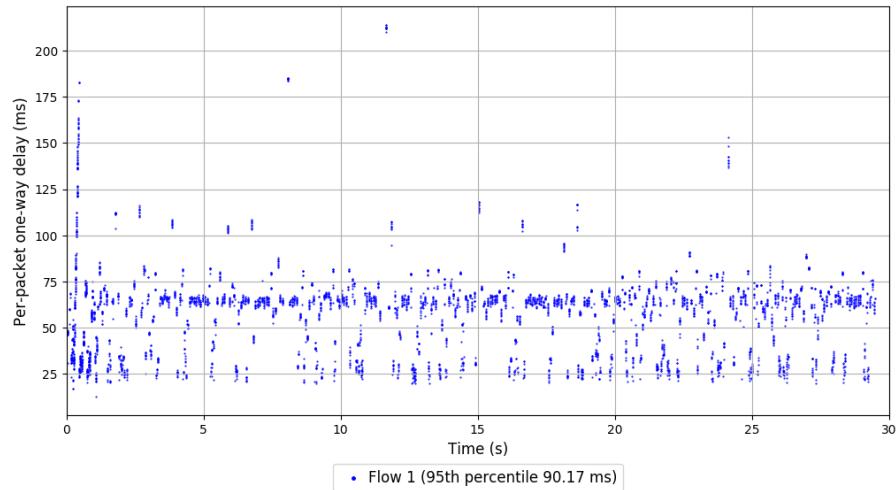
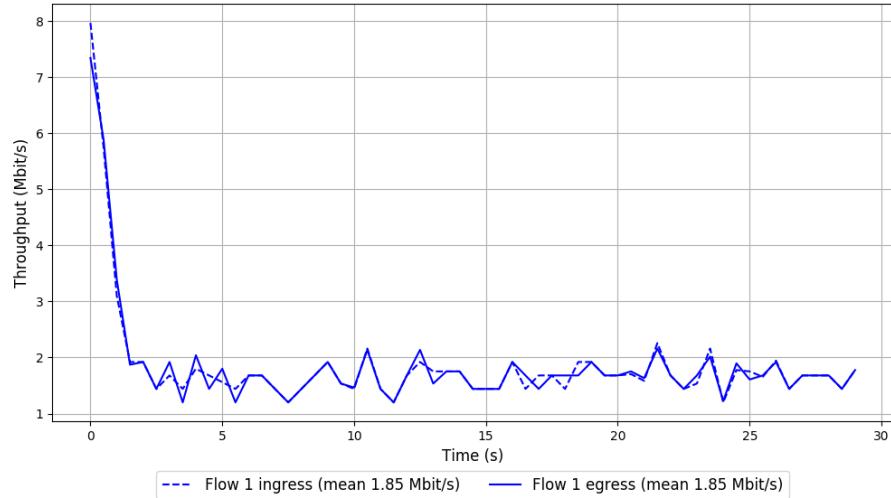


Run 1: Statistics of Indigo

```
Start at: 2017-08-31 12:22:21
End at: 2017-08-31 12:22:51
Local clock offset: 0.885 ms
Remote clock offset: -2.461 ms

# Below is generated by plot.py at 2017-08-31 14:04:18
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.85 Mbit/s
95th percentile per-packet one-way delay: 90.171 ms
Loss rate: 0.22%
-- Flow 1:
Average throughput: 1.85 Mbit/s
95th percentile per-packet one-way delay: 90.171 ms
Loss rate: 0.22%
```

## Run 1: Report of Indigo — Data Link

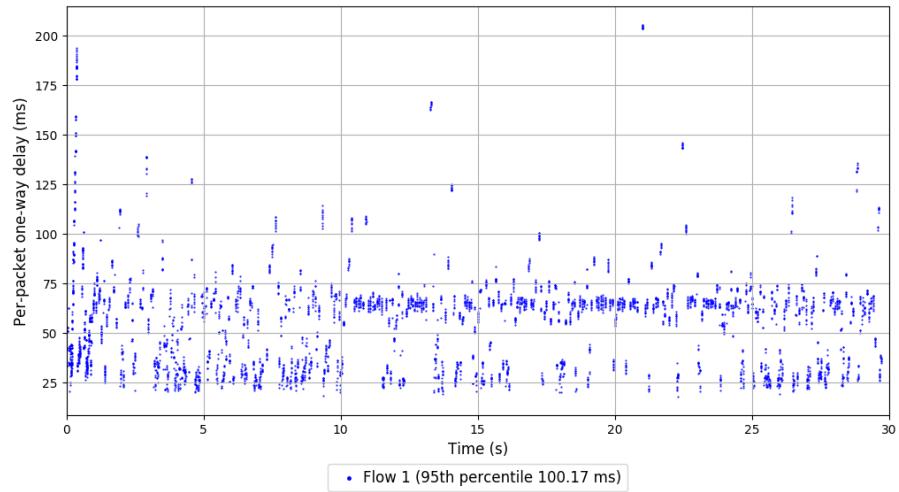
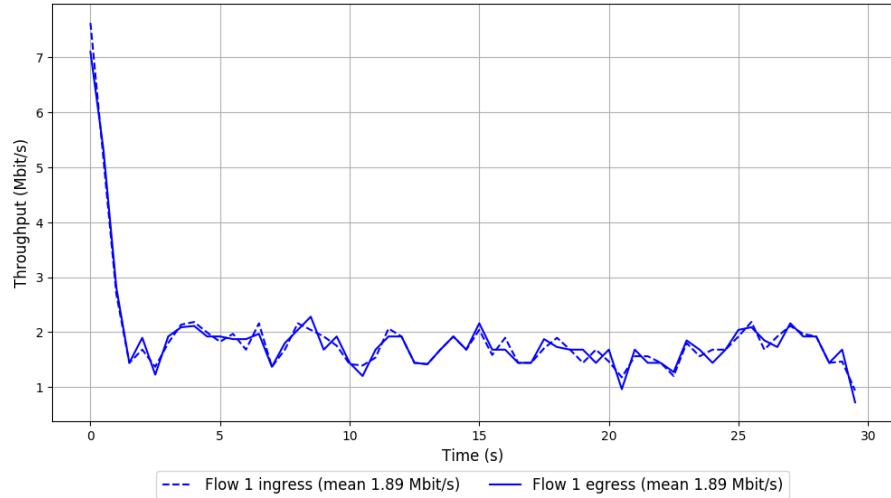


Run 2: Statistics of Indigo

```
Start at: 2017-08-31 12:40:02
End at: 2017-08-31 12:40:32
Local clock offset: 0.868 ms
Remote clock offset: -2.411 ms

# Below is generated by plot.py at 2017-08-31 14:04:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.89 Mbit/s
95th percentile per-packet one-way delay: 100.173 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 1.89 Mbit/s
95th percentile per-packet one-way delay: 100.173 ms
Loss rate: 0.21%
```

## Run 2: Report of Indigo — Data Link

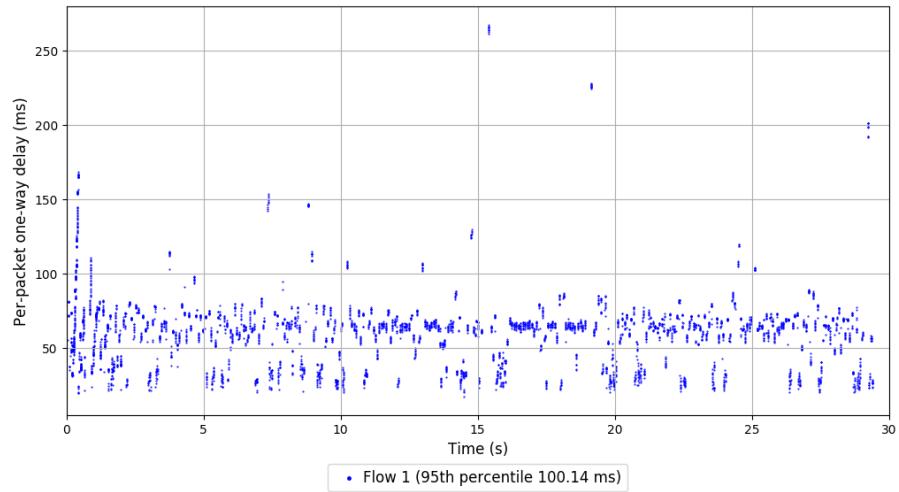
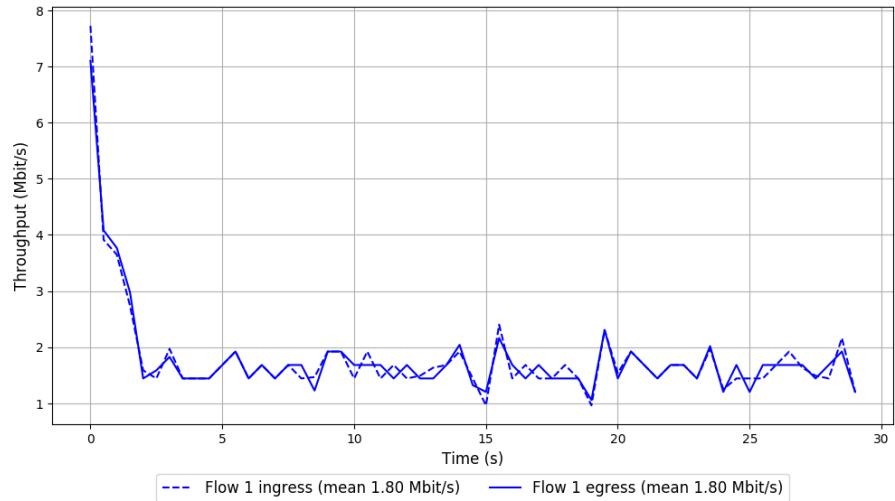


Run 3: Statistics of Indigo

```
Start at: 2017-08-31 12:57:42
End at: 2017-08-31 12:58:12
Local clock offset: 0.907 ms
Remote clock offset: -2.369 ms

# Below is generated by plot.py at 2017-08-31 14:04:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.80 Mbit/s
95th percentile per-packet one-way delay: 100.141 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 1.80 Mbit/s
95th percentile per-packet one-way delay: 100.141 ms
Loss rate: 0.23%
```

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

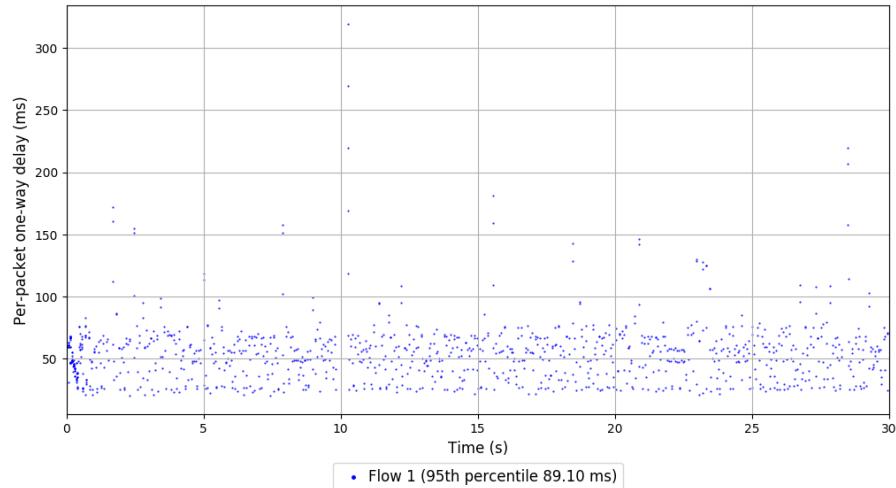
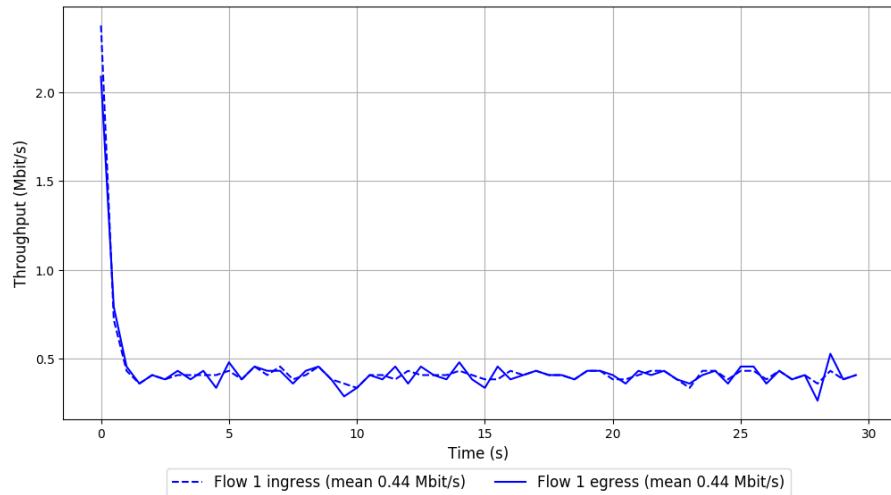


```
Run 1: Statistics of KohoCC
```

```
Start at: 2017-08-31 12:29:27
End at: 2017-08-31 12:29:57
Local clock offset: 0.885 ms
Remote clock offset: -2.418 ms

# Below is generated by plot.py at 2017-08-31 14:04:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 89.101 ms
Loss rate: 0.99%
-- Flow 1:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 89.101 ms
Loss rate: 0.99%
```

## Run 1: Report of KohoCC — Data Link

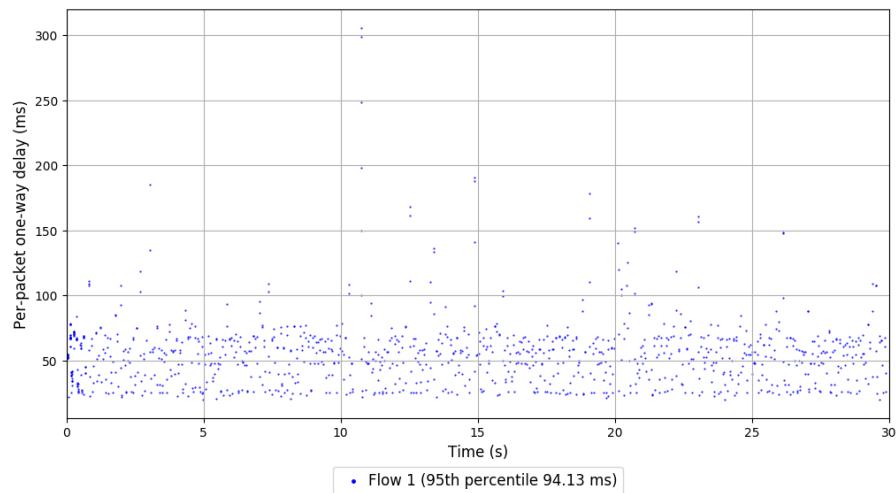
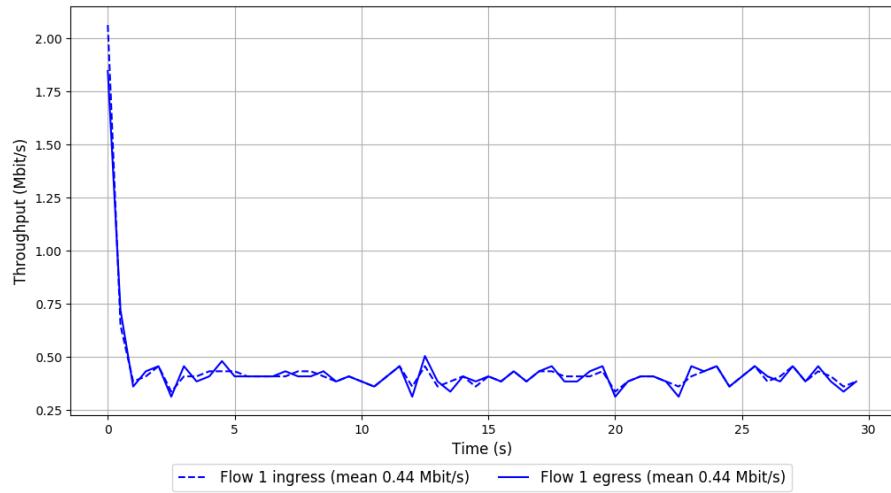


Run 2: Statistics of KohoCC

```
Start at: 2017-08-31 12:47:06
End at: 2017-08-31 12:47:36
Local clock offset: 0.89 ms
Remote clock offset: -2.499 ms

# Below is generated by plot.py at 2017-08-31 14:04:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 94.134 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 94.134 ms
Loss rate: 0.64%
```

## Run 2: Report of KohoCC — Data Link

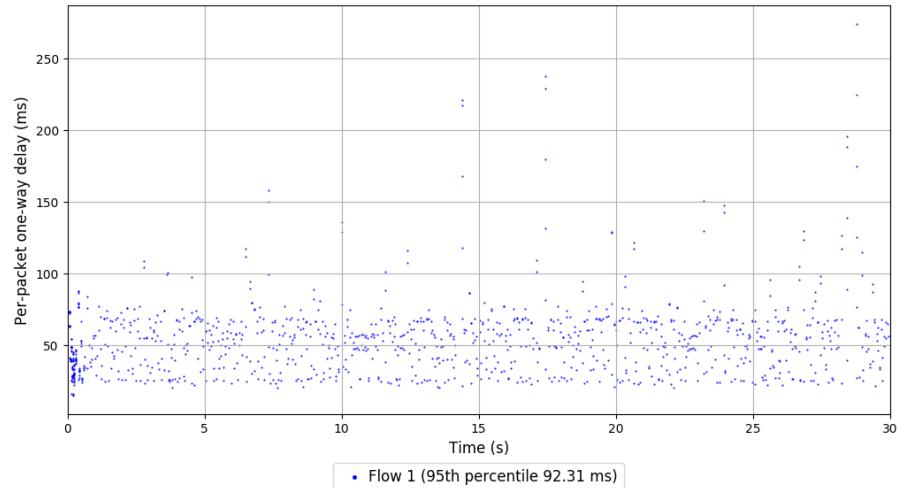
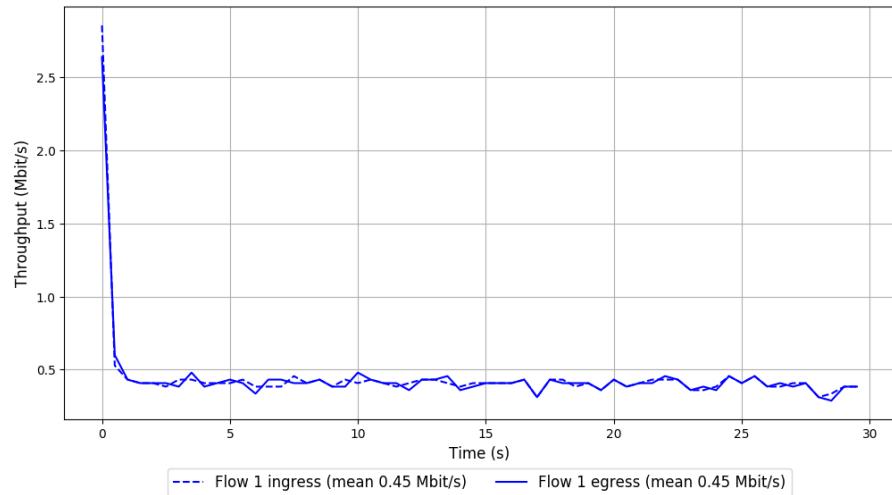


Run 3: Statistics of KohoCC

```
Start at: 2017-08-31 13:04:47
End at: 2017-08-31 13:05:17
Local clock offset: 0.931 ms
Remote clock offset: -2.122 ms

# Below is generated by plot.py at 2017-08-31 14:04:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 92.314 ms
Loss rate: 0.72%
-- Flow 1:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 92.314 ms
Loss rate: 0.72%
```

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

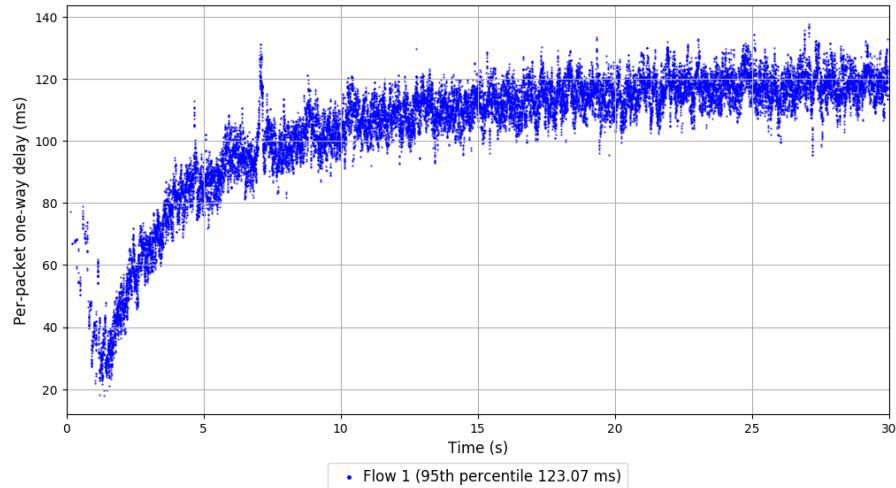
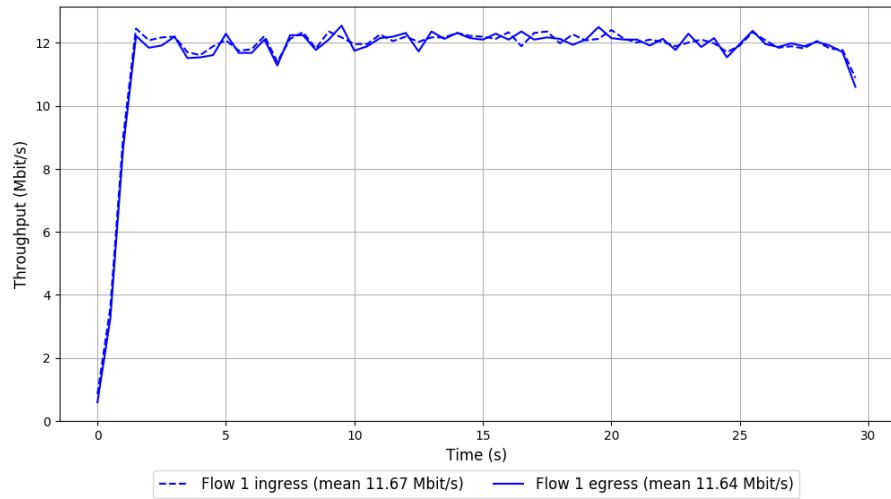


```
Run 1: Statistics of LEDBAT
```

```
Start at: 2017-08-31 12:30:37
End at: 2017-08-31 12:31:07
Local clock offset: 0.947 ms
Remote clock offset: -2.404 ms

# Below is generated by plot.py at 2017-08-31 14:04:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.64 Mbit/s
95th percentile per-packet one-way delay: 123.071 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 11.64 Mbit/s
95th percentile per-packet one-way delay: 123.071 ms
Loss rate: 0.44%
```

Run 1: Report of LEDBAT — Data Link

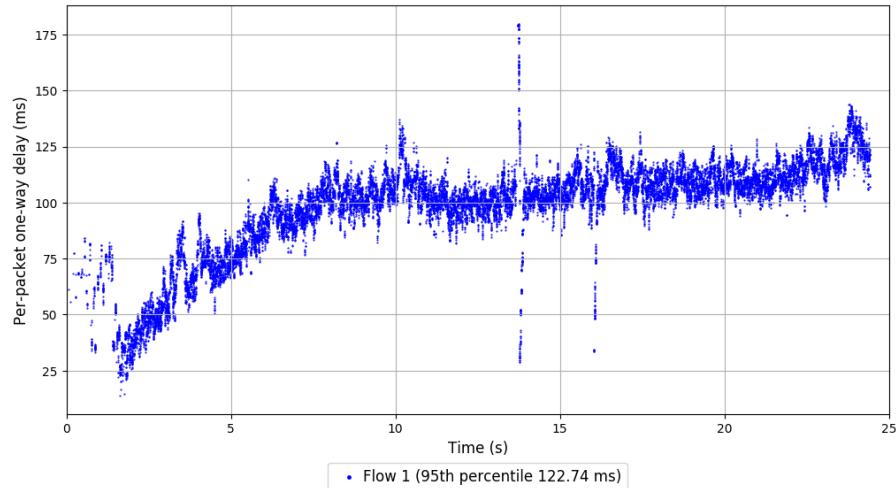
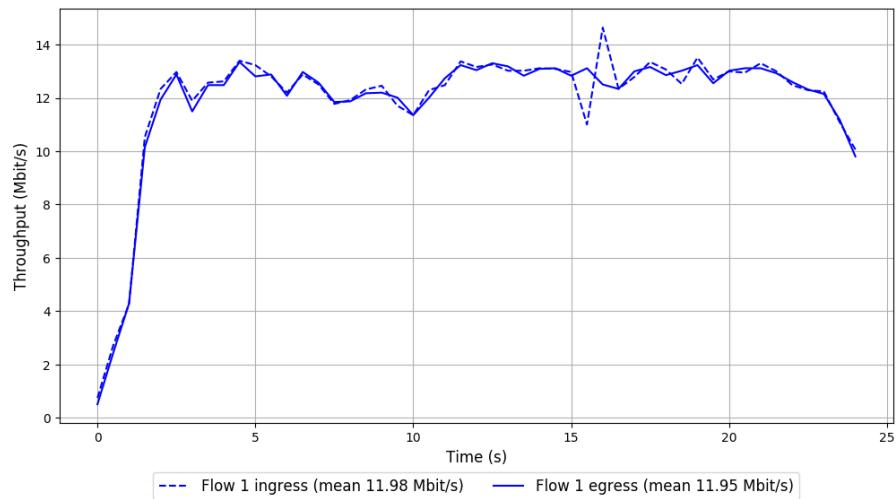


Run 2: Statistics of LEDBAT

```
Start at: 2017-08-31 12:48:16
End at: 2017-08-31 12:48:47
Local clock offset: 0.874 ms
Remote clock offset: -2.513 ms

# Below is generated by plot.py at 2017-08-31 14:04:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.95 Mbit/s
95th percentile per-packet one-way delay: 122.742 ms
Loss rate: 0.54%
-- Flow 1:
Average throughput: 11.95 Mbit/s
95th percentile per-packet one-way delay: 122.742 ms
Loss rate: 0.54%
```

Run 2: Report of LEDBAT — Data Link

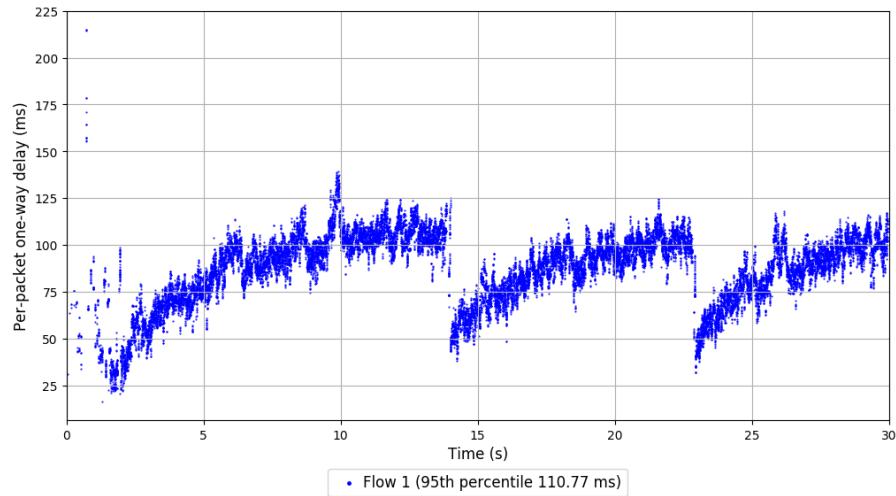
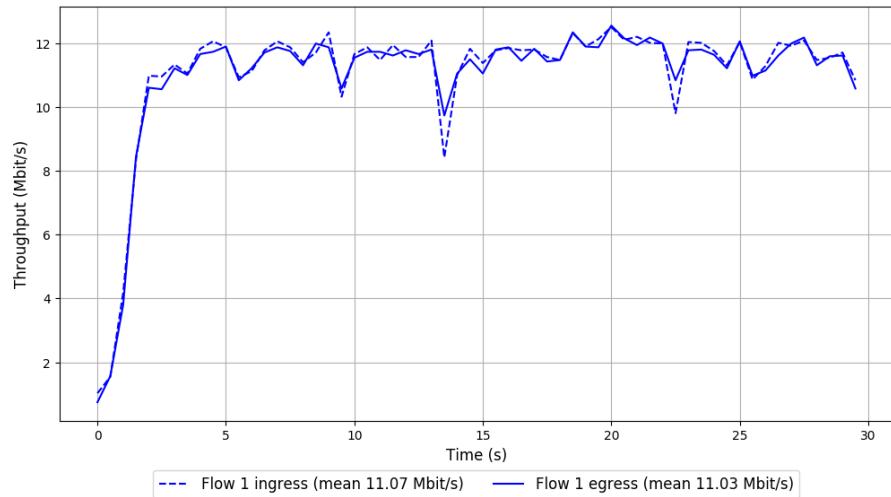


Run 3: Statistics of LEDBAT

```
Start at: 2017-08-31 13:05:57
End at: 2017-08-31 13:06:27
Local clock offset: 0.908 ms
Remote clock offset: -2.196 ms

# Below is generated by plot.py at 2017-08-31 14:04:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.03 Mbit/s
95th percentile per-packet one-way delay: 110.773 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 11.03 Mbit/s
95th percentile per-packet one-way delay: 110.773 ms
Loss rate: 0.44%
```

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

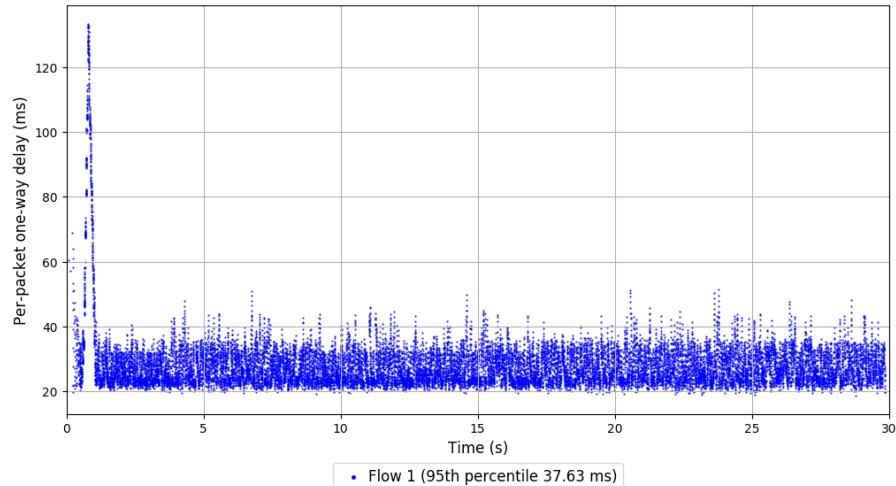
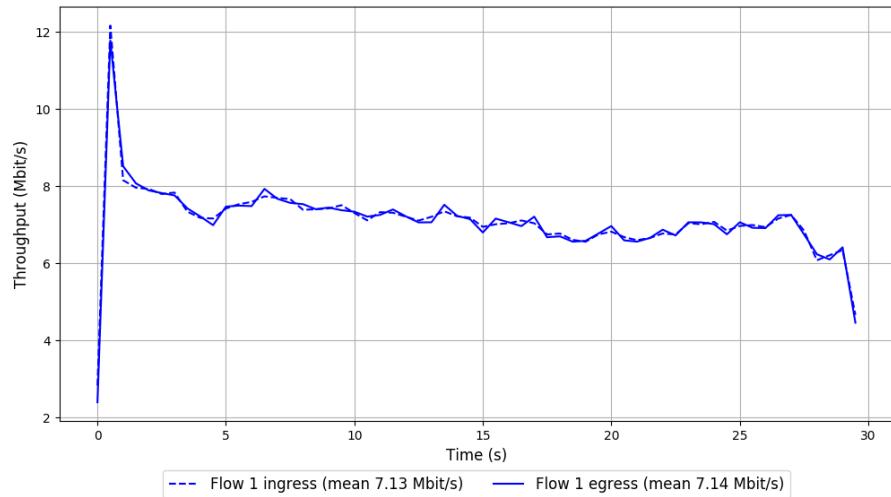


Run 1: Statistics of PCC

```
Start at: 2017-08-31 12:20:00
End at: 2017-08-31 12:20:30
Local clock offset: 0.862 ms
Remote clock offset: -2.407 ms

# Below is generated by plot.py at 2017-08-31 14:04:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.14 Mbit/s
95th percentile per-packet one-way delay: 37.627 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 7.14 Mbit/s
95th percentile per-packet one-way delay: 37.627 ms
Loss rate: 0.13%
```

## Run 1: Report of PCC — Data Link

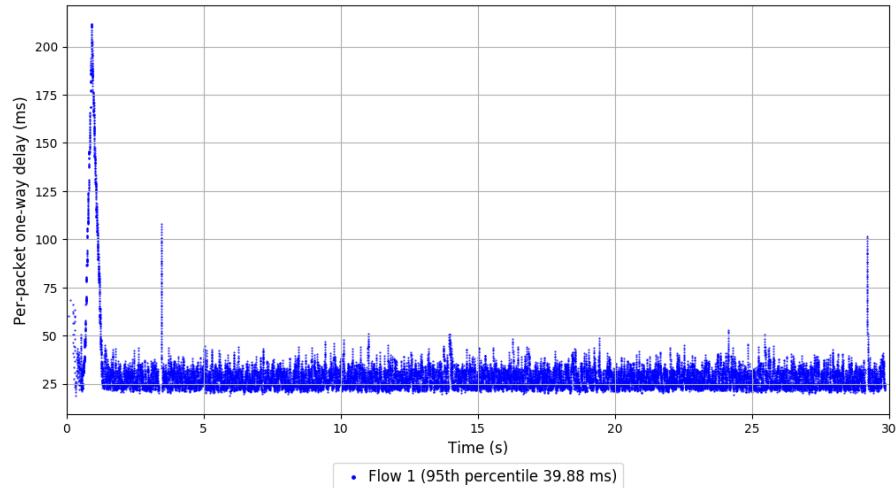
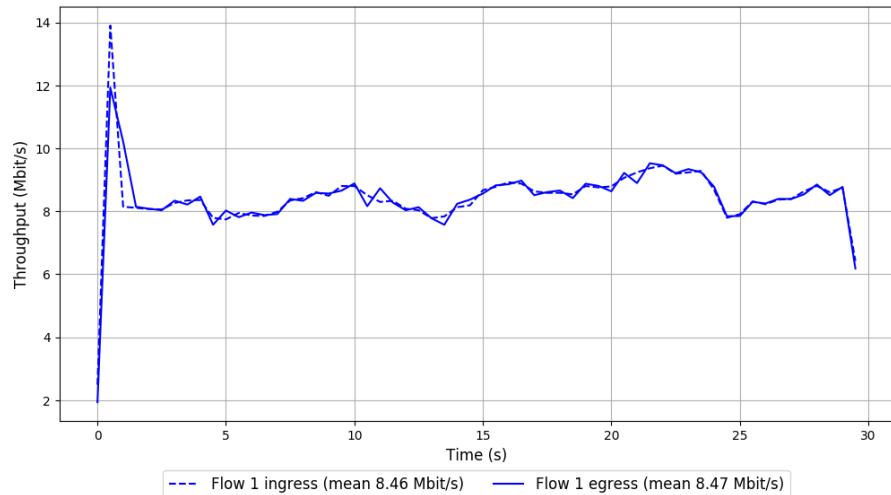


Run 2: Statistics of PCC

```
Start at: 2017-08-31 12:37:40
End at: 2017-08-31 12:38:10
Local clock offset: 0.87 ms
Remote clock offset: -2.38 ms

# Below is generated by plot.py at 2017-08-31 14:04:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.47 Mbit/s
95th percentile per-packet one-way delay: 39.883 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 8.47 Mbit/s
95th percentile per-packet one-way delay: 39.883 ms
Loss rate: 0.15%
```

## Run 2: Report of PCC — Data Link

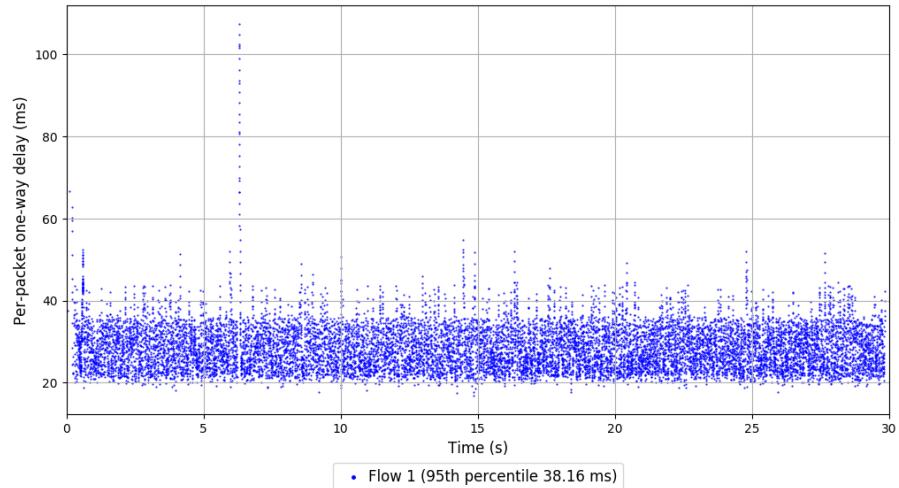
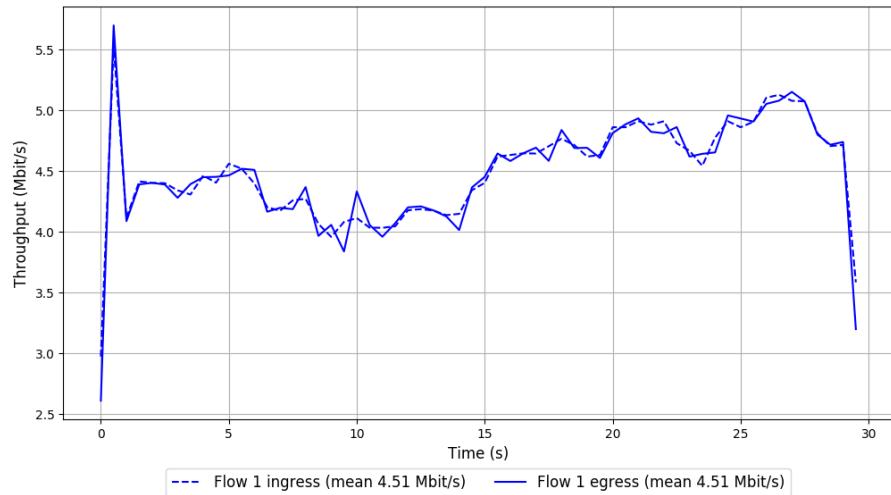


Run 3: Statistics of PCC

```
Start at: 2017-08-31 12:55:20
End at: 2017-08-31 12:55:50
Local clock offset: 0.907 ms
Remote clock offset: -2.375 ms

# Below is generated by plot.py at 2017-08-31 14:04:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.51 Mbit/s
95th percentile per-packet one-way delay: 38.155 ms
Loss rate: 0.22%
-- Flow 1:
Average throughput: 4.51 Mbit/s
95th percentile per-packet one-way delay: 38.155 ms
Loss rate: 0.22%
```

### Run 3: Report of PCC — Data Link

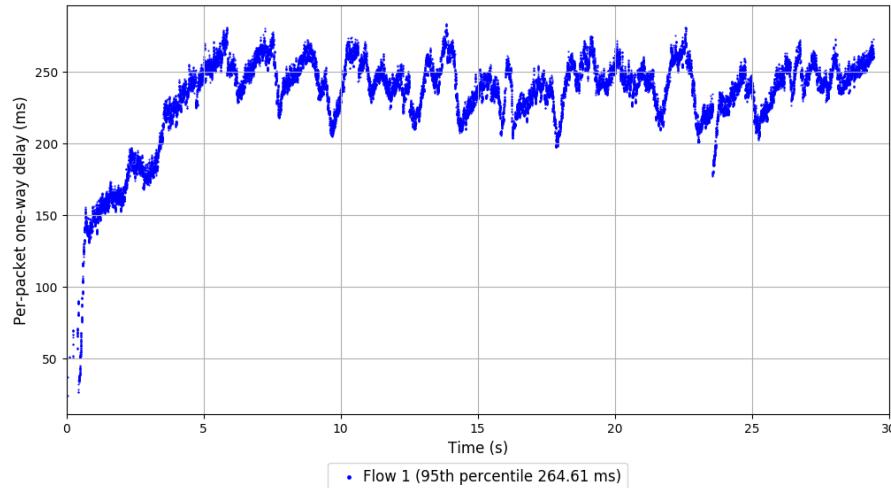
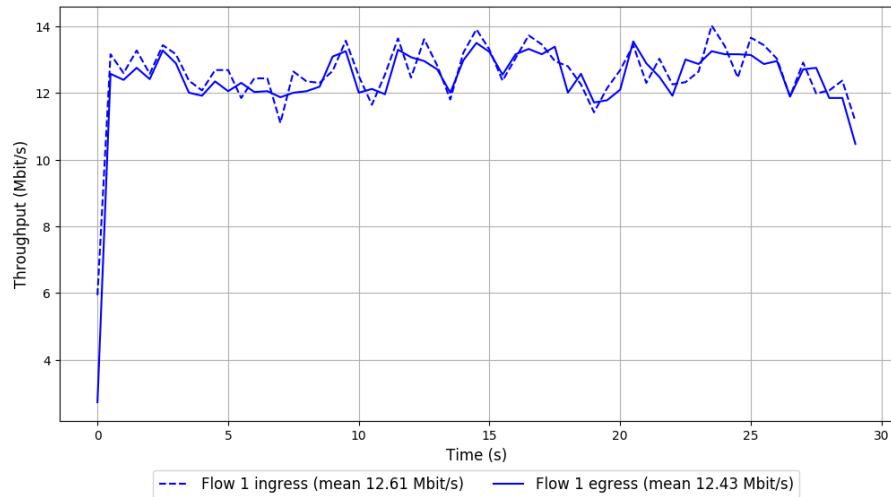


```
Run 1: Statistics of QUIC Cubic
```

```
Start at: 2017-08-31 12:24:42
End at: 2017-08-31 12:25:12
Local clock offset: 0.865 ms
Remote clock offset: -2.336 ms

# Below is generated by plot.py at 2017-08-31 14:04:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.43 Mbit/s
95th percentile per-packet one-way delay: 264.607 ms
Loss rate: 1.54%
-- Flow 1:
Average throughput: 12.43 Mbit/s
95th percentile per-packet one-way delay: 264.607 ms
Loss rate: 1.54%
```

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

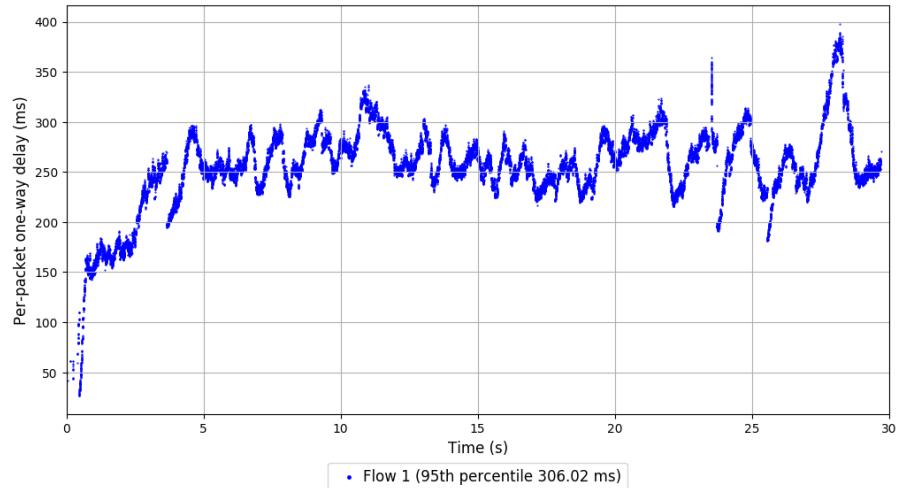
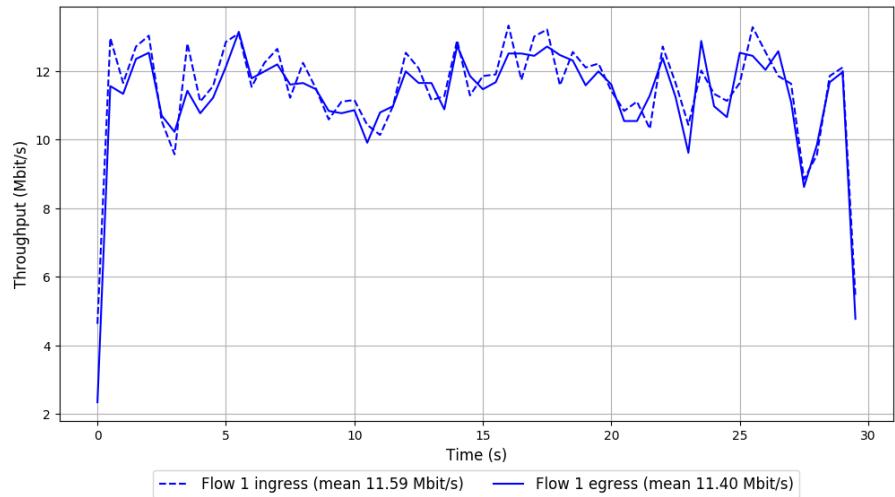


Run 2: Statistics of QUIC Cubic

```
Start at: 2017-08-31 12:42:22
End at: 2017-08-31 12:42:53
Local clock offset: 0.973 ms
Remote clock offset: -2.424 ms

# Below is generated by plot.py at 2017-08-31 14:04:31
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.40 Mbit/s
95th percentile per-packet one-way delay: 306.021 ms
Loss rate: 1.81%
-- Flow 1:
Average throughput: 11.40 Mbit/s
95th percentile per-packet one-way delay: 306.021 ms
Loss rate: 1.81%
```

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

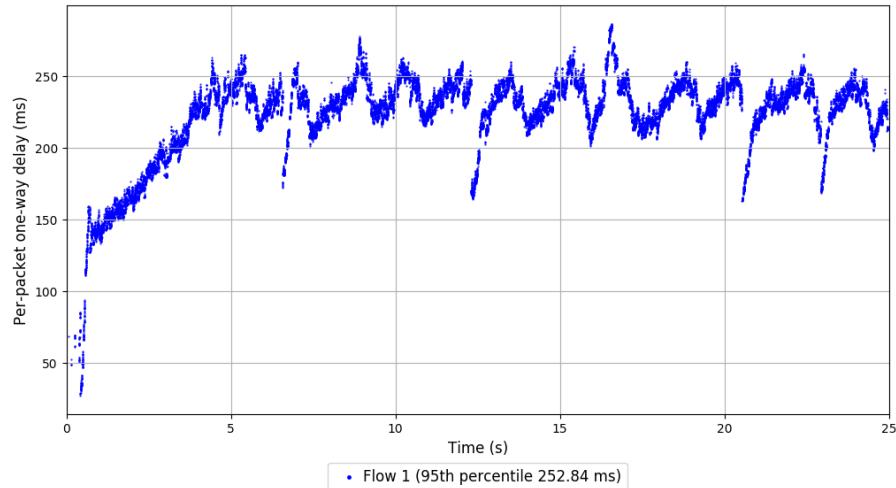
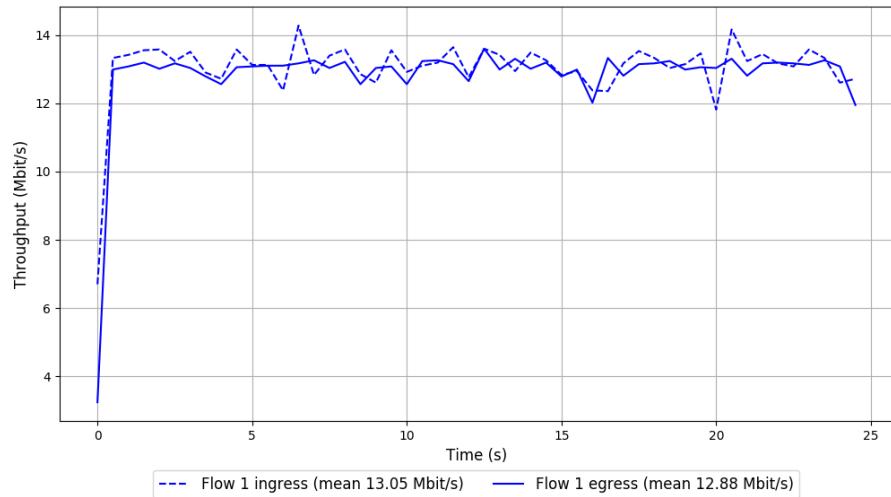


Run 3: Statistics of QUIC Cubic

```
Start at: 2017-08-31 13:00:03
End at: 2017-08-31 13:00:33
Local clock offset: 0.997 ms
Remote clock offset: -2.322 ms

# Below is generated by plot.py at 2017-08-31 14:04:32
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.88 Mbit/s
95th percentile per-packet one-way delay: 252.841 ms
Loss rate: 1.62%
-- Flow 1:
Average throughput: 12.88 Mbit/s
95th percentile per-packet one-way delay: 252.841 ms
Loss rate: 1.62%
```

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



Run 1: Statistics of SCReAM

Start at: 2017-08-31 12:31:48

End at: 2017-08-31 12:32:18

Local clock offset: 0.863 ms

Remote clock offset: -2.31 ms

Run 1: Report of SCReAM — Data Link

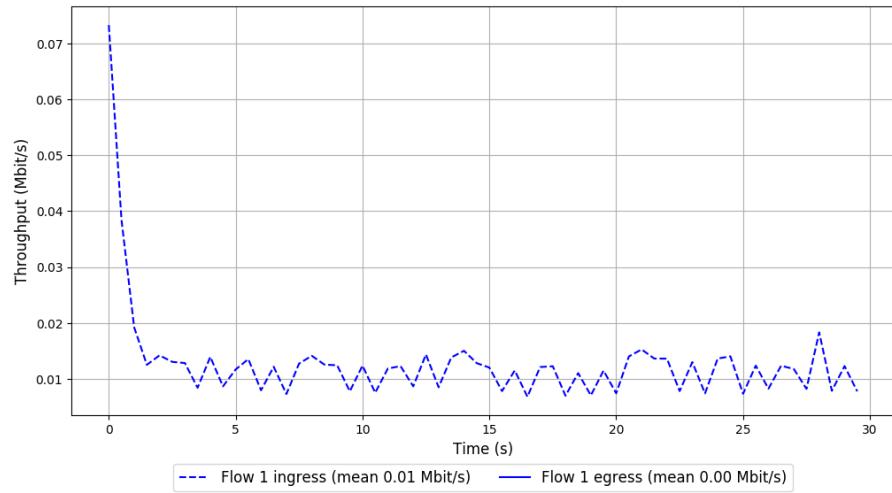


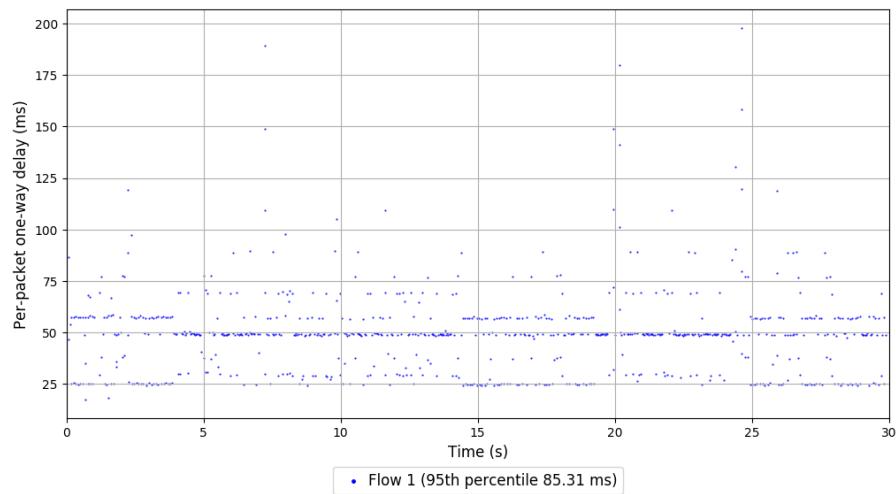
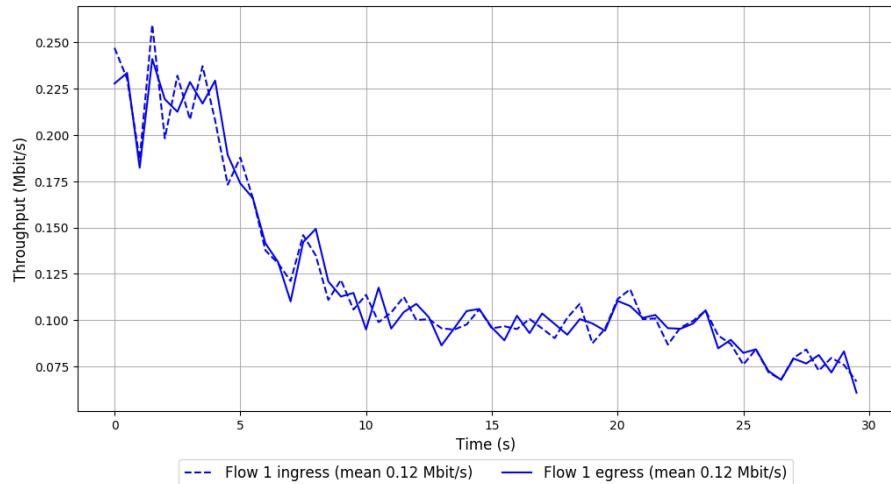
Figure is missing

Run 2: Statistics of SCReAM

```
Start at: 2017-08-31 12:49:27
End at: 2017-08-31 12:49:58
Local clock offset: 0.895 ms
Remote clock offset: -2.555 ms

# Below is generated by plot.py at 2017-08-31 14:04:32
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.12 Mbit/s
95th percentile per-packet one-way delay: 85.314 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 0.12 Mbit/s
95th percentile per-packet one-way delay: 85.314 ms
Loss rate: 0.17%
```

## Run 2: Report of SCReAM — Data Link

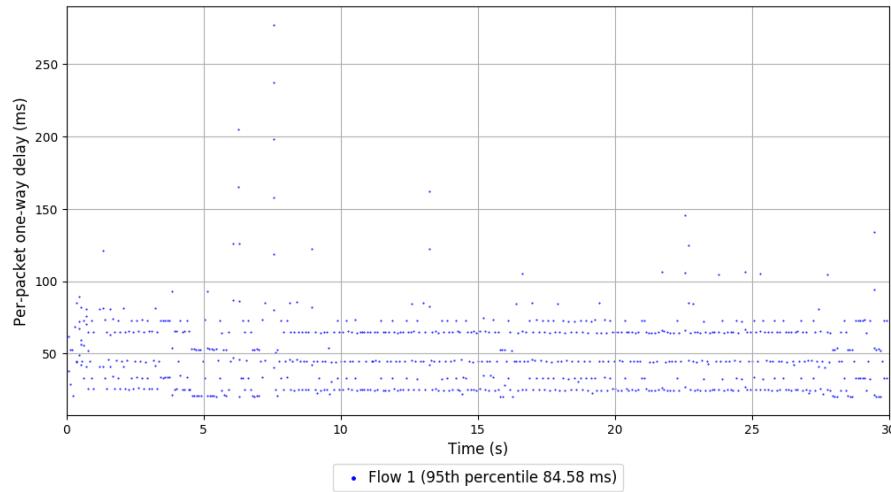
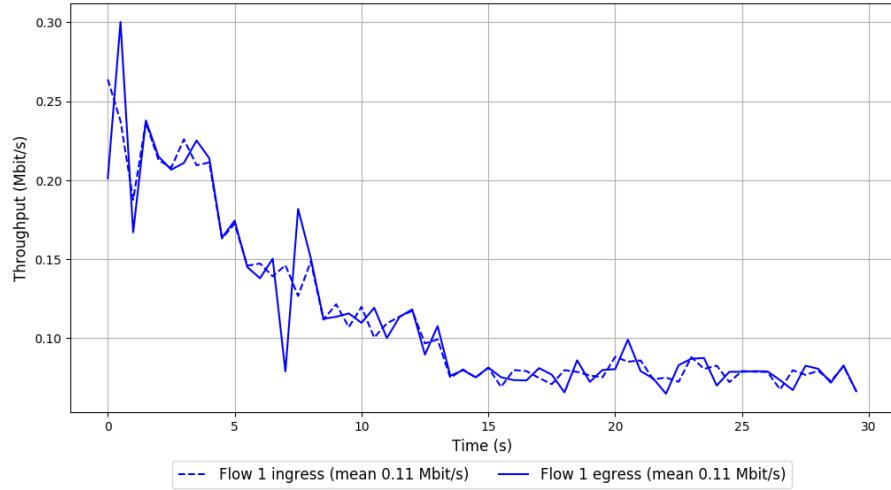


Run 3: Statistics of SCReAM

```
Start at: 2017-08-31 13:07:08
End at: 2017-08-31 13:07:38
Local clock offset: 1.026 ms
Remote clock offset: -2.165 ms

# Below is generated by plot.py at 2017-08-31 14:04:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 84.579 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 84.579 ms
Loss rate: 0.26%
```

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

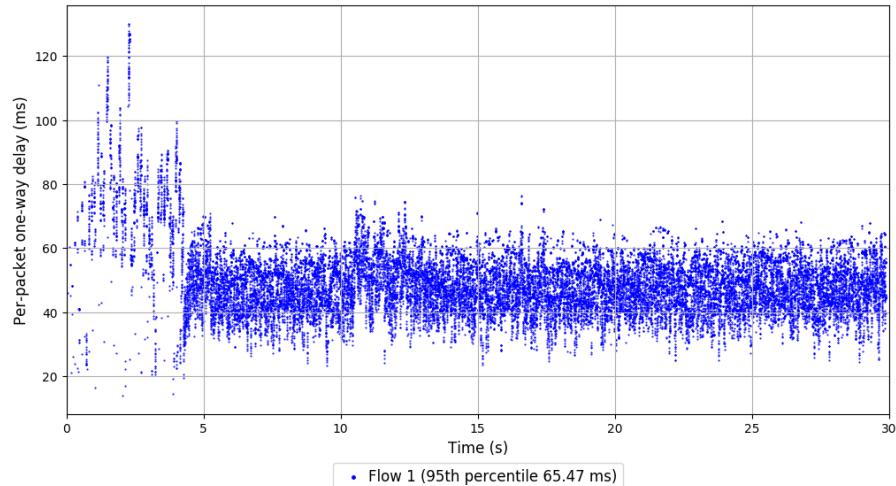
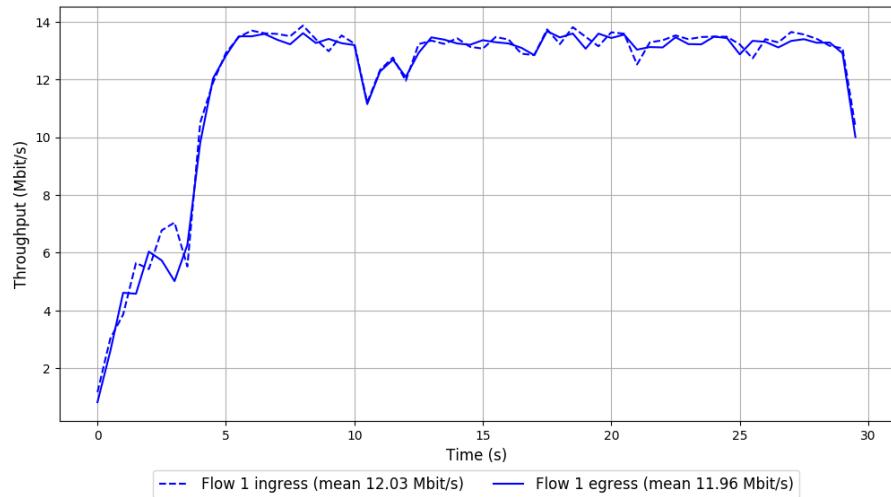


Run 1: Statistics of Sprout

```
Start at: 2017-08-31 12:21:10
End at: 2017-08-31 12:21:40
Local clock offset: 0.984 ms
Remote clock offset: -2.473 ms

# Below is generated by plot.py at 2017-08-31 14:04:34
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.96 Mbit/s
95th percentile per-packet one-way delay: 65.473 ms
Loss rate: 0.85%
-- Flow 1:
Average throughput: 11.96 Mbit/s
95th percentile per-packet one-way delay: 65.473 ms
Loss rate: 0.85%
```

## Run 1: Report of Sprout — Data Link

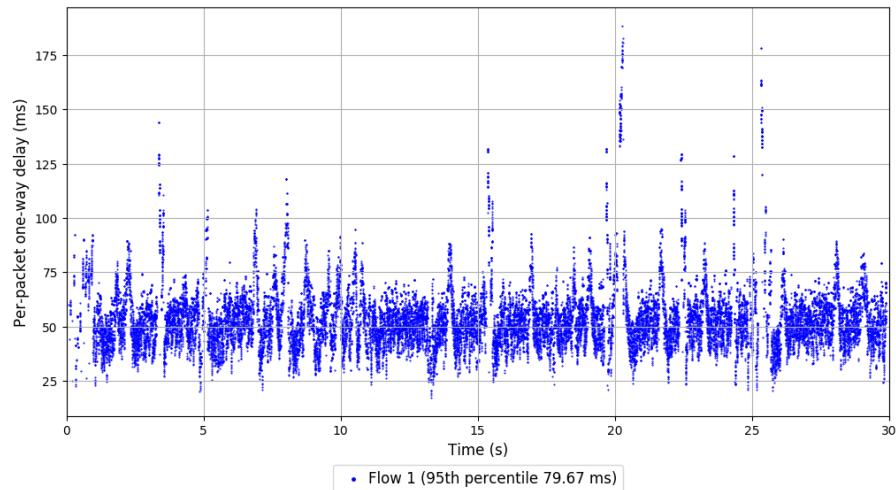
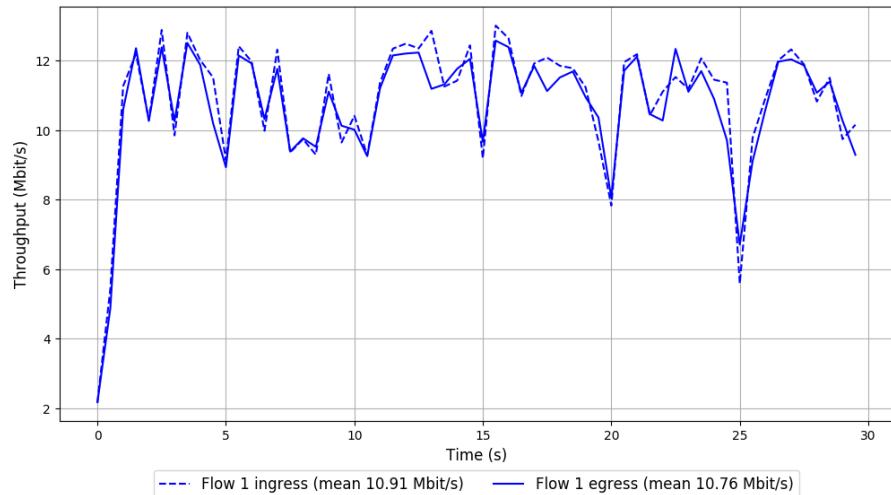


Run 2: Statistics of Sprout

```
Start at: 2017-08-31 12:38:51
End at: 2017-08-31 12:39:21
Local clock offset: 0.889 ms
Remote clock offset: -2.404 ms

# Below is generated by plot.py at 2017-08-31 14:04:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 10.76 Mbit/s
95th percentile per-packet one-way delay: 79.673 ms
Loss rate: 1.63%
-- Flow 1:
Average throughput: 10.76 Mbit/s
95th percentile per-packet one-way delay: 79.673 ms
Loss rate: 1.63%
```

## Run 2: Report of Sprout — Data Link

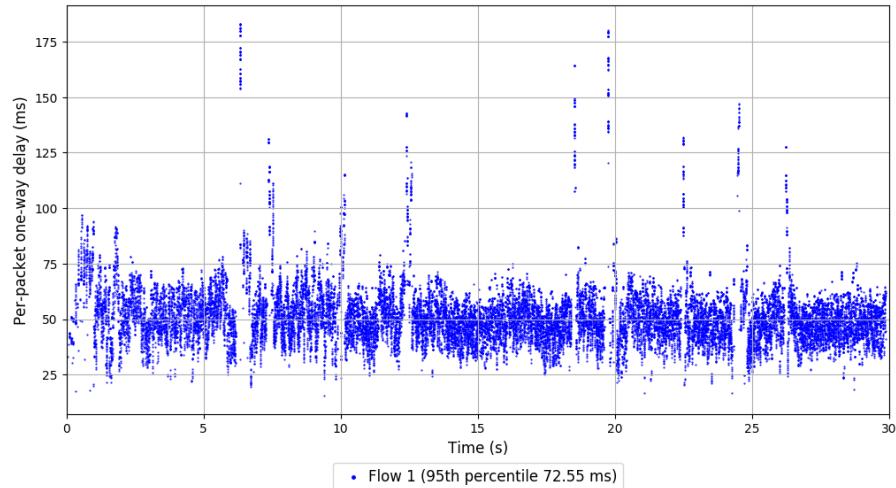
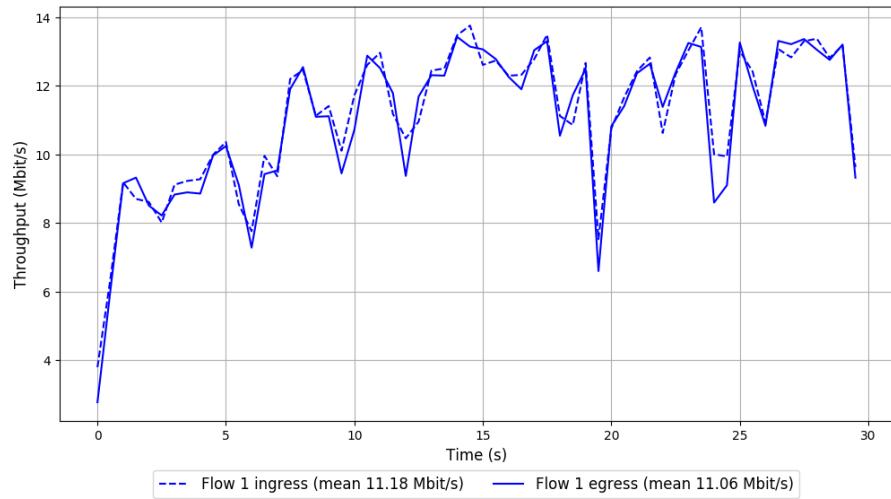


Run 3: Statistics of Sprout

```
Start at: 2017-08-31 12:56:31
End at: 2017-08-31 12:57:01
Local clock offset: 0.907 ms
Remote clock offset: -2.397 ms

# Below is generated by plot.py at 2017-08-31 14:04:37
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.06 Mbit/s
95th percentile per-packet one-way delay: 72.549 ms
Loss rate: 1.26%
-- Flow 1:
Average throughput: 11.06 Mbit/s
95th percentile per-packet one-way delay: 72.549 ms
Loss rate: 1.26%
```

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

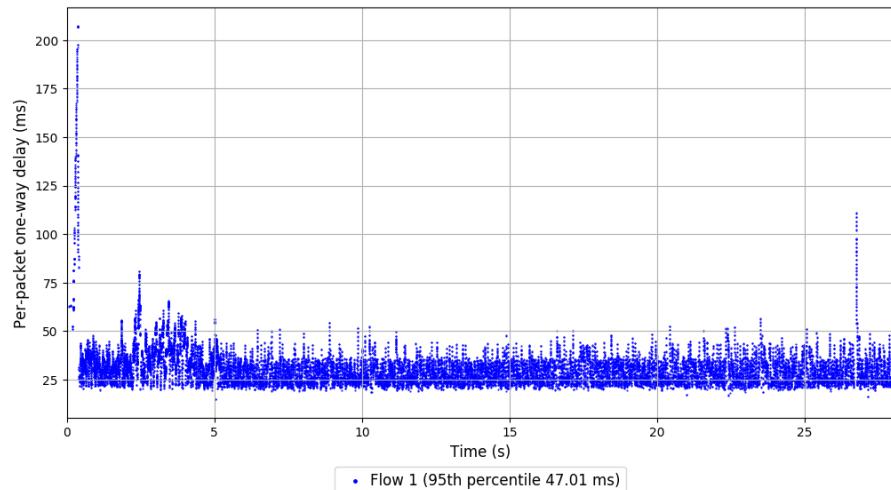
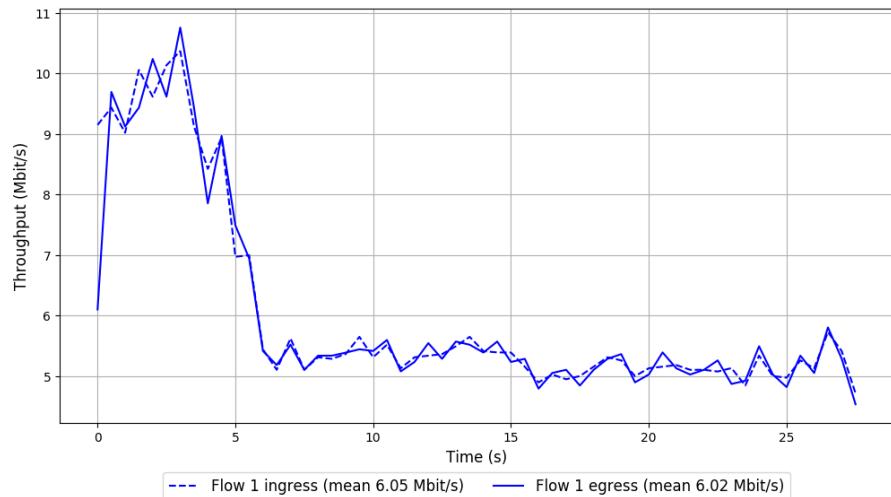


Run 1: Statistics of TaoVA-100x

```
Start at: 2017-08-31 12:16:28
End at: 2017-08-31 12:16:58
Local clock offset: 0.867 ms
Remote clock offset: -2.524 ms

# Below is generated by plot.py at 2017-08-31 14:04:38
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.02 Mbit/s
95th percentile per-packet one-way delay: 47.011 ms
Loss rate: 0.84%
-- Flow 1:
Average throughput: 6.02 Mbit/s
95th percentile per-packet one-way delay: 47.011 ms
Loss rate: 0.84%
```

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

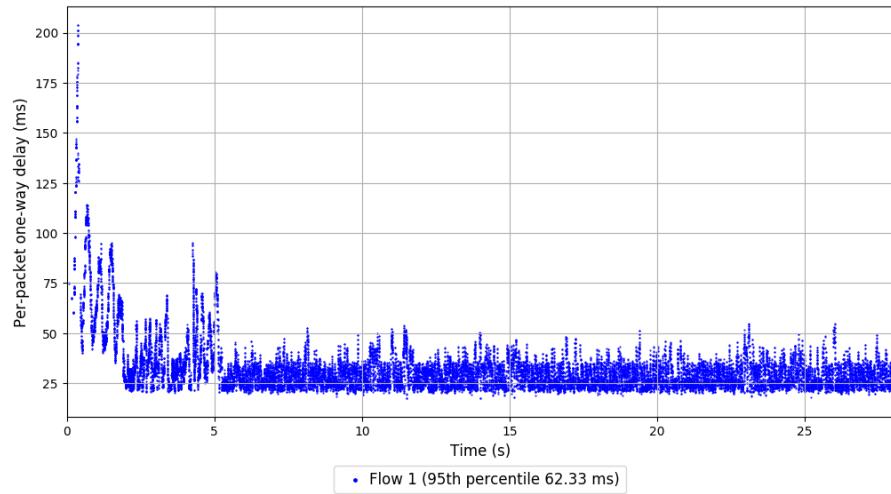
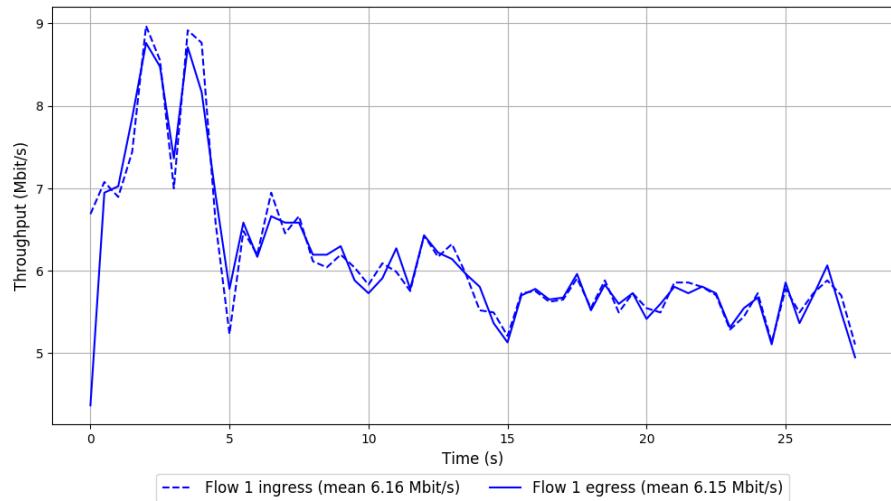


Run 2: Statistics of TaoVA-100x

```
Start at: 2017-08-31 12:34:09
End at: 2017-08-31 12:34:39
Local clock offset: 0.881 ms
Remote clock offset: -2.324 ms

# Below is generated by plot.py at 2017-08-31 14:04:39
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.15 Mbit/s
95th percentile per-packet one-way delay: 62.333 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 6.15 Mbit/s
95th percentile per-packet one-way delay: 62.333 ms
Loss rate: 0.58%
```

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

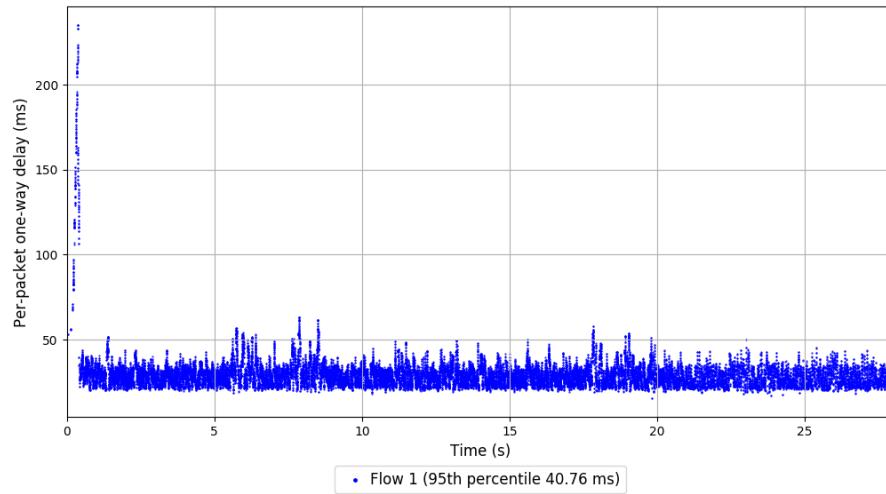
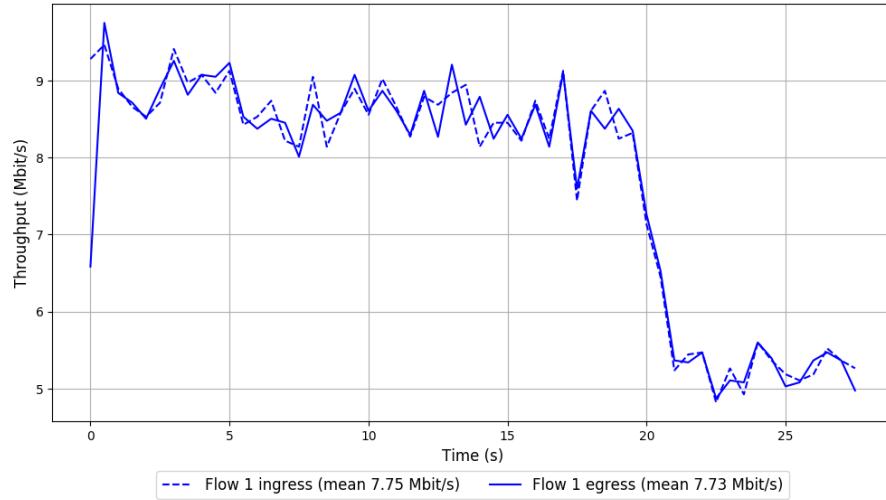


Run 3: Statistics of TaoVA-100x

```
Start at: 2017-08-31 12:51:49
End at: 2017-08-31 12:52:19
Local clock offset: 0.887 ms
Remote clock offset: -2.392 ms

# Below is generated by plot.py at 2017-08-31 14:04:41
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.73 Mbit/s
95th percentile per-packet one-way delay: 40.761 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 7.73 Mbit/s
95th percentile per-packet one-way delay: 40.761 ms
Loss rate: 0.57%
```

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

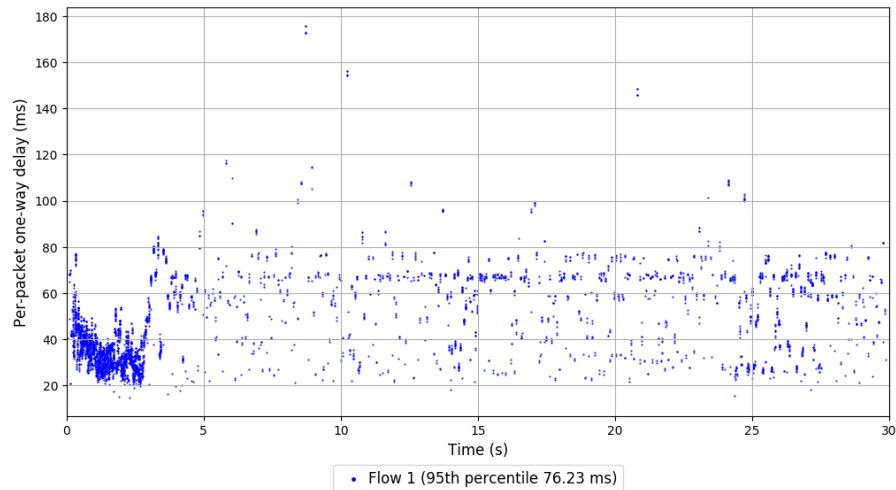
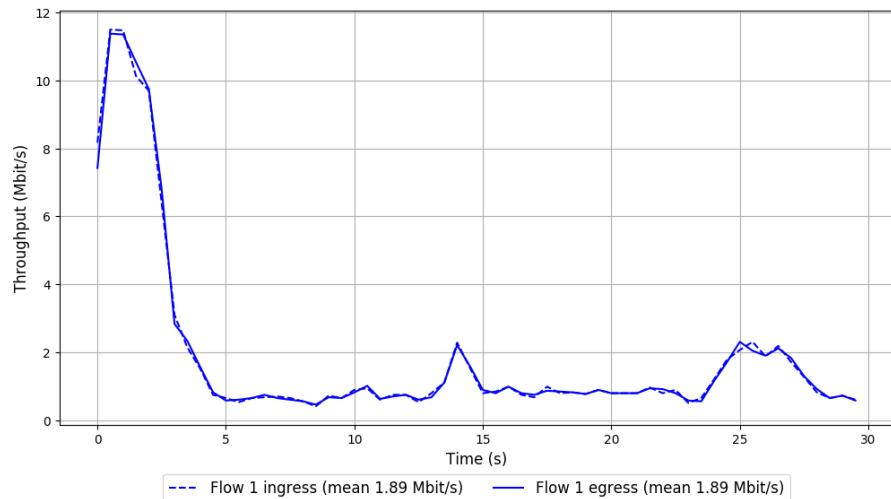


Run 1: Statistics of TCP Vegas

```
Start at: 2017-08-31 12:23:31
End at: 2017-08-31 12:24:01
Local clock offset: 0.887 ms
Remote clock offset: -2.408 ms

# Below is generated by plot.py at 2017-08-31 14:04:41
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.89 Mbit/s
95th percentile per-packet one-way delay: 76.230 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 1.89 Mbit/s
95th percentile per-packet one-way delay: 76.230 ms
Loss rate: 0.09%
```

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

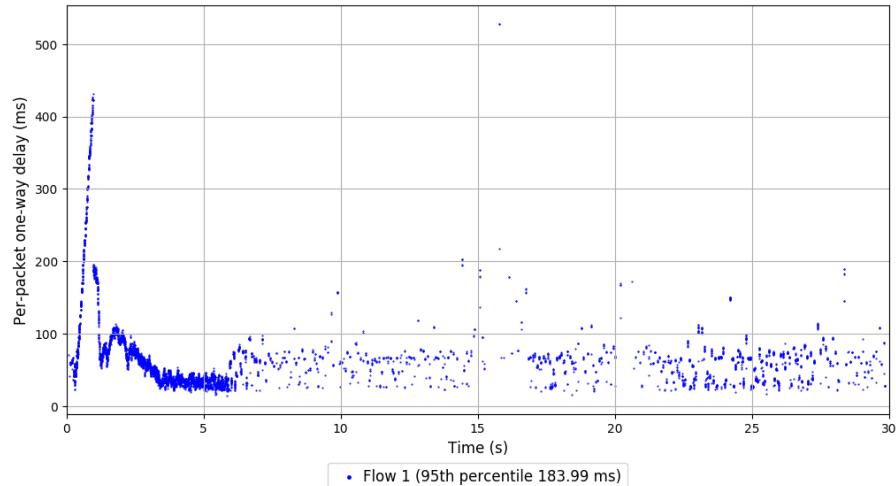
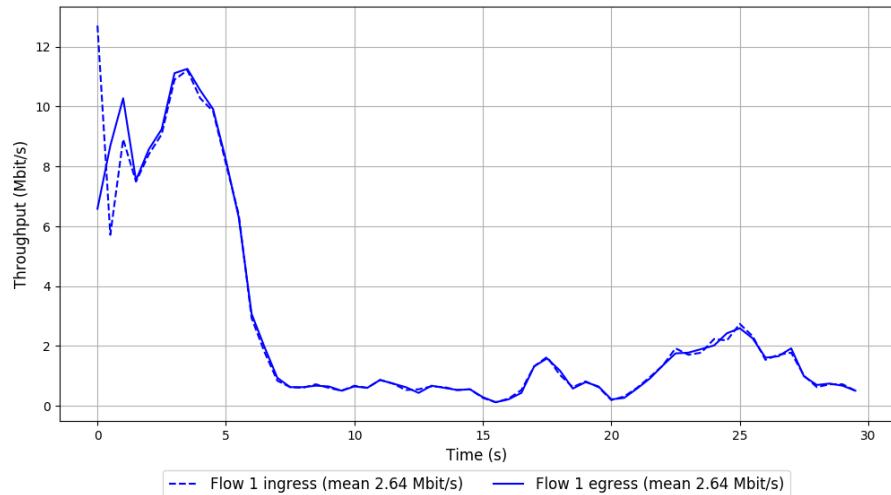


Run 2: Statistics of TCP Vegas

```
Start at: 2017-08-31 12:41:12
End at: 2017-08-31 12:41:42
Local clock offset: 0.881 ms
Remote clock offset: -2.381 ms

# Below is generated by plot.py at 2017-08-31 14:04:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.64 Mbit/s
95th percentile per-packet one-way delay: 183.988 ms
Loss rate: 0.32%
-- Flow 1:
Average throughput: 2.64 Mbit/s
95th percentile per-packet one-way delay: 183.988 ms
Loss rate: 0.32%
```

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

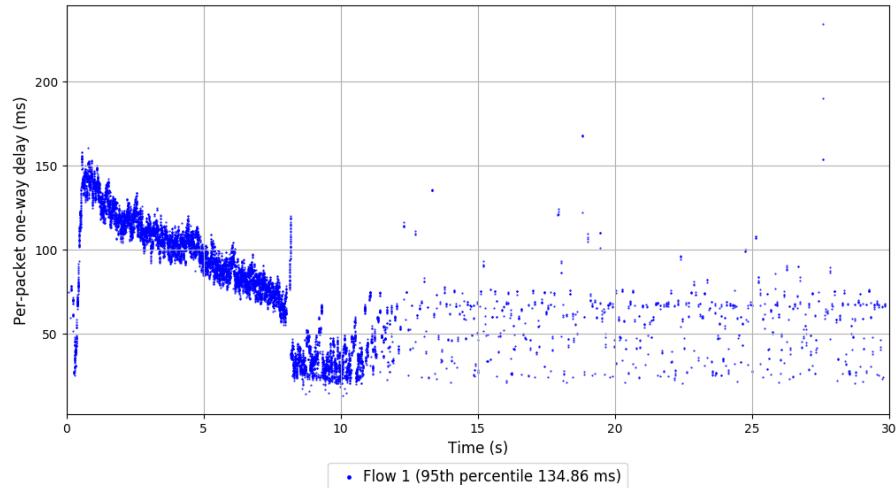
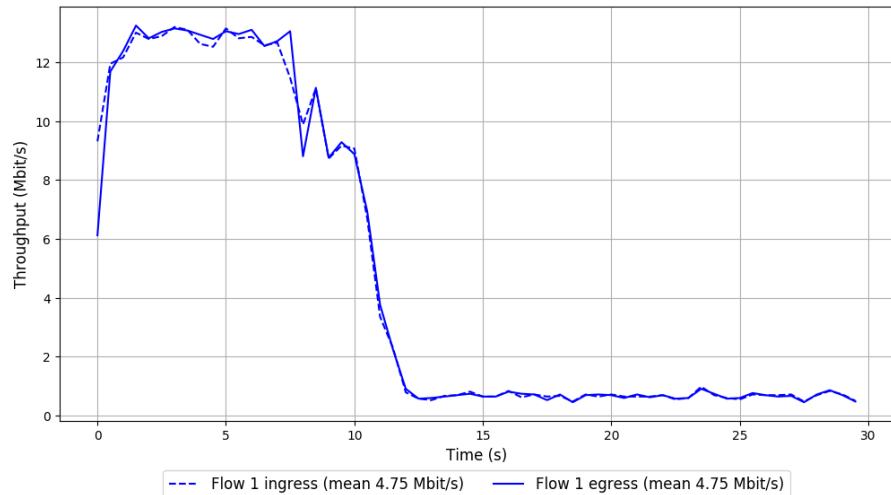


Run 3: Statistics of TCP Vegas

```
Start at: 2017-08-31 12:58:52
End at: 2017-08-31 12:59:22
Local clock offset: 0.922 ms
Remote clock offset: -2.342 ms

# Below is generated by plot.py at 2017-08-31 14:04:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.75 Mbit/s
95th percentile per-packet one-way delay: 134.861 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 4.75 Mbit/s
95th percentile per-packet one-way delay: 134.861 ms
Loss rate: 0.30%
```

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

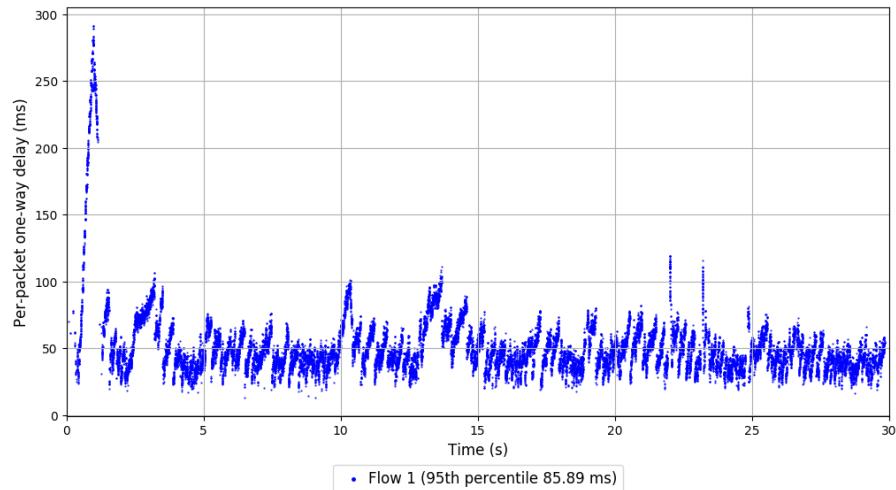
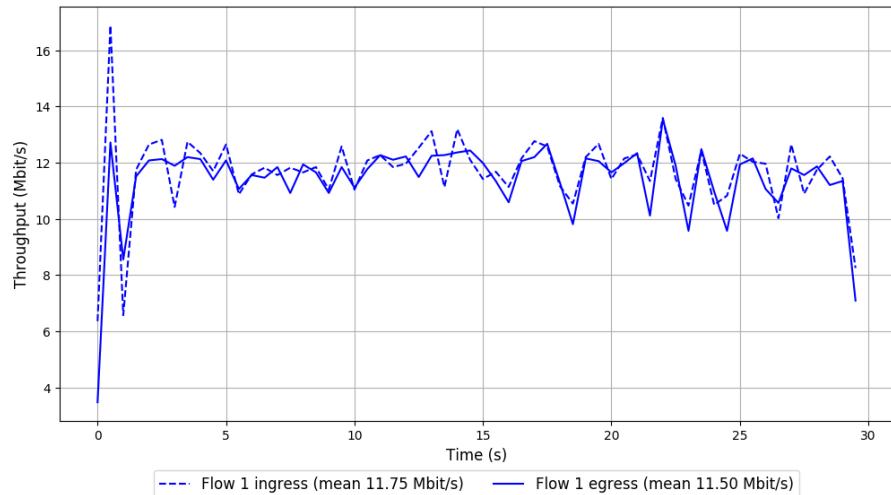


Run 1: Statistics of Verus

```
Start at: 2017-08-31 12:25:53
End at: 2017-08-31 12:26:23
Local clock offset: 0.891 ms
Remote clock offset: -2.439 ms

# Below is generated by plot.py at 2017-08-31 14:04:44
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.50 Mbit/s
95th percentile per-packet one-way delay: 85.890 ms
Loss rate: 2.38%
-- Flow 1:
Average throughput: 11.50 Mbit/s
95th percentile per-packet one-way delay: 85.890 ms
Loss rate: 2.38%
```

## Run 1: Report of Verus — Data Link

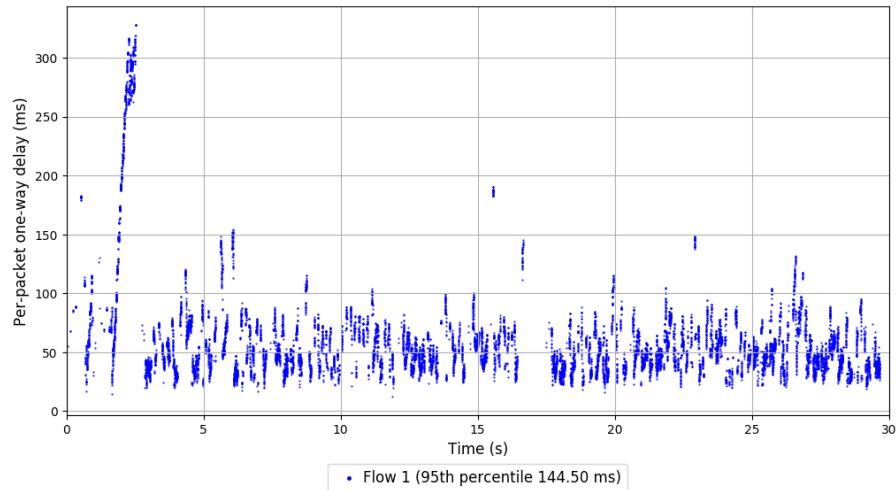
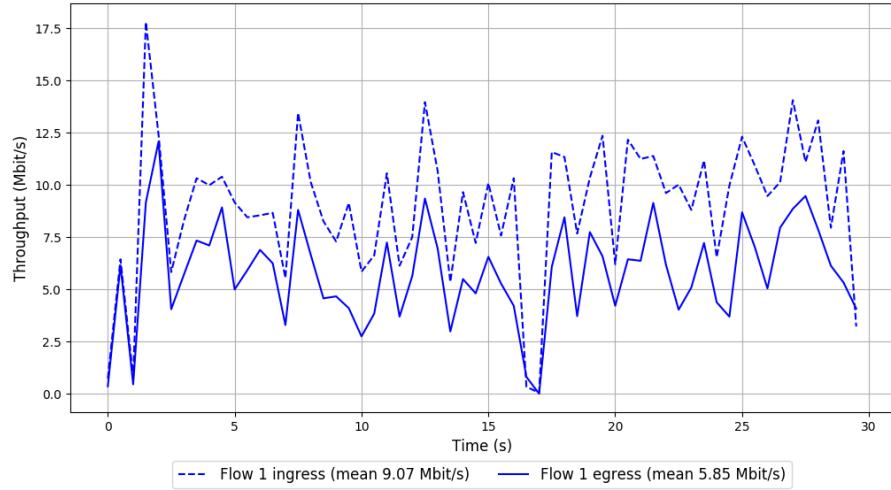


Run 2: Statistics of Verus

```
Start at: 2017-08-31 12:43:34
End at: 2017-08-31 12:44:04
Local clock offset: 0.865 ms
Remote clock offset: -2.477 ms

# Below is generated by plot.py at 2017-08-31 14:04:45
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.85 Mbit/s
95th percentile per-packet one-way delay: 144.495 ms
Loss rate: 35.52%
-- Flow 1:
Average throughput: 5.85 Mbit/s
95th percentile per-packet one-way delay: 144.495 ms
Loss rate: 35.52%
```

## Run 2: Report of Verus — Data Link

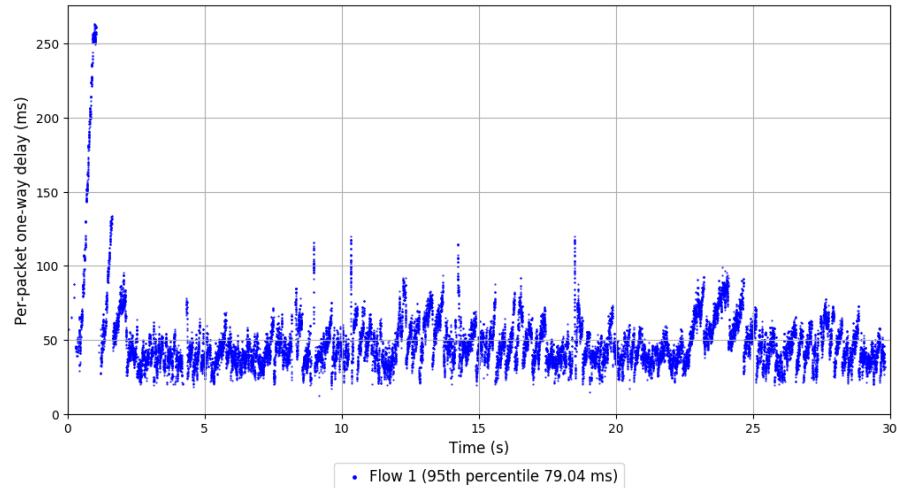
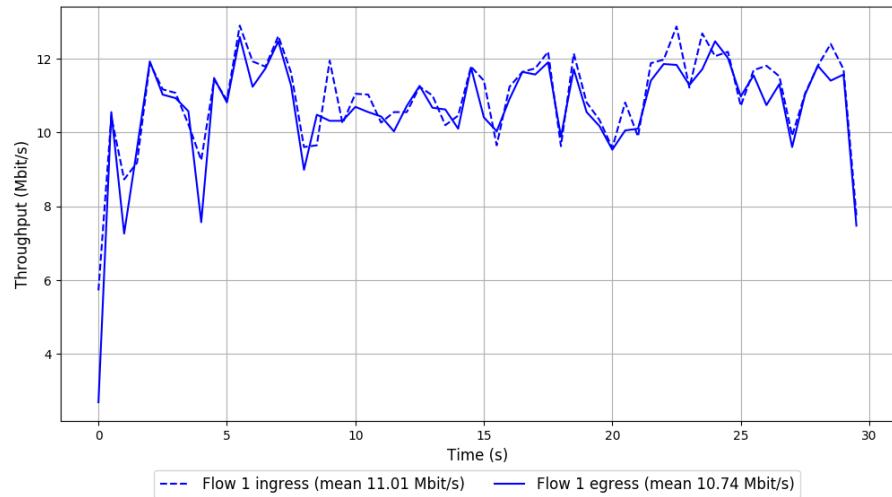


Run 3: Statistics of Verus

```
Start at: 2017-08-31 13:01:14
End at: 2017-08-31 13:01:44
Local clock offset: 0.924 ms
Remote clock offset: -2.299 ms

# Below is generated by plot.py at 2017-08-31 14:04:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 10.74 Mbit/s
95th percentile per-packet one-way delay: 79.040 ms
Loss rate: 2.67%
-- Flow 1:
Average throughput: 10.74 Mbit/s
95th percentile per-packet one-way delay: 79.040 ms
Loss rate: 2.67%
```

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

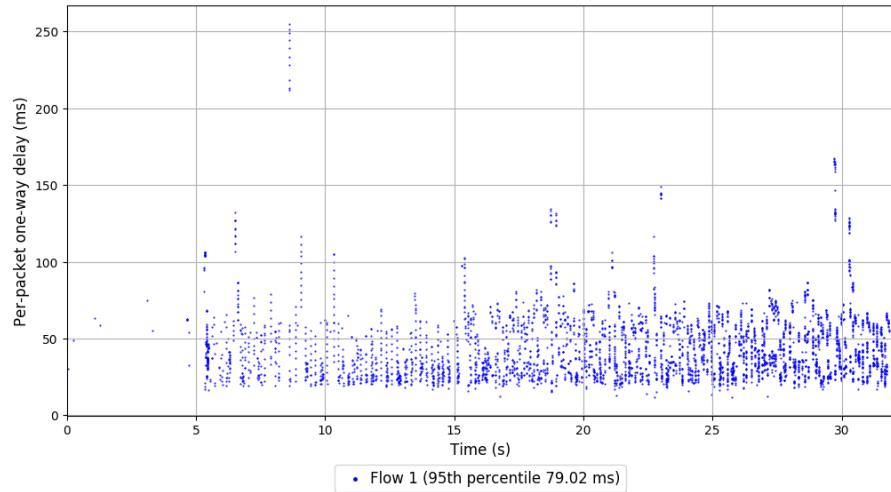
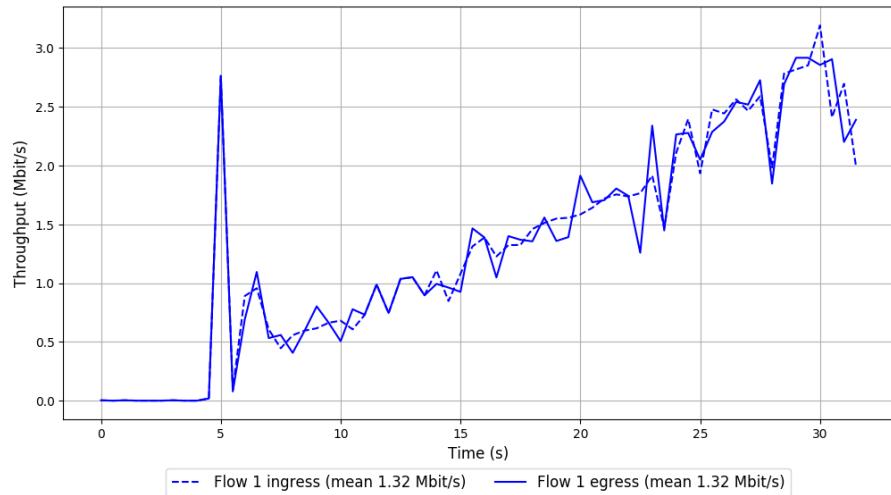


```
Run 1: Statistics of WebRTC media

Start at: 2017-08-31 12:18:50
End at: 2017-08-31 12:19:20
Local clock offset: 0.881 ms
Remote clock offset: -2.417 ms

# Below is generated by plot.py at 2017-08-31 14:04:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.32 Mbit/s
95th percentile per-packet one-way delay: 79.024 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 1.32 Mbit/s
95th percentile per-packet one-way delay: 79.024 ms
Loss rate: 0.12%
```

Run 1: Report of WebRTC media — Data Link

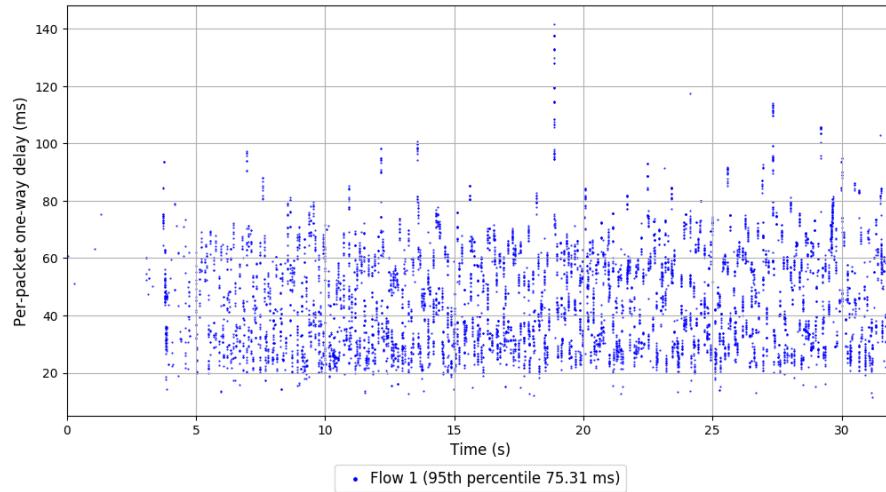
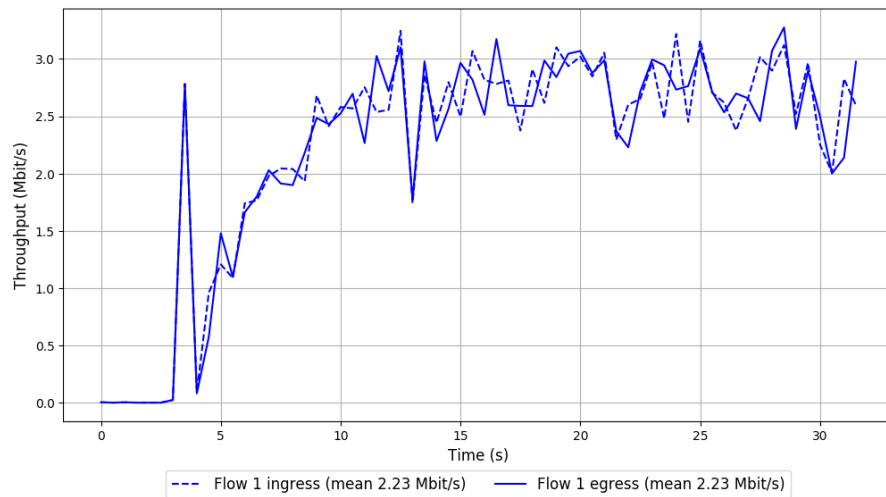


Run 2: Statistics of WebRTC media

```
Start at: 2017-08-31 12:36:30
End at: 2017-08-31 12:37:00
Local clock offset: 0.876 ms
Remote clock offset: -2.361 ms

# Below is generated by plot.py at 2017-08-31 14:04:48
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.23 Mbit/s
95th percentile per-packet one-way delay: 75.311 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 2.23 Mbit/s
95th percentile per-packet one-way delay: 75.311 ms
Loss rate: 0.35%
```

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2017-08-31 12:54:10

End at: 2017-08-31 12:54:40

Local clock offset: 0.91 ms

Remote clock offset: -2.398 ms

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

