

Pantheon Report

Generated at 2018-12-01 04:16:49 (UTC).

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

Repeated the test of 19 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:

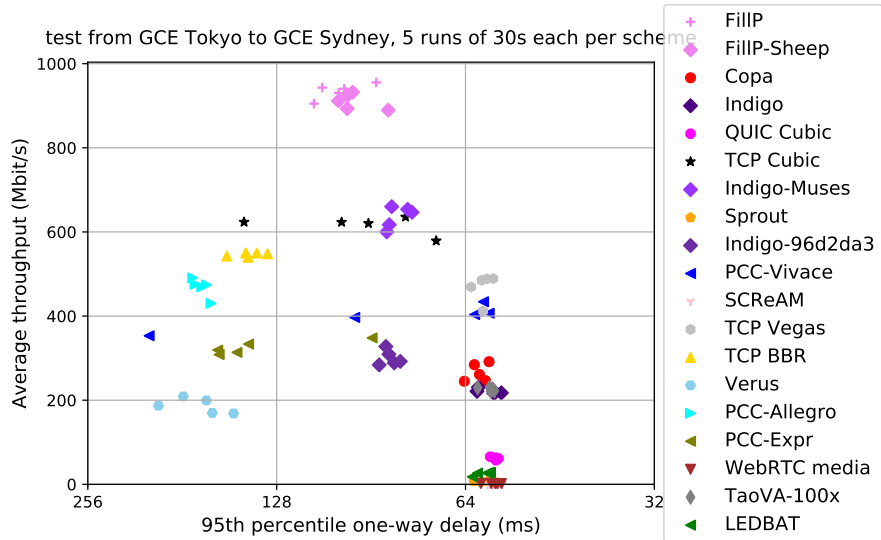
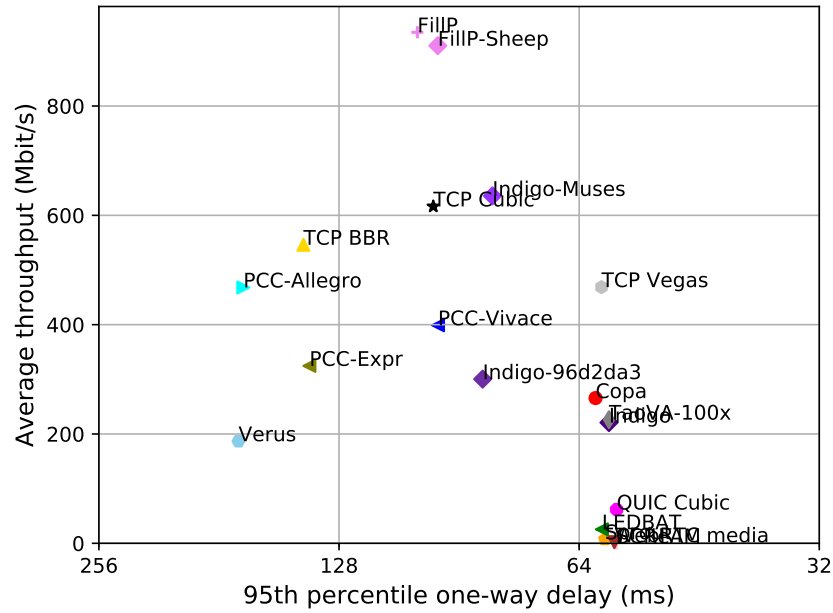
```
Linux 4.15.0-1024-gcp
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

Git summary:

```
branch: muses @ 7b6dad87cde3ab65f7c4052140eb54098aa58e9d
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecd90c077e64d
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 Tokyo to GCE Sydney, 5 runs of 30s each per scheme
(mean of all runs by scheme)



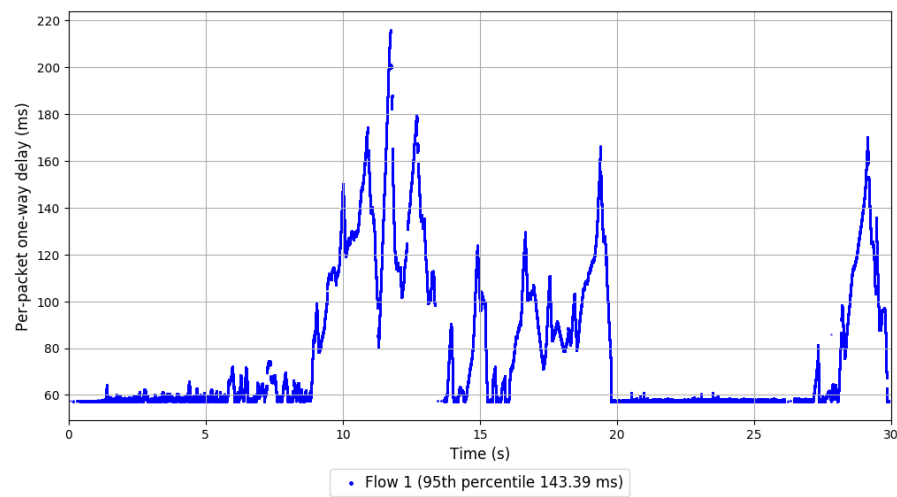
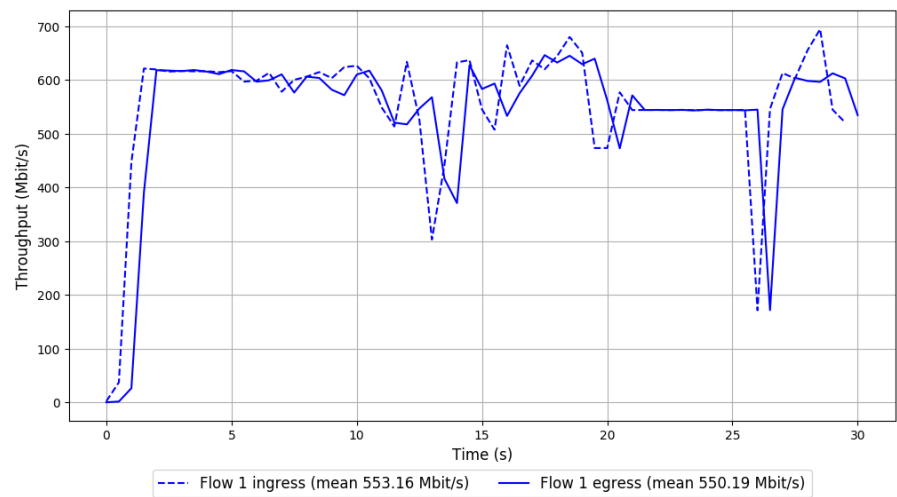
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	5	546.20	141.85	1.03
Copa	5	265.71	61.04	0.37
TCP Cubic	5	616.33	97.51	0.50
FillP	5	934.94	102.09	0.86
FillP-Sheep	5	910.35	96.25	0.65
Indigo	5	220.88	58.73	0.38
Indigo-96d2da3	5	300.37	84.56	0.55
LEDBAT	5	25.54	59.94	0.72
Indigo-Muses	5	635.58	82.21	0.42
PCC-Allegro	5	468.01	168.72	2.81
PCC-Expr	5	324.57	139.43	2.52
QUIC Cubic	5	61.76	57.44	0.52
SCReAM	5	0.22	57.48	0.38
Sprout	5	7.40	59.43	0.43
TaoVA-100x	5	226.23	58.73	0.40
TCP Vegas	5	468.72	60.00	0.39
Verus	5	186.75	171.10	1.48
PCC-Vivace	5	398.89	96.20	1.05
WebRTC media	5	1.96	57.82	0.48

Run 1: Statistics of TCP BBR

Start at: 2018-12-01 00:13:37
End at: 2018-12-01 00:14:07
Local clock offset: 0.049 ms
Remote clock offset: -0.048 ms

Below is generated by plot.py at 2018-12-01 02:40:10
Datalink statistics
-- Total of 1 flow:
Average throughput: 550.19 Mbit/s
95th percentile per-packet one-way delay: 143.390 ms
Loss rate: 0.92%
-- Flow 1:
Average throughput: 550.19 Mbit/s
95th percentile per-packet one-way delay: 143.390 ms
Loss rate: 0.92%

Run 1: Report of TCP BBR — Data Link

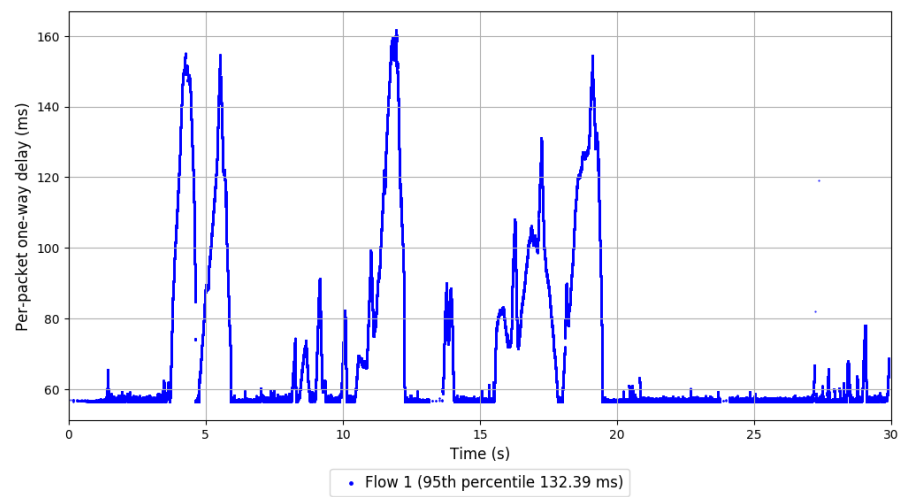
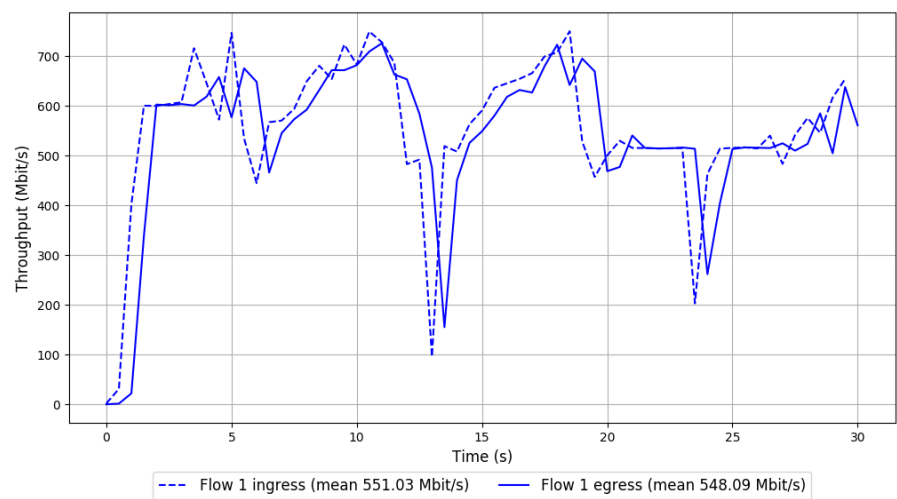


Run 2: Statistics of TCP BBR

Start at: 2018-12-01 00:42:49
End at: 2018-12-01 00:43:19
Local clock offset: -0.475 ms
Remote clock offset: -0.137 ms

Below is generated by plot.py at 2018-12-01 02:40:10
Datalink statistics
-- Total of 1 flow:
Average throughput: 548.09 Mbit/s
95th percentile per-packet one-way delay: 132.394 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 548.09 Mbit/s
95th percentile per-packet one-way delay: 132.394 ms
Loss rate: 0.91%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-12-01 01:11:53

End at: 2018-12-01 01:12:23

Local clock offset: -0.374 ms

Remote clock offset: -0.06 ms

Below is generated by plot.py at 2018-12-01 02:40:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 550.10 Mbit/s

95th percentile per-packet one-way delay: 137.673 ms

Loss rate: 1.09%

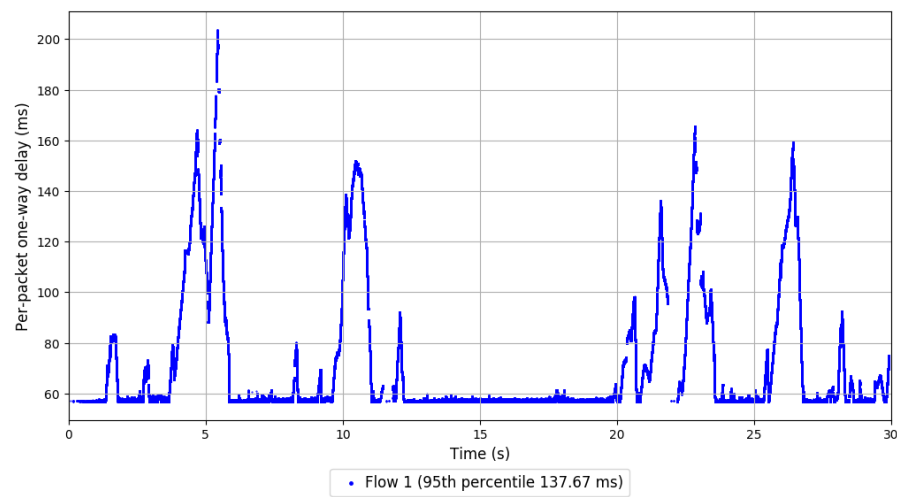
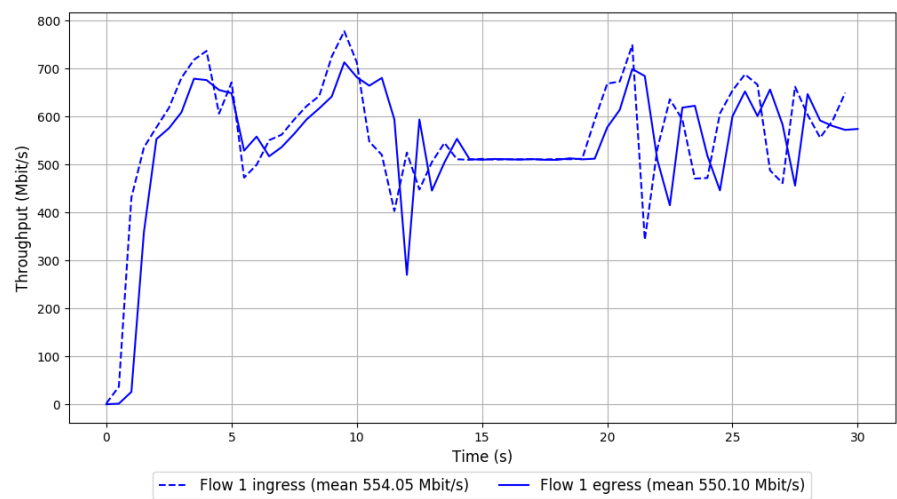
-- Flow 1:

Average throughput: 550.10 Mbit/s

95th percentile per-packet one-way delay: 137.673 ms

Loss rate: 1.09%

Run 3: Report of TCP BBR — Data Link



Run 4: Statistics of TCP BBR

Start at: 2018-12-01 01:41:40

End at: 2018-12-01 01:42:10

Local clock offset: -0.084 ms

Remote clock offset: 1.076 ms

Below is generated by plot.py at 2018-12-01 02:40:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 542.75 Mbit/s

95th percentile per-packet one-way delay: 153.666 ms

Loss rate: 1.33%

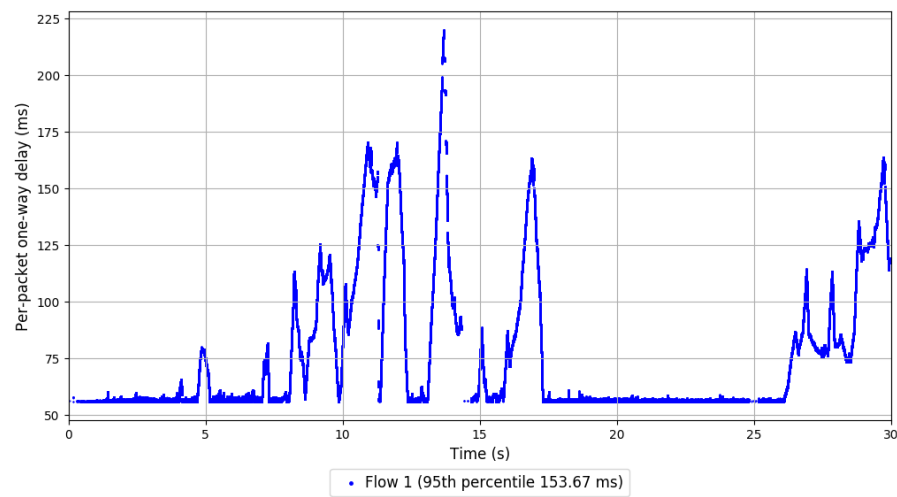
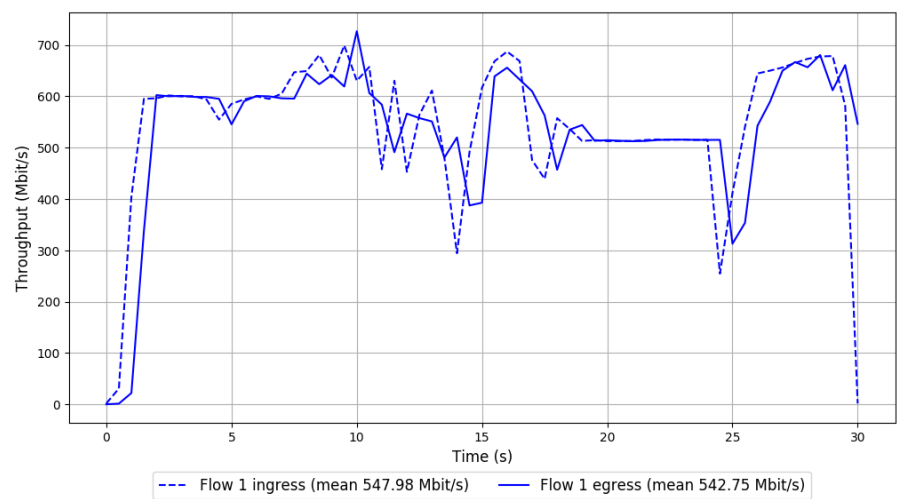
-- Flow 1:

Average throughput: 542.75 Mbit/s

95th percentile per-packet one-way delay: 153.666 ms

Loss rate: 1.33%

Run 4: Report of TCP BBR — Data Link



Run 5: Statistics of TCP BBR

Start at: 2018-12-01 02:11:40

End at: 2018-12-01 02:12:10

Local clock offset: -0.132 ms

Remote clock offset: 0.343 ms

Below is generated by plot.py at 2018-12-01 02:40:12

Datalink statistics

-- Total of 1 flow:

Average throughput: 539.86 Mbit/s

95th percentile per-packet one-way delay: 142.138 ms

Loss rate: 0.91%

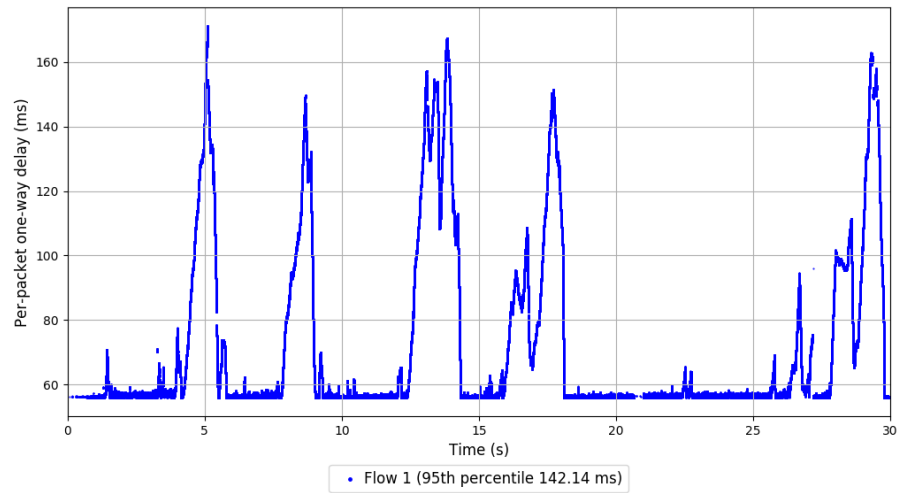
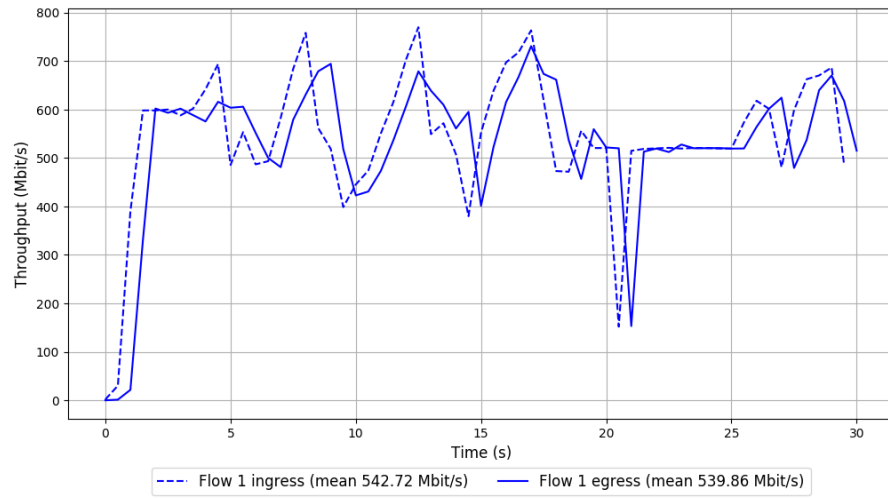
-- Flow 1:

Average throughput: 539.86 Mbit/s

95th percentile per-packet one-way delay: 142.138 ms

Loss rate: 0.91%

Run 5: Report of TCP BBR — Data Link

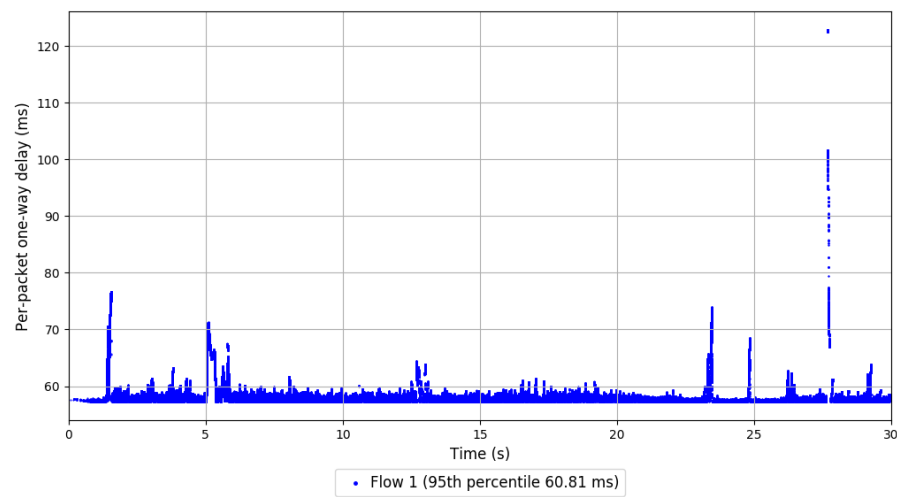
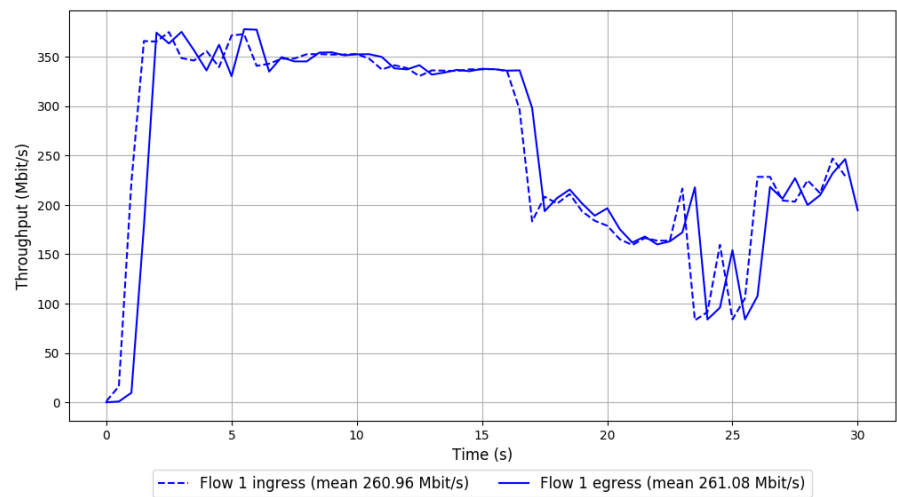


Run 1: Statistics of Copa

Start at: 2018-11-30 23:59:01
End at: 2018-11-30 23:59:31
Local clock offset: 0.046 ms
Remote clock offset: -0.112 ms

Below is generated by plot.py at 2018-12-01 02:40:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 261.08 Mbit/s
95th percentile per-packet one-way delay: 60.810 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 261.08 Mbit/s
95th percentile per-packet one-way delay: 60.810 ms
Loss rate: 0.34%

Run 1: Report of Copa — Data Link

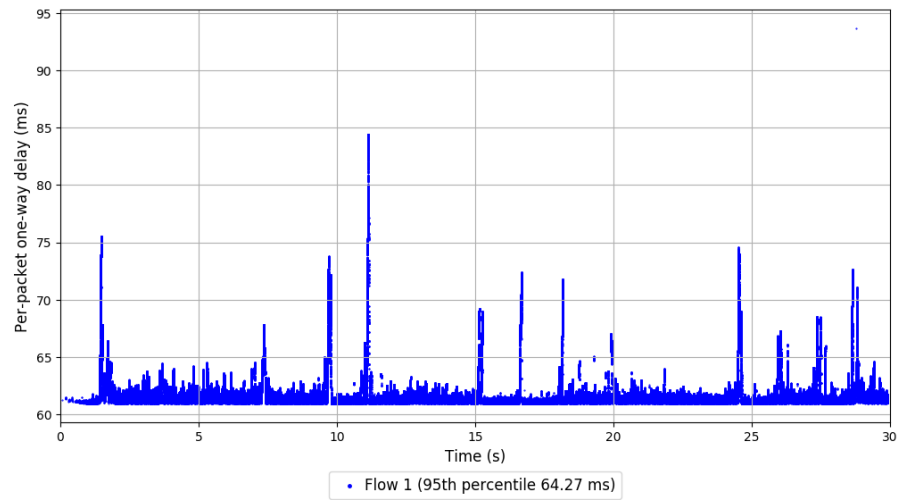
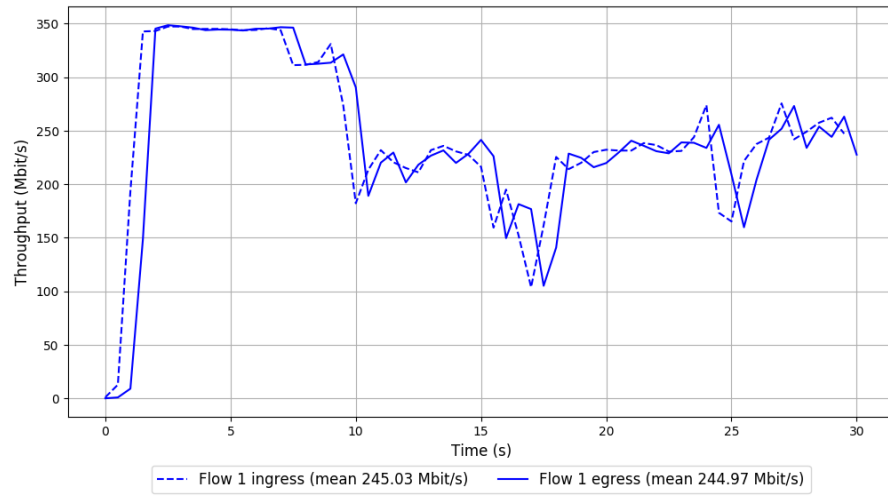


Run 2: Statistics of Copa

Start at: 2018-12-01 00:28:14
End at: 2018-12-01 00:28:44
Local clock offset: -0.113 ms
Remote clock offset: -0.793 ms

Below is generated by plot.py at 2018-12-01 02:40:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 244.97 Mbit/s
95th percentile per-packet one-way delay: 64.267 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 244.97 Mbit/s
95th percentile per-packet one-way delay: 64.267 ms
Loss rate: 0.42%

Run 2: Report of Copa — Data Link

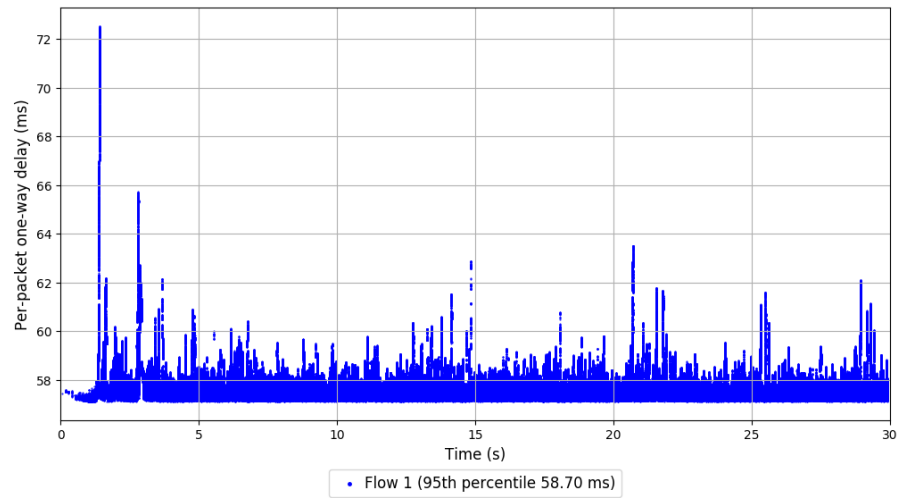
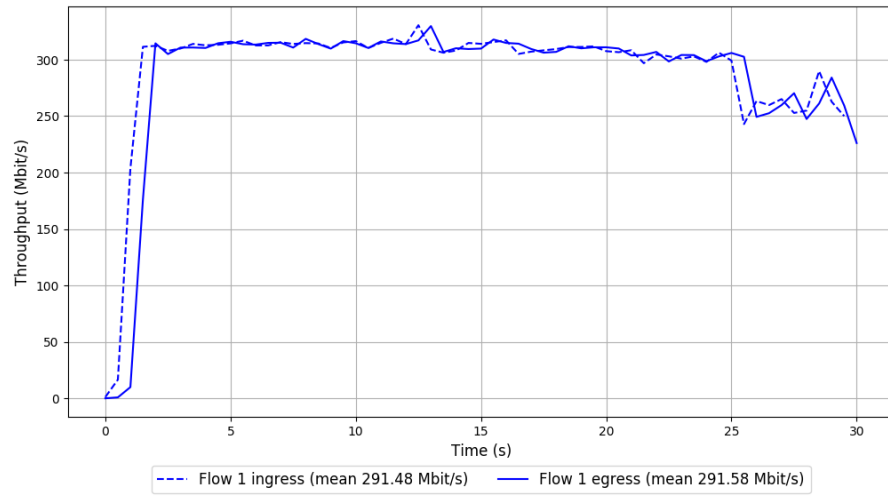


Run 3: Statistics of Copa

Start at: 2018-12-01 00:57:15
End at: 2018-12-01 00:57:45
Local clock offset: -0.107 ms
Remote clock offset: -0.475 ms

Below is generated by plot.py at 2018-12-01 02:40:12
Datalink statistics
-- Total of 1 flow:
Average throughput: 291.58 Mbit/s
95th percentile per-packet one-way delay: 58.705 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 291.58 Mbit/s
95th percentile per-packet one-way delay: 58.705 ms
Loss rate: 0.35%

Run 3: Report of Copa — Data Link

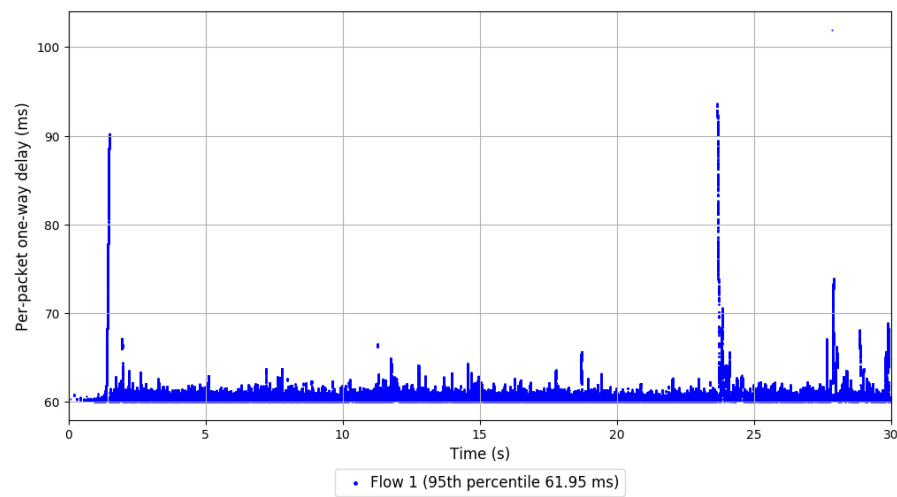
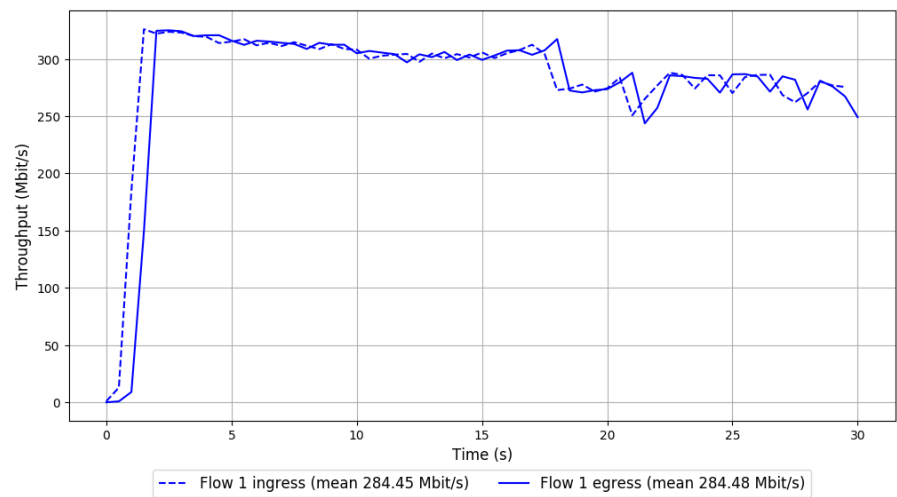


Run 4: Statistics of Copa

Start at: 2018-12-01 01:26:54
End at: 2018-12-01 01:27:24
Local clock offset: -0.207 ms
Remote clock offset: 0.054 ms

Below is generated by plot.py at 2018-12-01 02:47:41
Datalink statistics
-- Total of 1 flow:
Average throughput: 284.48 Mbit/s
95th percentile per-packet one-way delay: 61.952 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 284.48 Mbit/s
95th percentile per-packet one-way delay: 61.952 ms
Loss rate: 0.38%

Run 4: Report of Copa — Data Link



Run 5: Statistics of Copa

Start at: 2018-12-01 01:56:30

End at: 2018-12-01 01:57:00

Local clock offset: 0.203 ms

Remote clock offset: -0.89 ms

Below is generated by plot.py at 2018-12-01 02:47:41

Datalink statistics

-- Total of 1 flow:

Average throughput: 246.45 Mbit/s

95th percentile per-packet one-way delay: 59.483 ms

Loss rate: 0.36%

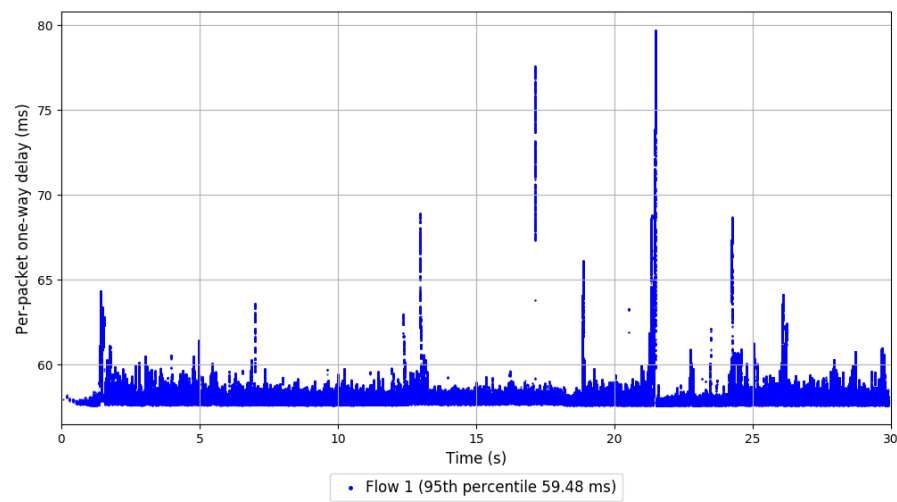
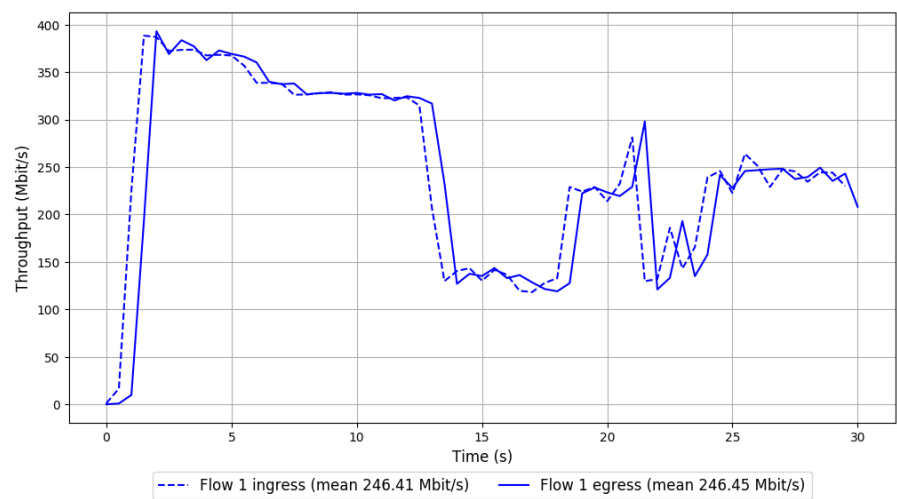
-- Flow 1:

Average throughput: 246.45 Mbit/s

95th percentile per-packet one-way delay: 59.483 ms

Loss rate: 0.36%

Run 5: Report of Copa — Data Link

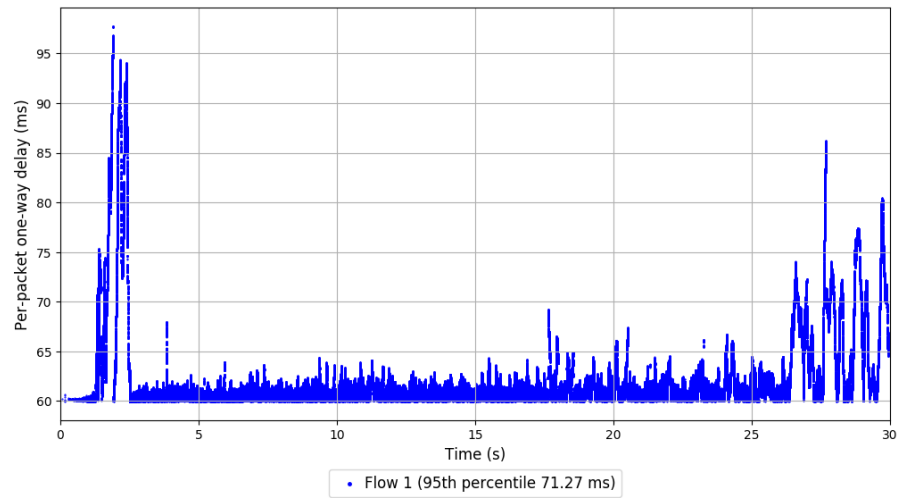
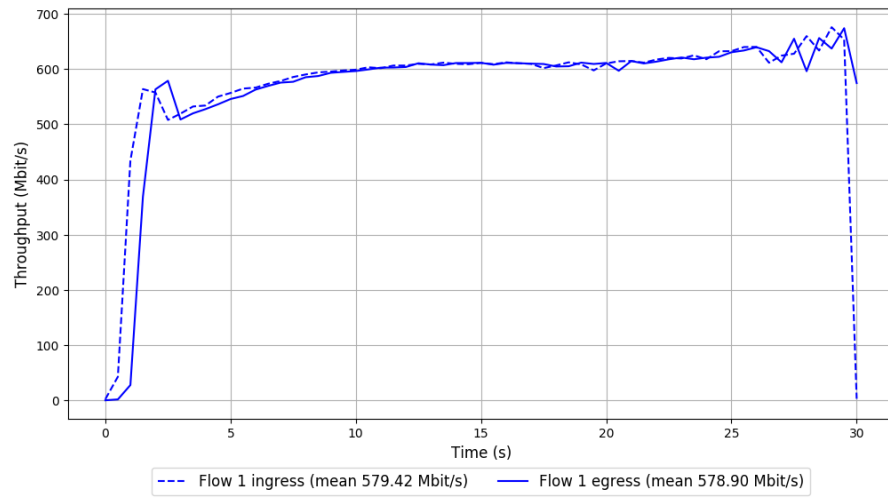


Run 1: Statistics of TCP Cubic

Start at: 2018-12-01 00:05:16
End at: 2018-12-01 00:05:46
Local clock offset: -0.39 ms
Remote clock offset: -0.047 ms

Below is generated by plot.py at 2018-12-01 02:51:17
Datalink statistics
-- Total of 1 flow:
Average throughput: 578.90 Mbit/s
95th percentile per-packet one-way delay: 71.272 ms
Loss rate: 0.48%
-- Flow 1:
Average throughput: 578.90 Mbit/s
95th percentile per-packet one-way delay: 71.272 ms
Loss rate: 0.48%

Run 1: Report of TCP Cubic — Data Link

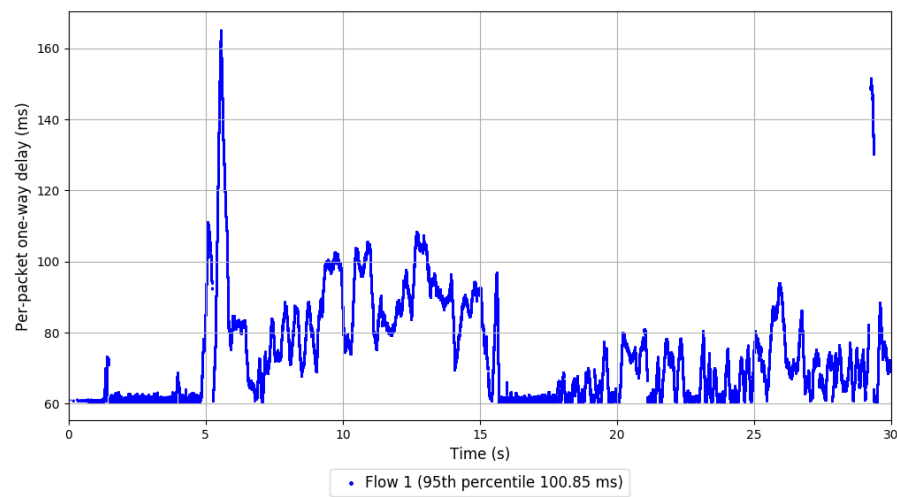
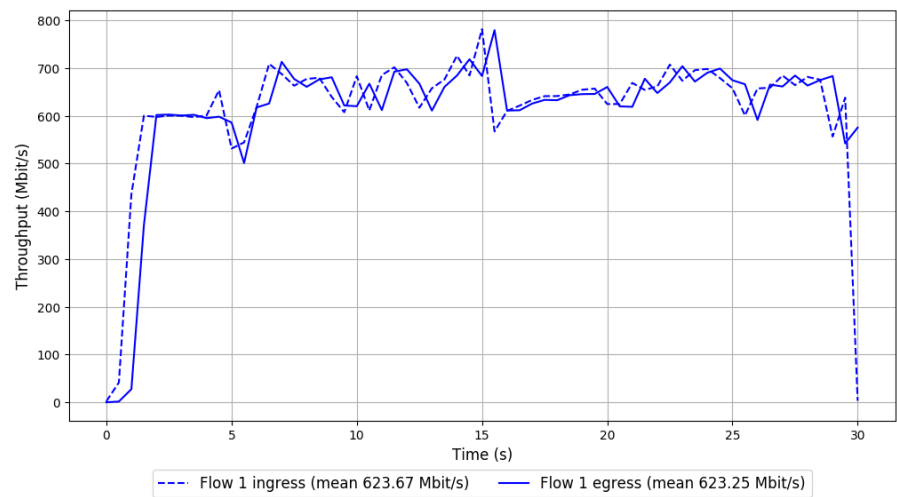


Run 2: Statistics of TCP Cubic

Start at: 2018-12-01 00:34:36
End at: 2018-12-01 00:35:06
Local clock offset: 0.16 ms
Remote clock offset: -0.106 ms

Below is generated by plot.py at 2018-12-01 02:51:57
Datalink statistics
-- Total of 1 flow:
Average throughput: 623.25 Mbit/s
95th percentile per-packet one-way delay: 100.850 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 623.25 Mbit/s
95th percentile per-packet one-way delay: 100.850 ms
Loss rate: 0.46%

Run 2: Report of TCP Cubic — Data Link

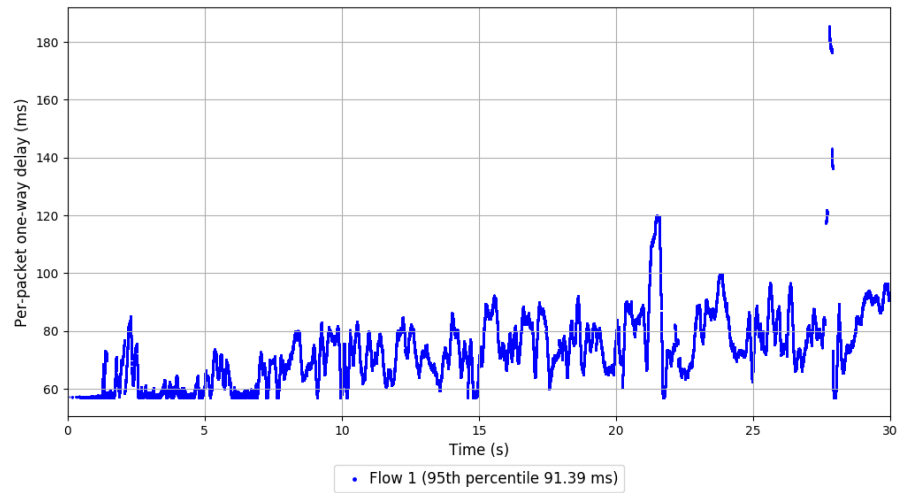
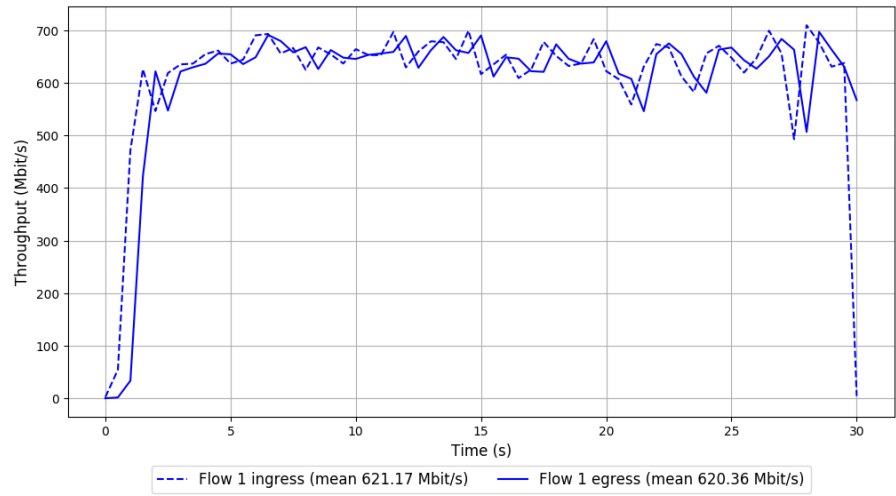


Run 3: Statistics of TCP Cubic

Start at: 2018-12-01 01:03:28
End at: 2018-12-01 01:03:58
Local clock offset: -0.211 ms
Remote clock offset: -0.034 ms

Below is generated by plot.py at 2018-12-01 02:52:01
Datalink statistics
-- Total of 1 flow:
Average throughput: 620.36 Mbit/s
95th percentile per-packet one-way delay: 91.388 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 620.36 Mbit/s
95th percentile per-packet one-way delay: 91.388 ms
Loss rate: 0.51%

Run 3: Report of TCP Cubic — Data Link

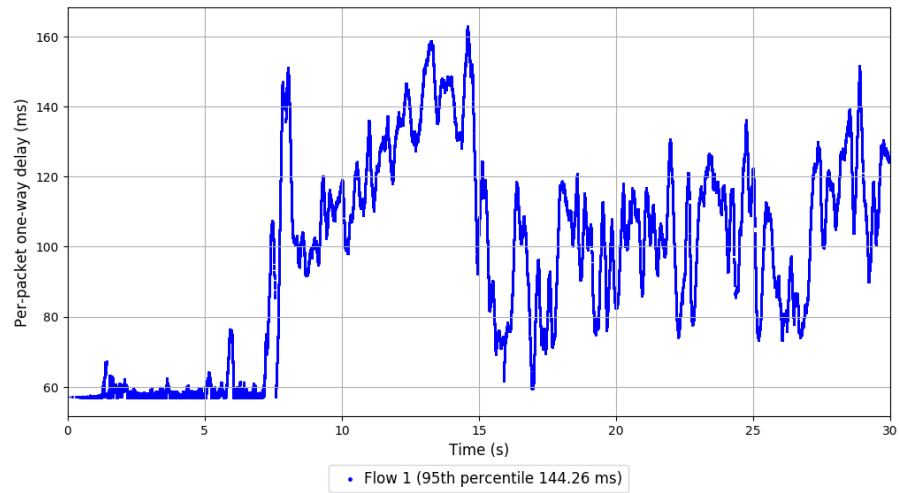
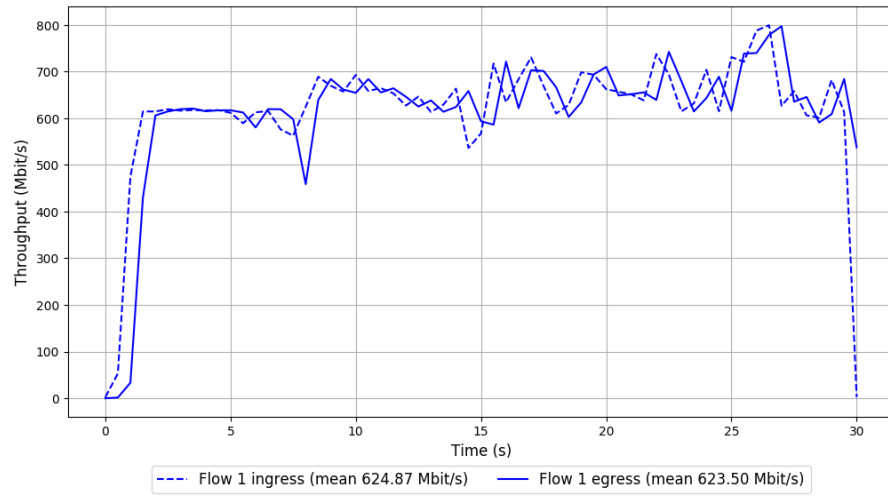


Run 4: Statistics of TCP Cubic

Start at: 2018-12-01 01:33:25
End at: 2018-12-01 01:33:55
Local clock offset: -0.095 ms
Remote clock offset: -0.066 ms

Below is generated by plot.py at 2018-12-01 02:52:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 623.50 Mbit/s
95th percentile per-packet one-way delay: 144.265 ms
Loss rate: 0.60%
-- Flow 1:
Average throughput: 623.50 Mbit/s
95th percentile per-packet one-way delay: 144.265 ms
Loss rate: 0.60%

Run 4: Report of TCP Cubic — Data Link

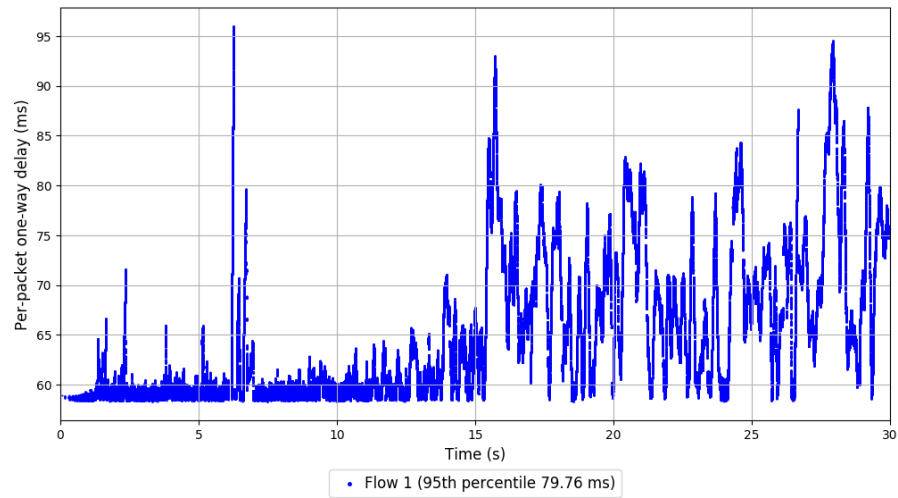
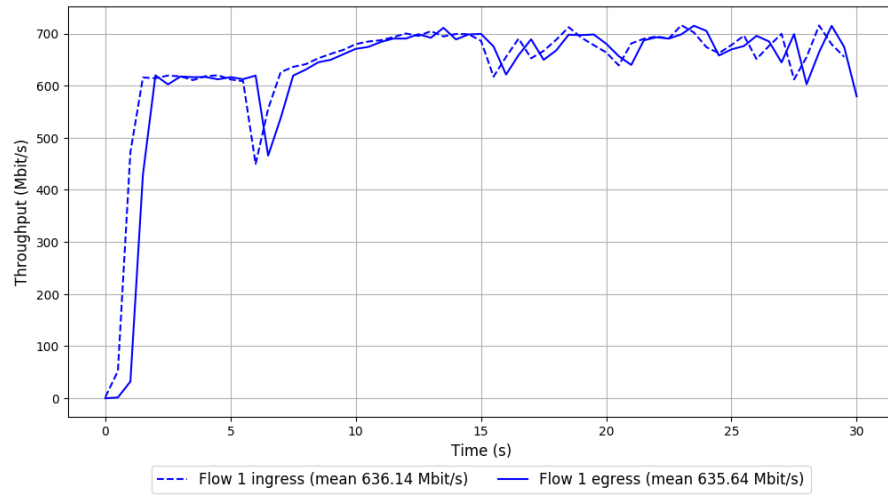


Run 5: Statistics of TCP Cubic

Start at: 2018-12-01 02:02:49
End at: 2018-12-01 02:03:19
Local clock offset: 0.004 ms
Remote clock offset: -1.537 ms

Below is generated by plot.py at 2018-12-01 02:52:16
Datalink statistics
-- Total of 1 flow:
Average throughput: 635.64 Mbit/s
95th percentile per-packet one-way delay: 79.756 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 635.64 Mbit/s
95th percentile per-packet one-way delay: 79.756 ms
Loss rate: 0.46%

Run 5: Report of TCP Cubic — Data Link



Run 1: Statistics of FillP

Start at: 2018-11-30 23:55:42

End at: 2018-11-30 23:56:12

Local clock offset: -0.121 ms

Remote clock offset: 0.095 ms

Below is generated by plot.py at 2018-12-01 03:00:17

Datalink statistics

-- Total of 1 flow:

Average throughput: 955.41 Mbit/s

95th percentile per-packet one-way delay: 88.795 ms

Loss rate: 0.69%

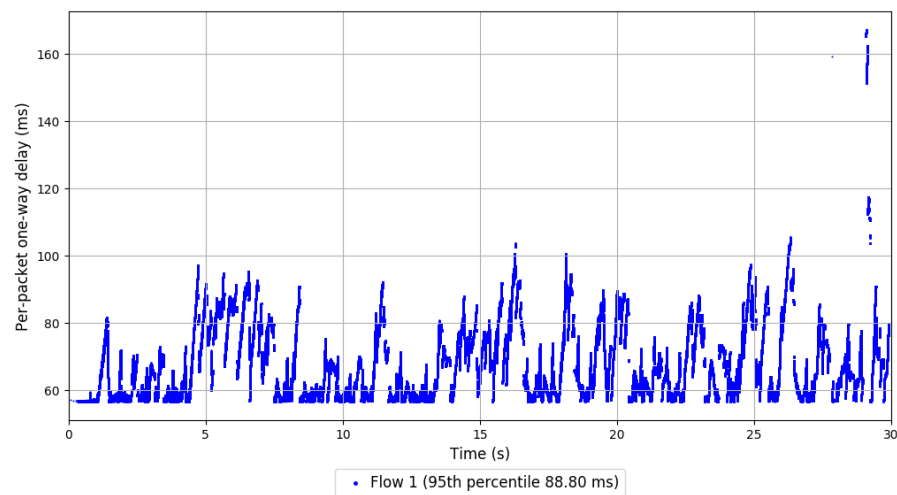
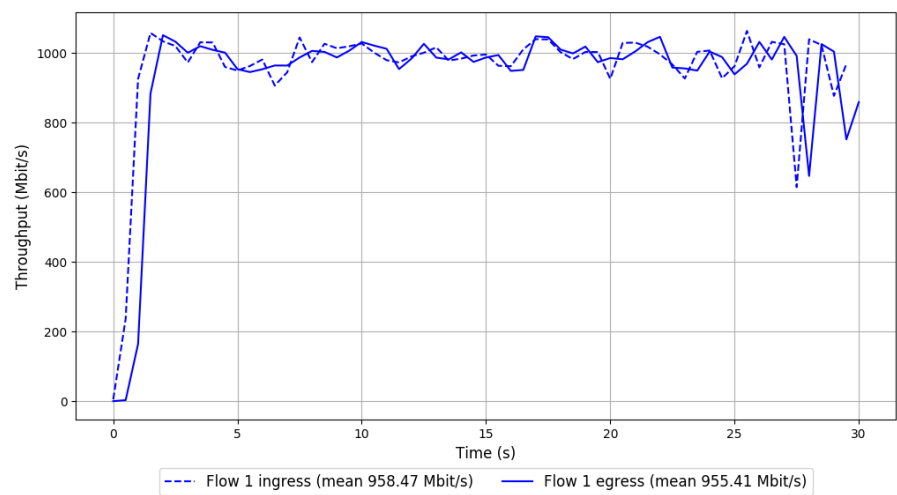
-- Flow 1:

Average throughput: 955.41 Mbit/s

95th percentile per-packet one-way delay: 88.795 ms

Loss rate: 0.69%

Run 1: Report of FillP — Data Link

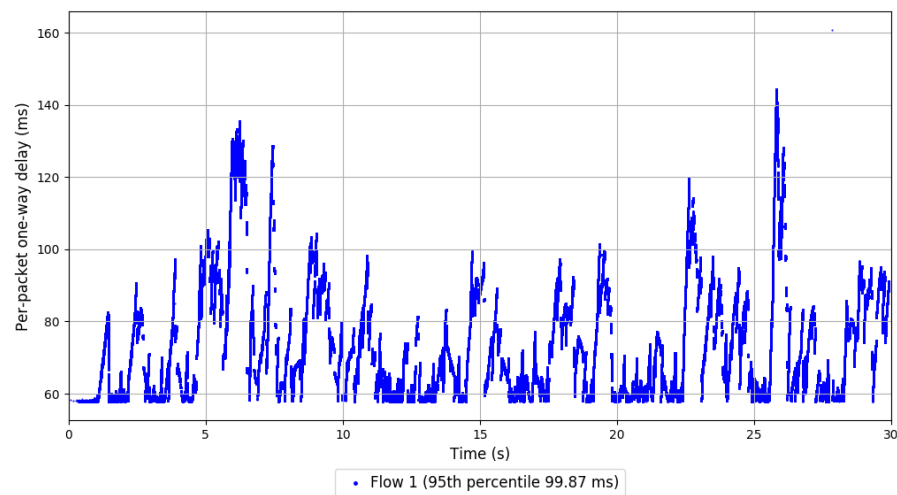
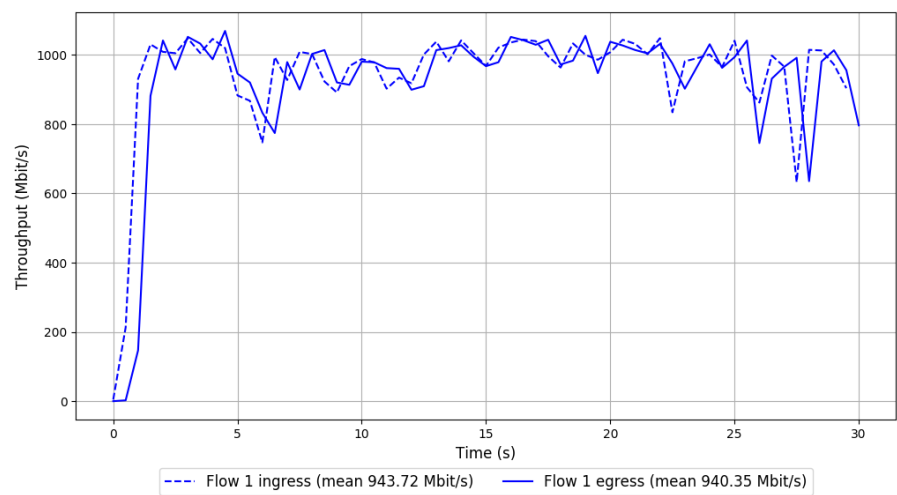


Run 2: Statistics of FillP

Start at: 2018-12-01 00:24:43
End at: 2018-12-01 00:25:13
Local clock offset: -0.092 ms
Remote clock offset: -0.696 ms

Below is generated by plot.py at 2018-12-01 03:11:27
Datalink statistics
-- Total of 1 flow:
Average throughput: 940.35 Mbit/s
95th percentile per-packet one-way delay: 99.867 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 940.35 Mbit/s
95th percentile per-packet one-way delay: 99.867 ms
Loss rate: 0.74%

Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2018-12-01 00:53:42

End at: 2018-12-01 00:54:12

Local clock offset: -0.109 ms

Remote clock offset: 0.645 ms

Below is generated by plot.py at 2018-12-01 03:11:51

Datalink statistics

-- Total of 1 flow:

Average throughput: 930.67 Mbit/s

95th percentile per-packet one-way delay: 101.912 ms

Loss rate: 0.82%

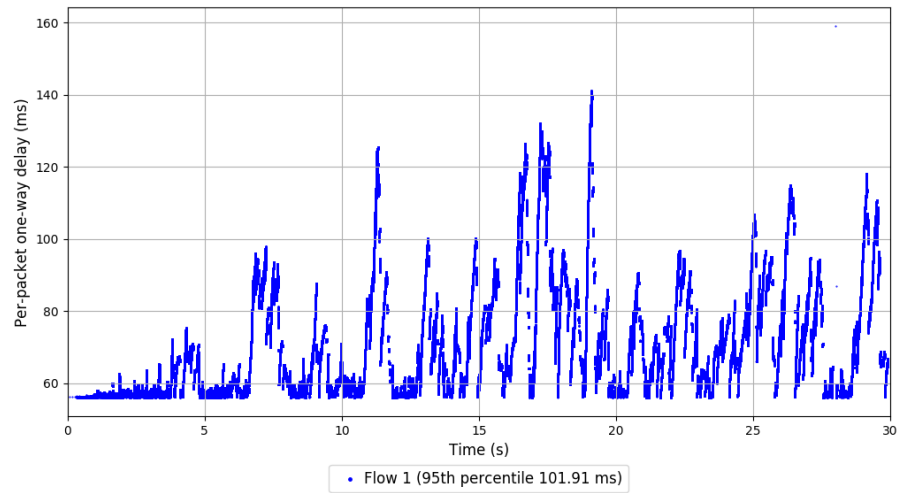
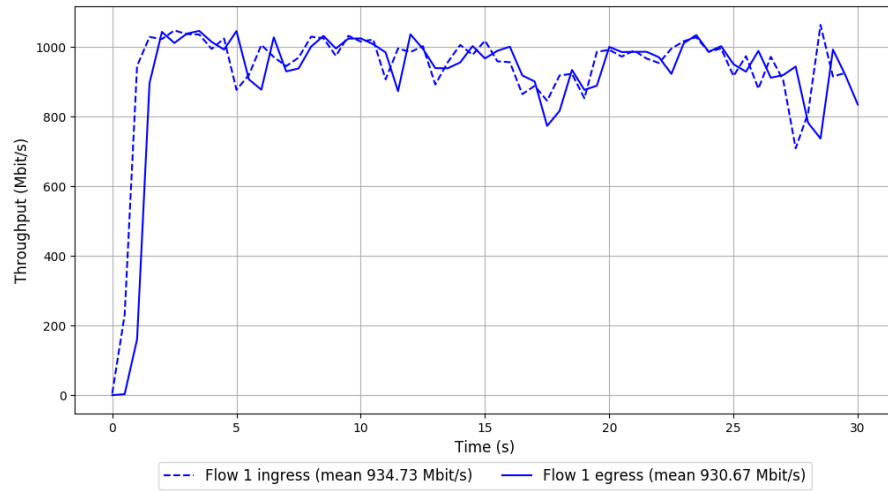
-- Flow 1:

Average throughput: 930.67 Mbit/s

95th percentile per-packet one-way delay: 101.912 ms

Loss rate: 0.82%

Run 3: Report of FillP — Data Link

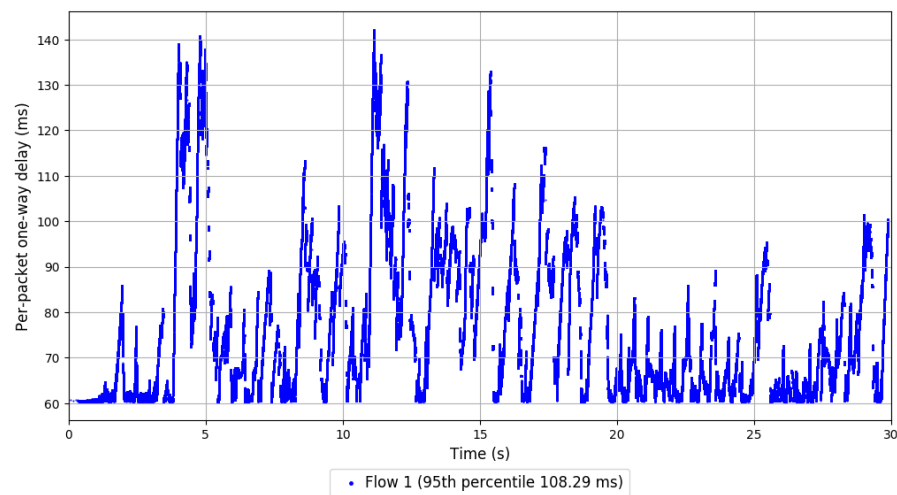
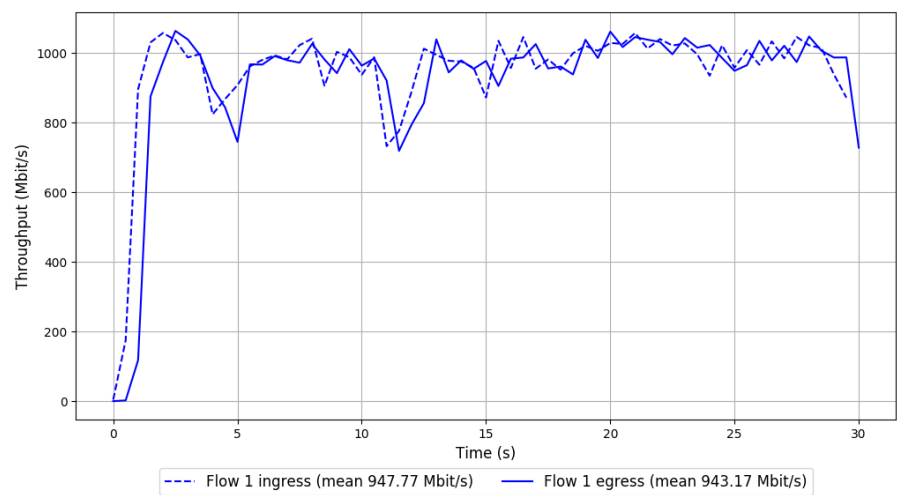


Run 4: Statistics of FillP

Start at: 2018-12-01 01:23:18
End at: 2018-12-01 01:23:49
Local clock offset: 0.014 ms
Remote clock offset: -0.015 ms

Below is generated by plot.py at 2018-12-01 03:13:43
Datalink statistics
-- Total of 1 flow:
Average throughput: 943.17 Mbit/s
95th percentile per-packet one-way delay: 108.292 ms
Loss rate: 0.88%
-- Flow 1:
Average throughput: 943.17 Mbit/s
95th percentile per-packet one-way delay: 108.292 ms
Loss rate: 0.88%

Run 4: Report of FillP — Data Link



Run 5: Statistics of FillP

Start at: 2018-12-01 01:52:53

End at: 2018-12-01 01:53:24

Local clock offset: -0.025 ms

Remote clock offset: 1.176 ms

Below is generated by plot.py at 2018-12-01 03:13:55

Datalink statistics

-- Total of 1 flow:

Average throughput: 905.08 Mbit/s

95th percentile per-packet one-way delay: 111.605 ms

Loss rate: 1.19%

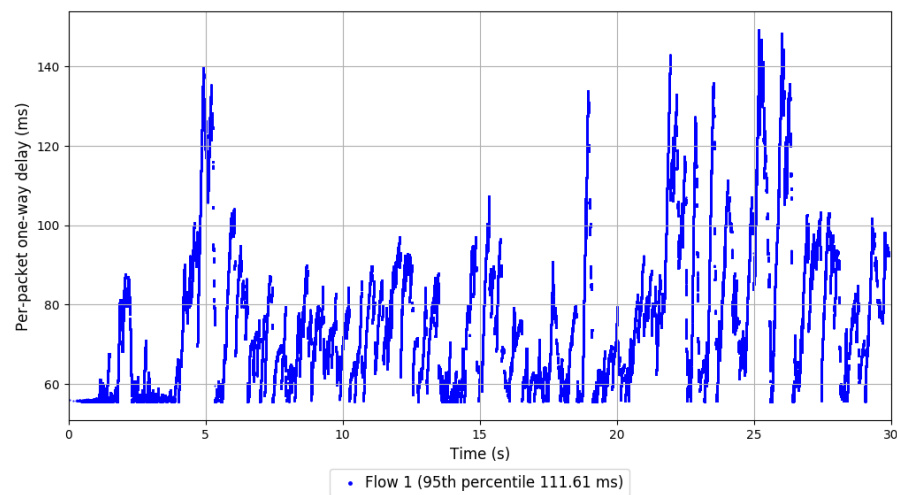
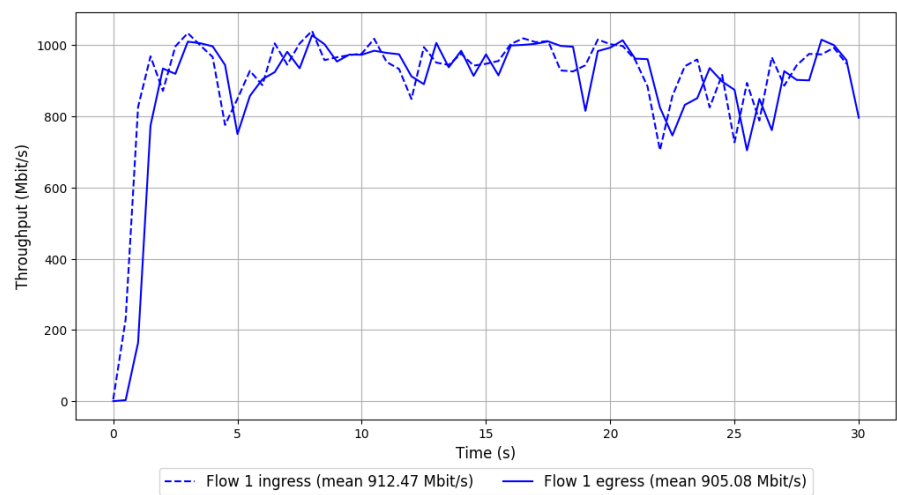
-- Flow 1:

Average throughput: 905.08 Mbit/s

95th percentile per-packet one-way delay: 111.605 ms

Loss rate: 1.19%

Run 5: Report of FillP — Data Link

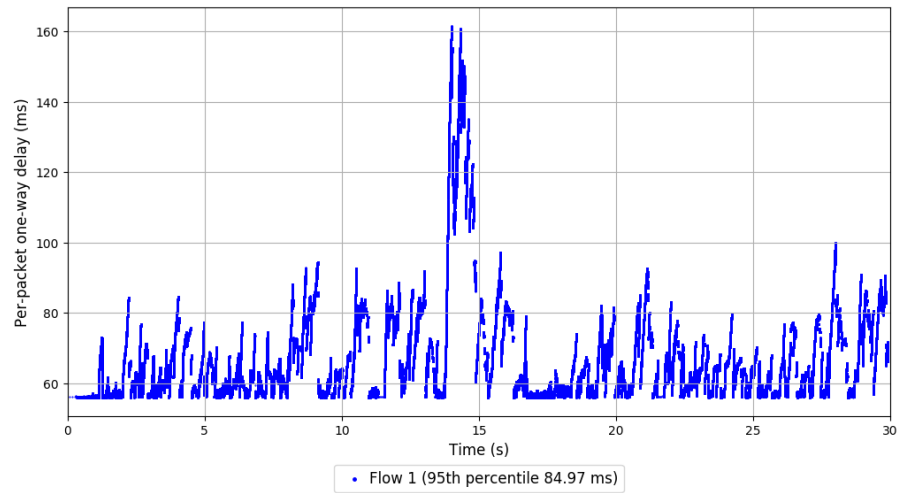
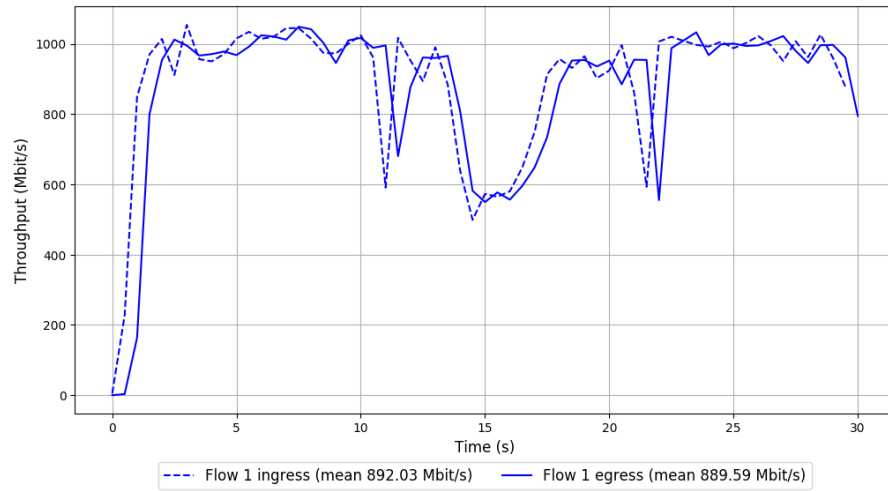



```
Run 1: Statistics of FillP-Sheep

Start at: 2018-12-01 00:01:47
End at: 2018-12-01 00:02:17
Local clock offset: -0.152 ms
Remote clock offset: 0.713 ms

# Below is generated by plot.py at 2018-12-01 03:13:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 889.59 Mbit/s
95th percentile per-packet one-way delay: 84.968 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 889.59 Mbit/s
95th percentile per-packet one-way delay: 84.968 ms
Loss rate: 0.65%
```

Run 1: Report of FillP-Sheep — Data Link



Run 2: Statistics of FillP-Sheep

Start at: 2018-12-01 00:31:01

End at: 2018-12-01 00:31:31

Local clock offset: -0.025 ms

Remote clock offset: -1.3 ms

Below is generated by plot.py at 2018-12-01 03:14:11

Datalink statistics

-- Total of 1 flow:

Average throughput: 925.32 Mbit/s

95th percentile per-packet one-way delay: 98.622 ms

Loss rate: 0.72%

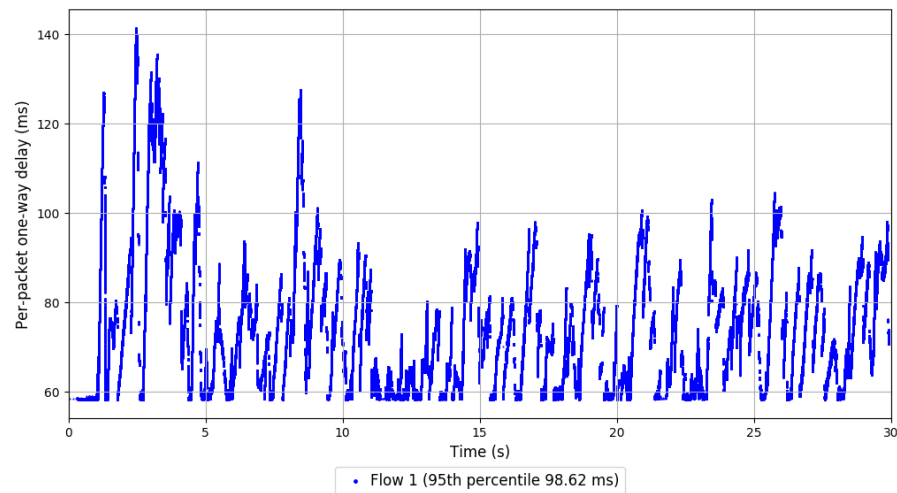
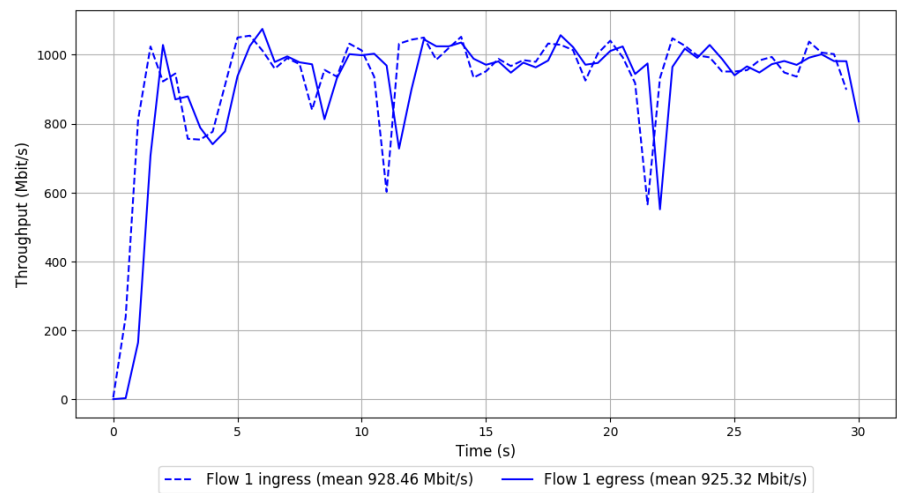
-- Flow 1:

Average throughput: 925.32 Mbit/s

95th percentile per-packet one-way delay: 98.622 ms

Loss rate: 0.72%

Run 2: Report of FillP-Sheep — Data Link

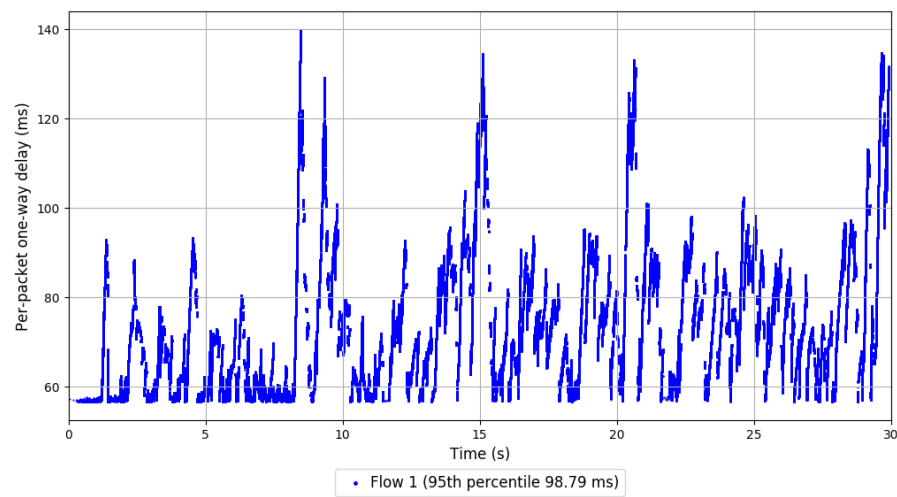
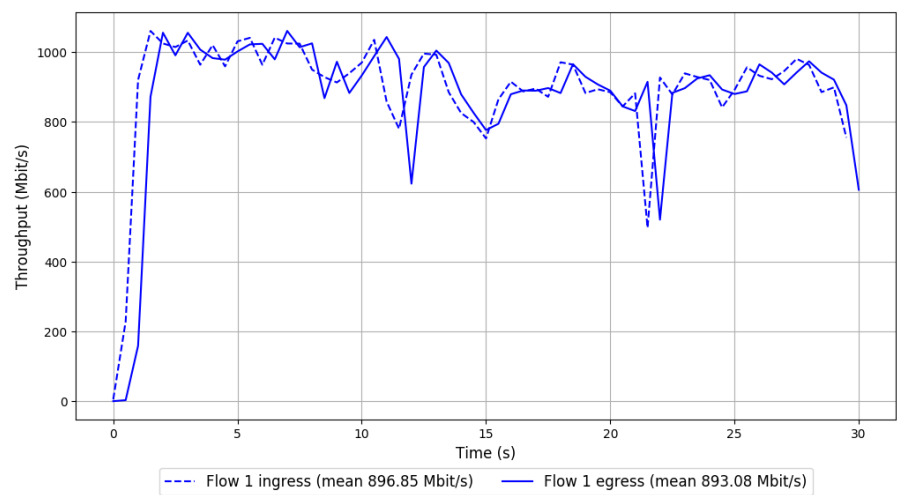


Run 3: Statistics of FillP-Sheep

Start at: 2018-12-01 01:00:10
End at: 2018-12-01 01:00:40
Local clock offset: -0.479 ms
Remote clock offset: -0.08 ms

Below is generated by plot.py at 2018-12-01 03:14:11
Datalink statistics
-- Total of 1 flow:
Average throughput: 893.08 Mbit/s
95th percentile per-packet one-way delay: 98.794 ms
Loss rate: 0.79%
-- Flow 1:
Average throughput: 893.08 Mbit/s
95th percentile per-packet one-way delay: 98.794 ms
Loss rate: 0.79%

Run 3: Report of FillP-Sheep — Data Link

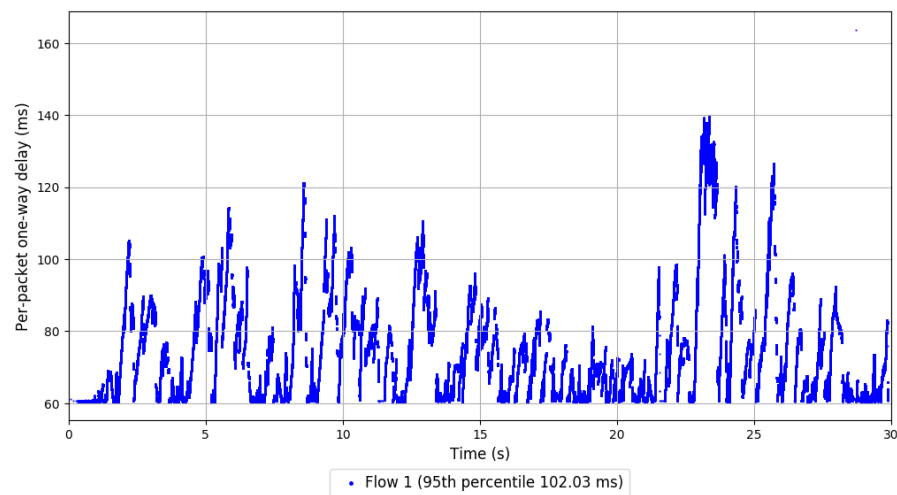
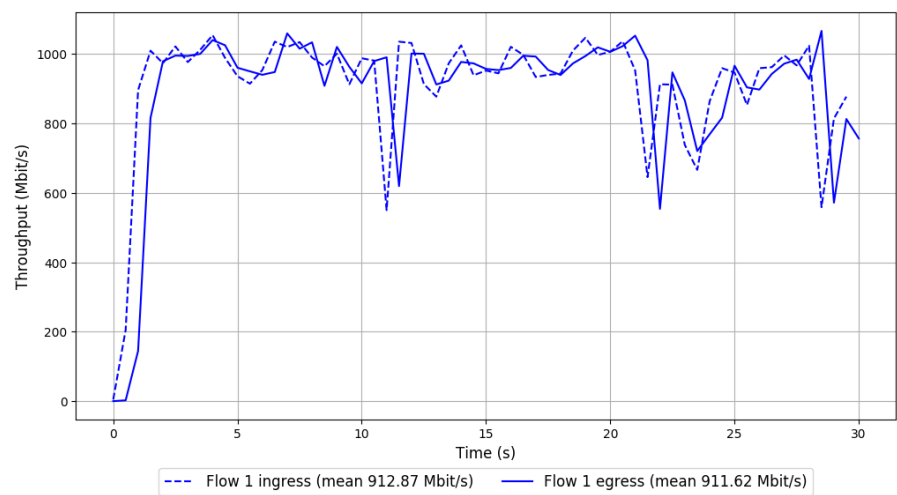


Run 4: Statistics of FillP-Sheep

Start at: 2018-12-01 01:29:48
End at: 2018-12-01 01:30:18
Local clock offset: 0.126 ms
Remote clock offset: -0.095 ms

Below is generated by plot.py at 2018-12-01 03:24:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 911.62 Mbit/s
95th percentile per-packet one-way delay: 102.027 ms
Loss rate: 0.53%
-- Flow 1:
Average throughput: 911.62 Mbit/s
95th percentile per-packet one-way delay: 102.027 ms
Loss rate: 0.53%

Run 4: Report of FillP-Sheep — Data Link



Run 5: Statistics of FillP-Sheep

Start at: 2018-12-01 01:59:15

End at: 2018-12-01 01:59:45

Local clock offset: 0.394 ms

Remote clock offset: -0.53 ms

Below is generated by plot.py at 2018-12-01 03:31:50

Datalink statistics

-- Total of 1 flow:

Average throughput: 932.15 Mbit/s

95th percentile per-packet one-way delay: 96.828 ms

Loss rate: 0.56%

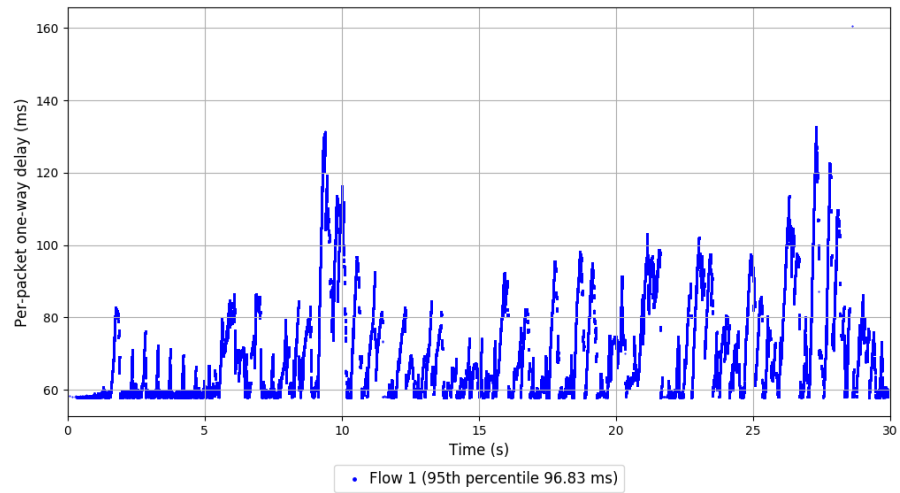
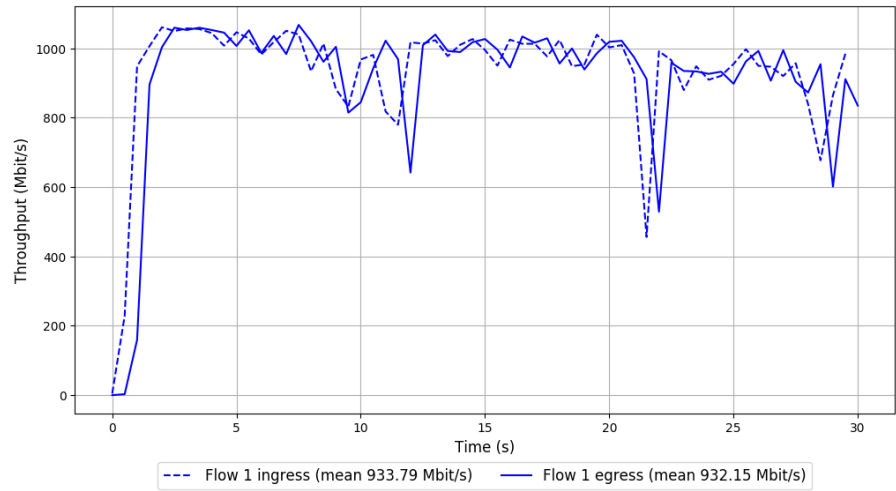
-- Flow 1:

Average throughput: 932.15 Mbit/s

95th percentile per-packet one-way delay: 96.828 ms

Loss rate: 0.56%

Run 5: Report of FillP-Sheep — Data Link

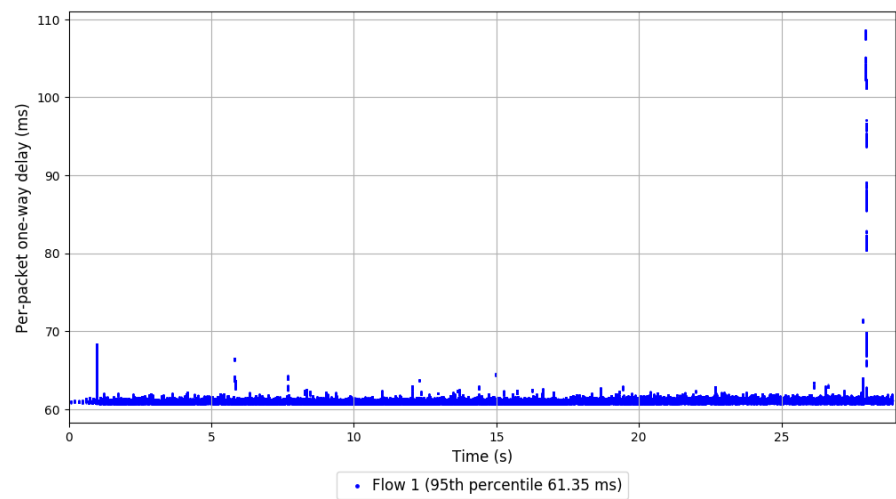
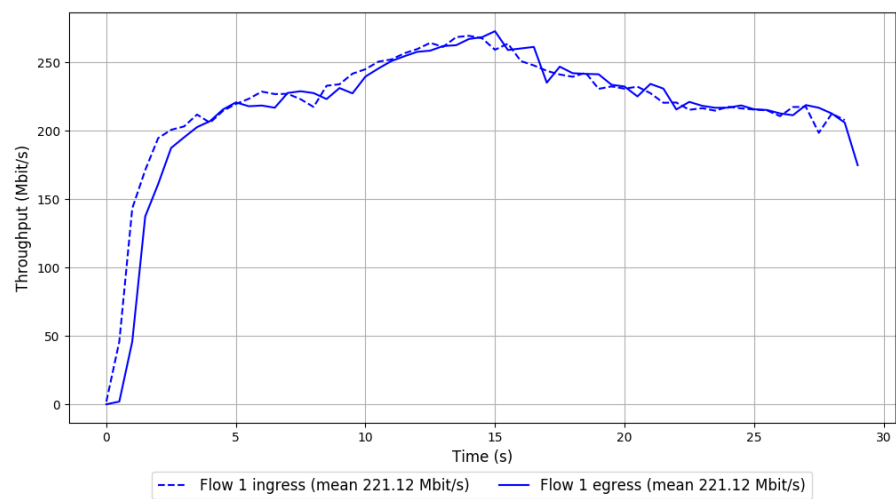


```
Run 1: Statistics of Indigo

Start at: 2018-12-01 00:12:04
End at: 2018-12-01 00:12:34
Local clock offset: 0.285 ms
Remote clock offset: -0.076 ms

# Below is generated by plot.py at 2018-12-01 03:31:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 221.12 Mbit/s
95th percentile per-packet one-way delay: 61.354 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 221.12 Mbit/s
95th percentile per-packet one-way delay: 61.354 ms
Loss rate: 0.41%
```

Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2018-12-01 00:41:19

End at: 2018-12-01 00:41:49

Local clock offset: 0.279 ms

Remote clock offset: 0.57 ms

Below is generated by plot.py at 2018-12-01 03:31:50

Datalink statistics

-- Total of 1 flow:

Average throughput: 218.35 Mbit/s

95th percentile per-packet one-way delay: 57.425 ms

Loss rate: 0.38%

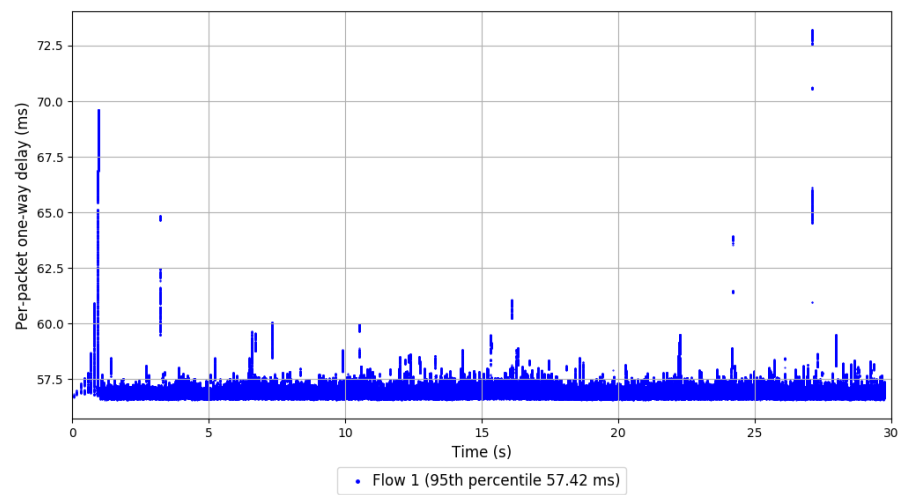
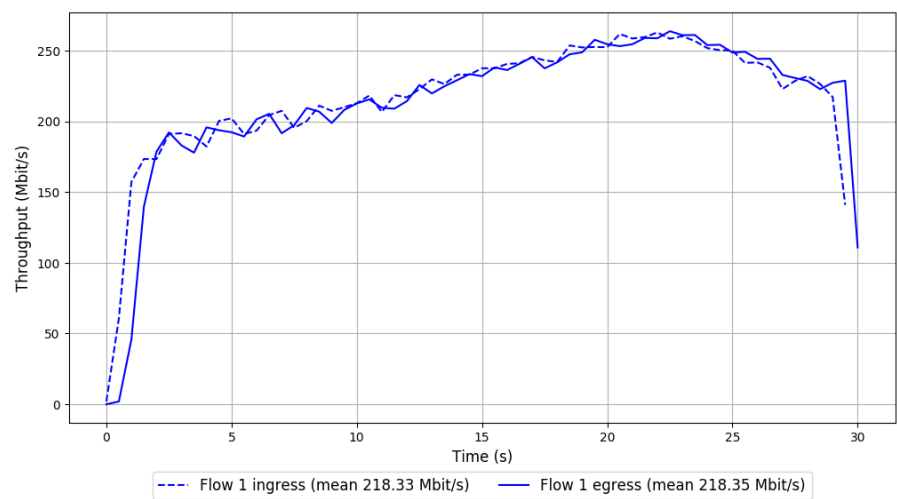
-- Flow 1:

Average throughput: 218.35 Mbit/s

95th percentile per-packet one-way delay: 57.425 ms

Loss rate: 0.38%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-12-01 01:10:11

End at: 2018-12-01 01:10:41

Local clock offset: -0.125 ms

Remote clock offset: 0.006 ms

Below is generated by plot.py at 2018-12-01 03:31:50

Datalink statistics

-- Total of 1 flow:

Average throughput: 230.64 Mbit/s

95th percentile per-packet one-way delay: 61.039 ms

Loss rate: 0.33%

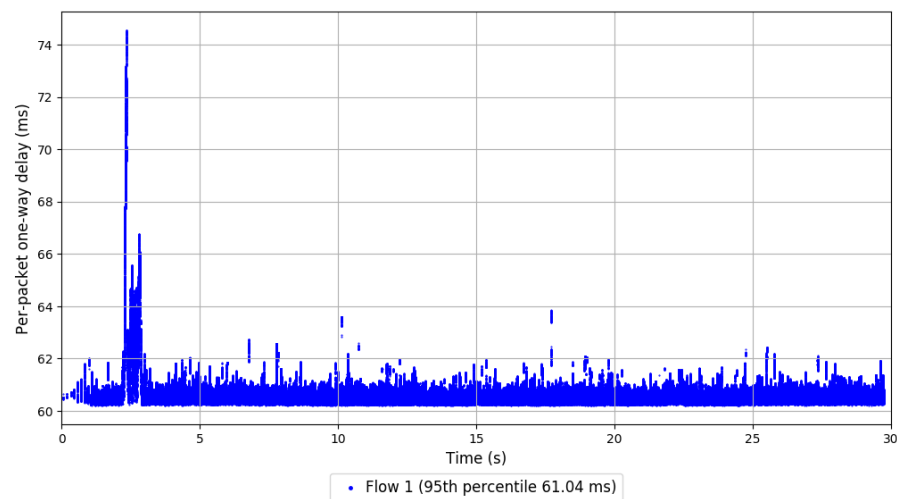
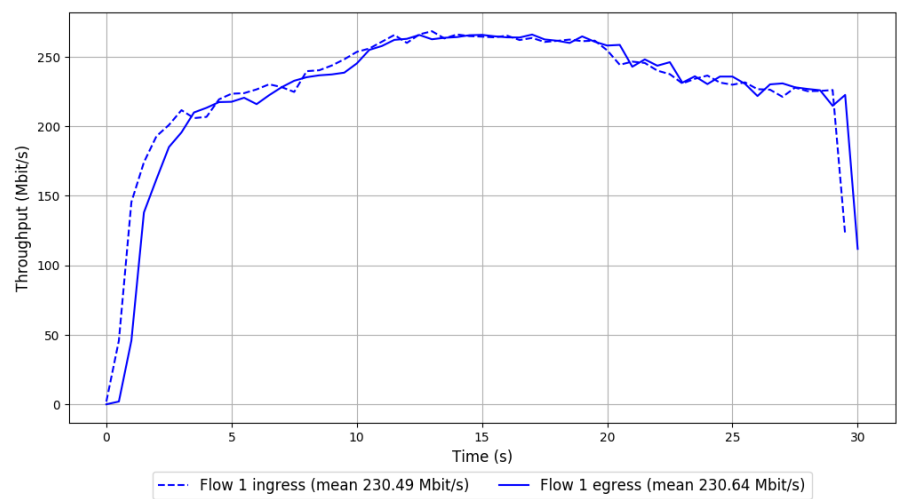
-- Flow 1:

Average throughput: 230.64 Mbit/s

95th percentile per-packet one-way delay: 61.039 ms

Loss rate: 0.33%

Run 3: Report of Indigo — Data Link



Run 4: Statistics of Indigo

Start at: 2018-12-01 01:40:07

End at: 2018-12-01 01:40:37

Local clock offset: 0.209 ms

Remote clock offset: 0.563 ms

Below is generated by plot.py at 2018-12-01 03:31:50

Datalink statistics

-- Total of 1 flow:

Average throughput: 216.78 Mbit/s

95th percentile per-packet one-way delay: 57.708 ms

Loss rate: 0.39%

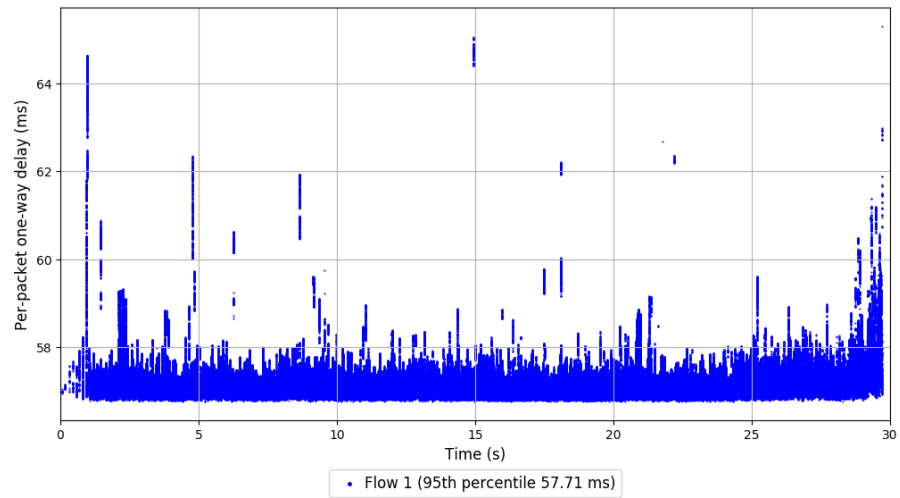
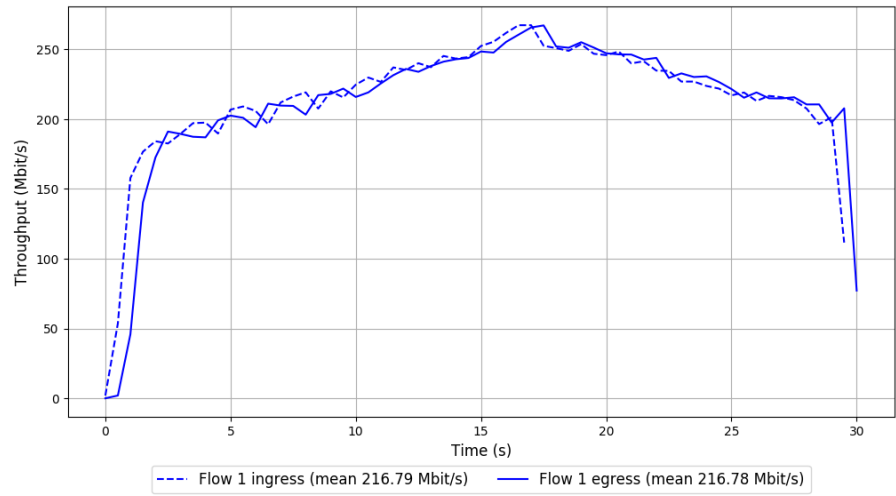
-- Flow 1:

Average throughput: 216.78 Mbit/s

95th percentile per-packet one-way delay: 57.708 ms

Loss rate: 0.39%

Run 4: Report of Indigo — Data Link



Run 5: Statistics of Indigo

Start at: 2018-12-01 02:10:02

End at: 2018-12-01 02:10:32

Local clock offset: -0.415 ms

Remote clock offset: 1.041 ms

Below is generated by plot.py at 2018-12-01 03:31:50

Datalink statistics

-- Total of 1 flow:

Average throughput: 217.52 Mbit/s

95th percentile per-packet one-way delay: 56.103 ms

Loss rate: 0.38%

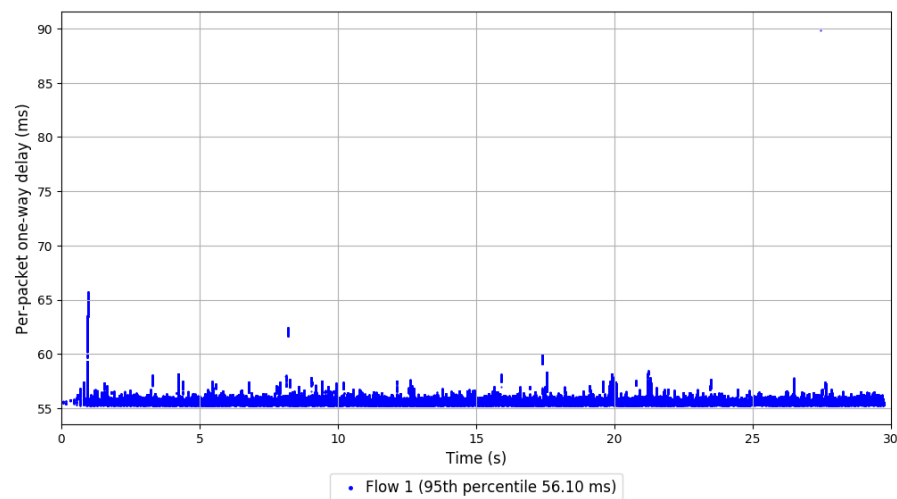
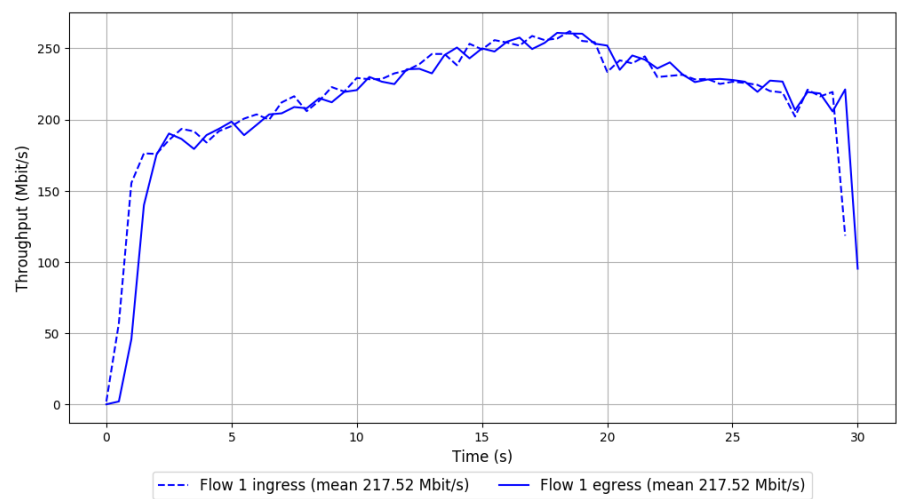
-- Flow 1:

Average throughput: 217.52 Mbit/s

95th percentile per-packet one-way delay: 56.103 ms

Loss rate: 0.38%

Run 5: Report of Indigo — Data Link

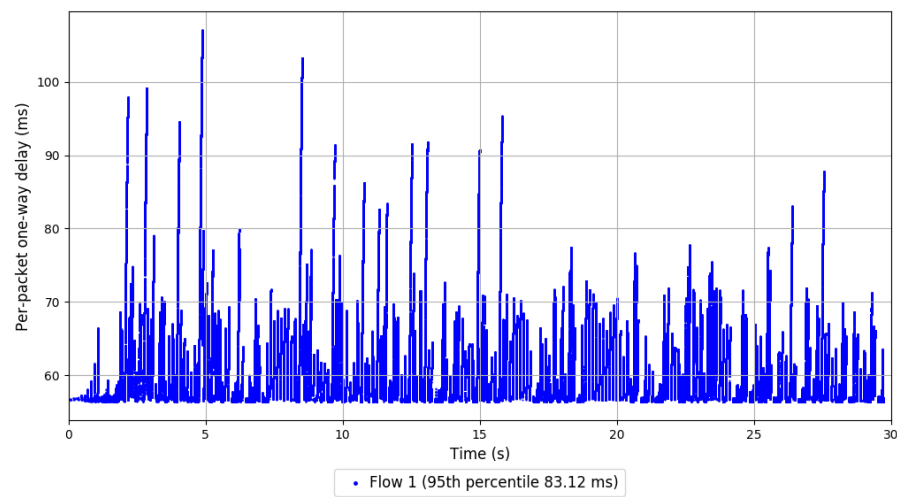
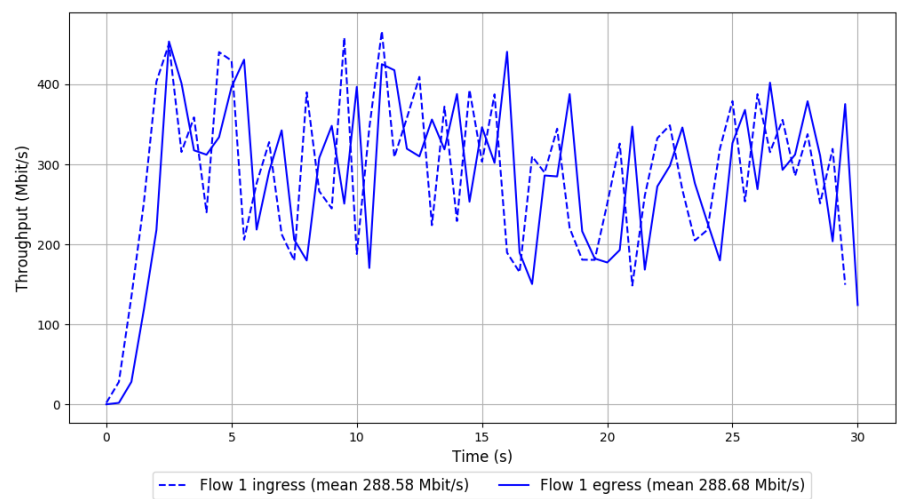


Run 1: Statistics of Indigo-96d2da3

Start at: 2018-12-01 00:19:44
End at: 2018-12-01 00:20:14
Local clock offset: -0.529 ms
Remote clock offset: -0.048 ms

Below is generated by plot.py at 2018-12-01 03:31:50
Datalink statistics
-- Total of 1 flow:
Average throughput: 288.68 Mbit/s
95th percentile per-packet one-way delay: 83.125 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 288.68 Mbit/s
95th percentile per-packet one-way delay: 83.125 ms
Loss rate: 0.27%

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



Run 2: Statistics of Indigo-96d2da3

Start at: 2018-12-01 00:48:45

End at: 2018-12-01 00:49:15

Local clock offset: -0.028 ms

Remote clock offset: 0.634 ms

Below is generated by plot.py at 2018-12-01 03:31:50

Datalink statistics

-- Total of 1 flow:

Average throughput: 292.28 Mbit/s

95th percentile per-packet one-way delay: 81.302 ms

Loss rate: 0.38%

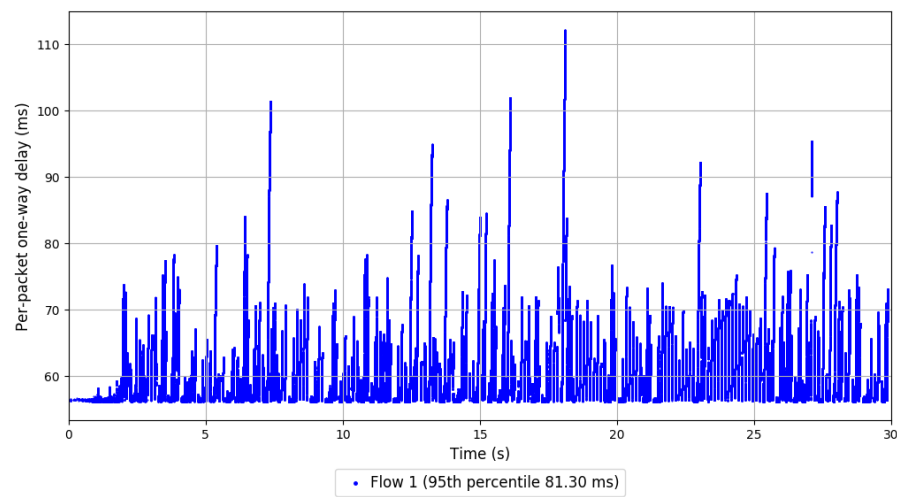
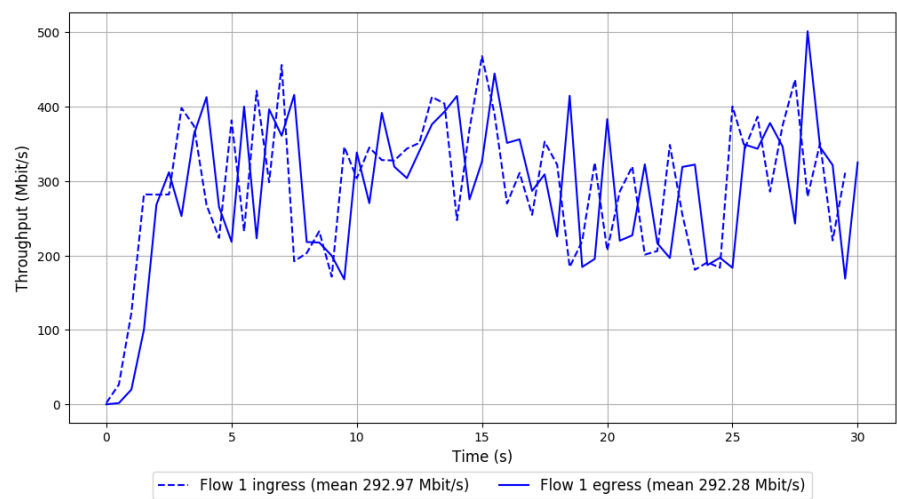
-- Flow 1:

Average throughput: 292.28 Mbit/s

95th percentile per-packet one-way delay: 81.302 ms

Loss rate: 0.38%

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



Run 3: Statistics of Indigo-96d2da3

Start at: 2018-12-01 01:18:10

End at: 2018-12-01 01:18:40

Local clock offset: -0.365 ms

Remote clock offset: 0.073 ms

Below is generated by plot.py at 2018-12-01 03:31:50

Datalink statistics

-- Total of 1 flow:

Average throughput: 327.74 Mbit/s

95th percentile per-packet one-way delay: 85.733 ms

Loss rate: 0.56%

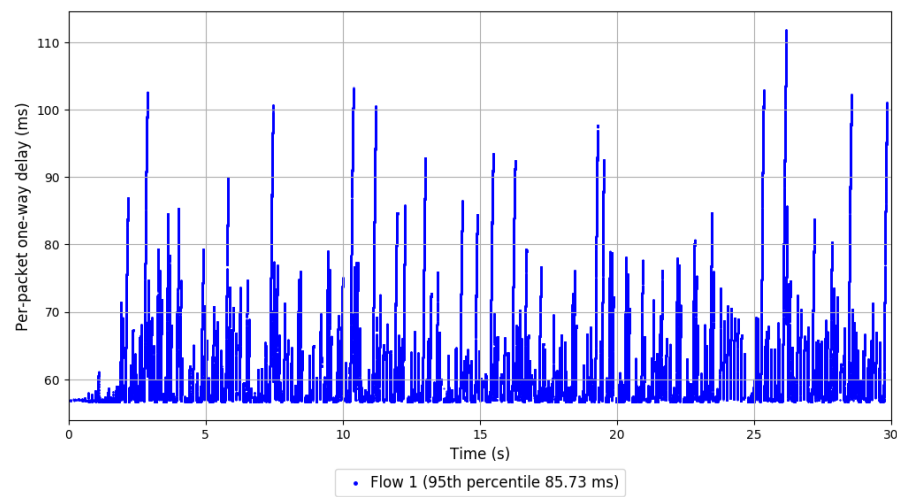
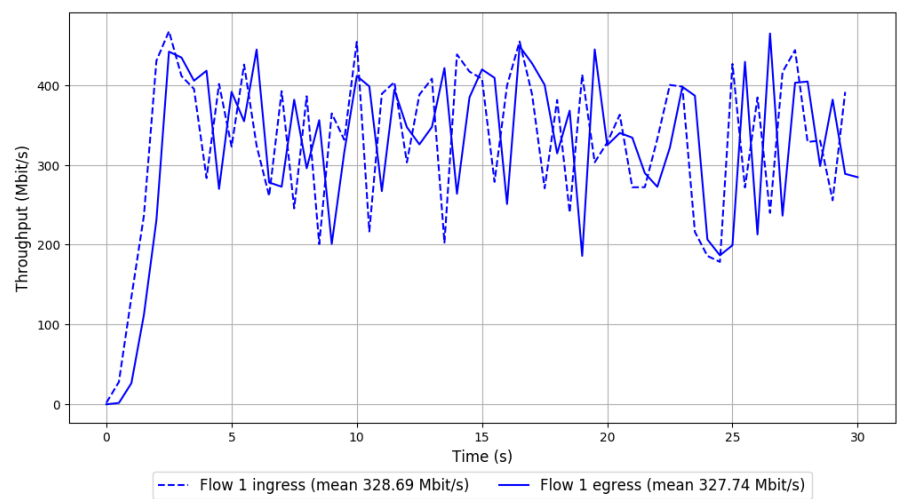
-- Flow 1:

Average throughput: 327.74 Mbit/s

95th percentile per-packet one-way delay: 85.733 ms

Loss rate: 0.56%

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

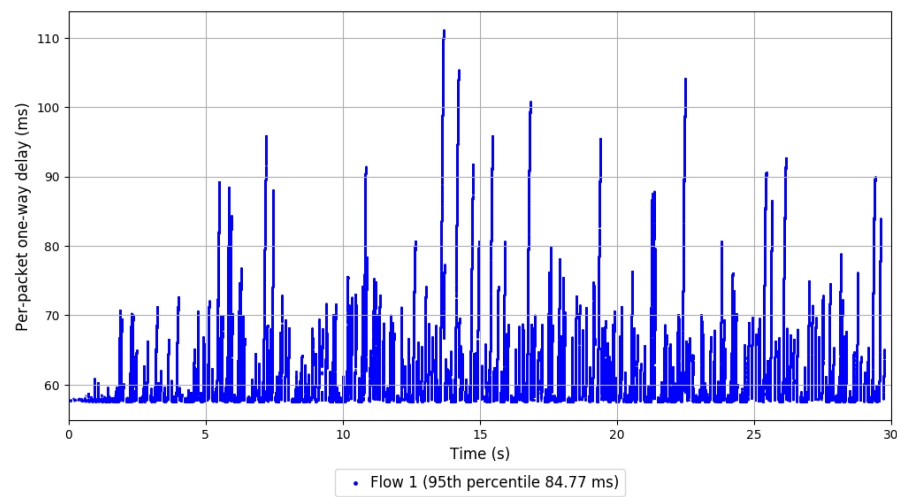
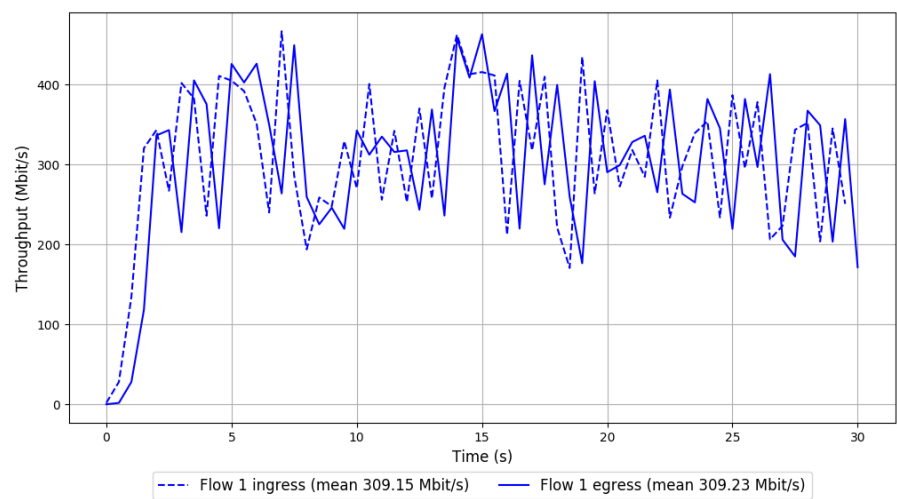


Run 4: Statistics of Indigo-96d2da3

Start at: 2018-12-01 01:47:50
End at: 2018-12-01 01:48:20
Local clock offset: -0.047 ms
Remote clock offset: -0.946 ms

Below is generated by plot.py at 2018-12-01 03:31:50
Datalink statistics
-- Total of 1 flow:
Average throughput: 309.23 Mbit/s
95th percentile per-packet one-way delay: 84.769 ms
Loss rate: 0.53%
-- Flow 1:
Average throughput: 309.23 Mbit/s
95th percentile per-packet one-way delay: 84.769 ms
Loss rate: 0.53%

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



Run 5: Statistics of Indigo-96d2da3

Start at: 2018-12-01 02:17:42

End at: 2018-12-01 02:18:12

Local clock offset: 0.446 ms

Remote clock offset: -0.232 ms

Below is generated by plot.py at 2018-12-01 03:31:50

Datalink statistics

-- Total of 1 flow:

Average throughput: 283.93 Mbit/s

95th percentile per-packet one-way delay: 87.853 ms

Loss rate: 0.99%

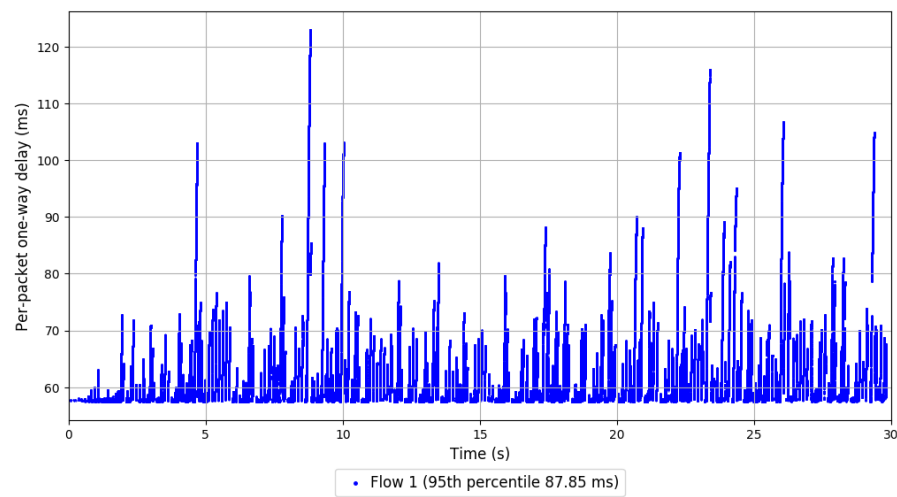
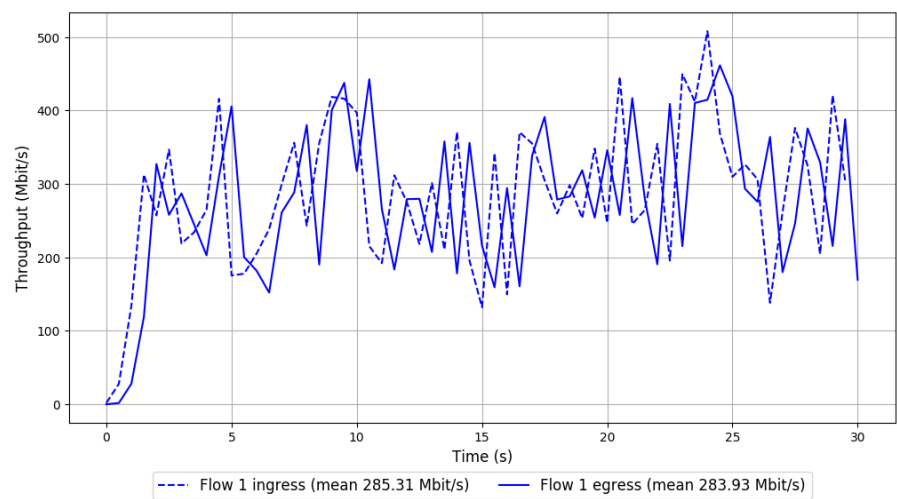
-- Flow 1:

Average throughput: 283.93 Mbit/s

95th percentile per-packet one-way delay: 87.853 ms

Loss rate: 0.99%

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

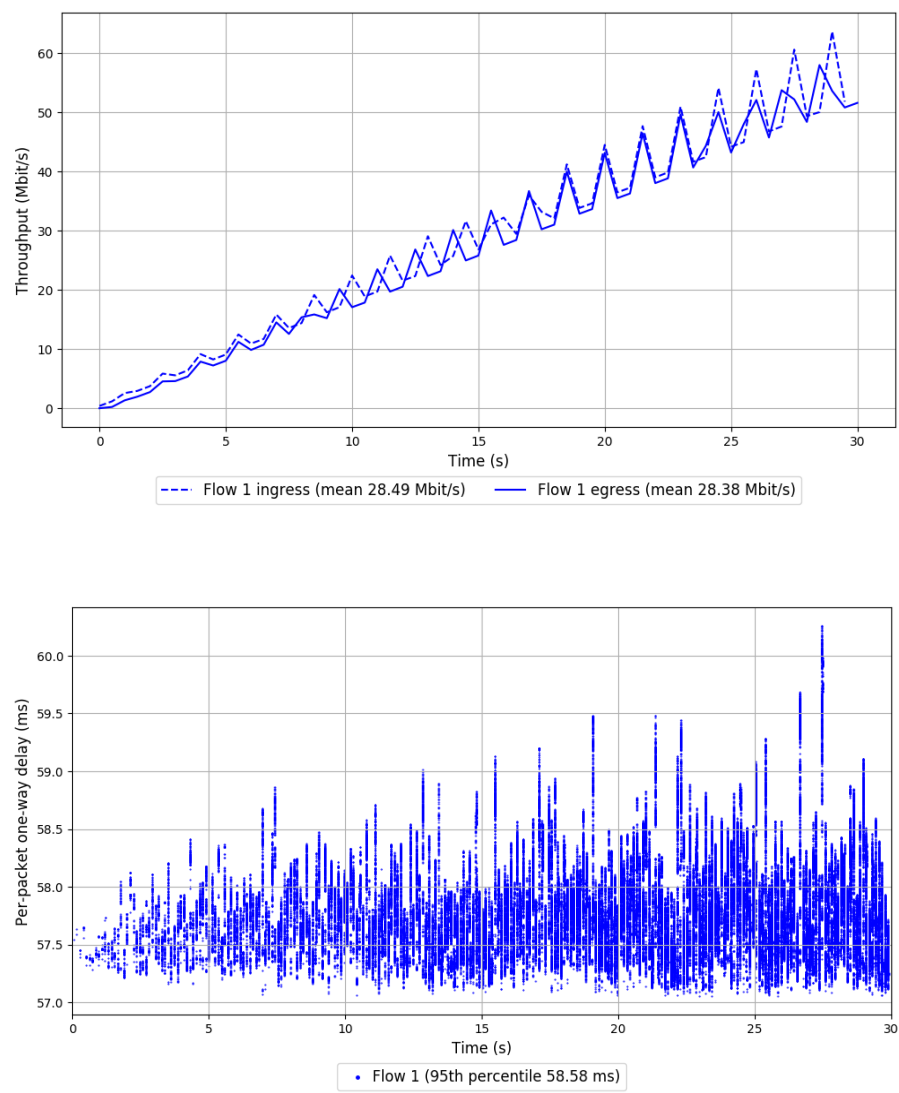


```
Run 1: Statistics of LEDBAT

Start at: 2018-12-01 00:00:36
End at: 2018-12-01 00:01:06
Local clock offset: 0.27 ms
Remote clock offset: 0.163 ms

# Below is generated by plot.py at 2018-12-01 03:31:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 28.38 Mbit/s
95th percentile per-packet one-way delay: 58.578 ms
Loss rate: 0.76%
-- Flow 1:
Average throughput: 28.38 Mbit/s
95th percentile per-packet one-way delay: 58.578 ms
Loss rate: 0.76%
```

Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2018-12-01 00:29:49

End at: 2018-12-01 00:30:19

Local clock offset: -0.135 ms

Remote clock offset: 0.039 ms

Below is generated by plot.py at 2018-12-01 03:31:50

Datalink statistics

-- Total of 1 flow:

Average throughput: 28.10 Mbit/s

95th percentile per-packet one-way delay: 58.399 ms

Loss rate: 0.76%

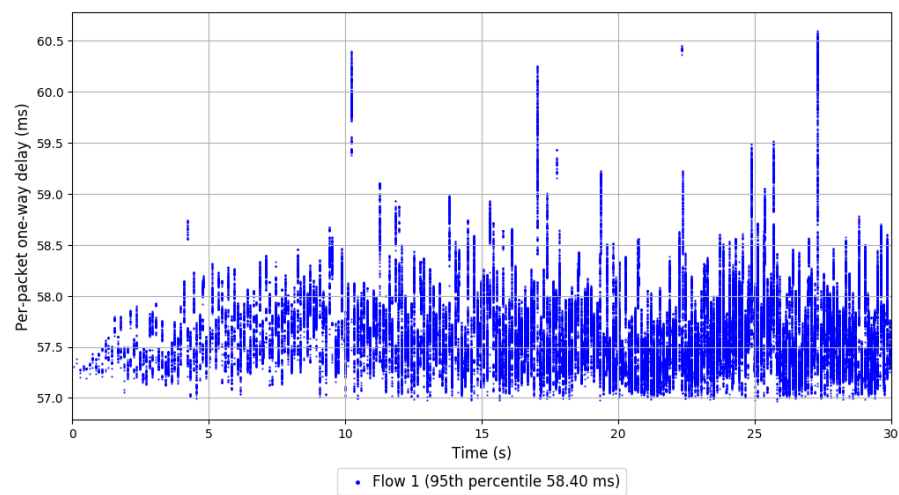
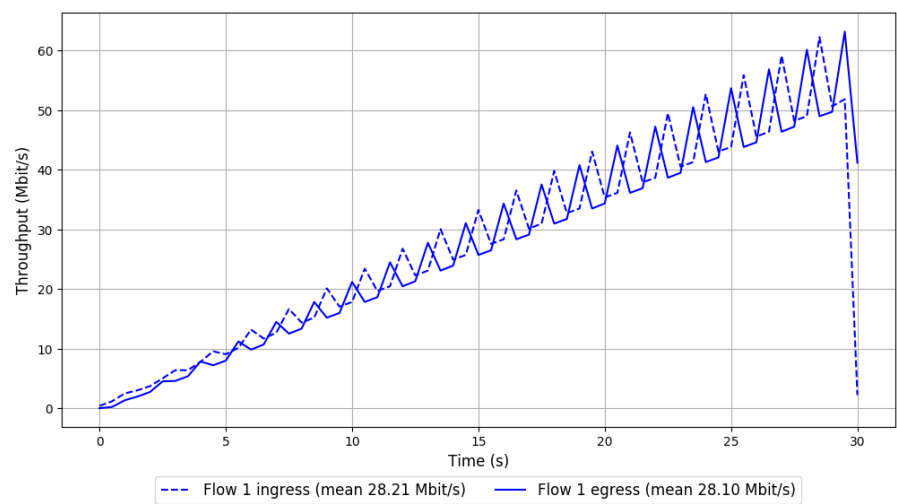
-- Flow 1:

Average throughput: 28.10 Mbit/s

95th percentile per-packet one-way delay: 58.399 ms

Loss rate: 0.76%

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2018-12-01 00:58:59

End at: 2018-12-01 00:59:29

Local clock offset: 0.133 ms

Remote clock offset: 0.55 ms

Below is generated by plot.py at 2018-12-01 03:31:50

Datalink statistics

-- Total of 1 flow:

Average throughput: 26.62 Mbit/s

95th percentile per-packet one-way delay: 61.245 ms

Loss rate: 0.79%

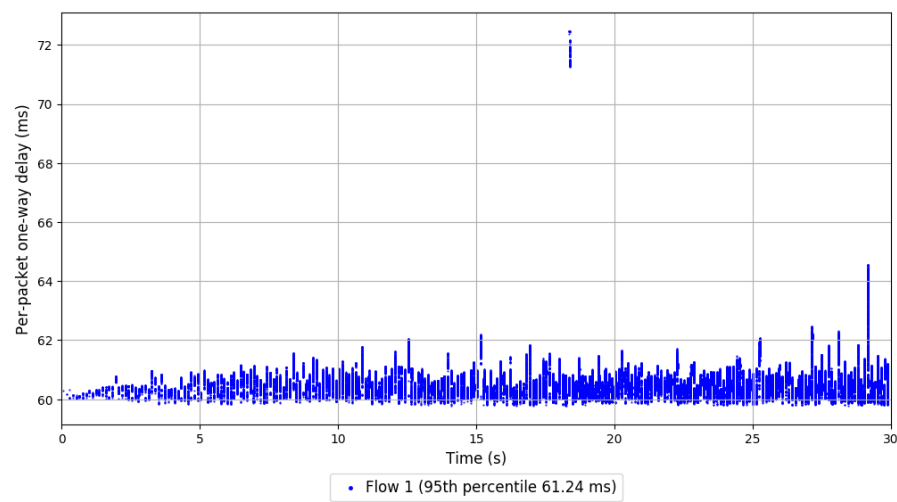
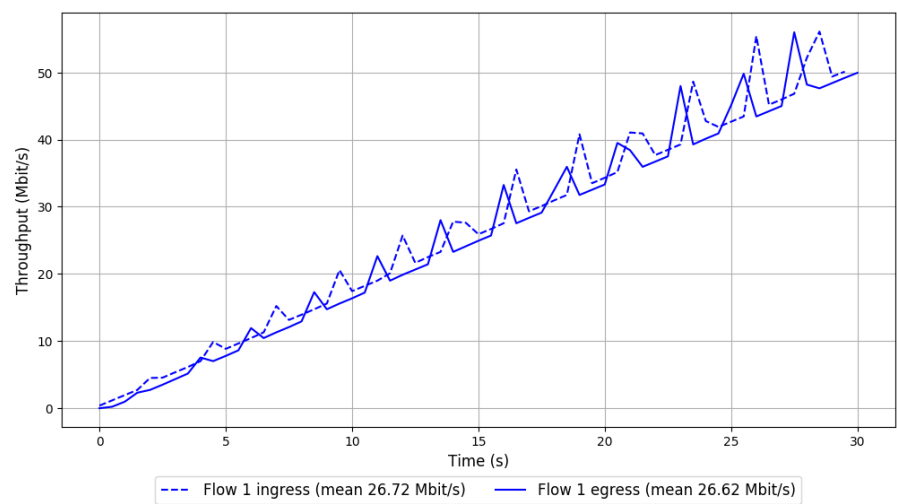
-- Flow 1:

Average throughput: 26.62 Mbit/s

95th percentile per-packet one-way delay: 61.245 ms

Loss rate: 0.79%

Run 3: Report of LEDBAT — Data Link

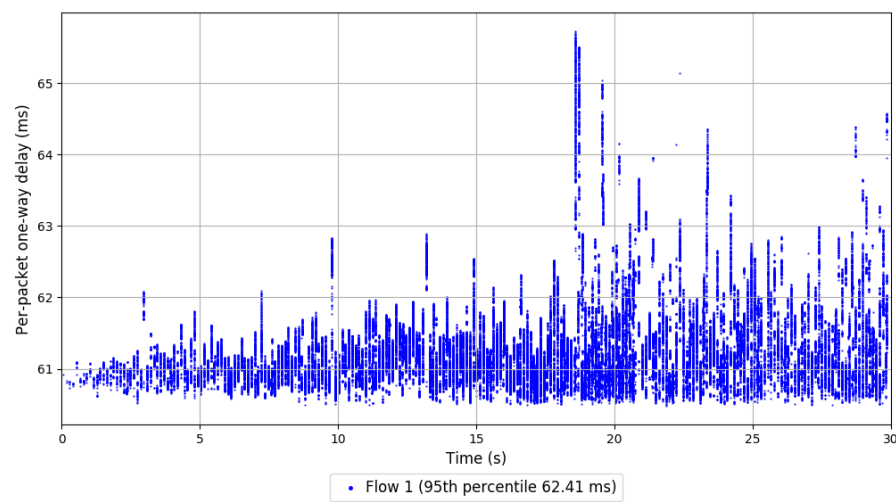
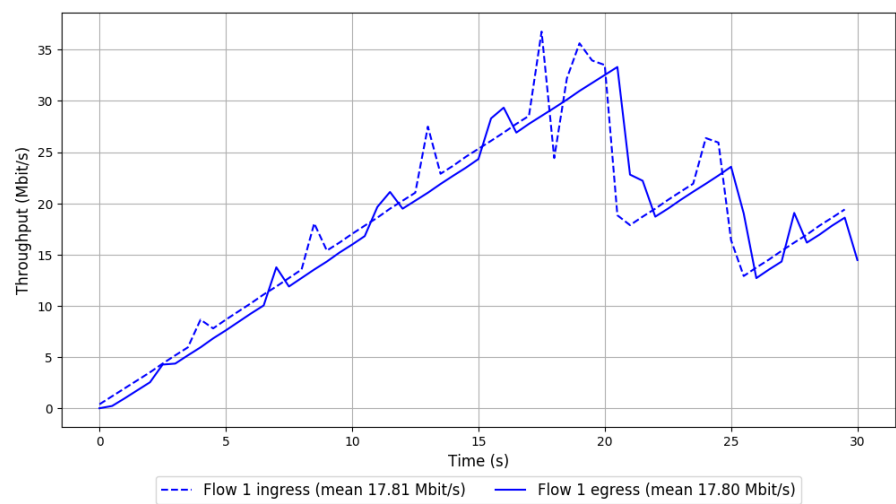


Run 4: Statistics of LEDBAT

Start at: 2018-12-01 01:28:37
End at: 2018-12-01 01:29:07
Local clock offset: 0.256 ms
Remote clock offset: -0.046 ms

Below is generated by plot.py at 2018-12-01 03:31:50
Datalink statistics
-- Total of 1 flow:
Average throughput: 17.80 Mbit/s
95th percentile per-packet one-way delay: 62.409 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 17.80 Mbit/s
95th percentile per-packet one-way delay: 62.409 ms
Loss rate: 0.51%

Run 4: Report of LEDBAT — Data Link

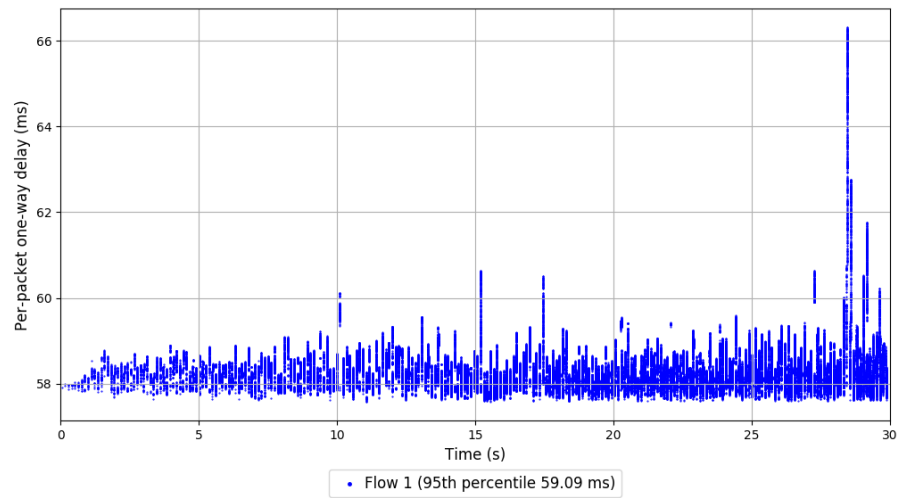
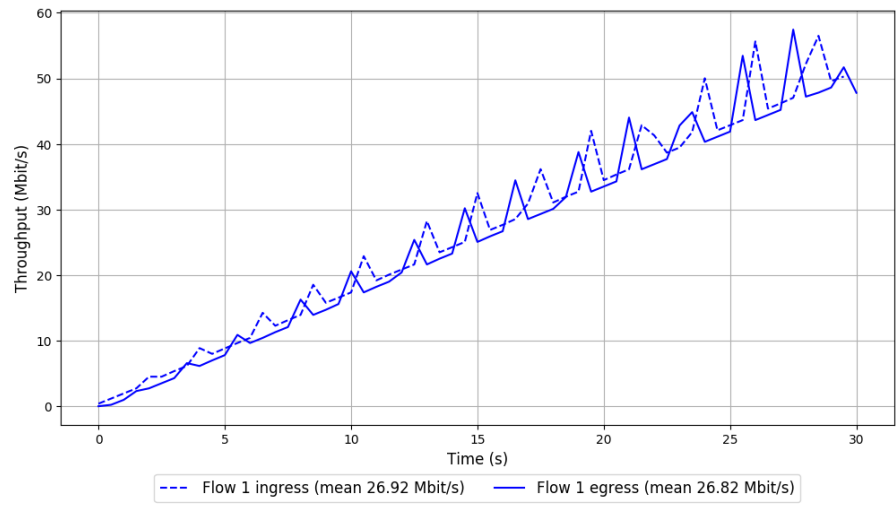


Run 5: Statistics of LEDBAT

Start at: 2018-12-01 01:58:04
End at: 2018-12-01 01:58:34
Local clock offset: 0.017 ms
Remote clock offset: -0.819 ms

Below is generated by plot.py at 2018-12-01 03:31:50
Datalink statistics
-- Total of 1 flow:
Average throughput: 26.82 Mbit/s
95th percentile per-packet one-way delay: 59.086 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 26.82 Mbit/s
95th percentile per-packet one-way delay: 59.086 ms
Loss rate: 0.78%

Run 5: Report of LEDBAT — Data Link

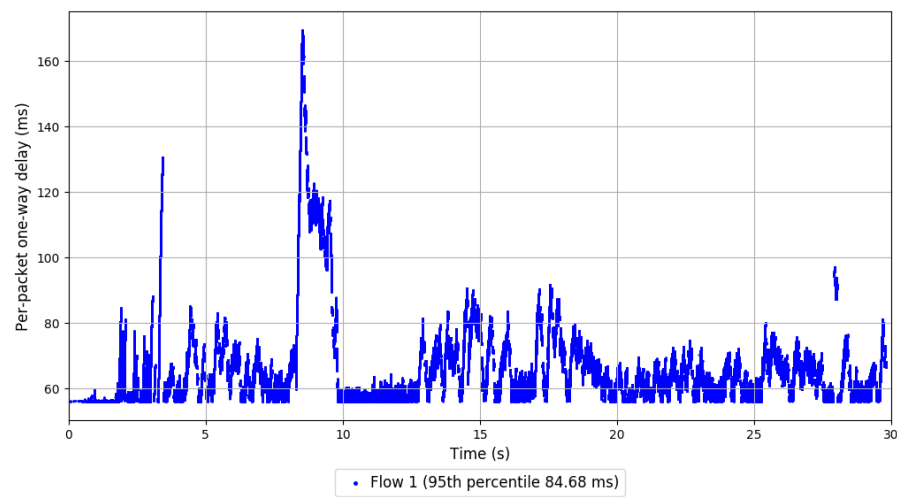
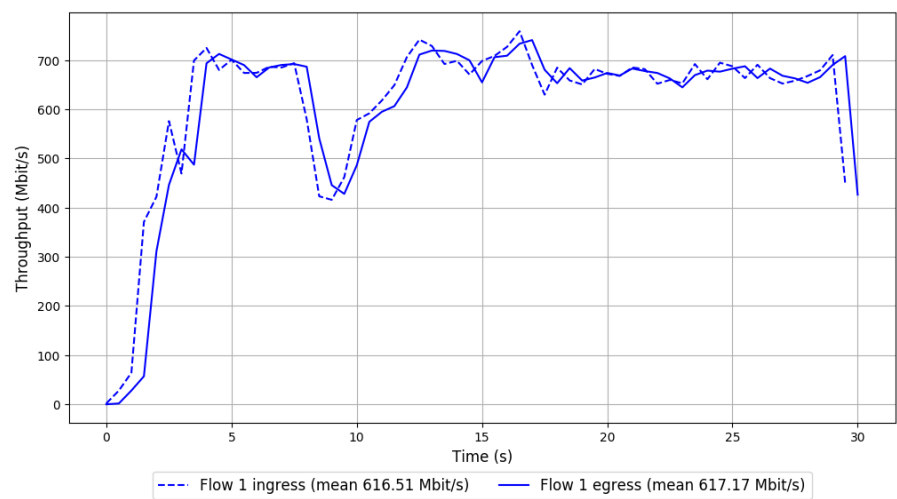



```
Run 1: Statistics of Indigo-Muses

Start at: 2018-12-01 00:17:56
End at: 2018-12-01 00:18:26
Local clock offset: -0.168 ms
Remote clock offset: 0.555 ms

# Below is generated by plot.py at 2018-12-01 03:37:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 617.17 Mbit/s
95th percentile per-packet one-way delay: 84.680 ms
Loss rate: 0.28%
-- Flow 1:
Average throughput: 617.17 Mbit/s
95th percentile per-packet one-way delay: 84.680 ms
Loss rate: 0.28%
```

Run 1: Report of Indigo-Muses — Data Link



Run 2: Statistics of Indigo-Muses

Start at: 2018-12-01 00:47:01

End at: 2018-12-01 00:47:31

Local clock offset: -0.069 ms

Remote clock offset: -0.07 ms

Below is generated by plot.py at 2018-12-01 03:37:53

Datalink statistics

-- Total of 1 flow:

Average throughput: 646.74 Mbit/s

95th percentile per-packet one-way delay: 77.871 ms

Loss rate: 0.43%

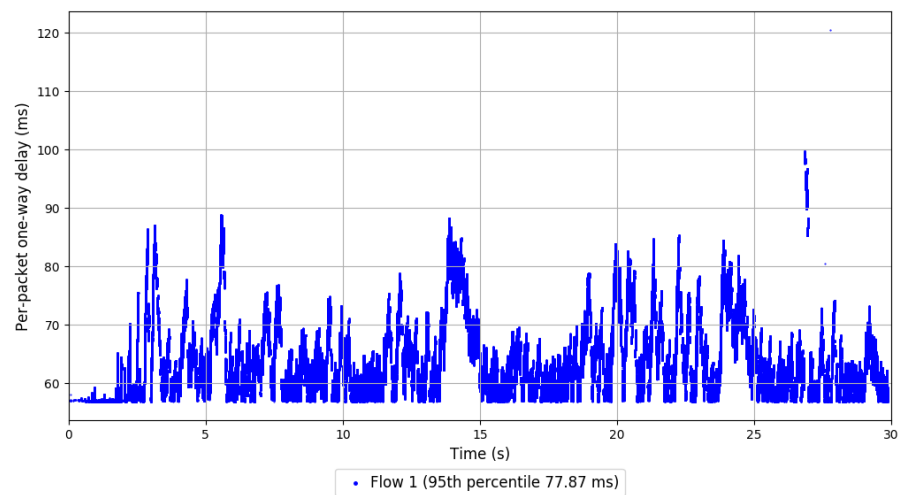
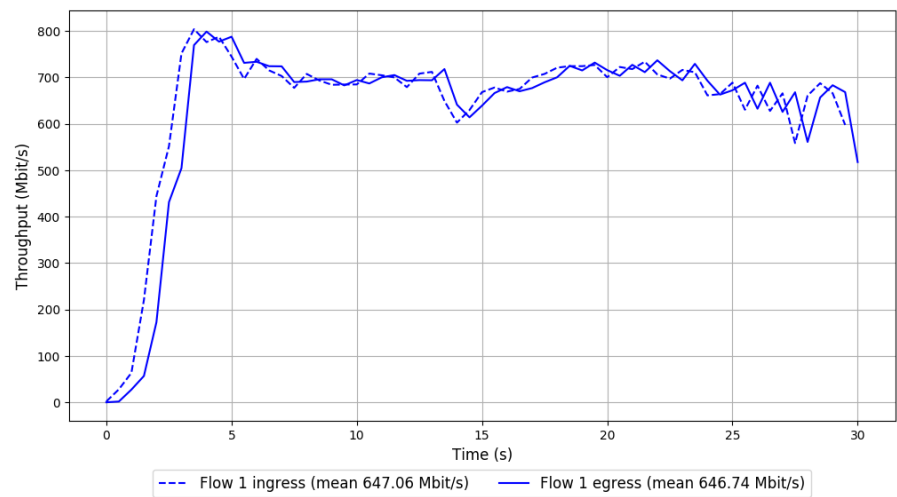
-- Flow 1:

Average throughput: 646.74 Mbit/s

95th percentile per-packet one-way delay: 77.871 ms

Loss rate: 0.43%

Run 2: Report of Indigo-Muses — Data Link



Run 3: Statistics of Indigo-Muses

Start at: 2018-12-01 01:16:20

End at: 2018-12-01 01:16:50

Local clock offset: -0.115 ms

Remote clock offset: 0.858 ms

Below is generated by plot.py at 2018-12-01 03:38:10

Datalink statistics

-- Total of 1 flow:

Average throughput: 660.15 Mbit/s

95th percentile per-packet one-way delay: 83.913 ms

Loss rate: 0.47%

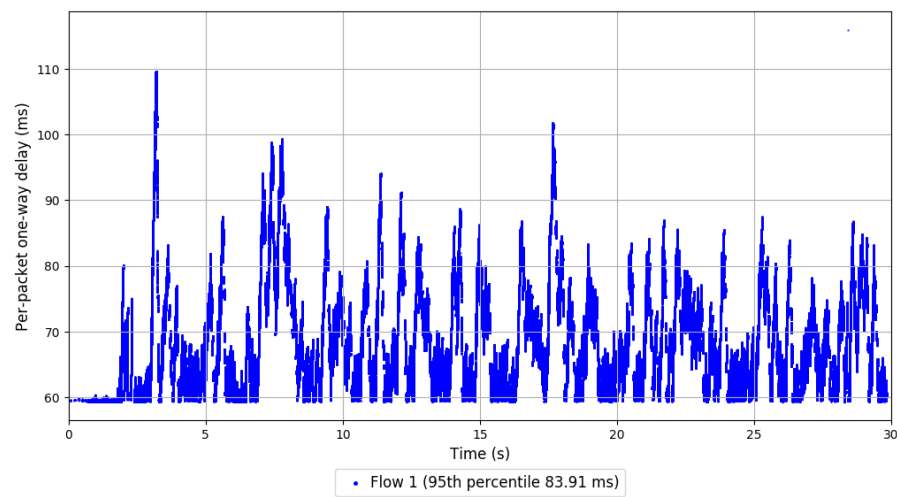
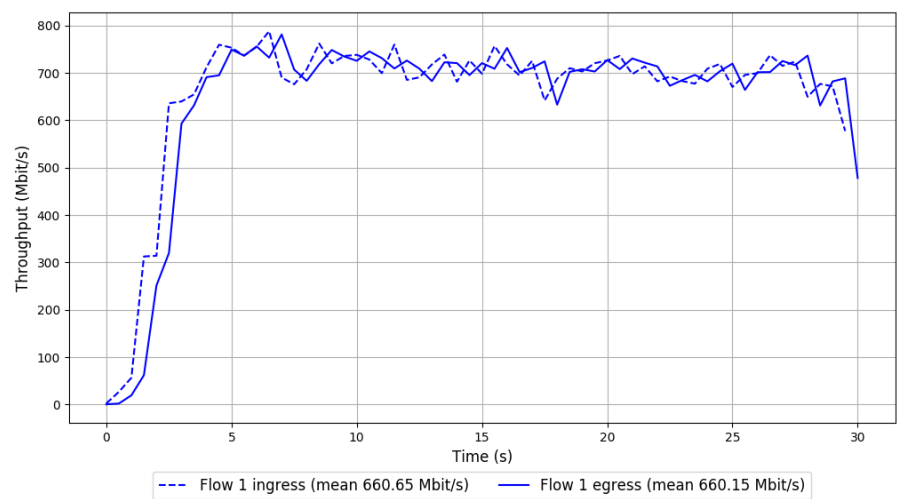
-- Flow 1:

Average throughput: 660.15 Mbit/s

95th percentile per-packet one-way delay: 83.913 ms

Loss rate: 0.47%

Run 3: Report of Indigo-Muses — Data Link

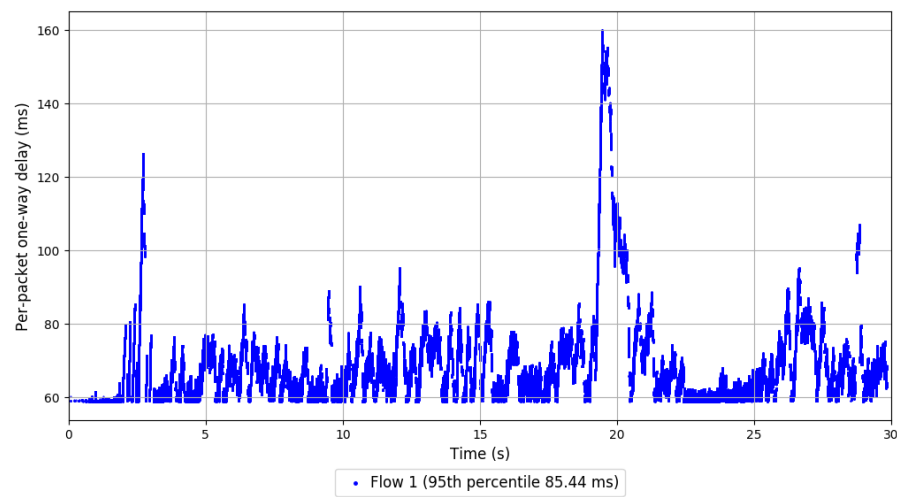
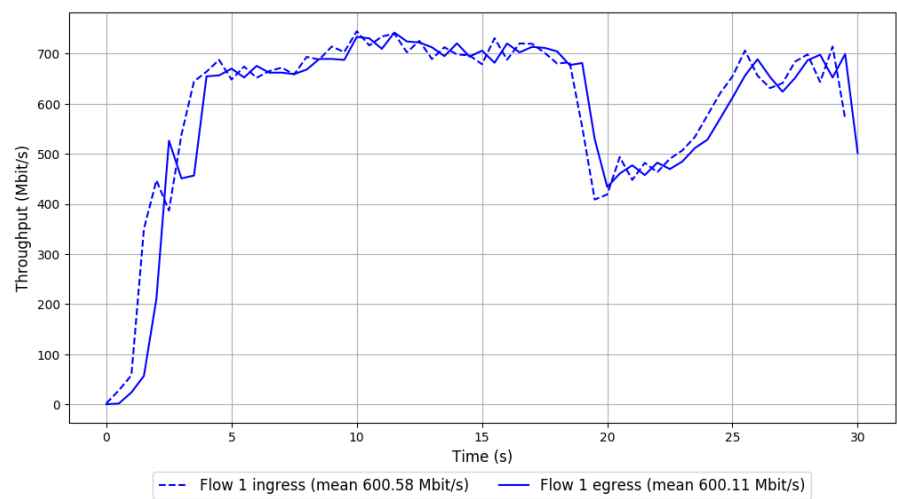


Run 4: Statistics of Indigo-Muses

Start at: 2018-12-01 01:46:06
End at: 2018-12-01 01:46:36
Local clock offset: 0.264 ms
Remote clock offset: -1.417 ms

Below is generated by plot.py at 2018-12-01 03:38:10
Datalink statistics
-- Total of 1 flow:
Average throughput: 600.11 Mbit/s
95th percentile per-packet one-way delay: 85.444 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 600.11 Mbit/s
95th percentile per-packet one-way delay: 85.444 ms
Loss rate: 0.47%

Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-12-01 02:15:59

End at: 2018-12-01 02:16:29

Local clock offset: 0.164 ms

Remote clock offset: -0.19 ms

Below is generated by plot.py at 2018-12-01 03:39:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 653.71 Mbit/s

95th percentile per-packet one-way delay: 79.153 ms

Loss rate: 0.44%

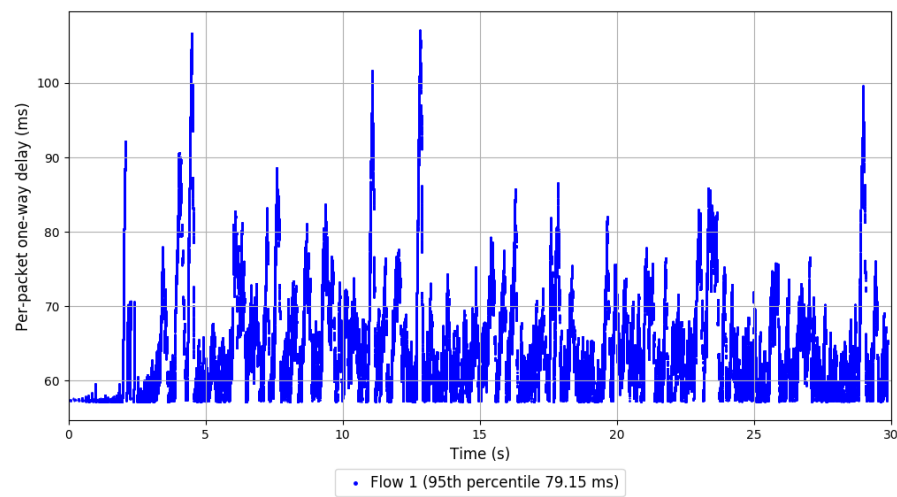
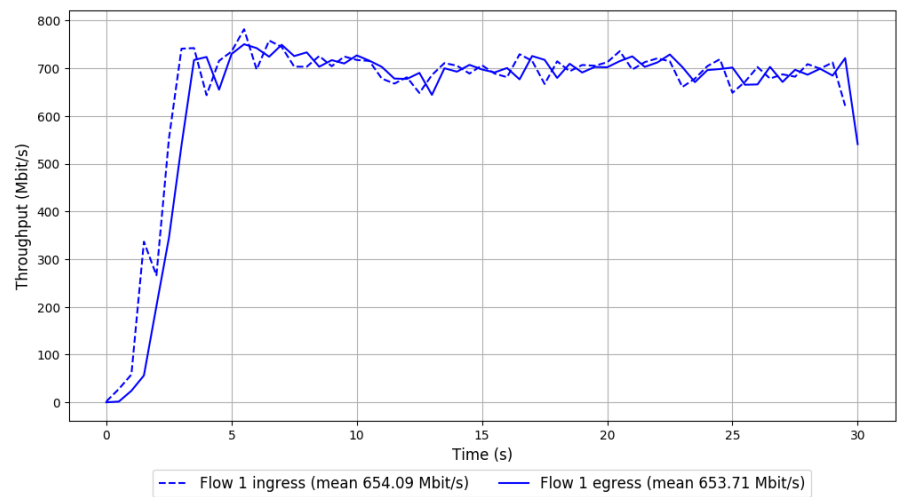
-- Flow 1:

Average throughput: 653.71 Mbit/s

95th percentile per-packet one-way delay: 79.153 ms

Loss rate: 0.44%

Run 5: Report of Indigo-Muses — Data Link



Run 1: Statistics of PCC-Allegro

Start at: 2018-11-30 23:54:03

End at: 2018-11-30 23:54:33

Local clock offset: -0.523 ms

Remote clock offset: 0.029 ms

Below is generated by plot.py at 2018-12-01 03:44:34

Datalink statistics

-- Total of 1 flow:

Average throughput: 469.26 Mbit/s

95th percentile per-packet one-way delay: 168.445 ms

Loss rate: 1.98%

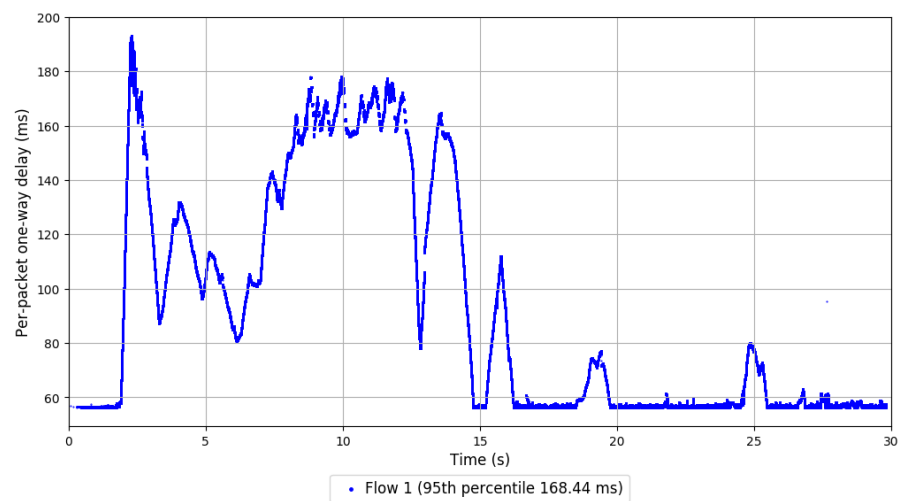
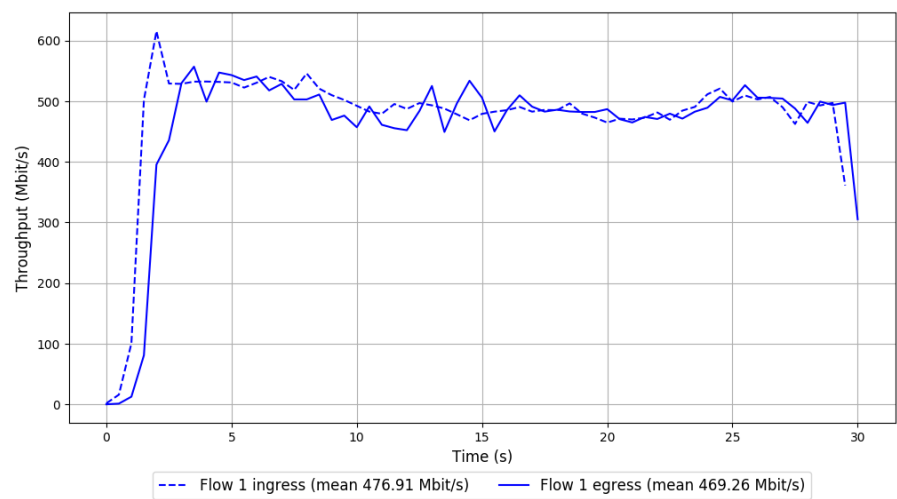
-- Flow 1:

Average throughput: 469.26 Mbit/s

95th percentile per-packet one-way delay: 168.445 ms

Loss rate: 1.98%

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-12-01 00:22:57

End at: 2018-12-01 00:23:27

Local clock offset: -0.533 ms

Remote clock offset: -0.1 ms

Below is generated by plot.py at 2018-12-01 03:45:44

Datalink statistics

-- Total of 1 flow:

Average throughput: 474.26 Mbit/s

95th percentile per-packet one-way delay: 165.504 ms

Loss rate: 2.32%

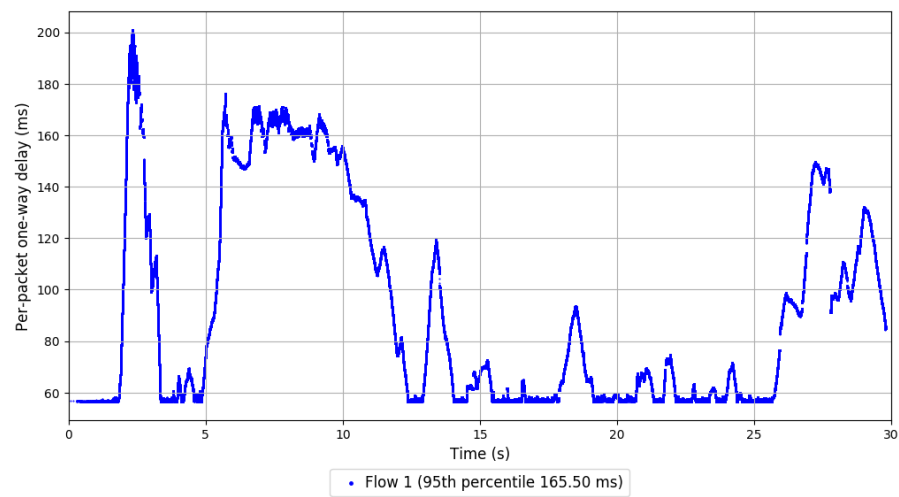
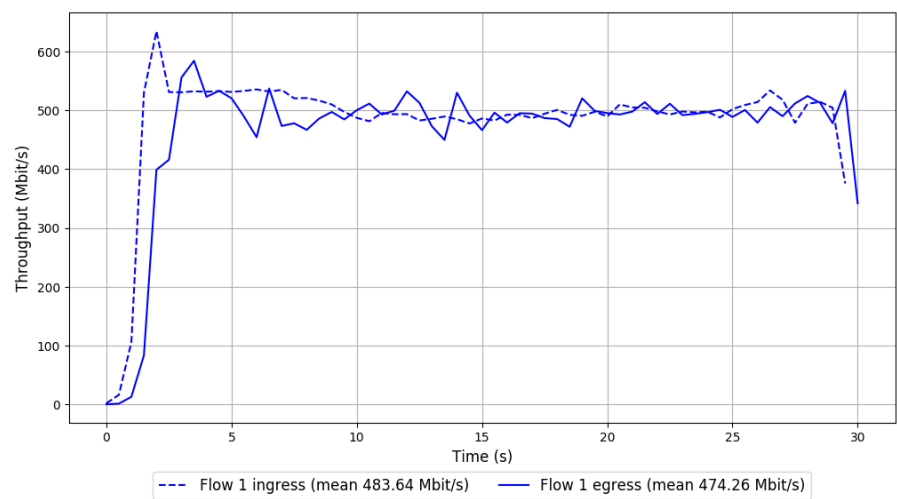
-- Flow 1:

Average throughput: 474.26 Mbit/s

95th percentile per-packet one-way delay: 165.504 ms

Loss rate: 2.32%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-12-01 00:51:56

End at: 2018-12-01 00:52:26

Local clock offset: -0.114 ms

Remote clock offset: 0.058 ms

Below is generated by plot.py at 2018-12-01 03:52:03

Datalink statistics

-- Total of 1 flow:

Average throughput: 475.46 Mbit/s

95th percentile per-packet one-way delay: 172.679 ms

Loss rate: 4.11%

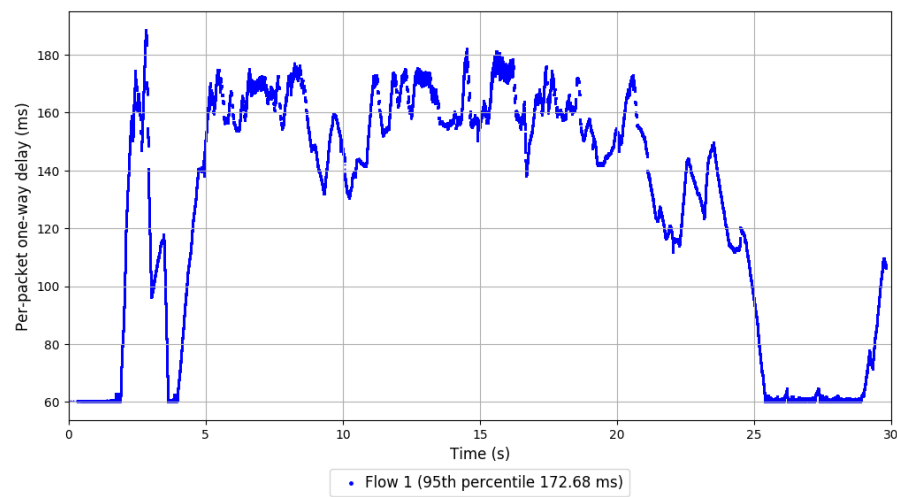
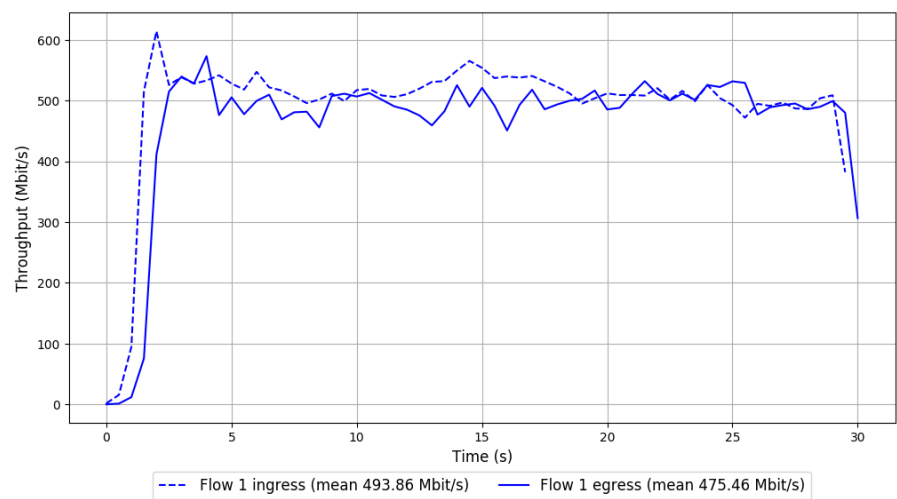
-- Flow 1:

Average throughput: 475.46 Mbit/s

95th percentile per-packet one-way delay: 172.679 ms

Loss rate: 4.11%

Run 3: Report of PCC-Allegro — Data Link

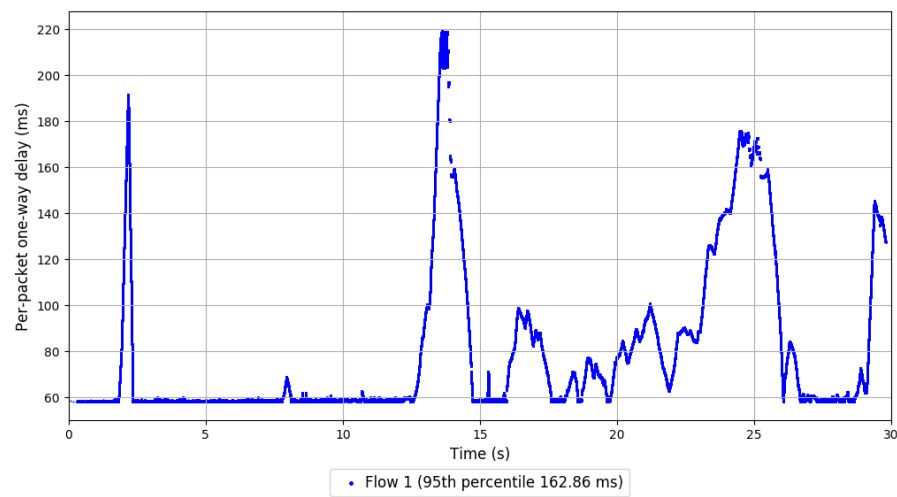
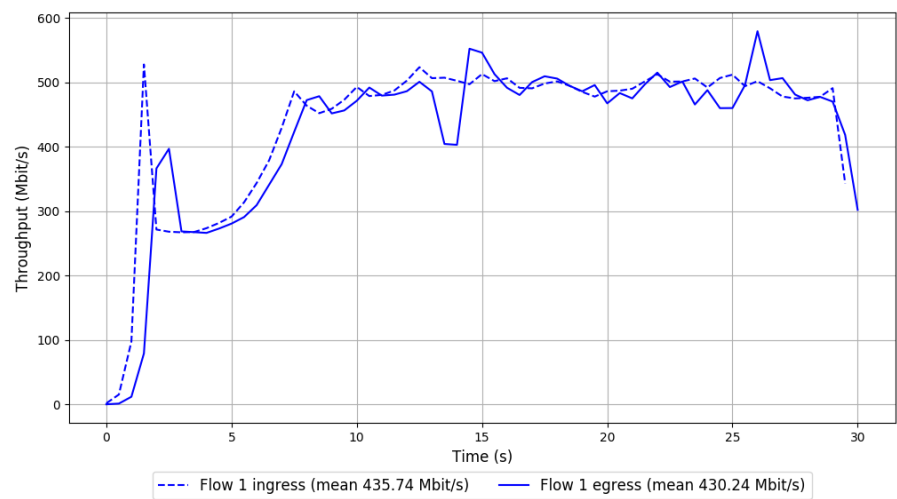


Run 4: Statistics of PCC-Allegro

Start at: 2018-12-01 01:21:26
End at: 2018-12-01 01:21:56
Local clock offset: -0.146 ms
Remote clock offset: -0.918 ms

Below is generated by plot.py at 2018-12-01 03:54:11
Datalink statistics
-- Total of 1 flow:
Average throughput: 430.24 Mbit/s
95th percentile per-packet one-way delay: 162.860 ms
Loss rate: 1.64%
-- Flow 1:
Average throughput: 430.24 Mbit/s
95th percentile per-packet one-way delay: 162.860 ms
Loss rate: 1.64%

Run 4: Report of PCC-Allegro — Data Link

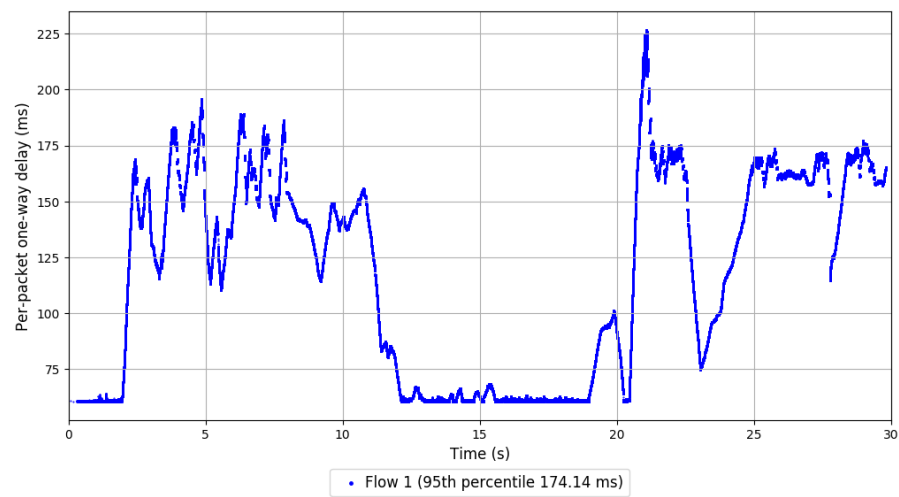
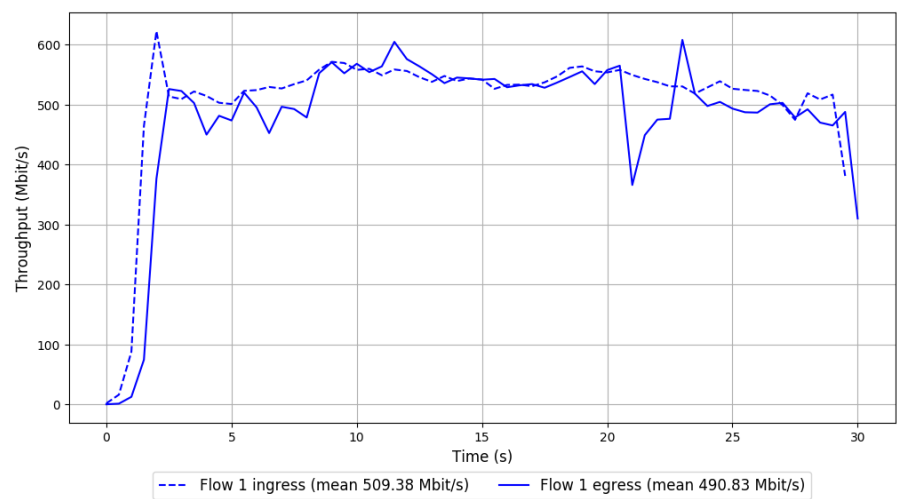


Run 5: Statistics of PCC-Allegro

Start at: 2018-12-01 01:51:00
End at: 2018-12-01 01:51:30
Local clock offset: 0.185 ms
Remote clock offset: -0.241 ms

Below is generated by plot.py at 2018-12-01 03:57:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 490.83 Mbit/s
95th percentile per-packet one-way delay: 174.137 ms
Loss rate: 4.02%
-- Flow 1:
Average throughput: 490.83 Mbit/s
95th percentile per-packet one-way delay: 174.137 ms
Loss rate: 4.02%

Run 5: Report of PCC-Allegro — Data Link

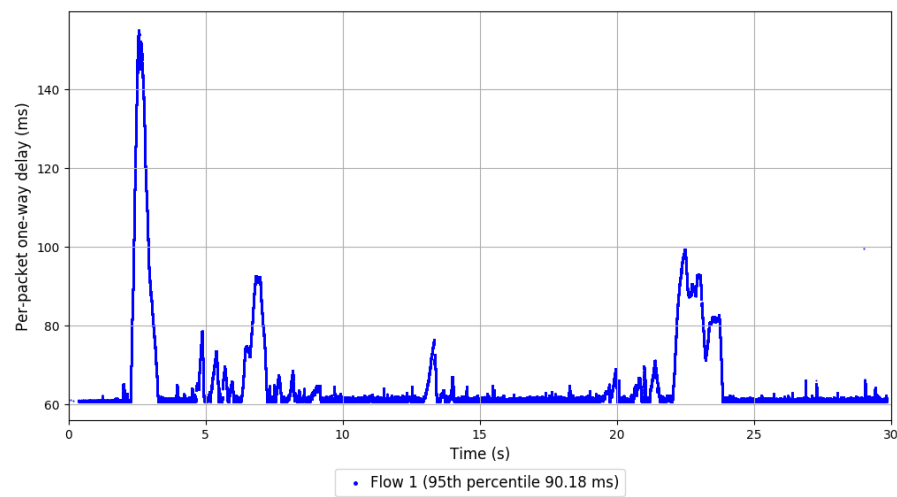
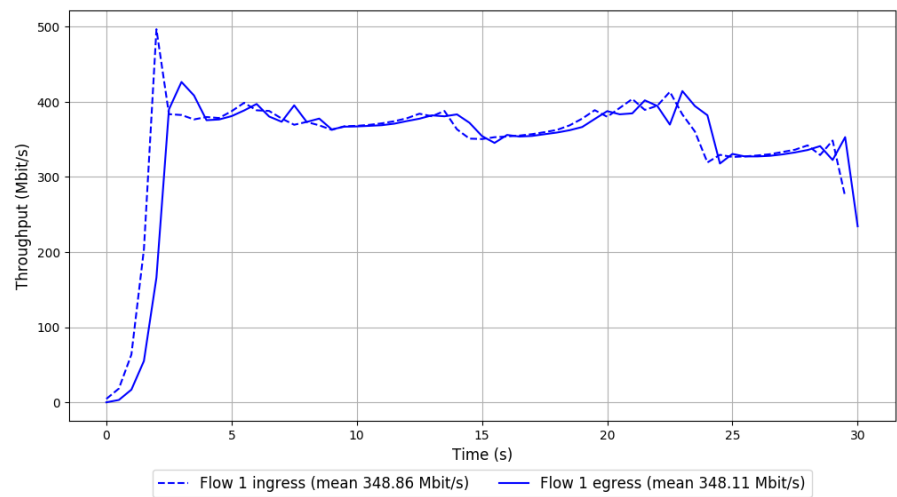


```
Run 1: Statistics of PCC-Expr

Start at: 2018-11-30 23:52:22
End at: 2018-11-30 23:52:52
Local clock offset: 0.233 ms
Remote clock offset: -0.157 ms

# Below is generated by plot.py at 2018-12-01 03:57:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 348.11 Mbit/s
95th percentile per-packet one-way delay: 90.179 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 348.11 Mbit/s
95th percentile per-packet one-way delay: 90.179 ms
Loss rate: 0.61%
```

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

Start at: 2018-12-01 00:21:11

End at: 2018-12-01 00:21:41

Local clock offset: -0.12 ms

Remote clock offset: 0.075 ms

Below is generated by plot.py at 2018-12-01 03:57:08

Datalink statistics

-- Total of 1 flow:

Average throughput: 319.18 Mbit/s

95th percentile per-packet one-way delay: 158.909 ms

Loss rate: 6.52%

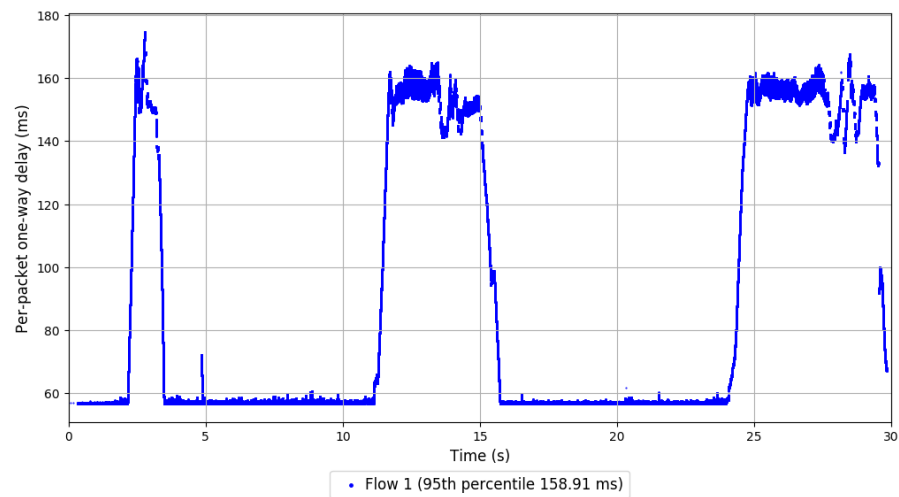
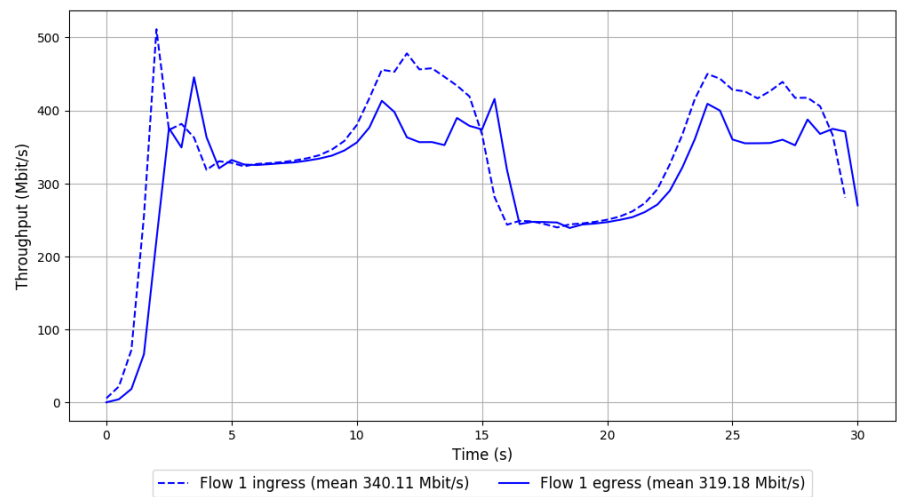
-- Flow 1:

Average throughput: 319.18 Mbit/s

95th percentile per-packet one-way delay: 158.909 ms

Loss rate: 6.52%

Run 2: Report of PCC-Expr — Data Link

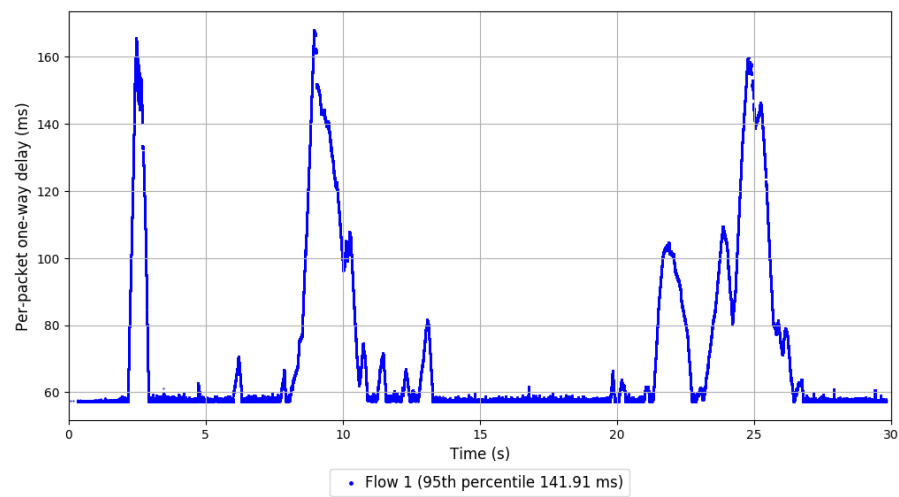
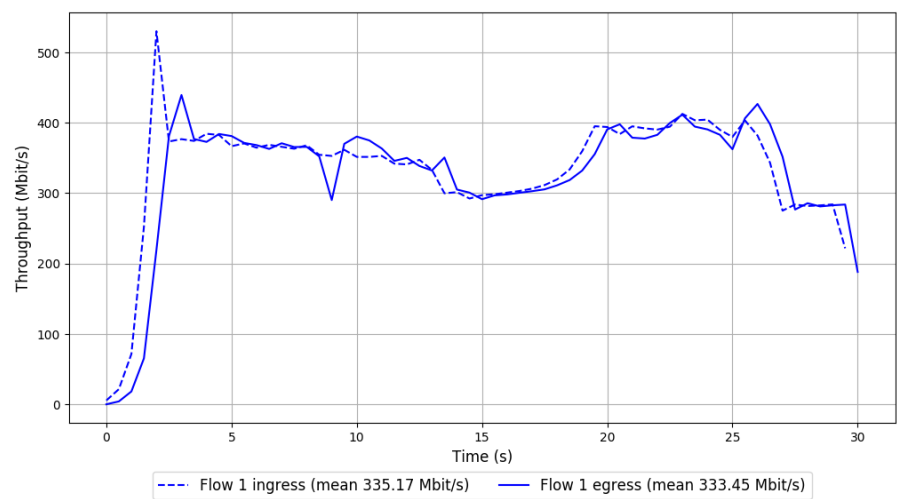


Run 3: Statistics of PCC-Expr

Start at: 2018-12-01 00:50:11
End at: 2018-12-01 00:50:41
Local clock offset: -0.059 ms
Remote clock offset: -0.118 ms

Below is generated by plot.py at 2018-12-01 03:57:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 333.45 Mbit/s
95th percentile per-packet one-way delay: 141.905 ms
Loss rate: 0.90%
-- Flow 1:
Average throughput: 333.45 Mbit/s
95th percentile per-packet one-way delay: 141.905 ms
Loss rate: 0.90%

Run 3: Report of PCC-Expr — Data Link



Run 4: Statistics of PCC-Expr

Start at: 2018-12-01 01:19:38

End at: 2018-12-01 01:20:08

Local clock offset: -0.111 ms

Remote clock offset: 0.086 ms

Below is generated by plot.py at 2018-12-01 03:57:37

Datalink statistics

-- Total of 1 flow:

Average throughput: 308.45 Mbit/s

95th percentile per-packet one-way delay: 158.091 ms

Loss rate: 3.09%

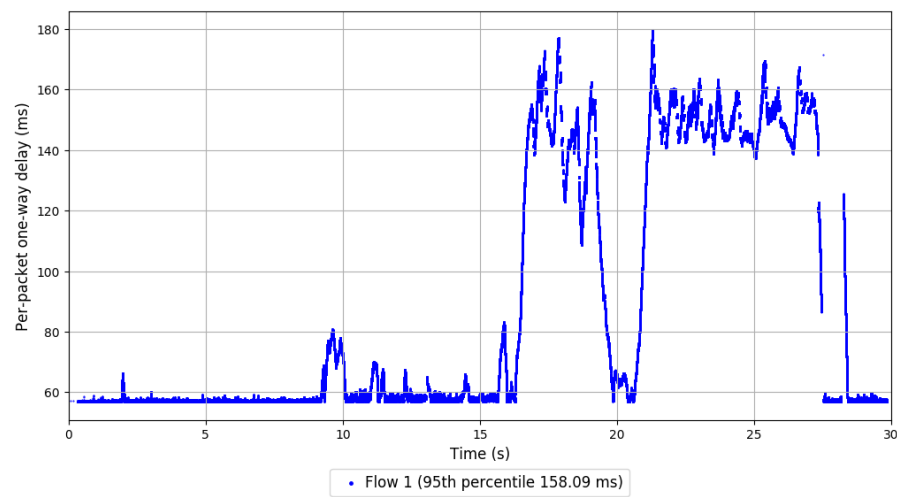
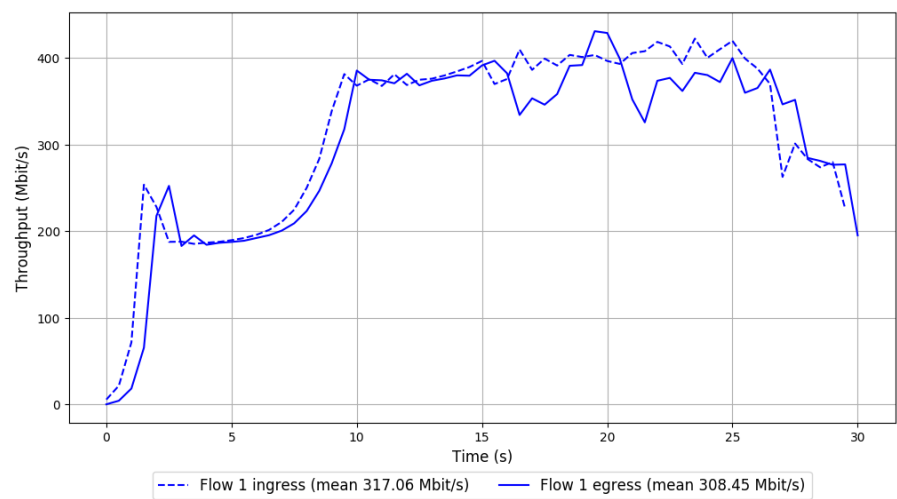
-- Flow 1:

Average throughput: 308.45 Mbit/s

95th percentile per-packet one-way delay: 158.091 ms

Loss rate: 3.09%

Run 4: Report of PCC-Expr — Data Link

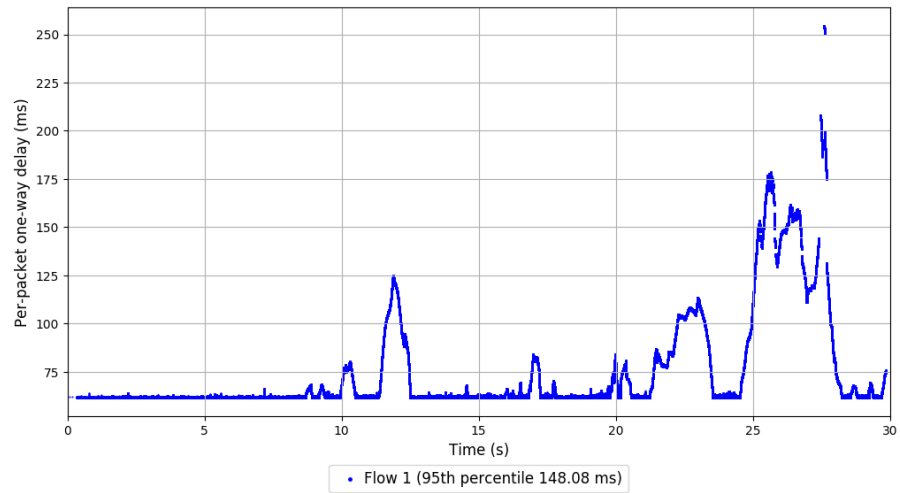
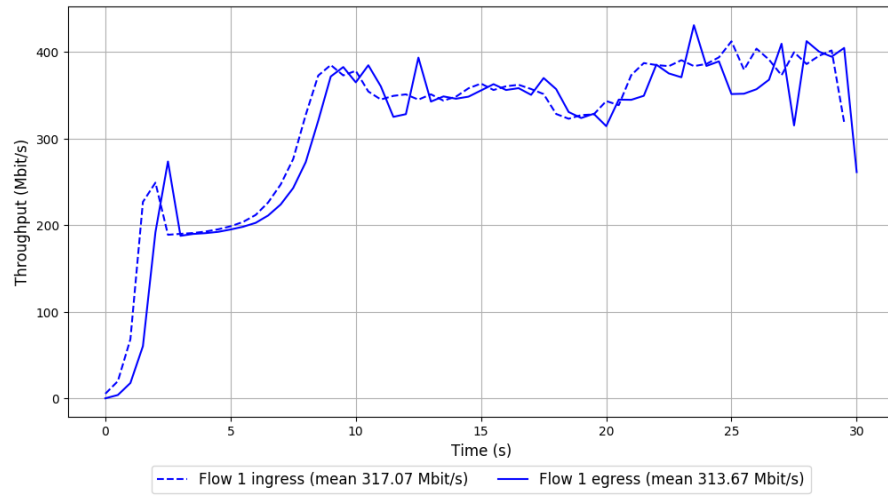


Run 5: Statistics of PCC-Expr

Start at: 2018-12-01 01:49:18
End at: 2018-12-01 01:49:48
Local clock offset: -0.067 ms
Remote clock offset: -1.494 ms

Below is generated by plot.py at 2018-12-01 03:58:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 313.67 Mbit/s
95th percentile per-packet one-way delay: 148.076 ms
Loss rate: 1.46%
-- Flow 1:
Average throughput: 313.67 Mbit/s
95th percentile per-packet one-way delay: 148.076 ms
Loss rate: 1.46%

Run 5: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2018-12-01 00:09:18

End at: 2018-12-01 00:09:48

Local clock offset: 0.029 ms

Remote clock offset: -0.133 ms

Below is generated by plot.py at 2018-12-01 03:58:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 57.15 Mbit/s

95th percentile per-packet one-way delay: 57.235 ms

Loss rate: 0.71%

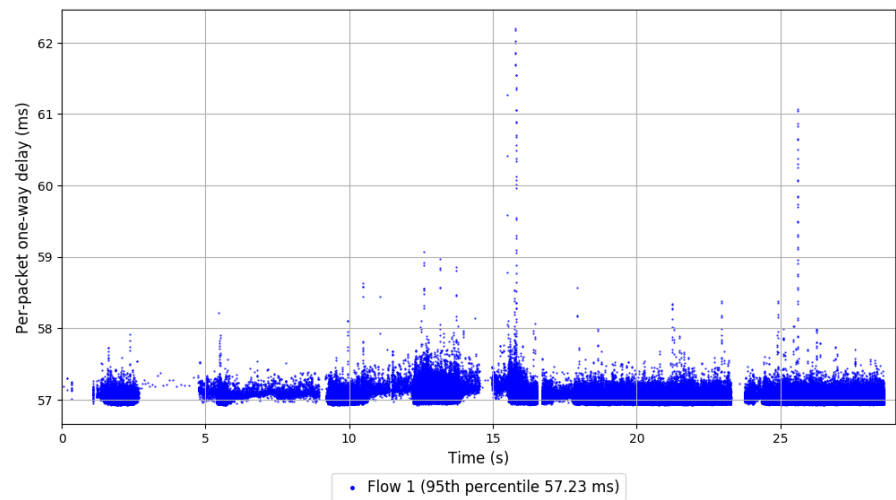
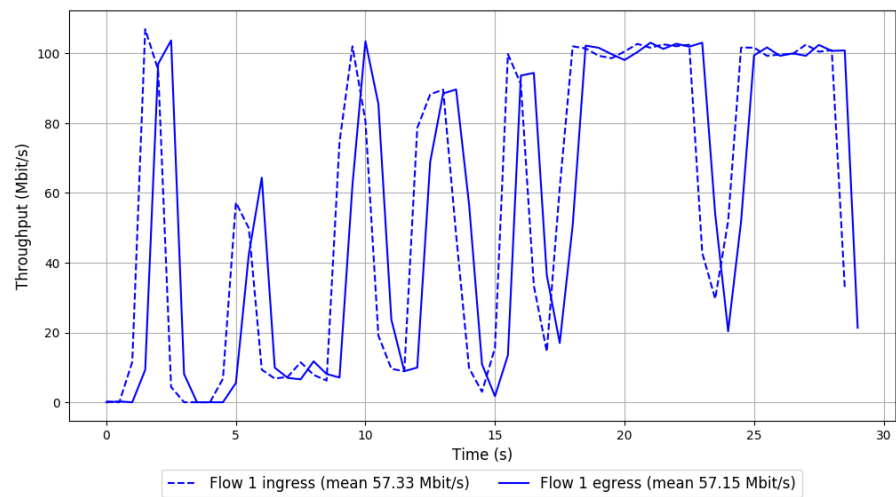
-- Flow 1:

Average throughput: 57.15 Mbit/s

95th percentile per-packet one-way delay: 57.235 ms

Loss rate: 0.71%

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-12-01 00:38:36

End at: 2018-12-01 00:39:06

Local clock offset: -0.079 ms

Remote clock offset: -0.08 ms

Below is generated by plot.py at 2018-12-01 03:58:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 63.58 Mbit/s

95th percentile per-packet one-way delay: 57.387 ms

Loss rate: 0.62%

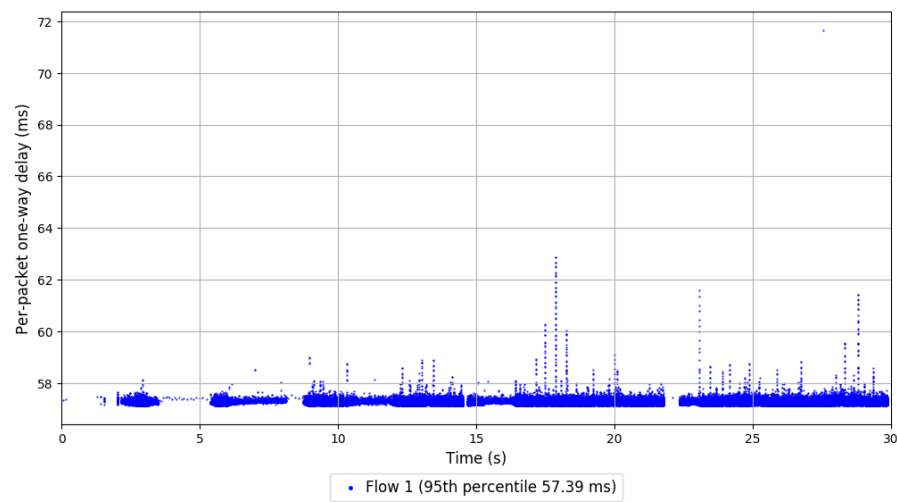
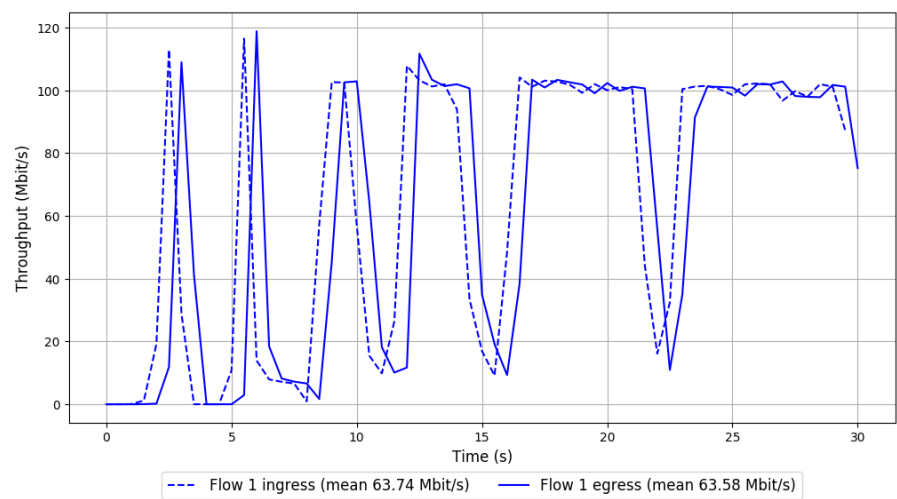
-- Flow 1:

Average throughput: 63.58 Mbit/s

95th percentile per-packet one-way delay: 57.387 ms

Loss rate: 0.62%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-12-01 01:07:28

End at: 2018-12-01 01:07:58

Local clock offset: -0.108 ms

Remote clock offset: -1.283 ms

Below is generated by plot.py at 2018-12-01 03:58:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 65.67 Mbit/s

95th percentile per-packet one-way delay: 58.449 ms

Loss rate: 0.59%

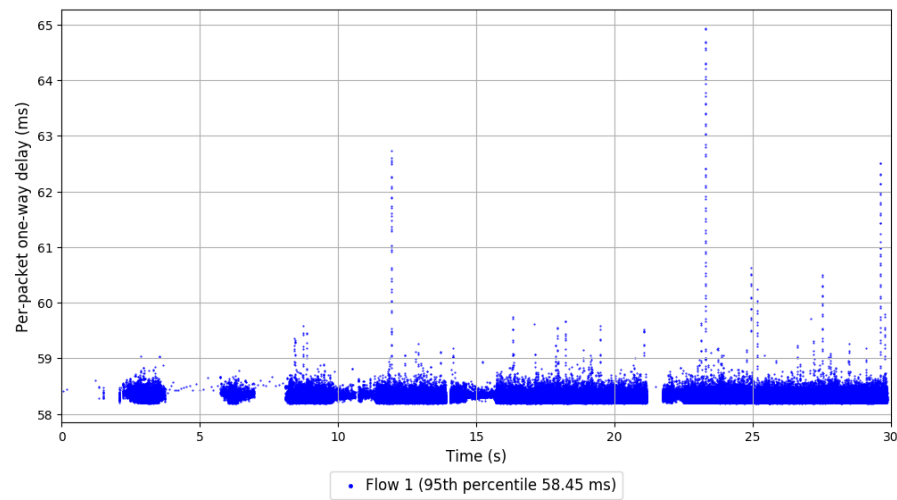
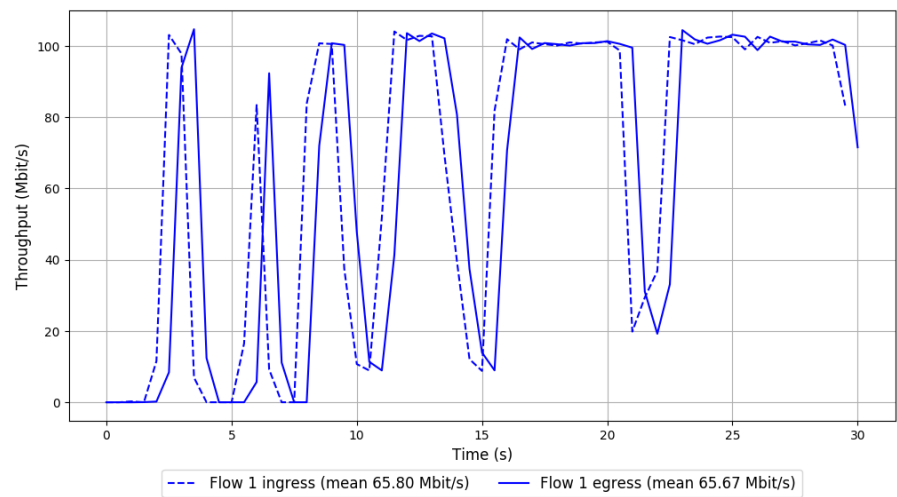
-- Flow 1:

Average throughput: 65.67 Mbit/s

95th percentile per-packet one-way delay: 58.449 ms

Loss rate: 0.59%

Run 3: Report of QUIC Cubic — Data Link



Run 4: Statistics of QUIC Cubic

Start at: 2018-12-01 01:37:25

End at: 2018-12-01 01:37:55

Local clock offset: -0.331 ms

Remote clock offset: 0.081 ms

Below is generated by plot.py at 2018-12-01 03:58:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 61.58 Mbit/s

95th percentile per-packet one-way delay: 56.701 ms

Loss rate: 0.64%

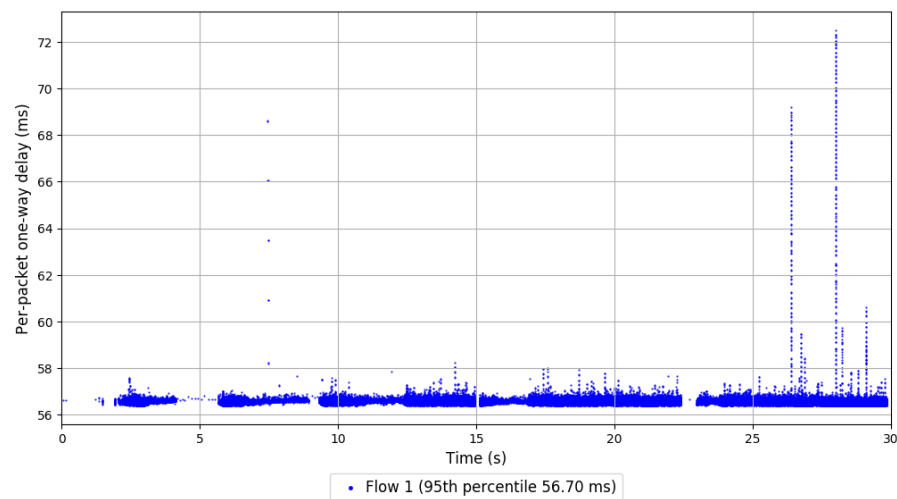
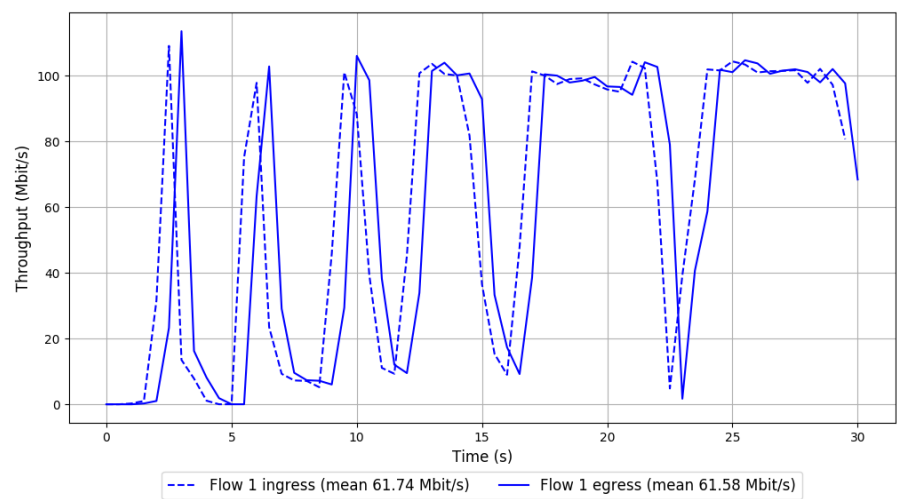
-- Flow 1:

Average throughput: 61.58 Mbit/s

95th percentile per-packet one-way delay: 56.701 ms

Loss rate: 0.64%

Run 4: Report of QUIC Cubic — Data Link



Run 5: Statistics of QUIC Cubic

Start at: 2018-12-01 02:07:07

End at: 2018-12-01 02:07:37

Local clock offset: 0.168 ms

Remote clock offset: -0.515 ms

Below is generated by plot.py at 2018-12-01 03:58:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 60.80 Mbit/s

95th percentile per-packet one-way delay: 57.409 ms

Loss rate: 0.04%

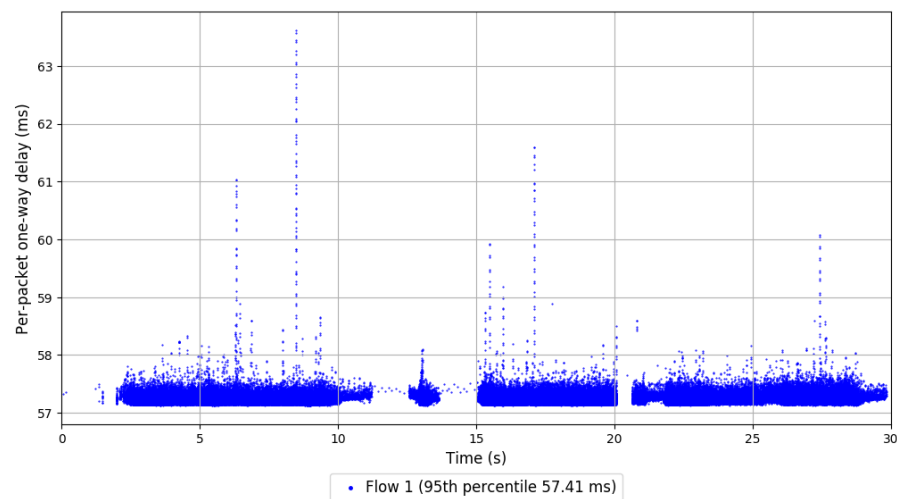
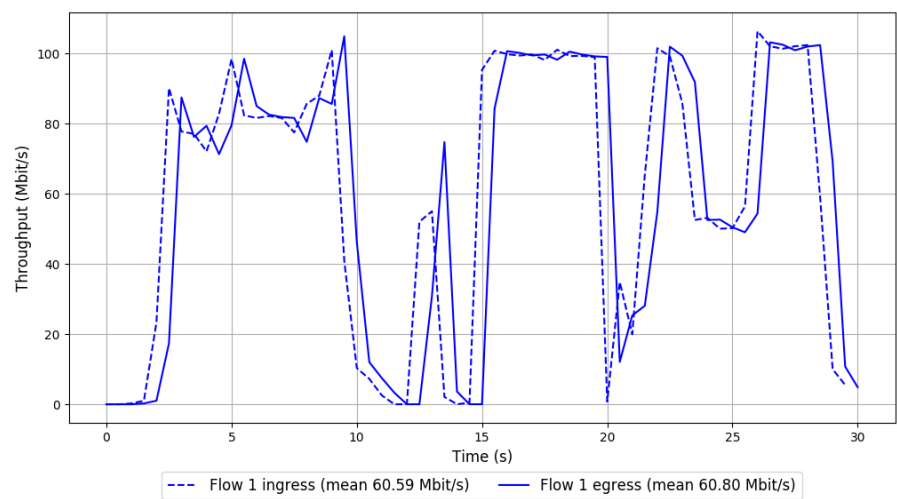
-- Flow 1:

Average throughput: 60.80 Mbit/s

95th percentile per-packet one-way delay: 57.409 ms

Loss rate: 0.04%

Run 5: Report of QUIC Cubic — Data Link

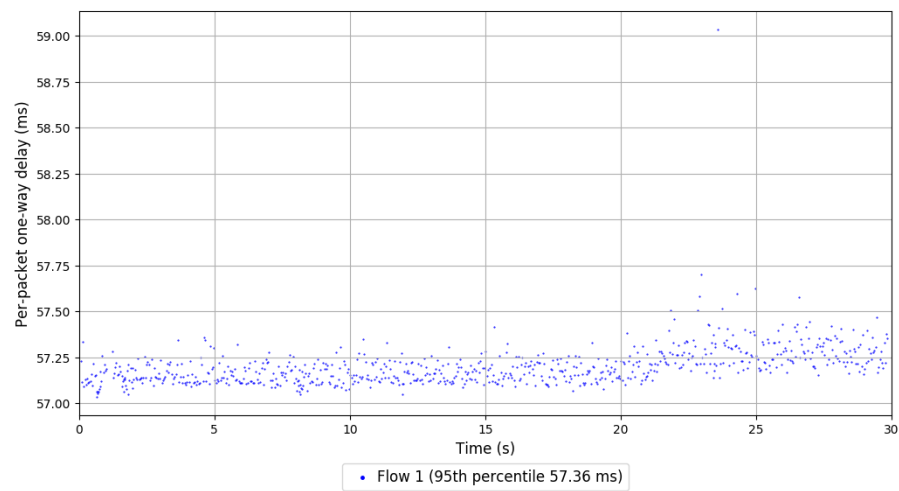
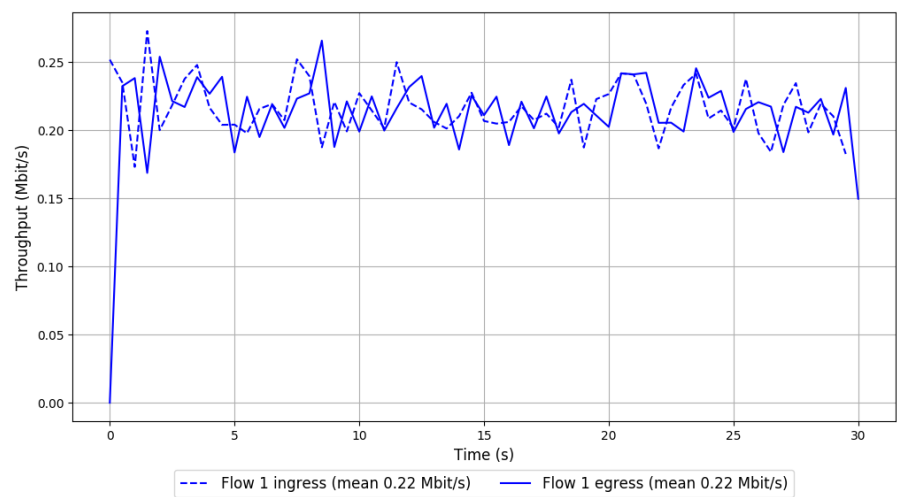



```
Run 1: Statistics of SCReAM

Start at: 2018-12-01 00:08:10
End at: 2018-12-01 00:08:40
Local clock offset: -0.116 ms
Remote clock offset: -0.055 ms

# Below is generated by plot.py at 2018-12-01 03:58:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.361 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.361 ms
Loss rate: 0.38%
```

Run 1: Report of SReAM — Data Link



Run 2: Statistics of SCReAM

Start at: 2018-12-01 00:37:28

End at: 2018-12-01 00:37:58

Local clock offset: -0.274 ms

Remote clock offset: 1.12 ms

Below is generated by plot.py at 2018-12-01 03:58:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 55.834 ms

Loss rate: 0.39%

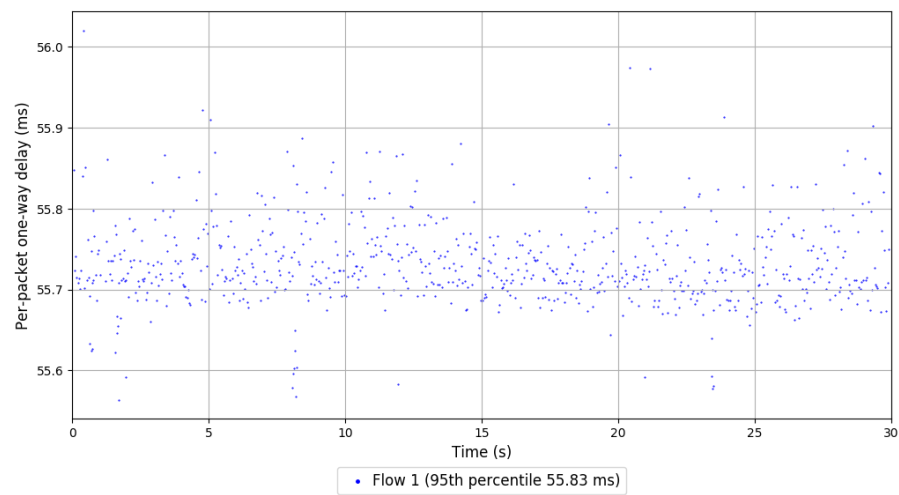
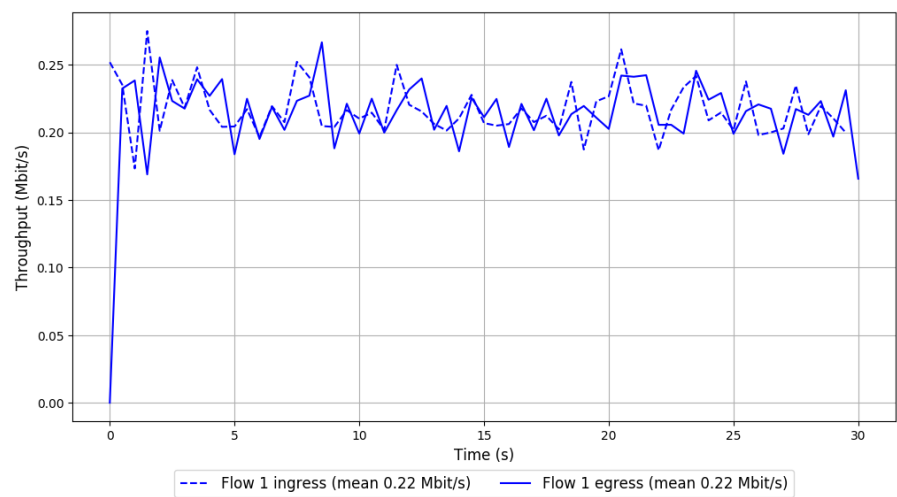
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 55.834 ms

Loss rate: 0.39%

Run 2: Report of SReAM — Data Link

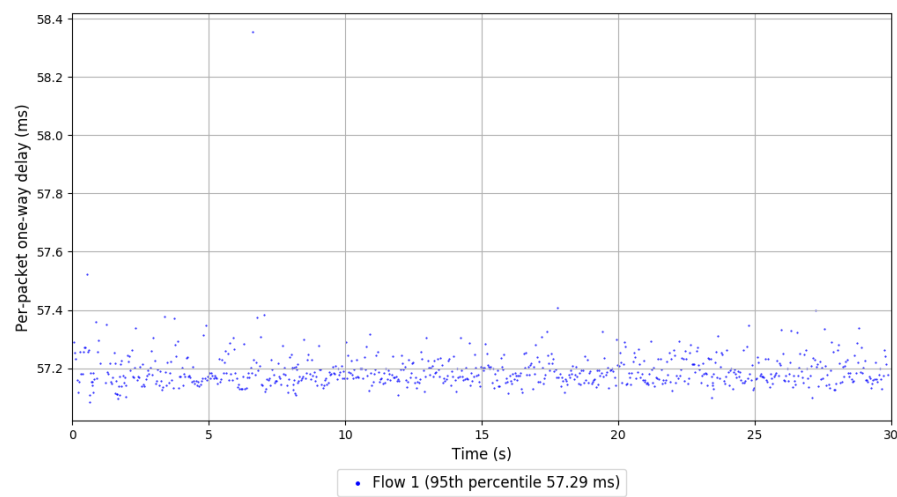
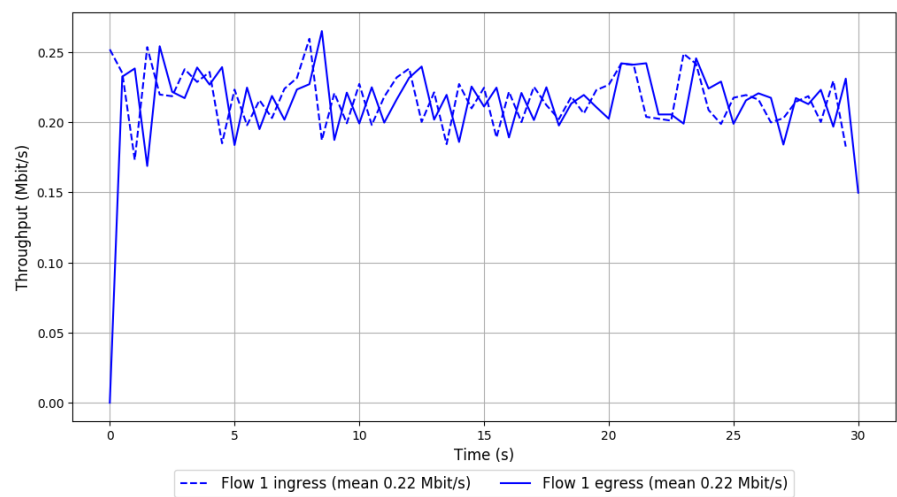


Run 3: Statistics of SCReAM

Start at: 2018-12-01 01:06:20
End at: 2018-12-01 01:06:50
Local clock offset: -0.095 ms
Remote clock offset: -0.006 ms

Below is generated by plot.py at 2018-12-01 03:58:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.289 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.289 ms
Loss rate: 0.38%

Run 3: Report of SReAM — Data Link



Run 4: Statistics of SCReAM

Start at: 2018-12-01 01:36:17

End at: 2018-12-01 01:36:47

Local clock offset: -0.461 ms

Remote clock offset: 1.1 ms

Below is generated by plot.py at 2018-12-01 03:58:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 59.007 ms

Loss rate: 0.39%

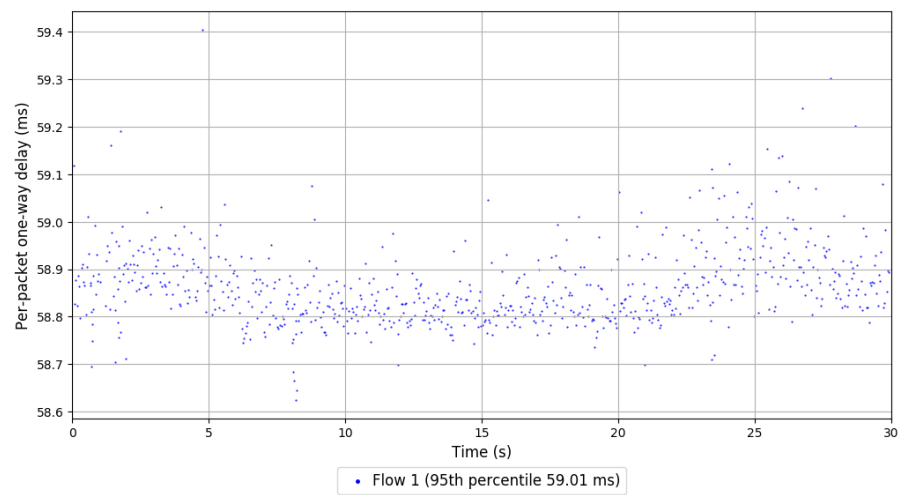
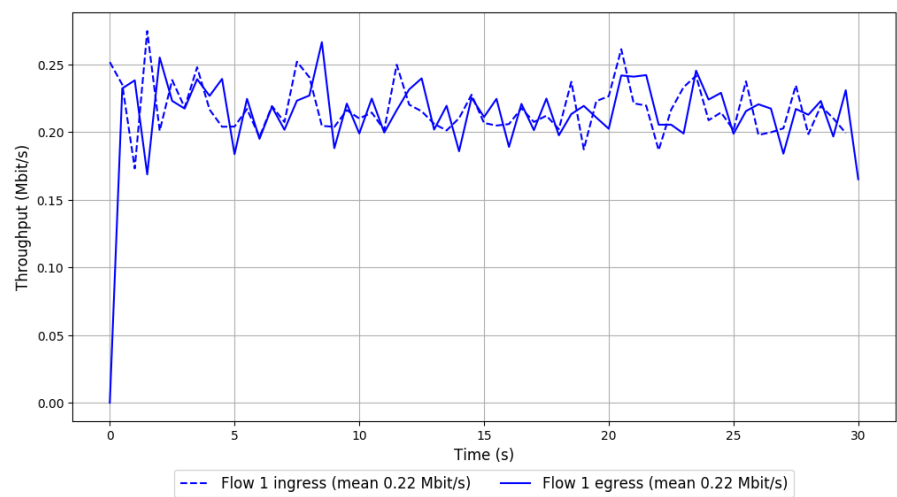
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 59.007 ms

Loss rate: 0.39%

Run 4: Report of SReAM — Data Link

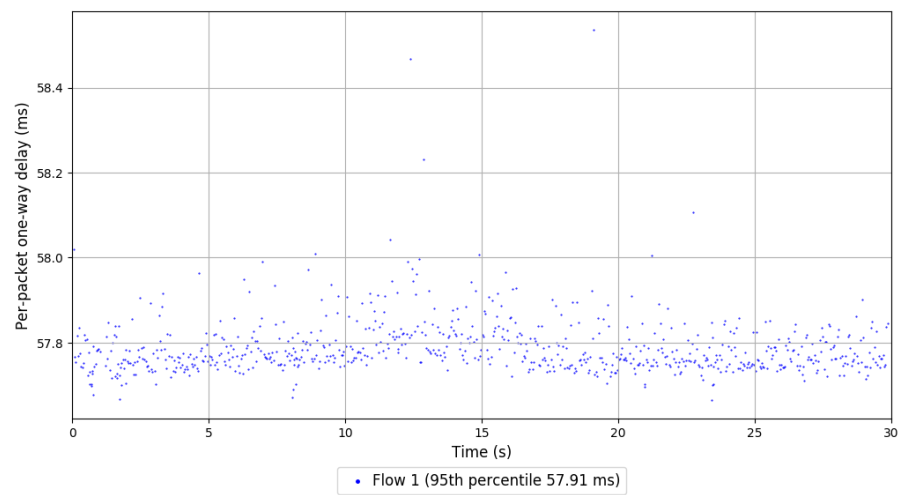
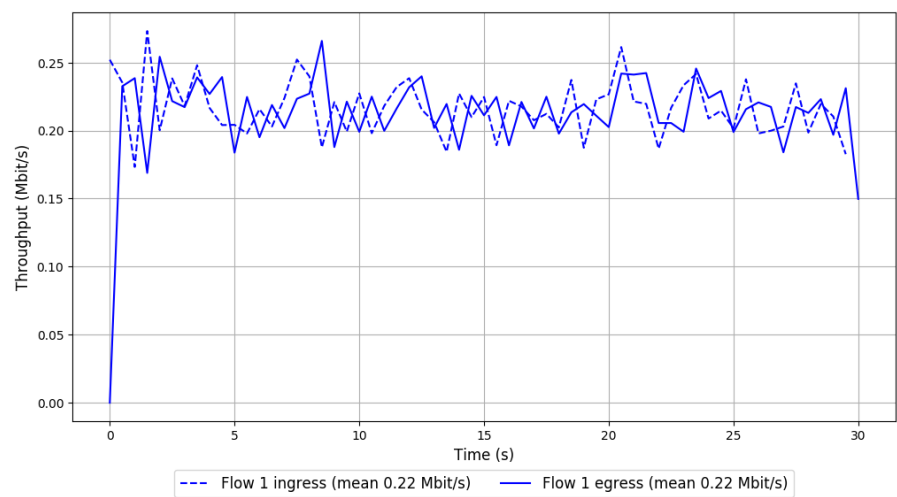


Run 5: Statistics of SCReAM

Start at: 2018-12-01 02:05:58
End at: 2018-12-01 02:06:28
Local clock offset: -0.43 ms
Remote clock offset: -1.064 ms

Below is generated by plot.py at 2018-12-01 03:58:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.908 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.908 ms
Loss rate: 0.38%

Run 5: Report of SReAM — Data Link



Run 1: Statistics of Sprout

Start at: 2018-12-01 00:07:01

End at: 2018-12-01 00:07:31

Local clock offset: -0.109 ms

Remote clock offset: 0.009 ms

Below is generated by plot.py at 2018-12-01 03:58:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 7.72 Mbit/s

95th percentile per-packet one-way delay: 57.669 ms

Loss rate: 0.44%

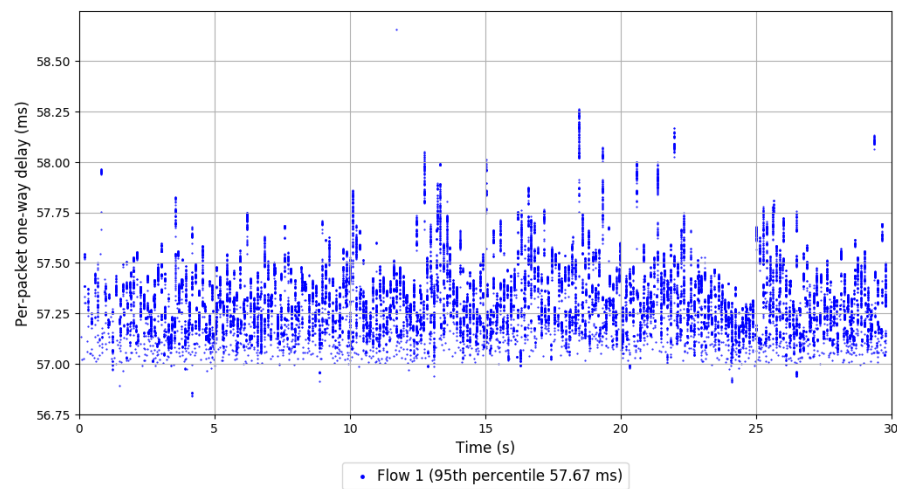
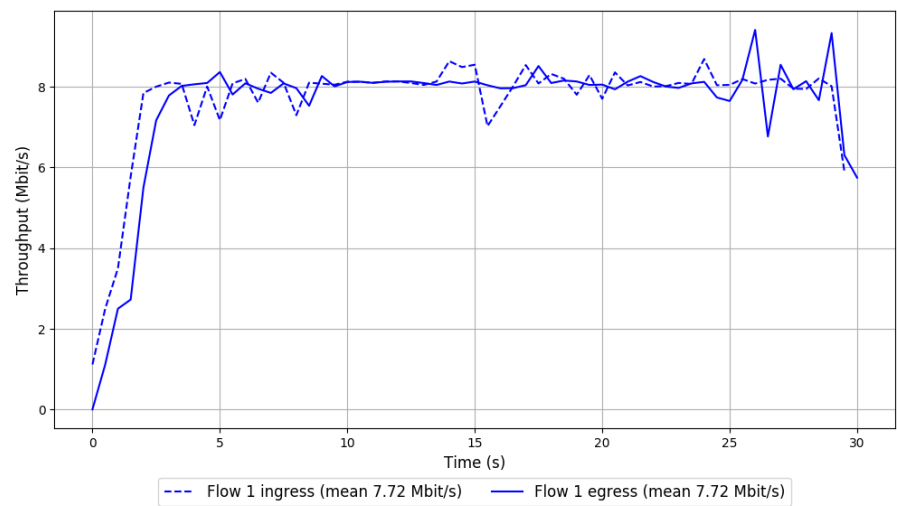
-- Flow 1:

Average throughput: 7.72 Mbit/s

95th percentile per-packet one-way delay: 57.669 ms

Loss rate: 0.44%

Run 1: Report of Sprout — Data Link

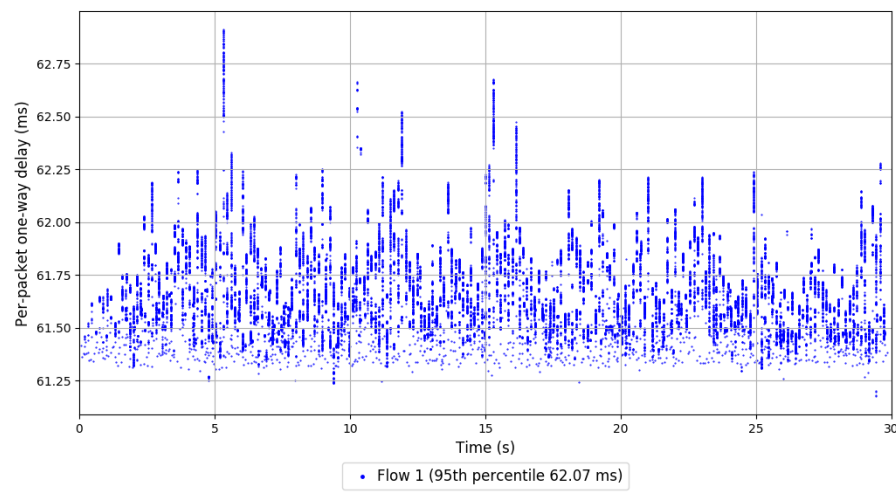
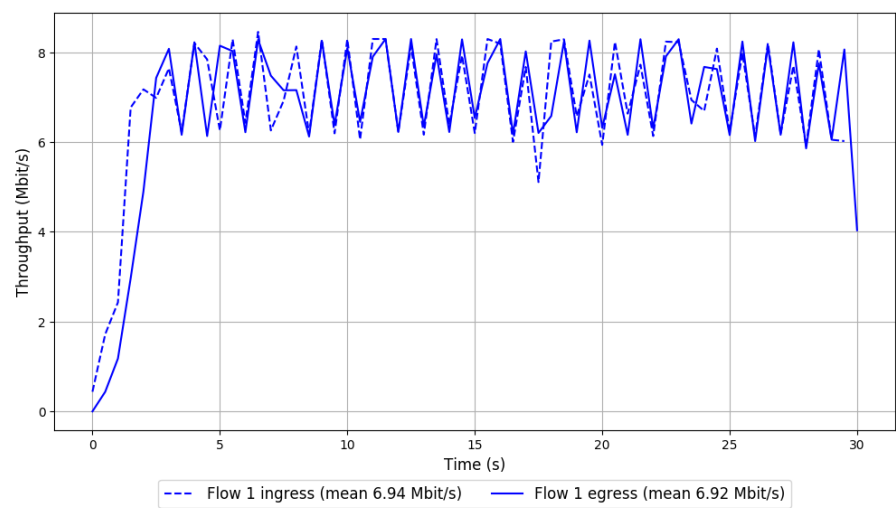


Run 2: Statistics of Sprout

Start at: 2018-12-01 00:36:19
End at: 2018-12-01 00:36:49
Local clock offset: 0.352 ms
Remote clock offset: -0.242 ms

Below is generated by plot.py at 2018-12-01 03:58:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 6.92 Mbit/s
95th percentile per-packet one-way delay: 62.067 ms
Loss rate: 0.48%
-- Flow 1:
Average throughput: 6.92 Mbit/s
95th percentile per-packet one-way delay: 62.067 ms
Loss rate: 0.48%

Run 2: Report of Sprout — Data Link

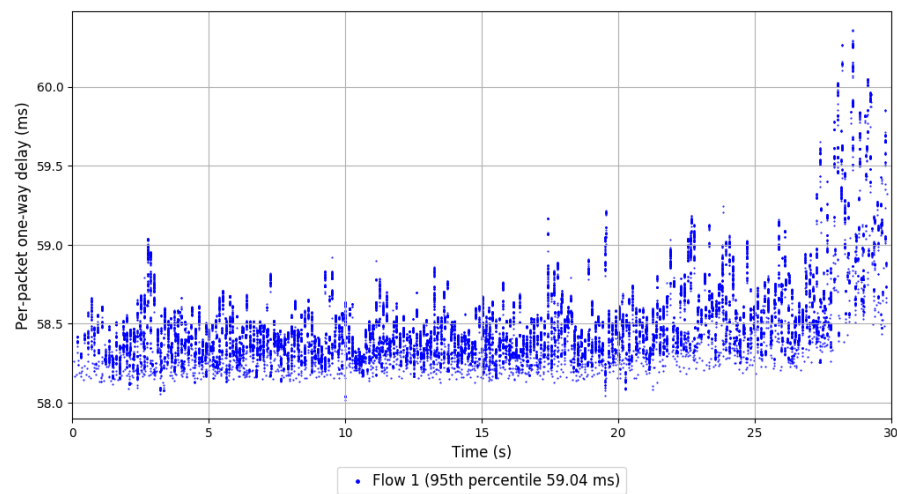
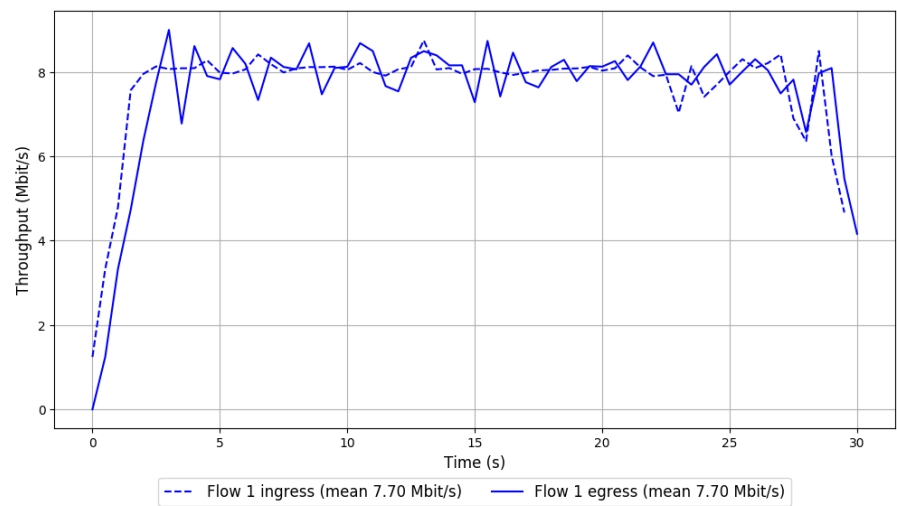


Run 3: Statistics of Sprout

Start at: 2018-12-01 01:05:11
End at: 2018-12-01 01:05:41
Local clock offset: -0.1 ms
Remote clock offset: -0.791 ms

Below is generated by plot.py at 2018-12-01 03:58:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.70 Mbit/s
95th percentile per-packet one-way delay: 59.040 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 7.70 Mbit/s
95th percentile per-packet one-way delay: 59.040 ms
Loss rate: 0.34%

Run 3: Report of Sprout — Data Link



Run 4: Statistics of Sprout

Start at: 2018-12-01 01:35:08

End at: 2018-12-01 01:35:38

Local clock offset: -0.08 ms

Remote clock offset: 0.925 ms

Below is generated by plot.py at 2018-12-01 03:58:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 6.98 Mbit/s

95th percentile per-packet one-way delay: 60.373 ms

Loss rate: 0.50%

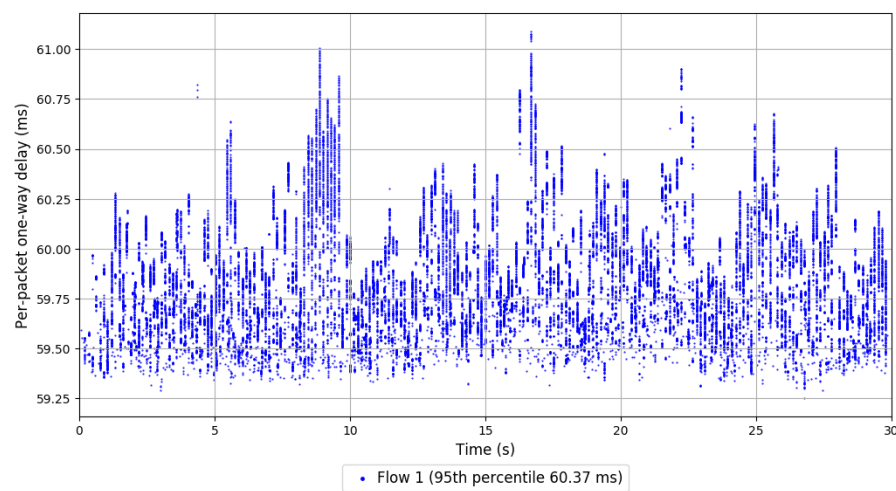
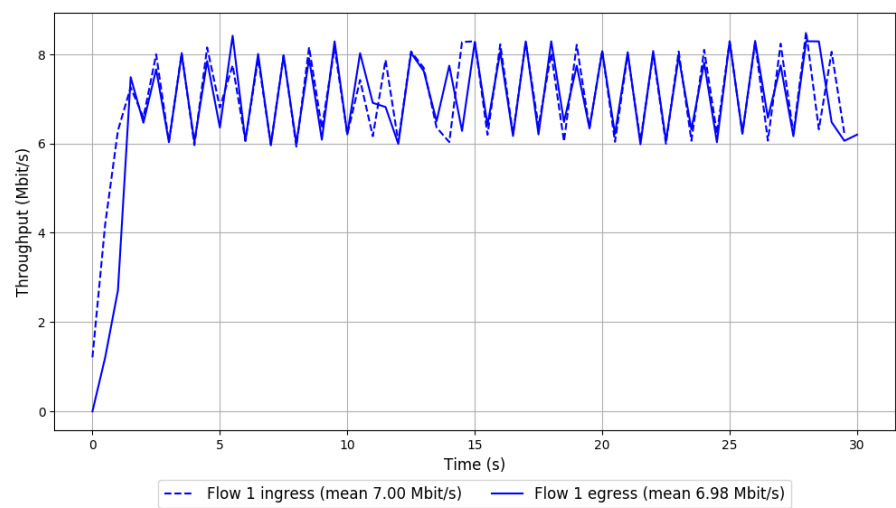
-- Flow 1:

Average throughput: 6.98 Mbit/s

95th percentile per-packet one-way delay: 60.373 ms

Loss rate: 0.50%

Run 4: Report of Sprout — Data Link



Run 5: Statistics of Sprout

Start at: 2018-12-01 02:04:49

End at: 2018-12-01 02:05:19

Local clock offset: -0.308 ms

Remote clock offset: -0.98 ms

Below is generated by plot.py at 2018-12-01 03:58:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 7.69 Mbit/s

95th percentile per-packet one-way delay: 57.979 ms

Loss rate: 0.40%

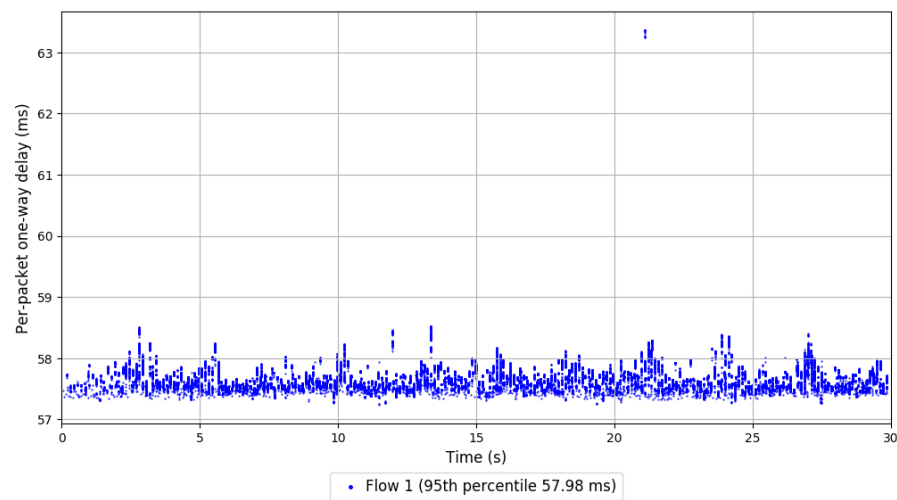
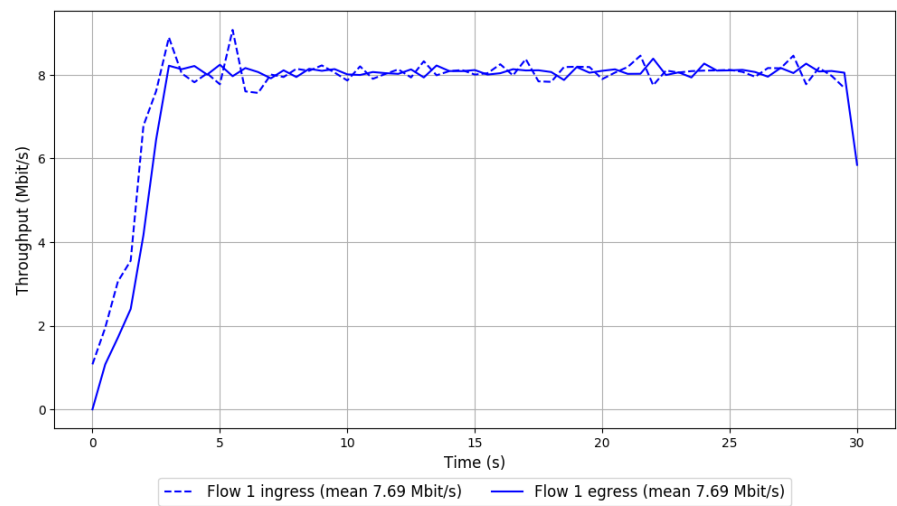
-- Flow 1:

Average throughput: 7.69 Mbit/s

95th percentile per-packet one-way delay: 57.979 ms

Loss rate: 0.40%

Run 5: Report of Sprout — Data Link

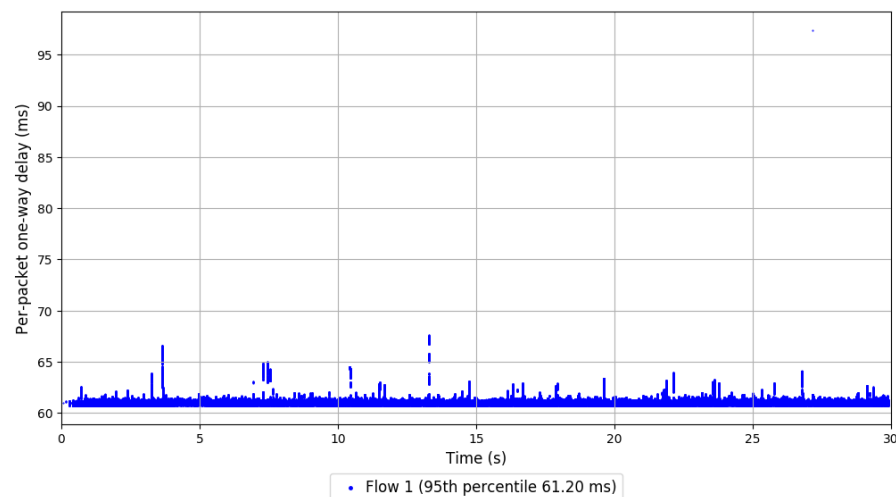
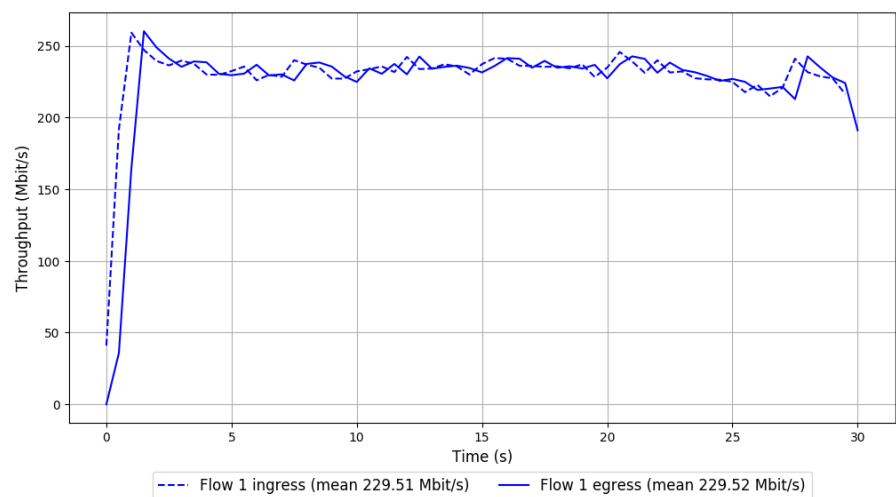


```
Run 1: Statistics of TaoVA-100x

Start at: 2018-12-01 00:10:30
End at: 2018-12-01 00:11:00
Local clock offset: -0.133 ms
Remote clock offset: -0.404 ms

# Below is generated by plot.py at 2018-12-01 04:02:32
# Datalink statistics
-- Total of 1 flow:
Average throughput: 229.52 Mbit/s
95th percentile per-packet one-way delay: 61.202 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 229.52 Mbit/s
95th percentile per-packet one-way delay: 61.202 ms
Loss rate: 0.40%
```

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-12-01 00:39:48

End at: 2018-12-01 00:40:18

Local clock offset: 0.198 ms

Remote clock offset: -0.767 ms

Below is generated by plot.py at 2018-12-01 04:02:32

Datalink statistics

-- Total of 1 flow:

Average throughput: 221.53 Mbit/s

95th percentile per-packet one-way delay: 58.342 ms

Loss rate: 0.40%

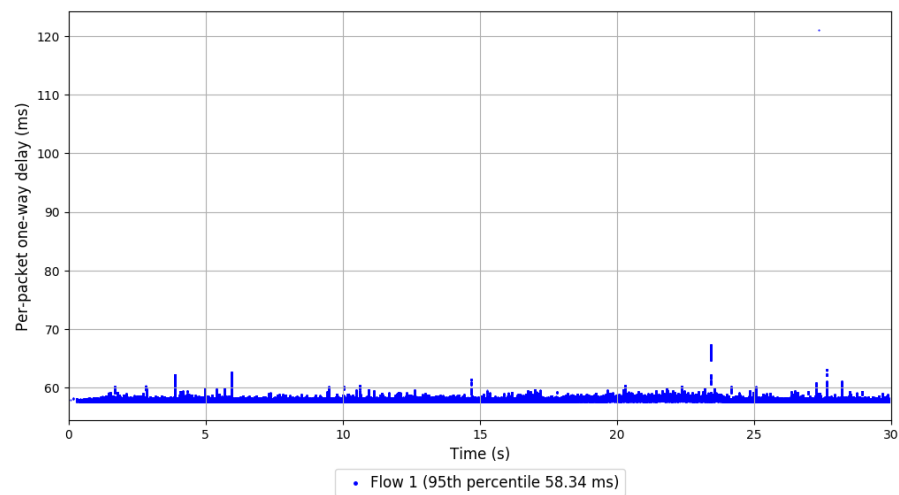
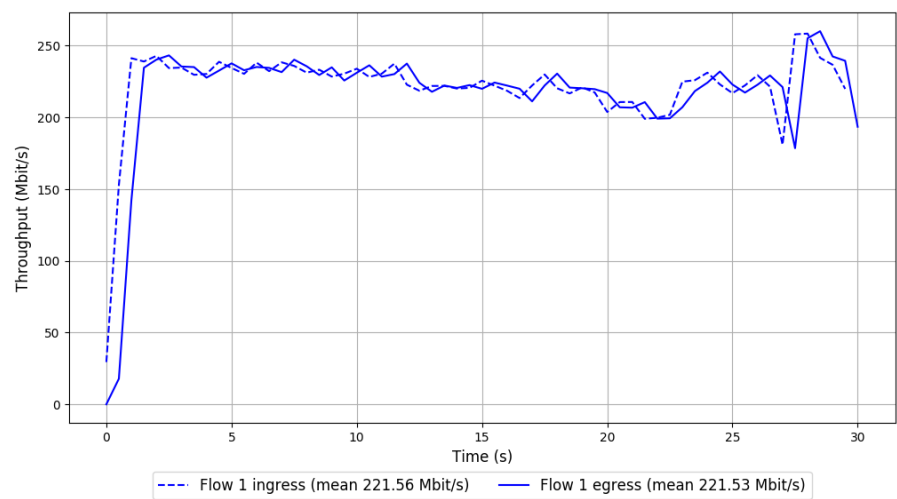
-- Flow 1:

Average throughput: 221.53 Mbit/s

95th percentile per-packet one-way delay: 58.342 ms

Loss rate: 0.40%

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

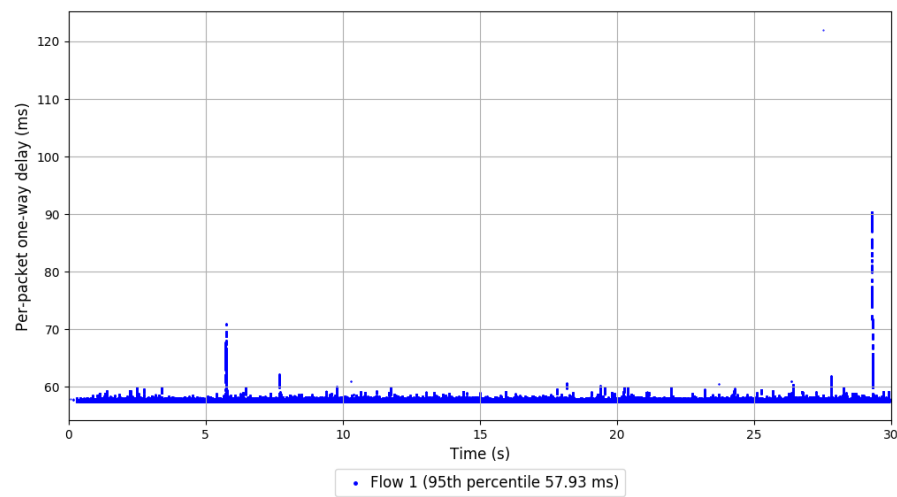
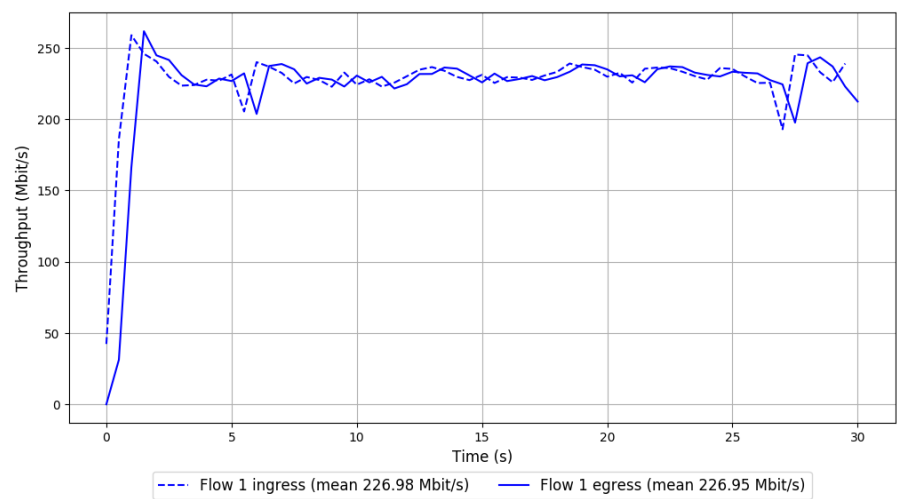


Run 3: Statistics of TaoVA-100x

Start at: 2018-12-01 01:08:40
End at: 2018-12-01 01:09:10
Local clock offset: 0.265 ms
Remote clock offset: -0.083 ms

Below is generated by plot.py at 2018-12-01 04:02:34
Datalink statistics
-- Total of 1 flow:
Average throughput: 226.95 Mbit/s
95th percentile per-packet one-way delay: 57.928 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 226.95 Mbit/s
95th percentile per-packet one-way delay: 57.928 ms
Loss rate: 0.40%

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

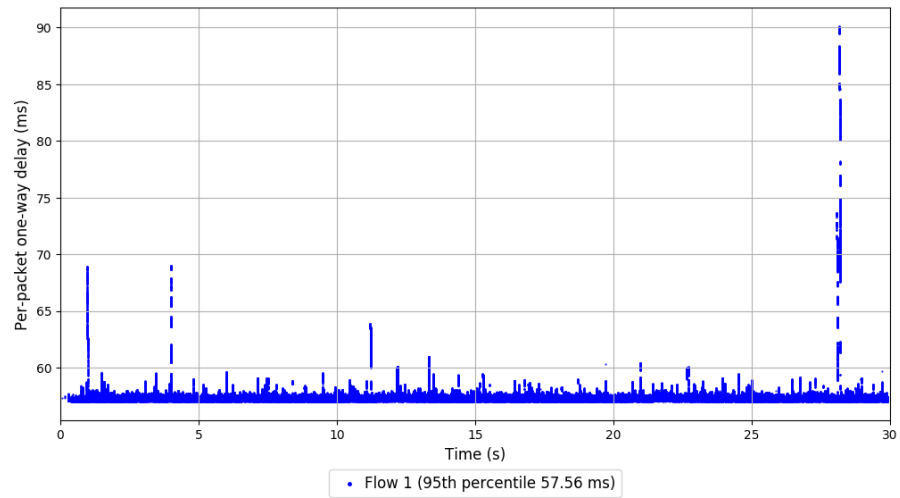
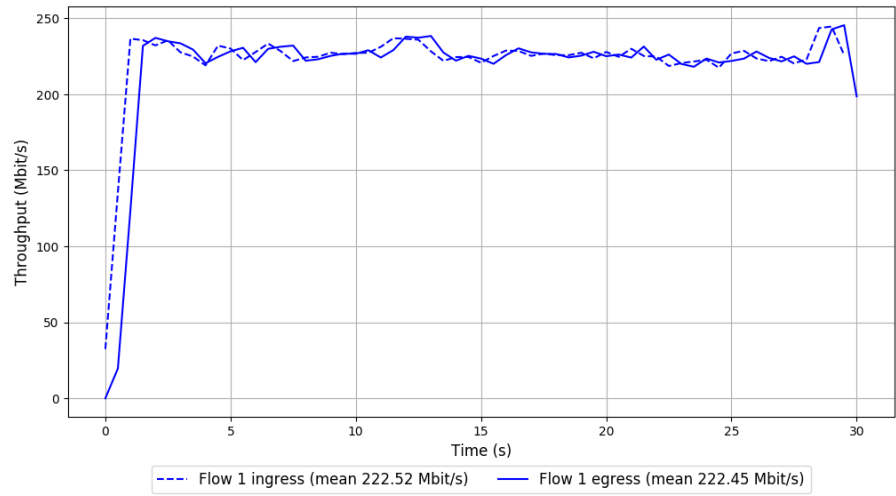


Run 4: Statistics of TaoVA-100x

Start at: 2018-12-01 01:38:37
End at: 2018-12-01 01:39:07
Local clock offset: -0.069 ms
Remote clock offset: -0.054 ms

Below is generated by plot.py at 2018-12-01 04:02:38
Datalink statistics
-- Total of 1 flow:
Average throughput: 222.45 Mbit/s
95th percentile per-packet one-way delay: 57.556 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 222.45 Mbit/s
95th percentile per-packet one-way delay: 57.556 ms
Loss rate: 0.41%

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



Run 5: Statistics of TaoVA-100x

Start at: 2018-12-01 02:08:20

End at: 2018-12-01 02:08:50

Local clock offset: 0.001 ms

Remote clock offset: -1.467 ms

Below is generated by plot.py at 2018-12-01 04:02:55

Datalink statistics

-- Total of 1 flow:

Average throughput: 230.70 Mbit/s

95th percentile per-packet one-way delay: 58.602 ms

Loss rate: 0.38%

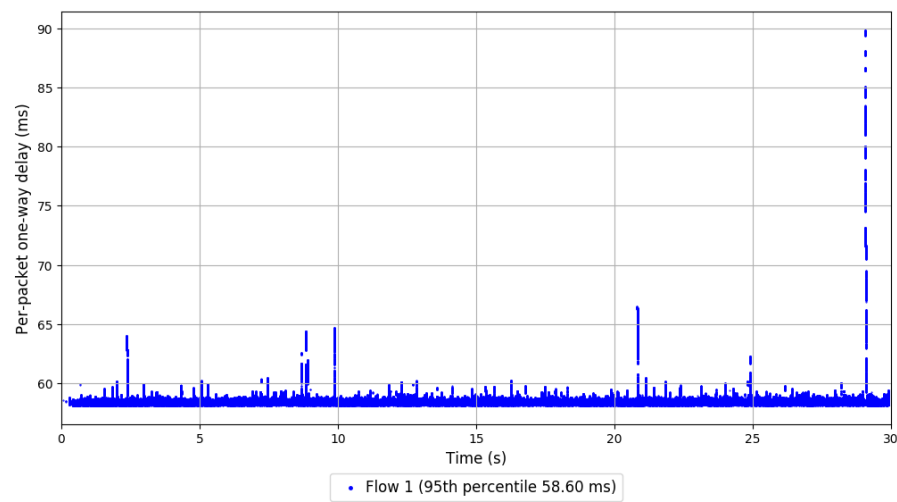
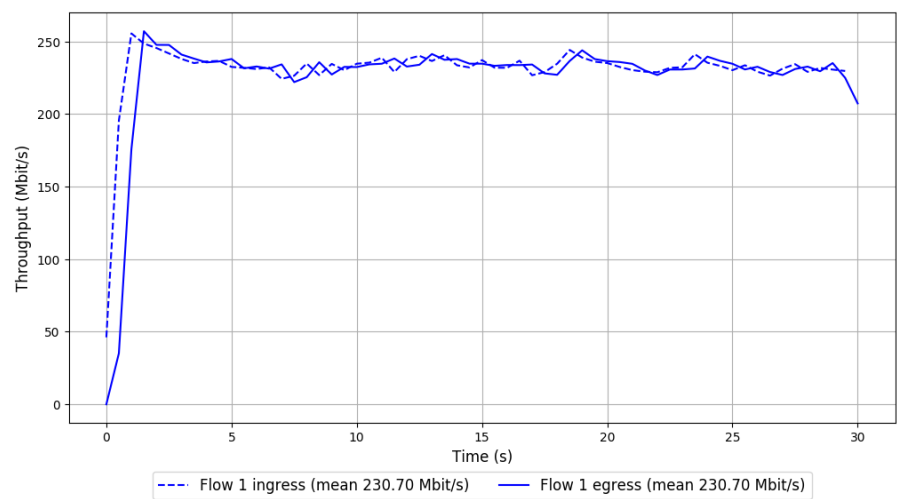
-- Flow 1:

Average throughput: 230.70 Mbit/s

95th percentile per-packet one-way delay: 58.602 ms

Loss rate: 0.38%

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

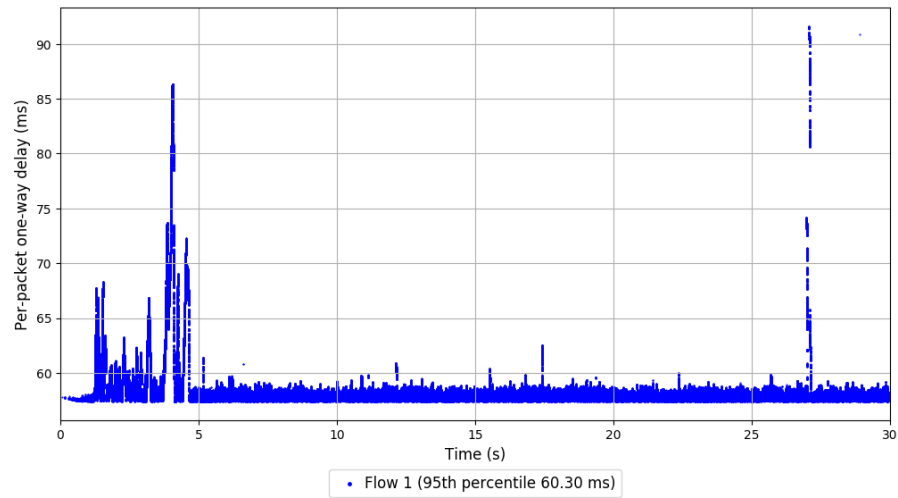
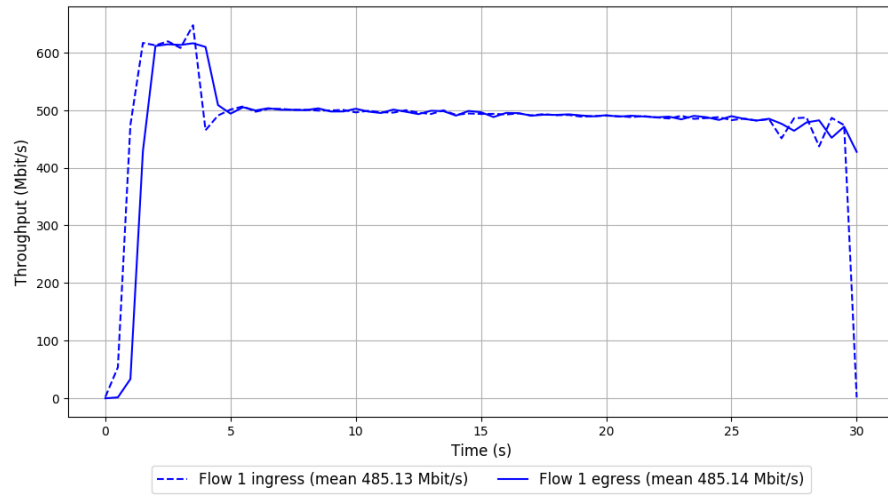


Run 1: Statistics of TCP Vegas

Start at: 2018-11-30 23:57:28
End at: 2018-11-30 23:57:58
Local clock offset: 0.297 ms
Remote clock offset: -0.146 ms

Below is generated by plot.py at 2018-12-01 04:07:13
Datalink statistics
-- Total of 1 flow:
Average throughput: 485.14 Mbit/s
95th percentile per-packet one-way delay: 60.301 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 485.14 Mbit/s
95th percentile per-packet one-way delay: 60.301 ms
Loss rate: 0.38%

Run 1: Report of TCP Vegas — Data Link

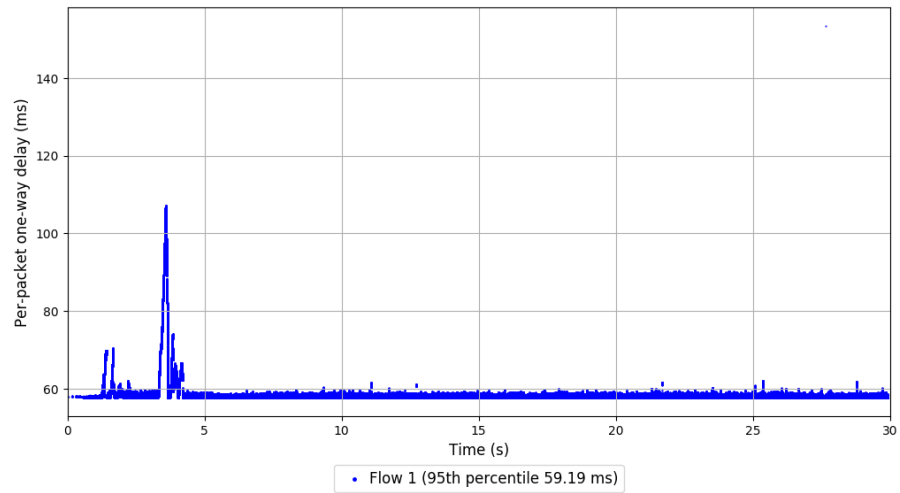
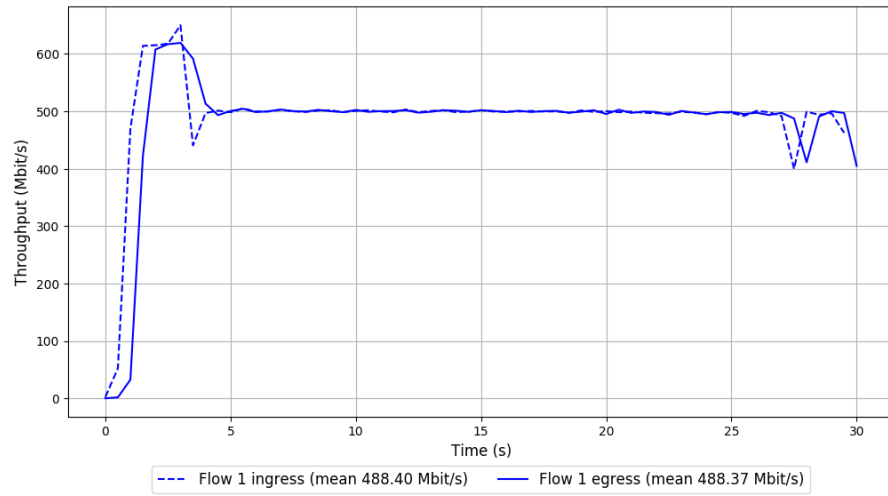


Run 2: Statistics of TCP Vegas

Start at: 2018-12-01 00:26:38
End at: 2018-12-01 00:27:08
Local clock offset: 0.289 ms
Remote clock offset: -0.224 ms

Below is generated by plot.py at 2018-12-01 04:08:02
Datalink statistics
-- Total of 1 flow:
Average throughput: 488.37 Mbit/s
95th percentile per-packet one-way delay: 59.191 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 488.37 Mbit/s
95th percentile per-packet one-way delay: 59.191 ms
Loss rate: 0.39%

Run 2: Report of TCP Vegas — Data Link

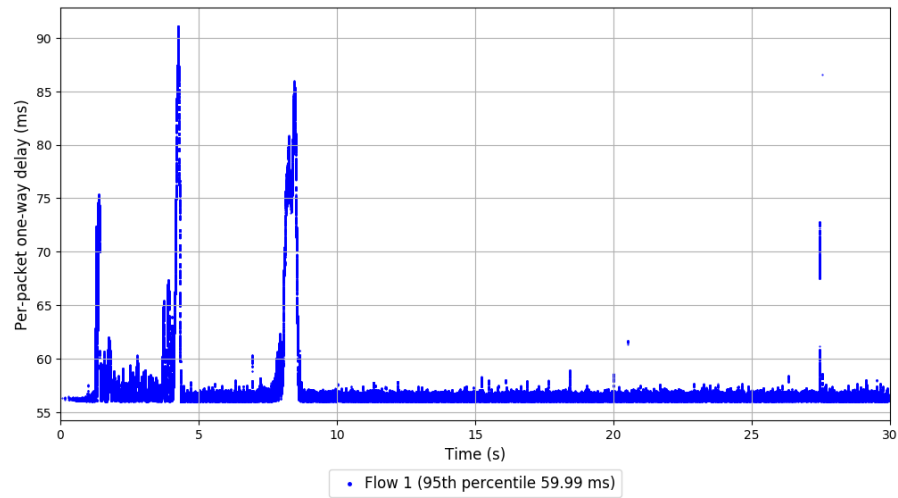
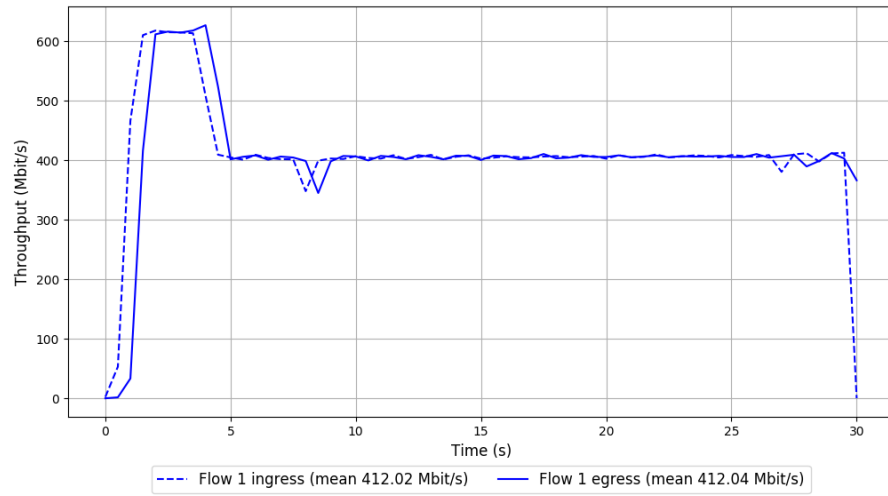


Run 3: Statistics of TCP Vegas

Start at: 2018-12-01 00:55:40
End at: 2018-12-01 00:56:10
Local clock offset: -0.509 ms
Remote clock offset: 0.457 ms

Below is generated by plot.py at 2018-12-01 04:08:02
Datalink statistics
-- Total of 1 flow:
Average throughput: 412.04 Mbit/s
95th percentile per-packet one-way delay: 59.994 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 412.04 Mbit/s
95th percentile per-packet one-way delay: 59.994 ms
Loss rate: 0.38%

Run 3: Report of TCP Vegas — Data Link

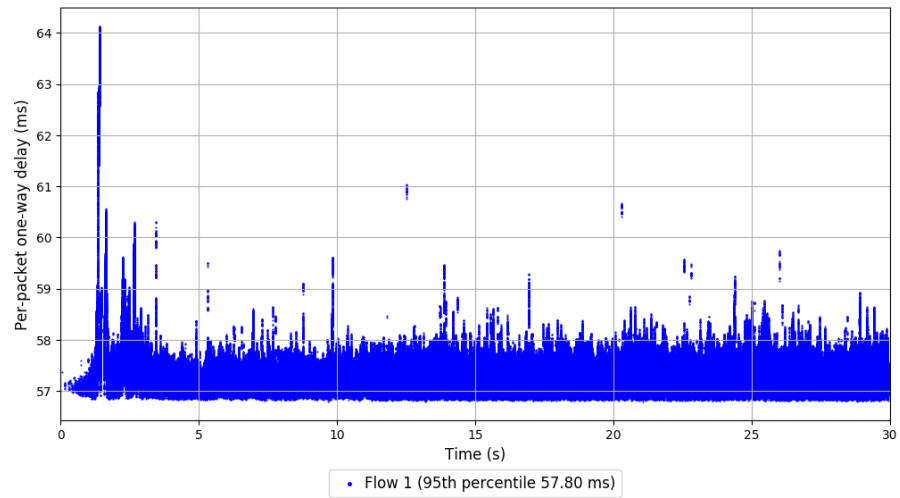
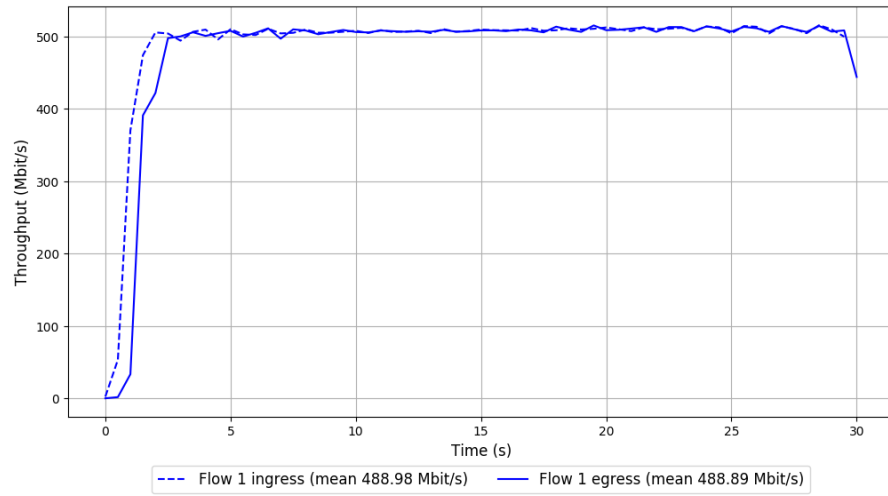


Run 4: Statistics of TCP Vegas

Start at: 2018-12-01 01:25:18
End at: 2018-12-01 01:25:48
Local clock offset: -0.192 ms
Remote clock offset: 0.007 ms

Below is generated by plot.py at 2018-12-01 04:12:16
Datalink statistics
-- Total of 1 flow:
Average throughput: 488.89 Mbit/s
95th percentile per-packet one-way delay: 57.801 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 488.89 Mbit/s
95th percentile per-packet one-way delay: 57.801 ms
Loss rate: 0.40%

Run 4: Report of TCP Vegas — Data Link

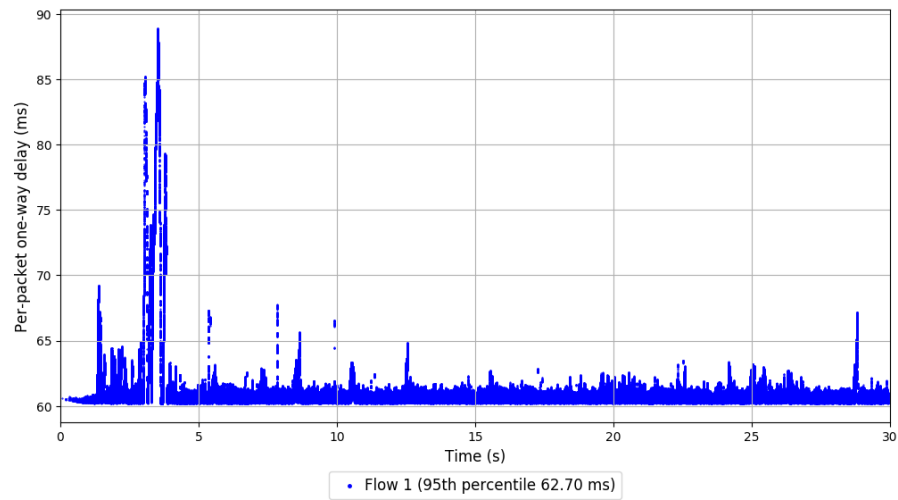
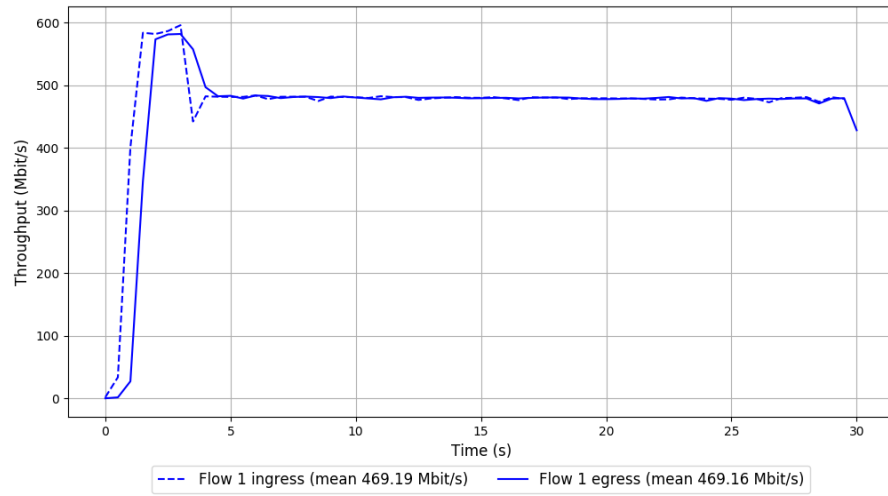


Run 5: Statistics of TCP Vegas

Start at: 2018-12-01 01:54:52
End at: 2018-12-01 01:55:22
Local clock offset: 0.193 ms
Remote clock offset: -0.208 ms

Below is generated by plot.py at 2018-12-01 04:12:16
Datalink statistics
-- Total of 1 flow:
Average throughput: 469.16 Mbit/s
95th percentile per-packet one-way delay: 62.697 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 469.16 Mbit/s
95th percentile per-packet one-way delay: 62.697 ms
Loss rate: 0.40%

Run 5: Report of TCP Vegas — Data Link

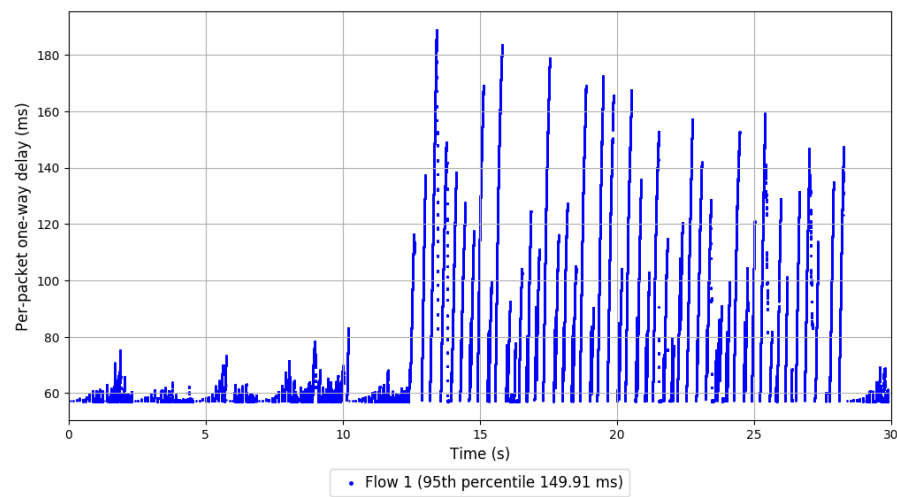
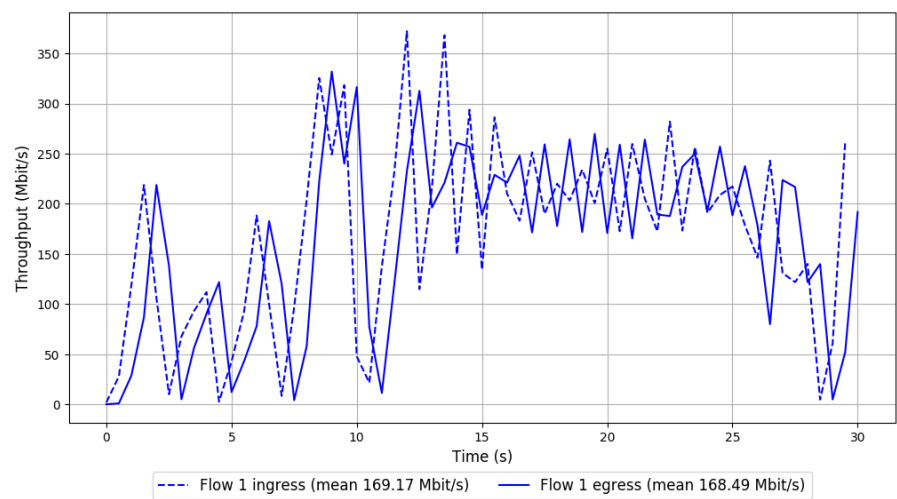


Run 1: Statistics of Verus

Start at: 2018-12-01 00:15:20
End at: 2018-12-01 00:15:50
Local clock offset: -0.355 ms
Remote clock offset: -0.199 ms

Below is generated by plot.py at 2018-12-01 04:12:16
Datalink statistics
-- Total of 1 flow:
Average throughput: 168.49 Mbit/s
95th percentile per-packet one-way delay: 149.906 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 168.49 Mbit/s
95th percentile per-packet one-way delay: 149.906 ms
Loss rate: 0.78%

Run 1: Report of Verus — Data Link

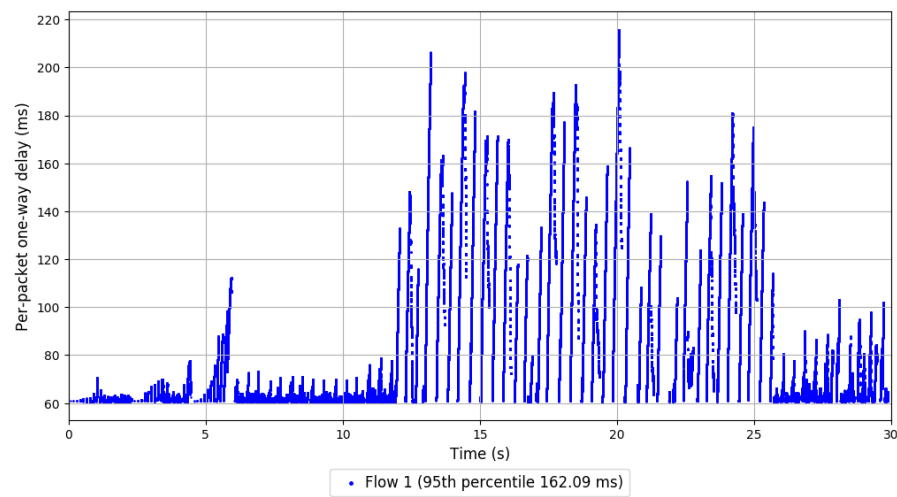
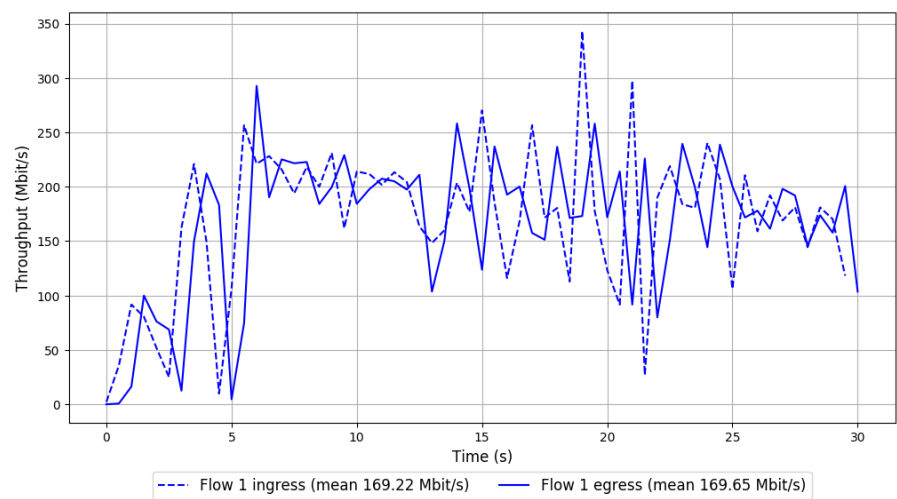


Run 2: Statistics of Verus

Start at: 2018-12-01 00:44:27
End at: 2018-12-01 00:44:57
Local clock offset: 0.126 ms
Remote clock offset: -0.202 ms

Below is generated by plot.py at 2018-12-01 04:12:16
Datalink statistics
-- Total of 1 flow:
Average throughput: 169.65 Mbit/s
95th percentile per-packet one-way delay: 162.091 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 169.65 Mbit/s
95th percentile per-packet one-way delay: 162.091 ms
Loss rate: 0.15%

Run 2: Report of Verus — Data Link

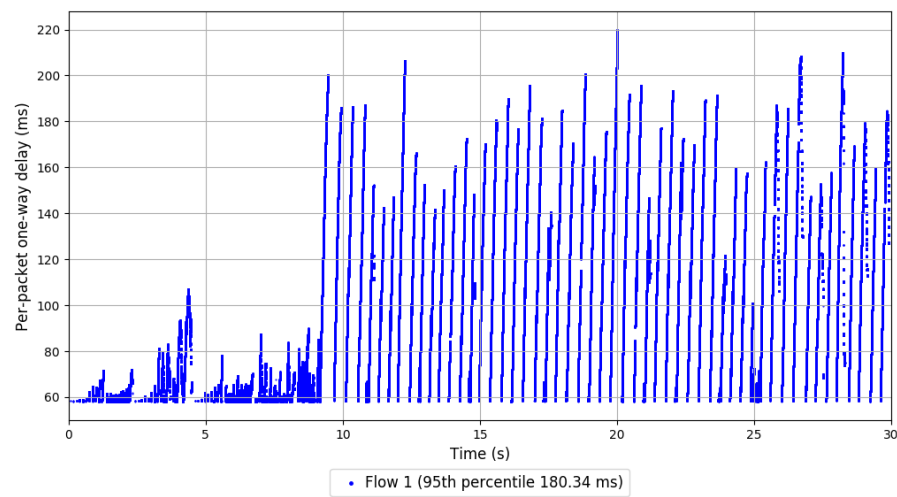
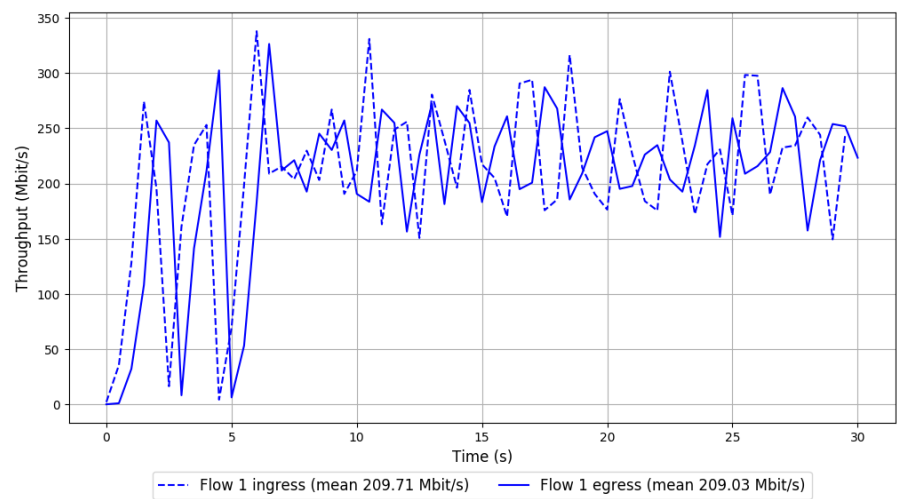


Run 3: Statistics of Verus

Start at: 2018-12-01 01:13:38
End at: 2018-12-01 01:14:08
Local clock offset: -0.506 ms
Remote clock offset: -1.273 ms

Below is generated by plot.py at 2018-12-01 04:12:16
Datalink statistics
-- Total of 1 flow:
Average throughput: 209.03 Mbit/s
95th percentile per-packet one-way delay: 180.335 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 209.03 Mbit/s
95th percentile per-packet one-way delay: 180.335 ms
Loss rate: 0.71%

Run 3: Report of Verus — Data Link



Run 4: Statistics of Verus

Start at: 2018-12-01 01:43:23

End at: 2018-12-01 01:43:53

Local clock offset: 0.421 ms

Remote clock offset: 1.025 ms

Below is generated by plot.py at 2018-12-01 04:14:29

Datalink statistics

-- Total of 1 flow:

Average throughput: 187.11 Mbit/s

95th percentile per-packet one-way delay: 197.505 ms

Loss rate: 4.21%

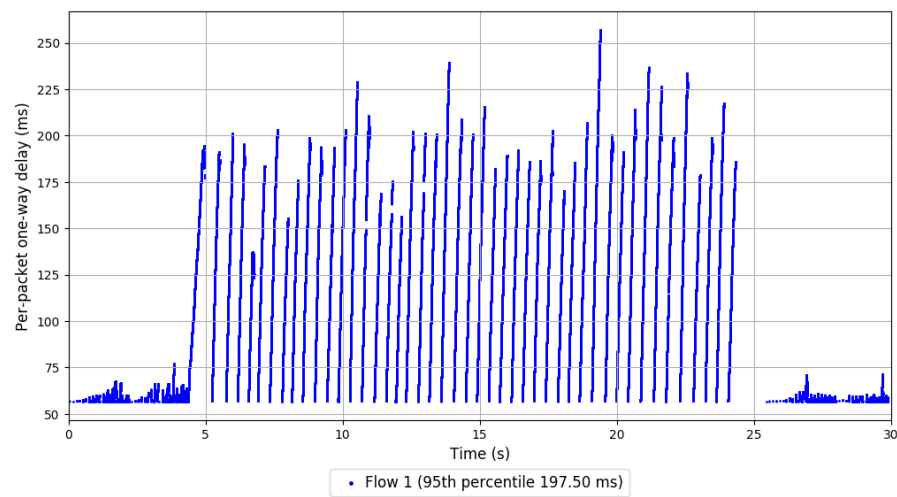
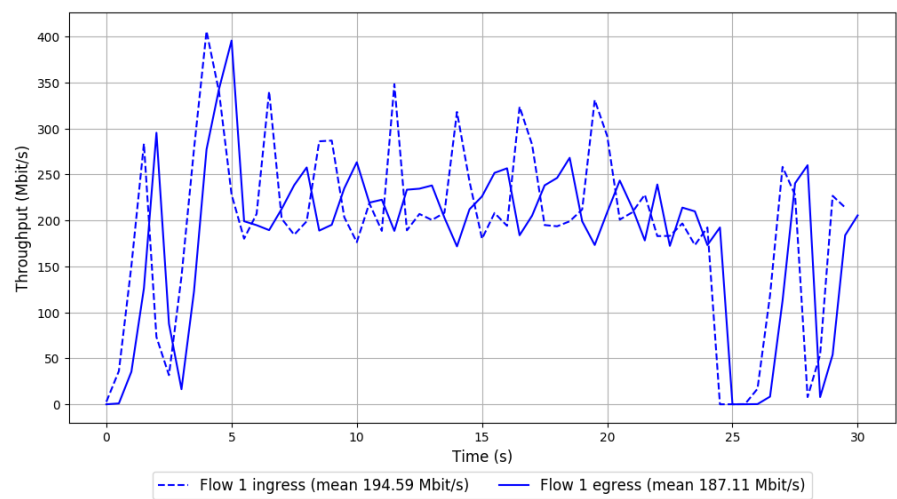
-- Flow 1:

Average throughput: 187.11 Mbit/s

95th percentile per-packet one-way delay: 197.505 ms

Loss rate: 4.21%

Run 4: Report of Verus — Data Link

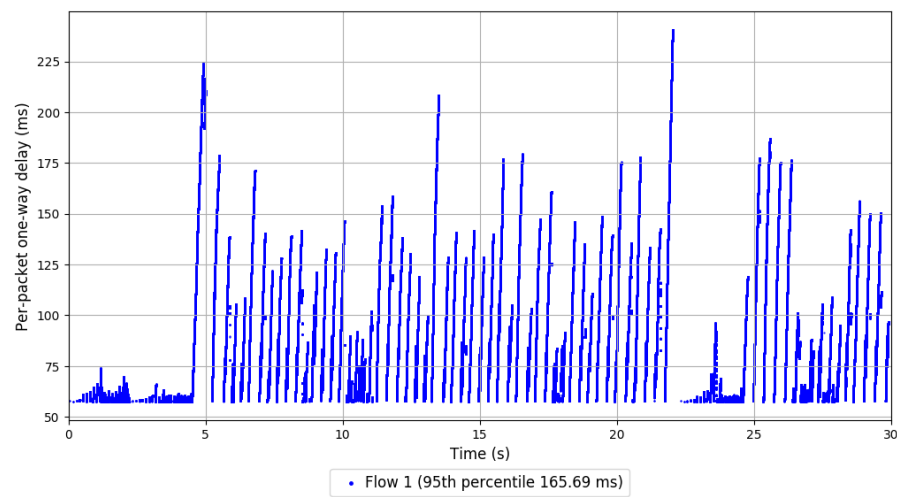
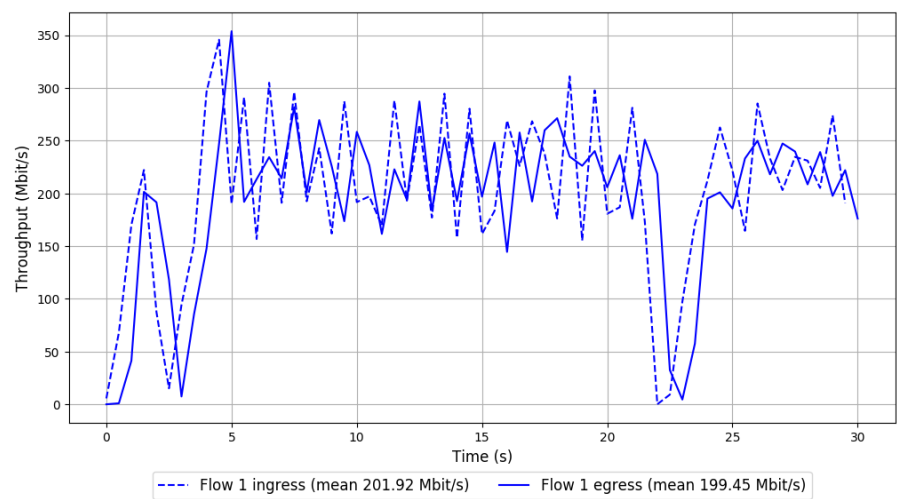


Run 5: Statistics of Verus

Start at: 2018-12-01 02:13:22
End at: 2018-12-01 02:13:52
Local clock offset: -0.416 ms
Remote clock offset: -1.052 ms

Below is generated by plot.py at 2018-12-01 04:14:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 199.45 Mbit/s
95th percentile per-packet one-way delay: 165.685 ms
Loss rate: 1.53%
-- Flow 1:
Average throughput: 199.45 Mbit/s
95th percentile per-packet one-way delay: 165.685 ms
Loss rate: 1.53%

Run 5: Report of Verus — Data Link

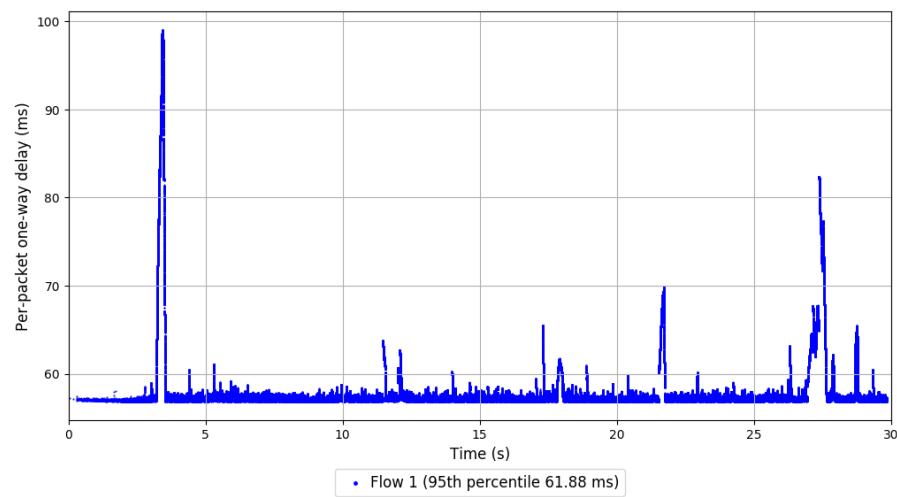
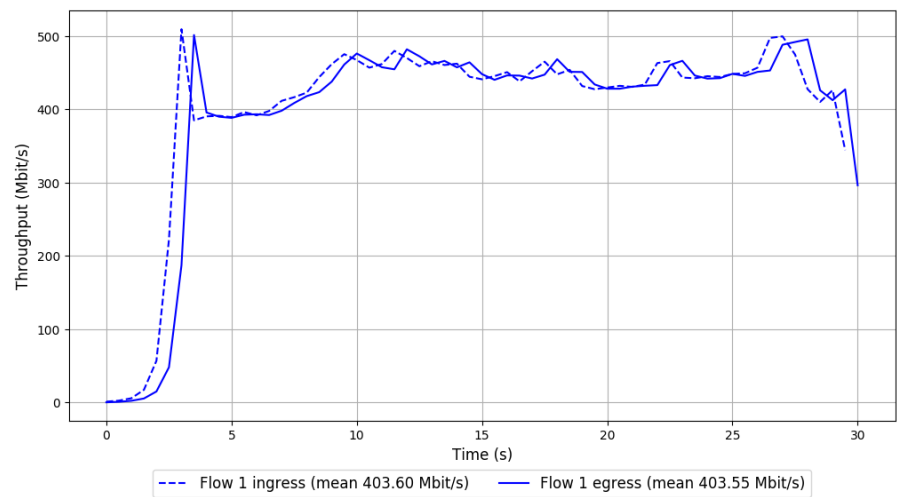


Run 1: Statistics of PCC-Vivace

Start at: 2018-12-01 00:03:36
End at: 2018-12-01 00:04:06
Local clock offset: -0.53 ms
Remote clock offset: -0.134 ms

Below is generated by plot.py at 2018-12-01 04:15:50
Datalink statistics
-- Total of 1 flow:
Average throughput: 403.55 Mbit/s
95th percentile per-packet one-way delay: 61.881 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 403.55 Mbit/s
95th percentile per-packet one-way delay: 61.881 ms
Loss rate: 0.40%

Run 1: Report of PCC-Vivace — Data Link



Run 2: Statistics of PCC-Vivace

Start at: 2018-12-01 00:32:54

End at: 2018-12-01 00:33:24

Local clock offset: -0.057 ms

Remote clock offset: 0.083 ms

Below is generated by plot.py at 2018-12-01 04:16:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 434.09 Mbit/s

95th percentile per-packet one-way delay: 59.914 ms

Loss rate: 0.46%

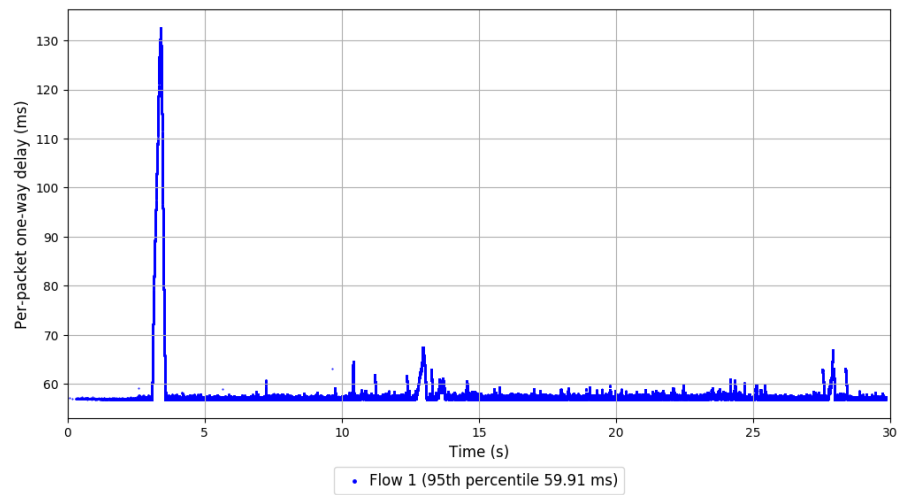
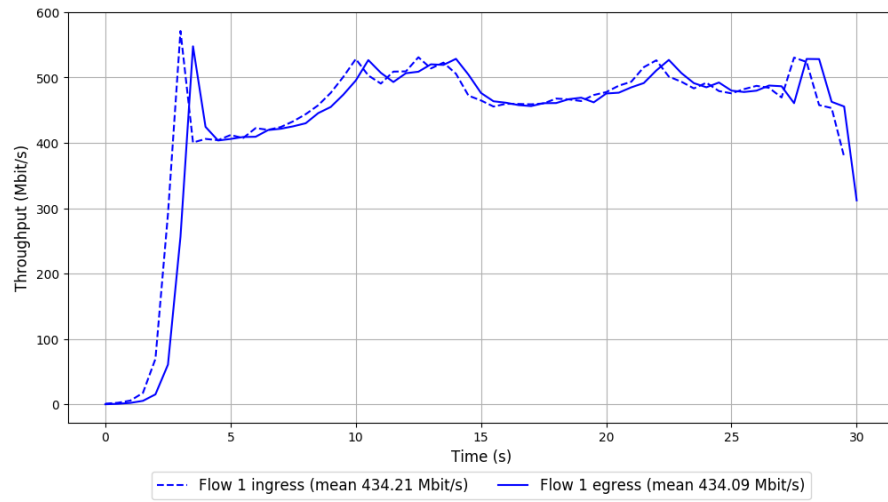
-- Flow 1:

Average throughput: 434.09 Mbit/s

95th percentile per-packet one-way delay: 59.914 ms

Loss rate: 0.46%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2018-12-01 01:01:54

End at: 2018-12-01 01:02:24

Local clock offset: -0.349 ms

Remote clock offset: 0.017 ms

Below is generated by plot.py at 2018-12-01 04:16:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 353.18 Mbit/s

95th percentile per-packet one-way delay: 204.414 ms

Loss rate: 3.50%

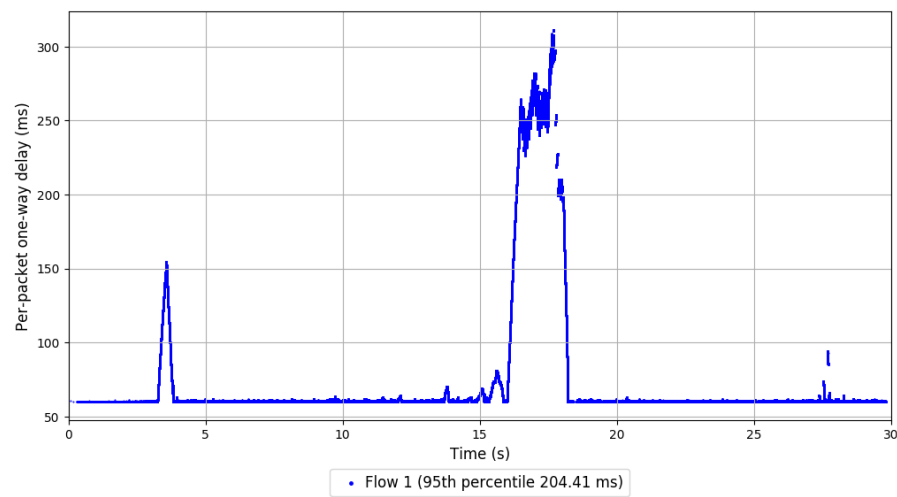
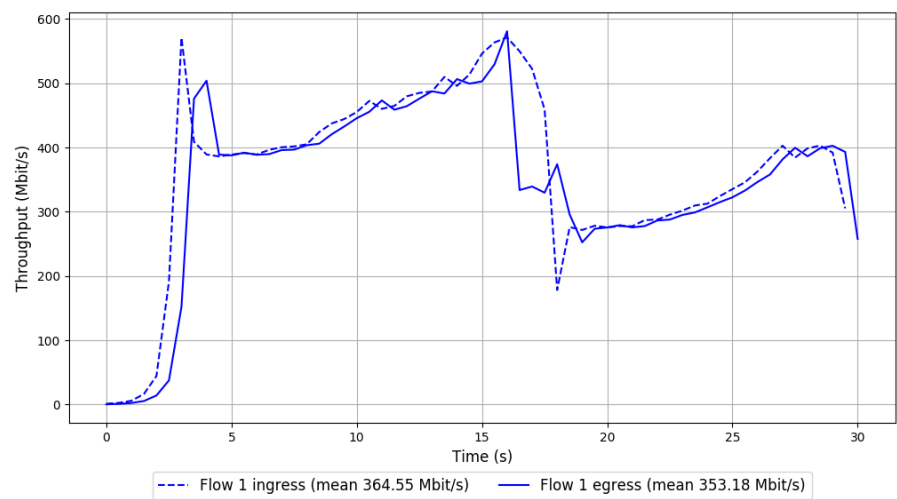
-- Flow 1:

Average throughput: 353.18 Mbit/s

95th percentile per-packet one-way delay: 204.414 ms

Loss rate: 3.50%

Run 3: Report of PCC-Vivace — Data Link



Run 4: Statistics of PCC-Vivace

Start at: 2018-12-01 01:31:38

End at: 2018-12-01 01:32:08

Local clock offset: 0.334 ms

Remote clock offset: 0.039 ms

Below is generated by plot.py at 2018-12-01 04:16:43

Datalink statistics

-- Total of 1 flow:

Average throughput: 406.87 Mbit/s

95th percentile per-packet one-way delay: 58.676 ms

Loss rate: 0.39%

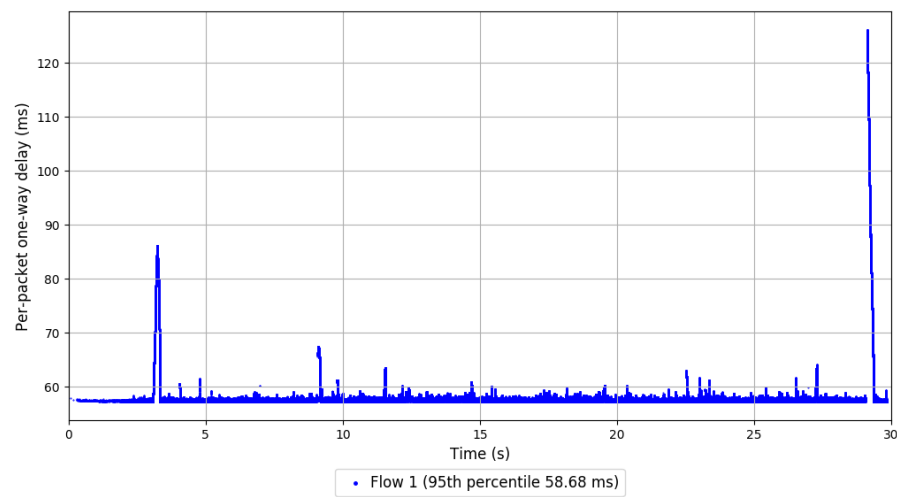
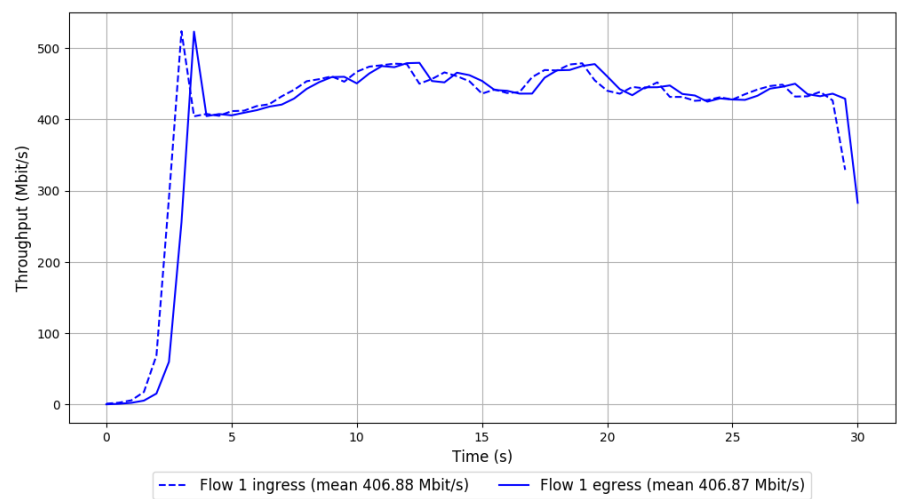
-- Flow 1:

Average throughput: 406.87 Mbit/s

95th percentile per-packet one-way delay: 58.676 ms

Loss rate: 0.39%

Run 4: Report of PCC-Vivace — Data Link



Run 5: Statistics of PCC-Vivace

Start at: 2018-12-01 02:01:09

End at: 2018-12-01 02:01:39

Local clock offset: -0.239 ms

Remote clock offset: -1.44 ms

Below is generated by plot.py at 2018-12-01 04:16:45

Datalink statistics

-- Total of 1 flow:

Average throughput: 396.77 Mbit/s

95th percentile per-packet one-way delay: 96.113 ms

Loss rate: 0.52%

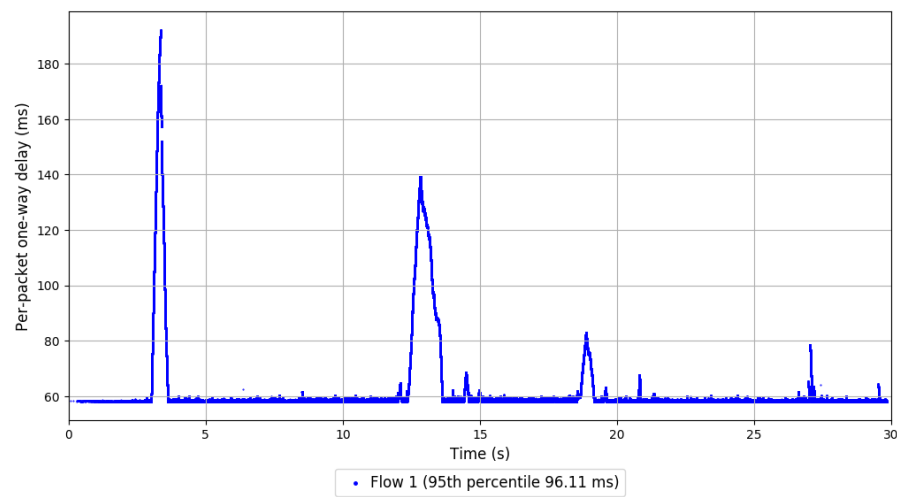
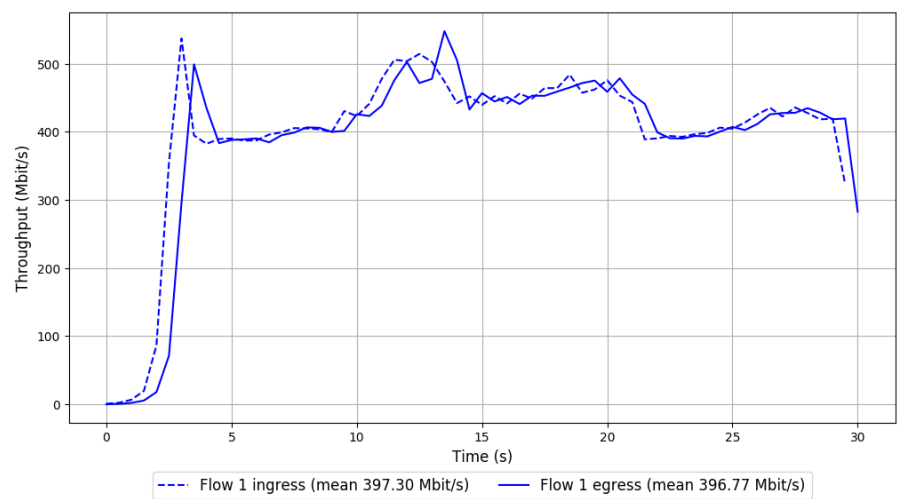
-- Flow 1:

Average throughput: 396.77 Mbit/s

95th percentile per-packet one-way delay: 96.113 ms

Loss rate: 0.52%

Run 5: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-12-01 00:16:48

End at: 2018-12-01 00:17:18

Local clock offset: -0.219 ms

Remote clock offset: 0.68 ms

Below is generated by plot.py at 2018-12-01 04:16:45

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.69 Mbit/s

95th percentile per-packet one-way delay: 56.917 ms

Loss rate: 0.55%

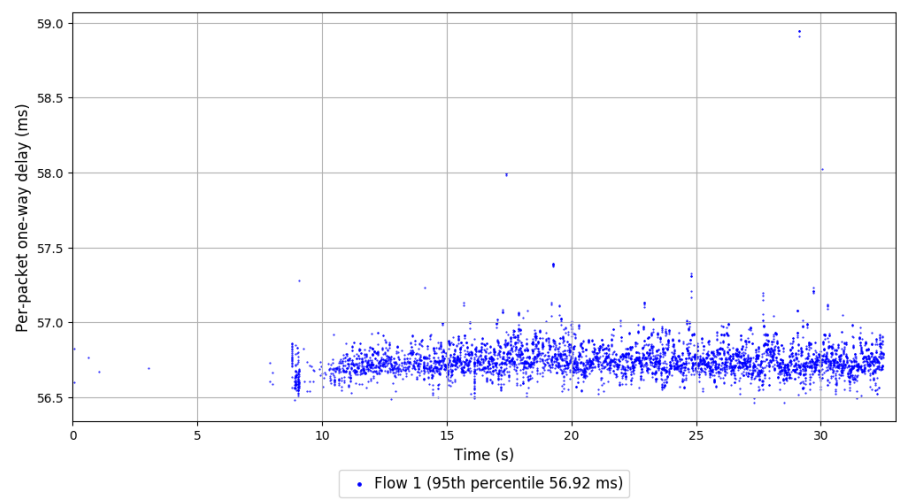
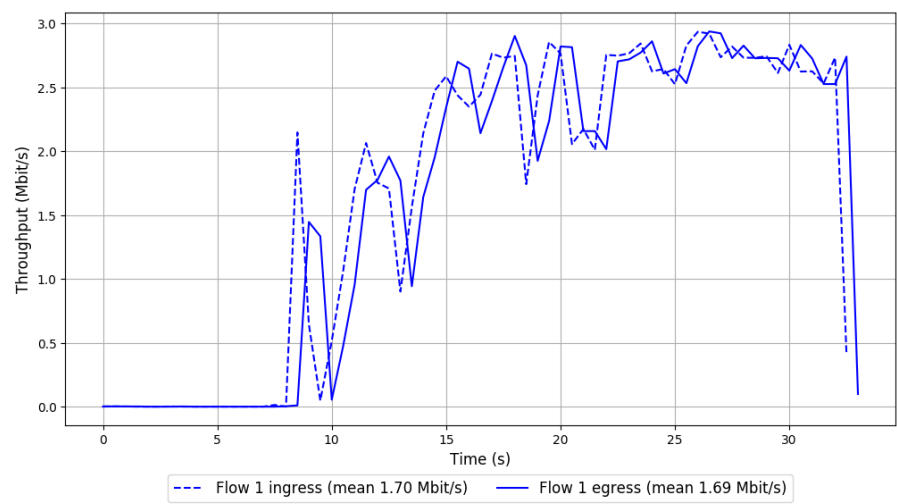
-- Flow 1:

Average throughput: 1.69 Mbit/s

95th percentile per-packet one-way delay: 56.917 ms

Loss rate: 0.55%

Run 1: Report of WebRTC media — Data Link

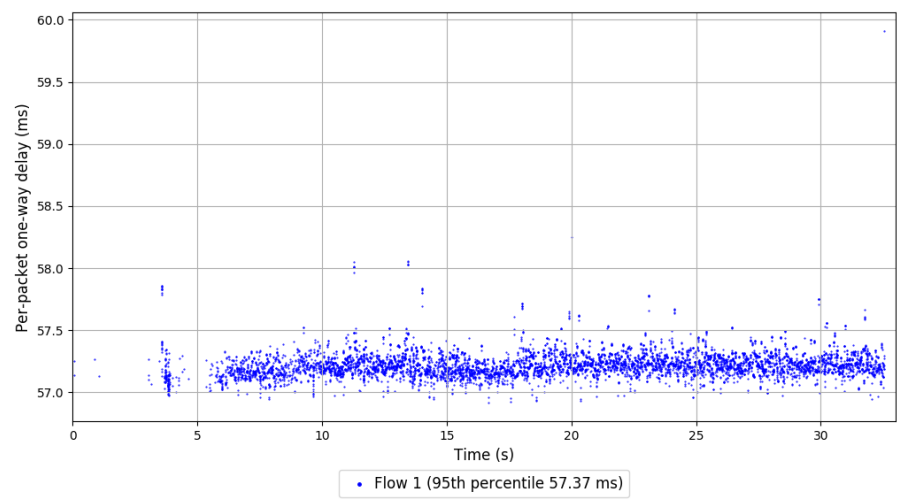
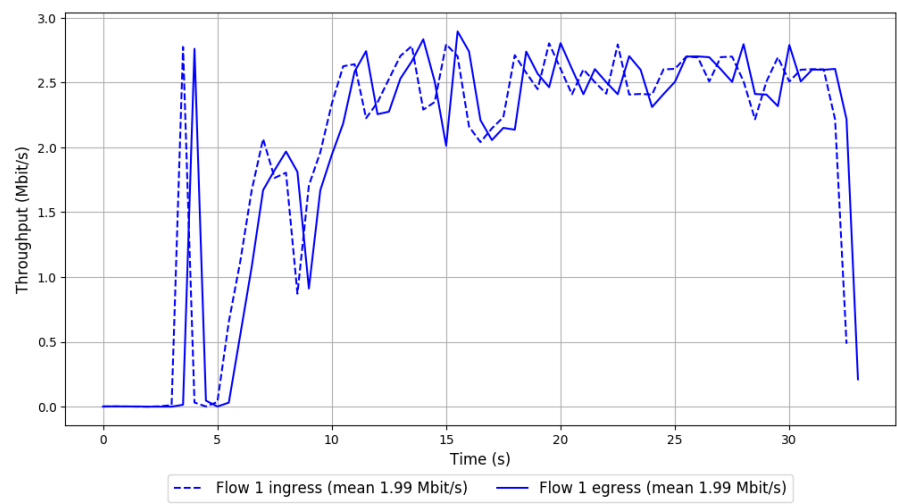


Run 2: Statistics of WebRTC media

Start at: 2018-12-01 00:45:52
End at: 2018-12-01 00:46:22
Local clock offset: -0.088 ms
Remote clock offset: -0.188 ms

Below is generated by plot.py at 2018-12-01 04:16:45
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.99 Mbit/s
95th percentile per-packet one-way delay: 57.370 ms
Loss rate: 0.43%
-- Flow 1:
Average throughput: 1.99 Mbit/s
95th percentile per-packet one-way delay: 57.370 ms
Loss rate: 0.43%

Run 2: Report of WebRTC media — Data Link

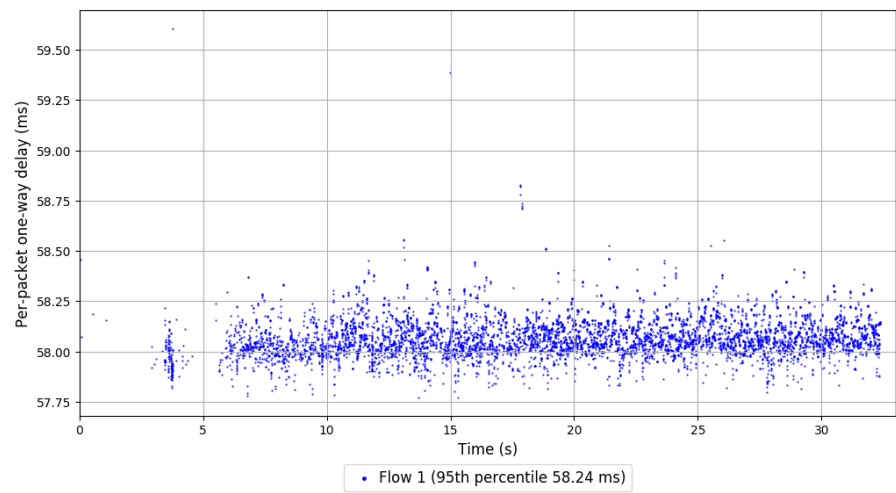
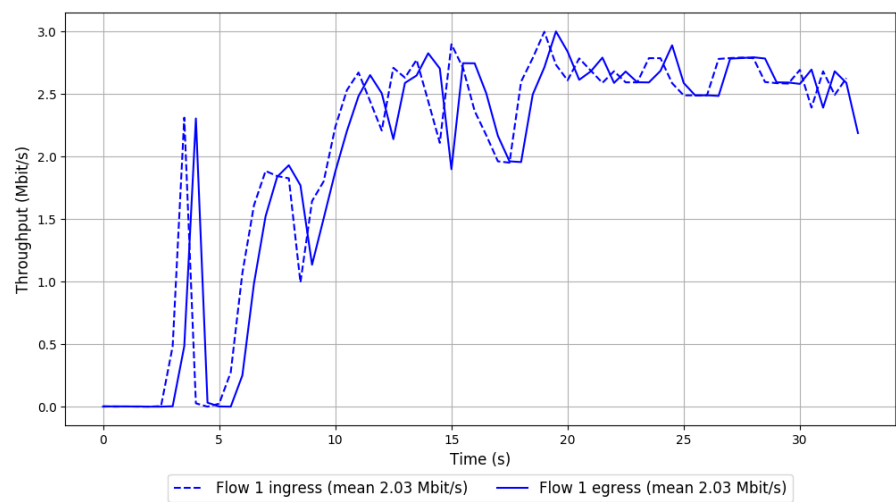


Run 3: Statistics of WebRTC media

Start at: 2018-12-01 01:15:11
End at: 2018-12-01 01:15:41
Local clock offset: 0.083 ms
Remote clock offset: -0.576 ms

Below is generated by plot.py at 2018-12-01 04:16:45
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.03 Mbit/s
95th percentile per-packet one-way delay: 58.236 ms
Loss rate: 0.49%
-- Flow 1:
Average throughput: 2.03 Mbit/s
95th percentile per-packet one-way delay: 58.236 ms
Loss rate: 0.49%

Run 3: Report of WebRTC media — Data Link



Run 4: Statistics of WebRTC media

Start at: 2018-12-01 01:44:57

End at: 2018-12-01 01:45:27

Local clock offset: -0.031 ms

Remote clock offset: 1.132 ms

Below is generated by plot.py at 2018-12-01 04:16:45

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.01 Mbit/s

95th percentile per-packet one-way delay: 56.096 ms

Loss rate: 0.43%

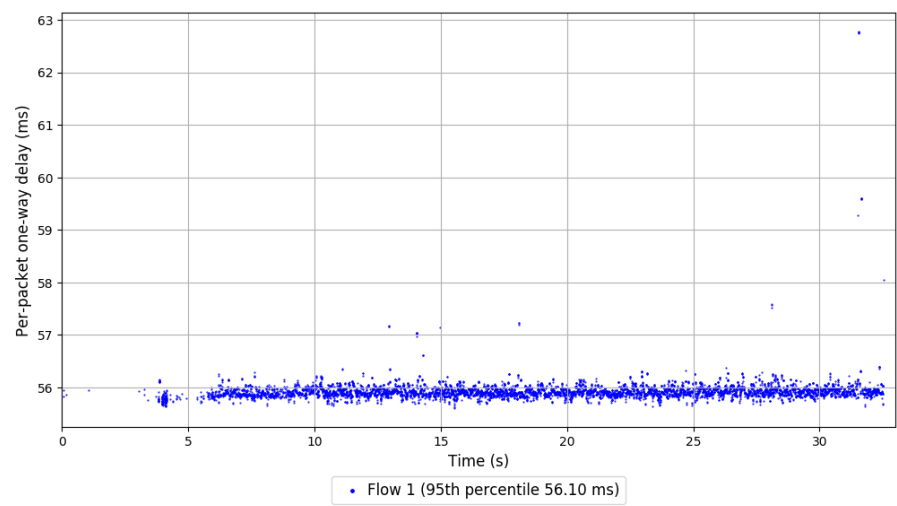
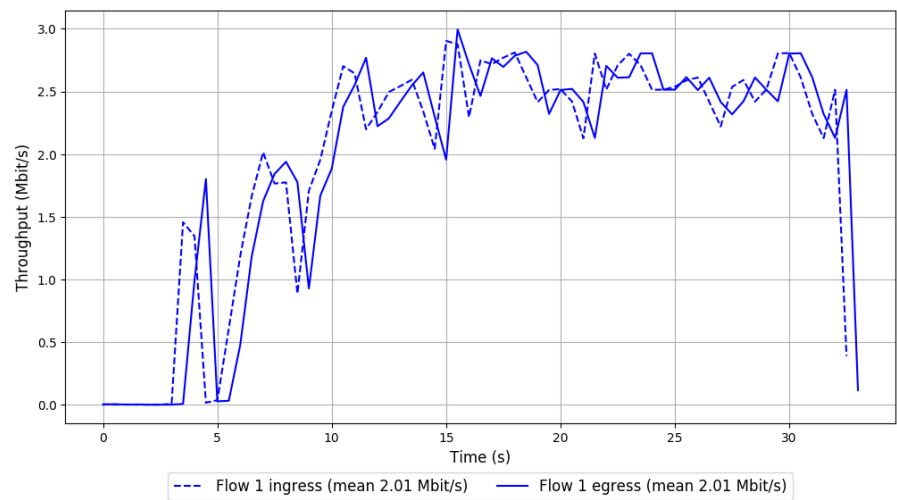
-- Flow 1:

Average throughput: 2.01 Mbit/s

95th percentile per-packet one-way delay: 56.096 ms

Loss rate: 0.43%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-12-01 02:14:50
End at: 2018-12-01 02:15:20
Local clock offset: -0.01 ms
Remote clock offset: -0.138 ms

Below is generated by plot.py at 2018-12-01 04:16:45
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.07 Mbit/s
95th percentile per-packet one-way delay: 60.494 ms
Loss rate: 0.50%
-- Flow 1:
Average throughput: 2.07 Mbit/s
95th percentile per-packet one-way delay: 60.494 ms
Loss rate: 0.50%

Run 5: Report of WebRTC media — Data Link

