

Pantheon Report

Generated at 2018-09-07 18:45:57 (UTC).

Data path: India cellular on `ppp0` (*remote*) → AWS India 1 on `ens5` (*local*).

Repeated the test of 18 congestion control schemes 3 times.

Each test lasted for 30 seconds running 1 flow.

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

System info:

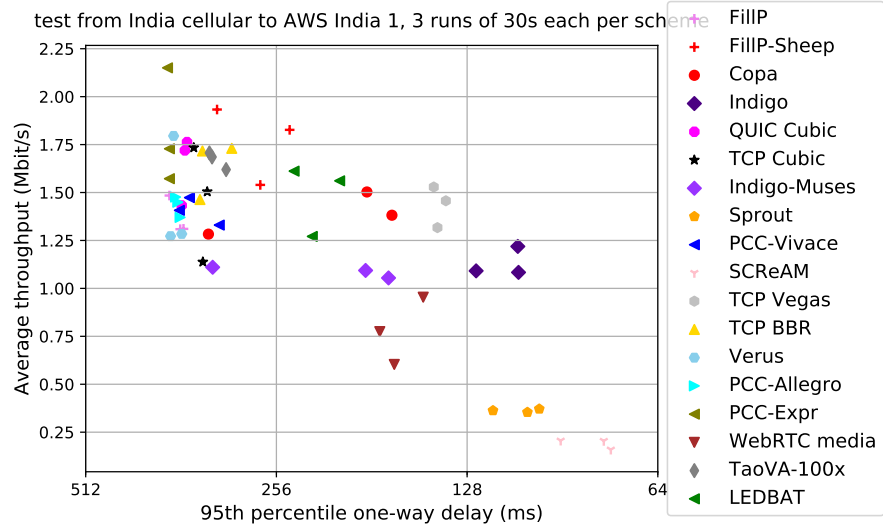
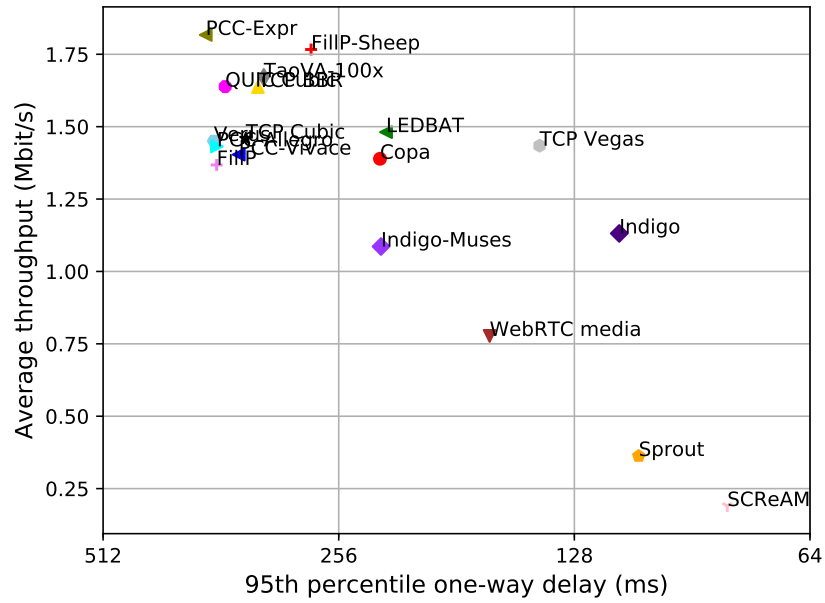
```
Linux 4.15.0-1020-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
net.ipv4.tcp_mem = 536870912 536870912 536870912
```

Git summary:

```
branch: muses @ e0a9b05ad97d268013b7cc9a9c95637b593a1b4c
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecd90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 7631aea3923a3598767c87765ae5103aca0678d3
third_party/pantheon-tunnel @ cbfce6db5ff5740dafa1771f813cd646339e1952
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 India cellular to AWS India 1, 3 runs of 30s each per scheme
(mean of all runs by scheme)



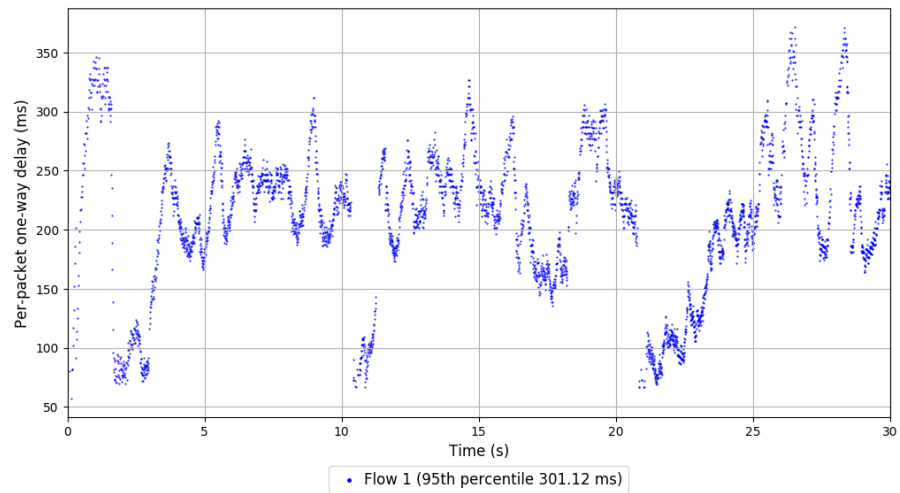
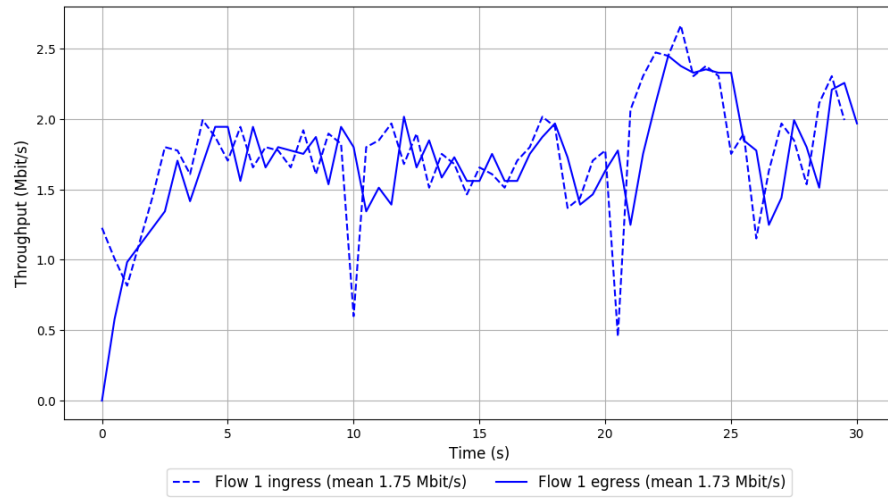
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	1.64	324.68	1.64
Copa	3	1.39	226.74	0.79
TCP Cubic	3	1.46	336.45	1.90
FillP	3	1.37	366.58	48.51
FillP-Sheep	3	1.77	277.68	5.87
Indigo	3	1.13	112.17	1.94
LEDBAT	3	1.48	222.76	0.65
Indigo-Muses	3	1.08	226.06	3.26
PCC-Allegro	3	1.43	366.29	54.39
PCC-Expr	3	1.82	378.60	65.76
QUIC Cubic	3	1.64	357.50	4.17
SCReAM	3	0.19	81.63	0.35
Sprout	3	0.36	105.93	0.53
TaoVA-100x	3	1.67	319.12	2.47
TCP Vegas	3	1.44	141.78	0.69
Verus	3	1.45	369.72	23.37
PCC-Vivace	3	1.40	343.55	8.03
WebRTC media	3	0.77	164.24	0.92

Run 1: Statistics of TCP BBR

Start at: 2018-09-07 17:51:14
End at: 2018-09-07 17:51:44
Local clock offset: 1.695 ms
Remote clock offset: -4.143 ms

Below is generated by plot.py at 2018-09-07 18:45:22
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.73 Mbit/s
95th percentile per-packet one-way delay: 301.119 ms
Loss rate: 1.17%
-- Flow 1:
Average throughput: 1.73 Mbit/s
95th percentile per-packet one-way delay: 301.119 ms
Loss rate: 1.17%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-09-07 18:10:53

End at: 2018-09-07 18:11:23

Local clock offset: 2.42 ms

Remote clock offset: -4.566 ms

Below is generated by plot.py at 2018-09-07 18:45:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.46 Mbit/s

95th percentile per-packet one-way delay: 337.990 ms

Loss rate: 1.80%

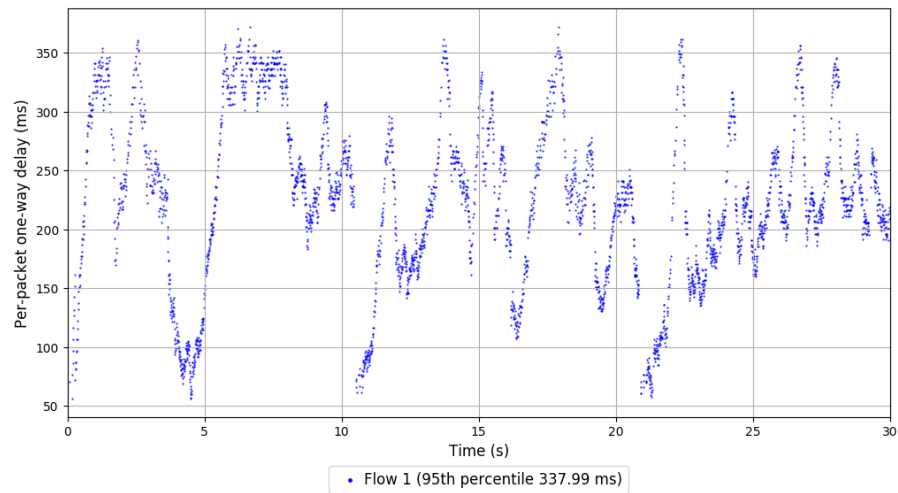
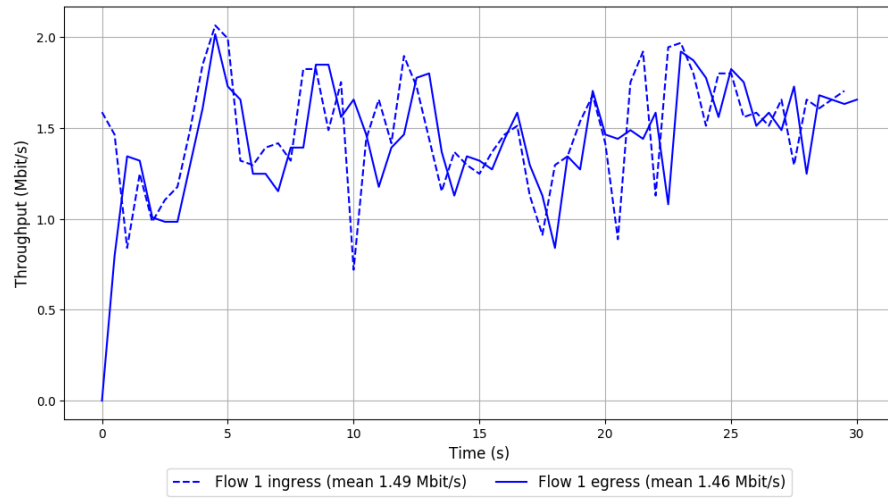
-- Flow 1:

Average throughput: 1.46 Mbit/s

95th percentile per-packet one-way delay: 337.990 ms

Loss rate: 1.80%

Run 2: Report of TCP BBR — Data Link

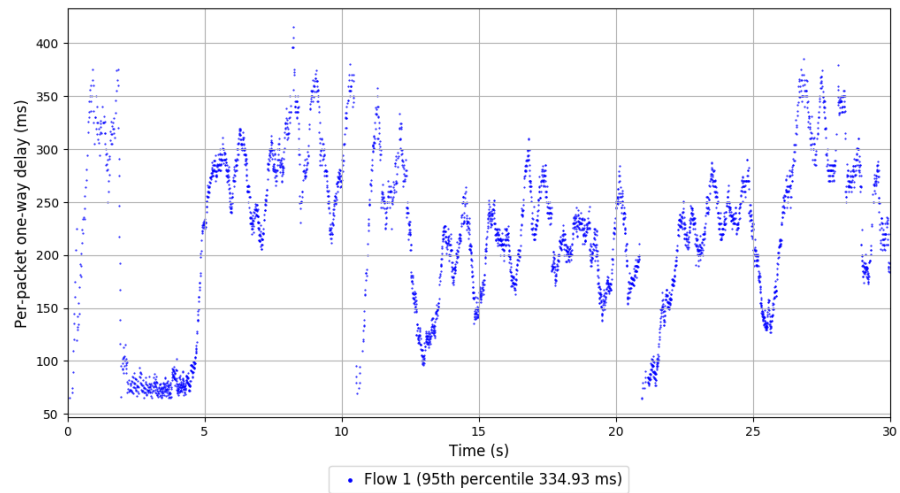
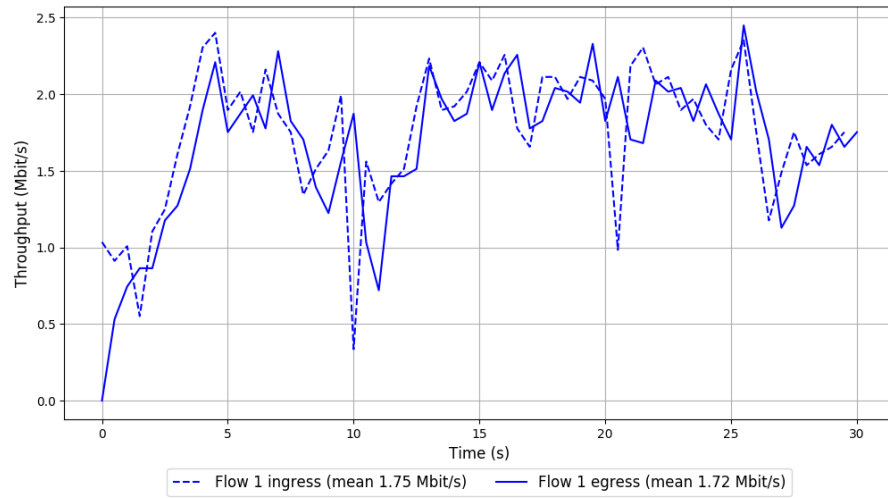


Run 3: Statistics of TCP BBR

Start at: 2018-09-07 18:30:30
End at: 2018-09-07 18:31:00
Local clock offset: -2.512 ms
Remote clock offset: -5.829 ms

Below is generated by plot.py at 2018-09-07 18:45:22
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.72 Mbit/s
95th percentile per-packet one-way delay: 334.933 ms
Loss rate: 1.95%
-- Flow 1:
Average throughput: 1.72 Mbit/s
95th percentile per-packet one-way delay: 334.933 ms
Loss rate: 1.95%

Run 3: Report of TCP BBR — Data Link

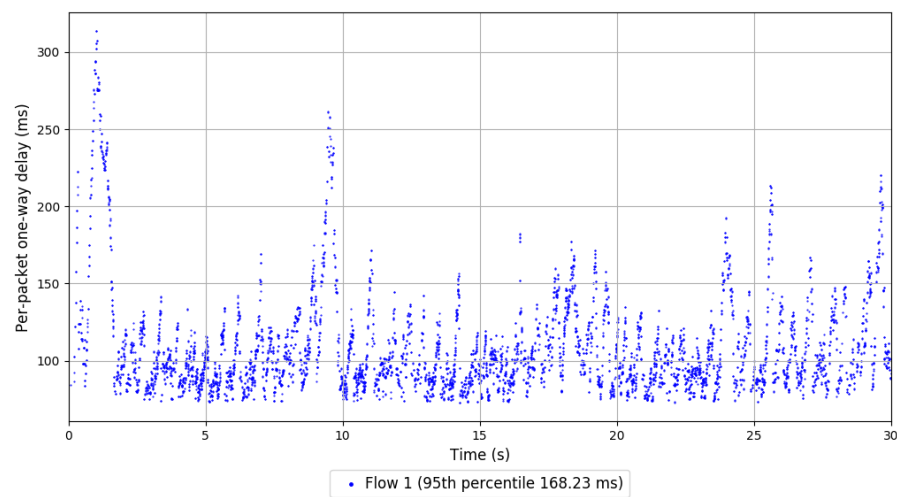
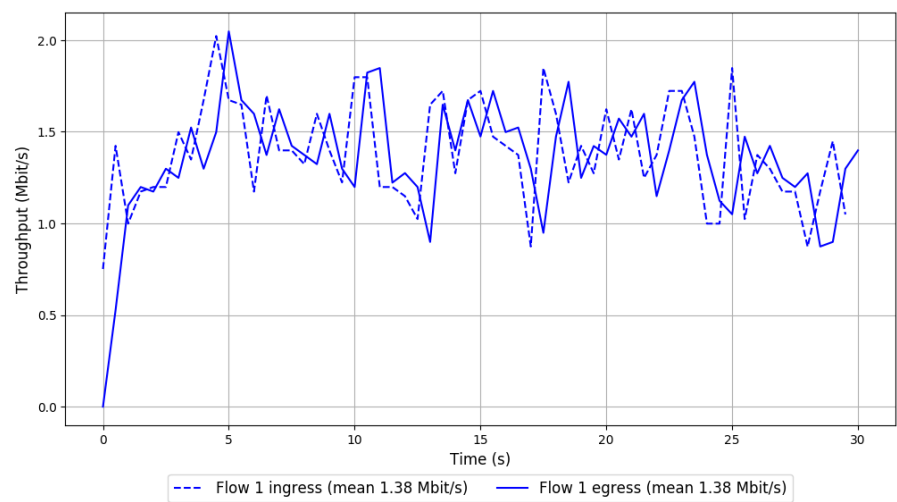


Run 1: Statistics of Copa

Start at: 2018-09-07 18:00:01
End at: 2018-09-07 18:00:31
Local clock offset: -1.369 ms
Remote clock offset: -6.859 ms

Below is generated by plot.py at 2018-09-07 18:45:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.38 Mbit/s
95th percentile per-packet one-way delay: 168.230 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 1.38 Mbit/s
95th percentile per-packet one-way delay: 168.230 ms
Loss rate: 0.51%

Run 1: Report of Copa — Data Link

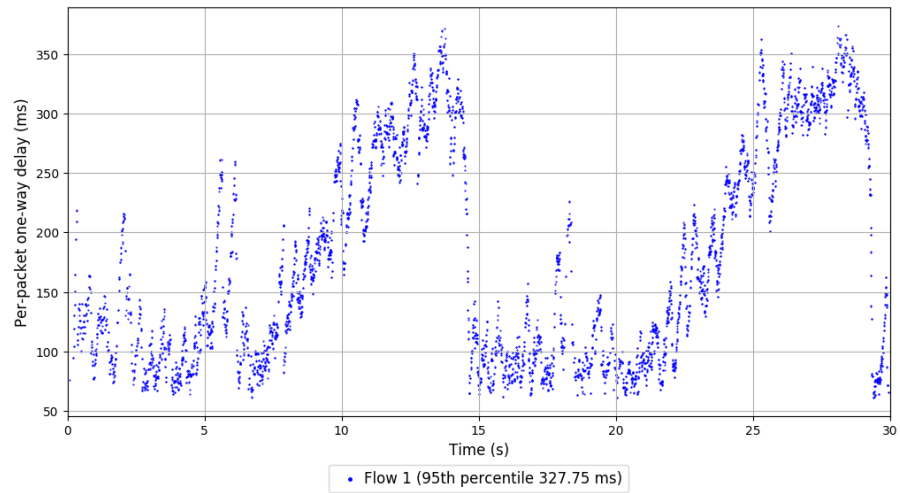
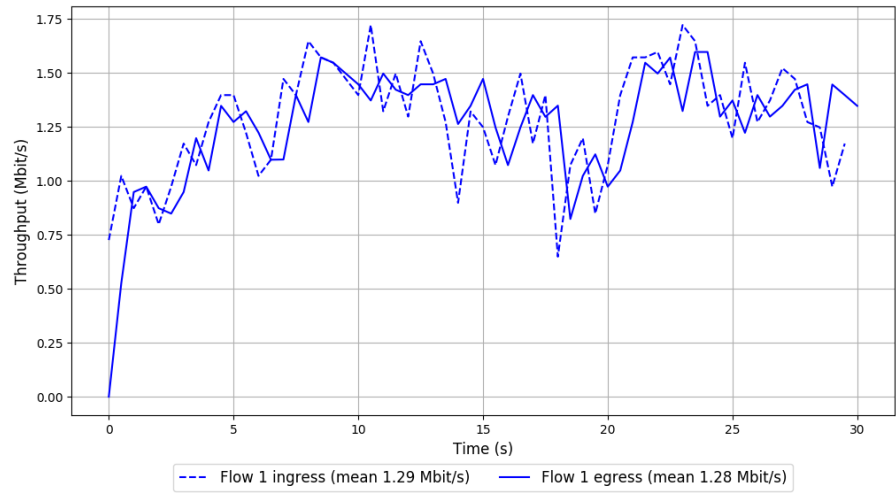


Run 2: Statistics of Copa

Start at: 2018-09-07 18:19:37
End at: 2018-09-07 18:20:07
Local clock offset: -2.358 ms
Remote clock offset: -4.815 ms

Below is generated by plot.py at 2018-09-07 18:45:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.28 Mbit/s
95th percentile per-packet one-way delay: 327.749 ms
Loss rate: 0.80%
-- Flow 1:
Average throughput: 1.28 Mbit/s
95th percentile per-packet one-way delay: 327.749 ms
Loss rate: 0.80%

Run 2: Report of Copa — Data Link

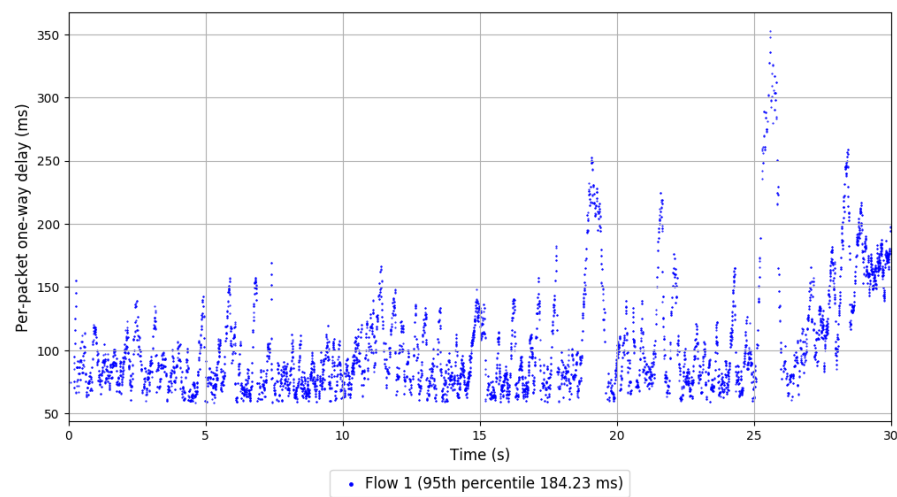
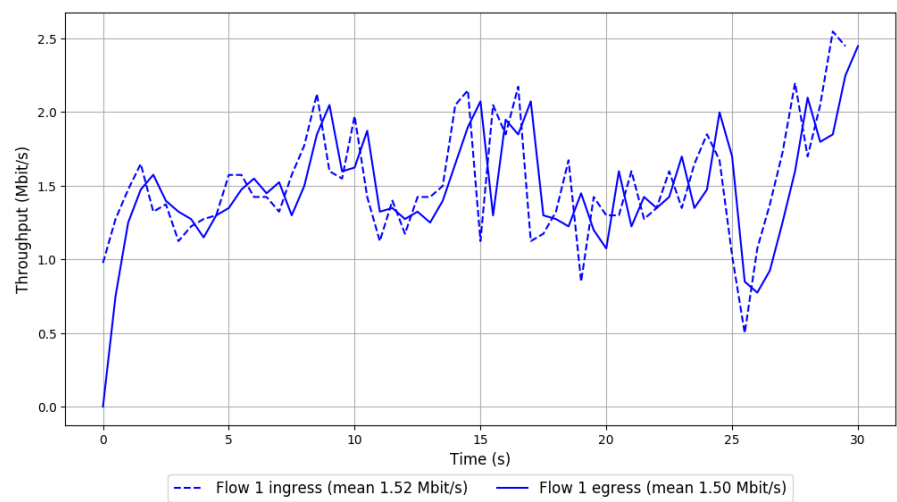


Run 3: Statistics of Copa

Start at: 2018-09-07 18:39:15
End at: 2018-09-07 18:39:45
Local clock offset: -0.063 ms
Remote clock offset: -5.701 ms

Below is generated by plot.py at 2018-09-07 18:45:24
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.50 Mbit/s
95th percentile per-packet one-way delay: 184.231 ms
Loss rate: 1.07%
-- Flow 1:
Average throughput: 1.50 Mbit/s
95th percentile per-packet one-way delay: 184.231 ms
Loss rate: 1.07%

Run 3: Report of Copa — Data Link

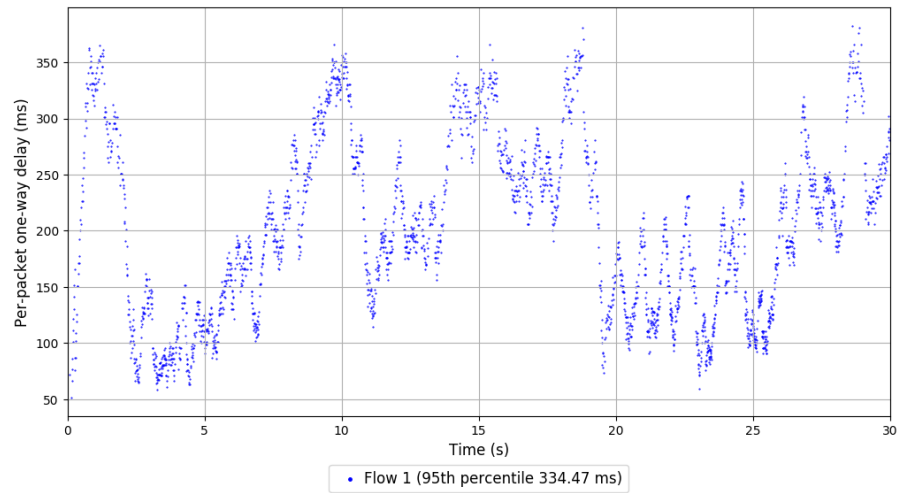
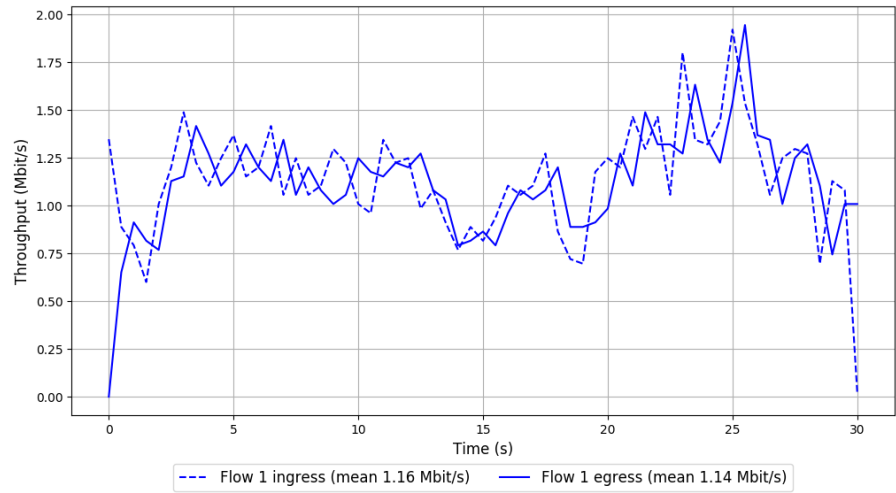


Run 1: Statistics of TCP Cubic

Start at: 2018-09-07 18:05:27
End at: 2018-09-07 18:05:57
Local clock offset: 0.52 ms
Remote clock offset: -3.833 ms

Below is generated by plot.py at 2018-09-07 18:45:24
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.14 Mbit/s
95th percentile per-packet one-way delay: 334.469 ms
Loss rate: 1.90%
-- Flow 1:
Average throughput: 1.14 Mbit/s
95th percentile per-packet one-way delay: 334.469 ms
Loss rate: 1.90%

Run 1: Report of TCP Cubic — Data Link

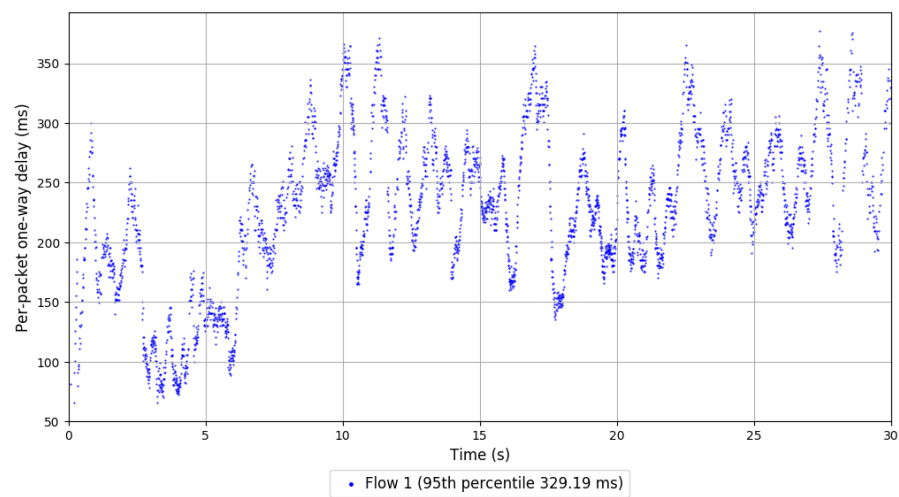
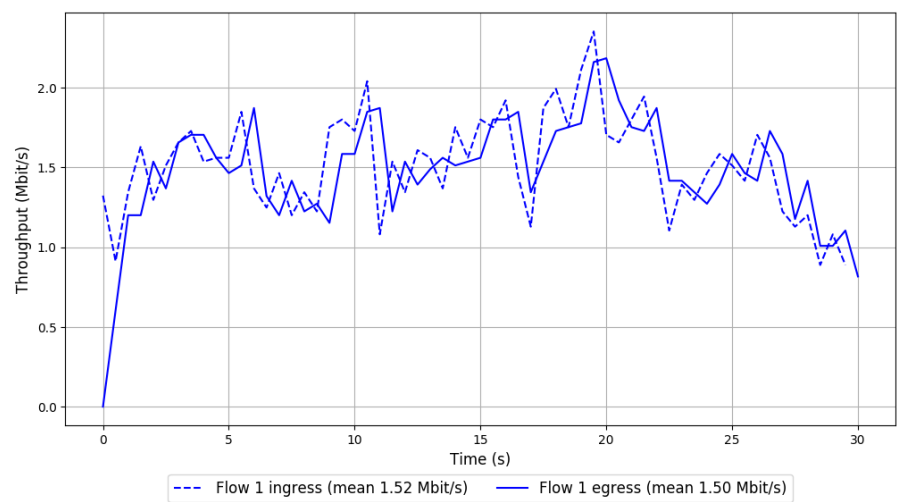


Run 2: Statistics of TCP Cubic

Start at: 2018-09-07 18:25:04
End at: 2018-09-07 18:25:34
Local clock offset: 0.557 ms
Remote clock offset: -5.343 ms

Below is generated by plot.py at 2018-09-07 18:45:24
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.50 Mbit/s
95th percentile per-packet one-way delay: 329.185 ms
Loss rate: 1.21%
-- Flow 1:
Average throughput: 1.50 Mbit/s
95th percentile per-packet one-way delay: 329.185 ms
Loss rate: 1.21%

Run 2: Report of TCP Cubic — Data Link

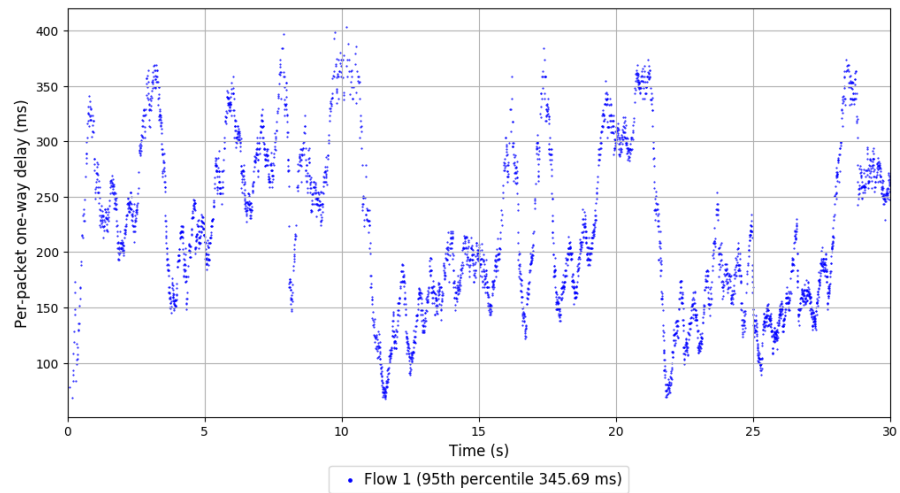
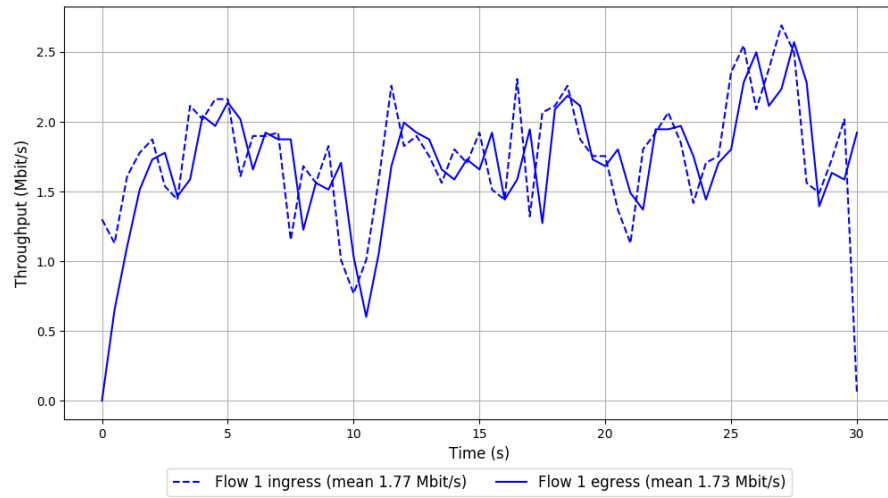


Run 3: Statistics of TCP Cubic

Start at: 2018-09-07 18:44:42
End at: 2018-09-07 18:45:12
Local clock offset: -0.55 ms
Remote clock offset: -4.848 ms

Below is generated by plot.py at 2018-09-07 18:45:24
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.73 Mbit/s
95th percentile per-packet one-way delay: 345.694 ms
Loss rate: 2.59%
-- Flow 1:
Average throughput: 1.73 Mbit/s
95th percentile per-packet one-way delay: 345.694 ms
Loss rate: 2.59%

Run 3: Report of TCP Cubic — Data Link



Run 1: Statistics of FillP

Start at: 2018-09-07 17:46:53

End at: 2018-09-07 17:47:23

Local clock offset: 1.427 ms

Remote clock offset: -3.445 ms

Below is generated by plot.py at 2018-09-07 18:45:27

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.48 Mbit/s

95th percentile per-packet one-way delay: 377.739 ms

Loss rate: 54.24%

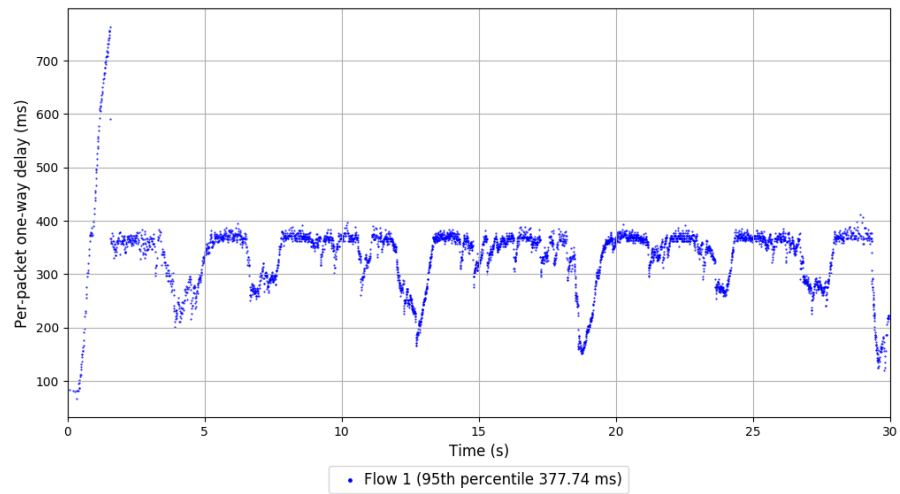
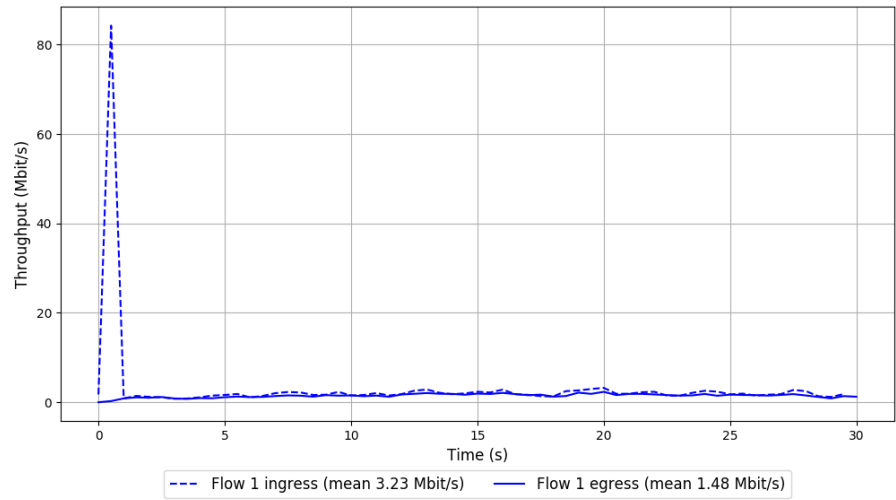
-- Flow 1:

Average throughput: 1.48 Mbit/s

95th percentile per-packet one-way delay: 377.739 ms

Loss rate: 54.24%

Run 1: Report of FillP — Data Link

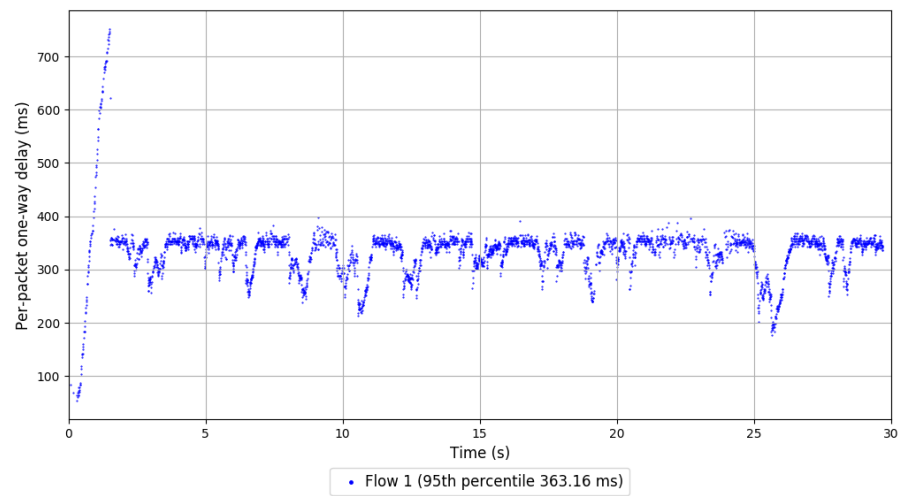
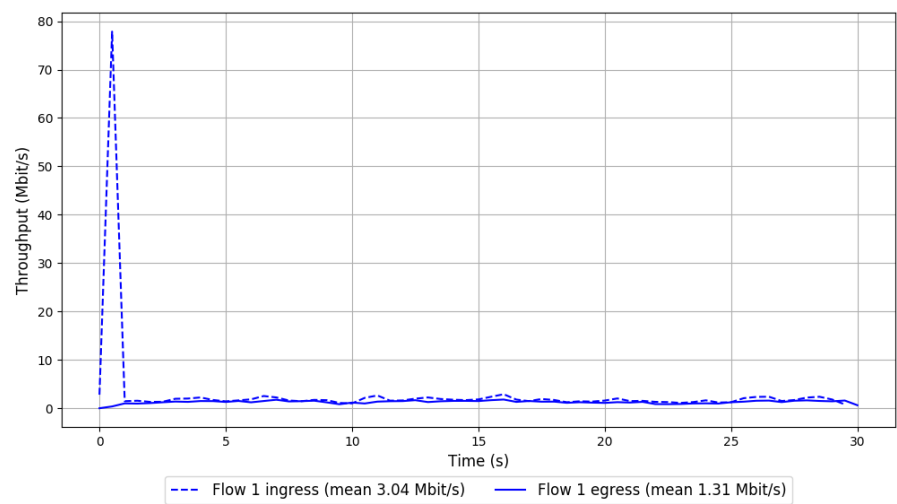


Run 2: Statistics of FillP

Start at: 2018-09-07 18:06:32
End at: 2018-09-07 18:07:02
Local clock offset: 0.74 ms
Remote clock offset: -3.952 ms

Below is generated by plot.py at 2018-09-07 18:45:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.31 Mbit/s
95th percentile per-packet one-way delay: 363.162 ms
Loss rate: 57.10%
-- Flow 1:
Average throughput: 1.31 Mbit/s
95th percentile per-packet one-way delay: 363.162 ms
Loss rate: 57.10%

Run 2: Report of FillP — Data Link

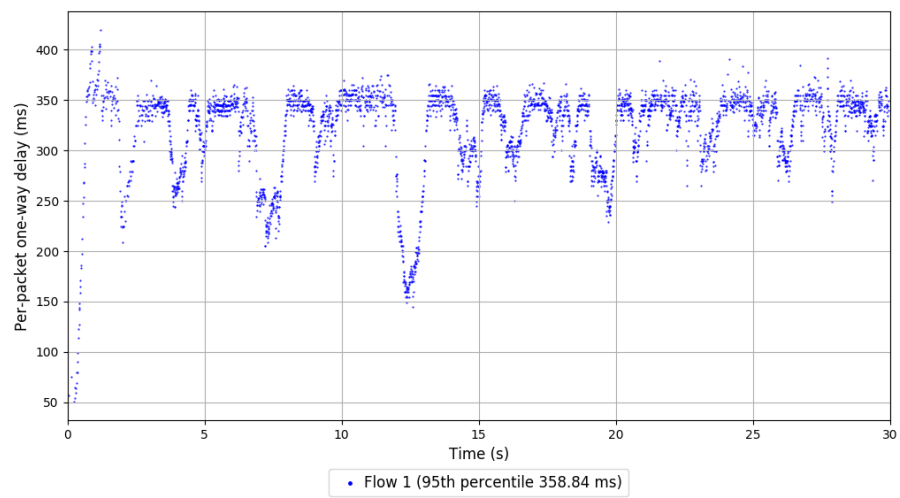
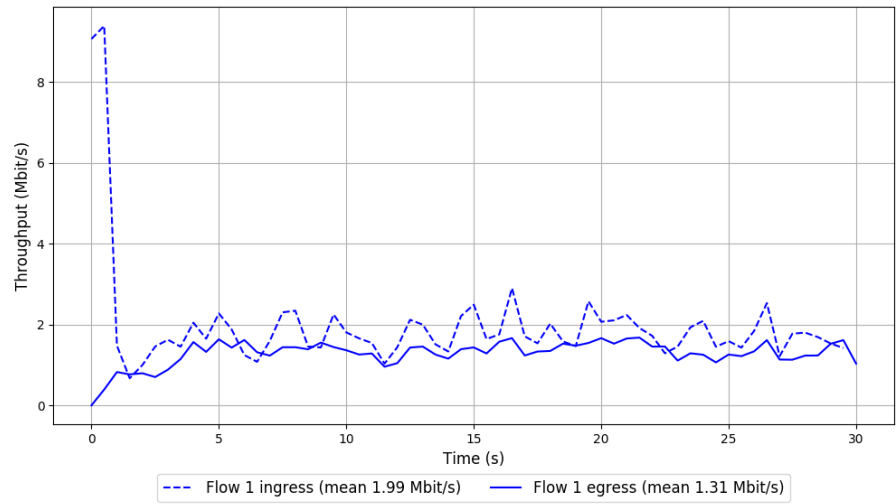


Run 3: Statistics of FillP

Start at: 2018-09-07 18:26:09
End at: 2018-09-07 18:26:39
Local clock offset: 0.653 ms
Remote clock offset: -6.122 ms

Below is generated by plot.py at 2018-09-07 18:45:28
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.31 Mbit/s
95th percentile per-packet one-way delay: 358.837 ms
Loss rate: 34.20%
-- Flow 1:
Average throughput: 1.31 Mbit/s
95th percentile per-packet one-way delay: 358.837 ms
Loss rate: 34.20%

Run 3: Report of FillP — Data Link



Run 1: Statistics of FillP-Sheep

Start at: 2018-09-07 17:50:09

End at: 2018-09-07 17:50:39

Local clock offset: 1.629 ms

Remote clock offset: -4.811 ms

Below is generated by plot.py at 2018-09-07 18:45:29

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.83 Mbit/s

95th percentile per-packet one-way delay: 243.970 ms

Loss rate: 2.54%

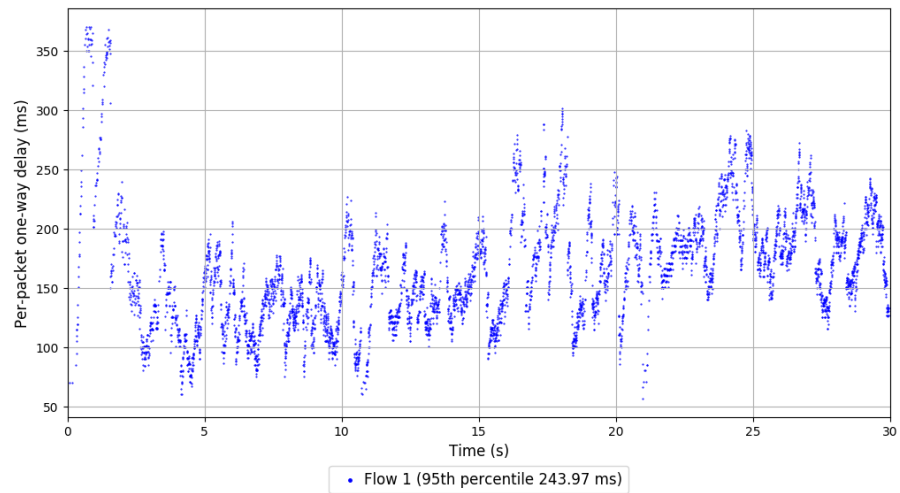
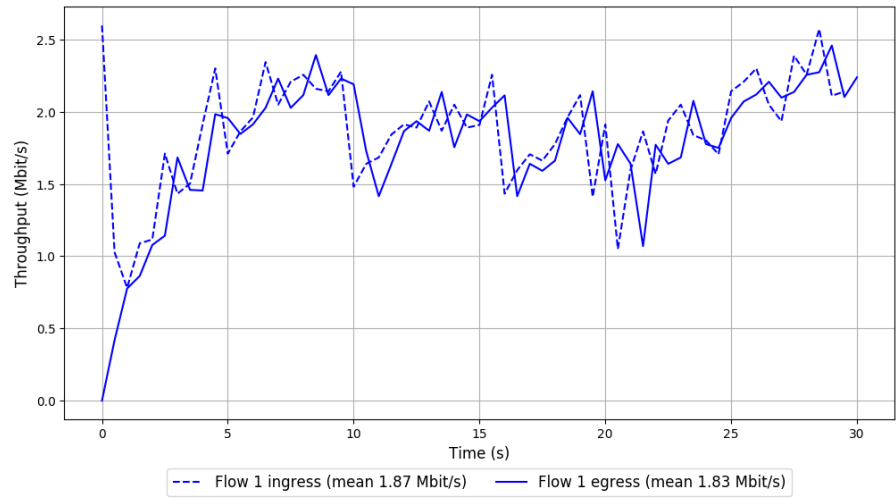
-- Flow 1:

Average throughput: 1.83 Mbit/s

95th percentile per-packet one-way delay: 243.970 ms

Loss rate: 2.54%

Run 1: Report of FillP-Sheep — Data Link

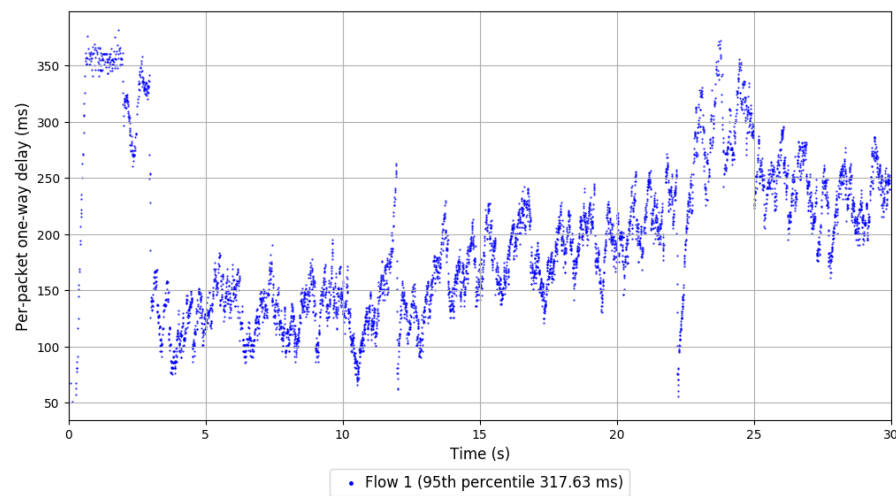
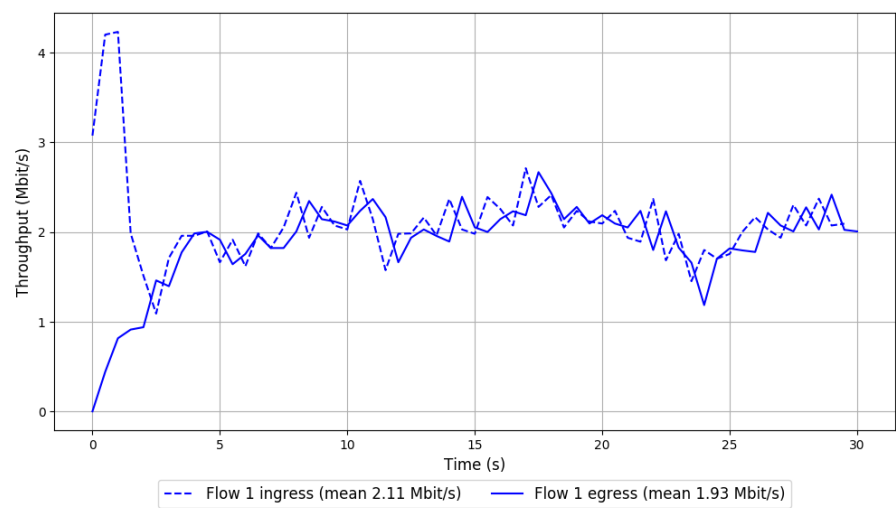


Run 2: Statistics of FillP-Sheep

Start at: 2018-09-07 18:09:48
End at: 2018-09-07 18:10:18
Local clock offset: -1.393 ms
Remote clock offset: -5.355 ms

Below is generated by plot.py at 2018-09-07 18:45:30
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 317.629 ms
Loss rate: 8.81%
-- Flow 1:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 317.629 ms
Loss rate: 8.81%

Run 2: Report of FillP-Sheep — Data Link

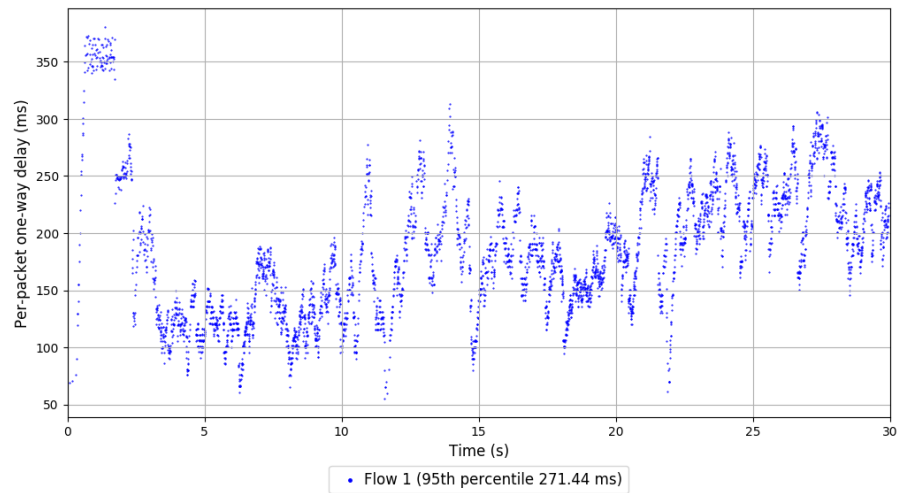
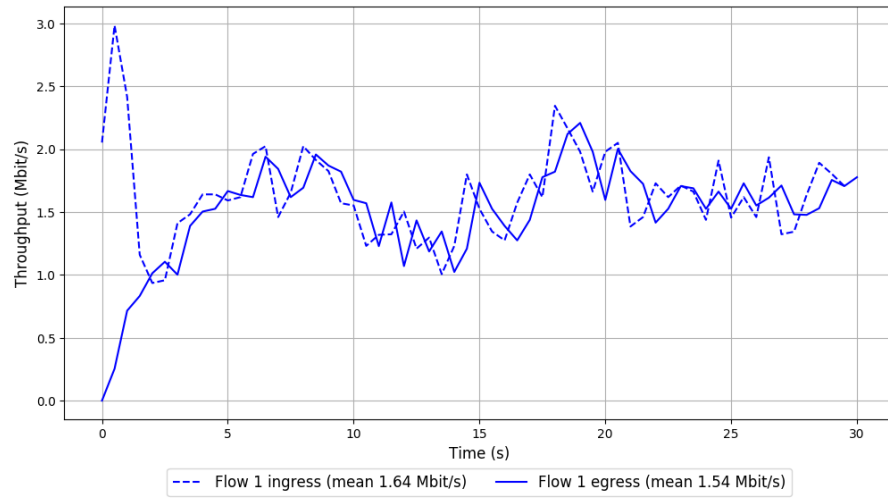


Run 3: Statistics of FillP-Sheep

Start at: 2018-09-07 18:29:25
End at: 2018-09-07 18:29:55
Local clock offset: 0.683 ms
Remote clock offset: -5.026 ms

Below is generated by plot.py at 2018-09-07 18:45:30
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.54 Mbit/s
95th percentile per-packet one-way delay: 271.437 ms
Loss rate: 6.27%
-- Flow 1:
Average throughput: 1.54 Mbit/s
95th percentile per-packet one-way delay: 271.437 ms
Loss rate: 6.27%

Run 3: Report of FillP-Sheep — Data Link

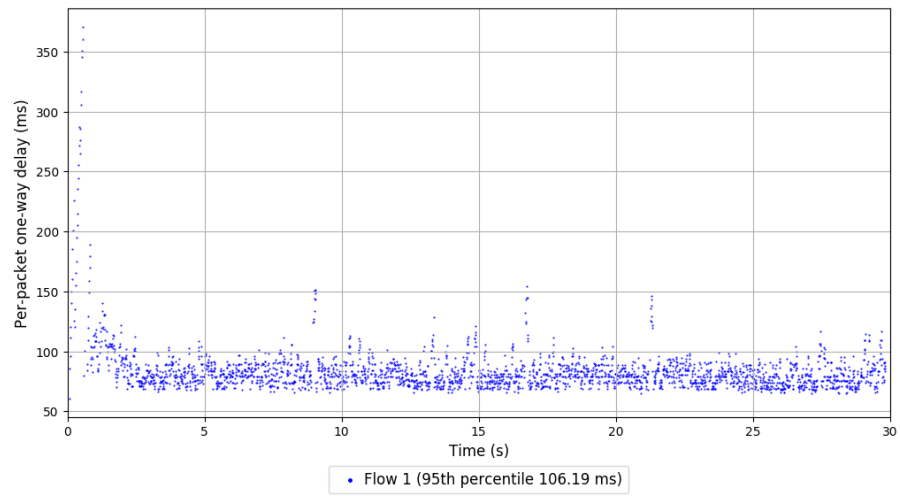
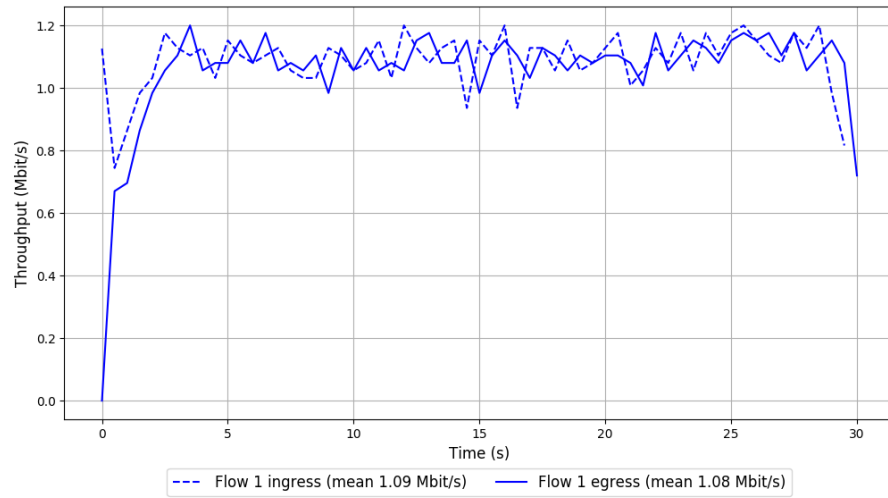


```
Run 1: Statistics of Indigo

Start at: 2018-09-07 17:55:40
End at: 2018-09-07 17:56:10
Local clock offset: 1.414 ms
Remote clock offset: -5.206 ms

# Below is generated by plot.py at 2018-09-07 18:45:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.08 Mbit/s
95th percentile per-packet one-way delay: 106.185 ms
Loss rate: 1.18%
-- Flow 1:
Average throughput: 1.08 Mbit/s
95th percentile per-packet one-way delay: 106.185 ms
Loss rate: 1.18%
```

Run 1: Report of Indigo — Data Link

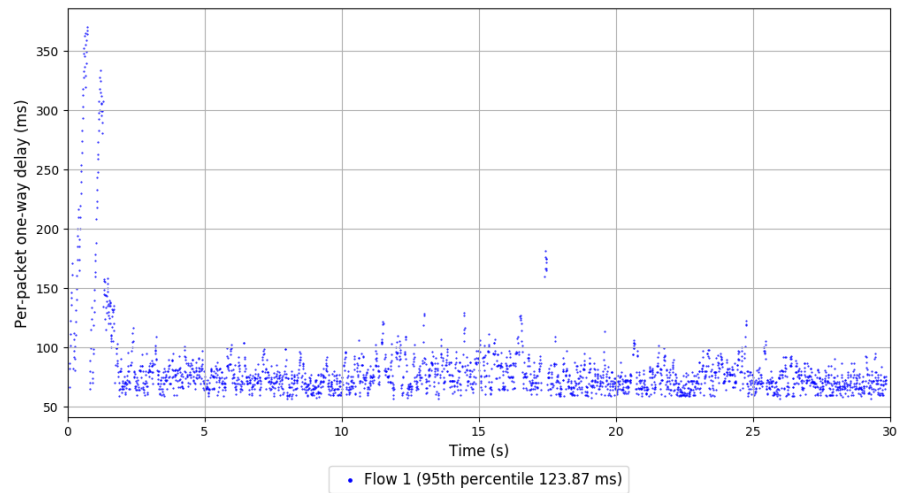
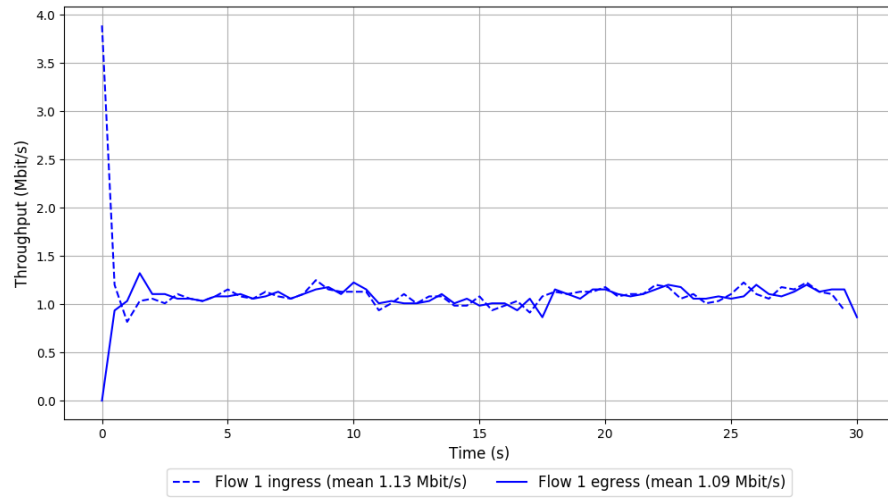


Run 2: Statistics of Indigo

Start at: 2018-09-07 18:15:15
End at: 2018-09-07 18:15:45
Local clock offset: 0.302 ms
Remote clock offset: -5.305 ms

Below is generated by plot.py at 2018-09-07 18:45:30
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.09 Mbit/s
95th percentile per-packet one-way delay: 123.871 ms
Loss rate: 3.90%
-- Flow 1:
Average throughput: 1.09 Mbit/s
95th percentile per-packet one-way delay: 123.871 ms
Loss rate: 3.90%

Run 2: Report of Indigo — Data Link

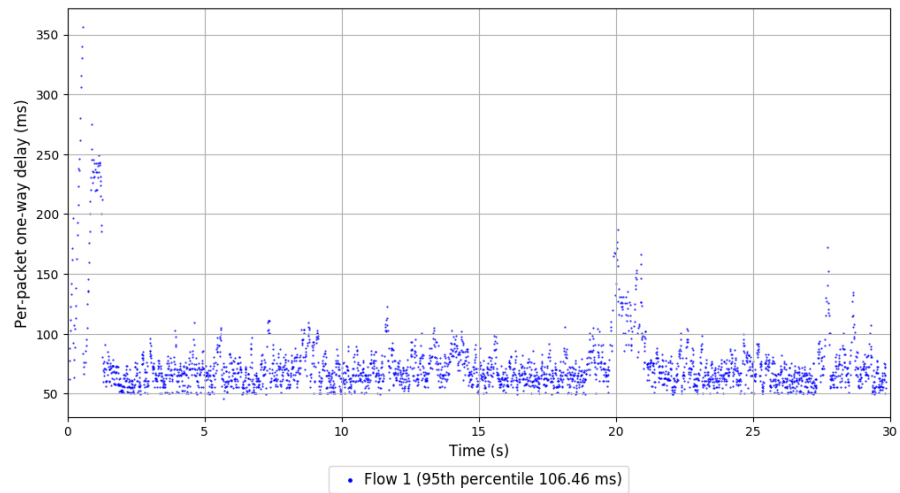
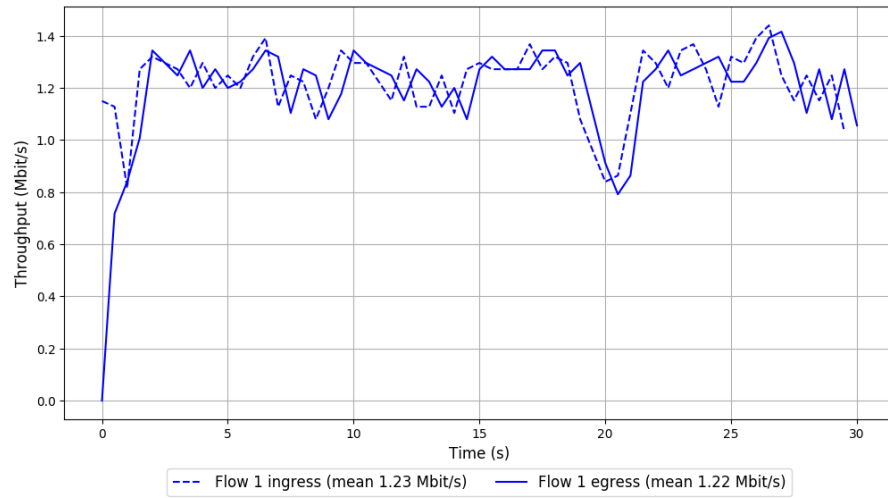


Run 3: Statistics of Indigo

Start at: 2018-09-07 18:34:52
End at: 2018-09-07 18:35:22
Local clock offset: -2.571 ms
Remote clock offset: -5.198 ms

Below is generated by plot.py at 2018-09-07 18:45:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.22 Mbit/s
95th percentile per-packet one-way delay: 106.459 ms
Loss rate: 0.75%
-- Flow 1:
Average throughput: 1.22 Mbit/s
95th percentile per-packet one-way delay: 106.459 ms
Loss rate: 0.75%

Run 3: Report of Indigo — Data Link

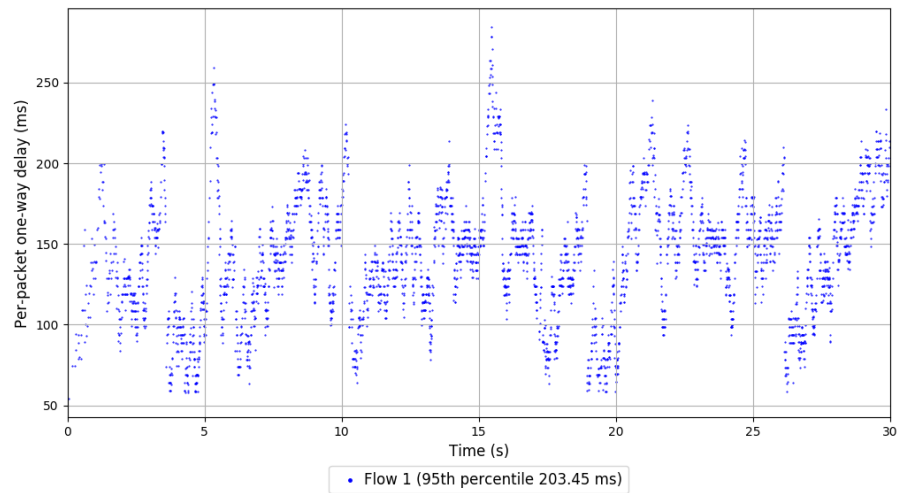
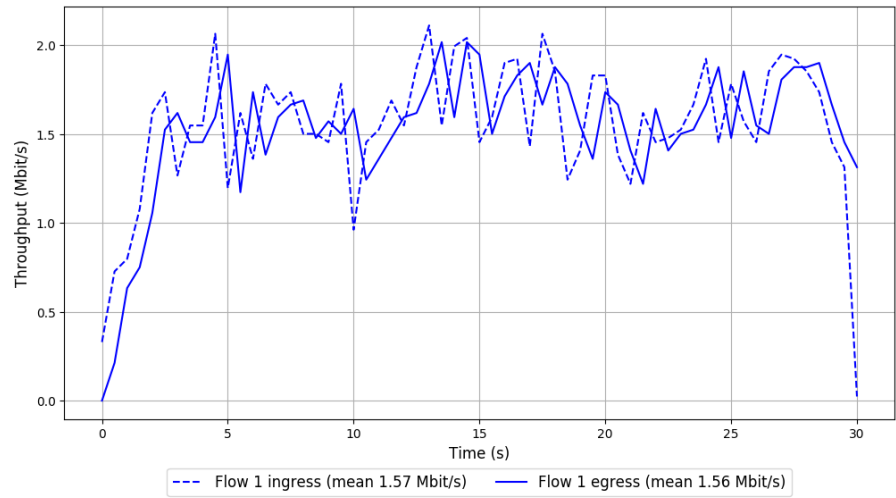


```
Run 1: Statistics of LEDBAT

Start at: 2018-09-07 17:58:56
End at: 2018-09-07 17:59:26
Local clock offset: -1.224 ms
Remote clock offset: -4.726 ms

# Below is generated by plot.py at 2018-09-07 18:45:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.56 Mbit/s
95th percentile per-packet one-way delay: 203.453 ms
Loss rate: 0.85%
-- Flow 1:
Average throughput: 1.56 Mbit/s
95th percentile per-packet one-way delay: 203.453 ms
Loss rate: 0.85%
```

Run 1: Report of LEDBAT — Data Link

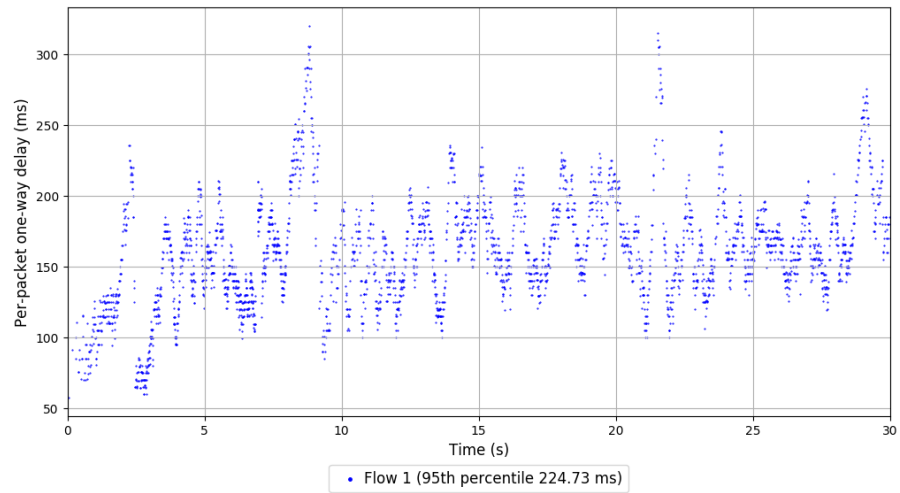
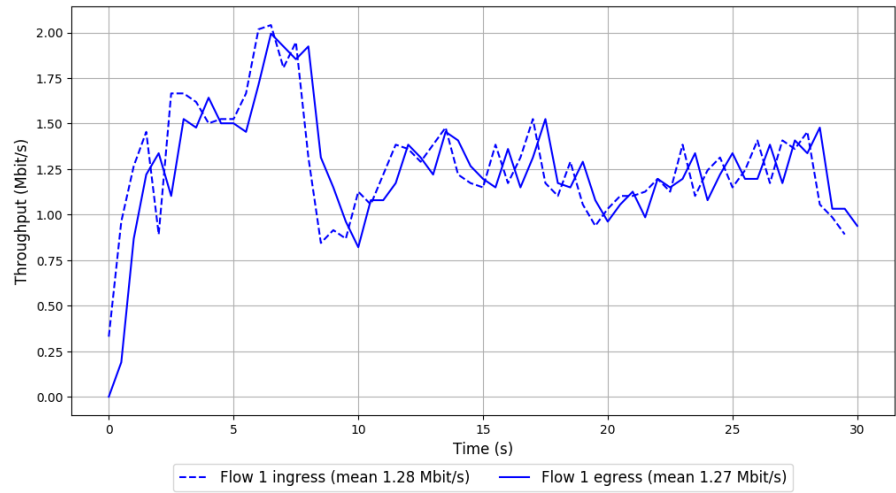


Run 2: Statistics of LEDBAT

Start at: 2018-09-07 18:18:31
End at: 2018-09-07 18:19:01
Local clock offset: -0.764 ms
Remote clock offset: -5.335 ms

Below is generated by plot.py at 2018-09-07 18:45:34
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.27 Mbit/s
95th percentile per-packet one-way delay: 224.733 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 1.27 Mbit/s
95th percentile per-packet one-way delay: 224.733 ms
Loss rate: 0.55%

Run 2: Report of LEDBAT — Data Link

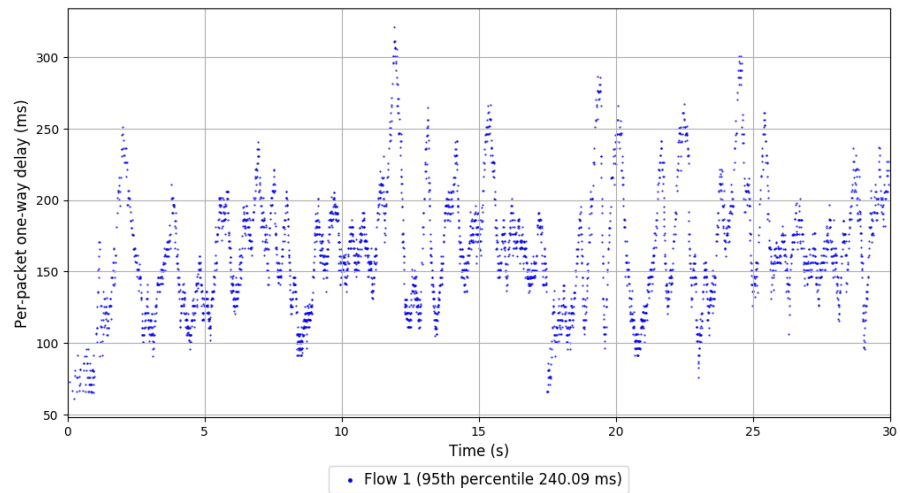
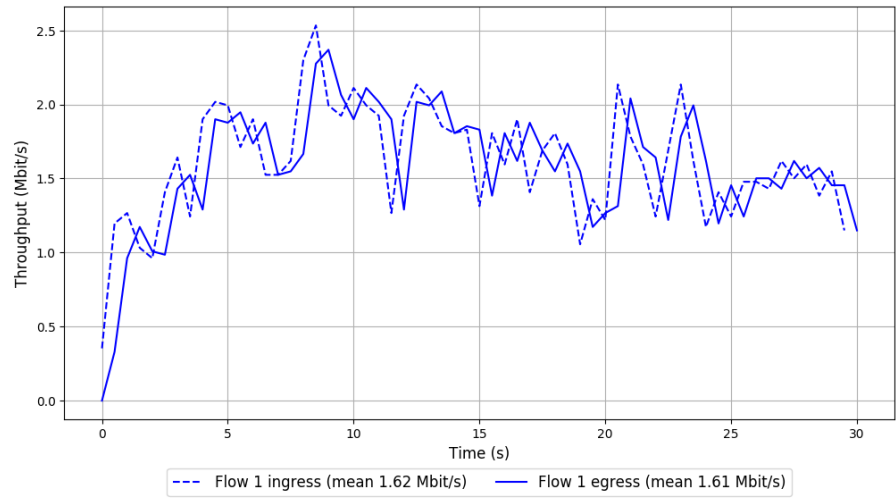


Run 3: Statistics of LEDBAT

Start at: 2018-09-07 18:38:09
End at: 2018-09-07 18:38:39
Local clock offset: -0.116 ms
Remote clock offset: -5.336 ms

Below is generated by plot.py at 2018-09-07 18:45:35
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.61 Mbit/s
95th percentile per-packet one-way delay: 240.091 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 1.61 Mbit/s
95th percentile per-packet one-way delay: 240.091 ms
Loss rate: 0.56%

Run 3: Report of LEDBAT — Data Link

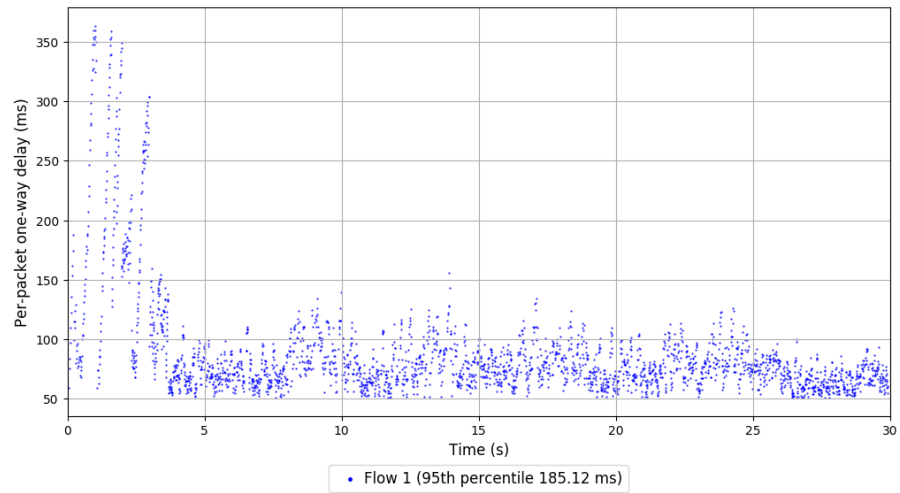
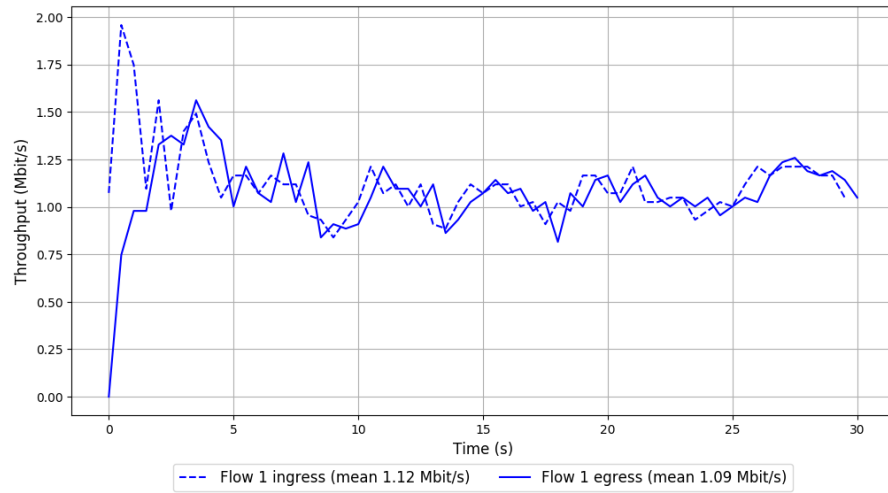


```
Run 1: Statistics of Indigo-Muses

Start at: 2018-09-07 18:03:16
End at: 2018-09-07 18:03:46
Local clock offset: -1.645 ms
Remote clock offset: -4.662 ms

# Below is generated by plot.py at 2018-09-07 18:45:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.09 Mbit/s
95th percentile per-packet one-way delay: 185.124 ms
Loss rate: 2.61%
-- Flow 1:
Average throughput: 1.09 Mbit/s
95th percentile per-packet one-way delay: 185.124 ms
Loss rate: 2.61%
```

Run 1: Report of Indigo-Muses — Data Link



Run 2: Statistics of Indigo-Muses

Start at: 2018-09-07 18:22:53

End at: 2018-09-07 18:23:23

Local clock offset: 3.203 ms

Remote clock offset: -4.664 ms

Below is generated by plot.py at 2018-09-07 18:45:35

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.05 Mbit/s

95th percentile per-packet one-way delay: 170.316 ms

Loss rate: 2.10%

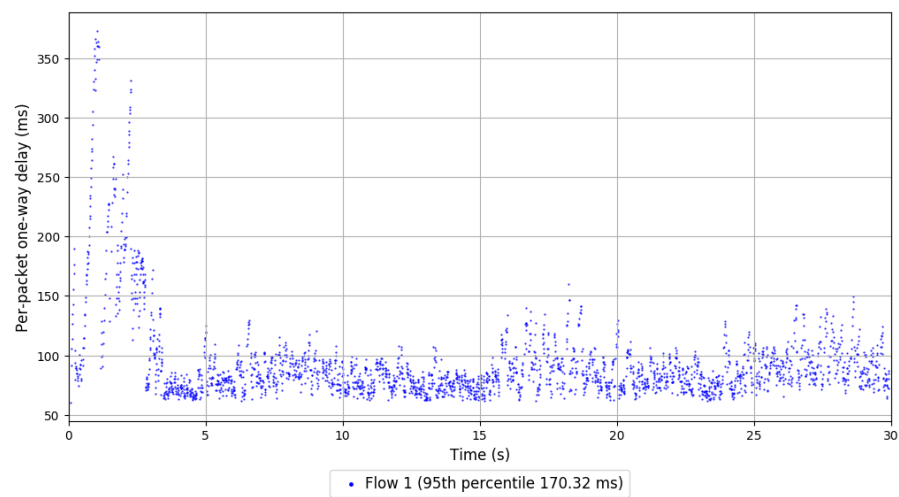
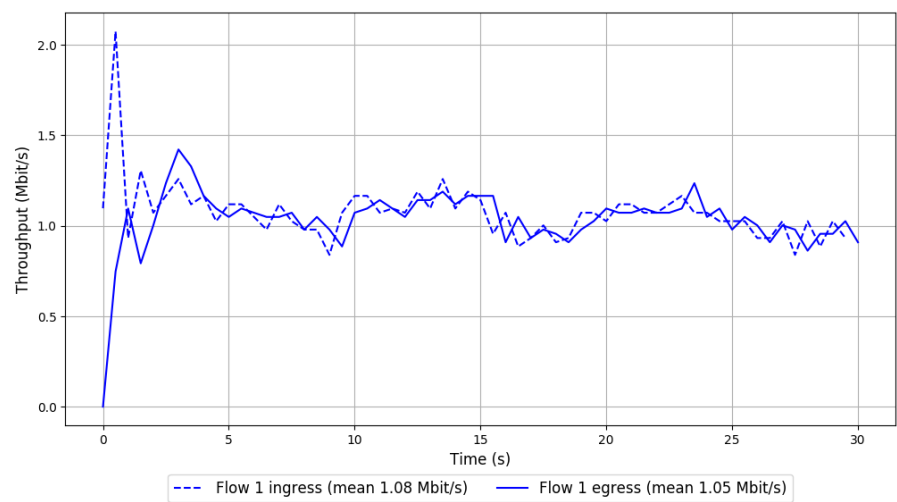
-- Flow 1:

Average throughput: 1.05 Mbit/s

95th percentile per-packet one-way delay: 170.316 ms

Loss rate: 2.10%

Run 2: Report of Indigo-Muses — Data Link

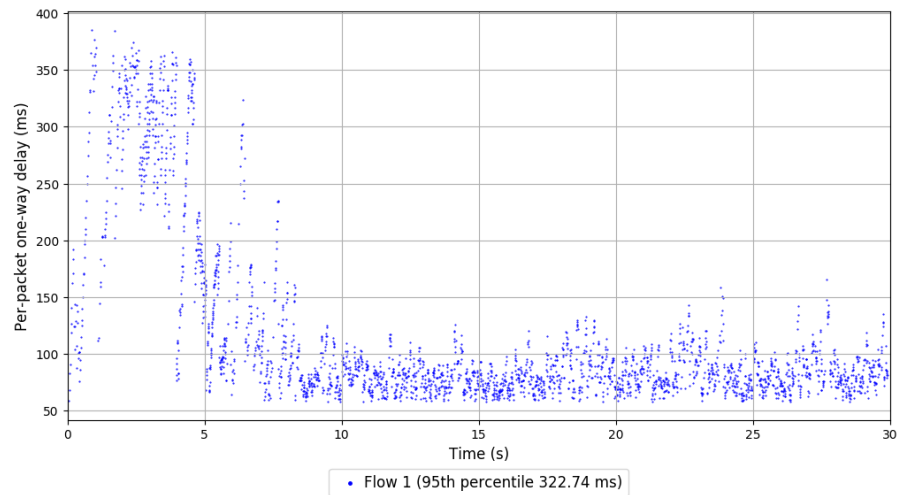
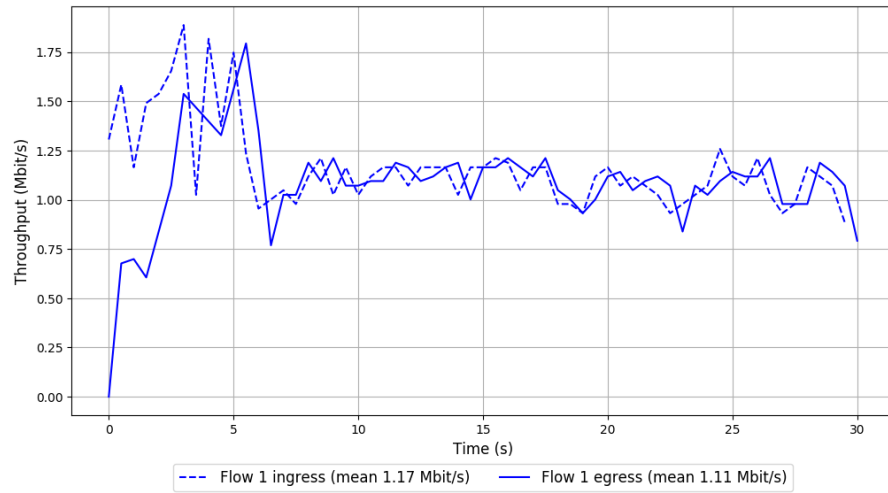


Run 3: Statistics of Indigo-Muses

Start at: 2018-09-07 18:42:31
End at: 2018-09-07 18:43:01
Local clock offset: 2.211 ms
Remote clock offset: -5.537 ms

Below is generated by plot.py at 2018-09-07 18:45:35
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.11 Mbit/s
95th percentile per-packet one-way delay: 322.739 ms
Loss rate: 5.07%
-- Flow 1:
Average throughput: 1.11 Mbit/s
95th percentile per-packet one-way delay: 322.739 ms
Loss rate: 5.07%

Run 3: Report of Indigo-Muses — Data Link



Run 1: Statistics of PCC-Allegro

Start at: 2018-09-07 17:47:58

End at: 2018-09-07 17:48:28

Local clock offset: 2.063 ms

Remote clock offset: -5.167 ms

Below is generated by plot.py at 2018-09-07 18:45:35

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.48 Mbit/s

95th percentile per-packet one-way delay: 369.319 ms

Loss rate: 54.34%

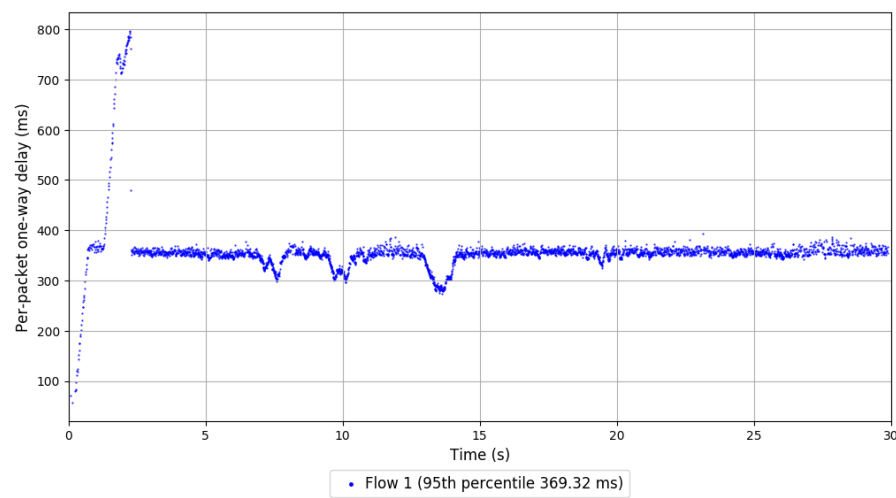
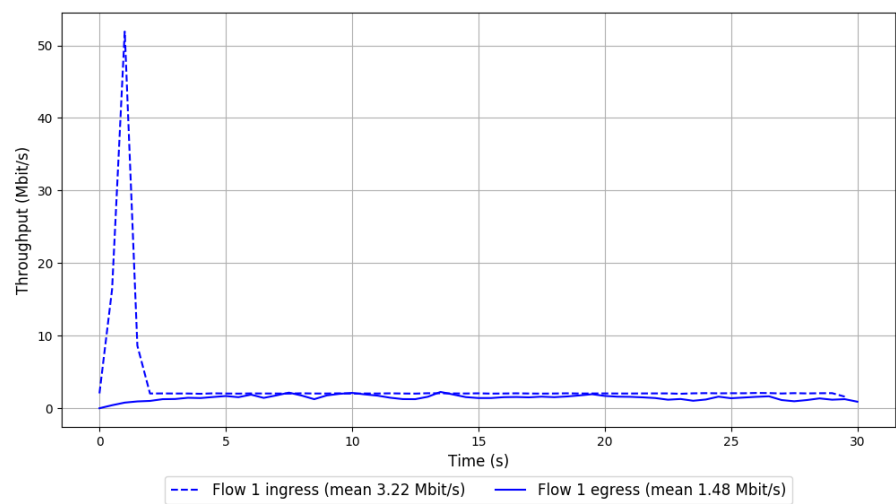
-- Flow 1:

Average throughput: 1.48 Mbit/s

95th percentile per-packet one-way delay: 369.319 ms

Loss rate: 54.34%

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-09-07 18:07:37

End at: 2018-09-07 18:08:07

Local clock offset: 3.316 ms

Remote clock offset: -4.67 ms

Below is generated by plot.py at 2018-09-07 18:45:36

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.45 Mbit/s

95th percentile per-packet one-way delay: 366.284 ms

Loss rate: 56.12%

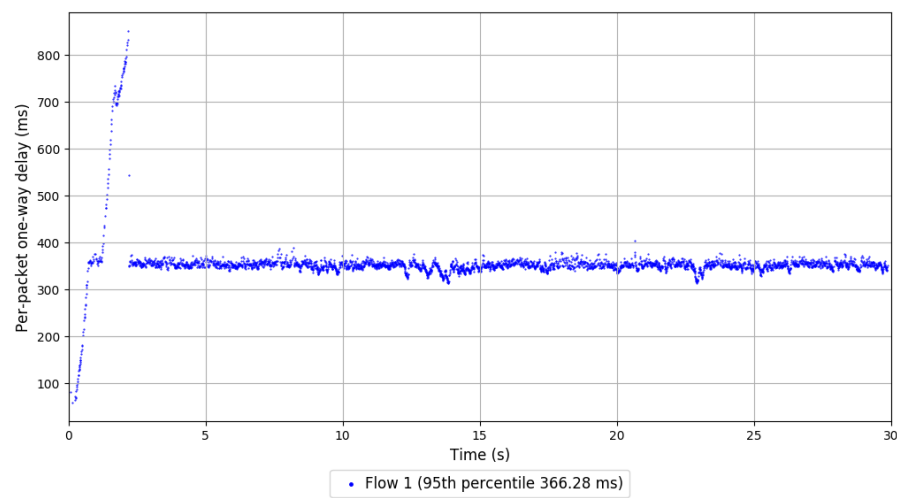
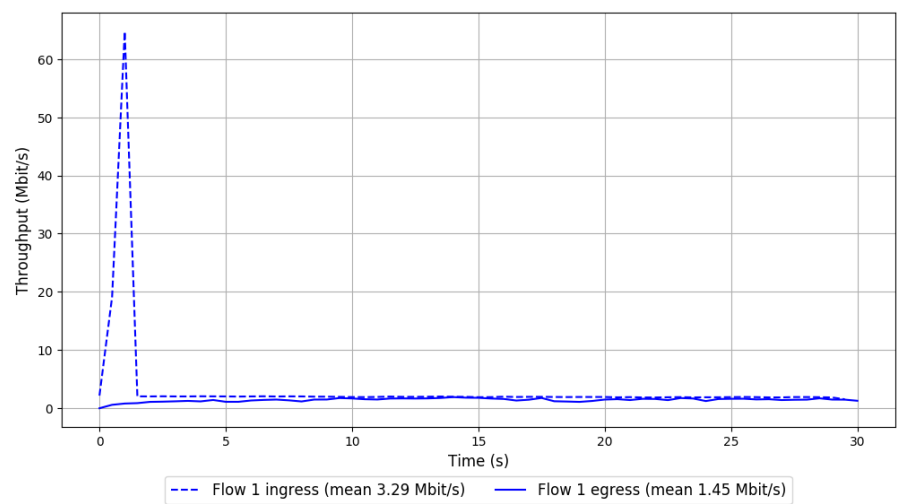
-- Flow 1:

Average throughput: 1.45 Mbit/s

95th percentile per-packet one-way delay: 366.284 ms

Loss rate: 56.12%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-09-07 18:27:14

End at: 2018-09-07 18:27:44

Local clock offset: -2.718 ms

Remote clock offset: -3.958 ms

Below is generated by plot.py at 2018-09-07 18:45:38

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.37 Mbit/s

95th percentile per-packet one-way delay: 363.270 ms

Loss rate: 52.71%

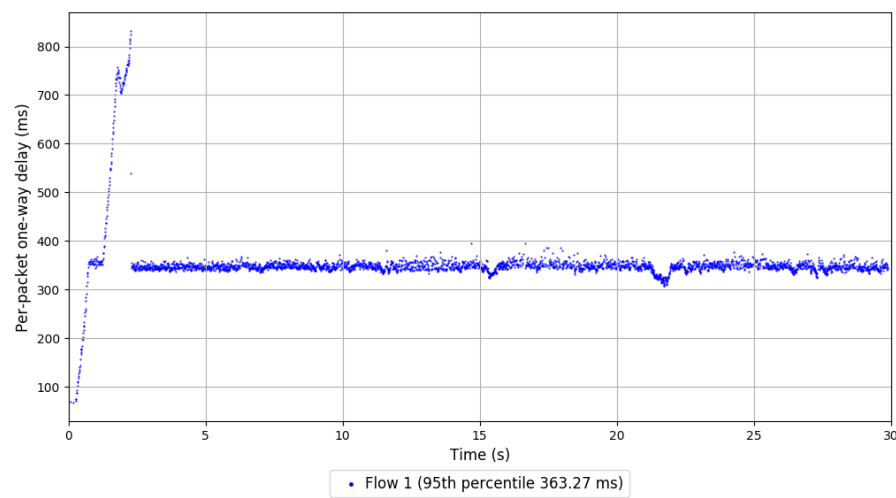
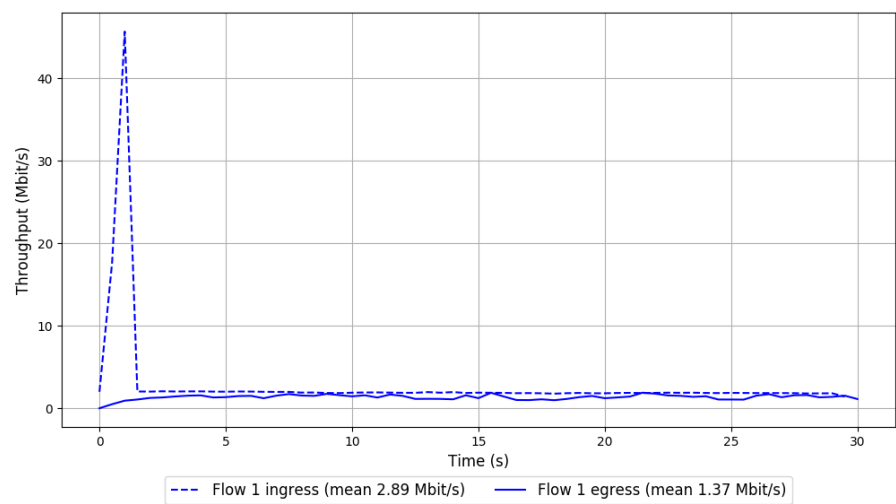
-- Flow 1:

Average throughput: 1.37 Mbit/s

95th percentile per-packet one-way delay: 363.270 ms

Loss rate: 52.71%

Run 3: Report of PCC-Allegro — Data Link



Run 1: Statistics of PCC-Expr

Start at: 2018-09-07 18:01:06

End at: 2018-09-07 18:01:36

Local clock offset: 1.218 ms

Remote clock offset: -6.715 ms

Below is generated by plot.py at 2018-09-07 18:45:44

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.73 Mbit/s

95th percentile per-packet one-way delay: 377.701 ms

Loss rate: 67.17%

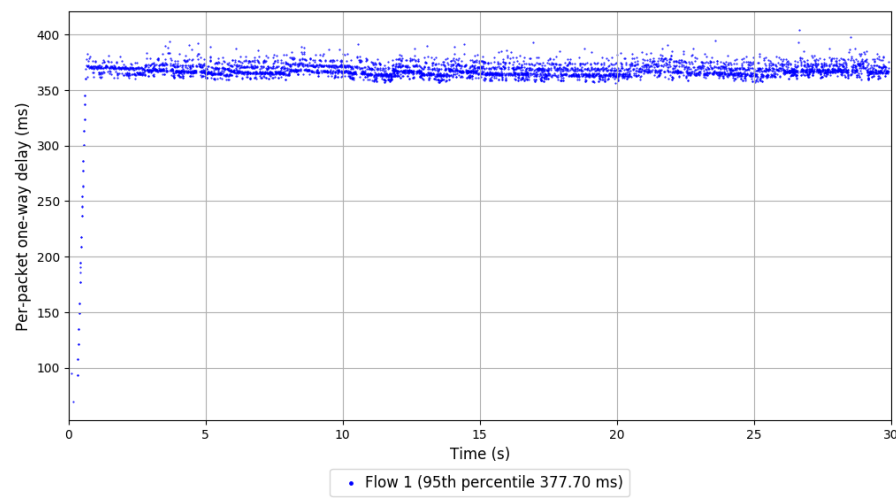
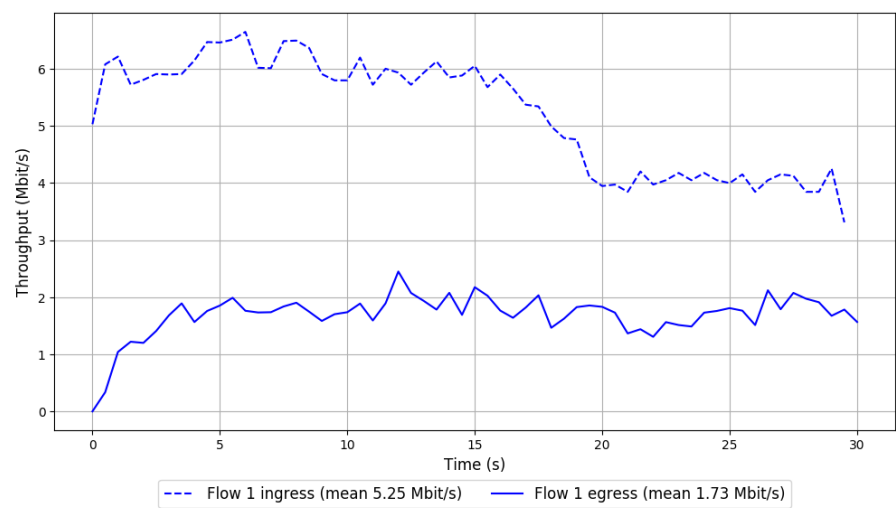
-- Flow 1:

Average throughput: 1.73 Mbit/s

95th percentile per-packet one-way delay: 377.701 ms

Loss rate: 67.17%

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

Start at: 2018-09-07 18:20:42

End at: 2018-09-07 18:21:12

Local clock offset: 1.597 ms

Remote clock offset: -4.514 ms

Below is generated by plot.py at 2018-09-07 18:45:45

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.15 Mbit/s

95th percentile per-packet one-way delay: 380.370 ms

Loss rate: 57.28%

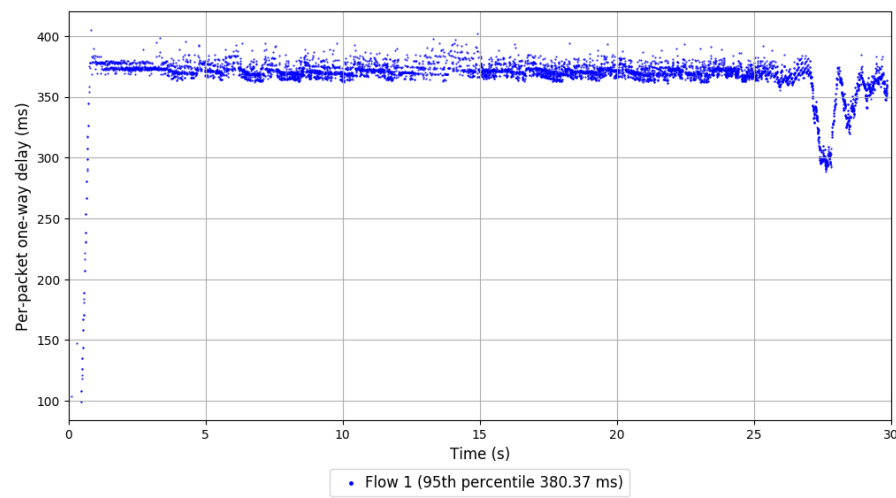
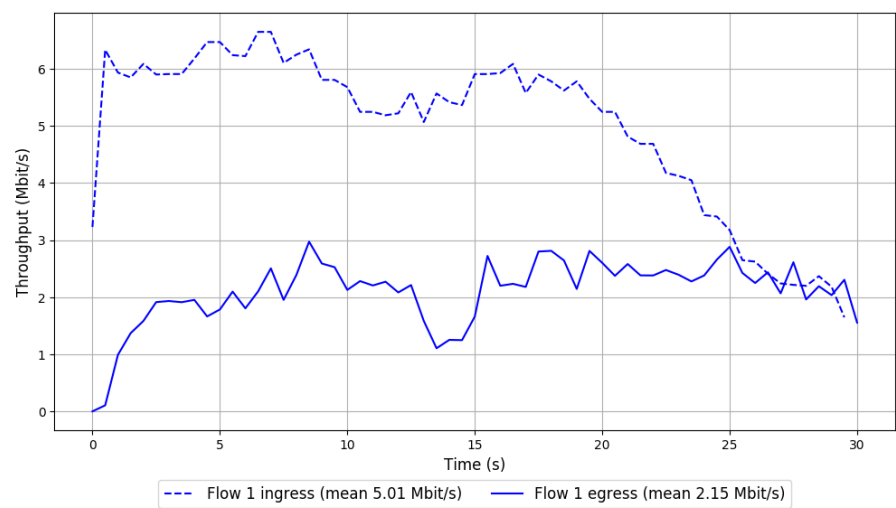
-- Flow 1:

Average throughput: 2.15 Mbit/s

95th percentile per-packet one-way delay: 380.370 ms

Loss rate: 57.28%

Run 2: Report of PCC-Expr — Data Link

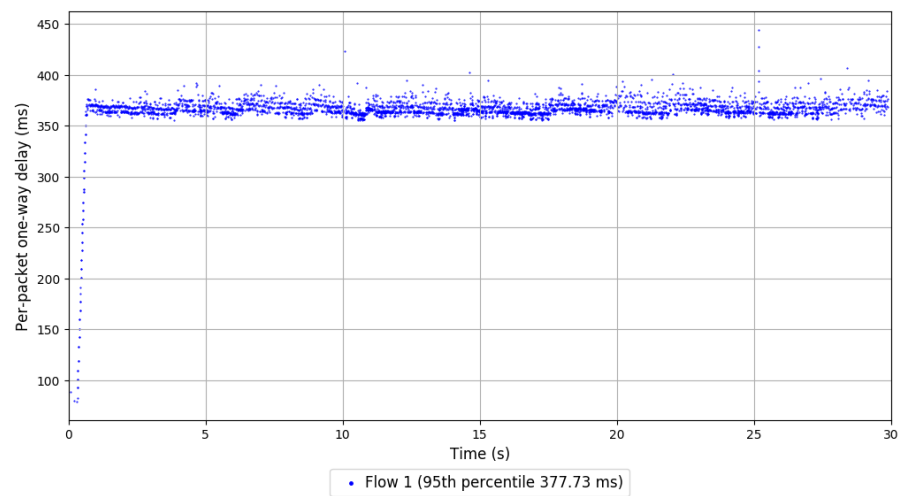
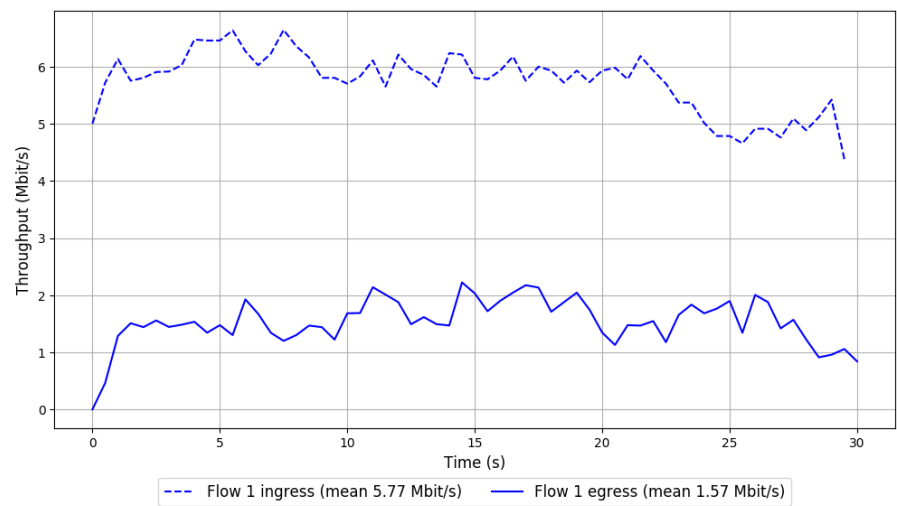


Run 3: Statistics of PCC-Expr

Start at: 2018-09-07 18:40:20
End at: 2018-09-07 18:40:50
Local clock offset: 1.389 ms
Remote clock offset: -5.871 ms

Below is generated by plot.py at 2018-09-07 18:45:45
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.57 Mbit/s
95th percentile per-packet one-way delay: 377.732 ms
Loss rate: 72.84%
-- Flow 1:
Average throughput: 1.57 Mbit/s
95th percentile per-packet one-way delay: 377.732 ms
Loss rate: 72.84%

Run 3: Report of PCC-Expr — Data Link

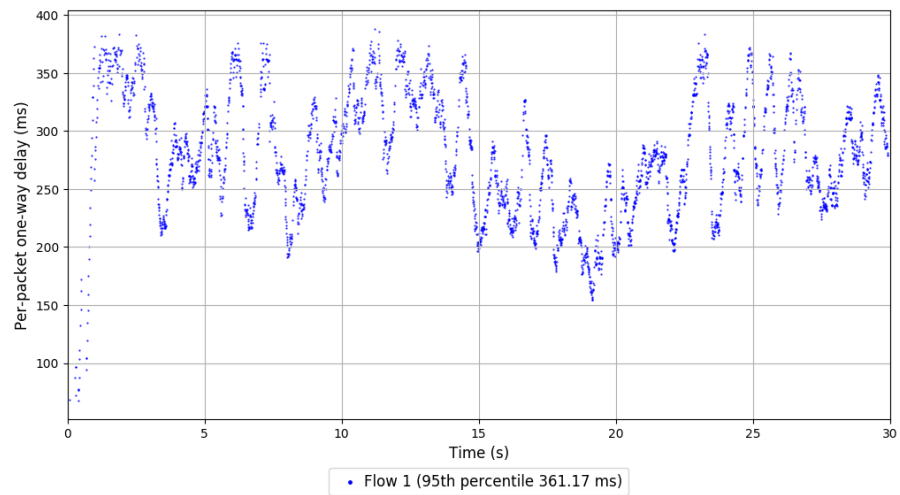
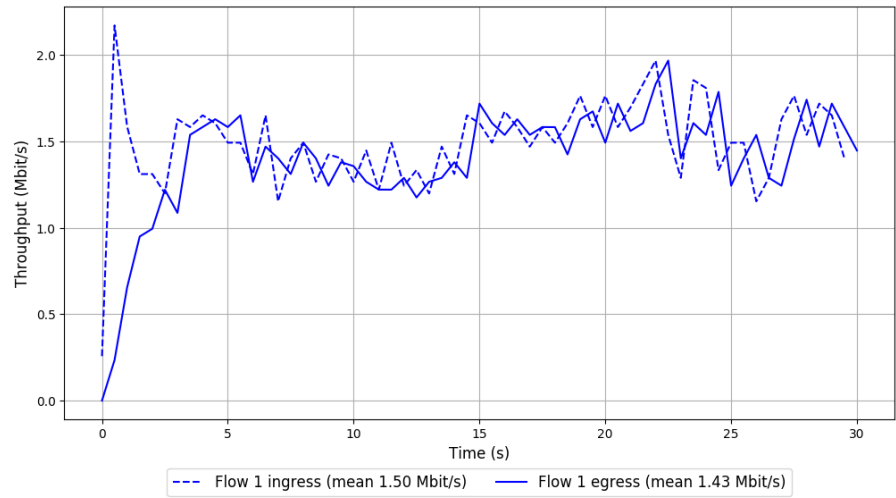


Run 1: Statistics of QUIC Cubic

Start at: 2018-09-07 18:02:11
End at: 2018-09-07 18:02:41
Local clock offset: 1.513 ms
Remote clock offset: -5.296 ms

Below is generated by plot.py at 2018-09-07 18:45:45
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.43 Mbit/s
95th percentile per-packet one-way delay: 361.167 ms
Loss rate: 4.69%
-- Flow 1:
Average throughput: 1.43 Mbit/s
95th percentile per-packet one-way delay: 361.167 ms
Loss rate: 4.69%

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-09-07 18:21:47

End at: 2018-09-07 18:22:17

Local clock offset: 2.486 ms

Remote clock offset: -5.428 ms

Below is generated by plot.py at 2018-09-07 18:45:45

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.76 Mbit/s

95th percentile per-packet one-way delay: 354.274 ms

Loss rate: 3.98%

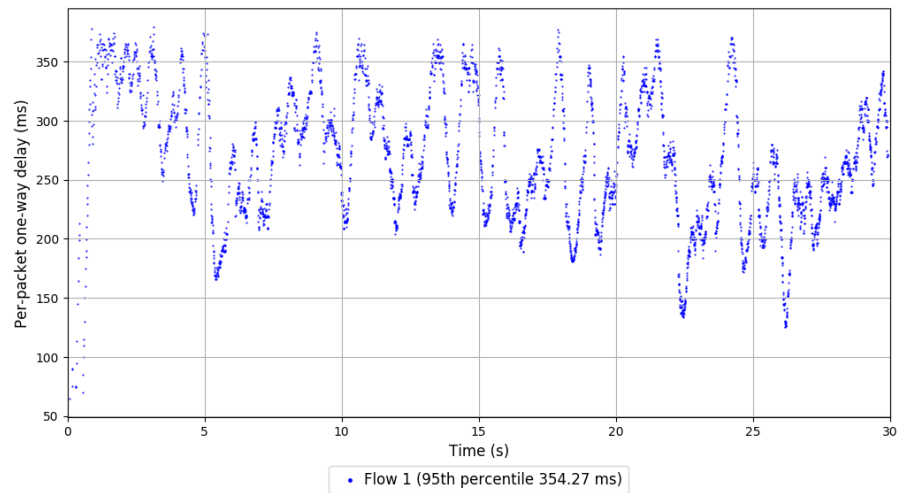
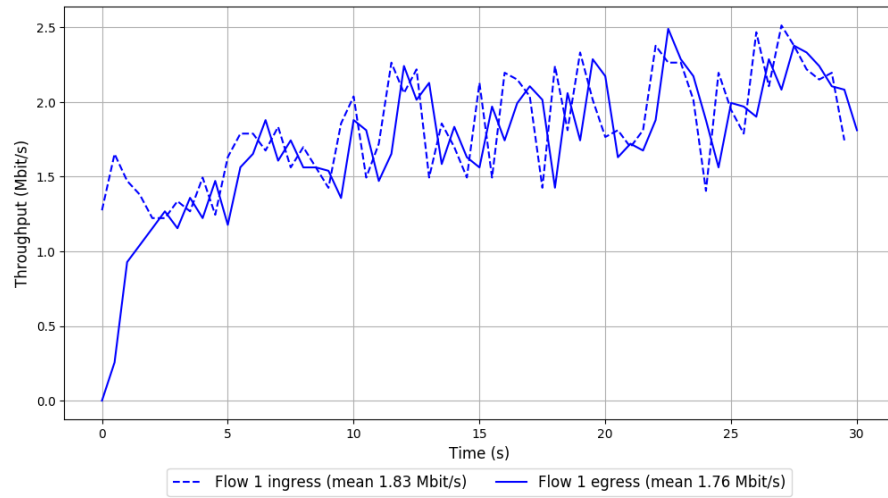
-- Flow 1:

Average throughput: 1.76 Mbit/s

95th percentile per-packet one-way delay: 354.274 ms

Loss rate: 3.98%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-09-07 18:41:26

End at: 2018-09-07 18:41:56

Local clock offset: -0.341 ms

Remote clock offset: -5.643 ms

Below is generated by plot.py at 2018-09-07 18:45:45

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.72 Mbit/s

95th percentile per-packet one-way delay: 357.066 ms

Loss rate: 3.84%

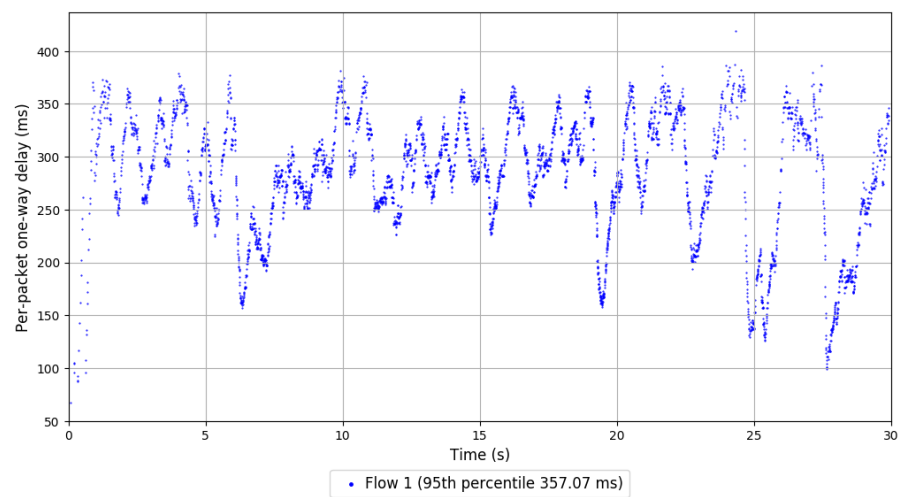
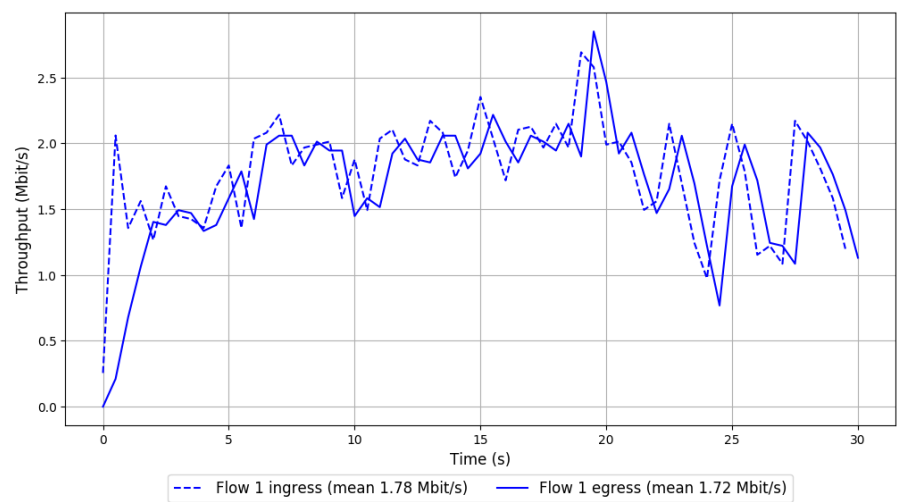
-- Flow 1:

Average throughput: 1.72 Mbit/s

95th percentile per-packet one-way delay: 357.066 ms

Loss rate: 3.84%

Run 3: Report of QUIC Cubic — Data Link

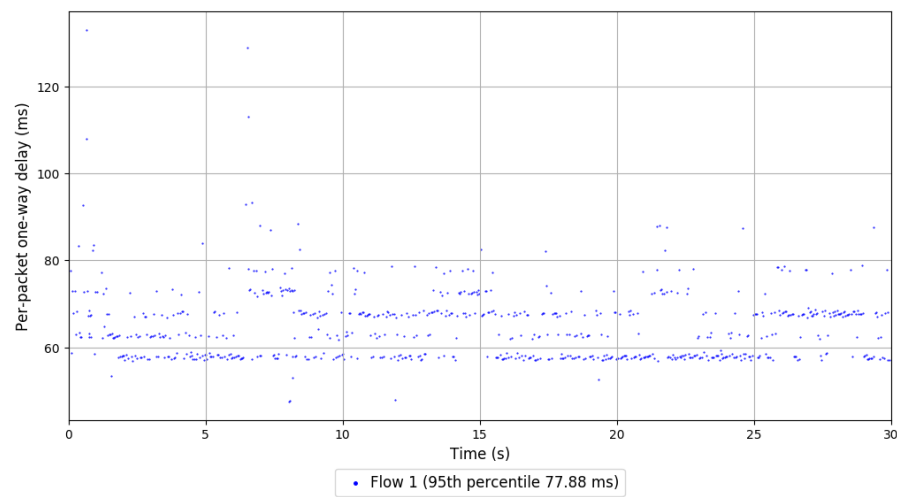
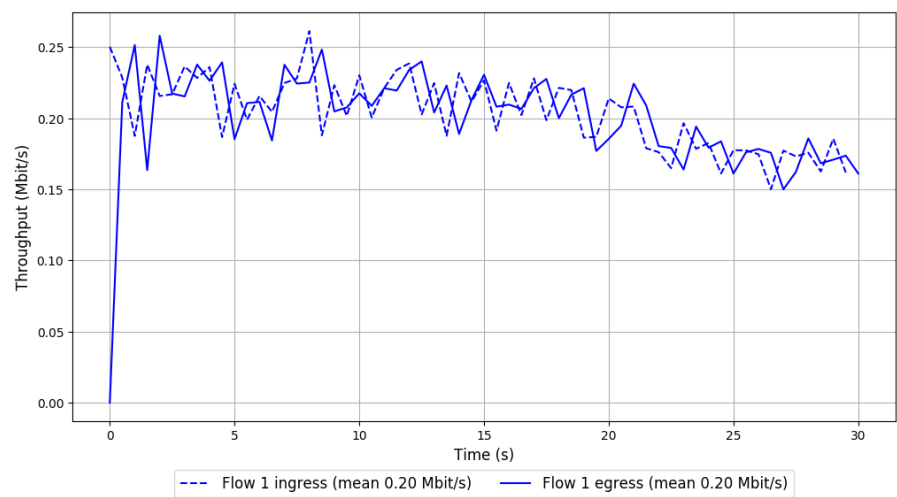


Run 1: Statistics of SCReAM

Start at: 2018-09-07 17:49:03
End at: 2018-09-07 17:49:33
Local clock offset: -1.077 ms
Remote clock offset: -4.648 ms

Below is generated by plot.py at 2018-09-07 18:45:45
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 77.882 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 77.882 ms
Loss rate: 0.34%

Run 1: Report of SReAM — Data Link

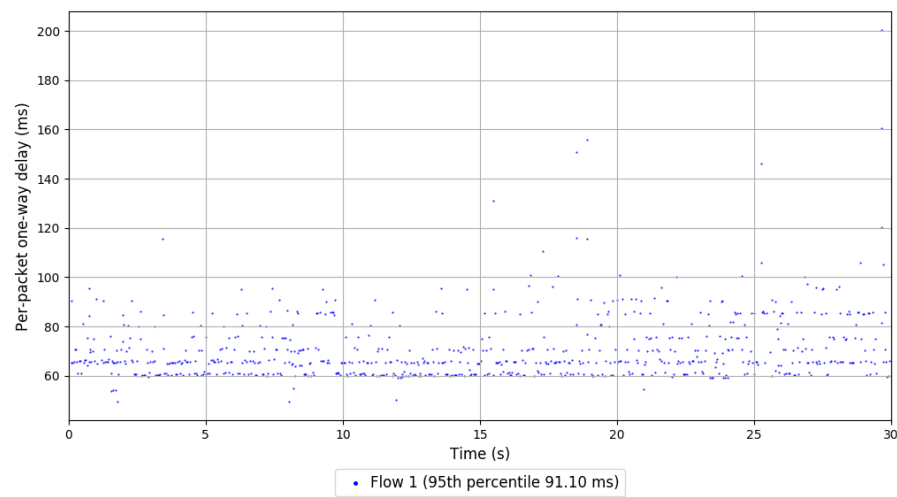
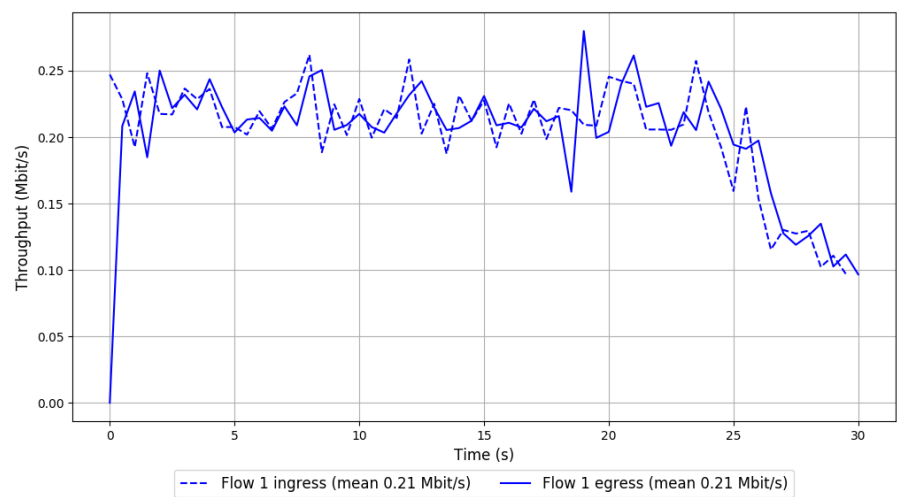


Run 2: Statistics of SCReAM

Start at: 2018-09-07 18:08:42
End at: 2018-09-07 18:09:12
Local clock offset: 1.51 ms
Remote clock offset: -4.799 ms

Below is generated by plot.py at 2018-09-07 18:45:45
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 91.098 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 91.098 ms
Loss rate: 0.13%

Run 2: Report of SReAM — Data Link

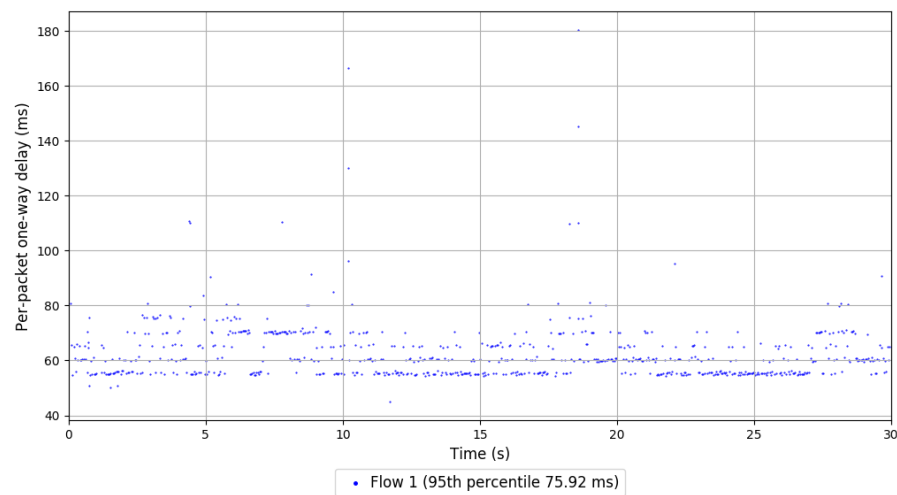
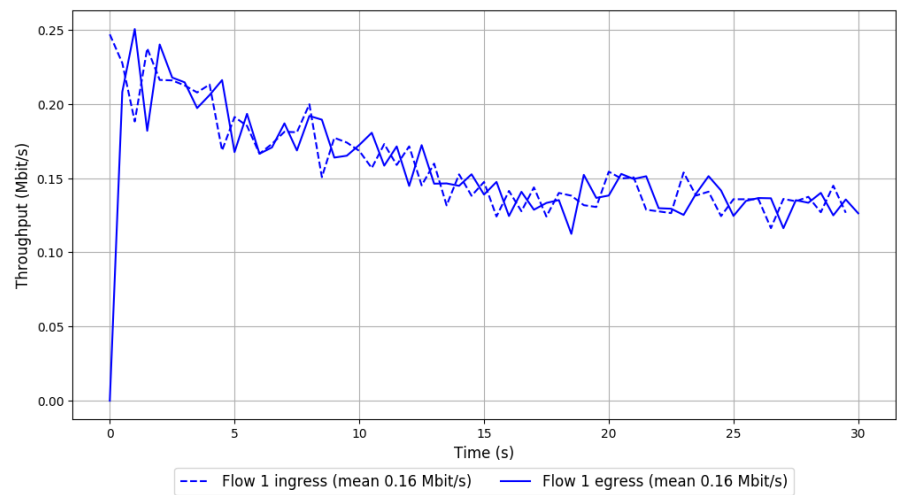


Run 3: Statistics of SCReAM

Start at: 2018-09-07 18:28:20
End at: 2018-09-07 18:28:50
Local clock offset: -2.922 ms
Remote clock offset: -5.923 ms

Below is generated by plot.py at 2018-09-07 18:45:45
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.16 Mbit/s
95th percentile per-packet one-way delay: 75.918 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 0.16 Mbit/s
95th percentile per-packet one-way delay: 75.918 ms
Loss rate: 0.57%

Run 3: Report of SReAM — Data Link

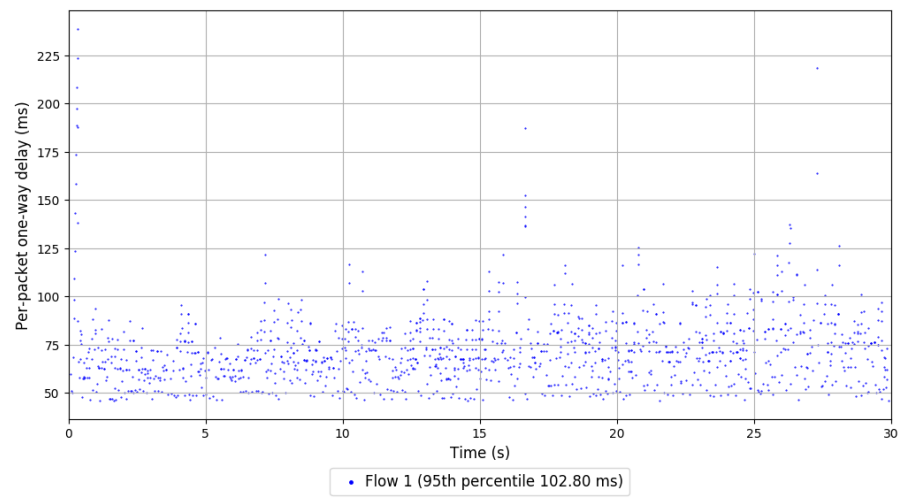
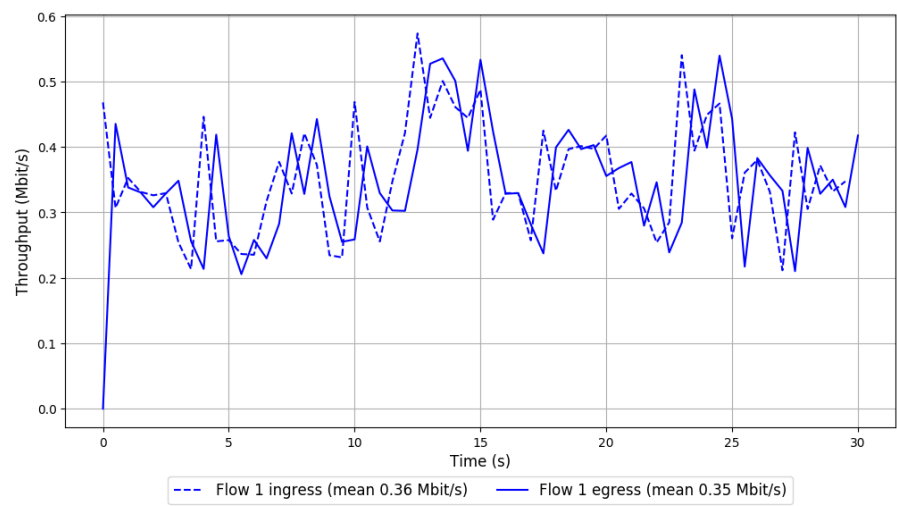


Run 1: Statistics of Sprout

Start at: 2018-09-07 17:53:30
End at: 2018-09-07 17:54:00
Local clock offset: 0.165 ms
Remote clock offset: -4.963 ms

Below is generated by plot.py at 2018-09-07 18:45:45
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.35 Mbit/s
95th percentile per-packet one-way delay: 102.803 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 0.35 Mbit/s
95th percentile per-packet one-way delay: 102.803 ms
Loss rate: 0.56%

Run 1: Report of Sprout — Data Link



Run 2: Statistics of Sprout

Start at: 2018-09-07 18:13:04

End at: 2018-09-07 18:13:34

Local clock offset: 2.202 ms

Remote clock offset: -5.18 ms

Below is generated by plot.py at 2018-09-07 18:45:45

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.37 Mbit/s

95th percentile per-packet one-way delay: 98.473 ms

Loss rate: 0.50%

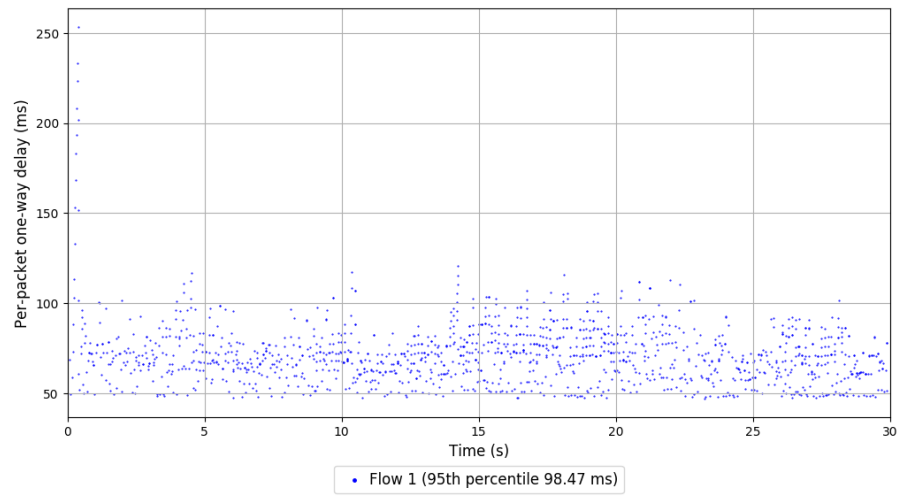
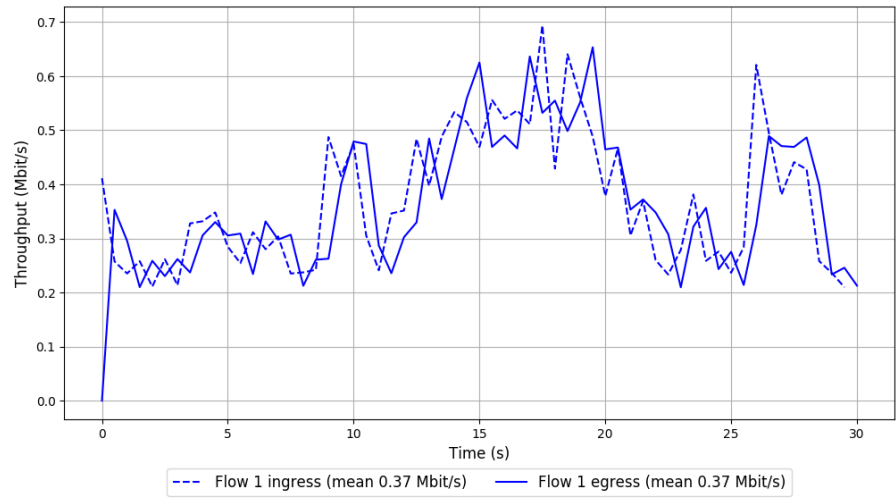
-- Flow 1:

Average throughput: 0.37 Mbit/s

95th percentile per-packet one-way delay: 98.473 ms

Loss rate: 0.50%

Run 2: Report of Sprout — Data Link

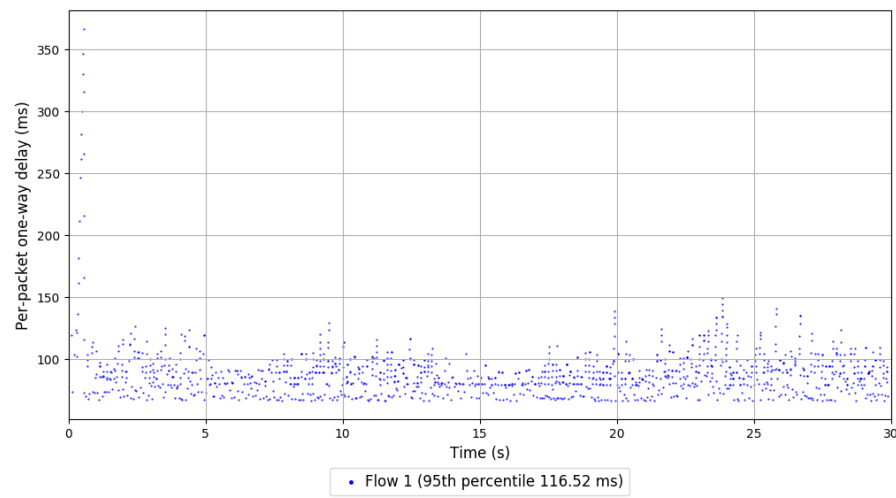
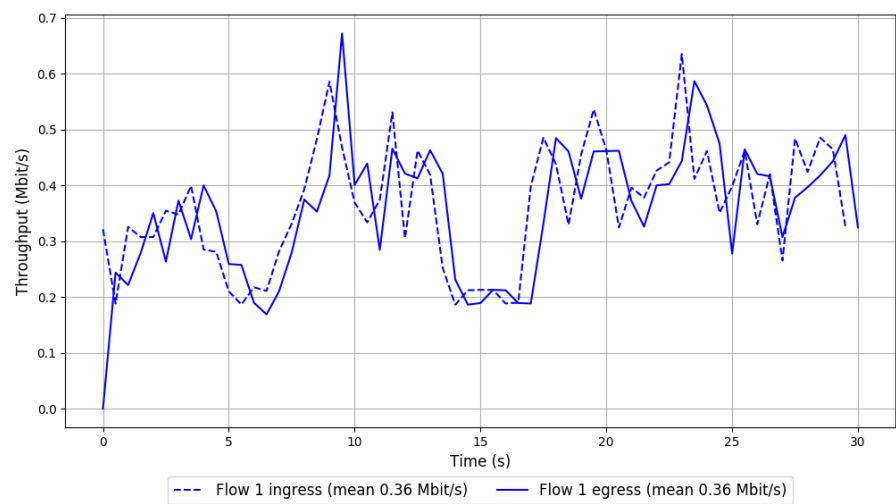


Run 3: Statistics of Sprout

Start at: 2018-09-07 18:32:41
End at: 2018-09-07 18:33:11
Local clock offset: 2.329 ms
Remote clock offset: -5.182 ms

Below is generated by plot.py at 2018-09-07 18:45:45
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.36 Mbit/s
95th percentile per-packet one-way delay: 116.517 ms
Loss rate: 0.53%
-- Flow 1:
Average throughput: 0.36 Mbit/s
95th percentile per-packet one-way delay: 116.517 ms
Loss rate: 0.53%

Run 3: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: 2018-09-07 17:56:45

End at: 2018-09-07 17:57:15

Local clock offset: 2.554 ms

Remote clock offset: -5.128 ms

Below is generated by plot.py at 2018-09-07 18:45:50

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.69 Mbit/s

95th percentile per-packet one-way delay: 323.461 ms

Loss rate: 1.87%

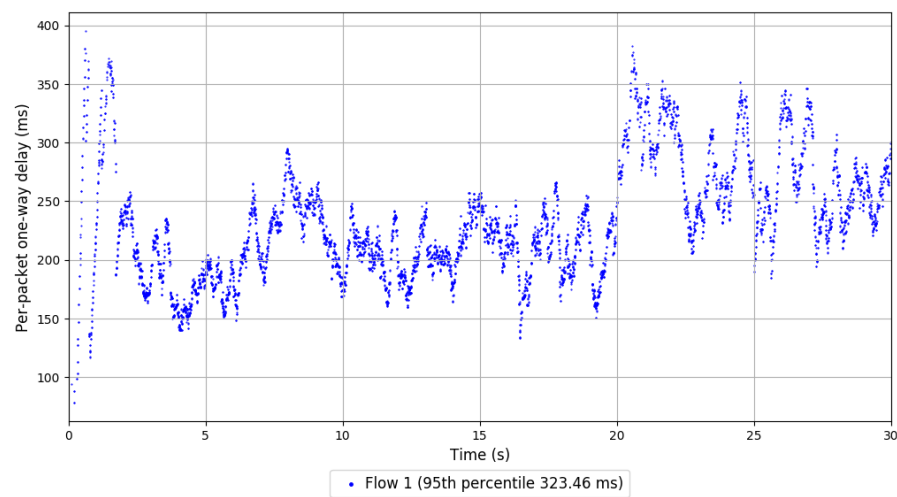
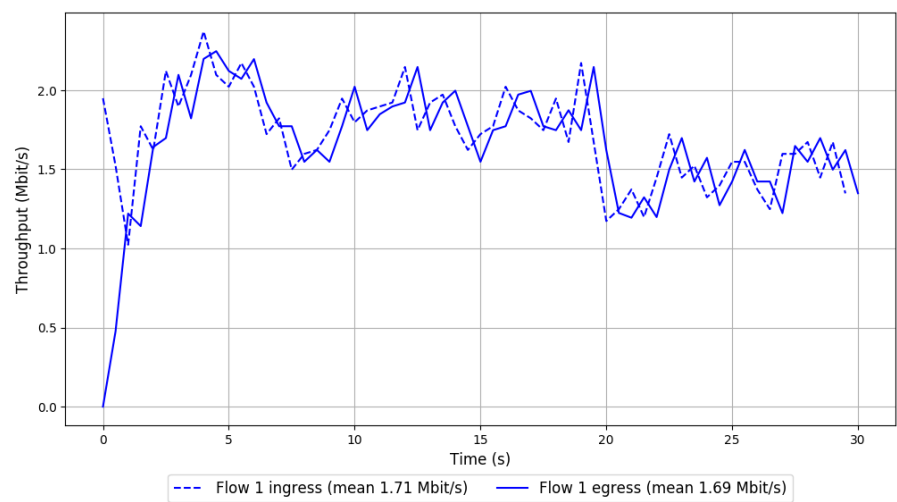
-- Flow 1:

Average throughput: 1.69 Mbit/s

95th percentile per-packet one-way delay: 323.461 ms

Loss rate: 1.87%

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-09-07 18:16:20

End at: 2018-09-07 18:16:50

Local clock offset: -1.358 ms

Remote clock offset: -5.637 ms

Below is generated by plot.py at 2018-09-07 18:45:50

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.62 Mbit/s

95th percentile per-packet one-way delay: 307.344 ms

Loss rate: 3.58%

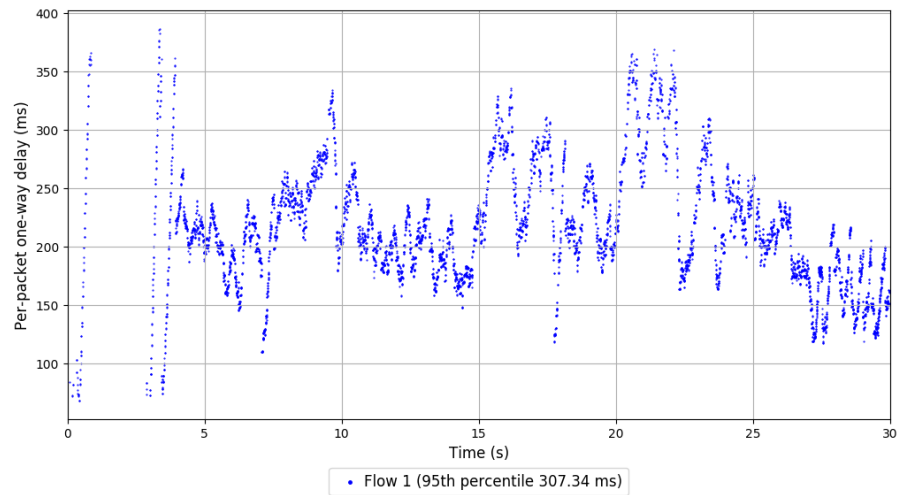
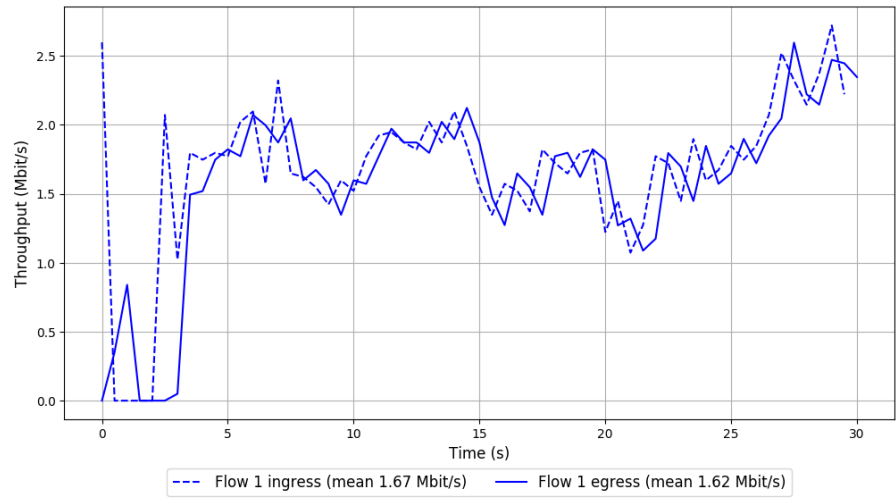
-- Flow 1:

Average throughput: 1.62 Mbit/s

95th percentile per-packet one-way delay: 307.344 ms

Loss rate: 3.58%

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

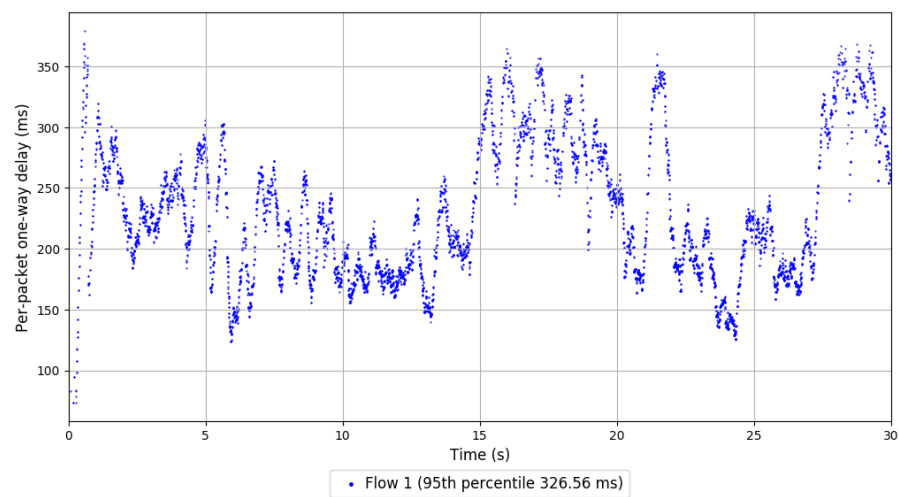
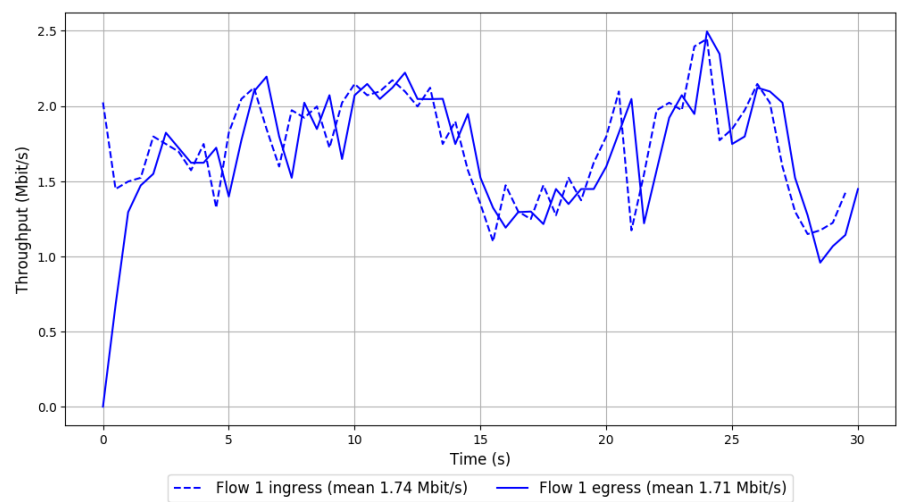


Run 3: Statistics of TaoVA-100x

Start at: 2018-09-07 18:35:57
End at: 2018-09-07 18:36:27
Local clock offset: 0.271 ms
Remote clock offset: -5.246 ms

Below is generated by plot.py at 2018-09-07 18:45:50
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.71 Mbit/s
95th percentile per-packet one-way delay: 326.556 ms
Loss rate: 1.97%
-- Flow 1:
Average throughput: 1.71 Mbit/s
95th percentile per-packet one-way delay: 326.556 ms
Loss rate: 1.97%

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

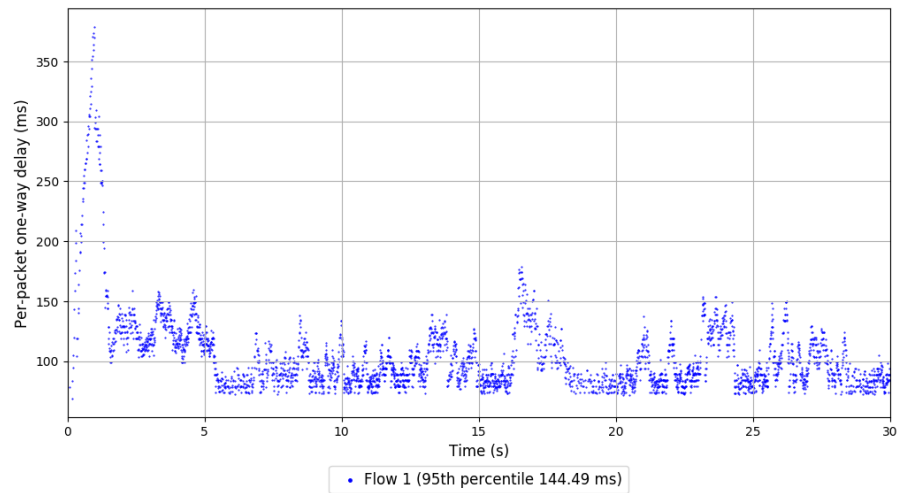
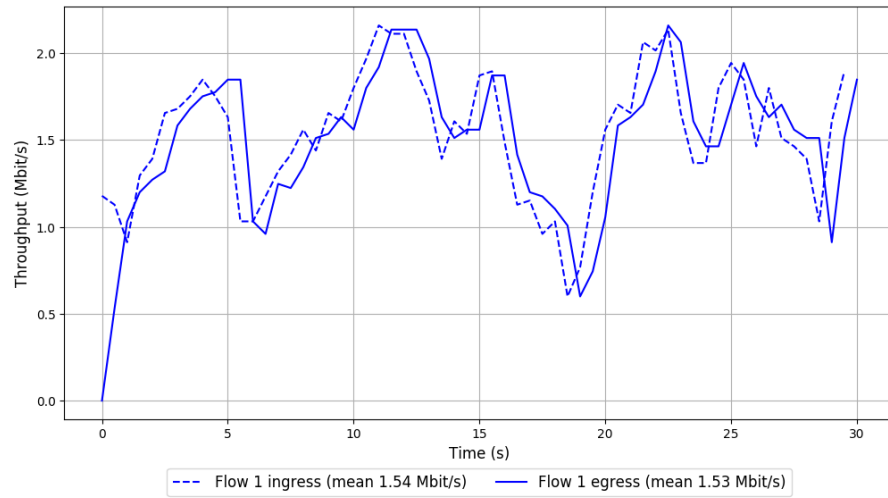


Run 1: Statistics of TCP Vegas

Start at: 2018-09-07 17:52:25
End at: 2018-09-07 17:52:55
Local clock offset: 2.046 ms
Remote clock offset: -5.151 ms

Below is generated by plot.py at 2018-09-07 18:45:50
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.53 Mbit/s
95th percentile per-packet one-way delay: 144.485 ms
Loss rate: 0.76%
-- Flow 1:
Average throughput: 1.53 Mbit/s
95th percentile per-packet one-way delay: 144.485 ms
Loss rate: 0.76%

Run 1: Report of TCP Vegas — Data Link

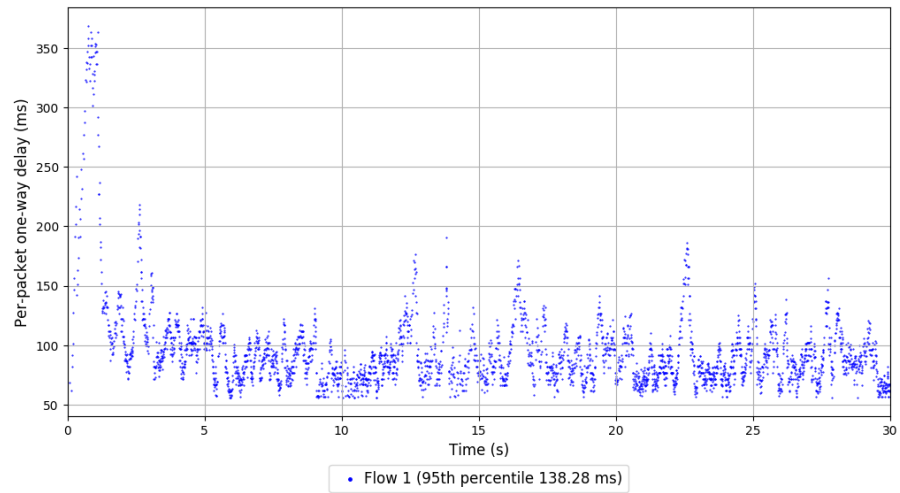
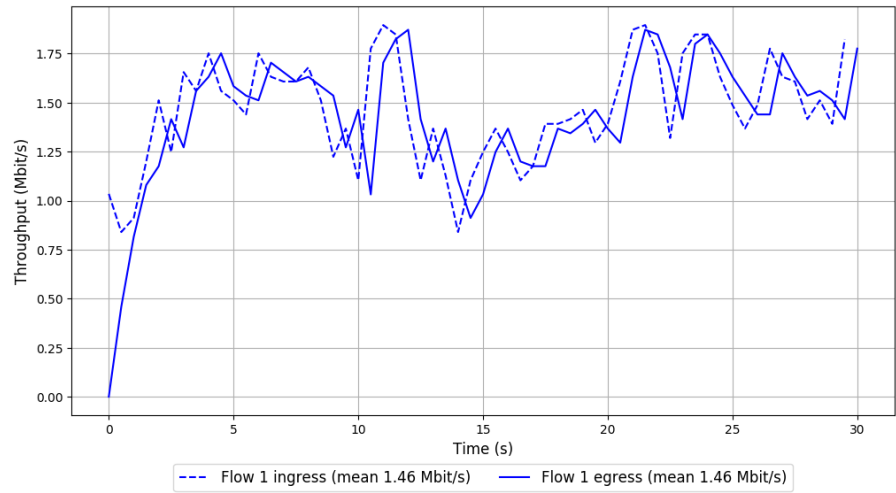


Run 2: Statistics of TCP Vegas

Start at: 2018-09-07 18:11:58
End at: 2018-09-07 18:12:28
Local clock offset: 2.053 ms
Remote clock offset: -5.521 ms

Below is generated by plot.py at 2018-09-07 18:45:50
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.46 Mbit/s
95th percentile per-packet one-way delay: 138.281 ms
Loss rate: 0.60%
-- Flow 1:
Average throughput: 1.46 Mbit/s
95th percentile per-packet one-way delay: 138.281 ms
Loss rate: 0.60%

Run 2: Report of TCP Vegas — Data Link

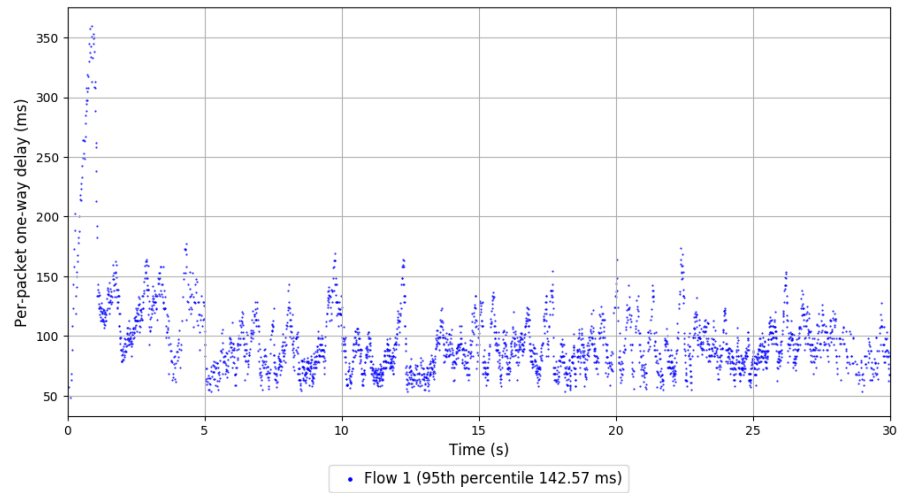
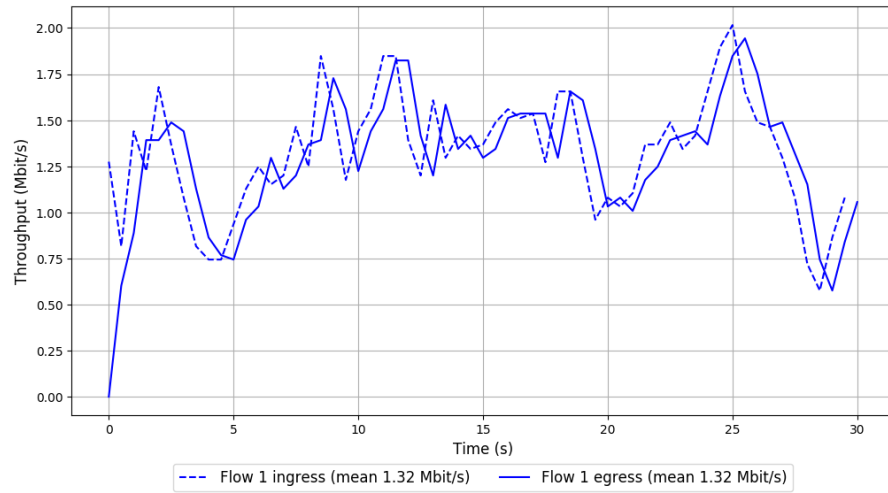


Run 3: Statistics of TCP Vegas

Start at: 2018-09-07 18:31:36
End at: 2018-09-07 18:32:06
Local clock offset: -0.756 ms
Remote clock offset: -4.754 ms

Below is generated by plot.py at 2018-09-07 18:45:50
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.32 Mbit/s
95th percentile per-packet one-way delay: 142.573 ms
Loss rate: 0.70%
-- Flow 1:
Average throughput: 1.32 Mbit/s
95th percentile per-packet one-way delay: 142.573 ms
Loss rate: 0.70%

Run 3: Report of TCP Vegas — Data Link

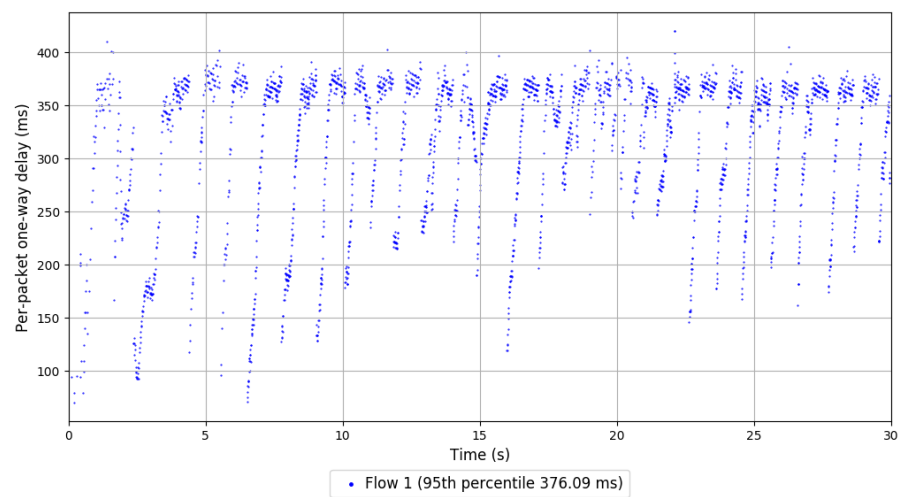
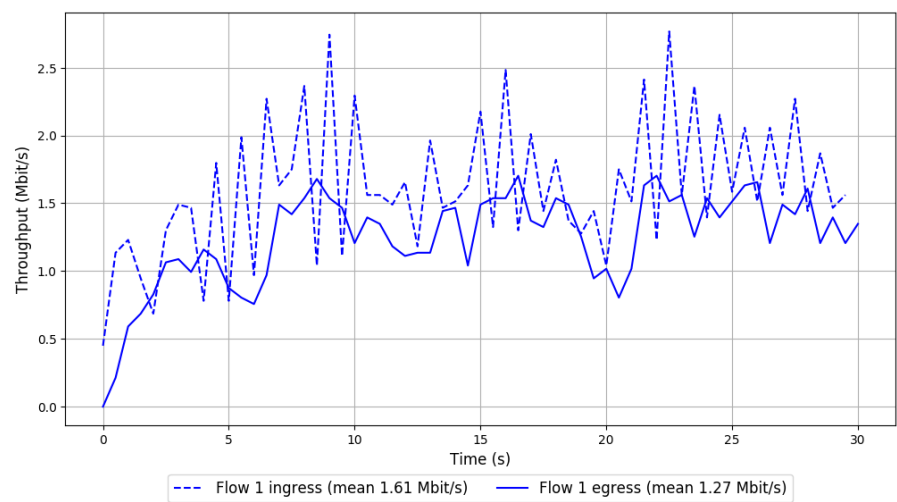


Run 1: Statistics of Verus

Start at: 2018-09-07 17:57:50
End at: 2018-09-07 17:58:20
Local clock offset: -1.489 ms
Remote clock offset: -6.068 ms

Below is generated by plot.py at 2018-09-07 18:45:50
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.27 Mbit/s
95th percentile per-packet one-way delay: 376.093 ms
Loss rate: 21.21%
-- Flow 1:
Average throughput: 1.27 Mbit/s
95th percentile per-packet one-way delay: 376.093 ms
Loss rate: 21.21%

Run 1: Report of Verus — Data Link

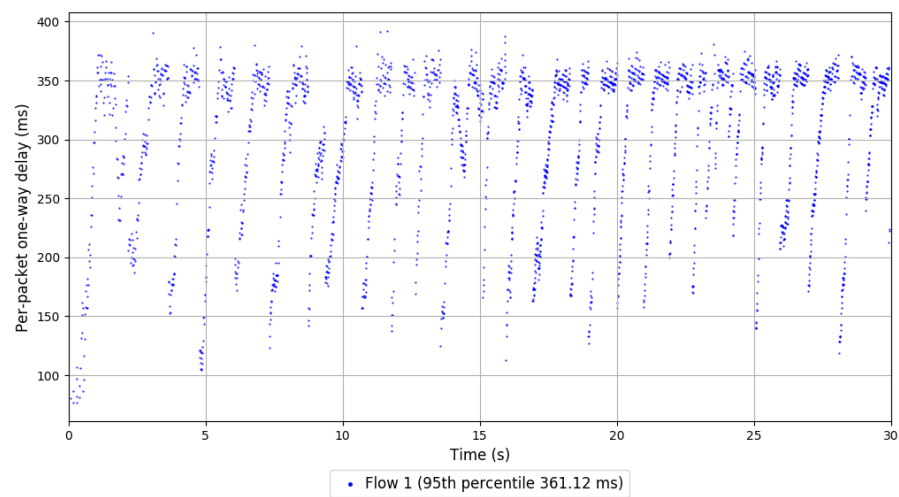
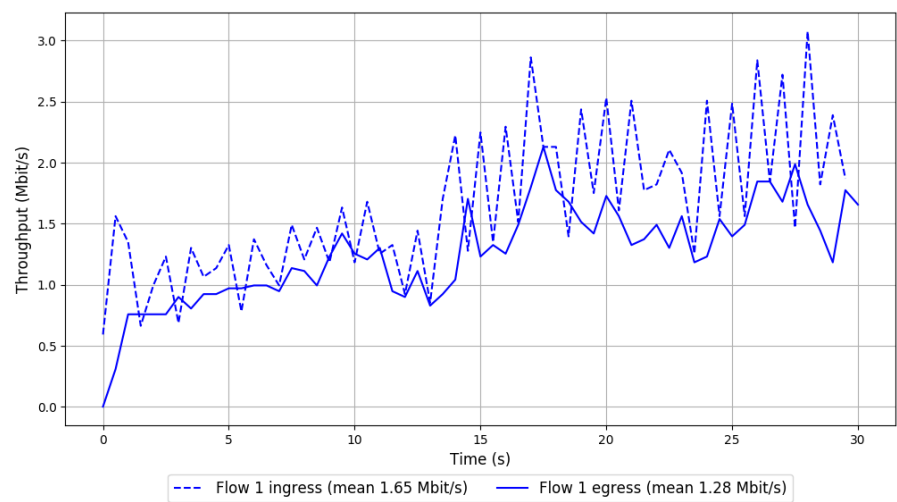


Run 2: Statistics of Verus

Start at: 2018-09-07 18:17:26
End at: 2018-09-07 18:17:56
Local clock offset: 0.469 ms
Remote clock offset: -4.446 ms

Below is generated by plot.py at 2018-09-07 18:45:50
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.28 Mbit/s
95th percentile per-packet one-way delay: 361.115 ms
Loss rate: 22.36%
-- Flow 1:
Average throughput: 1.28 Mbit/s
95th percentile per-packet one-way delay: 361.115 ms
Loss rate: 22.36%

Run 2: Report of Verus — Data Link

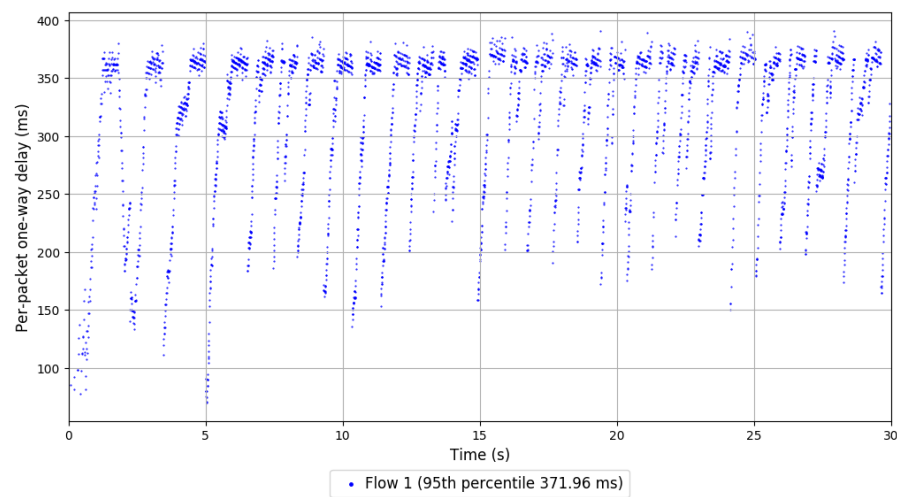
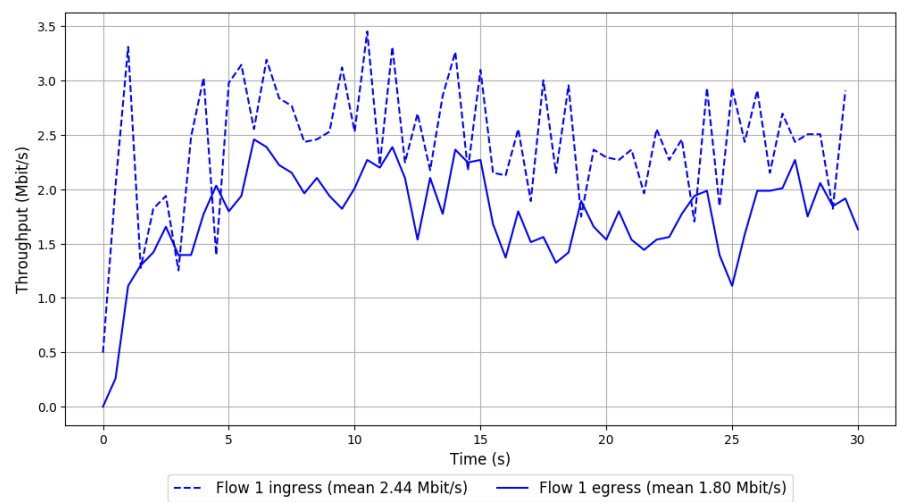


Run 3: Statistics of Verus

Start at: 2018-09-07 18:37:03
End at: 2018-09-07 18:37:33
Local clock offset: -2.712 ms
Remote clock offset: -4.953 ms

Below is generated by plot.py at 2018-09-07 18:45:54
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.80 Mbit/s
95th percentile per-packet one-way delay: 371.958 ms
Loss rate: 26.53%
-- Flow 1:
Average throughput: 1.80 Mbit/s
95th percentile per-packet one-way delay: 371.958 ms
Loss rate: 26.53%

Run 3: Report of Verus — Data Link



Run 1: Statistics of PCC-Vivace

Start at: 2018-09-07 18:04:22

End at: 2018-09-07 18:04:52

Local clock offset: 0.111 ms

Remote clock offset: -4.838 ms

Below is generated by plot.py at 2018-09-07 18:45:55

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.41 Mbit/s

95th percentile per-packet one-way delay: 364.304 ms

Loss rate: 8.33%

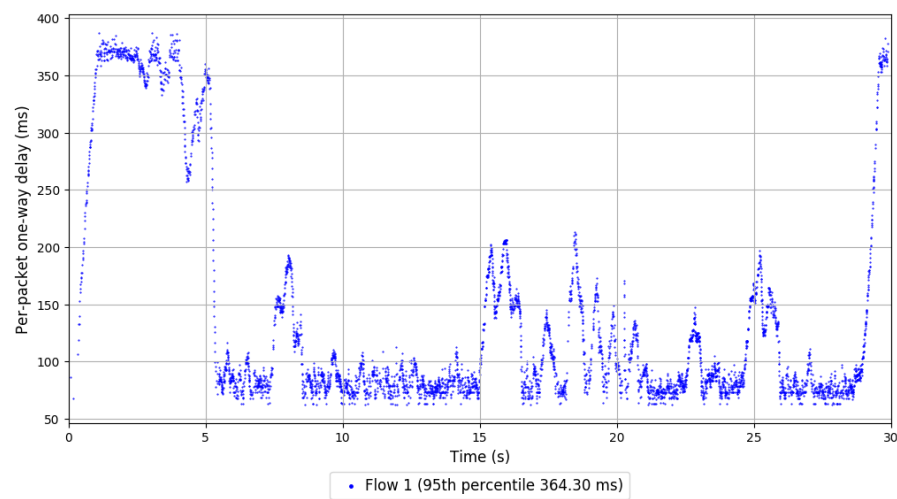
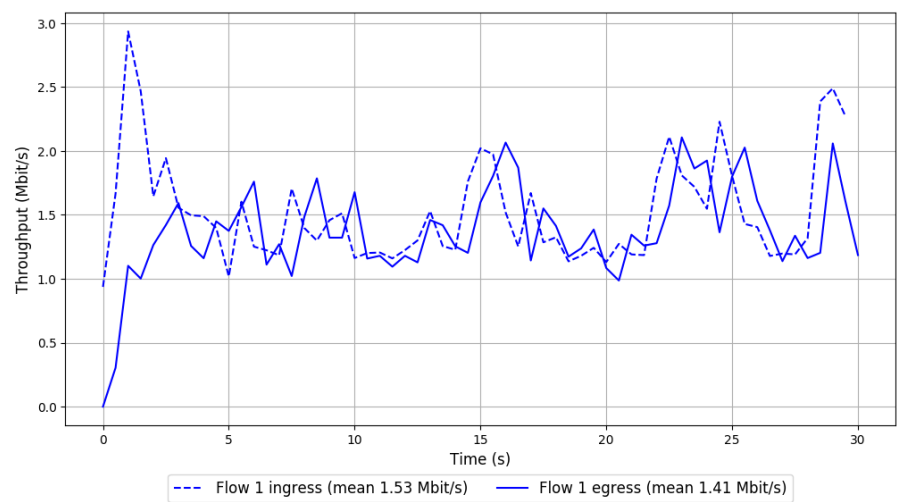
-- Flow 1:

Average throughput: 1.41 Mbit/s

95th percentile per-packet one-way delay: 364.304 ms

Loss rate: 8.33%

Run 1: Report of PCC-Vivace — Data Link



Run 2: Statistics of PCC-Vivace

Start at: 2018-09-07 18:23:58

End at: 2018-09-07 18:24:28

Local clock offset: 1.186 ms

Remote clock offset: -5.403 ms

Below is generated by plot.py at 2018-09-07 18:45:55

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.33 Mbit/s

95th percentile per-packet one-way delay: 315.134 ms

Loss rate: 4.29%

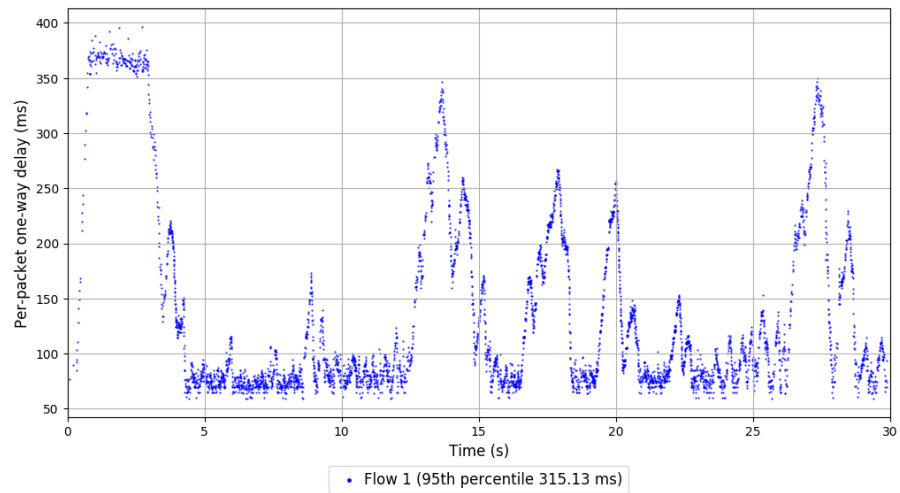
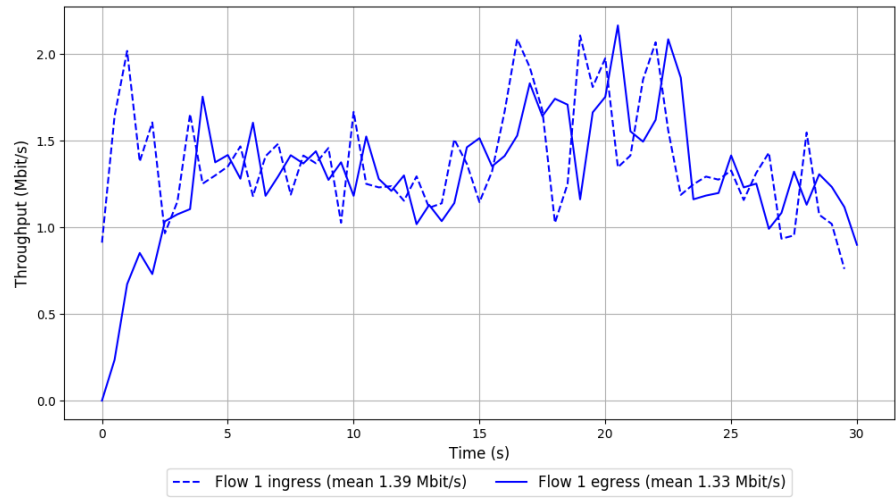
-- Flow 1:

Average throughput: 1.33 Mbit/s

95th percentile per-packet one-way delay: 315.134 ms

Loss rate: 4.29%

Run 2: Report of PCC-Vivace — Data Link

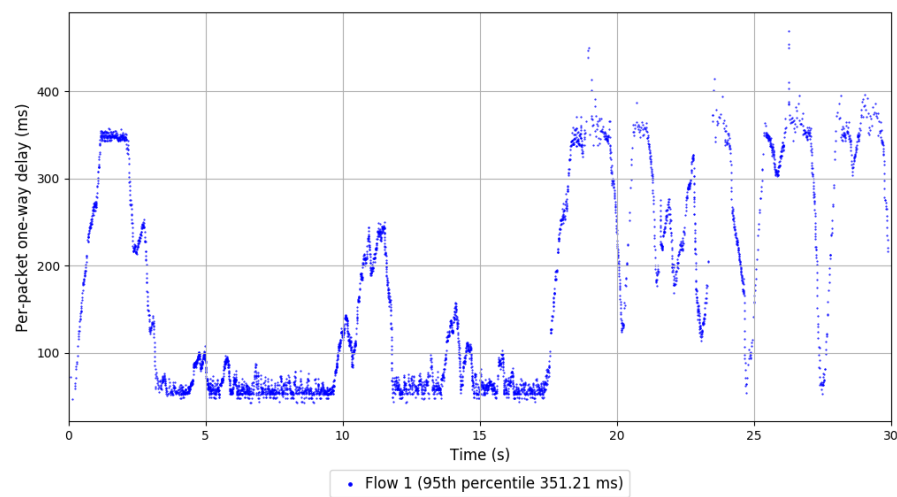
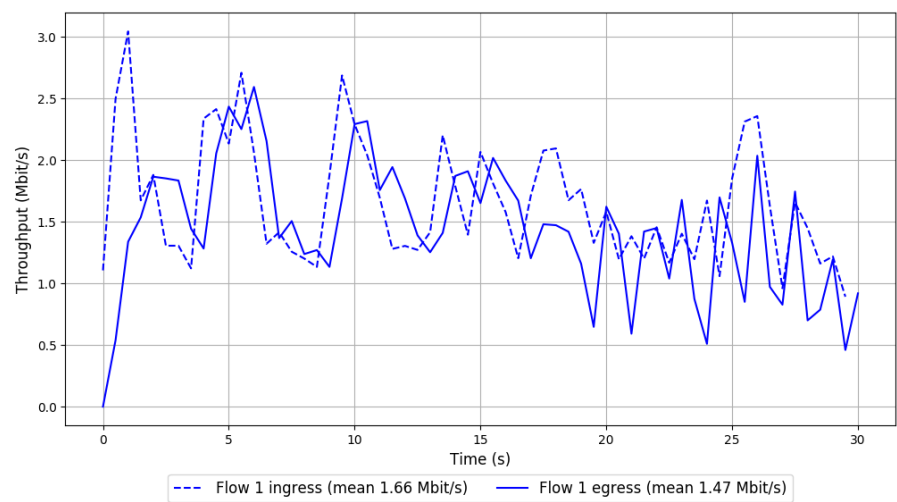


Run 3: Statistics of PCC-Vivace

Start at: 2018-09-07 18:43:37
End at: 2018-09-07 18:44:07
Local clock offset: 0.257 ms
Remote clock offset: -4.845 ms

Below is generated by plot.py at 2018-09-07 18:45:55
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.47 Mbit/s
95th percentile per-packet one-way delay: 351.208 ms
Loss rate: 11.48%
-- Flow 1:
Average throughput: 1.47 Mbit/s
95th percentile per-packet one-way delay: 351.208 ms
Loss rate: 11.48%

Run 3: Report of PCC-Vivace — Data Link

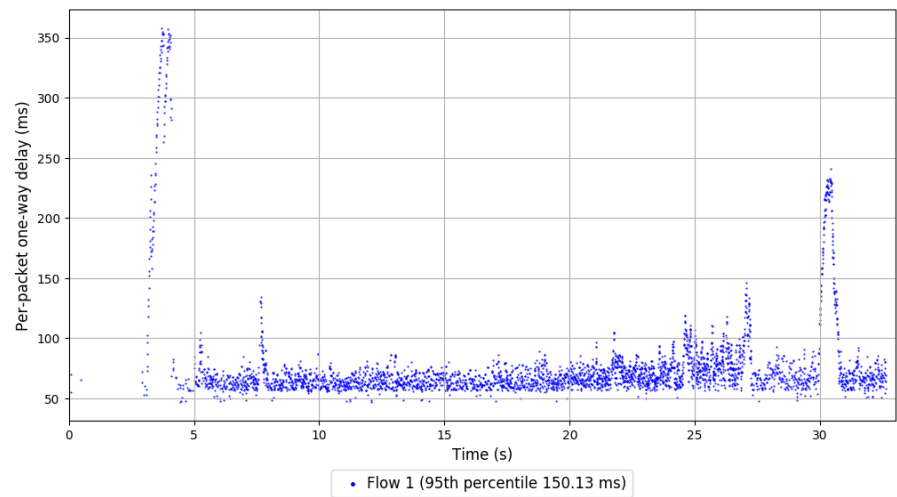
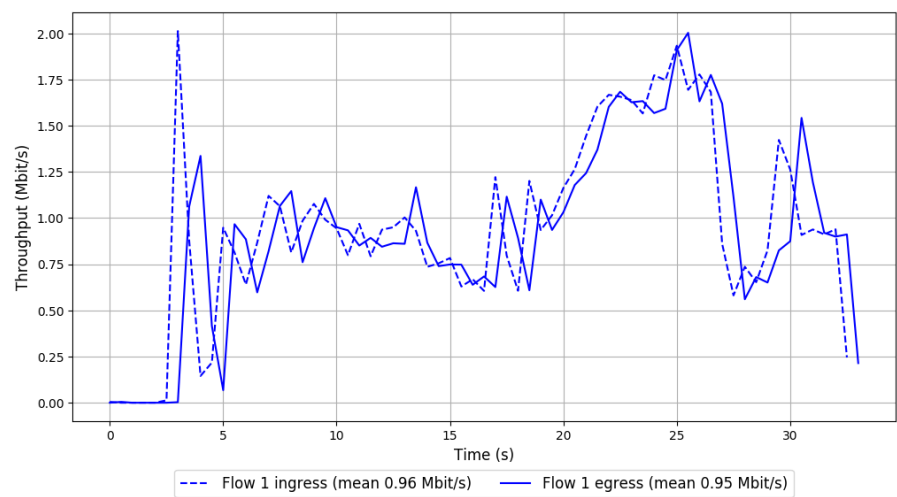


Run 1: Statistics of WebRTC media

Start at: 2018-09-07 17:54:35
End at: 2018-09-07 17:55:05
Local clock offset: 1.953 ms
Remote clock offset: -6.588 ms

Below is generated by plot.py at 2018-09-07 18:45:55
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.95 Mbit/s
95th percentile per-packet one-way delay: 150.135 ms
Loss rate: 1.05%
-- Flow 1:
Average throughput: 0.95 Mbit/s
95th percentile per-packet one-way delay: 150.135 ms
Loss rate: 1.05%

Run 1: Report of WebRTC media — Data Link

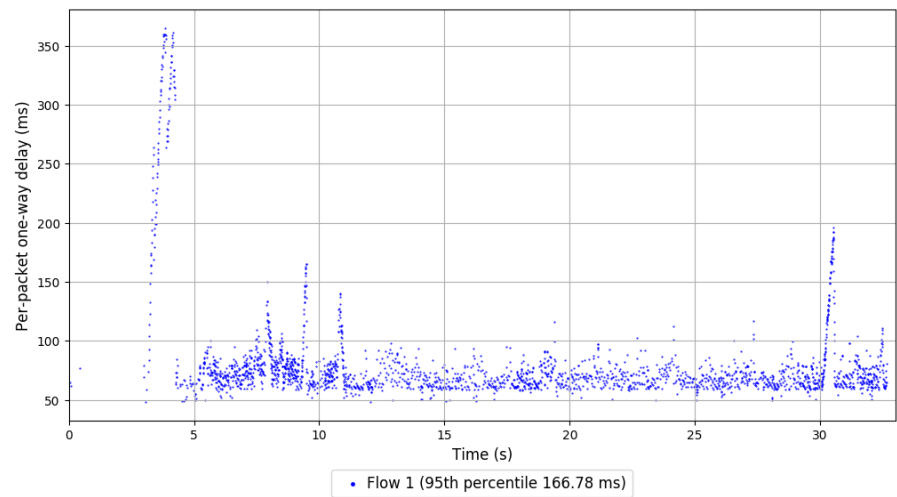
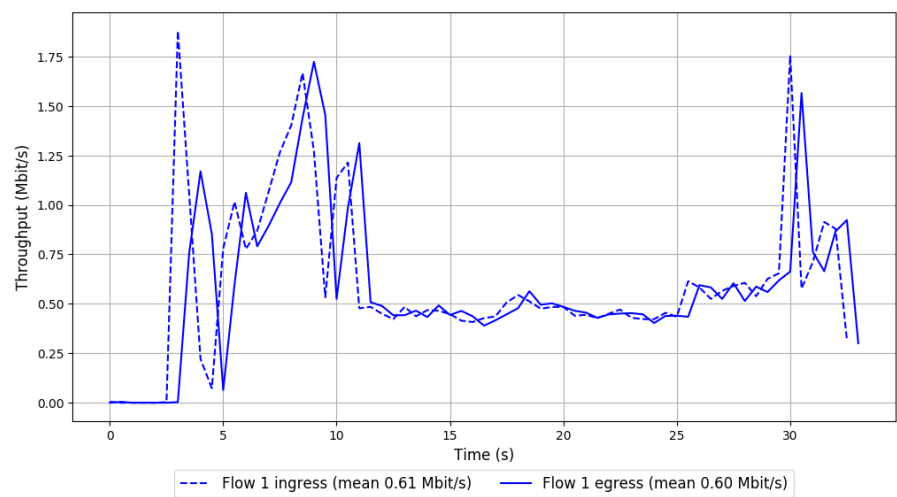


Run 2: Statistics of WebRTC media

Start at: 2018-09-07 18:14:09
End at: 2018-09-07 18:14:39
Local clock offset: 3.628 ms
Remote clock offset: -4.267 ms

Below is generated by plot.py at 2018-09-07 18:45:55
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 166.782 ms
Loss rate: 1.42%
-- Flow 1:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 166.782 ms
Loss rate: 1.42%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-09-07 18:33:46
End at: 2018-09-07 18:34:16
Local clock offset: -2.47 ms
Remote clock offset: -4.741 ms

Below is generated by plot.py at 2018-09-07 18:45:55
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.77 Mbit/s
95th percentile per-packet one-way delay: 175.814 ms
Loss rate: 0.29%
-- Flow 1:
Average throughput: 0.77 Mbit/s
95th percentile per-packet one-way delay: 175.814 ms
Loss rate: 0.29%

Run 3: Report of WebRTC media — Data Link

