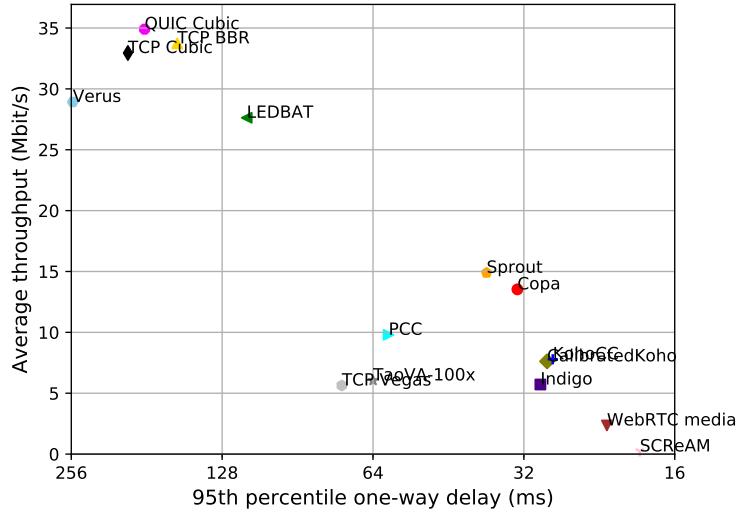


Pantheon Report

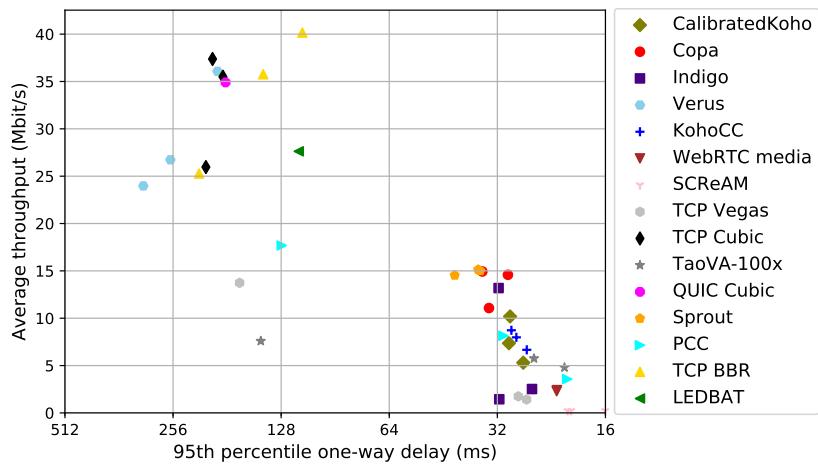
Generated at 2017-09-17 23:14:12 (UTC).
Data path: AWS California 1 Ethernet (*local*) →Stanford ppp0 (*remote*).
Repeated the test of 15 congestion control schemes 3 times.
Each test lasted for 30 seconds running 1 flow.
Increased UDP receive buffer to 16 MB (default) and 32 MB (max).
Tested BBR with qdisc of Fair Queuing (**fq**), and other schemes with the default Linux qdisc (**pfifo_fast**).
NTP offsets were measured against `time.stanford.edu` and have been applied to correct the timestamps in logs.

```
Git summary:  
branch: master @ 57453dc11f8da93a2e03eea75289fea01b816298  
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50  
  M datagrump/sender.cc  
third_party/genericCC @ f7ca42f251bf49b432bb71de6d13fa903515c366  
third_party/indigo @ b19f3730105f9aa95452552af924e3719b03cc55  
third_party/koho_cc @ f0f2e693303aeee82ea808e6928eac4f1083a6681  
  M datagrump/sender.cc  
third_party/libutp @ b3465b942e2826f2b179aab4a906ce6bb7cf3cf  
third_party/pantheon-tunnel @ baf443516dea3eeddeccaf9b916cc313273ca4f4  
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1  
  M receiver/src/buffer.h  
  M receiver/src/core.cpp  
  M sender/src/buffer.h  
  M sender/src/core.cpp  
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42  
third_party/scream @ c3370fd7bd17265a79aeb34e4016ad23f5965885  
third_party/sourdough @ f1a14bffe749737437f61b1eaeeb30b267cde681  
third_party/sprout @ 6f2efe6e088d91066a9f023df375eee2665089ce  
  M src/examples/cellsim.cc  
  M src/examples/sproutbt2.cc  
  M src/network/sproutconn.cc  
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494  
  M src/verus.hpp  
  M tools/plot.py  
third_party/webrtc @ a488197ddd041ace68a42849b2540ad834825f42
```

test from AWS California 1 Ethernet to Stanford ppp0, 3 runs of 30s each per scheme
(mean of all runs by scheme)



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



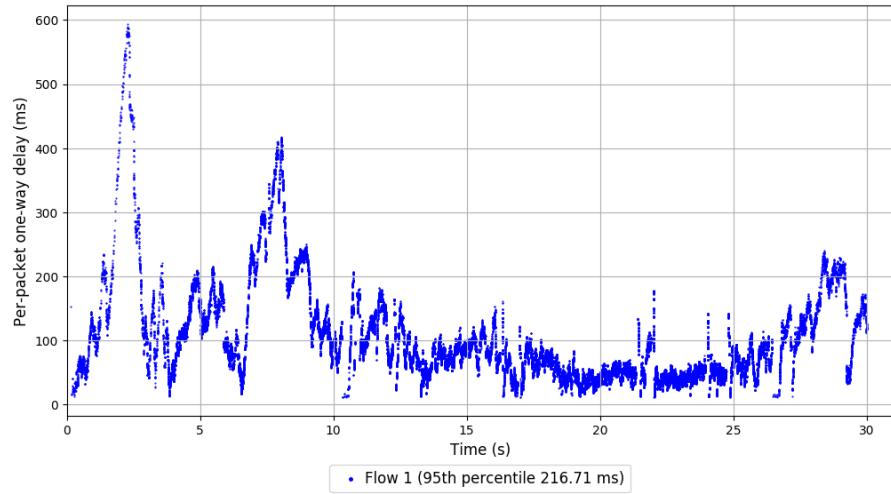
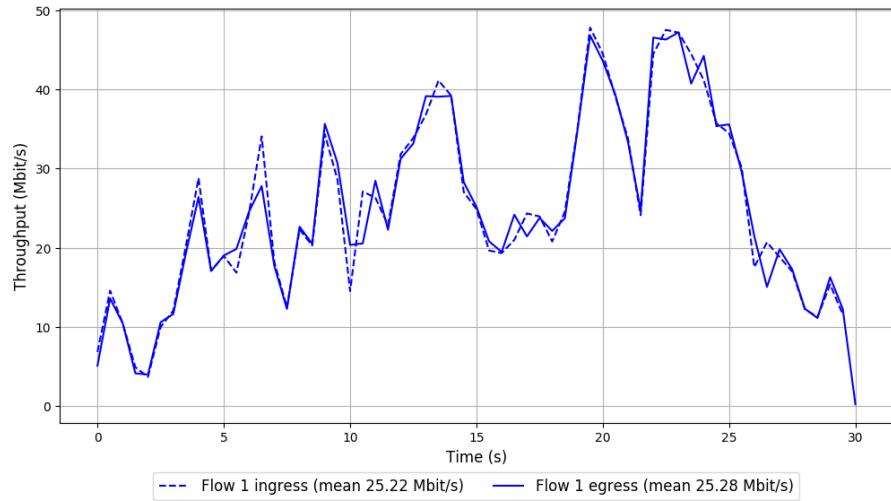
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	33.73	157.34	0.14
CalibratedKoho	3	7.62	28.77	0.00
Copa	3	13.53	32.96	0.00
TCP Cubic	3	32.95	197.35	0.23
Indigo	3	5.72	29.66	0.00
KohoCC	3	7.79	28.03	0.01
LEDBAT	1	27.63	114.35	0.10
PCC	3	9.80	59.58	0.14
QUIC Cubic	1	34.90	182.81	0.37
SCReAM	3	0.22	18.79	0.00
Sprout	3	14.89	37.98	0.00
TaoVA-100x	3	6.05	63.99	0.17
TCP Vegas	3	5.63	73.86	0.00
Verus	3	28.92	254.23	8.52
WebRTC media	2	2.35	21.85	0.00

Run 1: Statistics of TCP BBR

```
Start at: 2017-09-17 22:19:25
End at: 2017-09-17 22:19:55
Local clock offset: -1.159 ms
Remote clock offset: -3.495 ms

# Below is generated by plot.py at 2017-09-17 23:13:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 25.28 Mbit/s
95th percentile per-packet one-way delay: 216.713 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 25.28 Mbit/s
95th percentile per-packet one-way delay: 216.713 ms
Loss rate: 0.19%
```

Run 1: Report of TCP BBR — Data Link

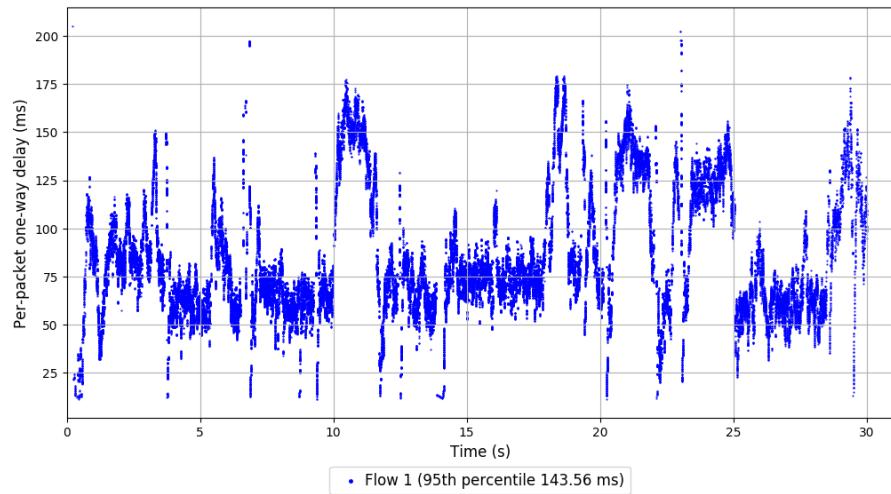
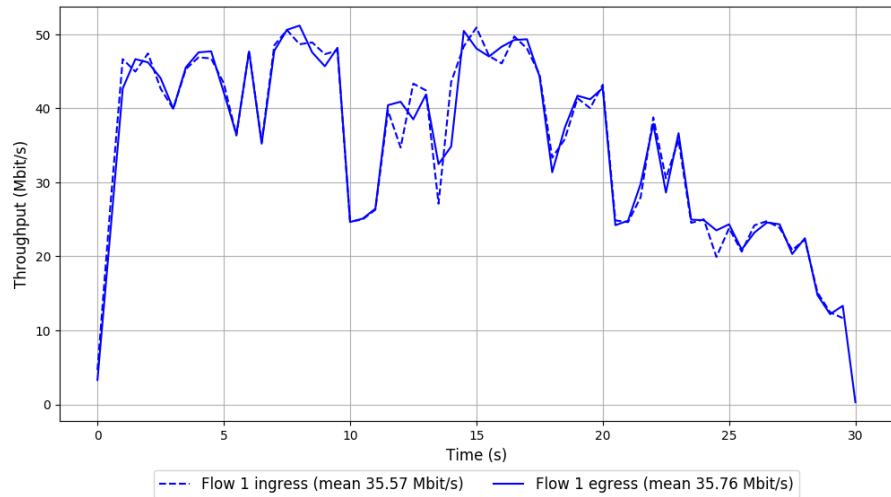


Run 2: Statistics of TCP BBR

```
Start at: 2017-09-17 22:37:08
End at: 2017-09-17 22:37:38
Local clock offset: -1.424 ms
Remote clock offset: -3.26 ms

# Below is generated by plot.py at 2017-09-17 23:13:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 35.76 Mbit/s
95th percentile per-packet one-way delay: 143.563 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 35.76 Mbit/s
95th percentile per-packet one-way delay: 143.563 ms
Loss rate: 0.08%
```

Run 2: Report of TCP BBR — Data Link

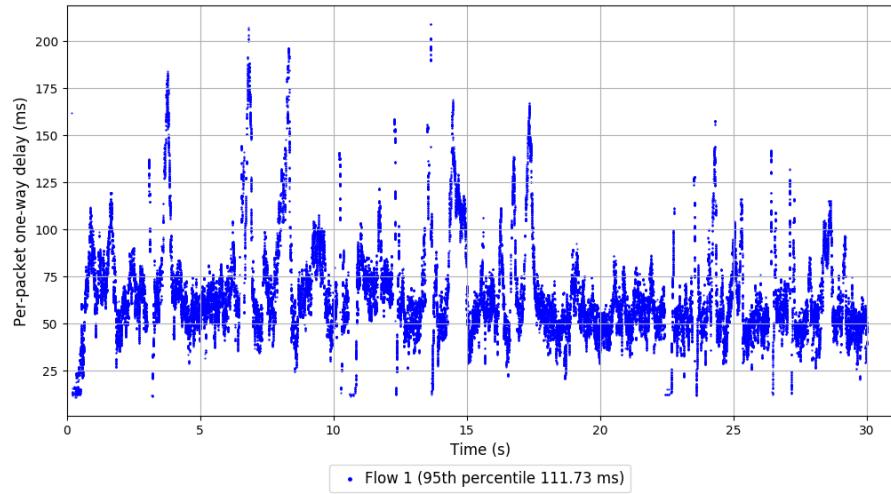
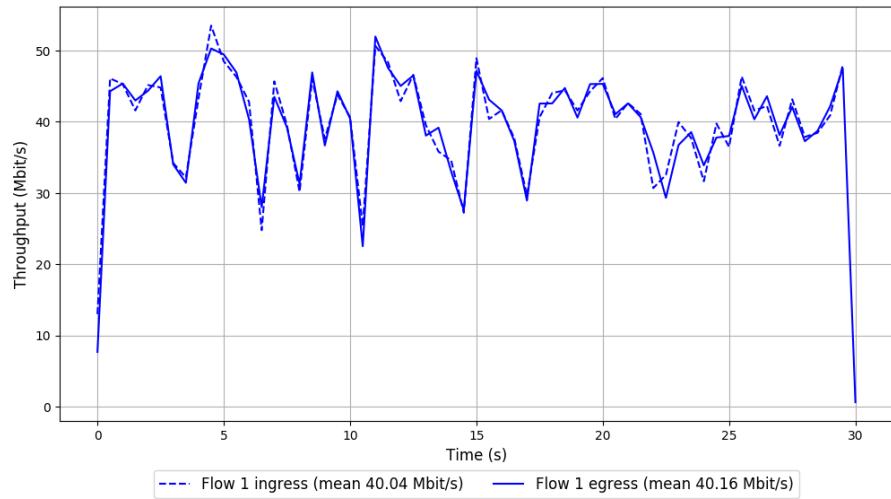


Run 3: Statistics of TCP BBR

```
Start at: 2017-09-17 22:54:53
End at: 2017-09-17 22:55:23
Local clock offset: -0.591 ms
Remote clock offset: -3.092 ms

# Below is generated by plot.py at 2017-09-17 23:13:22
# Datalink statistics
-- Total of 1 flow:
Average throughput: 40.16 Mbit/s
95th percentile per-packet one-way delay: 111.730 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 40.16 Mbit/s
95th percentile per-packet one-way delay: 111.730 ms
Loss rate: 0.14%
```

Run 3: Report of TCP BBR — Data Link

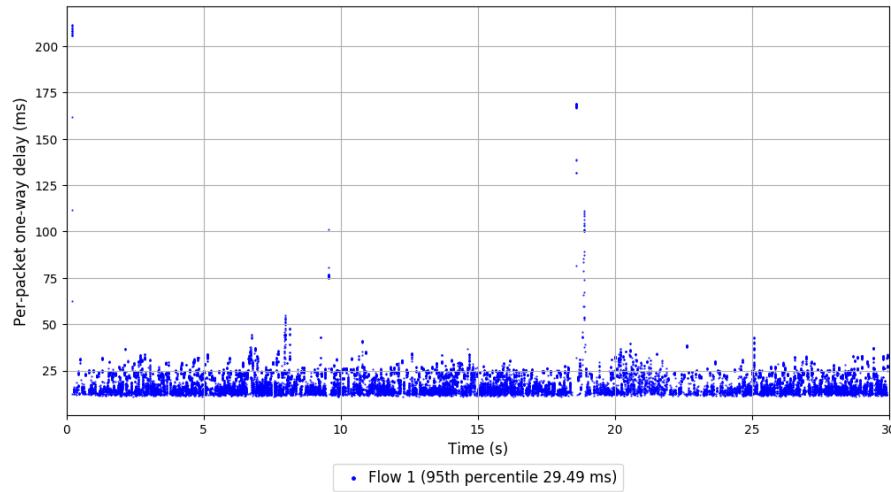
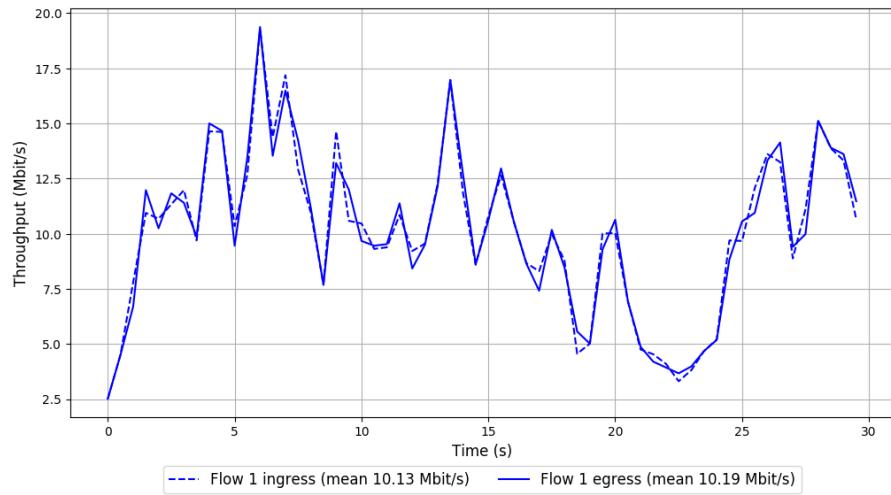


```
Run 1: Statistics of CalibratedKoho
```

```
Start at: 2017-09-17 22:28:52
End at: 2017-09-17 22:29:22
Local clock offset: -1.25 ms
Remote clock offset: -3.484 ms

# Below is generated by plot.py at 2017-09-17 23:13:22
# Datalink statistics
-- Total of 1 flow:
Average throughput: 10.19 Mbit/s
95th percentile per-packet one-way delay: 29.490 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 10.19 Mbit/s
95th percentile per-packet one-way delay: 29.490 ms
Loss rate: 0.00%
```

Run 1: Report of CalibratedKoho — Data Link

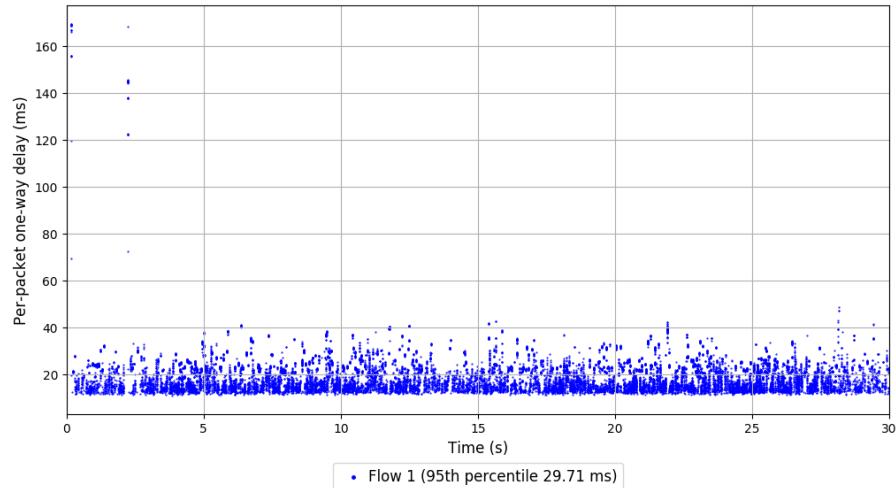
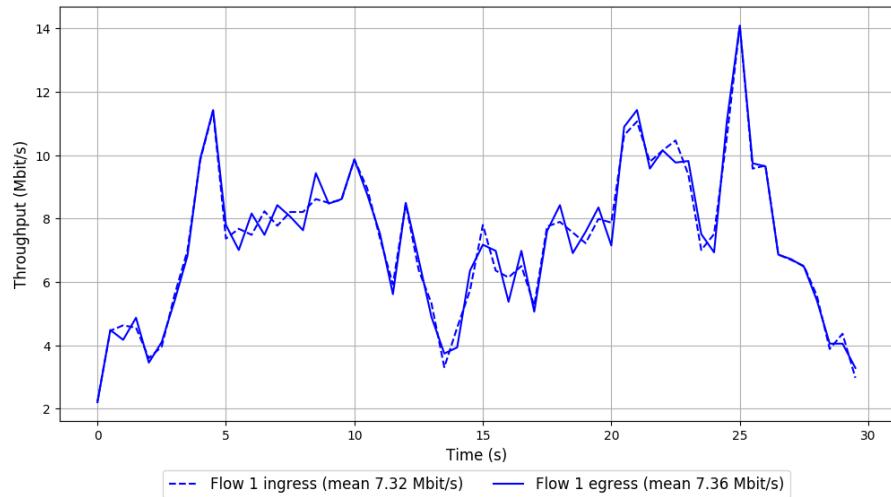


```
Run 2: Statistics of CalibratedKoho
```

```
Start at: 2017-09-17 22:46:37
End at: 2017-09-17 22:47:07
Local clock offset: -1.021 ms
Remote clock offset: -3.113 ms

# Below is generated by plot.py at 2017-09-17 23:13:22
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.36 Mbit/s
95th percentile per-packet one-way delay: 29.711 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.36 Mbit/s
95th percentile per-packet one-way delay: 29.711 ms
Loss rate: 0.00%
```

Run 2: Report of CalibratedKoho — Data Link

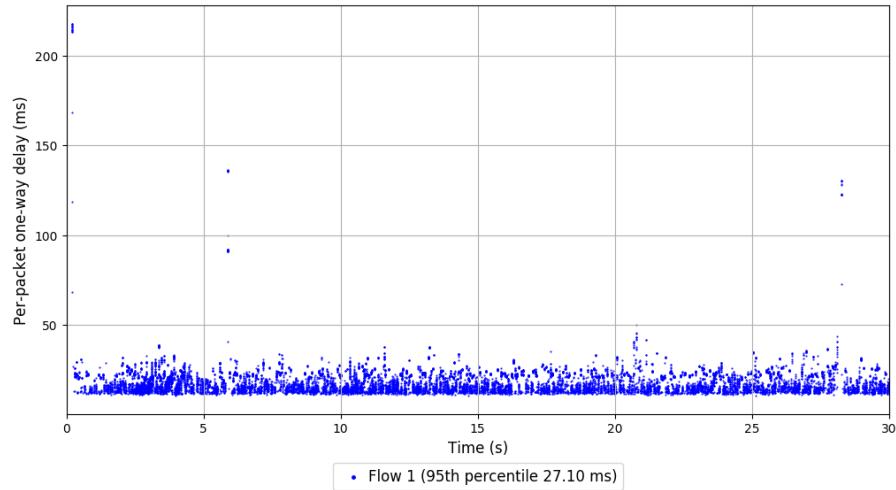
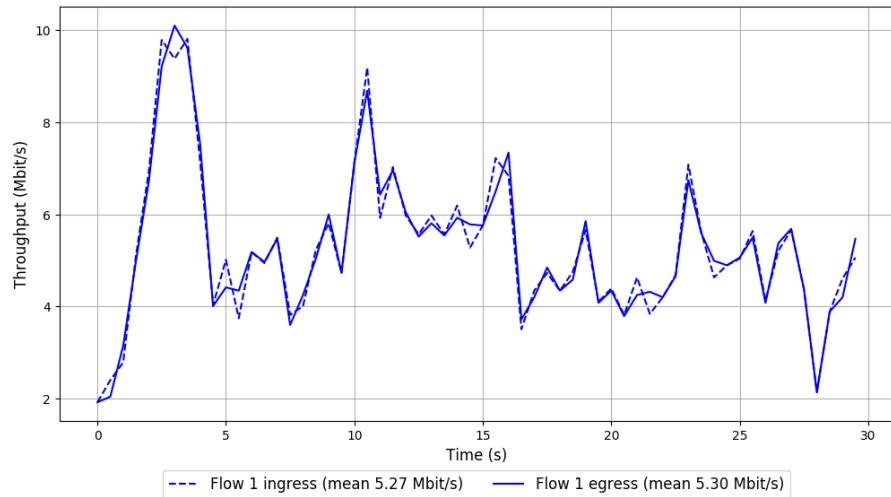


Run 3: Statistics of CalibratedKoho

```
Start at: 2017-09-17 23:04:21
End at: 2017-09-17 23:04:51
Local clock offset: -0.533 ms
Remote clock offset: -2.938 ms

# Below is generated by plot.py at 2017-09-17 23:13:22
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.30 Mbit/s
95th percentile per-packet one-way delay: 27.100 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 5.30 Mbit/s
95th percentile per-packet one-way delay: 27.100 ms
Loss rate: 0.00%
```

Run 3: Report of CalibratedKoho — Data Link

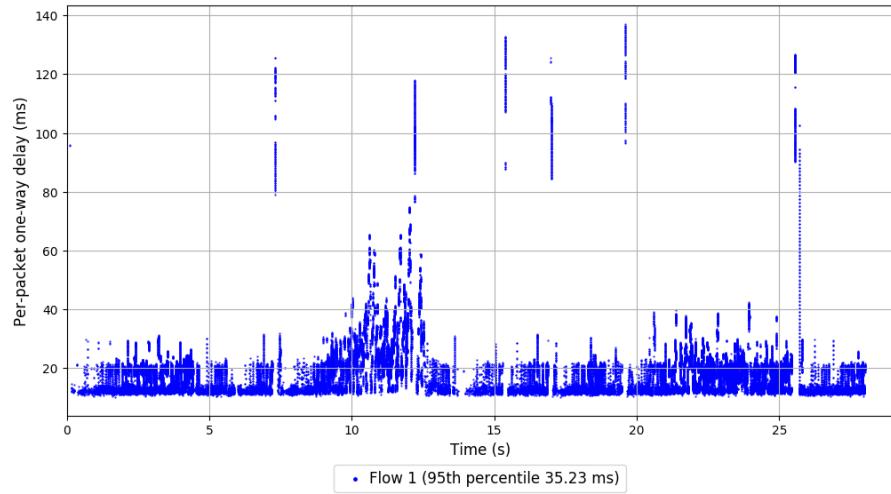
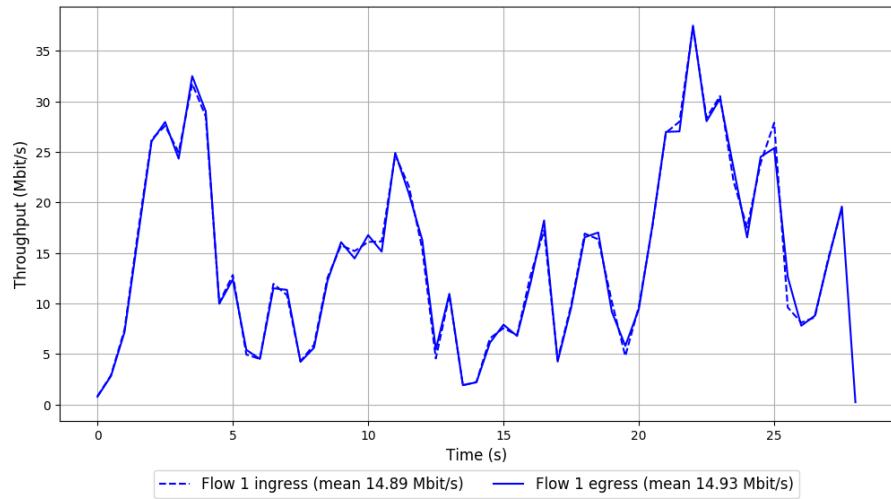


Run 1: Statistics of Copa

```
Start at: 2017-09-17 22:32:24
End at: 2017-09-17 22:32:54
Local clock offset: -1.243 ms
Remote clock offset: -3.462 ms

# Below is generated by plot.py at 2017-09-17 23:13:22
# Datalink statistics
-- Total of 1 flow:
Average throughput: 14.93 Mbit/s
95th percentile per-packet one-way delay: 35.229 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 14.93 Mbit/s
95th percentile per-packet one-way delay: 35.229 ms
Loss rate: 0.00%
```

Run 1: Report of Copa — Data Link

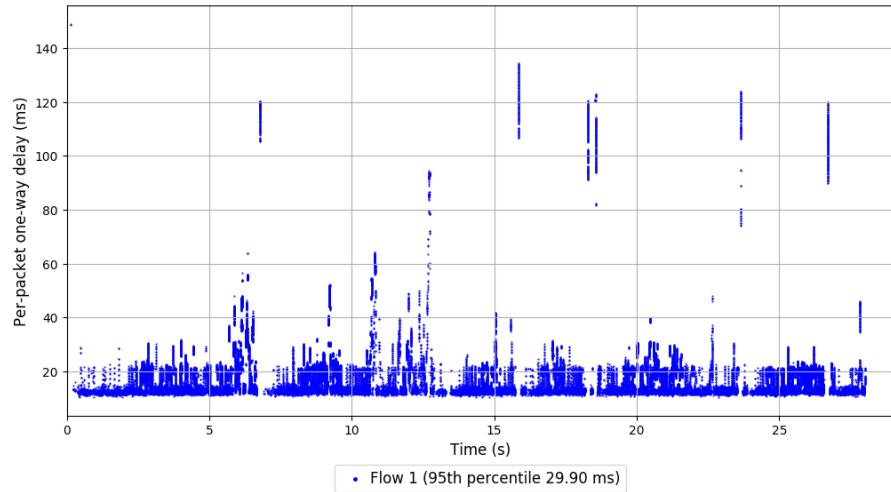
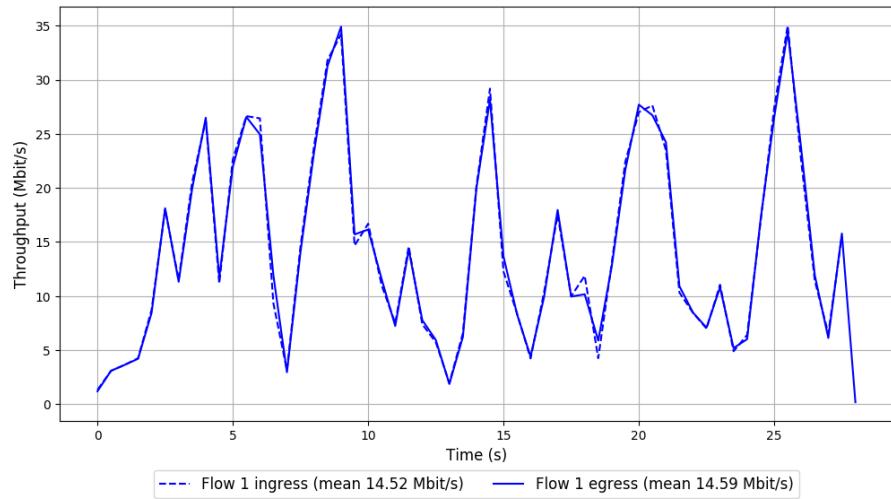


Run 2: Statistics of Copa

```
Start at: 2017-09-17 22:50:09
End at: 2017-09-17 22:50:39
Local clock offset: -0.868 ms
Remote clock offset: -3.07 ms

# Below is generated by plot.py at 2017-09-17 23:13:22
# Datalink statistics
-- Total of 1 flow:
Average throughput: 14.59 Mbit/s
95th percentile per-packet one-way delay: 29.899 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 14.59 Mbit/s
95th percentile per-packet one-way delay: 29.899 ms
Loss rate: 0.00%
```

Run 2: Report of Copa — Data Link

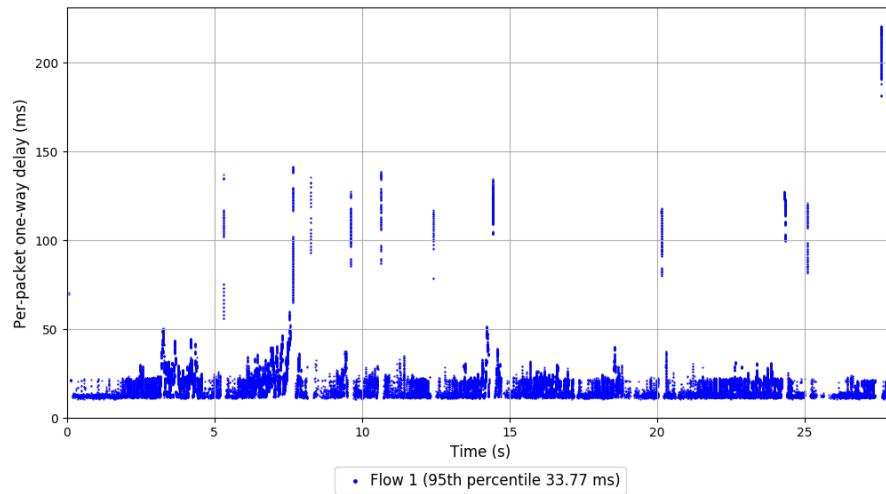
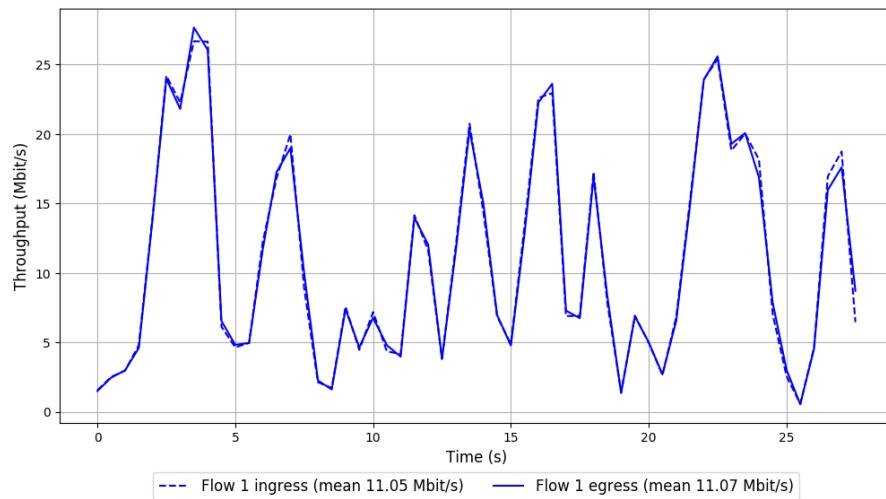


Run 3: Statistics of Copa

```
Start at: 2017-09-17 23:07:54
End at: 2017-09-17 23:08:24
Local clock offset: -0.438 ms
Remote clock offset: -2.953 ms

# Below is generated by plot.py at 2017-09-17 23:13:22
# Datalink statistics
-- Total of 1 flow:
Average throughput: 11.07 Mbit/s
95th percentile per-packet one-way delay: 33.765 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 11.07 Mbit/s
95th percentile per-packet one-way delay: 33.765 ms
Loss rate: 0.00%
```

Run 3: Report of Copa — Data Link

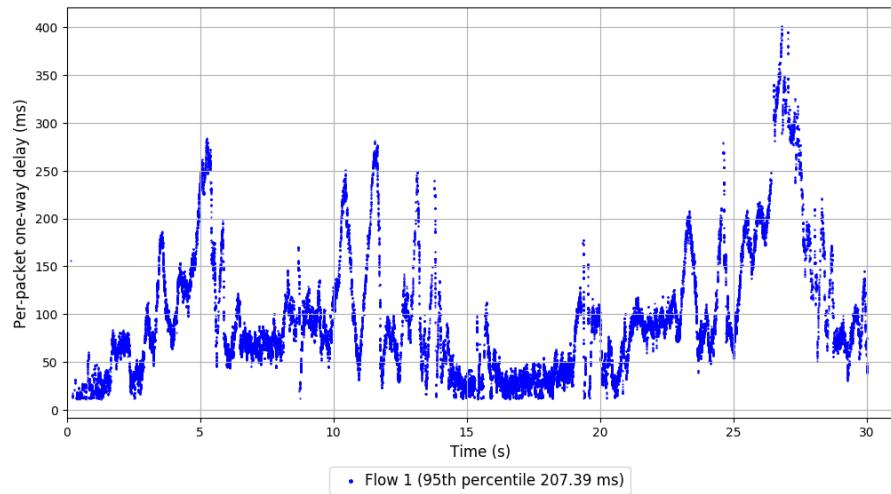
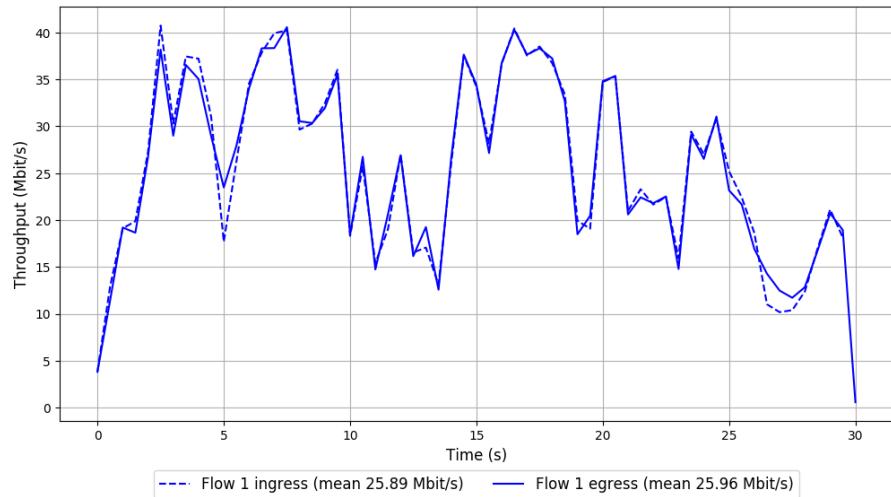


```
Run 1: Statistics of TCP Cubic
```

```
Start at: 2017-09-17 22:21:47
End at: 2017-09-17 22:22:17
Local clock offset: -1.174 ms
Remote clock offset: -3.49 ms

# Below is generated by plot.py at 2017-09-17 23:13:22
# Datalink statistics
-- Total of 1 flow:
Average throughput: 25.96 Mbit/s
95th percentile per-packet one-way delay: 207.389 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 25.96 Mbit/s
95th percentile per-packet one-way delay: 207.389 ms
Loss rate: 0.16%
```

Run 1: Report of TCP Cubic — Data Link

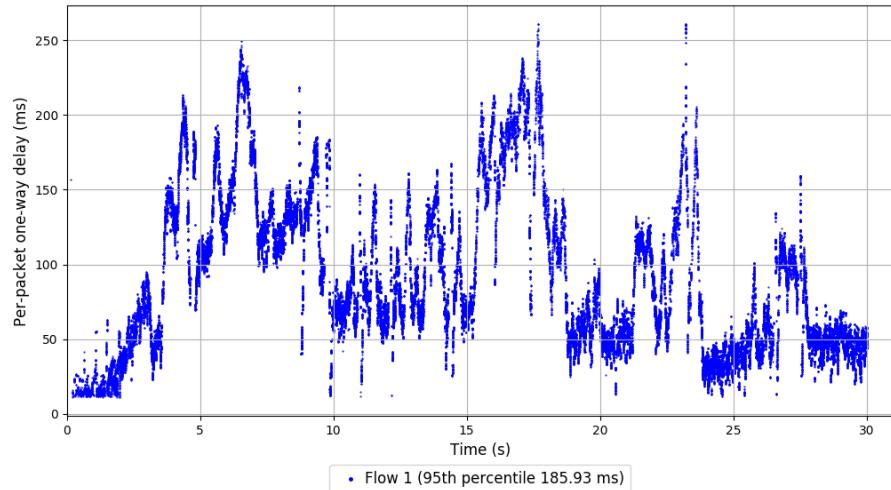
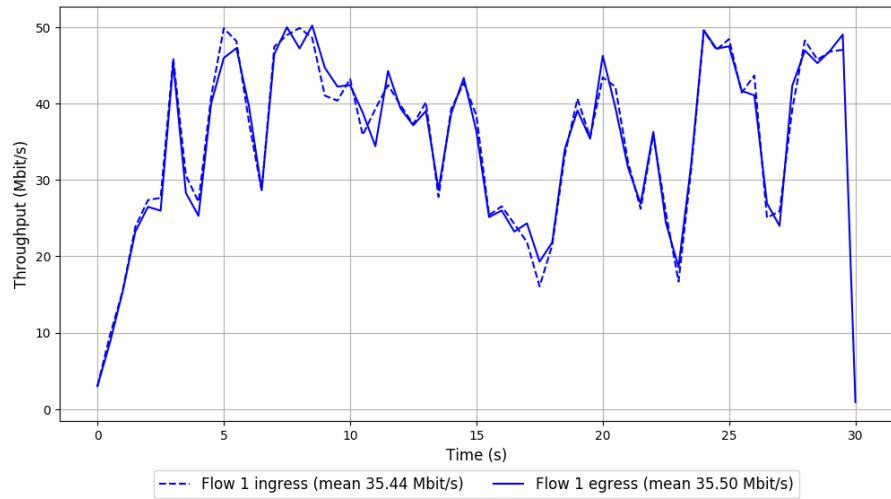


Run 2: Statistics of TCP Cubic

```
Start at: 2017-09-17 22:39:30
End at: 2017-09-17 22:40:00
Local clock offset: -1.402 ms
Remote clock offset: -3.318 ms

# Below is generated by plot.py at 2017-09-17 23:13:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 35.50 Mbit/s
95th percentile per-packet one-way delay: 185.934 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 35.50 Mbit/s
95th percentile per-packet one-way delay: 185.934 ms
Loss rate: 0.26%
```

Run 2: Report of TCP Cubic — Data Link

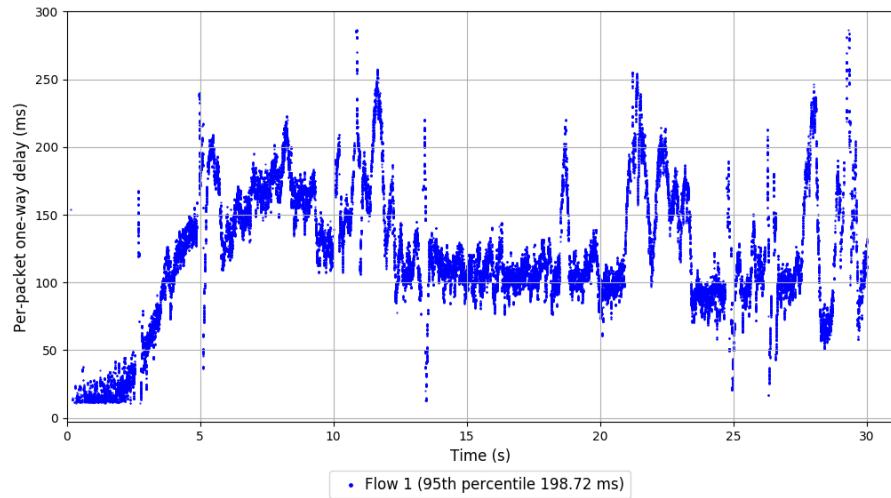
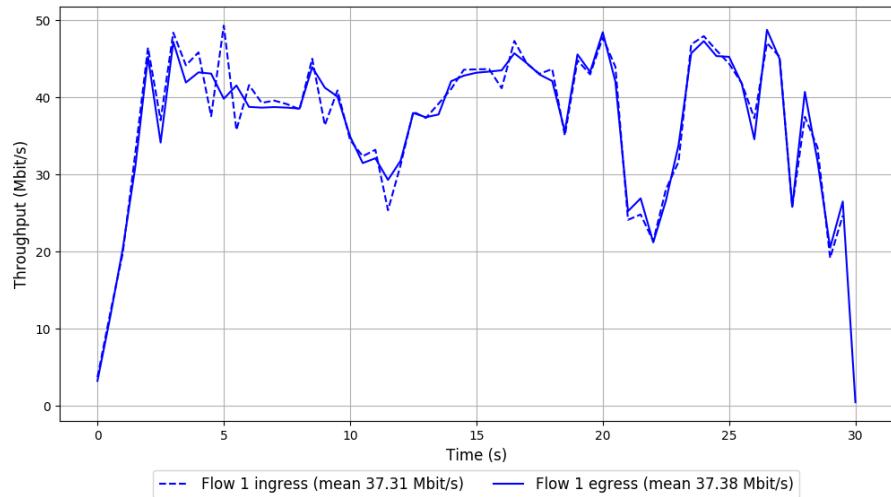


Run 3: Statistics of TCP Cubic

```
Start at: 2017-09-17 22:57:15
End at: 2017-09-17 22:57:45
Local clock offset: -0.523 ms
Remote clock offset: -3.072 ms

# Below is generated by plot.py at 2017-09-17 23:13:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 37.38 Mbit/s
95th percentile per-packet one-way delay: 198.724 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 37.38 Mbit/s
95th percentile per-packet one-way delay: 198.724 ms
Loss rate: 0.27%
```

Run 3: Report of TCP Cubic — Data Link

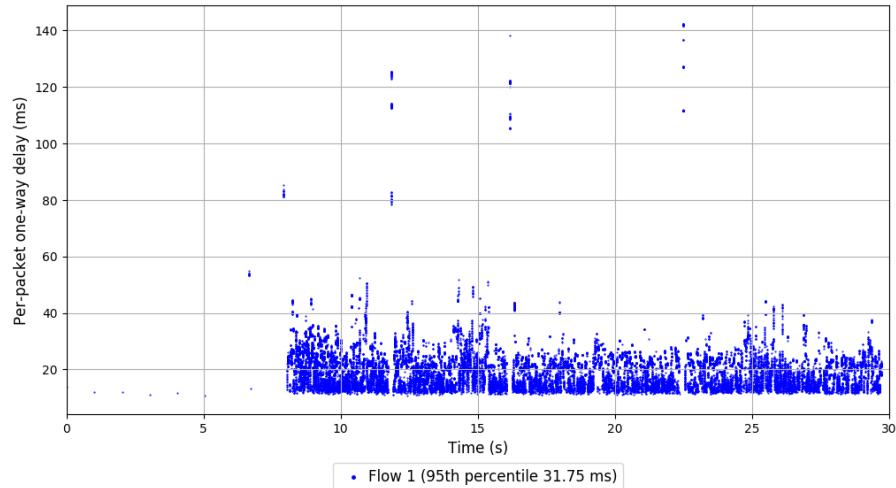
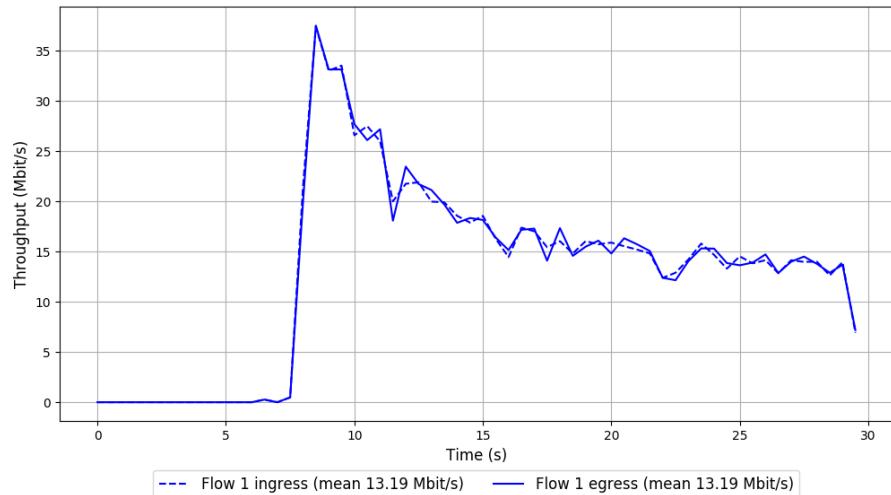


Run 1: Statistics of Indigo

```
Start at: 2017-09-17 22:24:08
End at: 2017-09-17 22:24:38
Local clock offset: -1.277 ms
Remote clock offset: -3.491 ms

# Below is generated by plot.py at 2017-09-17 23:13:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 13.19 Mbit/s
95th percentile per-packet one-way delay: 31.747 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 13.19 Mbit/s
95th percentile per-packet one-way delay: 31.747 ms
Loss rate: 0.00%
```

Run 1: Report of Indigo — Data Link

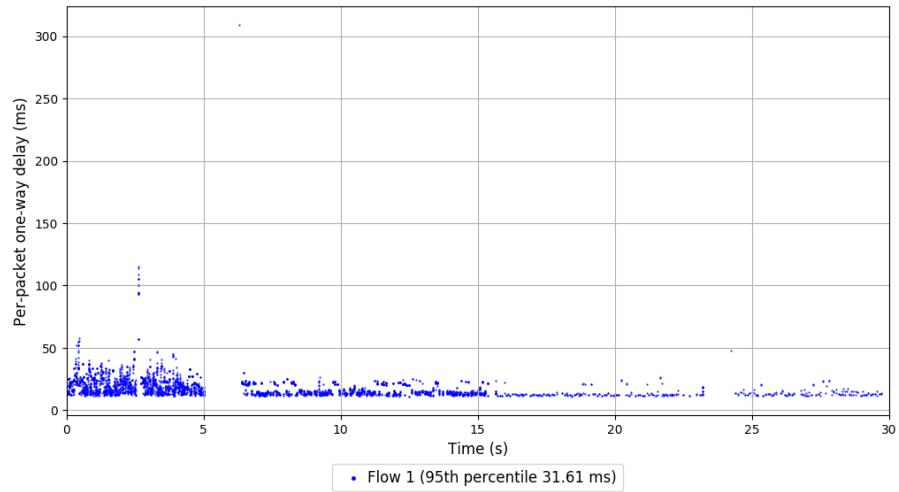
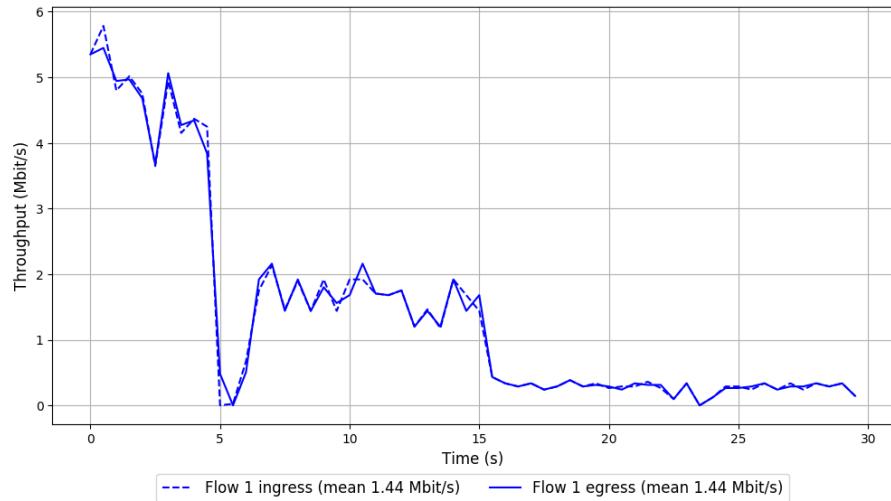


Run 2: Statistics of Indigo

```
Start at: 2017-09-17 22:41:54
End at: 2017-09-17 22:42:24
Local clock offset: -1.475 ms
Remote clock offset: -3.27 ms

# Below is generated by plot.py at 2017-09-17 23:13:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.44 Mbit/s
95th percentile per-packet one-way delay: 31.607 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.44 Mbit/s
95th percentile per-packet one-way delay: 31.607 ms
Loss rate: 0.00%
```

Run 2: Report of Indigo — Data Link

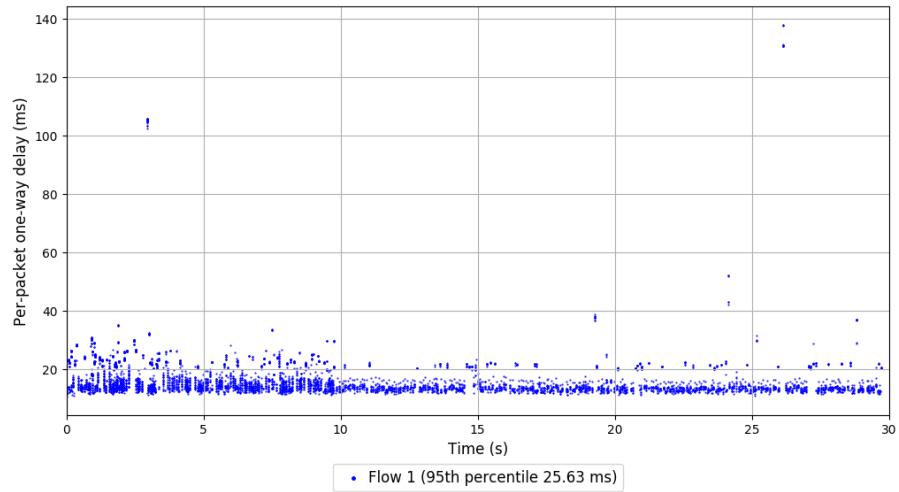
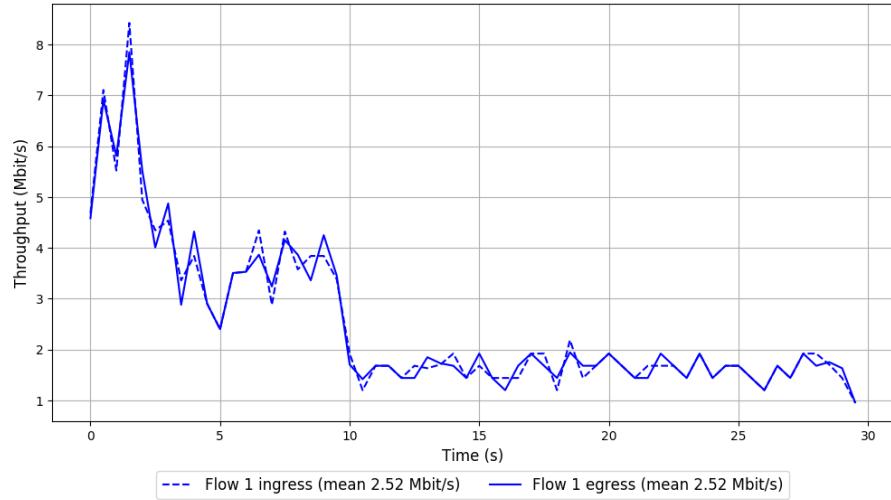


Run 3: Statistics of Indigo

```
Start at: 2017-09-17 22:59:37
End at: 2017-09-17 23:00:07
Local clock offset: -0.609 ms
Remote clock offset: -3.0 ms

# Below is generated by plot.py at 2017-09-17 23:13:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.52 Mbit/s
95th percentile per-packet one-way delay: 25.626 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.52 Mbit/s
95th percentile per-packet one-way delay: 25.626 ms
Loss rate: 0.00%
```

Run 3: Report of Indigo — Data Link

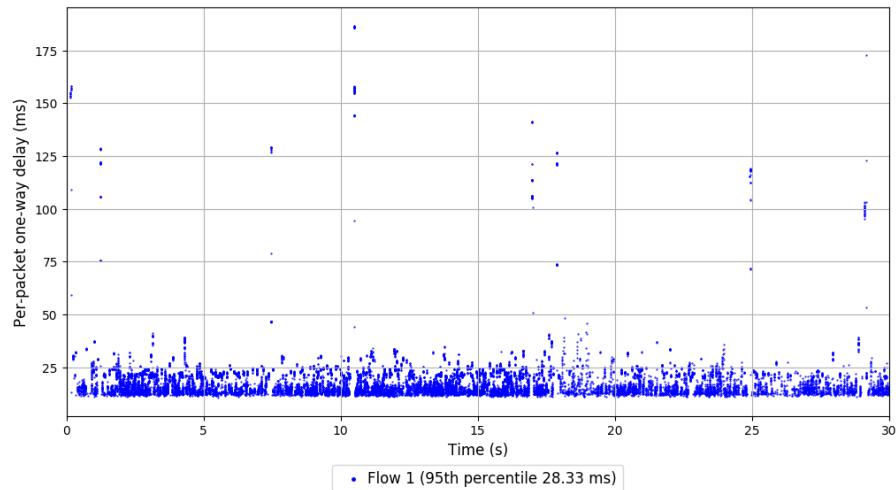
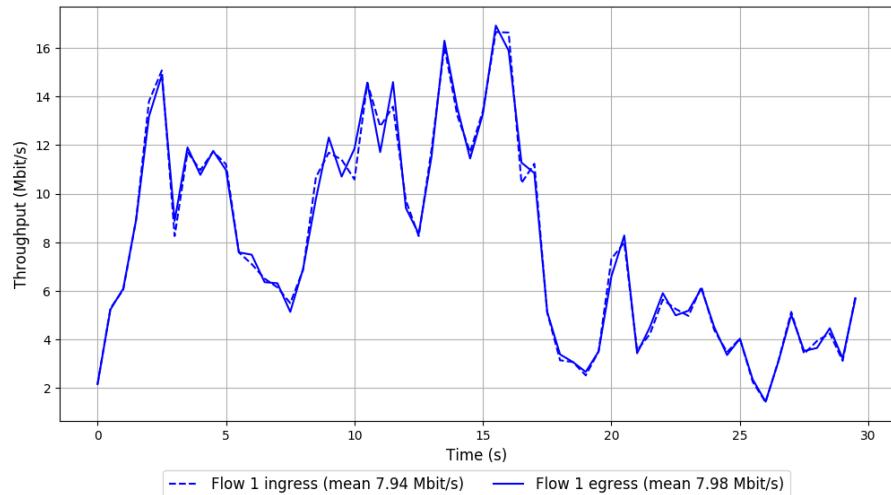


```
Run 1: Statistics of KohoCC
```

```
Start at: 2017-09-17 22:33:36
End at: 2017-09-17 22:34:06
Local clock offset: -1.259 ms
Remote clock offset: -3.432 ms

# Below is generated by plot.py at 2017-09-17 23:13:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.98 Mbit/s
95th percentile per-packet one-way delay: 28.330 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 7.98 Mbit/s
95th percentile per-packet one-way delay: 28.330 ms
Loss rate: 0.02%
```

Run 1: Report of KohoCC — Data Link

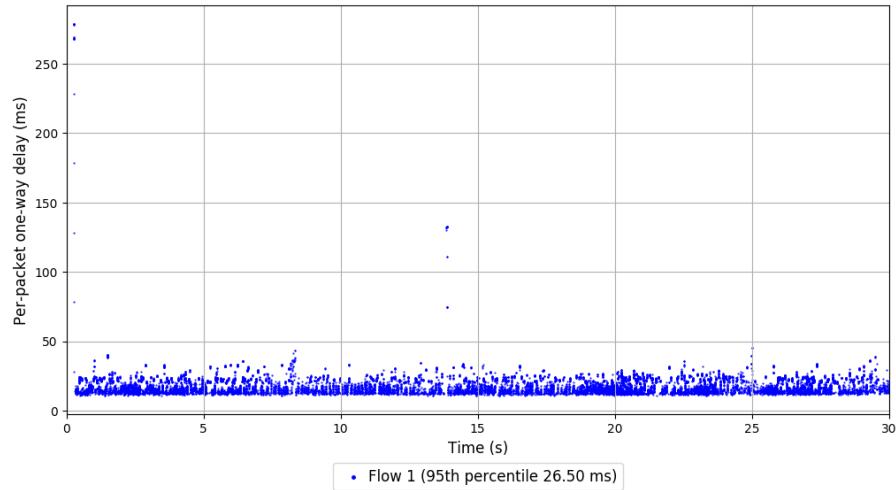
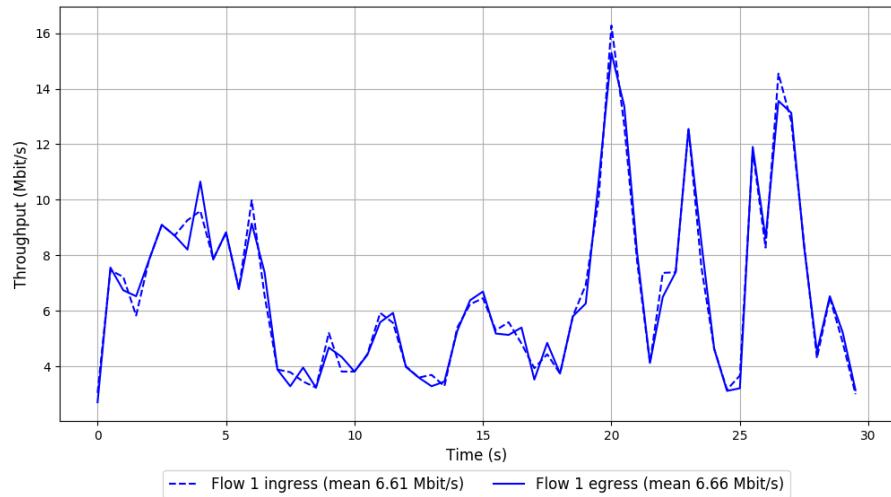


Run 2: Statistics of KohoCC

```
Start at: 2017-09-17 22:51:20
End at: 2017-09-17 22:51:50
Local clock offset: -0.704 ms
Remote clock offset: -3.076 ms

# Below is generated by plot.py at 2017-09-17 23:13:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.66 Mbit/s
95th percentile per-packet one-way delay: 26.498 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 6.66 Mbit/s
95th percentile per-packet one-way delay: 26.498 ms
Loss rate: 0.01%
```

Run 2: Report of KohoCC — Data Link

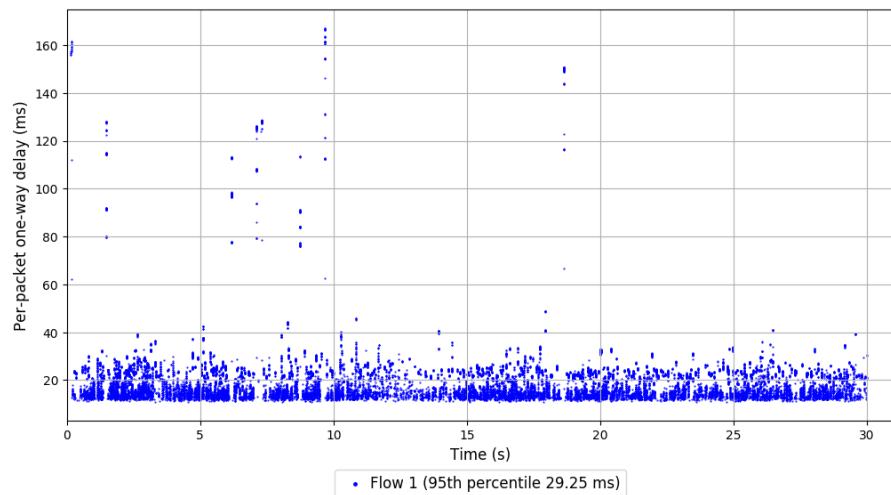
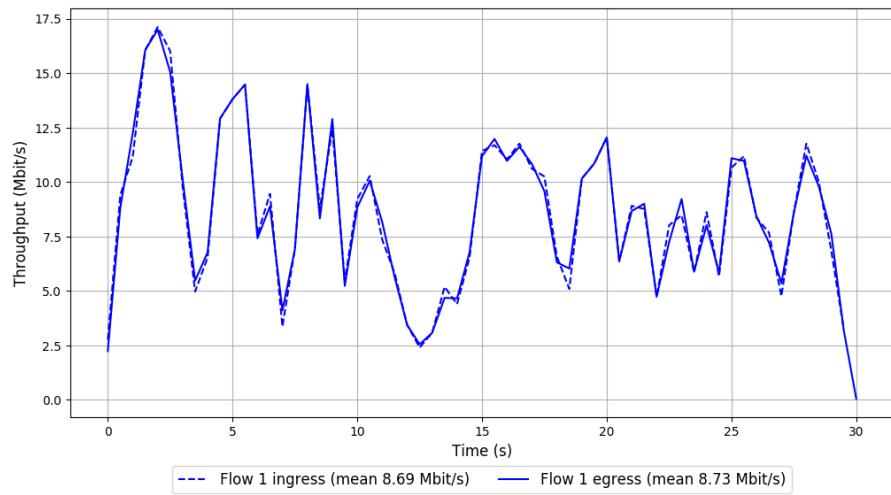


Run 3: Statistics of KohoCC

```
Start at: 2017-09-17 23:09:05
End at: 2017-09-17 23:09:35
Local clock offset: -0.349 ms
Remote clock offset: -2.935 ms

# Below is generated by plot.py at 2017-09-17 23:13:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.73 Mbit/s
95th percentile per-packet one-way delay: 29.247 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 8.73 Mbit/s
95th percentile per-packet one-way delay: 29.247 ms
Loss rate: 0.00%
```

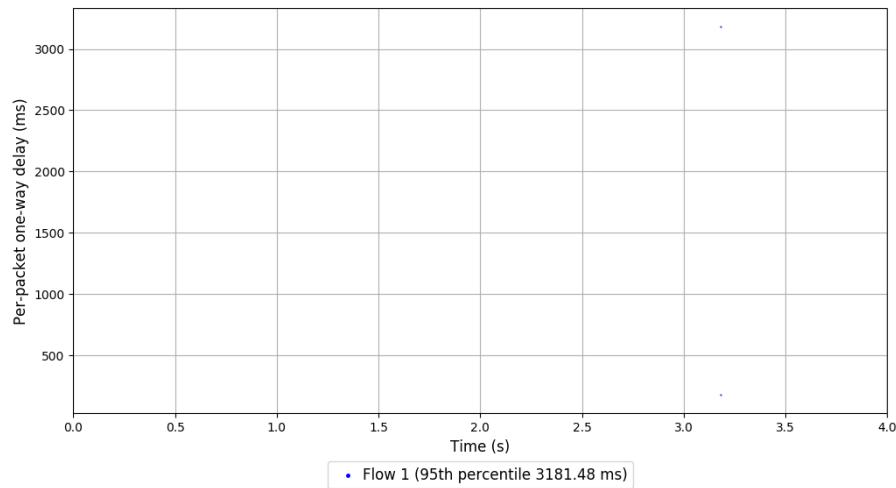
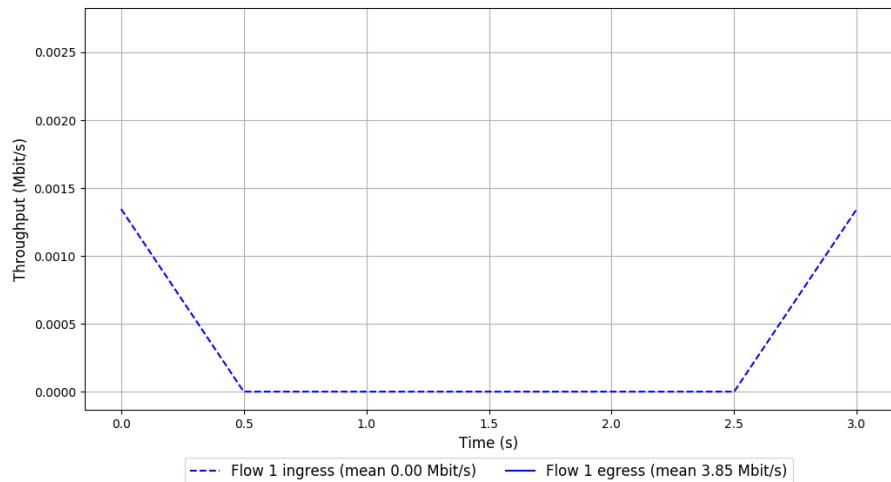
Run 3: Report of KohoCC — Data Link



Run 1: Statistics of LEDBAT

Start at: 2017-09-17 22:22:58
End at: 2017-09-17 22:23:28
Local clock offset: -1.171 ms
Remote clock offset: -3.416 ms

Run 1: Report of LEDBAT — Data Link

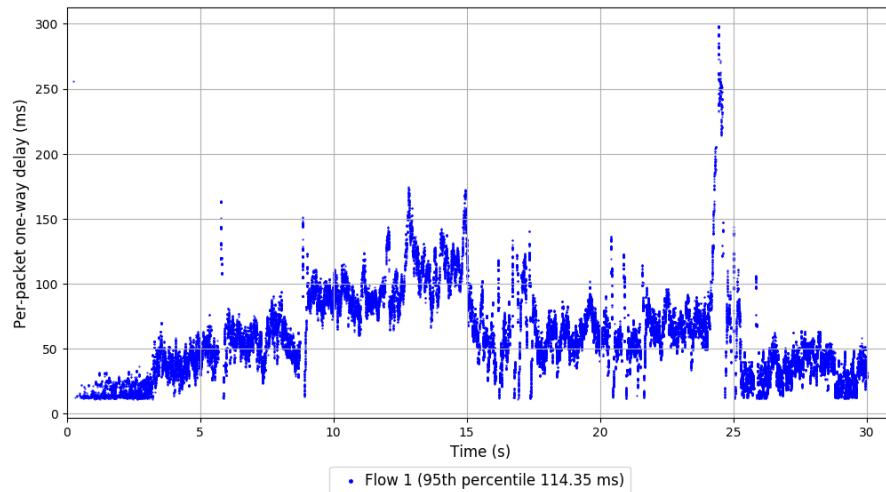
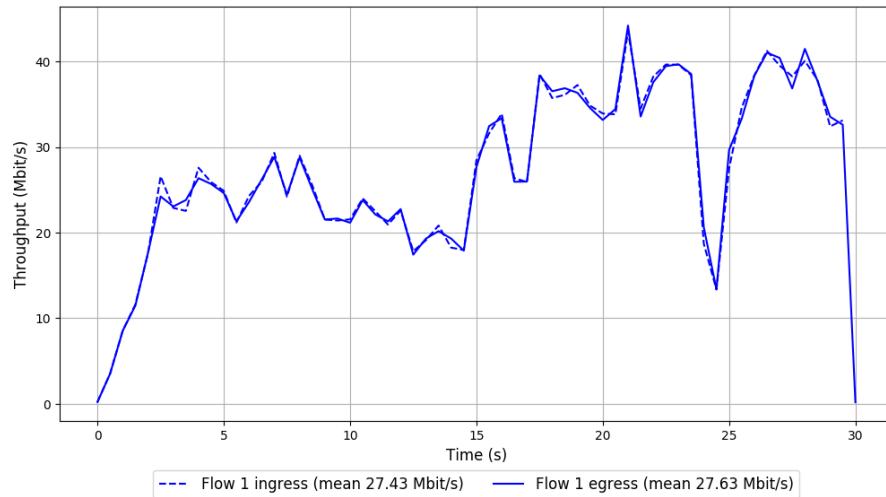


Run 2: Statistics of LEDBAT

```
Start at: 2017-09-17 22:40:42
End at: 2017-09-17 22:41:12
Local clock offset: -1.521 ms
Remote clock offset: -3.3 ms

# Below is generated by plot.py at 2017-09-17 23:13:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 27.63 Mbit/s
95th percentile per-packet one-way delay: 114.349 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 27.63 Mbit/s
95th percentile per-packet one-way delay: 114.349 ms
Loss rate: 0.10%
```

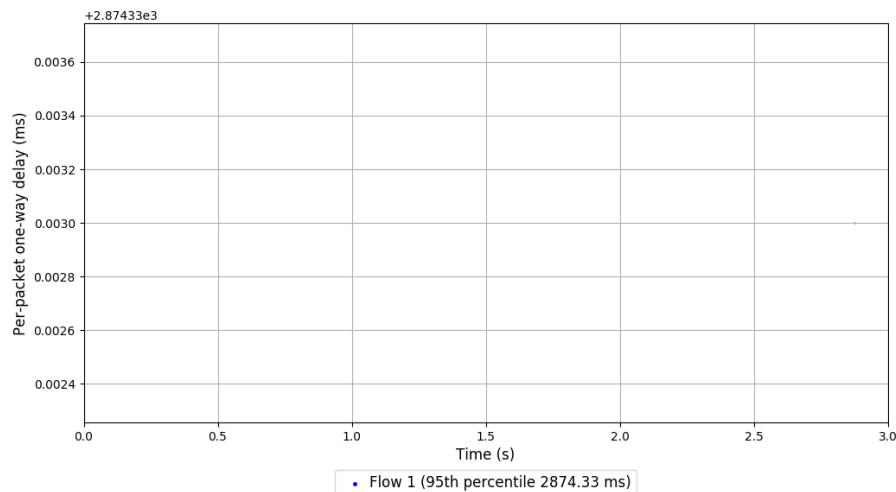
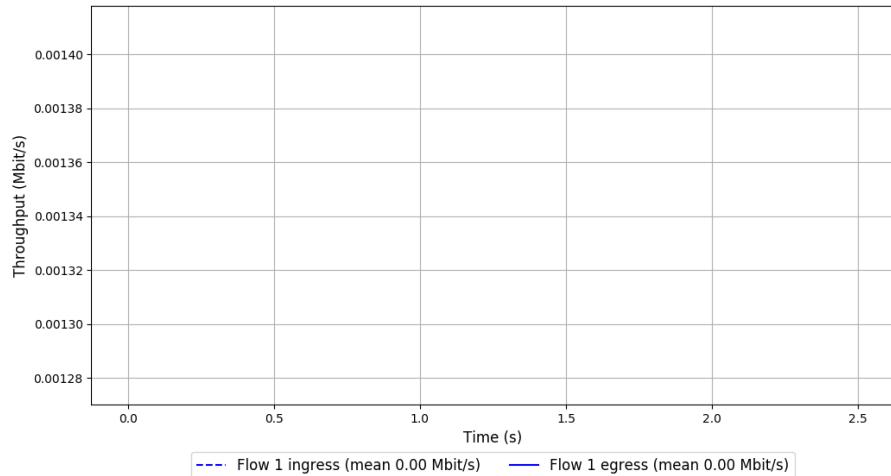
Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2017-09-17 22:58:27
End at: 2017-09-17 22:58:57
Local clock offset: -0.589 ms
Remote clock offset: -3.045 ms

Run 3: Report of LEDBAT — Data Link

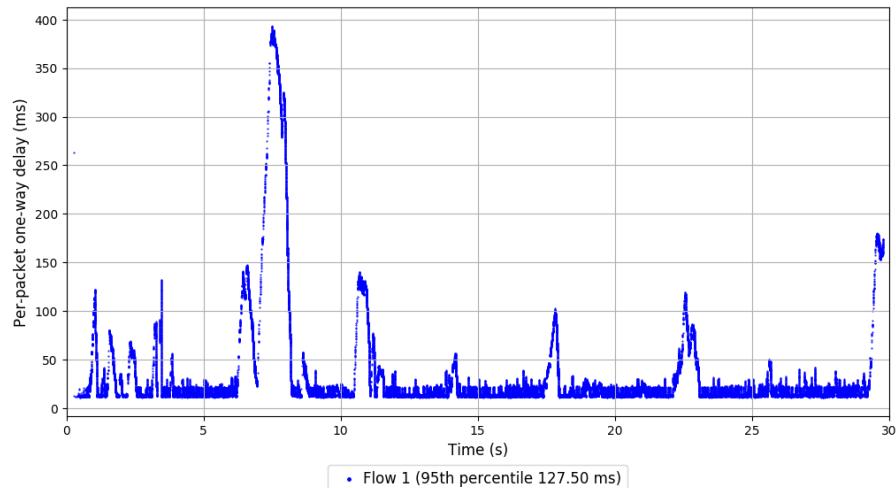
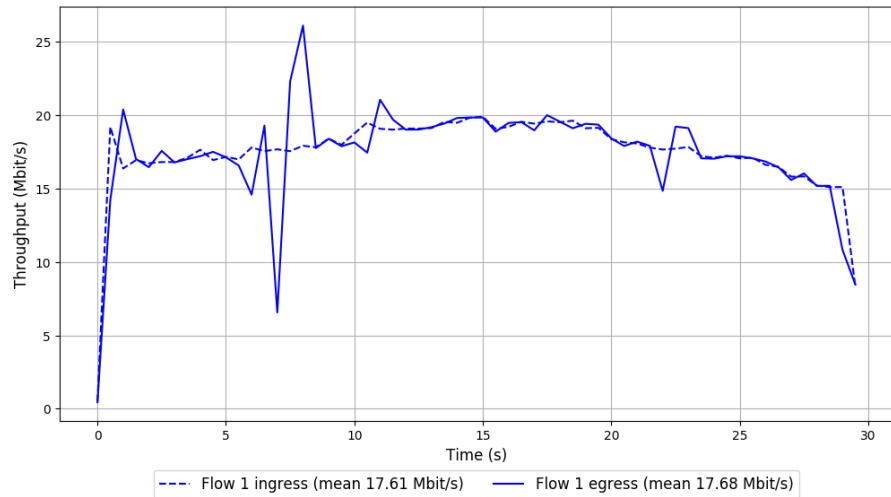


```
Run 1: Statistics of PCC
```

```
Start at: 2017-09-17 22:20:36
End at: 2017-09-17 22:21:06
Local clock offset: -1.261 ms
Remote clock offset: -3.482 ms

# Below is generated by plot.py at 2017-09-17 23:13:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 17.68 Mbit/s
95th percentile per-packet one-way delay: 127.498 ms
Loss rate: 0.43%
-- Flow 1:
Average throughput: 17.68 Mbit/s
95th percentile per-packet one-way delay: 127.498 ms
Loss rate: 0.43%
```

Run 1: Report of PCC — Data Link

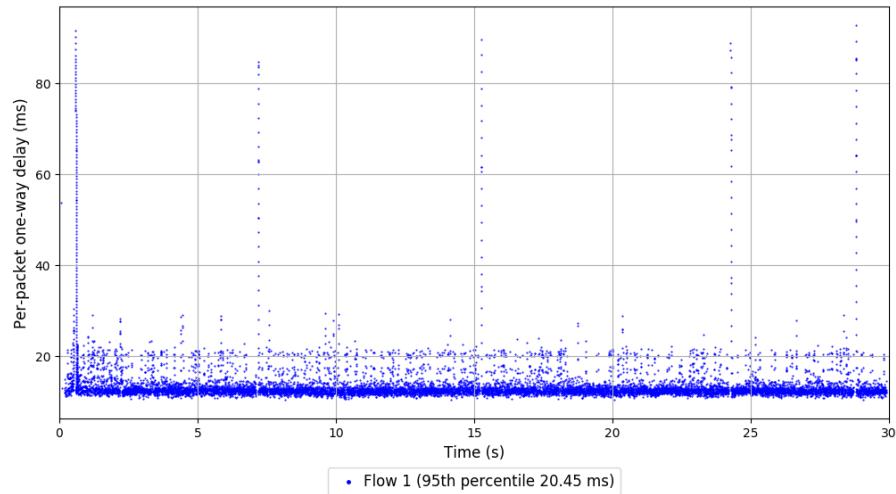
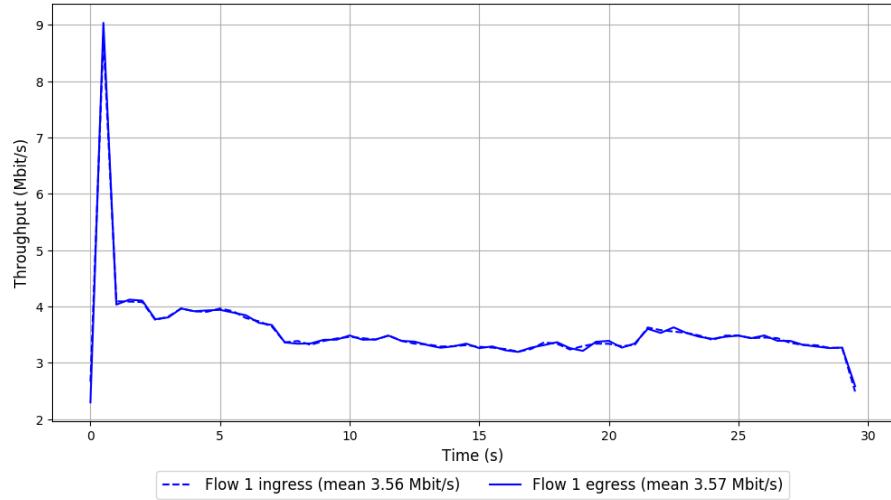


Run 2: Statistics of PCC

```
Start at: 2017-09-17 22:38:20
End at: 2017-09-17 22:38:50
Local clock offset: -1.45 ms
Remote clock offset: -3.283 ms

# Below is generated by plot.py at 2017-09-17 23:13:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.57 Mbit/s
95th percentile per-packet one-way delay: 20.447 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 3.57 Mbit/s
95th percentile per-packet one-way delay: 20.447 ms
Loss rate: 0.00%
```

Run 2: Report of PCC — Data Link

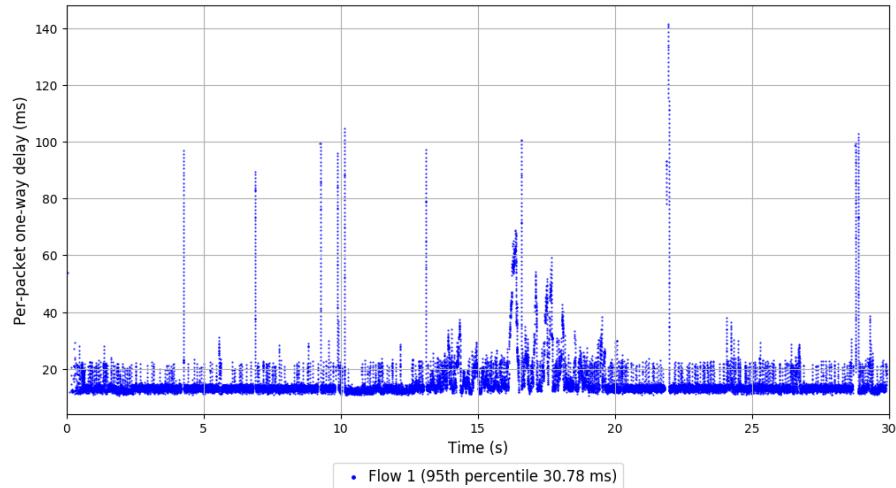
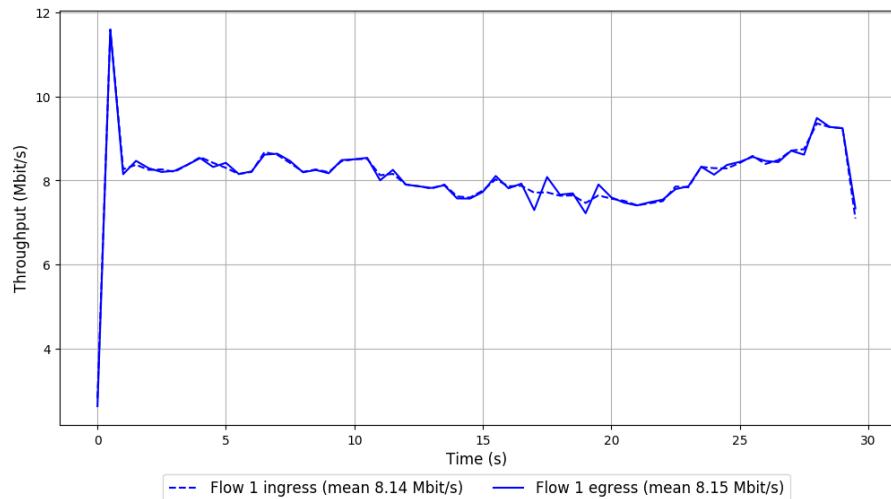


Run 3: Statistics of PCC

```
Start at: 2017-09-17 22:56:05
End at: 2017-09-17 22:56:35
Local clock offset: -0.638 ms
Remote clock offset: -3.018 ms

# Below is generated by plot.py at 2017-09-17 23:13:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.15 Mbit/s
95th percentile per-packet one-way delay: 30.782 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 8.15 Mbit/s
95th percentile per-packet one-way delay: 30.782 ms
Loss rate: 0.00%
```

Run 3: Report of PCC — Data Link



Run 1: Statistics of QUIC Cubic

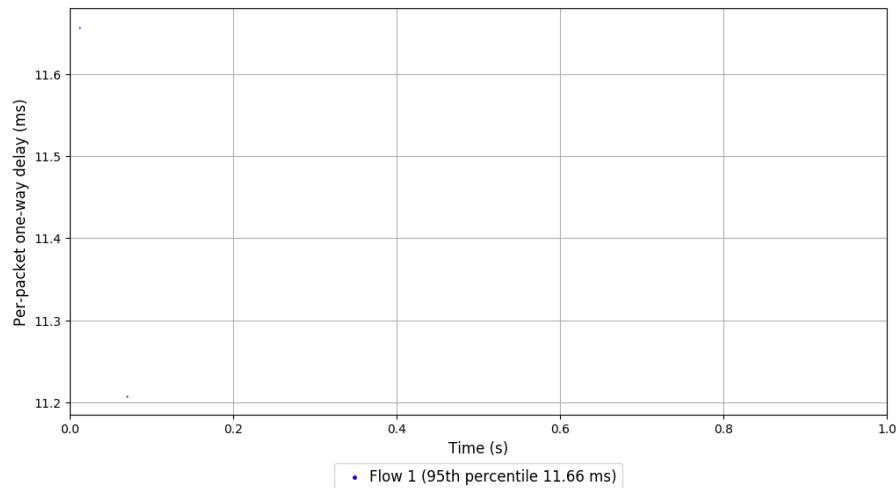
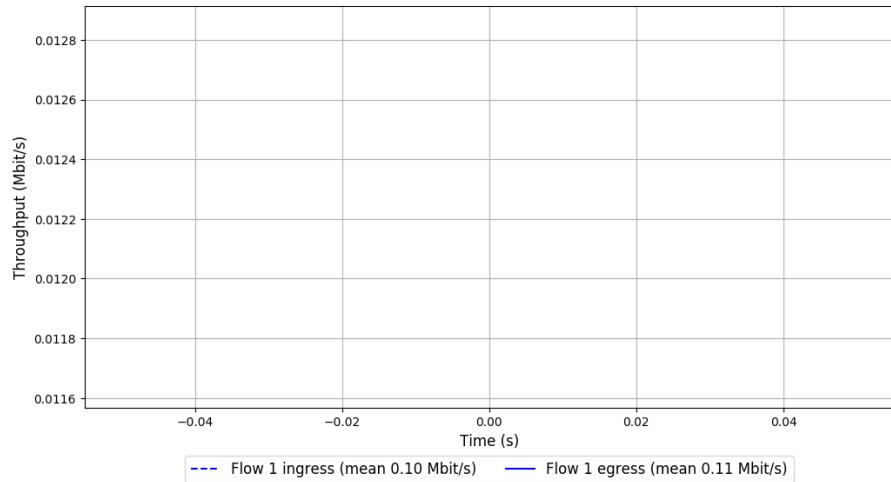
Start at: 2017-09-17 22:31:14

End at: 2017-09-17 22:31:44

Local clock offset: -1.24 ms

Remote clock offset: -3.494 ms

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

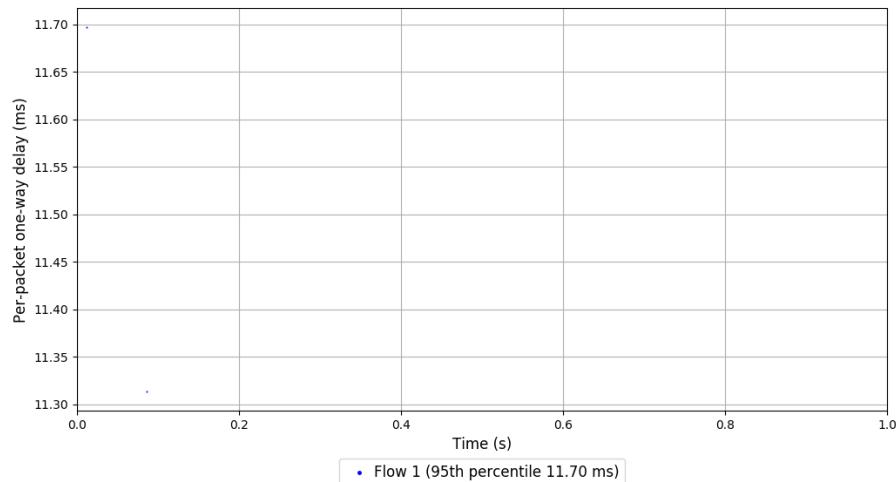
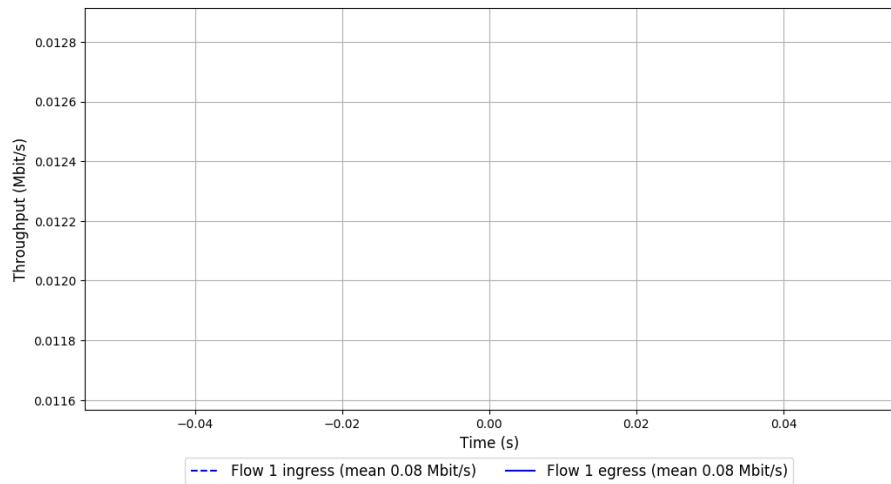
Start at: 2017-09-17 22:48:59

End at: 2017-09-17 22:49:29

Local clock offset: -0.965 ms

Remote clock offset: -3.141 ms

Run 2: Report of QUIC Cubic — Data Link

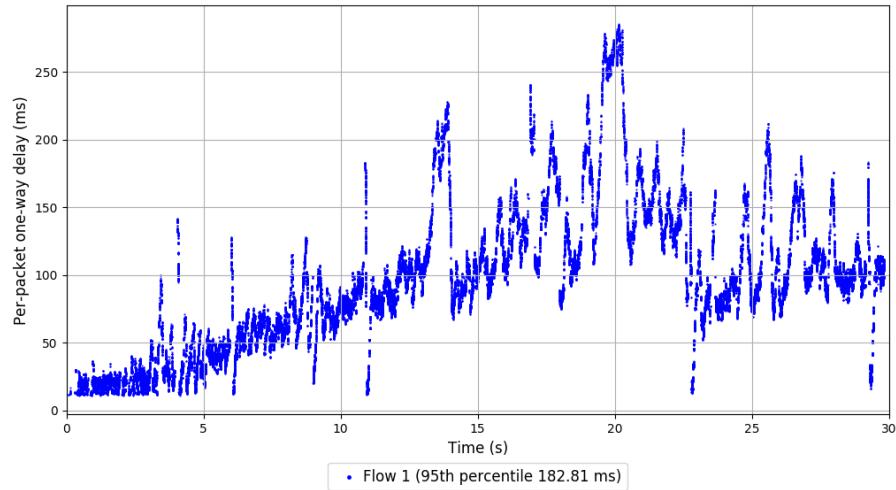
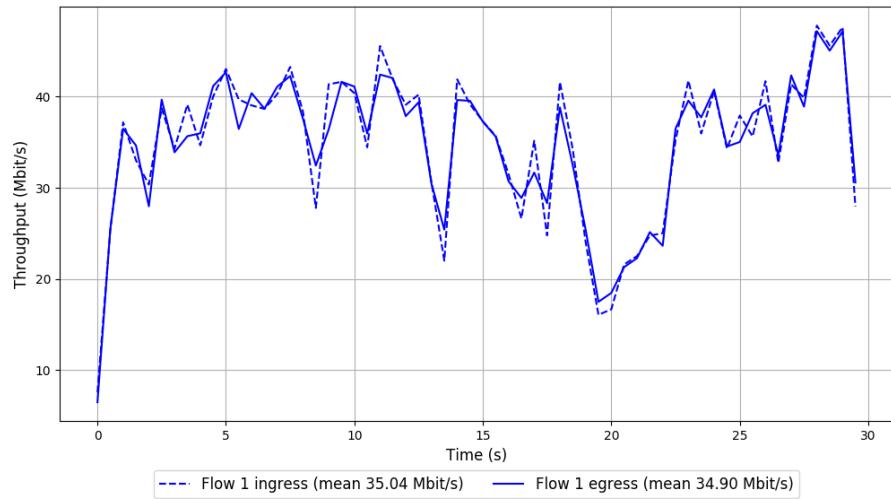


Run 3: Statistics of QUIC Cubic

```
Start at: 2017-09-17 23:06:42
End at: 2017-09-17 23:07:12
Local clock offset: -0.359 ms
Remote clock offset: -2.967 ms

# Below is generated by plot.py at 2017-09-17 23:14:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 34.90 Mbit/s
95th percentile per-packet one-way delay: 182.808 ms
Loss rate: 0.37%
-- Flow 1:
Average throughput: 34.90 Mbit/s
95th percentile per-packet one-way delay: 182.808 ms
Loss rate: 0.37%
```

Run 3: Report of QUIC Cubic — Data Link

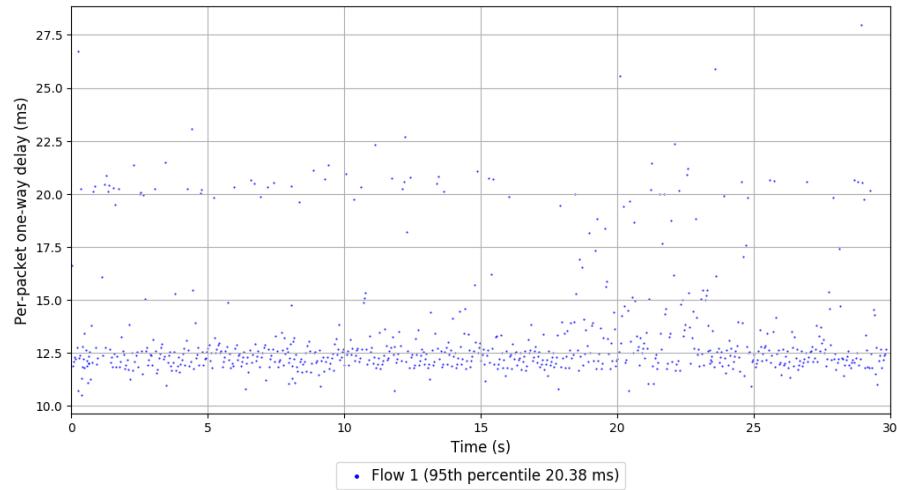
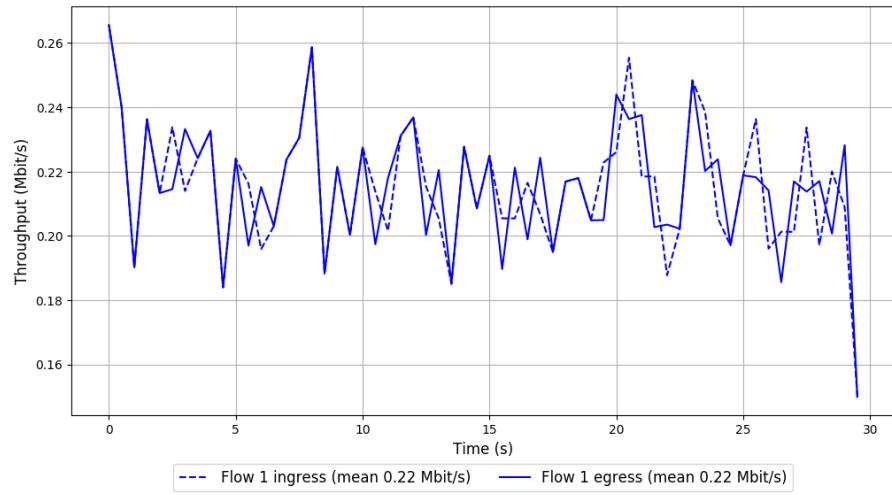


```
Run 1: Statistics of SCReAM
```

```
Start at: 2017-09-17 22:34:47
End at: 2017-09-17 22:35:17
Local clock offset: -1.29 ms
Remote clock offset: -3.419 ms

# Below is generated by plot.py at 2017-09-17 23:14:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 20.382 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 20.382 ms
Loss rate: 0.00%
```

Run 1: Report of SCReAM — Data Link

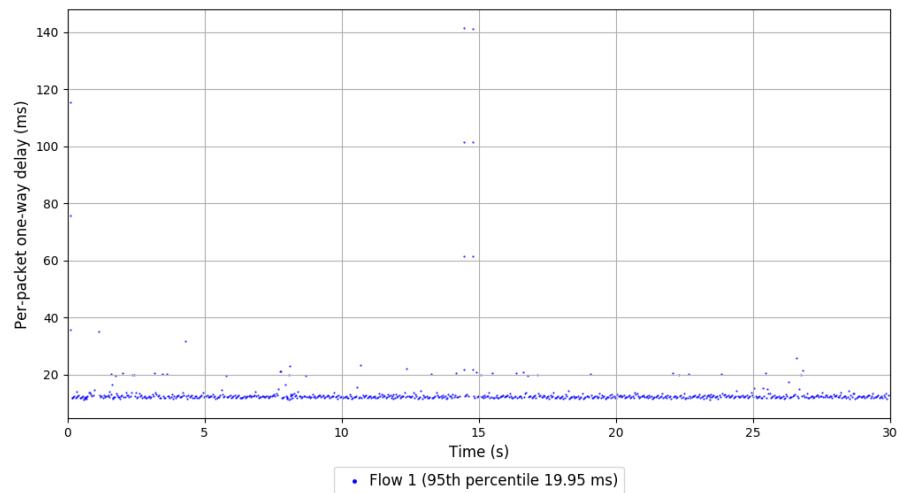
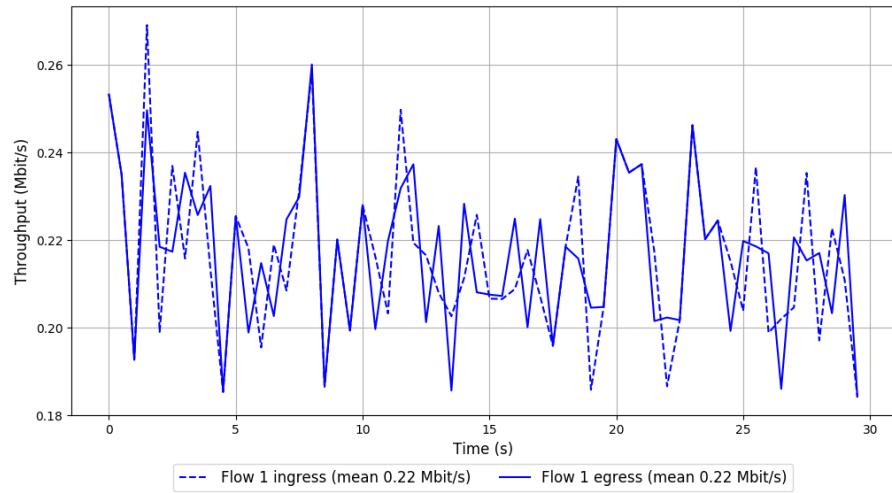


Run 2: Statistics of SCReAM

```
Start at: 2017-09-17 22:52:31
End at: 2017-09-17 22:53:01
Local clock offset: -0.76 ms
Remote clock offset: -3.131 ms

# Below is generated by plot.py at 2017-09-17 23:14:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 19.946 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 19.946 ms
Loss rate: 0.00%
```

Run 2: Report of SCReAM — Data Link

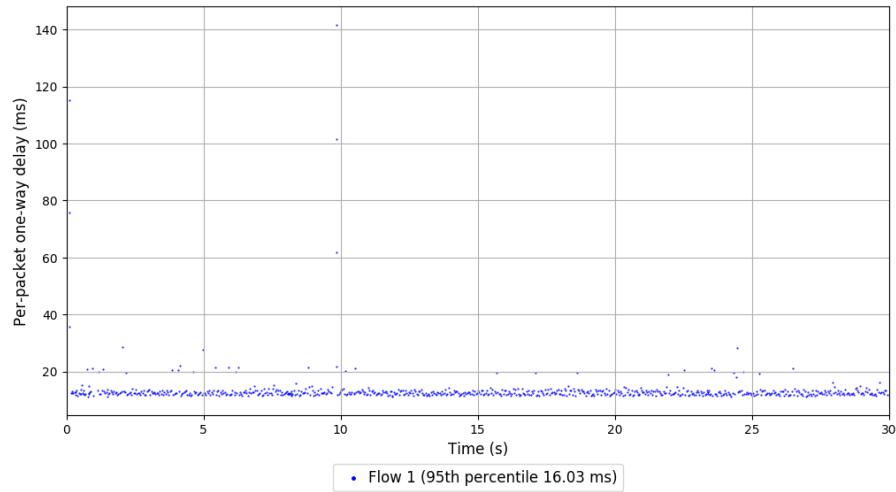
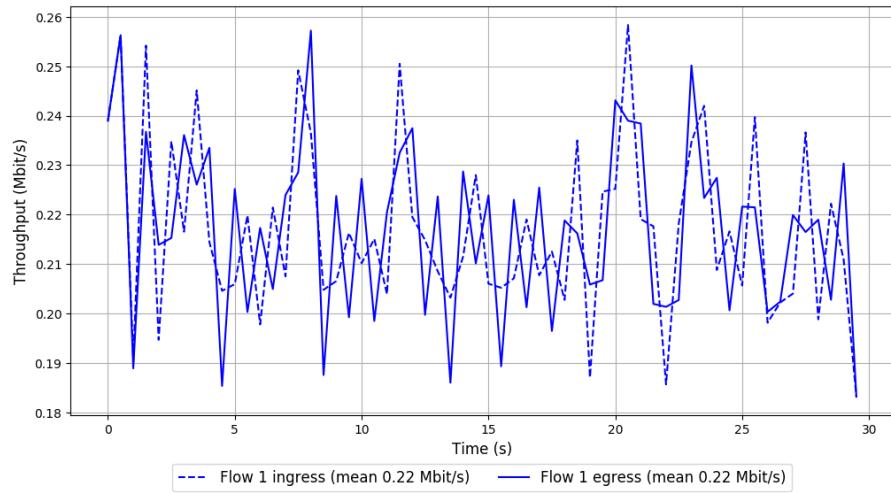


Run 3: Statistics of SCReAM

```
Start at: 2017-09-17 23:10:16
End at: 2017-09-17 23:10:46
Local clock offset: -0.428 ms
Remote clock offset: -2.814 ms

# Below is generated by plot.py at 2017-09-17 23:14:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 16.030 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 16.030 ms
Loss rate: 0.00%
```

Run 3: Report of SCReAM — Data Link

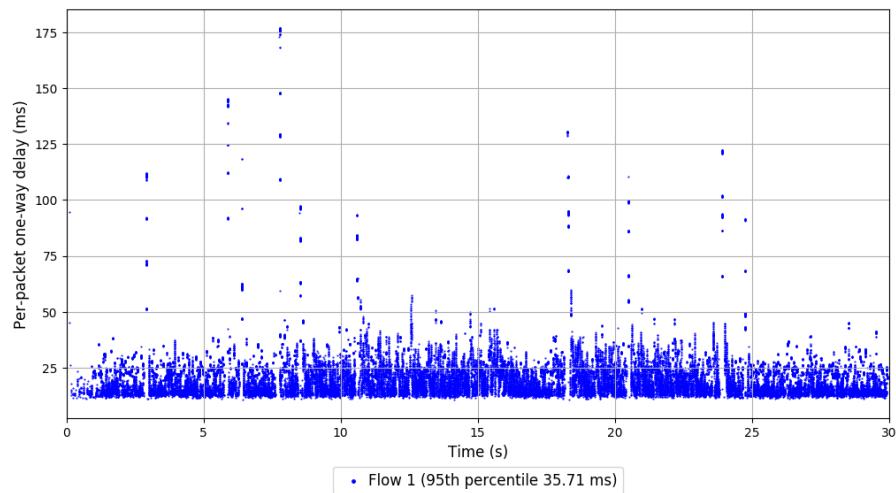
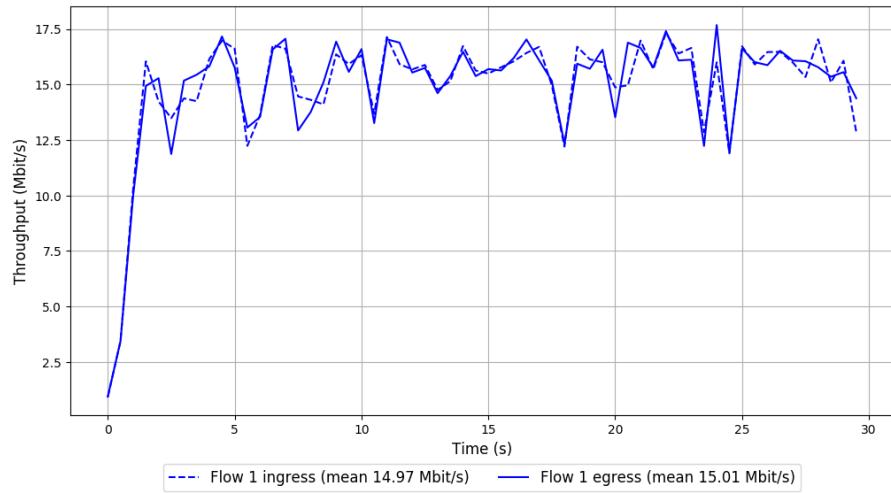


Run 1: Statistics of Sprout

```
Start at: 2017-09-17 22:30:03
End at: 2017-09-17 22:30:33
Local clock offset: -1.332 ms
Remote clock offset: -3.501 ms

# Below is generated by plot.py at 2017-09-17 23:14:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 15.01 Mbit/s
95th percentile per-packet one-way delay: 35.708 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 15.01 Mbit/s
95th percentile per-packet one-way delay: 35.708 ms
Loss rate: 0.00%
```

Run 1: Report of Sprout — Data Link

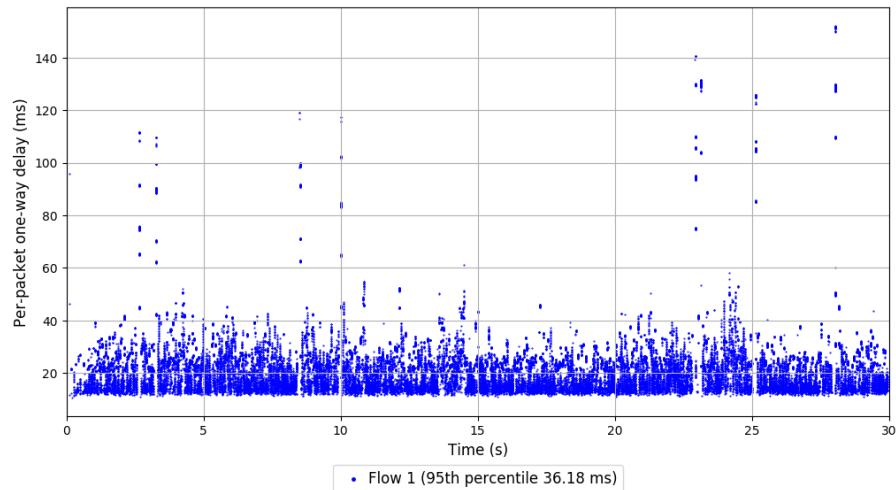
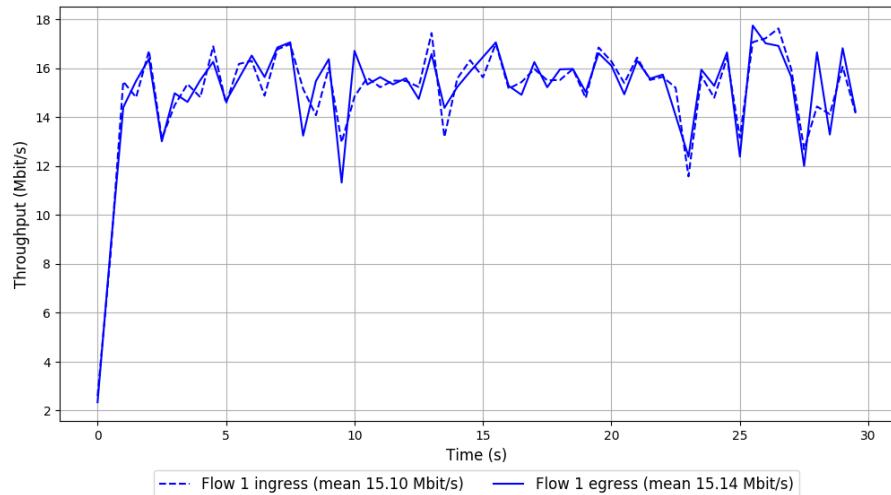


Run 2: Statistics of Sprout

```
Start at: 2017-09-17 22:47:48
End at: 2017-09-17 22:48:18
Local clock offset: -0.948 ms
Remote clock offset: -3.174 ms

# Below is generated by plot.py at 2017-09-17 23:14:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 15.14 Mbit/s
95th percentile per-packet one-way delay: 36.181 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 15.14 Mbit/s
95th percentile per-packet one-way delay: 36.181 ms
Loss rate: 0.00%
```

Run 2: Report of Sprout — Data Link

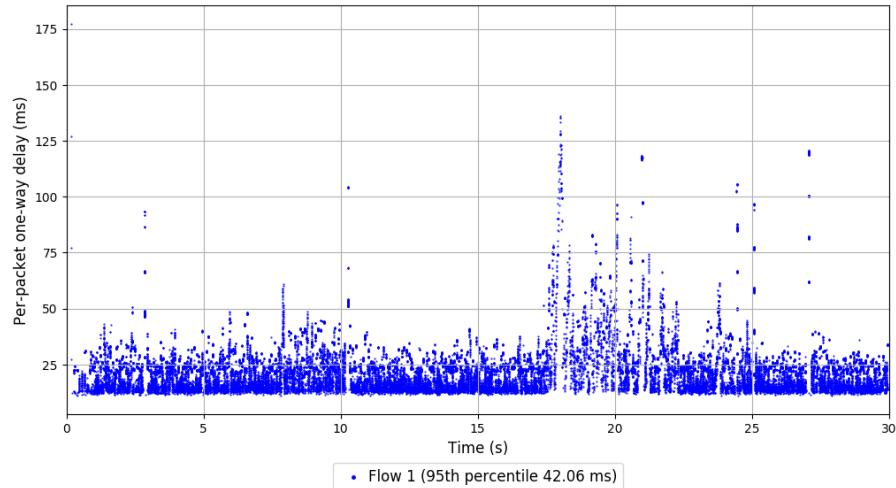
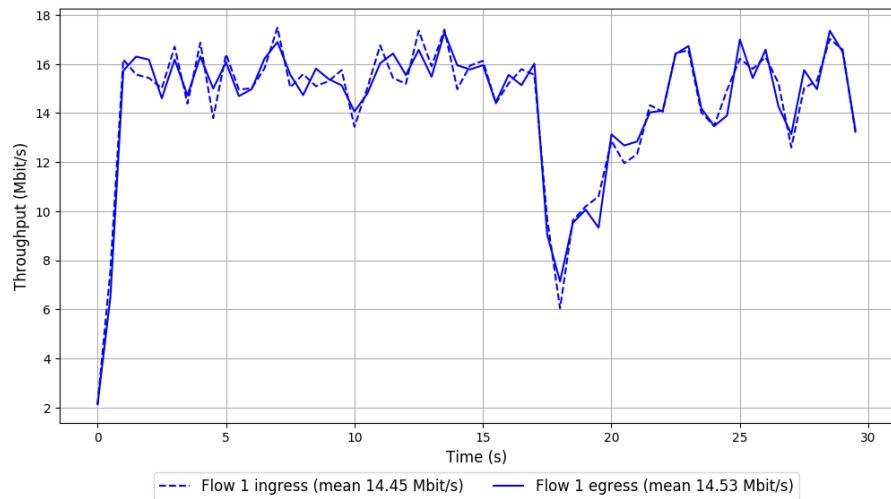


Run 3: Statistics of Sprout

```
Start at: 2017-09-17 23:05:31
End at: 2017-09-17 23:06:01
Local clock offset: -0.494 ms
Remote clock offset: -2.878 ms

# Below is generated by plot.py at 2017-09-17 23:14:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 14.53 Mbit/s
95th percentile per-packet one-way delay: 42.059 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 14.53 Mbit/s
95th percentile per-packet one-way delay: 42.059 ms
Loss rate: 0.00%
```

Run 3: Report of Sprout — Data Link

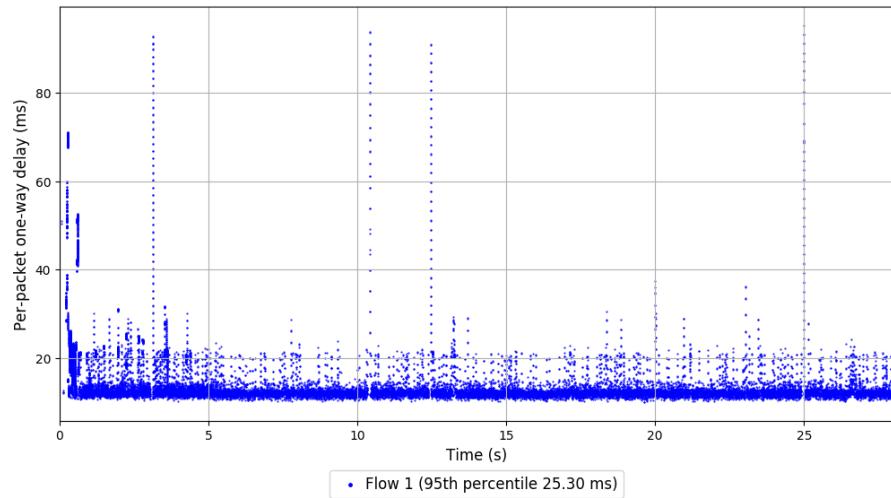
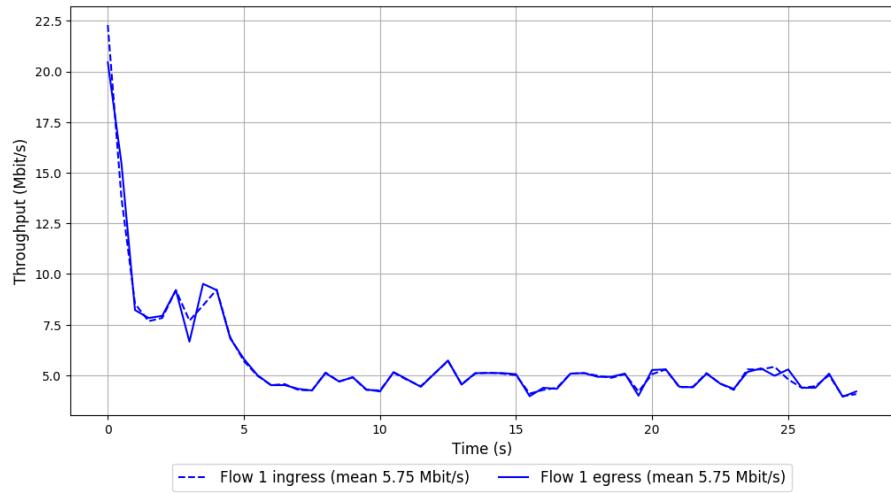


Run 1: Statistics of TaoVA-100x

```
Start at: 2017-09-17 22:27:42
End at: 2017-09-17 22:28:12
Local clock offset: -1.26 ms
Remote clock offset: -3.485 ms

# Below is generated by plot.py at 2017-09-17 23:14:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.75 Mbit/s
95th percentile per-packet one-way delay: 25.301 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 5.75 Mbit/s
95th percentile per-packet one-way delay: 25.301 ms
Loss rate: 0.00%
```

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

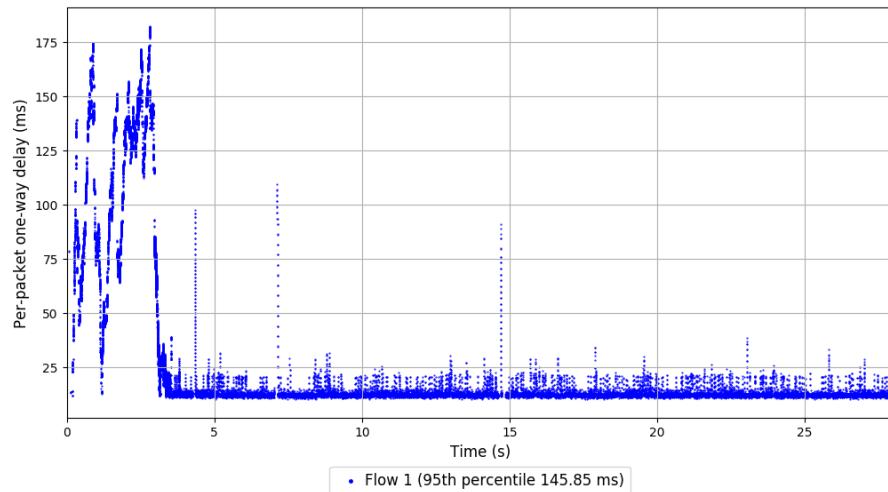
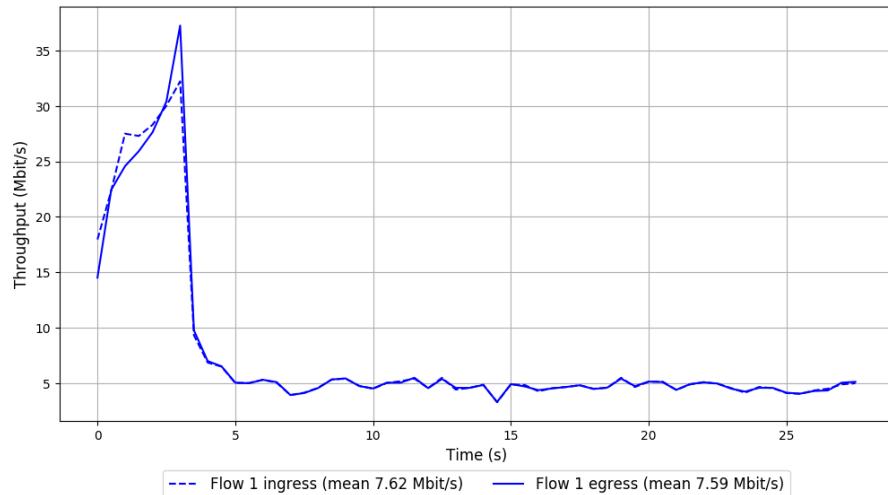


Run 2: Statistics of TaoVA-100x

```
Start at: 2017-09-17 22:45:26
End at: 2017-09-17 22:45:56
Local clock offset: -1.274 ms
Remote clock offset: -3.209 ms

# Below is generated by plot.py at 2017-09-17 23:14:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.59 Mbit/s
95th percentile per-packet one-way delay: 145.850 ms
Loss rate: 0.52%
-- Flow 1:
Average throughput: 7.59 Mbit/s
95th percentile per-packet one-way delay: 145.850 ms
Loss rate: 0.52%
```

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

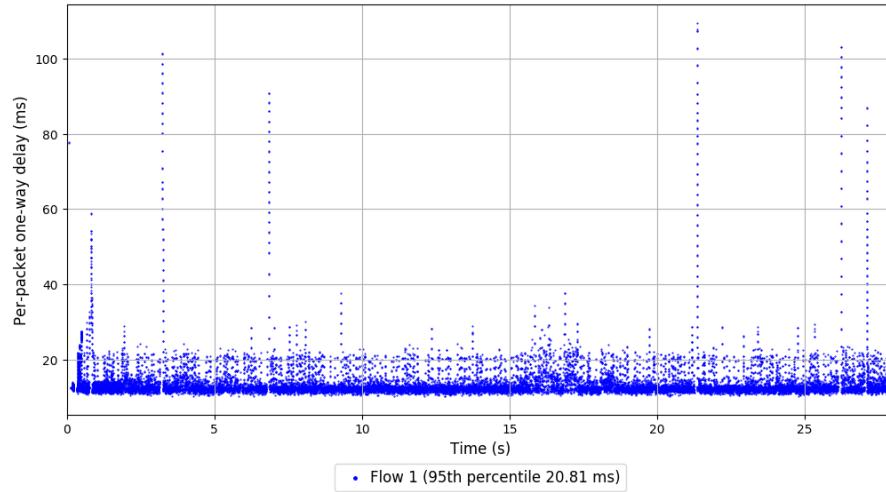
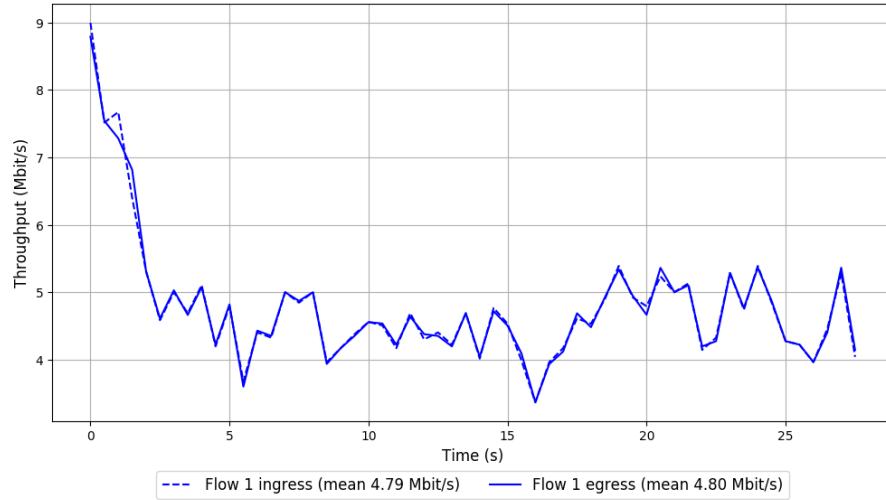


Run 3: Statistics of TaoVA-100x

```
Start at: 2017-09-17 23:03:10
End at: 2017-09-17 23:03:40
Local clock offset: -0.459 ms
Remote clock offset: -3.013 ms

# Below is generated by plot.py at 2017-09-17 23:14:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.80 Mbit/s
95th percentile per-packet one-way delay: 20.809 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 4.80 Mbit/s
95th percentile per-packet one-way delay: 20.809 ms
Loss rate: 0.00%
```

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

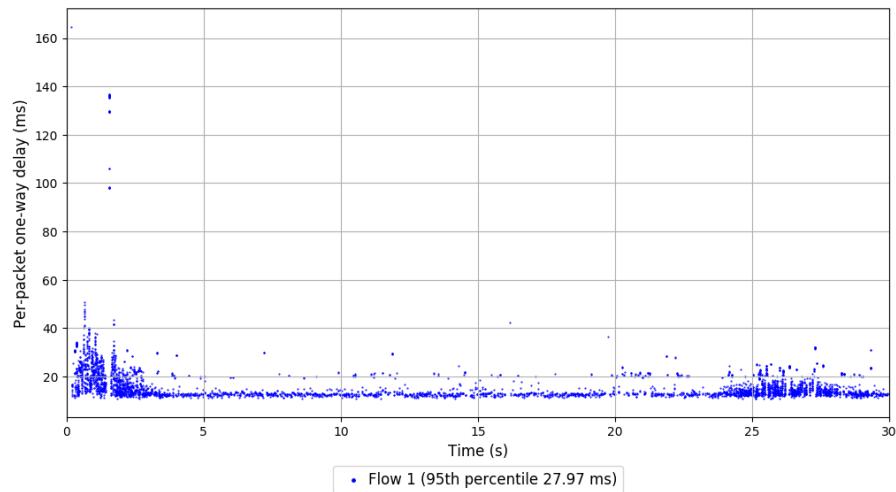
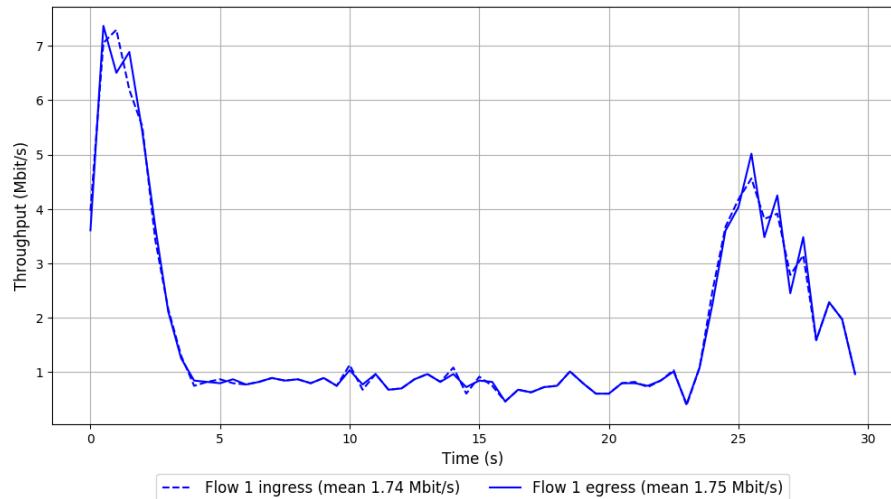


Run 1: Statistics of TCP Vegas

```
Start at: 2017-09-17 22:18:14
End at: 2017-09-17 22:18:44
Local clock offset: -1.125 ms
Remote clock offset: -3.481 ms

# Below is generated by plot.py at 2017-09-17 23:14:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.75 Mbit/s
95th percentile per-packet one-way delay: 27.973 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.75 Mbit/s
95th percentile per-packet one-way delay: 27.973 ms
Loss rate: 0.00%
```

Run 1: Report of TCP Vegas — Data Link

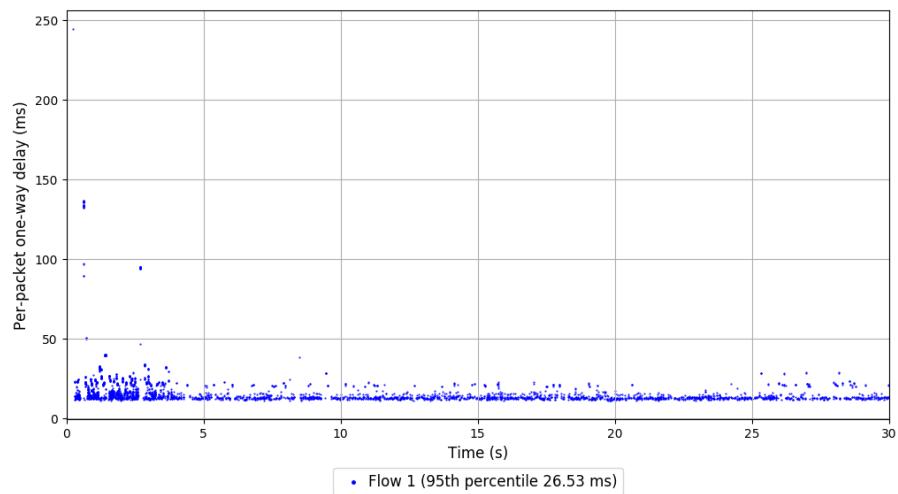
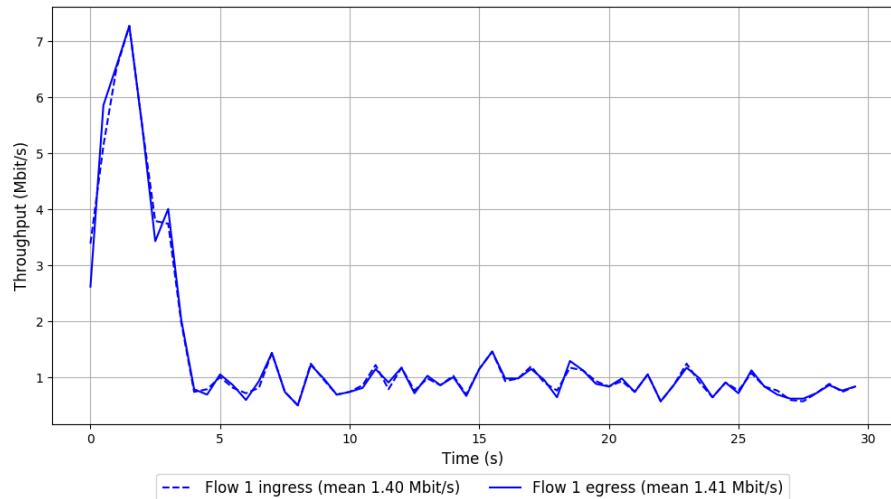


Run 2: Statistics of TCP Vegas

```
Start at: 2017-09-17 22:35:57
End at: 2017-09-17 22:36:27
Local clock offset: -1.313 ms
Remote clock offset: -3.393 ms

# Below is generated by plot.py at 2017-09-17 23:14:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.41 Mbit/s
95th percentile per-packet one-way delay: 26.528 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.41 Mbit/s
95th percentile per-packet one-way delay: 26.528 ms
Loss rate: 0.00%
```

Run 2: Report of TCP Vegas — Data Link

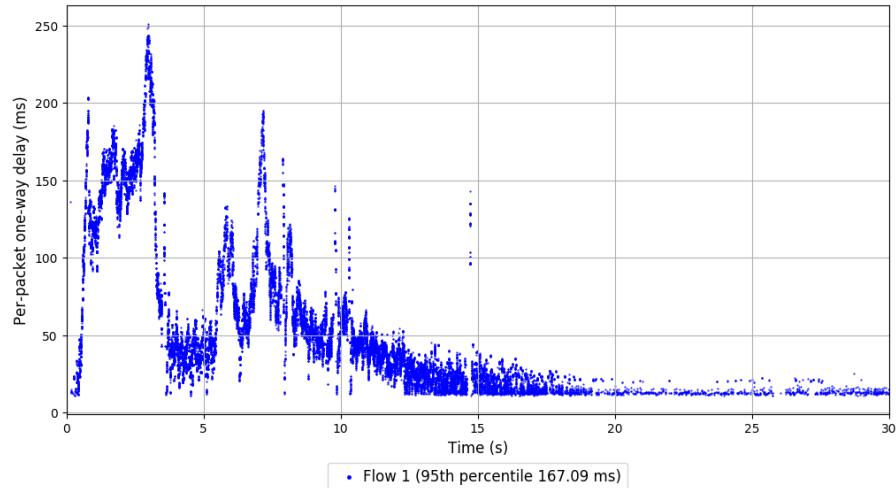
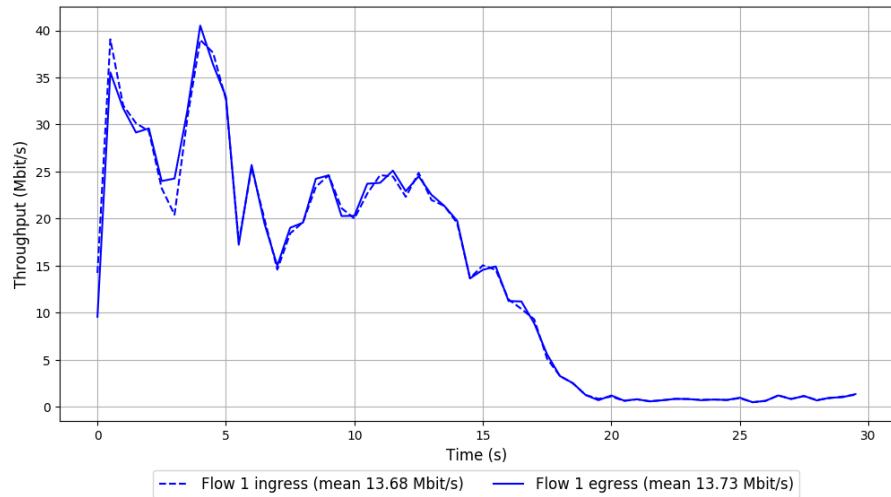


Run 3: Statistics of TCP Vegas

```
Start at: 2017-09-17 22:53:41
End at: 2017-09-17 22:54:11
Local clock offset: -0.608 ms
Remote clock offset: -3.1 ms

# Below is generated by plot.py at 2017-09-17 23:14:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 13.73 Mbit/s
95th percentile per-packet one-way delay: 167.090 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 13.73 Mbit/s
95th percentile per-packet one-way delay: 167.090 ms
Loss rate: 0.00%
```

Run 3: Report of TCP Vegas — Data Link

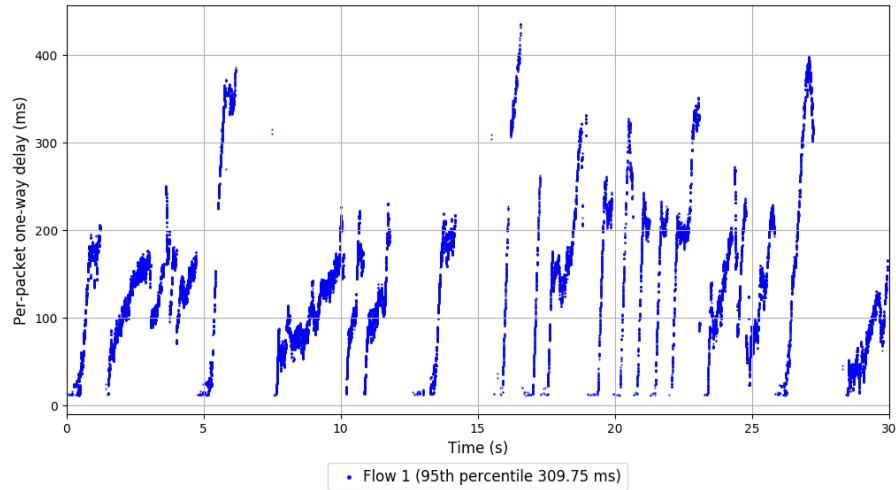
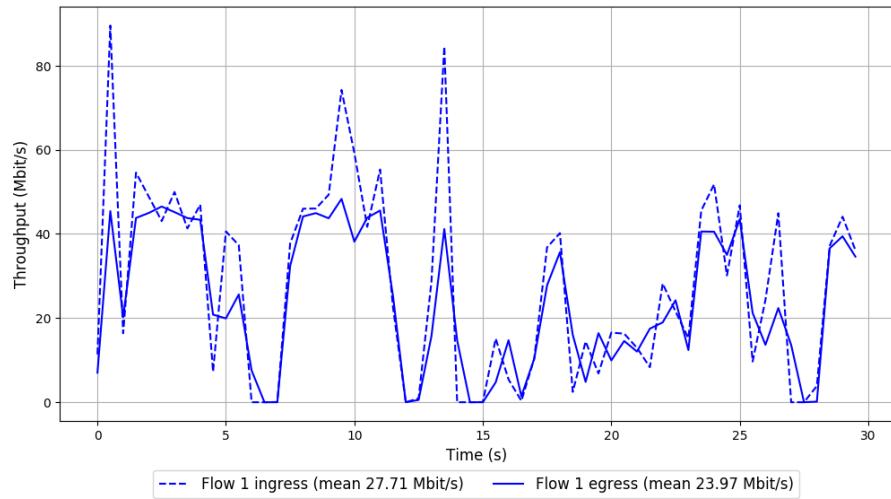


Run 1: Statistics of Verus

```
Start at: 2017-09-17 22:25:19
End at: 2017-09-17 22:25:49
Local clock offset: -1.331 ms
Remote clock offset: -3.492 ms

# Below is generated by plot.py at 2017-09-17 23:14:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 23.97 Mbit/s
95th percentile per-packet one-way delay: 309.747 ms
Loss rate: 13.47%
-- Flow 1:
Average throughput: 23.97 Mbit/s
95th percentile per-packet one-way delay: 309.747 ms
Loss rate: 13.47%
```

Run 1: Report of Verus — Data Link

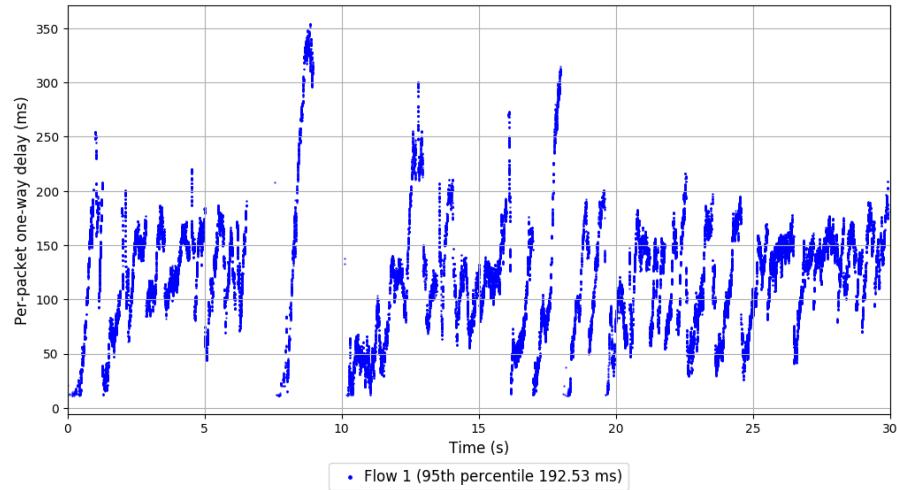
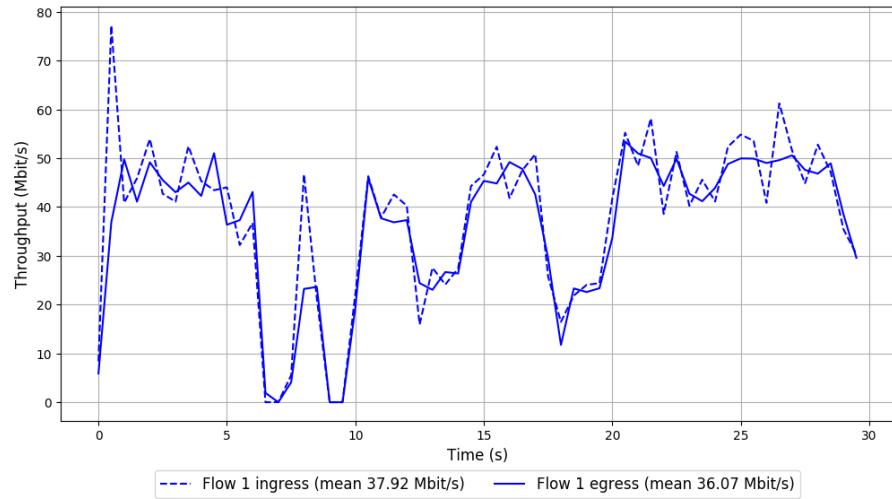


Run 2: Statistics of Verus

```
Start at: 2017-09-17 22:43:04
End at: 2017-09-17 22:43:34
Local clock offset: -1.396 ms
Remote clock offset: -3.225 ms

# Below is generated by plot.py at 2017-09-17 23:14:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 36.07 Mbit/s
95th percentile per-packet one-way delay: 192.529 ms
Loss rate: 4.67%
-- Flow 1:
Average throughput: 36.07 Mbit/s
95th percentile per-packet one-way delay: 192.529 ms
Loss rate: 4.67%
```

Run 2: Report of Verus — Data Link

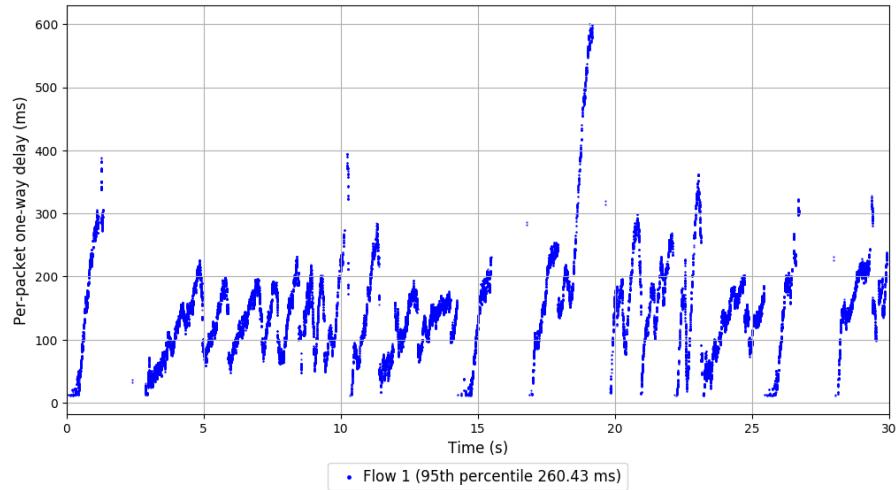
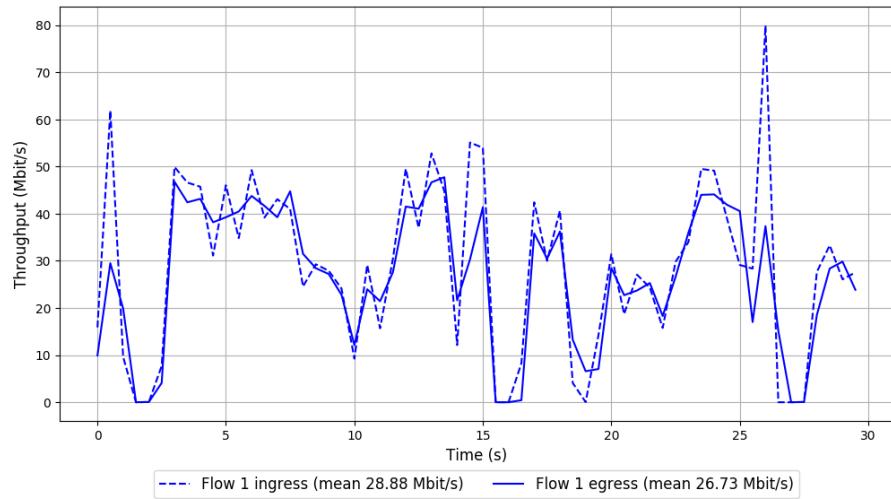


Run 3: Statistics of Verus

```
Start at: 2017-09-17 23:00:48
End at: 2017-09-17 23:01:18
Local clock offset: -0.5 ms
Remote clock offset: -3.031 ms

# Below is generated by plot.py at 2017-09-17 23:14:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 26.73 Mbit/s
95th percentile per-packet one-way delay: 260.427 ms
Loss rate: 7.41%
-- Flow 1:
Average throughput: 26.73 Mbit/s
95th percentile per-packet one-way delay: 260.427 ms
Loss rate: 7.41%
```

Run 3: Report of Verus — Data Link

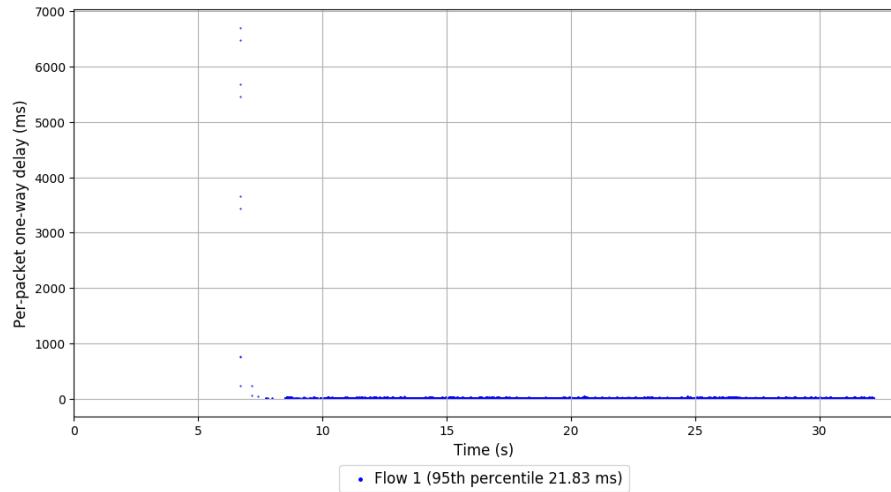
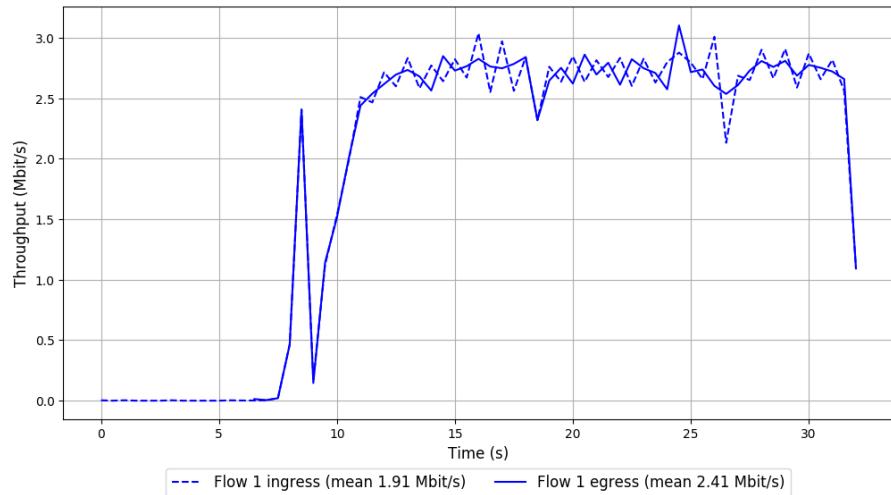


```
Run 1: Statistics of WebRTC media

Start at: 2017-09-17 22:26:31
End at: 2017-09-17 22:27:01
Local clock offset: -1.264 ms
Remote clock offset: -3.433 ms

# Below is generated by plot.py at 2017-09-17 23:14:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.41 Mbit/s
95th percentile per-packet one-way delay: 21.829 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.41 Mbit/s
95th percentile per-packet one-way delay: 21.829 ms
Loss rate: 0.00%
```

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

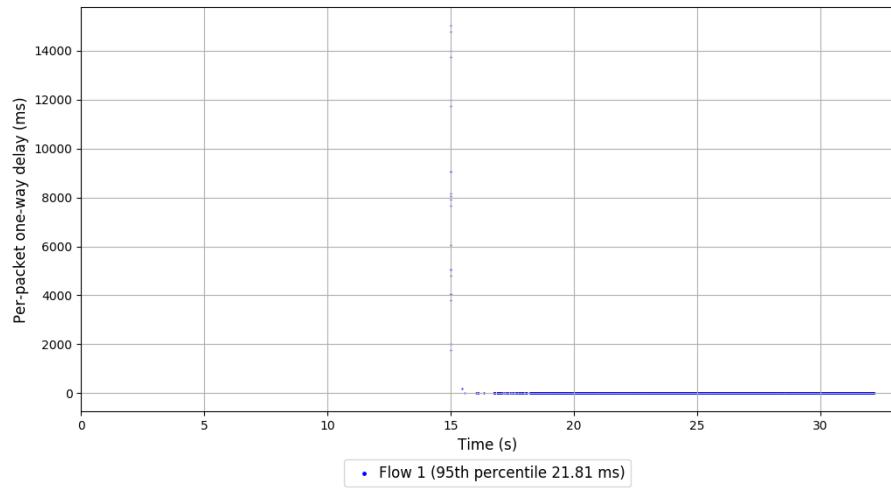
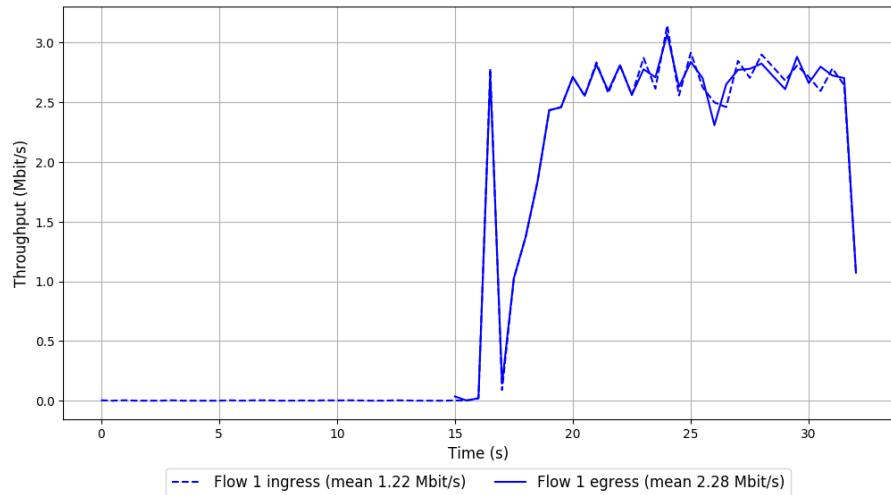
Start at: 2017-09-17 22:44:16

End at: 2017-09-17 22:44:46

Local clock offset: -1.285 ms

Remote clock offset: -3.246 ms

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

```
Start at: 2017-09-17 23:02:00
End at: 2017-09-17 23:02:30
Local clock offset: -0.485 ms
Remote clock offset: -2.975 ms

# Below is generated by plot.py at 2017-09-17 23:14:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.30 Mbit/s
95th percentile per-packet one-way delay: 21.878 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.30 Mbit/s
95th percentile per-packet one-way delay: 21.878 ms
Loss rate: 0.00%
```

Run 3: Report of WebRTC media — Data Link

