

Pantheon Report

Generated at 2018-12-11 00:36:35 (UTC).

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

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:

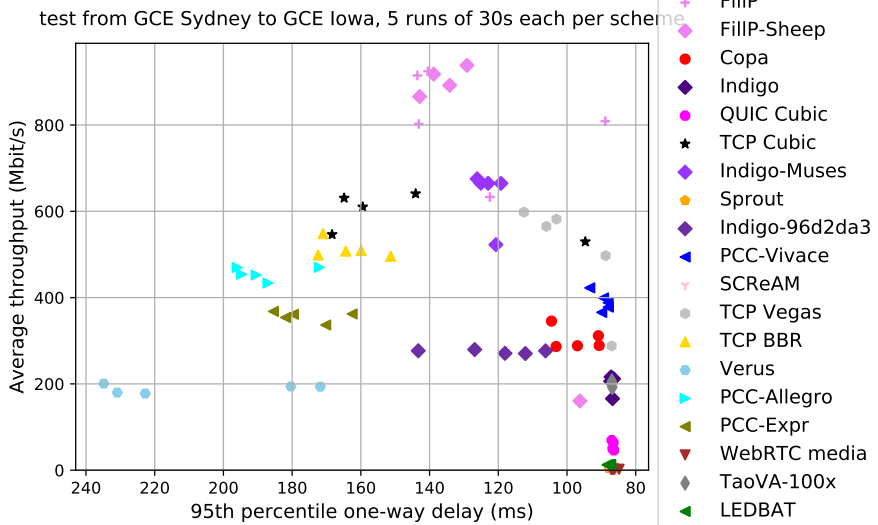
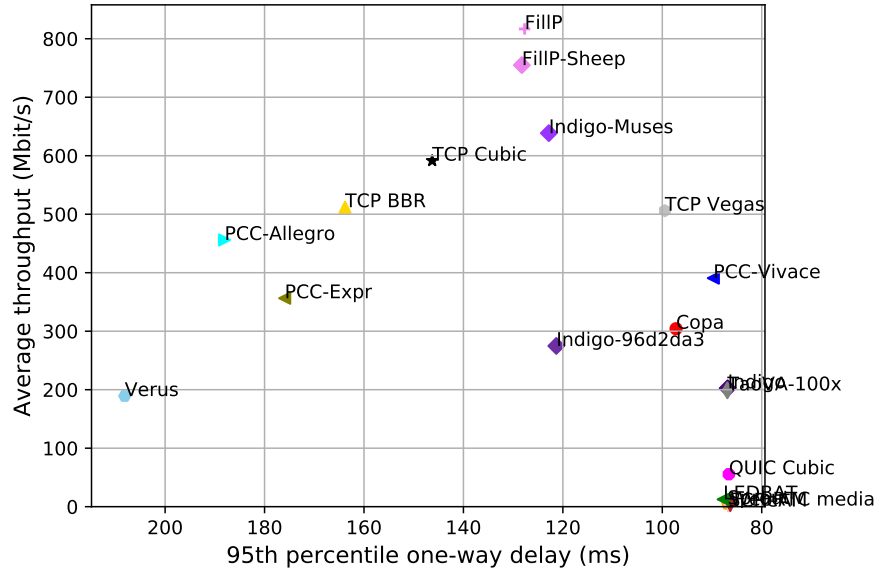
```
Linux 4.15.0-1024-gcp
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

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 Sydney to GCE Iowa, 5 runs of 30s each per scheme
(mean of all runs by scheme)



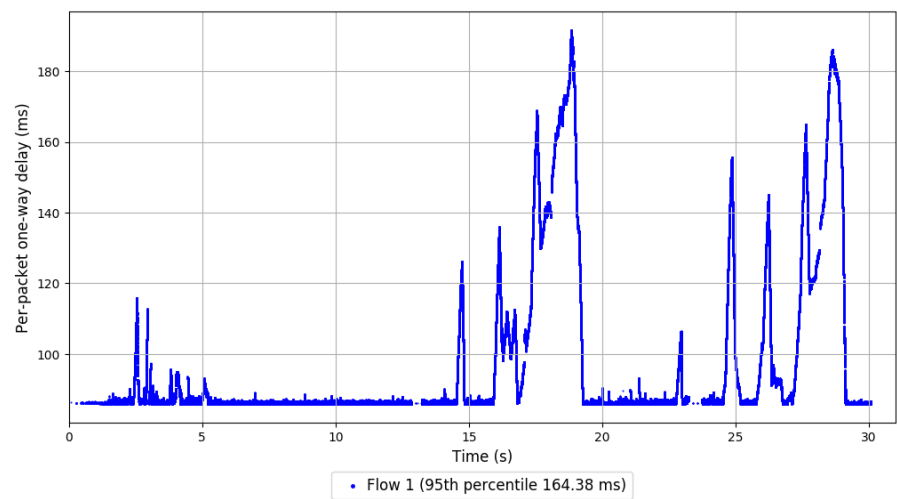
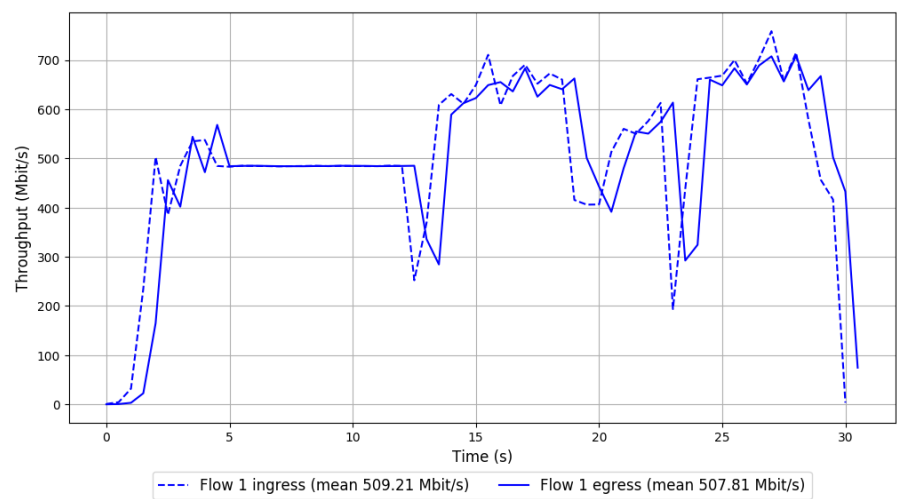
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	5	512.00	163.80	0.43
Copa	5	304.23	97.23	0.05
TCP Cubic	5	591.51	146.29	0.06
FillP	5	816.74	127.69	0.81
FillP-Sheep	5	754.97	128.25	0.73
Indigo	5	202.44	86.86	0.00
Indigo-96d2da3	5	274.81	121.32	0.29
LEDBAT	5	12.54	87.76	0.00
Indigo-Muses	5	638.60	122.82	0.09
PCC-Allegro	5	455.96	188.05	1.87
PCC-Expr	5	356.36	175.96	3.23
QUIC Cubic	5	55.53	86.61	0.00
SCReAM	5	0.22	86.70	0.00
Sprout	5	4.42	86.89	0.00
TaoVA-100x	5	198.83	86.92	0.00
TCP Vegas	5	506.02	99.48	0.00
Verus	5	189.14	208.13	5.35
PCC-Vivace	5	390.74	89.74	0.01
WebRTC media	5	1.99	86.32	0.00

Run 1: Statistics of TCP BBR

Start at: 2018-12-10 20:47:59
End at: 2018-12-10 20:48:29
Local clock offset: 13.133 ms
Remote clock offset: 12.623 ms

Below is generated by plot.py at 2018-12-10 23:09:15
Datalink statistics
-- Total of 1 flow:
Average throughput: 507.81 Mbit/s
95th percentile per-packet one-way delay: 164.376 ms
Loss rate: 0.28%
-- Flow 1:
Average throughput: 507.81 Mbit/s
95th percentile per-packet one-way delay: 164.376 ms
Loss rate: 0.28%

Run 1: Report of TCP BBR — Data Link

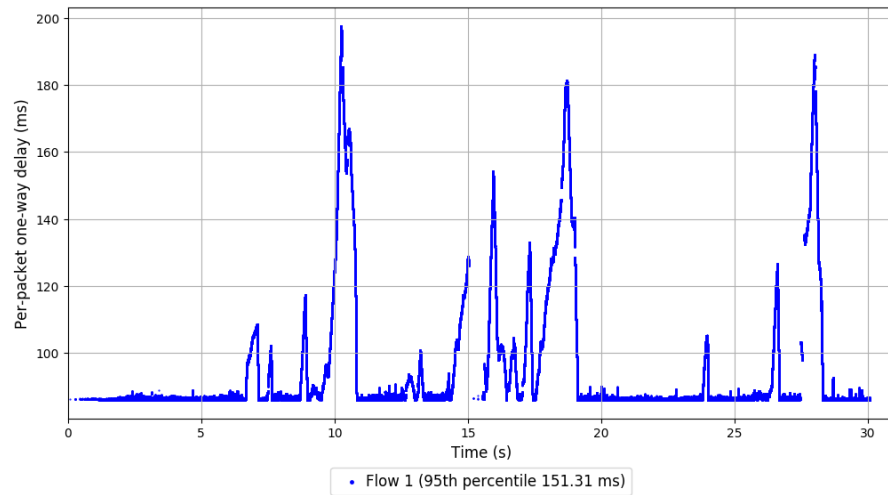
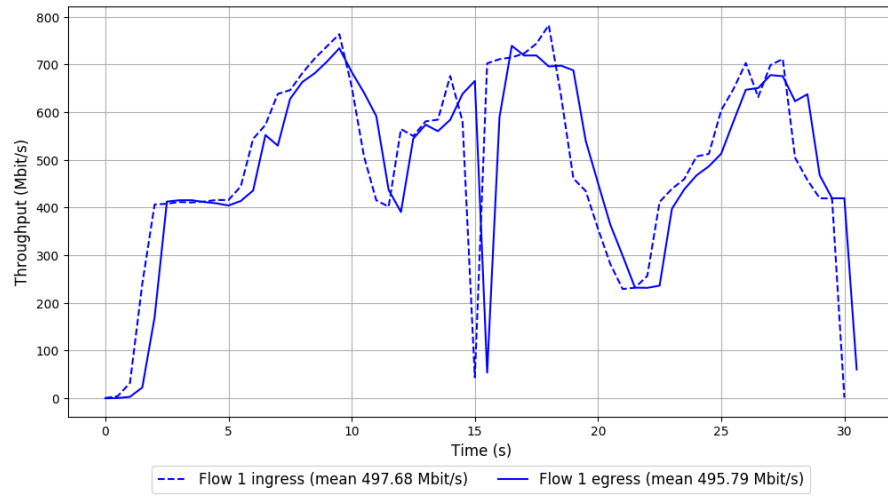


Run 2: Statistics of TCP BBR

Start at: 2018-12-10 21:15:28
End at: 2018-12-10 21:15:58
Local clock offset: 21.654 ms
Remote clock offset: 20.991 ms

Below is generated by plot.py at 2018-12-10 23:09:15
Datalink statistics
-- Total of 1 flow:
Average throughput: 495.79 Mbit/s
95th percentile per-packet one-way delay: 151.306 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 495.79 Mbit/s
95th percentile per-packet one-way delay: 151.306 ms
Loss rate: 0.38%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-12-10 21:43:52

End at: 2018-12-10 21:44:22

Local clock offset: 19.31 ms

Remote clock offset: 18.732 ms

Below is generated by plot.py at 2018-12-10 23:09:20

Datalink statistics

-- Total of 1 flow:

Average throughput: 509.21 Mbit/s

95th percentile per-packet one-way delay: 159.920 ms

Loss rate: 0.26%

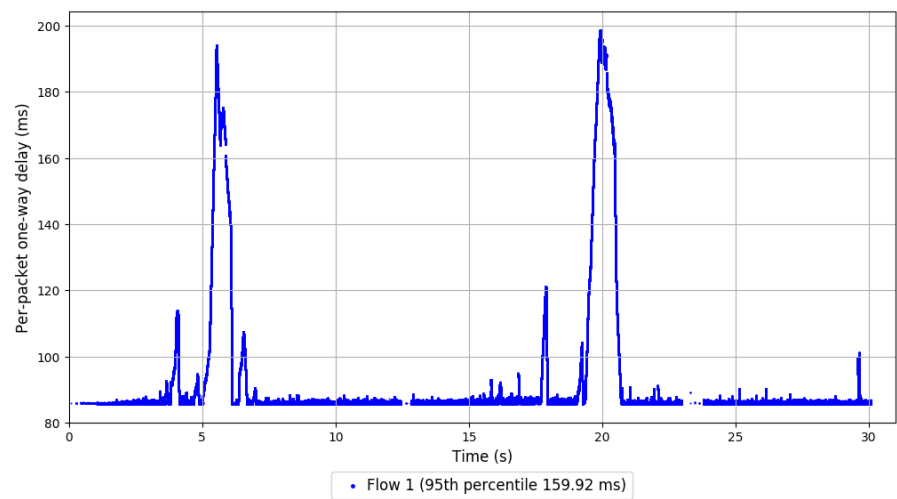
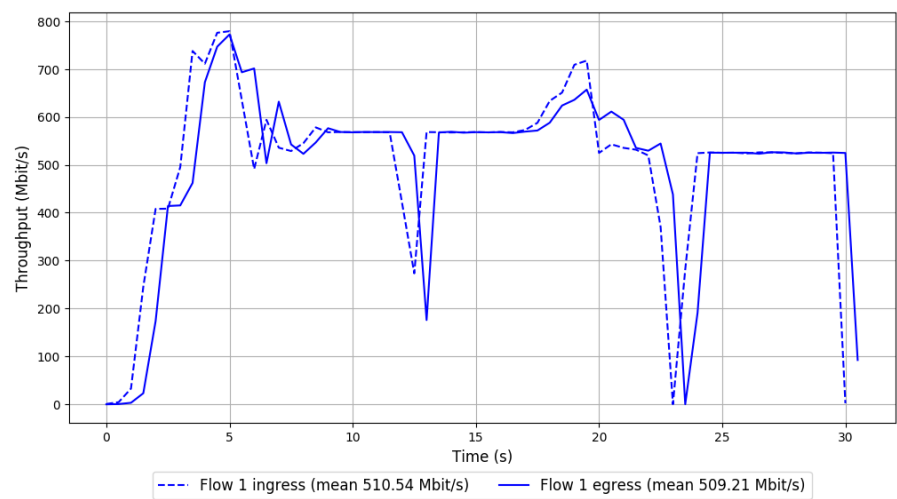
-- Flow 1:

Average throughput: 509.21 Mbit/s

95th percentile per-packet one-way delay: 159.920 ms

Loss rate: 0.26%

Run 3: Report of TCP BBR — Data Link



Run 4: Statistics of TCP BBR

Start at: 2018-12-10 22:12:28

End at: 2018-12-10 22:12:58

Local clock offset: 15.154 ms

Remote clock offset: 14.33 ms

Below is generated by plot.py at 2018-12-10 23:09:20

Datalink statistics

-- Total of 1 flow:

Average throughput: 498.80 Mbit/s

95th percentile per-packet one-way delay: 172.445 ms

Loss rate: 0.76%

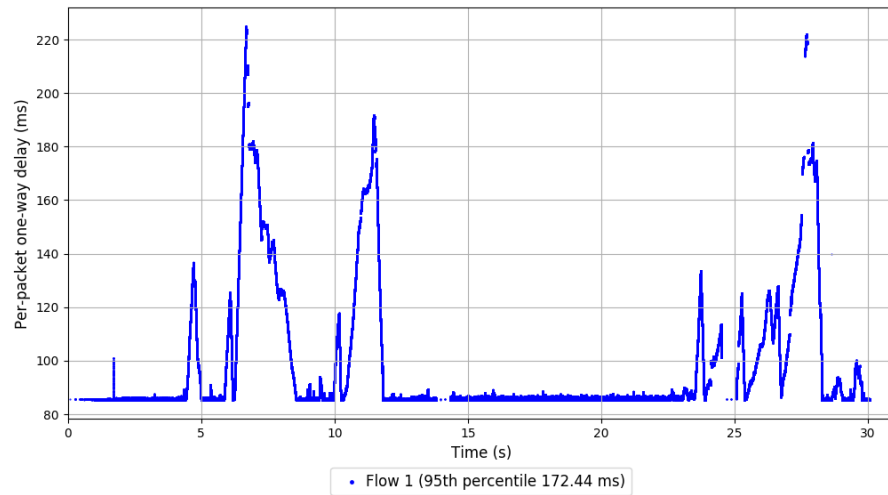
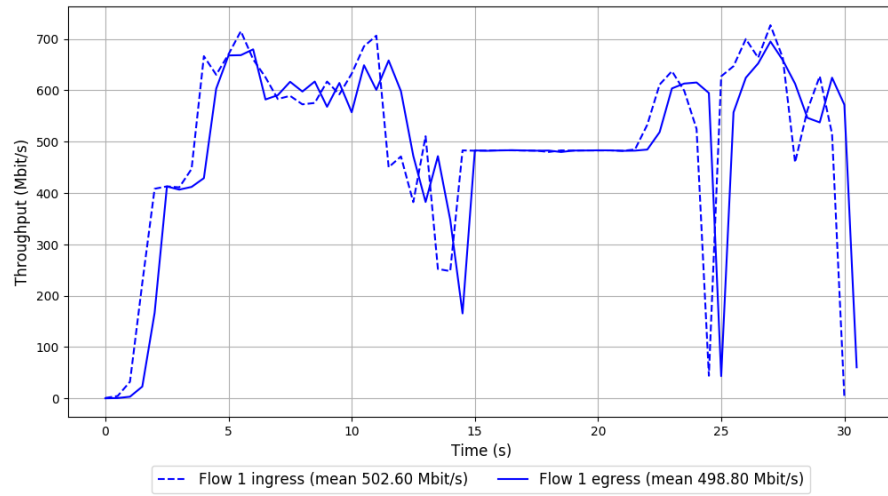
-- Flow 1:

Average throughput: 498.80 Mbit/s

95th percentile per-packet one-way delay: 172.445 ms

Loss rate: 0.76%

Run 4: Report of TCP BBR — Data Link



Run 5: Statistics of TCP BBR

Start at: 2018-12-10 22:41:01

End at: 2018-12-10 22:41:31

Local clock offset: 9.259 ms

Remote clock offset: 8.897 ms

Below is generated by plot.py at 2018-12-10 23:09:53

Datalink statistics

-- Total of 1 flow:

Average throughput: 548.37 Mbit/s

95th percentile per-packet one-way delay: 170.976 ms

Loss rate: 0.49%

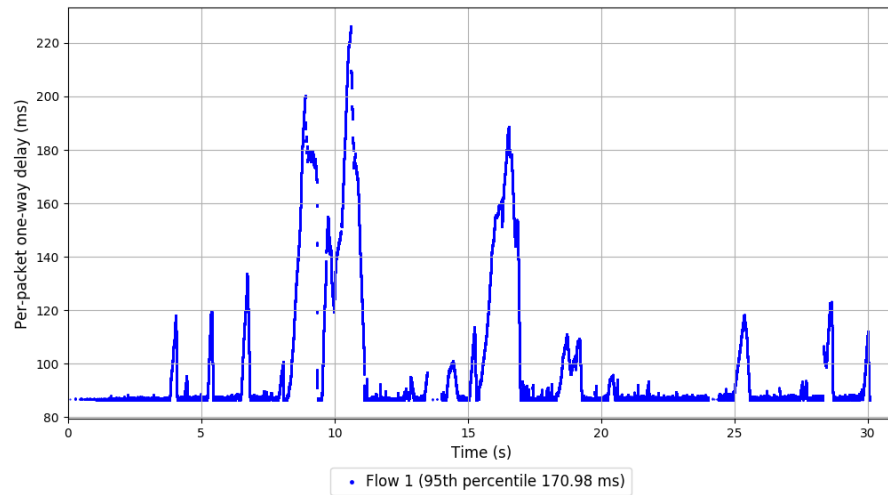
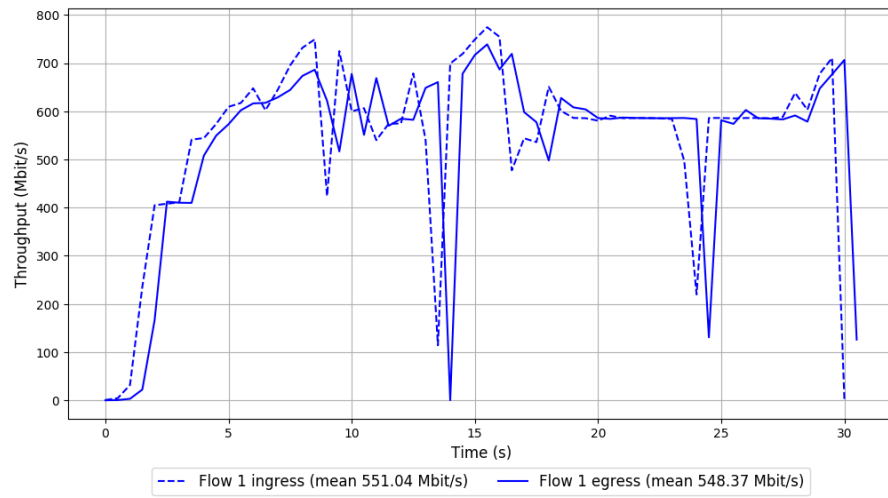
-- Flow 1:

Average throughput: 548.37 Mbit/s

95th percentile per-packet one-way delay: 170.976 ms

Loss rate: 0.49%

Run 5: Report of TCP BBR — Data Link

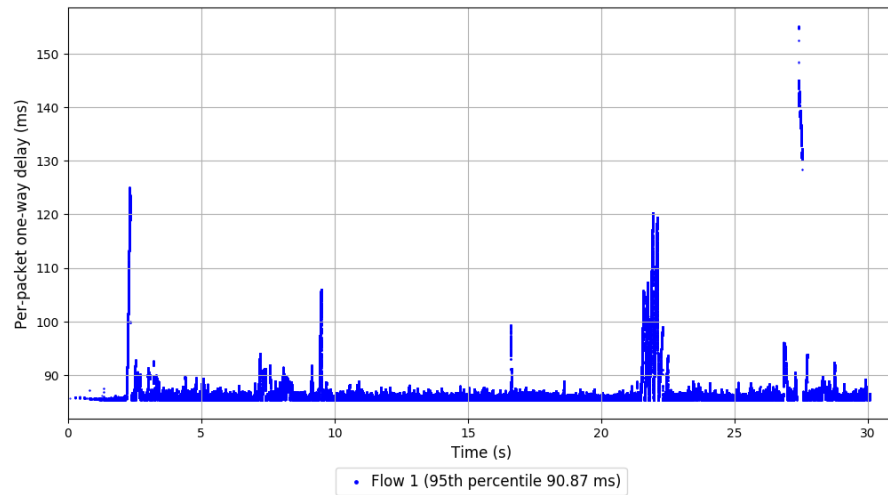
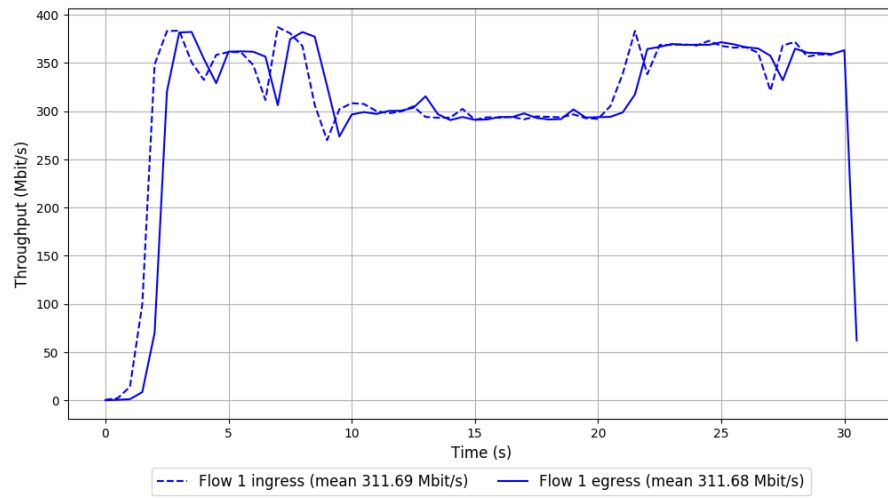


Run 1: Statistics of Copa

Start at: 2018-12-10 20:44:53
End at: 2018-12-10 20:45:23
Local clock offset: 16.215 ms
Remote clock offset: 14.885 ms

Below is generated by plot.py at 2018-12-10 23:10:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 311.68 Mbit/s
95th percentile per-packet one-way delay: 90.871 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 311.68 Mbit/s
95th percentile per-packet one-way delay: 90.871 ms
Loss rate: 0.00%

Run 1: Report of Copa — Data Link

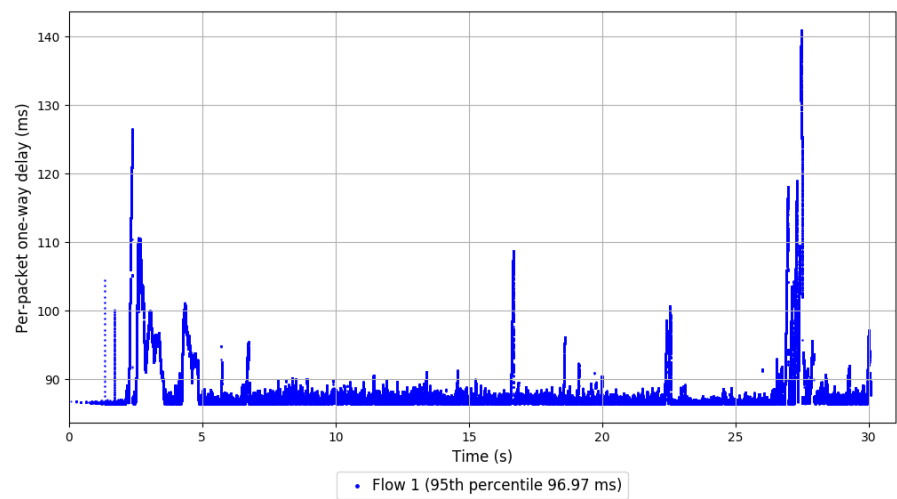
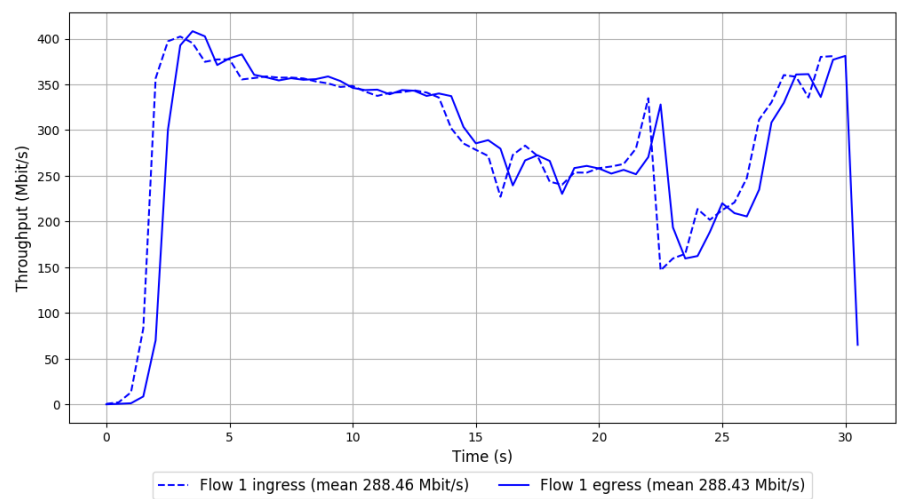


Run 2: Statistics of Copa

Start at: 2018-12-10 21:12:26
End at: 2018-12-10 21:12:56
Local clock offset: 20.259 ms
Remote clock offset: 19.525 ms

Below is generated by plot.py at 2018-12-10 23:10:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 288.43 Mbit/s
95th percentile per-packet one-way delay: 96.969 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 288.43 Mbit/s
95th percentile per-packet one-way delay: 96.969 ms
Loss rate: 0.01%

Run 2: Report of Copa — Data Link

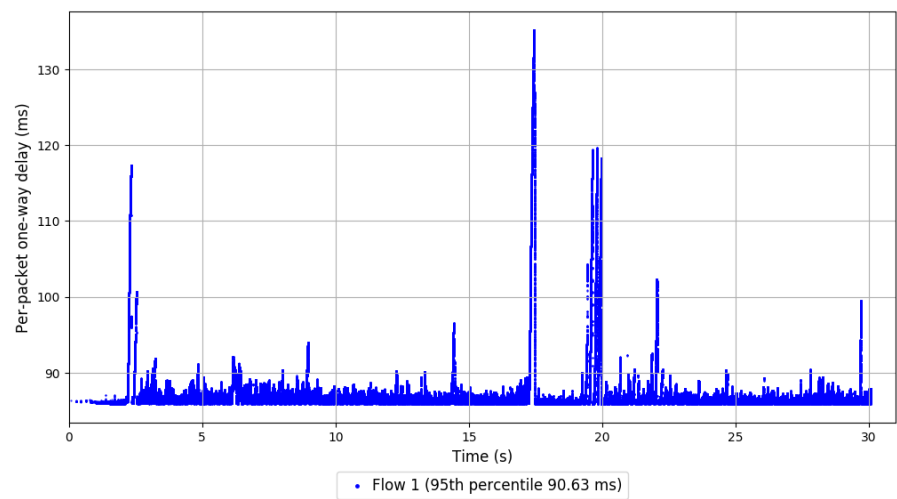
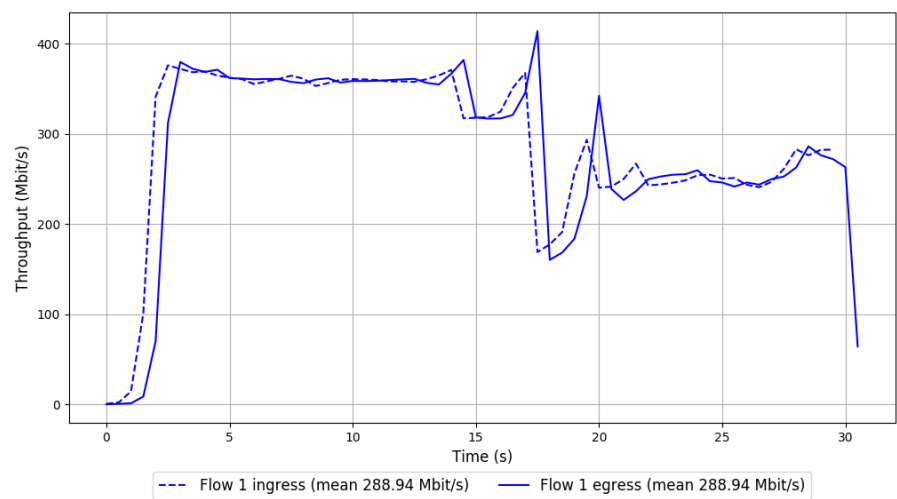


Run 3: Statistics of Copa

Start at: 2018-12-10 21:40:46
End at: 2018-12-10 21:41:16
Local clock offset: 23.732 ms
Remote clock offset: 22.768 ms

Below is generated by plot.py at 2018-12-10 23:10:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 288.94 Mbit/s
95th percentile per-packet one-way delay: 90.632 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 288.94 Mbit/s
95th percentile per-packet one-way delay: 90.632 ms
Loss rate: 0.00%

Run 3: Report of Copa — Data Link

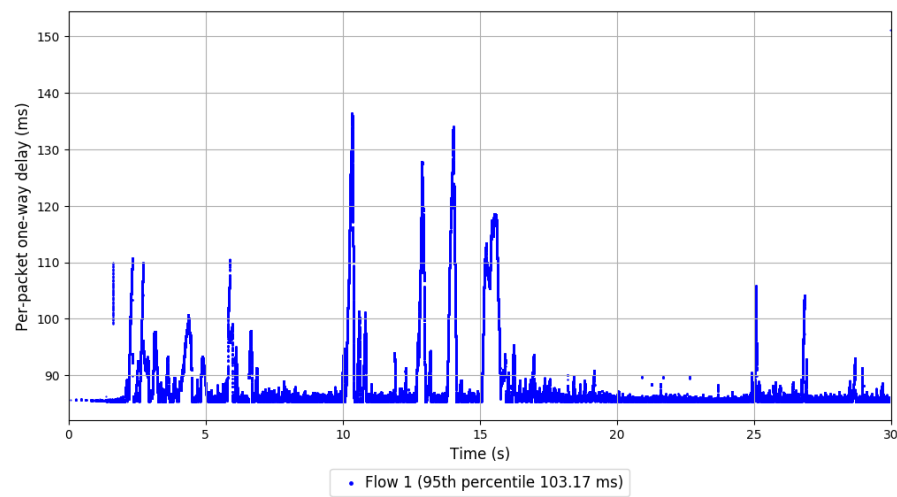
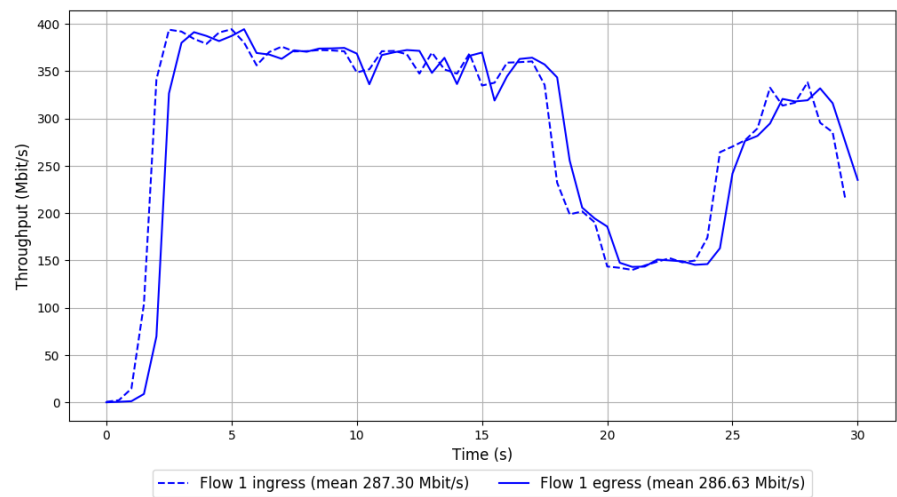


Run 4: Statistics of Copa

Start at: 2018-12-10 22:09:21
End at: 2018-12-10 22:09:51
Local clock offset: 19.918 ms
Remote clock offset: 19.144 ms

Below is generated by plot.py at 2018-12-10 23:19:27
Datalink statistics
-- Total of 1 flow:
Average throughput: 286.63 Mbit/s
95th percentile per-packet one-way delay: 103.174 ms
Loss rate: 0.22%
-- Flow 1:
Average throughput: 286.63 Mbit/s
95th percentile per-packet one-way delay: 103.174 ms
Loss rate: 0.22%

Run 4: Report of Copa — Data Link



Run 5: Statistics of Copa

Start at: 2018-12-10 22:37:49

End at: 2018-12-10 22:38:19

Local clock offset: 8.52 ms

Remote clock offset: 8.284 ms

Below is generated by plot.py at 2018-12-10 23:20:58

Datalink statistics

-- Total of 1 flow:

Average throughput: 345.47 Mbit/s

95th percentile per-packet one-way delay: 104.519 ms

Loss rate: 0.00%

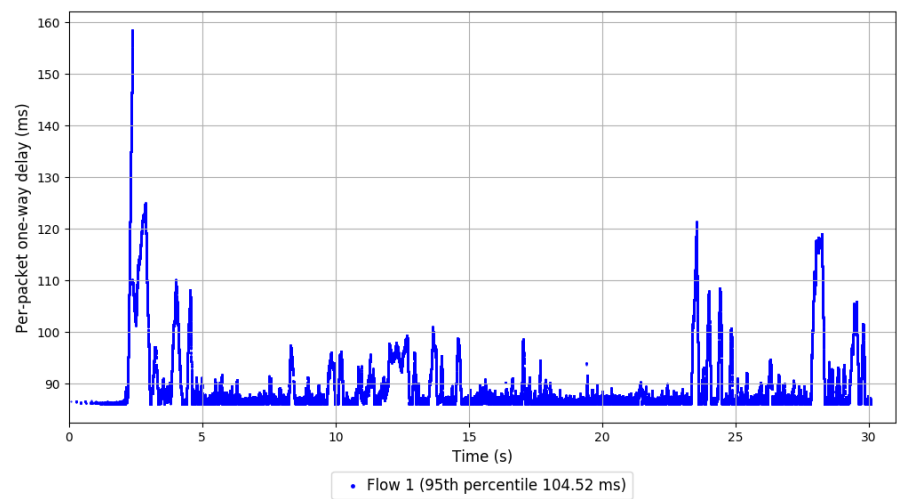
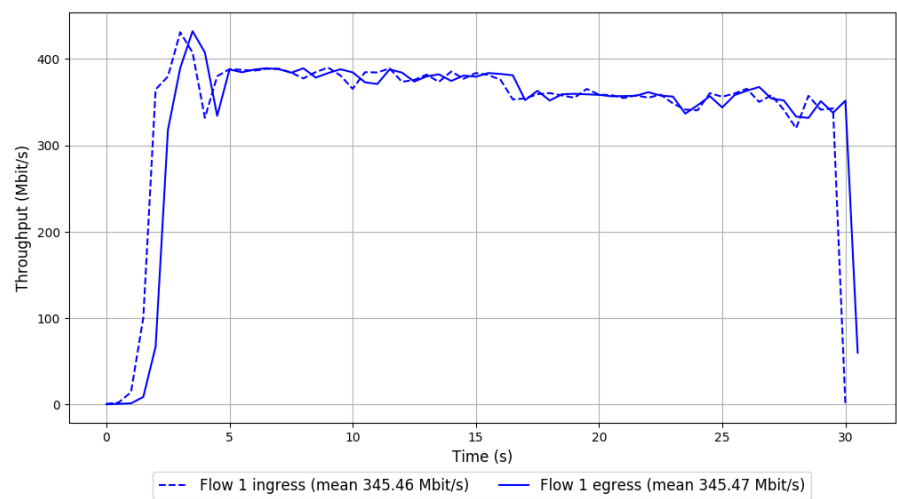
-- Flow 1:

Average throughput: 345.47 Mbit/s

95th percentile per-packet one-way delay: 104.519 ms

Loss rate: 0.00%

Run 5: Report of Copa — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-12-10 20:37:44

End at: 2018-12-10 20:38:14

Local clock offset: 8.646 ms

Remote clock offset: 8.457 ms

Below is generated by plot.py at 2018-12-10 23:20:58

Datalink statistics

-- Total of 1 flow:

Average throughput: 630.77 Mbit/s

95th percentile per-packet one-way delay: 164.863 ms

Loss rate: 0.01%

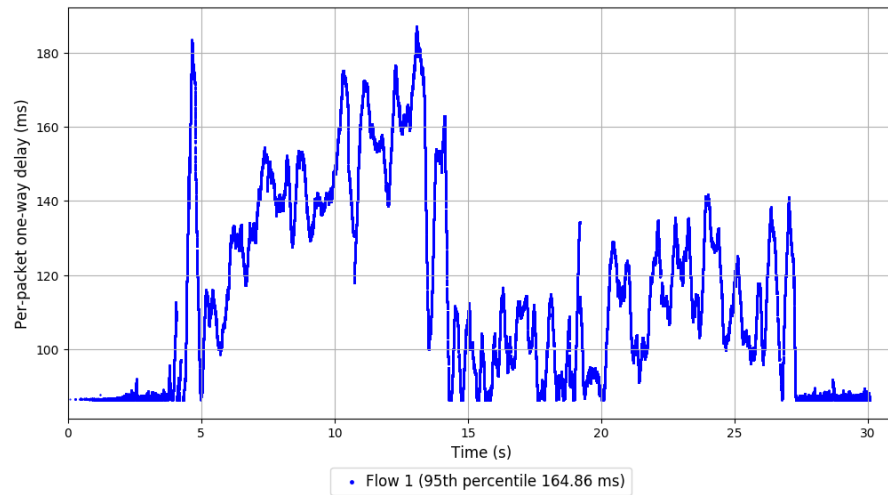
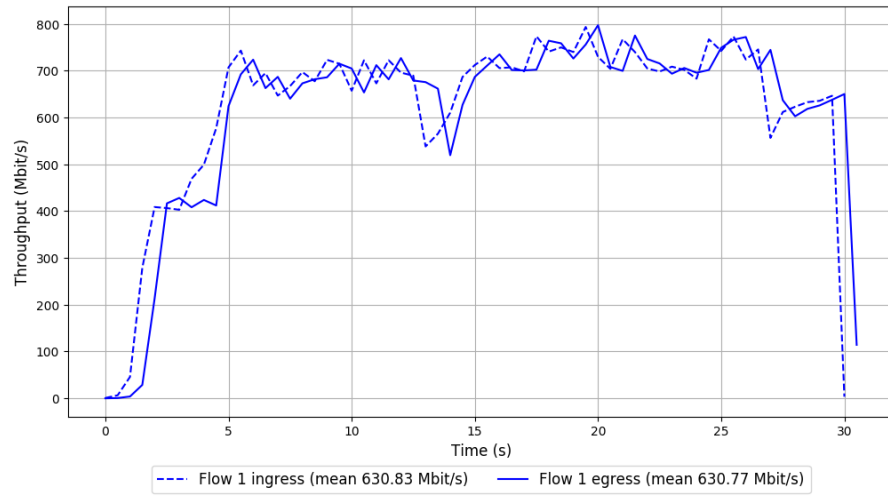
-- Flow 1:

Average throughput: 630.77 Mbit/s

95th percentile per-packet one-way delay: 164.863 ms

Loss rate: 0.01%

Run 1: Report of TCP Cubic — Data Link

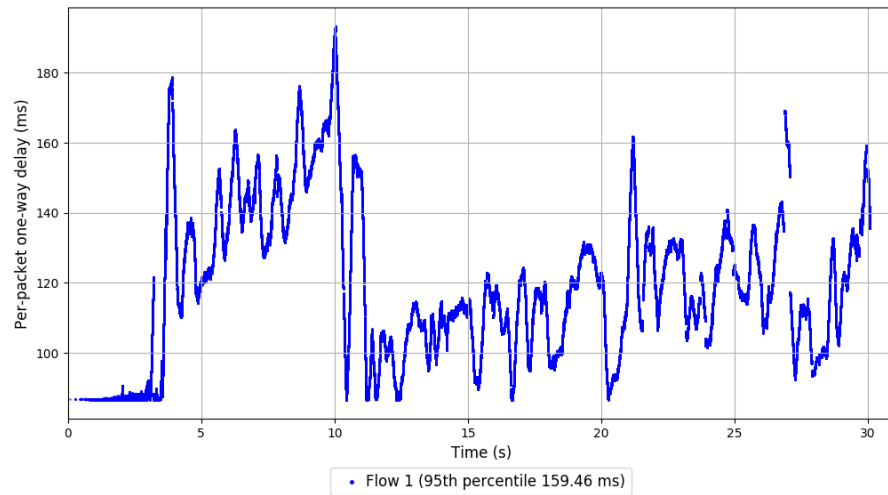
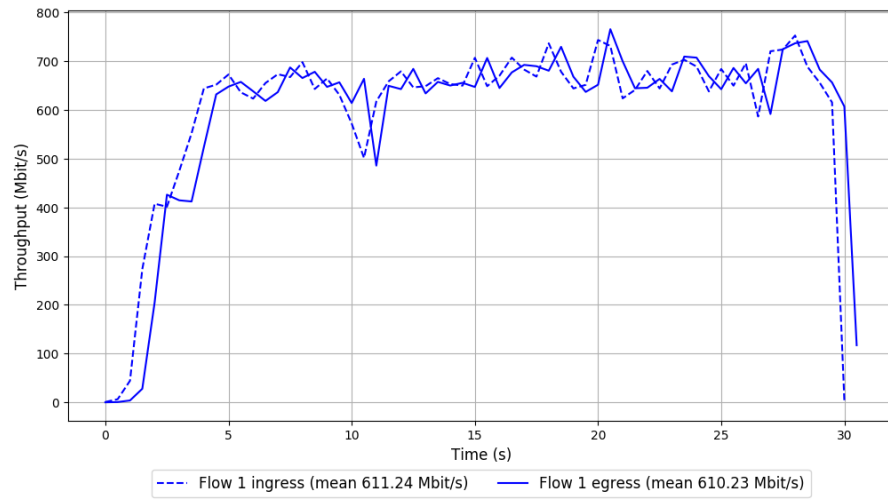


Run 2: Statistics of TCP Cubic

Start at: 2018-12-10 21:05:16
End at: 2018-12-10 21:05:46
Local clock offset: 21.246 ms
Remote clock offset: 20.327 ms

Below is generated by plot.py at 2018-12-10 23:20:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 610.23 Mbit/s
95th percentile per-packet one-way delay: 159.460 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 610.23 Mbit/s
95th percentile per-packet one-way delay: 159.460 ms
Loss rate: 0.17%

Run 2: Report of TCP Cubic — Data Link

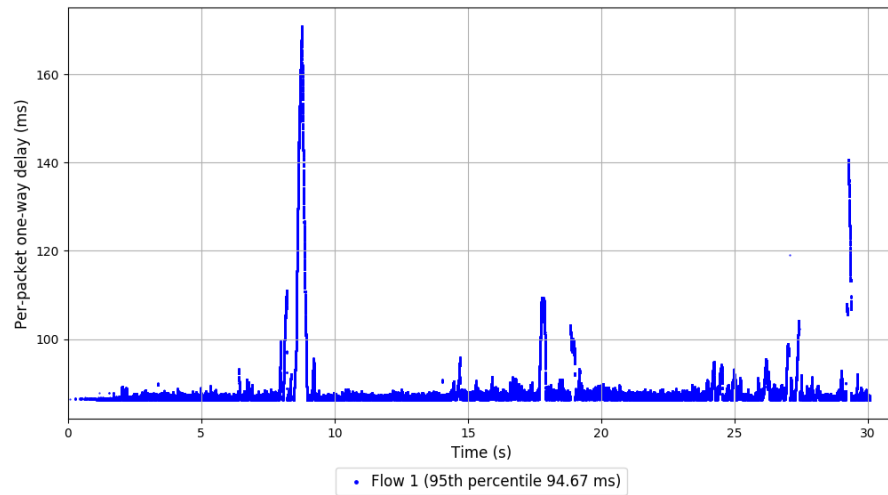
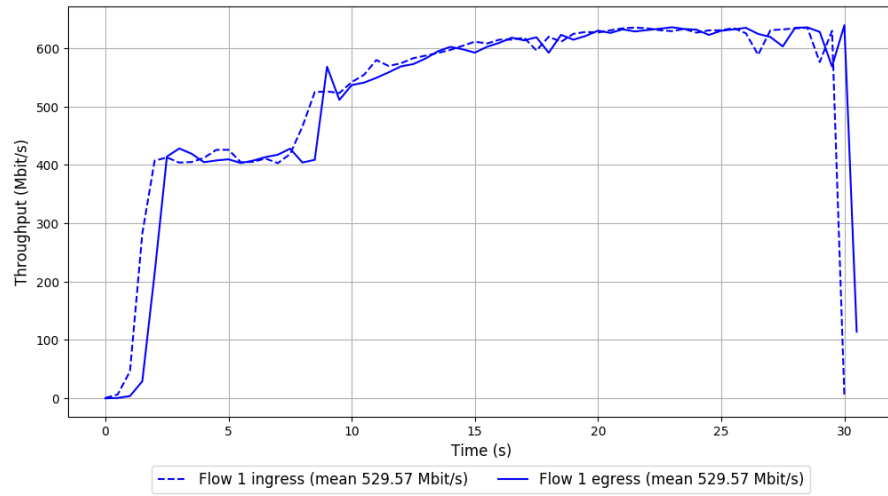


Run 3: Statistics of TCP Cubic

Start at: 2018-12-10 21:33:40
End at: 2018-12-10 21:34:10
Local clock offset: 38.804 ms
Remote clock offset: 37.202 ms

Below is generated by plot.py at 2018-12-10 23:20:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 529.57 Mbit/s
95th percentile per-packet one-way delay: 94.668 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 529.57 Mbit/s
95th percentile per-packet one-way delay: 94.668 ms
Loss rate: 0.00%

Run 3: Report of TCP Cubic — Data Link

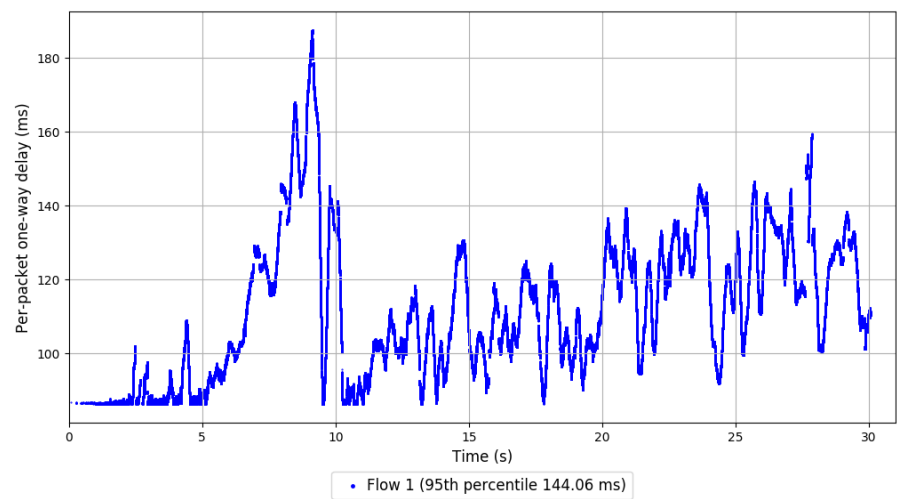
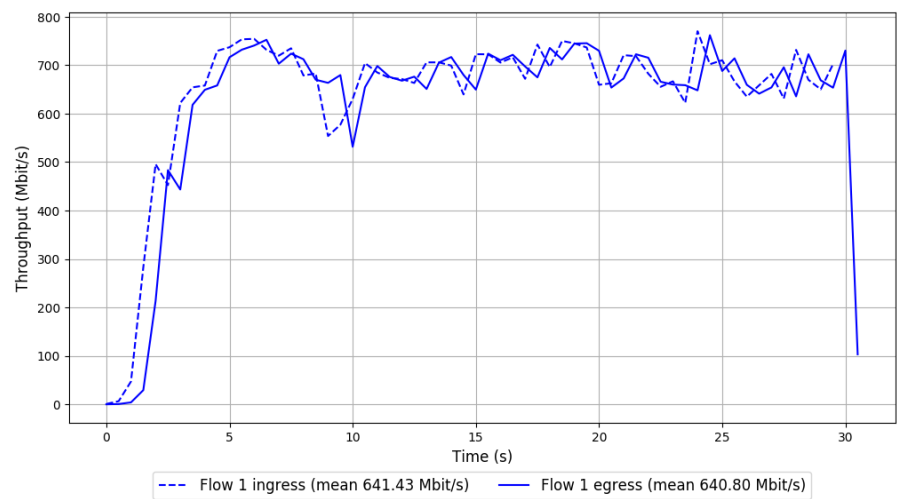


Run 4: Statistics of TCP Cubic

Start at: 2018-12-10 22:02:07
End at: 2018-12-10 22:02:37
Local clock offset: 16.89 ms
Remote clock offset: 16.919 ms

Below is generated by plot.py at 2018-12-10 23:21:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 640.80 Mbit/s
95th percentile per-packet one-way delay: 144.062 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 640.80 Mbit/s
95th percentile per-packet one-way delay: 144.062 ms
Loss rate: 0.10%

Run 4: Report of TCP Cubic — Data Link



Run 5: Statistics of TCP Cubic

Start at: 2018-12-10 22:30:40

End at: 2018-12-10 22:31:10

Local clock offset: 7.927 ms

Remote clock offset: 7.265 ms

Below is generated by plot.py at 2018-12-10 23:21:21

Datalink statistics

-- Total of 1 flow:

Average throughput: 546.17 Mbit/s

95th percentile per-packet one-way delay: 168.375 ms

Loss rate: 0.00%

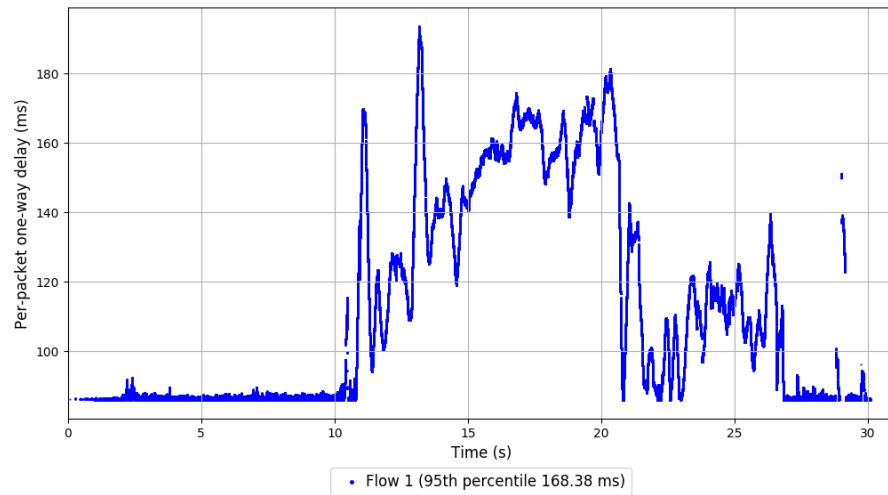
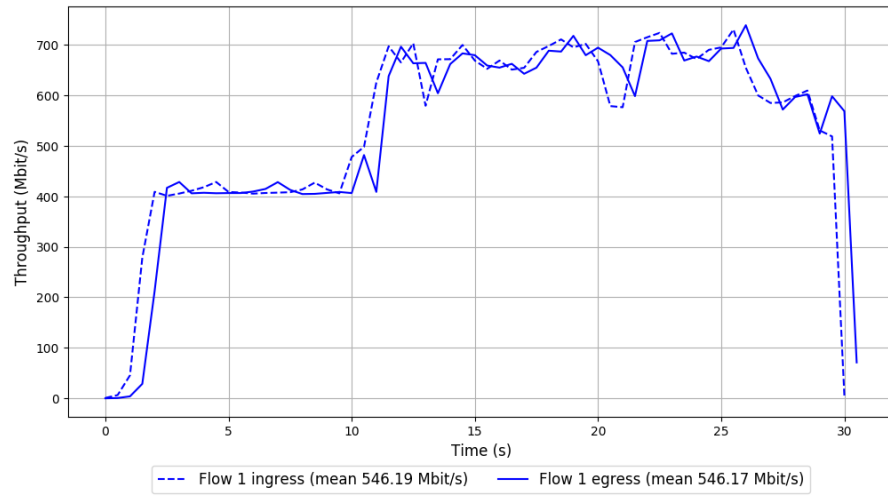
-- Flow 1:

Average throughput: 546.17 Mbit/s

95th percentile per-packet one-way delay: 168.375 ms

Loss rate: 0.00%

Run 5: Report of TCP Cubic — Data Link



Run 1: Statistics of FillP

Start at: 2018-12-10 20:28:19

End at: 2018-12-10 20:28:49

Local clock offset: 2.758 ms

Remote clock offset: 3.152 ms

Below is generated by plot.py at 2018-12-10 23:26:45

Datalink statistics

-- Total of 1 flow:

Average throughput: 802.46 Mbit/s

95th percentile per-packet one-way delay: 143.136 ms

Loss rate: 0.98%

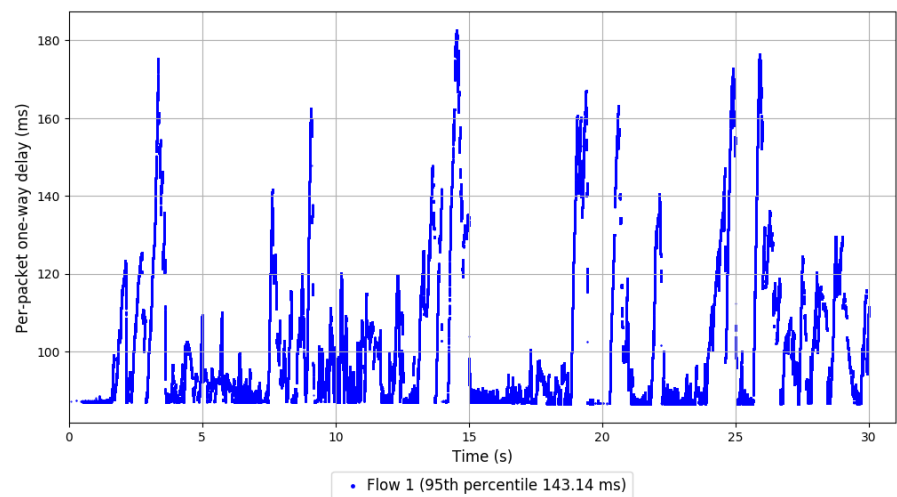
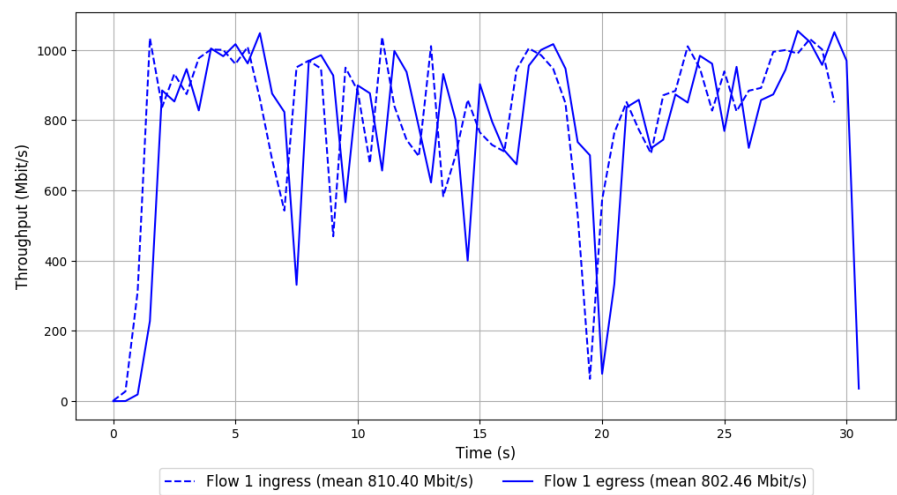
-- Flow 1:

Average throughput: 802.46 Mbit/s

95th percentile per-packet one-way delay: 143.136 ms

Loss rate: 0.98%

Run 1: Report of FillP — Data Link

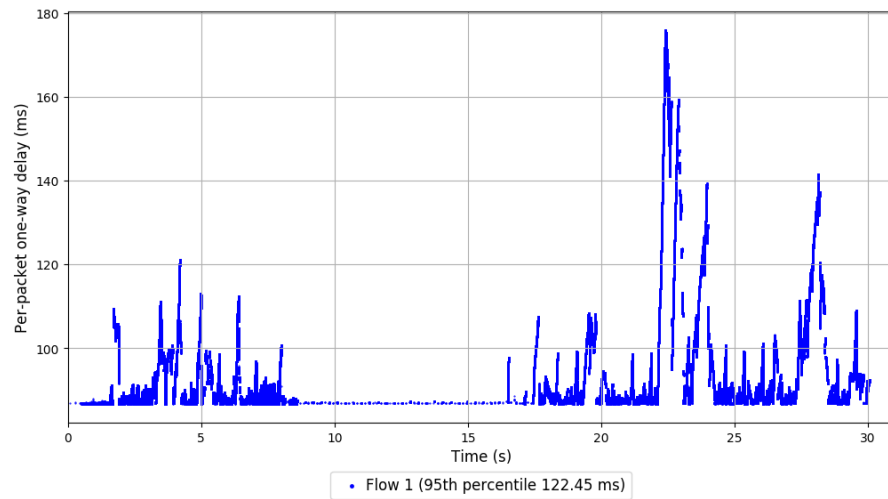
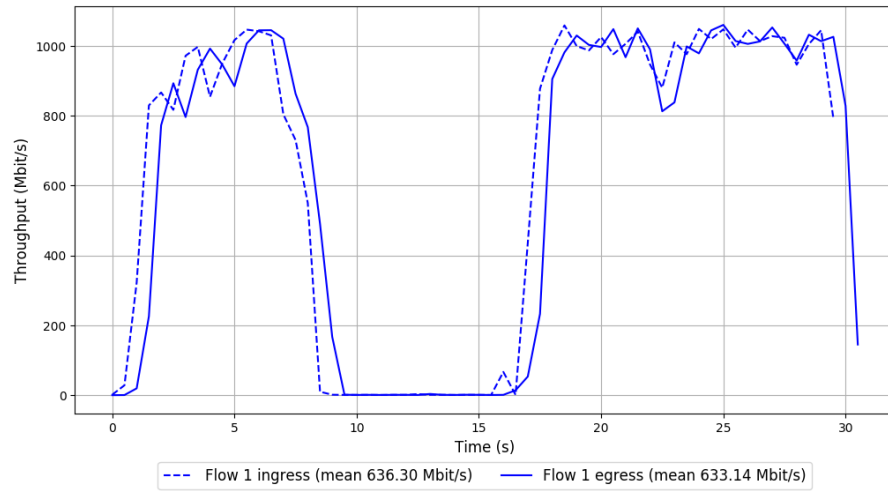


Run 2: Statistics of FillP

Start at: 2018-12-10 20:56:02
End at: 2018-12-10 20:56:32
Local clock offset: 19.951 ms
Remote clock offset: 19.456 ms

Below is generated by plot.py at 2018-12-10 23:31:17
Datalink statistics
-- Total of 1 flow:
Average throughput: 633.14 Mbit/s
95th percentile per-packet one-way delay: 122.448 ms
Loss rate: 0.49%
-- Flow 1:
Average throughput: 633.14 Mbit/s
95th percentile per-packet one-way delay: 122.448 ms
Loss rate: 0.49%

Run 2: Report of FillP — Data Link

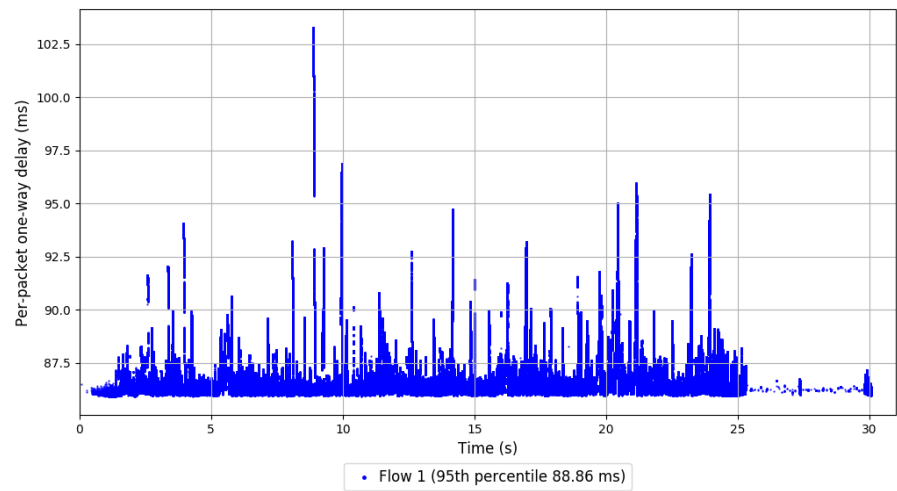
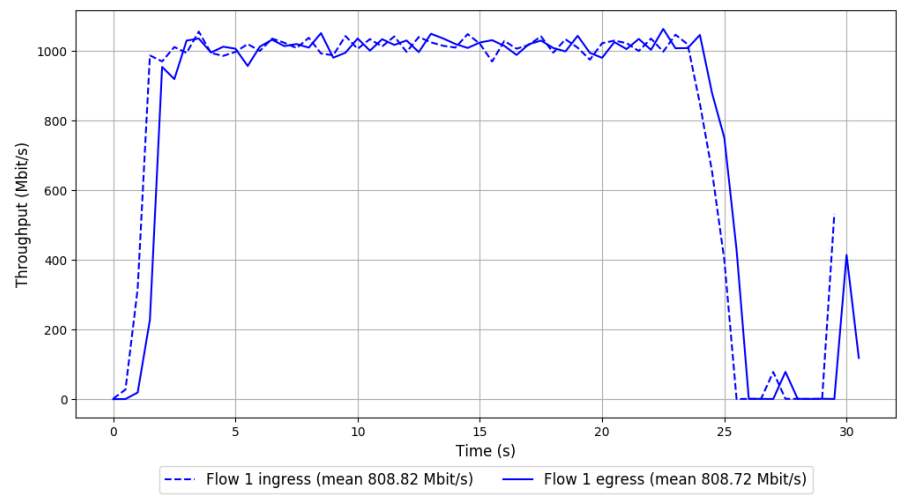


Run 3: Statistics of FillP

Start at: 2018-12-10 21:24:06
End at: 2018-12-10 21:24:36
Local clock offset: 28.801 ms
Remote clock offset: 27.707 ms

Below is generated by plot.py at 2018-12-10 23:37:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 808.72 Mbit/s
95th percentile per-packet one-way delay: 88.858 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 808.72 Mbit/s
95th percentile per-packet one-way delay: 88.858 ms
Loss rate: 0.01%

Run 3: Report of FillP — Data Link

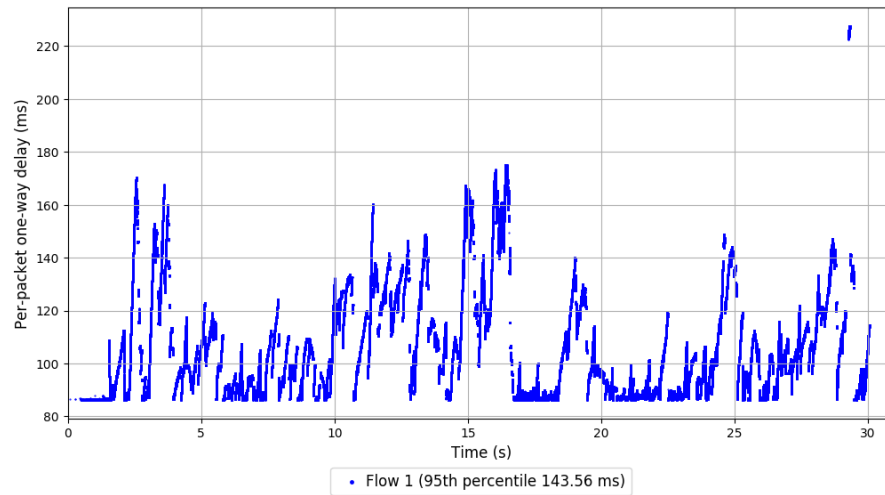
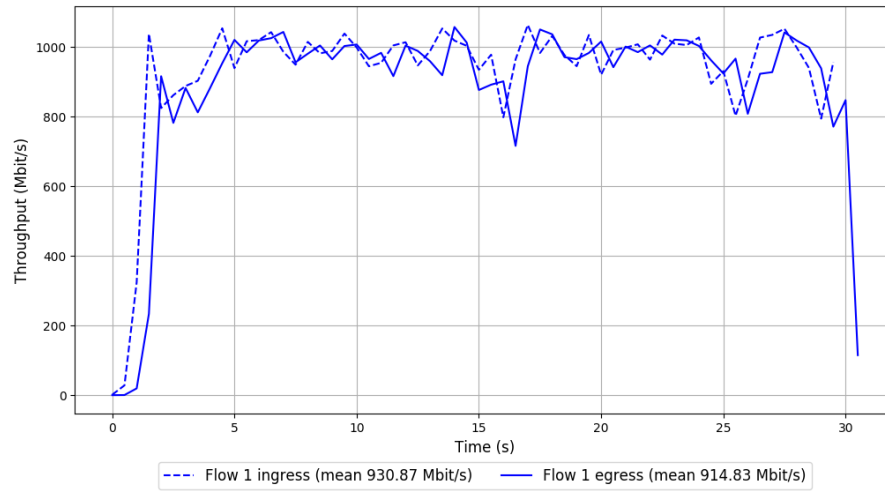


Run 4: Statistics of FillP

Start at: 2018-12-10 21:52:30
End at: 2018-12-10 21:53:00
Local clock offset: 14.738 ms
Remote clock offset: 14.868 ms

Below is generated by plot.py at 2018-12-10 23:40:50
Datalink statistics
-- Total of 1 flow:
Average throughput: 914.83 Mbit/s
95th percentile per-packet one-way delay: 143.555 ms
Loss rate: 1.72%
-- Flow 1:
Average throughput: 914.83 Mbit/s
95th percentile per-packet one-way delay: 143.555 ms
Loss rate: 1.72%

Run 4: Report of FillP — Data Link



Run 5: Statistics of FillP

Start at: 2018-12-10 22:21:05

End at: 2018-12-10 22:21:35

Local clock offset: 8.311 ms

Remote clock offset: 8.045 ms

Below is generated by plot.py at 2018-12-10 23:41:19

Datalink statistics

-- Total of 1 flow:

Average throughput: 924.53 Mbit/s

95th percentile per-packet one-way delay: 140.467 ms

Loss rate: 0.86%

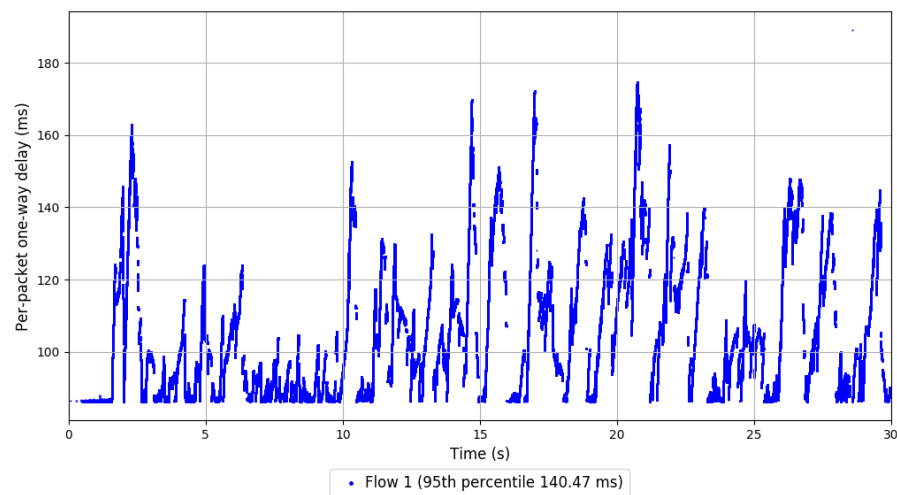
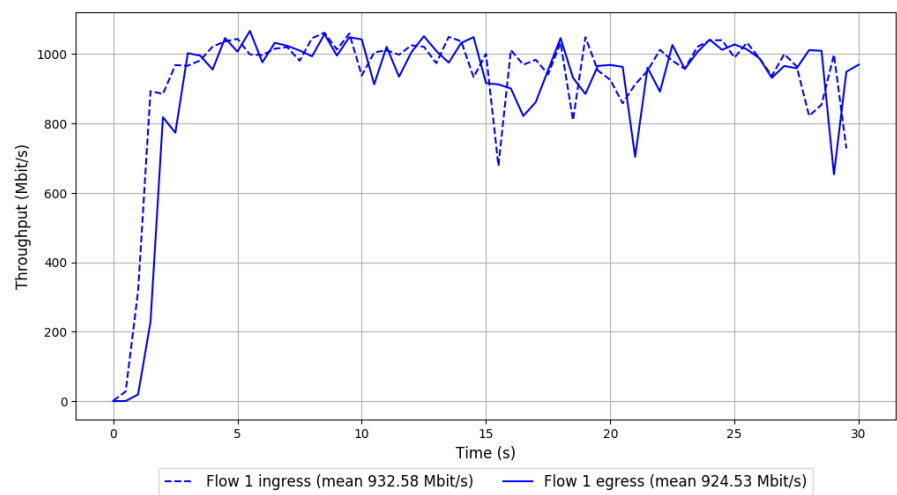
-- Flow 1:

Average throughput: 924.53 Mbit/s

95th percentile per-packet one-way delay: 140.467 ms

Loss rate: 0.86%

Run 5: Report of FillP — Data Link

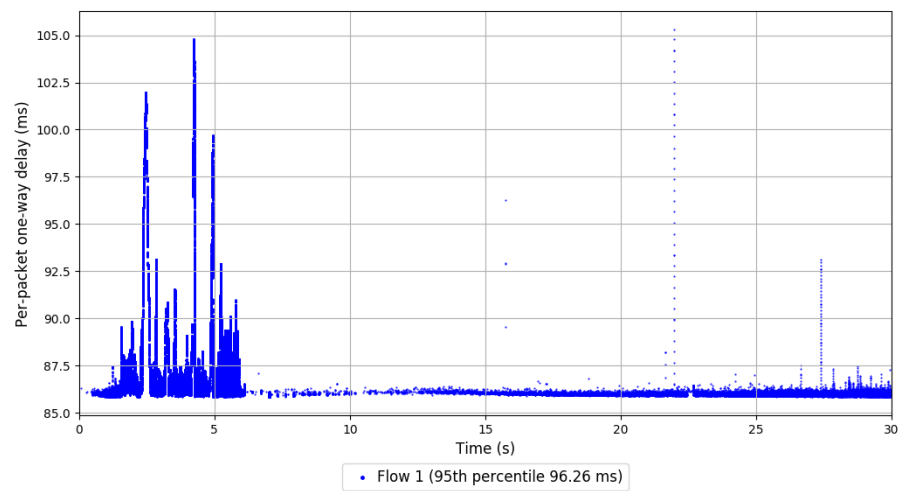
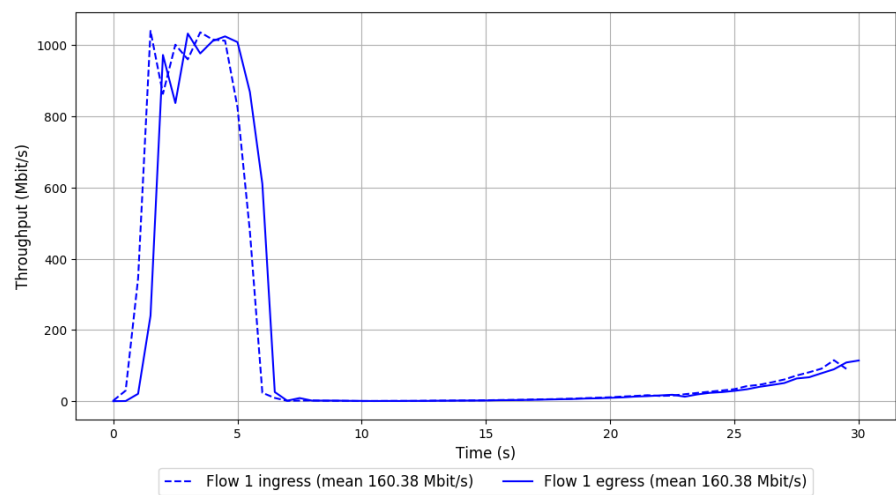


Run 1: Statistics of FillP-Sheep

Start at: 2018-12-10 20:51:57
End at: 2018-12-10 20:52:27
Local clock offset: 15.481 ms
Remote clock offset: 14.866 ms

Below is generated by plot.py at 2018-12-10 23:41:19
Datalink statistics
-- Total of 1 flow:
Average throughput: 160.38 Mbit/s
95th percentile per-packet one-way delay: 96.264 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 160.38 Mbit/s
95th percentile per-packet one-way delay: 96.264 ms
Loss rate: 0.00%

Run 1: Report of FillP-Sheep — Data Link

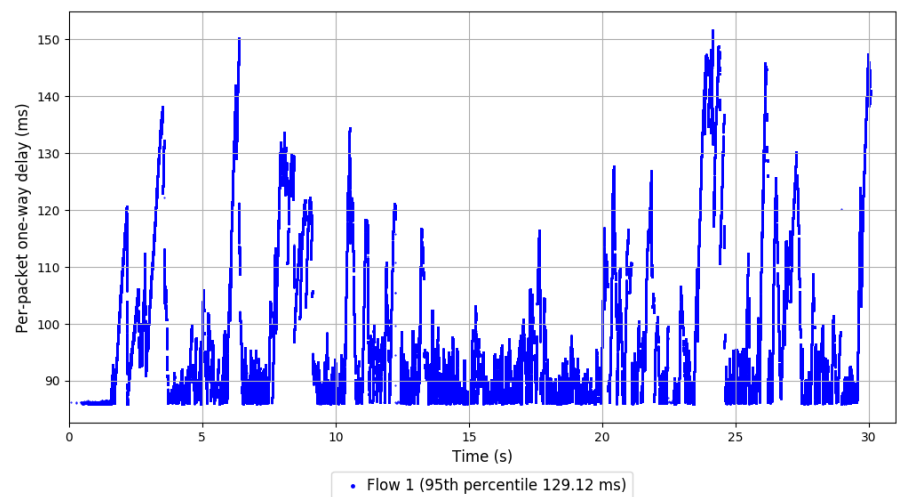
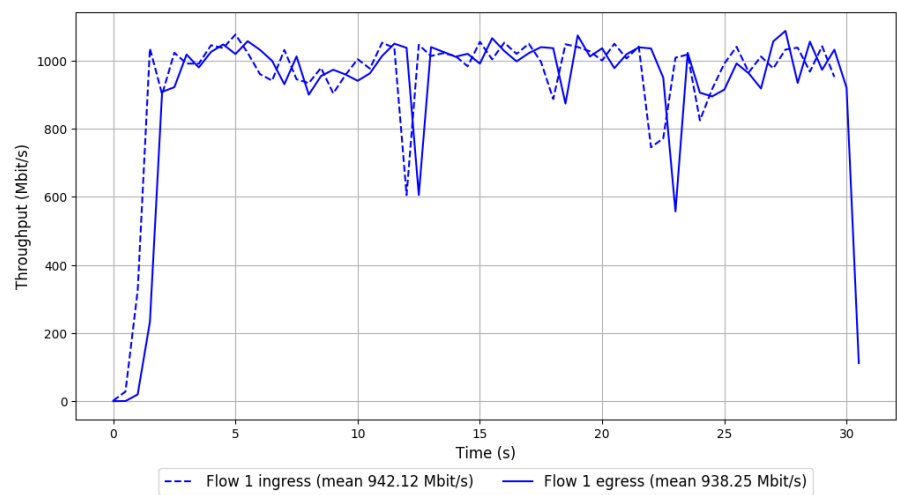


Run 2: Statistics of FillP-Sheep

Start at: 2018-12-10 21:19:27
End at: 2018-12-10 21:19:57
Local clock offset: 24.611 ms
Remote clock offset: 23.732 ms

Below is generated by plot.py at 2018-12-10 23:42:06
Datalink statistics
-- Total of 1 flow:
Average throughput: 938.25 Mbit/s
95th percentile per-packet one-way delay: 129.122 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 938.25 Mbit/s
95th percentile per-packet one-way delay: 129.122 ms
Loss rate: 0.41%

Run 2: Report of FillP-Sheep — Data Link

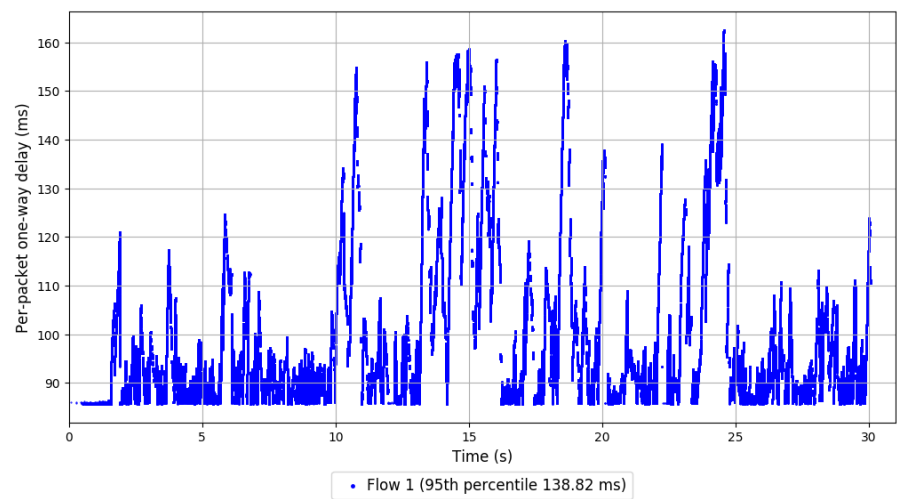
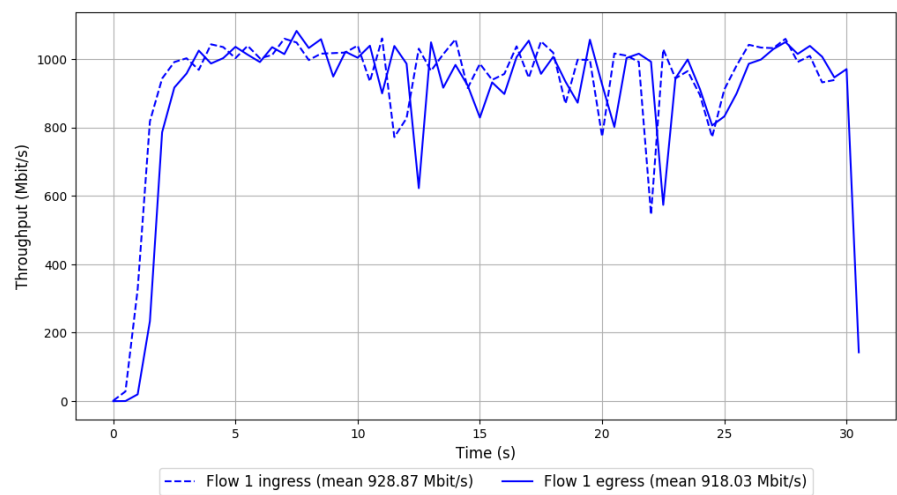


Run 3: Statistics of FillP-Sheep

Start at: 2018-12-10 21:47:51
End at: 2018-12-10 21:48:21
Local clock offset: 16.276 ms
Remote clock offset: 15.846 ms

Below is generated by plot.py at 2018-12-10 23:42:14
Datalink statistics
-- Total of 1 flow:
Average throughput: 918.03 Mbit/s
95th percentile per-packet one-way delay: 138.819 ms
Loss rate: 1.09%
-- Flow 1:
Average throughput: 918.03 Mbit/s
95th percentile per-packet one-way delay: 138.819 ms
Loss rate: 1.09%

Run 3: Report of FillP-Sheep — Data Link

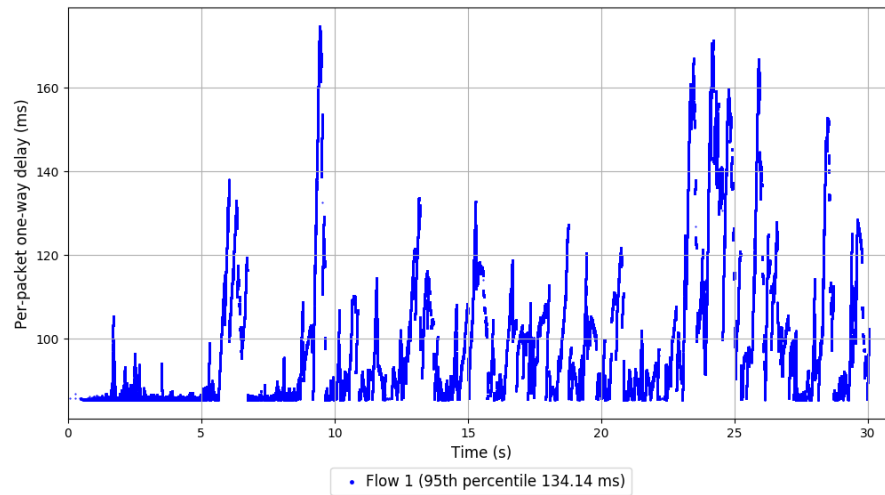
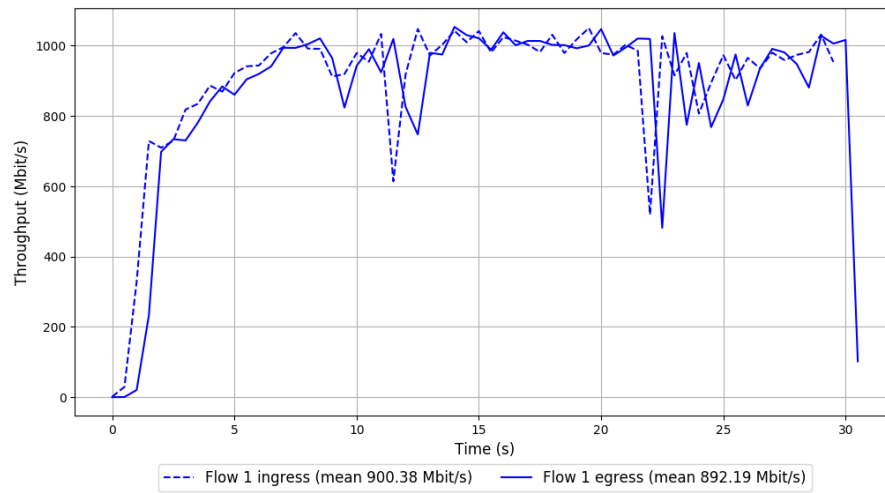


Run 4: Statistics of FillP-Sheep

Start at: 2018-12-10 22:16:27
End at: 2018-12-10 22:16:57
Local clock offset: 11.105 ms
Remote clock offset: 10.278 ms

Below is generated by plot.py at 2018-12-10 23:44:36
Datalink statistics
-- Total of 1 flow:
Average throughput: 892.19 Mbit/s
95th percentile per-packet one-way delay: 134.143 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 892.19 Mbit/s
95th percentile per-packet one-way delay: 134.143 ms
Loss rate: 0.91%

Run 4: Report of FillP-Sheep — Data Link



Run 5: Statistics of FillP-Sheep

Start at: 2018-12-10 22:45:02

End at: 2018-12-10 22:45:32

Local clock offset: 8.436 ms

Remote clock offset: 7.829 ms

Below is generated by plot.py at 2018-12-10 23:48:39

Datalink statistics

-- Total of 1 flow:

Average throughput: 865.98 Mbit/s

95th percentile per-packet one-way delay: 142.898 ms

Loss rate: 1.26%

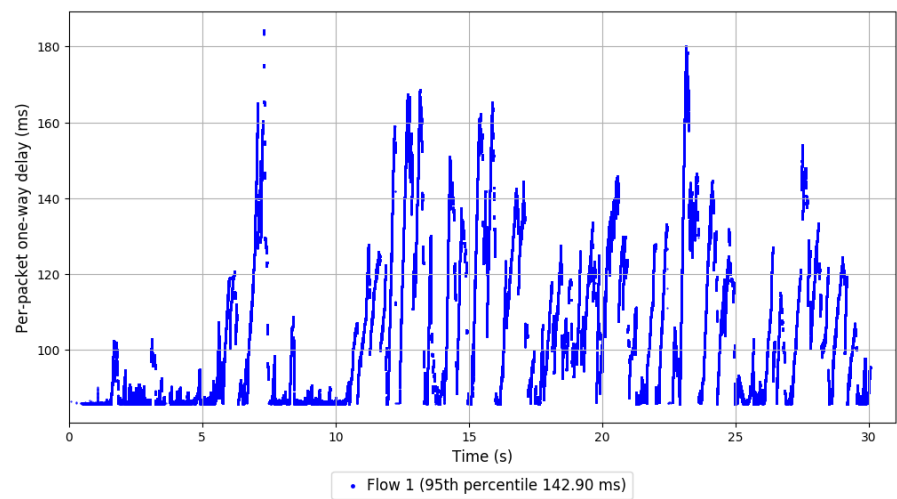
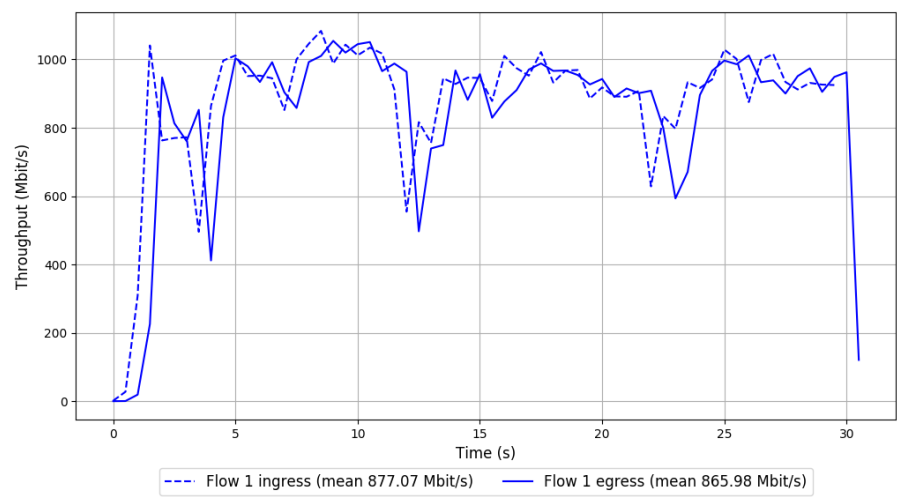
-- Flow 1:

Average throughput: 865.98 Mbit/s

95th percentile per-packet one-way delay: 142.898 ms

Loss rate: 1.26%

Run 5: Report of FillP-Sheep — Data Link

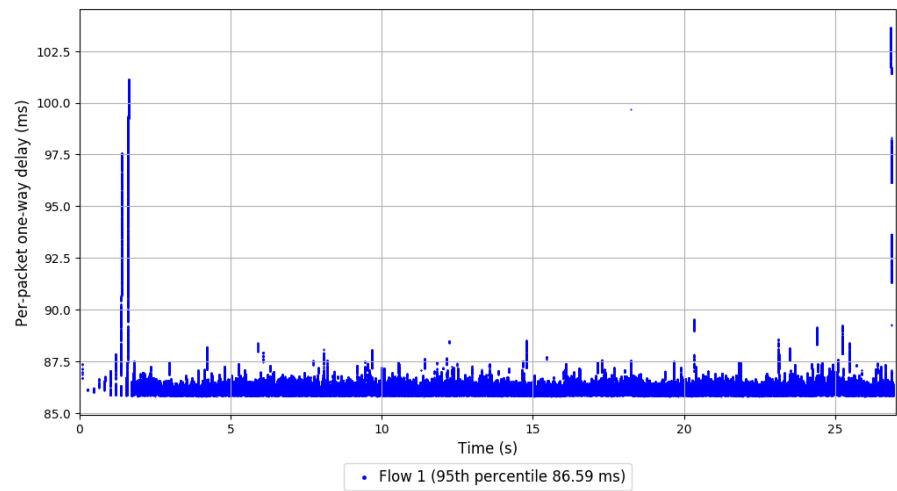
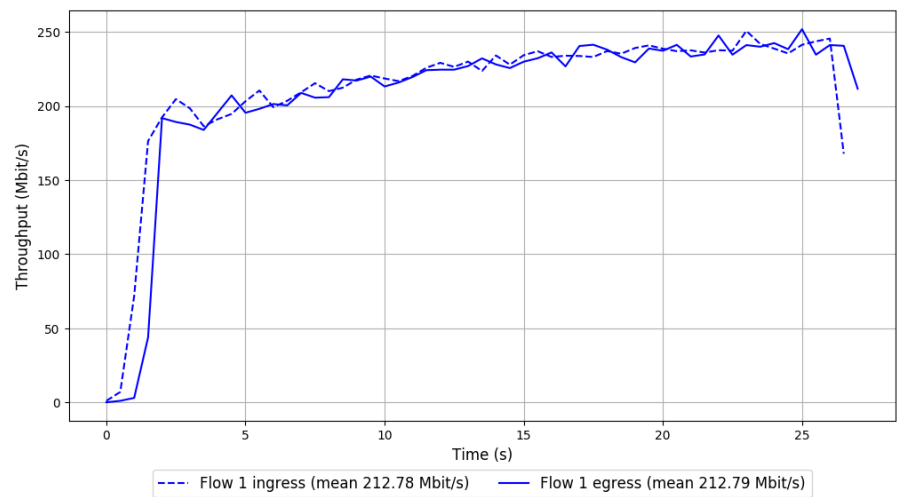


```
Run 1: Statistics of Indigo

Start at: 2018-12-10 20:46:32
End at: 2018-12-10 20:47:02
Local clock offset: 13.896 ms
Remote clock offset: 12.966 ms

# Below is generated by plot.py at 2018-12-10 23:48:39
# Datalink statistics
-- Total of 1 flow:
Average throughput: 212.79 Mbit/s
95th percentile per-packet one-way delay: 86.593 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 212.79 Mbit/s
95th percentile per-packet one-way delay: 86.593 ms
Loss rate: 0.00%
```

Run 1: Report of Indigo — Data Link

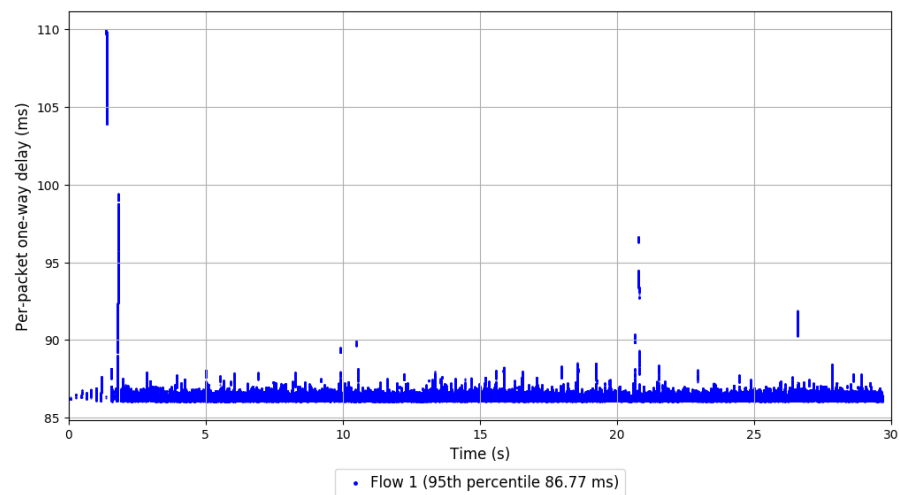
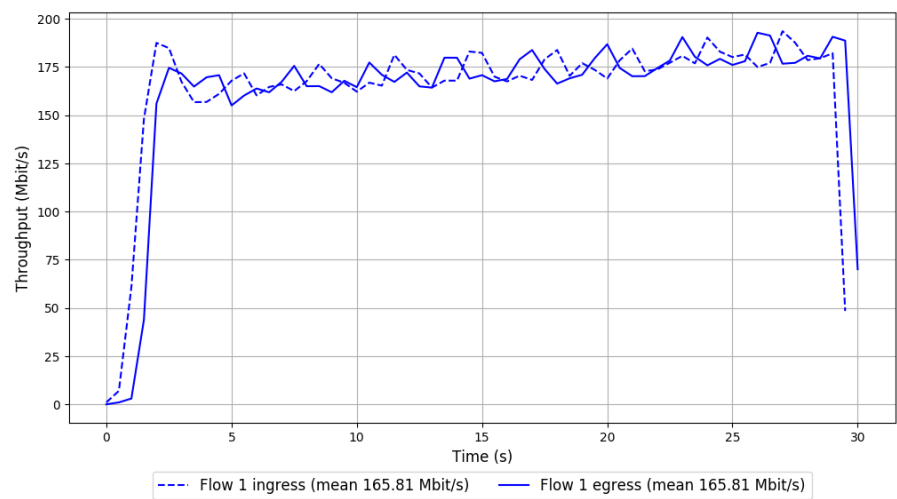


Run 2: Statistics of Indigo

Start at: 2018-12-10 21:14:03
End at: 2018-12-10 21:14:33
Local clock offset: 21.195 ms
Remote clock offset: 20.211 ms

Below is generated by plot.py at 2018-12-10 23:48:39
Datalink statistics
-- Total of 1 flow:
Average throughput: 165.81 Mbit/s
95th percentile per-packet one-way delay: 86.765 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 165.81 Mbit/s
95th percentile per-packet one-way delay: 86.765 ms
Loss rate: 0.00%

Run 2: Report of Indigo — Data Link

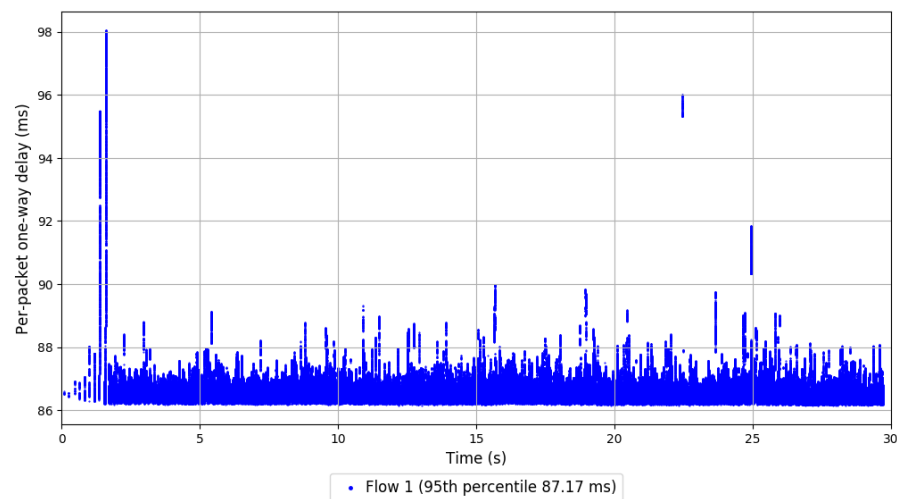
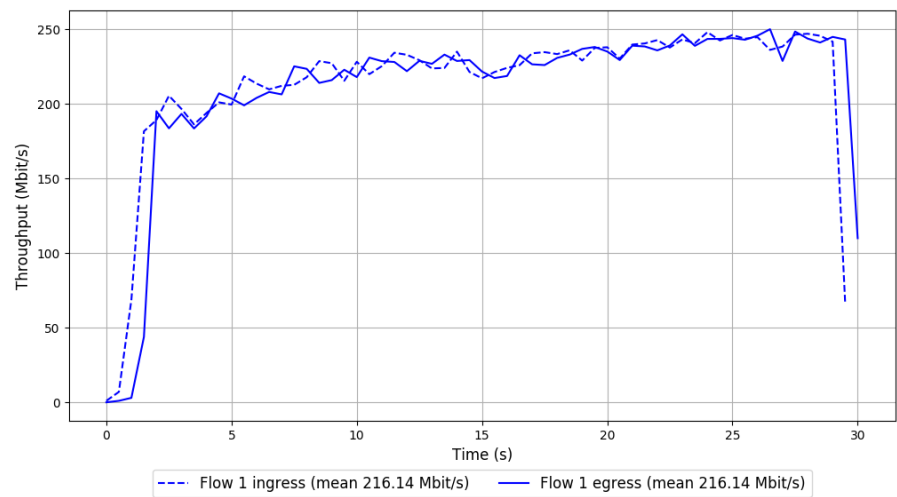


Run 3: Statistics of Indigo

Start at: 2018-12-10 21:42:23
End at: 2018-12-10 21:42:53
Local clock offset: 21.18 ms
Remote clock offset: 20.382 ms

Below is generated by plot.py at 2018-12-10 23:48:39
Datalink statistics
-- Total of 1 flow:
Average throughput: 216.14 Mbit/s
95th percentile per-packet one-way delay: 87.175 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 216.14 Mbit/s
95th percentile per-packet one-way delay: 87.175 ms
Loss rate: 0.00%

Run 3: Report of Indigo — Data Link



Run 4: Statistics of Indigo

Start at: 2018-12-10 22:10:57

End at: 2018-12-10 22:11:27

Local clock offset: 17.312 ms

Remote clock offset: 16.54 ms

Below is generated by plot.py at 2018-12-10 23:48:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 211.35 Mbit/s

95th percentile per-packet one-way delay: 86.493 ms

Loss rate: 0.00%

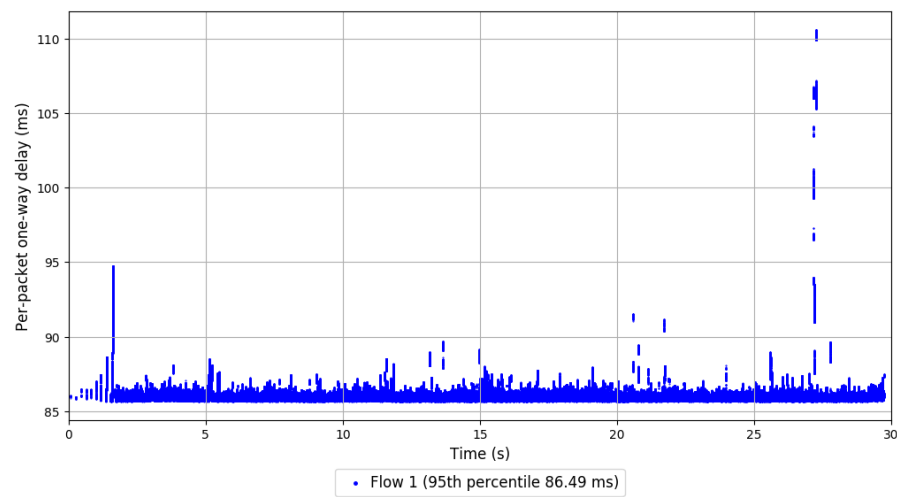
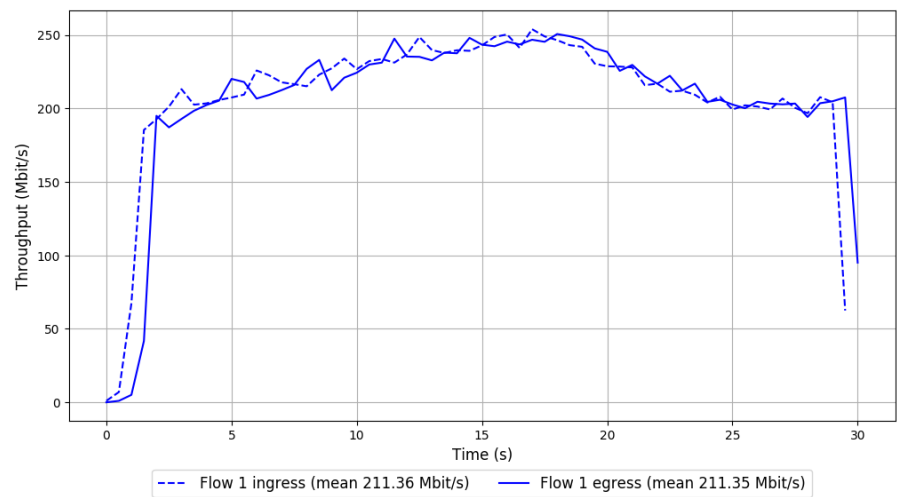
-- Flow 1:

Average throughput: 211.35 Mbit/s

95th percentile per-packet one-way delay: 86.493 ms

Loss rate: 0.00%

Run 4: Report of Indigo — Data Link



Run 5: Statistics of Indigo

Start at: 2018-12-10 22:39:32

End at: 2018-12-10 22:40:02

Local clock offset: 8.617 ms

Remote clock offset: 8.54 ms

Below is generated by plot.py at 2018-12-10 23:49:26

Datalink statistics

-- Total of 1 flow:

Average throughput: 206.13 Mbit/s

95th percentile per-packet one-way delay: 87.279 ms

Loss rate: 0.00%

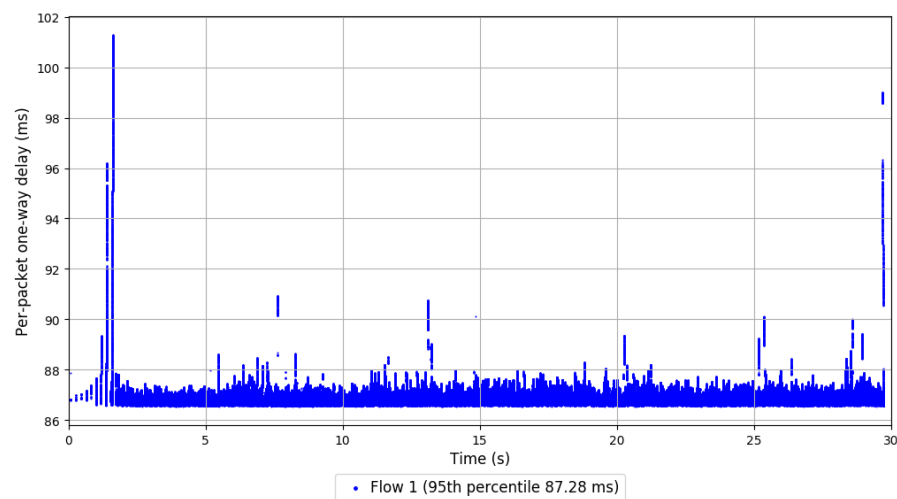
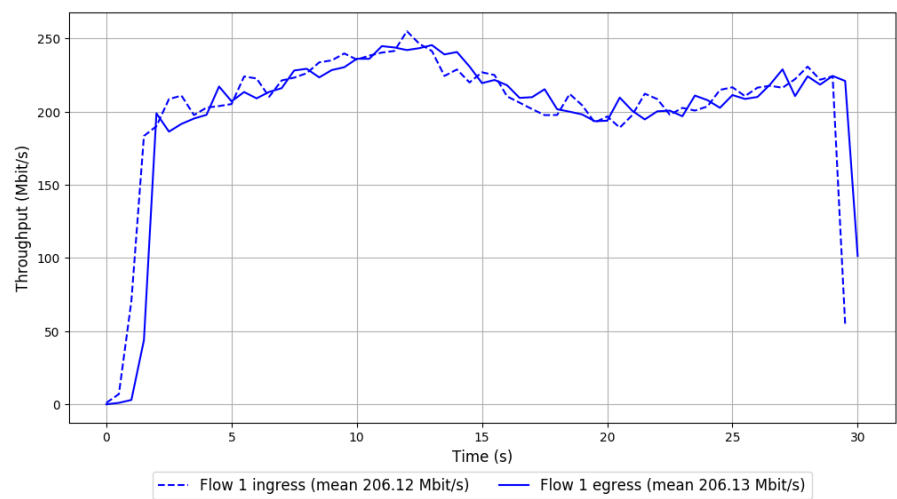
-- Flow 1:

Average throughput: 206.13 Mbit/s

95th percentile per-packet one-way delay: 87.279 ms

Loss rate: 0.00%

Run 5: Report of Indigo — Data Link

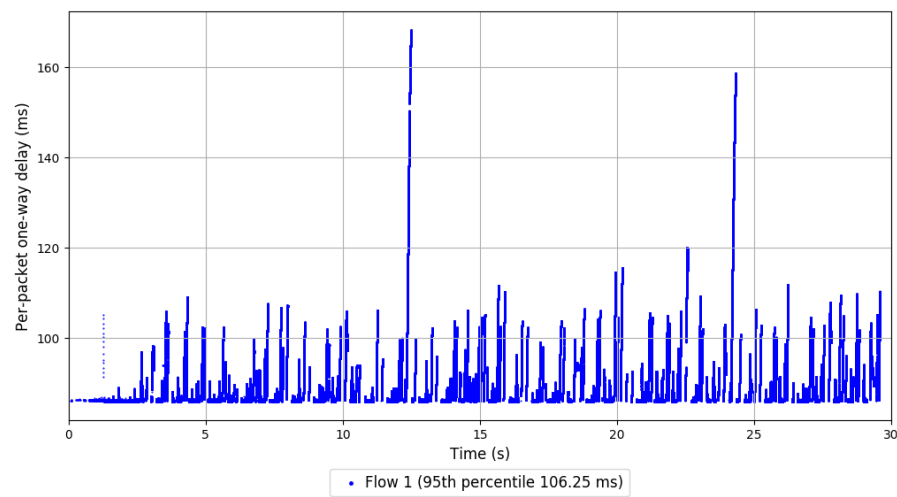
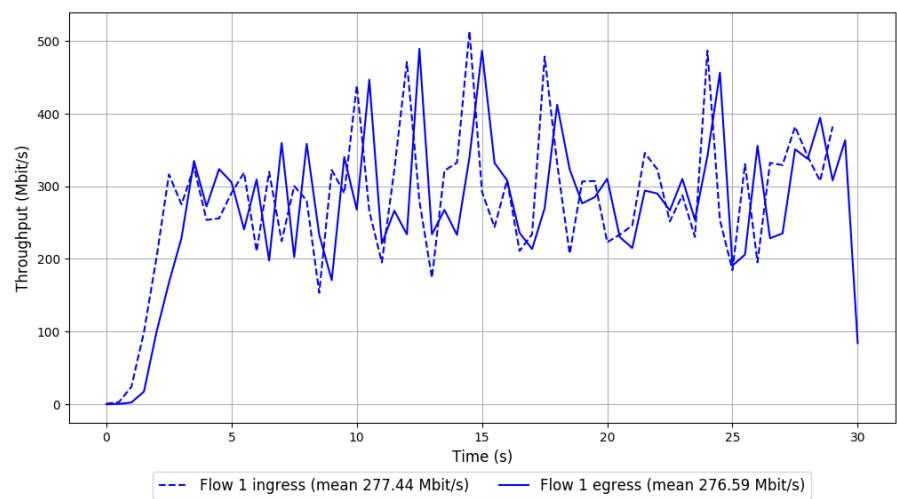


```
Run 1: Statistics of Indigo-96d2da3

Start at: 2018-12-10 20:36:21
End at: 2018-12-10 20:36:51
Local clock offset: 9.767 ms
Remote clock offset: 9.121 ms

# Below is generated by plot.py at 2018-12-10 23:49:26
# Datalink statistics
-- Total of 1 flow:
Average throughput: 276.59 Mbit/s
95th percentile per-packet one-way delay: 106.251 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 276.59 Mbit/s
95th percentile per-packet one-way delay: 106.251 ms
Loss rate: 0.23%
```

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



Run 2: Statistics of Indigo-96d2da3

Start at: 2018-12-10 21:03:53

End at: 2018-12-10 21:04:23

Local clock offset: 22.169 ms

Remote clock offset: 21.39 ms

Below is generated by plot.py at 2018-12-10 23:49:26

Datalink statistics

-- Total of 1 flow:

Average throughput: 270.31 Mbit/s

95th percentile per-packet one-way delay: 112.130 ms

Loss rate: 0.08%

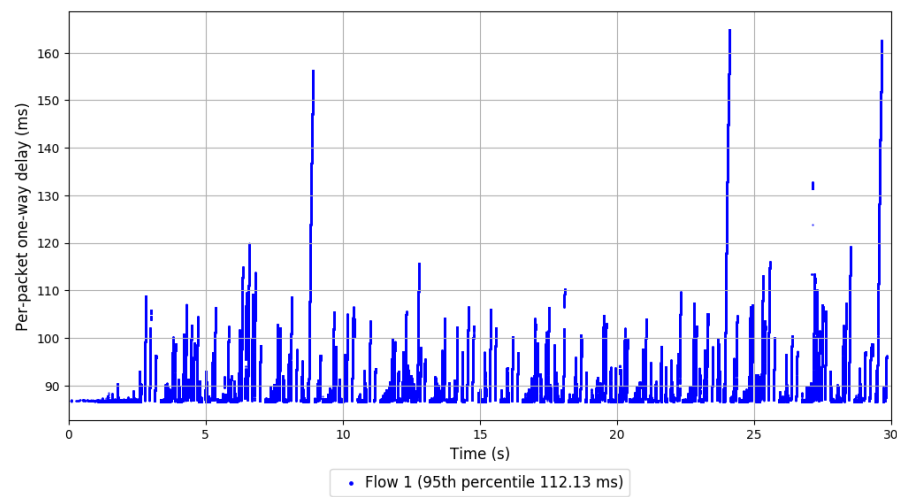
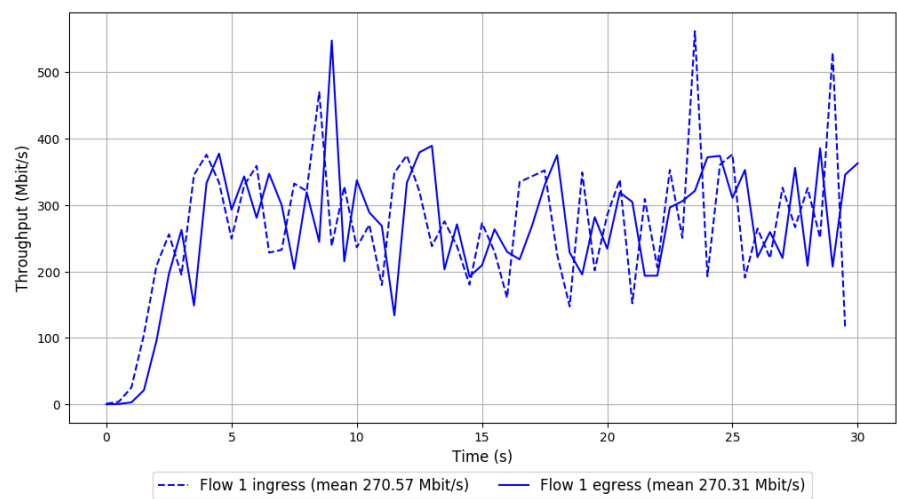
-- Flow 1:

Average throughput: 270.31 Mbit/s

95th percentile per-packet one-way delay: 112.130 ms

Loss rate: 0.08%

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

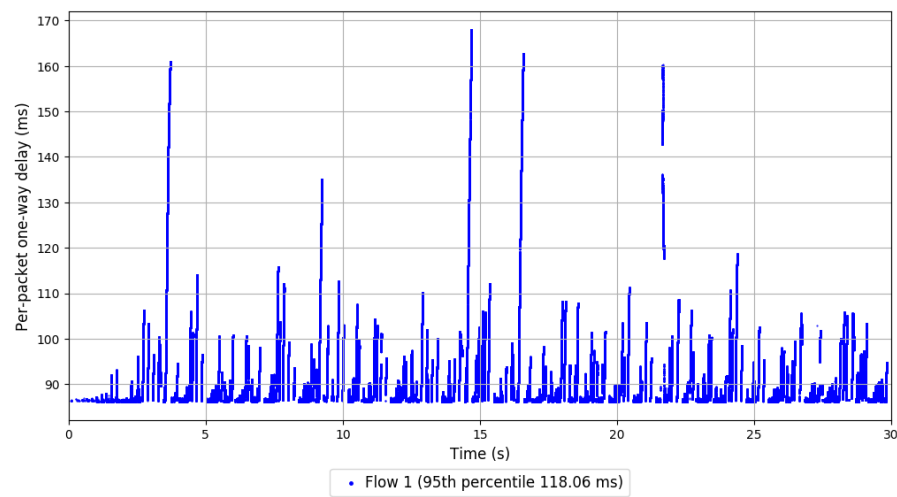
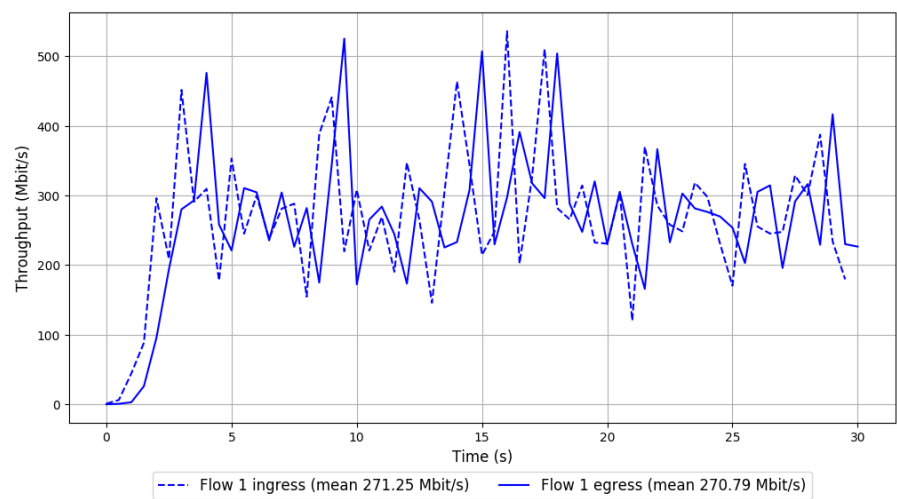


Run 3: Statistics of Indigo-96d2da3

Start at: 2018-12-10 21:32:17
End at: 2018-12-10 21:32:47
Local clock offset: 37.404 ms
Remote clock offset: 35.939 ms

Below is generated by plot.py at 2018-12-10 23:49:34
Datalink statistics
-- Total of 1 flow:
Average throughput: 270.79 Mbit/s
95th percentile per-packet one-way delay: 118.057 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 270.79 Mbit/s
95th percentile per-packet one-way delay: 118.057 ms
Loss rate: 0.17%

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

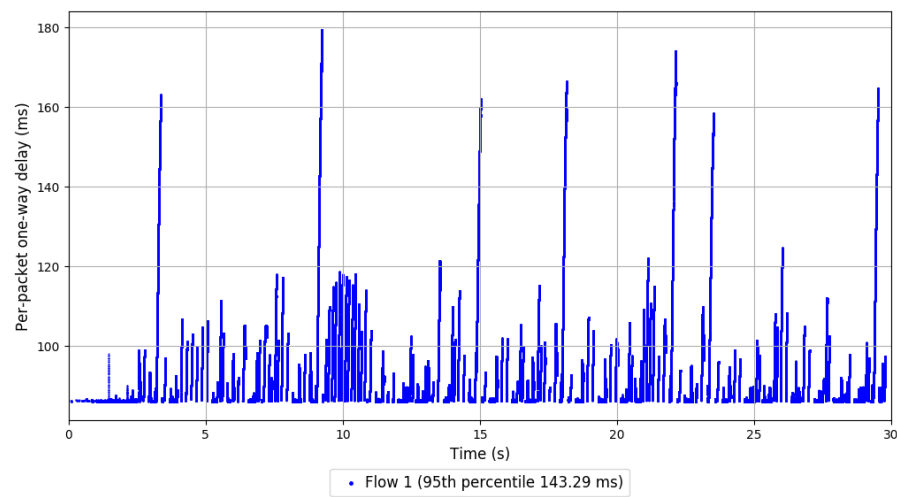
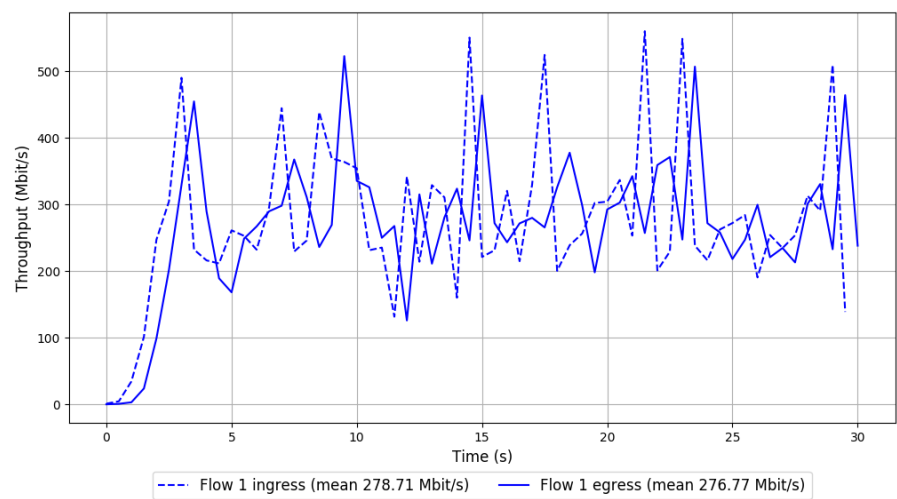


Run 4: Statistics of Indigo-96d2da3

Start at: 2018-12-10 22:00:43
End at: 2018-12-10 22:01:13
Local clock offset: 16.56 ms
Remote clock offset: 16.388 ms

Below is generated by plot.py at 2018-12-10 23:50:13
Datalink statistics
-- Total of 1 flow:
Average throughput: 276.77 Mbit/s
95th percentile per-packet one-way delay: 143.286 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 276.77 Mbit/s
95th percentile per-packet one-way delay: 143.286 ms
Loss rate: 0.66%

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



Run 5: Statistics of Indigo-96d2da3

Start at: 2018-12-10 22:29:17

End at: 2018-12-10 22:29:47

Local clock offset: 7.032 ms

Remote clock offset: 7.181 ms

Below is generated by plot.py at 2018-12-10 23:52:15

Datalink statistics

-- Total of 1 flow:

Average throughput: 279.59 Mbit/s

95th percentile per-packet one-way delay: 126.870 ms

Loss rate: 0.29%

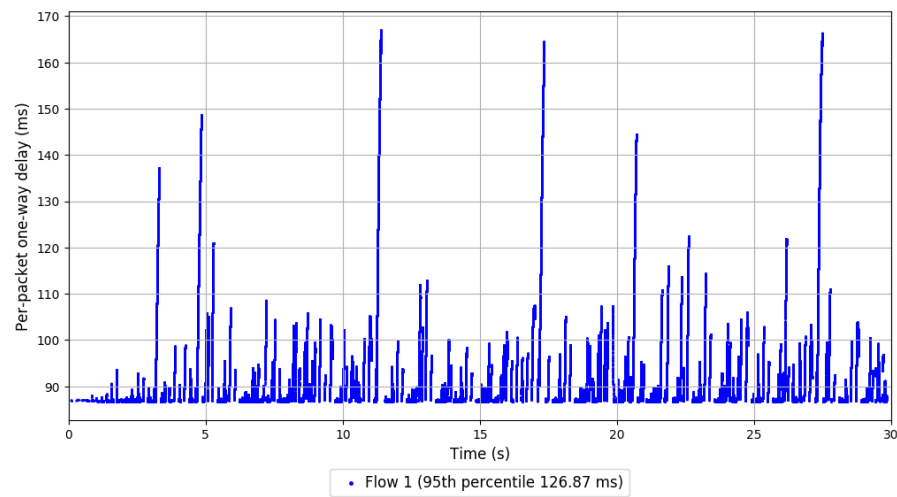
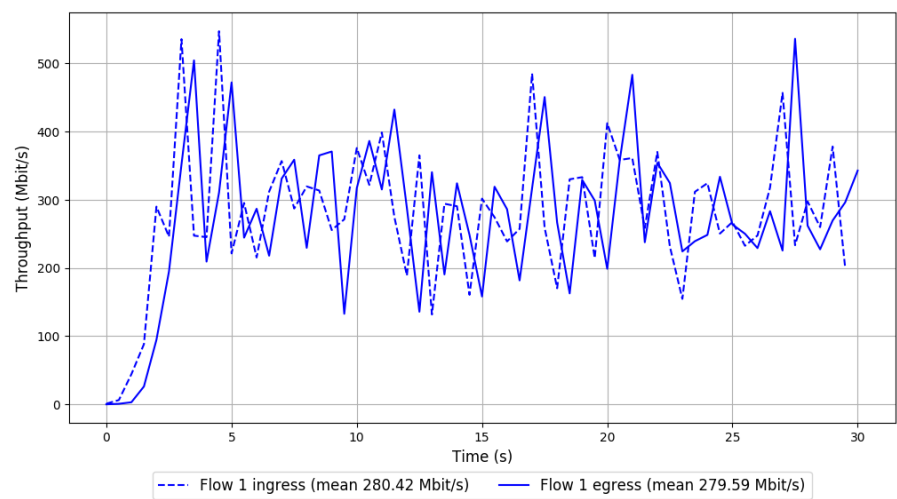
-- Flow 1:

Average throughput: 279.59 Mbit/s

95th percentile per-packet one-way delay: 126.870 ms

Loss rate: 0.29%

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

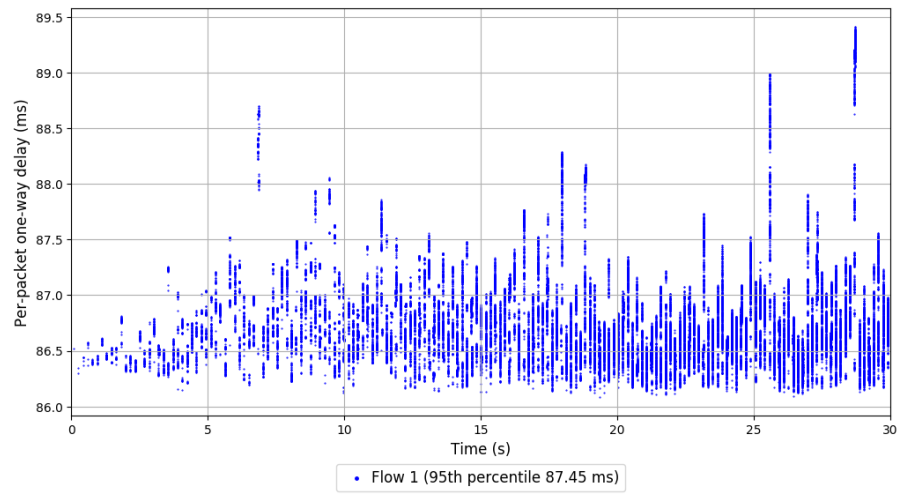
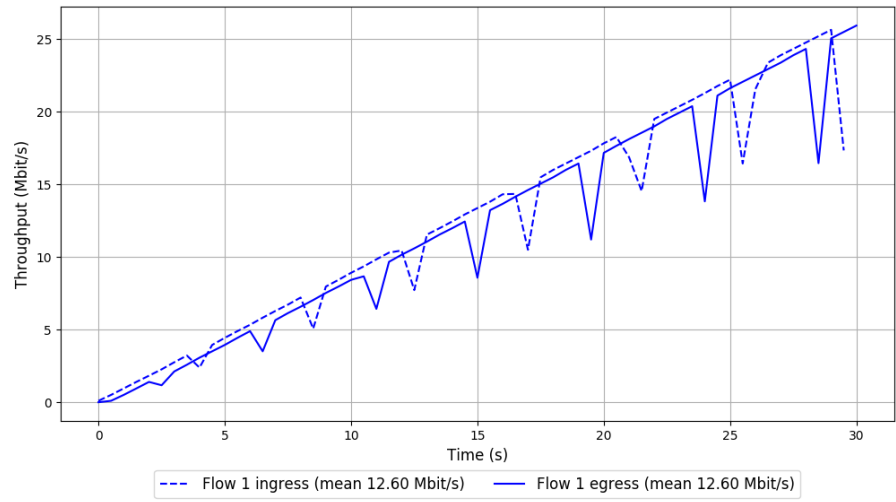


```
Run 1: Statistics of LEDBAT

Start at: 2018-12-10 20:54:52
End at: 2018-12-10 20:55:22
Local clock offset: 18.382 ms
Remote clock offset: 17.821 ms

# Below is generated by plot.py at 2018-12-10 23:52:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.60 Mbit/s
95th percentile per-packet one-way delay: 87.453 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 12.60 Mbit/s
95th percentile per-packet one-way delay: 87.453 ms
Loss rate: 0.00%
```

Run 1: Report of LEDBAT — Data Link

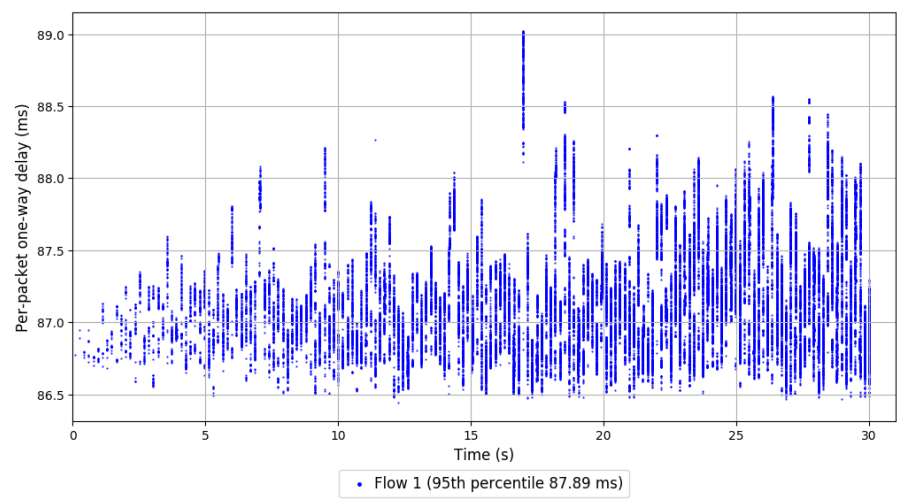
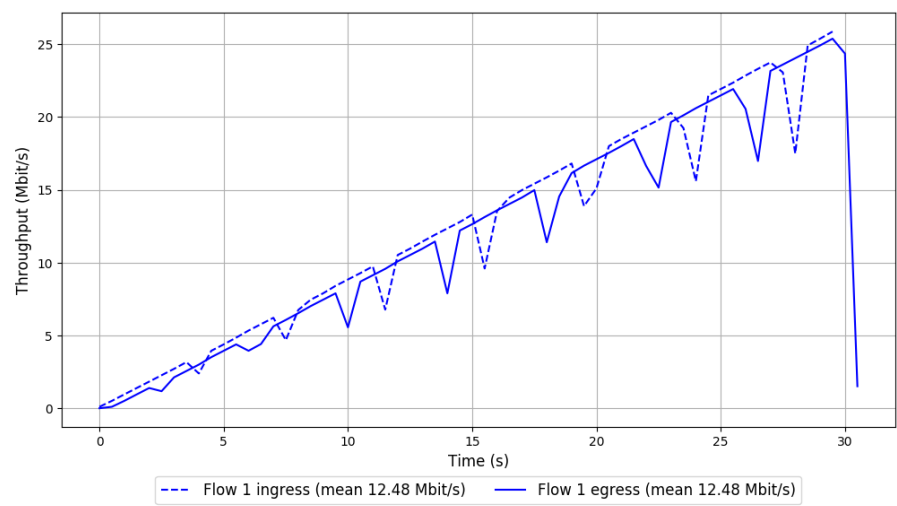


Run 2: Statistics of LEDBAT

Start at: 2018-12-10 21:22:55
End at: 2018-12-10 21:23:25
Local clock offset: 27.591 ms
Remote clock offset: 26.582 ms

Below is generated by plot.py at 2018-12-10 23:52:15
Datalink statistics
-- Total of 1 flow:
Average throughput: 12.48 Mbit/s
95th percentile per-packet one-way delay: 87.888 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 12.48 Mbit/s
95th percentile per-packet one-way delay: 87.888 ms
Loss rate: 0.00%

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2018-12-10 21:51:19

End at: 2018-12-10 21:51:49

Local clock offset: 14.785 ms

Remote clock offset: 14.93 ms

Below is generated by plot.py at 2018-12-10 23:52:15

Datalink statistics

-- Total of 1 flow:

Average throughput: 12.62 Mbit/s

95th percentile per-packet one-way delay: 87.825 ms

Loss rate: 0.00%

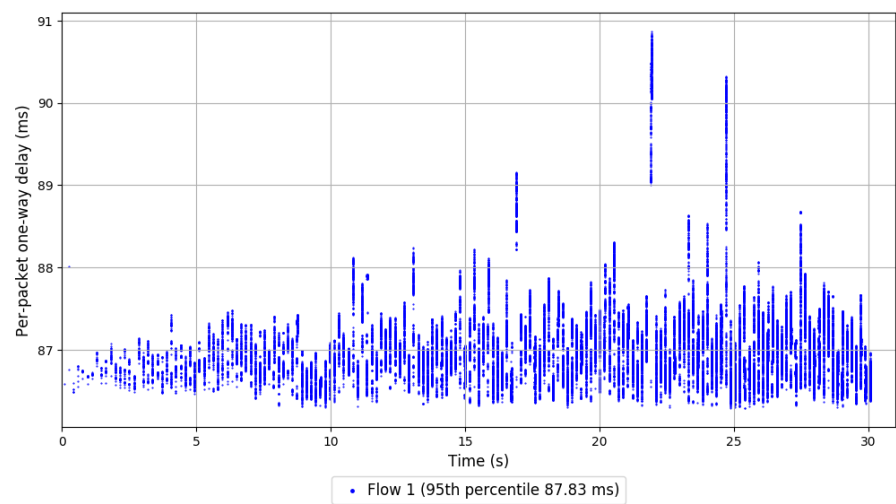
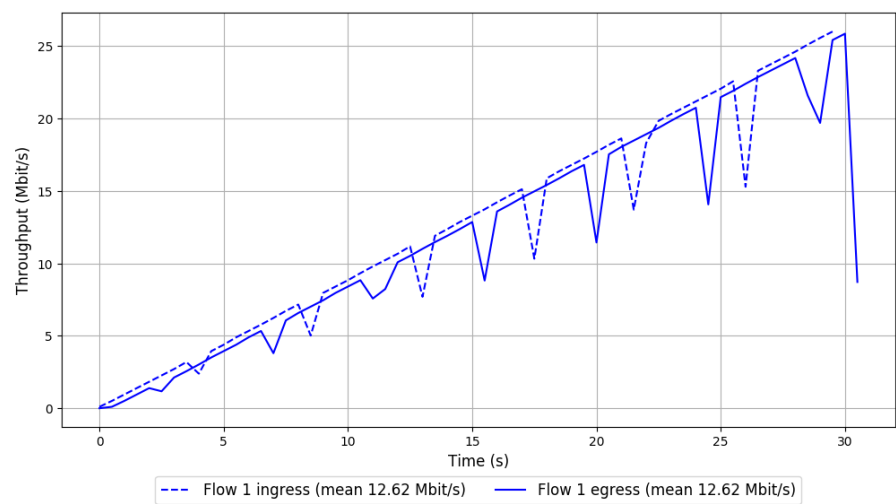
-- Flow 1:

Average throughput: 12.62 Mbit/s

95th percentile per-packet one-way delay: 87.825 ms

Loss rate: 0.00%

Run 3: Report of LEDBAT — Data Link



Run 4: Statistics of LEDBAT

Start at: 2018-12-10 22:19:54

End at: 2018-12-10 22:20:24

Local clock offset: 9.064 ms

Remote clock offset: 8.426 ms

Below is generated by plot.py at 2018-12-10 23:52:15

Datalink statistics

-- Total of 1 flow:

Average throughput: 12.53 Mbit/s

95th percentile per-packet one-way delay: 87.262 ms

Loss rate: 0.00%

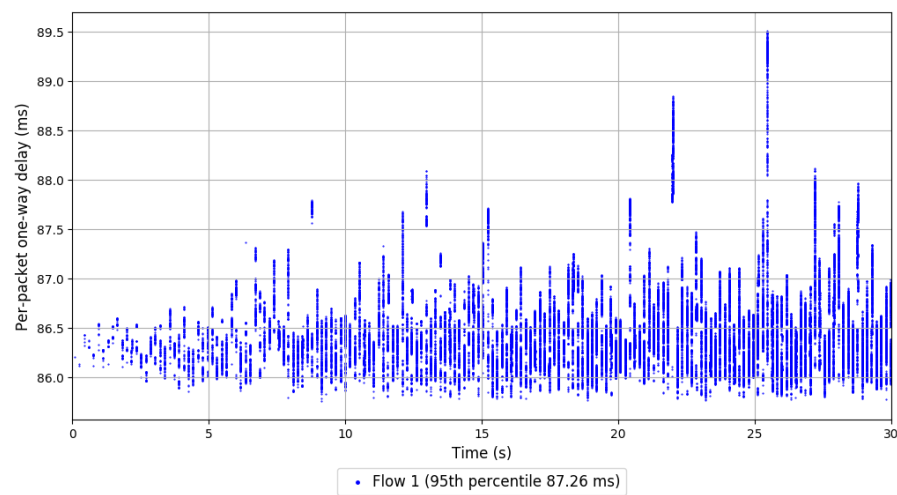
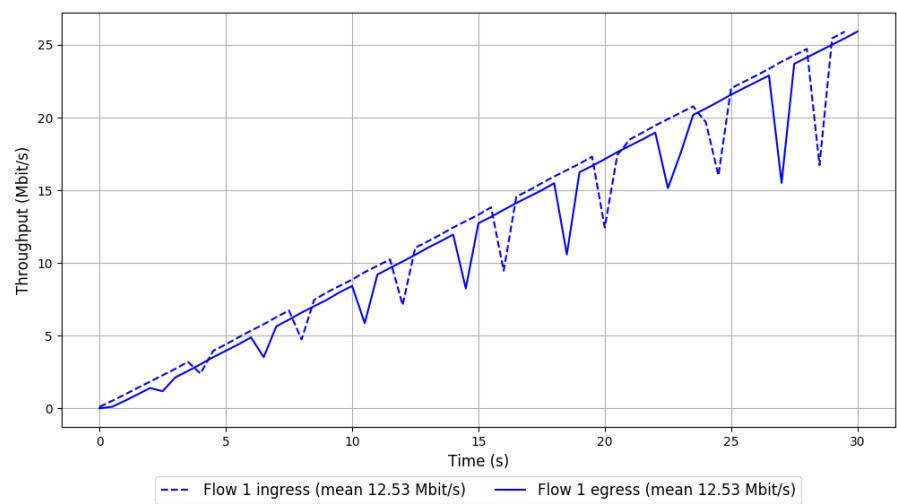
-- Flow 1:

Average throughput: 12.53 Mbit/s

95th percentile per-packet one-way delay: 87.262 ms

Loss rate: 0.00%

Run 4: Report of LEDBAT — Data Link



Run 5: Statistics of LEDBAT

Start at: 2018-12-10 22:48:27

End at: 2018-12-10 22:48:57

Local clock offset: 5.306 ms

Remote clock offset: 5.691 ms

Below is generated by plot.py at 2018-12-10 23:52:15

Datalink statistics

-- Total of 1 flow:

Average throughput: 12.49 Mbit/s

95th percentile per-packet one-way delay: 88.363 ms

Loss rate: 0.00%

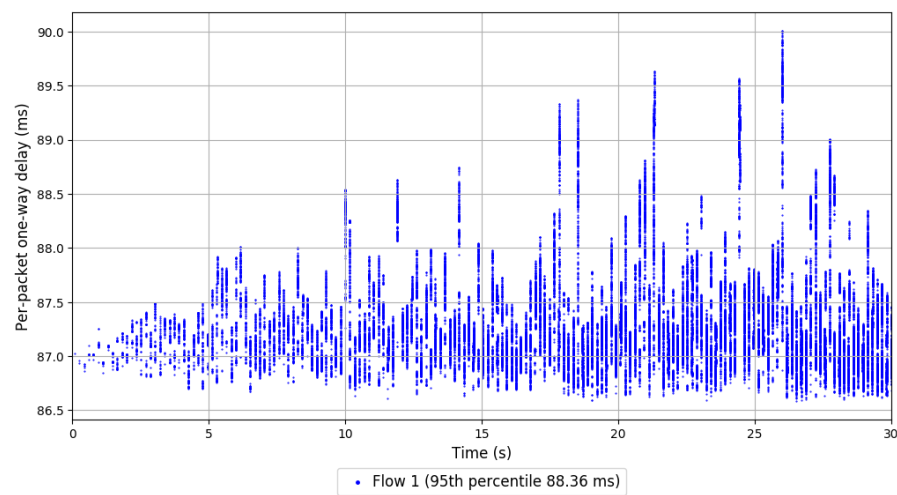
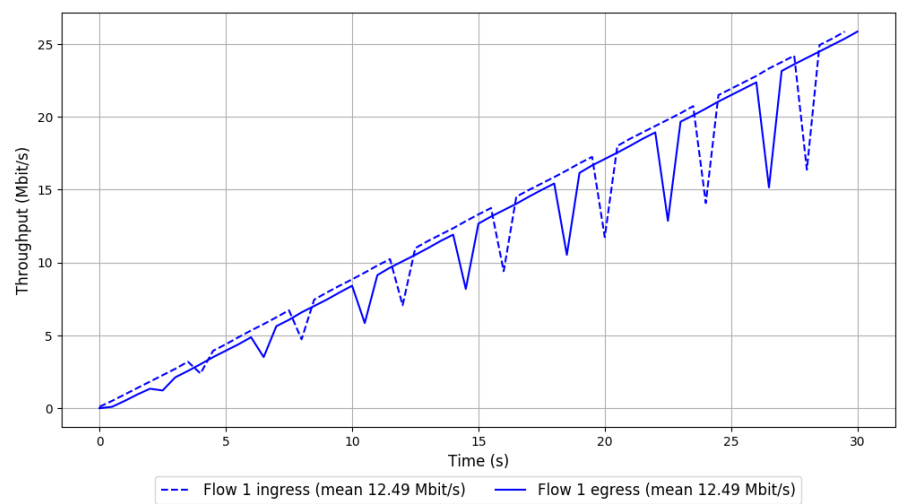
-- Flow 1:

Average throughput: 12.49 Mbit/s

95th percentile per-packet one-way delay: 88.363 ms

Loss rate: 0.00%

Run 5: Report of LEDBAT — Data Link

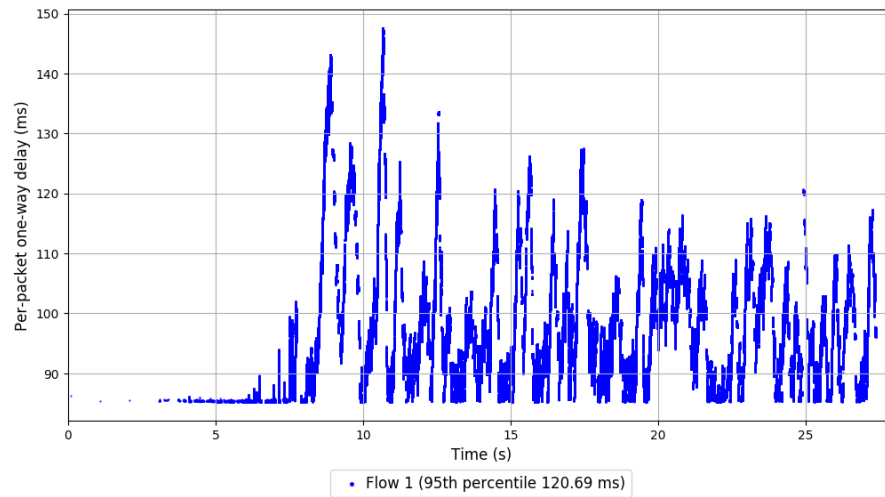
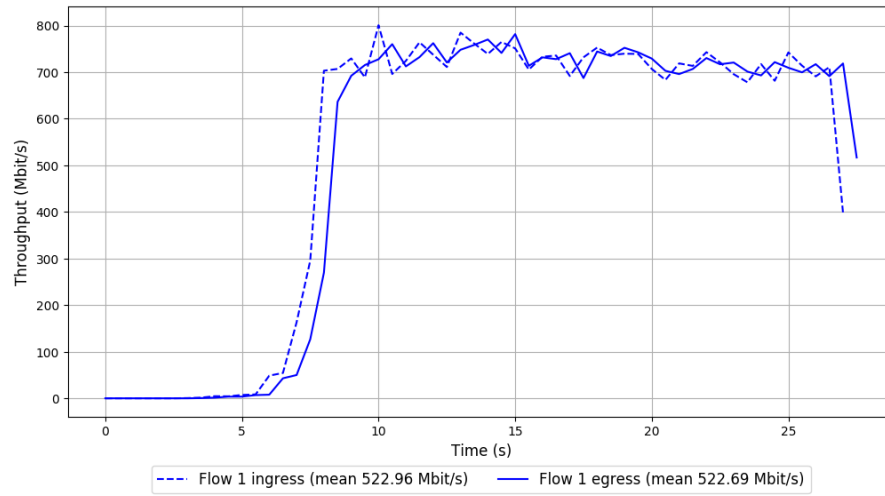



```
Run 1: Statistics of Indigo-Muses

Start at: 2018-12-10 20:31:34
End at: 2018-12-10 20:32:04
Local clock offset: 6.904 ms
Remote clock offset: 6.063 ms

# Below is generated by plot.py at 2018-12-10 23:55:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 522.69 Mbit/s
95th percentile per-packet one-way delay: 120.692 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 522.69 Mbit/s
95th percentile per-packet one-way delay: 120.692 ms
Loss rate: 0.05%
```

Run 1: Report of Indigo-Muses — Data Link



Run 2: Statistics of Indigo-Muses

Start at: 2018-12-10 20:59:07

End at: 2018-12-10 20:59:37

Local clock offset: 23.704 ms

Remote clock offset: 23.5 ms

Below is generated by plot.py at 2018-12-11 00:00:53

Datalink statistics

-- Total of 1 flow:

Average throughput: 665.23 Mbit/s

95th percentile per-packet one-way delay: 125.064 ms

Loss rate: 0.15%

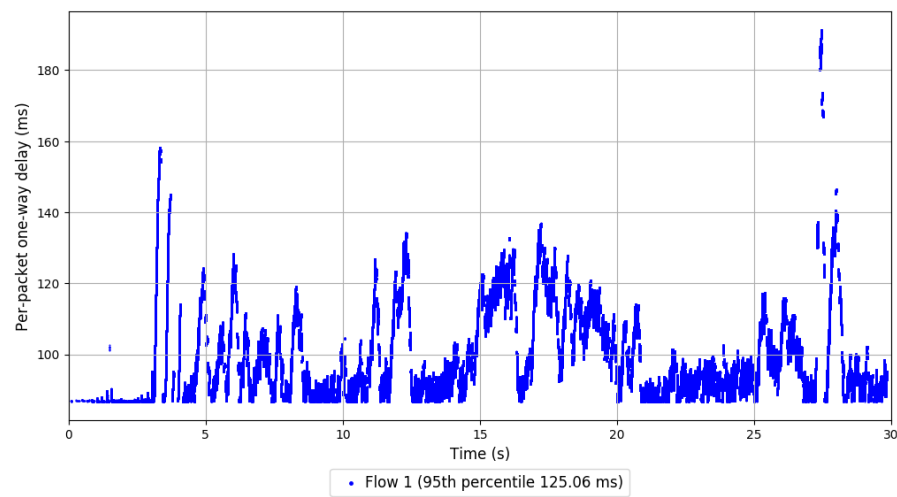
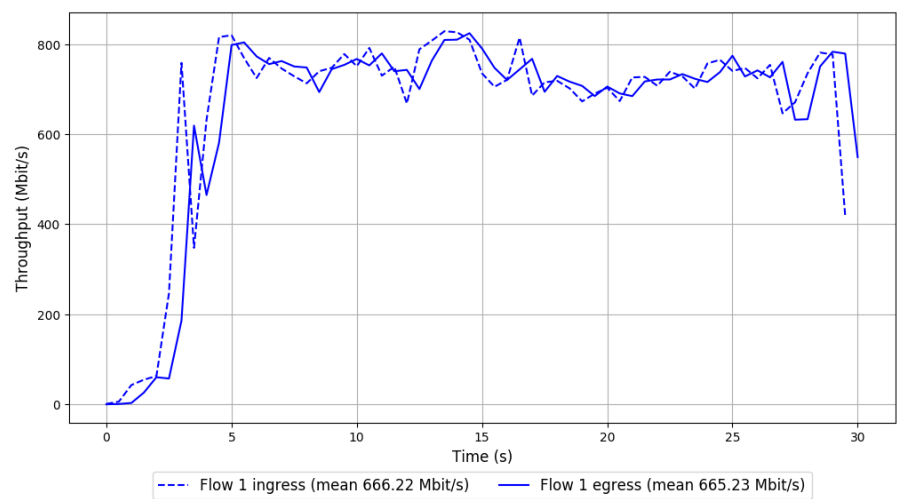
-- Flow 1:

Average throughput: 665.23 Mbit/s

95th percentile per-packet one-way delay: 125.064 ms

Loss rate: 0.15%

Run 2: Report of Indigo-Muses — Data Link

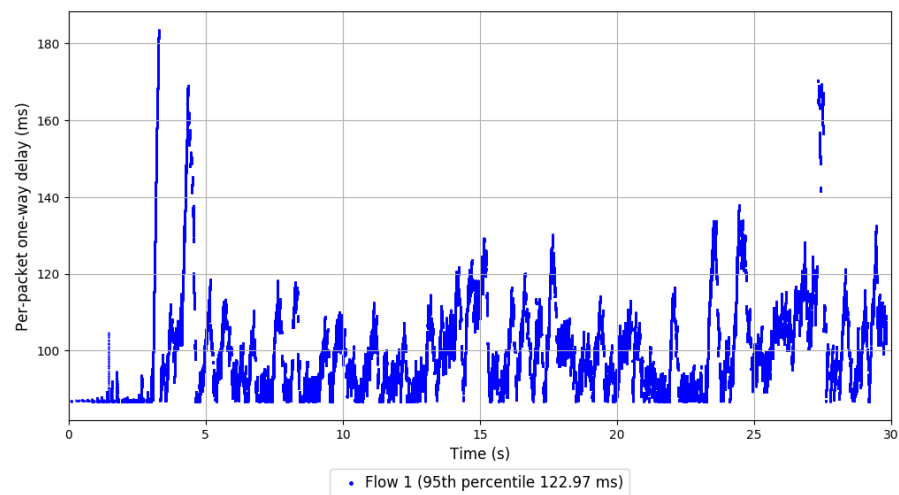
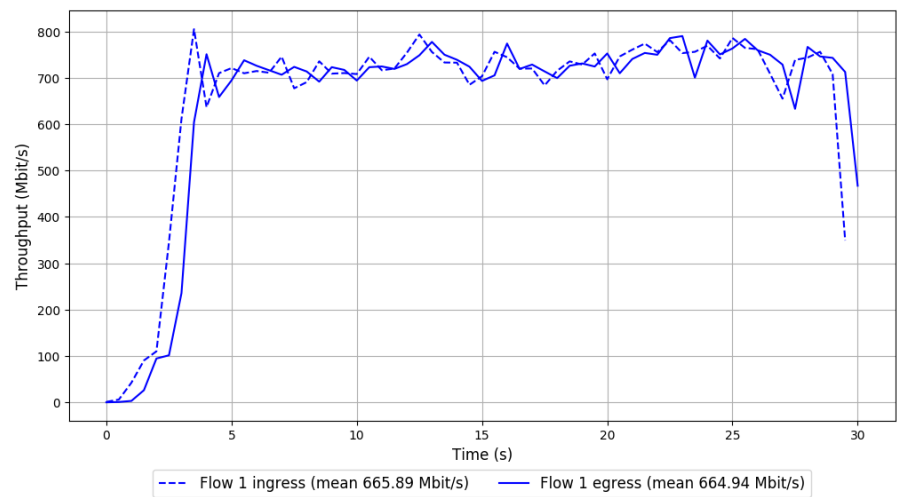


Run 3: Statistics of Indigo-Muses

Start at: 2018-12-10 21:27:16
End at: 2018-12-10 21:27:46
Local clock offset: 31.616 ms
Remote clock offset: 30.745 ms

Below is generated by plot.py at 2018-12-11 00:01:03
Datalink statistics
-- Total of 1 flow:
Average throughput: 664.94 Mbit/s
95th percentile per-packet one-way delay: 122.965 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 664.94 Mbit/s
95th percentile per-packet one-way delay: 122.965 ms
Loss rate: 0.14%

Run 3: Report of Indigo-Muses — Data Link

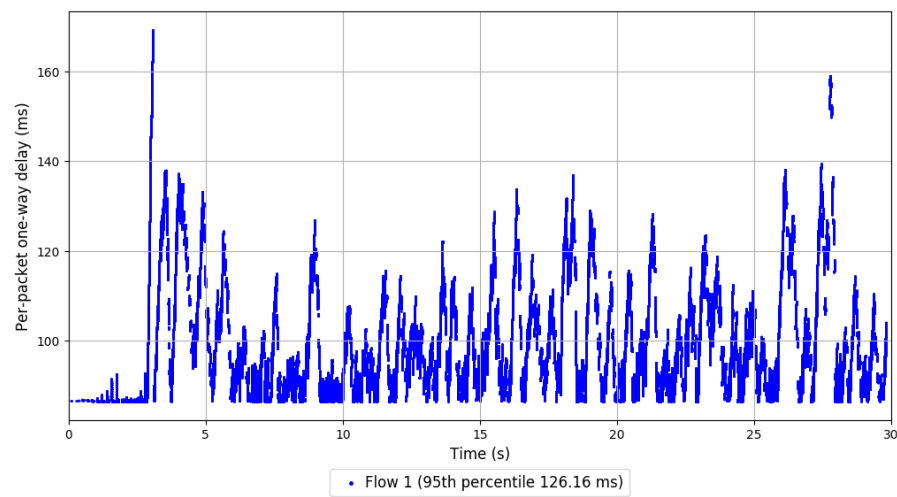
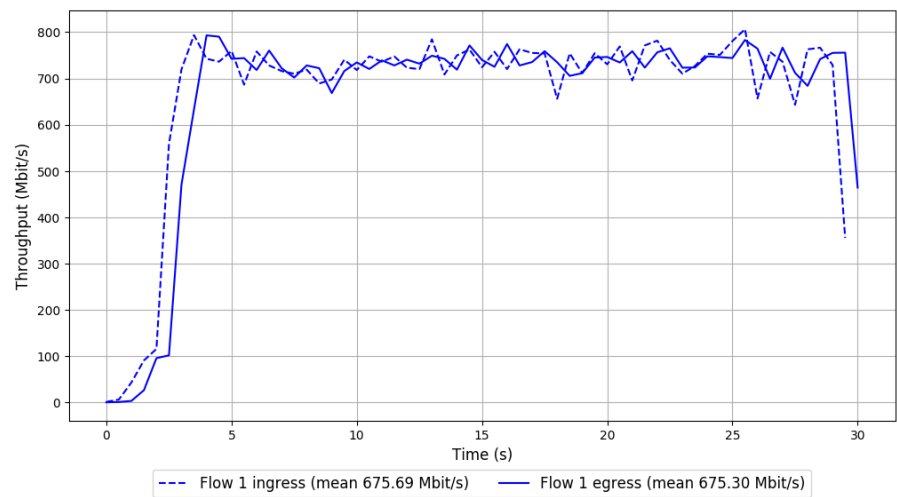


Run 4: Statistics of Indigo-Muses

Start at: 2018-12-10 21:55:47
End at: 2018-12-10 21:56:17
Local clock offset: 15.325 ms
Remote clock offset: 15.143 ms

Below is generated by plot.py at 2018-12-11 00:01:14
Datalink statistics
-- Total of 1 flow:
Average throughput: 675.30 Mbit/s
95th percentile per-packet one-way delay: 126.163 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 675.30 Mbit/s
95th percentile per-packet one-way delay: 126.163 ms
Loss rate: 0.04%

Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-12-10 22:24:20

End at: 2018-12-10 22:24:50

Local clock offset: 7.988 ms

Remote clock offset: 7.346 ms

Below is generated by plot.py at 2018-12-11 00:01:14

Datalink statistics

-- Total of 1 flow:

Average throughput: 664.83 Mbit/s

95th percentile per-packet one-way delay: 119.233 ms

Loss rate: 0.07%

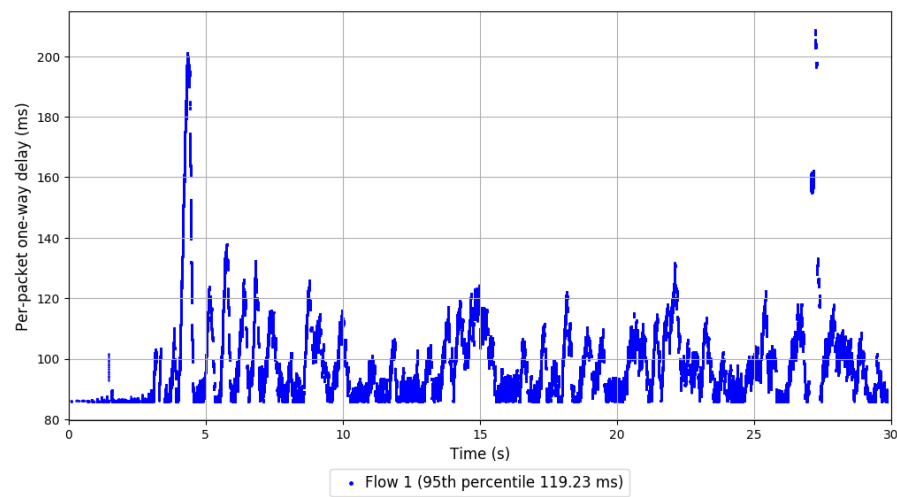
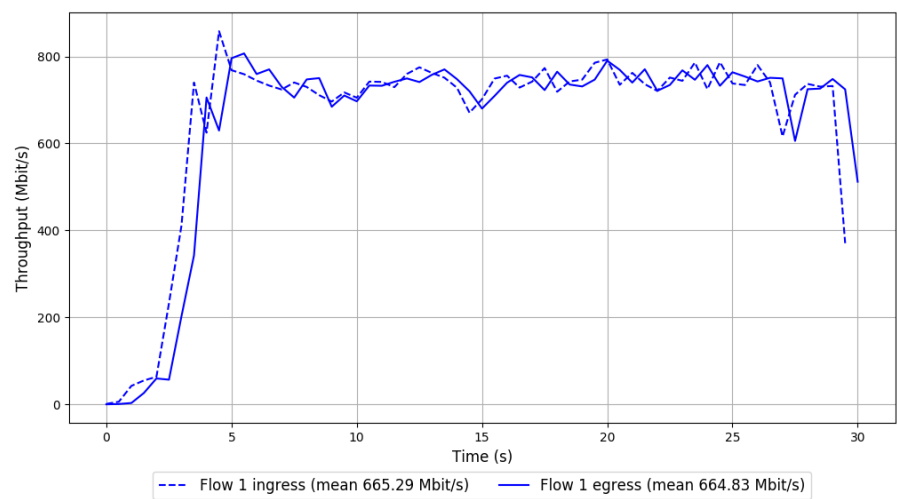
-- Flow 1:

Average throughput: 664.83 Mbit/s

95th percentile per-packet one-way delay: 119.233 ms

Loss rate: 0.07%

Run 5: Report of Indigo-Muses — Data Link

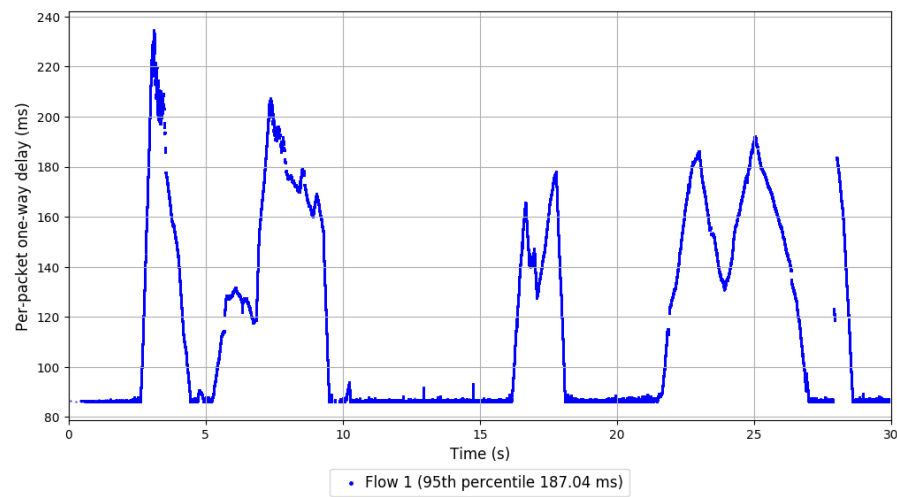
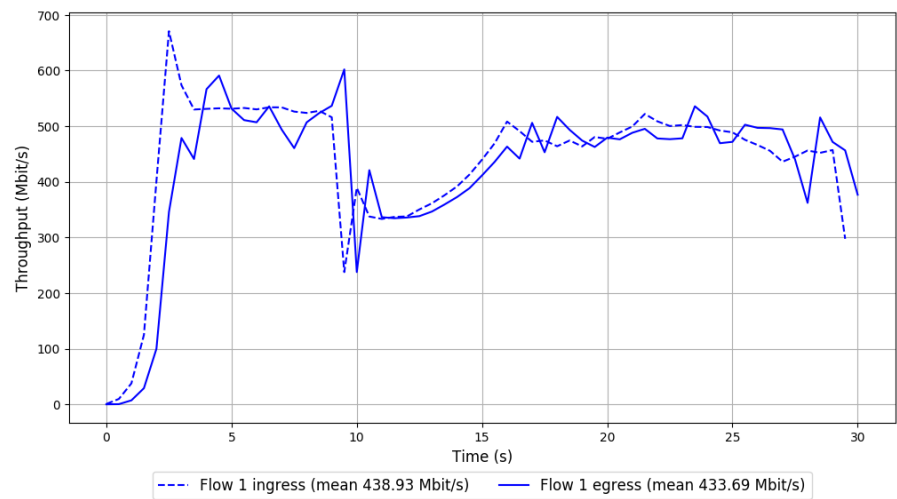


```
Run 1: Statistics of PCC-Allegro

Start at: 2018-12-10 20:53:14
End at: 2018-12-10 20:53:44
Local clock offset: 16.766 ms
Remote clock offset: 15.924 ms

# Below is generated by plot.py at 2018-12-11 00:04:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 433.69 Mbit/s
95th percentile per-packet one-way delay: 187.036 ms
Loss rate: 1.19%
-- Flow 1:
Average throughput: 433.69 Mbit/s
95th percentile per-packet one-way delay: 187.036 ms
Loss rate: 1.19%
```

Run 1: Report of PCC-Allegro — Data Link

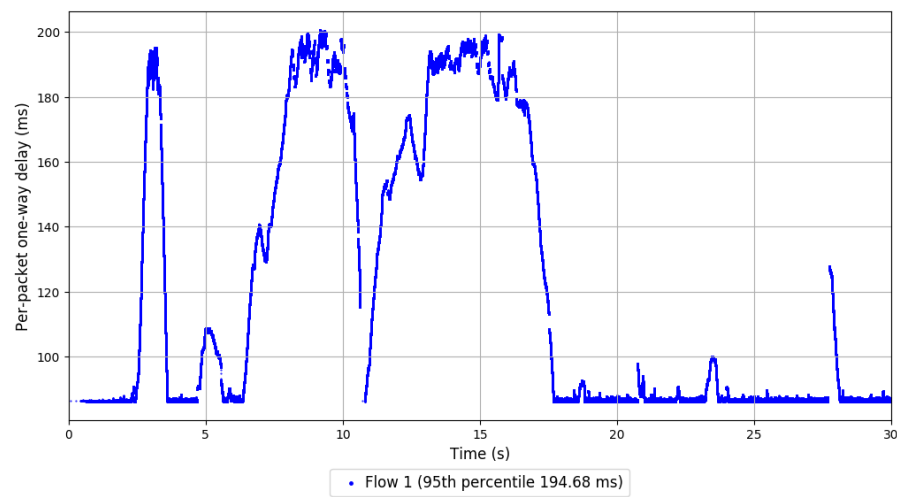
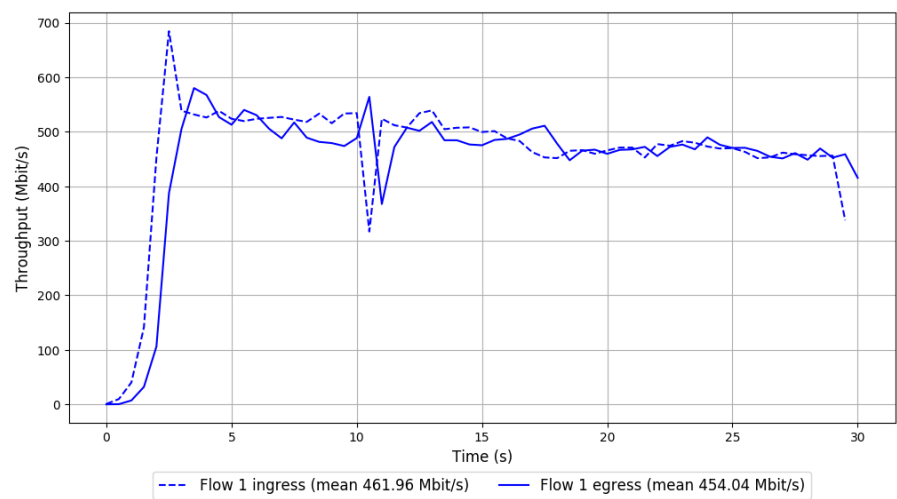


Run 2: Statistics of PCC-Allegro

Start at: 2018-12-10 21:21:15
End at: 2018-12-10 21:21:45
Local clock offset: 26.127 ms
Remote clock offset: 25.268 ms

Below is generated by plot.py at 2018-12-11 00:05:59
Datalink statistics
-- Total of 1 flow:
Average throughput: 454.04 Mbit/s
95th percentile per-packet one-way delay: 194.680 ms
Loss rate: 1.71%
-- Flow 1:
Average throughput: 454.04 Mbit/s
95th percentile per-packet one-way delay: 194.680 ms
Loss rate: 1.71%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-12-10 21:49:39

End at: 2018-12-10 21:50:09

Local clock offset: 15.564 ms

Remote clock offset: 15.201 ms

Below is generated by plot.py at 2018-12-11 00:08:08

Datalink statistics

-- Total of 1 flow:

Average throughput: 470.08 Mbit/s

95th percentile per-packet one-way delay: 172.090 ms

Loss rate: 1.41%

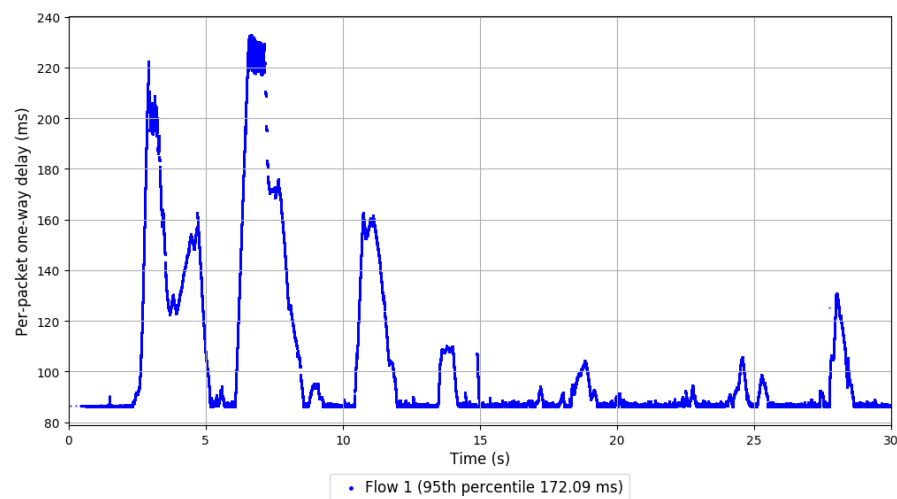
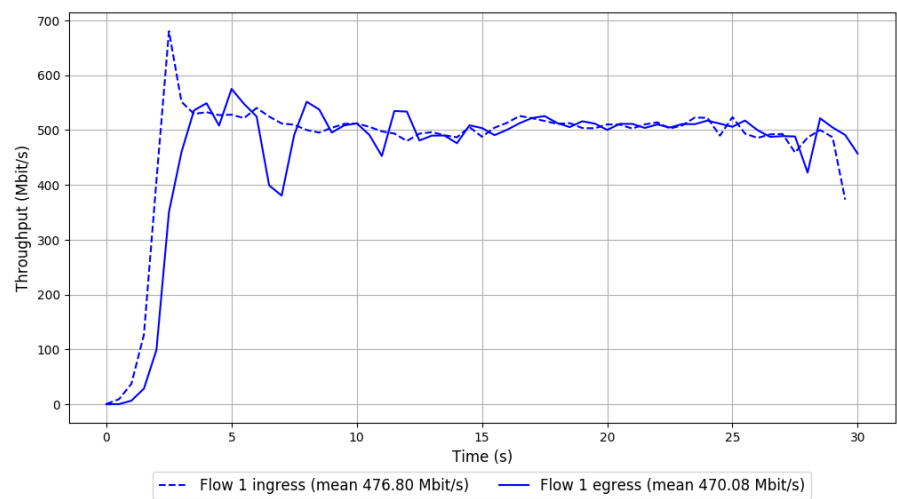
-- Flow 1:

Average throughput: 470.08 Mbit/s

95th percentile per-packet one-way delay: 172.090 ms

Loss rate: 1.41%

Run 3: Report of PCC-Allegro — Data Link



Run 4: Statistics of PCC-Allegro

Start at: 2018-12-10 22:18:13

End at: 2018-12-10 22:18:43

Local clock offset: 9.565 ms

Remote clock offset: 9.1 ms

Below is generated by plot.py at 2018-12-11 00:15:13

Datalink statistics

-- Total of 1 flow:

Average throughput: 469.71 Mbit/s

95th percentile per-packet one-way delay: 195.969 ms

Loss rate: 3.23%

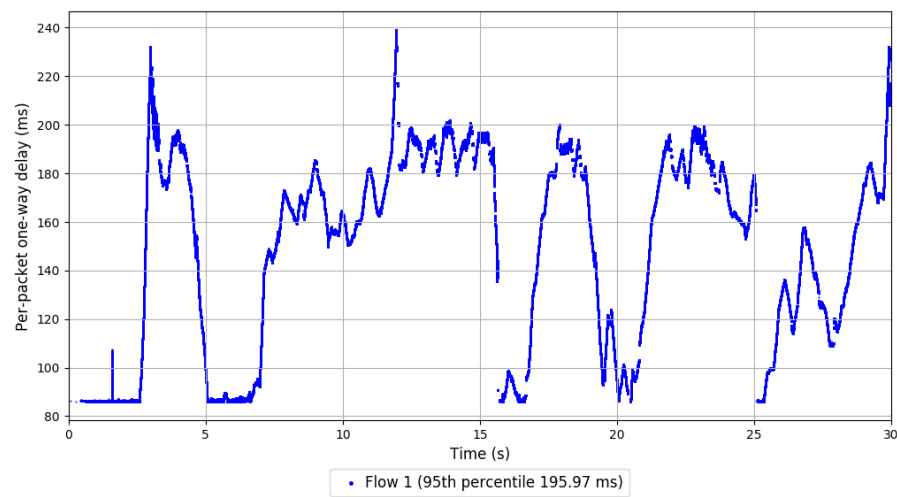
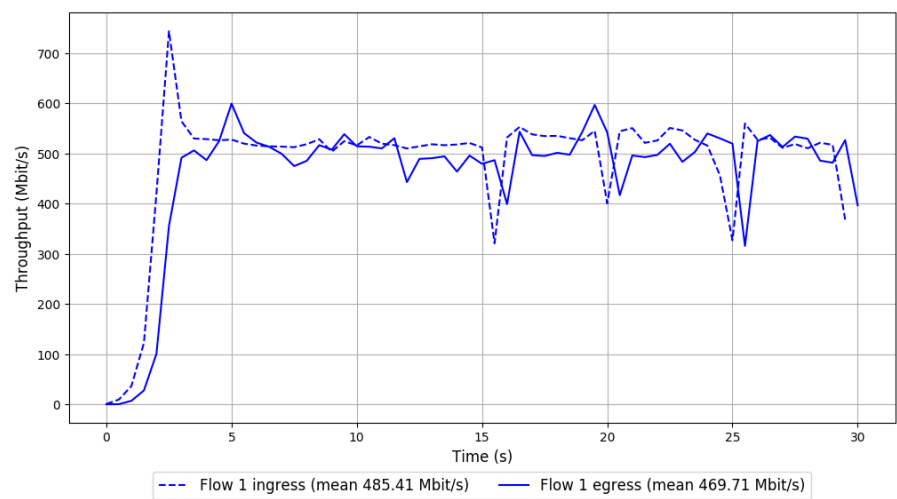
-- Flow 1:

Average throughput: 469.71 Mbit/s

95th percentile per-packet one-way delay: 195.969 ms

Loss rate: 3.23%

Run 4: Report of PCC-Allegro — Data Link



Run 5: Statistics of PCC-Allegro

Start at: 2018-12-10 22:46:47

End at: 2018-12-10 22:47:17

Local clock offset: 7.004 ms

Remote clock offset: 6.612 ms

Below is generated by plot.py at 2018-12-11 00:18:05

Datalink statistics

-- Total of 1 flow:

Average throughput: 452.28 Mbit/s

95th percentile per-packet one-way delay: 190.476 ms

Loss rate: 1.82%

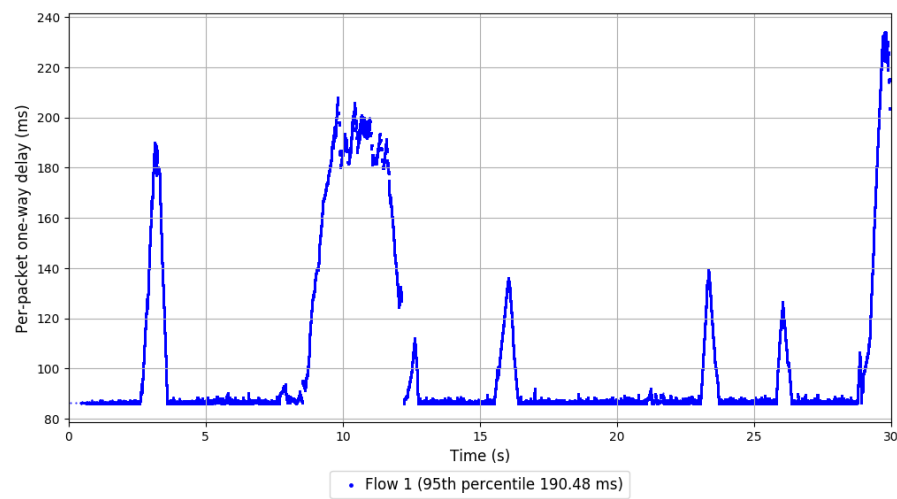
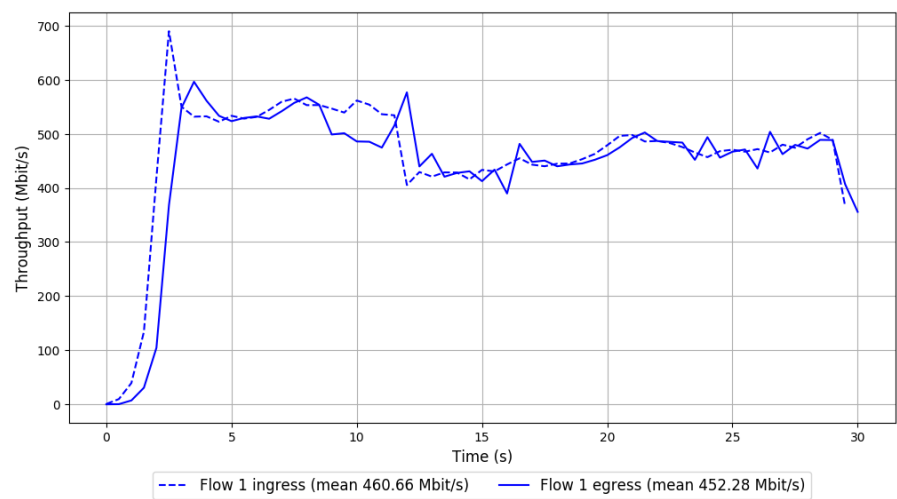
-- Flow 1:

Average throughput: 452.28 Mbit/s

95th percentile per-packet one-way delay: 190.476 ms

Loss rate: 1.82%

Run 5: Report of PCC-Allegro — Data Link

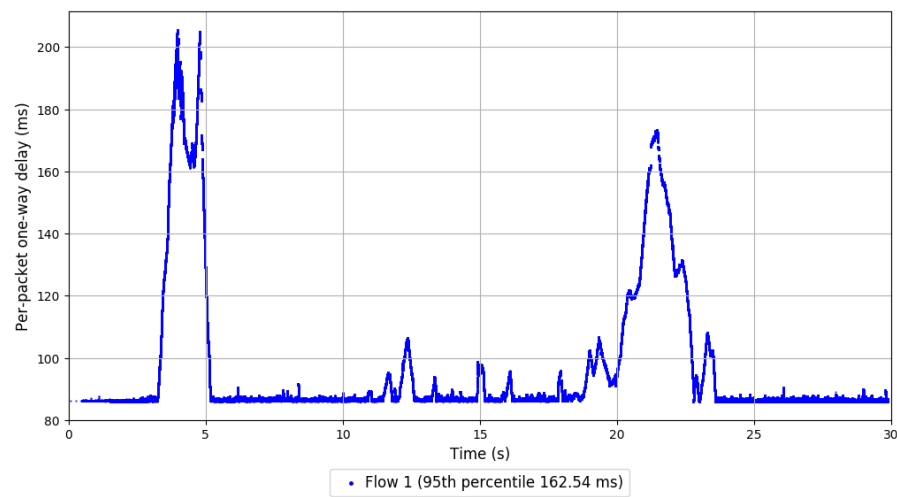
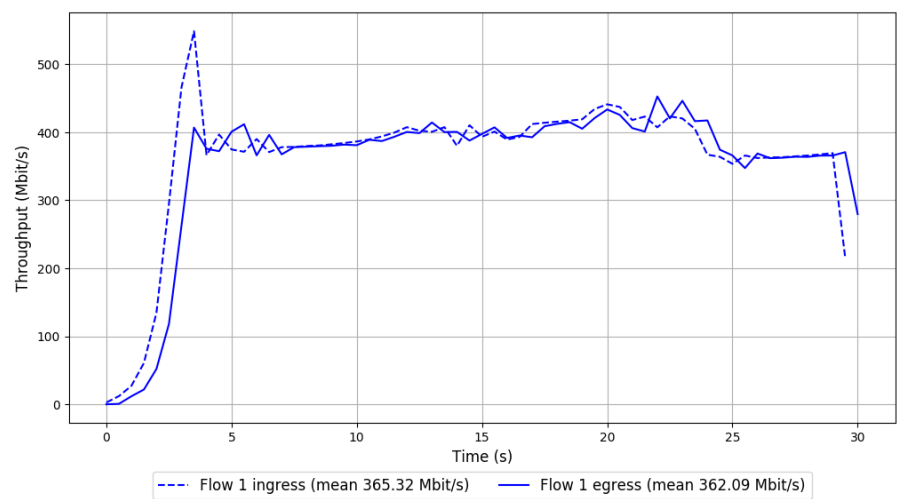


Run 1: Statistics of PCC-Expr

Start at: 2018-12-10 20:43:10
End at: 2018-12-10 20:43:40
Local clock offset: 16.637 ms
Remote clock offset: 16.273 ms

Below is generated by plot.py at 2018-12-11 00:18:05
Datalink statistics
-- Total of 1 flow:
Average throughput: 362.09 Mbit/s
95th percentile per-packet one-way delay: 162.544 ms
Loss rate: 0.88%
-- Flow 1:
Average throughput: 362.09 Mbit/s
95th percentile per-packet one-way delay: 162.544 ms
Loss rate: 0.88%

Run 1: Report of PCC-Expr — Data Link

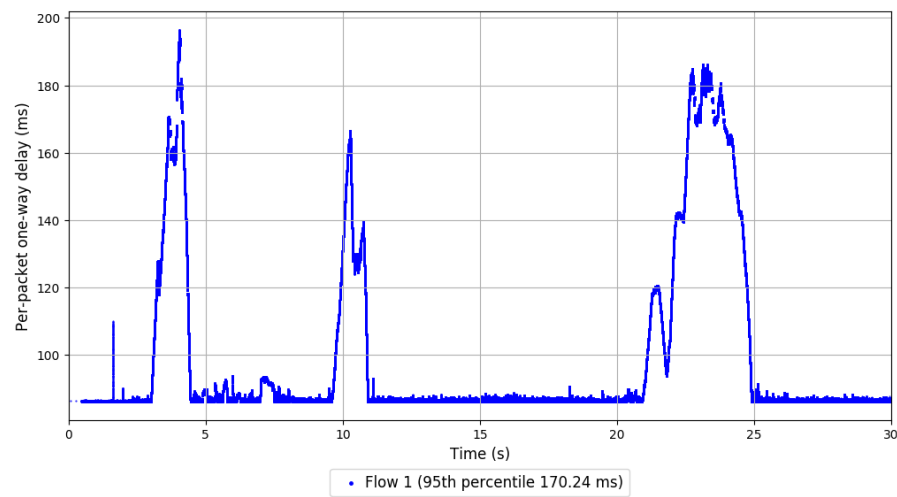
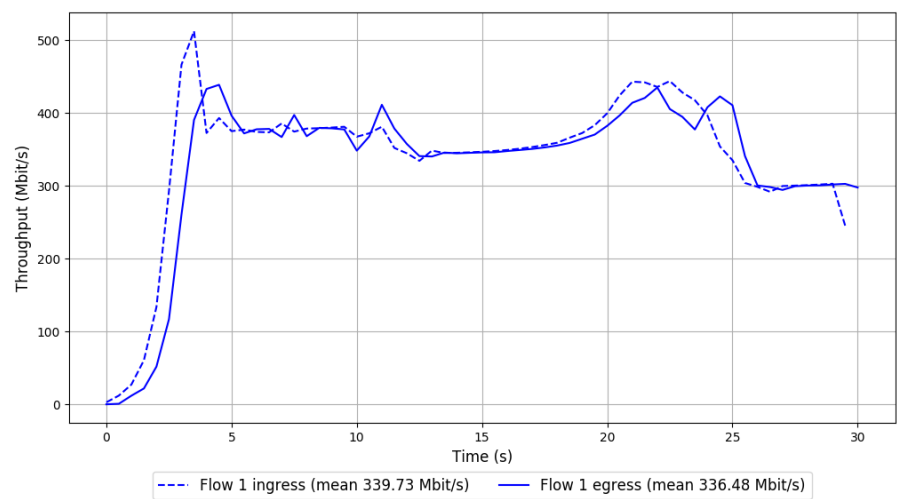


Run 2: Statistics of PCC-Expr

Start at: 2018-12-10 21:10:46
End at: 2018-12-10 21:11:16
Local clock offset: 20.028 ms
Remote clock offset: 19.159 ms

Below is generated by plot.py at 2018-12-11 00:18:05
Datalink statistics
-- Total of 1 flow:
Average throughput: 336.48 Mbit/s
95th percentile per-packet one-way delay: 170.244 ms
Loss rate: 0.96%
-- Flow 1:
Average throughput: 336.48 Mbit/s
95th percentile per-packet one-way delay: 170.244 ms
Loss rate: 0.96%

Run 2: Report of PCC-Expr — Data Link

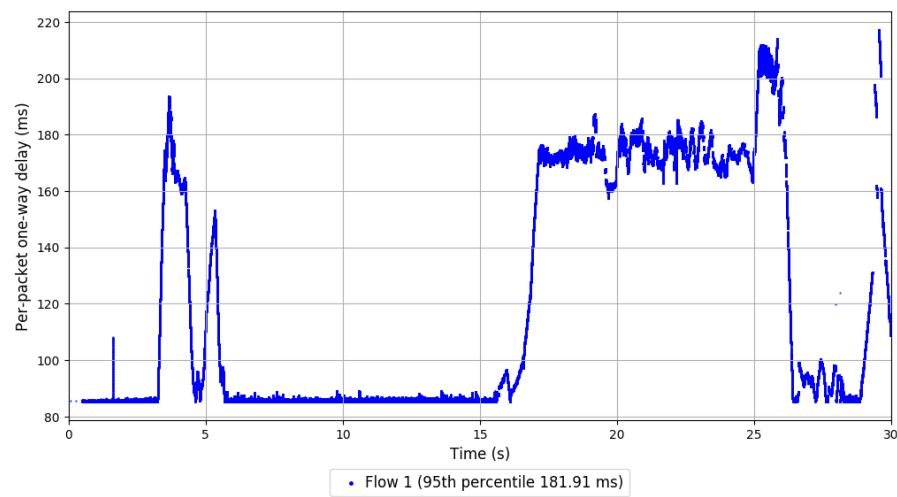
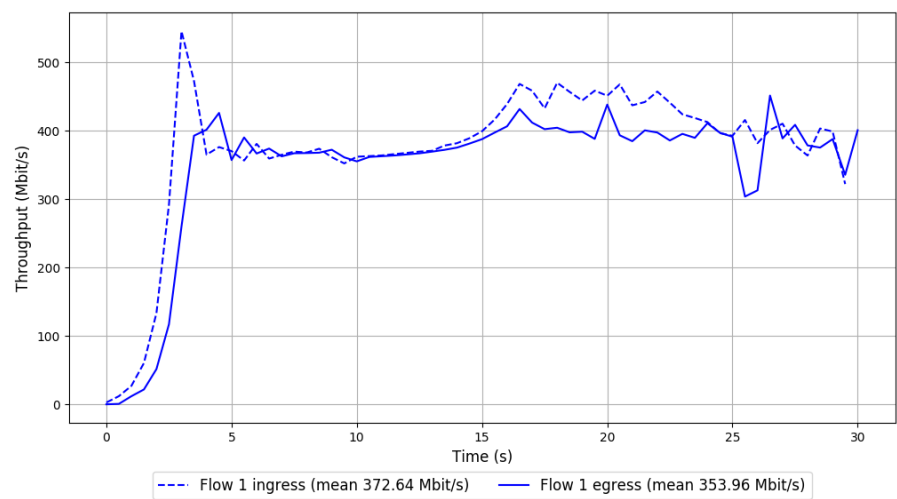


Run 3: Statistics of PCC-Expr

Start at: 2018-12-10 21:39:04
End at: 2018-12-10 21:39:34
Local clock offset: 27.385 ms
Remote clock offset: 25.954 ms

Below is generated by plot.py at 2018-12-11 00:18:05
Datalink statistics
-- Total of 1 flow:
Average throughput: 353.96 Mbit/s
95th percentile per-packet one-way delay: 181.910 ms
Loss rate: 5.01%
-- Flow 1:
Average throughput: 353.96 Mbit/s
95th percentile per-packet one-way delay: 181.910 ms
Loss rate: 5.01%

Run 3: Report of PCC-Expr — Data Link

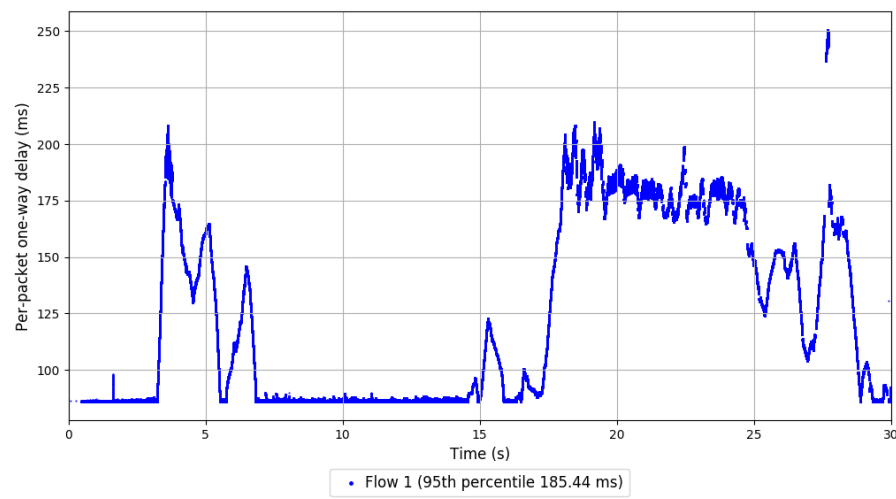
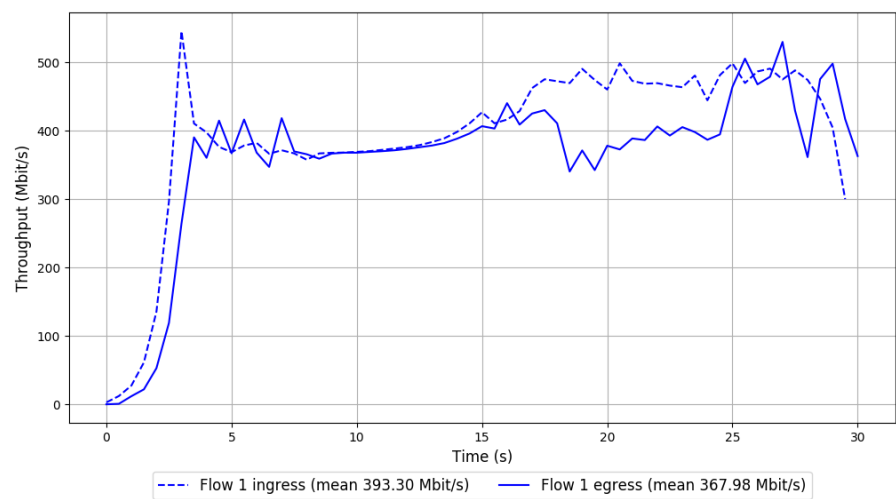


Run 4: Statistics of PCC-Expr

Start at: 2018-12-10 22:07:35
End at: 2018-12-10 22:08:05
Local clock offset: 19.388 ms
Remote clock offset: 19.184 ms

Below is generated by plot.py at 2018-12-11 00:18:26
Datalink statistics
-- Total of 1 flow:
Average throughput: 367.98 Mbit/s
95th percentile per-packet one-way delay: 185.436 ms
Loss rate: 6.44%
-- Flow 1:
Average throughput: 367.98 Mbit/s
95th percentile per-packet one-way delay: 185.436 ms
Loss rate: 6.44%

Run 4: Report of PCC-Expr — Data Link



Run 5: Statistics of PCC-Expr

Start at: 2018-12-10 22:36:05

End at: 2018-12-10 22:36:35

Local clock offset: 7.816 ms

Remote clock offset: 7.911 ms

Below is generated by plot.py at 2018-12-11 00:19:20

Datalink statistics

-- Total of 1 flow:

Average throughput: 361.31 Mbit/s

95th percentile per-packet one-way delay: 179.643 ms

Loss rate: 2.86%

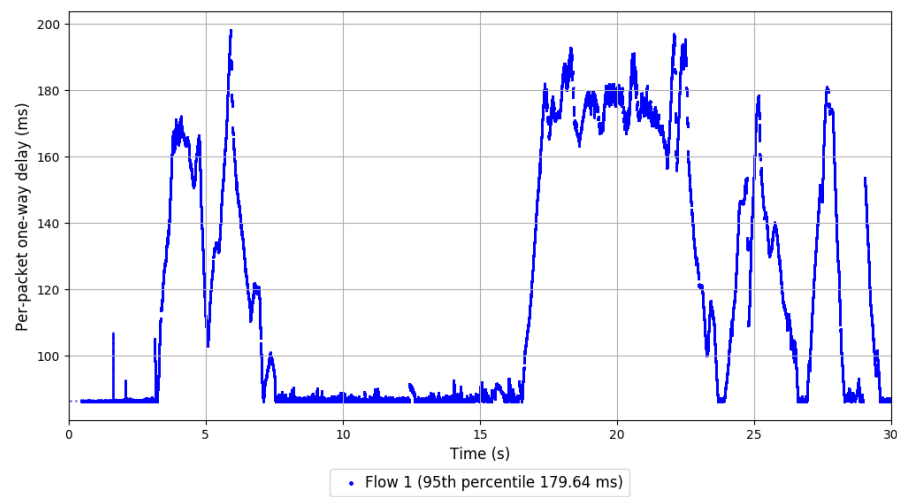
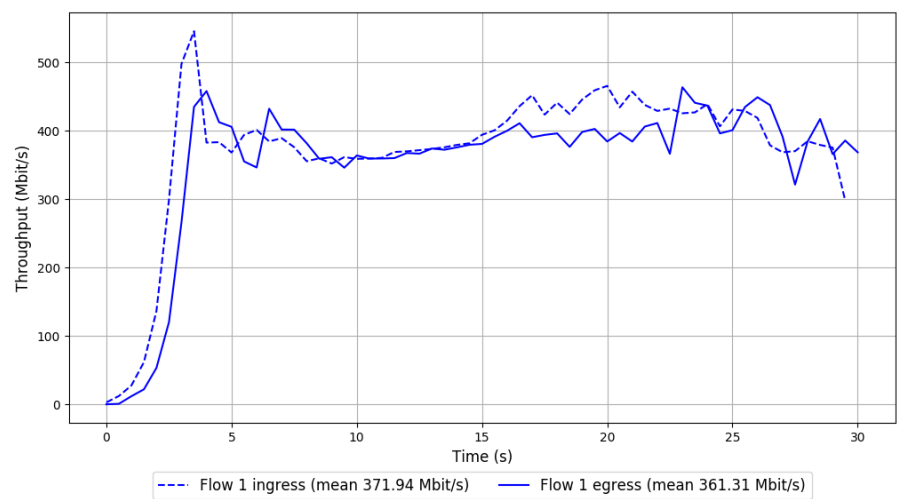
-- Flow 1:

Average throughput: 361.31 Mbit/s

95th percentile per-packet one-way delay: 179.643 ms

Loss rate: 2.86%

Run 5: Report of PCC-Expr — Data Link

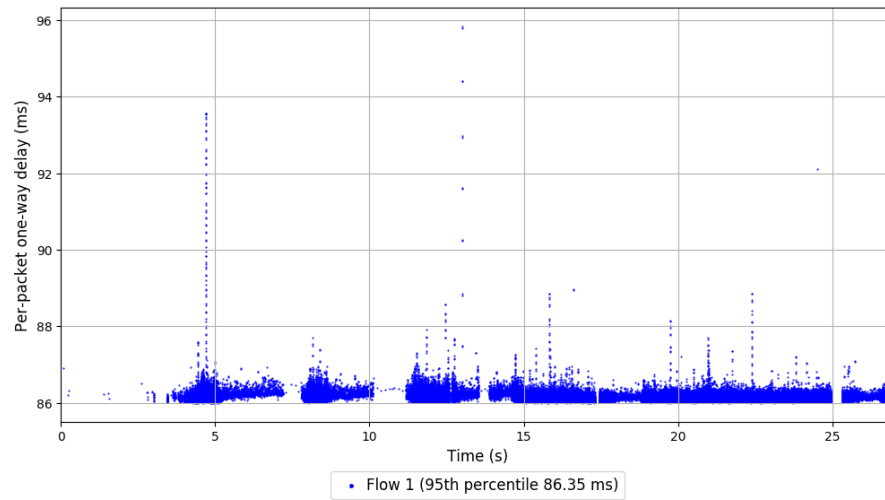
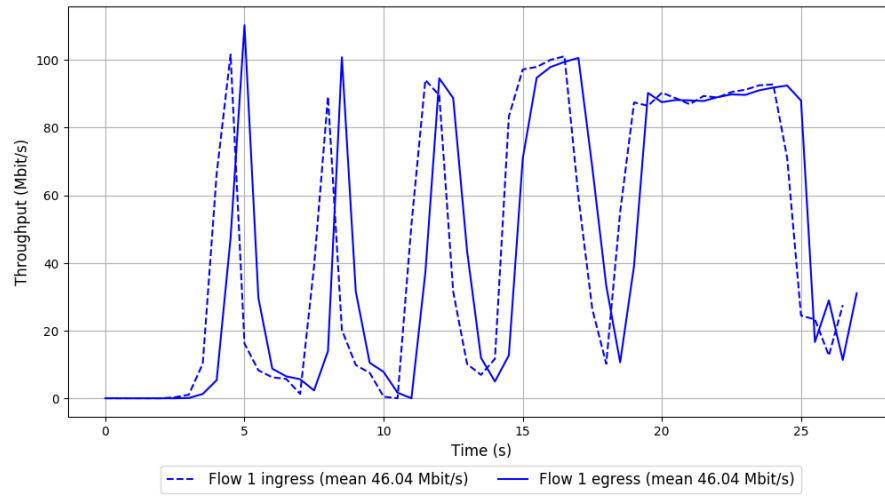


Run 1: Statistics of QUIC Cubic

Start at: 2018-12-10 20:49:37
End at: 2018-12-10 20:50:07
Local clock offset: 13.789 ms
Remote clock offset: 13.055 ms

Below is generated by plot.py at 2018-12-11 00:19:20
Datalink statistics
-- Total of 1 flow:
Average throughput: 46.04 Mbit/s
95th percentile per-packet one-way delay: 86.354 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 46.04 Mbit/s
95th percentile per-packet one-way delay: 86.354 ms
Loss rate: 0.00%

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-12-10 21:17:05

End at: 2018-12-10 21:17:35

Local clock offset: 22.489 ms

Remote clock offset: 22.035 ms

Below is generated by plot.py at 2018-12-11 00:19:20

Datalink statistics

-- Total of 1 flow:

Average throughput: 69.43 Mbit/s

95th percentile per-packet one-way delay: 86.991 ms

Loss rate: 0.00%

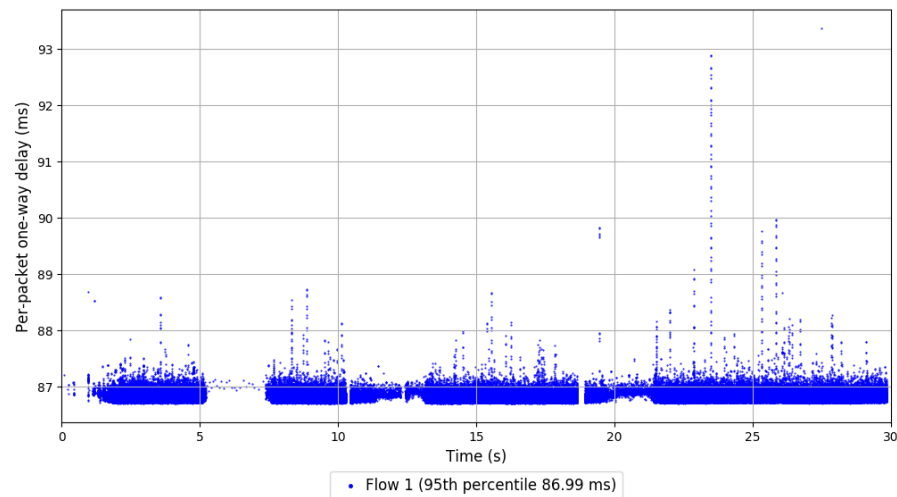
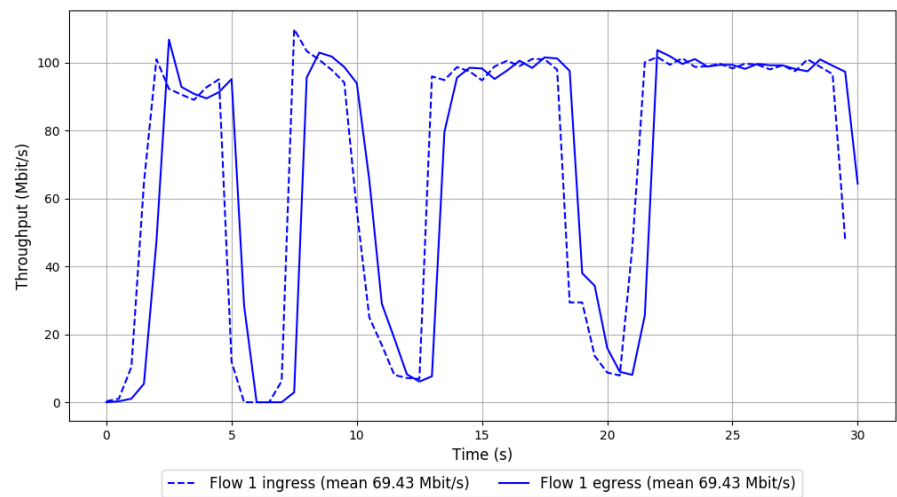
-- Flow 1:

Average throughput: 69.43 Mbit/s

95th percentile per-packet one-way delay: 86.991 ms

Loss rate: 0.00%

Run 2: Report of QUIC Cubic — Data Link

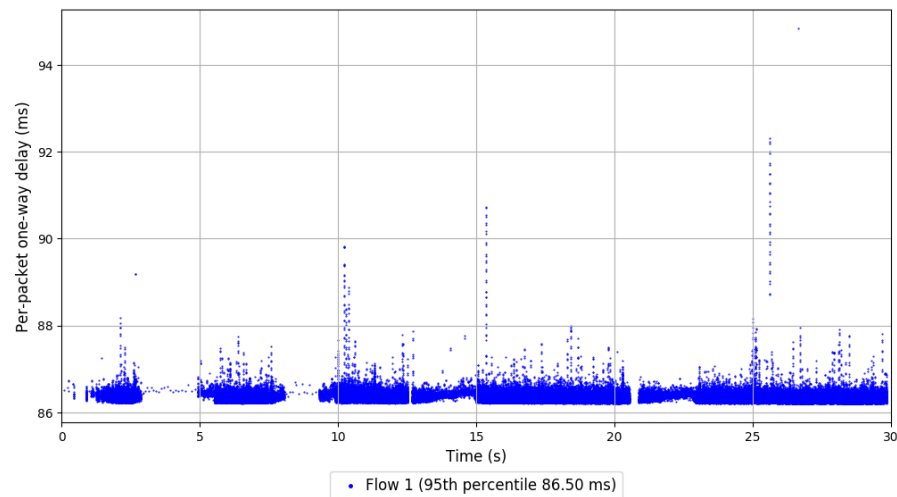
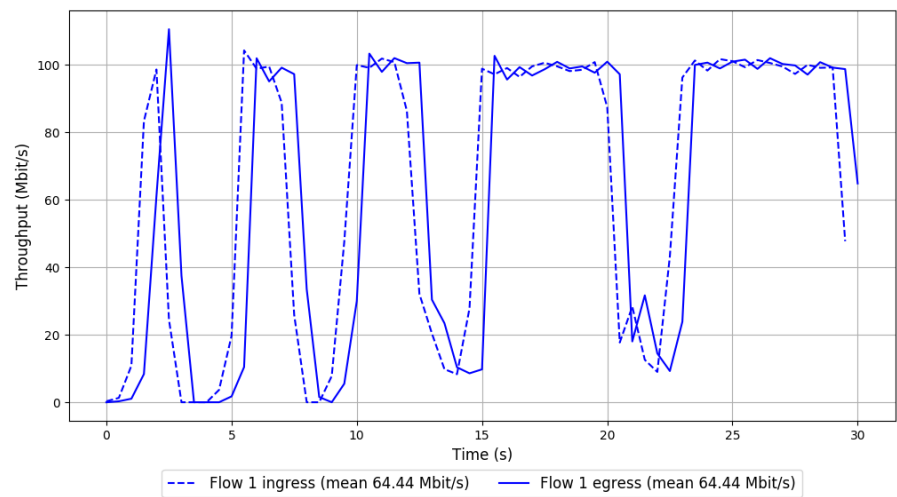


Run 3: Statistics of QUIC Cubic

Start at: 2018-12-10 21:45:29
End at: 2018-12-10 21:45:59
Local clock offset: 17.621 ms
Remote clock offset: 17.271 ms

Below is generated by plot.py at 2018-12-11 00:19:20
Datalink statistics
-- Total of 1 flow:
Average throughput: 64.44 Mbit/s
95th percentile per-packet one-way delay: 86.502 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 64.44 Mbit/s
95th percentile per-packet one-way delay: 86.502 ms
Loss rate: 0.00%

Run 3: Report of QUIC Cubic — Data Link



Run 4: Statistics of QUIC Cubic

Start at: 2018-12-10 22:14:06

End at: 2018-12-10 22:14:36

Local clock offset: 12.416 ms

Remote clock offset: 12.254 ms

Below is generated by plot.py at 2018-12-11 00:19:20

Datalink statistics

-- Total of 1 flow:

Average throughput: 47.81 Mbit/s

95th percentile per-packet one-way delay: 86.497 ms

Loss rate: 0.00%

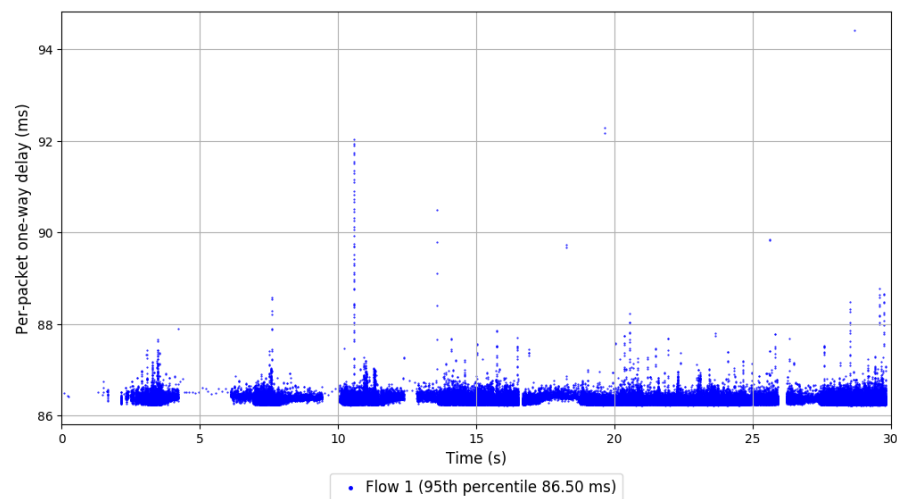
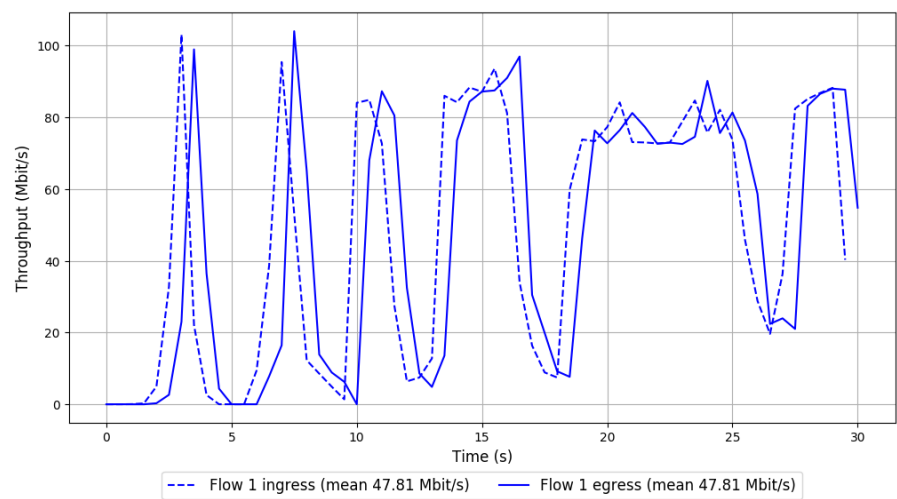
-- Flow 1:

Average throughput: 47.81 Mbit/s

95th percentile per-packet one-way delay: 86.497 ms

Loss rate: 0.00%

Run 4: Report of QUIC Cubic — Data Link



Run 5: Statistics of QUIC Cubic

Start at: 2018-12-10 22:42:41

End at: 2018-12-10 22:43:11

Local clock offset: 9.728 ms

Remote clock offset: 9.187 ms

Below is generated by plot.py at 2018-12-11 00:19:20

Datalink statistics

-- Total of 1 flow:

Average throughput: 49.95 Mbit/s

95th percentile per-packet one-way delay: 86.723 ms

Loss rate: 0.00%

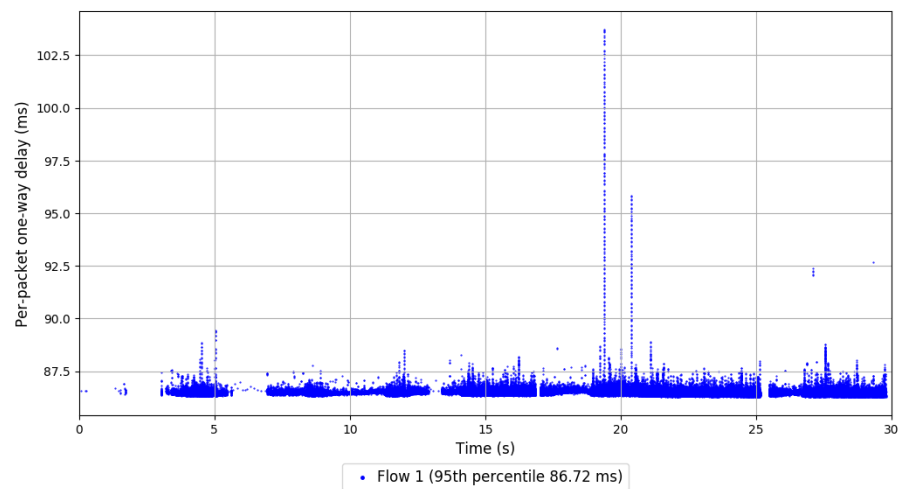
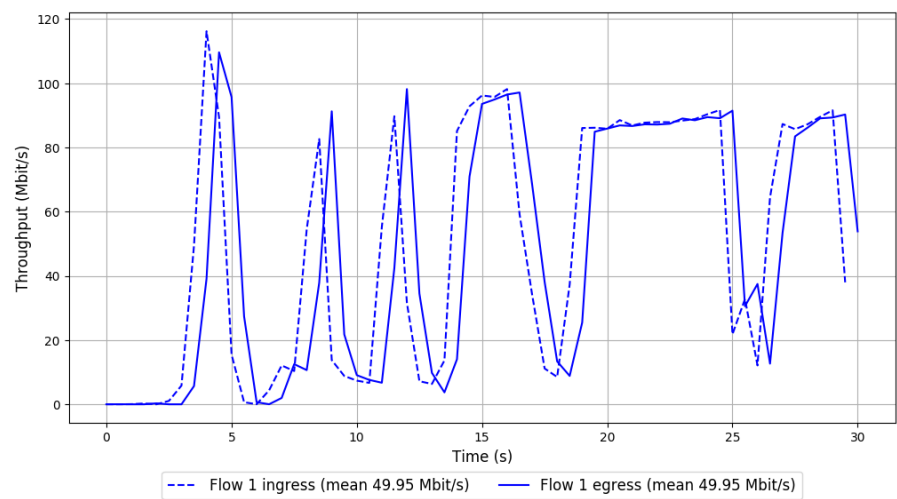
-- Flow 1:

Average throughput: 49.95 Mbit/s

95th percentile per-packet one-way delay: 86.723 ms

Loss rate: 0.00%

Run 5: Report of QUIC Cubic — Data Link

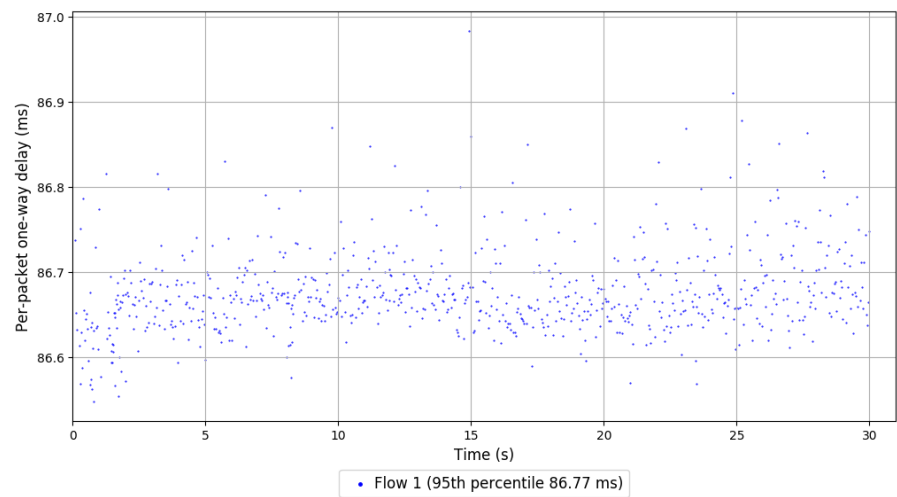
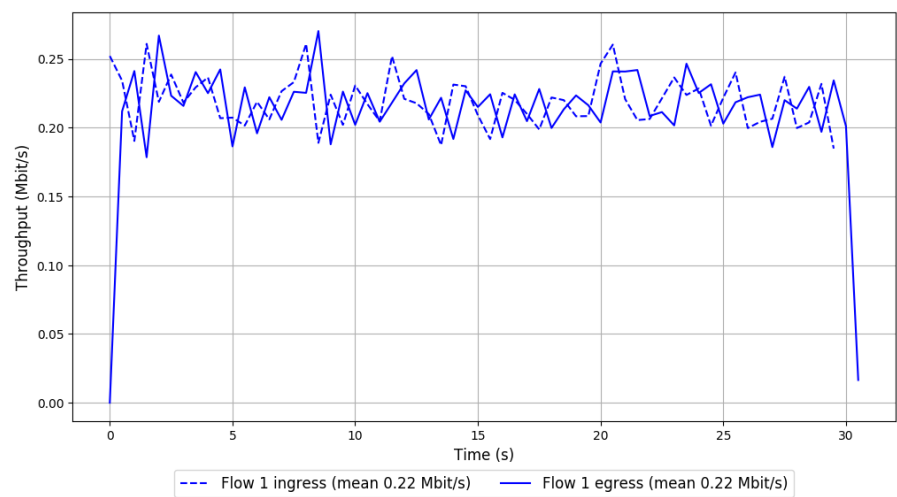



```
Run 1: Statistics of SCReAM

Start at: 2018-12-10 20:50:48
End at: 2018-12-10 20:51:18
Local clock offset: 13.832 ms
Remote clock offset: 13.84 ms

# Below is generated by plot.py at 2018-12-11 00:19:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.771 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.771 ms
Loss rate: 0.00%
```

Run 1: Report of SReAM — Data Link

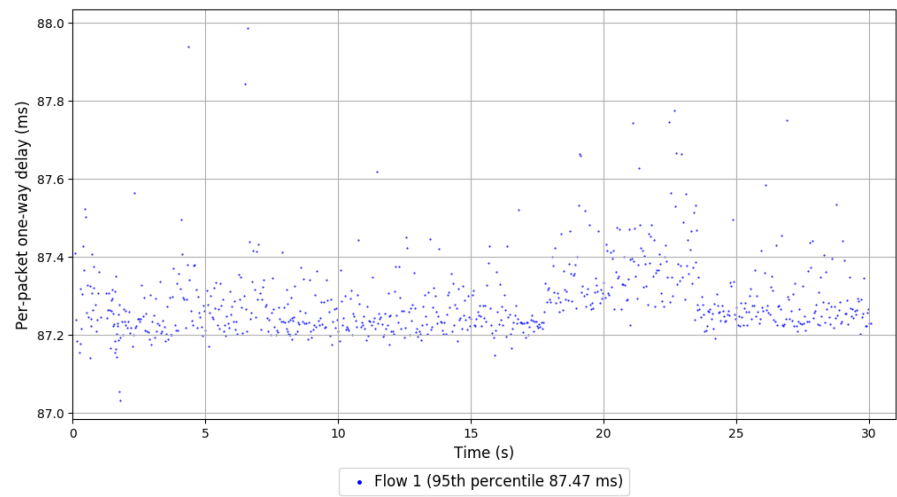
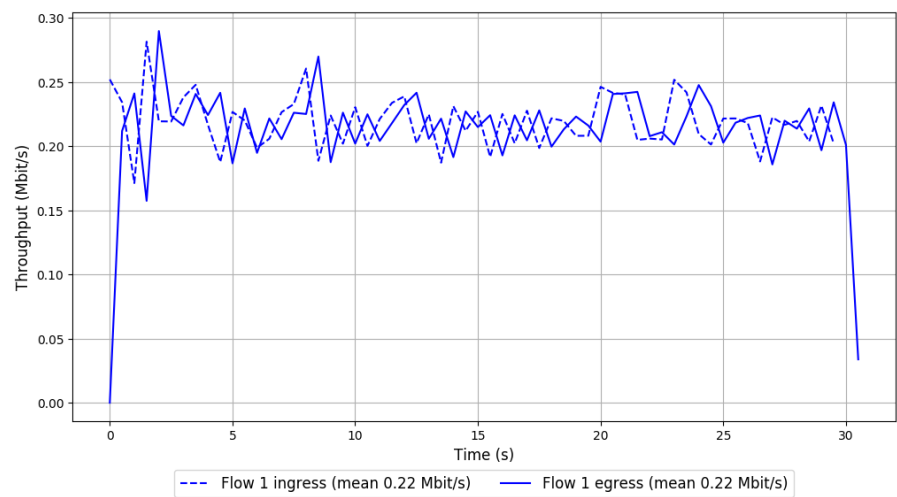


Run 2: Statistics of SCReAM

Start at: 2018-12-10 21:18:18
End at: 2018-12-10 21:18:48
Local clock offset: 23.038 ms
Remote clock offset: 22.847 ms

Below is generated by plot.py at 2018-12-11 00:19:20
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 87.466 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 87.466 ms
Loss rate: 0.00%

Run 2: Report of SReAM — Data Link

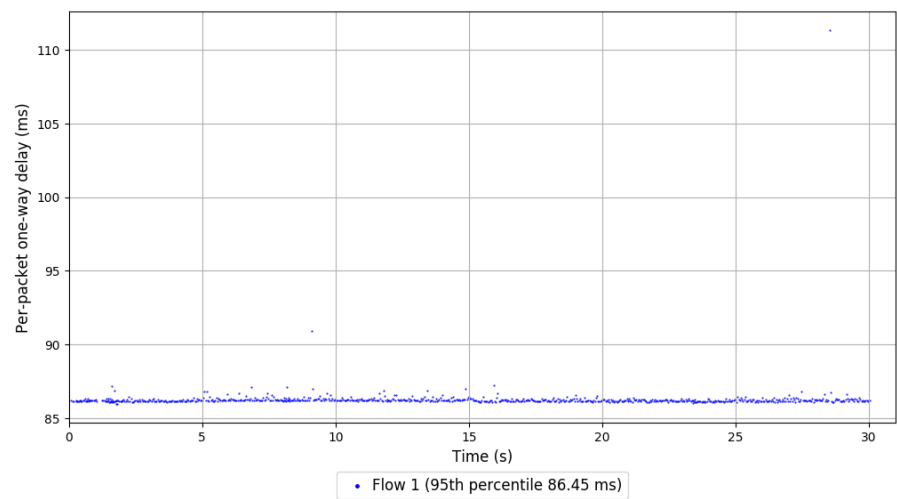
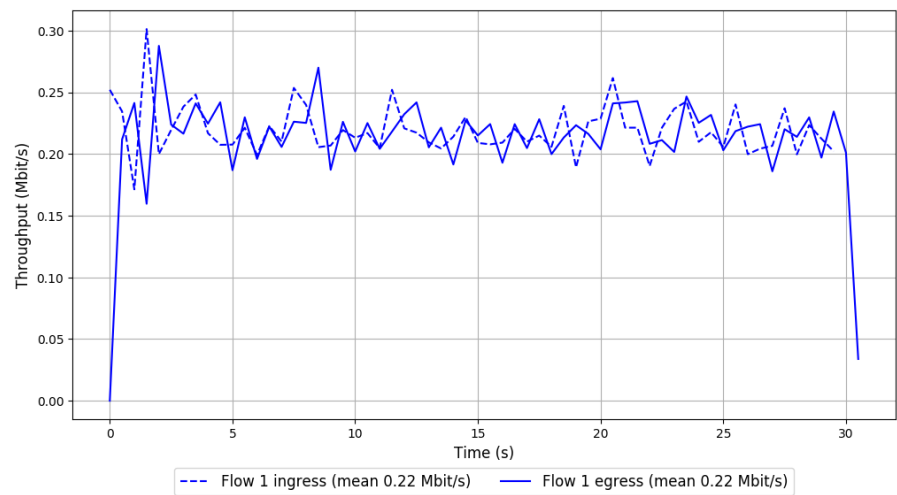


Run 3: Statistics of SCReAM

Start at: 2018-12-10 21:46:42
End at: 2018-12-10 21:47:12
Local clock offset: 16.868 ms
Remote clock offset: 16.375 ms

Below is generated by plot.py at 2018-12-11 00:19:20
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.453 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.453 ms
Loss rate: 0.00%

Run 3: Report of SReAM — Data Link

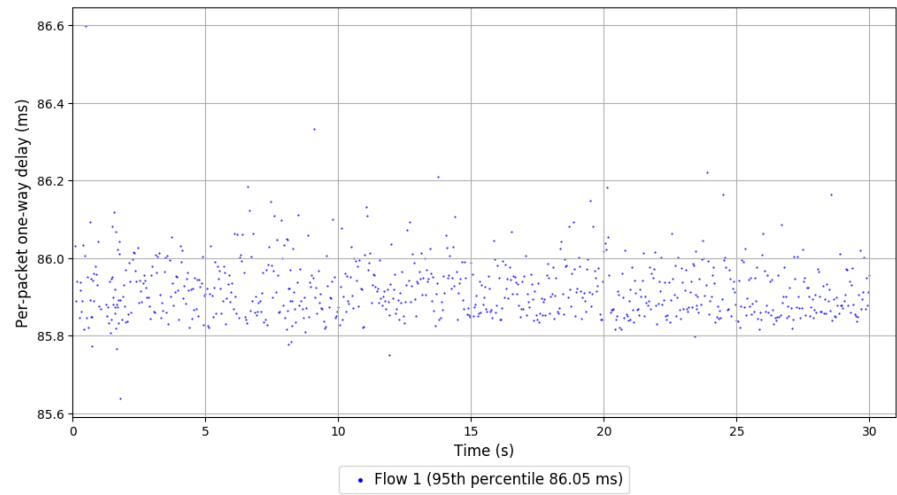
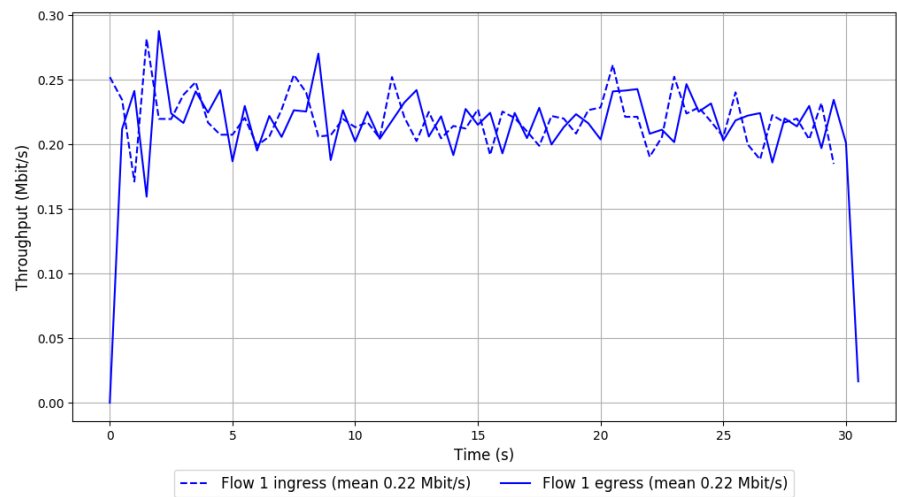


Run 4: Statistics of SCReAM

Start at: 2018-12-10 22:15:18
End at: 2018-12-10 22:15:48
Local clock offset: 11.721 ms
Remote clock offset: 11.247 ms

Below is generated by plot.py at 2018-12-11 00:19:20
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.054 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.054 ms
Loss rate: 0.00%

Run 4: Report of SReAM — Data Link



Run 5: Statistics of SCReAM

Start at: 2018-12-10 22:43:53

End at: 2018-12-10 22:44:23

Local clock offset: 9.388 ms

Remote clock offset: 8.762 ms

Below is generated by plot.py at 2018-12-11 00:19:20

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 86.775 ms

Loss rate: 0.00%

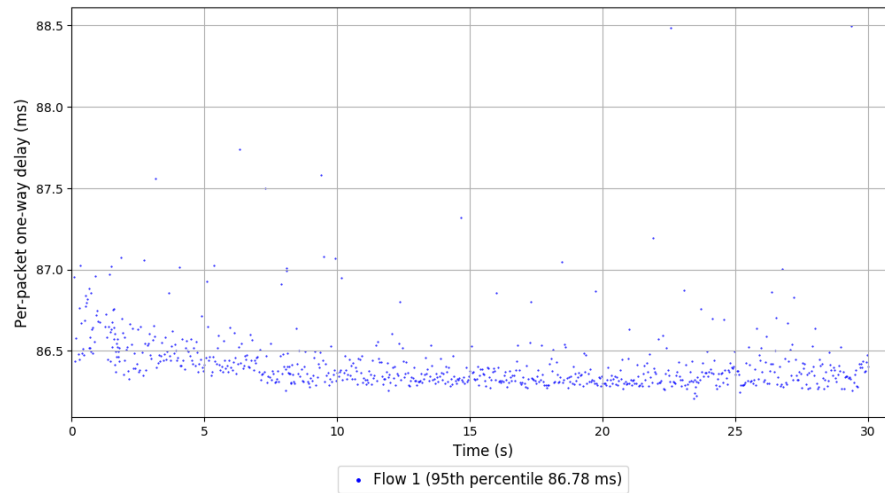
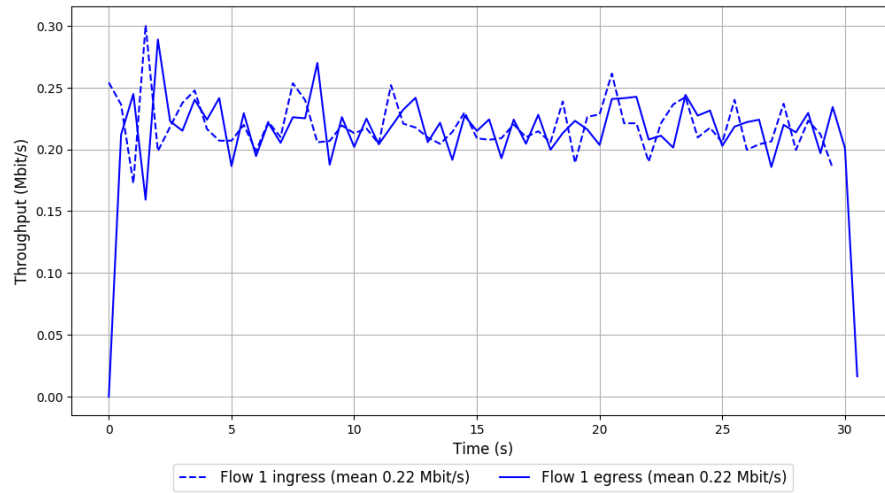
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 86.775 ms

Loss rate: 0.00%

Run 5: Report of SReAM — Data Link



Run 1: Statistics of Sprout

Start at: 2018-12-10 20:39:24

End at: 2018-12-10 20:39:54

Local clock offset: 9.655 ms

Remote clock offset: 9.952 ms

Below is generated by plot.py at 2018-12-11 00:19:20

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.35 Mbit/s

95th percentile per-packet one-way delay: 87.808 ms

Loss rate: 0.00%

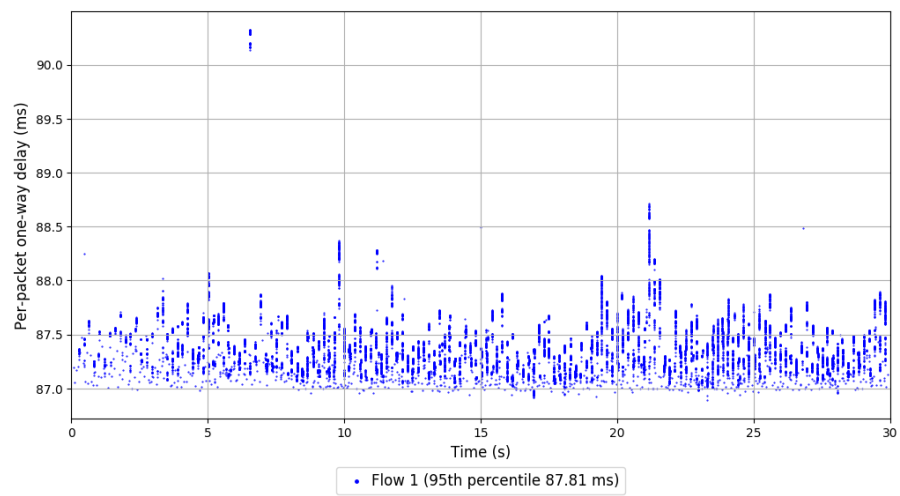
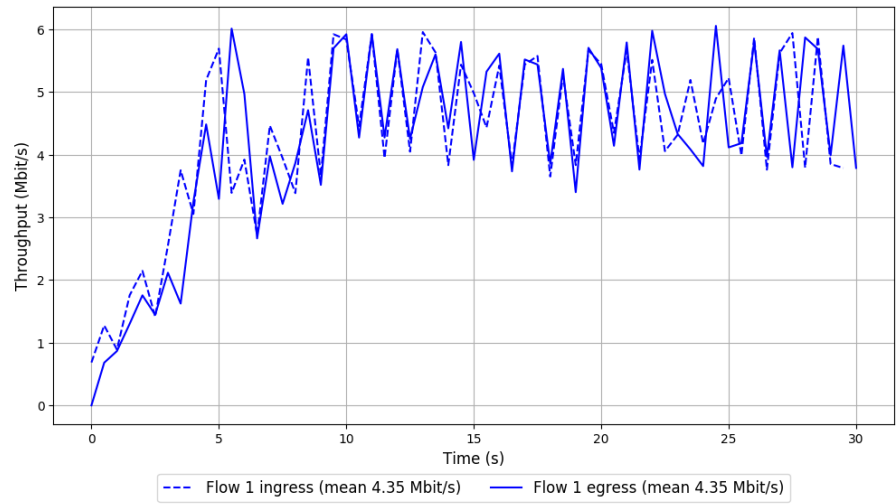
-- Flow 1:

Average throughput: 4.35 Mbit/s

95th percentile per-packet one-way delay: 87.808 ms

Loss rate: 0.00%

Run 1: Report of Sprout — Data Link

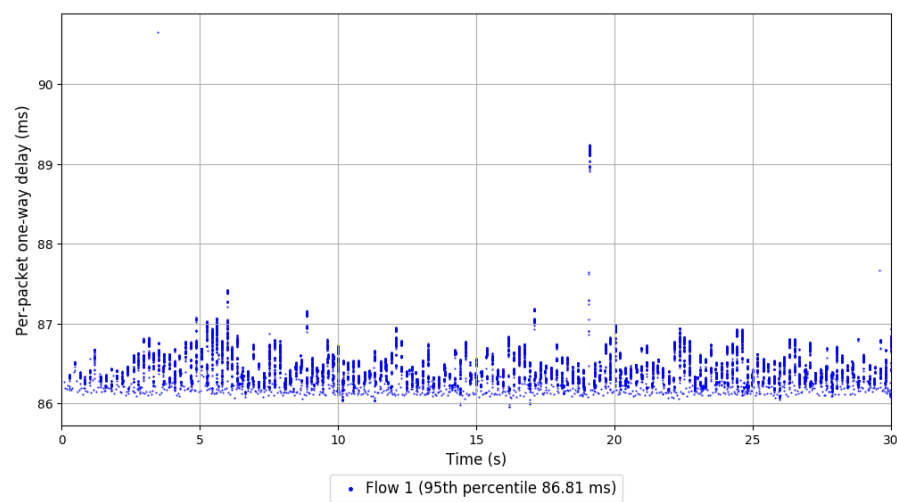
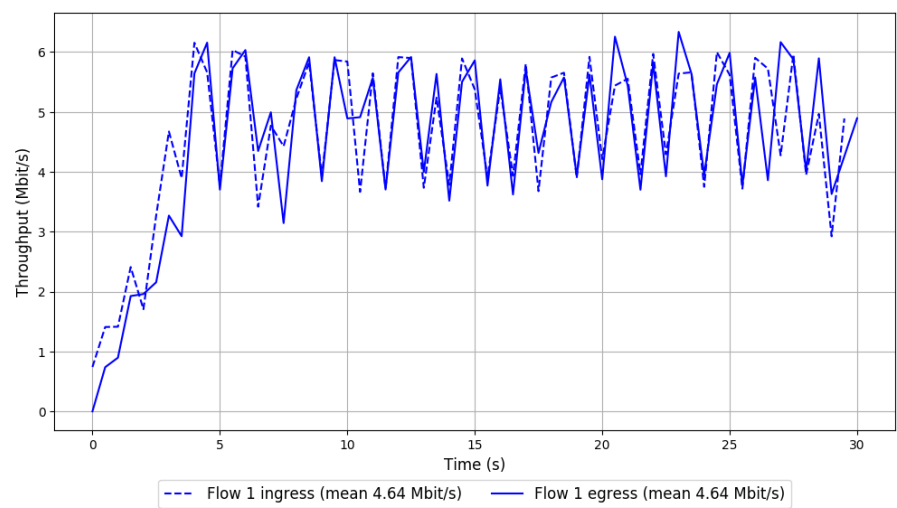


Run 2: Statistics of Sprout

Start at: 2018-12-10 21:06:57
End at: 2018-12-10 21:07:27
Local clock offset: 20.138 ms
Remote clock offset: 19.442 ms

Below is generated by plot.py at 2018-12-11 00:19:20
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.64 Mbit/s
95th percentile per-packet one-way delay: 86.807 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 4.64 Mbit/s
95th percentile per-packet one-way delay: 86.807 ms
Loss rate: 0.00%

Run 2: Report of Sprout — Data Link

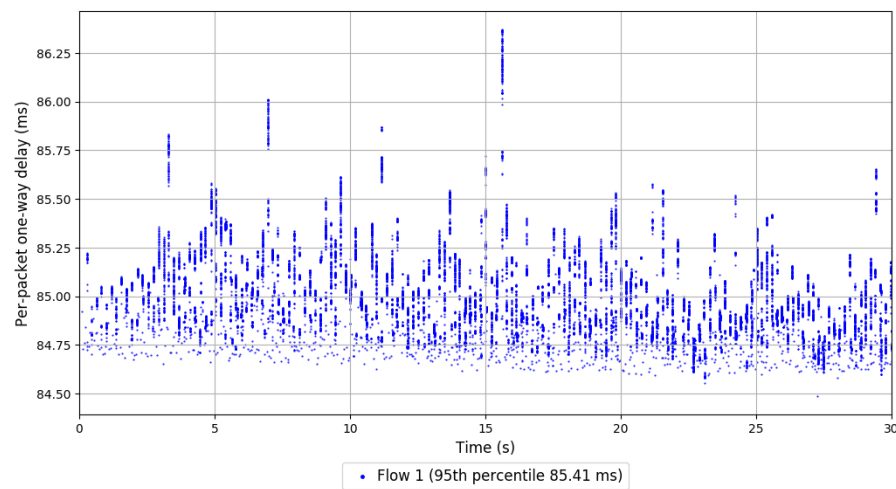
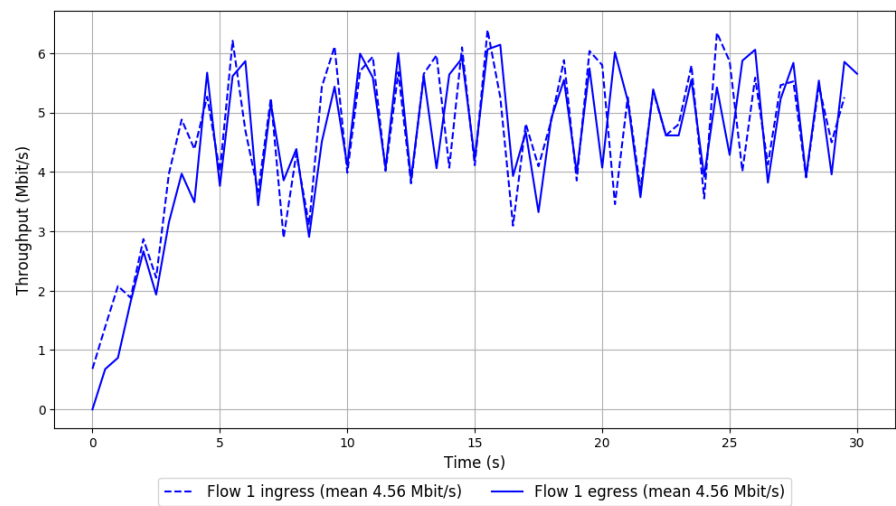


Run 3: Statistics of Sprout

Start at: 2018-12-10 21:35:16
End at: 2018-12-10 21:35:46
Local clock offset: 40.032 ms
Remote clock offset: 36.994 ms

Below is generated by plot.py at 2018-12-11 00:19:20
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.56 Mbit/s
95th percentile per-packet one-way delay: 85.405 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 4.56 Mbit/s
95th percentile per-packet one-way delay: 85.405 ms
Loss rate: 0.00%

Run 3: Report of Sprout — Data Link

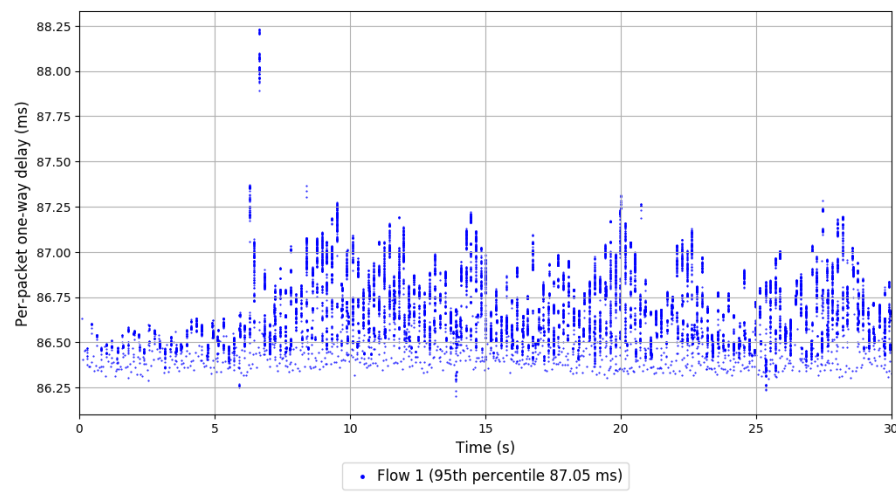
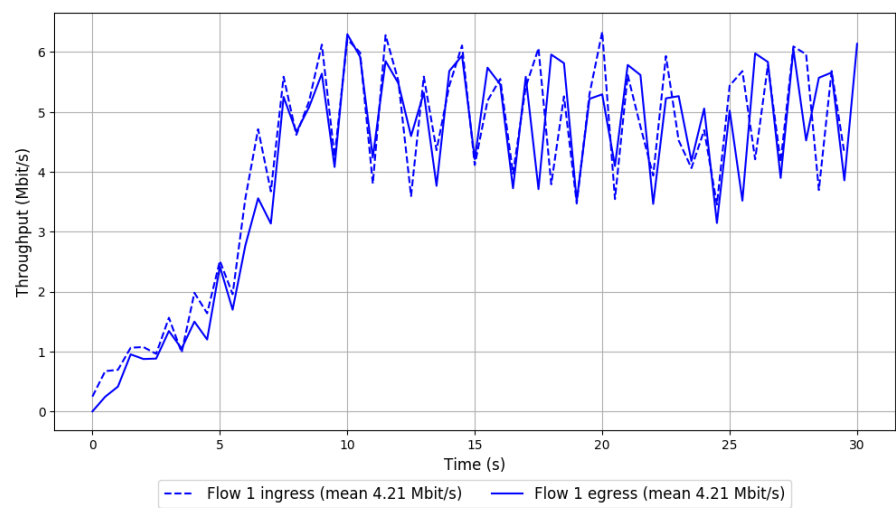


Run 4: Statistics of Sprout

Start at: 2018-12-10 22:03:49
End at: 2018-12-10 22:04:19
Local clock offset: 17.442 ms
Remote clock offset: 17.491 ms

Below is generated by plot.py at 2018-12-11 00:19:20
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.21 Mbit/s
95th percentile per-packet one-way delay: 87.054 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 4.21 Mbit/s
95th percentile per-packet one-way delay: 87.054 ms
Loss rate: 0.00%

Run 4: Report of Sprout — Data Link



Run 5: Statistics of Sprout

Start at: 2018-12-10 22:32:17

End at: 2018-12-10 22:32:47

Local clock offset: 7.475 ms

Remote clock offset: 7.412 ms

Below is generated by plot.py at 2018-12-11 00:19:20

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.36 Mbit/s

95th percentile per-packet one-way delay: 87.355 ms

Loss rate: 0.00%

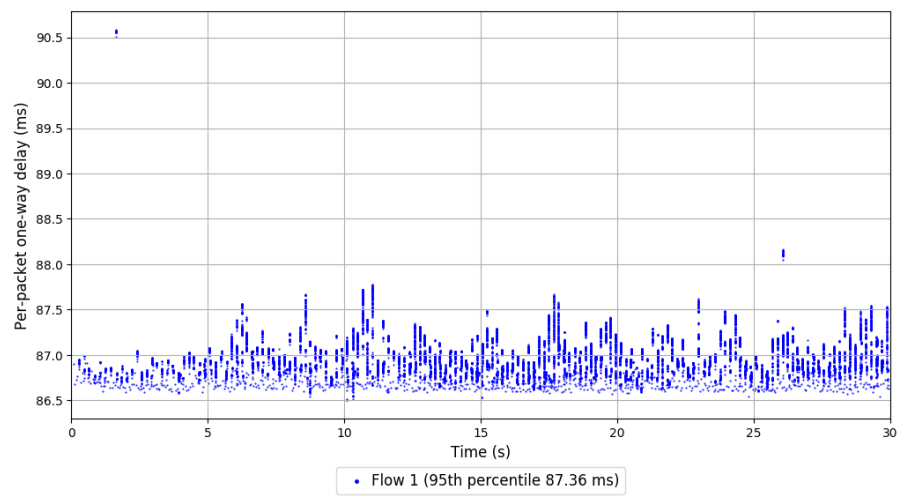
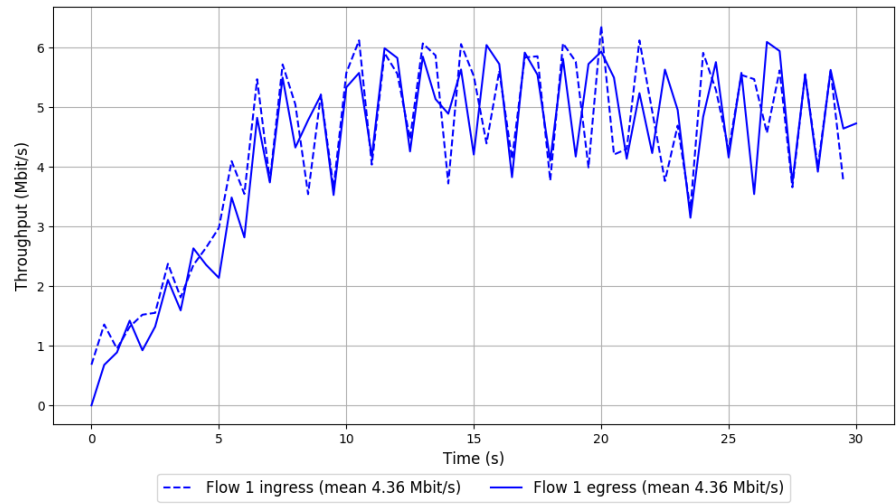
-- Flow 1:

Average throughput: 4.36 Mbit/s

95th percentile per-packet one-way delay: 87.355 ms

Loss rate: 0.00%

Run 5: Report of Sprout — Data Link

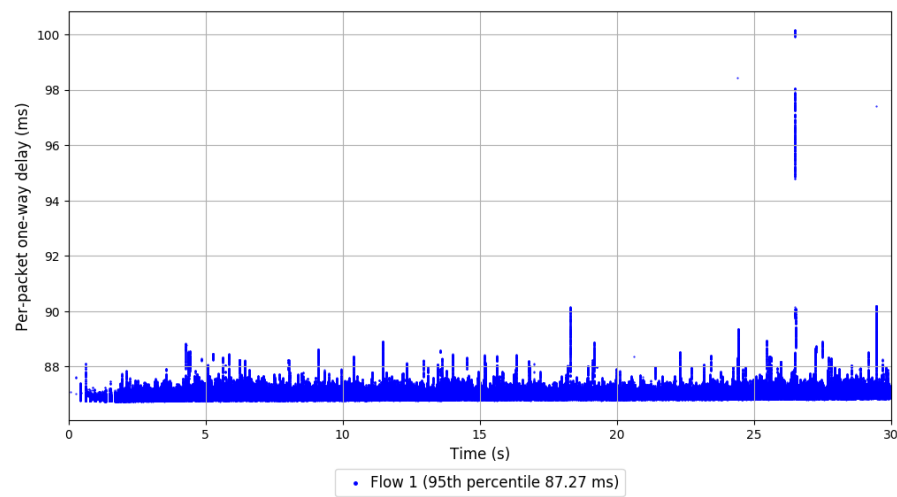
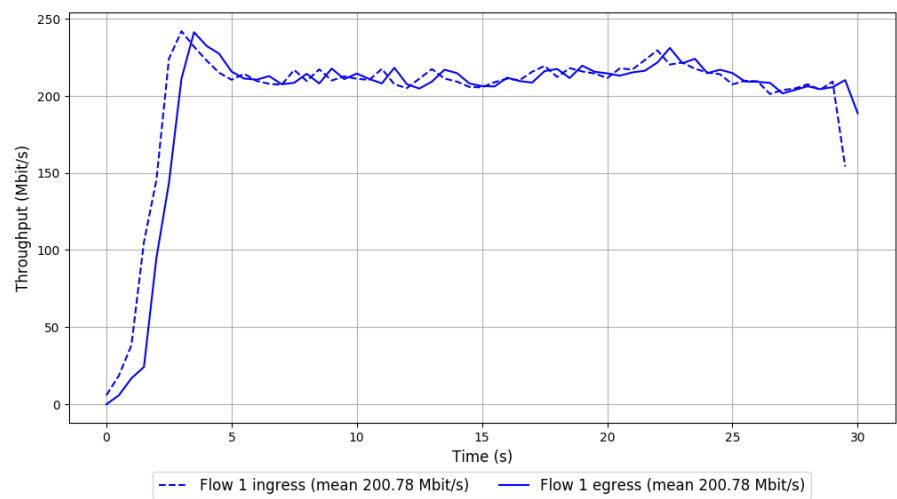


```
Run 1: Statistics of TaoVA-100x

Start at: 2018-12-10 20:30:06
End at: 2018-12-10 20:30:36
Local clock offset: 4.332 ms
Remote clock offset: 4.946 ms

# Below is generated by plot.py at 2018-12-11 00:22:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 200.78 Mbit/s
95th percentile per-packet one-way delay: 87.267 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 200.78 Mbit/s
95th percentile per-packet one-way delay: 87.267 ms
Loss rate: 0.00%
```

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

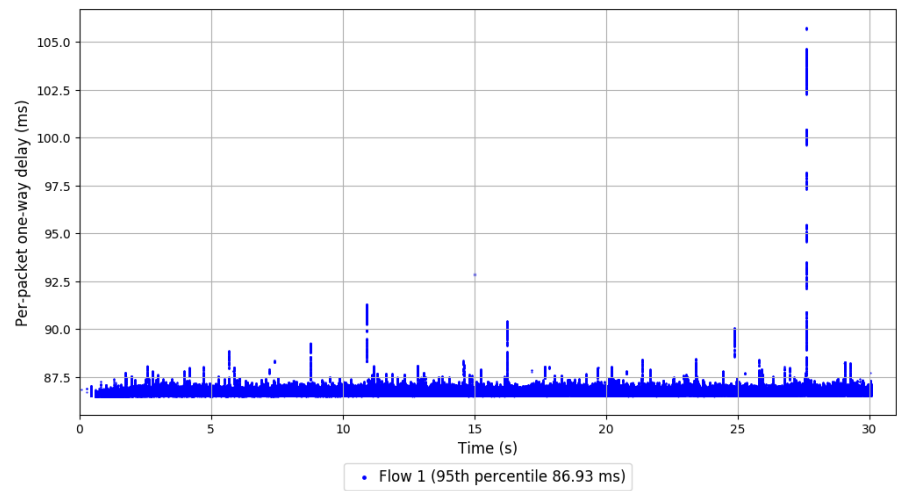
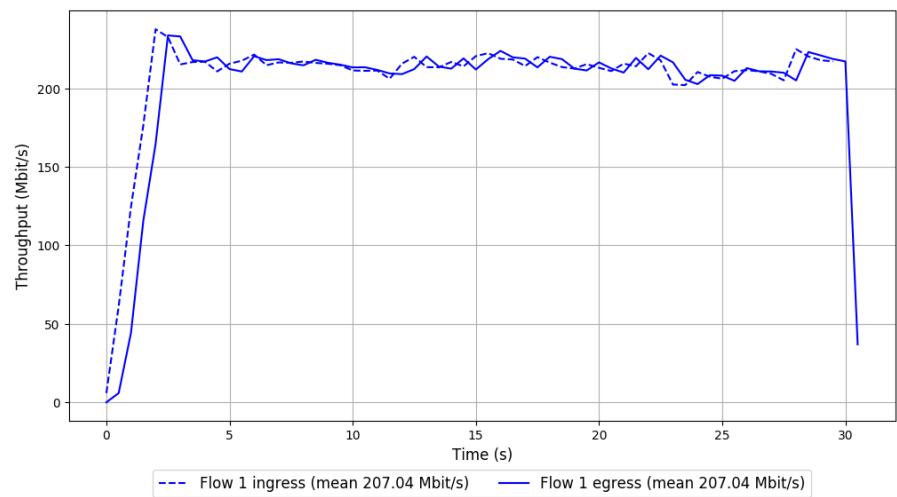


Run 2: Statistics of TaoVA-100x

Start at: 2018-12-10 20:57:38
End at: 2018-12-10 20:58:08
Local clock offset: 22.117 ms
Remote clock offset: 21.447 ms

Below is generated by plot.py at 2018-12-11 00:22:32
Datalink statistics
-- Total of 1 flow:
Average throughput: 207.04 Mbit/s
95th percentile per-packet one-way delay: 86.931 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 207.04 Mbit/s
95th percentile per-packet one-way delay: 86.931 ms
Loss rate: 0.00%

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

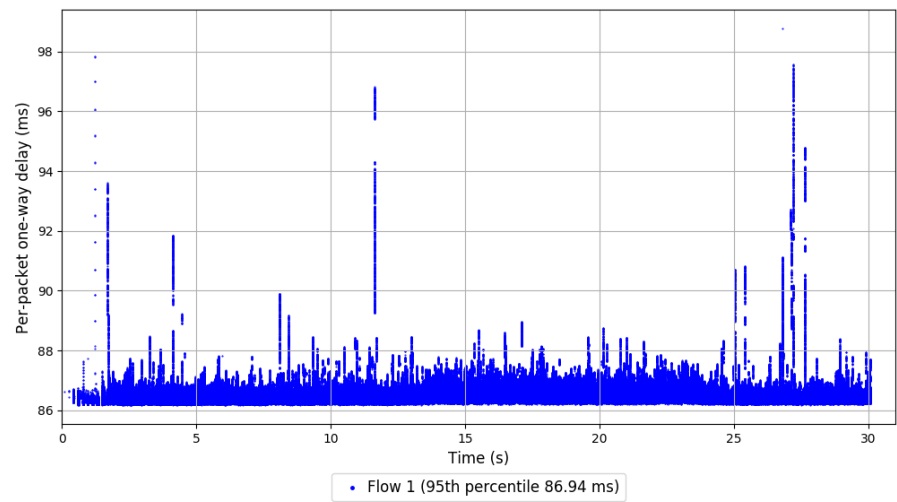
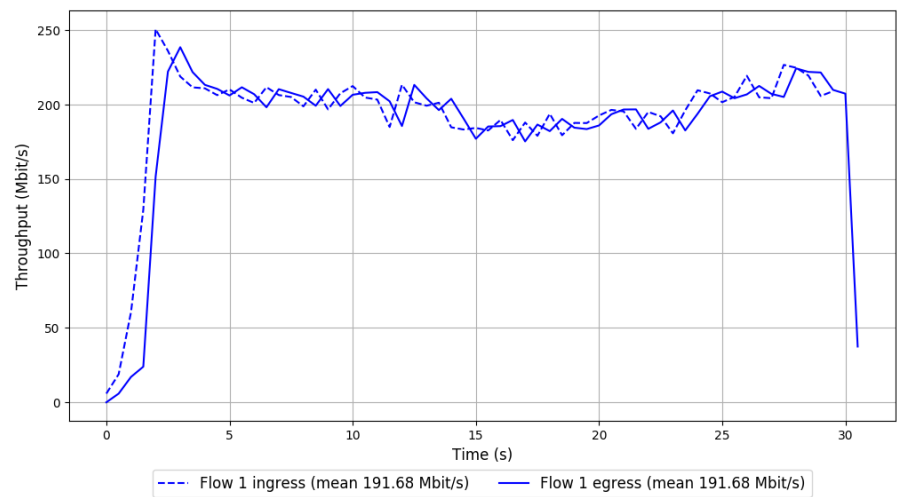


Run 3: Statistics of TaoVA-100x

Start at: 2018-12-10 21:25:48
End at: 2018-12-10 21:26:18
Local clock offset: 30.183 ms
Remote clock offset: 29.277 ms

Below is generated by plot.py at 2018-12-11 00:22:32
Datalink statistics
-- Total of 1 flow:
Average throughput: 191.68 Mbit/s
95th percentile per-packet one-way delay: 86.940 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 191.68 Mbit/s
95th percentile per-packet one-way delay: 86.940 ms
Loss rate: 0.00%

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

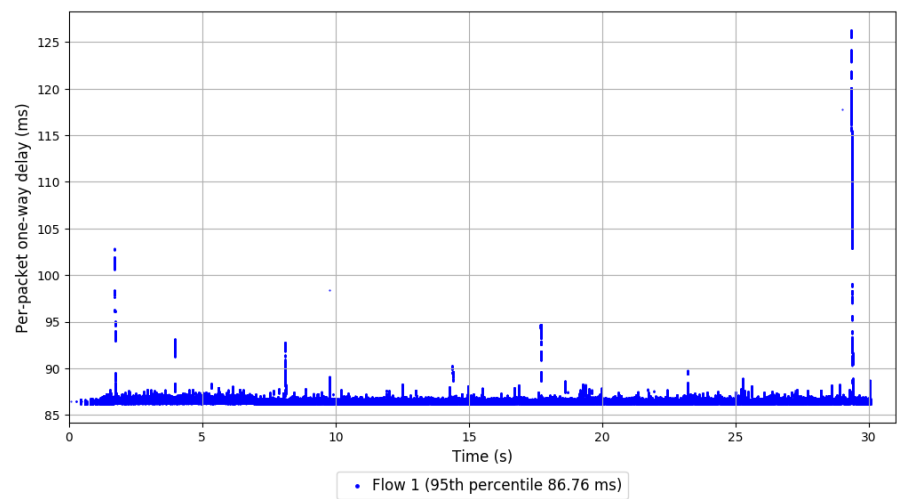
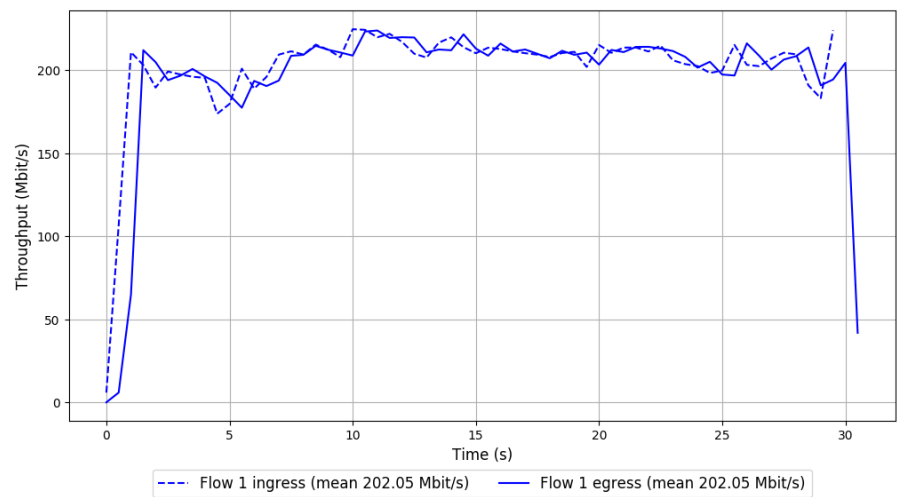


Run 4: Statistics of TaoVA-100x

Start at: 2018-12-10 21:54:18
End at: 2018-12-10 21:54:48
Local clock offset: 15.188 ms
Remote clock offset: 14.924 ms

Below is generated by plot.py at 2018-12-11 00:22:32
Datalink statistics
-- Total of 1 flow:
Average throughput: 202.05 Mbit/s
95th percentile per-packet one-way delay: 86.764 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 202.05 Mbit/s
95th percentile per-packet one-way delay: 86.764 ms
Loss rate: 0.00%

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



Run 5: Statistics of TaoVA-100x

Start at: 2018-12-10 22:22:52

End at: 2018-12-10 22:23:22

Local clock offset: 7.636 ms

Remote clock offset: 7.615 ms

Below is generated by plot.py at 2018-12-11 00:22:32

Datalink statistics

-- Total of 1 flow:

Average throughput: 192.61 Mbit/s

95th percentile per-packet one-way delay: 86.686 ms

Loss rate: 0.00%

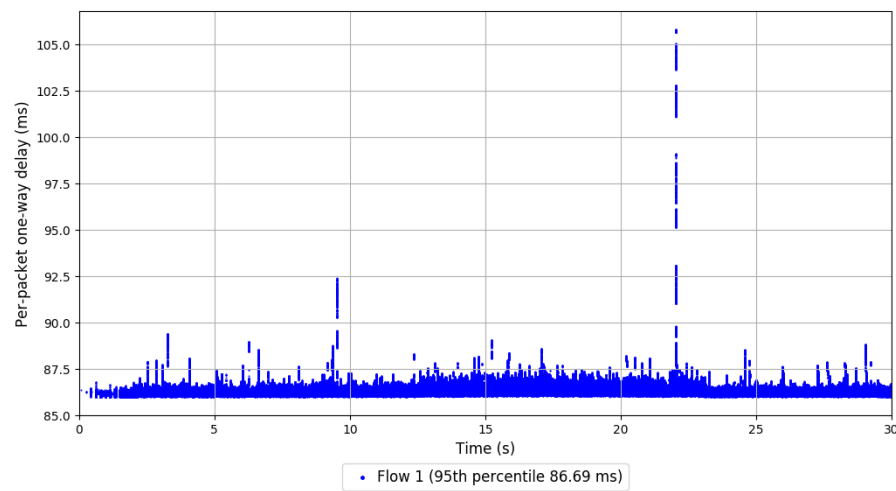
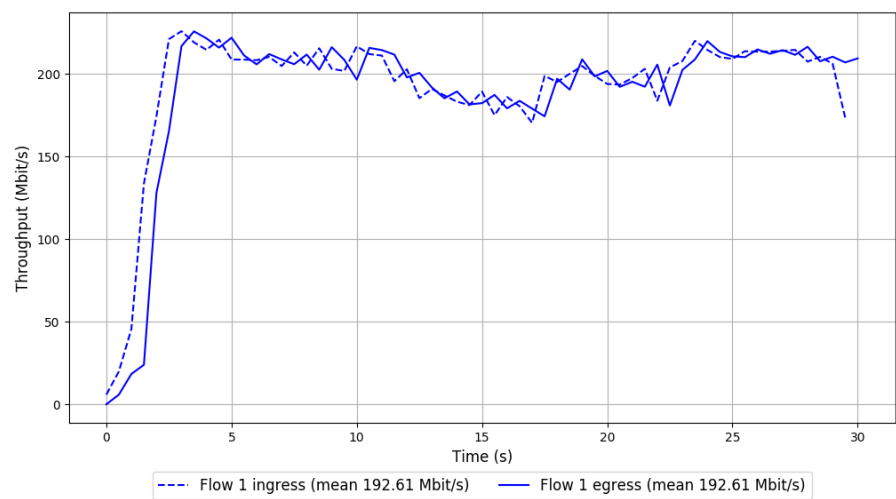
-- Flow 1:

Average throughput: 192.61 Mbit/s

95th percentile per-packet one-way delay: 86.686 ms

Loss rate: 0.00%

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



Run 1: Statistics of TCP Vegas

Start at: 2018-12-10 20:33:08

End at: 2018-12-10 20:33:38

Local clock offset: 6.955 ms

Remote clock offset: 6.913 ms

Below is generated by plot.py at 2018-12-11 00:29:29

Datalink statistics

-- Total of 1 flow:

Average throughput: 565.15 Mbit/s

95th percentile per-packet one-way delay: 106.008 ms

Loss rate: 0.00%

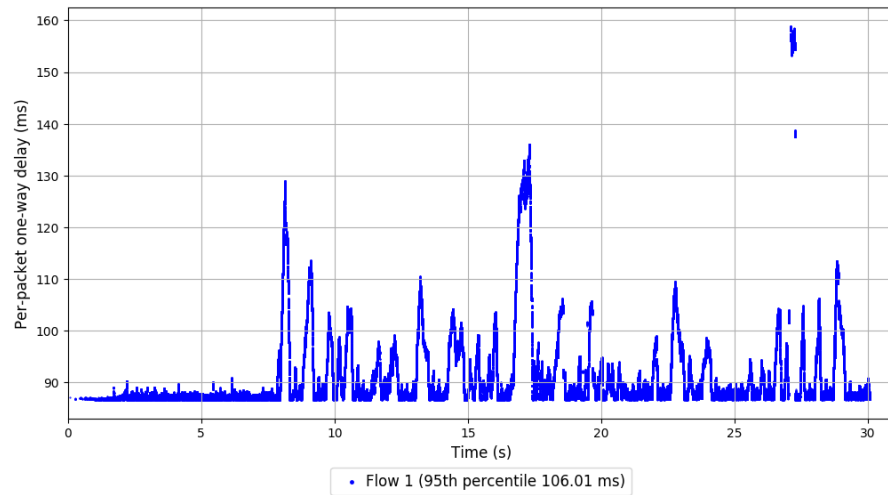
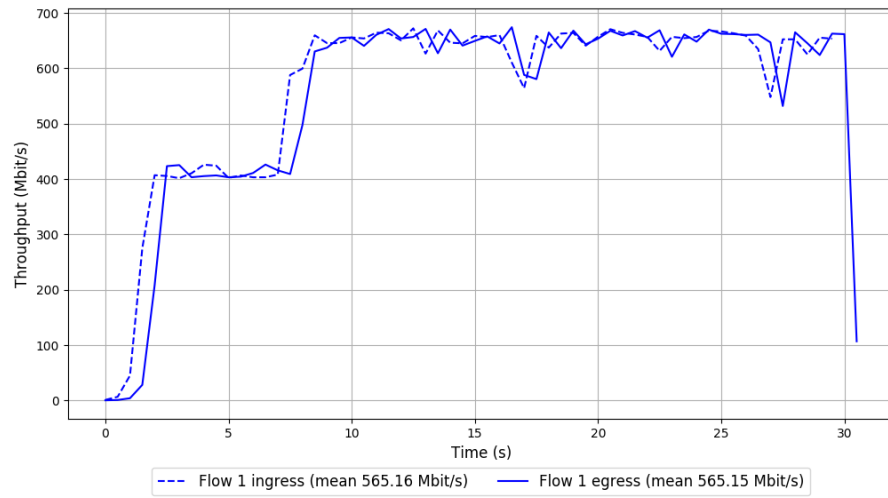
-- Flow 1:

Average throughput: 565.15 Mbit/s

95th percentile per-packet one-way delay: 106.008 ms

Loss rate: 0.00%

Run 1: Report of TCP Vegas — Data Link

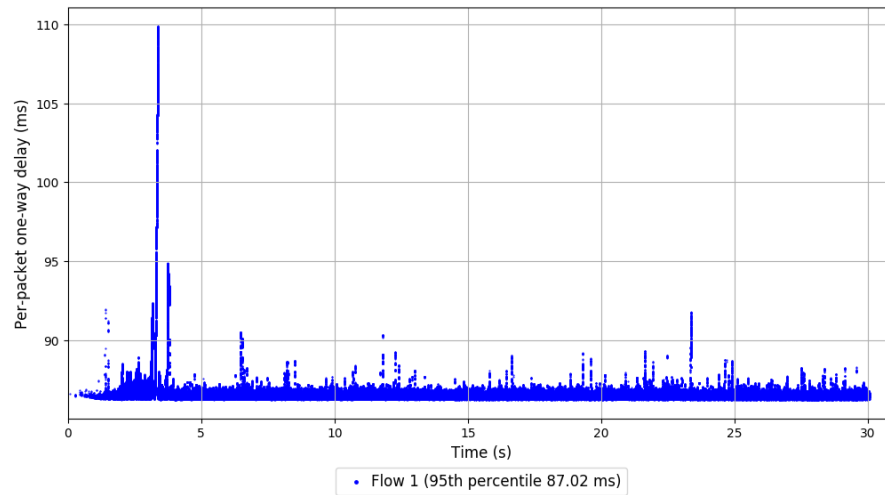
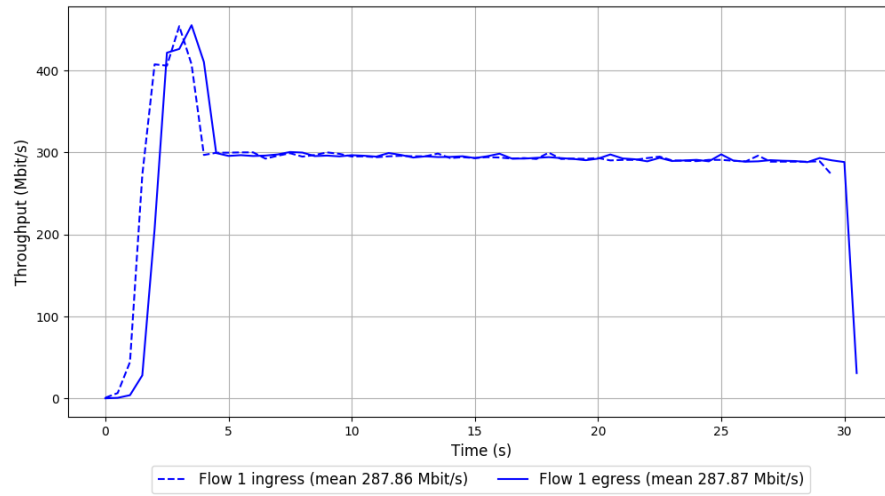


Run 2: Statistics of TCP Vegas

Start at: 2018-12-10 21:00:50
End at: 2018-12-10 21:01:20
Local clock offset: 26.709 ms
Remote clock offset: 25.747 ms

Below is generated by plot.py at 2018-12-11 00:29:29
Datalink statistics
-- Total of 1 flow:
Average throughput: 287.87 Mbit/s
95th percentile per-packet one-way delay: 87.018 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 287.87 Mbit/s
95th percentile per-packet one-way delay: 87.018 ms
Loss rate: 0.00%

Run 2: Report of TCP Vegas — Data Link

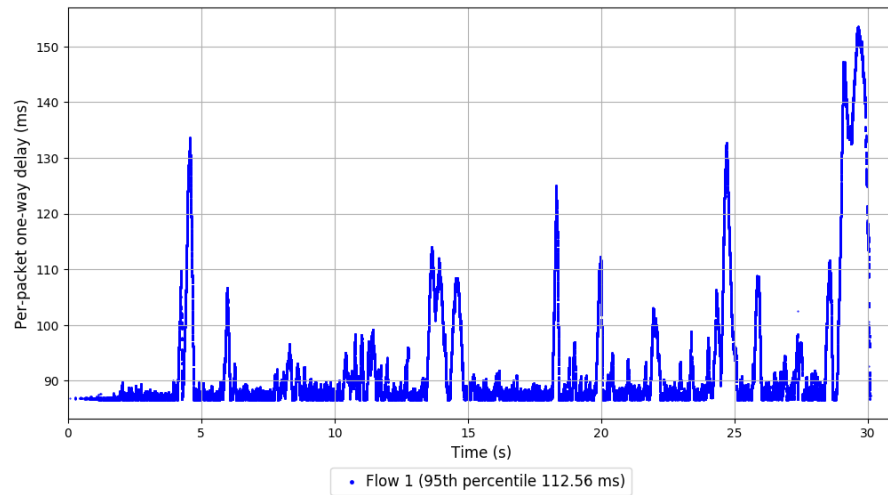
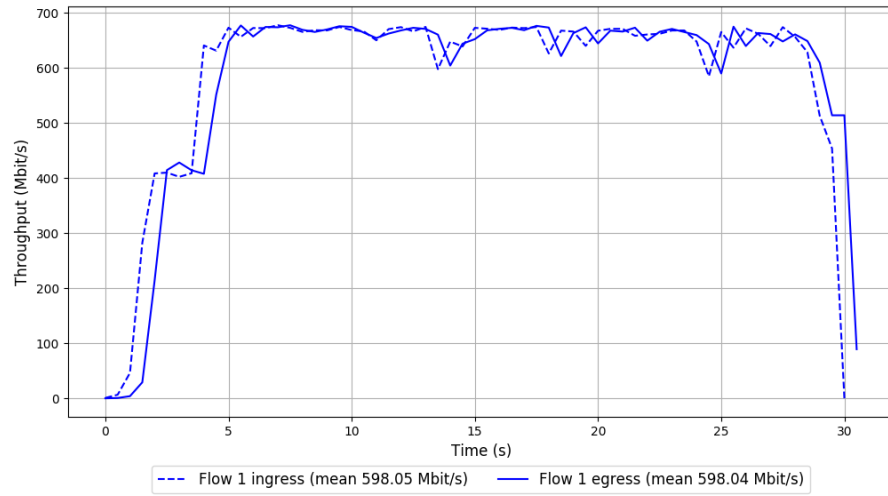


Run 3: Statistics of TCP Vegas

Start at: 2018-12-10 21:29:00
End at: 2018-12-10 21:29:30
Local clock offset: 33.519 ms
Remote clock offset: 32.388 ms

Below is generated by plot.py at 2018-12-11 00:31:57
Datalink statistics
-- Total of 1 flow:
Average throughput: 598.04 Mbit/s
95th percentile per-packet one-way delay: 112.563 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 598.04 Mbit/s
95th percentile per-packet one-way delay: 112.563 ms
Loss rate: 0.00%

Run 3: Report of TCP Vegas — Data Link



Run 4: Statistics of TCP Vegas

Start at: 2018-12-10 21:57:30

End at: 2018-12-10 21:58:00

Local clock offset: 15.283 ms

Remote clock offset: 15.44 ms

Below is generated by plot.py at 2018-12-11 00:32:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 581.85 Mbit/s

95th percentile per-packet one-way delay: 103.065 ms

Loss rate: 0.00%

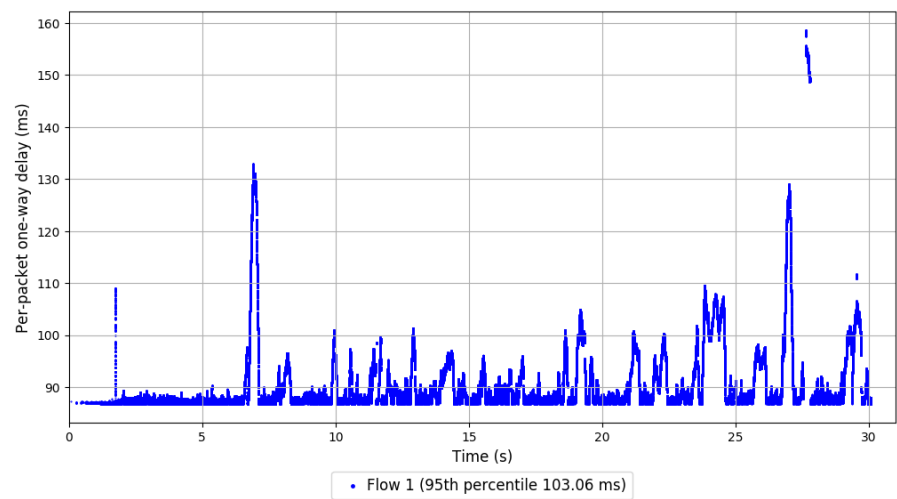
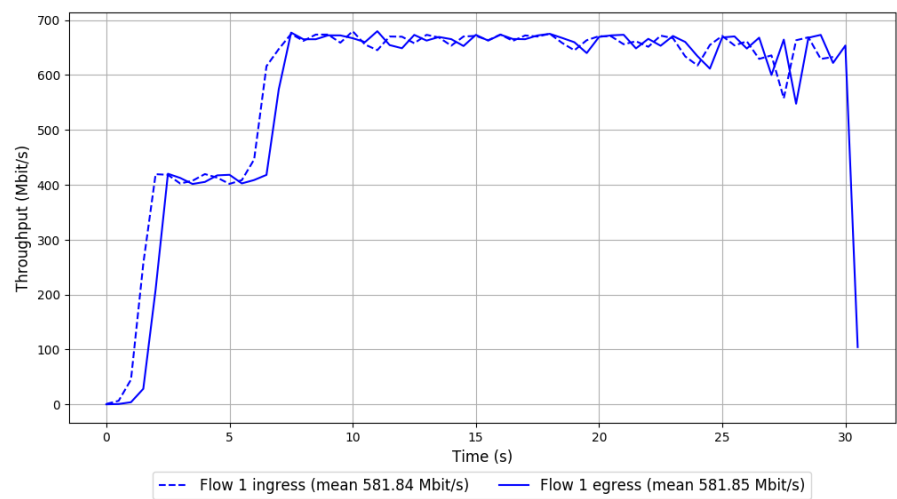
-- Flow 1:

Average throughput: 581.85 Mbit/s

95th percentile per-packet one-way delay: 103.065 ms

Loss rate: 0.00%

Run 4: Report of TCP Vegas — Data Link



Run 5: Statistics of TCP Vegas

Start at: 2018-12-10 22:26:04

End at: 2018-12-10 22:26:34

Local clock offset: 7.588 ms

Remote clock offset: 7.141 ms

Below is generated by plot.py at 2018-12-11 00:32:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 497.19 Mbit/s

95th percentile per-packet one-way delay: 88.755 ms

Loss rate: 0.00%

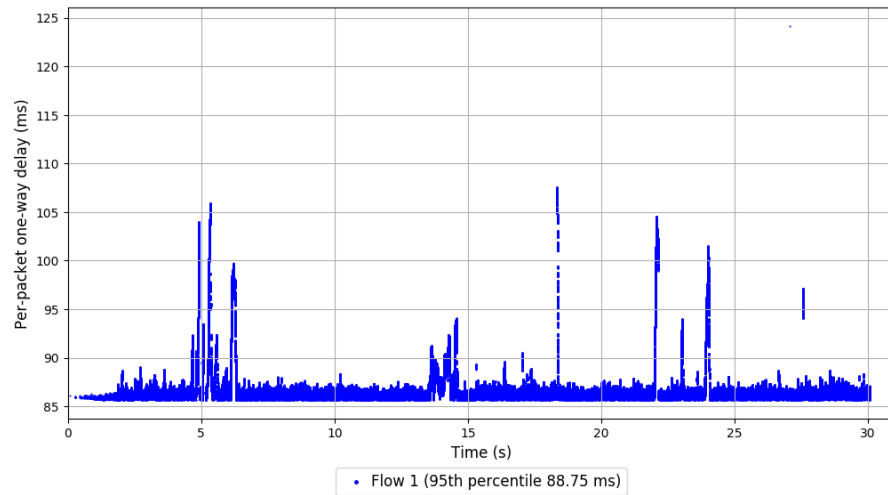
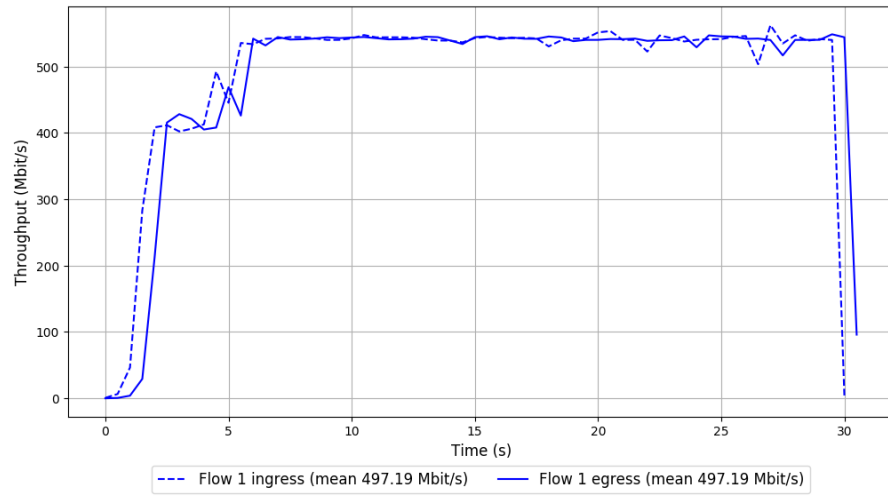
-- Flow 1:

Average throughput: 497.19 Mbit/s

95th percentile per-packet one-way delay: 88.755 ms

Loss rate: 0.00%

Run 5: Report of TCP Vegas — Data Link

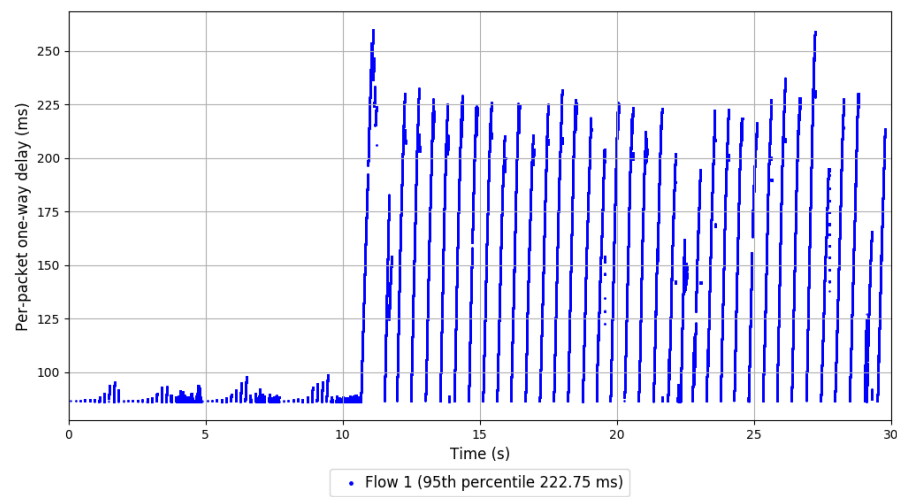
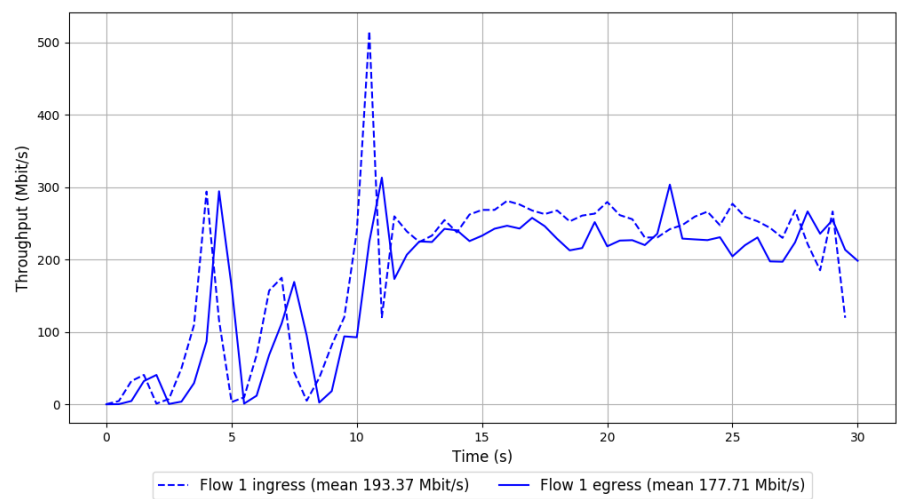


Run 1: Statistics of Verus

Start at: 2018-12-10 20:41:43
End at: 2018-12-10 20:42:13
Local clock offset: 13.659 ms
Remote clock offset: 13.484 ms

Below is generated by plot.py at 2018-12-11 00:32:57
Datalink statistics
-- Total of 1 flow:
Average throughput: 177.71 Mbit/s
95th percentile per-packet one-way delay: 222.747 ms
Loss rate: 7.81%
-- Flow 1:
Average throughput: 177.71 Mbit/s
95th percentile per-packet one-way delay: 222.747 ms
Loss rate: 7.81%

Run 1: Report of Verus — Data Link

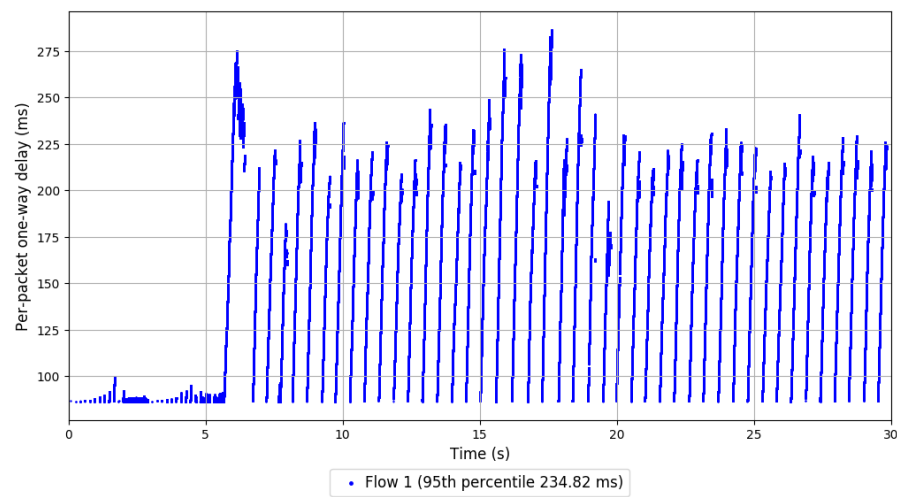
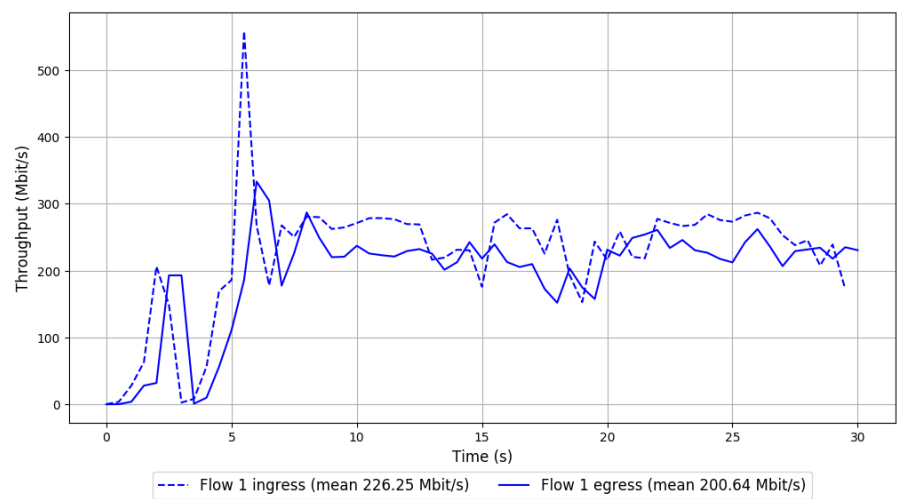


Run 2: Statistics of Verus

Start at: 2018-12-10 21:09:16
End at: 2018-12-10 21:09:46
Local clock offset: 19.467 ms
Remote clock offset: 19.057 ms

Below is generated by plot.py at 2018-12-11 00:32:57
Datalink statistics
-- Total of 1 flow:
Average throughput: 200.64 Mbit/s
95th percentile per-packet one-way delay: 234.825 ms
Loss rate: 10.95%
-- Flow 1:
Average throughput: 200.64 Mbit/s
95th percentile per-packet one-way delay: 234.825 ms
Loss rate: 10.95%

Run 2: Report of Verus — Data Link

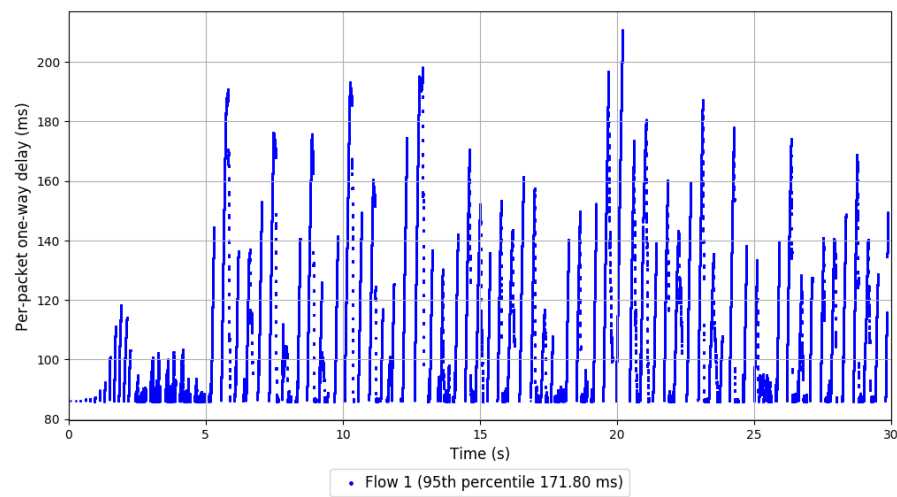
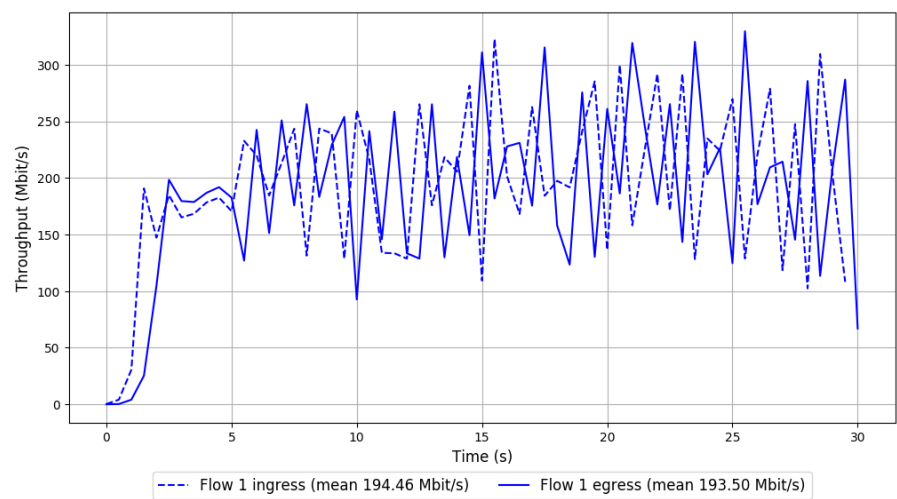


Run 3: Statistics of Verus

Start at: 2018-12-10 21:37:36
End at: 2018-12-10 21:38:06
Local clock offset: 31.447 ms
Remote clock offset: 30.053 ms

Below is generated by plot.py at 2018-12-11 00:32:57
Datalink statistics
-- Total of 1 flow:
Average throughput: 193.50 Mbit/s
95th percentile per-packet one-way delay: 171.802 ms
Loss rate: 0.48%
-- Flow 1:
Average throughput: 193.50 Mbit/s
95th percentile per-packet one-way delay: 171.802 ms
Loss rate: 0.48%

Run 3: Report of Verus — Data Link

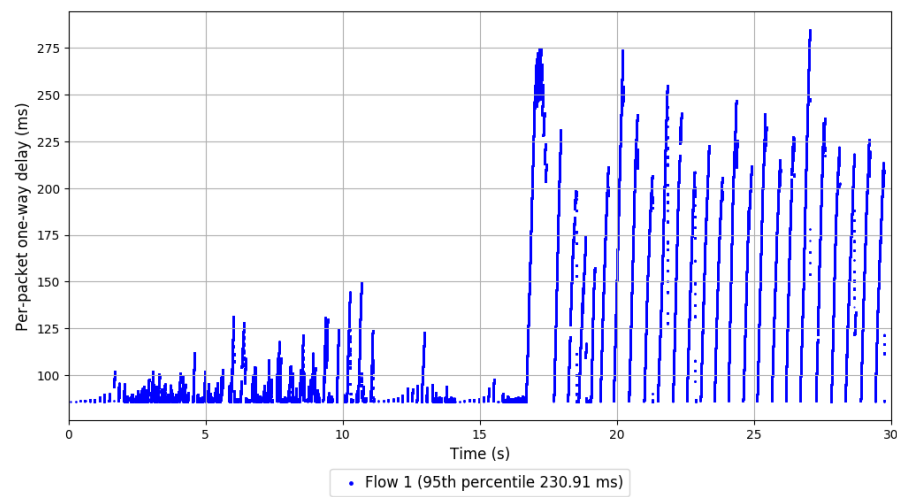
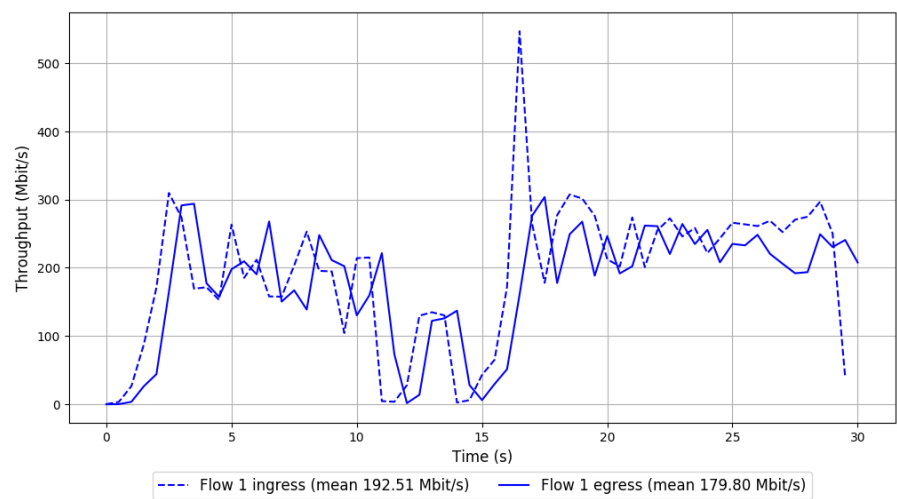


Run 4: Statistics of Verus

Start at: 2018-12-10 22:06:08
End at: 2018-12-10 22:06:38
Local clock offset: 18.846 ms
Remote clock offset: 18.462 ms

Below is generated by plot.py at 2018-12-11 00:32:57
Datalink statistics
-- Total of 1 flow:
Average throughput: 179.80 Mbit/s
95th percentile per-packet one-way delay: 230.909 ms
Loss rate: 6.60%
-- Flow 1:
Average throughput: 179.80 Mbit/s
95th percentile per-packet one-way delay: 230.909 ms
Loss rate: 6.60%

Run 4: Report of Verus — Data Link



Run 5: Statistics of Verus

Start at: 2018-12-10 22:34:37

End at: 2018-12-10 22:35:07

Local clock offset: 8.374 ms

Remote clock offset: 7.722 ms

Below is generated by plot.py at 2018-12-11 00:35:23

Datalink statistics

-- Total of 1 flow:

Average throughput: 194.03 Mbit/s

95th percentile per-packet one-way delay: 180.367 ms

Loss rate: 0.91%

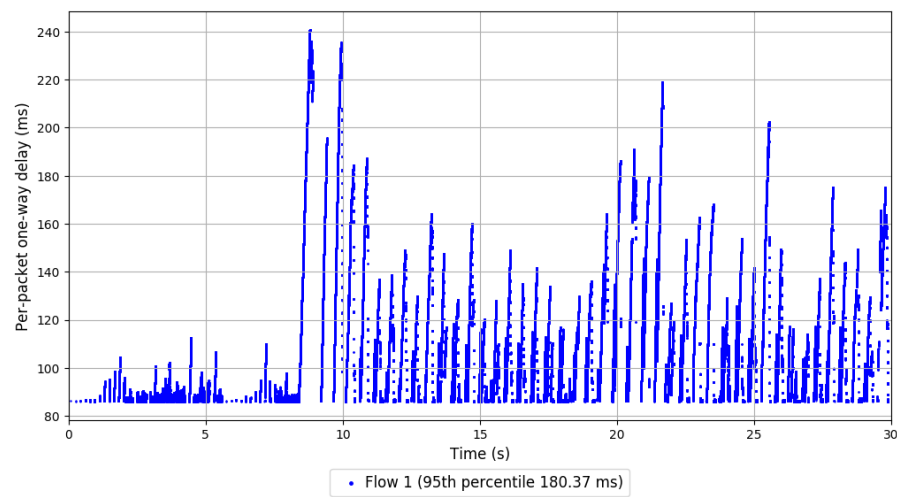
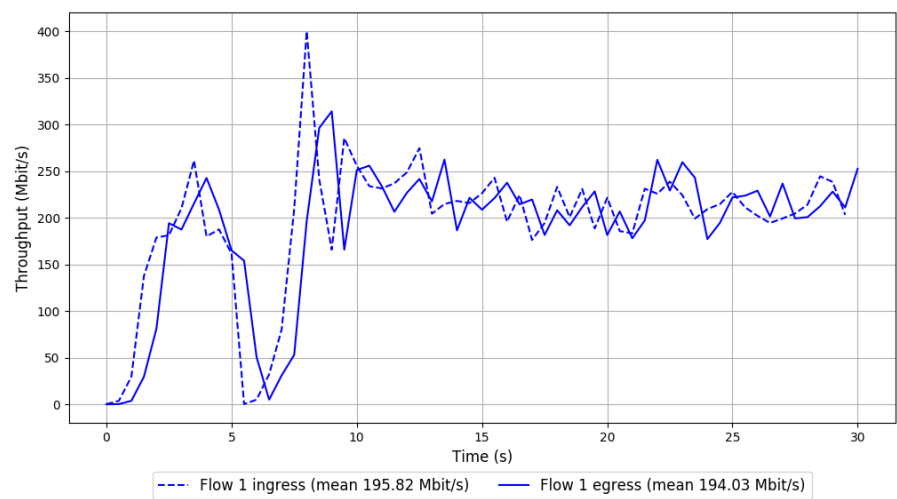
-- Flow 1:

Average throughput: 194.03 Mbit/s

95th percentile per-packet one-way delay: 180.367 ms

Loss rate: 0.91%

Run 5: Report of Verus — Data Link

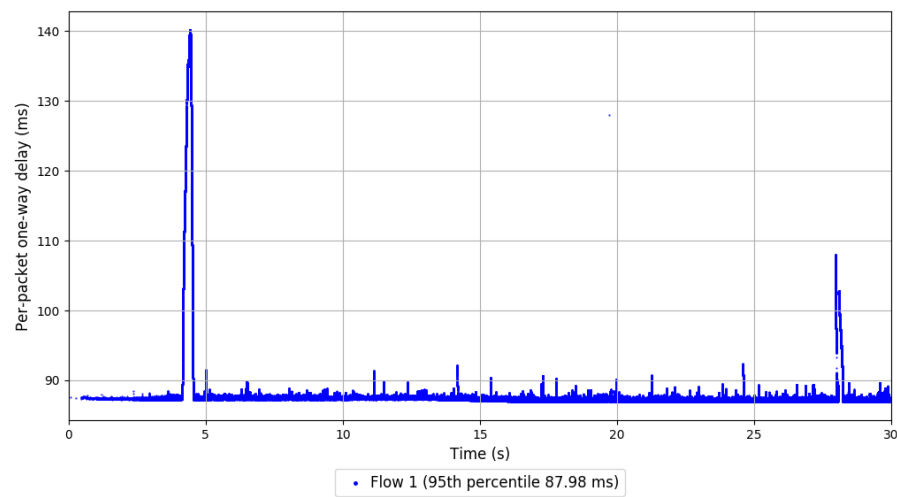
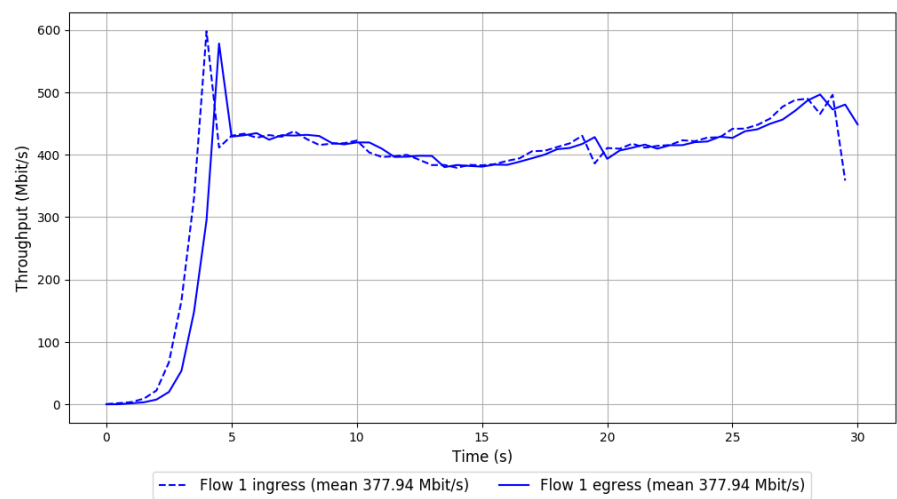


Run 1: Statistics of PCC-Vivace

Start at: 2018-12-10 20:34:45
End at: 2018-12-10 20:35:15
Local clock offset: 10.158 ms
Remote clock offset: 10.507 ms

Below is generated by plot.py at 2018-12-11 00:35:52
Datalink statistics
-- Total of 1 flow:
Average throughput: 377.94 Mbit/s
95th percentile per-packet one-way delay: 87.978 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 377.94 Mbit/s
95th percentile per-packet one-way delay: 87.978 ms
Loss rate: 0.00%

Run 1: Report of PCC-Vivace — Data Link

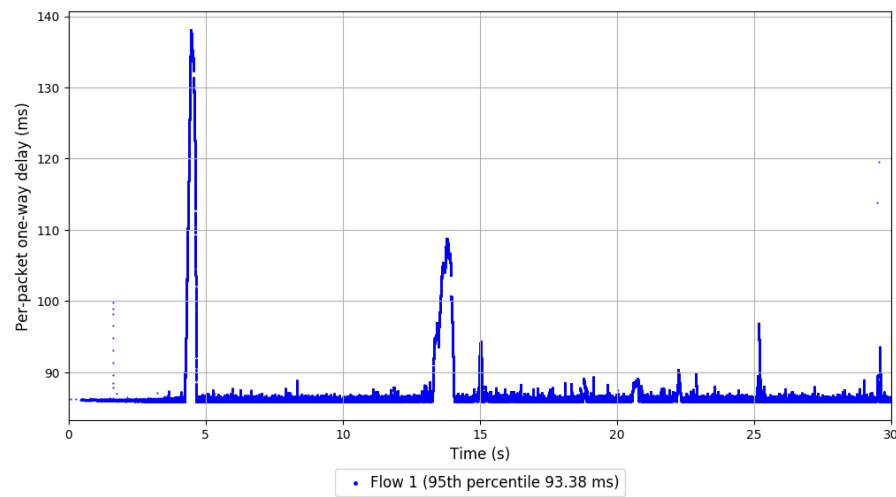
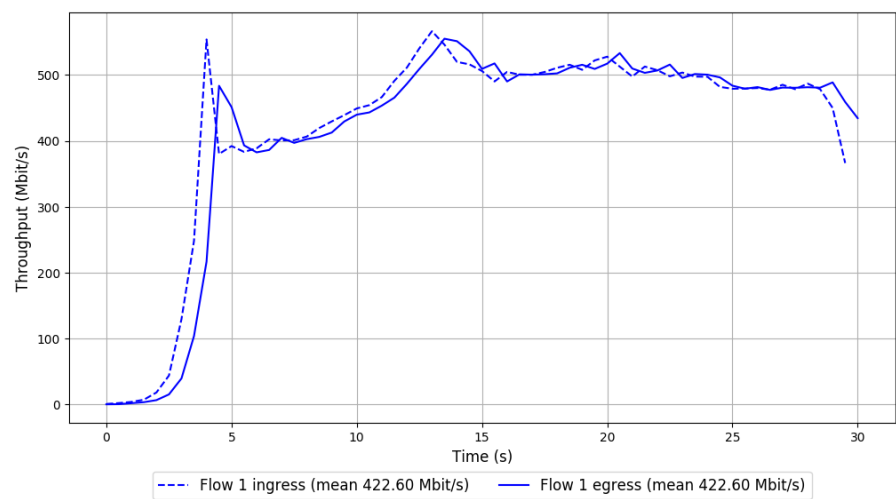


Run 2: Statistics of PCC-Vivace

Start at: 2018-12-10 21:02:14
End at: 2018-12-10 21:02:44
Local clock offset: 24.564 ms
Remote clock offset: 23.308 ms

Below is generated by plot.py at 2018-12-11 00:36:27
Datalink statistics
-- Total of 1 flow:
Average throughput: 422.60 Mbit/s
95th percentile per-packet one-way delay: 93.383 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 422.60 Mbit/s
95th percentile per-packet one-way delay: 93.383 ms
Loss rate: 0.00%

Run 2: Report of PCC-Vivace — Data Link

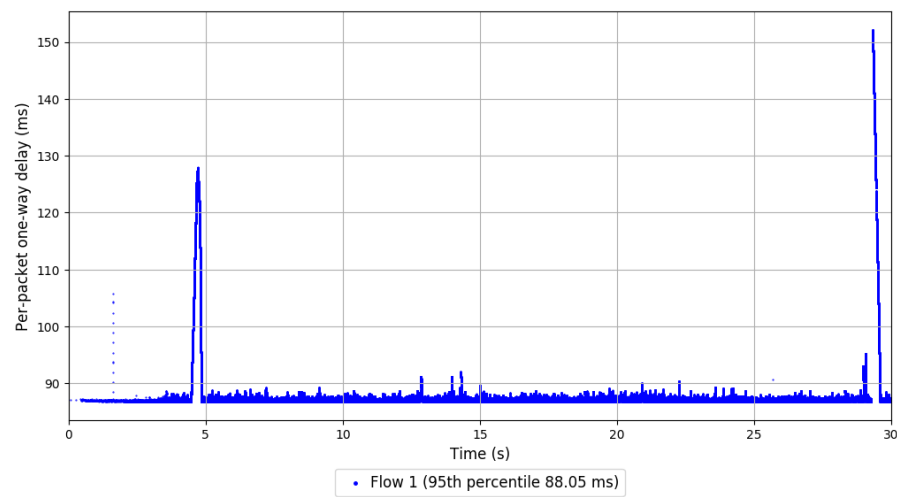
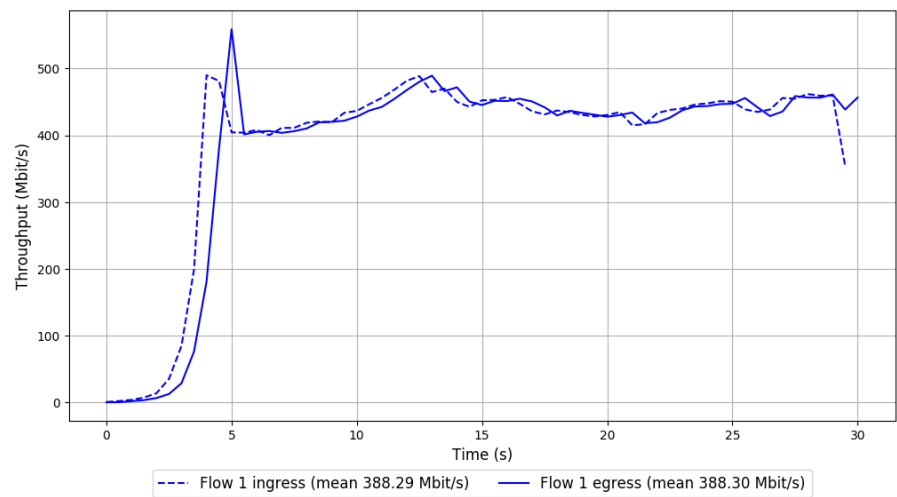


Run 3: Statistics of PCC-Vivace

Start at: 2018-12-10 21:30:40
End at: 2018-12-10 21:31:10
Local clock offset: 35.427 ms
Remote clock offset: 34.181 ms

Below is generated by plot.py at 2018-12-11 00:36:27
Datalink statistics
-- Total of 1 flow:
Average throughput: 388.30 Mbit/s
95th percentile per-packet one-way delay: 88.045 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 388.30 Mbit/s
95th percentile per-packet one-way delay: 88.045 ms
Loss rate: 0.00%

Run 3: Report of PCC-Vivace — Data Link

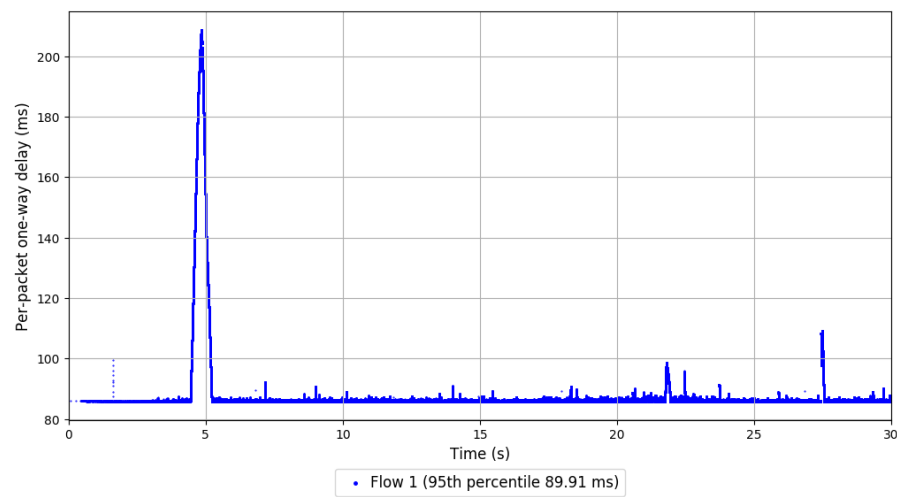
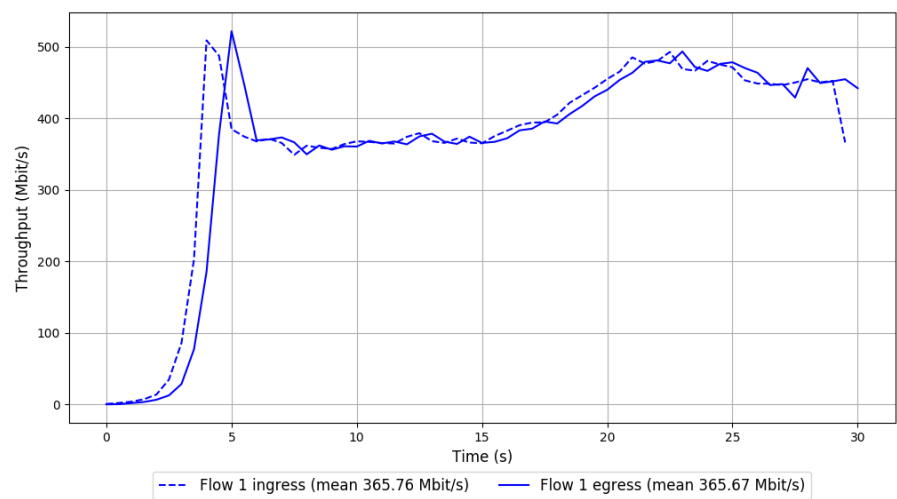


Run 4: Statistics of PCC-Vivace

Start at: 2018-12-10 21:59:08
End at: 2018-12-10 21:59:38
Local clock offset: 16.249 ms
Remote clock offset: 15.872 ms

Below is generated by plot.py at 2018-12-11 00:36:29
Datalink statistics
-- Total of 1 flow:
Average throughput: 365.67 Mbit/s
95th percentile per-packet one-way delay: 89.907 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 365.67 Mbit/s
95th percentile per-packet one-way delay: 89.907 ms
Loss rate: 0.03%

Run 4: Report of PCC-Vivace — Data Link



Run 5: Statistics of PCC-Vivace

Start at: 2018-12-10 22:27:38

End at: 2018-12-10 22:28:08

Local clock offset: 7.198 ms

Remote clock offset: 7.112 ms

Below is generated by plot.py at 2018-12-11 00:36:32

Datalink statistics

-- Total of 1 flow:

Average throughput: 399.20 Mbit/s

95th percentile per-packet one-way delay: 89.381 ms

Loss rate: 0.00%

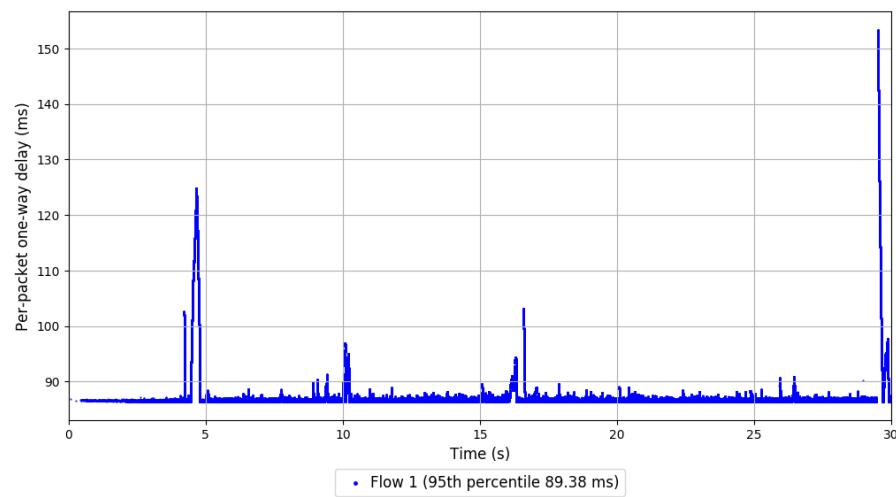
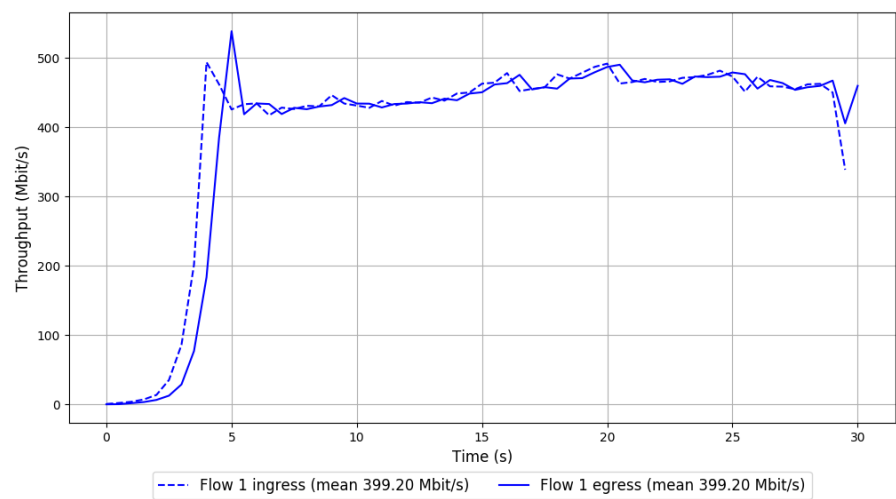
-- Flow 1:

Average throughput: 399.20 Mbit/s

95th percentile per-packet one-way delay: 89.381 ms

Loss rate: 0.00%

Run 5: Report of PCC-Vivace — Data Link

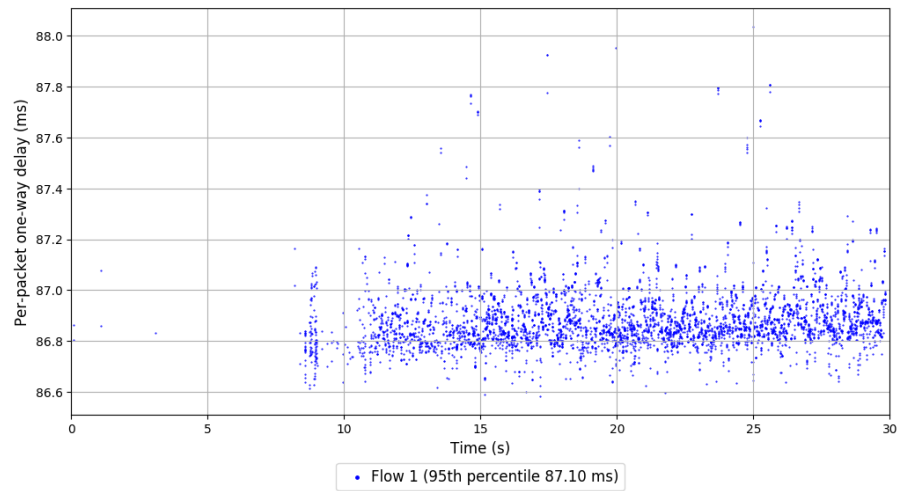
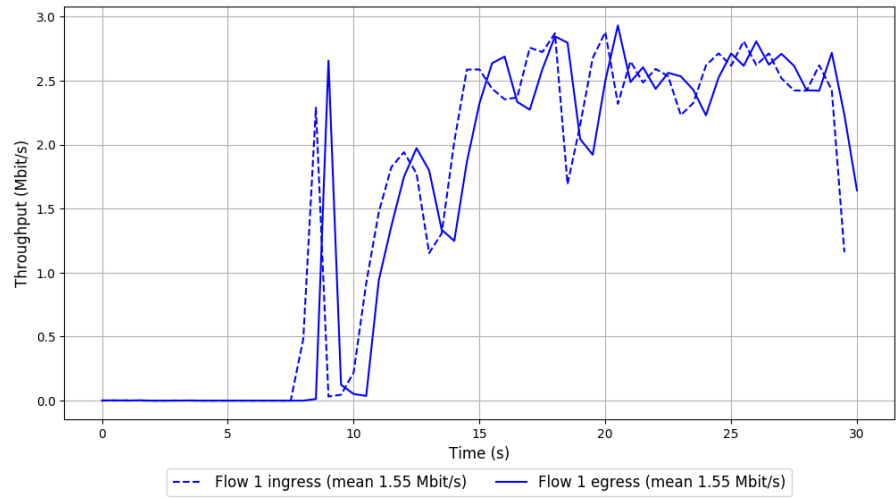


```
Run 1: Statistics of WebRTC media

Start at: 2018-12-10 20:40:34
End at: 2018-12-10 20:41:04
Local clock offset: 11.561 ms
Remote clock offset: 11.605 ms

# Below is generated by plot.py at 2018-12-11 00:36:32
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.55 Mbit/s
95th percentile per-packet one-way delay: 87.104 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.55 Mbit/s
95th percentile per-packet one-way delay: 87.104 ms
Loss rate: 0.00%
```

Run 1: Report of WebRTC media — Data Link

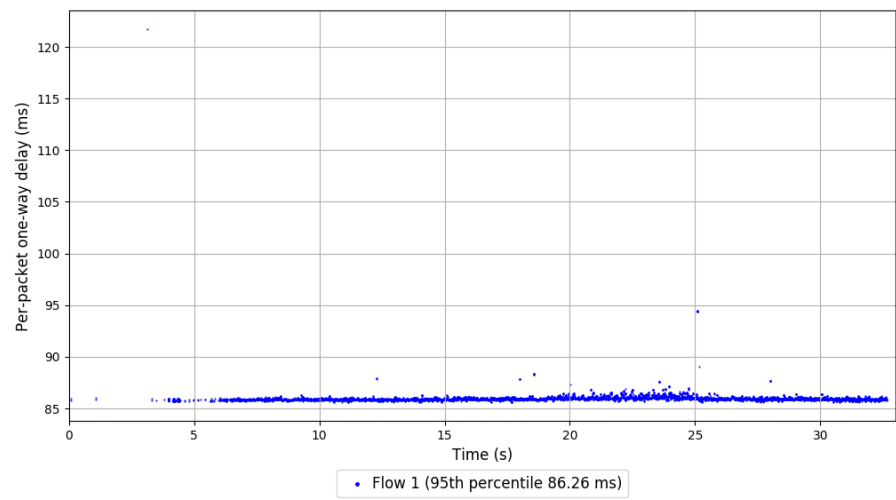
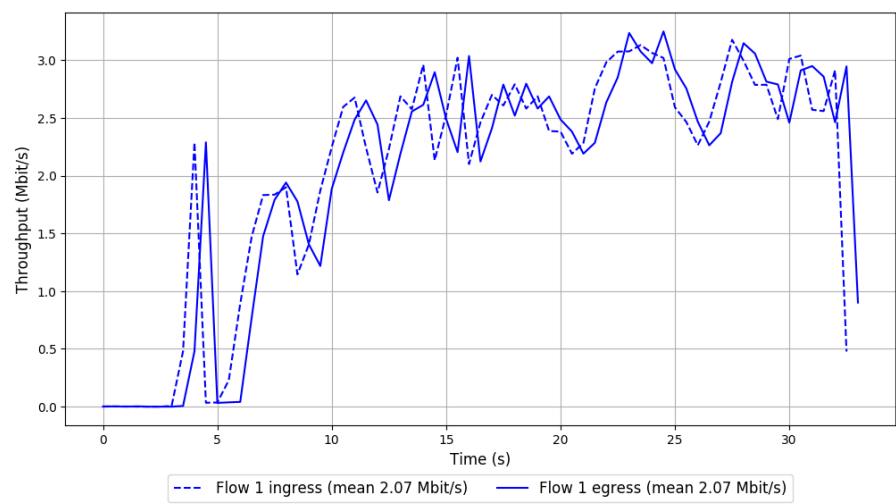


Run 2: Statistics of WebRTC media

Start at: 2018-12-10 21:08:07
End at: 2018-12-10 21:08:37
Local clock offset: 20.16 ms
Remote clock offset: 19.113 ms

Below is generated by plot.py at 2018-12-11 00:36:32
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.07 Mbit/s
95th percentile per-packet one-way delay: 86.256 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.07 Mbit/s
95th percentile per-packet one-way delay: 86.256 ms
Loss rate: 0.00%

Run 2: Report of WebRTC media — Data Link

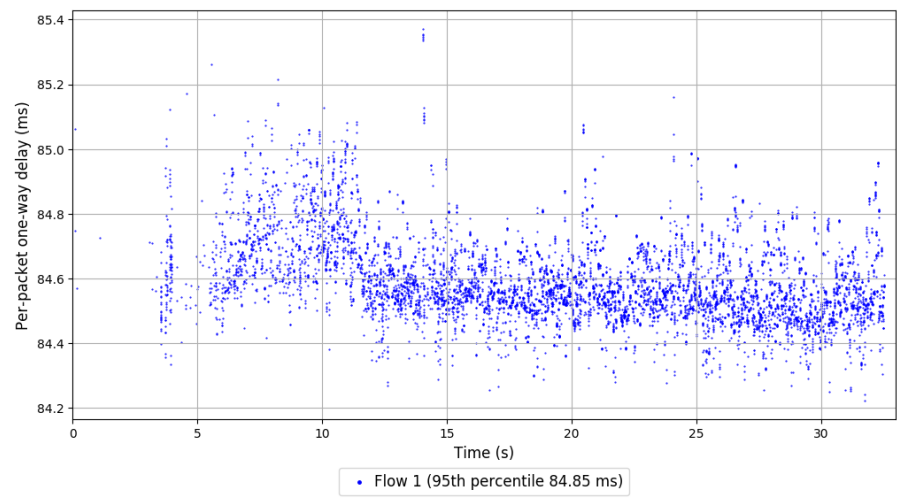
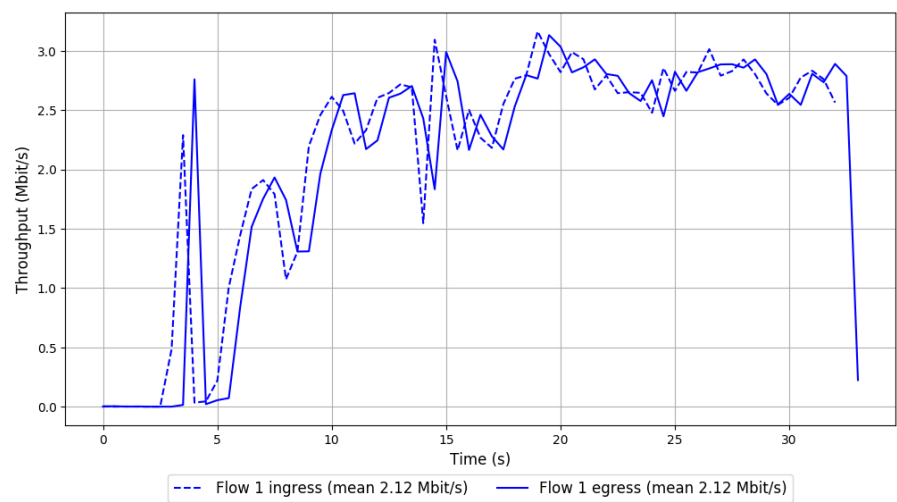


Run 3: Statistics of WebRTC media

Start at: 2018-12-10 21:36:26
End at: 2018-12-10 21:36:56
Local clock offset: 35.941 ms
Remote clock offset: 33.226 ms

Below is generated by plot.py at 2018-12-11 00:36:32
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.12 Mbit/s
95th percentile per-packet one-way delay: 84.849 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.12 Mbit/s
95th percentile per-packet one-way delay: 84.849 ms
Loss rate: 0.00%

Run 3: Report of WebRTC media — Data Link

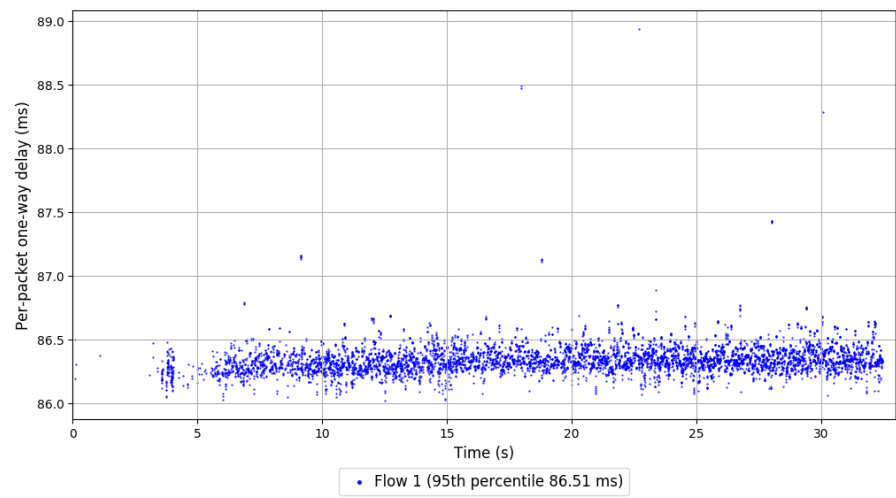
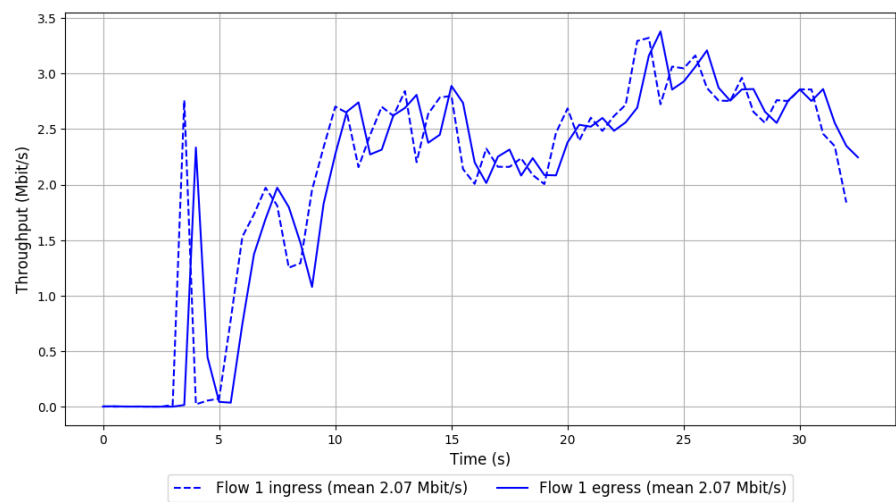


Run 4: Statistics of WebRTC media

Start at: 2018-12-10 22:04:59
End at: 2018-12-10 22:05:29
Local clock offset: 18.718 ms
Remote clock offset: 18.061 ms

Below is generated by plot.py at 2018-12-11 00:36:32
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.07 Mbit/s
95th percentile per-packet one-way delay: 86.510 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.07 Mbit/s
95th percentile per-packet one-way delay: 86.510 ms
Loss rate: 0.00%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-12-10 22:33:27

End at: 2018-12-10 22:33:57

Local clock offset: 7.429 ms

Remote clock offset: 7.527 ms

Below is generated by plot.py at 2018-12-11 00:36:32

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.15 Mbit/s

95th percentile per-packet one-way delay: 86.871 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 2.15 Mbit/s

95th percentile per-packet one-way delay: 86.871 ms

Loss rate: 0.00%

Run 5: Report of WebRTC media — Data Link

