

Pantheon Report

Generated at 2018-11-29 22:52:59 (UTC).

Data path: AWS California 1 on `ens5` (*local*) → Stanford on `eno1` (*remote*).

Repeated the test of 18 congestion control schemes 5 times.

Each test lasted for 30 seconds running 1 flow.

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

System info:

```
Linux 4.15.0-1027-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

Git summary:

```
branch: muses @ 794ca3866981572cb73700a276691acf79c60f2b
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/indigo-96d2da3 @ 8413272d46f8aa0bcb967ed7048b6a8f994abb95
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
  M receiver/src/buffer.h
  M receiver/src/core.cpp
  M sender/src/buffer.h
  M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quic @ 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

Algorithm	95th percentile one-way delay (ms)	Average throughput (Mbit/s)
FillIP	~14	~850
TCP Cubic	~14	~720
LEDBAT	~16	~600
TCP BBR	~5	~720
Verus	~7	~200
PCC-Vivace	~4	~180
Sprout	~4	~50
Indigo	~1	~200
PCC-Allegro	~1	~200
Indigo-2	~1	~150
Indigo-Muses	~1	~50
OUIC Cubic	~1	~80
BOCA	~1	~20
Media	~1	~10



scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	5	711.08	5.60	0.05
Copa	0	N/A	N/A	N/A
TCP Cubic	5	718.78	13.40	0.05
FillP	5	890.68	13.54	3.44
Indigo	5	231.62	1.23	0.00
Indigo-96d2da3	5	161.10	1.31	0.00
LEDBAT	5	584.21	16.42	0.05
Indigo-Muses	5	51.66	1.32	0.01
PCC-Allegro	5	217.61	1.31	0.01
PCC-Expr	5	6.43	1.24	9.37
QUIC Cubic	5	75.51	0.92	0.00
SCReAM	5	0.22	1.22	0.00
Sprout	5	50.12	4.05	0.01
TaoVA-100x	5	9.08	1.18	51.78
TCP Vegas	5	158.84	1.23	0.01
Verus	5	202.36	6.88	0.60
PCC-Vivace	5	184.01	3.81	0.02
WebRTC media	5	1.97	1.13	0.02

Run 1: Statistics of TCP BBR

Start at: 2018-11-29 20:21:44

End at: 2018-11-29 20:22:14

Local clock offset: 5.055 ms

Remote clock offset: -2.97 ms

Below is generated by plot.py at 2018-11-29 22:27:55

Datalink statistics

-- Total of 1 flow:

Average throughput: 686.43 Mbit/s

95th percentile per-packet one-way delay: 5.549 ms

Loss rate: 0.03%

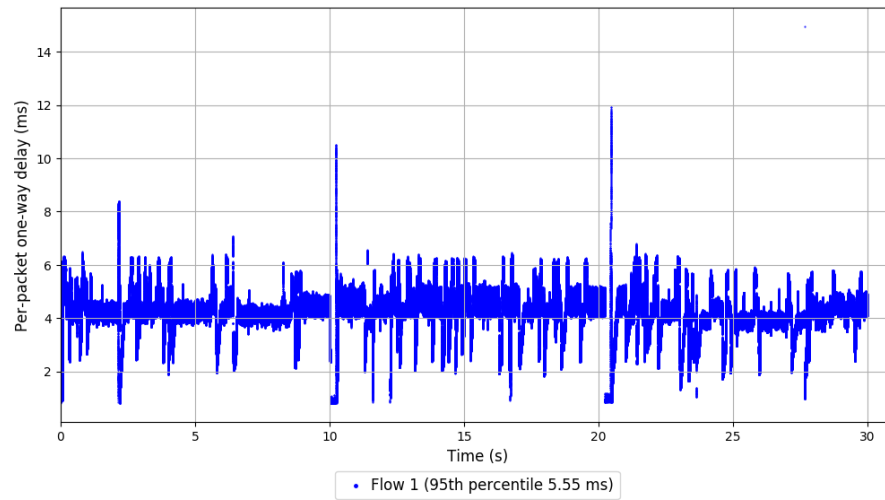
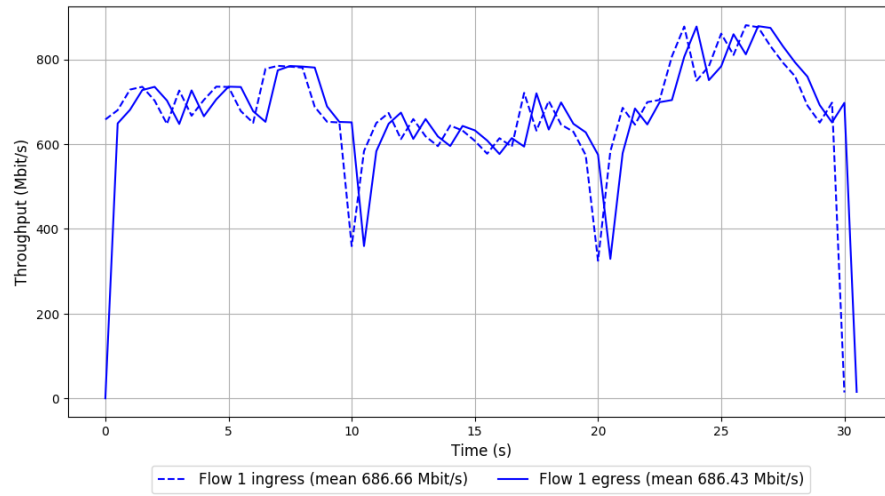
-- Flow 1:

Average throughput: 686.43 Mbit/s

95th percentile per-packet one-way delay: 5.549 ms

Loss rate: 0.03%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-11-29 20:45:56

End at: 2018-11-29 20:46:26

Local clock offset: 5.321 ms

Remote clock offset: -3.682 ms

Below is generated by plot.py at 2018-11-29 22:27:55

Datalink statistics

-- Total of 1 flow:

Average throughput: 675.72 Mbit/s

95th percentile per-packet one-way delay: 5.876 ms

Loss rate: 0.15%

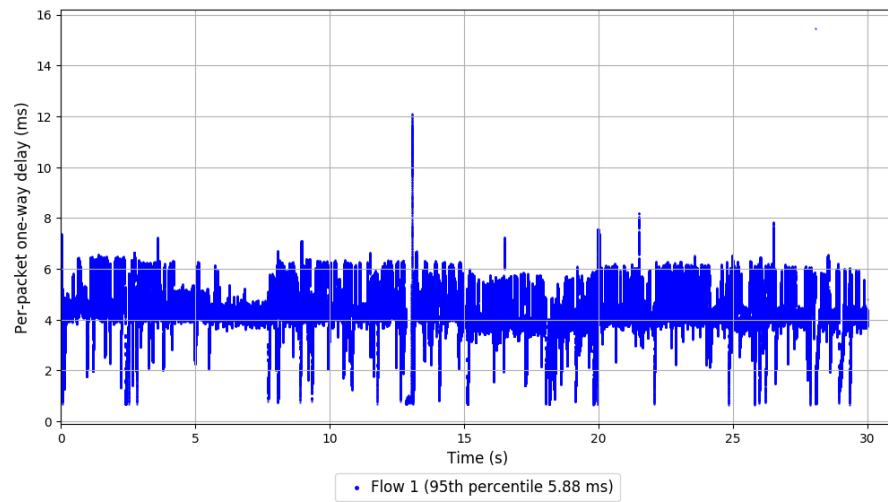
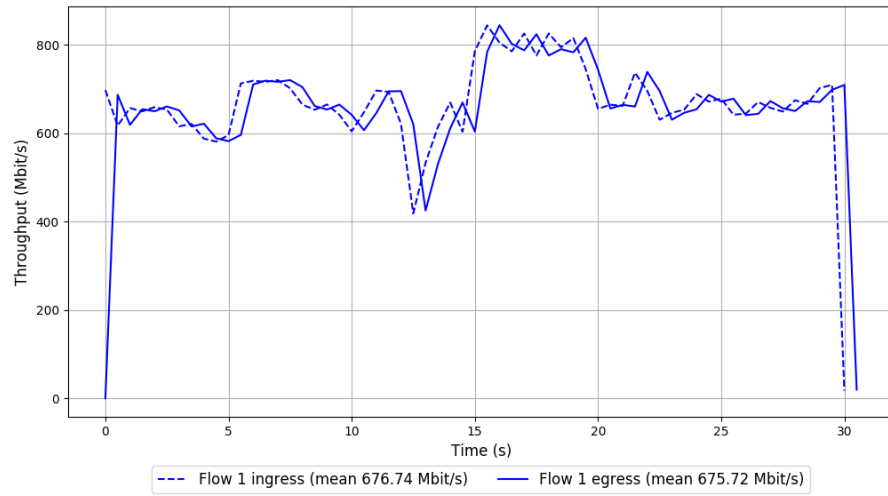
-- Flow 1:

Average throughput: 675.72 Mbit/s

95th percentile per-packet one-way delay: 5.876 ms

Loss rate: 0.15%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-11-29 21:10:16

End at: 2018-11-29 21:10:46

Local clock offset: 5.253 ms

Remote clock offset: -3.364 ms

Below is generated by plot.py at 2018-11-29 22:28:04

Datalink statistics

-- Total of 1 flow:

Average throughput: 700.58 Mbit/s

95th percentile per-packet one-way delay: 5.758 ms

Loss rate: 0.02%

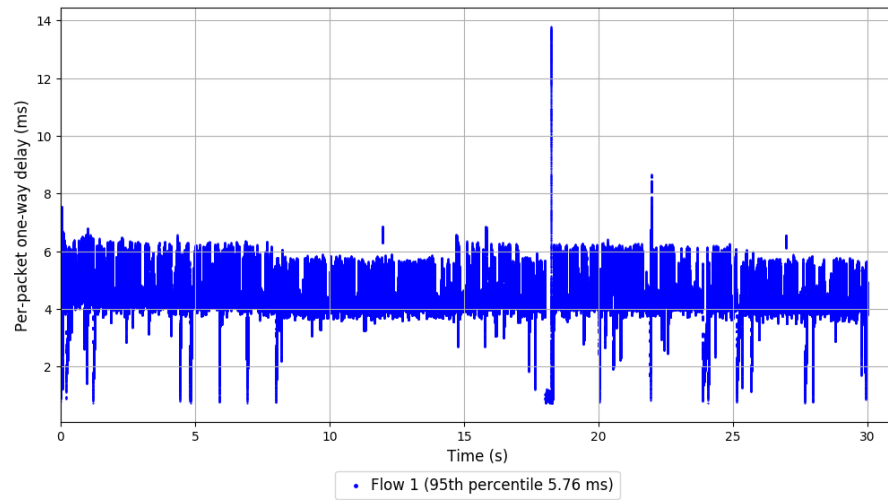
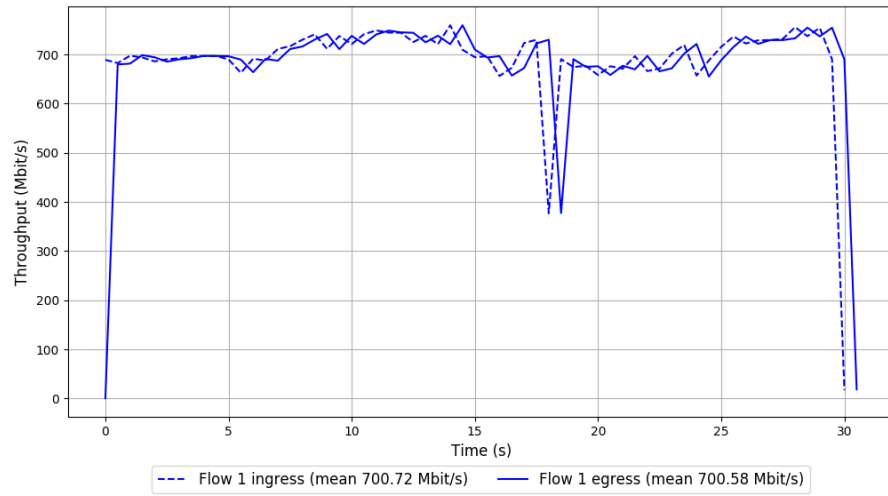
-- Flow 1:

Average throughput: 700.58 Mbit/s

95th percentile per-packet one-way delay: 5.758 ms

Loss rate: 0.02%

Run 3: Report of TCP BBR — Data Link



Run 4: Statistics of TCP BBR

Start at: 2018-11-29 21:34:36

End at: 2018-11-29 21:35:06

Local clock offset: 4.941 ms

Remote clock offset: -2.733 ms

Below is generated by plot.py at 2018-11-29 22:28:37

Datalink statistics

-- Total of 1 flow:

Average throughput: 760.48 Mbit/s

95th percentile per-packet one-way delay: 5.292 ms

Loss rate: 0.02%

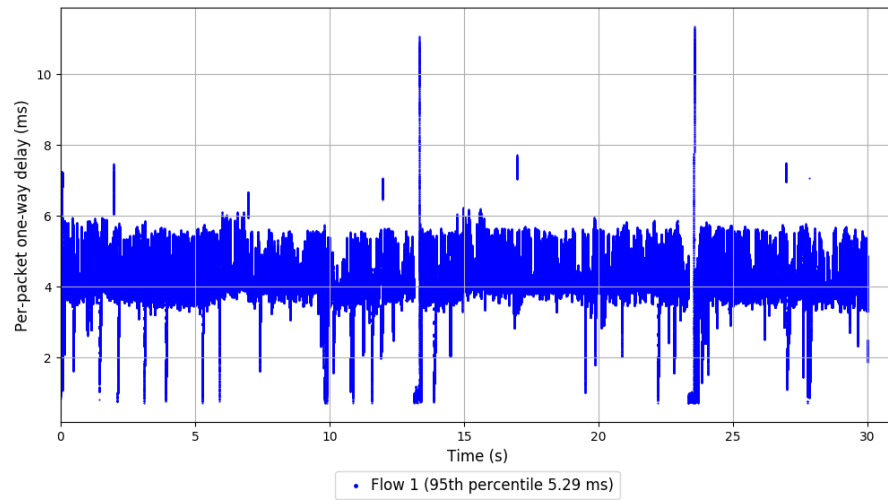
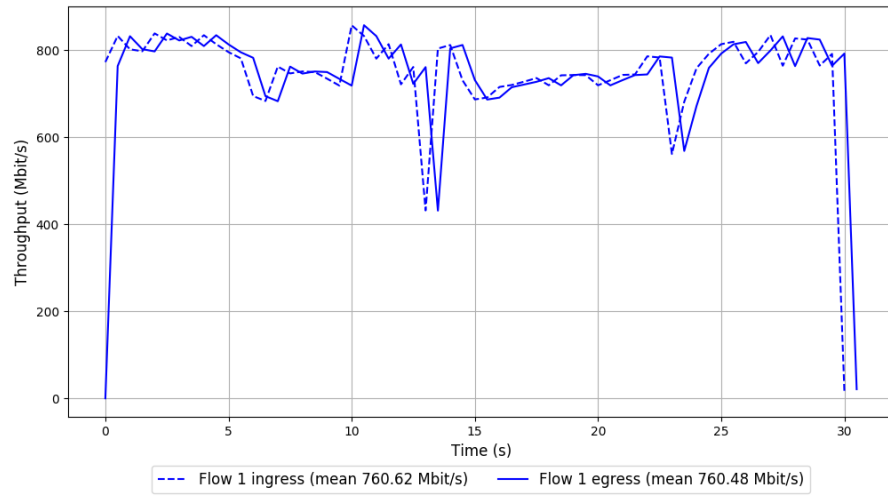
-- Flow 1:

Average throughput: 760.48 Mbit/s

95th percentile per-packet one-way delay: 5.292 ms

Loss rate: 0.02%

Run 4: Report of TCP BBR — Data Link

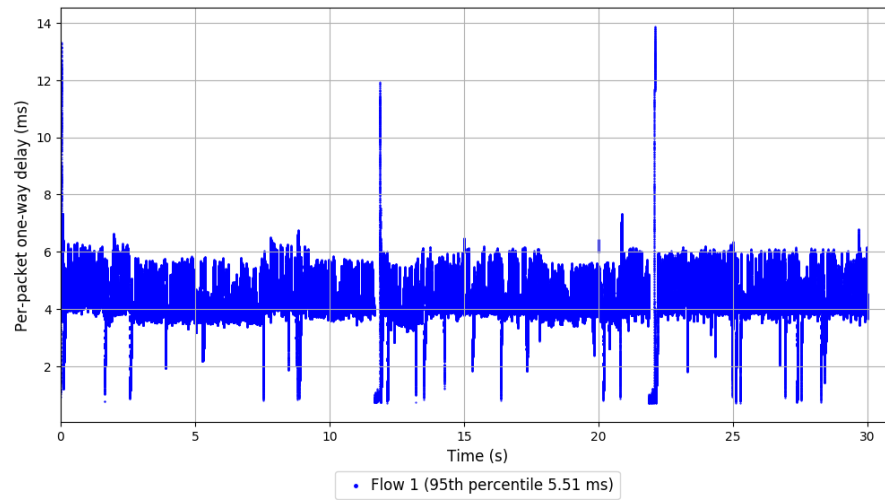
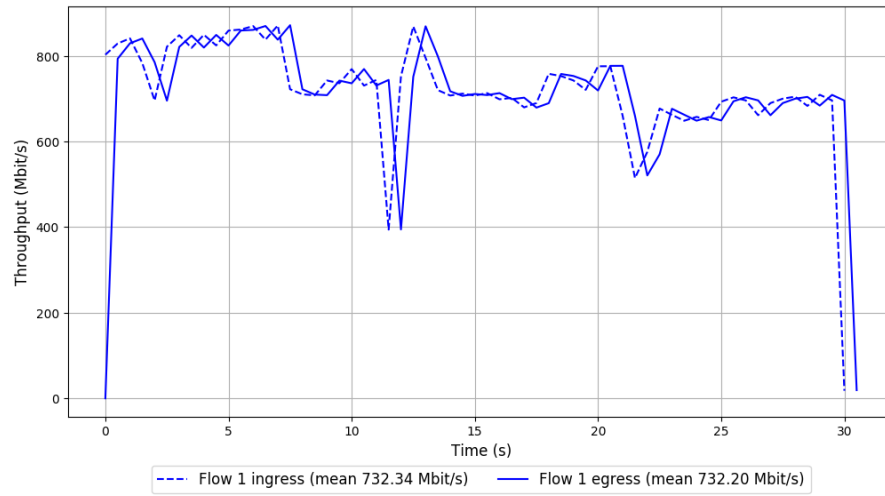


Run 5: Statistics of TCP BBR

Start at: 2018-11-29 21:58:51
End at: 2018-11-29 21:59:21
Local clock offset: 5.039 ms
Remote clock offset: -0.679 ms

Below is generated by plot.py at 2018-11-29 22:28:37
Datalink statistics
-- Total of 1 flow:
Average throughput: 732.20 Mbit/s
95th percentile per-packet one-way delay: 5.513 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 732.20 Mbit/s
95th percentile per-packet one-way delay: 5.513 ms
Loss rate: 0.02%

Run 5: Report of TCP BBR — Data Link



Run 1: Statistics of Copa

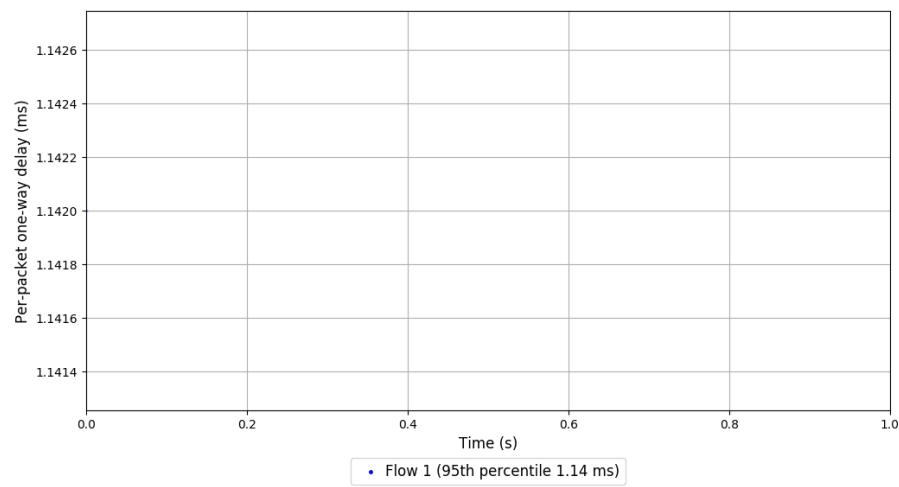
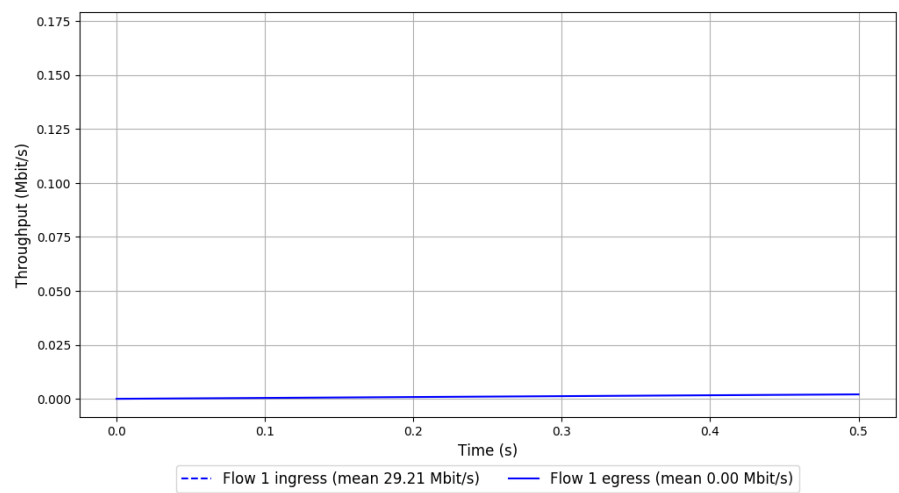
Start at: 2018-11-29 20:26:10

End at: 2018-11-29 20:26:40

Local clock offset: 5.132 ms

Remote clock offset: -3.305 ms

Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

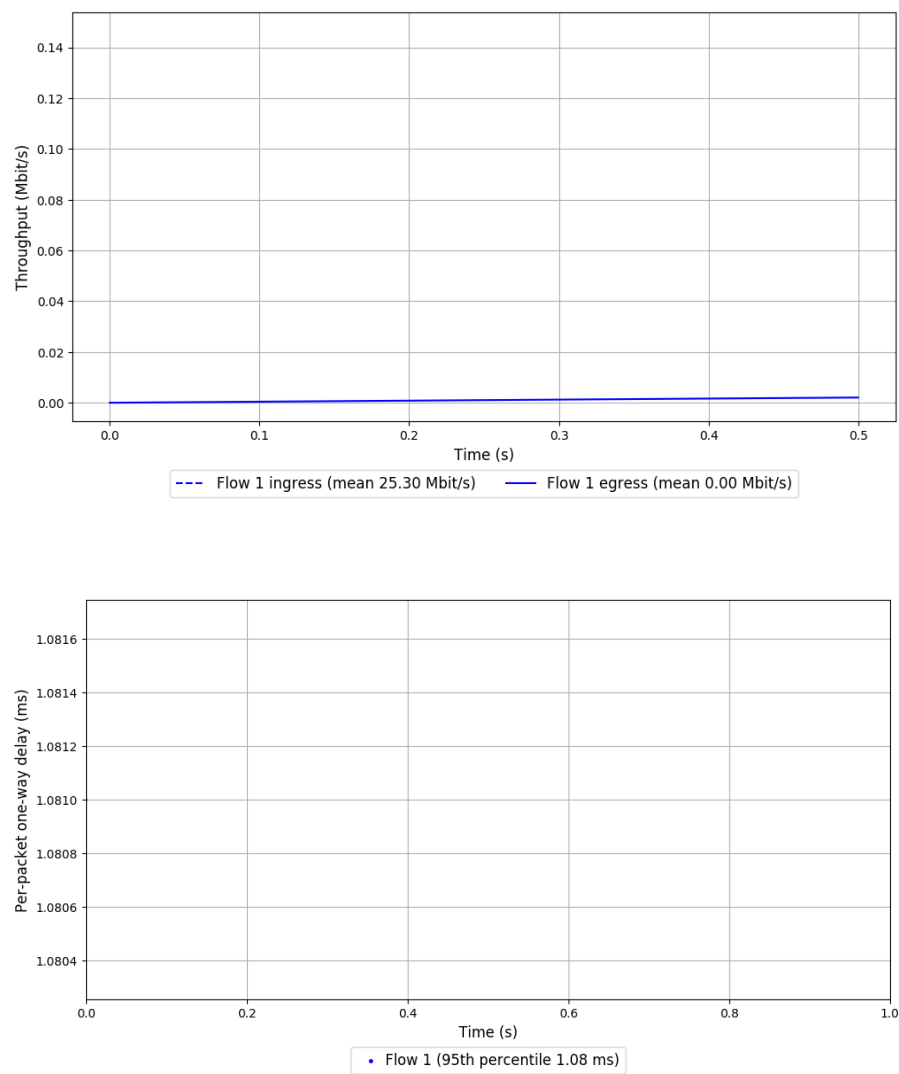
Start at: 2018-11-29 20:50:26

End at: 2018-11-29 20:50:56

Local clock offset: 5.117 ms

Remote clock offset: -3.506 ms

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

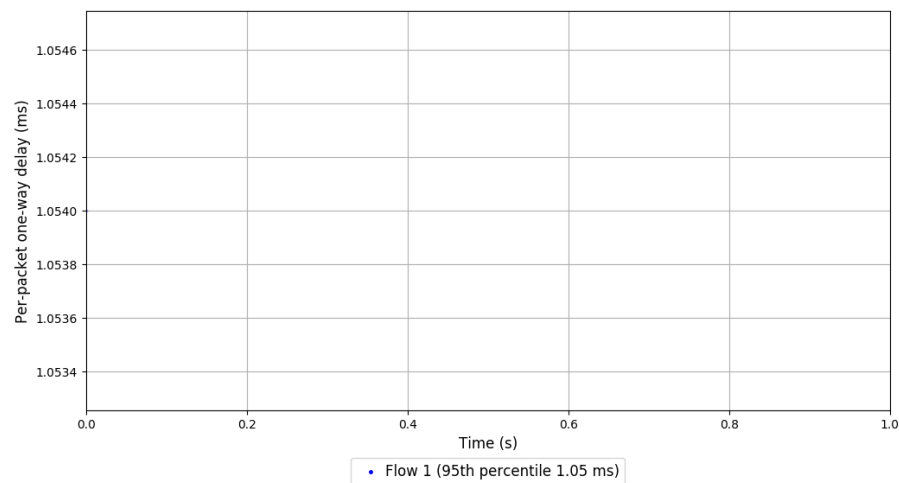
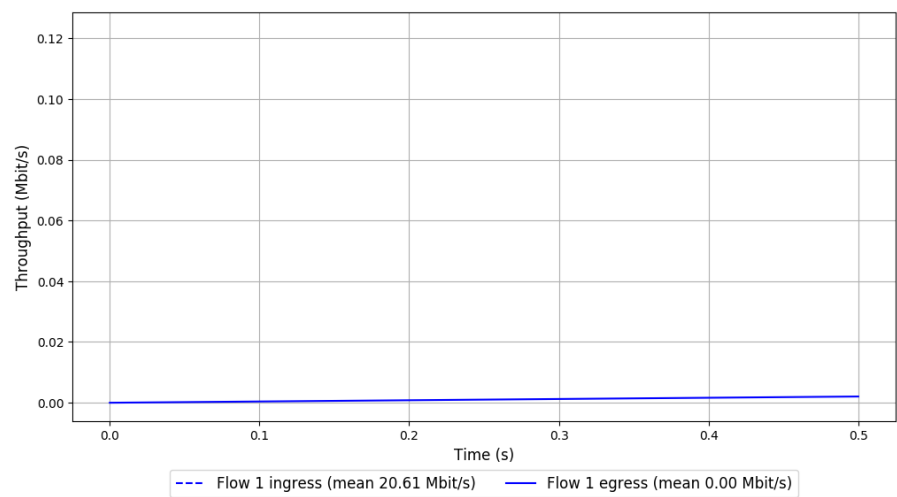
Start at: 2018-11-29 21:14:44

End at: 2018-11-29 21:15:14

Local clock offset: 5.357 ms

Remote clock offset: -3.4 ms

Run 3: Report of Copa — Data Link



Run 4: Statistics of Copa

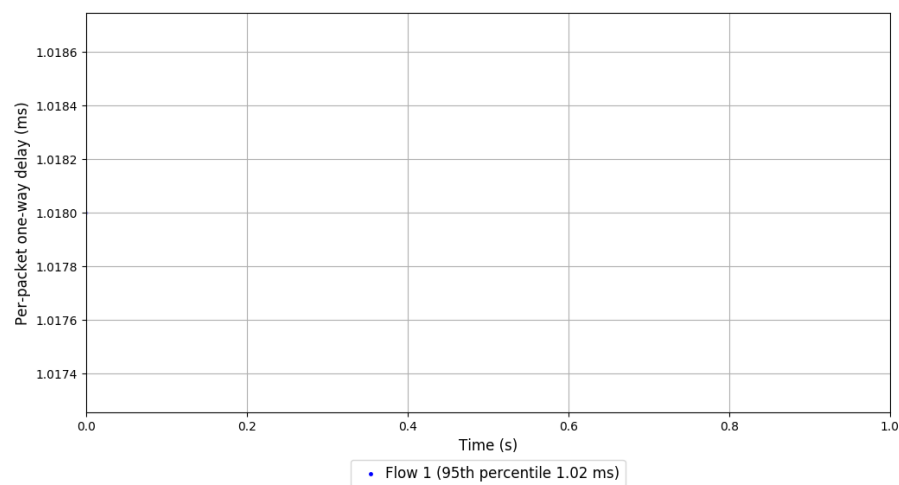
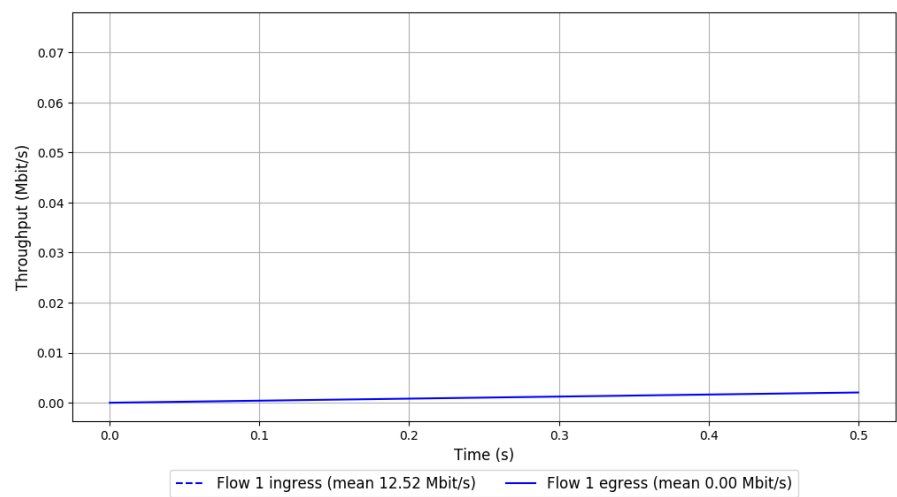
Start at: 2018-11-29 21:39:03

End at: 2018-11-29 21:39:33

Local clock offset: 4.966 ms

Remote clock offset: -2.699 ms

Run 4: Report of Copa — Data Link



Run 5: Statistics of Copa

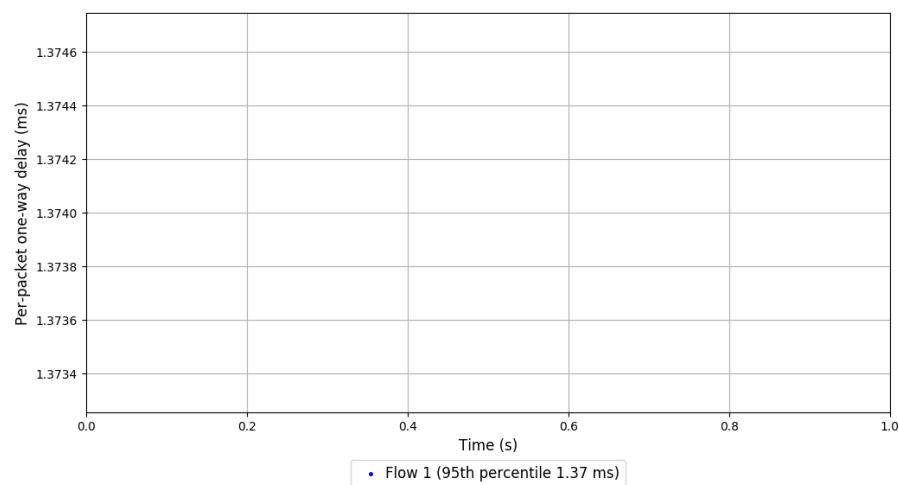
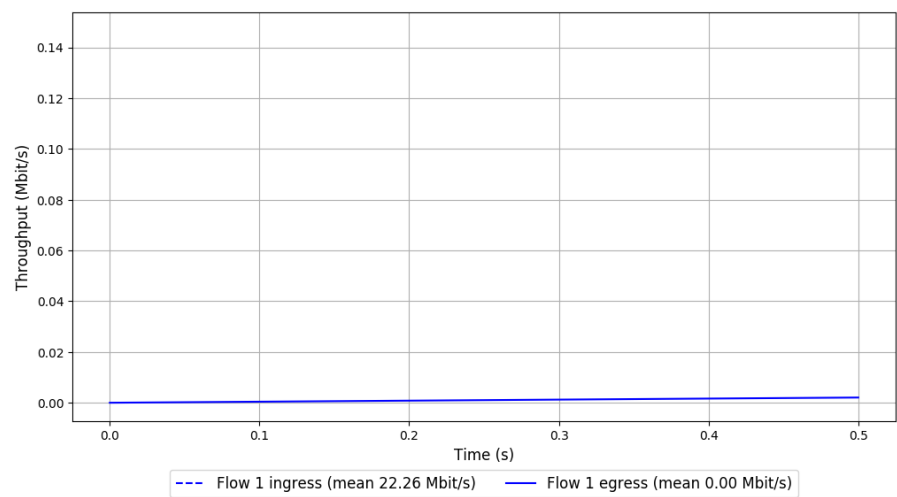
Start at: 2018-11-29 22:03:19

End at: 2018-11-29 22:03:49

Local clock offset: 5.084 ms

Remote clock offset: -0.046 ms

Run 5: Report of Copa — Data Link

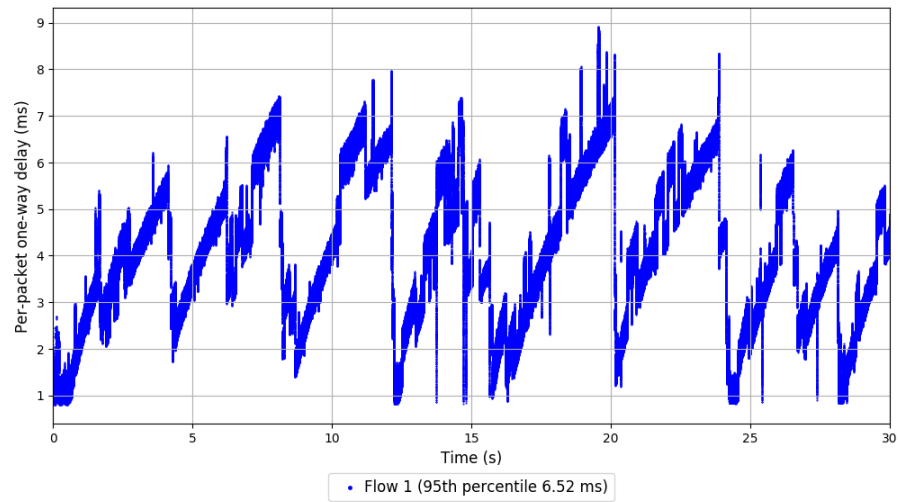
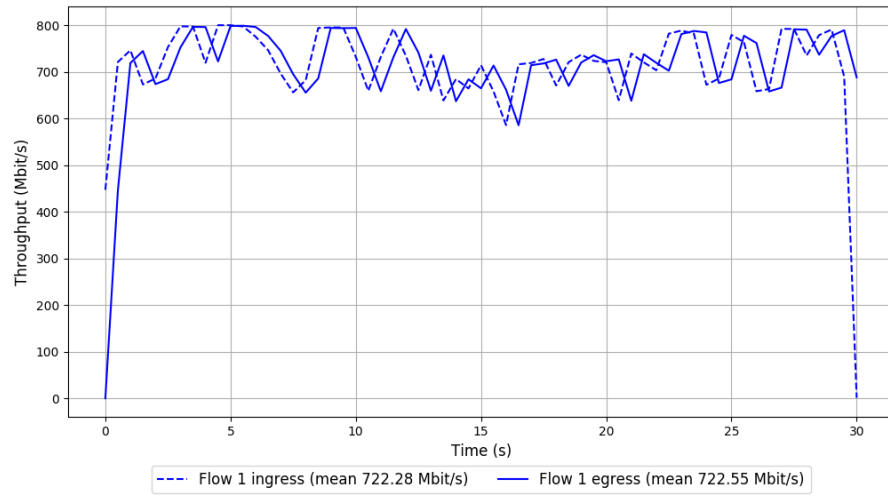


Run 1: Statistics of TCP Cubic

Start at: 2018-11-29 20:23:19
End at: 2018-11-29 20:23:49
Local clock offset: 5.089 ms
Remote clock offset: -3.062 ms

Below is generated by plot.py at 2018-11-29 22:28:37
Datalink statistics
-- Total of 1 flow:
Average throughput: 722.55 Mbit/s
95th percentile per-packet one-way delay: 6.521 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 722.55 Mbit/s
95th percentile per-packet one-way delay: 6.521 ms
Loss rate: 0.05%

Run 1: Report of TCP Cubic — Data Link

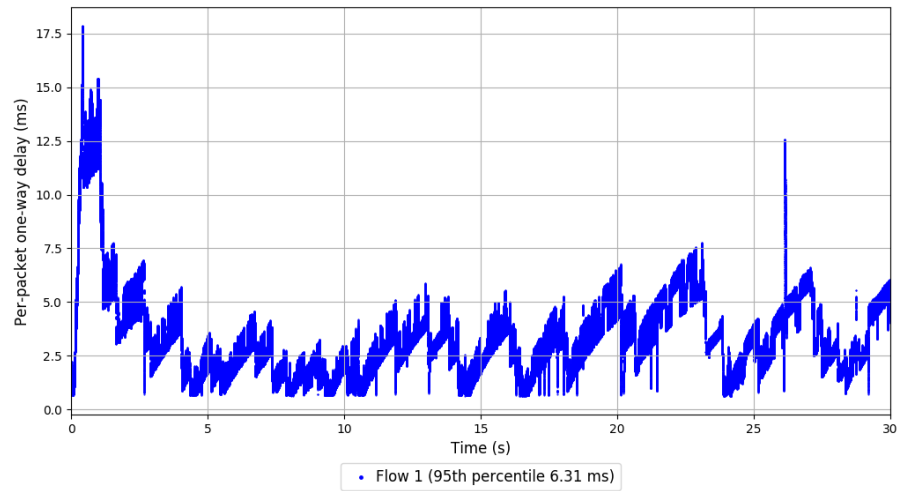
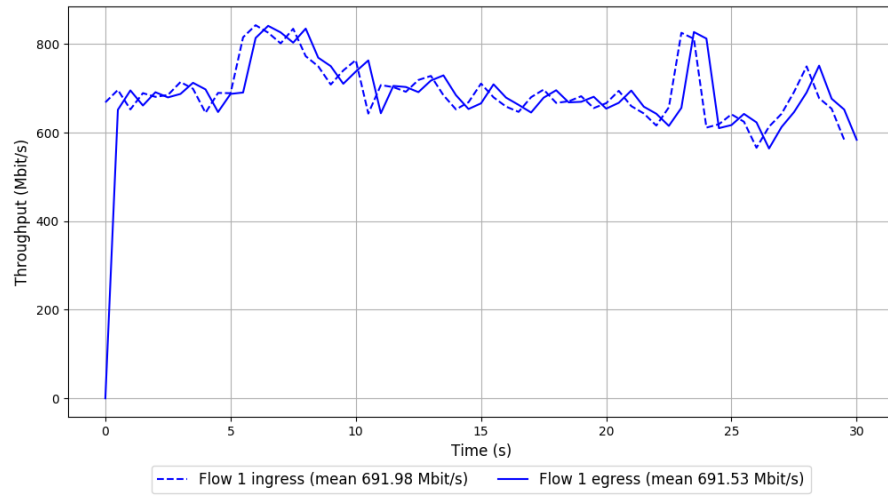


Run 2: Statistics of TCP Cubic

Start at: 2018-11-29 20:47:35
End at: 2018-11-29 20:48:05
Local clock offset: 5.239 ms
Remote clock offset: -3.581 ms

Below is generated by plot.py at 2018-11-29 22:28:37
Datalink statistics
-- Total of 1 flow:
Average throughput: 691.53 Mbit/s
95th percentile per-packet one-way delay: 6.311 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 691.53 Mbit/s
95th percentile per-packet one-way delay: 6.311 ms
Loss rate: 0.06%

Run 2: Report of TCP Cubic — Data Link

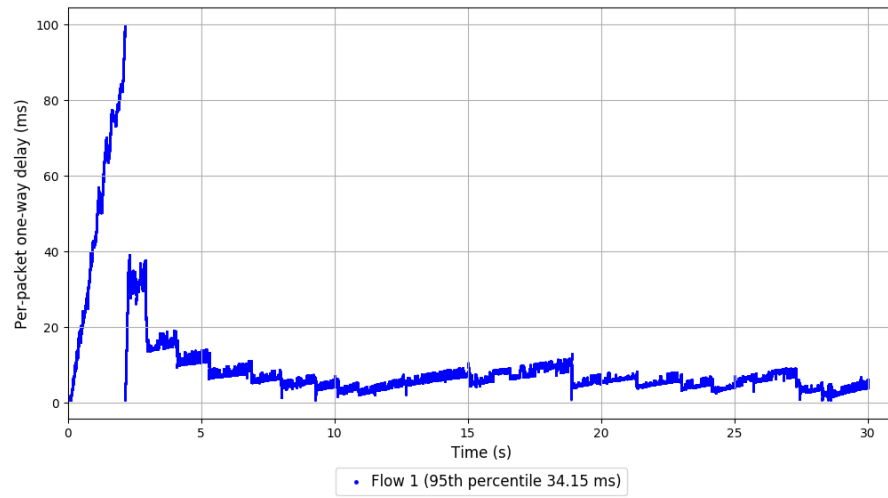
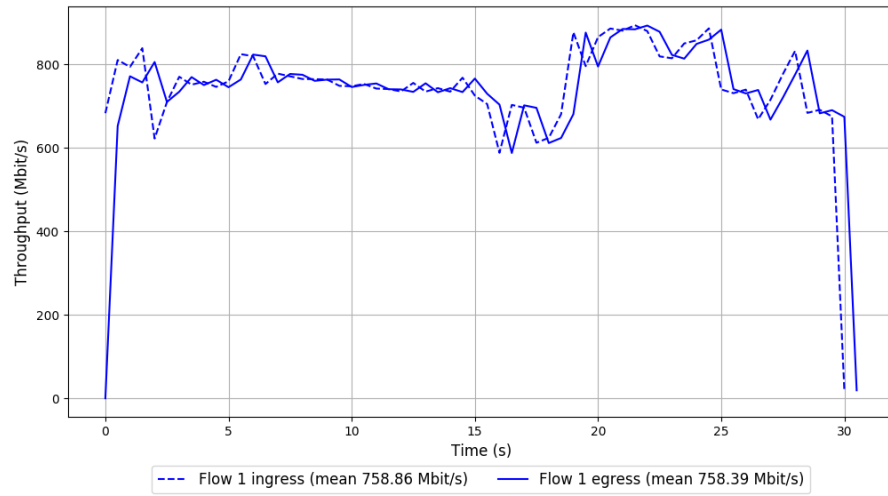


Run 3: Statistics of TCP Cubic

Start at: 2018-11-29 21:11:51
End at: 2018-11-29 21:12:22
Local clock offset: 5.267 ms
Remote clock offset: -3.329 ms

Below is generated by plot.py at 2018-11-29 22:28:40
Datalink statistics
-- Total of 1 flow:
Average throughput: 758.39 Mbit/s
95th percentile per-packet one-way delay: 34.151 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 758.39 Mbit/s
95th percentile per-packet one-way delay: 34.151 ms
Loss rate: 0.06%

Run 3: Report of TCP Cubic — Data Link

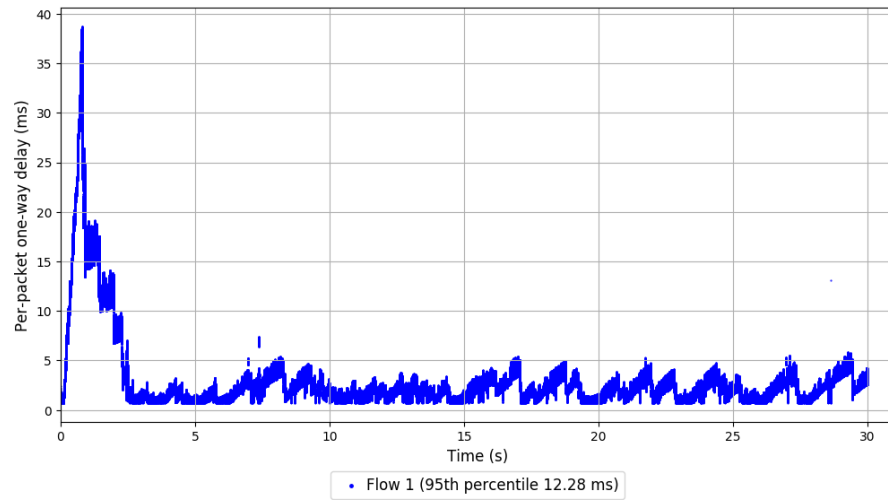
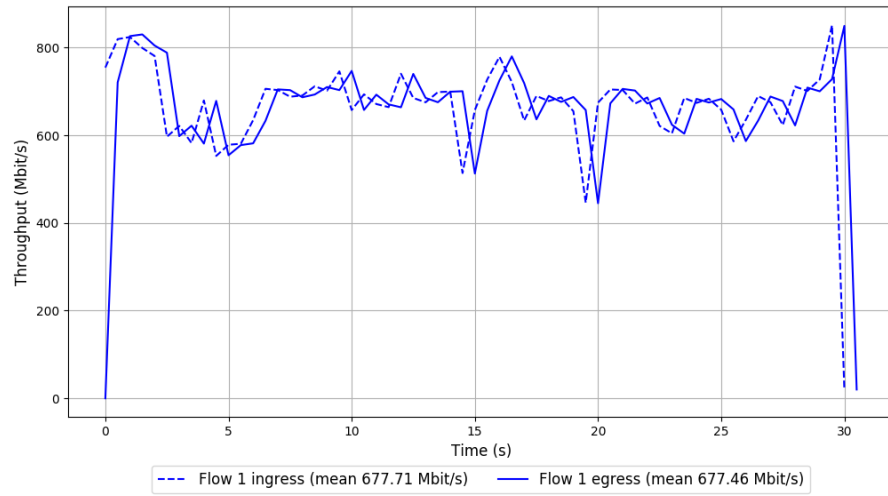


Run 4: Statistics of TCP Cubic

Start at: 2018-11-29 21:36:13
End at: 2018-11-29 21:36:43
Local clock offset: 4.927 ms
Remote clock offset: -2.747 ms

Below is generated by plot.py at 2018-11-29 22:34:20
Datalink statistics
-- Total of 1 flow:
Average throughput: 677.46 Mbit/s
95th percentile per-packet one-way delay: 12.278 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 677.46 Mbit/s
95th percentile per-packet one-way delay: 12.278 ms
Loss rate: 0.04%

Run 4: Report of TCP Cubic — Data Link

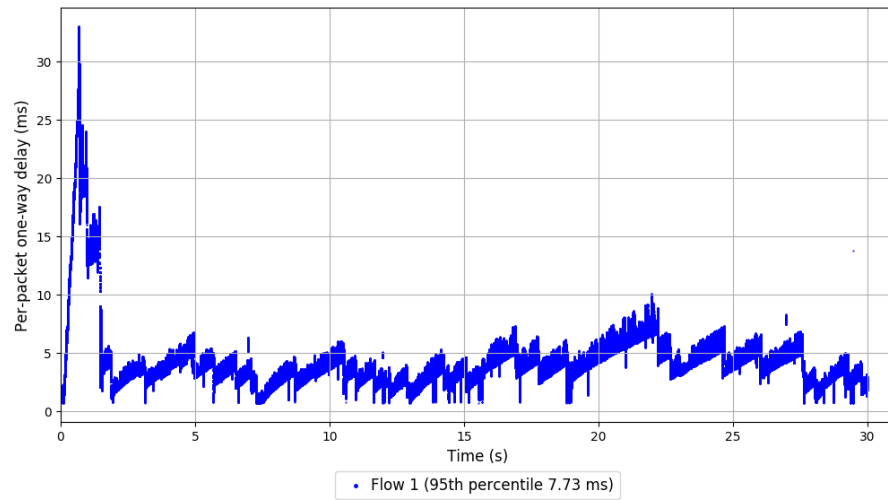
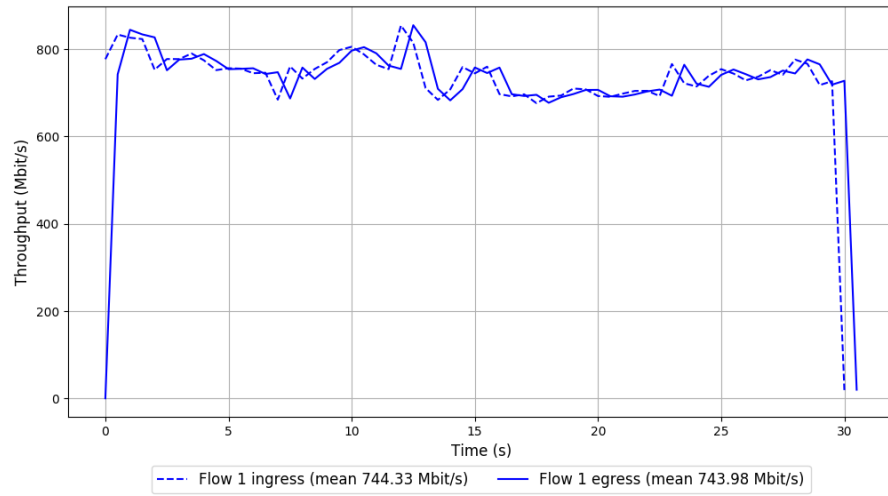


Run 5: Statistics of TCP Cubic

Start at: 2018-11-29 22:00:27
End at: 2018-11-29 22:00:57
Local clock offset: 5.065 ms
Remote clock offset: -0.489 ms

Below is generated by plot.py at 2018-11-29 22:35:04
Datalink statistics
-- Total of 1 flow:
Average throughput: 743.98 Mbit/s
95th percentile per-packet one-way delay: 7.733 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 743.98 Mbit/s
95th percentile per-packet one-way delay: 7.733 ms
Loss rate: 0.05%

Run 5: Report of TCP Cubic — Data Link

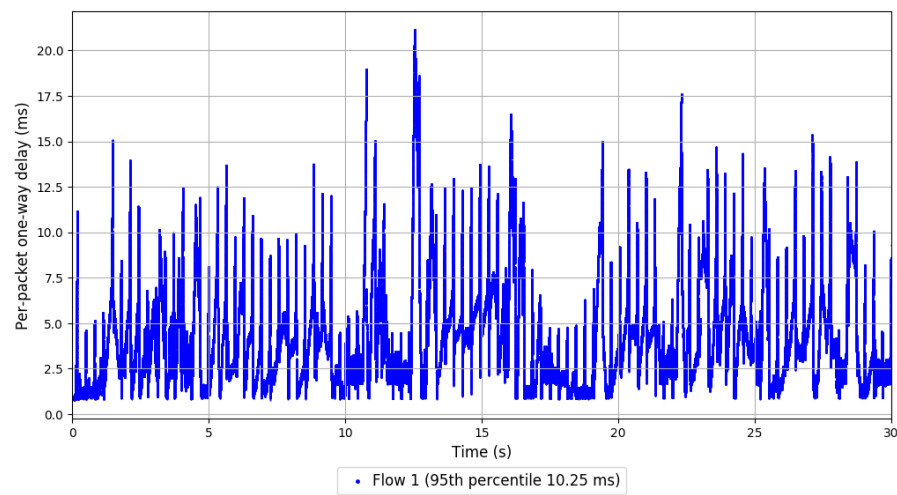
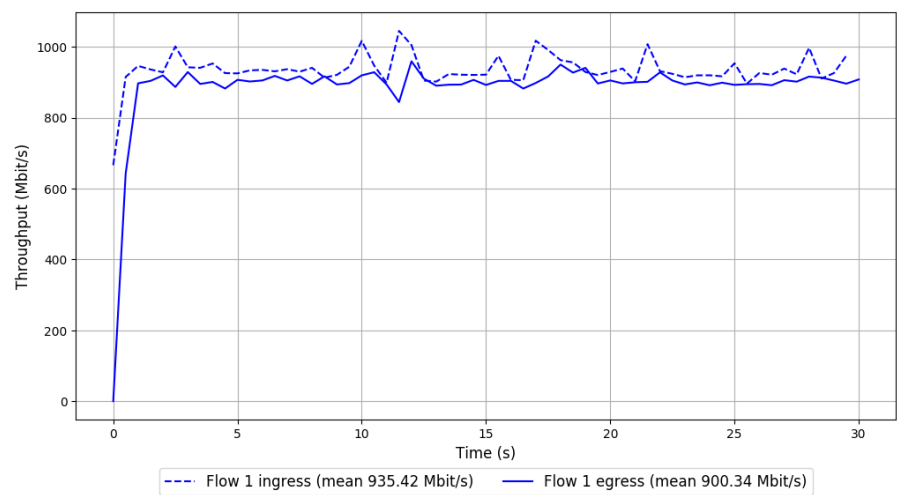


Run 1: Statistics of FillP

Start at: 2018-11-29 20:27:23
End at: 2018-11-29 20:27:53
Local clock offset: 5.201 ms
Remote clock offset: -3.297 ms

Below is generated by plot.py at 2018-11-29 22:40:50
Datalink statistics
-- Total of 1 flow:
Average throughput: 900.34 Mbit/s
95th percentile per-packet one-way delay: 10.251 ms
Loss rate: 3.75%
-- Flow 1:
Average throughput: 900.34 Mbit/s
95th percentile per-packet one-way delay: 10.251 ms
Loss rate: 3.75%

Run 1: Report of FillP — Data Link

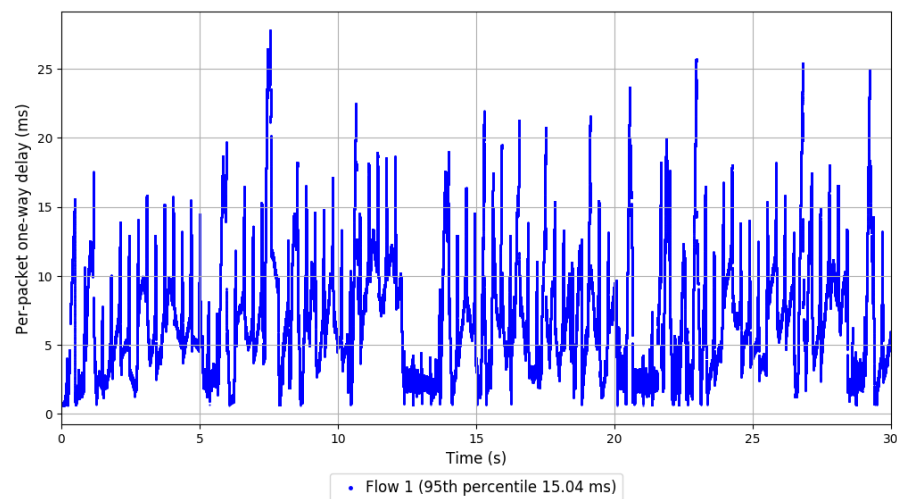
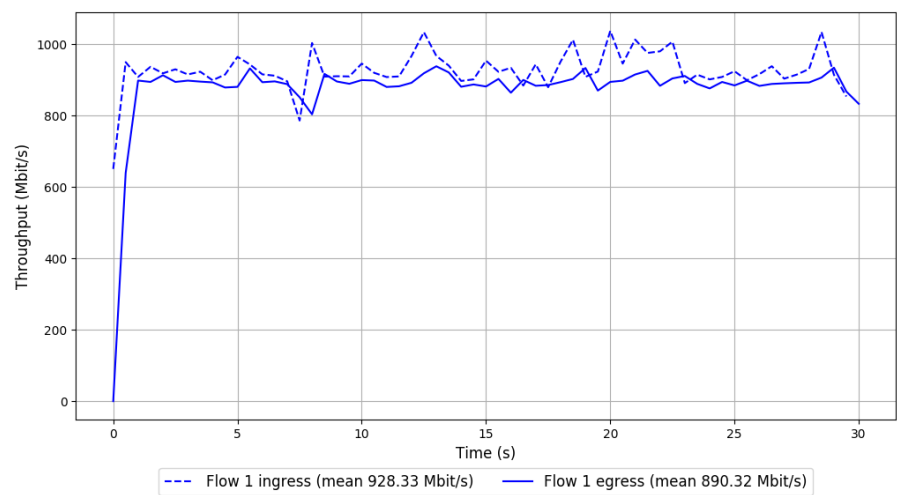


Run 2: Statistics of FillP

Start at: 2018-11-29 20:51:38
End at: 2018-11-29 20:52:08
Local clock offset: 5.099 ms
Remote clock offset: -3.471 ms

Below is generated by plot.py at 2018-11-29 22:40:50
Datalink statistics
-- Total of 1 flow:
Average throughput: 890.32 Mbit/s
95th percentile per-packet one-way delay: 15.036 ms
Loss rate: 4.09%
-- Flow 1:
Average throughput: 890.32 Mbit/s
95th percentile per-packet one-way delay: 15.036 ms
Loss rate: 4.09%

Run 2: Report of FillP — Data Link

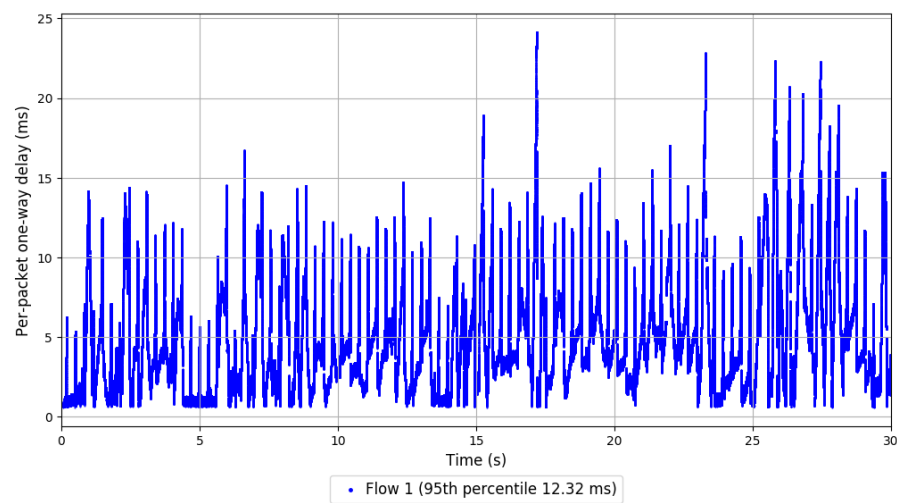
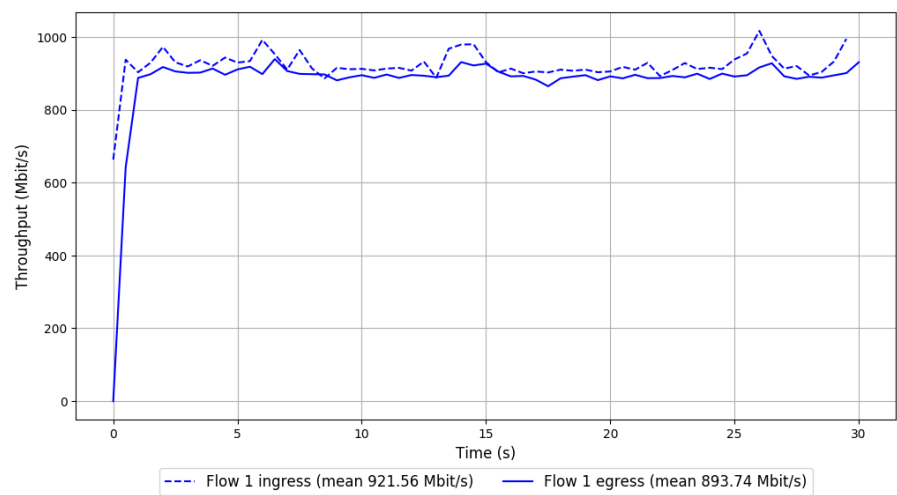


Run 3: Statistics of FillP

Start at: 2018-11-29 21:15:57
End at: 2018-11-29 21:16:27
Local clock offset: 5.318 ms
Remote clock offset: -3.413 ms

Below is generated by plot.py at 2018-11-29 22:41:02
Datalink statistics
-- Total of 1 flow:
Average throughput: 893.74 Mbit/s
95th percentile per-packet one-way delay: 12.325 ms
Loss rate: 3.01%
-- Flow 1:
Average throughput: 893.74 Mbit/s
95th percentile per-packet one-way delay: 12.325 ms
Loss rate: 3.01%

Run 3: Report of FillP — Data Link

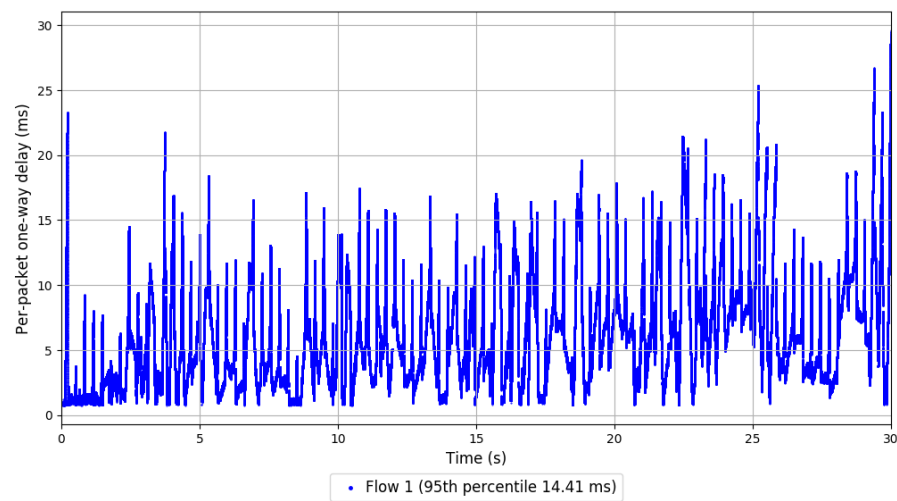
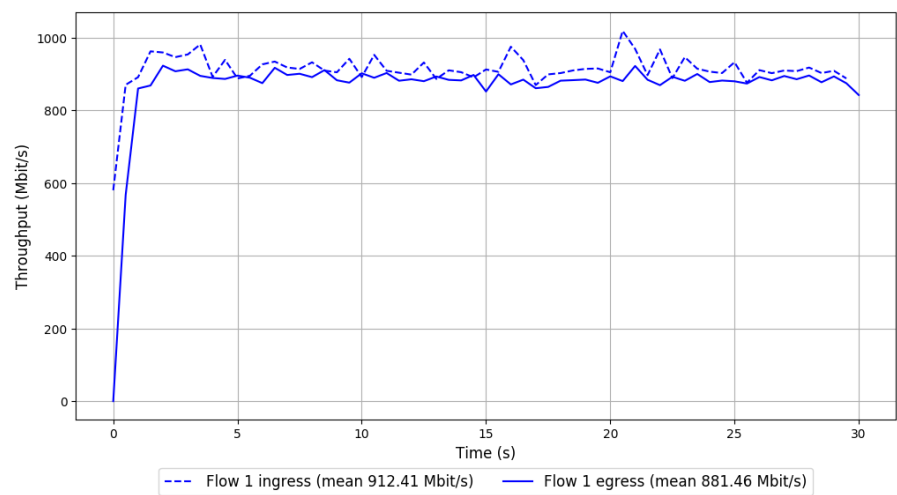


Run 4: Statistics of FillP

Start at: 2018-11-29 21:40:16
End at: 2018-11-29 21:40:46
Local clock offset: 4.99 ms
Remote clock offset: -2.608 ms

Below is generated by plot.py at 2018-11-29 22:41:02
Datalink statistics
-- Total of 1 flow:
Average throughput: 881.46 Mbit/s
95th percentile per-packet one-way delay: 14.409 ms
Loss rate: 3.39%
-- Flow 1:
Average throughput: 881.46 Mbit/s
95th percentile per-packet one-way delay: 14.409 ms
Loss rate: 3.39%

Run 4: Report of FillP — Data Link

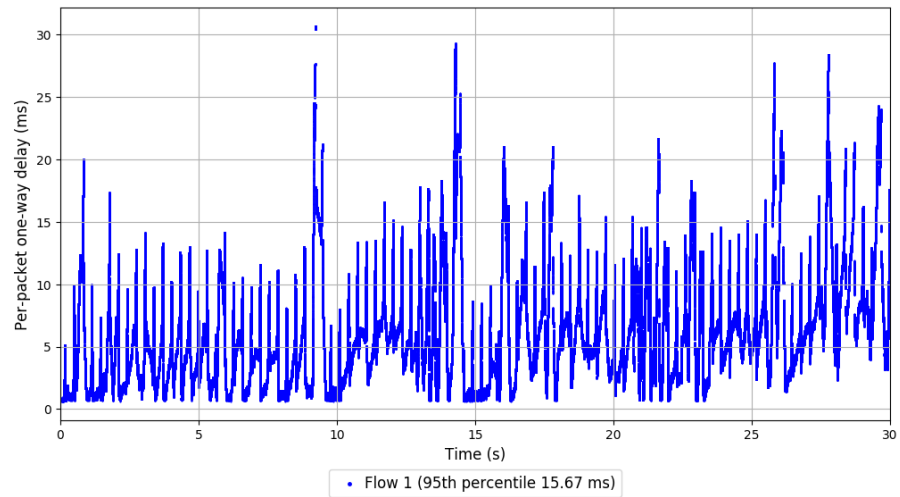
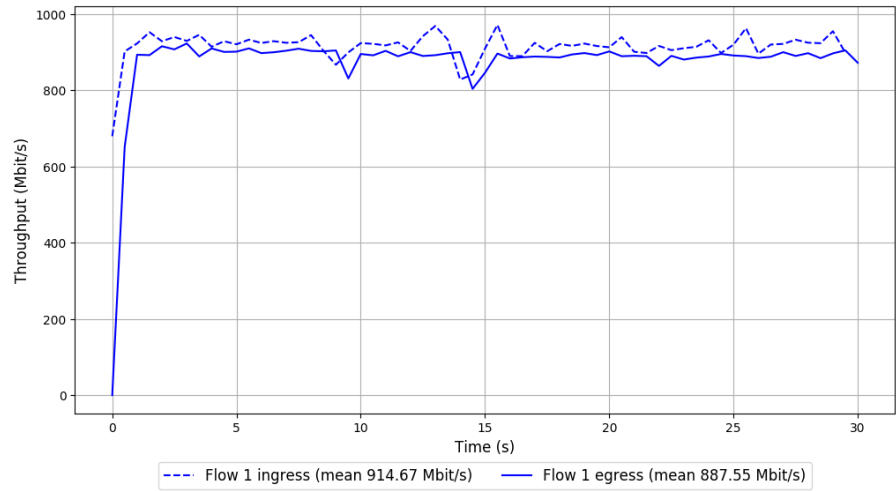


Run 5: Statistics of FillP

Start at: 2018-11-29 22:04:31
End at: 2018-11-29 22:05:01
Local clock offset: 5.109 ms
Remote clock offset: -0.035 ms

Below is generated by plot.py at 2018-11-29 22:41:27
Datalink statistics
-- Total of 1 flow:
Average throughput: 887.55 Mbit/s
95th percentile per-packet one-way delay: 15.670 ms
Loss rate: 2.96%
-- Flow 1:
Average throughput: 887.55 Mbit/s
95th percentile per-packet one-way delay: 15.670 ms
Loss rate: 2.96%

Run 5: Report of FillP — Data Link



Run 1: Statistics of Indigo

Start at: 2018-11-29 20:17:52

End at: 2018-11-29 20:18:22

Local clock offset: 5.268 ms

Remote clock offset: -2.557 ms

Below is generated by plot.py at 2018-11-29 22:41:27

Datalink statistics

-- Total of 1 flow:

Average throughput: 261.50 Mbit/s

95th percentile per-packet one-way delay: 1.190 ms

Loss rate: 0.00%

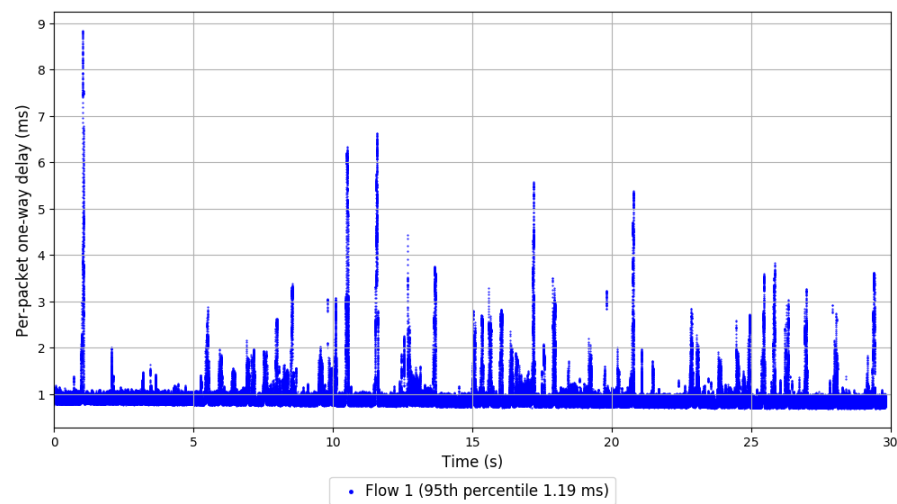
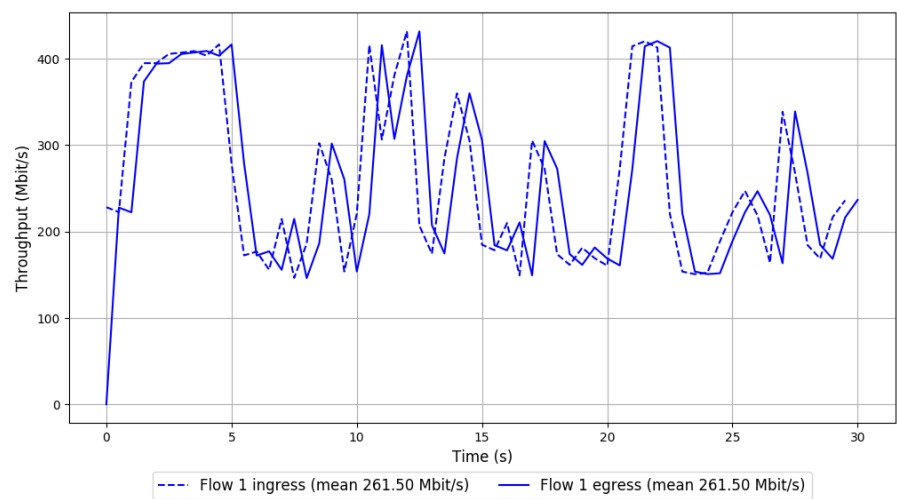
-- Flow 1:

Average throughput: 261.50 Mbit/s

95th percentile per-packet one-way delay: 1.190 ms

Loss rate: 0.00%

Run 1: Report of Indigo — Data Link

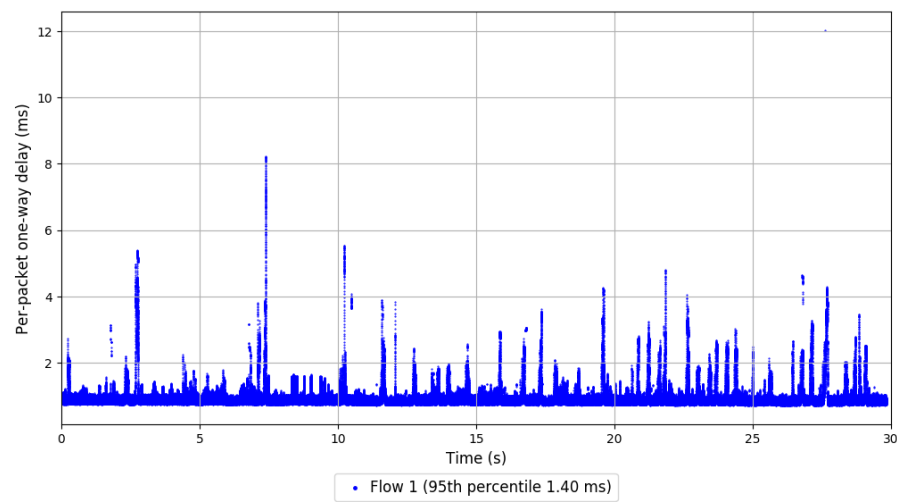
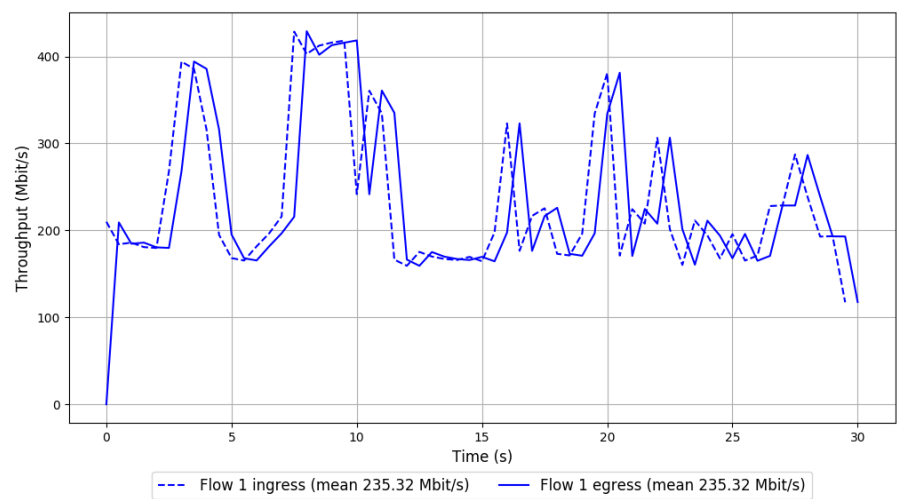


Run 2: Statistics of Indigo

Start at: 2018-11-29 20:42:05
End at: 2018-11-29 20:42:35
Local clock offset: 5.261 ms
Remote clock offset: -3.957 ms

Below is generated by plot.py at 2018-11-29 22:41:27
Datalink statistics
-- Total of 1 flow:
Average throughput: 235.32 Mbit/s
95th percentile per-packet one-way delay: 1.395 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 235.32 Mbit/s
95th percentile per-packet one-way delay: 1.395 ms
Loss rate: 0.00%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-11-29 21:06:26

End at: 2018-11-29 21:06:56

Local clock offset: 5.157 ms

Remote clock offset: -3.325 ms

Below is generated by plot.py at 2018-11-29 22:41:27

Datalink statistics

-- Total of 1 flow:

Average throughput: 224.41 Mbit/s

95th percentile per-packet one-way delay: 1.068 ms

Loss rate: 0.00%

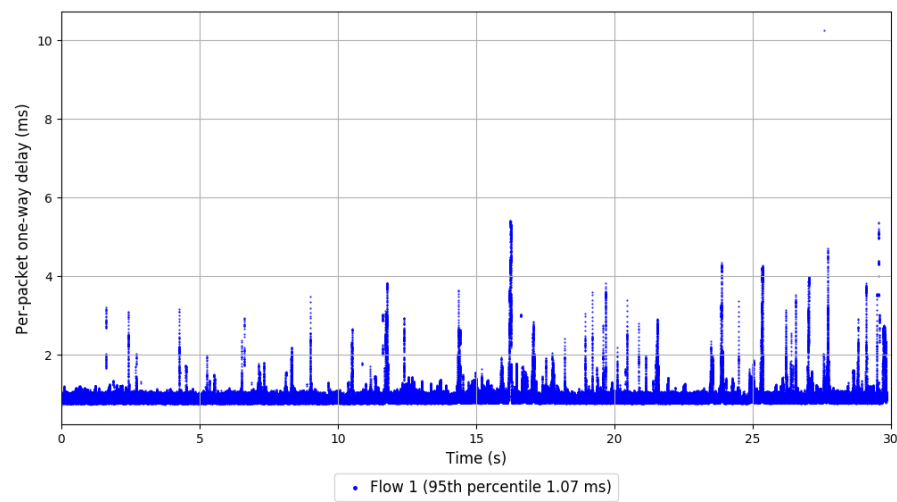
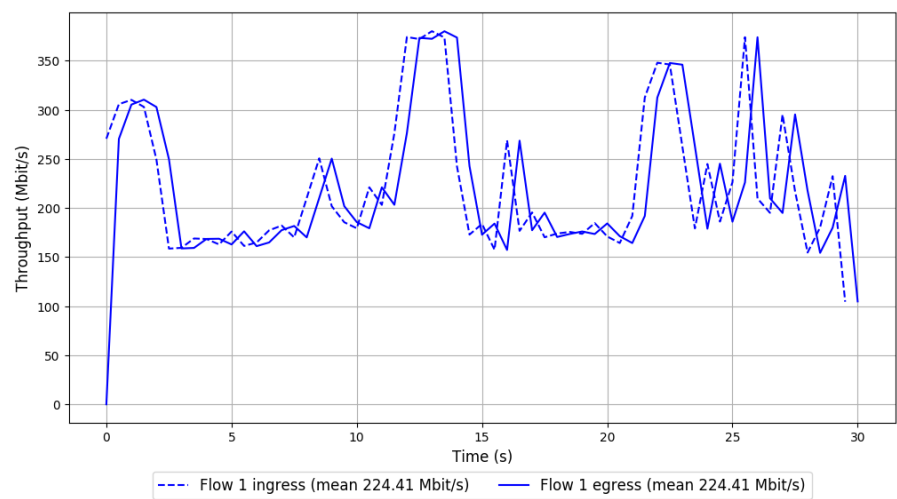
-- Flow 1:

Average throughput: 224.41 Mbit/s

95th percentile per-packet one-way delay: 1.068 ms

Loss rate: 0.00%

Run 3: Report of Indigo — Data Link

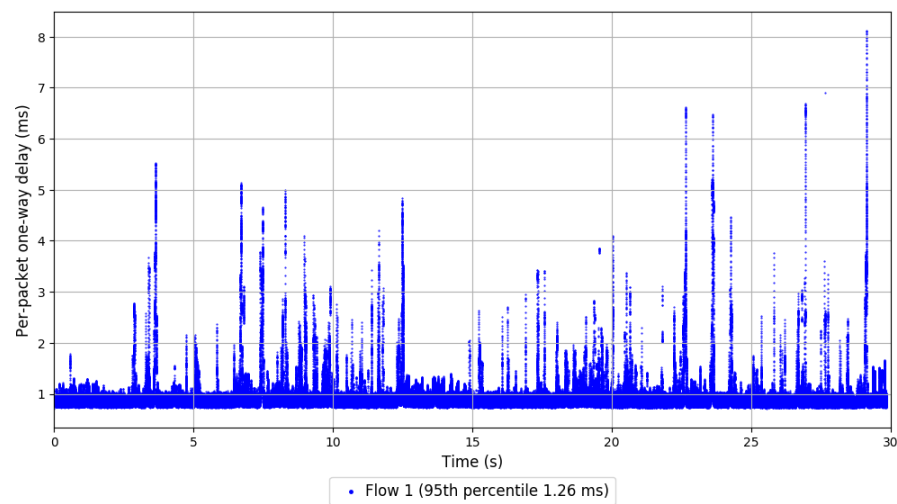
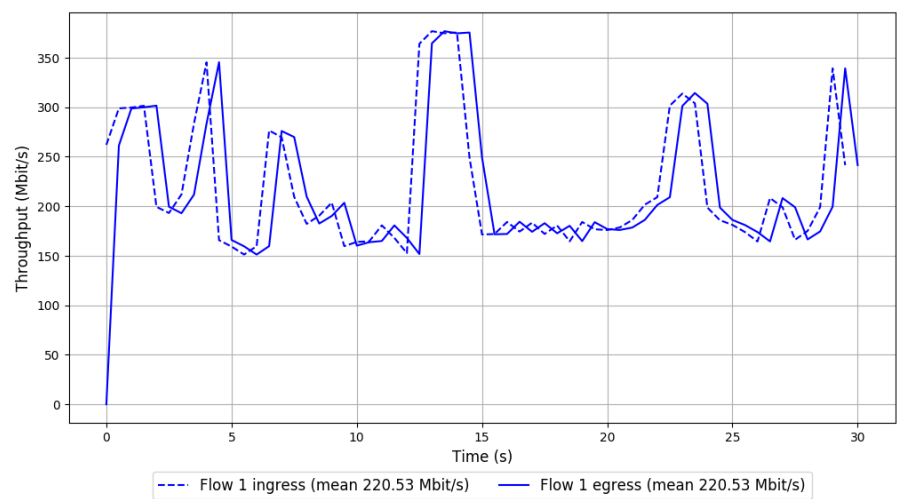


Run 4: Statistics of Indigo

Start at: 2018-11-29 21:30:46
End at: 2018-11-29 21:31:16
Local clock offset: 4.924 ms
Remote clock offset: -2.729 ms

Below is generated by plot.py at 2018-11-29 22:41:27
Datalink statistics
-- Total of 1 flow:
Average throughput: 220.53 Mbit/s
95th percentile per-packet one-way delay: 1.264 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 220.53 Mbit/s
95th percentile per-packet one-way delay: 1.264 ms
Loss rate: 0.00%

Run 4: Report of Indigo — Data Link

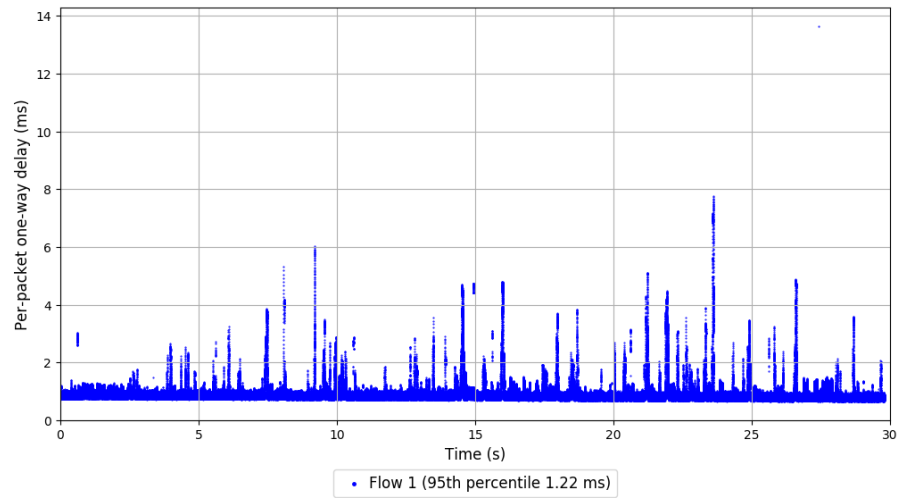
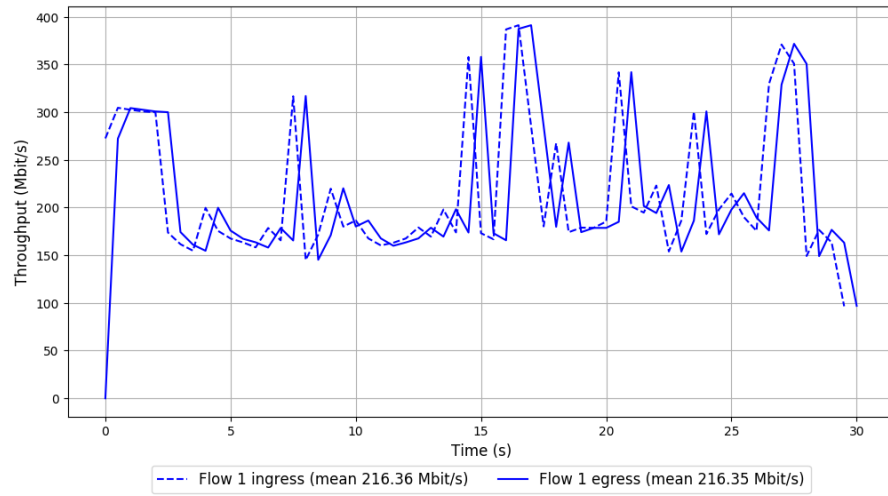


Run 5: Statistics of Indigo

Start at: 2018-11-29 21:55:01
End at: 2018-11-29 21:55:31
Local clock offset: 5.021 ms
Remote clock offset: -1.337 ms

Below is generated by plot.py at 2018-11-29 22:41:27
Datalink statistics
-- Total of 1 flow:
Average throughput: 216.35 Mbit/s
95th percentile per-packet one-way delay: 1.222 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 216.35 Mbit/s
95th percentile per-packet one-way delay: 1.222 ms
Loss rate: 0.00%

Run 5: Report of Indigo — Data Link



Run 1: Statistics of Indigo-96d2da3

Start at: 2018-11-29 20:16:33

End at: 2018-11-29 20:17:03

Local clock offset: 5.598 ms

Remote clock offset: -2.347 ms

Below is generated by plot.py at 2018-11-29 22:41:27

Datalink statistics

-- Total of 1 flow:

Average throughput: 200.75 Mbit/s

95th percentile per-packet one-way delay: 1.378 ms

Loss rate: 0.00%

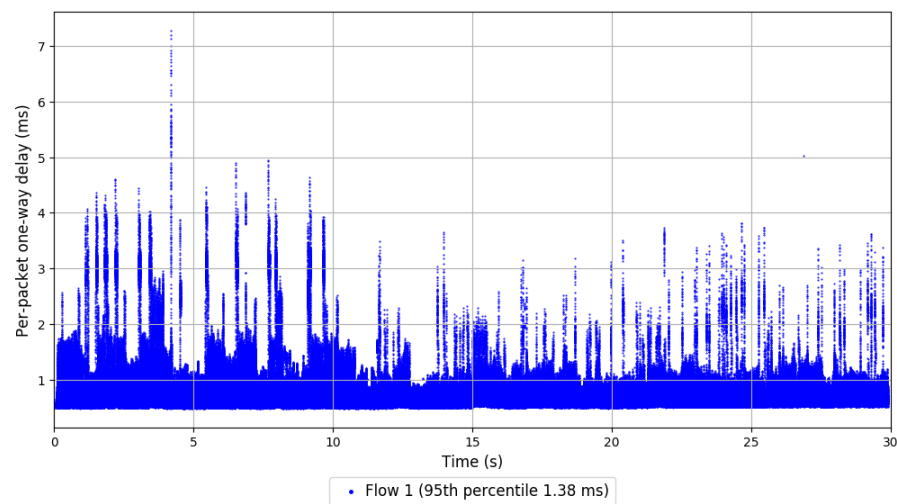
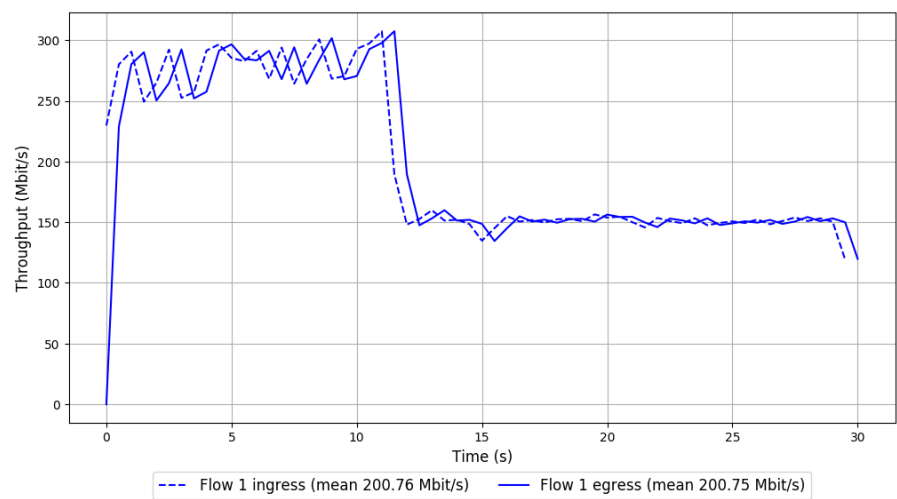
-- Flow 1:

Average throughput: 200.75 Mbit/s

95th percentile per-packet one-way delay: 1.378 ms

Loss rate: 0.00%

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

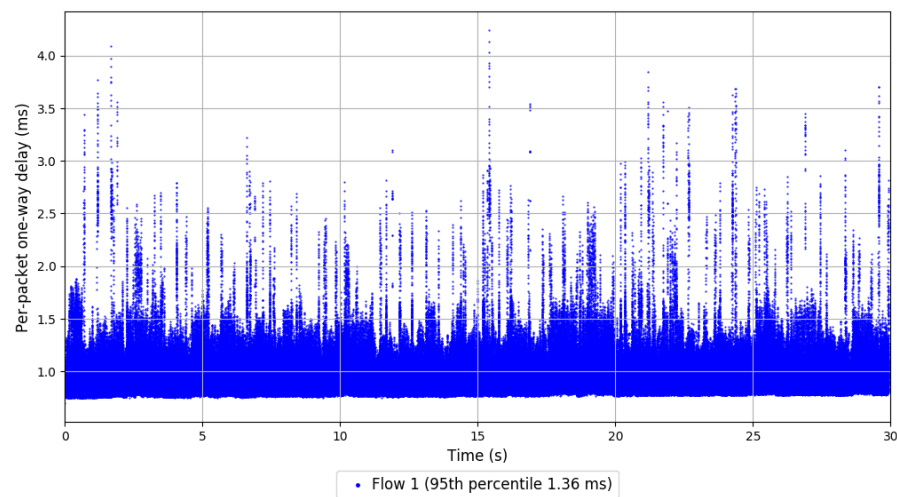
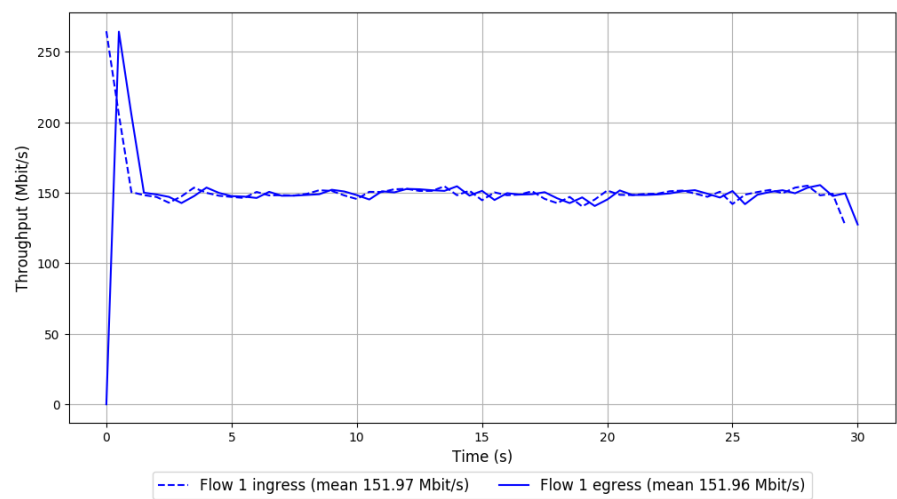


Run 2: Statistics of Indigo-96d2da3

Start at: 2018-11-29 20:40:48
End at: 2018-11-29 20:41:18
Local clock offset: 5.234 ms
Remote clock offset: -3.927 ms

Below is generated by plot.py at 2018-11-29 22:41:27
Datalink statistics
-- Total of 1 flow:
Average throughput: 151.96 Mbit/s
95th percentile per-packet one-way delay: 1.357 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 151.96 Mbit/s
95th percentile per-packet one-way delay: 1.357 ms
Loss rate: 0.00%

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

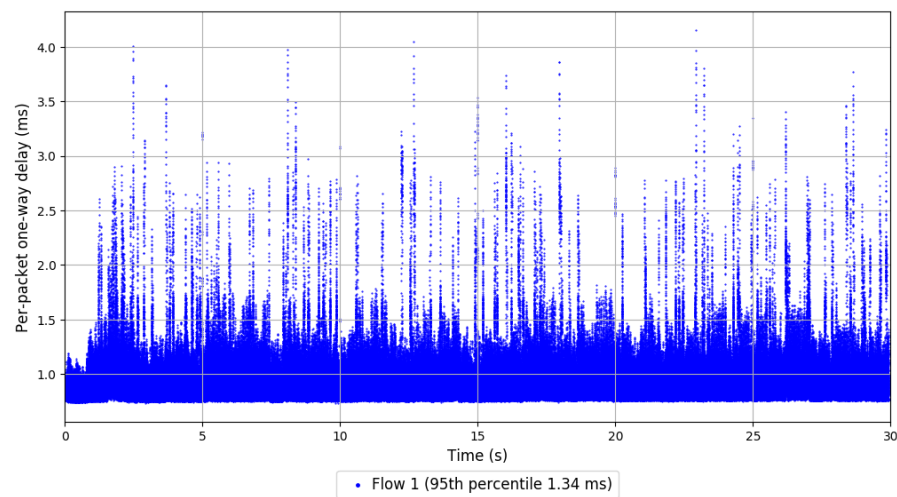
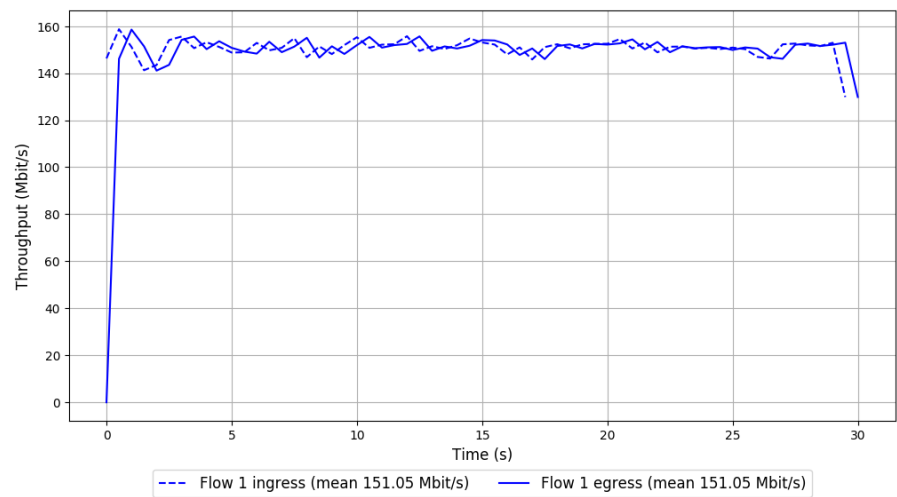


Run 3: Statistics of Indigo-96d2da3

Start at: 2018-11-29 21:05:08
End at: 2018-11-29 21:05:38
Local clock offset: 5.137 ms
Remote clock offset: -3.316 ms

Below is generated by plot.py at 2018-11-29 22:41:27
Datalink statistics
-- Total of 1 flow:
Average throughput: 151.05 Mbit/s
95th percentile per-packet one-way delay: 1.342 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 151.05 Mbit/s
95th percentile per-packet one-way delay: 1.342 ms
Loss rate: 0.00%

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



Run 4: Statistics of Indigo-96d2da3

Start at: 2018-11-29 21:29:28

End at: 2018-11-29 21:29:58

Local clock offset: 4.919 ms

Remote clock offset: -2.778 ms

Below is generated by plot.py at 2018-11-29 22:41:27

Datalink statistics

-- Total of 1 flow:

Average throughput: 151.45 Mbit/s

95th percentile per-packet one-way delay: 1.309 ms

Loss rate: 0.00%

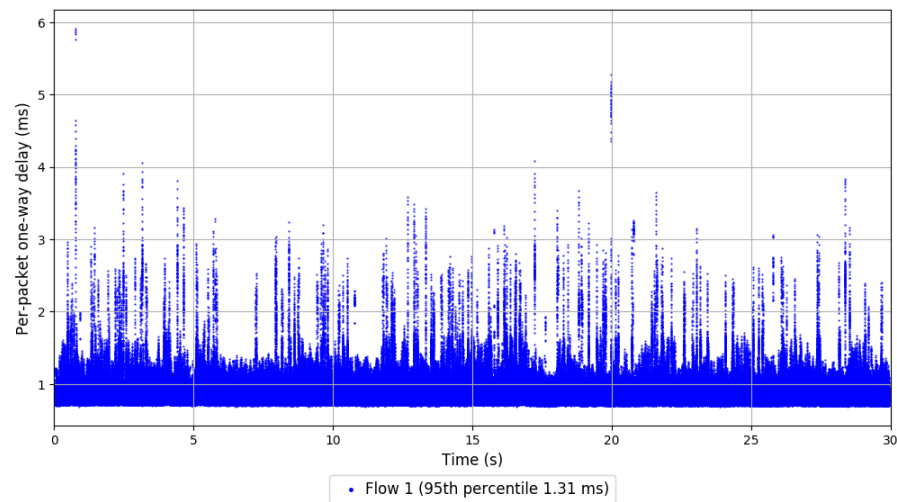
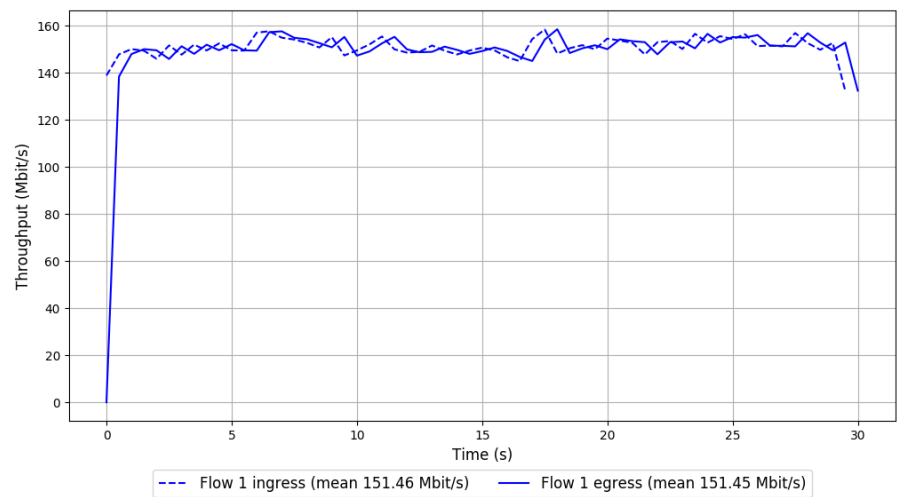
-- Flow 1:

Average throughput: 151.45 Mbit/s

95th percentile per-packet one-way delay: 1.309 ms

Loss rate: 0.00%

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

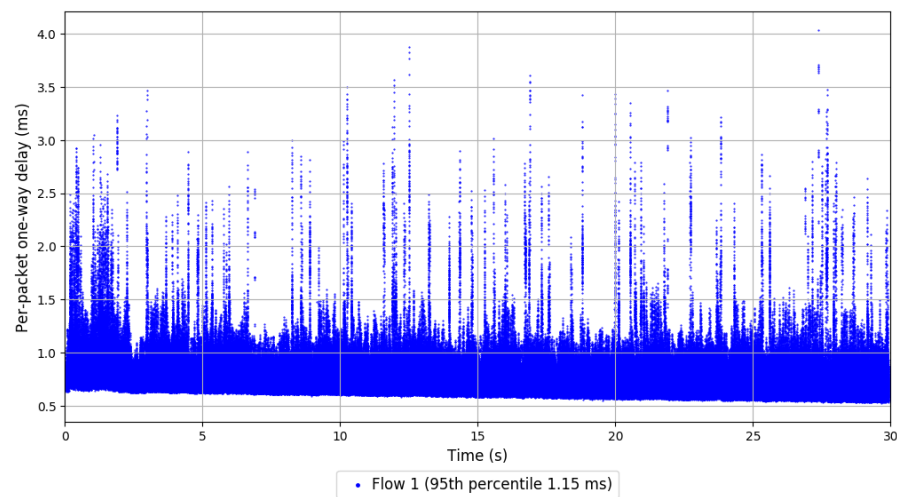
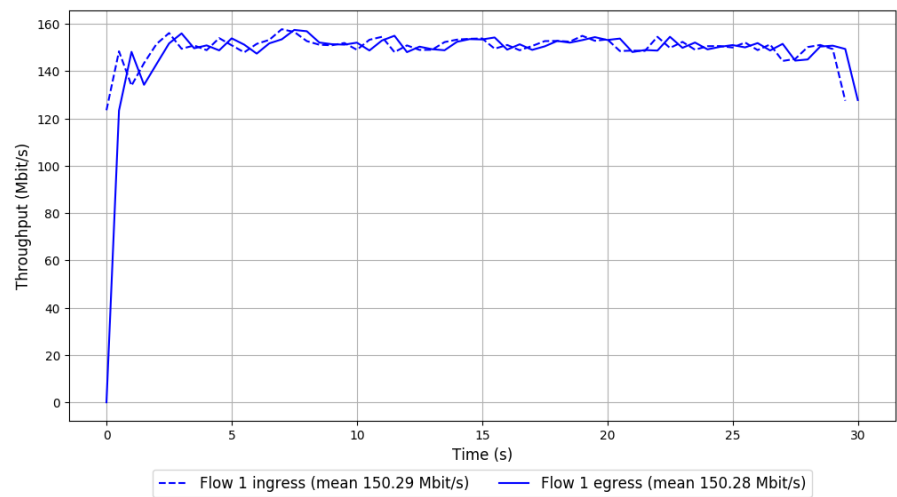


Run 5: Statistics of Indigo-96d2da3

Start at: 2018-11-29 21:53:43
End at: 2018-11-29 21:54:13
Local clock offset: 5.024 ms
Remote clock offset: -1.721 ms

Below is generated by plot.py at 2018-11-29 22:41:38
Datalink statistics
-- Total of 1 flow:
Average throughput: 150.28 Mbit/s
95th percentile per-packet one-way delay: 1.147 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 150.28 Mbit/s
95th percentile per-packet one-way delay: 1.147 ms
Loss rate: 0.00%

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

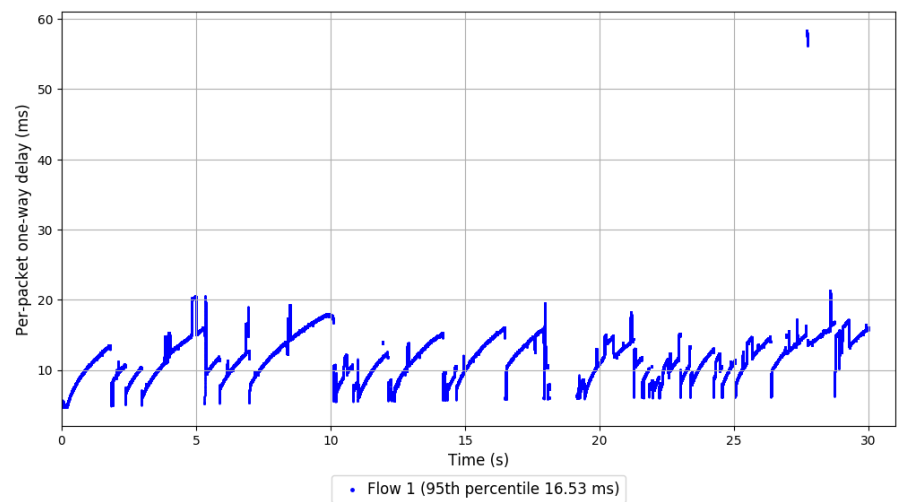
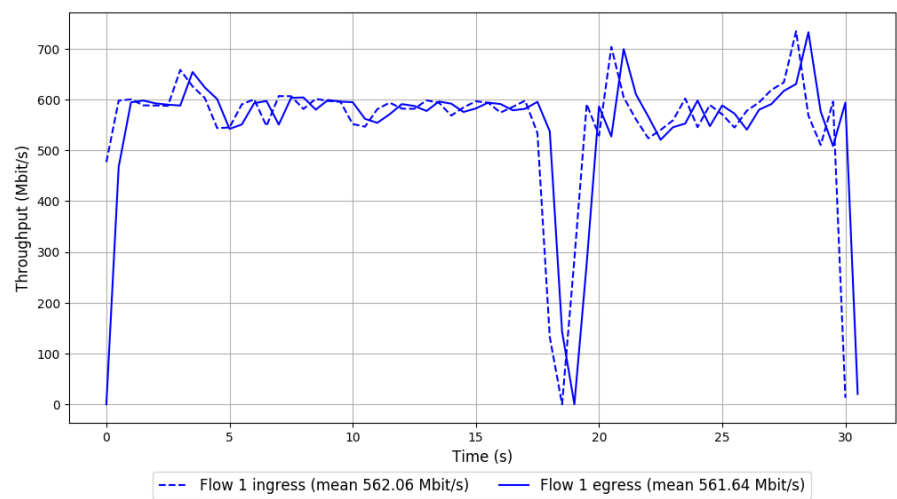


```
Run 1: Statistics of LEDBAT

Start at: 2018-11-29 20:14:55
End at: 2018-11-29 20:15:25
Local clock offset: 0.221 ms
Remote clock offset: -2.138 ms

# Below is generated by plot.py at 2018-11-29 22:47:38
# Datalink statistics
-- Total of 1 flow:
Average throughput: 561.64 Mbit/s
95th percentile per-packet one-way delay: 16.526 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 561.64 Mbit/s
95th percentile per-packet one-way delay: 16.526 ms
Loss rate: 0.07%
```

Run 1: Report of LEDBAT — Data Link

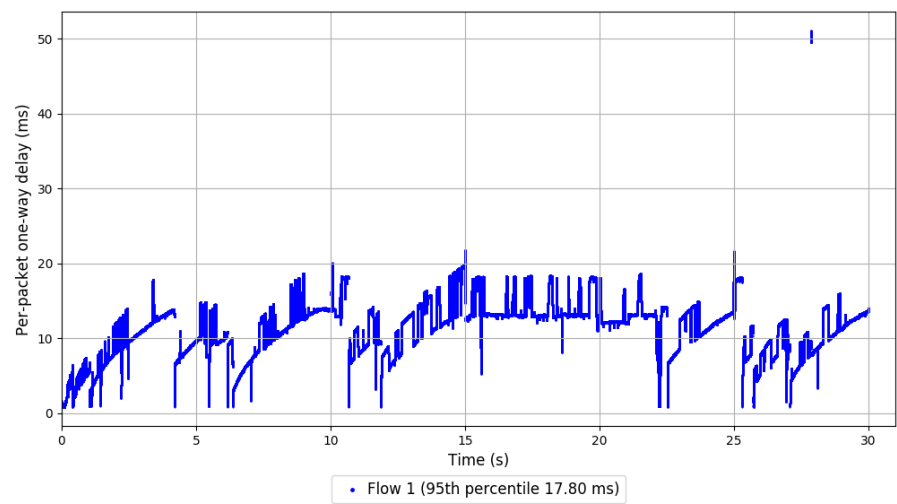
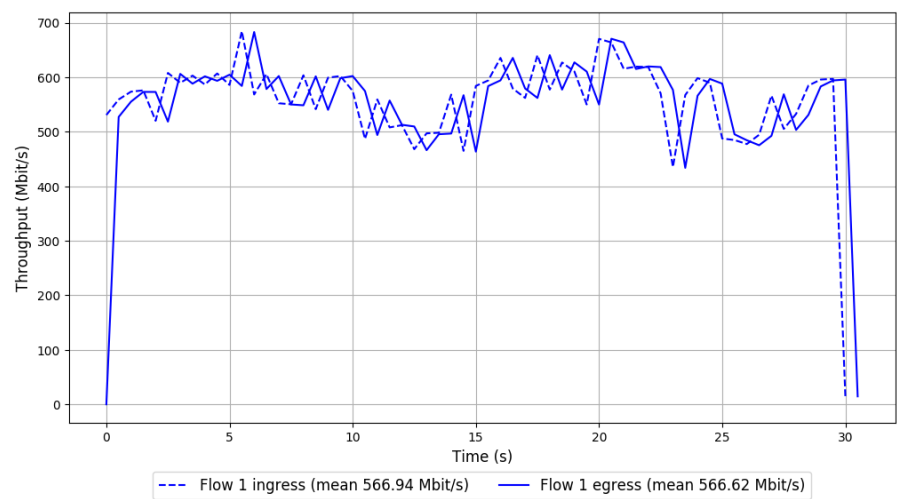


Run 2: Statistics of LEDBAT

Start at: 2018-11-29 20:39:10
End at: 2018-11-29 20:39:40
Local clock offset: 5.234 ms
Remote clock offset: -3.801 ms

Below is generated by plot.py at 2018-11-29 22:47:46
Datalink statistics
-- Total of 1 flow:
Average throughput: 566.62 Mbit/s
95th percentile per-packet one-way delay: 17.798 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 566.62 Mbit/s
95th percentile per-packet one-way delay: 17.798 ms
Loss rate: 0.06%

Run 2: Report of LEDBAT — Data Link

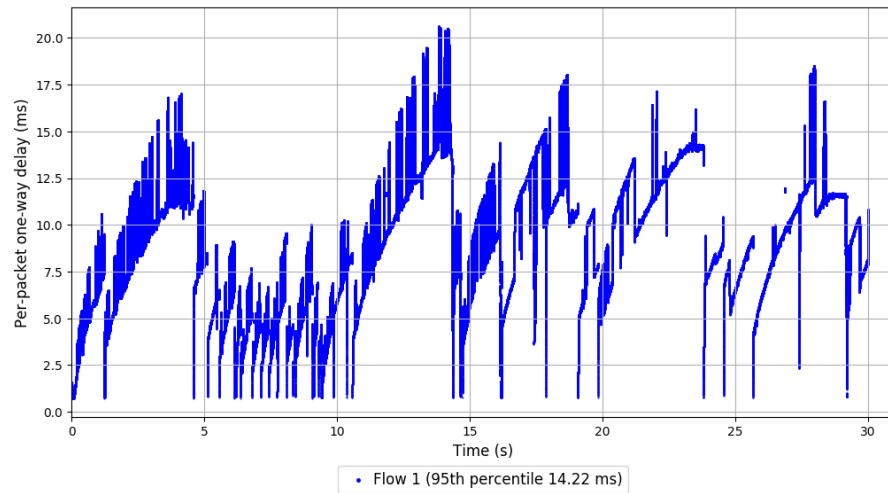
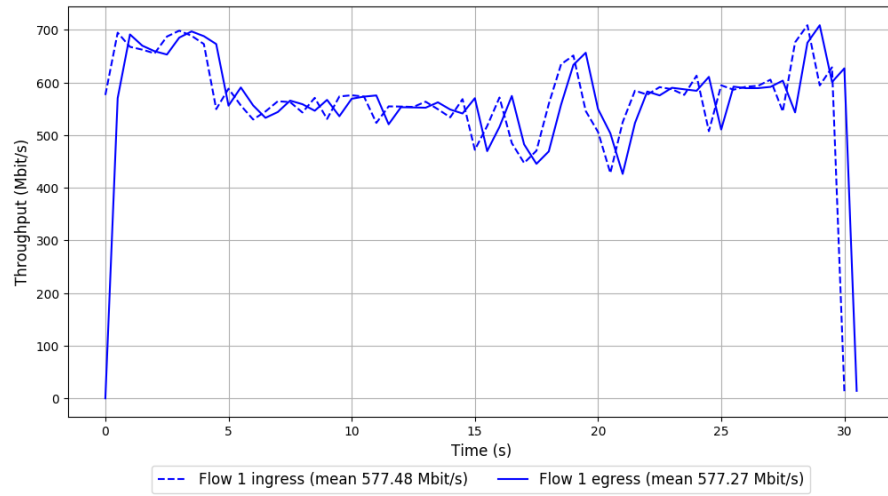


Run 3: Statistics of LEDBAT

Start at: 2018-11-29 21:03:30
End at: 2018-11-29 21:04:00
Local clock offset: 5.117 ms
Remote clock offset: -3.318 ms

Below is generated by plot.py at 2018-11-29 22:47:55
Datalink statistics
-- Total of 1 flow:
Average throughput: 577.27 Mbit/s
95th percentile per-packet one-way delay: 14.225 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 577.27 Mbit/s
95th percentile per-packet one-way delay: 14.225 ms
Loss rate: 0.04%

Run 3: Report of LEDBAT — Data Link

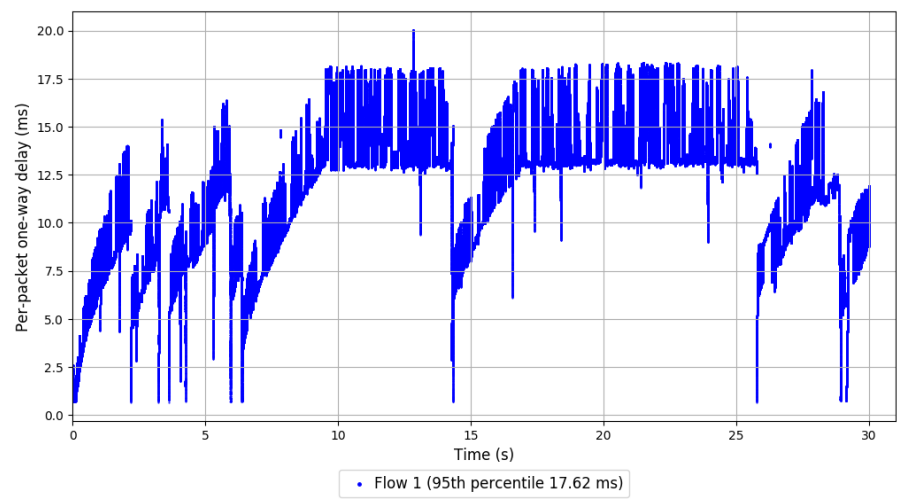
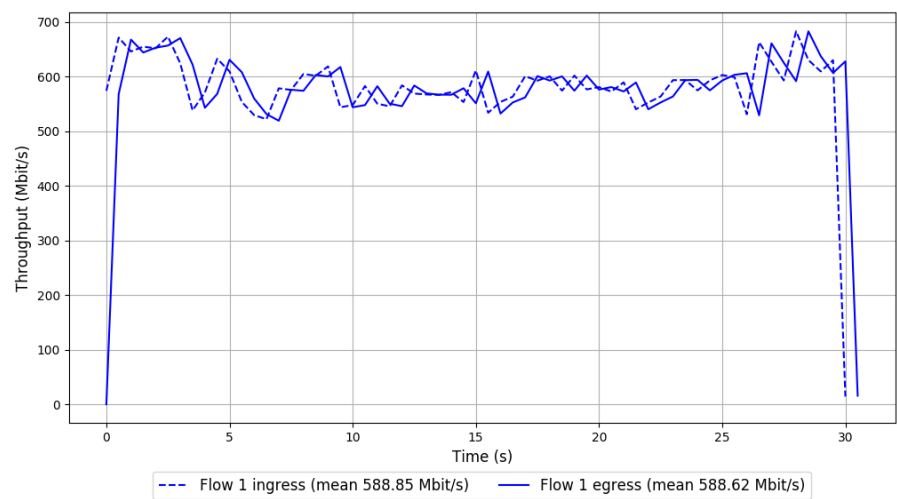


Run 4: Statistics of LEDBAT

Start at: 2018-11-29 21:27:50
End at: 2018-11-29 21:28:20
Local clock offset: 4.931 ms
Remote clock offset: -2.854 ms

Below is generated by plot.py at 2018-11-29 22:48:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 588.62 Mbit/s
95th percentile per-packet one-way delay: 17.618 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 588.62 Mbit/s
95th percentile per-packet one-way delay: 17.618 ms
Loss rate: 0.04%

Run 4: Report of LEDBAT — Data Link

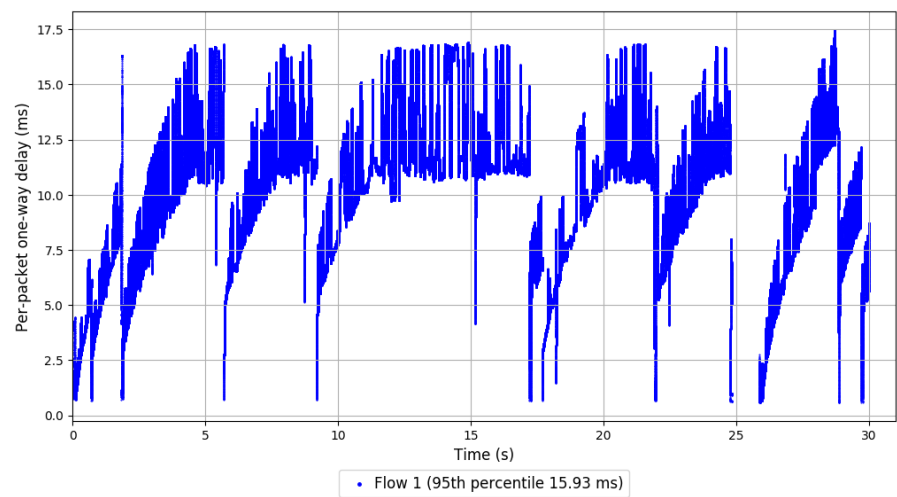
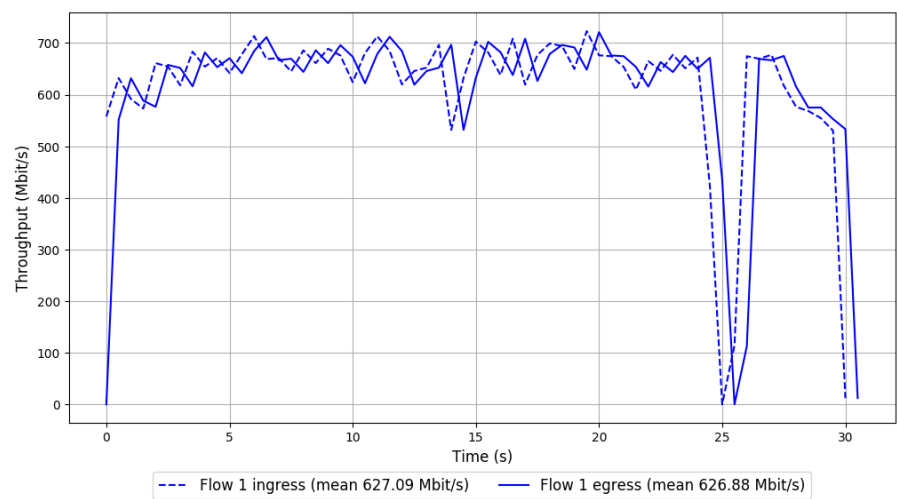


Run 5: Statistics of LEDBAT

Start at: 2018-11-29 21:52:04
End at: 2018-11-29 21:52:34
Local clock offset: 5.012 ms
Remote clock offset: -2.077 ms

Below is generated by plot.py at 2018-11-29 22:48:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 626.88 Mbit/s
95th percentile per-packet one-way delay: 15.926 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 626.88 Mbit/s
95th percentile per-packet one-way delay: 15.926 ms
Loss rate: 0.03%

Run 5: Report of LEDBAT — Data Link

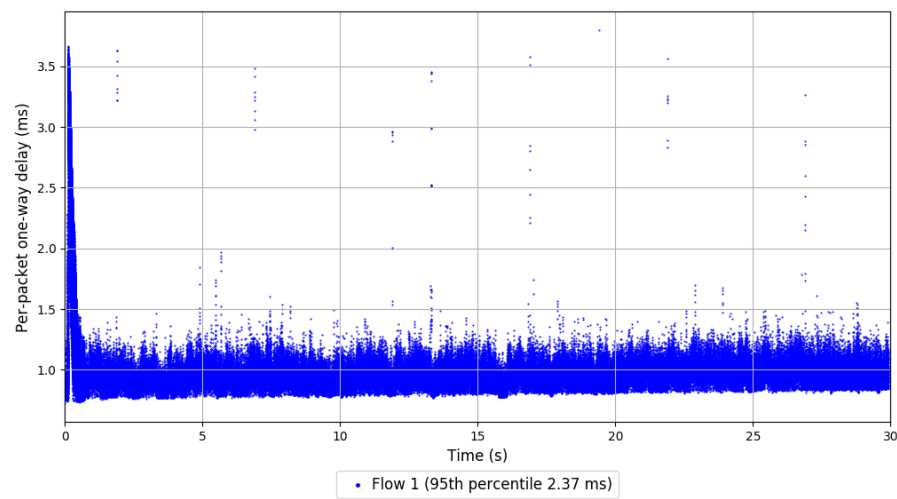
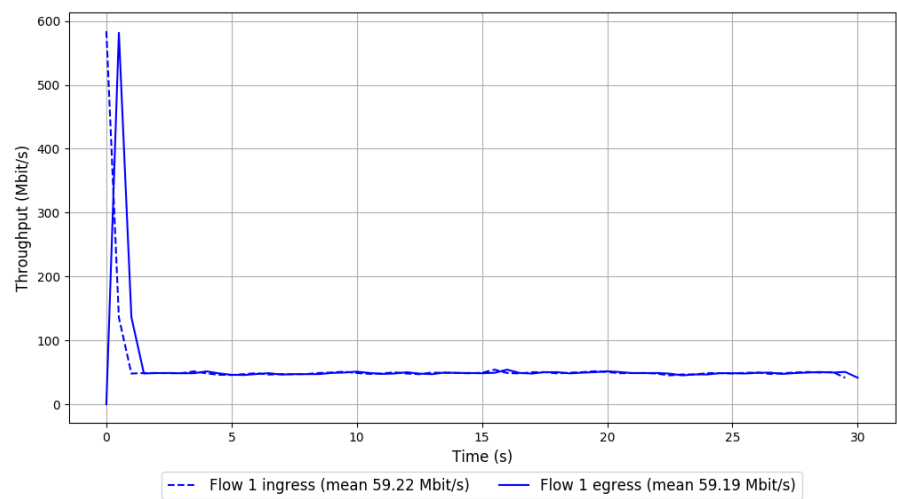


Run 1: Statistics of Indigo-Muses

Start at: 2018-11-29 20:20:30
End at: 2018-11-29 20:21:00
Local clock offset: 5.012 ms
Remote clock offset: -2.856 ms

Below is generated by plot.py at 2018-11-29 22:48:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 59.19 Mbit/s
95th percentile per-packet one-way delay: 2.371 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 59.19 Mbit/s
95th percentile per-packet one-way delay: 2.371 ms
Loss rate: 0.05%

Run 1: Report of Indigo-Muses — Data Link

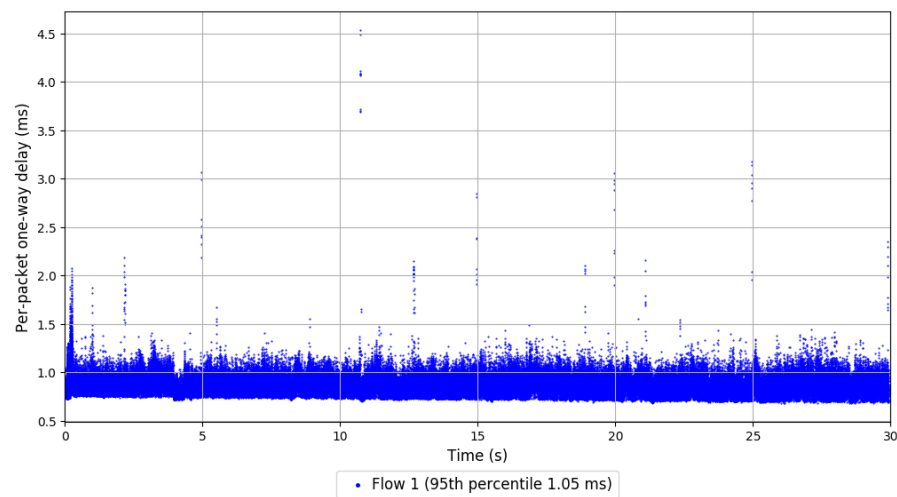
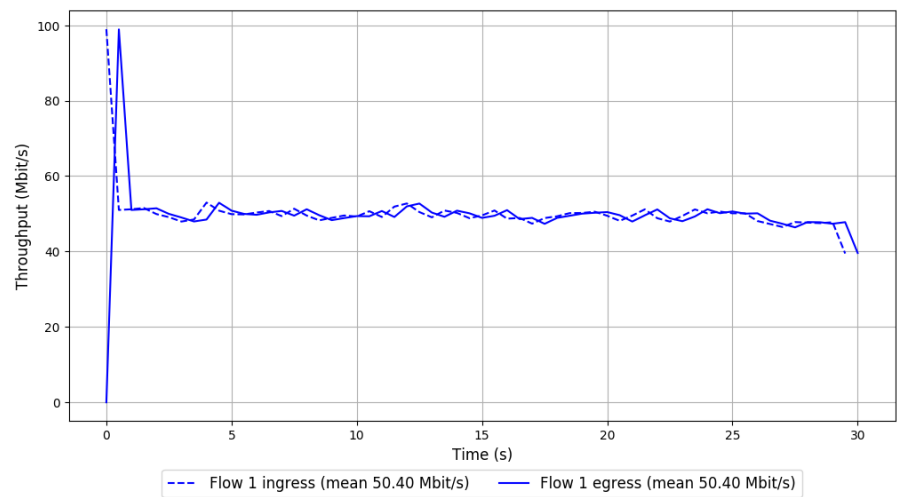


Run 2: Statistics of Indigo-Muses

Start at: 2018-11-29 20:44:42
End at: 2018-11-29 20:45:12
Local clock offset: 5.349 ms
Remote clock offset: -3.727 ms

Below is generated by plot.py at 2018-11-29 22:48:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 50.40 Mbit/s
95th percentile per-packet one-way delay: 1.050 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 50.40 Mbit/s
95th percentile per-packet one-way delay: 1.050 ms
Loss rate: 0.01%

Run 2: Report of Indigo-Muses — Data Link

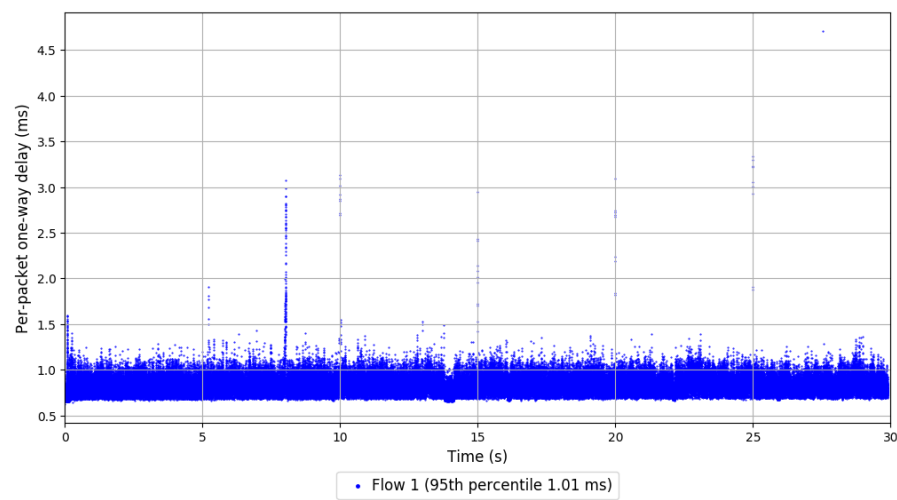
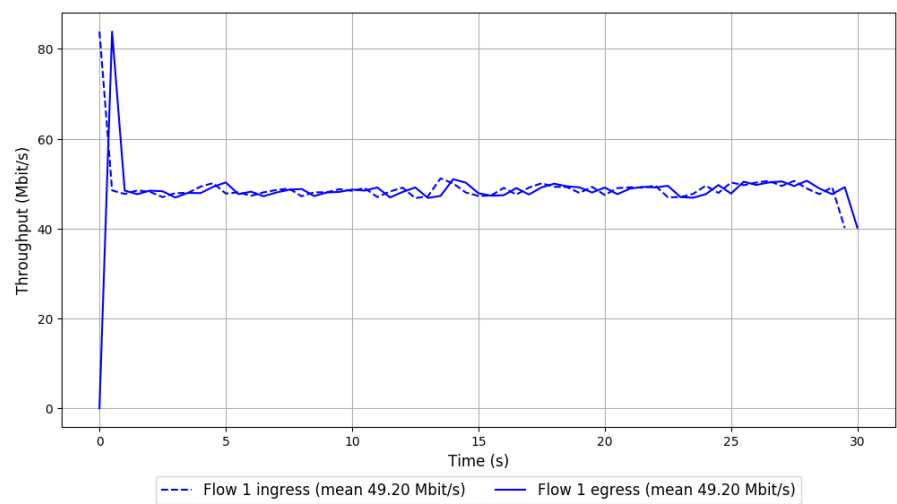


Run 3: Statistics of Indigo-Muses

Start at: 2018-11-29 21:09:02
End at: 2018-11-29 21:09:32
Local clock offset: 5.24 ms
Remote clock offset: -3.412 ms

Below is generated by plot.py at 2018-11-29 22:48:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 49.20 Mbit/s
95th percentile per-packet one-way delay: 1.012 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 49.20 Mbit/s
95th percentile per-packet one-way delay: 1.012 ms
Loss rate: 0.00%

Run 3: Report of Indigo-Muses — Data Link

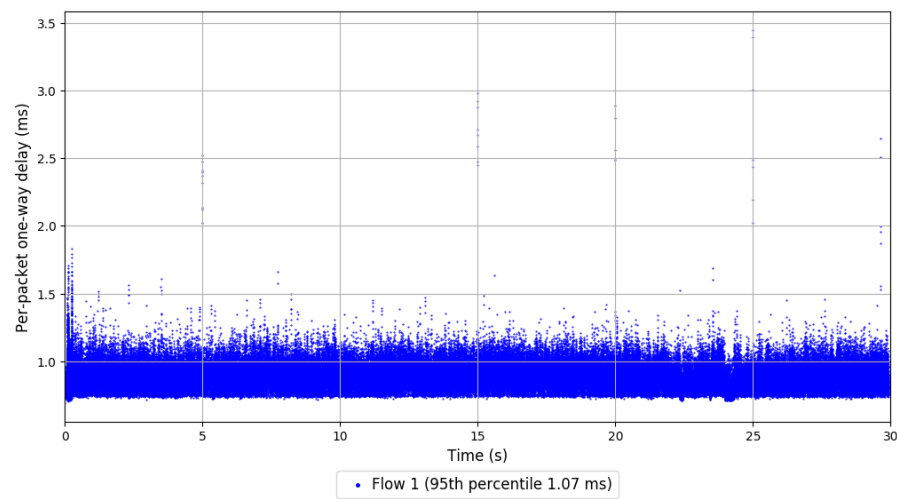
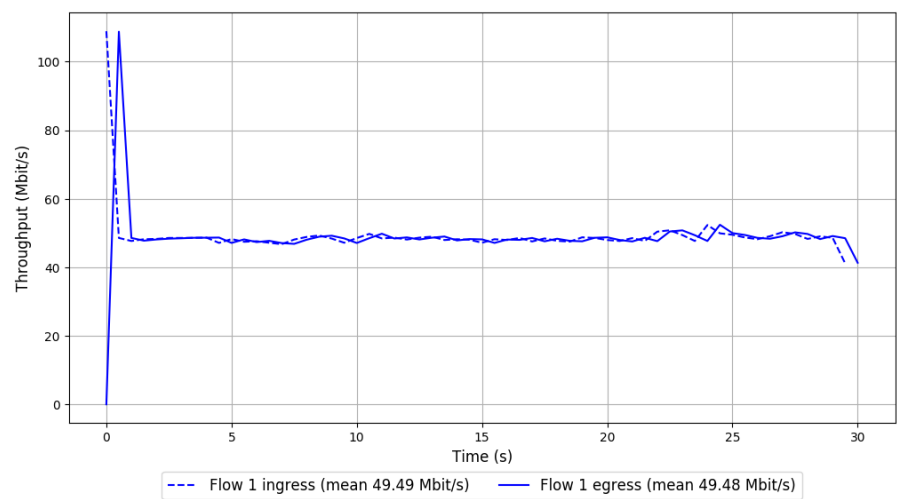


Run 4: Statistics of Indigo-Muses

Start at: 2018-11-29 21:33:21
End at: 2018-11-29 21:33:52
Local clock offset: 4.925 ms
Remote clock offset: -2.746 ms

Below is generated by plot.py at 2018-11-29 22:48:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 49.48 Mbit/s
95th percentile per-packet one-way delay: 1.068 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 49.48 Mbit/s
95th percentile per-packet one-way delay: 1.068 ms
Loss rate: 0.00%

Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-11-29 21:57:36

End at: 2018-11-29 21:58:06

Local clock offset: 5.033 ms

Remote clock offset: -0.83 ms

Below is generated by plot.py at 2018-11-29 22:48:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 50.05 Mbit/s

95th percentile per-packet one-way delay: 1.117 ms

Loss rate: 0.00%

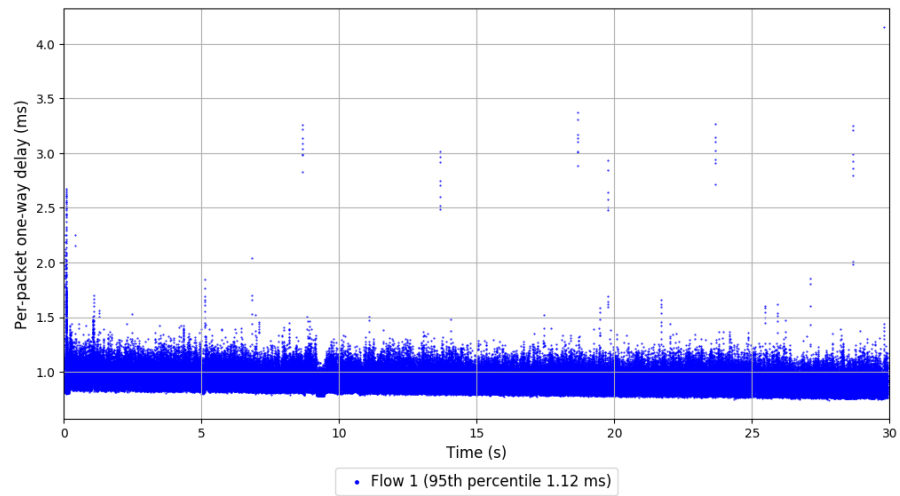
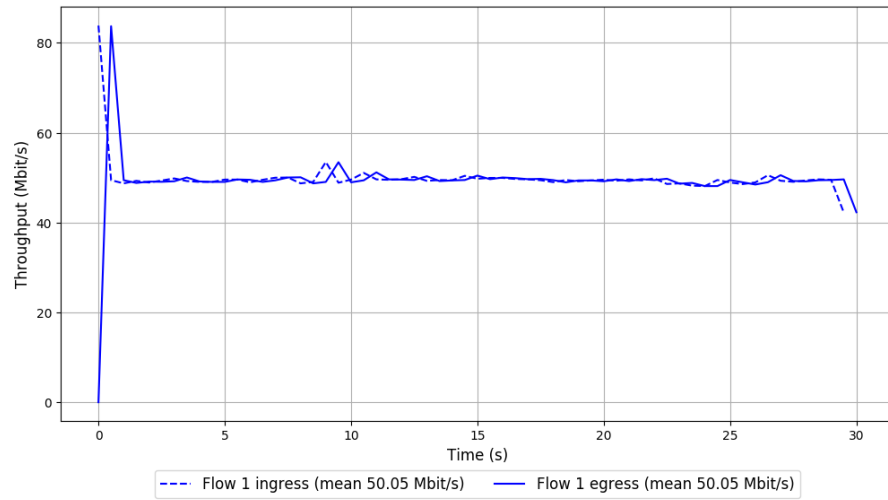
-- Flow 1:

Average throughput: 50.05 Mbit/s

95th percentile per-packet one-way delay: 1.117 ms

Loss rate: 0.00%

Run 5: Report of Indigo-Muses — Data Link



Run 1: Statistics of PCC-Allegro

Start at: 2018-11-29 20:36:43

End at: 2018-11-29 20:37:13

Local clock offset: 5.191 ms

Remote clock offset: -3.83 ms

Below is generated by plot.py at 2018-11-29 22:48:49

Datalink statistics

-- Total of 1 flow:

Average throughput: 88.73 Mbit/s

95th percentile per-packet one-way delay: 0.927 ms

Loss rate: 0.00%

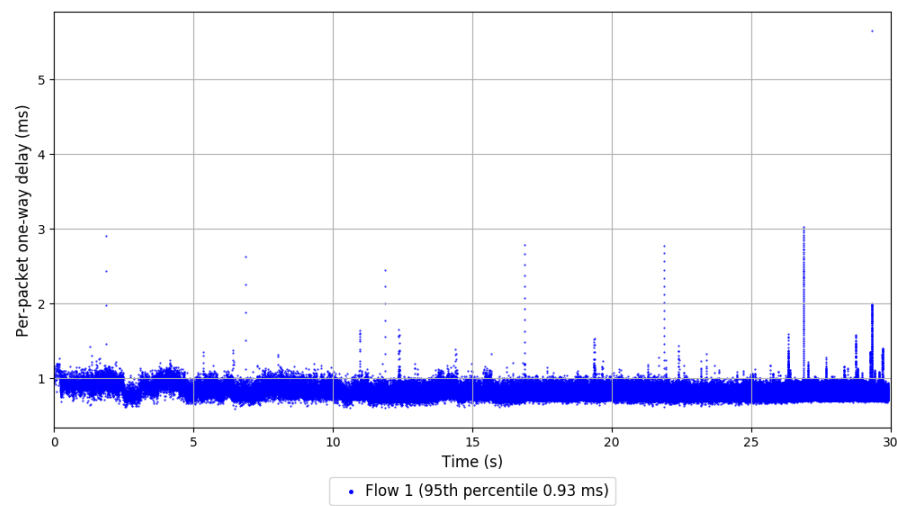
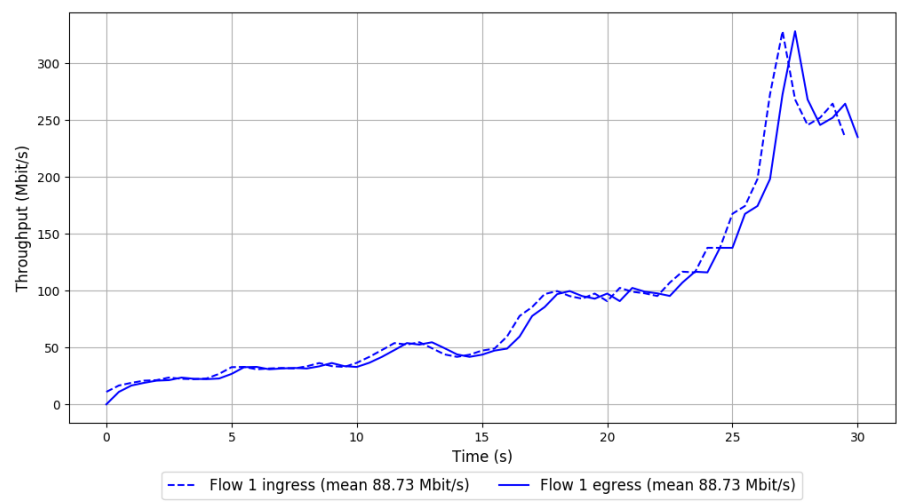
-- Flow 1:

Average throughput: 88.73 Mbit/s

95th percentile per-packet one-way delay: 0.927 ms

Loss rate: 0.00%

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-11-29 21:00:52

End at: 2018-11-29 21:01:22

Local clock offset: 5.068 ms

Remote clock offset: -3.365 ms

Below is generated by plot.py at 2018-11-29 22:49:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 539.86 Mbit/s

95th percentile per-packet one-way delay: 2.651 ms

Loss rate: 0.01%

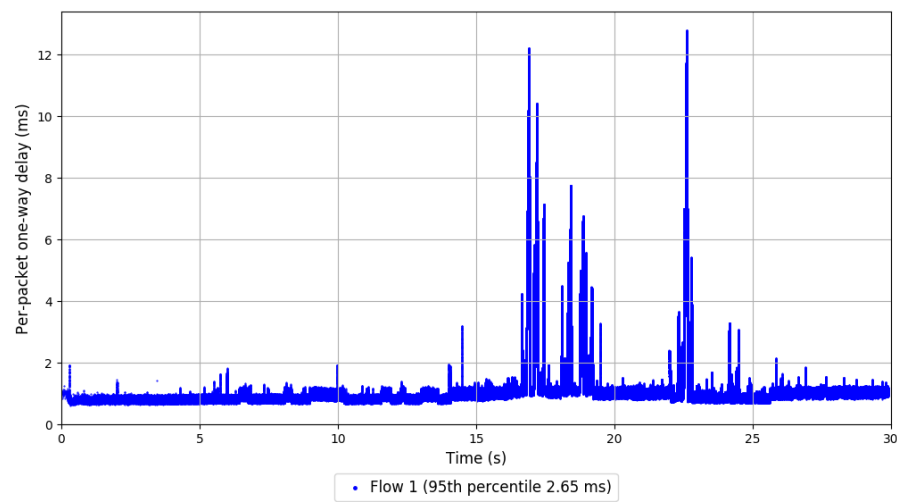
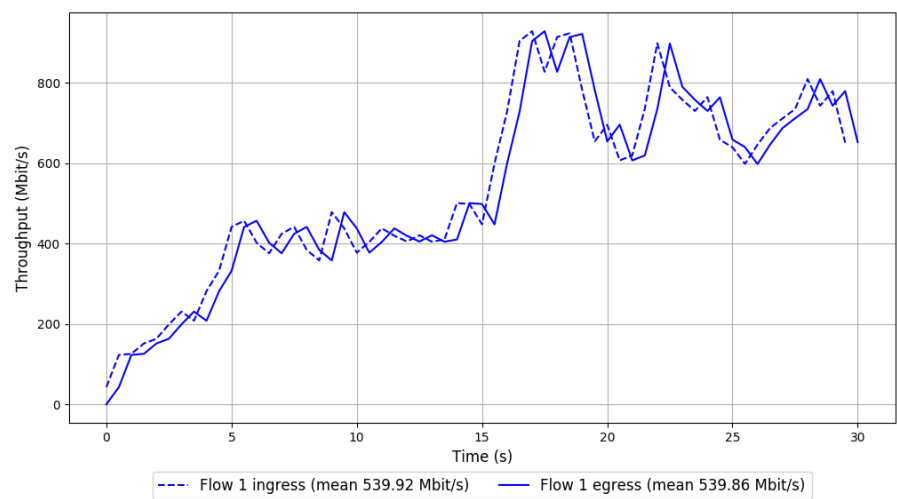
-- Flow 1:

Average throughput: 539.86 Mbit/s

95th percentile per-packet one-way delay: 2.651 ms

Loss rate: 0.01%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-11-29 21:25:17

End at: 2018-11-29 21:25:47

Local clock offset: 4.926 ms

Remote clock offset: -2.8 ms

Below is generated by plot.py at 2018-11-29 22:49:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 294.46 Mbit/s

95th percentile per-packet one-way delay: 1.059 ms

Loss rate: 0.00%

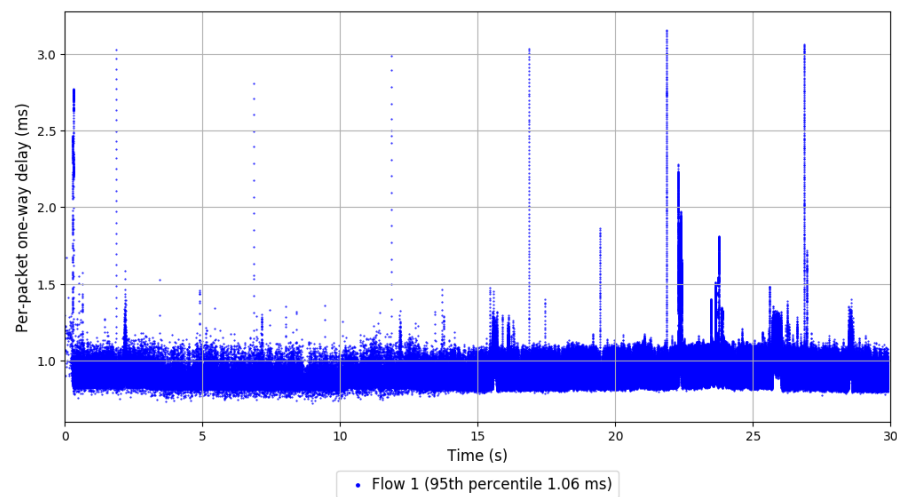
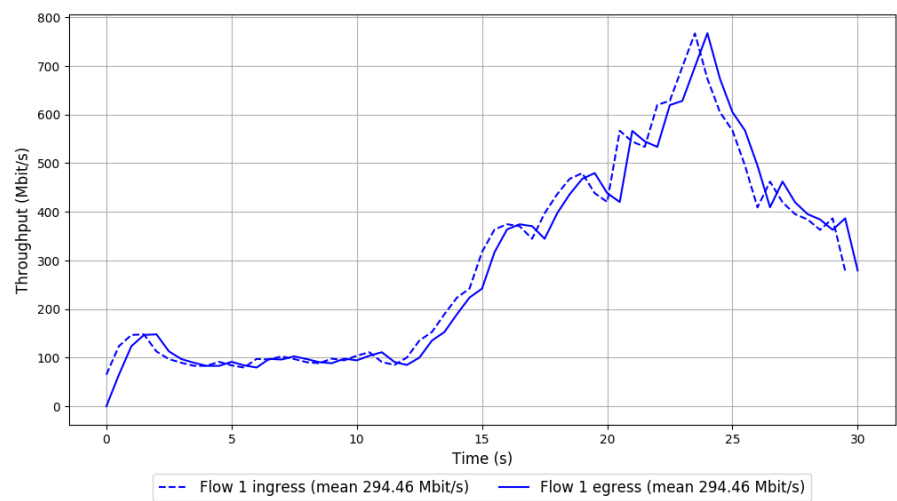
-- Flow 1:

Average throughput: 294.46 Mbit/s

95th percentile per-packet one-way delay: 1.059 ms

Loss rate: 0.00%

Run 3: Report of PCC-Allegro — Data Link



Run 4: Statistics of PCC-Allegro

Start at: 2018-11-29 21:49:37

End at: 2018-11-29 21:50:07

Local clock offset: 5.013 ms

Remote clock offset: -2.664 ms

Below is generated by plot.py at 2018-11-29 22:49:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 29.53 Mbit/s

95th percentile per-packet one-way delay: 0.987 ms

Loss rate: 0.00%

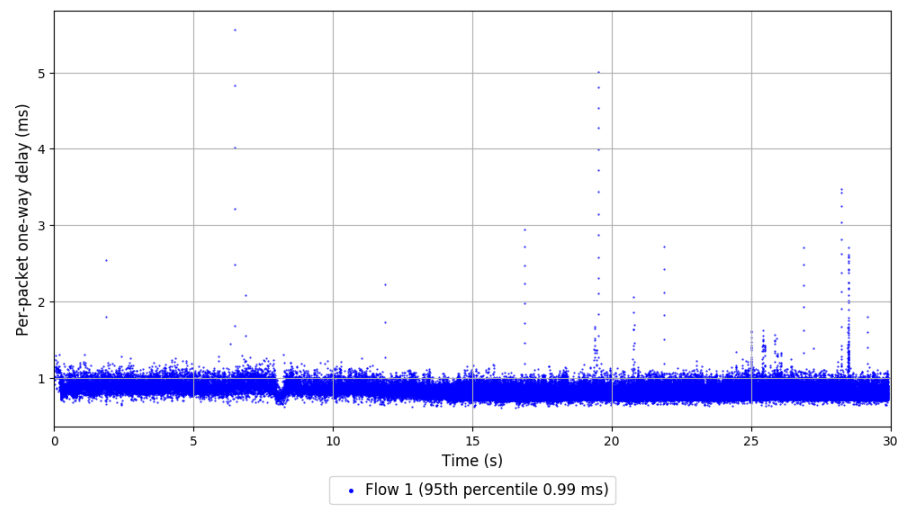
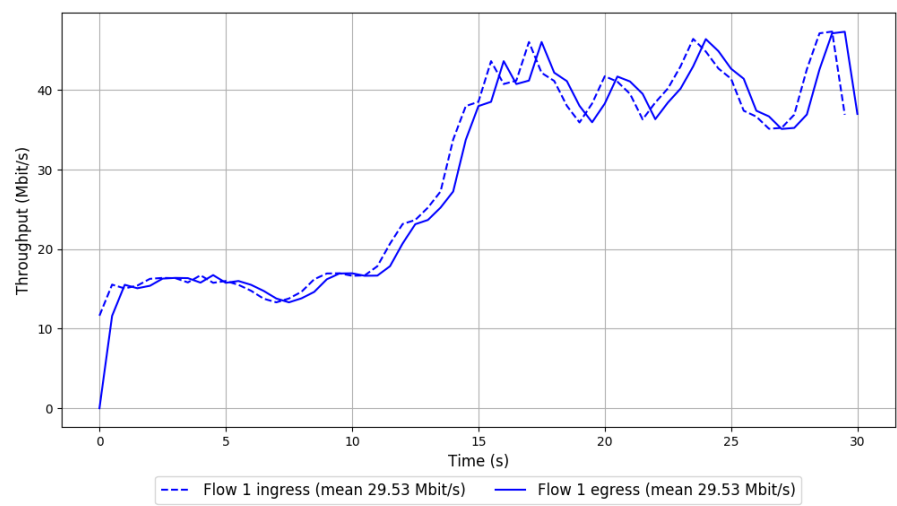
-- Flow 1:

Average throughput: 29.53 Mbit/s

95th percentile per-packet one-way delay: 0.987 ms

Loss rate: 0.00%

Run 4: Report of PCC-Allegro — Data Link



Run 5: Statistics of PCC-Allegro

Start at: 2018-11-29 22:13:48

End at: 2018-11-29 22:14:19

Local clock offset: 5.216 ms

Remote clock offset: 0.78 ms

Below is generated by plot.py at 2018-11-29 22:49:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 135.48 Mbit/s

95th percentile per-packet one-way delay: 0.948 ms

Loss rate: 0.04%

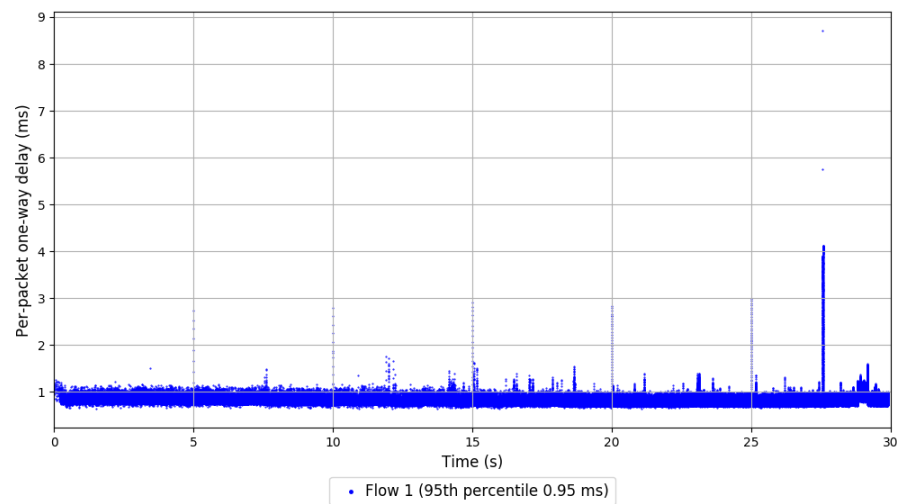
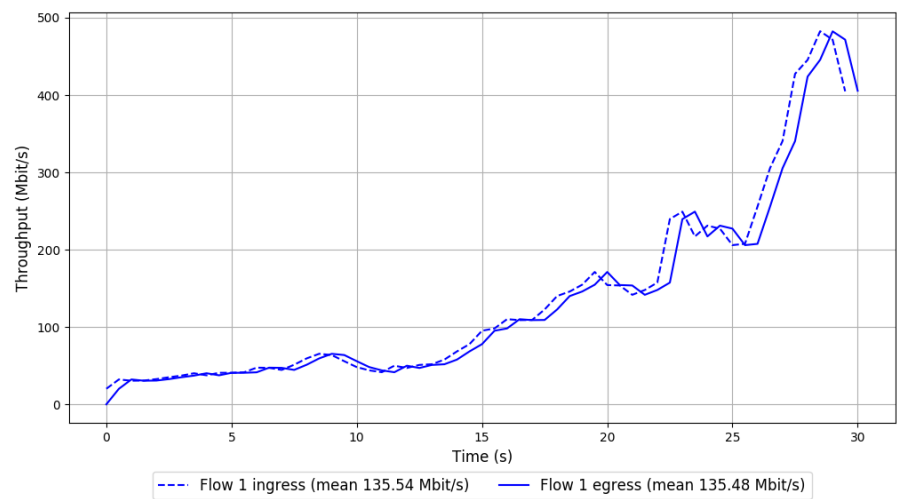
-- Flow 1:

Average throughput: 135.48 Mbit/s

95th percentile per-packet one-way delay: 0.948 ms

Loss rate: 0.04%

Run 5: Report of PCC-Allegro — Data Link

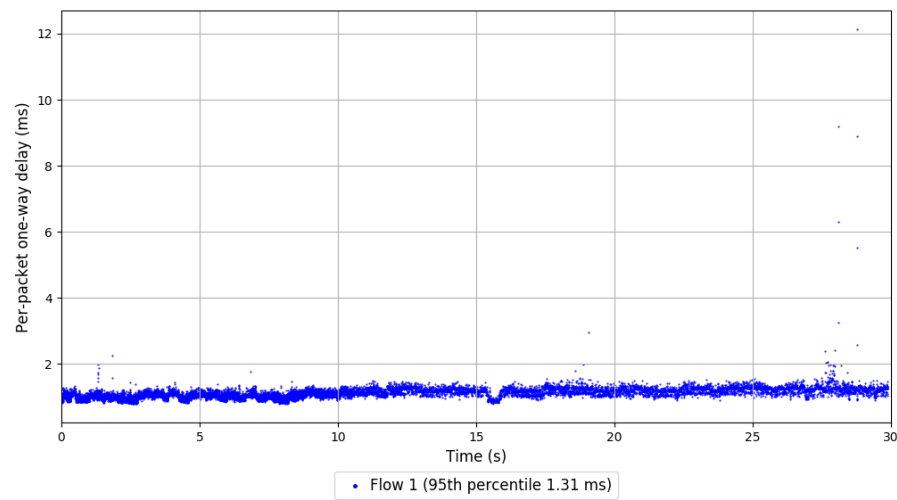
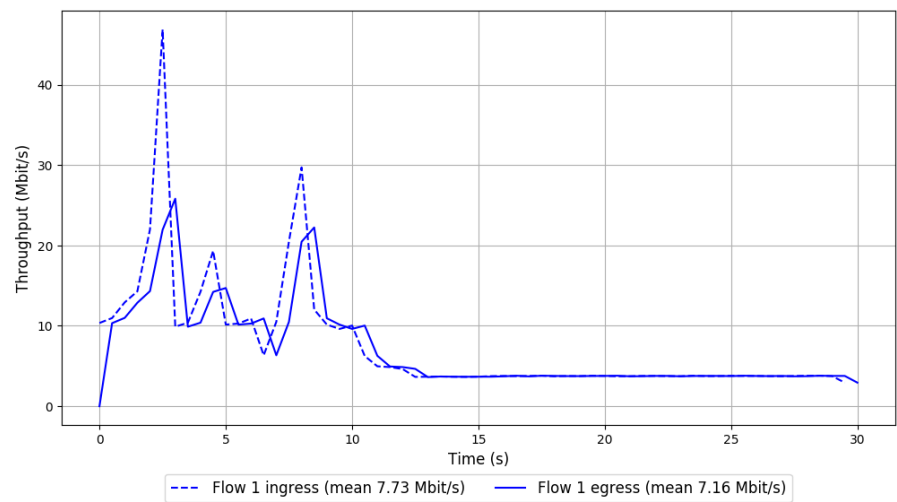


```
Run 1: Statistics of PCC-Expr

Start at: 2018-11-29 20:35:30
End at: 2018-11-29 20:36:00
Local clock offset: 5.19 ms
Remote clock offset: -3.672 ms

# Below is generated by plot.py at 2018-11-29 22:49:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.16 Mbit/s
95th percentile per-packet one-way delay: 1.306 ms
Loss rate: 7.43%
-- Flow 1:
Average throughput: 7.16 Mbit/s
95th percentile per-packet one-way delay: 1.306 ms
Loss rate: 7.43%
```

Run 1: Report of PCC-Expr — Data Link

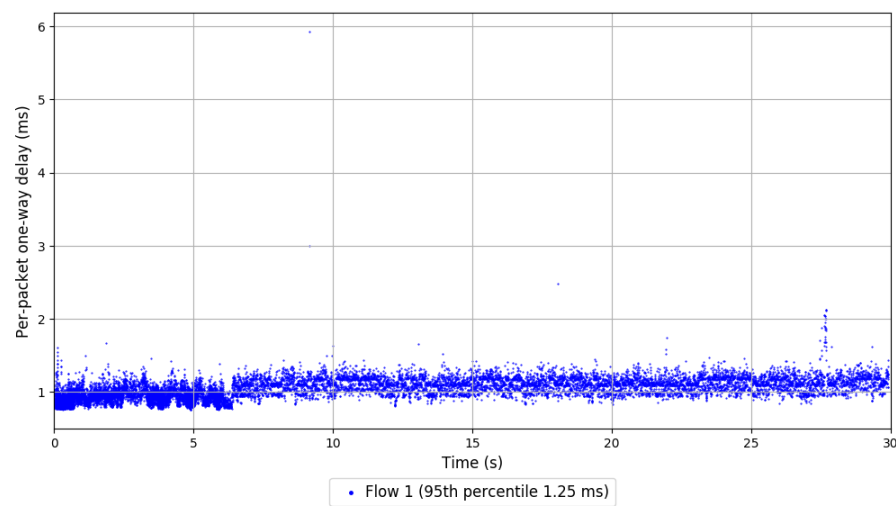
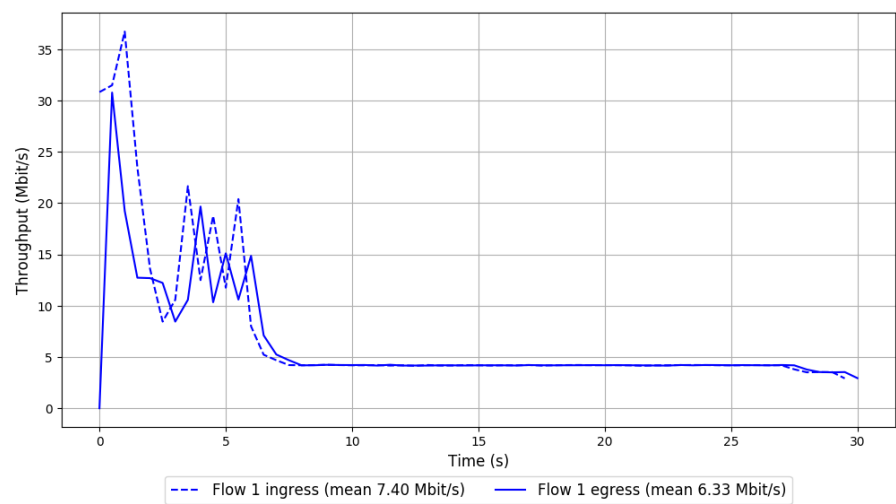


Run 2: Statistics of PCC-Expr

Start at: 2018-11-29 20:59:39
End at: 2018-11-29 21:00:09
Local clock offset: 5.068 ms
Remote clock offset: -3.305 ms

Below is generated by plot.py at 2018-11-29 22:49:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 6.33 Mbit/s
95th percentile per-packet one-way delay: 1.250 ms
Loss rate: 14.41%
-- Flow 1:
Average throughput: 6.33 Mbit/s
95th percentile per-packet one-way delay: 1.250 ms
Loss rate: 14.41%

Run 2: Report of PCC-Expr — Data Link

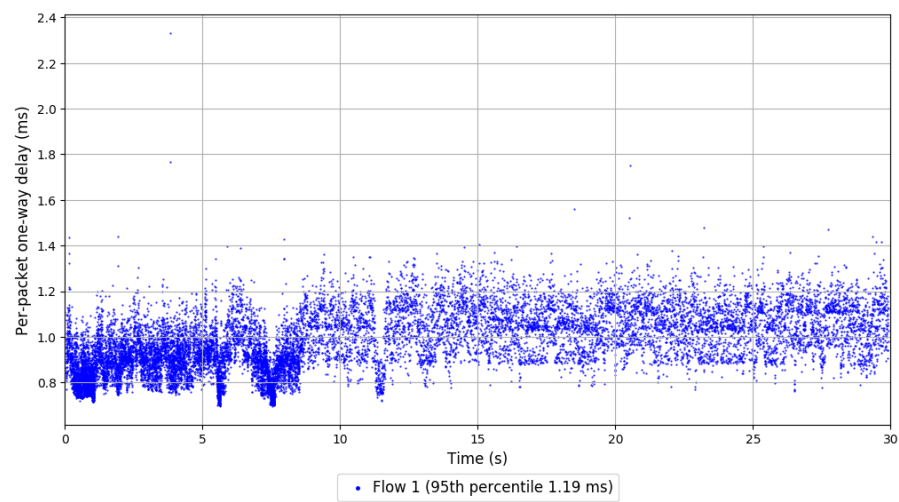
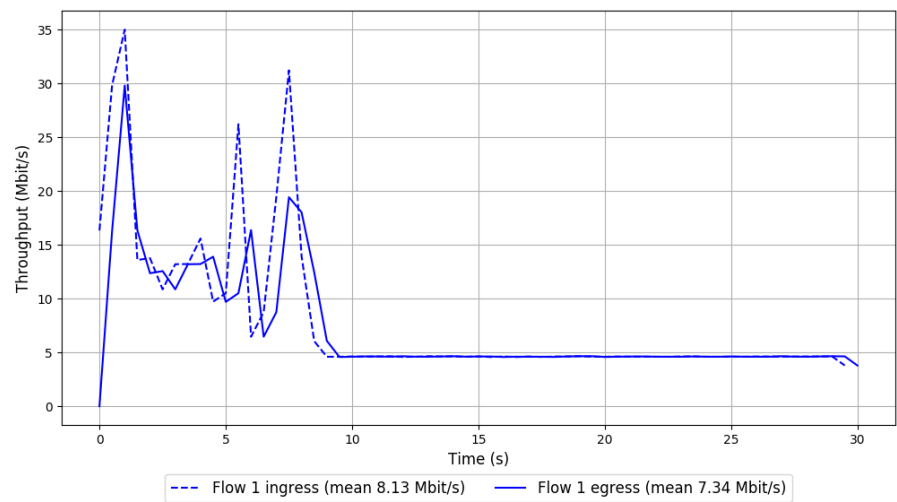


Run 3: Statistics of PCC-Expr

Start at: 2018-11-29 21:24:04
End at: 2018-11-29 21:24:34
Local clock offset: 4.952 ms
Remote clock offset: -2.924 ms

Below is generated by plot.py at 2018-11-29 22:49:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.34 Mbit/s
95th percentile per-packet one-way delay: 1.186 ms
Loss rate: 9.74%
-- Flow 1:
Average throughput: 7.34 Mbit/s
95th percentile per-packet one-way delay: 1.186 ms
Loss rate: 9.74%

Run 3: Report of PCC-Expr — Data Link

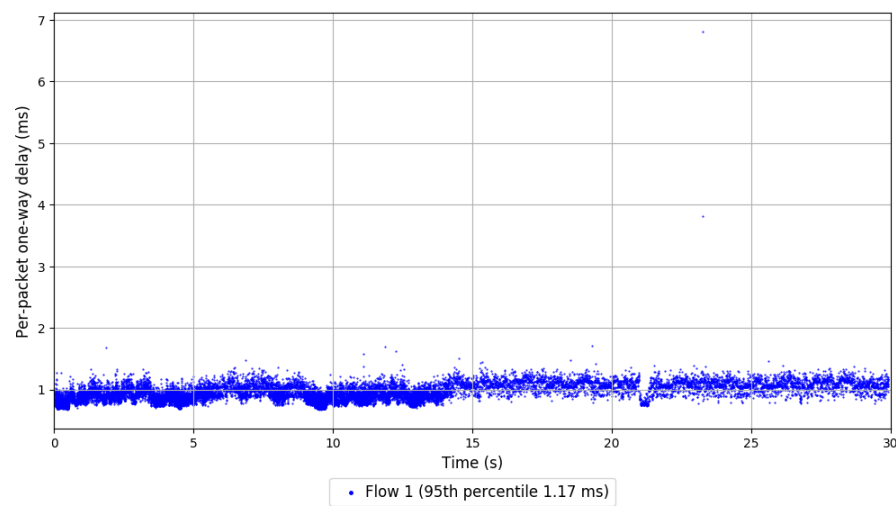
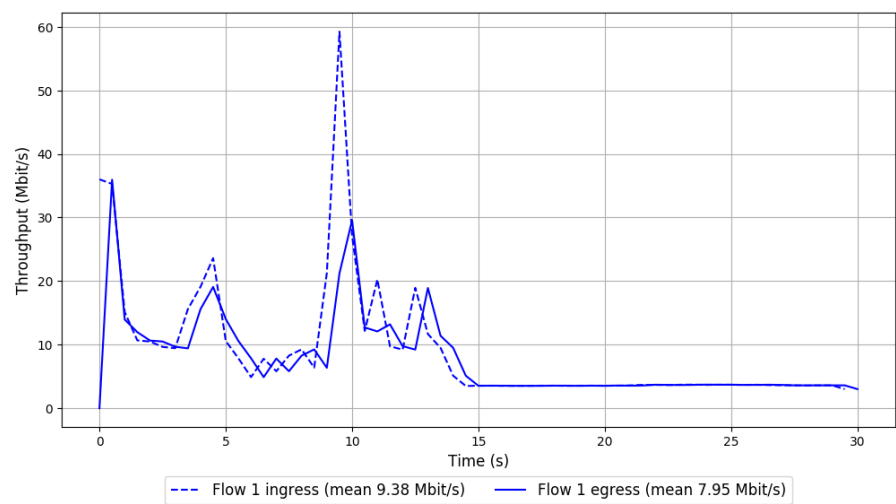


Run 4: Statistics of PCC-Expr

Start at: 2018-11-29 21:48:24
End at: 2018-11-29 21:48:54
Local clock offset: 5.012 ms
Remote clock offset: -2.659 ms

Below is generated by plot.py at 2018-11-29 22:49:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.95 Mbit/s
95th percentile per-packet one-way delay: 1.170 ms
Loss rate: 15.27%
-- Flow 1:
Average throughput: 7.95 Mbit/s
95th percentile per-packet one-way delay: 1.170 ms
Loss rate: 15.27%

Run 4: Report of PCC-Expr — Data Link



Run 5: Statistics of PCC-Expr

Start at: 2018-11-29 22:12:36

End at: 2018-11-29 22:13:06

Local clock offset: 5.189 ms

Remote clock offset: 0.712 ms

Below is generated by plot.py at 2018-11-29 22:49:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 3.39 Mbit/s

95th percentile per-packet one-way delay: 1.296 ms

Loss rate: 0.00%

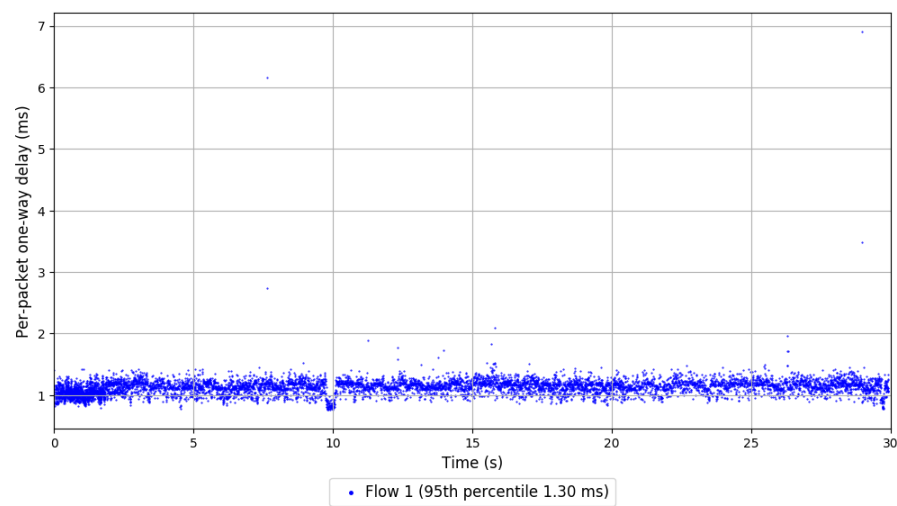
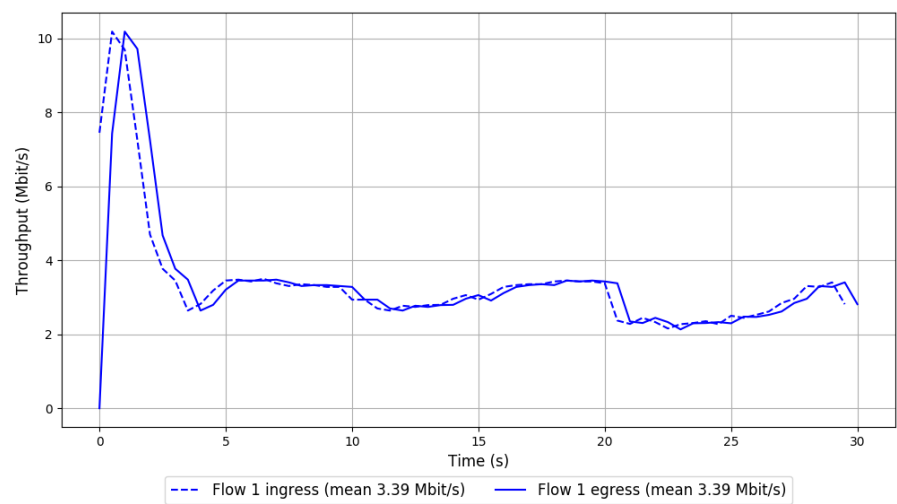
-- Flow 1:

Average throughput: 3.39 Mbit/s

95th percentile per-packet one-way delay: 1.296 ms

Loss rate: 0.00%

Run 5: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2018-11-29 20:24:55

End at: 2018-11-29 20:25:25

Local clock offset: 5.095 ms

Remote clock offset: -3.256 ms

Below is generated by plot.py at 2018-11-29 22:49:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 68.15 Mbit/s

95th percentile per-packet one-way delay: 0.935 ms

Loss rate: 0.00%

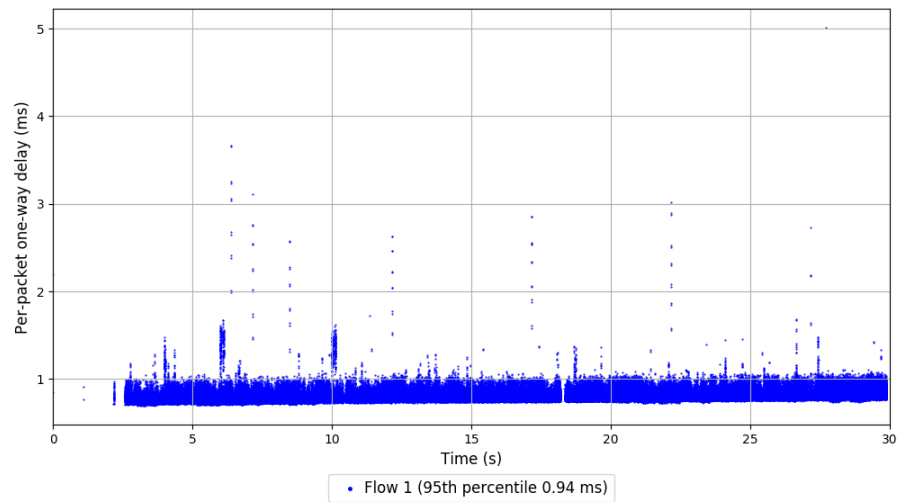
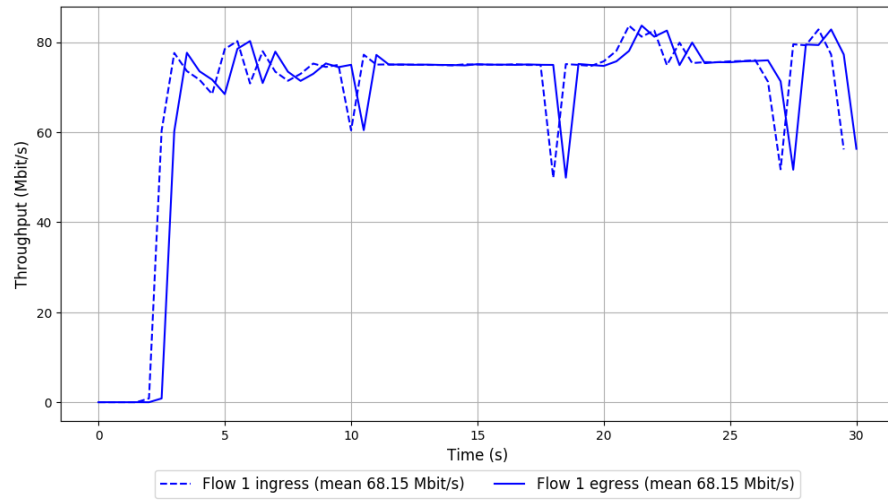
-- Flow 1:

Average throughput: 68.15 Mbit/s

95th percentile per-packet one-way delay: 0.935 ms

Loss rate: 0.00%

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-11-29 20:49:10

End at: 2018-11-29 20:49:40

Local clock offset: 5.161 ms

Remote clock offset: -3.514 ms

Below is generated by plot.py at 2018-11-29 22:49:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 76.67 Mbit/s

95th percentile per-packet one-way delay: 0.857 ms

Loss rate: 0.00%

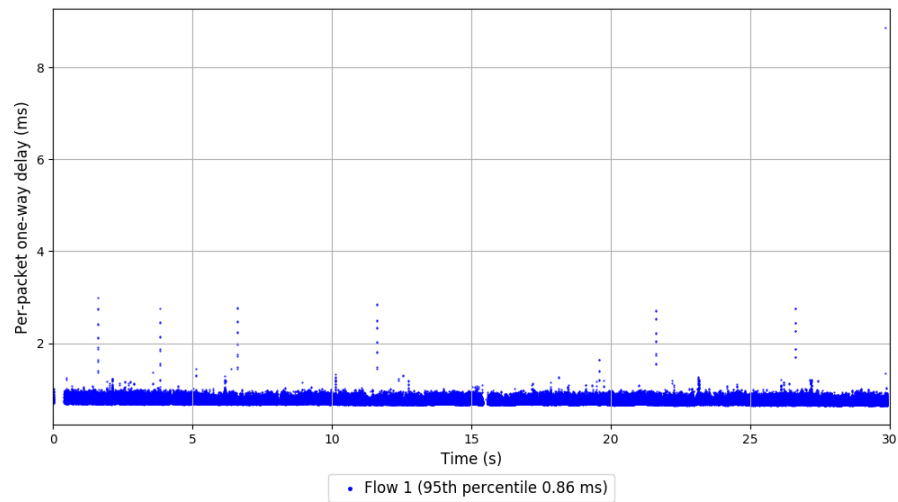
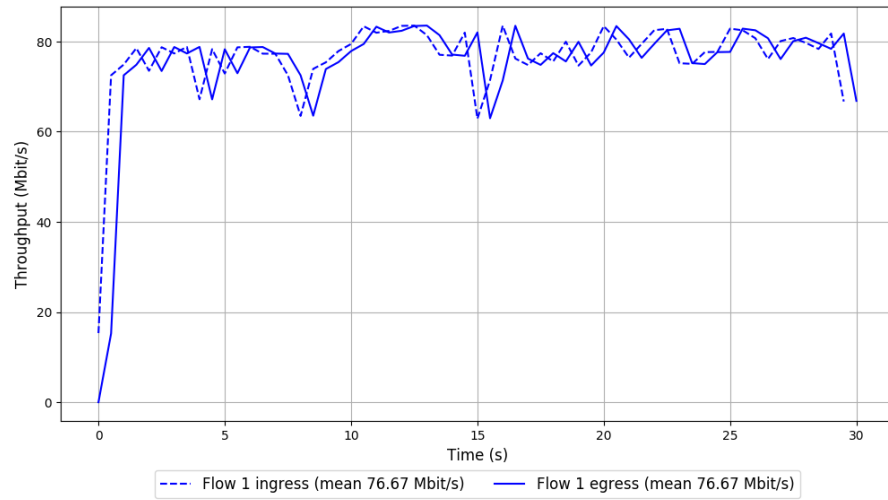
-- Flow 1:

Average throughput: 76.67 Mbit/s

95th percentile per-packet one-way delay: 0.857 ms

Loss rate: 0.00%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

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

End at: 2018-11-29 21:13:59

Local clock offset: 5.337 ms

Remote clock offset: -3.312 ms

Below is generated by plot.py at 2018-11-29 22:49:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 78.44 Mbit/s

95th percentile per-packet one-way delay: 1.001 ms

Loss rate: 0.00%

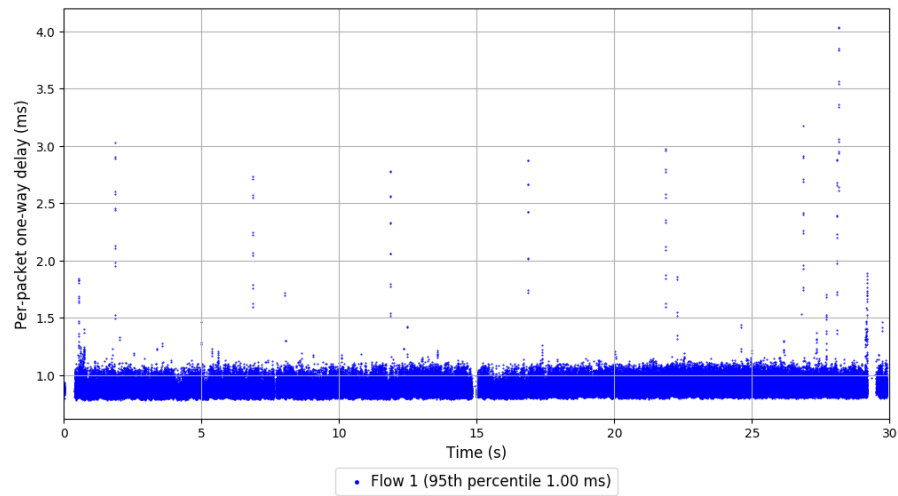
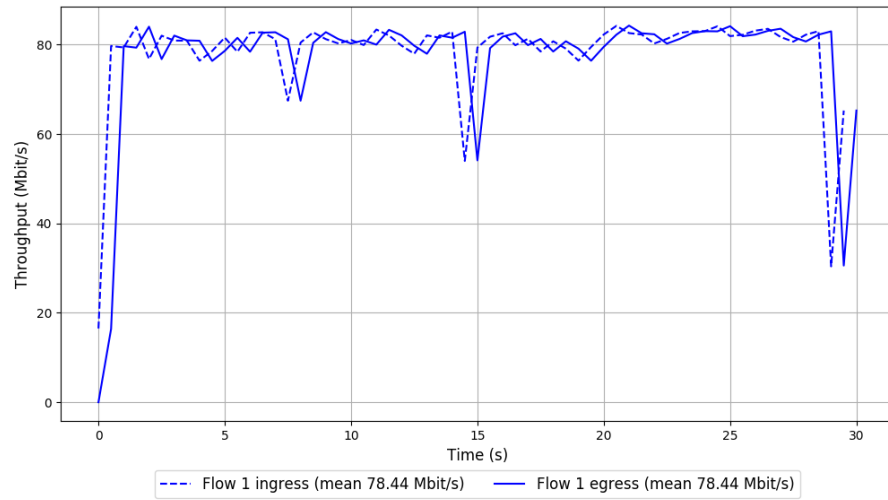
-- Flow 1:

Average throughput: 78.44 Mbit/s

95th percentile per-packet one-way delay: 1.001 ms

Loss rate: 0.00%

Run 3: Report of QUIC Cubic — Data Link



Run 4: Statistics of QUIC Cubic

Start at: 2018-11-29 21:37:48

End at: 2018-11-29 21:38:18

Local clock offset: 4.958 ms

Remote clock offset: -2.693 ms

Below is generated by plot.py at 2018-11-29 22:49:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 77.47 Mbit/s

95th percentile per-packet one-way delay: 0.925 ms

Loss rate: 0.00%

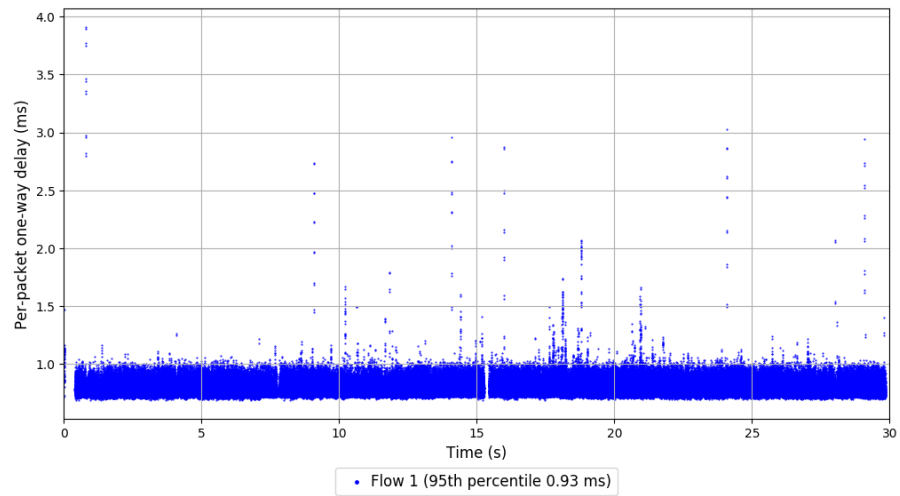
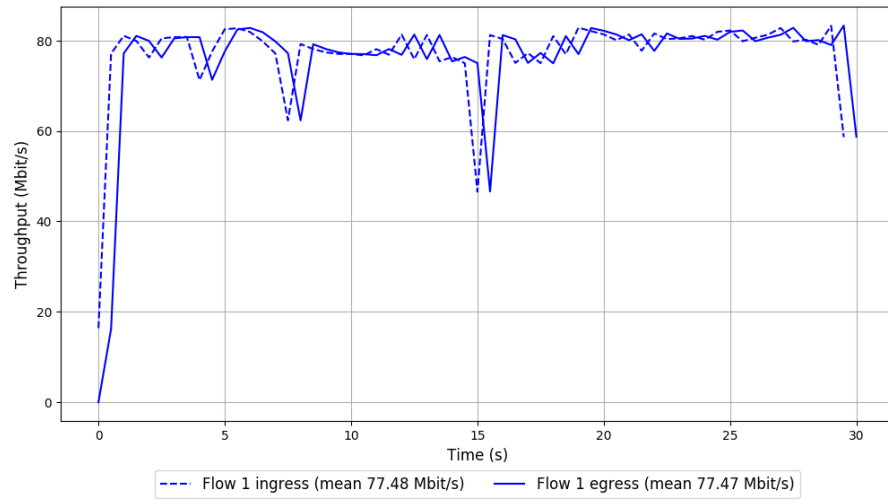
-- Flow 1:

Average throughput: 77.47 Mbit/s

95th percentile per-packet one-way delay: 0.925 ms

Loss rate: 0.00%

Run 4: Report of QUIC Cubic — Data Link



Run 5: Statistics of QUIC Cubic

Start at: 2018-11-29 22:02:03

End at: 2018-11-29 22:02:33

Local clock offset: 5.062 ms

Remote clock offset: -0.327 ms

Below is generated by plot.py at 2018-11-29 22:49:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 76.82 Mbit/s

95th percentile per-packet one-way delay: 0.873 ms

Loss rate: 0.00%

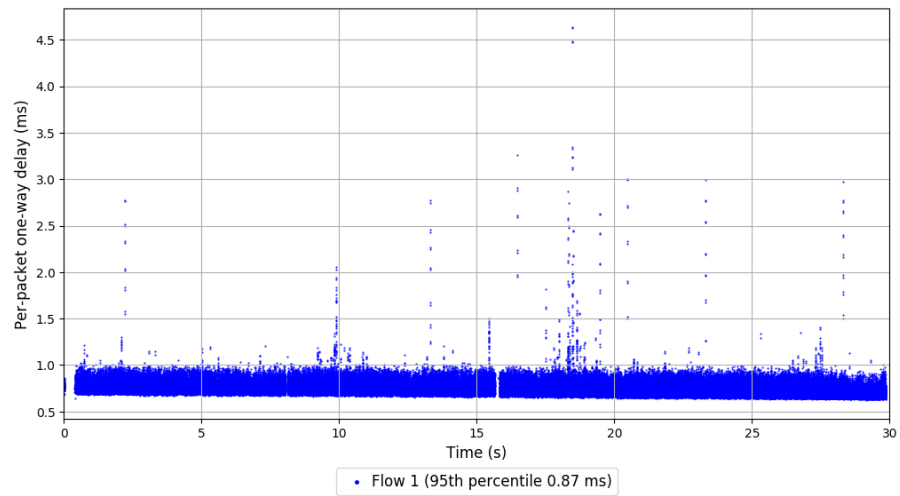
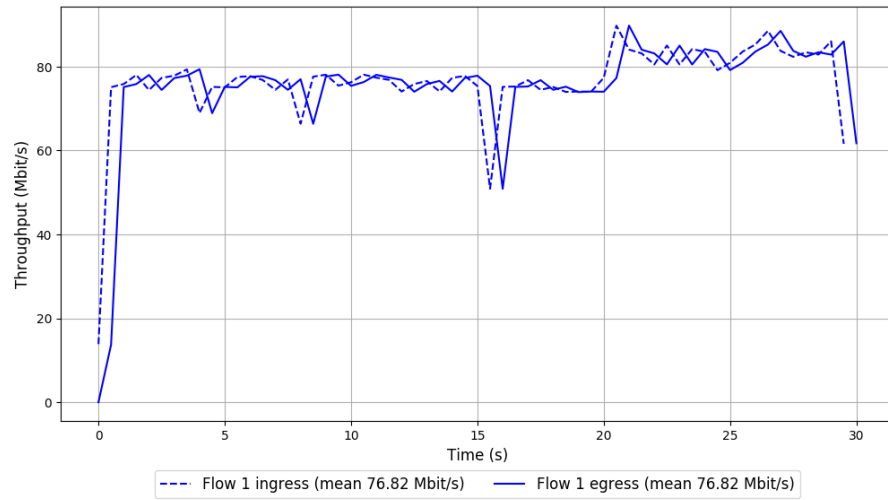
-- Flow 1:

Average throughput: 76.82 Mbit/s

95th percentile per-packet one-way delay: 0.873 ms

Loss rate: 0.00%

Run 5: Report of QUIC Cubic — Data Link

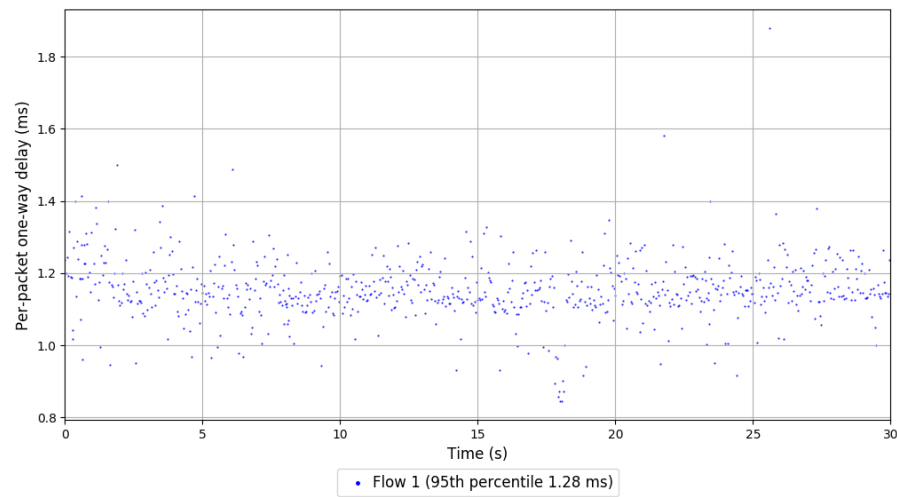
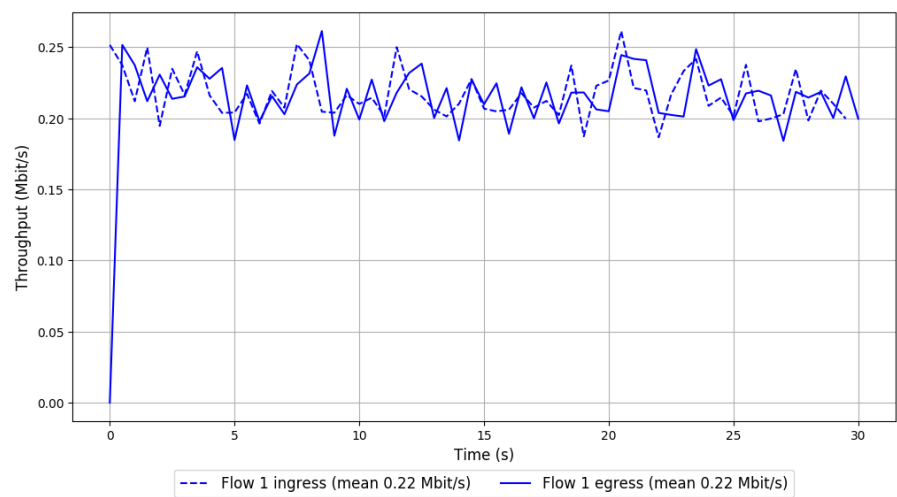


```
Run 1: Statistics of SCReAM

Start at: 2018-11-29 20:37:58
End at: 2018-11-29 20:38:28
Local clock offset: 5.196 ms
Remote clock offset: -3.799 ms

# Below is generated by plot.py at 2018-11-29 22:49:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.280 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.280 ms
Loss rate: 0.00%
```

Run 1: Report of SReAM — Data Link

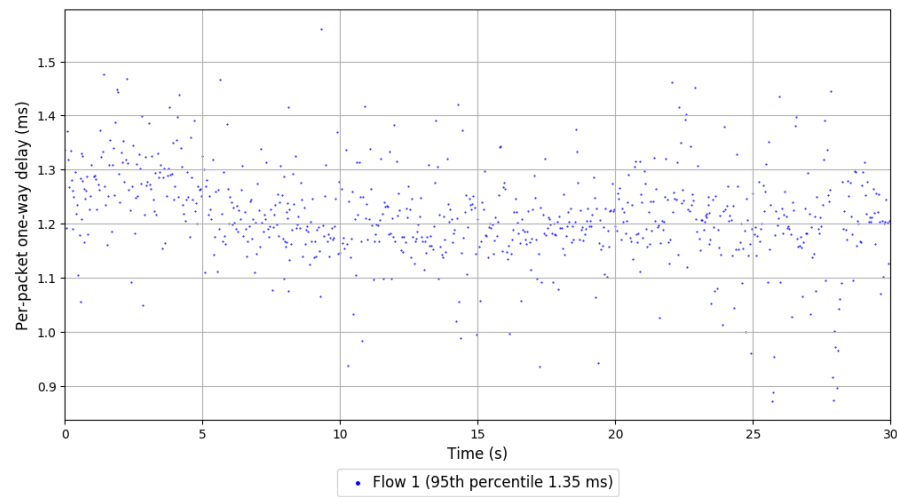
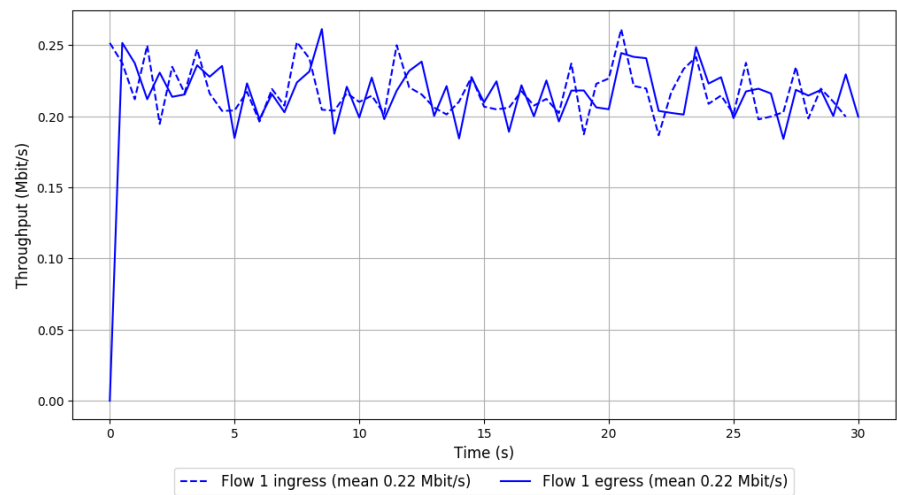


Run 2: Statistics of SCReAM

Start at: 2018-11-29 21:02:18
End at: 2018-11-29 21:02:48
Local clock offset: 5.104 ms
Remote clock offset: -3.215 ms

Below is generated by plot.py at 2018-11-29 22:49:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.353 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.353 ms
Loss rate: 0.00%

Run 2: Report of SReAM — Data Link

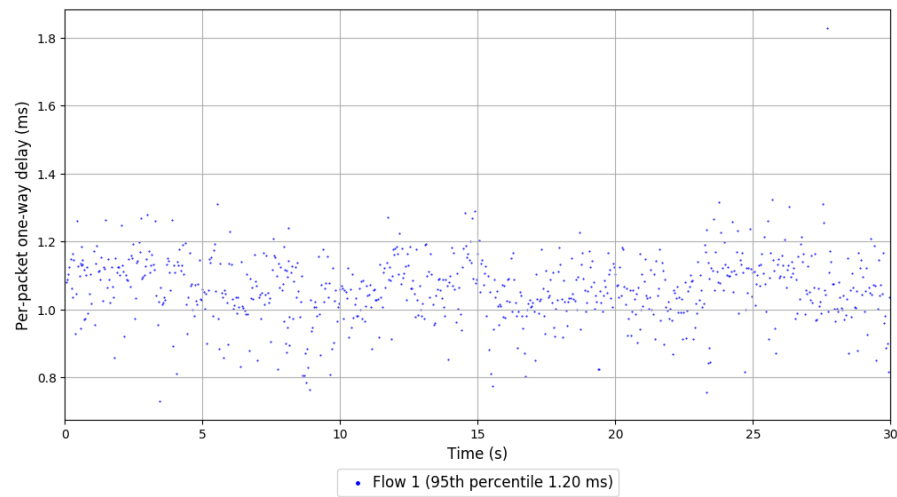
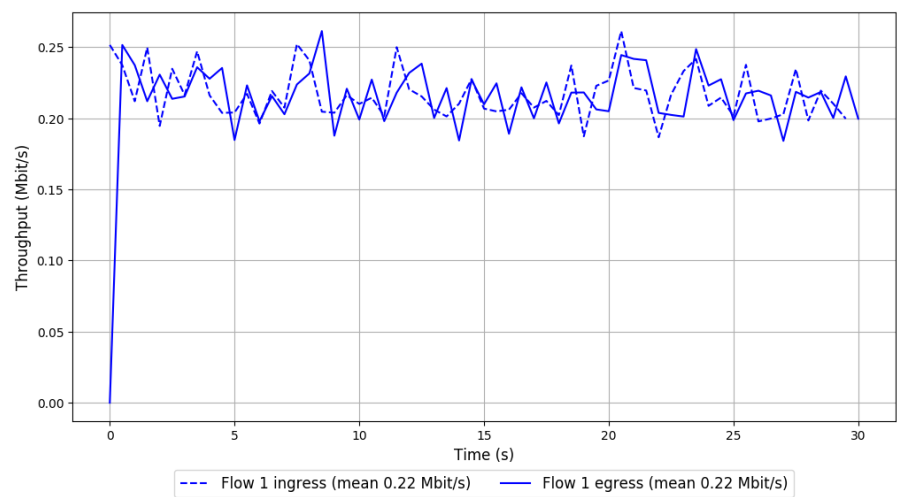


Run 3: Statistics of SCReAM

Start at: 2018-11-29 21:26:37
End at: 2018-11-29 21:27:07
Local clock offset: 4.921 ms
Remote clock offset: -2.894 ms

Below is generated by plot.py at 2018-11-29 22:49:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.197 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.197 ms
Loss rate: 0.00%

Run 3: Report of SReAM — Data Link



Run 4: Statistics of SCReAM

Start at: 2018-11-29 21:50:51

End at: 2018-11-29 21:51:21

Local clock offset: 5.014 ms

Remote clock offset: -2.44 ms

Below is generated by plot.py at 2018-11-29 22:49:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 1.109 ms

Loss rate: 0.00%

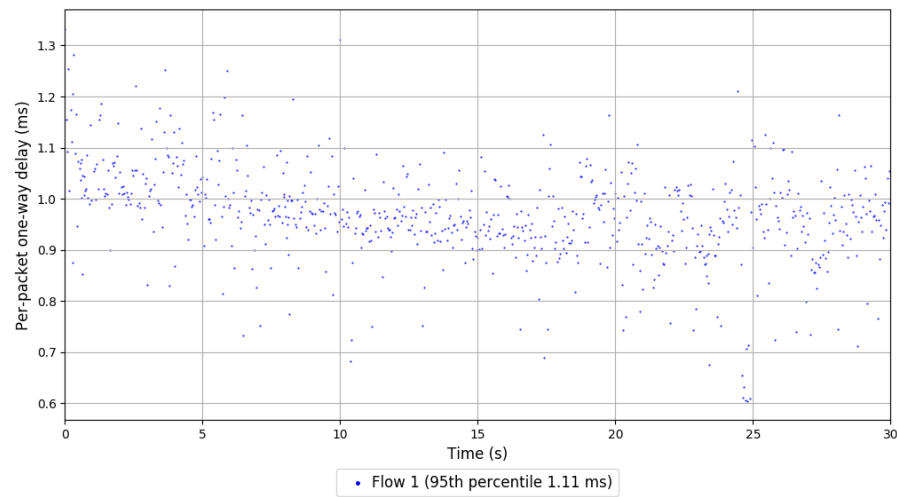
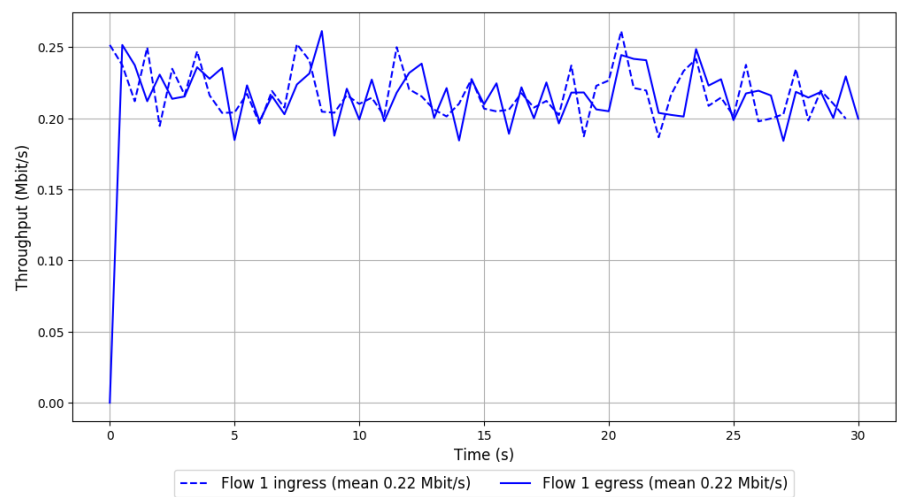
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 1.109 ms

Loss rate: 0.00%

Run 4: Report of SReAM — Data Link



Run 5: Statistics of SCReAM

Start at: 2018-11-29 22:15:04

End at: 2018-11-29 22:15:34

Local clock offset: 5.226 ms

Remote clock offset: 0.894 ms

Below is generated by plot.py at 2018-11-29 22:49:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 1.180 ms

Loss rate: 0.00%

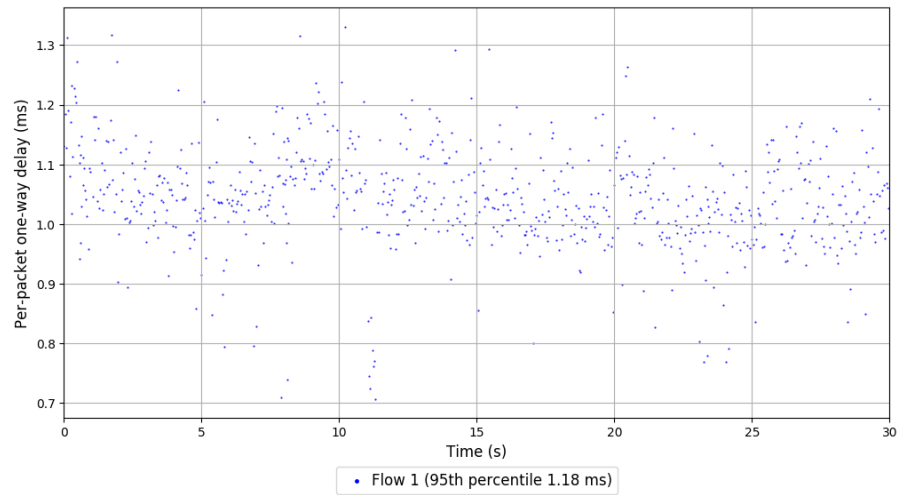
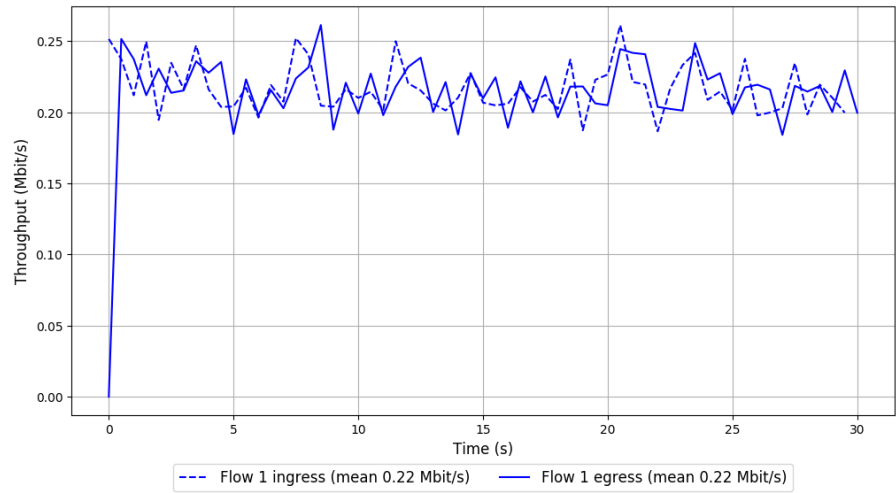
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 1.180 ms

Loss rate: 0.00%

Run 5: Report of SReAM — Data Link



Run 1: Statistics of Sprout

Start at: 2018-11-29 20:19:16

End at: 2018-11-29 20:19:46

Local clock offset: 5.093 ms

Remote clock offset: -2.73 ms

Below is generated by plot.py at 2018-11-29 22:49:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 50.25 Mbit/s

95th percentile per-packet one-way delay: 4.106 ms

Loss rate: 0.00%

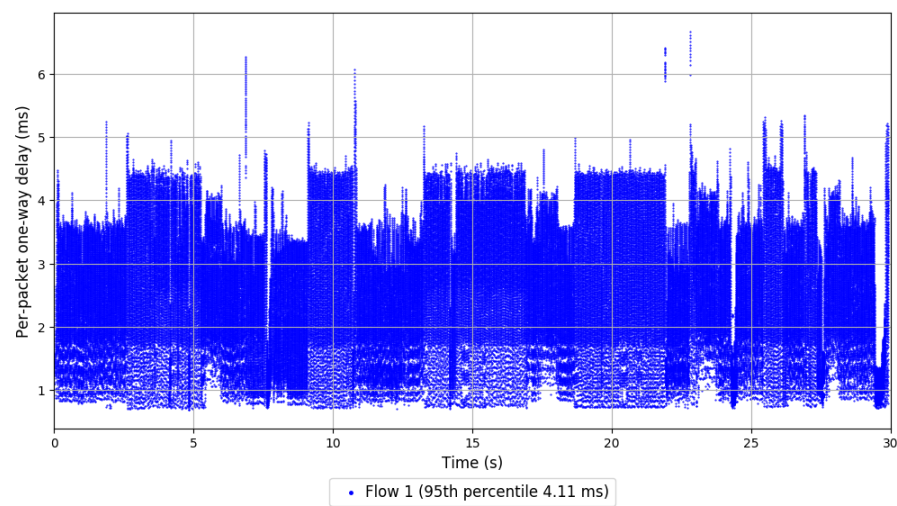
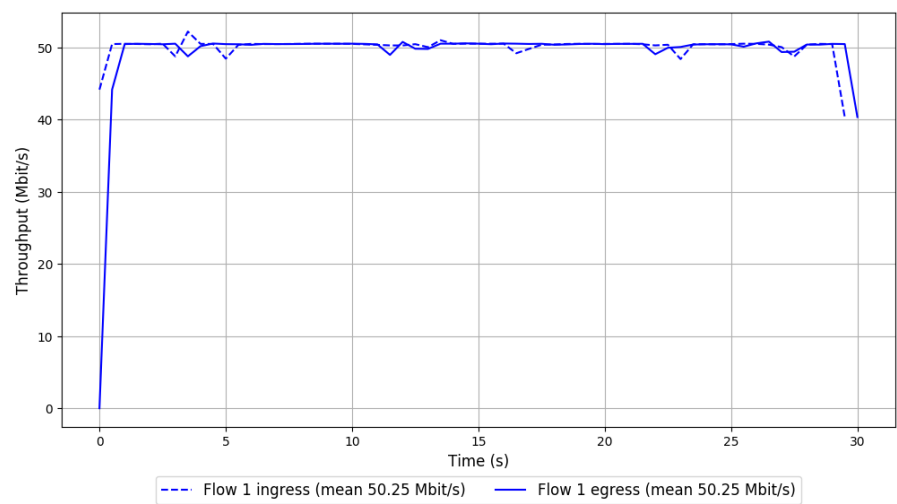
-- Flow 1:

Average throughput: 50.25 Mbit/s

95th percentile per-packet one-way delay: 4.106 ms

Loss rate: 0.00%

Run 1: Report of Sprout — Data Link

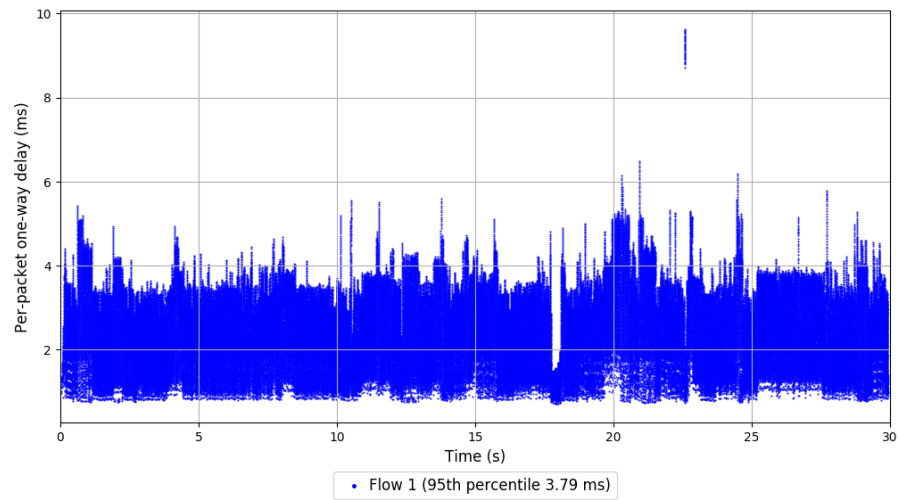
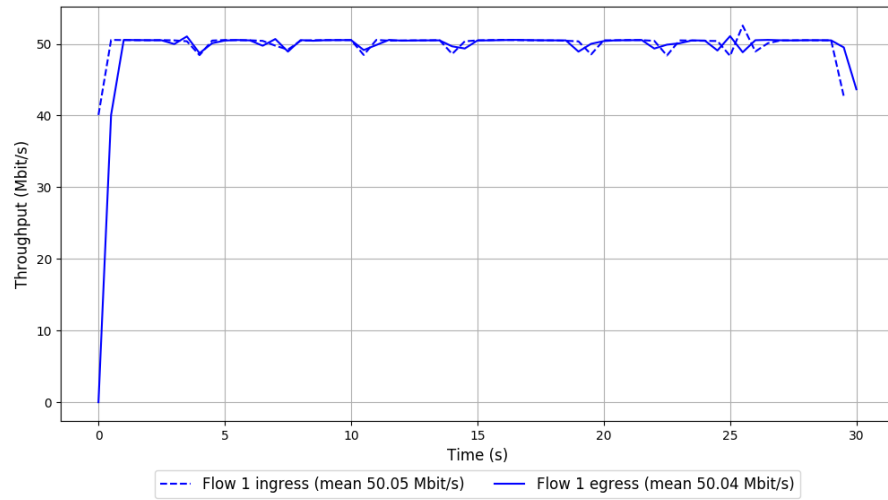


Run 2: Statistics of Sprout

Start at: 2018-11-29 20:43:28
End at: 2018-11-29 20:43:58
Local clock offset: 5.319 ms
Remote clock offset: -3.839 ms

Below is generated by plot.py at 2018-11-29 22:49:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 50.04 Mbit/s
95th percentile per-packet one-way delay: 3.788 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 50.04 Mbit/s
95th percentile per-packet one-way delay: 3.788 ms
Loss rate: 0.01%

Run 2: Report of Sprout — Data Link

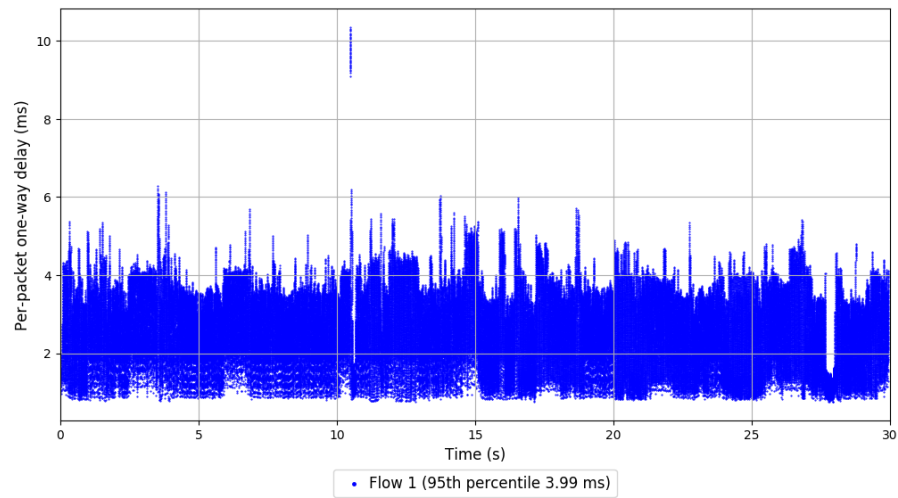
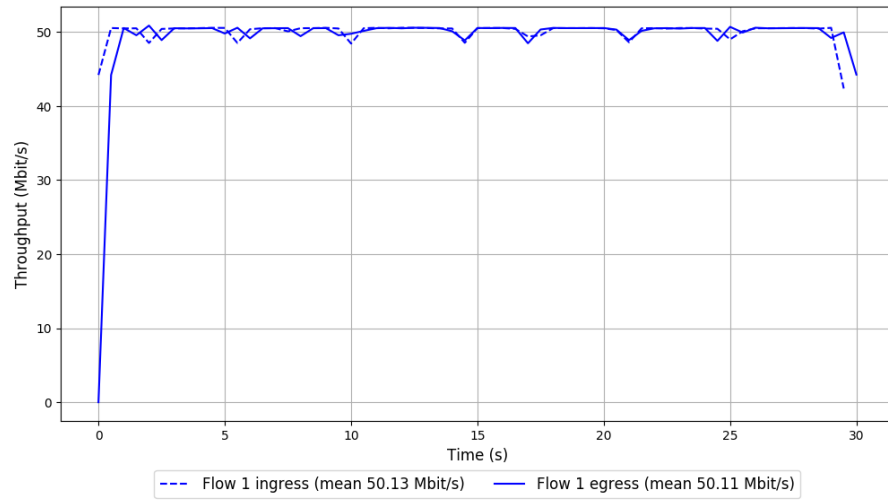


Run 3: Statistics of Sprout

Start at: 2018-11-29 21:07:48
End at: 2018-11-29 21:08:18
Local clock offset: 5.196 ms
Remote clock offset: -3.331 ms

Below is generated by plot.py at 2018-11-29 22:49:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 50.11 Mbit/s
95th percentile per-packet one-way delay: 3.991 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 50.11 Mbit/s
95th percentile per-packet one-way delay: 3.991 ms
Loss rate: 0.02%

Run 3: Report of Sprout — Data Link

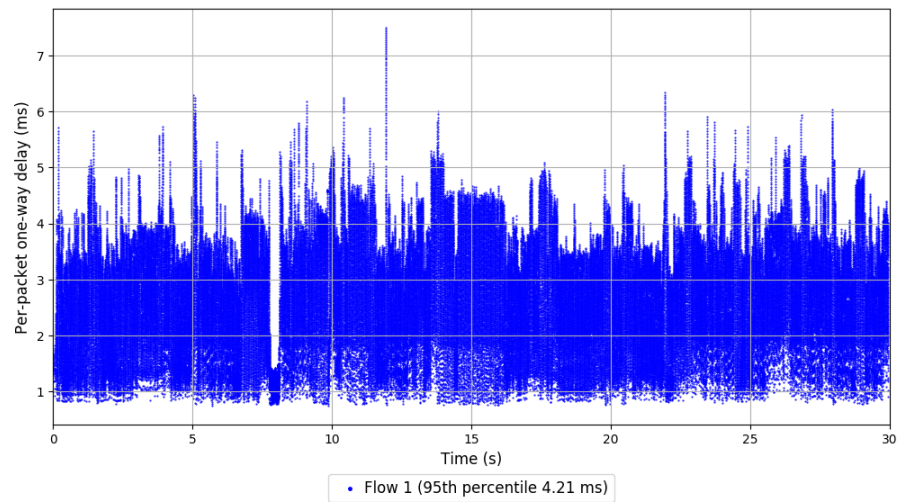
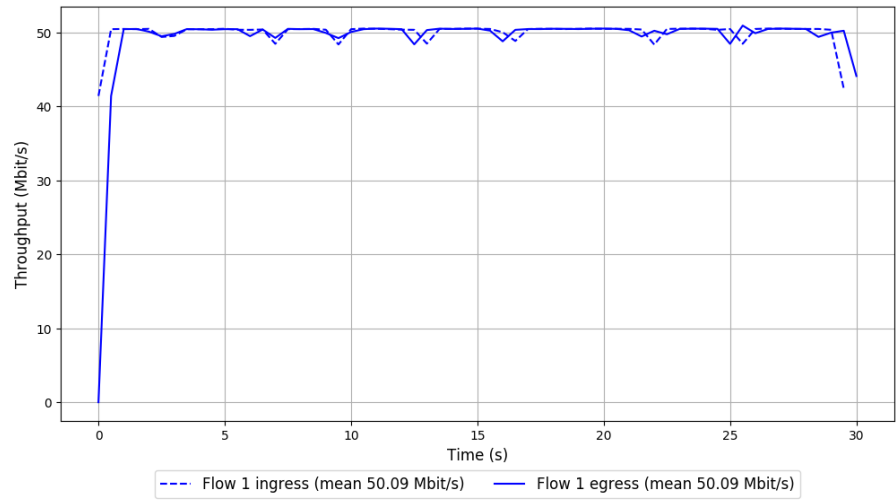


Run 4: Statistics of Sprout

Start at: 2018-11-29 21:32:08
End at: 2018-11-29 21:32:38
Local clock offset: 4.914 ms
Remote clock offset: -2.763 ms

Below is generated by plot.py at 2018-11-29 22:49:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 50.09 Mbit/s
95th percentile per-packet one-way delay: 4.205 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.09 Mbit/s
95th percentile per-packet one-way delay: 4.205 ms
Loss rate: 0.00%

Run 4: Report of Sprout — Data Link

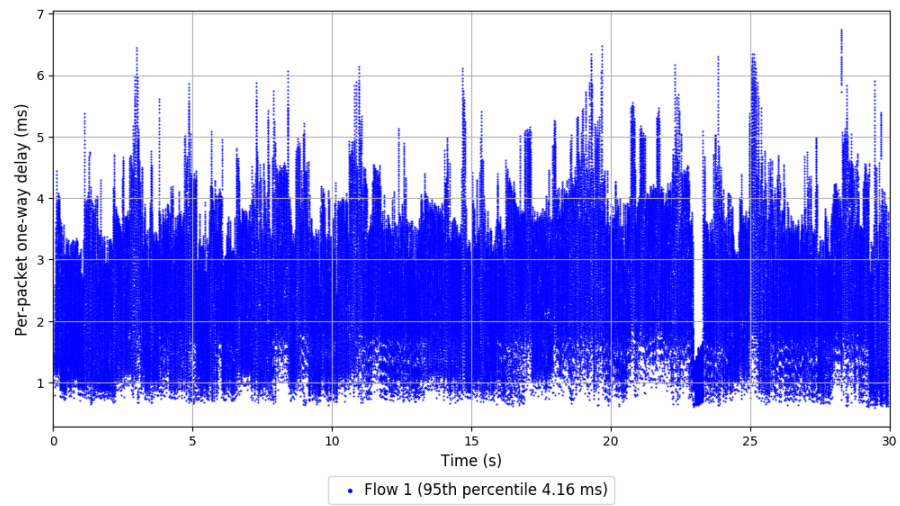
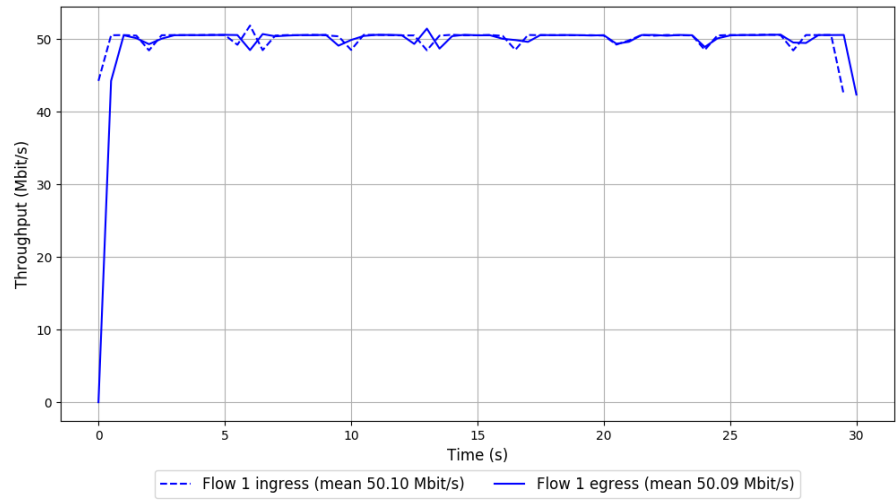


Run 5: Statistics of Sprout

Start at: 2018-11-29 21:56:23
End at: 2018-11-29 21:56:53
Local clock offset: 5.053 ms
Remote clock offset: -1.185 ms

Below is generated by plot.py at 2018-11-29 22:49:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 50.09 Mbit/s
95th percentile per-packet one-way delay: 4.164 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.09 Mbit/s
95th percentile per-packet one-way delay: 4.164 ms
Loss rate: 0.00%

Run 5: Report of Sprout — Data Link

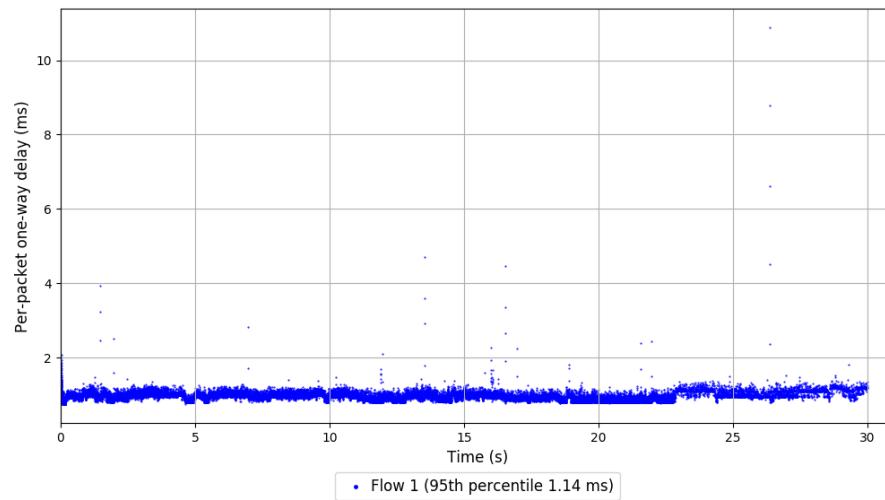
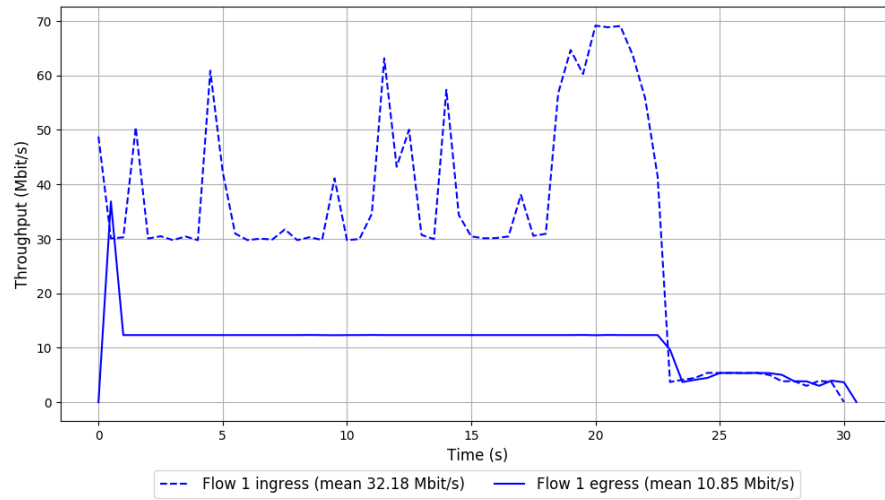


Run 1: Statistics of TaoVA-100x

Start at: 2018-11-29 20:31:41
End at: 2018-11-29 20:32:11
Local clock offset: 5.355 ms
Remote clock offset: -3.527 ms

Below is generated by plot.py at 2018-11-29 22:49:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 10.85 Mbit/s
95th percentile per-packet one-way delay: 1.142 ms
Loss rate: 66.29%
-- Flow 1:
Average throughput: 10.85 Mbit/s
95th percentile per-packet one-way delay: 1.142 ms
Loss rate: 66.29%

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-11-29 20:55:57

End at: 2018-11-29 20:56:27

Local clock offset: 5.049 ms

Remote clock offset: -3.295 ms

Below is generated by plot.py at 2018-11-29 22:49:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 6.81 Mbit/s

95th percentile per-packet one-way delay: 1.266 ms

Loss rate: 46.41%

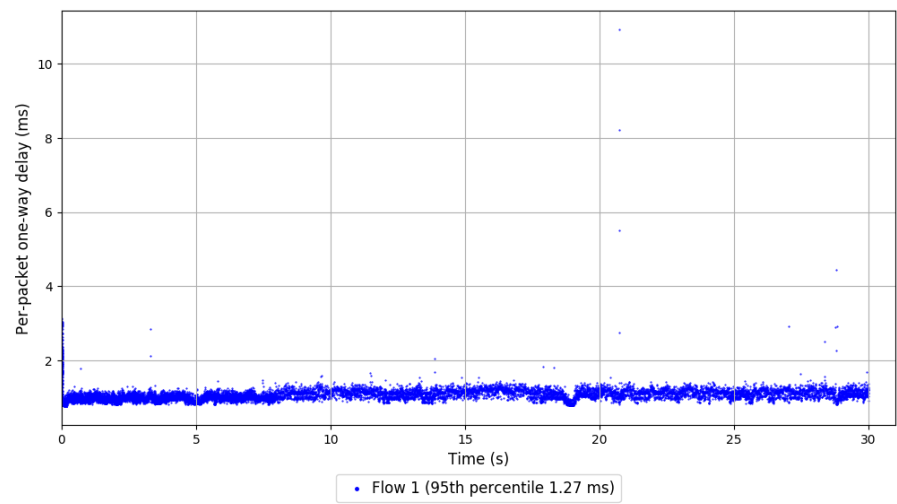
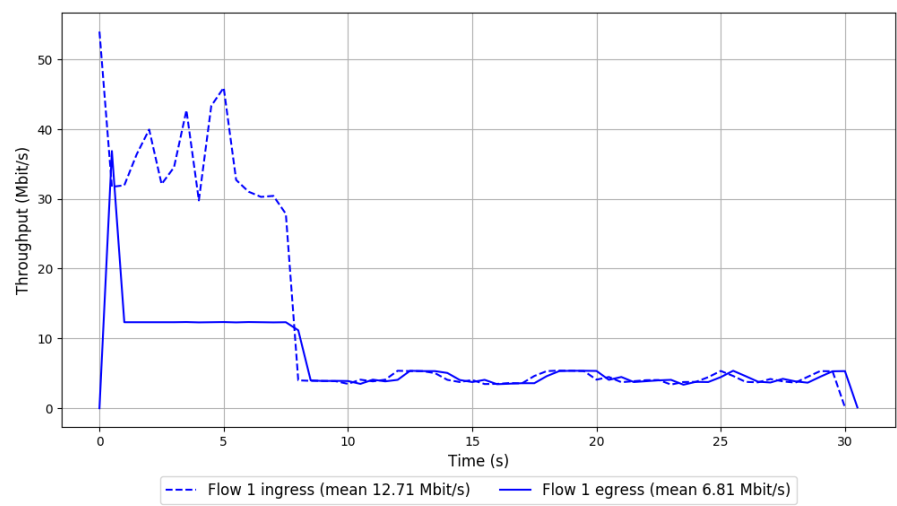
-- Flow 1:

Average throughput: 6.81 Mbit/s

95th percentile per-packet one-way delay: 1.266 ms

Loss rate: 46.41%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-11-29 21:20:23

End at: 2018-11-29 21:20:53

Local clock offset: 5.059 ms

Remote clock offset: -3.037 ms

Below is generated by plot.py at 2018-11-29 22:49:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 6.84 Mbit/s

95th percentile per-packet one-way delay: 1.217 ms

Loss rate: 0.02%

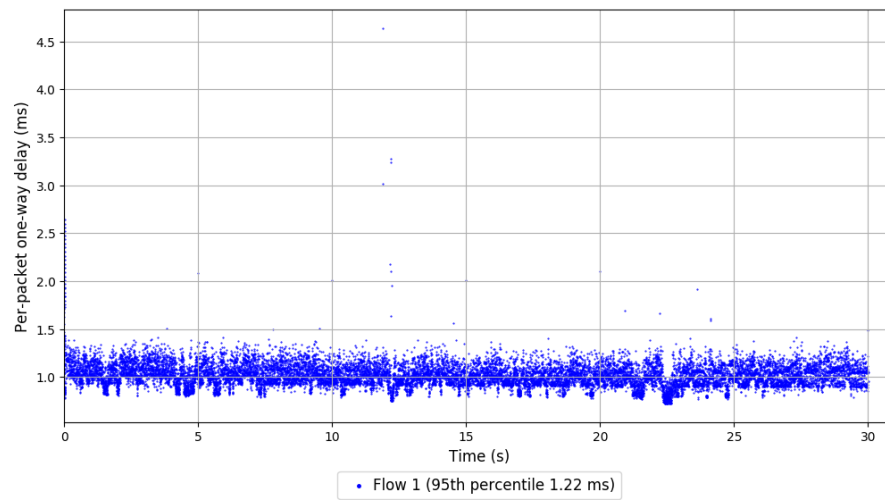
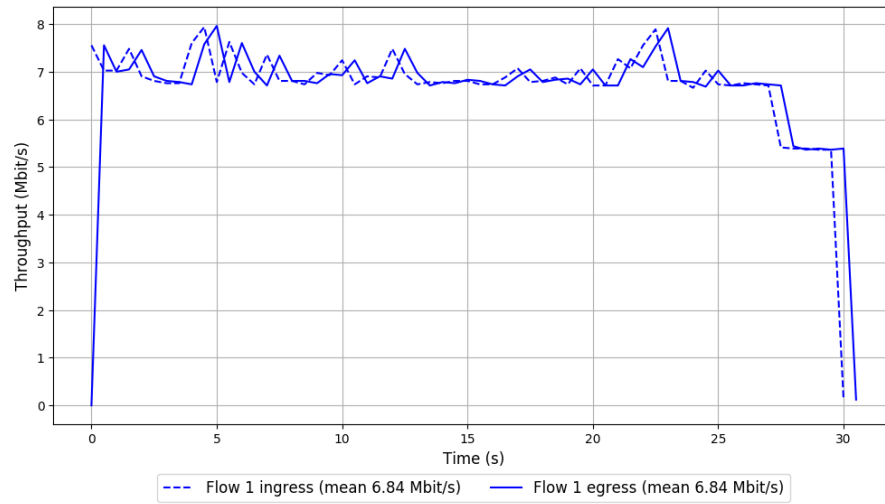
-- Flow 1:

Average throughput: 6.84 Mbit/s

95th percentile per-packet one-way delay: 1.217 ms

Loss rate: 0.02%

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

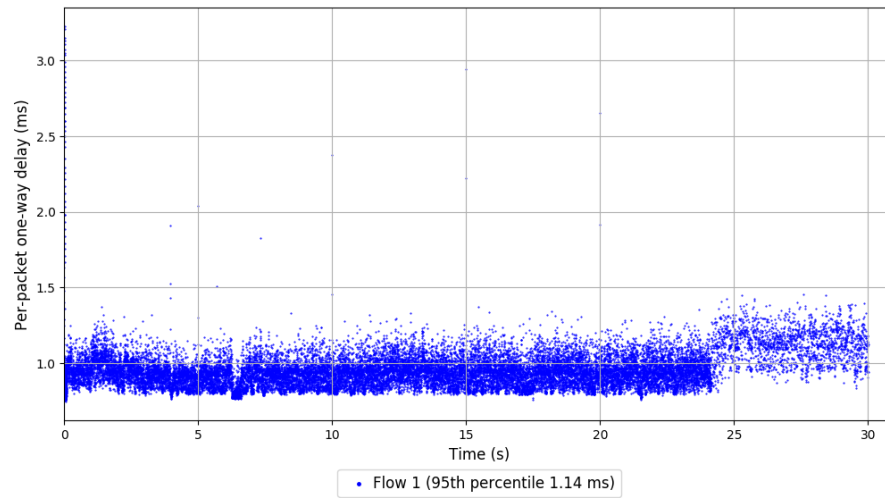
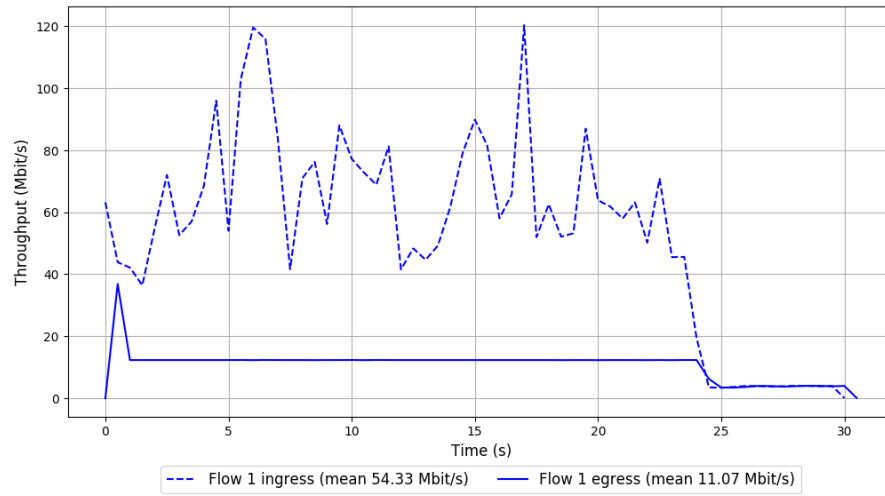


Run 4: Statistics of TaoVA-100x

Start at: 2018-11-29 21:44:39
End at: 2018-11-29 21:45:09
Local clock offset: 5.033 ms
Remote clock offset: -2.609 ms

Below is generated by plot.py at 2018-11-29 22:49:09
Datalink statistics
-- Total of 1 flow:
Average throughput: 11.07 Mbit/s
95th percentile per-packet one-way delay: 1.143 ms
Loss rate: 79.63%
-- Flow 1:
Average throughput: 11.07 Mbit/s
95th percentile per-packet one-way delay: 1.143 ms
Loss rate: 79.63%

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



Run 5: Statistics of TaoVA-100x

Start at: 2018-11-29 22:08:49

End at: 2018-11-29 22:09:19

Local clock offset: 5.144 ms

Remote clock offset: 0.407 ms

Below is generated by plot.py at 2018-11-29 22:49:09

Datalink statistics

-- Total of 1 flow:

Average throughput: 9.81 Mbit/s

95th percentile per-packet one-way delay: 1.132 ms

Loss rate: 66.57%

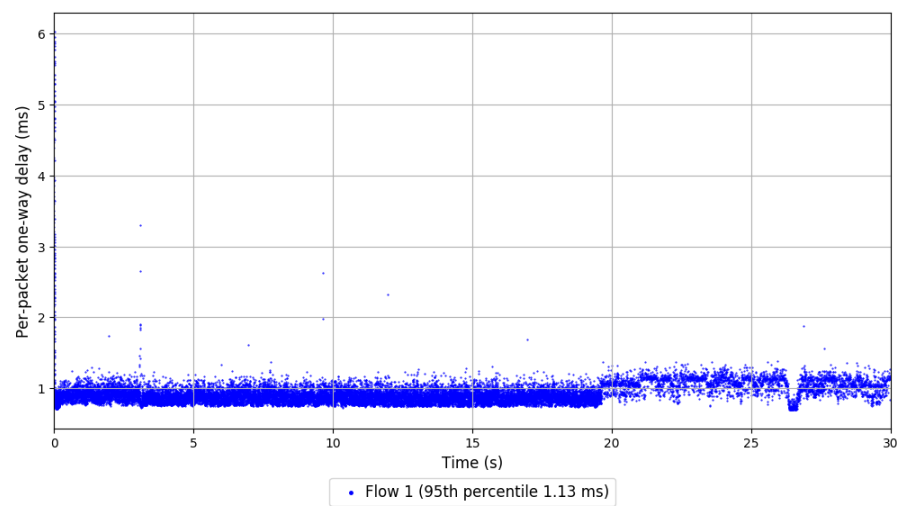
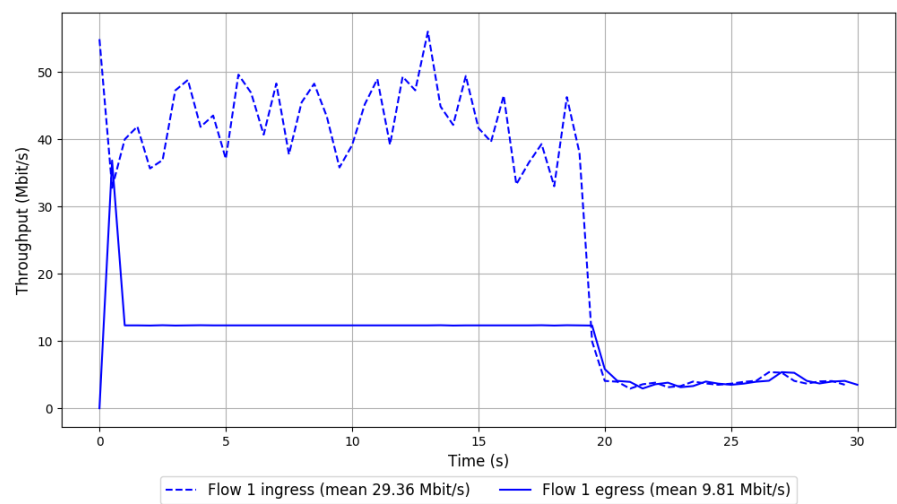
-- Flow 1:

Average throughput: 9.81 Mbit/s

95th percentile per-packet one-way delay: 1.132 ms

Loss rate: 66.57%

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



Run 1: Statistics of TCP Vegas

Start at: 2018-11-29 20:34:07

End at: 2018-11-29 20:34:37

Local clock offset: 5.23 ms

Remote clock offset: -3.672 ms

Below is generated by plot.py at 2018-11-29 22:52:10

Datalink statistics

-- Total of 1 flow:

Average throughput: 320.06 Mbit/s

95th percentile per-packet one-way delay: 1.305 ms

Loss rate: 0.00%

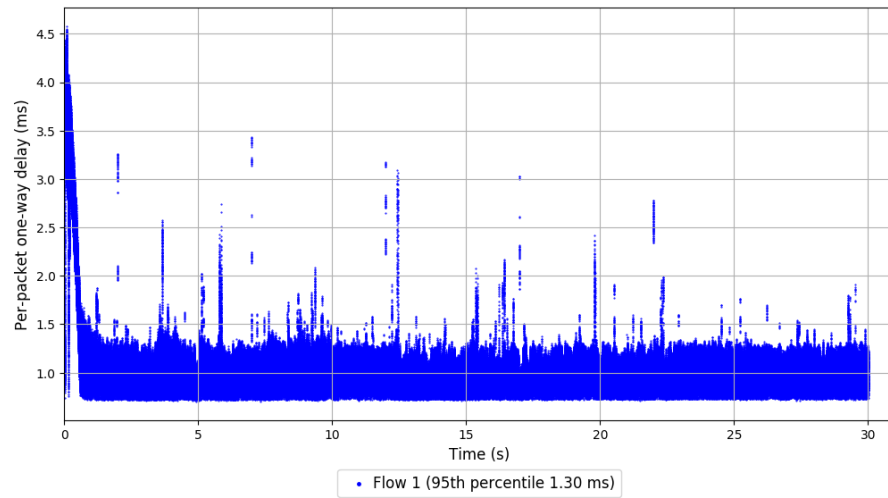
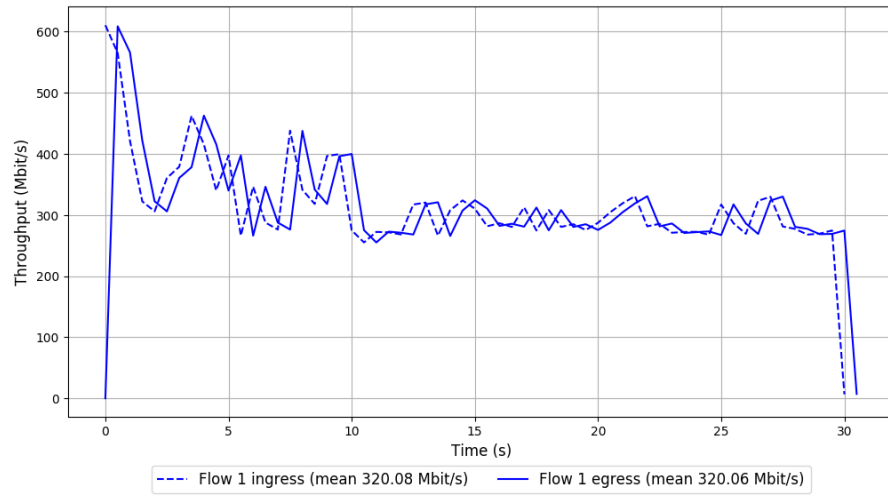
-- Flow 1:

Average throughput: 320.06 Mbit/s

95th percentile per-packet one-way delay: 1.305 ms

Loss rate: 0.00%

Run 1: Report of TCP Vegas — Data Link

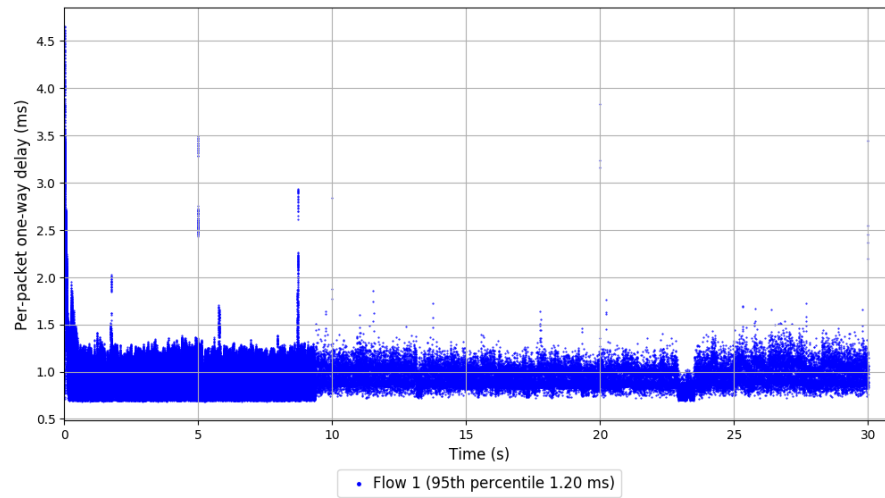
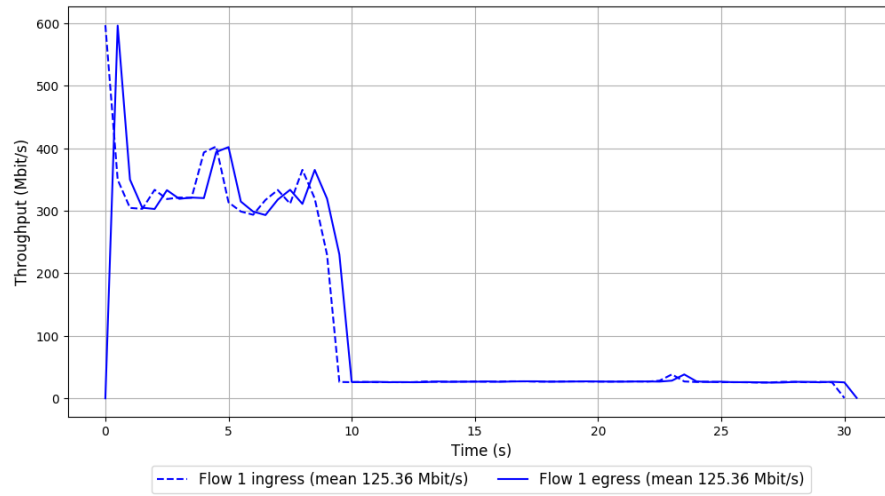


Run 2: Statistics of TCP Vegas

Start at: 2018-11-29 20:58:23
End at: 2018-11-29 20:58:53
Local clock offset: 5.067 ms
Remote clock offset: -3.328 ms

Below is generated by plot.py at 2018-11-29 22:52:10
Datalink statistics
-- Total of 1 flow:
Average throughput: 125.36 Mbit/s
95th percentile per-packet one-way delay: 1.200 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 125.36 Mbit/s
95th percentile per-packet one-way delay: 1.200 ms
Loss rate: 0.00%

Run 2: Report of TCP Vegas — Data Link

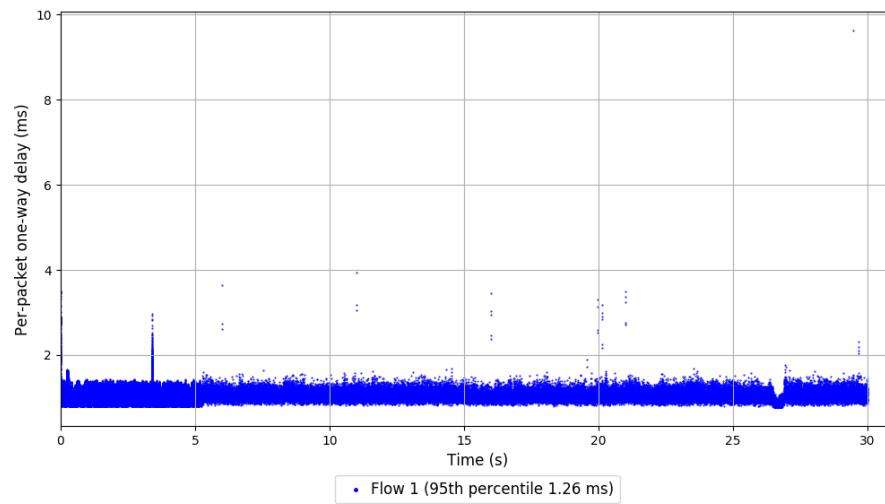
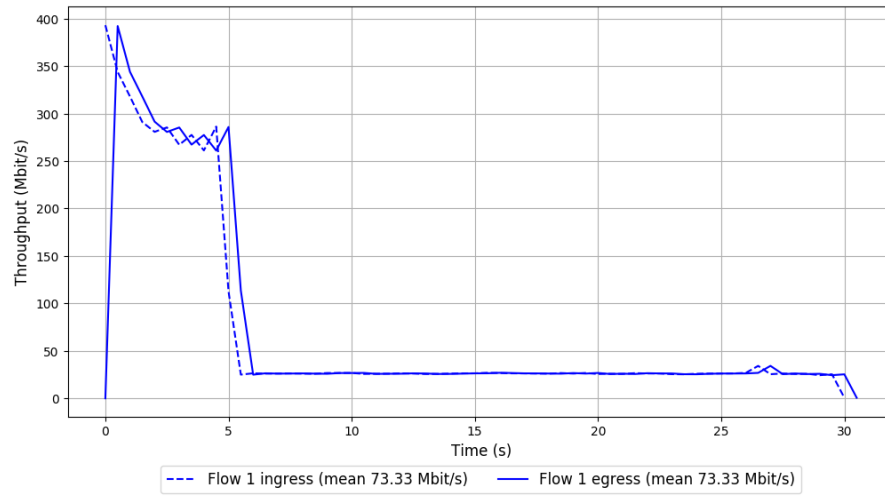


Run 3: Statistics of TCP Vegas

Start at: 2018-11-29 21:22:49
End at: 2018-11-29 21:23:19
Local clock offset: 4.987 ms
Remote clock offset: -2.875 ms

Below is generated by plot.py at 2018-11-29 22:52:10
Datalink statistics
-- Total of 1 flow:
Average throughput: 73.33 Mbit/s
95th percentile per-packet one-way delay: 1.262 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 73.33 Mbit/s
95th percentile per-packet one-way delay: 1.262 ms
Loss rate: 0.00%

Run 3: Report of TCP Vegas — Data Link

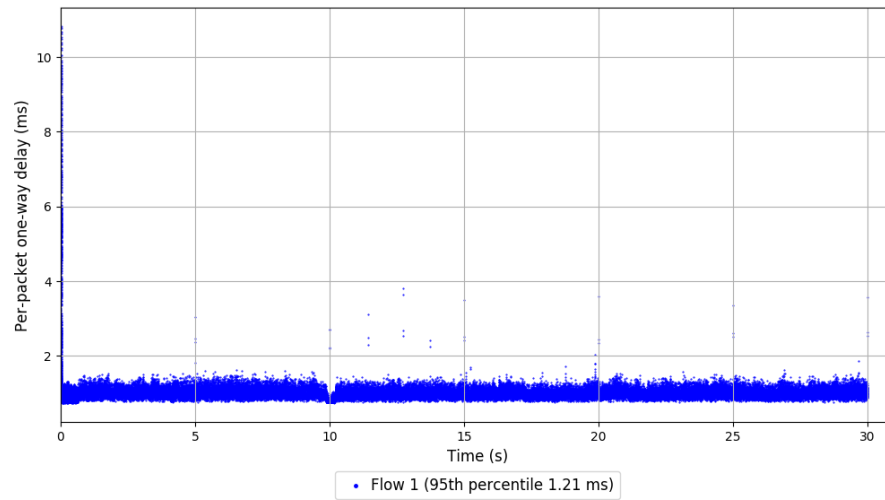
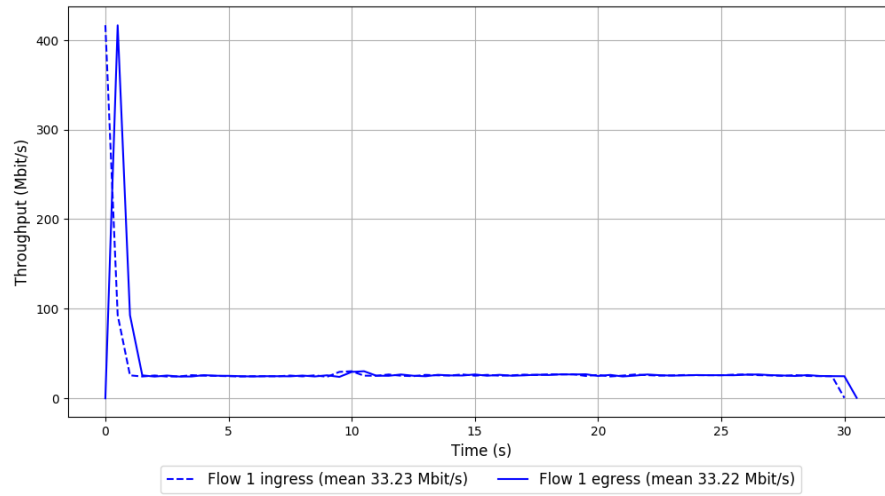


Run 4: Statistics of TCP Vegas

Start at: 2018-11-29 21:47:06
End at: 2018-11-29 21:47:36
Local clock offset: 5.022 ms
Remote clock offset: -2.594 ms

Below is generated by plot.py at 2018-11-29 22:52:10
Datalink statistics
-- Total of 1 flow:
Average throughput: 33.22 Mbit/s
95th percentile per-packet one-way delay: 1.214 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 33.22 Mbit/s
95th percentile per-packet one-way delay: 1.214 ms
Loss rate: 0.05%

Run 4: Report of TCP Vegas — Data Link



Run 5: Statistics of TCP Vegas

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

End at: 2018-11-29 22:11:45

Local clock offset: 5.166 ms

Remote clock offset: 0.592 ms

Below is generated by plot.py at 2018-11-29 22:52:10

Datalink statistics

-- Total of 1 flow:

Average throughput: 242.25 Mbit/s

95th percentile per-packet one-way delay: 1.184 ms

Loss rate: 0.00%

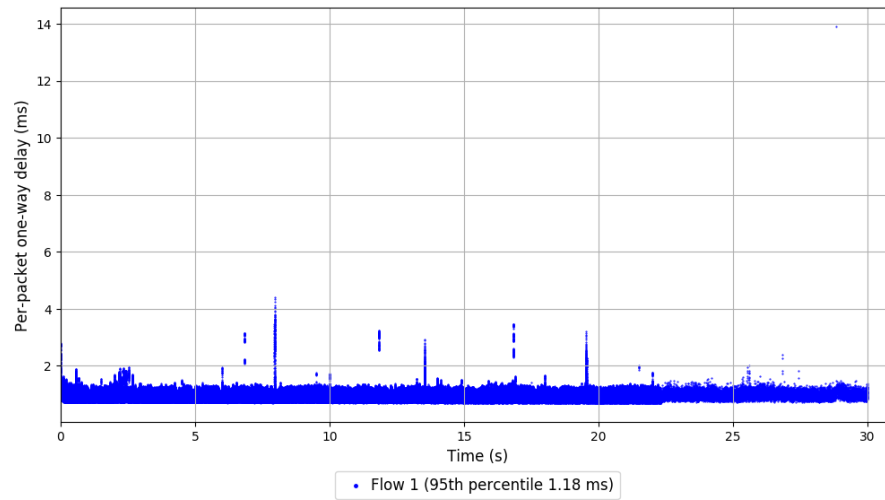
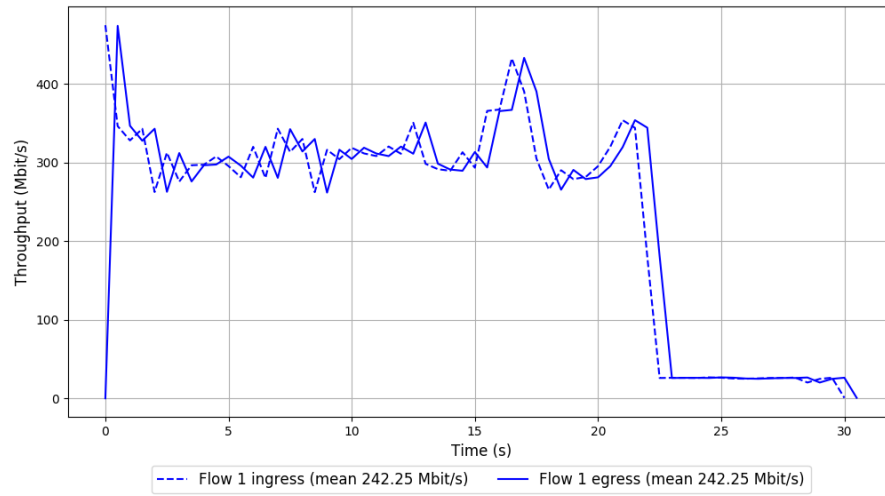
-- Flow 1:

Average throughput: 242.25 Mbit/s

95th percentile per-packet one-way delay: 1.184 ms

Loss rate: 0.00%

Run 5: Report of TCP Vegas — Data Link

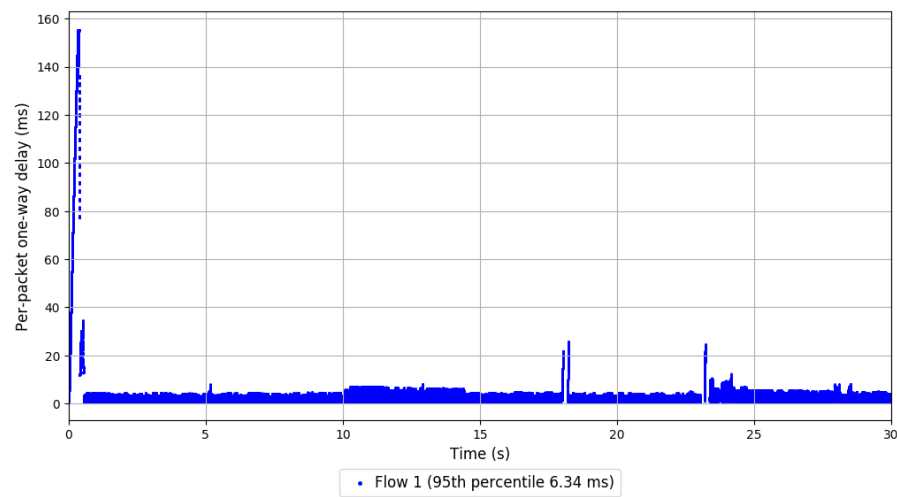
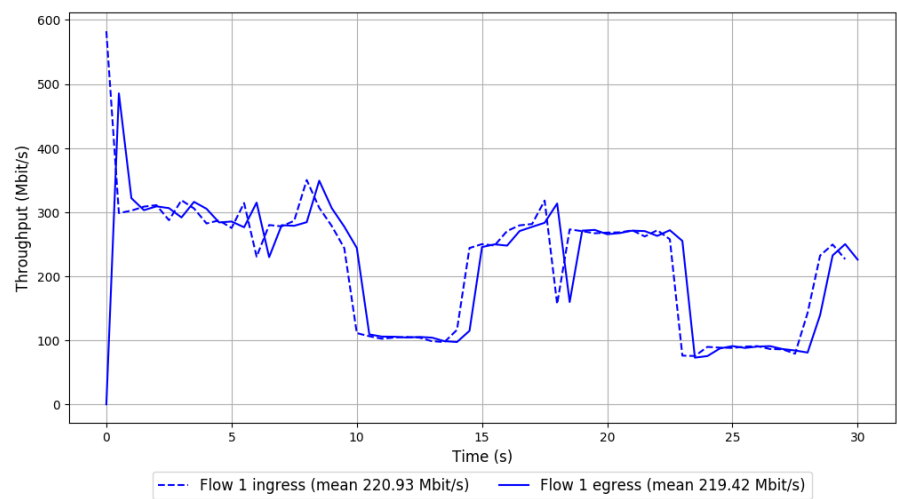


Run 1: Statistics of Verus

Start at: 2018-11-29 20:29:01
End at: 2018-11-29 20:29:31
Local clock offset: 5.283 ms
Remote clock offset: -3.424 ms

Below is generated by plot.py at 2018-11-29 22:52:10
Datalink statistics
-- Total of 1 flow:
Average throughput: 219.42 Mbit/s
95th percentile per-packet one-way delay: 6.340 ms
Loss rate: 0.68%
-- Flow 1:
Average throughput: 219.42 Mbit/s
95th percentile per-packet one-way delay: 6.340 ms
Loss rate: 0.68%

Run 1: Report of Verus — Data Link

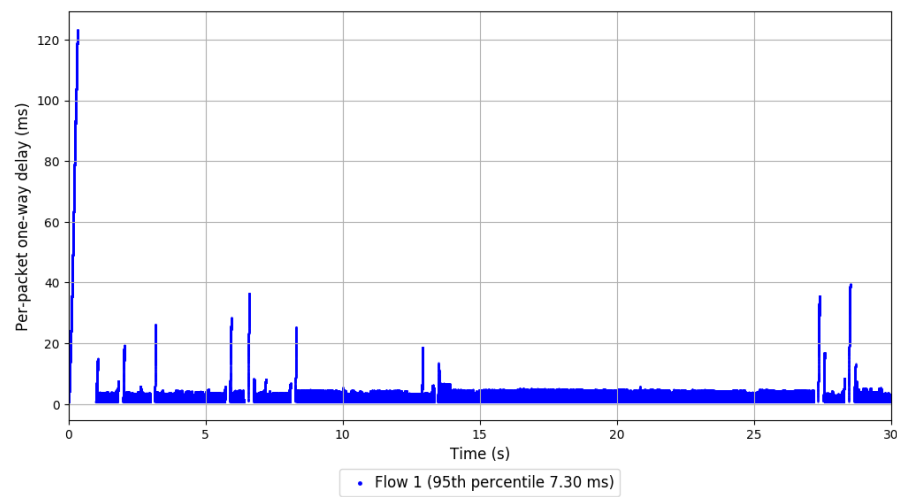
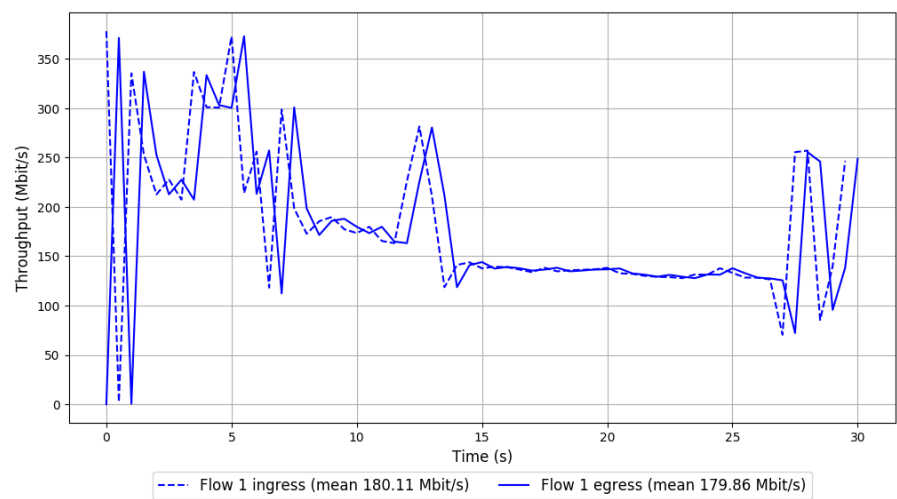


Run 2: Statistics of Verus

Start at: 2018-11-29 20:53:16
End at: 2018-11-29 20:53:46
Local clock offset: 5.057 ms
Remote clock offset: -3.352 ms

Below is generated by plot.py at 2018-11-29 22:52:10
Datalink statistics
-- Total of 1 flow:
Average throughput: 179.86 Mbit/s
95th percentile per-packet one-way delay: 7.299 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 179.86 Mbit/s
95th percentile per-packet one-way delay: 7.299 ms
Loss rate: 0.13%

Run 2: Report of Verus — Data Link

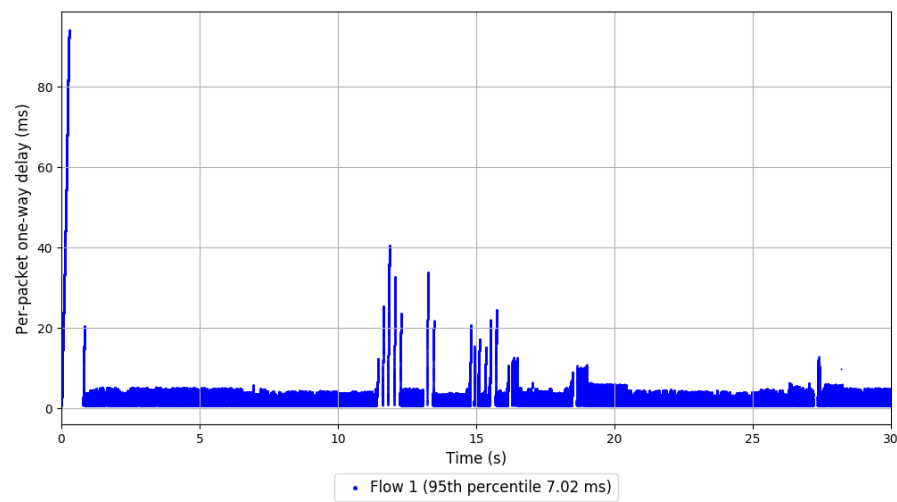
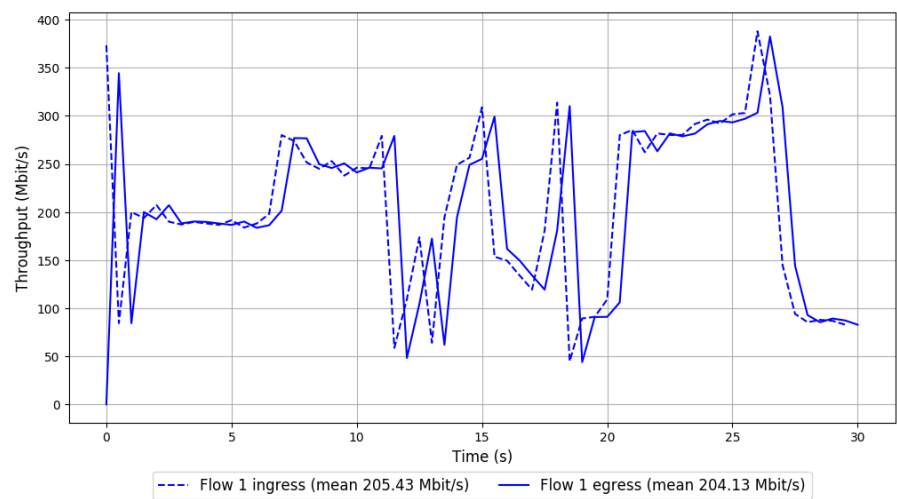


Run 3: Statistics of Verus

Start at: 2018-11-29 21:17:39
End at: 2018-11-29 21:18:09
Local clock offset: 5.188 ms
Remote clock offset: -3.225 ms

Below is generated by plot.py at 2018-11-29 22:52:10
Datalink statistics
-- Total of 1 flow:
Average throughput: 204.13 Mbit/s
95th percentile per-packet one-way delay: 7.018 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 204.13 Mbit/s
95th percentile per-packet one-way delay: 7.018 ms
Loss rate: 0.62%

Run 3: Report of Verus — Data Link



Run 4: Statistics of Verus

Start at: 2018-11-29 21:41:53

End at: 2018-11-29 21:42:23

Local clock offset: 4.998 ms

Remote clock offset: -2.68 ms

Below is generated by plot.py at 2018-11-29 22:52:10

Datalink statistics

-- Total of 1 flow:

Average throughput: 221.89 Mbit/s

95th percentile per-packet one-way delay: 5.273 ms

Loss rate: 0.58%

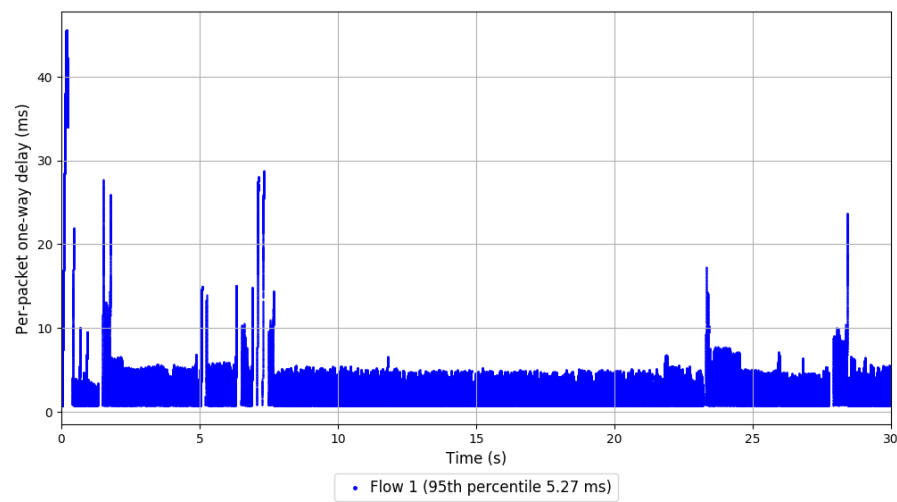
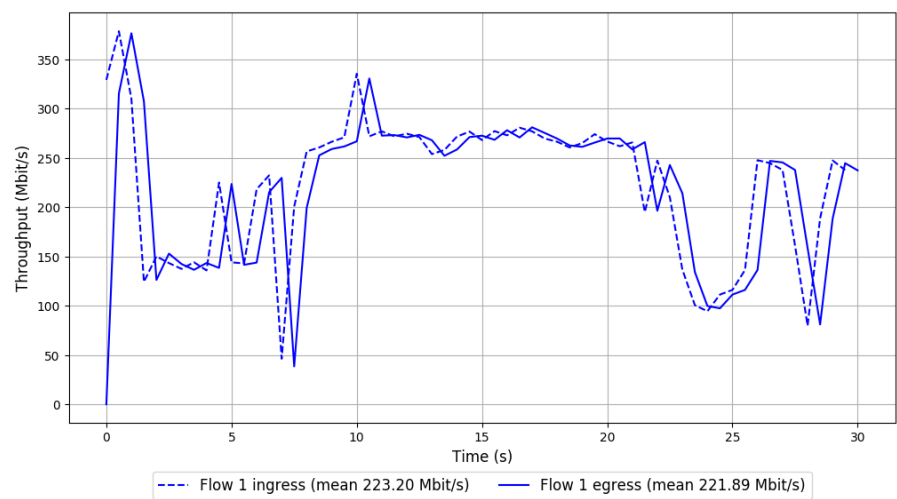
-- Flow 1:

Average throughput: 221.89 Mbit/s

95th percentile per-packet one-way delay: 5.273 ms

Loss rate: 0.58%

Run 4: Report of Verus — Data Link



Run 5: Statistics of Verus

Start at: 2018-11-29 22:06:09

End at: 2018-11-29 22:06:39

Local clock offset: 5.109 ms

Remote clock offset: 0.17 ms

Below is generated by plot.py at 2018-11-29 22:52:10

Datalink statistics

-- Total of 1 flow:

Average throughput: 186.52 Mbit/s

95th percentile per-packet one-way delay: 8.448 ms

Loss rate: 0.98%

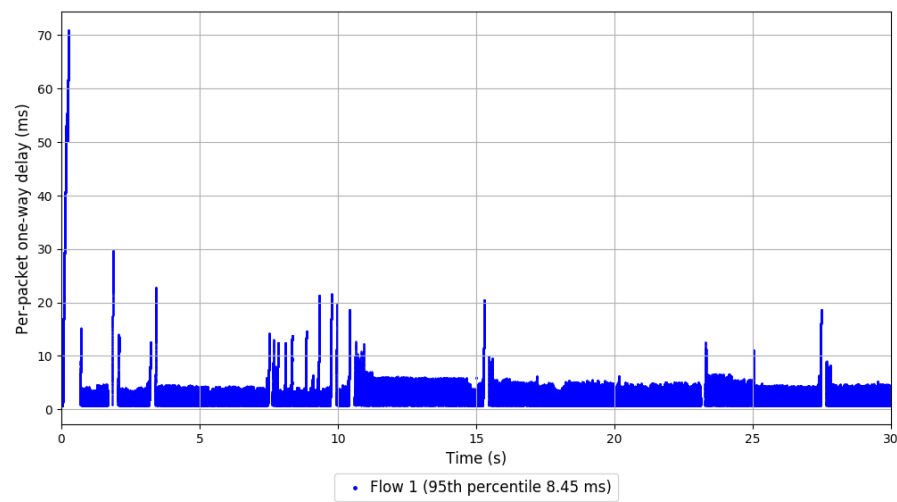
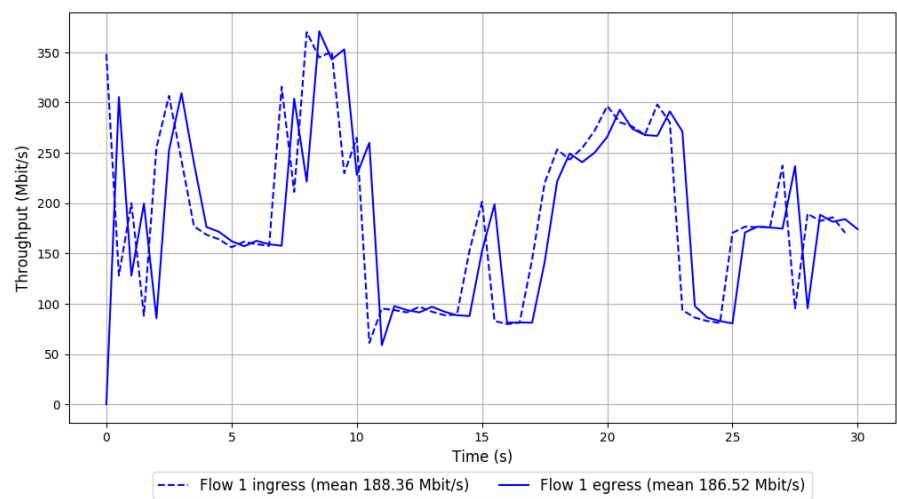
-- Flow 1:

Average throughput: 186.52 Mbit/s

95th percentile per-packet one-way delay: 8.448 ms

Loss rate: 0.98%

Run 5: Report of Verus — Data Link



Run 1: Statistics of PCC-Vivace

Start at: 2018-11-29 20:30:23

End at: 2018-11-29 20:30:53

Local clock offset: 5.363 ms

Remote clock offset: -3.539 ms

Below is generated by plot.py at 2018-11-29 22:52:10

Datalink statistics

-- Total of 1 flow:

Average throughput: 112.18 Mbit/s

95th percentile per-packet one-way delay: 0.959 ms

Loss rate: 0.03%

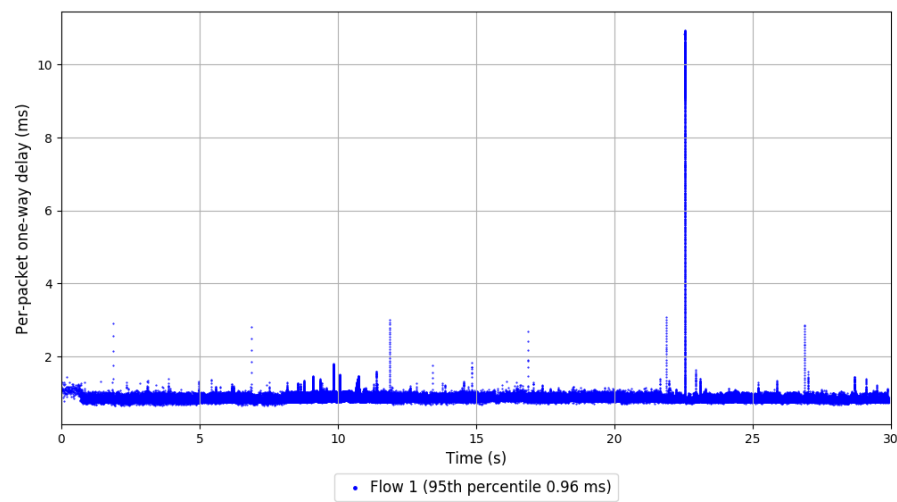
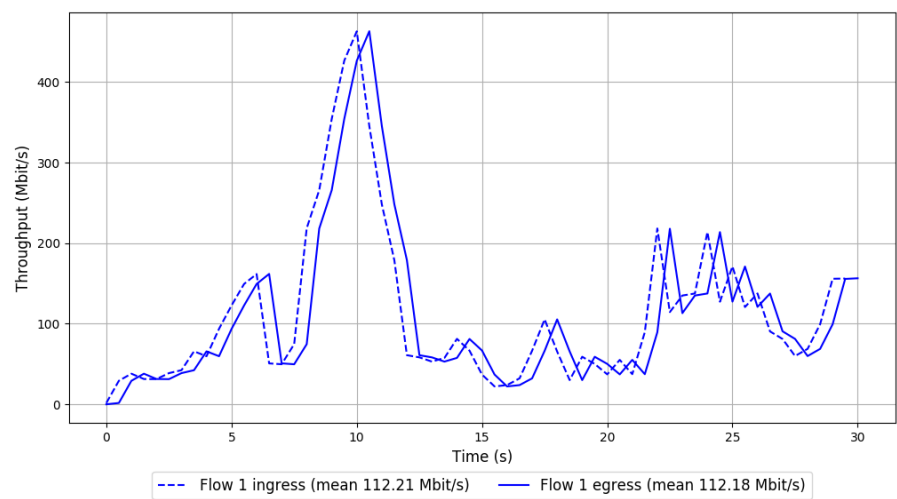
-- Flow 1:

Average throughput: 112.18 Mbit/s

95th percentile per-packet one-way delay: 0.959 ms

Loss rate: 0.03%

Run 1: Report of PCC-Vivace — Data Link



Run 2: Statistics of PCC-Vivace

Start at: 2018-11-29 20:54:36

End at: 2018-11-29 20:55:06

Local clock offset: 5.061 ms

Remote clock offset: -3.38 ms

Below is generated by plot.py at 2018-11-29 22:52:36

Datalink statistics

-- Total of 1 flow:

Average throughput: 176.31 Mbit/s

95th percentile per-packet one-way delay: 0.918 ms

Loss rate: 0.00%

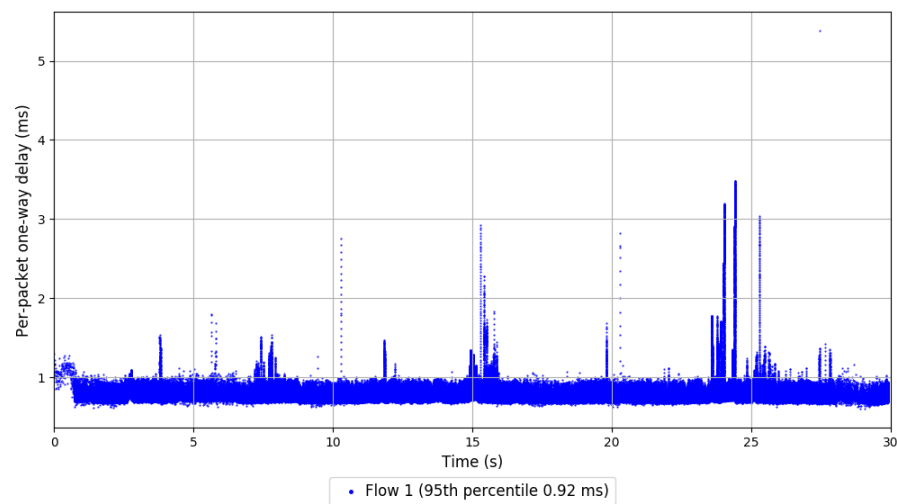
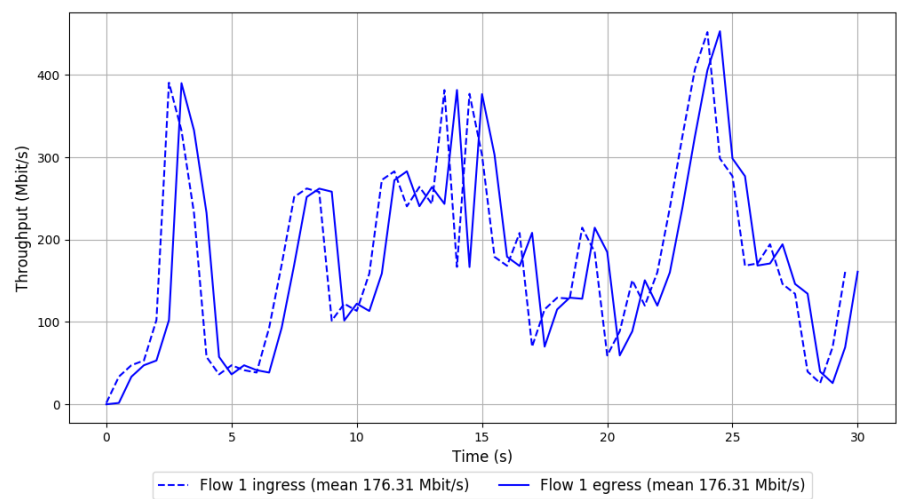
-- Flow 1:

Average throughput: 176.31 Mbit/s

95th percentile per-packet one-way delay: 0.918 ms

Loss rate: 0.00%

Run 2: Report of PCC-Vivace — Data Link

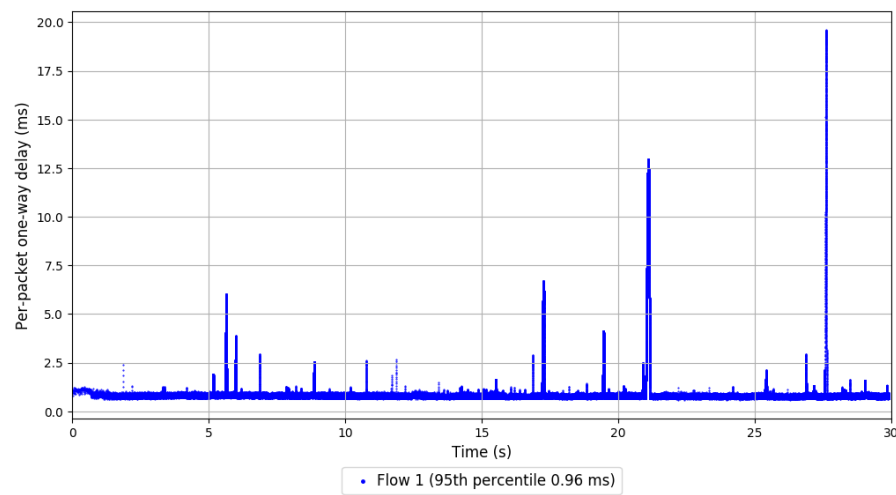
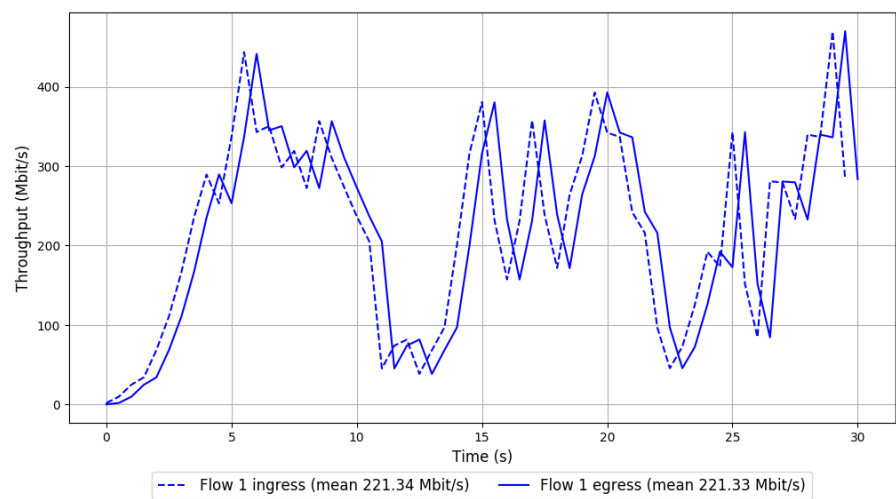


Run 3: Statistics of PCC-Vivace

Start at: 2018-11-29 21:19:00
End at: 2018-11-29 21:19:30
Local clock offset: 5.127 ms
Remote clock offset: -3.147 ms

Below is generated by plot.py at 2018-11-29 22:52:56
Datalink statistics
-- Total of 1 flow:
Average throughput: 221.33 Mbit/s
95th percentile per-packet one-way delay: 0.965 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 221.33 Mbit/s
95th percentile per-packet one-way delay: 0.965 ms
Loss rate: 0.01%

Run 3: Report of PCC-Vivace — Data Link



Run 4: Statistics of PCC-Vivace

Start at: 2018-11-29 21:43:15

End at: 2018-11-29 21:43:45

Local clock offset: 5.015 ms

Remote clock offset: -2.68 ms

Below is generated by plot.py at 2018-11-29 22:52:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 257.75 Mbit/s

95th percentile per-packet one-way delay: 1.252 ms

Loss rate: 0.01%

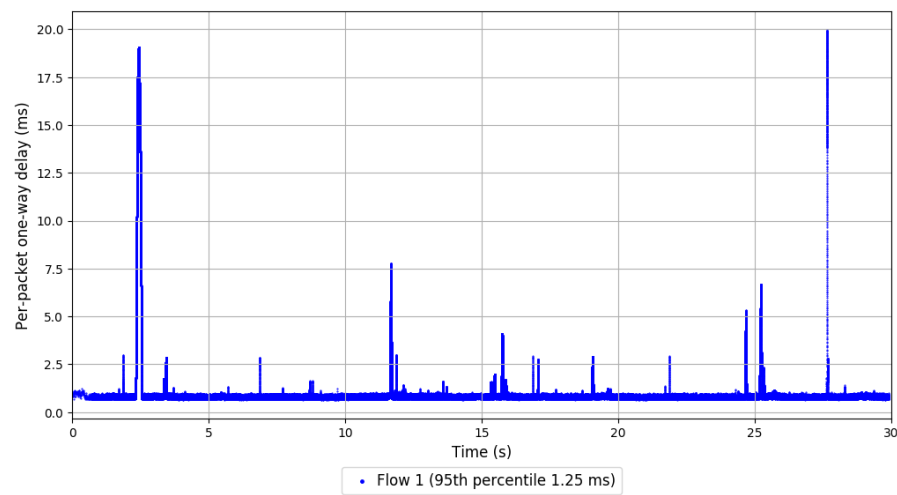
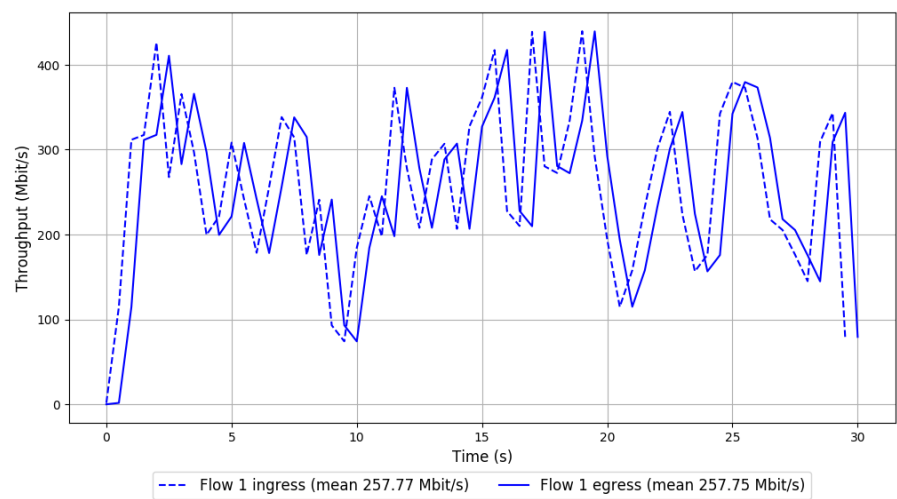
-- Flow 1:

Average throughput: 257.75 Mbit/s

95th percentile per-packet one-way delay: 1.252 ms

Loss rate: 0.01%

Run 4: Report of PCC-Vivace — Data Link



Run 5: Statistics of PCC-Vivace

Start at: 2018-11-29 22:07:29

End at: 2018-11-29 22:07:59

Local clock offset: 5.131 ms

Remote clock offset: 0.241 ms

Below is generated by plot.py at 2018-11-29 22:52:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 152.47 Mbit/s

95th percentile per-packet one-way delay: 14.938 ms

Loss rate: 0.03%

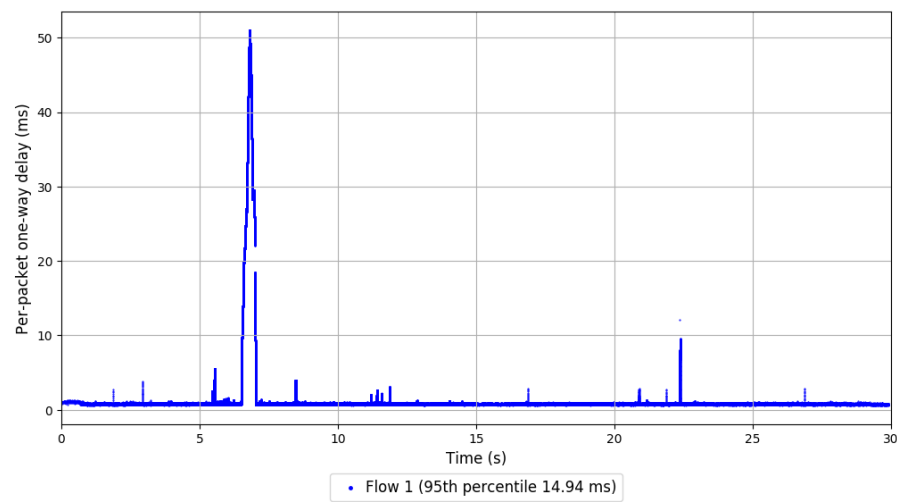
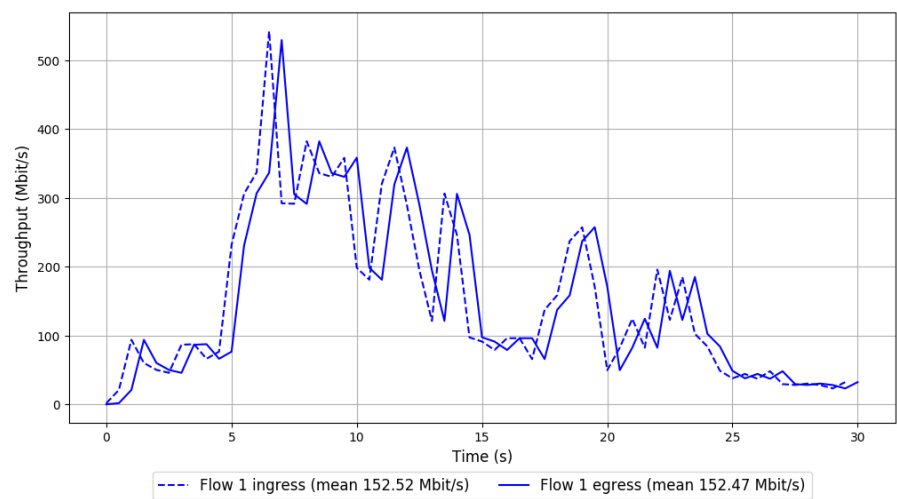
-- Flow 1:

Average throughput: 152.47 Mbit/s

95th percentile per-packet one-way delay: 14.938 ms

Loss rate: 0.03%

Run 5: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-11-29 20:32:54

End at: 2018-11-29 20:33:24

Local clock offset: 5.294 ms

Remote clock offset: -3.578 ms

Below is generated by plot.py at 2018-11-29 22:52:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.12 Mbit/s

95th percentile per-packet one-way delay: 1.127 ms

Loss rate: 0.00%

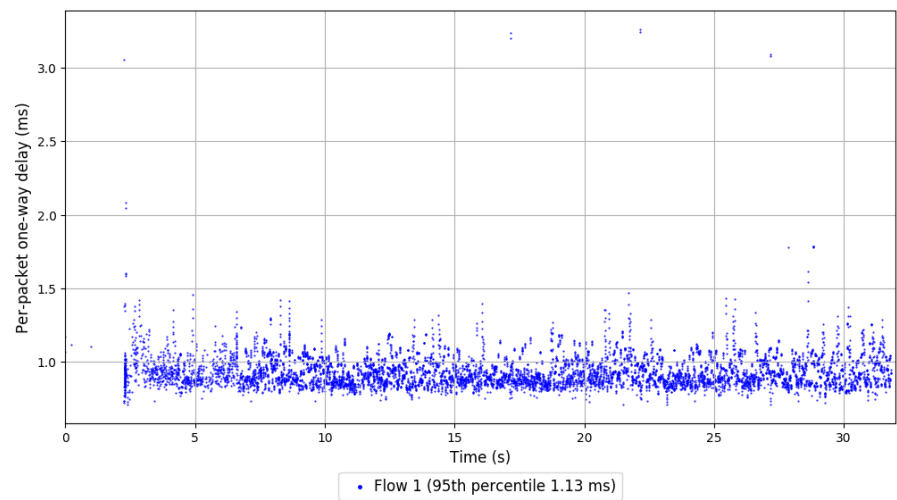
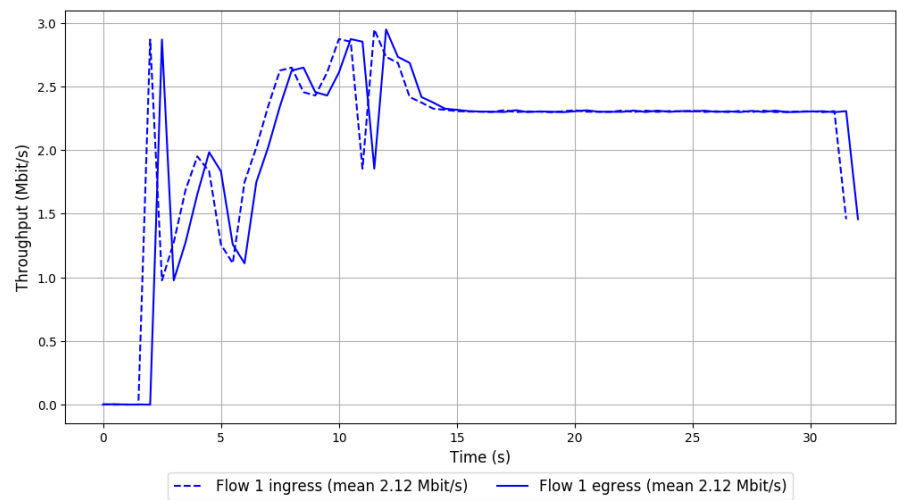
-- Flow 1:

Average throughput: 2.12 Mbit/s

95th percentile per-packet one-way delay: 1.127 ms

Loss rate: 0.00%

Run 1: Report of WebRTC media — Data Link

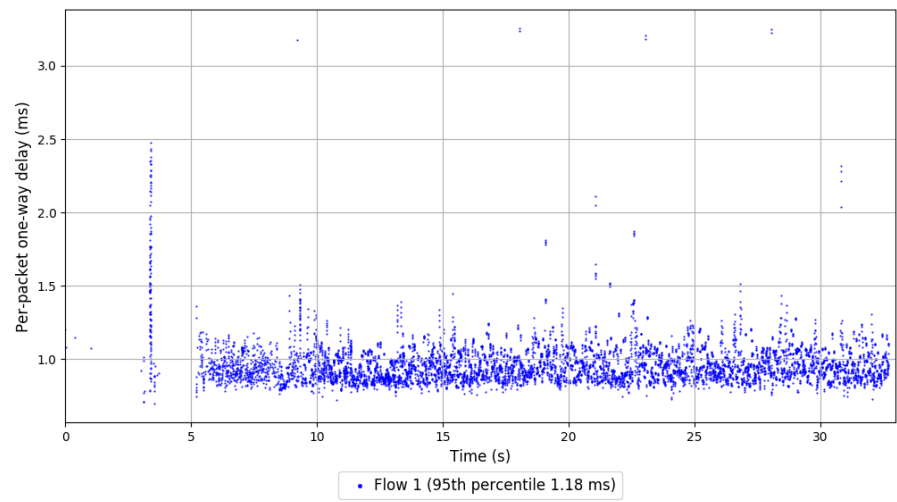
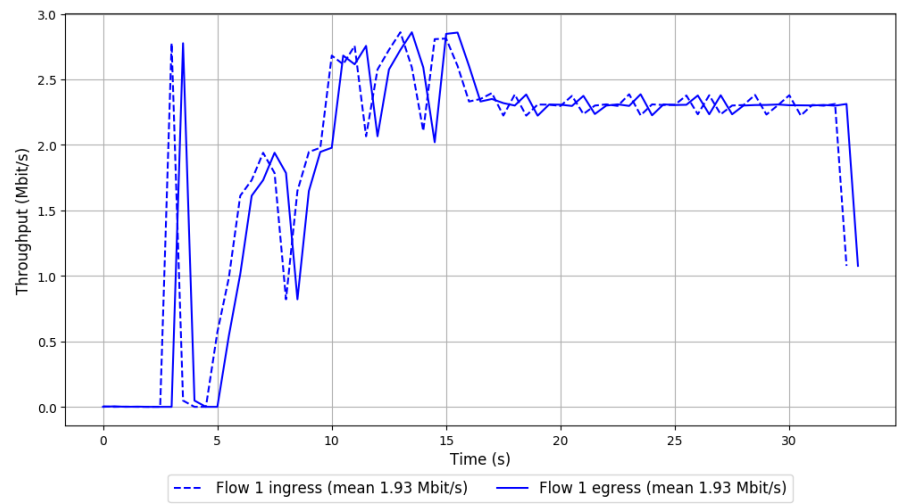


Run 2: Statistics of WebRTC media

Start at: 2018-11-29 20:57:10
End at: 2018-11-29 20:57:40
Local clock offset: 5.065 ms
Remote clock offset: -3.276 ms

Below is generated by plot.py at 2018-11-29 22:52:57
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 1.181 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 1.181 ms
Loss rate: 0.00%

Run 2: Report of WebRTC media — Data Link

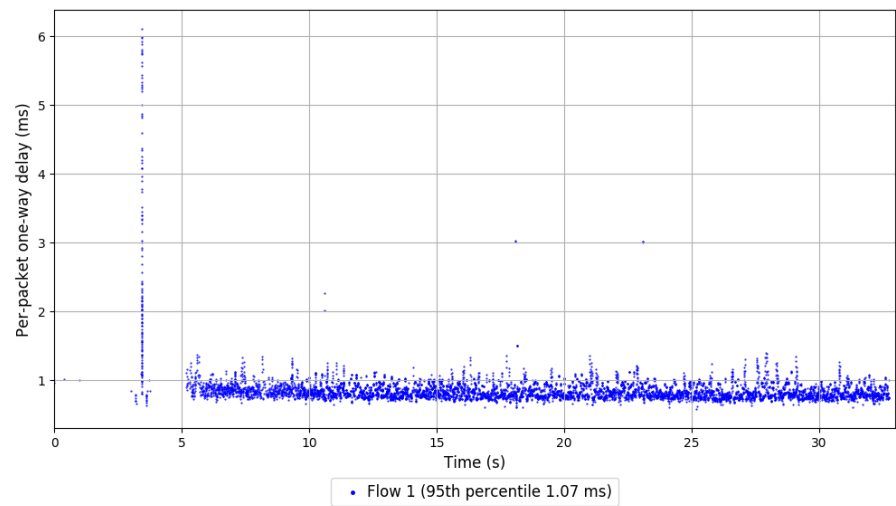
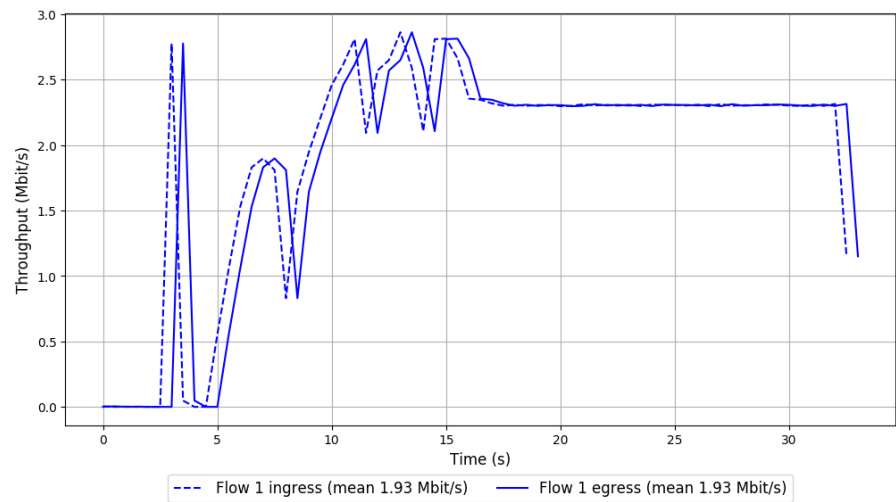


Run 3: Statistics of WebRTC media

Start at: 2018-11-29 21:21:36
End at: 2018-11-29 21:22:06
Local clock offset: 5.035 ms
Remote clock offset: -3.029 ms

Below is generated by plot.py at 2018-11-29 22:52:57
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 1.073 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 1.073 ms
Loss rate: 0.00%

Run 3: Report of WebRTC media — Data Link

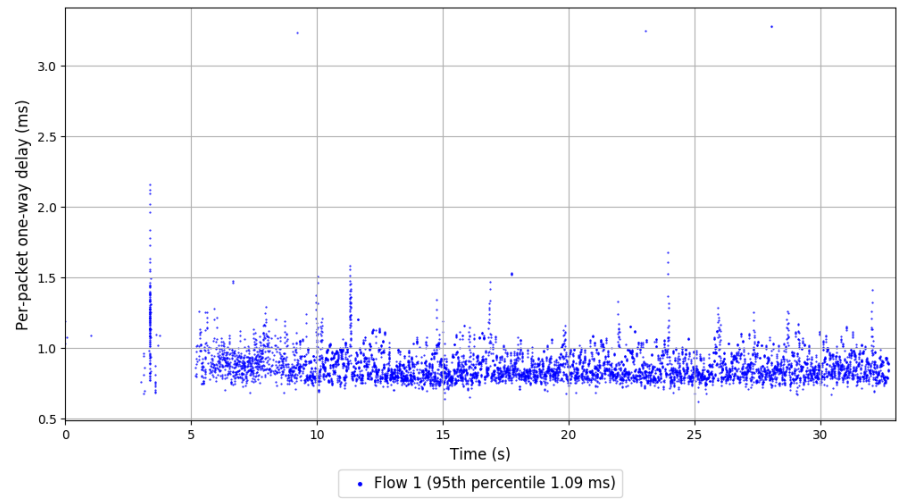
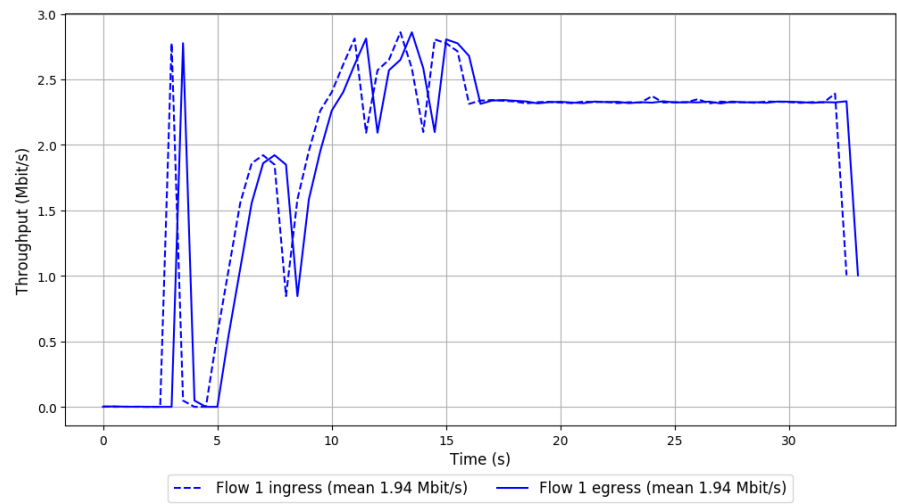


Run 4: Statistics of WebRTC media

Start at: 2018-11-29 21:45:53
End at: 2018-11-29 21:46:23
Local clock offset: 5.038 ms
Remote clock offset: -2.635 ms

Below is generated by plot.py at 2018-11-29 22:52:57
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.94 Mbit/s
95th percentile per-packet one-way delay: 1.088 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 1.94 Mbit/s
95th percentile per-packet one-way delay: 1.088 ms
Loss rate: 0.12%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-11-29 22:10:03

End at: 2018-11-29 22:10:33

Local clock offset: 5.161 ms

Remote clock offset: 0.509 ms

Below is generated by plot.py at 2018-11-29 22:52:57

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.92 Mbit/s

95th percentile per-packet one-way delay: 1.162 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.92 Mbit/s

95th percentile per-packet one-way delay: 1.162 ms

Loss rate: 0.00%

Run 5: Report of WebRTC media — Data Link

