

Pantheon Summary (Generated at Mon, 07 Aug 2017 01:15:49 +0000
with pantheon version a934ee3822380a12762347e6bc8bd1f3e836e73b)

Repeated the test of 15 congestion control schemes 3 times.

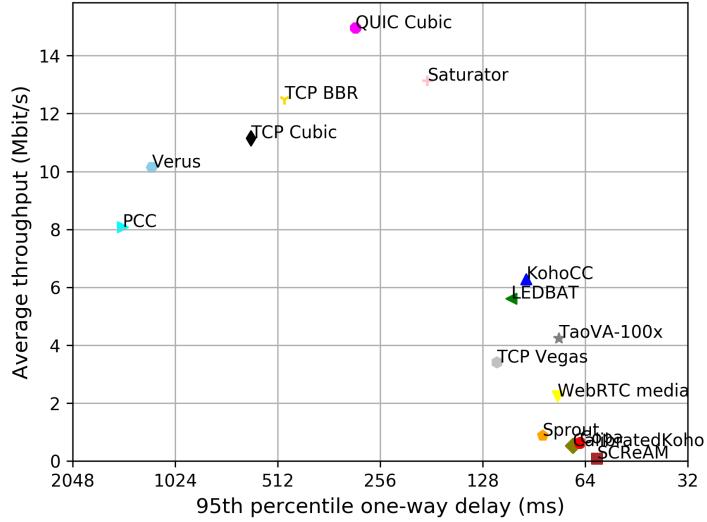
Each test lasted for 30 seconds running 1 flow.

Data path: AWS California 2 Ethernet (*local*) →Mexico ppp0 (*remote*).

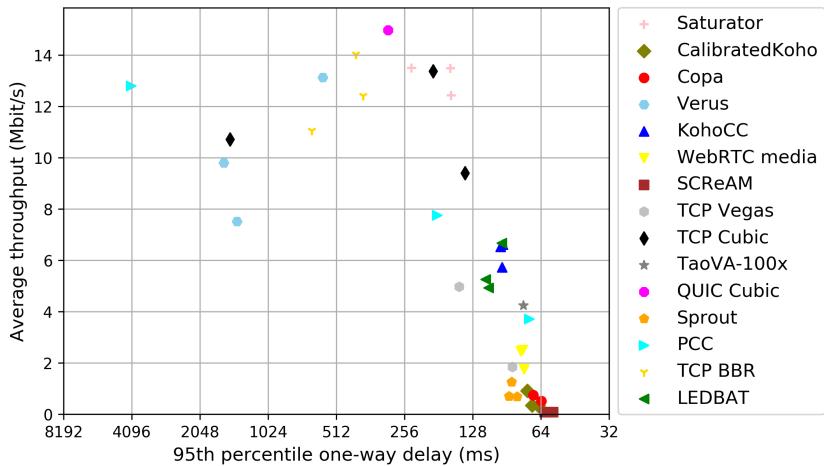
NTP offset measured against time.stanford.edu and has been applied to correct the timestamps in logs.

```
git branch: master @ a934ee3822380a12762347e6bc8bd1f3e836e73b
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
M datagrump/sender.cc
third_party/genericCC @ dae96123232f1bcb37725348fa2378691ce26725
third_party/koho_cc @ f0f2e693303aee82ea808e6928eac4f1083a6681
M datagrump/sender.cc
third_party/libutp @ b3465b942e2826f2b179aab4a906ce6bb7cf3cf
third_party/pantheon-stimuli @ fc73a85ca16c34366d1888dc8a0d0d88d4ebf2a7
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 AWS California 2 Ethernet to Mexico ppp0, 3 runs of 30s each per scheme
(mean of all runs by scheme)



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



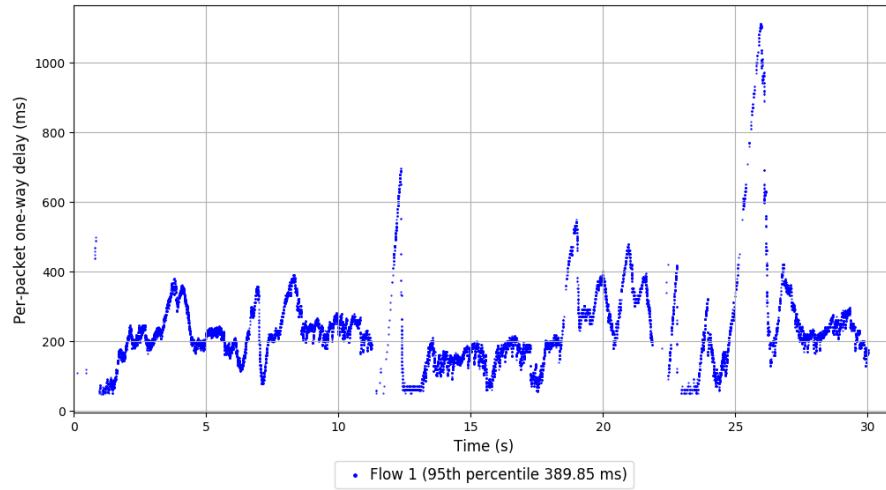
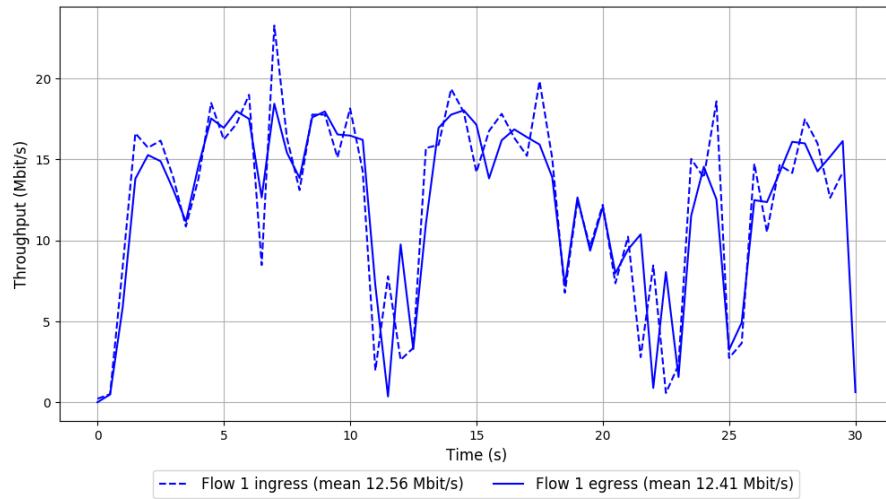
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	12.49	489.40	1.42
CalibratedKoho	3	0.53	69.69	0.13
Copa	3	0.62	66.45	0.05
TCP Cubic	3	11.15	613.15	0.94
KohoCC	3	6.29	95.33	0.33
LEDBAT	3	5.62	105.64	0.69
PCC	3	8.08	1462.13	20.30
QUIC Cubic	3	14.96	303.03	1.45
Saturator	3	13.13	186.19	1.01
SCReAM	3	0.08	59.21	0.00
Sprout	3	0.88	85.45	0.14
TaoVA-100x	3	4.25	76.51	0.19
TCP Vegas	3	3.40	116.37	0.16
Verus	3	10.14	1200.07	2.78
WebRTC media	3	2.24	77.19	0.06

Run 1: Statistics of TCP BBR

```
Start at: Mon, 07 Aug 2017 00:30:28 +0000
End at: Mon, 07 Aug 2017 00:30:58 +0000
Local clock offset: 0.49 ms
Remote clock offset: -2.558 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:10 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.41 Mbit/s
95th percentile per-packet one-way delay: 389.854 ms
Loss rate: 1.27%
-- Flow 1:
Average throughput: 12.41 Mbit/s
95th percentile per-packet one-way delay: 389.854 ms
Loss rate: 1.27%
```

Run 1: Report of TCP BBR — Data Link

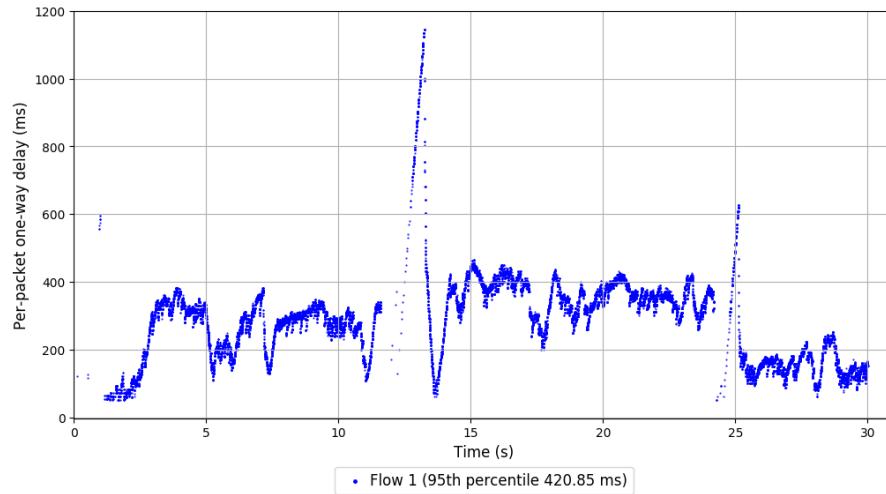
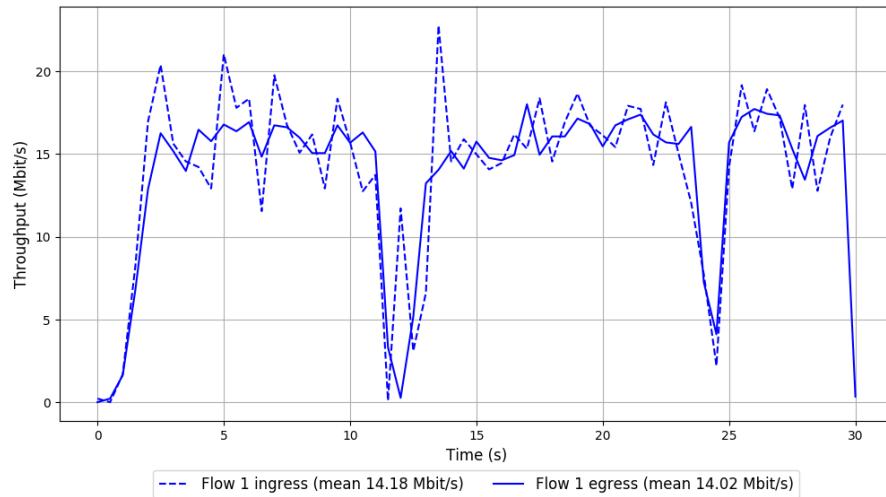


Run 2: Statistics of TCP BBR

```
Start at: Mon, 07 Aug 2017 00:49:58 +0000
End at: Mon, 07 Aug 2017 00:50:28 +0000
Local clock offset: 0.493 ms
Remote clock offset: -0.977 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:10 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 14.02 Mbit/s
95th percentile per-packet one-way delay: 420.846 ms
Loss rate: 1.36%
-- Flow 1:
Average throughput: 14.02 Mbit/s
95th percentile per-packet one-way delay: 420.846 ms
Loss rate: 1.36%
```

Run 2: Report of TCP BBR — Data Link

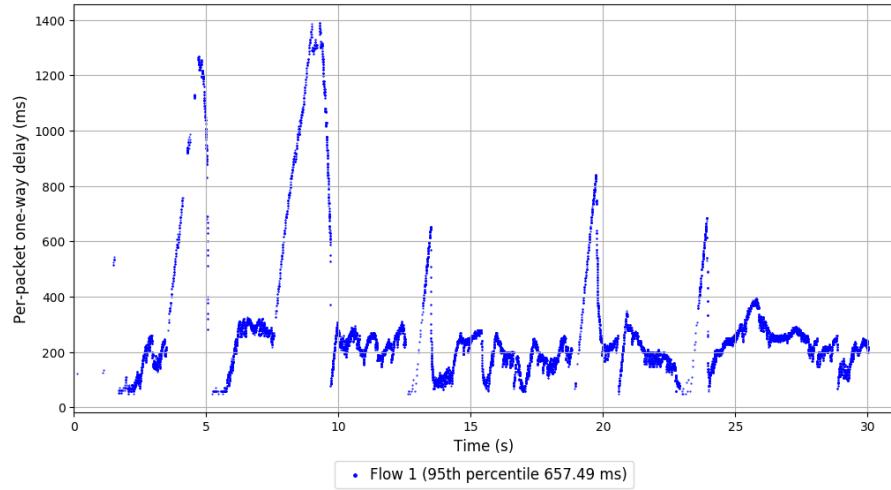
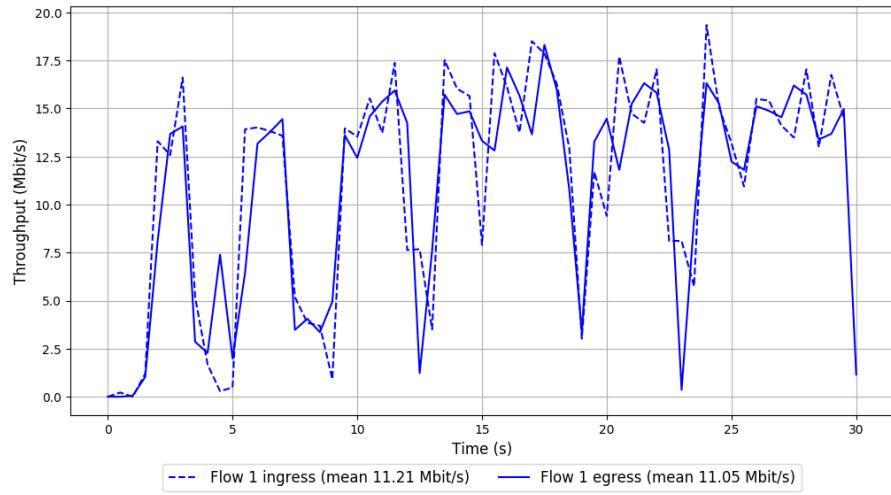


Run 3: Statistics of TCP BBR

```
Start at: Mon, 07 Aug 2017 01:09:32 +0000
End at: Mon, 07 Aug 2017 01:10:02 +0000
Local clock offset: 0.335 ms
Remote clock offset: -1.045 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:15 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.05 Mbit/s
95th percentile per-packet one-way delay: 657.490 ms
Loss rate: 1.64%
-- Flow 1:
Average throughput: 11.05 Mbit/s
95th percentile per-packet one-way delay: 657.490 ms
Loss rate: 1.64%
```

Run 3: Report of TCP BBR — Data Link



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

```
Start at: Mon, 07 Aug 2017 00:23:58 +0000
```

```
End at: Mon, 07 Aug 2017 00:24:28 +0000
```

```
Local clock offset: 0.483 ms
```

```
Remote clock offset: -2.452 ms
```

```
# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:15 +0000
```

```
# Datalink statistics
```

```
-- Total of 1 flow:
```

```
Average throughput: 0.34 Mbit/s
```

```
95th percentile per-packet one-way delay: 69.914 ms
```

```
Loss rate: 0.12%
```

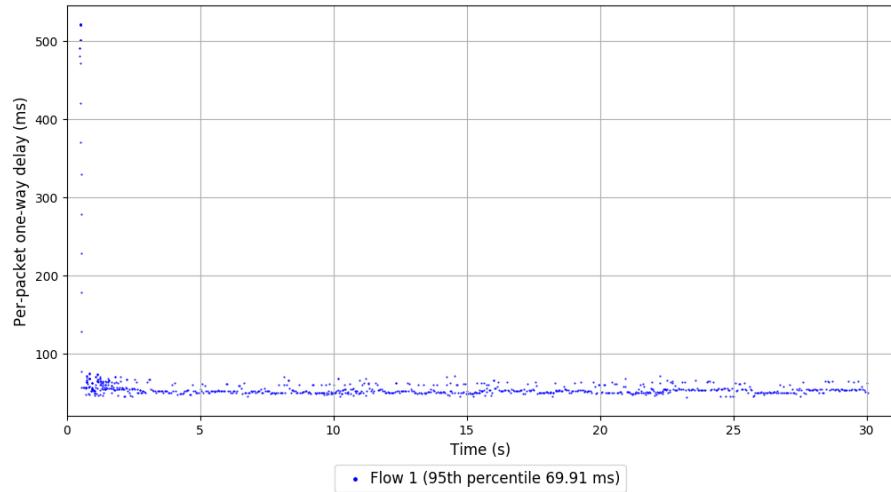
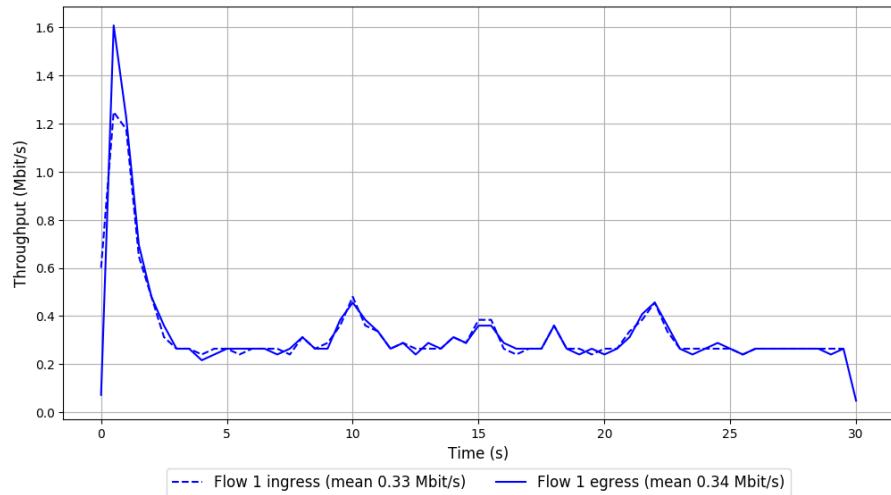
```
-- Flow 1:
```

```
Average throughput: 0.34 Mbit/s
```

```
95th percentile per-packet one-way delay: 69.914 ms
```

```
Loss rate: 0.12%
```

Run 1: Report of CalibratedKoho — Data Link

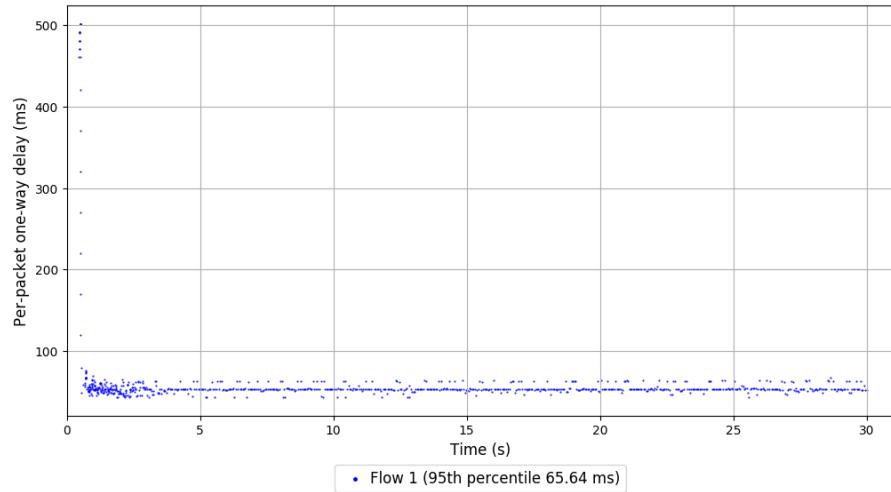
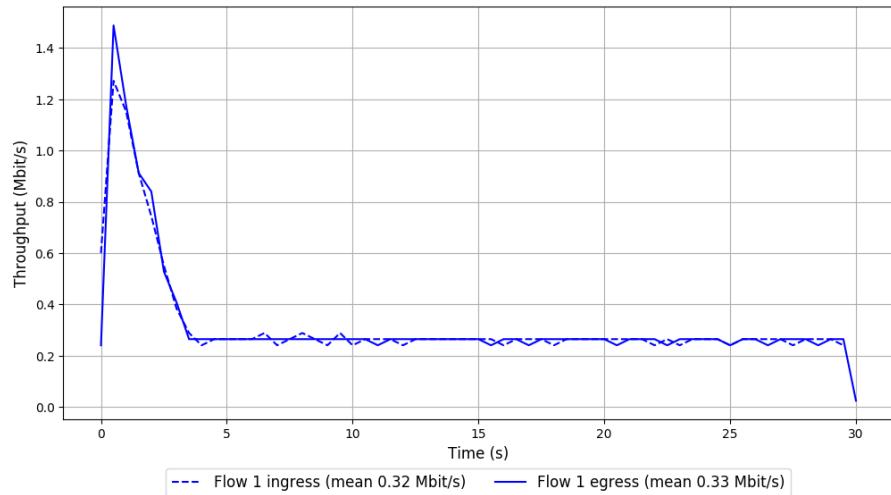


Run 2: Statistics of CalibratedKoho

```
Start at: Mon, 07 Aug 2017 00:43:29 +0000
End at: Mon, 07 Aug 2017 00:43:59 +0000
Local clock offset: 0.416 ms
Remote clock offset: -2.75 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:15 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 65.639 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 65.639 ms
Loss rate: 0.00%
```

Run 2: Report of CalibratedKoho — Data Link

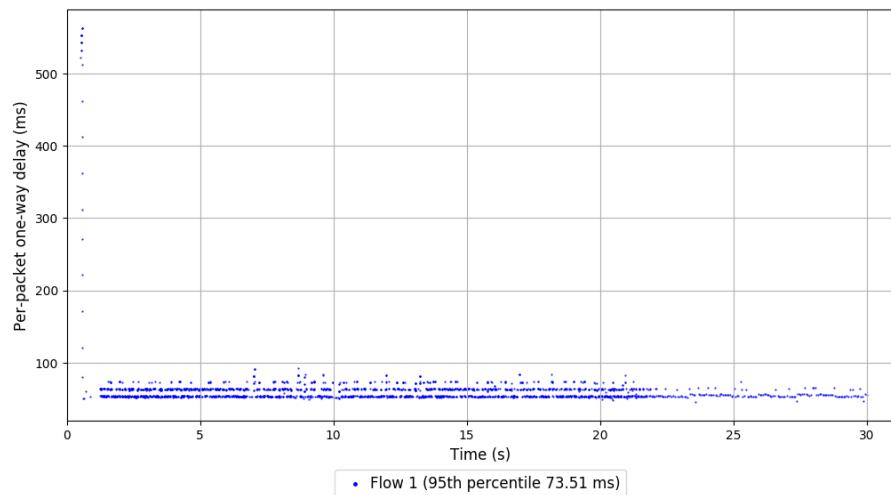
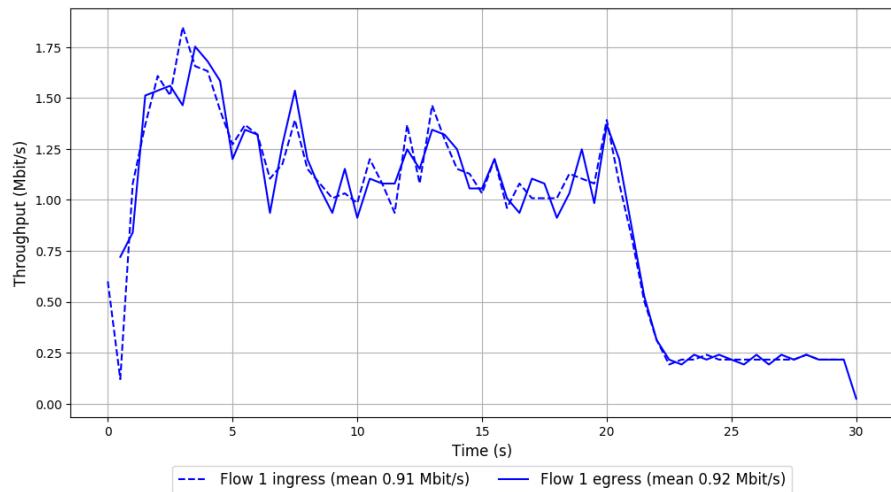


```
Run 3: Statistics of CalibratedKoho
```

```
Start at: Mon, 07 Aug 2017 01:03:01 +0000
End at: Mon, 07 Aug 2017 01:03:31 +0000
Local clock offset: 0.452 ms
Remote clock offset: -0.926 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:15 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.92 Mbit/s
95th percentile per-packet one-way delay: 73.513 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 0.92 Mbit/s
95th percentile per-packet one-way delay: 73.513 ms
Loss rate: 0.26%
```

Run 3: Report of CalibratedKoho — Data Link

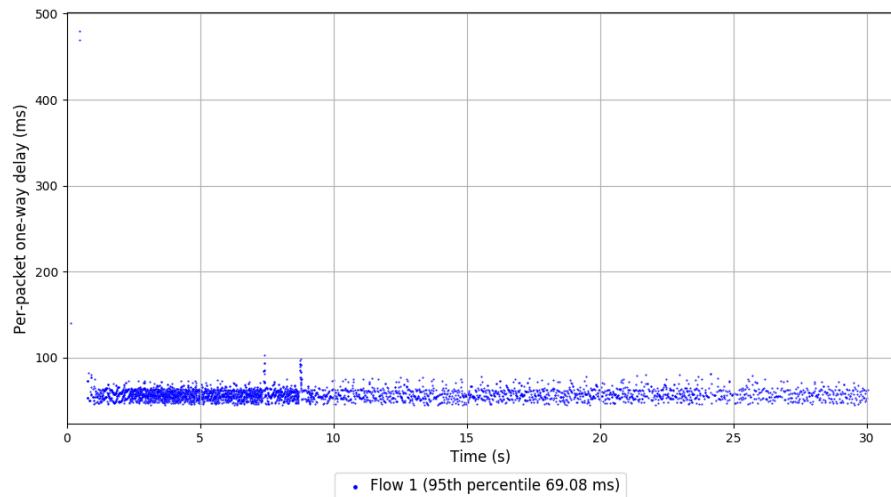
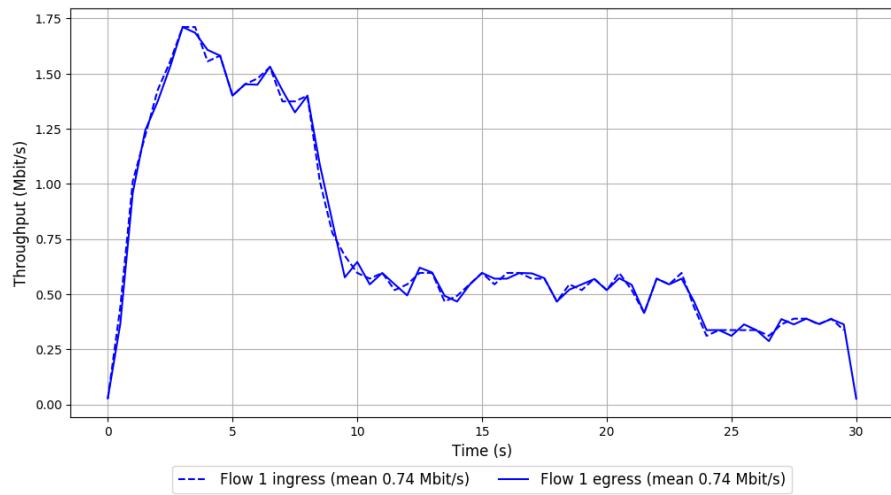


Run 1: Statistics of Copa

```
Start at: Mon, 07 Aug 2017 00:26:35 +0000
End at: Mon, 07 Aug 2017 00:27:06 +0000
Local clock offset: 0.57 ms
Remote clock offset: -0.469 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:15 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.74 Mbit/s
95th percentile per-packet one-way delay: 69.082 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 0.74 Mbit/s
95th percentile per-packet one-way delay: 69.082 ms
Loss rate: 0.10%
```

Run 1: Report of Copa — Data Link

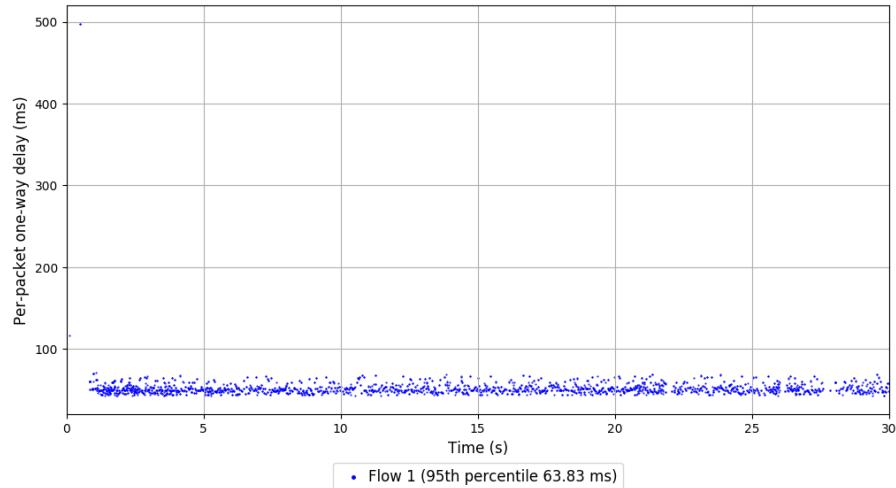
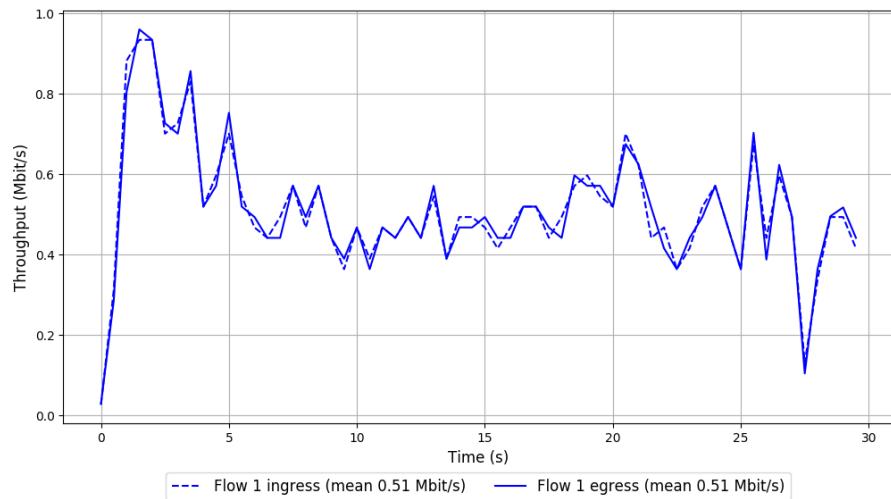


Run 2: Statistics of Copa

```
Start at: Mon, 07 Aug 2017 00:46:04 +0000
End at: Mon, 07 Aug 2017 00:46:34 +0000
Local clock offset: 0.395 ms
Remote clock offset: -2.924 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:15 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.51 Mbit/s
95th percentile per-packet one-way delay: 63.828 ms
Loss rate: -0.01%
-- Flow 1:
Average throughput: 0.51 Mbit/s
95th percentile per-packet one-way delay: 63.828 ms
Loss rate: -0.01%
```

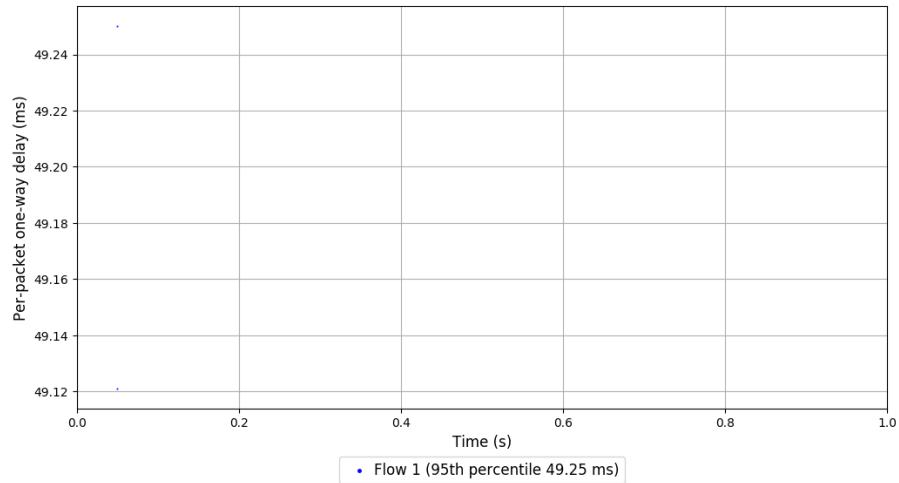
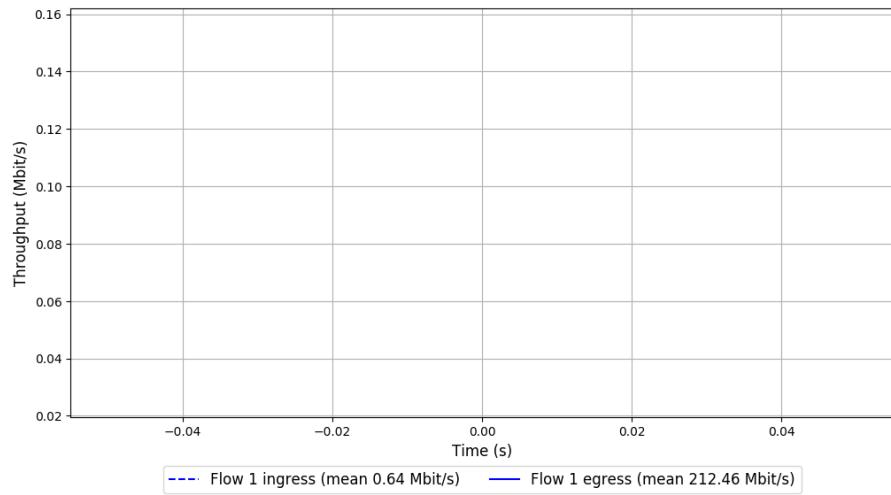
Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

Start at: Mon, 07 Aug 2017 01:05:37 +0000
End at: Mon, 07 Aug 2017 01:06:07 +0000
Local clock offset: 0.437 ms
Remote clock offset: -1.112 ms

Run 3: Report of Copa — Data Link



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

```
Start at: Mon, 07 Aug 2017 00:22:40 +0000
```

```
End at: Mon, 07 Aug 2017 00:23:10 +0000
```

```
Local clock offset: 0.589 ms
```

```
Remote clock offset: -0.271 ms
```

```
# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:17 +0000
```

```
# Datalink statistics
```

```
-- Total of 1 flow:
```

```
Average throughput: 13.36 Mbit/s
```

```
95th percentile per-packet one-way delay: 191.065 ms
```

```
Loss rate: 0.83%
```

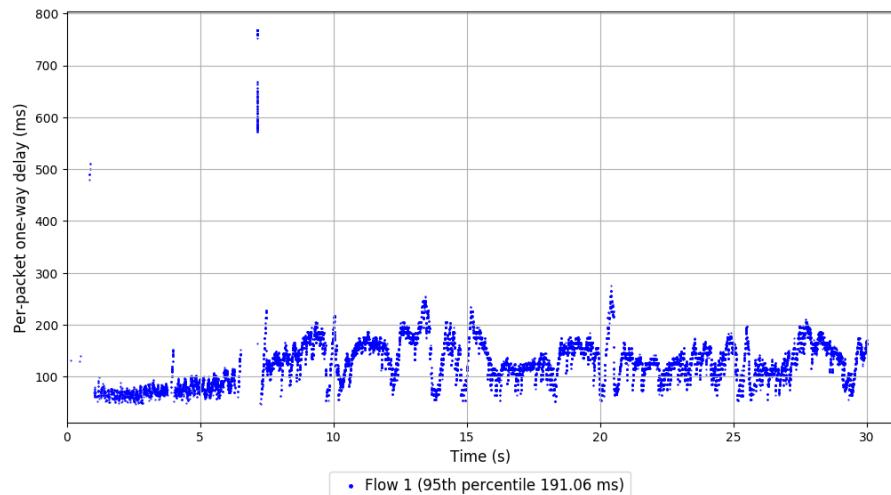
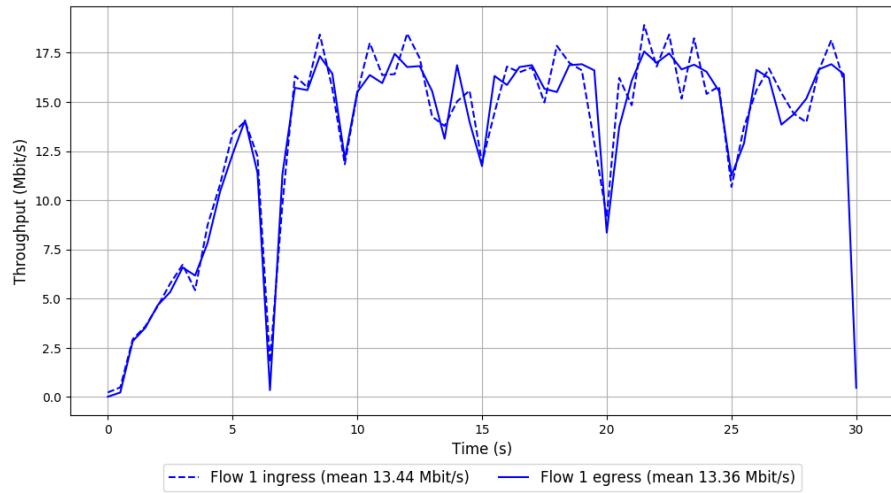
```
-- Flow 1:
```

```
Average throughput: 13.36 Mbit/s
```

```
95th percentile per-packet one-way delay: 191.065 ms
```

```
Loss rate: 0.83%
```

Run 1: Report of TCP Cubic — Data Link

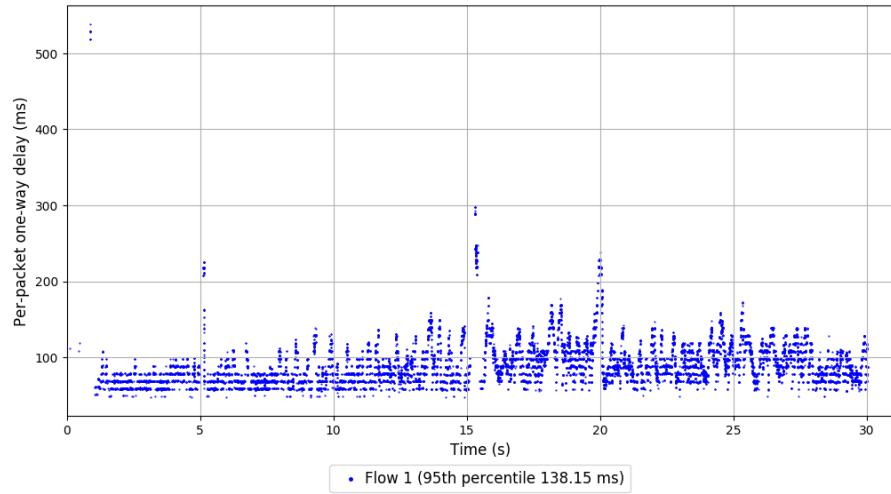
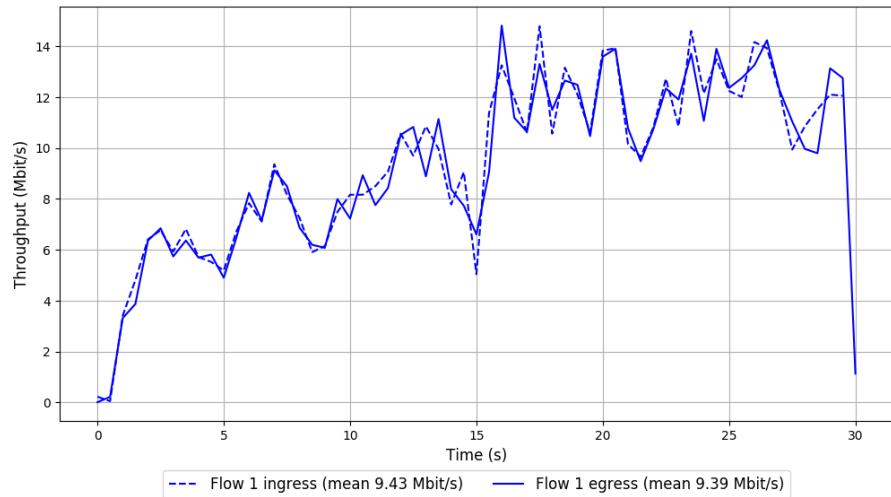


Run 2: Statistics of TCP Cubic

```
Start at: Mon, 07 Aug 2017 00:42:10 +0000
End at: Mon, 07 Aug 2017 00:42:40 +0000
Local clock offset: 0.417 ms
Remote clock offset: -0.829 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:17 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.39 Mbit/s
95th percentile per-packet one-way delay: 138.150 ms
Loss rate: 0.52%
-- Flow 1:
Average throughput: 9.39 Mbit/s
95th percentile per-packet one-way delay: 138.150 ms
Loss rate: 0.52%
```

Run 2: Report of TCP Cubic — Data Link

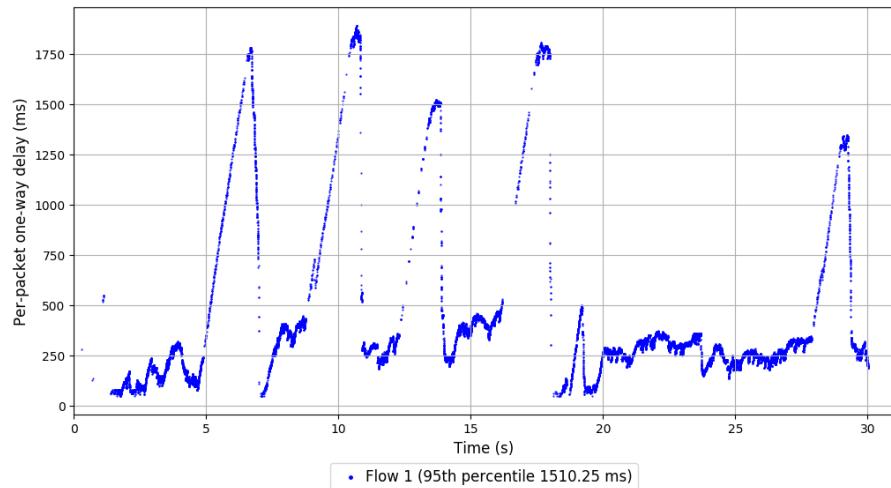
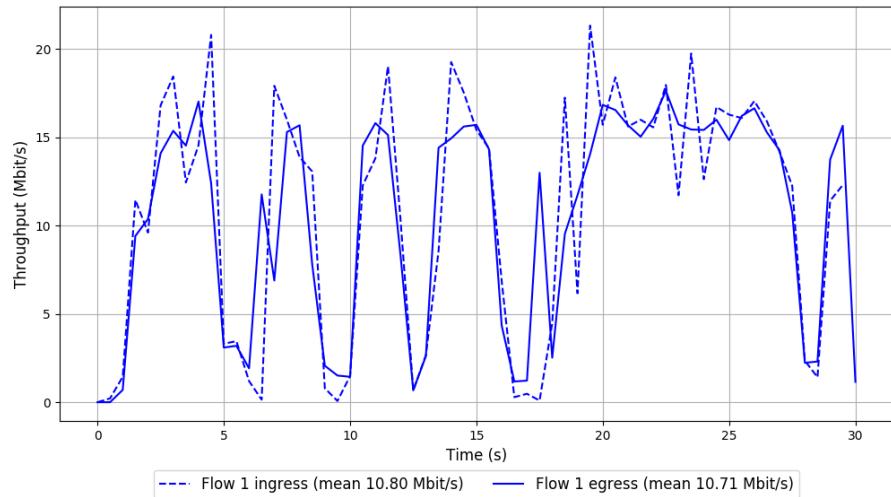


Run 3: Statistics of TCP Cubic

```
Start at: Mon, 07 Aug 2017 01:01:42 +0000
End at: Mon, 07 Aug 2017 01:02:12 +0000
Local clock offset: 0.35 ms
Remote clock offset: -0.61 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:19 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 10.71 Mbit/s
95th percentile per-packet one-way delay: 1510.249 ms
Loss rate: 1.48%
-- Flow 1:
Average throughput: 10.71 Mbit/s
95th percentile per-packet one-way delay: 1510.249 ms
Loss rate: 1.48%
```

Run 3: Report of TCP Cubic — Data Link



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

```
Start at: Mon, 07 Aug 2017 00:20:05 +0000
```

```
End at: Mon, 07 Aug 2017 00:20:35 +0000
```

```
Local clock offset: 0.523 ms
```

```
Remote clock offset: -2.251 ms
```

```
# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:19 +0000
```

```
# Datalink statistics
```

```
-- Total of 1 flow:
```

```
Average throughput: 6.62 Mbit/s
```

```
95th percentile per-packet one-way delay: 94.435 ms
```

```
Loss rate: 0.43%
```

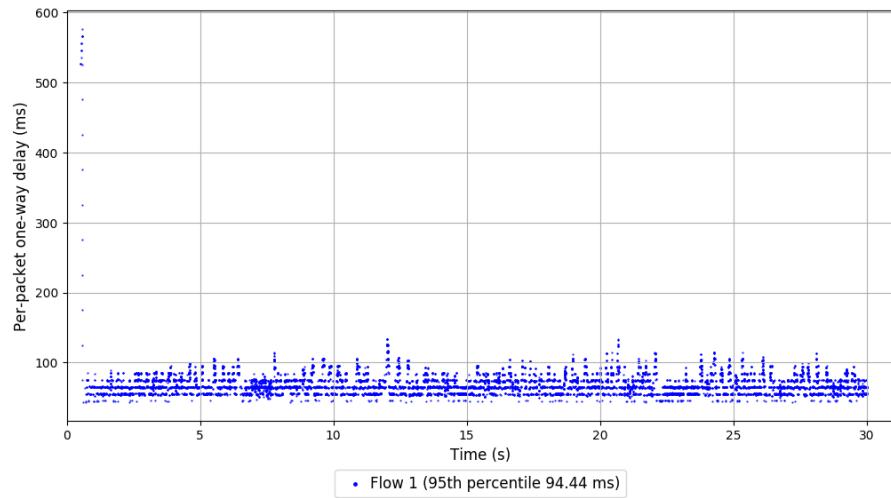
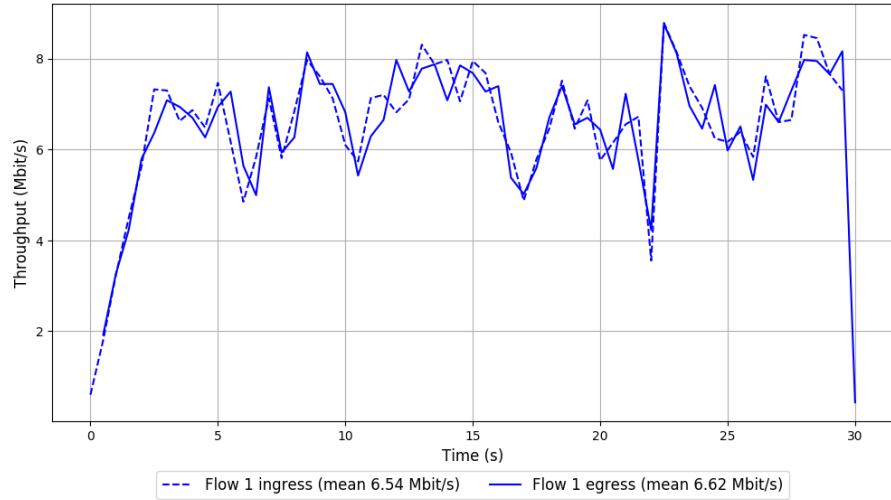
```
-- Flow 1:
```

```
Average throughput: 6.62 Mbit/s
```

```
95th percentile per-packet one-way delay: 94.435 ms
```

```
Loss rate: 0.43%
```

Run 1: Report of KohoCC — Data Link

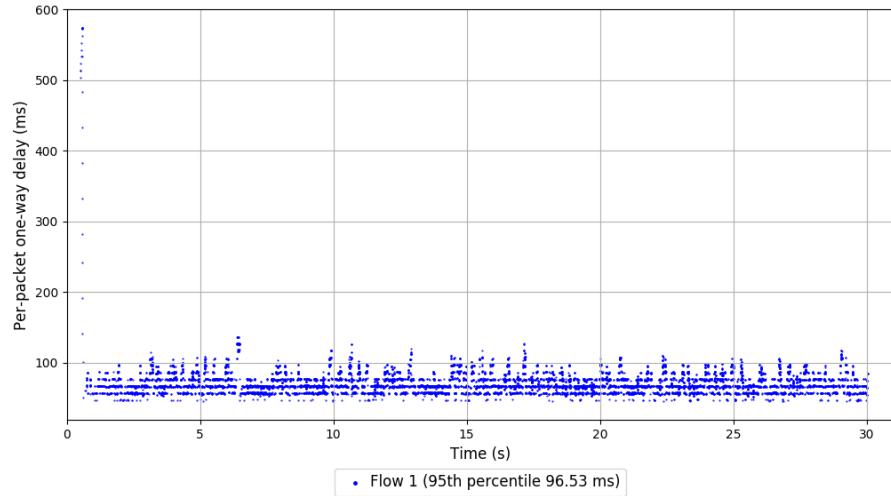
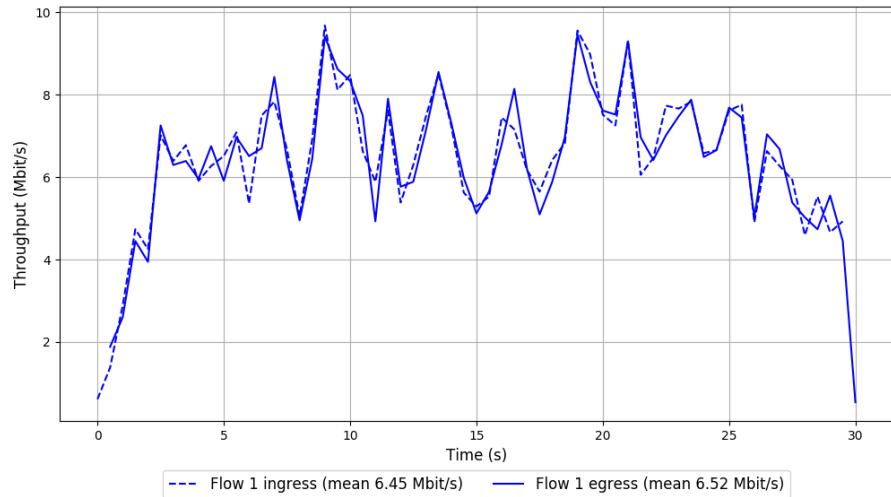


Run 2: Statistics of KohoCC

```
Start at: Mon, 07 Aug 2017 00:39:35 +0000
End at: Mon, 07 Aug 2017 00:40:05 +0000
Local clock offset: 0.538 ms
Remote clock offset: -0.613 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:21 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.52 Mbit/s
95th percentile per-packet one-way delay: 96.530 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 6.52 Mbit/s
95th percentile per-packet one-way delay: 96.530 ms
Loss rate: 0.34%
```

Run 2: Report of KohoCC — Data Link

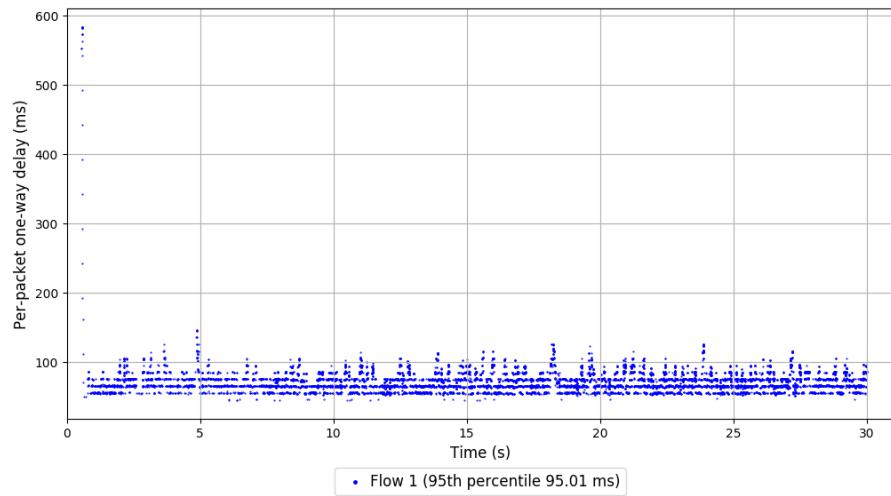
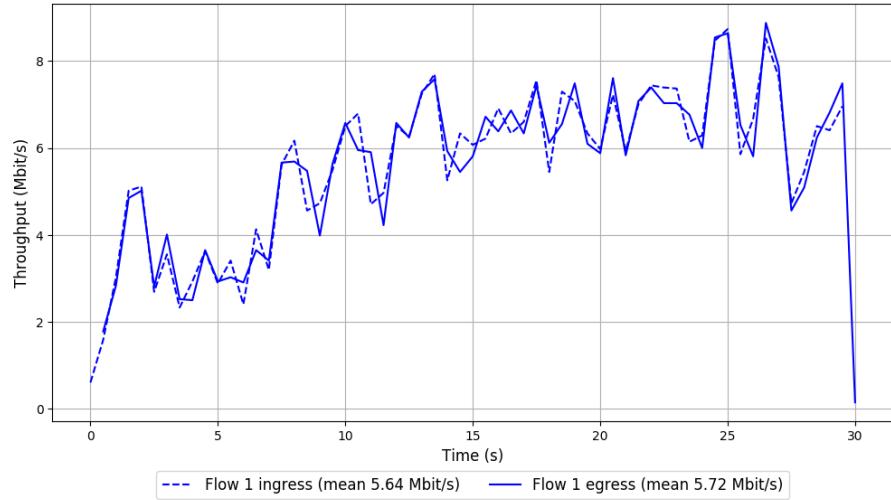


Run 3: Statistics of KohoCC

```
Start at: Mon, 07 Aug 2017 00:59:05 +0000
End at: Mon, 07 Aug 2017 00:59:35 +0000
Local clock offset: 0.463 ms
Remote clock offset: -0.974 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:21 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.72 Mbit/s
95th percentile per-packet one-way delay: 95.013 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 5.72 Mbit/s
95th percentile per-packet one-way delay: 95.013 ms
Loss rate: 0.23%
```

Run 3: Report of KohoCC — Data Link

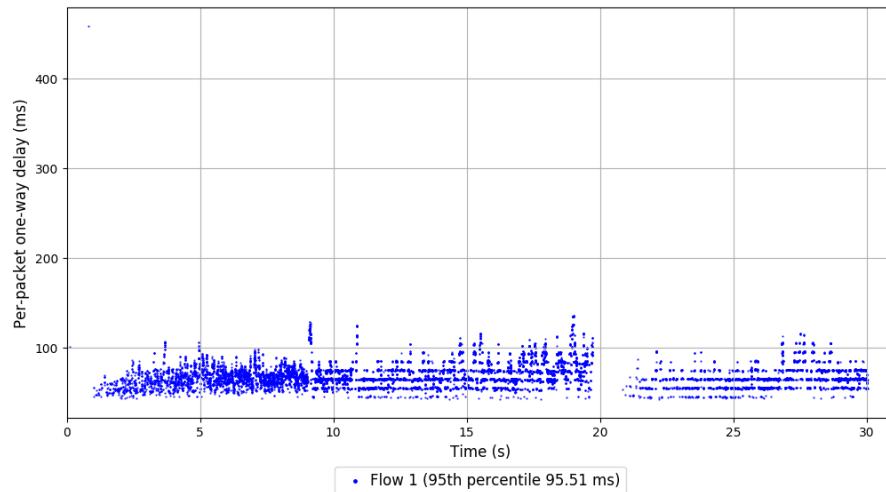
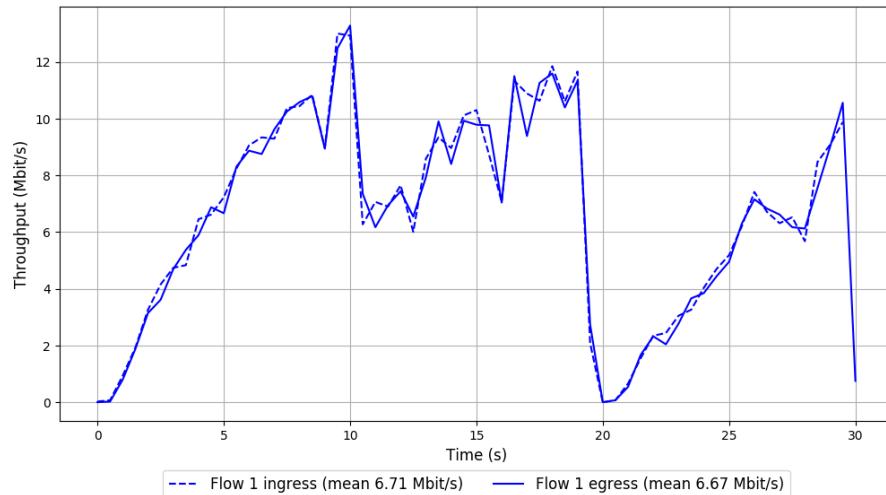


```
Run 1: Statistics of LEDBAT
```

```
Start at: Mon, 07 Aug 2017 00:34:22 +0000
End at: Mon, 07 Aug 2017 00:34:52 +0000
Local clock offset: 0.538 ms
Remote clock offset: -2.551 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:22 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.67 Mbit/s
95th percentile per-packet one-way delay: 95.508 ms
Loss rate: 0.67%
-- Flow 1:
Average throughput: 6.67 Mbit/s
95th percentile per-packet one-way delay: 95.508 ms
Loss rate: 0.67%
```

Run 1: Report of LEDBAT — Data Link

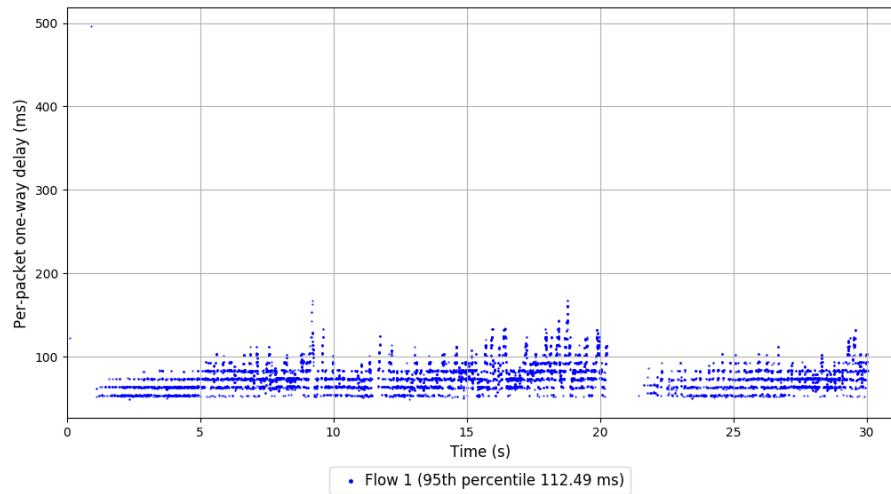
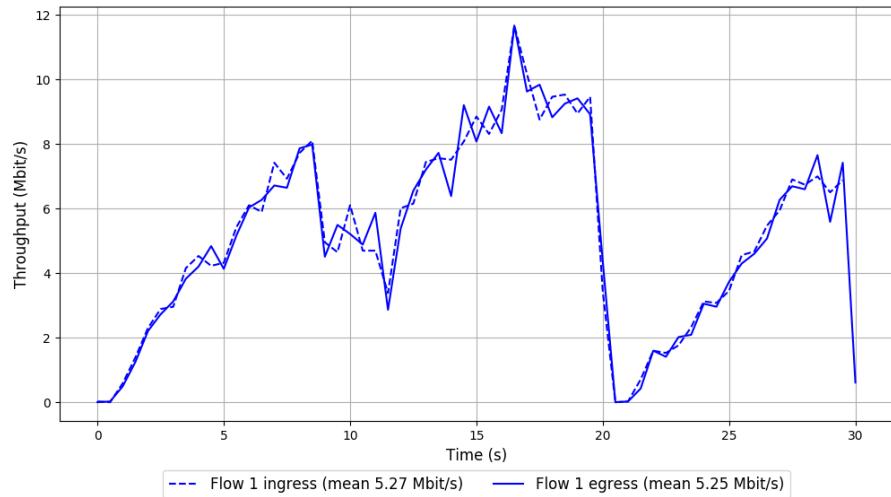


Run 2: Statistics of LEDBAT

```
Start at: Mon, 07 Aug 2017 00:53:52 +0000
End at: Mon, 07 Aug 2017 00:54:22 +0000
Local clock offset: 0.484 ms
Remote clock offset: -0.98 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:24 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.25 Mbit/s
95th percentile per-packet one-way delay: 112.488 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 5.25 Mbit/s
95th percentile per-packet one-way delay: 112.488 ms
Loss rate: 0.55%
```

Run 2: Report of LEDBAT — Data Link

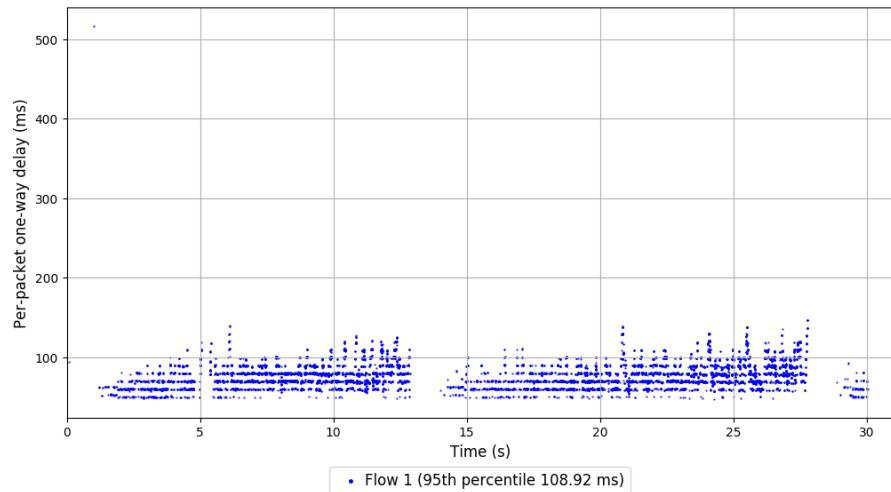
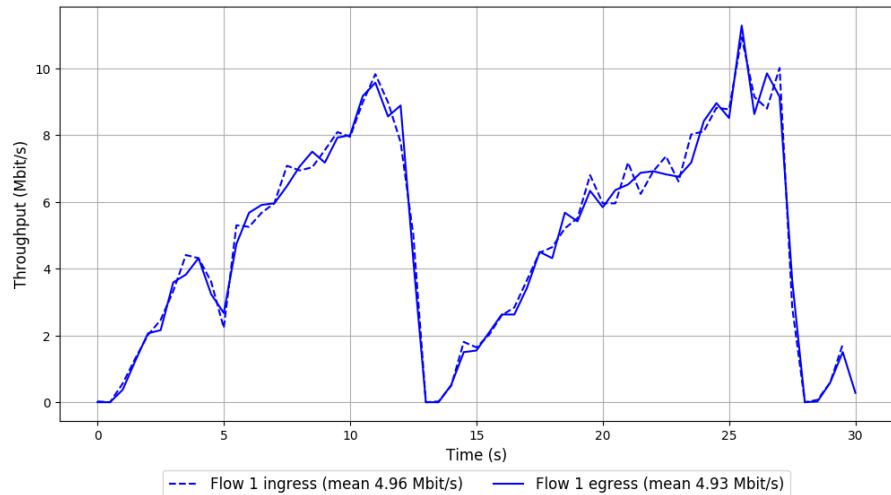


Run 3: Statistics of LEDBAT

```
Start at: Mon, 07 Aug 2017 01:13:27 +0000
End at: Mon, 07 Aug 2017 01:13:57 +0000
Local clock offset: 0.284 ms
Remote clock offset: -1.203 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:24 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.93 Mbit/s
95th percentile per-packet one-way delay: 108.919 ms
Loss rate: 0.84%
-- Flow 1:
Average throughput: 4.93 Mbit/s
95th percentile per-packet one-way delay: 108.919 ms
Loss rate: 0.84%
```

Run 3: Report of LEDBAT — Data Link

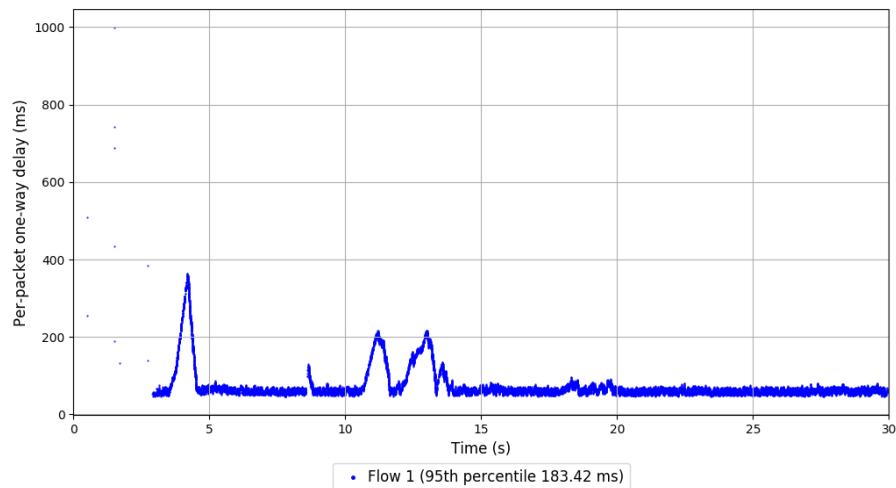
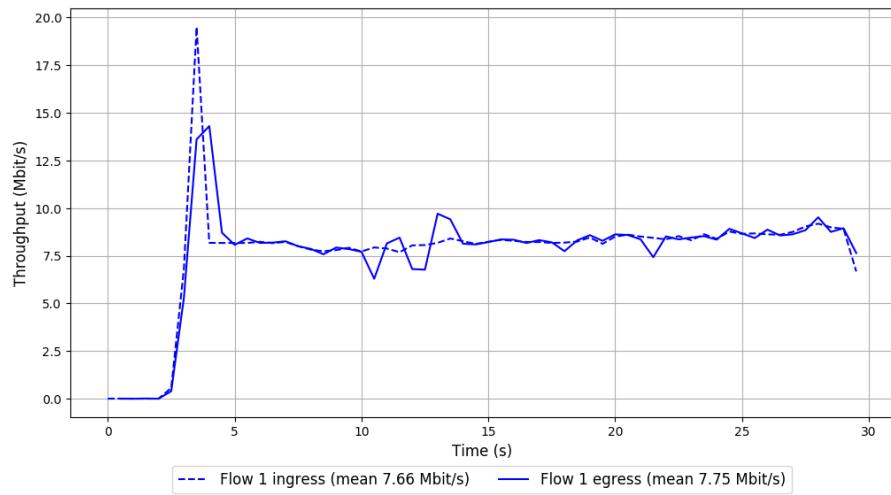


Run 1: Statistics of PCC

```
Start at: Mon, 07 Aug 2017 00:25:16 +0000
End at: Mon, 07 Aug 2017 00:25:46 +0000
Local clock offset: 0.581 ms
Remote clock offset: -2.331 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:26 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.75 Mbit/s
95th percentile per-packet one-way delay: 183.416 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 7.75 Mbit/s
95th percentile per-packet one-way delay: 183.416 ms
Loss rate: 0.39%
```

Run 1: Report of PCC — Data Link

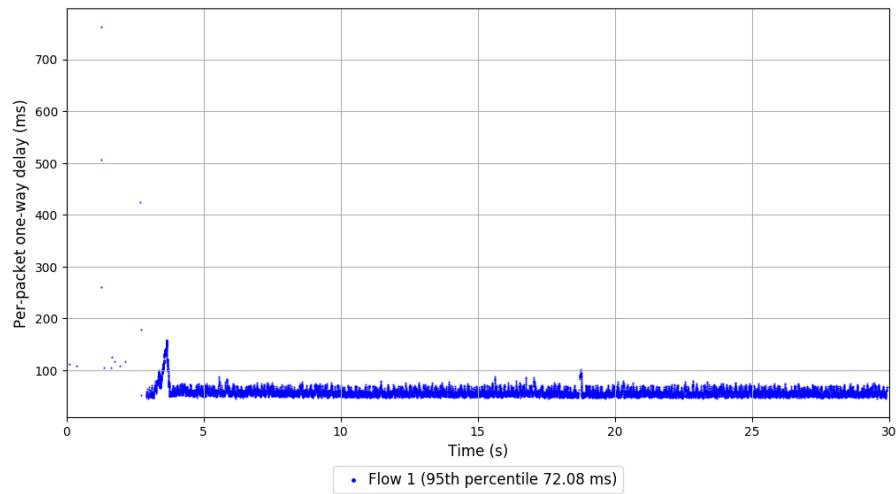
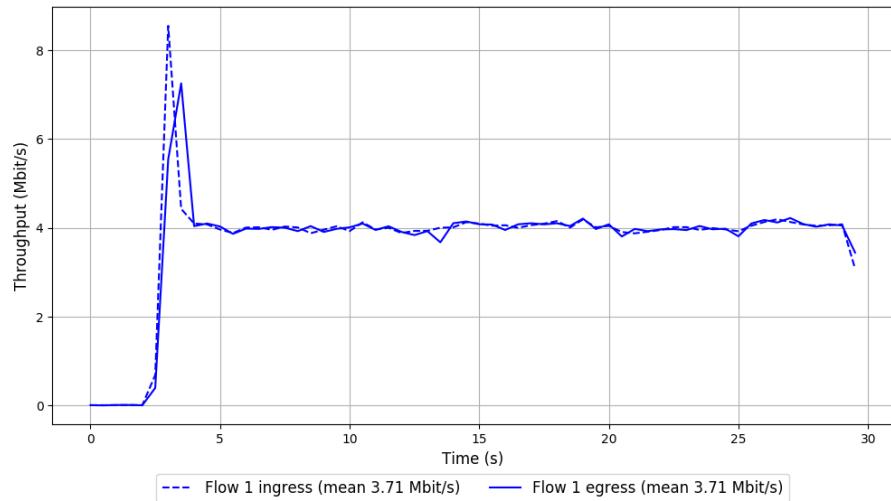


Run 2: Statistics of PCC

```
Start at: Mon, 07 Aug 2017 00:44:47 +0000
End at: Mon, 07 Aug 2017 00:45:17 +0000
Local clock offset: 0.524 ms
Remote clock offset: -0.842 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:26 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.71 Mbit/s
95th percentile per-packet one-way delay: 72.079 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 3.71 Mbit/s
95th percentile per-packet one-way delay: 72.079 ms
Loss rate: 0.17%
```

Run 2: Report of PCC — Data Link

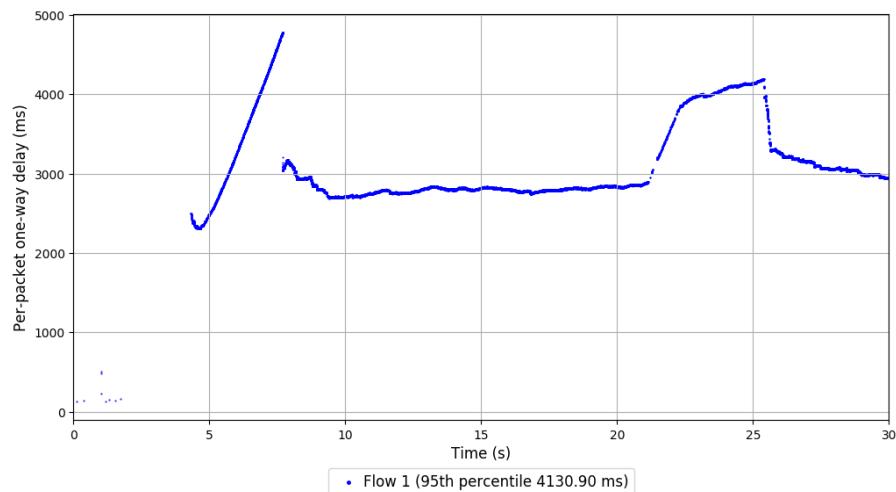
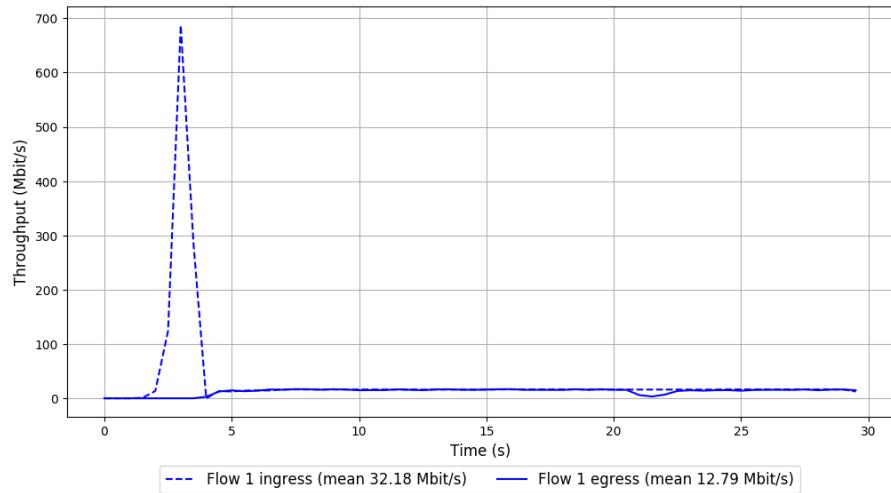


Run 3: Statistics of PCC

```
Start at: Mon, 07 Aug 2017 01:04:18 +0000
End at: Mon, 07 Aug 2017 01:04:48 +0000
Local clock offset: 0.346 ms
Remote clock offset: -0.643 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:29 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.79 Mbit/s
95th percentile per-packet one-way delay: 4130.902 ms
Loss rate: 60.35%
-- Flow 1:
Average throughput: 12.79 Mbit/s
95th percentile per-packet one-way delay: 4130.902 ms
Loss rate: 60.35%
```

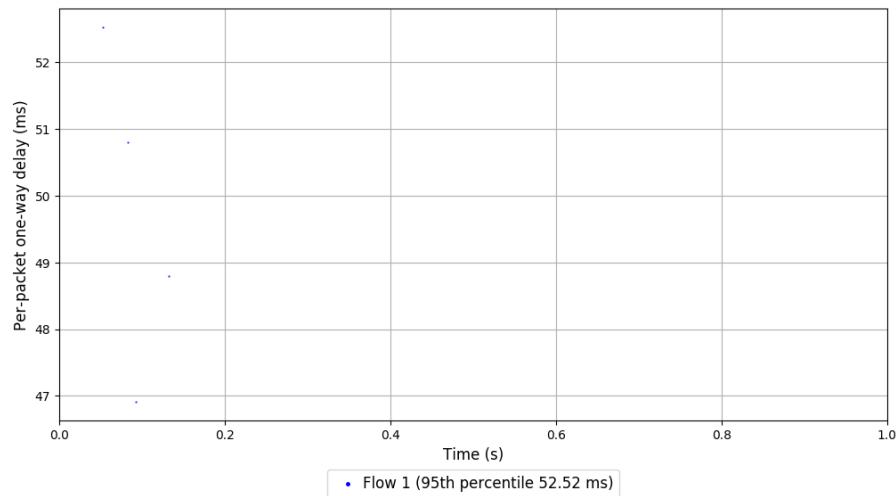
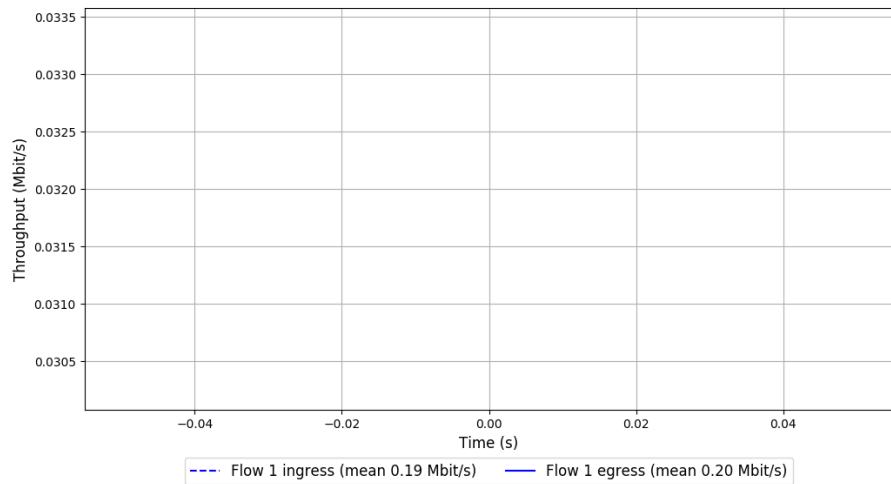
Run 3: Report of PCC — Data Link



Run 1: Statistics of QUIC Cubic

Start at: Mon, 07 Aug 2017 00:27:53 +0000
End at: Mon, 07 Aug 2017 00:28:23 +0000
Local clock offset: 0.52 ms
Remote clock offset: -0.481 ms

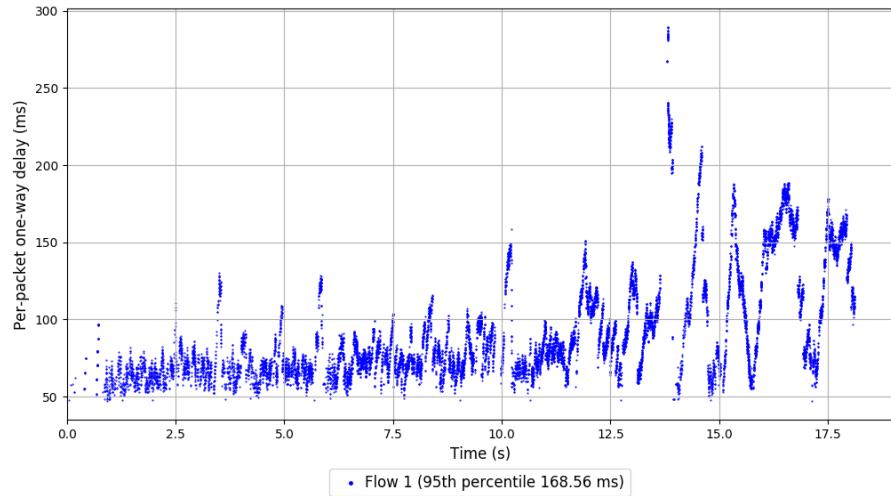
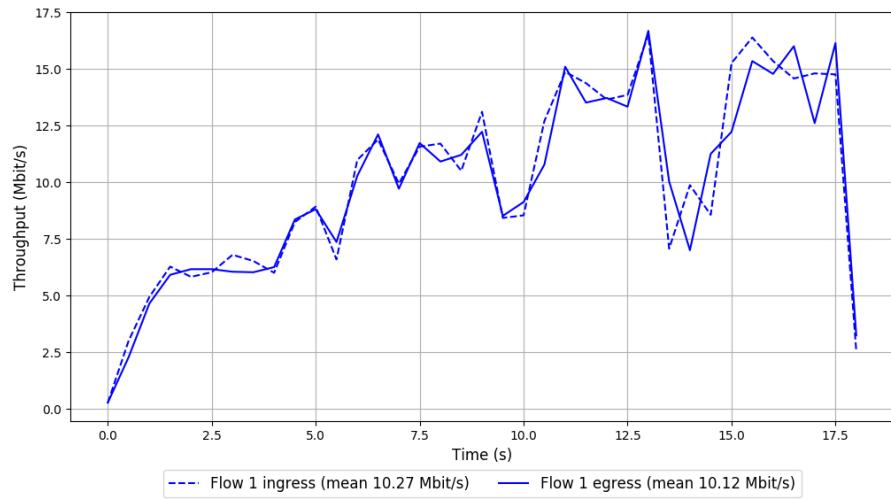
Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: Mon, 07 Aug 2017 00:47:22 +0000
End at: Mon, 07 Aug 2017 00:47:52 +0000
Local clock offset: 0.413 ms
Remote clock offset: -0.366 ms

Run 2: Report of QUIC Cubic — Data Link

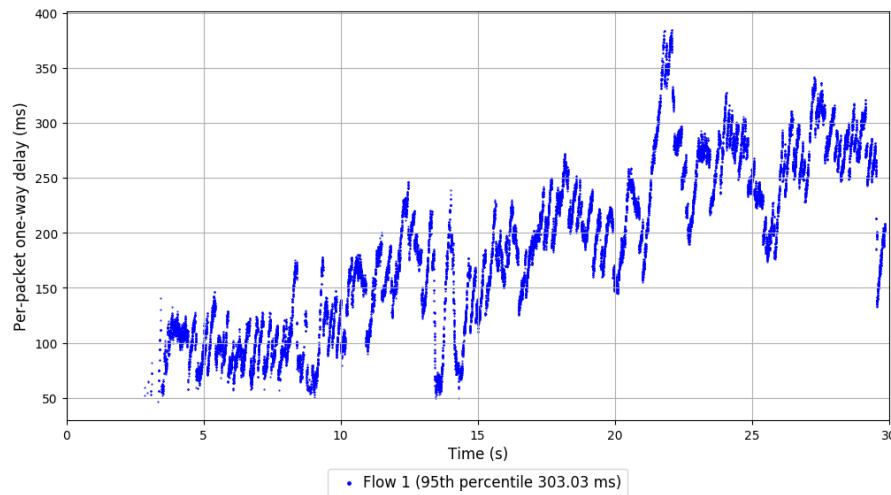
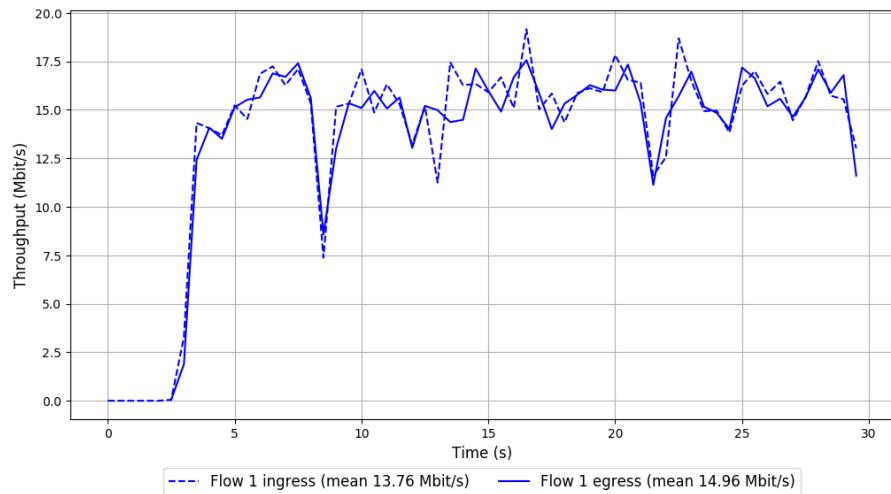


Run 3: Statistics of QUIC Cubic

```
Start at: Mon, 07 Aug 2017 01:06:55 +0000
End at: Mon, 07 Aug 2017 01:07:25 +0000
Local clock offset: 0.436 ms
Remote clock offset: -0.592 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:31 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 14.96 Mbit/s
95th percentile per-packet one-way delay: 303.029 ms
Loss rate: 1.45%
-- Flow 1:
Average throughput: 14.96 Mbit/s
95th percentile per-packet one-way delay: 303.029 ms
Loss rate: 1.45%
```

Run 3: Report of QUIC Cubic — Data Link

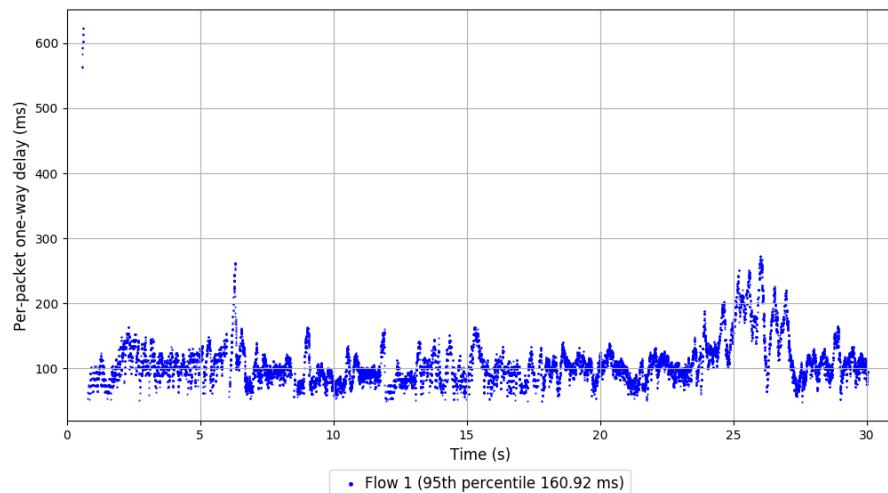
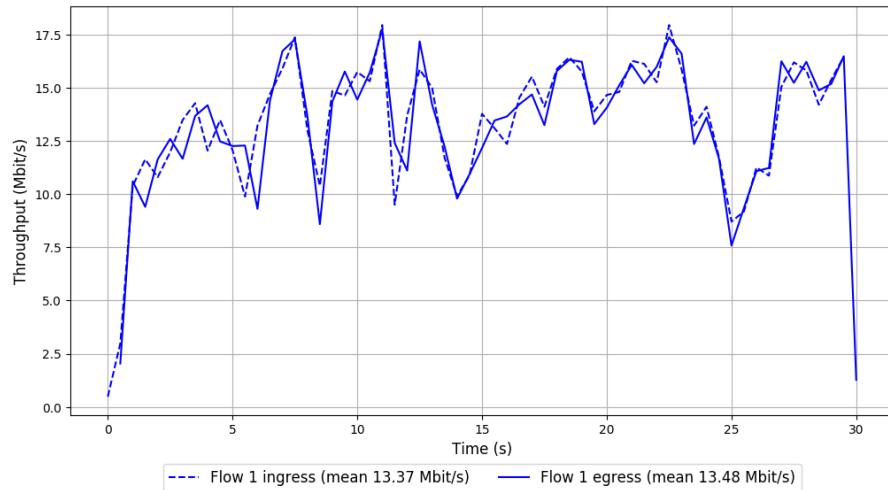


Run 1: Statistics of Saturator

```
Start at: Mon, 07 Aug 2017 00:18:43 +0000
End at: Mon, 07 Aug 2017 00:19:13 +0000
Local clock offset: 0.514 ms
Remote clock offset: 0.307 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:31 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 13.48 Mbit/s
95th percentile per-packet one-way delay: 160.924 ms
Loss rate: 0.89%
-- Flow 1:
Average throughput: 13.48 Mbit/s
95th percentile per-packet one-way delay: 160.924 ms
Loss rate: 0.89%
```

Run 1: Report of Saturator — Data Link

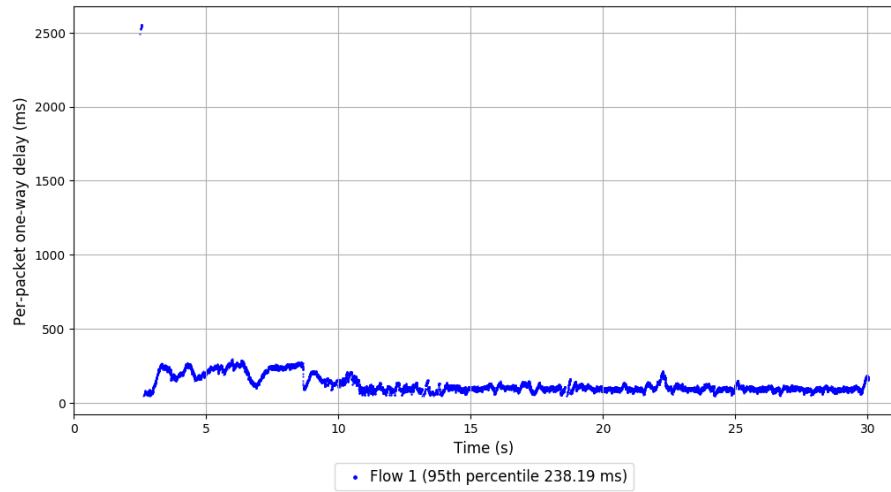
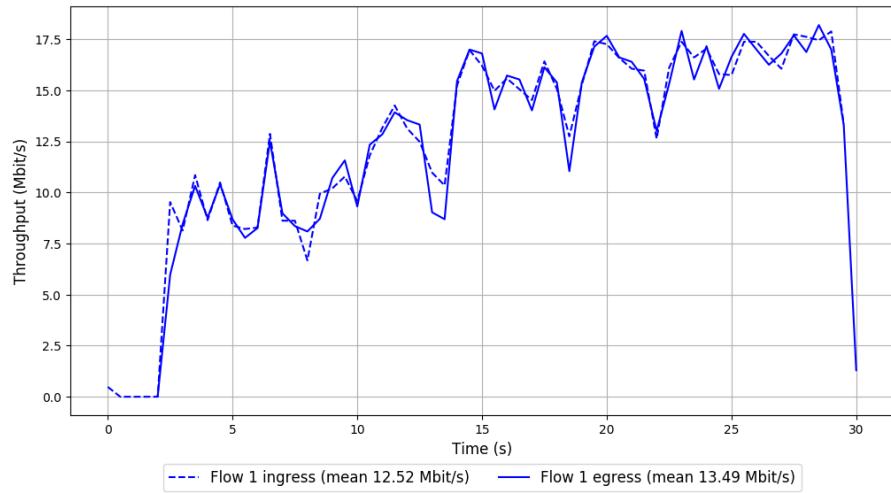


Run 2: Statistics of Saturator

```
Start at: Mon, 07 Aug 2017 00:38:16 +0000
End at: Mon, 07 Aug 2017 00:38:46 +0000
Local clock offset: 0.508 ms
Remote clock offset: -2.686 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:34 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 13.49 Mbit/s
95th percentile per-packet one-way delay: 238.186 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 13.49 Mbit/s
95th percentile per-packet one-way delay: 238.186 ms
Loss rate: 0.98%
```

Run 2: Report of Saturator — Data Link

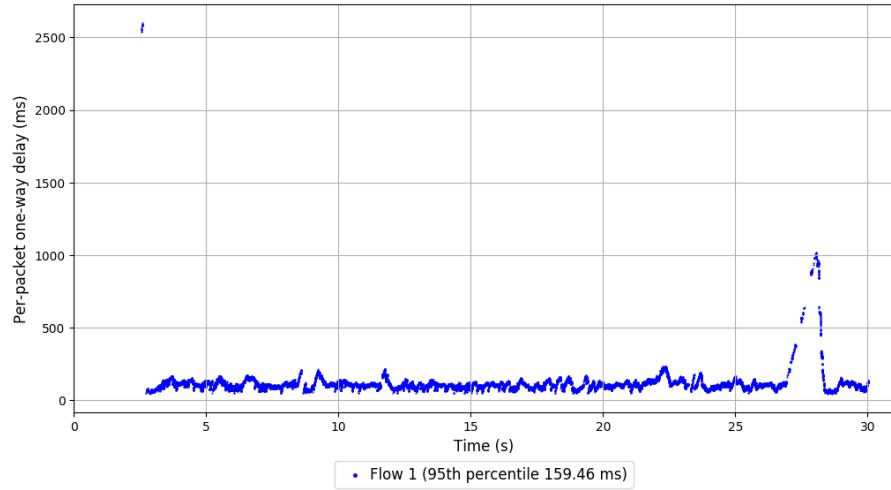
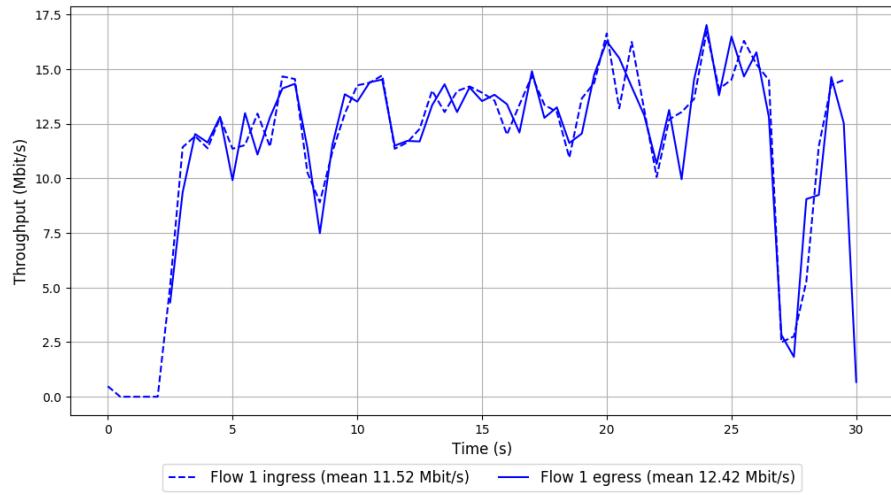


Run 3: Statistics of Saturator

```
Start at: Mon, 07 Aug 2017 00:57:47 +0000
End at: Mon, 07 Aug 2017 00:58:17 +0000
Local clock offset: 0.368 ms
Remote clock offset: -3.039 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:34 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.42 Mbit/s
95th percentile per-packet one-way delay: 159.464 ms
Loss rate: 1.16%
-- Flow 1:
Average throughput: 12.42 Mbit/s
95th percentile per-packet one-way delay: 159.464 ms
Loss rate: 1.16%
```

Run 3: Report of Saturator — Data Link



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

```
Start at: Mon, 07 Aug 2017 00:29:10 +0000
```

```
End at: Mon, 07 Aug 2017 00:29:40 +0000
```

```
Local clock offset: 0.55 ms
```

```
Remote clock offset: -2.543 ms
```

```
# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:35 +0000
```

```
# Datalink statistics
```

```
-- Total of 1 flow:
```

```
Average throughput: 0.08 Mbit/s
```

```
95th percentile per-packet one-way delay: 56.680 ms
```

```
Loss rate: 0.00%
```

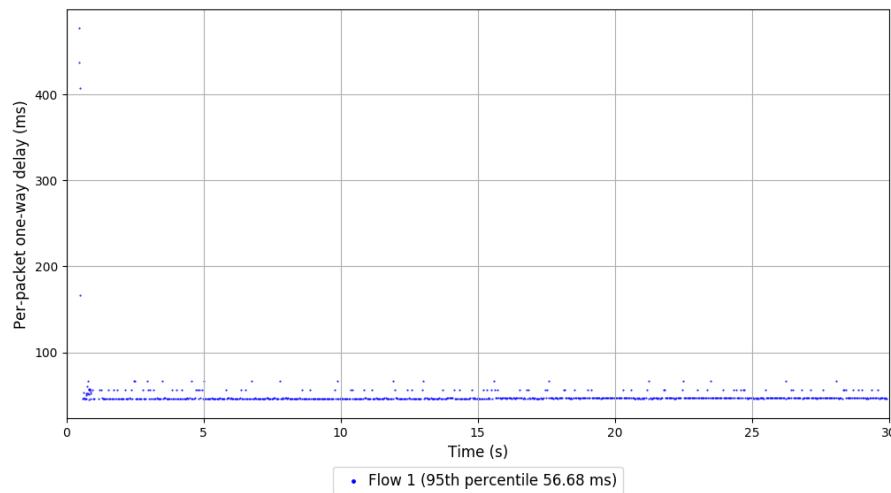
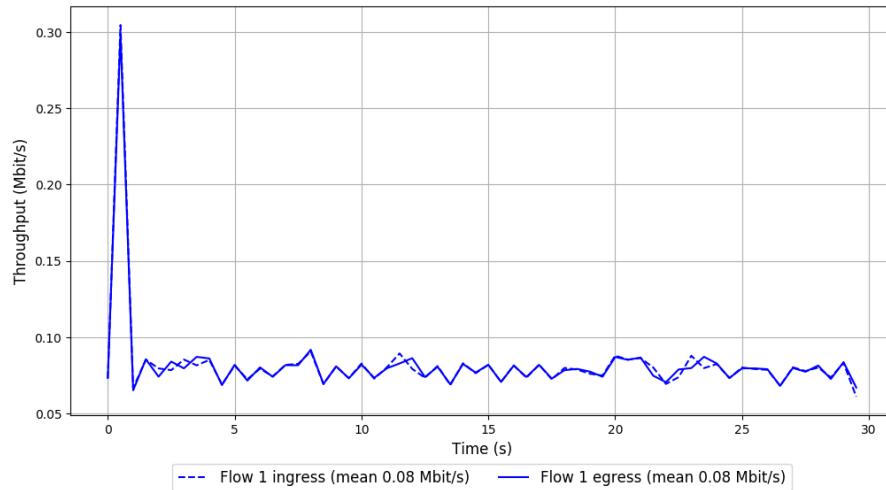
```
-- Flow 1:
```

```
Average throughput: 0.08 Mbit/s
```

```
95th percentile per-packet one-way delay: 56.680 ms
```

```
Loss rate: 0.00%
```

Run 1: Report of SCReAM — Data Link

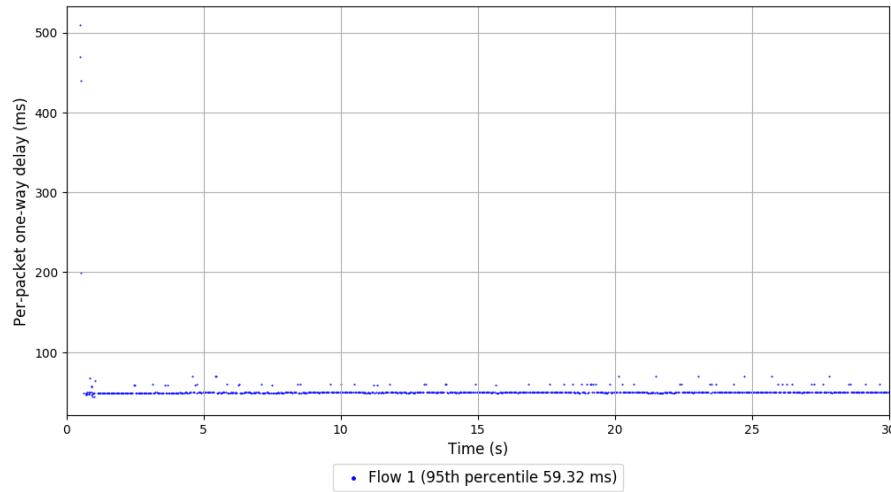
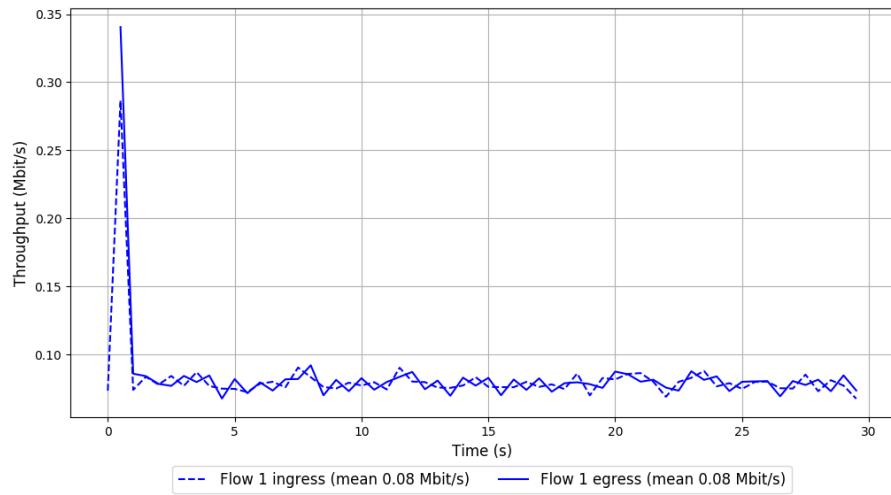


Run 2: Statistics of SCReAM

```
Start at: Mon, 07 Aug 2017 00:48:40 +0000
End at: Mon, 07 Aug 2017 00:49:10 +0000
Local clock offset: 0.435 ms
Remote clock offset: -3.027 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:35 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 59.317 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 59.317 ms
Loss rate: 0.00%
```

Run 2: Report of SCReAM — Data Link

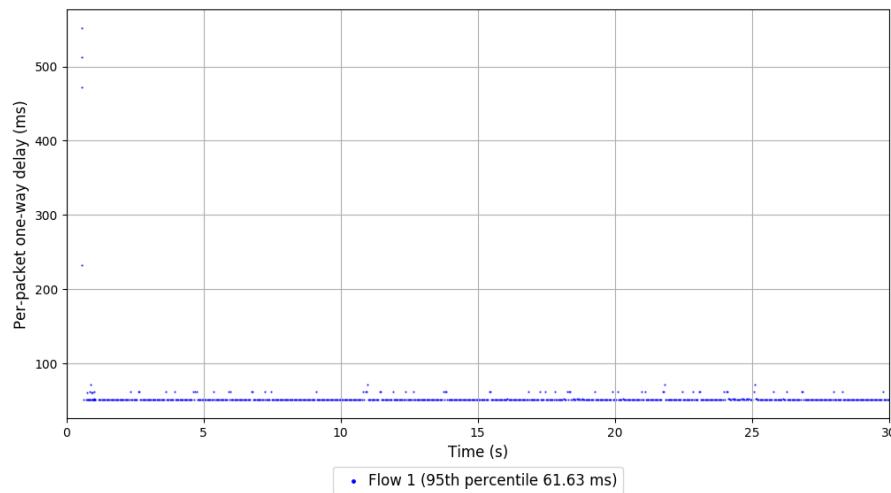
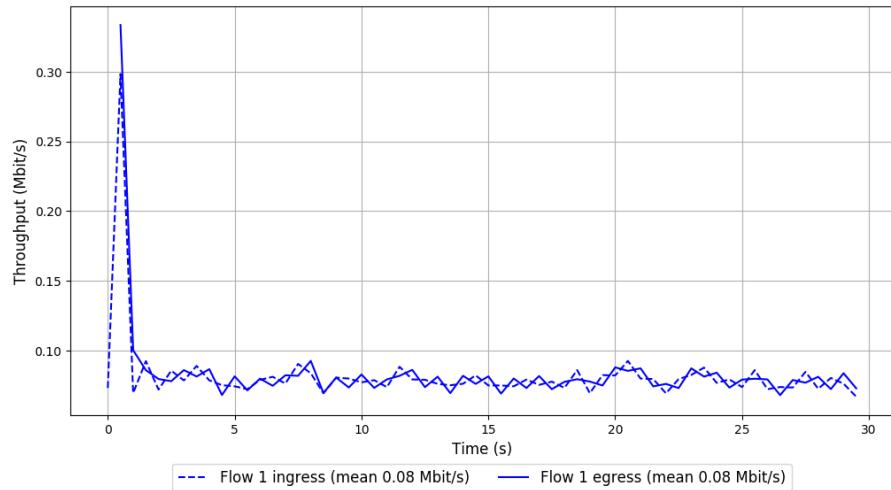


Run 3: Statistics of SCReAM

```
Start at: Mon, 07 Aug 2017 01:08:14 +0000
End at: Mon, 07 Aug 2017 01:08:44 +0000
Local clock offset: 0.404 ms
Remote clock offset: -0.57 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:36 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 61.626 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 61.626 ms
Loss rate: 0.00%
```

Run 3: Report of SCReAM — Data Link

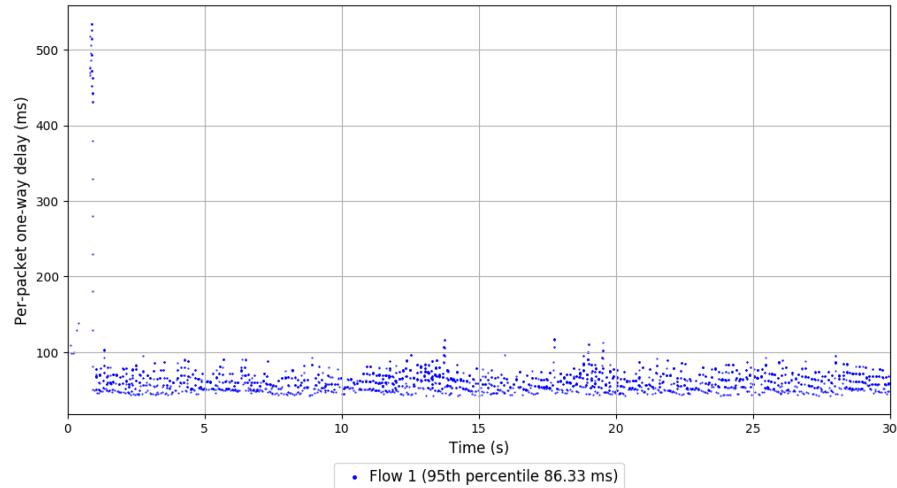
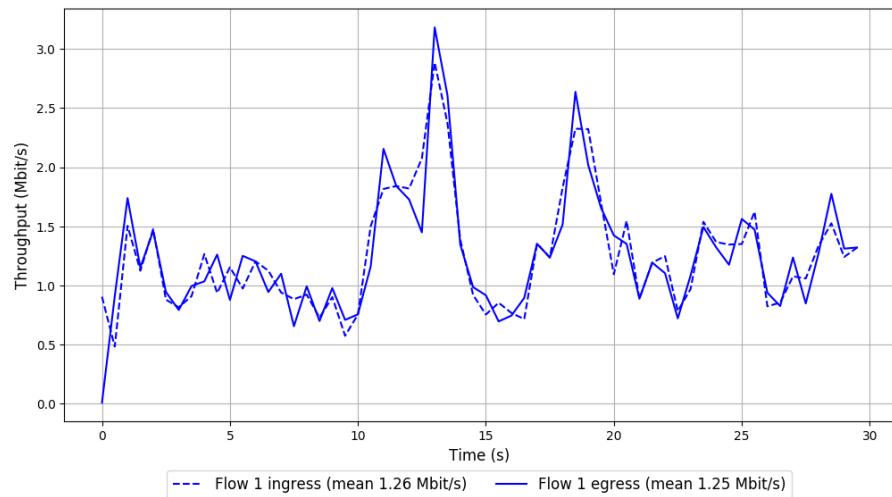


Run 1: Statistics of Sprout

```
Start at: Mon, 07 Aug 2017 00:33:05 +0000
End at: Mon, 07 Aug 2017 00:33:35 +0000
Local clock offset: 0.554 ms
Remote clock offset: -2.609 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:36 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.25 Mbit/s
95th percentile per-packet one-way delay: 86.326 ms
Loss rate: 0.28%
-- Flow 1:
Average throughput: 1.25 Mbit/s
95th percentile per-packet one-way delay: 86.326 ms
Loss rate: 0.28%
```

Run 1: Report of Sprout — Data Link

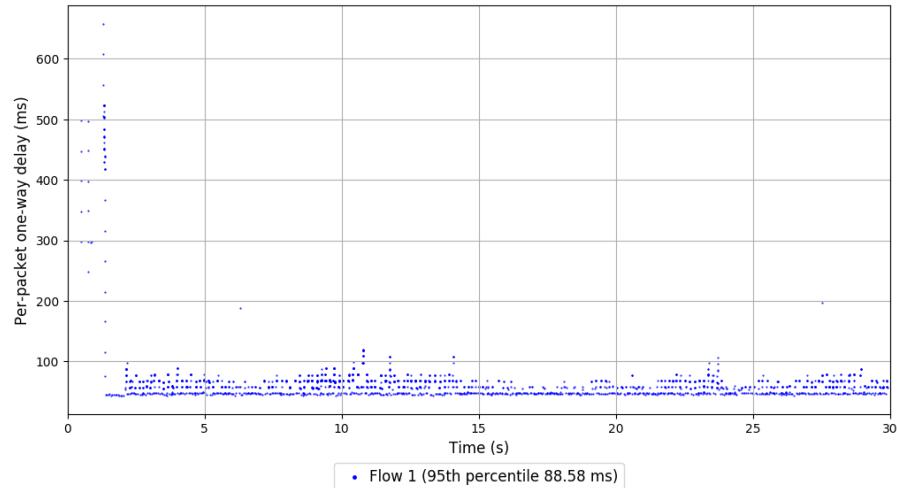
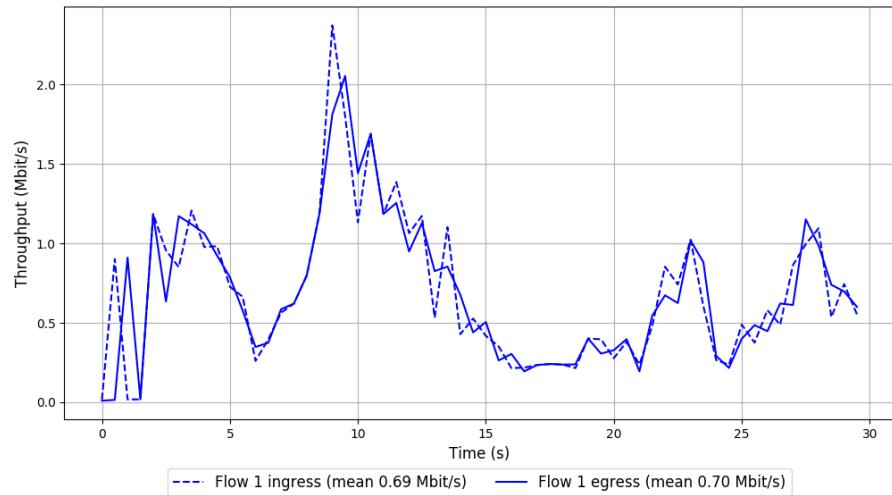


Run 2: Statistics of Sprout

```
Start at: Mon, 07 Aug 2017 00:52:35 +0000
End at: Mon, 07 Aug 2017 00:53:05 +0000
Local clock offset: 0.387 ms
Remote clock offset: -3.045 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:37 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.70 Mbit/s
95th percentile per-packet one-way delay: 88.582 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.70 Mbit/s
95th percentile per-packet one-way delay: 88.582 ms
Loss rate: 0.00%
```

Run 2: Report of Sprout — Data Link

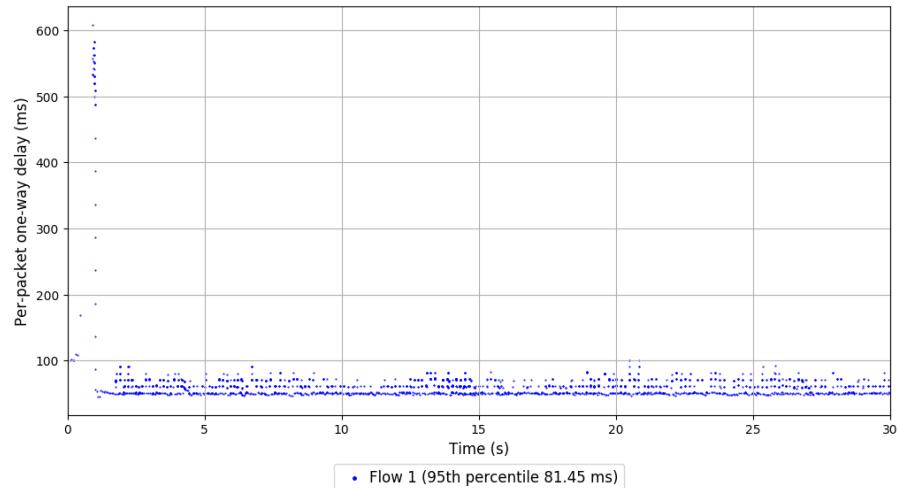
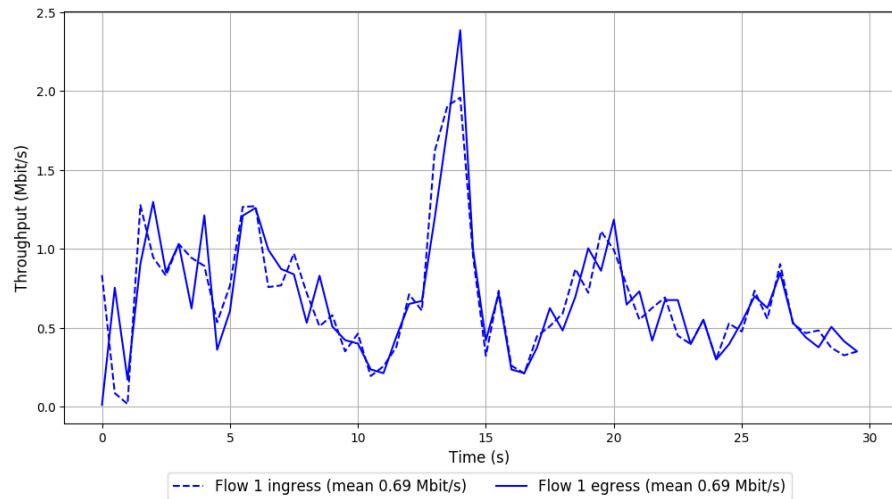


Run 3: Statistics of Sprout

```
Start at: Mon, 07 Aug 2017 01:12:09 +0000
End at: Mon, 07 Aug 2017 01:12:39 +0000
Local clock offset: 0.39 ms
Remote clock offset: -1.184 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:37 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.69 Mbit/s
95th percentile per-packet one-way delay: 81.446 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 0.69 Mbit/s
95th percentile per-packet one-way delay: 81.446 ms
Loss rate: 0.15%
```

Run 3: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: Mon, 07 Aug 2017 00:16:06 +0000

End at: Mon, 07 Aug 2017 00:16:36 +0000

Local clock offset: 0.605 ms

Remote clock offset: 0.273 ms

Below is generated by plot.py at Mon, 07 Aug 2017 01:15:39 +0000

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.25 Mbit/s

95th percentile per-packet one-way delay: 76.514 ms

Loss rate: 0.19%

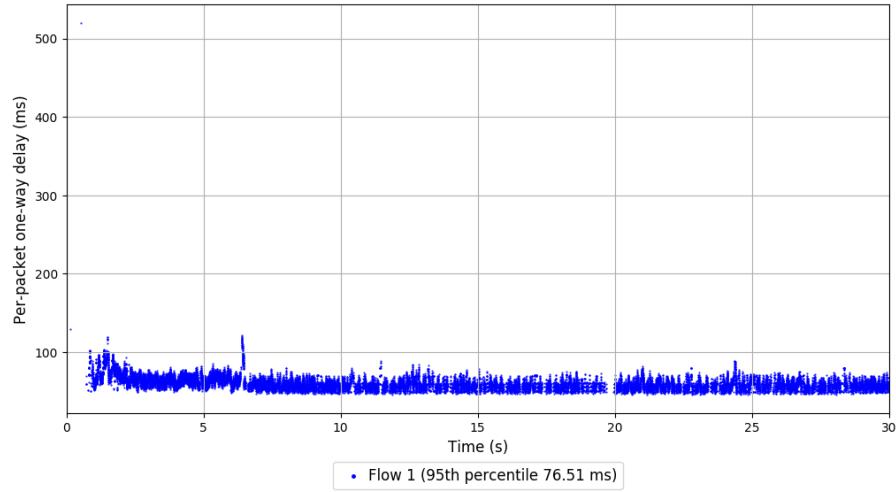
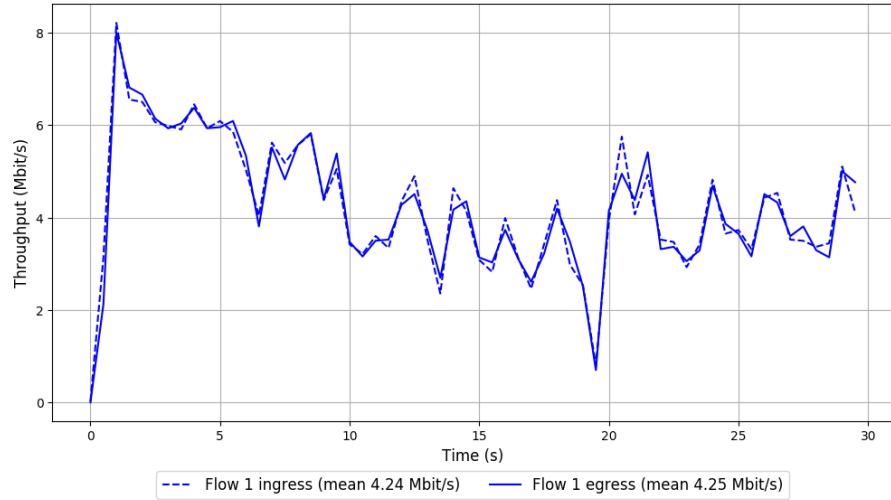
-- Flow 1:

Average throughput: 4.25 Mbit/s

95th percentile per-packet one-way delay: 76.514 ms

Loss rate: 0.19%

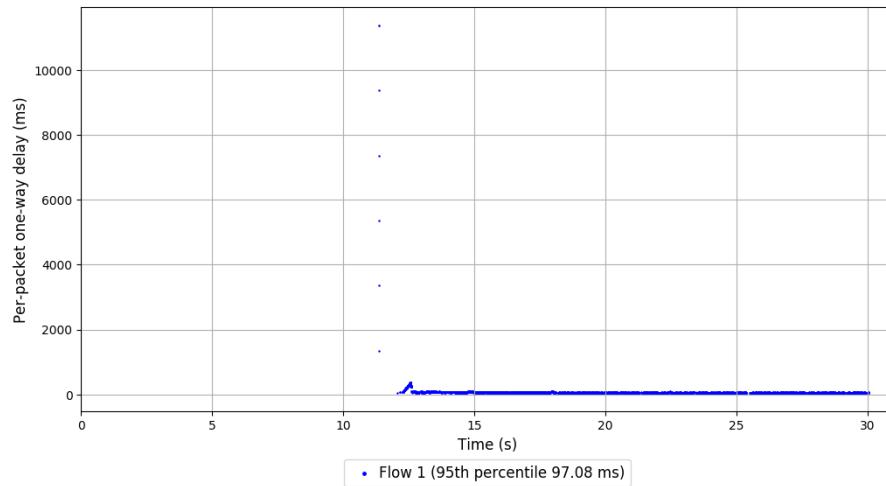
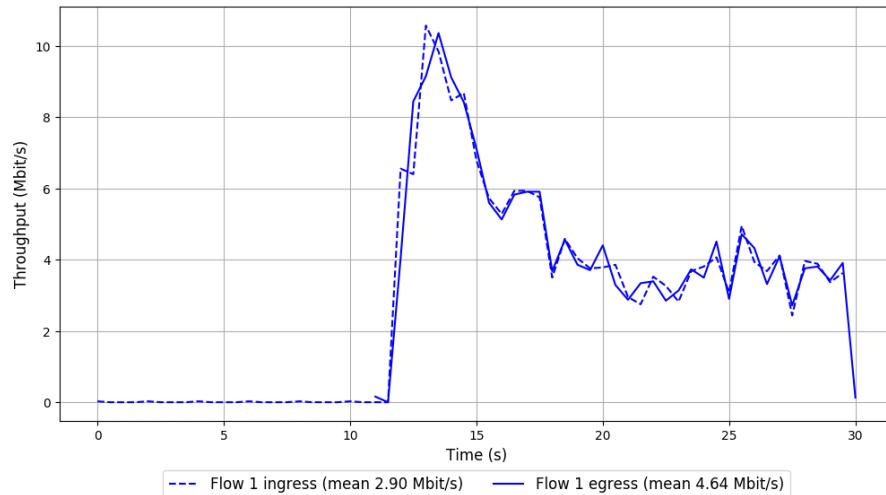
Run 1: Report of TaoVA-100x — Data Link



Run 2: Statistics of TaoVA-100x

Start at: Mon, 07 Aug 2017 00:35:41 +0000
End at: Mon, 07 Aug 2017 00:36:11 +0000
Local clock offset: 0.446 ms
Remote clock offset: -2.695 ms

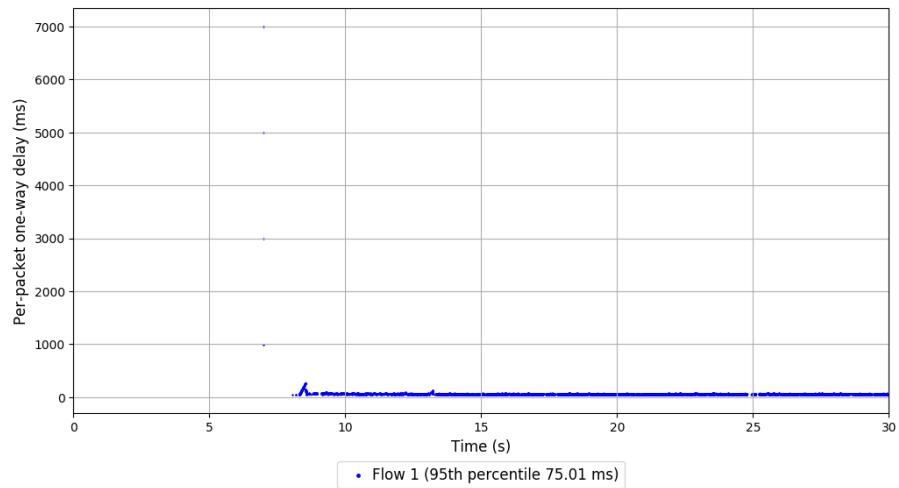
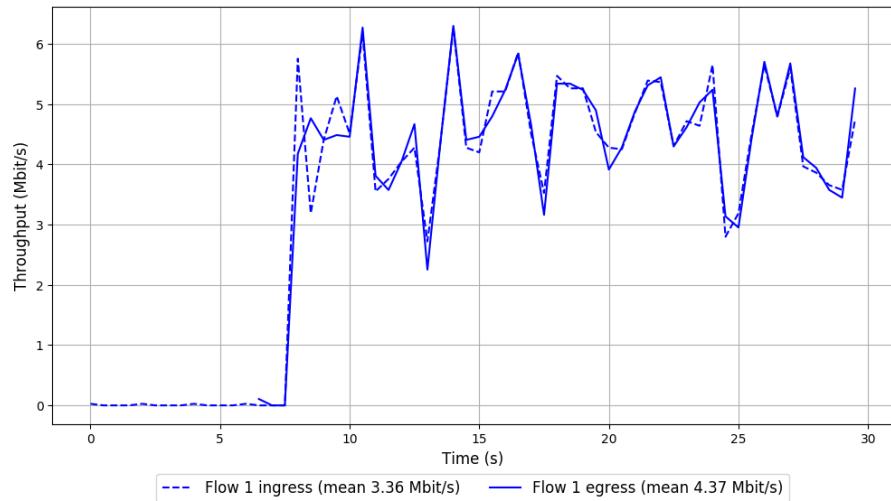
Run 2: Report of TaoVA-100x — Data Link



Run 3: Statistics of TaoVA-100x

Start at: Mon, 07 Aug 2017 00:55:11 +0000
End at: Mon, 07 Aug 2017 00:55:41 +0000
Local clock offset: 0.512 ms
Remote clock offset: -1.08 ms

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

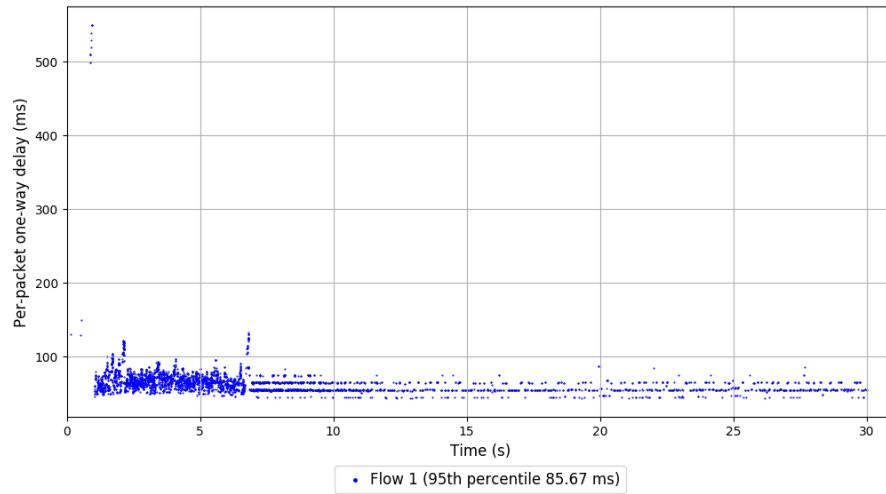
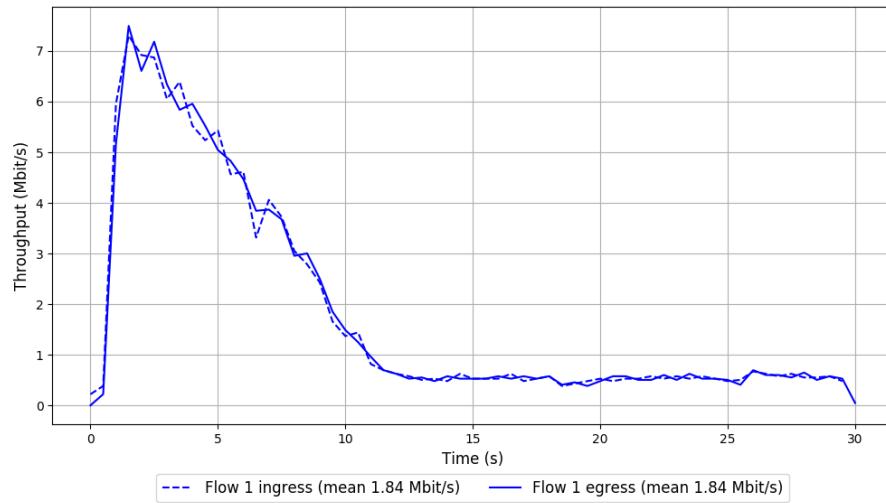


Run 1: Statistics of TCP Vegas

```
Start at: Mon, 07 Aug 2017 00:21:23 +0000
End at: Mon, 07 Aug 2017 00:21:53 +0000
Local clock offset: 0.495 ms
Remote clock offset: -2.277 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:41 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.84 Mbit/s
95th percentile per-packet one-way delay: 85.666 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 1.84 Mbit/s
95th percentile per-packet one-way delay: 85.666 ms
Loss rate: 0.02%
```

Run 1: Report of TCP Vegas — Data Link



Run 2: Statistics of TCP Vegas

Start at: Mon, 07 Aug 2017 00:40:53 +0000
End at: Mon, 07 Aug 2017 00:41:23 +0000
Local clock offset: 0.429 ms
Remote clock offset: -0.69 ms

Run 2: Report of TCP Vegas — Data Link

Figure is missing

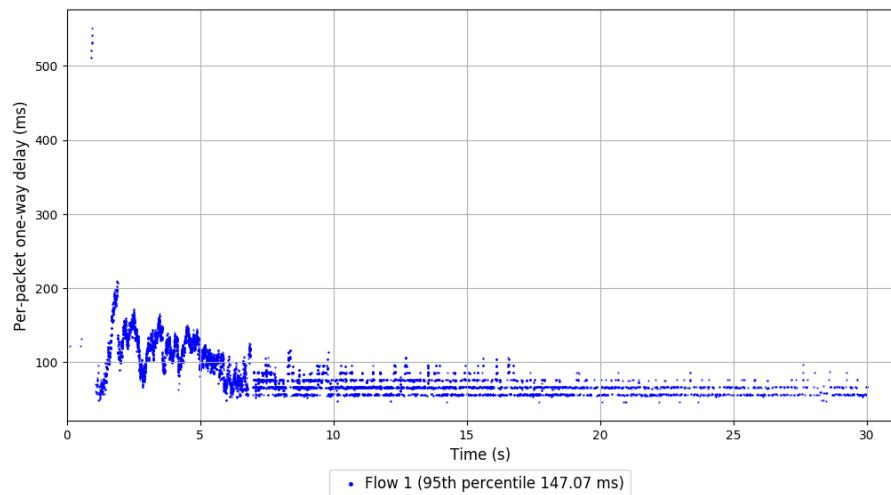
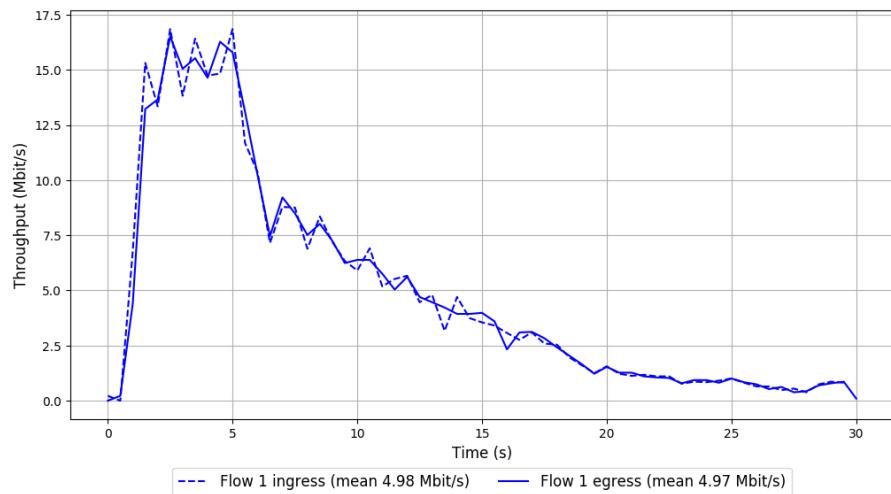
Figure is missing

Run 3: Statistics of TCP Vegas

```
Start at: Mon, 07 Aug 2017 01:00:24 +0000
End at: Mon, 07 Aug 2017 01:00:54 +0000
Local clock offset: 0.361 ms
Remote clock offset: -0.954 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:42 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.97 Mbit/s
95th percentile per-packet one-way delay: 147.071 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 4.97 Mbit/s
95th percentile per-packet one-way delay: 147.071 ms
Loss rate: 0.30%
```

Run 3: Report of TCP Vegas — Data Link

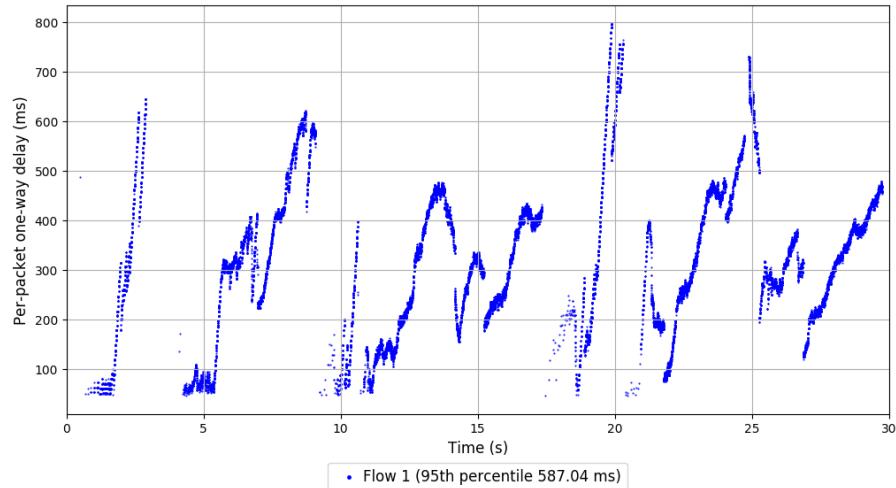
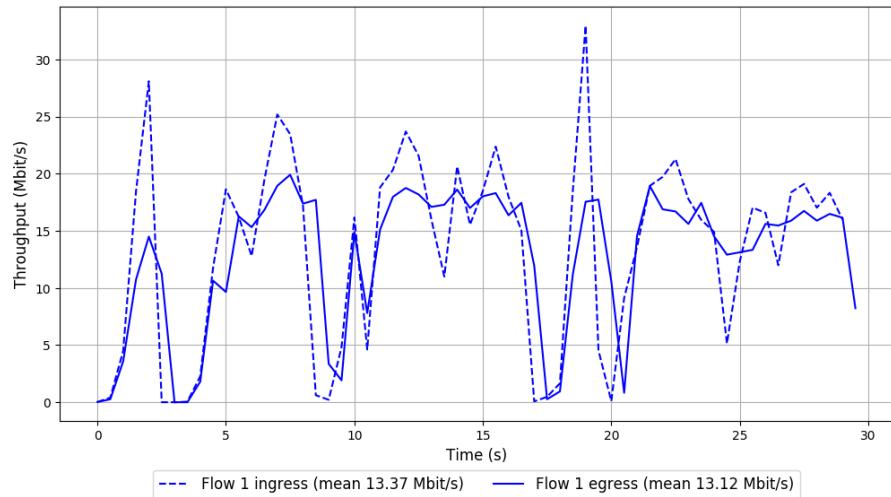


Run 1: Statistics of Verus

```
Start at: Mon, 07 Aug 2017 00:31:46 +0000
End at: Mon, 07 Aug 2017 00:32:16 +0000
Local clock offset: 0.46 ms
Remote clock offset: -0.477 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:43 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 13.12 Mbit/s
95th percentile per-packet one-way delay: 587.037 ms
Loss rate: 2.46%
-- Flow 1:
Average throughput: 13.12 Mbit/s
95th percentile per-packet one-way delay: 587.037 ms
Loss rate: 2.46%
```

Run 1: Report of Verus — Data Link

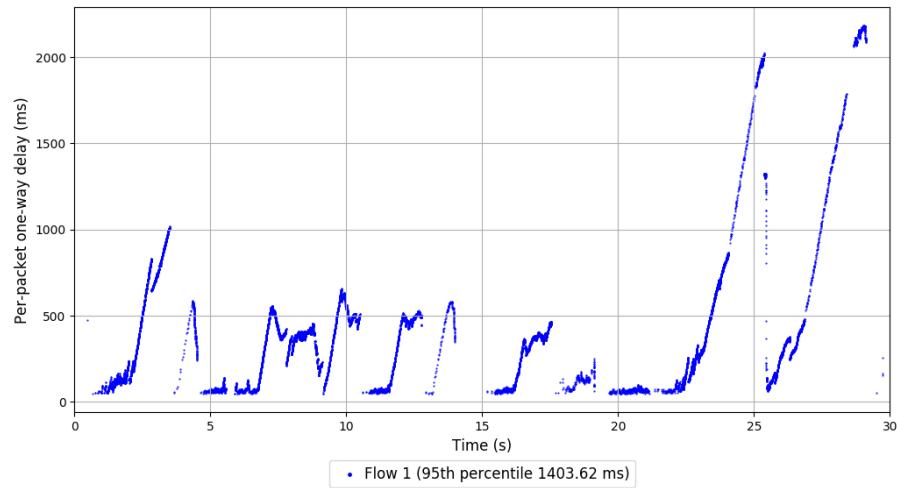
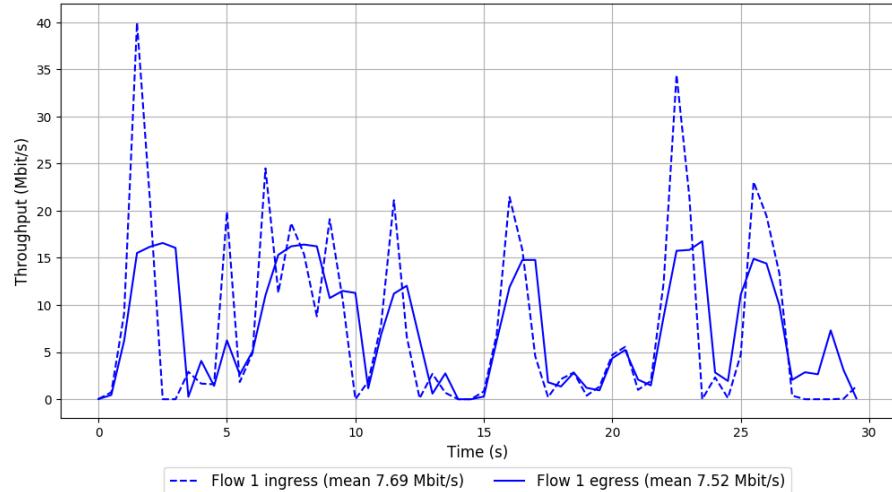


Run 2: Statistics of Verus

```
Start at: Mon, 07 Aug 2017 00:51:16 +0000
End at: Mon, 07 Aug 2017 00:51:46 +0000
Local clock offset: 0.495 ms
Remote clock offset: -0.541 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:44 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.52 Mbit/s
95th percentile per-packet one-way delay: 1403.616 ms
Loss rate: 3.56%
-- Flow 1:
Average throughput: 7.52 Mbit/s
95th percentile per-packet one-way delay: 1403.616 ms
Loss rate: 3.56%
```

Run 2: Report of Verus — Data Link

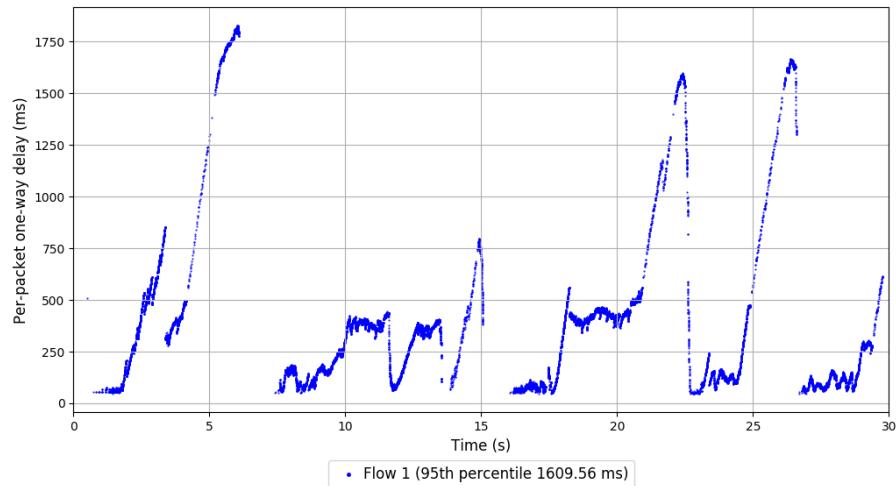
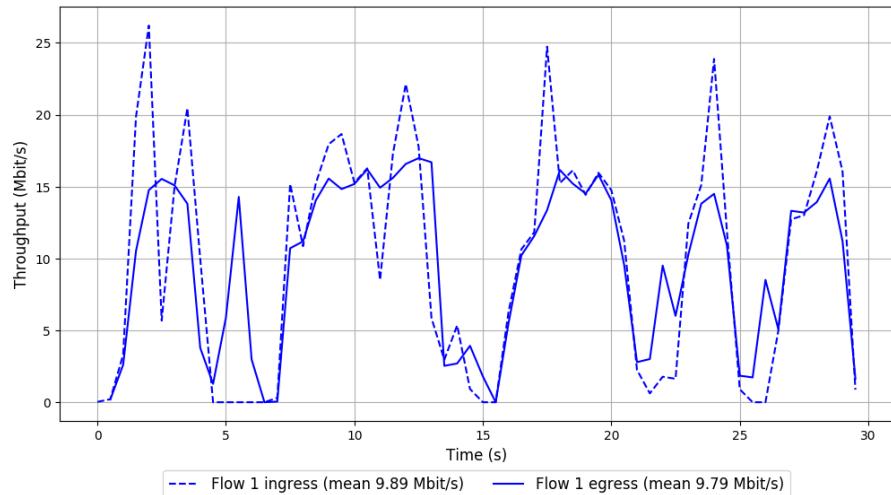


Run 3: Statistics of Verus

```
Start at: Mon, 07 Aug 2017 01:10:50 +0000
End at: Mon, 07 Aug 2017 01:11:20 +0000
Local clock offset: 0.391 ms
Remote clock offset: -3.093 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:46 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.79 Mbit/s
95th percentile per-packet one-way delay: 1609.563 ms
Loss rate: 2.32%
-- Flow 1:
Average throughput: 9.79 Mbit/s
95th percentile per-packet one-way delay: 1609.563 ms
Loss rate: 2.32%
```

Run 3: Report of Verus — Data Link

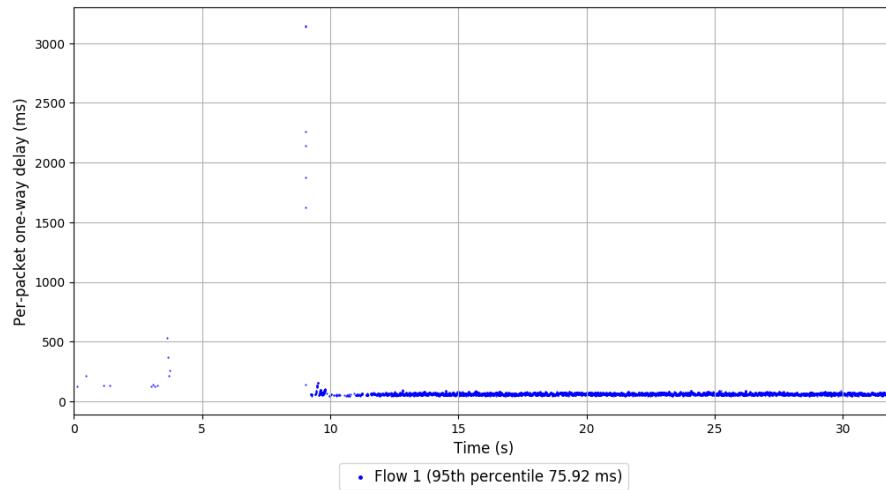
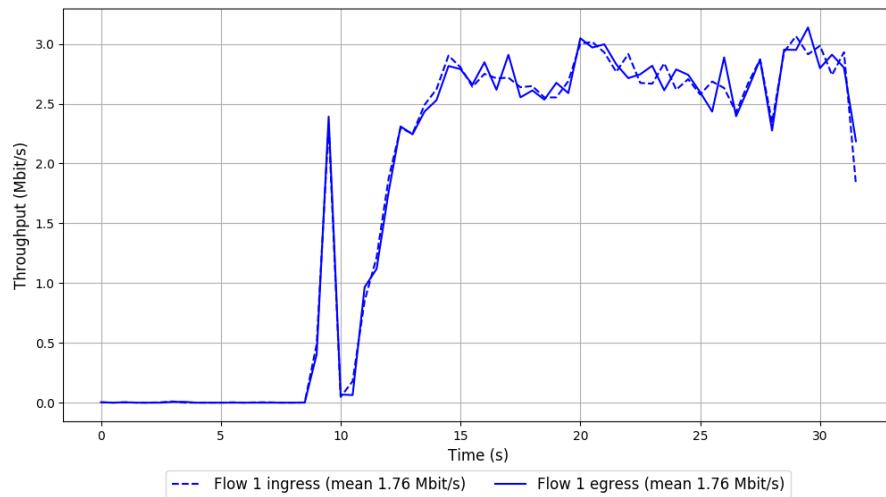


```
Run 1: Statistics of WebRTC media

Start at: Mon, 07 Aug 2017 00:17:24 +0000
End at: Mon, 07 Aug 2017 00:17:54 +0000
Local clock offset: 0.517 ms
Remote clock offset: -0.115 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:46 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.76 Mbit/s
95th percentile per-packet one-way delay: 75.918 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.76 Mbit/s
95th percentile per-packet one-way delay: 75.918 ms
Loss rate: 0.00%
```

Run 1: Report of WebRTC media — Data Link

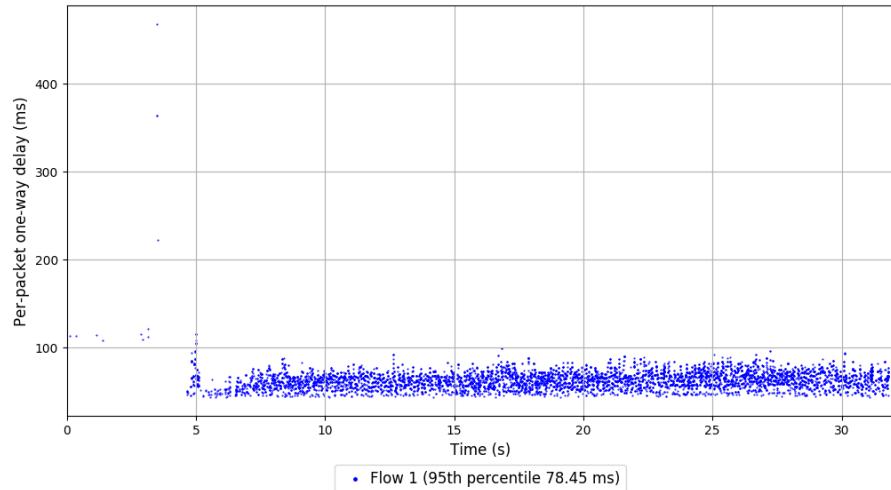
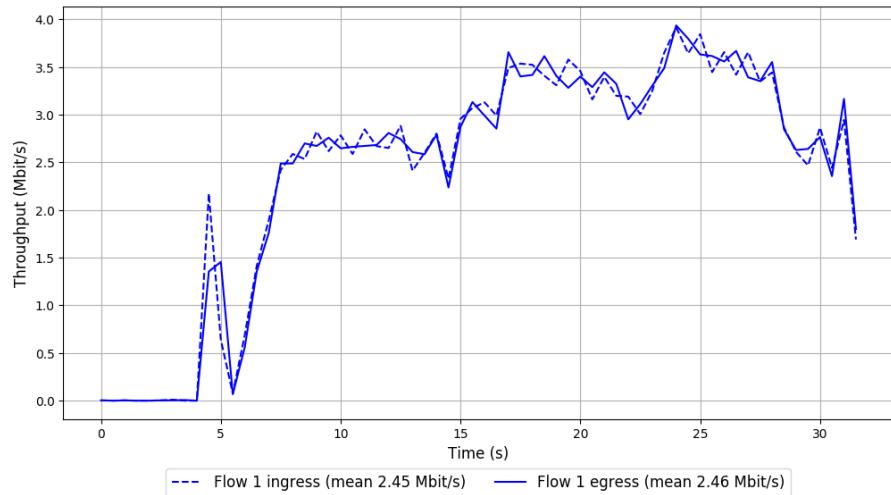


Run 2: Statistics of WebRTC media

```
Start at: Mon, 07 Aug 2017 00:36:59 +0000
End at: Mon, 07 Aug 2017 00:37:29 +0000
Local clock offset: 0.516 ms
Remote clock offset: -2.624 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:46 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.46 Mbit/s
95th percentile per-packet one-way delay: 78.454 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 2.46 Mbit/s
95th percentile per-packet one-way delay: 78.454 ms
Loss rate: 0.16%
```

Run 2: Report of WebRTC media — Data Link



```
Run 3: Statistics of WebRTC media

Start at: Mon, 07 Aug 2017 00:56:28 +0000
End at: Mon, 07 Aug 2017 00:56:59 +0000
Local clock offset: 0.356 ms
Remote clock offset: -3.057 ms

# Below is generated by plot.py at Mon, 07 Aug 2017 01:15:47 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.50 Mbit/s
95th percentile per-packet one-way delay: 77.189 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 2.50 Mbit/s
95th percentile per-packet one-way delay: 77.189 ms
Loss rate: 0.02%
```

Run 3: Report of WebRTC media — Data Link

