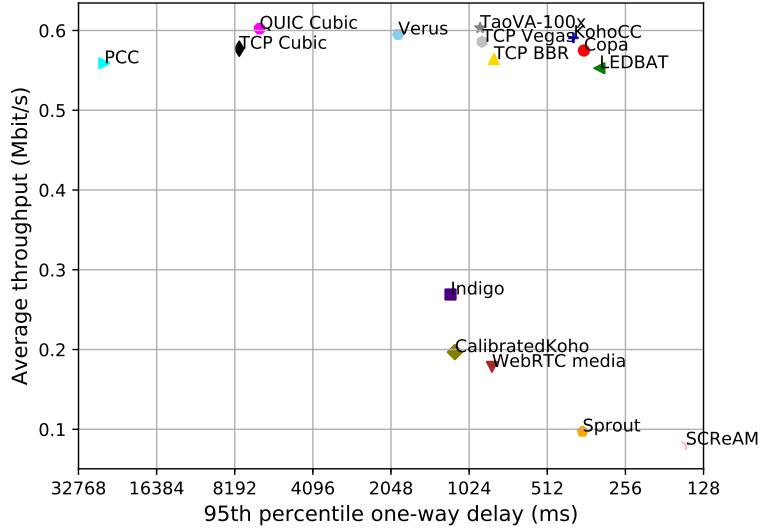


Pantheon Report

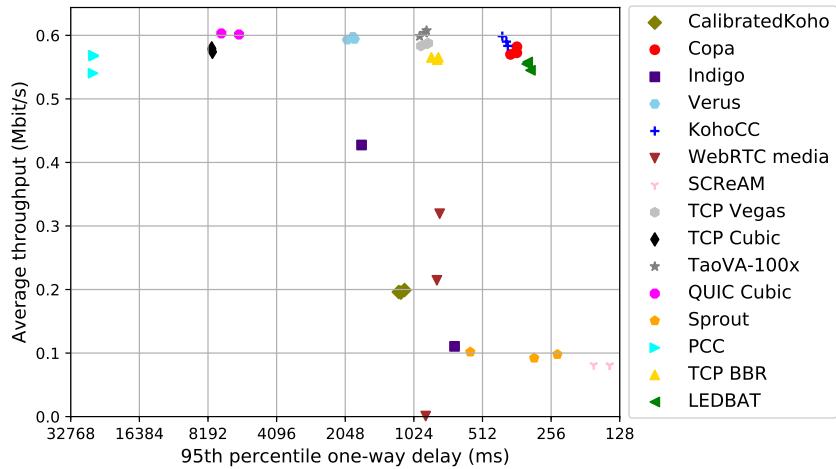
Generated at 2017-09-17 23:17:52 (UTC).
Data path: Colombia ppp0 (*remote*) → AWS Brazil 2 Ethernet (*local*).
Repeated the test of 15 congestion control schemes 3 times.
Each test lasted for 30 seconds running 1 flow.
Increased UDP receive buffer to 16 MB (default) and 32 MB (max).
Tested BBR with qdisc of Fair Queuing (**fq**), and other schemes with the default Linux qdisc (**pfifo_fast**).
NTP offsets were measured against **gps.ntp.br** and have been applied to correct the timestamps in logs.

Git summary:
branch: master @ 57453dc11f8da93a2e03eea75289fea01b816298
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
M datagrump/sender.cc
third_party/genericCC @ f7ca42f251bf49b432bb71de6d13fa903515c366
third_party/indigo @ b19f3730105f9aa95452552af924e3719b03cc55
third_party/koho_cc @ f0f2e693303aee82ea808e6928eac4f1083a6681
M datagrump/sender.cc
third_party/libutp @ b3465b942e2826f2b179aab4a906ce6bb7cf3cf
third_party/pantheon-tunnel @ baf443516dea3eeddeccaf9b916cc313273ca4f4
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
M receiver/src/buffer.h
M receiver/src/core.cpp
M sender/src/buffer.h
M sender/src/core.cpp
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream @ c3370fd7bd17265a79aeb34e4016ad23f5965885
third_party/sourdough @ f1a14bffe749737437f61b1eaeeb30b267cde681
third_party/sprout @ 6f2efe6e088d91066a9f023df375eee2665089ce
M src/examples/cellsim.cc
M src/examples/sproutbt2.cc
M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
M tools/plot.py
third_party/webrtc @ a488197ddd041ace68a42849b2540ad834825f42

test from Colombia ppp0 to AWS Brazil 2 Ethernet, 3 runs of 30s each per scheme
(mean of all runs by scheme)



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



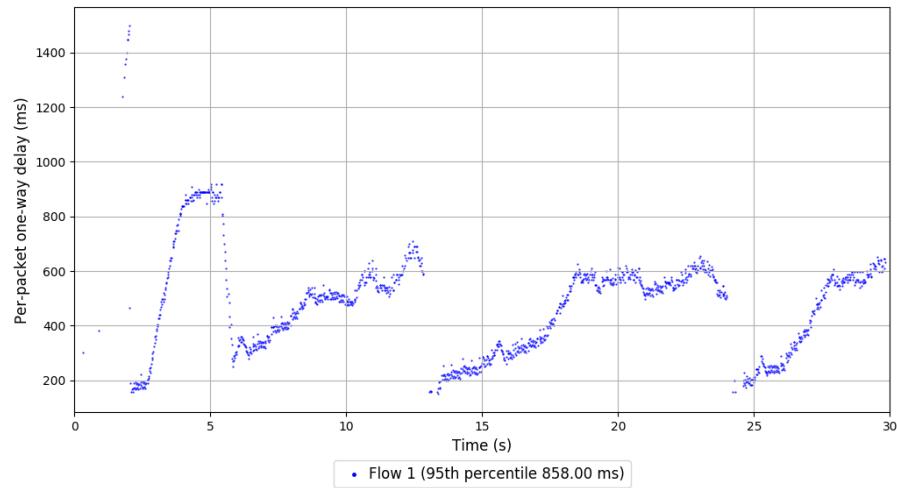
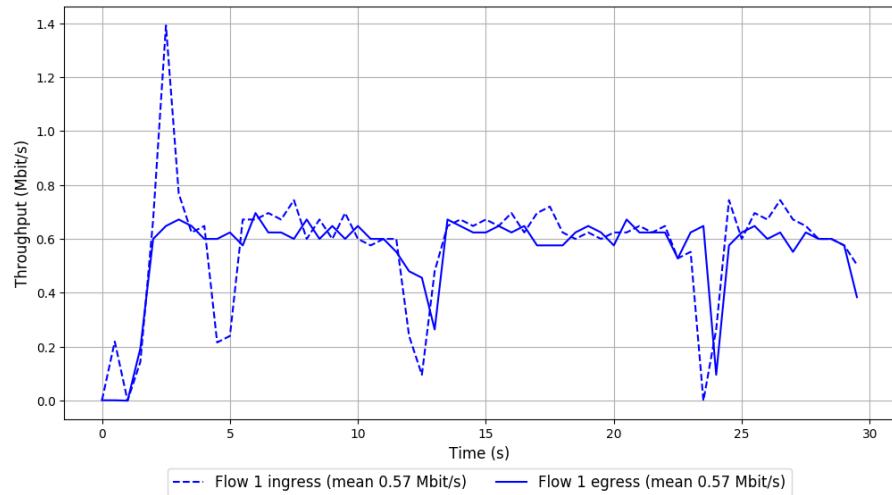
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	0.57	822.14	2.42
CalibratedKoho	3	0.20	1161.87	1.41
Copa	3	0.57	369.90	1.11
TCP Cubic	3	0.58	7872.54	31.09
Indigo	2	0.27	1208.06	12.47
KohoCC	3	0.59	405.91	1.24
LEDBAT	3	0.56	322.54	1.25
PCC	3	0.56	26049.13	98.49
QUIC Cubic	2	0.60	6575.23	26.30
SCReAM	3	0.08	149.89	0.66
Sprout	3	0.10	374.36	0.77
TaoVA-100x	3	0.60	929.04	2.75
TCP Vegas	3	0.59	912.34	1.10
Verus	3	0.59	1922.51	5.15
WebRTC media	3	0.18	836.51	2.81

Run 1: Statistics of TCP BBR

```
Start at: 2017-09-17 21:47:09
End at: 2017-09-17 21:47:39
Local clock offset: -5.636 ms
Remote clock offset: -8.467 ms

# Below is generated by plot.py at 2017-09-17 23:17:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 858.002 ms
Loss rate: 2.39%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 858.002 ms
Loss rate: 2.39%
```

Run 1: Report of TCP BBR — Data Link

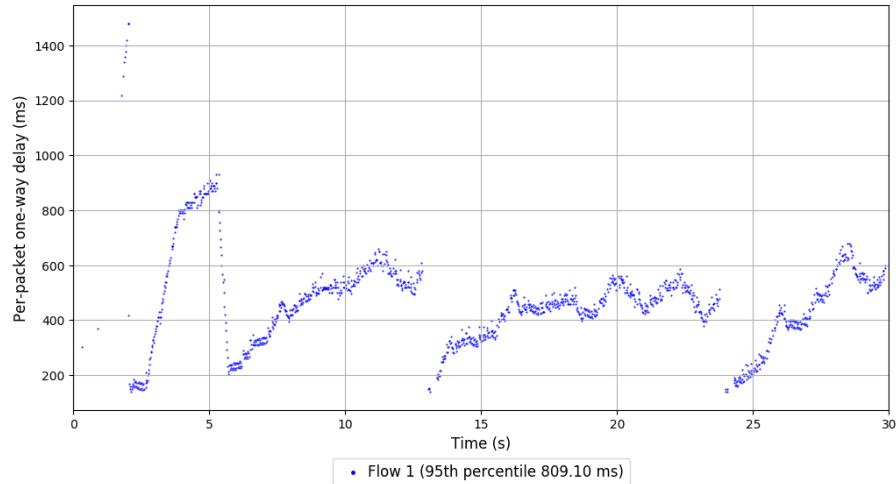
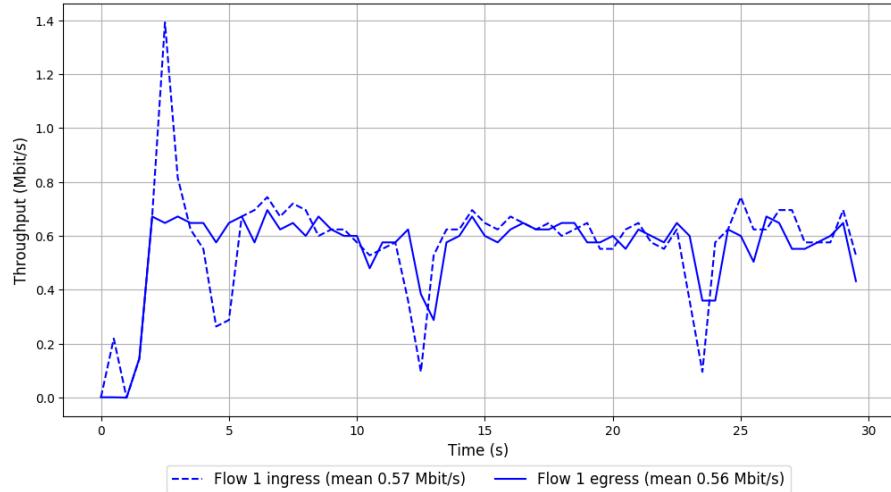


Run 2: Statistics of TCP BBR

```
Start at: 2017-09-17 22:04:42
End at: 2017-09-17 22:05:12
Local clock offset: -3.895 ms
Remote clock offset: -3.172 ms

# Below is generated by plot.py at 2017-09-17 23:17:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 809.102 ms
Loss rate: 2.40%
-- Flow 1:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 809.102 ms
Loss rate: 2.40%
```

Run 2: Report of TCP BBR — Data Link

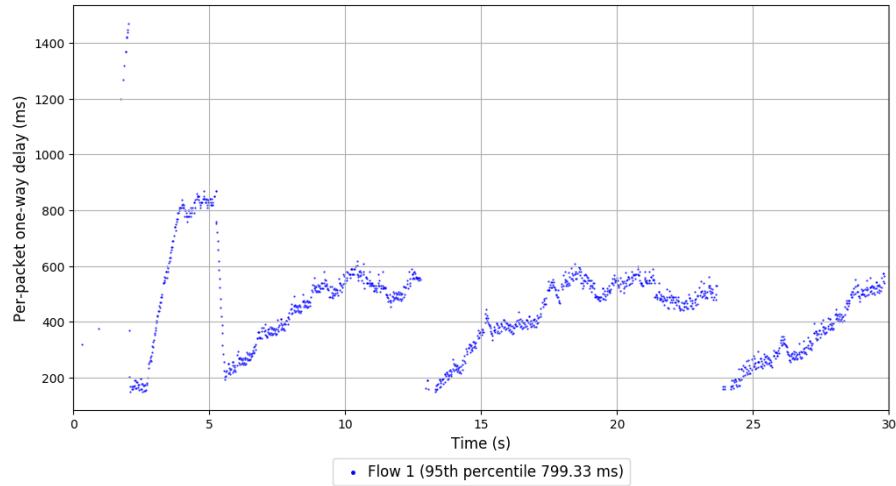
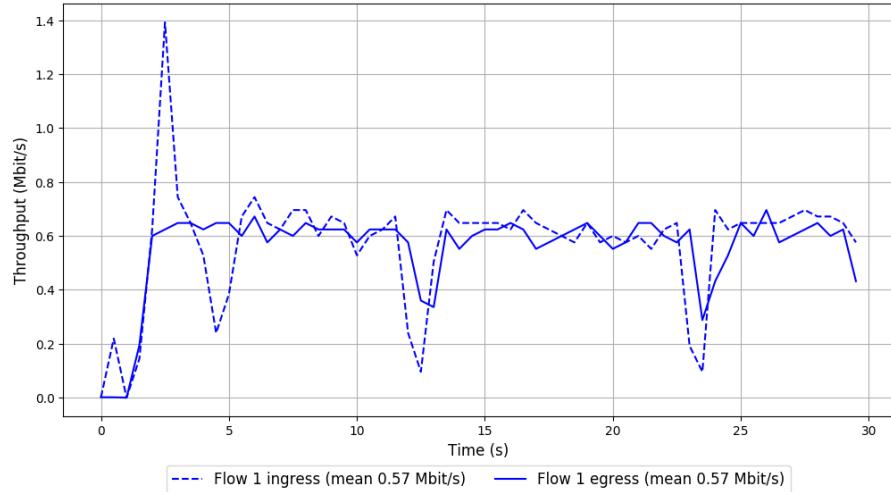


Run 3: Statistics of TCP BBR

```
Start at: 2017-09-17 22:22:16
End at: 2017-09-17 22:22:46
Local clock offset: -5.814 ms
Remote clock offset: -8.448 ms

# Below is generated by plot.py at 2017-09-17 23:17:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 799.325 ms
Loss rate: 2.46%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 799.325 ms
Loss rate: 2.46%
```

Run 3: Report of TCP BBR — Data Link

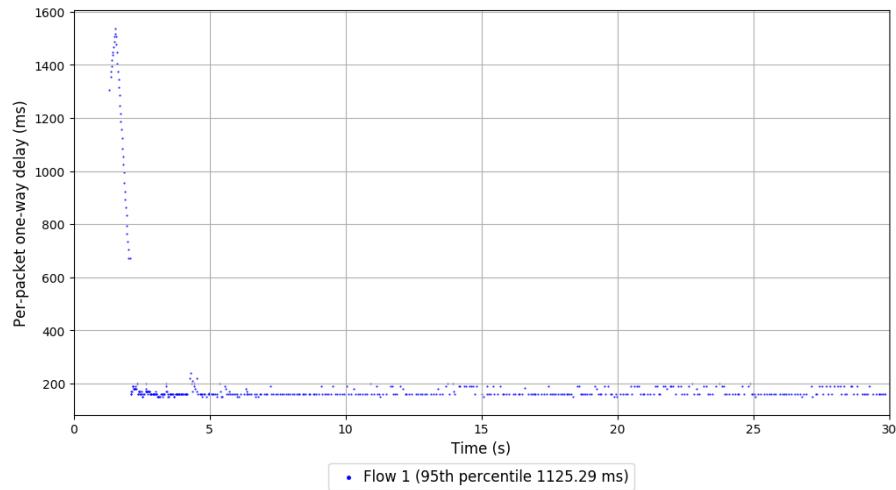
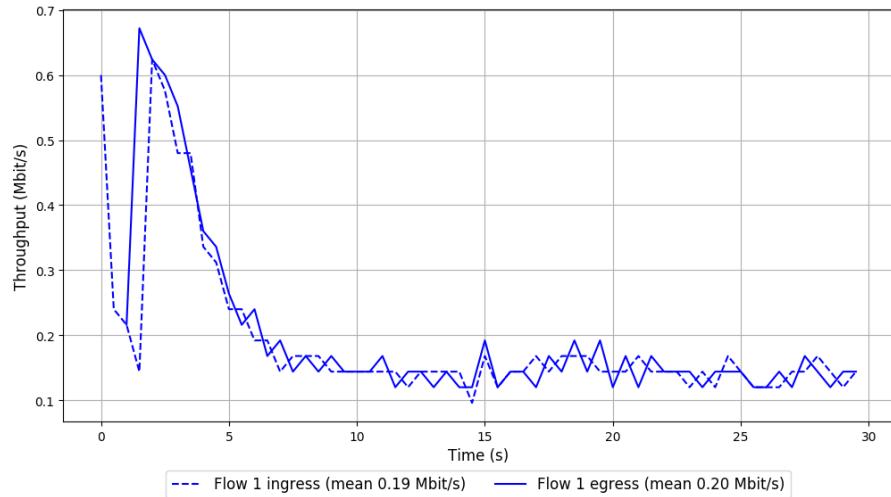


```
Run 1: Statistics of CalibratedKoho
```

```
Start at: 2017-09-17 21:37:46
End at: 2017-09-17 21:38:16
Local clock offset: -7.668 ms
Remote clock offset: -8.118 ms

# Below is generated by plot.py at 2017-09-17 23:17:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 1125.290 ms
Loss rate: 1.25%
-- Flow 1:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 1125.290 ms
Loss rate: 1.25%
```

Run 1: Report of CalibratedKoho — Data Link

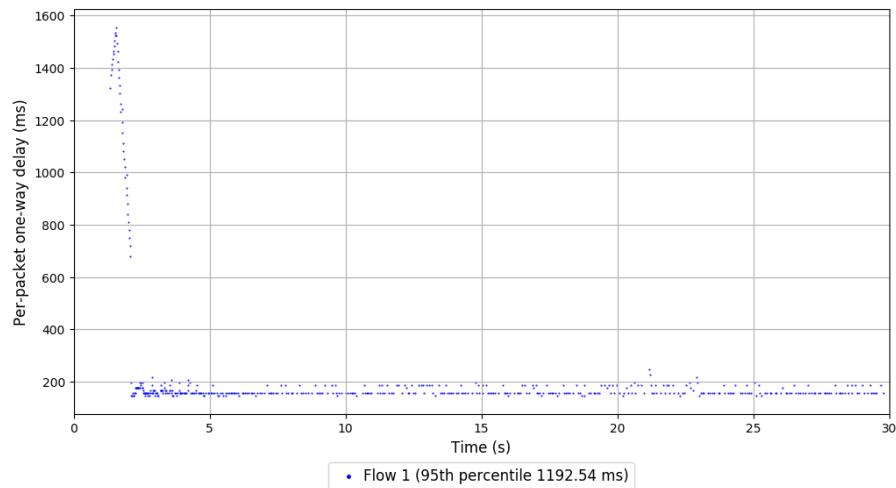
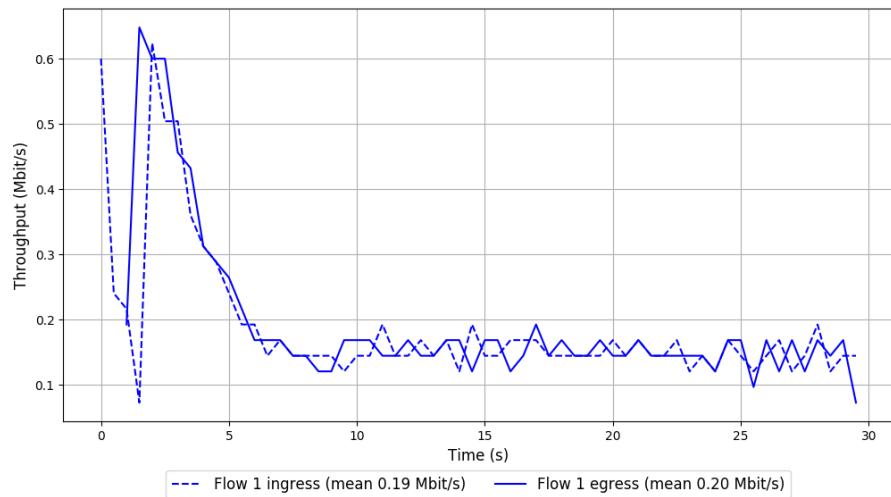


Run 2: Statistics of CalibratedKoho

```
Start at: 2017-09-17 21:55:20
End at: 2017-09-17 21:55:50
Local clock offset: -2.307 ms
Remote clock offset: -3.104 ms

# Below is generated by plot.py at 2017-09-17 23:17:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 1192.536 ms
Loss rate: 1.69%
-- Flow 1:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 1192.536 ms
Loss rate: 1.69%
```

Run 2: Report of CalibratedKoho — Data Link

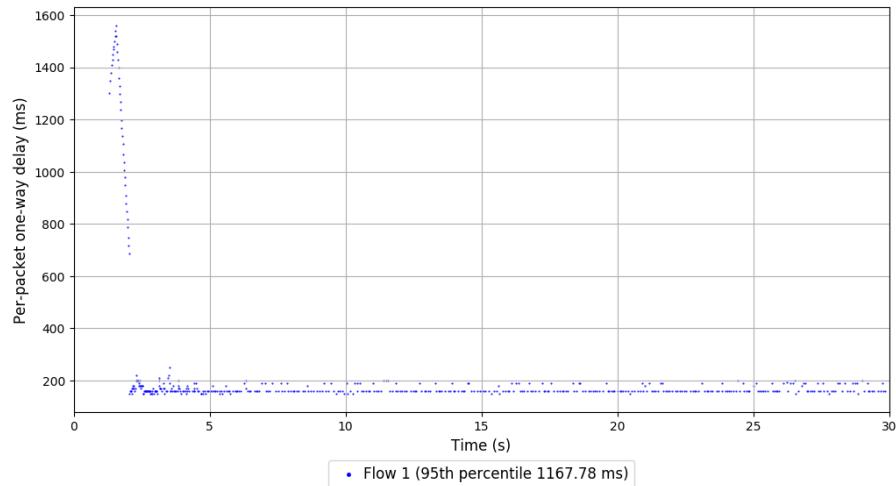
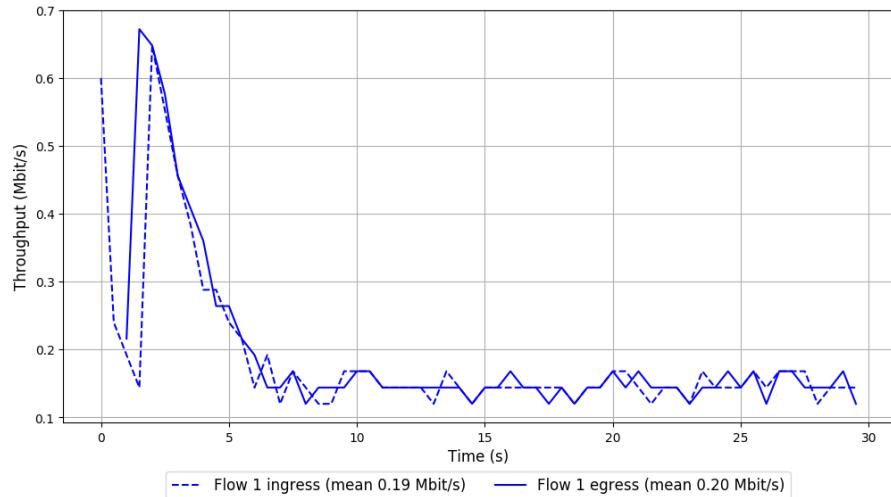


```
Run 3: Statistics of CalibratedKoho
```

```
Start at: 2017-09-17 22:12:54
End at: 2017-09-17 22:13:24
Local clock offset: -4.01 ms
Remote clock offset: -8.227 ms

# Below is generated by plot.py at 2017-09-17 23:17:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 1167.775 ms
Loss rate: 1.28%
-- Flow 1:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 1167.775 ms
Loss rate: 1.28%
```

Run 3: Report of CalibratedKoho — Data Link

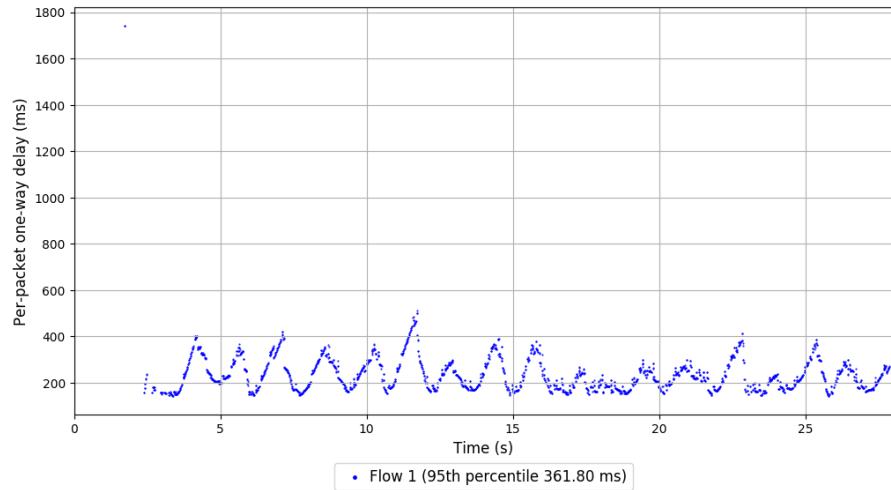
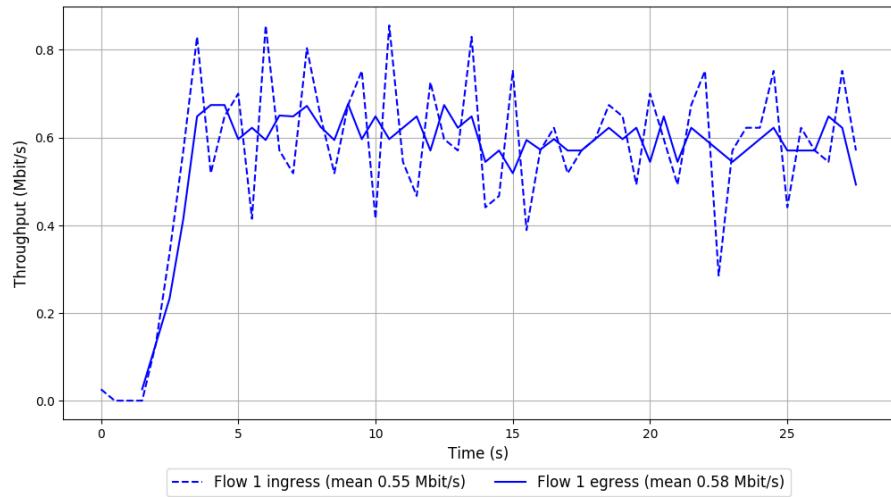


Run 1: Statistics of Copa

```
Start at: 2017-09-17 21:34:16
End at: 2017-09-17 21:34:46
Local clock offset: -8.436 ms
Remote clock offset: -8.312 ms

# Below is generated by plot.py at 2017-09-17 23:17:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 361.795 ms
Loss rate: 1.35%
-- Flow 1:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 361.795 ms
Loss rate: 1.35%
```

Run 1: Report of Copa — Data Link

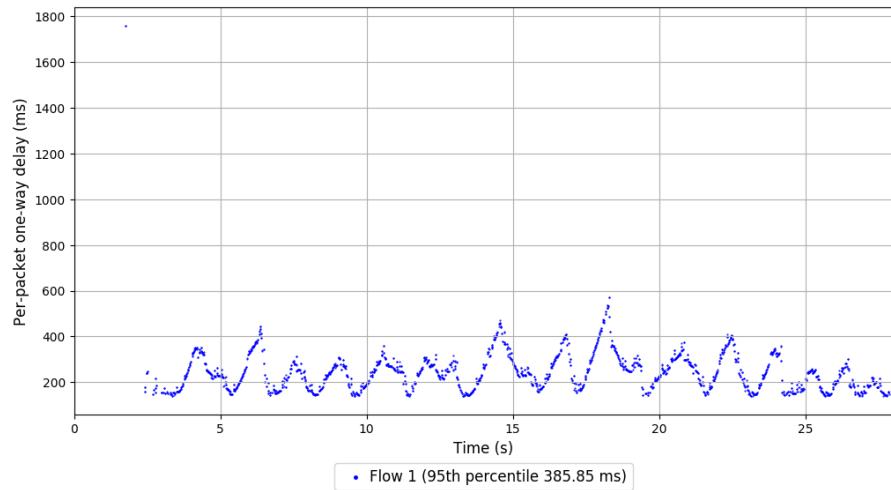
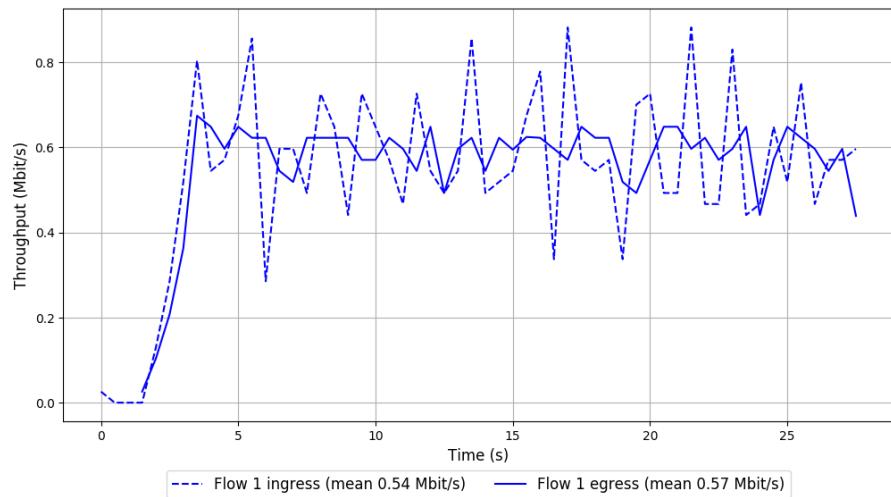


Run 2: Statistics of Copa

```
Start at: 2017-09-17 21:51:49
End at: 2017-09-17 21:52:19
Local clock offset: -1.95 ms
Remote clock offset: -3.525 ms

# Below is generated by plot.py at 2017-09-17 23:17:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 385.848 ms
Loss rate: 1.13%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 385.848 ms
Loss rate: 1.13%
```

Run 2: Report of Copa — Data Link

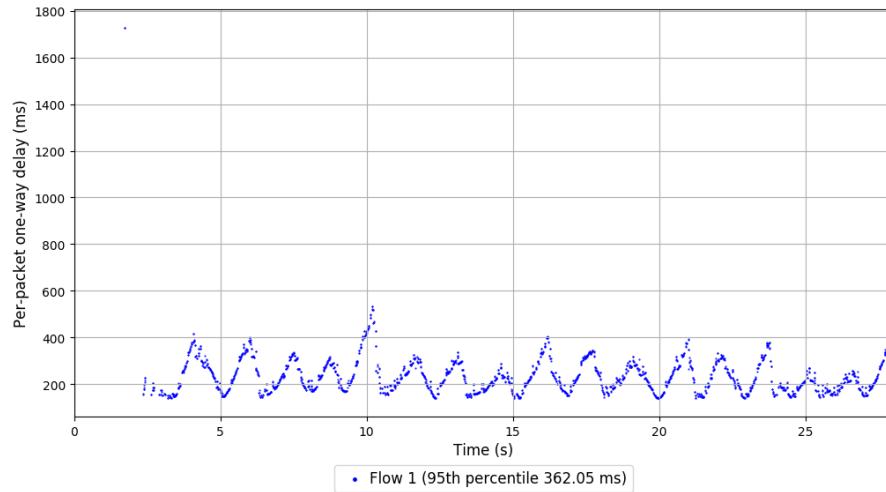
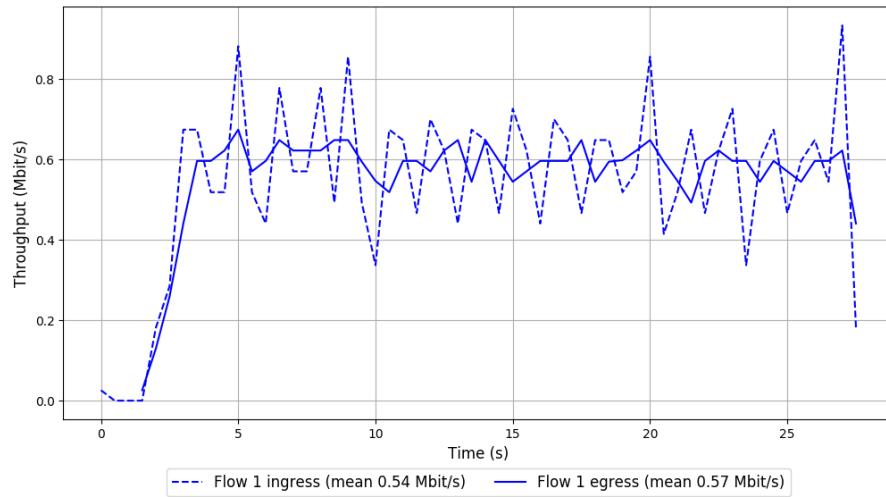


Run 3: Statistics of Copa

```
Start at: 2017-09-17 22:09:23
End at: 2017-09-17 22:09:53
Local clock offset: -3.378 ms
Remote clock offset: -3.755 ms

# Below is generated by plot.py at 2017-09-17 23:17:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 362.046 ms
Loss rate: 0.86%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 362.046 ms
Loss rate: 0.86%
```

Run 3: Report of Copa — Data Link

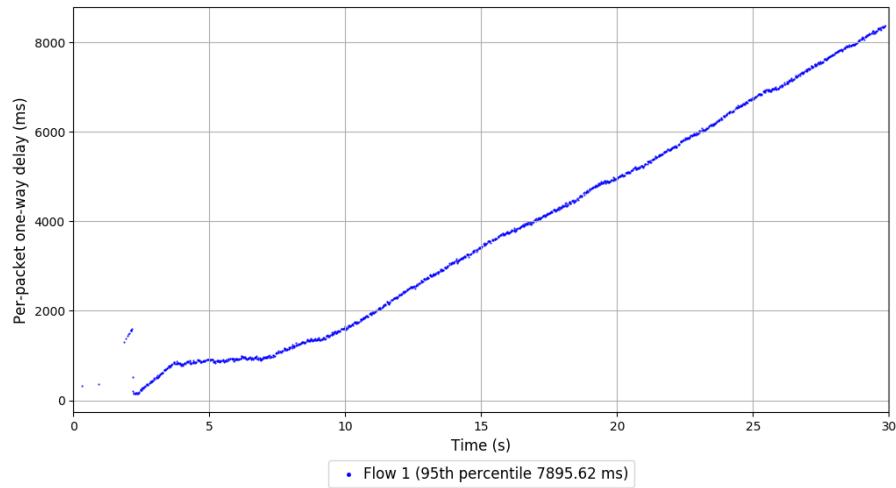
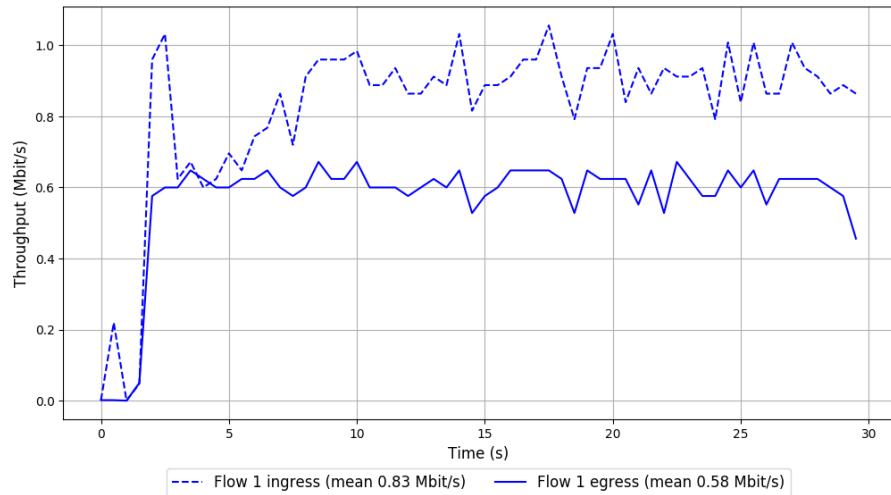


```
Run 1: Statistics of TCP Cubic
```

```
Start at: 2017-09-17 21:35:26
End at: 2017-09-17 21:35:56
Local clock offset: -7.744 ms
Remote clock offset: -2.981 ms

# Below is generated by plot.py at 2017-09-17 23:17:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 7895.618 ms
Loss rate: 31.10%
-- Flow 1:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 7895.618 ms
Loss rate: 31.10%
```

Run 1: Report of TCP Cubic — Data Link

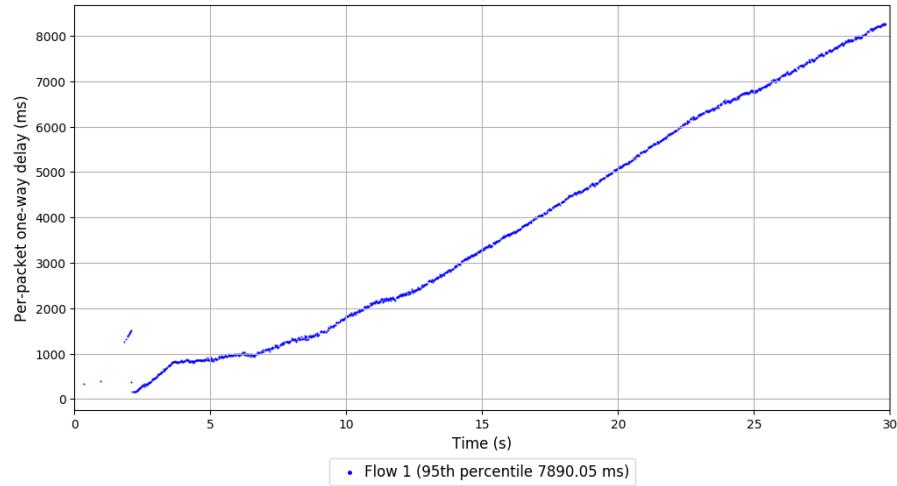
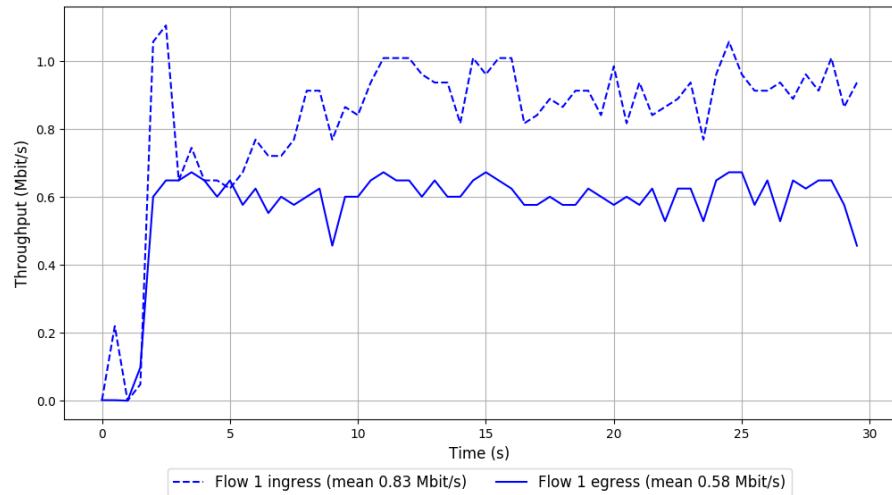


Run 2: Statistics of TCP Cubic

```
Start at: 2017-09-17 21:53:00
End at: 2017-09-17 21:53:30
Local clock offset: -1.899 ms
Remote clock offset: -8.185 ms

# Below is generated by plot.py at 2017-09-17 23:17:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 7890.051 ms
Loss rate: 31.20%
-- Flow 1:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 7890.051 ms
Loss rate: 31.20%
```

Run 2: Report of TCP Cubic — Data Link

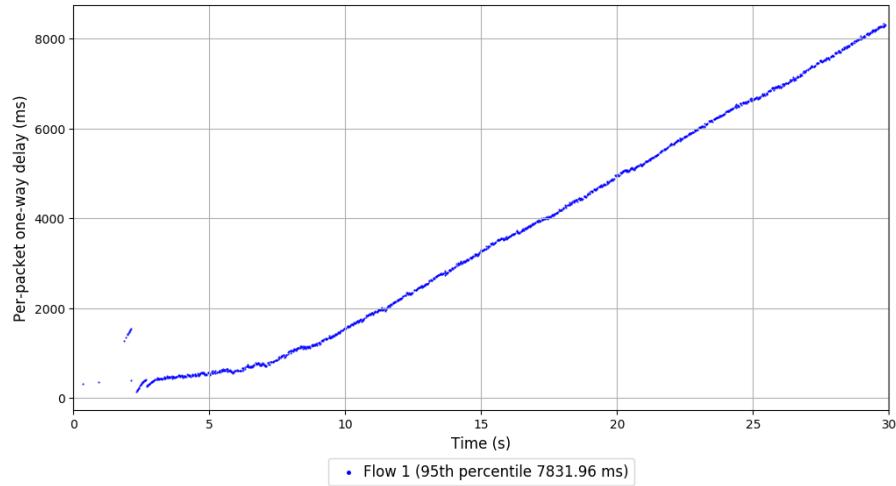
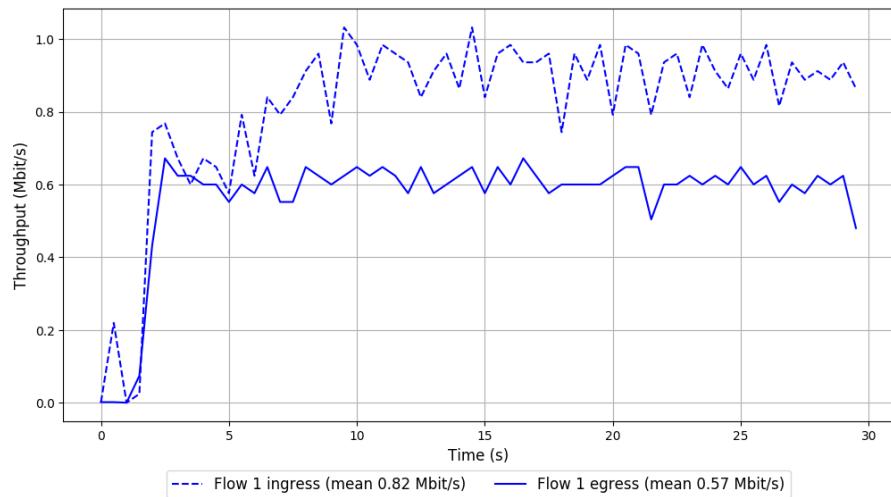


Run 3: Statistics of TCP Cubic

```
Start at: 2017-09-17 22:10:33
End at: 2017-09-17 22:11:03
Local clock offset: -3.558 ms
Remote clock offset: -3.581 ms

# Below is generated by plot.py at 2017-09-17 23:17:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 7831.957 ms
Loss rate: 30.97%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 7831.957 ms
Loss rate: 30.97%
```

Run 3: Report of TCP Cubic — Data Link



Run 1: Statistics of Indigo

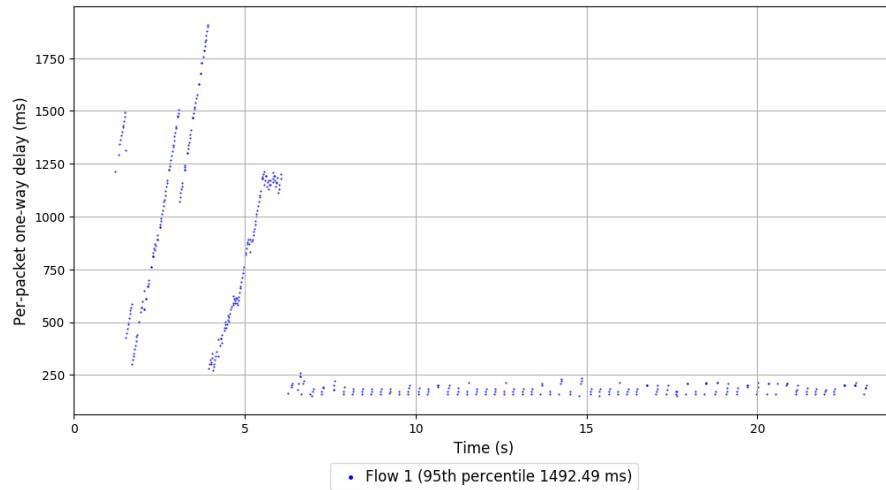
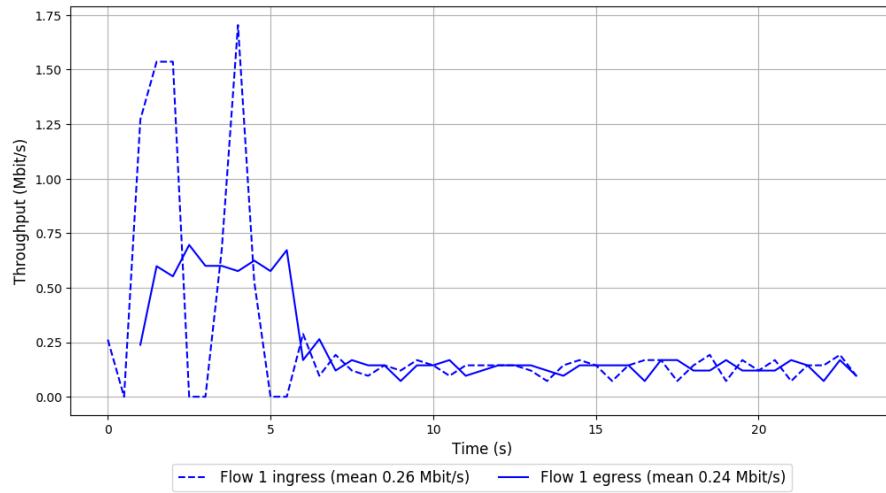
Start at: 2017-09-17 21:45:58

End at: 2017-09-17 21:46:28

Local clock offset: -7.085 ms

Remote clock offset: -7.721 ms

Run 1: Report of Indigo — Data Link

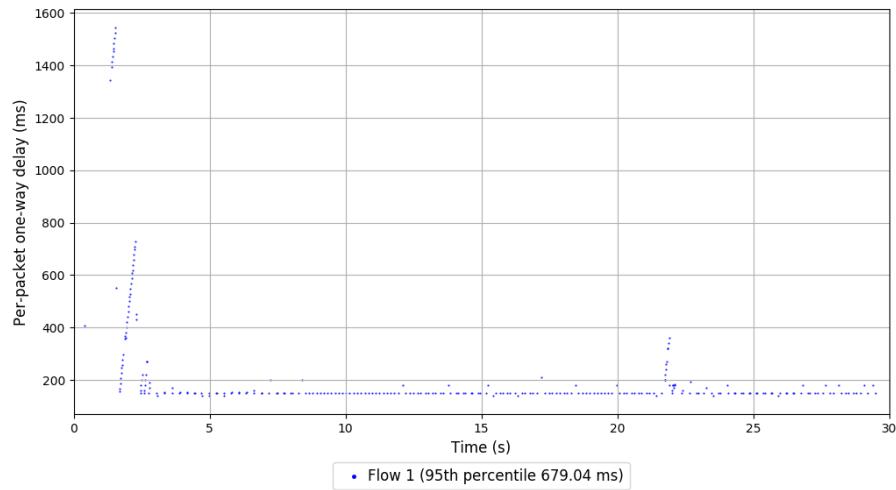
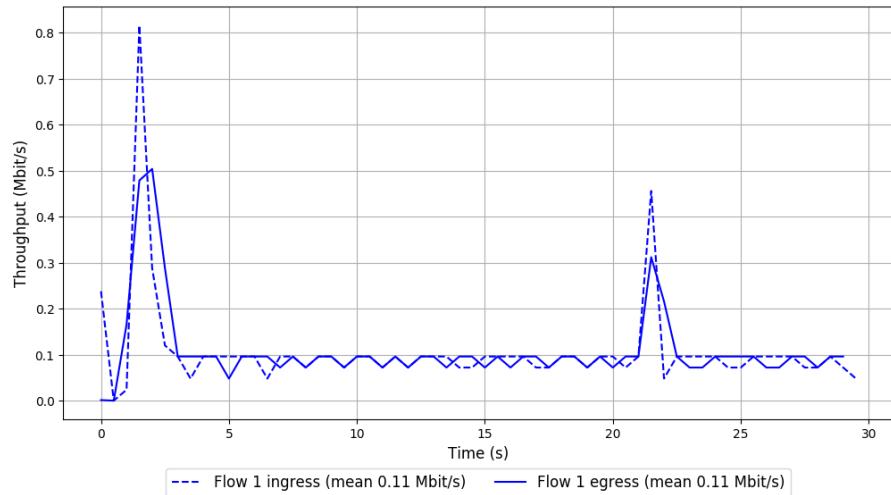


Run 2: Statistics of Indigo

```
Start at: 2017-09-17 22:03:32
End at: 2017-09-17 22:04:02
Local clock offset: -3.819 ms
Remote clock offset: -3.174 ms

# Below is generated by plot.py at 2017-09-17 23:17:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 679.043 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 679.043 ms
Loss rate: 0.74%
```

Run 2: Report of Indigo — Data Link

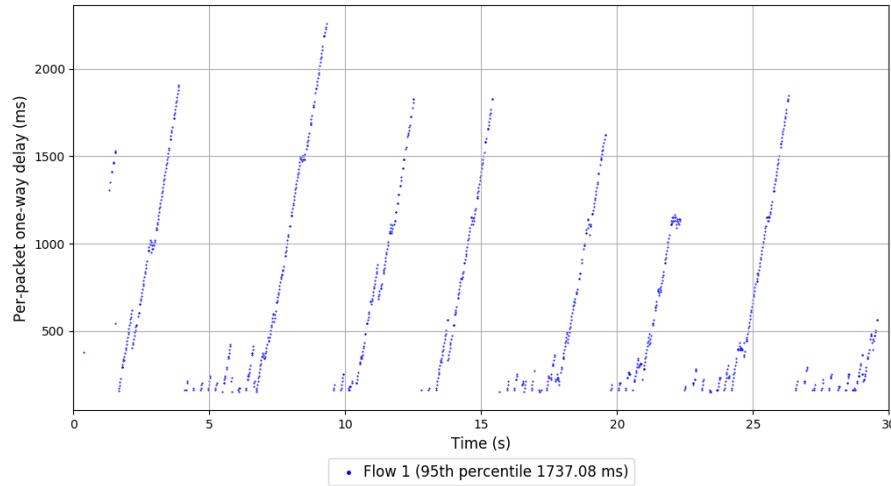
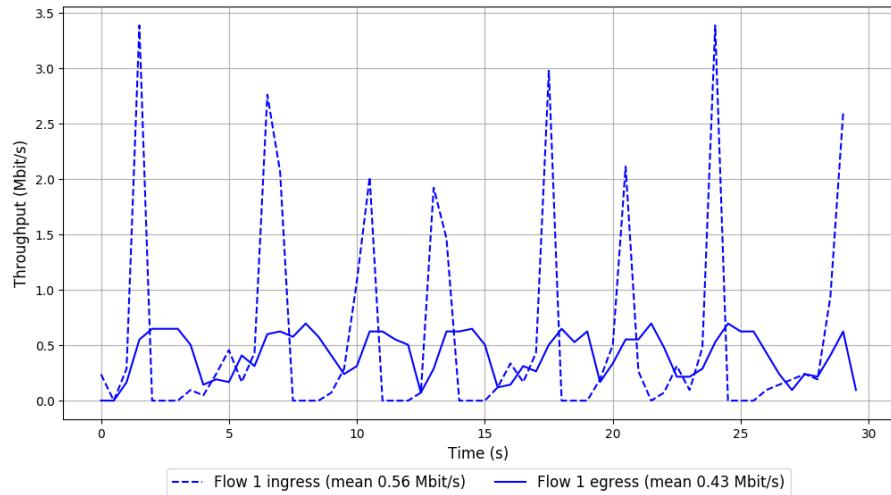


Run 3: Statistics of Indigo

```
Start at: 2017-09-17 22:21:06
End at: 2017-09-17 22:21:36
Local clock offset: -5.478 ms
Remote clock offset: -8.153 ms

# Below is generated by plot.py at 2017-09-17 23:17:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 1737.082 ms
Loss rate: 24.20%
-- Flow 1:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 1737.082 ms
Loss rate: 24.20%
```

Run 3: Report of Indigo — Data Link

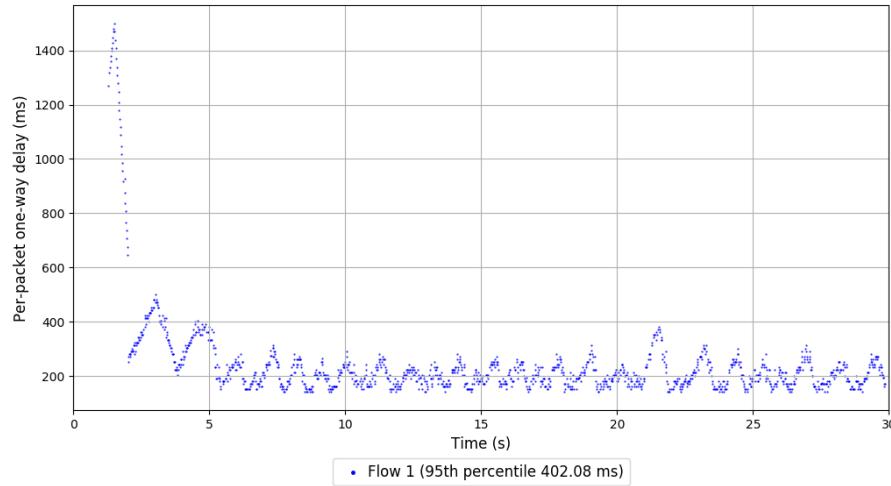
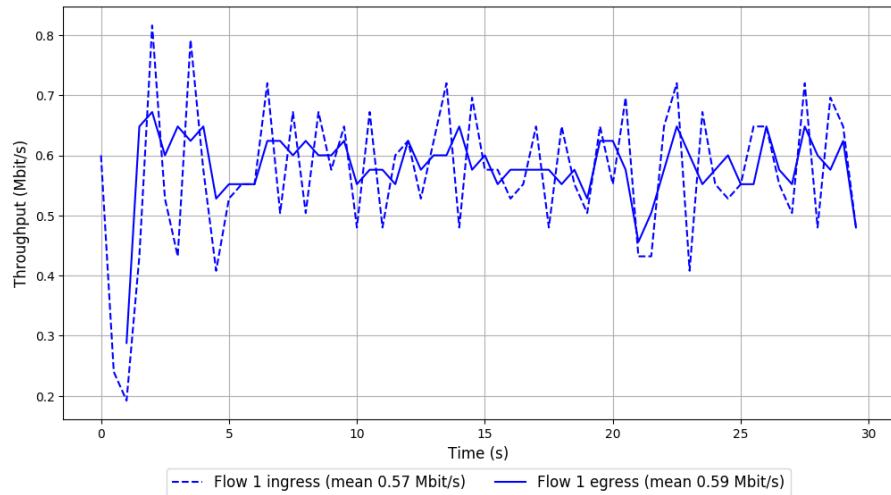


```
Run 1: Statistics of KohoCC
```

```
Start at: 2017-09-17 21:43:38
End at: 2017-09-17 21:44:08
Local clock offset: -8.389 ms
Remote clock offset: -3.025 ms

# Below is generated by plot.py at 2017-09-17 23:17:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 402.085 ms
Loss rate: 1.13%
-- Flow 1:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 402.085 ms
Loss rate: 1.13%
```

Run 1: Report of KohoCC — Data Link

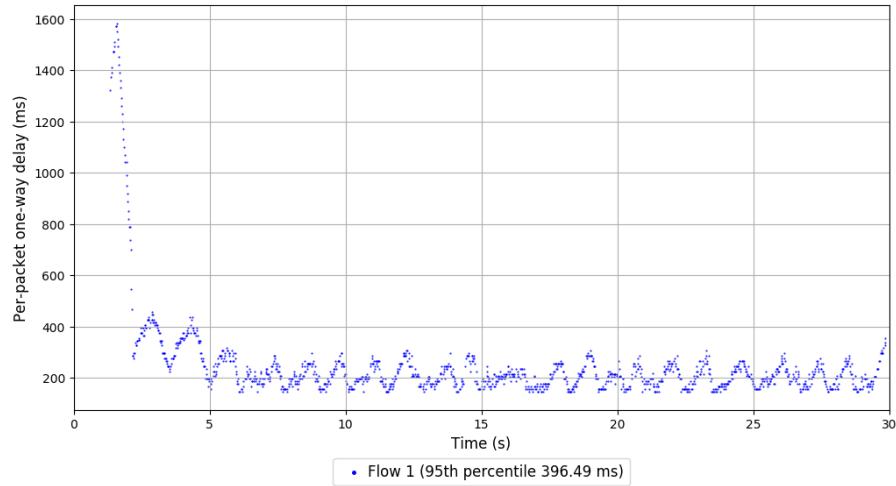
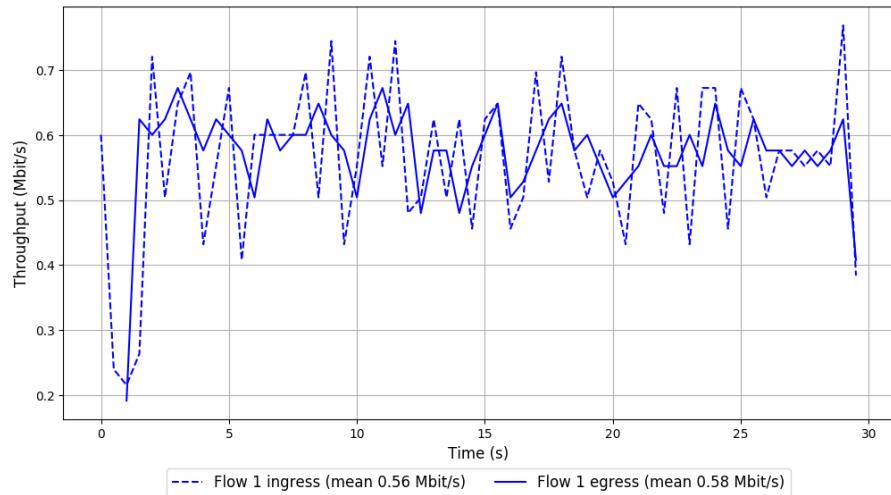


Run 2: Statistics of KohoCC

```
Start at: 2017-09-17 22:01:12
End at: 2017-09-17 22:01:42
Local clock offset: -3.834 ms
Remote clock offset: -2.822 ms

# Below is generated by plot.py at 2017-09-17 23:17:31
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 396.486 ms
Loss rate: 1.28%
-- Flow 1:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 396.486 ms
Loss rate: 1.28%
```

Run 2: Report of KohoCC — Data Link

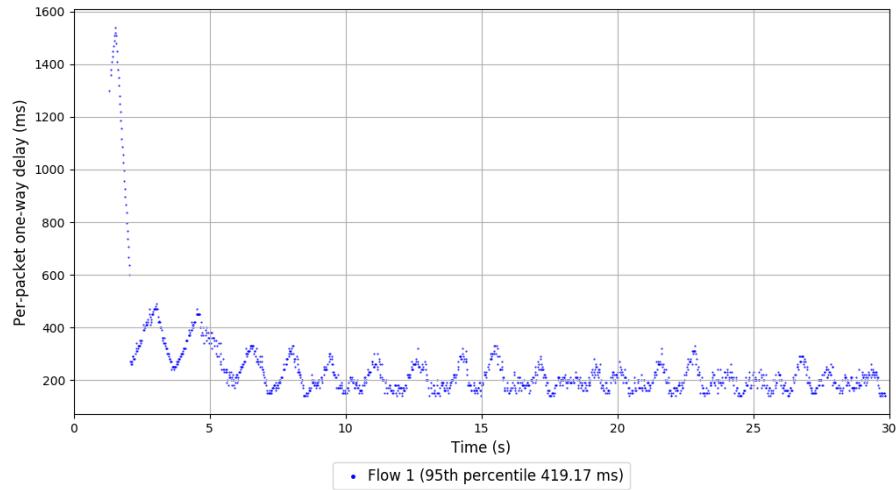
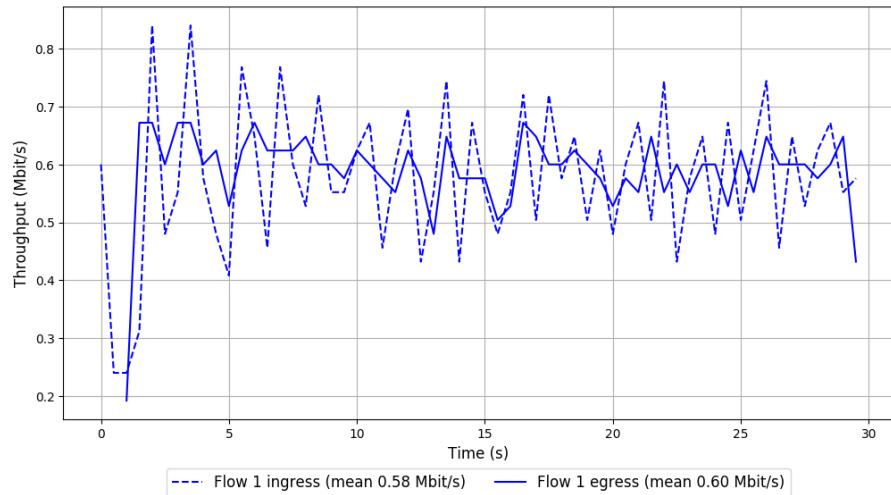


Run 3: Statistics of KohoCC

```
Start at: 2017-09-17 22:18:46
End at: 2017-09-17 22:19:16
Local clock offset: -4.966 ms
Remote clock offset: -2.818 ms

# Below is generated by plot.py at 2017-09-17 23:17:32
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 419.173 ms
Loss rate: 1.32%
-- Flow 1:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 419.173 ms
Loss rate: 1.32%
```

Run 3: Report of KohoCC — Data Link

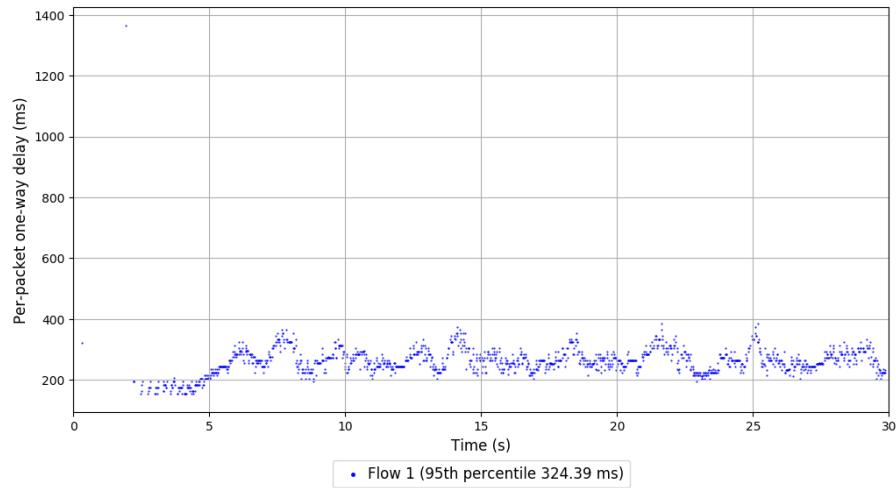
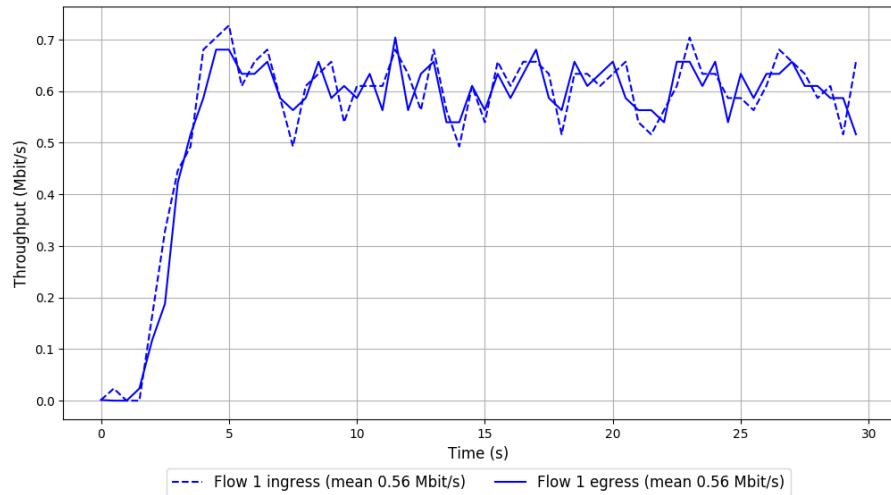


```
Run 1: Statistics of LEDBAT
```

```
Start at: 2017-09-17 21:44:48
End at: 2017-09-17 21:45:18
Local clock offset: -7.834 ms
Remote clock offset: -7.986 ms

# Below is generated by plot.py at 2017-09-17 23:17:32
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 324.393 ms
Loss rate: 1.26%
-- Flow 1:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 324.393 ms
Loss rate: 1.26%
```

Run 1: Report of LEDBAT — Data Link

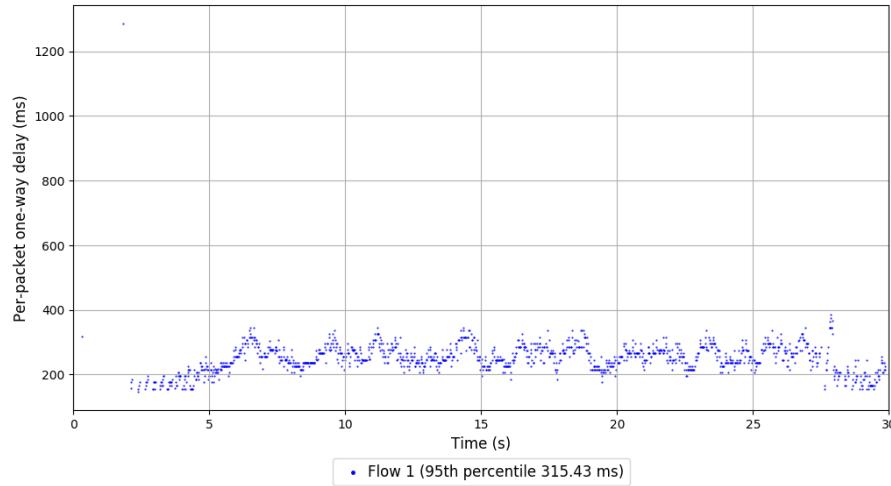
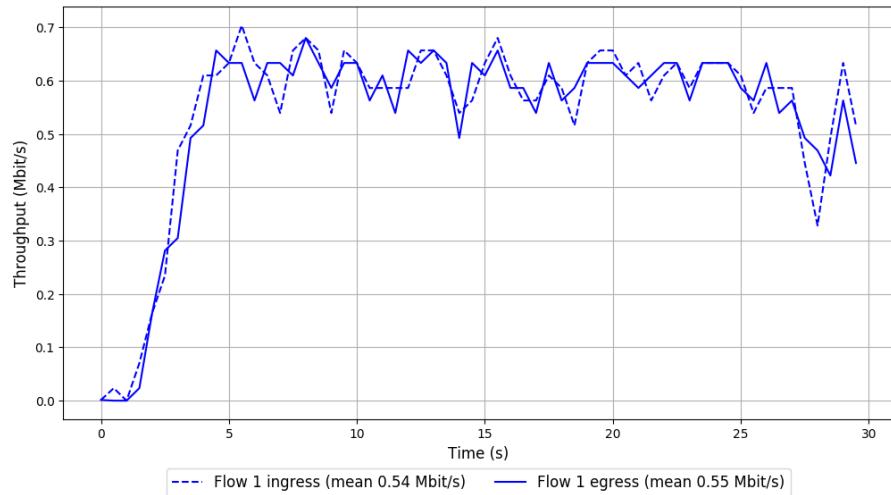


Run 2: Statistics of LEDBAT

```
Start at: 2017-09-17 22:02:22
End at: 2017-09-17 22:02:52
Local clock offset: -3.786 ms
Remote clock offset: -8.338 ms

# Below is generated by plot.py at 2017-09-17 23:17:32
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.55 Mbit/s
95th percentile per-packet one-way delay: 315.433 ms
Loss rate: 1.15%
-- Flow 1:
Average throughput: 0.55 Mbit/s
95th percentile per-packet one-way delay: 315.433 ms
Loss rate: 1.15%
```

Run 2: Report of LEDBAT — Data Link

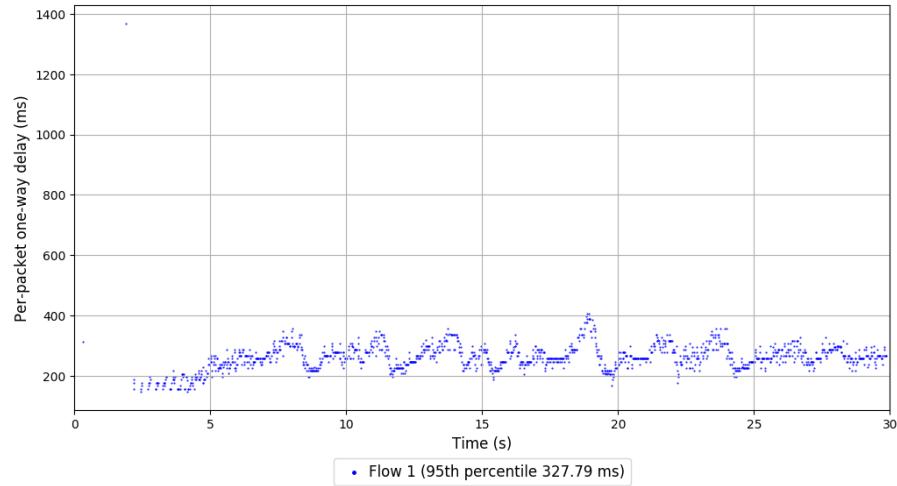
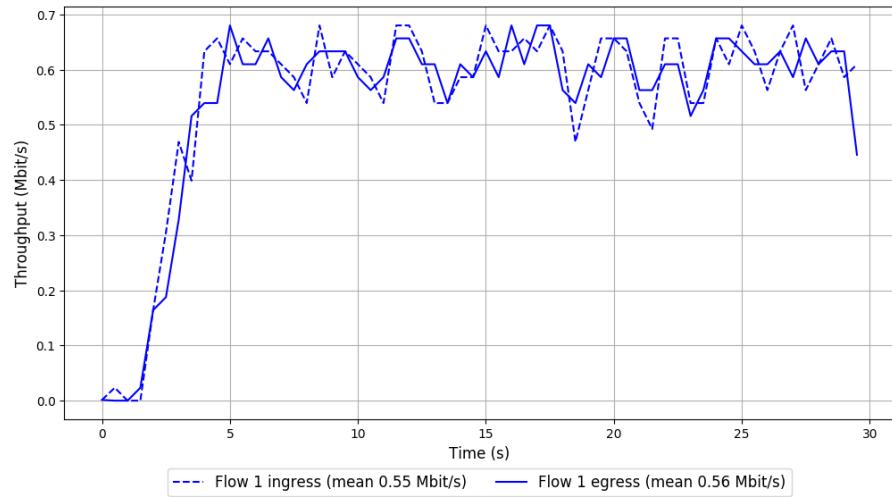


Run 3: Statistics of LEDBAT

```
Start at: 2017-09-17 22:19:56
End at: 2017-09-17 22:20:26
Local clock offset: -5.213 ms
Remote clock offset: -8.124 ms

# Below is generated by plot.py at 2017-09-17 23:17:32
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 327.792 ms
Loss rate: 1.34%
-- Flow 1:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 327.792 ms
Loss rate: 1.34%
```

Run 3: Report of LEDBAT — Data Link

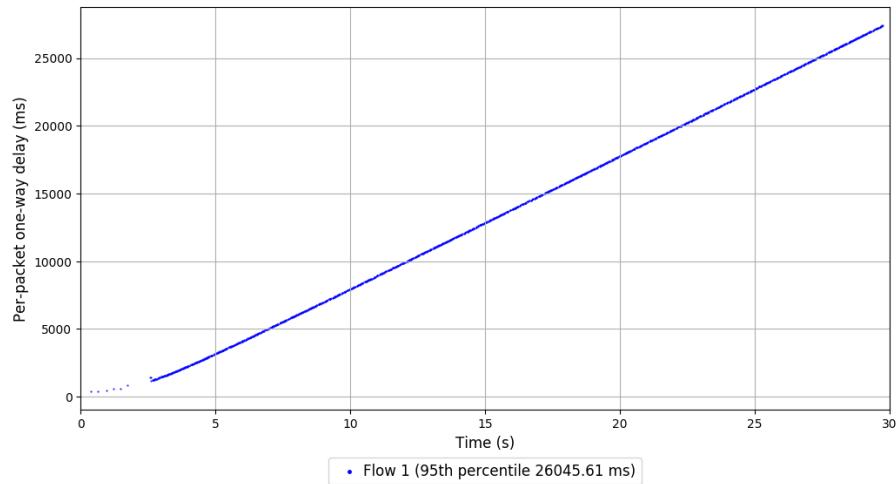
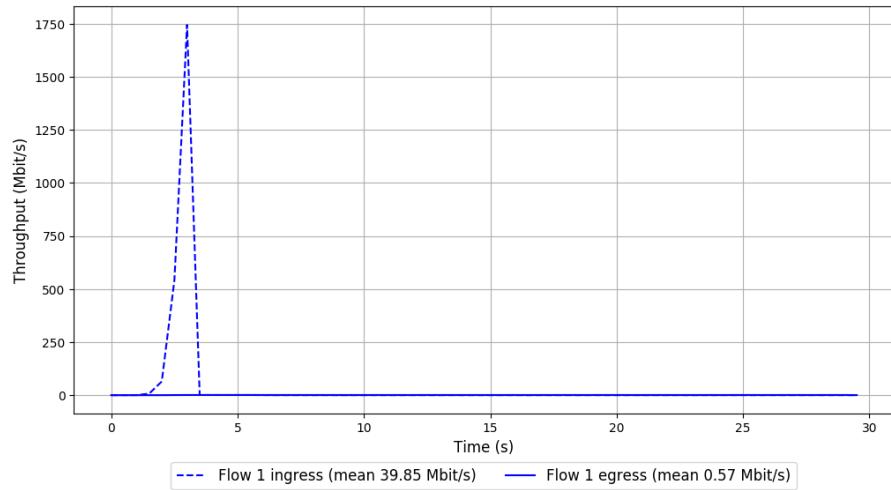


```
Run 1: Statistics of PCC
```

```
Start at: 2017-09-17 21:40:06
End at: 2017-09-17 21:40:36
Local clock offset: -8.612 ms
Remote clock offset: -8.113 ms

# Below is generated by plot.py at 2017-09-17 23:17:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 26045.608 ms
Loss rate: 98.59%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 26045.608 ms
Loss rate: 98.59%
```

Run 1: Report of PCC — Data Link

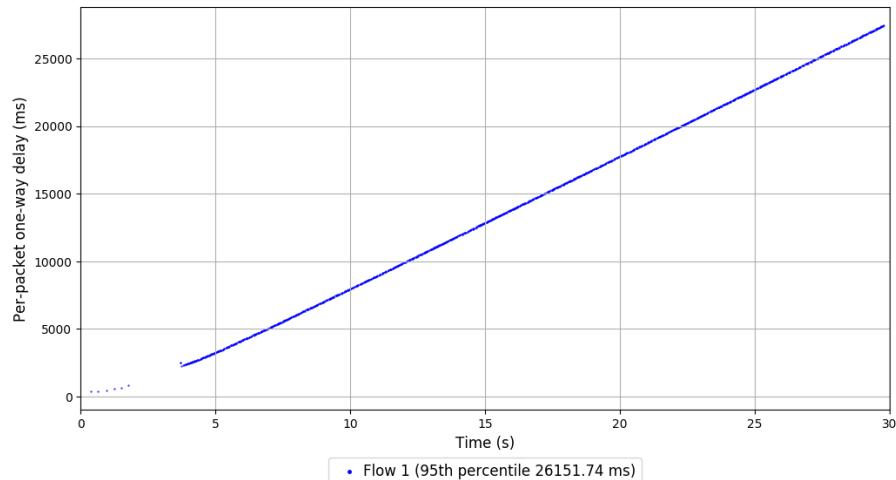
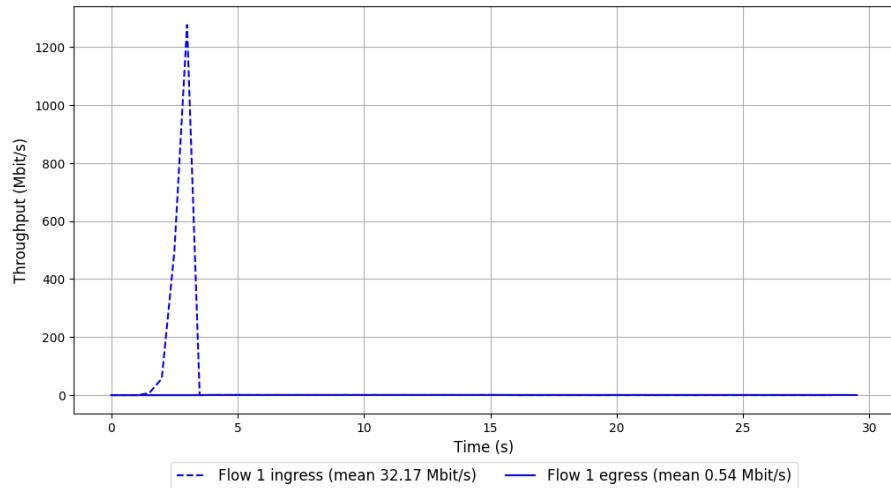


Run 2: Statistics of PCC

```
Start at: 2017-09-17 21:57:40
End at: 2017-09-17 21:58:10
Local clock offset: -3.004 ms
Remote clock offset: -7.821 ms

# Below is generated by plot.py at 2017-09-17 23:17:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.54 Mbit/s
95th percentile per-packet one-way delay: 26151.741 ms
Loss rate: 98.29%
-- Flow 1:
Average throughput: 0.54 Mbit/s
95th percentile per-packet one-way delay: 26151.741 ms
Loss rate: 98.29%
```

Run 2: Report of PCC — Data Link

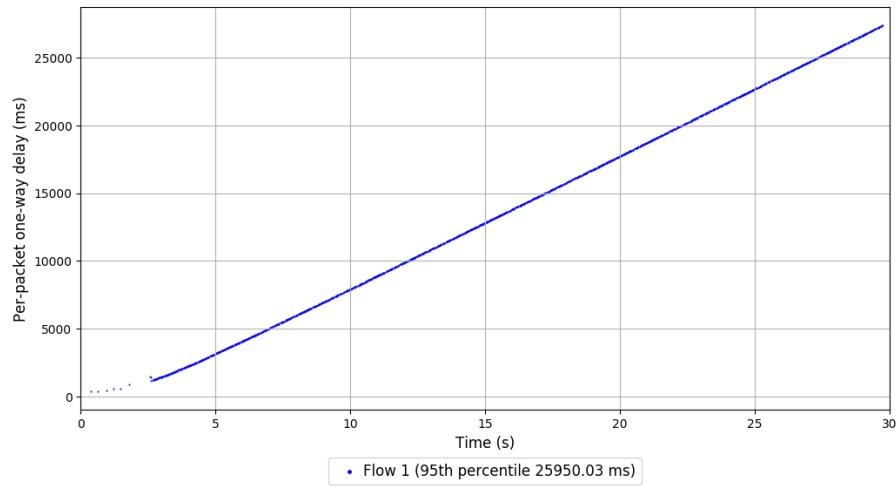
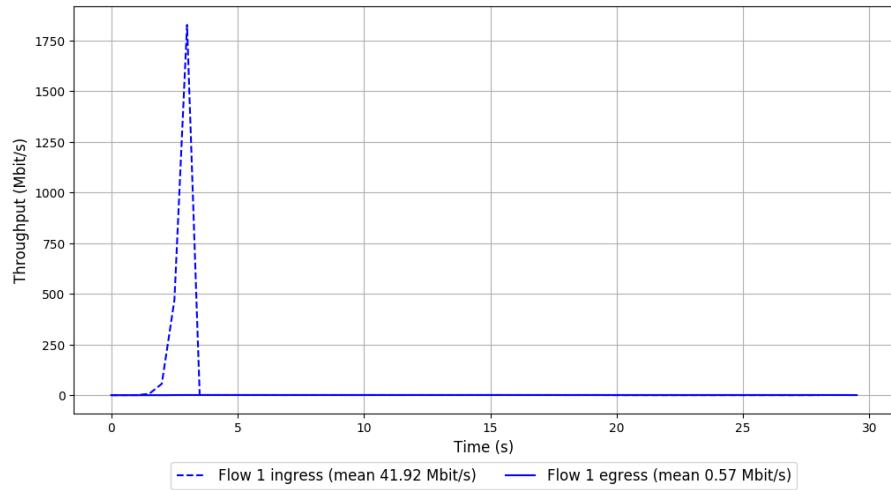


Run 3: Statistics of PCC

```
Start at: 2017-09-17 22:15:14
End at: 2017-09-17 22:15:44
Local clock offset: -4.416 ms
Remote clock offset: -8.62 ms

# Below is generated by plot.py at 2017-09-17 23:17:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 25950.030 ms
Loss rate: 98.60%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 25950.030 ms
Loss rate: 98.60%
```

Run 3: Report of PCC — Data Link



Run 1: Statistics of QUIC Cubic

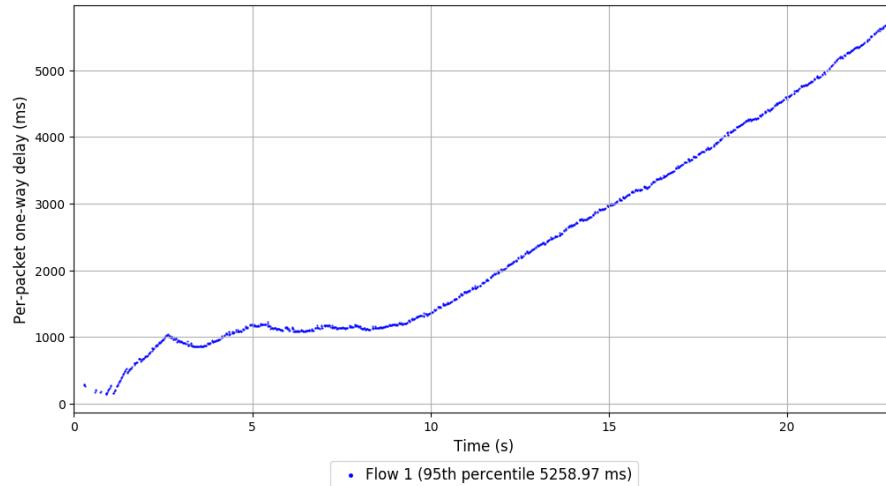
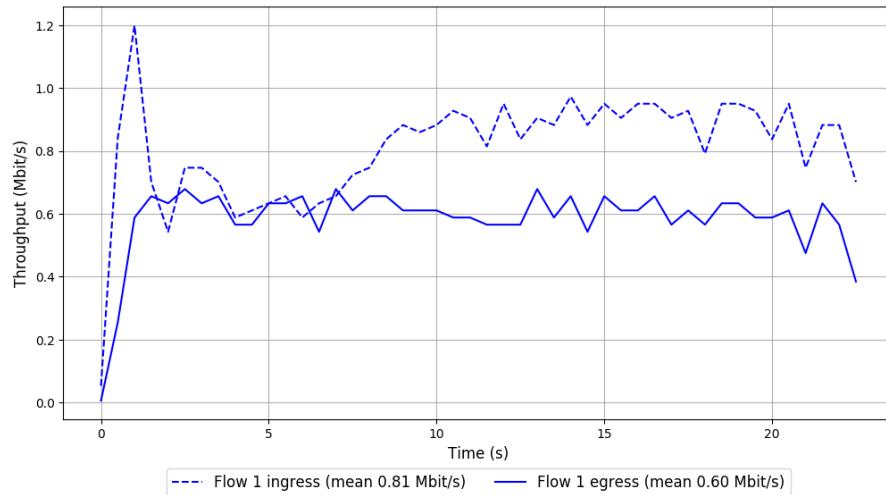
Start at: 2017-09-17 21:36:36

End at: 2017-09-17 21:37:06

Local clock offset: -7.569 ms

Remote clock offset: -3.453 ms

Run 1: Report of QUIC Cubic — Data Link

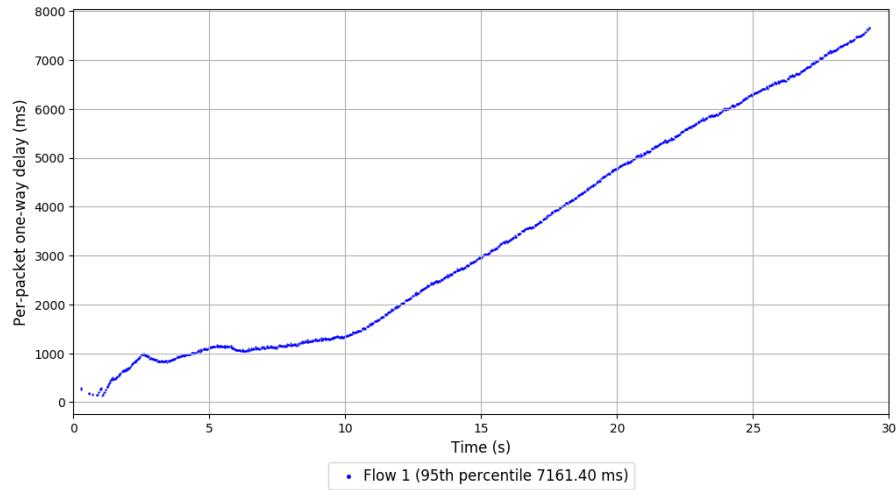
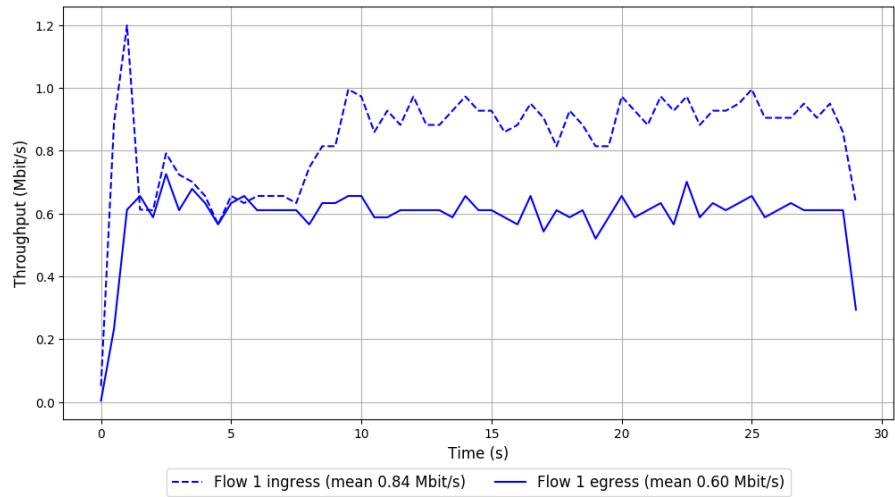


Run 2: Statistics of QUIC Cubic

```
Start at: 2017-09-17 21:54:10
End at: 2017-09-17 21:54:40
Local clock offset: -1.998 ms
Remote clock offset: -3.419 ms

# Below is generated by plot.py at 2017-09-17 23:17:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 7161.402 ms
Loss rate: 29.17%
-- Flow 1:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 7161.402 ms
Loss rate: 29.17%
```

Run 2: Report of QUIC Cubic — Data Link

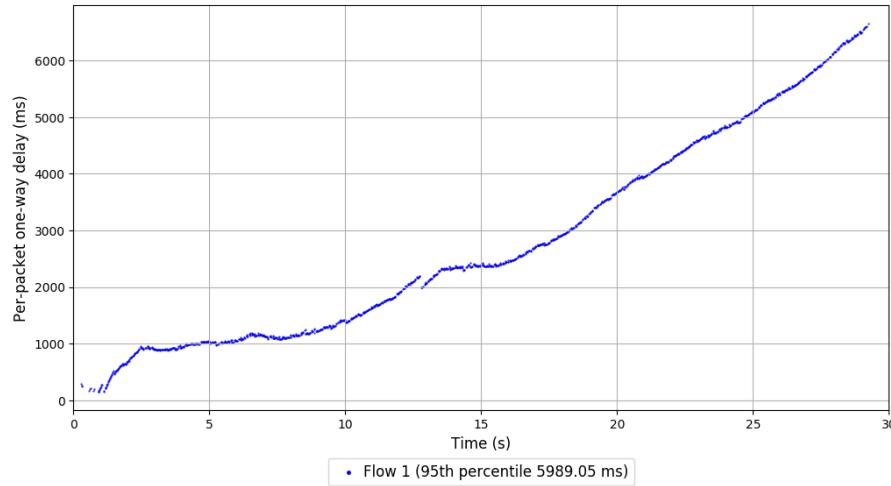
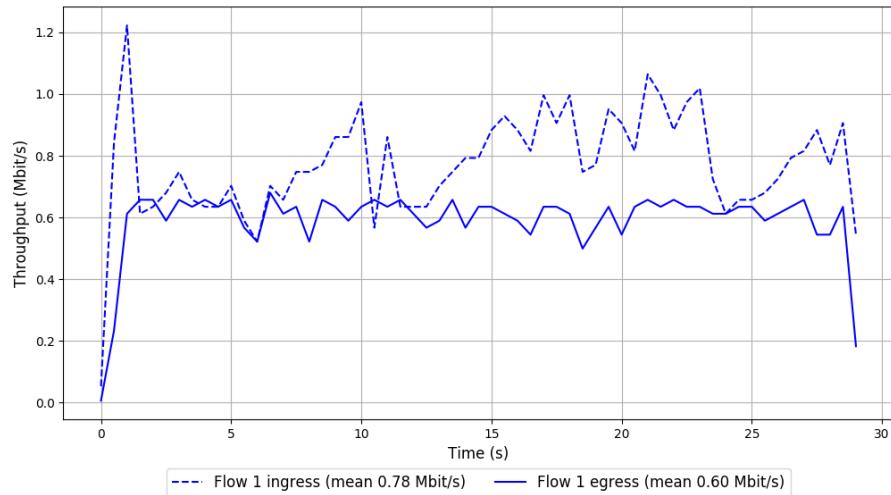


```
Run 3: Statistics of QUIC Cubic
```

```
Start at: 2017-09-17 22:11:44
End at: 2017-09-17 22:12:14
Local clock offset: -3.77 ms
Remote clock offset: -8.556 ms

# Below is generated by plot.py at 2017-09-17 23:17:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 5989.050 ms
Loss rate: 23.44%
-- Flow 1:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 5989.050 ms
Loss rate: 23.44%
```

Run 3: Report of QUIC Cubic — Data Link

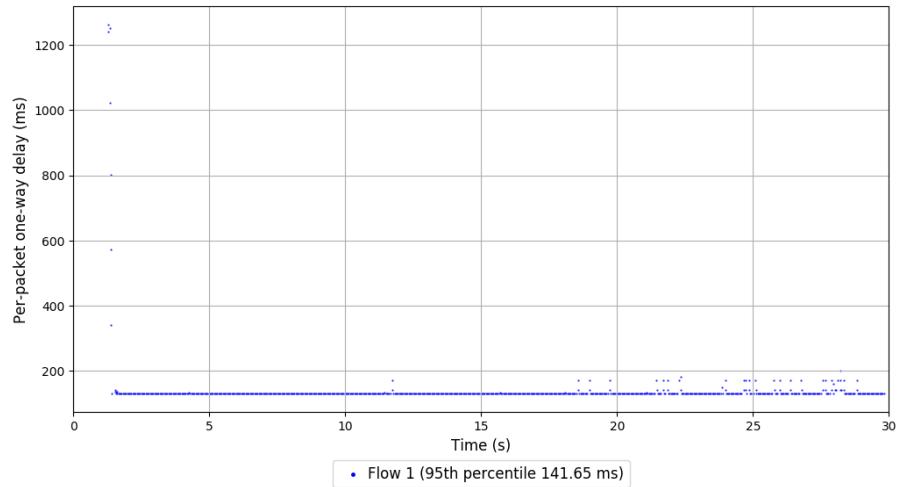
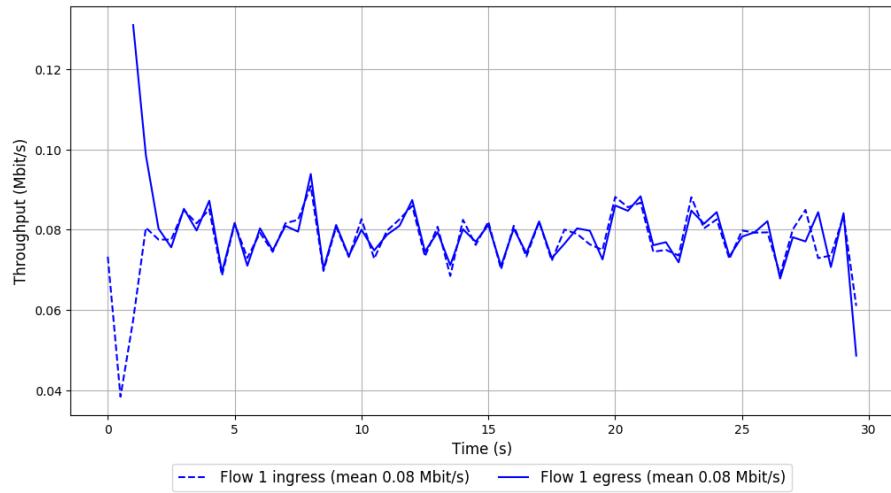


```
Run 1: Statistics of SCReAM
```

```
Start at: 2017-09-17 21:33:06
End at: 2017-09-17 21:33:36
Local clock offset: -9.459 ms
Remote clock offset: -2.701 ms

# Below is generated by plot.py at 2017-09-17 23:17:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 141.654 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 141.654 ms
Loss rate: 0.66%
```

Run 1: Report of SCReAM — Data Link

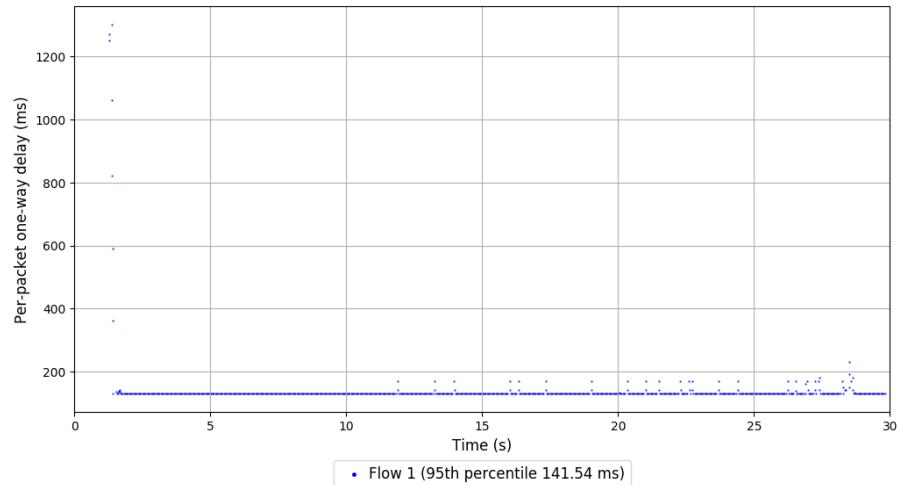
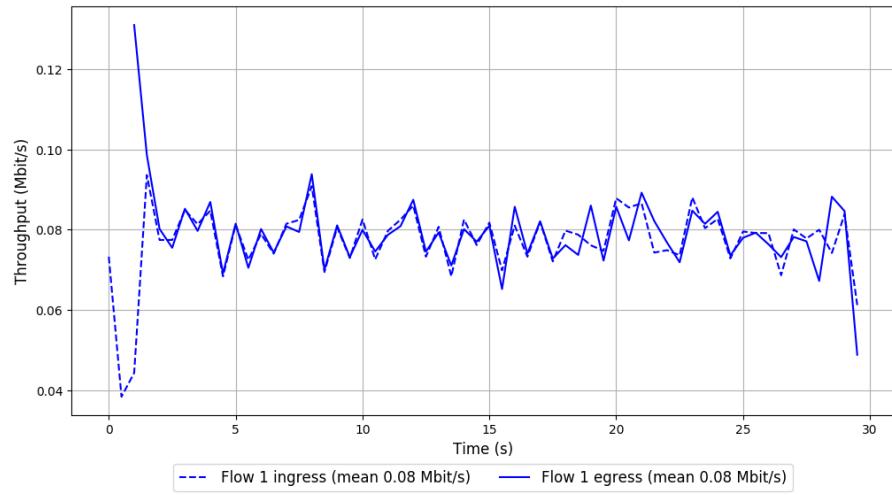


Run 2: Statistics of SCReAM

```
Start at: 2017-09-17 21:50:39
End at: 2017-09-17 21:51:09
Local clock offset: -2.476 ms
Remote clock offset: -7.998 ms

# Below is generated by plot.py at 2017-09-17 23:17:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 141.543 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 141.543 ms
Loss rate: 0.66%
```

Run 2: Report of SCReAM — Data Link

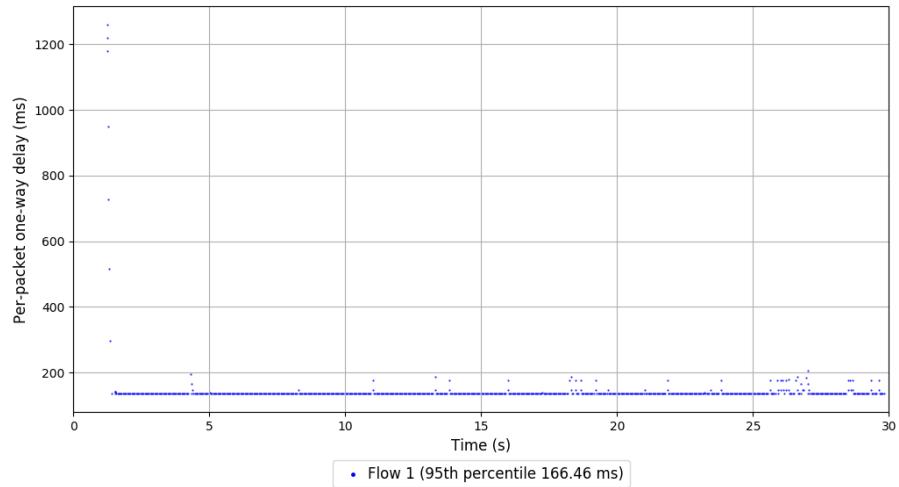
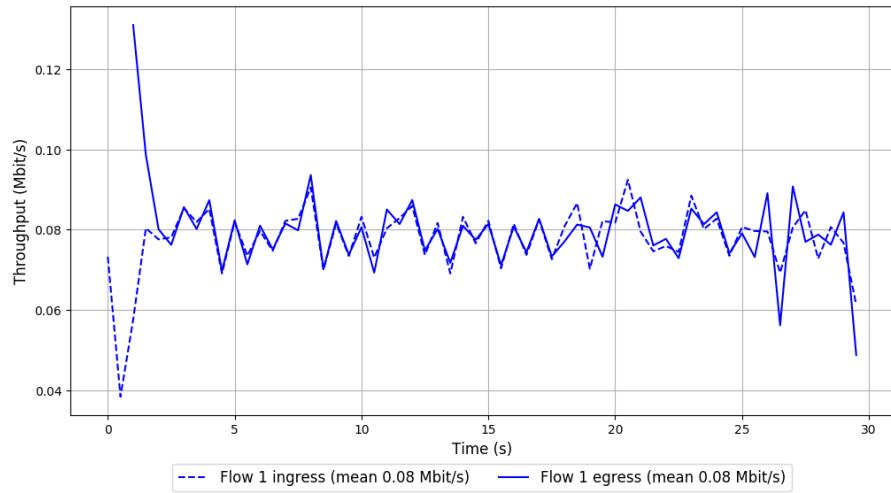


Run 3: Statistics of SCReAM

```
Start at: 2017-09-17 22:08:13
End at: 2017-09-17 22:08:43
Local clock offset: -3.294 ms
Remote clock offset: -8.209 ms

# Below is generated by plot.py at 2017-09-17 23:17:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 166.464 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 166.464 ms
Loss rate: 0.66%
```

Run 3: Report of SCReAM — Data Link

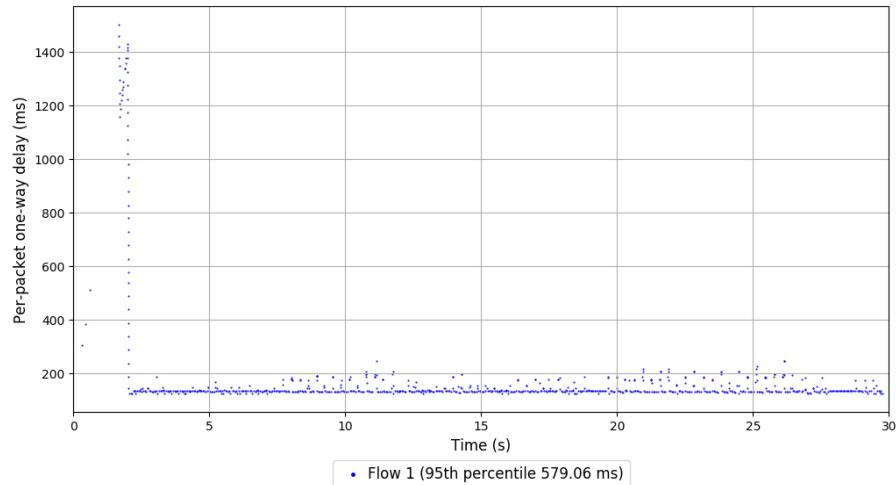
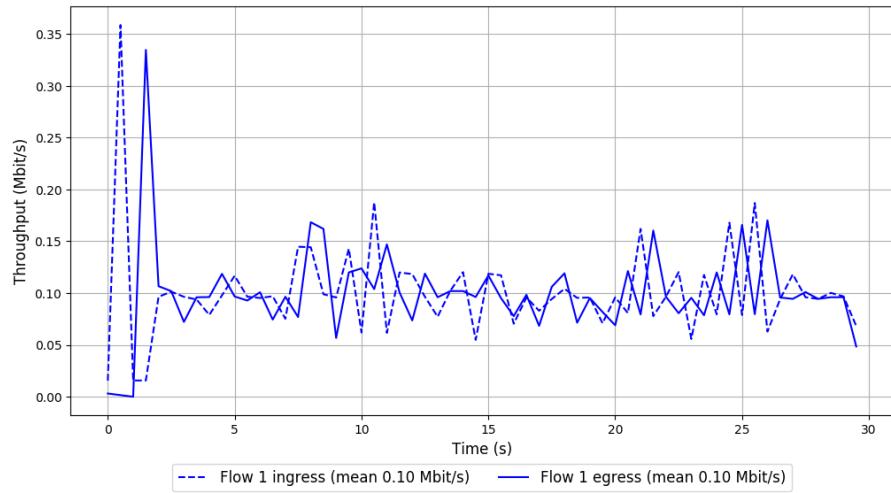


Run 1: Statistics of Sprout

```
Start at: 2017-09-17 21:42:28
End at: 2017-09-17 21:42:58
Local clock offset: -9.264 ms
Remote clock offset: -2.812 ms

# Below is generated by plot.py at 2017-09-17 23:17:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 579.064 ms
Loss rate: 1.34%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 579.064 ms
Loss rate: 1.34%
```

Run 1: Report of Sprout — Data Link

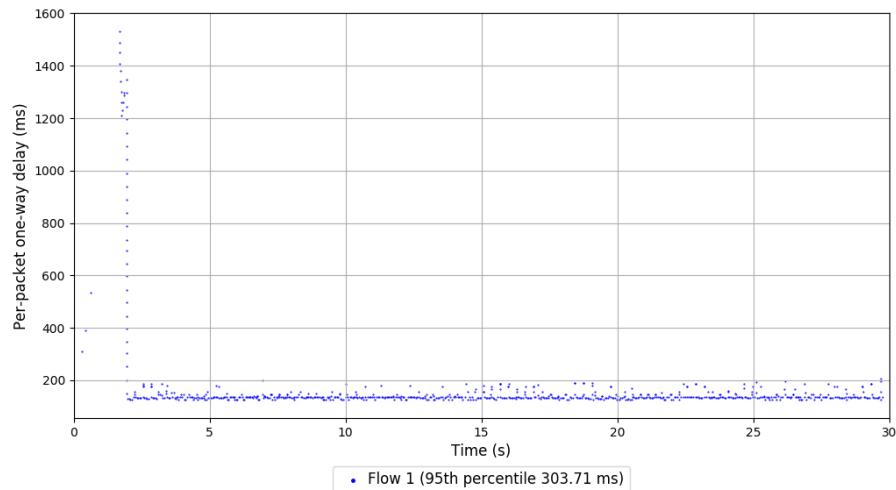
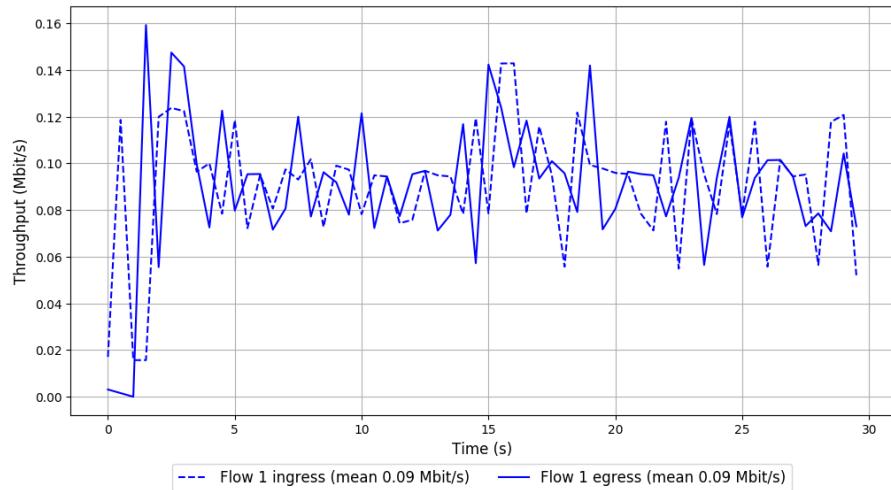


Run 2: Statistics of Sprout

```
Start at: 2017-09-17 22:00:02
End at: 2017-09-17 22:00:32
Local clock offset: -3.866 ms
Remote clock offset: -2.831 ms

# Below is generated by plot.py at 2017-09-17 23:17:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 303.712 ms
Loss rate: 0.86%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 303.712 ms
Loss rate: 0.86%
```

Run 2: Report of Sprout — Data Link

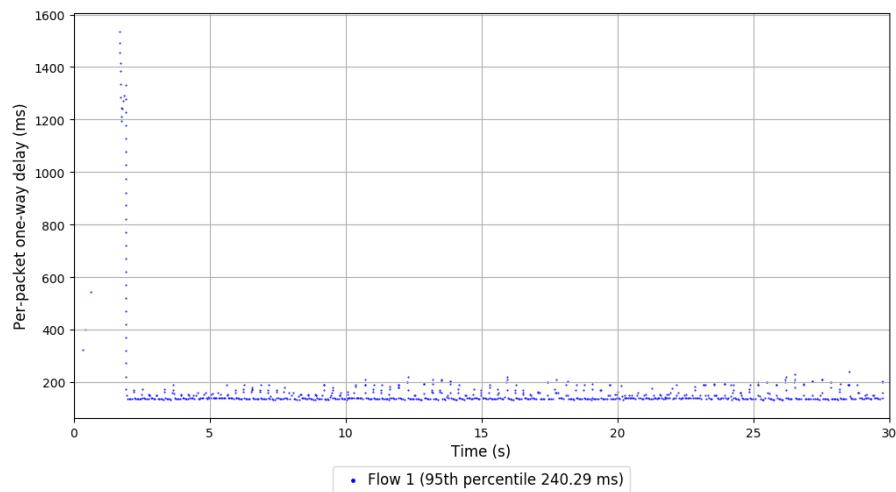
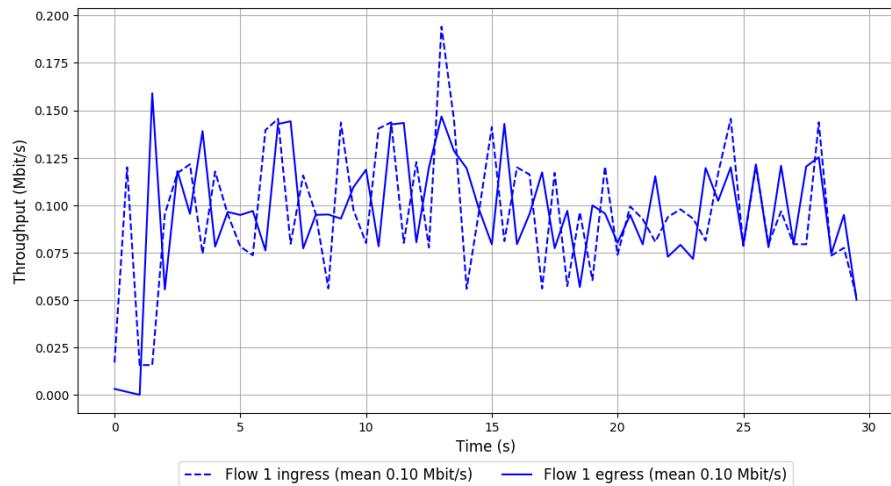


Run 3: Statistics of Sprout

```
Start at: 2017-09-17 22:17:36
End at: 2017-09-17 22:18:06
Local clock offset: -4.75 ms
Remote clock offset: -8.128 ms

# Below is generated by plot.py at 2017-09-17 23:17:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 240.289 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 240.289 ms
Loss rate: 0.11%
```

Run 3: Report of Sprout — Data Link

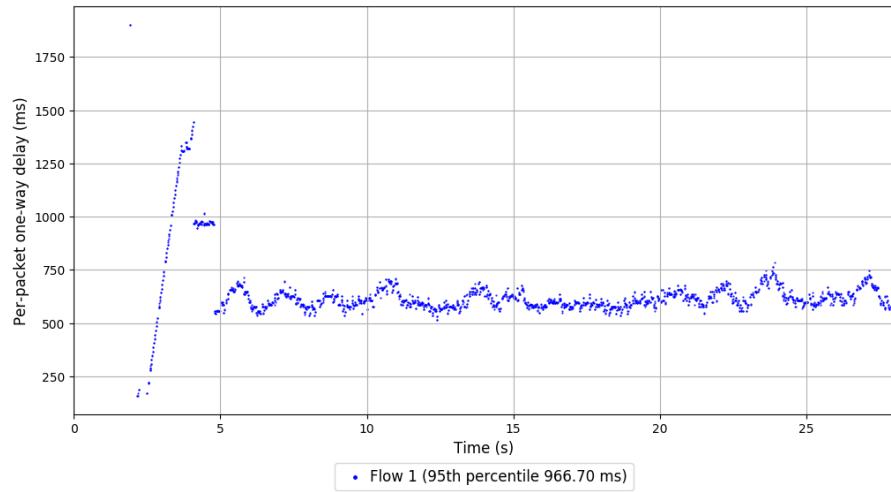
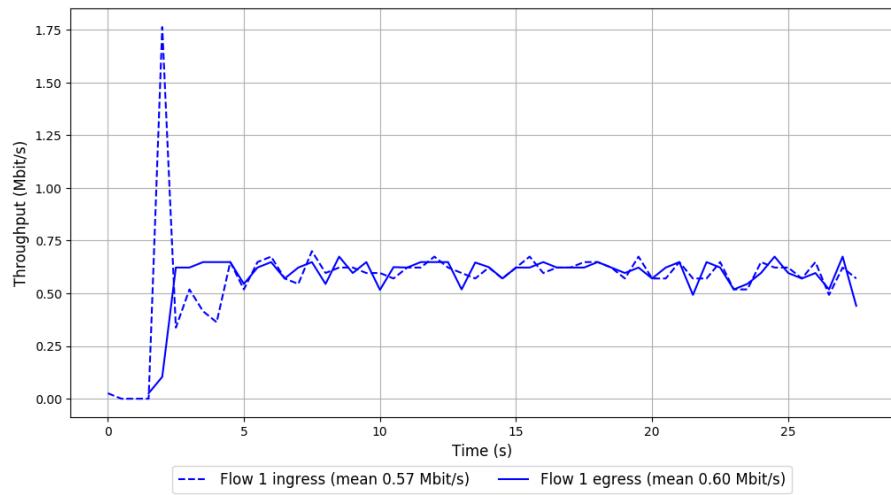


Run 1: Statistics of TaoVA-100x

```
Start at: 2017-09-17 21:31:53
End at: 2017-09-17 21:32:23
Local clock offset: -9.772 ms
Remote clock offset: -3.144 ms

# Below is generated by plot.py at 2017-09-17 23:17:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 966.700 ms
Loss rate: 2.68%
-- Flow 1:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 966.700 ms
Loss rate: 2.68%
```

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

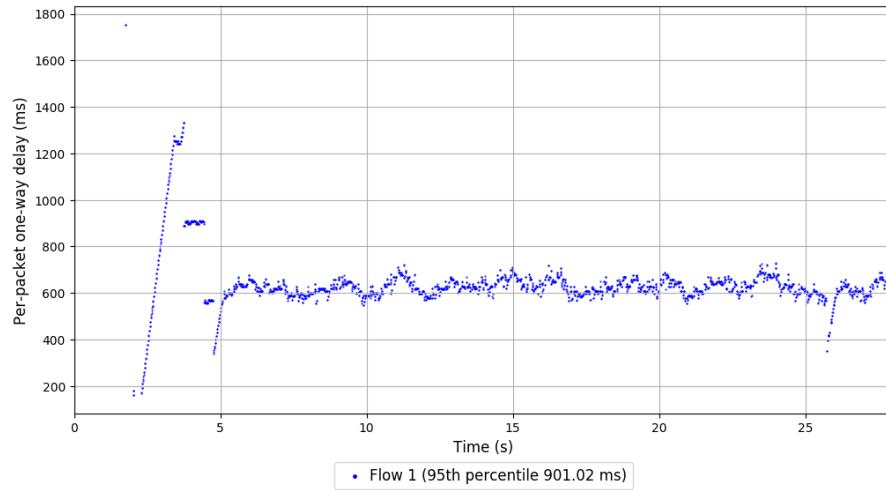
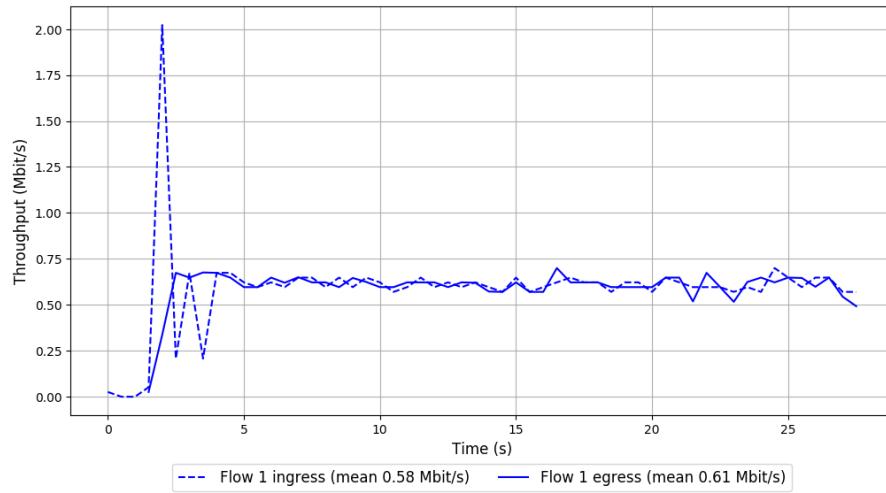


Run 2: Statistics of TaoVA-100x

```
Start at: 2017-09-17 21:49:29
End at: 2017-09-17 21:49:59
Local clock offset: -3.364 ms
Remote clock offset: -8.154 ms

# Below is generated by plot.py at 2017-09-17 23:17:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.61 Mbit/s
95th percentile per-packet one-way delay: 901.022 ms
Loss rate: 2.93%
-- Flow 1:
Average throughput: 0.61 Mbit/s
95th percentile per-packet one-way delay: 901.022 ms
Loss rate: 2.93%
```

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

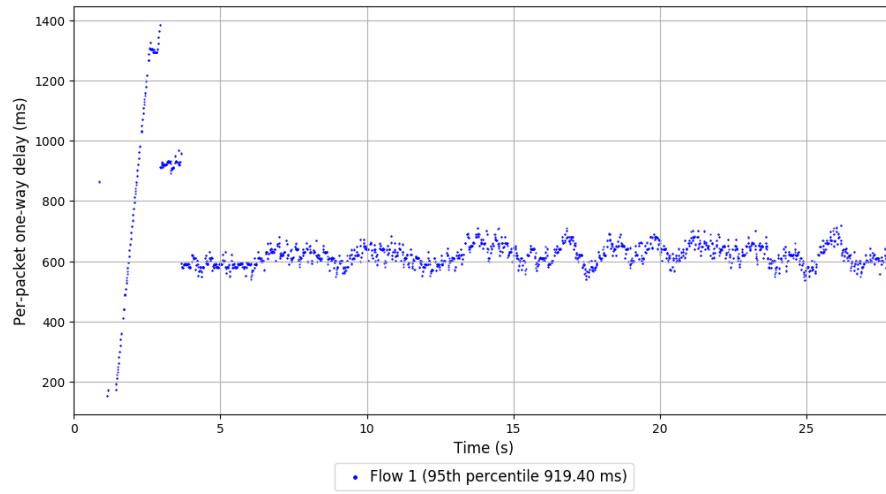
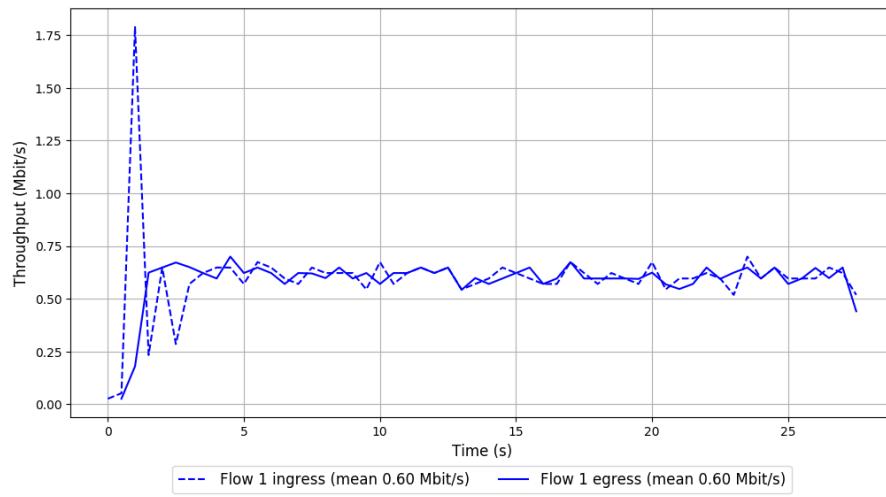


Run 3: Statistics of TaoVA-100x

```
Start at: 2017-09-17 22:07:03
End at: 2017-09-17 22:07:33
Local clock offset: -3.255 ms
Remote clock offset: -8.193 ms

# Below is generated by plot.py at 2017-09-17 23:17:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 919.398 ms
Loss rate: 2.63%
-- Flow 1:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 919.398 ms
Loss rate: 2.63%
```

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

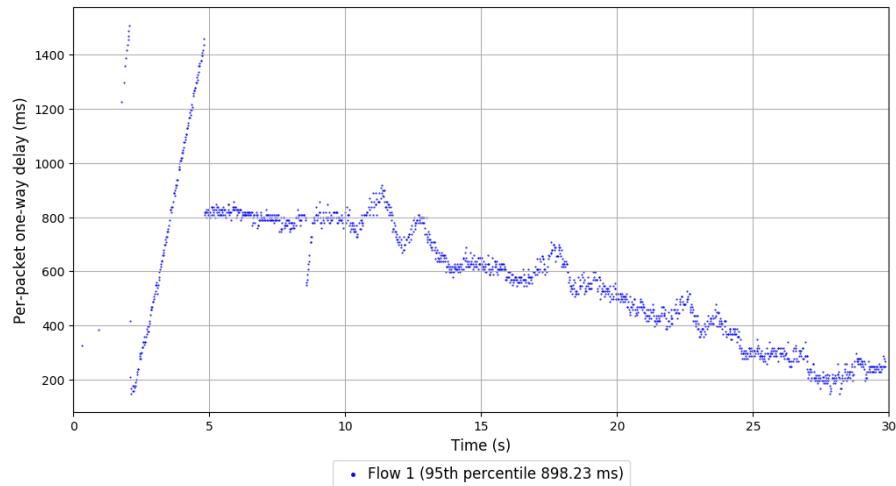
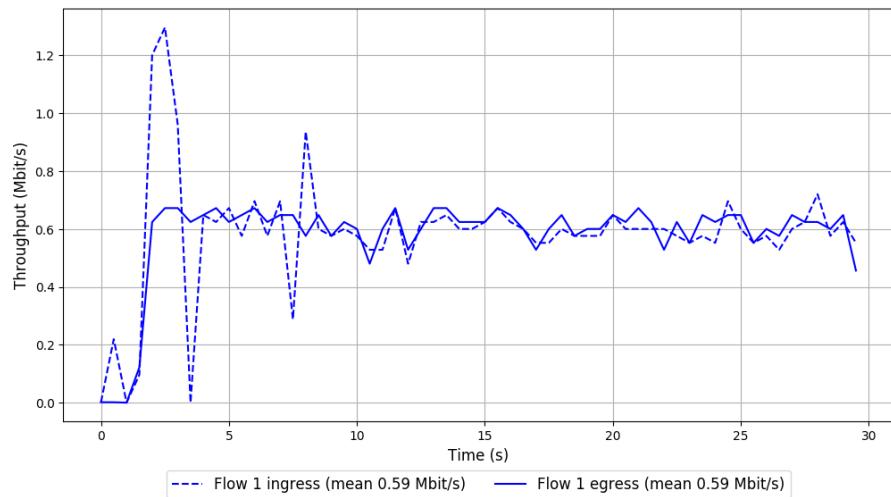


Run 1: Statistics of TCP Vegas

```
Start at: 2017-09-17 21:41:18
End at: 2017-09-17 21:41:48
Local clock offset: -9.239 ms
Remote clock offset: -3.528 ms

# Below is generated by plot.py at 2017-09-17 23:17:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 898.231 ms
Loss rate: 1.10%
-- Flow 1:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 898.231 ms
Loss rate: 1.10%
```

Run 1: Report of TCP Vegas — Data Link

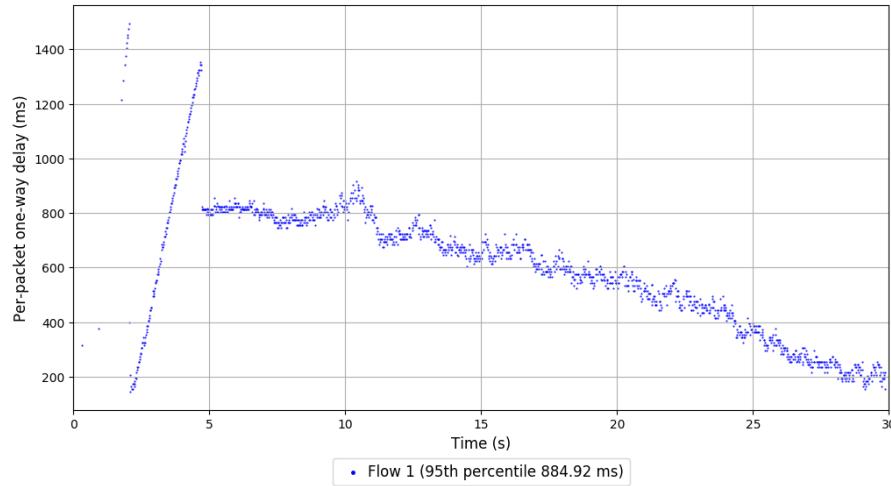
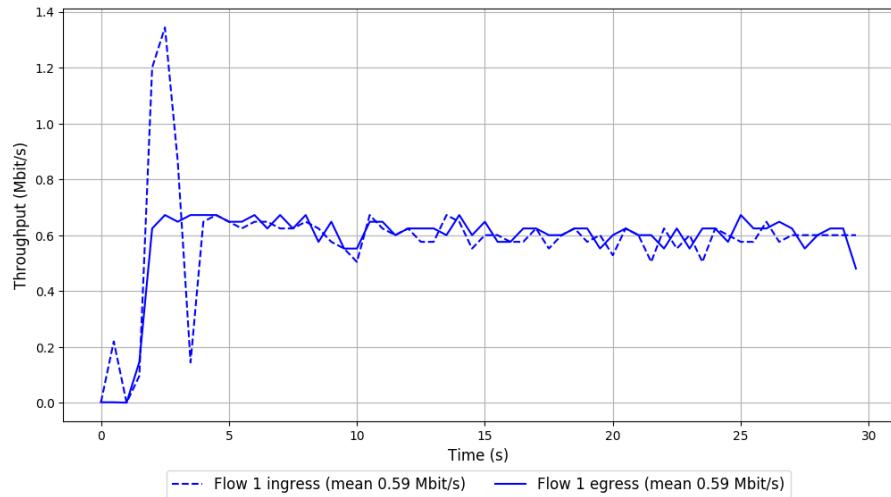


Run 2: Statistics of TCP Vegas

```
Start at: 2017-09-17 21:58:52
End at: 2017-09-17 21:59:22
Local clock offset: -3.453 ms
Remote clock offset: -8.203 ms

# Below is generated by plot.py at 2017-09-17 23:17:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 884.919 ms
Loss rate: 1.09%
-- Flow 1:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 884.919 ms
Loss rate: 1.09%
```

Run 2: Report of TCP Vegas — Data Link

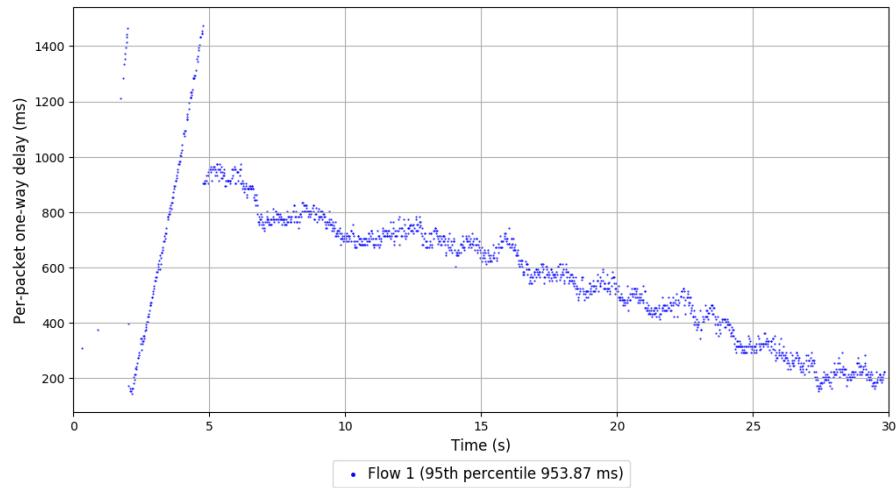
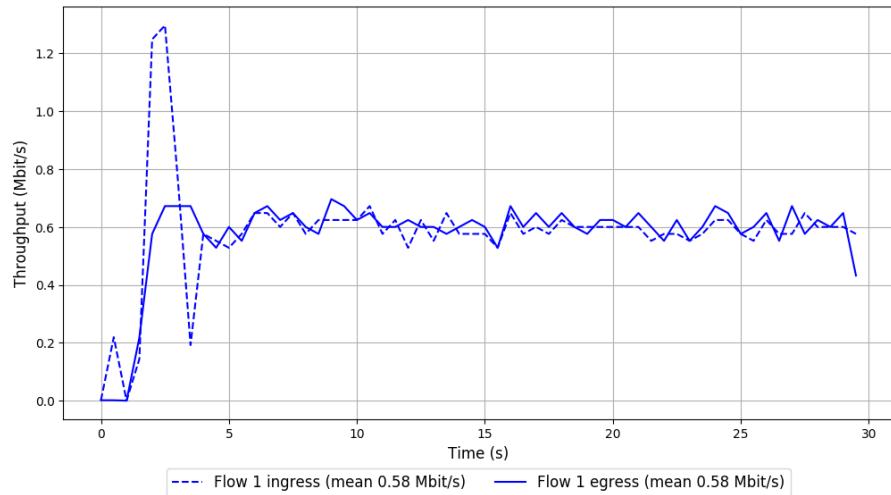


Run 3: Statistics of TCP Vegas

```
Start at: 2017-09-17 22:16:25
End at: 2017-09-17 22:16:55
Local clock offset: -4.545 ms
Remote clock offset: -3.241 ms

# Below is generated by plot.py at 2017-09-17 23:17:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 953.866 ms
Loss rate: 1.10%
-- Flow 1:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 953.866 ms
Loss rate: 1.10%
```

Run 3: Report of TCP Vegas — Data Link

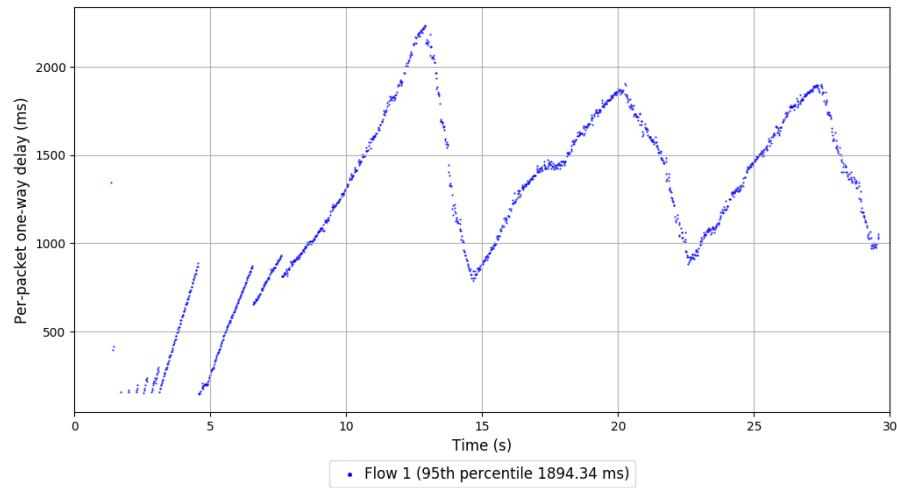
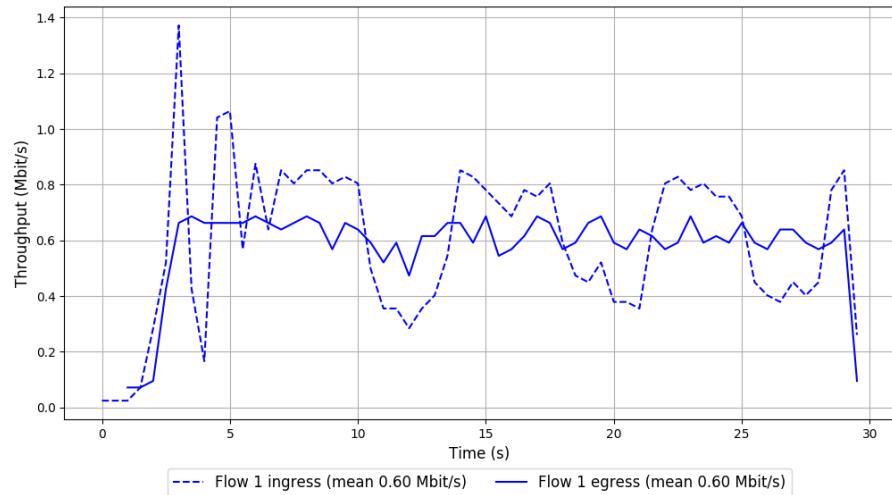


Run 1: Statistics of Verus

```
Start at: 2017-09-17 21:38:56
End at: 2017-09-17 21:39:26
Local clock offset: -8.102 ms
Remote clock offset: -2.962 ms

# Below is generated by plot.py at 2017-09-17 23:17:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 1894.337 ms
Loss rate: 4.99%
-- Flow 1:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 1894.337 ms
Loss rate: 4.99%
```

Run 1: Report of Verus — Data Link

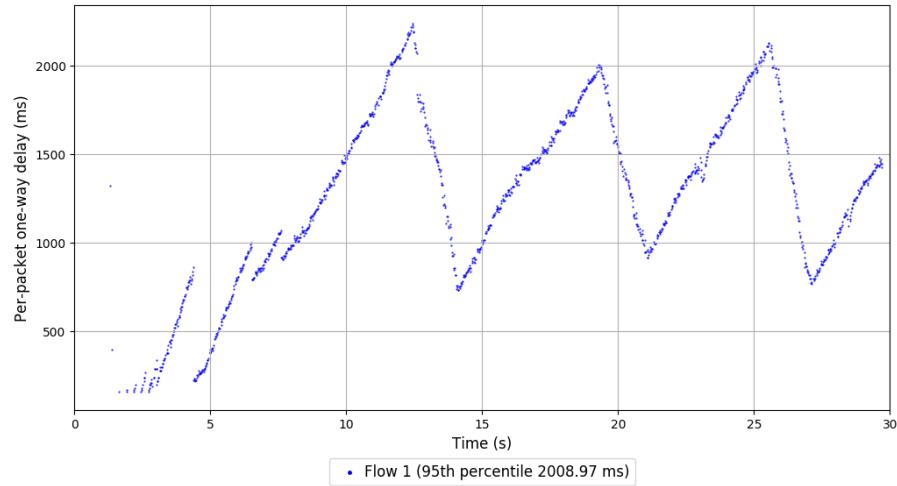
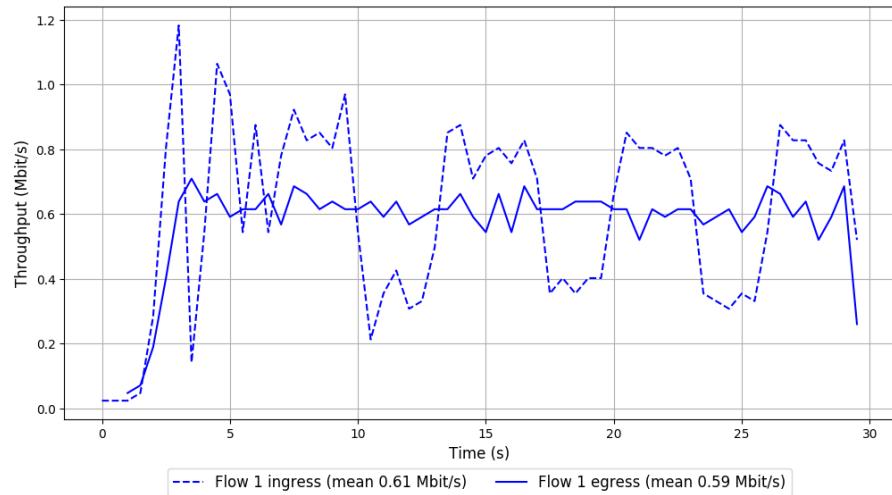


Run 2: Statistics of Verus

```
Start at: 2017-09-17 21:56:30
End at: 2017-09-17 21:57:00
Local clock offset: -2.611 ms
Remote clock offset: -8.434 ms

# Below is generated by plot.py at 2017-09-17 23:17:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 2008.975 ms
Loss rate: 6.81%
-- Flow 1:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 2008.975 ms
Loss rate: 6.81%
```

Run 2: Report of Verus — Data Link

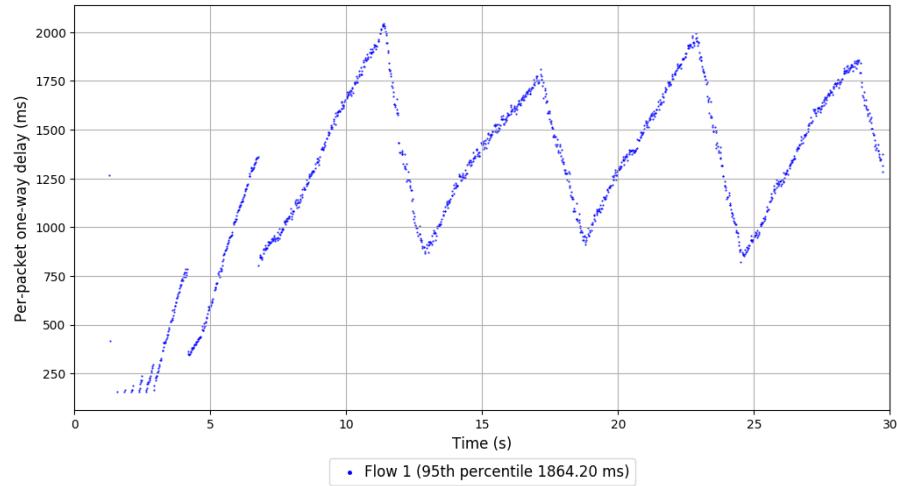
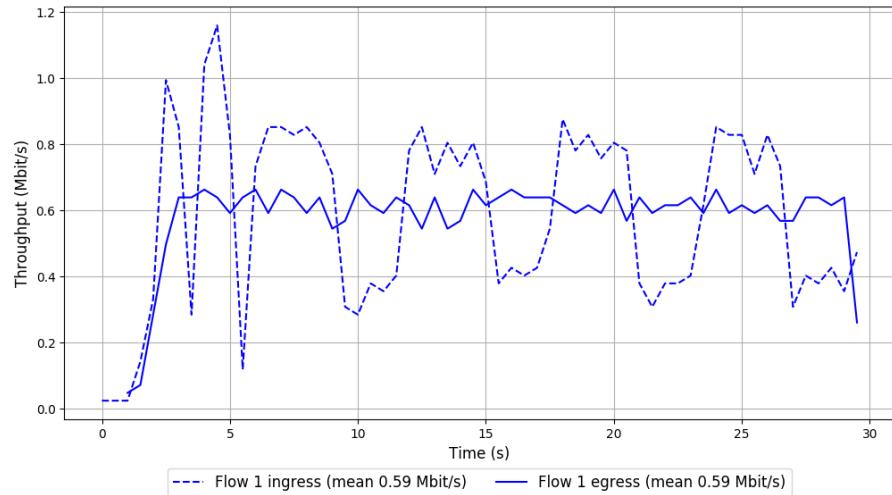


Run 3: Statistics of Verus

```
Start at: 2017-09-17 22:14:04
End at: 2017-09-17 22:14:34
Local clock offset: -4.193 ms
Remote clock offset: -8.571 ms

# Below is generated by plot.py at 2017-09-17 23:17:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 1864.204 ms
Loss rate: 3.64%
-- Flow 1:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 1864.204 ms
Loss rate: 3.64%
```

Run 3: Report of Verus — Data Link

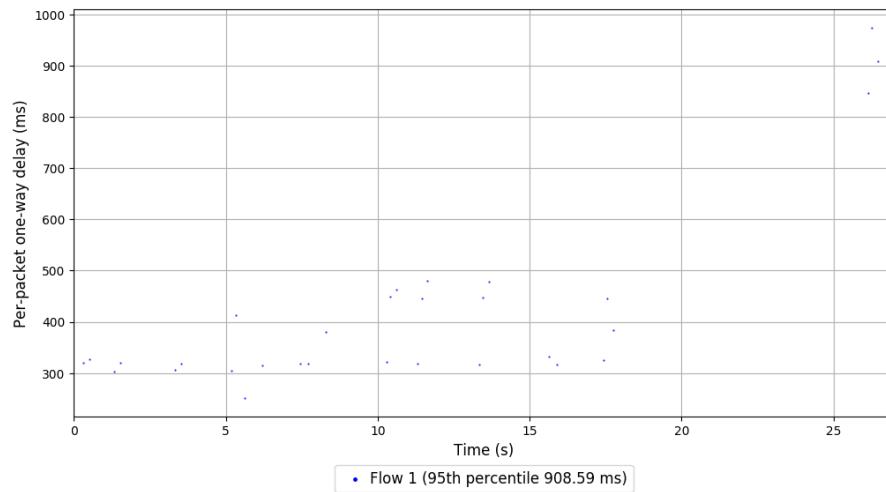
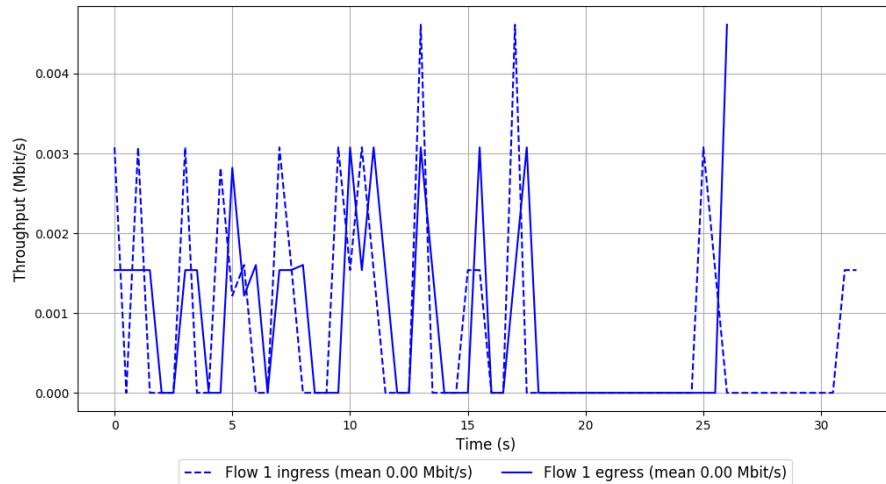


```
Run 1: Statistics of WebRTC media
```

```
Start at: 2017-09-17 21:48:19
End at: 2017-09-17 21:48:49
Local clock offset: -4.557 ms
Remote clock offset: -7.662 ms

# Below is generated by plot.py at 2017-09-17 23:17:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 908.588 ms
Loss rate: 6.31%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 908.588 ms
Loss rate: 6.31%
```

Run 1: Report of WebRTC media — Data Link

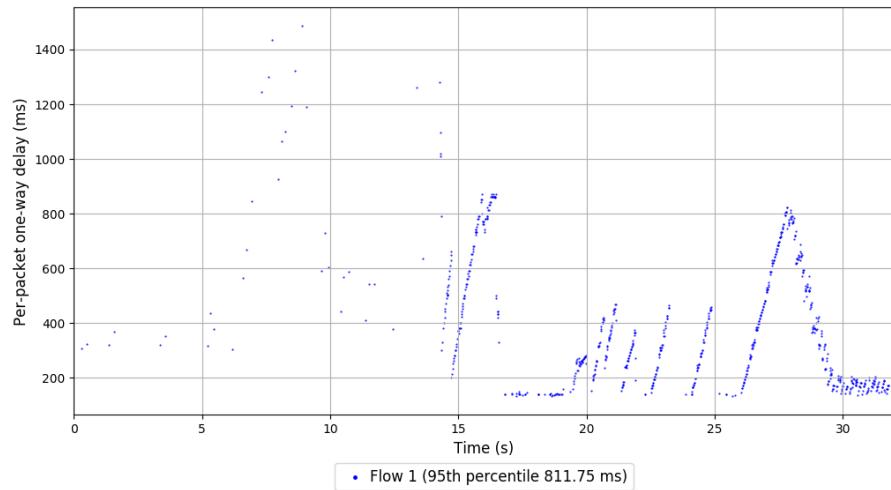
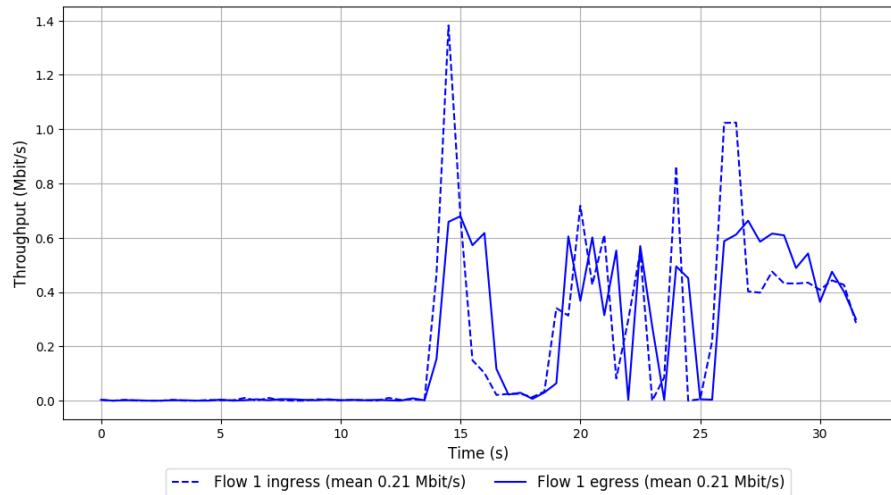


Run 2: Statistics of WebRTC media

```
Start at: 2017-09-17 22:05:52
End at: 2017-09-17 22:06:22
Local clock offset: -3.401 ms
Remote clock offset: -7.749 ms

# Below is generated by plot.py at 2017-09-17 23:17:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 811.748 ms
Loss rate: 1.16%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 811.748 ms
Loss rate: 1.16%
```

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

```
Start at: 2017-09-17 22:23:27
End at: 2017-09-17 22:23:57
Local clock offset: -6.07 ms
Remote clock offset: -8.478 ms

# Below is generated by plot.py at 2017-09-17 23:17:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.32 Mbit/s
95th percentile per-packet one-way delay: 789.187 ms
Loss rate: 0.97%
-- Flow 1:
Average throughput: 0.32 Mbit/s
95th percentile per-packet one-way delay: 789.187 ms
Loss rate: 0.97%
```

Run 3: Report of WebRTC media — Data Link

