

Pantheon Report

Generated at 2017-12-11 08:52:27 (UTC).

Data path: India ppp0 (*remote*) → AWS India 1 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).

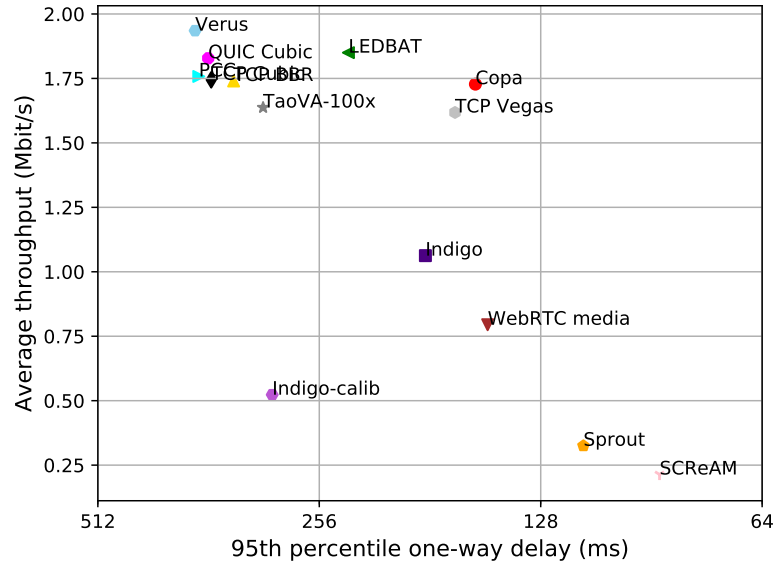
Tested BBR with qdisc of Fair Queuing (**fq**), and other schemes with the default Linux qdisc (**pfifo_fast**).

NTP offsets were measured against **nets.org.sg** and have been applied to correct the timestamps in logs.

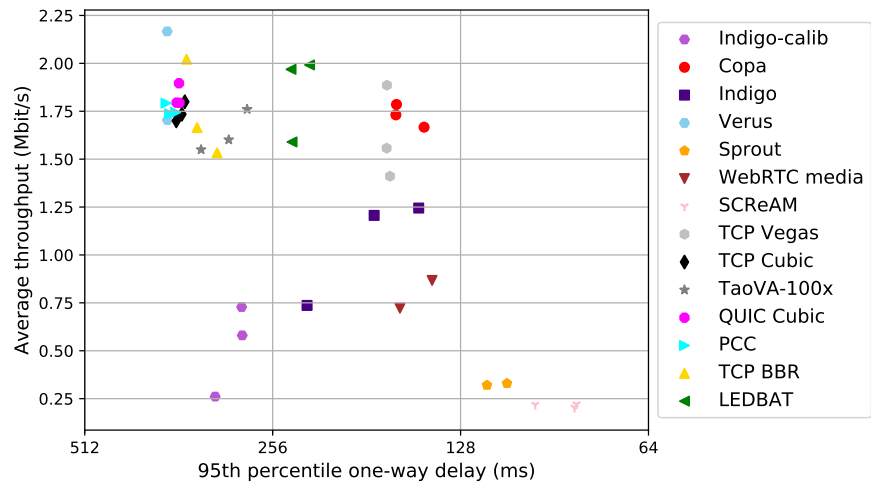
Git summary:

```
branch: indigos @ e3a57ad5ac5cfcaca0e3f983c8dd4cc3509e0262
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 @ f1a14bffe749737437f61b1eaaeb30b267cde681
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 India ppp0 to AWS India 1 Ethernet, 3 runs of 30s each per scheme
(mean of all runs by scheme)



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



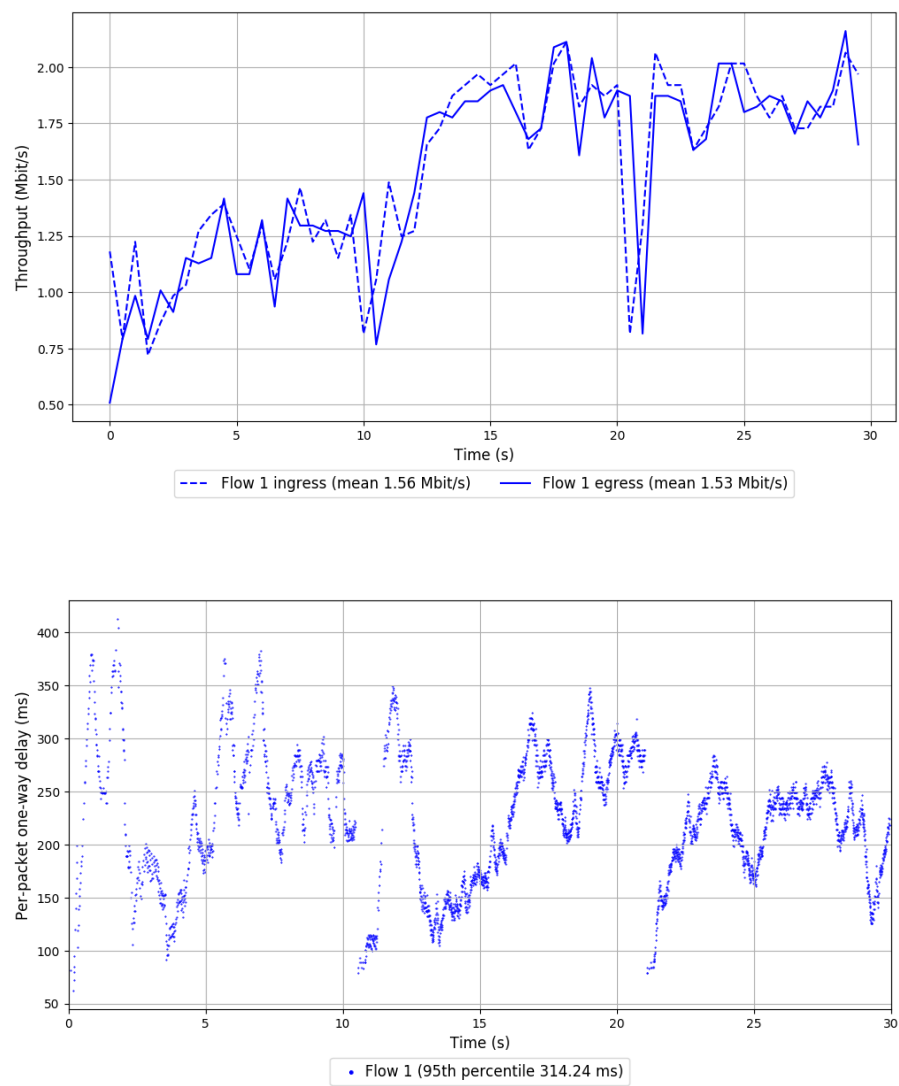
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	1.74	334.75	1.45
TCP Cubic	3	1.74	359.04	1.93
LEDBAT	3	1.85	233.70	0.64
PCC	3	1.76	373.28	33.12
QUIC Cubic	3	1.83	362.48	3.24
SCReAM	3	0.21	88.24	0.21
WebRTC media	2	0.79	151.14	0.69
Sprout	2	0.33	111.99	0.62
TaoVA-100x	3	1.64	305.24	7.59
TCP Vegas	3	1.62	167.38	0.53
Verus	2	1.94	377.63	19.66
Copa	3	1.73	157.03	0.49
Indigo	3	1.06	183.64	1.26
Indigo-calib	3	0.52	296.64	11.98

Run 1: Statistics of TCP BBR

Start at: 2017-12-11 07:34:55
End at: 2017-12-11 07:35:25
Local clock offset: -8.9 ms
Remote clock offset: -12.365 ms

Below is generated by plot.py at 2017-12-11 08:51:59
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.53 Mbit/s
95th percentile per-packet one-way delay: 314.237 ms
Loss rate: 1.60%
-- Flow 1:
Average throughput: 1.53 Mbit/s
95th percentile per-packet one-way delay: 314.237 ms
Loss rate: 1.60%

Run 1: Report of TCP BBR — Data Link

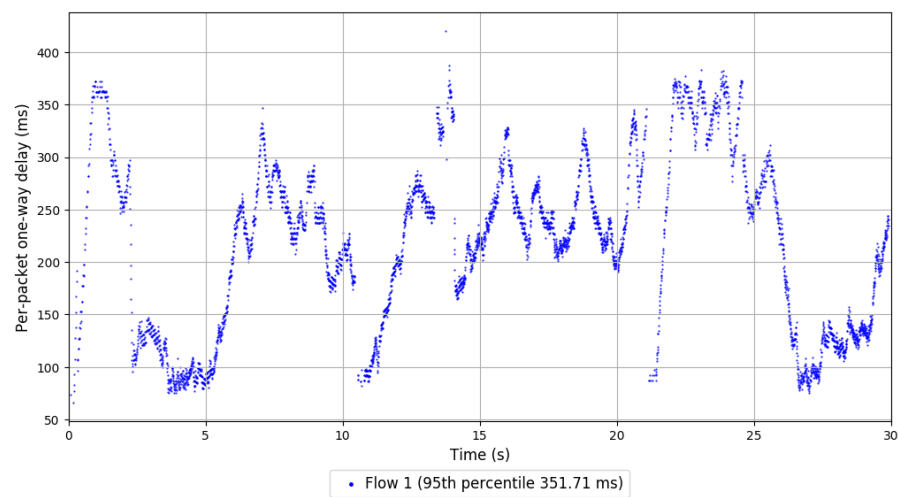
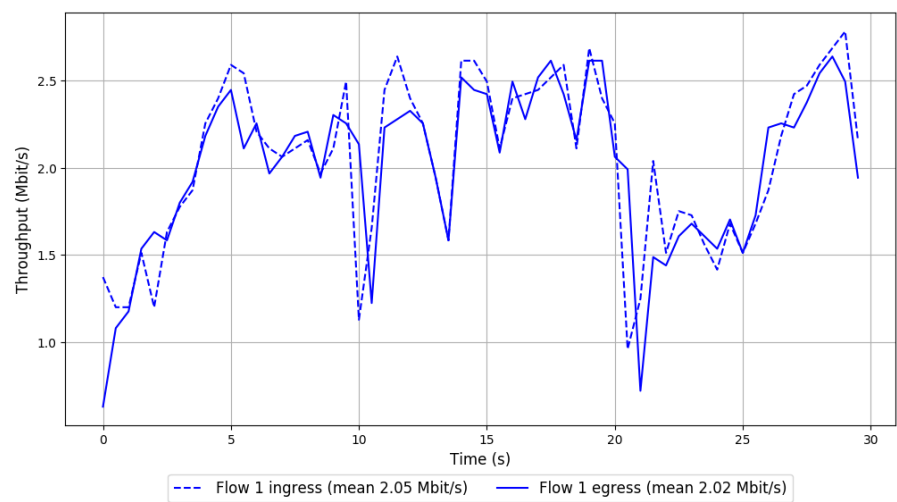


Run 2: Statistics of TCP BBR

Start at: 2017-12-11 07:50:11
End at: 2017-12-11 07:50:41
Local clock offset: -7.439 ms
Remote clock offset: -13.471 ms

Below is generated by plot.py at 2017-12-11 08:52:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.02 Mbit/s
95th percentile per-packet one-way delay: 351.707 ms
Loss rate: 1.76%
-- Flow 1:
Average throughput: 2.02 Mbit/s
95th percentile per-packet one-way delay: 351.707 ms
Loss rate: 1.76%

Run 2: Report of TCP BBR — Data Link

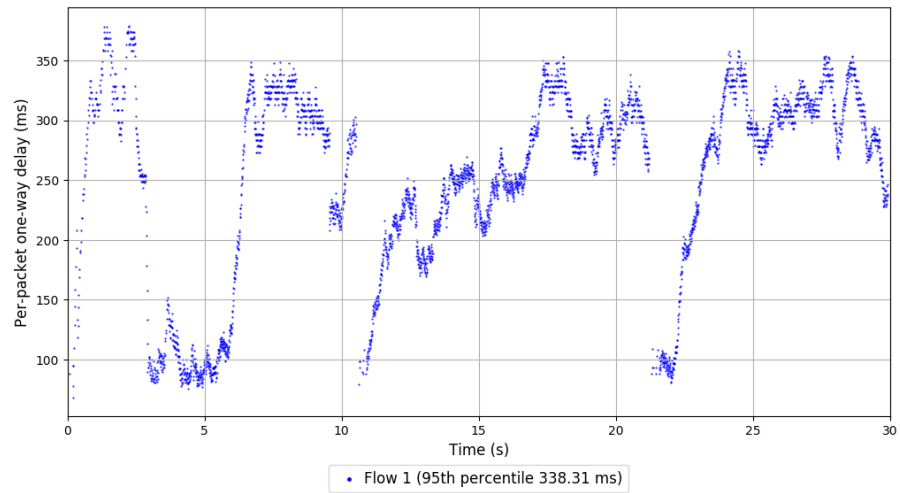
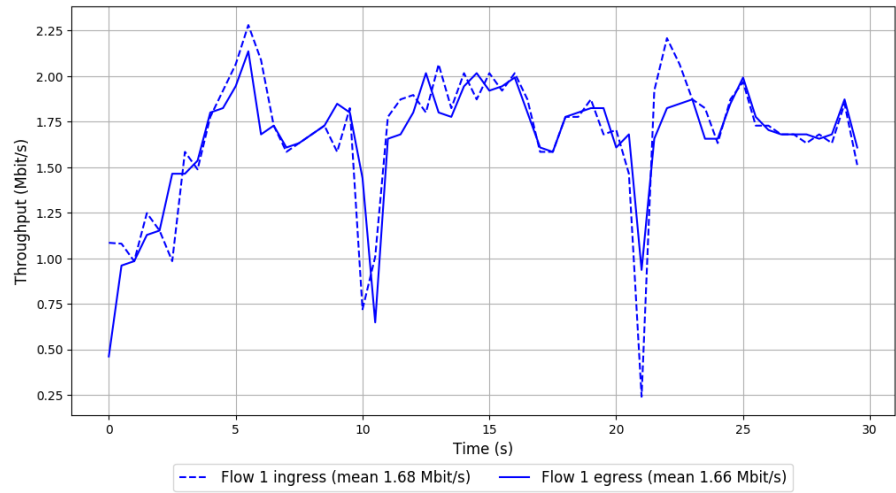


Run 3: Statistics of TCP BBR

Start at: 2017-12-11 08:05:28
End at: 2017-12-11 08:05:58
Local clock offset: -7.722 ms
Remote clock offset: -14.606 ms

Below is generated by plot.py at 2017-12-11 08:52:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.66 Mbit/s
95th percentile per-packet one-way delay: 338.309 ms
Loss rate: 1.00%
-- Flow 1:
Average throughput: 1.66 Mbit/s
95th percentile per-packet one-way delay: 338.309 ms
Loss rate: 1.00%

Run 3: Report of TCP BBR — Data Link

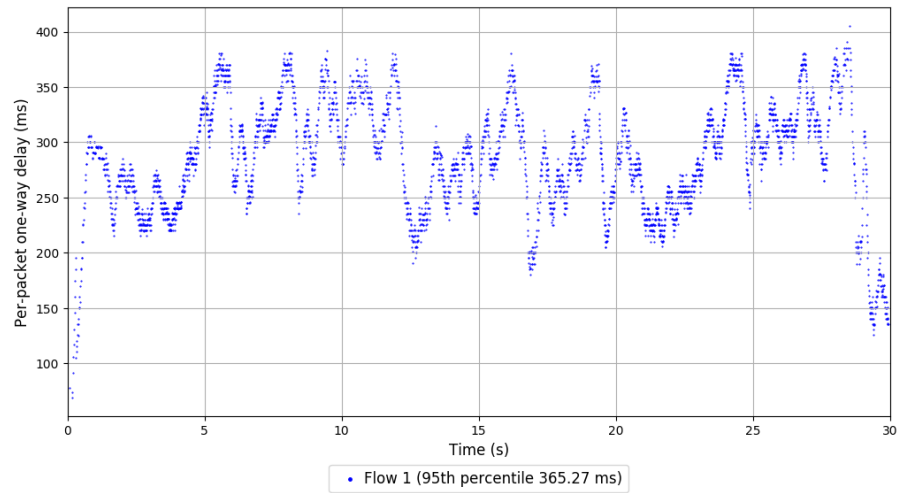
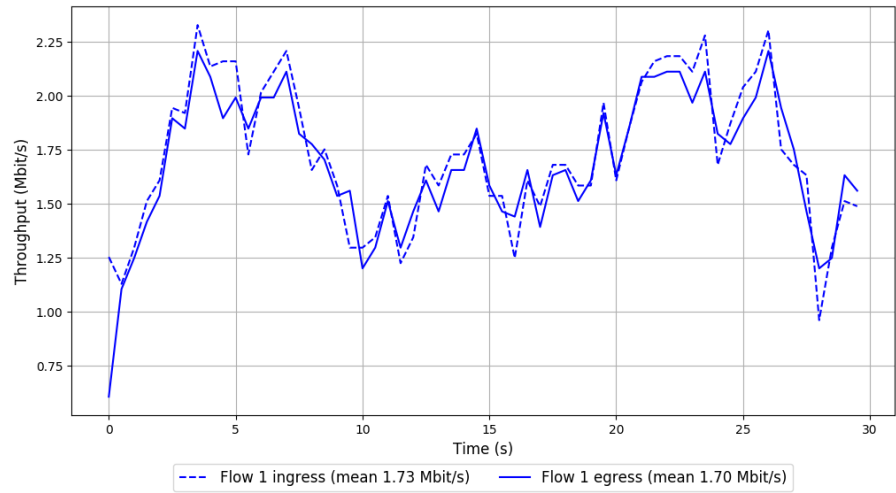


Run 1: Statistics of TCP Cubic

Start at: 2017-12-11 07:25:09
End at: 2017-12-11 07:25:39
Local clock offset: -6.567 ms
Remote clock offset: -13.861 ms

Below is generated by plot.py at 2017-12-11 08:52:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.70 Mbit/s
95th percentile per-packet one-way delay: 365.273 ms
Loss rate: 2.13%
-- Flow 1:
Average throughput: 1.70 Mbit/s
95th percentile per-packet one-way delay: 365.273 ms
Loss rate: 2.13%

Run 1: Report of TCP Cubic — Data Link

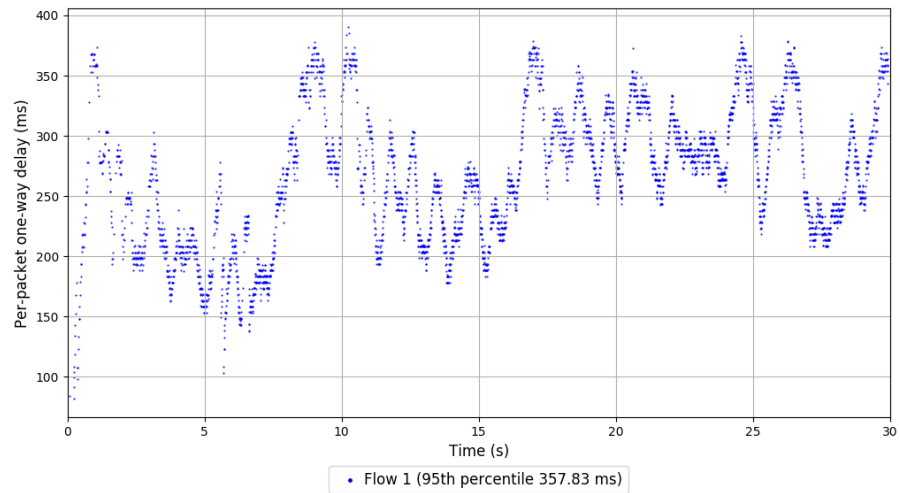
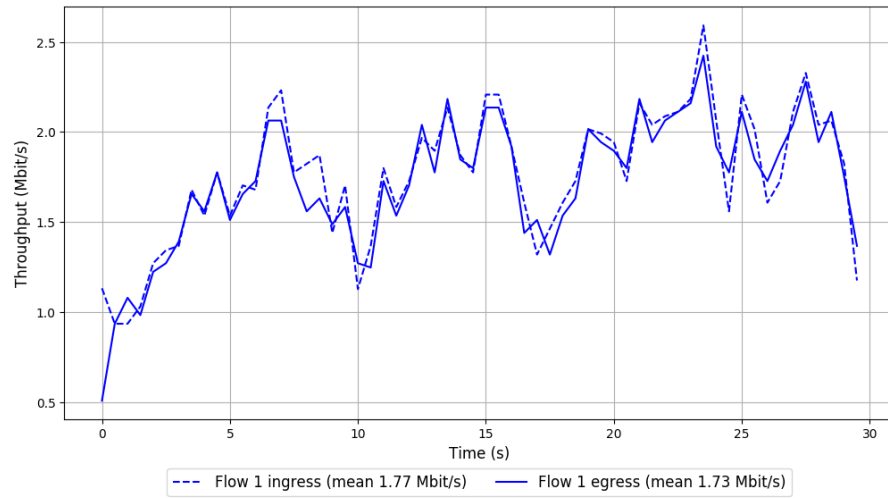


Run 2: Statistics of TCP Cubic

Start at: 2017-12-11 07:40:20
End at: 2017-12-11 07:40:50
Local clock offset: -9.513 ms
Remote clock offset: -12.193 ms

Below is generated by plot.py at 2017-12-11 08:52:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.73 Mbit/s
95th percentile per-packet one-way delay: 357.826 ms
Loss rate: 2.18%
-- Flow 1:
Average throughput: 1.73 Mbit/s
95th percentile per-packet one-way delay: 357.826 ms
Loss rate: 2.18%

Run 2: Report of TCP Cubic — Data Link

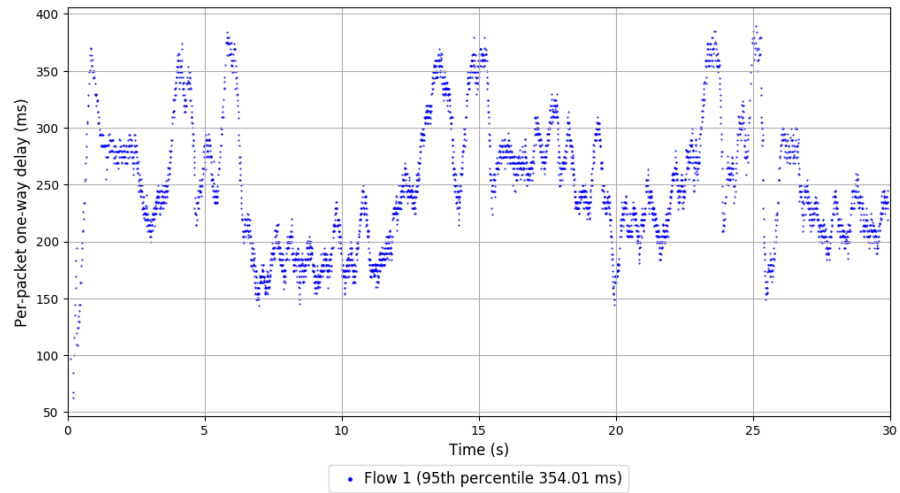
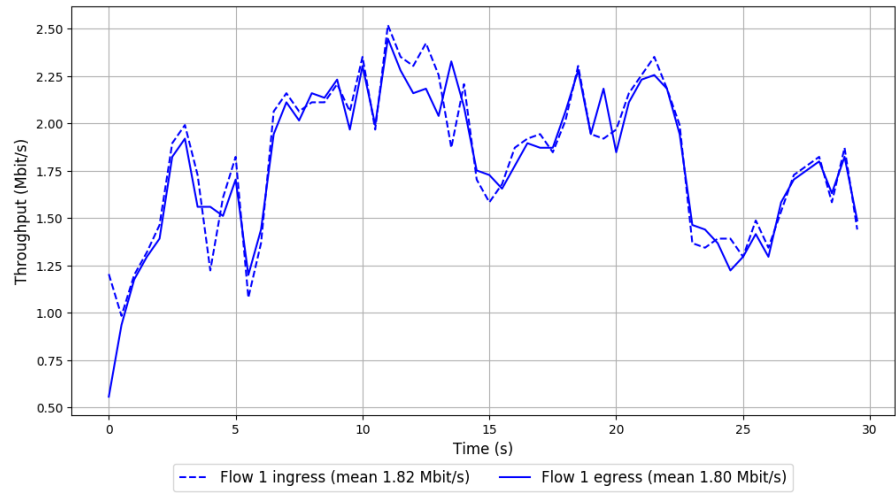


Run 3: Statistics of TCP Cubic

Start at: 2017-12-11 07:55:36
End at: 2017-12-11 07:56:06
Local clock offset: -7.925 ms
Remote clock offset: -12.463 ms

Below is generated by plot.py at 2017-12-11 08:52:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.80 Mbit/s
95th percentile per-packet one-way delay: 354.010 ms
Loss rate: 1.48%
-- Flow 1:
Average throughput: 1.80 Mbit/s
95th percentile per-packet one-way delay: 354.010 ms
Loss rate: 1.48%

Run 3: Report of TCP Cubic — Data Link

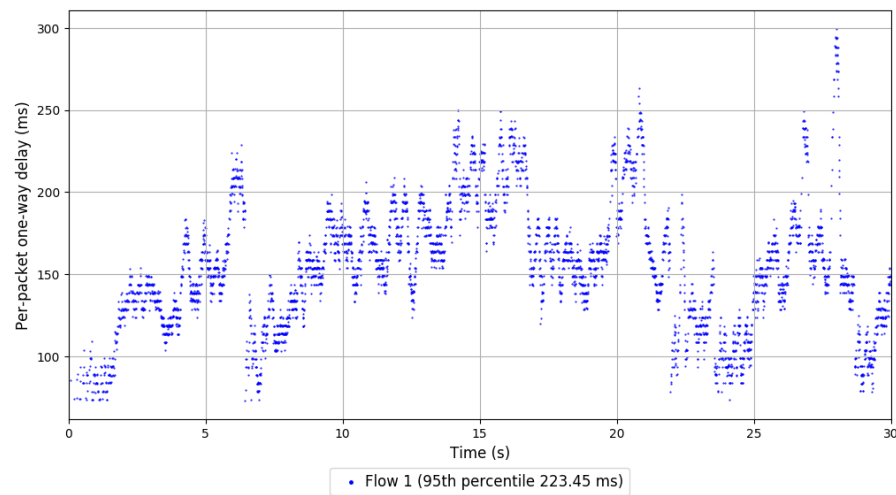
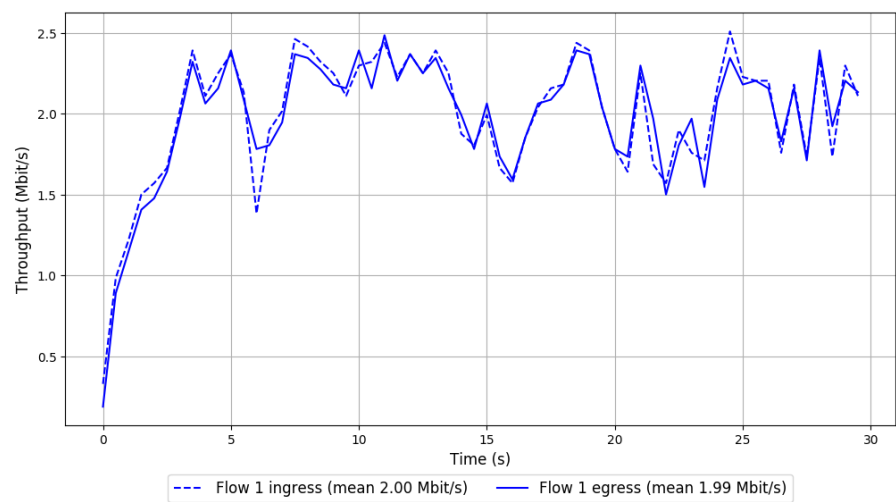


```
Run 1: Statistics of LEDBAT

Start at: 2017-12-11 07:26:14
End at: 2017-12-11 07:26:44
Local clock offset: -9.327 ms
Remote clock offset: -14.75 ms

# Below is generated by plot.py at 2017-12-11 08:52:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.99 Mbit/s
95th percentile per-packet one-way delay: 223.451 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 1.99 Mbit/s
95th percentile per-packet one-way delay: 223.451 ms
Loss rate: 0.57%
```


Run 1: Report of LEDBAT — Data Link

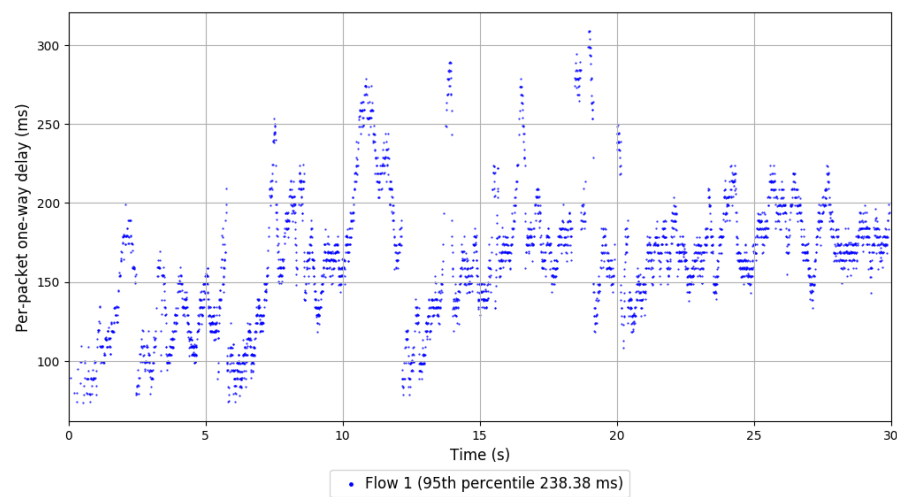
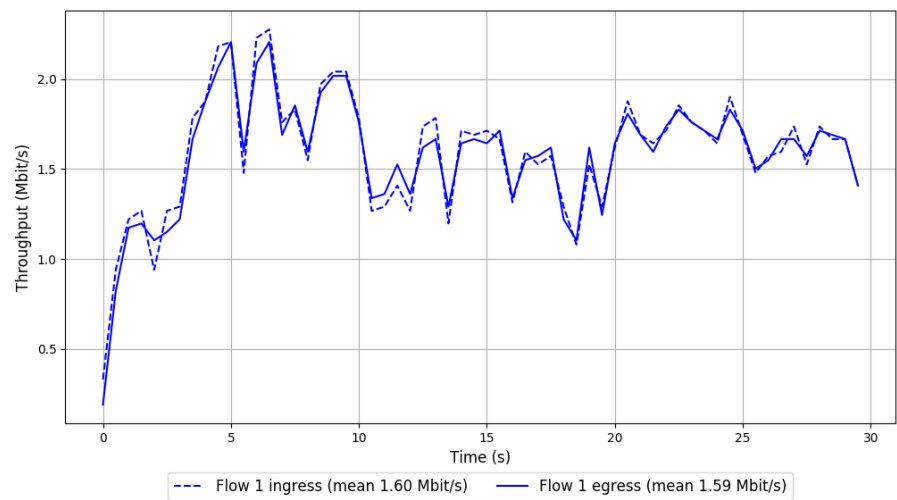


Run 2: Statistics of LEDBAT

Start at: 2017-12-11 07:41:26
End at: 2017-12-11 07:41:56
Local clock offset: -9.656 ms
Remote clock offset: -13.421 ms

Below is generated by plot.py at 2017-12-11 08:52:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.59 Mbit/s
95th percentile per-packet one-way delay: 238.380 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 1.59 Mbit/s
95th percentile per-packet one-way delay: 238.380 ms
Loss rate: 0.78%

Run 2: Report of LEDBAT — Data Link

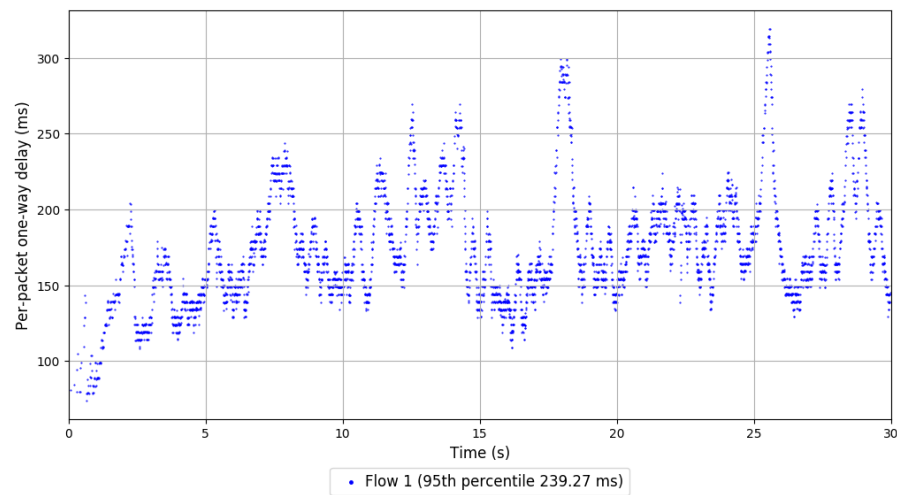
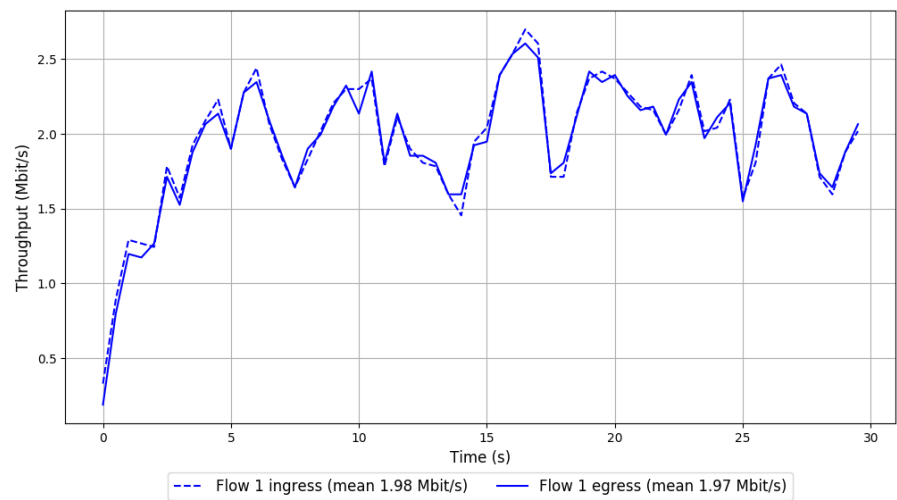


Run 3: Statistics of LEDBAT

Start at: 2017-12-11 07:56:43
End at: 2017-12-11 07:57:13
Local clock offset: -7.404 ms
Remote clock offset: -11.661 ms

Below is generated by plot.py at 2017-12-11 08:52:05
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.97 Mbit/s
95th percentile per-packet one-way delay: 239.271 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 1.97 Mbit/s
95th percentile per-packet one-way delay: 239.271 ms
Loss rate: 0.57%

Run 3: Report of LEDBAT — Data Link

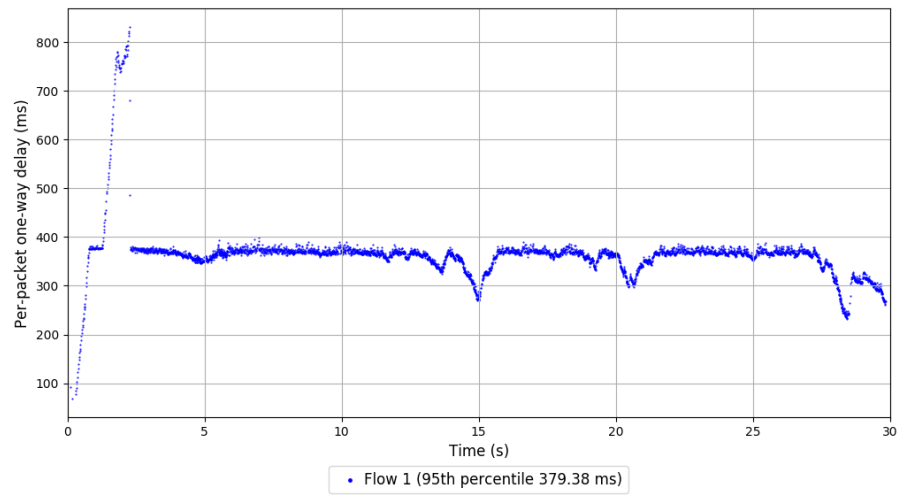
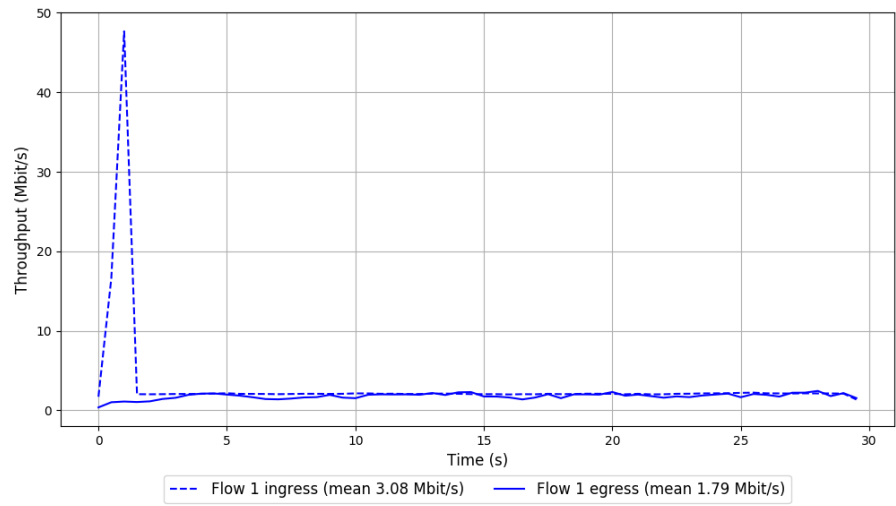


Run 1: Statistics of PCC

Start at: 2017-12-11 07:27:19
End at: 2017-12-11 07:27:49
Local clock offset: -8.296 ms
Remote clock offset: -15.131 ms

Below is generated by plot.py at 2017-12-11 08:52:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.79 Mbit/s
95th percentile per-packet one-way delay: 379.379 ms
Loss rate: 41.96%
-- Flow 1:
Average throughput: 1.79 Mbit/s
95th percentile per-packet one-way delay: 379.379 ms
Loss rate: 41.96%

Run 1: Report of PCC — Data Link

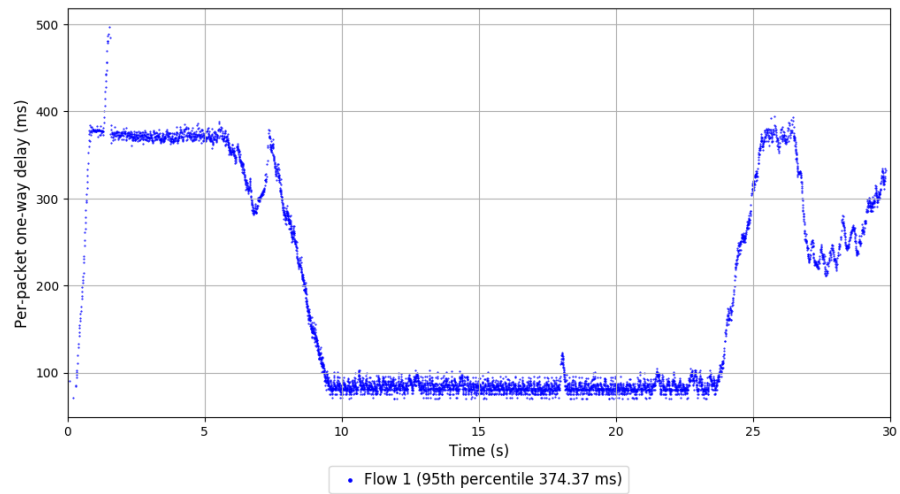
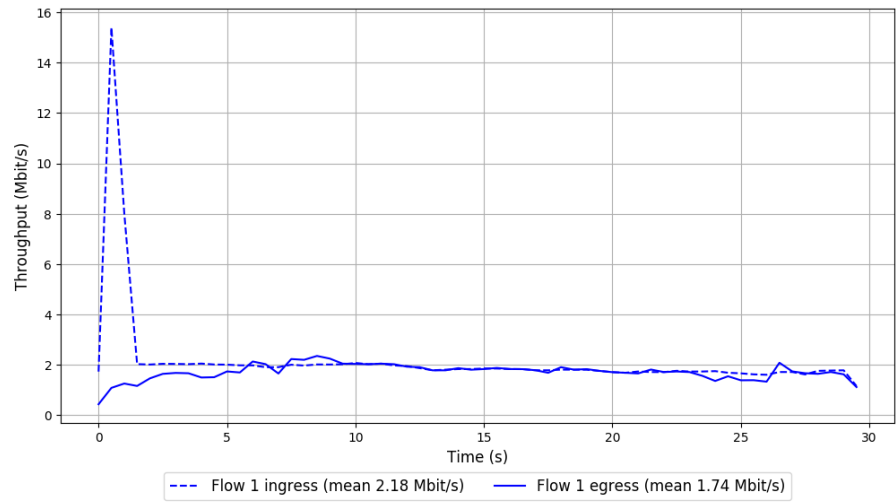


Run 2: Statistics of PCC

Start at: 2017-12-11 07:42:32
End at: 2017-12-11 07:43:02
Local clock offset: -8.458 ms
Remote clock offset: -16.842 ms

Below is generated by plot.py at 2017-12-11 08:52:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.74 Mbit/s
95th percentile per-packet one-way delay: 374.374 ms
Loss rate: 20.62%
-- Flow 1:
Average throughput: 1.74 Mbit/s
95th percentile per-packet one-way delay: 374.374 ms
Loss rate: 20.62%

Run 2: Report of PCC — Data Link

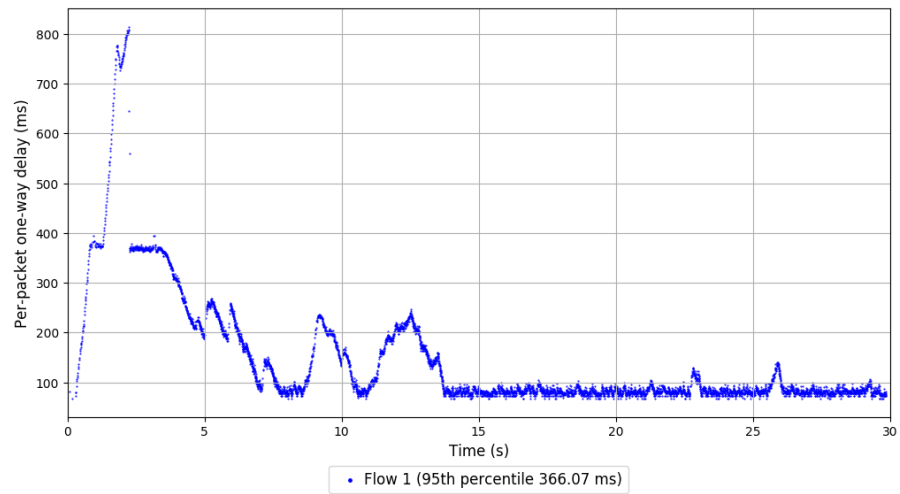
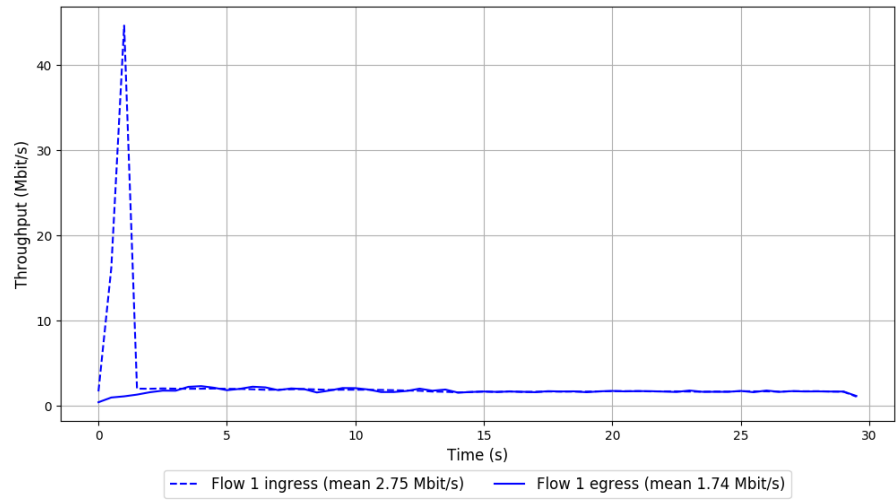


Run 3: Statistics of PCC

Start at: 2017-12-11 07:57:48
End at: 2017-12-11 07:58:18
Local clock offset: -7.393 ms
Remote clock offset: -12.172 ms

Below is generated by plot.py at 2017-12-11 08:52:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.74 Mbit/s
95th percentile per-packet one-way delay: 366.075 ms
Loss rate: 36.77%
-- Flow 1:
Average throughput: 1.74 Mbit/s
95th percentile per-packet one-way delay: 366.075 ms
Loss rate: 36.77%

Run 3: Report of PCC — Data Link

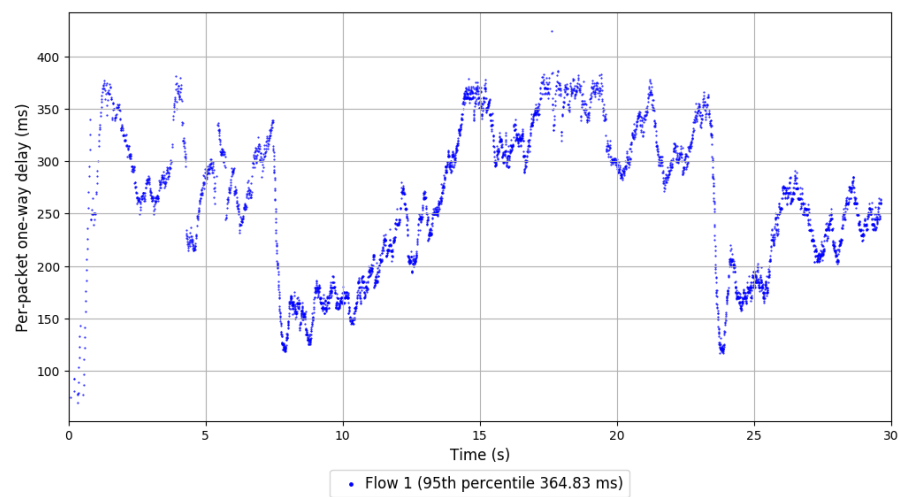
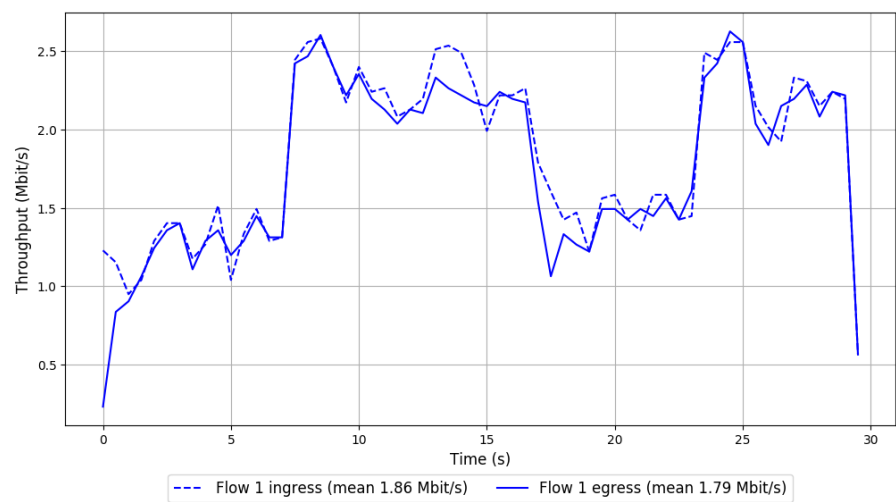


Run 1: Statistics of QUIC Cubic

Start at: 2017-12-11 07:32:45
End at: 2017-12-11 07:33:15
Local clock offset: -6.223 ms
Remote clock offset: -12.664 ms

Below is generated by plot.py at 2017-12-11 08:52:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.79 Mbit/s
95th percentile per-packet one-way delay: 364.829 ms
Loss rate: 3.75%
-- Flow 1:
Average throughput: 1.79 Mbit/s
95th percentile per-packet one-way delay: 364.829 ms
Loss rate: 3.75%

Run 1: Report of QUIC Cubic — Data Link

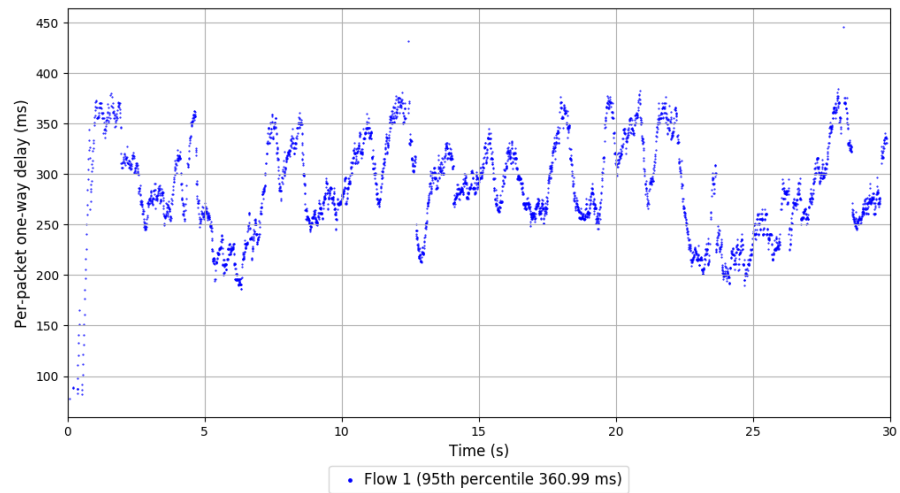
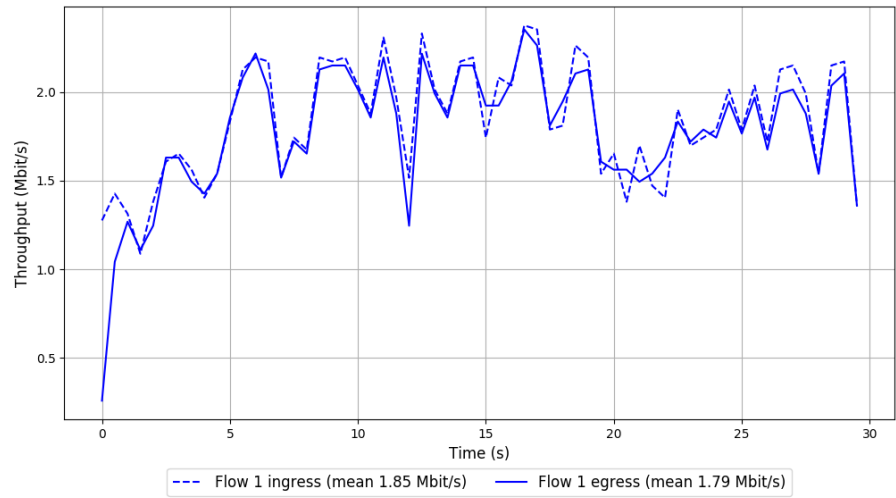


Run 2: Statistics of QUIC Cubic

Start at: 2017-12-11 07:48:00
End at: 2017-12-11 07:48:30
Local clock offset: -7.474 ms
Remote clock offset: -12.698 ms

Below is generated by plot.py at 2017-12-11 08:52:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.79 Mbit/s
95th percentile per-packet one-way delay: 360.987 ms
Loss rate: 3.08%
-- Flow 1:
Average throughput: 1.79 Mbit/s
95th percentile per-packet one-way delay: 360.987 ms
Loss rate: 3.08%

Run 2: Report of QUIC Cubic — Data Link

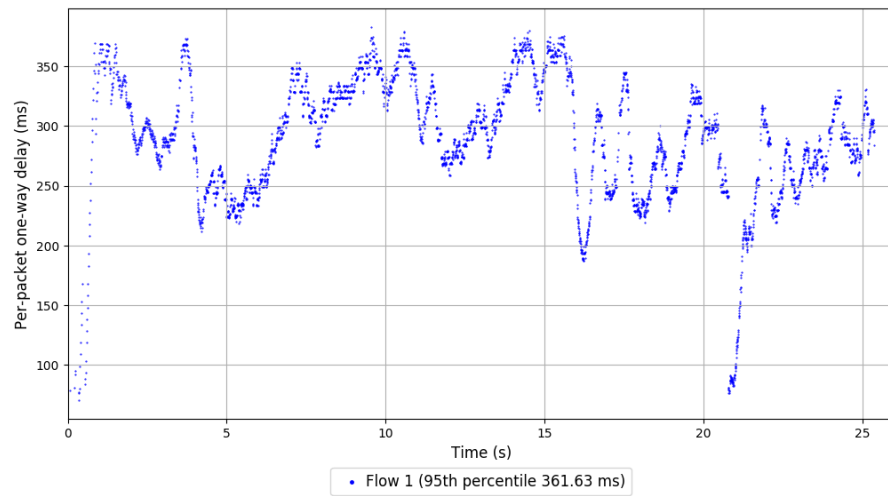
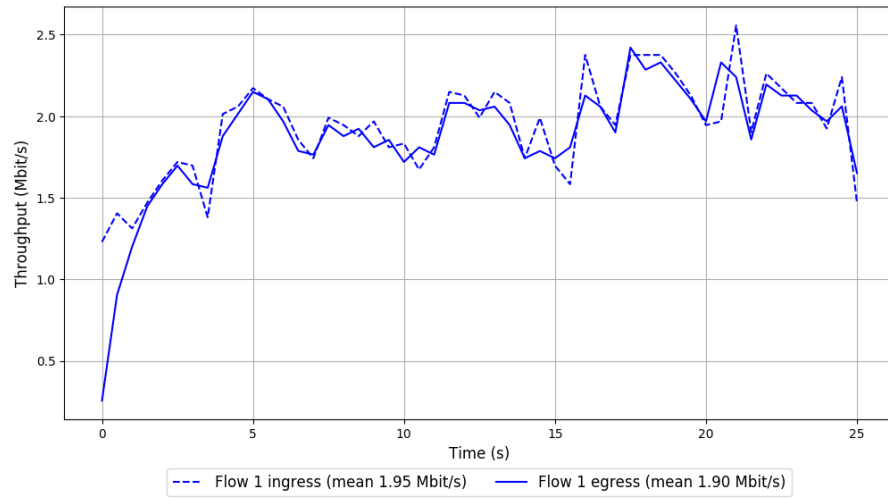


Run 3: Statistics of QUIC Cubic

Start at: 2017-12-11 08:03:17
End at: 2017-12-11 08:03:47
Local clock offset: -8.893 ms
Remote clock offset: -13.016 ms

Below is generated by plot.py at 2017-12-11 08:52:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.90 Mbit/s
95th percentile per-packet one-way delay: 361.633 ms
Loss rate: 2.89%
-- Flow 1:
Average throughput: 1.90 Mbit/s
95th percentile per-packet one-way delay: 361.633 ms
Loss rate: 2.89%

Run 3: Report of QUIC Cubic — Data Link

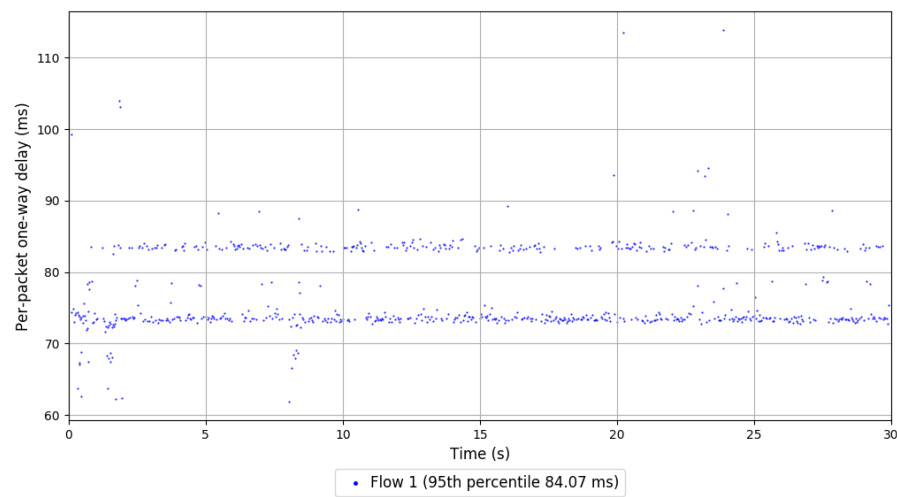
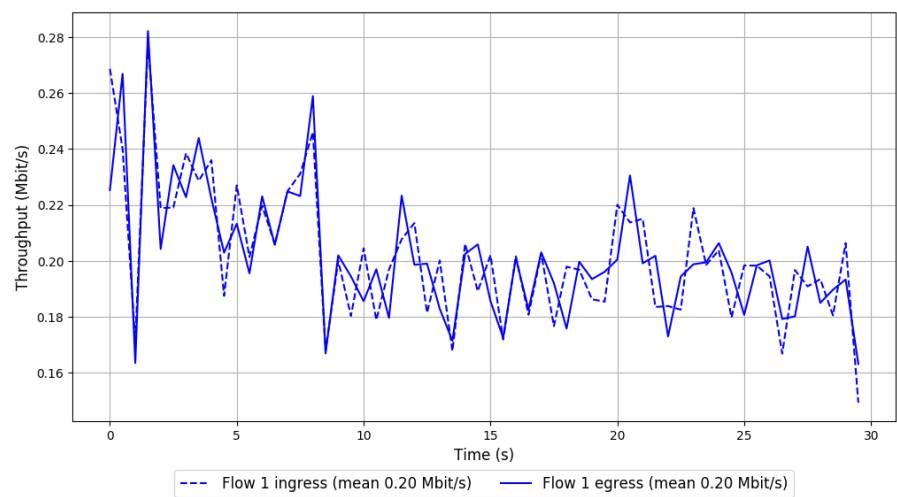


```
Run 1: Statistics of SCReAM

Start at: 2017-12-11 07:24:04
End at: 2017-12-11 07:24:34
Local clock offset: -6.616 ms
Remote clock offset: -13.475 ms

# Below is generated by plot.py at 2017-12-11 08:52:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 84.067 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 84.067 ms
Loss rate: 0.13%
```

Run 1: Report of SReAM — Data Link

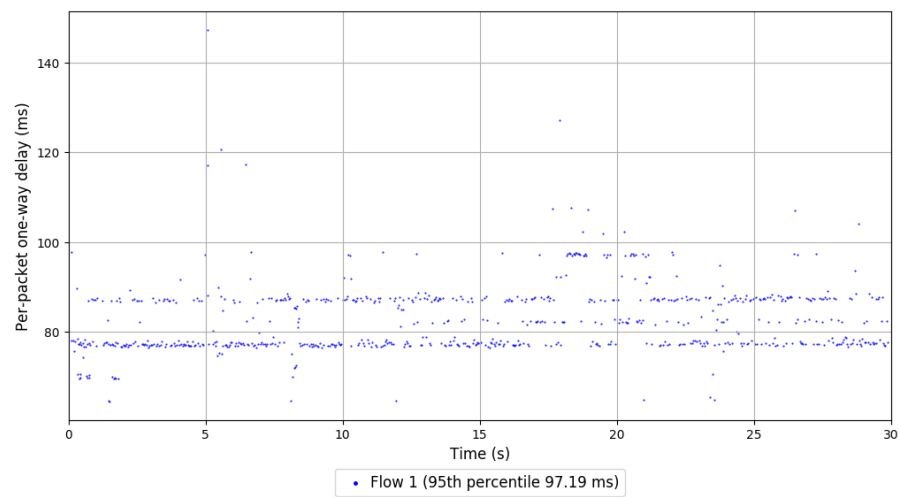
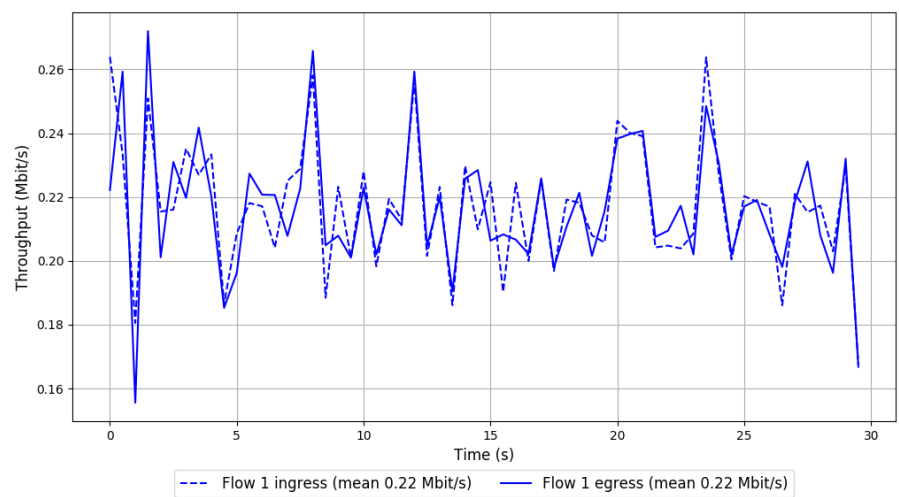


Run 2: Statistics of SCReAM

Start at: 2017-12-11 07:39:15
End at: 2017-12-11 07:39:45
Local clock offset: -5.589 ms
Remote clock offset: -12.466 ms

Below is generated by plot.py at 2017-12-11 08:52:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 97.189 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 97.189 ms
Loss rate: 0.25%

Run 2: Report of SReAM — Data Link

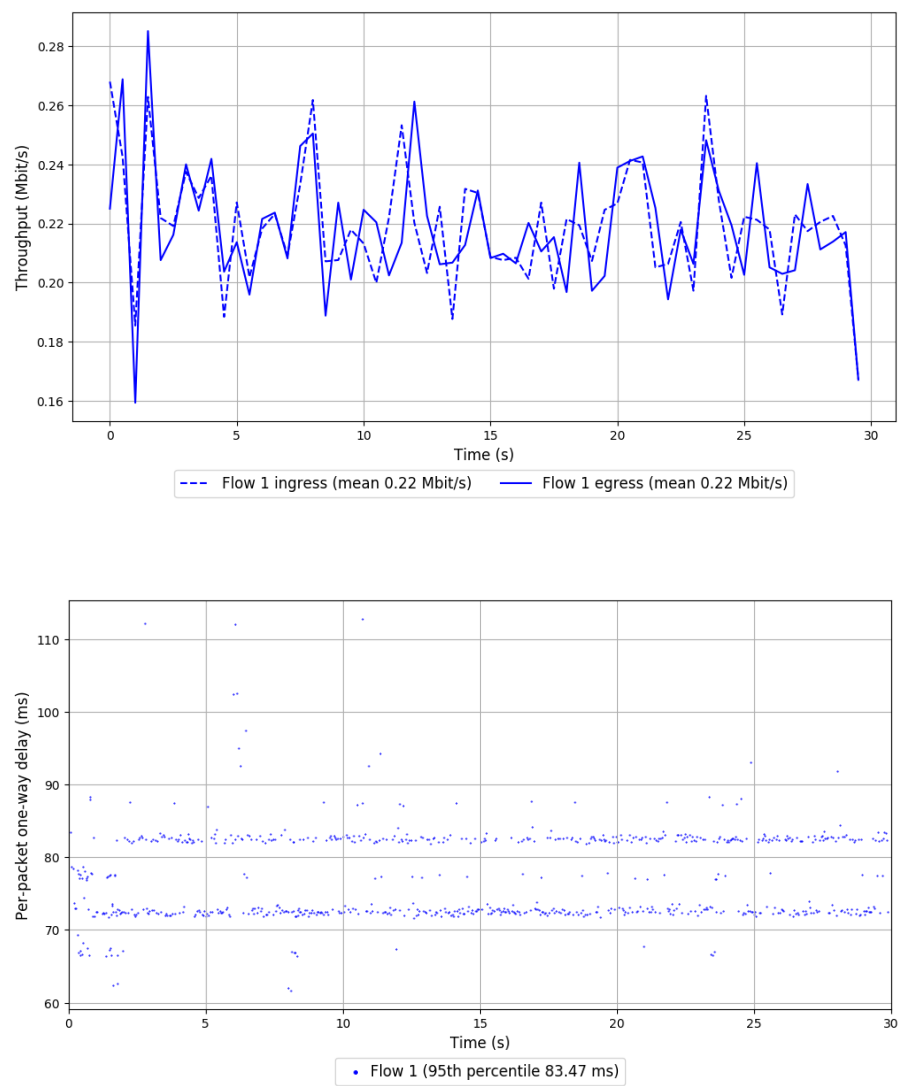


Run 3: Statistics of SCReAM

Start at: 2017-12-11 07:54:31
End at: 2017-12-11 07:55:01
Local clock offset: -8.824 ms
Remote clock offset: -12.92 ms

Below is generated by plot.py at 2017-12-11 08:52:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 83.470 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 83.470 ms
Loss rate: 0.25%

Run 3: Report of SReAM — Data Link

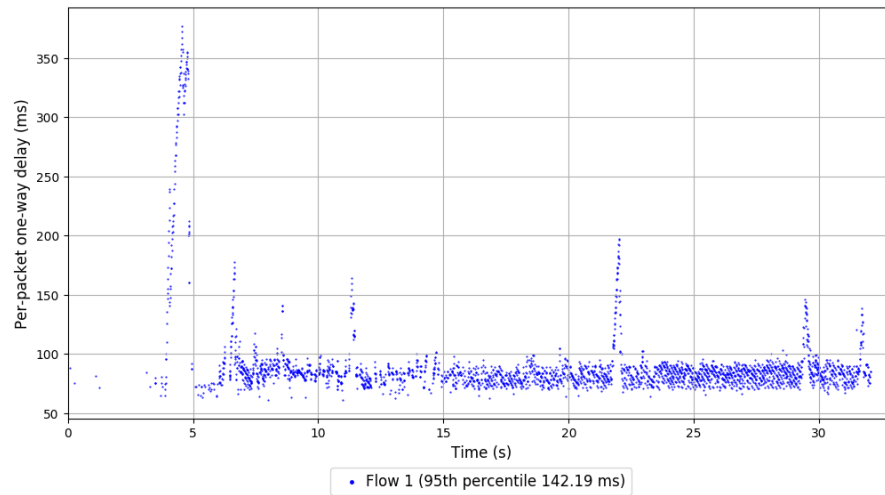
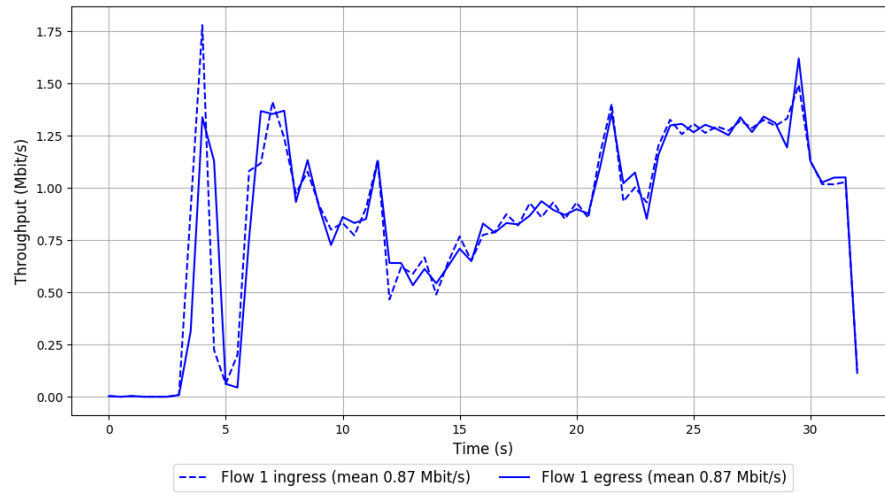


Run 1: Statistics of WebRTC media

Start at: 2017-12-11 07:28:24
End at: 2017-12-11 07:28:54
Local clock offset: -10.404 ms
Remote clock offset: -14.838 ms

Below is generated by plot.py at 2017-12-11 08:52:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.87 Mbit/s
95th percentile per-packet one-way delay: 142.187 ms
Loss rate: 0.50%
-- Flow 1:
Average throughput: 0.87 Mbit/s
95th percentile per-packet one-way delay: 142.187 ms
Loss rate: 0.50%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

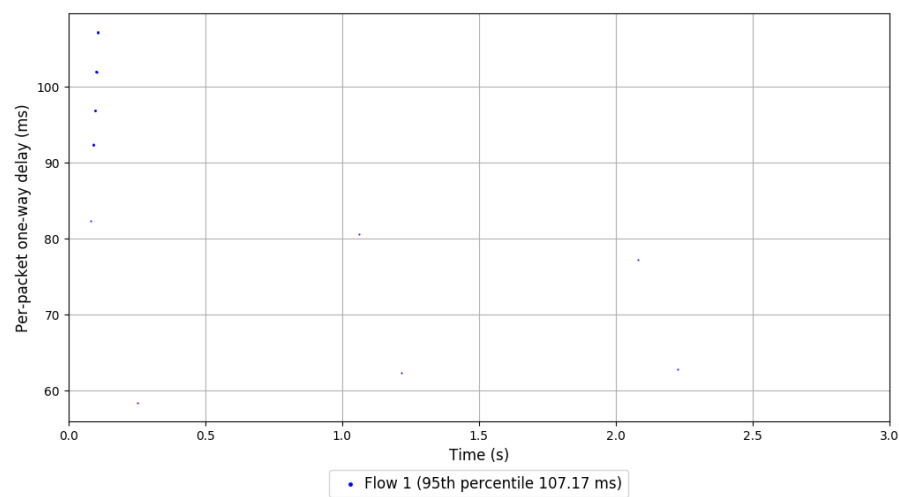
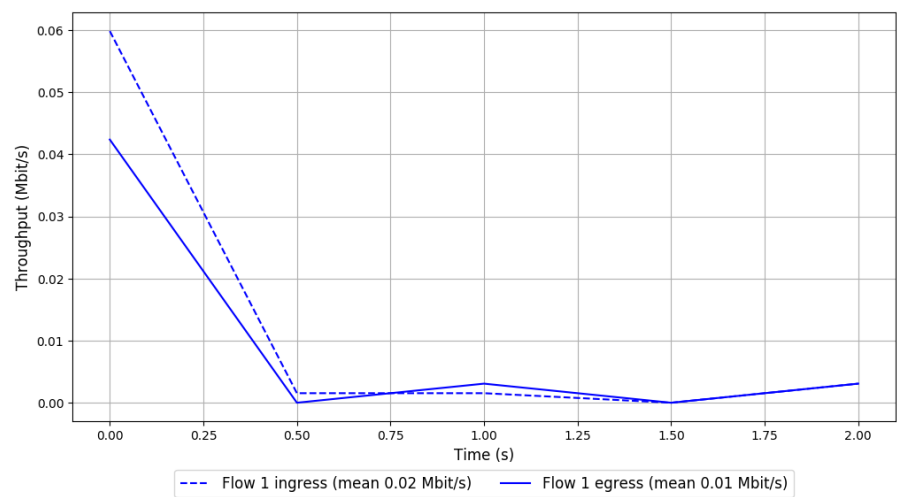
Start at: 2017-12-11 07:43:38

End at: 2017-12-11 07:44:08

Local clock offset: -11.035 ms

Remote clock offset: -12.842 ms

Run 2: Report of WebRTC media — Data Link

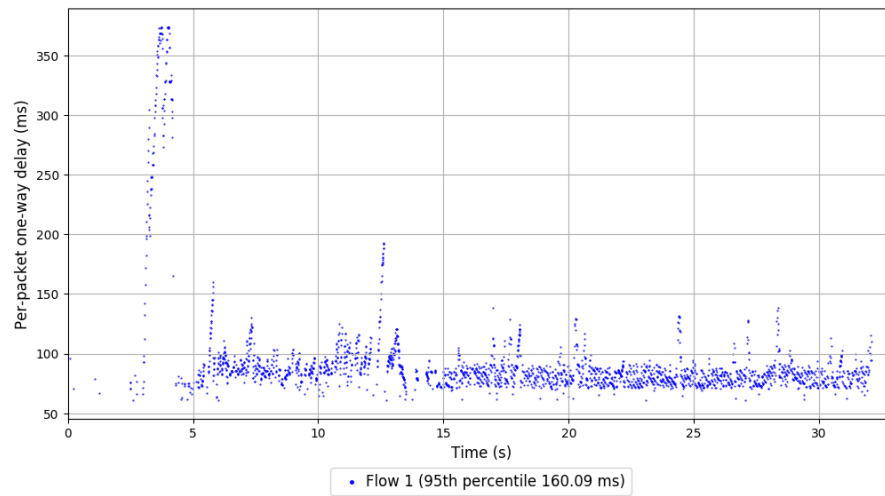
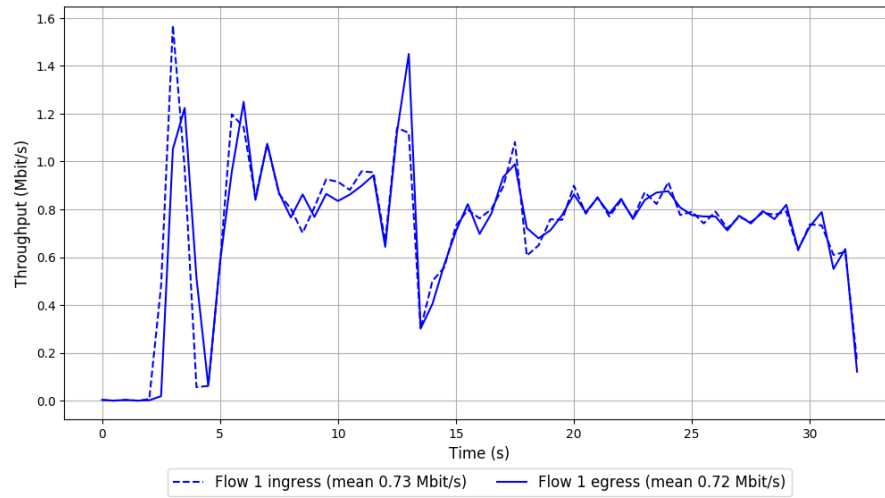


Run 3: Statistics of WebRTC media

Start at: 2017-12-11 07:58:54
End at: 2017-12-11 07:59:24
Local clock offset: -10.457 ms
Remote clock offset: -13.862 ms

Below is generated by plot.py at 2017-12-11 08:52:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.72 Mbit/s
95th percentile per-packet one-way delay: 160.089 ms
Loss rate: 0.88%
-- Flow 1:
Average throughput: 0.72 Mbit/s
95th percentile per-packet one-way delay: 160.089 ms
Loss rate: 0.88%

Run 3: Report of WebRTC media — Data Link

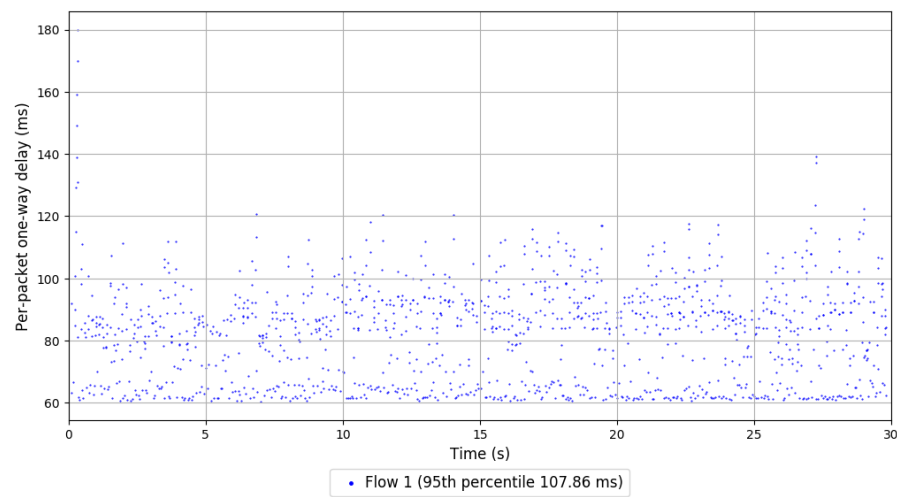
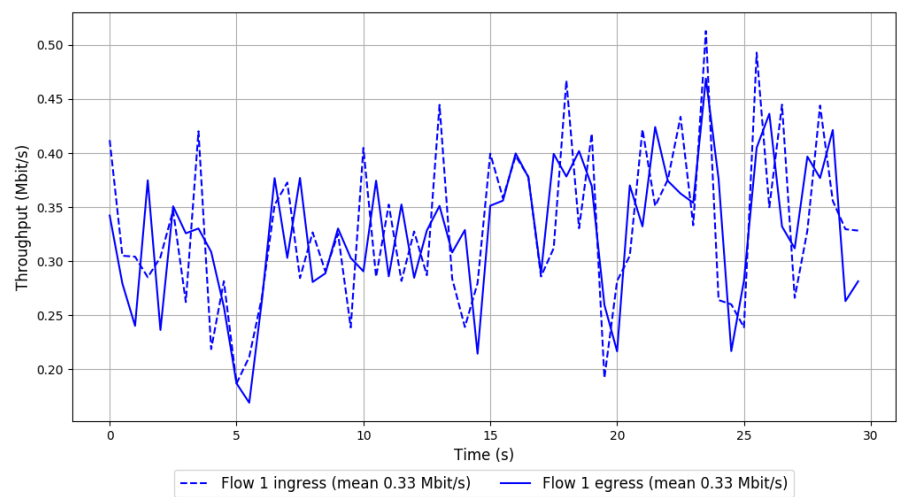


Run 1: Statistics of Sprout

Start at: 2017-12-11 07:22:59
End at: 2017-12-11 07:23:29
Local clock offset: -8.173 ms
Remote clock offset: -14.283 ms

Below is generated by plot.py at 2017-12-11 08:52:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 107.859 ms
Loss rate: 1.05%
-- Flow 1:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 107.859 ms
Loss rate: 1.05%

Run 1: Report of Sprout — Data Link



Run 2: Statistics of Sprout

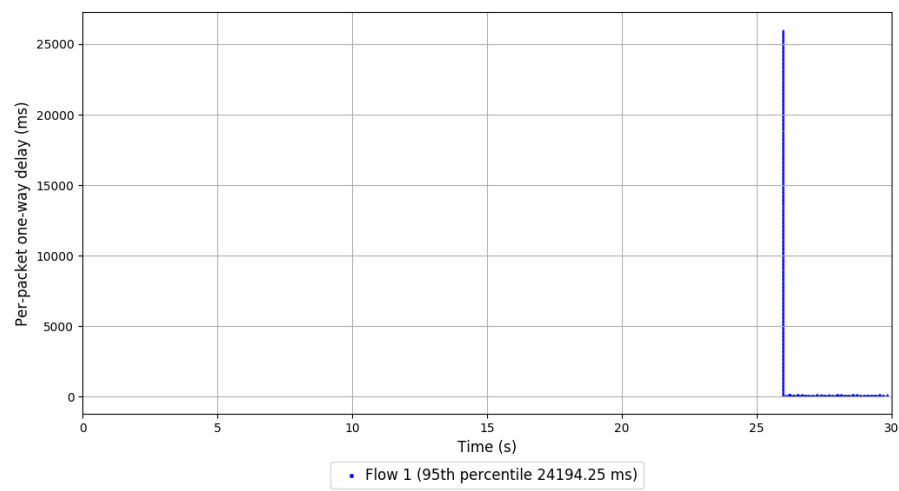
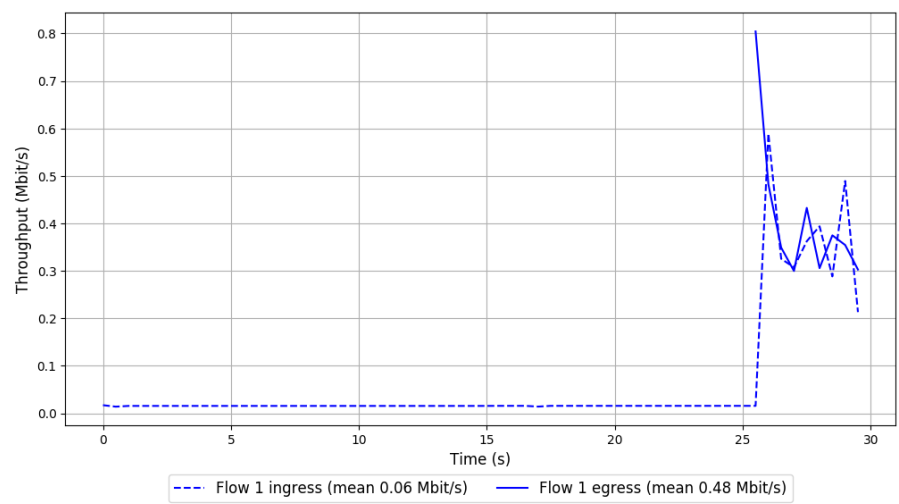
Start at: 2017-12-11 07:38:11

End at: 2017-12-11 07:38:41

Local clock offset: -6.515 ms

Remote clock offset: -12.235 ms

Run 2: Report of Sprout — Data Link

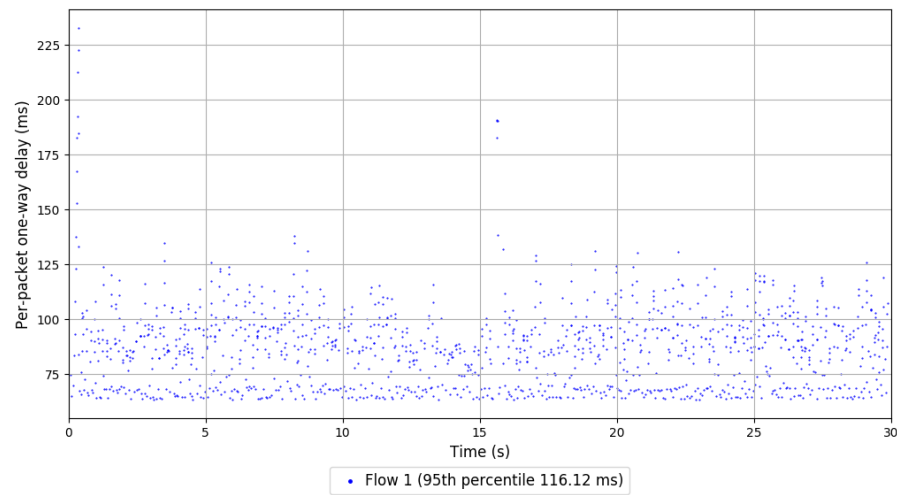
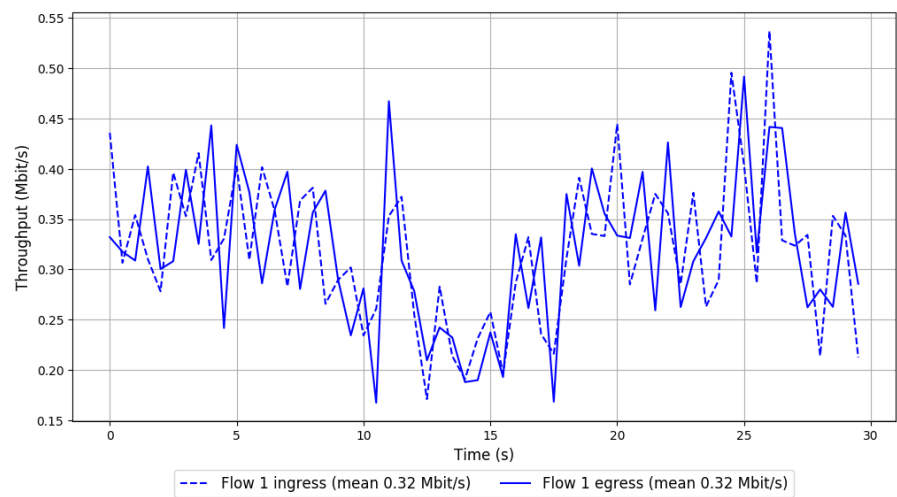


Run 3: Statistics of Sprout

Start at: 2017-12-11 07:53:26
End at: 2017-12-11 07:53:56
Local clock offset: -5.624 ms
Remote clock offset: -13.417 ms

Below is generated by plot.py at 2017-12-11 08:52:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.32 Mbit/s
95th percentile per-packet one-way delay: 116.120 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 0.32 Mbit/s
95th percentile per-packet one-way delay: 116.120 ms
Loss rate: 0.20%

Run 3: Report of Sprout — Data Link

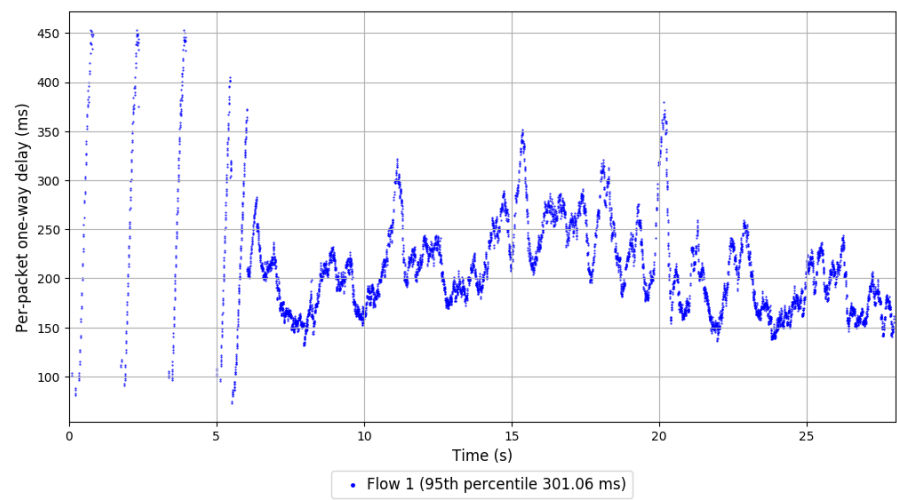
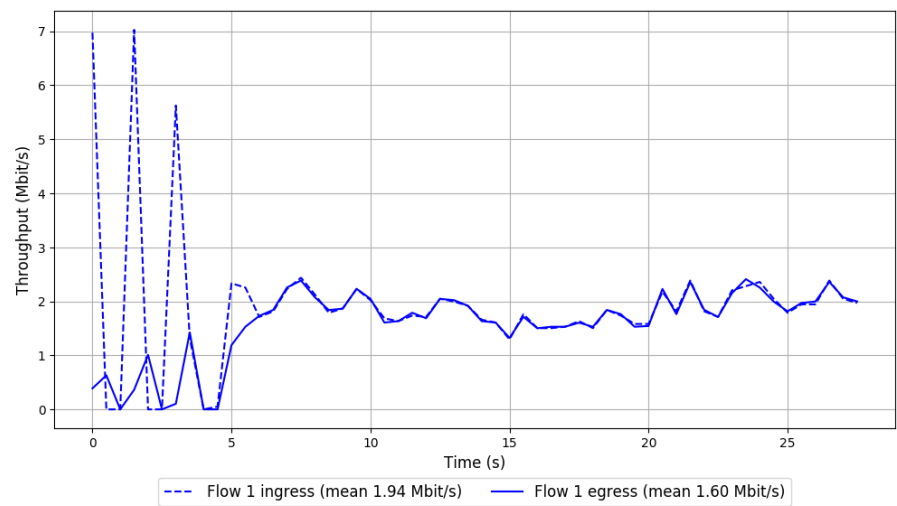


```
Run 1: Statistics of TaoVA-100x

Start at: 2017-12-11 07:30:34
End at: 2017-12-11 07:31:04
Local clock offset: -6.684 ms
Remote clock offset: -13.685 ms

# Below is generated by plot.py at 2017-12-11 08:52:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.60 Mbit/s
95th percentile per-packet one-way delay: 301.059 ms
Loss rate: 17.54%
-- Flow 1:
Average throughput: 1.60 Mbit/s
95th percentile per-packet one-way delay: 301.059 ms
Loss rate: 17.54%
```

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

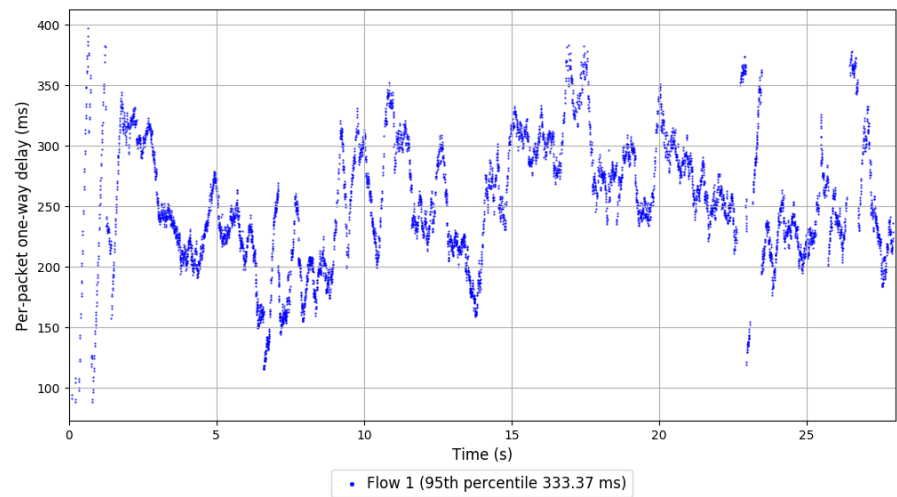
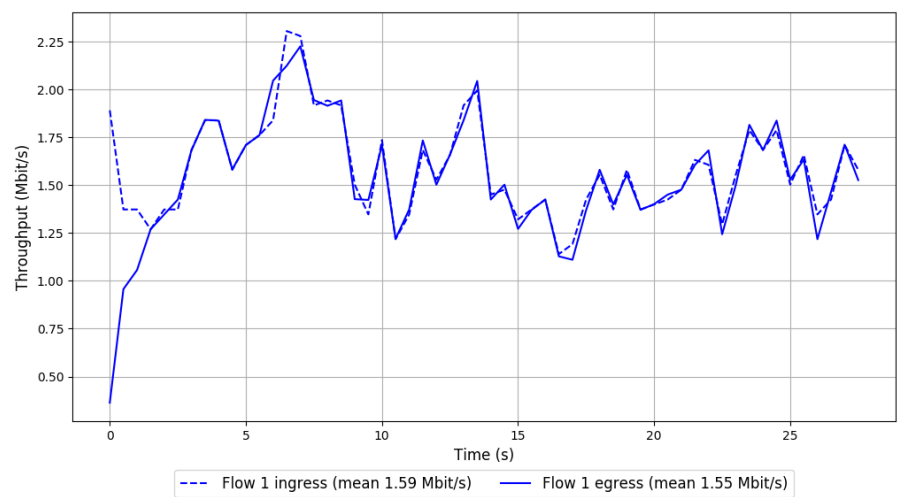


Run 2: Statistics of TaoVA-100x

Start at: 2017-12-11 07:45:48
End at: 2017-12-11 07:46:18
Local clock offset: -8.155 ms
Remote clock offset: -14.344 ms

Below is generated by plot.py at 2017-12-11 08:52:16
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.55 Mbit/s
95th percentile per-packet one-way delay: 333.368 ms
Loss rate: 2.82%
-- Flow 1:
Average throughput: 1.55 Mbit/s
95th percentile per-packet one-way delay: 333.368 ms
Loss rate: 2.82%

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

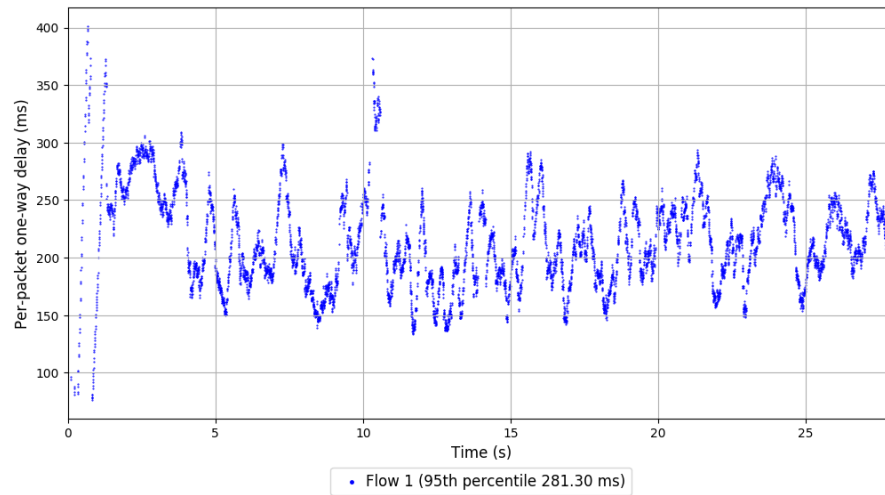
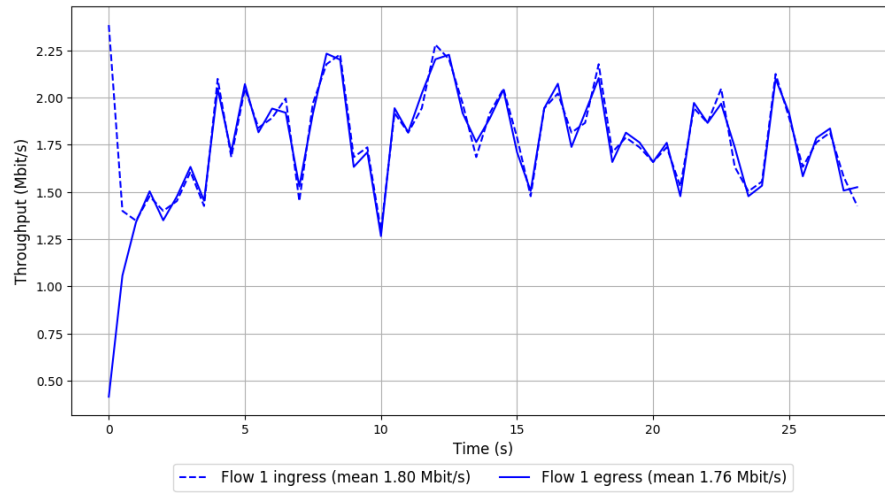


Run 3: Statistics of TaoVA-100x

Start at: 2017-12-11 08:01:05
End at: 2017-12-11 08:01:35
Local clock offset: -8.379 ms
Remote clock offset: -13.181 ms

Below is generated by plot.py at 2017-12-11 08:52:19
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.76 Mbit/s
95th percentile per-packet one-way delay: 281.295 ms
Loss rate: 2.42%
-- Flow 1:
Average throughput: 1.76 Mbit/s
95th percentile per-packet one-way delay: 281.295 ms
Loss rate: 2.42%

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

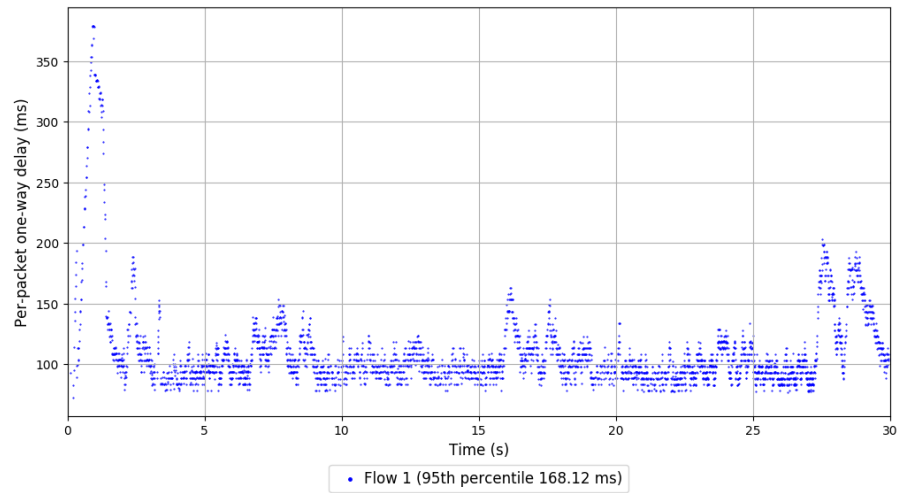
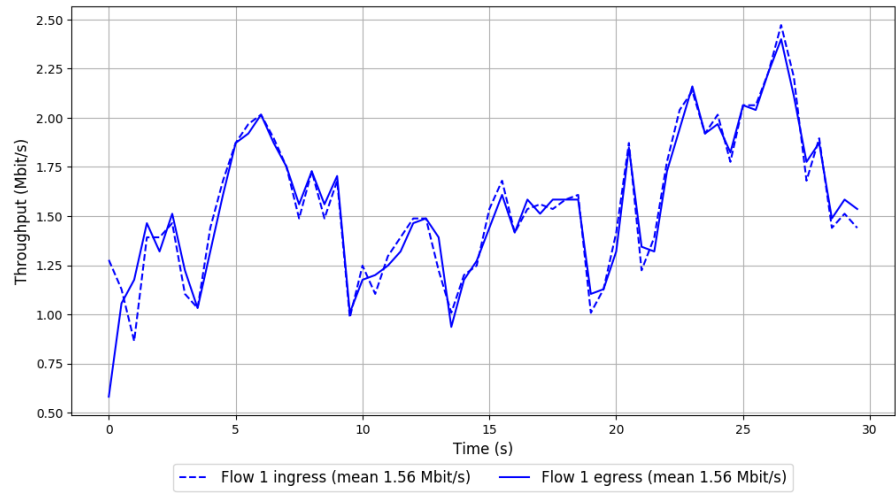


Run 1: Statistics of TCP Vegas

Start at: 2017-12-11 07:29:29
End at: 2017-12-11 07:29:59
Local clock offset: -8.239 ms
Remote clock offset: -15.029 ms

Below is generated by plot.py at 2017-12-11 08:52:19
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.56 Mbit/s
95th percentile per-packet one-way delay: 168.121 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 1.56 Mbit/s
95th percentile per-packet one-way delay: 168.121 ms
Loss rate: 0.56%

Run 1: Report of TCP Vegas — Data Link

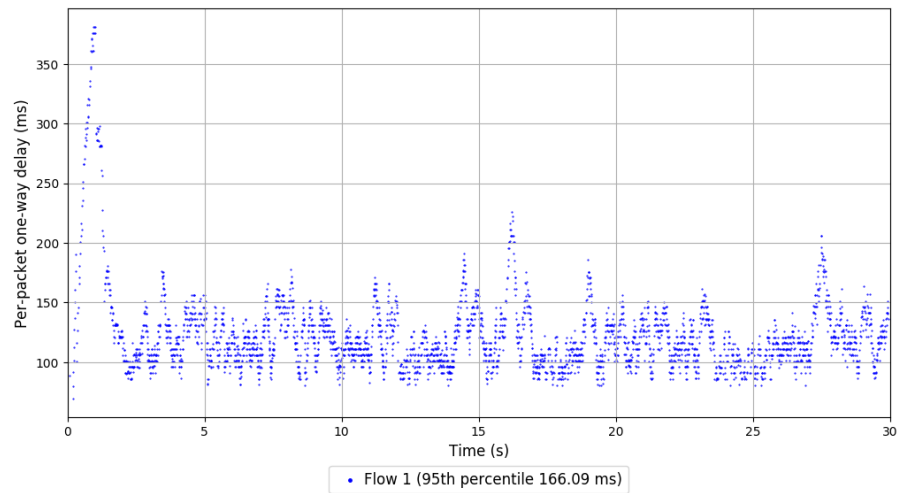
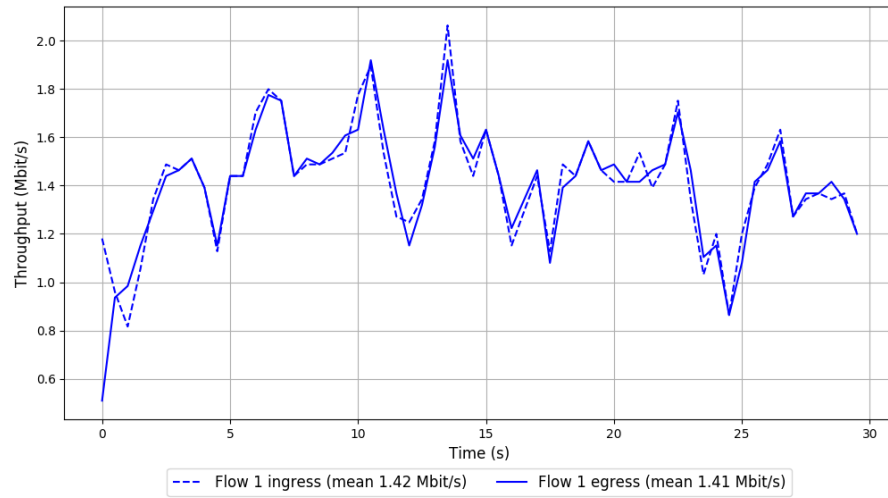


Run 2: Statistics of TCP Vegas

Start at: 2017-12-11 07:44:43
End at: 2017-12-11 07:45:13
Local clock offset: -6.648 ms
Remote clock offset: -14.166 ms

Below is generated by plot.py at 2017-12-11 08:52:19
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.41 Mbit/s
95th percentile per-packet one-way delay: 166.085 ms
Loss rate: 0.68%
-- Flow 1:
Average throughput: 1.41 Mbit/s
95th percentile per-packet one-way delay: 166.085 ms
Loss rate: 0.68%

Run 2: Report of TCP Vegas — Data Link

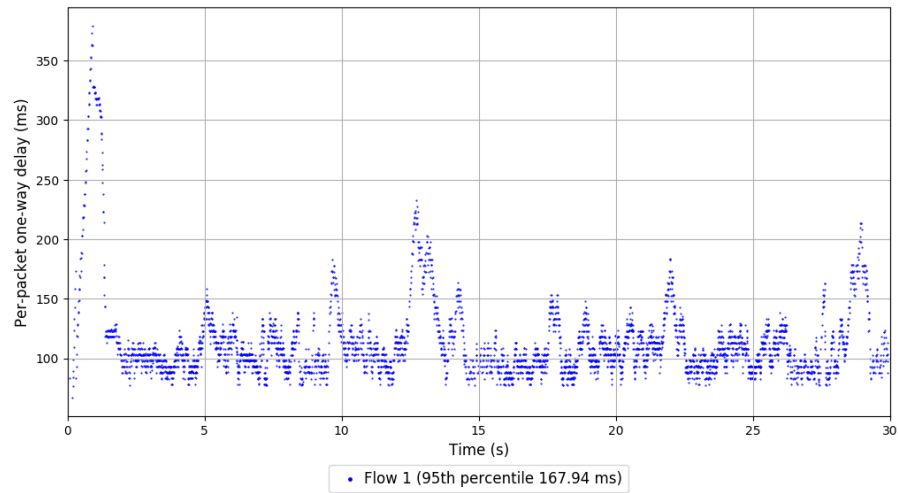
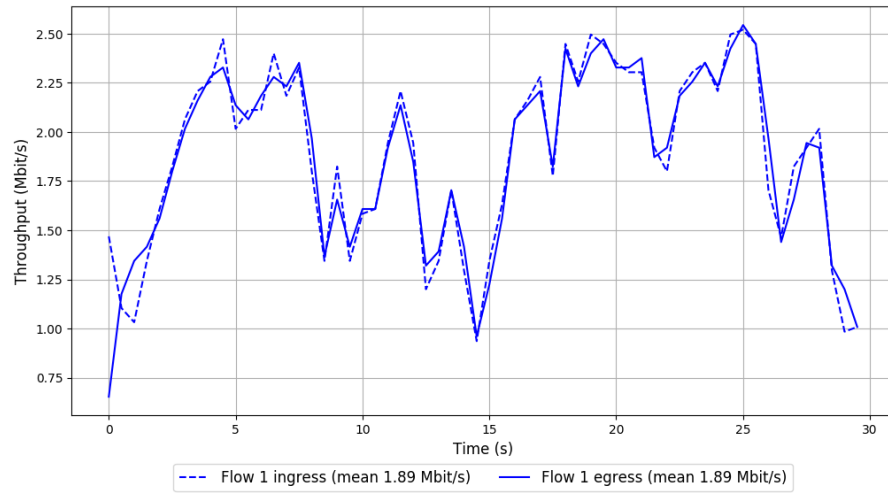


Run 3: Statistics of TCP Vegas

Start at: 2017-12-11 08:00:00
End at: 2017-12-11 08:00:30
Local clock offset: -8.235 ms
Remote clock offset: -12.194 ms

Below is generated by plot.py at 2017-12-11 08:52:19
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.89 Mbit/s
95th percentile per-packet one-way delay: 167.939 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 1.89 Mbit/s
95th percentile per-packet one-way delay: 167.939 ms
Loss rate: 0.34%

Run 3: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

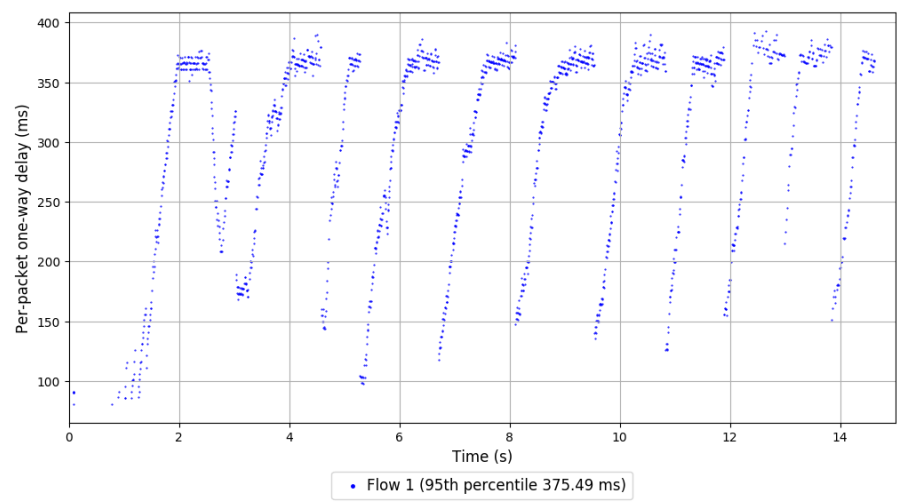
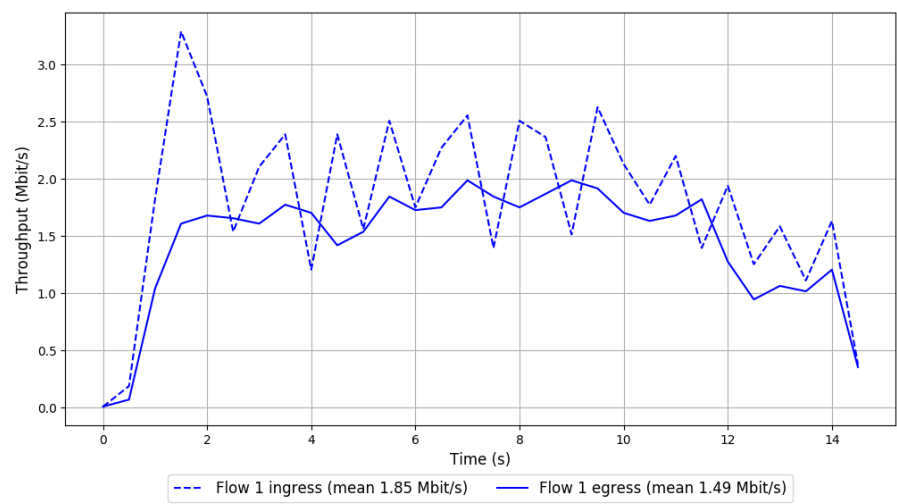
Start at: 2017-12-11 07:31:40

End at: 2017-12-11 07:32:10

Local clock offset: -7.674 ms

Remote clock offset: -12.432 ms

Run 1: Report of Verus — Data Link

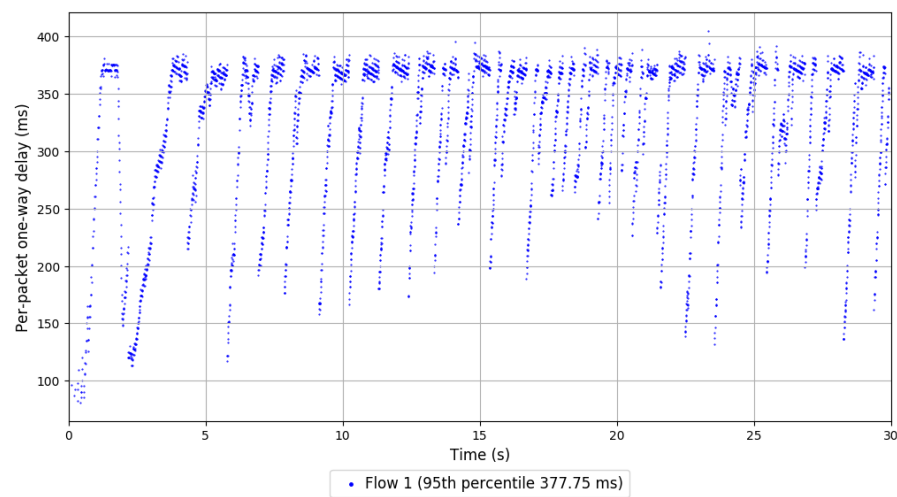
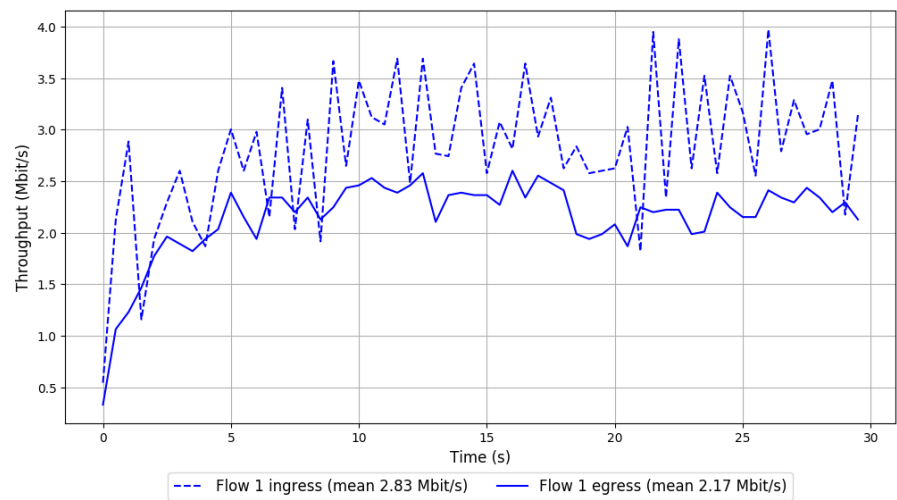


Run 2: Statistics of Verus

Start at: 2017-12-11 07:46:54
End at: 2017-12-11 07:47:24
Local clock offset: -7.164 ms
Remote clock offset: -13.957 ms

Below is generated by plot.py at 2017-12-11 08:52:19
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.17 Mbit/s
95th percentile per-packet one-way delay: 377.749 ms
Loss rate: 23.56%
-- Flow 1:
Average throughput: 2.17 Mbit/s
95th percentile per-packet one-way delay: 377.749 ms
Loss rate: 23.56%

Run 2: Report of Verus — Data Link

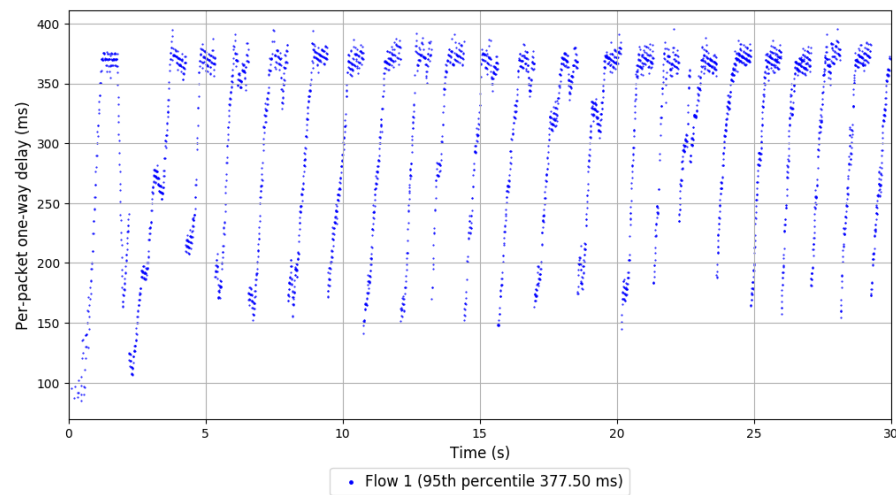
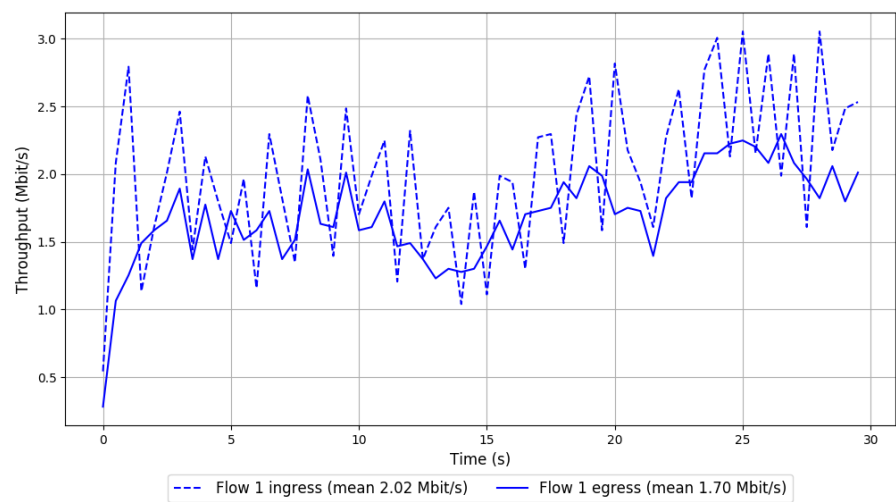


Run 3: Statistics of Verus

Start at: 2017-12-11 08:02:11
End at: 2017-12-11 08:02:41
Local clock offset: -7.909 ms
Remote clock offset: -15.001 ms

Below is generated by plot.py at 2017-12-11 08:52:20
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.70 Mbit/s
95th percentile per-packet one-way delay: 377.504 ms
Loss rate: 15.76%
-- Flow 1:
Average throughput: 1.70 Mbit/s
95th percentile per-packet one-way delay: 377.504 ms
Loss rate: 15.76%

Run 3: Report of Verus — Data Link

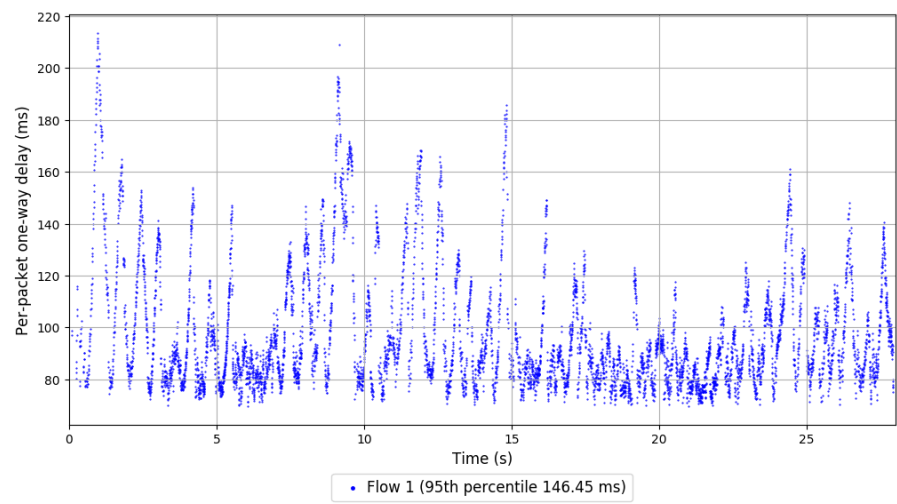
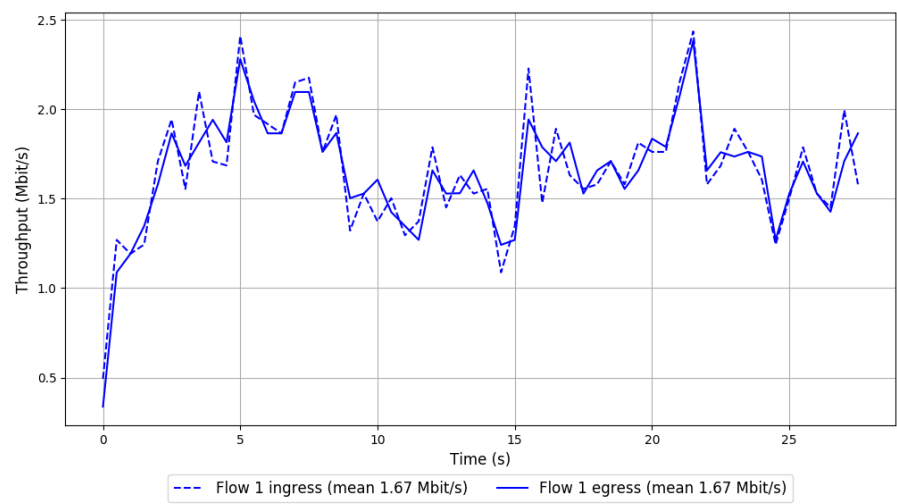


Run 1: Statistics of Copa

Start at: 2017-12-11 07:33:50
End at: 2017-12-11 07:34:20
Local clock offset: -8.304 ms
Remote clock offset: -12.669 ms

Below is generated by plot.py at 2017-12-11 08:52:24
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.67 Mbit/s
95th percentile per-packet one-way delay: 146.447 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 1.67 Mbit/s
95th percentile per-packet one-way delay: 146.447 ms
Loss rate: 0.39%

Run 1: Report of Copa — Data Link

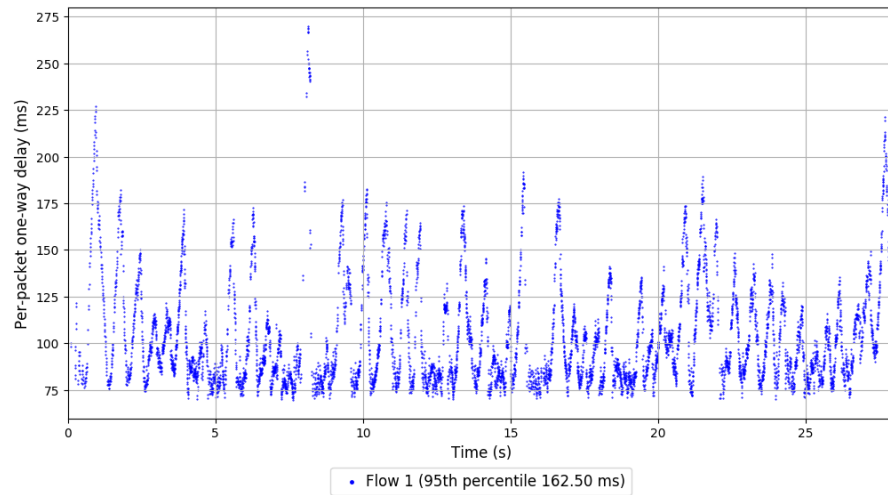
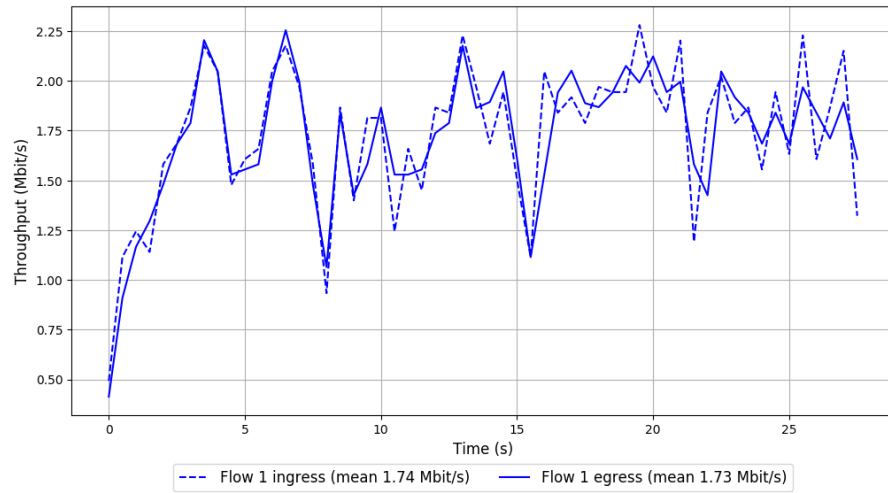


Run 2: Statistics of Copa

Start at: 2017-12-11 07:49:05
End at: 2017-12-11 07:49:35
Local clock offset: -9.917 ms
Remote clock offset: -13.283 ms

Below is generated by plot.py at 2017-12-11 08:52:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.73 Mbit/s
95th percentile per-packet one-way delay: 162.503 ms
Loss rate: 0.59%
-- Flow 1:
Average throughput: 1.73 Mbit/s
95th percentile per-packet one-way delay: 162.503 ms
Loss rate: 0.59%

Run 2: Report of Copa — Data Link

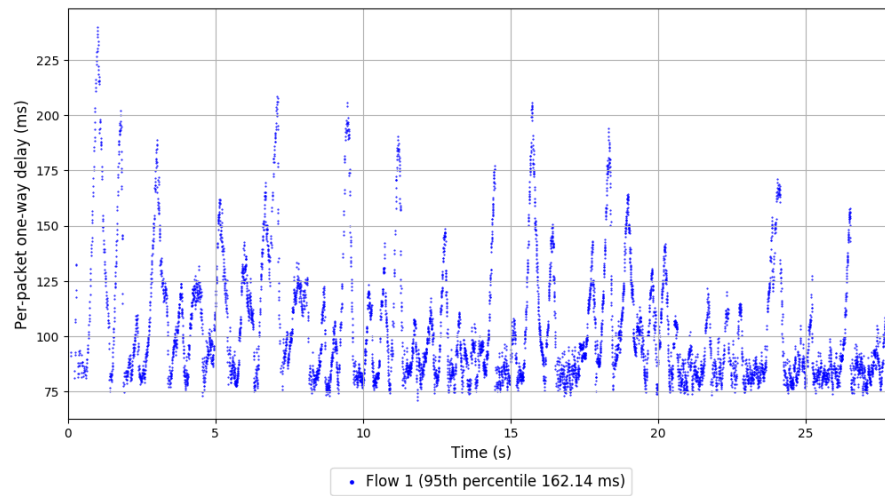
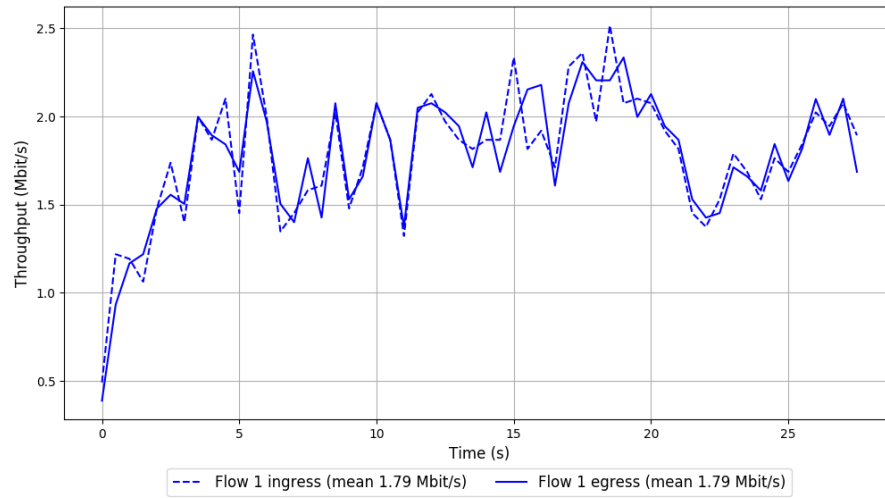


Run 3: Statistics of Copa

Start at: 2017-12-11 08:04:23
End at: 2017-12-11 08:04:53
Local clock offset: -6.83 ms
Remote clock offset: -12.494 ms

Below is generated by plot.py at 2017-12-11 08:52:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.79 Mbit/s
95th percentile per-packet one-way delay: 162.140 ms
Loss rate: 0.49%
-- Flow 1:
Average throughput: 1.79 Mbit/s
95th percentile per-packet one-way delay: 162.140 ms
Loss rate: 0.49%

Run 3: Report of Copa — Data Link

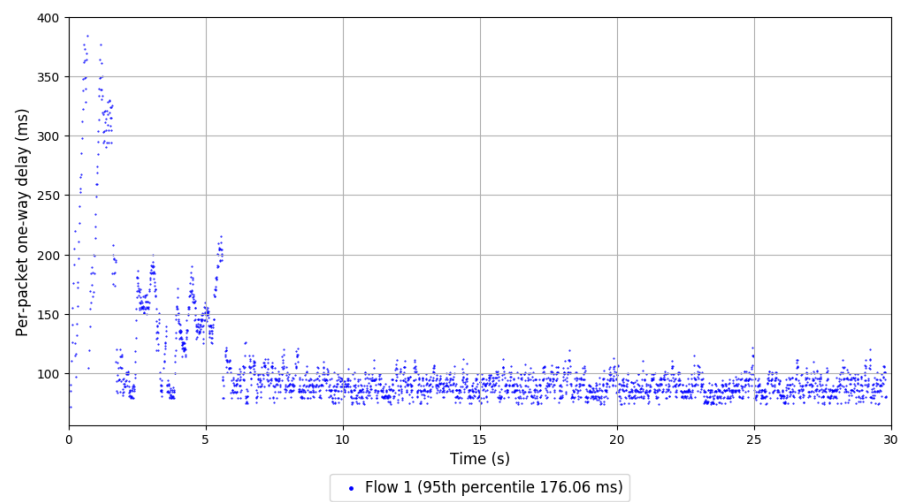
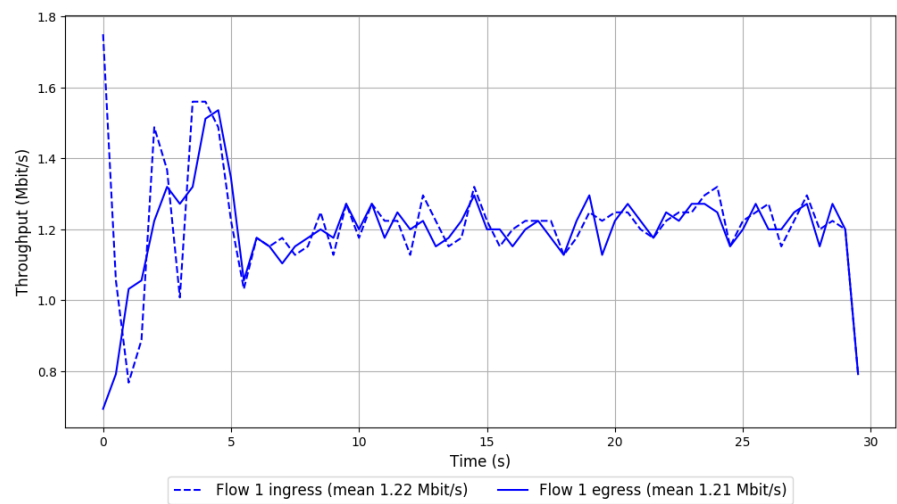


```
Run 1: Statistics of Indigo

Start at: 2017-12-11 07:21:53
End at: 2017-12-11 07:22:23
Local clock offset: -4.605 ms
Remote clock offset: -12.699 ms

# Below is generated by plot.py at 2017-12-11 08:52:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.21 Mbit/s
95th percentile per-packet one-way delay: 176.056 ms
Loss rate: 1.71%
-- Flow 1:
Average throughput: 1.21 Mbit/s
95th percentile per-packet one-way delay: 176.056 ms
Loss rate: 1.71%
```

Run 1: Report of Indigo — Data Link

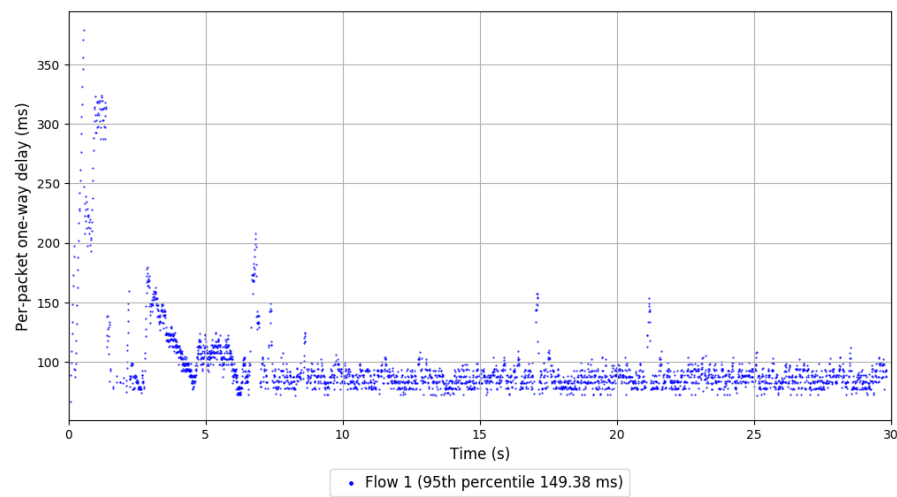
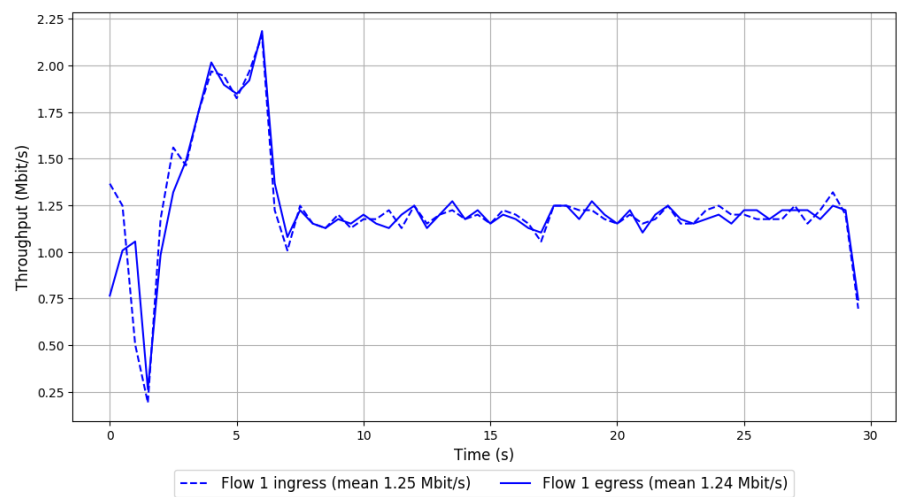


Run 2: Statistics of Indigo

Start at: 2017-12-11 07:37:05
End at: 2017-12-11 07:37:35
Local clock offset: -9.108 ms
Remote clock offset: -12.663 ms

Below is generated by plot.py at 2017-12-11 08:52:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.24 Mbit/s
95th percentile per-packet one-way delay: 149.383 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 1.24 Mbit/s
95th percentile per-packet one-way delay: 149.383 ms
Loss rate: 0.55%

Run 2: Report of Indigo — Data Link

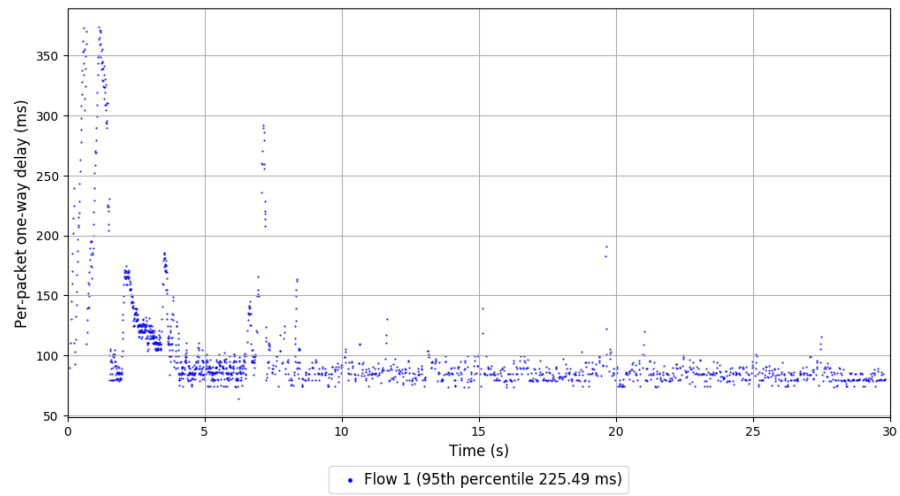
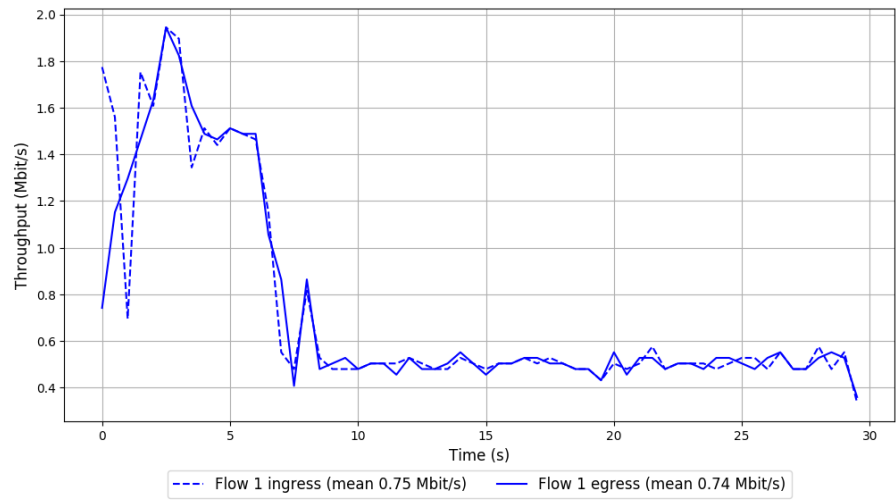


Run 3: Statistics of Indigo

Start at: 2017-12-11 07:52:21
End at: 2017-12-11 07:52:51
Local clock offset: -7.074 ms
Remote clock offset: -12.491 ms

Below is generated by plot.py at 2017-12-11 08:52:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.74 Mbit/s
95th percentile per-packet one-way delay: 225.490 ms
Loss rate: 1.51%
-- Flow 1:
Average throughput: 0.74 Mbit/s
95th percentile per-packet one-way delay: 225.490 ms
Loss rate: 1.51%

Run 3: Report of Indigo — Data Link

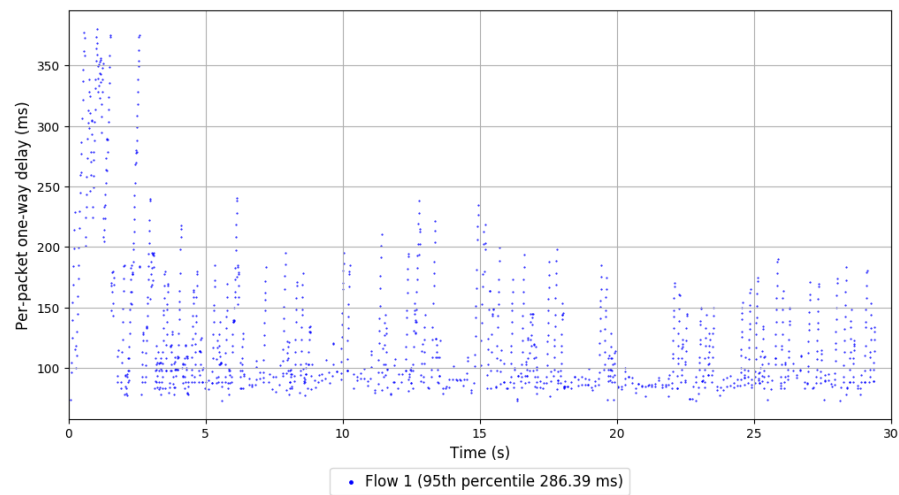
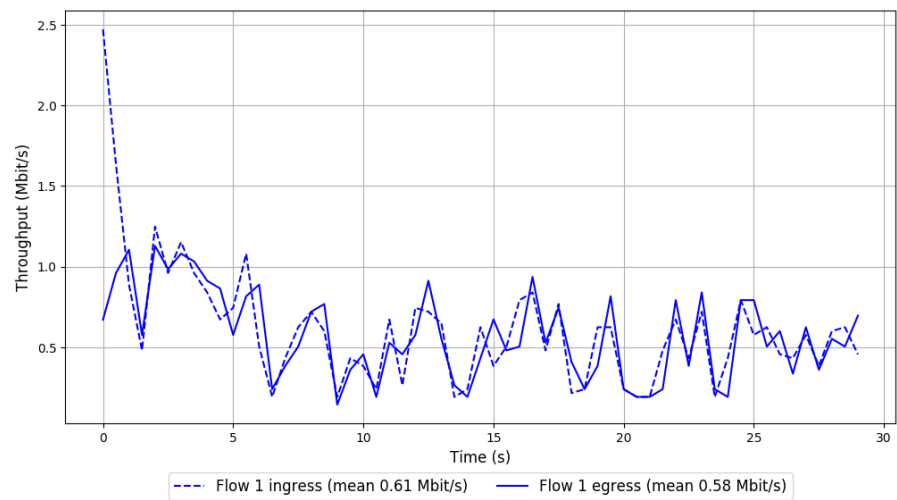


```
Run 1: Statistics of Indigo-calib

Start at: 2017-12-11 07:20:48
End at: 2017-12-11 07:21:18
Local clock offset: -5.965 ms
Remote clock offset: -14.465 ms

# Below is generated by plot.py at 2017-12-11 08:52:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 286.392 ms
Loss rate: 5.65%
-- Flow 1:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 286.392 ms
Loss rate: 5.65%
```

Run 1: Report of Indigo-calib — Data Link

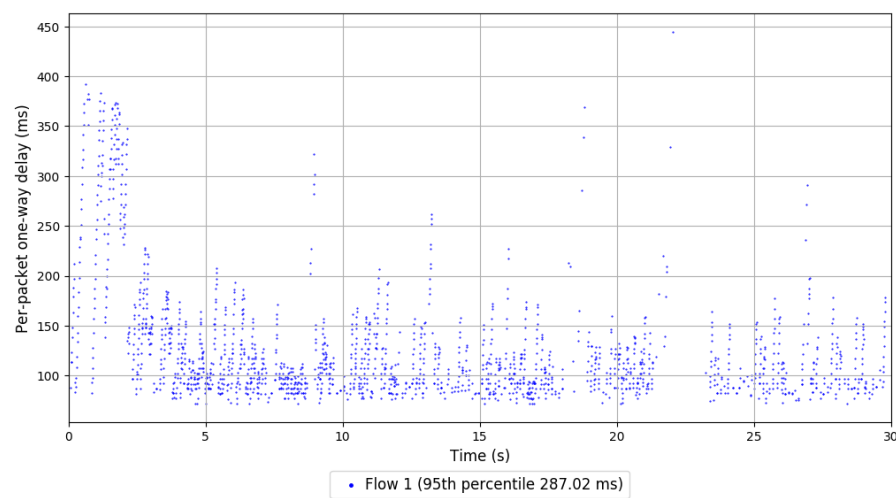
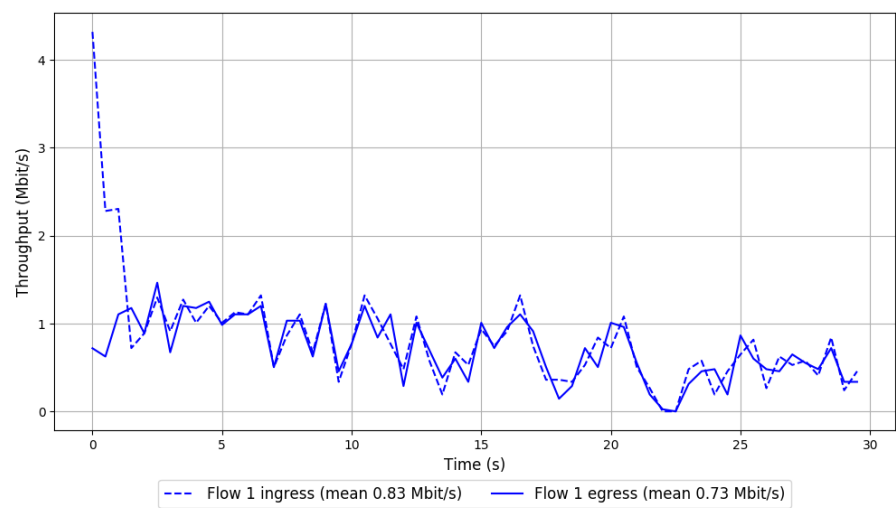


Run 2: Statistics of Indigo-calib

Start at: 2017-12-11 07:36:00
End at: 2017-12-11 07:36:30
Local clock offset: -8.927 ms
Remote clock offset: -12.019 ms

Below is generated by plot.py at 2017-12-11 08:52:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.73 Mbit/s
95th percentile per-packet one-way delay: 287.017 ms
Loss rate: 12.86%
-- Flow 1:
Average throughput: 0.73 Mbit/s
95th percentile per-packet one-way delay: 287.017 ms
Loss rate: 12.86%

Run 2: Report of Indigo-calib — Data Link



Run 3: Statistics of Indigo-calib

Start at: 2017-12-11 07:51:16
End at: 2017-12-11 07:51:46
Local clock offset: -6.196 ms
Remote clock offset: -13.521 ms

Below is generated by plot.py at 2017-12-11 08:52:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.26 Mbit/s
95th percentile per-packet one-way delay: 316.524 ms
Loss rate: 17.42%
-- Flow 1:
Average throughput: 0.26 Mbit/s
95th percentile per-packet one-way delay: 316.524 ms
Loss rate: 17.42%

Run 3: Report of Indigo-calib — Data Link

