

Pantheon Summary (Generated at Sun, 06 Aug 2017 09:20:47 +0000 with pantheon version a934ee3822380a12762347e6bc8bd1f3e836e73b)

Repeated the test of 15 congestion control schemes 3 times.

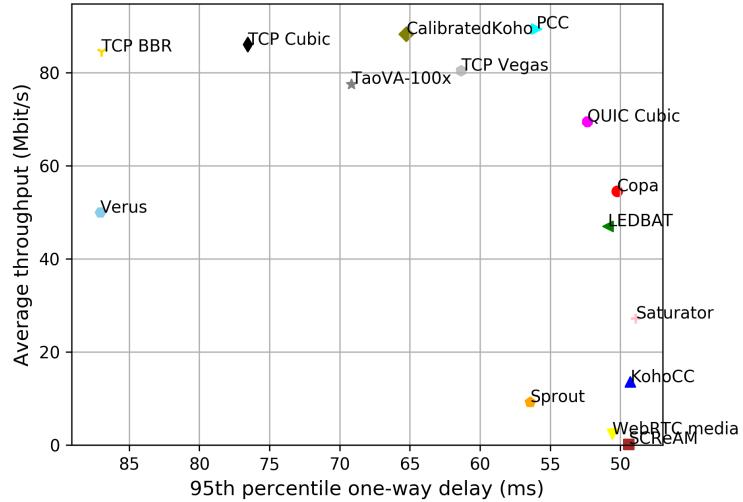
Each test lasted for 30 seconds running 1 flow.

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

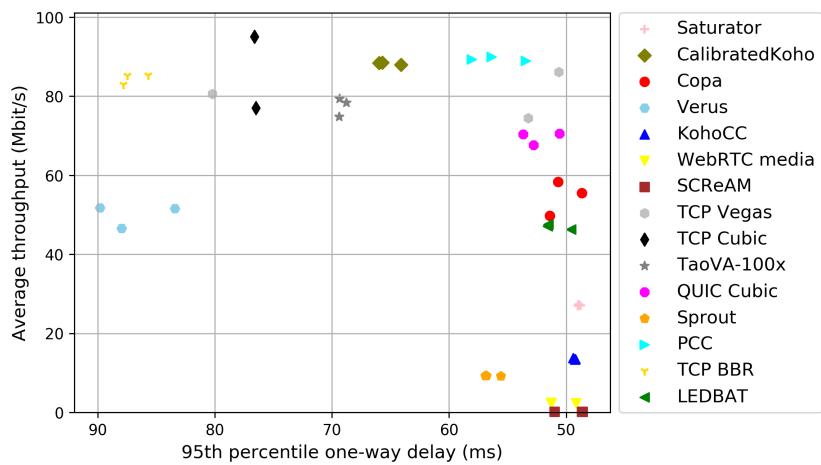
NTP offset measured against time.stanford.edu and has been applied to correct the timestamps in logs.

```
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 Ethernet, 3 runs of 30s each per scheme
(mean of all runs by scheme)



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



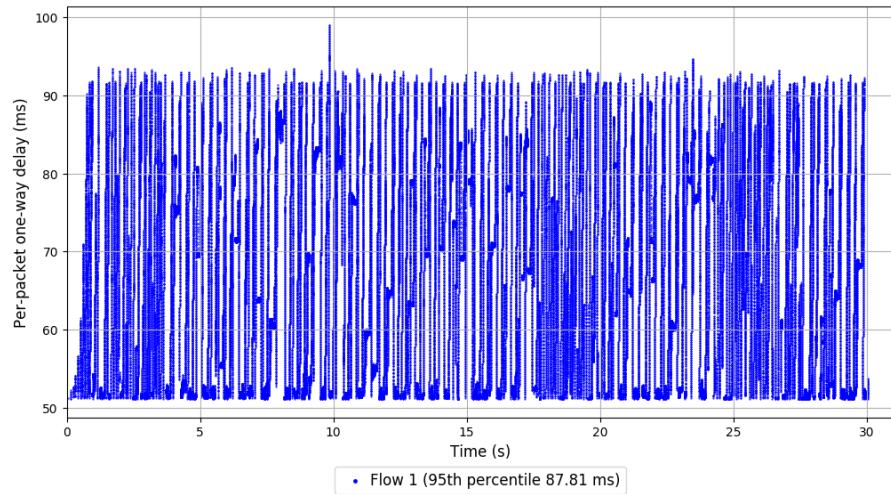
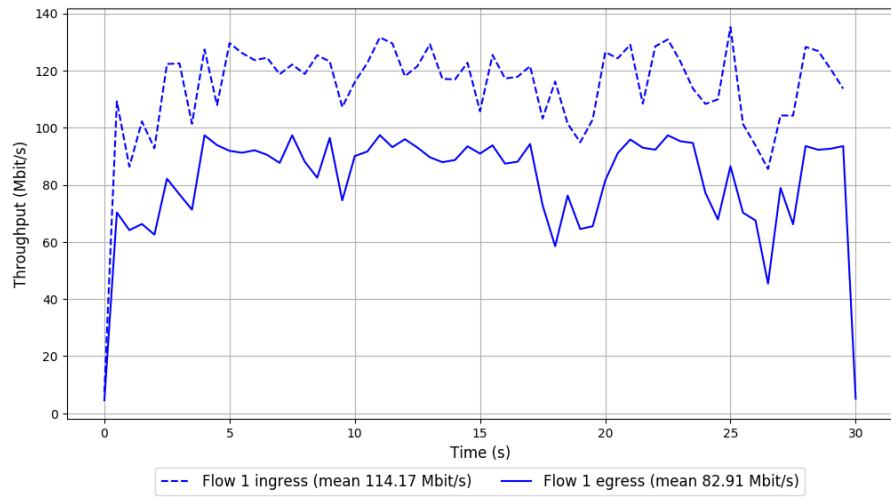
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	84.49	86.99	26.11
CalibratedKoho	3	88.30	65.26	0.01
Copa	3	54.53	50.25	0.02
TCP Cubic	3	86.04	76.57	0.26
KohoCC	3	13.58	49.29	0.00
LEDBAT	3	47.02	50.90	0.00
PCC	3	89.39	55.98	0.80
QUIC Cubic	3	69.50	52.35	0.55
Saturator	3	27.15	48.91	0.00
SCReAM	3	0.22	49.42	0.00
Sprout	3	9.26	56.43	0.06
TaoVA-100x	3	77.53	69.18	0.02
TCP Vegas	3	80.39	61.37	0.29
Verus	3	49.98	87.06	45.75
WebRTC media	3	2.38	50.58	0.05

Run 1: Statistics of TCP BBR

```
Start at: Sun, 06 Aug 2017 08:23:05 +0000
End at: Sun, 06 Aug 2017 08:23:35 +0000
Local clock offset: 0.774 ms
Remote clock offset: 0.762 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:17:42 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 82.91 Mbit/s
95th percentile per-packet one-way delay: 87.810 ms
Loss rate: 27.38%
-- Flow 1:
Average throughput: 82.91 Mbit/s
95th percentile per-packet one-way delay: 87.810 ms
Loss rate: 27.38%
```

Run 1: Report of TCP BBR — Data Link

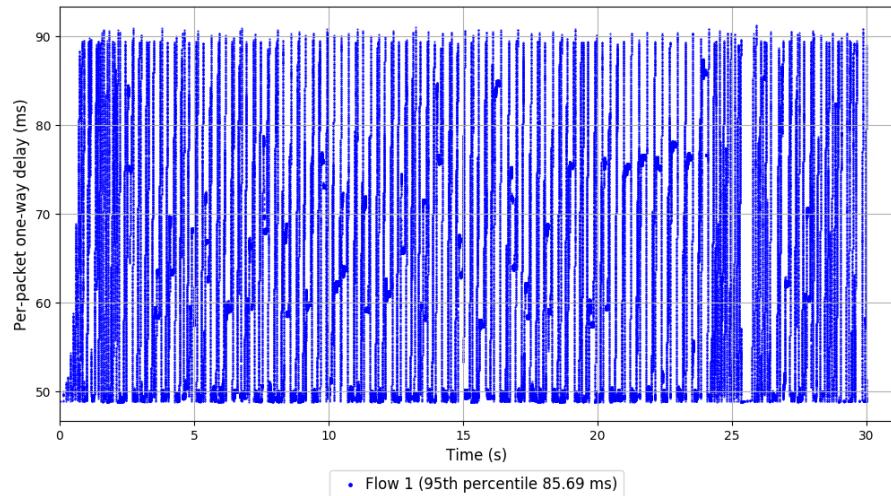
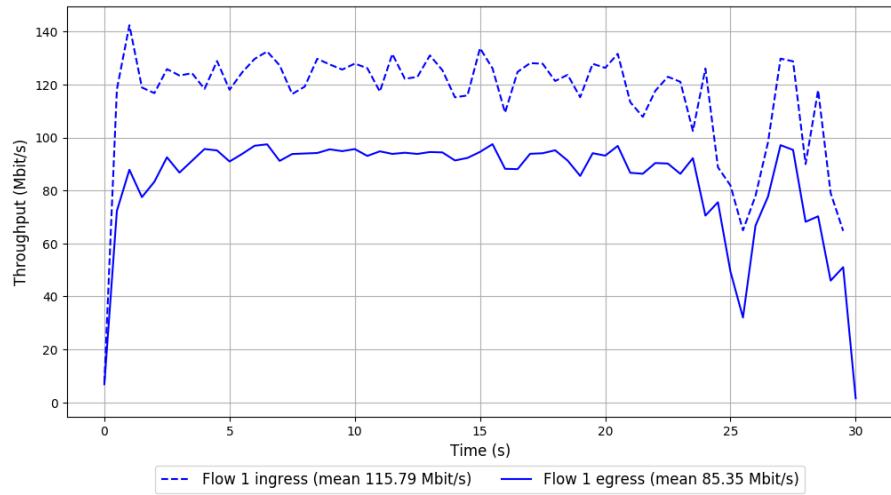


Run 2: Statistics of TCP BBR

```
Start at: Sun, 06 Aug 2017 08:43:16 +0000
End at: Sun, 06 Aug 2017 08:43:46 +0000
Local clock offset: 0.698 ms
Remote clock offset: 0.279 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:17:42 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 85.35 Mbit/s
95th percentile per-packet one-way delay: 85.691 ms
Loss rate: 26.29%
-- Flow 1:
Average throughput: 85.35 Mbit/s
95th percentile per-packet one-way delay: 85.691 ms
Loss rate: 26.29%
```

Run 2: Report of TCP BBR — Data Link

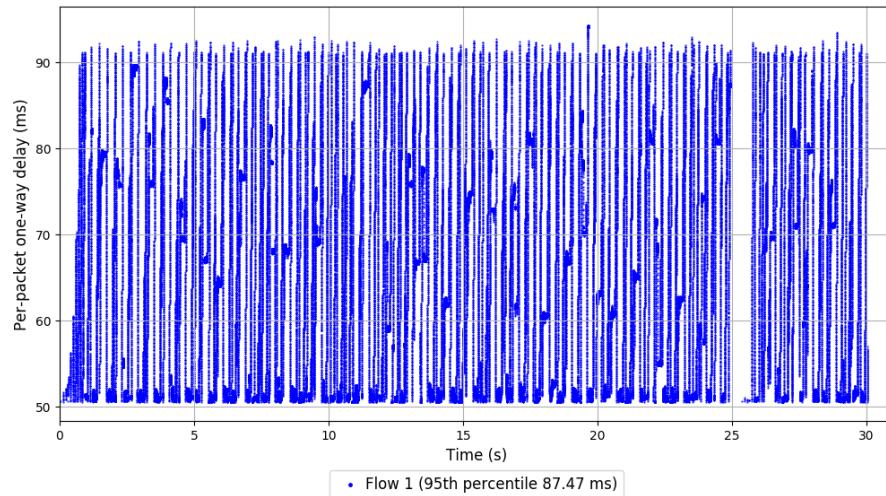
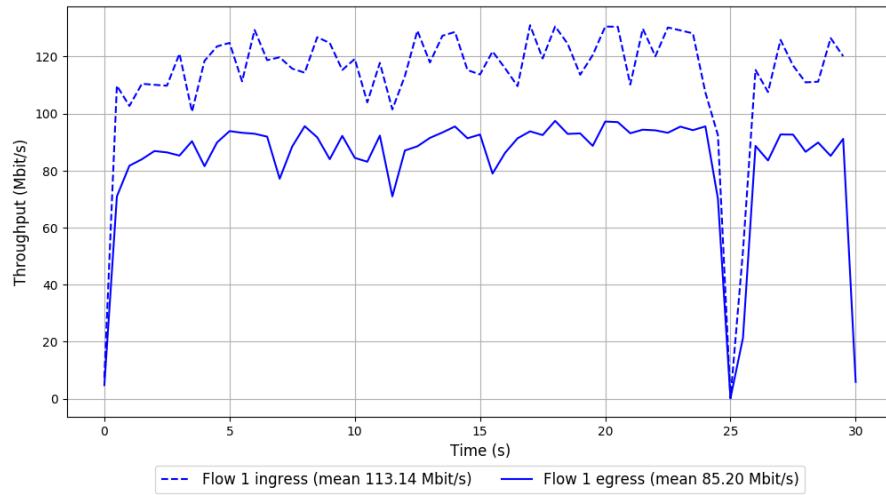


Run 3: Statistics of TCP BBR

```
Start at: Sun, 06 Aug 2017 09:03:23 +0000
End at: Sun, 06 Aug 2017 09:03:53 +0000
Local clock offset: 0.597 ms
Remote clock offset: 0.641 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:17:55 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 85.20 Mbit/s
95th percentile per-packet one-way delay: 87.466 ms
Loss rate: 24.67%
-- Flow 1:
Average throughput: 85.20 Mbit/s
95th percentile per-packet one-way delay: 87.466 ms
Loss rate: 24.67%
```

Run 3: Report of TCP BBR — Data Link



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

```
Start at: Sun, 06 Aug 2017 08:19:00 +0000
```

```
End at: Sun, 06 Aug 2017 08:19:30 +0000
```

```
Local clock offset: 0.789 ms
```

```
Remote clock offset: -1.946 ms
```

```
# Below is generated by plot.py at Sun, 06 Aug 2017 09:17:55 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 87.99 Mbit/s
```

```
95th percentile per-packet one-way delay: 64.090 ms
```

```
Loss rate: 0.00%
```

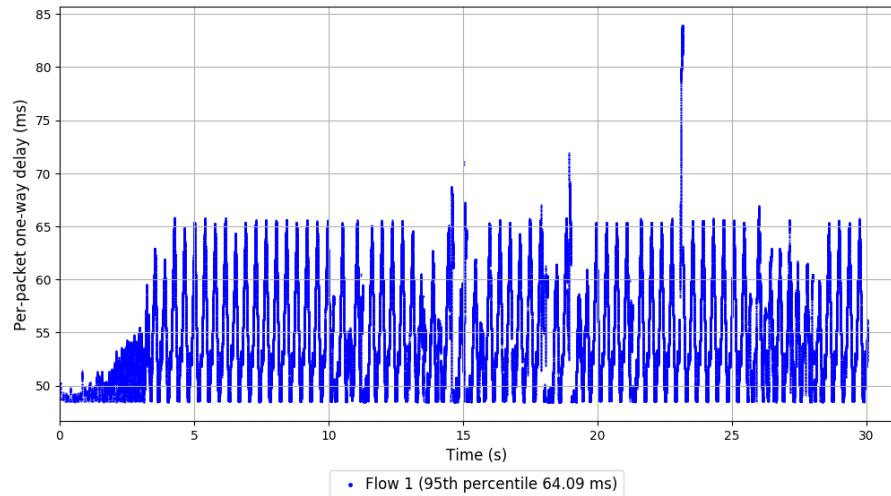
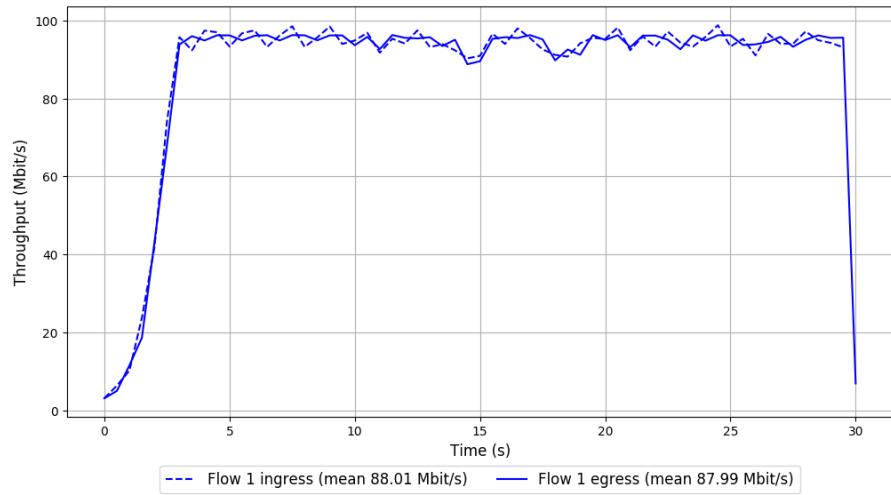
```
-- Flow 1:
```

```
Average throughput: 87.99 Mbit/s
```

```
95th percentile per-packet one-way delay: 64.090 ms
```

```
Loss rate: 0.00%
```

Run 1: Report of CalibratedKoho — Data Link

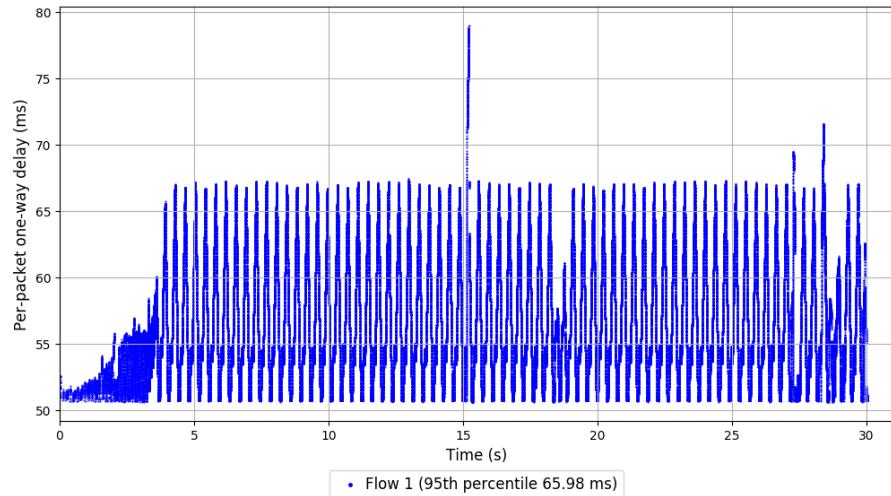
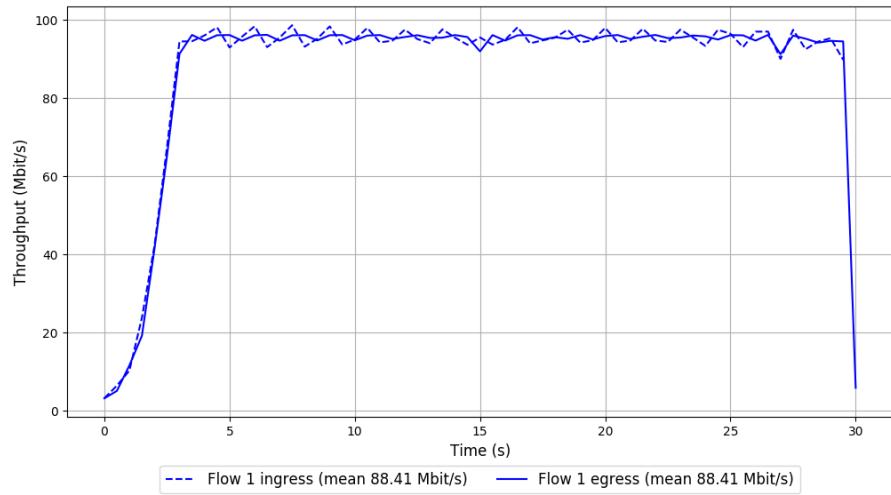


Run 2: Statistics of CalibratedKoho

```
Start at: Sun, 06 Aug 2017 08:39:12 +0000
End at: Sun, 06 Aug 2017 08:39:42 +0000
Local clock offset: 0.797 ms
Remote clock offset: 0.715 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:18:07 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 88.41 Mbit/s
95th percentile per-packet one-way delay: 65.980 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 88.41 Mbit/s
95th percentile per-packet one-way delay: 65.980 ms
Loss rate: 0.00%
```

Run 2: Report of CalibratedKoho — Data Link

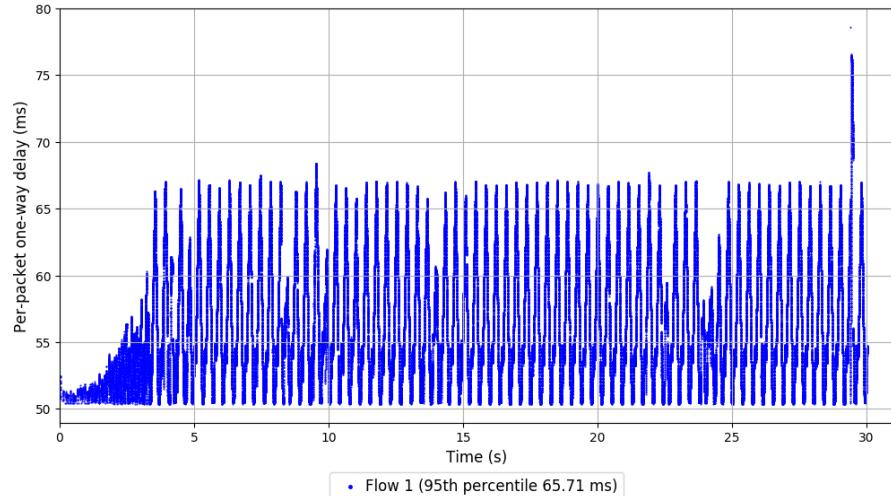
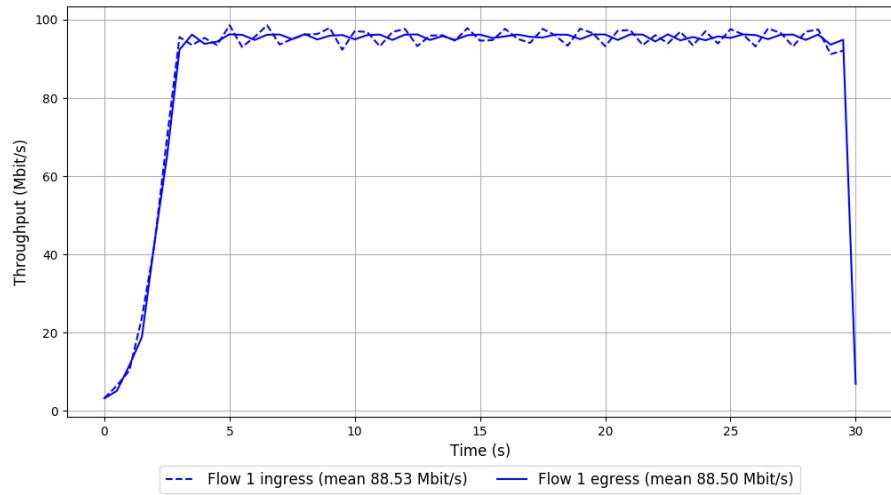


```
Run 3: Statistics of CalibratedKoho
```

```
Start at: Sun, 06 Aug 2017 08:59:17 +0000
End at: Sun, 06 Aug 2017 08:59:47 +0000
Local clock offset: 0.725 ms
Remote clock offset: 0.457 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:18:08 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 88.50 Mbit/s
95th percentile per-packet one-way delay: 65.707 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 88.50 Mbit/s
95th percentile per-packet one-way delay: 65.707 ms
Loss rate: 0.02%
```

Run 3: Report of CalibratedKoho — Data Link

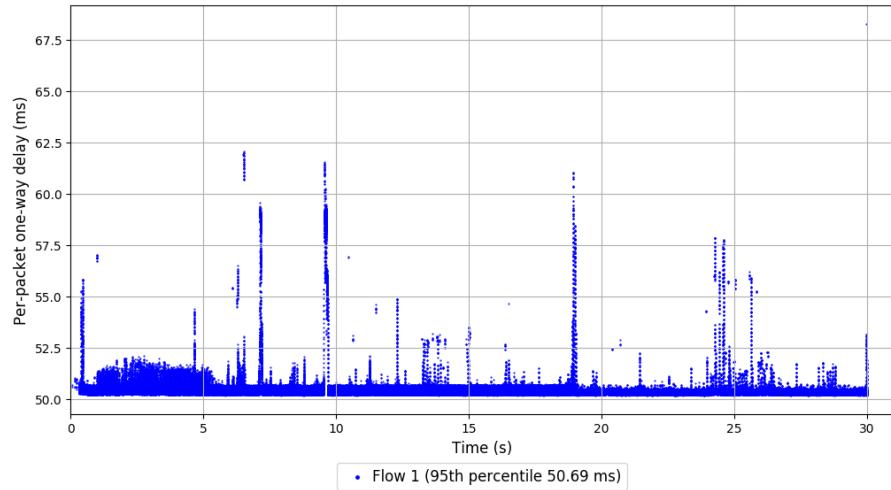
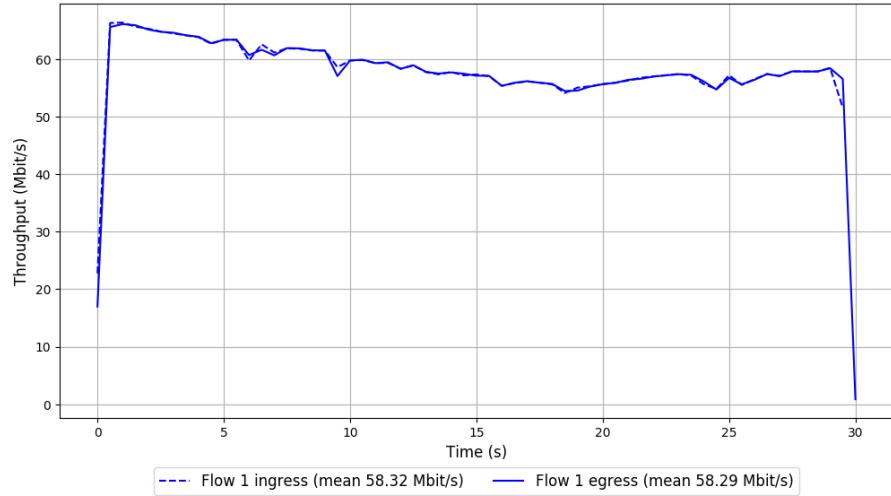


Run 1: Statistics of Copa

```
Start at: Sun, 06 Aug 2017 08:14:59 +0000
End at: Sun, 06 Aug 2017 08:15:29 +0000
Local clock offset: 0.918 ms
Remote clock offset: 0.103 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:18:22 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 58.29 Mbit/s
95th percentile per-packet one-way delay: 50.690 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 58.29 Mbit/s
95th percentile per-packet one-way delay: 50.690 ms
Loss rate: 0.07%
```

Run 1: Report of Copa — Data Link

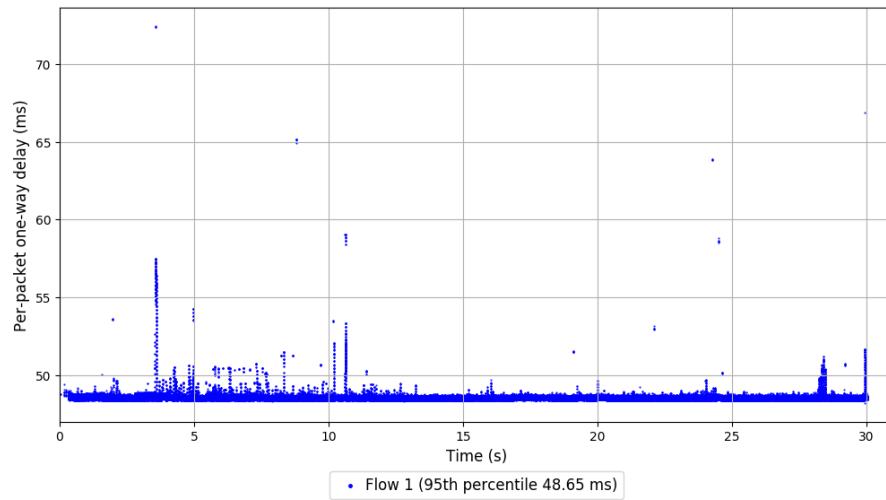
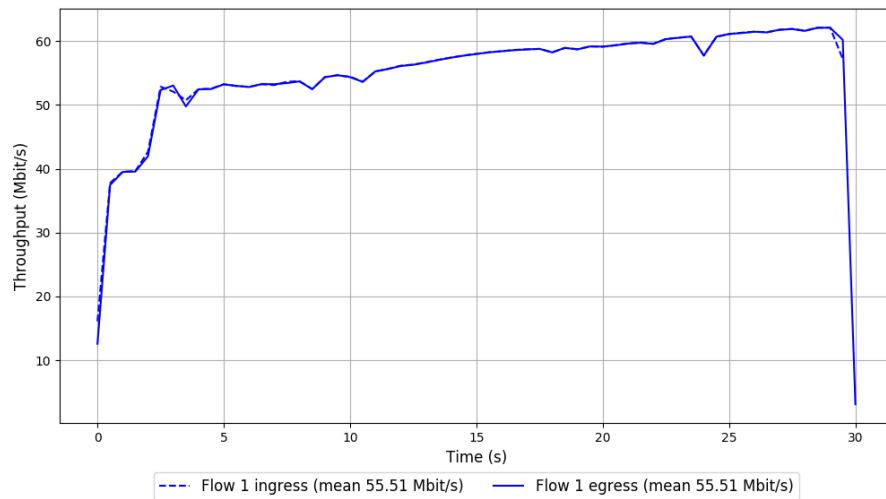


Run 2: Statistics of Copa

```
Start at: Sun, 06 Aug 2017 08:35:11 +0000
End at: Sun, 06 Aug 2017 08:35:41 +0000
Local clock offset: 0.803 ms
Remote clock offset: -1.804 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:18:22 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 55.51 Mbit/s
95th percentile per-packet one-way delay: 48.654 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 55.51 Mbit/s
95th percentile per-packet one-way delay: 48.654 ms
Loss rate: 0.00%
```

Run 2: Report of Copa — Data Link

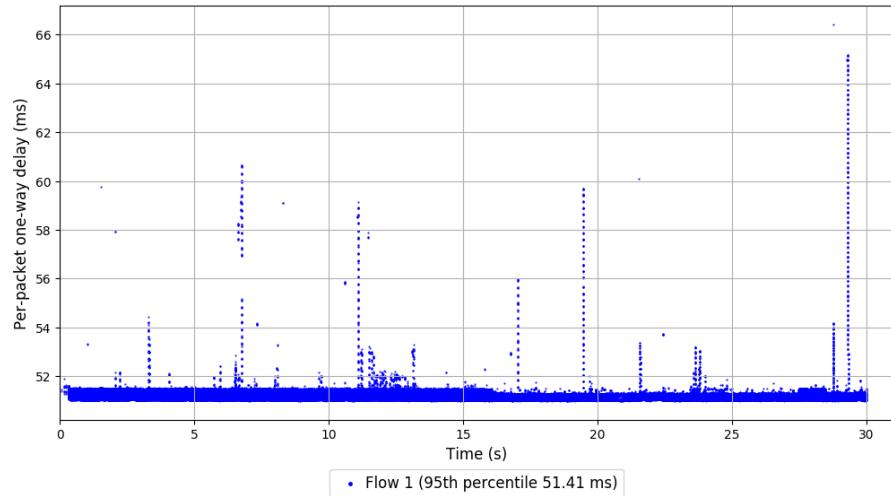
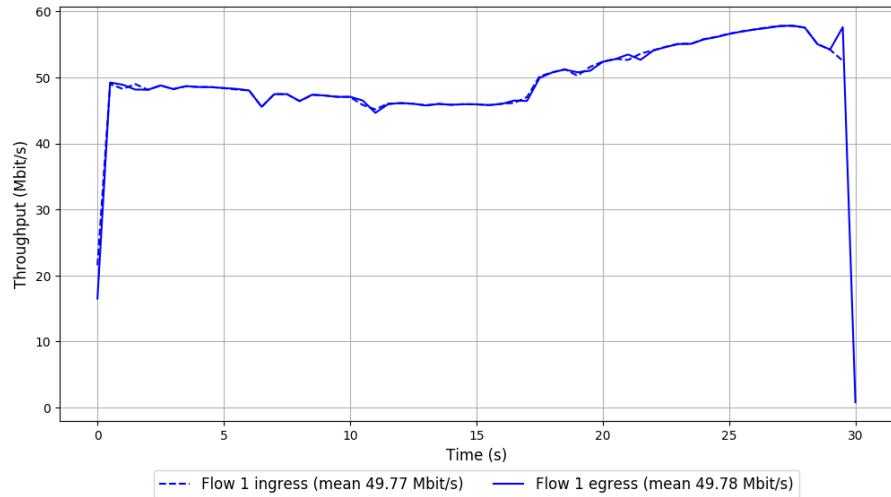


Run 3: Statistics of Copa

```
Start at: Sun, 06 Aug 2017 08:55:17 +0000
End at: Sun, 06 Aug 2017 08:55:47 +0000
Local clock offset: 0.621 ms
Remote clock offset: 0.953 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:18:36 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 49.78 Mbit/s
95th percentile per-packet one-way delay: 51.411 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 49.78 Mbit/s
95th percentile per-packet one-way delay: 51.411 ms
Loss rate: 0.00%
```

Run 3: Report of Copa — Data Link



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

```
Start at: Sun, 06 Aug 2017 08:09:35 +0000
```

```
End at: Sun, 06 Aug 2017 08:10:05 +0000
```

```
Local clock offset: 0.939 ms
```

```
Remote clock offset: 0.064 ms
```

```
# Below is generated by plot.py at Sun, 06 Aug 2017 09:18:36 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 95.07 Mbit/s
```

```
95th percentile per-packet one-way delay: 76.633 ms
```

```
Loss rate: 0.25%
```

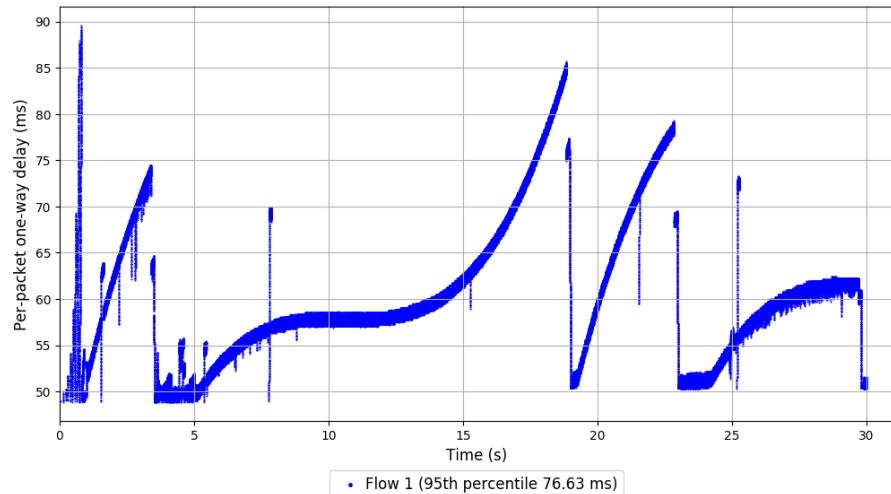
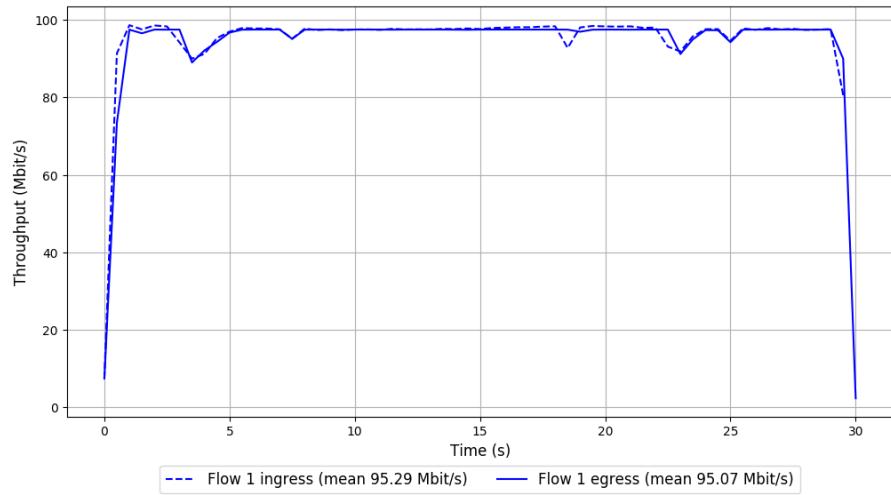
```
-- Flow 1:
```

```
Average throughput: 95.07 Mbit/s
```

```
95th percentile per-packet one-way delay: 76.633 ms
```

```
Loss rate: 0.25%
```

Run 1: Report of TCP Cubic — Data Link

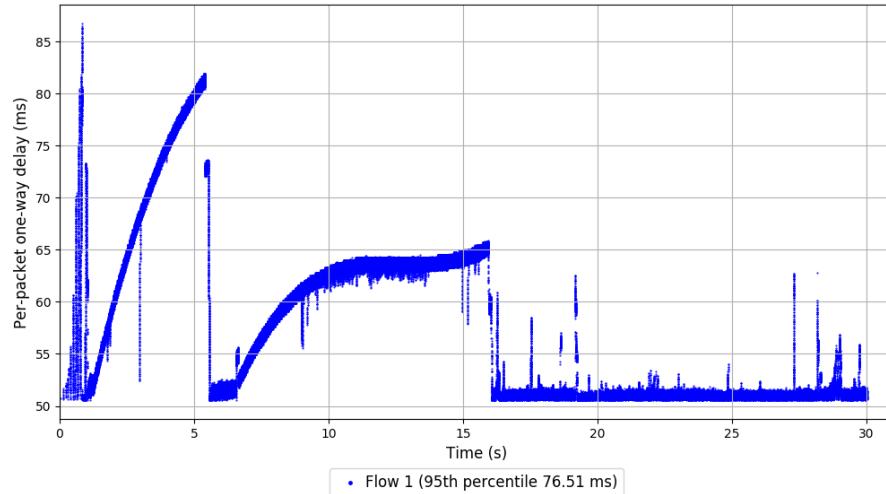
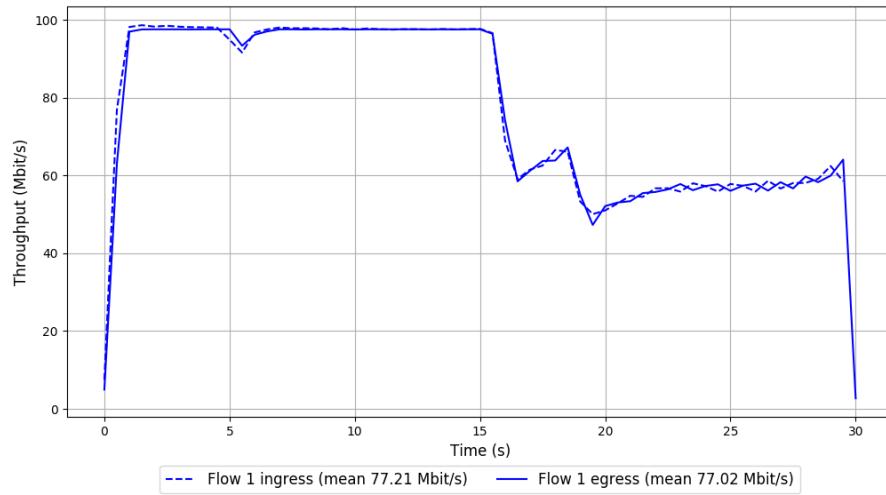


Run 2: Statistics of TCP Cubic

```
Start at: Sun, 06 Aug 2017 08:29:51 +0000
End at: Sun, 06 Aug 2017 08:30:21 +0000
Local clock offset: 0.74 ms
Remote clock offset: 0.264 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:18:47 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 77.02 Mbit/s
95th percentile per-packet one-way delay: 76.508 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 77.02 Mbit/s
95th percentile per-packet one-way delay: 76.508 ms
Loss rate: 0.26%
```

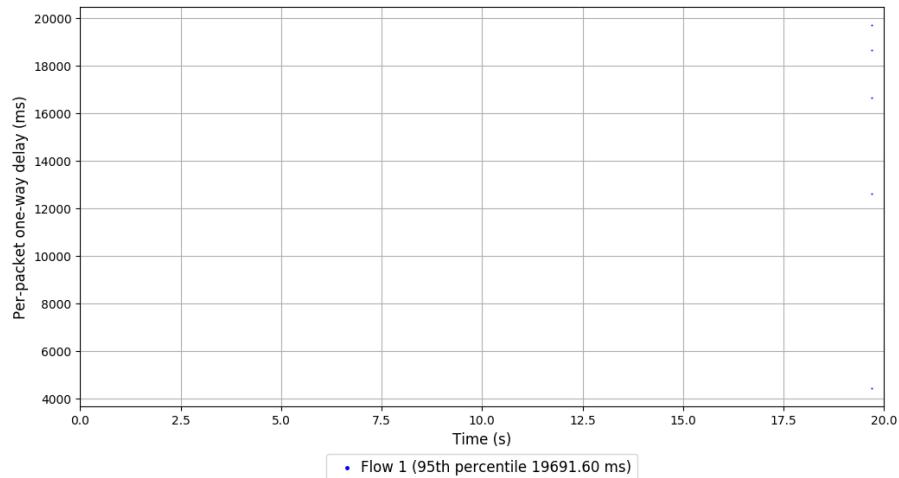
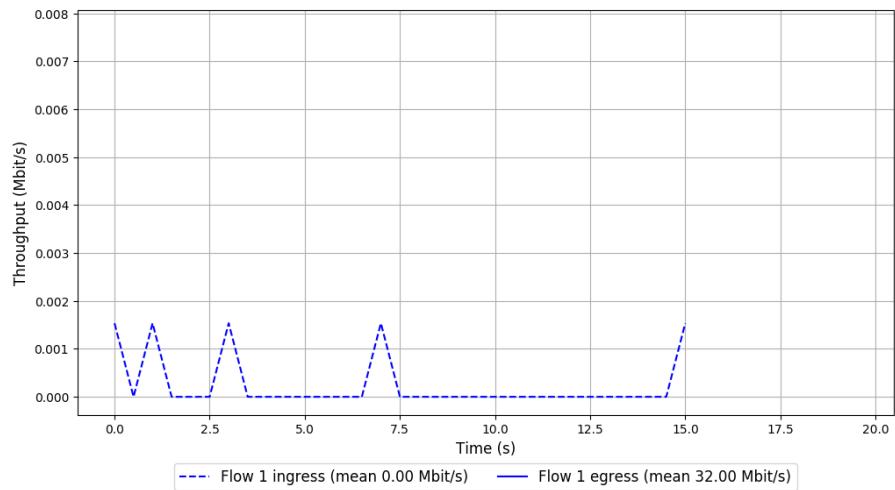
Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: Sun, 06 Aug 2017 08:50:01 +0000
End at: Sun, 06 Aug 2017 08:50:31 +0000
Local clock offset: 0.651 ms
Remote clock offset: -1.618 ms

Run 3: Report of TCP Cubic — Data Link

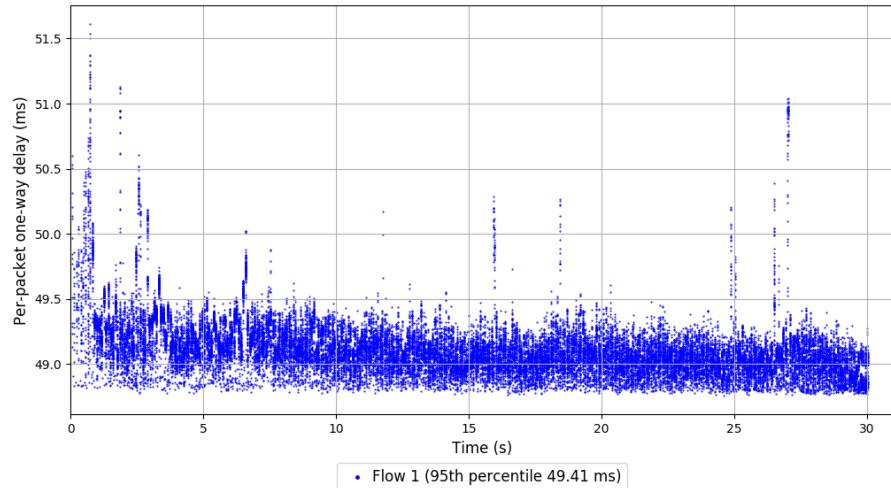
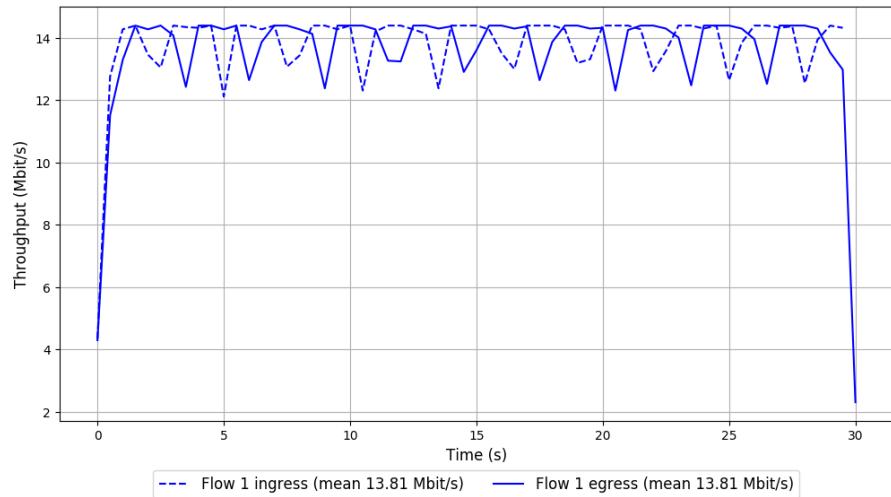


```
Run 1: Statistics of KohoCC
```

```
Start at: Sun, 06 Aug 2017 08:08:16 +0000
End at: Sun, 06 Aug 2017 08:08:46 +0000
Local clock offset: 0.971 ms
Remote clock offset: -0.001 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:18:47 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 13.81 Mbit/s
95th percentile per-packet one-way delay: 49.413 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 13.81 Mbit/s
95th percentile per-packet one-way delay: 49.413 ms
Loss rate: 0.00%
```

Run 1: Report of KohoCC — Data Link

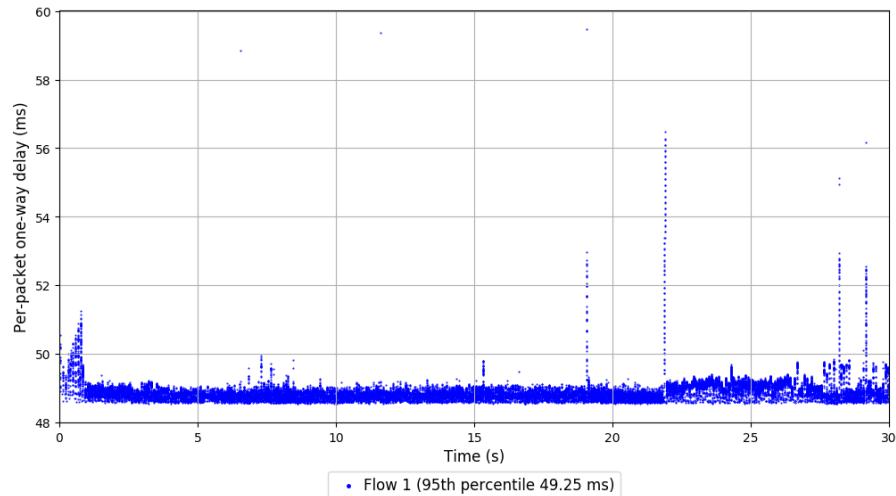
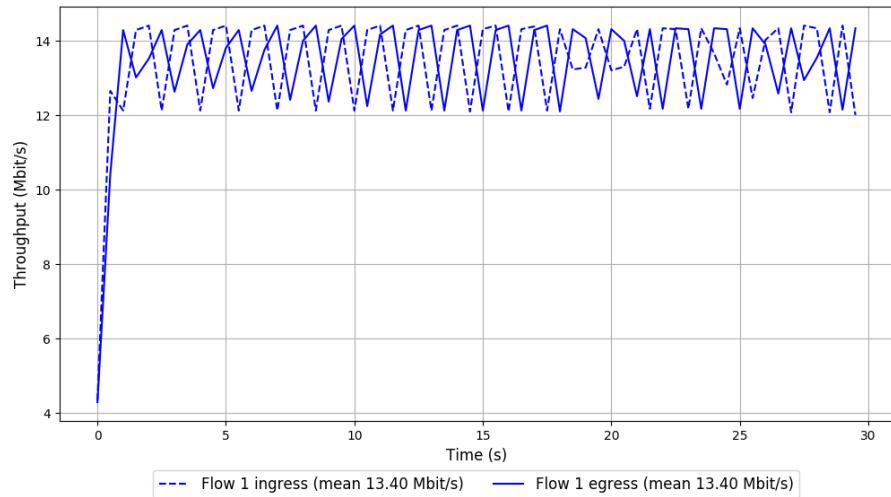


Run 2: Statistics of KohoCC

```
Start at: Sun, 06 Aug 2017 08:28:32 +0000
End at: Sun, 06 Aug 2017 08:29:02 +0000
Local clock offset: 0.716 ms
Remote clock offset: -1.796 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:18:47 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 13.40 Mbit/s
95th percentile per-packet one-way delay: 49.250 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 13.40 Mbit/s
95th percentile per-packet one-way delay: 49.250 ms
Loss rate: 0.00%
```

Run 2: Report of KohoCC — Data Link

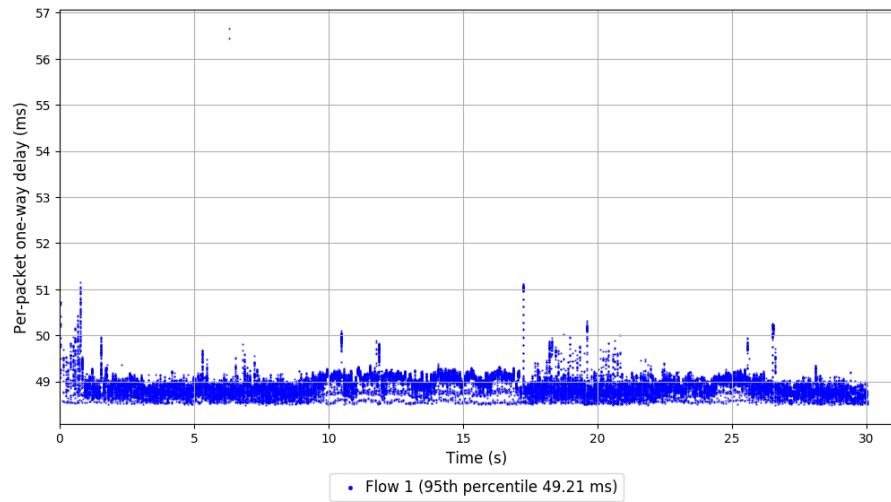
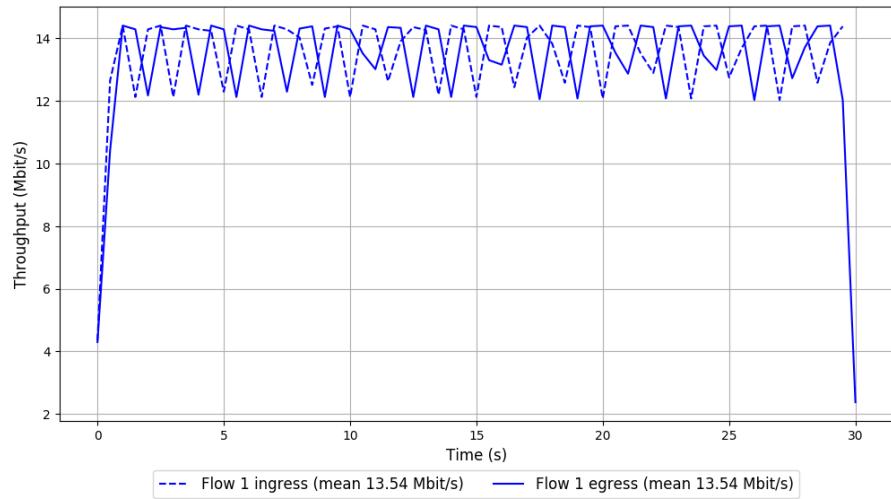


Run 3: Statistics of KohoCC

```
Start at: Sun, 06 Aug 2017 08:48:42 +0000
End at: Sun, 06 Aug 2017 08:49:12 +0000
Local clock offset: 0.652 ms
Remote clock offset: -1.672 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:18:47 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 13.54 Mbit/s
95th percentile per-packet one-way delay: 49.212 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 13.54 Mbit/s
95th percentile per-packet one-way delay: 49.212 ms
Loss rate: 0.00%
```

Run 3: Report of KohoCC — Data Link

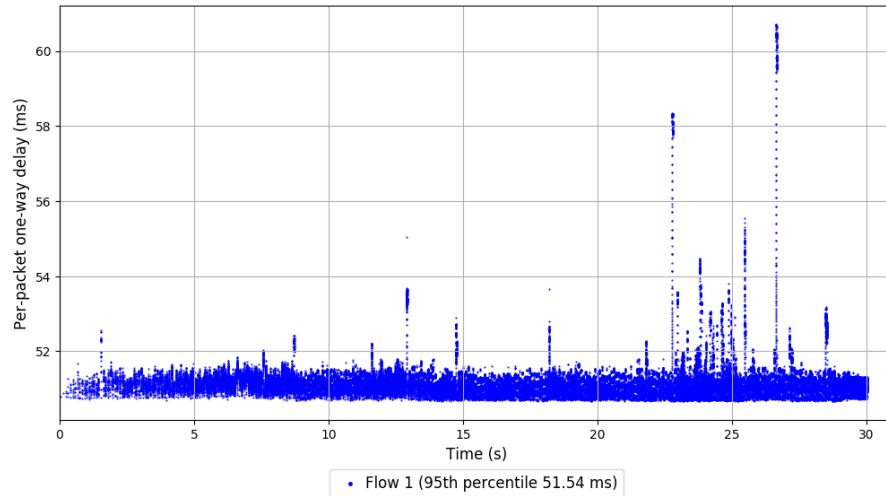
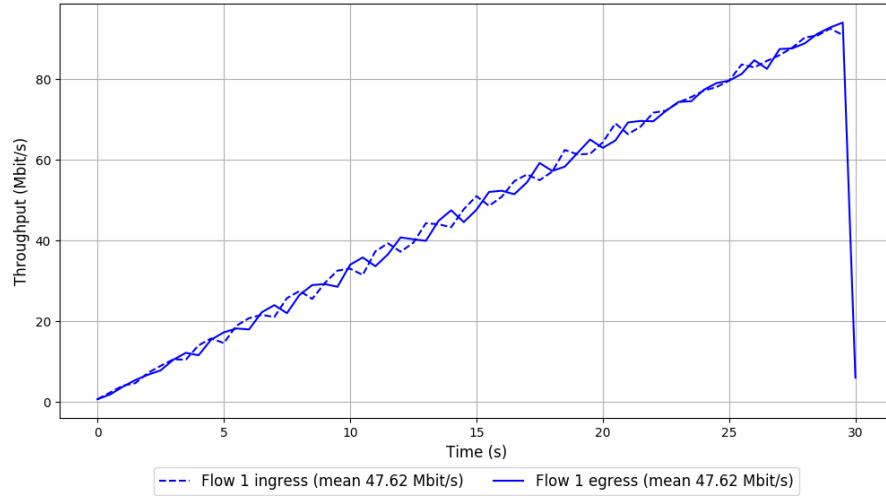


```
Run 1: Statistics of LEDBAT
```

```
Start at: Sun, 06 Aug 2017 08:16:22 +0000
End at: Sun, 06 Aug 2017 08:16:52 +0000
Local clock offset: 0.829 ms
Remote clock offset: 0.535 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:18:51 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 47.62 Mbit/s
95th percentile per-packet one-way delay: 51.537 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 47.62 Mbit/s
95th percentile per-packet one-way delay: 51.537 ms
Loss rate: 0.01%
```

Run 1: Report of LEDBAT — Data Link

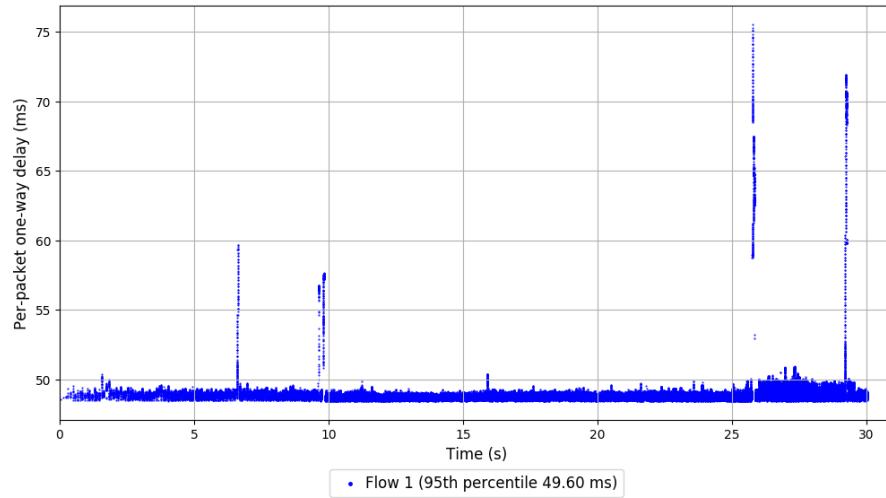
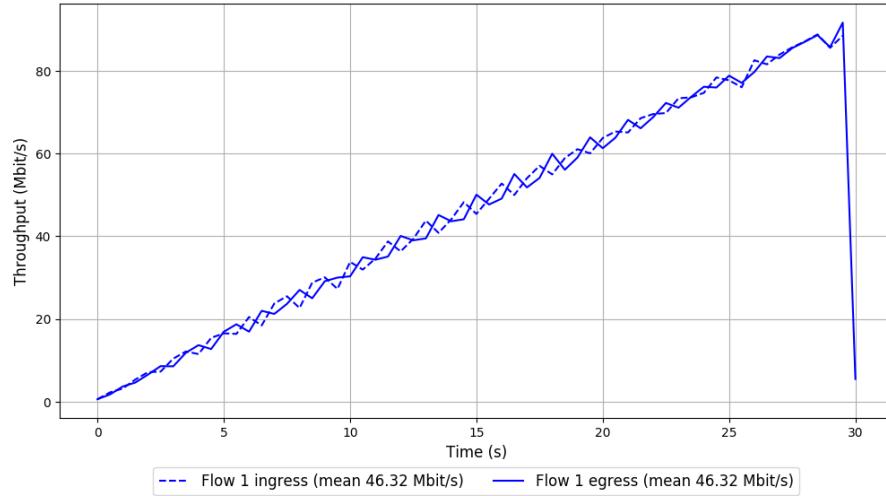


Run 2: Statistics of LEDBAT

```
Start at: Sun, 06 Aug 2017 08:36:34 +0000
End at: Sun, 06 Aug 2017 08:37:04 +0000
Local clock offset: 0.718 ms
Remote clock offset: -1.785 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:18:54 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 46.32 Mbit/s
95th percentile per-packet one-way delay: 49.598 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 46.32 Mbit/s
95th percentile per-packet one-way delay: 49.598 ms
Loss rate: 0.00%
```

Run 2: Report of LEDBAT — Data Link

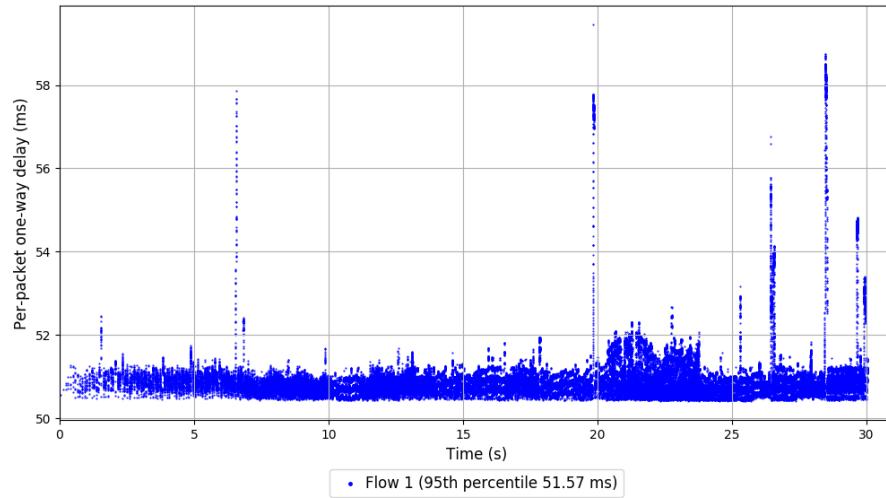
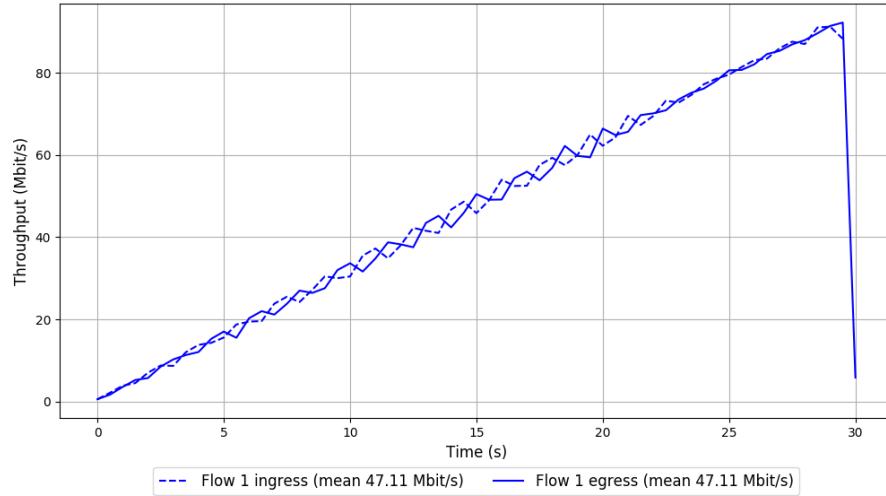


Run 3: Statistics of LEDBAT

```
Start at: Sun, 06 Aug 2017 08:56:40 +0000
End at: Sun, 06 Aug 2017 08:57:10 +0000
Local clock offset: 0.72 ms
Remote clock offset: 0.491 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:18:58 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 47.11 Mbit/s
95th percentile per-packet one-way delay: 51.572 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 47.11 Mbit/s
95th percentile per-packet one-way delay: 51.572 ms
Loss rate: 0.00%
```

Run 3: Report of LEDBAT — Data Link

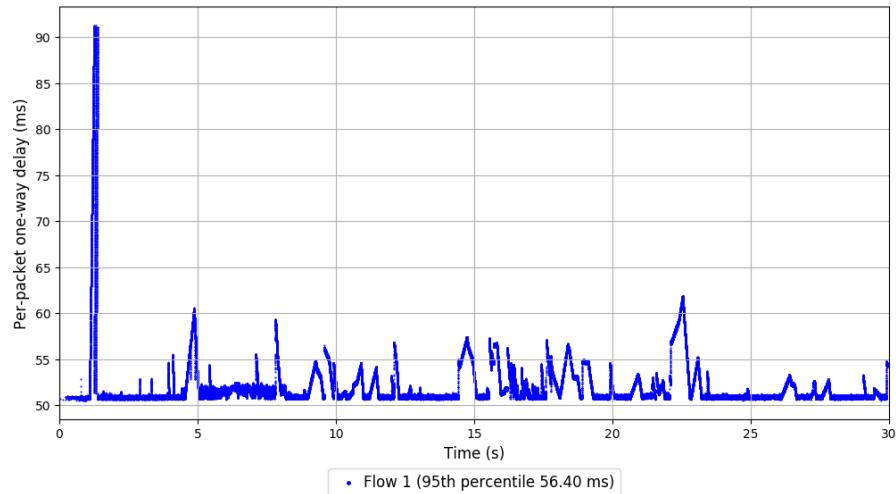
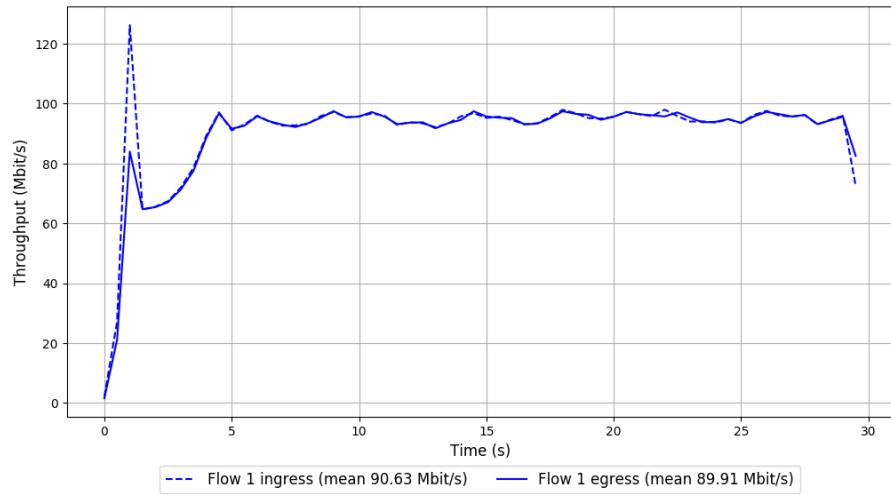


Run 1: Statistics of PCC

```
Start at: Sun, 06 Aug 2017 08:06:56 +0000
End at: Sun, 06 Aug 2017 08:07:26 +0000
Local clock offset: 0.872 ms
Remote clock offset: 0.372 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:19:06 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 89.91 Mbit/s
95th percentile per-packet one-way delay: 56.398 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 89.91 Mbit/s
95th percentile per-packet one-way delay: 56.398 ms
Loss rate: 0.78%
```

Run 1: Report of PCC — Data Link

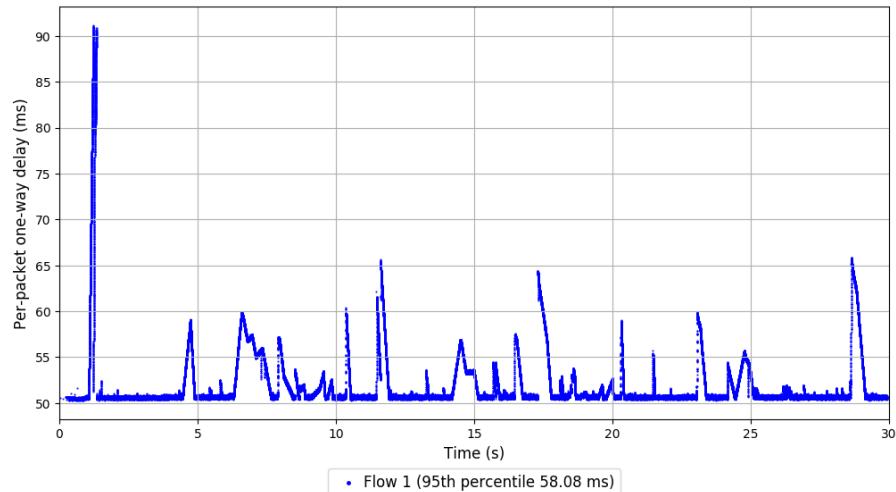
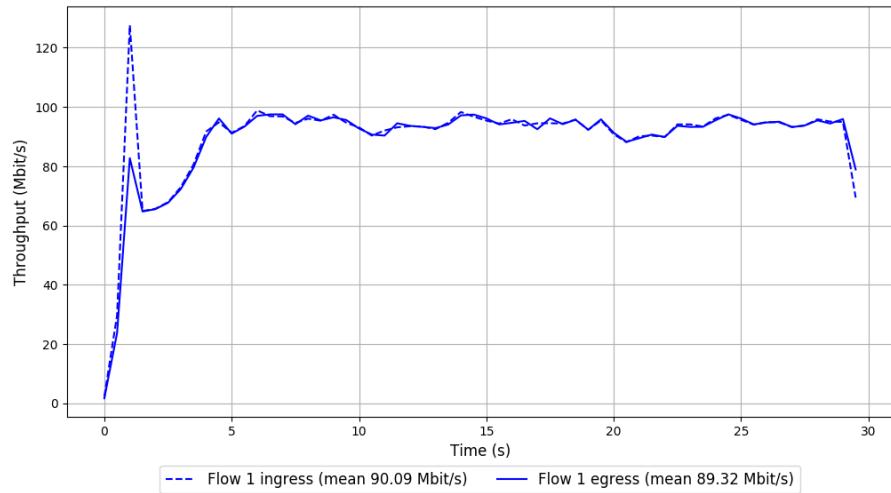


Run 2: Statistics of PCC

```
Start at: Sun, 06 Aug 2017 08:27:11 +0000
End at: Sun, 06 Aug 2017 08:27:41 +0000
Local clock offset: 0.834 ms
Remote clock offset: 0.192 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:19:11 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 89.32 Mbit/s
95th percentile per-packet one-way delay: 58.083 ms
Loss rate: 0.86%
-- Flow 1:
Average throughput: 89.32 Mbit/s
95th percentile per-packet one-way delay: 58.083 ms
Loss rate: 0.86%
```

Run 2: Report of PCC — Data Link

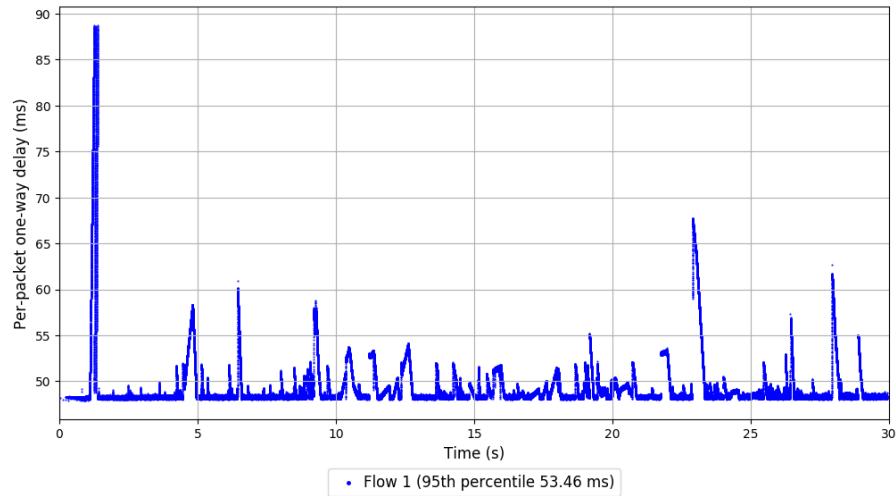
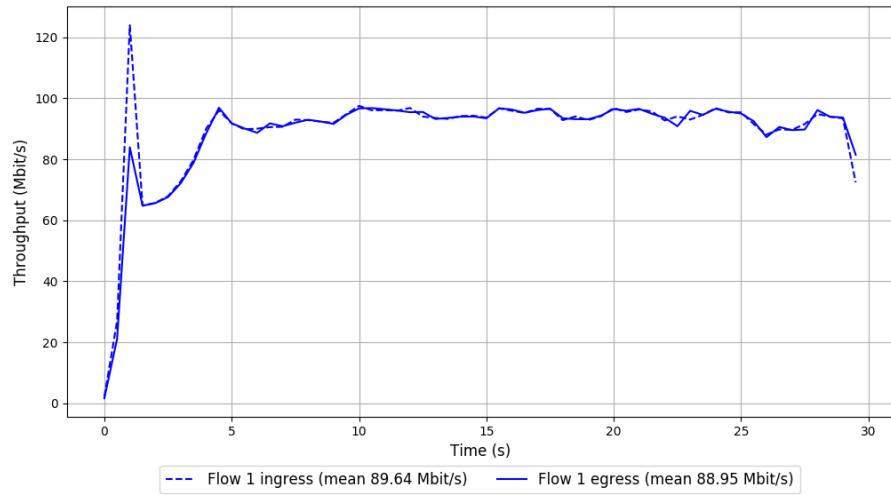


Run 3: Statistics of PCC

```
Start at: Sun, 06 Aug 2017 08:47:22 +0000
End at: Sun, 06 Aug 2017 08:47:52 +0000
Local clock offset: 0.744 ms
Remote clock offset: -1.767 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:19:18 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 88.95 Mbit/s
95th percentile per-packet one-way delay: 53.463 ms
Loss rate: 0.76%
-- Flow 1:
Average throughput: 88.95 Mbit/s
95th percentile per-packet one-way delay: 53.463 ms
Loss rate: 0.76%
```

Run 3: Report of PCC — Data Link



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

```
Start at: Sun, 06 Aug 2017 08:12:15 +0000
```

```
End at: Sun, 06 Aug 2017 08:12:45 +0000
```

```
Local clock offset: 0.934 ms
```

```
Remote clock offset: -2.08 ms
```

```
# Below is generated by plot.py at Sun, 06 Aug 2017 09:19:22 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 70.50 Mbit/s
```

```
95th percentile per-packet one-way delay: 50.571 ms
```

```
Loss rate: 0.50%
```

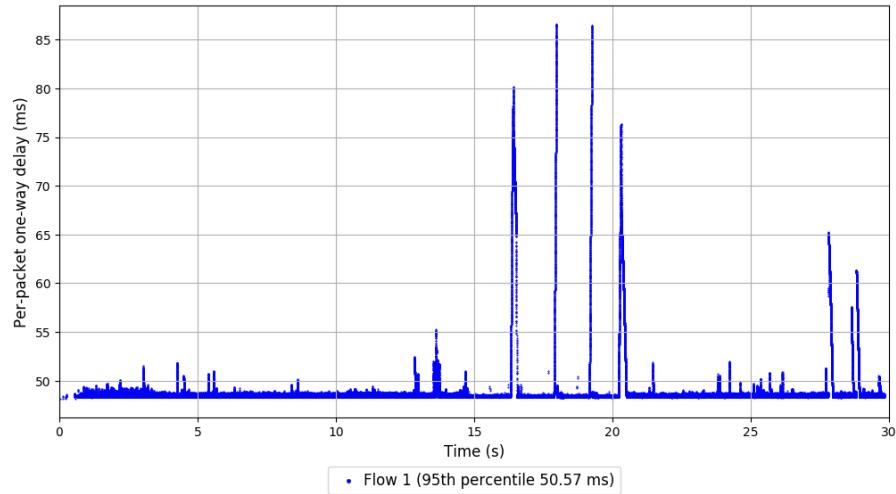
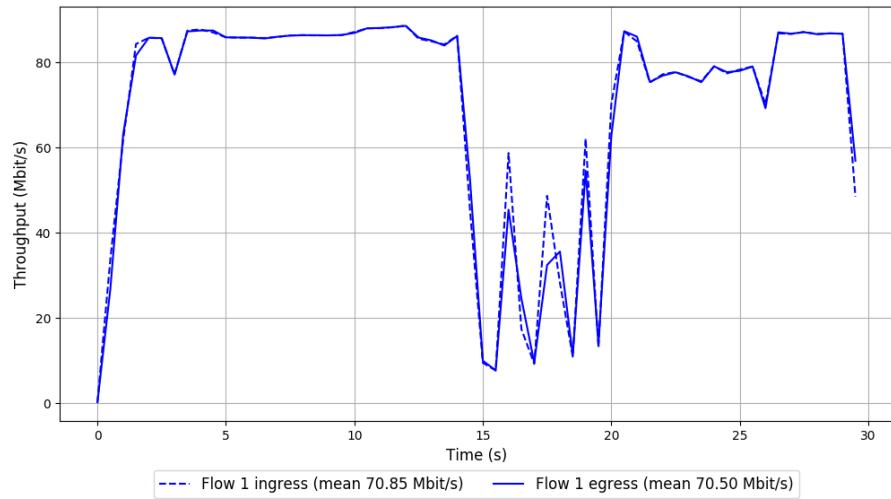
```
-- Flow 1:
```

```
Average throughput: 70.50 Mbit/s
```

```
95th percentile per-packet one-way delay: 50.571 ms
```

```
Loss rate: 0.50%
```

Run 1: Report of QUIC Cubic — Data Link

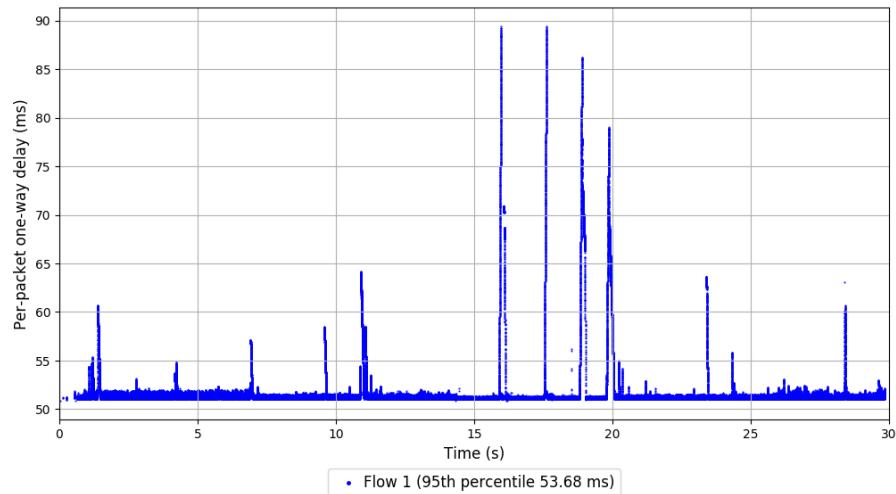
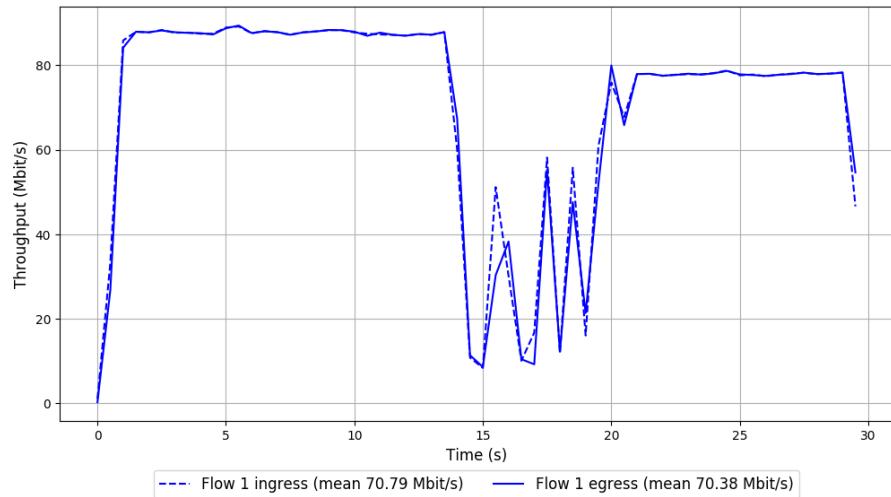


Run 2: Statistics of QUIC Cubic

```
Start at: Sun, 06 Aug 2017 08:32:29 +0000
End at: Sun, 06 Aug 2017 08:32:59 +0000
Local clock offset: 0.718 ms
Remote clock offset: 0.748 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:19:29 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 70.38 Mbit/s
95th percentile per-packet one-way delay: 53.676 ms
Loss rate: 0.59%
-- Flow 1:
Average throughput: 70.38 Mbit/s
95th percentile per-packet one-way delay: 53.676 ms
Loss rate: 0.59%
```

Run 2: Report of QUIC Cubic — Data Link

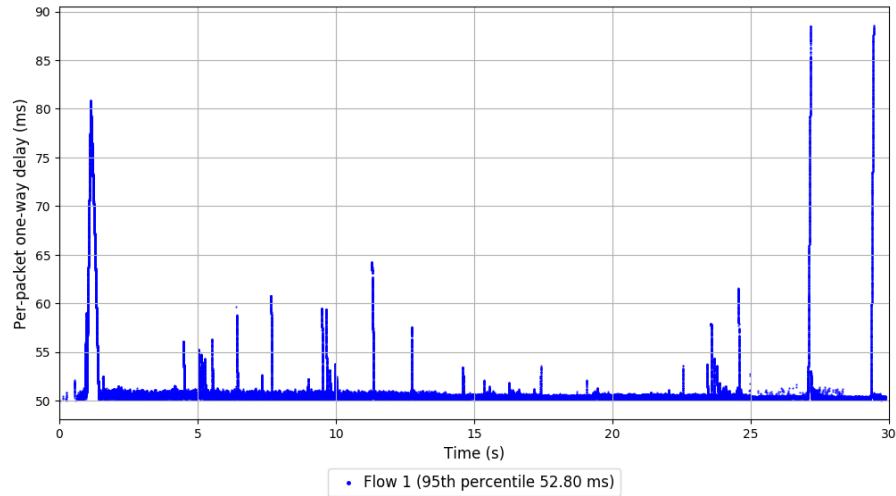
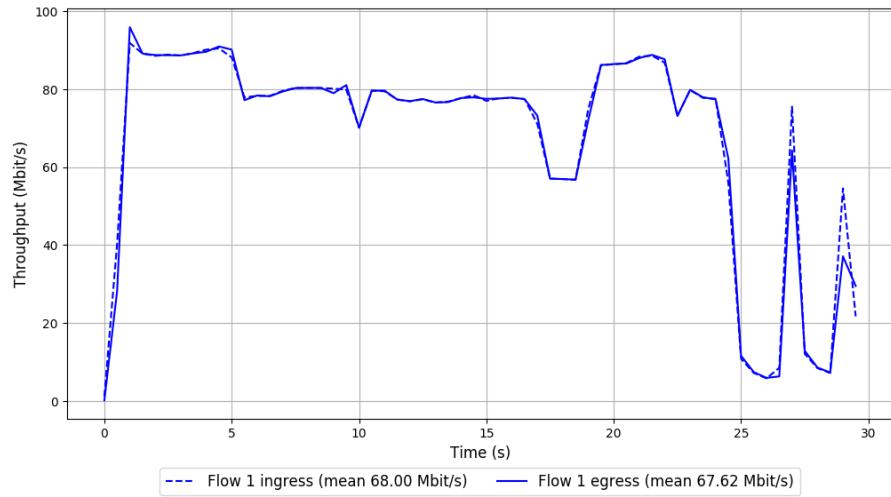


Run 3: Statistics of QUIC Cubic

```
Start at: Sun, 06 Aug 2017 08:52:35 +0000
End at: Sun, 06 Aug 2017 08:53:05 +0000
Local clock offset: 0.74 ms
Remote clock offset: 0.4 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:19:34 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 67.62 Mbit/s
95th percentile per-packet one-way delay: 52.795 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 67.62 Mbit/s
95th percentile per-packet one-way delay: 52.795 ms
Loss rate: 0.56%
```

Run 3: Report of QUIC Cubic — Data Link



```
Run 1: Statistics of Saturator
```

```
Start at: Sun, 06 Aug 2017 08:20:24 +0000
```

```
End at: Sun, 06 Aug 2017 08:20:54 +0000
```

```
Local clock offset: 0.769 ms
```

```
Remote clock offset: -1.884 ms
```

```
# Below is generated by plot.py at Sun, 06 Aug 2017 09:19:34 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 27.03 Mbit/s
```

```
95th percentile per-packet one-way delay: 49.005 ms
```

```
Loss rate: 0.00%
```

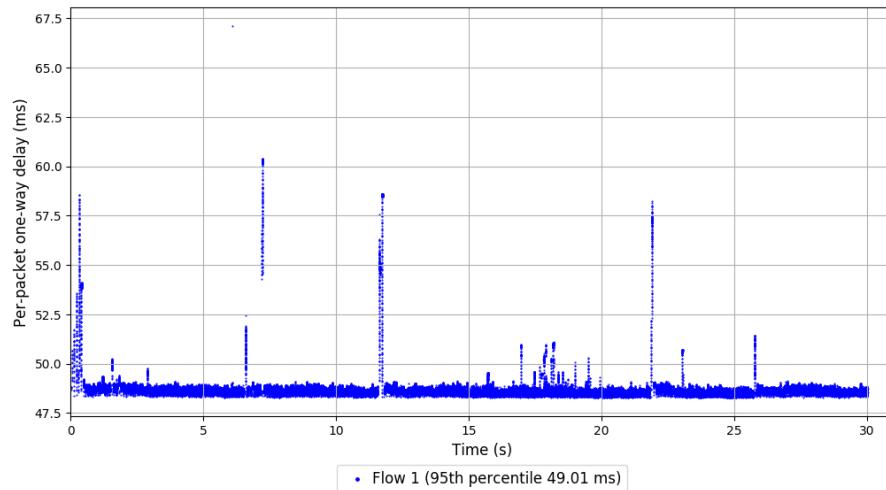
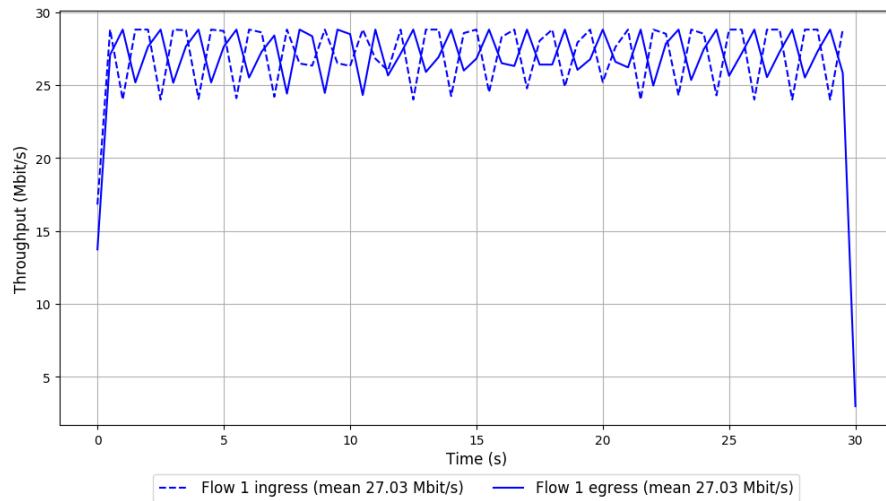
```
-- Flow 1:
```

```
Average throughput: 27.03 Mbit/s
```

```
95th percentile per-packet one-way delay: 49.005 ms
```

```
Loss rate: 0.00%
```

Run 1: Report of Saturator — Data Link

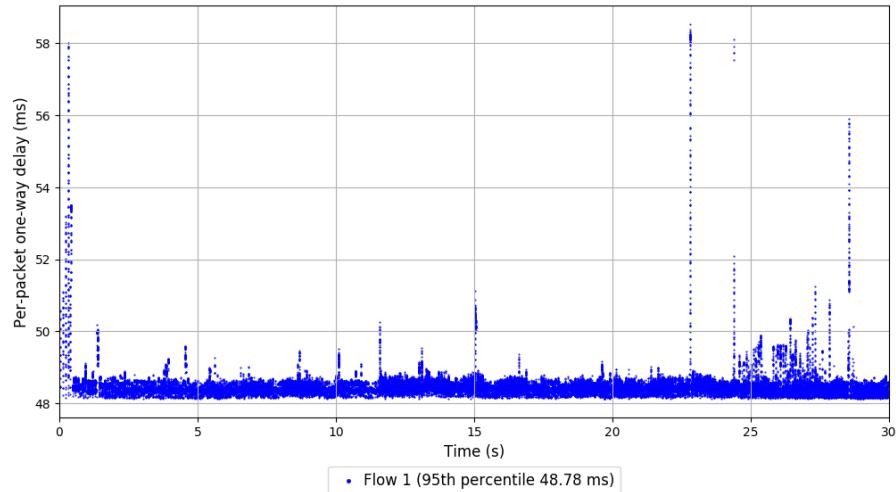
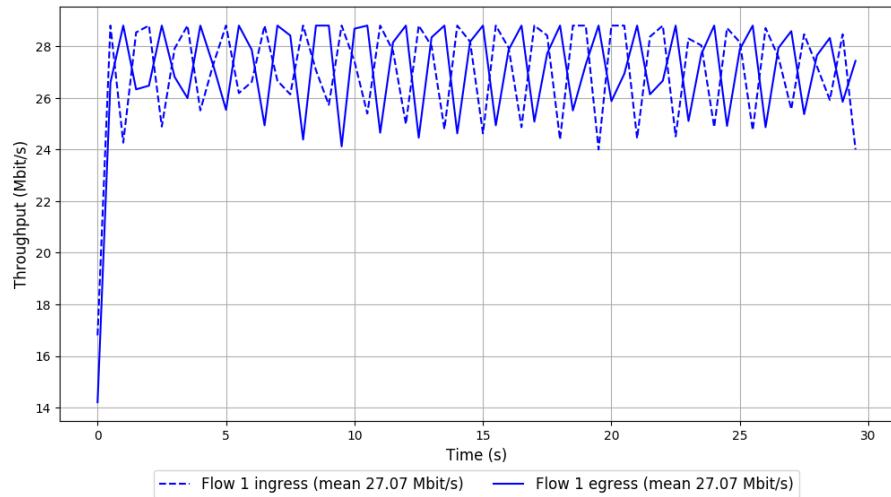


Run 2: Statistics of Saturator

```
Start at: Sun, 06 Aug 2017 08:40:35 +0000
End at: Sun, 06 Aug 2017 08:41:05 +0000
Local clock offset: 0.706 ms
Remote clock offset: -1.872 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:19:38 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 27.07 Mbit/s
95th percentile per-packet one-way delay: 48.778 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 27.07 Mbit/s
95th percentile per-packet one-way delay: 48.778 ms
Loss rate: 0.00%
```

Run 2: Report of Saturator — Data Link

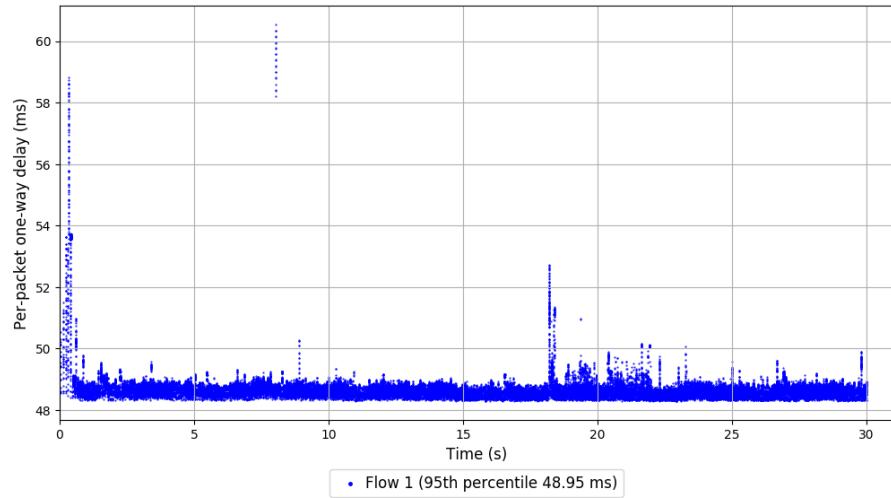
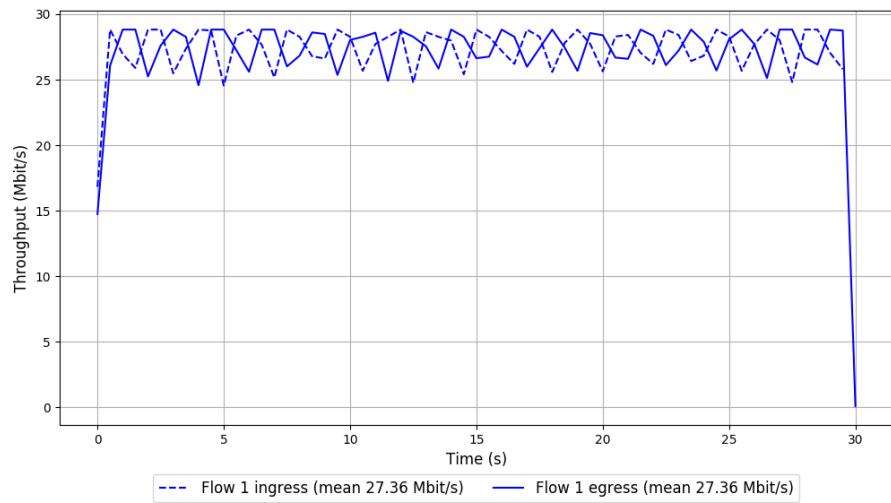


Run 3: Statistics of Saturator

```
Start at: Sun, 06 Aug 2017 09:00:41 +0000
End at: Sun, 06 Aug 2017 09:01:11 +0000
Local clock offset: 0.614 ms
Remote clock offset: -1.46 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:19:39 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 27.36 Mbit/s
95th percentile per-packet one-way delay: 48.952 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 27.36 Mbit/s
95th percentile per-packet one-way delay: 48.952 ms
Loss rate: 0.00%
```

Run 3: Report of Saturator — Data Link

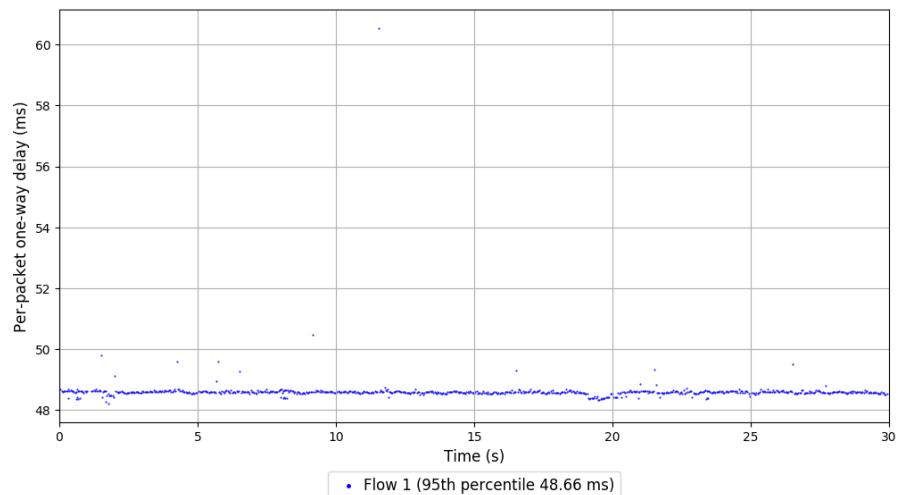
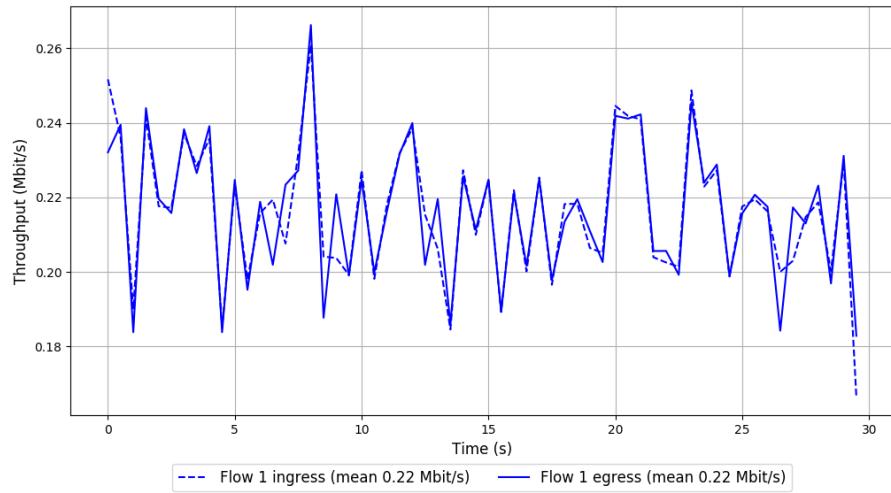


```
Run 1: Statistics of SCReAM
```

```
Start at: Sun, 06 Aug 2017 08:10:57 +0000
End at: Sun, 06 Aug 2017 08:11:27 +0000
Local clock offset: 0.853 ms
Remote clock offset: -2.118 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:19:39 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 48.665 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 48.665 ms
Loss rate: 0.00%
```

Run 1: Report of SCReAM — Data Link

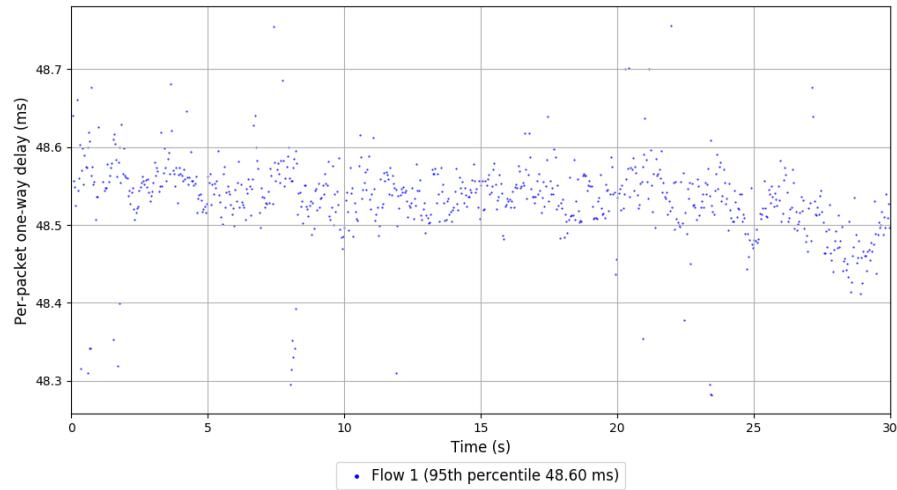
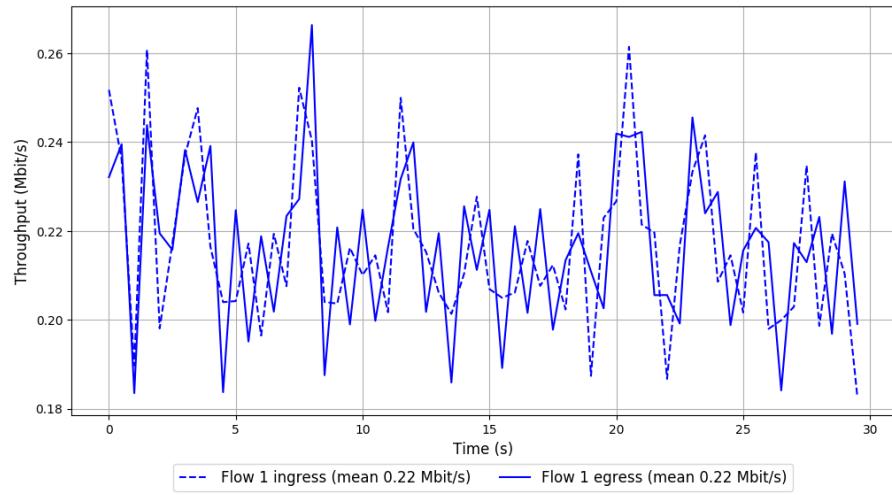


Run 2: Statistics of SCReAM

```
Start at: Sun, 06 Aug 2017 08:31:12 +0000
End at: Sun, 06 Aug 2017 08:31:42 +0000
Local clock offset: 0.75 ms
Remote clock offset: -1.736 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:19:40 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 48.598 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 48.598 ms
Loss rate: 0.00%
```

Run 2: Report of SCReAM — Data Link

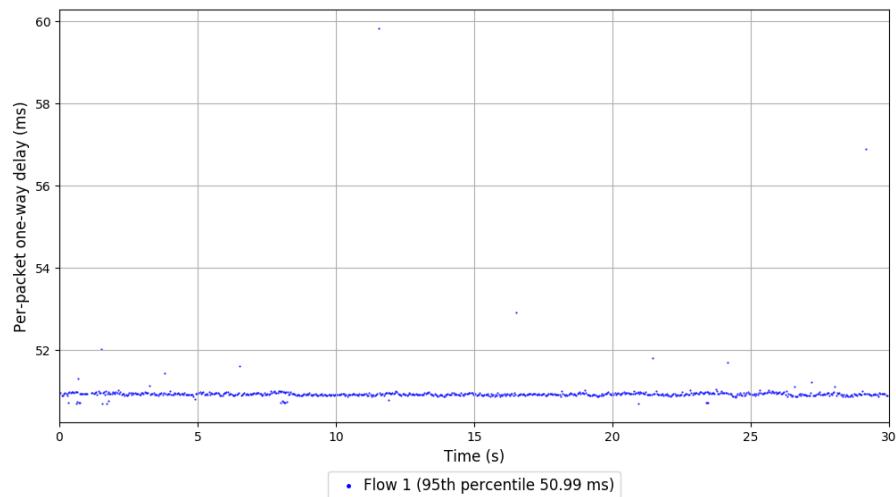
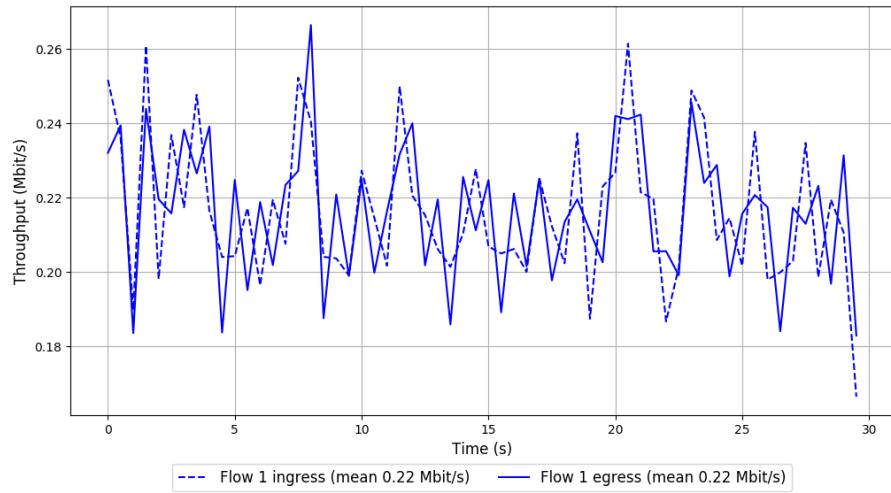


Run 3: Statistics of SCReAM

```
Start at: Sun, 06 Aug 2017 08:51:18 +0000
End at: Sun, 06 Aug 2017 08:51:48 +0000
Local clock offset: 0.637 ms
Remote clock offset: 0.81 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:19:40 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 50.989 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 50.989 ms
Loss rate: 0.00%
```

Run 3: Report of SCReAM — Data Link

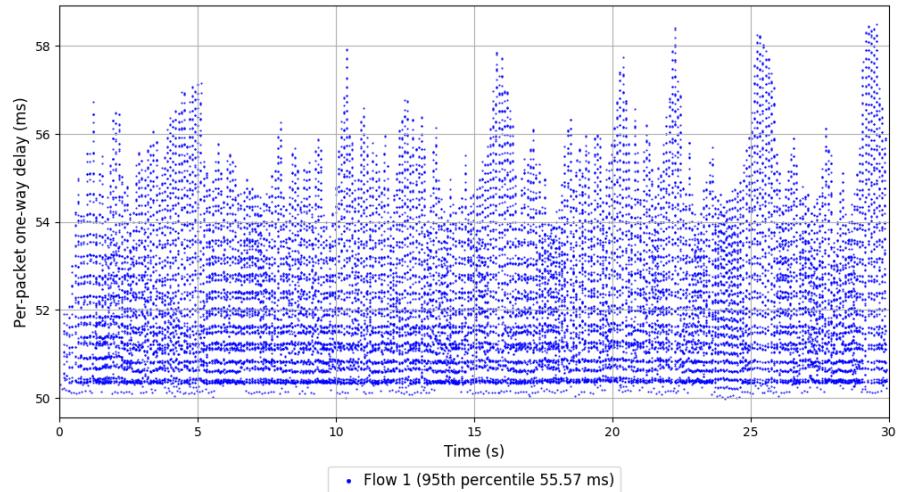
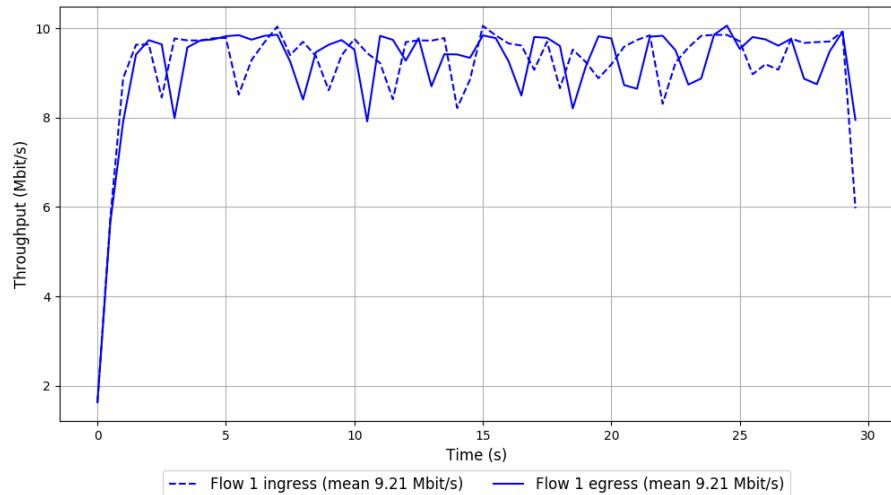


Run 1: Statistics of Sprout

```
Start at: Sun, 06 Aug 2017 08:17:42 +0000
End at: Sun, 06 Aug 2017 08:18:12 +0000
Local clock offset: 0.898 ms
Remote clock offset: 0.107 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:19:43 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.21 Mbit/s
95th percentile per-packet one-way delay: 55.572 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 9.21 Mbit/s
95th percentile per-packet one-way delay: 55.572 ms
Loss rate: 0.00%
```

Run 1: Report of Sprout — Data Link

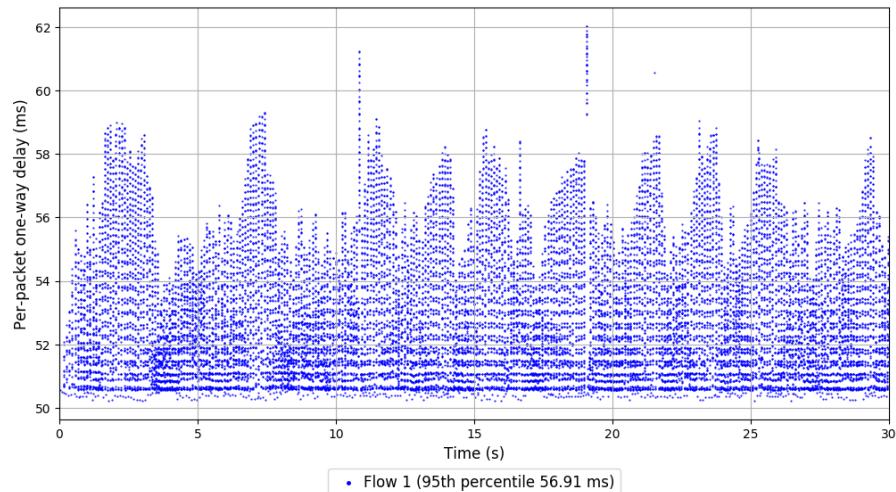
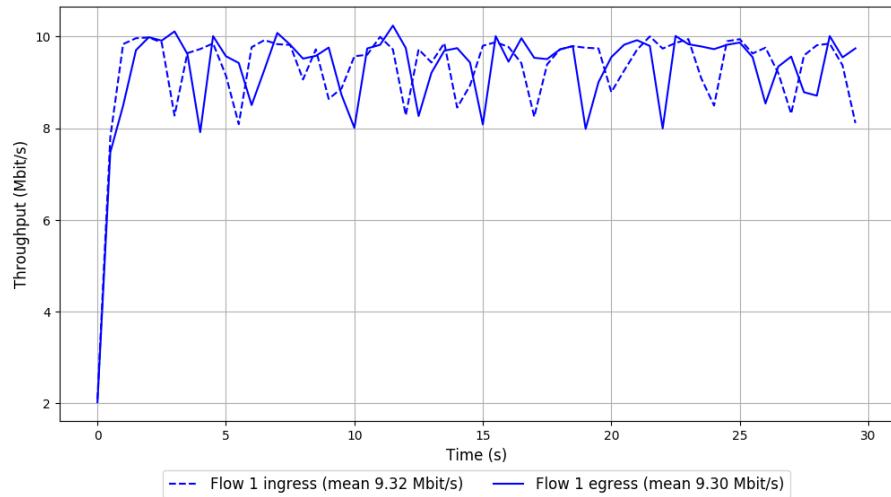


Run 2: Statistics of Sprout

```
Start at: Sun, 06 Aug 2017 08:37:54 +0000
End at: Sun, 06 Aug 2017 08:38:24 +0000
Local clock offset: 0.799 ms
Remote clock offset: 0.249 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:19:43 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.30 Mbit/s
95th percentile per-packet one-way delay: 56.912 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 9.30 Mbit/s
95th percentile per-packet one-way delay: 56.912 ms
Loss rate: 0.17%
```

Run 2: Report of Sprout — Data Link

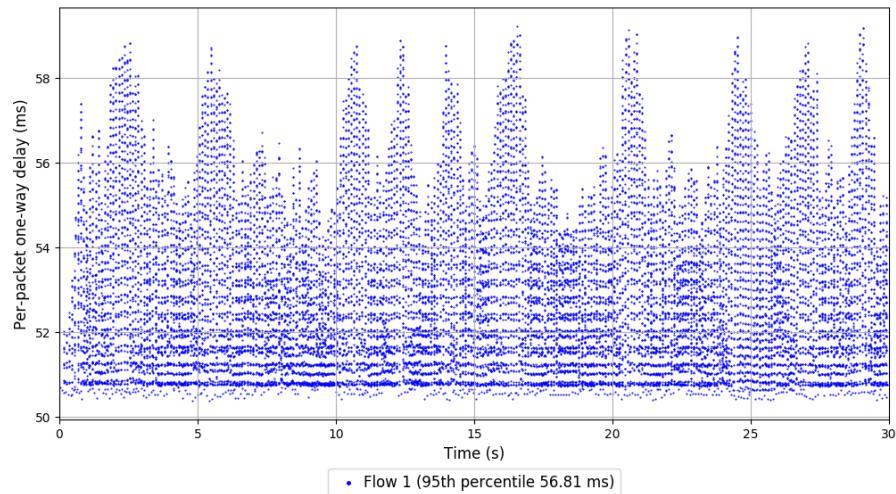
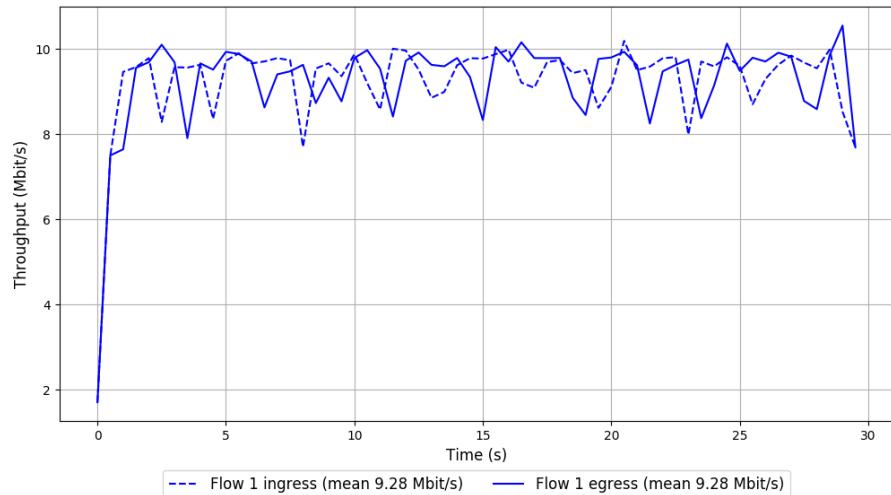


Run 3: Statistics of Sprout

```
Start at: Sun, 06 Aug 2017 08:58:00 +0000
End at: Sun, 06 Aug 2017 08:58:30 +0000
Local clock offset: 0.744 ms
Remote clock offset: 0.905 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:19:45 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.28 Mbit/s
95th percentile per-packet one-way delay: 56.807 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 9.28 Mbit/s
95th percentile per-packet one-way delay: 56.807 ms
Loss rate: 0.00%
```

Run 3: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: Sun, 06 Aug 2017 08:25:46 +0000

End at: Sun, 06 Aug 2017 08:26:16 +0000

Local clock offset: 0.775 ms

Remote clock offset: 0.148 ms

Below is generated by plot.py at Sun, 06 Aug 2017 09:20:03 +0000

Datalink statistics

-- Total of 1 flow:

Average throughput: 78.41 Mbit/s

95th percentile per-packet one-way delay: 68.768 ms

Loss rate: 0.05%

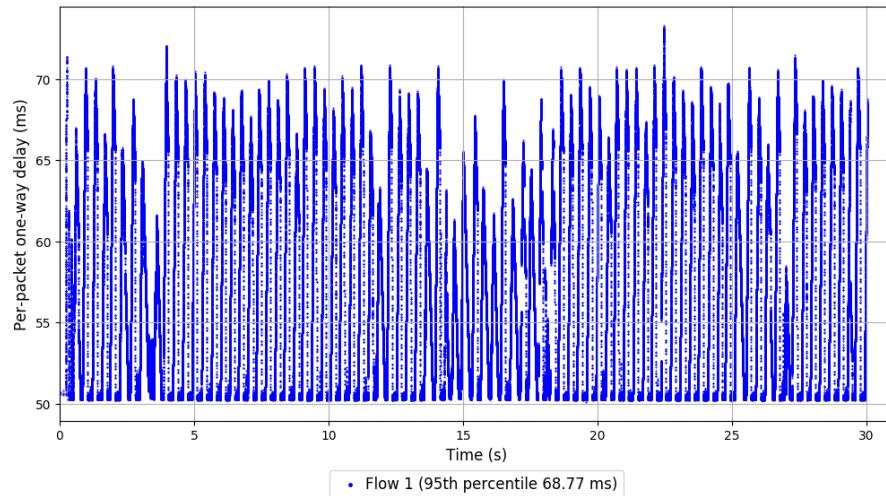
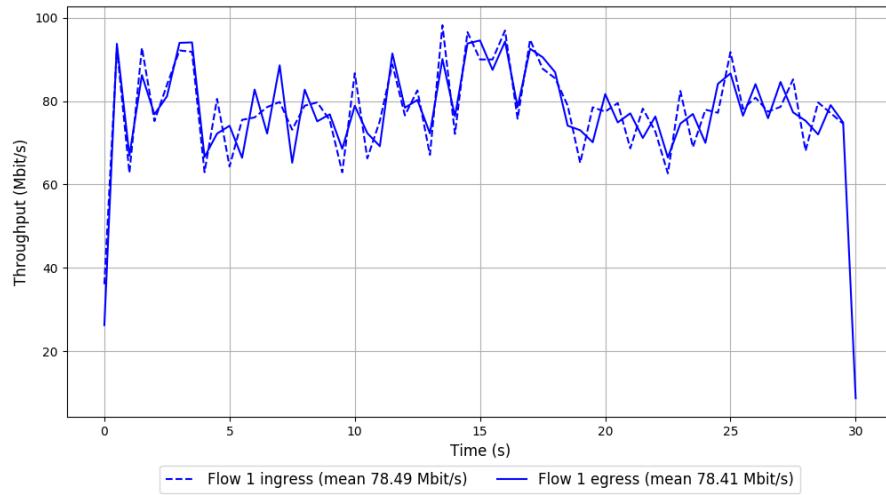
-- Flow 1:

Average throughput: 78.41 Mbit/s

95th percentile per-packet one-way delay: 68.768 ms

Loss rate: 0.05%

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

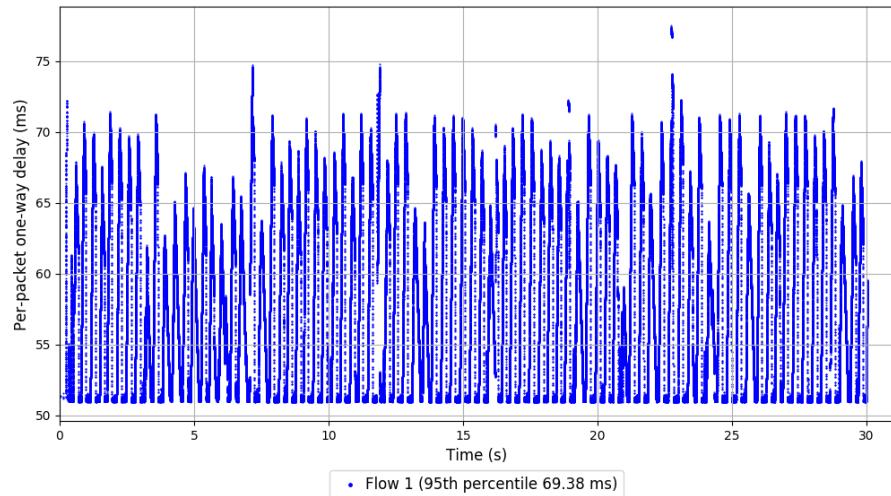
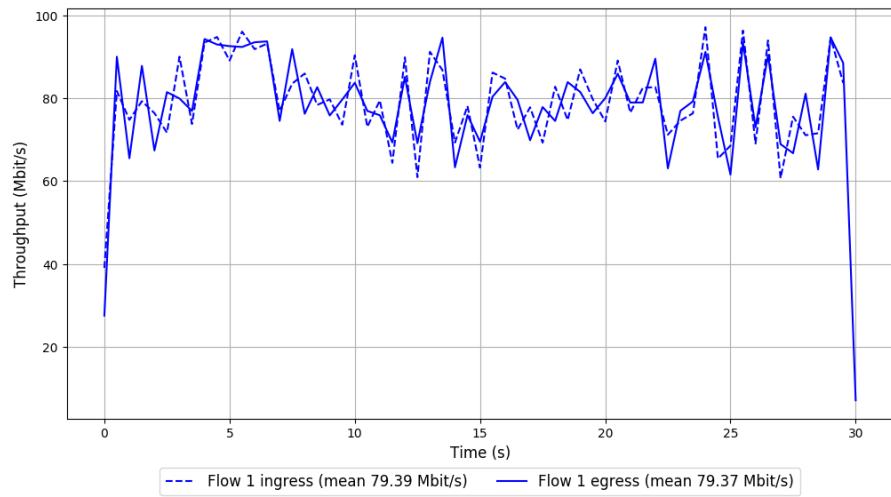


Run 2: Statistics of TaoVA-100x

```
Start at: Sun, 06 Aug 2017 08:45:56 +0000
End at: Sun, 06 Aug 2017 08:46:26 +0000
Local clock offset: 0.651 ms
Remote clock offset: 0.736 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:20:04 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 79.37 Mbit/s
95th percentile per-packet one-way delay: 69.375 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 79.37 Mbit/s
95th percentile per-packet one-way delay: 69.375 ms
Loss rate: 0.00%
```

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

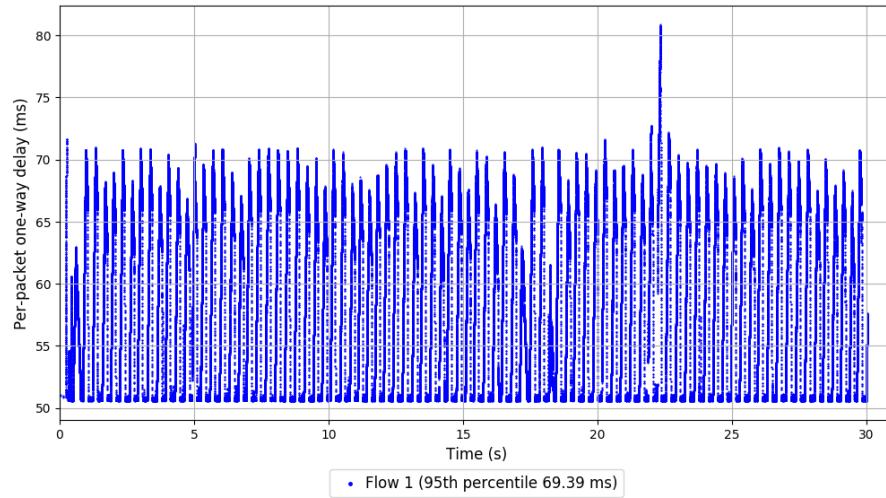
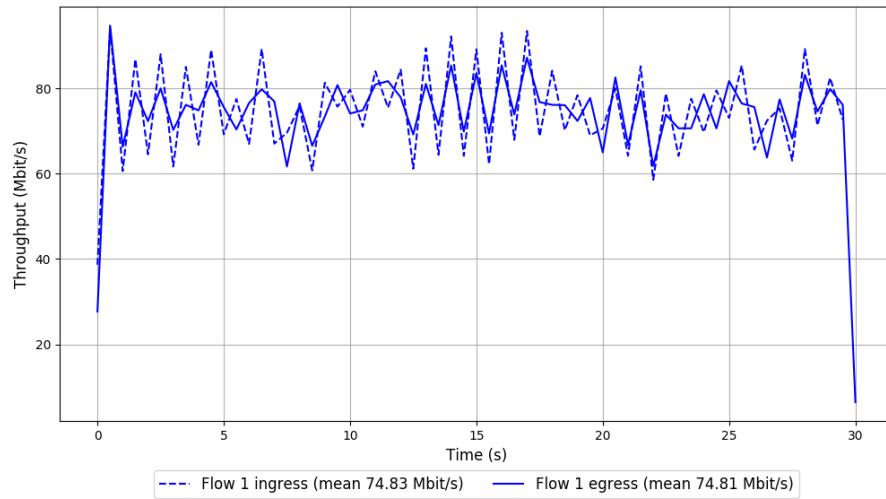


Run 3: Statistics of TaoVA-100x

```
Start at: Sun, 06 Aug 2017 09:06:04 +0000
End at: Sun, 06 Aug 2017 09:06:34 +0000
Local clock offset: 0.597 ms
Remote clock offset: 0.697 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:20:21 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 74.81 Mbit/s
95th percentile per-packet one-way delay: 69.390 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 74.81 Mbit/s
95th percentile per-packet one-way delay: 69.390 ms
Loss rate: 0.01%
```

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

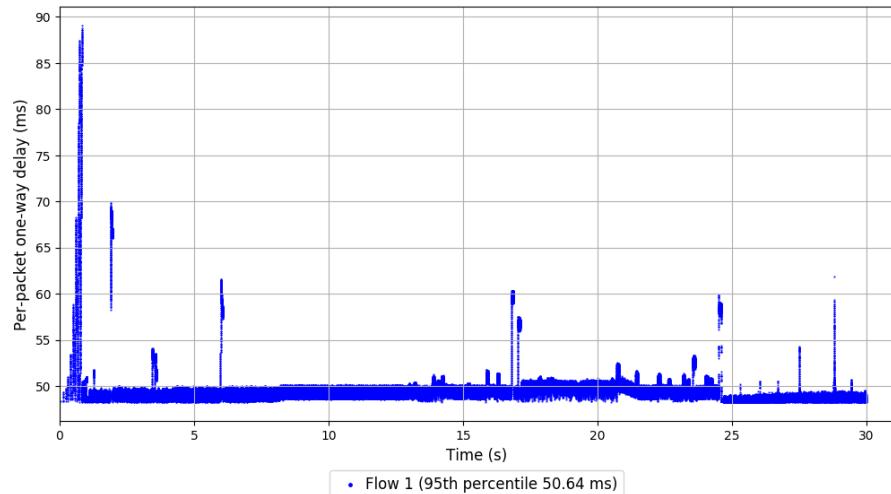
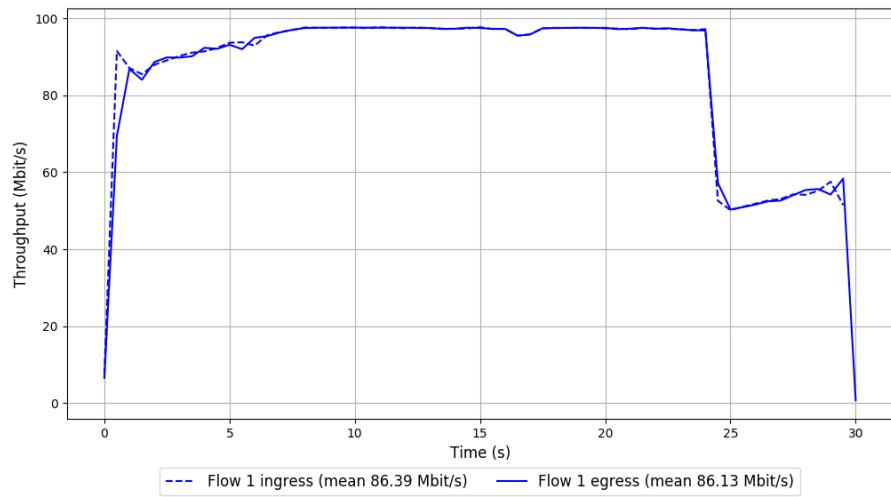


Run 1: Statistics of TCP Vegas

```
Start at: Sun, 06 Aug 2017 08:21:43 +0000
End at: Sun, 06 Aug 2017 08:22:13 +0000
Local clock offset: 0.814 ms
Remote clock offset: -1.855 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:20:21 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 86.13 Mbit/s
95th percentile per-packet one-way delay: 50.640 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 86.13 Mbit/s
95th percentile per-packet one-way delay: 50.640 ms
Loss rate: 0.30%
```

Run 1: Report of TCP Vegas — Data Link

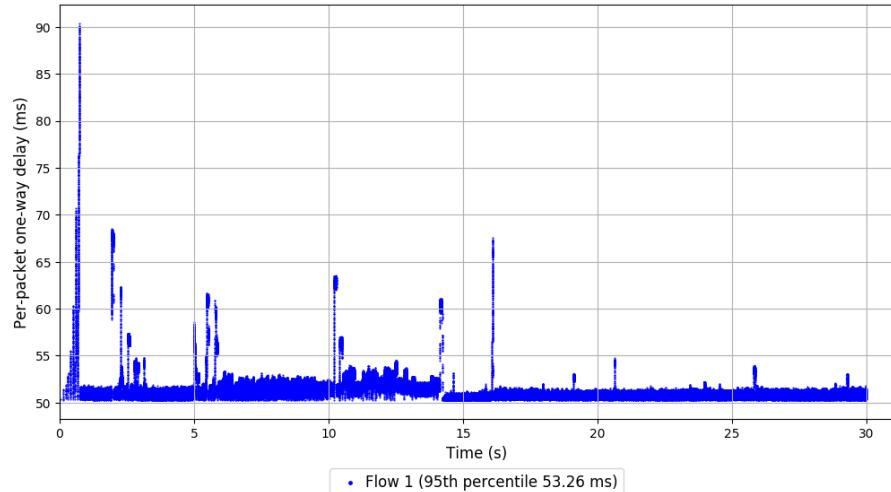
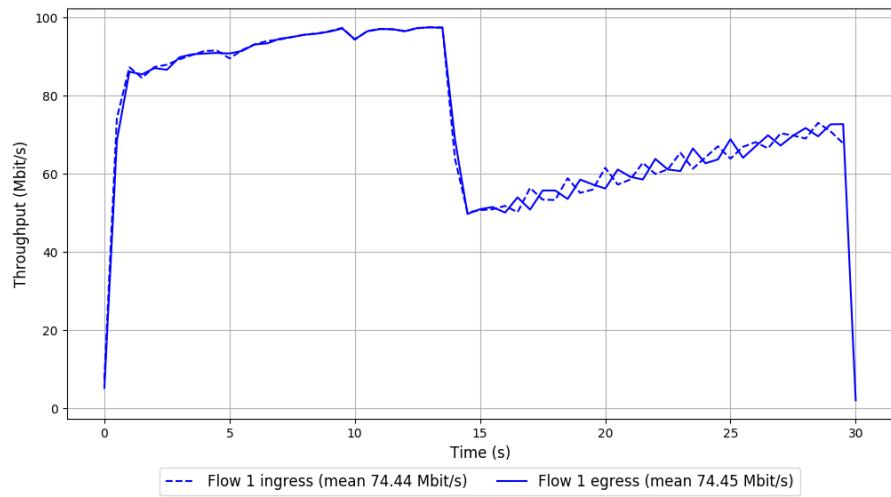


Run 2: Statistics of TCP Vegas

```
Start at: Sun, 06 Aug 2017 08:41:55 +0000
End at: Sun, 06 Aug 2017 08:42:25 +0000
Local clock offset: 0.779 ms
Remote clock offset: 0.35 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:20:26 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 74.45 Mbit/s
95th percentile per-packet one-way delay: 53.256 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 74.45 Mbit/s
95th percentile per-packet one-way delay: 53.256 ms
Loss rate: 0.01%
```

Run 2: Report of TCP Vegas — Data Link

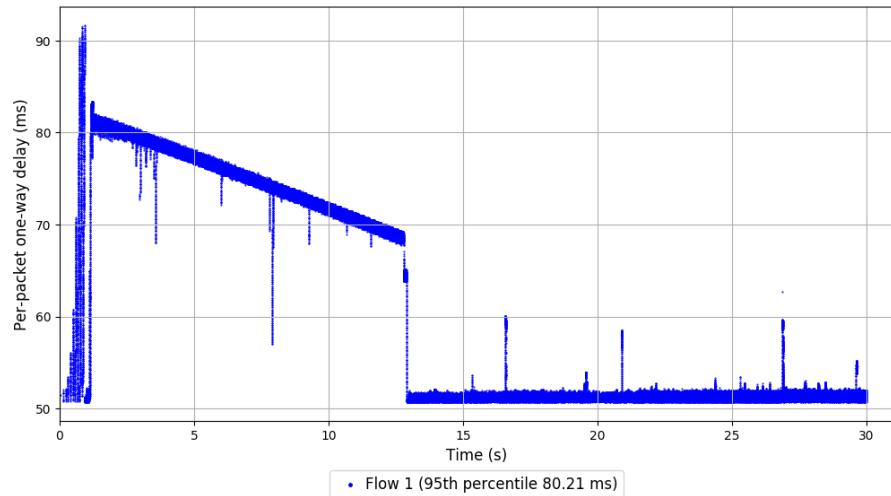
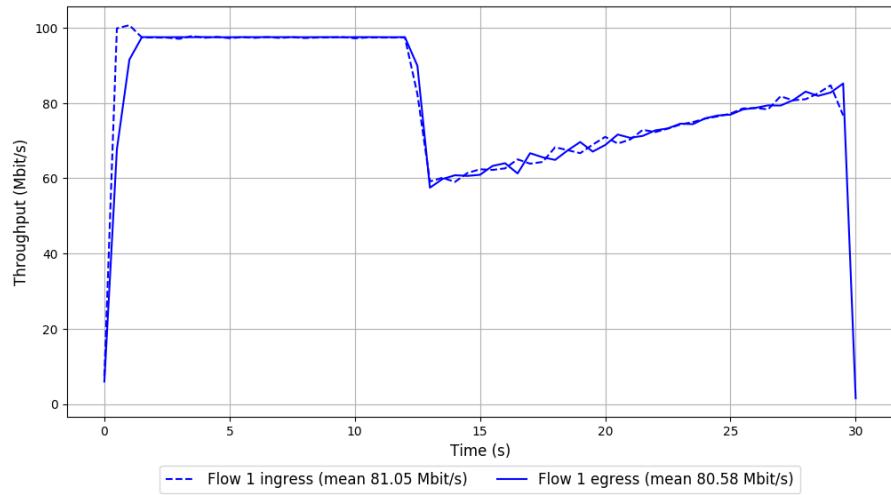


Run 3: Statistics of TCP Vegas

```
Start at: Sun, 06 Aug 2017 09:02:01 +0000
End at: Sun, 06 Aug 2017 09:02:31 +0000
Local clock offset: 0.631 ms
Remote clock offset: 0.988 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:20:32 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 80.58 Mbit/s
95th percentile per-packet one-way delay: 80.211 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 80.58 Mbit/s
95th percentile per-packet one-way delay: 80.211 ms
Loss rate: 0.57%
```

Run 3: Report of TCP Vegas — Data Link

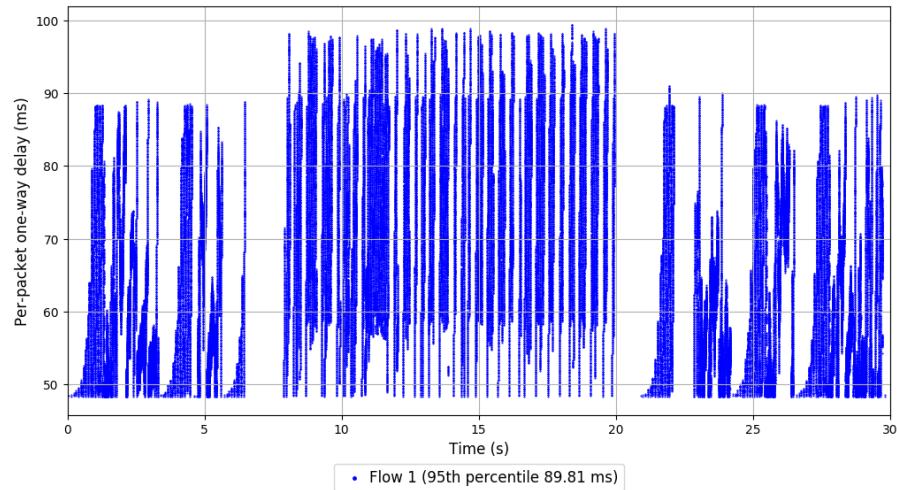
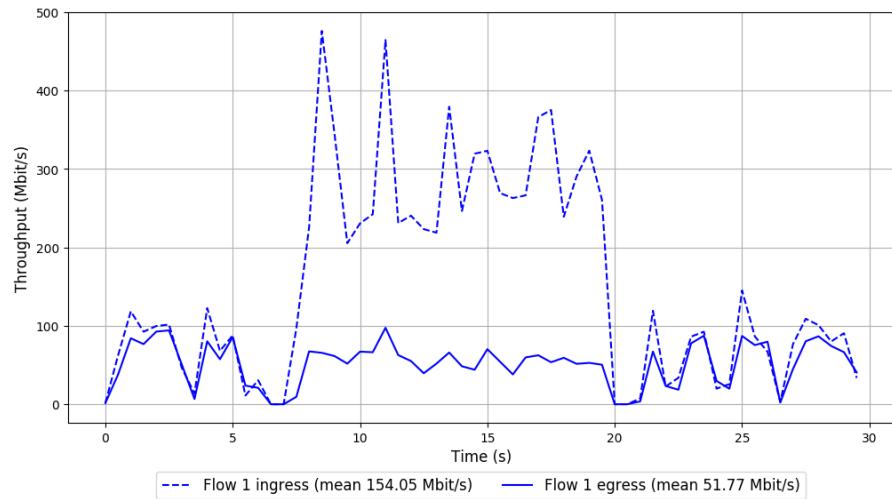


Run 1: Statistics of Verus

```
Start at: Sun, 06 Aug 2017 08:13:36 +0000
End at: Sun, 06 Aug 2017 08:14:06 +0000
Local clock offset: 0.926 ms
Remote clock offset: -2.024 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:20:37 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 51.77 Mbit/s
95th percentile per-packet one-way delay: 89.813 ms
Loss rate: 66.40%
-- Flow 1:
Average throughput: 51.77 Mbit/s
95th percentile per-packet one-way delay: 89.813 ms
Loss rate: 66.40%
```

Run 1: Report of Verus — Data Link

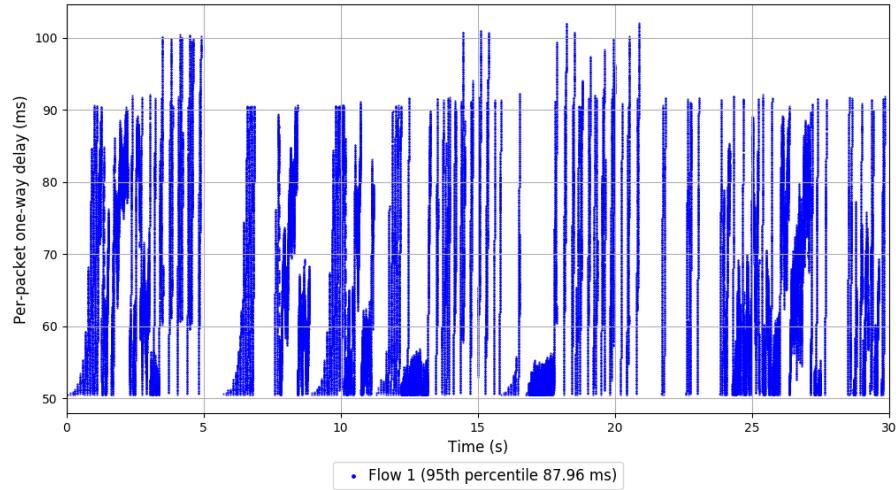
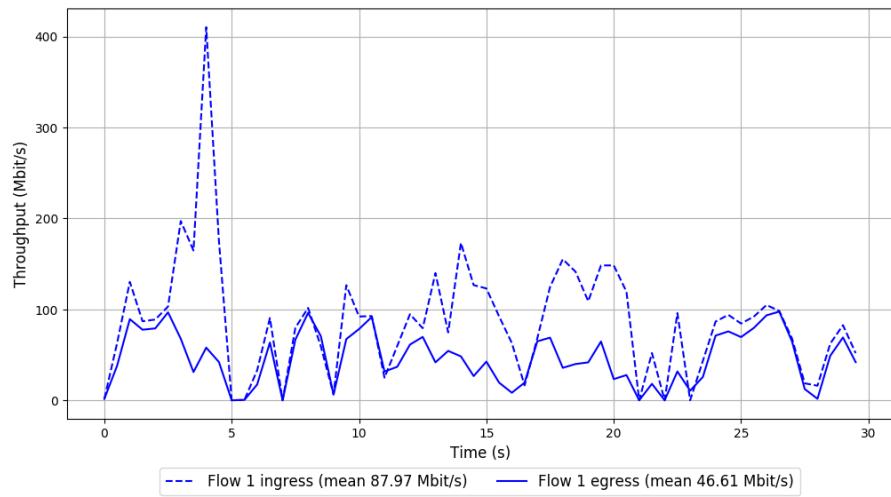


Run 2: Statistics of Verus

```
Start at: Sun, 06 Aug 2017 08:33:50 +0000
End at: Sun, 06 Aug 2017 08:34:20 +0000
Local clock offset: 0.809 ms
Remote clock offset: 0.311 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:20:40 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 46.61 Mbit/s
95th percentile per-packet one-way delay: 87.962 ms
Loss rate: 46.94%
-- Flow 1:
Average throughput: 46.61 Mbit/s
95th percentile per-packet one-way delay: 87.962 ms
Loss rate: 46.94%
```

Run 2: Report of Verus — Data Link

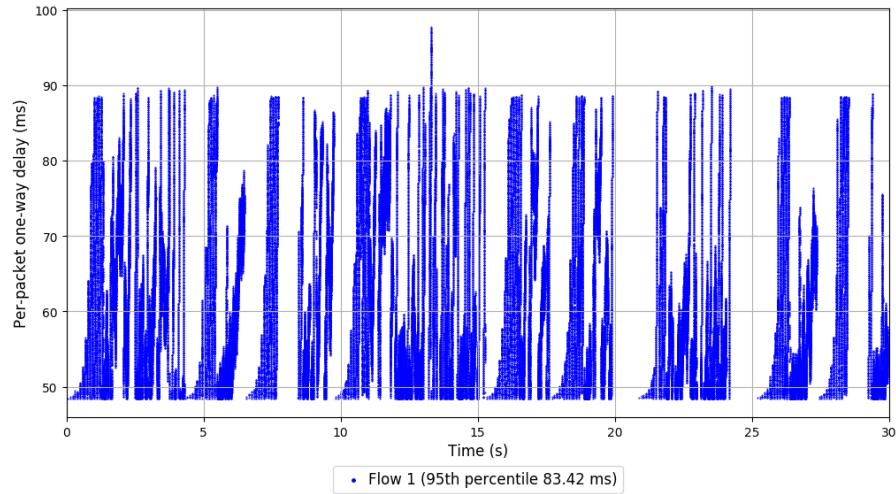
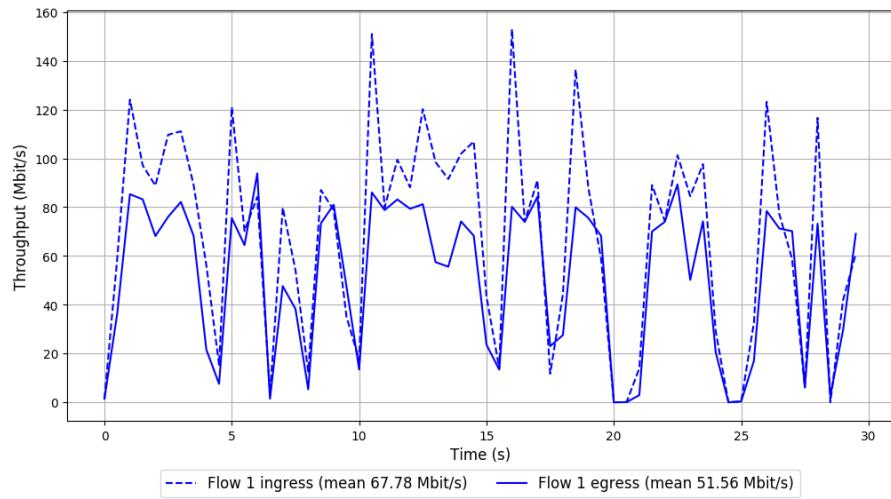


Run 3: Statistics of Verus

```
Start at: Sun, 06 Aug 2017 08:53:56 +0000
End at: Sun, 06 Aug 2017 08:54:26 +0000
Local clock offset: 0.642 ms
Remote clock offset: -1.647 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:20:45 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 51.56 Mbit/s
95th percentile per-packet one-way delay: 83.417 ms
Loss rate: 23.91%
-- Flow 1:
Average throughput: 51.56 Mbit/s
95th percentile per-packet one-way delay: 83.417 ms
Loss rate: 23.91%
```

Run 3: Report of Verus — Data Link

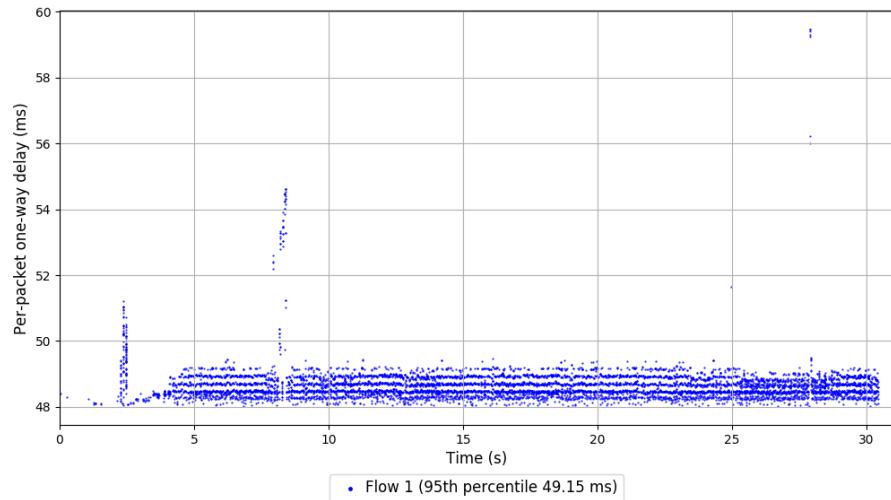
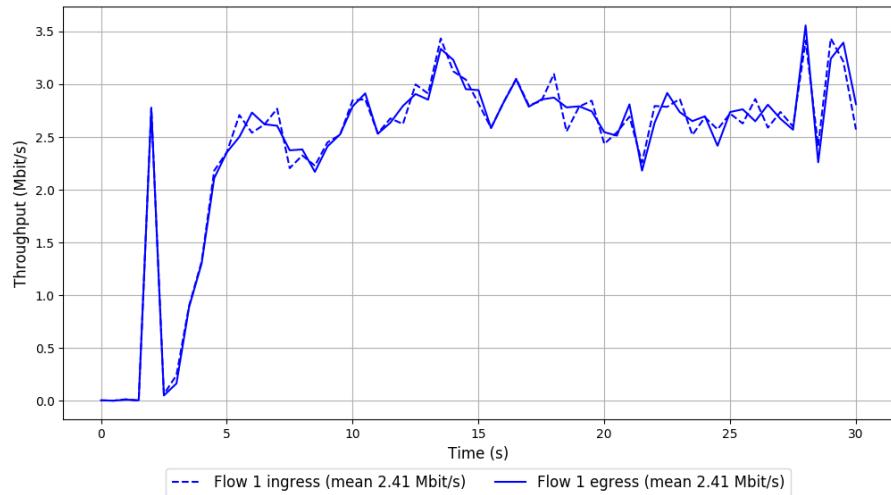


```
Run 1: Statistics of WebRTC media

Start at: Sun, 06 Aug 2017 08:24:29 +0000
End at: Sun, 06 Aug 2017 08:24:59 +0000
Local clock offset: 0.824 ms
Remote clock offset: -1.807 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:20:45 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.41 Mbit/s
95th percentile per-packet one-way delay: 49.152 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 2.41 Mbit/s
95th percentile per-packet one-way delay: 49.152 ms
Loss rate: 0.07%
```

Run 1: Report of WebRTC media — Data Link

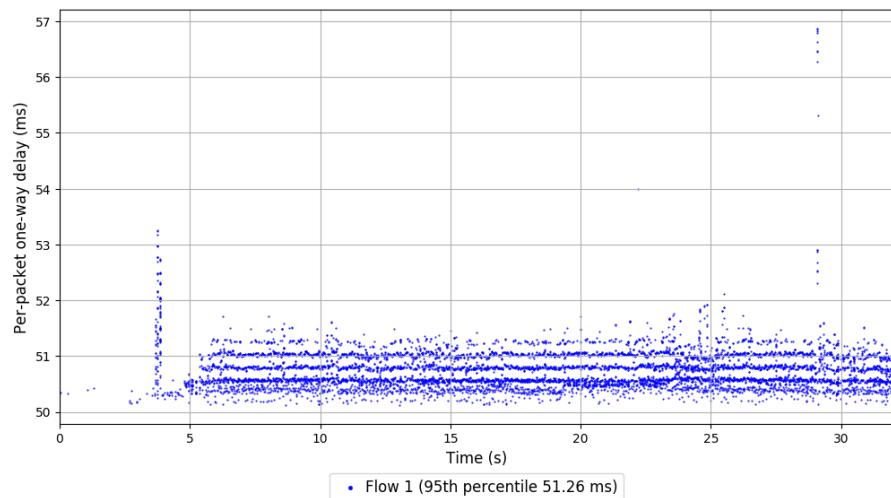
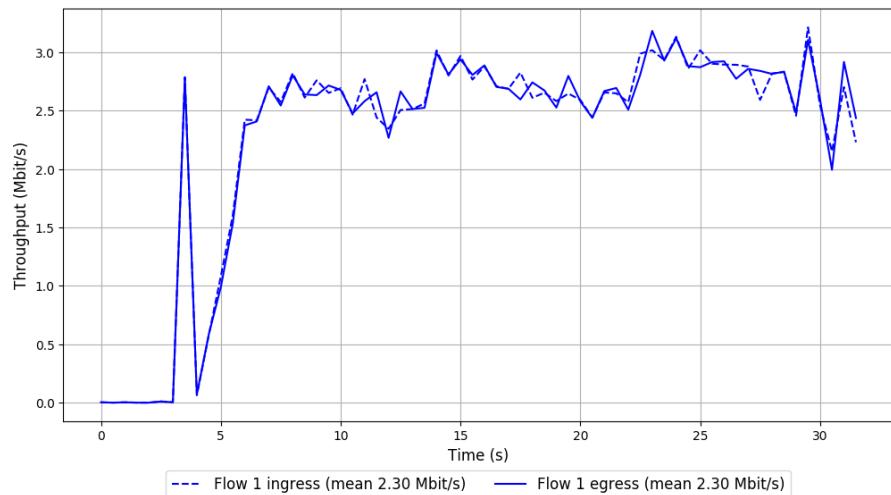


Run 2: Statistics of WebRTC media

```
Start at: Sun, 06 Aug 2017 08:44:39 +0000
End at: Sun, 06 Aug 2017 08:45:09 +0000
Local clock offset: 0.695 ms
Remote clock offset: 0.382 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:20:45 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.30 Mbit/s
95th percentile per-packet one-way delay: 51.264 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.30 Mbit/s
95th percentile per-packet one-way delay: 51.264 ms
Loss rate: 0.00%
```

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

```
Start at: Sun, 06 Aug 2017 09:04:46 +0000
End at: Sun, 06 Aug 2017 09:05:16 +0000
Local clock offset: 0.689 ms
Remote clock offset: 0.555 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:20:45 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.44 Mbit/s
95th percentile per-packet one-way delay: 51.317 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 2.44 Mbit/s
95th percentile per-packet one-way delay: 51.317 ms
Loss rate: 0.07%
```

Run 3: Report of WebRTC media — Data Link

