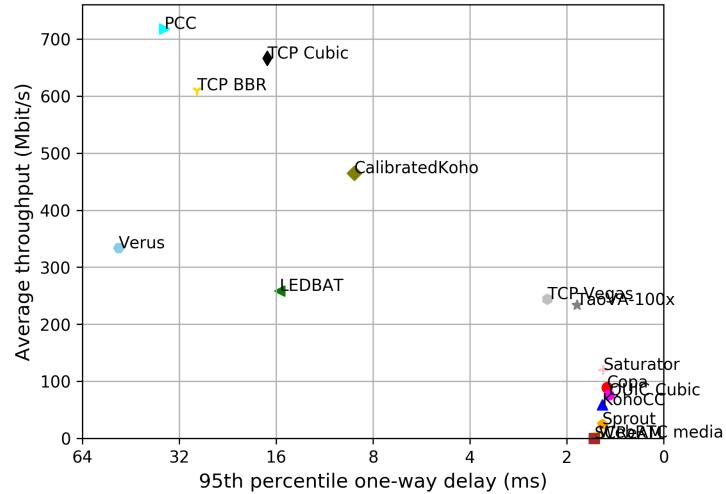


Pantheon Summary (Generated at Sun, 06 Aug 2017 09:46:21 +0000 with
pantheon version a934ee3822380a12762347e6bc8bd1f3e836e73b)

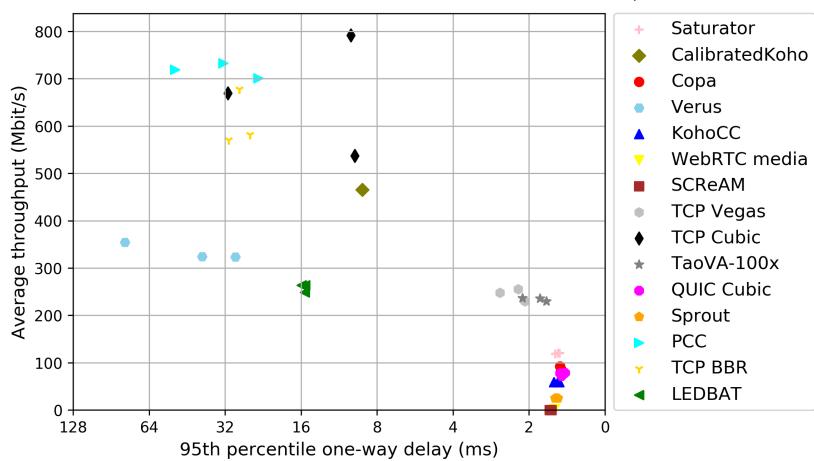
Repeated the test of 15 congestion control schemes 3 times.
Each test lasted for 30 seconds running 1 flow.
Data path: Stanford Ethernet (*remote*) → AWS California 1 Ethernet (*local*).
NTP offset measured against time.stanford.edu and has been applied to correct the timestamps in logs.

```
git branch: master @ a934ee3822380a12762347e6bc8bd1f3e836e73b
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
M datagrump/sender.cc
third_party/genericCC @ dae96123232f1bcb37725348fa2378691ce26725
third_party/koho_cc @ f0f2e693303aee82ea808e6928eac4f1083a6681
M datagrump/sender.cc
third_party/libutp @ b3465b942e2826f2b179aab4a906ce6bb7cf3cf
third_party/pantheon-stimuli @ fc73a85ca16c34366d1888dc8a0d0d88d4ebf2a7
third_party/pantheon-tunnel @ baf443516dea3eeddeccaf9b916cc313273ca4f4
M scripts/merge-tunnel-logs
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
M receiver/src/buffer.h
M receiver/src/core.cpp
M sender/src/buffer.h
M sender/src/core.cpp
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream @ c3370fd7bd17265a79aeb34e4016ad23f5965885
third_party/sourdough @ f1a14bffe749737437f61b1eaeeb30b267cde681
third_party/sprout @ 6f2efe6e088d91066a9f023df375eee2665089ce
M src/examples/cellsim.cc
M src/examples/sproutbt2.cc
M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
M tools/plot.py
third_party/webrtc @ a488197ddd041ace68a42849b2540ad834825f42
```

test from Stanford Ethernet to AWS California 1 Ethernet, 3 runs of 30s each per scheme
(mean of all runs by scheme)



test from Stanford Ethernet to AWS California 1 Ethernet, 3 runs of 30s each per scheme



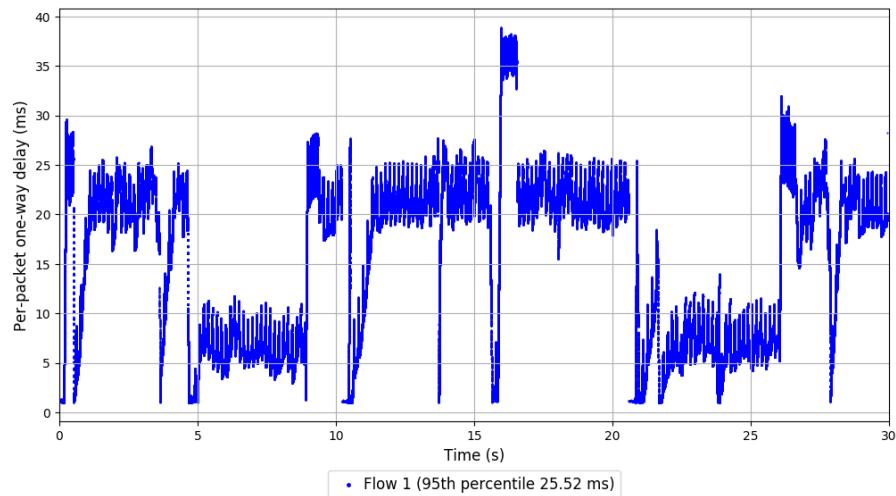
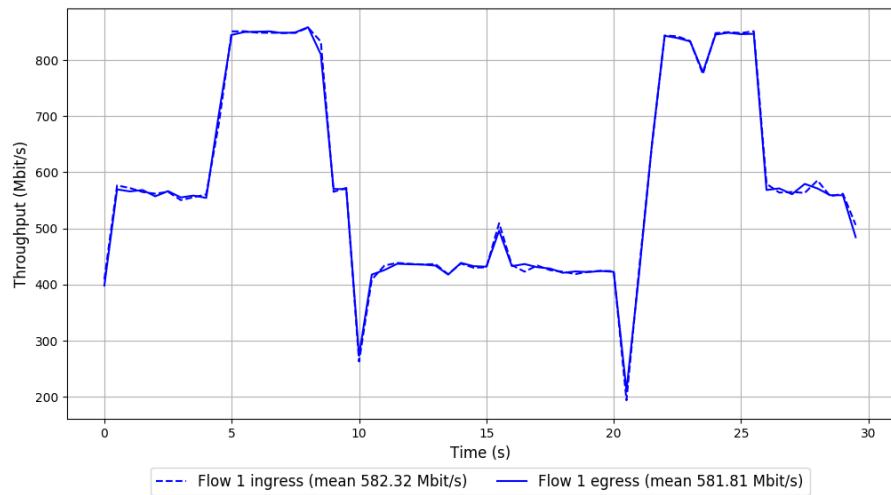
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	609.79	28.20	0.12
CalibratedKoho	3	465.05	9.15	0.14
Copa	3	89.24	1.17	0.07
TCP Cubic	3	666.09	17.06	0.06
KohoCC	3	58.94	1.26	0.07
LEDBAT	3	258.80	15.61	0.11
PCC	3	717.49	35.59	2.48
QUIC Cubic	3	76.09	1.13	0.06
Saturator	3	119.84	1.25	0.07
SCReAM	3	0.22	1.43	0.13
Sprout	3	24.82	1.27	0.08
TaoVA-100x	3	233.93	1.79	0.08
TCP Vegas	3	244.37	2.30	0.08
Verus	3	333.94	49.42	0.73
WebRTC media	3	2.31	1.34	0.08

Run 1: Statistics of TCP BBR

```
Start at: Sun, 06 Aug 2017 07:07:29 +0000
End at: Sun, 06 Aug 2017 07:07:59 +0000
Local clock offset: 0.617 ms
Remote clock offset: -2.176 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:35:33 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 581.81 Mbit/s
95th percentile per-packet one-way delay: 25.517 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 581.81 Mbit/s
95th percentile per-packet one-way delay: 25.517 ms
Loss rate: 0.13%
```

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: Sun, 06 Aug 2017 07:28:30 +0000

End at: Sun, 06 Aug 2017 07:29:00 +0000

Local clock offset: 0.876 ms

Remote clock offset: -2.002 ms

Below is generated by plot.py at Sun, 06 Aug 2017 09:35:37 +0000

Datalink statistics

-- Total of 1 flow:

Average throughput: 677.24 Mbit/s

95th percentile per-packet one-way delay: 28.133 ms

Loss rate: 0.11%

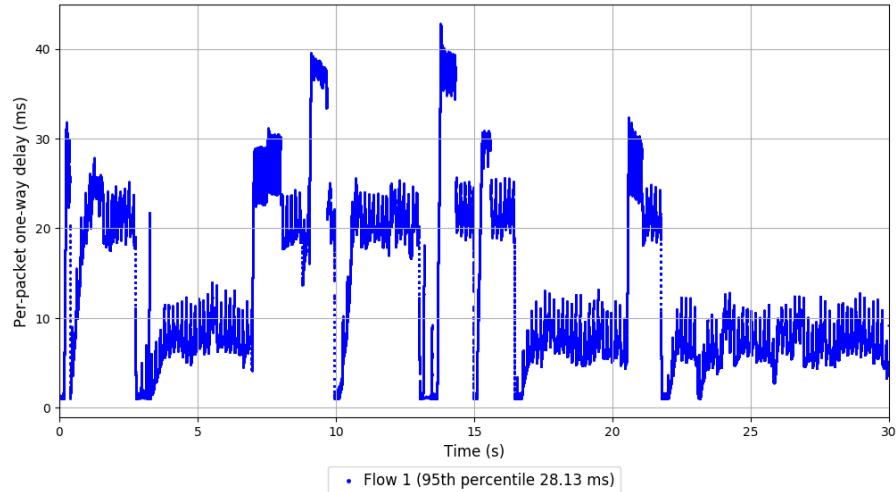
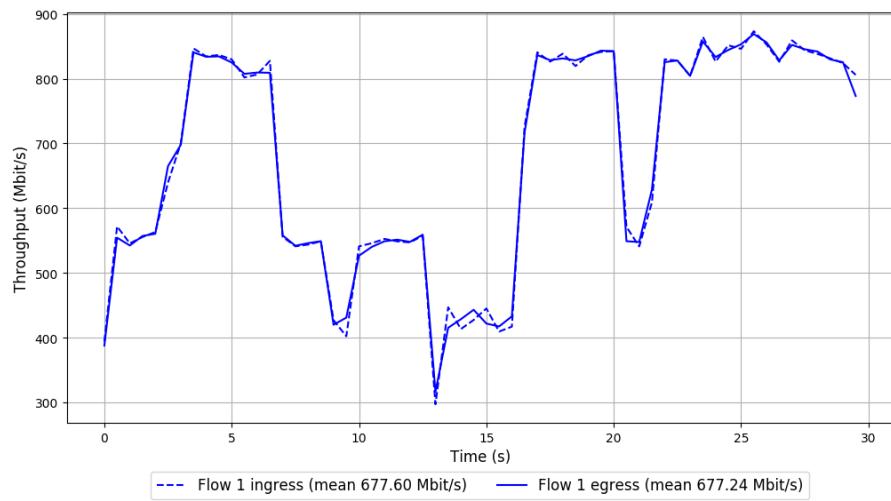
-- Flow 1:

Average throughput: 677.24 Mbit/s

95th percentile per-packet one-way delay: 28.133 ms

Loss rate: 0.11%

Run 2: Report of TCP BBR — Data Link

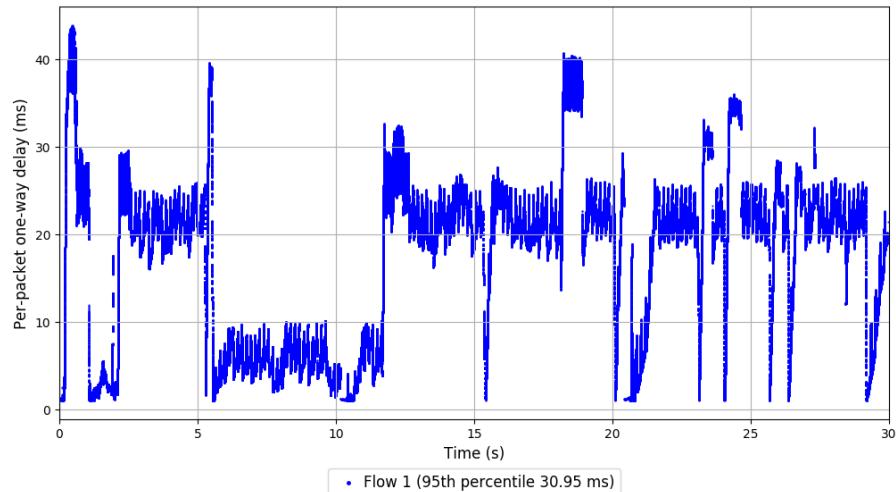
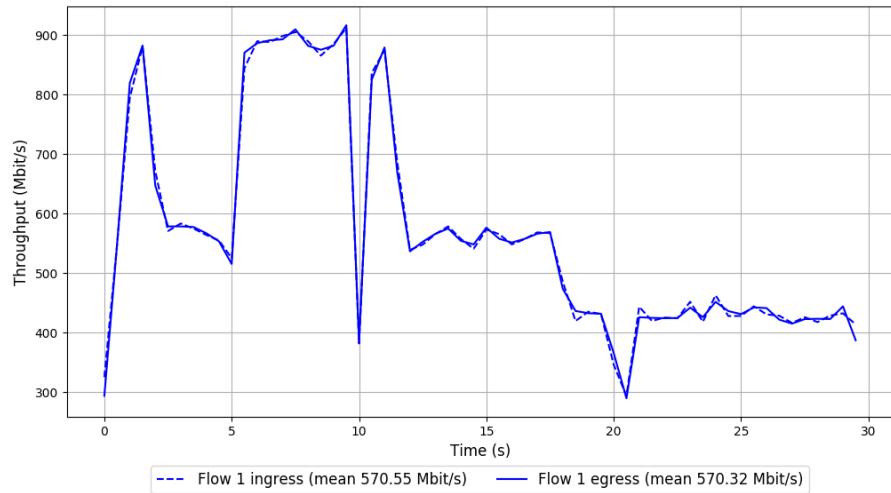


Run 3: Statistics of TCP BBR

```
Start at: Sun, 06 Aug 2017 07:49:00 +0000
End at: Sun, 06 Aug 2017 07:49:30 +0000
Local clock offset: 1.049 ms
Remote clock offset: -2.113 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:36:41 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 570.32 Mbit/s
95th percentile per-packet one-way delay: 30.951 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 570.32 Mbit/s
95th percentile per-packet one-way delay: 30.951 ms
Loss rate: 0.11%
```

Run 3: Report of TCP BBR — Data Link



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

```
Start at: Sun, 06 Aug 2017 07:14:18 +0000
```

```
End at: Sun, 06 Aug 2017 07:14:48 +0000
```

```
Local clock offset: 0.786 ms
```

```
Remote clock offset: -1.919 ms
```

```
# Below is generated by plot.py at Sun, 06 Aug 2017 09:36:41 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 465.05 Mbit/s
```

```
95th percentile per-packet one-way delay: 9.151 ms
```

```
Loss rate: 0.14%
```

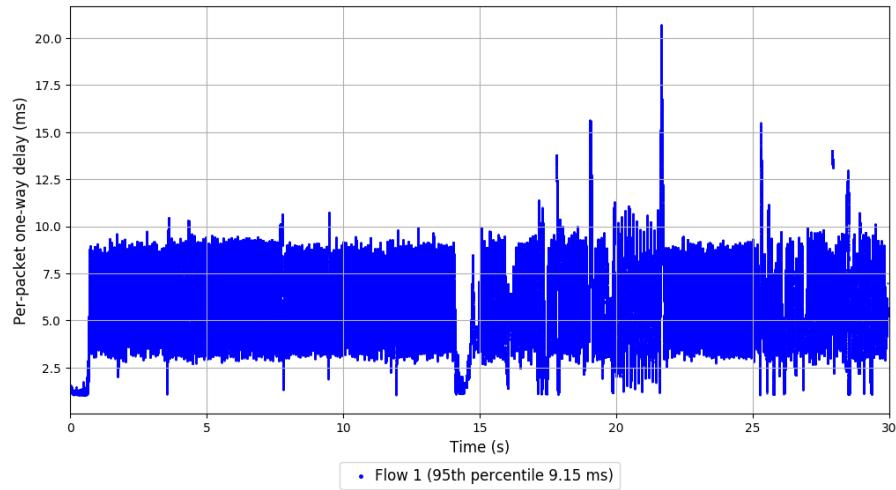
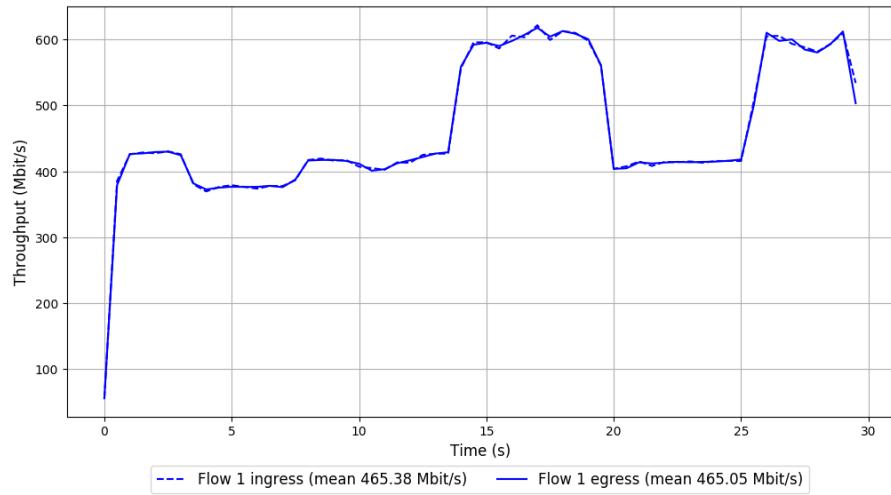
```
-- Flow 1:
```

```
Average throughput: 465.05 Mbit/s
```

```
95th percentile per-packet one-way delay: 9.151 ms
```

```
Loss rate: 0.14%
```

Run 1: Report of CalibratedKoho — Data Link



Run 2: Statistics of CalibratedKoho

Start at: Sun, 06 Aug 2017 07:35:25 +0000
End at: Sun, 06 Aug 2017 07:35:55 +0000
Local clock offset: 0.931 ms
Remote clock offset: -2.03 ms

Run 2: Report of CalibratedKoho — Data Link

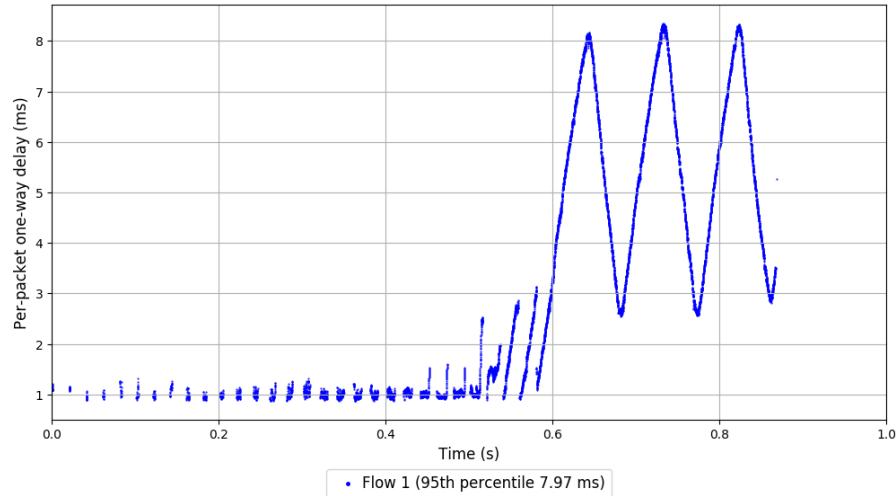
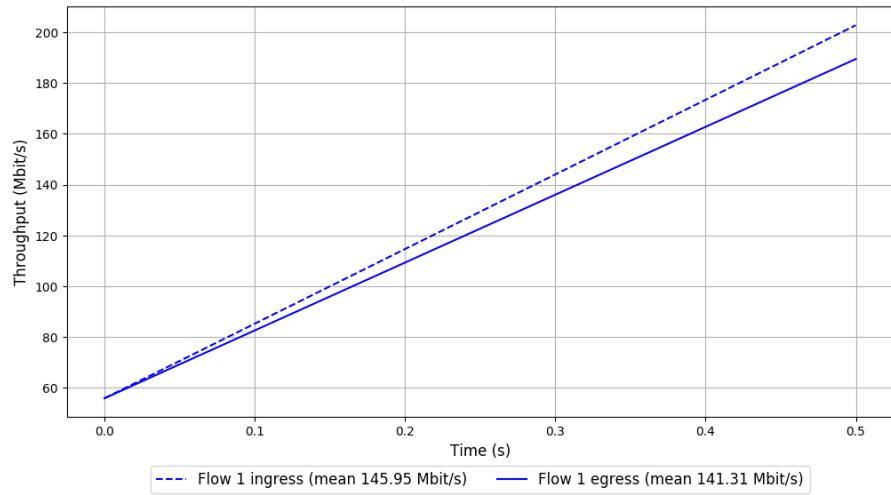
Figure is missing

Figure is missing

Run 3: Statistics of CalibratedKoho

Start at: Sun, 06 Aug 2017 07:55:49 +0000
End at: Sun, 06 Aug 2017 07:56:19 +0000
Local clock offset: 1.006 ms
Remote clock offset: -2.069 ms

Run 3: Report of CalibratedKoho — Data Link

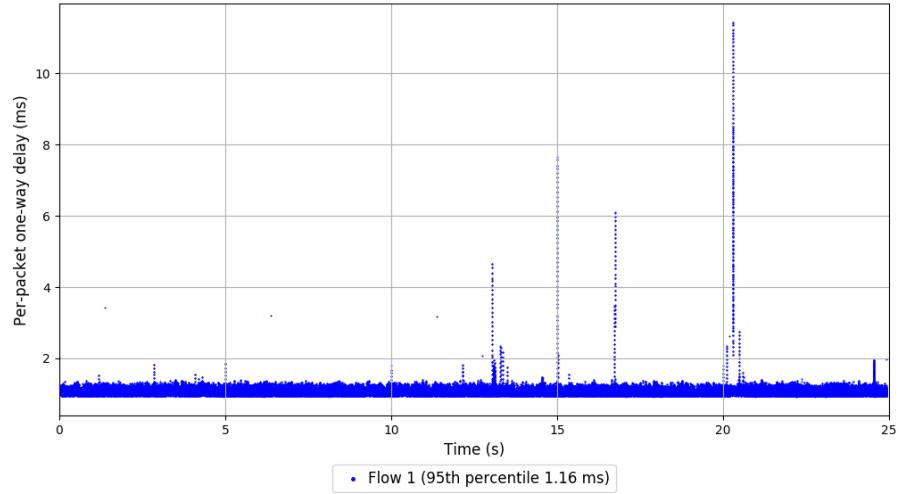
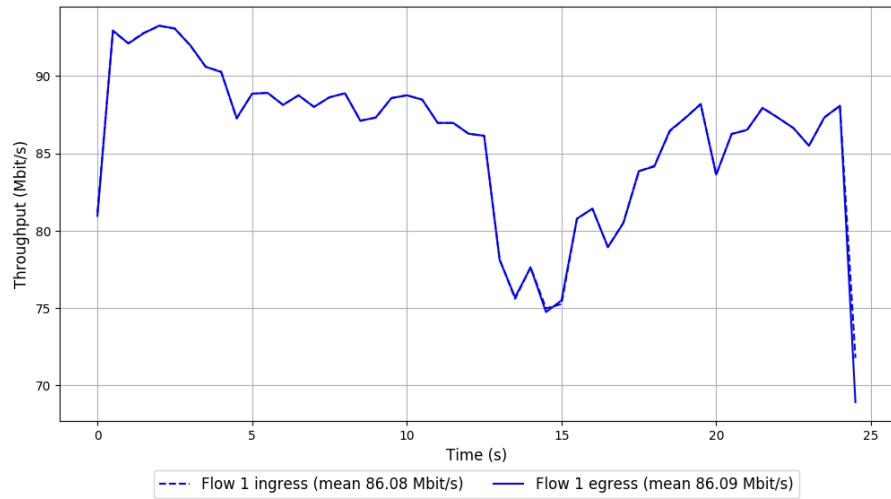


Run 1: Statistics of Copa

```
Start at: Sun, 06 Aug 2017 07:24:28 +0000
End at: Sun, 06 Aug 2017 07:24:58 +0000
Local clock offset: 0.845 ms
Remote clock offset: -1.919 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:36:50 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 86.09 Mbit/s
95th percentile per-packet one-way delay: 1.158 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 86.09 Mbit/s
95th percentile per-packet one-way delay: 1.158 ms
Loss rate: 0.07%
```

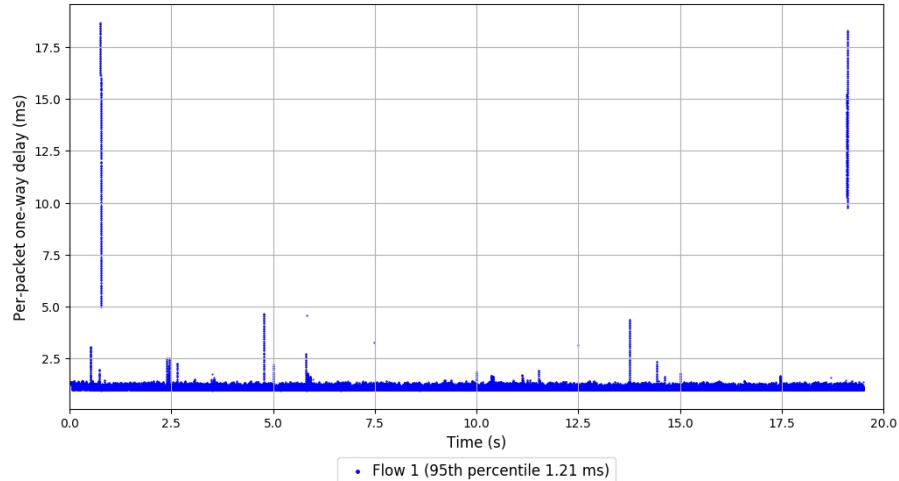
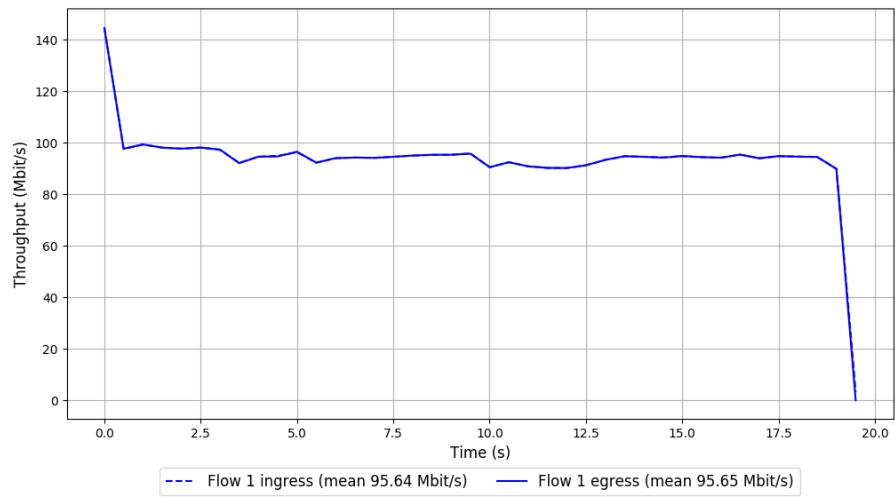
Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

Start at: Sun, 06 Aug 2017 07:45:00 +0000
End at: Sun, 06 Aug 2017 07:45:30 +0000
Local clock offset: 1.026 ms
Remote clock offset: -2.019 ms

Run 2: Report of Copa — Data Link

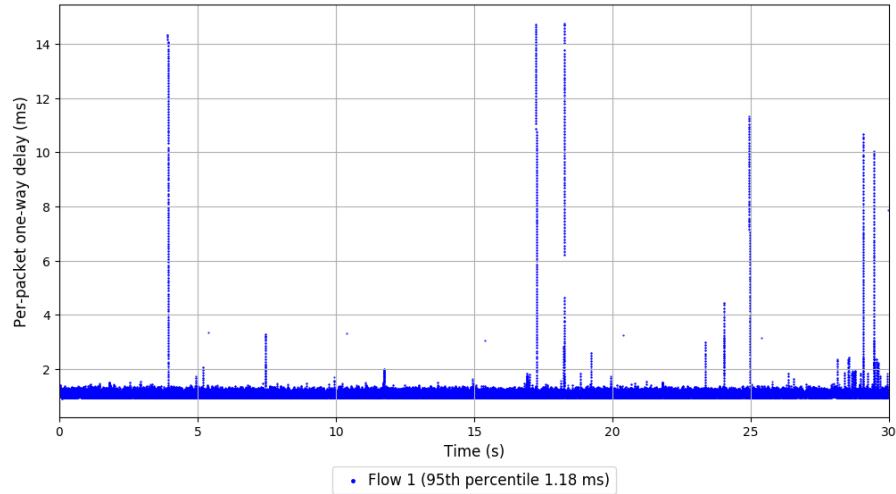
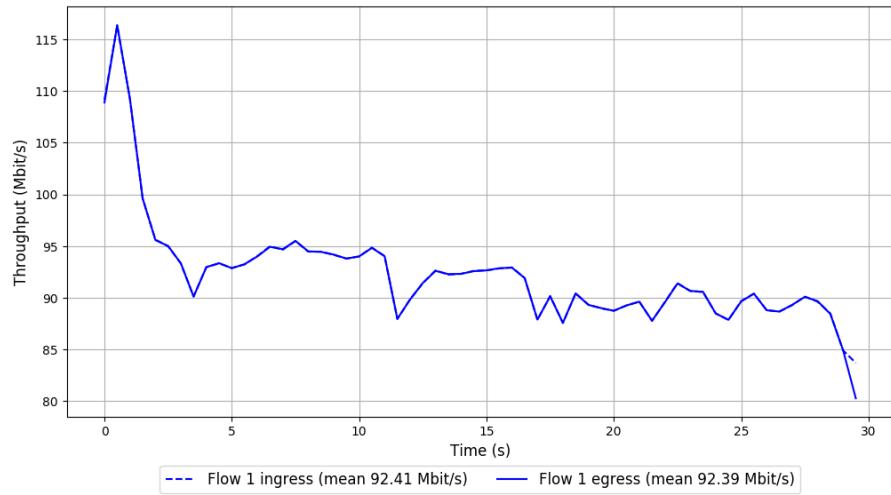


Run 3: Statistics of Copa

```
Start at: Sun, 06 Aug 2017 08:05:16 +0000
End at: Sun, 06 Aug 2017 08:05:46 +0000
Local clock offset: 1.035 ms
Remote clock offset: -2.066 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:37:10 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 92.39 Mbit/s
95th percentile per-packet one-way delay: 1.184 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 92.39 Mbit/s
95th percentile per-packet one-way delay: 1.184 ms
Loss rate: 0.07%
```

Run 3: Report of Copa — Data Link



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

```
Start at: Sun, 06 Aug 2017 07:21:30 +0000
```

```
End at: Sun, 06 Aug 2017 07:22:00 +0000
```

```
Local clock offset: 0.751 ms
```

```
Remote clock offset: -1.918 ms
```

```
# Below is generated by plot.py at Sun, 06 Aug 2017 09:38:32 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 791.41 Mbit/s
```

```
95th percentile per-packet one-way delay: 10.151 ms
```

```
Loss rate: 0.07%
```

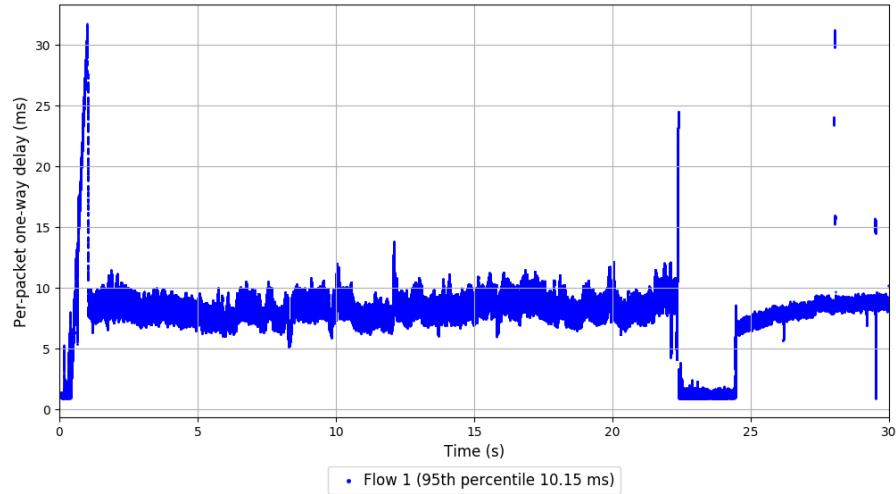
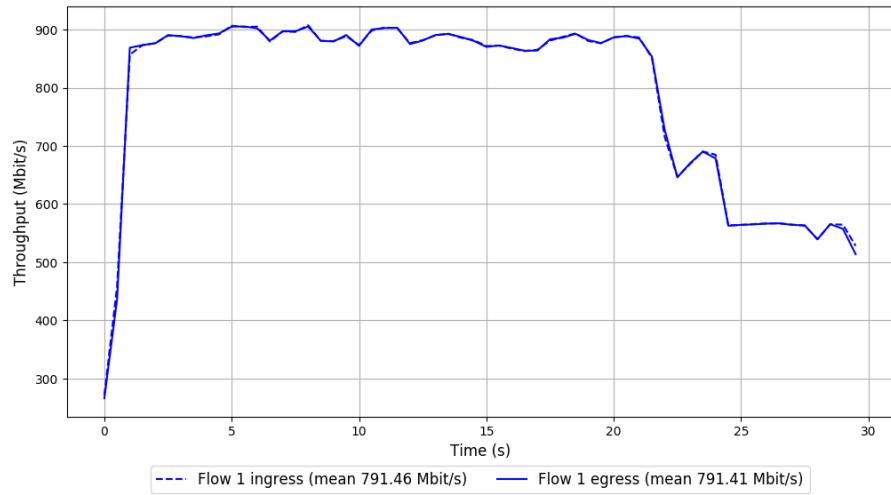
```
-- Flow 1:
```

```
Average throughput: 791.41 Mbit/s
```

```
95th percentile per-packet one-way delay: 10.151 ms
```

```
Loss rate: 0.07%
```

Run 1: Report of TCP Cubic — Data Link

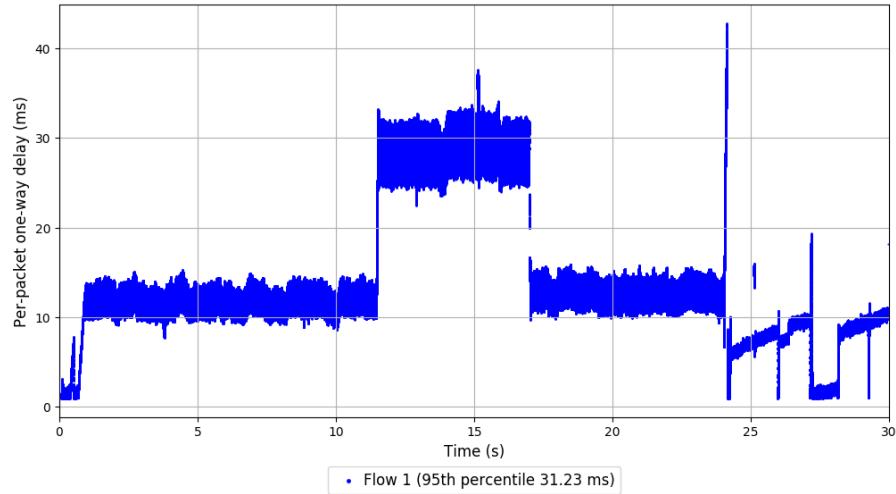
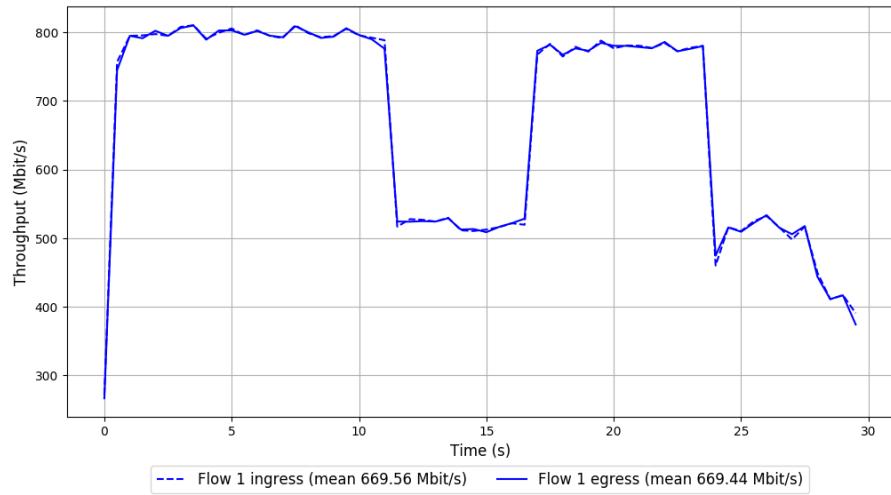


Run 2: Statistics of TCP Cubic

```
Start at: Sun, 06 Aug 2017 07:42:08 +0000
End at: Sun, 06 Aug 2017 07:42:39 +0000
Local clock offset: 0.905 ms
Remote clock offset: -2.003 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:38:36 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 669.44 Mbit/s
95th percentile per-packet one-way delay: 31.233 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 669.44 Mbit/s
95th percentile per-packet one-way delay: 31.233 ms
Loss rate: 0.06%
```

Run 2: Report of TCP Cubic — Data Link

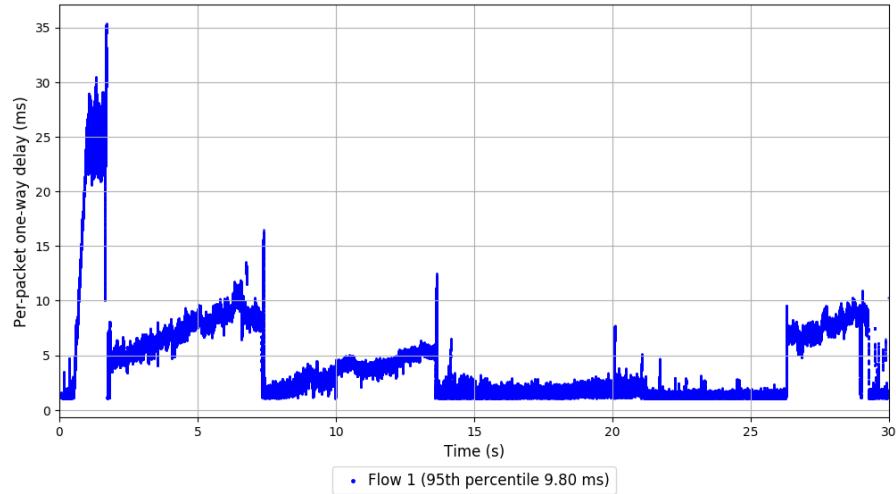
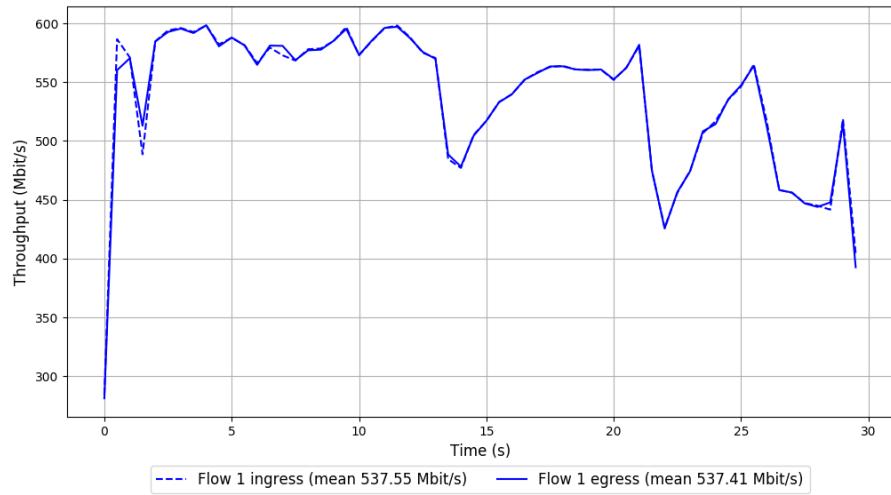


Run 3: Statistics of TCP Cubic

```
Start at: Sun, 06 Aug 2017 08:02:31 +0000
End at: Sun, 06 Aug 2017 08:03:01 +0000
Local clock offset: 1.119 ms
Remote clock offset: -2.107 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:39:38 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 537.41 Mbit/s
95th percentile per-packet one-way delay: 9.800 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 537.41 Mbit/s
95th percentile per-packet one-way delay: 9.800 ms
Loss rate: 0.05%
```

Run 3: Report of TCP Cubic — Data Link



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

```
Start at: Sun, 06 Aug 2017 07:06:15 +0000
```

```
End at: Sun, 06 Aug 2017 07:06:45 +0000
```

```
Local clock offset: 0.602 ms
```

```
Remote clock offset: -2.183 ms
```

```
# Below is generated by plot.py at Sun, 06 Aug 2017 09:39:38 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 58.75 Mbit/s
```

```
95th percentile per-packet one-way delay: 1.208 ms
```

```
Loss rate: 0.07%
```

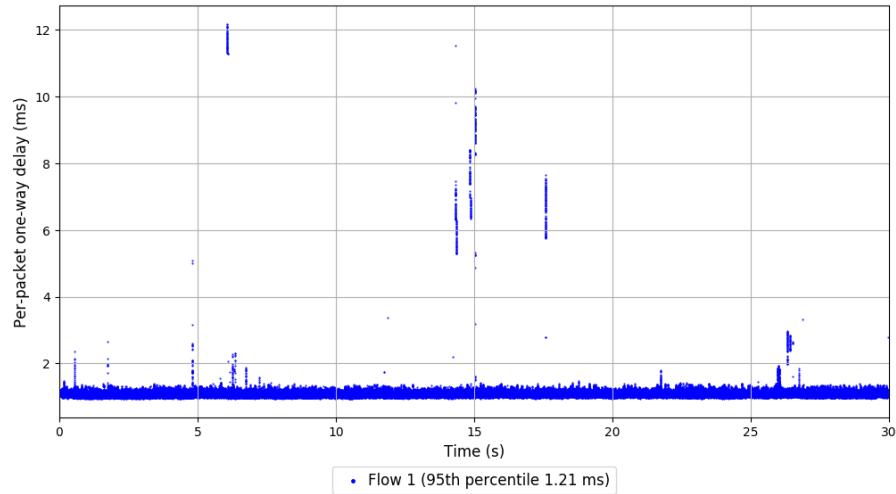
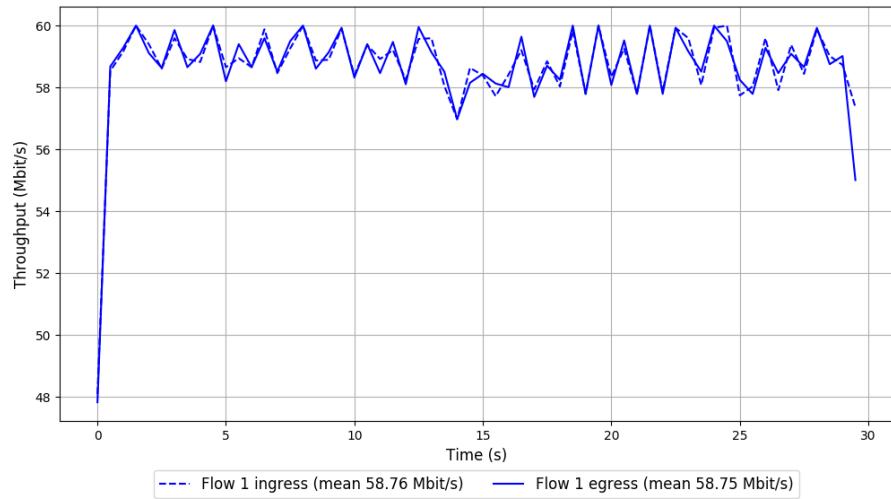
```
-- Flow 1:
```

```
Average throughput: 58.75 Mbit/s
```

```
95th percentile per-packet one-way delay: 1.208 ms
```

```
Loss rate: 0.07%
```

Run 1: Report of KohoCC — Data Link



Run 2: Statistics of KohoCC

Start at: Sun, 06 Aug 2017 07:27:16 +0000

End at: Sun, 06 Aug 2017 07:27:46 +0000

Local clock offset: 0.786 ms

Remote clock offset: -2.018 ms

Below is generated by plot.py at Sun, 06 Aug 2017 09:39:38 +0000

Datalink statistics

-- Total of 1 flow:

Average throughput: 58.71 Mbit/s

95th percentile per-packet one-way delay: 1.243 ms

Loss rate: 0.07%

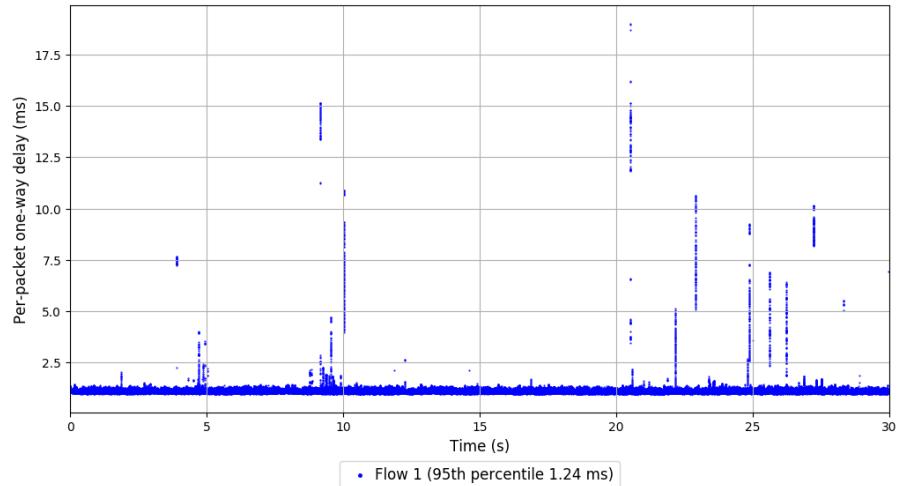
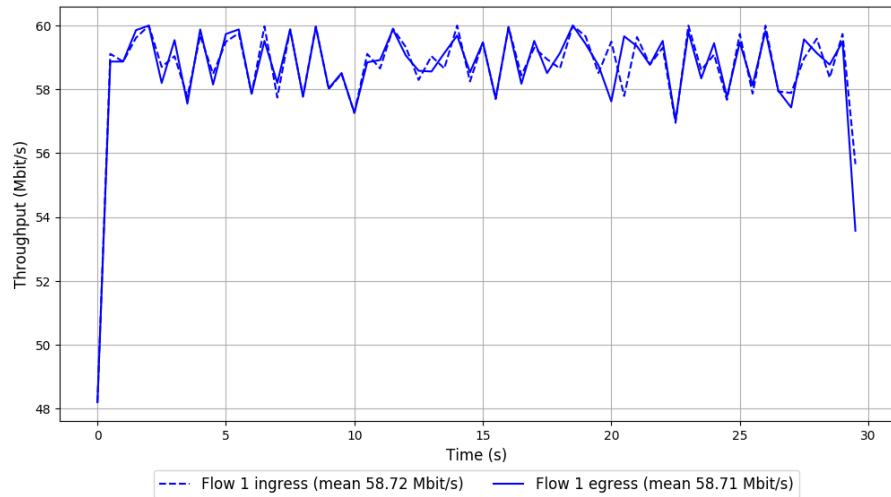
-- Flow 1:

Average throughput: 58.71 Mbit/s

95th percentile per-packet one-way delay: 1.243 ms

Loss rate: 0.07%

Run 2: Report of KohoCC — Data Link

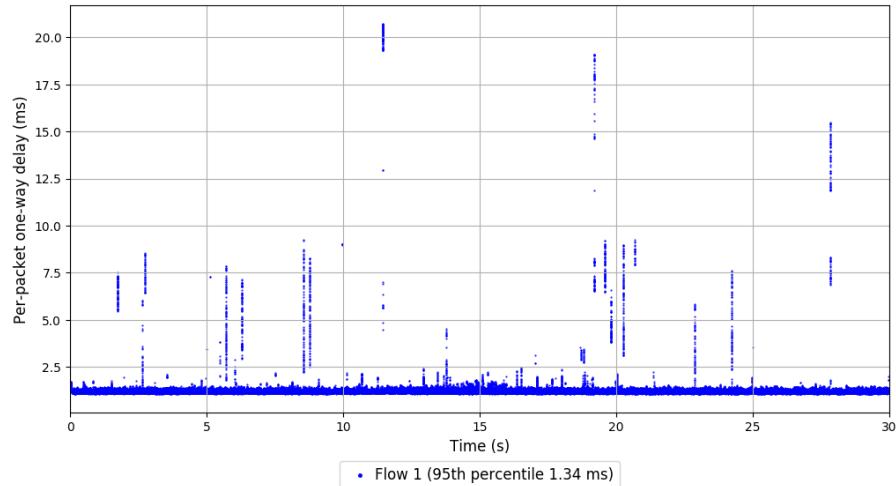
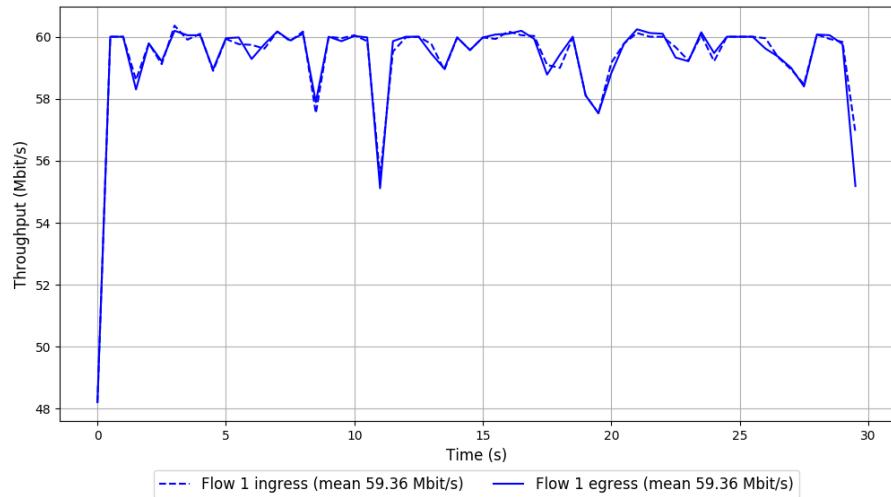


Run 3: Statistics of KohoCC

```
Start at: Sun, 06 Aug 2017 07:47:46 +0000
End at: Sun, 06 Aug 2017 07:48:16 +0000
Local clock offset: 1.05 ms
Remote clock offset: -2.112 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:39:38 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 59.36 Mbit/s
95th percentile per-packet one-way delay: 1.342 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 59.36 Mbit/s
95th percentile per-packet one-way delay: 1.342 ms
Loss rate: 0.06%
```

Run 3: Report of KohoCC — Data Link

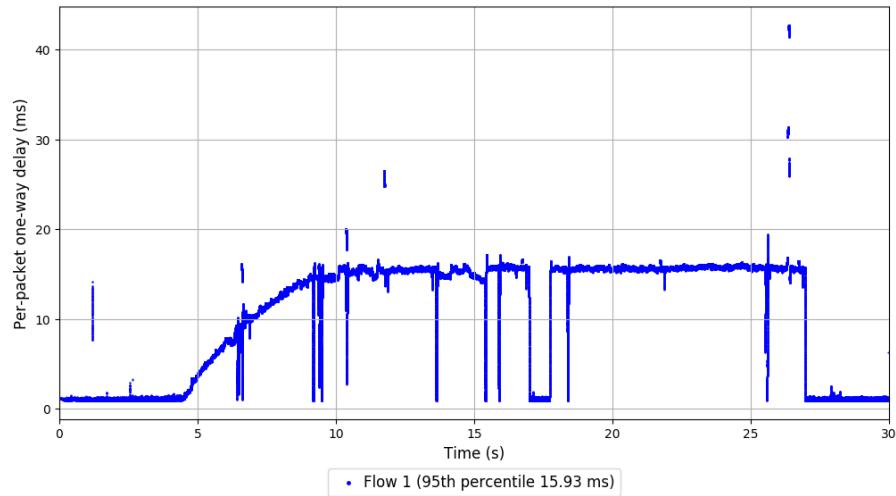
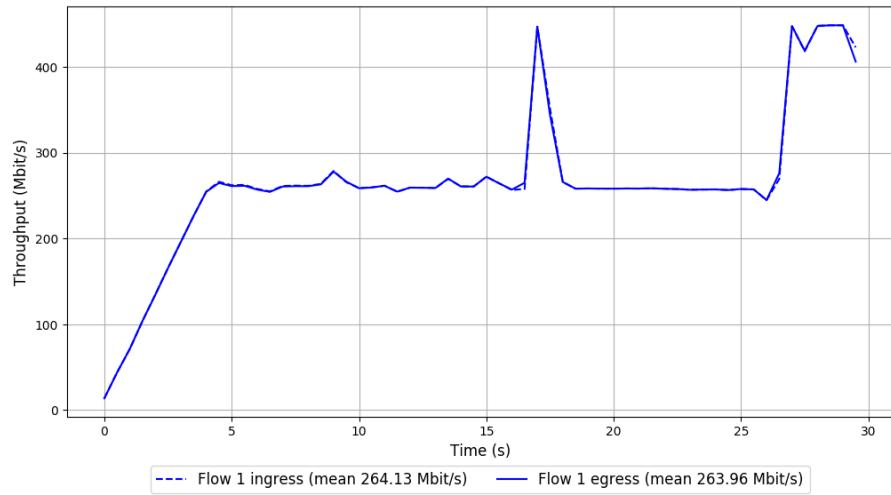


```
Run 1: Statistics of LEDBAT
```

```
Start at: Sun, 06 Aug 2017 07:09:06 +0000
End at: Sun, 06 Aug 2017 07:09:36 +0000
Local clock offset: 0.646 ms
Remote clock offset: -2.049 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:39:38 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 263.96 Mbit/s
95th percentile per-packet one-way delay: 15.931 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 263.96 Mbit/s
95th percentile per-packet one-way delay: 15.931 ms
Loss rate: 0.11%
```

Run 1: Report of LEDBAT — Data Link

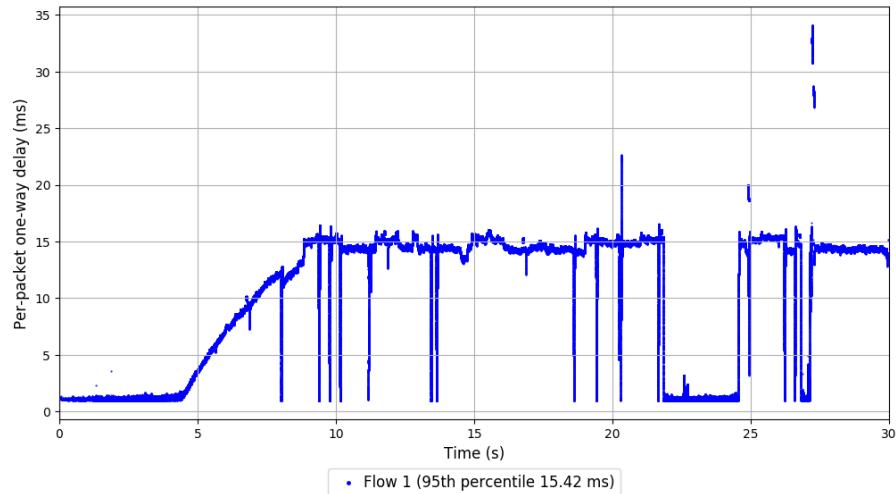
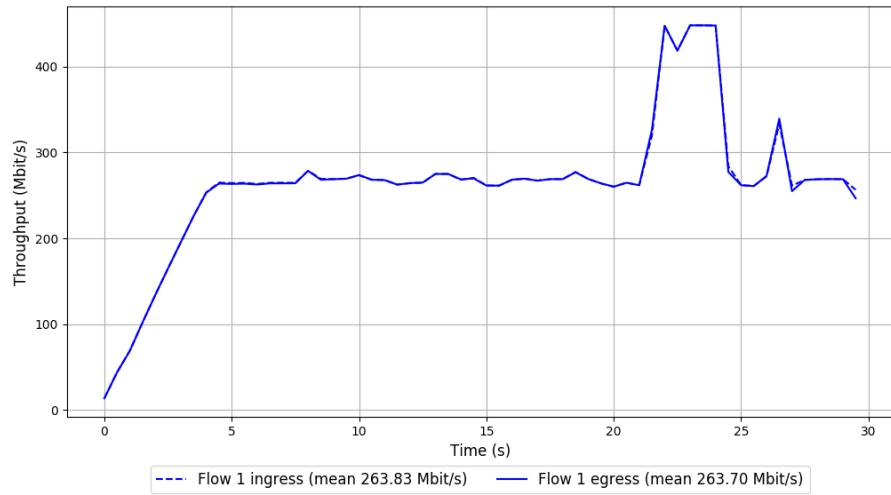


Run 2: Statistics of LEDBAT

```
Start at: Sun, 06 Aug 2017 07:30:12 +0000
End at: Sun, 06 Aug 2017 07:30:42 +0000
Local clock offset: 0.915 ms
Remote clock offset: -1.943 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:40:00 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 263.70 Mbit/s
95th percentile per-packet one-way delay: 15.419 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 263.70 Mbit/s
95th percentile per-packet one-way delay: 15.419 ms
Loss rate: 0.11%
```

Run 2: Report of LEDBAT — Data Link

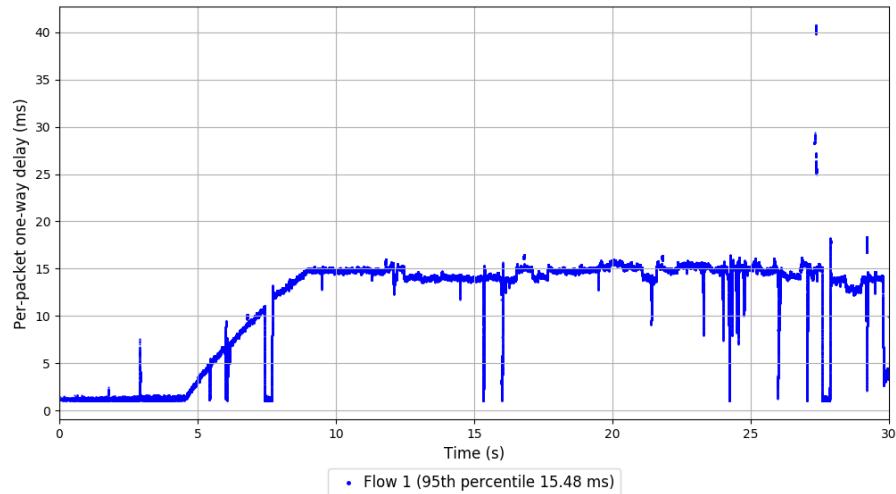
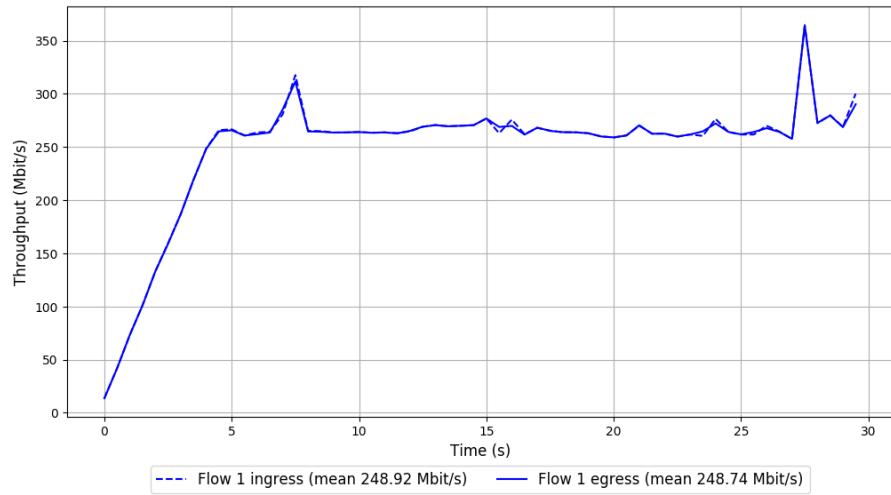


Run 3: Statistics of LEDBAT

```
Start at: Sun, 06 Aug 2017 07:50:37 +0000
End at: Sun, 06 Aug 2017 07:51:07 +0000
Local clock offset: 1.058 ms
Remote clock offset: -2.146 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:40:10 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 248.74 Mbit/s
95th percentile per-packet one-way delay: 15.477 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 248.74 Mbit/s
95th percentile per-packet one-way delay: 15.477 ms
Loss rate: 0.12%
```

Run 3: Report of LEDBAT — Data Link

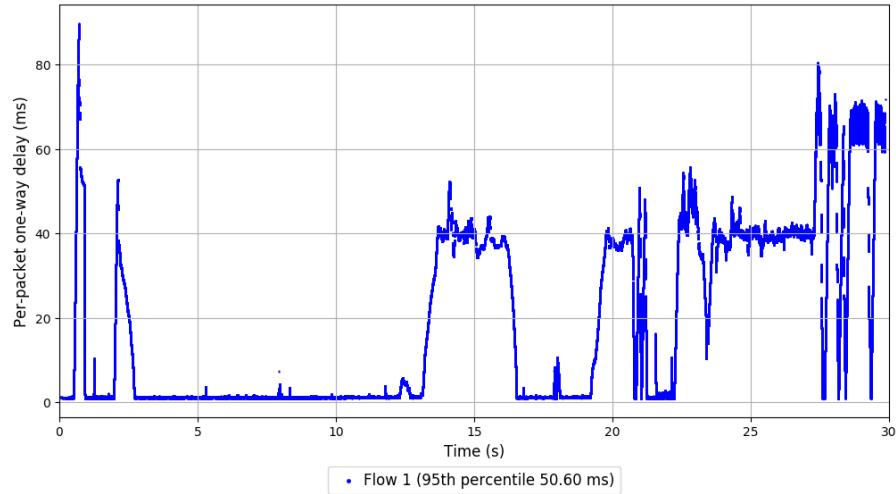
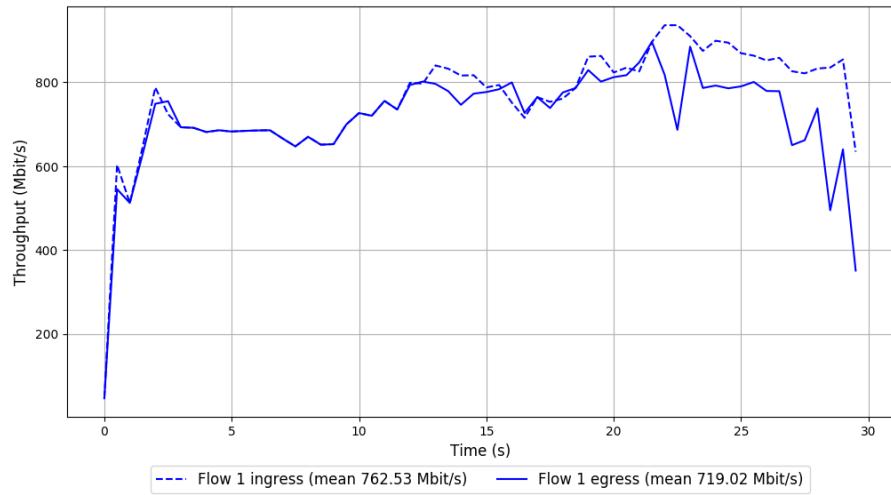


Run 1: Statistics of PCC

```
Start at: Sun, 06 Aug 2017 07:18:25 +0000
End at: Sun, 06 Aug 2017 07:18:55 +0000
Local clock offset: 0.707 ms
Remote clock offset: -1.991 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:41:40 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 719.02 Mbit/s
95th percentile per-packet one-way delay: 50.602 ms
Loss rate: 5.75%
-- Flow 1:
Average throughput: 719.02 Mbit/s
95th percentile per-packet one-way delay: 50.602 ms
Loss rate: 5.75%
```

Run 1: Report of PCC — Data Link

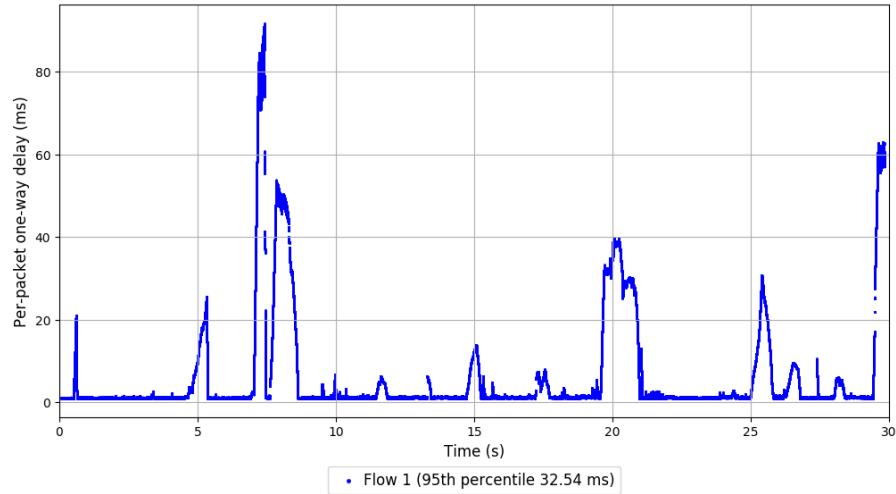
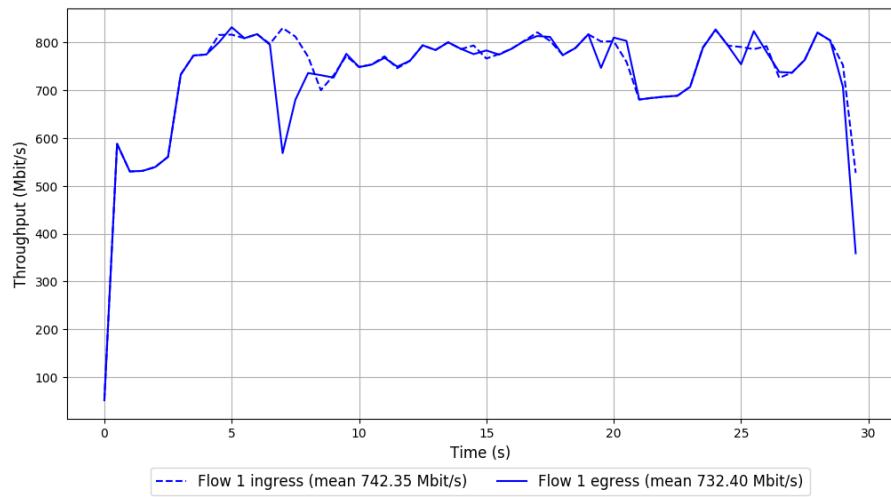


Run 2: Statistics of PCC

```
Start at: Sun, 06 Aug 2017 07:39:03 +0000
End at: Sun, 06 Aug 2017 07:39:33 +0000
Local clock offset: 0.892 ms
Remote clock offset: -1.974 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:41:40 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 732.40 Mbit/s
95th percentile per-packet one-way delay: 32.542 ms
Loss rate: 1.40%
-- Flow 1:
Average throughput: 732.40 Mbit/s
95th percentile per-packet one-way delay: 32.542 ms
Loss rate: 1.40%
```

Run 2: Report of PCC — Data Link

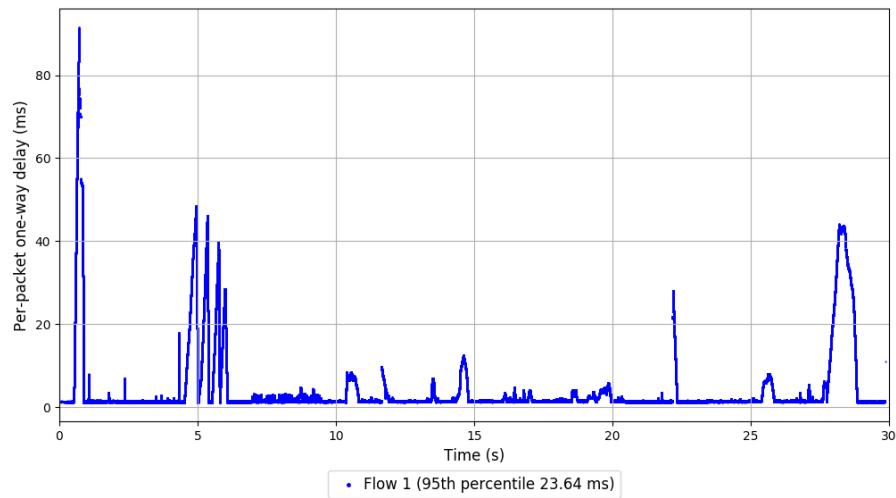
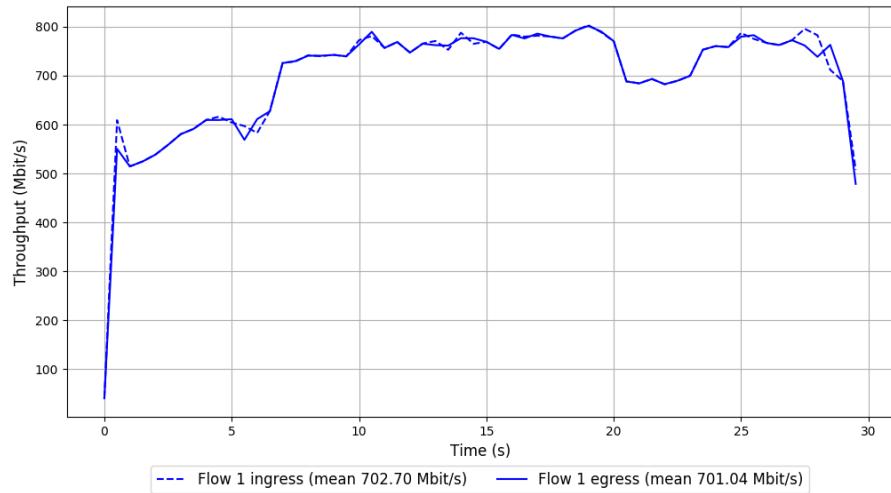


Run 3: Statistics of PCC

```
Start at: Sun, 06 Aug 2017 07:59:27 +0000
End at: Sun, 06 Aug 2017 07:59:57 +0000
Local clock offset: 1.097 ms
Remote clock offset: -2.165 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:43:05 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 701.04 Mbit/s
95th percentile per-packet one-way delay: 23.641 ms
Loss rate: 0.28%
-- Flow 1:
Average throughput: 701.04 Mbit/s
95th percentile per-packet one-way delay: 23.641 ms
Loss rate: 0.28%
```

Run 3: Report of PCC — Data Link



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

```
Start at: Sun, 06 Aug 2017 07:10:33 +0000
```

```
End at: Sun, 06 Aug 2017 07:11:03 +0000
```

```
Local clock offset: 0.656 ms
```

```
Remote clock offset: -2.053 ms
```

```
# Below is generated by plot.py at Sun, 06 Aug 2017 09:43:05 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 78.10 Mbit/s
```

```
95th percentile per-packet one-way delay: 1.182 ms
```

```
Loss rate: 0.07%
```

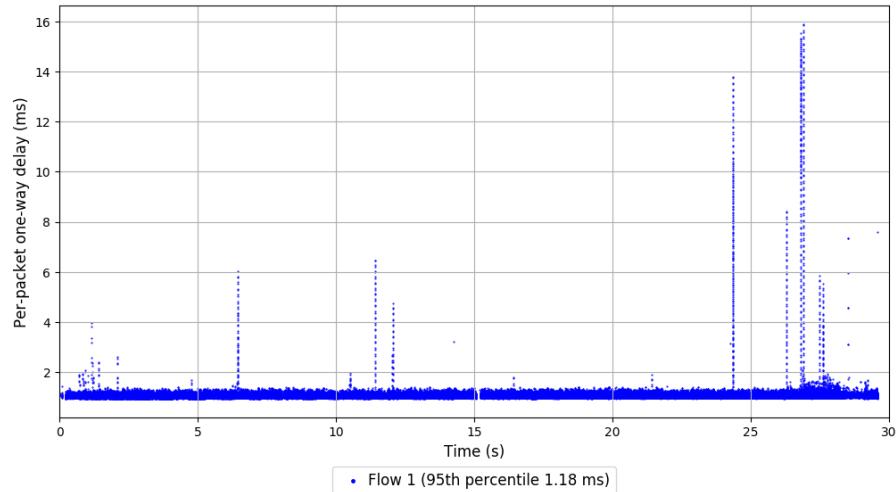
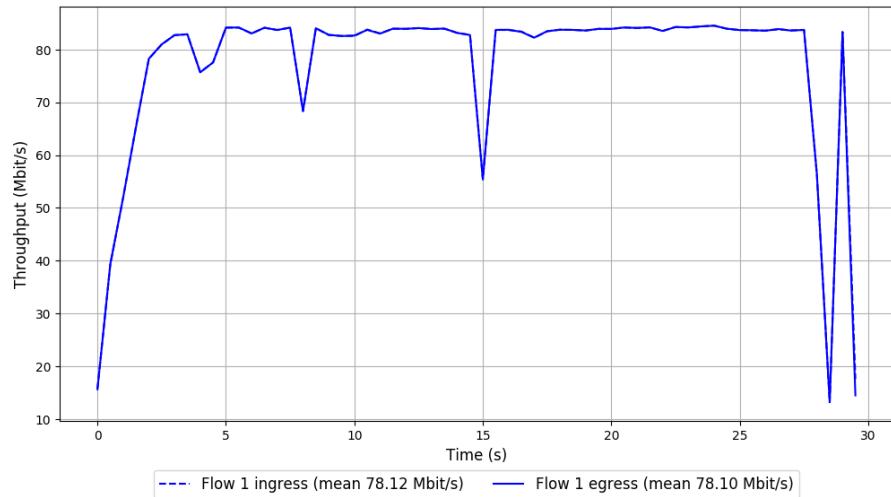
```
-- Flow 1:
```

```
Average throughput: 78.10 Mbit/s
```

```
95th percentile per-packet one-way delay: 1.182 ms
```

```
Loss rate: 0.07%
```

Run 1: Report of QUIC Cubic — Data Link

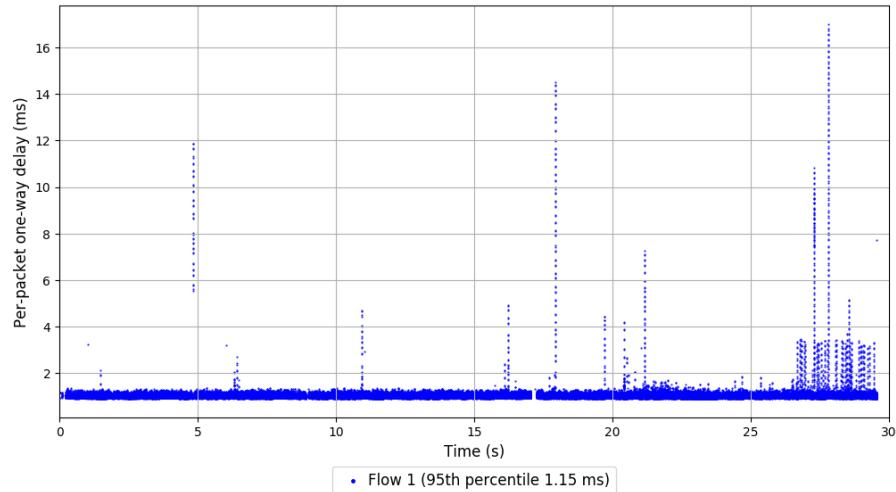
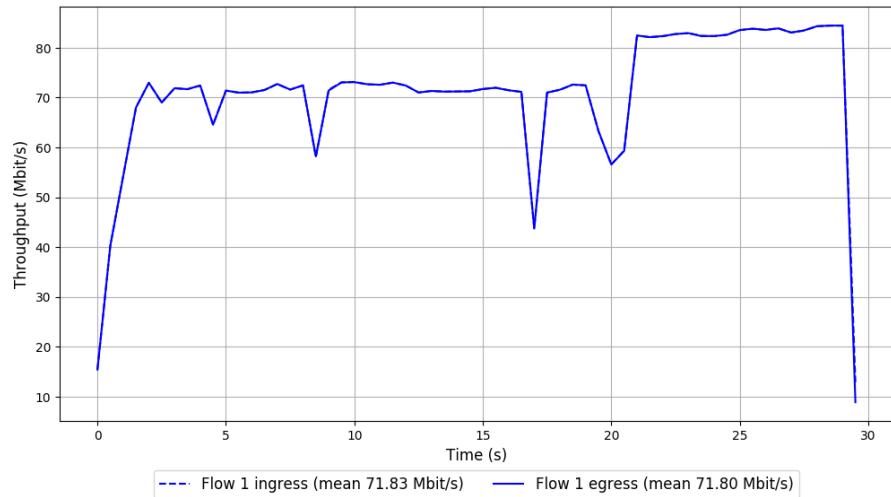


Run 2: Statistics of QUIC Cubic

```
Start at: Sun, 06 Aug 2017 07:31:38 +0000
End at: Sun, 06 Aug 2017 07:32:08 +0000
Local clock offset: 0.836 ms
Remote clock offset: -1.987 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:43:05 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 71.80 Mbit/s
95th percentile per-packet one-way delay: 1.145 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 71.80 Mbit/s
95th percentile per-packet one-way delay: 1.145 ms
Loss rate: 0.10%
```

Run 2: Report of QUIC Cubic — Data Link

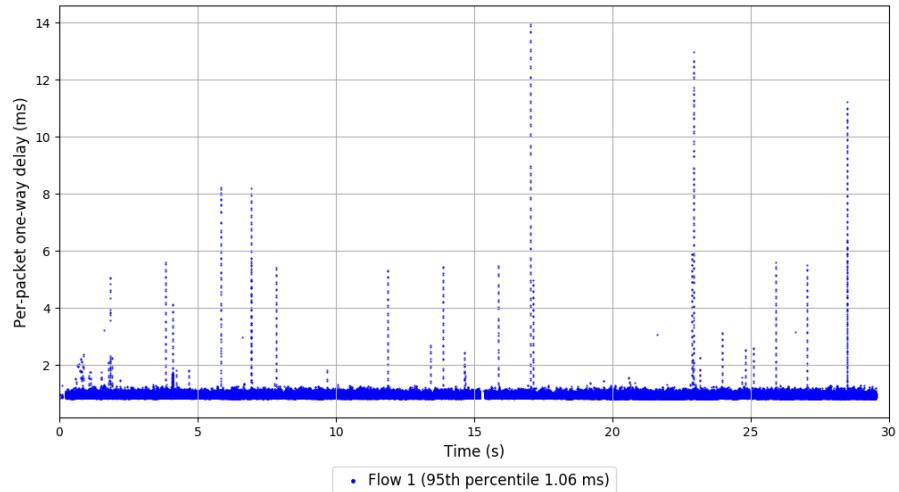
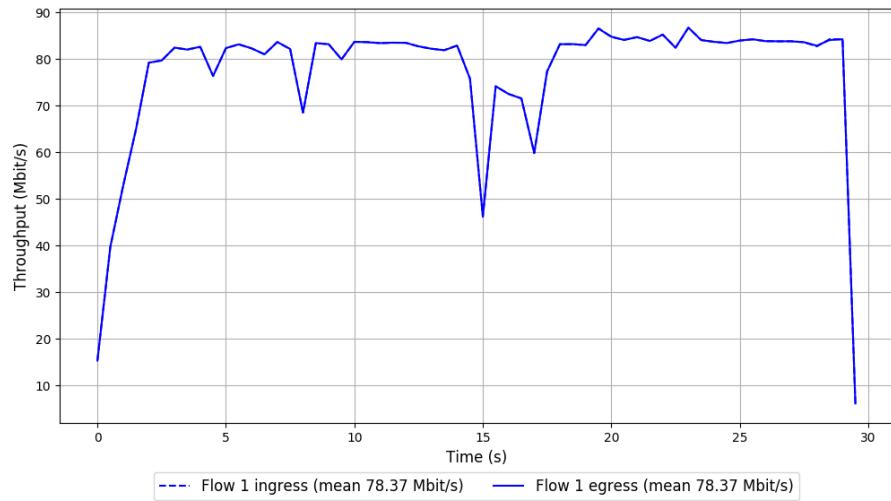


Run 3: Statistics of QUIC Cubic

```
Start at: Sun, 06 Aug 2017 07:52:03 +0000
End at: Sun, 06 Aug 2017 07:52:33 +0000
Local clock offset: 0.938 ms
Remote clock offset: -2.071 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:43:05 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 78.37 Mbit/s
95th percentile per-packet one-way delay: 1.058 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 78.37 Mbit/s
95th percentile per-packet one-way delay: 1.058 ms
Loss rate: 0.00%
```

Run 3: Report of QUIC Cubic — Data Link



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

```
Start at: Sun, 06 Aug 2017 07:17:07 +0000
```

```
End at: Sun, 06 Aug 2017 07:17:37 +0000
```

```
Local clock offset: 0.708 ms
```

```
Remote clock offset: -1.921 ms
```

```
# Below is generated by plot.py at Sun, 06 Aug 2017 09:43:05 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 120.37 Mbit/s
```

```
95th percentile per-packet one-way delay: 1.192 ms
```

```
Loss rate: 0.06%
```

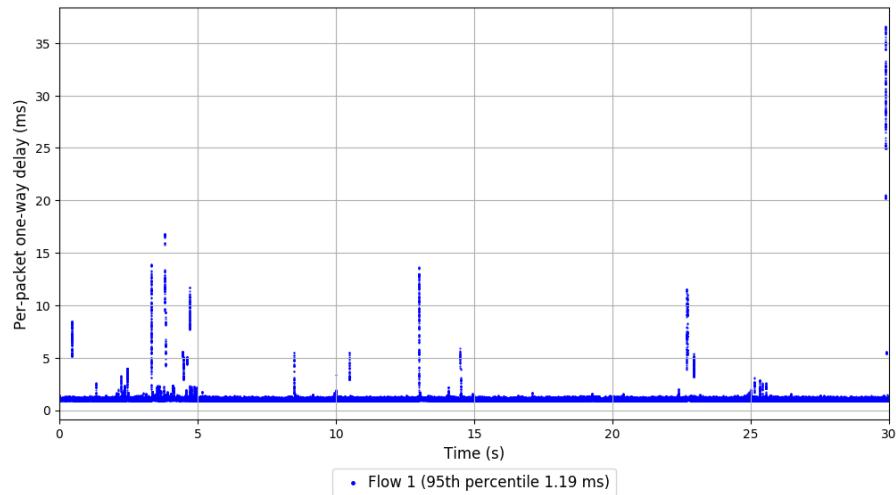
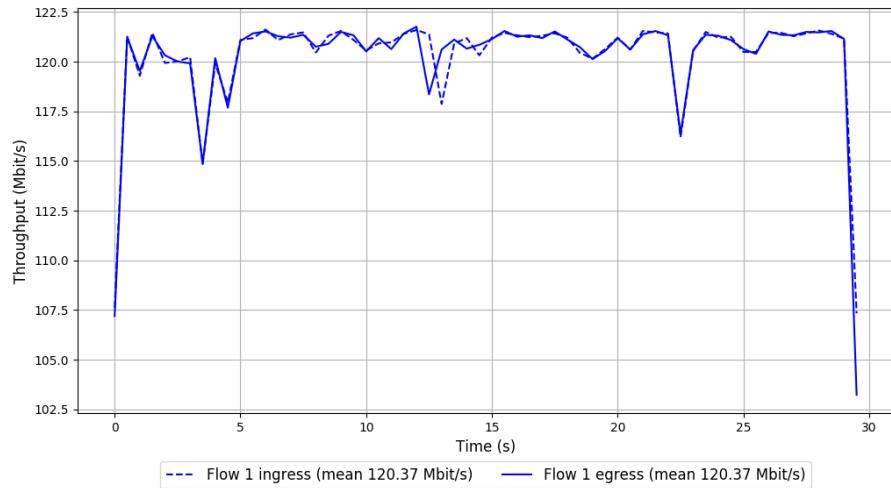
```
-- Flow 1:
```

```
Average throughput: 120.37 Mbit/s
```

```
95th percentile per-packet one-way delay: 1.192 ms
```

```
Loss rate: 0.06%
```

Run 1: Report of Saturator — Data Link

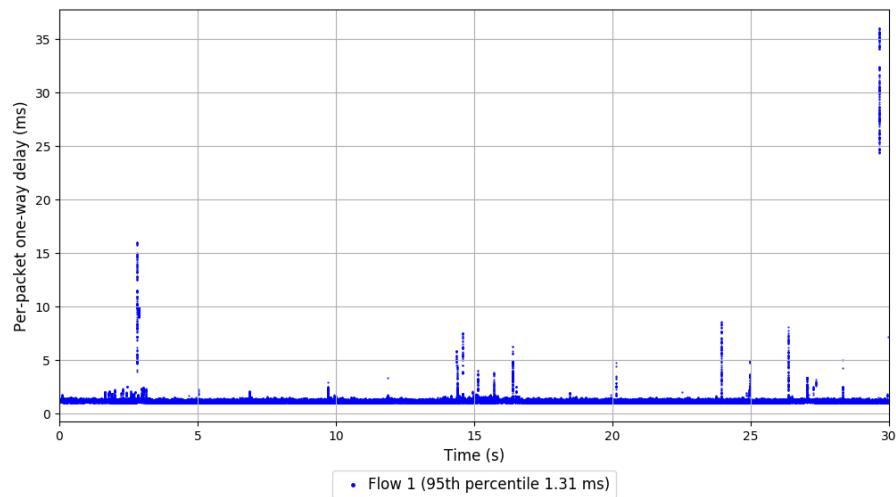
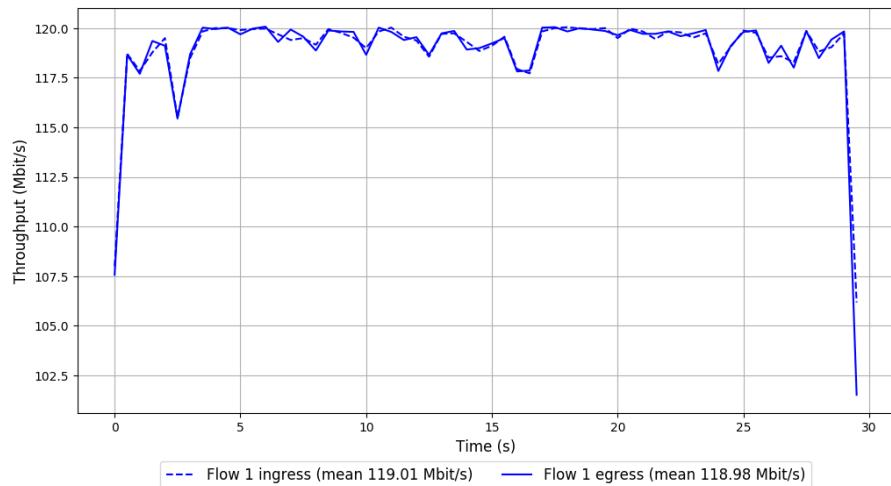


Run 2: Statistics of Saturator

```
Start at: Sun, 06 Aug 2017 07:37:46 +0000
End at: Sun, 06 Aug 2017 07:38:16 +0000
Local clock offset: 0.95 ms
Remote clock offset: -2.038 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:43:05 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 118.98 Mbit/s
95th percentile per-packet one-way delay: 1.310 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 118.98 Mbit/s
95th percentile per-packet one-way delay: 1.310 ms
Loss rate: 0.07%
```

Run 2: Report of Saturator — Data Link

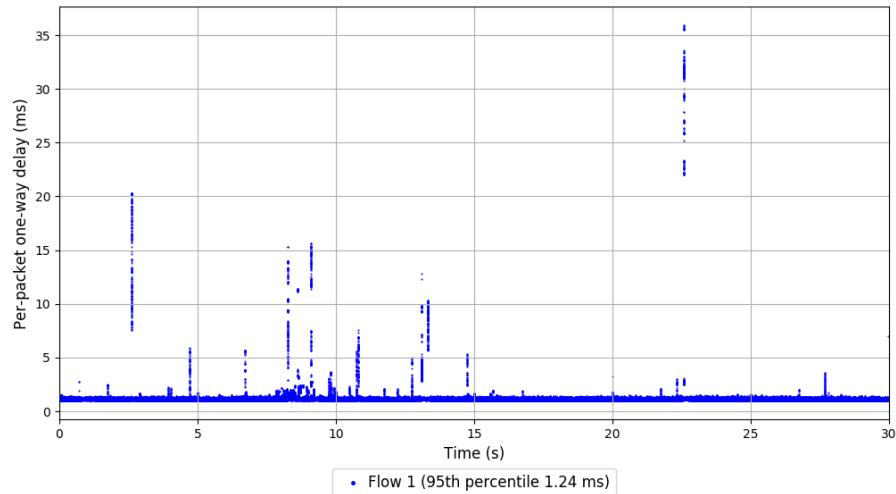
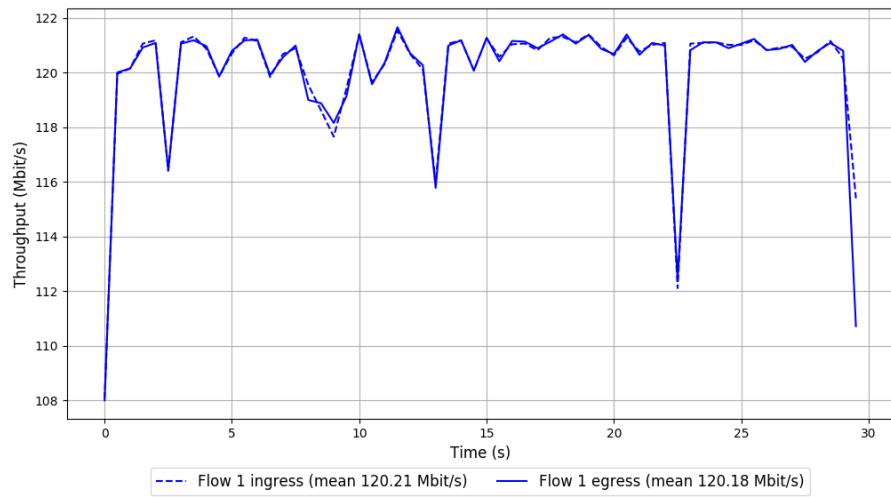


Run 3: Statistics of Saturator

```
Start at: Sun, 06 Aug 2017 07:58:09 +0000
End at: Sun, 06 Aug 2017 07:58:39 +0000
Local clock offset: 0.998 ms
Remote clock offset: -2.19 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:43:05 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 120.18 Mbit/s
95th percentile per-packet one-way delay: 1.237 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 120.18 Mbit/s
95th percentile per-packet one-way delay: 1.237 ms
Loss rate: 0.07%
```

Run 3: Report of Saturator — Data Link



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

```
Start at: Sun, 06 Aug 2017 07:23:18 +0000
```

```
End at: Sun, 06 Aug 2017 07:23:48 +0000
```

```
Local clock offset: 0.857 ms
```

```
Remote clock offset: -1.986 ms
```

```
# Below is generated by plot.py at Sun, 06 Aug 2017 09:43:05 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 0.22 Mbit/s
```

```
95th percentile per-packet one-way delay: 1.432 ms
```

```
Loss rate: 0.13%
```

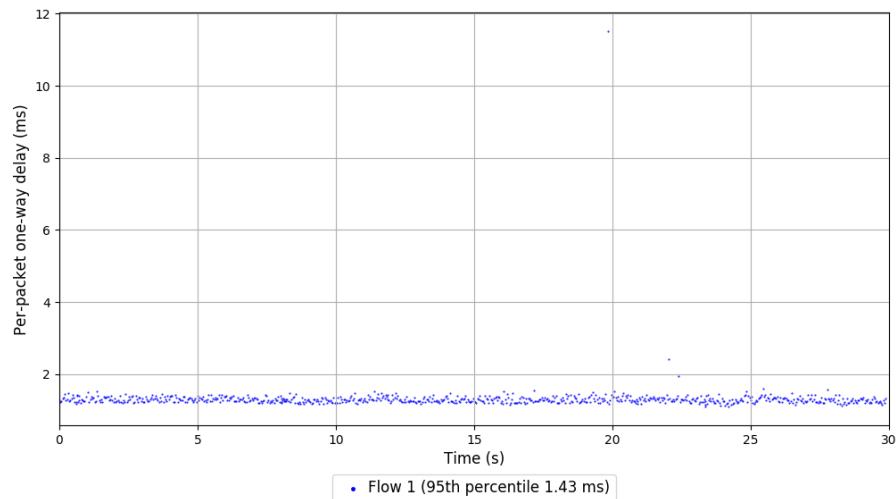
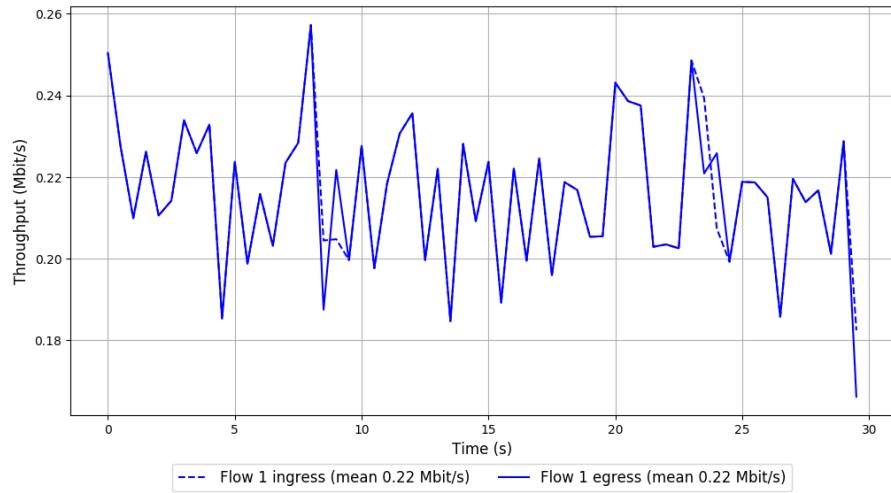
```
-- Flow 1:
```

```
Average throughput: 0.22 Mbit/s
```

```
95th percentile per-packet one-way delay: 1.432 ms
```

```
Loss rate: 0.13%
```

Run 1: Report of SCReAM — Data Link

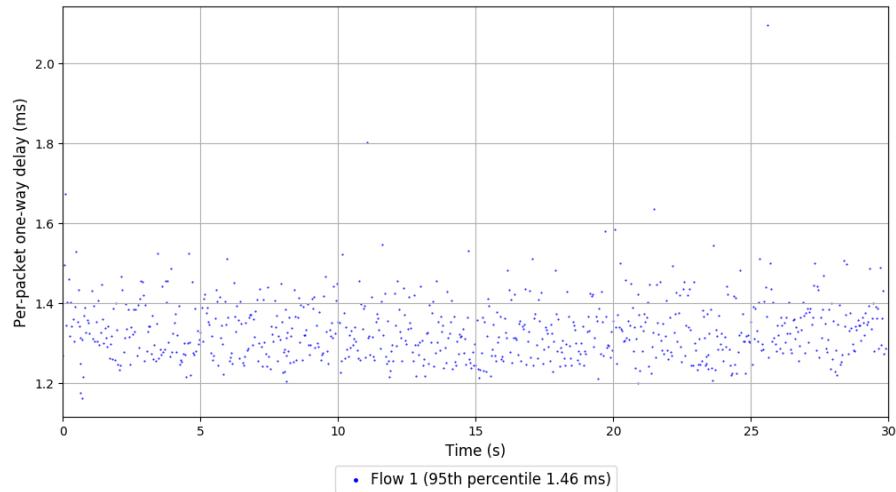
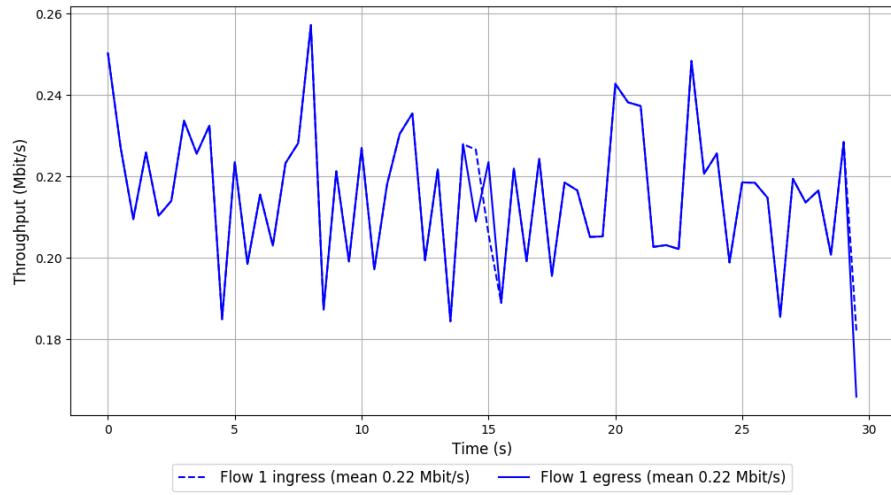


Run 2: Statistics of SCReAM

```
Start at: Sun, 06 Aug 2017 07:43:50 +0000
End at: Sun, 06 Aug 2017 07:44:20 +0000
Local clock offset: 1.012 ms
Remote clock offset: -2.076 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:43:05 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.456 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.456 ms
Loss rate: 0.13%
```

Run 2: Report of SCReAM — Data Link

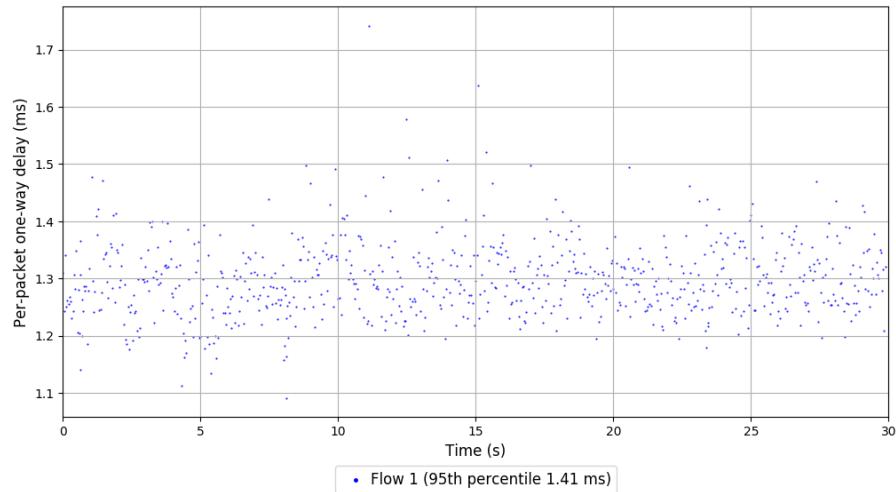
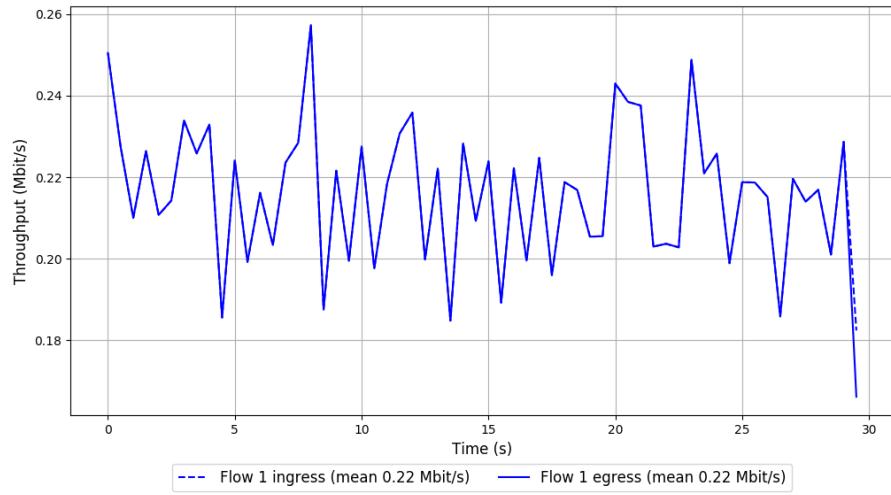


Run 3: Statistics of SCReAM

```
Start at: Sun, 06 Aug 2017 08:04:06 +0000
End at: Sun, 06 Aug 2017 08:04:36 +0000
Local clock offset: 1.104 ms
Remote clock offset: -2.072 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:43:05 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.410 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.410 ms
Loss rate: 0.13%
```

Run 3: Report of SCReAM — Data Link

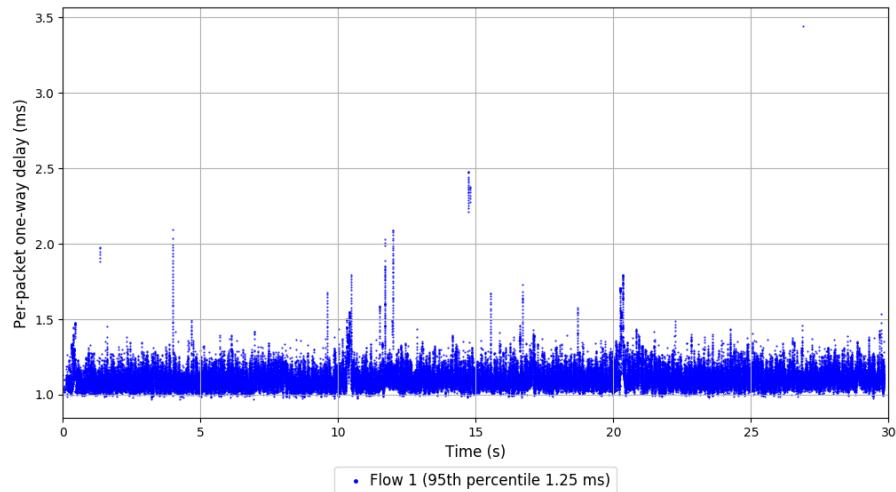
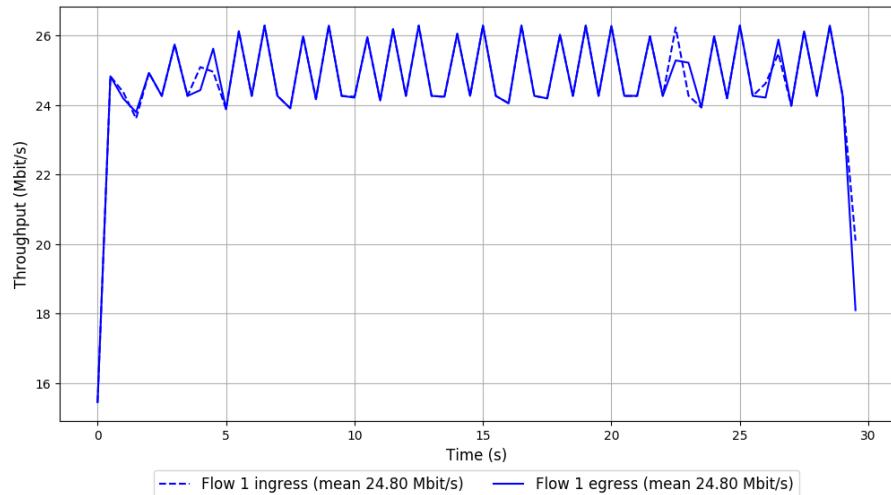


Run 1: Statistics of Sprout

```
Start at: Sun, 06 Aug 2017 07:13:08 +0000
End at: Sun, 06 Aug 2017 07:13:38 +0000
Local clock offset: 0.758 ms
Remote clock offset: -1.906 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:43:05 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 24.80 Mbit/s
95th percentile per-packet one-way delay: 1.245 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 24.80 Mbit/s
95th percentile per-packet one-way delay: 1.245 ms
Loss rate: 0.13%
```

Run 1: Report of Sprout — Data Link

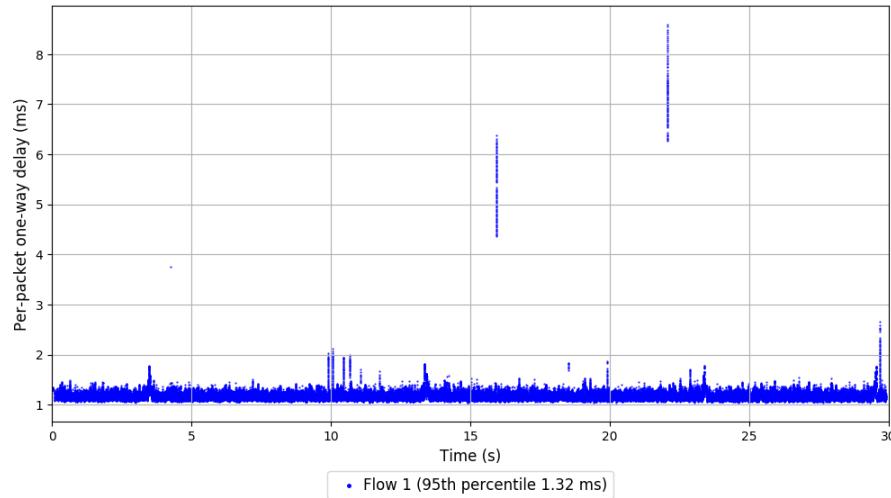
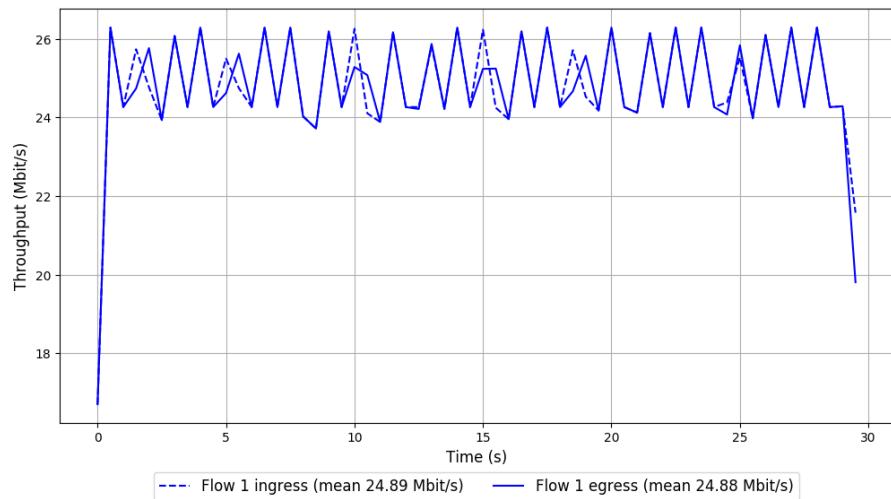


Run 2: Statistics of Sprout

```
Start at: Sun, 06 Aug 2017 07:34:14 +0000
End at: Sun, 06 Aug 2017 07:34:44 +0000
Local clock offset: 0.929 ms
Remote clock offset: -2.042 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:43:08 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 24.88 Mbit/s
95th percentile per-packet one-way delay: 1.317 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 24.88 Mbit/s
95th percentile per-packet one-way delay: 1.317 ms
Loss rate: 0.12%
```

Run 2: Report of Sprout — Data Link

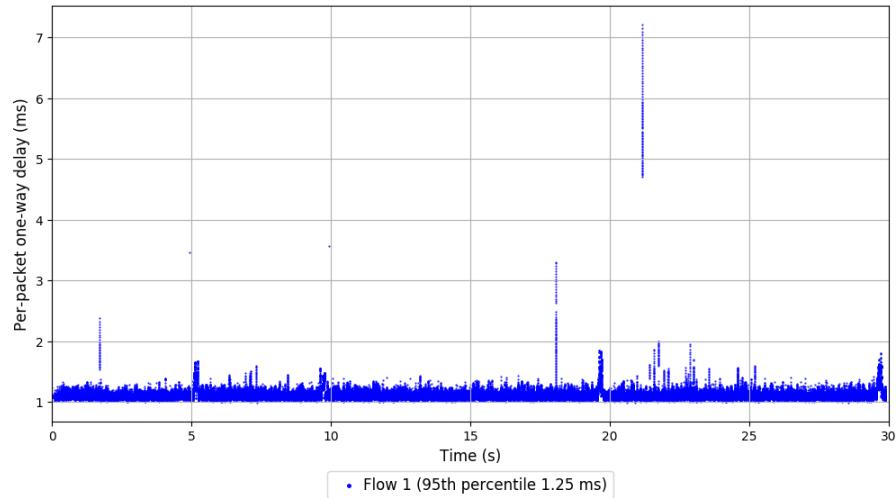
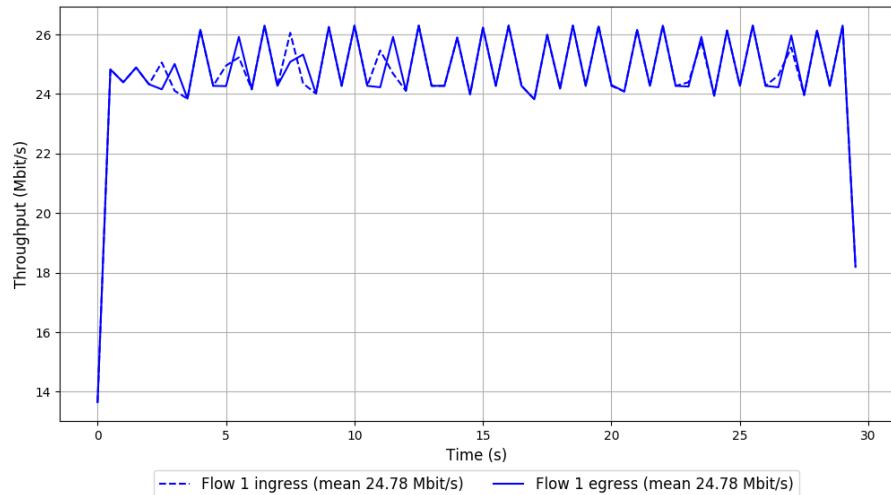


Run 3: Statistics of Sprout

```
Start at: Sun, 06 Aug 2017 07:54:38 +0000
End at: Sun, 06 Aug 2017 07:55:08 +0000
Local clock offset: 1.068 ms
Remote clock offset: -2.112 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:43:09 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 24.78 Mbit/s
95th percentile per-packet one-way delay: 1.249 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 24.78 Mbit/s
95th percentile per-packet one-way delay: 1.249 ms
Loss rate: 0.00%
```

Run 3: Report of Sprout — Data Link



```
Run 1: Statistics of TaoVA-100x
```

```
Start at: Sun, 06 Aug 2017 07:20:00 +0000
```

```
End at: Sun, 06 Aug 2017 07:20:30 +0000
```

```
Local clock offset: 0.805 ms
```

```
Remote clock offset: -1.932 ms
```

```
# Below is generated by plot.py at Sun, 06 Aug 2017 09:44:03 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 235.42 Mbit/s
```

```
95th percentile per-packet one-way delay: 1.711 ms
```

```
Loss rate: 0.08%
```

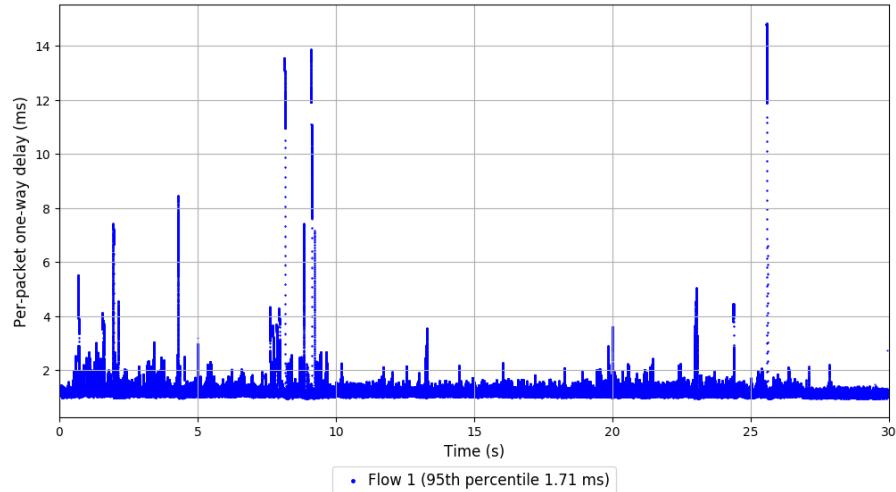
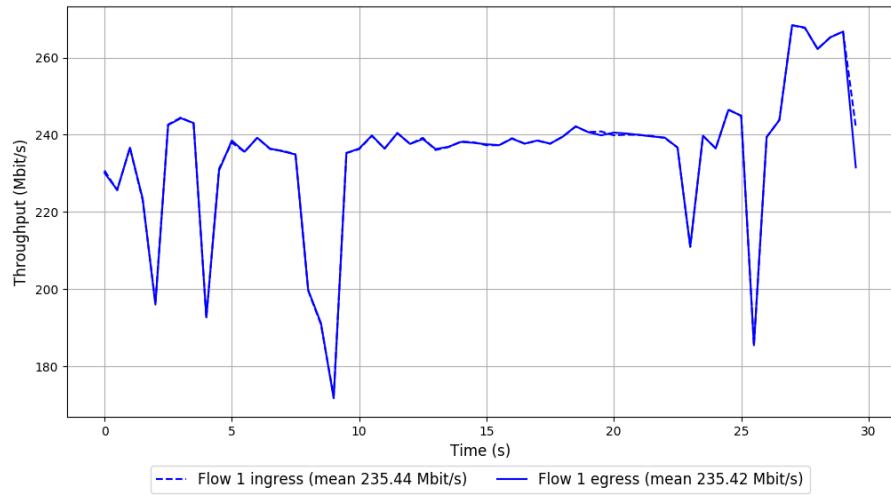
```
-- Flow 1:
```

```
Average throughput: 235.42 Mbit/s
```

```
95th percentile per-packet one-way delay: 1.711 ms
```

```
Loss rate: 0.08%
```

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



Run 2: Statistics of TaoVA-100x

Start at: Sun, 06 Aug 2017 07:40:38 +0000

End at: Sun, 06 Aug 2017 07:41:08 +0000

Local clock offset: 0.901 ms

Remote clock offset: -2.053 ms

Below is generated by plot.py at Sun, 06 Aug 2017 09:44:03 +0000

Datalink statistics

-- Total of 1 flow:

Average throughput: 229.73 Mbit/s

95th percentile per-packet one-way delay: 1.547 ms

Loss rate: 0.08%

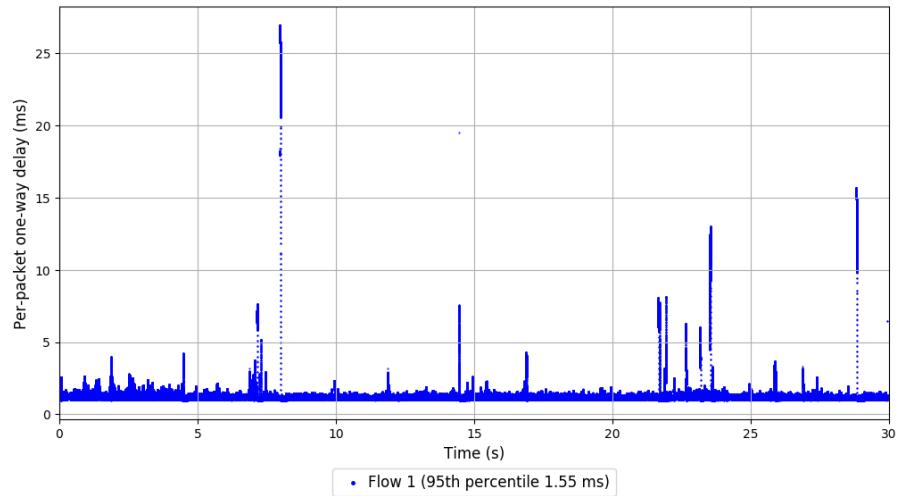
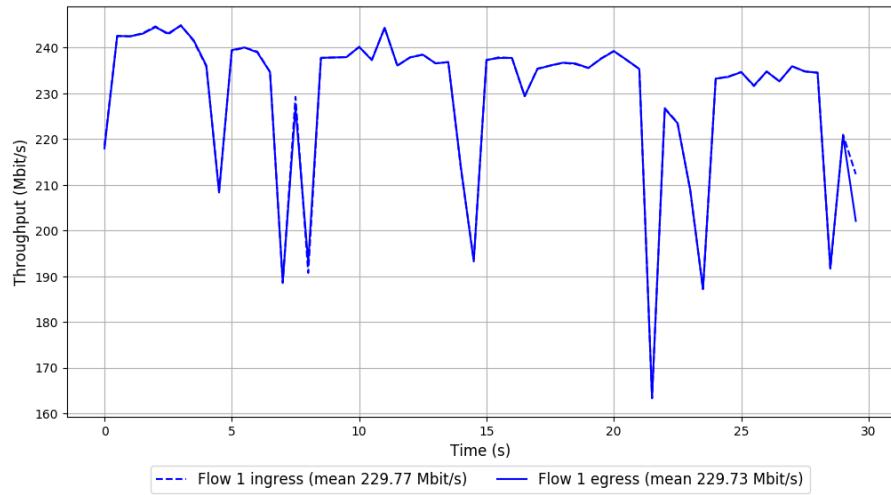
-- Flow 1:

Average throughput: 229.73 Mbit/s

95th percentile per-packet one-way delay: 1.547 ms

Loss rate: 0.08%

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

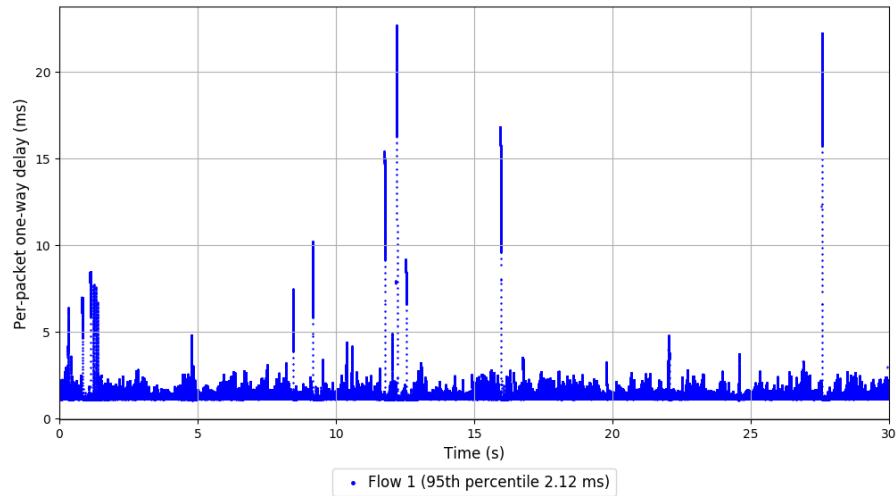
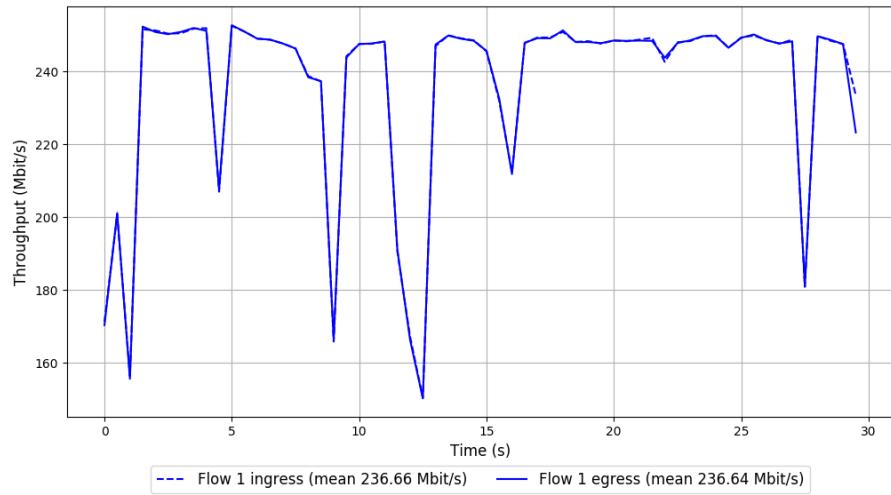


Run 3: Statistics of TaoVA-100x

```
Start at: Sun, 06 Aug 2017 08:01:01 +0000
End at: Sun, 06 Aug 2017 08:01:31 +0000
Local clock offset: 1.109 ms
Remote clock offset: -2.142 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:45:02 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 236.64 Mbit/s
95th percentile per-packet one-way delay: 2.124 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 236.64 Mbit/s
95th percentile per-packet one-way delay: 2.124 ms
Loss rate: 0.08%
```

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



Run 1: Statistics of TCP Vegas

Start at: Sun, 06 Aug 2017 07:11:47 +0000

End at: Sun, 06 Aug 2017 07:12:17 +0000

Local clock offset: 0.663 ms

Remote clock offset: -2.0 ms

Below is generated by plot.py at Sun, 06 Aug 2017 09:45:02 +0000

Datalink statistics

-- Total of 1 flow:

Average throughput: 229.74 Mbit/s

95th percentile per-packet one-way delay: 2.078 ms

Loss rate: 0.08%

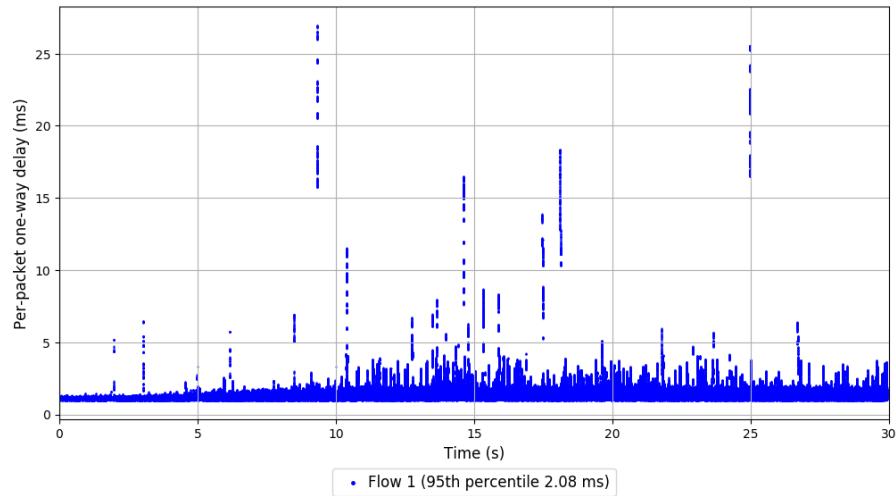
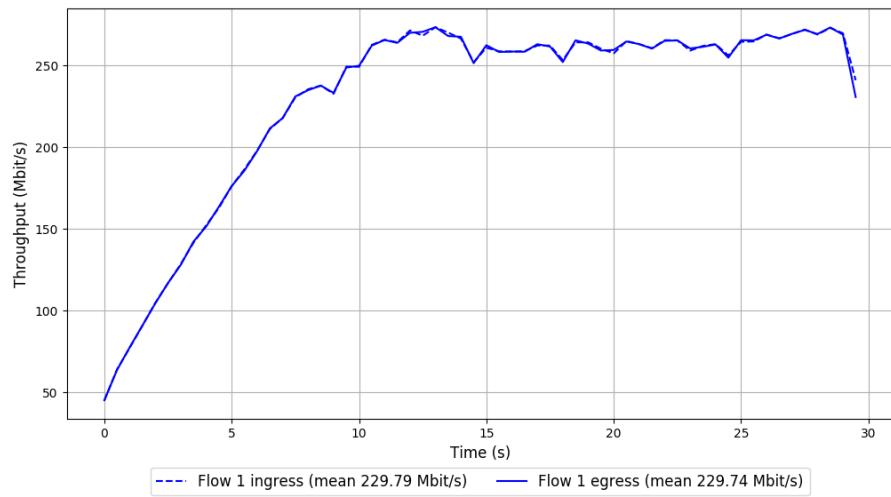
-- Flow 1:

Average throughput: 229.74 Mbit/s

95th percentile per-packet one-way delay: 2.078 ms

Loss rate: 0.08%

Run 1: Report of TCP Vegas — Data Link



Run 2: Statistics of TCP Vegas

Start at: Sun, 06 Aug 2017 07:32:52 +0000

End at: Sun, 06 Aug 2017 07:33:22 +0000

Local clock offset: 0.853 ms

Remote clock offset: -2.013 ms

Below is generated by plot.py at Sun, 06 Aug 2017 09:45:02 +0000

Datalink statistics

-- Total of 1 flow:

Average throughput: 255.45 Mbit/s

95th percentile per-packet one-way delay: 2.212 ms

Loss rate: 0.08%

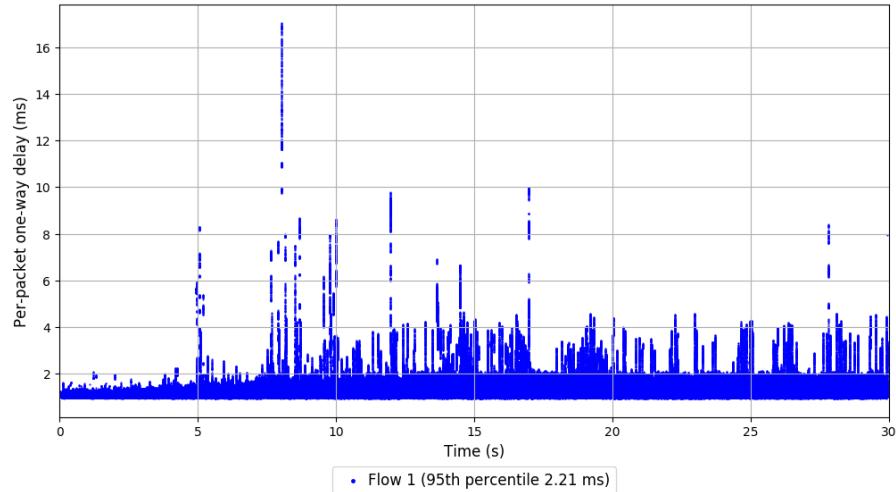
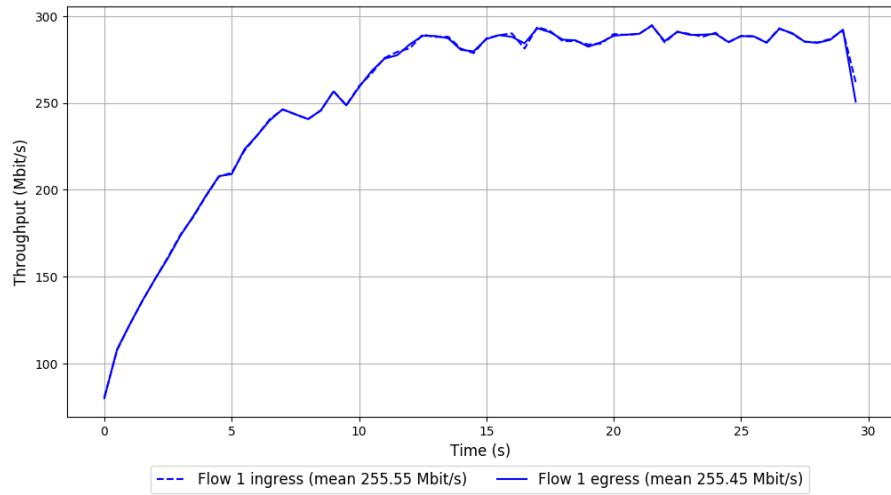
-- Flow 1:

Average throughput: 255.45 Mbit/s

95th percentile per-packet one-way delay: 2.212 ms

Loss rate: 0.08%

Run 2: Report of TCP Vegas — Data Link

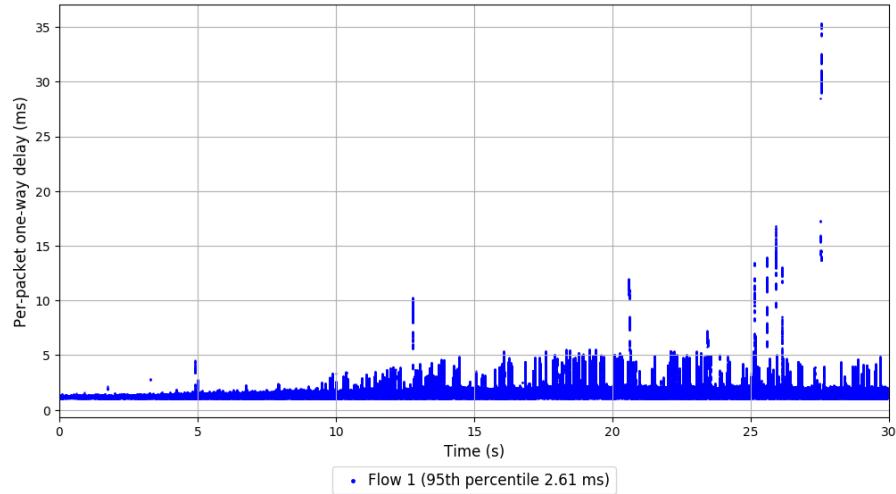
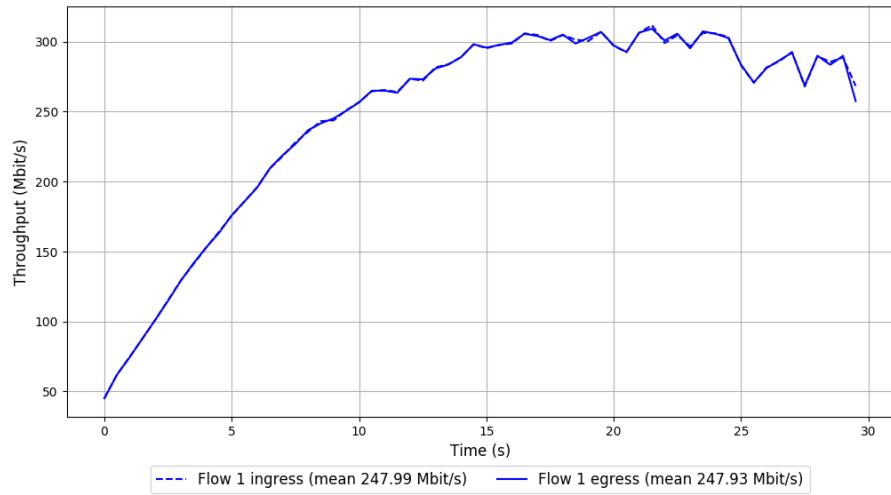


Run 3: Statistics of TCP Vegas

```
Start at: Sun, 06 Aug 2017 07:53:17 +0000
End at: Sun, 06 Aug 2017 07:53:47 +0000
Local clock offset: 1.056 ms
Remote clock offset: -2.144 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:45:25 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 247.93 Mbit/s
95th percentile per-packet one-way delay: 2.609 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 247.93 Mbit/s
95th percentile per-packet one-way delay: 2.609 ms
Loss rate: 0.08%
```

Run 3: Report of TCP Vegas — Data Link



```
Run 1: Statistics of Verus
```

```
Start at: Sun, 06 Aug 2017 07:25:45 +0000
```

```
End at: Sun, 06 Aug 2017 07:26:15 +0000
```

```
Local clock offset: 0.773 ms
```

```
Remote clock offset: -2.008 ms
```

```
# Below is generated by plot.py at Sun, 06 Aug 2017 09:45:40 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 323.71 Mbit/s
```

```
95th percentile per-packet one-way delay: 29.121 ms
```

```
Loss rate: 0.10%
```

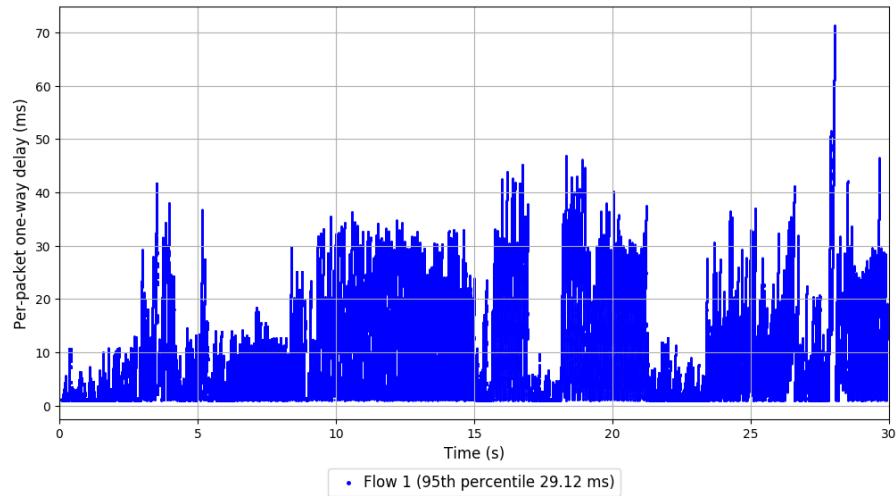
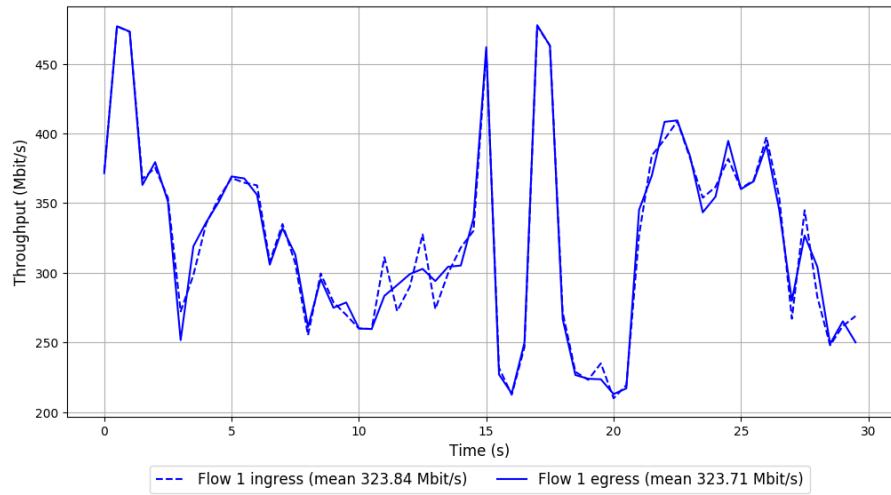
```
-- Flow 1:
```

```
Average throughput: 323.71 Mbit/s
```

```
95th percentile per-packet one-way delay: 29.121 ms
```

```
Loss rate: 0.10%
```

Run 1: Report of Verus — Data Link

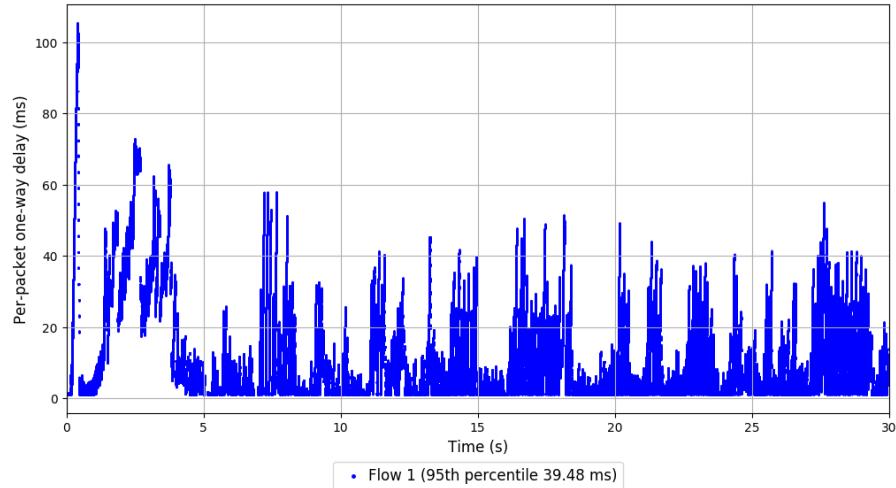
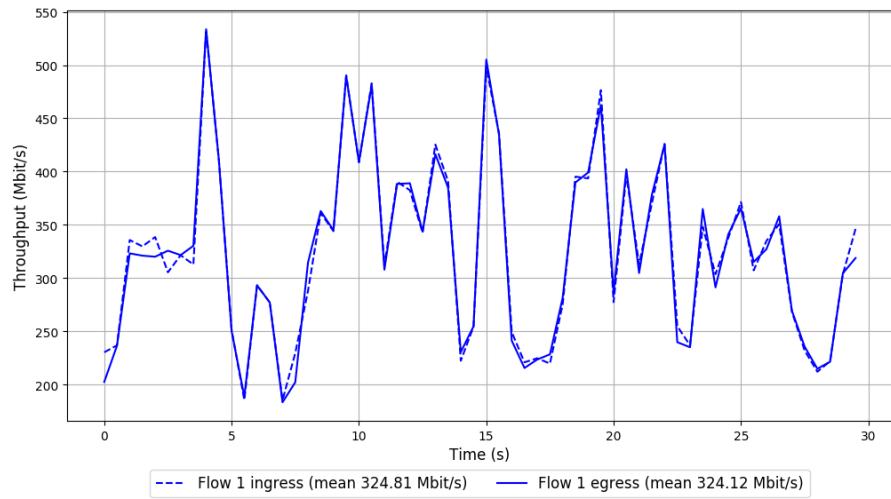


Run 2: Statistics of Verus

```
Start at: Sun, 06 Aug 2017 07:46:15 +0000
End at: Sun, 06 Aug 2017 07:46:45 +0000
Local clock offset: 1.024 ms
Remote clock offset: -2.101 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:46:05 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 324.12 Mbit/s
95th percentile per-packet one-way delay: 39.477 ms
Loss rate: 0.28%
-- Flow 1:
Average throughput: 324.12 Mbit/s
95th percentile per-packet one-way delay: 39.477 ms
Loss rate: 0.28%
```

Run 2: Report of Verus — Data Link

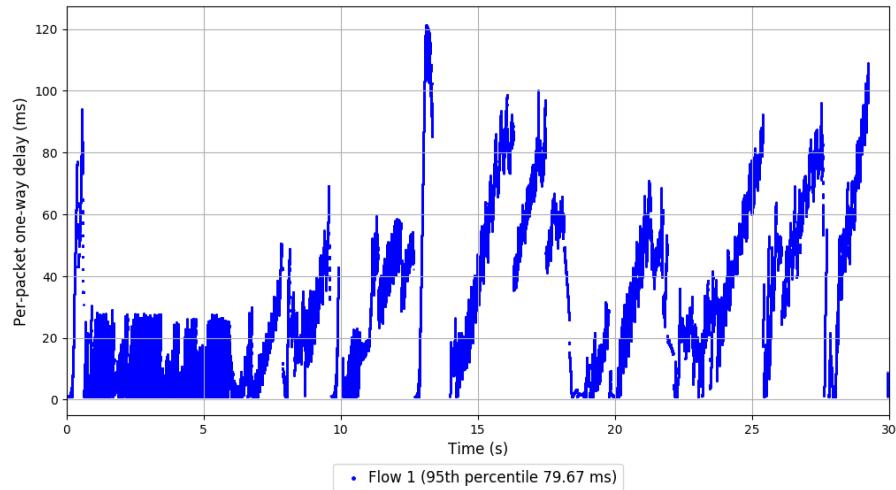
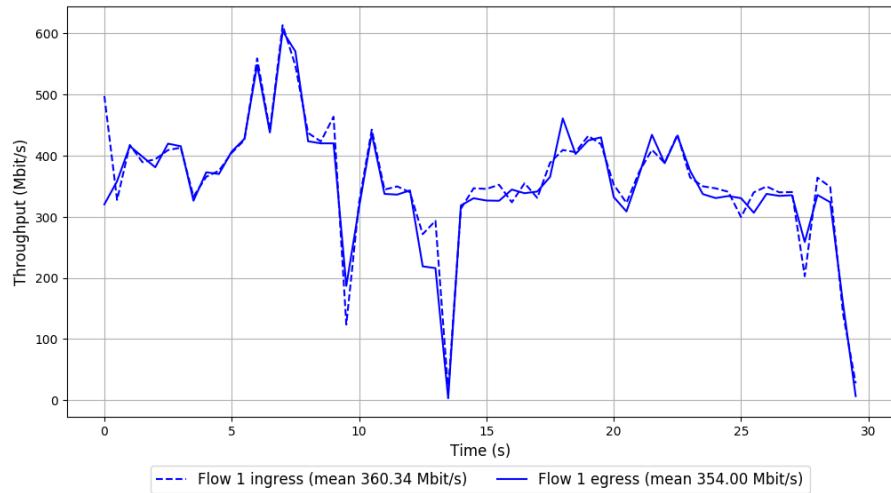


Run 3: Statistics of Verus

```
Start at: Sun, 06 Aug 2017 08:06:34 +0000
End at: Sun, 06 Aug 2017 08:07:04 +0000
Local clock offset: 1.138 ms
Remote clock offset: -1.926 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:46:19 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 354.00 Mbit/s
95th percentile per-packet one-way delay: 79.665 ms
Loss rate: 1.82%
-- Flow 1:
Average throughput: 354.00 Mbit/s
95th percentile per-packet one-way delay: 79.665 ms
Loss rate: 1.82%
```

Run 3: Report of Verus — Data Link

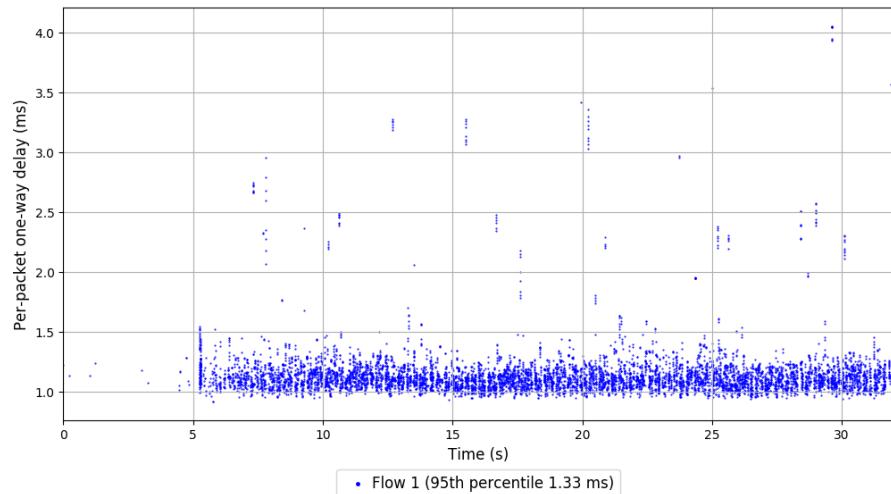
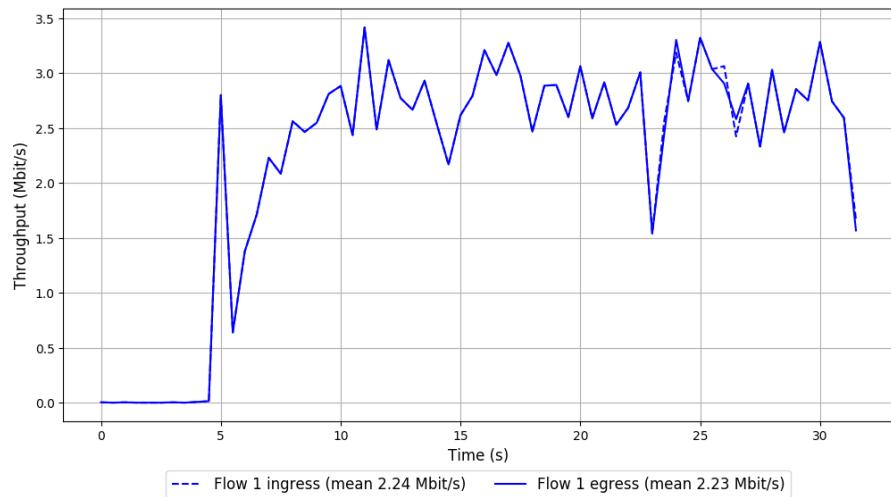


```
Run 1: Statistics of WebRTC media

Start at: Sun, 06 Aug 2017 07:15:57 +0000
End at: Sun, 06 Aug 2017 07:16:27 +0000
Local clock offset: 0.709 ms
Remote clock offset: -1.949 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:46:19 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.23 Mbit/s
95th percentile per-packet one-way delay: 1.327 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 2.23 Mbit/s
95th percentile per-packet one-way delay: 1.327 ms
Loss rate: 0.07%
```

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: Sun, 06 Aug 2017 07:36:35 +0000

End at: Sun, 06 Aug 2017 07:37:05 +0000

Local clock offset: 0.865 ms

Remote clock offset: -2.047 ms

Below is generated by plot.py at Sun, 06 Aug 2017 09:46:19 +0000

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.35 Mbit/s

95th percentile per-packet one-way delay: 1.339 ms

Loss rate: 0.00%

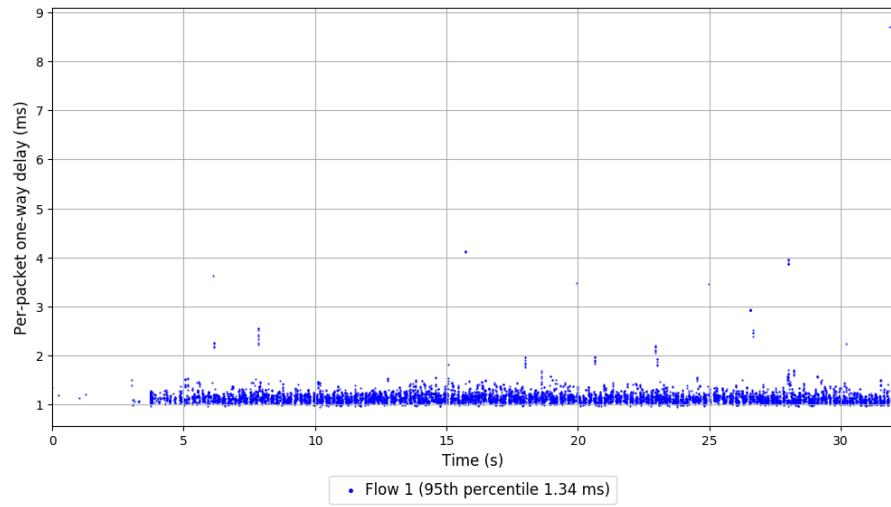
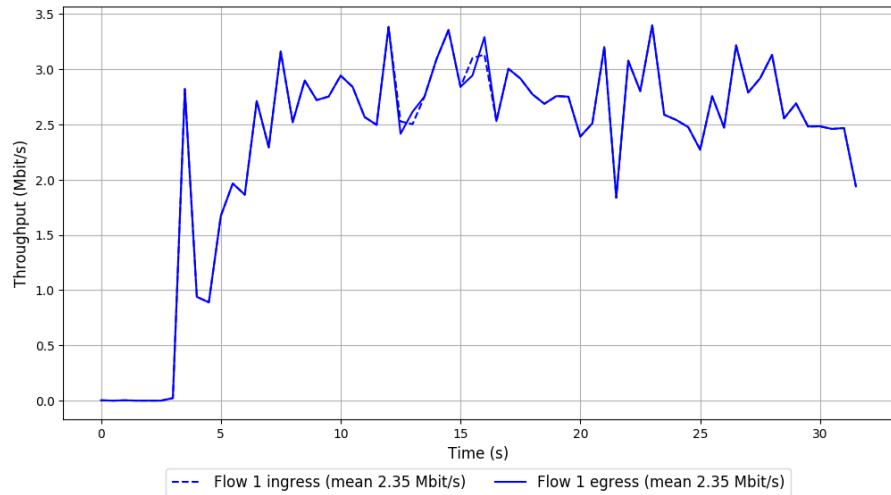
-- Flow 1:

Average throughput: 2.35 Mbit/s

95th percentile per-packet one-way delay: 1.339 ms

Loss rate: 0.00%

Run 2: Report of WebRTC media — Data Link



```
Run 3: Statistics of WebRTC media
```

```
Start at: Sun, 06 Aug 2017 07:56:59 +0000
End at: Sun, 06 Aug 2017 07:57:29 +0000
Local clock offset: 1.0 ms
Remote clock offset: -2.187 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:46:19 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.34 Mbit/s
95th percentile per-packet one-way delay: 1.344 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 2.34 Mbit/s
95th percentile per-packet one-way delay: 1.344 ms
Loss rate: 0.16%
```

Run 3: Report of WebRTC media — Data Link

