

Pantheon Report

Generated at 2018-11-30 00:02:28 (UTC).

Data path: GCE London on *ens4 (remote)* → GCE Tokyo on *ens4 (local)*.

Repeated the test of 18 congestion control schemes 5 times.

Each test lasted for 30 seconds running 1 flow.

NTP offsets were measured against `time.google.com` and have been applied to correct the timestamps in logs.

System info:

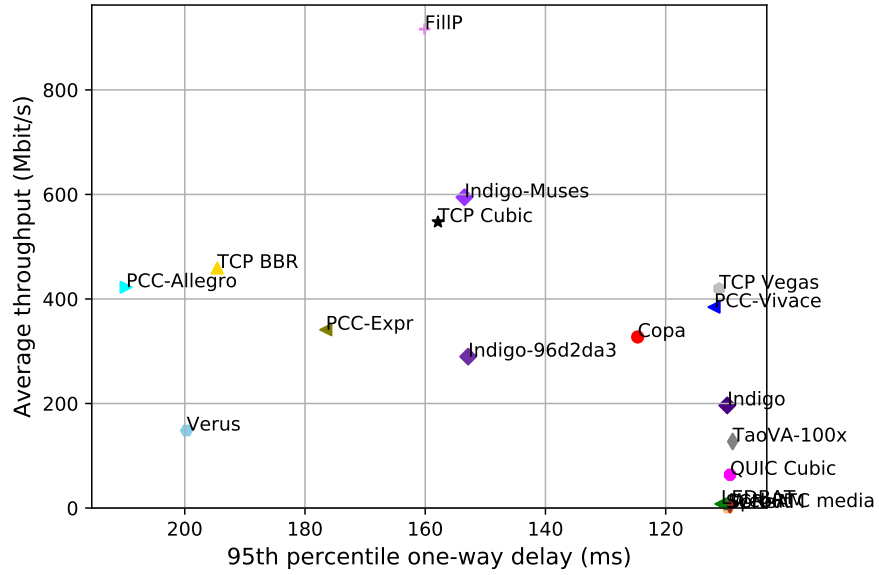
```
Linux 4.15.0-1024-gcp
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

Git summary:

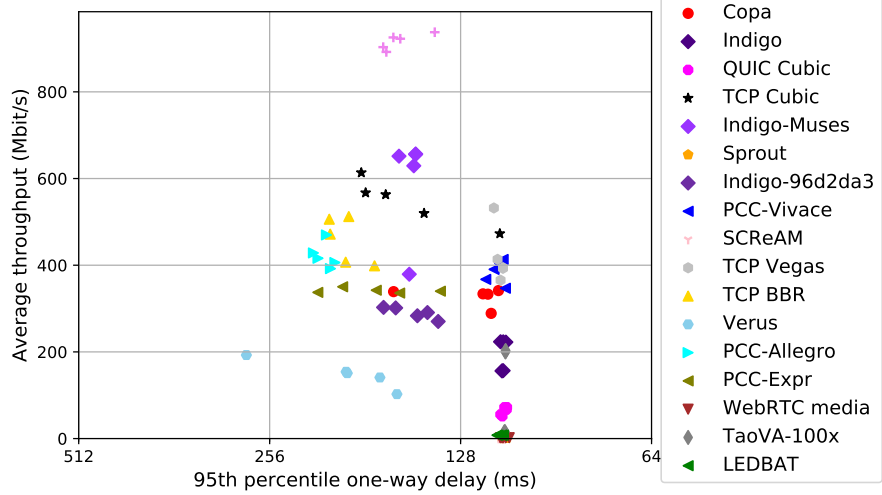
```
branch: muses @ 794ca3866981572cb73700a276691acf79c60f2b
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/indigo-96d2da3 @ 8413272d46f8aa0bcb967ed7048b6a8f994abb95
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
M receiver/src/buffer.h
M receiver/src/core.cpp
M sender/src/buffer.h
M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quick @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
M src/ScreamClient
M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
M src/examples/cellsim.cc
M src/examples/sproutbt2.cc
M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
```

third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851

test from GCE London to GCE Tokyo, 5 runs of 30s each per scheme
(mean of all runs by scheme)



test from GCE London to GCE Tokyo, 5 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	5	459.20	194.59	1.74
Copa	5	327.30	124.66	0.78
TCP Cubic	5	547.25	157.88	0.87
FillP	5	916.20	160.09	2.12
Indigo	5	196.42	109.76	0.76
Indigo-96d2da3	5	289.73	152.86	0.98
LEDBAT	5	7.83	110.82	1.46
Indigo-Muses	5	594.53	153.48	1.05
PCC-Allegro	5	422.50	209.76	2.26
PCC-Expr	5	341.12	176.54	3.18
QUIC Cubic	5	63.67	109.30	1.13
SCReAM	5	0.22	109.98	0.74
Sprout	5	0.79	109.62	0.86
TaoVA-100x	5	127.24	108.86	0.75
TCP Vegas	5	419.65	111.12	0.83
Verus	5	148.26	199.70	4.75
PCC-Vivace	5	384.36	111.96	0.84
WebRTC media	5	1.90	109.31	0.82

Run 1: Statistics of TCP BBR

Start at: 2018-11-29 20:28:26

End at: 2018-11-29 20:28:56

Local clock offset: 9.721 ms

Remote clock offset: 9.171 ms

Below is generated by plot.py at 2018-11-29 22:48:20

Datalink statistics

-- Total of 1 flow:

Average throughput: 506.19 Mbit/s

95th percentile per-packet one-way delay: 206.170 ms

Loss rate: 2.05%

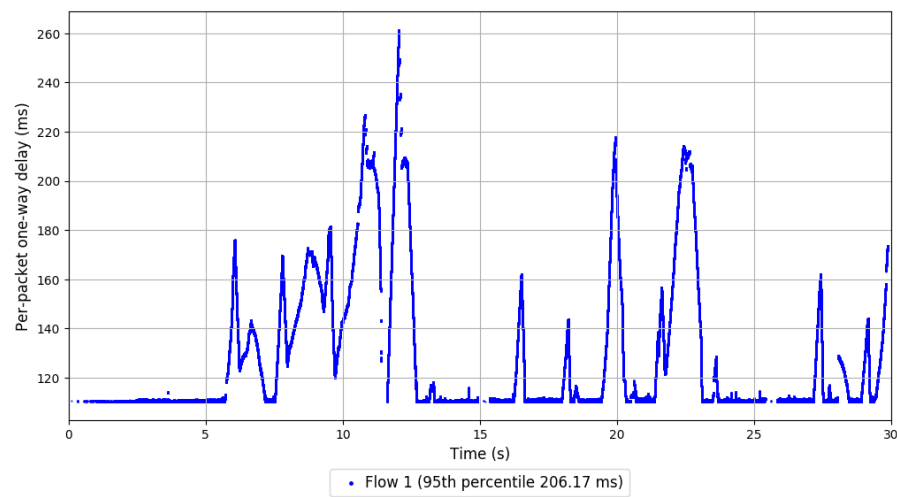
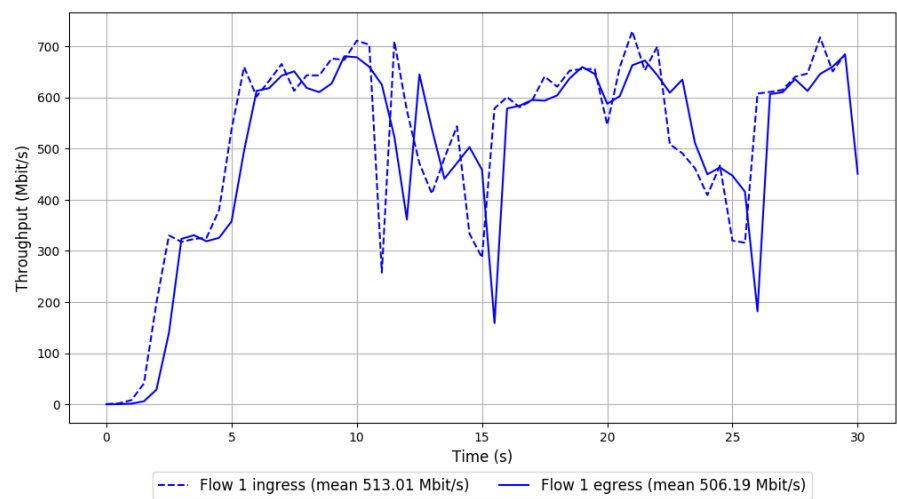
-- Flow 1:

Average throughput: 506.19 Mbit/s

95th percentile per-packet one-way delay: 206.170 ms

Loss rate: 2.05%

Run 1: Report of TCP BBR — Data Link

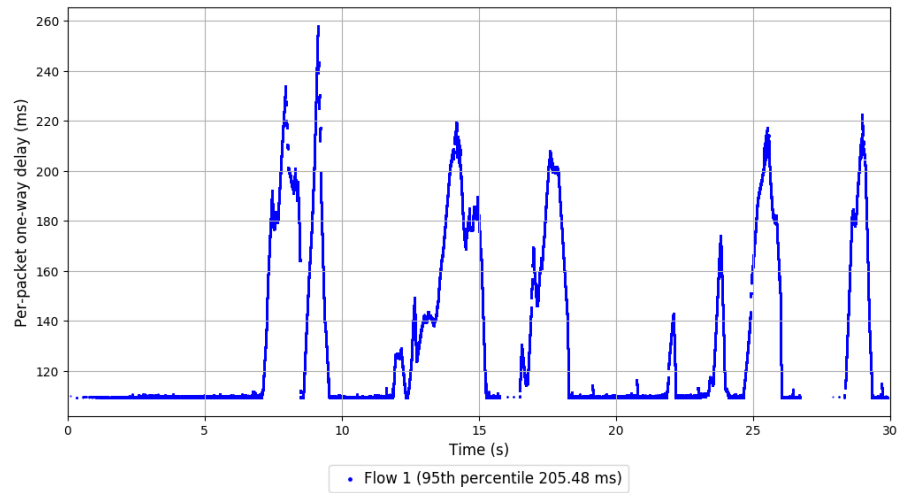
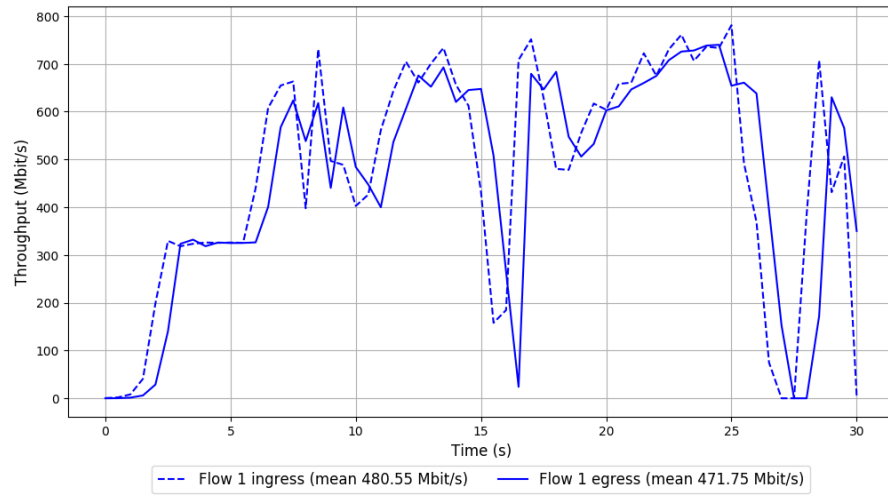


Run 2: Statistics of TCP BBR

Start at: 2018-11-29 20:55:12
End at: 2018-11-29 20:55:42
Local clock offset: 15.429 ms
Remote clock offset: 15.737 ms

Below is generated by plot.py at 2018-11-29 22:48:20
Datalink statistics
-- Total of 1 flow:
Average throughput: 471.75 Mbit/s
95th percentile per-packet one-way delay: 205.479 ms
Loss rate: 2.54%
-- Flow 1:
Average throughput: 471.75 Mbit/s
95th percentile per-packet one-way delay: 205.479 ms
Loss rate: 2.54%

Run 2: Report of TCP BBR — Data Link

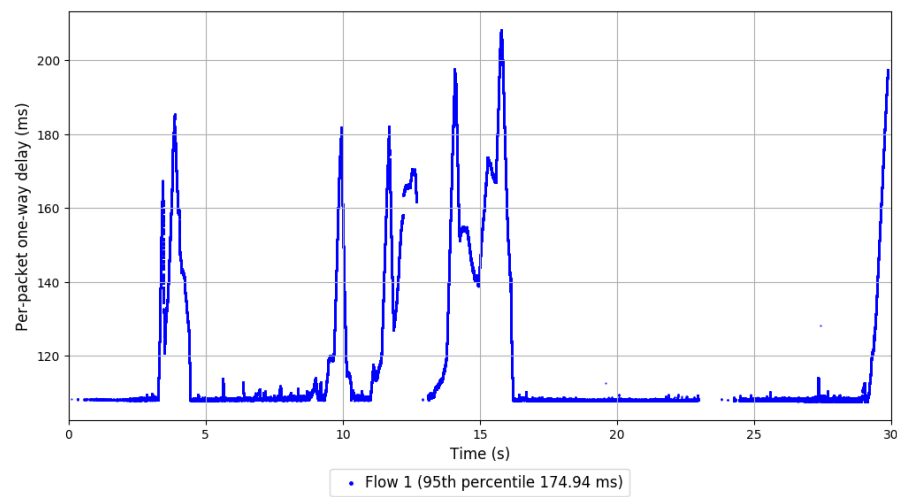
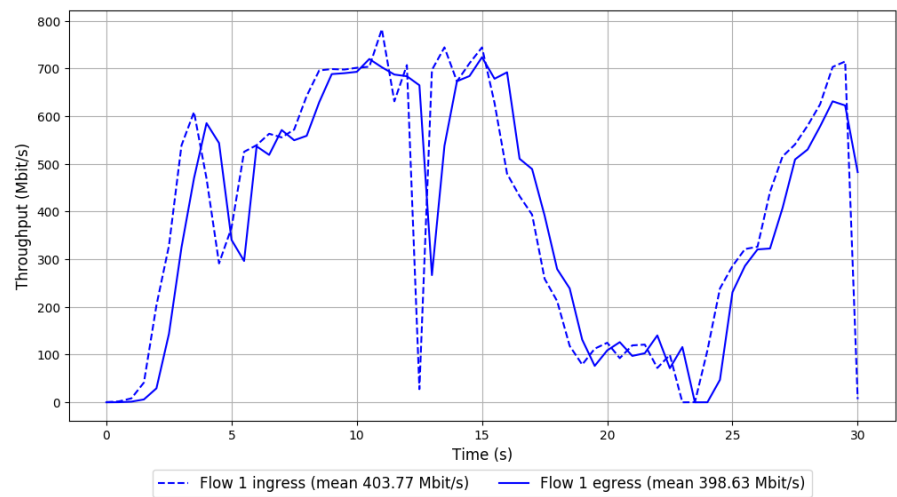


Run 3: Statistics of TCP BBR

Start at: 2018-11-29 21:22:30
End at: 2018-11-29 21:23:00
Local clock offset: 29.379 ms
Remote clock offset: 30.947 ms

Below is generated by plot.py at 2018-11-29 22:48:20
Datalink statistics
-- Total of 1 flow:
Average throughput: 398.63 Mbit/s
95th percentile per-packet one-way delay: 174.945 ms
Loss rate: 1.99%
-- Flow 1:
Average throughput: 398.63 Mbit/s
95th percentile per-packet one-way delay: 174.945 ms
Loss rate: 1.99%

Run 3: Report of TCP BBR — Data Link

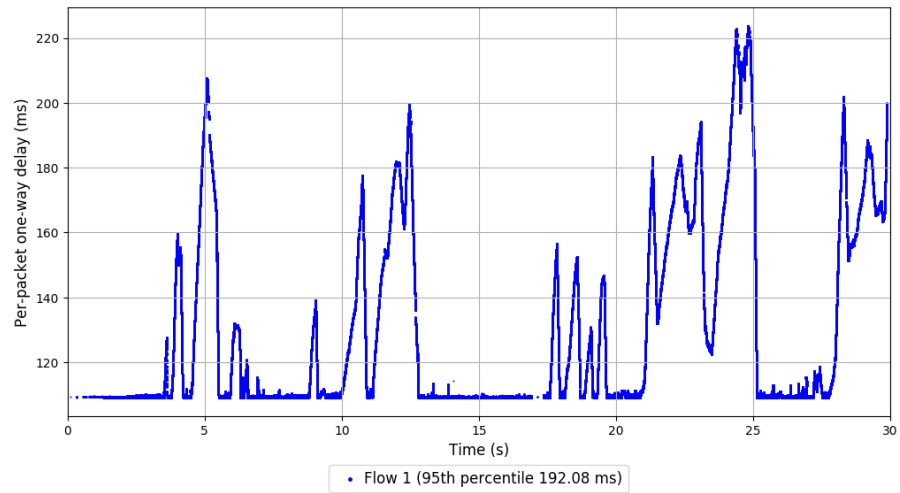
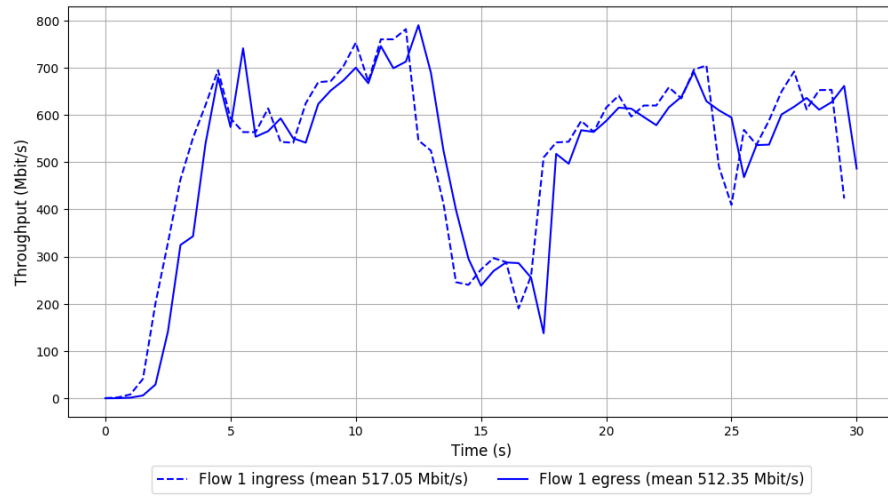


Run 4: Statistics of TCP BBR

Start at: 2018-11-29 21:49:28
End at: 2018-11-29 21:49:58
Local clock offset: 12.731 ms
Remote clock offset: 13.166 ms

Below is generated by plot.py at 2018-11-29 22:48:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 512.35 Mbit/s
95th percentile per-packet one-way delay: 192.082 ms
Loss rate: 0.92%
-- Flow 1:
Average throughput: 512.35 Mbit/s
95th percentile per-packet one-way delay: 192.082 ms
Loss rate: 0.92%

Run 4: Report of TCP BBR — Data Link



Run 5: Statistics of TCP BBR

Start at: 2018-11-29 22:16:24

End at: 2018-11-29 22:16:54

Local clock offset: 4.248 ms

Remote clock offset: 6.093 ms

Below is generated by plot.py at 2018-11-29 22:48:25

Datalink statistics

-- Total of 1 flow:

Average throughput: 407.06 Mbit/s

95th percentile per-packet one-way delay: 194.276 ms

Loss rate: 1.18%

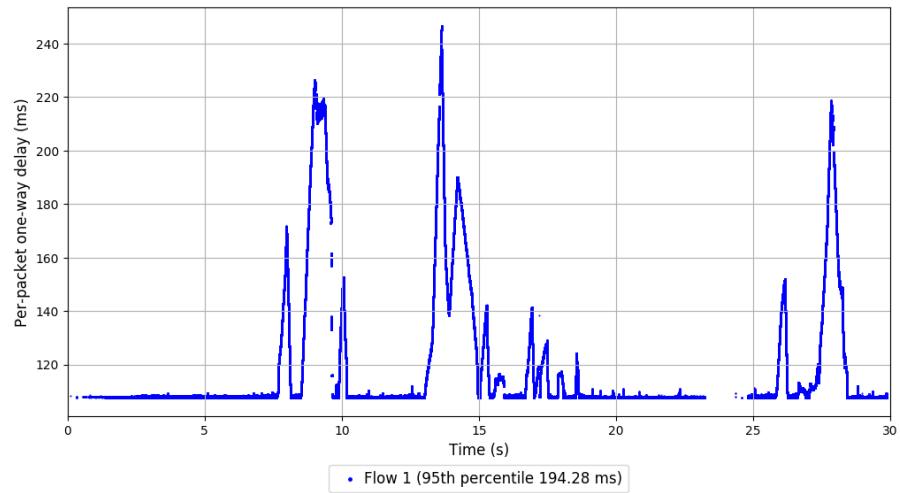
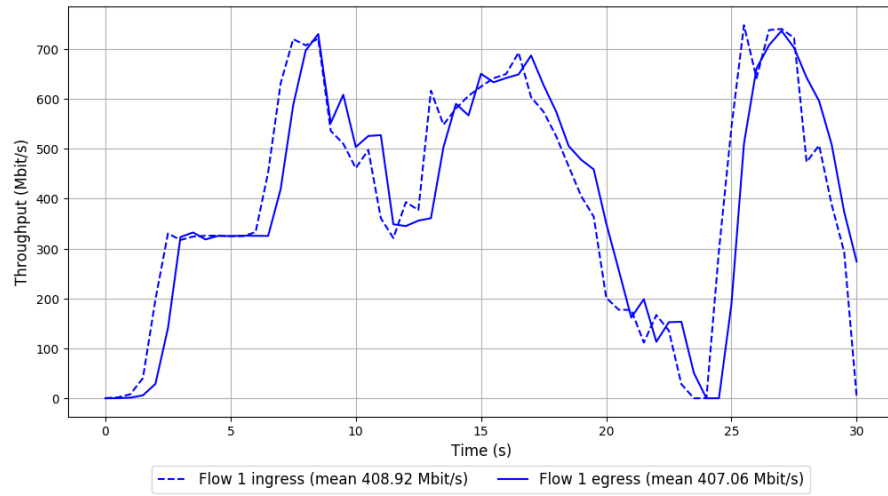
-- Flow 1:

Average throughput: 407.06 Mbit/s

95th percentile per-packet one-way delay: 194.276 ms

Loss rate: 1.18%

Run 5: Report of TCP BBR — Data Link

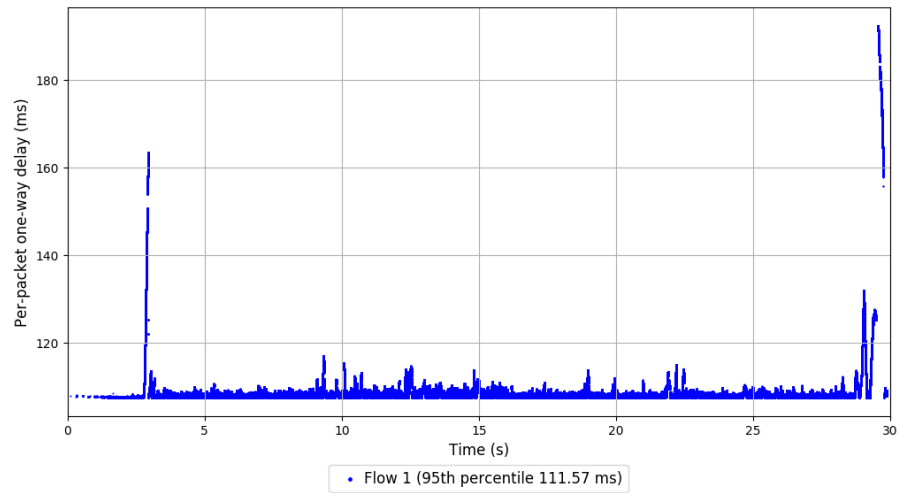
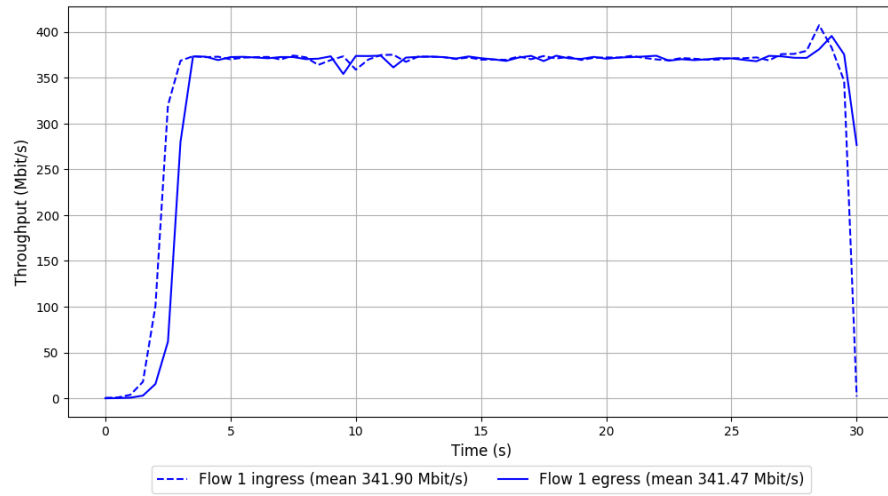


Run 1: Statistics of Copa

Start at: 2018-11-29 20:40:39
End at: 2018-11-29 20:41:09
Local clock offset: 10.439 ms
Remote clock offset: 12.374 ms

Below is generated by plot.py at 2018-11-29 22:50:07
Datalink statistics
-- Total of 1 flow:
Average throughput: 341.47 Mbit/s
95th percentile per-packet one-way delay: 111.570 ms
Loss rate: 0.85%
-- Flow 1:
Average throughput: 341.47 Mbit/s
95th percentile per-packet one-way delay: 111.570 ms
Loss rate: 0.85%

Run 1: Report of Copa — Data Link

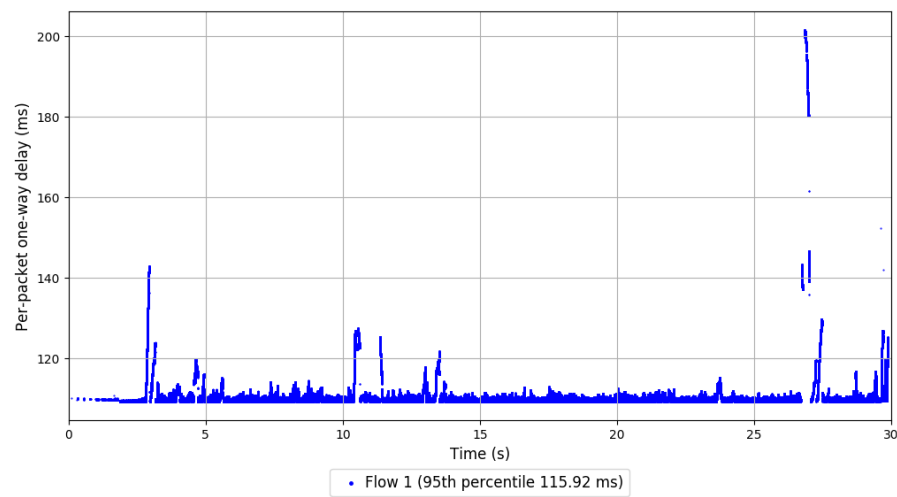
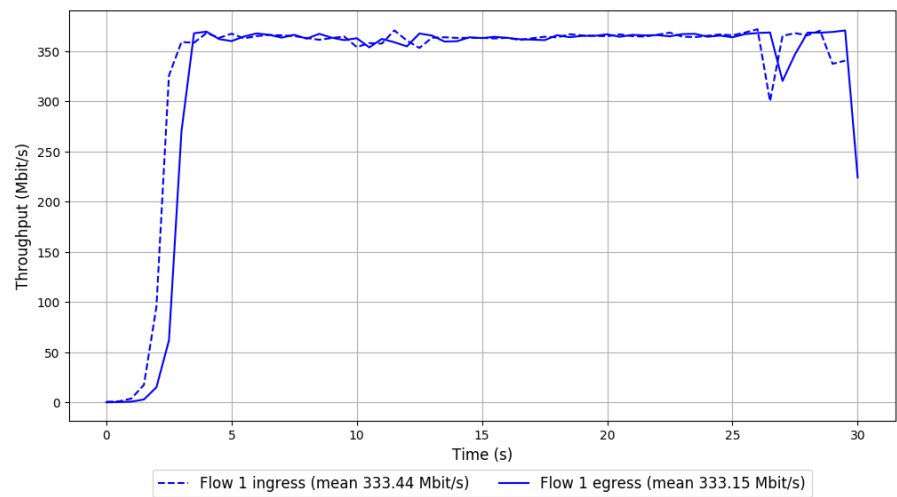


Run 2: Statistics of Copa

Start at: 2018-11-29 21:07:38
End at: 2018-11-29 21:08:08
Local clock offset: 18.757 ms
Remote clock offset: 19.331 ms

Below is generated by plot.py at 2018-11-29 22:50:07
Datalink statistics
-- Total of 1 flow:
Average throughput: 333.15 Mbit/s
95th percentile per-packet one-way delay: 115.915 ms
Loss rate: 0.82%
-- Flow 1:
Average throughput: 333.15 Mbit/s
95th percentile per-packet one-way delay: 115.915 ms
Loss rate: 0.82%

Run 2: Report of Copa — Data Link

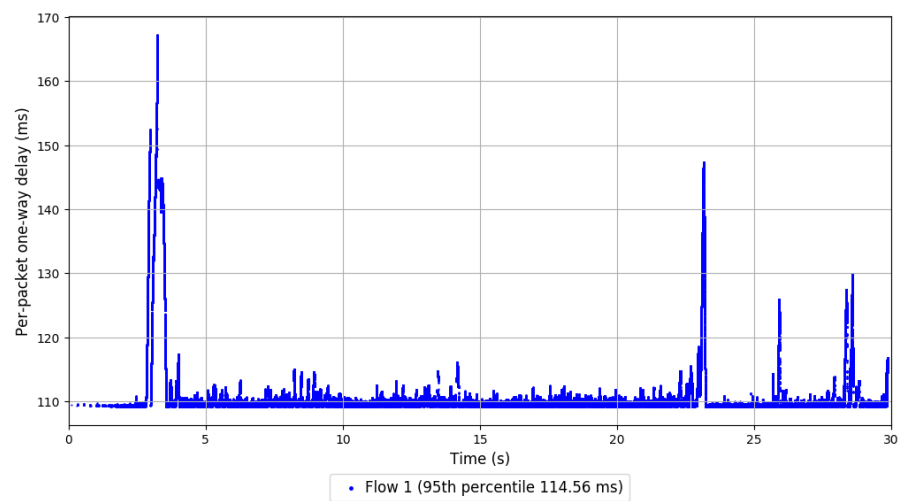
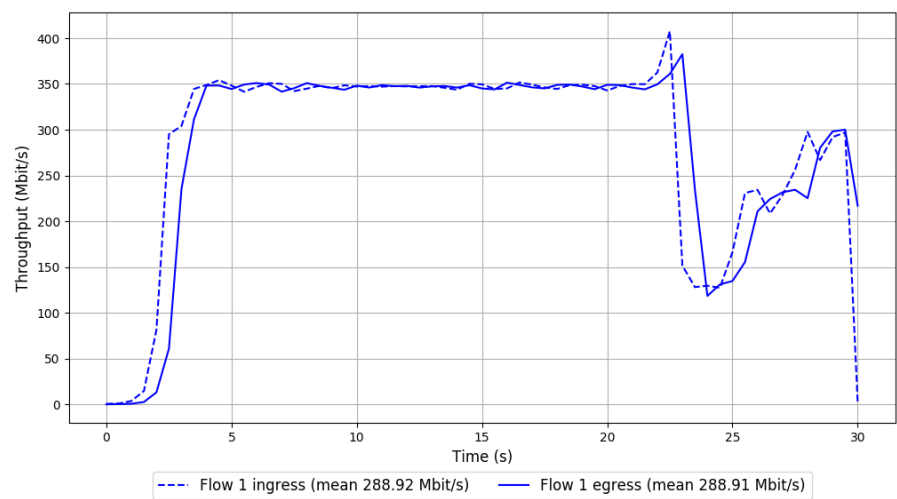


Run 3: Statistics of Copa

Start at: 2018-11-29 21:34:49
End at: 2018-11-29 21:35:19
Local clock offset: 12.821 ms
Remote clock offset: 13.127 ms

Below is generated by plot.py at 2018-11-29 22:50:07
Datalink statistics
-- Total of 1 flow:
Average throughput: 288.91 Mbit/s
95th percentile per-packet one-way delay: 114.558 ms
Loss rate: 0.73%
-- Flow 1:
Average throughput: 288.91 Mbit/s
95th percentile per-packet one-way delay: 114.558 ms
Loss rate: 0.73%

Run 3: Report of Copa — Data Link

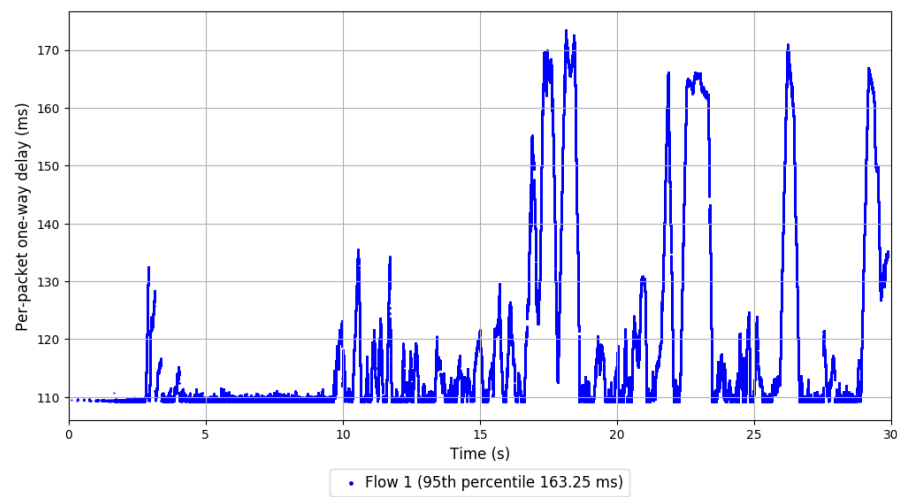
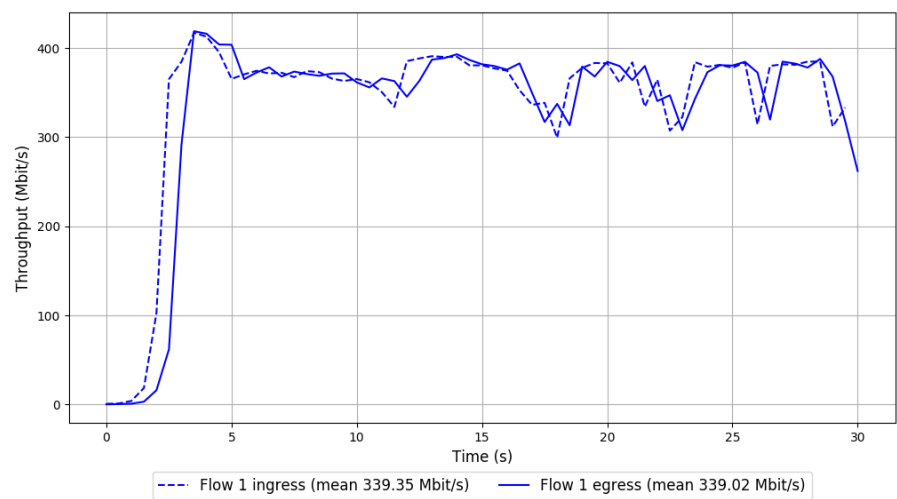


Run 4: Statistics of Copa

Start at: 2018-11-29 22:01:54
End at: 2018-11-29 22:02:24
Local clock offset: 10.048 ms
Remote clock offset: 10.073 ms

Below is generated by plot.py at 2018-11-29 22:58:32
Datalink statistics
-- Total of 1 flow:
Average throughput: 339.02 Mbit/s
95th percentile per-packet one-way delay: 163.255 ms
Loss rate: 0.82%
-- Flow 1:
Average throughput: 339.02 Mbit/s
95th percentile per-packet one-way delay: 163.255 ms
Loss rate: 0.82%

Run 4: Report of Copa — Data Link



Run 5: Statistics of Copa

Start at: 2018-11-29 22:28:28

End at: 2018-11-29 22:28:58

Local clock offset: 6.958 ms

Remote clock offset: 7.116 ms

Below is generated by plot.py at 2018-11-29 22:58:32

Datalink statistics

-- Total of 1 flow:

Average throughput: 333.93 Mbit/s

95th percentile per-packet one-way delay: 118.010 ms

Loss rate: 0.67%

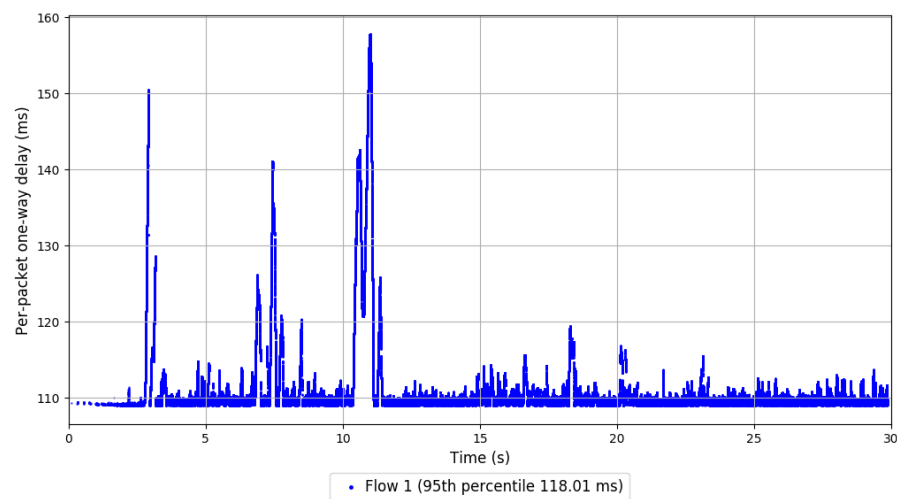
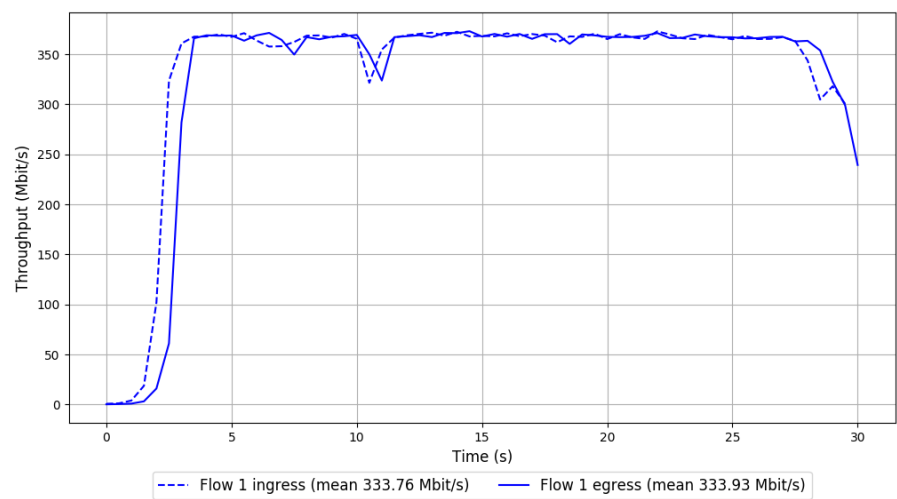
-- Flow 1:

Average throughput: 333.93 Mbit/s

95th percentile per-packet one-way delay: 118.010 ms

Loss rate: 0.67%

Run 5: Report of Copa — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-11-29 20:20:38

End at: 2018-11-29 20:21:08

Local clock offset: 4.351 ms

Remote clock offset: 4.726 ms

Below is generated by plot.py at 2018-11-29 22:58:32

Datalink statistics

-- Total of 1 flow:

Average throughput: 472.86 Mbit/s

95th percentile per-packet one-way delay: 111.016 ms

Loss rate: 0.83%

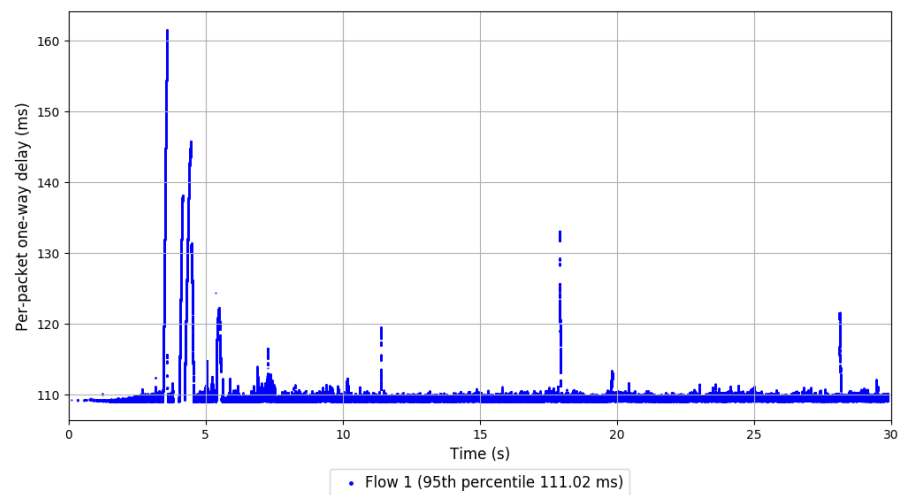
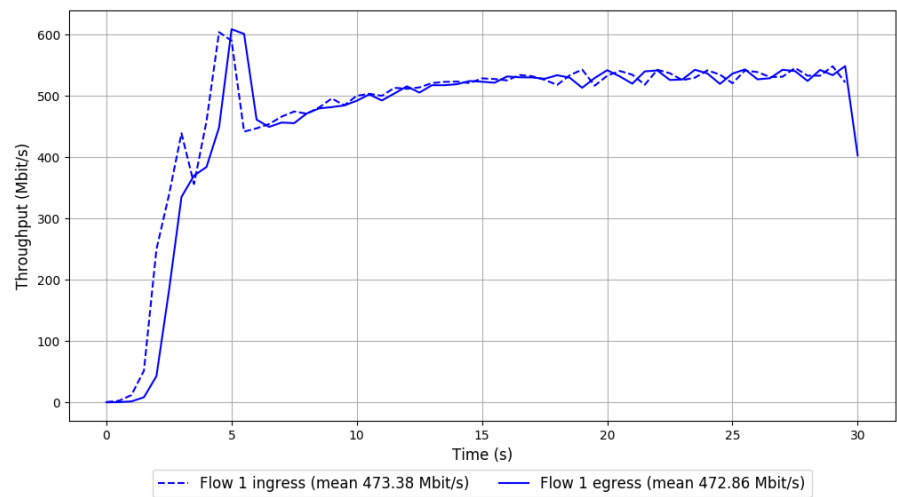
-- Flow 1:

Average throughput: 472.86 Mbit/s

95th percentile per-packet one-way delay: 111.016 ms

Loss rate: 0.83%

Run 1: Report of TCP Cubic — Data Link

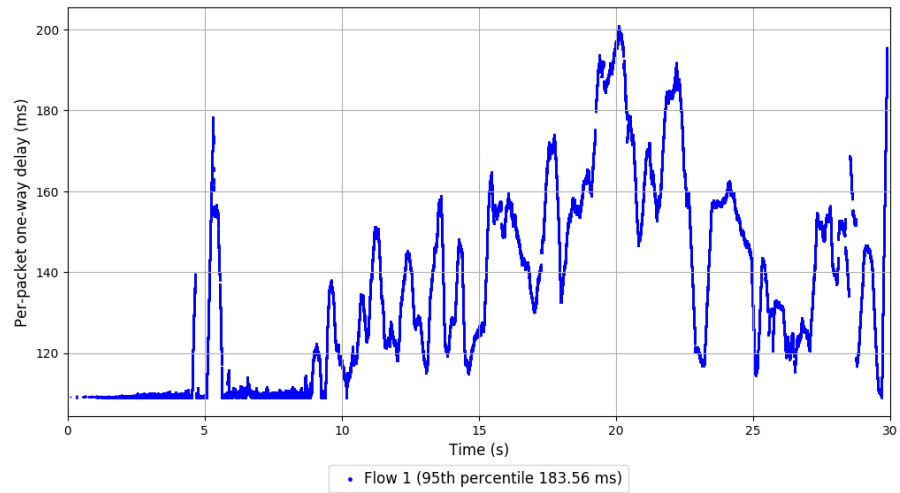
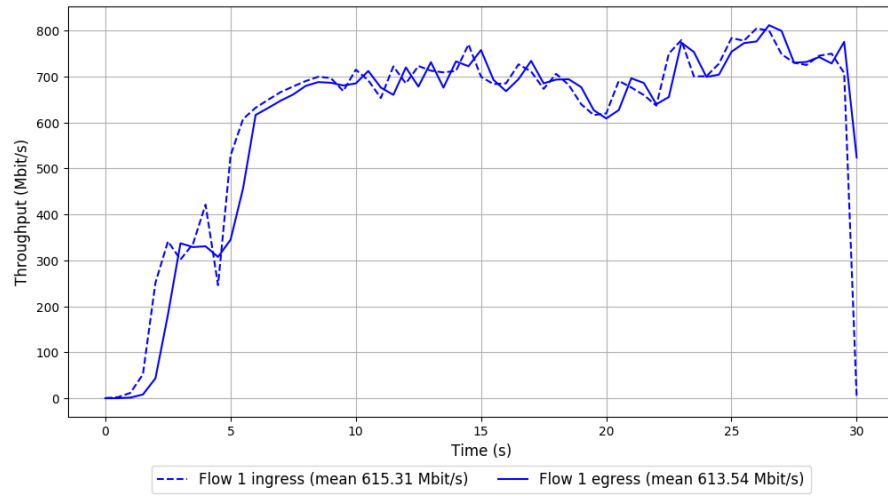


Run 2: Statistics of TCP Cubic

Start at: 2018-11-29 20:46:58
End at: 2018-11-29 20:47:28
Local clock offset: 18.031 ms
Remote clock offset: 18.809 ms

Below is generated by plot.py at 2018-11-29 22:59:43
Datalink statistics
-- Total of 1 flow:
Average throughput: 613.54 Mbit/s
95th percentile per-packet one-way delay: 183.556 ms
Loss rate: 1.01%
-- Flow 1:
Average throughput: 613.54 Mbit/s
95th percentile per-packet one-way delay: 183.556 ms
Loss rate: 1.01%

Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2018-11-29 21:14:22

End at: 2018-11-29 21:14:52

Local clock offset: 23.105 ms

Remote clock offset: 24.48 ms

Below is generated by plot.py at 2018-11-29 22:59:43

Datalink statistics

-- Total of 1 flow:

Average throughput: 562.99 Mbit/s

95th percentile per-packet one-way delay: 167.999 ms

Loss rate: 0.69%

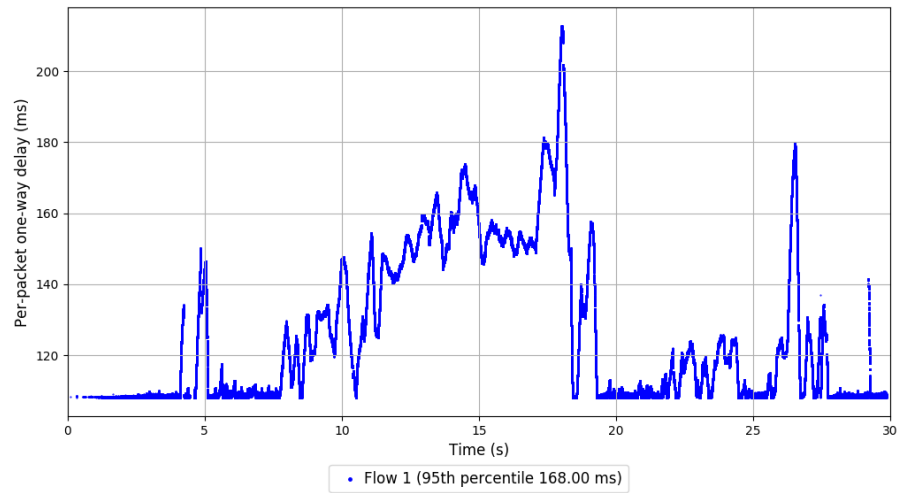
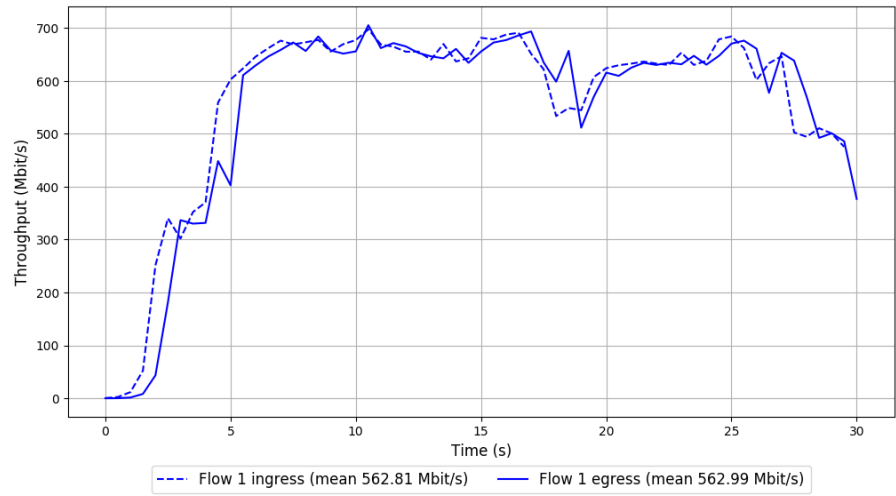
-- Flow 1:

Average throughput: 562.99 Mbit/s

95th percentile per-packet one-way delay: 167.999 ms

Loss rate: 0.69%

Run 3: Report of TCP Cubic — Data Link

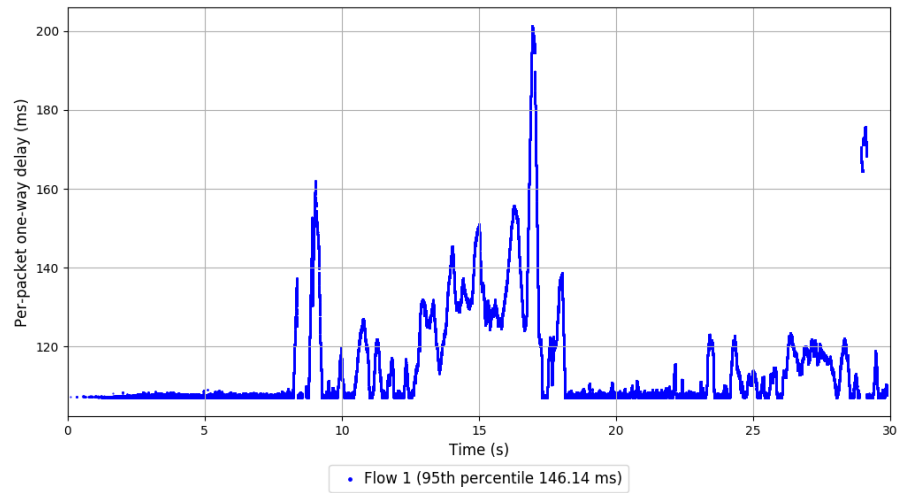
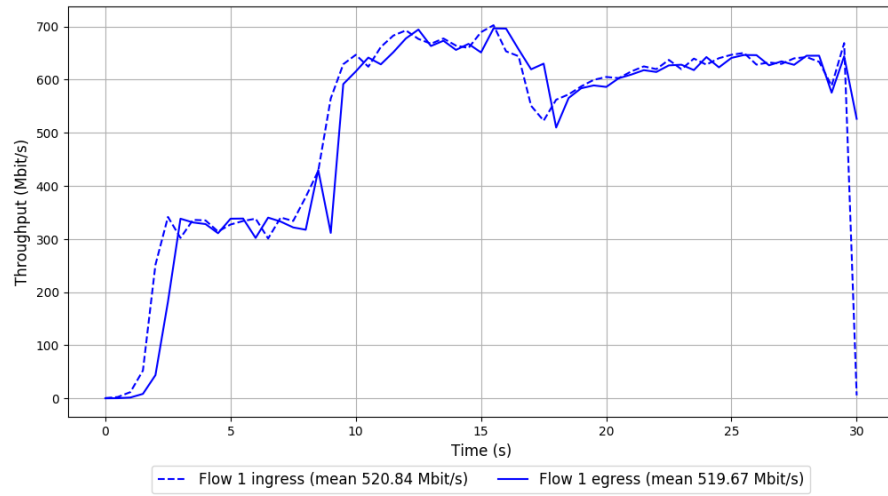


Run 4: Statistics of TCP Cubic

Start at: 2018-11-29 21:41:20
End at: 2018-11-29 21:41:50
Local clock offset: 10.029 ms
Remote clock offset: 11.792 ms

Below is generated by plot.py at 2018-11-29 22:59:43
Datalink statistics
-- Total of 1 flow:
Average throughput: 519.67 Mbit/s
95th percentile per-packet one-way delay: 146.141 ms
Loss rate: 0.95%
-- Flow 1:
Average throughput: 519.67 Mbit/s
95th percentile per-packet one-way delay: 146.141 ms
Loss rate: 0.95%

Run 4: Report of TCP Cubic — Data Link



Run 5: Statistics of TCP Cubic

Start at: 2018-11-29 22:08:13

End at: 2018-11-29 22:08:43

Local clock offset: 6.561 ms

Remote clock offset: 6.682 ms

Below is generated by plot.py at 2018-11-29 23:00:38

Datalink statistics

-- Total of 1 flow:

Average throughput: 567.19 Mbit/s

95th percentile per-packet one-way delay: 180.701 ms

Loss rate: 0.86%

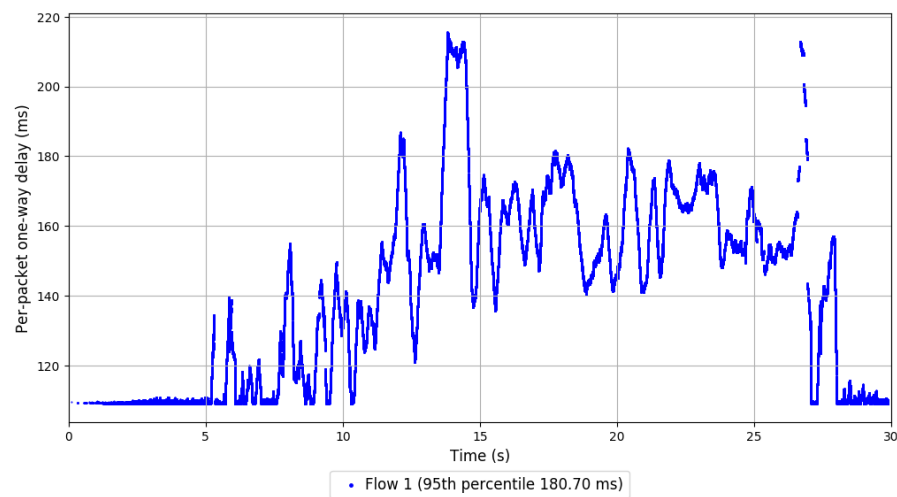
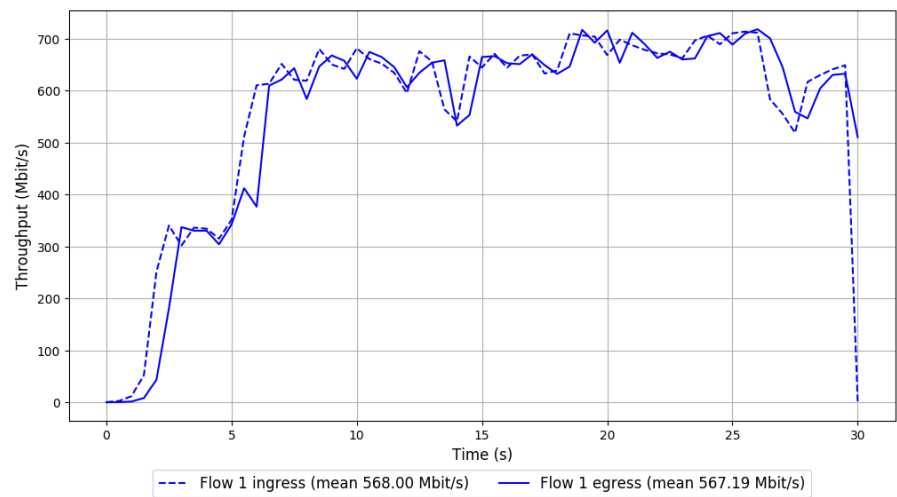
-- Flow 1:

Average throughput: 567.19 Mbit/s

95th percentile per-packet one-way delay: 180.701 ms

Loss rate: 0.86%

Run 5: Report of TCP Cubic — Data Link

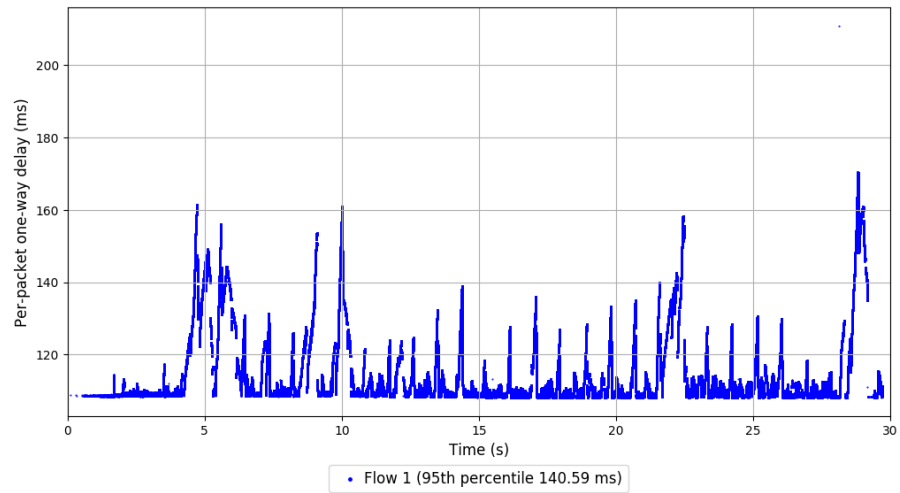
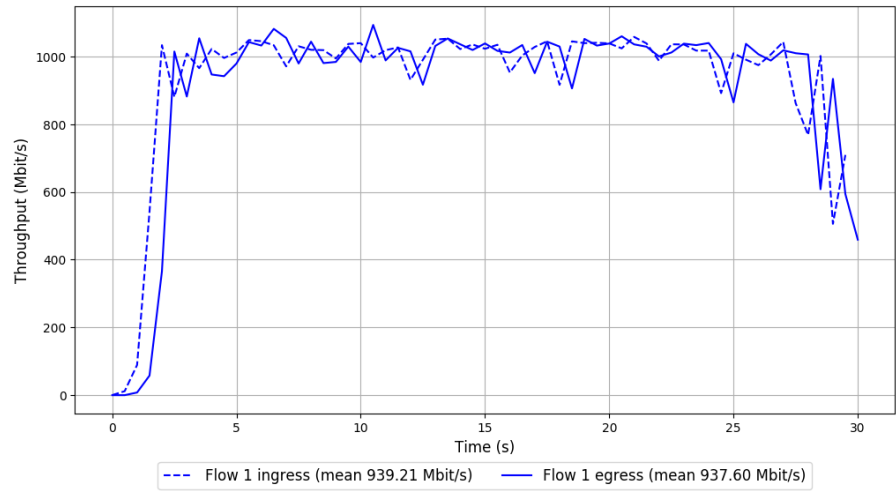


Run 1: Statistics of FillP

Start at: 2018-11-29 20:31:30
End at: 2018-11-29 20:32:00
Local clock offset: 12.156 ms
Remote clock offset: 13.293 ms

Below is generated by plot.py at 2018-11-29 23:11:32
Datalink statistics
-- Total of 1 flow:
Average throughput: 937.60 Mbit/s
95th percentile per-packet one-way delay: 140.589 ms
Loss rate: 0.90%
-- Flow 1:
Average throughput: 937.60 Mbit/s
95th percentile per-packet one-way delay: 140.589 ms
Loss rate: 0.90%

Run 1: Report of FillP — Data Link

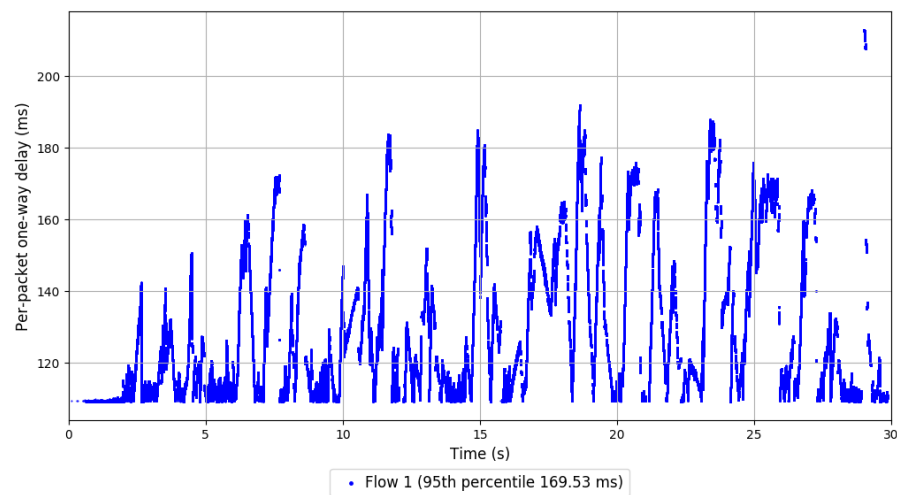
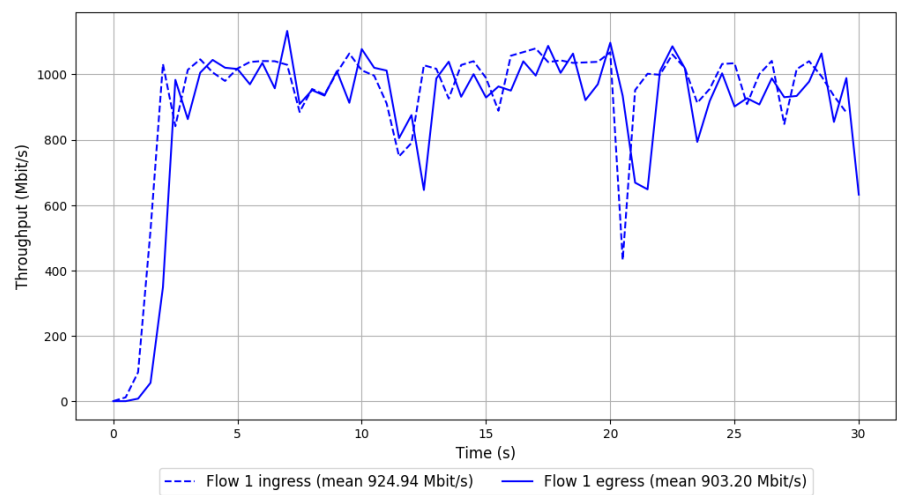


Run 2: Statistics of FillP

Start at: 2018-11-29 20:58:21
End at: 2018-11-29 20:58:51
Local clock offset: 14.787 ms
Remote clock offset: 15.469 ms

Below is generated by plot.py at 2018-11-29 23:18:45
Datalink statistics
-- Total of 1 flow:
Average throughput: 903.20 Mbit/s
95th percentile per-packet one-way delay: 169.526 ms
Loss rate: 3.06%
-- Flow 1:
Average throughput: 903.20 Mbit/s
95th percentile per-packet one-way delay: 169.526 ms
Loss rate: 3.06%

Run 2: Report of FillP — Data Link

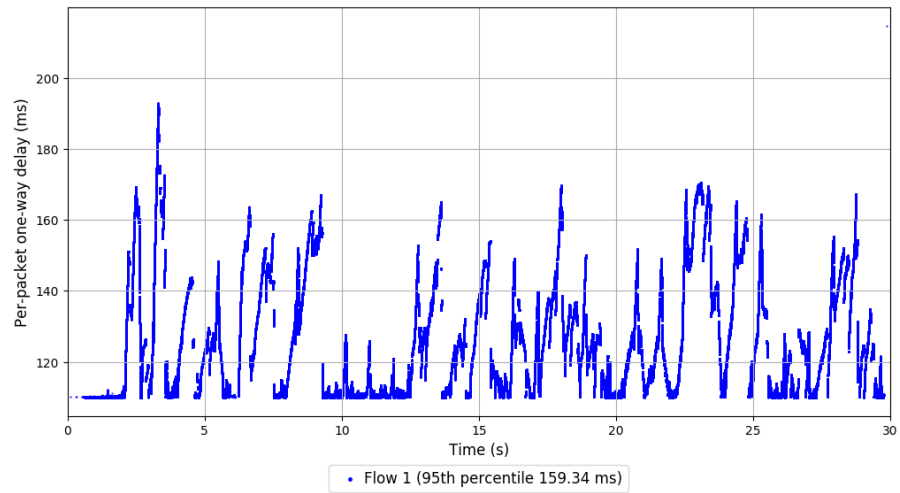
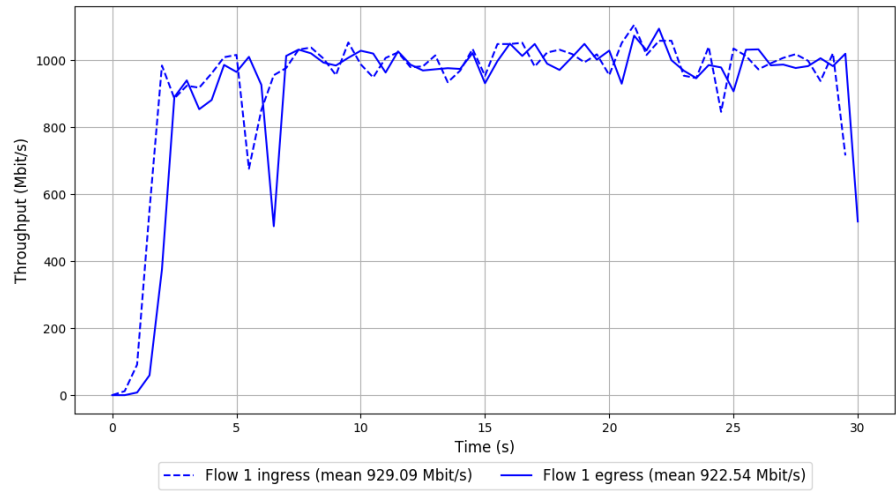


Run 3: Statistics of FillP

Start at: 2018-11-29 21:25:29
End at: 2018-11-29 21:25:59
Local clock offset: 24.475 ms
Remote clock offset: 24.525 ms

Below is generated by plot.py at 2018-11-29 23:20:37
Datalink statistics
-- Total of 1 flow:
Average throughput: 922.54 Mbit/s
95th percentile per-packet one-way delay: 159.339 ms
Loss rate: 1.39%
-- Flow 1:
Average throughput: 922.54 Mbit/s
95th percentile per-packet one-way delay: 159.339 ms
Loss rate: 1.39%

Run 3: Report of FillP — Data Link

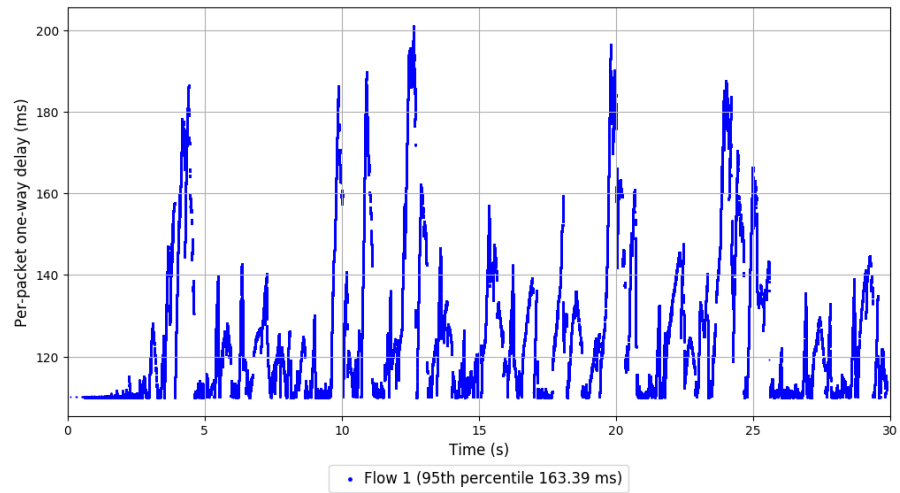
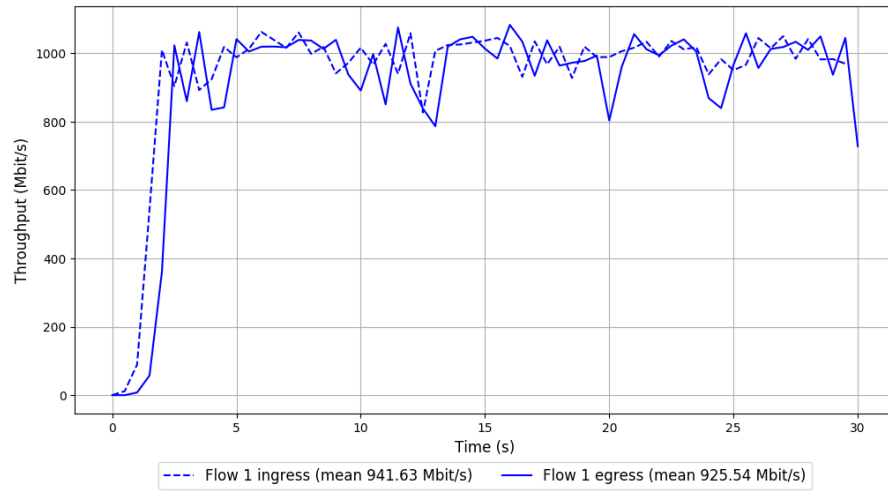


Run 4: Statistics of FillP

Start at: 2018-11-29 21:52:41
End at: 2018-11-29 21:53:11
Local clock offset: 14.272 ms
Remote clock offset: 14.177 ms

Below is generated by plot.py at 2018-11-29 23:20:43
Datalink statistics
-- Total of 1 flow:
Average throughput: 925.54 Mbit/s
95th percentile per-packet one-way delay: 163.389 ms
Loss rate: 2.43%
-- Flow 1:
Average throughput: 925.54 Mbit/s
95th percentile per-packet one-way delay: 163.389 ms
Loss rate: 2.43%

Run 4: Report of FillP — Data Link



Run 5: Statistics of FillP

Start at: 2018-11-29 22:19:20

End at: 2018-11-29 22:19:50

Local clock offset: 5.556 ms

Remote clock offset: 5.905 ms

Below is generated by plot.py at 2018-11-29 23:20:43

Datalink statistics

-- Total of 1 flow:

Average throughput: 892.12 Mbit/s

95th percentile per-packet one-way delay: 167.606 ms

Loss rate: 2.83%

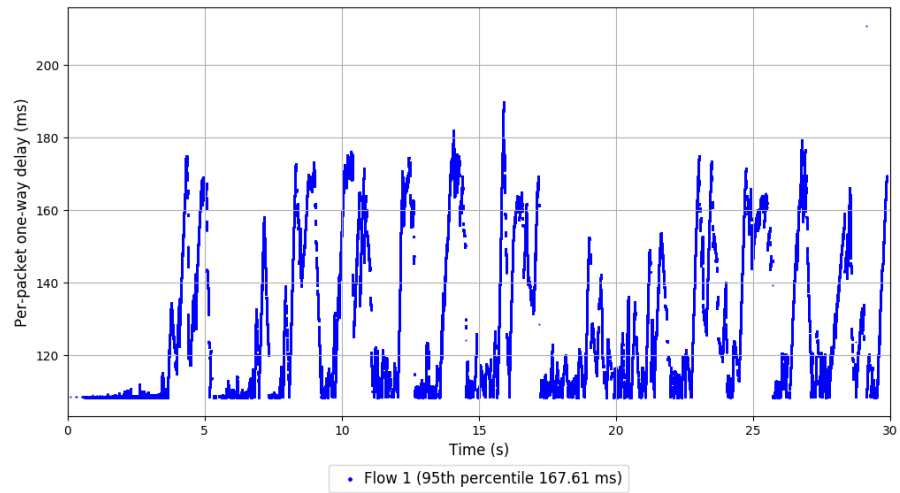
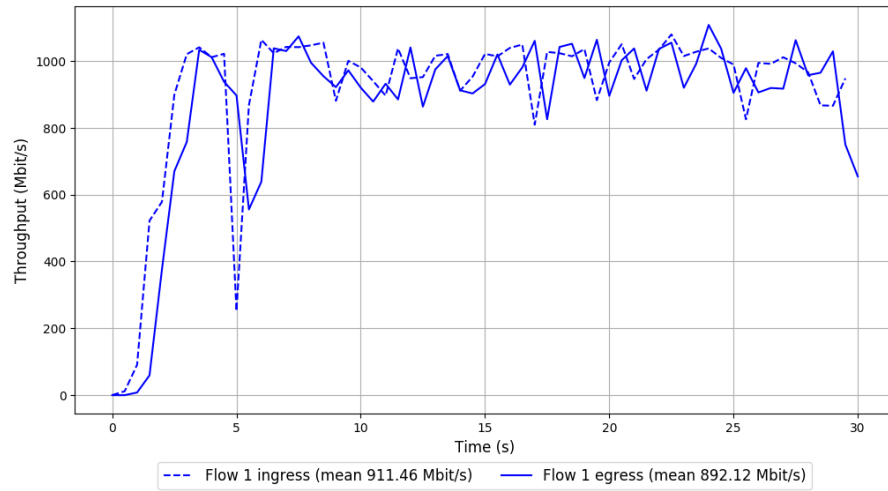
-- Flow 1:

Average throughput: 892.12 Mbit/s

95th percentile per-packet one-way delay: 167.606 ms

Loss rate: 2.83%

Run 5: Report of FillP — Data Link

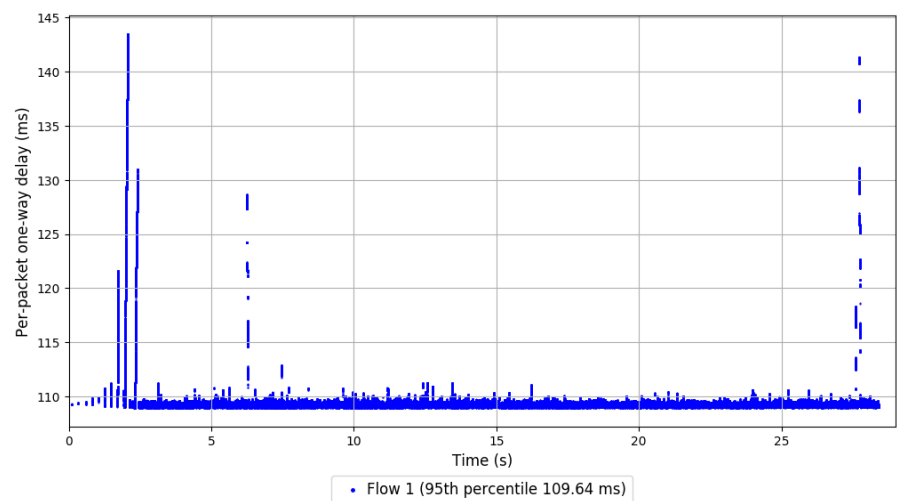
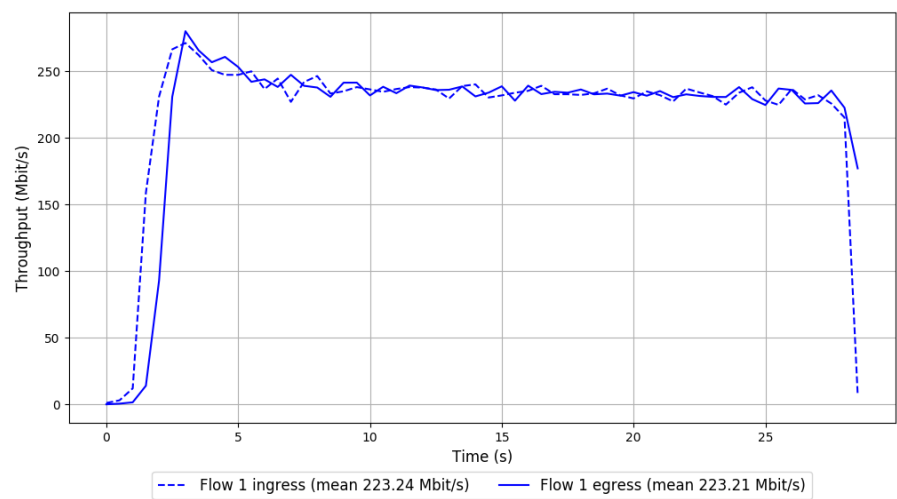


```
Run 1: Statistics of Indigo

Start at: 2018-11-29 20:37:38
End at: 2018-11-29 20:38:08
Local clock offset: 10.211 ms
Remote clock offset: 10.937 ms

# Below is generated by plot.py at 2018-11-29 23:20:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 223.21 Mbit/s
95th percentile per-packet one-way delay: 109.644 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 223.21 Mbit/s
95th percentile per-packet one-way delay: 109.644 ms
Loss rate: 0.78%
```

Run 1: Report of Indigo — Data Link

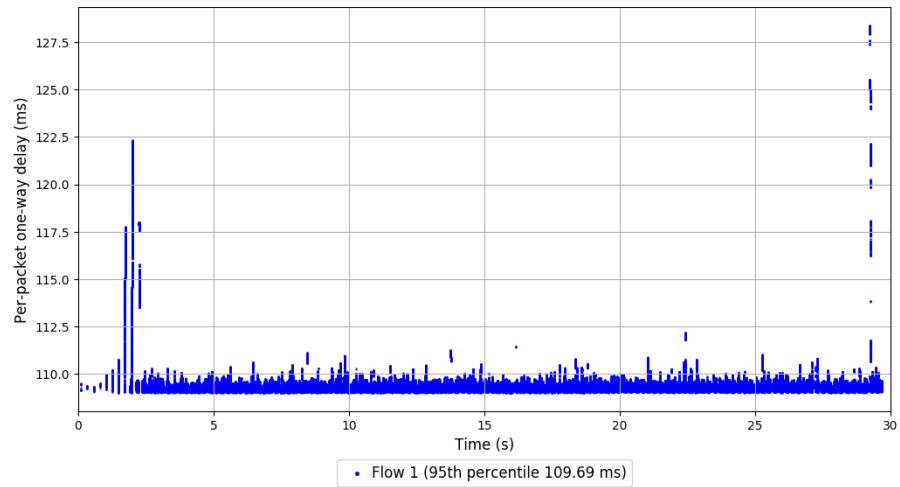
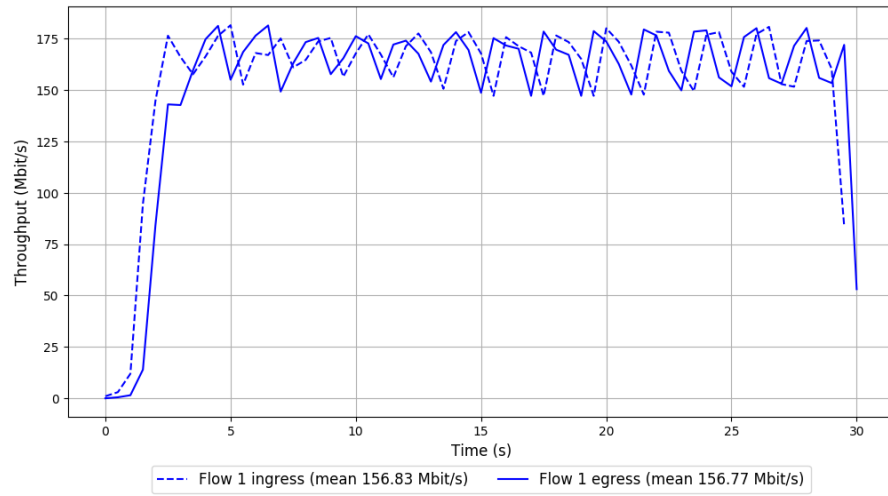


Run 2: Statistics of Indigo

Start at: 2018-11-29 21:04:29
End at: 2018-11-29 21:04:59
Local clock offset: 16.597 ms
Remote clock offset: 17.444 ms

Below is generated by plot.py at 2018-11-29 23:20:43
Datalink statistics
-- Total of 1 flow:
Average throughput: 156.77 Mbit/s
95th percentile per-packet one-way delay: 109.686 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 156.77 Mbit/s
95th percentile per-packet one-way delay: 109.686 ms
Loss rate: 0.77%

Run 2: Report of Indigo — Data Link

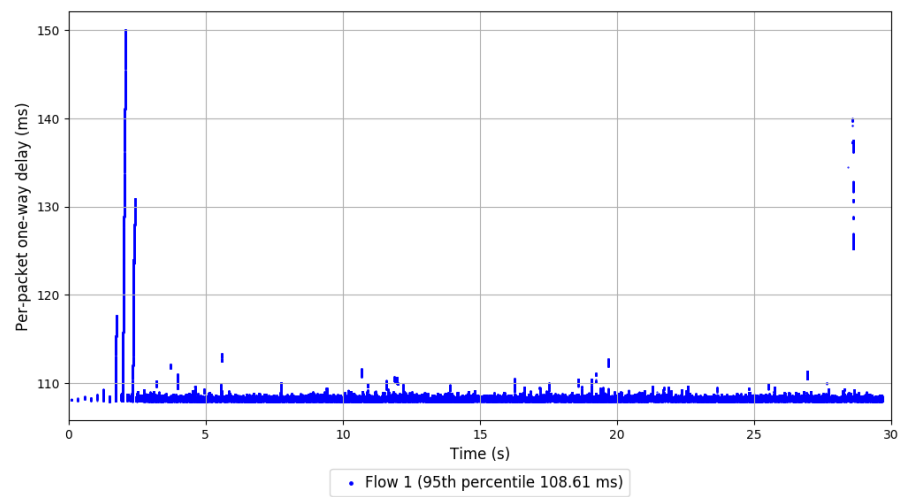
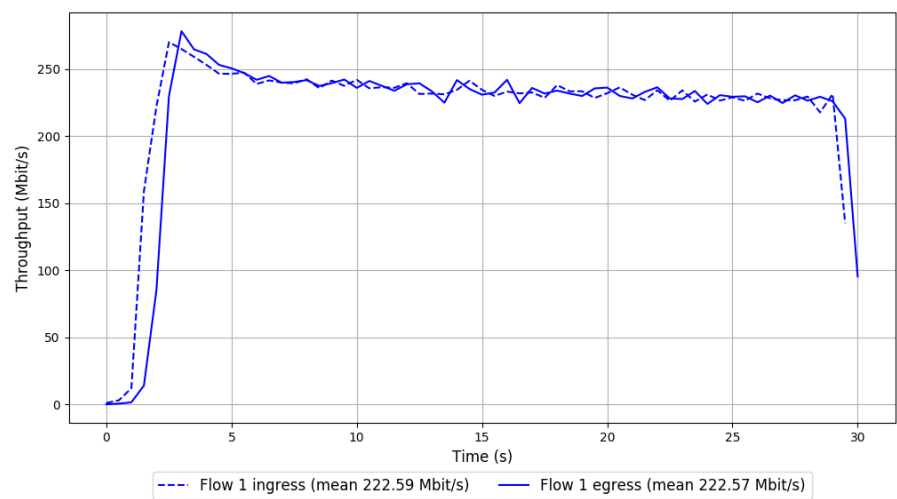


Run 3: Statistics of Indigo

Start at: 2018-11-29 21:31:40
End at: 2018-11-29 21:32:10
Local clock offset: 14.339 ms
Remote clock offset: 15.112 ms

Below is generated by plot.py at 2018-11-29 23:20:43
Datalink statistics
-- Total of 1 flow:
Average throughput: 222.57 Mbit/s
95th percentile per-packet one-way delay: 108.611 ms
Loss rate: 0.76%
-- Flow 1:
Average throughput: 222.57 Mbit/s
95th percentile per-packet one-way delay: 108.611 ms
Loss rate: 0.76%

Run 3: Report of Indigo — Data Link

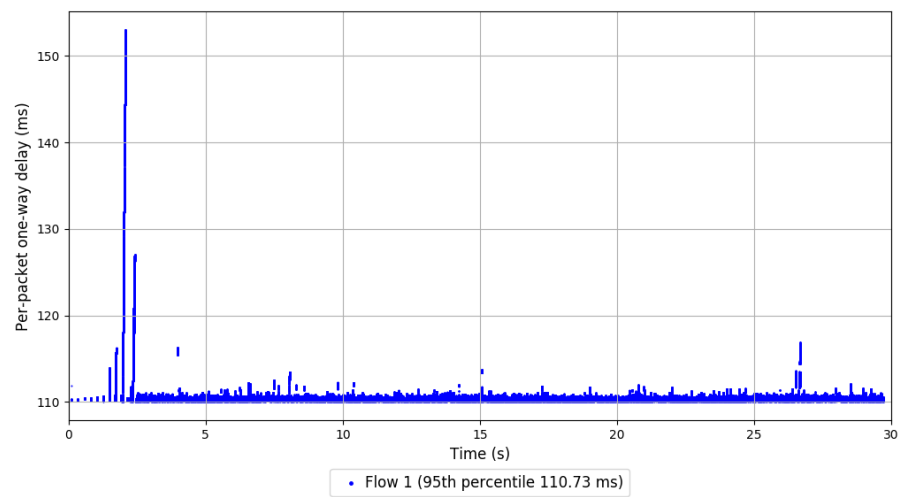
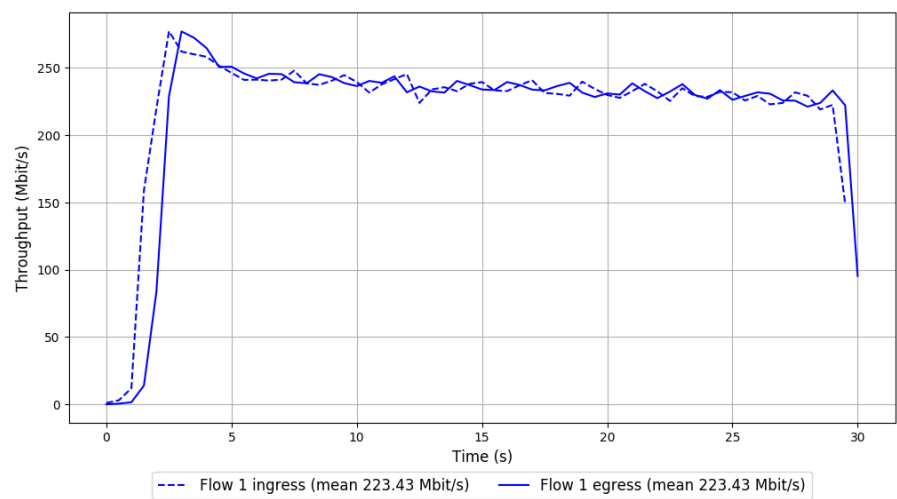


Run 4: Statistics of Indigo

Start at: 2018-11-29 21:58:49
End at: 2018-11-29 21:59:19
Local clock offset: 13.451 ms
Remote clock offset: 13.013 ms

Below is generated by plot.py at 2018-11-29 23:20:43
Datalink statistics
-- Total of 1 flow:
Average throughput: 223.43 Mbit/s
95th percentile per-packet one-way delay: 110.730 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 223.43 Mbit/s
95th percentile per-packet one-way delay: 110.730 ms
Loss rate: 0.74%

Run 4: Report of Indigo — Data Link



Run 5: Statistics of Indigo

Start at: 2018-11-29 22:25:31

End at: 2018-11-29 22:26:01

Local clock offset: 6.418 ms

Remote clock offset: 6.651 ms

Below is generated by plot.py at 2018-11-29 23:20:43

Datalink statistics

-- Total of 1 flow:

Average throughput: 156.12 Mbit/s

95th percentile per-packet one-way delay: 110.150 ms

Loss rate: 0.77%

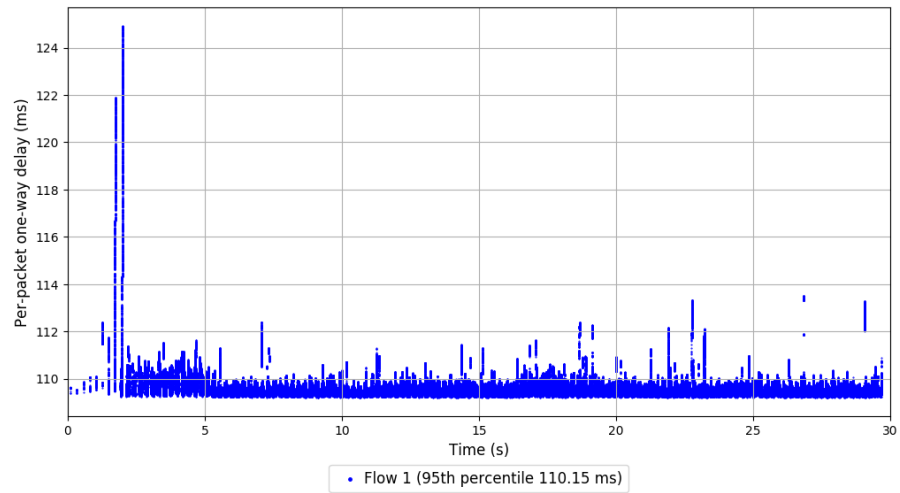
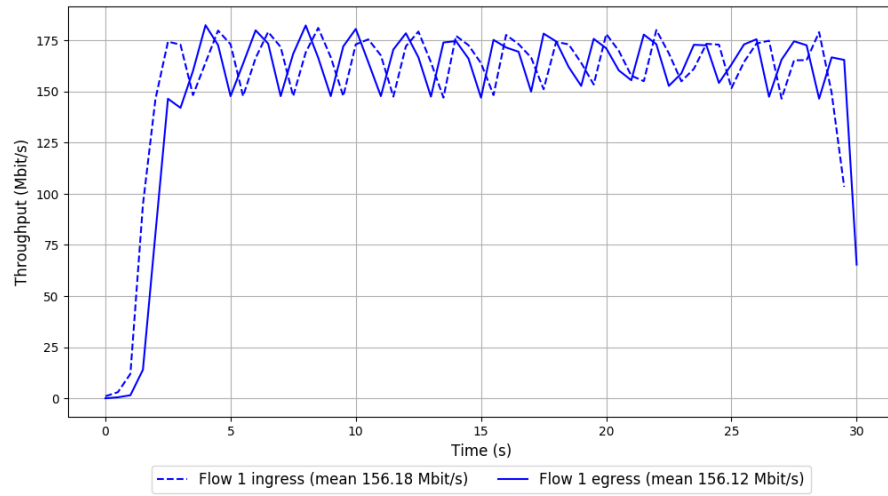
-- Flow 1:

Average throughput: 156.12 Mbit/s

95th percentile per-packet one-way delay: 110.150 ms

Loss rate: 0.77%

Run 5: Report of Indigo — Data Link

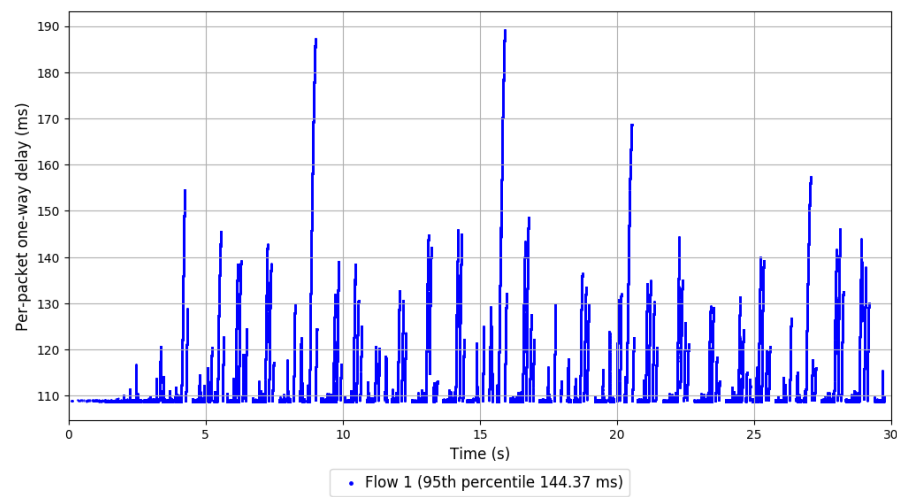
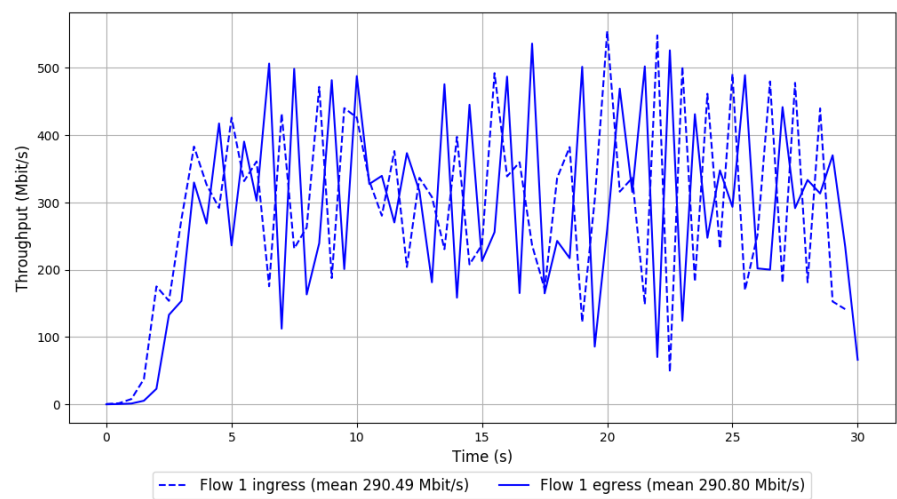


```
Run 1: Statistics of Indigo-96d2da3

Start at: 2018-11-29 20:35:01
End at: 2018-11-29 20:35:31
Local clock offset: 9.645 ms
Remote clock offset: 10.445 ms

# Below is generated by plot.py at 2018-11-29 23:20:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 290.80 Mbit/s
95th percentile per-packet one-way delay: 144.374 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 290.80 Mbit/s
95th percentile per-packet one-way delay: 144.374 ms
Loss rate: 0.62%
```

Run 1: Report of Indigo-96d2da3 — Data Link

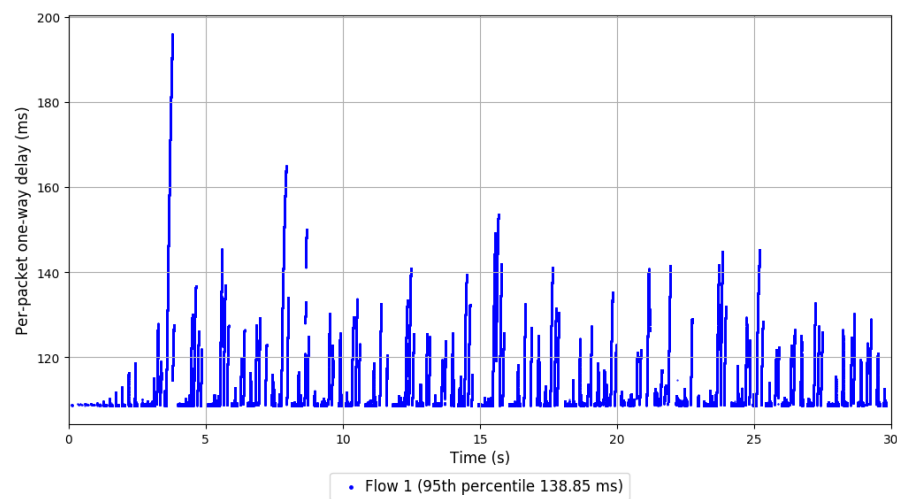
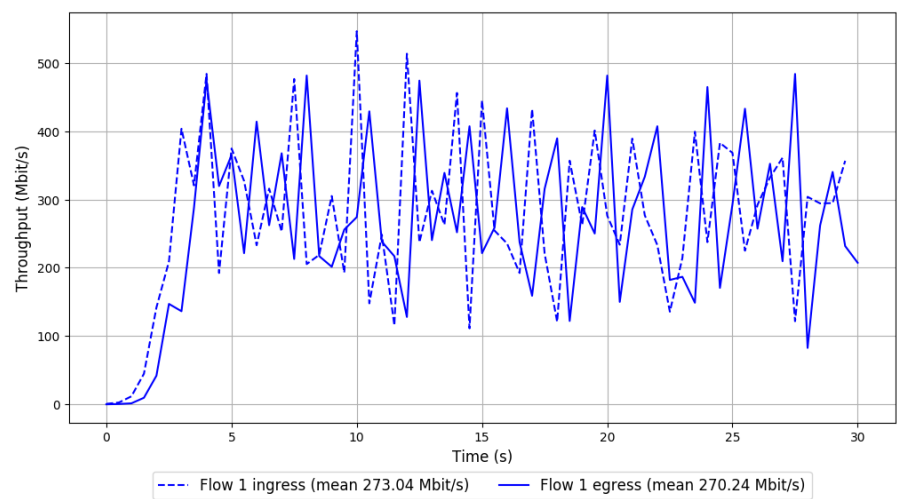


Run 2: Statistics of Indigo-96d2da3

Start at: 2018-11-29 21:01:52
End at: 2018-11-29 21:02:22
Local clock offset: 15.103 ms
Remote clock offset: 16.283 ms

Below is generated by plot.py at 2018-11-29 23:20:43
Datalink statistics
-- Total of 1 flow:
Average throughput: 270.24 Mbit/s
95th percentile per-packet one-way delay: 138.854 ms
Loss rate: 1.59%
-- Flow 1:
Average throughput: 270.24 Mbit/s
95th percentile per-packet one-way delay: 138.854 ms
Loss rate: 1.59%

Run 2: Report of Indigo-96d2da3 — Data Link

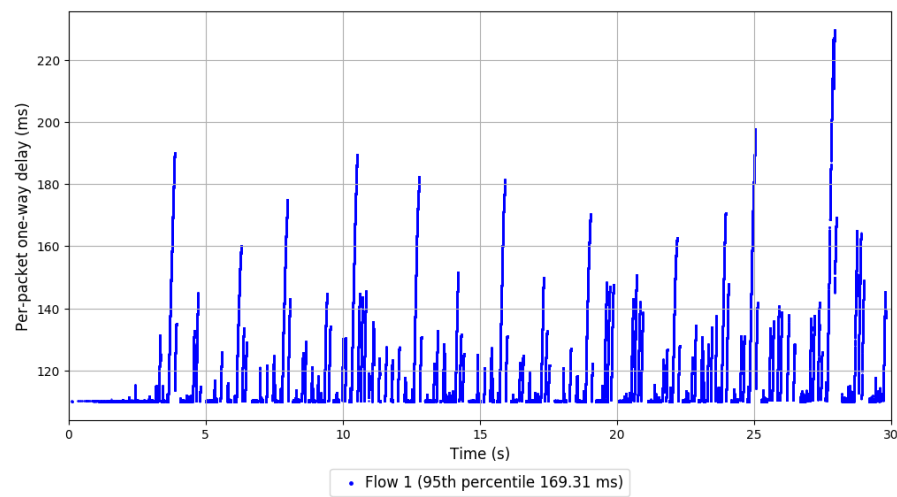
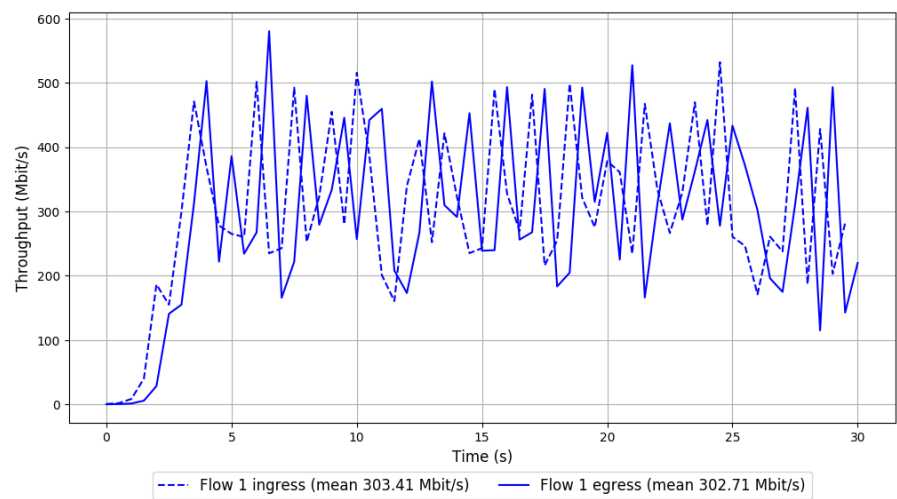


Run 3: Statistics of Indigo-96d2da3

Start at: 2018-11-29 21:28:57
End at: 2018-11-29 21:29:27
Local clock offset: 18.395 ms
Remote clock offset: 18.216 ms

Below is generated by plot.py at 2018-11-29 23:20:43
Datalink statistics
-- Total of 1 flow:
Average throughput: 302.71 Mbit/s
95th percentile per-packet one-way delay: 169.305 ms
Loss rate: 0.99%
-- Flow 1:
Average throughput: 302.71 Mbit/s
95th percentile per-packet one-way delay: 169.305 ms
Loss rate: 0.99%

Run 3: Report of Indigo-96d2da3 — Data Link

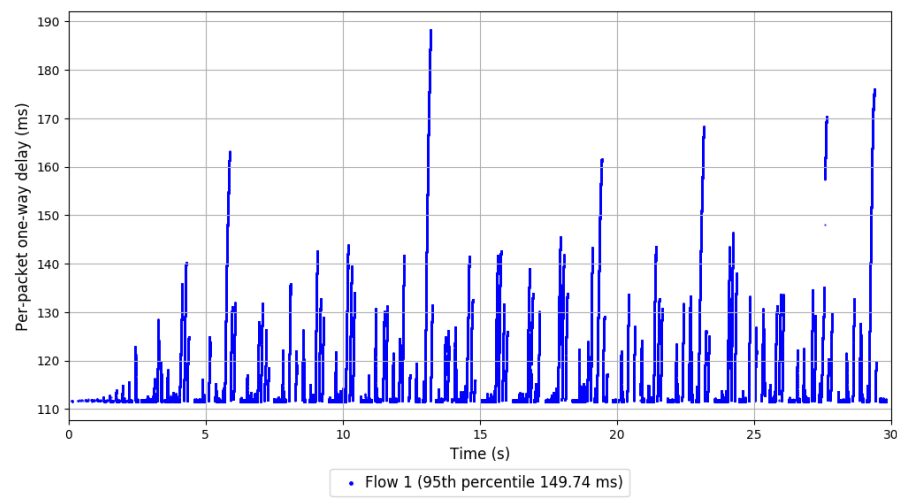
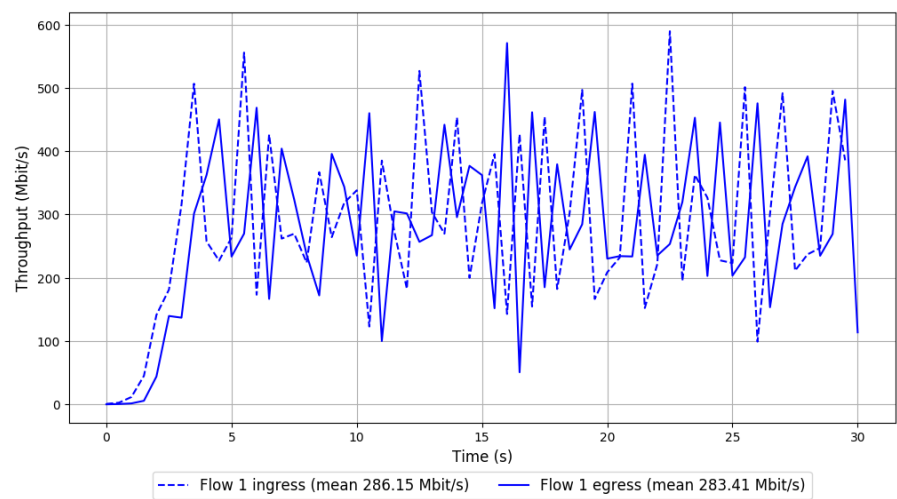


Run 4: Statistics of Indigo-96d2da3

Start at: 2018-11-29 21:56:12
End at: 2018-11-29 21:56:42
Local clock offset: 15.261 ms
Remote clock offset: 15.379 ms

Below is generated by plot.py at 2018-11-29 23:20:43
Datalink statistics
-- Total of 1 flow:
Average throughput: 283.41 Mbit/s
95th percentile per-packet one-way delay: 149.735 ms
Loss rate: 1.69%
-- Flow 1:
Average throughput: 283.41 Mbit/s
95th percentile per-packet one-way delay: 149.735 ms
Loss rate: 1.69%

Run 4: Report of Indigo-96d2da3 — Data Link



Run 5: Statistics of Indigo-96d2da3

Start at: 2018-11-29 22:22:54

End at: 2018-11-29 22:23:24

Local clock offset: 6.081 ms

Remote clock offset: 6.296 ms

Below is generated by plot.py at 2018-11-29 23:21:13

Datalink statistics

-- Total of 1 flow:

Average throughput: 301.47 Mbit/s

95th percentile per-packet one-way delay: 162.025 ms

Loss rate: 0.03%

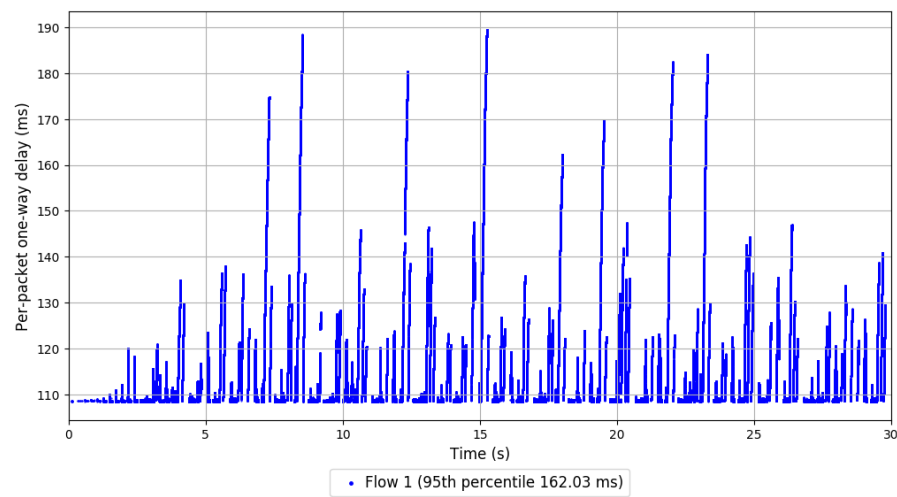
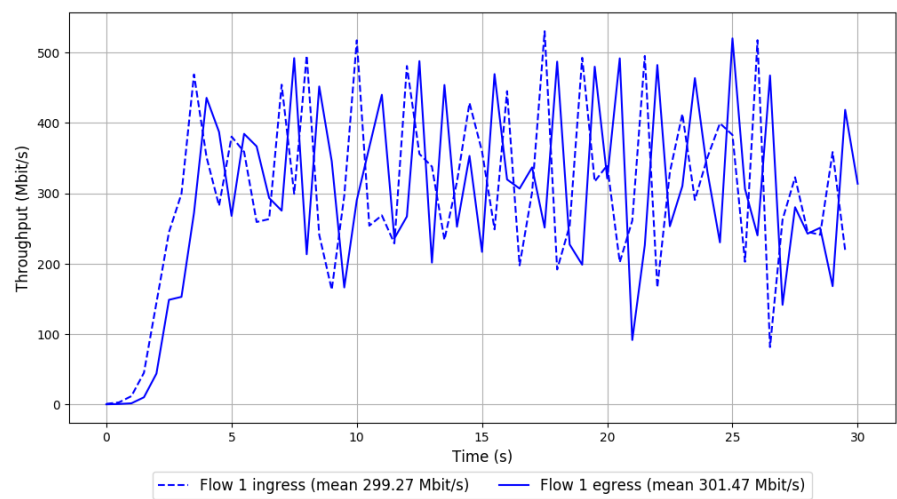
-- Flow 1:

Average throughput: 301.47 Mbit/s

95th percentile per-packet one-way delay: 162.025 ms

Loss rate: 0.03%

Run 5: Report of Indigo-96d2da3 — Data Link

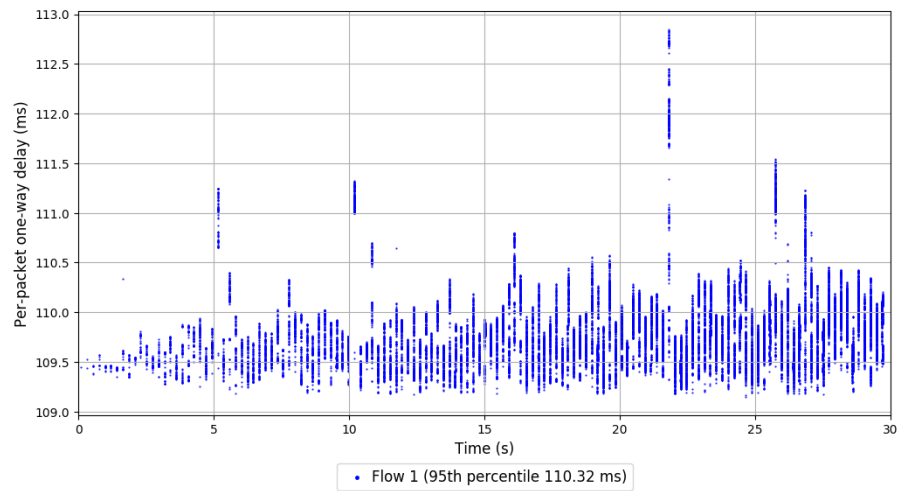
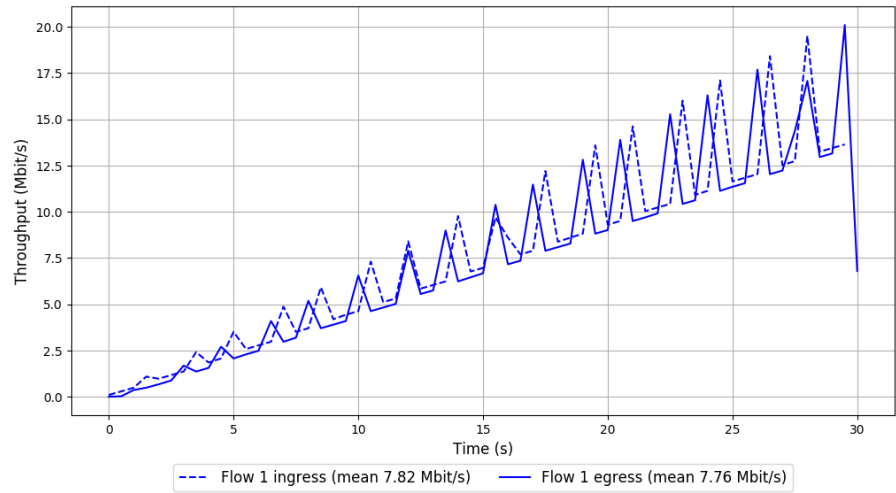


```
Run 1: Statistics of LEDBAT

Start at: 2018-11-29 20:36:27
End at: 2018-11-29 20:36:57
Local clock offset: 10.066 ms
Remote clock offset: 10.257 ms

# Below is generated by plot.py at 2018-11-29 23:21:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.76 Mbit/s
95th percentile per-packet one-way delay: 110.321 ms
Loss rate: 1.47%
-- Flow 1:
Average throughput: 7.76 Mbit/s
95th percentile per-packet one-way delay: 110.321 ms
Loss rate: 1.47%
```

Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2018-11-29 21:03:17

End at: 2018-11-29 21:03:47

Local clock offset: 16.124 ms

Remote clock offset: 16.89 ms

Below is generated by plot.py at 2018-11-29 23:21:13

Datalink statistics

-- Total of 1 flow:

Average throughput: 7.87 Mbit/s

95th percentile per-packet one-way delay: 110.295 ms

Loss rate: 1.46%

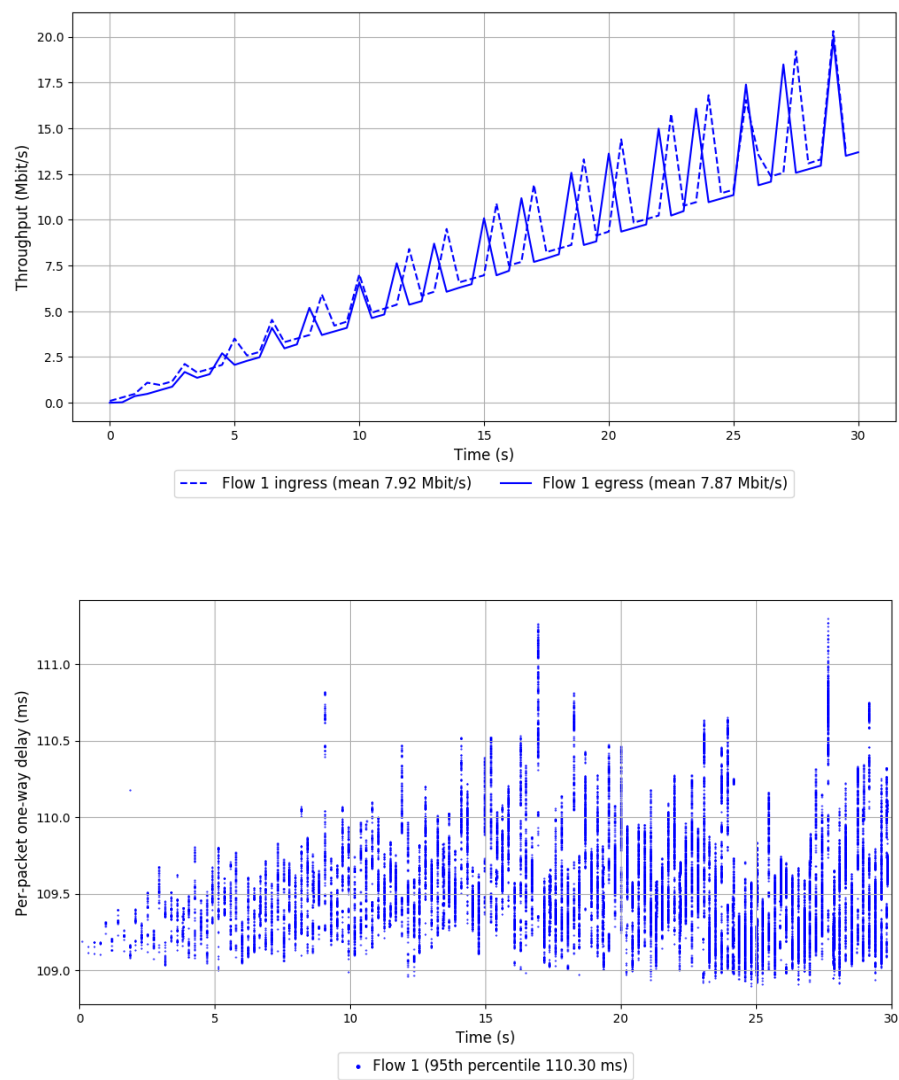
-- Flow 1:

Average throughput: 7.87 Mbit/s

95th percentile per-packet one-way delay: 110.295 ms

Loss rate: 1.46%

Run 2: Report of LEDBAT — Data Link

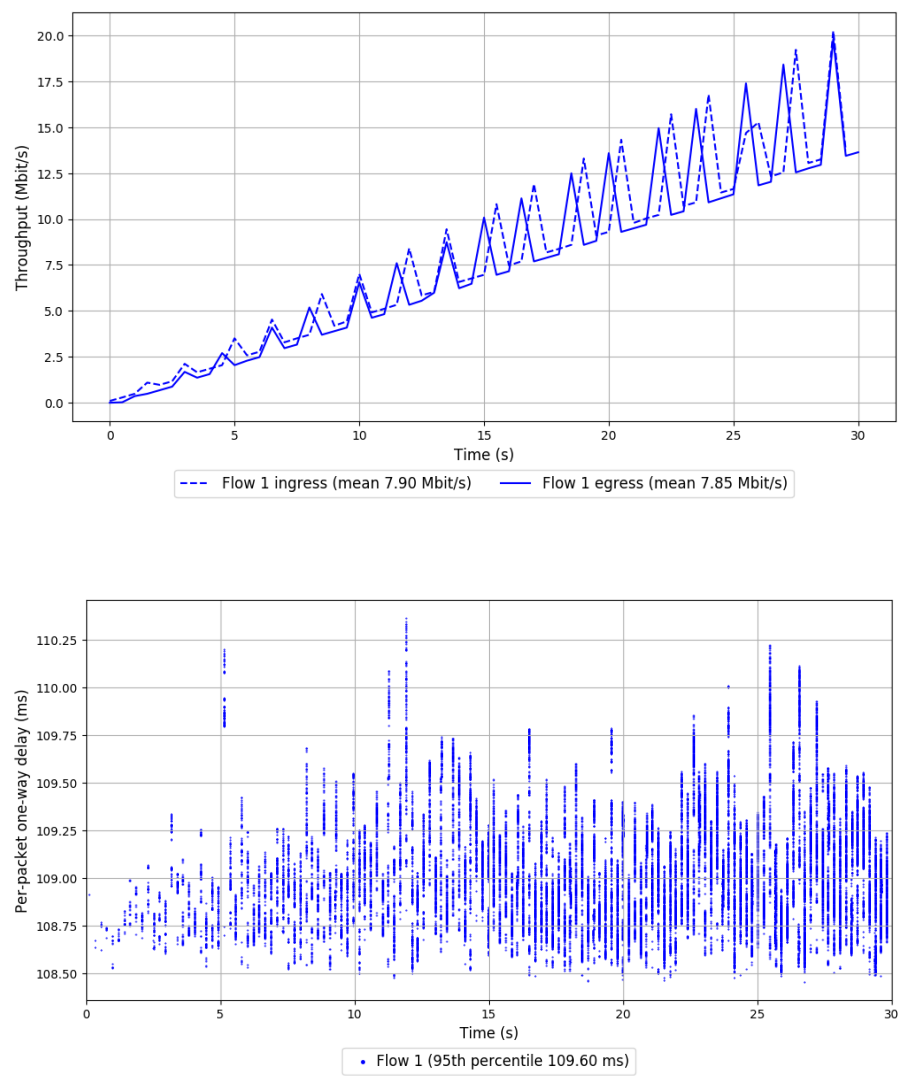


Run 3: Statistics of LEDBAT

Start at: 2018-11-29 21:30:29
End at: 2018-11-29 21:30:59
Local clock offset: 16.066 ms
Remote clock offset: 16.307 ms

Below is generated by plot.py at 2018-11-29 23:21:13
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.85 Mbit/s
95th percentile per-packet one-way delay: 109.596 ms
Loss rate: 1.46%
-- Flow 1:
Average throughput: 7.85 Mbit/s
95th percentile per-packet one-way delay: 109.596 ms
Loss rate: 1.46%

Run 3: Report of LEDBAT — Data Link

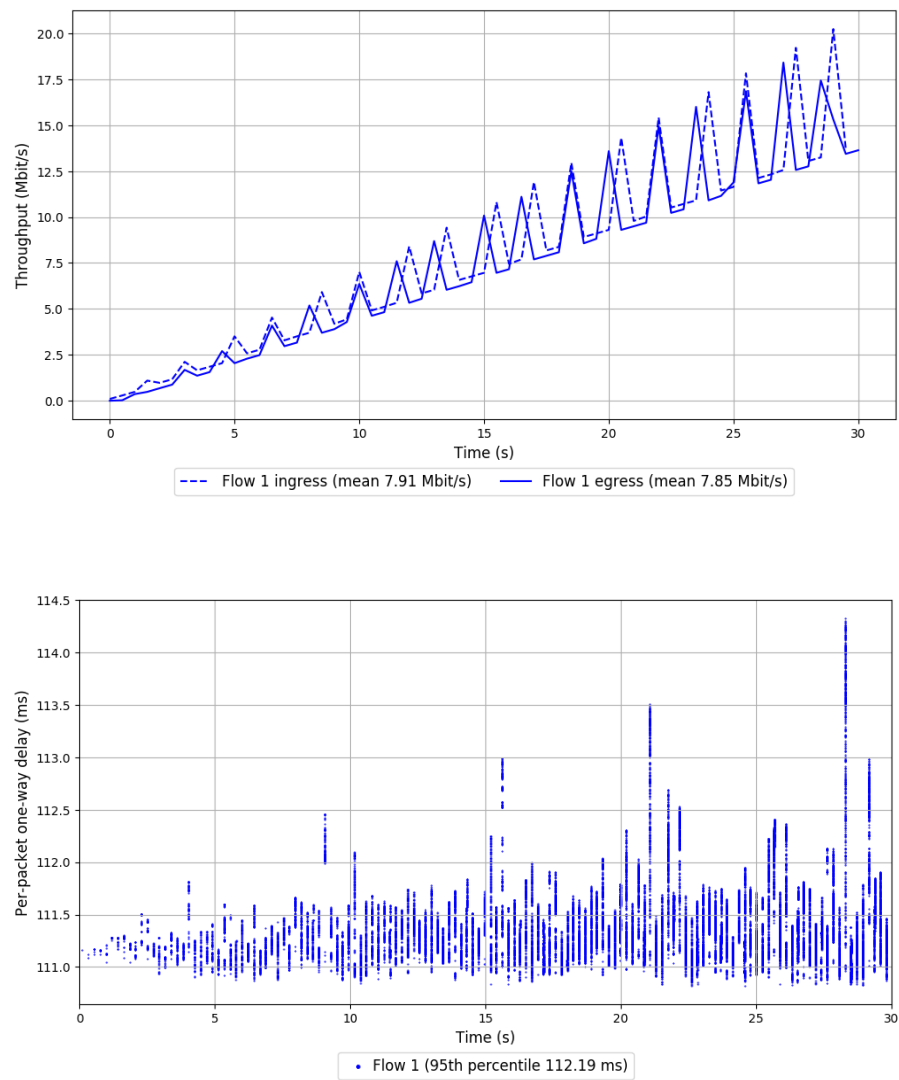


Run 4: Statistics of LEDBAT

Start at: 2018-11-29 21:57:38
End at: 2018-11-29 21:58:08
Local clock offset: 16.509 ms
Remote clock offset: 15.046 ms

Below is generated by plot.py at 2018-11-29 23:21:13
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.85 Mbit/s
95th percentile per-packet one-way delay: 112.189 ms
Loss rate: 1.46%
-- Flow 1:
Average throughput: 7.85 Mbit/s
95th percentile per-packet one-way delay: 112.189 ms
Loss rate: 1.46%

Run 4: Report of LEDBAT — Data Link



Run 5: Statistics of LEDBAT

Start at: 2018-11-29 22:24:20

End at: 2018-11-29 22:24:50

Local clock offset: 7.601 ms

Remote clock offset: 6.859 ms

Below is generated by plot.py at 2018-11-29 23:21:13

Datalink statistics

-- Total of 1 flow:

Average throughput: 7.84 Mbit/s

95th percentile per-packet one-way delay: 111.681 ms

Loss rate: 1.46%

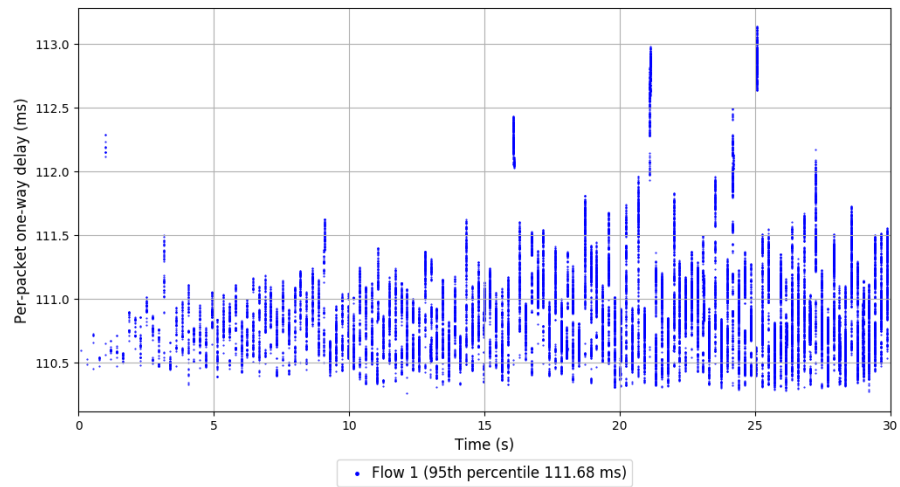
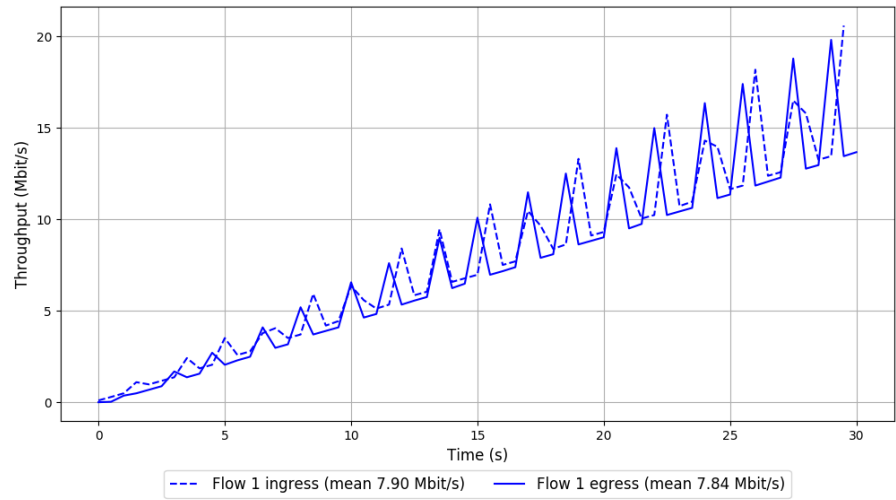
-- Flow 1:

Average throughput: 7.84 Mbit/s

95th percentile per-packet one-way delay: 111.681 ms

Loss rate: 1.46%

Run 5: Report of LEDBAT — Data Link

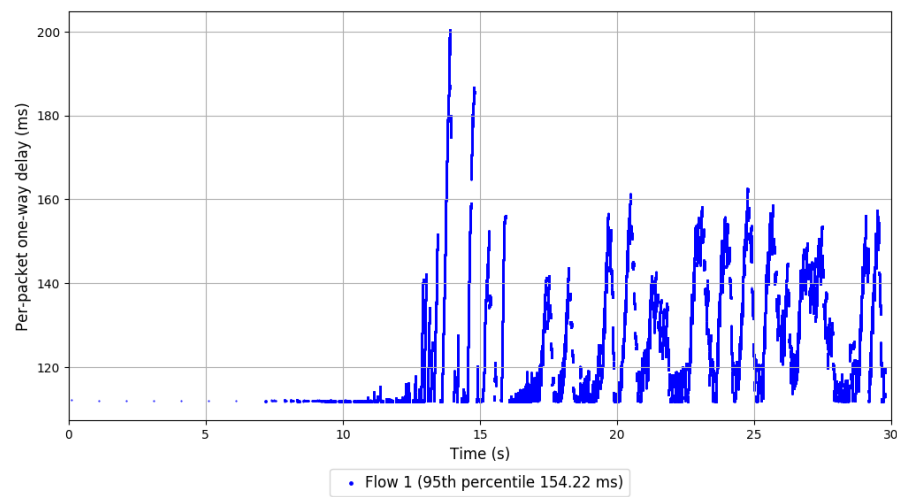
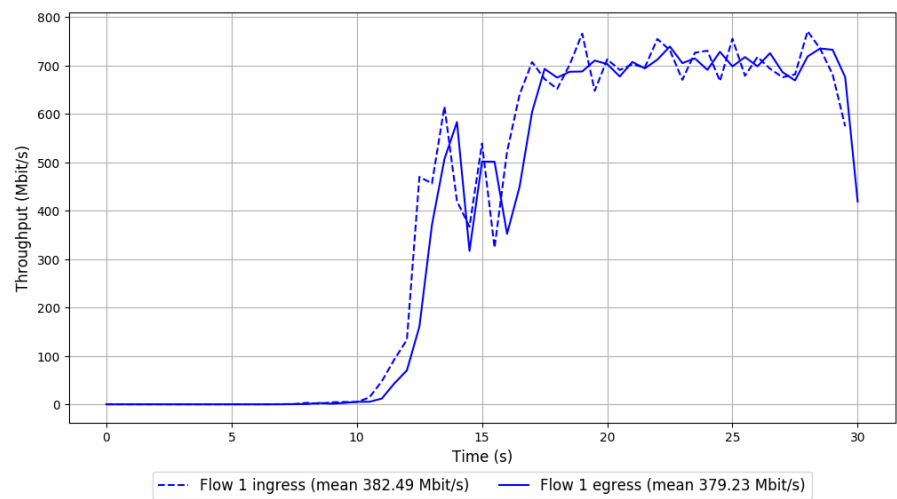


```
Run 1: Statistics of Indigo-Muses

Start at: 2018-11-29 20:24:36
End at: 2018-11-29 20:25:06
Local clock offset: 7.408 ms
Remote clock offset: 7.131 ms

# Below is generated by plot.py at 2018-11-29 23:24:57
# Datalink statistics
-- Total of 1 flow:
Average throughput: 379.23 Mbit/s
95th percentile per-packet one-way delay: 154.217 ms
Loss rate: 1.58%
-- Flow 1:
Average throughput: 379.23 Mbit/s
95th percentile per-packet one-way delay: 154.217 ms
Loss rate: 1.58%
```

Run 1: Report of Indigo-Muses — Data Link

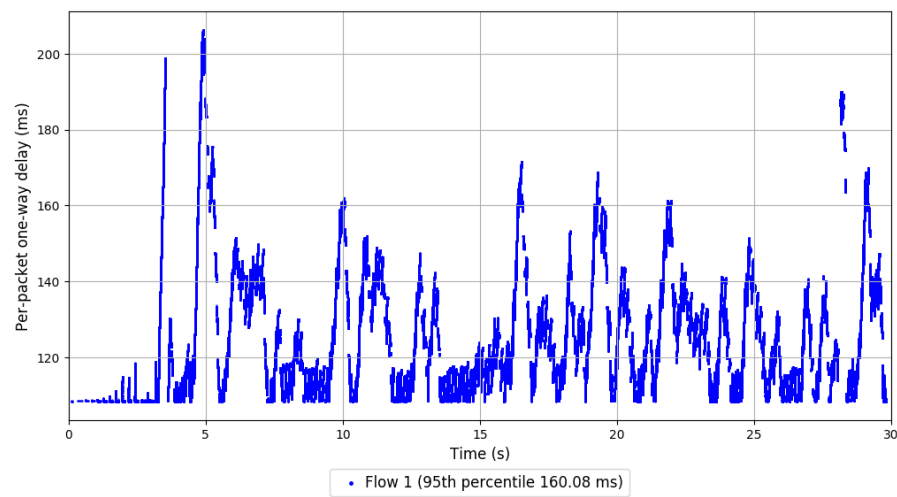
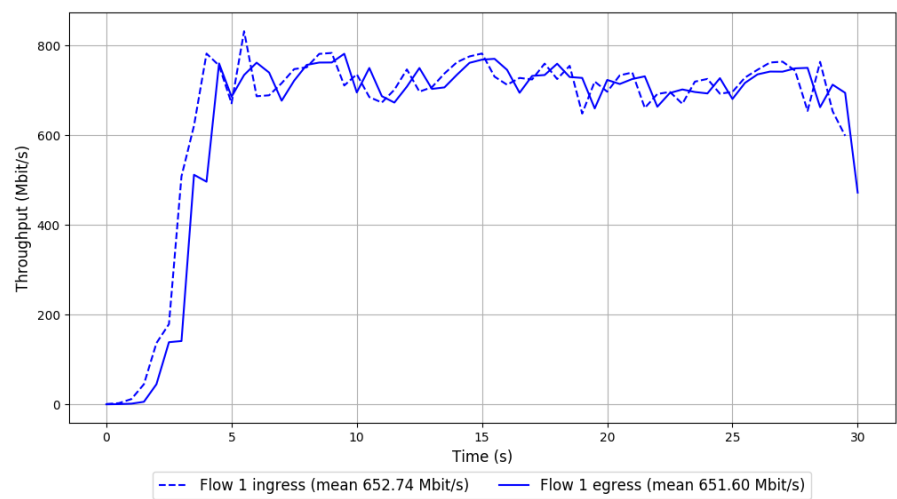


Run 2: Statistics of Indigo-Muses

Start at: 2018-11-29 20:51:08
End at: 2018-11-29 20:51:38
Local clock offset: 16.64 ms
Remote clock offset: 18.307 ms

Below is generated by plot.py at 2018-11-29 23:31:52
Datalink statistics
-- Total of 1 flow:
Average throughput: 651.60 Mbit/s
95th percentile per-packet one-way delay: 160.083 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 651.60 Mbit/s
95th percentile per-packet one-way delay: 160.083 ms
Loss rate: 0.91%

Run 2: Report of Indigo-Muses — Data Link

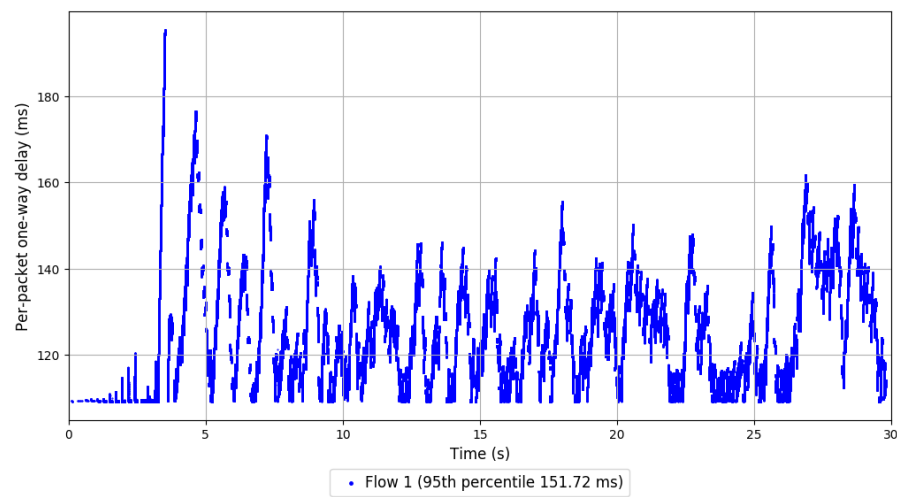
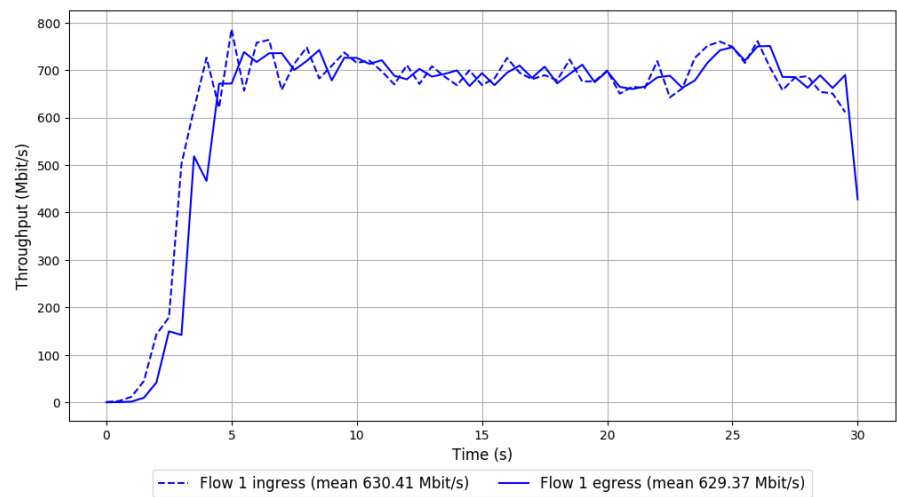


Run 3: Statistics of Indigo-Muses

Start at: 2018-11-29 21:18:27
End at: 2018-11-29 21:18:57
Local clock offset: 26.261 ms
Remote clock offset: 27.454 ms

Below is generated by plot.py at 2018-11-29 23:31:52
Datalink statistics
-- Total of 1 flow:
Average throughput: 629.37 Mbit/s
95th percentile per-packet one-way delay: 151.715 ms
Loss rate: 0.90%
-- Flow 1:
Average throughput: 629.37 Mbit/s
95th percentile per-packet one-way delay: 151.715 ms
Loss rate: 0.90%

Run 3: Report of Indigo-Muses — Data Link



Run 4: Statistics of Indigo-Muses

Start at: 2018-11-29 21:45:23

End at: 2018-11-29 21:45:53

Local clock offset: 11.754 ms

Remote clock offset: 12.22 ms

Below is generated by plot.py at 2018-11-29 23:33:02

Datalink statistics

-- Total of 1 flow:

Average throughput: 655.80 Mbit/s

95th percentile per-packet one-way delay: 150.715 ms

Loss rate: 0.90%

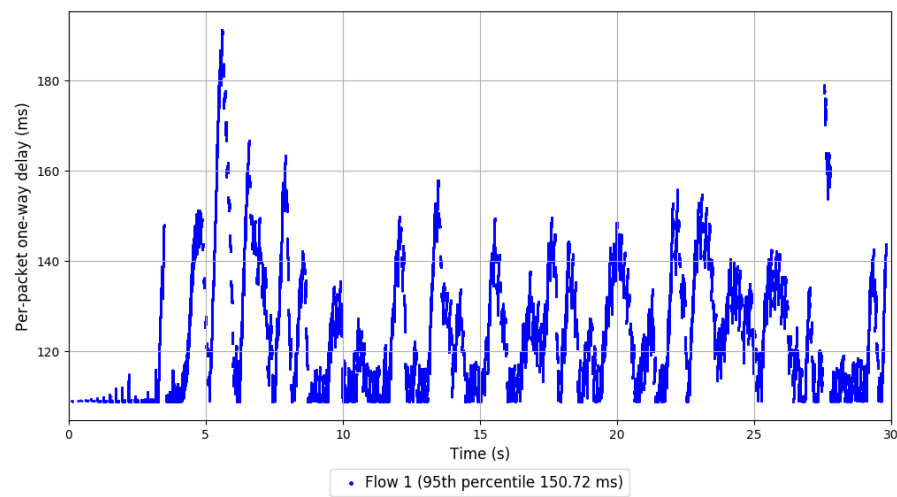
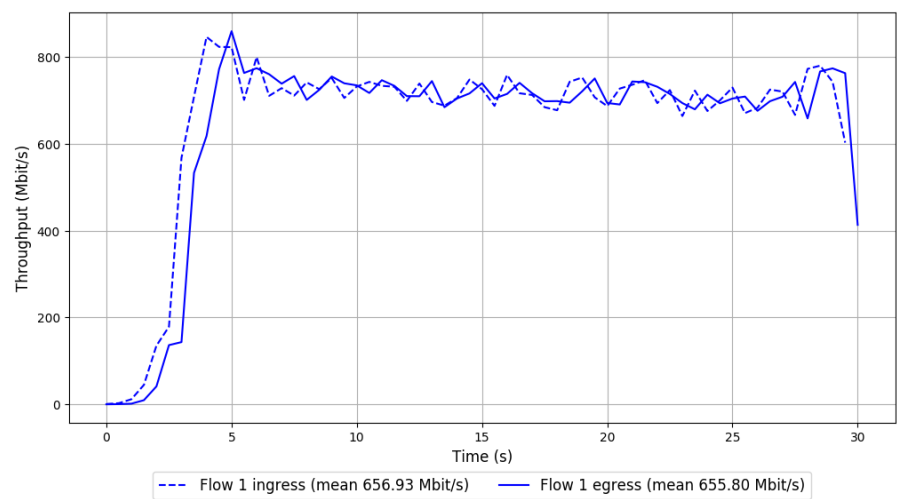
-- Flow 1:

Average throughput: 655.80 Mbit/s

95th percentile per-packet one-way delay: 150.715 ms

Loss rate: 0.90%

Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-11-29 22:12:18

End at: 2018-11-29 22:12:48

Local clock offset: 5.805 ms

Remote clock offset: 5.876 ms

Below is generated by plot.py at 2018-11-29 23:33:34

Datalink statistics

-- Total of 1 flow:

Average throughput: 656.63 Mbit/s

95th percentile per-packet one-way delay: 150.672 ms

Loss rate: 0.95%

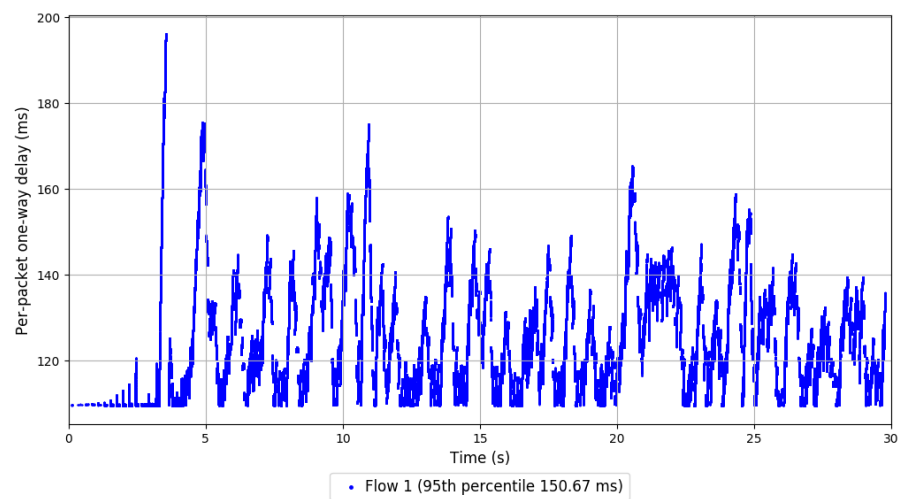
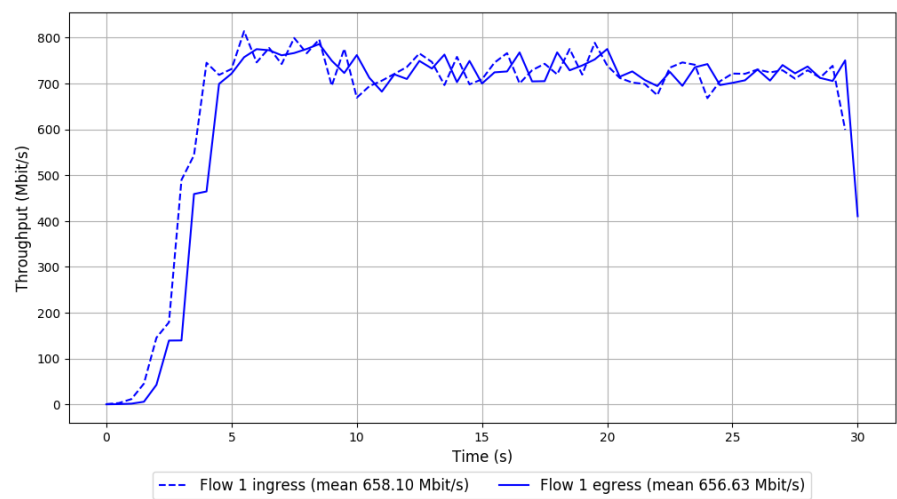
-- Flow 1:

Average throughput: 656.63 Mbit/s

95th percentile per-packet one-way delay: 150.672 ms

Loss rate: 0.95%

Run 5: Report of Indigo-Muses — Data Link

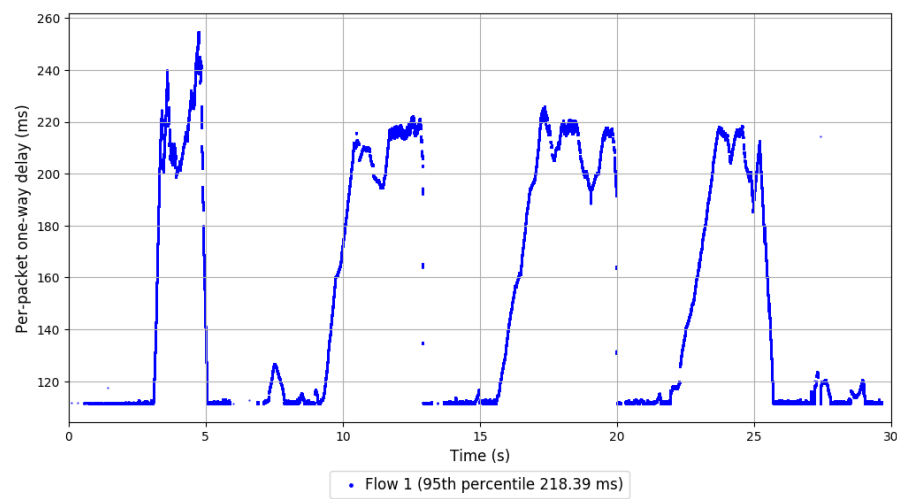
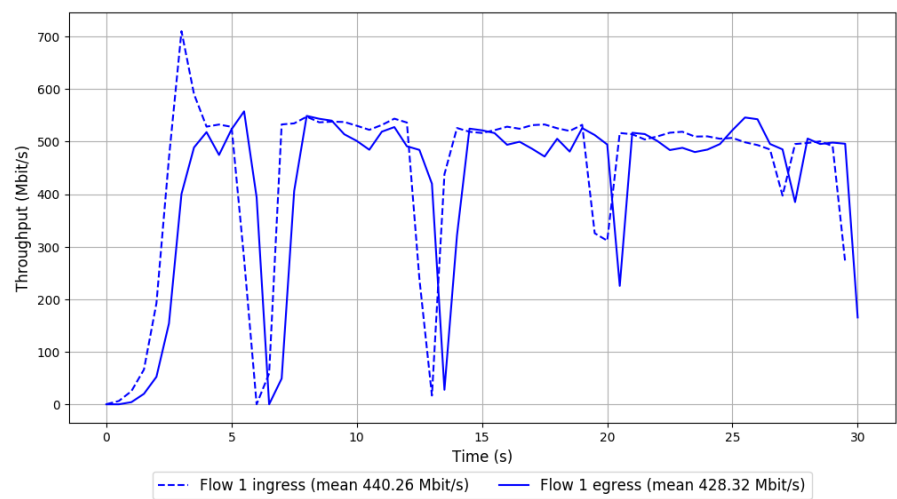


```
Run 1: Statistics of PCC-Allegro

Start at: 2018-11-29 20:33:21
End at: 2018-11-29 20:33:51
Local clock offset: 11.709 ms
Remote clock offset: 11.605 ms

# Below is generated by plot.py at 2018-11-29 23:35:42
# Datalink statistics
-- Total of 1 flow:
Average throughput: 428.32 Mbit/s
95th percentile per-packet one-way delay: 218.390 ms
Loss rate: 3.43%
-- Flow 1:
Average throughput: 428.32 Mbit/s
95th percentile per-packet one-way delay: 218.390 ms
Loss rate: 3.43%
```

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-11-29 21:00:13

End at: 2018-11-29 21:00:43

Local clock offset: 15.062 ms

Remote clock offset: 15.45 ms

Below is generated by plot.py at 2018-11-29 23:35:42

Datalink statistics

-- Total of 1 flow:

Average throughput: 406.18 Mbit/s

95th percentile per-packet one-way delay: 201.990 ms

Loss rate: 1.29%

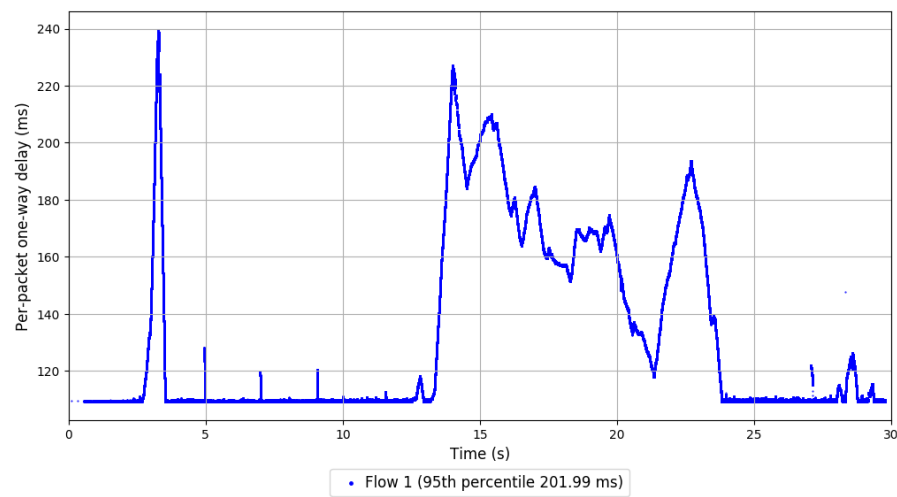
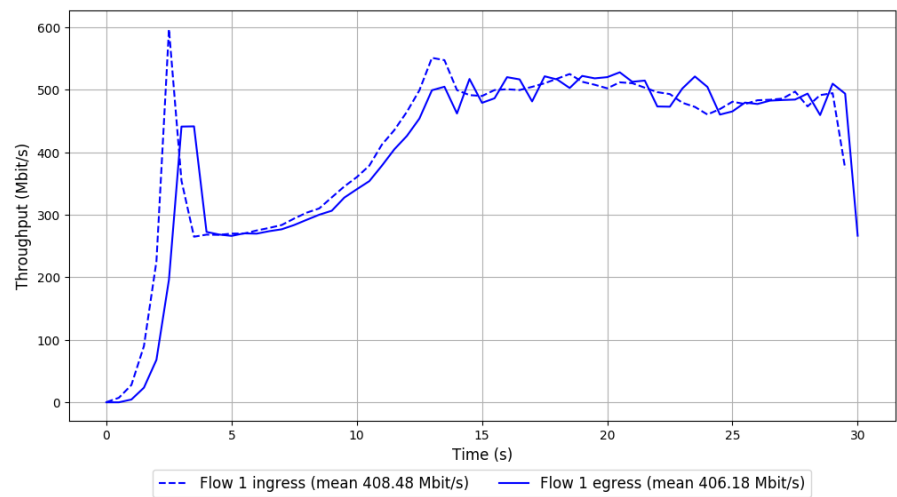
-- Flow 1:

Average throughput: 406.18 Mbit/s

95th percentile per-packet one-way delay: 201.990 ms

Loss rate: 1.29%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-11-29 21:27:19

End at: 2018-11-29 21:27:49

Local clock offset: 20.967 ms

Remote clock offset: 21.1 ms

Below is generated by plot.py at 2018-11-29 23:35:42

Datalink statistics

-- Total of 1 flow:

Average throughput: 392.15 Mbit/s

95th percentile per-packet one-way delay: 205.290 ms

Loss rate: 1.89%

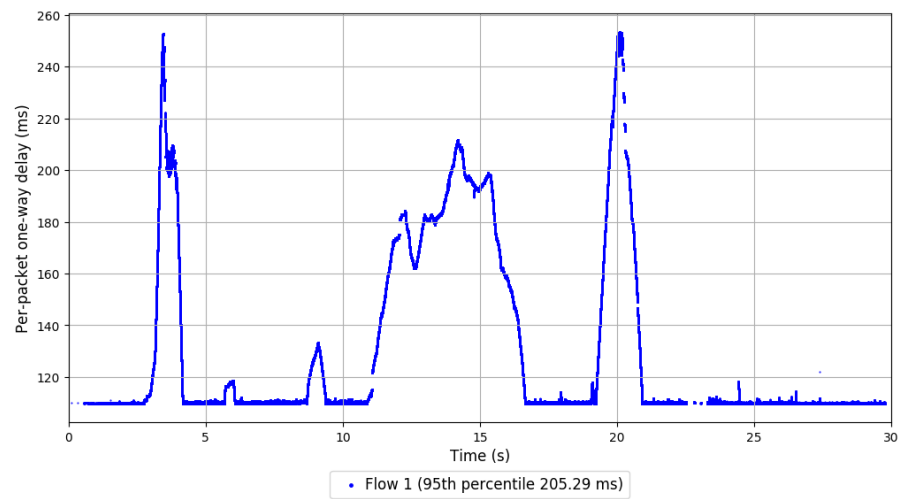
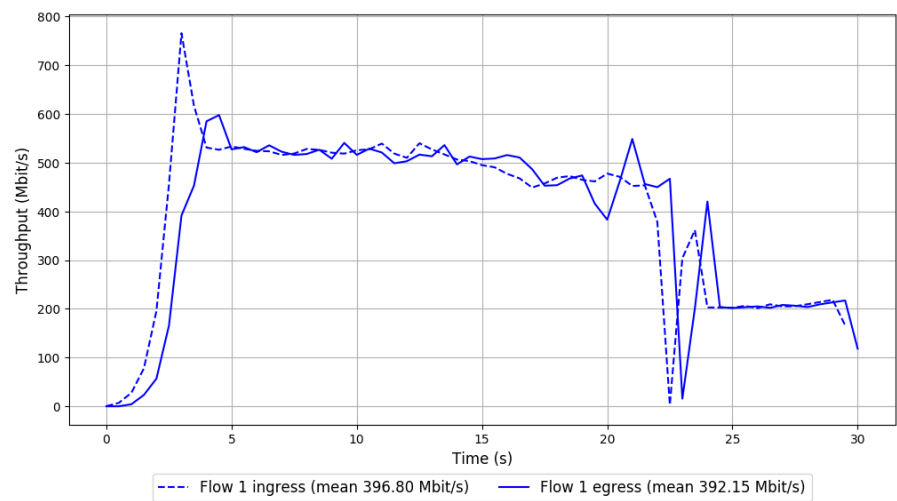
-- Flow 1:

Average throughput: 392.15 Mbit/s

95th percentile per-packet one-way delay: 205.290 ms

Loss rate: 1.89%

Run 3: Report of PCC-Allegro — Data Link



Run 4: Statistics of PCC-Allegro

Start at: 2018-11-29 21:54:32

End at: 2018-11-29 21:55:02

Local clock offset: 14.068 ms

Remote clock offset: 14.775 ms

Below is generated by plot.py at 2018-11-29 23:41:13

Datalink statistics

-- Total of 1 flow:

Average throughput: 416.01 Mbit/s

95th percentile per-packet one-way delay: 214.782 ms

Loss rate: 2.70%

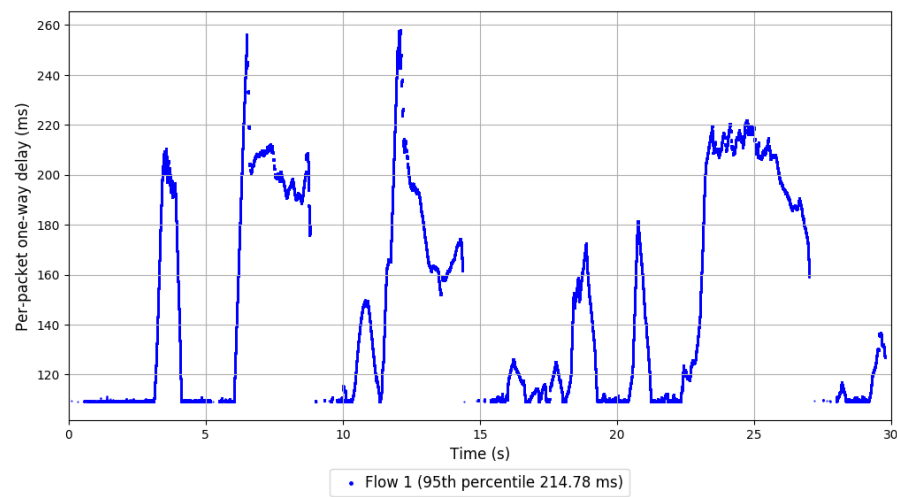
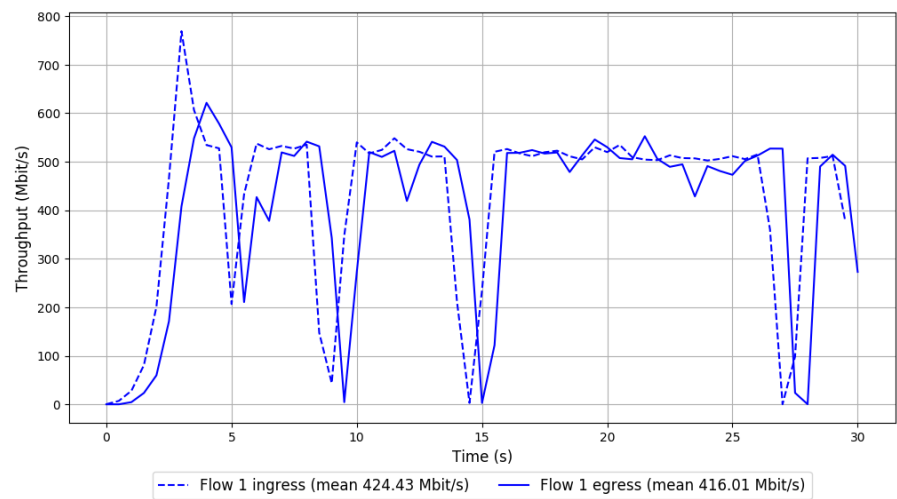
-- Flow 1:

Average throughput: 416.01 Mbit/s

95th percentile per-packet one-way delay: 214.782 ms

Loss rate: 2.70%

Run 4: Report of PCC-Allegro — Data Link



Run 5: Statistics of PCC-Allegro

Start at: 2018-11-29 22:21:11

End at: 2018-11-29 22:21:41

Local clock offset: 4.454 ms

Remote clock offset: 6.099 ms

Below is generated by plot.py at 2018-11-29 23:49:00

Datalink statistics

-- Total of 1 flow:

Average throughput: 469.86 Mbit/s

95th percentile per-packet one-way delay: 208.326 ms

Loss rate: 1.99%

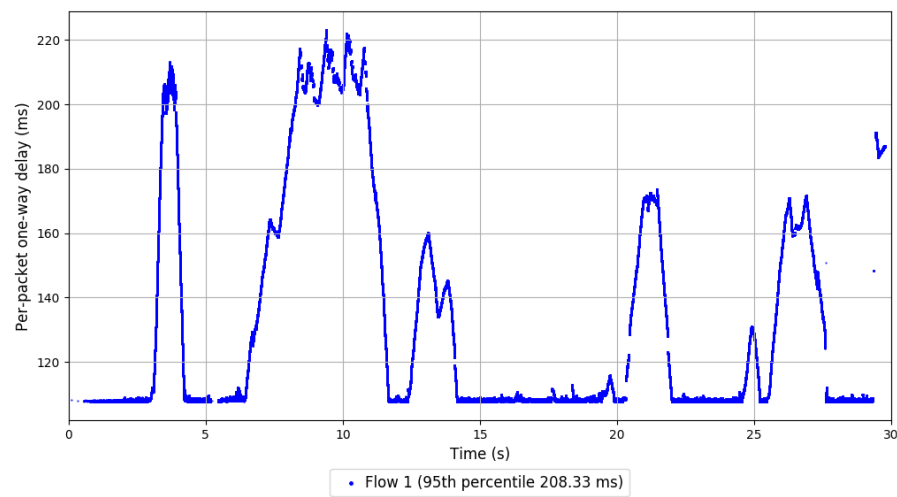
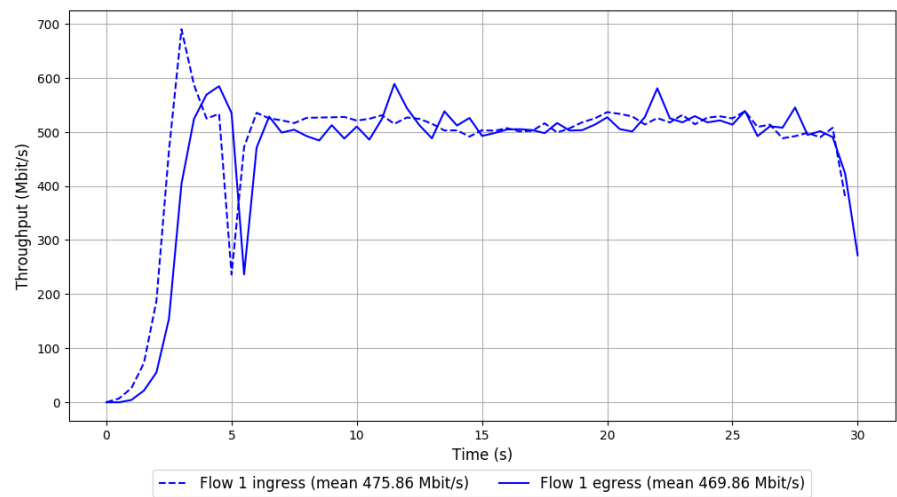
-- Flow 1:

Average throughput: 469.86 Mbit/s

95th percentile per-packet one-way delay: 208.326 ms

Loss rate: 1.99%

Run 5: Report of PCC-Allegro — Data Link

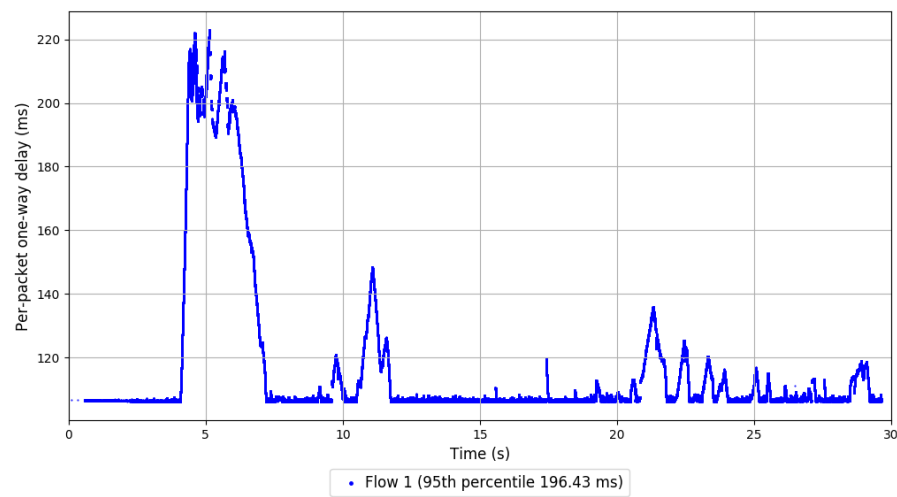
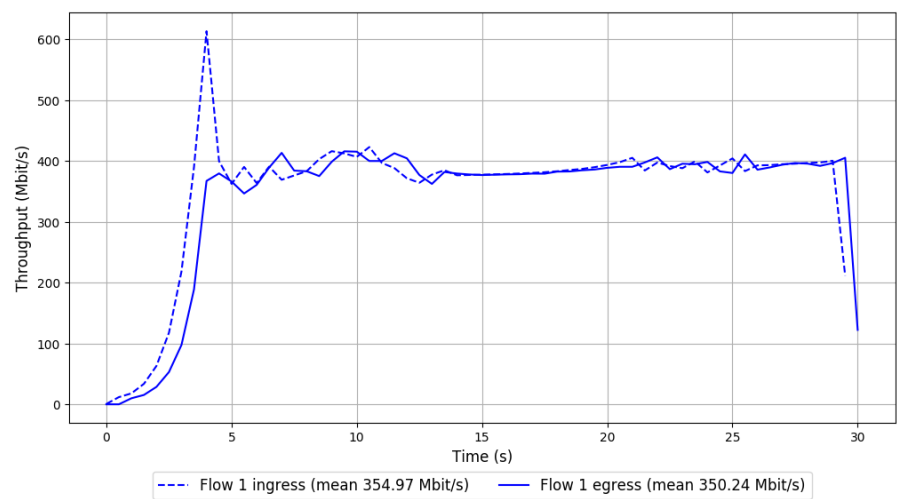


```
Run 1: Statistics of PCC-Expr

Start at: 2018-11-29 20:18:54
End at: 2018-11-29 20:19:24
Local clock offset: 3.845 ms
Remote clock offset: 5.889 ms

# Below is generated by plot.py at 2018-11-29 23:49:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 350.24 Mbit/s
95th percentile per-packet one-way delay: 196.426 ms
Loss rate: 2.05%
-- Flow 1:
Average throughput: 350.24 Mbit/s
95th percentile per-packet one-way delay: 196.426 ms
Loss rate: 2.05%
```

Run 1: Report of PCC-Expr — Data Link

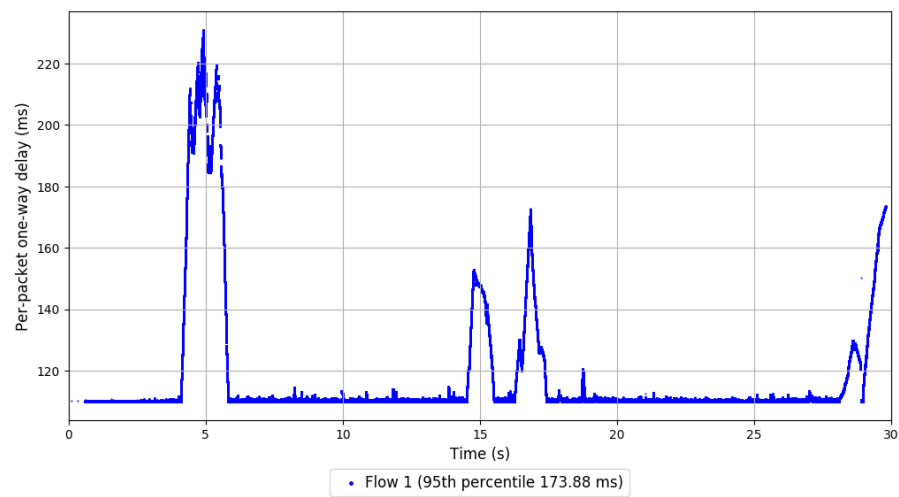
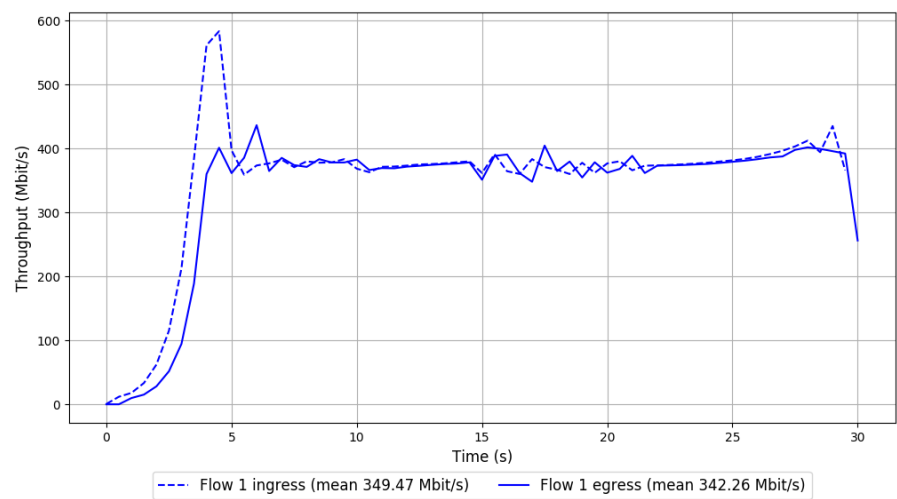


Run 2: Statistics of PCC-Expr

Start at: 2018-11-29 20:45:12
End at: 2018-11-29 20:45:42
Local clock offset: 16.842 ms
Remote clock offset: 16.902 ms

Below is generated by plot.py at 2018-11-29 23:49:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 342.26 Mbit/s
95th percentile per-packet one-way delay: 173.875 ms
Loss rate: 2.78%
-- Flow 1:
Average throughput: 342.26 Mbit/s
95th percentile per-packet one-way delay: 173.875 ms
Loss rate: 2.78%

Run 2: Report of PCC-Expr — Data Link

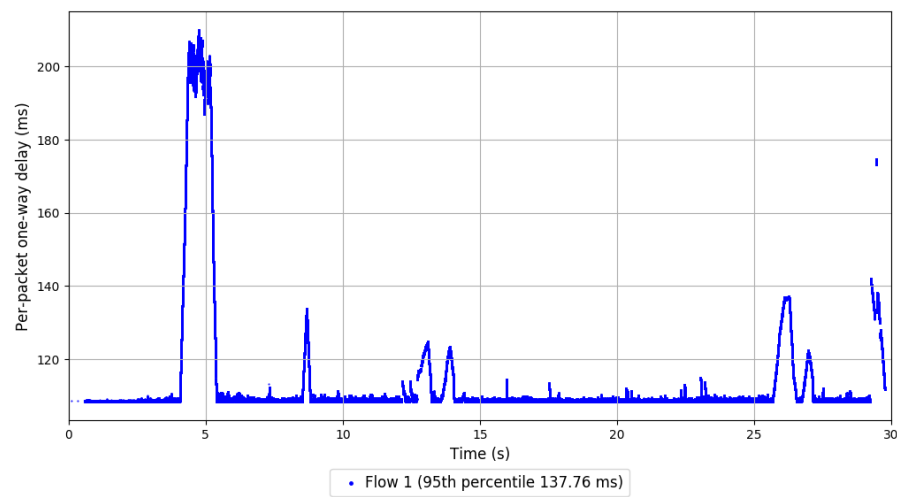
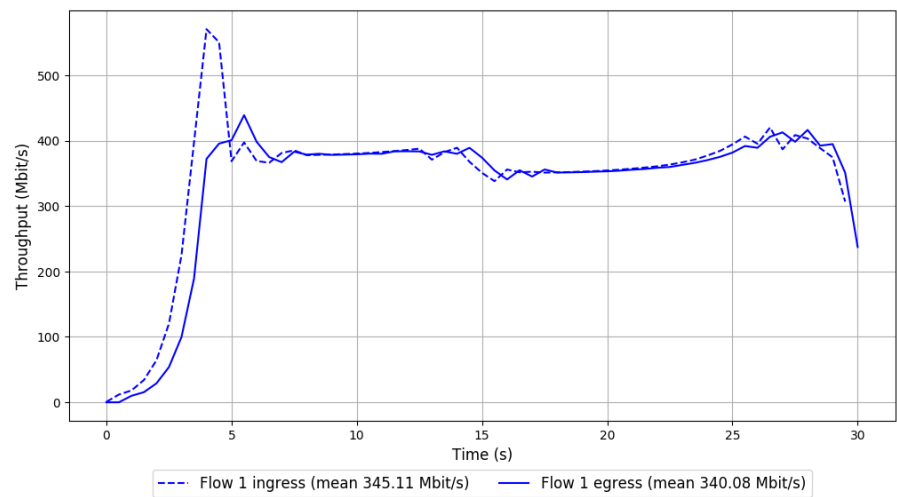


Run 3: Statistics of PCC-Expr

Start at: 2018-11-29 21:12:37
End at: 2018-11-29 21:13:07
Local clock offset: 21.742 ms
Remote clock offset: 22.493 ms

Below is generated by plot.py at 2018-11-29 23:49:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 340.08 Mbit/s
95th percentile per-packet one-way delay: 137.759 ms
Loss rate: 2.17%
-- Flow 1:
Average throughput: 340.08 Mbit/s
95th percentile per-packet one-way delay: 137.759 ms
Loss rate: 2.17%

Run 3: Report of PCC-Expr — Data Link

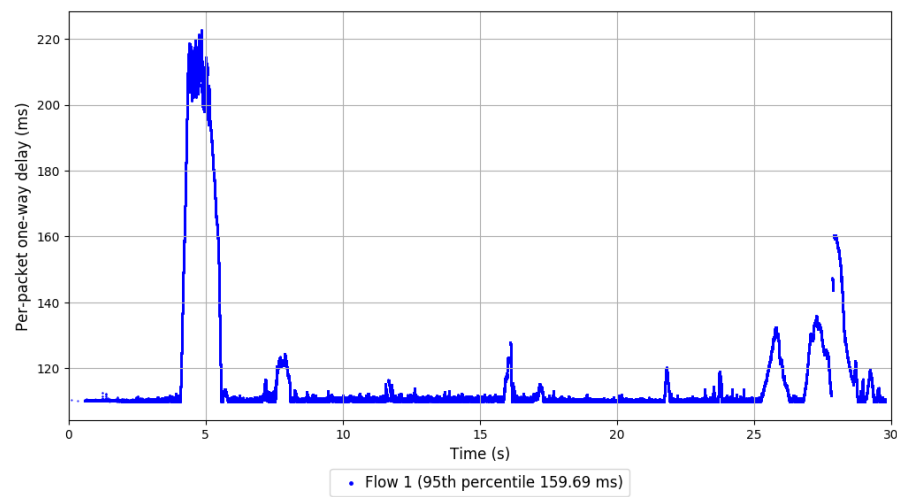
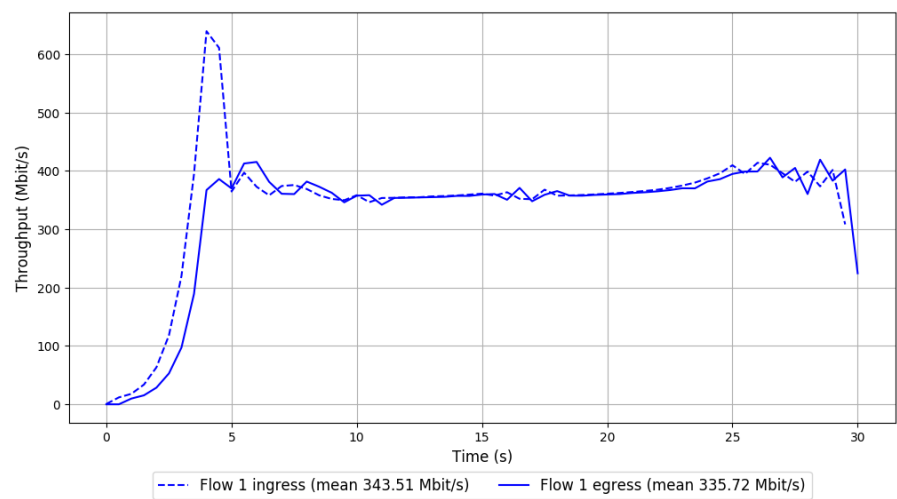


Run 4: Statistics of PCC-Expr

Start at: 2018-11-29 21:39:37
End at: 2018-11-29 21:40:07
Local clock offset: 12.199 ms
Remote clock offset: 11.842 ms

Below is generated by plot.py at 2018-11-29 23:49:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 335.72 Mbit/s
95th percentile per-packet one-way delay: 159.688 ms
Loss rate: 2.98%
-- Flow 1:
Average throughput: 335.72 Mbit/s
95th percentile per-packet one-way delay: 159.688 ms
Loss rate: 2.98%

Run 4: Report of PCC-Expr — Data Link



Run 5: Statistics of PCC-Expr

Start at: 2018-11-29 22:06:29

End at: 2018-11-29 22:06:59

Local clock offset: 6.448 ms

Remote clock offset: 7.227 ms

Below is generated by plot.py at 2018-11-29 23:49:00

Datalink statistics

-- Total of 1 flow:

Average throughput: 337.28 Mbit/s

95th percentile per-packet one-way delay: 214.951 ms

Loss rate: 5.92%

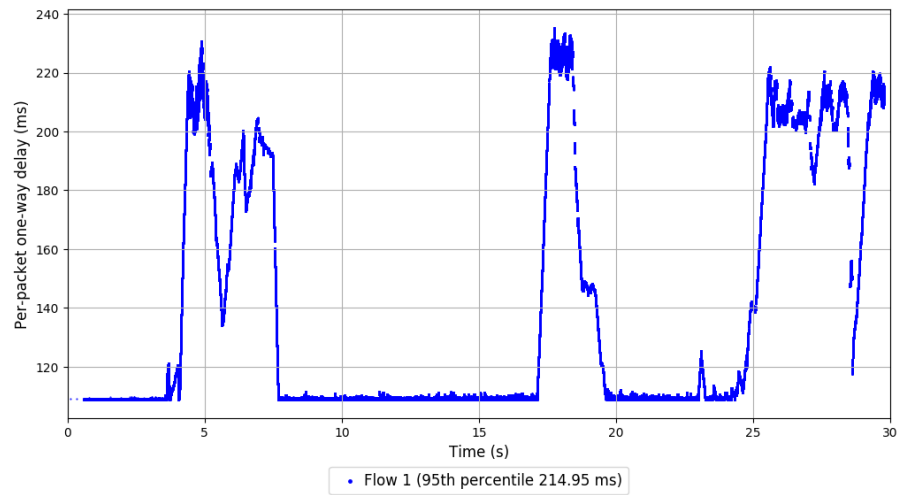
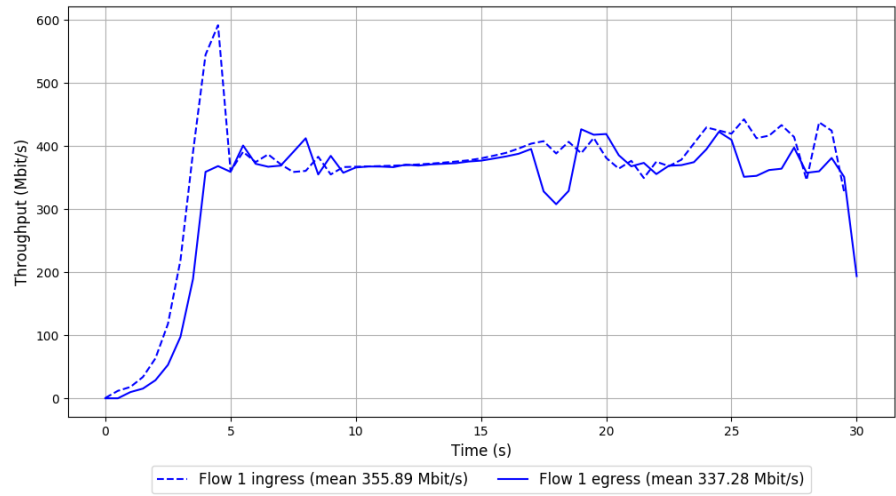
-- Flow 1:

Average throughput: 337.28 Mbit/s

95th percentile per-packet one-way delay: 214.951 ms

Loss rate: 5.92%

Run 5: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2018-11-29 20:22:12

End at: 2018-11-29 20:22:42

Local clock offset: 7.04 ms

Remote clock offset: 6.521 ms

Below is generated by plot.py at 2018-11-29 23:49:00

Datalink statistics

-- Total of 1 flow:

Average throughput: 51.59 Mbit/s

95th percentile per-packet one-way delay: 110.018 ms

Loss rate: 1.37%

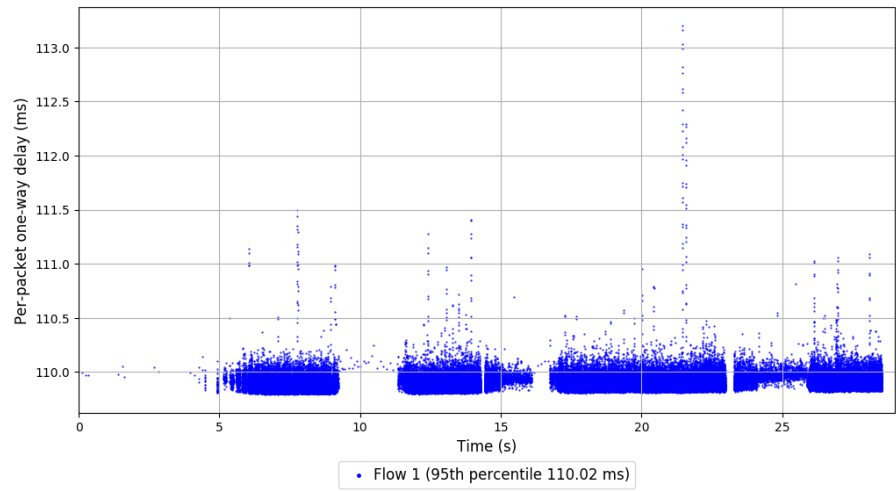
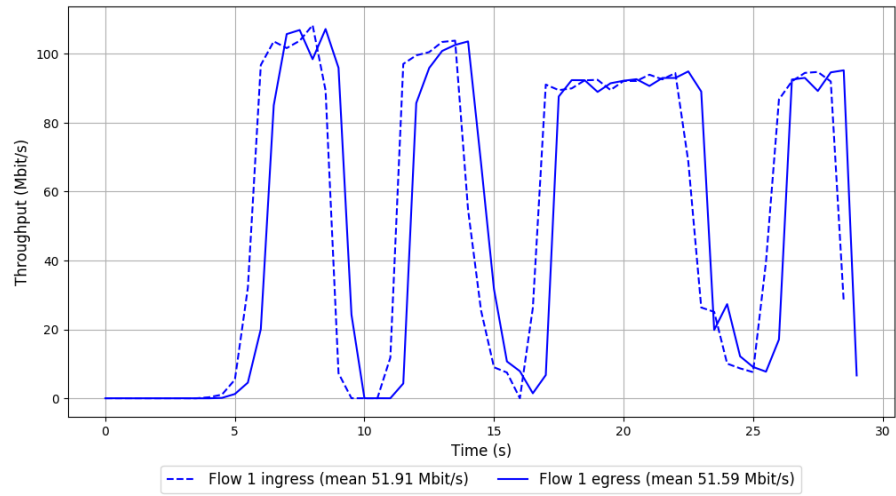
-- Flow 1:

Average throughput: 51.59 Mbit/s

95th percentile per-packet one-way delay: 110.018 ms

Loss rate: 1.37%

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-11-29 20:48:44

End at: 2018-11-29 20:49:14

Local clock offset: 19.155 ms

Remote clock offset: 20.65 ms

Below is generated by plot.py at 2018-11-29 23:49:00

Datalink statistics

-- Total of 1 flow:

Average throughput: 66.82 Mbit/s

95th percentile per-packet one-way delay: 108.346 ms

Loss rate: 1.05%

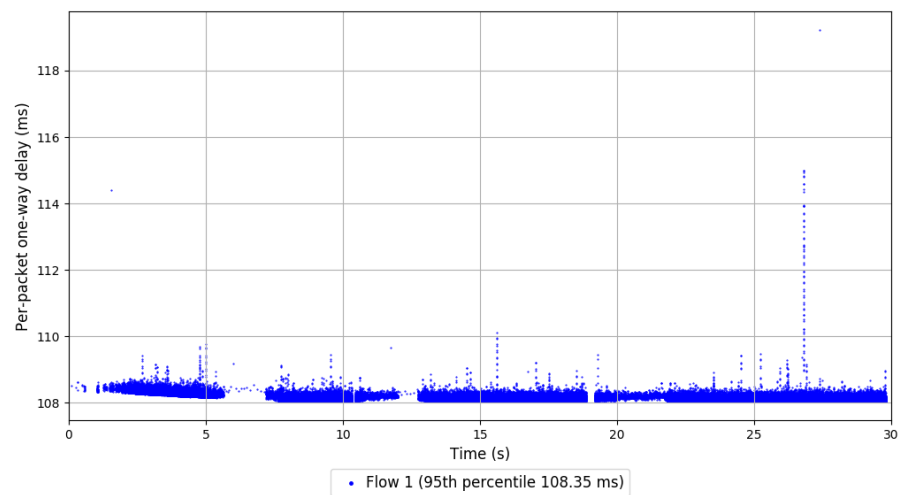
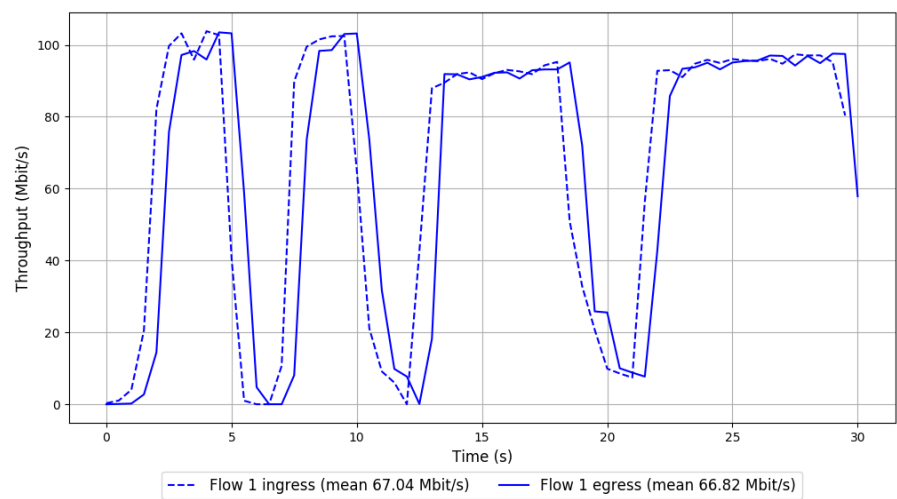
-- Flow 1:

Average throughput: 66.82 Mbit/s

95th percentile per-packet one-way delay: 108.346 ms

Loss rate: 1.05%

Run 2: Report of QUIC Cubic — Data Link

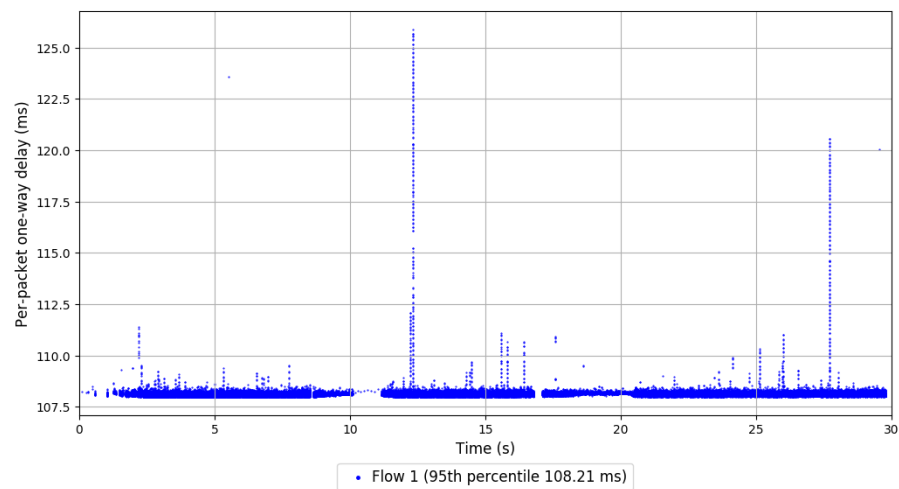
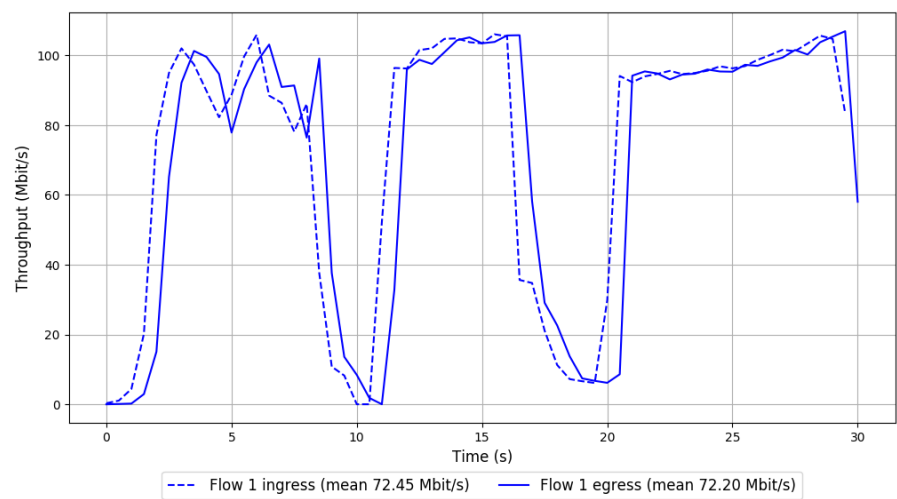


Run 3: Statistics of QUIC Cubic

Start at: 2018-11-29 21:16:02
End at: 2018-11-29 21:16:32
Local clock offset: 24.219 ms
Remote clock offset: 25.526 ms

Below is generated by plot.py at 2018-11-29 23:49:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 72.20 Mbit/s
95th percentile per-packet one-way delay: 108.212 ms
Loss rate: 1.06%
-- Flow 1:
Average throughput: 72.20 Mbit/s
95th percentile per-packet one-way delay: 108.212 ms
Loss rate: 1.06%

Run 3: Report of QUIC Cubic — Data Link

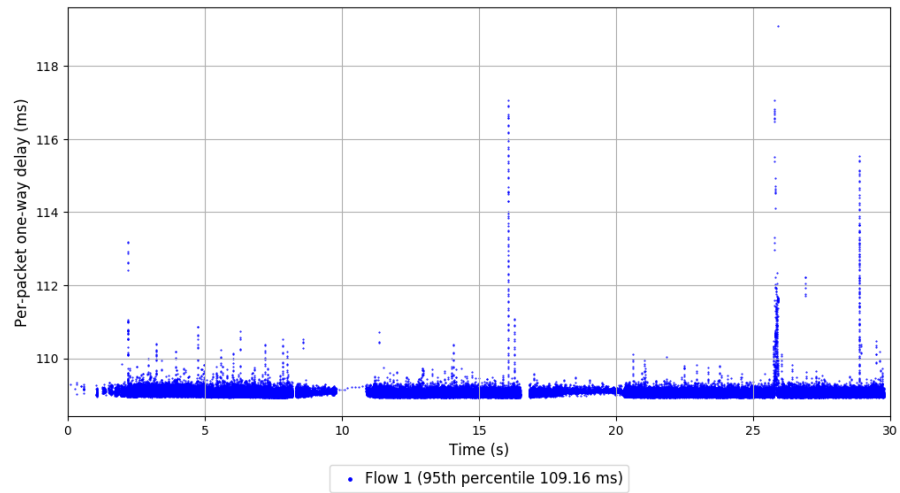
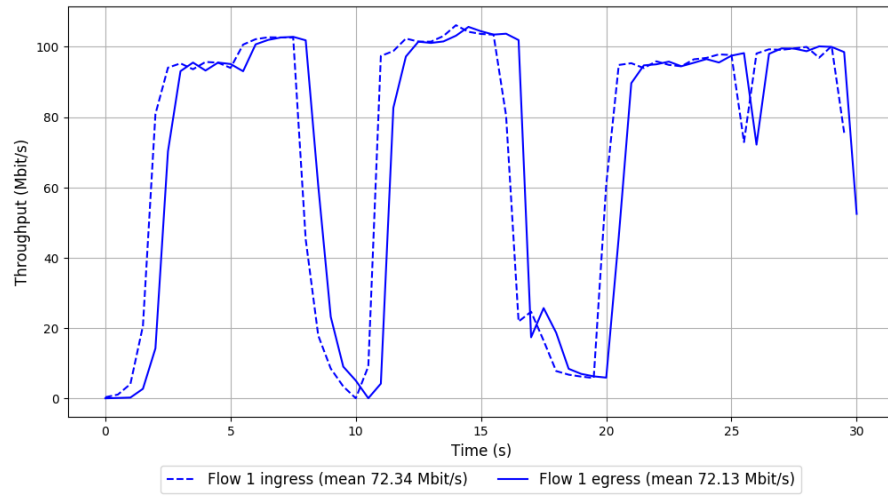


Run 4: Statistics of QUIC Cubic

Start at: 2018-11-29 21:42:59
End at: 2018-11-29 21:43:29
Local clock offset: 11.447 ms
Remote clock offset: 12.215 ms

Below is generated by plot.py at 2018-11-29 23:49:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 72.13 Mbit/s
95th percentile per-packet one-way delay: 109.163 ms
Loss rate: 1.02%
-- Flow 1:
Average throughput: 72.13 Mbit/s
95th percentile per-packet one-way delay: 109.163 ms
Loss rate: 1.02%

Run 4: Report of QUIC Cubic — Data Link



Run 5: Statistics of QUIC Cubic

Start at: 2018-11-29 22:09:54

End at: 2018-11-29 22:10:25

Local clock offset: 7.564 ms

Remote clock offset: 6.234 ms

Below is generated by plot.py at 2018-11-29 23:49:00

Datalink statistics

-- Total of 1 flow:

Average throughput: 55.60 Mbit/s

95th percentile per-packet one-way delay: 110.742 ms

Loss rate: 1.16%

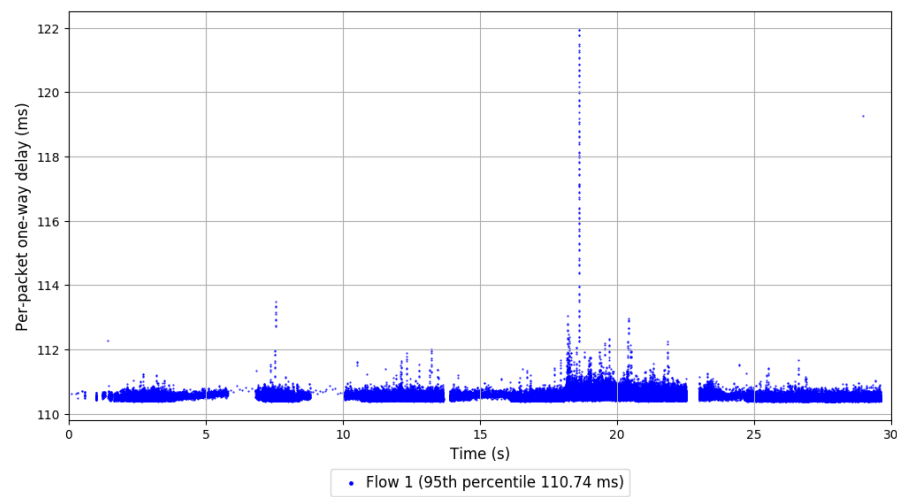
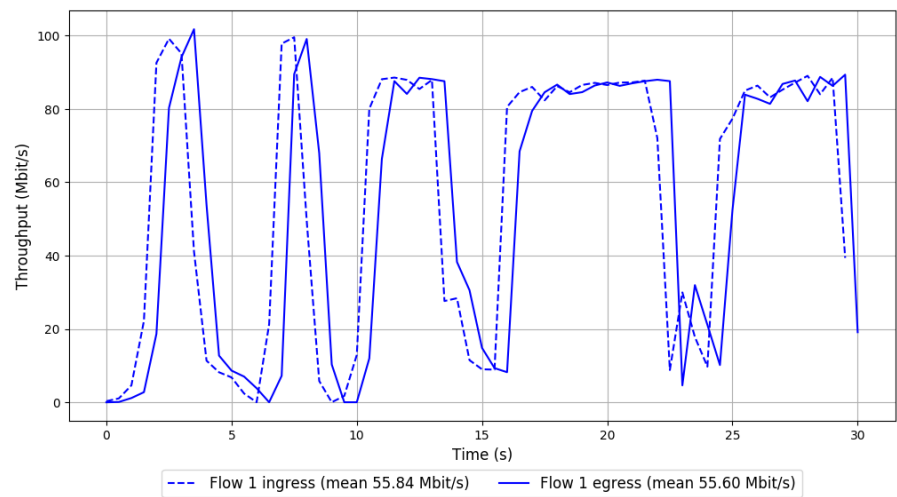
-- Flow 1:

Average throughput: 55.60 Mbit/s

95th percentile per-packet one-way delay: 110.742 ms

Loss rate: 1.16%

Run 5: Report of QUIC Cubic — Data Link

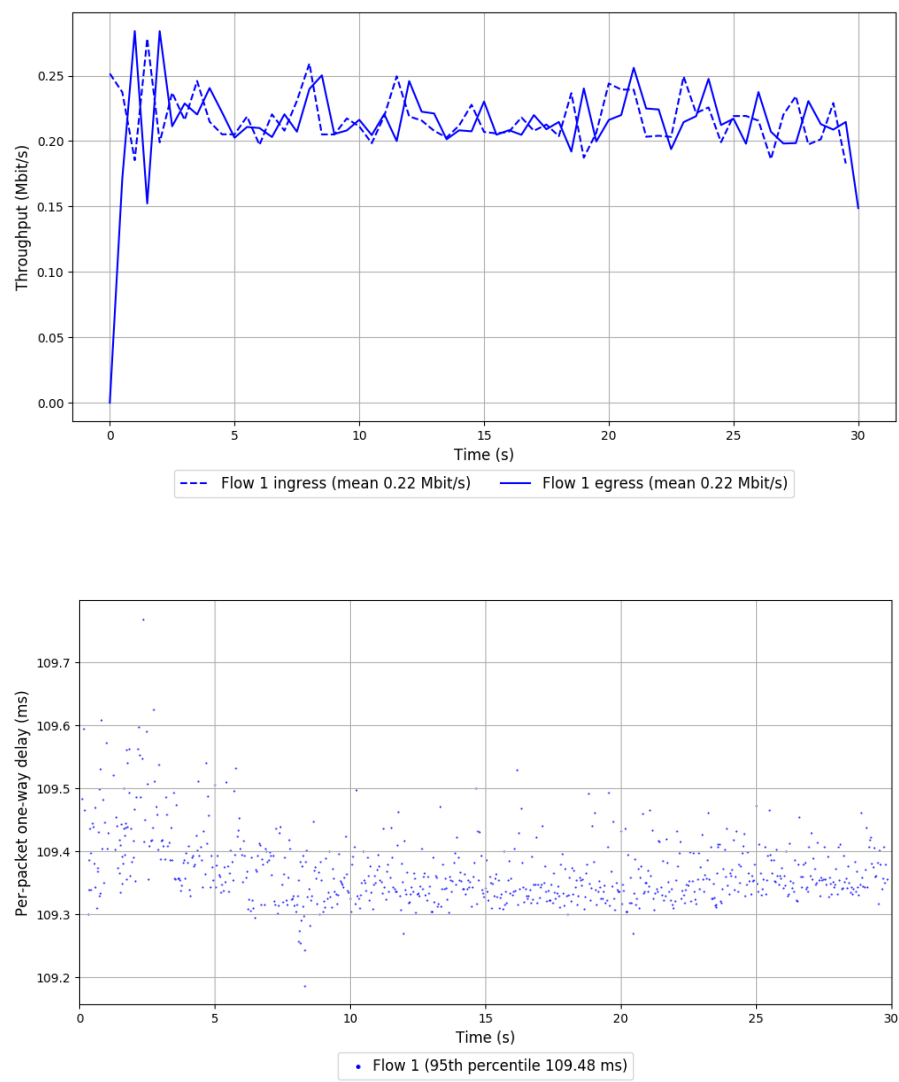


```
Run 1: Statistics of SCReAM

Start at: 2018-11-29 20:27:16
End at: 2018-11-29 20:27:46
Local clock offset: 7.213 ms
Remote clock offset: 7.662 ms

# Below is generated by plot.py at 2018-11-29 23:49:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.482 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.482 ms
Loss rate: 0.64%
```

Run 1: Report of SReAM — Data Link

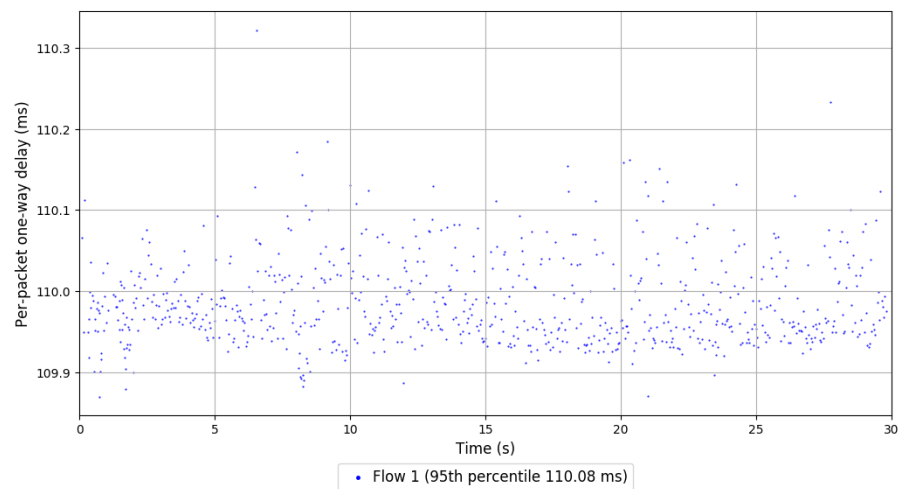
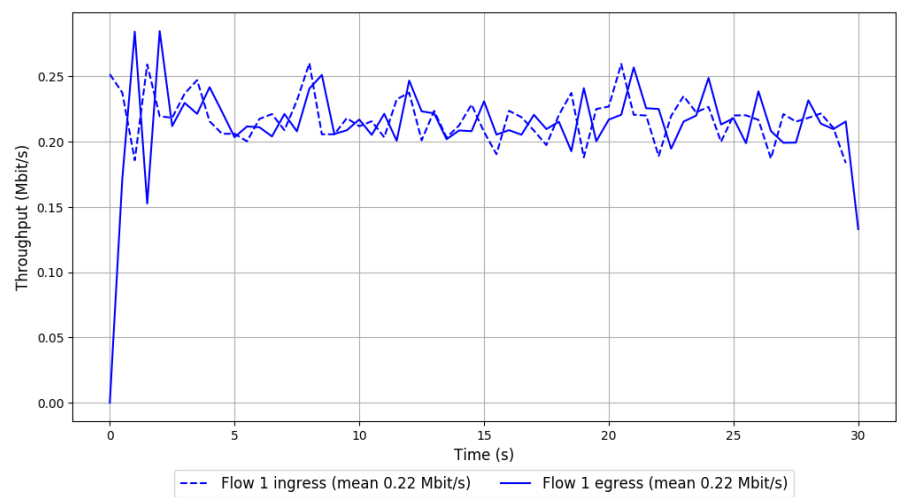


Run 2: Statistics of SCReAM

Start at: 2018-11-29 20:54:03
End at: 2018-11-29 20:54:33
Local clock offset: 15.987 ms
Remote clock offset: 16.114 ms

Below is generated by plot.py at 2018-11-29 23:49:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 110.083 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 110.083 ms
Loss rate: 0.77%

Run 2: Report of SReAM — Data Link

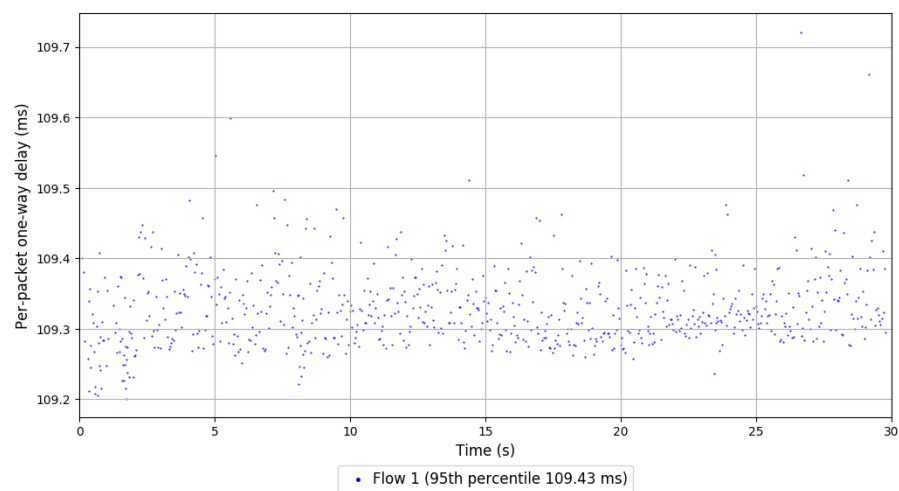
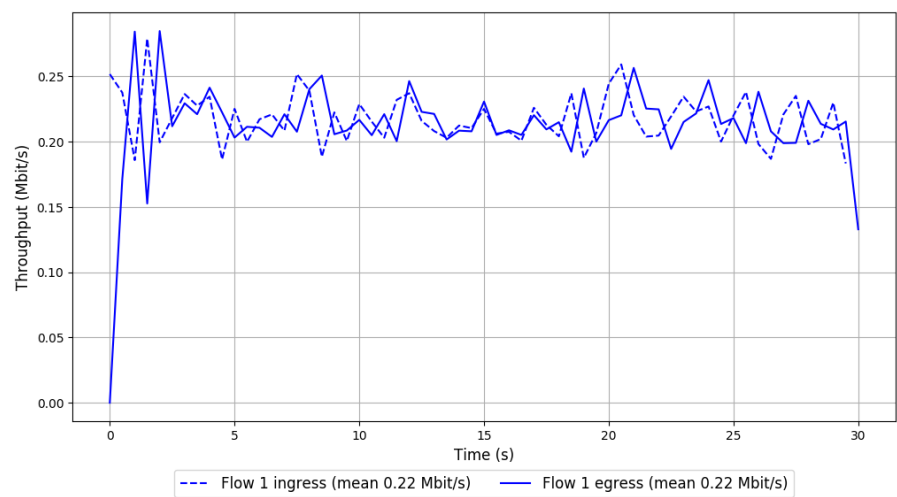


Run 3: Statistics of SCReAM

Start at: 2018-11-29 21:21:21
End at: 2018-11-29 21:21:51
Local clock offset: 28.623 ms
Remote clock offset: 30.042 ms

Below is generated by plot.py at 2018-11-29 23:49:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.429 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.429 ms
Loss rate: 0.77%

Run 3: Report of SReAM — Data Link

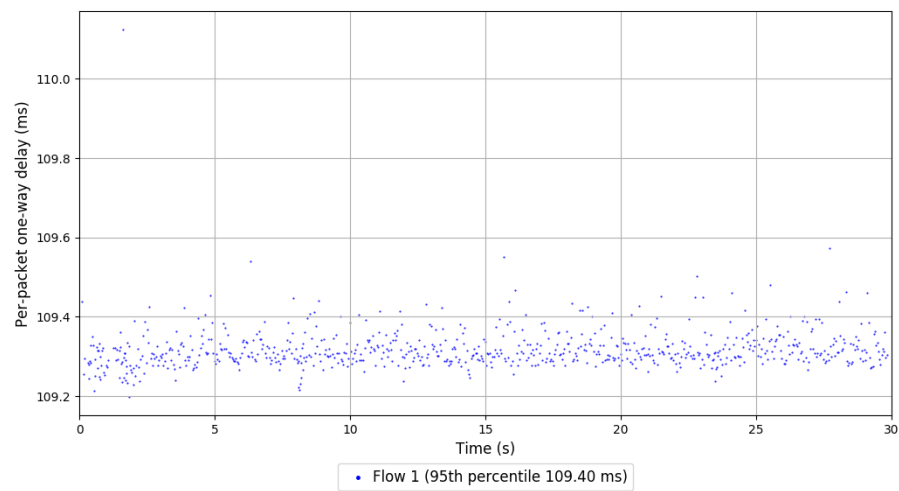
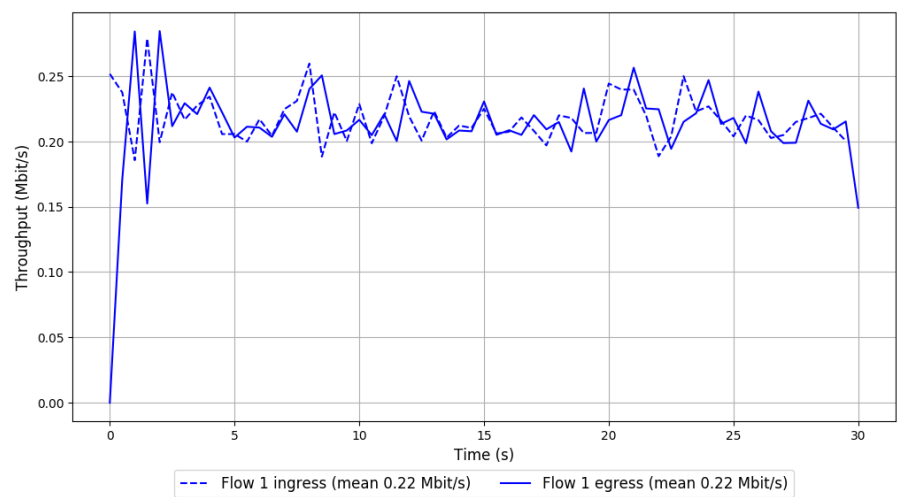


Run 4: Statistics of SCReAM

Start at: 2018-11-29 21:48:18
End at: 2018-11-29 21:48:48
Local clock offset: 12.135 ms
Remote clock offset: 12.451 ms

Below is generated by plot.py at 2018-11-29 23:49:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.401 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.401 ms
Loss rate: 0.77%

Run 4: Report of SReAM — Data Link



Run 5: Statistics of SCReAM

Start at: 2018-11-29 22:15:14

End at: 2018-11-29 22:15:44

Local clock offset: 5.681 ms

Remote clock offset: 5.738 ms

Below is generated by plot.py at 2018-11-29 23:49:00

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 111.501 ms

Loss rate: 0.77%

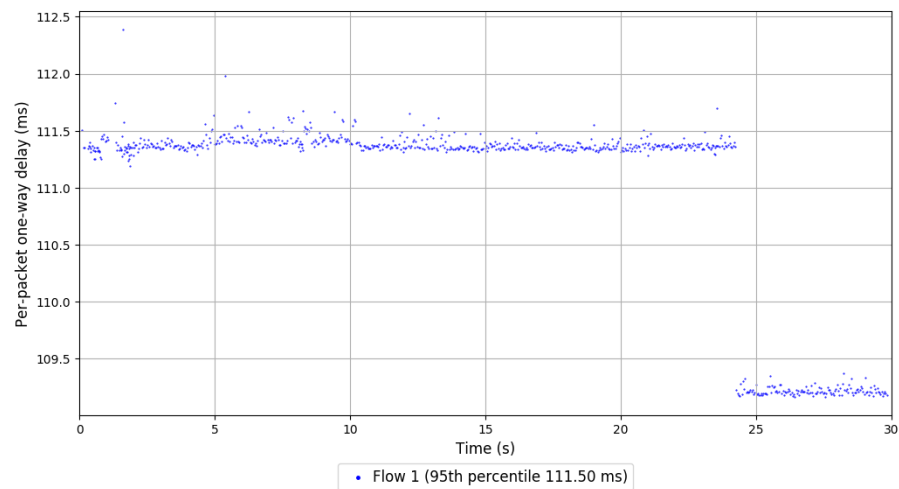
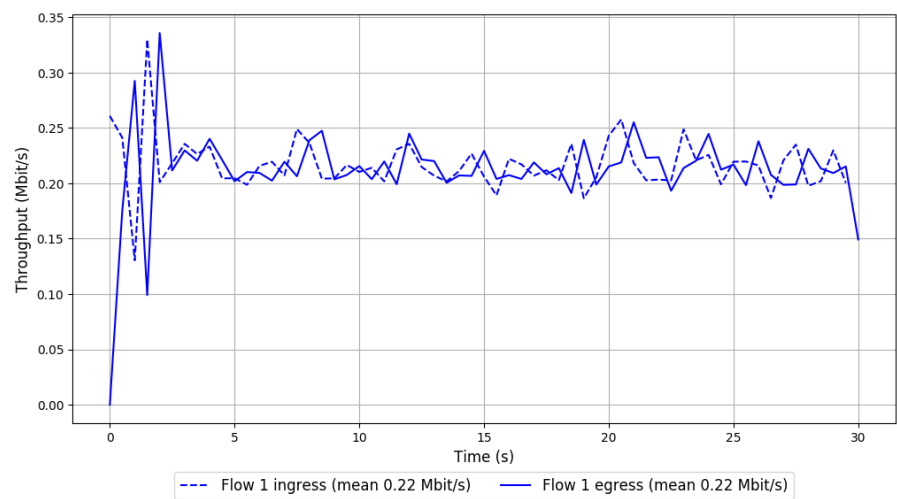
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 111.501 ms

Loss rate: 0.77%

Run 5: Report of SReAM — Data Link



Run 1: Statistics of Sprout

Start at: 2018-11-29 20:26:06

End at: 2018-11-29 20:26:36

Local clock offset: 6.706 ms

Remote clock offset: 6.9 ms

Below is generated by plot.py at 2018-11-29 23:49:00

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.76 Mbit/s

95th percentile per-packet one-way delay: 109.789 ms

Loss rate: 0.74%

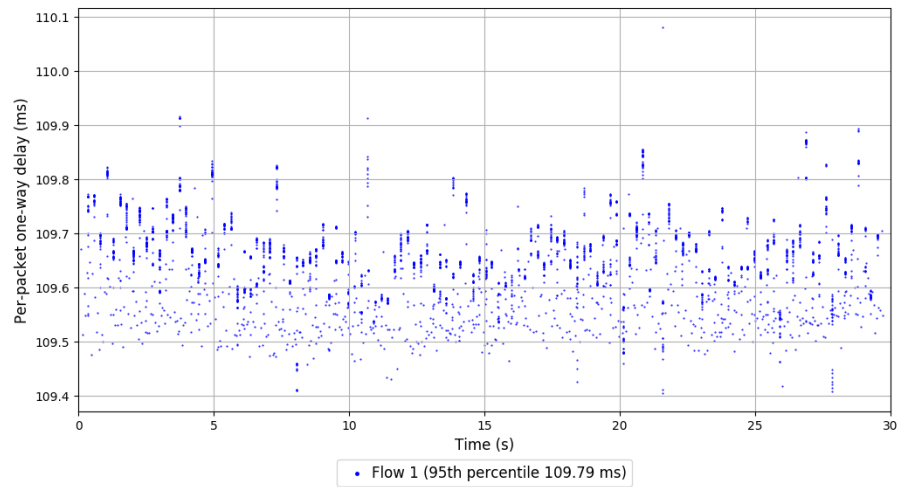
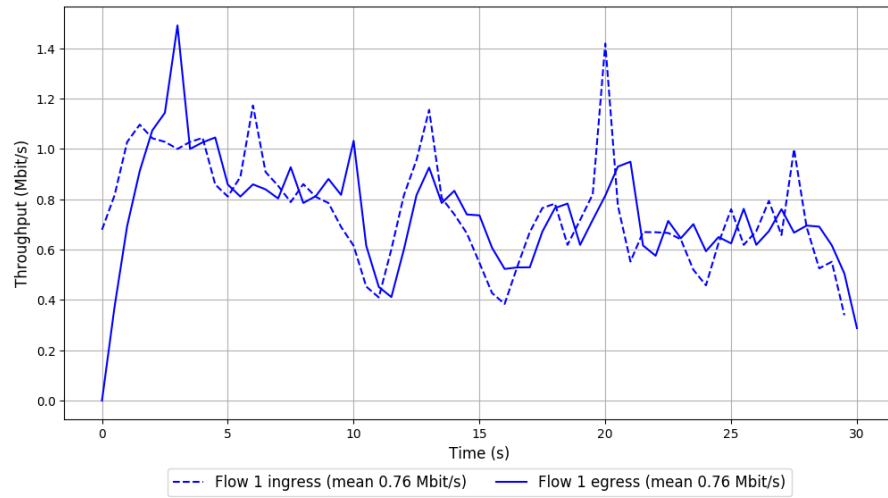
-- Flow 1:

Average throughput: 0.76 Mbit/s

95th percentile per-packet one-way delay: 109.789 ms

Loss rate: 0.74%

Run 1: Report of Sprout — Data Link

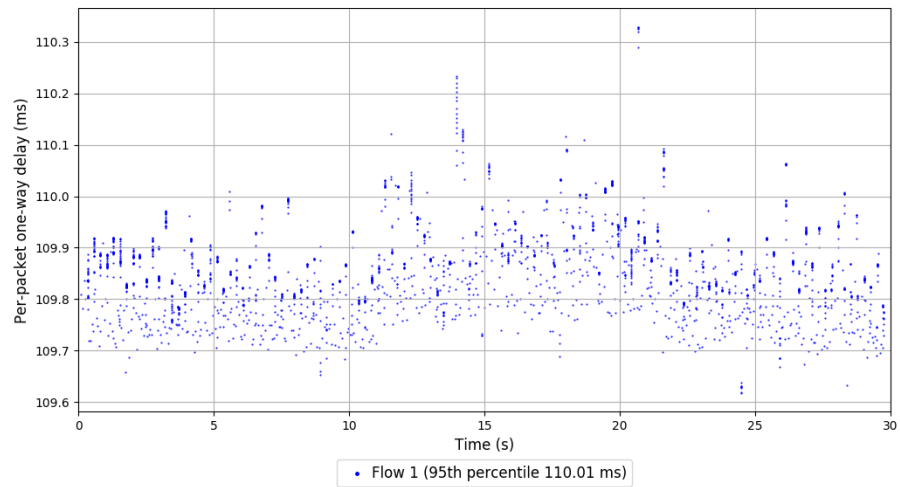
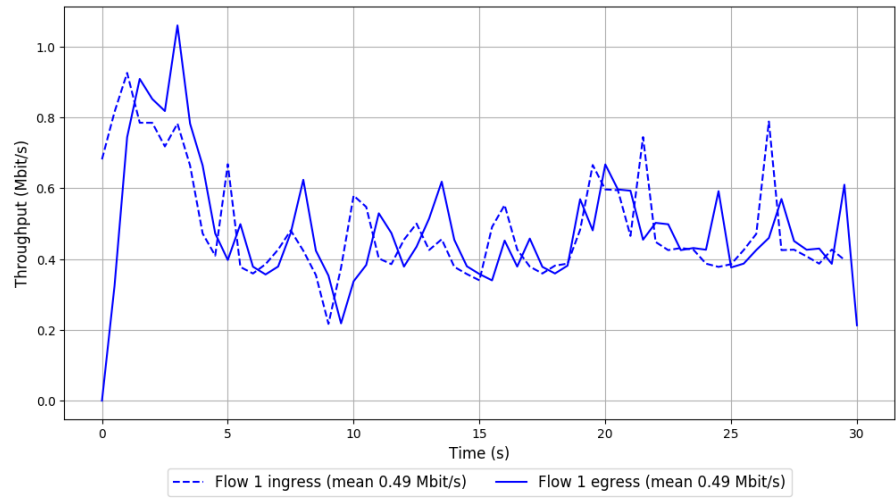


Run 2: Statistics of Sprout

Start at: 2018-11-29 20:52:53
End at: 2018-11-29 20:53:23
Local clock offset: 16.424 ms
Remote clock offset: 16.721 ms

Below is generated by plot.py at 2018-11-29 23:49:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.49 Mbit/s
95th percentile per-packet one-way delay: 110.014 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 0.49 Mbit/s
95th percentile per-packet one-way delay: 110.014 ms
Loss rate: 0.64%

Run 2: Report of Sprout — Data Link

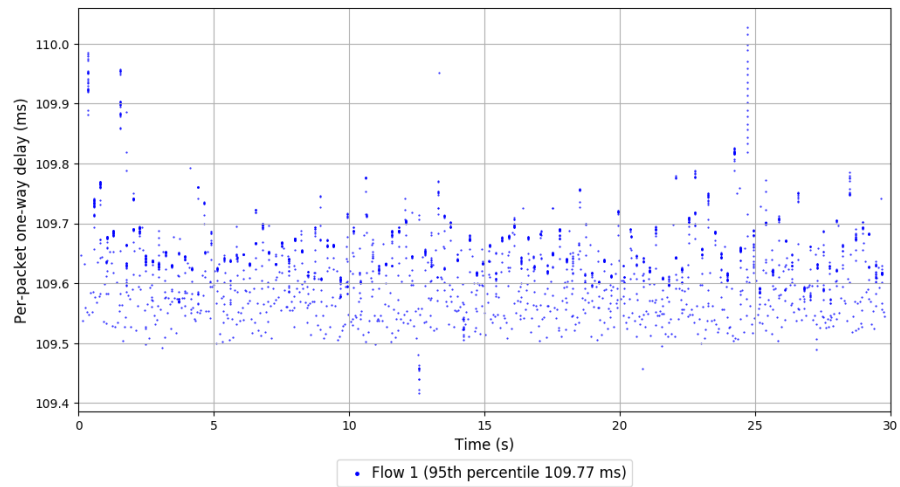
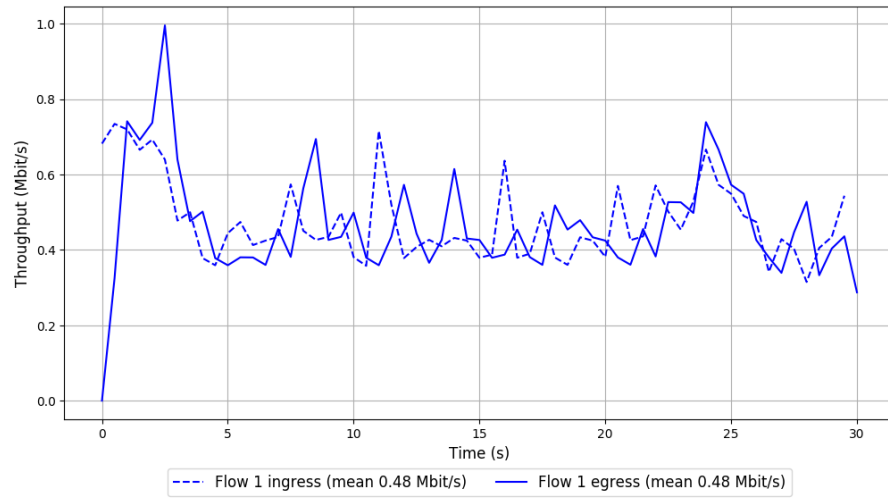


Run 3: Statistics of Sprout

Start at: 2018-11-29 21:20:11
End at: 2018-11-29 21:20:41
Local clock offset: 28.87 ms
Remote clock offset: 28.962 ms

Below is generated by plot.py at 2018-11-29 23:49:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.48 Mbit/s
95th percentile per-packet one-way delay: 109.767 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 0.48 Mbit/s
95th percentile per-packet one-way delay: 109.767 ms
Loss rate: 0.91%

Run 3: Report of Sprout — Data Link

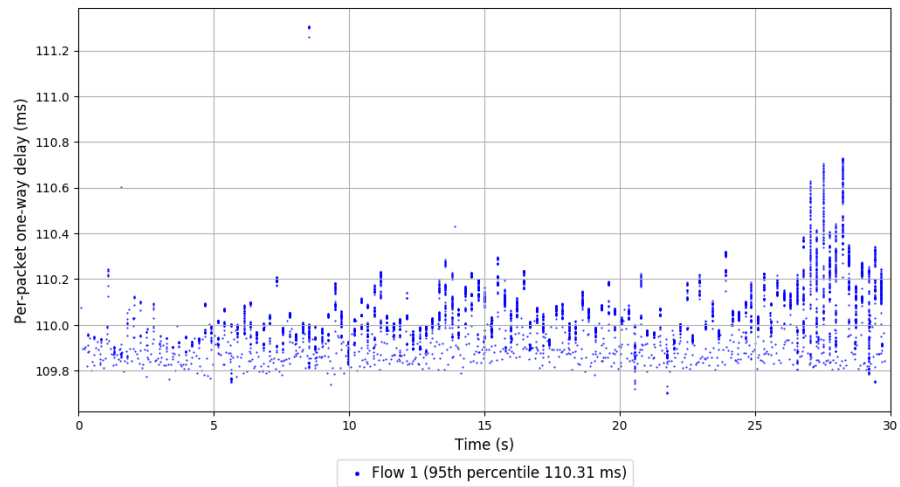
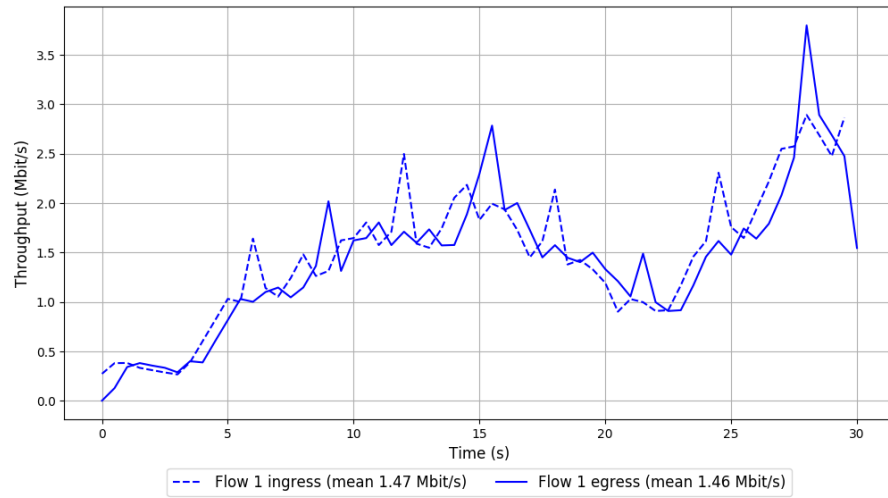


Run 4: Statistics of Sprout

Start at: 2018-11-29 21:47:08
End at: 2018-11-29 21:47:38
Local clock offset: 12.725 ms
Remote clock offset: 12.557 ms

Below is generated by plot.py at 2018-11-29 23:49:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.46 Mbit/s
95th percentile per-packet one-way delay: 110.312 ms
Loss rate: 1.50%
-- Flow 1:
Average throughput: 1.46 Mbit/s
95th percentile per-packet one-way delay: 110.312 ms
Loss rate: 1.50%

Run 4: Report of Sprout — Data Link



Run 5: Statistics of Sprout

Start at: 2018-11-29 22:14:04

End at: 2018-11-29 22:14:34

Local clock offset: 4.283 ms

Remote clock offset: 5.752 ms

Below is generated by plot.py at 2018-11-29 23:49:00

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.74 Mbit/s

95th percentile per-packet one-way delay: 108.241 ms

Loss rate: 0.49%

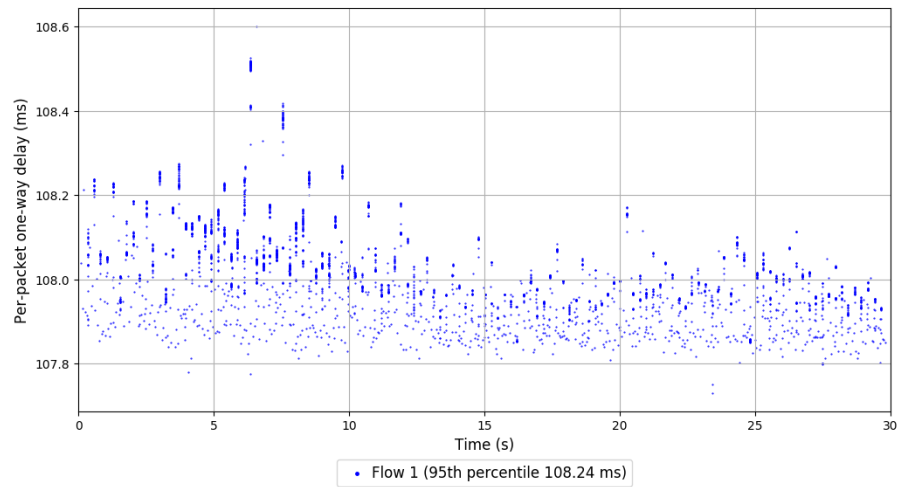
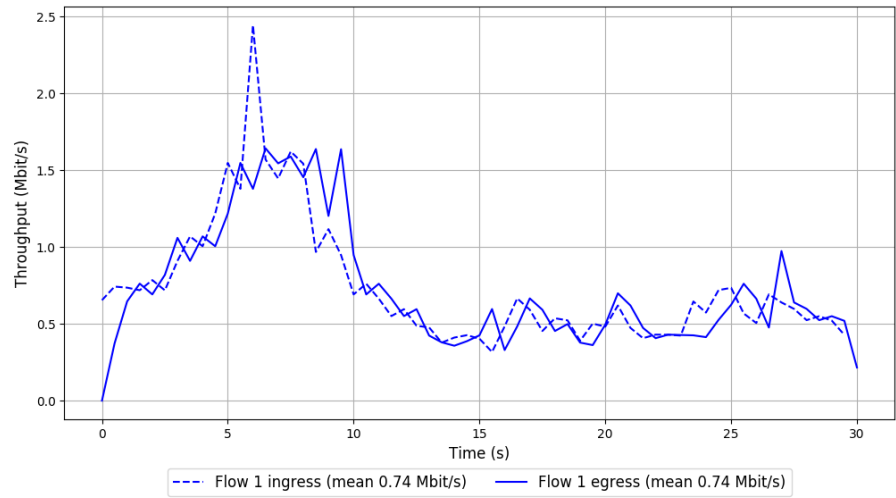
-- Flow 1:

Average throughput: 0.74 Mbit/s

95th percentile per-packet one-way delay: 108.241 ms

Loss rate: 0.49%

Run 5: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: 2018-11-29 20:17:24

End at: 2018-11-29 20:17:54

Local clock offset: 2.1 ms

Remote clock offset: 3.01 ms

Below is generated by plot.py at 2018-11-29 23:49:33

Datalink statistics

-- Total of 1 flow:

Average throughput: 201.50 Mbit/s

95th percentile per-packet one-way delay: 108.743 ms

Loss rate: 0.73%

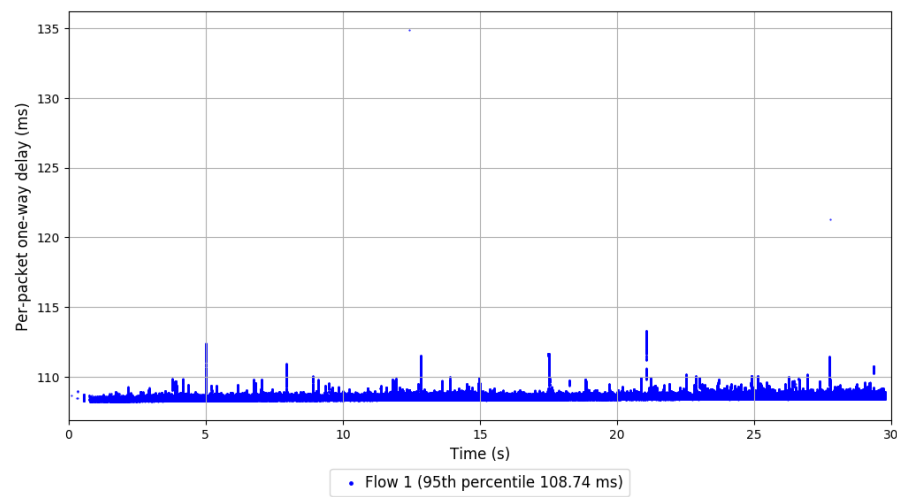
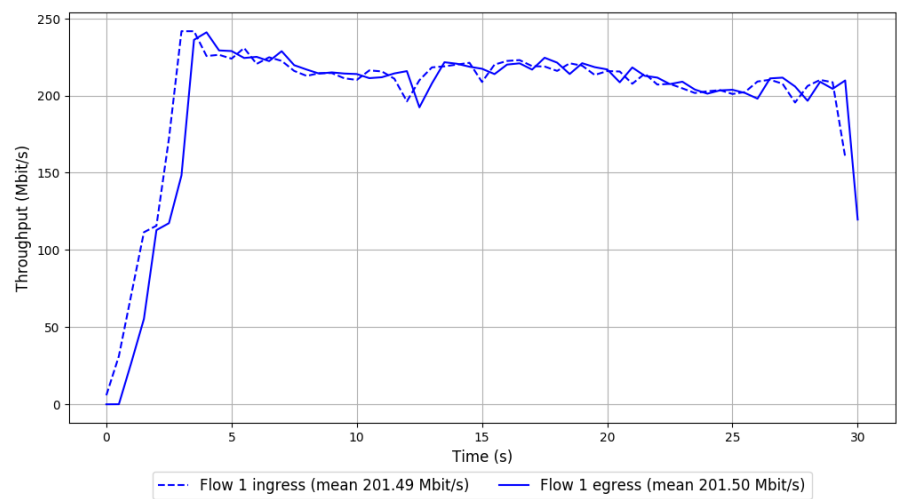
-- Flow 1:

Average throughput: 201.50 Mbit/s

95th percentile per-packet one-way delay: 108.743 ms

Loss rate: 0.73%

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

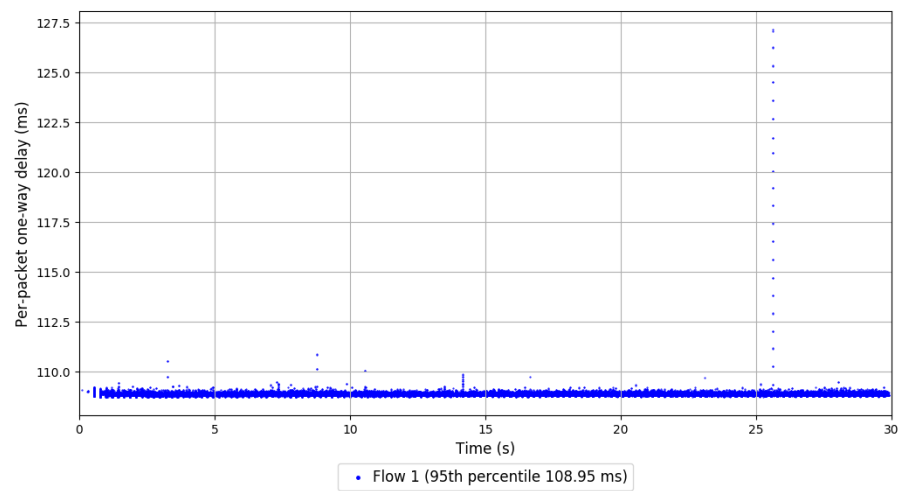
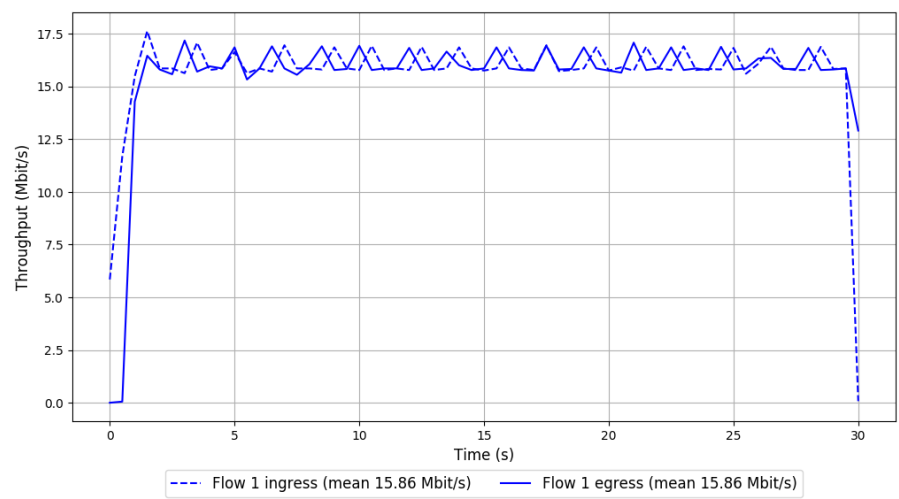


Run 2: Statistics of TaoVA-100x

Start at: 2018-11-29 20:44:00
End at: 2018-11-29 20:44:30
Local clock offset: 14.616 ms
Remote clock offset: 15.502 ms

Below is generated by plot.py at 2018-11-29 23:49:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 15.86 Mbit/s
95th percentile per-packet one-way delay: 108.949 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 15.86 Mbit/s
95th percentile per-packet one-way delay: 108.949 ms
Loss rate: 0.74%

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

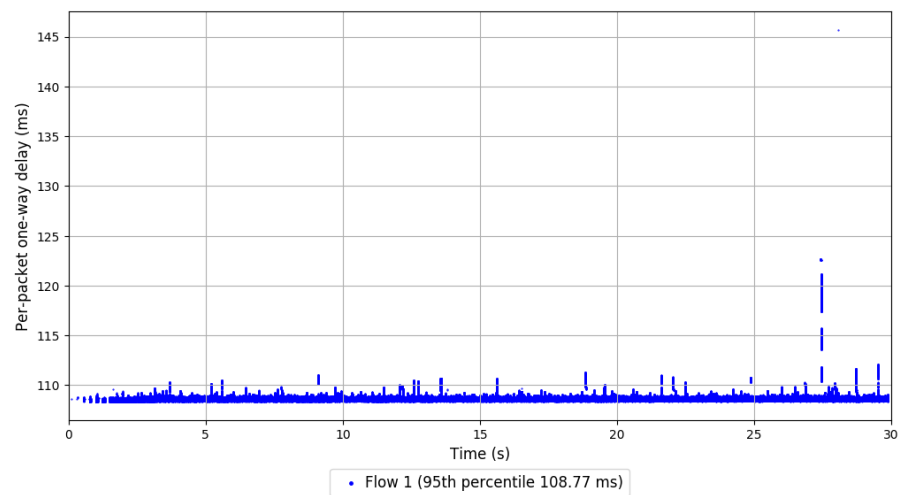
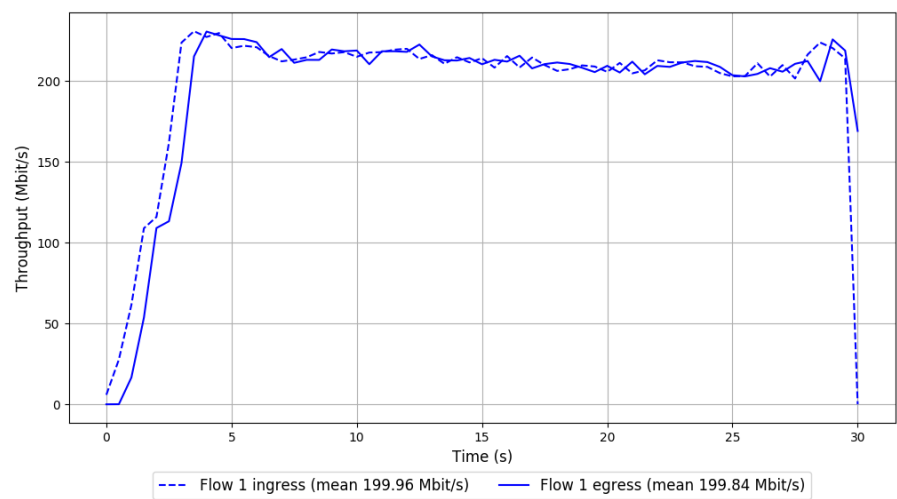


Run 3: Statistics of TaoVA-100x

Start at: 2018-11-29 21:11:06
End at: 2018-11-29 21:11:36
Local clock offset: 20.633 ms
Remote clock offset: 21.412 ms

Below is generated by plot.py at 2018-11-29 23:51:03
Datalink statistics
-- Total of 1 flow:
Average throughput: 199.84 Mbit/s
95th percentile per-packet one-way delay: 108.773 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 199.84 Mbit/s
95th percentile per-packet one-way delay: 108.773 ms
Loss rate: 0.78%

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

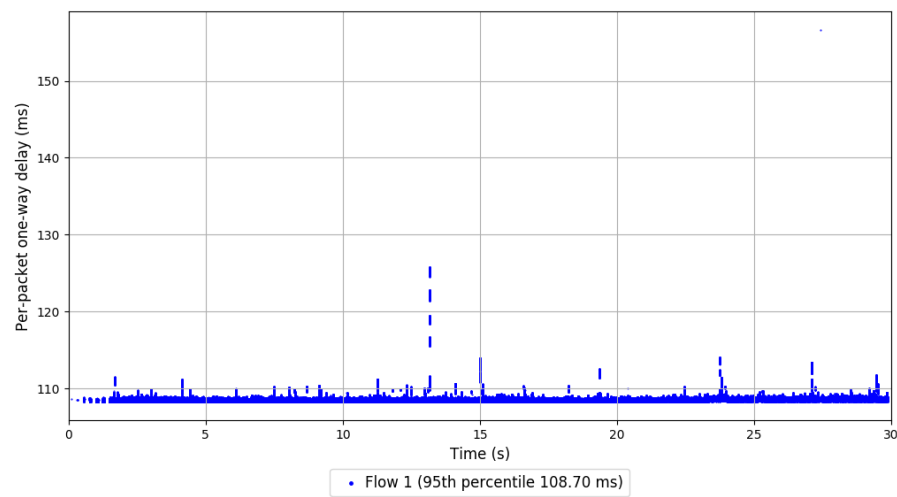
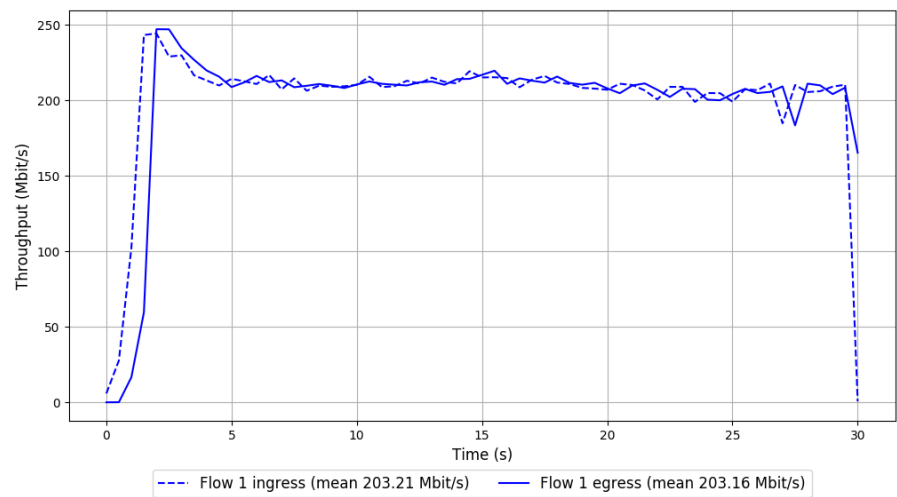


Run 4: Statistics of TaoVA-100x

Start at: 2018-11-29 21:38:07
End at: 2018-11-29 21:38:37
Local clock offset: 10.568 ms
Remote clock offset: 12.027 ms

Below is generated by plot.py at 2018-11-29 23:51:41
Datalink statistics
-- Total of 1 flow:
Average throughput: 203.16 Mbit/s
95th percentile per-packet one-way delay: 108.703 ms
Loss rate: 0.75%
-- Flow 1:
Average throughput: 203.16 Mbit/s
95th percentile per-packet one-way delay: 108.703 ms
Loss rate: 0.75%

Run 4: Report of TaoVA-100x — Data Link



Run 5: Statistics of TaoVA-100x

Start at: 2018-11-29 22:05:17

End at: 2018-11-29 22:05:47

Local clock offset: 7.091 ms

Remote clock offset: 7.402 ms

Below is generated by plot.py at 2018-11-29 23:51:41

Datalink statistics

-- Total of 1 flow:

Average throughput: 15.85 Mbit/s

95th percentile per-packet one-way delay: 109.148 ms

Loss rate: 0.74%

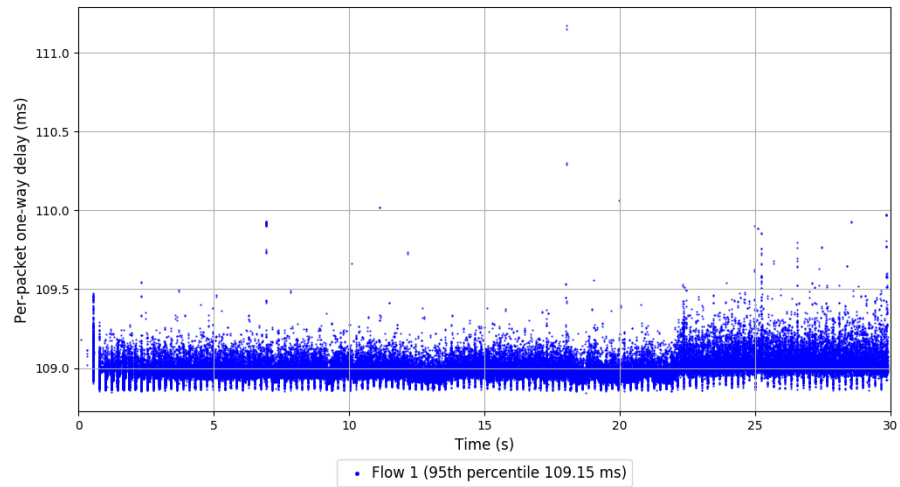
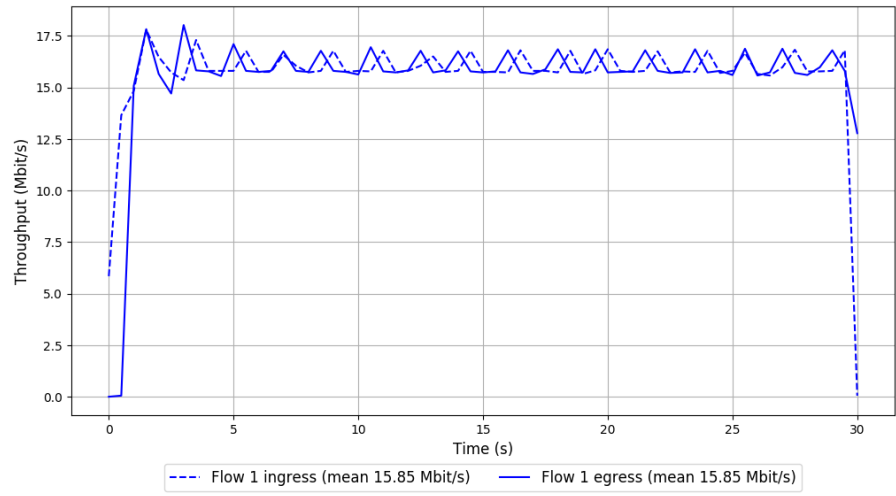
-- Flow 1:

Average throughput: 15.85 Mbit/s

95th percentile per-packet one-way delay: 109.148 ms

Loss rate: 0.74%

Run 5: Report of TaoVA-100x — Data Link

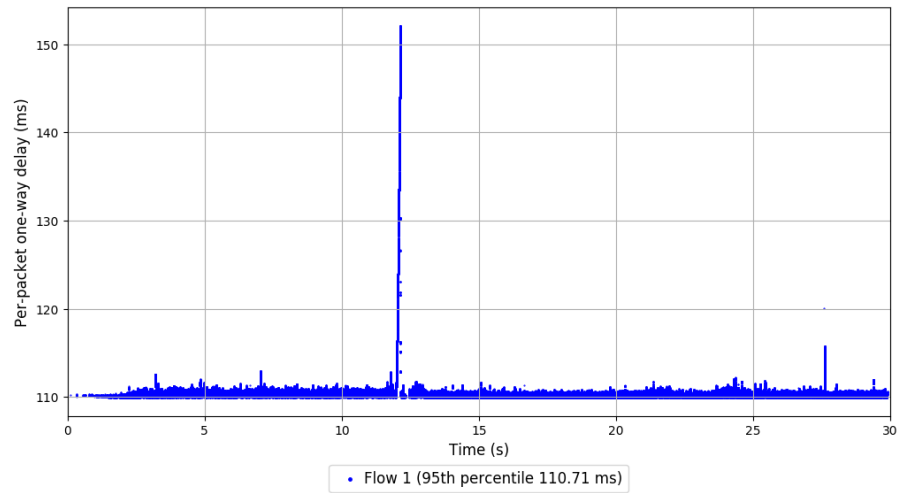
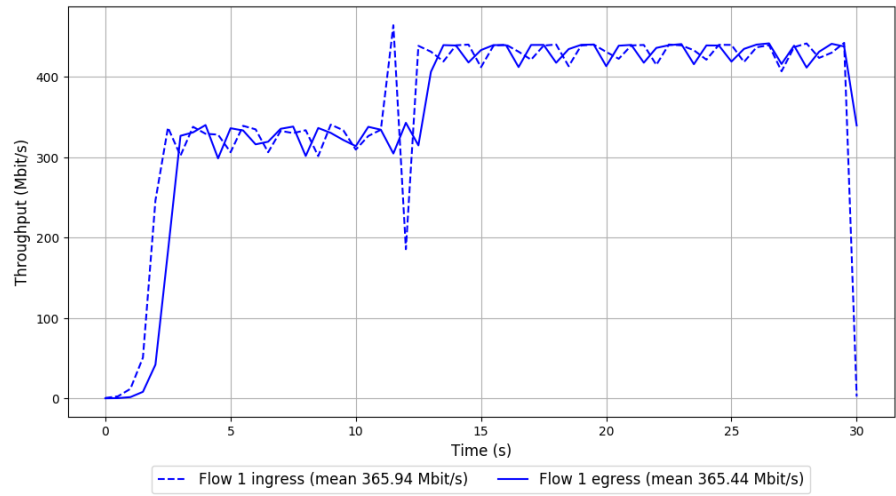


Run 1: Statistics of TCP Vegas

Start at: 2018-11-29 20:39:10
End at: 2018-11-29 20:39:40
Local clock offset: 11.922 ms
Remote clock offset: 11.397 ms

Below is generated by plot.py at 2018-11-29 23:52:20
Datalink statistics
-- Total of 1 flow:
Average throughput: 365.44 Mbit/s
95th percentile per-packet one-way delay: 110.711 ms
Loss rate: 0.86%
-- Flow 1:
Average throughput: 365.44 Mbit/s
95th percentile per-packet one-way delay: 110.711 ms
Loss rate: 0.86%

Run 1: Report of TCP Vegas — Data Link

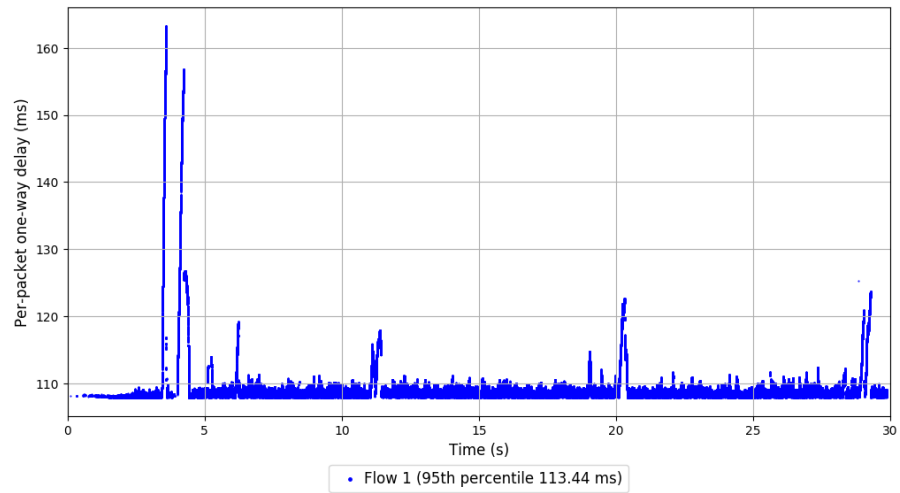
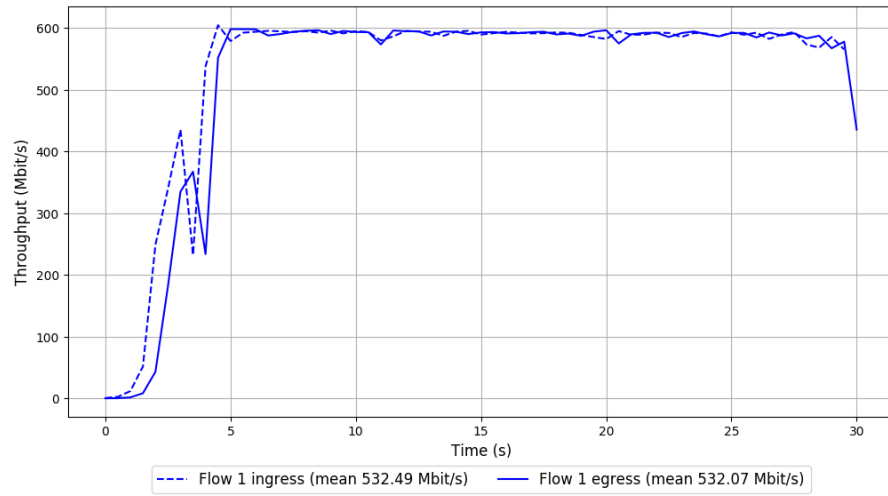


Run 2: Statistics of TCP Vegas

Start at: 2018-11-29 21:05:55
End at: 2018-11-29 21:06:25
Local clock offset: 17.386 ms
Remote clock offset: 18.586 ms

Below is generated by plot.py at 2018-11-29 23:56:44
Datalink statistics
-- Total of 1 flow:
Average throughput: 532.07 Mbit/s
95th percentile per-packet one-way delay: 113.438 ms
Loss rate: 0.80%
-- Flow 1:
Average throughput: 532.07 Mbit/s
95th percentile per-packet one-way delay: 113.438 ms
Loss rate: 0.80%

Run 2: Report of TCP Vegas — Data Link



Run 3: Statistics of TCP Vegas

Start at: 2018-11-29 21:33:18

End at: 2018-11-29 21:33:48

Local clock offset: 14.293 ms

Remote clock offset: 14.02 ms

Below is generated by plot.py at 2018-11-29 23:56:44

Datalink statistics

-- Total of 1 flow:

Average throughput: 392.85 Mbit/s

95th percentile per-packet one-way delay: 109.769 ms

Loss rate: 0.78%

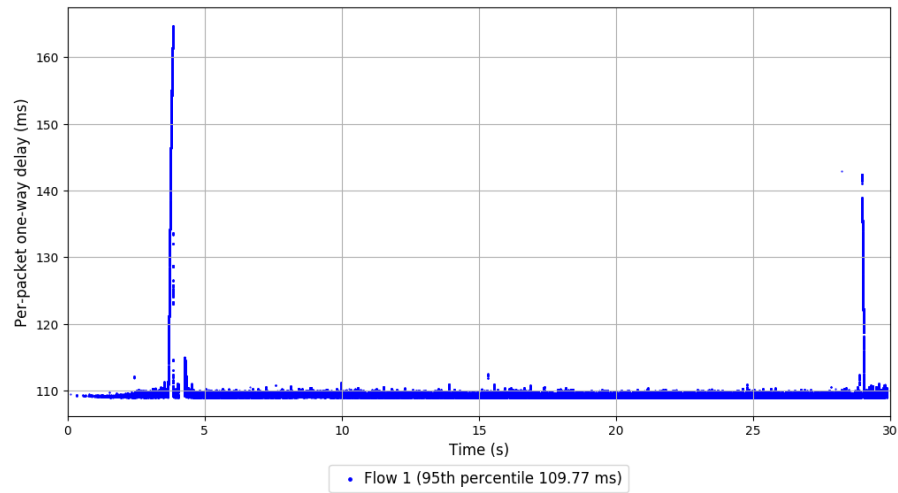
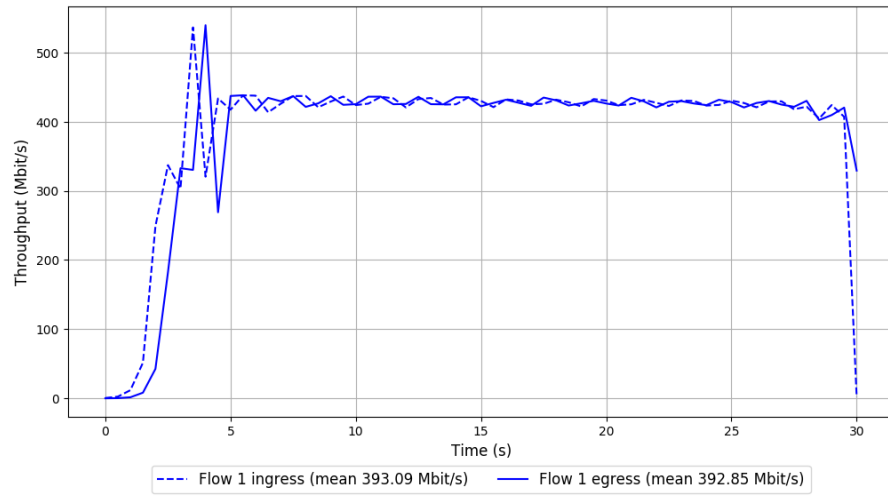
-- Flow 1:

Average throughput: 392.85 Mbit/s

95th percentile per-packet one-way delay: 109.769 ms

Loss rate: 0.78%

Run 3: Report of TCP Vegas — Data Link



Run 4: Statistics of TCP Vegas

Start at: 2018-11-29 22:00:21

End at: 2018-11-29 22:00:51

Local clock offset: 11.519 ms

Remote clock offset: 11.5 ms

Below is generated by plot.py at 2018-11-29 23:56:50

Datalink statistics

-- Total of 1 flow:

Average throughput: 413.55 Mbit/s

95th percentile per-packet one-way delay: 111.921 ms

Loss rate: 0.95%

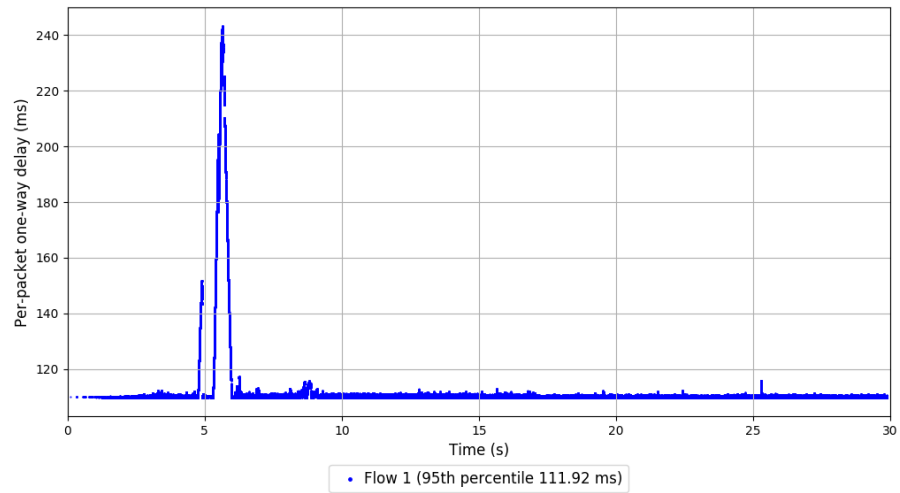
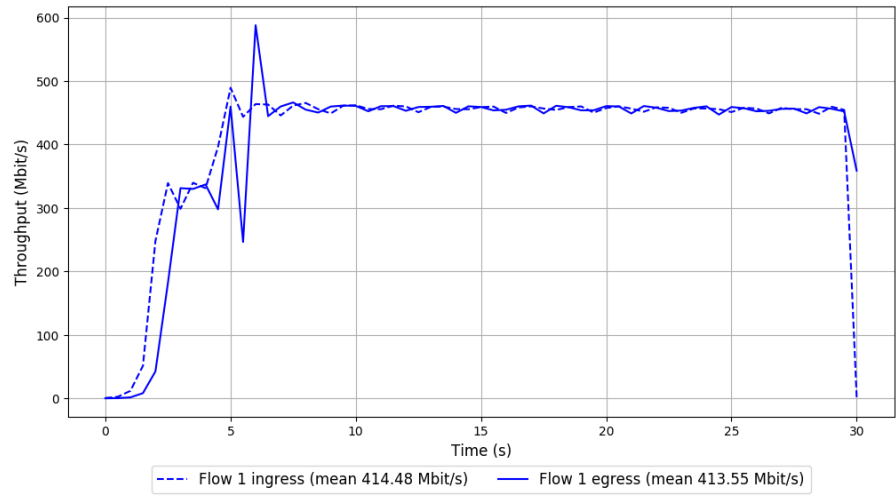
-- Flow 1:

Average throughput: 413.55 Mbit/s

95th percentile per-packet one-way delay: 111.921 ms

Loss rate: 0.95%

Run 4: Report of TCP Vegas — Data Link



Run 5: Statistics of TCP Vegas

Start at: 2018-11-29 22:26:57

End at: 2018-11-29 22:27:27

Local clock offset: 6.647 ms

Remote clock offset: 6.854 ms

Below is generated by plot.py at 2018-11-29 23:57:03

Datalink statistics

-- Total of 1 flow:

Average throughput: 394.36 Mbit/s

95th percentile per-packet one-way delay: 109.744 ms

Loss rate: 0.78%

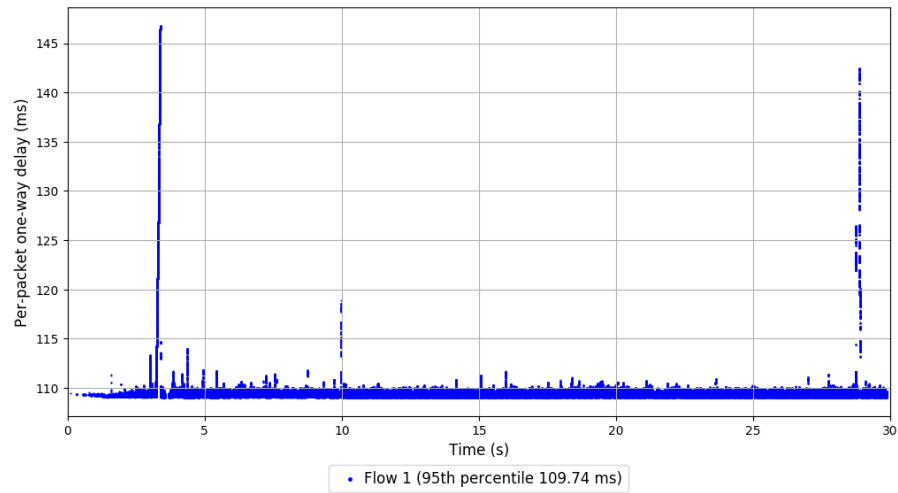
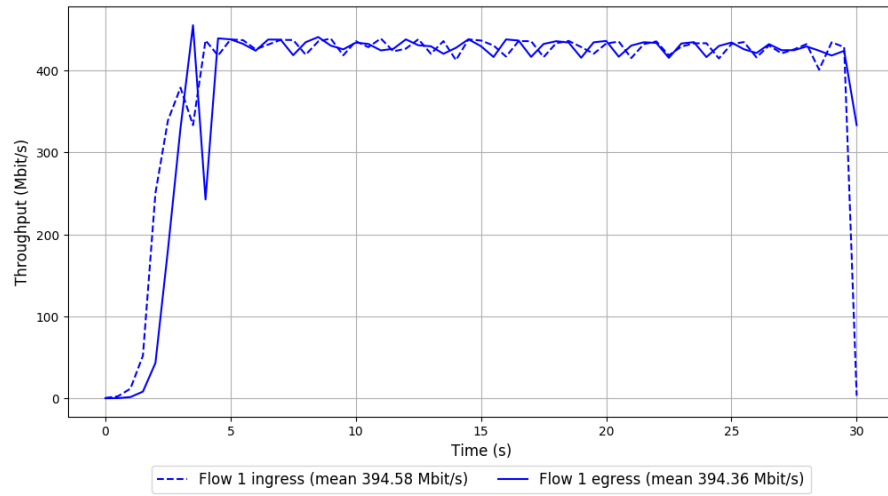
-- Flow 1:

Average throughput: 394.36 Mbit/s

95th percentile per-packet one-way delay: 109.744 ms

Loss rate: 0.78%

Run 5: Report of TCP Vegas — Data Link

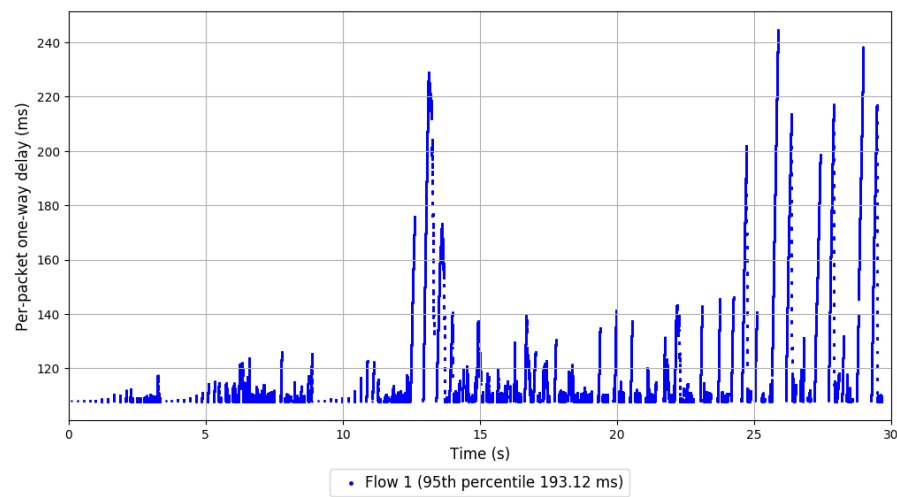
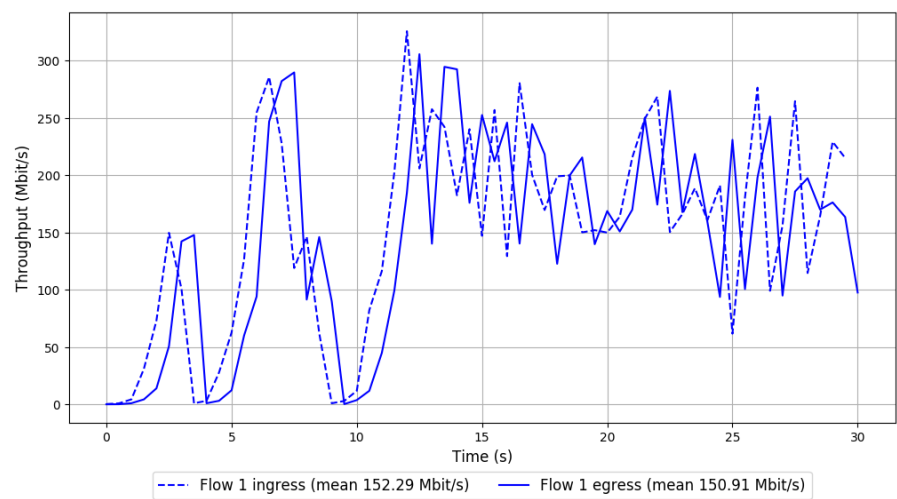


Run 1: Statistics of Verus

Start at: 2018-11-29 20:30:05
End at: 2018-11-29 20:30:35
Local clock offset: 9.803 ms
Remote clock offset: 11.677 ms

Below is generated by plot.py at 2018-11-29 23:57:03
Datalink statistics
-- Total of 1 flow:
Average throughput: 150.91 Mbit/s
95th percentile per-packet one-way delay: 193.121 ms
Loss rate: 2.01%
-- Flow 1:
Average throughput: 150.91 Mbit/s
95th percentile per-packet one-way delay: 193.121 ms
Loss rate: 2.01%

Run 1: Report of Verus — Data Link

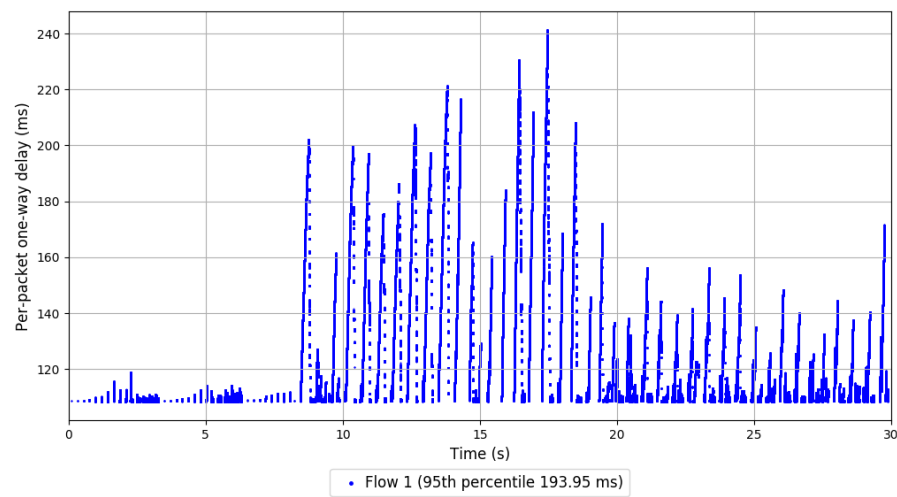
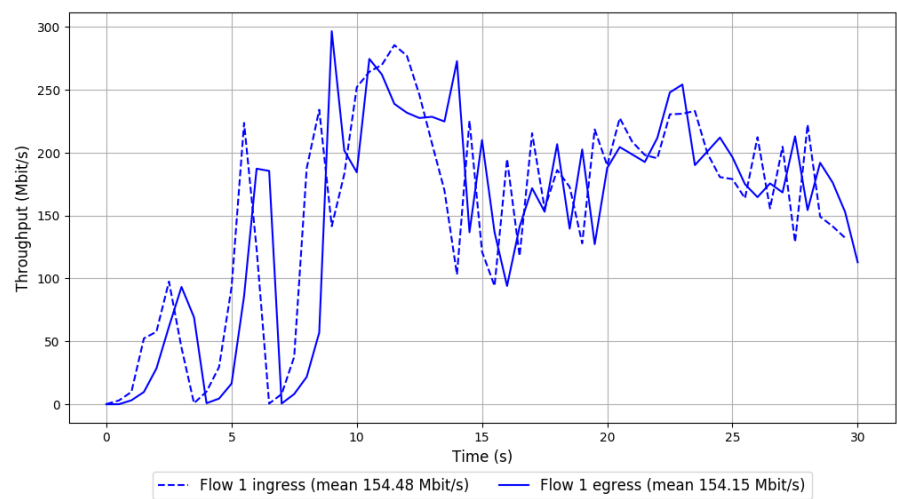


Run 2: Statistics of Verus

Start at: 2018-11-29 20:56:54
End at: 2018-11-29 20:57:24
Local clock offset: 14.735 ms
Remote clock offset: 15.449 ms

Below is generated by plot.py at 2018-11-29 23:57:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 154.15 Mbit/s
95th percentile per-packet one-way delay: 193.949 ms
Loss rate: 0.54%
-- Flow 1:
Average throughput: 154.15 Mbit/s
95th percentile per-packet one-way delay: 193.949 ms
Loss rate: 0.54%

Run 2: Report of Verus — Data Link

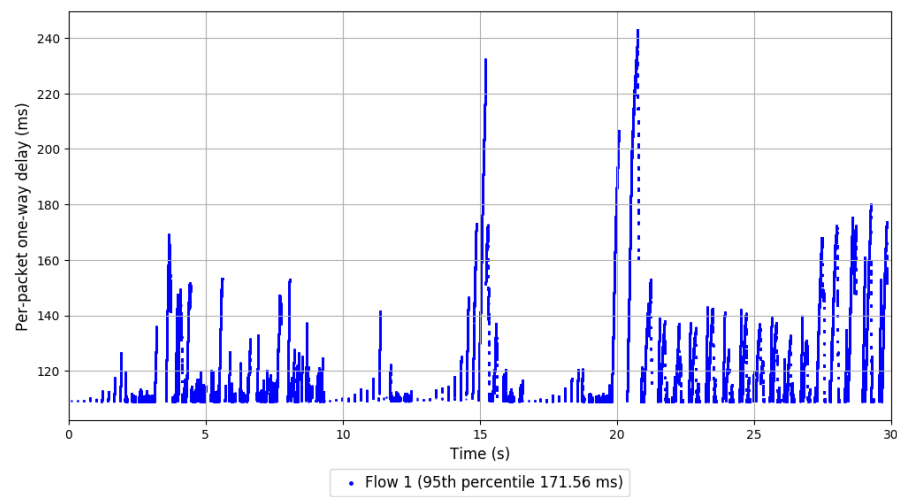
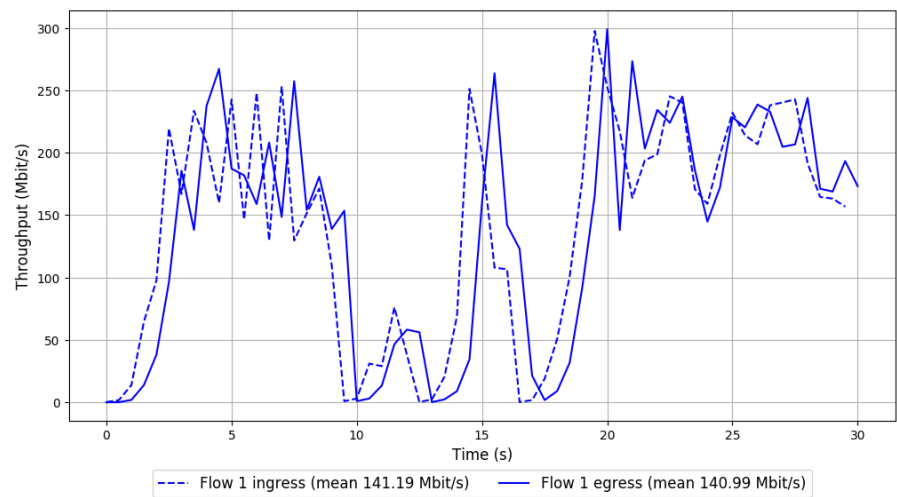


Run 3: Statistics of Verus

Start at: 2018-11-29 21:24:04
End at: 2018-11-29 21:24:34
Local clock offset: 27.456 ms
Remote clock offset: 28.527 ms

Below is generated by plot.py at 2018-11-29 23:57:27
Datalink statistics
-- Total of 1 flow:
Average throughput: 140.99 Mbit/s
95th percentile per-packet one-way delay: 171.563 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 140.99 Mbit/s
95th percentile per-packet one-way delay: 171.563 ms
Loss rate: 0.42%

Run 3: Report of Verus — Data Link

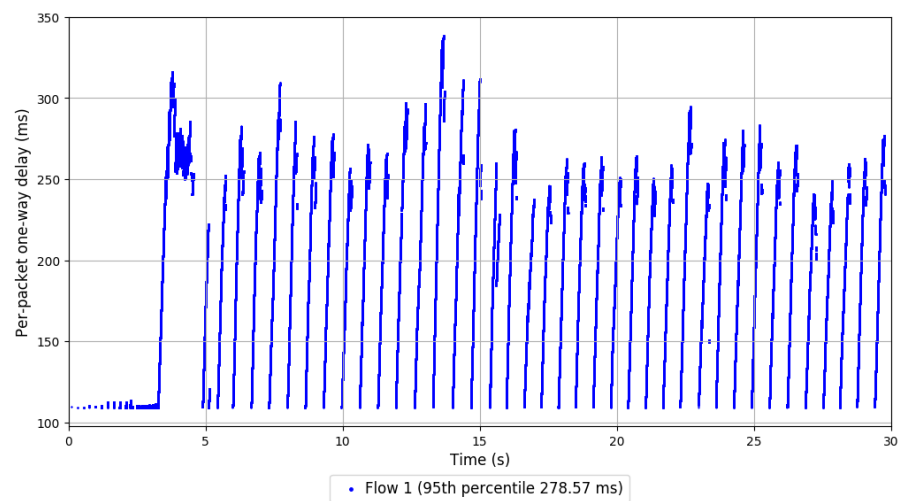
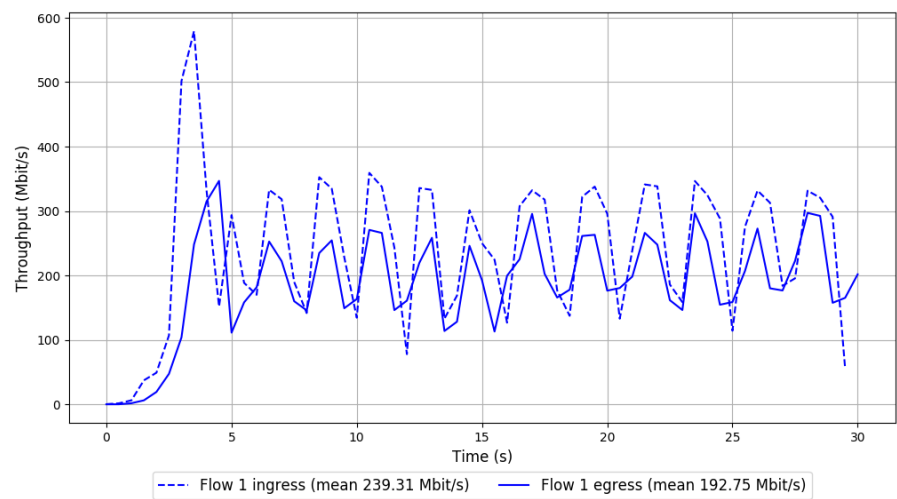


Run 4: Statistics of Verus

Start at: 2018-11-29 21:51:09
End at: 2018-11-29 21:51:39
Local clock offset: 12.882 ms
Remote clock offset: 13.683 ms

Below is generated by plot.py at 2018-11-29 23:59:46
Datalink statistics
-- Total of 1 flow:
Average throughput: 192.75 Mbit/s
95th percentile per-packet one-way delay: 278.568 ms
Loss rate: 20.20%
-- Flow 1:
Average throughput: 192.75 Mbit/s
95th percentile per-packet one-way delay: 278.568 ms
Loss rate: 20.20%

Run 4: Report of Verus — Data Link



Run 5: Statistics of Verus

Start at: 2018-11-29 22:17:59

End at: 2018-11-29 22:18:29

Local clock offset: 5.789 ms

Remote clock offset: 5.803 ms

Below is generated by plot.py at 2018-11-29 23:59:46

Datalink statistics

-- Total of 1 flow:

Average throughput: 102.51 Mbit/s

95th percentile per-packet one-way delay: 161.285 ms

Loss rate: 0.59%

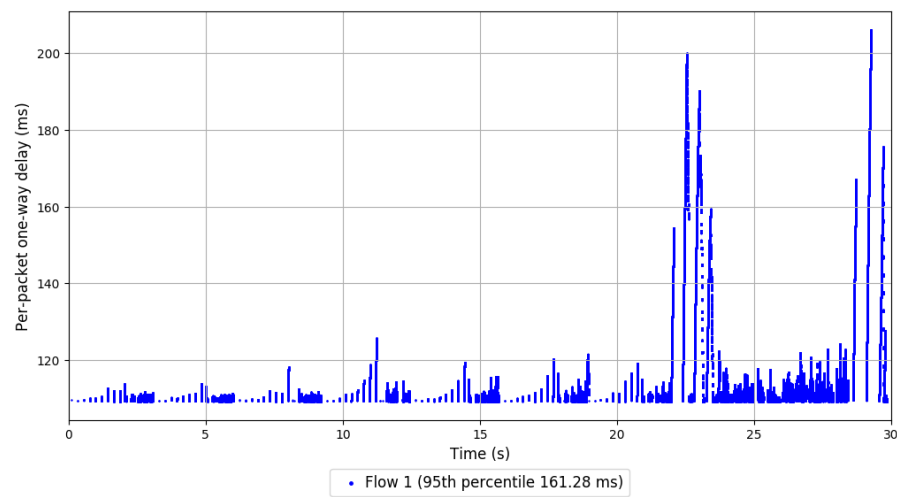
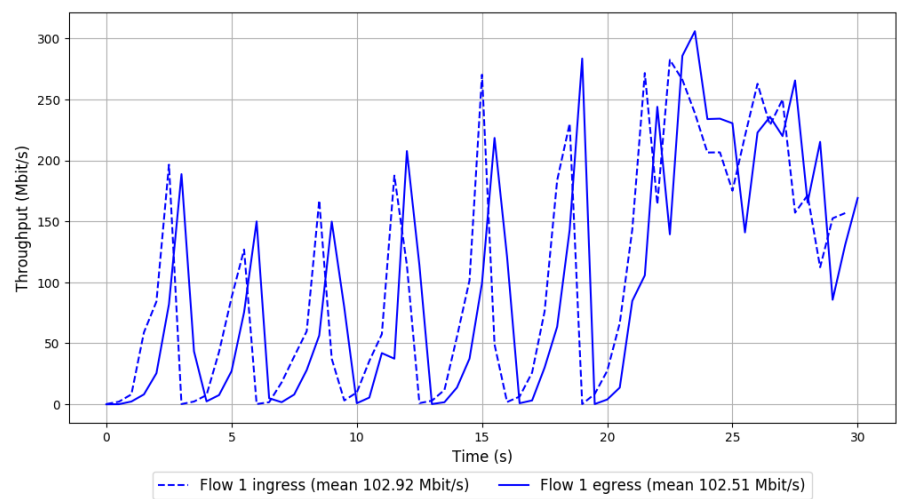
-- Flow 1:

Average throughput: 102.51 Mbit/s

95th percentile per-packet one-way delay: 161.285 ms

Loss rate: 0.59%

Run 5: Report of Verus — Data Link



Run 1: Statistics of PCC-Vivace

Start at: 2018-11-29 20:15:47

End at: 2018-11-29 20:16:17

Local clock offset: 3.751 ms

Remote clock offset: 4.796 ms

Below is generated by plot.py at 2018-11-30 00:01:41

Datalink statistics

-- Total of 1 flow:

Average throughput: 346.84 Mbit/s

95th percentile per-packet one-way delay: 108.803 ms

Loss rate: 0.91%

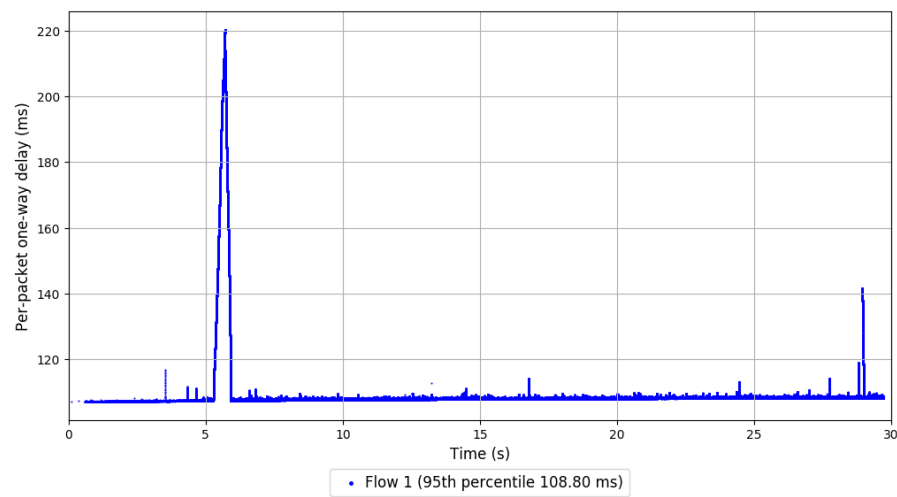
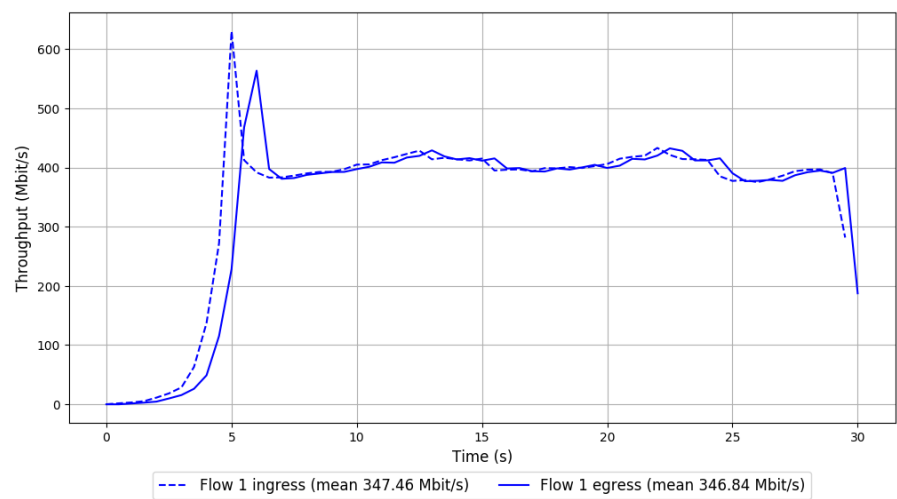
-- Flow 1:

Average throughput: 346.84 Mbit/s

95th percentile per-packet one-way delay: 108.803 ms

Loss rate: 0.91%

Run 1: Report of PCC-Vivace — Data Link

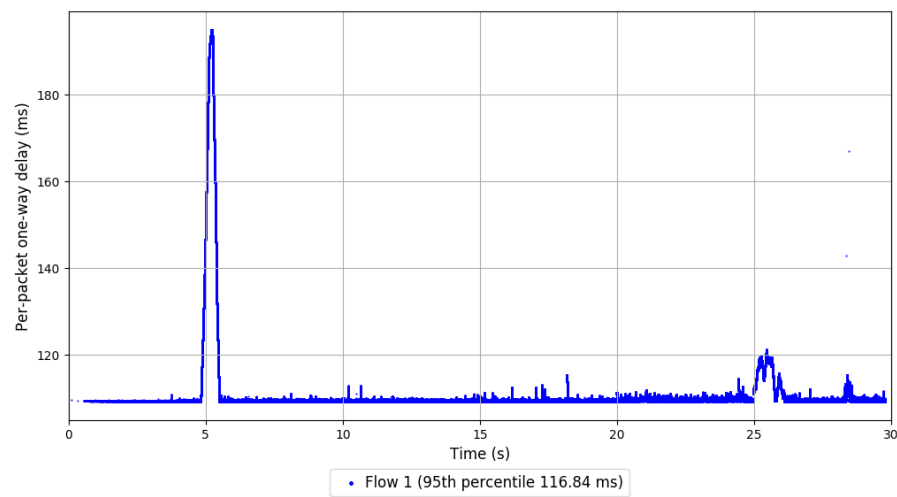
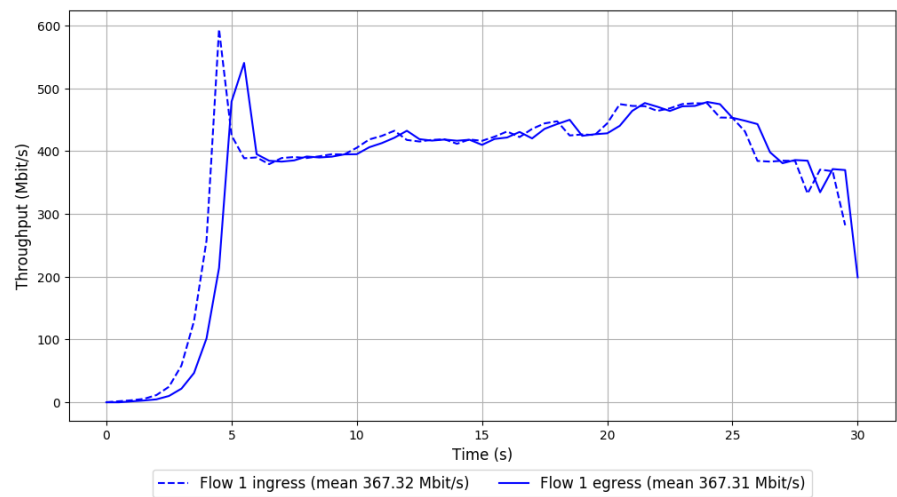


Run 2: Statistics of PCC-Vivace

Start at: 2018-11-29 20:42:22
End at: 2018-11-29 20:42:52
Local clock offset: 13.134 ms
Remote clock offset: 13.879 ms

Below is generated by plot.py at 2018-11-30 00:02:15
Datalink statistics
-- Total of 1 flow:
Average throughput: 367.31 Mbit/s
95th percentile per-packet one-way delay: 116.838 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 367.31 Mbit/s
95th percentile per-packet one-way delay: 116.838 ms
Loss rate: 0.74%

Run 2: Report of PCC-Vivace — Data Link

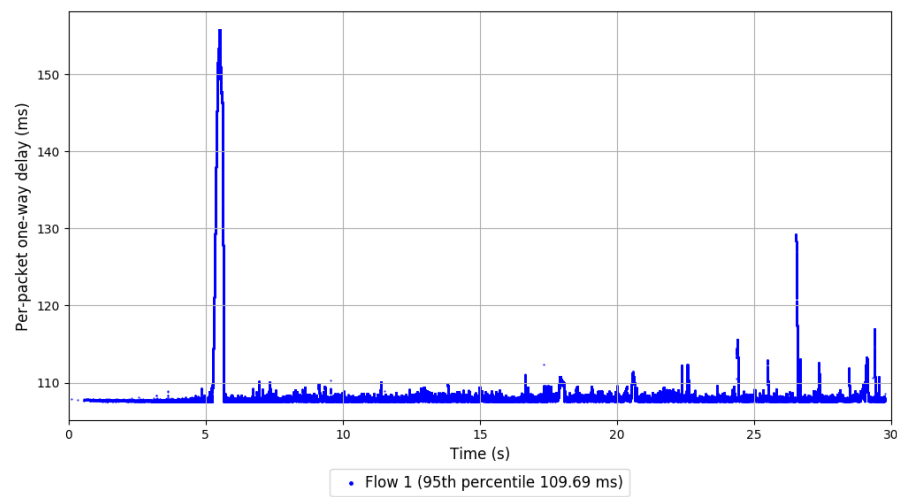
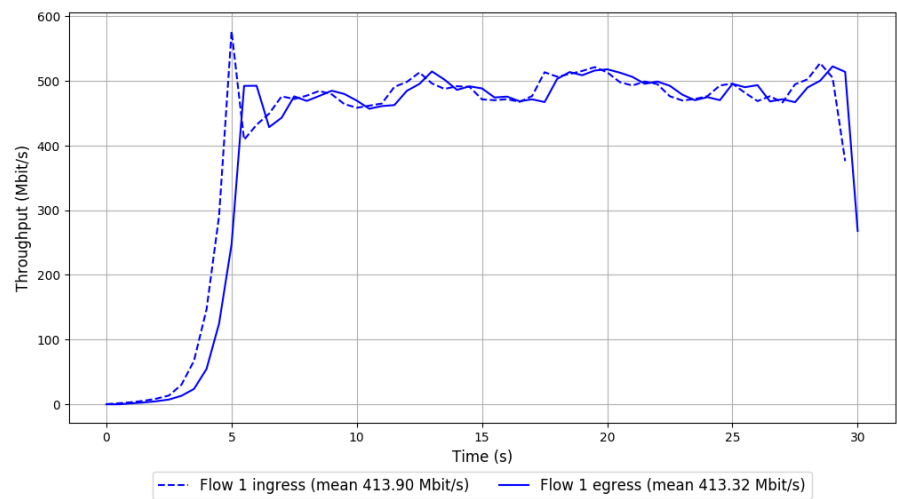


Run 3: Statistics of PCC-Vivace

Start at: 2018-11-29 21:09:23
End at: 2018-11-29 21:09:53
Local clock offset: 18.546 ms
Remote clock offset: 20.159 ms

Below is generated by plot.py at 2018-11-30 00:02:24
Datalink statistics
-- Total of 1 flow:
Average throughput: 413.32 Mbit/s
95th percentile per-packet one-way delay: 109.693 ms
Loss rate: 0.87%
-- Flow 1:
Average throughput: 413.32 Mbit/s
95th percentile per-packet one-way delay: 109.693 ms
Loss rate: 0.87%

Run 3: Report of PCC-Vivace — Data Link

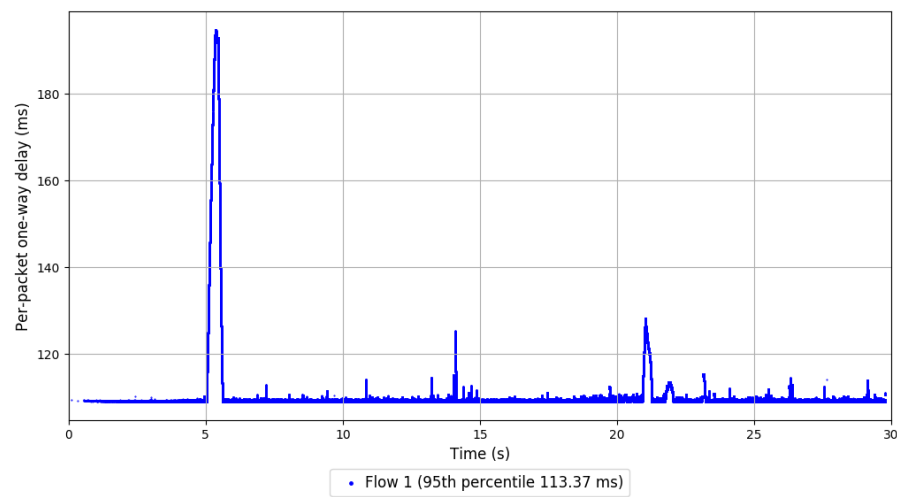
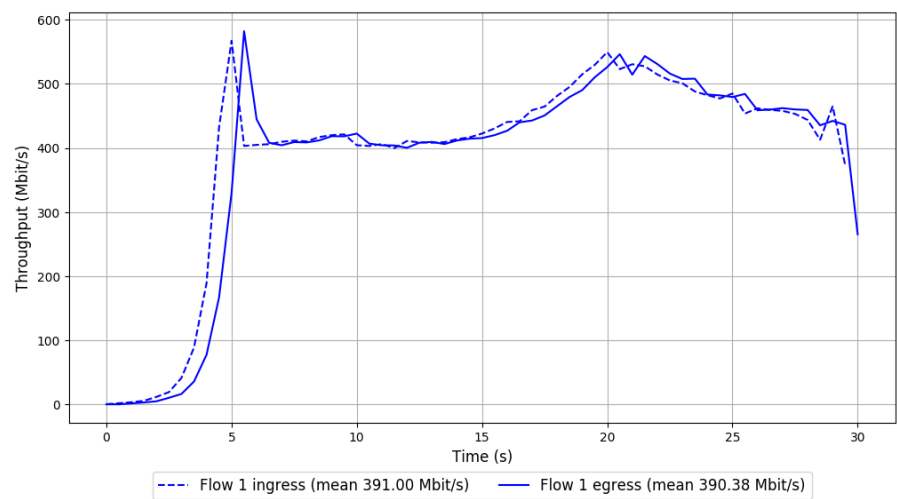


Run 4: Statistics of PCC-Vivace

Start at: 2018-11-29 21:36:28
End at: 2018-11-29 21:36:58
Local clock offset: 12.047 ms
Remote clock offset: 12.434 ms

Below is generated by plot.py at 2018-11-30 00:02:24
Datalink statistics
-- Total of 1 flow:
Average throughput: 390.38 Mbit/s
95th percentile per-packet one-way delay: 113.374 ms
Loss rate: 0.89%
-- Flow 1:
Average throughput: 390.38 Mbit/s
95th percentile per-packet one-way delay: 113.374 ms
Loss rate: 0.89%

Run 4: Report of PCC-Vivace — Data Link



Run 5: Statistics of PCC-Vivace

Start at: 2018-11-29 22:03:38

End at: 2018-11-29 22:04:08

Local clock offset: 7.331 ms

Remote clock offset: 8.685 ms

Below is generated by plot.py at 2018-11-30 00:02:26

Datalink statistics

-- Total of 1 flow:

Average throughput: 403.94 Mbit/s

95th percentile per-packet one-way delay: 111.080 ms

Loss rate: 0.79%

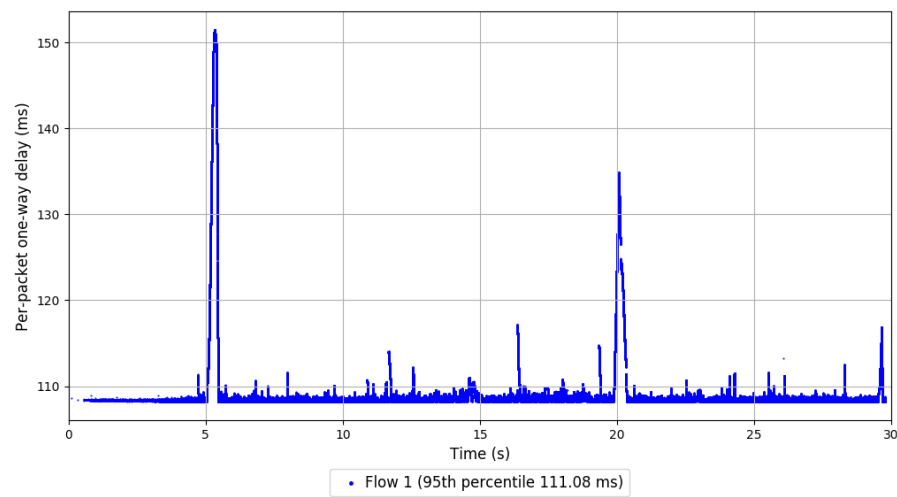
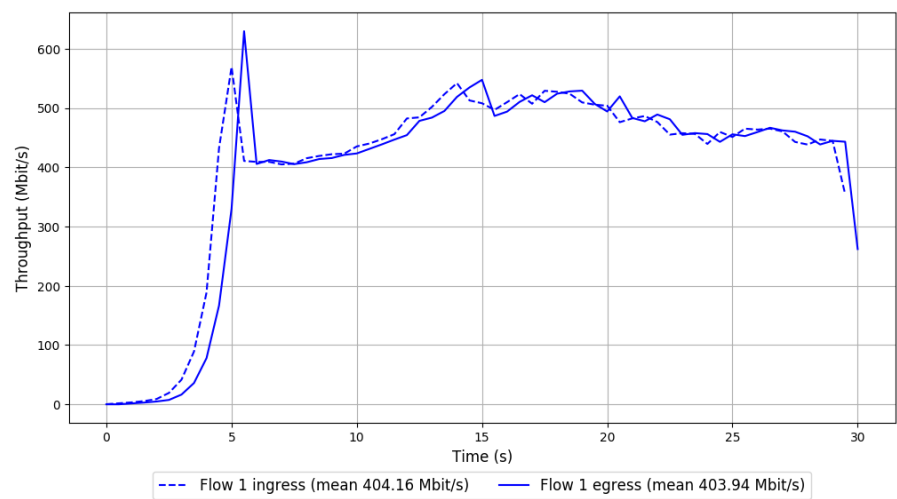
-- Flow 1:

Average throughput: 403.94 Mbit/s

95th percentile per-packet one-way delay: 111.080 ms

Loss rate: 0.79%

Run 5: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-11-29 20:23:26

End at: 2018-11-29 20:23:56

Local clock offset: 9.272 ms

Remote clock offset: 9.148 ms

Below is generated by plot.py at 2018-11-30 00:02:26

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.88 Mbit/s

95th percentile per-packet one-way delay: 109.701 ms

Loss rate: 0.91%

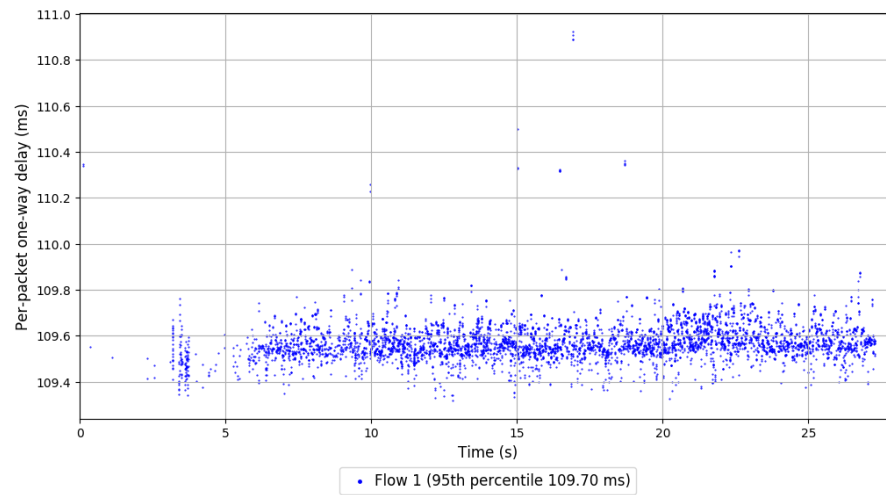
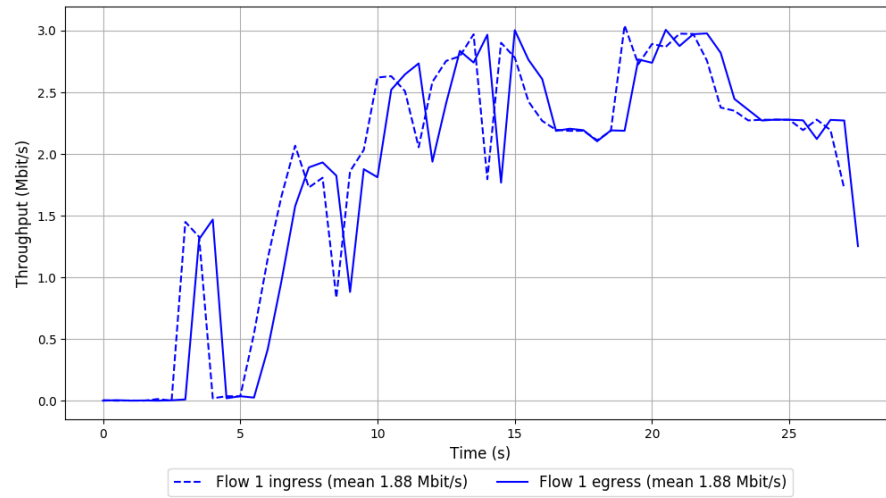
-- Flow 1:

Average throughput: 1.88 Mbit/s

95th percentile per-packet one-way delay: 109.701 ms

Loss rate: 0.91%

Run 1: Report of WebRTC media — Data Link

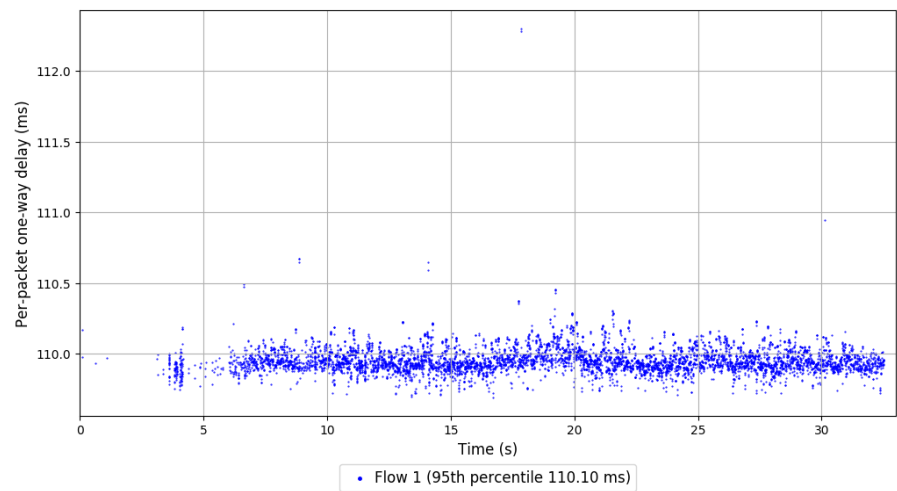
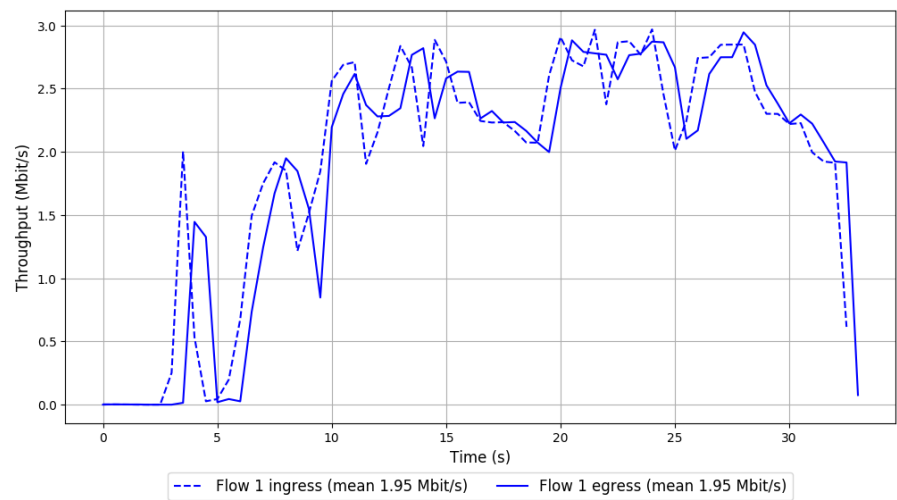


Run 2: Statistics of WebRTC media

Start at: 2018-11-29 20:49:58
End at: 2018-11-29 20:50:28
Local clock offset: 19.326 ms
Remote clock offset: 19.502 ms

Below is generated by plot.py at 2018-11-30 00:02:26
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.95 Mbit/s
95th percentile per-packet one-way delay: 110.101 ms
Loss rate: 0.72%
-- Flow 1:
Average throughput: 1.95 Mbit/s
95th percentile per-packet one-way delay: 110.101 ms
Loss rate: 0.72%

Run 2: Report of WebRTC media — Data Link

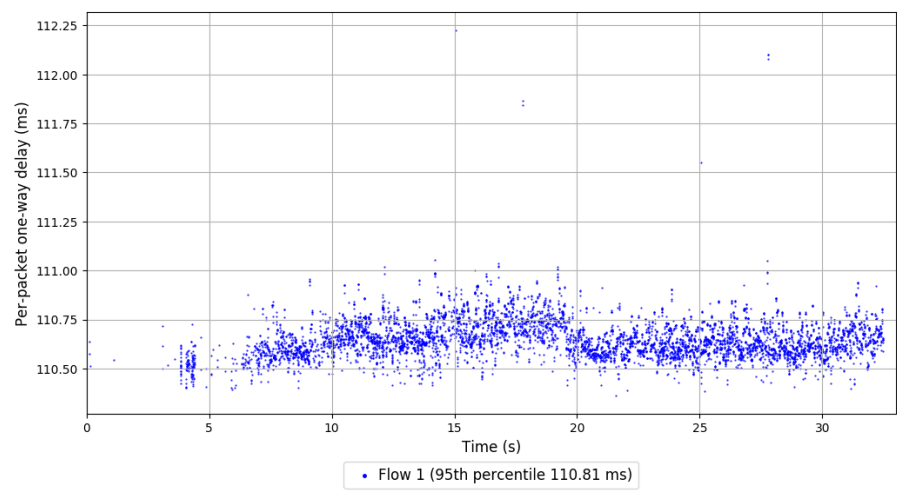
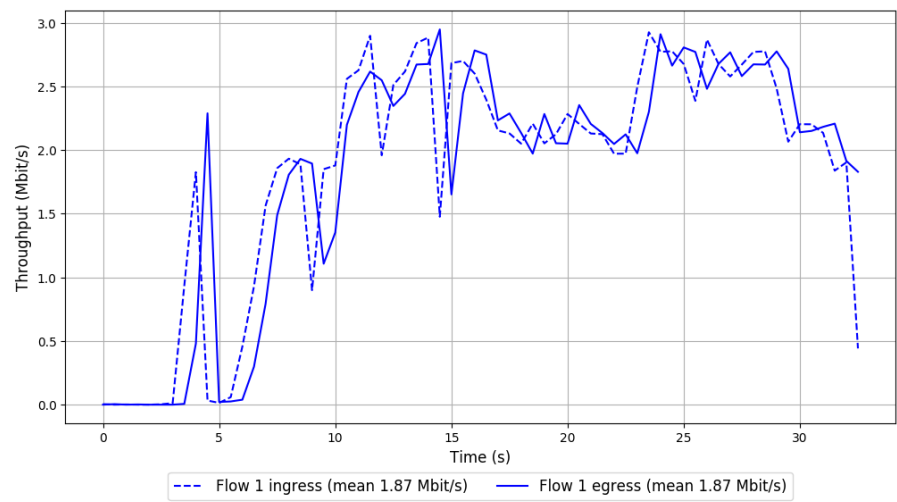


Run 3: Statistics of WebRTC media

Start at: 2018-11-29 21:17:16
End at: 2018-11-29 21:17:46
Local clock offset: 24.715 ms
Remote clock offset: 26.479 ms

Below is generated by plot.py at 2018-11-30 00:02:26
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.87 Mbit/s
95th percentile per-packet one-way delay: 110.812 ms
Loss rate: 0.72%
-- Flow 1:
Average throughput: 1.87 Mbit/s
95th percentile per-packet one-way delay: 110.812 ms
Loss rate: 0.72%

Run 3: Report of WebRTC media — Data Link

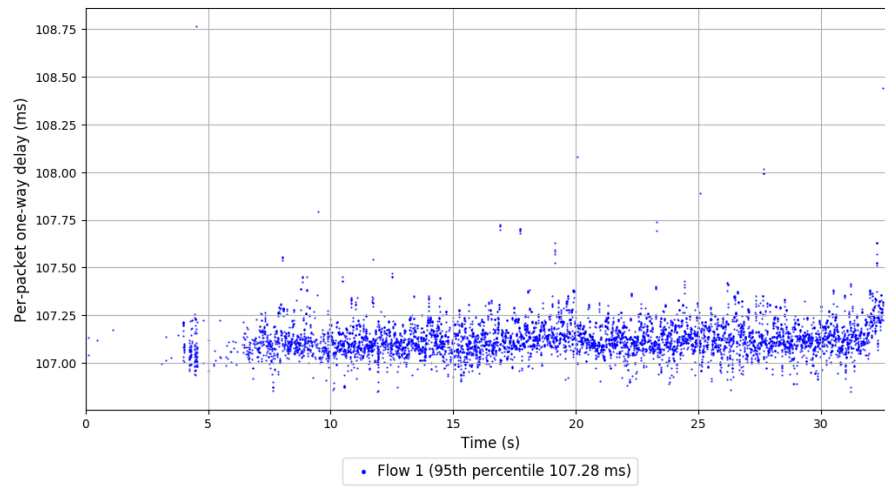
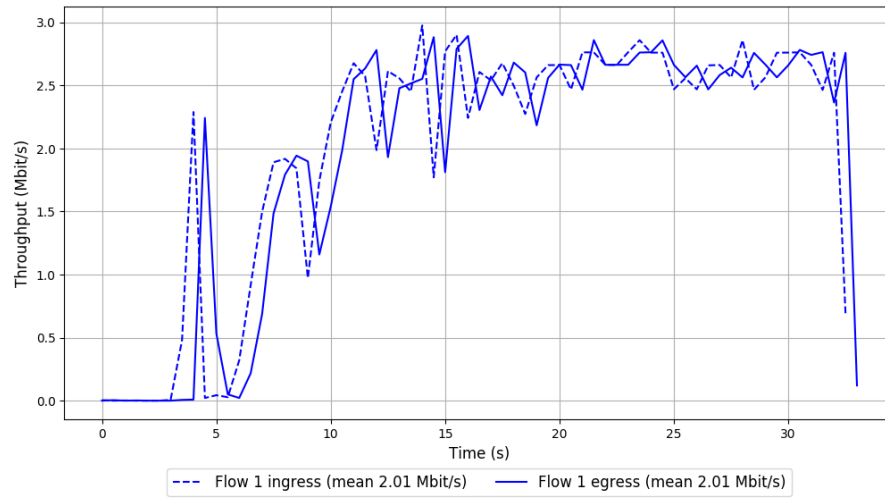


Run 4: Statistics of WebRTC media

Start at: 2018-11-29 21:44:13
End at: 2018-11-29 21:44:43
Local clock offset: 10.043 ms
Remote clock offset: 11.986 ms

Below is generated by plot.py at 2018-11-30 00:02:26
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.01 Mbit/s
95th percentile per-packet one-way delay: 107.282 ms
Loss rate: 0.88%
-- Flow 1:
Average throughput: 2.01 Mbit/s
95th percentile per-packet one-way delay: 107.282 ms
Loss rate: 0.88%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-11-29 22:11:08

End at: 2018-11-29 22:11:38

Local clock offset: 5.605 ms

Remote clock offset: 5.982 ms

Below is generated by plot.py at 2018-11-30 00:02:26

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.77 Mbit/s

95th percentile per-packet one-way delay: 108.679 ms

Loss rate: 0.86%

-- Flow 1:

Average throughput: 1.77 Mbit/s

95th percentile per-packet one-way delay: 108.679 ms

Loss rate: 0.86%

Run 5: Report of WebRTC media — Data Link

