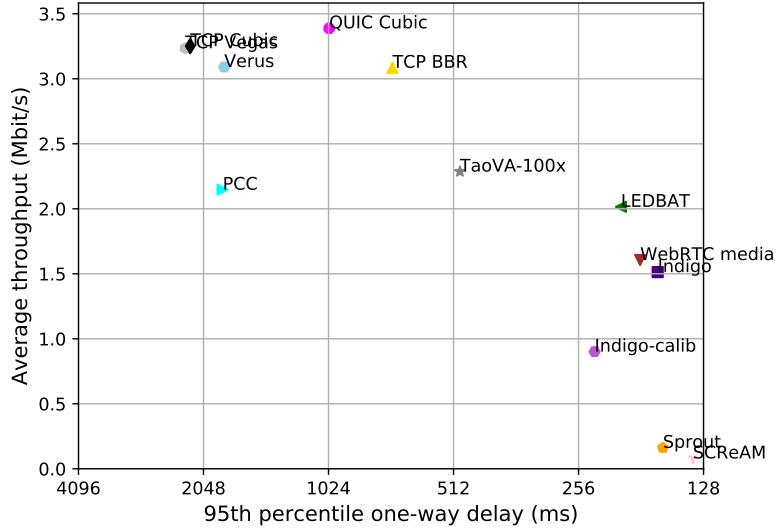


Pantheon Report

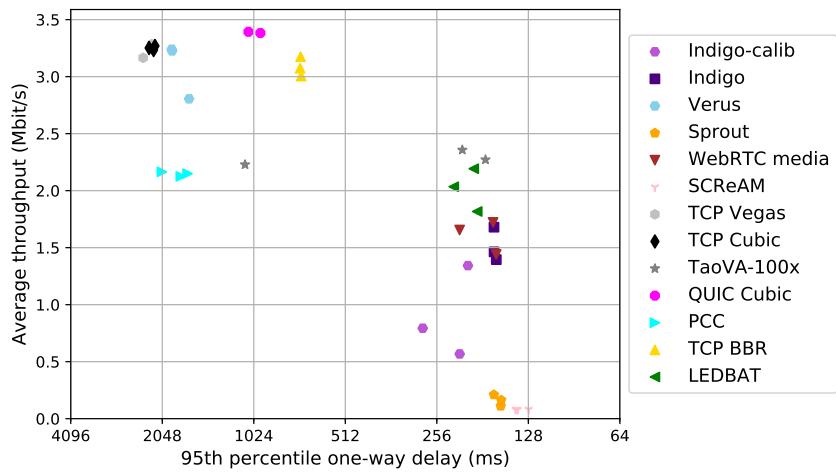
Generated at 2017-11-30 06:55:36 (UTC).
Data path: AWS Brazil 2 Ethernet (*local*) → Colombia ppp0 (*remote*).
Repeated the test of 14 congestion control schemes 3 times.
Each test lasted for 30 seconds running 1 flow.
Increased UDP receive buffer to 16 MB (default) and 32 MB (max).
Tested BBR with qdisc of Fair Queuing (**fq**), and other schemes with the default Linux qdisc (**pfifo_fast**).
NTP offsets were measured against **gps.ntp.br** and have been applied to correct the timestamps in logs.

Git summary:
branch: indigos @ e3a57ad5ac5cfaca0e3f983c8dd4cc3509e0262
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
M datagrump/sender.cc
third_party/genericCC @ b5b7c38e8391001927dc41c6cfa2627d03dde737
third_party/indigo @ b19f3730105f9aa95452552af924e3719b03cc55
third_party/indigo-cellular @ aee99e8eb842cb053f8c9a80e28cd256a930bbc2
third_party/indigo-no-calib @ 7224f2202e8a044d8306fa0b983ad84360c53d89
third_party/indigo-no-cwnd @ 3e58442c04028a11d7b02456e137604633ba2d6c
third_party/indigo-no-delivery-rate @ 57caa40858b964906edff4876d5a7e5bfff666c5
third_party/indigo-no-queuing-delay @ 03455460fd1a8ffbdad86fabb936fdca204b80db
third_party/indigo-no-send-rate @ b39dfa6b2c5f19cb7cd89626cb4f5bb81f9fecda
third_party/koho_cc @ f0f2e693303aee82ea808e6928eac4f1083a6681
M datagrump/sender.cc
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
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 @ f1a14bffe749737437f61b1eaeb30b267cde681
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 Brazil 2 Ethernet to Colombia ppp0, 3 runs of 30s each per scheme
(mean of all runs by scheme)



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



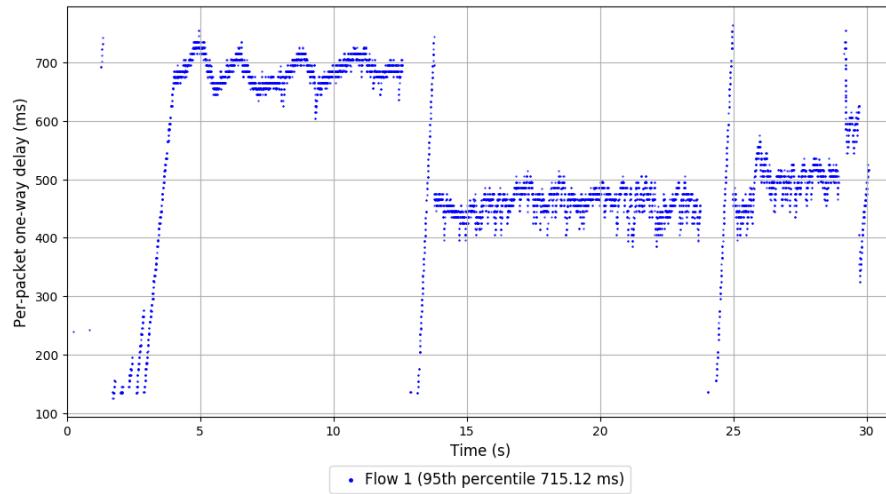
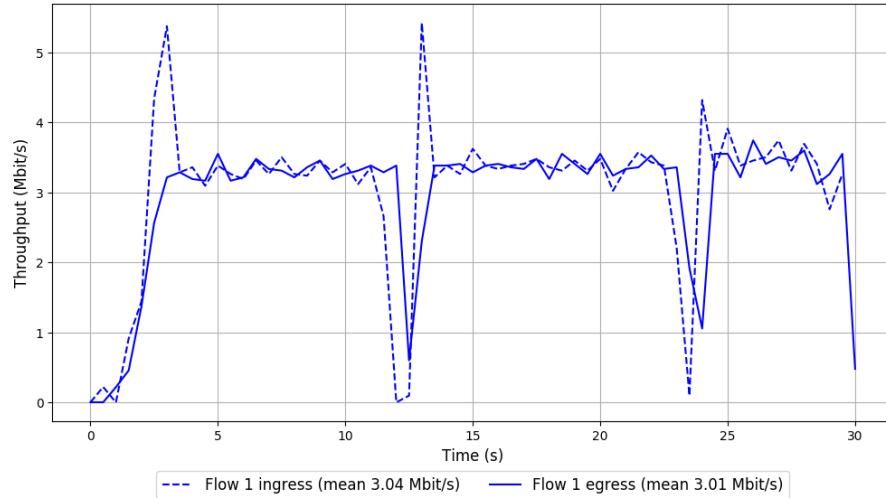
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	3.08	718.13	1.42
TCP Cubic	3	3.25	2205.06	9.48
LEDBAT	3	2.01	202.44	0.09
PCC	3	2.15	1841.21	43.49
QUIC Cubic	2	3.38	1020.20	3.60
SCReAM	3	0.08	135.80	0.13
WebRTC media	3	1.60	181.94	0.33
Sprout	3	0.16	160.34	0.02
TaoVA-100x	3	2.29	494.20	0.80
TCP Vegas	3	3.23	2265.58	11.30
Verus	3	3.09	1826.47	2.37
Copa	0	N/A	N/A	N/A
Indigo	3	1.51	165.04	0.18
Indigo-calib	3	0.90	234.14	0.00

Run 1: Statistics of TCP BBR

```
Start at: 2017-11-30 06:20:53
End at: 2017-11-30 06:21:23
Local clock offset: 1.712 ms
Remote clock offset: -0.734 ms

# Below is generated by plot.py at 2017-11-30 06:55:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.01 Mbit/s
95th percentile per-packet one-way delay: 715.118 ms
Loss rate: 1.46%
-- Flow 1:
Average throughput: 3.01 Mbit/s
95th percentile per-packet one-way delay: 715.118 ms
Loss rate: 1.46%
```

Run 1: Report of TCP BBR — Data Link

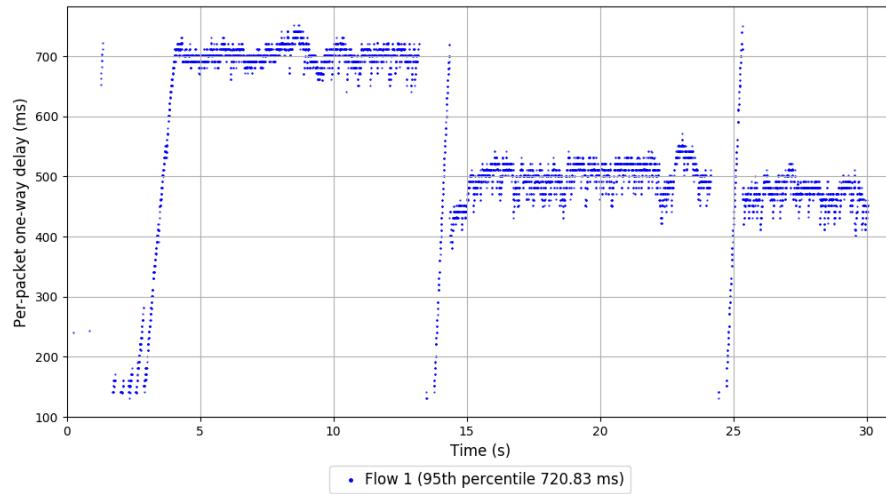
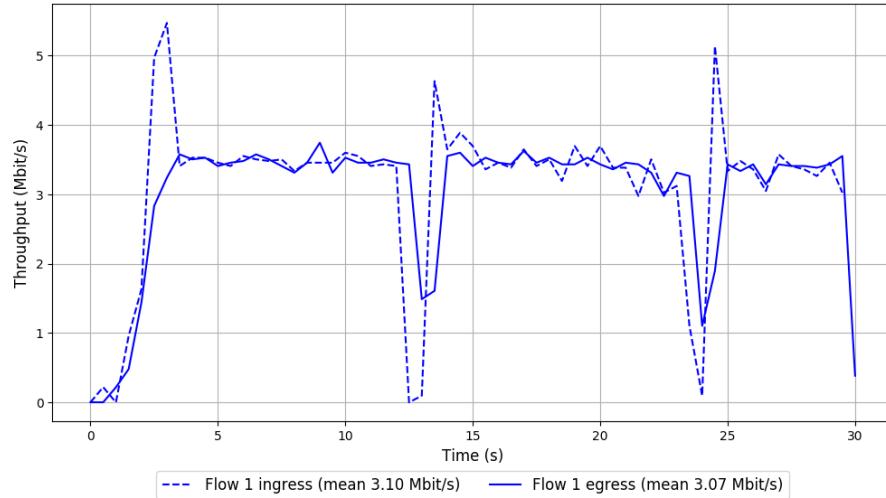


Run 2: Statistics of TCP BBR

```
Start at: 2017-11-30 06:37:19
End at: 2017-11-30 06:37:49
Local clock offset: 0.965 ms
Remote clock offset: -1.029 ms

# Below is generated by plot.py at 2017-11-30 06:55:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.07 Mbit/s
95th percentile per-packet one-way delay: 720.833 ms
Loss rate: 1.19%
-- Flow 1:
Average throughput: 3.07 Mbit/s
95th percentile per-packet one-way delay: 720.833 ms
Loss rate: 1.19%
```

Run 2: Report of TCP BBR — Data Link

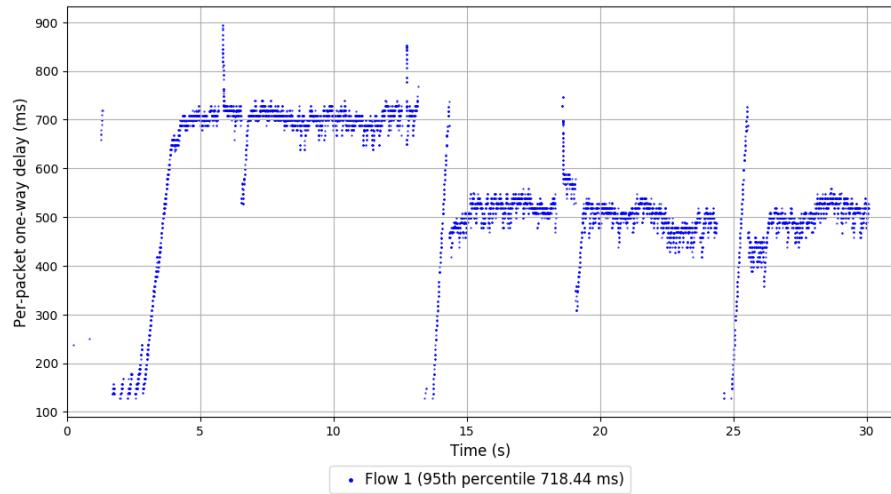
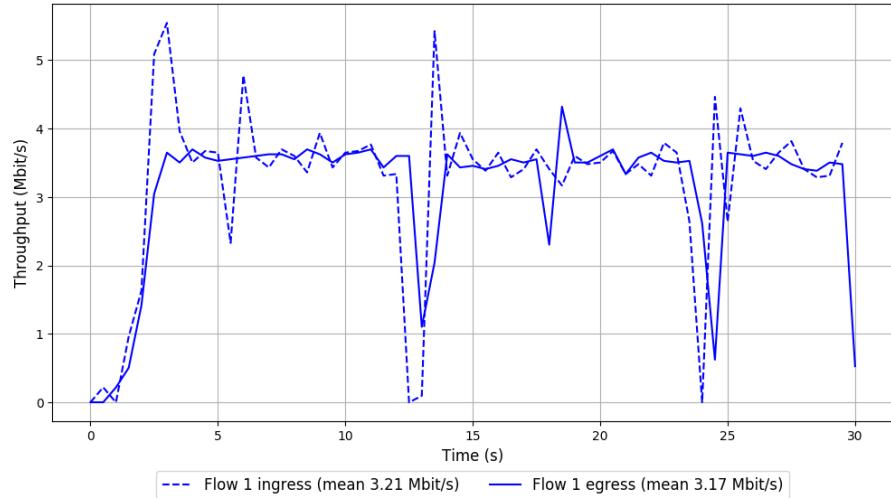


Run 3: Statistics of TCP BBR

```
Start at: 2017-11-30 06:53:45
End at: 2017-11-30 06:54:15
Local clock offset: 1.161 ms
Remote clock offset: -1.53 ms

# Below is generated by plot.py at 2017-11-30 06:55:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.17 Mbit/s
95th percentile per-packet one-way delay: 718.441 ms
Loss rate: 1.60%
-- Flow 1:
Average throughput: 3.17 Mbit/s
95th percentile per-packet one-way delay: 718.441 ms
Loss rate: 1.60%
```

Run 3: Report of TCP BBR — Data Link

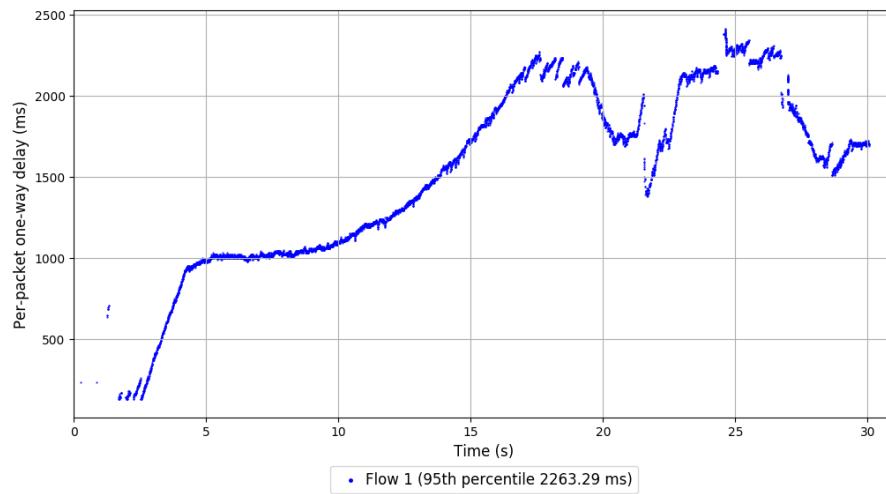
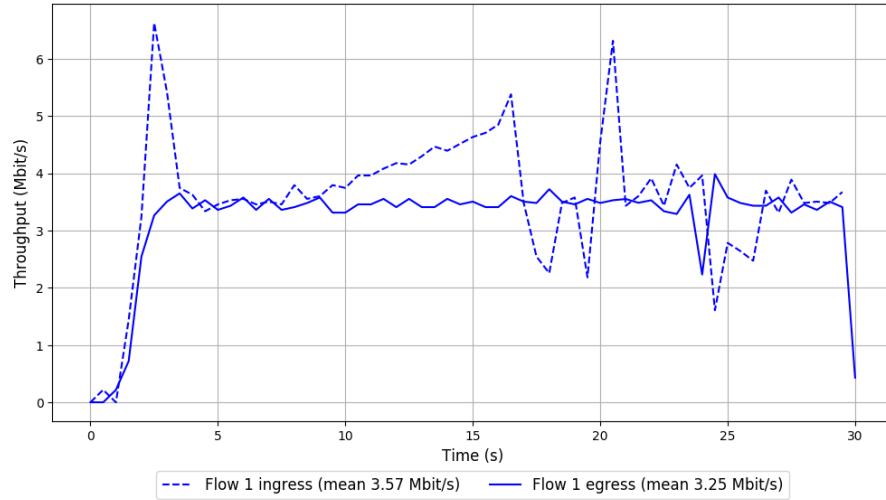


```
Run 1: Statistics of TCP Cubic
```

```
Start at: 2017-11-30 06:10:19
End at: 2017-11-30 06:10:49
Local clock offset: 1.488 ms
Remote clock offset: -0.149 ms

# Below is generated by plot.py at 2017-11-30 06:55:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.25 Mbit/s
95th percentile per-packet one-way delay: 2263.287 ms
Loss rate: 9.28%
-- Flow 1:
Average throughput: 3.25 Mbit/s
95th percentile per-packet one-way delay: 2263.287 ms
Loss rate: 9.28%
```

Run 1: Report of TCP Cubic — Data Link

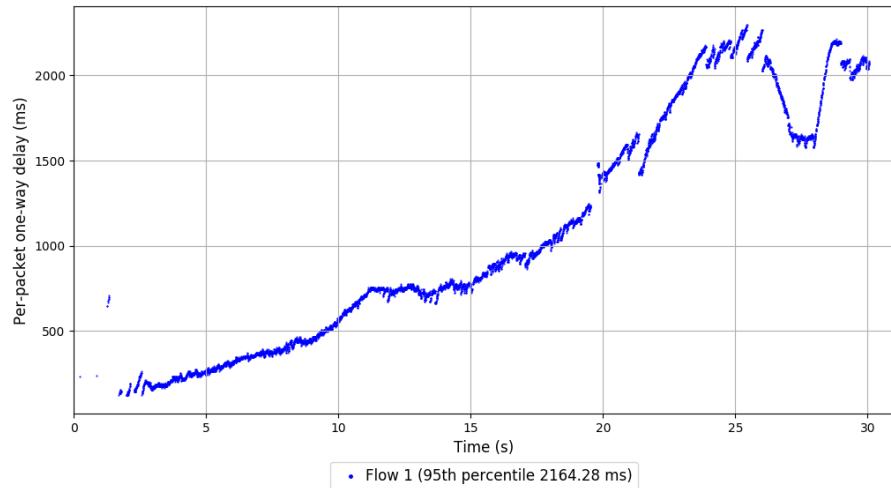
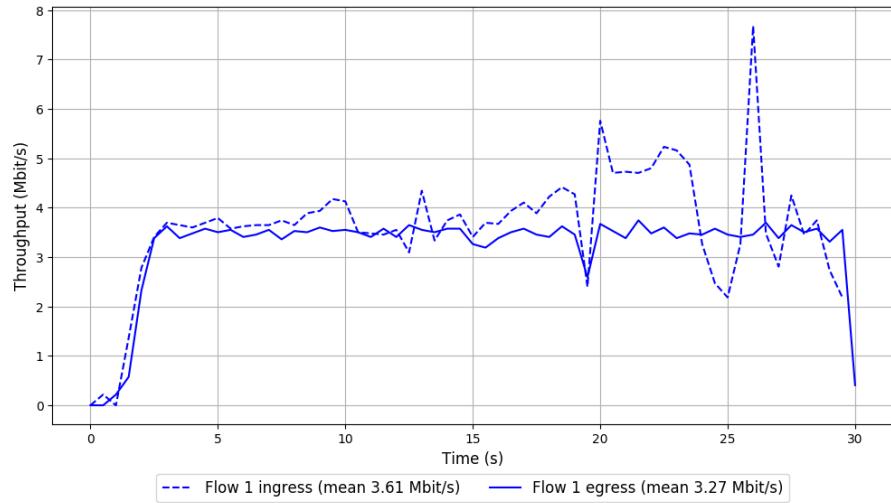


Run 2: Statistics of TCP Cubic

```
Start at: 2017-11-30 06:26:45
End at: 2017-11-30 06:27:15
Local clock offset: 1.22 ms
Remote clock offset: -6.117 ms

# Below is generated by plot.py at 2017-11-30 06:55:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.27 Mbit/s
95th percentile per-packet one-way delay: 2164.285 ms
Loss rate: 9.75%
-- Flow 1:
Average throughput: 3.27 Mbit/s
95th percentile per-packet one-way delay: 2164.285 ms
Loss rate: 9.75%
```

Run 2: Report of TCP Cubic — Data Link

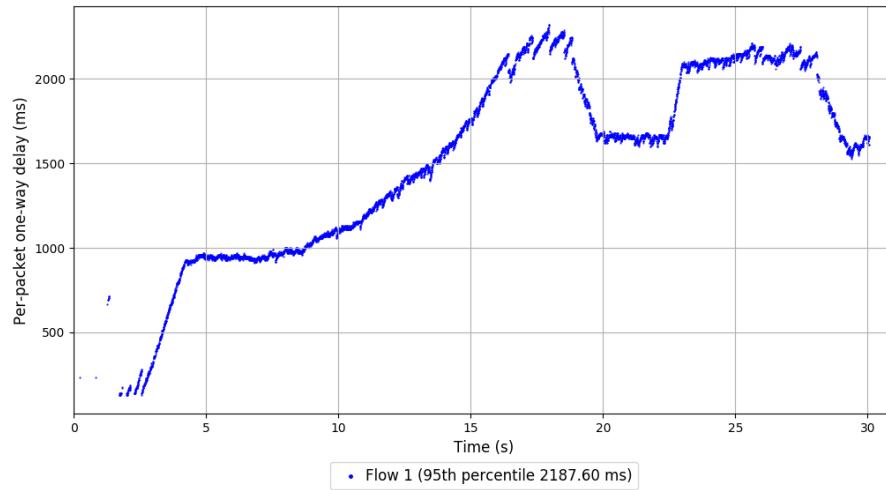
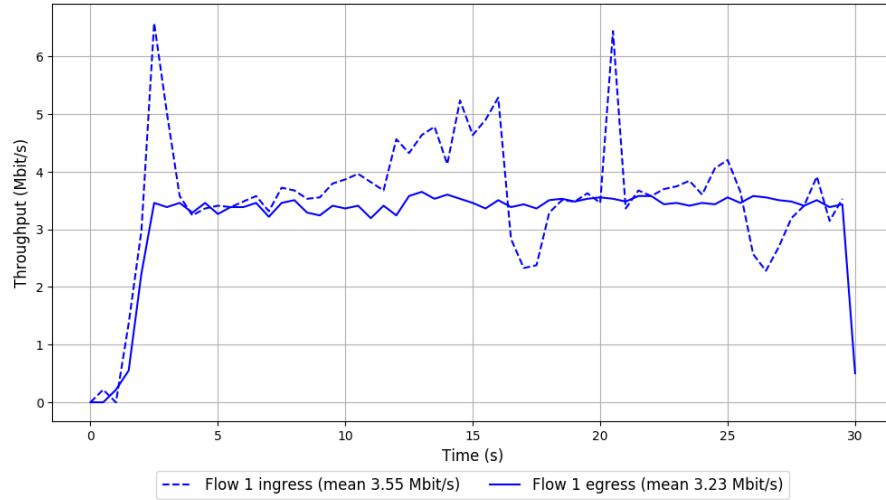


Run 3: Statistics of TCP Cubic

```
Start at: 2017-11-30 06:43:11
End at: 2017-11-30 06:43:41
Local clock offset: 1.043 ms
Remote clock offset: -6.17 ms

# Below is generated by plot.py at 2017-11-30 06:55:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.23 Mbit/s
95th percentile per-packet one-way delay: 2187.600 ms
Loss rate: 9.41%
-- Flow 1:
Average throughput: 3.23 Mbit/s
95th percentile per-packet one-way delay: 2187.600 ms
Loss rate: 9.41%
```

Run 3: Report of TCP Cubic — Data Link

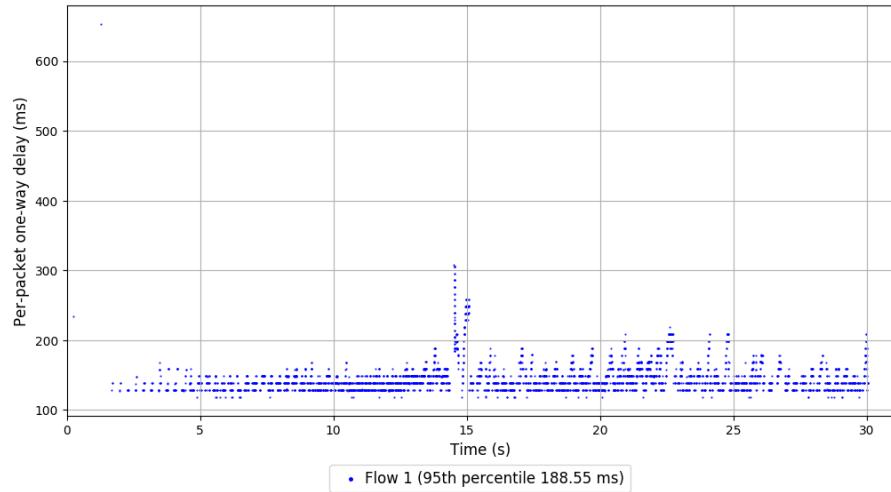
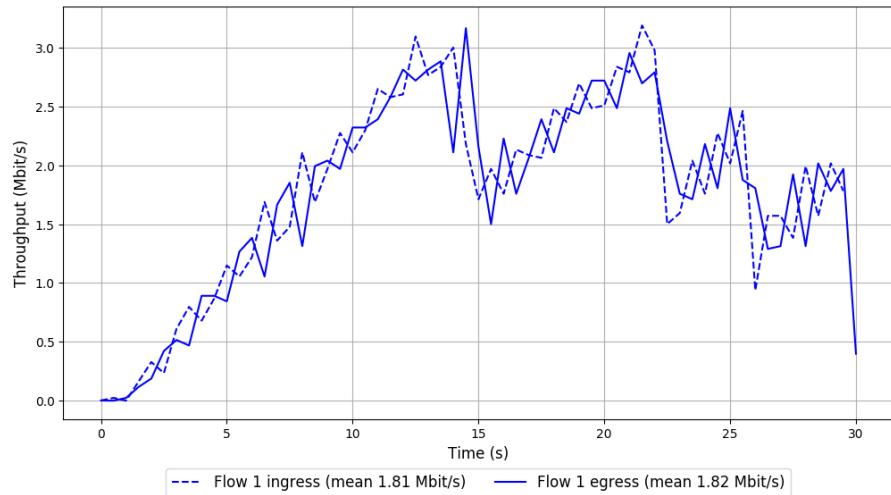


```
Run 1: Statistics of LEDBAT
```

```
Start at: 2017-11-30 06:13:50
End at: 2017-11-30 06:14:20
Local clock offset: 1.724 ms
Remote clock offset: -6.315 ms

# Below is generated by plot.py at 2017-11-30 06:55:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.82 Mbit/s
95th percentile per-packet one-way delay: 188.546 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.82 Mbit/s
95th percentile per-packet one-way delay: 188.546 ms
Loss rate: 0.00%
```

Run 1: Report of LEDBAT — Data Link

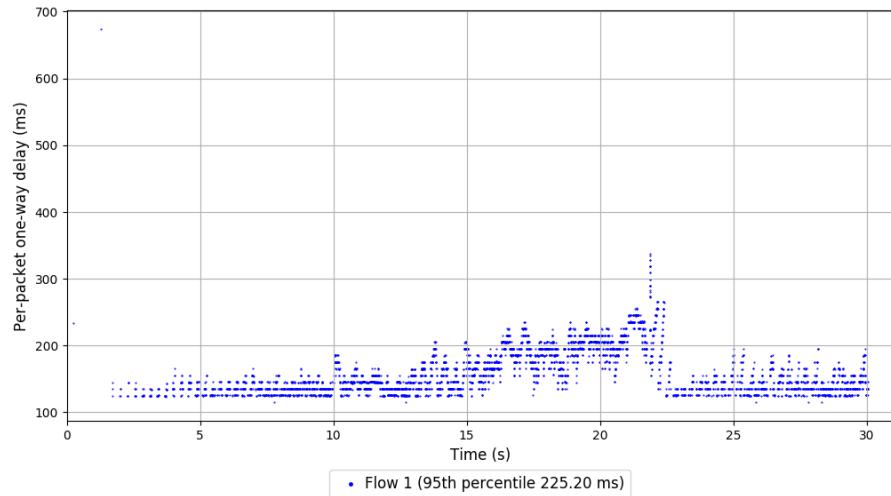
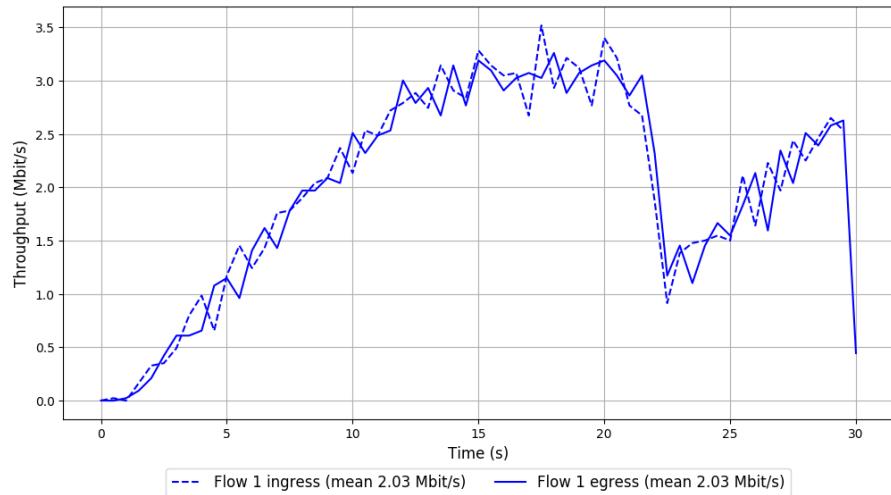


Run 2: Statistics of LEDBAT

```
Start at: 2017-11-30 06:30:16
End at: 2017-11-30 06:30:46
Local clock offset: 1.005 ms
Remote clock offset: -7.415 ms

# Below is generated by plot.py at 2017-11-30 06:55:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.03 Mbit/s
95th percentile per-packet one-way delay: 225.200 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 2.03 Mbit/s
95th percentile per-packet one-way delay: 225.200 ms
Loss rate: 0.17%
```

Run 2: Report of LEDBAT — Data Link

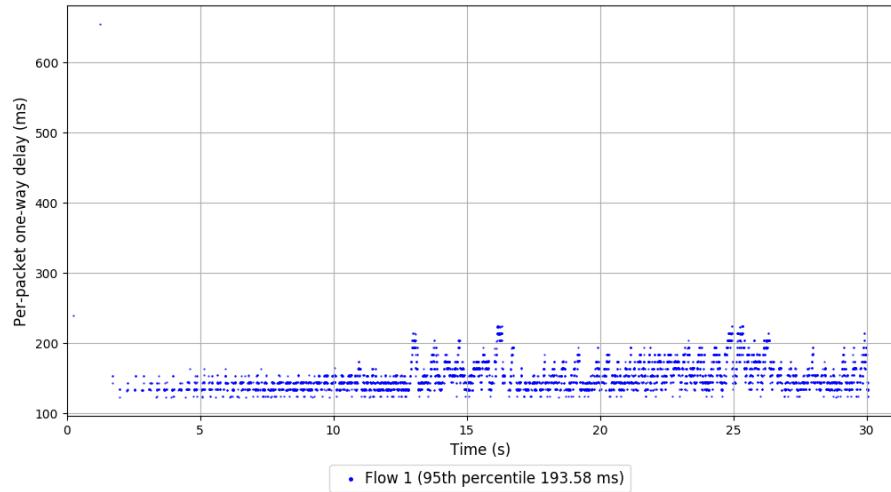
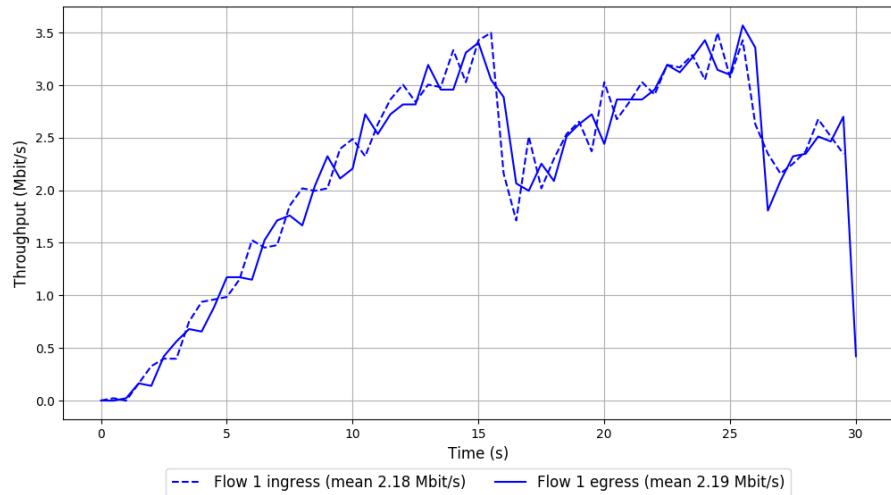


Run 3: Statistics of LEDBAT

```
Start at: 2017-11-30 06:46:42
End at: 2017-11-30 06:47:12
Local clock offset: 1.066 ms
Remote clock offset: -2.272 ms

# Below is generated by plot.py at 2017-11-30 06:55:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.19 Mbit/s
95th percentile per-packet one-way delay: 193.584 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 2.19 Mbit/s
95th percentile per-packet one-way delay: 193.584 ms
Loss rate: 0.11%
```

Run 3: Report of LEDBAT — Data Link

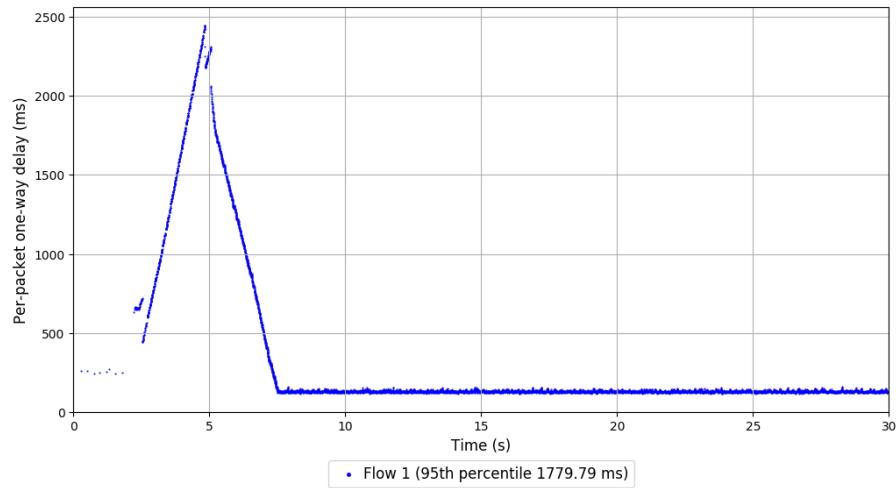
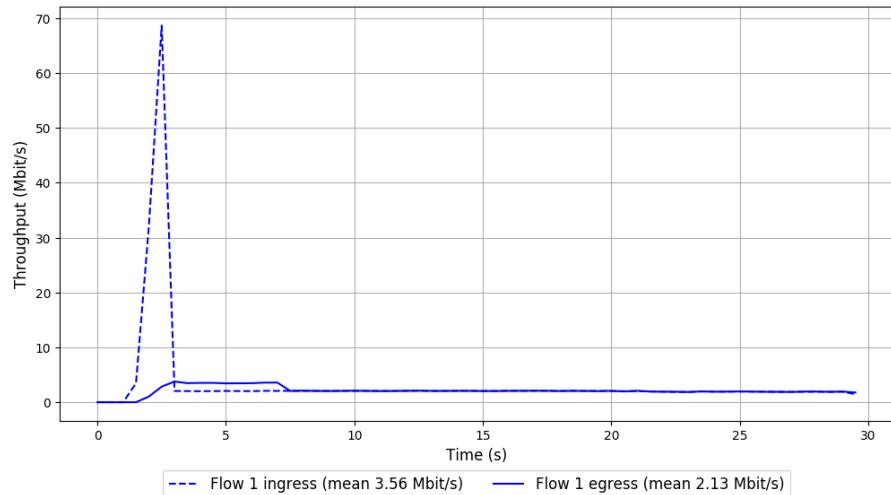


Run 1: Statistics of PCC

```
Start at: 2017-11-30 06:18:31
End at: 2017-11-30 06:19:02
Local clock offset: 2.073 ms
Remote clock offset: -1.165 ms

# Below is generated by plot.py at 2017-11-30 06:55:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.13 Mbit/s
95th percentile per-packet one-way delay: 1779.793 ms
Loss rate: 40.65%
-- Flow 1:
Average throughput: 2.13 Mbit/s
95th percentile per-packet one-way delay: 1779.793 ms
Loss rate: 40.65%
```

Run 1: Report of PCC — Data Link

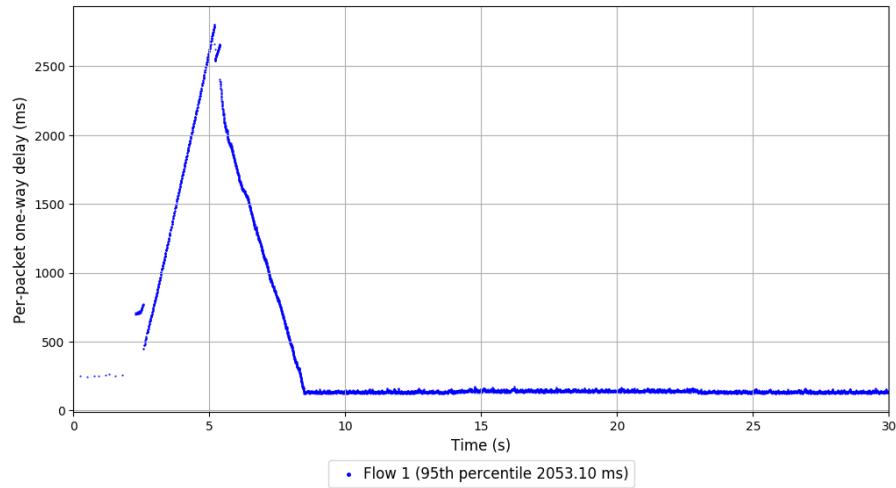
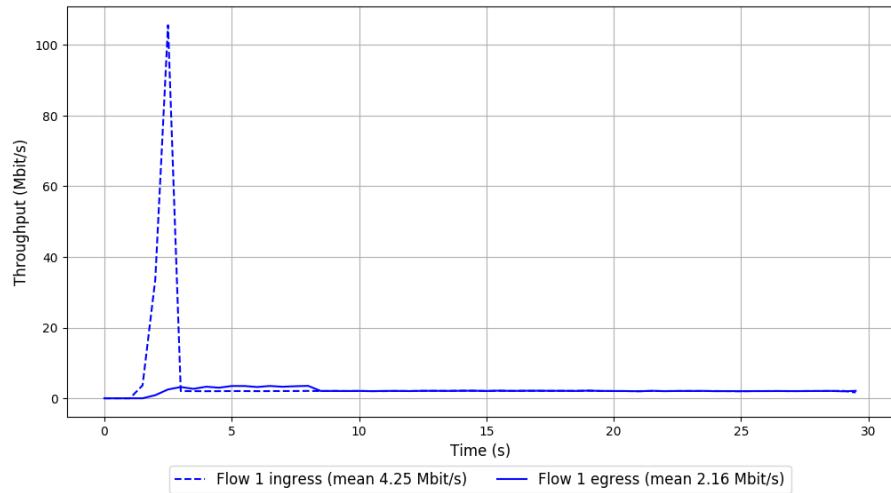


Run 2: Statistics of PCC

```
Start at: 2017-11-30 06:34:58
End at: 2017-11-30 06:35:28
Local clock offset: 0.95 ms
Remote clock offset: -1.022 ms

# Below is generated by plot.py at 2017-11-30 06:55:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.16 Mbit/s
95th percentile per-packet one-way delay: 2053.103 ms
Loss rate: 49.39%
-- Flow 1:
Average throughput: 2.16 Mbit/s
95th percentile per-packet one-way delay: 2053.103 ms
Loss rate: 49.39%
```

Run 2: Report of PCC — Data Link

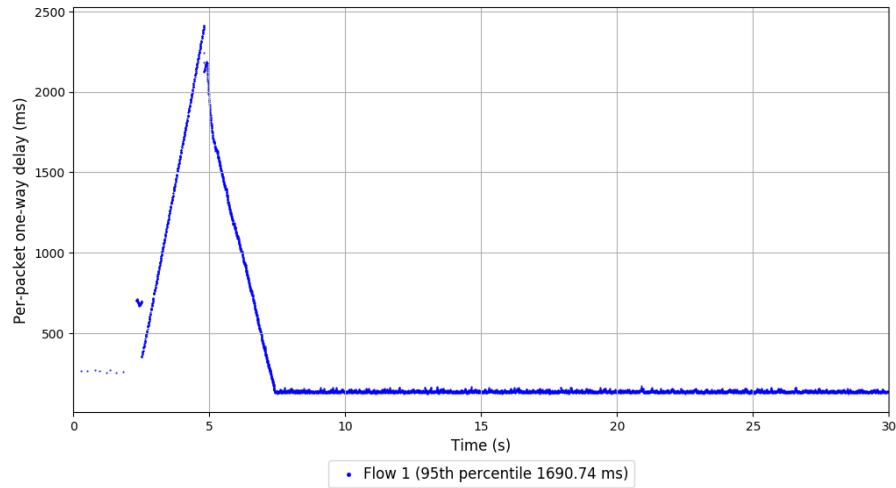
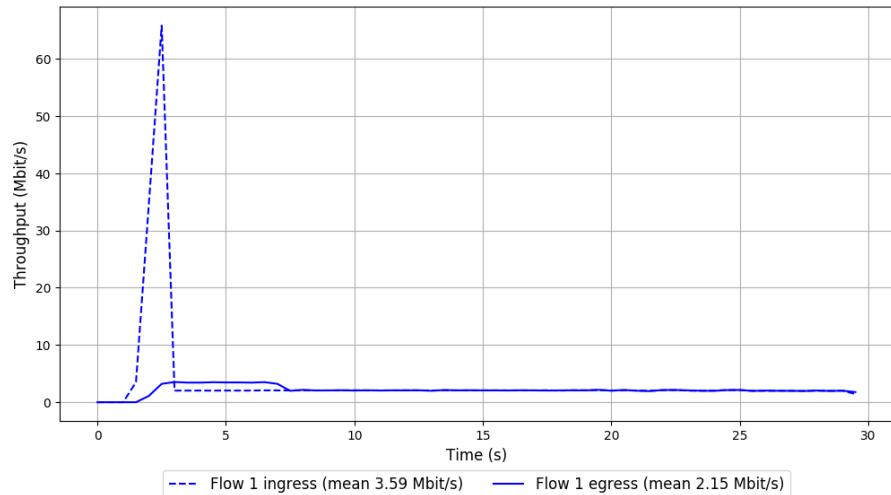


Run 3: Statistics of PCC

```
Start at: 2017-11-30 06:51:24
End at: 2017-11-30 06:51:54
Local clock offset: 1.081 ms
Remote clock offset: -1.839 ms

# Below is generated by plot.py at 2017-11-30 06:55:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.15 Mbit/s
95th percentile per-packet one-way delay: 1690.741 ms
Loss rate: 40.44%
-- Flow 1:
Average throughput: 2.15 Mbit/s
95th percentile per-packet one-way delay: 1690.741 ms
Loss rate: 40.44%
```

Run 3: Report of PCC — Data Link



Run 1: Statistics of QUIC Cubic

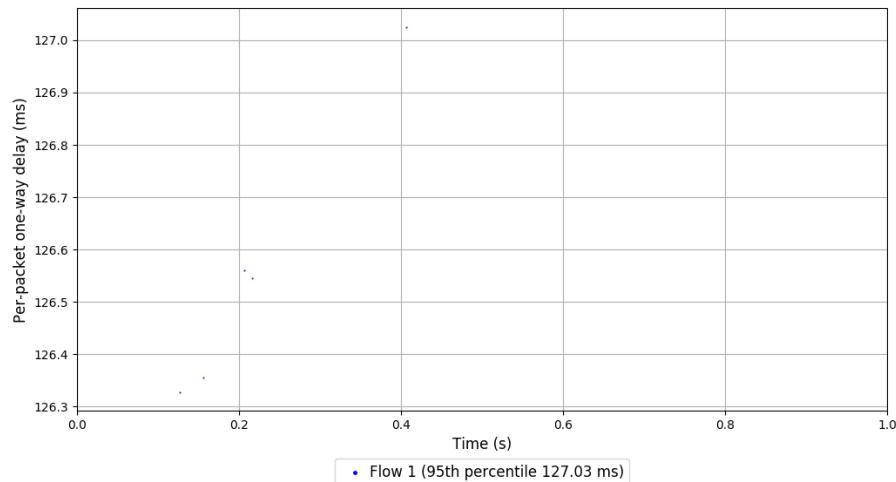
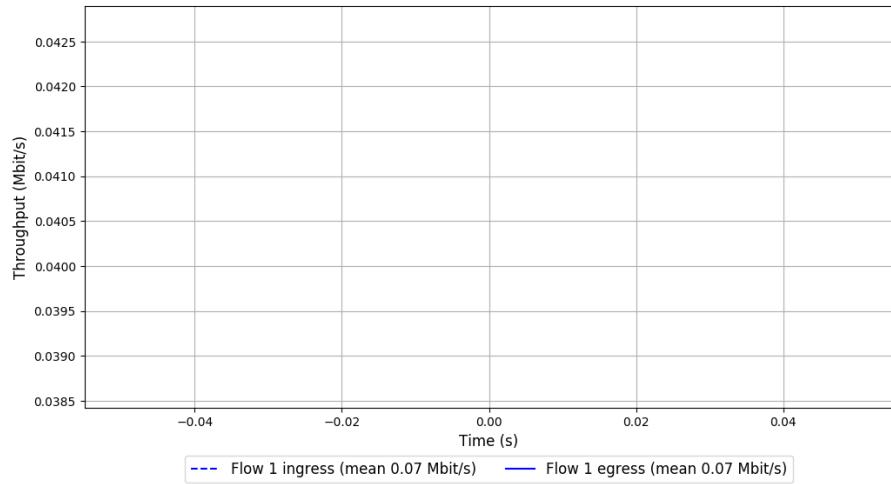
Start at: 2017-11-30 06:17:22

End at: 2017-11-30 06:17:52

Local clock offset: 1.966 ms

Remote clock offset: -1.959 ms

Run 1: Report of QUIC Cubic — Data Link

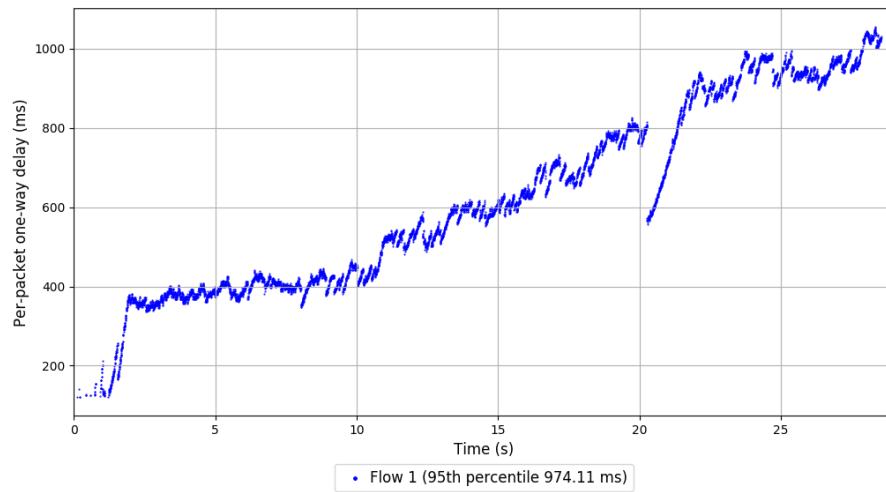
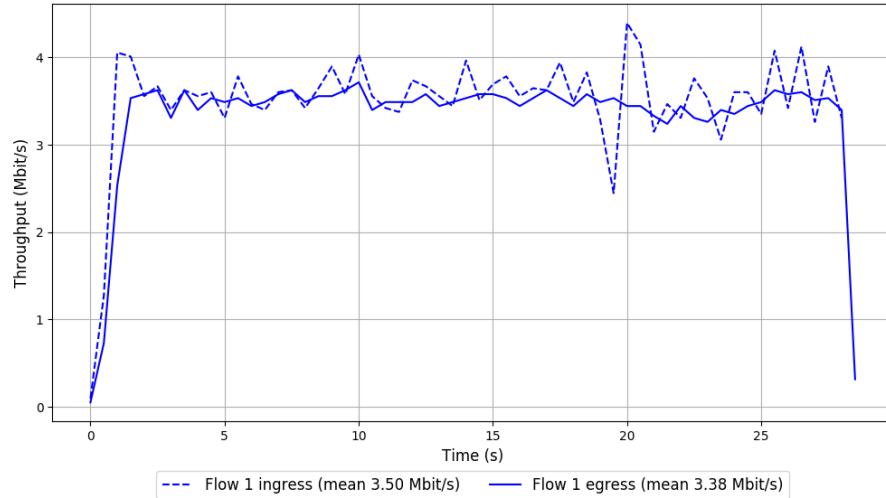


Run 2: Statistics of QUIC Cubic

```
Start at: 2017-11-30 06:33:47
End at: 2017-11-30 06:34:17
Local clock offset: 1.02 ms
Remote clock offset: -2.67 ms

# Below is generated by plot.py at 2017-11-30 06:55:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.38 Mbit/s
95th percentile per-packet one-way delay: 974.114 ms
Loss rate: 3.54%
-- Flow 1:
Average throughput: 3.38 Mbit/s
95th percentile per-packet one-way delay: 974.114 ms
Loss rate: 3.54%
```

Run 2: Report of QUIC Cubic — Data Link

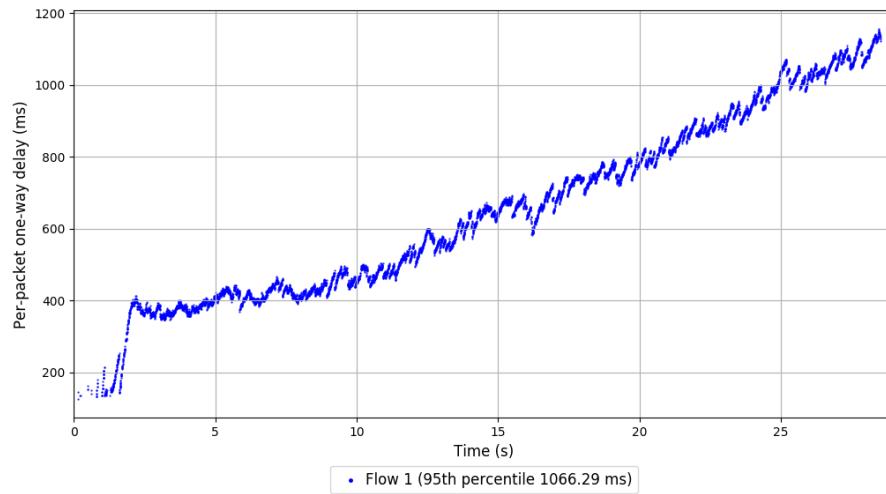
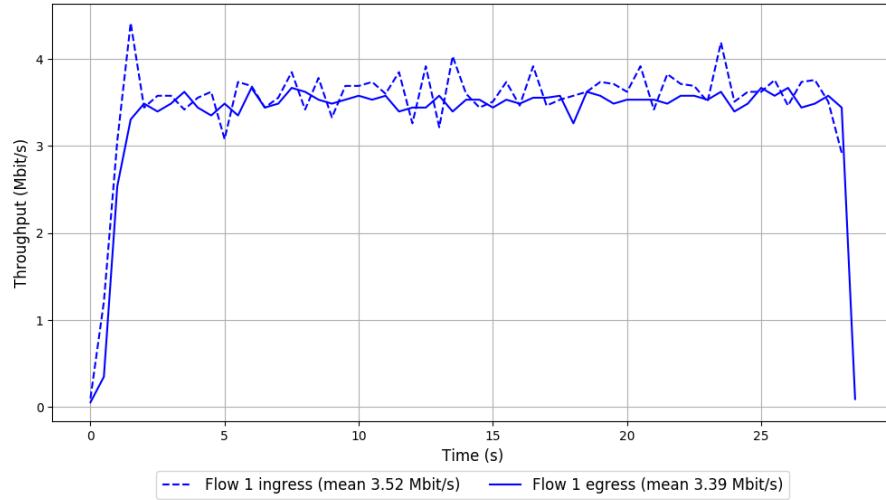


```
Run 3: Statistics of QUIC Cubic
```

```
Start at: 2017-11-30 06:50:14
End at: 2017-11-30 06:50:44
Local clock offset: 1.092 ms
Remote clock offset: -2.124 ms

# Below is generated by plot.py at 2017-11-30 06:55:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.39 Mbit/s
95th percentile per-packet one-way delay: 1066.287 ms
Loss rate: 3.66%
-- Flow 1:
Average throughput: 3.39 Mbit/s
95th percentile per-packet one-way delay: 1066.287 ms
Loss rate: 3.66%
```

Run 3: Report of QUIC Cubic — Data Link

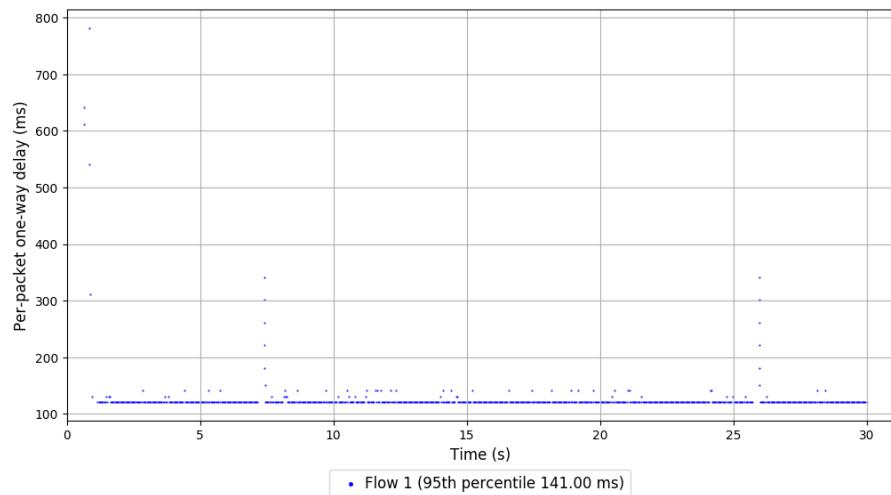
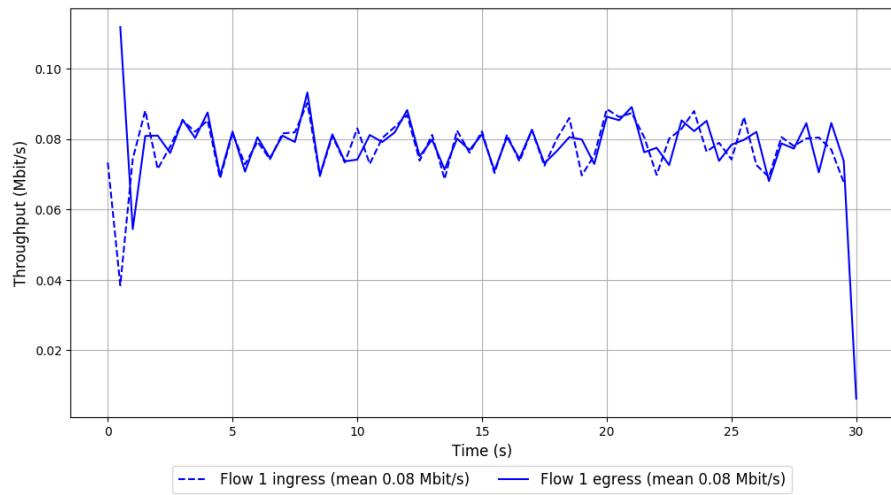


```
Run 1: Statistics of SCReAM
```

```
Start at: 2017-11-30 06:05:38
End at: 2017-11-30 06:06:08
Local clock offset: 1.313 ms
Remote clock offset: -6.253 ms

# Below is generated by plot.py at 2017-11-30 06:55:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 140.999 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 140.999 ms
Loss rate: 0.13%
```

Run 1: Report of SCReAM — Data Link

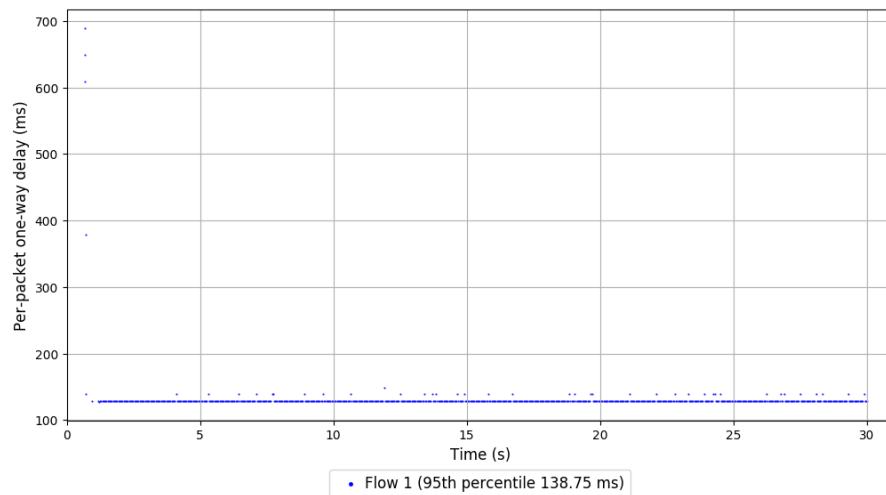
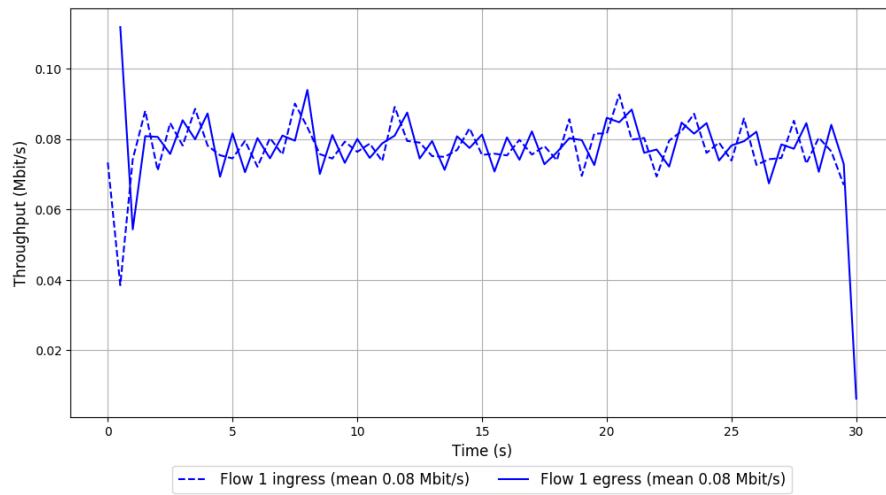


Run 2: Statistics of SCReAM

```
Start at: 2017-11-30 06:22:04
End at: 2017-11-30 06:22:34
Local clock offset: 1.583 ms
Remote clock offset: -1.28 ms

# Below is generated by plot.py at 2017-11-30 06:55:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 138.755 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 138.755 ms
Loss rate: 0.13%
```

Run 2: Report of SCReAM — Data Link

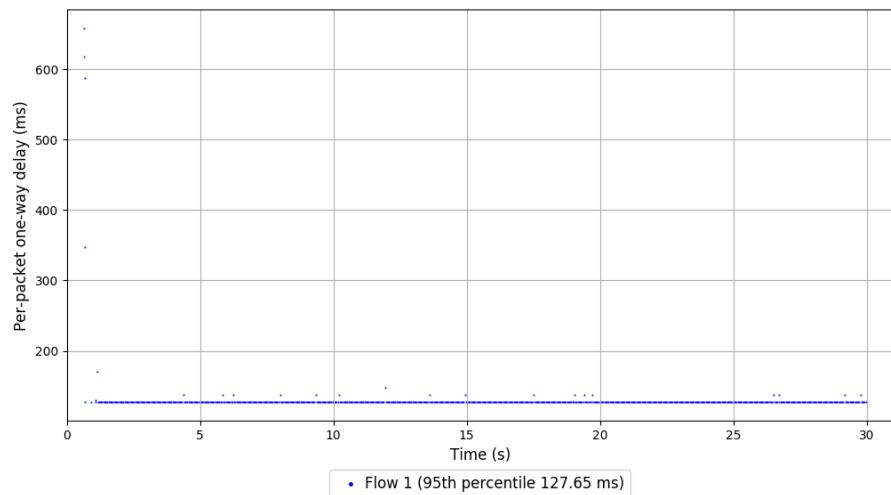
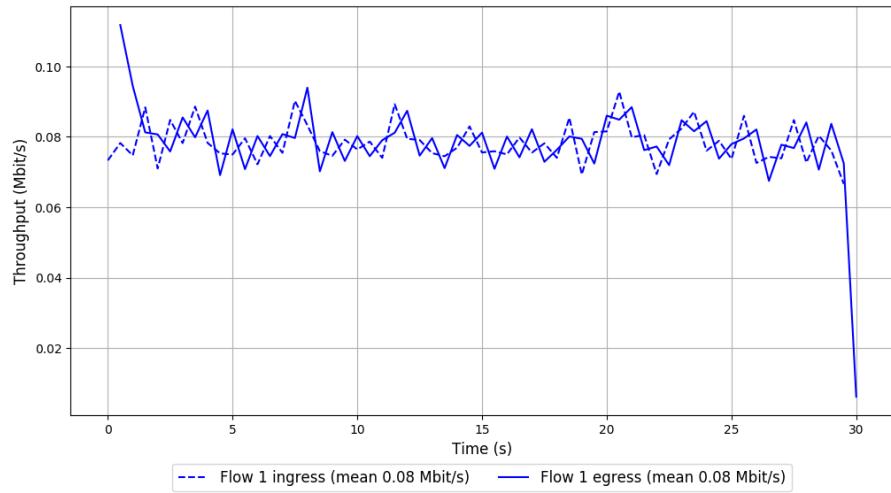


Run 3: Statistics of SCReAM

```
Start at: 2017-11-30 06:38:30
End at: 2017-11-30 06:39:00
Local clock offset: 1.017 ms
Remote clock offset: -2.448 ms

# Below is generated by plot.py at 2017-11-30 06:55:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 127.653 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 127.653 ms
Loss rate: 0.13%
```

Run 3: Report of SCReAM — Data Link

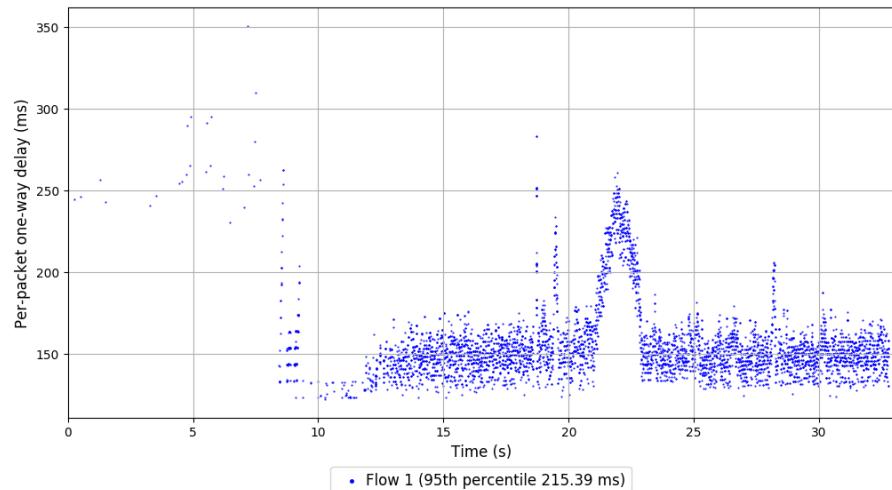
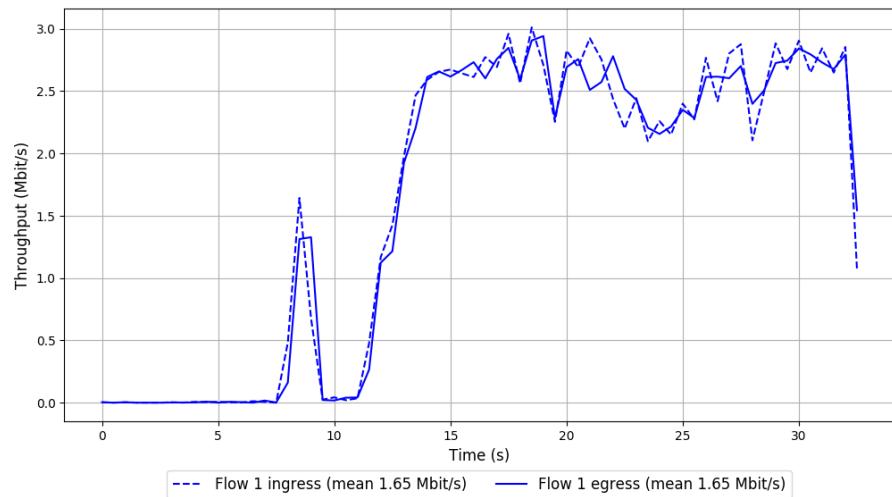


```
Run 1: Statistics of WebRTC media

Start at: 2017-11-30 06:19:42
End at: 2017-11-30 06:20:12
Local clock offset: 1.942 ms
Remote clock offset: -1.262 ms

# Below is generated by plot.py at 2017-11-30 06:55:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.65 Mbit/s
95th percentile per-packet one-way delay: 215.386 ms
Loss rate: 0.36%
-- Flow 1:
Average throughput: 1.65 Mbit/s
95th percentile per-packet one-way delay: 215.386 ms
Loss rate: 0.36%
```

Run 1: Report of WebRTC media — Data Link

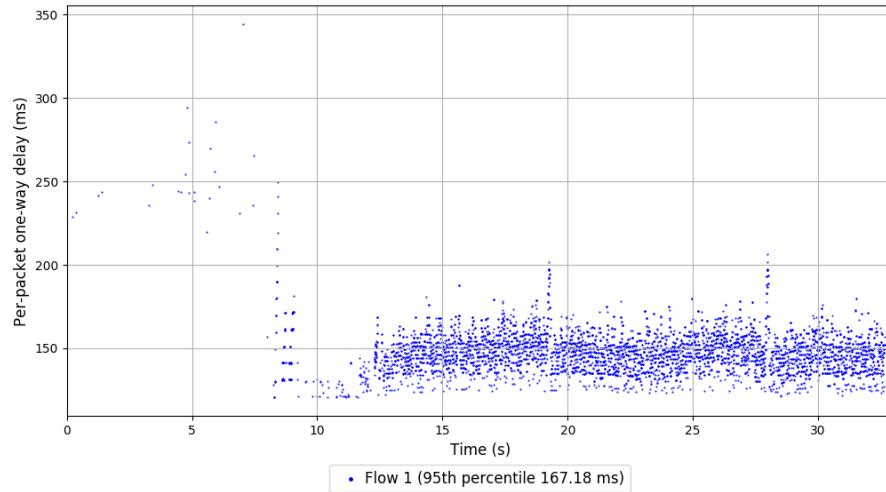
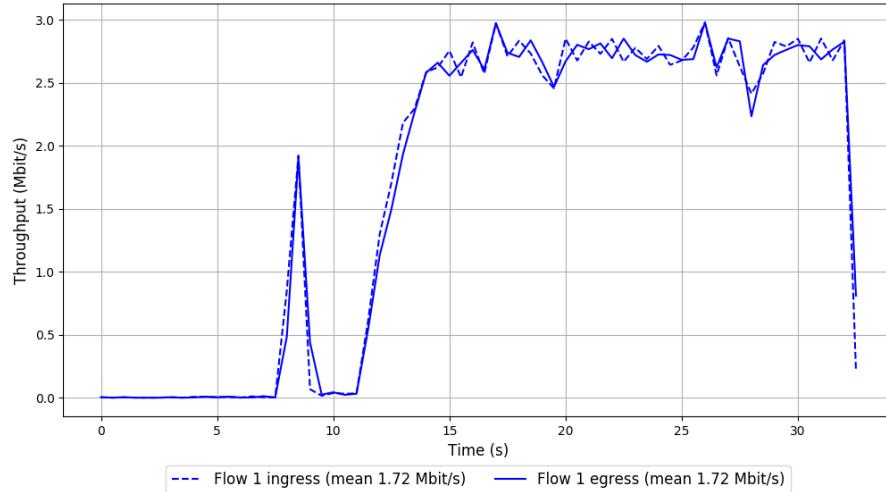


Run 2: Statistics of WebRTC media

```
Start at: 2017-11-30 06:36:09
End at: 2017-11-30 06:36:39
Local clock offset: 0.963 ms
Remote clock offset: -0.996 ms

# Below is generated by plot.py at 2017-11-30 06:55:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.72 Mbit/s
95th percentile per-packet one-way delay: 167.180 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 1.72 Mbit/s
95th percentile per-packet one-way delay: 167.180 ms
Loss rate: 0.23%
```

Run 2: Report of WebRTC media — Data Link

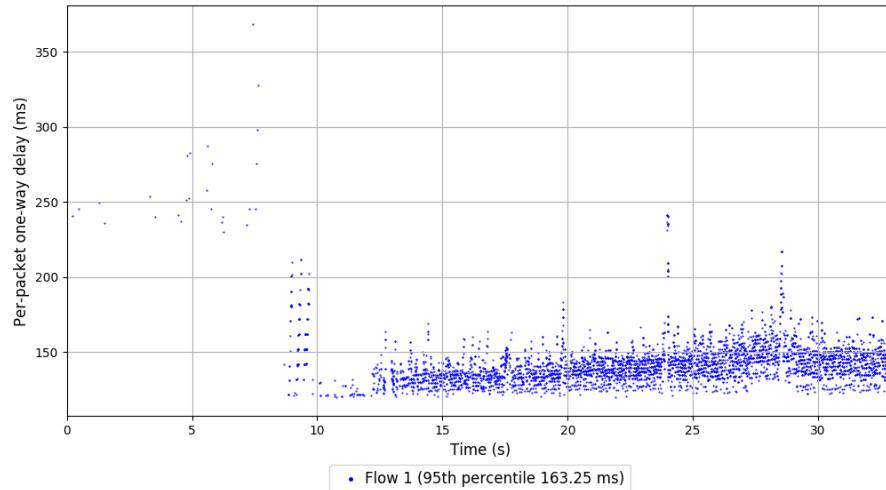
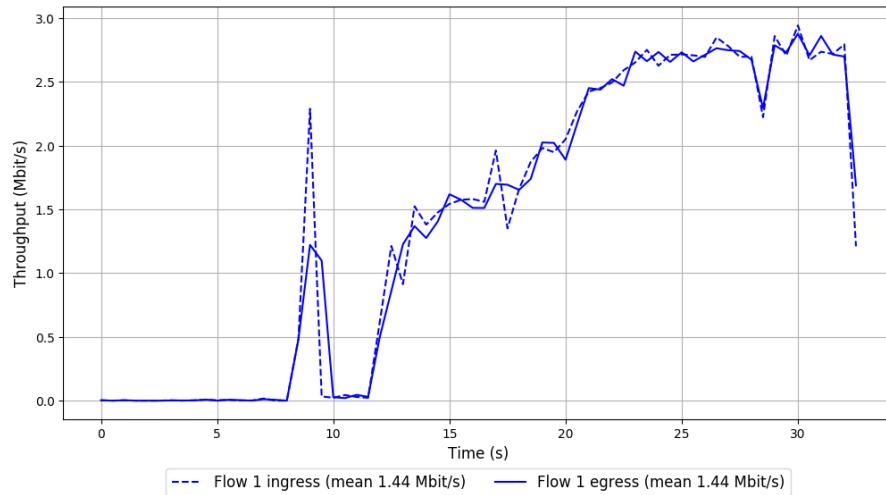


```
Run 3: Statistics of WebRTC media

Start at: 2017-11-30 06:52:35
End at: 2017-11-30 06:53:05
Local clock offset: 1.049 ms
Remote clock offset: -2.373 ms

# Below is generated by plot.py at 2017-11-30 06:55:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.44 Mbit/s
95th percentile per-packet one-way delay: 163.253 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 1.44 Mbit/s
95th percentile per-packet one-way delay: 163.253 ms
Loss rate: 0.40%
```

Run 3: Report of WebRTC media — Data Link

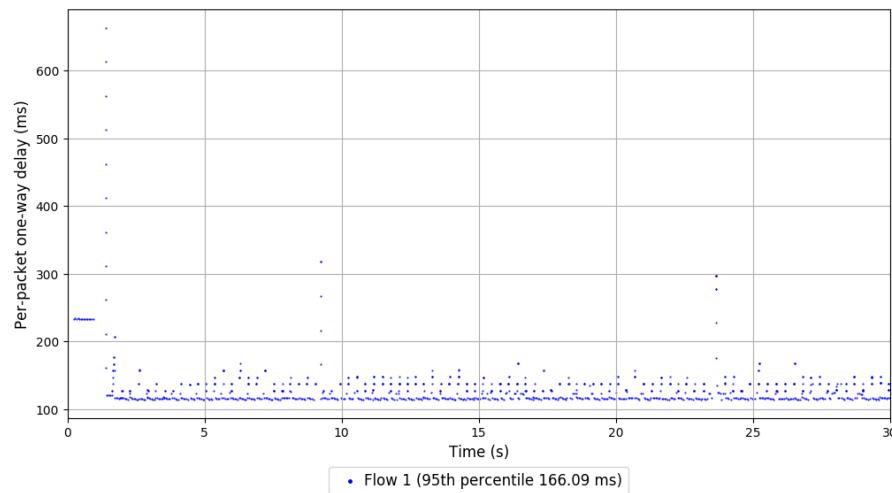
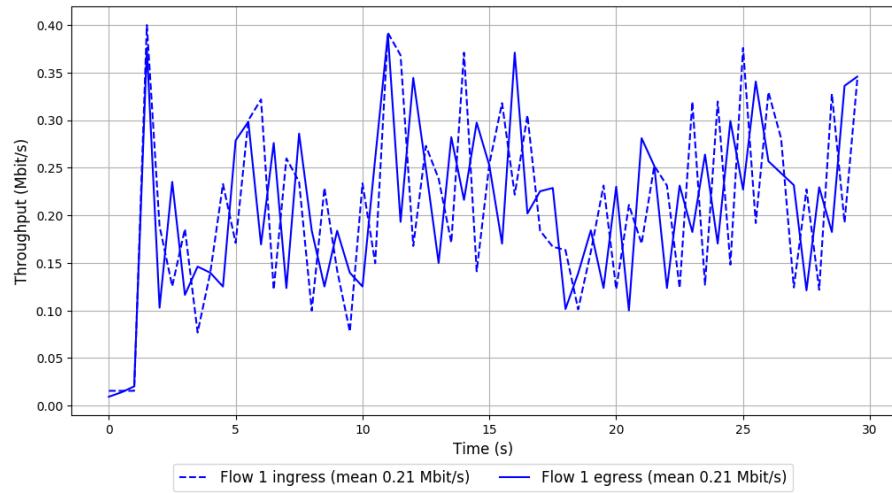


Run 1: Statistics of Sprout

```
Start at: 2017-11-30 06:16:11
End at: 2017-11-30 06:16:41
Local clock offset: 1.864 ms
Remote clock offset: -6.824 ms

# Below is generated by plot.py at 2017-11-30 06:55:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 166.091 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 166.091 ms
Loss rate: 0.01%
```

Run 1: Report of Sprout — Data Link

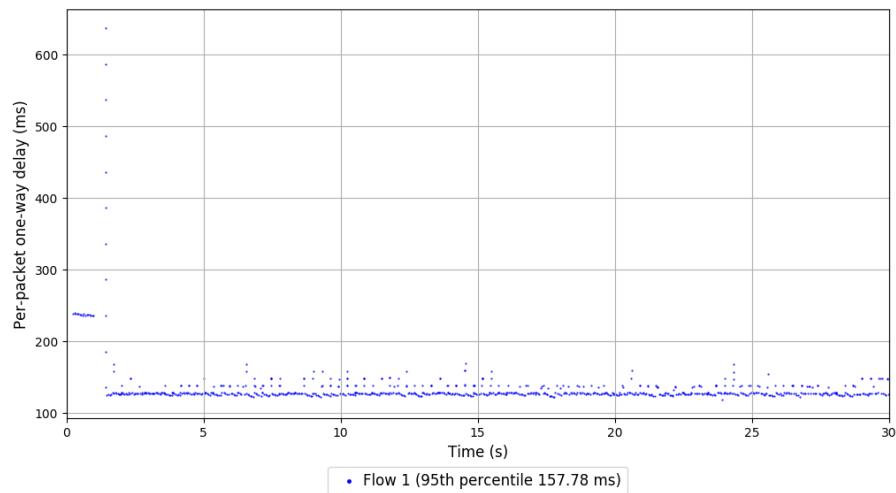
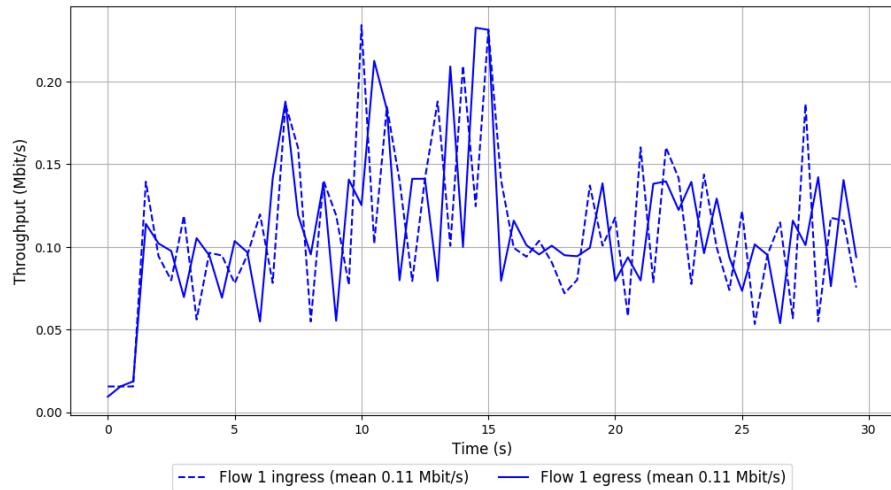


Run 2: Statistics of Sprout

```
Start at: 2017-11-30 06:32:37
End at: 2017-11-30 06:33:07
Local clock offset: 0.957 ms
Remote clock offset: -1.456 ms

# Below is generated by plot.py at 2017-11-30 06:55:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 157.776 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 157.776 ms
Loss rate: 0.02%
```

Run 2: Report of Sprout — Data Link

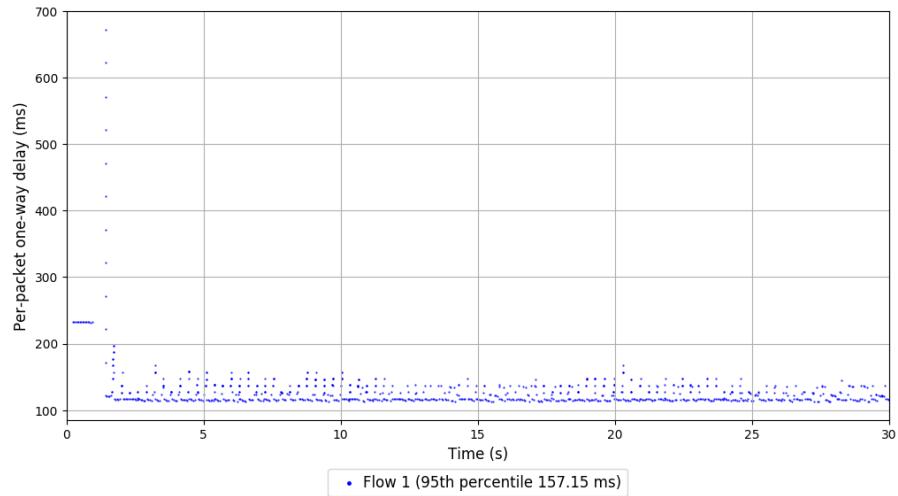
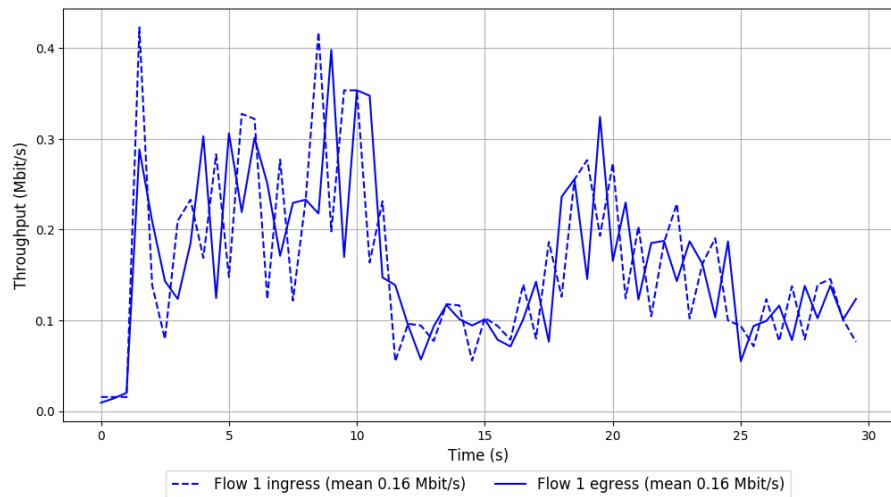


Run 3: Statistics of Sprout

```
Start at: 2017-11-30 06:49:03
End at: 2017-11-30 06:49:33
Local clock offset: 1.011 ms
Remote clock offset: -6.925 ms

# Below is generated by plot.py at 2017-11-30 06:55:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.16 Mbit/s
95th percentile per-packet one-way delay: 157.153 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 0.16 Mbit/s
95th percentile per-packet one-way delay: 157.153 ms
Loss rate: 0.02%
```

Run 3: Report of Sprout — Data Link

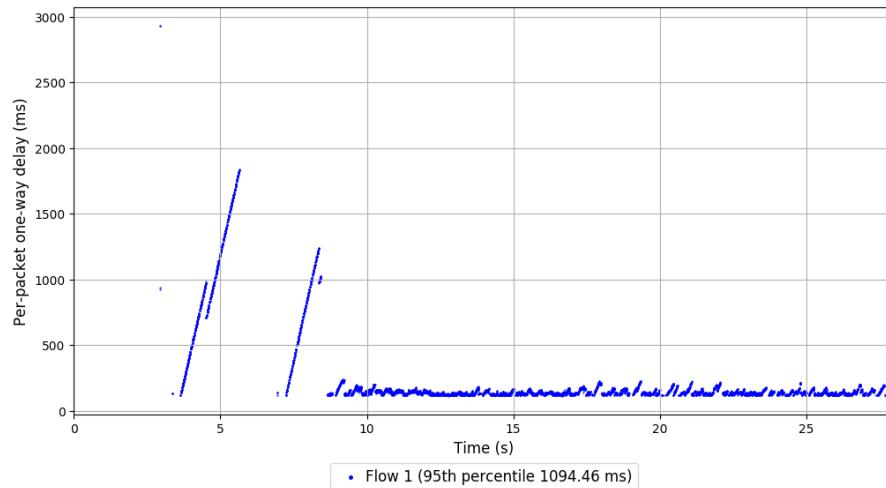
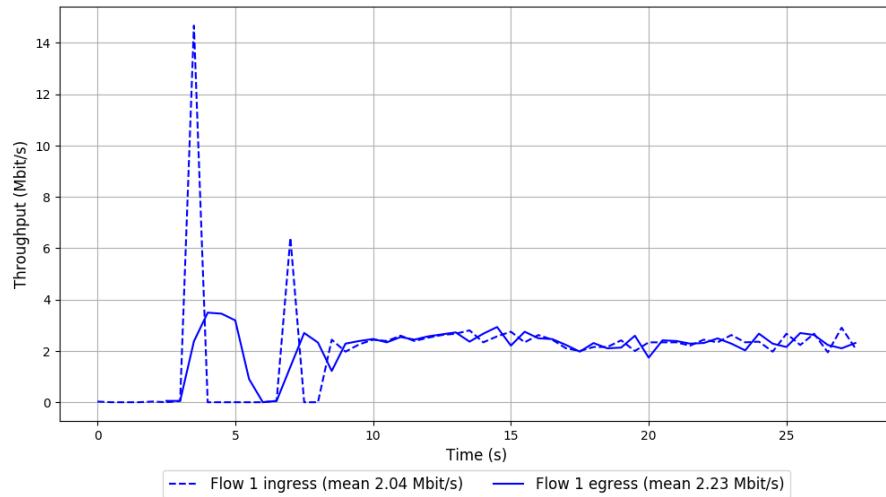


Run 1: Statistics of TaoVA-100x

```
Start at: 2017-11-30 06:15:01
End at: 2017-11-30 06:15:31
Local clock offset: 1.81 ms
Remote clock offset: -6.73 ms

# Below is generated by plot.py at 2017-11-30 06:55:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.23 Mbit/s
95th percentile per-packet one-way delay: 1094.465 ms
Loss rate: 1.93%
-- Flow 1:
Average throughput: 2.23 Mbit/s
95th percentile per-packet one-way delay: 1094.465 ms
Loss rate: 1.93%
```

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

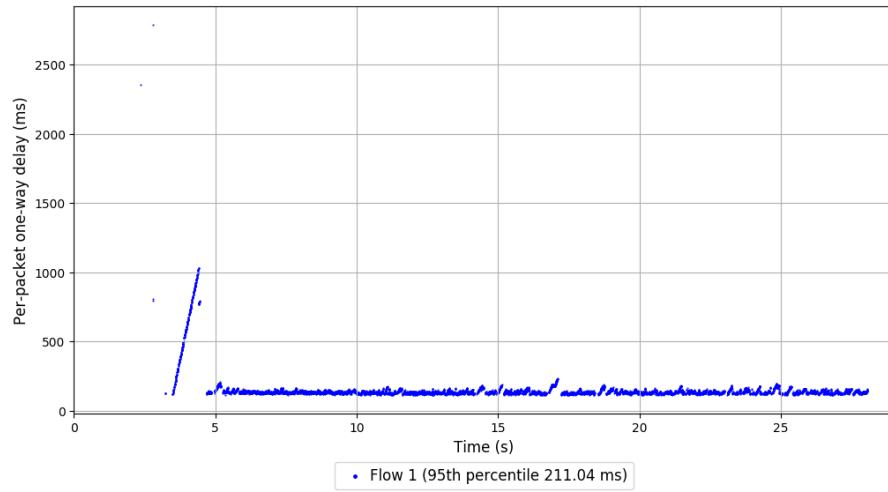
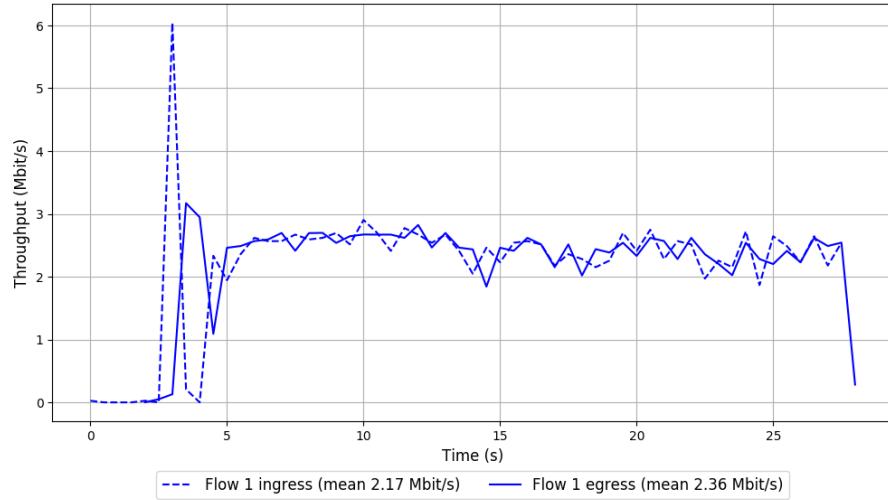


Run 2: Statistics of TaoVA-100x

```
Start at: 2017-11-30 06:31:27
End at: 2017-11-30 06:31:57
Local clock offset: 1.038 ms
Remote clock offset: -7.167 ms

# Below is generated by plot.py at 2017-11-30 06:55:26
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.36 Mbit/s
95th percentile per-packet one-way delay: 211.038 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 2.36 Mbit/s
95th percentile per-packet one-way delay: 211.038 ms
Loss rate: 0.13%
```

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

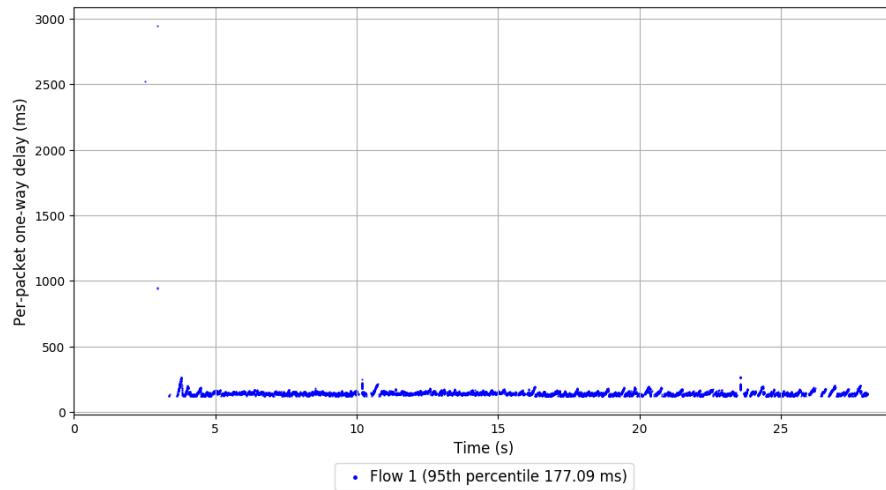
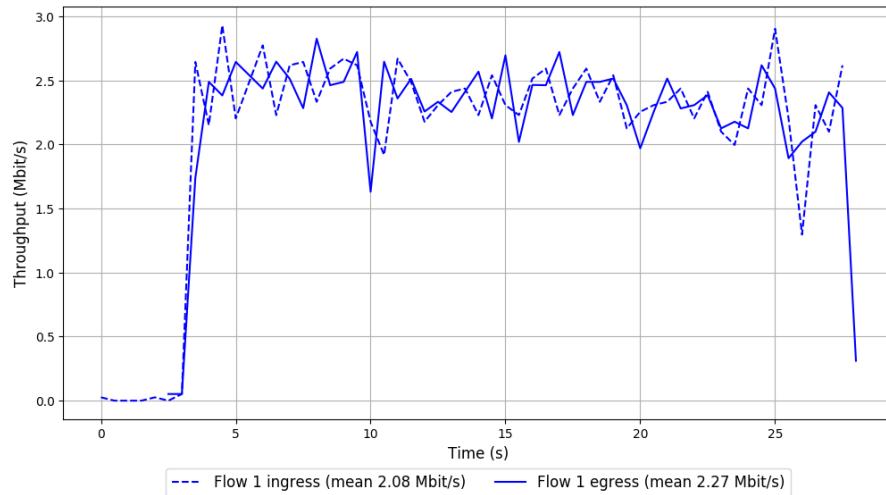


Run 3: Statistics of TaoVA-100x

```
Start at: 2017-11-30 06:47:53
End at: 2017-11-30 06:48:23
Local clock offset: 1.075 ms
Remote clock offset: -1.8 ms

# Below is generated by plot.py at 2017-11-30 06:55:27
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.27 Mbit/s
95th percentile per-packet one-way delay: 177.094 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 2.27 Mbit/s
95th percentile per-packet one-way delay: 177.094 ms
Loss rate: 0.35%
```

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

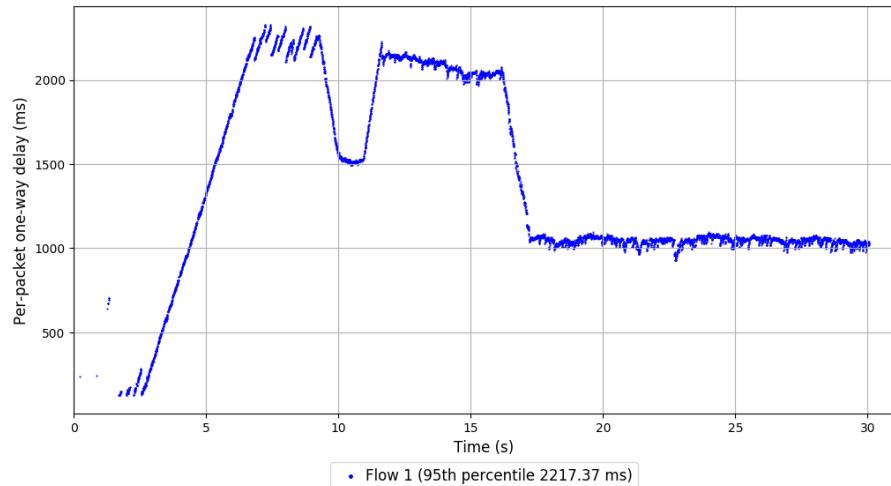
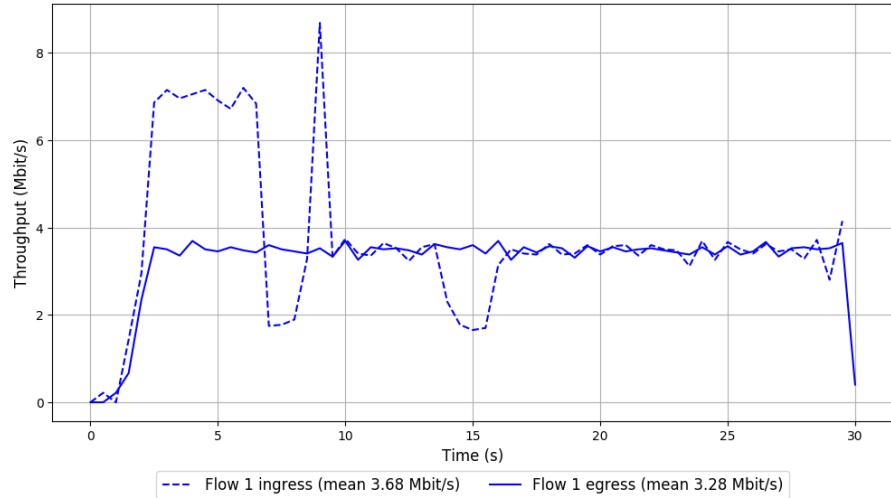


Run 1: Statistics of TCP Vegas

```
Start at: 2017-11-30 06:12:40
End at: 2017-11-30 06:13:10
Local clock offset: 1.664 ms
Remote clock offset: -6.383 ms

# Below is generated by plot.py at 2017-11-30 06:55:27
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.28 Mbit/s
95th percentile per-packet one-way delay: 2217.369 ms
Loss rate: 11.30%
-- Flow 1:
Average throughput: 3.28 Mbit/s
95th percentile per-packet one-way delay: 2217.369 ms
Loss rate: 11.30%
```

Run 1: Report of TCP Vegas — Data Link

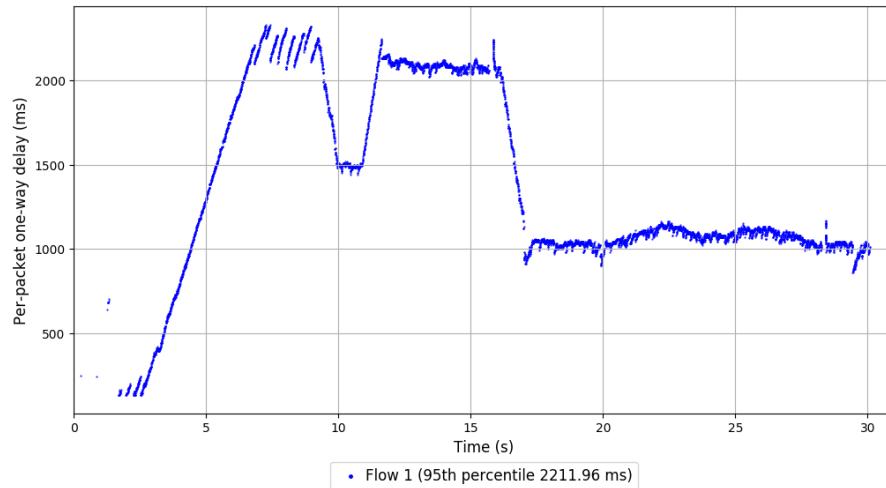
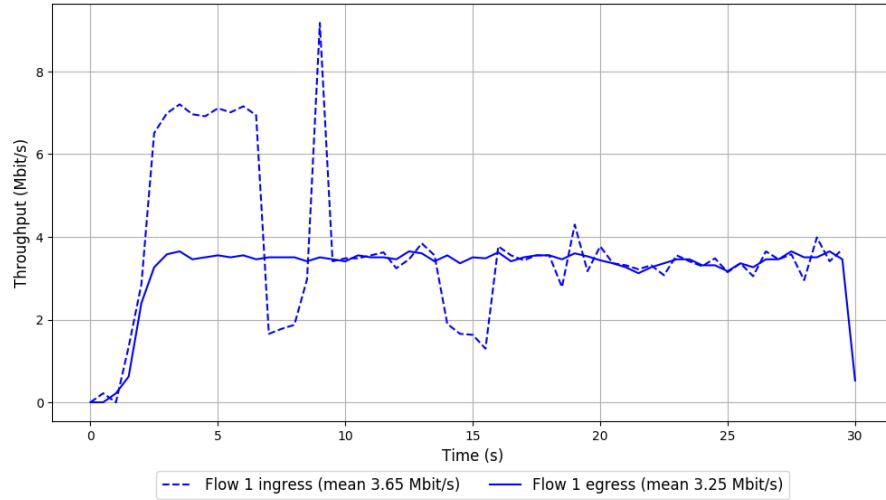


Run 2: Statistics of TCP Vegas

```
Start at: 2017-11-30 06:29:05
End at: 2017-11-30 06:29:36
Local clock offset: 1.127 ms
Remote clock offset: -0.894 ms

# Below is generated by plot.py at 2017-11-30 06:55:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.25 Mbit/s
95th percentile per-packet one-way delay: 2211.964 ms
Loss rate: 11.29%
-- Flow 1:
Average throughput: 3.25 Mbit/s
95th percentile per-packet one-way delay: 2211.964 ms
Loss rate: 11.29%
```

Run 2: Report of TCP Vegas — Data Link

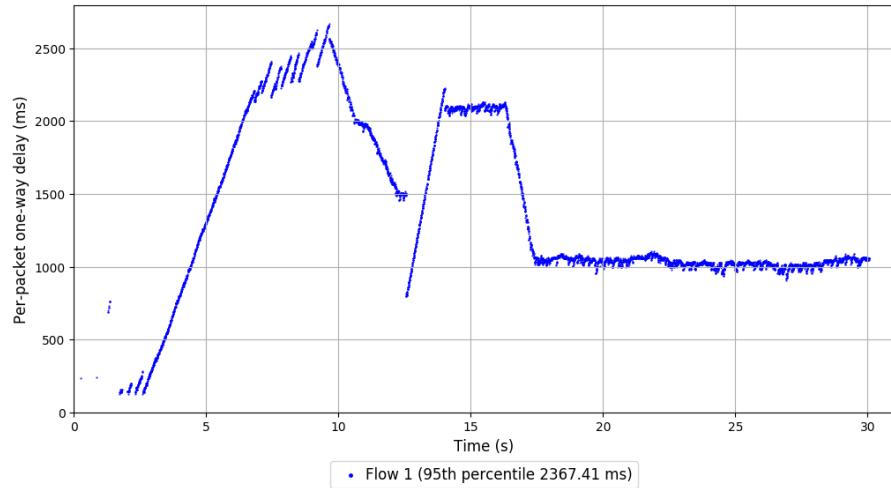
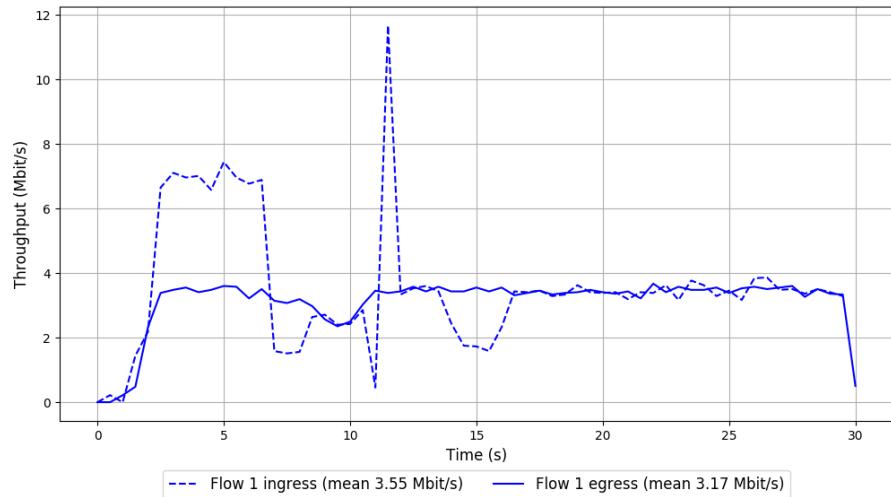


Run 3: Statistics of TCP Vegas

```
Start at: 2017-11-30 06:45:32
End at: 2017-11-30 06:46:02
Local clock offset: 1.032 ms
Remote clock offset: -1.789 ms

# Below is generated by plot.py at 2017-11-30 06:55:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.17 Mbit/s
95th percentile per-packet one-way delay: 2367.411 ms
Loss rate: 11.30%
-- Flow 1:
Average throughput: 3.17 Mbit/s
95th percentile per-packet one-way delay: 2367.411 ms
Loss rate: 11.30%
```

Run 3: Report of TCP Vegas — Data Link

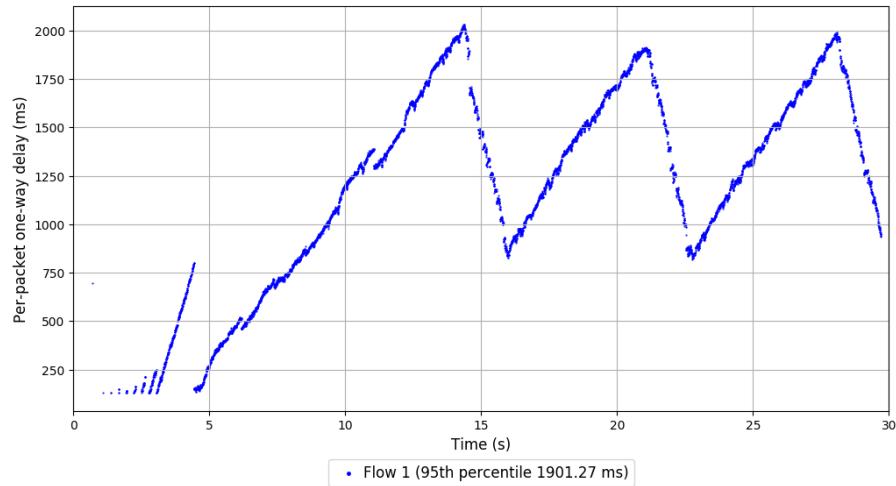
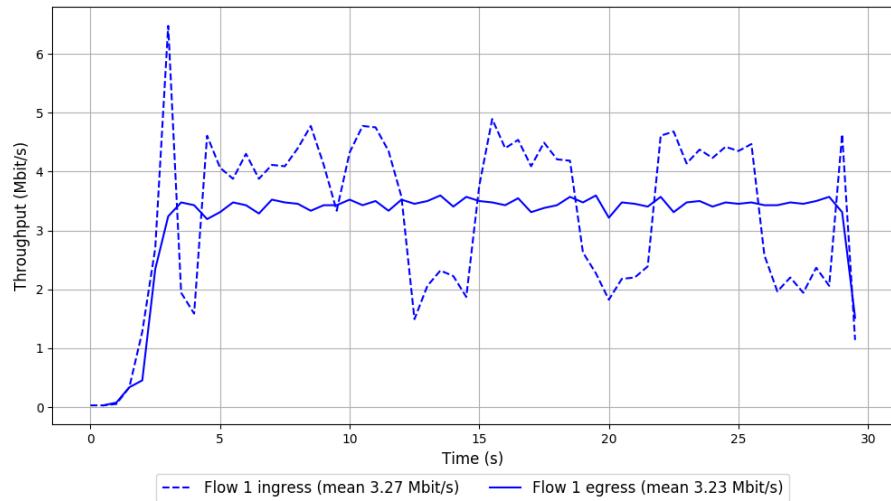


```
Run 1: Statistics of Verus
```

```
Start at: 2017-11-30 06:07:58
End at: 2017-11-30 06:08:28
Local clock offset: 1.319 ms
Remote clock offset: -0.606 ms

# Below is generated by plot.py at 2017-11-30 06:55:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.23 Mbit/s
95th percentile per-packet one-way delay: 1901.267 ms
Loss rate: 3.49%
-- Flow 1:
Average throughput: 3.23 Mbit/s
95th percentile per-packet one-way delay: 1901.267 ms
Loss rate: 3.49%
```

Run 1: Report of Verus — Data Link

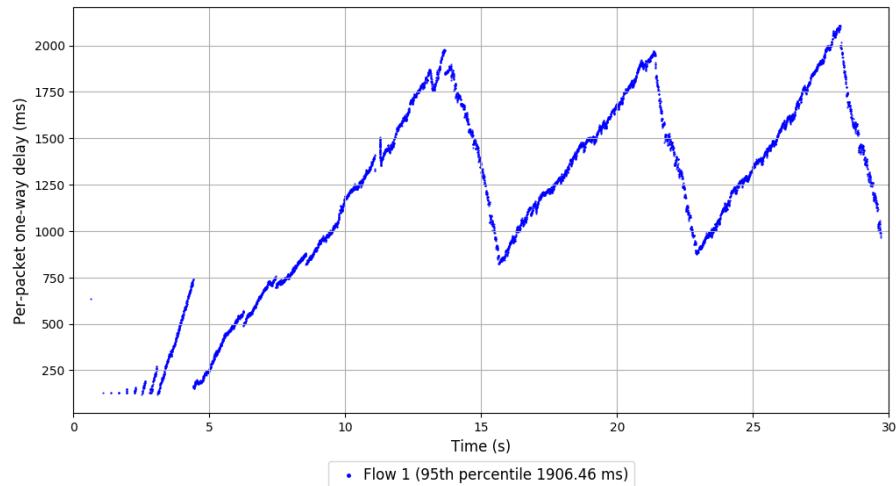
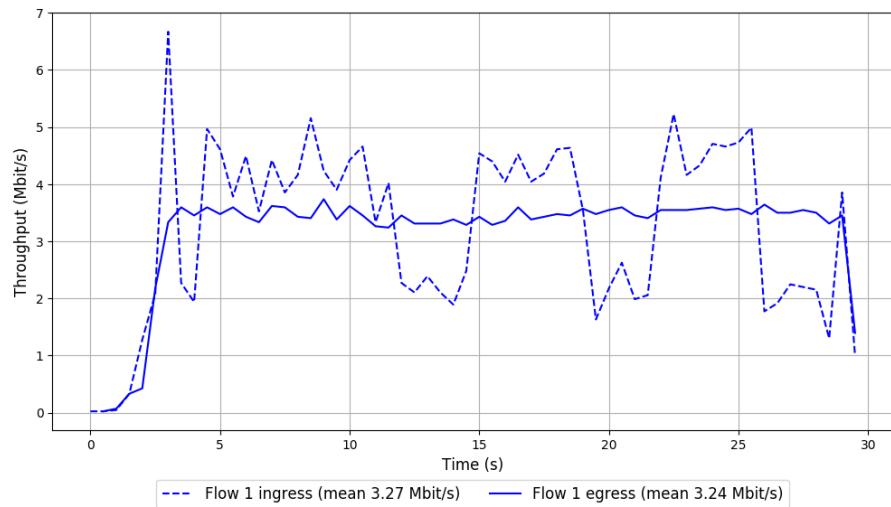


Run 2: Statistics of Verus

```
Start at: 2017-11-30 06:24:24
End at: 2017-11-30 06:24:54
Local clock offset: 1.386 ms
Remote clock offset: -7.315 ms

# Below is generated by plot.py at 2017-11-30 06:55:29
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.24 Mbit/s
95th percentile per-packet one-way delay: 1906.458 ms
Loss rate: 2.82%
-- Flow 1:
Average throughput: 3.24 Mbit/s
95th percentile per-packet one-way delay: 1906.458 ms
Loss rate: 2.82%
```

Run 2: Report of Verus — Data Link

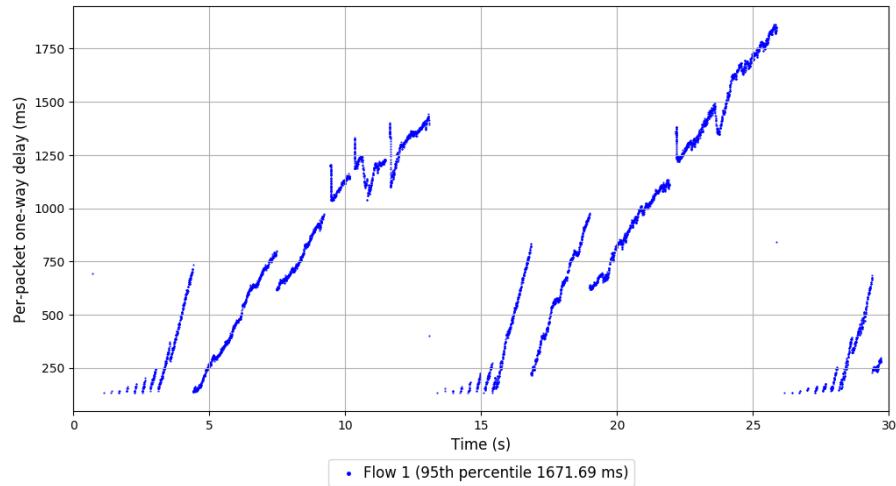
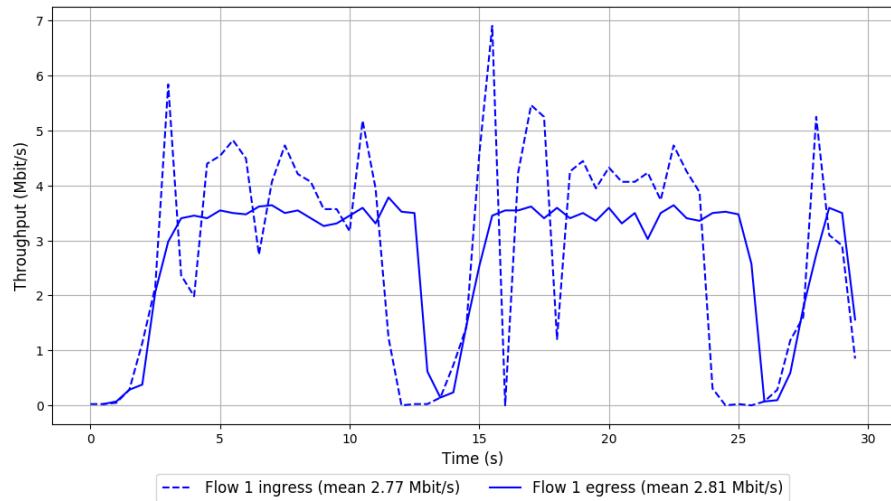


Run 3: Statistics of Verus

```
Start at: 2017-11-30 06:40:51
End at: 2017-11-30 06:41:21
Local clock offset: 1.019 ms
Remote clock offset: -1.647 ms

# Below is generated by plot.py at 2017-11-30 06:55:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.81 Mbit/s
95th percentile per-packet one-way delay: 1671.693 ms
Loss rate: 0.81%
-- Flow 1:
Average throughput: 2.81 Mbit/s
95th percentile per-packet one-way delay: 1671.693 ms
Loss rate: 0.81%
```

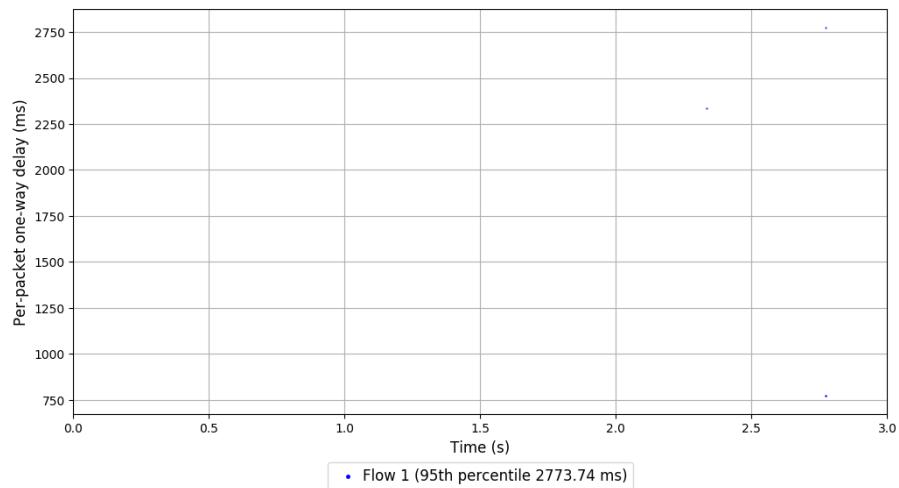
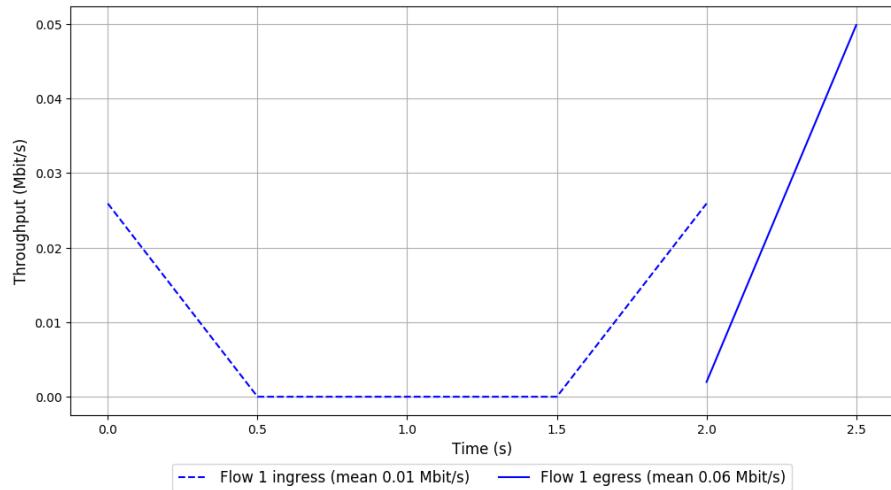
Run 3: Report of Verus — Data Link



Run 1: Statistics of Copa

Start at: 2017-11-30 06:09:09
End at: 2017-11-30 06:09:39
Local clock offset: 1.439 ms
Remote clock offset: -0.957 ms

Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

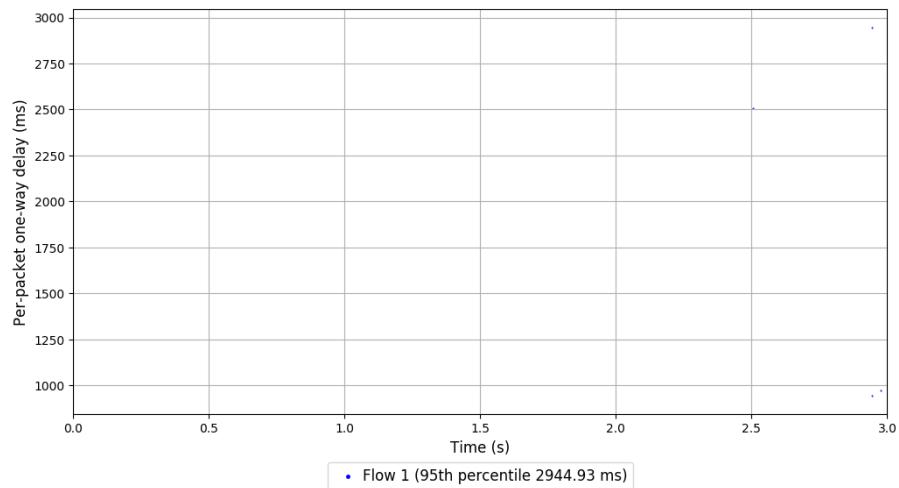
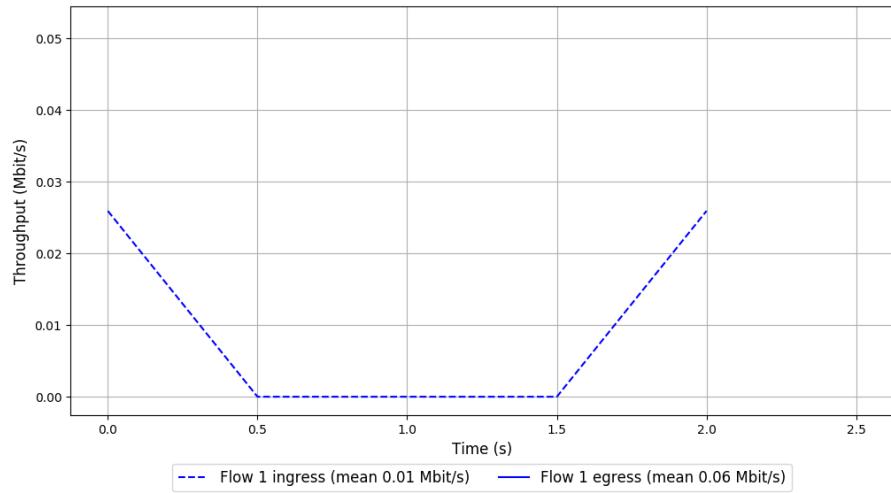
Start at: 2017-11-30 06:25:35

End at: 2017-11-30 06:26:05

Local clock offset: 1.396 ms

Remote clock offset: -1.374 ms

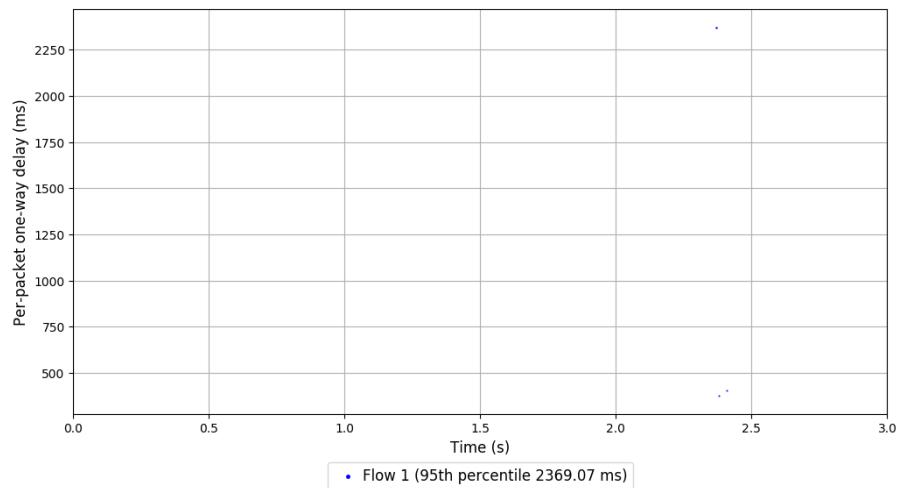
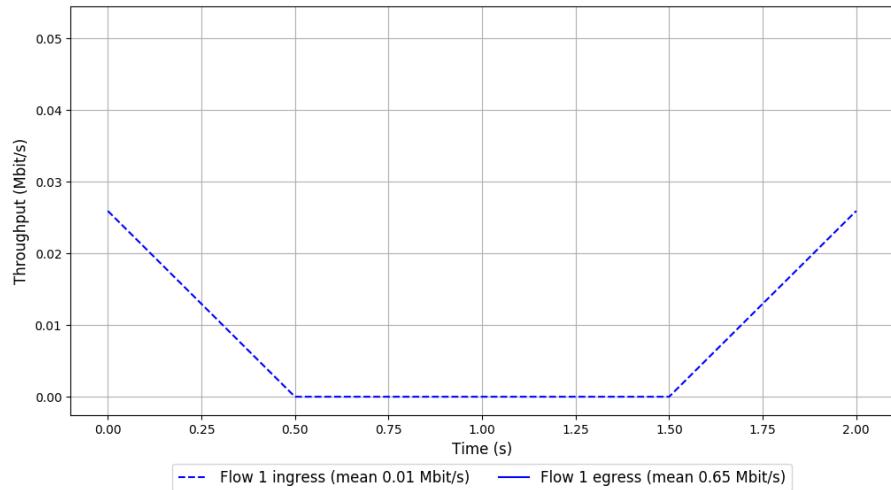
Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

Start at: 2017-11-30 06:42:01
End at: 2017-11-30 06:42:31
Local clock offset: 1.024 ms
Remote clock offset: -6.955 ms

Run 3: Report of Copa — Data Link

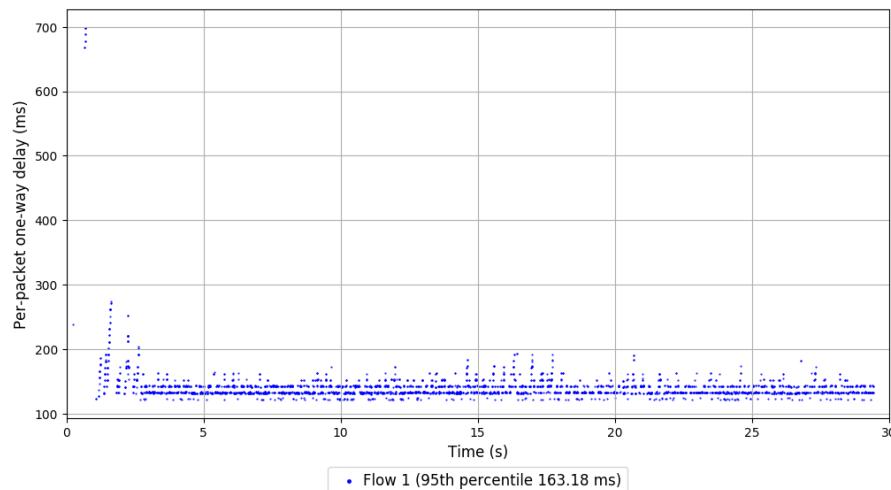
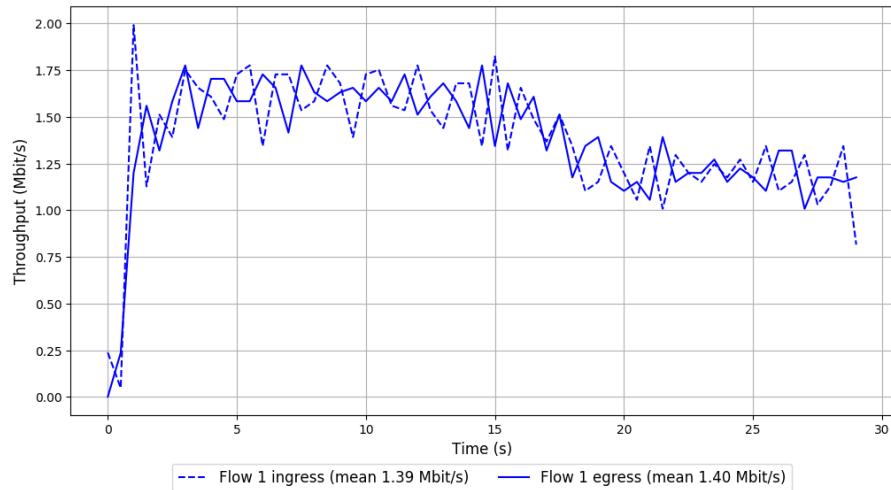


Run 1: Statistics of Indigo

```
Start at: 2017-11-30 06:06:48
End at: 2017-11-30 06:07:18
Local clock offset: 1.337 ms
Remote clock offset: -1.07 ms

# Below is generated by plot.py at 2017-11-30 06:55:34
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.40 Mbit/s
95th percentile per-packet one-way delay: 163.175 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 1.40 Mbit/s
95th percentile per-packet one-way delay: 163.175 ms
Loss rate: 0.12%
```

Run 1: Report of Indigo — Data Link

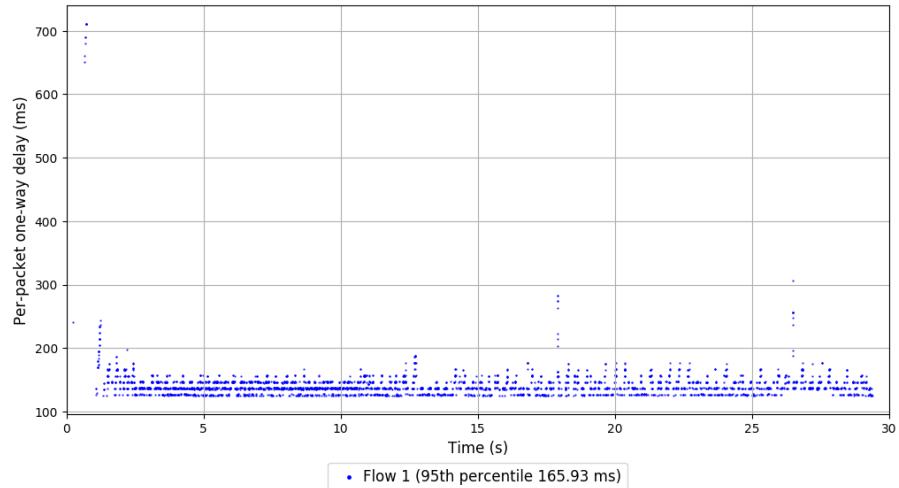
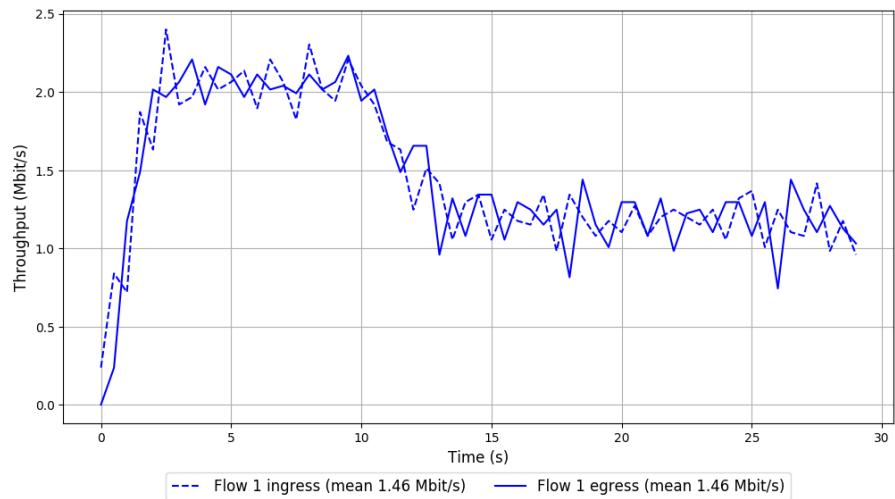


Run 2: Statistics of Indigo

```
Start at: 2017-11-30 06:23:14
End at: 2017-11-30 06:23:44
Local clock offset: 1.571 ms
Remote clock offset: -1.652 ms

# Below is generated by plot.py at 2017-11-30 06:55:34
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.46 Mbit/s
95th percentile per-packet one-way delay: 165.926 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 1.46 Mbit/s
95th percentile per-packet one-way delay: 165.926 ms
Loss rate: 0.25%
```

Run 2: Report of Indigo — Data Link

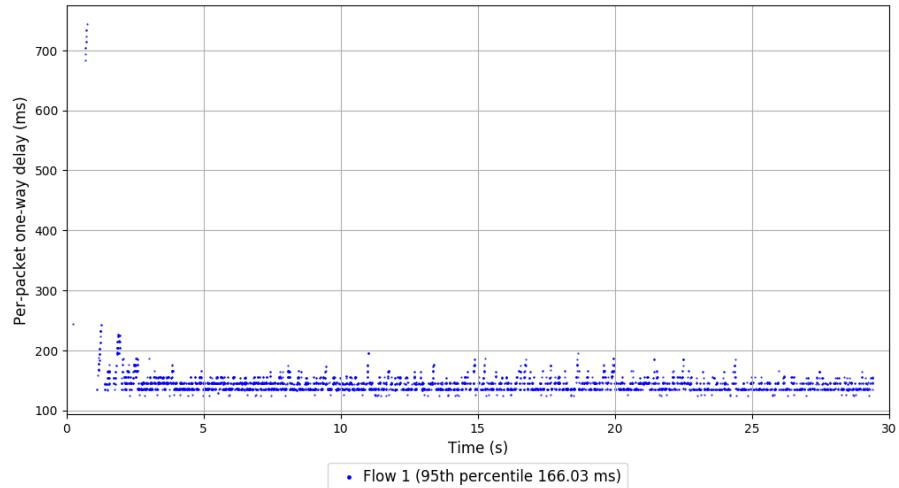
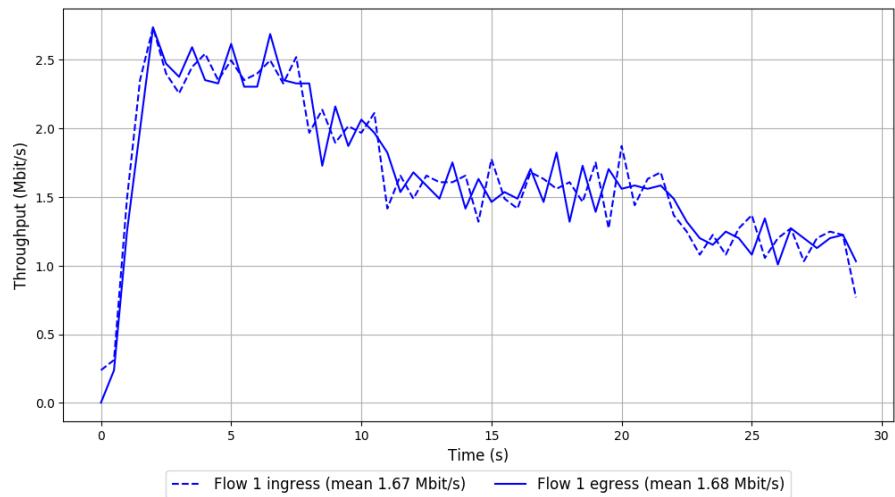


Run 3: Statistics of Indigo

```
Start at: 2017-11-30 06:39:40
End at: 2017-11-30 06:40:10
Local clock offset: 1.008 ms
Remote clock offset: -0.794 ms

# Below is generated by plot.py at 2017-11-30 06:55:34
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.68 Mbit/s
95th percentile per-packet one-way delay: 166.029 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 1.68 Mbit/s
95th percentile per-packet one-way delay: 166.029 ms
Loss rate: 0.17%
```

Run 3: Report of Indigo — Data Link

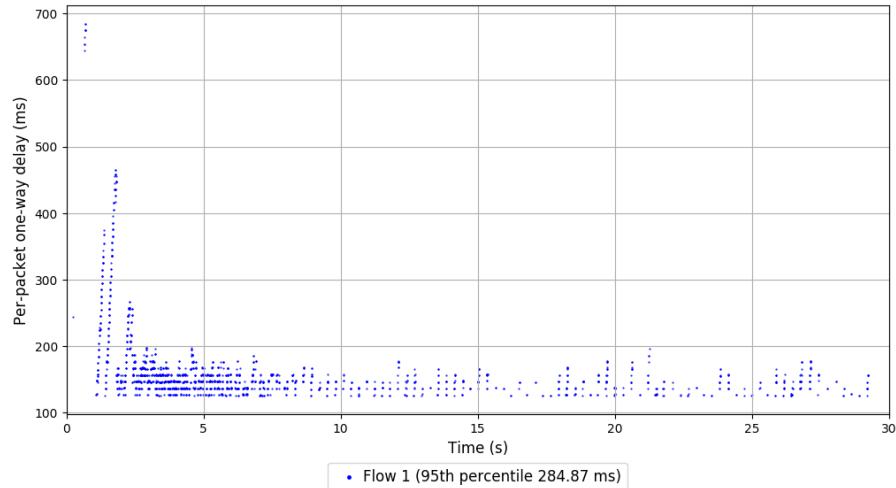
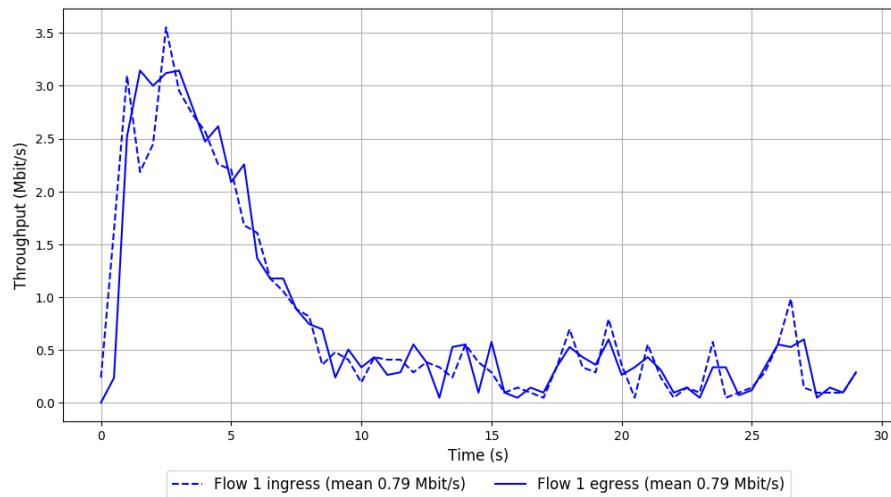


```
Run 1: Statistics of Indigo-calib

Start at: 2017-11-30 06:11:29
End at: 2017-11-30 06:11:59
Local clock offset: 1.575 ms
Remote clock offset: -5.802 ms

# Below is generated by plot.py at 2017-11-30 06:55:34
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.79 Mbit/s
95th percentile per-packet one-way delay: 284.867 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.79 Mbit/s
95th percentile per-packet one-way delay: 284.867 ms
Loss rate: 0.00%
```

Run 1: Report of Indigo-calib — Data Link

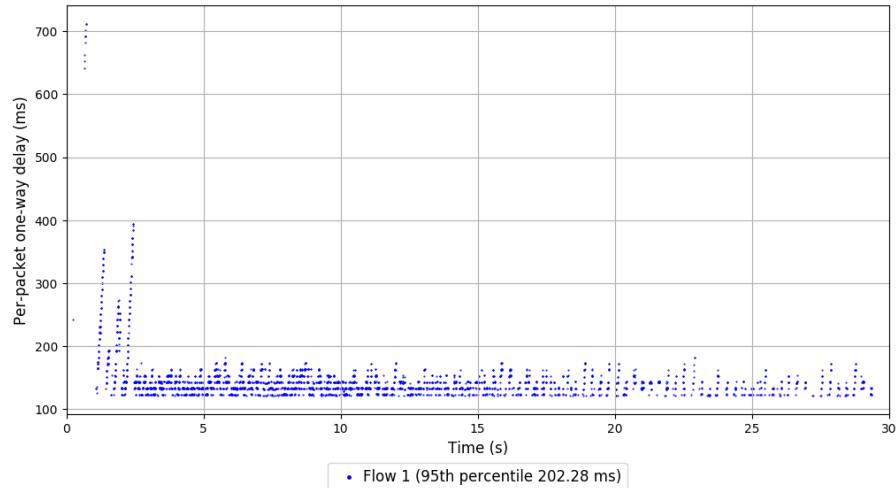
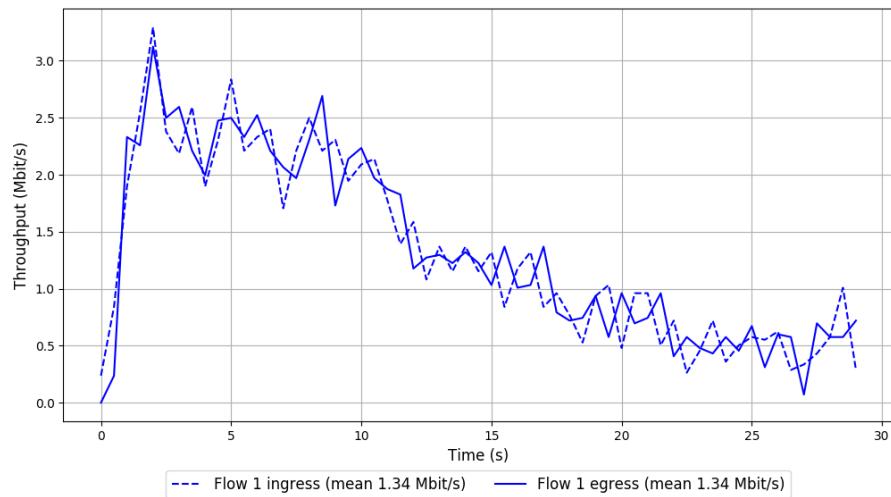


Run 2: Statistics of Indigo-calib

```
Start at: 2017-11-30 06:27:55
End at: 2017-11-30 06:28:25
Local clock offset: 1.184 ms
Remote clock offset: -7.424 ms

# Below is generated by plot.py at 2017-11-30 06:55:34
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.34 Mbit/s
95th percentile per-packet one-way delay: 202.275 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.34 Mbit/s
95th percentile per-packet one-way delay: 202.275 ms
Loss rate: 0.00%
```

Run 2: Report of Indigo-calib — Data Link



Run 3: Statistics of Indigo-calib

```
Start at: 2017-11-30 06:44:22
End at: 2017-11-30 06:44:52
Local clock offset: 1.052 ms
Remote clock offset: -6.47 ms

# Below is generated by plot.py at 2017-11-30 06:55:34
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 215.285 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 215.285 ms
Loss rate: 0.00%
```

Run 3: Report of Indigo-calib — Data Link

