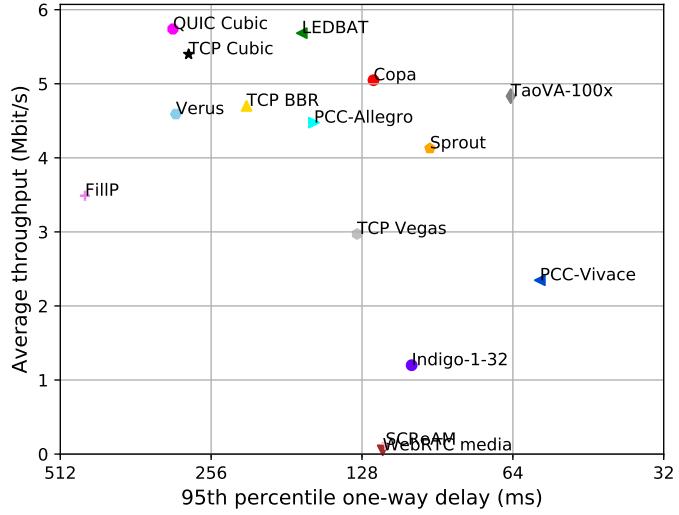


Pantheon Report

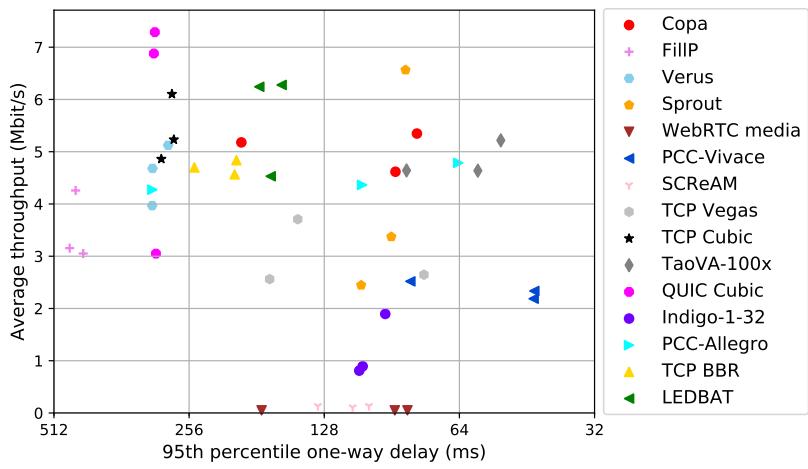
Generated at 2018-04-16 23:01:05 (UTC).
Data path: Stanford ppp0 (*remote*) → AWS California 1 Ethernet (*local*).
Repeated the test of 16 congestion control schemes 3 times.
Each test lasted for 30 seconds running 1 flow.
Increased UDP receive buffer to 16 MB (default) and 32 MB (max).
Tested BBR with 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 @ 4ed32c0e22b4dd733f97c1d3aaab2e5bb16f66b4  
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50  
M datagrump/sender.cc  
third_party/fillp @ 11f8c46a2bf1dc797253db7e8ca04076272b2a44  
third_party/genericCC @ d223989828276fa83a807da6e0341dc0c7b89aec  
third_party/indigo @ a9b2060d39e4da2e8987e893e3eca2a6c7cd0ab9  
third_party/indigo-1-layer-128-unit @ 3ae9e4ef4230db7484501f82ce8b377695f2f66d  
third_party/indigo-1-layer-32-unit @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d  
third_party/indigo-1-layer-32-unit-no-calib @ 1f3a7f75b41135ed5b540c0fd3505939528e2a5f  
third_party/indigo-no-calib @ 7224f2202e8a044d8306fa0b983ad84360c53d89  
third_party/koho_cc @ f0f2e693303aee82ea808e6928eac4f1083a6681  
M datagrump/sender.cc  
third_party/libutp @ b3465b942e2826f2b179aab4a906ce6bb7cf3cf  
third_party/pantheon-tunnel @ fb1053193c2861da659ba9013db26744ccfcf993  
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/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab  
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42  
third_party/scream @ c3370fd7bd17265a79aeb34e4016ad23f5965885  
third_party/sourdough @ f1a14bf7e749737437f61b1eaeeb30b267cde681  
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/vivace @ 7a4ba531e75b4a6f66f5c4580192120401784ce3  
third_party/webrtc @ f271183af822eee5d0031620f4bebf38aedc5581
```

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



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



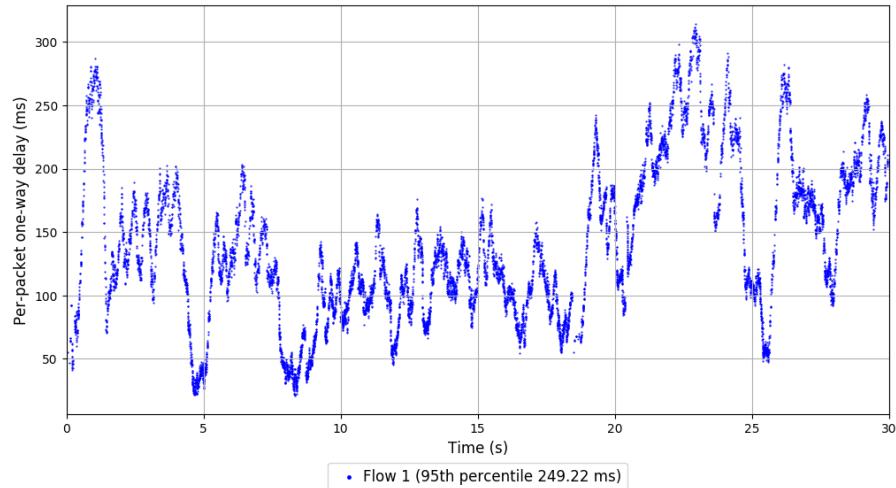
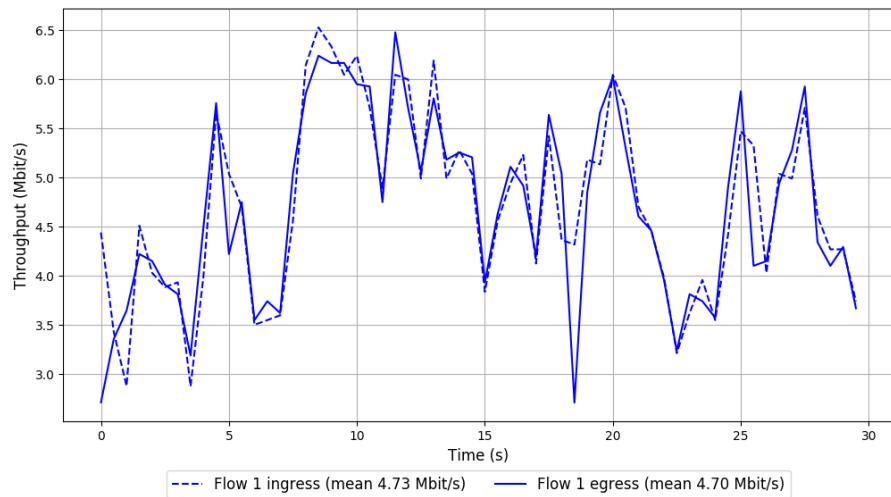
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	4.70	217.58	0.55
TCP Cubic	3	5.40	283.90	1.24
LEDBAT	3	5.68	168.81	0.44
PCC-Allegro	3	4.47	159.60	1.85
QUIC Cubic	3	5.74	305.11	2.80
SCReAM	3	0.13	114.90	0.76
WebRTC media	3	0.05	116.40	0.31
Sprout	3	4.13	93.69	0.33
TaoVA-100x	3	4.83	64.64	0.80
TCP Vegas	3	2.97	130.92	0.09
Verus	3	4.59	301.10	6.54
Copa	3	5.05	121.42	0.32
FillP	3	3.49	457.05	33.72
Indigo-1-32	3	1.20	101.90	0.50
PCC-Vivace	3	2.35	56.55	0.25
PCC-Expr	0	N/A	N/A	N/A

Run 1: Statistics of TCP BBR

```
Start at: 2018-04-16 21:02:54
End at: 2018-04-16 21:03:24
Local clock offset: 0.208 ms
Remote clock offset: 14.067 ms

# Below is generated by plot.py at 2018-04-16 23:00:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.70 Mbit/s
95th percentile per-packet one-way delay: 249.218 ms
Loss rate: 0.82%
-- Flow 1:
Average throughput: 4.70 Mbit/s
95th percentile per-packet one-way delay: 249.218 ms
Loss rate: 0.82%
```

Run 1: Report of TCP BBR — Data Link

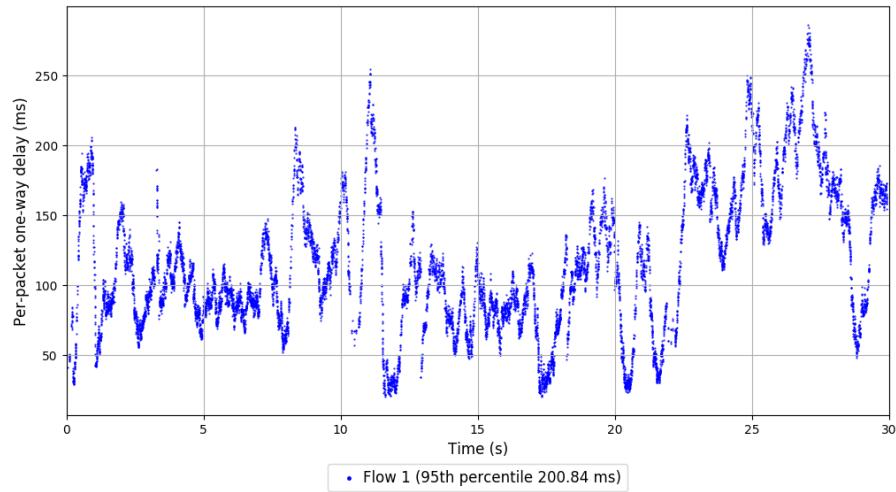
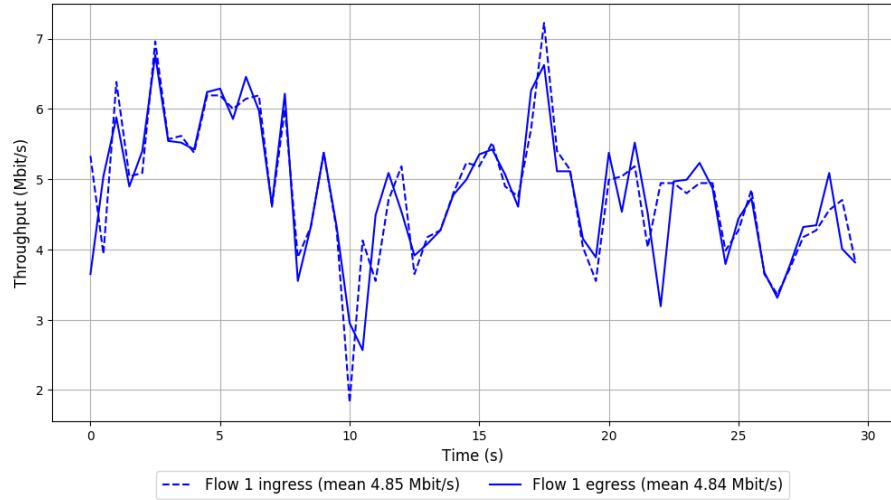


Run 2: Statistics of TCP BBR

```
Start at: 2018-04-16 21:25:09
End at: 2018-04-16 21:25:39
Local clock offset: -0.657 ms
Remote clock offset: 0.664 ms

# Below is generated by plot.py at 2018-04-16 23:00:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.84 Mbit/s
95th percentile per-packet one-way delay: 200.843 ms
Loss rate: 0.52%
-- Flow 1:
Average throughput: 4.84 Mbit/s
95th percentile per-packet one-way delay: 200.843 ms
Loss rate: 0.52%
```

Run 2: Report of TCP BBR — Data Link

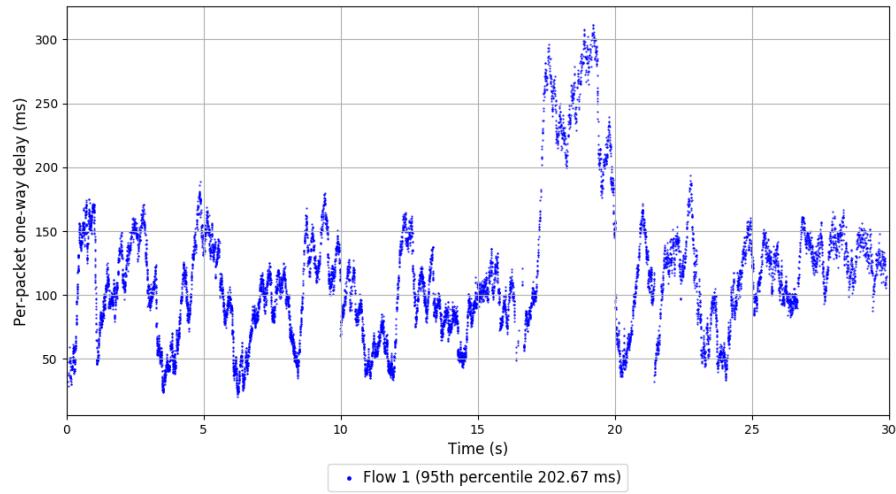
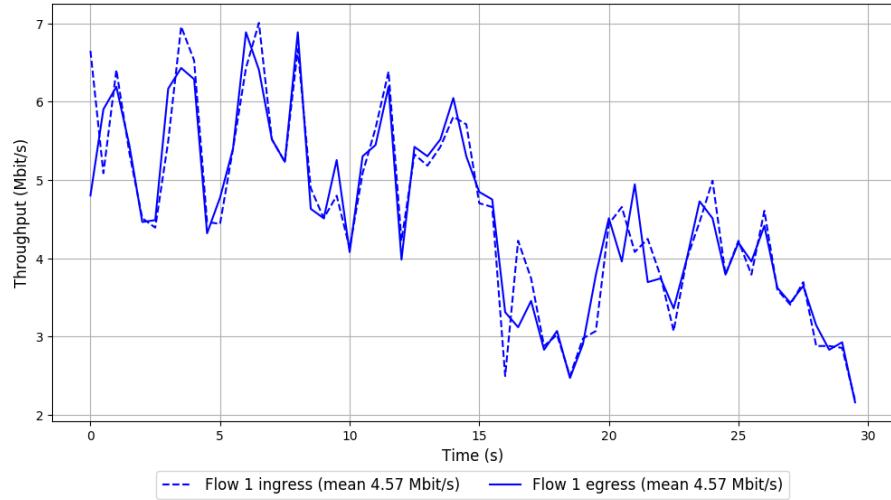


Run 3: Statistics of TCP BBR

```
Start at: 2018-04-16 21:47:22
End at: 2018-04-16 21:47:52
Local clock offset: -1.195 ms
Remote clock offset: -3.664 ms

# Below is generated by plot.py at 2018-04-16 23:00:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.57 Mbit/s
95th percentile per-packet one-way delay: 202.672 ms
Loss rate: 0.31%
-- Flow 1:
Average throughput: 4.57 Mbit/s
95th percentile per-packet one-way delay: 202.672 ms
Loss rate: 0.31%
```

Run 3: Report of TCP BBR — Data Link

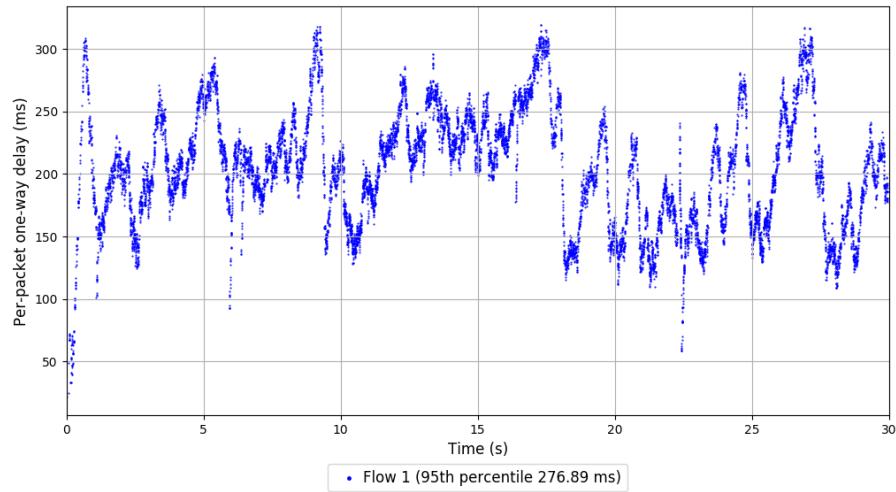
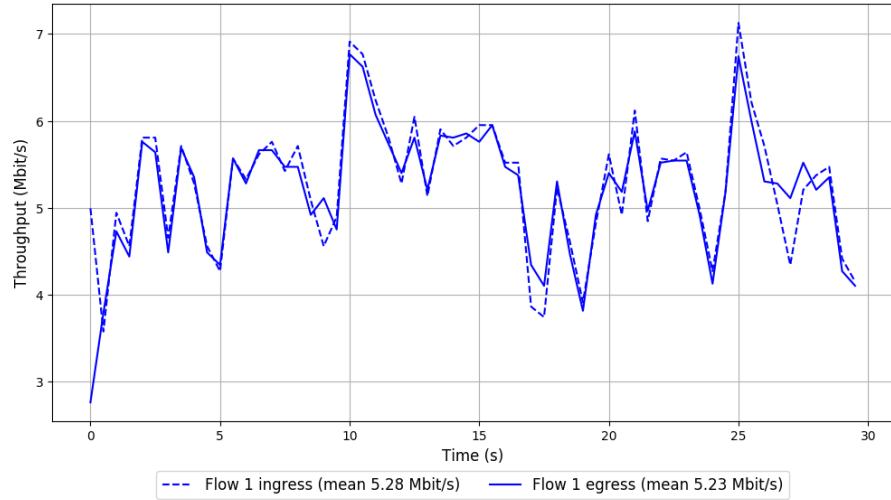


Run 1: Statistics of TCP Cubic

```
Start at: 2018-04-16 21:00:17
End at: 2018-04-16 21:00:47
Local clock offset: 0.303 ms
Remote clock offset: 20.284 ms

# Below is generated by plot.py at 2018-04-16 23:00:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.23 Mbit/s
95th percentile per-packet one-way delay: 276.895 ms
Loss rate: 1.09%
-- Flow 1:
Average throughput: 5.23 Mbit/s
95th percentile per-packet one-way delay: 276.895 ms
Loss rate: 1.09%
```

Run 1: Report of TCP Cubic — Data Link

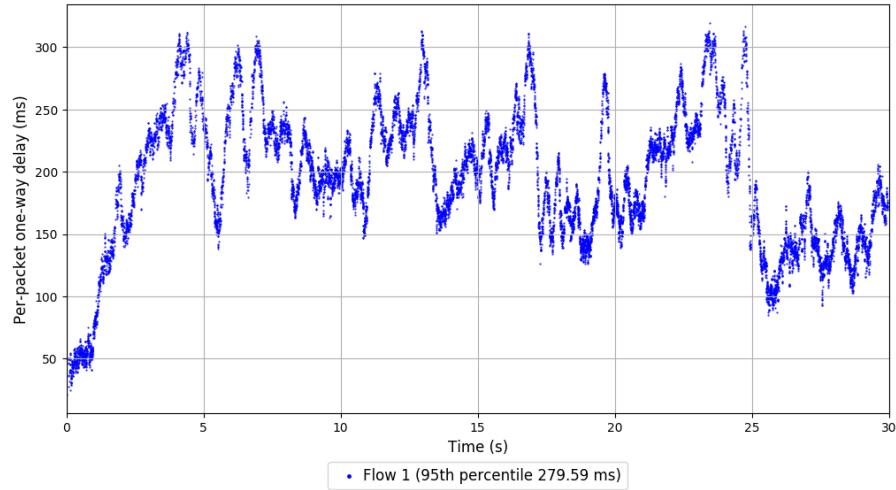
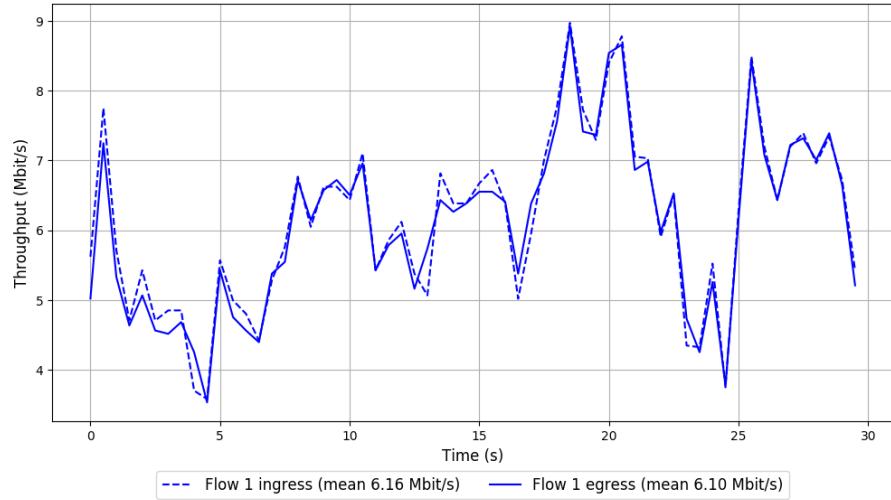


Run 2: Statistics of TCP Cubic

```
Start at: 2018-04-16 21:22:31
End at: 2018-04-16 21:23:01
Local clock offset: -0.565 ms
Remote clock offset: 0.754 ms

# Below is generated by plot.py at 2018-04-16 23:00:22
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.10 Mbit/s
95th percentile per-packet one-way delay: 279.593 ms
Loss rate: 1.08%
-- Flow 1:
Average throughput: 6.10 Mbit/s
95th percentile per-packet one-way delay: 279.593 ms
Loss rate: 1.08%
```

Run 2: Report of TCP Cubic — Data Link

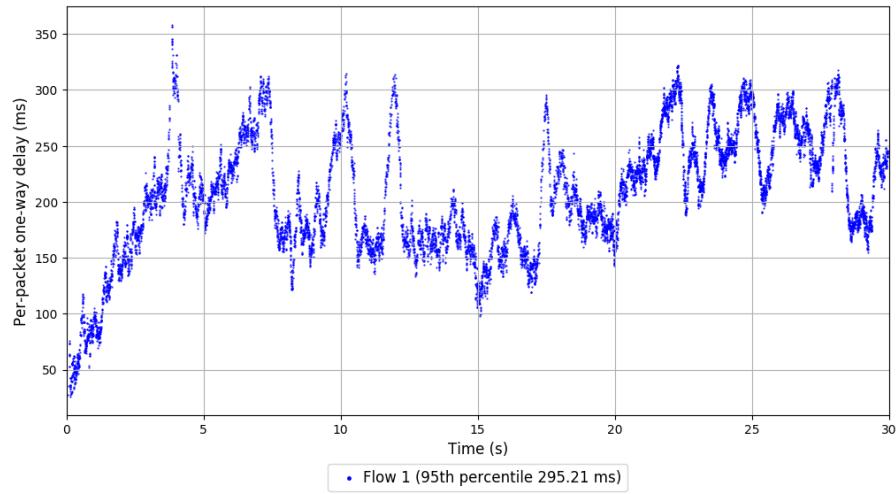
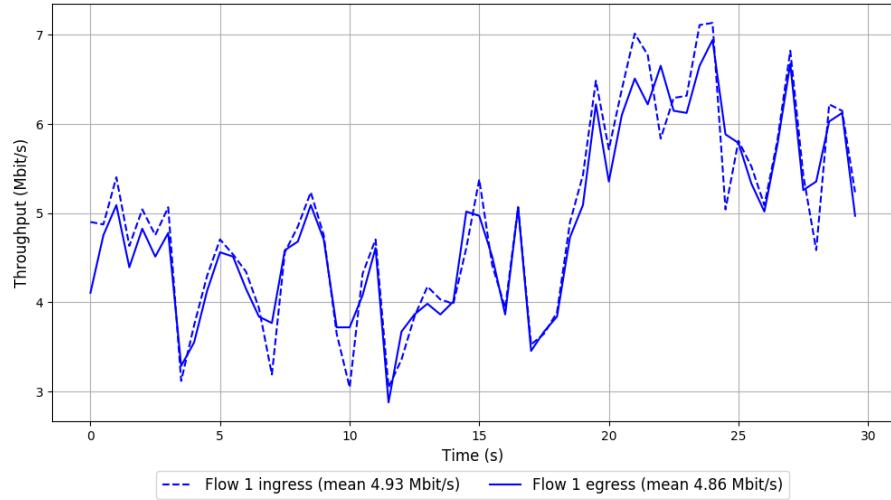


Run 3: Statistics of TCP Cubic

```
Start at: 2018-04-16 21:44:45
End at: 2018-04-16 21:45:15
Local clock offset: -1.173 ms
Remote clock offset: -3.306 ms

# Below is generated by plot.py at 2018-04-16 23:00:22
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.86 Mbit/s
95th percentile per-packet one-way delay: 295.215 ms
Loss rate: 1.56%
-- Flow 1:
Average throughput: 4.86 Mbit/s
95th percentile per-packet one-way delay: 295.215 ms
Loss rate: 1.56%
```

Run 3: Report of TCP Cubic — Data Link

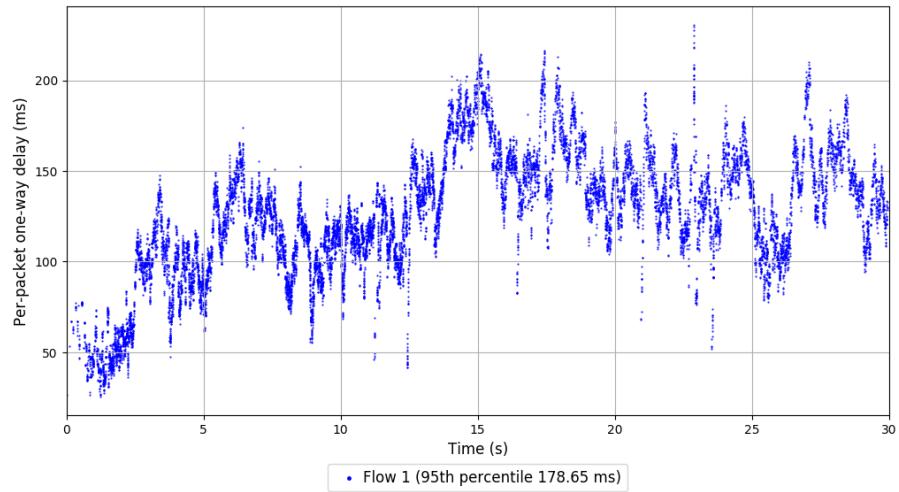
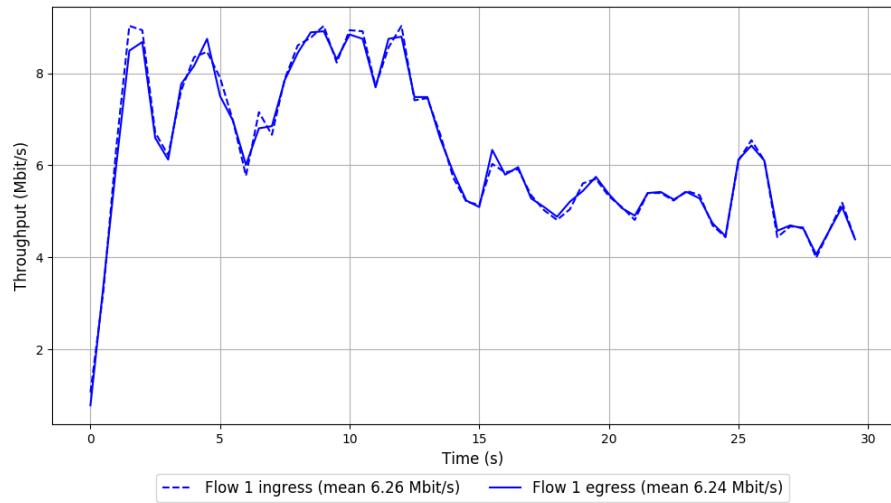


```
Run 1: Statistics of LEDBAT
```

```
Start at: 2018-04-16 20:52:27
End at: 2018-04-16 20:52:57
Local clock offset: 0.737 ms
Remote clock offset: 15.924 ms

# Below is generated by plot.py at 2018-04-16 23:00:22
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.24 Mbit/s
95th percentile per-packet one-way delay: 178.645 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 6.24 Mbit/s
95th percentile per-packet one-way delay: 178.645 ms
Loss rate: 0.38%
```

Run 1: Report of LEDBAT — Data Link

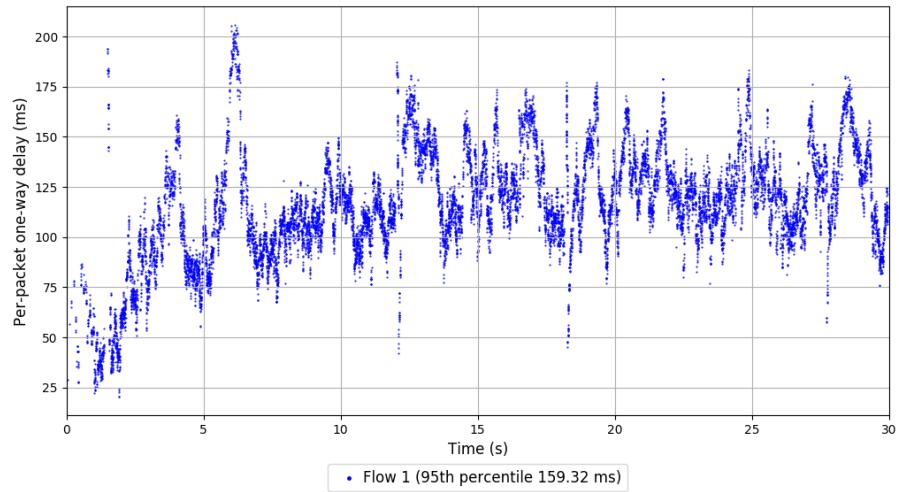
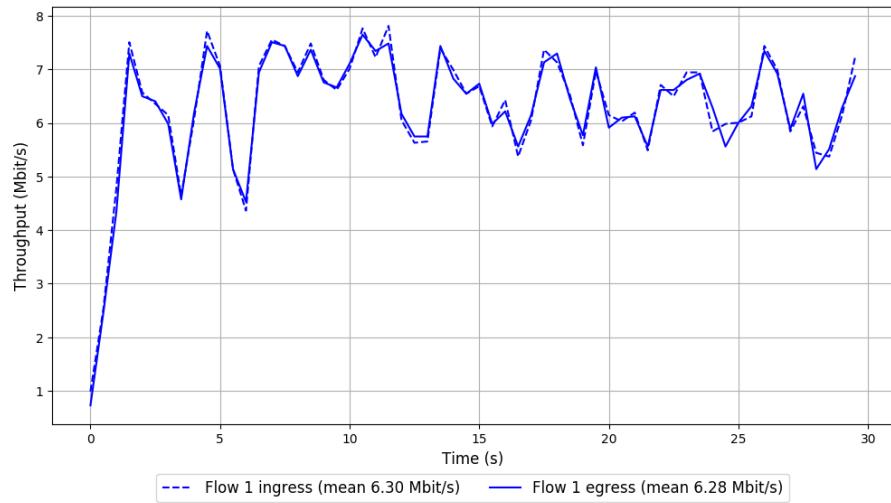


Run 2: Statistics of LEDBAT

```
Start at: 2018-04-16 21:14:40
End at: 2018-04-16 21:15:10
Local clock offset: -0.378 ms
Remote clock offset: 2.111 ms

# Below is generated by plot.py at 2018-04-16 23:00:22
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.28 Mbit/s
95th percentile per-packet one-way delay: 159.317 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 6.28 Mbit/s
95th percentile per-packet one-way delay: 159.317 ms
Loss rate: 0.46%
```

Run 2: Report of LEDBAT — Data Link

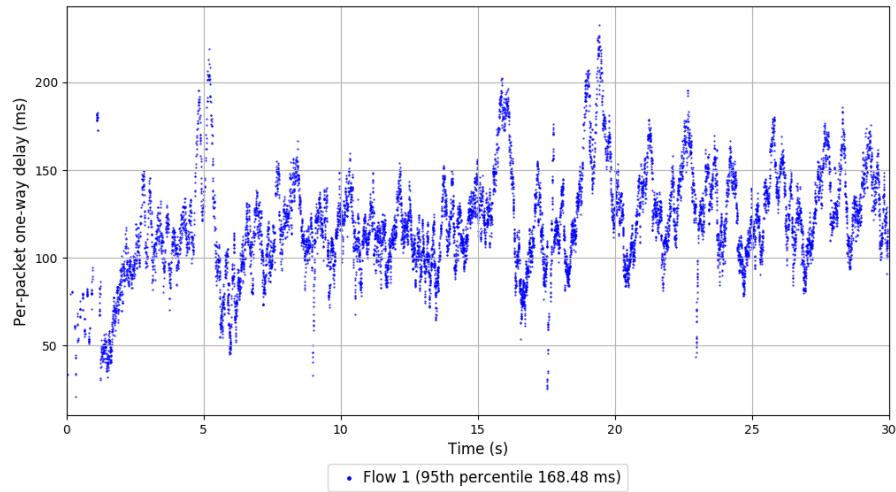
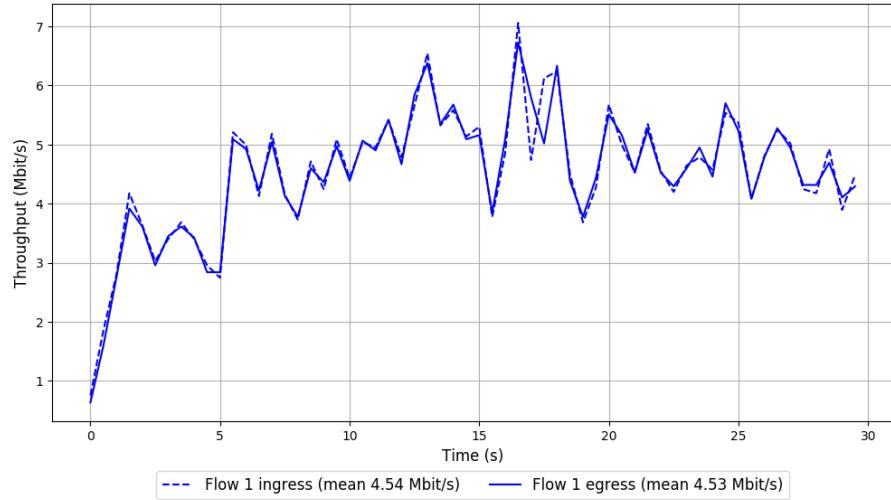


Run 3: Statistics of LEDBAT

```
Start at: 2018-04-16 21:36:55
End at: 2018-04-16 21:37:25
Local clock offset: -1.12 ms
Remote clock offset: -0.348 ms

# Below is generated by plot.py at 2018-04-16 23:00:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.53 Mbit/s
95th percentile per-packet one-way delay: 168.476 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 4.53 Mbit/s
95th percentile per-packet one-way delay: 168.476 ms
Loss rate: 0.47%
```

Run 3: Report of LEDBAT — Data Link

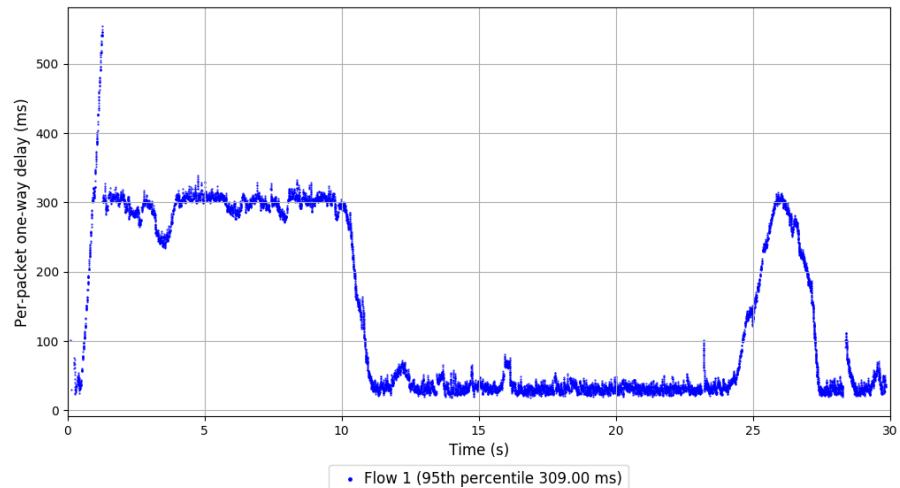
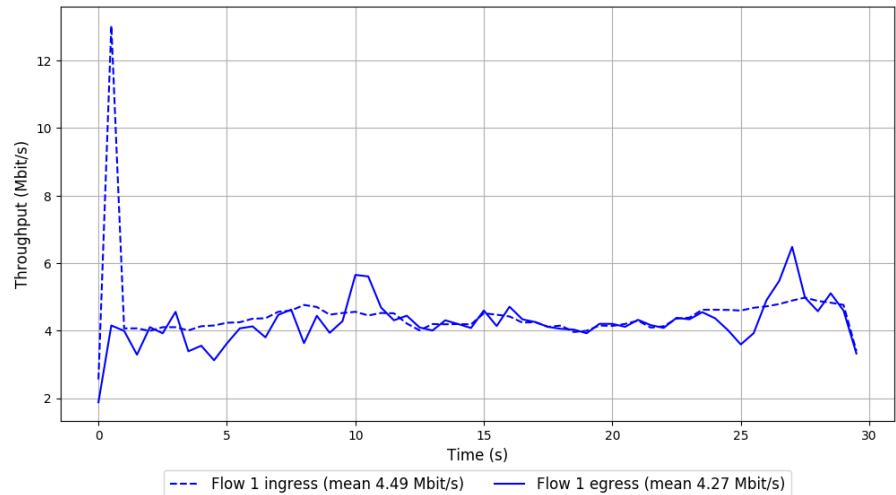


```
Run 1: Statistics of PCC-Allegro
```

```
Start at: 2018-04-16 20:55:04
End at: 2018-04-16 20:55:34
Local clock offset: 0.56 ms
Remote clock offset: 17.212 ms

# Below is generated by plot.py at 2018-04-16 23:00:31
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.27 Mbit/s
95th percentile per-packet one-way delay: 309.000 ms
Loss rate: 5.27%
-- Flow 1:
Average throughput: 4.27 Mbit/s
95th percentile per-packet one-way delay: 309.000 ms
Loss rate: 5.27%
```

Run 1: Report of PCC-Allegro — Data Link

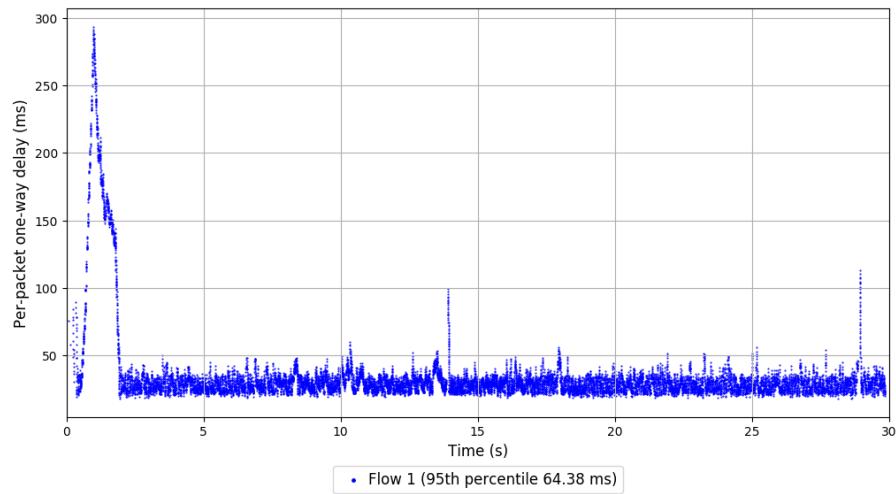
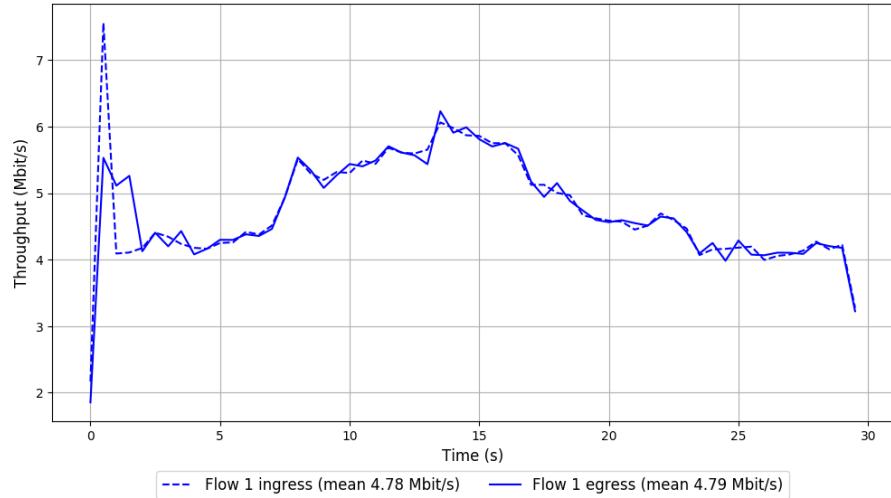


Run 2: Statistics of PCC-Allegro

```
Start at: 2018-04-16 21:17:17
End at: 2018-04-16 21:17:47
Local clock offset: -0.475 ms
Remote clock offset: 1.269 ms

# Below is generated by plot.py at 2018-04-16 23:00:34
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.79 Mbit/s
95th percentile per-packet one-way delay: 64.375 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 4.79 Mbit/s
95th percentile per-packet one-way delay: 64.375 ms
Loss rate: 0.12%
```

Run 2: Report of PCC-Allegro — Data Link

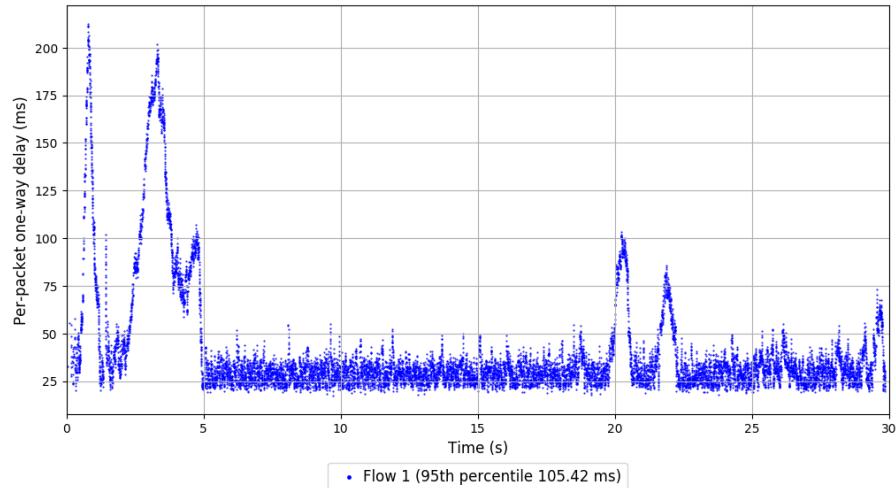
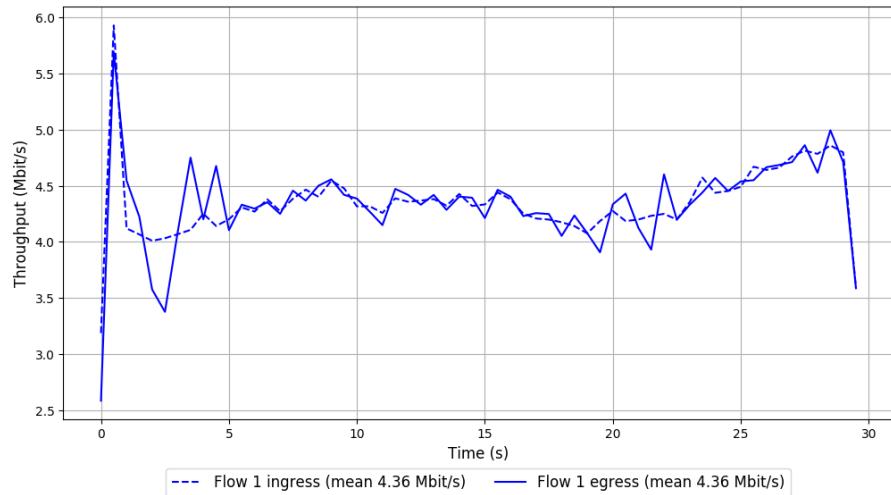


Run 3: Statistics of PCC-Allegro

```
Start at: 2018-04-16 21:39:32
End at: 2018-04-16 21:40:02
Local clock offset: -1.159 ms
Remote clock offset: -1.659 ms

# Below is generated by plot.py at 2018-04-16 23:00:34
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.36 Mbit/s
95th percentile per-packet one-way delay: 105.416 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 4.36 Mbit/s
95th percentile per-packet one-way delay: 105.416 ms
Loss rate: 0.15%
```

Run 3: Report of PCC-Allegro — Data Link

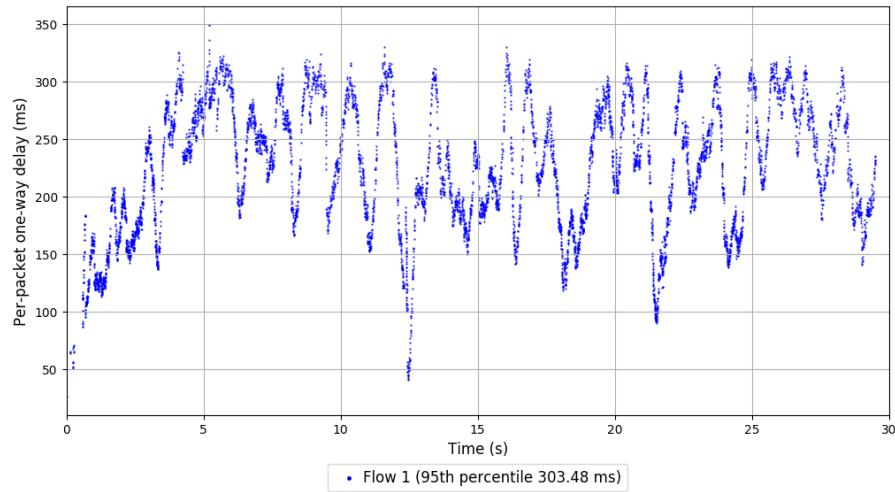
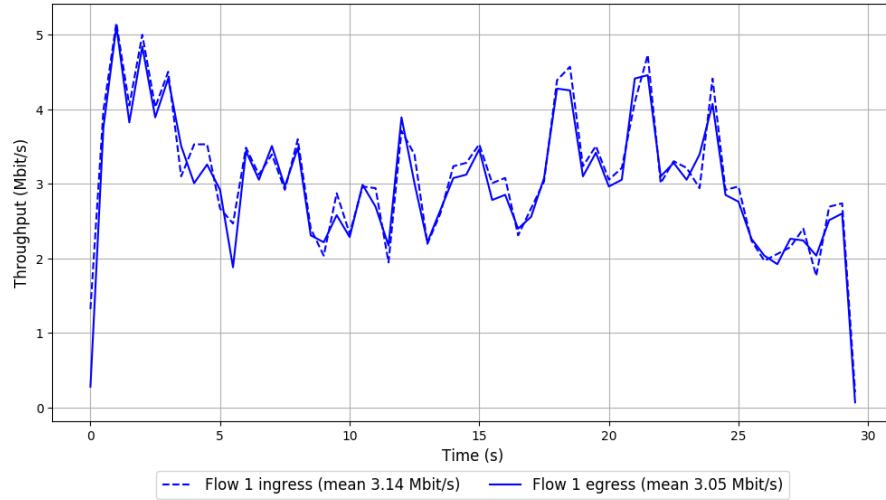


```
Run 1: Statistics of QUIC Cubic

Start at: 2018-04-16 21:04:13
End at: 2018-04-16 21:04:43
Local clock offset: 0.027 ms
Remote clock offset: 11.414 ms

# Below is generated by plot.py at 2018-04-16 23:00:34
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.05 Mbit/s
95th percentile per-packet one-way delay: 303.479 ms
Loss rate: 2.86%
-- Flow 1:
Average throughput: 3.05 Mbit/s
95th percentile per-packet one-way delay: 303.479 ms
Loss rate: 2.86%
```

Run 1: Report of QUIC Cubic — Data Link

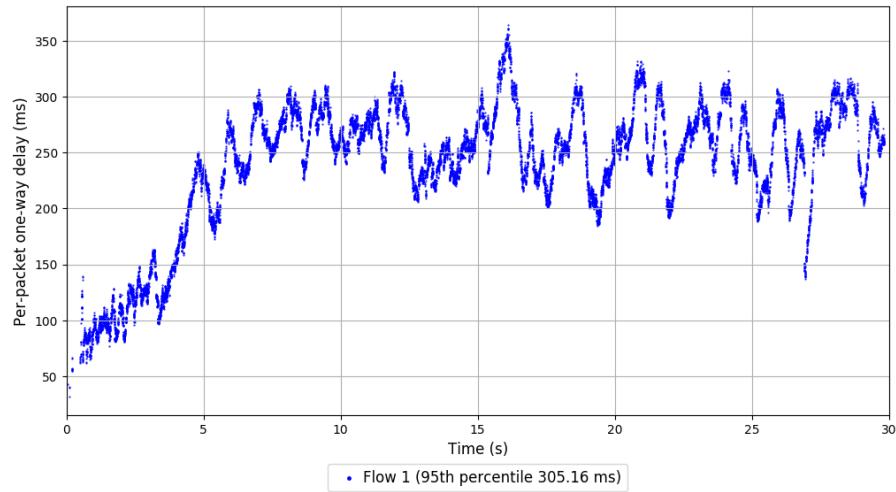
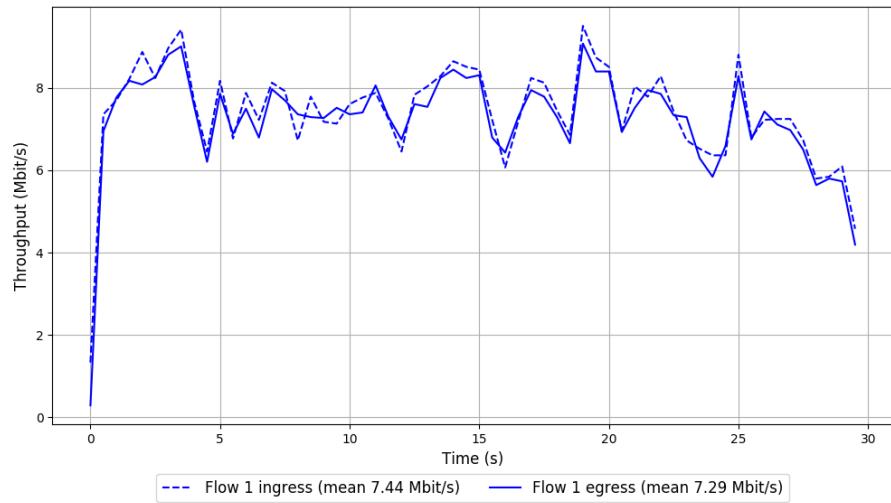


Run 2: Statistics of QUIC Cubic

```
Start at: 2018-04-16 21:26:27
End at: 2018-04-16 21:26:57
Local clock offset: -0.789 ms
Remote clock offset: 0.821 ms

# Below is generated by plot.py at 2018-04-16 23:00:37
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.29 Mbit/s
95th percentile per-packet one-way delay: 305.157 ms
Loss rate: 2.26%
-- Flow 1:
Average throughput: 7.29 Mbit/s
95th percentile per-packet one-way delay: 305.157 ms
Loss rate: 2.26%
```

Run 2: Report of QUIC Cubic — Data Link

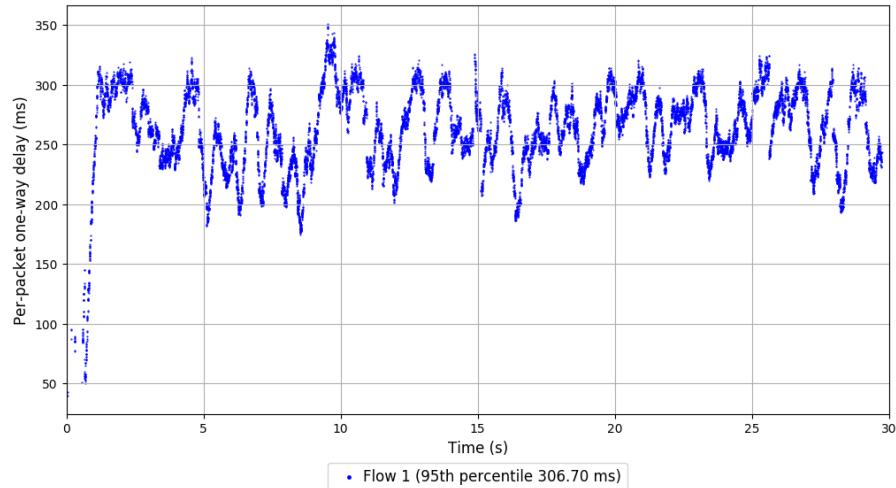
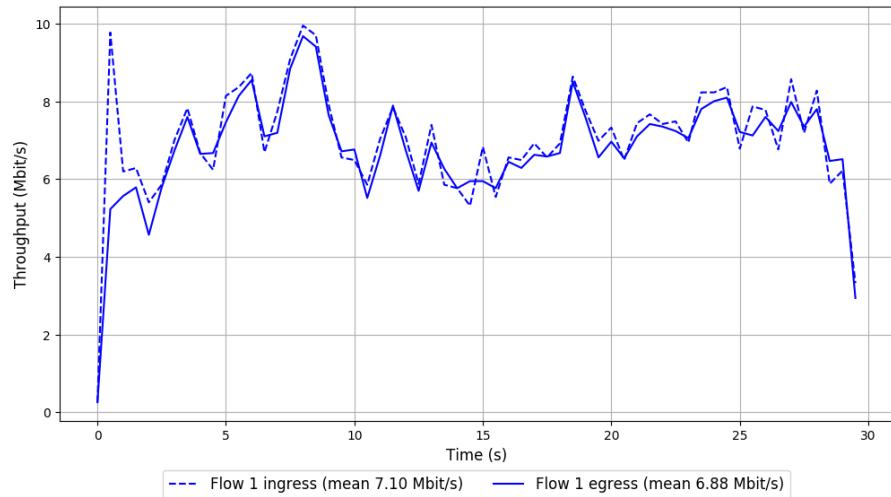


Run 3: Statistics of QUIC Cubic

```
Start at: 2018-04-16 21:48:41
End at: 2018-04-16 21:49:11
Local clock offset: -1.216 ms
Remote clock offset: -3.78 ms

# Below is generated by plot.py at 2018-04-16 23:00:37
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.88 Mbit/s
95th percentile per-packet one-way delay: 306.705 ms
Loss rate: 3.29%
-- Flow 1:
Average throughput: 6.88 Mbit/s
95th percentile per-packet one-way delay: 306.705 ms
Loss rate: 3.29%
```

Run 3: Report of QUIC Cubic — Data Link

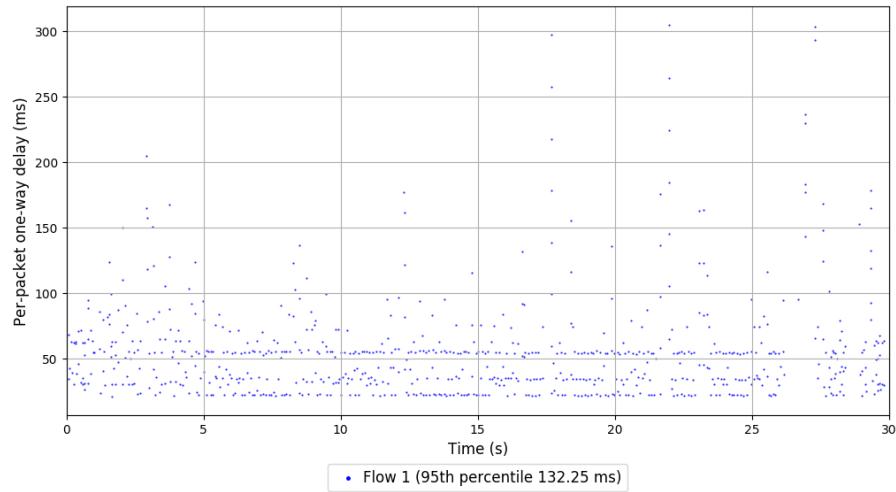
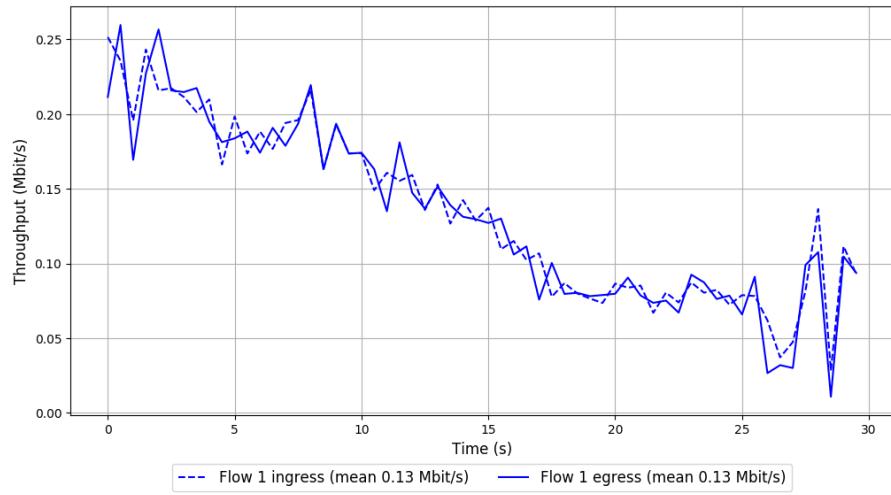


```
Run 1: Statistics of SCReAM

Start at: 2018-04-16 20:49:50
End at: 2018-04-16 20:50:20
Local clock offset: 0.738 ms
Remote clock offset: 14.814 ms

# Below is generated by plot.py at 2018-04-16 23:00:37
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 132.251 ms
Loss rate: 1.26%
-- Flow 1:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 132.251 ms
Loss rate: 1.26%
```

Run 1: Report of SCReAM — Data Link

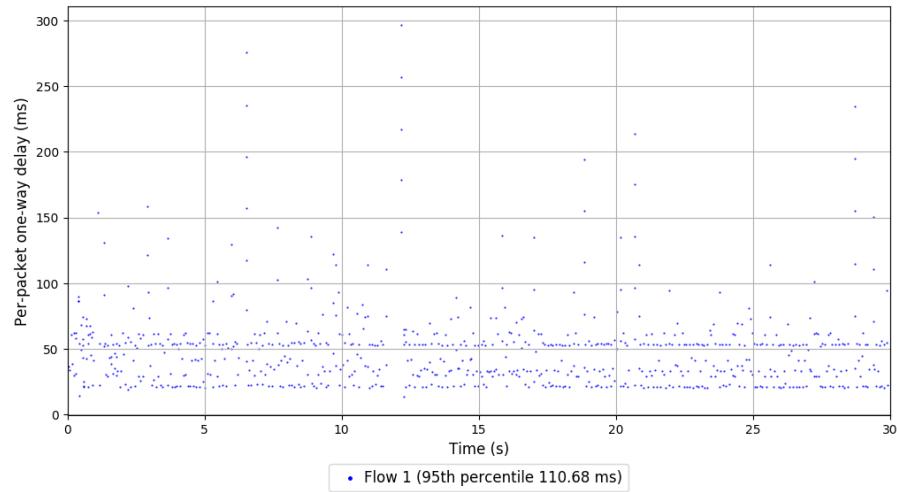
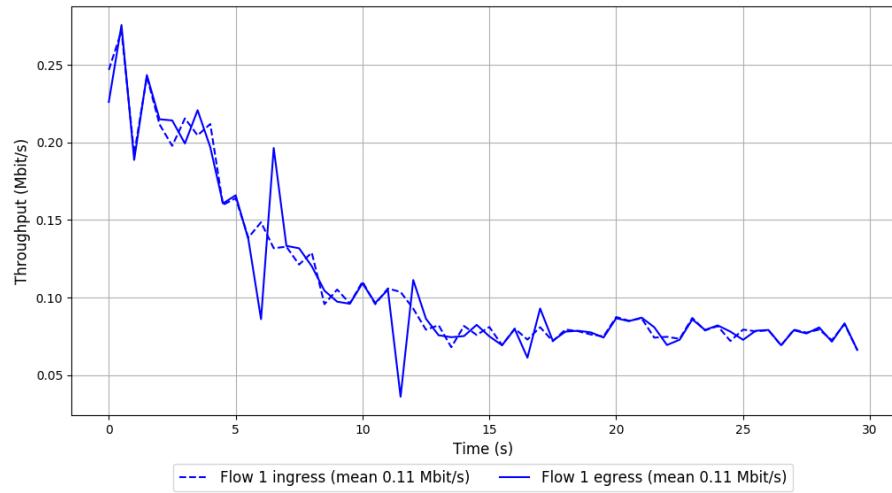


Run 2: Statistics of SCReAM

```
Start at: 2018-04-16 21:12:03
End at: 2018-04-16 21:12:33
Local clock offset: -0.192 ms
Remote clock offset: 3.197 ms

# Below is generated by plot.py at 2018-04-16 23:00:37
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 110.682 ms
Loss rate: 0.86%
-- Flow 1:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 110.682 ms
Loss rate: 0.86%
```

Run 2: Report of SCReAM — Data Link

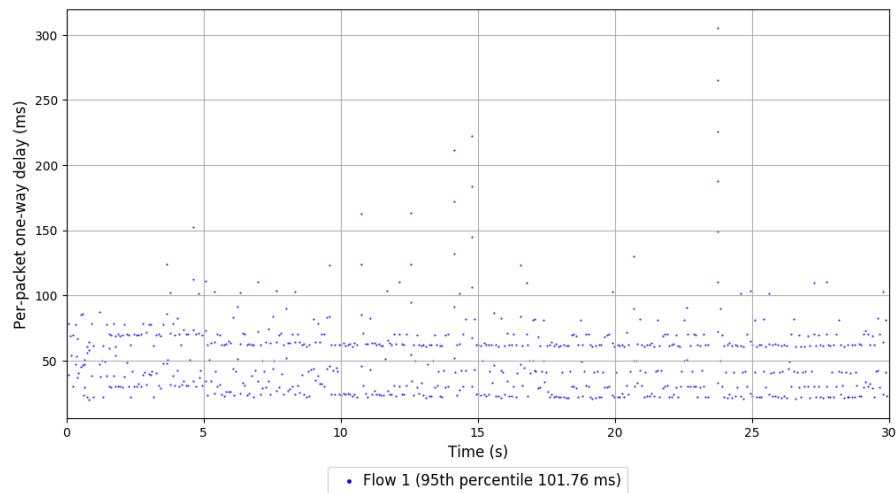
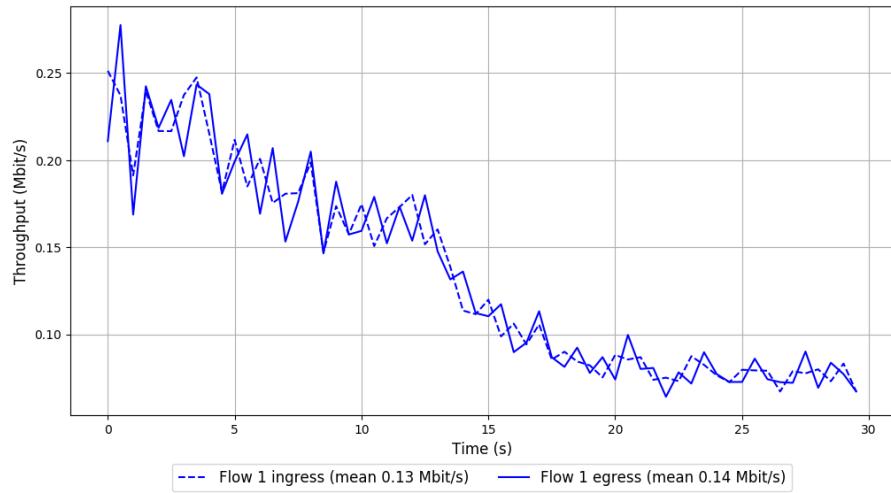


Run 3: Statistics of SCReAM

```
Start at: 2018-04-16 21:34:18
End at: 2018-04-16 21:34:48
Local clock offset: -0.943 ms
Remote clock offset: 1.529 ms

# Below is generated by plot.py at 2018-04-16 23:00:37
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 101.759 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 101.759 ms
Loss rate: 0.17%
```

Run 3: Report of SCReAM — Data Link

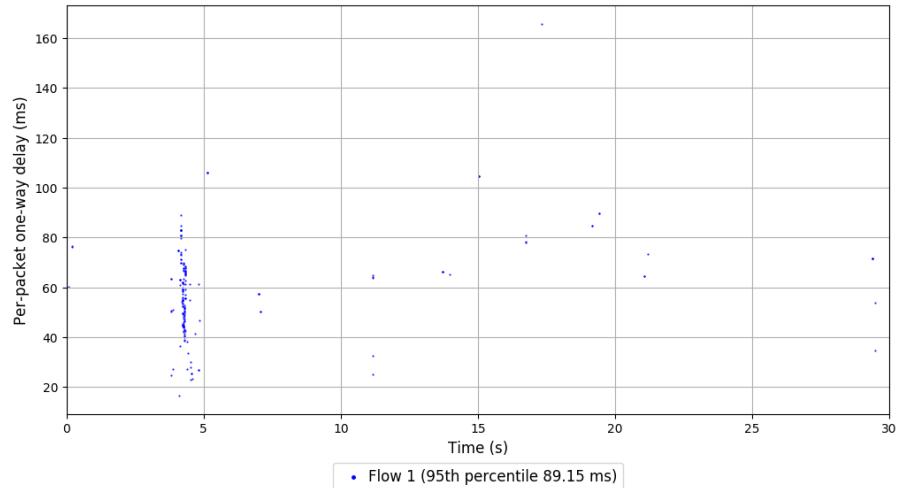
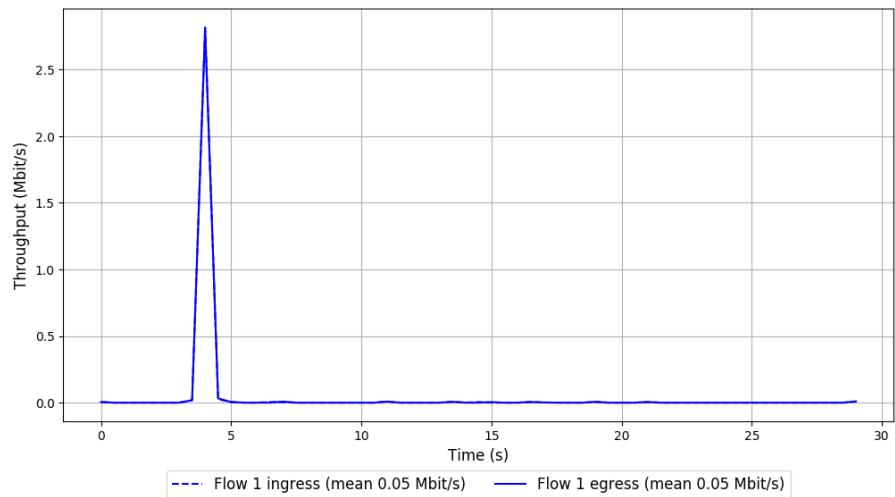


```
Run 1: Statistics of WebRTC media

Start at: 2018-04-16 21:06:50
End at: 2018-04-16 21:07:20
Local clock offset: -0.019 ms
Remote clock offset: 7.648 ms

# Below is generated by plot.py at 2018-04-16 23:00:37
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 89.148 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 89.148 ms
Loss rate: 0.00%
```

Run 1: Report of WebRTC media — Data Link

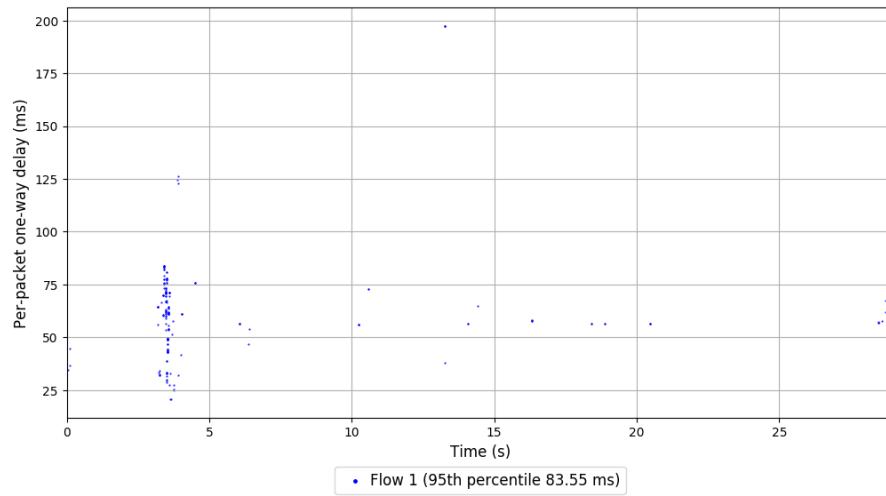
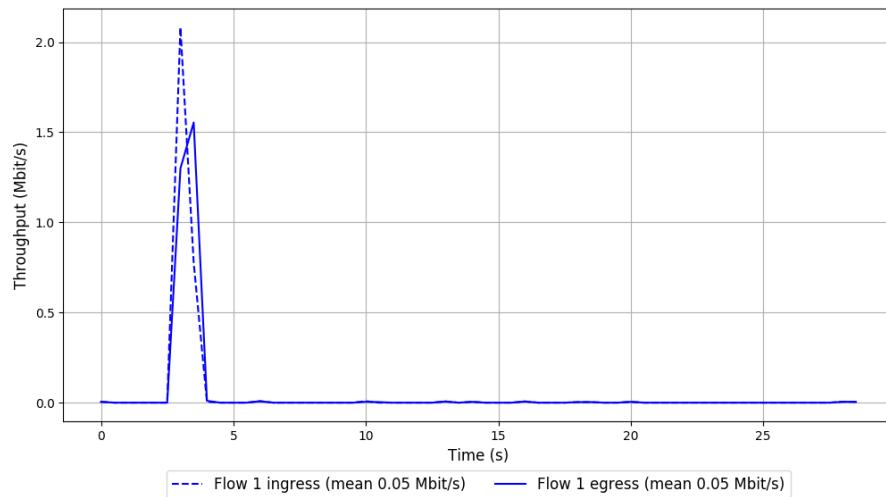


Run 2: Statistics of WebRTC media

```
Start at: 2018-04-16 21:29:04
End at: 2018-04-16 21:29:34
Local clock offset: -0.867 ms
Remote clock offset: 0.897 ms

# Below is generated by plot.py at 2018-04-16 23:00:37
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 83.548 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 83.548 ms
Loss rate: 0.00%
```

Run 2: Report of WebRTC media — Data Link

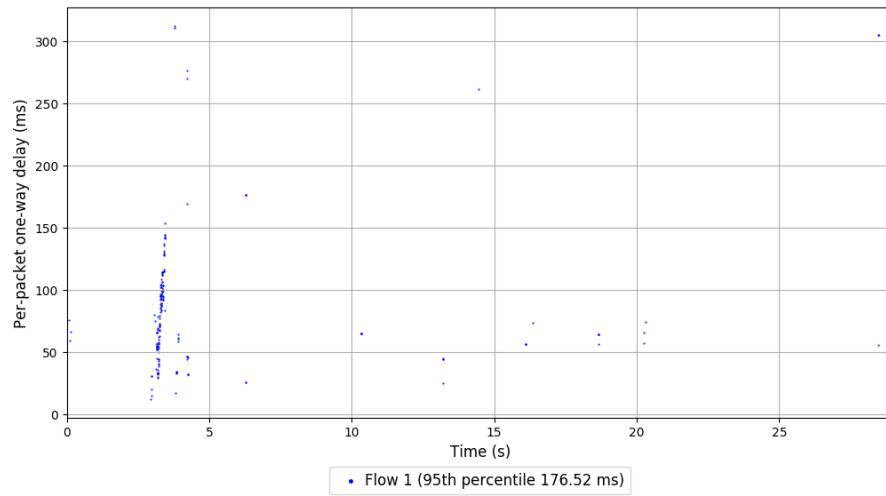
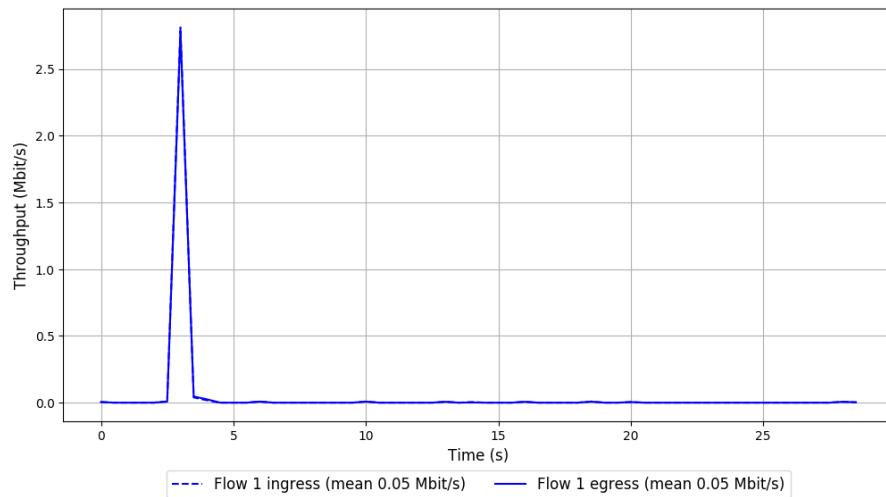


Run 3: Statistics of WebRTC media

```
Start at: 2018-04-16 21:51:18
End at: 2018-04-16 21:51:48
Local clock offset: -1.285 ms
Remote clock offset: -3.975 ms

# Below is generated by plot.py at 2018-04-16 23:00:37
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 176.516 ms
Loss rate: 0.92%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 176.516 ms
Loss rate: 0.92%
```

Run 3: Report of WebRTC media — Data Link

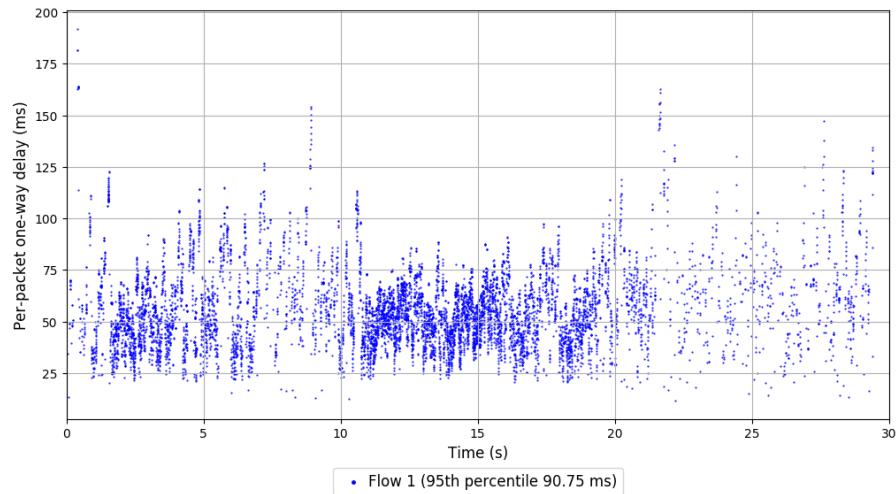
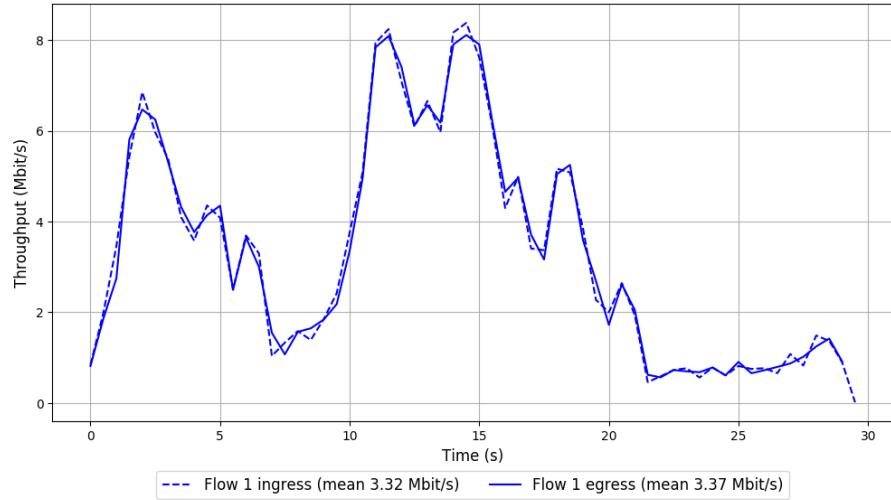


Run 1: Statistics of Sprout

```
Start at: 2018-04-16 20:56:22
End at: 2018-04-16 20:56:52
Local clock offset: 0.507 ms
Remote clock offset: 17.985 ms

# Below is generated by plot.py at 2018-04-16 23:00:37
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.37 Mbit/s
95th percentile per-packet one-way delay: 90.750 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 3.37 Mbit/s
95th percentile per-packet one-way delay: 90.750 ms
Loss rate: 0.12%
```

Run 1: Report of Sprout — Data Link

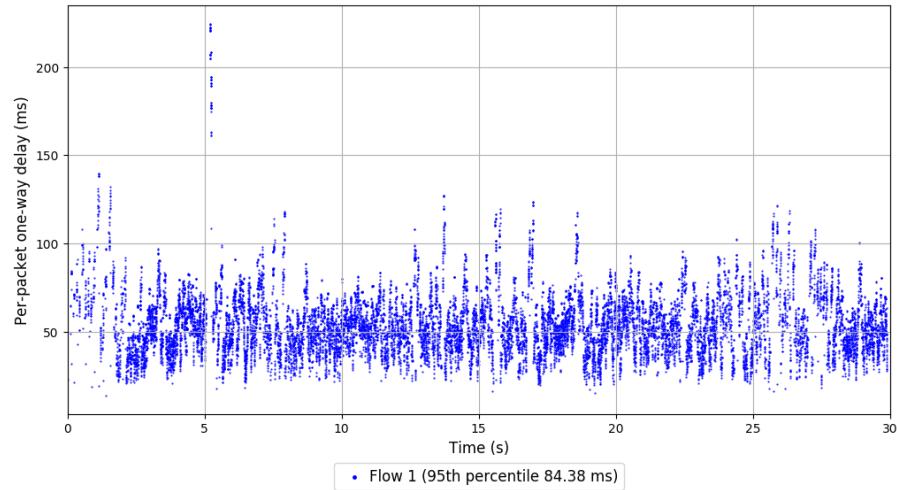
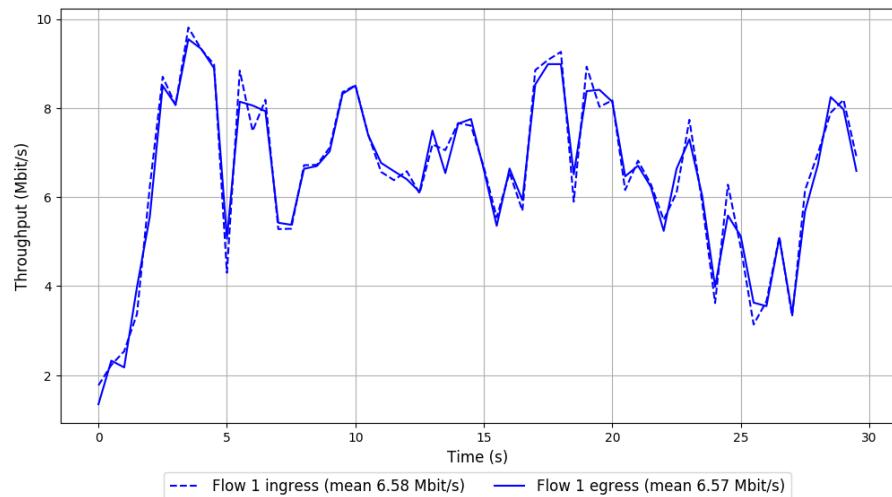


Run 2: Statistics of Sprout

```
Start at: 2018-04-16 21:18:36
End at: 2018-04-16 21:19:06
Local clock offset: -0.458 ms
Remote clock offset: 1.111 ms

# Below is generated by plot.py at 2018-04-16 23:00:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.57 Mbit/s
95th percentile per-packet one-way delay: 84.375 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 6.57 Mbit/s
95th percentile per-packet one-way delay: 84.375 ms
Loss rate: 0.35%
```

Run 2: Report of Sprout — Data Link

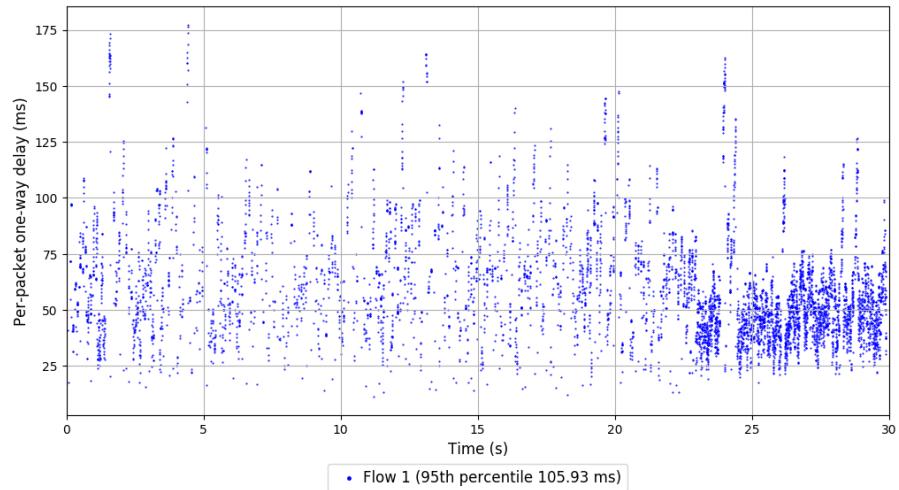
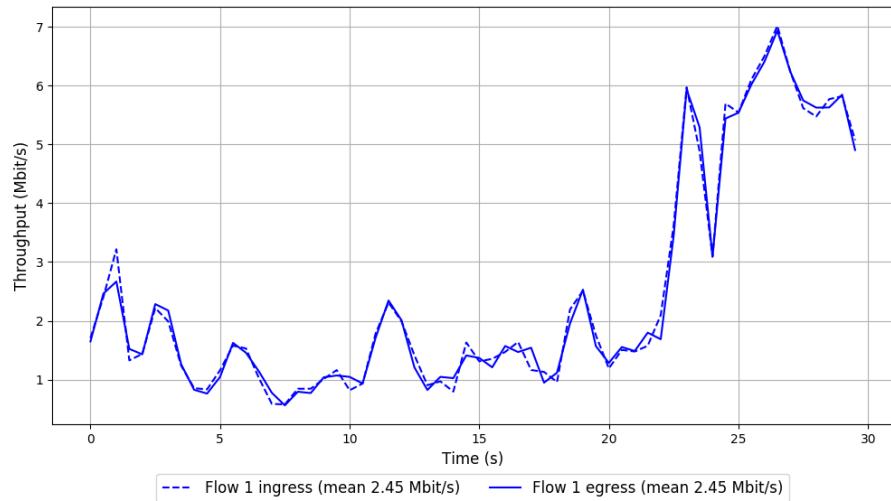


Run 3: Statistics of Sprout

```
Start at: 2018-04-16 21:40:50
End at: 2018-04-16 21:41:20
Local clock offset: -1.184 ms
Remote clock offset: -2.19 ms

# Below is generated by plot.py at 2018-04-16 23:00:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.45 Mbit/s
95th percentile per-packet one-way delay: 105.934 ms
Loss rate: 0.53%
-- Flow 1:
Average throughput: 2.45 Mbit/s
95th percentile per-packet one-way delay: 105.934 ms
Loss rate: 0.53%
```

Run 3: Report of Sprout — Data Link

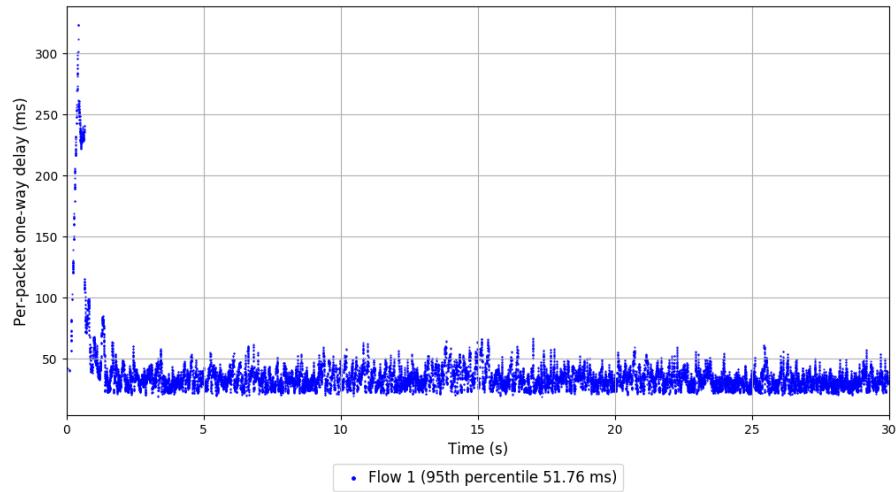
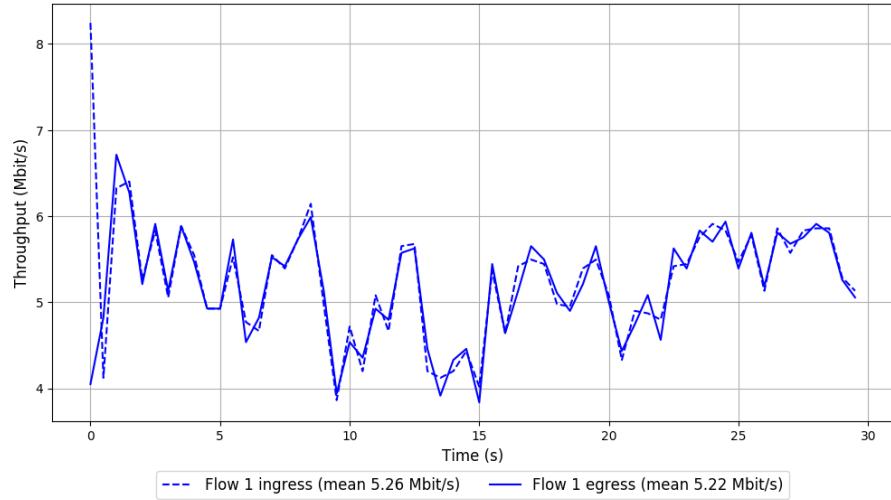


Run 1: Statistics of TaoVA-100x

```
Start at: 2018-04-16 20:51:08
End at: 2018-04-16 20:51:38
Local clock offset: 0.772 ms
Remote clock offset: 15.32 ms

# Below is generated by plot.py at 2018-04-16 23:00:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.22 Mbit/s
95th percentile per-packet one-way delay: 51.760 ms
Loss rate: 1.04%
-- Flow 1:
Average throughput: 5.22 Mbit/s
95th percentile per-packet one-way delay: 51.760 ms
Loss rate: 1.04%
```

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

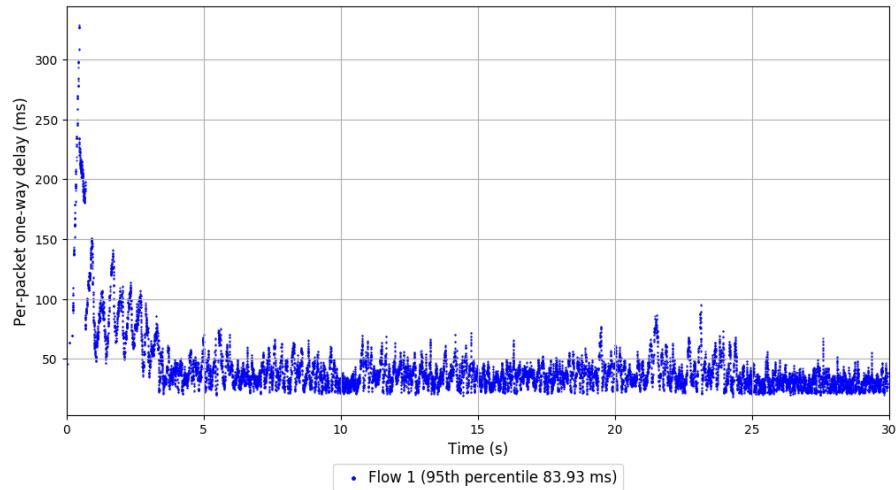
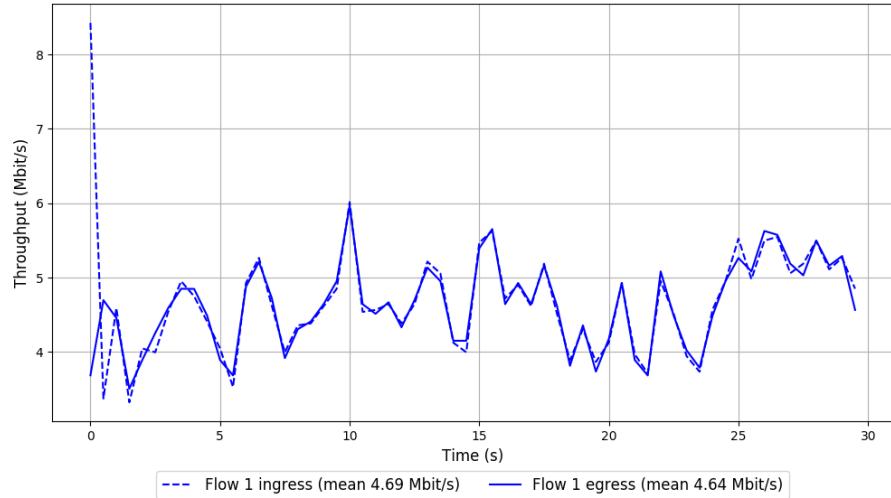


Run 2: Statistics of TaoVA-100x

```
Start at: 2018-04-16 21:13:21
End at: 2018-04-16 21:13:51
Local clock offset: -0.346 ms
Remote clock offset: 2.624 ms

# Below is generated by plot.py at 2018-04-16 23:00:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.64 Mbit/s
95th percentile per-packet one-way delay: 83.931 ms
Loss rate: 1.20%
-- Flow 1:
Average throughput: 4.64 Mbit/s
95th percentile per-packet one-way delay: 83.931 ms
Loss rate: 1.20%
```

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

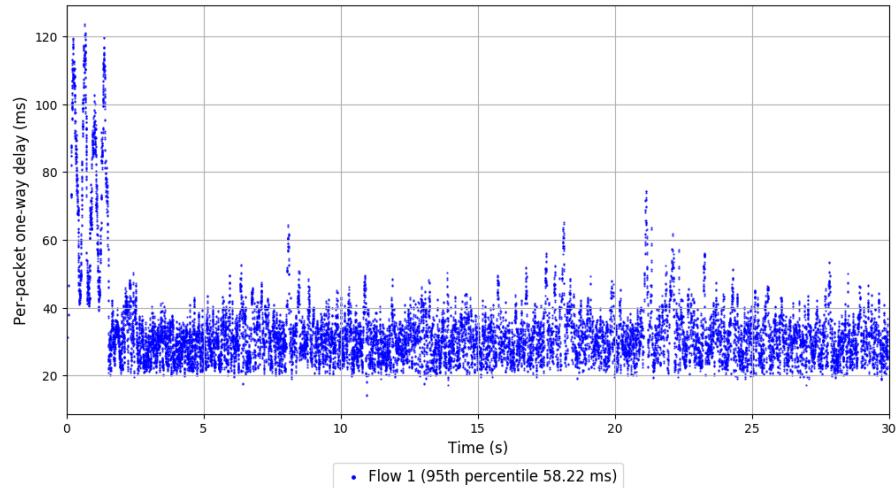
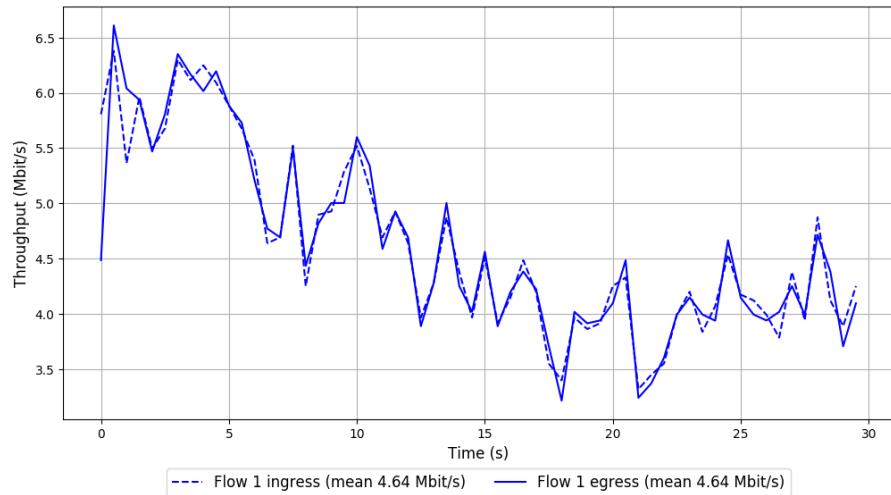


Run 3: Statistics of TaoVA-100x

```
Start at: 2018-04-16 21:35:36
End at: 2018-04-16 21:36:06
Local clock offset: -0.986 ms
Remote clock offset: 0.617 ms

# Below is generated by plot.py at 2018-04-16 23:00:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.64 Mbit/s
95th percentile per-packet one-way delay: 58.224 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 4.64 Mbit/s
95th percentile per-packet one-way delay: 58.224 ms
Loss rate: 0.17%
```

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

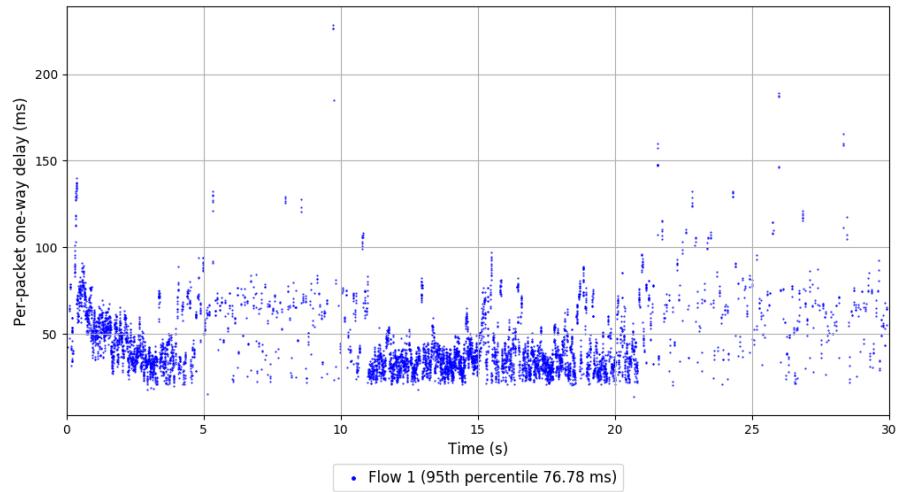
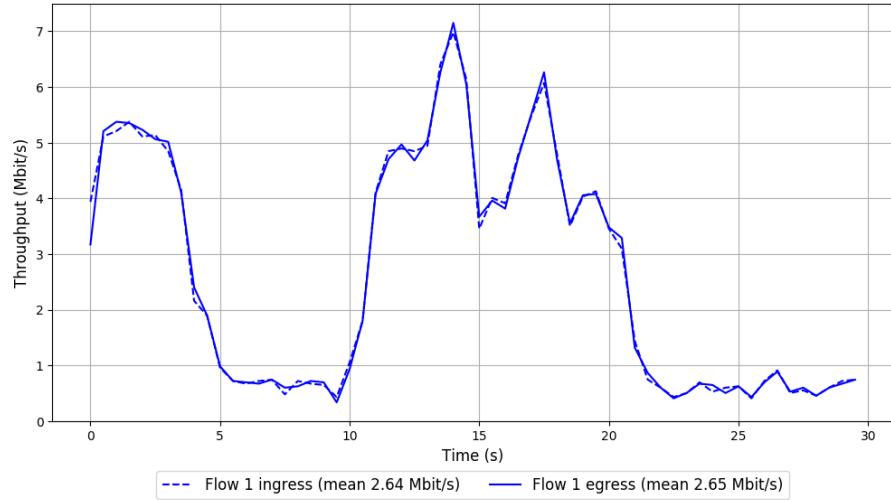


Run 1: Statistics of TCP Vegas

```
Start at: 2018-04-16 21:08:08
End at: 2018-04-16 21:08:38
Local clock offset: -0.126 ms
Remote clock offset: 6.089 ms

# Below is generated by plot.py at 2018-04-16 23:00:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.65 Mbit/s
95th percentile per-packet one-way delay: 76.775 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 2.65 Mbit/s
95th percentile per-packet one-way delay: 76.775 ms
Loss rate: 0.06%
```

Run 1: Report of TCP Vegas — Data Link

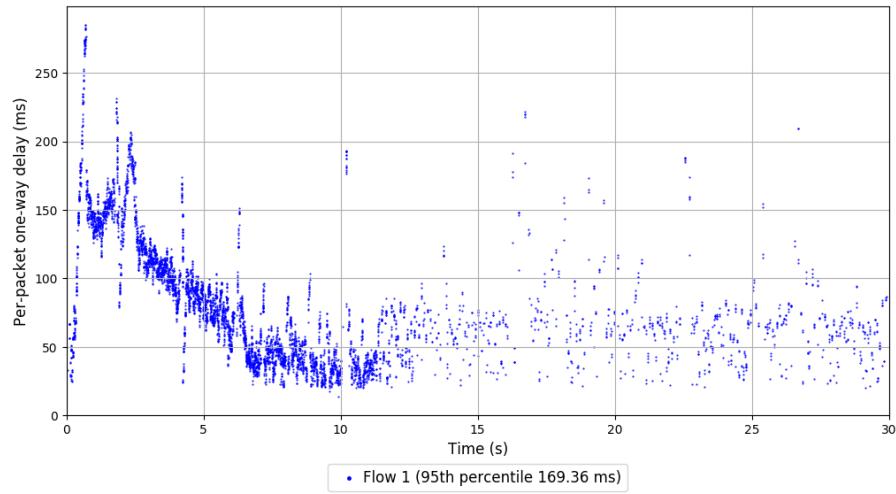
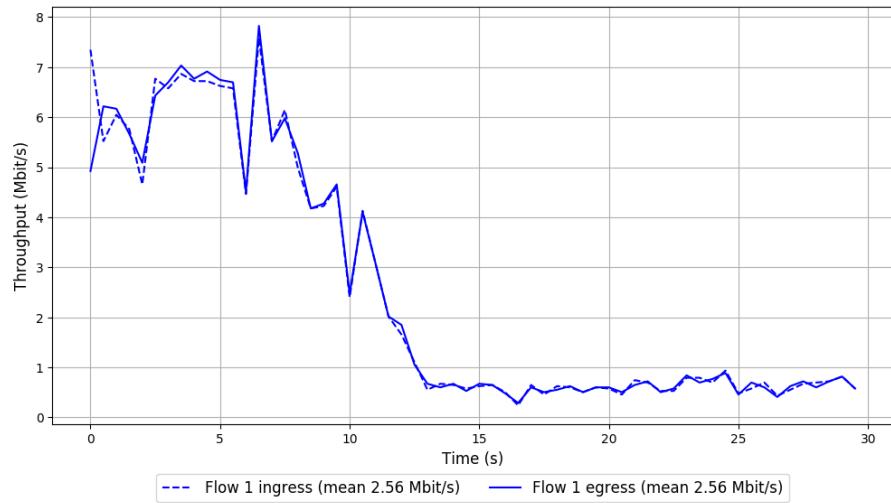


Run 2: Statistics of TCP Vegas

```
Start at: 2018-04-16 21:30:22
End at: 2018-04-16 21:30:52
Local clock offset: -0.925 ms
Remote clock offset: 1.038 ms

# Below is generated by plot.py at 2018-04-16 23:00:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.56 Mbit/s
95th percentile per-packet one-way delay: 169.361 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 2.56 Mbit/s
95th percentile per-packet one-way delay: 169.361 ms
Loss rate: 0.06%
```

Run 2: Report of TCP Vegas — Data Link

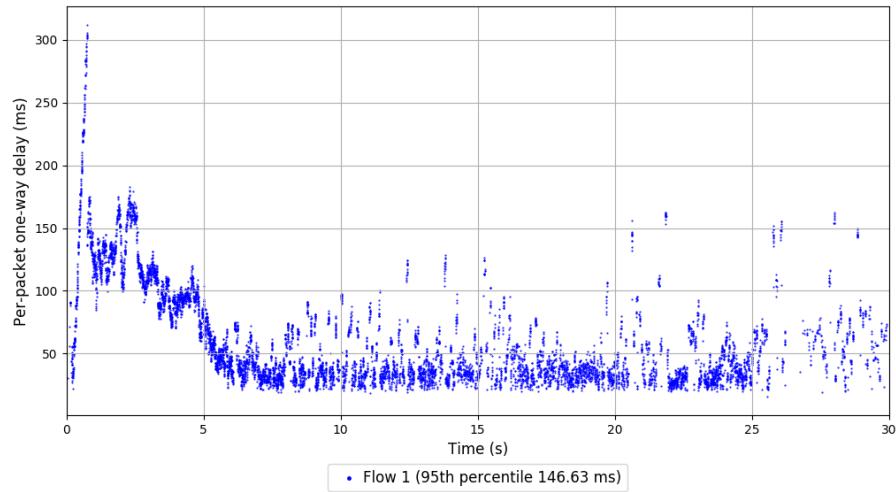
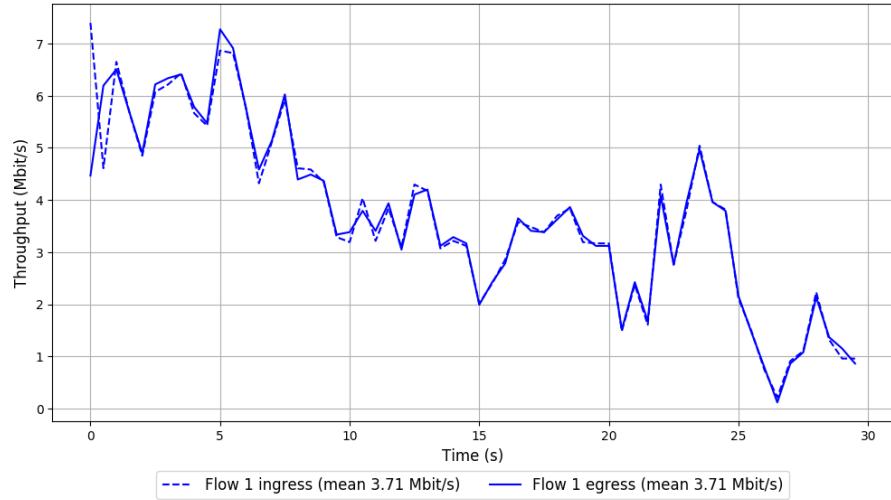


Run 3: Statistics of TCP Vegas

```
Start at: 2018-04-16 21:52:36
End at: 2018-04-16 21:53:06
Local clock offset: -1.254 ms
Remote clock offset: -3.999 ms

# Below is generated by plot.py at 2018-04-16 23:00:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.71 Mbit/s
95th percentile per-packet one-way delay: 146.632 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 3.71 Mbit/s
95th percentile per-packet one-way delay: 146.632 ms
Loss rate: 0.16%
```

Run 3: Report of TCP Vegas — Data Link

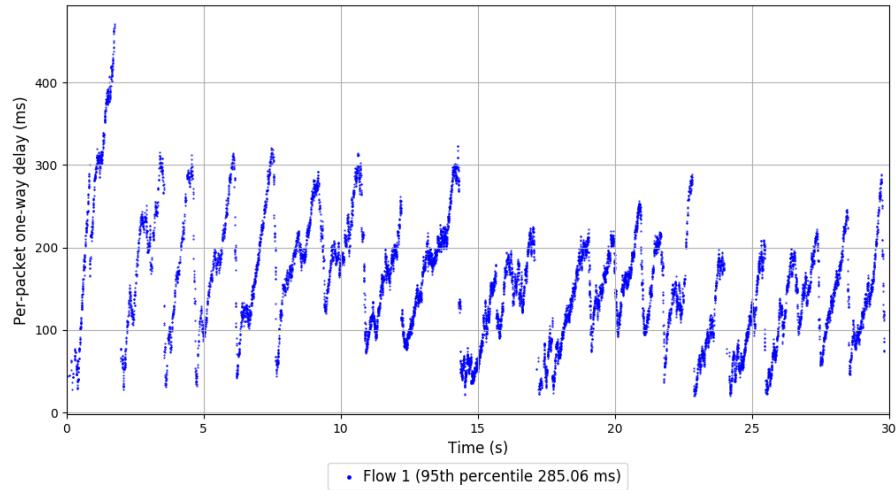
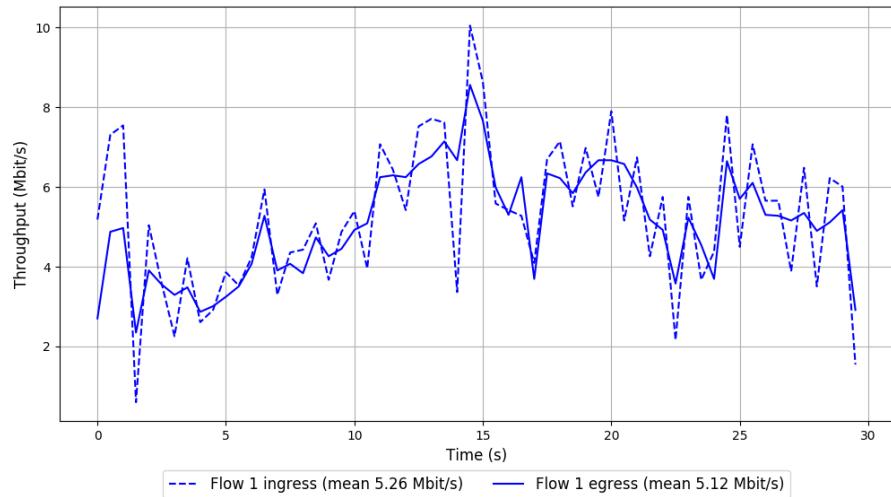


Run 1: Statistics of Verus

```
Start at: 2018-04-16 20:53:46
End at: 2018-04-16 20:54:16
Local clock offset: 0.617 ms
Remote clock offset: 16.683 ms

# Below is generated by plot.py at 2018-04-16 23:00:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.12 Mbit/s
95th percentile per-packet one-way delay: 285.064 ms
Loss rate: 2.79%
-- Flow 1:
Average throughput: 5.12 Mbit/s
95th percentile per-packet one-way delay: 285.064 ms
Loss rate: 2.79%
```

Run 1: Report of Verus — Data Link

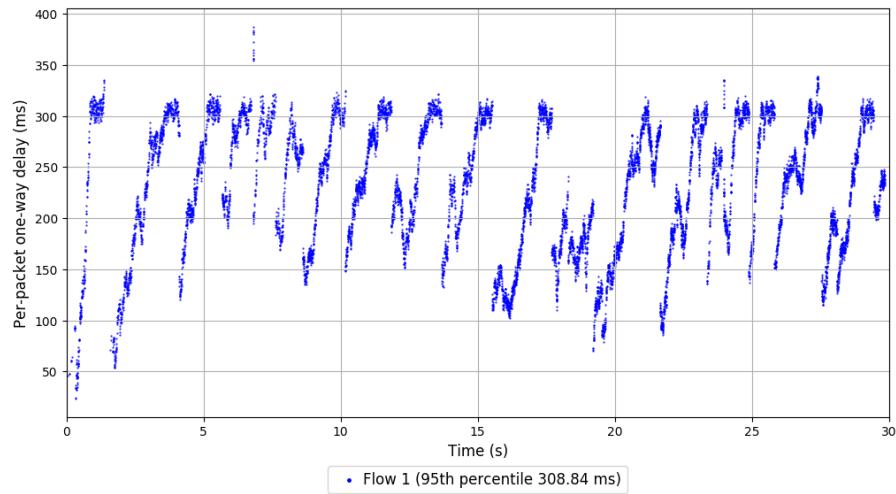
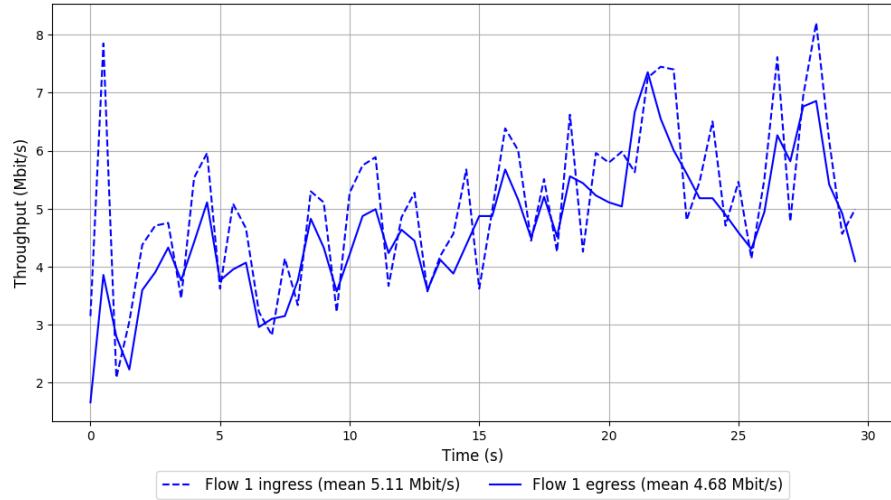


Run 2: Statistics of Verus

```
Start at: 2018-04-16 21:15:58
End at: 2018-04-16 21:16:29
Local clock offset: -0.309 ms
Remote clock offset: 1.616 ms

# Below is generated by plot.py at 2018-04-16 23:00:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.68 Mbit/s
95th percentile per-packet one-way delay: 308.839 ms
Loss rate: 8.67%
-- Flow 1:
Average throughput: 4.68 Mbit/s
95th percentile per-packet one-way delay: 308.839 ms
Loss rate: 8.67%
```

Run 2: Report of Verus — Data Link

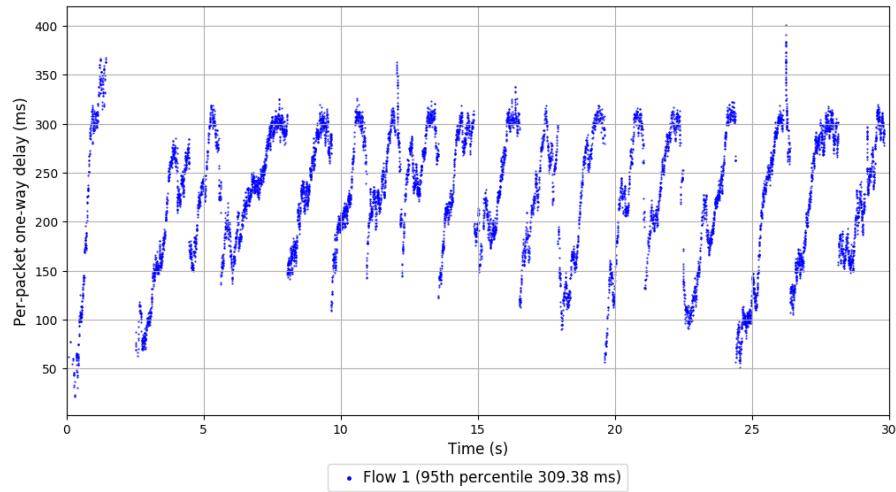
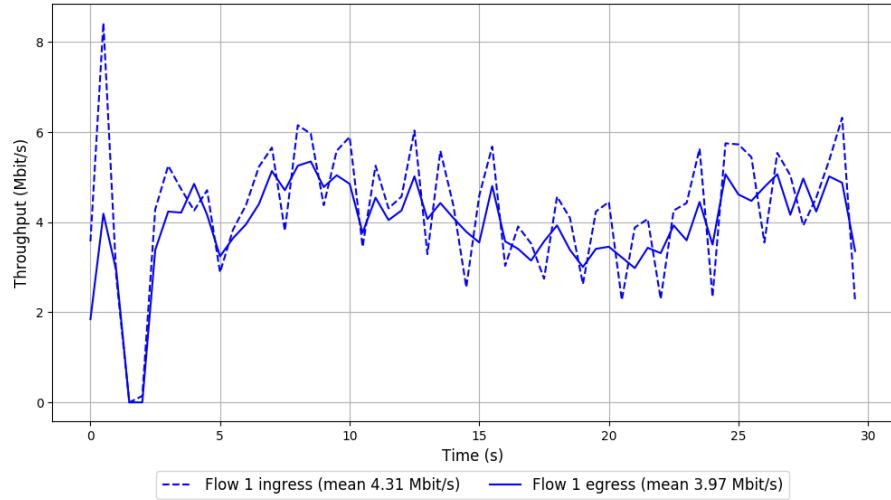


Run 3: Statistics of Verus

```
Start at: 2018-04-16 21:38:13
End at: 2018-04-16 21:38:43
Local clock offset: -1.015 ms
Remote clock offset: -1.049 ms

# Below is generated by plot.py at 2018-04-16 23:00:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.97 Mbit/s
95th percentile per-packet one-way delay: 309.384 ms
Loss rate: 8.15%
-- Flow 1:
Average throughput: 3.97 Mbit/s
95th percentile per-packet one-way delay: 309.384 ms
Loss rate: 8.15%
```

Run 3: Report of Verus — Data Link

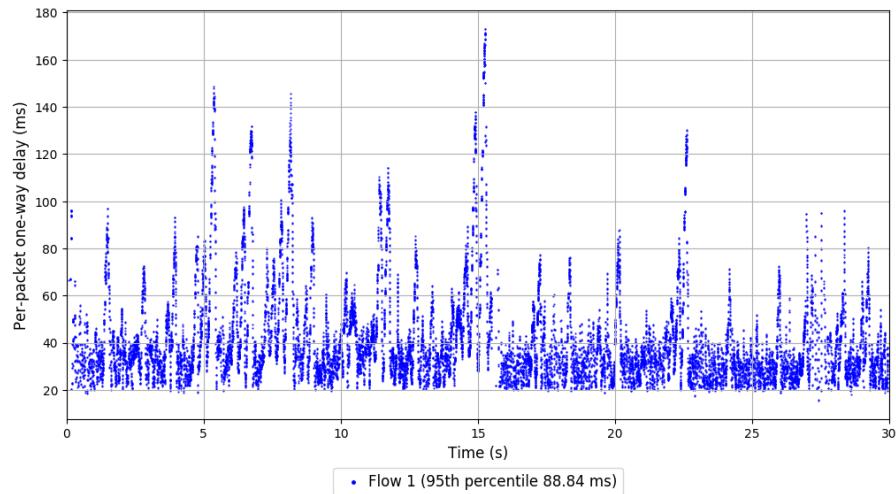
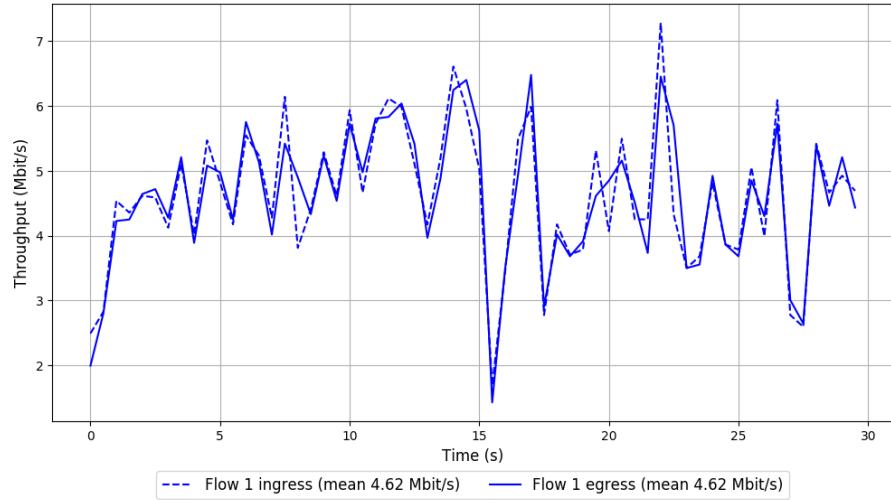


Run 1: Statistics of Copa

```
Start at: 2018-04-16 21:01:35
End at: 2018-04-16 21:02:05
Local clock offset: 0.138 ms
Remote clock offset: 16.438 ms

# Below is generated by plot.py at 2018-04-16 23:01:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.62 Mbit/s
95th percentile per-packet one-way delay: 88.844 ms
Loss rate: 0.31%
-- Flow 1:
Average throughput: 4.62 Mbit/s
95th percentile per-packet one-way delay: 88.844 ms
Loss rate: 0.31%
```

Run 1: Report of Copa — Data Link

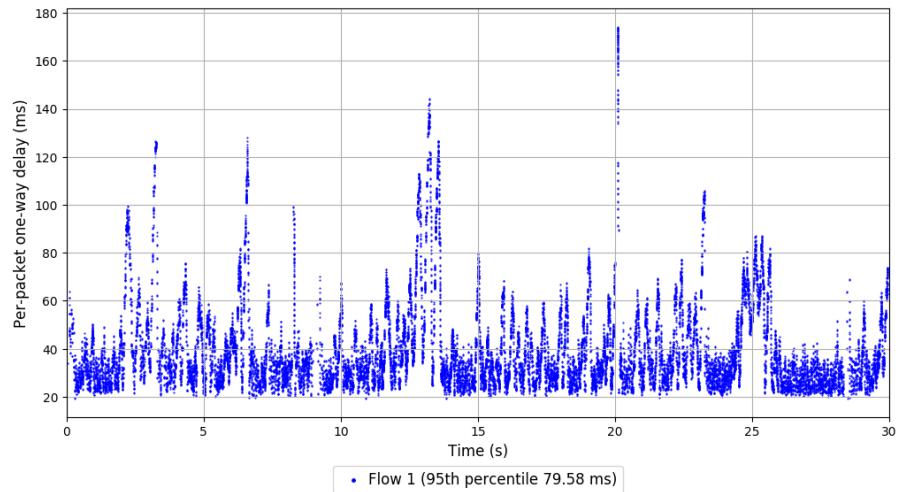
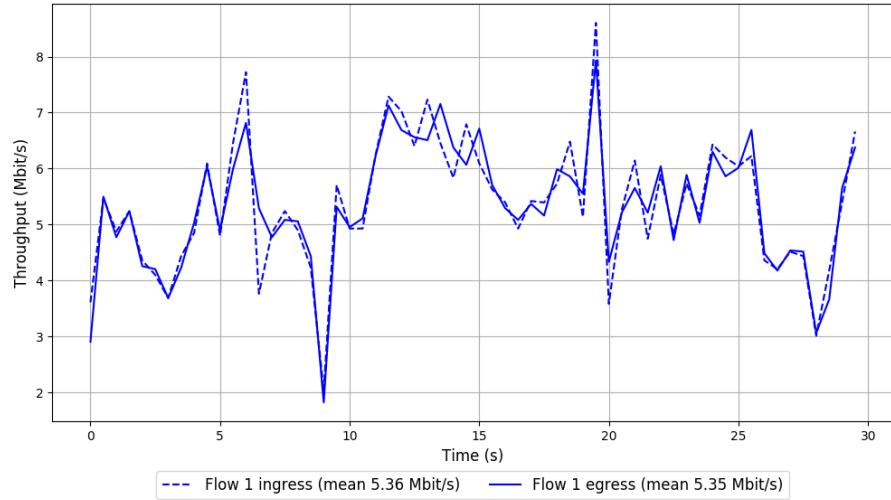


Run 2: Statistics of Copa

```
Start at: 2018-04-16 21:23:50
End at: 2018-04-16 21:24:20
Local clock offset: -0.604 ms
Remote clock offset: 0.765 ms

# Below is generated by plot.py at 2018-04-16 23:01:02
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.35 Mbit/s
95th percentile per-packet one-way delay: 79.581 ms
Loss rate: 0.36%
-- Flow 1:
Average throughput: 5.35 Mbit/s
95th percentile per-packet one-way delay: 79.581 ms
Loss rate: 0.36%
```

Run 2: Report of Copa — Data Link

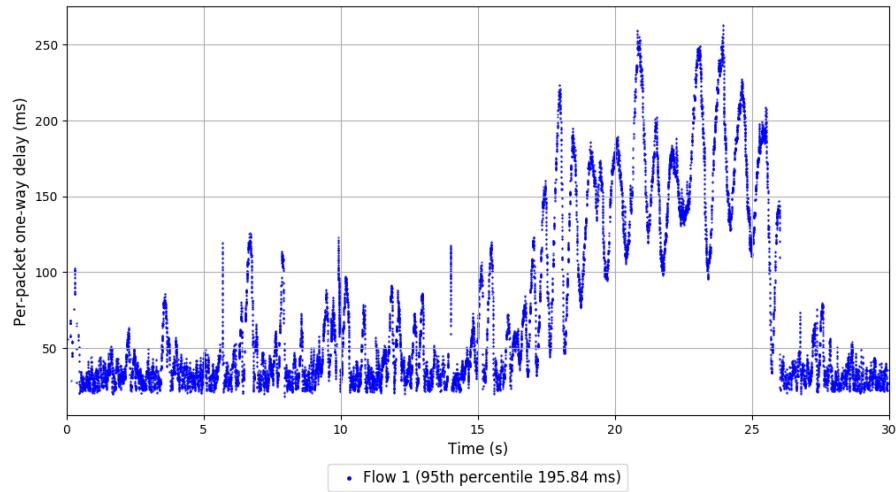
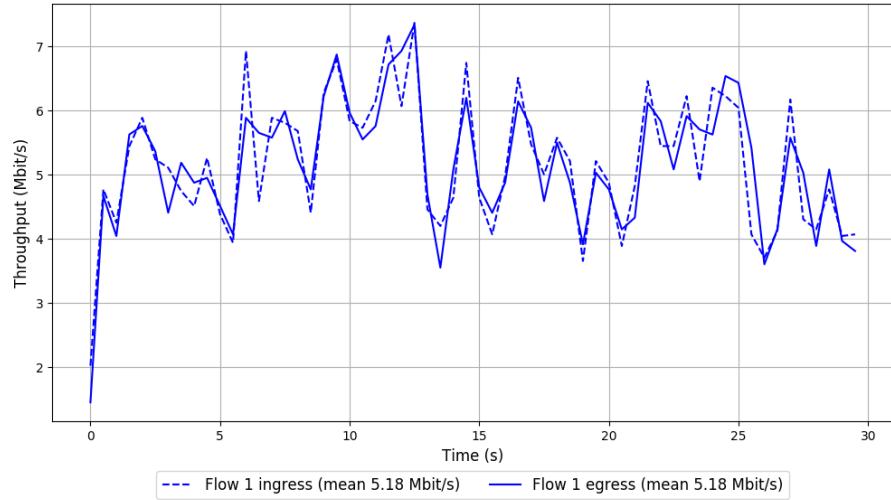


Run 3: Statistics of Copa

```
Start at: 2018-04-16 21:46:04
End at: 2018-04-16 21:46:34
Local clock offset: -1.264 ms
Remote clock offset: -3.466 ms

# Below is generated by plot.py at 2018-04-16 23:01:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.18 Mbit/s
95th percentile per-packet one-way delay: 195.842 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 5.18 Mbit/s
95th percentile per-packet one-way delay: 195.842 ms
Loss rate: 0.30%
```

Run 3: Report of Copa — Data Link

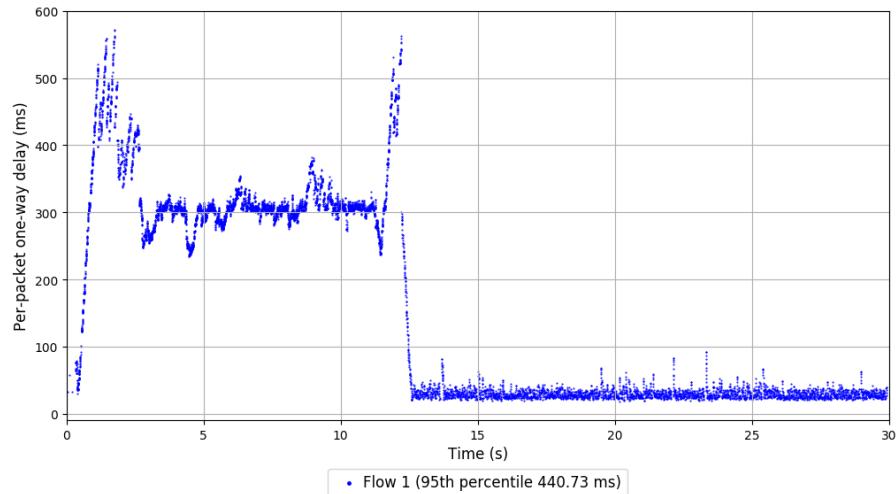
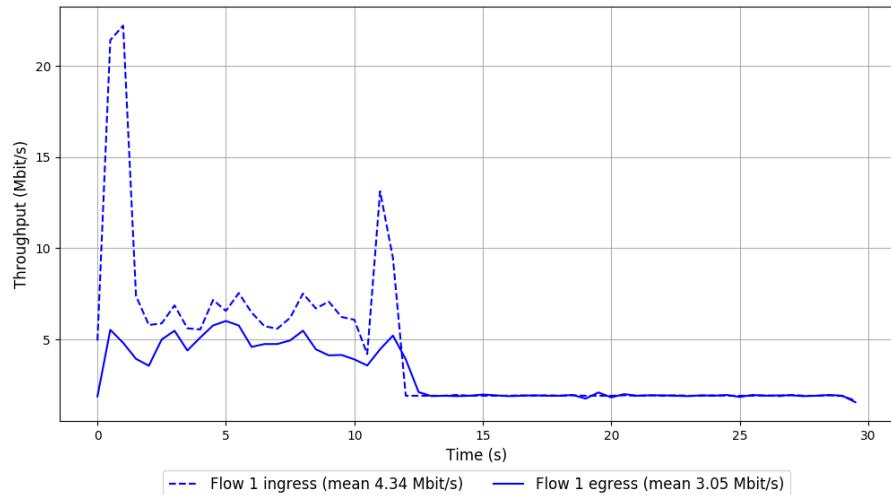


```
Run 1: Statistics of FillP

Start at: 2018-04-16 20:58:59
End at: 2018-04-16 20:59:29
Local clock offset: 0.377 ms
Remote clock offset: 19.521 ms

# Below is generated by plot.py at 2018-04-16 23:01:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.05 Mbit/s
95th percentile per-packet one-way delay: 440.729 ms
Loss rate: 29.83%
-- Flow 1:
Average throughput: 3.05 Mbit/s
95th percentile per-packet one-way delay: 440.729 ms
Loss rate: 29.83%
```

Run 1: Report of FillP — Data Link

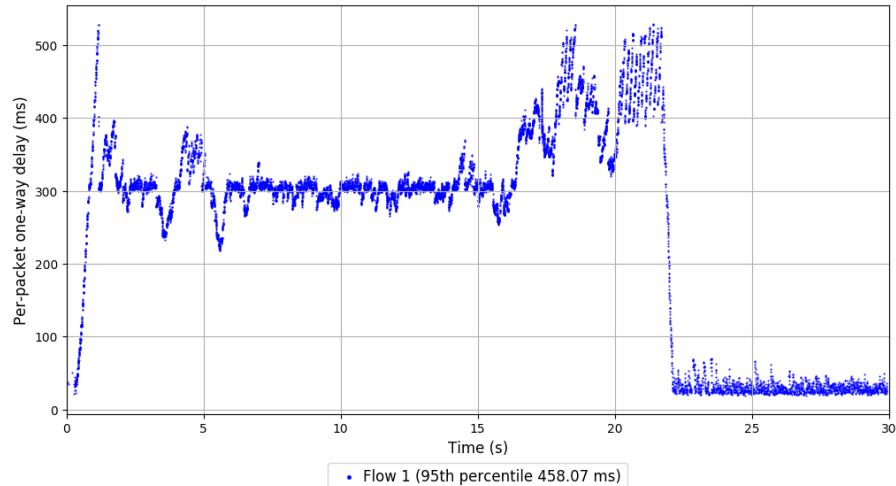
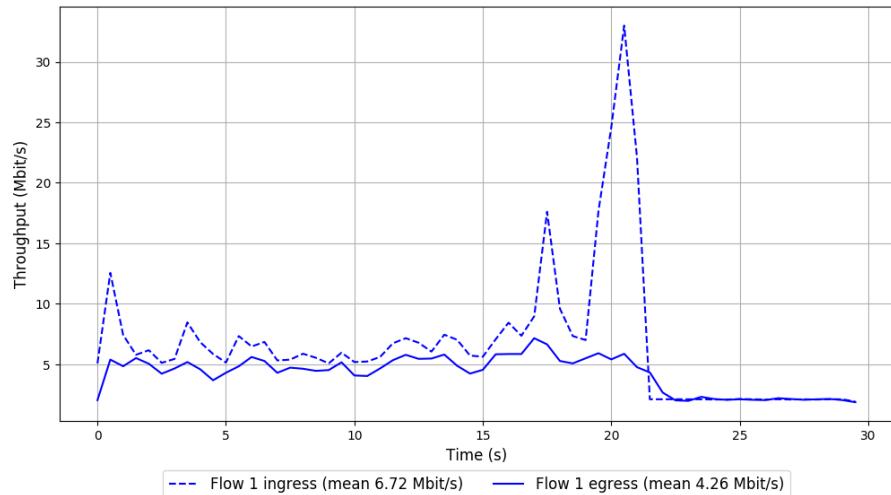


Run 2: Statistics of FillP

```
Start at: 2018-04-16 21:21:13
End at: 2018-04-16 21:21:43
Local clock offset: -0.603 ms
Remote clock offset: 0.731 ms

# Below is generated by plot.py at 2018-04-16 23:01:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.26 Mbit/s
95th percentile per-packet one-way delay: 458.070 ms
Loss rate: 36.76%
-- Flow 1:
Average throughput: 4.26 Mbit/s
95th percentile per-packet one-way delay: 458.070 ms
Loss rate: 36.76%
```

Run 2: Report of FillP — Data Link

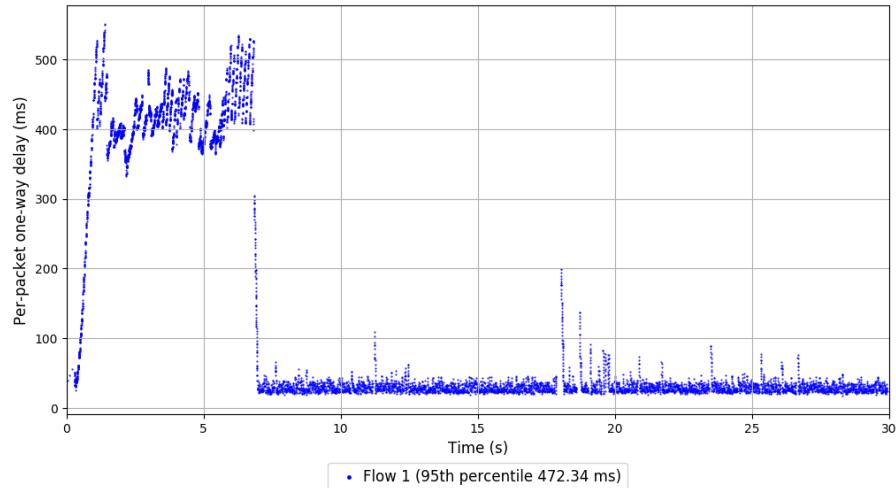
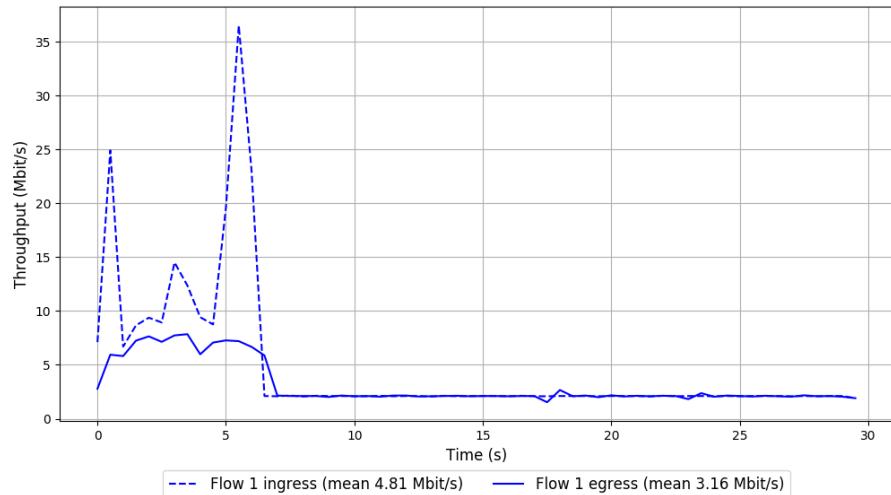


```
Run 3: Statistics of FillP
```

```
Start at: 2018-04-16 21:43:27
End at: 2018-04-16 21:43:57
Local clock offset: -1.141 ms
Remote clock offset: -2.993 ms

# Below is generated by plot.py at 2018-04-16 23:01:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.16 Mbit/s
95th percentile per-packet one-way delay: 472.342 ms
Loss rate: 34.57%
-- Flow 1:
Average throughput: 3.16 Mbit/s
95th percentile per-packet one-way delay: 472.342 ms
Loss rate: 34.57%
```

Run 3: Report of FillP — Data Link

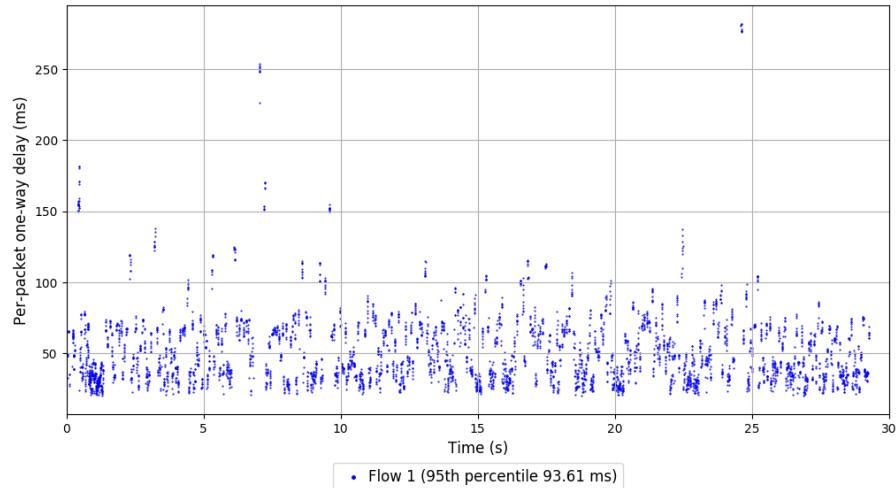
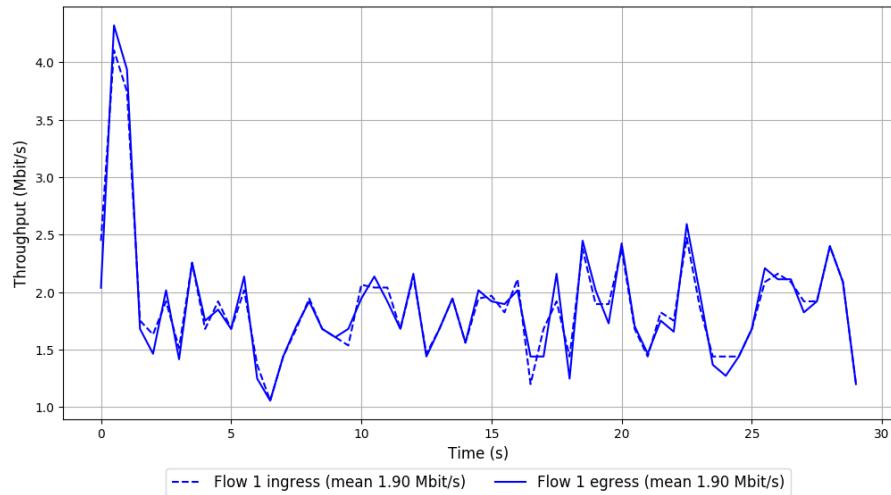


Run 1: Statistics of Indigo-1-32

```
Start at: 2018-04-16 20:47:14
End at: 2018-04-16 20:47:44
Local clock offset: 0.692 ms
Remote clock offset: 14.024 ms

# Below is generated by plot.py at 2018-04-16 23:01:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.90 Mbit/s
95th percentile per-packet one-way delay: 93.612 ms
Loss rate: 0.22%
-- Flow 1:
Average throughput: 1.90 Mbit/s
95th percentile per-packet one-way delay: 93.612 ms
Loss rate: 0.22%
```

Run 1: Report of Indigo-1-32 — Data Link

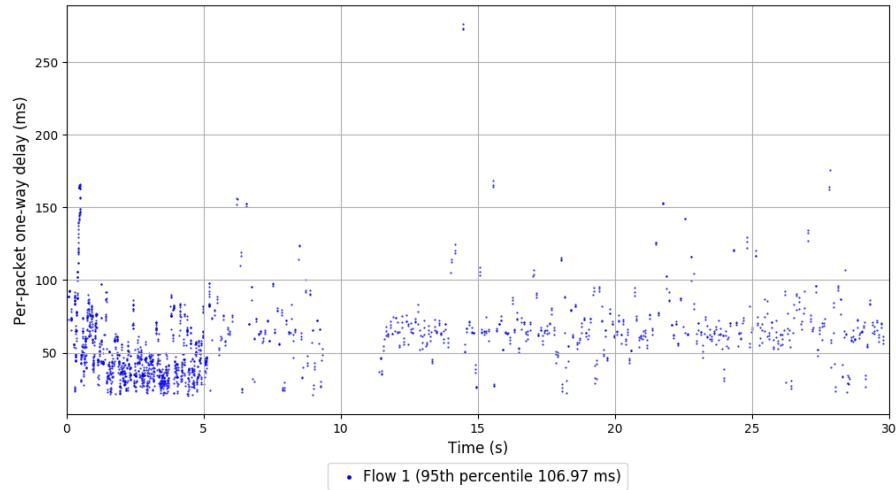
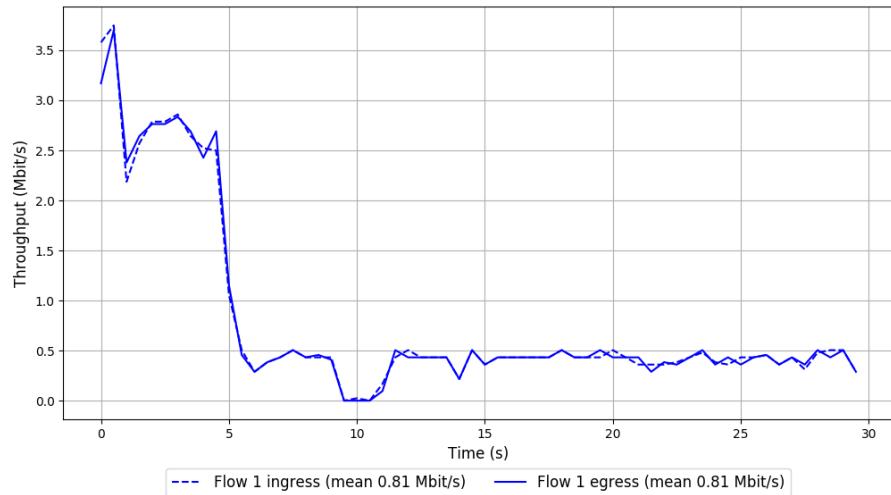


Run 2: Statistics of Indigo-1-32

```
Start at: 2018-04-16 21:09:27
End at: 2018-04-16 21:09:57
Local clock offset: -0.184 ms
Remote clock offset: 5.092 ms

# Below is generated by plot.py at 2018-04-16 23:01:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.81 Mbit/s
95th percentile per-packet one-way delay: 106.972 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 0.81 Mbit/s
95th percentile per-packet one-way delay: 106.972 ms
Loss rate: 0.35%
```

Run 2: Report of Indigo-1-32 — Data Link

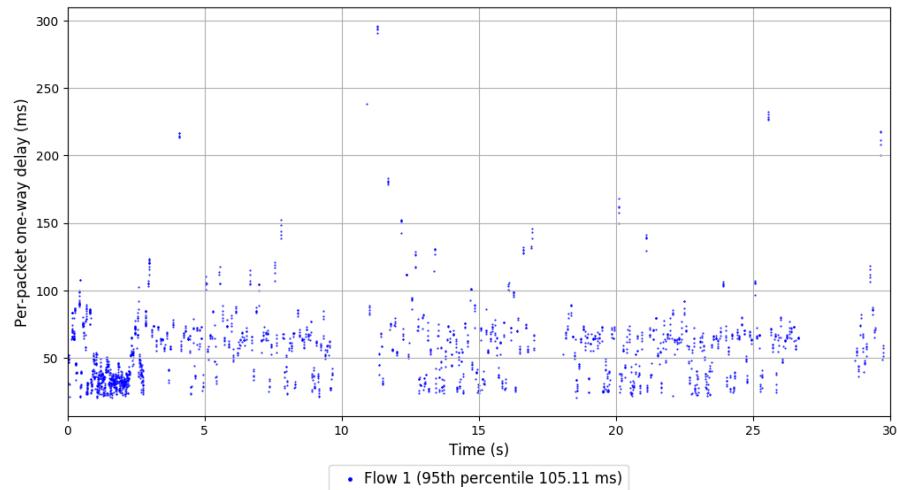
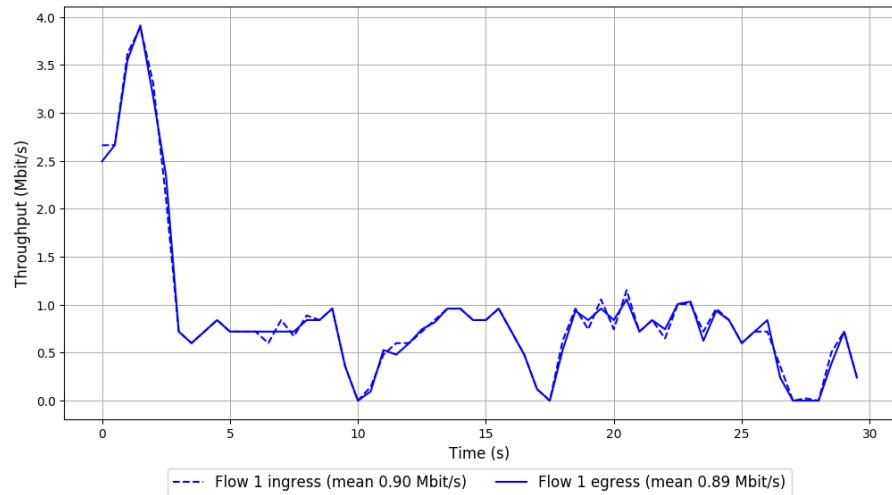


Run 3: Statistics of Indigo-1-32

```
Start at: 2018-04-16 21:31:41
End at: 2018-04-16 21:32:11
Local clock offset: -0.953 ms
Remote clock offset: 1.274 ms

# Below is generated by plot.py at 2018-04-16 23:01:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.89 Mbit/s
95th percentile per-packet one-way delay: 105.113 ms
Loss rate: 0.94%
-- Flow 1:
Average throughput: 0.89 Mbit/s
95th percentile per-packet one-way delay: 105.113 ms
Loss rate: 0.94%
```

Run 3: Report of Indigo-1-32 — Data Link

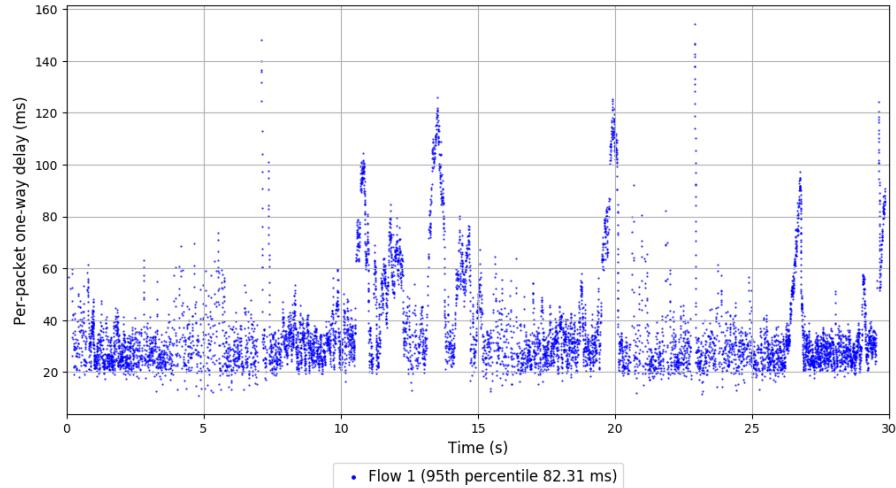
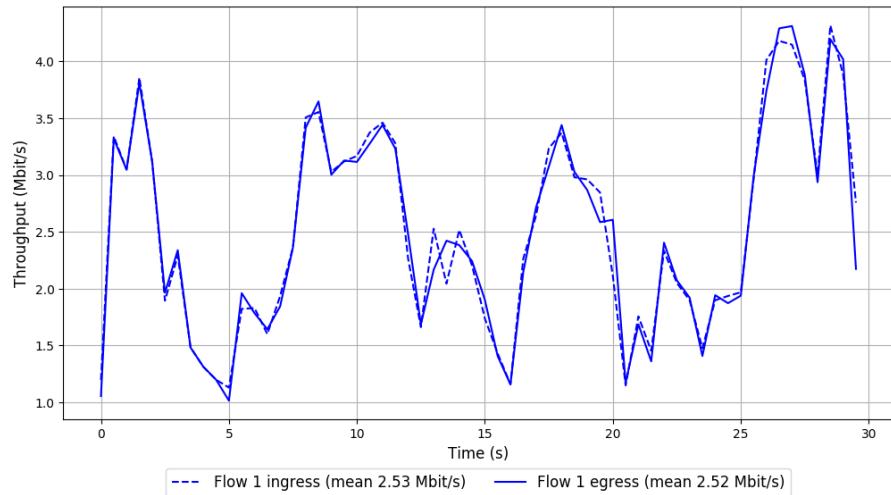


```
Run 1: Statistics of PCC-Vivace
```

```
Start at: 2018-04-16 21:05:31
End at: 2018-04-16 21:06:01
Local clock offset: 0.056 ms
Remote clock offset: 9.599 ms

# Below is generated by plot.py at 2018-04-16 23:01:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.52 Mbit/s
95th percentile per-packet one-way delay: 82.308 ms
Loss rate: 0.50%
-- Flow 1:
Average throughput: 2.52 Mbit/s
95th percentile per-packet one-way delay: 82.308 ms
Loss rate: 0.50%
```

Run 1: Report of PCC-Vivace — Data Link

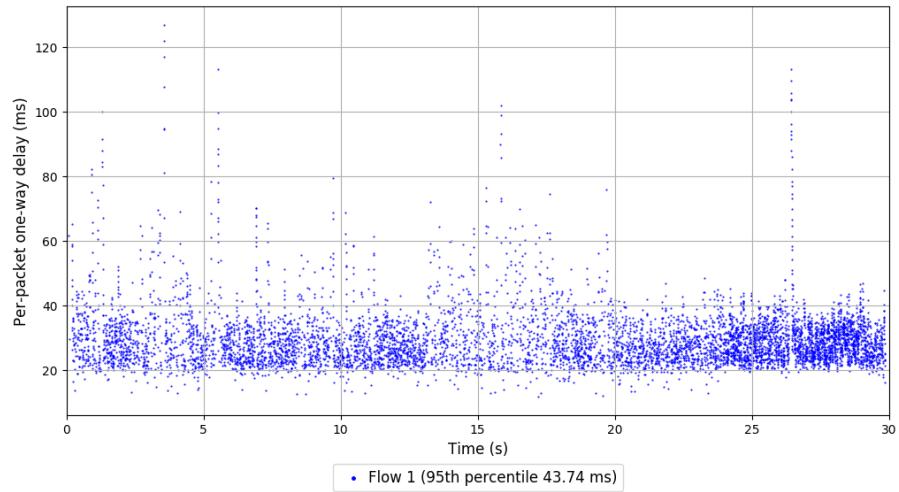
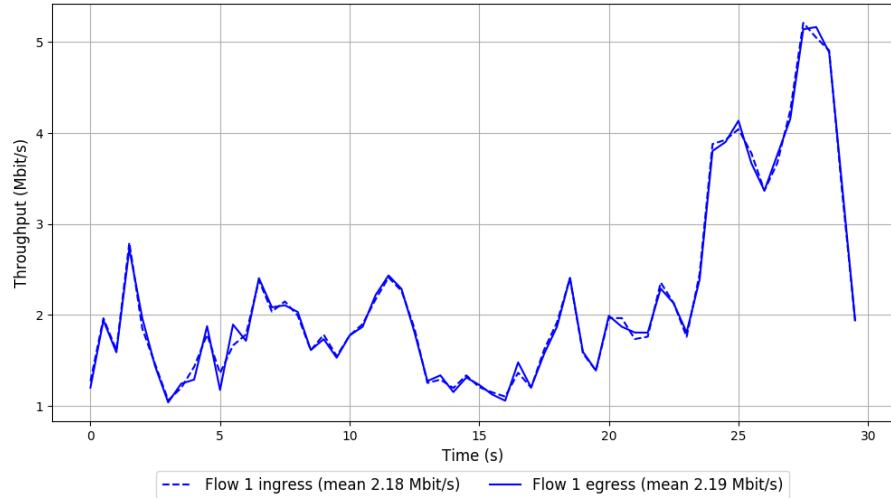


Run 2: Statistics of PCC-Vivace

```
Start at: 2018-04-16 21:27:46
End at: 2018-04-16 21:28:16
Local clock offset: -0.75 ms
Remote clock offset: 0.908 ms

# Below is generated by plot.py at 2018-04-16 23:01:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.19 Mbit/s
95th percentile per-packet one-way delay: 43.745 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 2.19 Mbit/s
95th percentile per-packet one-way delay: 43.745 ms
Loss rate: 0.14%
```

Run 2: Report of PCC-Vivace — Data Link

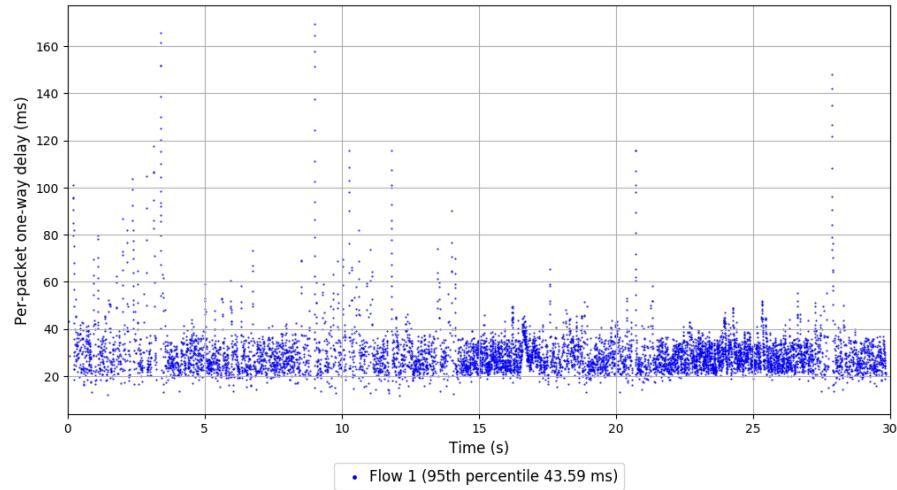
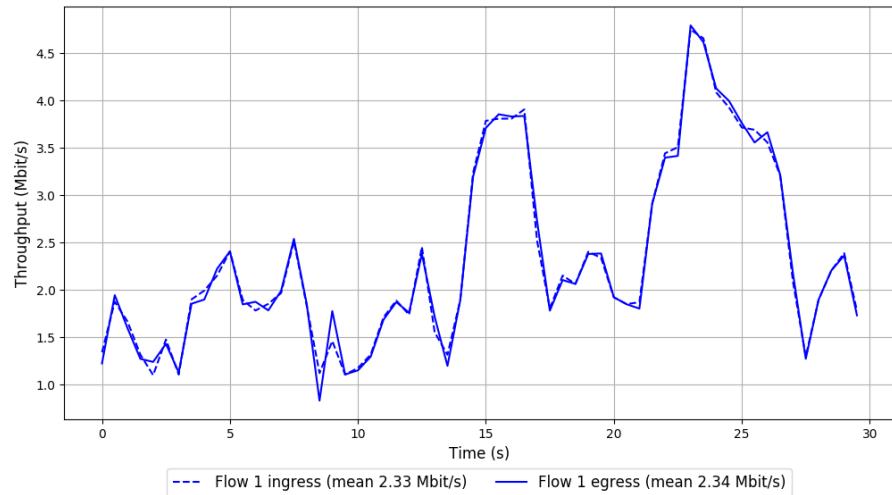


Run 3: Statistics of PCC-Vivace

```
Start at: 2018-04-16 21:50:00
End at: 2018-04-16 21:50:30
Local clock offset: -1.292 ms
Remote clock offset: -3.929 ms

# Below is generated by plot.py at 2018-04-16 23:01:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.34 Mbit/s
95th percentile per-packet one-way delay: 43.589 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 2.34 Mbit/s
95th percentile per-packet one-way delay: 43.589 ms
Loss rate: 0.12%
```

Run 3: Report of PCC-Vivace — Data Link



Run 1: Statistics of PCC-Expr

Start at: 2018-04-16 20:57:41
End at: 2018-04-16 20:58:11
Local clock offset: 0.343 ms
Remote clock offset: 18.838 ms

Run 1: Report of PCC-Expr — Data Link

Figure is missing

Figure is missing

Run 2: Statistics of PCC-Expr

Start at: 2018-04-16 21:19:54

End at: 2018-04-16 21:20:24

Local clock offset: -0.454 ms

Remote clock offset: 0.896 ms

Run 2: Report of PCC-Expr — Data Link

Figure is missing

Figure is missing

Run 3: Statistics of PCC-Expr

Start at: 2018-04-16 21:42:09

End at: 2018-04-16 21:42:39

Local clock offset: -1.131 ms

Remote clock offset: -2.612 ms

Run 3: Report of PCC-Expr — Data Link

Figure is missing

Figure is missing