

Pantheon Summary (Generated at Thu, 03 Aug 2017 09:03:40 +0000 with
pantheon version 33c7b8d34ce04c76596315aa973f0b30d6129d55)

Repeated the test of 15 congestion control schemes 3 times.

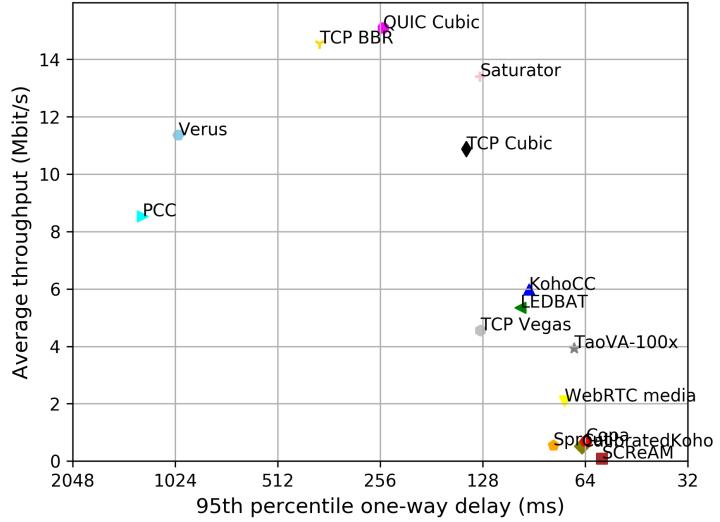
Each test lasted for 30 seconds running 1 flow.

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

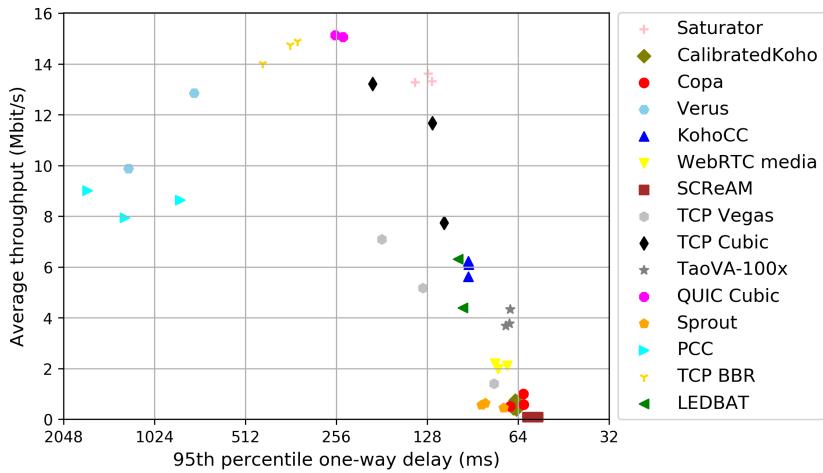
NTP offset measured against time.stanford.edu and has been applied to correct the timestamps in logs.

```
git branch: master @ 33c7b8d34ce04c76596315aa973f0b30d6129d55
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
    M datagrump/sender.cc
third_party/genericCC @ dae96123232f1bcb37725348fa2378691ce26725
third_party/koho_cc @ f0f2e693303aee82ea808e6928eac4f1083a6681
    M datagrump/sender.cc
third_party/libutp @ b3465b942e2826f2b179aab4a906ce6bb7cf3cf
third_party/pantheon-stimuli @ fc73a85ca16c34366d1888dc8a0d0d88d4ebf2a7
third_party/pantheon-tunnel @ baf443516dea3eeddeccaf9b916cc313273ca4f4
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
    M receiver/src/buffer.h
    M receiver/src/core.cpp
    M sender/src/buffer.h
    M sender/src/core.cpp
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream @ c3370fd7bd17265a79aeb34e4016ad23f5965885
third_party/sourdough @ f1a14bffe749737437f61b1eaeeb30b267cde681
third_party/sprout @ 6f2efe6e088d91066a9f023df375eee2665089ce
    M src/examples/cellsim.cc
    M src/examples/sproutbt2.cc
    M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
    M src/verus.hpp
    M tools/plot.py
third_party/webrtc @ a488197ddd041ace68a42849b2540ad834825f42
```

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



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



scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	14.55	385.79	1.82
CalibratedKoho	3	0.52	65.53	0.07
Copa	3	0.70	63.65	-0.01
TCP Cubic	3	10.88	143.20	1.10
KohoCC	3	5.98	93.54	0.35
LEDBAT	3	5.35	99.36	0.59
PCC	3	8.53	1277.70	0.77
QUIC Cubic	3	15.11	250.70	1.82
Saturator	3	13.41	130.37	1.03
SCReAM	3	0.08	57.17	0.00
Sprout	3	0.55	79.45	0.35
TaoVA-100x	3	3.93	68.93	0.89
TCP Vegas	3	4.56	130.01	0.53
Verus	3	11.37	1003.51	5.92
WebRTC media	3	2.09	73.50	0.11

Run 1: Statistics of TCP BBR

Start at: Thu, 03 Aug 2017 07:20:27 +0000

End at: Thu, 03 Aug 2017 07:20:57 +0000

Local clock offset: 0.272 ms

Remote clock offset: -3.198 ms

Below is generated by plot.py at Thu, 03 Aug 2017 09:02:59 +0000

Datalink statistics

-- Total of 1 flow:

Average throughput: 14.01 Mbit/s

95th percentile per-packet one-way delay: 449.409 ms

Loss rate: 2.95%

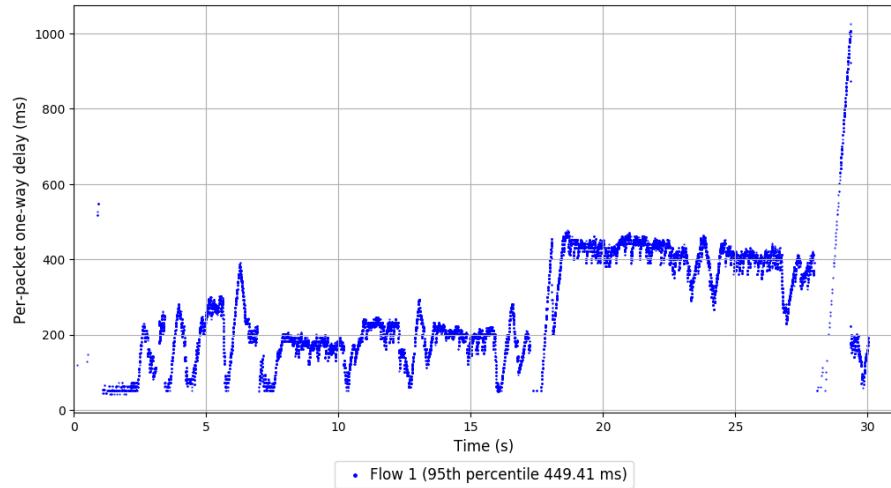
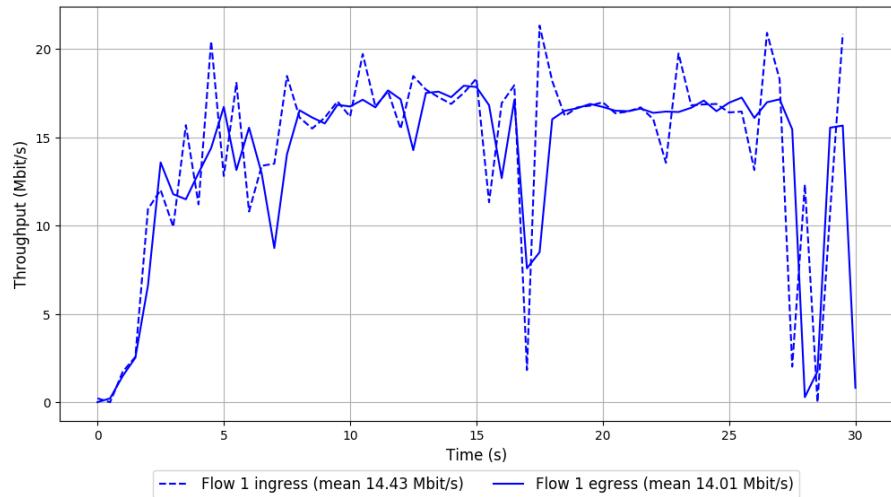
-- Flow 1:

Average throughput: 14.01 Mbit/s

95th percentile per-packet one-way delay: 449.409 ms

Loss rate: 2.95%

Run 1: Report of TCP BBR — Data Link

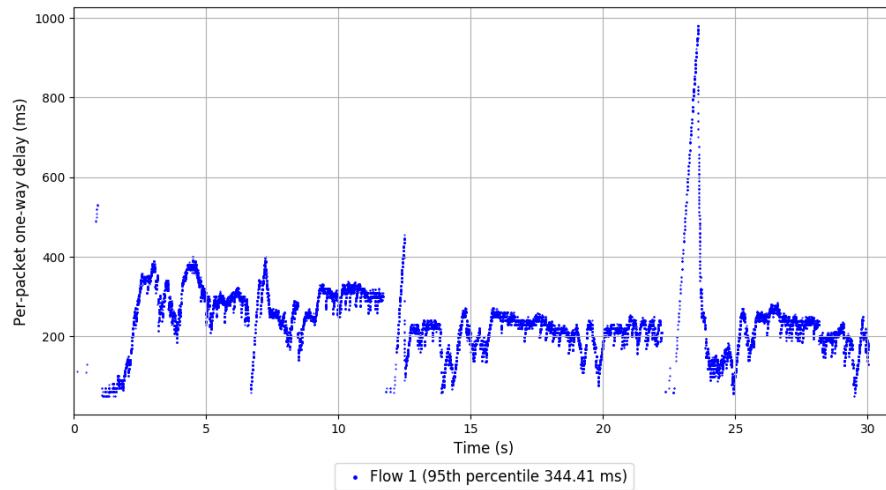
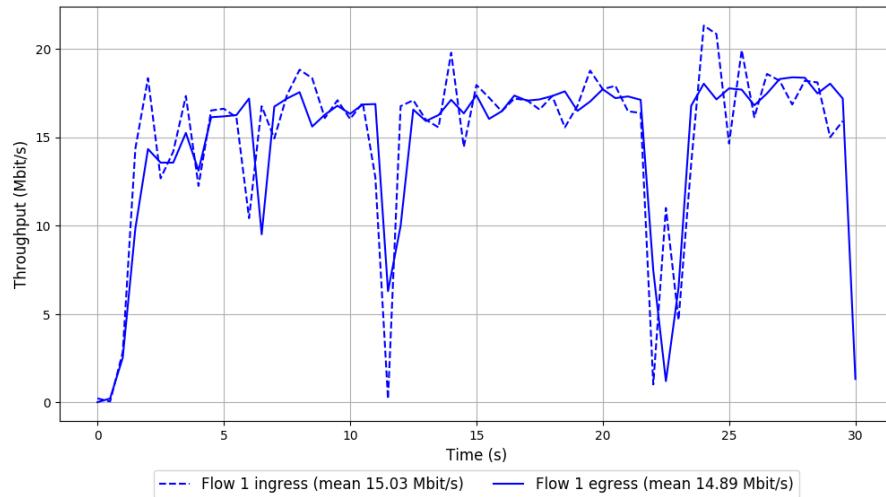


Run 2: Statistics of TCP BBR

```
Start at: Thu, 03 Aug 2017 07:39:55 +0000
End at: Thu, 03 Aug 2017 07:40:25 +0000
Local clock offset: 0.161 ms
Remote clock offset: -1.36 ms

# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:00 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 14.89 Mbit/s
95th percentile per-packet one-way delay: 344.408 ms
Loss rate: 0.96%
-- Flow 1:
Average throughput: 14.89 Mbit/s
95th percentile per-packet one-way delay: 344.408 ms
Loss rate: 0.96%
```

Run 2: Report of TCP BBR — Data Link

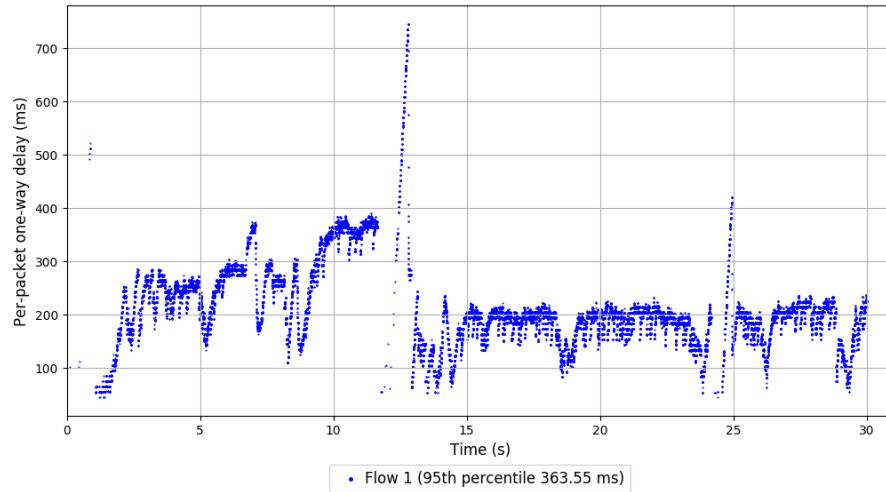
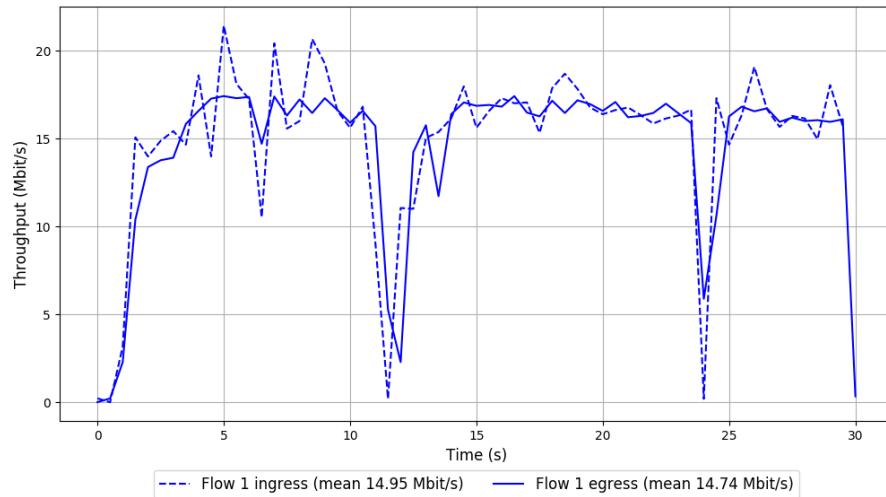


Run 3: Statistics of TCP BBR

```
Start at: Thu, 03 Aug 2017 07:59:32 +0000
End at: Thu, 03 Aug 2017 08:00:02 +0000
Local clock offset: 0.186 ms
Remote clock offset: -1.302 ms

# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:04 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 14.74 Mbit/s
95th percentile per-packet one-way delay: 363.552 ms
Loss rate: 1.54%
-- Flow 1:
Average throughput: 14.74 Mbit/s
95th percentile per-packet one-way delay: 363.552 ms
Loss rate: 1.54%
```

Run 3: Report of TCP BBR — Data Link



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

```
Start at: Thu, 03 Aug 2017 07:07:29 +0000
```

```
End at: Thu, 03 Aug 2017 07:07:59 +0000
```

```
Local clock offset: 0.376 ms
```

```
Remote clock offset: -2.951 ms
```

```
# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:04 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 0.39 Mbit/s
```

```
95th percentile per-packet one-way delay: 64.827 ms
```

```
Loss rate: 0.00%
```

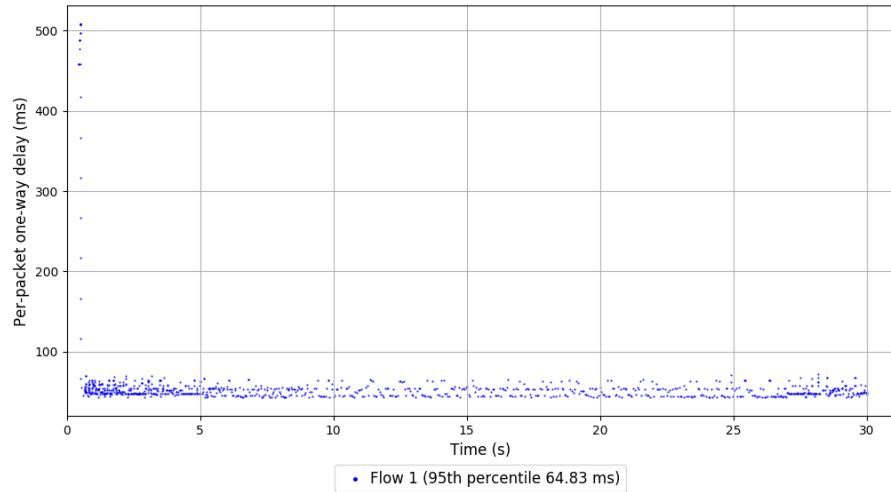
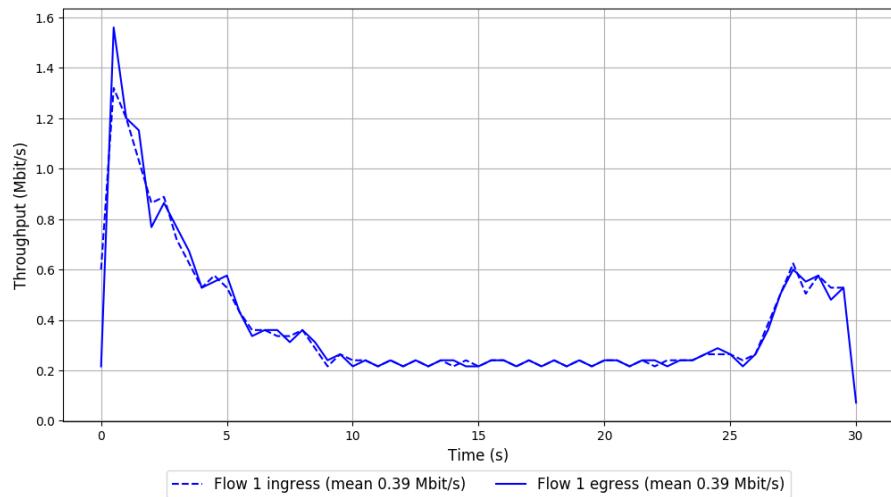
```
-- Flow 1:
```

```
Average throughput: 0.39 Mbit/s
```

```
95th percentile per-packet one-way delay: 64.827 ms
```

```
Loss rate: 0.00%
```

Run 1: Report of CalibratedKoho — Data Link



```
Run 2: Statistics of CalibratedKoho
```

```
Start at: Thu, 03 Aug 2017 07:26:57 +0000
```

```
End at: Thu, 03 Aug 2017 07:27:27 +0000
```

```
Local clock offset: 0.166 ms
```

```
Remote clock offset: -1.125 ms
```

```
# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:04 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 0.44 Mbit/s
```

```
95th percentile per-packet one-way delay: 66.286 ms
```

```
Loss rate: 0.09%
```

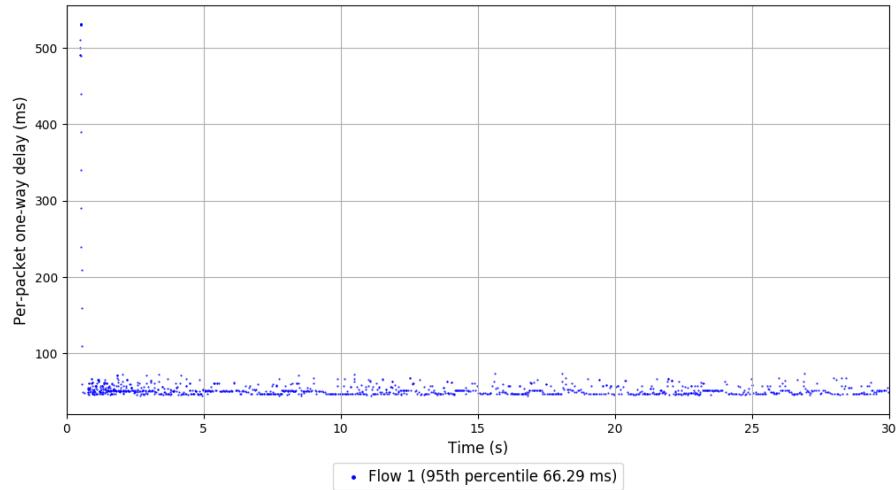
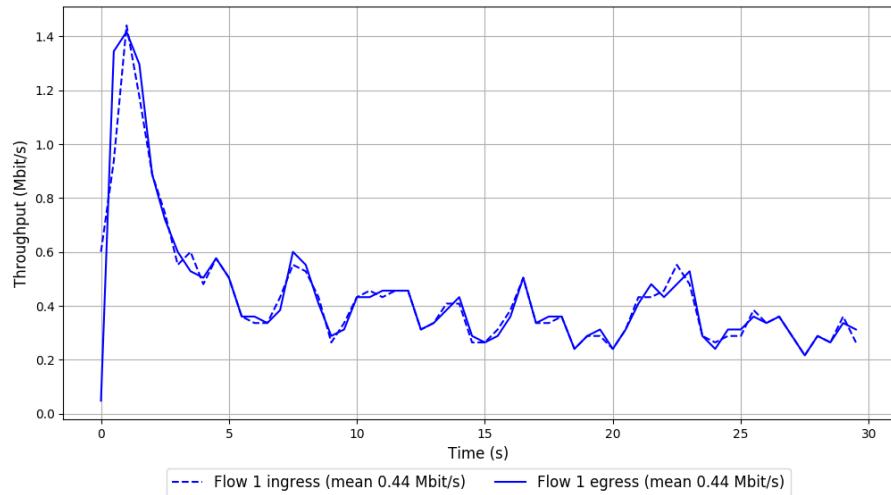
```
-- Flow 1:
```

```
Average throughput: 0.44 Mbit/s
```

```
95th percentile per-packet one-way delay: 66.286 ms
```

```
Loss rate: 0.09%
```

Run 2: Report of CalibratedKoho — Data Link



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

```
Start at: Thu, 03 Aug 2017 07:46:29 +0000
```

```
End at: Thu, 03 Aug 2017 07:46:59 +0000
```

```
Local clock offset: 0.161 ms
```

```
Remote clock offset: -3.375 ms
```

```
# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:04 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 0.73 Mbit/s
```

```
95th percentile per-packet one-way delay: 65.476 ms
```

```
Loss rate: 0.11%
```

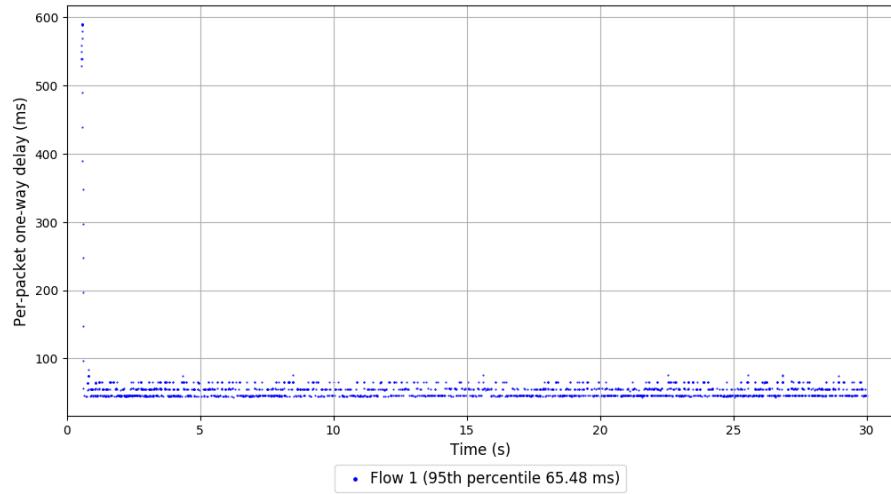
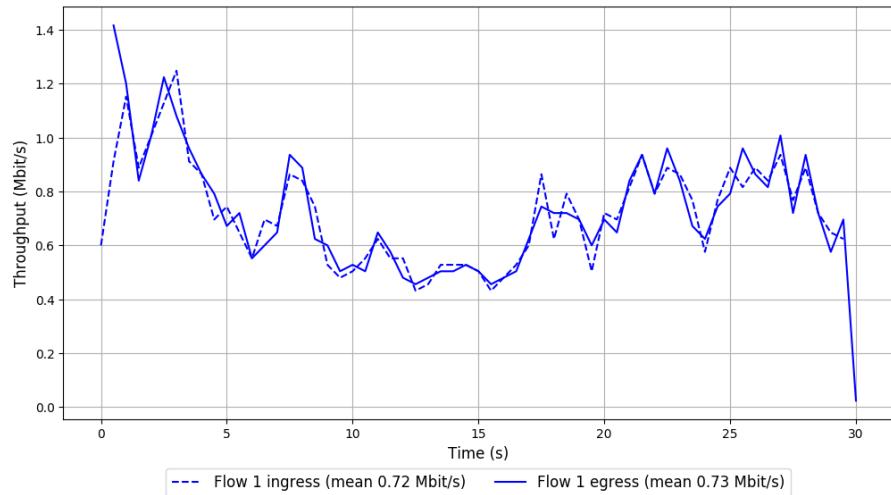
```
-- Flow 1:
```

```
Average throughput: 0.73 Mbit/s
```

```
95th percentile per-packet one-way delay: 65.476 ms
```

```
Loss rate: 0.11%
```

Run 3: Report of CalibratedKoho — Data Link

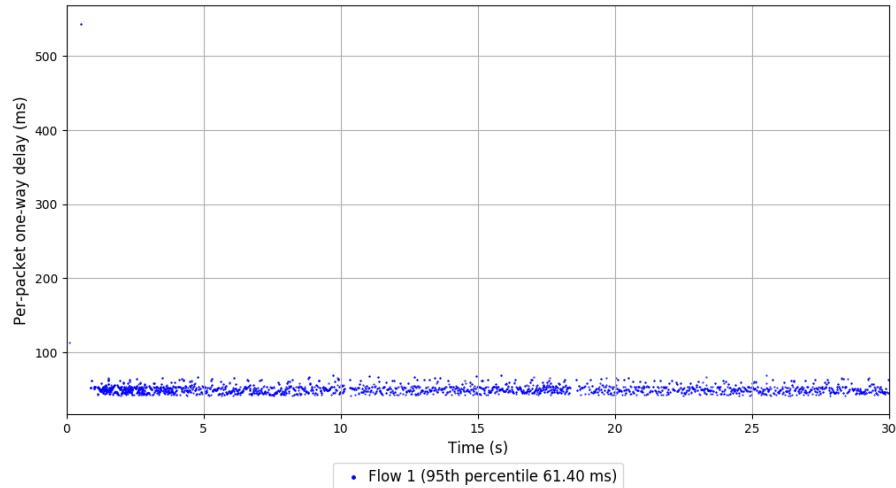
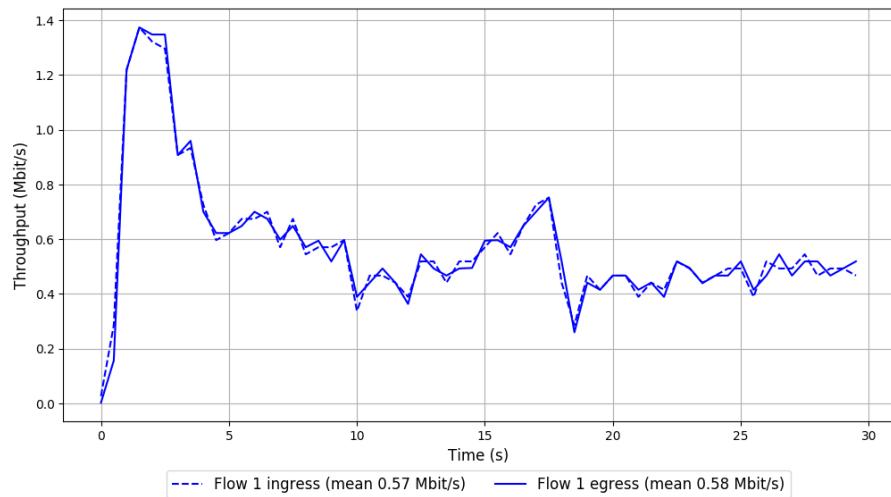


Run 1: Statistics of Copa

```
Start at: Thu, 03 Aug 2017 07:06:11 +0000
End at: Thu, 03 Aug 2017 07:06:41 +0000
Local clock offset: 0.279 ms
Remote clock offset: -3.15 ms

# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:04 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 61.402 ms
Loss rate: -0.01%
-- Flow 1:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 61.402 ms
Loss rate: -0.01%
```

Run 1: Report of Copa — Data Link

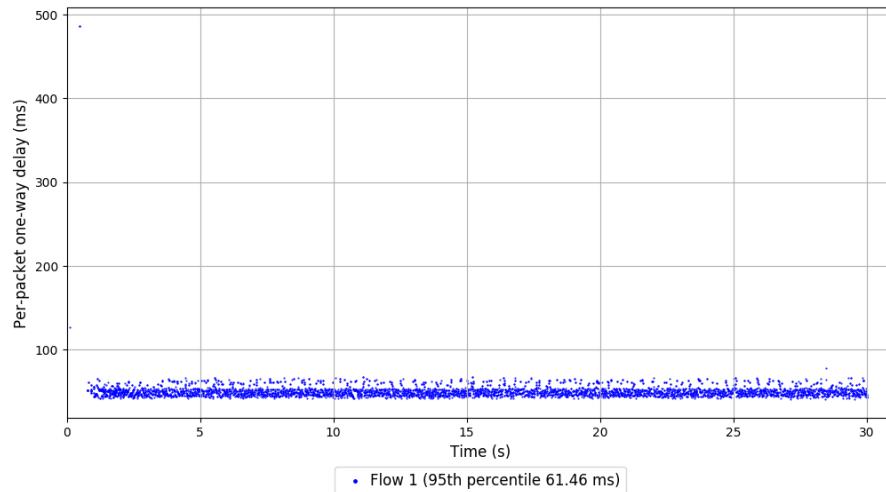
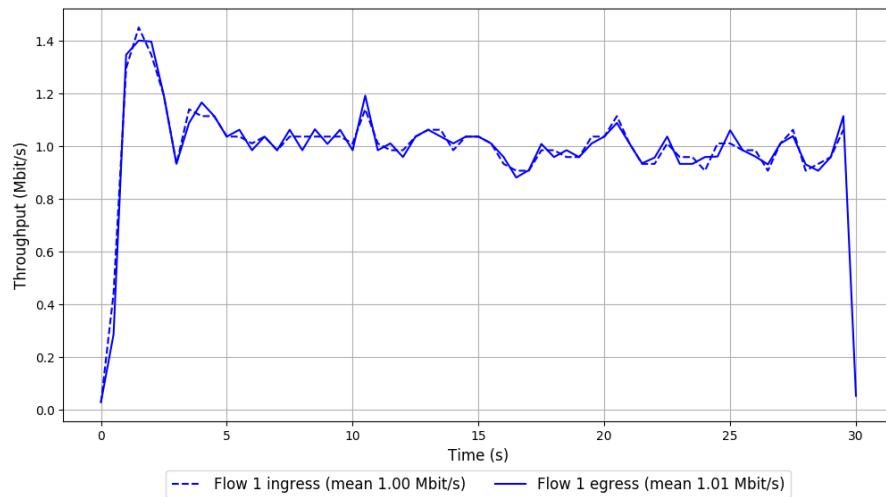


Run 2: Statistics of Copa

```
Start at: Thu, 03 Aug 2017 07:25:39 +0000
End at: Thu, 03 Aug 2017 07:26:09 +0000
Local clock offset: 0.241 ms
Remote clock offset: -3.228 ms

# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:05 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.01 Mbit/s
95th percentile per-packet one-way delay: 61.460 ms
Loss rate: -0.00%
-- Flow 1:
Average throughput: 1.01 Mbit/s
95th percentile per-packet one-way delay: 61.460 ms
Loss rate: -0.00%
```

Run 2: Report of Copa — Data Link

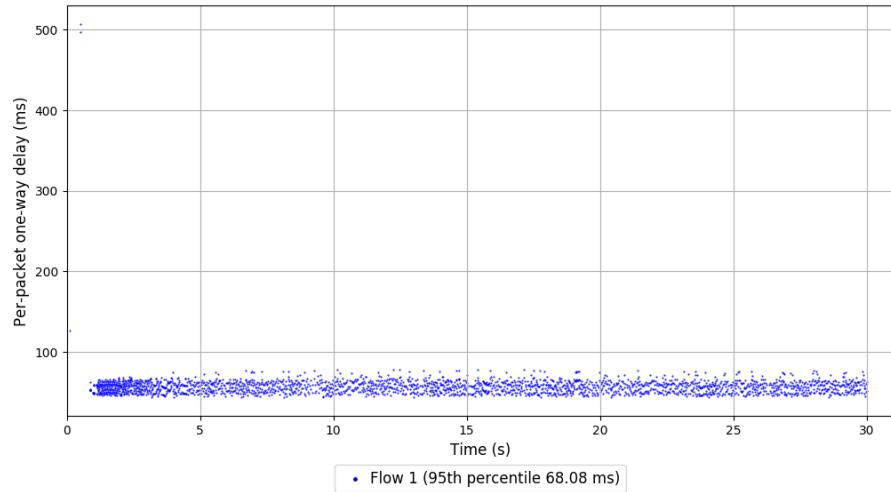
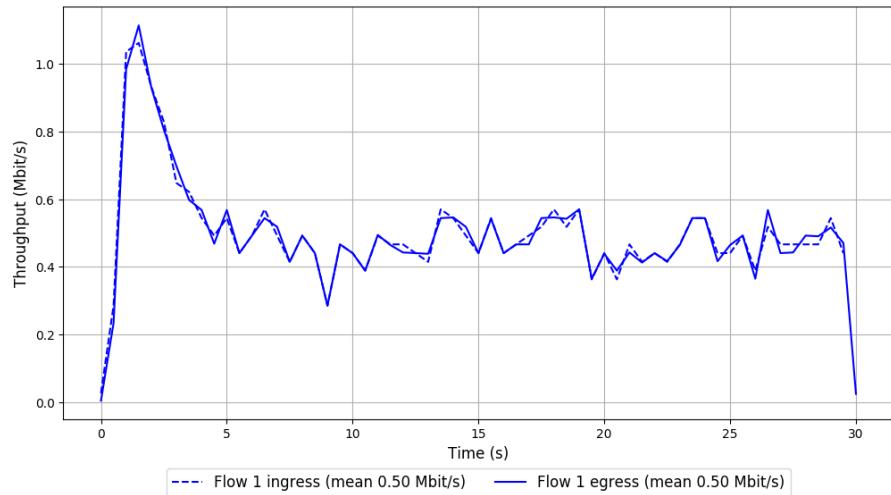


Run 3: Statistics of Copa

```
Start at: Thu, 03 Aug 2017 07:45:12 +0000
End at: Thu, 03 Aug 2017 07:45:42 +0000
Local clock offset: 0.236 ms
Remote clock offset: -1.341 ms

# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:05 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 68.078 ms
Loss rate: -0.01%
-- Flow 1:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 68.078 ms
Loss rate: -0.01%
```

Run 3: Report of Copa — Data Link



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

```
Start at: Thu, 03 Aug 2017 07:11:22 +0000
```

```
End at: Thu, 03 Aug 2017 07:11:52 +0000
```

```
Local clock offset: 0.227 ms
```

```
Remote clock offset: -0.627 ms
```

```
# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:08 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 11.68 Mbit/s
```

```
95th percentile per-packet one-way delay: 123.086 ms
```

```
Loss rate: 0.96%
```

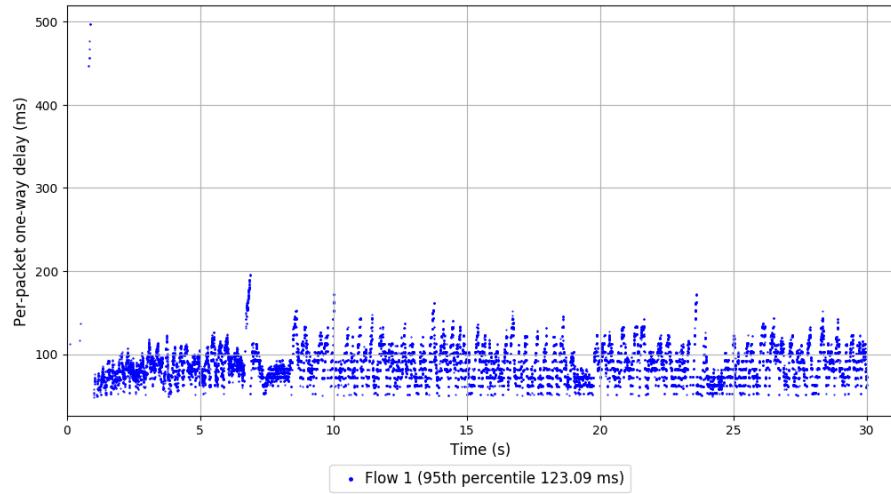
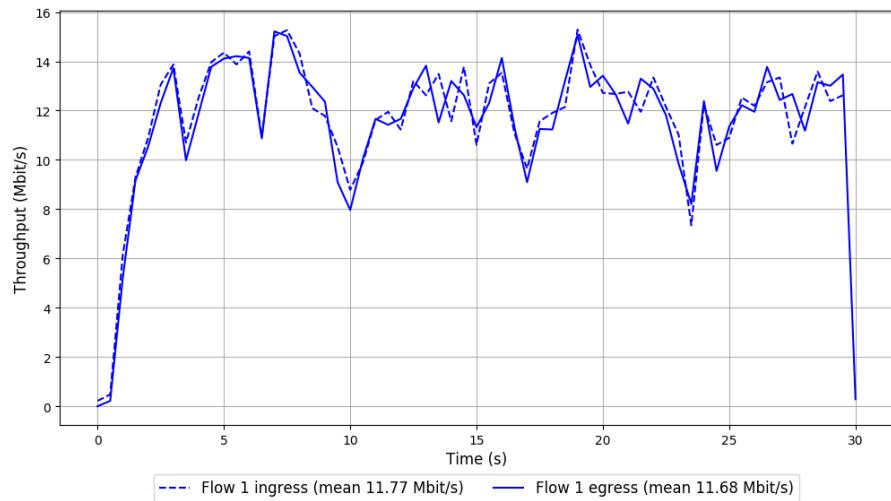
```
-- Flow 1:
```

```
Average throughput: 11.68 Mbit/s
```

```
95th percentile per-packet one-way delay: 123.086 ms
```

```
Loss rate: 0.96%
```

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: Thu, 03 Aug 2017 07:30:51 +0000

End at: Thu, 03 Aug 2017 07:31:21 +0000

Local clock offset: 0.215 ms

Remote clock offset: -1.156 ms

Below is generated by plot.py at Thu, 03 Aug 2017 09:03:08 +0000

Datalink statistics

-- Total of 1 flow:

Average throughput: 13.22 Mbit/s

95th percentile per-packet one-way delay: 193.920 ms

Loss rate: 1.60%

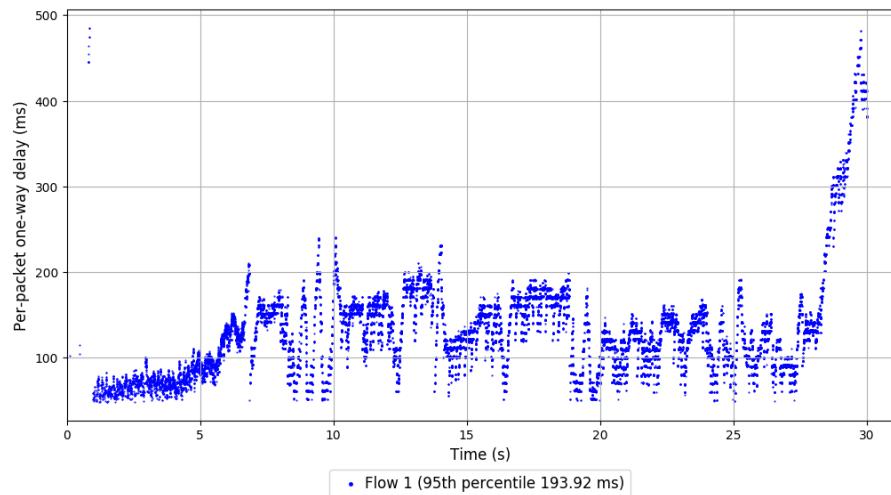
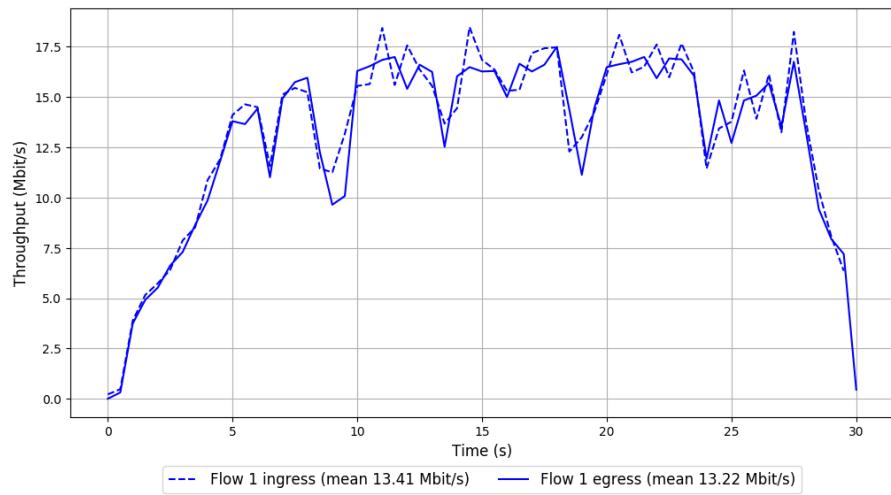
-- Flow 1:

Average throughput: 13.22 Mbit/s

95th percentile per-packet one-way delay: 193.920 ms

Loss rate: 1.60%

Run 2: Report of TCP Cubic — Data Link

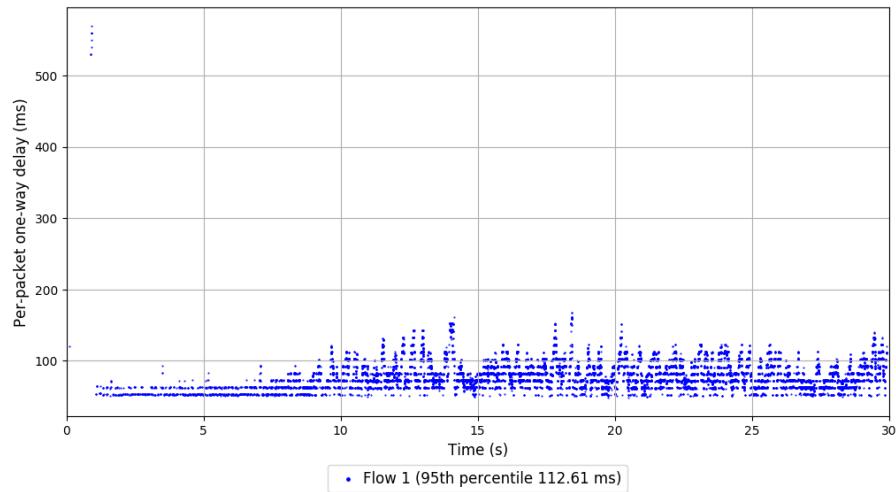
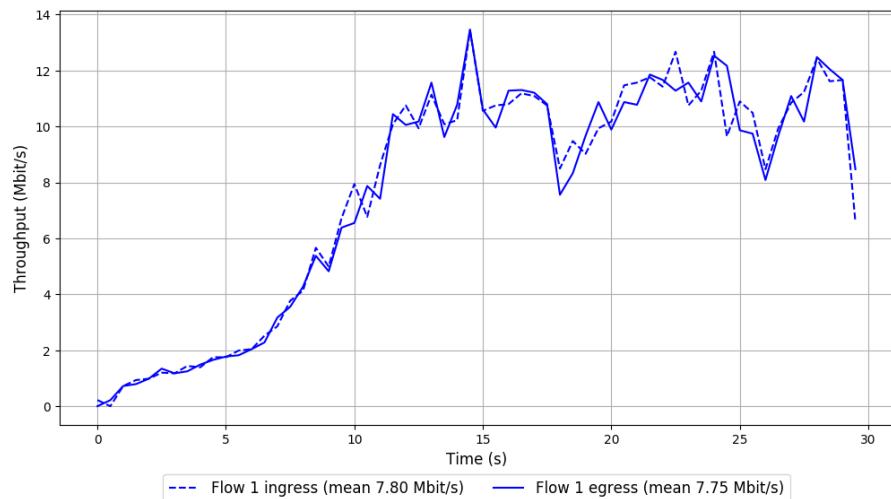


Run 3: Statistics of TCP Cubic

```
Start at: Thu, 03 Aug 2017 07:50:24 +0000
End at: Thu, 03 Aug 2017 07:50:54 +0000
Local clock offset: 0.223 ms
Remote clock offset: -3.277 ms

# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:09 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.75 Mbit/s
95th percentile per-packet one-way delay: 112.607 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 7.75 Mbit/s
95th percentile per-packet one-way delay: 112.607 ms
Loss rate: 0.74%
```

Run 3: Report of TCP Cubic — Data Link



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

```
Start at: Thu, 03 Aug 2017 07:17:51 +0000
```

```
End at: Thu, 03 Aug 2017 07:18:21 +0000
```

```
Local clock offset: 0.282 ms
```

```
Remote clock offset: -3.214 ms
```

```
# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:10 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 5.62 Mbit/s
```

```
95th percentile per-packet one-way delay: 93.643 ms
```

```
Loss rate: 0.34%
```

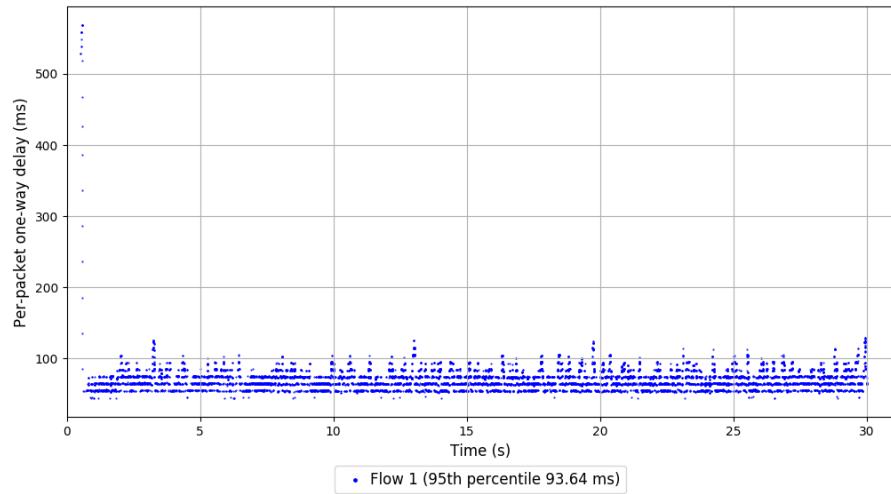
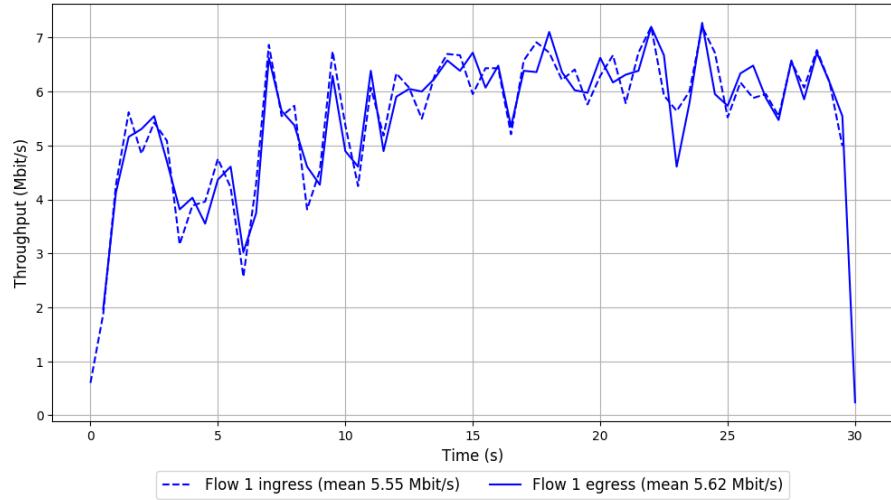
```
-- Flow 1:
```

```
Average throughput: 5.62 Mbit/s
```

```
95th percentile per-packet one-way delay: 93.643 ms
```

```
Loss rate: 0.34%
```

Run 1: Report of KohoCC — Data Link



```
Run 2: Statistics of KohoCC
```

```
Start at: Thu, 03 Aug 2017 07:37:19 +0000
```

```
End at: Thu, 03 Aug 2017 07:37:49 +0000
```

```
Local clock offset: 0.172 ms
```

```
Remote clock offset: -1.184 ms
```

```
# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:11 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 6.22 Mbit/s
```

```
95th percentile per-packet one-way delay: 93.665 ms
```

```
Loss rate: 0.45%
```

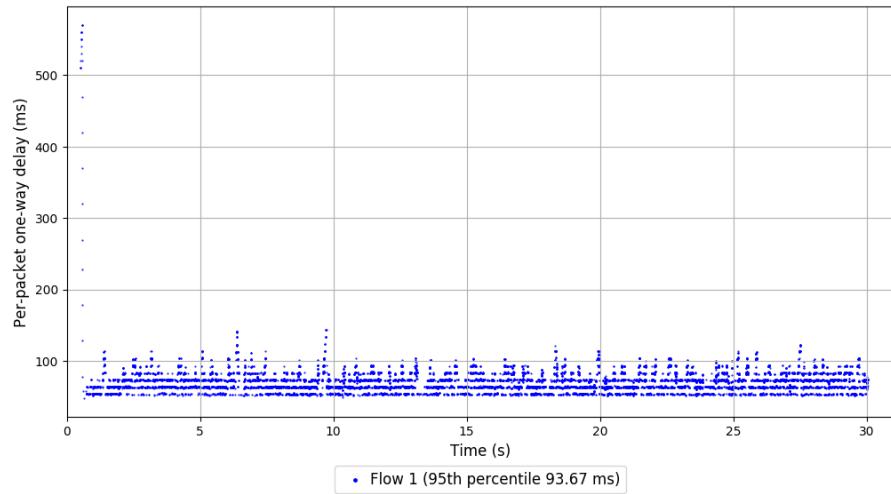
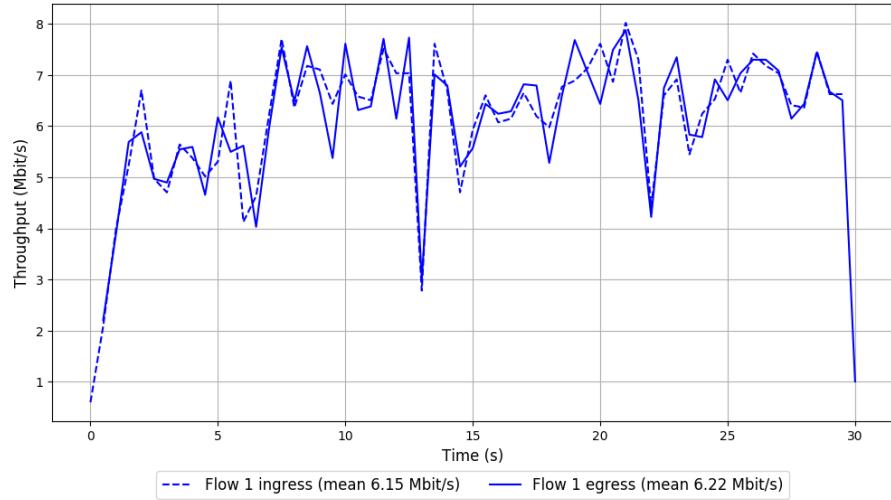
```
-- Flow 1:
```

```
Average throughput: 6.22 Mbit/s
```

```
95th percentile per-packet one-way delay: 93.665 ms
```

```
Loss rate: 0.45%
```

Run 2: Report of KohoCC — Data Link

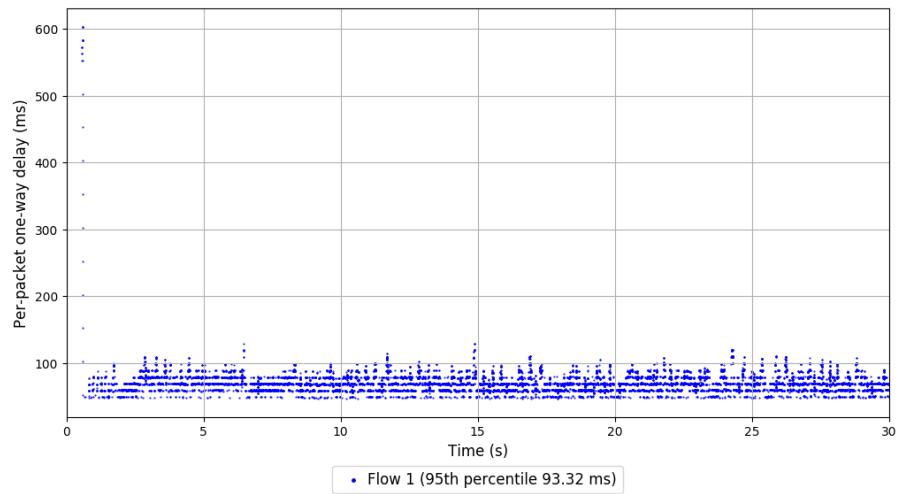
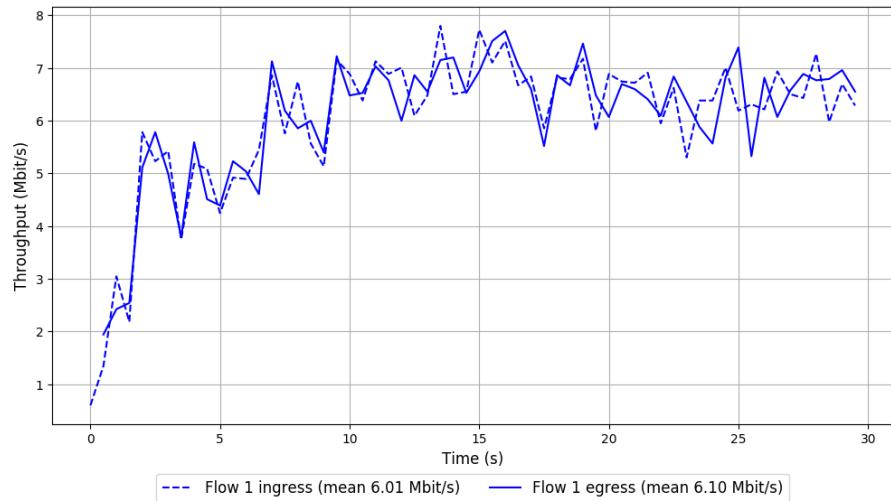


Run 3: Statistics of KohoCC

```
Start at: Thu, 03 Aug 2017 07:56:55 +0000
End at: Thu, 03 Aug 2017 07:57:25 +0000
Local clock offset: 0.178 ms
Remote clock offset: -0.828 ms

# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:12 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.10 Mbit/s
95th percentile per-packet one-way delay: 93.317 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 6.10 Mbit/s
95th percentile per-packet one-way delay: 93.317 ms
Loss rate: 0.27%
```

Run 3: Report of KohoCC — Data Link

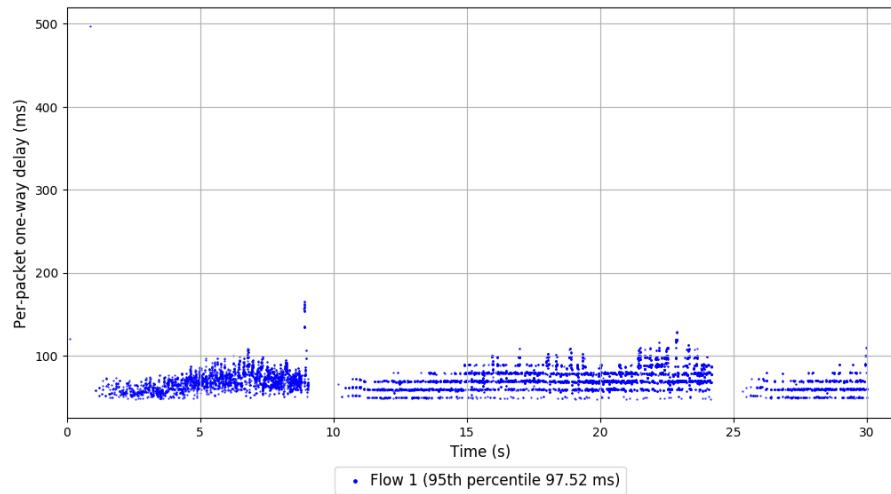
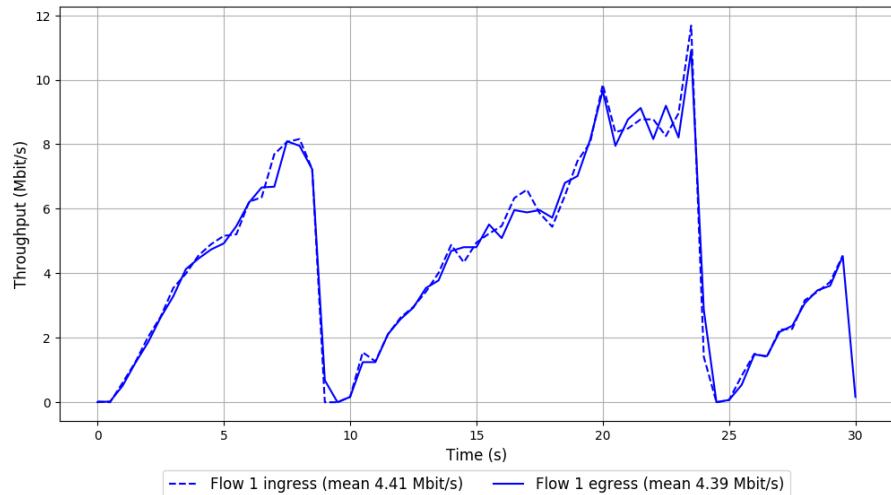


```
Run 1: Statistics of LEDBAT
```

```
Start at: Thu, 03 Aug 2017 07:19:09 +0000
End at: Thu, 03 Aug 2017 07:19:39 +0000
Local clock offset: 0.181 ms
Remote clock offset: -1.057 ms

# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:12 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.39 Mbit/s
95th percentile per-packet one-way delay: 97.519 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 4.39 Mbit/s
95th percentile per-packet one-way delay: 97.519 ms
Loss rate: 0.77%
```

Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: Thu, 03 Aug 2017 07:38:37 +0000
End at: Thu, 03 Aug 2017 07:39:07 +0000
Local clock offset: 0.164 ms
Remote clock offset: -1.314 ms

Run 2: Report of LEDBAT — Data Link

Figure is missing

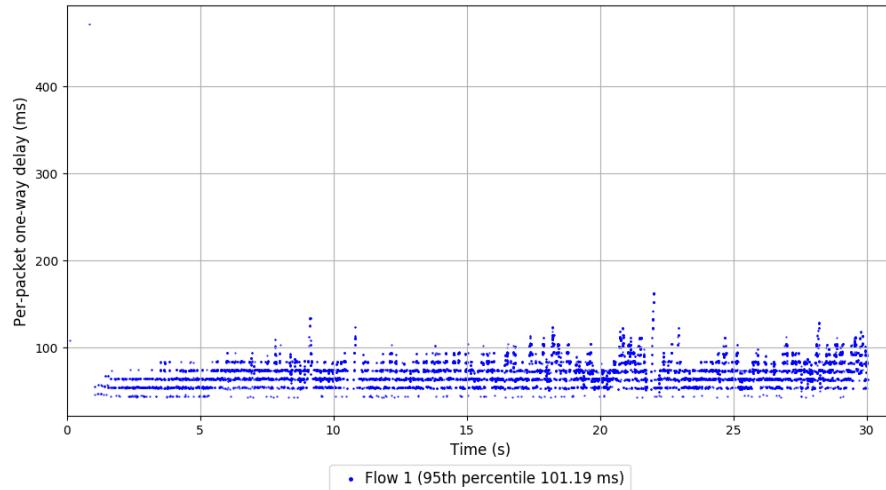
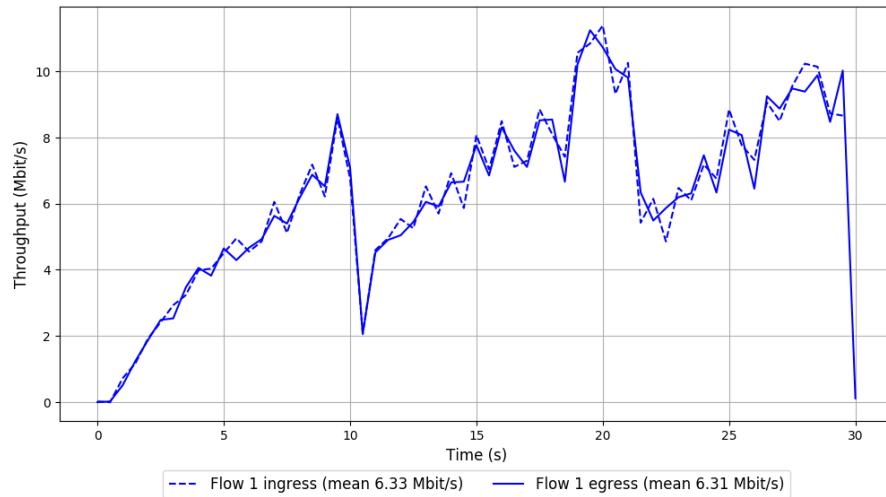
Figure is missing

Run 3: Statistics of LEDBAT

```
Start at: Thu, 03 Aug 2017 07:58:13 +0000
End at: Thu, 03 Aug 2017 07:58:43 +0000
Local clock offset: 0.267 ms
Remote clock offset: -3.347 ms

# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:13 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.31 Mbit/s
95th percentile per-packet one-way delay: 101.194 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 6.31 Mbit/s
95th percentile per-packet one-way delay: 101.194 ms
Loss rate: 0.41%
```

Run 3: Report of LEDBAT — Data Link

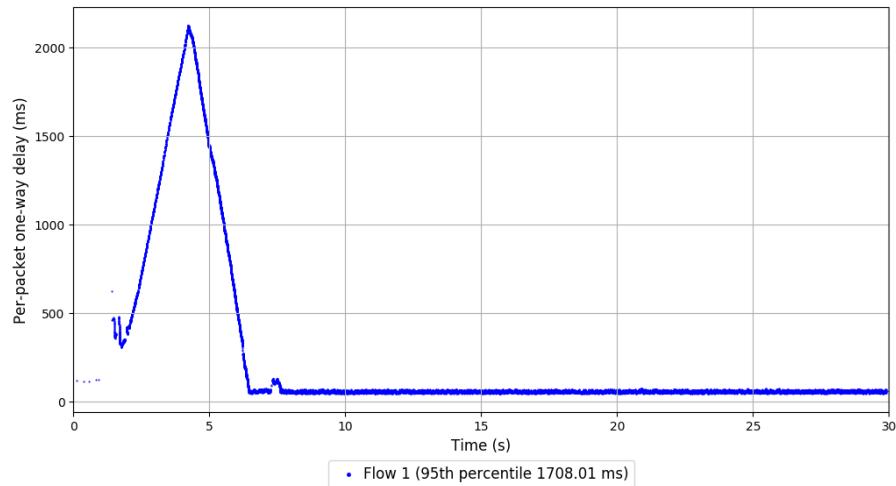
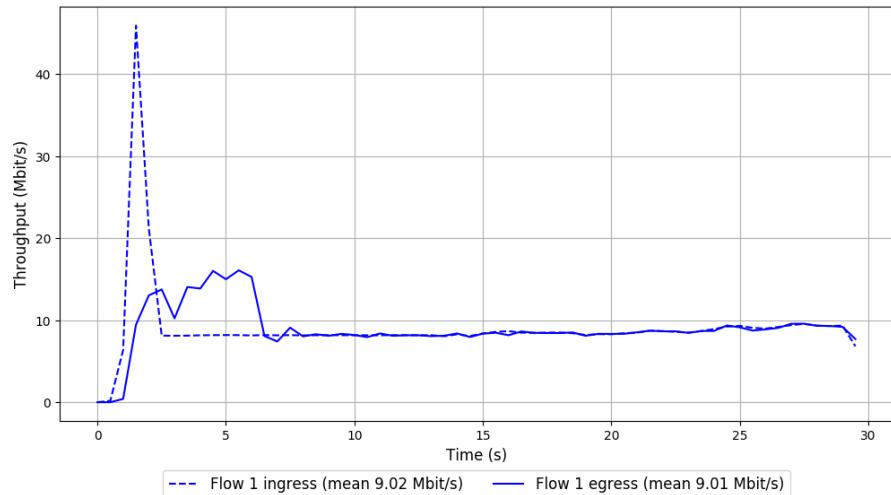


Run 1: Statistics of PCC

```
Start at: Thu, 03 Aug 2017 07:24:21 +0000
End at: Thu, 03 Aug 2017 07:24:51 +0000
Local clock offset: 0.161 ms
Remote clock offset: -3.281 ms

# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:15 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.01 Mbit/s
95th percentile per-packet one-way delay: 1708.013 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 9.01 Mbit/s
95th percentile per-packet one-way delay: 1708.013 ms
Loss rate: 0.40%
```

Run 1: Report of PCC — Data Link

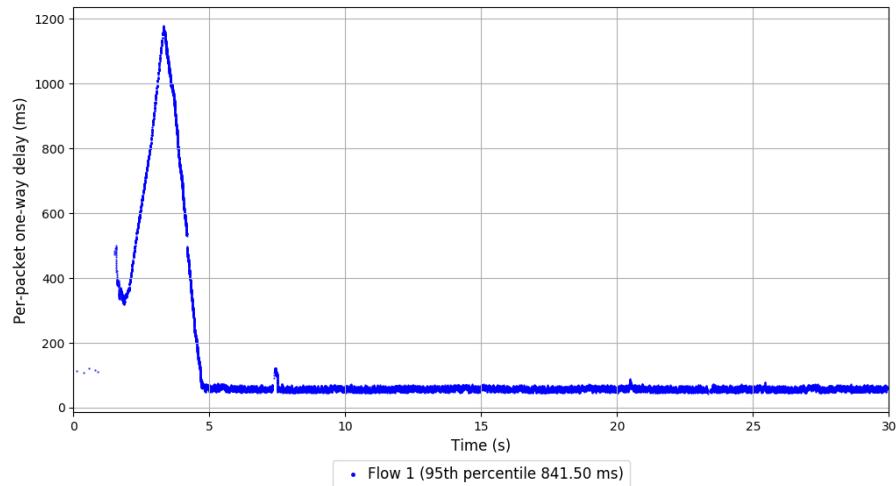
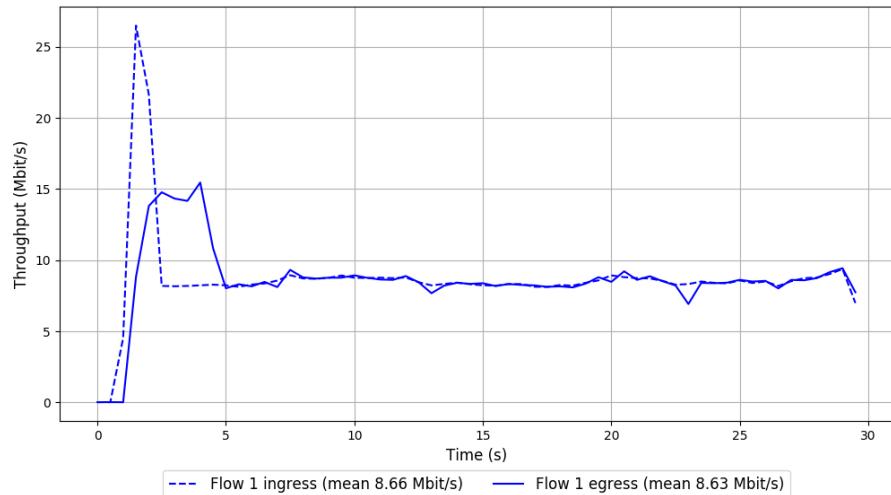


Run 2: Statistics of PCC

```
Start at: Thu, 03 Aug 2017 07:43:52 +0000
End at: Thu, 03 Aug 2017 07:44:22 +0000
Local clock offset: 0.283 ms
Remote clock offset: -3.332 ms

# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:16 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.63 Mbit/s
95th percentile per-packet one-way delay: 841.505 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 8.63 Mbit/s
95th percentile per-packet one-way delay: 841.505 ms
Loss rate: 0.55%
```

Run 2: Report of PCC — Data Link

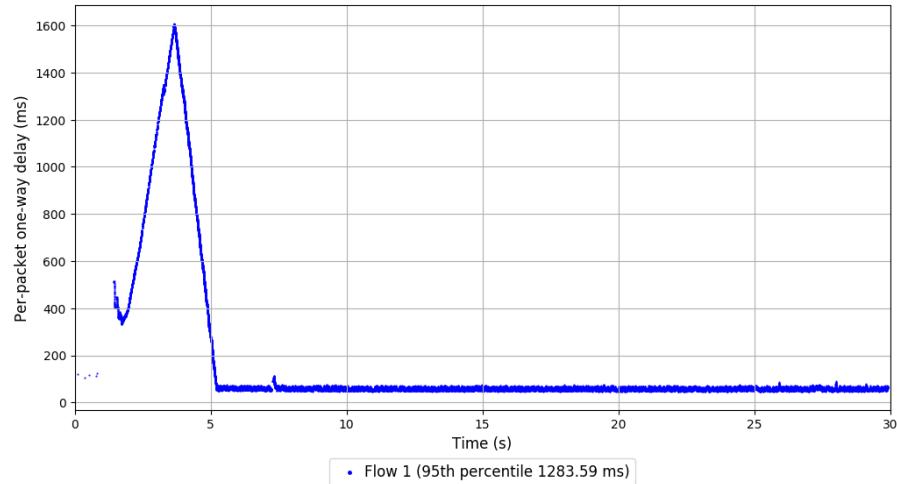
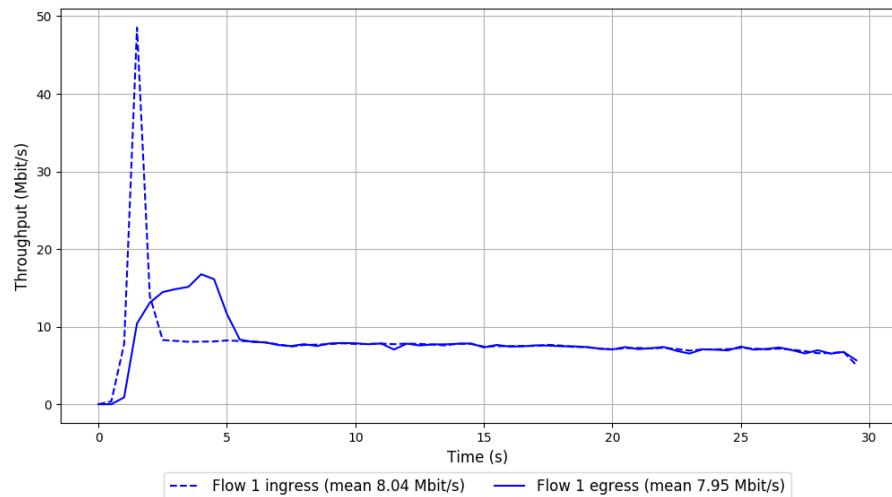


Run 3: Statistics of PCC

```
Start at: Thu, 03 Aug 2017 08:03:28 +0000
End at: Thu, 03 Aug 2017 08:03:58 +0000
Local clock offset: 0.28 ms
Remote clock offset: -0.815 ms

# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:17 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.95 Mbit/s
95th percentile per-packet one-way delay: 1283.590 ms
Loss rate: 1.37%
-- Flow 1:
Average throughput: 7.95 Mbit/s
95th percentile per-packet one-way delay: 1283.590 ms
Loss rate: 1.37%
```

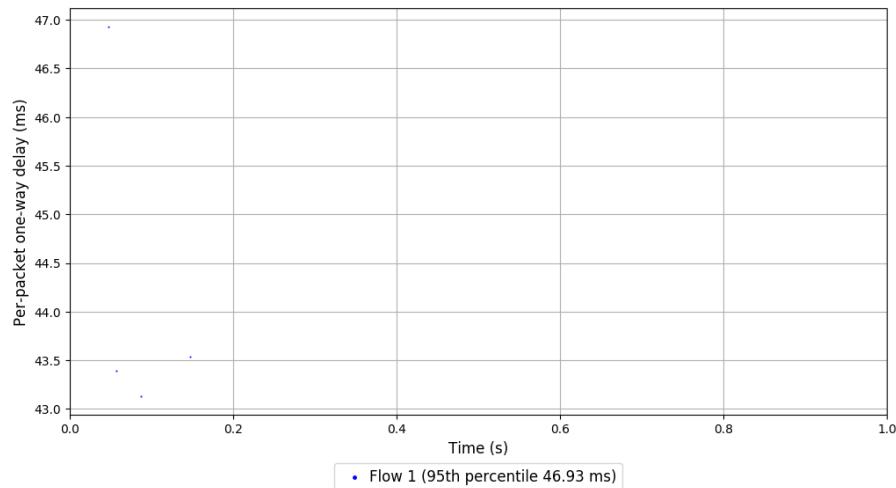
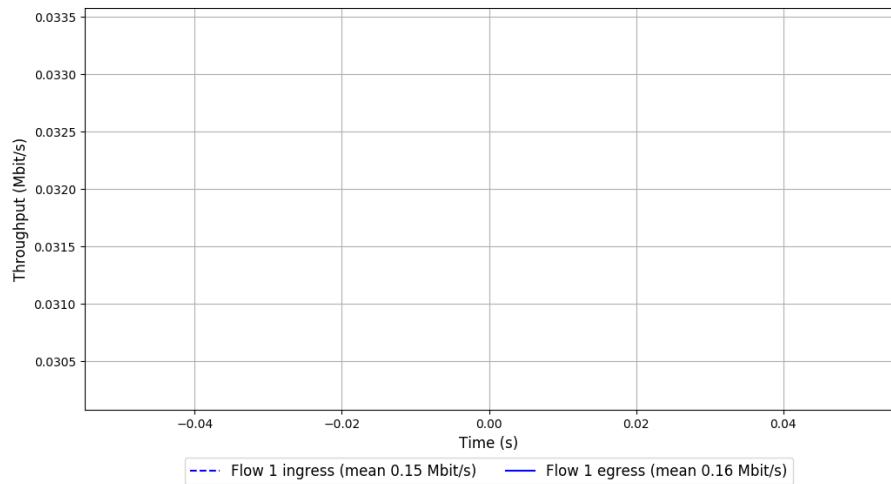
Run 3: Report of PCC — Data Link



Run 1: Statistics of QUIC Cubic

Start at: Thu, 03 Aug 2017 07:21:46 +0000
End at: Thu, 03 Aug 2017 07:22:16 +0000
Local clock offset: 0.259 ms
Remote clock offset: -3.147 ms

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: Thu, 03 Aug 2017 07:41:14 +0000

End at: Thu, 03 Aug 2017 07:41:44 +0000

Local clock offset: 0.151 ms

Remote clock offset: -3.422 ms

Below is generated by plot.py at Thu, 03 Aug 2017 09:03:19 +0000

Datalink statistics

-- Total of 1 flow:

Average throughput: 15.07 Mbit/s

95th percentile per-packet one-way delay: 243.430 ms

Loss rate: 1.76%

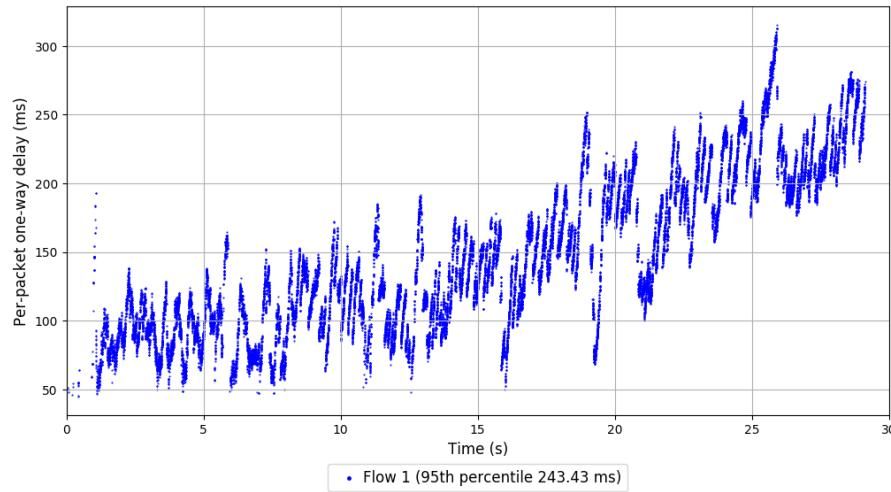
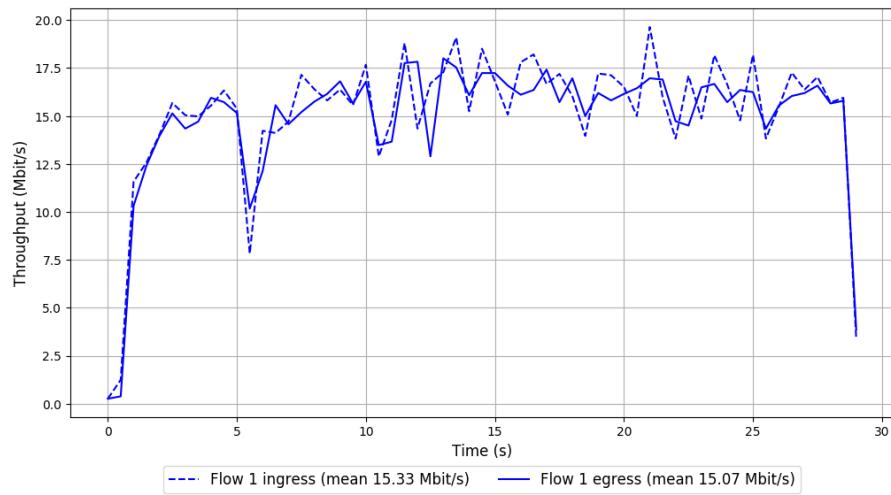
-- Flow 1:

Average throughput: 15.07 Mbit/s

95th percentile per-packet one-way delay: 243.430 ms

Loss rate: 1.76%

Run 2: Report of QUIC Cubic — Data Link

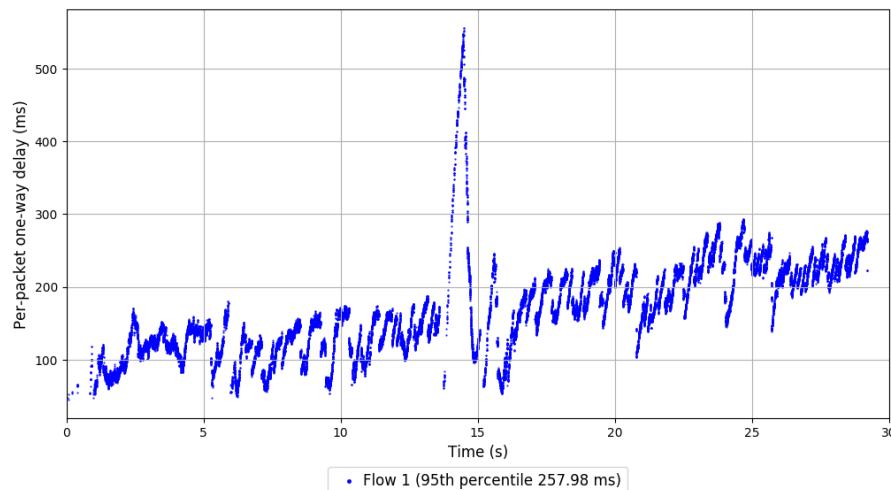
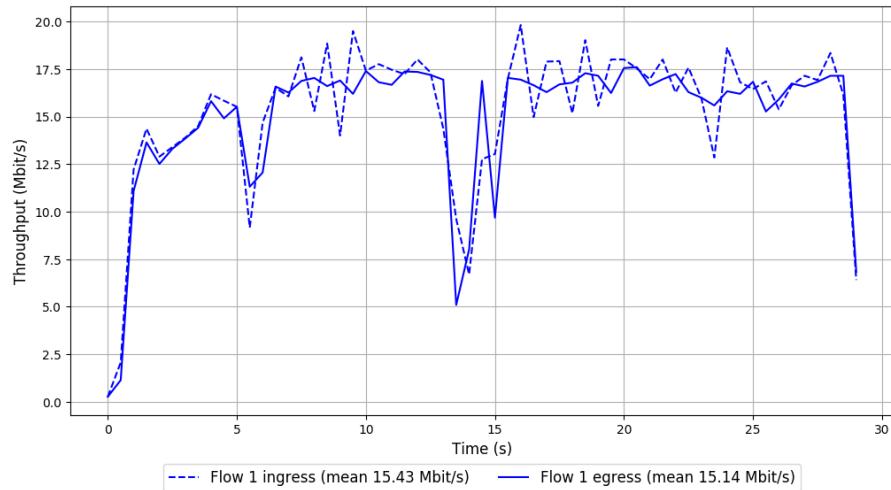


Run 3: Statistics of QUIC Cubic

```
Start at: Thu, 03 Aug 2017 08:00:51 +0000
End at: Thu, 03 Aug 2017 08:01:21 +0000
Local clock offset: 0.288 ms
Remote clock offset: -1.172 ms

# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:20 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 15.14 Mbit/s
95th percentile per-packet one-way delay: 257.976 ms
Loss rate: 1.88%
-- Flow 1:
Average throughput: 15.14 Mbit/s
95th percentile per-packet one-way delay: 257.976 ms
Loss rate: 1.88%
```

Run 3: Report of QUIC Cubic — Data Link



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

```
Start at: Thu, 03 Aug 2017 07:10:03 +0000
```

```
End at: Thu, 03 Aug 2017 07:10:33 +0000
```

```
Local clock offset: 0.356 ms
```

```
Remote clock offset: -3.158 ms
```

```
# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:22 +0000
```

```
# Datalink statistics
```

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

```
Average throughput: 13.32 Mbit/s
```

```
95th percentile per-packet one-way delay: 123.389 ms
```

```
Loss rate: 0.88%
```

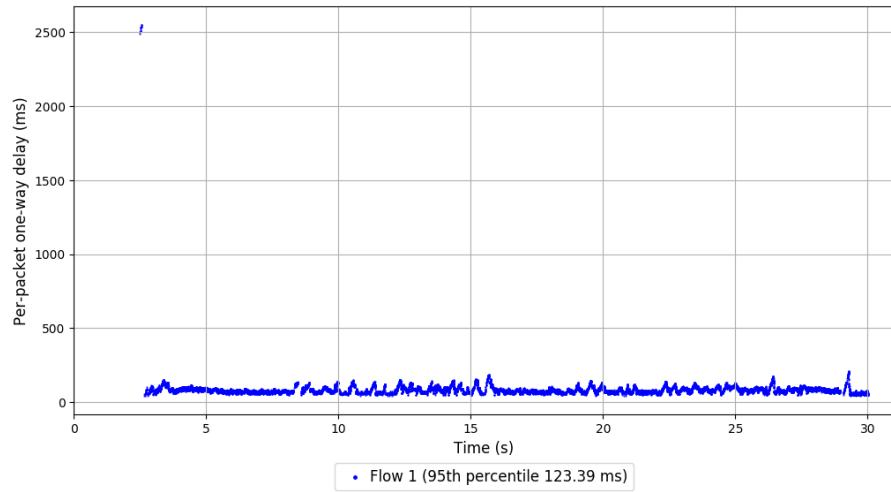
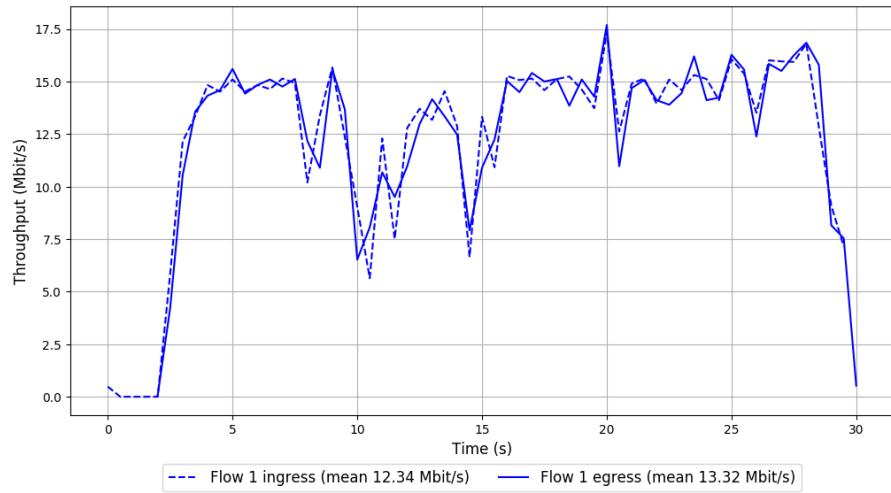
```
-- Flow 1:
```

```
Average throughput: 13.32 Mbit/s
```

```
95th percentile per-packet one-way delay: 123.389 ms
```

```
Loss rate: 0.88%
```

Run 1: Report of Saturator — Data Link

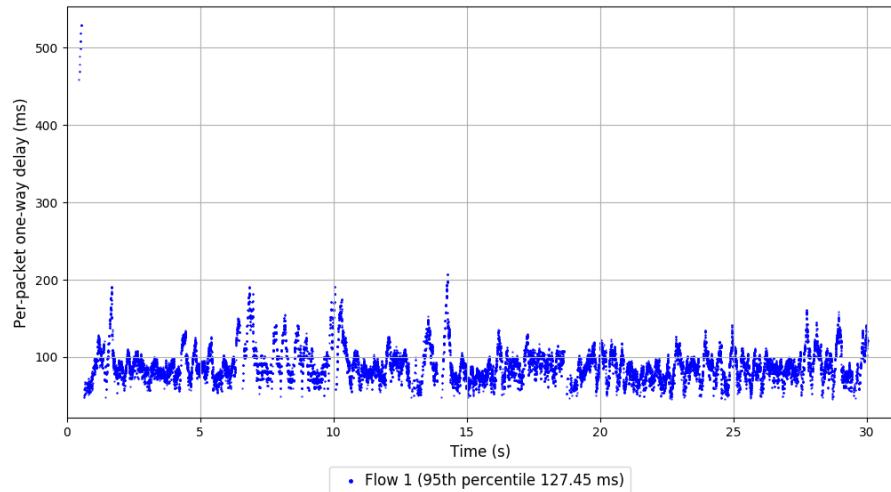
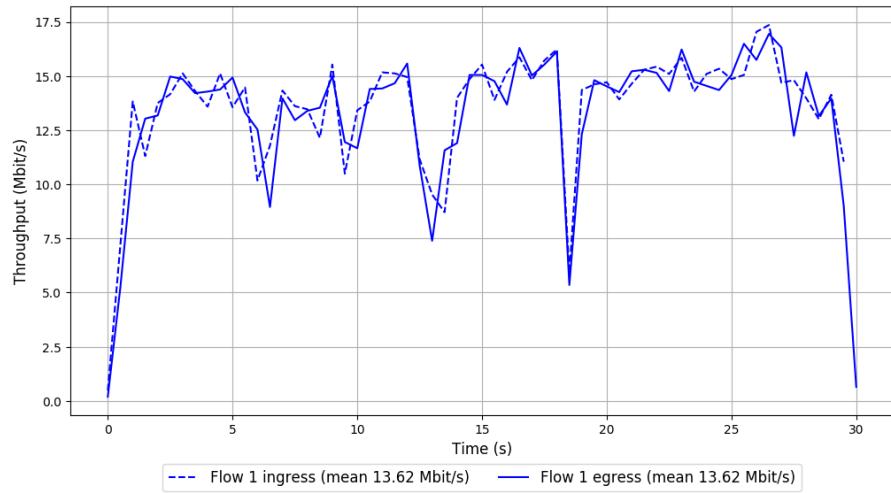


Run 2: Statistics of Saturator

```
Start at: Thu, 03 Aug 2017 07:29:32 +0000
End at: Thu, 03 Aug 2017 07:30:02 +0000
Local clock offset: 0.258 ms
Remote clock offset: -3.227 ms

# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:23 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 13.62 Mbit/s
95th percentile per-packet one-way delay: 127.448 ms
Loss rate: 1.36%
-- Flow 1:
Average throughput: 13.62 Mbit/s
95th percentile per-packet one-way delay: 127.448 ms
Loss rate: 1.36%
```

Run 2: Report of Saturator — Data Link



Run 3: Statistics of Saturator

Start at: Thu, 03 Aug 2017 07:49:05 +0000

End at: Thu, 03 Aug 2017 07:49:35 +0000

Local clock offset: 0.195 ms

Remote clock offset: -3.374 ms

Below is generated by plot.py at Thu, 03 Aug 2017 09:03:24 +0000

Datalink statistics

-- Total of 1 flow:

Average throughput: 13.28 Mbit/s

95th percentile per-packet one-way delay: 140.271 ms

Loss rate: 0.85%

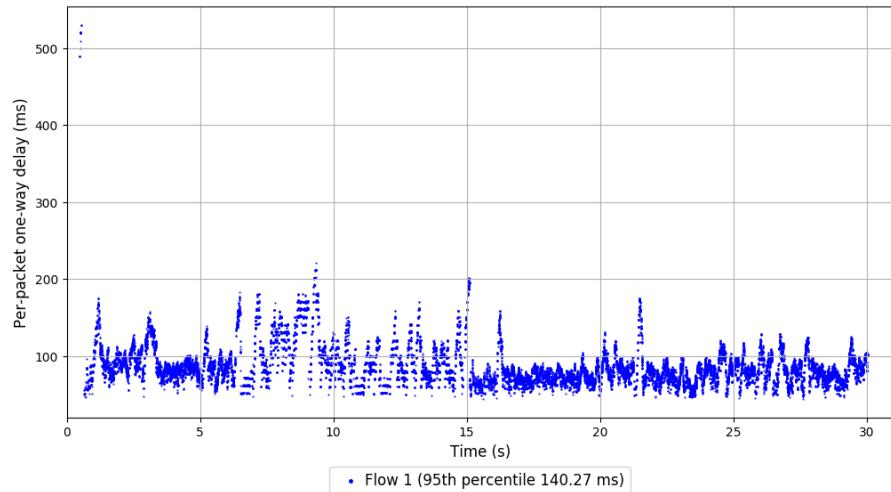
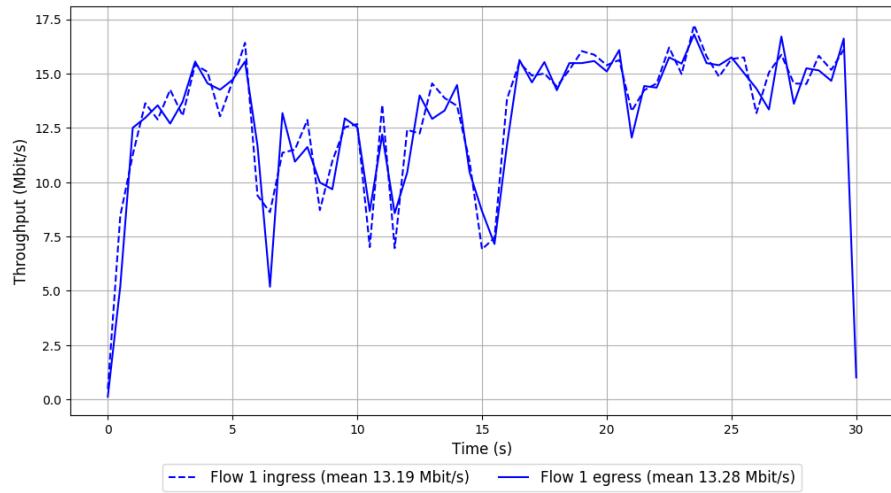
-- Flow 1:

Average throughput: 13.28 Mbit/s

95th percentile per-packet one-way delay: 140.271 ms

Loss rate: 0.85%

Run 3: Report of Saturator — Data Link



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

```
Start at: Thu, 03 Aug 2017 07:13:58 +0000
```

```
End at: Thu, 03 Aug 2017 07:14:28 +0000
```

```
Local clock offset: 0.292 ms
```

```
Remote clock offset: -3.134 ms
```

```
# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:25 +0000
```

```
# Datalink statistics
```

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

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

```
95th percentile per-packet one-way delay: 56.712 ms
```

```
Loss rate: 0.00%
```

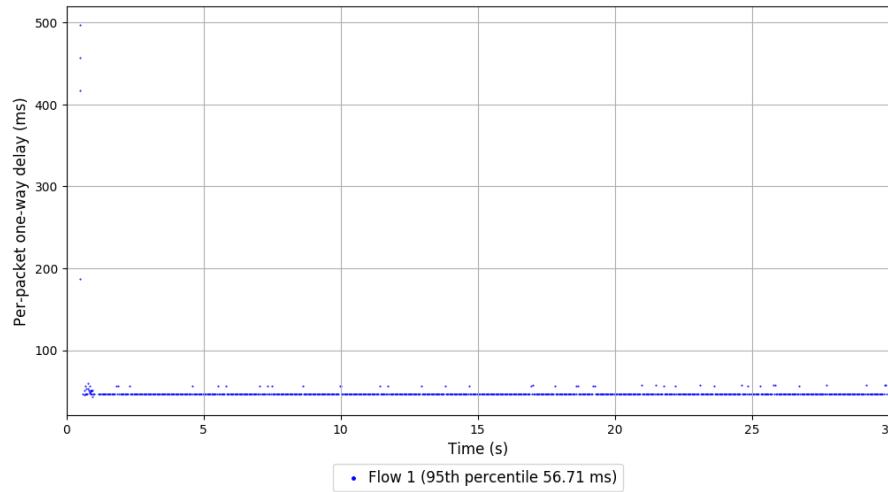
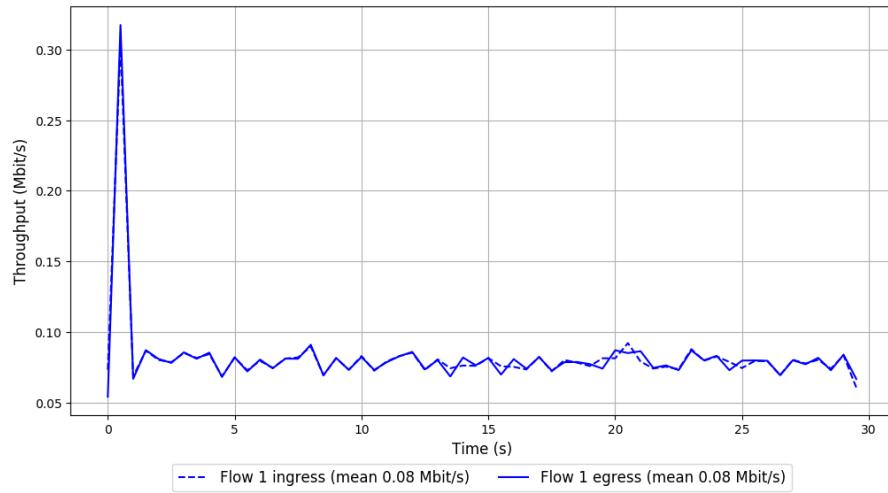
```
-- Flow 1:
```

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

```
95th percentile per-packet one-way delay: 56.712 ms
```

```
Loss rate: 0.00%
```

Run 1: Report of SCReAM — Data Link

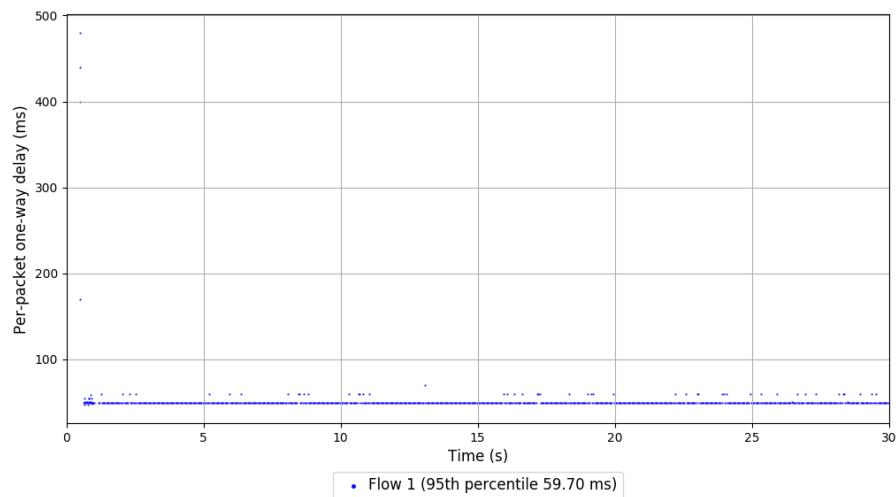
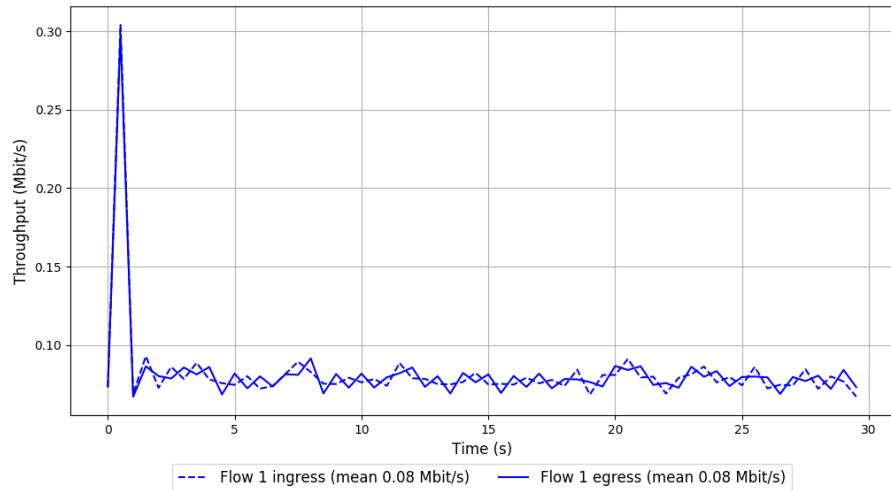


Run 2: Statistics of SCReAM

```
Start at: Thu, 03 Aug 2017 07:33:26 +0000
End at: Thu, 03 Aug 2017 07:33:56 +0000
Local clock offset: 0.151 ms
Remote clock offset: -1.172 ms

# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:26 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 59.699 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 59.699 ms
Loss rate: 0.00%
```

Run 2: Report of SCReAM — Data Link

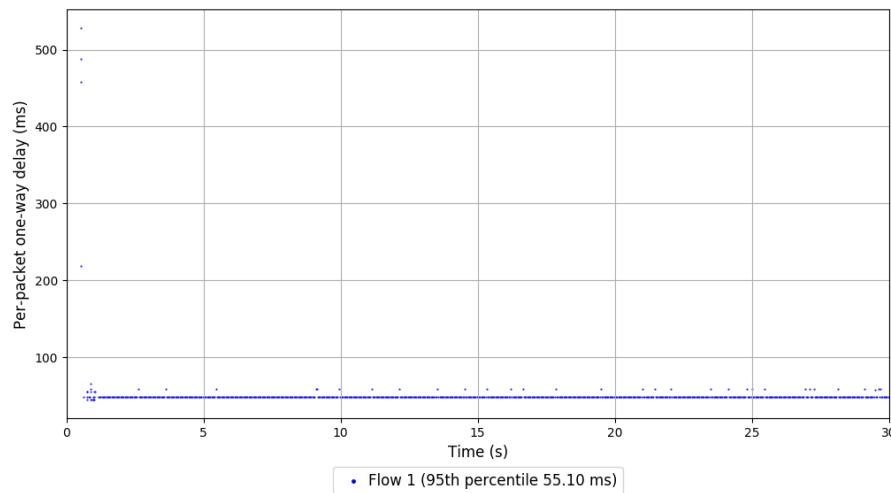
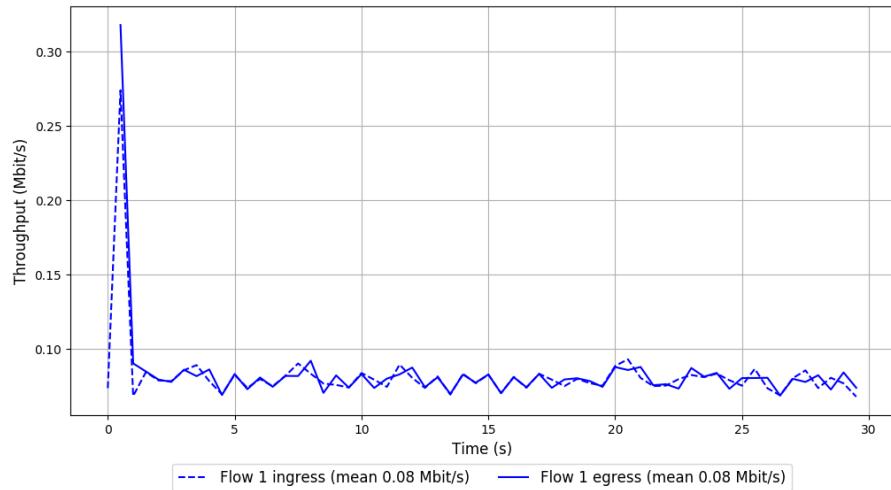


Run 3: Statistics of SCReAM

```
Start at: Thu, 03 Aug 2017 07:53:00 +0000
End at: Thu, 03 Aug 2017 07:53:30 +0000
Local clock offset: 0.247 ms
Remote clock offset: -3.325 ms

# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:26 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 55.096 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 55.096 ms
Loss rate: 0.00%
```

Run 3: Report of SCReAM — Data Link

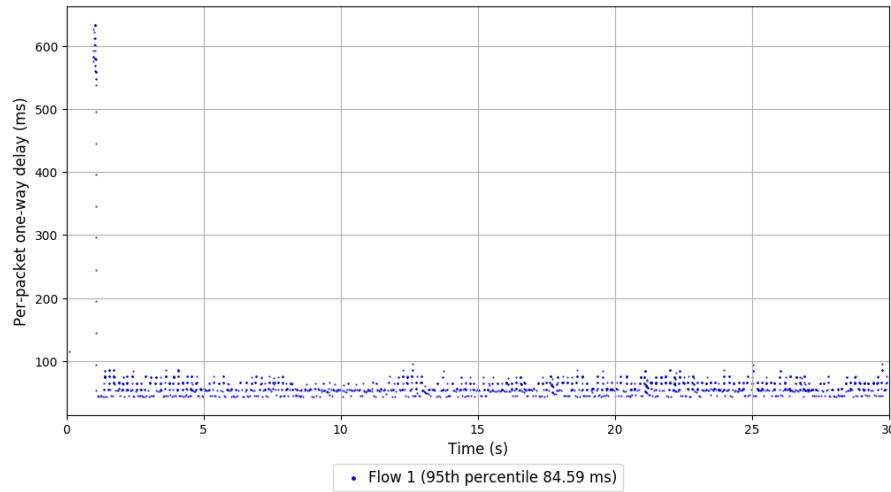
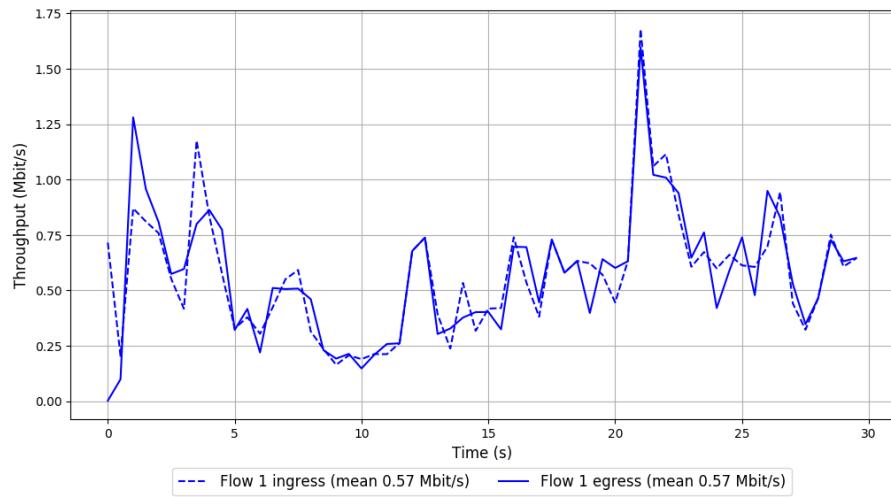


Run 1: Statistics of Sprout

```
Start at: Thu, 03 Aug 2017 07:12:40 +0000
End at: Thu, 03 Aug 2017 07:13:10 +0000
Local clock offset: 0.2 ms
Remote clock offset: -0.993 ms

# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:26 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 84.589 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 84.589 ms
Loss rate: 0.24%
```

Run 1: Report of Sprout — Data Link

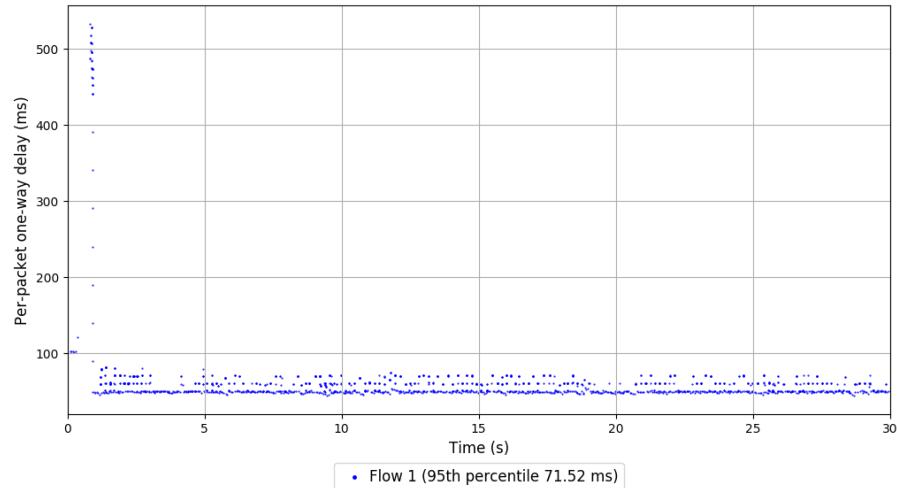
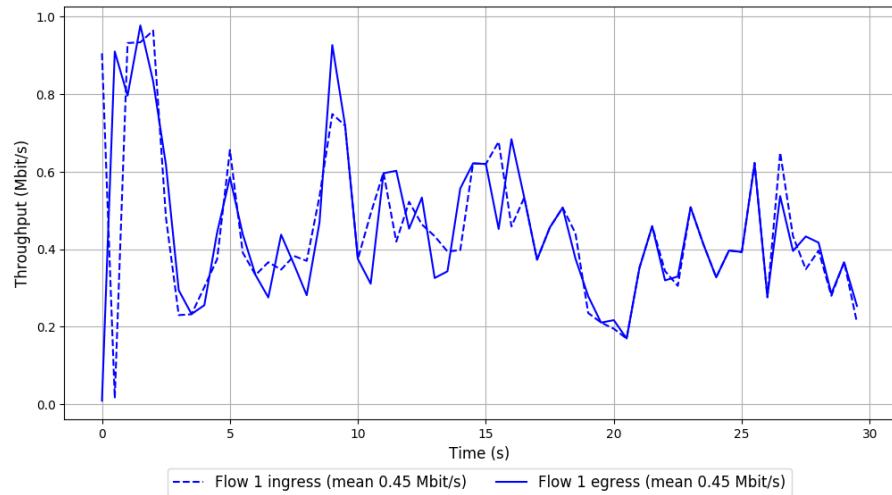


Run 2: Statistics of Sprout

```
Start at: Thu, 03 Aug 2017 07:32:09 +0000
End at: Thu, 03 Aug 2017 07:32:39 +0000
Local clock offset: 0.165 ms
Remote clock offset: -0.649 ms

# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:27 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 71.519 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 71.519 ms
Loss rate: 0.09%
```

Run 2: Report of Sprout — Data Link

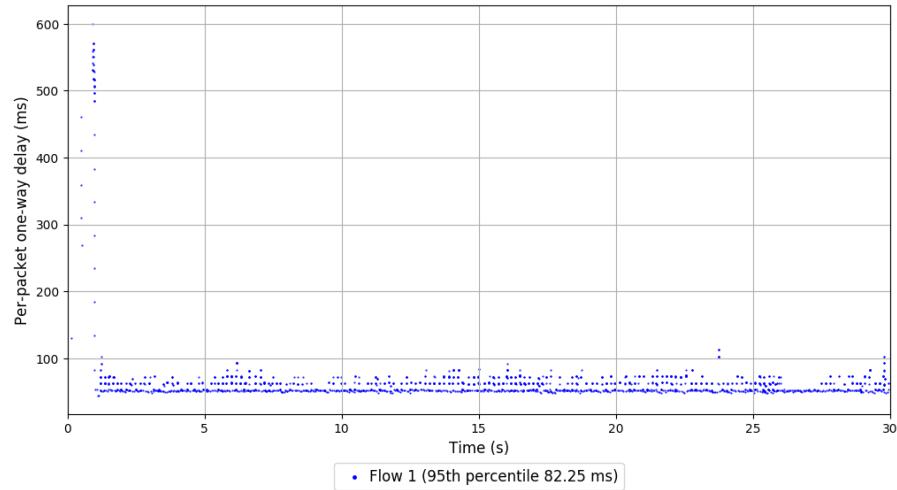
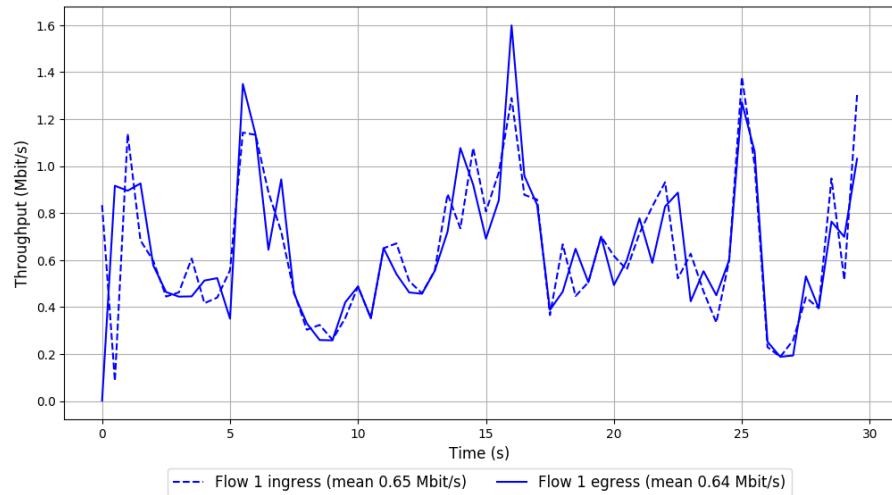


Run 3: Statistics of Sprout

```
Start at: Thu, 03 Aug 2017 07:51:42 +0000
End at: Thu, 03 Aug 2017 07:52:12 +0000
Local clock offset: 0.284 ms
Remote clock offset: -0.741 ms

# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:28 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.64 Mbit/s
95th percentile per-packet one-way delay: 82.254 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 0.64 Mbit/s
95th percentile per-packet one-way delay: 82.254 ms
Loss rate: 0.71%
```

Run 3: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: Thu, 03 Aug 2017 07:16:33 +0000

End at: Thu, 03 Aug 2017 07:17:03 +0000

Local clock offset: 0.266 ms

Remote clock offset: -1.095 ms

Below is generated by plot.py at Thu, 03 Aug 2017 09:03:29 +0000

Datalink statistics

-- Total of 1 flow:

Average throughput: 3.78 Mbit/s

95th percentile per-packet one-way delay: 68.367 ms

Loss rate: 1.93%

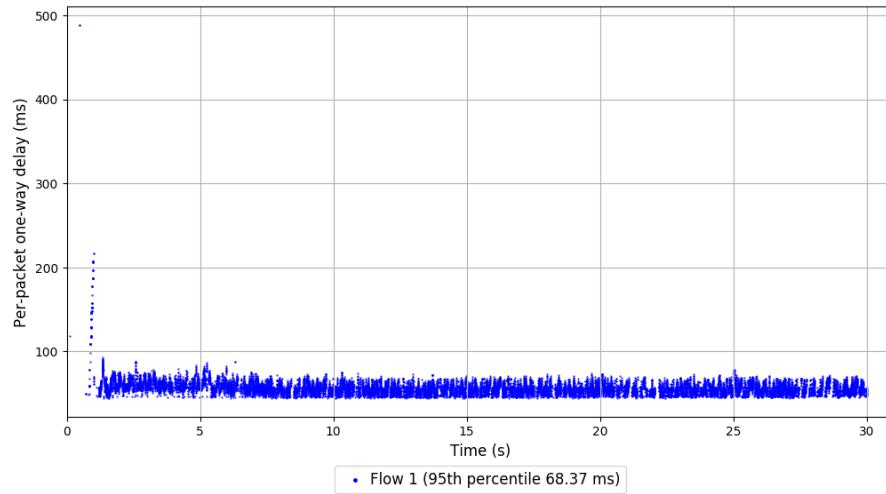
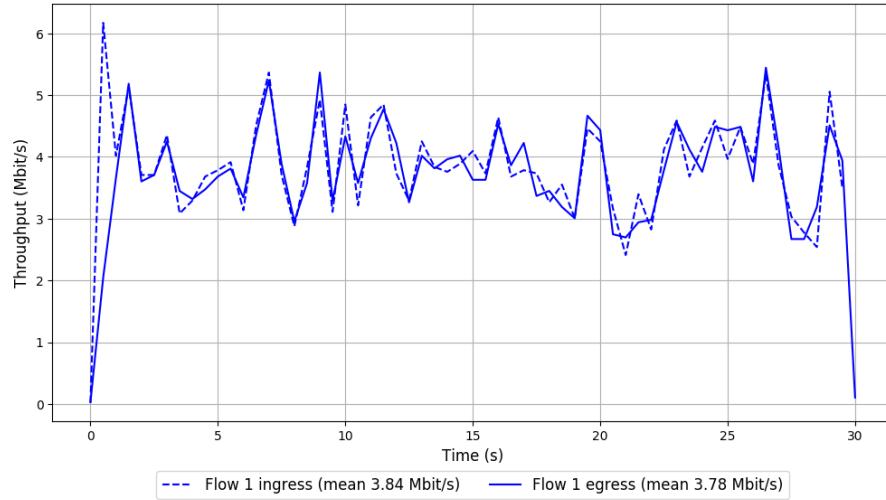
-- Flow 1:

Average throughput: 3.78 Mbit/s

95th percentile per-packet one-way delay: 68.367 ms

Loss rate: 1.93%

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



Run 2: Statistics of TaoVA-100x

Start at: Thu, 03 Aug 2017 07:36:01 +0000

End at: Thu, 03 Aug 2017 07:36:31 +0000

Local clock offset: 0.27 ms

Remote clock offset: -1.255 ms

Below is generated by plot.py at Thu, 03 Aug 2017 09:03:29 +0000

Datalink statistics

-- Total of 1 flow:

Average throughput: 3.68 Mbit/s

95th percentile per-packet one-way delay: 70.305 ms

Loss rate: 0.30%

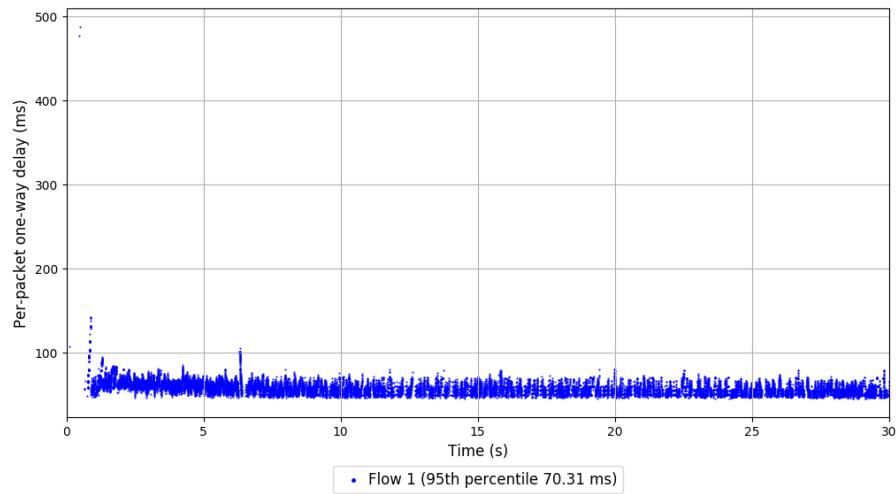
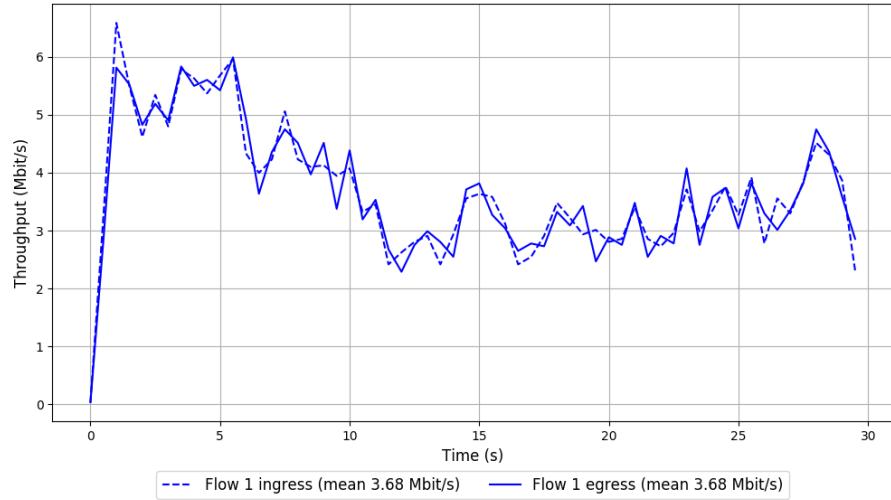
-- Flow 1:

Average throughput: 3.68 Mbit/s

95th percentile per-packet one-way delay: 70.305 ms

Loss rate: 0.30%

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

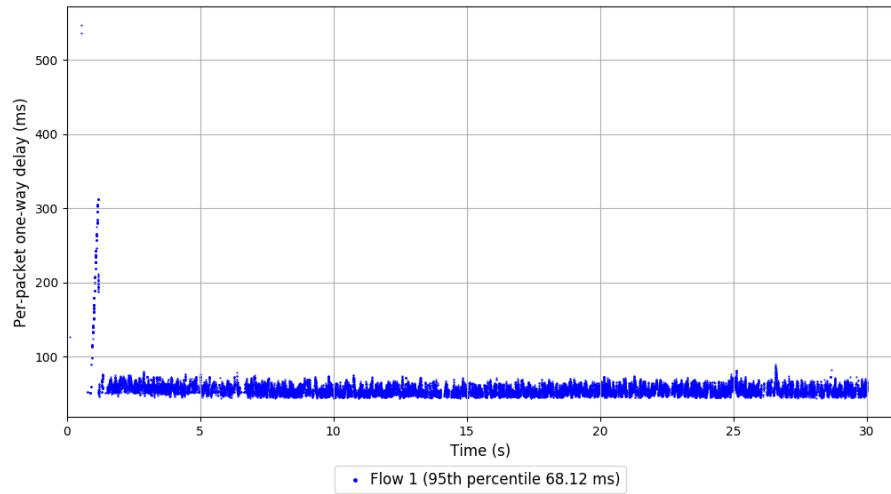
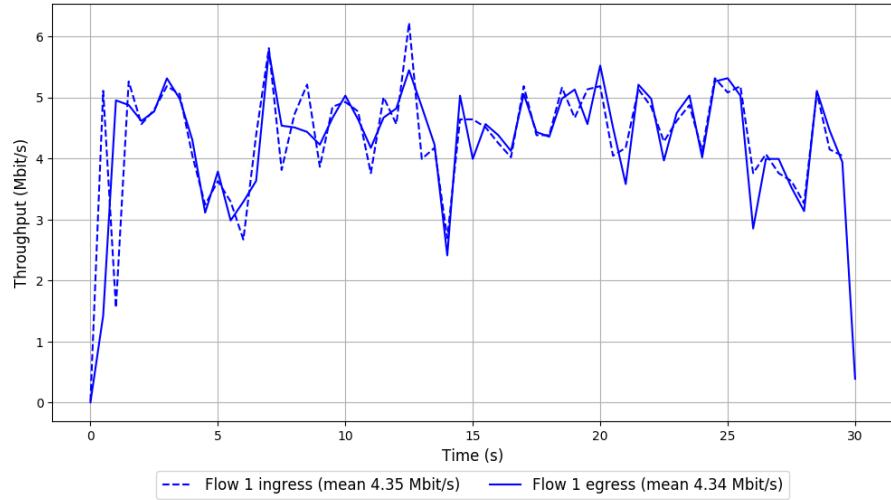


Run 3: Statistics of TaoVA-100x

```
Start at: Thu, 03 Aug 2017 07:55:36 +0000
End at: Thu, 03 Aug 2017 07:56:06 +0000
Local clock offset: 0.187 ms
Remote clock offset: -3.392 ms

# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:31 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.34 Mbit/s
95th percentile per-packet one-way delay: 68.123 ms
Loss rate: 0.45%
-- Flow 1:
Average throughput: 4.34 Mbit/s
95th percentile per-packet one-way delay: 68.123 ms
Loss rate: 0.45%
```

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

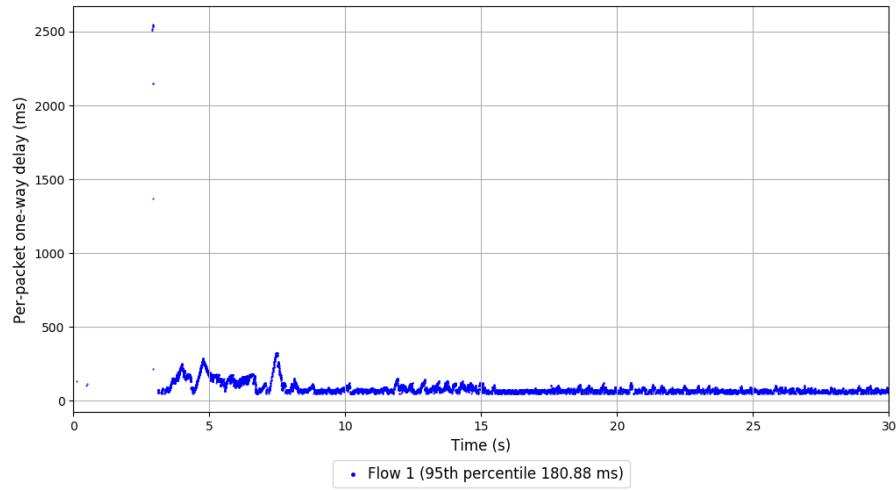
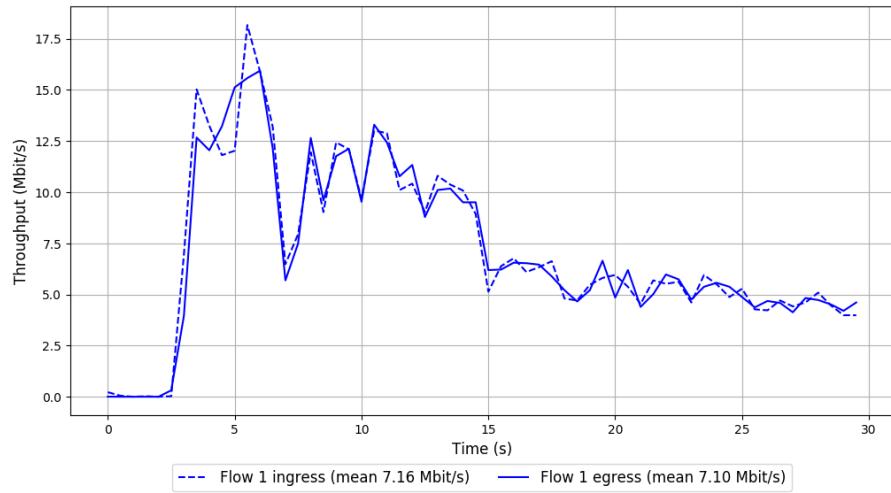


Run 1: Statistics of TCP Vegas

```
Start at: Thu, 03 Aug 2017 07:08:46 +0000
End at: Thu, 03 Aug 2017 07:09:16 +0000
Local clock offset: 0.355 ms
Remote clock offset: -0.976 ms

# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:31 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.10 Mbit/s
95th percentile per-packet one-way delay: 180.878 ms
Loss rate: 1.07%
-- Flow 1:
Average throughput: 7.10 Mbit/s
95th percentile per-packet one-way delay: 180.878 ms
Loss rate: 1.07%
```

Run 1: Report of TCP Vegas — Data Link

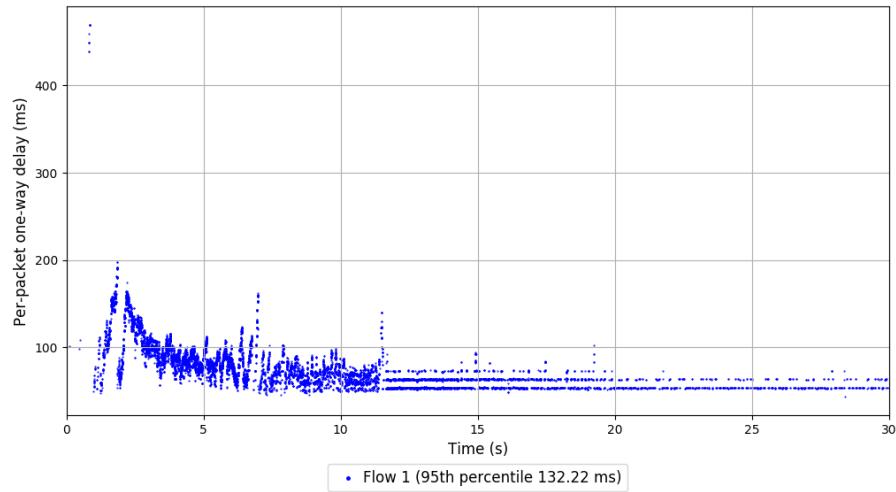
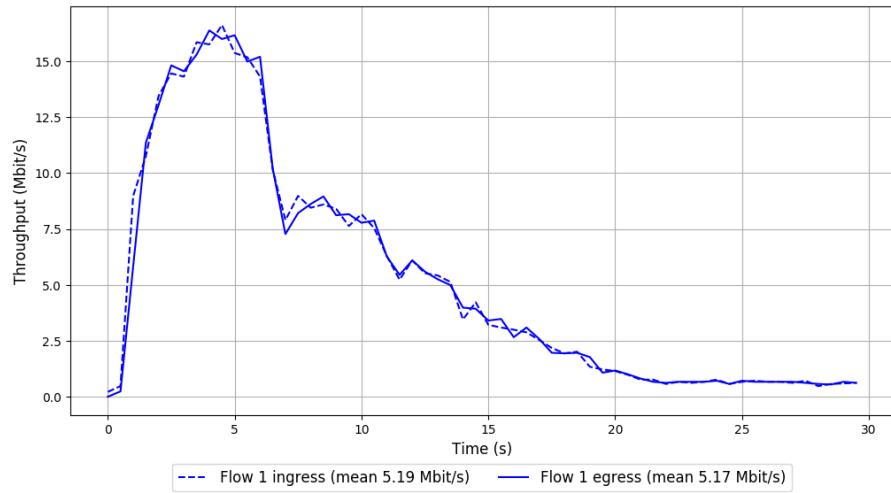


Run 2: Statistics of TCP Vegas

```
Start at: Thu, 03 Aug 2017 07:28:14 +0000
End at: Thu, 03 Aug 2017 07:28:44 +0000
Local clock offset: 0.161 ms
Remote clock offset: -1.207 ms

# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:33 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.17 Mbit/s
95th percentile per-packet one-way delay: 132.223 ms
Loss rate: 0.53%
-- Flow 1:
Average throughput: 5.17 Mbit/s
95th percentile per-packet one-way delay: 132.223 ms
Loss rate: 0.53%
```

Run 2: Report of TCP Vegas — Data Link

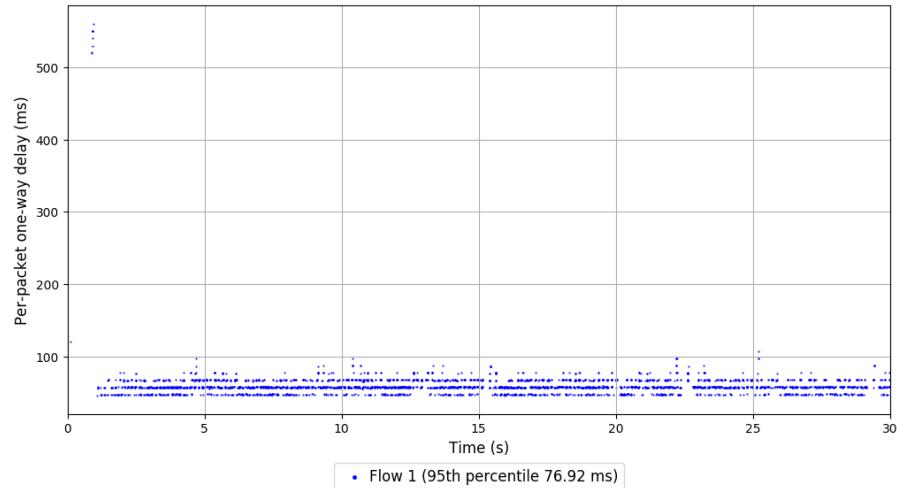
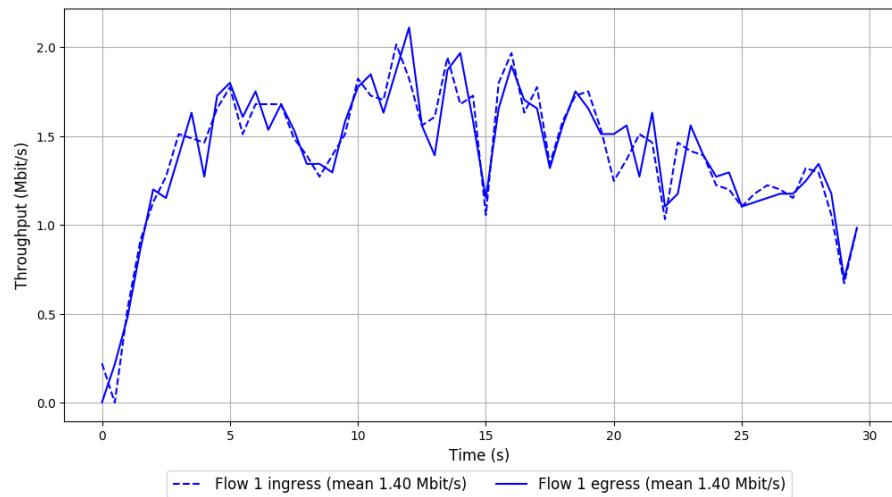


Run 3: Statistics of TCP Vegas

```
Start at: Thu, 03 Aug 2017 07:47:47 +0000
End at: Thu, 03 Aug 2017 07:48:17 +0000
Local clock offset: 0.249 ms
Remote clock offset: -1.322 ms

# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:33 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.40 Mbit/s
95th percentile per-packet one-way delay: 76.917 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.40 Mbit/s
95th percentile per-packet one-way delay: 76.917 ms
Loss rate: 0.00%
```

Run 3: Report of TCP Vegas — Data Link

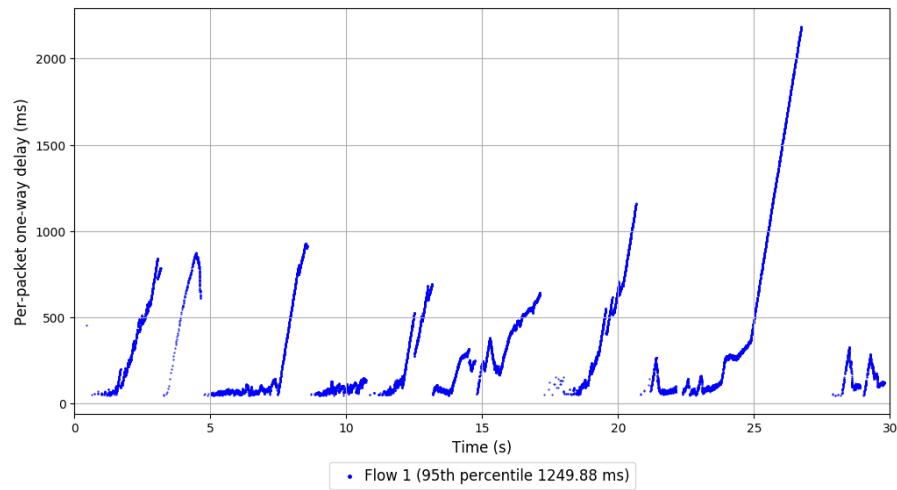
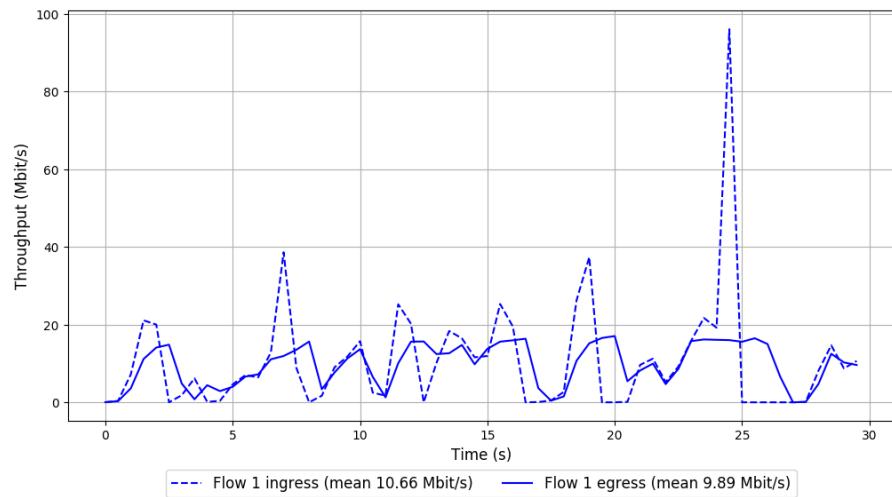


Run 1: Statistics of Verus

```
Start at: Thu, 03 Aug 2017 07:23:03 +0000
End at: Thu, 03 Aug 2017 07:23:33 +0000
Local clock offset: 0.252 ms
Remote clock offset: -0.666 ms

# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:34 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.89 Mbit/s
95th percentile per-packet one-way delay: 1249.882 ms
Loss rate: 8.51%
-- Flow 1:
Average throughput: 9.89 Mbit/s
95th percentile per-packet one-way delay: 1249.882 ms
Loss rate: 8.51%
```

Run 1: Report of Verus — Data Link

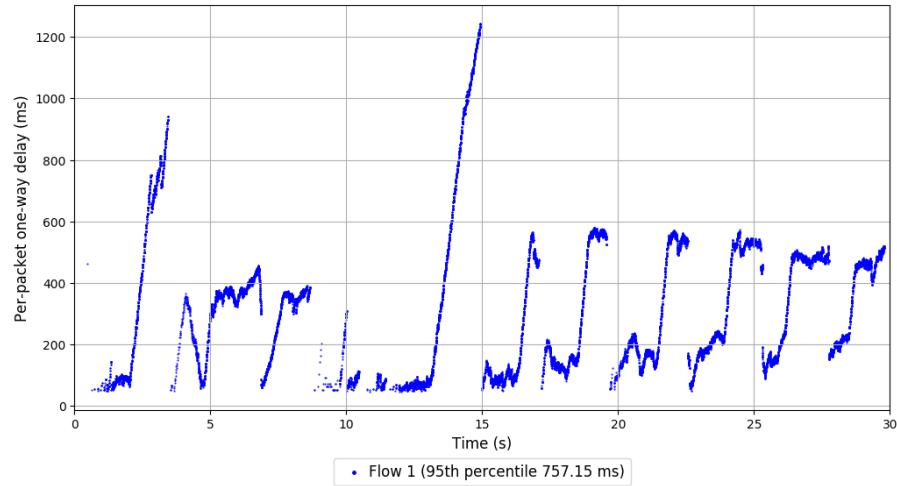
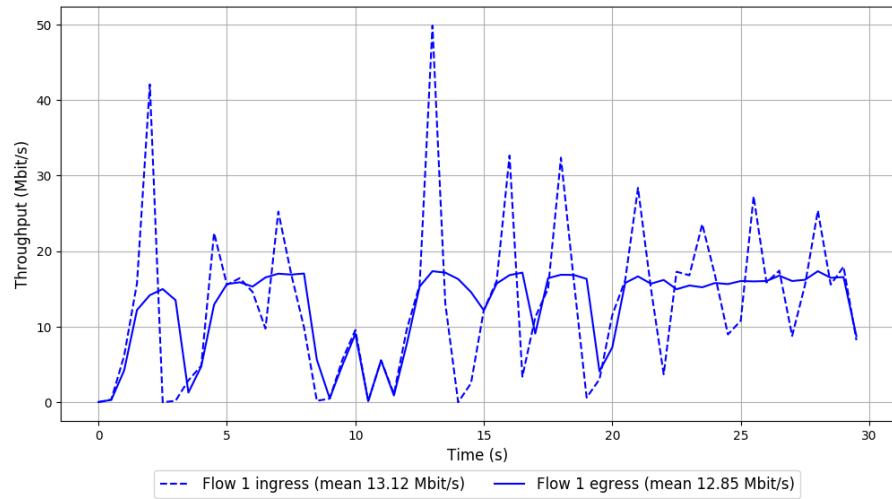


Run 2: Statistics of Verus

```
Start at: Thu, 03 Aug 2017 07:42:33 +0000
End at: Thu, 03 Aug 2017 07:43:03 +0000
Local clock offset: 0.255 ms
Remote clock offset: -1.317 ms

# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:35 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.85 Mbit/s
95th percentile per-packet one-way delay: 757.147 ms
Loss rate: 3.34%
-- Flow 1:
Average throughput: 12.85 Mbit/s
95th percentile per-packet one-way delay: 757.147 ms
Loss rate: 3.34%
```

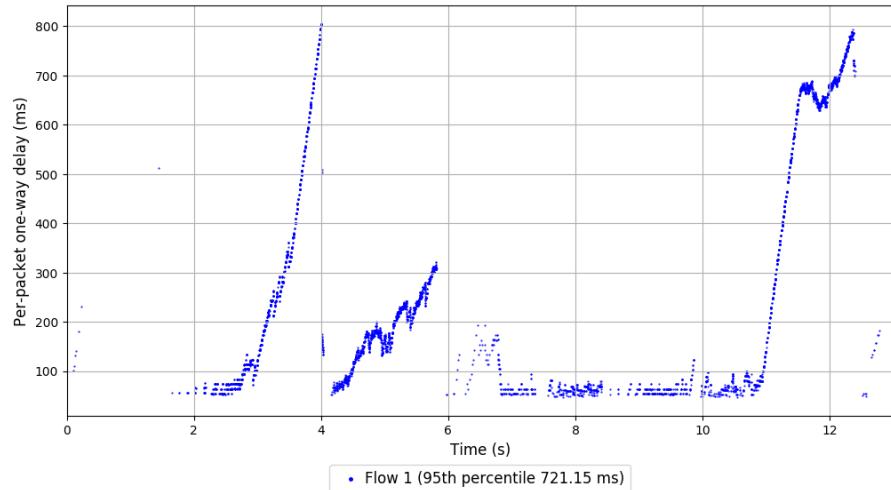
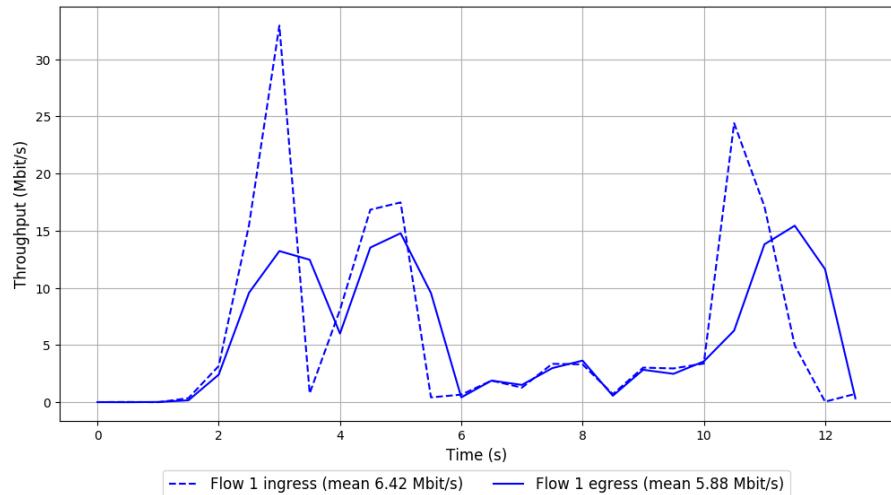
Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: Thu, 03 Aug 2017 08:02:10 +0000
End at: Thu, 03 Aug 2017 08:02:40 +0000
Local clock offset: 0.314 ms
Remote clock offset: -1.258 ms

Run 3: Report of Verus — Data Link

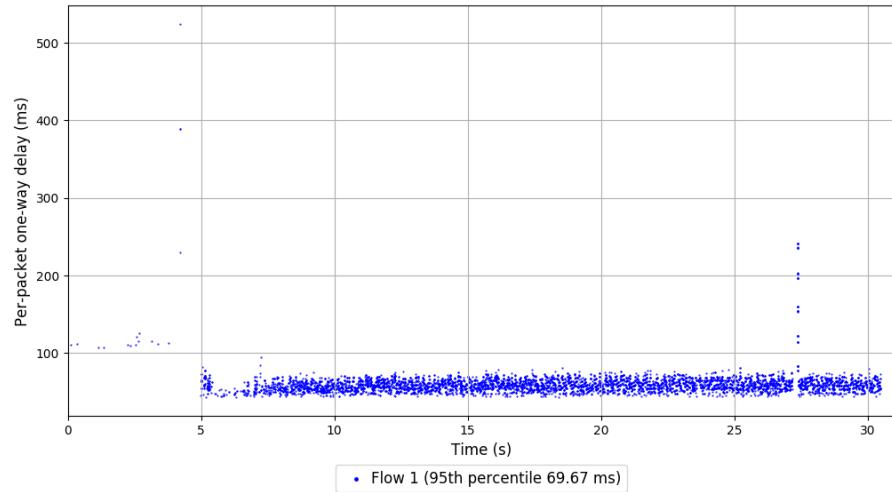
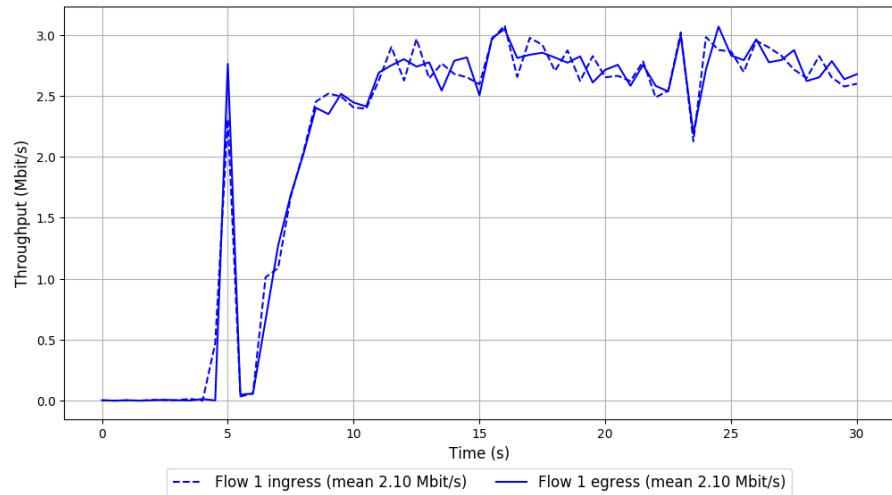


```
Run 1: Statistics of WebRTC media

Start at: Thu, 03 Aug 2017 07:15:15 +0000
End at: Thu, 03 Aug 2017 07:15:45 +0000
Local clock offset: 0.268 ms
Remote clock offset: -3.075 ms

# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:37 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.10 Mbit/s
95th percentile per-packet one-way delay: 69.673 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 2.10 Mbit/s
95th percentile per-packet one-way delay: 69.673 ms
Loss rate: 0.10%
```

Run 1: Report of WebRTC media — Data Link

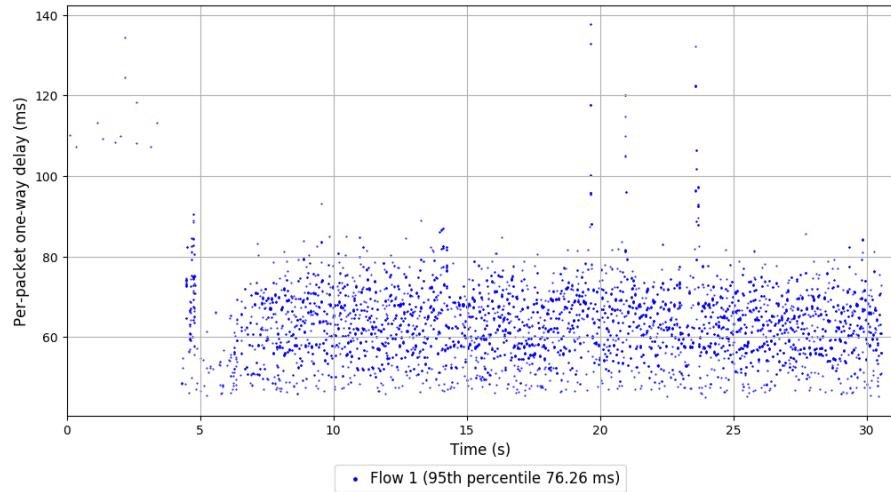
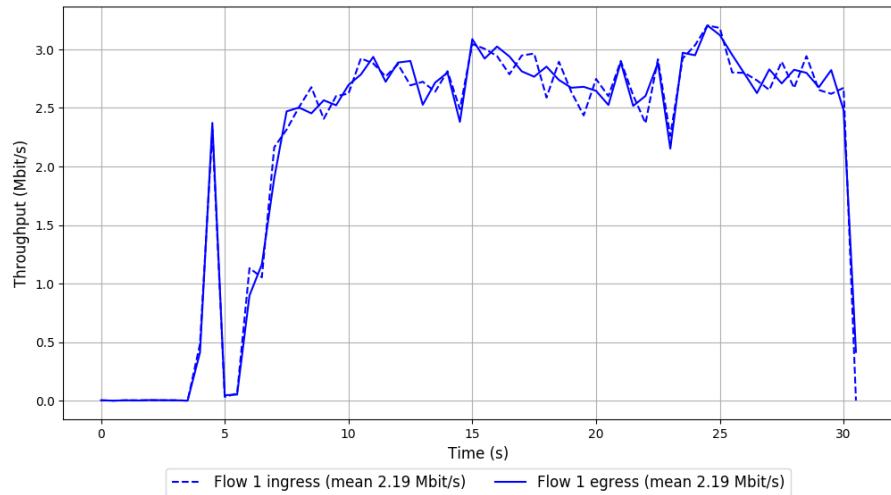


Run 2: Statistics of WebRTC media

```
Start at: Thu, 03 Aug 2017 07:34:44 +0000
End at: Thu, 03 Aug 2017 07:35:14 +0000
Local clock offset: 0.268 ms
Remote clock offset: -1.28 ms

# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:37 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.19 Mbit/s
95th percentile per-packet one-way delay: 76.262 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.19 Mbit/s
95th percentile per-packet one-way delay: 76.262 ms
Loss rate: 0.00%
```

Run 2: Report of WebRTC media — Data Link



```
Run 3: Statistics of WebRTC media

Start at: Thu, 03 Aug 2017 07:54:18 +0000
End at: Thu, 03 Aug 2017 07:54:48 +0000
Local clock offset: 0.173 ms
Remote clock offset: -1.271 ms

# Below is generated by plot.py at Thu, 03 Aug 2017 09:03:38 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.98 Mbit/s
95th percentile per-packet one-way delay: 74.566 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 1.98 Mbit/s
95th percentile per-packet one-way delay: 74.566 ms
Loss rate: 0.23%
```

Run 3: Report of WebRTC media — Data Link

