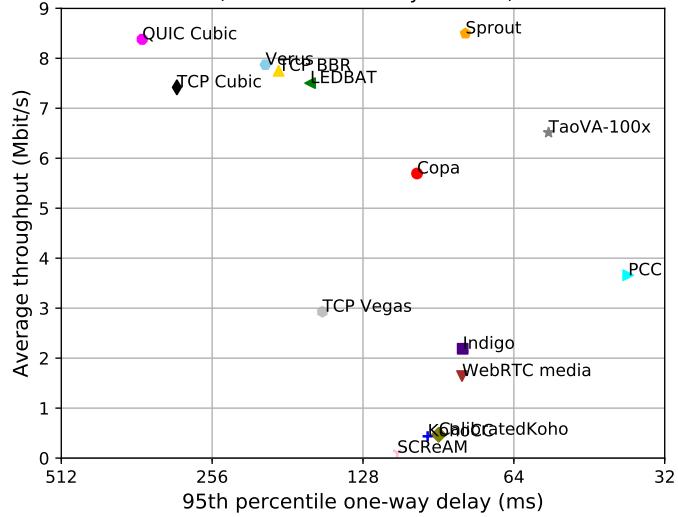


Pantheon Report

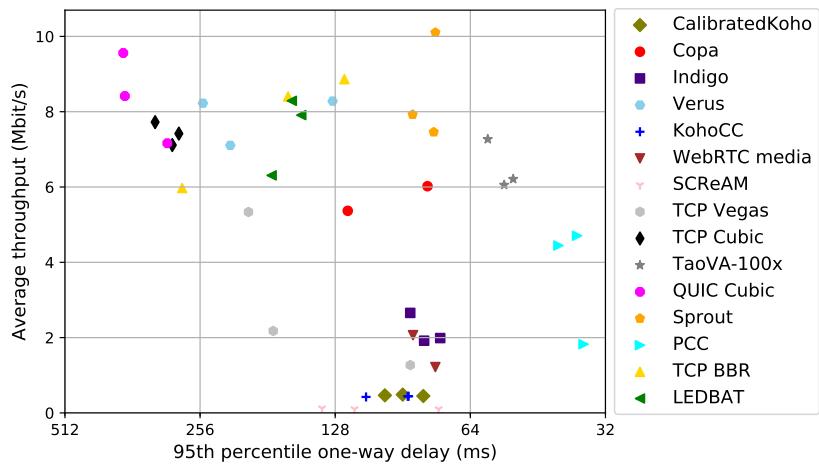
Generated at 2017-09-17 23:12:27 (UTC).
Data path: Stanford ppp0 (*remote*) → AWS California 1 Ethernet (*local*).
Repeated the test of 15 congestion control schemes 3 times.
Each test lasted for 30 seconds running 1 flow.
Increased UDP receive buffer to 16 MB (default) and 32 MB (max).
Tested BBR with 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 @ 57453dc11f8da93a2e03eea75289fea01b816298  
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50  
  M datagrump/sender.cc  
third_party/genericCC @ f7ca42f251bf49b432bb71de6d13fa903515c366  
third_party/indigo @ b19f3730105f9aa95452552af924e3719b03cc55  
third_party/koho_cc @ f0f2e693303aeee82ea808e6928eac4f1083a6681  
  M datagrump/sender.cc  
third_party/libutp @ b3465b942e2826f2b179aab4a906ce6bb7cf3cf  
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 @ 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



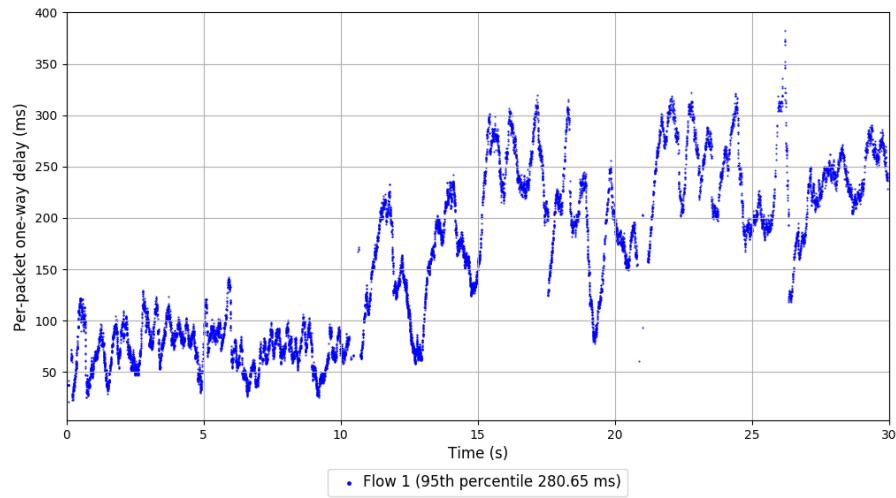
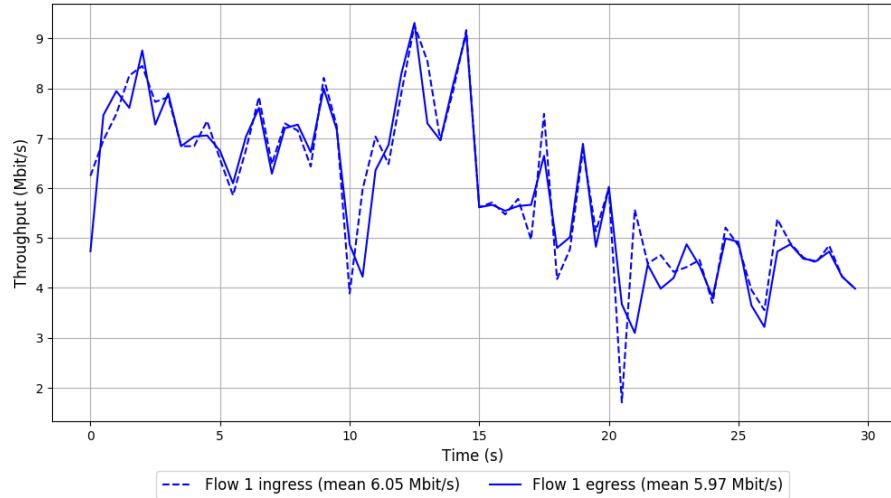
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	7.75	188.58	0.89
CalibratedKoho	3	0.47	90.40	0.82
Copa	2	5.70	99.87	0.07
TCP Cubic	3	7.42	301.00	1.39
Indigo	3	2.19	80.97	0.38
KohoCC	3	0.43	95.11	0.79
LEDBAT	3	7.50	163.22	0.44
PCC	3	3.66	37.85	0.15
QUIC Cubic	3	8.38	353.01	2.00
SCReAM	3	0.11	109.39	0.62
Sprout	3	8.49	79.94	0.79
TaoVA-100x	3	6.51	54.57	0.59
TCP Vegas	3	2.93	154.24	0.31
Verus	3	7.87	200.40	3.03
WebRTC media	2	1.64	81.22	0.33

Run 1: Statistics of TCP BBR

```
Start at: 2017-09-17 21:37:07
End at: 2017-09-17 21:37:37
Local clock offset: -0.387 ms
Remote clock offset: -3.848 ms

# Below is generated by plot.py at 2017-09-17 23:11:39
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.97 Mbit/s
95th percentile per-packet one-way delay: 280.655 ms
Loss rate: 1.36%
-- Flow 1:
Average throughput: 5.97 Mbit/s
95th percentile per-packet one-way delay: 280.655 ms
Loss rate: 1.36%
```

Run 1: Report of TCP BBR — Data Link

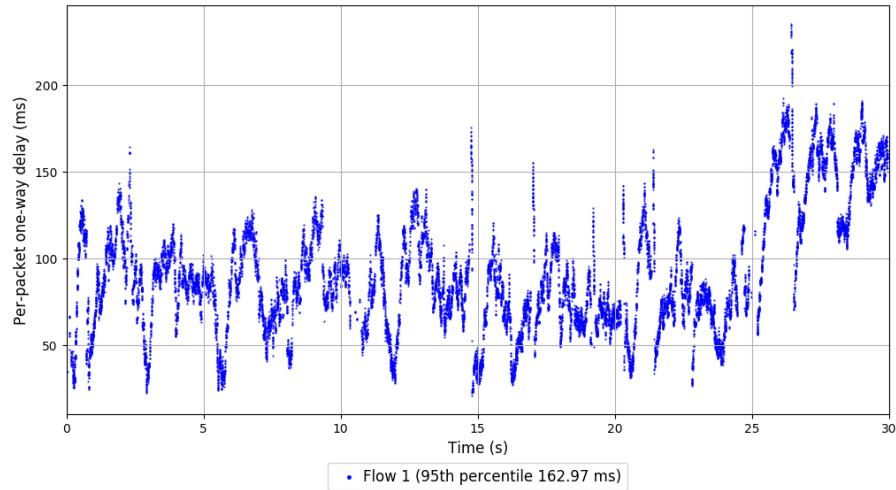
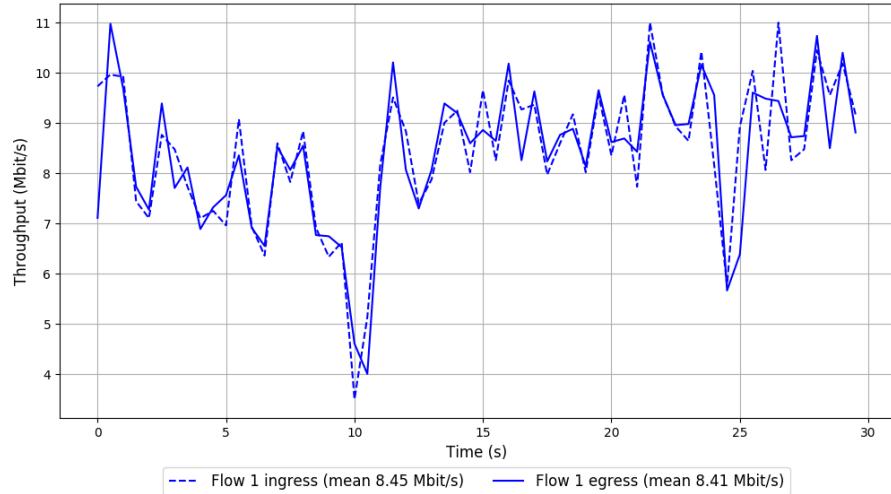


Run 2: Statistics of TCP BBR

```
Start at: 2017-09-17 21:54:44
End at: 2017-09-17 21:55:14
Local clock offset: -0.461 ms
Remote clock offset: -3.852 ms

# Below is generated by plot.py at 2017-09-17 23:11:45
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.41 Mbit/s
95th percentile per-packet one-way delay: 162.973 ms
Loss rate: 0.67%
-- Flow 1:
Average throughput: 8.41 Mbit/s
95th percentile per-packet one-way delay: 162.973 ms
Loss rate: 0.67%
```

Run 2: Report of TCP BBR — Data Link

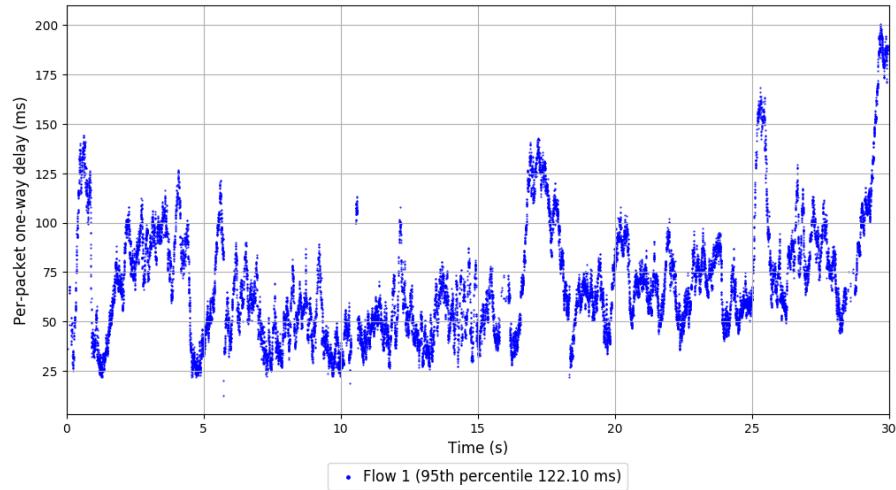
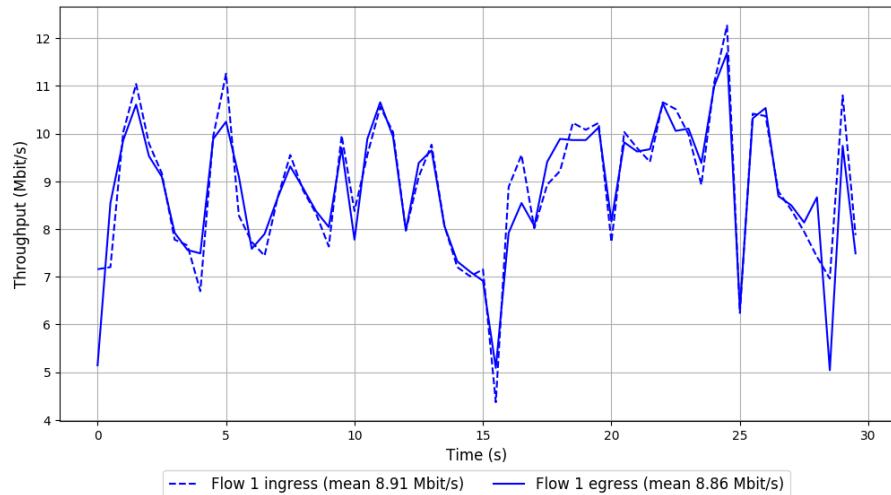


Run 3: Statistics of TCP BBR

```
Start at: 2017-09-17 22:12:21
End at: 2017-09-17 22:12:51
Local clock offset: -0.764 ms
Remote clock offset: -3.482 ms

# Below is generated by plot.py at 2017-09-17 23:11:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.86 Mbit/s
95th percentile per-packet one-way delay: 122.099 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 8.86 Mbit/s
95th percentile per-packet one-way delay: 122.099 ms
Loss rate: 0.65%
```

Run 3: Report of TCP BBR — Data Link

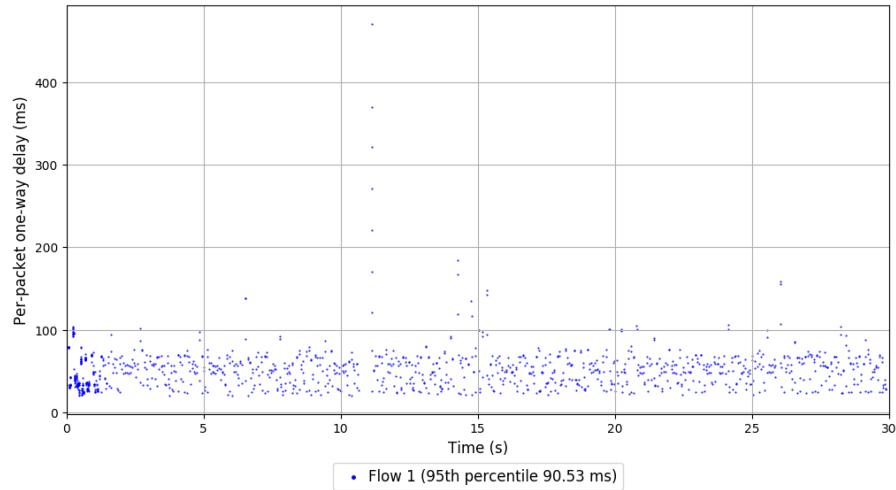
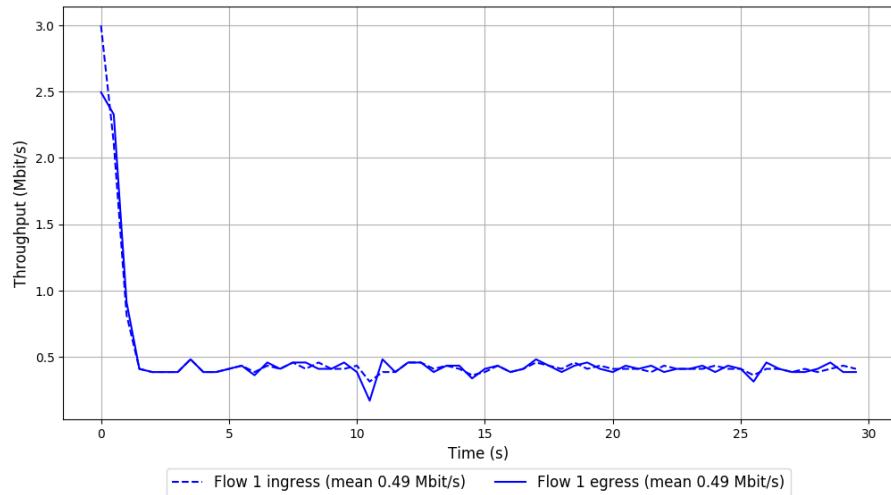


```
Run 1: Statistics of CalibratedKoho
```

```
Start at: 2017-09-17 21:26:33
End at: 2017-09-17 21:27:03
Local clock offset: -0.142 ms
Remote clock offset: -3.801 ms

# Below is generated by plot.py at 2017-09-17 23:11:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.49 Mbit/s
95th percentile per-packet one-way delay: 90.525 ms
Loss rate: 0.90%
-- Flow 1:
Average throughput: 0.49 Mbit/s
95th percentile per-packet one-way delay: 90.525 ms
Loss rate: 0.90%
```

Run 1: Report of CalibratedKoho — Data Link

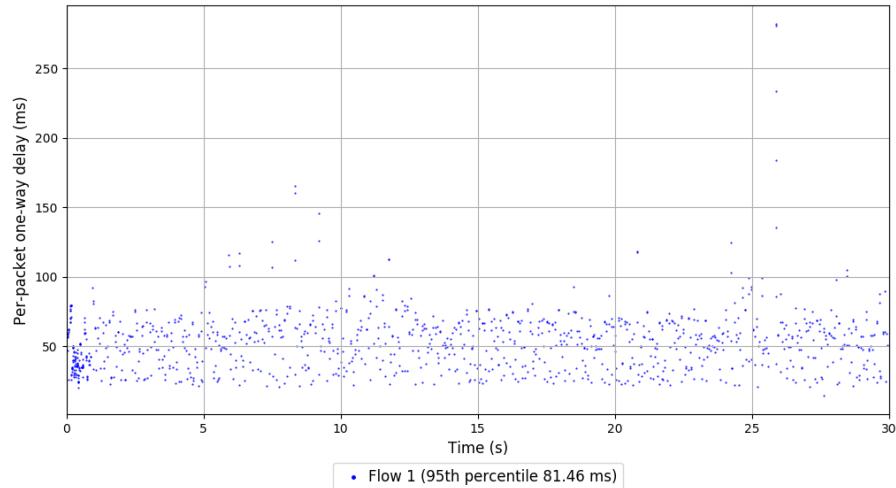
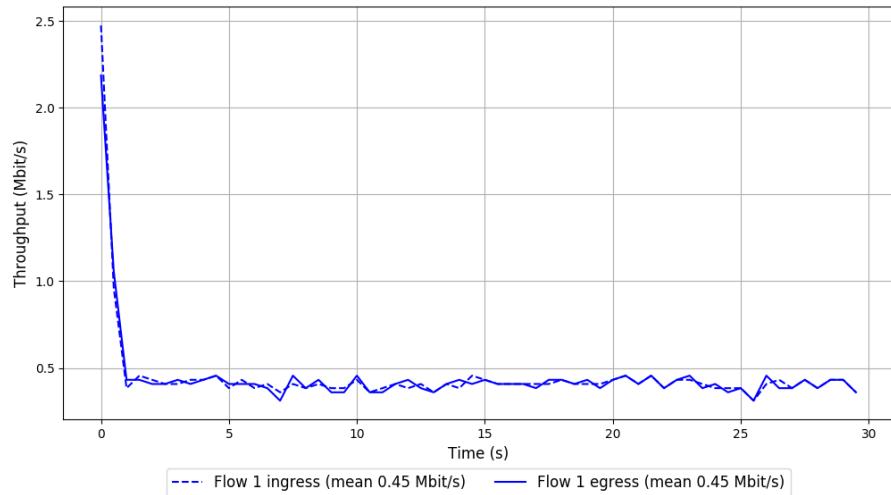


Run 2: Statistics of CalibratedKoho

```
Start at: 2017-09-17 21:44:09
End at: 2017-09-17 21:44:40
Local clock offset: -0.831 ms
Remote clock offset: -3.863 ms

# Below is generated by plot.py at 2017-09-17 23:11:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 81.457 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 81.457 ms
Loss rate: 0.71%
```

Run 2: Report of CalibratedKoho — Data Link

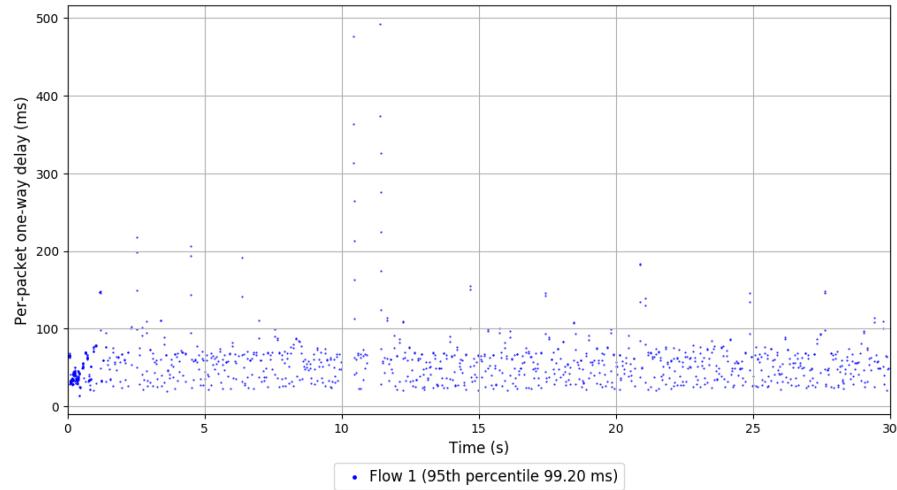
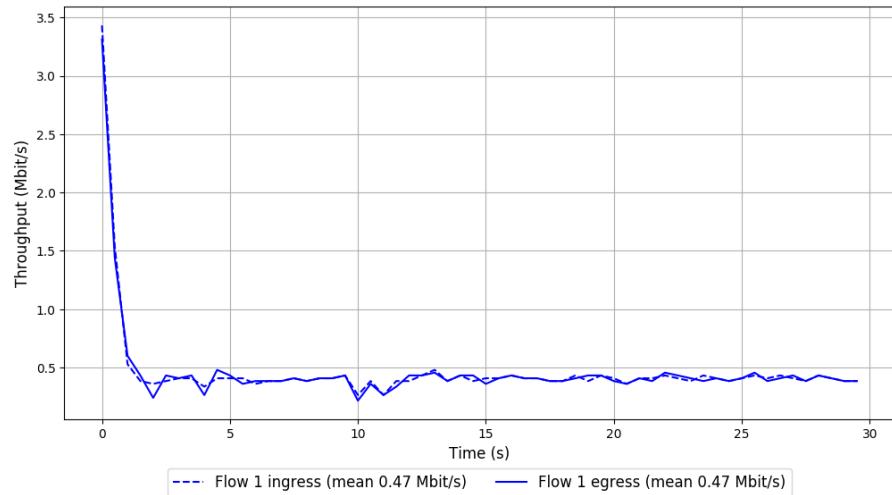


```
Run 3: Statistics of CalibratedKoho
```

```
Start at: 2017-09-17 22:01:47
End at: 2017-09-17 22:02:17
Local clock offset: -0.173 ms
Remote clock offset: -3.543 ms

# Below is generated by plot.py at 2017-09-17 23:11:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.47 Mbit/s
95th percentile per-packet one-way delay: 99.204 ms
Loss rate: 0.85%
-- Flow 1:
Average throughput: 0.47 Mbit/s
95th percentile per-packet one-way delay: 99.204 ms
Loss rate: 0.85%
```

Run 3: Report of CalibratedKoho — Data Link

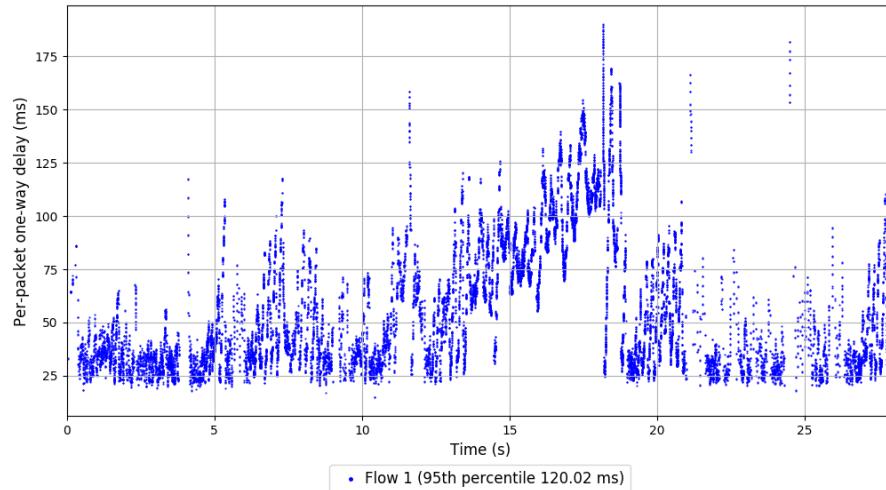
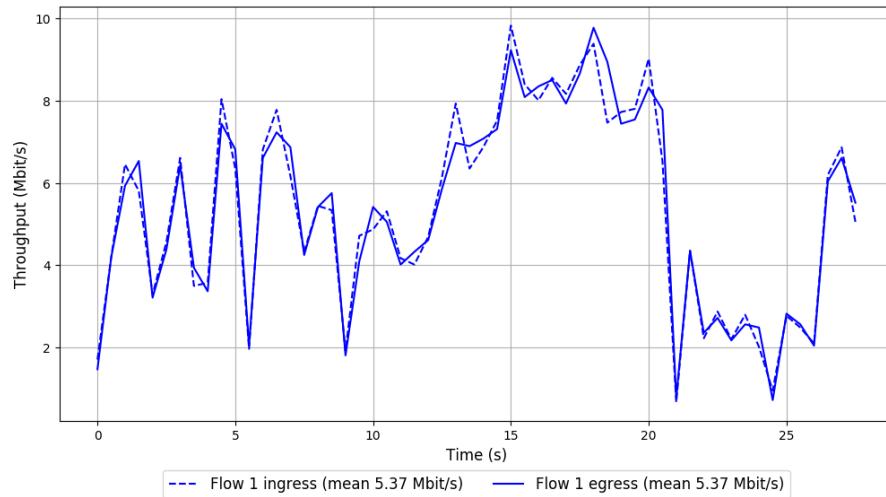


```
Run 1: Statistics of Copa
```

```
Start at: 2017-09-17 21:39:27
End at: 2017-09-17 21:39:57
Local clock offset: -0.47 ms
Remote clock offset: -3.846 ms

# Below is generated by plot.py at 2017-09-17 23:11:47
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.37 Mbit/s
95th percentile per-packet one-way delay: 120.015 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 5.37 Mbit/s
95th percentile per-packet one-way delay: 120.015 ms
Loss rate: 0.04%
```

Run 1: Report of Copa — Data Link

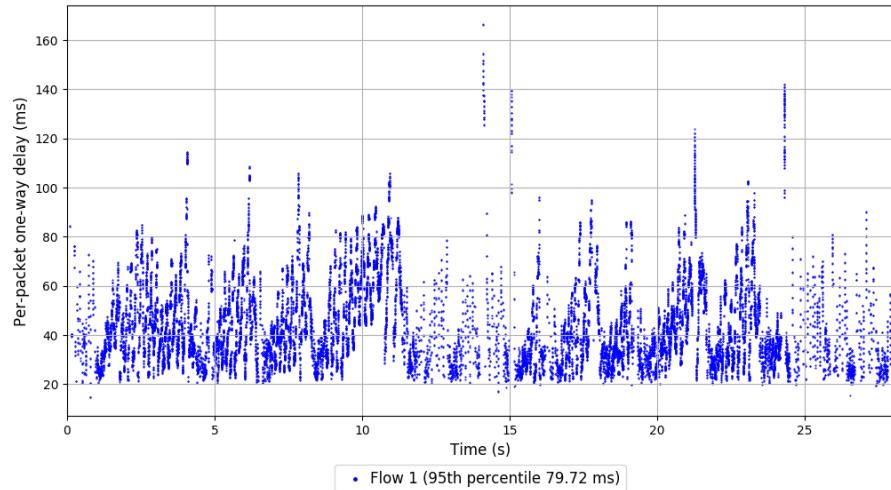
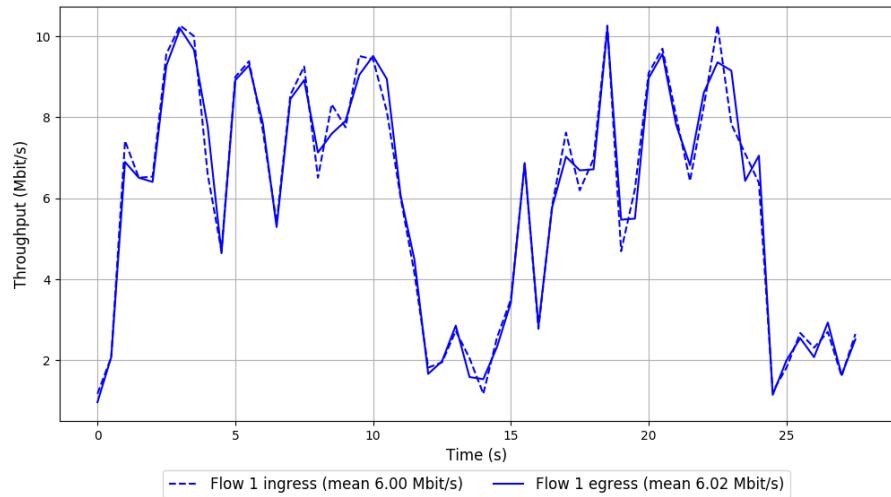


Run 2: Statistics of Copa

```
Start at: 2017-09-17 21:57:05
End at: 2017-09-17 21:57:35
Local clock offset: -0.273 ms
Remote clock offset: -3.814 ms

# Below is generated by plot.py at 2017-09-17 23:11:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.02 Mbit/s
95th percentile per-packet one-way delay: 79.717 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 6.02 Mbit/s
95th percentile per-packet one-way delay: 79.717 ms
Loss rate: 0.09%
```

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

Start at: 2017-09-17 22:14:42
End at: 2017-09-17 22:15:12
Local clock offset: -0.947 ms
Remote clock offset: -3.486 ms

Run 3: Report of Copa — Data Link

Figure is missing

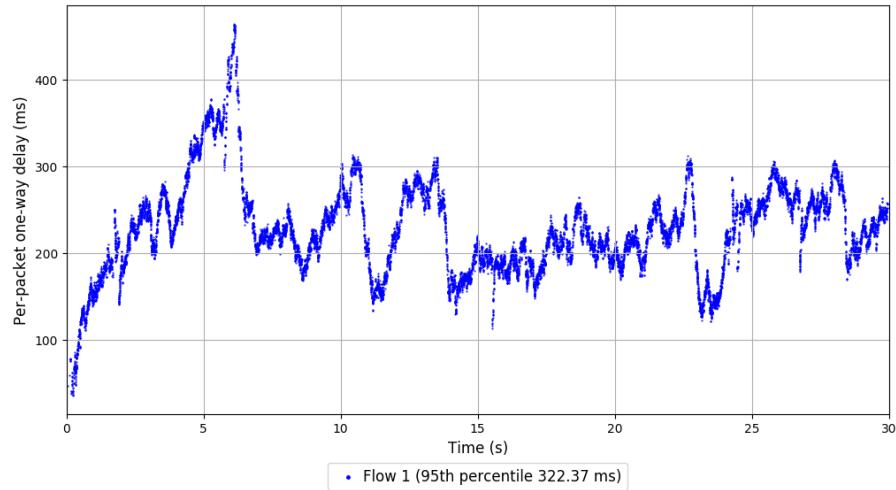
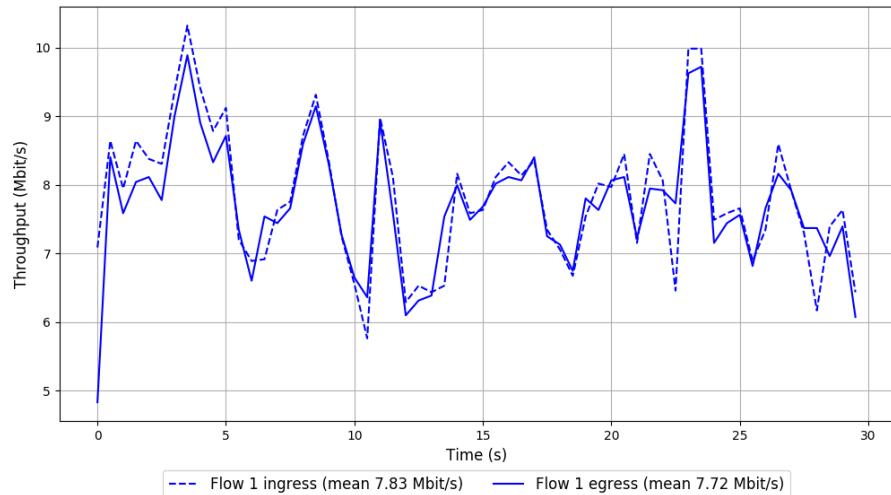
Figure is missing

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

```
Start at: 2017-09-17 21:25:22
End at: 2017-09-17 21:25:52
Local clock offset: -0.033 ms
Remote clock offset: -3.845 ms

# Below is generated by plot.py at 2017-09-17 23:11:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.72 Mbit/s
95th percentile per-packet one-way delay: 322.372 ms
Loss rate: 1.53%
-- Flow 1:
Average throughput: 7.72 Mbit/s
95th percentile per-packet one-way delay: 322.372 ms
Loss rate: 1.53%
```

Run 1: Report of TCP Cubic — Data Link

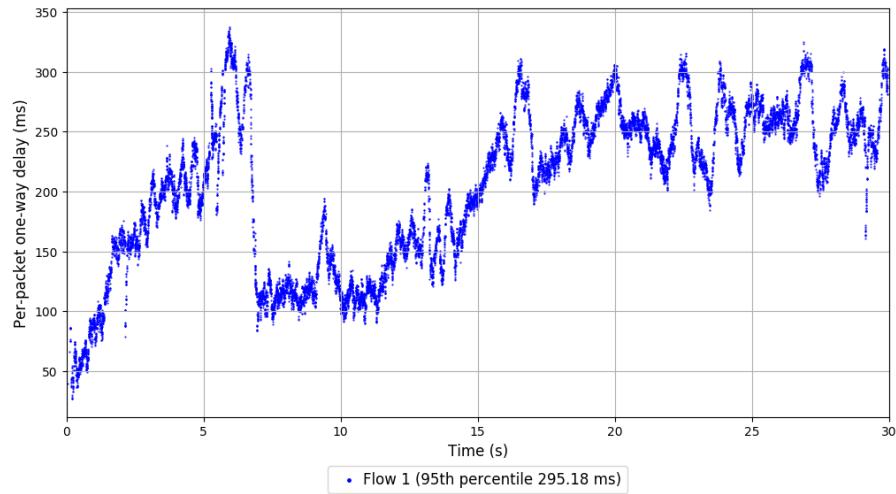
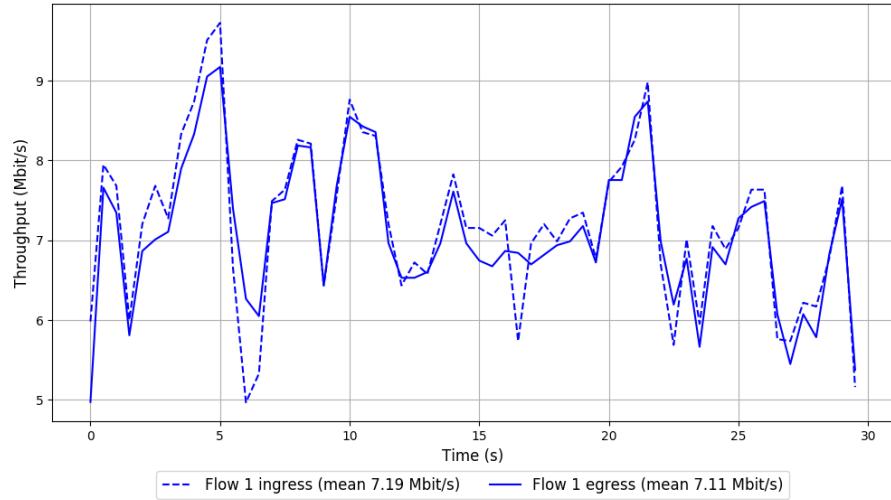


Run 2: Statistics of TCP Cubic

```
Start at: 2017-09-17 21:42:59
End at: 2017-09-17 21:43:29
Local clock offset: -0.641 ms
Remote clock offset: -3.824 ms

# Below is generated by plot.py at 2017-09-17 23:11:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.11 Mbit/s
95th percentile per-packet one-way delay: 295.176 ms
Loss rate: 1.28%
-- Flow 1:
Average throughput: 7.11 Mbit/s
95th percentile per-packet one-way delay: 295.176 ms
Loss rate: 1.28%
```

Run 2: Report of TCP Cubic — Data Link

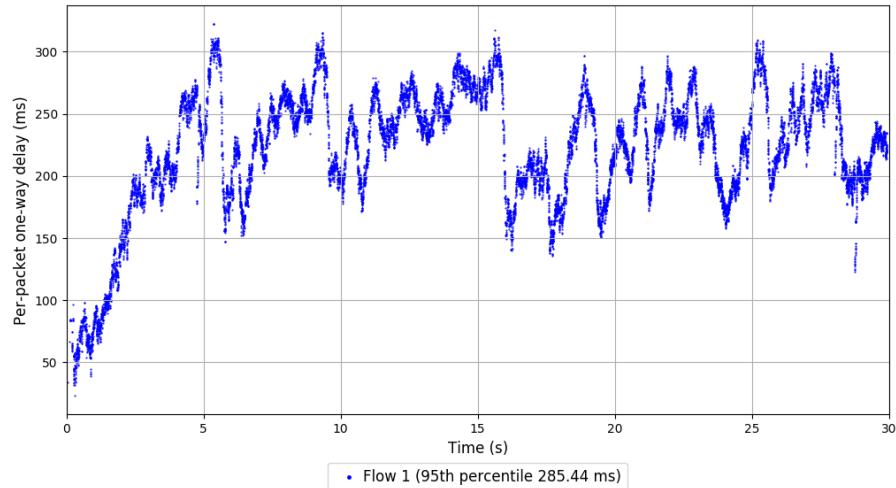
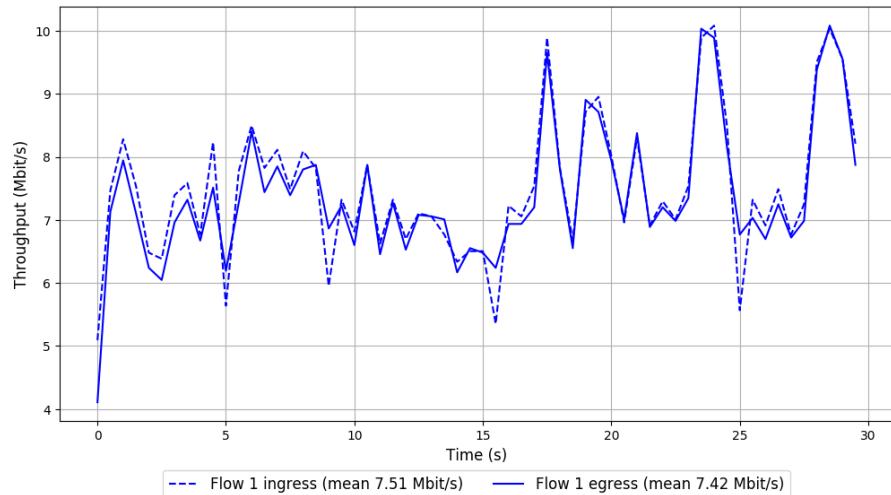


Run 3: Statistics of TCP Cubic

```
Start at: 2017-09-17 22:00:37
End at: 2017-09-17 22:01:07
Local clock offset: -0.277 ms
Remote clock offset: -3.683 ms

# Below is generated by plot.py at 2017-09-17 23:11:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.42 Mbit/s
95th percentile per-packet one-way delay: 285.438 ms
Loss rate: 1.37%
-- Flow 1:
Average throughput: 7.42 Mbit/s
95th percentile per-packet one-way delay: 285.438 ms
Loss rate: 1.37%
```

Run 3: Report of TCP Cubic — Data Link

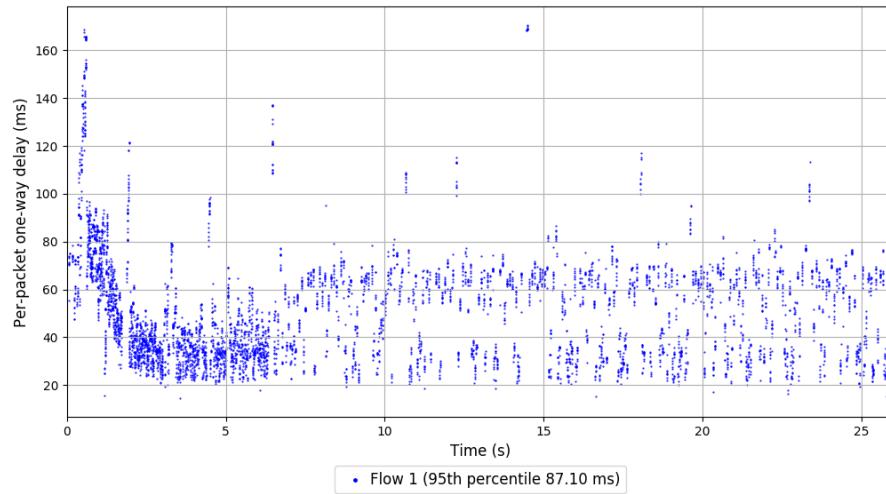
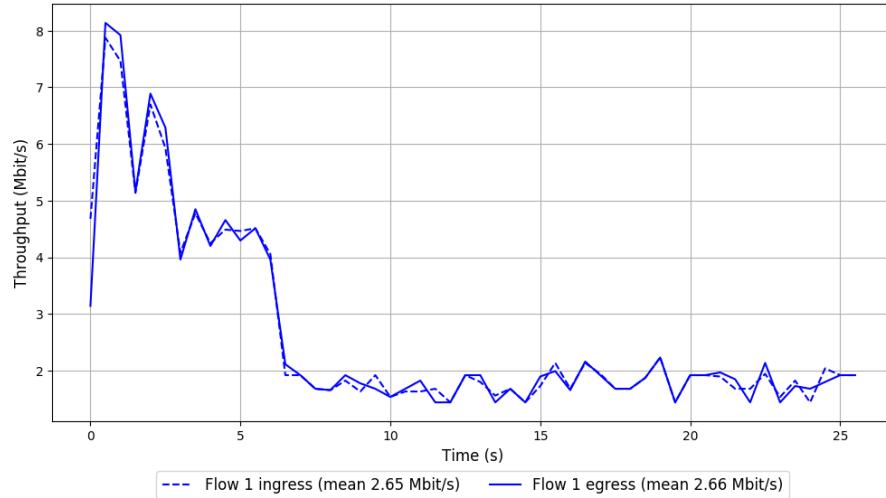


Run 1: Statistics of Indigo

```
Start at: 2017-09-17 21:32:25
End at: 2017-09-17 21:32:55
Local clock offset: -0.456 ms
Remote clock offset: -3.778 ms

# Below is generated by plot.py at 2017-09-17 23:11:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.66 Mbit/s
95th percentile per-packet one-way delay: 87.102 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 2.66 Mbit/s
95th percentile per-packet one-way delay: 87.102 ms
Loss rate: 0.17%
```

Run 1: Report of Indigo — Data Link

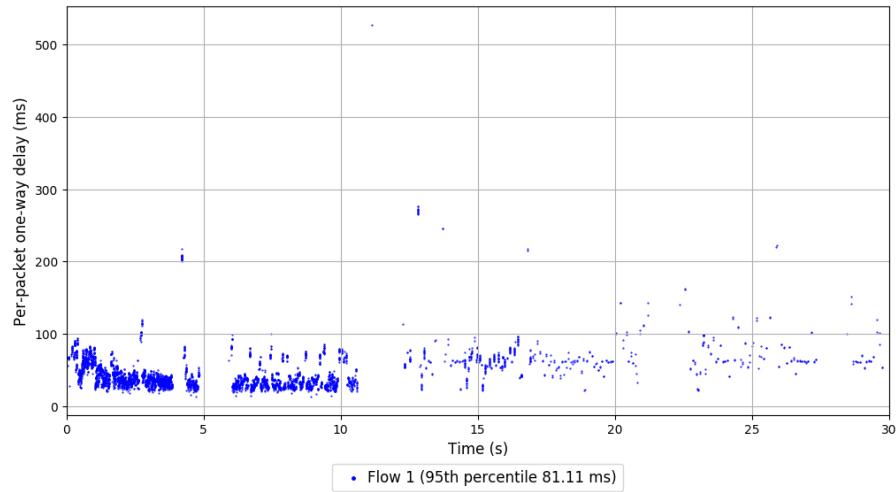
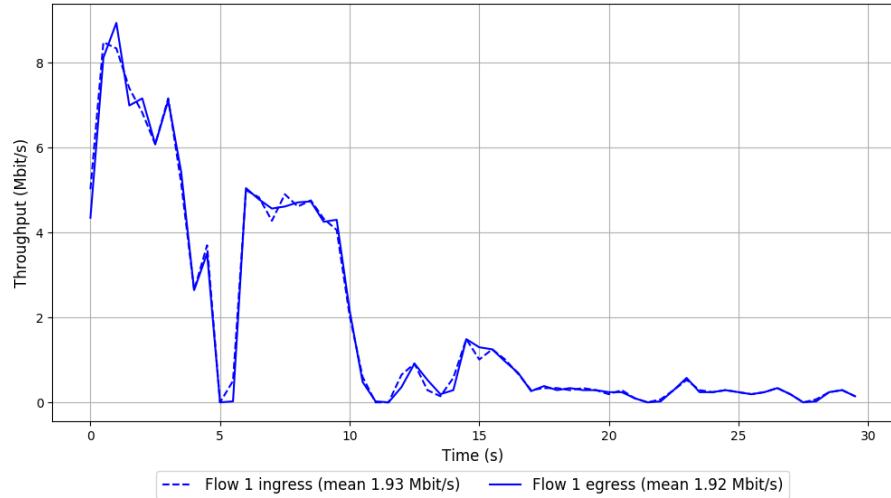


Run 2: Statistics of Indigo

```
Start at: 2017-09-17 21:50:02
End at: 2017-09-17 21:50:32
Local clock offset: -0.64 ms
Remote clock offset: -3.86 ms

# Below is generated by plot.py at 2017-09-17 23:11:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.92 Mbit/s
95th percentile per-packet one-way delay: 81.108 ms
Loss rate: 0.73%
-- Flow 1:
Average throughput: 1.92 Mbit/s
95th percentile per-packet one-way delay: 81.108 ms
Loss rate: 0.73%
```

Run 2: Report of Indigo — Data Link

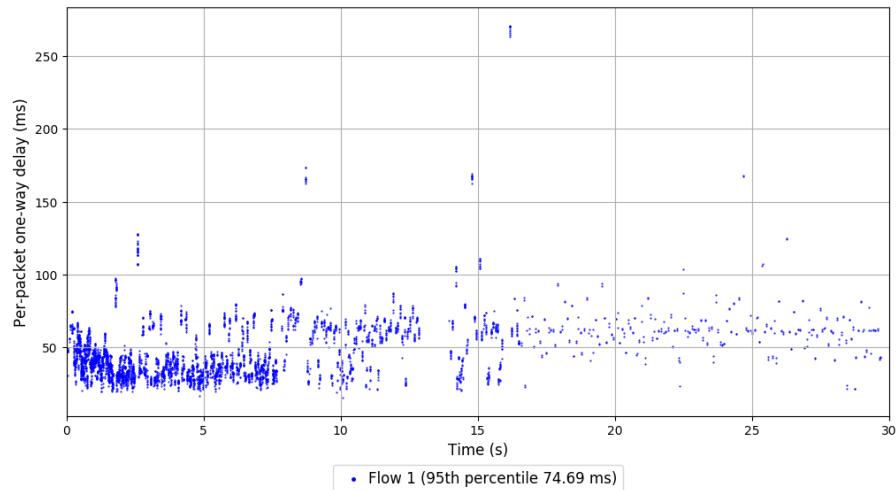
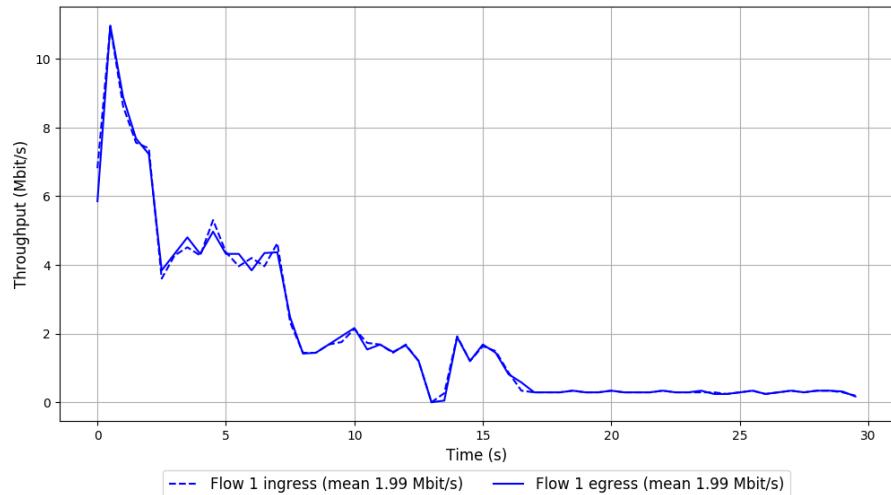


Run 3: Statistics of Indigo

```
Start at: 2017-09-17 22:07:39
End at: 2017-09-17 22:08:09
Local clock offset: -0.479 ms
Remote clock offset: -3.374 ms

# Below is generated by plot.py at 2017-09-17 23:11:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.99 Mbit/s
95th percentile per-packet one-way delay: 74.694 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 1.99 Mbit/s
95th percentile per-packet one-way delay: 74.694 ms
Loss rate: 0.24%
```

Run 3: Report of Indigo — Data Link

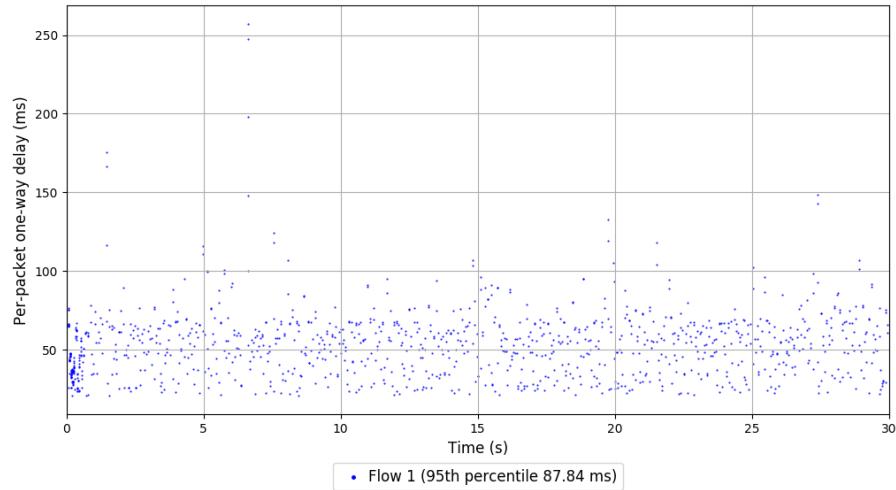
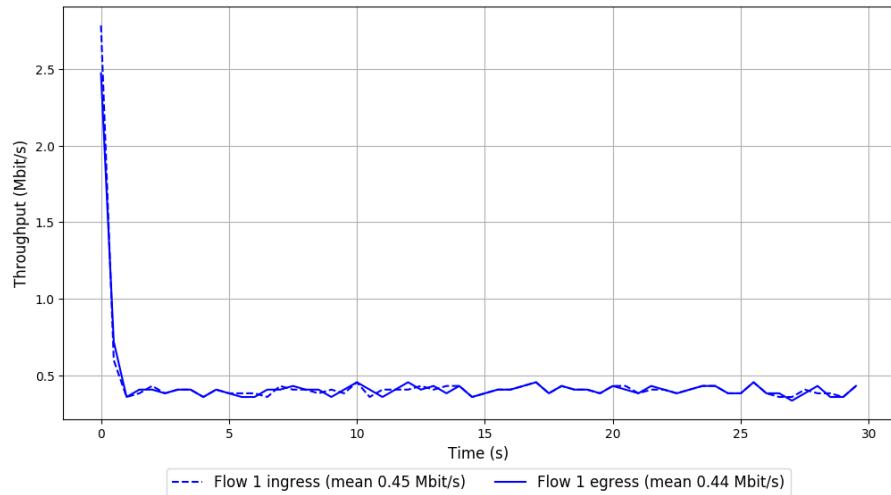


```
Run 1: Statistics of KohoCC

Start at: 2017-09-17 21:27:43
End at: 2017-09-17 21:28:13
Local clock offset: -0.389 ms
Remote clock offset: -3.806 ms

# Below is generated by plot.py at 2017-09-17 23:11:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 87.842 ms
Loss rate: 0.72%
-- Flow 1:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 87.842 ms
Loss rate: 0.72%
```

Run 1: Report of KohoCC — Data Link

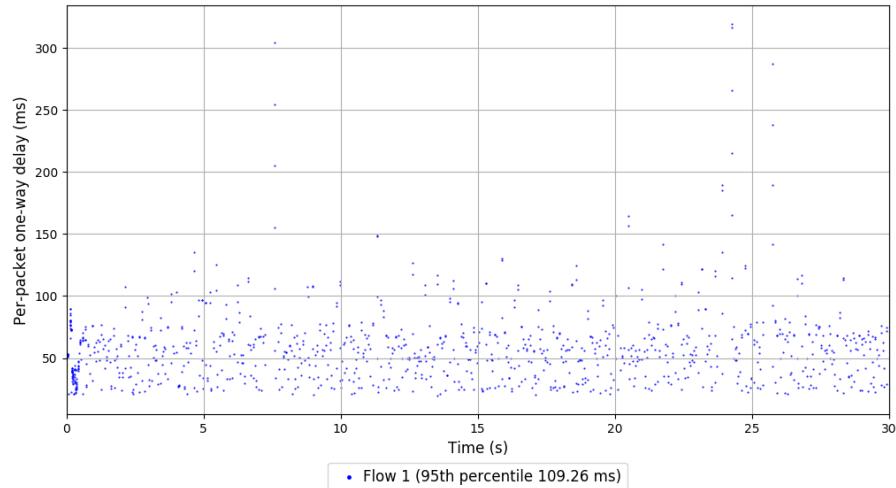
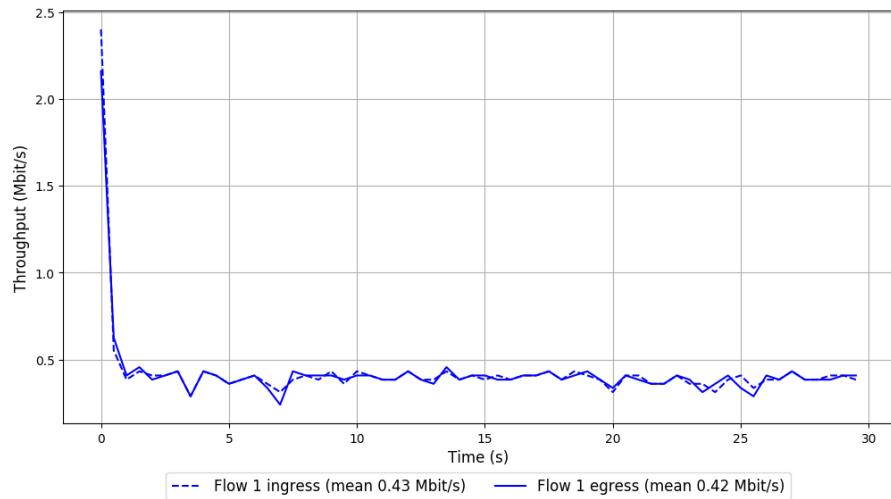


Run 2: Statistics of KohoCC

```
Start at: 2017-09-17 21:45:20
End at: 2017-09-17 21:45:50
Local clock offset: -0.833 ms
Remote clock offset: -3.866 ms

# Below is generated by plot.py at 2017-09-17 23:11:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 109.261 ms
Loss rate: 0.94%
-- Flow 1:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 109.261 ms
Loss rate: 0.94%
```

Run 2: Report of KohoCC — Data Link

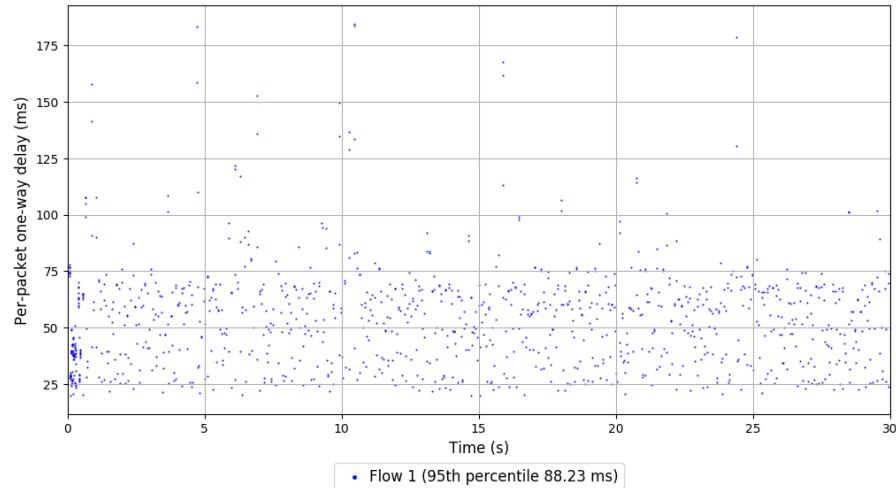
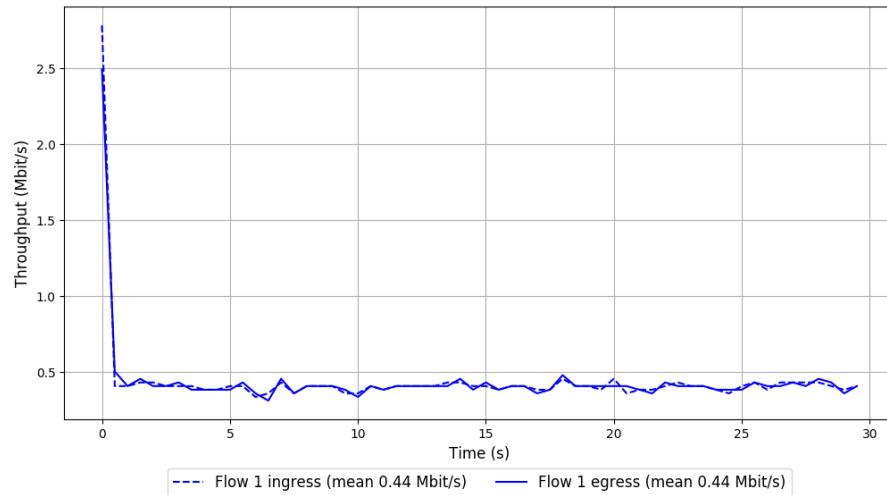


Run 3: Statistics of KohoCC

```
Start at: 2017-09-17 22:02:58
End at: 2017-09-17 22:03:28
Local clock offset: -0.292 ms
Remote clock offset: -3.578 ms

# Below is generated by plot.py at 2017-09-17 23:11:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 88.230 ms
Loss rate: 0.72%
-- Flow 1:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 88.230 ms
Loss rate: 0.72%
```

Run 3: Report of KohoCC — Data Link

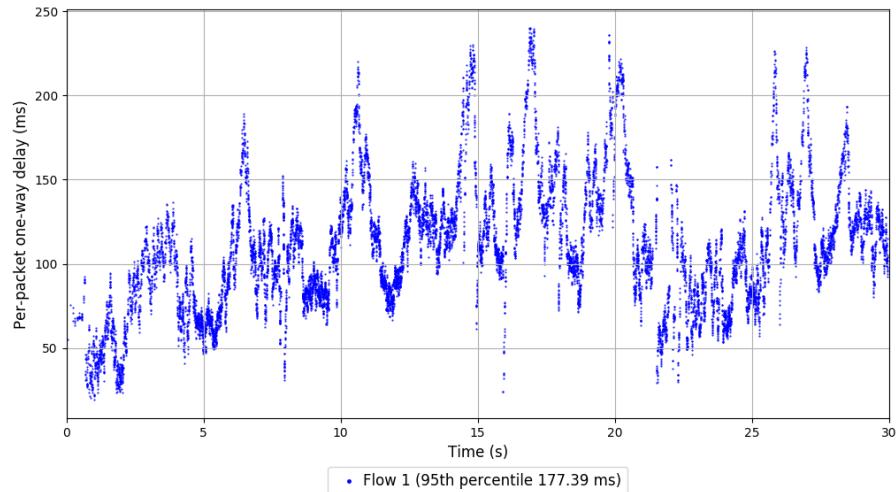
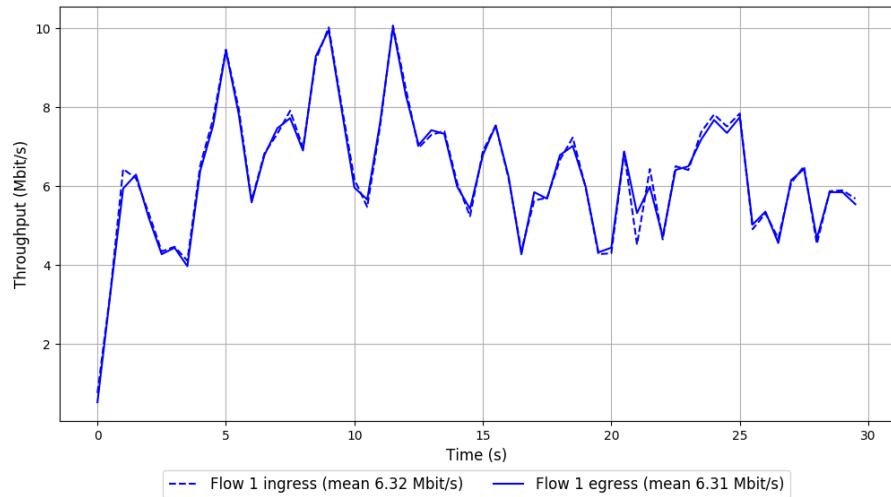


```
Run 1: Statistics of LEDBAT

Start at: 2017-09-17 21:30:04
End at: 2017-09-17 21:30:34
Local clock offset: -0.283 ms
Remote clock offset: -3.75 ms

# Below is generated by plot.py at 2017-09-17 23:11:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.31 Mbit/s
95th percentile per-packet one-way delay: 177.387 ms
Loss rate: 0.45%
-- Flow 1:
Average throughput: 6.31 Mbit/s
95th percentile per-packet one-way delay: 177.387 ms
Loss rate: 0.45%
```

Run 1: Report of LEDBAT — Data Link

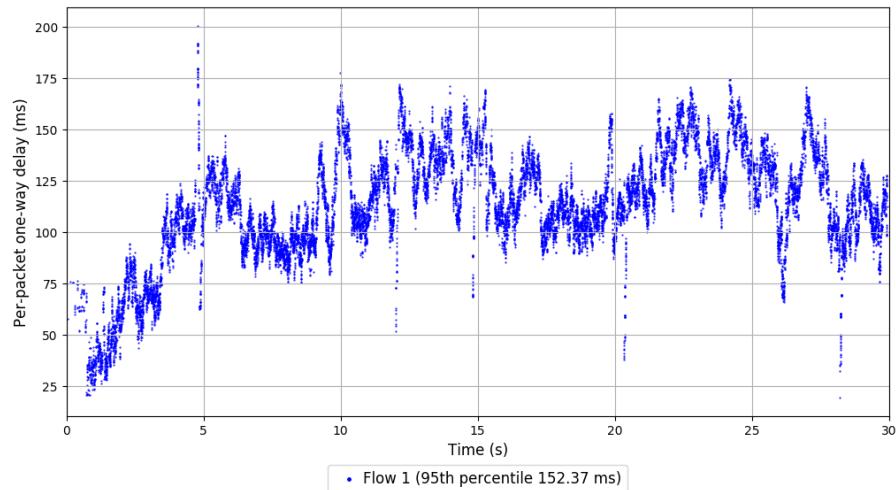
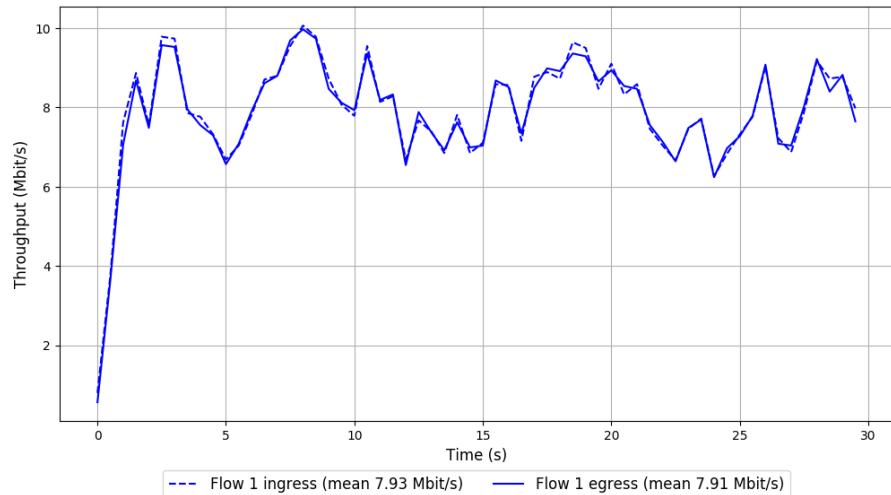


Run 2: Statistics of LEDBAT

```
Start at: 2017-09-17 21:47:40
End at: 2017-09-17 21:48:10
Local clock offset: -0.814 ms
Remote clock offset: -3.753 ms

# Below is generated by plot.py at 2017-09-17 23:12:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.91 Mbit/s
95th percentile per-packet one-way delay: 152.365 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 7.91 Mbit/s
95th percentile per-packet one-way delay: 152.365 ms
Loss rate: 0.46%
```

Run 2: Report of LEDBAT — Data Link

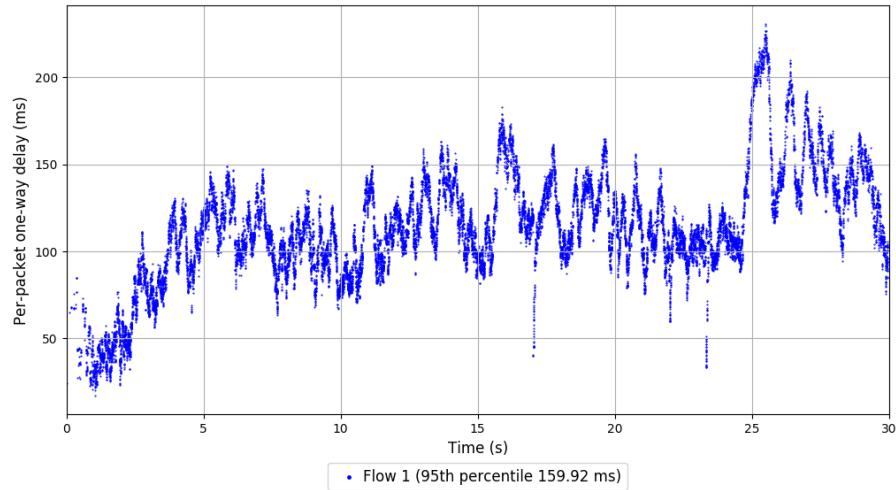
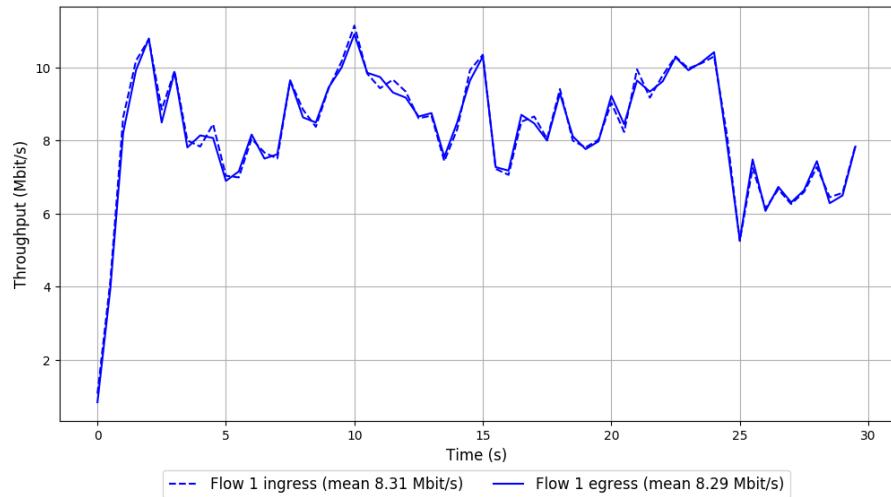


```
Run 3: Statistics of LEDBAT
```

```
Start at: 2017-09-17 22:05:18
End at: 2017-09-17 22:05:48
Local clock offset: -0.367 ms
Remote clock offset: -3.453 ms

# Below is generated by plot.py at 2017-09-17 23:12:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.29 Mbit/s
95th percentile per-packet one-way delay: 159.920 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 8.29 Mbit/s
95th percentile per-packet one-way delay: 159.920 ms
Loss rate: 0.40%
```

Run 3: Report of LEDBAT — Data Link

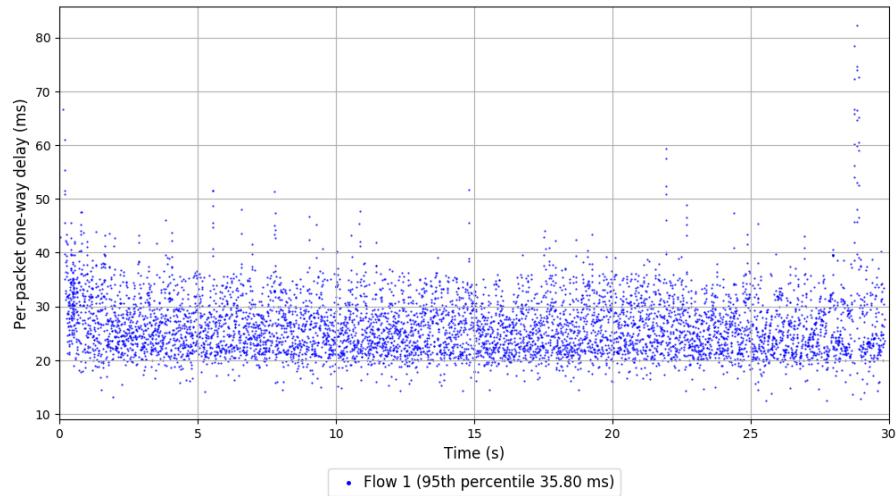
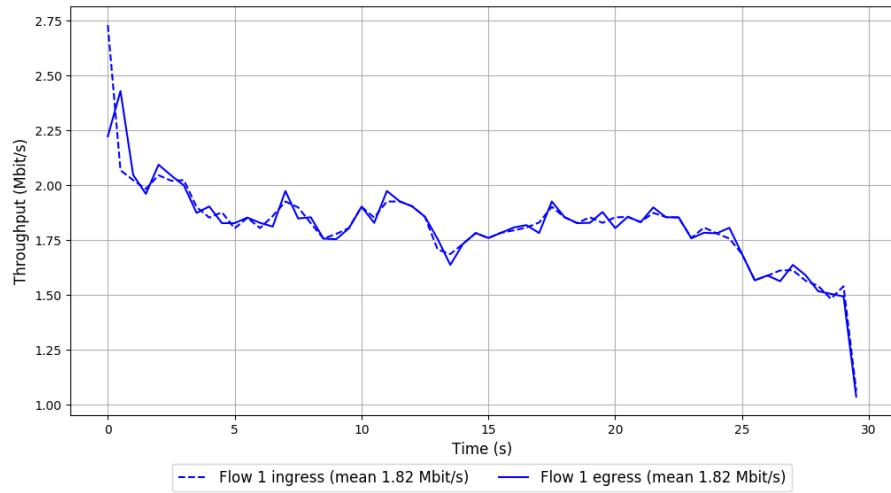


```
Run 1: Statistics of PCC
```

```
Start at: 2017-09-17 21:35:56
End at: 2017-09-17 21:36:26
Local clock offset: -0.381 ms
Remote clock offset: -3.768 ms

# Below is generated by plot.py at 2017-09-17 23:12:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.82 Mbit/s
95th percentile per-packet one-way delay: 35.801 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 1.82 Mbit/s
95th percentile per-packet one-way delay: 35.801 ms
Loss rate: 0.14%
```

Run 1: Report of PCC — Data Link

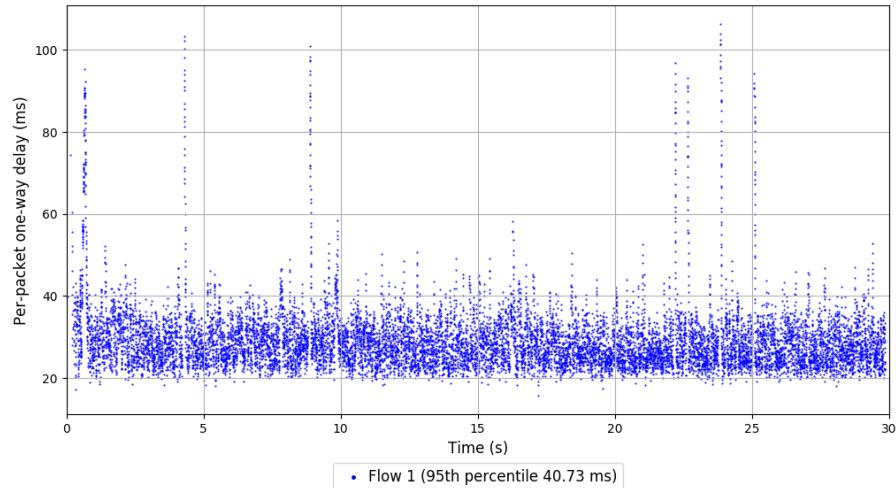
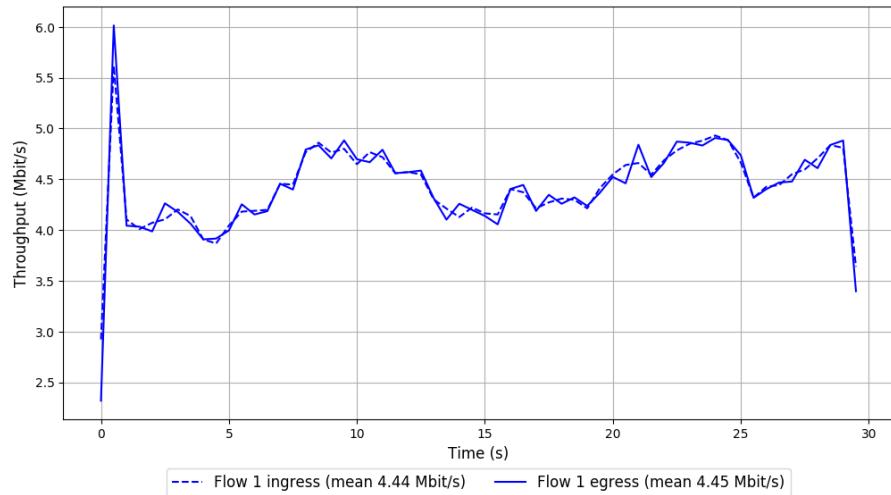


Run 2: Statistics of PCC

```
Start at: 2017-09-17 21:53:34
End at: 2017-09-17 21:54:04
Local clock offset: -0.588 ms
Remote clock offset: -3.759 ms

# Below is generated by plot.py at 2017-09-17 23:12:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.45 Mbit/s
95th percentile per-packet one-way delay: 40.726 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 4.45 Mbit/s
95th percentile per-packet one-way delay: 40.726 ms
Loss rate: 0.17%
```

Run 2: Report of PCC — Data Link

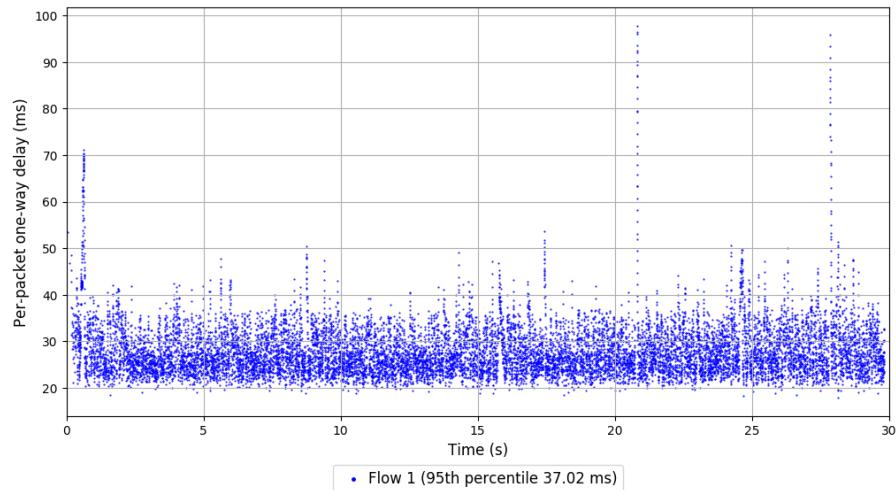
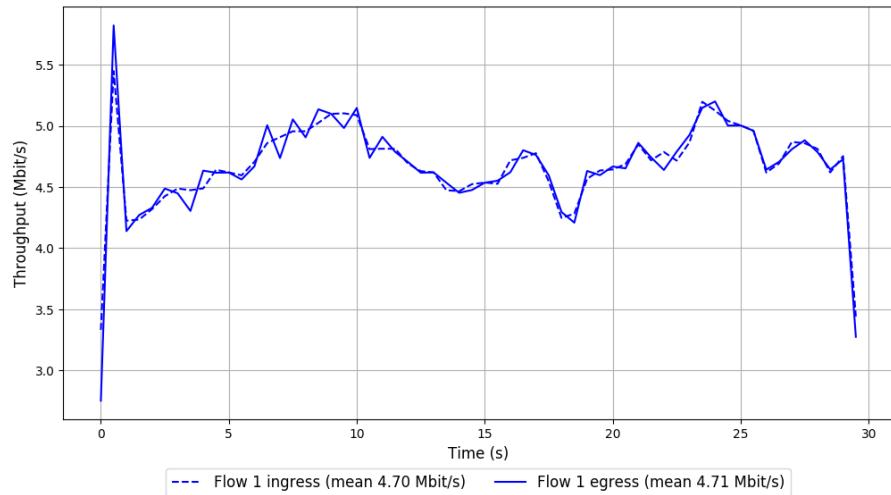


Run 3: Statistics of PCC

```
Start at: 2017-09-17 22:11:11
End at: 2017-09-17 22:11:41
Local clock offset: -0.581 ms
Remote clock offset: -3.49 ms

# Below is generated by plot.py at 2017-09-17 23:12:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.71 Mbit/s
95th percentile per-packet one-way delay: 37.019 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 4.71 Mbit/s
95th percentile per-packet one-way delay: 37.019 ms
Loss rate: 0.15%
```

Run 3: Report of PCC — Data Link

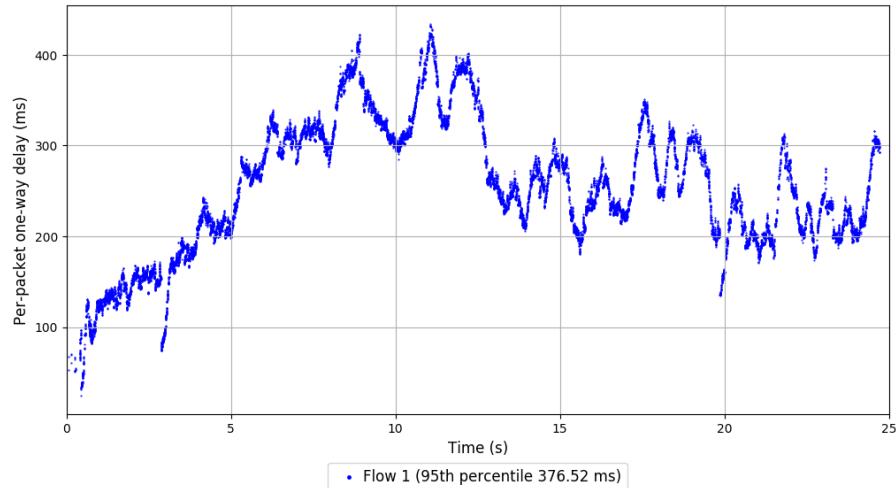
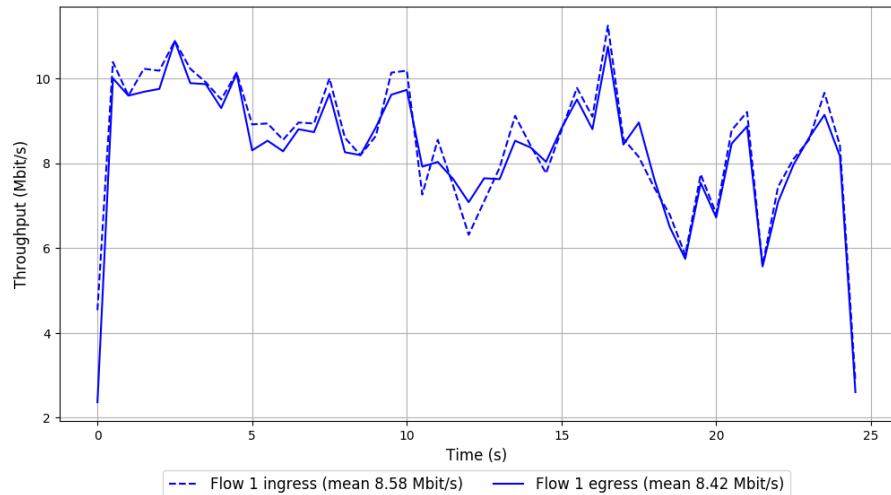


```
Run 1: Statistics of QUIC Cubic
```

```
Start at: 2017-09-17 21:33:35
End at: 2017-09-17 21:34:05
Local clock offset: -0.421 ms
Remote clock offset: -3.876 ms

# Below is generated by plot.py at 2017-09-17 23:12:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.42 Mbit/s
95th percentile per-packet one-way delay: 376.521 ms
Loss rate: 2.18%
-- Flow 1:
Average throughput: 8.42 Mbit/s
95th percentile per-packet one-way delay: 376.521 ms
Loss rate: 2.18%
```

Run 1: Report of QUIC Cubic — Data Link

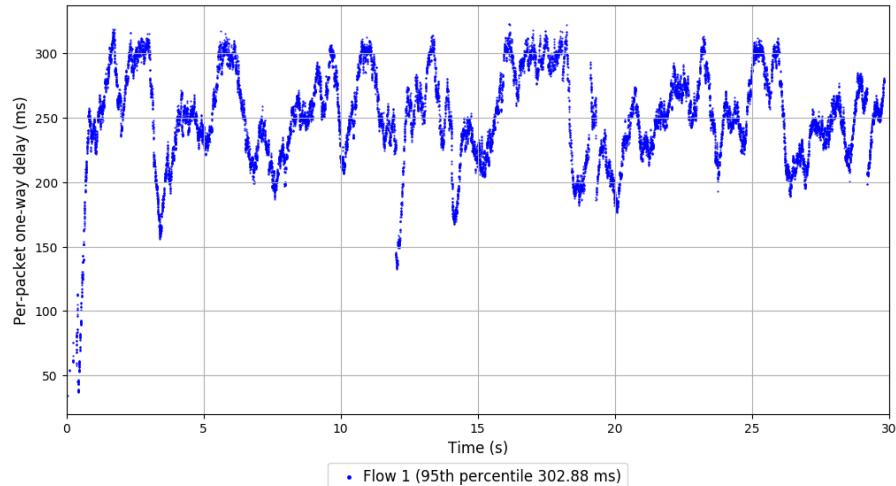
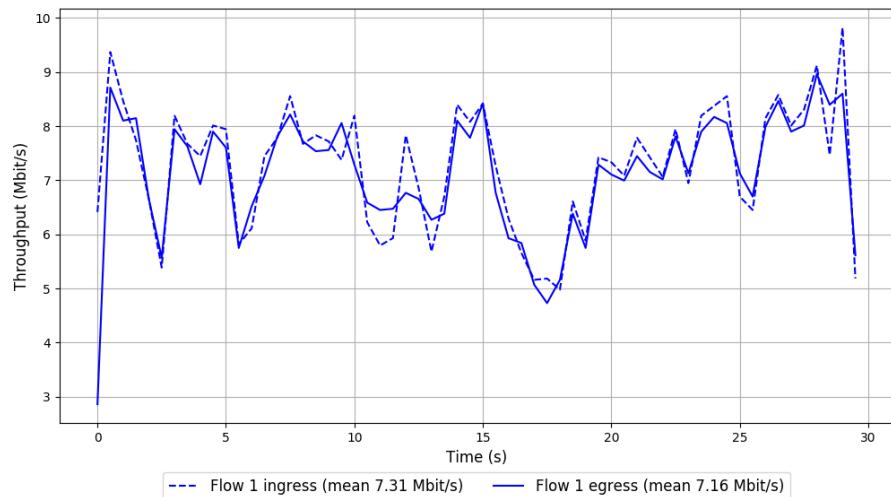


Run 2: Statistics of QUIC Cubic

```
Start at: 2017-09-17 21:51:12
End at: 2017-09-17 21:51:42
Local clock offset: -0.57 ms
Remote clock offset: -3.843 ms

# Below is generated by plot.py at 2017-09-17 23:12:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.16 Mbit/s
95th percentile per-packet one-way delay: 302.881 ms
Loss rate: 2.23%
-- Flow 1:
Average throughput: 7.16 Mbit/s
95th percentile per-packet one-way delay: 302.881 ms
Loss rate: 2.23%
```

Run 2: Report of QUIC Cubic — Data Link

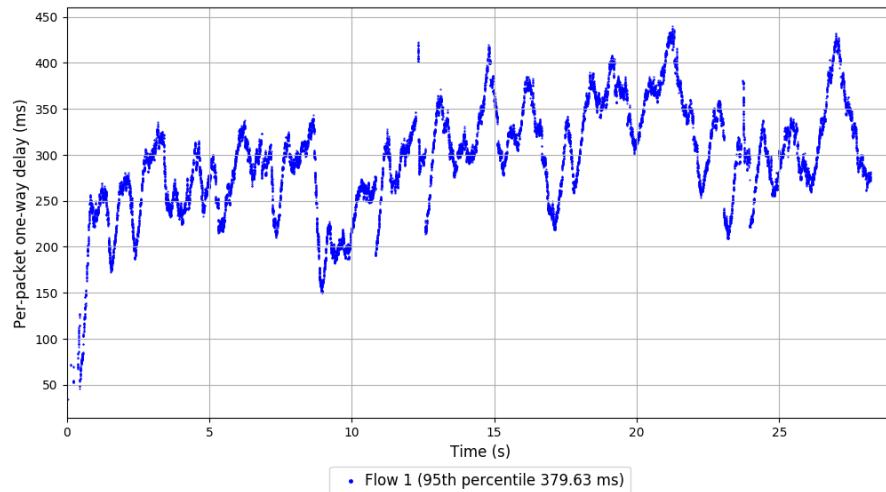
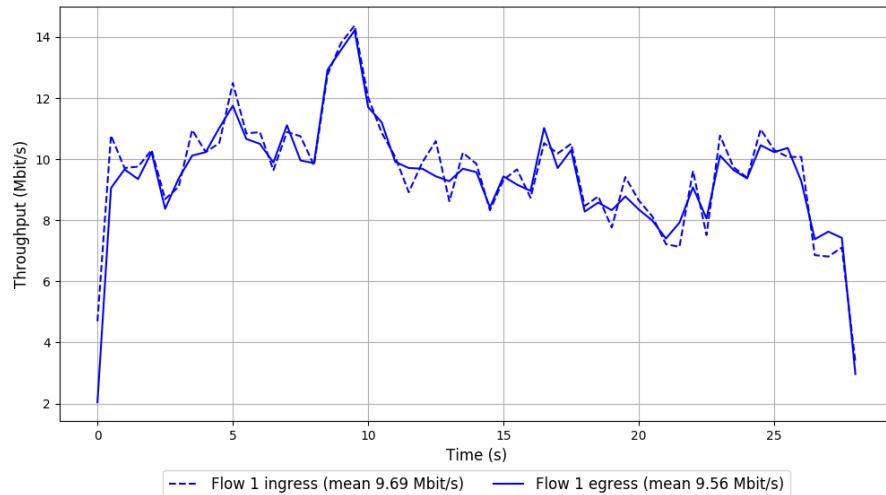


Run 3: Statistics of QUIC Cubic

```
Start at: 2017-09-17 22:08:50
End at: 2017-09-17 22:09:20
Local clock offset: -0.441 ms
Remote clock offset: -3.439 ms

# Below is generated by plot.py at 2017-09-17 23:12:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.56 Mbit/s
95th percentile per-packet one-way delay: 379.632 ms
Loss rate: 1.58%
-- Flow 1:
Average throughput: 9.56 Mbit/s
95th percentile per-packet one-way delay: 379.632 ms
Loss rate: 1.58%
```

Run 3: Report of QUIC Cubic — Data Link

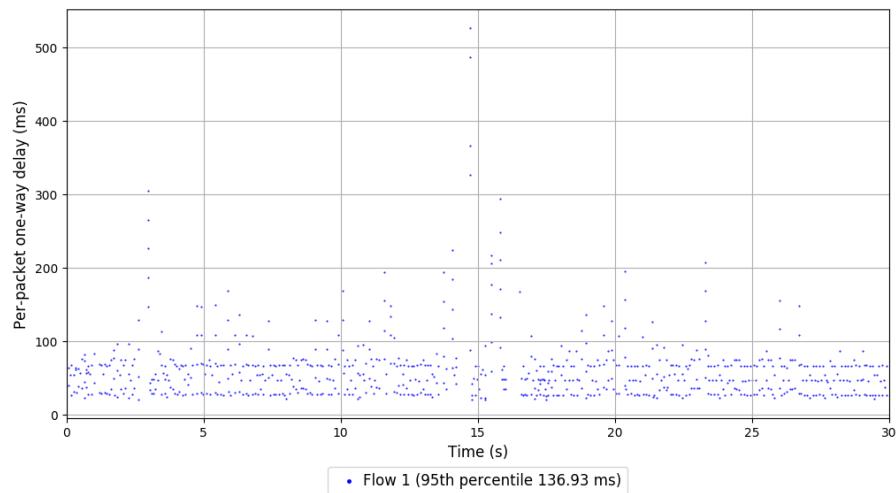
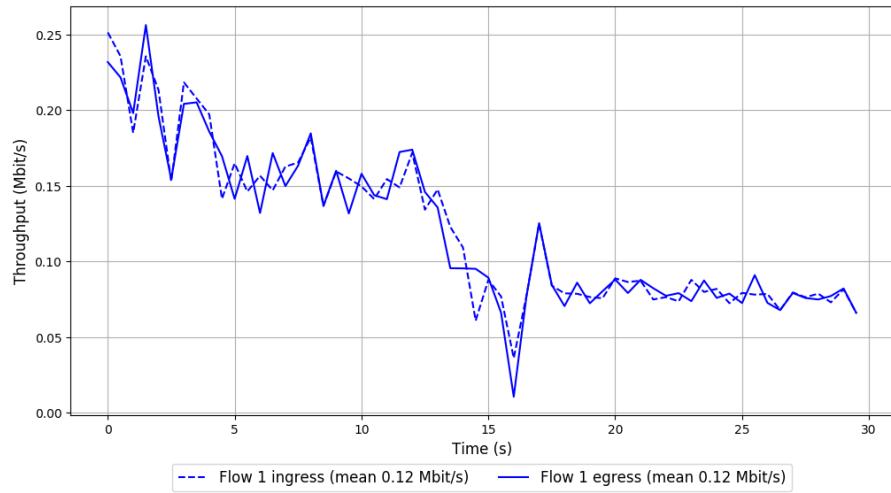


```
Run 1: Statistics of SCReAM

Start at: 2017-09-17 21:38:17
End at: 2017-09-17 21:38:47
Local clock offset: -0.329 ms
Remote clock offset: -3.809 ms

# Below is generated by plot.py at 2017-09-17 23:12:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.12 Mbit/s
95th percentile per-packet one-way delay: 136.932 ms
Loss rate: 0.95%
-- Flow 1:
Average throughput: 0.12 Mbit/s
95th percentile per-packet one-way delay: 136.932 ms
Loss rate: 0.95%
```

Run 1: Report of SCReAM — Data Link

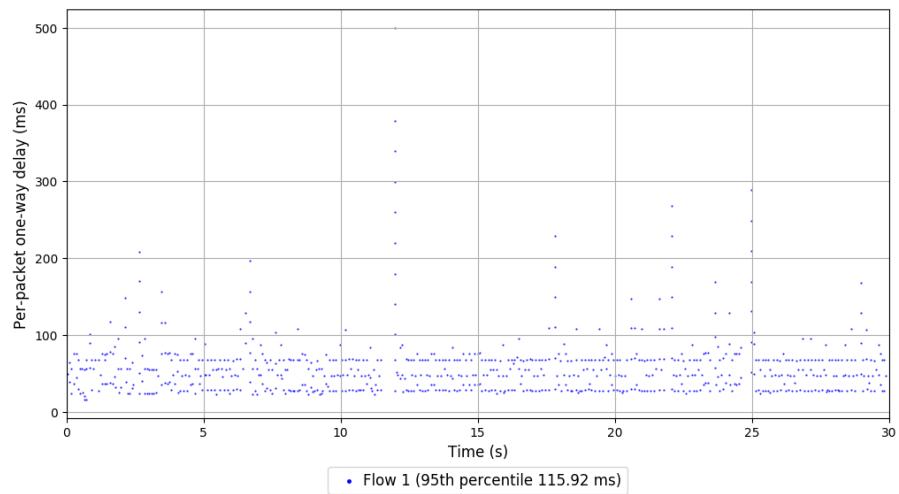
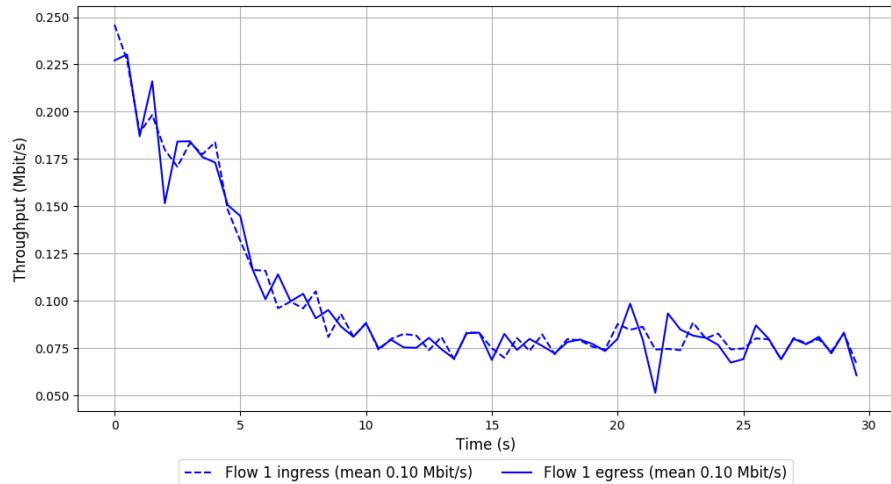


Run 2: Statistics of SCReAM

```
Start at: 2017-09-17 21:55:55
End at: 2017-09-17 21:56:25
Local clock offset: -0.34 ms
Remote clock offset: -3.805 ms

# Below is generated by plot.py at 2017-09-17 23:12:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 115.919 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 115.919 ms
Loss rate: 0.63%
```

Run 2: Report of SCReAM — Data Link

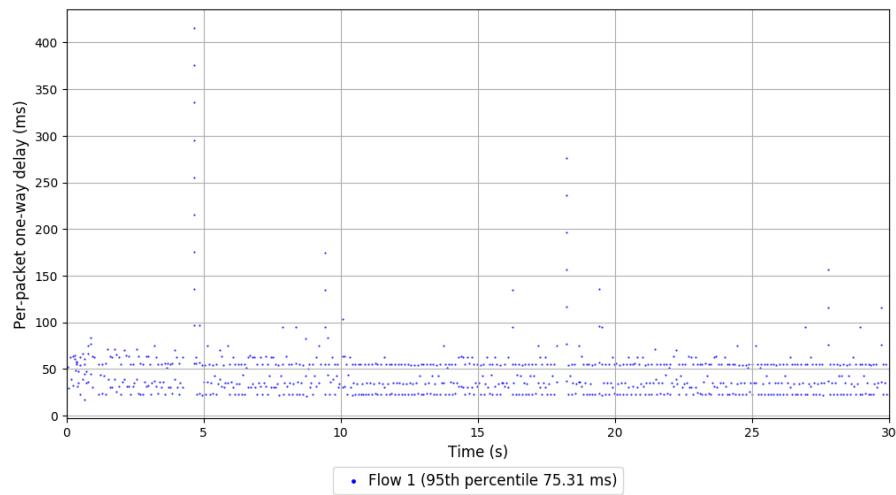
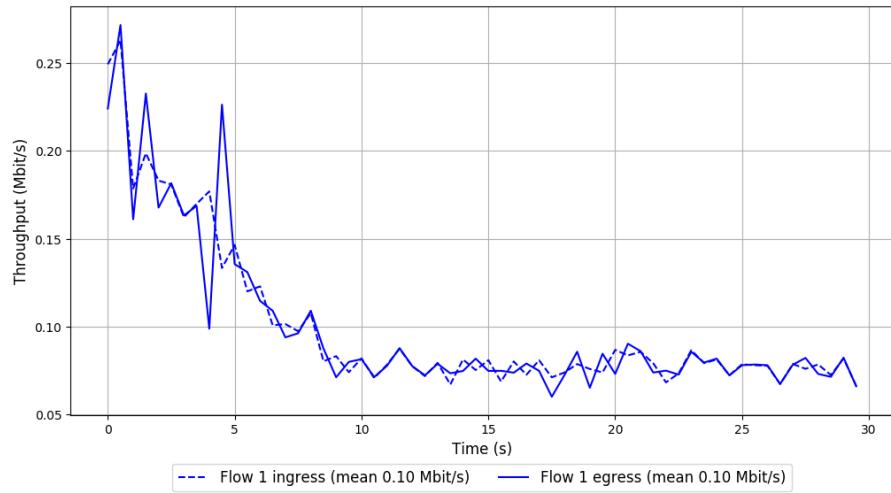


Run 3: Statistics of SCReAM

```
Start at: 2017-09-17 22:13:32
End at: 2017-09-17 22:14:02
Local clock offset: -0.851 ms
Remote clock offset: -3.467 ms

# Below is generated by plot.py at 2017-09-17 23:12:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 75.310 ms
Loss rate: 0.29%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 75.310 ms
Loss rate: 0.29%
```

Run 3: Report of SCReAM — Data Link

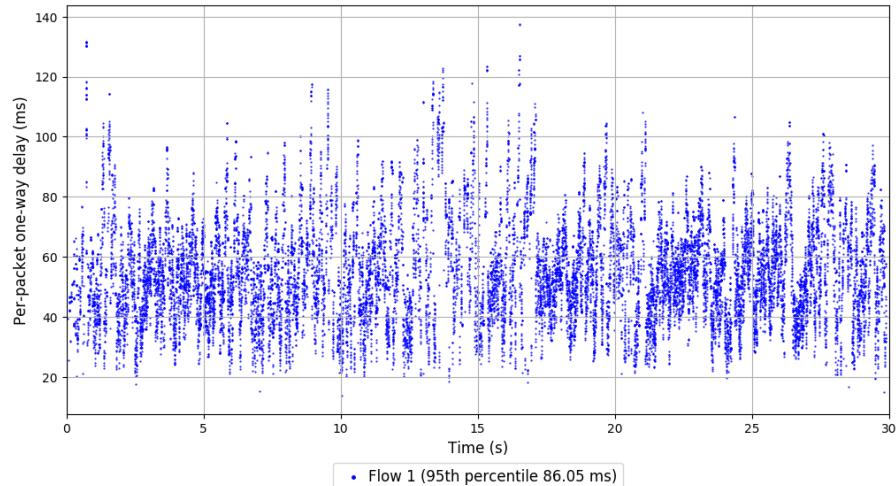
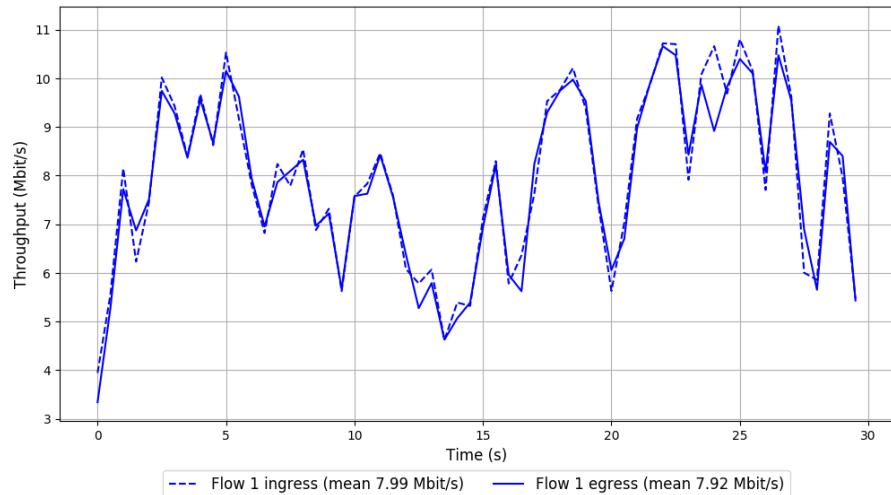


Run 1: Statistics of Sprout

```
Start at: 2017-09-17 21:34:46
End at: 2017-09-17 21:35:16
Local clock offset: -0.383 ms
Remote clock offset: -3.855 ms

# Below is generated by plot.py at 2017-09-17 23:12:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.92 Mbit/s
95th percentile per-packet one-way delay: 86.054 ms
Loss rate: 0.92%
-- Flow 1:
Average throughput: 7.92 Mbit/s
95th percentile per-packet one-way delay: 86.054 ms
Loss rate: 0.92%
```

Run 1: Report of Sprout — Data Link

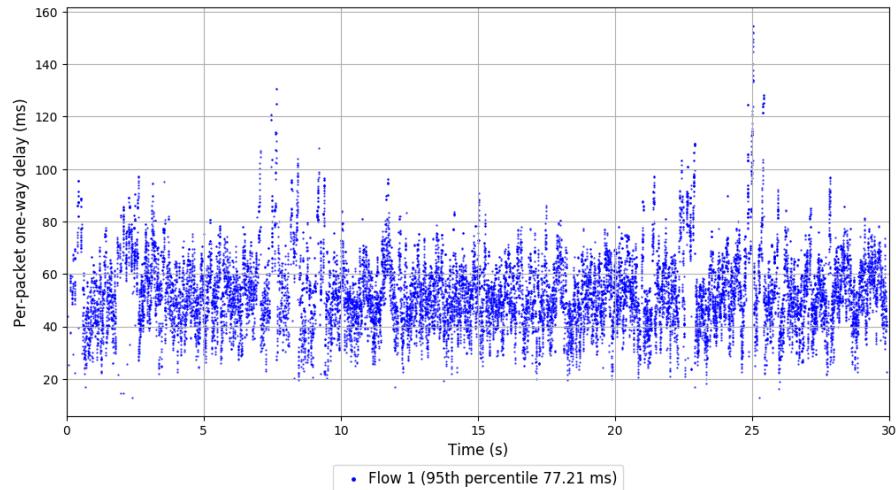
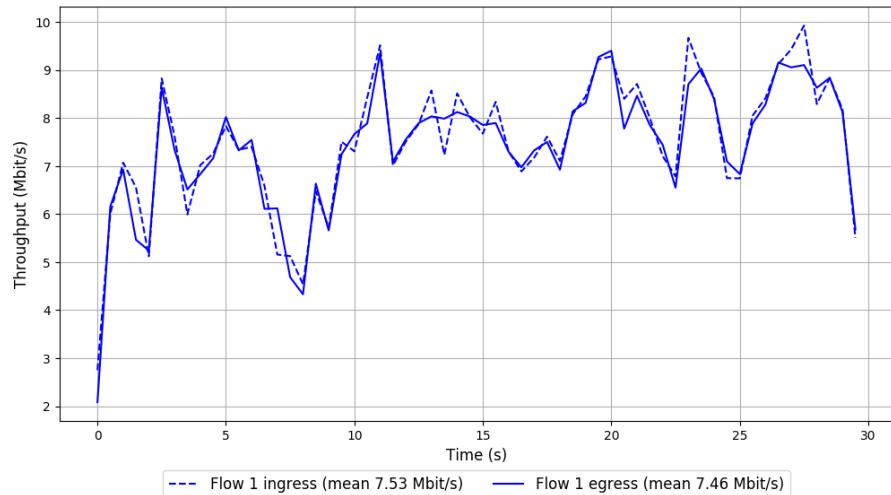


Run 2: Statistics of Sprout

```
Start at: 2017-09-17 21:52:23
End at: 2017-09-17 21:52:53
Local clock offset: -0.628 ms
Remote clock offset: -3.846 ms

# Below is generated by plot.py at 2017-09-17 23:12:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.46 Mbit/s
95th percentile per-packet one-way delay: 77.208 ms
Loss rate: 1.10%
-- Flow 1:
Average throughput: 7.46 Mbit/s
95th percentile per-packet one-way delay: 77.208 ms
Loss rate: 1.10%
```

Run 2: Report of Sprout — Data Link

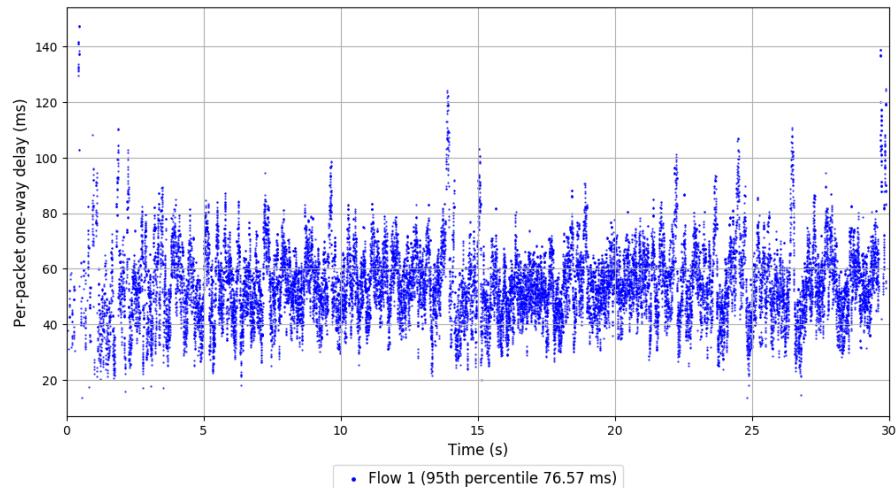
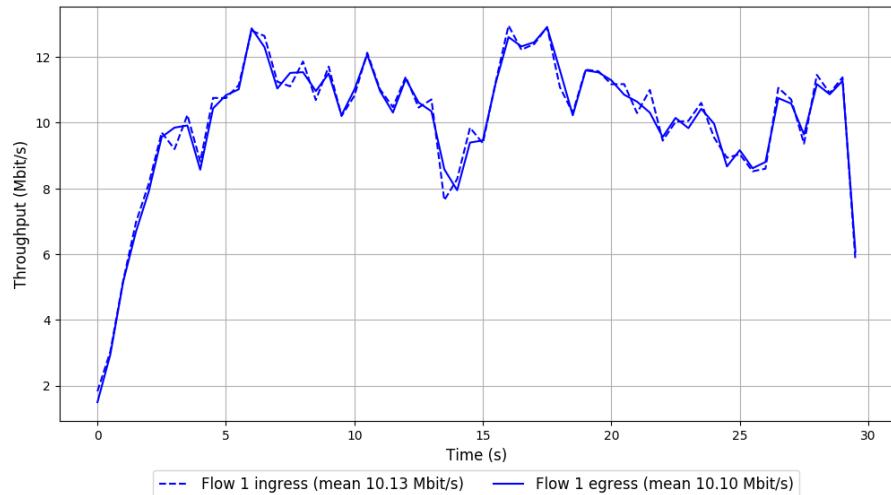


Run 3: Statistics of Sprout

```
Start at: 2017-09-17 22:10:00
End at: 2017-09-17 22:10:30
Local clock offset: -0.61 ms
Remote clock offset: -3.48 ms

# Below is generated by plot.py at 2017-09-17 23:12:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 10.10 Mbit/s
95th percentile per-packet one-way delay: 76.568 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 10.10 Mbit/s
95th percentile per-packet one-way delay: 76.568 ms
Loss rate: 0.35%
```

Run 3: Report of Sprout — Data Link

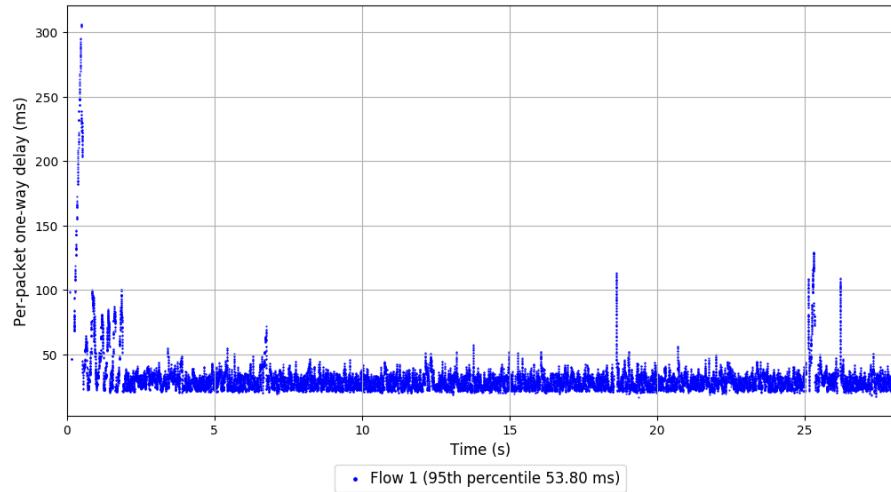
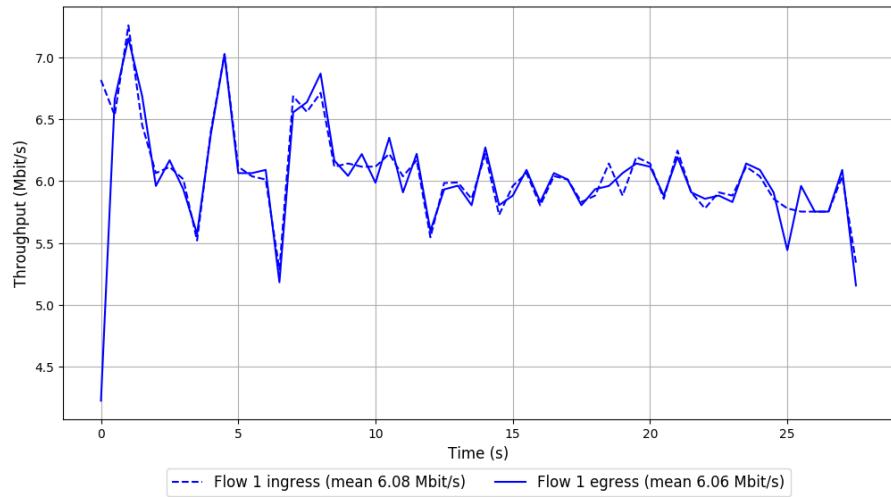


Run 1: Statistics of TaoVA-100x

```
Start at: 2017-09-17 21:40:38
End at: 2017-09-17 21:41:08
Local clock offset: -0.551 ms
Remote clock offset: -3.854 ms

# Below is generated by plot.py at 2017-09-17 23:12:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.06 Mbit/s
95th percentile per-packet one-way delay: 53.805 ms
Loss rate: 0.75%
-- Flow 1:
Average throughput: 6.06 Mbit/s
95th percentile per-packet one-way delay: 53.805 ms
Loss rate: 0.75%
```

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

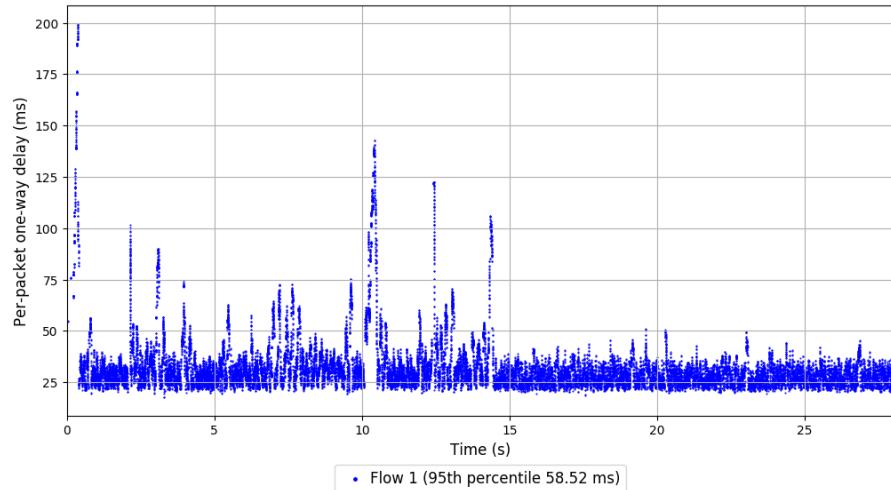
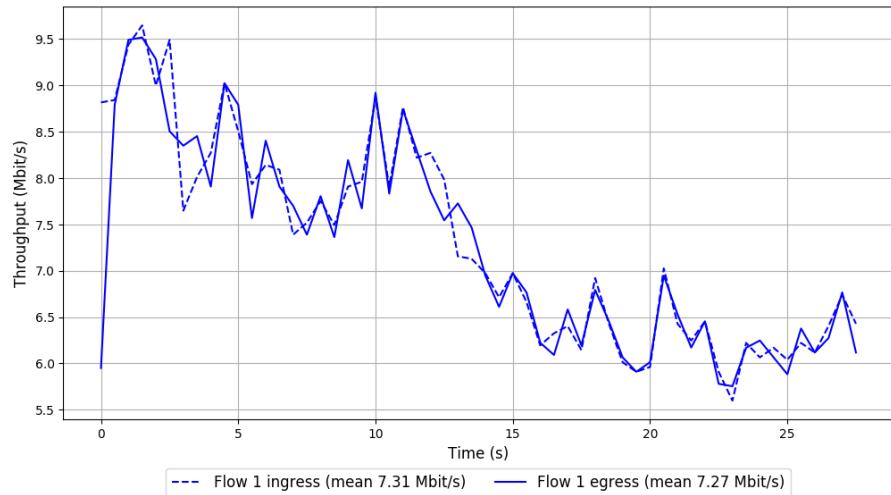


Run 2: Statistics of TaoVA-100x

```
Start at: 2017-09-17 21:58:16
End at: 2017-09-17 21:58:46
Local clock offset: -0.217 ms
Remote clock offset: -3.781 ms

# Below is generated by plot.py at 2017-09-17 23:12:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.27 Mbit/s
95th percentile per-packet one-way delay: 58.518 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 7.27 Mbit/s
95th percentile per-packet one-way delay: 58.518 ms
Loss rate: 0.77%
```

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

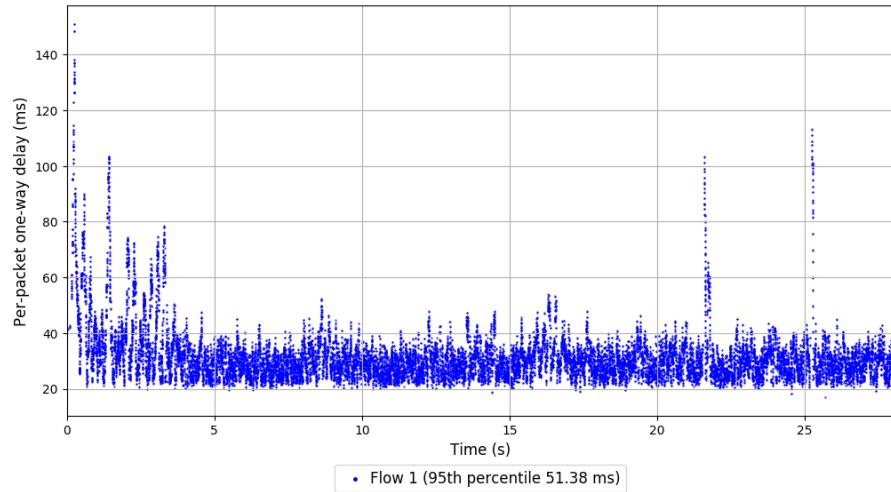
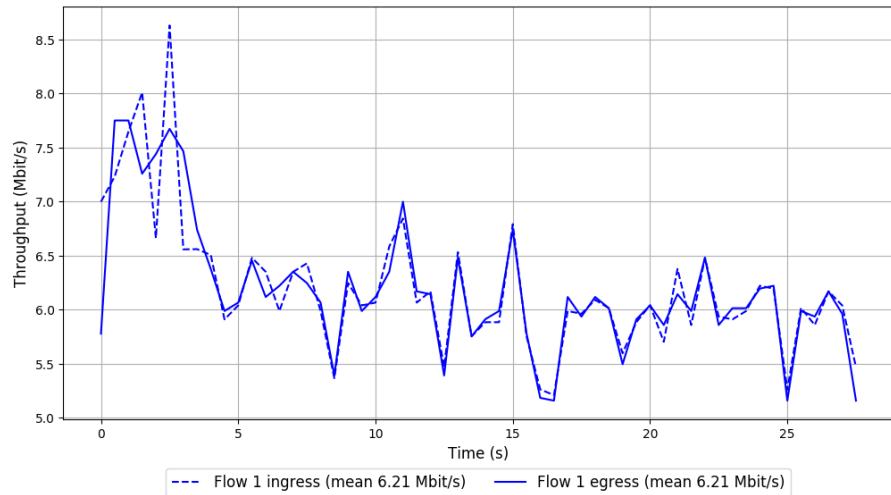


Run 3: Statistics of TaoVA-100x

```
Start at: 2017-09-17 22:15:53
End at: 2017-09-17 22:16:23
Local clock offset: -1.025 ms
Remote clock offset: -3.432 ms

# Below is generated by plot.py at 2017-09-17 23:12:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.21 Mbit/s
95th percentile per-packet one-way delay: 51.378 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 6.21 Mbit/s
95th percentile per-packet one-way delay: 51.378 ms
Loss rate: 0.26%
```

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

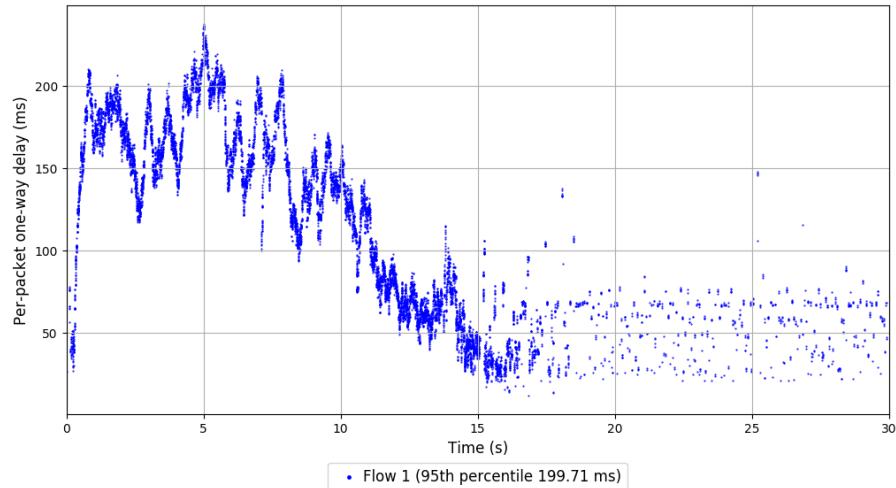
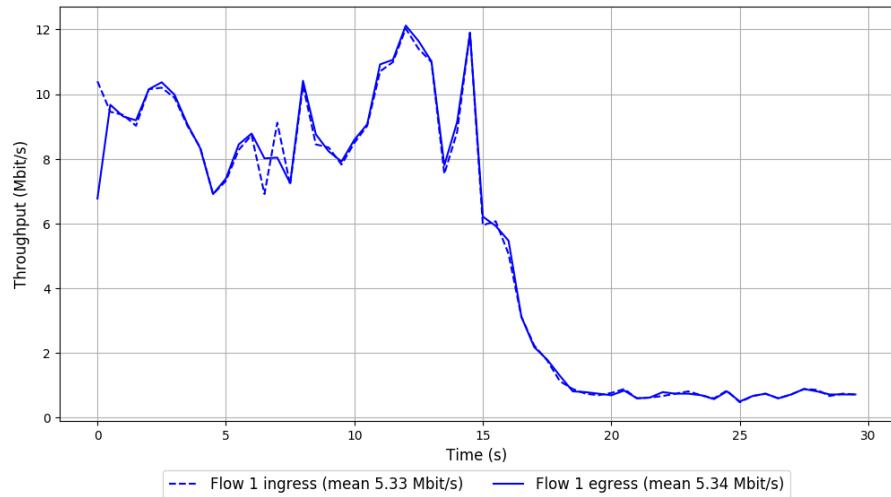


Run 1: Statistics of TCP Vegas

```
Start at: 2017-09-17 21:28:53
End at: 2017-09-17 21:29:23
Local clock offset: -0.37 ms
Remote clock offset: -3.782 ms

# Below is generated by plot.py at 2017-09-17 23:12:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.34 Mbit/s
95th percentile per-packet one-way delay: 199.707 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 5.34 Mbit/s
95th percentile per-packet one-way delay: 199.707 ms
Loss rate: 0.09%
```

Run 1: Report of TCP Vegas — Data Link

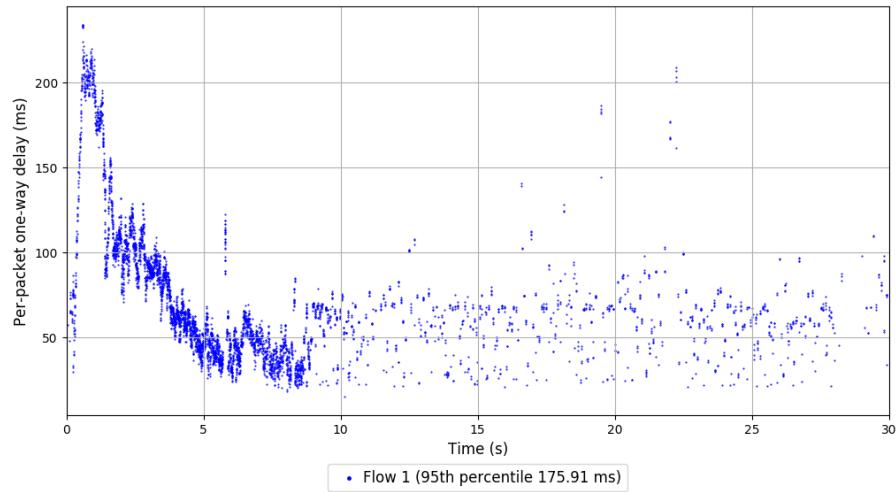
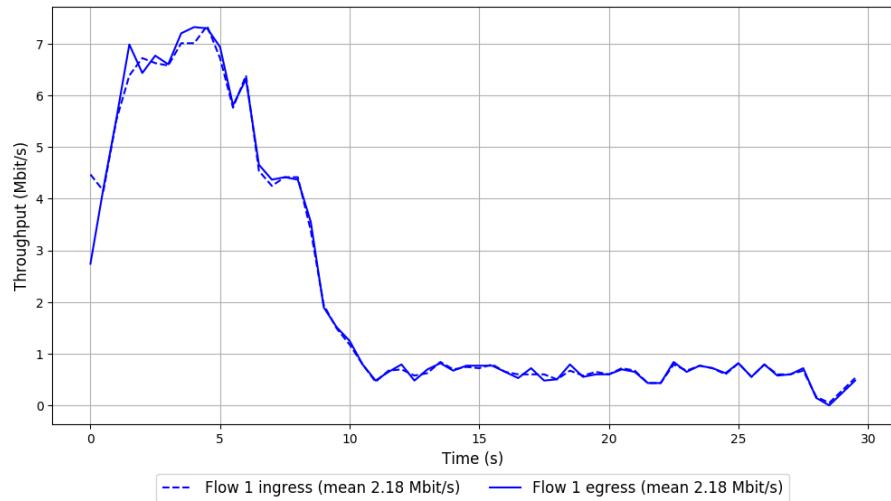


Run 2: Statistics of TCP Vegas

```
Start at: 2017-09-17 21:46:30
End at: 2017-09-17 21:47:00
Local clock offset: -0.741 ms
Remote clock offset: -3.751 ms

# Below is generated by plot.py at 2017-09-17 23:12:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.18 Mbit/s
95th percentile per-packet one-way delay: 175.909 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 2.18 Mbit/s
95th percentile per-packet one-way delay: 175.909 ms
Loss rate: 0.17%
```

Run 2: Report of TCP Vegas — Data Link

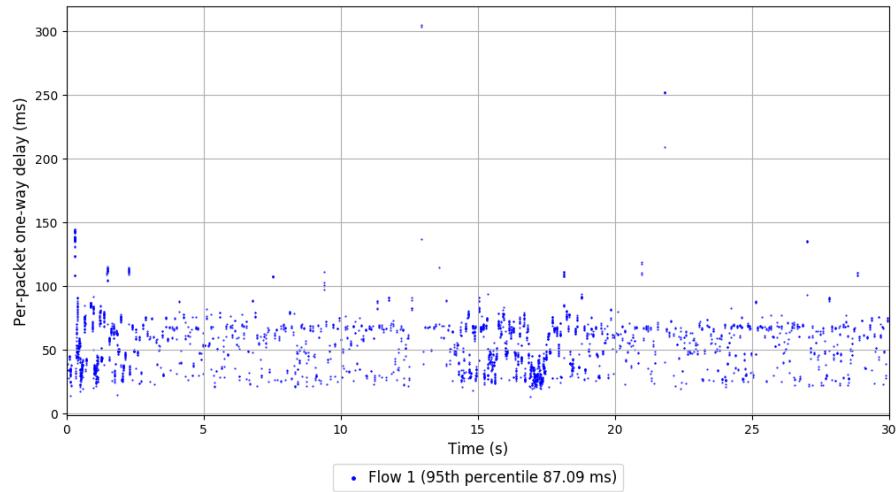
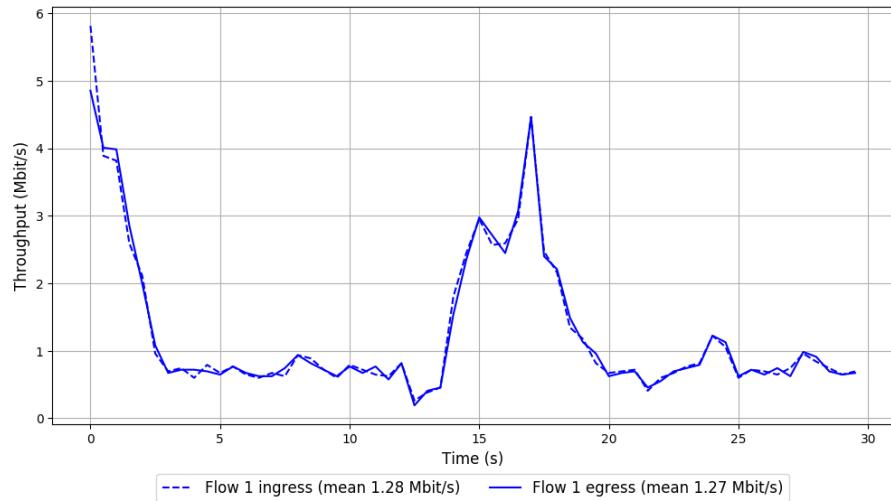


Run 3: Statistics of TCP Vegas

```
Start at: 2017-09-17 22:04:08
End at: 2017-09-17 22:04:38
Local clock offset: -0.225 ms
Remote clock offset: -3.543 ms

# Below is generated by plot.py at 2017-09-17 23:12:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.27 Mbit/s
95th percentile per-packet one-way delay: 87.092 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 1.27 Mbit/s
95th percentile per-packet one-way delay: 87.092 ms
Loss rate: 0.66%
```

Run 3: Report of TCP Vegas — Data Link

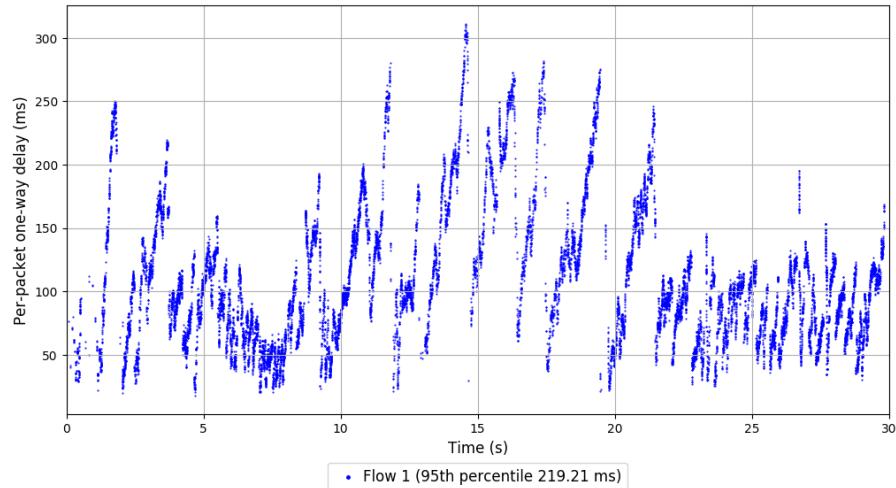
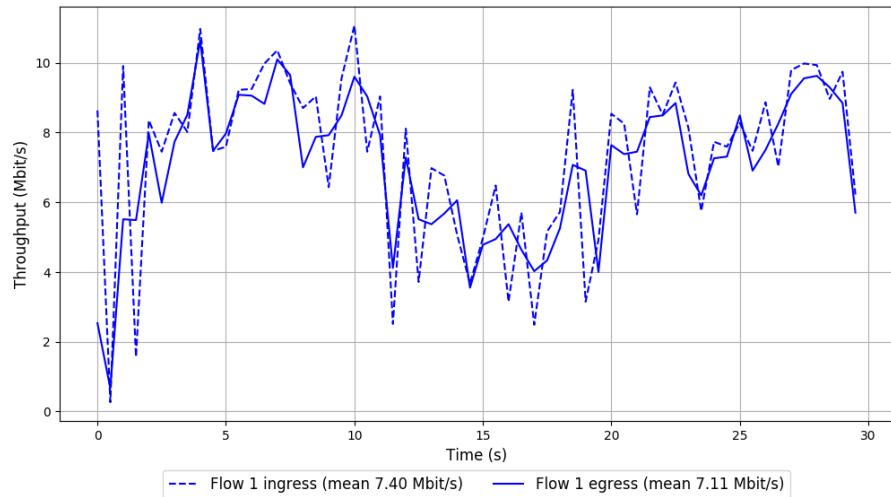


Run 1: Statistics of Verus

```
Start at: 2017-09-17 21:31:14
End at: 2017-09-17 21:31:44
Local clock offset: -0.295 ms
Remote clock offset: -3.804 ms

# Below is generated by plot.py at 2017-09-17 23:12:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.11 Mbit/s
95th percentile per-packet one-way delay: 219.206 ms
Loss rate: 4.13%
-- Flow 1:
Average throughput: 7.11 Mbit/s
95th percentile per-packet one-way delay: 219.206 ms
Loss rate: 4.13%
```

Run 1: Report of Verus — Data Link

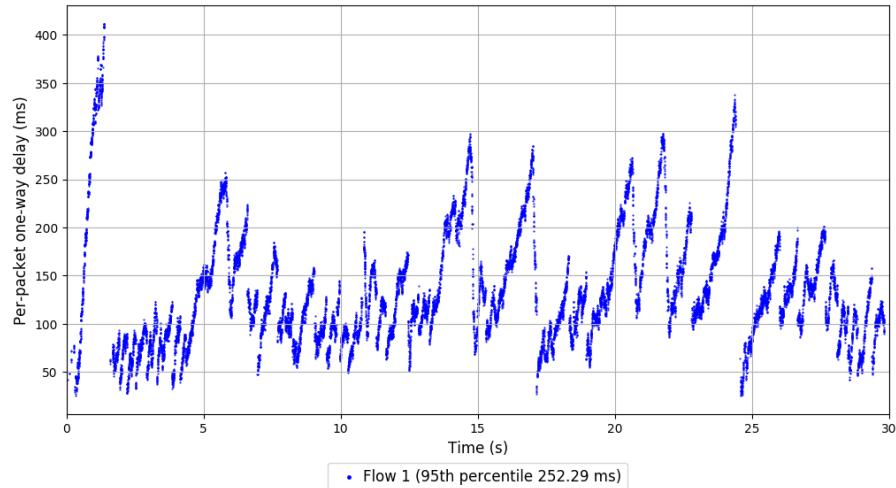
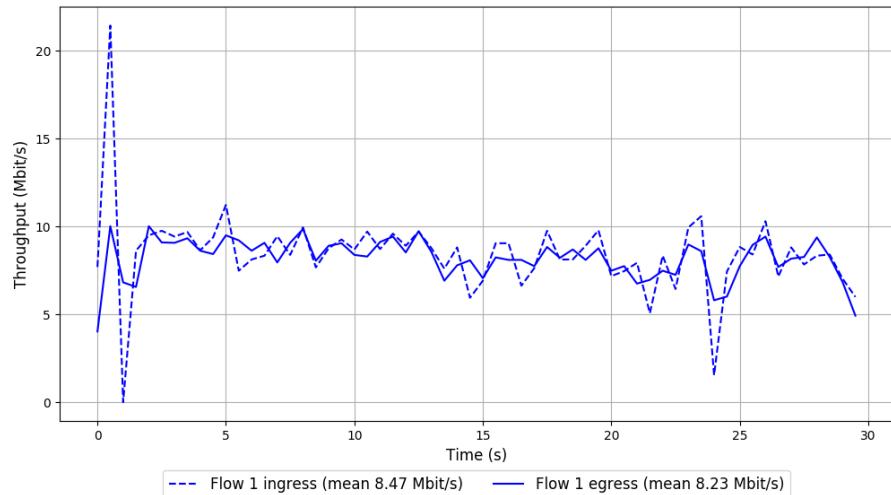


Run 2: Statistics of Verus

```
Start at: 2017-09-17 21:48:51
End at: 2017-09-17 21:49:21
Local clock offset: -0.775 ms
Remote clock offset: -3.85 ms

# Below is generated by plot.py at 2017-09-17 23:12:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.23 Mbit/s
95th percentile per-packet one-way delay: 252.288 ms
Loss rate: 3.07%
-- Flow 1:
Average throughput: 8.23 Mbit/s
95th percentile per-packet one-way delay: 252.288 ms
Loss rate: 3.07%
```

Run 2: Report of Verus — Data Link

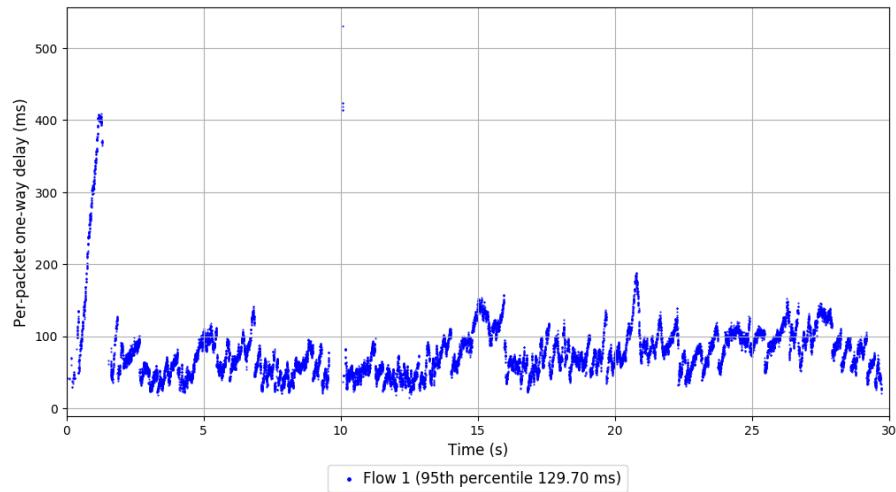
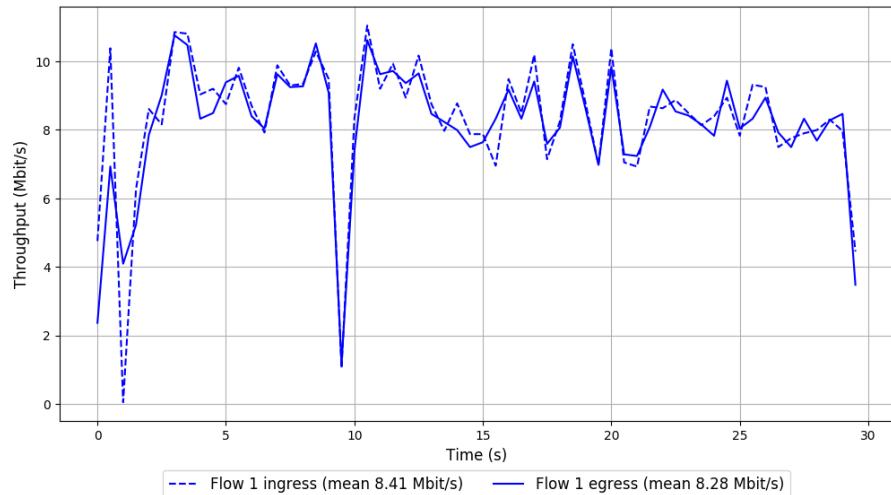


Run 3: Statistics of Verus

```
Start at: 2017-09-17 22:06:29
End at: 2017-09-17 22:06:59
Local clock offset: -0.417 ms
Remote clock offset: -3.487 ms

# Below is generated by plot.py at 2017-09-17 23:12:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.28 Mbit/s
95th percentile per-packet one-way delay: 129.703 ms
Loss rate: 1.88%
-- Flow 1:
Average throughput: 8.28 Mbit/s
95th percentile per-packet one-way delay: 129.703 ms
Loss rate: 1.88%
```

Run 3: Report of Verus — Data Link



Run 1: Statistics of WebRTC media

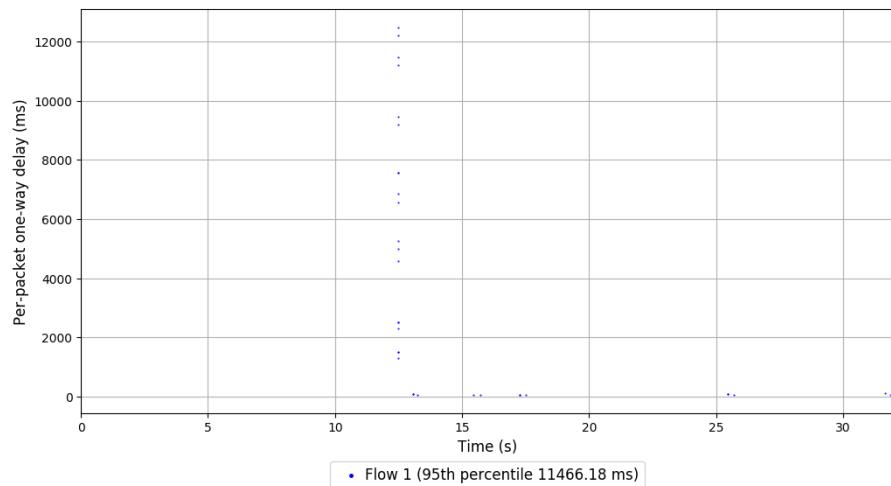
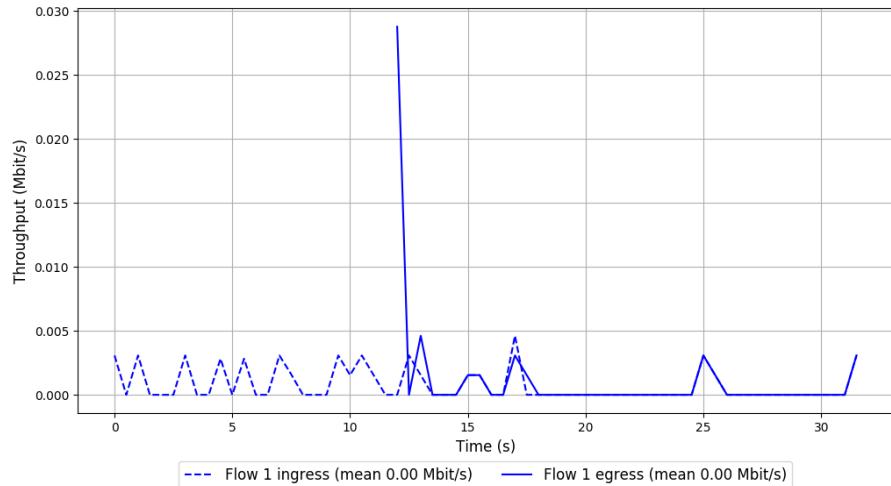
Start at: 2017-09-17 21:41:49

End at: 2017-09-17 21:42:19

Local clock offset: -0.531 ms

Remote clock offset: -3.761 ms

Run 1: Report of WebRTC media — Data Link

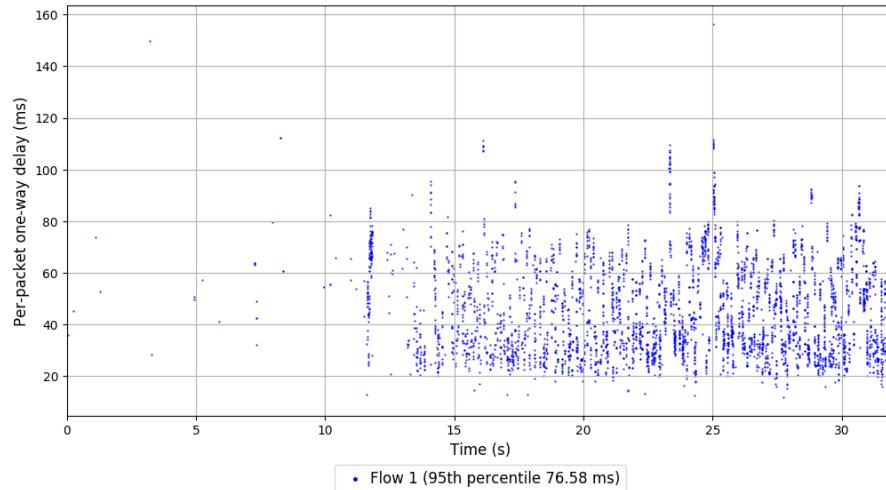
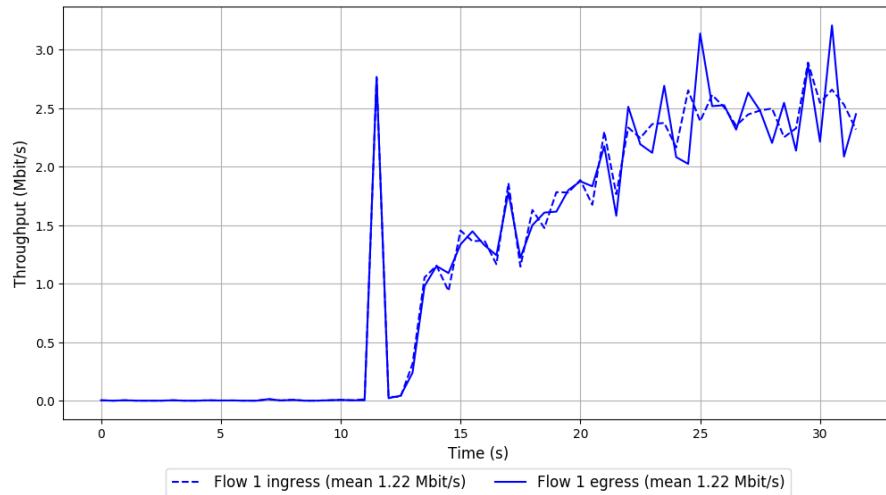


Run 2: Statistics of WebRTC media

```
Start at: 2017-09-17 21:59:26
End at: 2017-09-17 21:59:56
Local clock offset: -0.182 ms
Remote clock offset: -3.724 ms

# Below is generated by plot.py at 2017-09-17 23:12:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.22 Mbit/s
95th percentile per-packet one-way delay: 76.576 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 1.22 Mbit/s
95th percentile per-packet one-way delay: 76.576 ms
Loss rate: 0.40%
```

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

```
Start at: 2017-09-17 22:17:03
End at: 2017-09-17 22:17:33
Local clock offset: -1.14 ms
Remote clock offset: -3.472 ms

# Below is generated by plot.py at 2017-09-17 23:12:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.06 Mbit/s
95th percentile per-packet one-way delay: 85.869 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 2.06 Mbit/s
95th percentile per-packet one-way delay: 85.869 ms
Loss rate: 0.26%
```

Run 3: Report of WebRTC media — Data Link

