

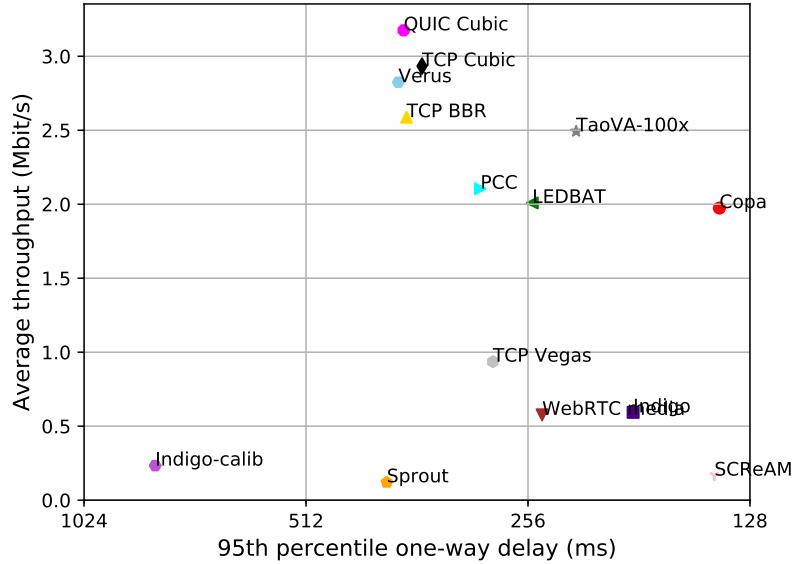
Pantheon Report

Generated at 2017-12-11 08:59:19 (UTC).
Data path: China ppp0 (*remote*) → AWS Korea Ethernet (*local*).
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 `ntp.nict.jp` and have been applied to correct the timestamps in logs.

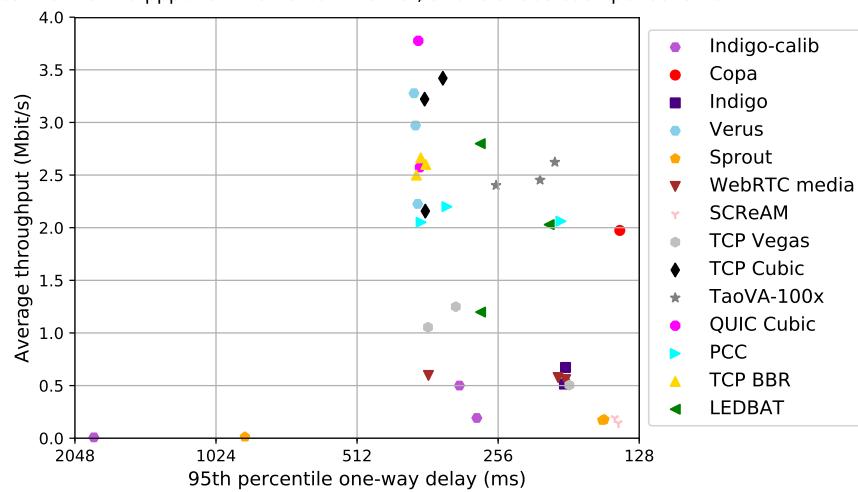
Git summary:

```
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 China ppp0 to AWS Korea Ethernet, 3 runs of 30s each per scheme
(mean of all runs by scheme)



test from China ppp0 to AWS Korea Ethernet, 3 runs of 30s each per scheme



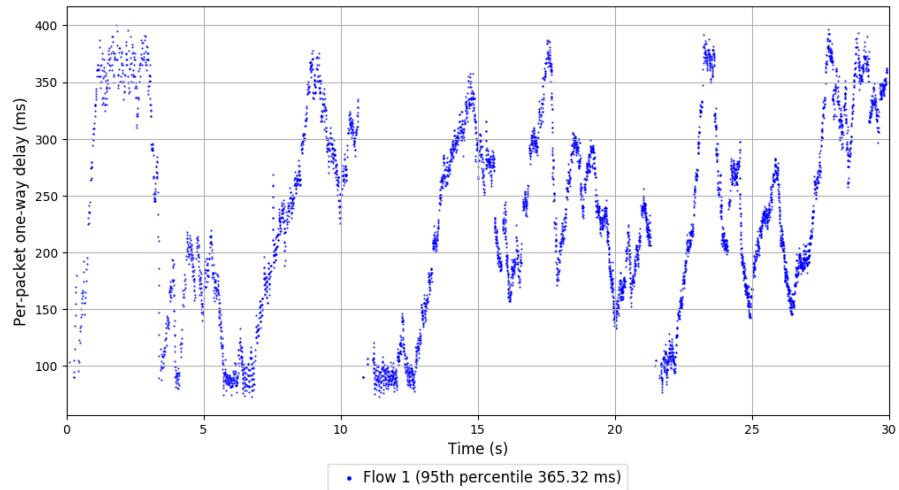
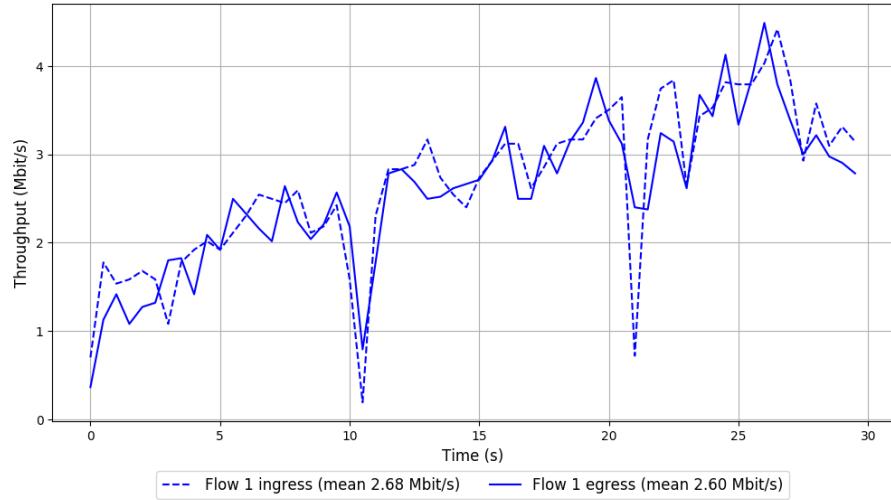
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	2.59	374.08	5.83
TCP Cubic	3	2.93	356.45	2.49
LEDBAT	3	2.01	252.62	1.03
PCC	3	2.10	297.02	21.05
QUIC Cubic	2	3.17	377.47	5.36
SCReAM	2	0.17	143.04	0.36
WebRTC media	3	0.58	244.99	1.42
Sprout	3	0.12	397.83	20.42
TaoVA-100x	3	2.49	220.26	2.81
TCP Vegas	3	0.93	285.66	3.27
Verus	3	2.83	383.78	39.95
Copa	1	1.97	140.83	0.42
Indigo	2	0.59	184.35	0.84
Indigo-calib	3	0.23	819.94	35.22

Run 1: Statistics of TCP BBR

```
Start at: 2017-12-11 07:35:10
End at: 2017-12-11 07:35:40
Local clock offset: -5.708 ms
Remote clock offset: 1.813 ms

# Below is generated by plot.py at 2017-12-11 08:58:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.60 Mbit/s
95th percentile per-packet one-way delay: 365.317 ms
Loss rate: 3.35%
-- Flow 1:
Average throughput: 2.60 Mbit/s
95th percentile per-packet one-way delay: 365.317 ms
Loss rate: 3.35%
```

Run 1: Report of TCP BBR — Data Link

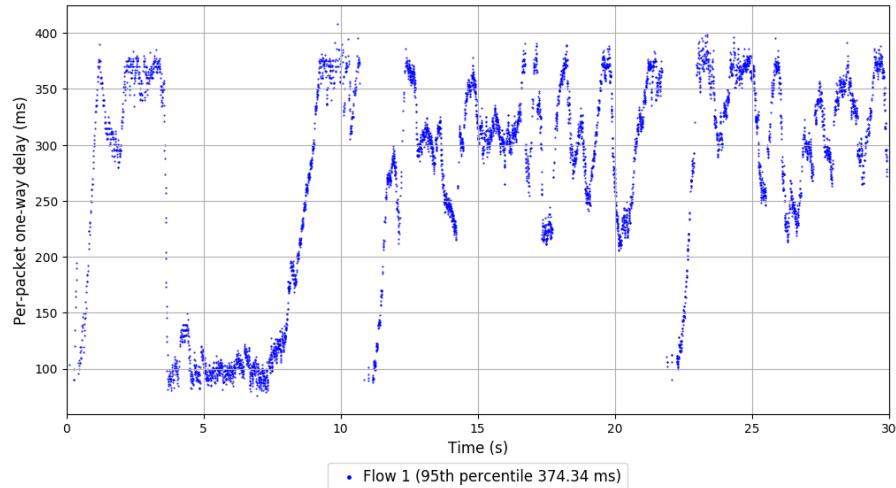
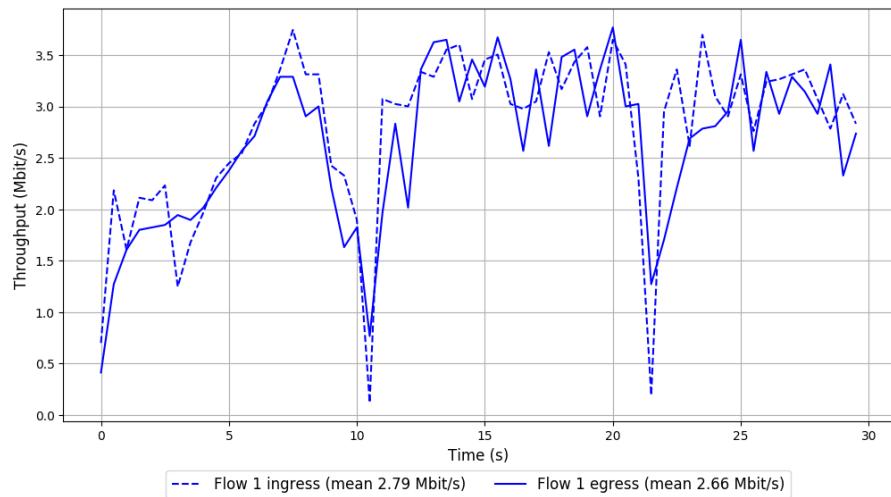


Run 2: Statistics of TCP BBR

```
Start at: 2017-12-11 07:51:20
End at: 2017-12-11 07:51:50
Local clock offset: -9.525 ms
Remote clock offset: 1.513 ms

# Below is generated by plot.py at 2017-12-11 08:58:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.66 Mbit/s
95th percentile per-packet one-way delay: 374.336 ms
Loss rate: 5.01%
-- Flow 1:
Average throughput: 2.66 Mbit/s
95th percentile per-packet one-way delay: 374.336 ms
Loss rate: 5.01%
```

Run 2: Report of TCP BBR — Data Link

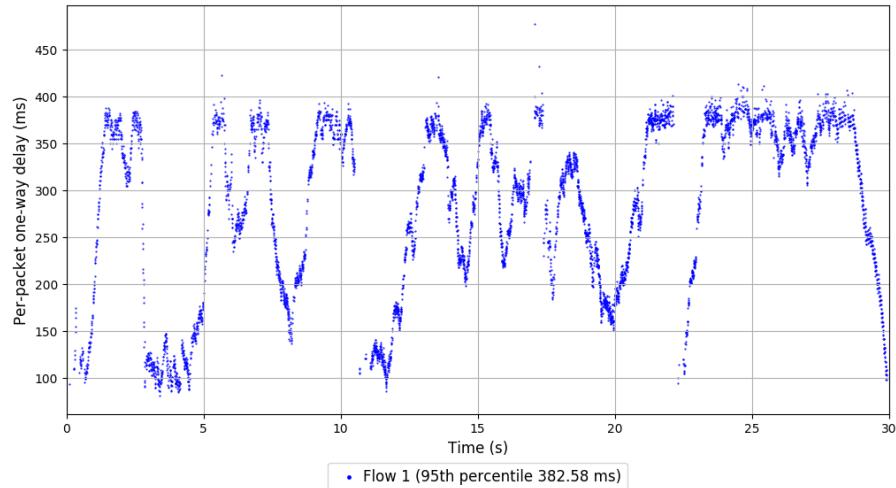
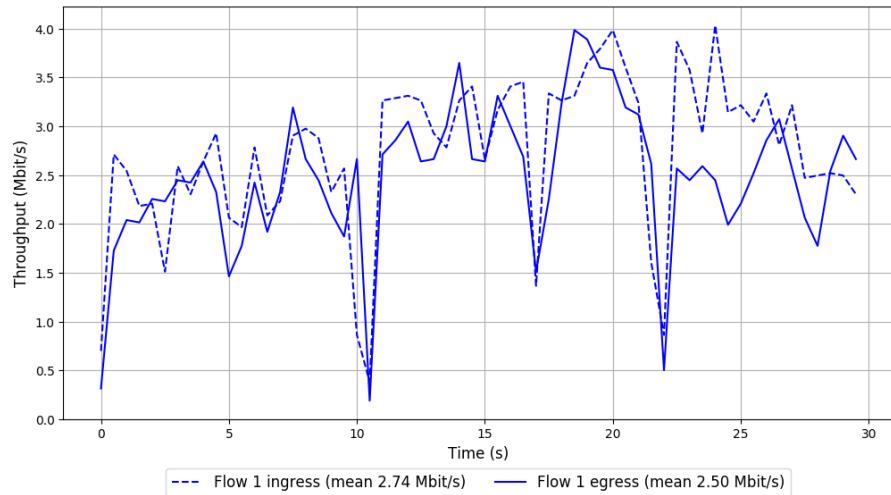


Run 3: Statistics of TCP BBR

```
Start at: 2017-12-11 08:07:29
End at: 2017-12-11 08:07:59
Local clock offset: -12.626 ms
Remote clock offset: 1.379 ms

# Below is generated by plot.py at 2017-12-11 08:58:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.50 Mbit/s
95th percentile per-packet one-way delay: 382.578 ms
Loss rate: 9.13%
-- Flow 1:
Average throughput: 2.50 Mbit/s
95th percentile per-packet one-way delay: 382.578 ms
Loss rate: 9.13%
```

Run 3: Report of TCP BBR — Data Link

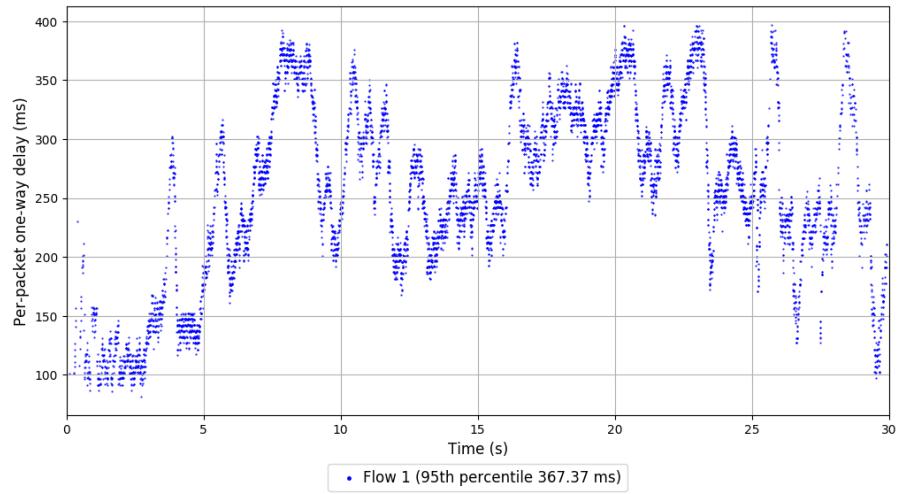
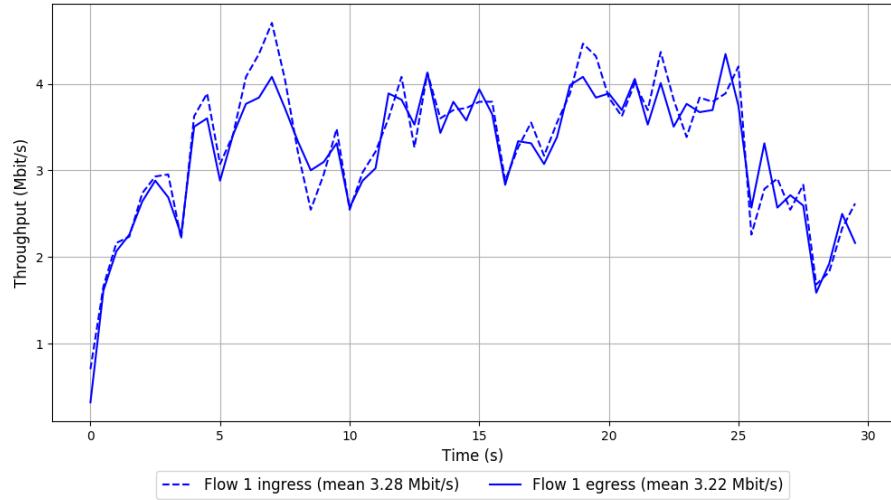


Run 1: Statistics of TCP Cubic

```
Start at: 2017-12-11 07:32:52
End at: 2017-12-11 07:38:22
Local clock offset: -6.528 ms
Remote clock offset: 1.936 ms

# Below is generated by plot.py at 2017-12-11 08:58:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.22 Mbit/s
95th percentile per-packet one-way delay: 367.366 ms
Loss rate: 2.31%
-- Flow 1:
Average throughput: 3.22 Mbit/s
95th percentile per-packet one-way delay: 367.366 ms
Loss rate: 2.31%
```

Run 1: Report of TCP Cubic — Data Link

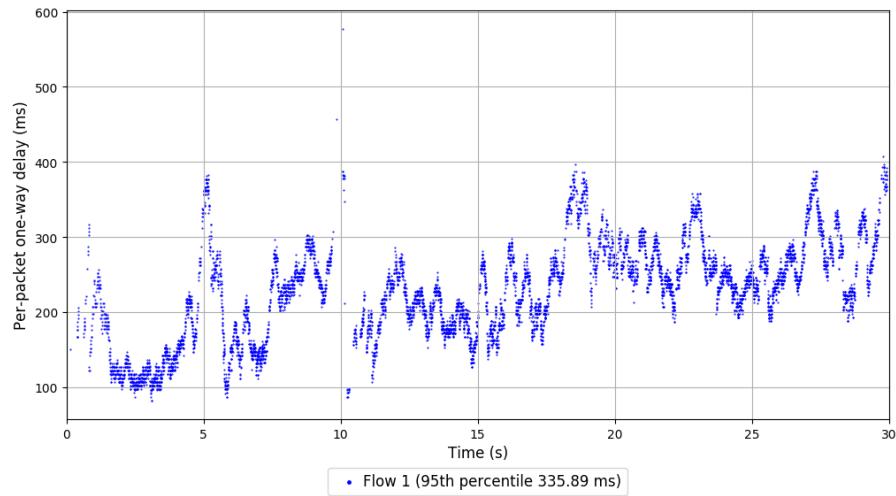
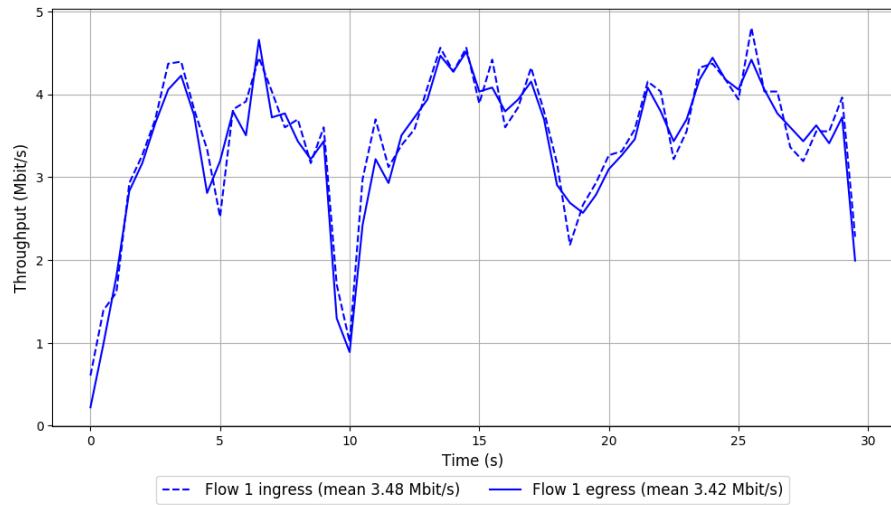


Run 2: Statistics of TCP Cubic

```
Start at: 2017-12-11 07:49:01
End at: 2017-12-11 07:49:31
Local clock offset: -8.442 ms
Remote clock offset: 1.612 ms

# Below is generated by plot.py at 2017-12-11 08:58:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.42 Mbit/s
95th percentile per-packet one-way delay: 335.888 ms
Loss rate: 2.36%
-- Flow 1:
Average throughput: 3.42 Mbit/s
95th percentile per-packet one-way delay: 335.888 ms
Loss rate: 2.36%
```

Run 2: Report of TCP Cubic — Data Link

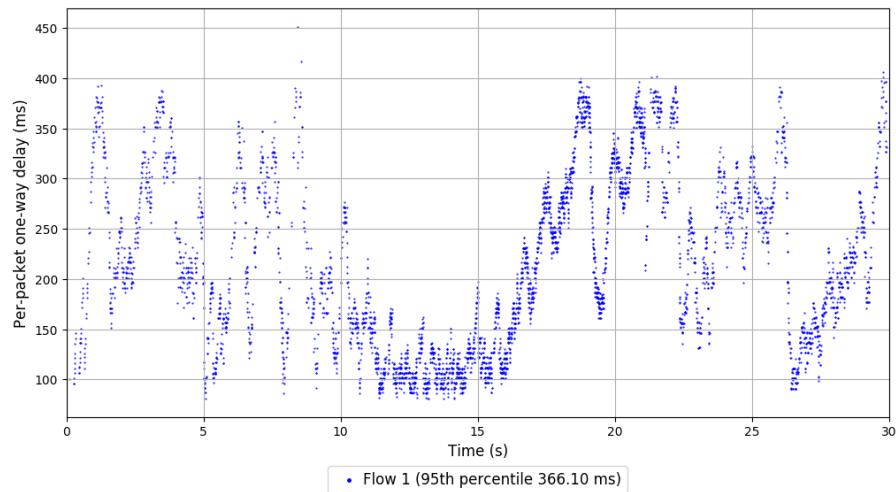
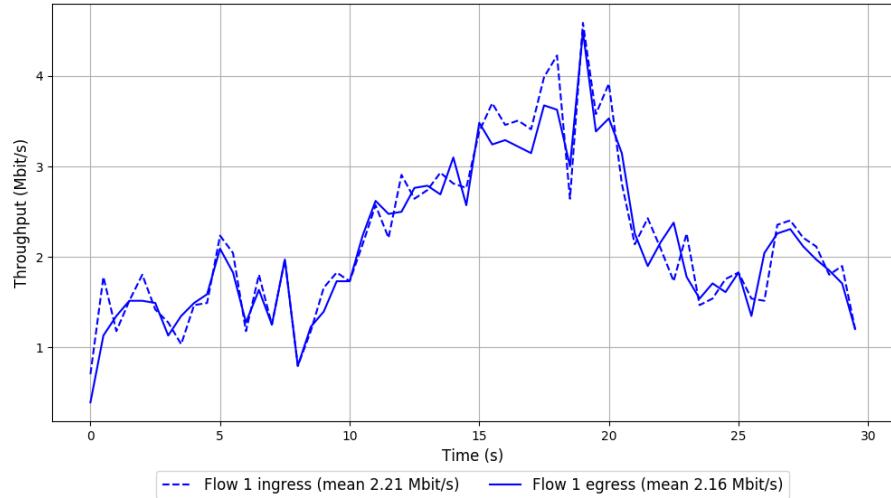


Run 3: Statistics of TCP Cubic

```
Start at: 2017-12-11 08:05:11
End at: 2017-12-11 08:05:41
Local clock offset: -12.734 ms
Remote clock offset: 1.485 ms

# Below is generated by plot.py at 2017-12-11 08:58:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.16 Mbit/s
95th percentile per-packet one-way delay: 366.101 ms
Loss rate: 2.81%
-- Flow 1:
Average throughput: 2.16 Mbit/s
95th percentile per-packet one-way delay: 366.101 ms
Loss rate: 2.81%
```

Run 3: Report of TCP Cubic — Data Link

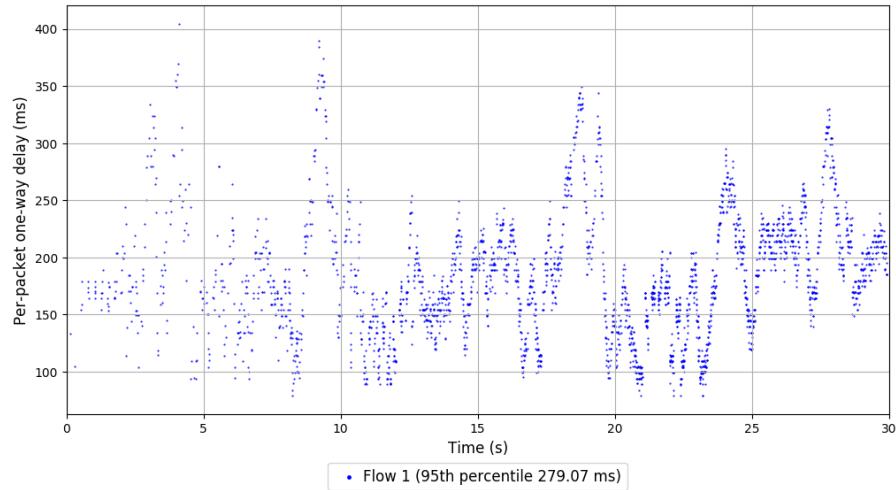
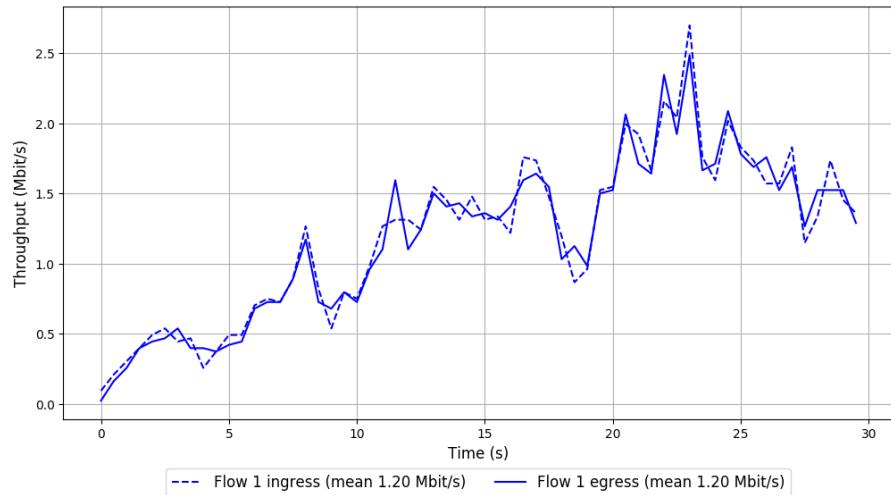


```
Run 1: Statistics of LEDBAT
```

```
Start at: 2017-12-11 07:24:45
End at: 2017-12-11 07:25:15
Local clock offset: -12.255 ms
Remote clock offset: 2.254 ms

# Below is generated by plot.py at 2017-12-11 08:58:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.20 Mbit/s
95th percentile per-packet one-way delay: 279.071 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 1.20 Mbit/s
95th percentile per-packet one-way delay: 279.071 ms
Loss rate: 0.98%
```

Run 1: Report of LEDBAT — Data Link

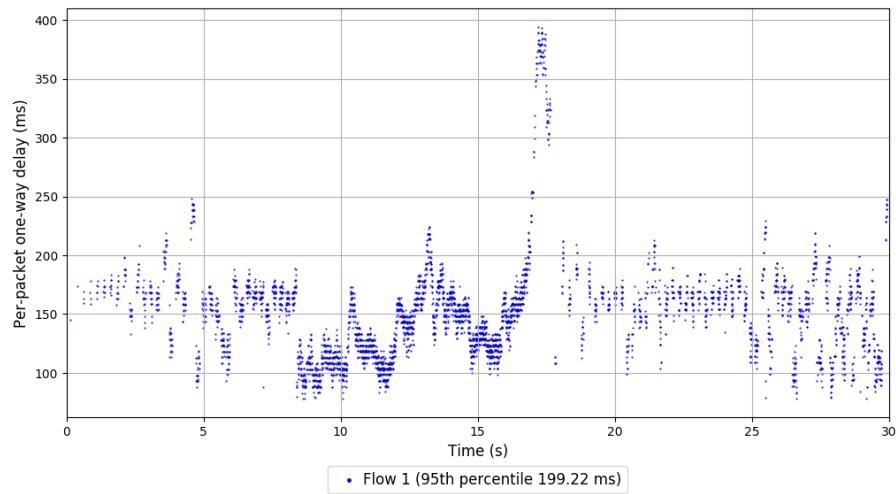
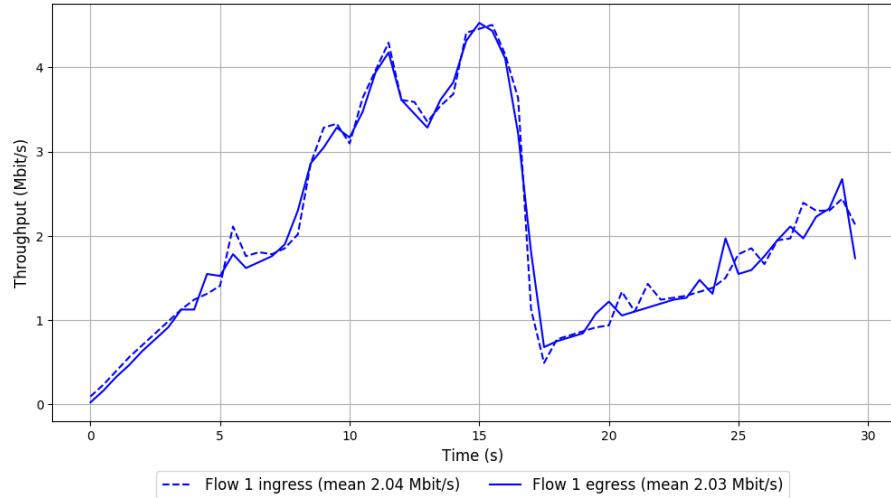


Run 2: Statistics of LEDBAT

```
Start at: 2017-12-11 07:40:58
End at: 2017-12-11 07:41:28
Local clock offset: -6.306 ms
Remote clock offset: 1.71 ms

# Below is generated by plot.py at 2017-12-11 08:58:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.03 Mbit/s
95th percentile per-packet one-way delay: 199.224 ms
Loss rate: 1.15%
-- Flow 1:
Average throughput: 2.03 Mbit/s
95th percentile per-packet one-way delay: 199.224 ms
Loss rate: 1.15%
```

Run 2: Report of LEDBAT — Data Link

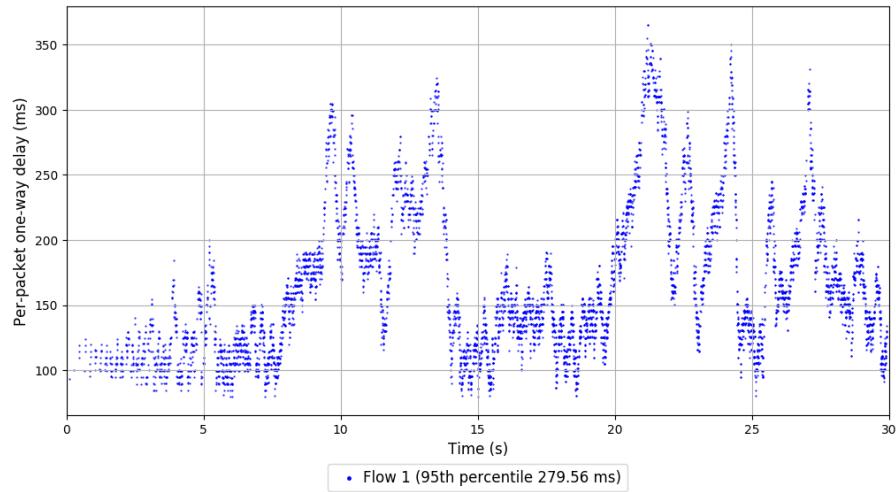
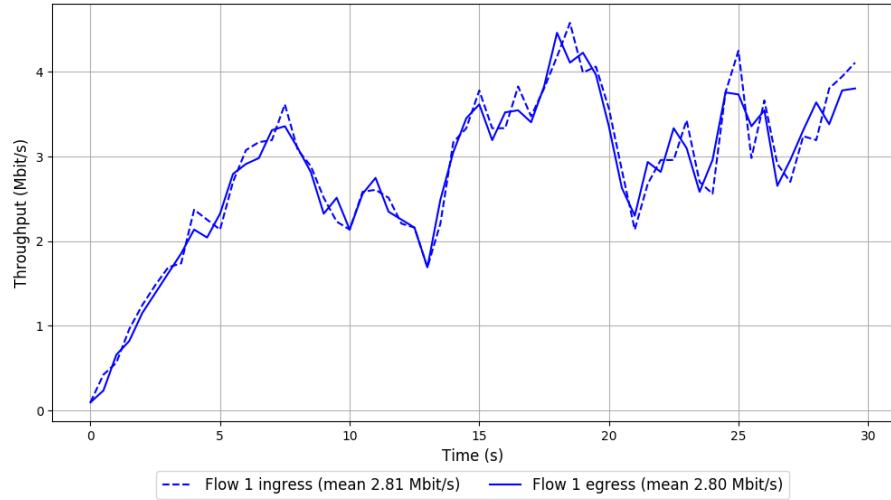


Run 3: Statistics of LEDBAT

```
Start at: 2017-12-11 07:57:06
End at: 2017-12-11 07:57:36
Local clock offset: -13.345 ms
Remote clock offset: 1.298 ms

# Below is generated by plot.py at 2017-12-11 08:58:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.80 Mbit/s
95th percentile per-packet one-way delay: 279.560 ms
Loss rate: 0.97%
-- Flow 1:
Average throughput: 2.80 Mbit/s
95th percentile per-packet one-way delay: 279.560 ms
Loss rate: 0.97%
```

Run 3: Report of LEDBAT — Data Link

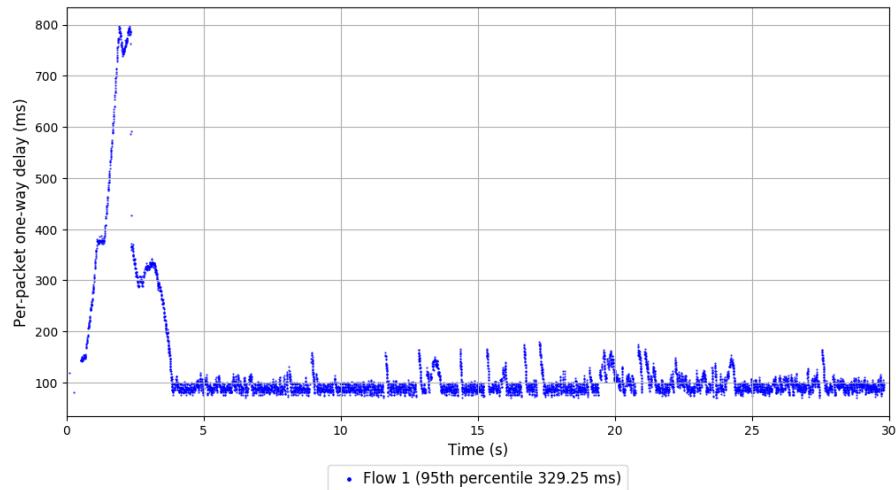
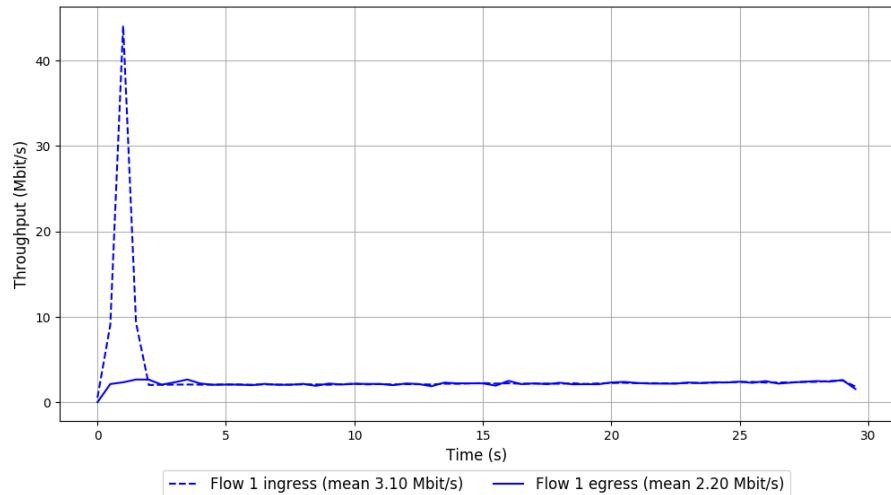


Run 1: Statistics of PCC

```
Start at: 2017-12-11 07:31:43
End at: 2017-12-11 07:32:13
Local clock offset: -8.026 ms
Remote clock offset: 2.024 ms

# Below is generated by plot.py at 2017-12-11 08:58:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.20 Mbit/s
95th percentile per-packet one-way delay: 329.252 ms
Loss rate: 29.47%
-- Flow 1:
Average throughput: 2.20 Mbit/s
95th percentile per-packet one-way delay: 329.252 ms
Loss rate: 29.47%
```

Run 1: Report of PCC — Data Link

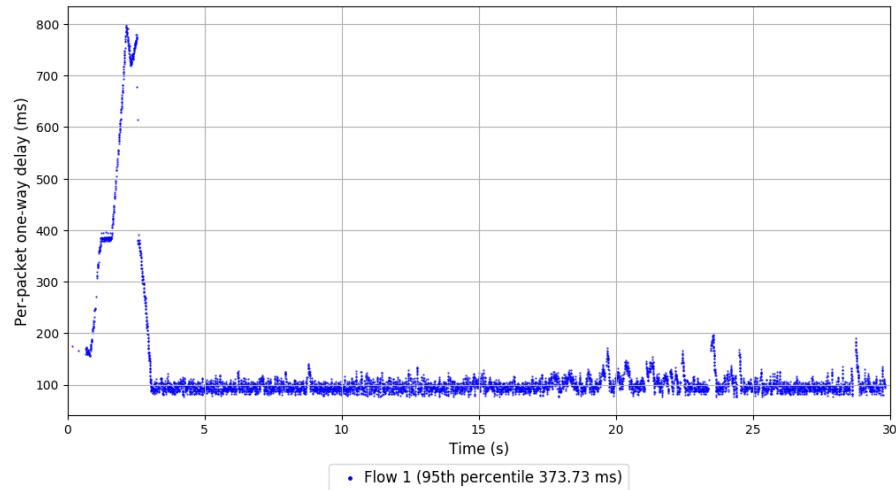
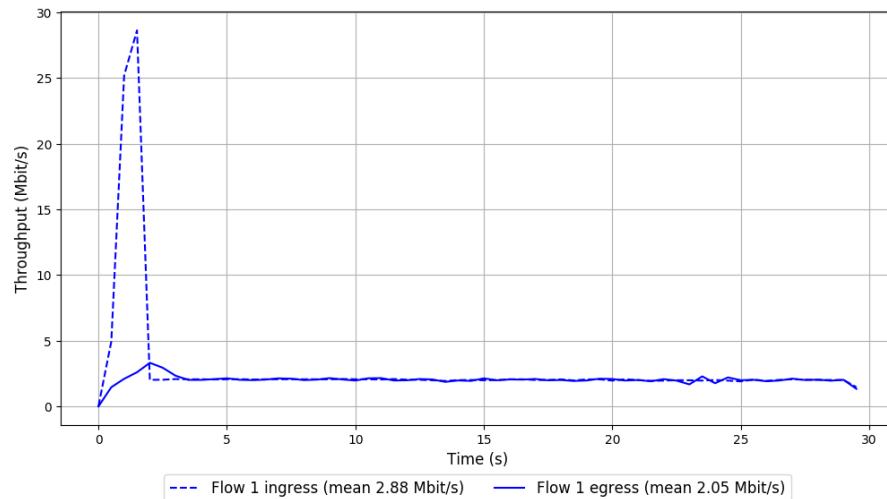


Run 2: Statistics of PCC

```
Start at: 2017-12-11 07:47:52
End at: 2017-12-11 07:48:22
Local clock offset: -7.824 ms
Remote clock offset: 1.685 ms

# Below is generated by plot.py at 2017-12-11 08:59:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.05 Mbit/s
95th percentile per-packet one-way delay: 373.734 ms
Loss rate: 29.27%
-- Flow 1:
Average throughput: 2.05 Mbit/s
95th percentile per-packet one-way delay: 373.734 ms
Loss rate: 29.27%
```

Run 2: Report of PCC — Data Link

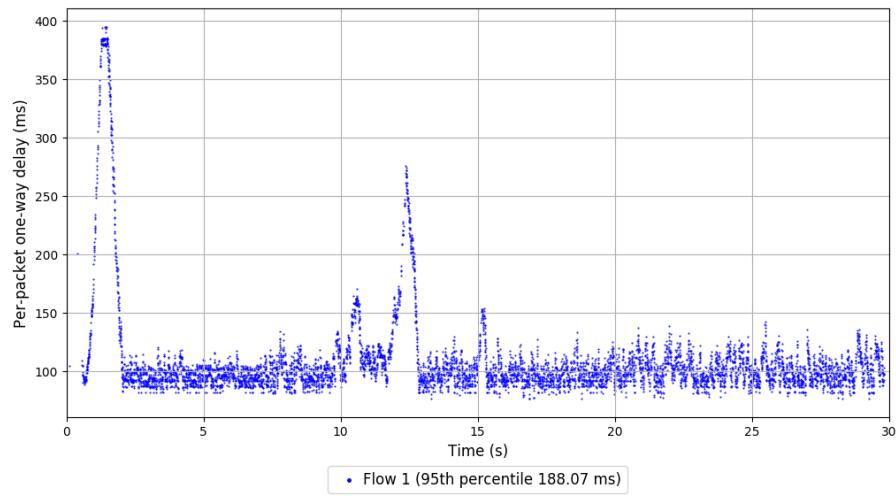
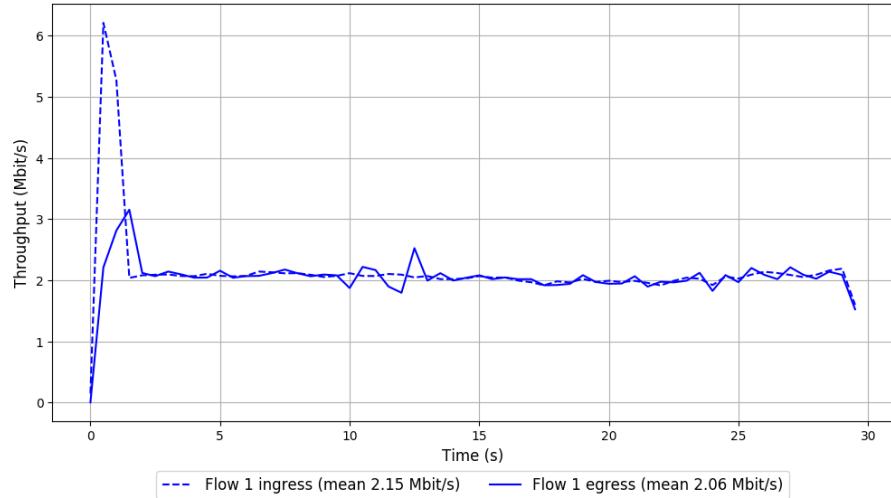


Run 3: Statistics of PCC

```
Start at: 2017-12-11 08:04:03
End at: 2017-12-11 08:04:33
Local clock offset: -12.689 ms
Remote clock offset: 1.281 ms

# Below is generated by plot.py at 2017-12-11 08:59:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.06 Mbit/s
95th percentile per-packet one-way delay: 188.066 ms
Loss rate: 4.41%
-- Flow 1:
Average throughput: 2.06 Mbit/s
95th percentile per-packet one-way delay: 188.066 ms
Loss rate: 4.41%
```

Run 3: Report of PCC — Data Link

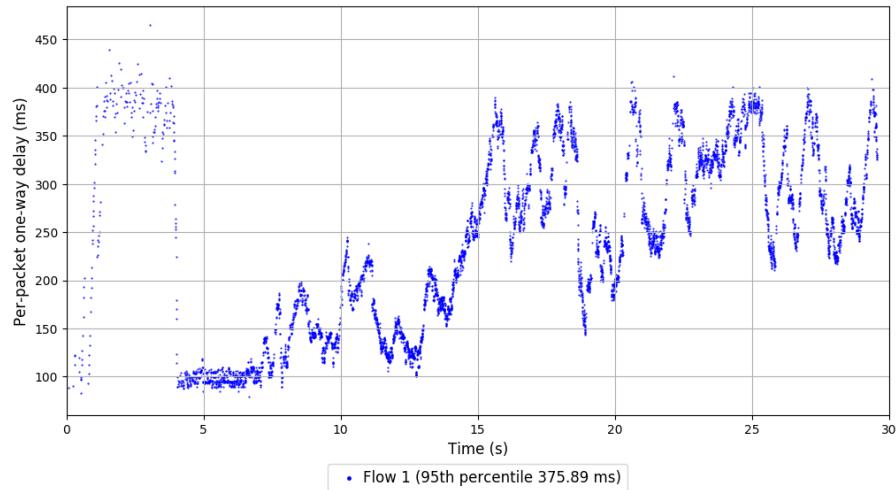
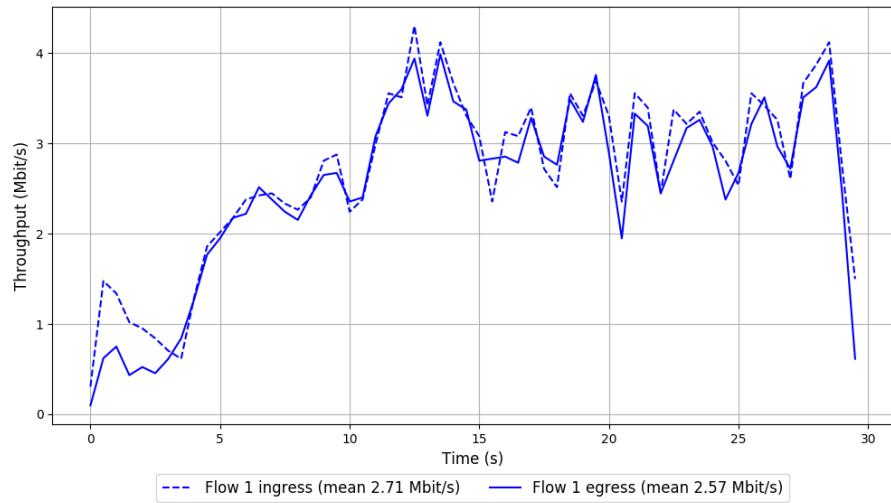


```
Run 1: Statistics of QUIC Cubic
```

```
Start at: 2017-12-11 07:30:33
End at: 2017-12-11 07:31:03
Local clock offset: -9.875 ms
Remote clock offset: 1.983 ms

# Below is generated by plot.py at 2017-12-11 08:59:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.57 Mbit/s
95th percentile per-packet one-way delay: 375.888 ms
Loss rate: 5.59%
-- Flow 1:
Average throughput: 2.57 Mbit/s
95th percentile per-packet one-way delay: 375.888 ms
Loss rate: 5.59%
```

Run 1: Report of QUIC Cubic — Data Link

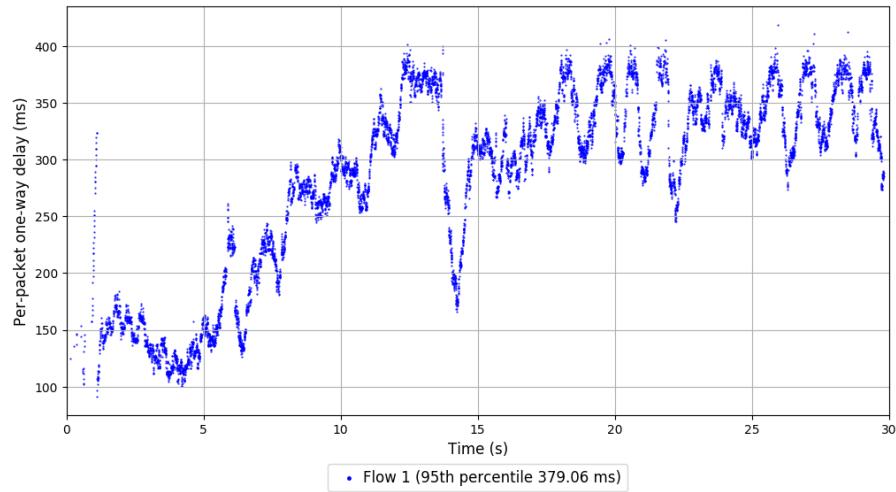
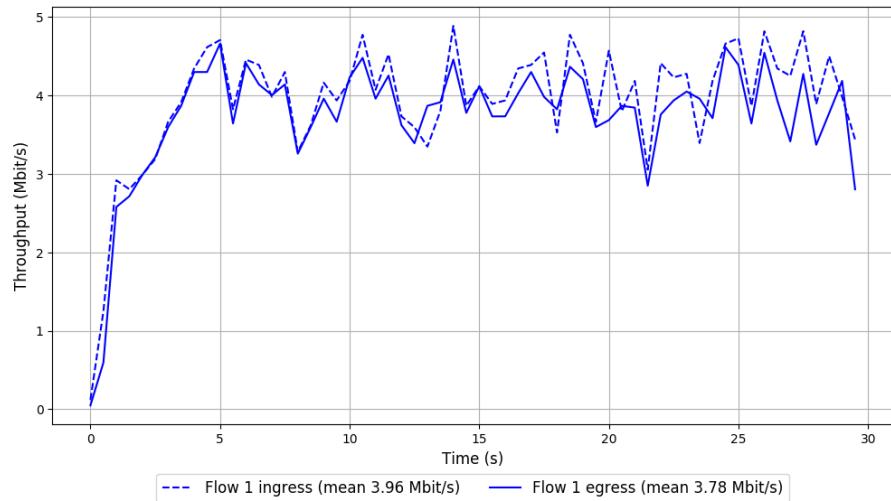


Run 2: Statistics of QUIC Cubic

```
Start at: 2017-12-11 07:46:43
End at: 2017-12-11 07:47:13
Local clock offset: -7.364 ms
Remote clock offset: 1.595 ms

# Below is generated by plot.py at 2017-12-11 08:59:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.78 Mbit/s
95th percentile per-packet one-way delay: 379.061 ms
Loss rate: 5.13%
-- Flow 1:
Average throughput: 3.78 Mbit/s
95th percentile per-packet one-way delay: 379.061 ms
Loss rate: 5.13%
```

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2017-12-11 08:02:51
End at: 2017-12-11 08:03:21
Local clock offset: -12.734 ms
Remote clock offset: 1.392 ms

Run 3: Report of QUIC Cubic — Data Link

Figure is missing

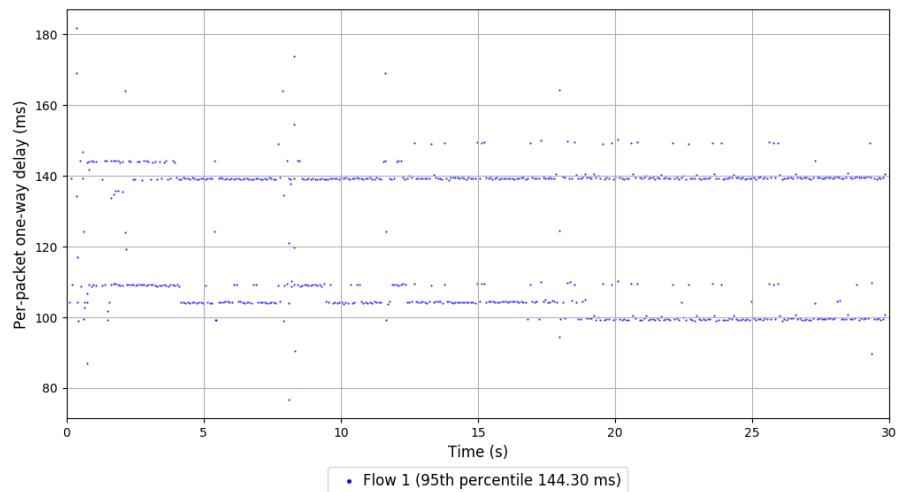
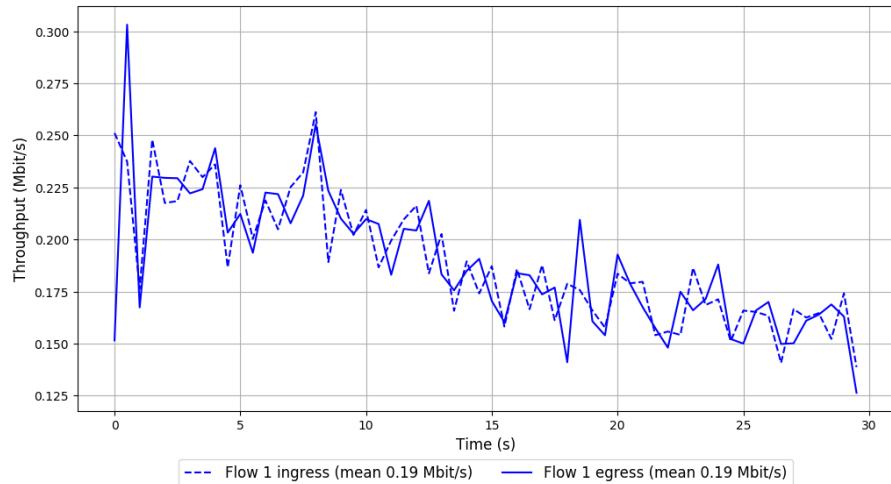
Figure is missing

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

```
Start at: 2017-12-11 07:27:05
End at: 2017-12-11 07:27:36
Local clock offset: -12.788 ms
Remote clock offset: 2.17 ms

# Below is generated by plot.py at 2017-12-11 08:59:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 144.298 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 144.298 ms
Loss rate: 0.44%
```

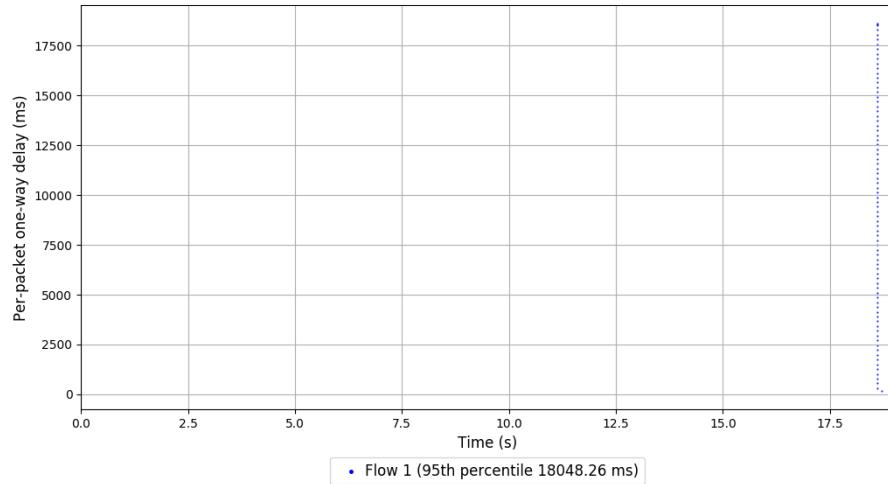
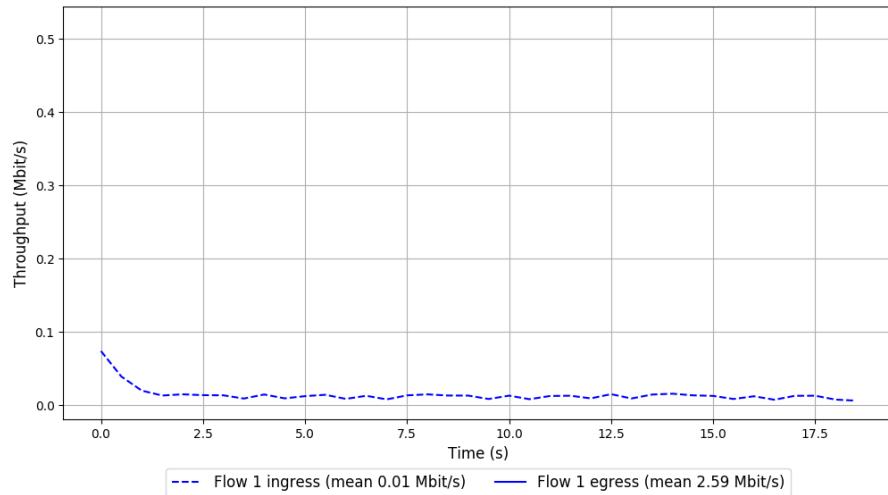
Run 1: Report of SCReAM — Data Link



Run 2: Statistics of SCReAM

Start at: 2017-12-11 07:43:16
End at: 2017-12-11 07:43:46
Local clock offset: -6.429 ms
Remote clock offset: 1.758 ms

Run 2: Report of SCReAM — Data Link

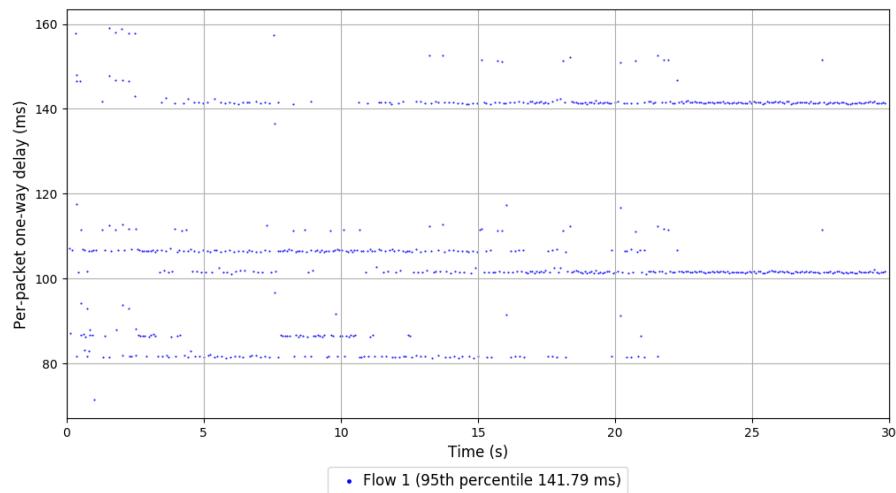
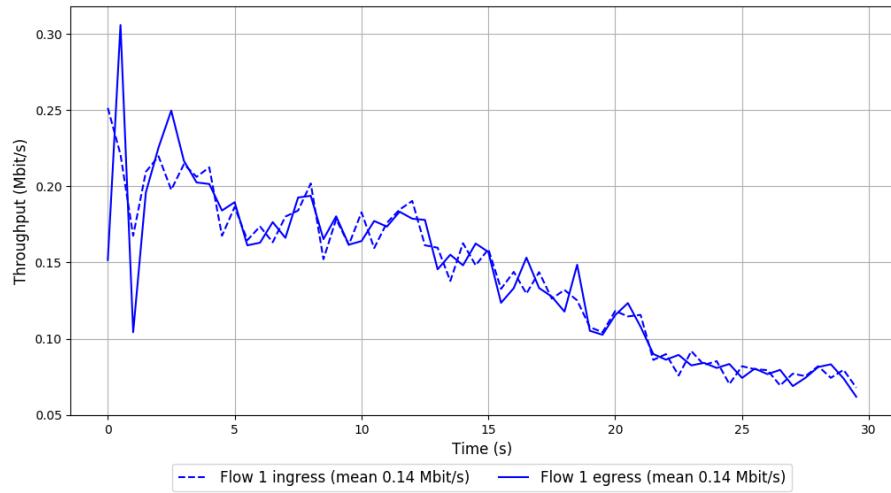


Run 3: Statistics of SCReAM

```
Start at: 2017-12-11 07:59:25
End at: 2017-12-11 07:59:55
Local clock offset: -13.665 ms
Remote clock offset: 1.394 ms

# Below is generated by plot.py at 2017-12-11 08:59:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 141.789 ms
Loss rate: 0.29%
-- Flow 1:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 141.789 ms
Loss rate: 0.29%
```

Run 3: Report of SCReAM — Data Link

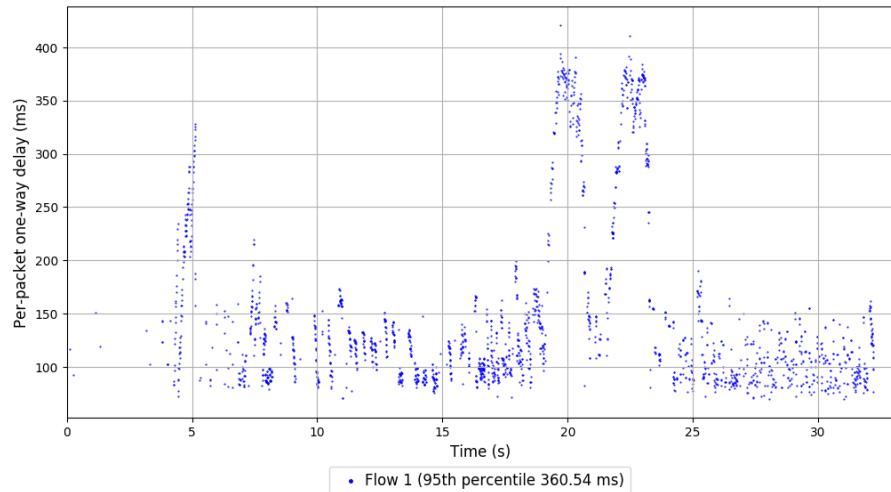
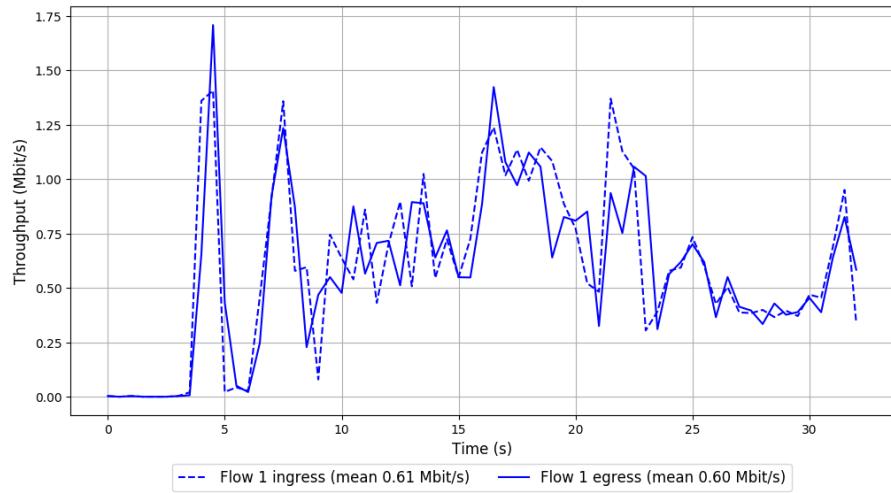


```
Run 1: Statistics of WebRTC media
```

```
Start at: 2017-12-11 07:23:12
End at: 2017-12-11 07:23:42
Local clock offset: -13.186 ms
Remote clock offset: 2.441 ms

# Below is generated by plot.py at 2017-12-11 08:59:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 360.535 ms
Loss rate: 2.03%
-- Flow 1:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 360.535 ms
Loss rate: 2.03%
```

Run 1: Report of WebRTC media — Data Link

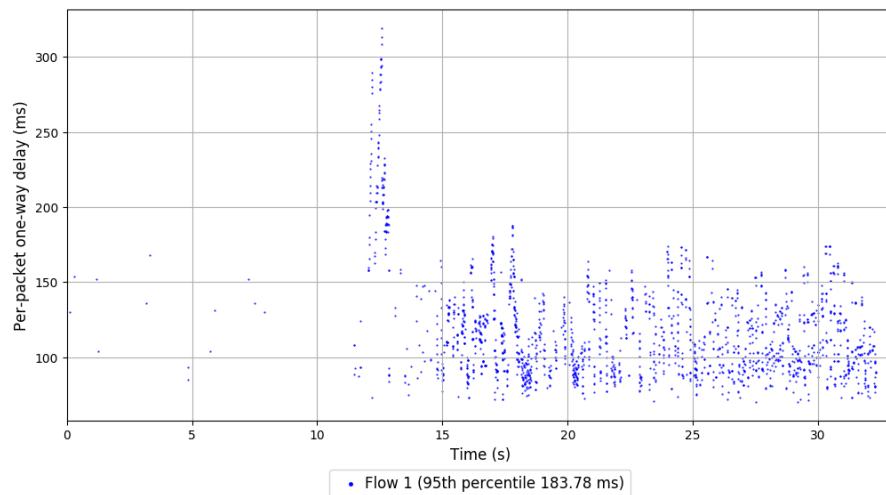
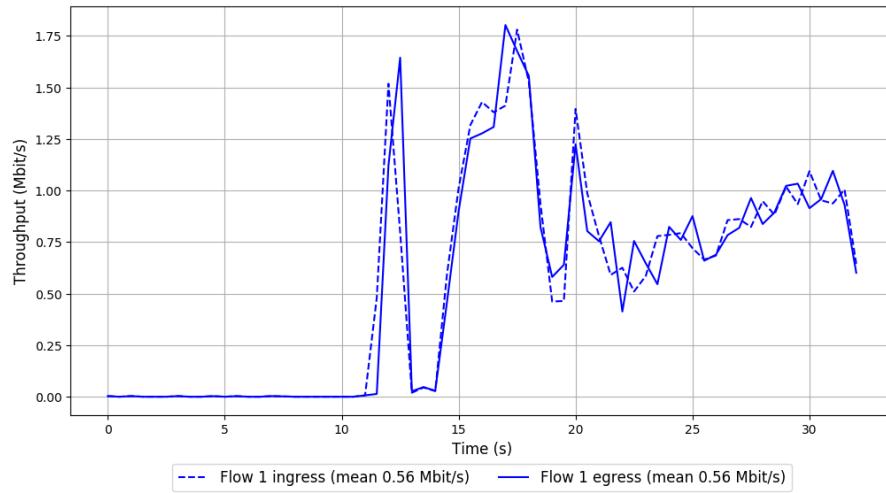


Run 2: Statistics of WebRTC media

```
Start at: 2017-12-11 07:39:49
End at: 2017-12-11 07:40:19
Local clock offset: -7.134 ms
Remote clock offset: 1.725 ms

# Below is generated by plot.py at 2017-12-11 08:59:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 183.781 ms
Loss rate: 0.69%
-- Flow 1:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 183.781 ms
Loss rate: 0.69%
```

Run 2: Report of WebRTC media — Data Link

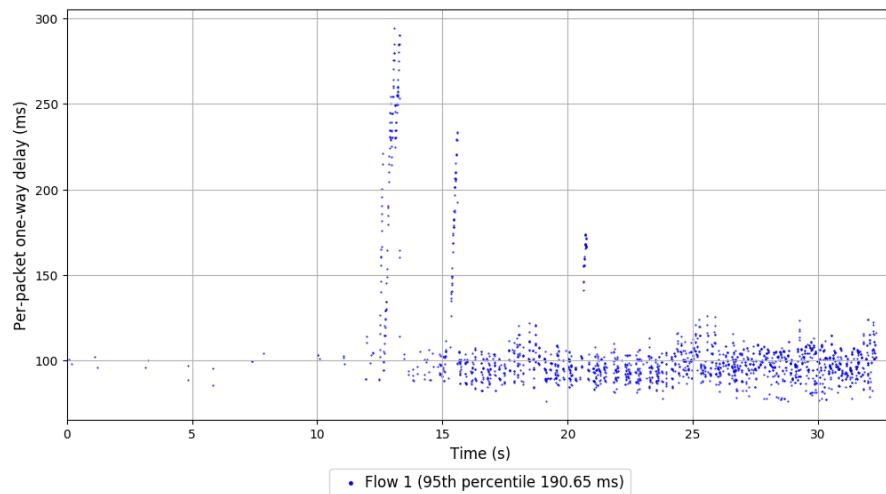
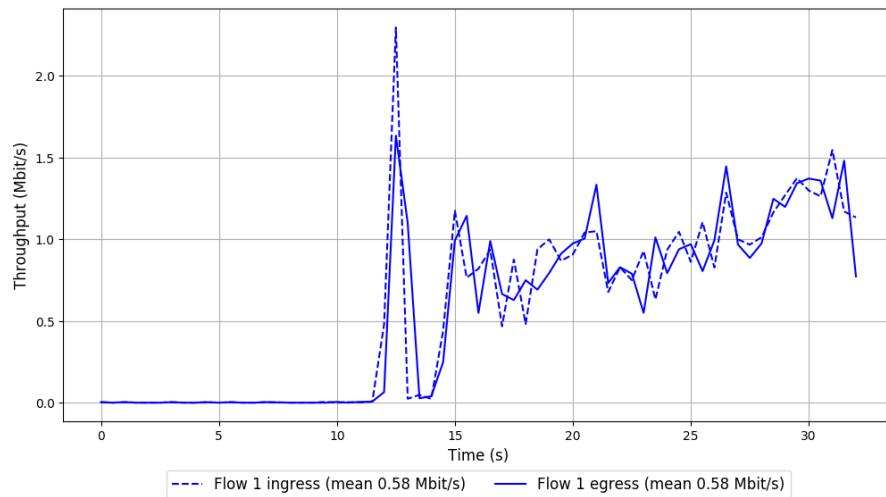


Run 3: Statistics of WebRTC media

```
Start at: 2017-12-11 07:55:58
End at: 2017-12-11 07:56:28
Local clock offset: -12.536 ms
Remote clock offset: 1.393 ms

# Below is generated by plot.py at 2017-12-11 08:59:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 190.647 ms
Loss rate: 1.54%
-- Flow 1:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 190.647 ms
Loss rate: 1.54%
```

Run 3: Report of WebRTC media — Data Link

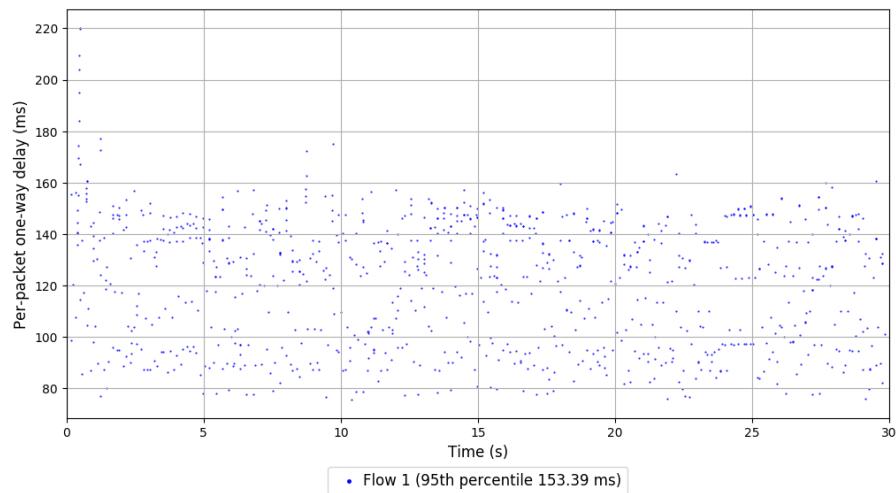
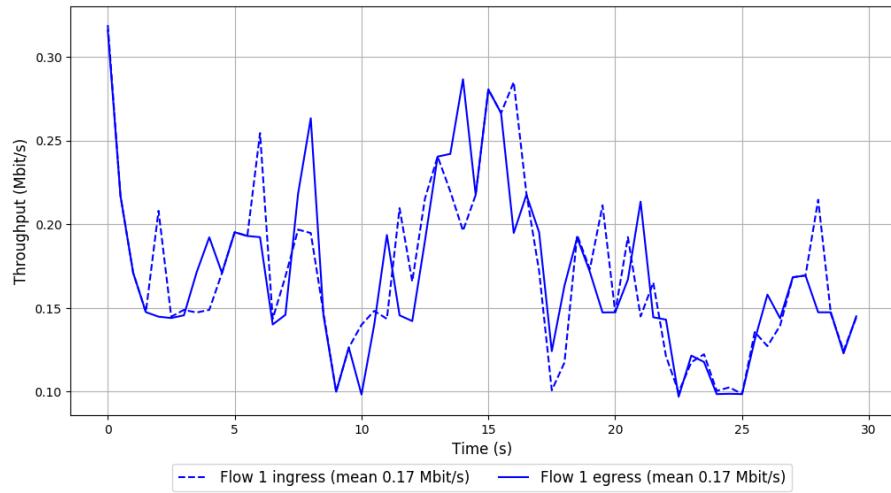


Run 1: Statistics of Sprout

```
Start at: 2017-12-11 07:34:01
End at: 2017-12-11 07:34:31
Local clock offset: -5.955 ms
Remote clock offset: 1.823 ms

# Below is generated by plot.py at 2017-12-11 08:59:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 153.391 ms
Loss rate: 0.69%
-- Flow 1:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 153.391 ms
Loss rate: 0.69%
```

Run 1: Report of Sprout — Data Link

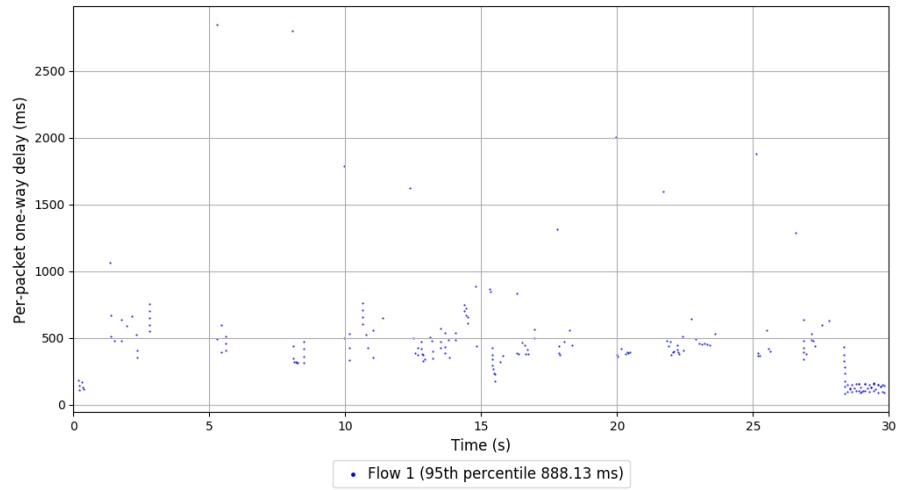
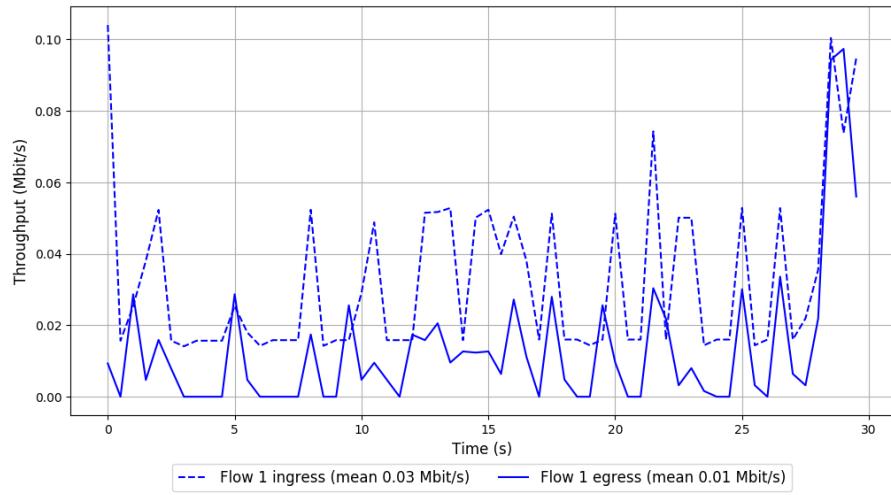


Run 2: Statistics of Sprout

```
Start at: 2017-12-11 07:50:11
End at: 2017-12-11 07:50:41
Local clock offset: -8.978 ms
Remote clock offset: 1.452 ms

# Below is generated by plot.py at 2017-12-11 08:59:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 888.129 ms
Loss rate: 60.11%
-- Flow 1:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 888.129 ms
Loss rate: 60.11%
```

Run 2: Report of Sprout — Data Link

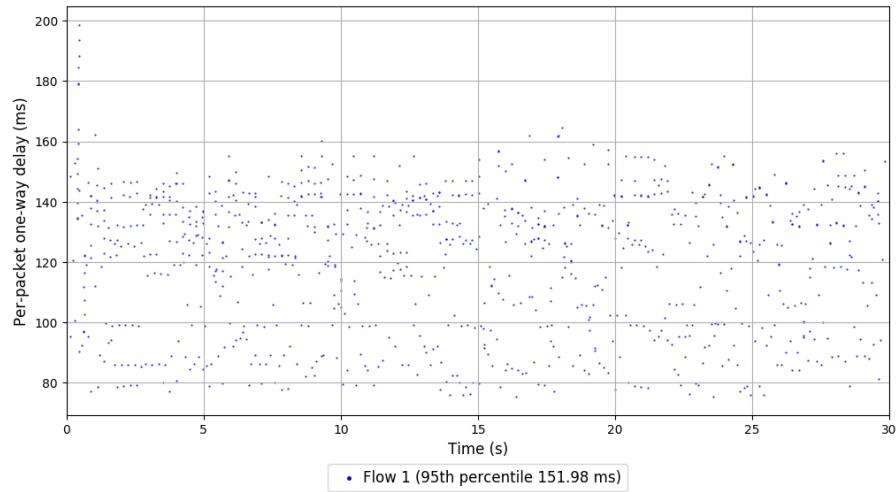
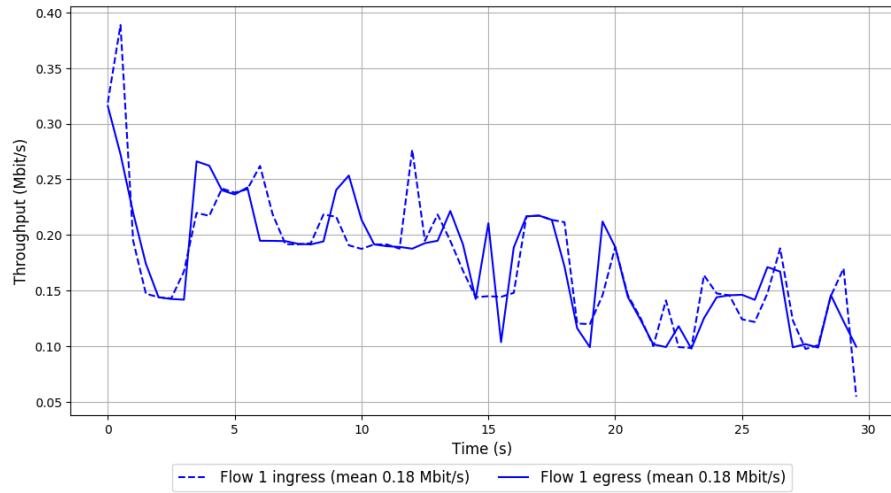


Run 3: Statistics of Sprout

```
Start at: 2017-12-11 08:06:20
End at: 2017-12-11 08:06:50
Local clock offset: -12.861 ms
Remote clock offset: 1.641 ms

# Below is generated by plot.py at 2017-12-11 08:59:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 151.977 ms
Loss rate: 0.45%
-- Flow 1:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 151.977 ms
Loss rate: 0.45%
```

Run 3: Report of Sprout — Data Link

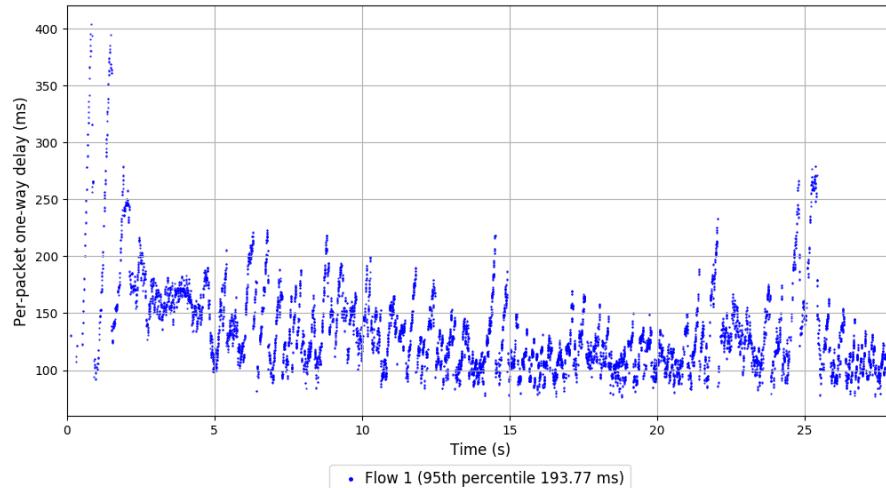
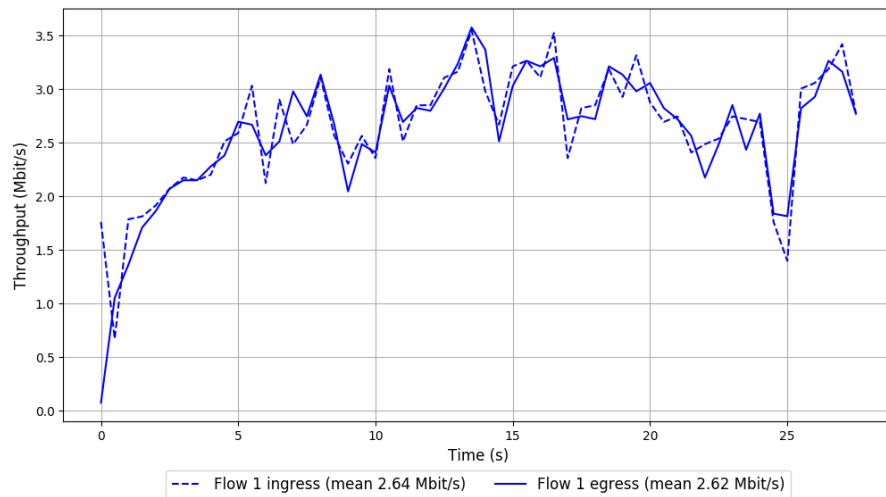


Run 1: Statistics of TaoVA-100x

```
Start at: 2017-12-11 07:28:15
End at: 2017-12-11 07:28:45
Local clock offset: -13.349 ms
Remote clock offset: 2.129 ms

# Below is generated by plot.py at 2017-12-11 08:59:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.62 Mbit/s
95th percentile per-packet one-way delay: 193.766 ms
Loss rate: 1.38%
-- Flow 1:
Average throughput: 2.62 Mbit/s
95th percentile per-packet one-way delay: 193.766 ms
Loss rate: 1.38%
```

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

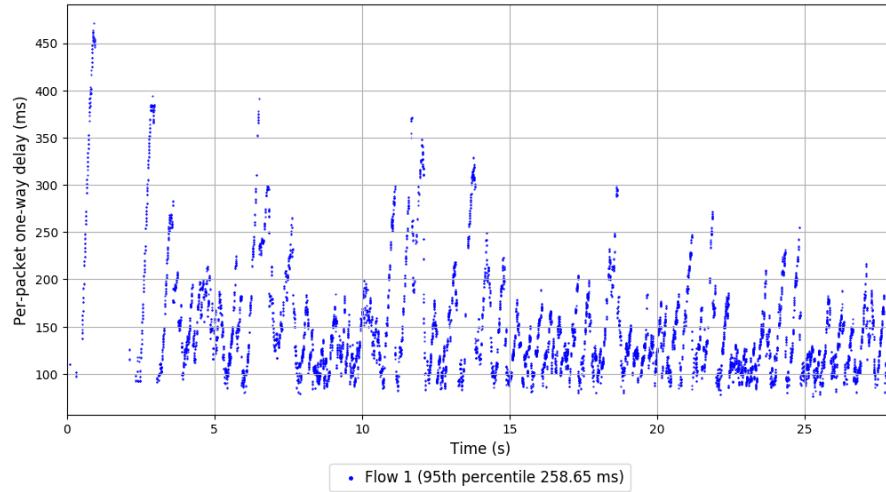
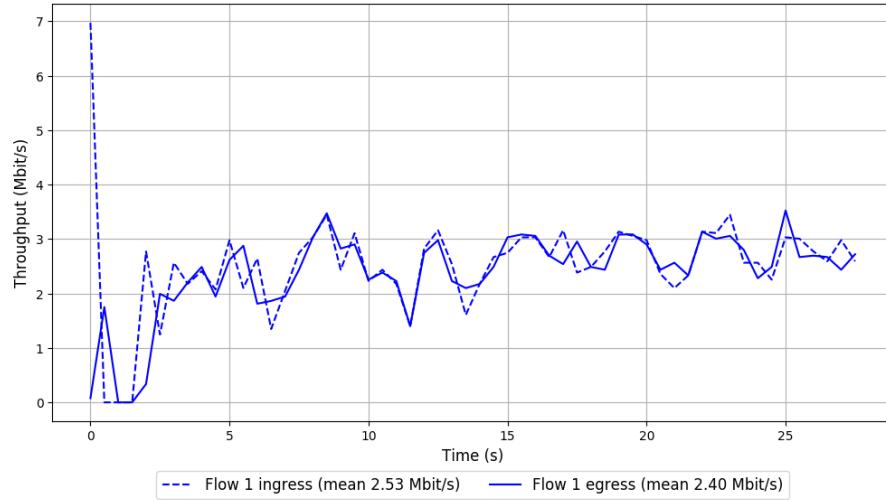


Run 2: Statistics of TaoVA-100x

```
Start at: 2017-12-11 07:44:26
End at: 2017-12-11 07:44:56
Local clock offset: -6.586 ms
Remote clock offset: 1.69 ms

# Below is generated by plot.py at 2017-12-11 08:59:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.40 Mbit/s
95th percentile per-packet one-way delay: 258.646 ms
Loss rate: 5.67%
-- Flow 1:
Average throughput: 2.40 Mbit/s
95th percentile per-packet one-way delay: 258.646 ms
Loss rate: 5.67%
```

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

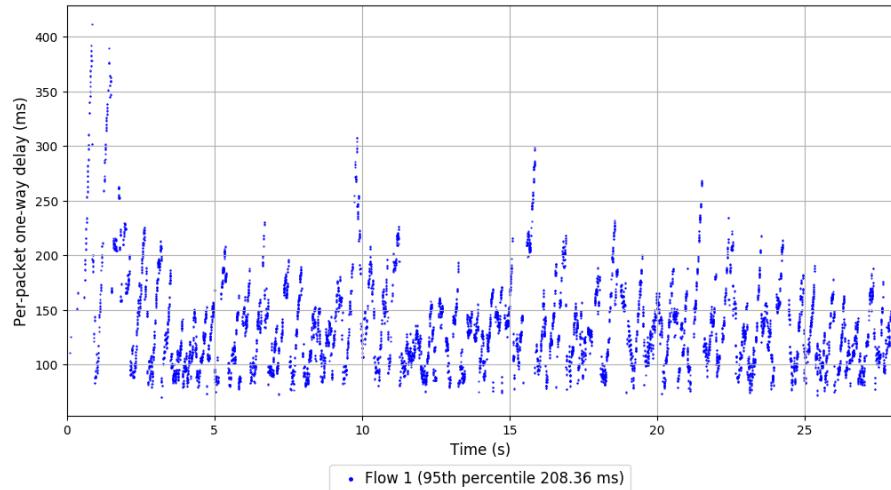
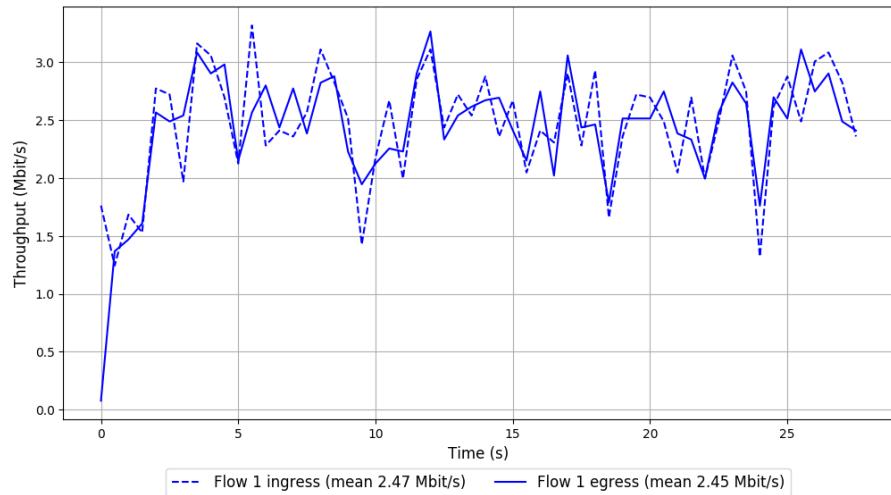


Run 3: Statistics of TaoVA-100x

```
Start at: 2017-12-11 08:00:33
End at: 2017-12-11 08:01:03
Local clock offset: -13.217 ms
Remote clock offset: 1.448 ms

# Below is generated by plot.py at 2017-12-11 08:59:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.45 Mbit/s
95th percentile per-packet one-way delay: 208.362 ms
Loss rate: 1.38%
-- Flow 1:
Average throughput: 2.45 Mbit/s
95th percentile per-packet one-way delay: 208.362 ms
Loss rate: 1.38%
```

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

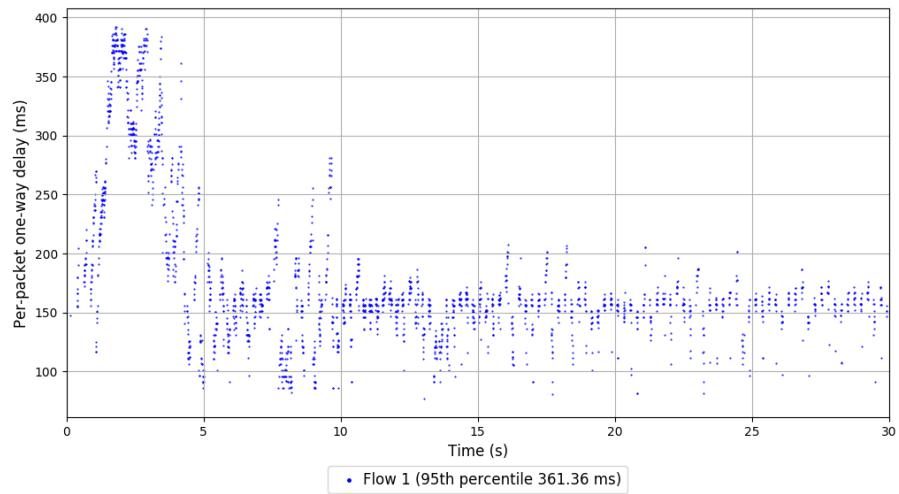
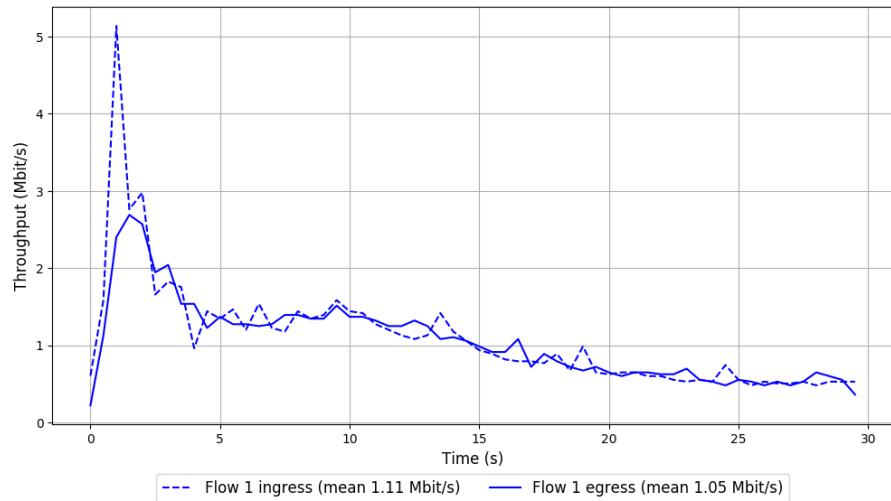


Run 1: Statistics of TCP Vegas

```
Start at: 2017-12-11 07:20:54
End at: 2017-12-11 07:21:24
Local clock offset: -10.256 ms
Remote clock offset: 2.492 ms

# Below is generated by plot.py at 2017-12-11 08:59:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.05 Mbit/s
95th percentile per-packet one-way delay: 361.360 ms
Loss rate: 5.01%
-- Flow 1:
Average throughput: 1.05 Mbit/s
95th percentile per-packet one-way delay: 361.360 ms
Loss rate: 5.01%
```

Run 1: Report of TCP Vegas — Data Link

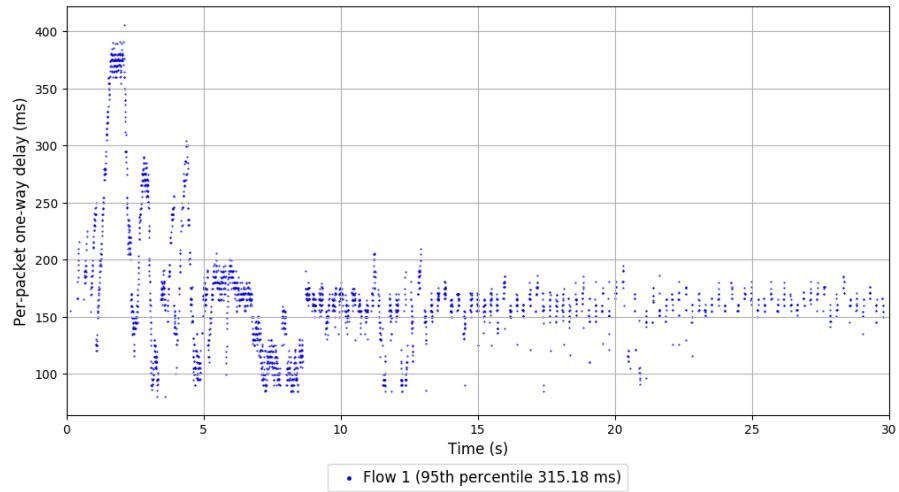
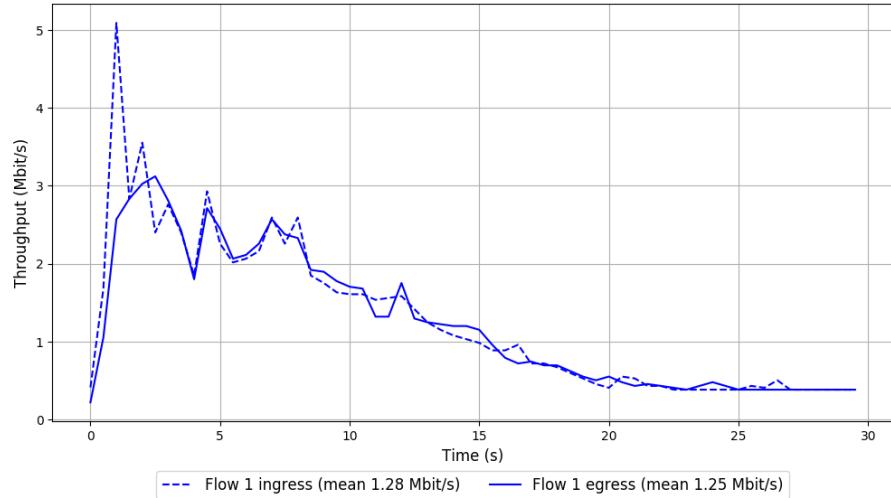


Run 2: Statistics of TCP Vegas

```
Start at: 2017-12-11 07:37:31
End at: 2017-12-11 07:38:01
Local clock offset: -6.306 ms
Remote clock offset: 1.722 ms

# Below is generated by plot.py at 2017-12-11 08:59:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.25 Mbit/s
95th percentile per-packet one-way delay: 315.181 ms
Loss rate: 3.38%
-- Flow 1:
Average throughput: 1.25 Mbit/s
95th percentile per-packet one-way delay: 315.181 ms
Loss rate: 3.38%
```

Run 2: Report of TCP Vegas — Data Link

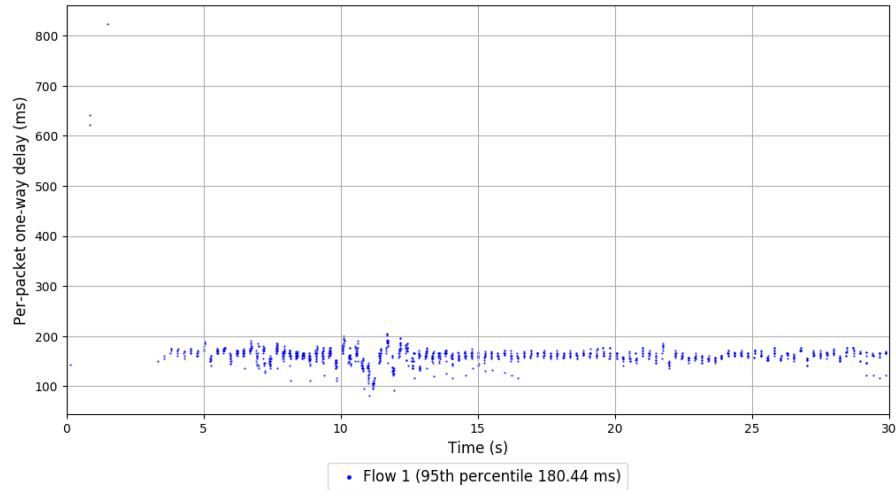
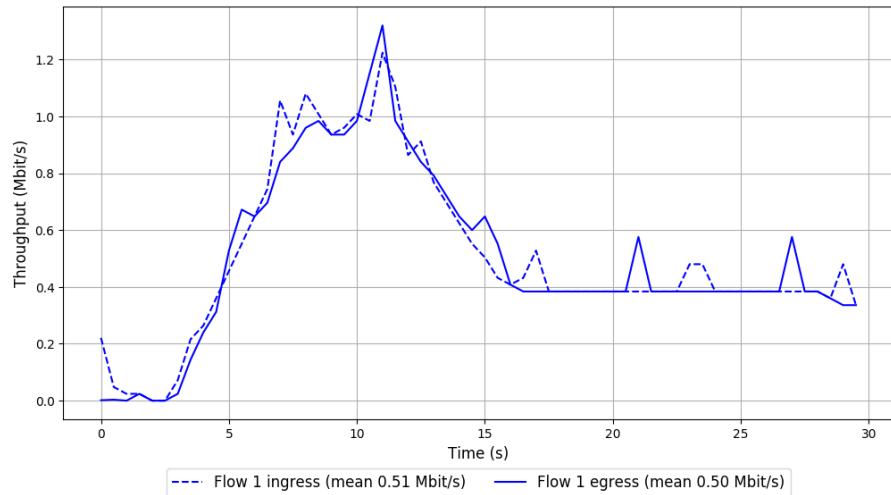


Run 3: Statistics of TCP Vegas

```
Start at: 2017-12-11 07:53:40
End at: 2017-12-11 07:54:10
Local clock offset: -10.993 ms
Remote clock offset: 1.593 ms

# Below is generated by plot.py at 2017-12-11 08:59:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 180.445 ms
Loss rate: 1.42%
-- Flow 1:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 180.445 ms
Loss rate: 1.42%
```

Run 3: Report of TCP Vegas — Data Link

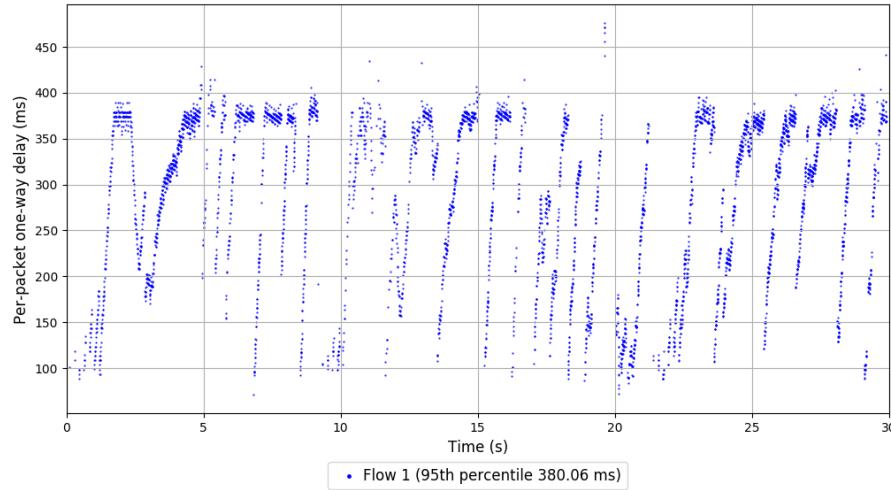
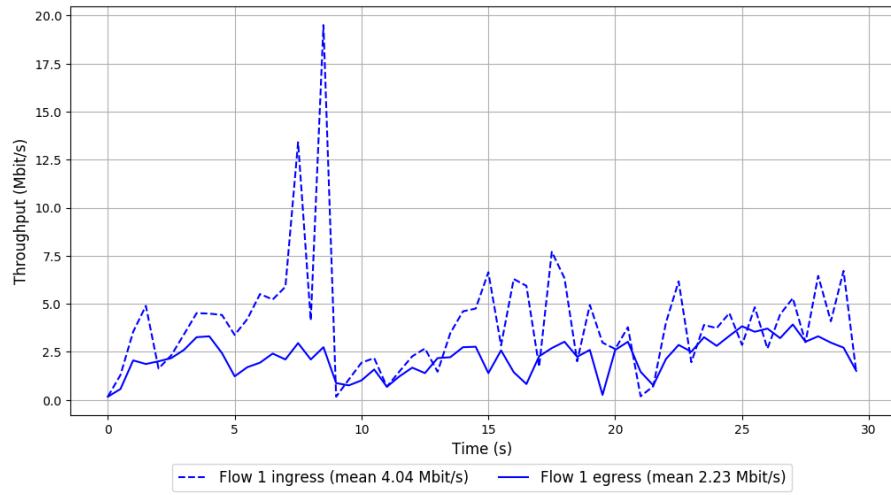


Run 1: Statistics of Verus

```
Start at: 2017-12-11 07:25:55
End at: 2017-12-11 07:26:25
Local clock offset: -12.299 ms
Remote clock offset: 2.258 ms

# Below is generated by plot.py at 2017-12-11 08:59:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.23 Mbit/s
95th percentile per-packet one-way delay: 380.063 ms
Loss rate: 44.63%
-- Flow 1:
Average throughput: 2.23 Mbit/s
95th percentile per-packet one-way delay: 380.063 ms
Loss rate: 44.63%
```

Run 1: Report of Verus — Data Link

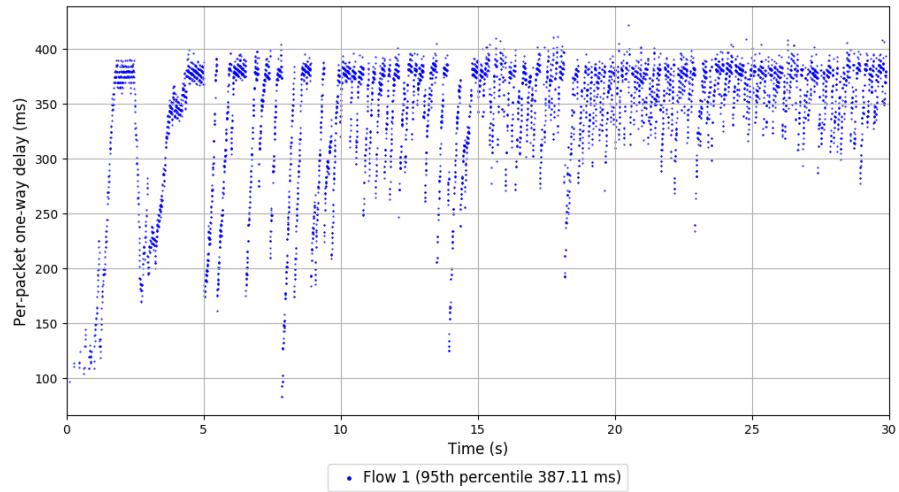
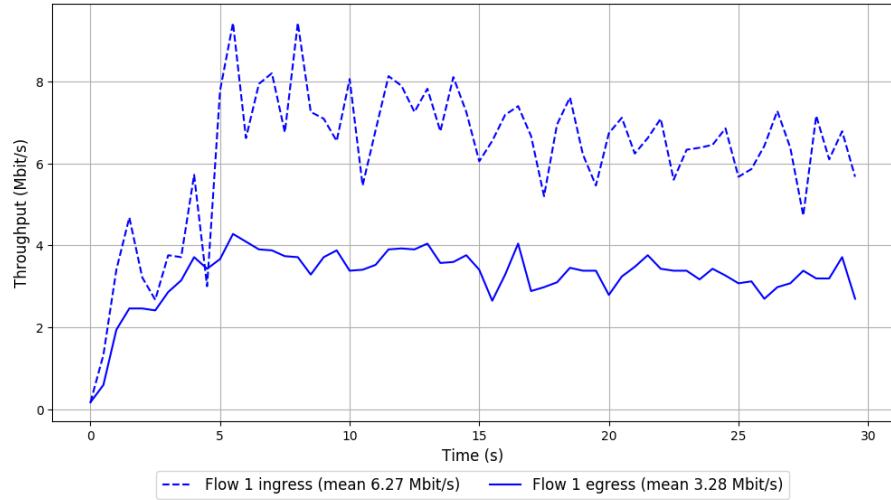


Run 2: Statistics of Verus

```
Start at: 2017-12-11 07:42:07
End at: 2017-12-11 07:42:37
Local clock offset: -6.295 ms
Remote clock offset: 1.725 ms

# Below is generated by plot.py at 2017-12-11 08:59:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.28 Mbit/s
95th percentile per-packet one-way delay: 387.107 ms
Loss rate: 47.95%
-- Flow 1:
Average throughput: 3.28 Mbit/s
95th percentile per-packet one-way delay: 387.107 ms
Loss rate: 47.95%
```

Run 2: Report of Verus — Data Link

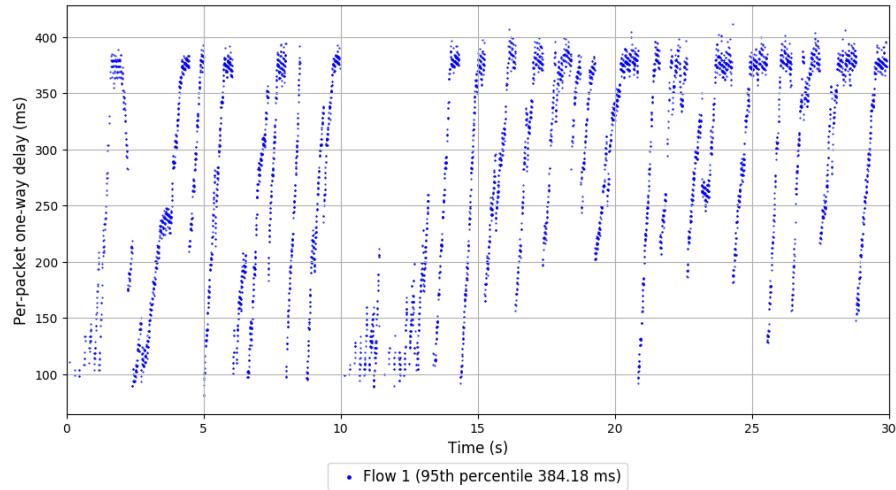
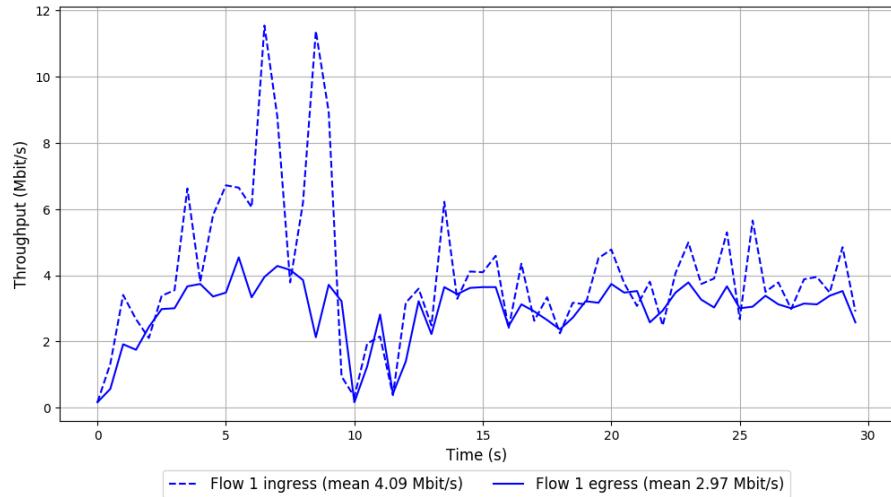


Run 3: Statistics of Verus

```
Start at: 2017-12-11 07:58:15
End at: 2017-12-11 07:58:45
Local clock offset: -14.315 ms
Remote clock offset: 1.443 ms

# Below is generated by plot.py at 2017-12-11 08:59:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.97 Mbit/s
95th percentile per-packet one-way delay: 384.181 ms
Loss rate: 27.27%
-- Flow 1:
Average throughput: 2.97 Mbit/s
95th percentile per-packet one-way delay: 384.181 ms
Loss rate: 27.27%
```

Run 3: Report of Verus — Data Link

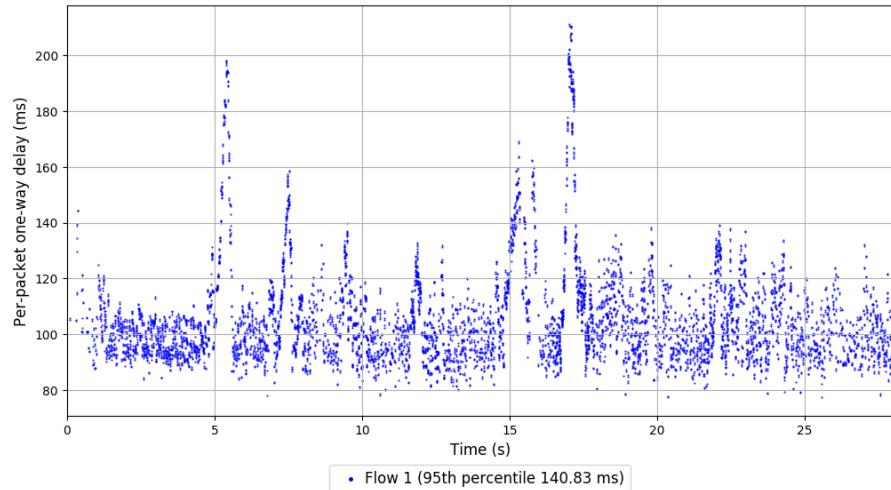
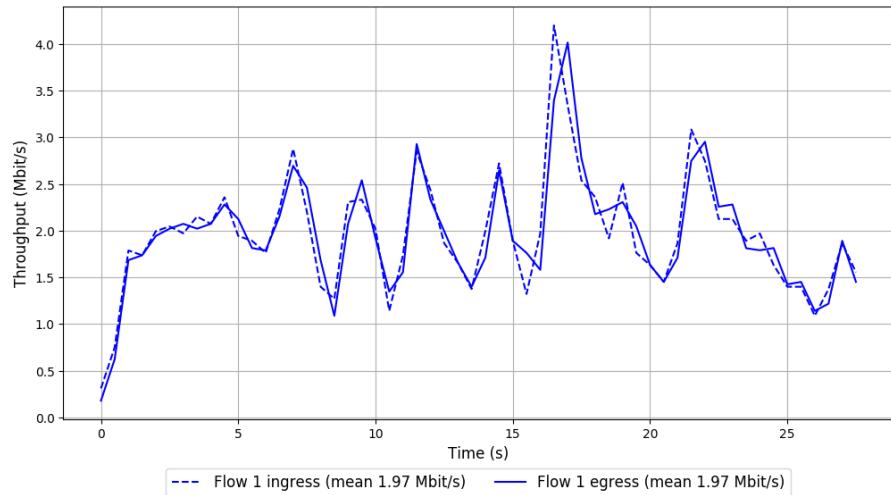


Run 1: Statistics of Copa

```
Start at: 2017-12-11 07:36:22
End at: 2017-12-11 07:36:52
Local clock offset: -5.895 ms
Remote clock offset: 1.896 ms

# Below is generated by plot.py at 2017-12-11 08:59:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.97 Mbit/s
95th percentile per-packet one-way delay: 140.826 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 1.97 Mbit/s
95th percentile per-packet one-way delay: 140.826 ms
Loss rate: 0.42%
```

Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

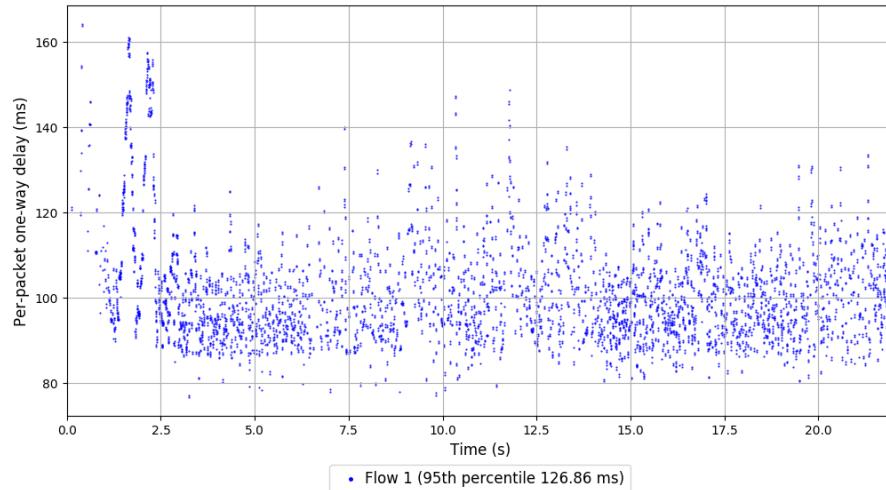
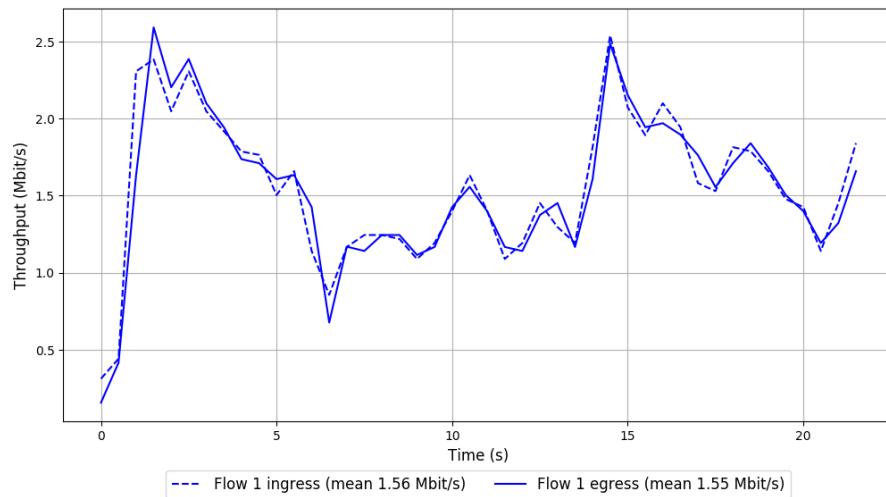
Start at: 2017-12-11 07:52:29

End at: 2017-12-11 07:52:59

Local clock offset: -10.38 ms

Remote clock offset: 1.525 ms

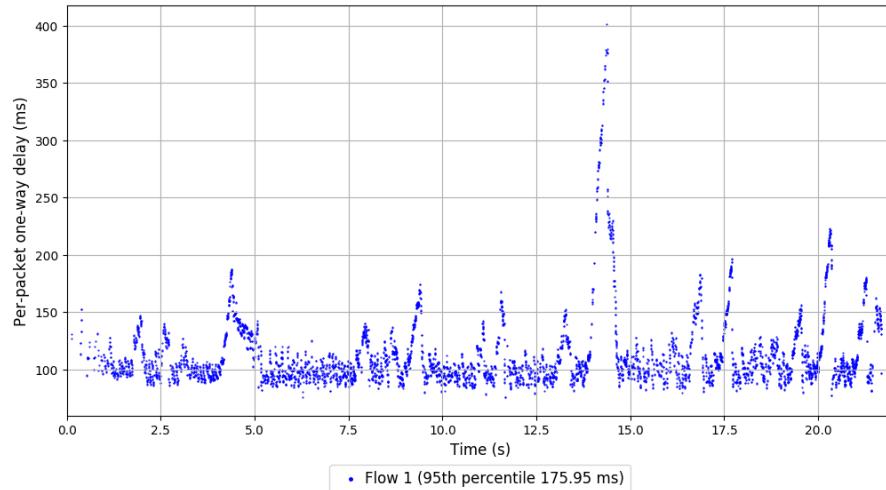
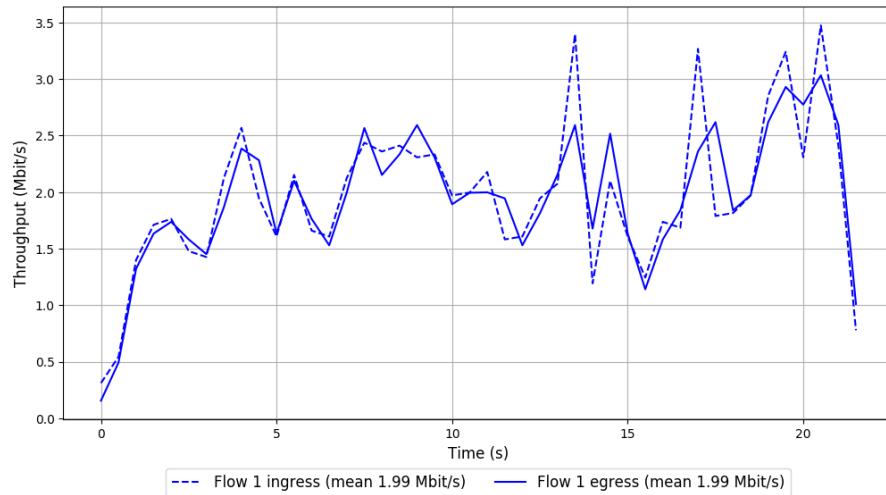
Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

Start at: 2017-12-11 08:08:38
End at: 2017-12-11 08:09:08
Local clock offset: -11.453 ms
Remote clock offset: 1.349 ms

Run 3: Report of Copa — Data Link



Run 1: Statistics of Indigo

Start at: 2017-12-11 07:29:24

End at: 2017-12-11 07:29:54

Local clock offset: -11.205 ms

Remote clock offset: 2.047 ms

Below is generated by plot.py at 2017-12-11 08:59:17

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.51 Mbit/s

95th percentile per-packet one-way delay: 184.839 ms

Loss rate: 0.78%

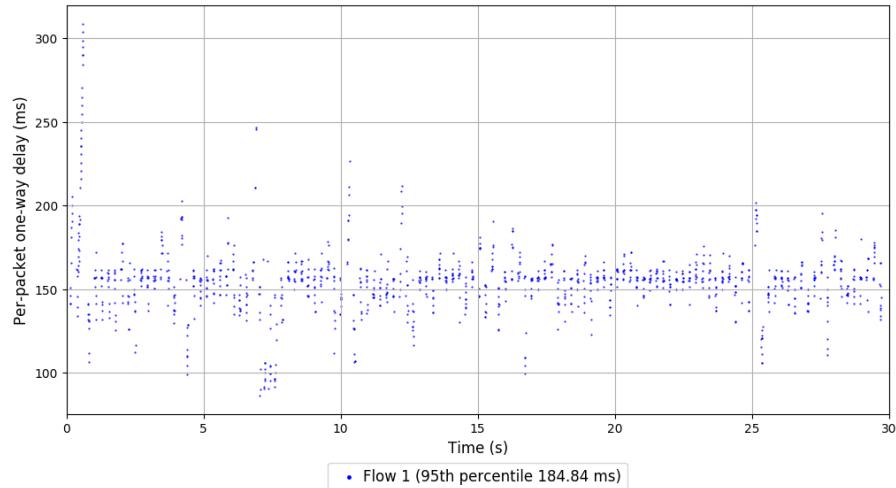
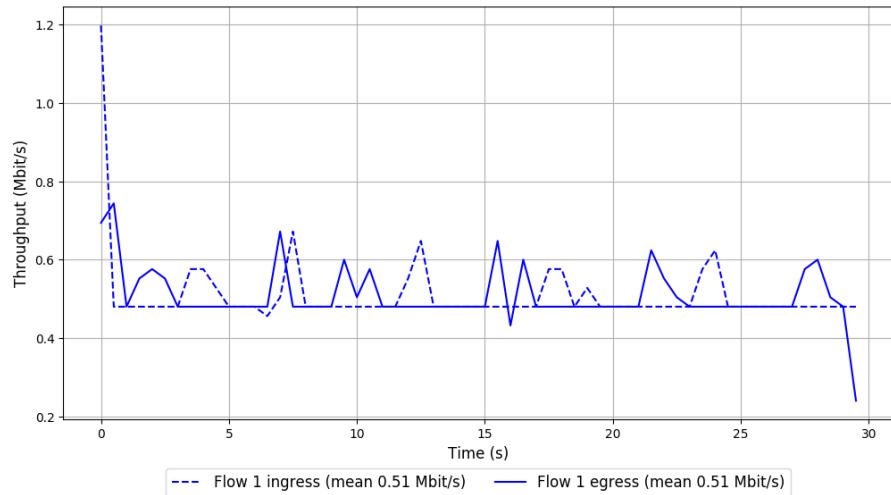
-- Flow 1:

Average throughput: 0.51 Mbit/s

95th percentile per-packet one-way delay: 184.839 ms

Loss rate: 0.78%

Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2017-12-11 07:45:35
End at: 2017-12-11 07:46:05
Local clock offset: -6.961 ms
Remote clock offset: 1.7 ms

Run 2: Report of Indigo — Data Link

Figure is missing

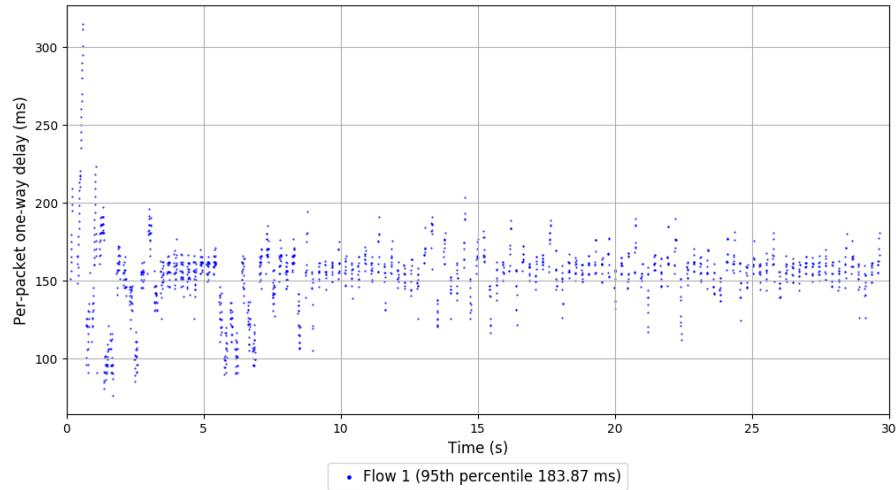
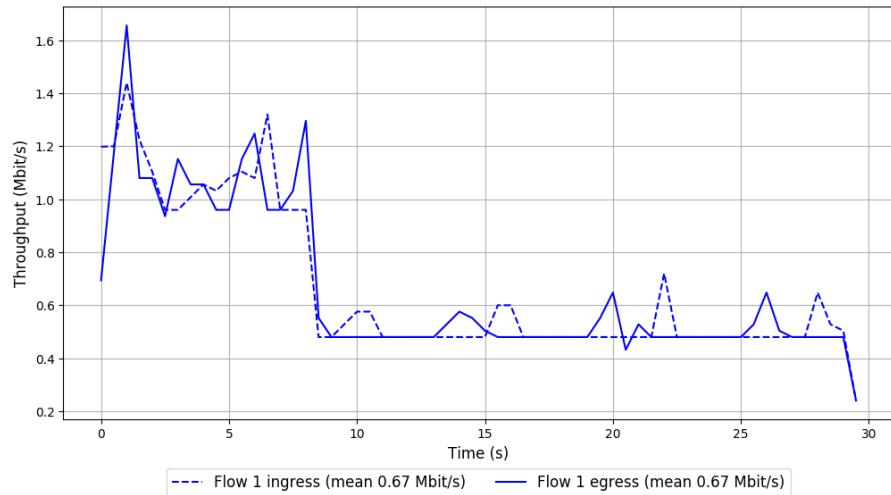
Figure is missing

Run 3: Statistics of Indigo

```
Start at: 2017-12-11 08:01:42
End at: 2017-12-11 08:02:12
Local clock offset: -12.921 ms
Remote clock offset: 1.399 ms

# Below is generated by plot.py at 2017-12-11 08:59:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.67 Mbit/s
95th percentile per-packet one-way delay: 183.866 ms
Loss rate: 0.90%
-- Flow 1:
Average throughput: 0.67 Mbit/s
95th percentile per-packet one-way delay: 183.866 ms
Loss rate: 0.90%
```

Run 3: Report of Indigo — Data Link

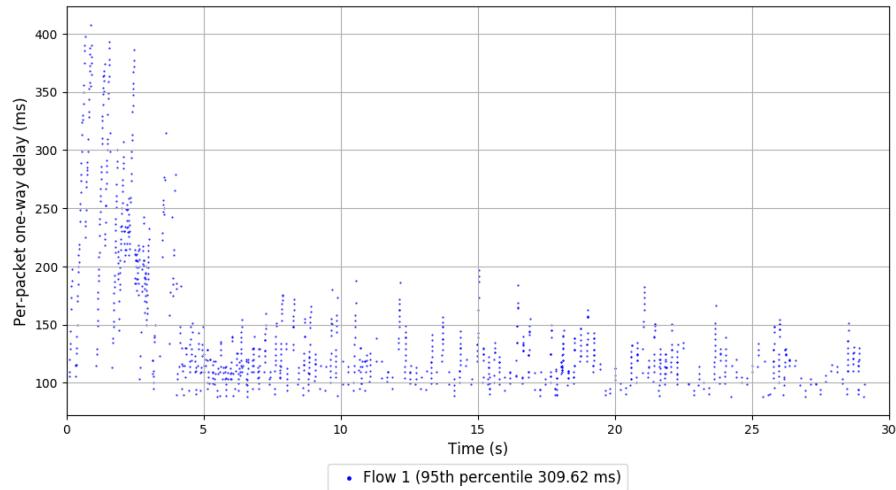
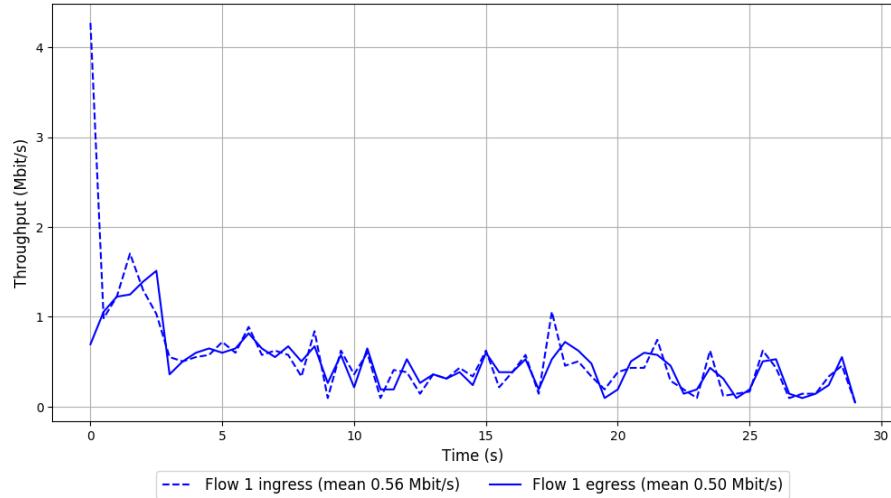


Run 1: Statistics of Indigo-calib

```
Start at: 2017-12-11 07:22:02
End at: 2017-12-11 07:22:32
Local clock offset: -12.756 ms
Remote clock offset: 2.442 ms

# Below is generated by plot.py at 2017-12-11 08:59:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 309.617 ms
Loss rate: 10.44%
-- Flow 1:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 309.617 ms
Loss rate: 10.44%
```

Run 1: Report of Indigo-calib — Data Link

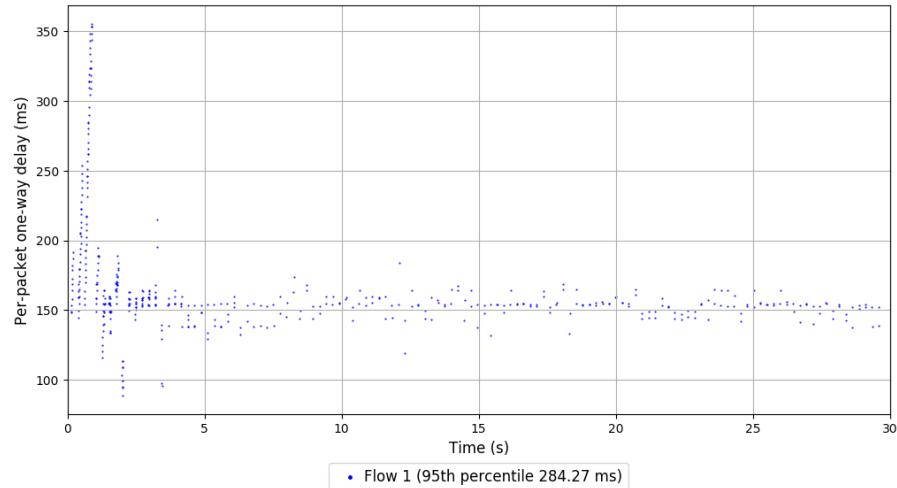
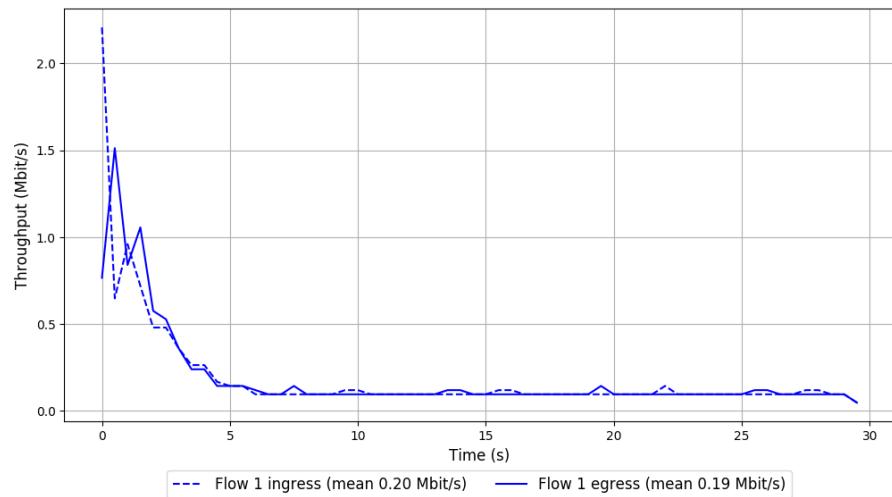


Run 2: Statistics of Indigo-calib

```
Start at: 2017-12-11 07:38:41
End at: 2017-12-11 07:39:11
Local clock offset: -7.055 ms
Remote clock offset: 1.739 ms

# Below is generated by plot.py at 2017-12-11 08:59:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 284.272 ms
Loss rate: 2.28%
-- Flow 1:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 284.272 ms
Loss rate: 2.28%
```

Run 2: Report of Indigo-calib — Data Link



Run 3: Statistics of Indigo-calib

```
Start at: 2017-12-11 07:54:49
End at: 2017-12-11 07:55:19
Local clock offset: -11.817 ms
Remote clock offset: 1.167 ms

# Below is generated by plot.py at 2017-12-11 08:59:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 1865.944 ms
Loss rate: 92.95%
-- Flow 1:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 1865.944 ms
Loss rate: 92.95%
```

Run 3: Report of Indigo-calib — Data Link

