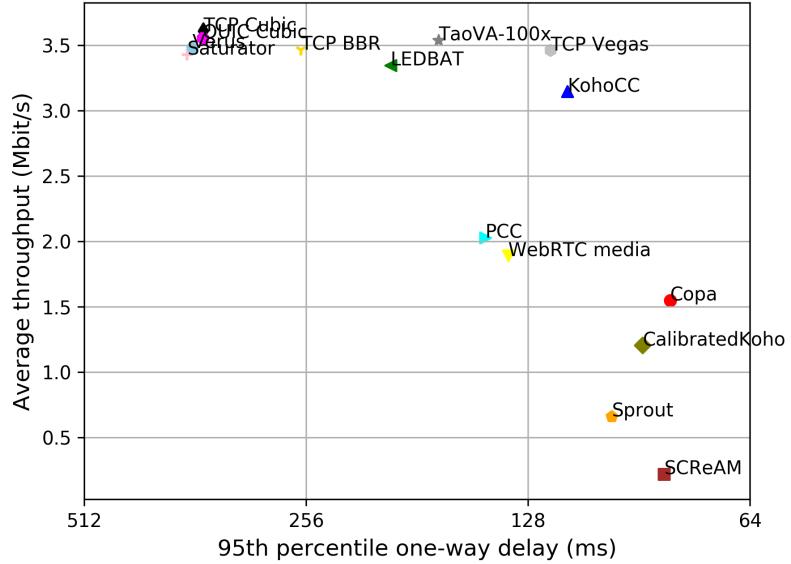


Pantheon Report

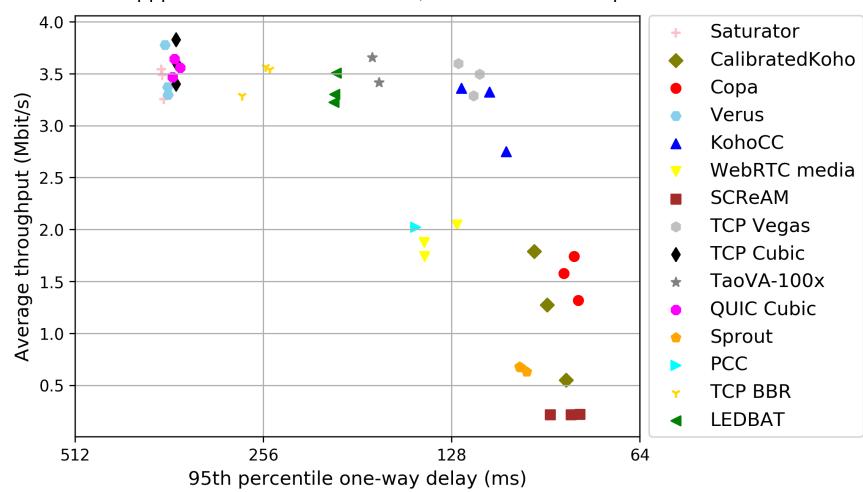
Generated at 2017-08-21 01:36:54 (UTC).
Data path: India ppp0 (*remote*) → AWS India 1 Ethernet (*local*).
Repeated the test of 15 congestion control schemes 3 times.
Each test lasted for 30 seconds running 1 flow.
Increased UDP receive buffer to 16 MB (default) and 32 MB (max).
Tested BBR with qdisc of Fair Queuing (`fq`), and other schemes with the default Linux qdisc (`pfifo_fast`).
NTP offsets were measured against `nets.org.sg` and have been applied to correct the timestamps in logs.

Git summary:
branch: master @ e43be7582298d552838afcfc6382342bf187fbbd6
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 @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
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 India ppp0 to AWS India 1 Ethernet, 3 runs of 30s each per scheme
(mean of all runs by scheme)



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



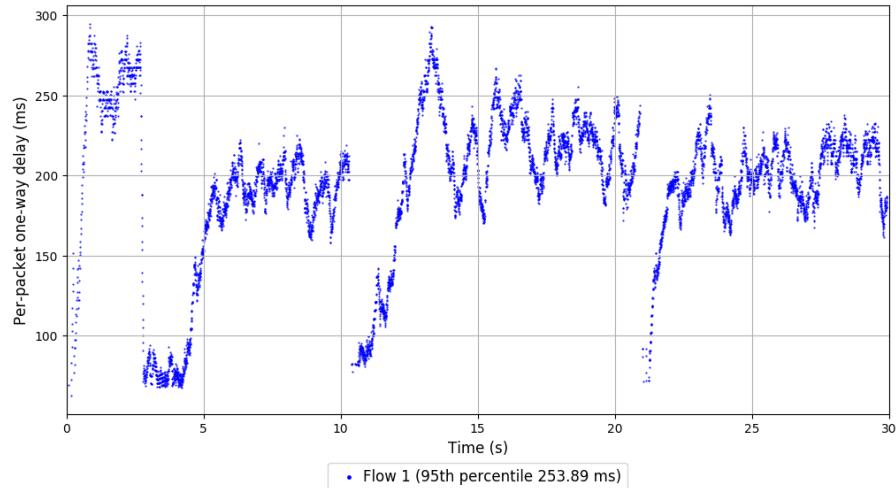
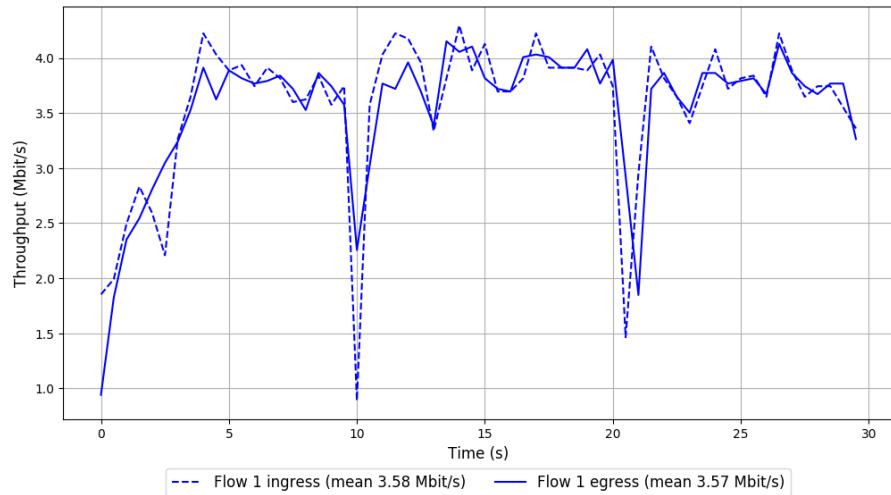
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	3.47	260.37	0.72
CalibratedKoho	3	1.20	89.52	0.35
Copa	3	1.55	82.18	0.25
TCP Cubic	3	3.61	353.18	1.52
KohoCC	3	3.15	113.19	0.39
LEDBAT	3	3.34	196.78	0.68
PCC	1	2.02	146.28	7.03
QUIC Cubic	3	3.56	353.67	1.92
Saturator	3	3.43	371.32	40.80
SCReAM	3	0.22	83.77	0.26
Sprout	3	0.66	98.64	0.43
TaoVA-100x	2	3.54	169.36	0.87
TCP Vegas	3	3.46	119.50	0.40
Verus	3	3.48	365.35	29.22
WebRTC media	3	1.89	136.23	0.36

Run 1: Statistics of TCP BBR

```
Start at: 2017-08-20 23:50:36
End at: 2017-08-20 23:51:06
Local clock offset: 0.488 ms
Remote clock offset: -20.847 ms

# Below is generated by plot.py at 2017-08-21 01:36:22
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.57 Mbit/s
95th percentile per-packet one-way delay: 253.893 ms
Loss rate: 0.68%
-- Flow 1:
Average throughput: 3.57 Mbit/s
95th percentile per-packet one-way delay: 253.893 ms
Loss rate: 0.68%
```

Run 1: Report of TCP BBR — Data Link

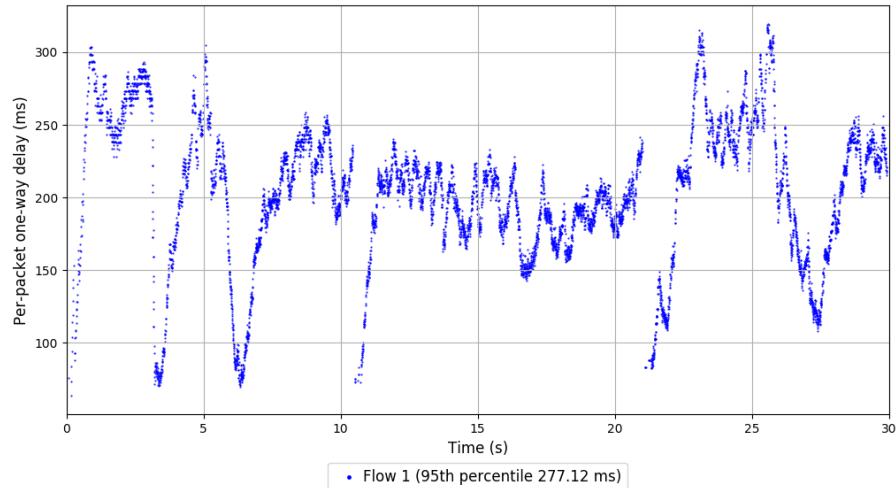
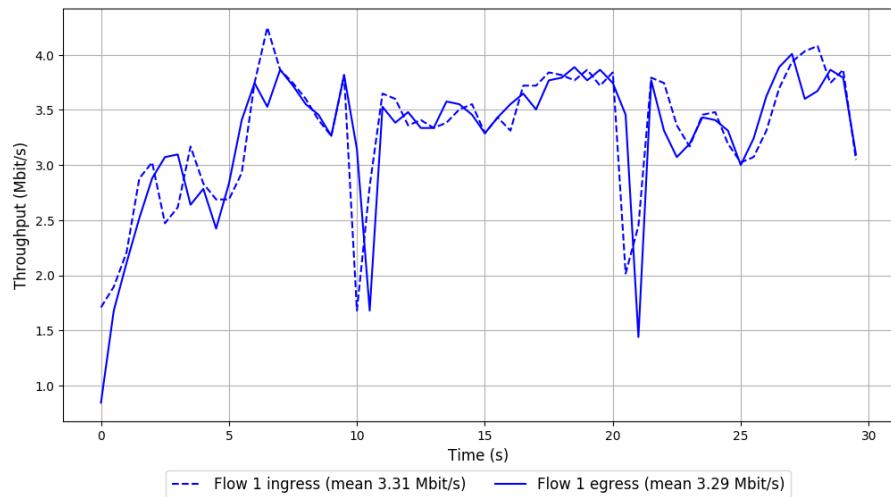


Run 2: Statistics of TCP BBR

```
Start at: 2017-08-21 00:08:12
End at: 2017-08-21 00:08:42
Local clock offset: 3.018 ms
Remote clock offset: -20.222 ms

# Below is generated by plot.py at 2017-08-21 01:36:22
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.29 Mbit/s
95th percentile per-packet one-way delay: 277.118 ms
Loss rate: 0.87%
-- Flow 1:
Average throughput: 3.29 Mbit/s
95th percentile per-packet one-way delay: 277.118 ms
Loss rate: 0.87%
```

Run 2: Report of TCP BBR — Data Link

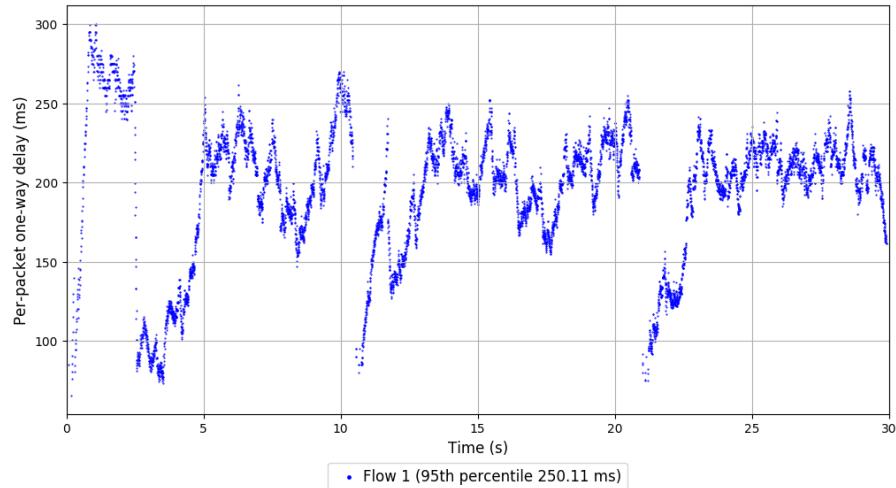
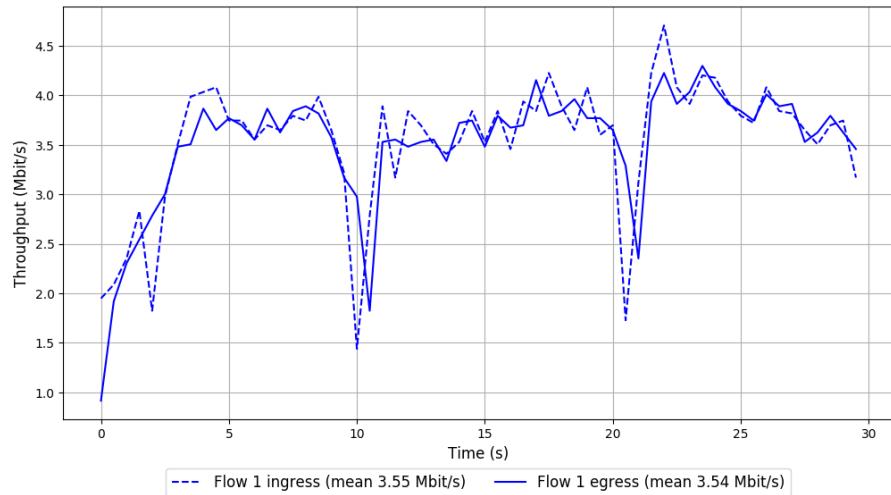


Run 3: Statistics of TCP BBR

```
Start at: 2017-08-21 00:25:13
End at: 2017-08-21 00:25:43
Local clock offset: 4.674 ms
Remote clock offset: -21.165 ms

# Below is generated by plot.py at 2017-08-21 01:36:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.54 Mbit/s
95th percentile per-packet one-way delay: 250.109 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 3.54 Mbit/s
95th percentile per-packet one-way delay: 250.109 ms
Loss rate: 0.61%
```

Run 3: Report of TCP BBR — Data Link

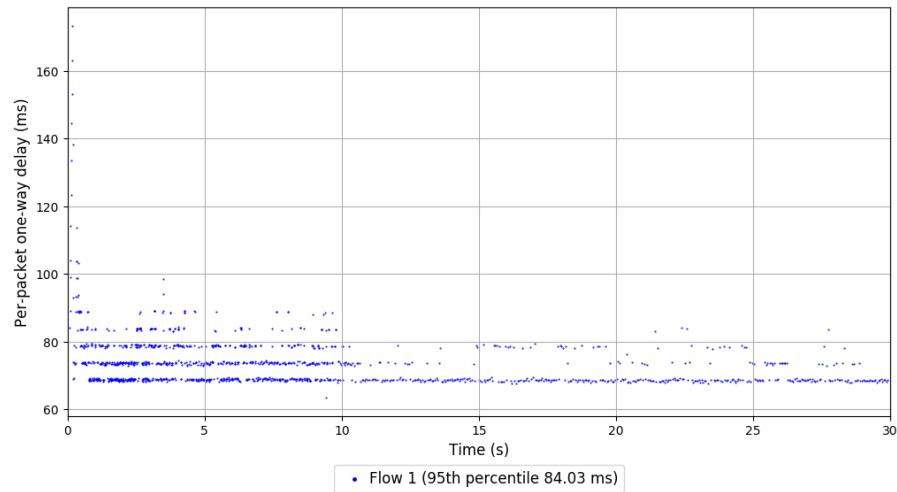
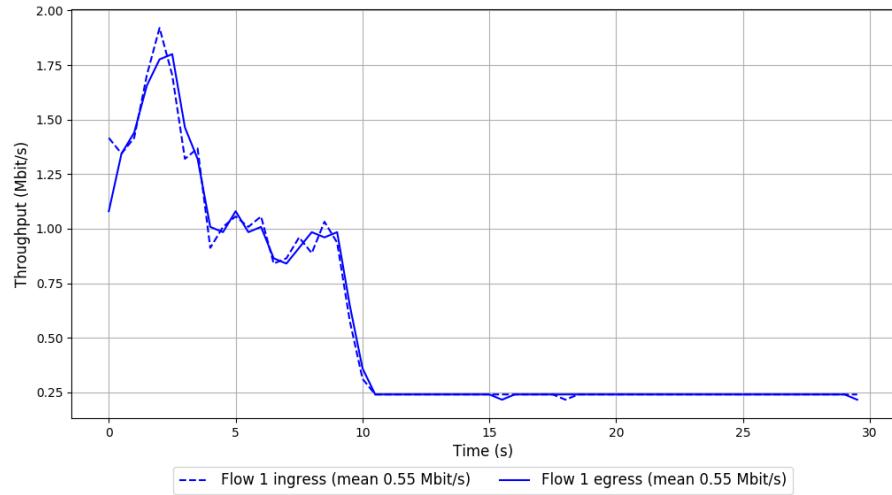


```
Run 1: Statistics of CalibratedKoho

Start at: 2017-08-20 23:54:17
End at: 2017-08-20 23:54:47
Local clock offset: 0.24 ms
Remote clock offset: -18.95 ms

# Below is generated by plot.py at 2017-08-21 01:36:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.55 Mbit/s
95th percentile per-packet one-way delay: 84.028 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 0.55 Mbit/s
95th percentile per-packet one-way delay: 84.028 ms
Loss rate: 0.51%
```

Run 1: Report of CalibratedKoho — Data Link

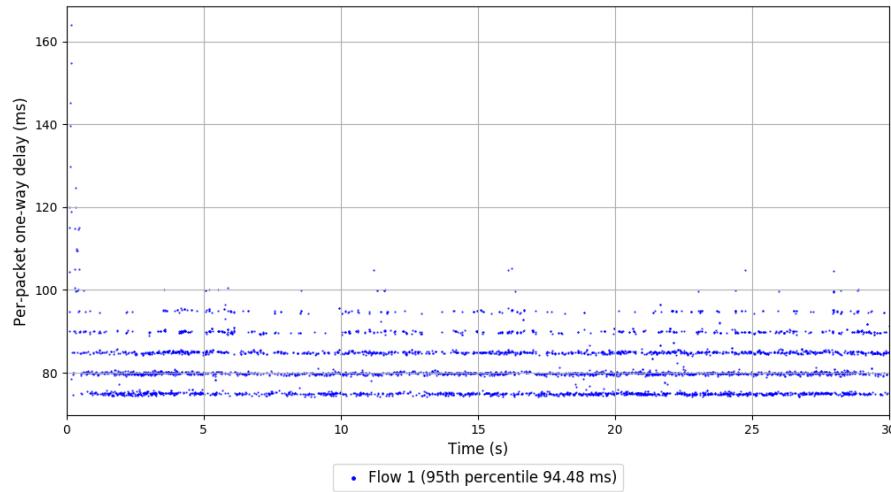
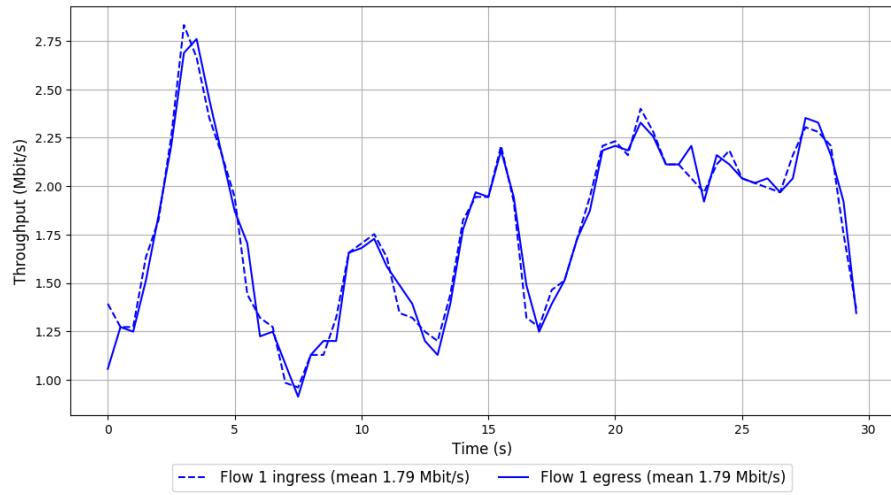


Run 2: Statistics of CalibratedKoho

```
Start at: 2017-08-21 00:11:33
End at: 2017-08-21 00:12:03
Local clock offset: 4.303 ms
Remote clock offset: -21.954 ms

# Below is generated by plot.py at 2017-08-21 01:36:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.79 Mbit/s
95th percentile per-packet one-way delay: 94.484 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 1.79 Mbit/s
95th percentile per-packet one-way delay: 94.484 ms
Loss rate: 0.34%
```

Run 2: Report of CalibratedKoho — Data Link

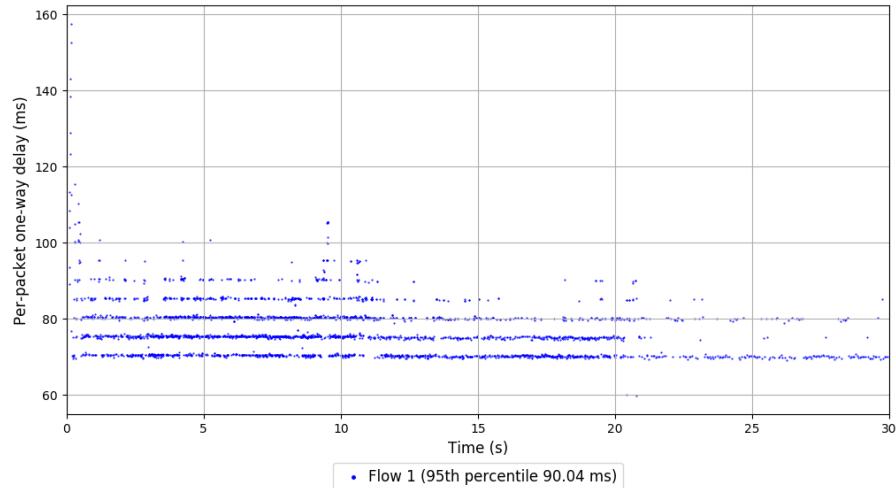
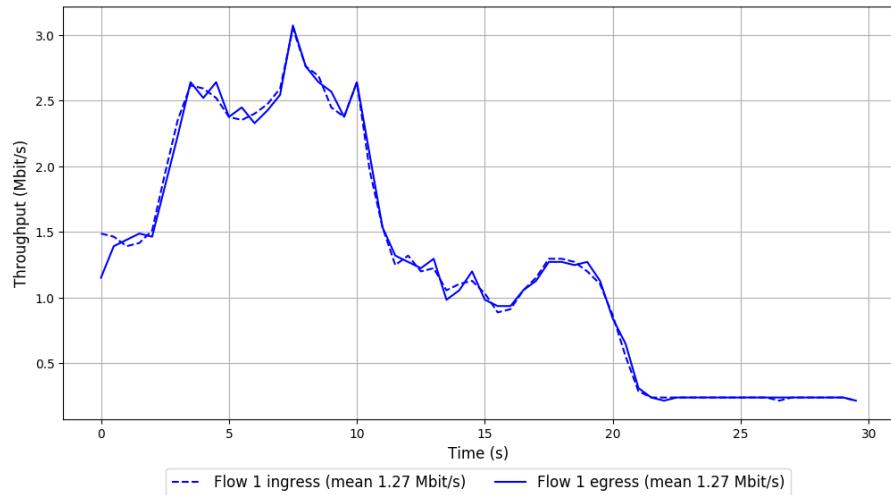


```
Run 3: Statistics of CalibratedKoho
```

```
Start at: 2017-08-21 00:29:01
End at: 2017-08-21 00:29:31
Local clock offset: 1.78 ms
Remote clock offset: -20.51 ms

# Below is generated by plot.py at 2017-08-21 01:36:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.27 Mbit/s
95th percentile per-packet one-way delay: 90.040 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 1.27 Mbit/s
95th percentile per-packet one-way delay: 90.040 ms
Loss rate: 0.19%
```

Run 3: Report of CalibratedKoho — Data Link

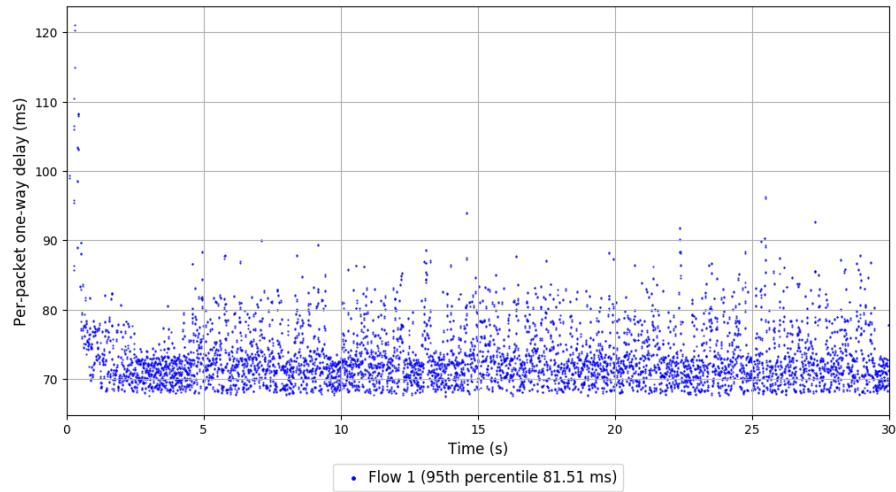
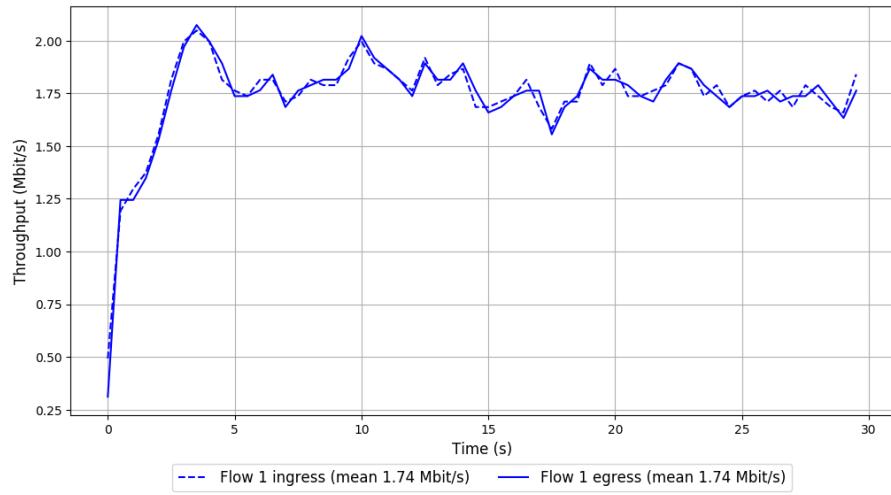


Run 1: Statistics of Copa

```
Start at: 2017-08-20 23:48:22
End at: 2017-08-20 23:48:52
Local clock offset: 2.931 ms
Remote clock offset: -19.03 ms

# Below is generated by plot.py at 2017-08-21 01:36:26
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.74 Mbit/s
95th percentile per-packet one-way delay: 81.514 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 1.74 Mbit/s
95th percentile per-packet one-way delay: 81.514 ms
Loss rate: 0.30%
```

Run 1: Report of Copa — Data Link

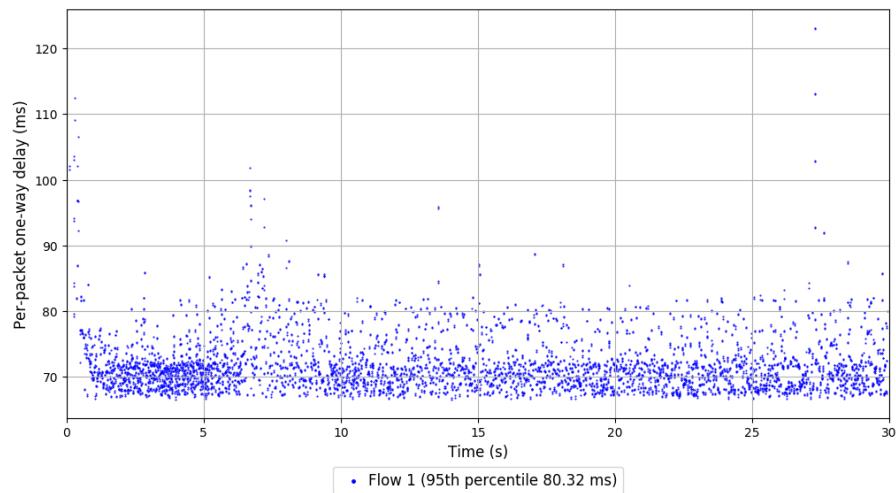
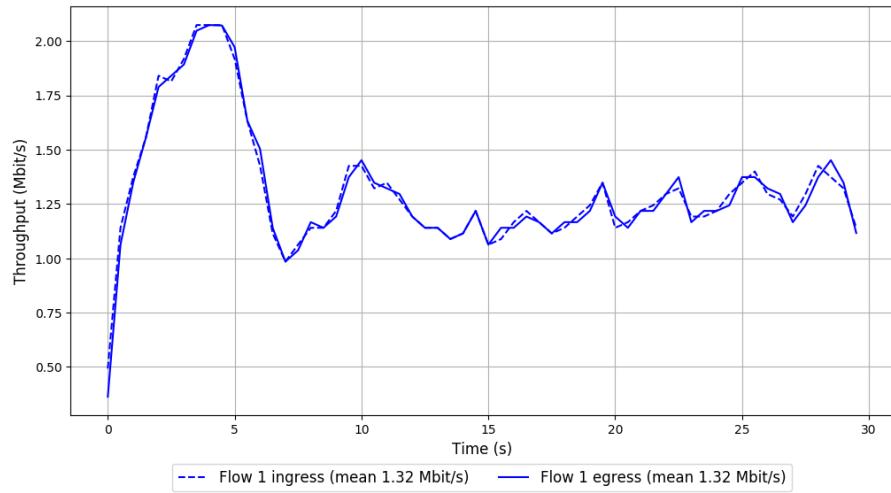


Run 2: Statistics of Copa

```
Start at: 2017-08-21 00:05:59
End at: 2017-08-21 00:06:29
Local clock offset: 1.22 ms
Remote clock offset: -20.29 ms

# Below is generated by plot.py at 2017-08-21 01:36:26
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.32 Mbit/s
95th percentile per-packet one-way delay: 80.324 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 1.32 Mbit/s
95th percentile per-packet one-way delay: 80.324 ms
Loss rate: 0.26%
```

Run 2: Report of Copa — Data Link

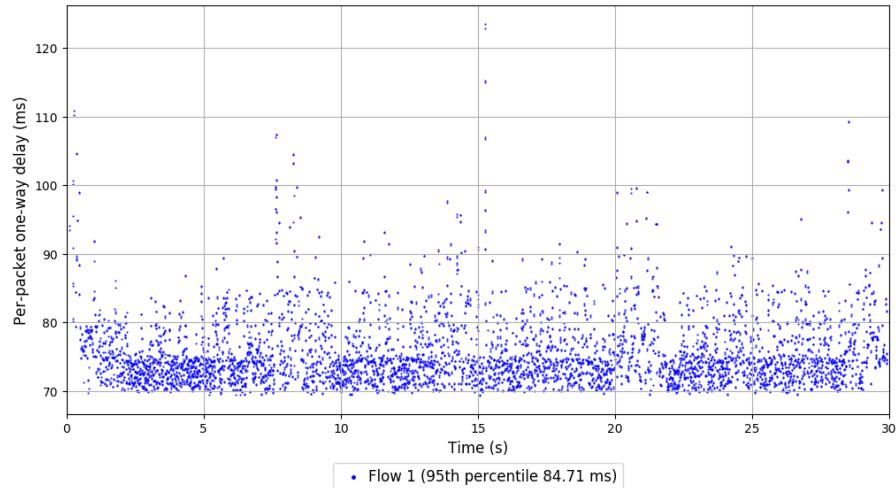
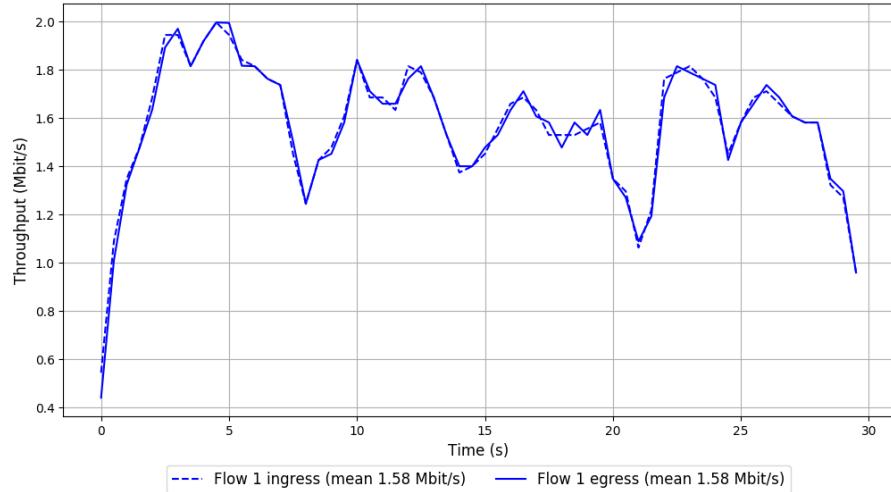


Run 3: Statistics of Copa

```
Start at: 2017-08-21 00:23:00
End at: 2017-08-21 00:23:30
Local clock offset: 4.544 ms
Remote clock offset: -20.018 ms

# Below is generated by plot.py at 2017-08-21 01:36:27
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.58 Mbit/s
95th percentile per-packet one-way delay: 84.711 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 1.58 Mbit/s
95th percentile per-packet one-way delay: 84.711 ms
Loss rate: 0.19%
```

Run 3: Report of Copa — Data Link

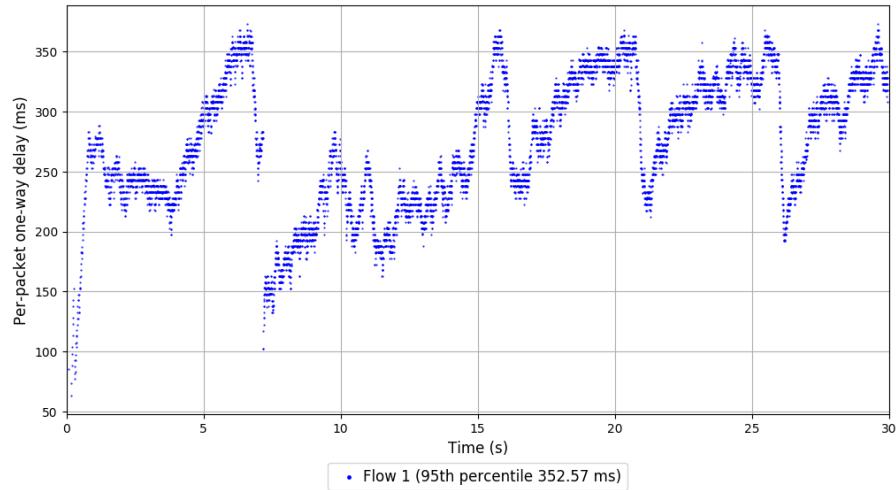
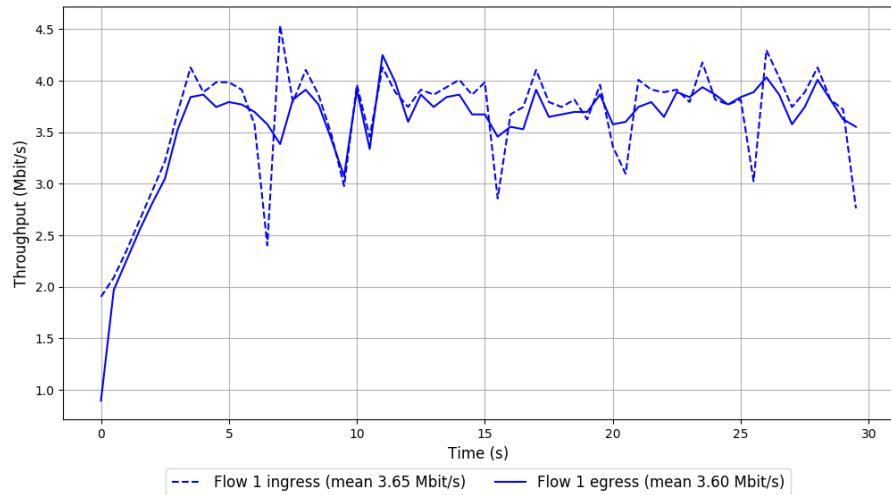


Run 1: Statistics of TCP Cubic

```
Start at: 2017-08-20 23:51:44
End at: 2017-08-20 23:52:14
Local clock offset: 2.094 ms
Remote clock offset: -20.013 ms

# Below is generated by plot.py at 2017-08-21 01:36:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.60 Mbit/s
95th percentile per-packet one-way delay: 352.569 ms
Loss rate: 1.55%
-- Flow 1:
Average throughput: 3.60 Mbit/s
95th percentile per-packet one-way delay: 352.569 ms
Loss rate: 1.55%
```

Run 1: Report of TCP Cubic — Data Link

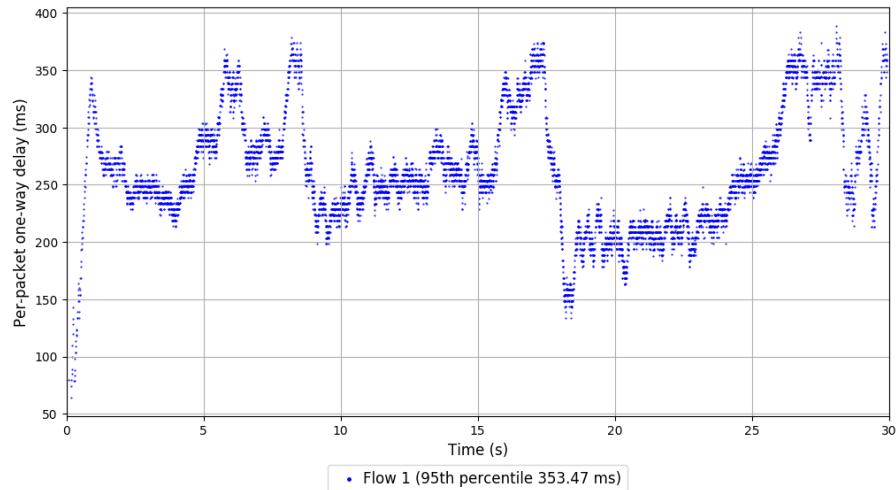
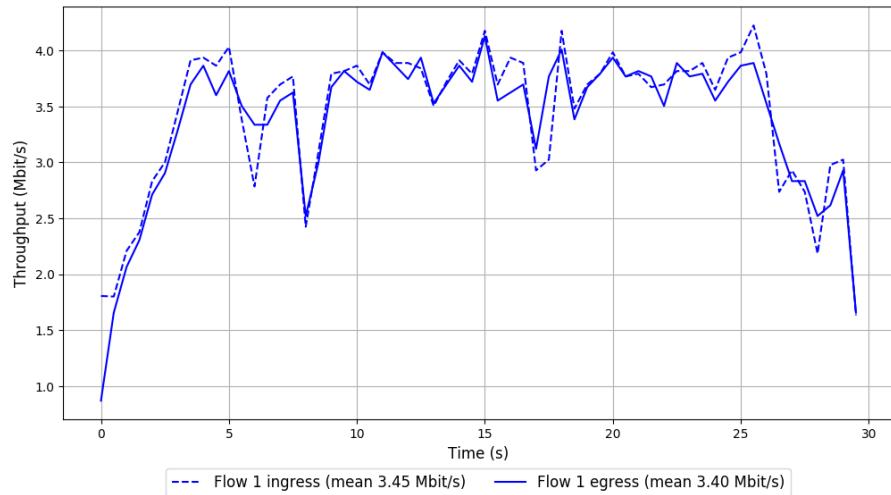


Run 2: Statistics of TCP Cubic

```
Start at: 2017-08-21 00:09:19
End at: 2017-08-21 00:09:49
Local clock offset: 3.968 ms
Remote clock offset: -20.077 ms

# Below is generated by plot.py at 2017-08-21 01:36:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.40 Mbit/s
95th percentile per-packet one-way delay: 353.467 ms
Loss rate: 1.81%
-- Flow 1:
Average throughput: 3.40 Mbit/s
95th percentile per-packet one-way delay: 353.467 ms
Loss rate: 1.81%
```

Run 2: Report of TCP Cubic — Data Link

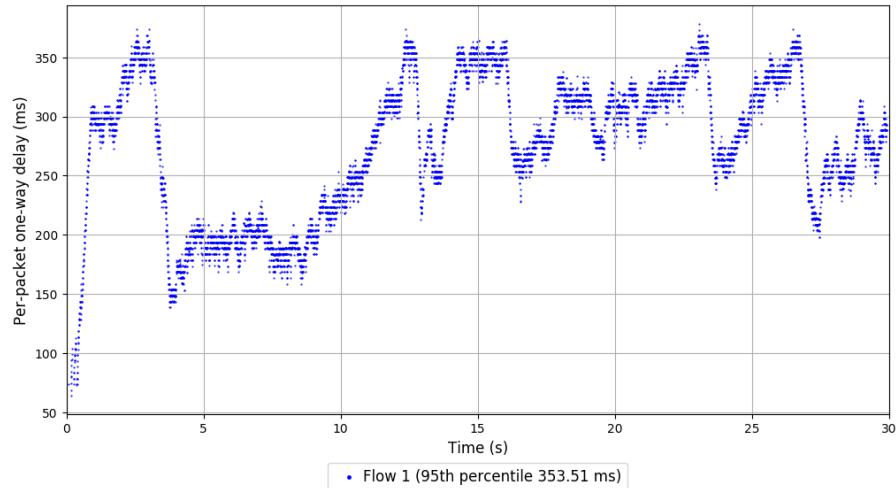
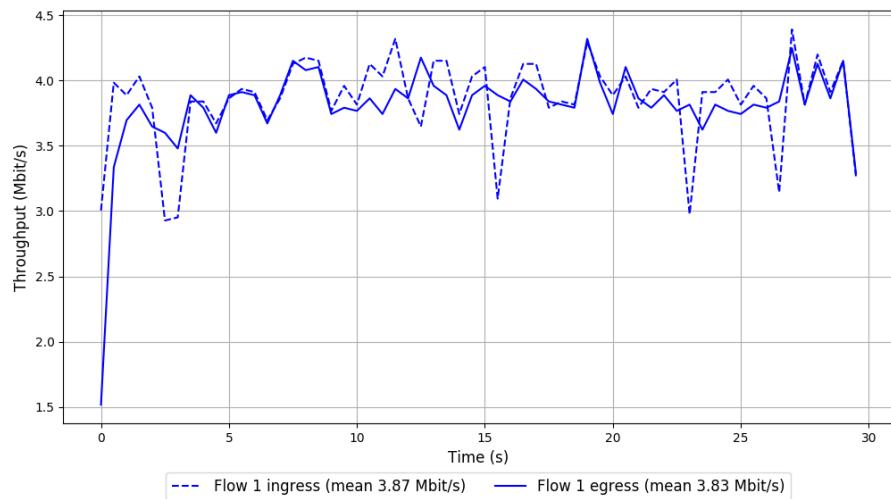


Run 3: Statistics of TCP Cubic

```
Start at: 2017-08-21 00:26:41
End at: 2017-08-21 00:27:11
Local clock offset: 5.253 ms
Remote clock offset: -19.425 ms

# Below is generated by plot.py at 2017-08-21 01:36:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.83 Mbit/s
95th percentile per-packet one-way delay: 353.508 ms
Loss rate: 1.21%
-- Flow 1:
Average throughput: 3.83 Mbit/s
95th percentile per-packet one-way delay: 353.508 ms
Loss rate: 1.21%
```

Run 3: Report of TCP Cubic — Data Link

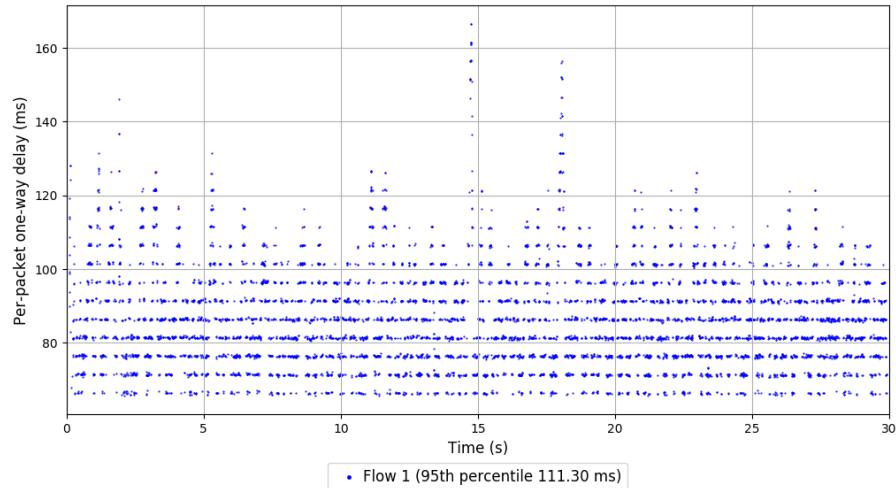
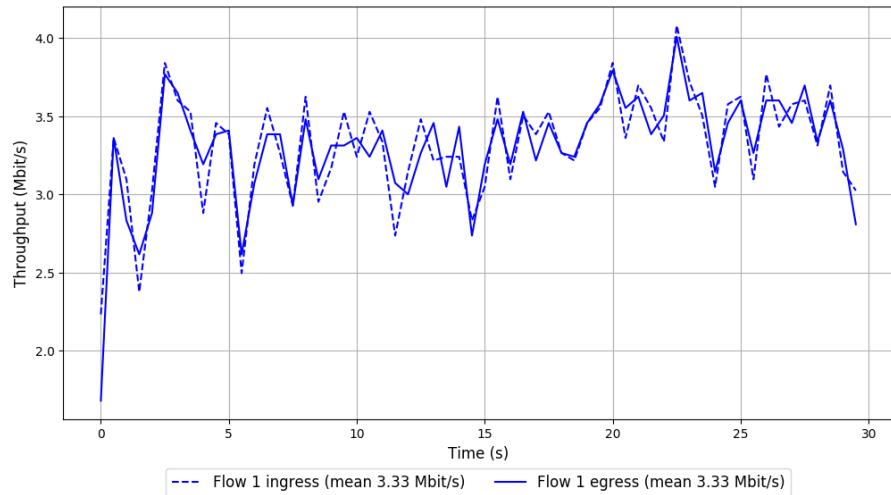


```
Run 1: Statistics of KohoCC
```

```
Start at: 2017-08-20 23:46:07
End at: 2017-08-20 23:46:37
Local clock offset: -1.518 ms
Remote clock offset: -20.56 ms

# Below is generated by plot.py at 2017-08-21 01:36:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.33 Mbit/s
95th percentile per-packet one-way delay: 111.303 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 3.33 Mbit/s
95th percentile per-packet one-way delay: 111.303 ms
Loss rate: 0.40%
```

Run 1: Report of KohoCC — Data Link

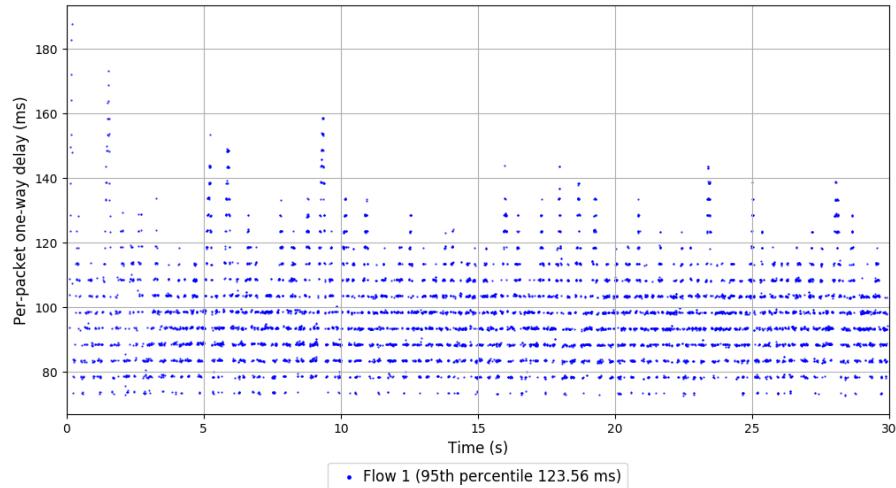
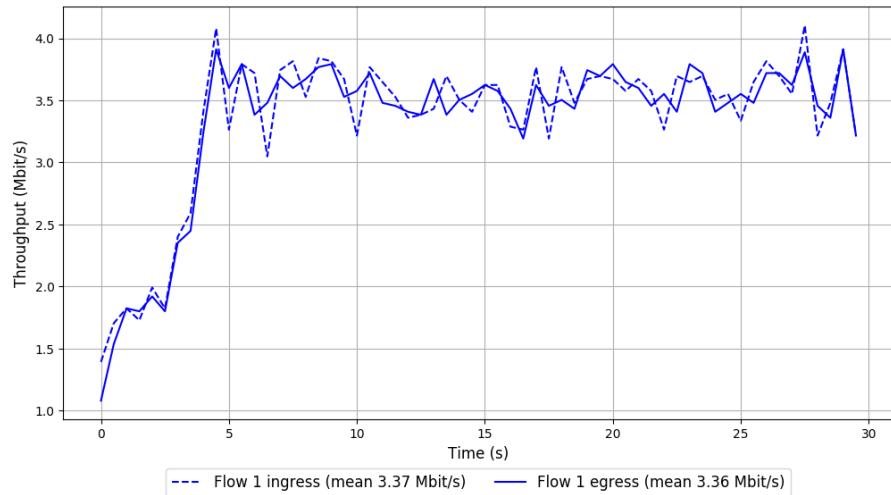


Run 2: Statistics of KohoCC

```
Start at: 2017-08-21 00:03:42
End at: 2017-08-21 00:04:12
Local clock offset: 5.049 ms
Remote clock offset: -22.018 ms

# Below is generated by plot.py at 2017-08-21 01:36:31
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.36 Mbit/s
95th percentile per-packet one-way delay: 123.564 ms
Loss rate: 0.45%
-- Flow 1:
Average throughput: 3.36 Mbit/s
95th percentile per-packet one-way delay: 123.564 ms
Loss rate: 0.45%
```

Run 2: Report of KohoCC — Data Link

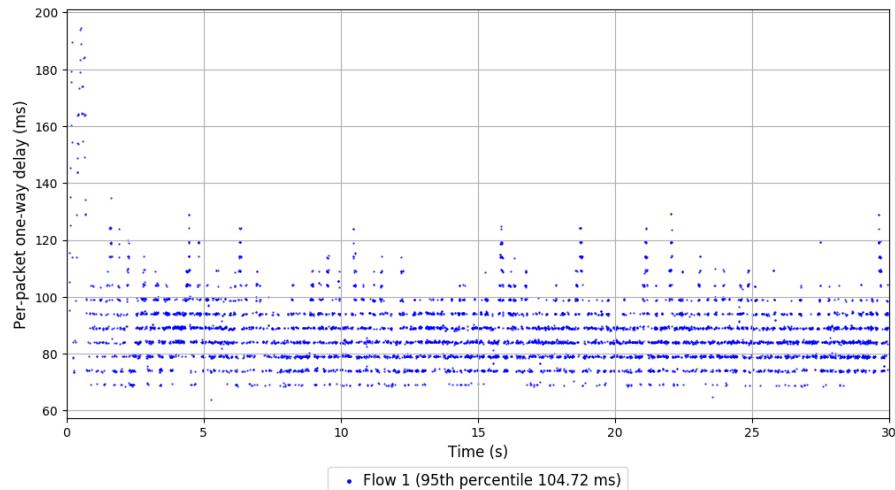
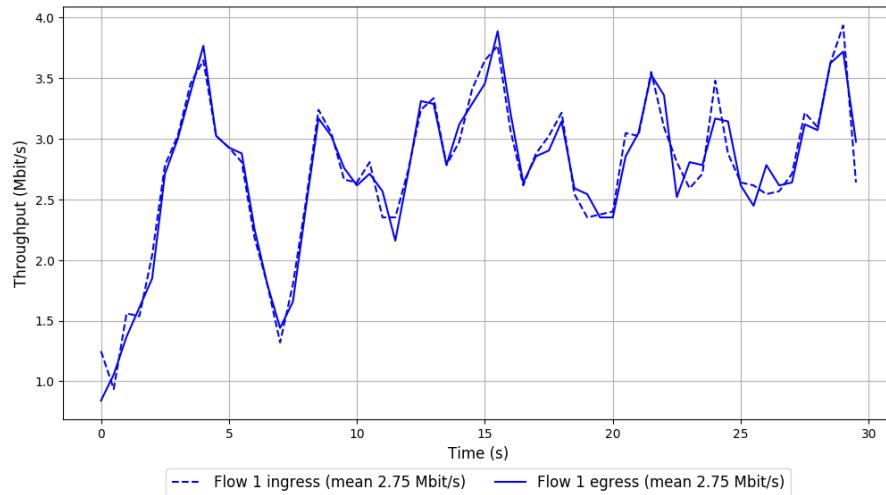


Run 3: Statistics of KohoCC

```
Start at: 2017-08-21 00:20:44
End at: 2017-08-21 00:21:14
Local clock offset: 2.589 ms
Remote clock offset: -20.871 ms

# Below is generated by plot.py at 2017-08-21 01:36:31
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.75 Mbit/s
95th percentile per-packet one-way delay: 104.715 ms
Loss rate: 0.33%
-- Flow 1:
Average throughput: 2.75 Mbit/s
95th percentile per-packet one-way delay: 104.715 ms
Loss rate: 0.33%
```

Run 3: Report of KohoCC — Data Link

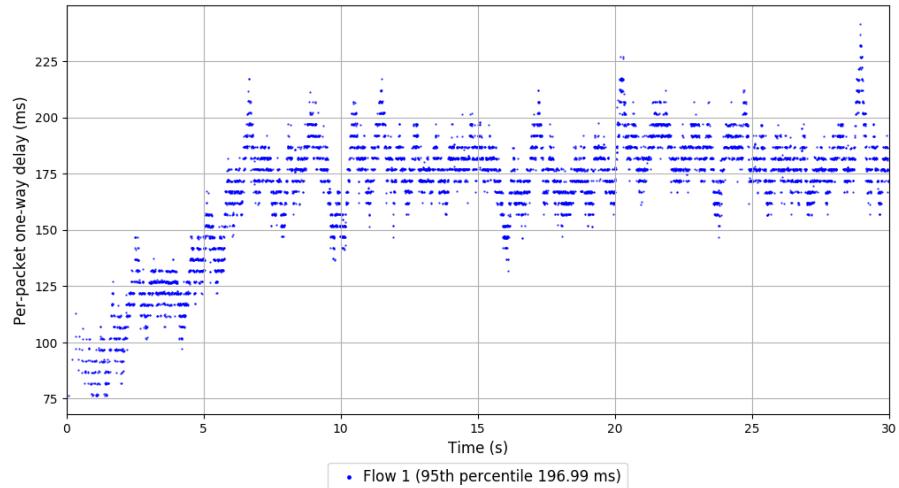
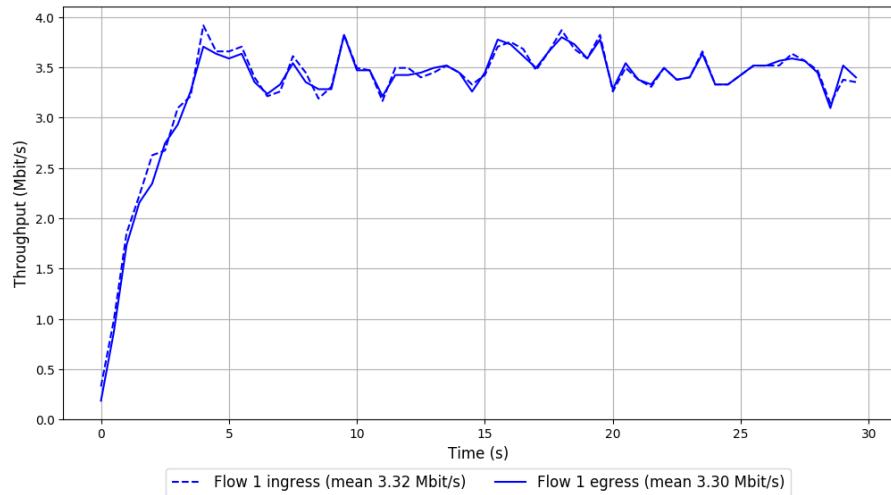


```
Run 1: Statistics of LEDBAT
```

```
Start at: 2017-08-20 23:40:40
End at: 2017-08-20 23:41:10
Local clock offset: 1.001 ms
Remote clock offset: -21.652 ms

# Below is generated by plot.py at 2017-08-21 01:36:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.30 Mbit/s
95th percentile per-packet one-way delay: 196.990 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 3.30 Mbit/s
95th percentile per-packet one-way delay: 196.990 ms
Loss rate: 0.58%
```

Run 1: Report of LEDBAT — Data Link

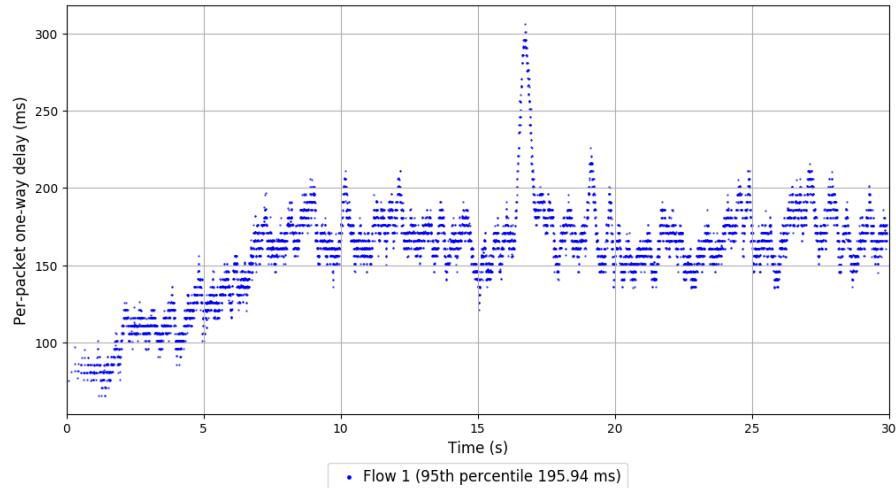
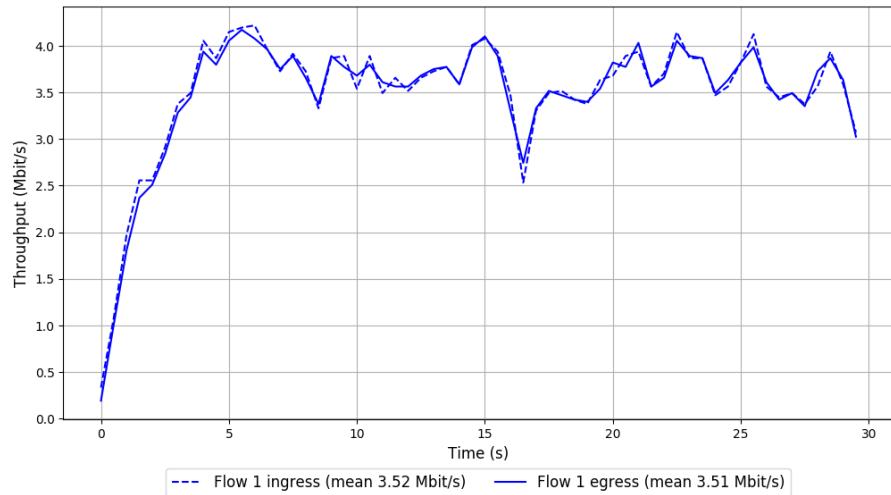


Run 2: Statistics of LEDBAT

```
Start at: 2017-08-20 23:59:02
End at: 2017-08-20 23:59:32
Local clock offset: -1.361 ms
Remote clock offset: -19.359 ms

# Below is generated by plot.py at 2017-08-21 01:36:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.51 Mbit/s
95th percentile per-packet one-way delay: 195.937 ms
Loss rate: 0.59%
-- Flow 1:
Average throughput: 3.51 Mbit/s
95th percentile per-packet one-way delay: 195.937 ms
Loss rate: 0.59%
```

Run 2: Report of LEDBAT — Data Link

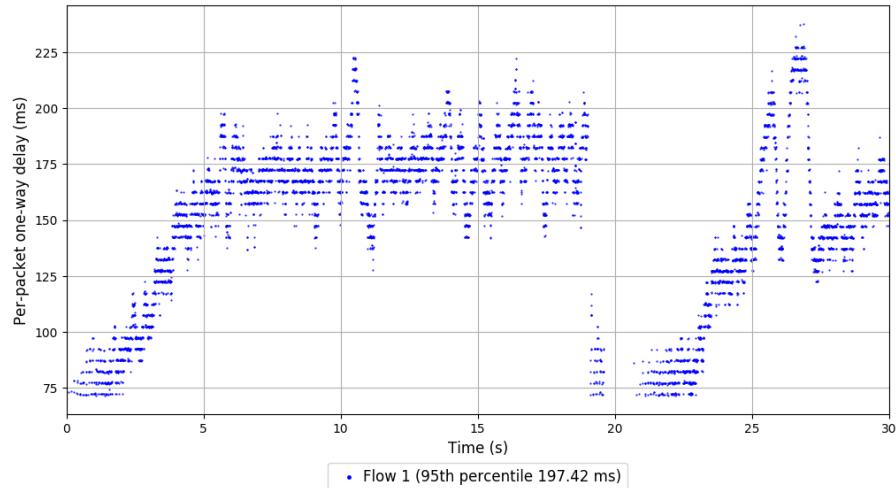
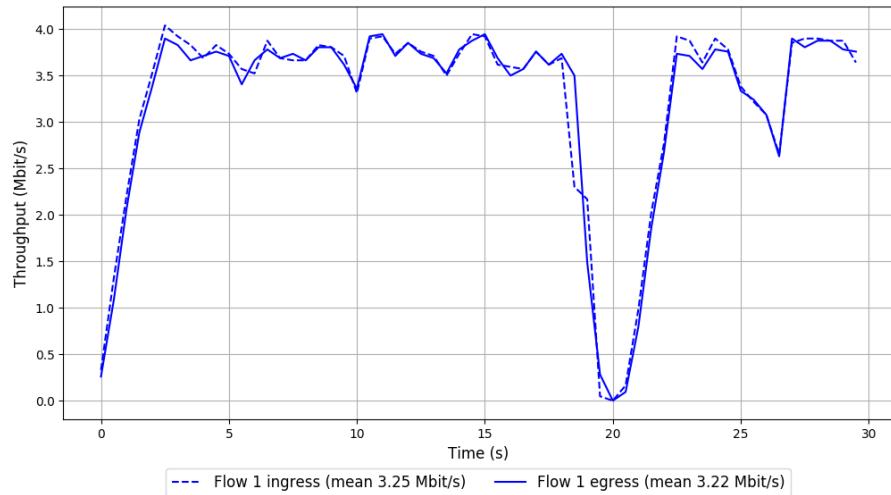


Run 3: Statistics of LEDBAT

```
Start at: 2017-08-21 00:16:19
End at: 2017-08-21 00:16:49
Local clock offset: 5.531 ms
Remote clock offset: -19.6 ms

# Below is generated by plot.py at 2017-08-21 01:36:34
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.22 Mbit/s
95th percentile per-packet one-way delay: 197.423 ms
Loss rate: 0.88%
-- Flow 1:
Average throughput: 3.22 Mbit/s
95th percentile per-packet one-way delay: 197.423 ms
Loss rate: 0.88%
```

Run 3: Report of LEDBAT — Data Link

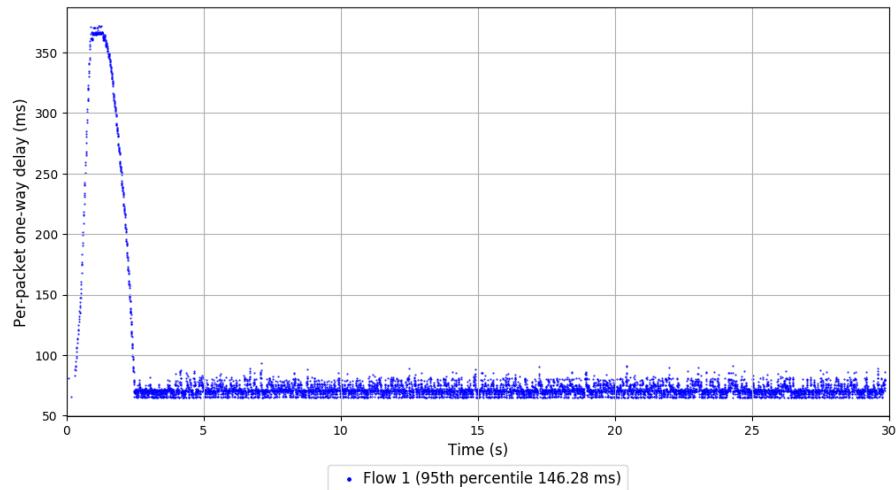
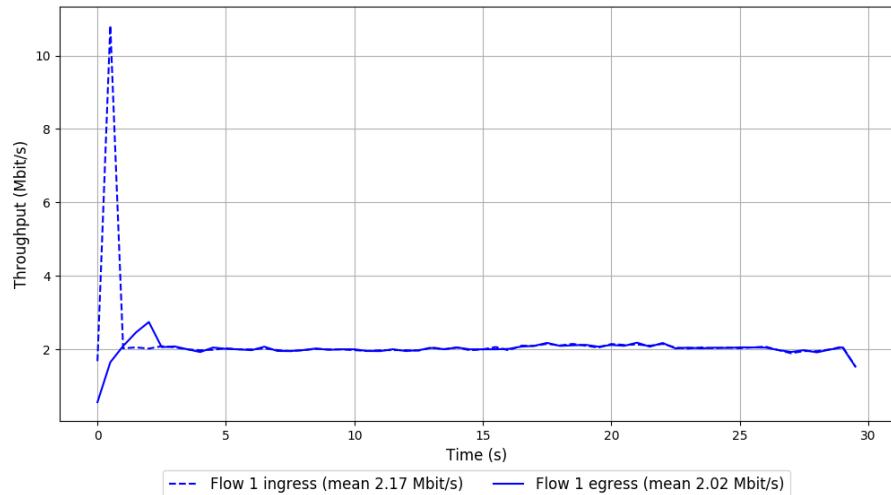


Run 1: Statistics of PCC

```
Start at: 2017-08-20 23:55:22
End at: 2017-08-20 23:55:52
Local clock offset: 0.475 ms
Remote clock offset: -20.7 ms

# Below is generated by plot.py at 2017-08-21 01:36:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.02 Mbit/s
95th percentile per-packet one-way delay: 146.284 ms
Loss rate: 7.03%
-- Flow 1:
Average throughput: 2.02 Mbit/s
95th percentile per-packet one-way delay: 146.284 ms
Loss rate: 7.03%
```

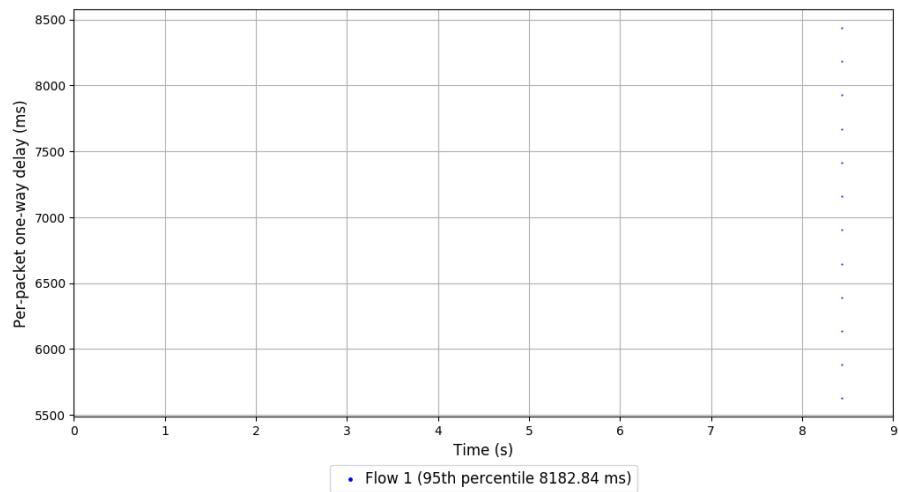
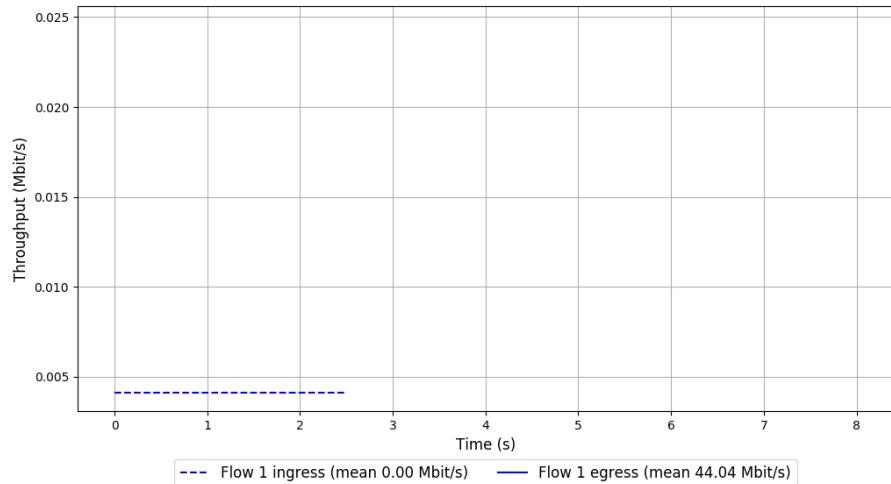
Run 1: Report of PCC — Data Link



Run 2: Statistics of PCC

Start at: 2017-08-21 00:12:39
End at: 2017-08-21 00:13:09
Local clock offset: 0.977 ms
Remote clock offset: -20.126 ms

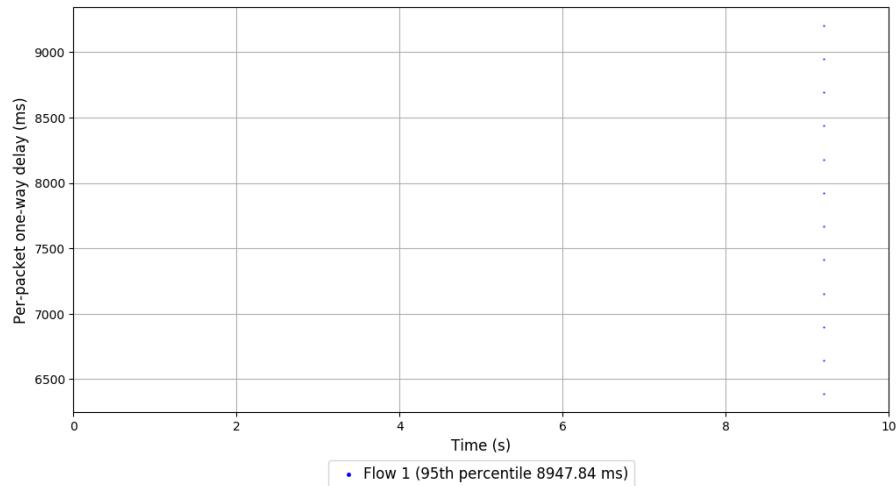
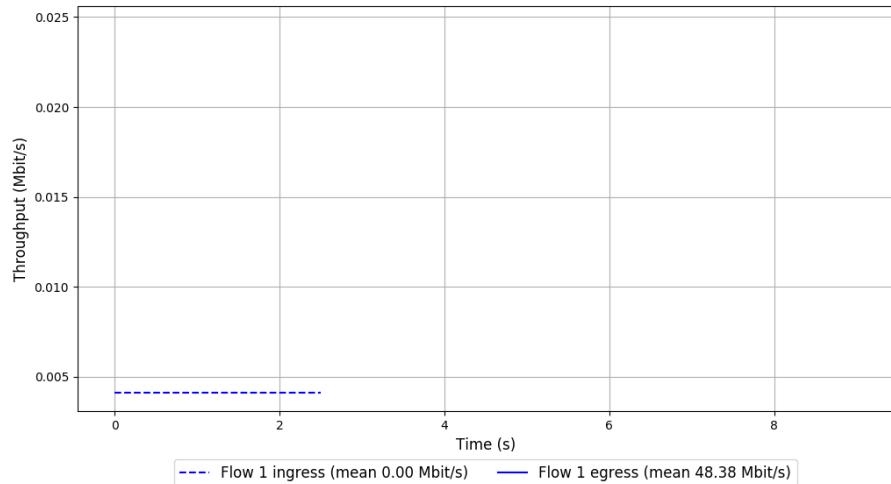
Run 2: Report of PCC — Data Link



Run 3: Statistics of PCC

Start at: 2017-08-21 00:30:28
End at: 2017-08-21 00:30:58
Local clock offset: -1.703 ms
Remote clock offset: -19.775 ms

Run 3: Report of PCC — Data Link

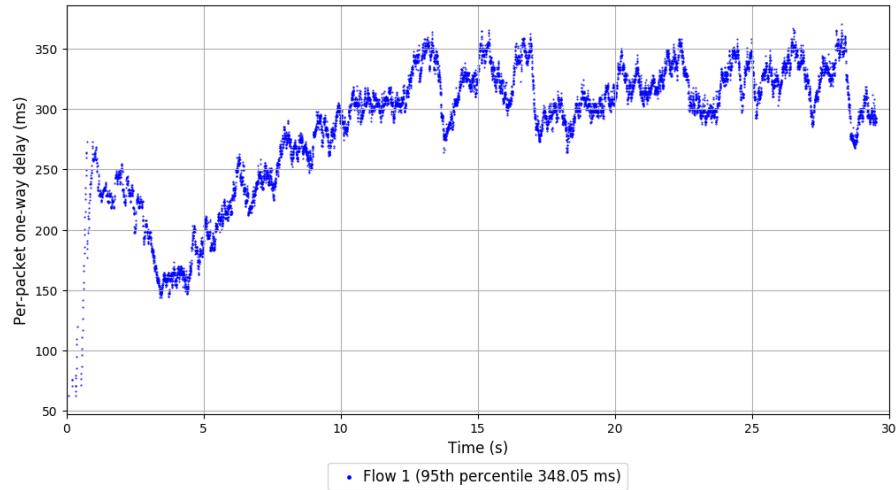
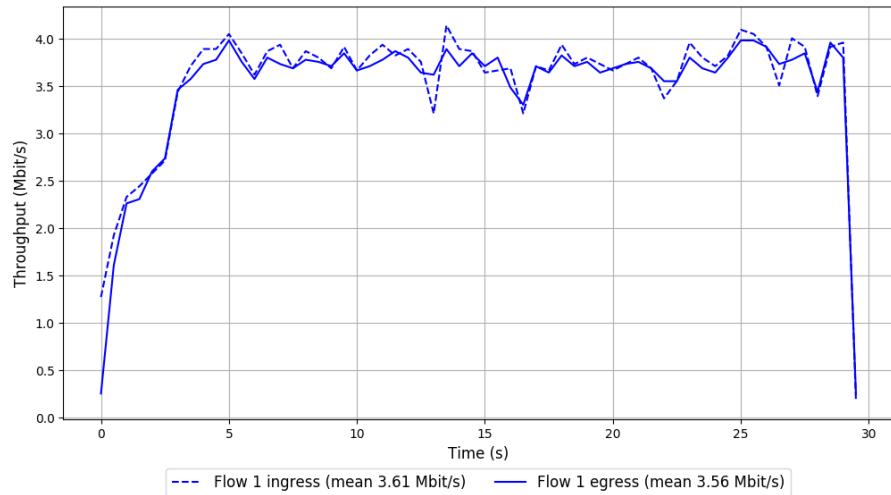


```
Run 1: Statistics of QUIC Cubic
```

```
Start at: 2017-08-20 23:49:29
End at: 2017-08-20 23:49:59
Local clock offset: -2.145 ms
Remote clock offset: -19.258 ms

# Below is generated by plot.py at 2017-08-21 01:36:36
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.56 Mbit/s
95th percentile per-packet one-way delay: 348.049 ms
Loss rate: 1.72%
-- Flow 1:
Average throughput: 3.56 Mbit/s
95th percentile per-packet one-way delay: 348.049 ms
Loss rate: 1.72%
```

Run 1: Report of QUIC Cubic — Data Link

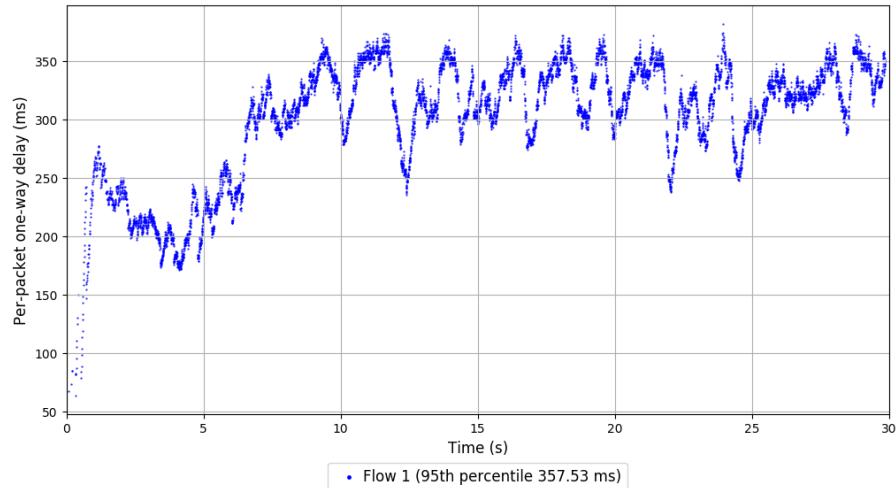
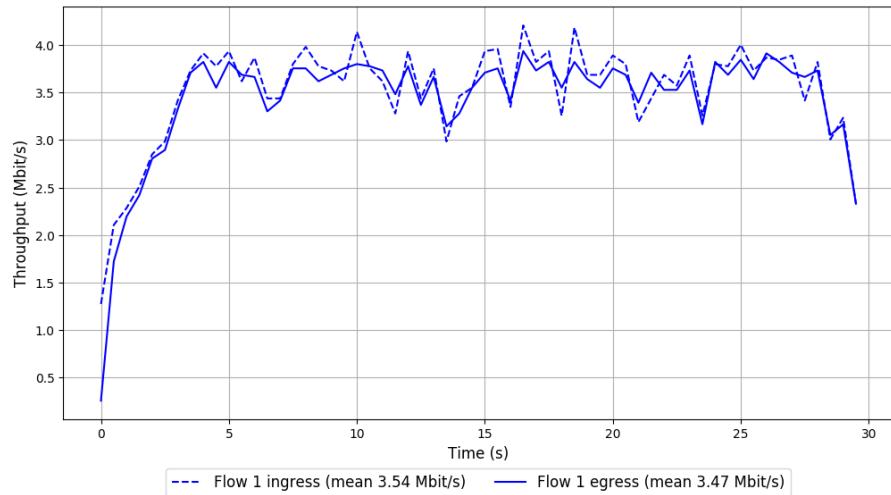


Run 2: Statistics of QUIC Cubic

```
Start at: 2017-08-21 00:07:04
End at: 2017-08-21 00:07:34
Local clock offset: 0.21 ms
Remote clock offset: -21.898 ms

# Below is generated by plot.py at 2017-08-21 01:36:37
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.47 Mbit/s
95th percentile per-packet one-way delay: 357.534 ms
Loss rate: 2.31%
-- Flow 1:
Average throughput: 3.47 Mbit/s
95th percentile per-packet one-way delay: 357.534 ms
Loss rate: 2.31%
```

Run 2: Report of QUIC Cubic — Data Link

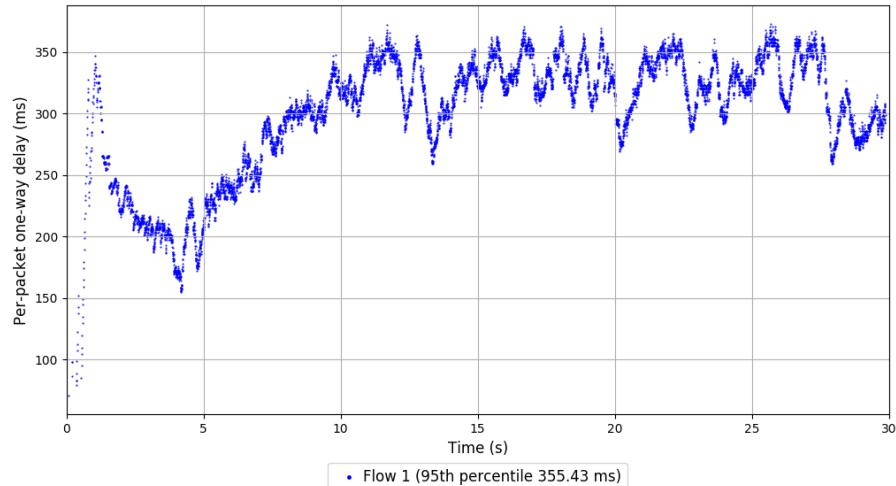
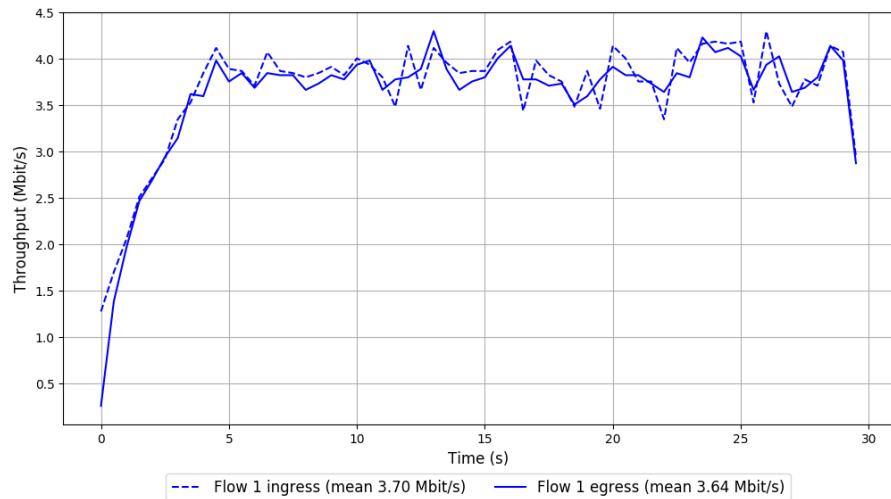


Run 3: Statistics of QUIC Cubic

```
Start at: 2017-08-21 00:24:07
End at: 2017-08-21 00:24:37
Local clock offset: -1.094 ms
Remote clock offset: -22.179 ms

# Below is generated by plot.py at 2017-08-21 01:36:38
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.64 Mbit/s
95th percentile per-packet one-way delay: 355.426 ms
Loss rate: 1.72%
-- Flow 1:
Average throughput: 3.64 Mbit/s
95th percentile per-packet one-way delay: 355.426 ms
Loss rate: 1.72%
```

Run 3: Report of QUIC Cubic — Data Link

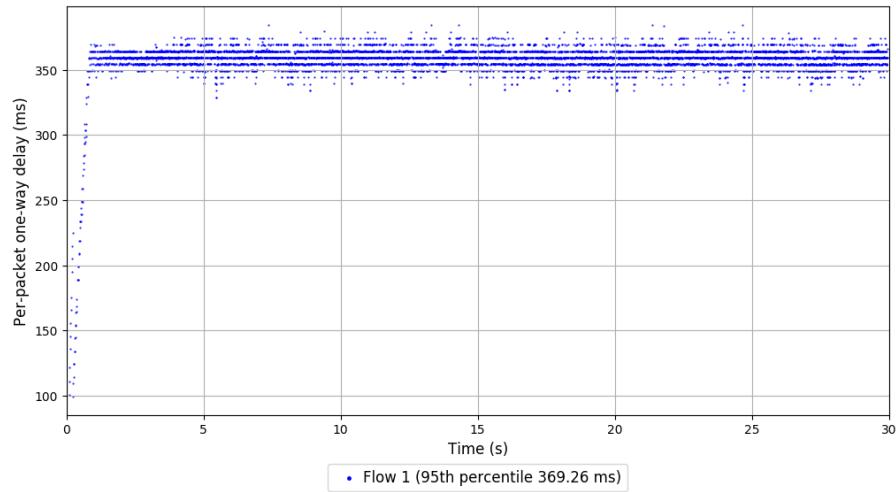
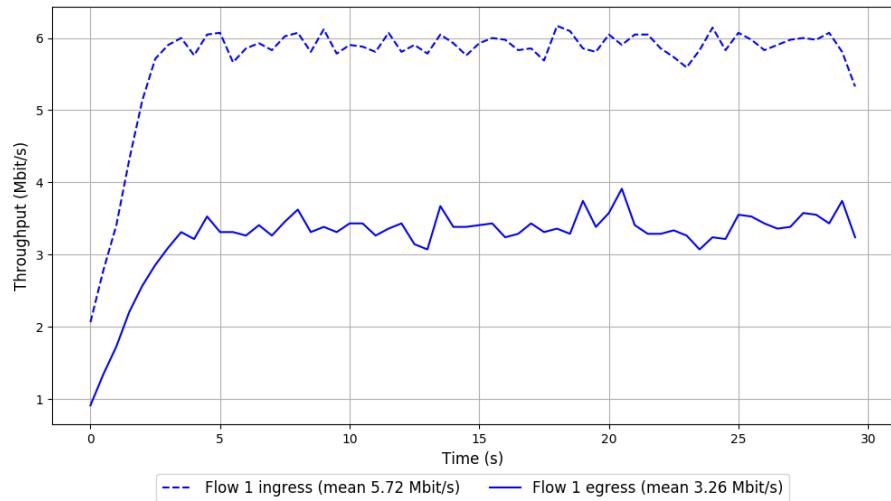


```
Run 1: Statistics of Saturator
```

```
Start at: 2017-08-20 23:41:46
End at: 2017-08-20 23:42:16
Local clock offset: 0.522 ms
Remote clock offset: -19.794 ms

# Below is generated by plot.py at 2017-08-21 01:36:38
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.26 Mbit/s
95th percentile per-packet one-way delay: 369.264 ms
Loss rate: 43.26%
-- Flow 1:
Average throughput: 3.26 Mbit/s
95th percentile per-packet one-way delay: 369.264 ms
Loss rate: 43.26%
```

Run 1: Report of Saturator — Data Link

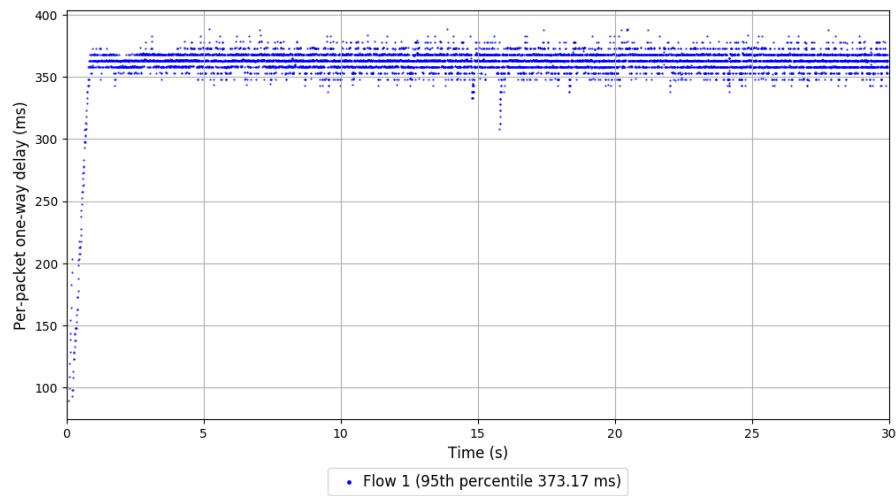
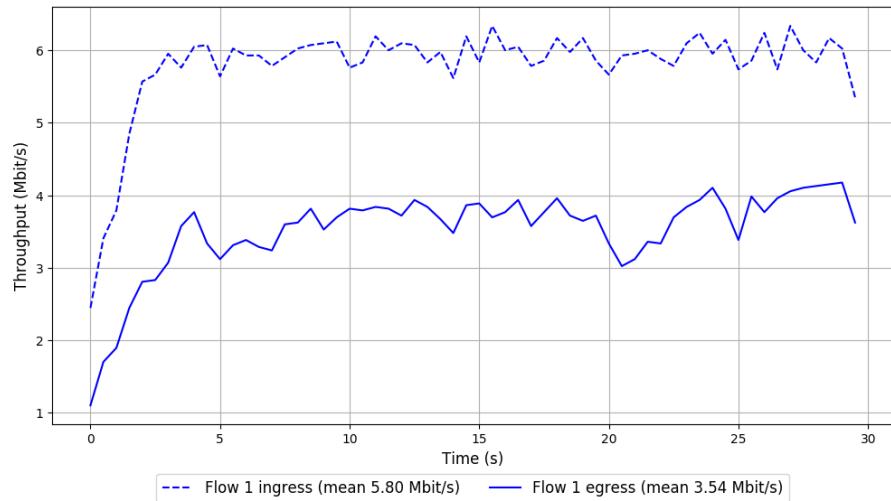


Run 2: Statistics of Saturator

```
Start at: 2017-08-21 00:00:22
End at: 2017-08-21 00:00:52
Local clock offset: 3.89 ms
Remote clock offset: -21.764 ms

# Below is generated by plot.py at 2017-08-21 01:36:39
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.54 Mbit/s
95th percentile per-packet one-way delay: 373.171 ms
Loss rate: 39.15%
-- Flow 1:
Average throughput: 3.54 Mbit/s
95th percentile per-packet one-way delay: 373.171 ms
Loss rate: 39.15%
```

Run 2: Report of Saturator — Data Link

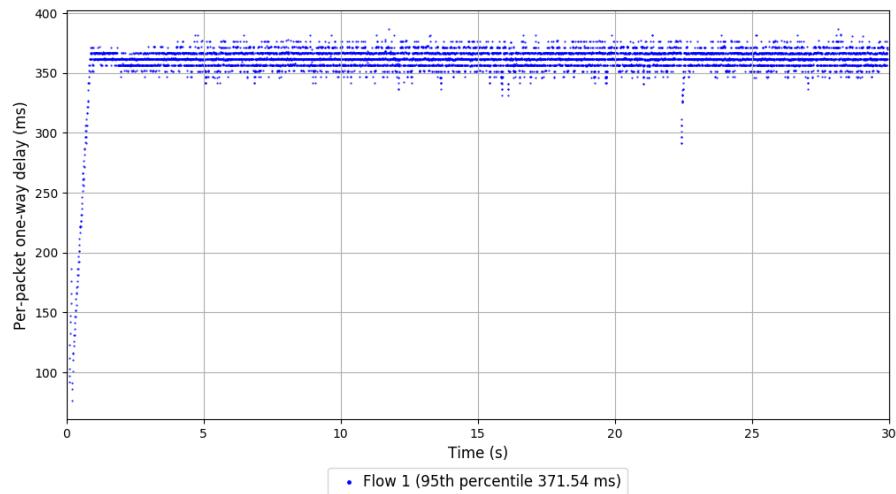
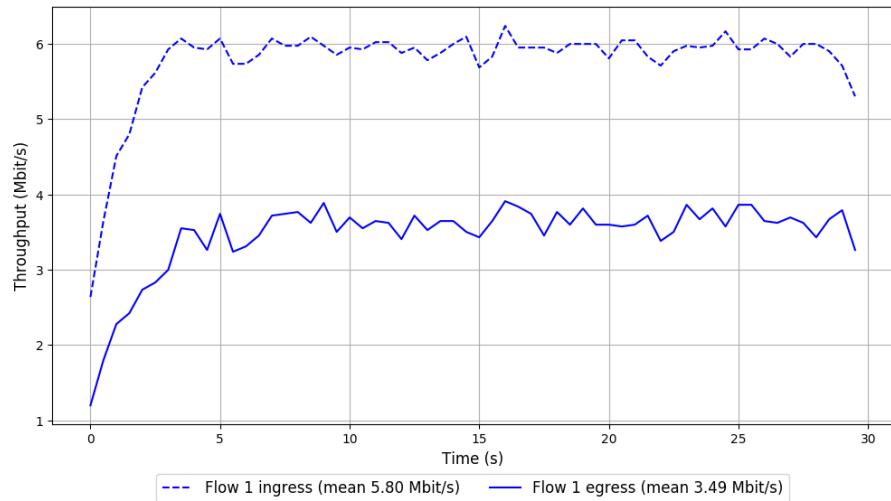


```
Run 3: Statistics of Saturator
```

```
Start at: 2017-08-21 00:17:25
End at: 2017-08-21 00:17:55
Local clock offset: 4.12 ms
Remote clock offset: -20.535 ms

# Below is generated by plot.py at 2017-08-21 01:36:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.49 Mbit/s
95th percentile per-packet one-way delay: 371.537 ms
Loss rate: 40.00%
-- Flow 1:
Average throughput: 3.49 Mbit/s
95th percentile per-packet one-way delay: 371.537 ms
Loss rate: 40.00%
```

Run 3: Report of Saturator — Data Link

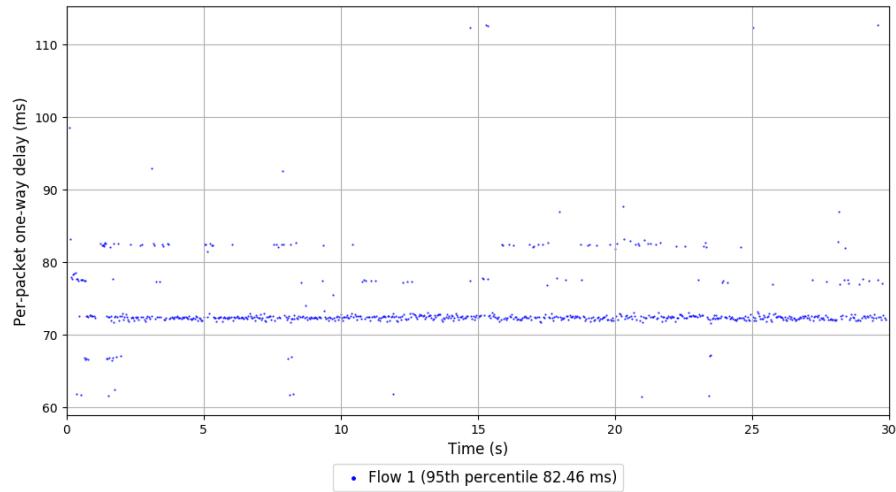
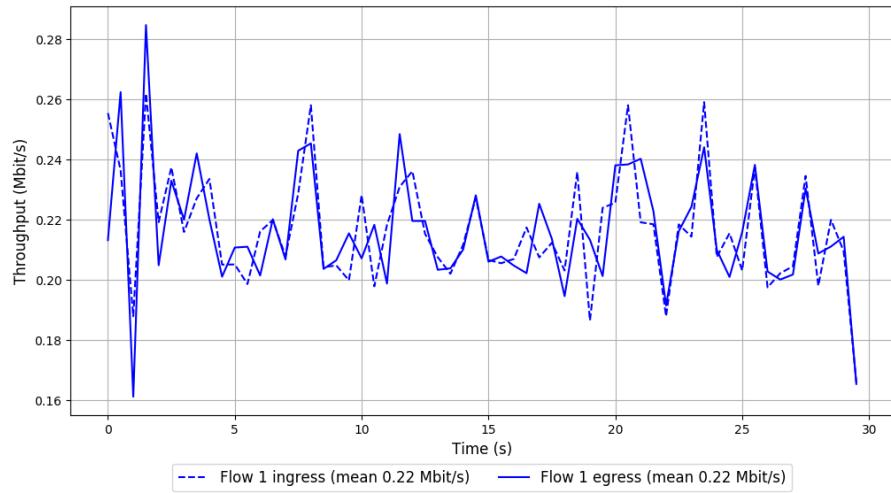


```
Run 1: Statistics of SCReAM
```

```
Start at: 2017-08-20 23:44:41
End at: 2017-08-20 23:45:11
Local clock offset: 4.149 ms
Remote clock offset: -20.561 ms

# Below is generated by plot.py at 2017-08-21 01:36:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 82.462 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 82.462 ms
Loss rate: 0.25%
```

Run 1: Report of SCReAM — Data Link

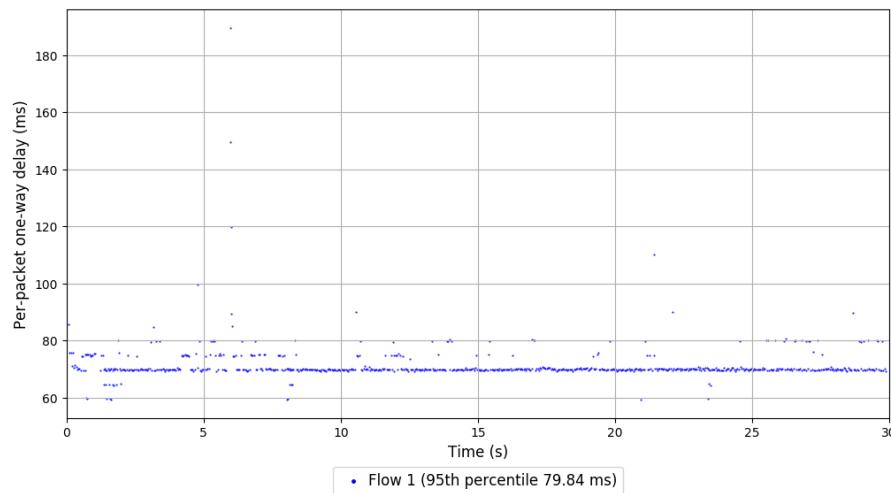
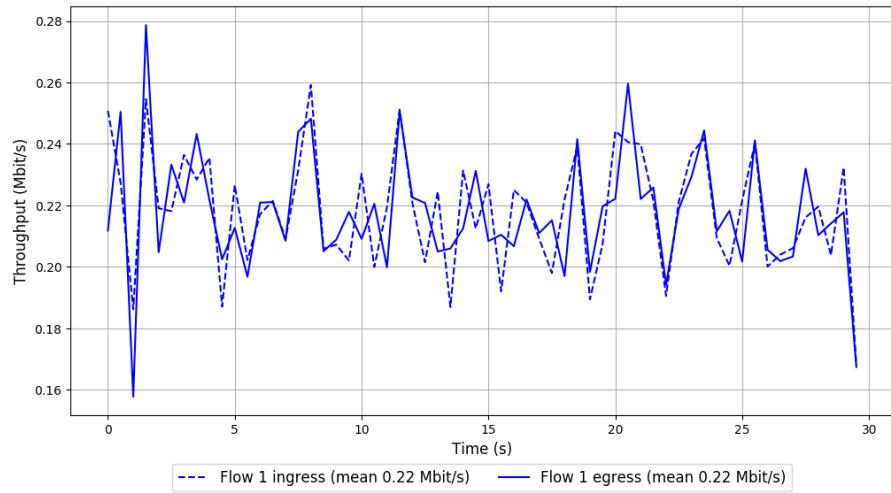


Run 2: Statistics of SCReAM

```
Start at: 2017-08-21 00:02:36
End at: 2017-08-21 00:03:06
Local clock offset: 2.81 ms
Remote clock offset: -20.833 ms

# Below is generated by plot.py at 2017-08-21 01:36:41
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 79.837 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 79.837 ms
Loss rate: 0.26%
```

Run 2: Report of SCReAM — Data Link

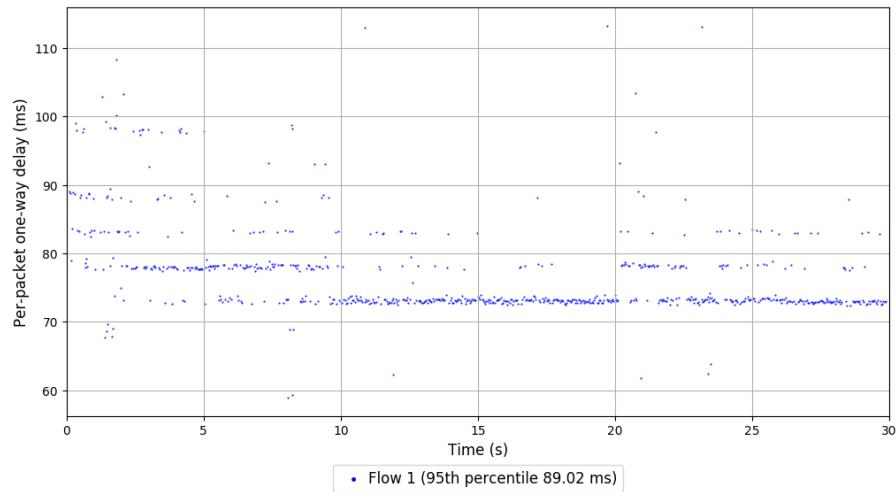
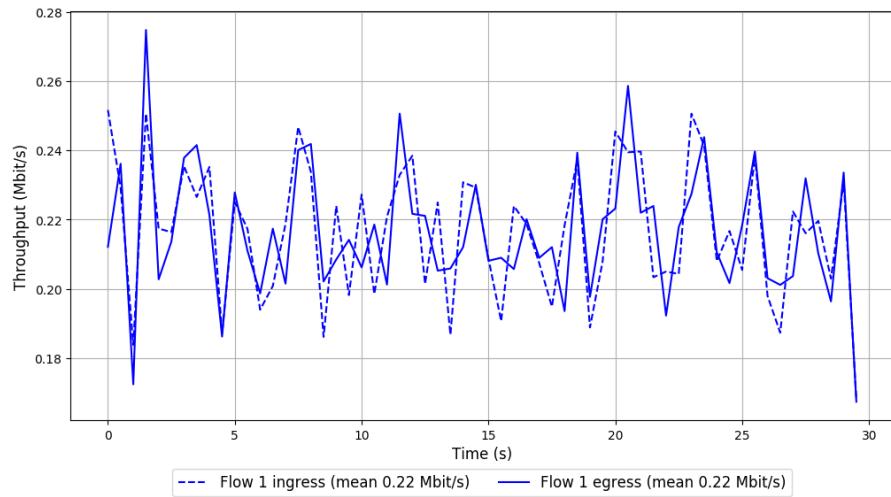


Run 3: Statistics of SCReAM

```
Start at: 2017-08-21 00:19:39
End at: 2017-08-21 00:20:09
Local clock offset: 1.632 ms
Remote clock offset: -21.89 ms

# Below is generated by plot.py at 2017-08-21 01:36:41
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 89.022 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 89.022 ms
Loss rate: 0.26%
```

Run 3: Report of SCReAM — Data Link

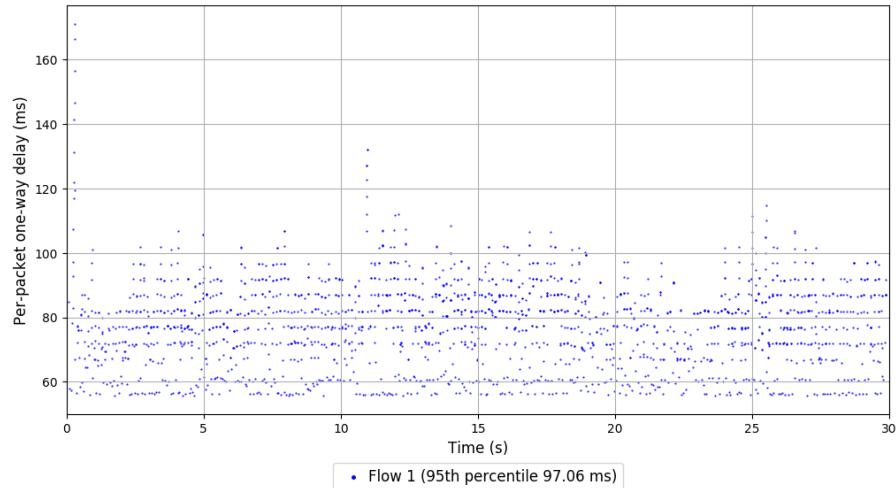
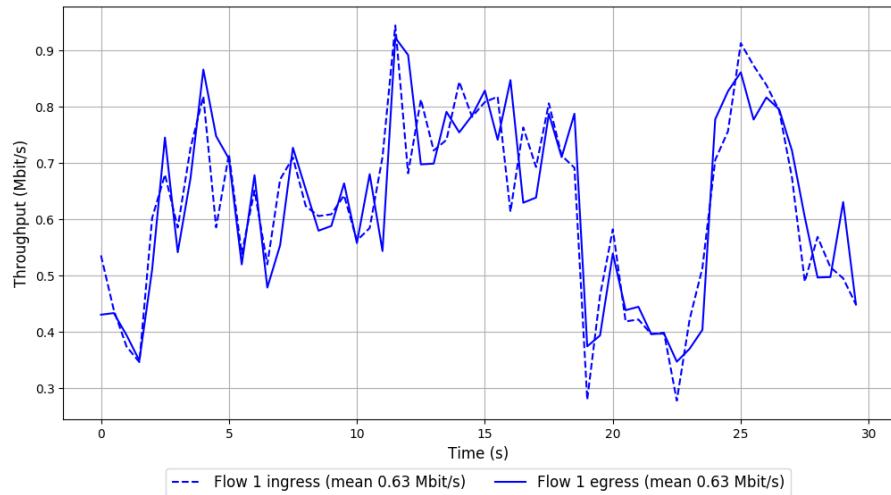


Run 1: Statistics of Sprout

```
Start at: 2017-08-20 23:47:15
End at: 2017-08-20 23:47:45
Local clock offset: 0.306 ms
Remote clock offset: -20.238 ms

# Below is generated by plot.py at 2017-08-21 01:36:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.63 Mbit/s
95th percentile per-packet one-way delay: 97.059 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 0.63 Mbit/s
95th percentile per-packet one-way delay: 97.059 ms
Loss rate: 0.06%
```

Run 1: Report of Sprout — Data Link

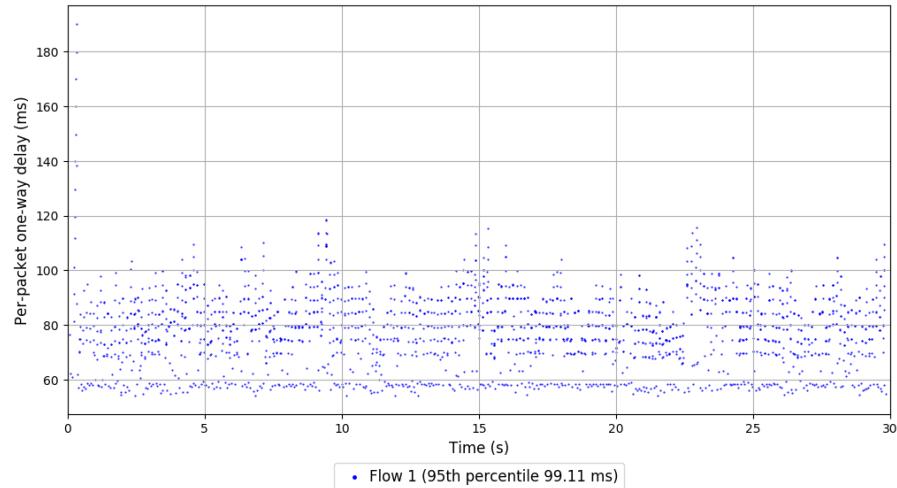
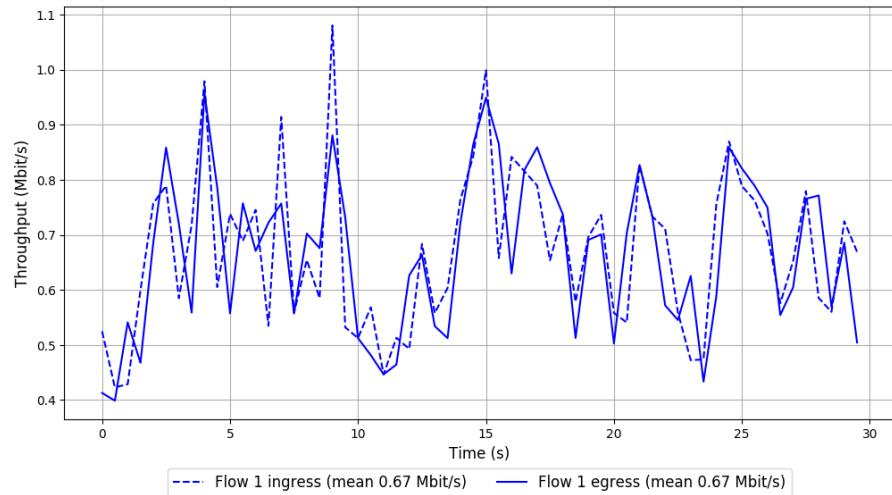


Run 2: Statistics of Sprout

```
Start at: 2017-08-21 00:04:52
End at: 2017-08-21 00:05:22
Local clock offset: -1.429 ms
Remote clock offset: -20.779 ms

# Below is generated by plot.py at 2017-08-21 01:36:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.67 Mbit/s
95th percentile per-packet one-way delay: 99.114 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 0.67 Mbit/s
95th percentile per-packet one-way delay: 99.114 ms
Loss rate: 0.61%
```

Run 2: Report of Sprout — Data Link

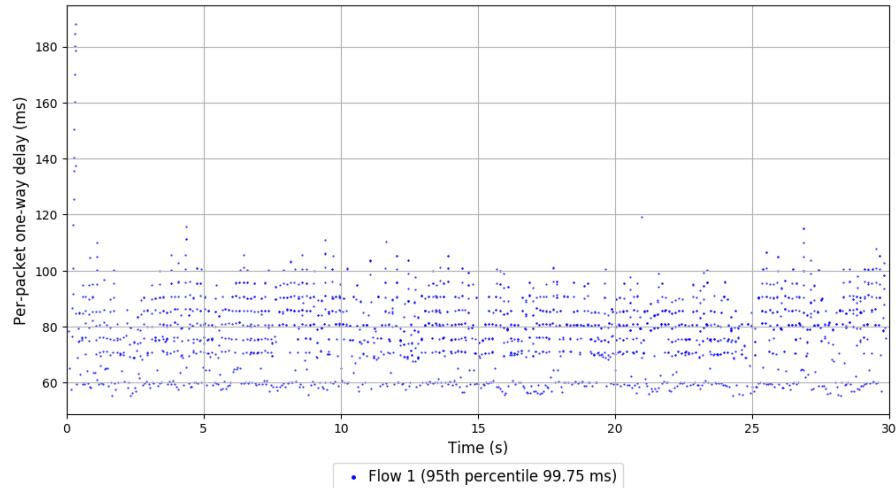
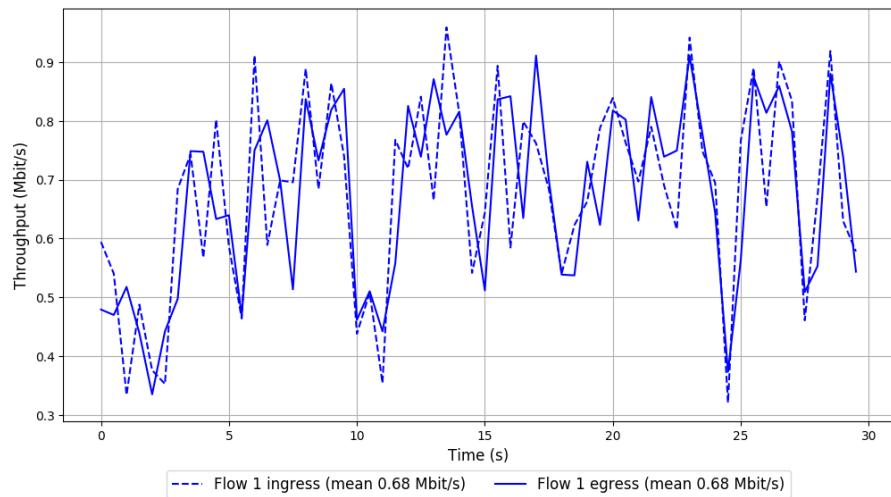


Run 3: Statistics of Sprout

```
Start at: 2017-08-21 00:21:54
End at: 2017-08-21 00:22:24
Local clock offset: -0.702 ms
Remote clock offset: -21.555 ms

# Below is generated by plot.py at 2017-08-21 01:36:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.68 Mbit/s
95th percentile per-packet one-way delay: 99.747 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 0.68 Mbit/s
95th percentile per-packet one-way delay: 99.747 ms
Loss rate: 0.62%
```

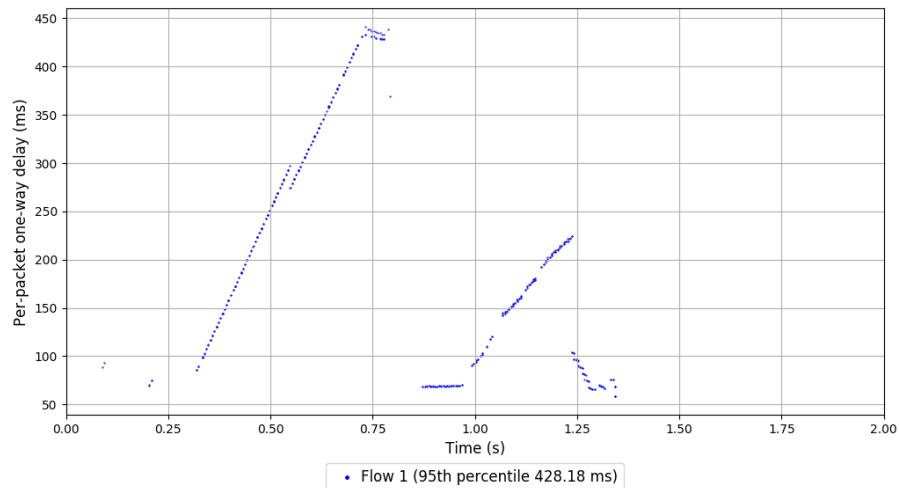
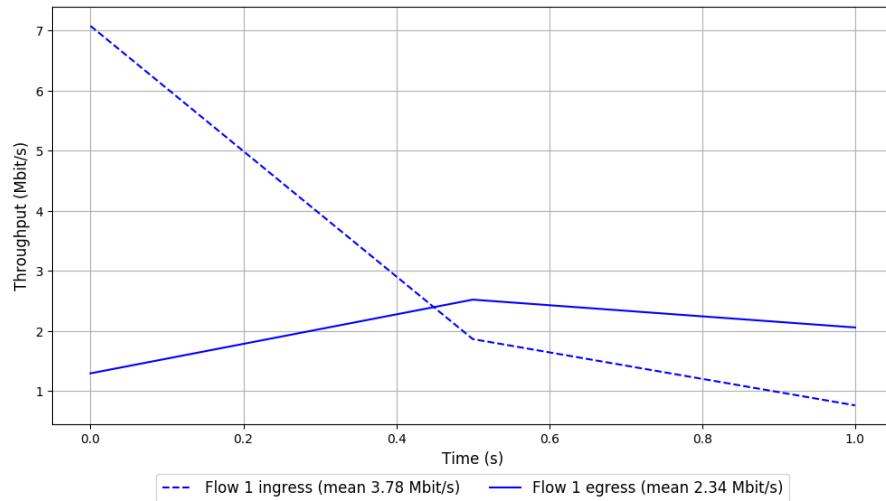
Run 3: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: 2017-08-20 23:53:11
End at: 2017-08-20 23:53:41
Local clock offset: -1.45 ms
Remote clock offset: -20.331 ms

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

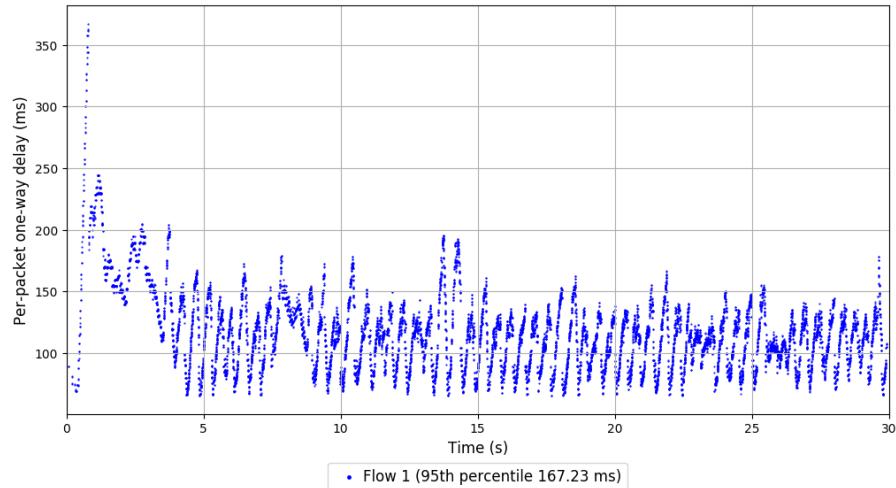
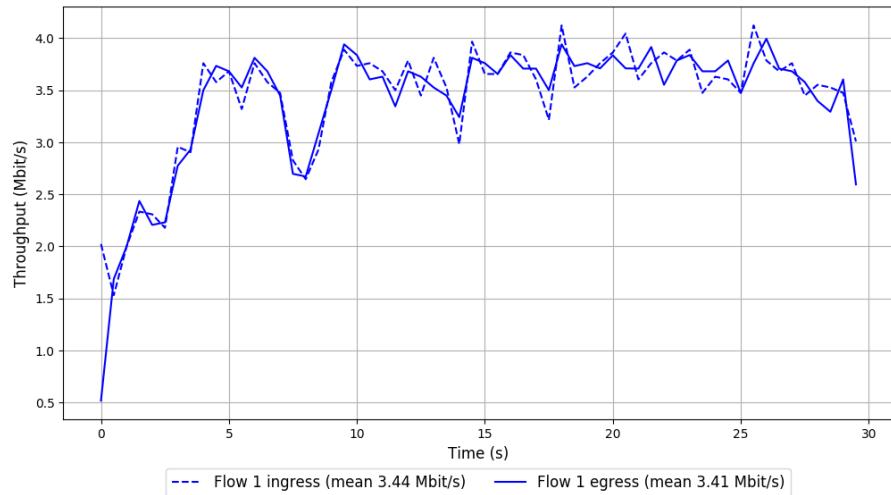


Run 2: Statistics of TaoVA-100x

```
Start at: 2017-08-21 00:10:25
End at: 2017-08-21 00:10:55
Local clock offset: 0.632 ms
Remote clock offset: -19.697 ms

# Below is generated by plot.py at 2017-08-21 01:36:45
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.41 Mbit/s
95th percentile per-packet one-way delay: 167.226 ms
Loss rate: 0.96%
-- Flow 1:
Average throughput: 3.41 Mbit/s
95th percentile per-packet one-way delay: 167.226 ms
Loss rate: 0.96%
```

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

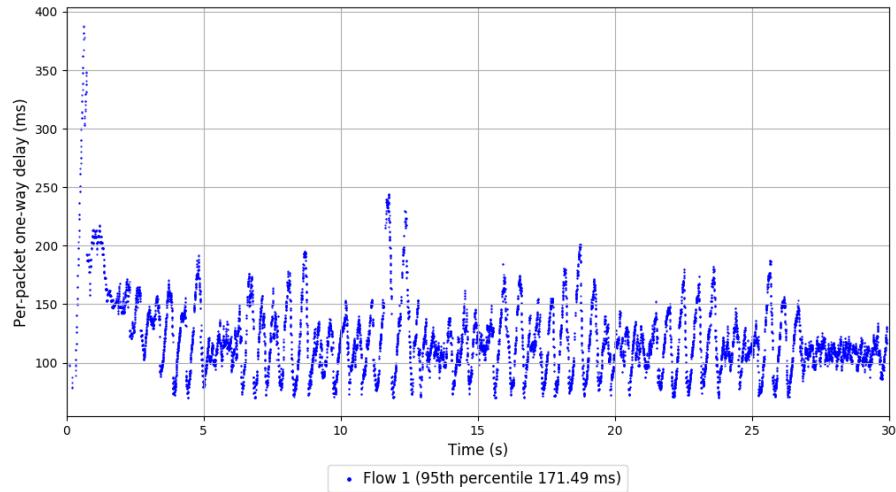
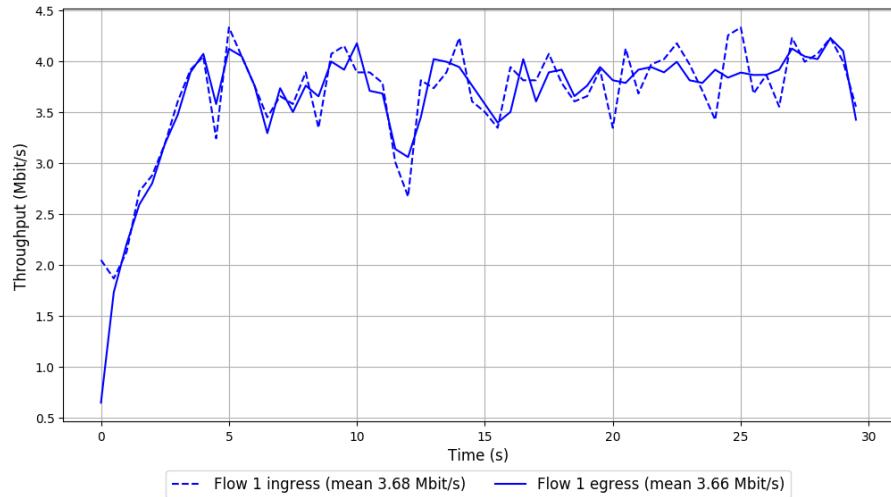


Run 3: Statistics of TaoVA-100x

```
Start at: 2017-08-21 00:27:51
End at: 2017-08-21 00:28:21
Local clock offset: 2.691 ms
Remote clock offset: -21.638 ms

# Below is generated by plot.py at 2017-08-21 01:36:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.66 Mbit/s
95th percentile per-packet one-way delay: 171.494 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 3.66 Mbit/s
95th percentile per-packet one-way delay: 171.494 ms
Loss rate: 0.78%
```

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

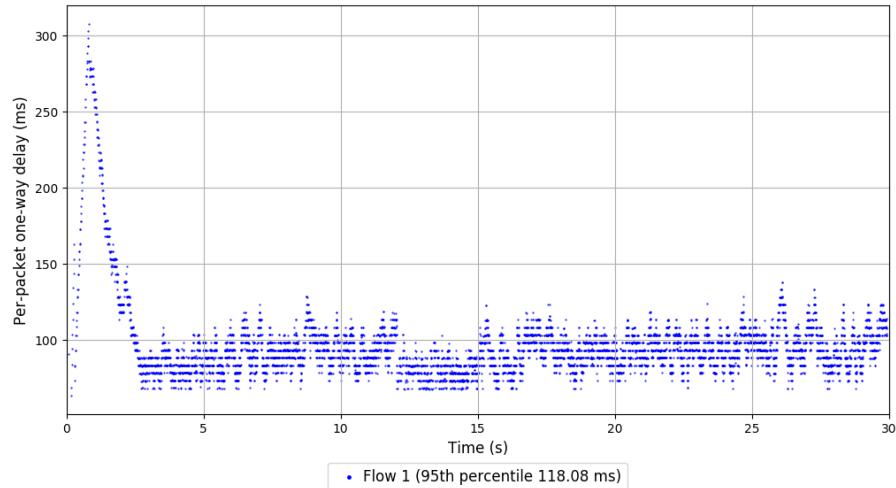
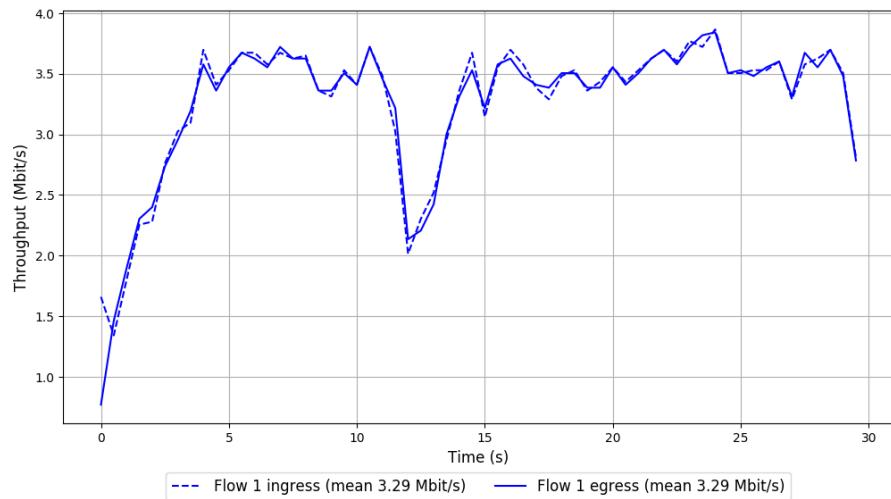


Run 1: Statistics of TCP Vegas

```
Start at: 2017-08-20 23:39:34
End at: 2017-08-20 23:40:04
Local clock offset: -1.838 ms
Remote clock offset: -20.168 ms

# Below is generated by plot.py at 2017-08-21 01:36:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.29 Mbit/s
95th percentile per-packet one-way delay: 118.084 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 3.29 Mbit/s
95th percentile per-packet one-way delay: 118.084 ms
Loss rate: 0.38%
```

Run 1: Report of TCP Vegas — Data Link

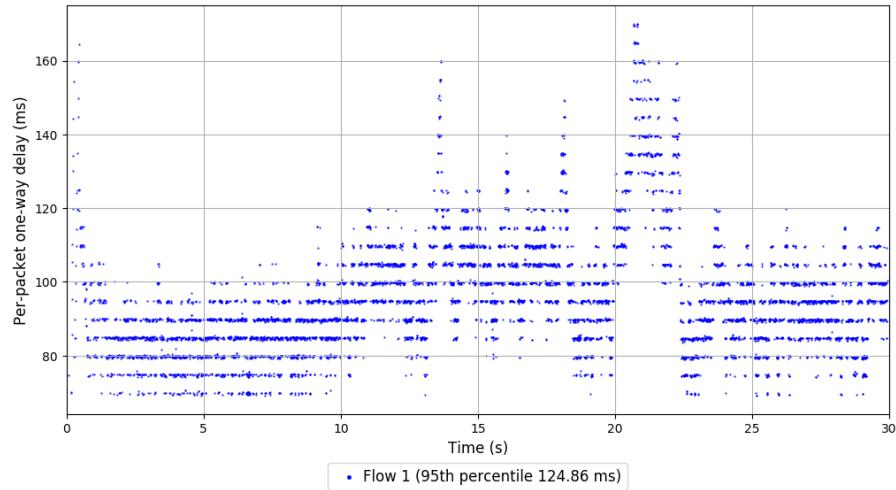
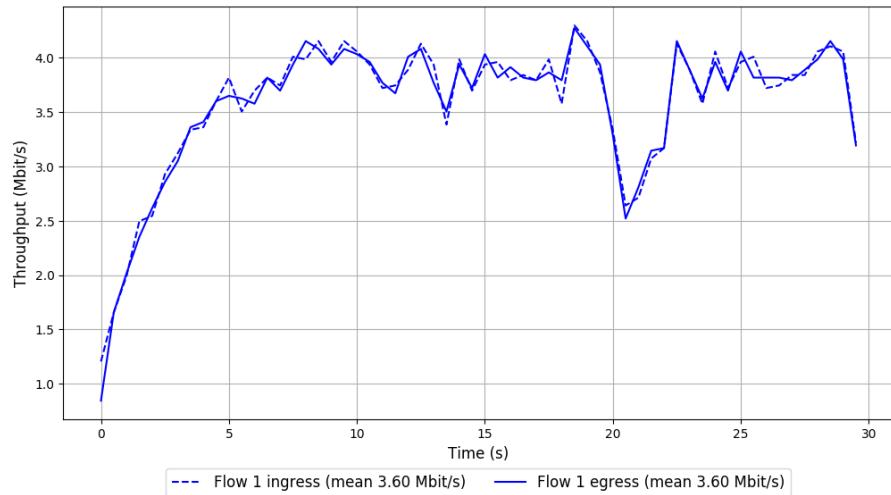


Run 2: Statistics of TCP Vegas

```
Start at: 2017-08-20 23:57:56
End at: 2017-08-20 23:58:26
Local clock offset: 2.075 ms
Remote clock offset: -19.31 ms

# Below is generated by plot.py at 2017-08-21 01:36:47
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.60 Mbit/s
95th percentile per-packet one-way delay: 124.855 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 3.60 Mbit/s
95th percentile per-packet one-way delay: 124.855 ms
Loss rate: 0.35%
```

Run 2: Report of TCP Vegas — Data Link

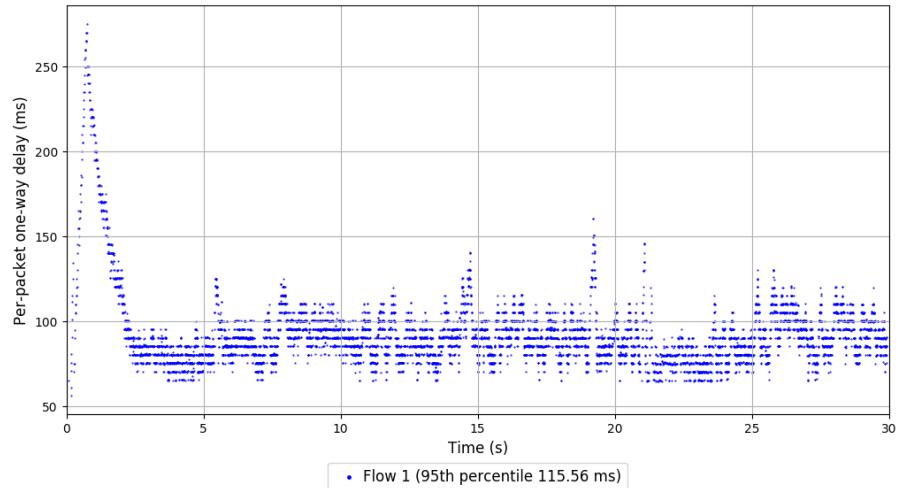
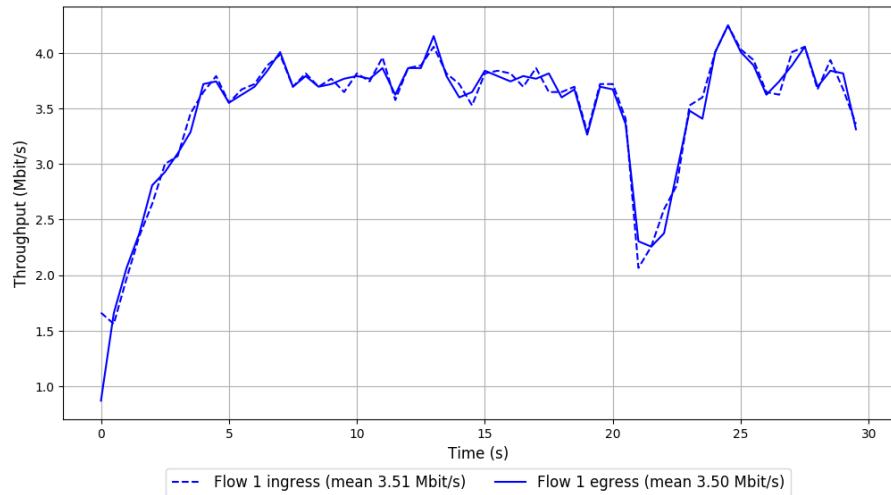


Run 3: Statistics of TCP Vegas

```
Start at: 2017-08-21 00:14:50
End at: 2017-08-21 00:15:20
Local clock offset: -2.046 ms
Remote clock offset: -19.513 ms

# Below is generated by plot.py at 2017-08-21 01:36:48
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.50 Mbit/s
95th percentile per-packet one-way delay: 115.556 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 3.50 Mbit/s
95th percentile per-packet one-way delay: 115.556 ms
Loss rate: 0.46%
```

Run 3: Report of TCP Vegas — Data Link

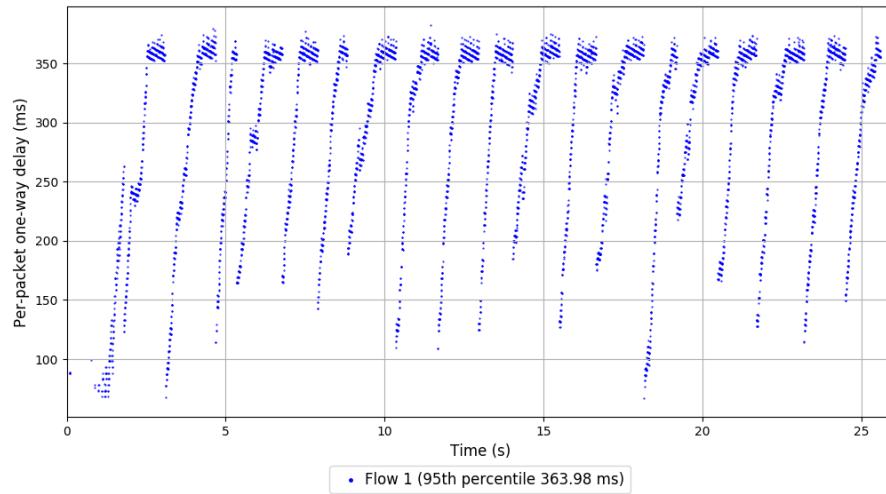
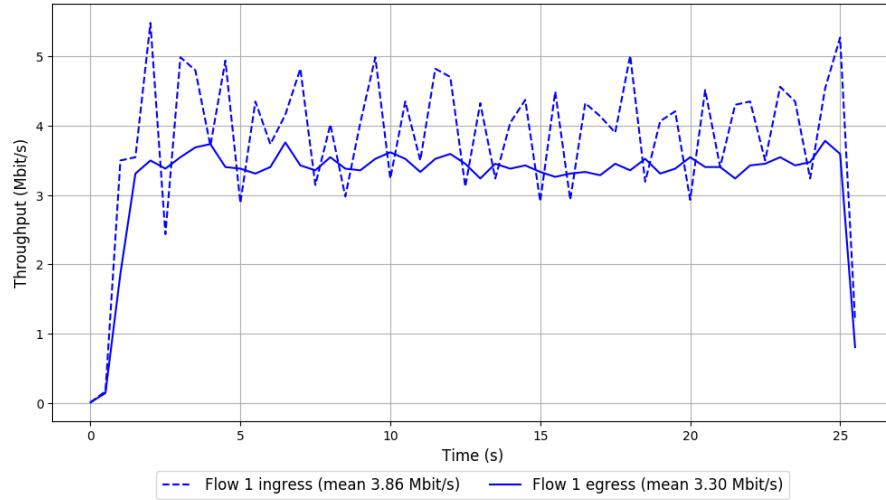


Run 1: Statistics of Verus

```
Start at: 2017-08-20 23:43:14
End at: 2017-08-20 23:43:44
Local clock offset: -0.496 ms
Remote clock offset: -19.862 ms

# Below is generated by plot.py at 2017-08-21 01:36:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.30 Mbit/s
95th percentile per-packet one-way delay: 363.984 ms
Loss rate: 14.93%
-- Flow 1:
Average throughput: 3.30 Mbit/s
95th percentile per-packet one-way delay: 363.984 ms
Loss rate: 14.93%
```

Run 1: Report of Verus — Data Link

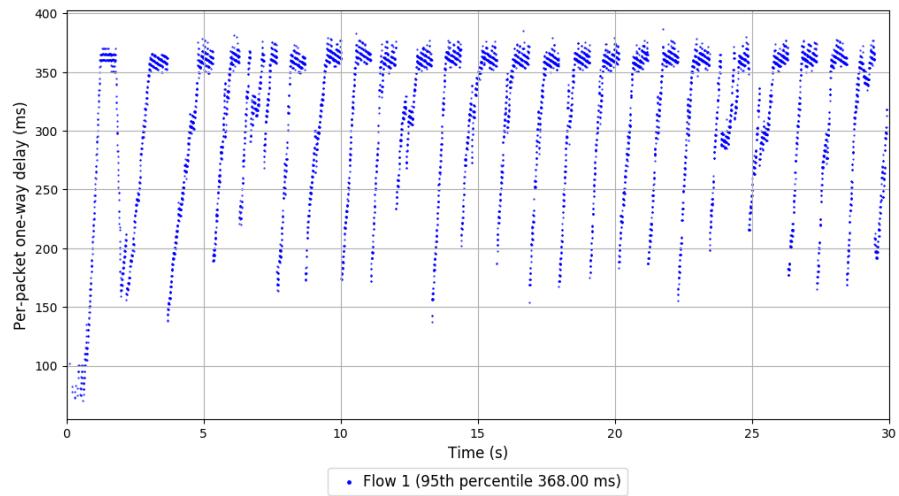
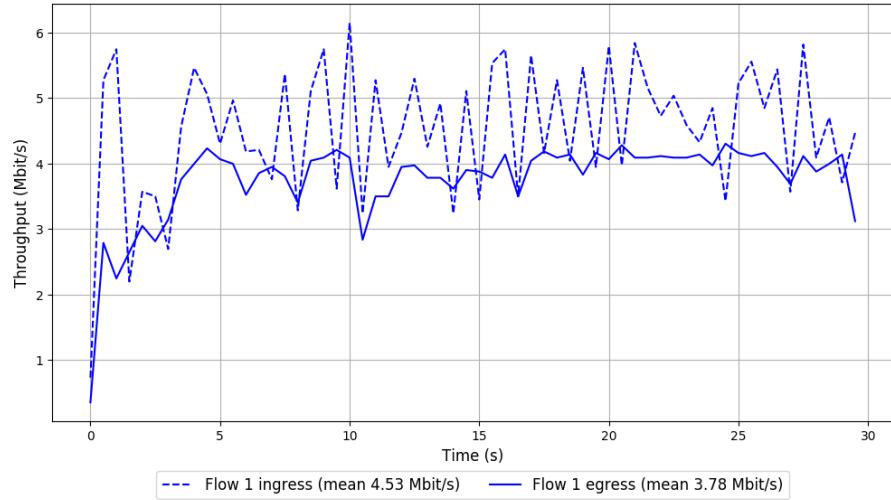


Run 2: Statistics of Verus

```
Start at: 2017-08-21 00:01:28
End at: 2017-08-21 00:01:58
Local clock offset: 2.781 ms
Remote clock offset: -19.99 ms

# Below is generated by plot.py at 2017-08-21 01:36:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.78 Mbit/s
95th percentile per-packet one-way delay: 367.998 ms
Loss rate: 16.94%
-- Flow 1:
Average throughput: 3.78 Mbit/s
95th percentile per-packet one-way delay: 367.998 ms
Loss rate: 16.94%
```

Run 2: Report of Verus — Data Link

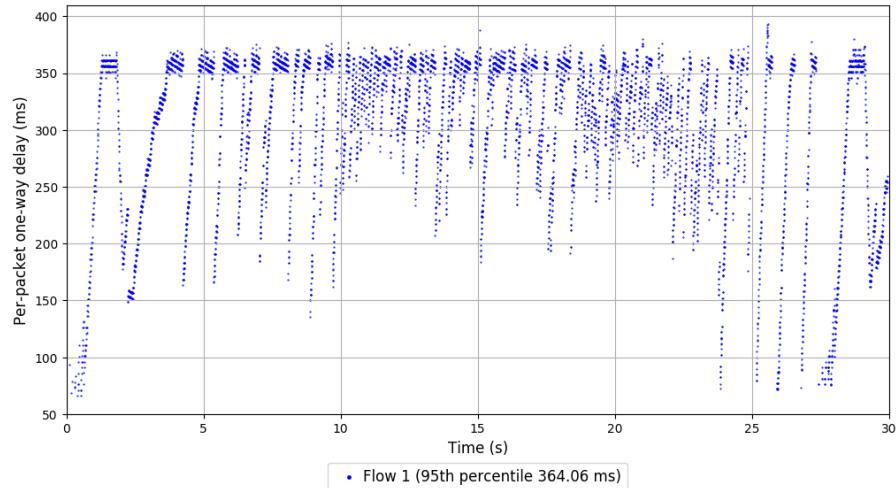
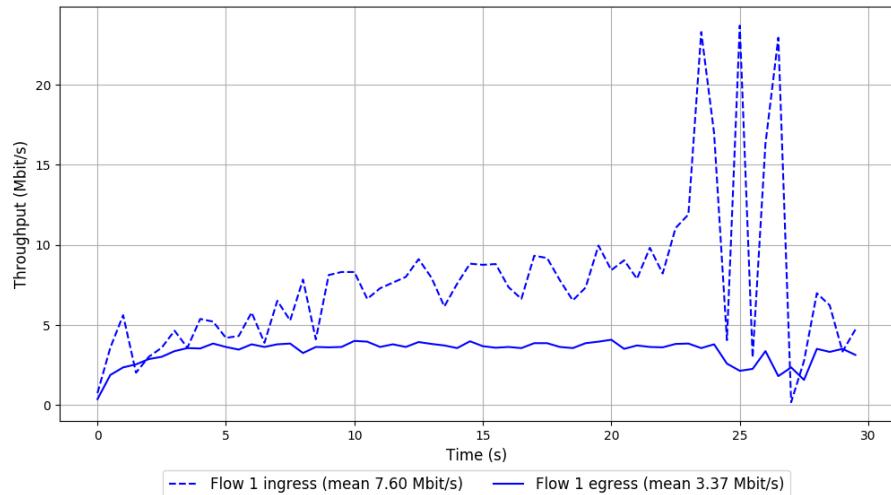


Run 3: Statistics of Verus

```
Start at: 2017-08-21 00:18:32
End at: 2017-08-21 00:19:02
Local clock offset: -0.962 ms
Remote clock offset: -20.389 ms

# Below is generated by plot.py at 2017-08-21 01:36:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.37 Mbit/s
95th percentile per-packet one-way delay: 364.059 ms
Loss rate: 55.78%
-- Flow 1:
Average throughput: 3.37 Mbit/s
95th percentile per-packet one-way delay: 364.059 ms
Loss rate: 55.78%
```

Run 3: Report of Verus — Data Link

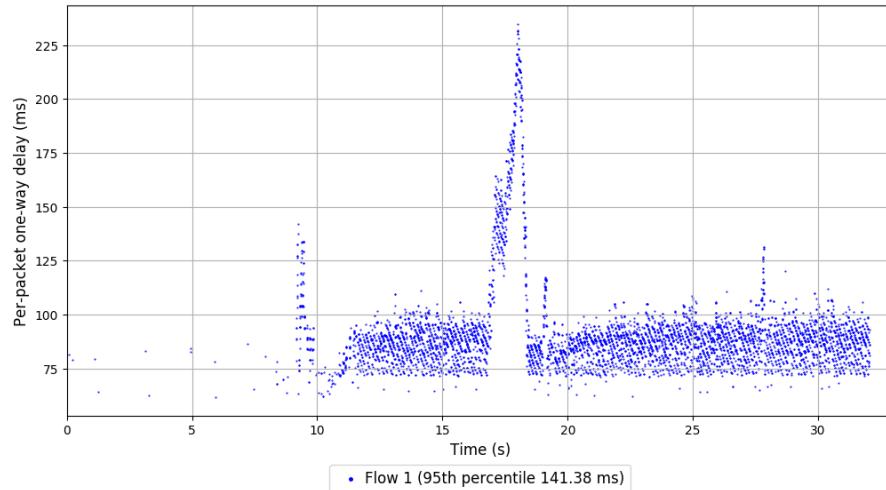
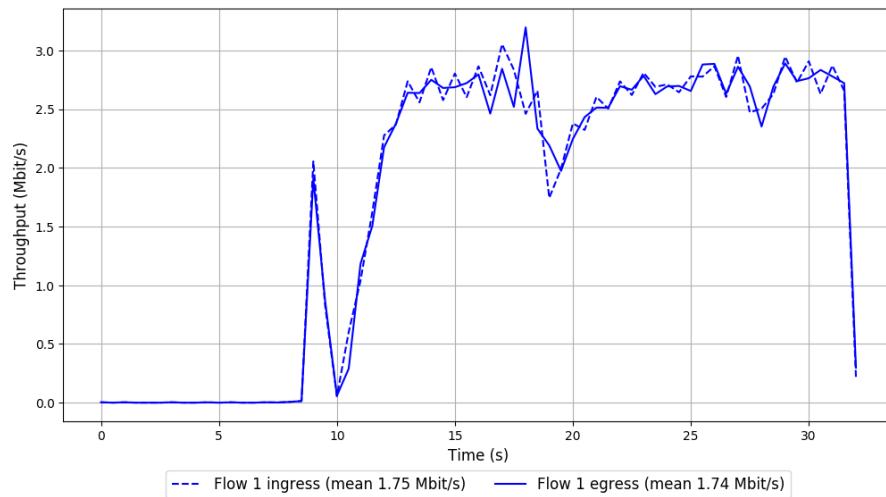


```
Run 1: Statistics of WebRTC media

Start at: 2017-08-20 23:56:49
End at: 2017-08-20 23:57:19
Local clock offset: 4.284 ms
Remote clock offset: -20.958 ms

# Below is generated by plot.py at 2017-08-21 01:36:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.74 Mbit/s
95th percentile per-packet one-way delay: 141.377 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 1.74 Mbit/s
95th percentile per-packet one-way delay: 141.377 ms
Loss rate: 0.38%
```

Run 1: Report of WebRTC media — Data Link

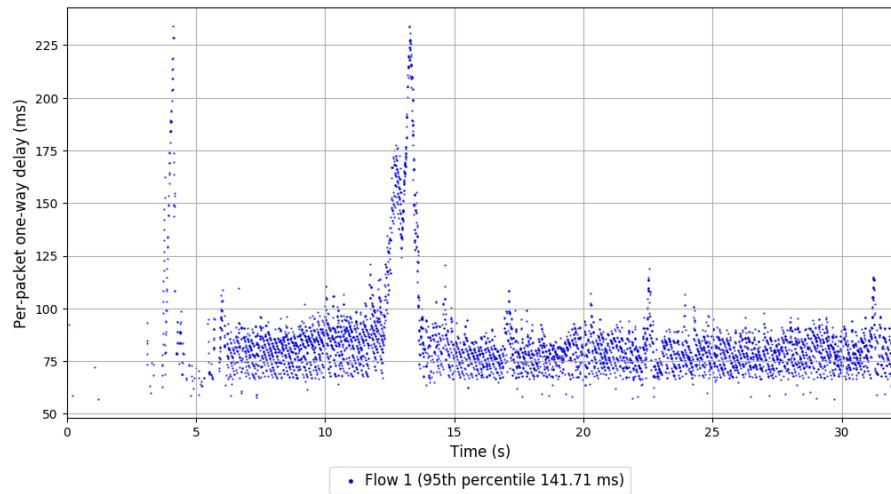
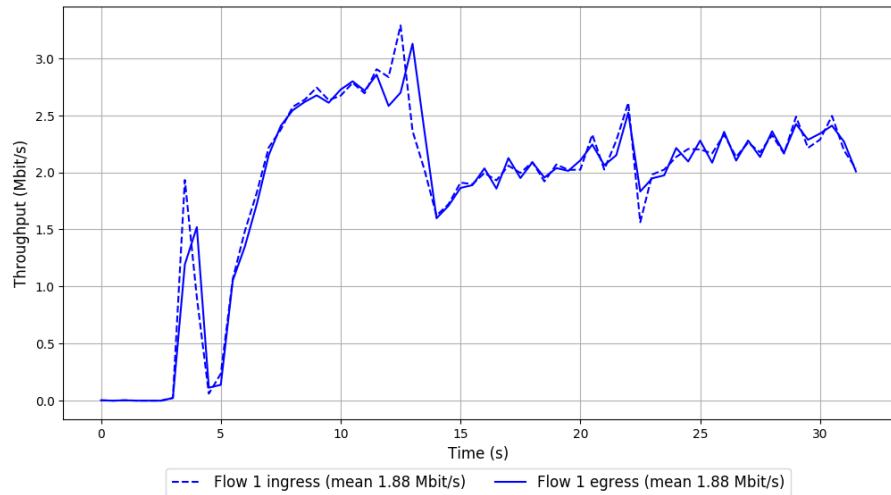


Run 2: Statistics of WebRTC media

```
Start at: 2017-08-21 00:13:44
End at: 2017-08-21 00:14:14
Local clock offset: 2.199 ms
Remote clock offset: -18.83 ms

# Below is generated by plot.py at 2017-08-21 01:36:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.88 Mbit/s
95th percentile per-packet one-way delay: 141.708 ms
Loss rate: 0.33%
-- Flow 1:
Average throughput: 1.88 Mbit/s
95th percentile per-packet one-way delay: 141.708 ms
Loss rate: 0.33%
```

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

```
Start at: 2017-08-21 00:31:34
End at: 2017-08-21 00:32:04
Local clock offset: 3.193 ms
Remote clock offset: -20.433 ms

# Below is generated by plot.py at 2017-08-21 01:36:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.05 Mbit/s
95th percentile per-packet one-way delay: 125.615 ms
Loss rate: 0.37%
-- Flow 1:
Average throughput: 2.05 Mbit/s
95th percentile per-packet one-way delay: 125.615 ms
Loss rate: 0.37%
```

Run 3: Report of WebRTC media — Data Link

