

## Pantheon Report

Generated at 2018-07-18 00:34:48 (UTC).

Data path: India ppp0 ppp0 (*remote*) → AWS India 1 Ethernet (*local*).

Repeated the test of 17 congestion control schemes 3 times.

Each test lasted for 30 seconds running 1 flow.

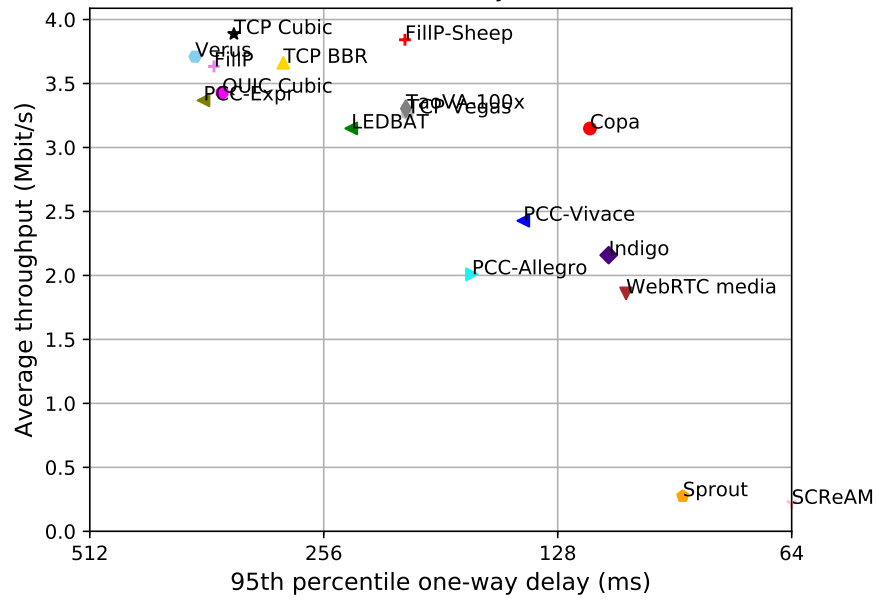
Increased UDP receive buffer to 16 MB (default) and 32 MB (max).

NTP offsets were measured against [nets.org.sg](http://nets.org.sg) and have been applied to correct the timestamps in logs.

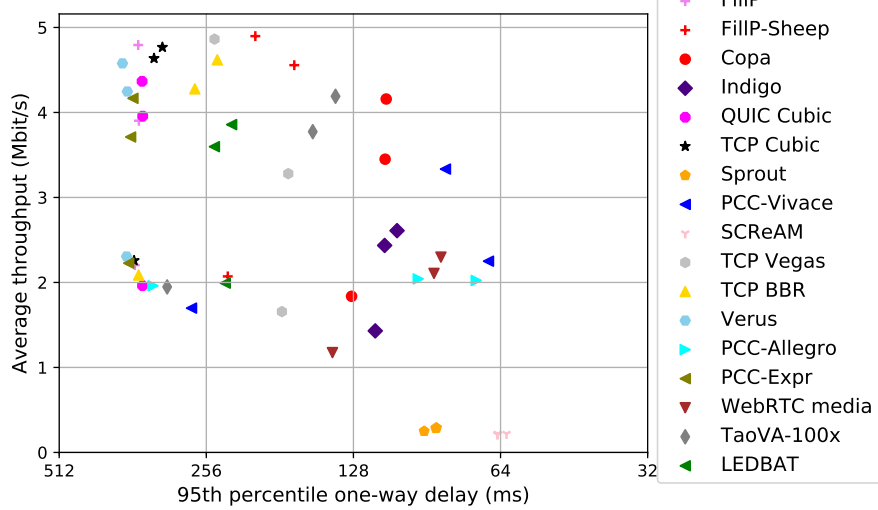
Git summary:

```
branch: master @ f7befc2d8410f41949e0ad8143a9aab40bab7edb
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-tunnel @ 6f038ed31259d366f9840f65b82cbe8f464b1b39
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
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

test from India ppp0 to AWS India 1, 3 runs of 30s each per scheme  
(mean of all runs by scheme)



test from India ppp0 to AWS India 1, 3 runs of 30s each per scheme



scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	3.66	288.51	1.11
Copa	3	3.15	116.35	0.37
TCP Cubic	3	3.89	334.02	1.54
FillP	3	3.63	354.38	28.74
FillP-Sheep	3	3.84	201.25	2.61
Indigo	3	2.16	110.07	0.93
LEDBAT	3	3.15	235.95	0.65
PCC-Allegro	3	2.01	165.03	4.28
PCC-Expr	3	3.37	365.52	13.72
QUIC Cubic	3	3.43	345.92	3.59
SCReAM	3	0.22	64.01	0.24
Sprout	3	0.27	88.37	0.16
TaoVA-100x	3	3.30	200.72	2.23
TCP Vegas	3	3.27	199.86	0.90
Verus	3	3.71	374.73	27.77
PCC-Vivace	3	2.43	141.74	0.61
WebRTC media	3	1.86	104.54	0.30

Run 1: Statistics of TCP BBR

Start at: 2018-07-17 23:54:42

End at: 2018-07-17 23:55:12

Local clock offset: 0.847 ms

Remote clock offset: -9.94 ms

# Below is generated by plot.py at 2018-07-18 00:34:09

# Datalink statistics

-- Total of 1 flow:

Average throughput: 4.62 Mbit/s

95th percentile per-packet one-way delay: 243.104 ms

Loss rate: 0.63%

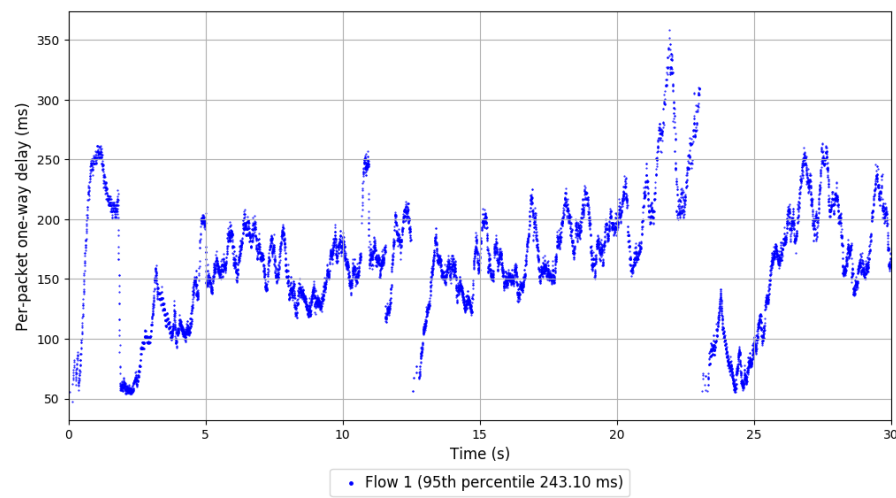
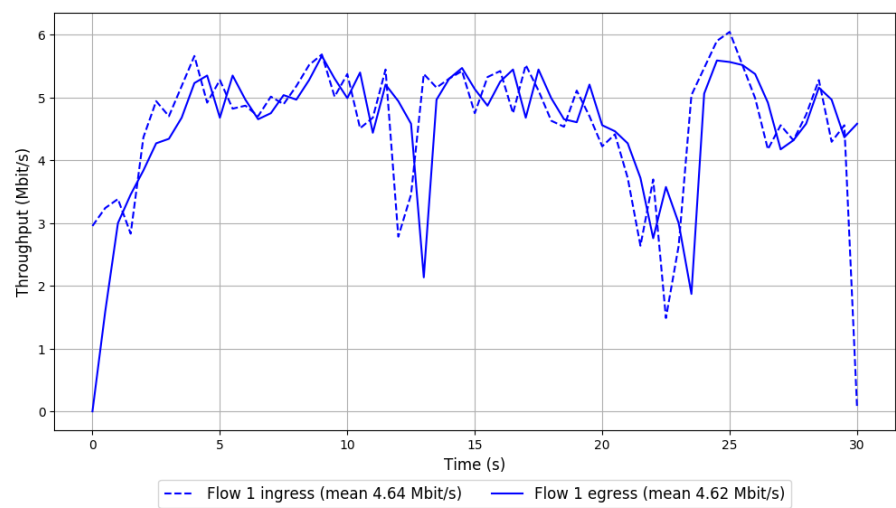
-- Flow 1:

Average throughput: 4.62 Mbit/s

95th percentile per-packet one-way delay: 243.104 ms

Loss rate: 0.63%

Run 1: Report of TCP BBR — Data Link

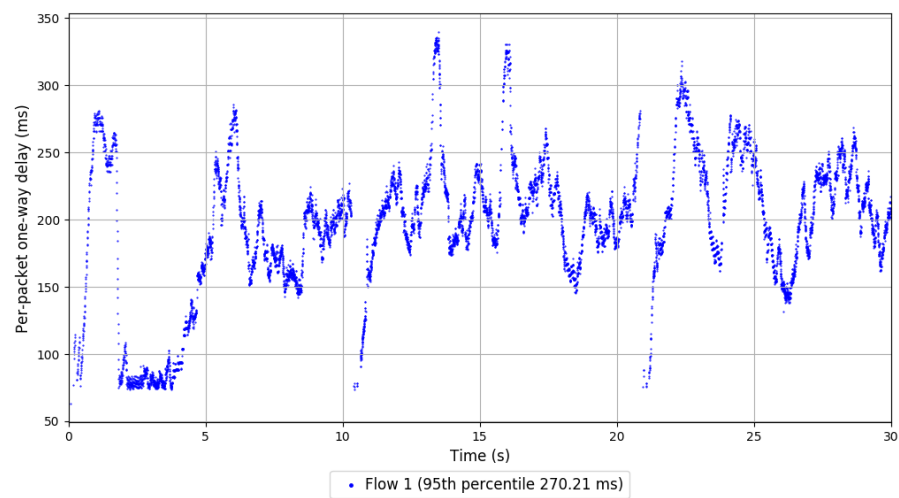
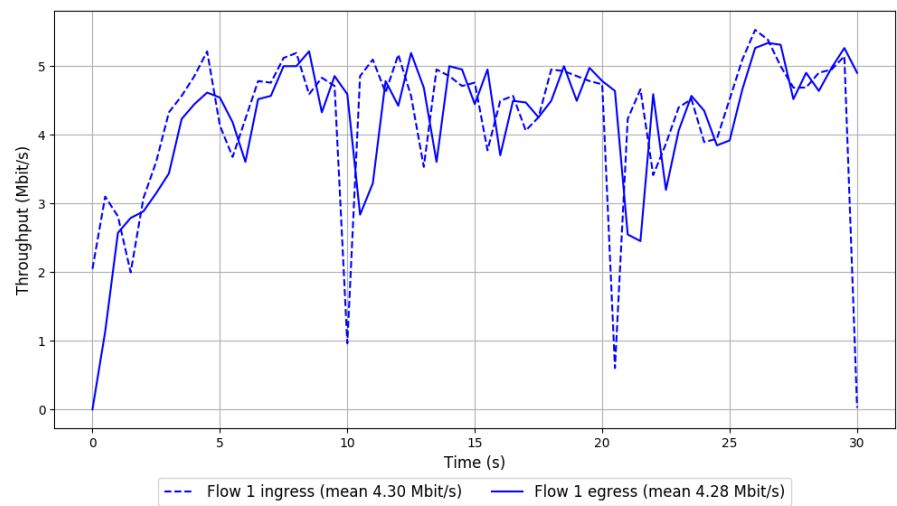


Run 2: Statistics of TCP BBR

Start at: 2018-07-18 00:13:01  
End at: 2018-07-18 00:13:31  
Local clock offset: 2.074 ms  
Remote clock offset: -13.315 ms

# Below is generated by plot.py at 2018-07-18 00:34:09  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 4.28 Mbit/s  
95th percentile per-packet one-way delay: 270.214 ms  
Loss rate: 0.82%  
-- Flow 1:  
Average throughput: 4.28 Mbit/s  
95th percentile per-packet one-way delay: 270.214 ms  
Loss rate: 0.82%

Run 2: Report of TCP BBR — Data Link



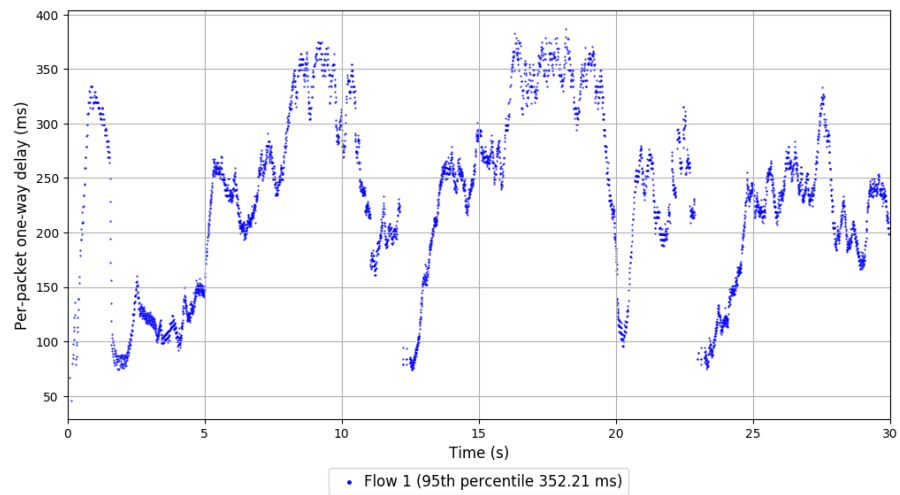
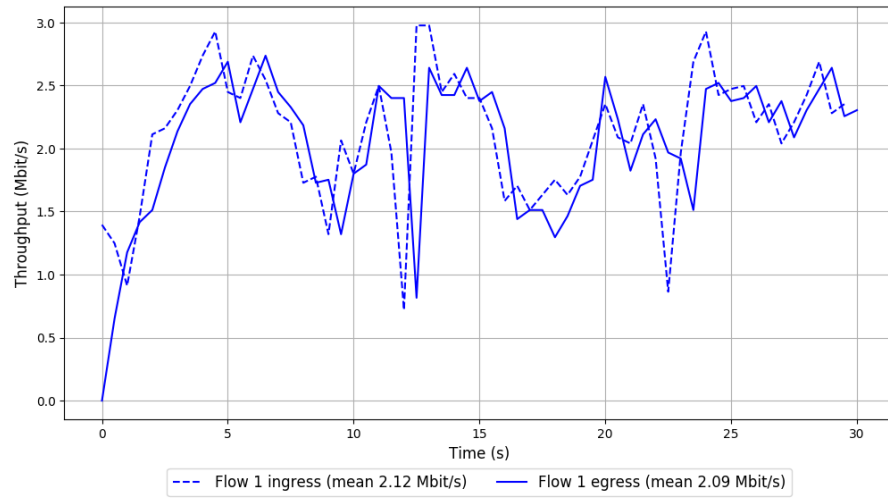
Run 3: Statistics of TCP BBR

Start at: 2018-07-18 00:31:18  
End at: 2018-07-18 00:31:48  
Local clock offset: 0.475 ms  
Remote clock offset: -15.225 ms

# Below is generated by plot.py at 2018-07-18 00:34:09  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 2.09 Mbit/s  
95th percentile per-packet one-way delay: 352.211 ms  
Loss rate: 1.89%  
-- Flow 1:  
Average throughput: 2.09 Mbit/s  
95th percentile per-packet one-way delay: 352.211 ms  
Loss rate: 1.89%



### Run 3: Report of TCP BBR — Data Link

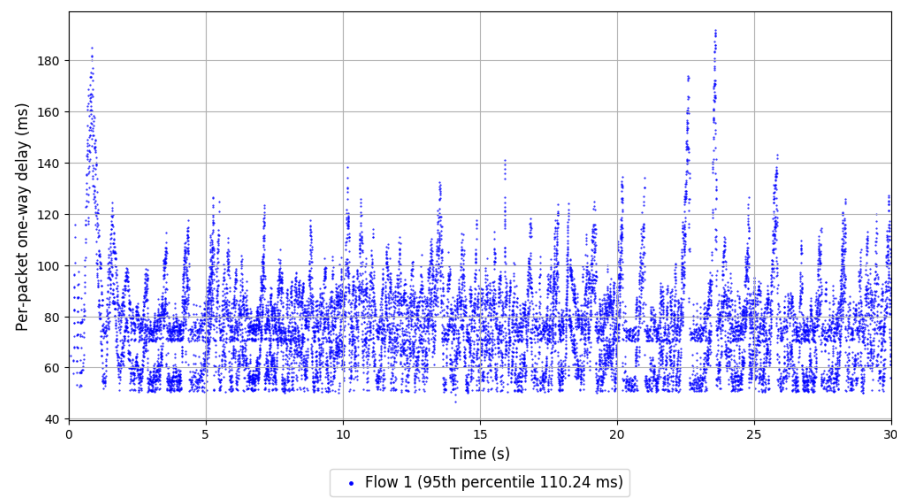
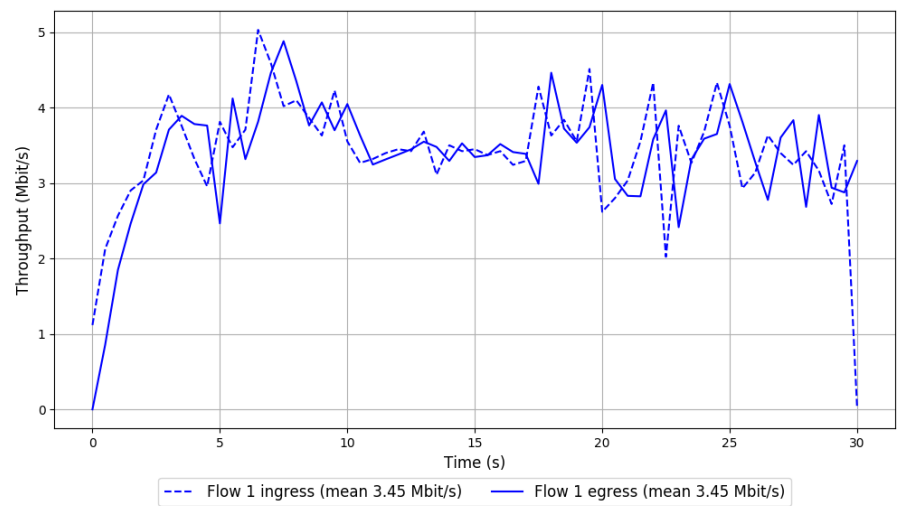


Run 1: Statistics of Copa

Start at: 2018-07-17 23:41:47  
End at: 2018-07-17 23:42:17  
Local clock offset: -1.34 ms  
Remote clock offset: -9.561 ms

# Below is generated by plot.py at 2018-07-18 00:34:11  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 3.45 Mbit/s  
95th percentile per-packet one-way delay: 110.240 ms  
Loss rate: 0.27%  
-- Flow 1:  
Average throughput: 3.45 Mbit/s  
95th percentile per-packet one-way delay: 110.240 ms  
Loss rate: 0.27%

Run 1: Report of Copa — Data Link

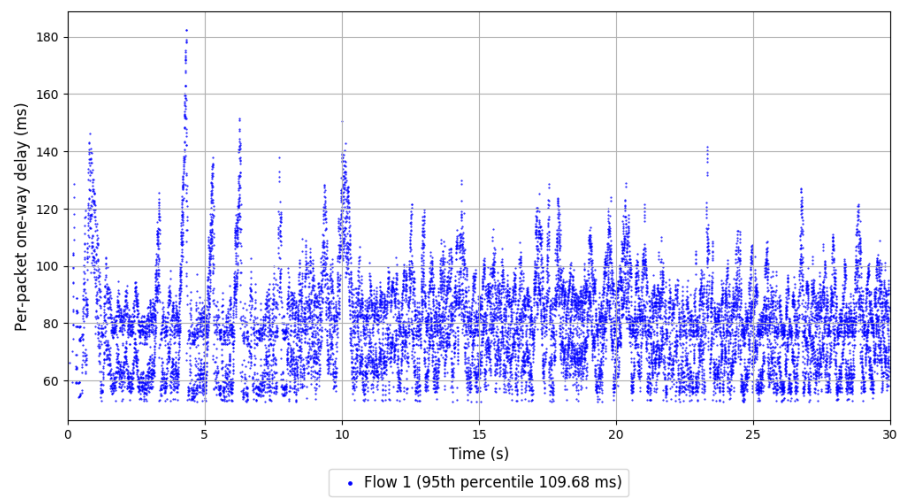
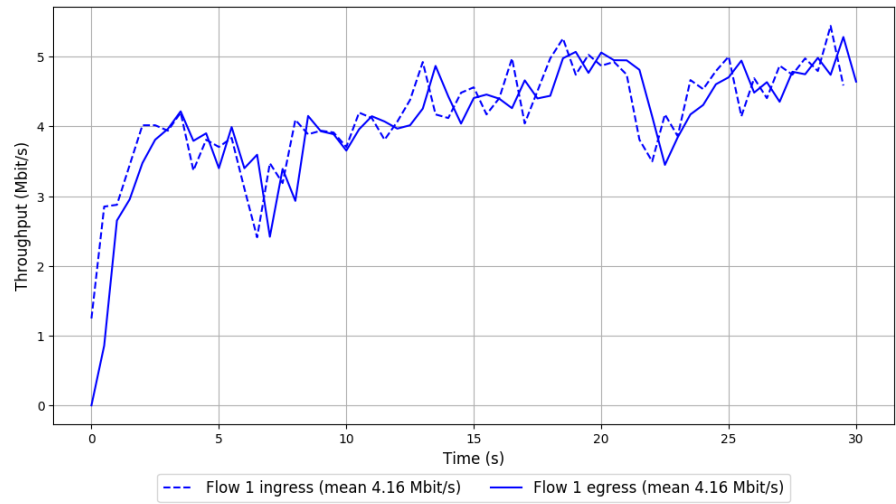


Run 2: Statistics of Copa

Start at: 2018-07-18 00:00:05  
End at: 2018-07-18 00:00:35  
Local clock offset: 0.448 ms  
Remote clock offset: -10.161 ms

# Below is generated by plot.py at 2018-07-18 00:34:13  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 4.16 Mbit/s  
95th percentile per-packet one-way delay: 109.682 ms  
Loss rate: 0.38%  
-- Flow 1:  
Average throughput: 4.16 Mbit/s  
95th percentile per-packet one-way delay: 109.682 ms  
Loss rate: 0.38%

## Run 2: Report of Copa — Data Link

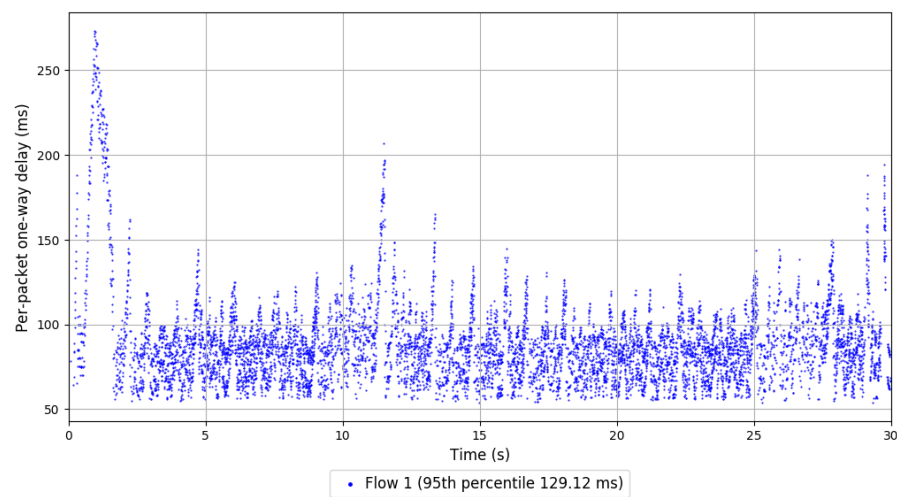
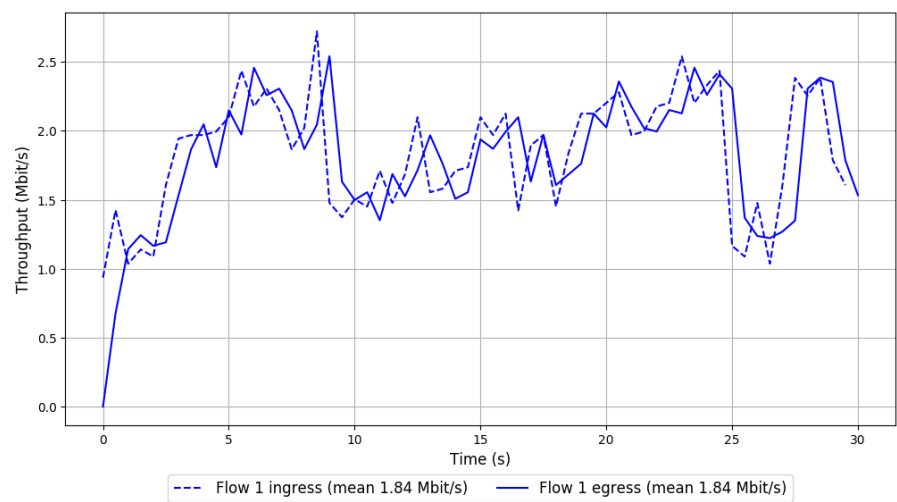


Run 3: Statistics of Copa

Start at: 2018-07-18 00:18:24  
End at: 2018-07-18 00:18:54  
Local clock offset: 1.87 ms  
Remote clock offset: -14.341 ms

# Below is generated by plot.py at 2018-07-18 00:34:13  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 1.84 Mbit/s  
95th percentile per-packet one-way delay: 129.125 ms  
Loss rate: 0.46%  
-- Flow 1:  
Average throughput: 1.84 Mbit/s  
95th percentile per-packet one-way delay: 129.125 ms  
Loss rate: 0.46%

Run 3: Report of Copa — Data Link



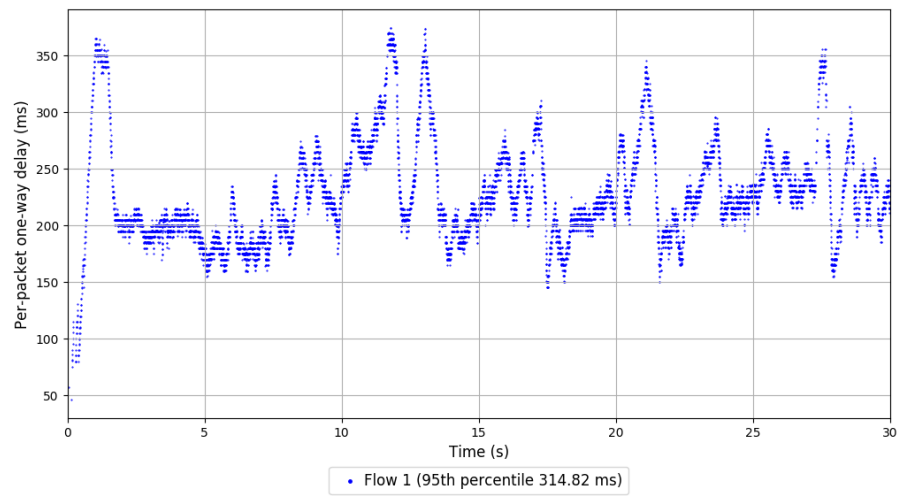
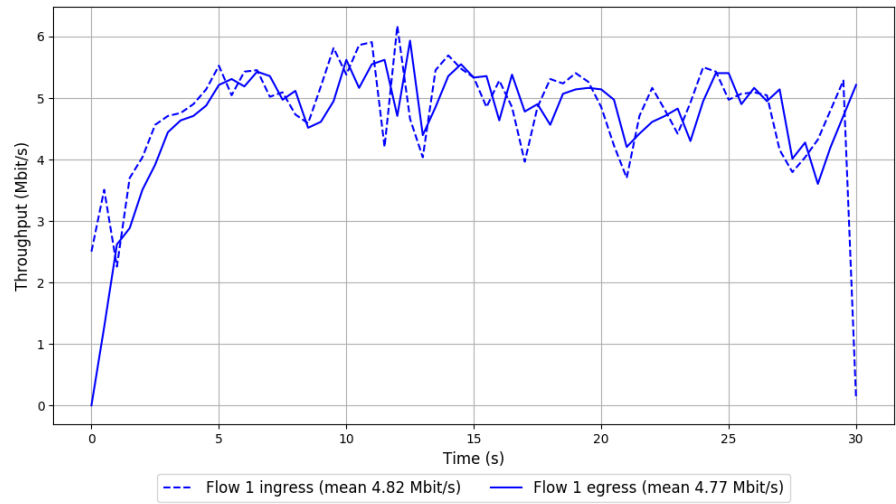
Run 1: Statistics of TCP Cubic

Start at: 2018-07-17 23:53:37  
End at: 2018-07-17 23:54:07  
Local clock offset: 0.074 ms  
Remote clock offset: -9.223 ms

# Below is generated by plot.py at 2018-07-18 00:34:13  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 4.77 Mbit/s  
95th percentile per-packet one-way delay: 314.817 ms  
Loss rate: 1.33%  
-- Flow 1:  
Average throughput: 4.77 Mbit/s  
95th percentile per-packet one-way delay: 314.817 ms  
Loss rate: 1.33%



### Run 1: Report of TCP Cubic — Data Link

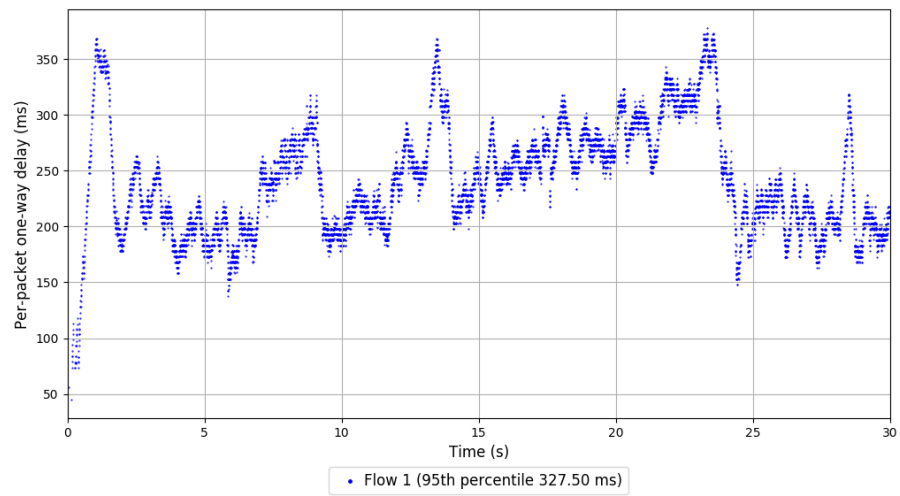
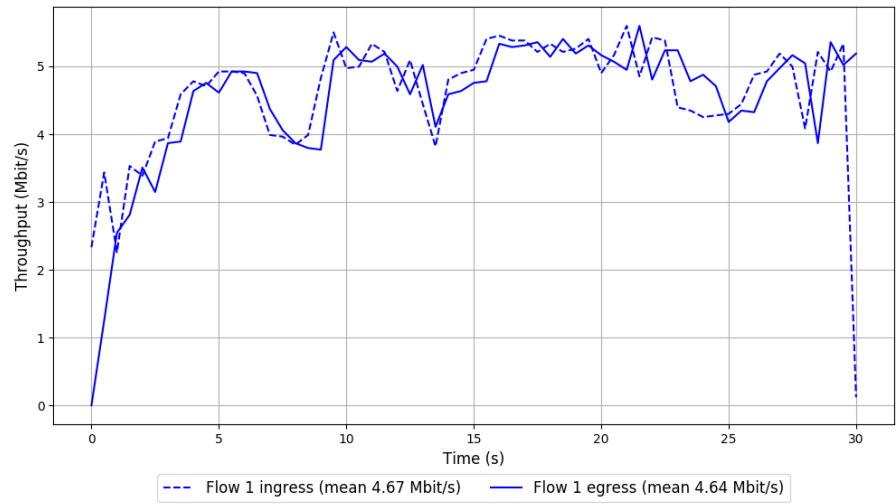


Run 2: Statistics of TCP Cubic

Start at: 2018-07-18 00:11:57  
End at: 2018-07-18 00:12:27  
Local clock offset: -0.992 ms  
Remote clock offset: -13.186 ms

# Below is generated by plot.py at 2018-07-18 00:34:13  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 4.64 Mbit/s  
95th percentile per-packet one-way delay: 327.501 ms  
Loss rate: 0.94%  
-- Flow 1:  
Average throughput: 4.64 Mbit/s  
95th percentile per-packet one-way delay: 327.501 ms  
Loss rate: 0.94%

## Run 2: Report of TCP Cubic — Data Link

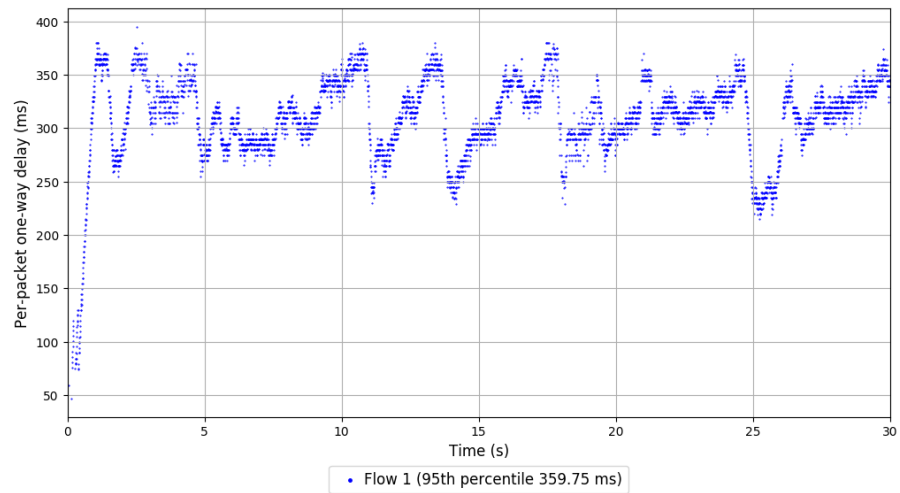
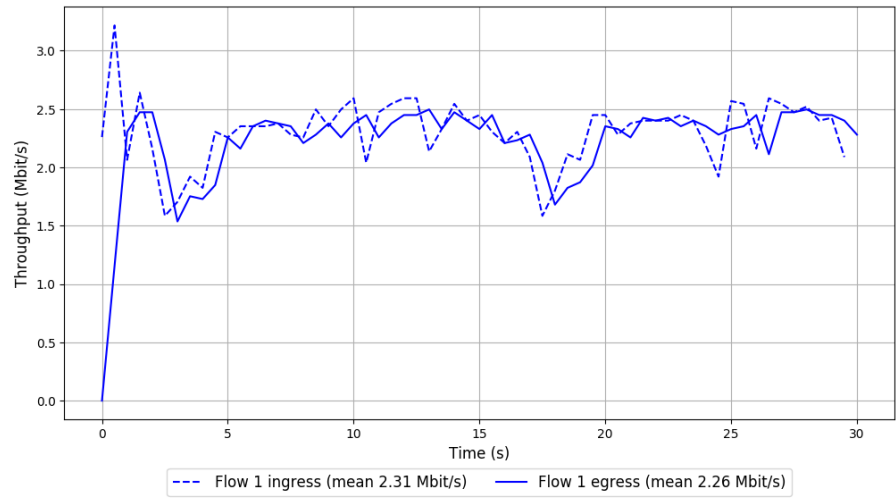


Run 3: Statistics of TCP Cubic

Start at: 2018-07-18 00:30:13  
End at: 2018-07-18 00:30:43  
Local clock offset: 1.283 ms  
Remote clock offset: -14.909 ms

# Below is generated by plot.py at 2018-07-18 00:34:13  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 2.26 Mbit/s  
95th percentile per-packet one-way delay: 359.751 ms  
Loss rate: 2.36%  
-- Flow 1:  
Average throughput: 2.26 Mbit/s  
95th percentile per-packet one-way delay: 359.751 ms  
Loss rate: 2.36%

### Run 3: Report of TCP Cubic — Data Link

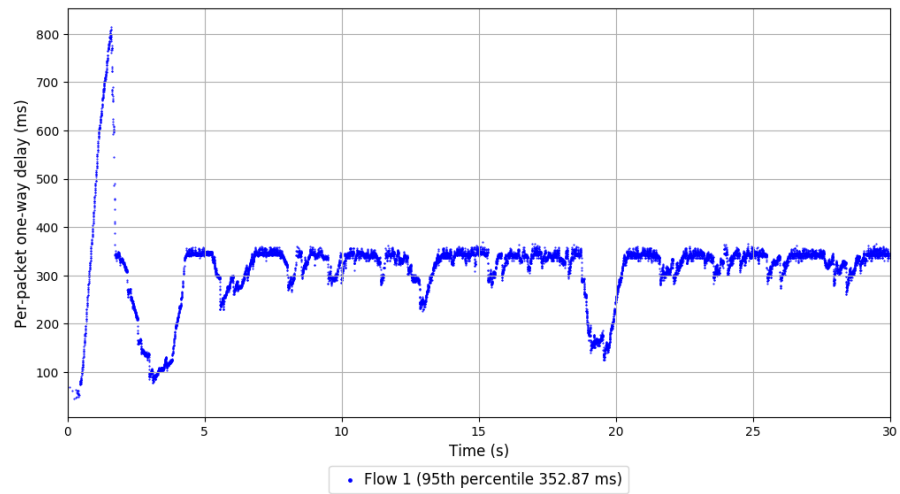
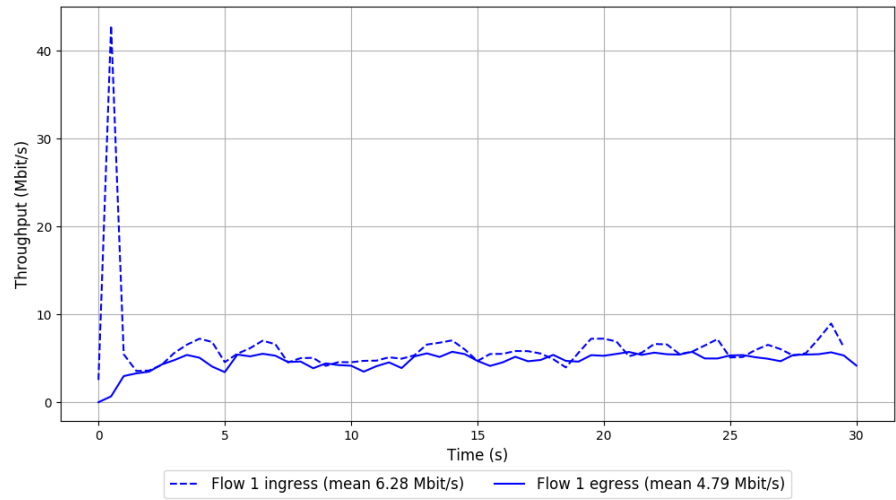


Run 1: Statistics of FillP

Start at: 2018-07-17 23:52:33  
End at: 2018-07-17 23:53:03  
Local clock offset: 0.844 ms  
Remote clock offset: -8.706 ms

# Below is generated by plot.py at 2018-07-18 00:34:18  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 4.79 Mbit/s  
95th percentile per-packet one-way delay: 352.866 ms  
Loss rate: 23.92%  
-- Flow 1:  
Average throughput: 4.79 Mbit/s  
95th percentile per-packet one-way delay: 352.866 ms  
Loss rate: 23.92%

### Run 1: Report of FillP — Data Link



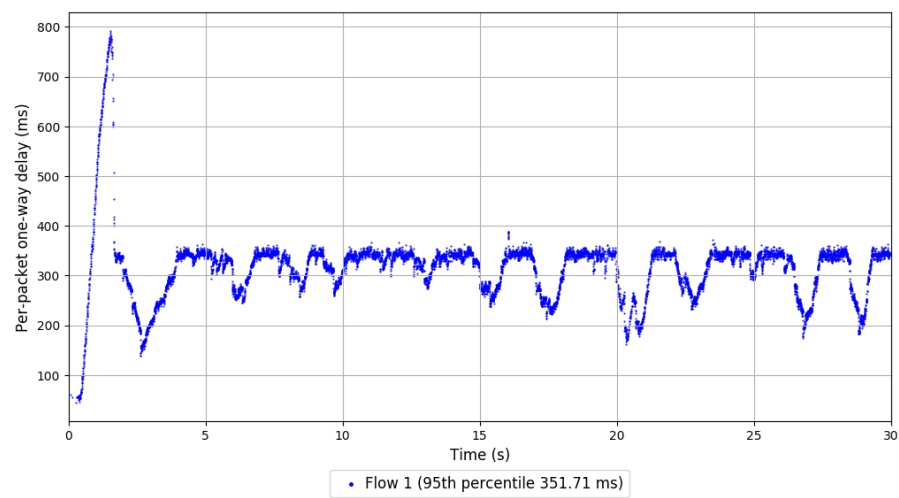
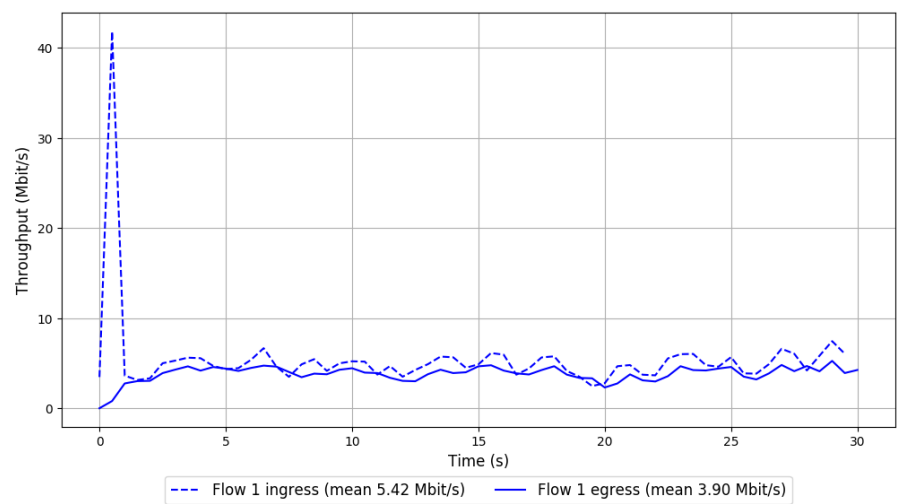
Run 2: Statistics of FillP

Start at: 2018-07-18 00:10:52  
End at: 2018-07-18 00:11:22  
Local clock offset: -1.072 ms  
Remote clock offset: -12.757 ms

# Below is generated by plot.py at 2018-07-18 00:34:18  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 3.90 Mbit/s  
95th percentile per-packet one-way delay: 351.714 ms  
Loss rate: 28.17%  
-- Flow 1:  
Average throughput: 3.90 Mbit/s  
95th percentile per-packet one-way delay: 351.714 ms  
Loss rate: 28.17%



Run 2: Report of FillP — Data Link

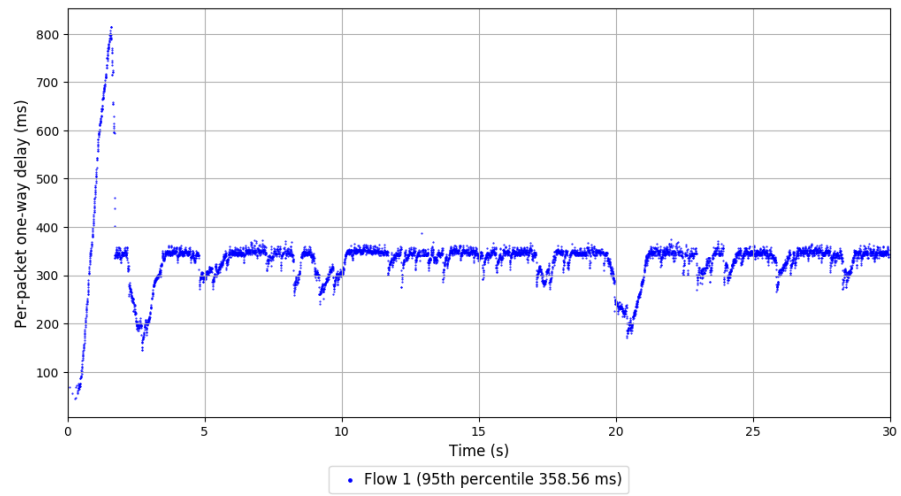
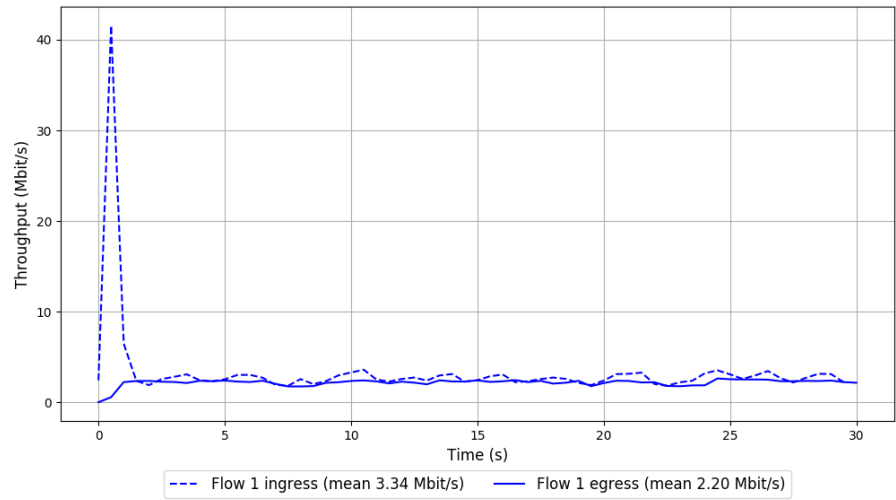


Run 3: Statistics of FillP

Start at: 2018-07-18 00:29:09  
End at: 2018-07-18 00:29:39  
Local clock offset: -4.969 ms  
Remote clock offset: -21.423 ms

# Below is generated by plot.py at 2018-07-18 00:34:18  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 2.20 Mbit/s  
95th percentile per-packet one-way delay: 358.559 ms  
Loss rate: 34.12%  
-- Flow 1:  
Average throughput: 2.20 Mbit/s  
95th percentile per-packet one-way delay: 358.559 ms  
Loss rate: 34.12%

### Run 3: Report of FillP — Data Link

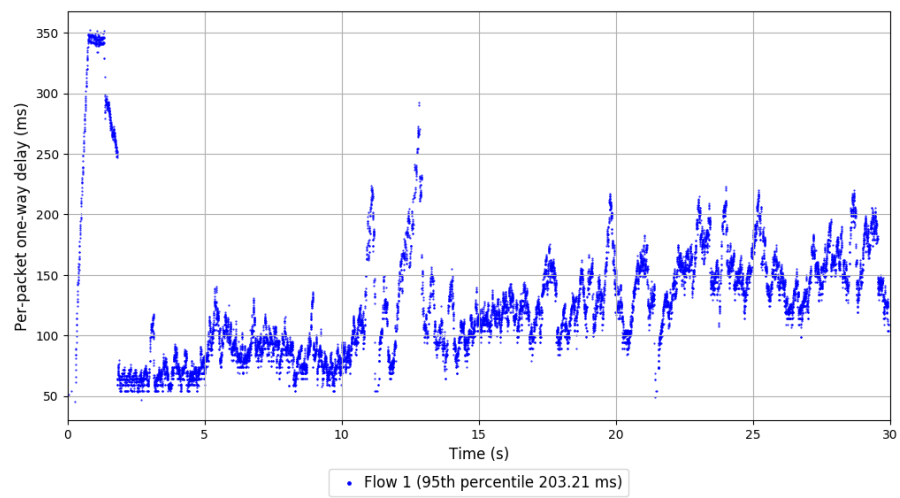
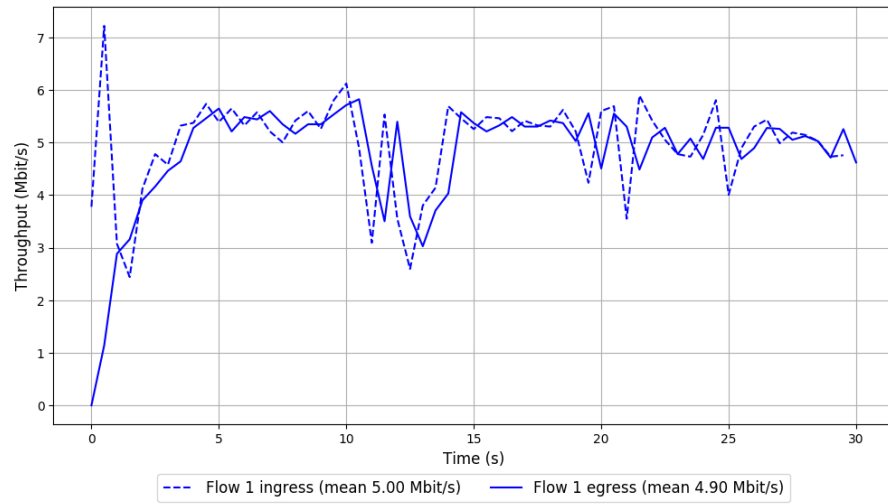


Run 1: Statistics of FillP-Sheep

Start at: 2018-07-17 23:56:51  
End at: 2018-07-17 23:57:21  
Local clock offset: -0.574 ms  
Remote clock offset: -9.423 ms

# Below is generated by plot.py at 2018-07-18 00:34:19  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 4.90 Mbit/s  
95th percentile per-packet one-way delay: 203.211 ms  
Loss rate: 2.16%  
-- Flow 1:  
Average throughput: 4.90 Mbit/s  
95th percentile per-packet one-way delay: 203.211 ms  
Loss rate: 2.16%

# Run 1: Report of FillP-Sheep — Data Link

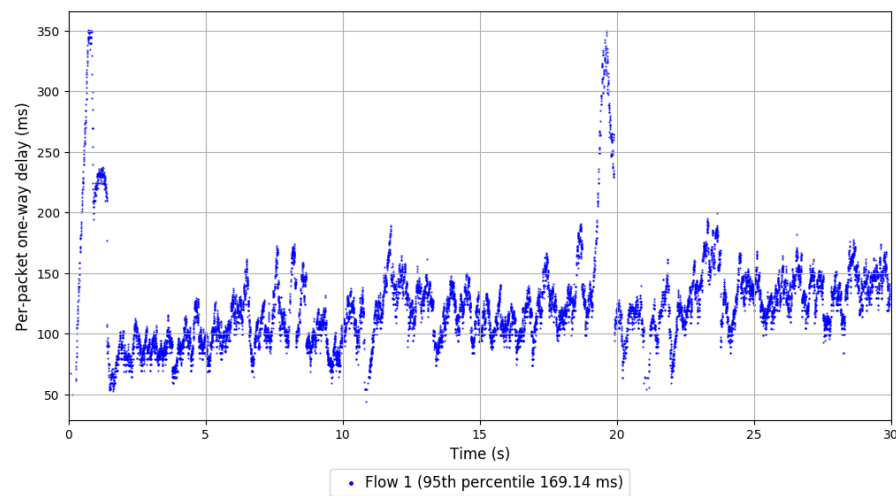
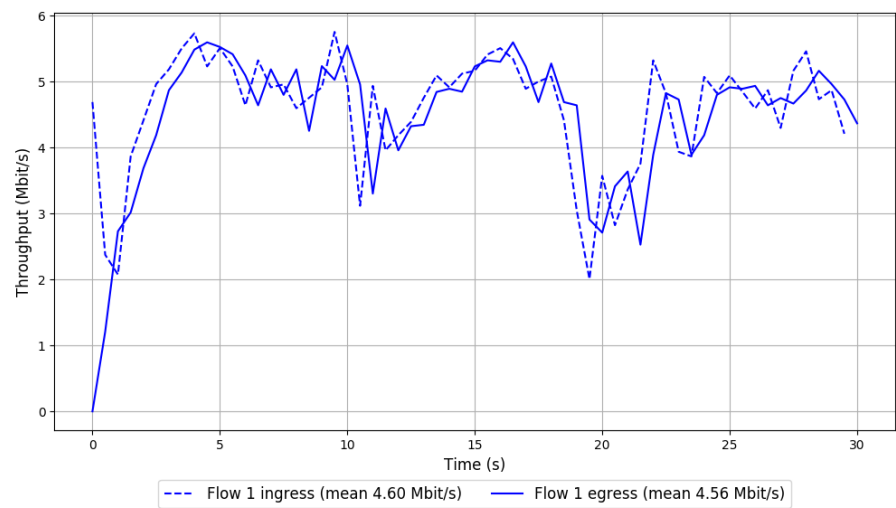


Run 2: Statistics of FillP-Sheep

Start at: 2018-07-18 00:15:10  
End at: 2018-07-18 00:15:40  
Local clock offset: 0.146 ms  
Remote clock offset: -14.374 ms

# Below is generated by plot.py at 2018-07-18 00:34:19  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 4.56 Mbit/s  
95th percentile per-packet one-way delay: 169.143 ms  
Loss rate: 1.14%  
-- Flow 1:  
Average throughput: 4.56 Mbit/s  
95th percentile per-packet one-way delay: 169.143 ms  
Loss rate: 1.14%

Run 2: Report of FillP-Sheep — Data Link



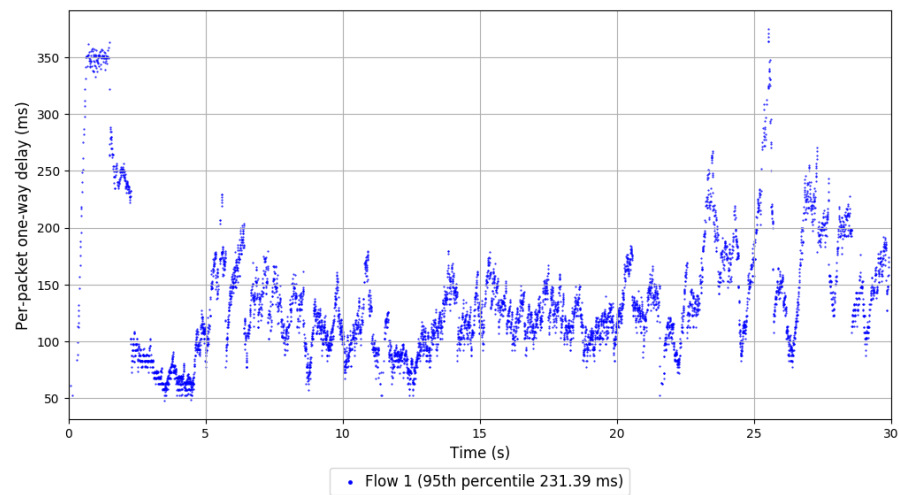
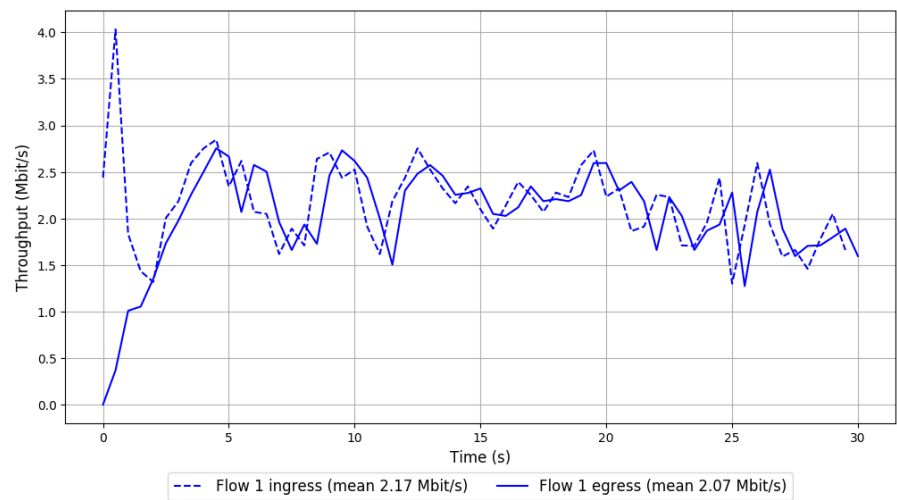
Run 3: Statistics of FillP-Sheep

Start at: 2018-07-18 00:33:26  
End at: 2018-07-18 00:33:56  
Local clock offset: -1.149 ms  
Remote clock offset: -14.523 ms

# Below is generated by plot.py at 2018-07-18 00:34:19  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 2.07 Mbit/s  
95th percentile per-packet one-way delay: 231.386 ms  
Loss rate: 4.53%  
-- Flow 1:  
Average throughput: 2.07 Mbit/s  
95th percentile per-packet one-way delay: 231.386 ms  
Loss rate: 4.53%



Run 3: Report of FillP-Sheep — Data Link

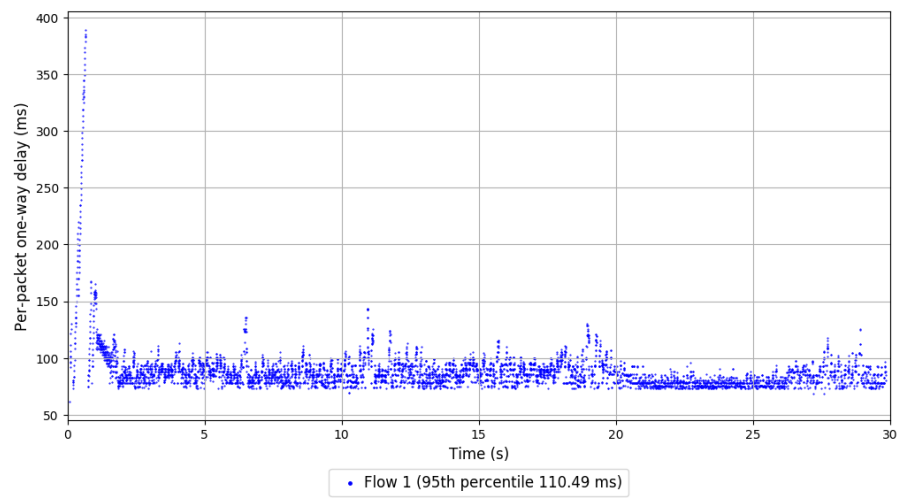
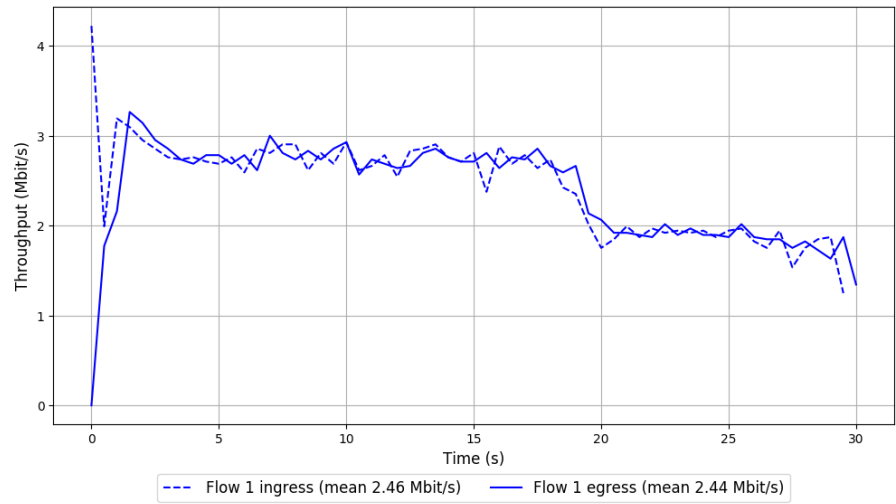


```
Run 1: Statistics of Indigo

Start at: 2018-07-17 23:55:47
End at: 2018-07-17 23:56:17
Local clock offset: 1.469 ms
Remote clock offset: -9.324 ms

# Below is generated by plot.py at 2018-07-18 00:34:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.44 Mbit/s
95th percentile per-packet one-way delay: 110.491 ms
Loss rate: 1.26%
-- Flow 1:
Average throughput: 2.44 Mbit/s
95th percentile per-packet one-way delay: 110.491 ms
Loss rate: 1.26%
```

### Run 1: Report of Indigo — Data Link

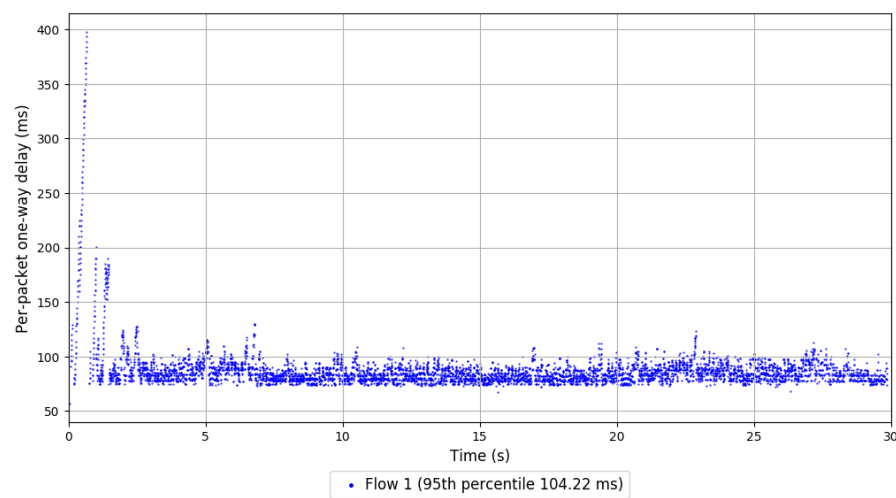
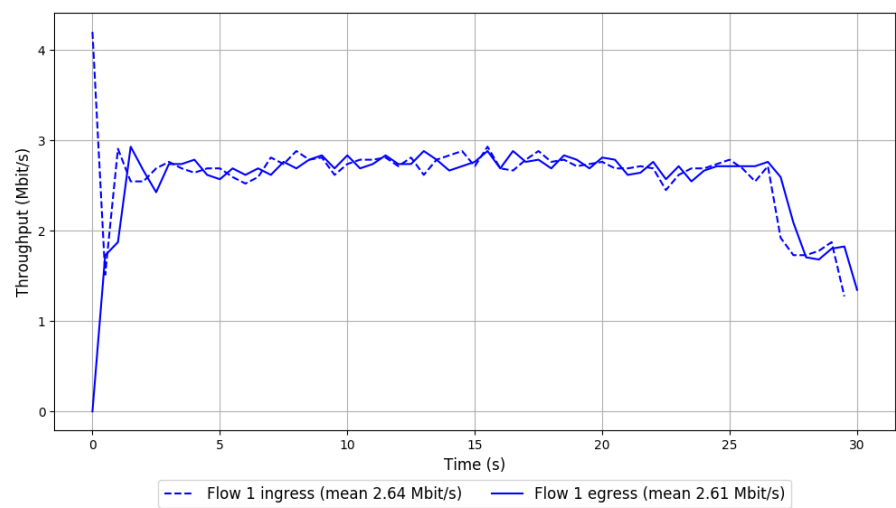


Run 2: Statistics of Indigo

Start at: 2018-07-18 00:14:06  
End at: 2018-07-18 00:14:36  
Local clock offset: 1.578 ms  
Remote clock offset: -13.735 ms

# Below is generated by plot.py at 2018-07-18 00:34:19  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 2.61 Mbit/s  
95th percentile per-packet one-way delay: 104.217 ms  
Loss rate: 1.16%  
-- Flow 1:  
Average throughput: 2.61 Mbit/s  
95th percentile per-packet one-way delay: 104.217 ms  
Loss rate: 1.16%

Run 2: Report of Indigo — Data Link

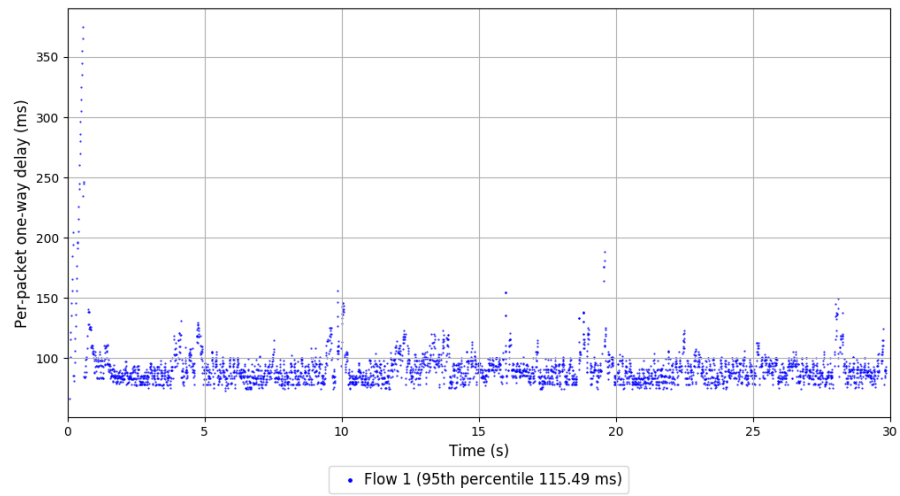
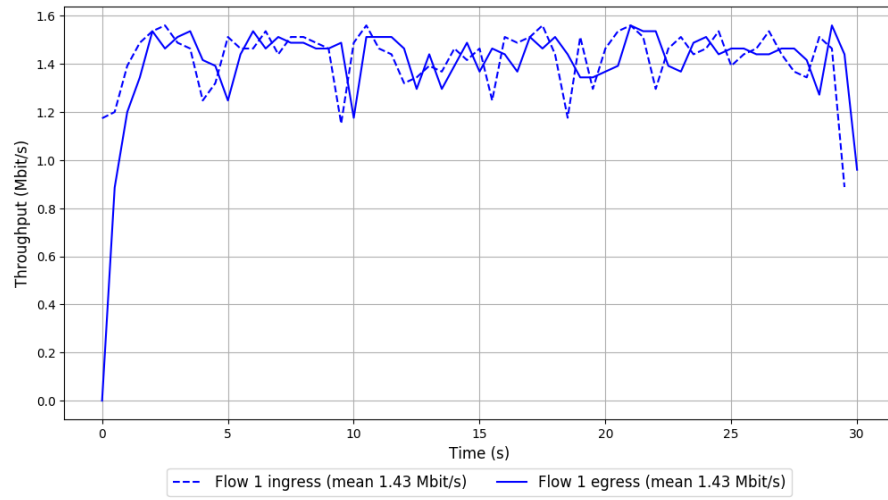


Run 3: Statistics of Indigo

Start at: 2018-07-18 00:32:22  
End at: 2018-07-18 00:32:52  
Local clock offset: 2.139 ms  
Remote clock offset: -15.365 ms

# Below is generated by plot.py at 2018-07-18 00:34:19  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 1.43 Mbit/s  
95th percentile per-packet one-way delay: 115.492 ms  
Loss rate: 0.36%  
-- Flow 1:  
Average throughput: 1.43 Mbit/s  
95th percentile per-packet one-way delay: 115.492 ms  
Loss rate: 0.36%

### Run 3: Report of Indigo — Data Link



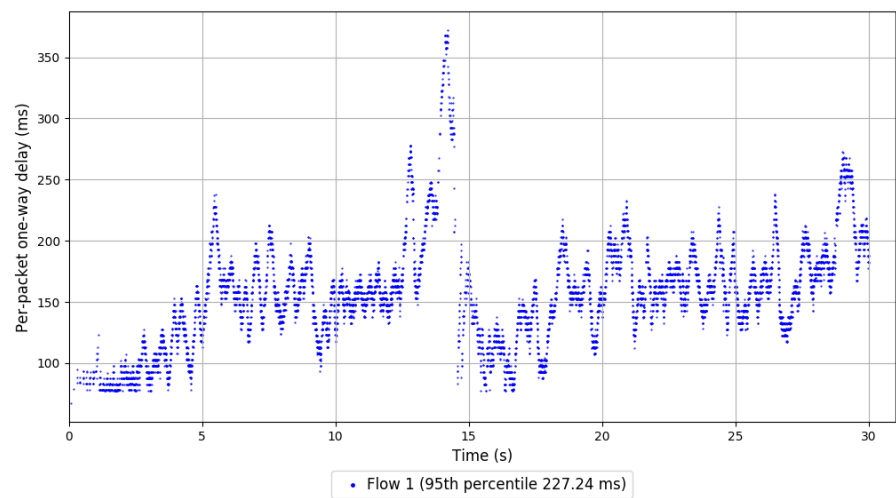
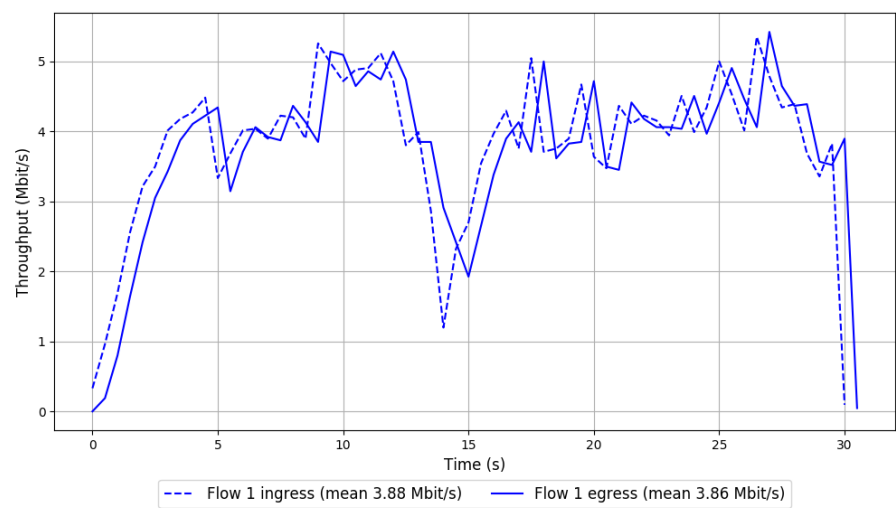
Run 1: Statistics of LEDBAT

Start at: 2018-07-17 23:49:19  
End at: 2018-07-17 23:49:49  
Local clock offset: 0.884 ms  
Remote clock offset: -9.933 ms

# Below is generated by plot.py at 2018-07-18 00:34:22  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 3.86 Mbit/s  
95th percentile per-packet one-way delay: 227.236 ms  
Loss rate: 0.70%  
-- Flow 1:  
Average throughput: 3.86 Mbit/s  
95th percentile per-packet one-way delay: 227.236 ms  
Loss rate: 0.70%



Run 1: Report of LEDBAT — Data Link

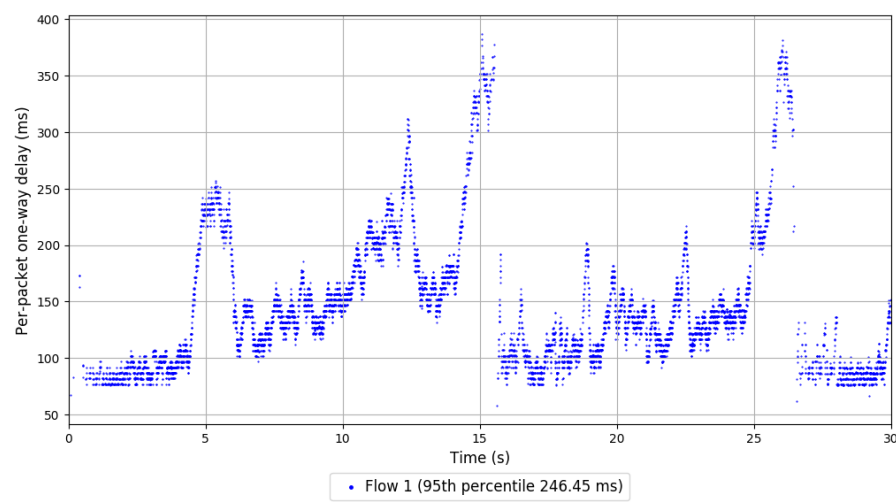
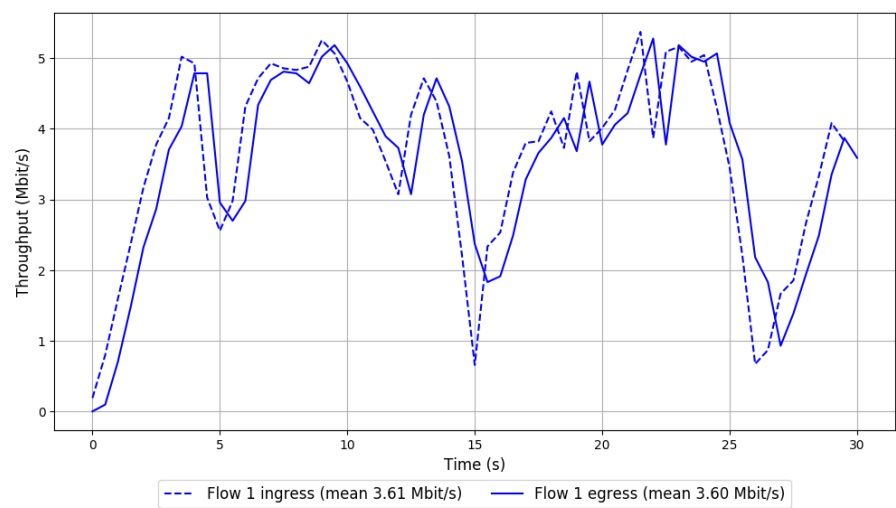


Run 2: Statistics of LEDBAT

Start at: 2018-07-18 00:07:37  
End at: 2018-07-18 00:08:07  
Local clock offset: 1.516 ms  
Remote clock offset: -12.119 ms

# Below is generated by plot.py at 2018-07-18 00:34:24  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 3.60 Mbit/s  
95th percentile per-packet one-way delay: 246.449 ms  
Loss rate: 0.57%  
-- Flow 1:  
Average throughput: 3.60 Mbit/s  
95th percentile per-packet one-way delay: 246.449 ms  
Loss rate: 0.57%

Run 2: Report of LEDBAT — Data Link

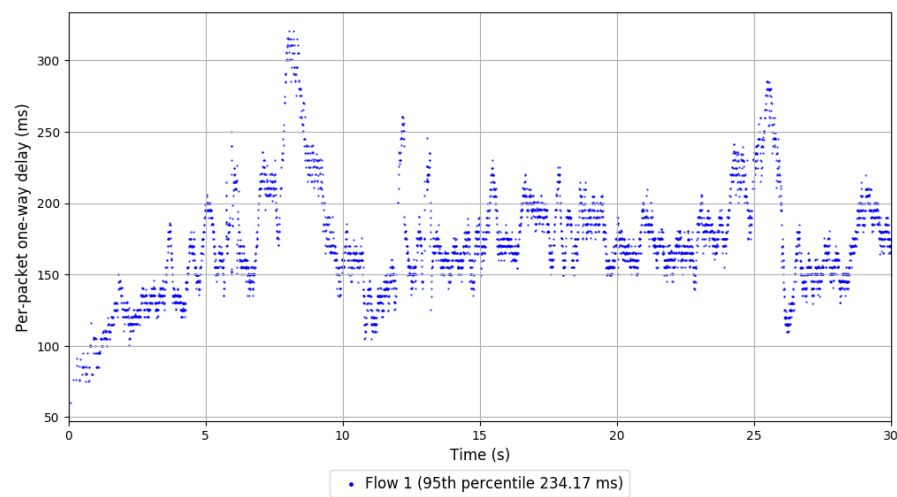
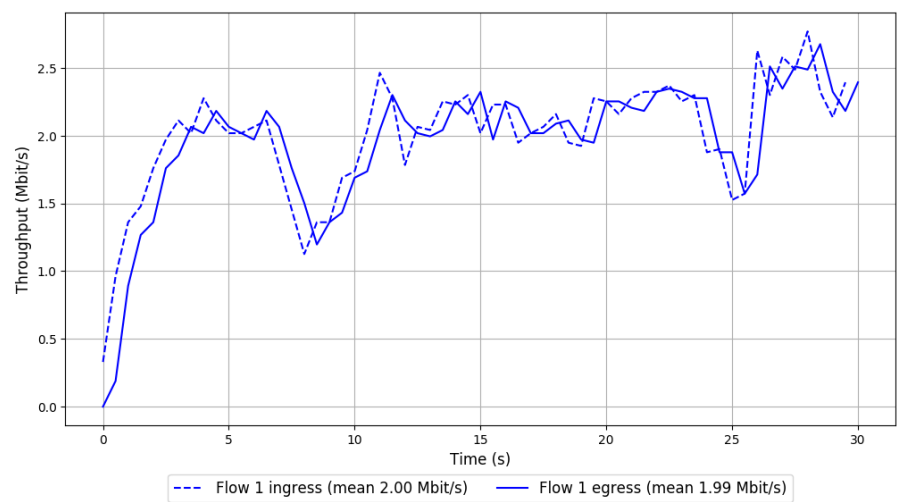


Run 3: Statistics of LEDBAT

Start at: 2018-07-18 00:25:55  
End at: 2018-07-18 00:26:25  
Local clock offset: 0.508 ms  
Remote clock offset: -14.848 ms

# Below is generated by plot.py at 2018-07-18 00:34:24  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 1.99 Mbit/s  
95th percentile per-packet one-way delay: 234.168 ms  
Loss rate: 0.68%  
-- Flow 1:  
Average throughput: 1.99 Mbit/s  
95th percentile per-packet one-way delay: 234.168 ms  
Loss rate: 0.68%

Run 3: Report of LEDBAT — Data Link



Run 1: Statistics of PCC-Allegro

Start at: 2018-07-17 23:43:57

End at: 2018-07-17 23:44:27

Local clock offset: -0.593 ms

Remote clock offset: -9.291 ms

# Below is generated by plot.py at 2018-07-18 00:34:24

# Datalink statistics

-- Total of 1 flow:

Average throughput: 2.02 Mbit/s

95th percentile per-packet one-way delay: 71.765 ms

Loss rate: 4.45%

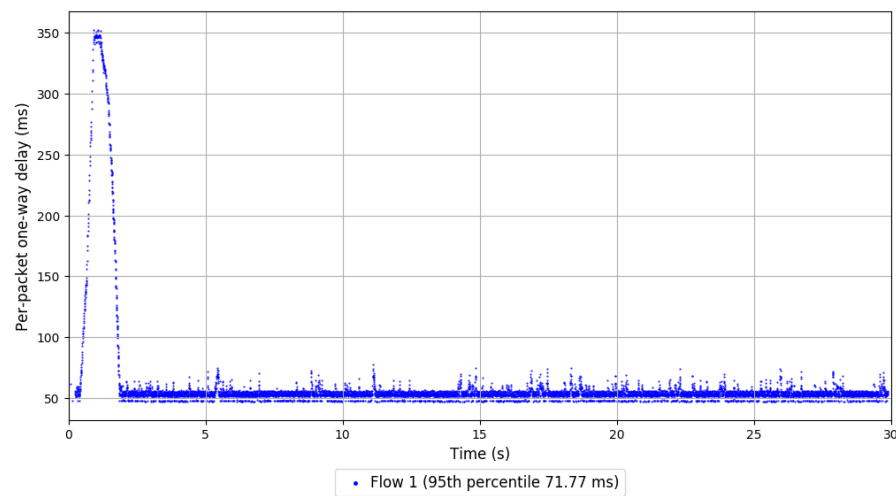
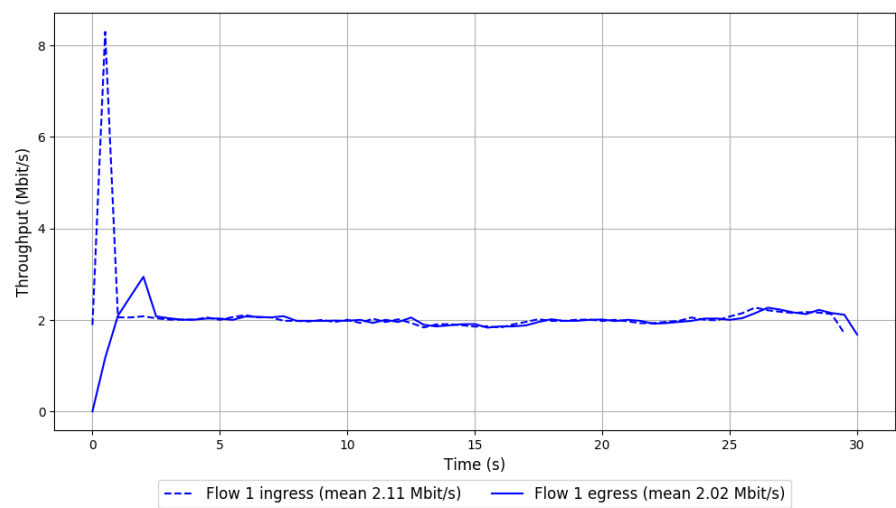
-- Flow 1:

Average throughput: 2.02 Mbit/s

95th percentile per-packet one-way delay: 71.765 ms

Loss rate: 4.45%

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-07-18 00:02:14

End at: 2018-07-18 00:02:44

Local clock offset: 2.872 ms

Remote clock offset: -10.67 ms

# Below is generated by plot.py at 2018-07-18 00:34:24

# Datalink statistics

-- Total of 1 flow:

Average throughput: 2.04 Mbit/s

95th percentile per-packet one-way delay: 94.313 ms

Loss rate: 4.08%

-- Flow 1:

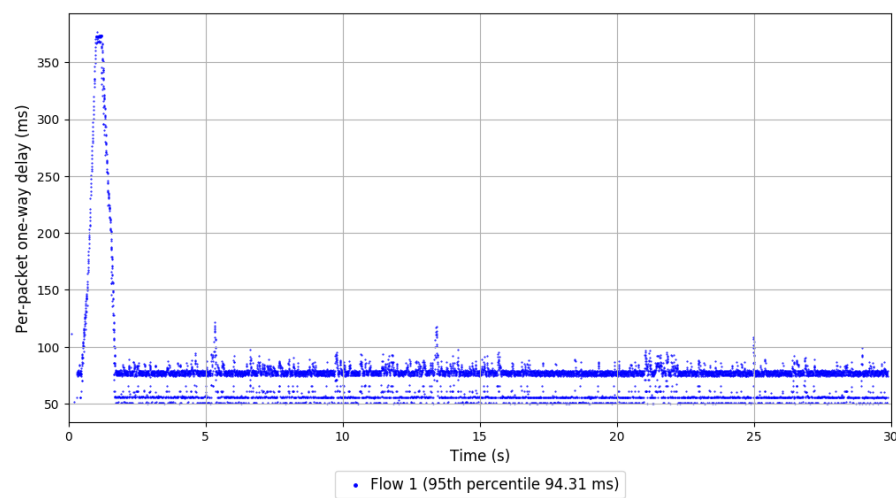
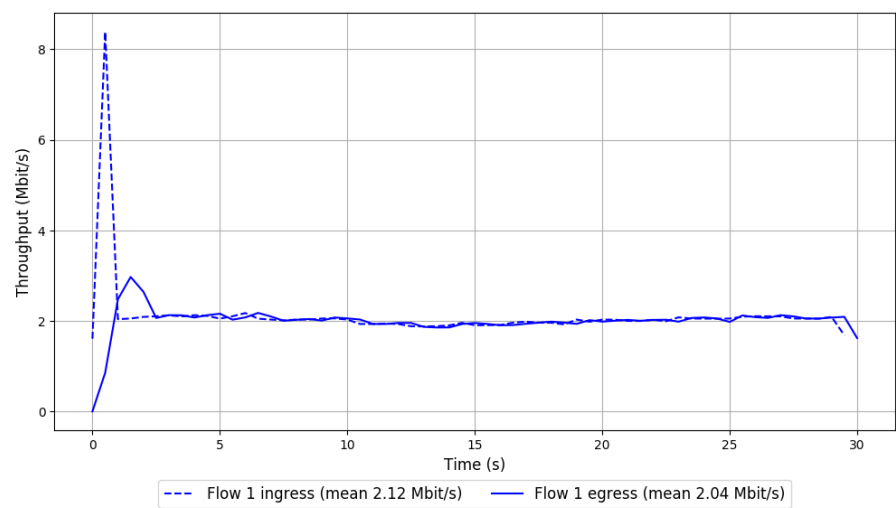
Average throughput: 2.04 Mbit/s

95th percentile per-packet one-way delay: 94.313 ms

Loss rate: 4.08%



Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-07-18 00:20:33

End at: 2018-07-18 00:21:03

Local clock offset: 1.843 ms

Remote clock offset: -14.242 ms

# Below is generated by plot.py at 2018-07-18 00:34:24

# Datalink statistics

-- Total of 1 flow:

Average throughput: 1.96 Mbit/s

95th percentile per-packet one-way delay: 329.020 ms

Loss rate: 4.31%

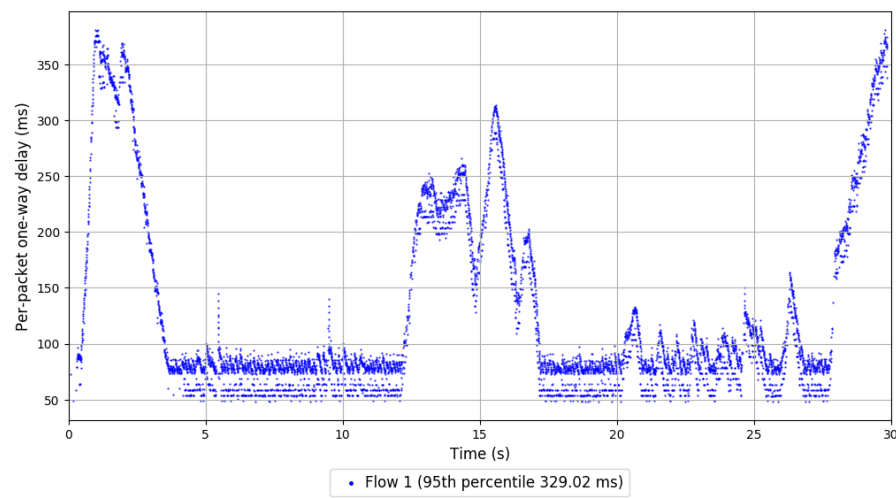
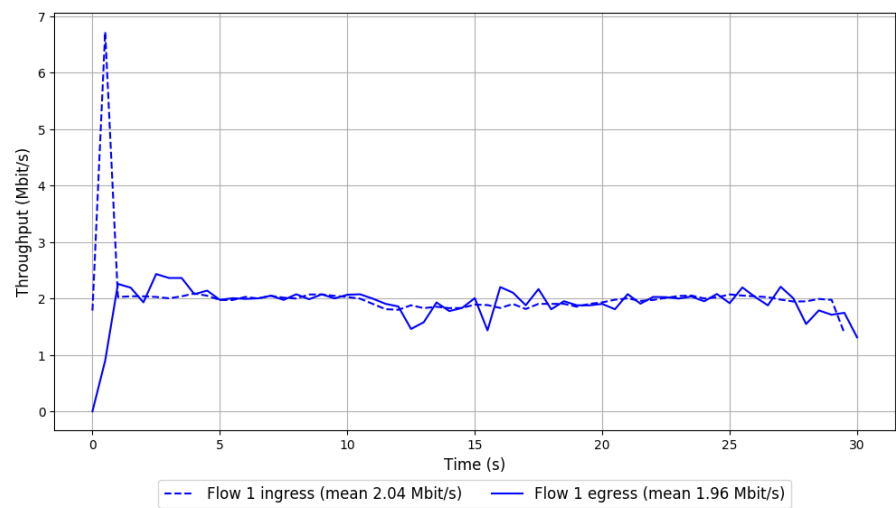
-- Flow 1:

Average throughput: 1.96 Mbit/s

95th percentile per-packet one-way delay: 329.020 ms

Loss rate: 4.31%

Run 3: Report of PCC-Allegro — Data Link



Run 1: Statistics of PCC-Expr

Start at: 2018-07-17 23:51:28

End at: 2018-07-17 23:51:58

Local clock offset: 0.32 ms

Remote clock offset: -9.114 ms

# Below is generated by plot.py at 2018-07-18 00:34:34

# Datalink statistics

-- Total of 1 flow:

Average throughput: 4.17 Mbit/s

95th percentile per-packet one-way delay: 361.782 ms

Loss rate: 5.32%

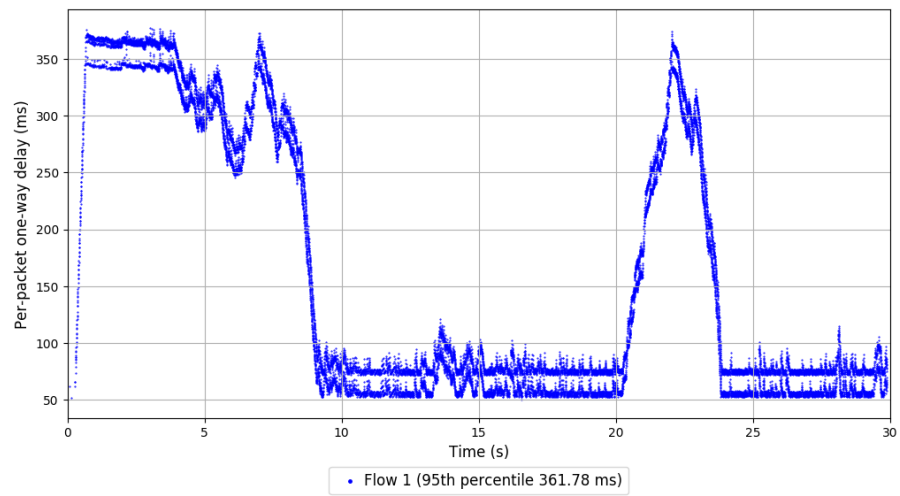
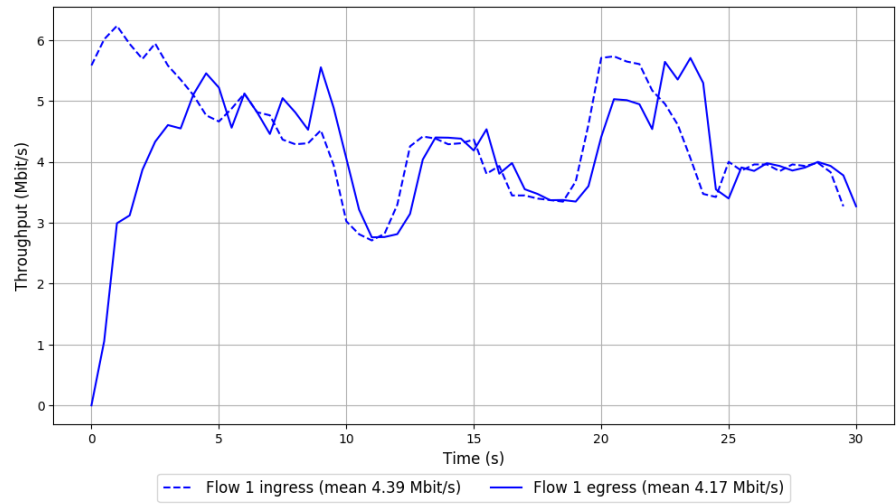
-- Flow 1:

Average throughput: 4.17 Mbit/s

95th percentile per-packet one-way delay: 361.782 ms

Loss rate: 5.32%

# Run 1: Report of PCC-Expr — Data Link

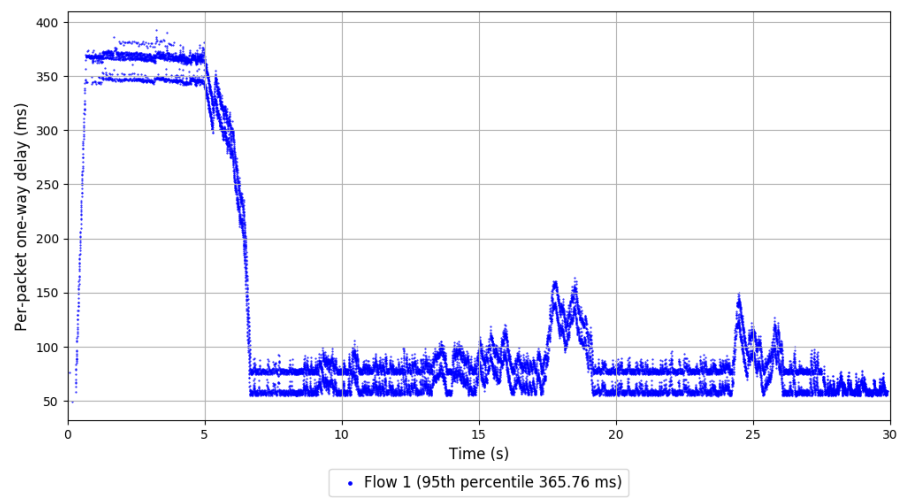
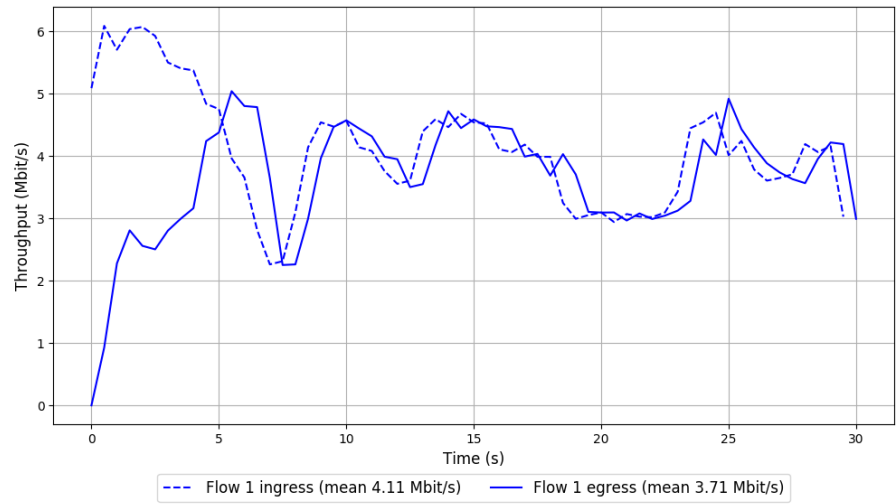


Run 2: Statistics of PCC-Expr

Start at: 2018-07-18 00:09:47  
End at: 2018-07-18 00:10:17  
Local clock offset: 2.367 ms  
Remote clock offset: -13.102 ms

# Below is generated by plot.py at 2018-07-18 00:34:34  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 3.71 Mbit/s  
95th percentile per-packet one-way delay: 365.758 ms  
Loss rate: 10.02%  
-- Flow 1:  
Average throughput: 3.71 Mbit/s  
95th percentile per-packet one-way delay: 365.758 ms  
Loss rate: 10.02%

## Run 2: Report of PCC-Expr — Data Link



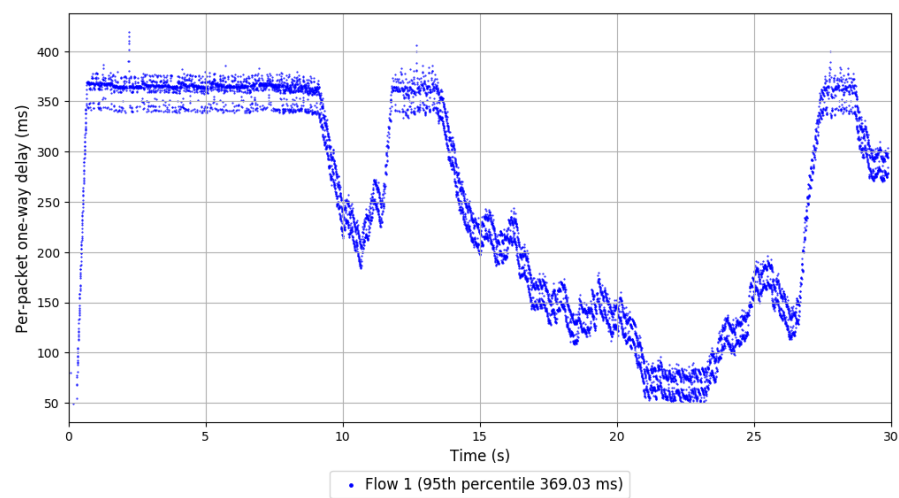
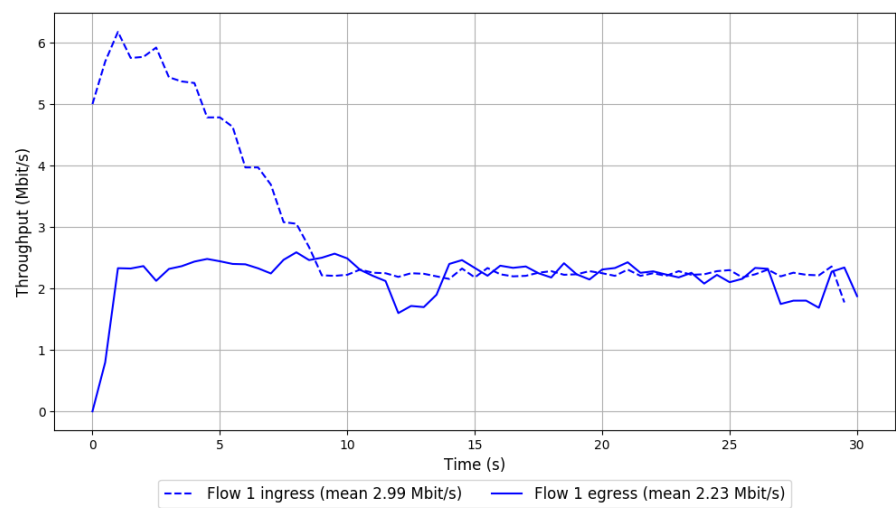
Run 3: Statistics of PCC-Expr

Start at: 2018-07-18 00:28:04  
End at: 2018-07-18 00:28:34  
Local clock offset: -1.284 ms  
Remote clock offset: -14.872 ms

# Below is generated by plot.py at 2018-07-18 00:34:34  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 2.23 Mbit/s  
95th percentile per-packet one-way delay: 369.026 ms  
Loss rate: 25.81%  
-- Flow 1:  
Average throughput: 2.23 Mbit/s  
95th percentile per-packet one-way delay: 369.026 ms  
Loss rate: 25.81%



Run 3: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2018-07-17 23:39:38

End at: 2018-07-17 23:40:08

Local clock offset: 0.735 ms

Remote clock offset: -9.015 ms

# Below is generated by plot.py at 2018-07-18 00:34:34

# Datalink statistics

-- Total of 1 flow:

Average throughput: 3.96 Mbit/s

95th percentile per-packet one-way delay: 345.454 ms

Loss rate: 3.88%

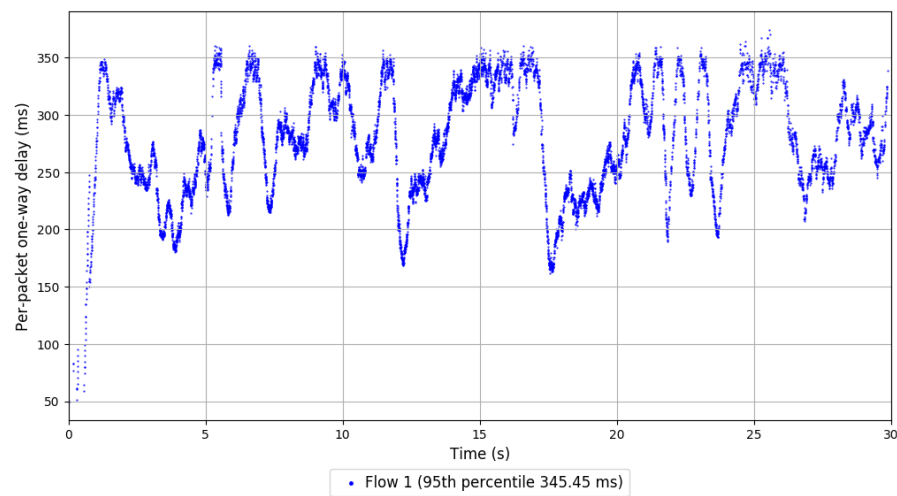
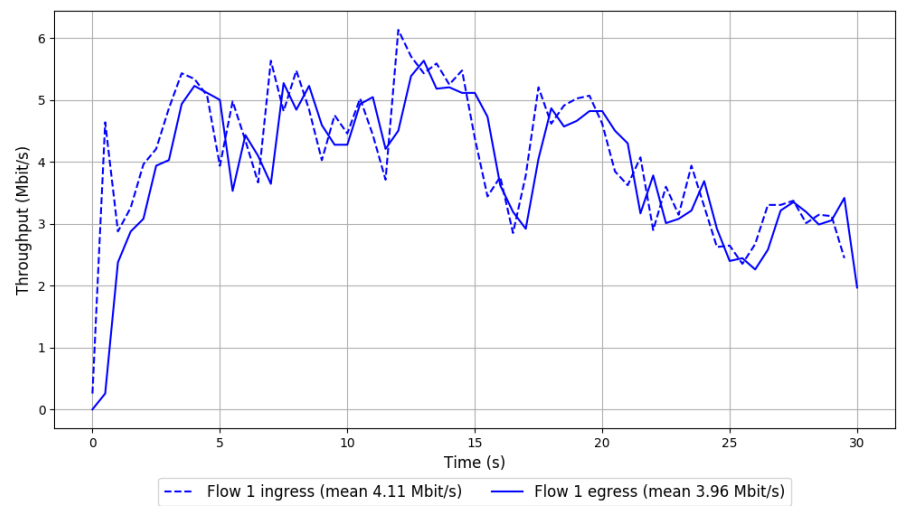
-- Flow 1:

Average throughput: 3.96 Mbit/s

95th percentile per-packet one-way delay: 345.454 ms

Loss rate: 3.88%

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-07-17 23:57:56

End at: 2018-07-17 23:58:26

Local clock offset: 0.347 ms

Remote clock offset: -9.645 ms

# Below is generated by plot.py at 2018-07-18 00:34:34

# Datalink statistics

-- Total of 1 flow:

Average throughput: 4.37 Mbit/s

95th percentile per-packet one-way delay: 346.476 ms

Loss rate: 3.47%

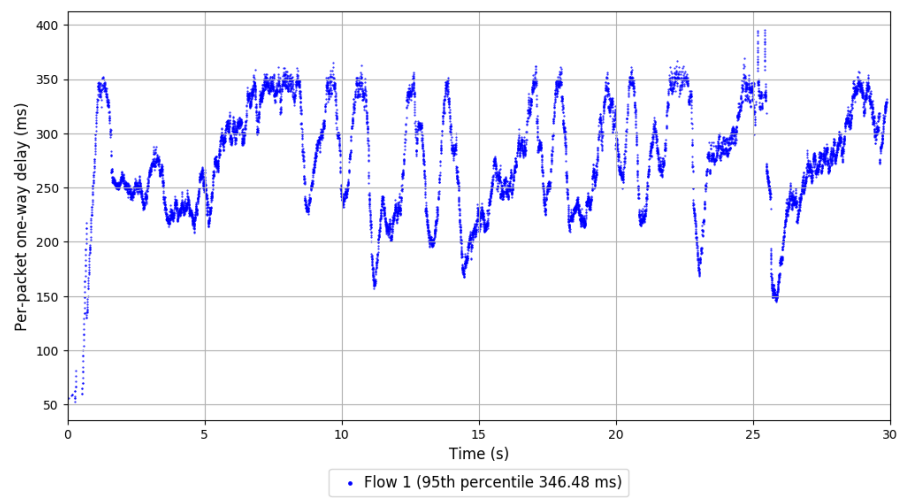
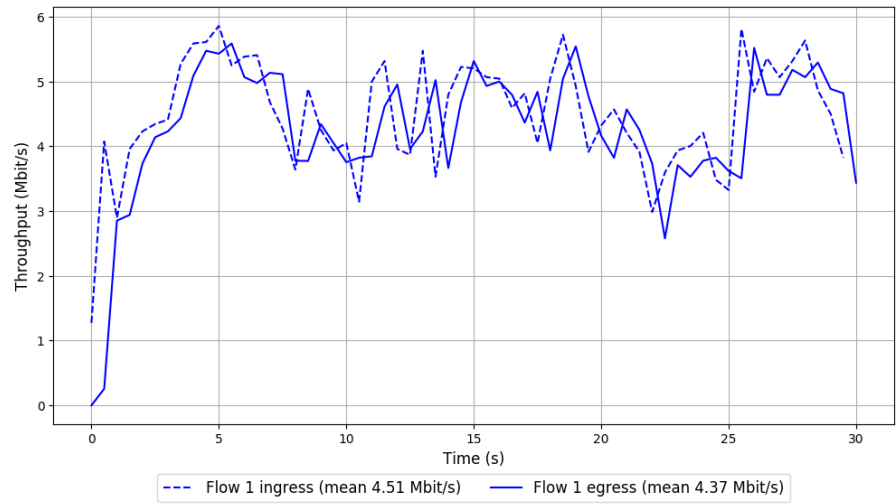
-- Flow 1:

Average throughput: 4.37 Mbit/s

95th percentile per-packet one-way delay: 346.476 ms

Loss rate: 3.47%

## Run 2: Report of QUIC Cubic — Data Link

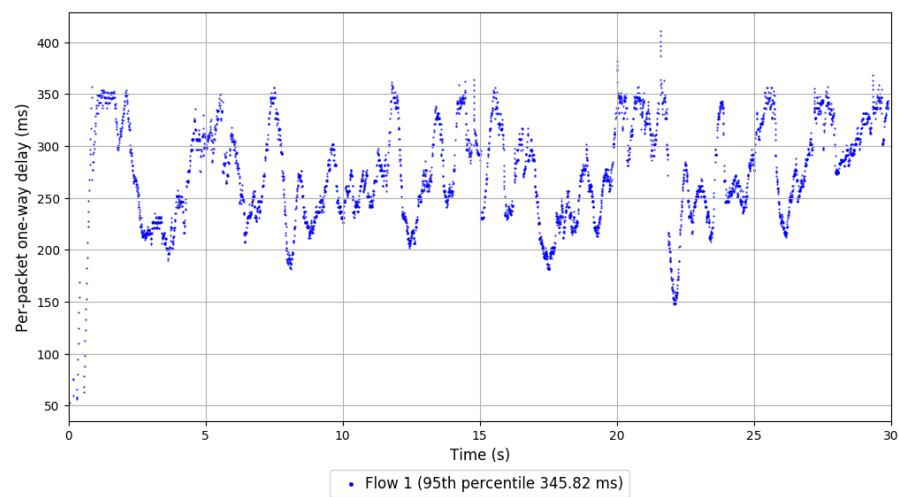
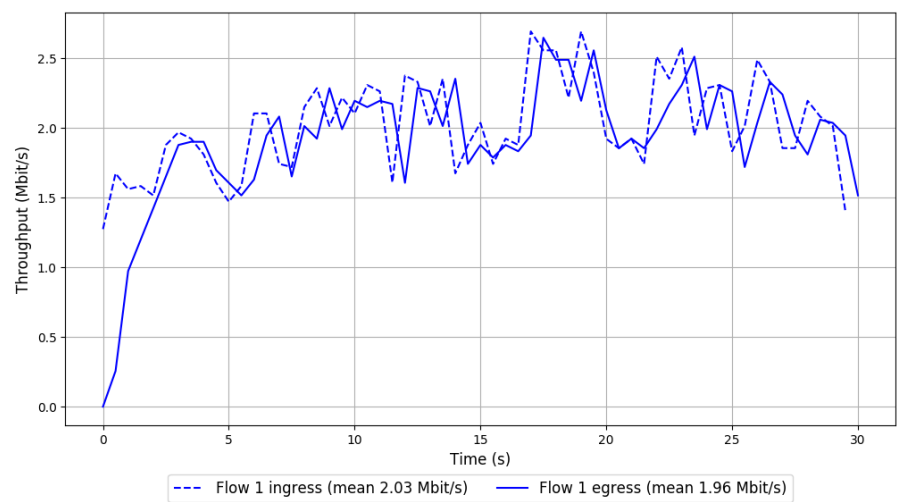


Run 3: Statistics of QUIC Cubic

Start at: 2018-07-18 00:16:15  
End at: 2018-07-18 00:16:45  
Local clock offset: -1.096 ms  
Remote clock offset: -13.931 ms

# Below is generated by plot.py at 2018-07-18 00:34:34  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 1.96 Mbit/s  
95th percentile per-packet one-way delay: 345.823 ms  
Loss rate: 3.41%  
-- Flow 1:  
Average throughput: 1.96 Mbit/s  
95th percentile per-packet one-way delay: 345.823 ms  
Loss rate: 3.41%

Run 3: Report of QUIC Cubic — Data Link



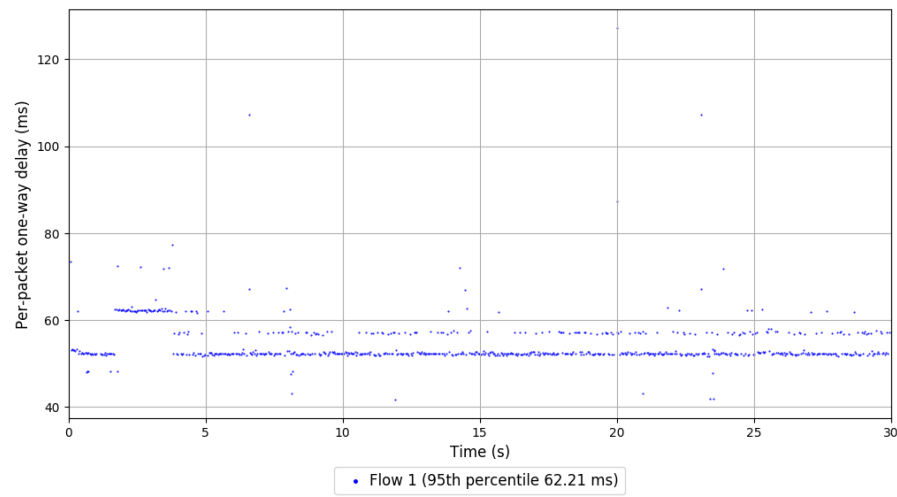
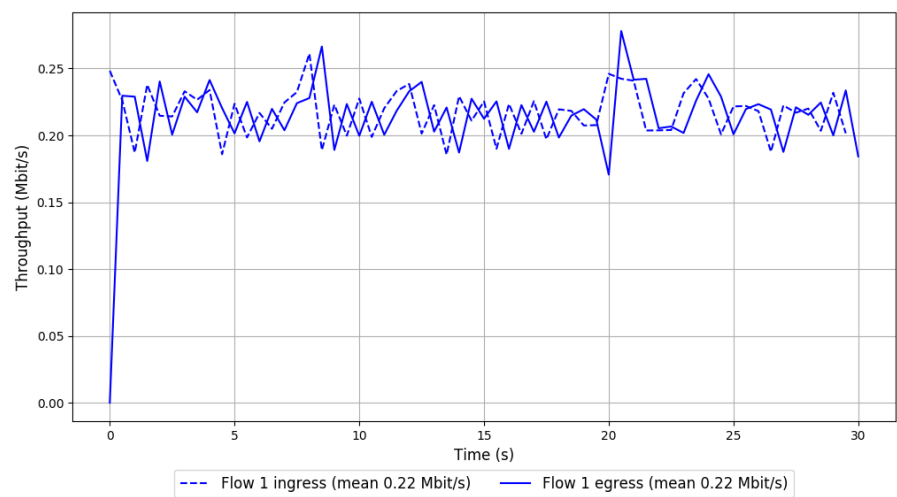
Run 1: Statistics of SCReAM

Start at: 2018-07-17 23:45:01  
End at: 2018-07-17 23:45:31  
Local clock offset: -0.296 ms  
Remote clock offset: -10.011 ms

# Below is generated by plot.py at 2018-07-18 00:34:34  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 62.214 ms  
Loss rate: 0.26%  
-- Flow 1:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 62.214 ms  
Loss rate: 0.26%



Run 1: Report of SReAM — Data Link

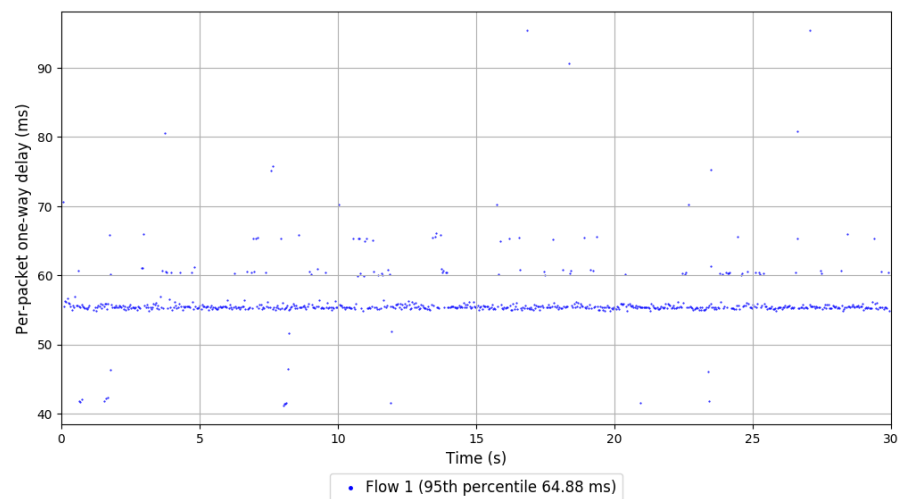
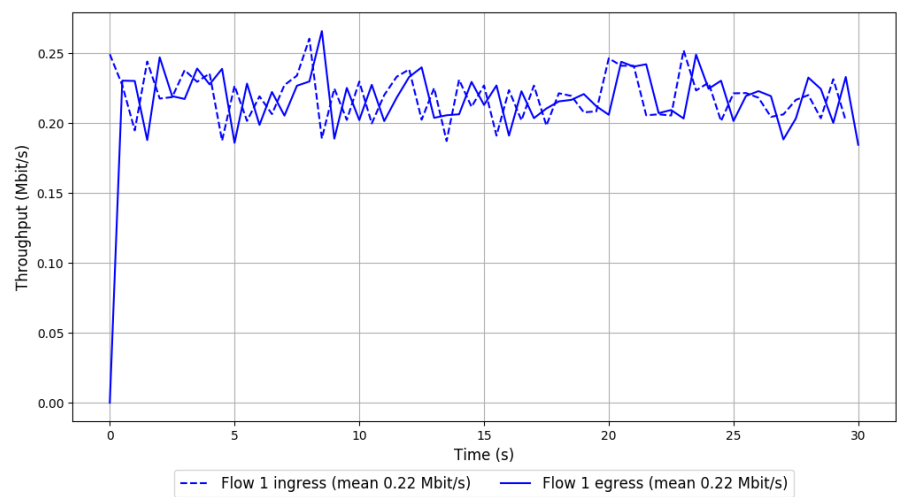


Run 2: Statistics of SCReAM

Start at: 2018-07-18 00:03:19  
End at: 2018-07-18 00:03:49  
Local clock offset: -0.95 ms  
Remote clock offset: -11.704 ms

# Below is generated by plot.py at 2018-07-18 00:34:34  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 64.875 ms  
Loss rate: 0.26%  
-- Flow 1:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 64.875 ms  
Loss rate: 0.26%

Run 2: Report of SCRaM — Data Link

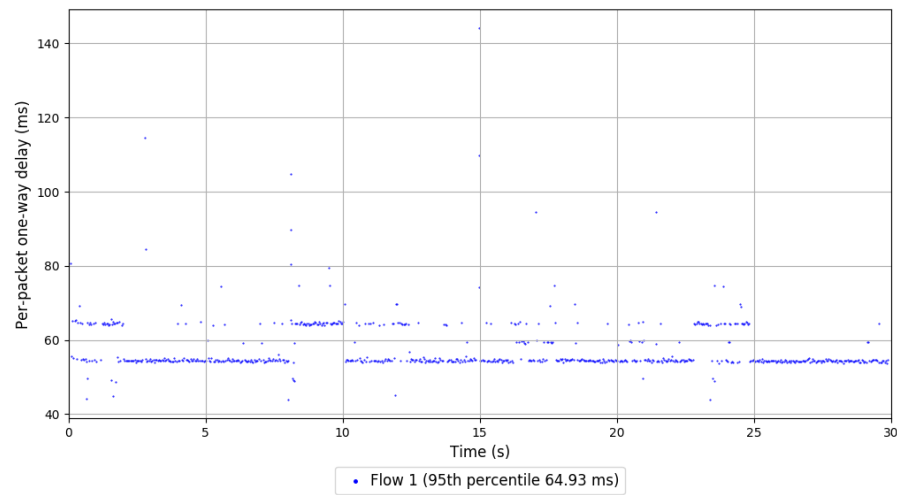
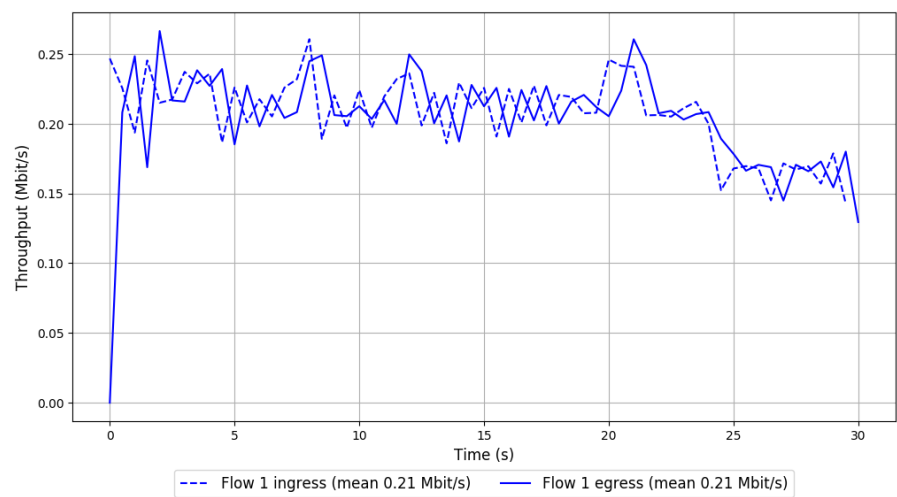


Run 3: Statistics of SCReAM

Start at: 2018-07-18 00:21:37  
End at: 2018-07-18 00:22:07  
Local clock offset: -1.607 ms  
Remote clock offset: -14.432 ms

# Below is generated by plot.py at 2018-07-18 00:34:34  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.21 Mbit/s  
95th percentile per-packet one-way delay: 64.931 ms  
Loss rate: 0.21%  
-- Flow 1:  
Average throughput: 0.21 Mbit/s  
95th percentile per-packet one-way delay: 64.931 ms  
Loss rate: 0.21%

Run 3: Report of SReAM — Data Link



Run 1: Statistics of Sprout

Start at: 2018-07-17 23:50:24

End at: 2018-07-17 23:50:54

Local clock offset: 1.653 ms

Remote clock offset: -9.106 ms

# Below is generated by plot.py at 2018-07-18 00:34:34

# Datalink statistics

-- Total of 1 flow:

Average throughput: 0.28 Mbit/s

95th percentile per-packet one-way delay: 86.837 ms

Loss rate: 0.17%

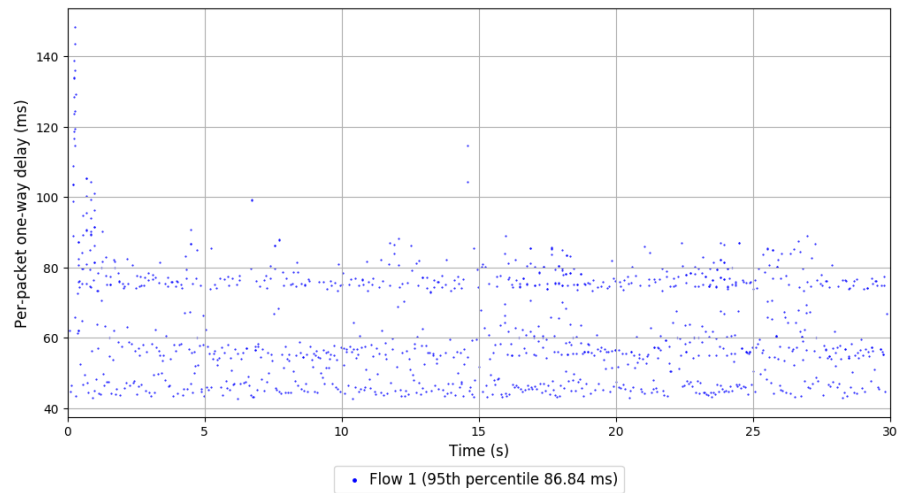
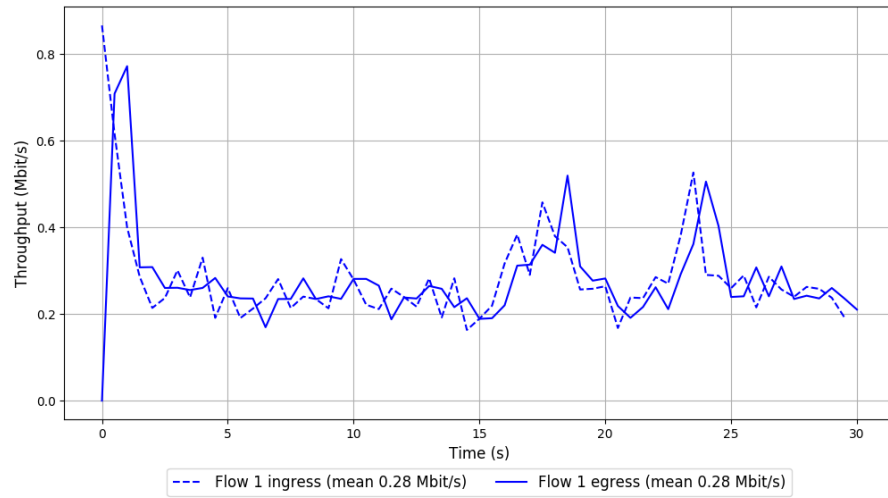
-- Flow 1:

Average throughput: 0.28 Mbit/s

95th percentile per-packet one-way delay: 86.837 ms

Loss rate: 0.17%

## Run 1: Report of Sprout — Data Link



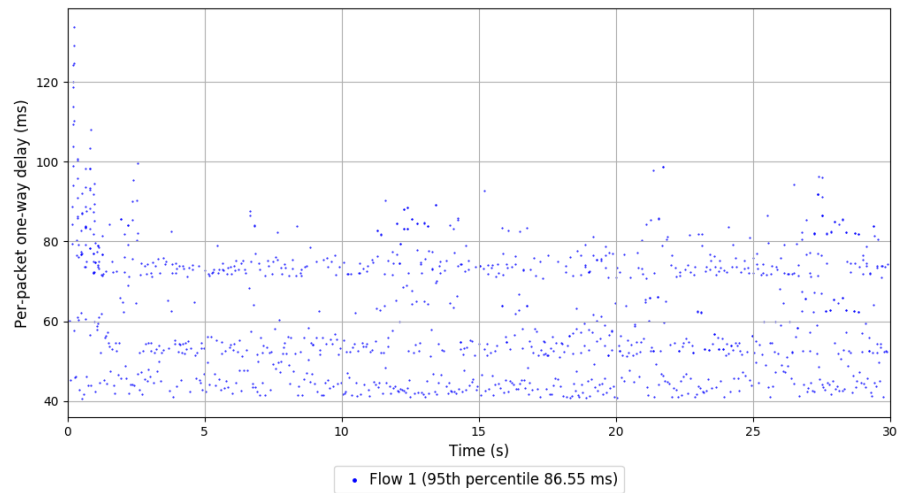
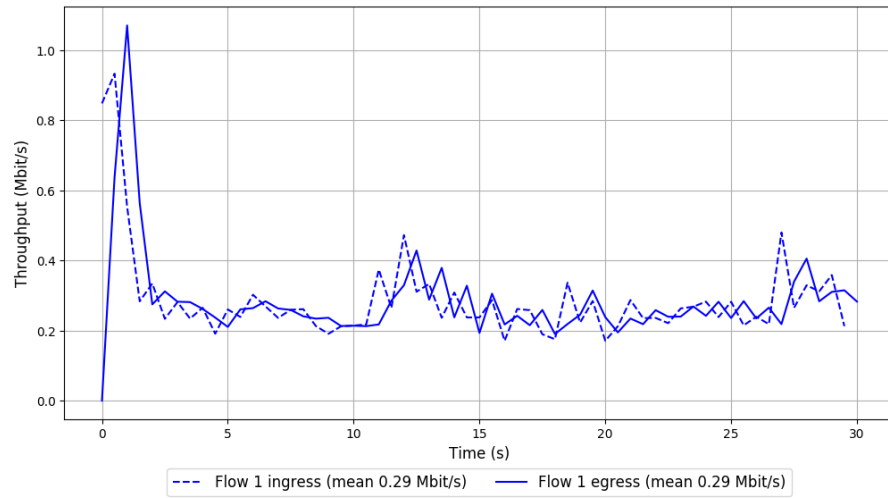
Run 2: Statistics of Sprout

Start at: 2018-07-18 00:08:42  
End at: 2018-07-18 00:09:12  
Local clock offset: -0.235 ms  
Remote clock offset: -12.208 ms

# Below is generated by plot.py at 2018-07-18 00:34:34  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.29 Mbit/s  
95th percentile per-packet one-way delay: 86.554 ms  
Loss rate: 0.13%  
-- Flow 1:  
Average throughput: 0.29 Mbit/s  
95th percentile per-packet one-way delay: 86.554 ms  
Loss rate: 0.13%



## Run 2: Report of Sprout — Data Link

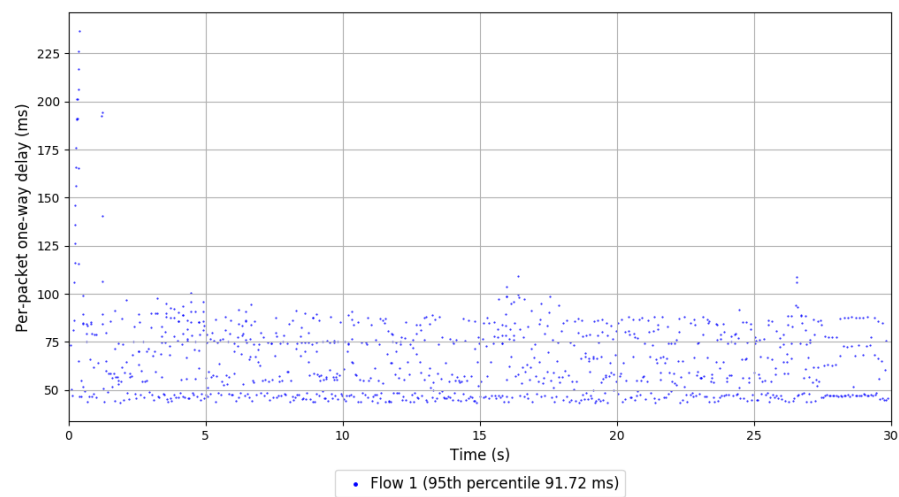
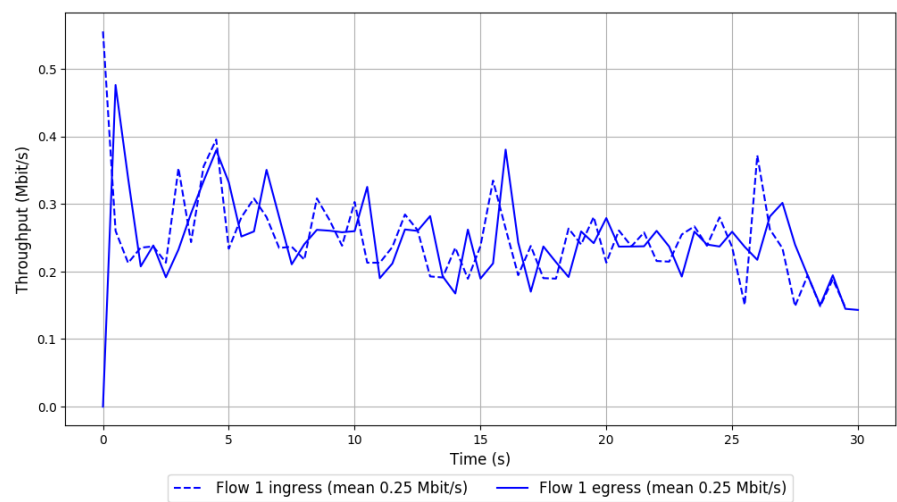


Run 3: Statistics of Sprout

Start at: 2018-07-18 00:27:00  
End at: 2018-07-18 00:27:30  
Local clock offset: 1.182 ms  
Remote clock offset: -15.667 ms

# Below is generated by plot.py at 2018-07-18 00:34:34  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 0.25 Mbit/s  
95th percentile per-packet one-way delay: 91.716 ms  
Loss rate: 0.19%  
-- Flow 1:  
Average throughput: 0.25 Mbit/s  
95th percentile per-packet one-way delay: 91.716 ms  
Loss rate: 0.19%

Run 3: Report of Sprout — Data Link

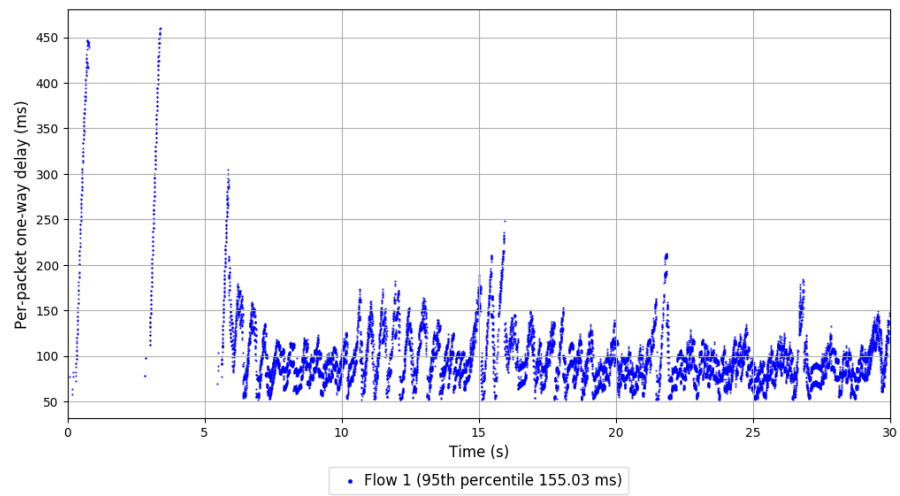
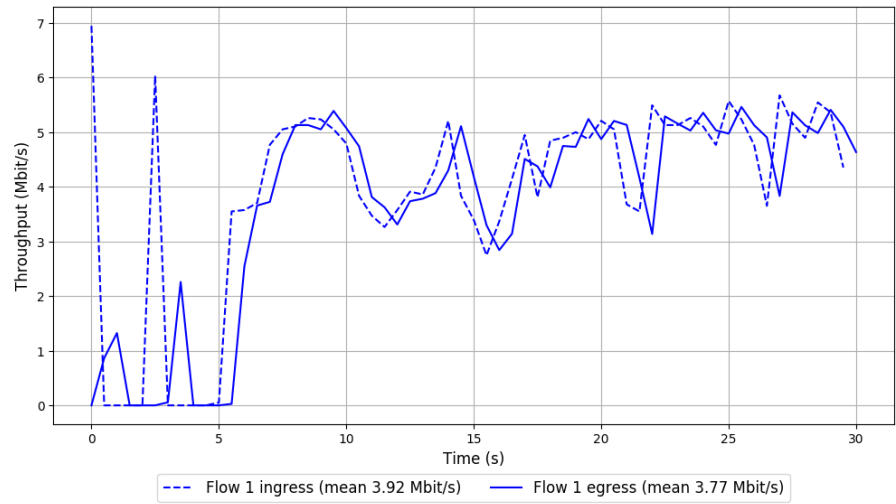


Run 1: Statistics of TaoVA-100x

Start at: 2018-07-17 23:47:10  
End at: 2018-07-17 23:47:40  
Local clock offset: -0.003 ms  
Remote clock offset: -9.337 ms

# Below is generated by plot.py at 2018-07-18 00:34:42  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 3.77 Mbit/s  
95th percentile per-packet one-way delay: 155.032 ms  
Loss rate: 4.07%  
-- Flow 1:  
Average throughput: 3.77 Mbit/s  
95th percentile per-packet one-way delay: 155.032 ms  
Loss rate: 4.07%

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

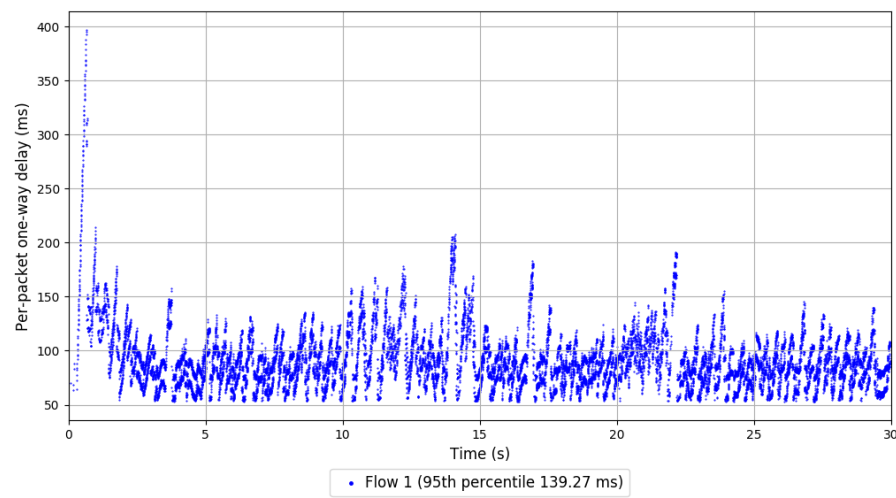
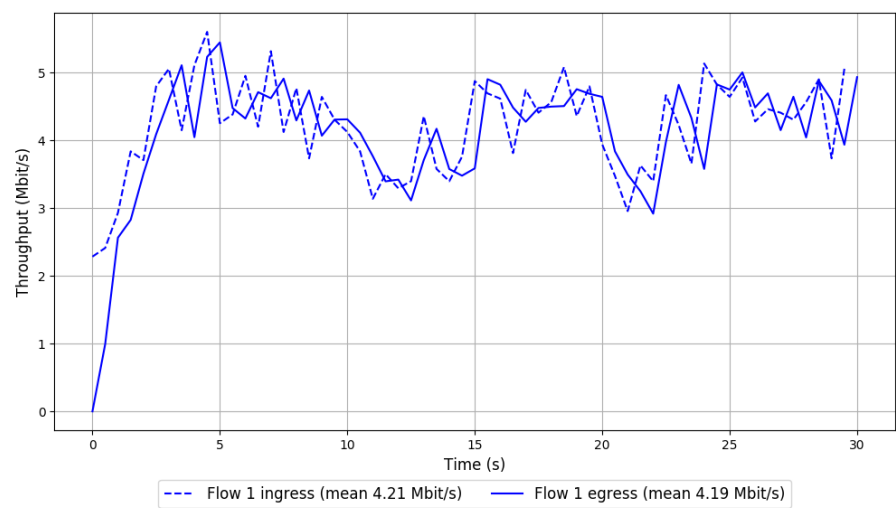


Run 2: Statistics of TaoVA-100x

Start at: 2018-07-18 00:05:28  
End at: 2018-07-18 00:05:58  
Local clock offset: 0.33 ms  
Remote clock offset: -12.364 ms

# Below is generated by plot.py at 2018-07-18 00:34:44  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 4.19 Mbit/s  
95th percentile per-packet one-way delay: 139.266 ms  
Loss rate: 0.55%  
-- Flow 1:  
Average throughput: 4.19 Mbit/s  
95th percentile per-packet one-way delay: 139.266 ms  
Loss rate: 0.55%

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



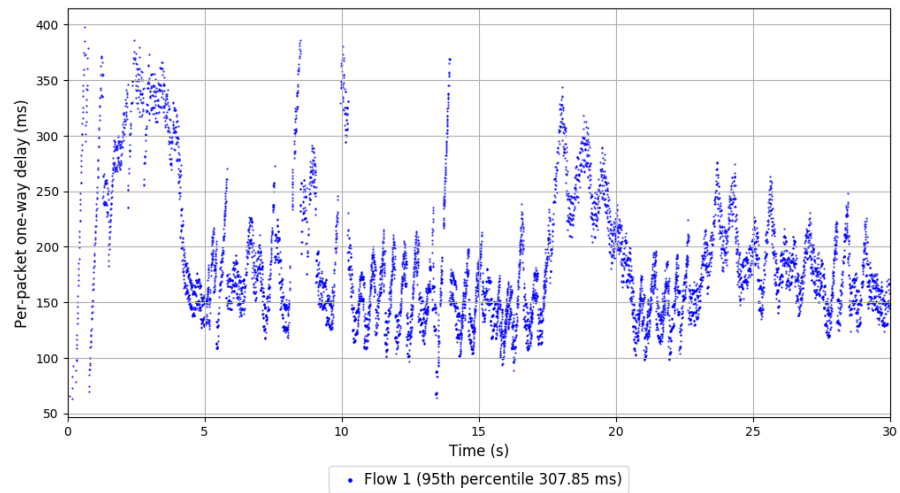
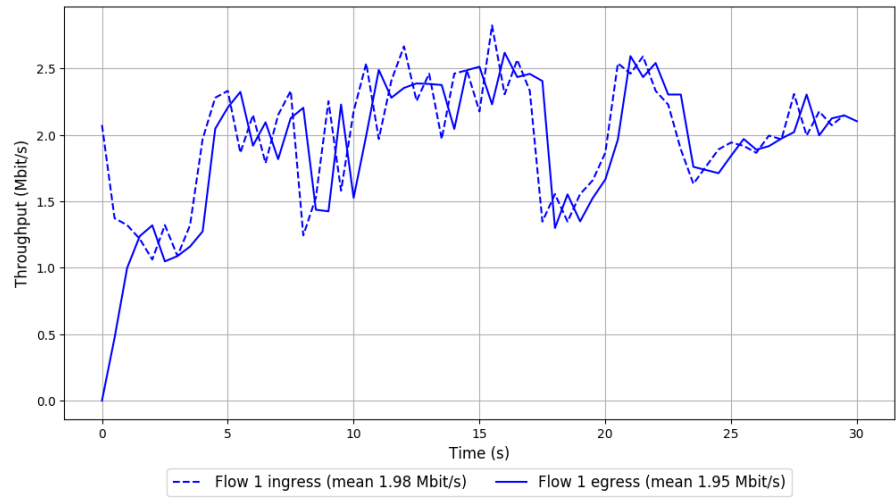
Run 3: Statistics of TaoVA-100x

Start at: 2018-07-18 00:23:46  
End at: 2018-07-18 00:24:16  
Local clock offset: 1.643 ms  
Remote clock offset: -14.582 ms

# Below is generated by plot.py at 2018-07-18 00:34:44  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 1.95 Mbit/s  
95th percentile per-packet one-way delay: 307.851 ms  
Loss rate: 2.07%  
-- Flow 1:  
Average throughput: 1.95 Mbit/s  
95th percentile per-packet one-way delay: 307.851 ms  
Loss rate: 2.07%



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

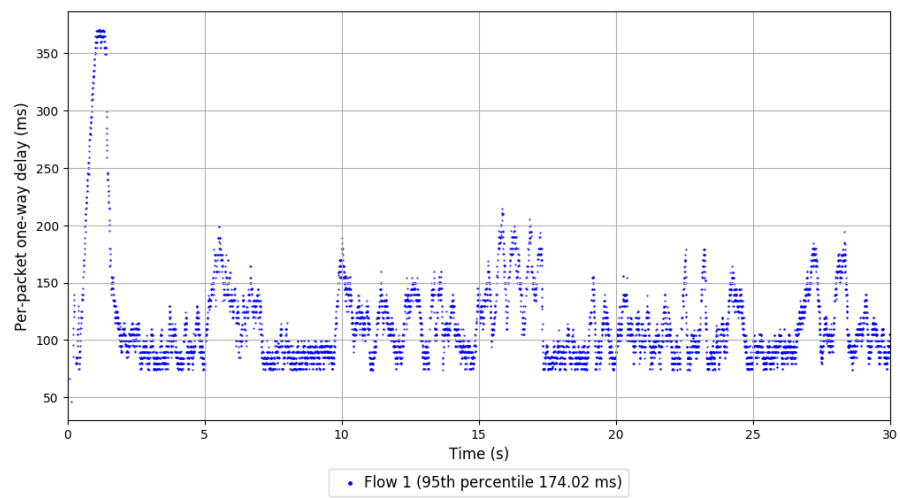
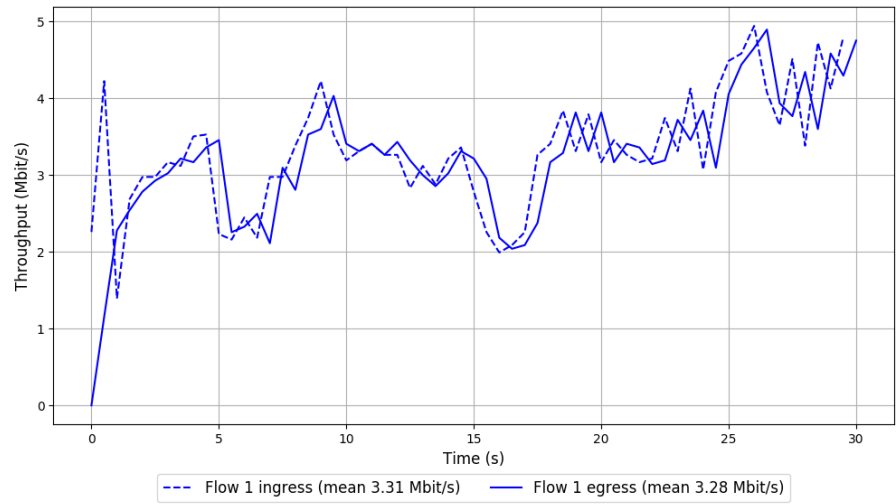


Run 1: Statistics of TCP Vegas

Start at: 2018-07-17 23:40:43  
End at: 2018-07-17 23:41:13  
Local clock offset: 0.659 ms  
Remote clock offset: -9.868 ms

# Below is generated by plot.py at 2018-07-18 00:34:44  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 3.28 Mbit/s  
95th percentile per-packet one-way delay: 174.021 ms  
Loss rate: 1.05%  
-- Flow 1:  
Average throughput: 3.28 Mbit/s  
95th percentile per-packet one-way delay: 174.021 ms  
Loss rate: 1.05%

### Run 1: Report of TCP Vegas — Data Link

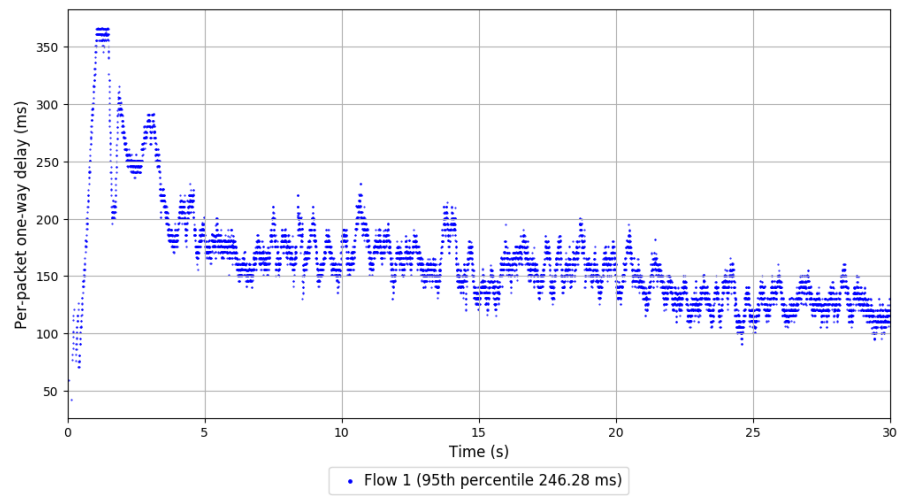
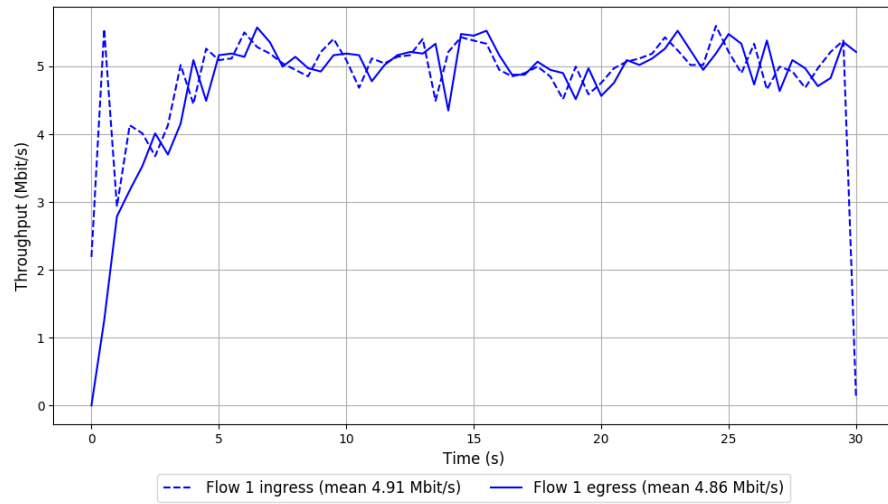


Run 2: Statistics of TCP Vegas

Start at: 2018-07-17 23:59:00  
End at: 2018-07-17 23:59:30  
Local clock offset: -0.936 ms  
Remote clock offset: -8.062 ms

# Below is generated by plot.py at 2018-07-18 00:34:44  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 4.86 Mbit/s  
95th percentile per-packet one-way delay: 246.285 ms  
Loss rate: 1.18%  
-- Flow 1:  
Average throughput: 4.86 Mbit/s  
95th percentile per-packet one-way delay: 246.285 ms  
Loss rate: 1.18%

## Run 2: Report of TCP Vegas — Data Link

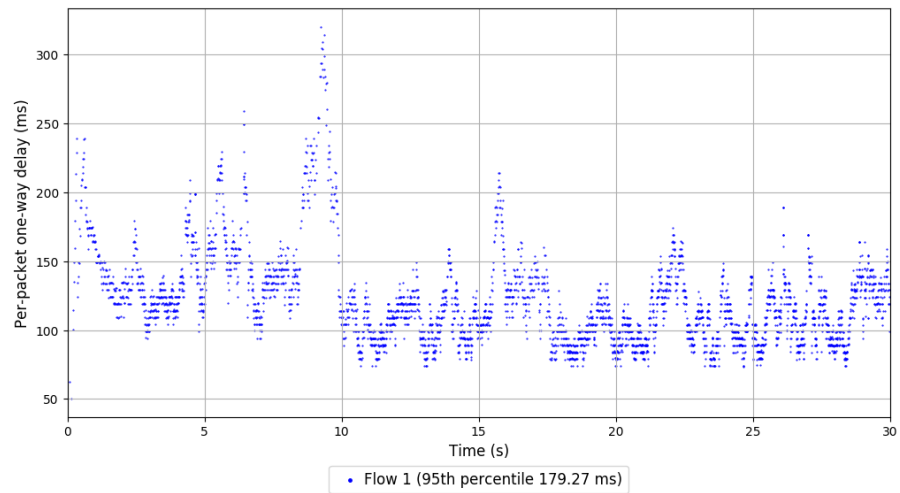
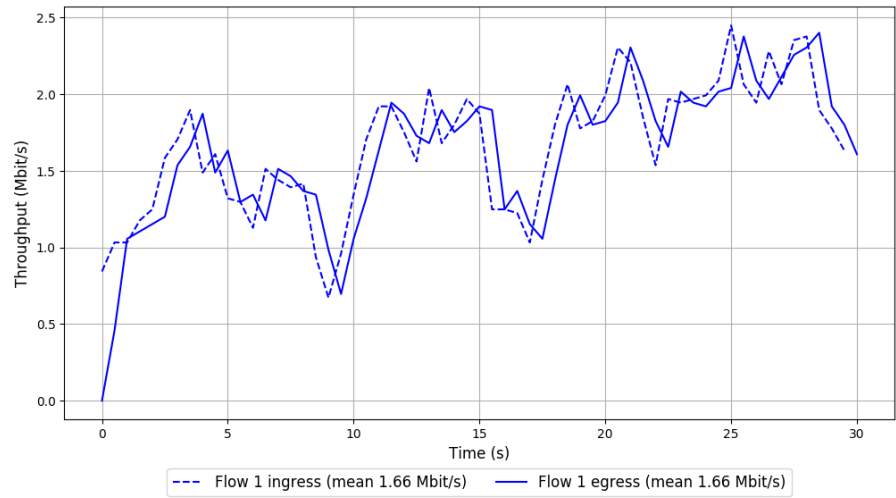


Run 3: Statistics of TCP Vegas

Start at: 2018-07-18 00:17:19  
End at: 2018-07-18 00:17:49  
Local clock offset: 2.604 ms  
Remote clock offset: -13.176 ms

# Below is generated by plot.py at 2018-07-18 00:34:44  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 1.66 Mbit/s  
95th percentile per-packet one-way delay: 179.271 ms  
Loss rate: 0.46%  
-- Flow 1:  
Average throughput: 1.66 Mbit/s  
95th percentile per-packet one-way delay: 179.271 ms  
Loss rate: 0.46%

### Run 3: Report of TCP Vegas — Data Link



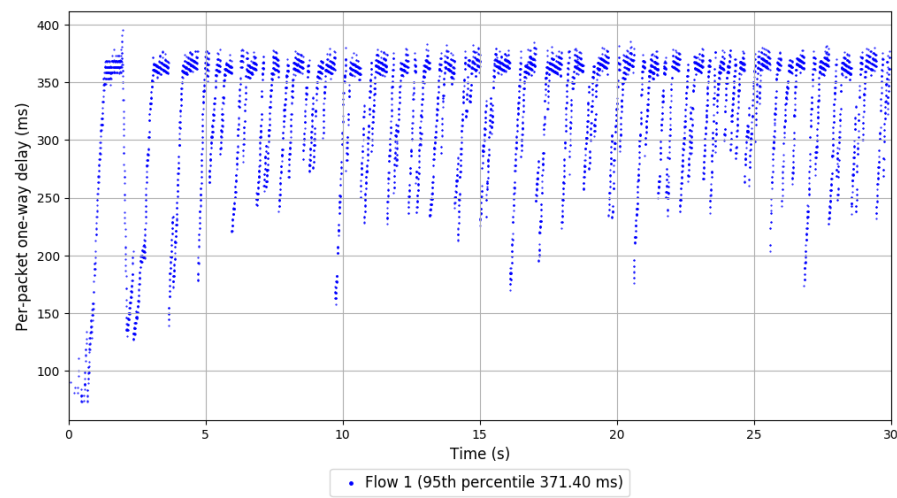
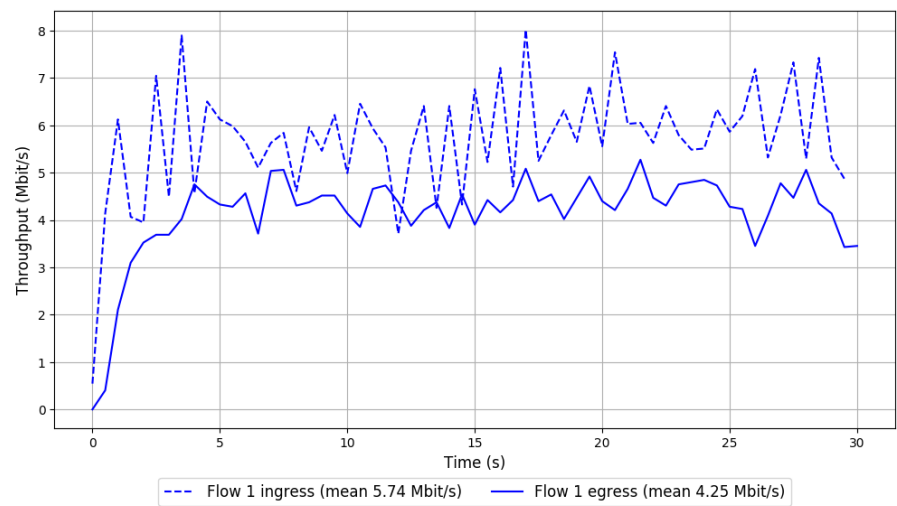
Run 1: Statistics of Verus

Start at: 2018-07-17 23:42:52  
End at: 2018-07-17 23:43:22  
Local clock offset: 0.644 ms  
Remote clock offset: -8.799 ms

# Below is generated by plot.py at 2018-07-18 00:34:44  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 4.25 Mbit/s  
95th percentile per-packet one-way delay: 371.396 ms  
Loss rate: 25.98%  
-- Flow 1:  
Average throughput: 4.25 Mbit/s  
95th percentile per-packet one-way delay: 371.396 ms  
Loss rate: 25.98%



Run 1: Report of Verus — Data Link

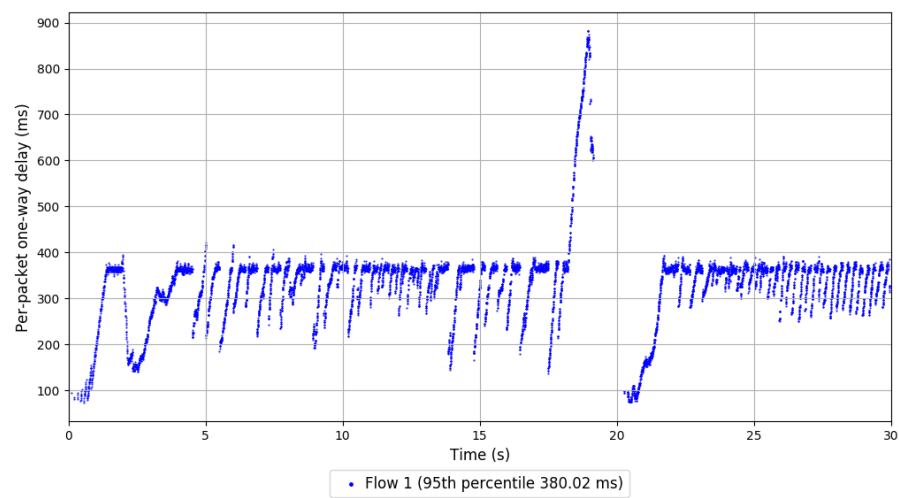
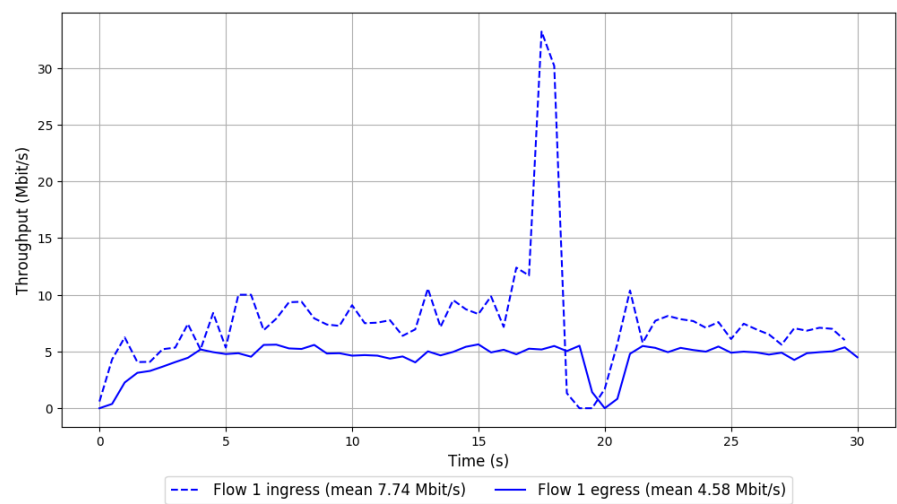


Run 2: Statistics of Verus

Start at: 2018-07-18 00:01:10  
End at: 2018-07-18 00:01:40  
Local clock offset: -0.686 ms  
Remote clock offset: -10.912 ms

# Below is generated by plot.py at 2018-07-18 00:34:44  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 4.58 Mbit/s  
95th percentile per-packet one-way delay: 380.025 ms  
Loss rate: 41.05%  
-- Flow 1:  
Average throughput: 4.58 Mbit/s  
95th percentile per-packet one-way delay: 380.025 ms  
Loss rate: 41.05%

Run 2: Report of Verus — Data Link

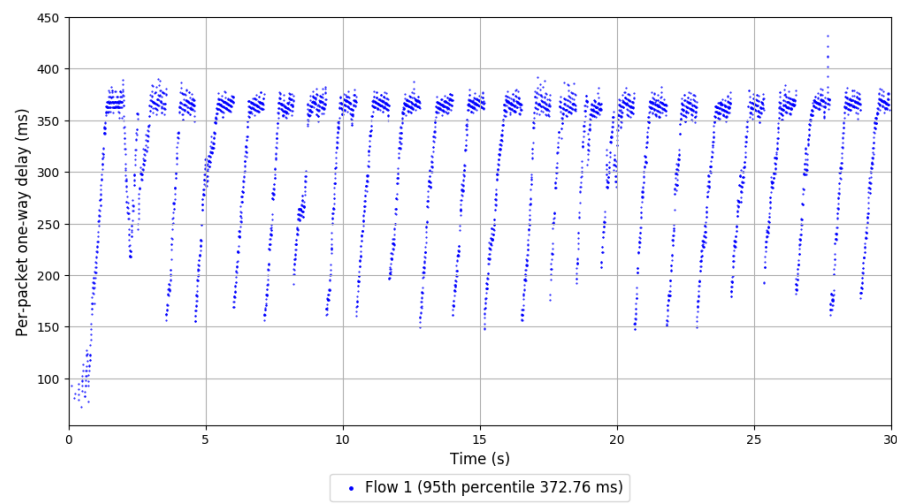
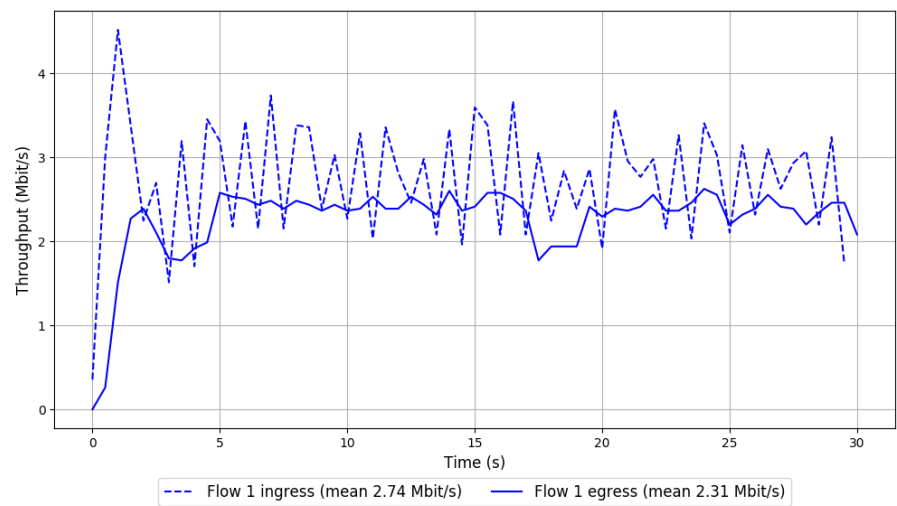


Run 3: Statistics of Verus

Start at: 2018-07-18 00:19:28  
End at: 2018-07-18 00:19:58  
Local clock offset: 1.732 ms  
Remote clock offset: -13.372 ms

# Below is generated by plot.py at 2018-07-18 00:34:44  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 2.31 Mbit/s  
95th percentile per-packet one-way delay: 372.764 ms  
Loss rate: 16.29%  
-- Flow 1:  
Average throughput: 2.31 Mbit/s  
95th percentile per-packet one-way delay: 372.764 ms  
Loss rate: 16.29%

Run 3: Report of Verus — Data Link

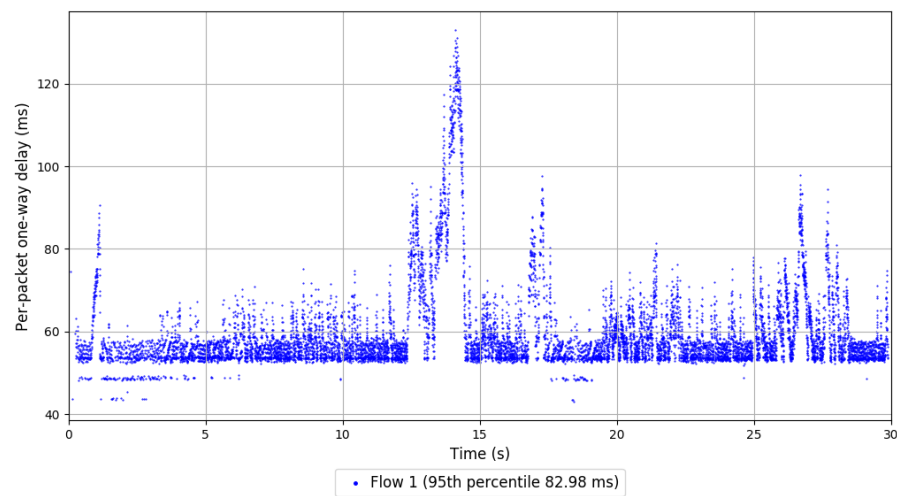
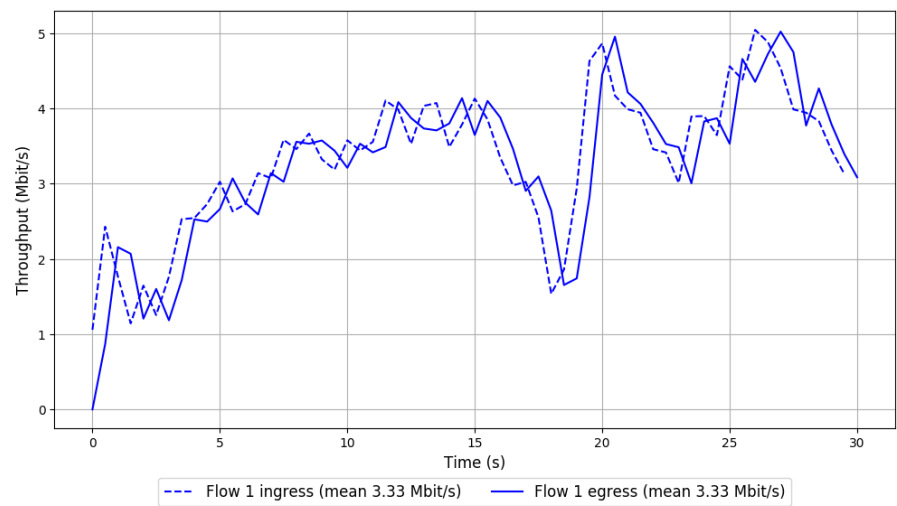


Run 1: Statistics of PCC-Vivace

Start at: 2018-07-17 23:46:05  
End at: 2018-07-17 23:46:35  
Local clock offset: -0.242 ms  
Remote clock offset: -10.168 ms

# Below is generated by plot.py at 2018-07-18 00:34:45  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 3.33 Mbit/s  
95th percentile per-packet one-way delay: 82.976 ms  
Loss rate: 0.24%  
-- Flow 1:  
Average throughput: 3.33 Mbit/s  
95th percentile per-packet one-way delay: 82.976 ms  
Loss rate: 0.24%

Run 1: Report of PCC-Vivace — Data Link



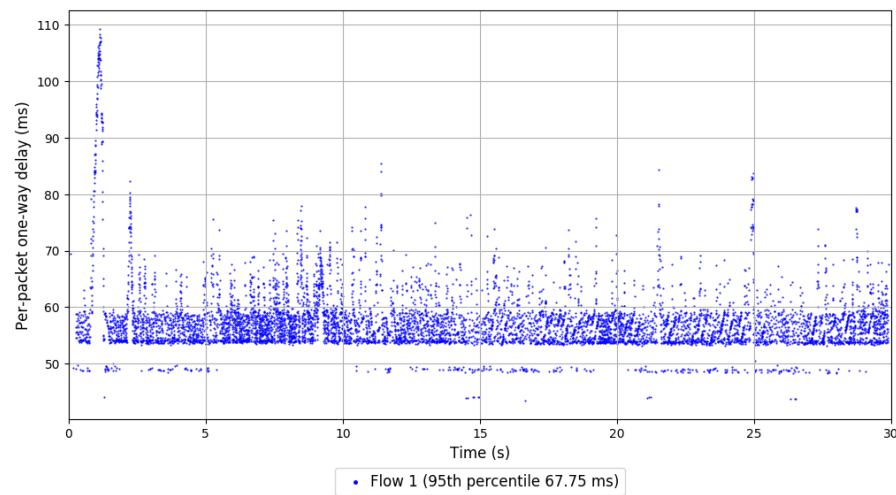
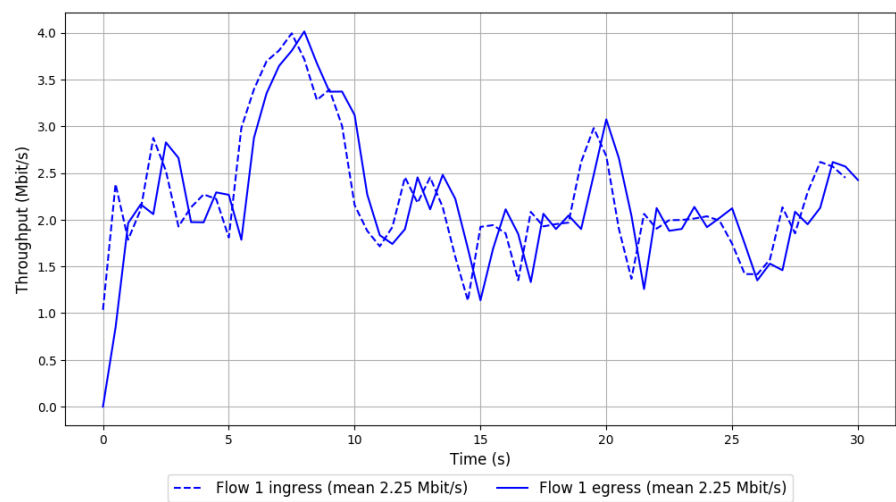
Run 2: Statistics of PCC-Vivace

Start at: 2018-07-18 00:04:23  
End at: 2018-07-18 00:04:53  
Local clock offset: 1.103 ms  
Remote clock offset: -12.026 ms

# Below is generated by plot.py at 2018-07-18 00:34:45  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 2.25 Mbit/s  
95th percentile per-packet one-way delay: 67.747 ms  
Loss rate: 0.26%  
-- Flow 1:  
Average throughput: 2.25 Mbit/s  
95th percentile per-packet one-way delay: 67.747 ms  
Loss rate: 0.26%



Run 2: Report of PCC-Vivace — Data Link

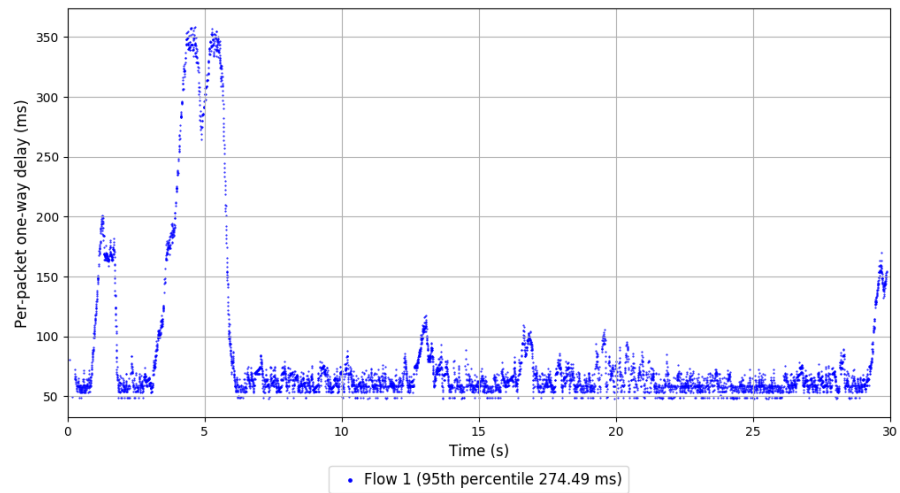
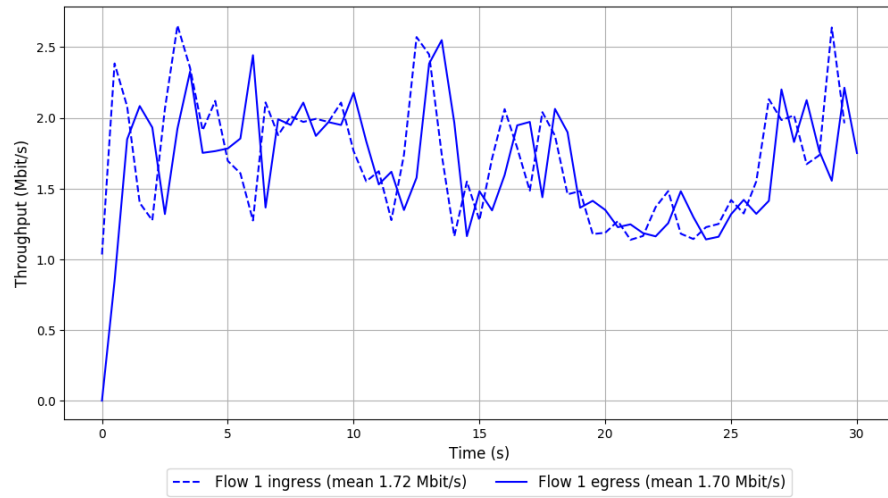


Run 3: Statistics of PCC-Vivace

Start at: 2018-07-18 00:22:42  
End at: 2018-07-18 00:23:12  
Local clock offset: 2.394 ms  
Remote clock offset: -14.597 ms

# Below is generated by plot.py at 2018-07-18 00:34:45  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 1.70 Mbit/s  
95th percentile per-packet one-way delay: 274.487 ms  
Loss rate: 1.32%  
-- Flow 1:  
Average throughput: 1.70 Mbit/s  
95th percentile per-packet one-way delay: 274.487 ms  
Loss rate: 1.32%

### Run 3: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-07-17 23:48:15

End at: 2018-07-17 23:48:45

Local clock offset: 3.222 ms

Remote clock offset: -9.553 ms

# Below is generated by plot.py at 2018-07-18 00:34:47

# Datalink statistics

-- Total of 1 flow:

Average throughput: 2.30 Mbit/s

95th percentile per-packet one-way delay: 84.756 ms

Loss rate: 0.28%

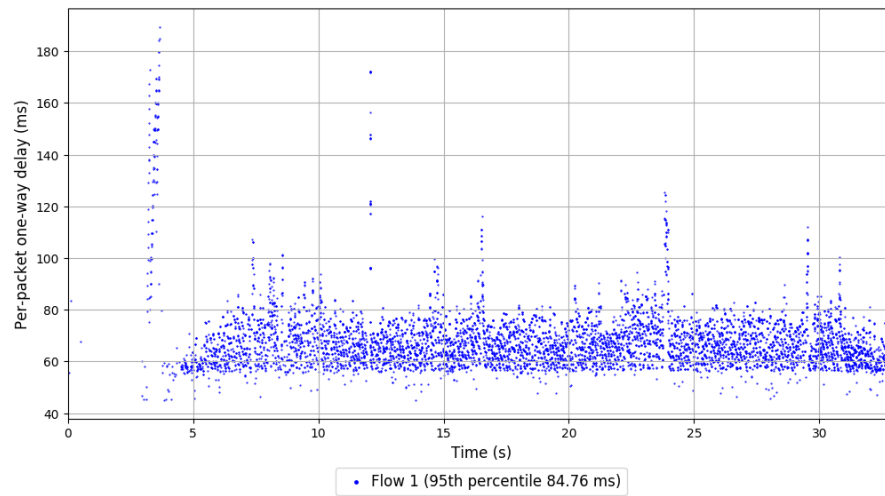
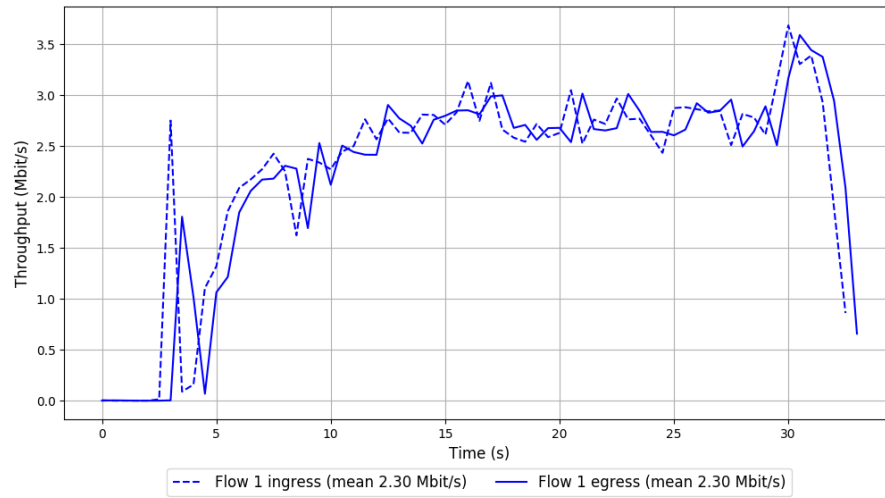
-- Flow 1:

Average throughput: 2.30 Mbit/s

95th percentile per-packet one-way delay: 84.756 ms

Loss rate: 0.28%

# Run 1: Report of WebRTC media — Data Link

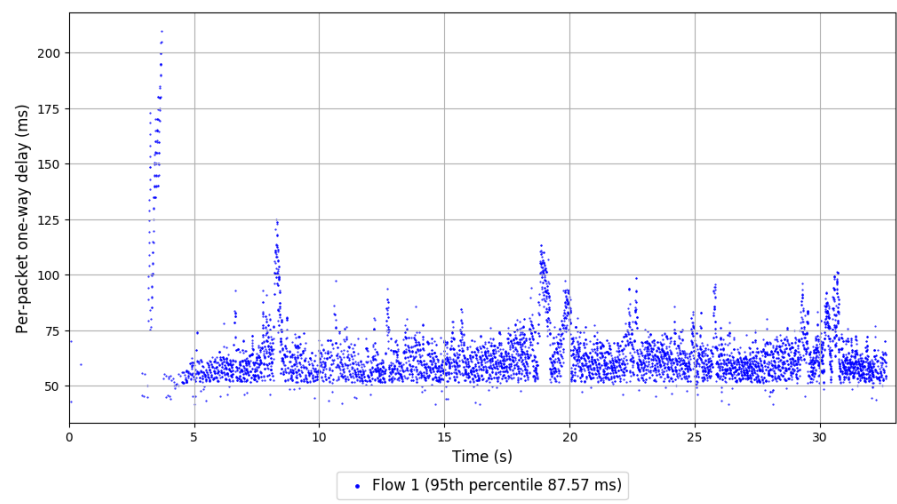
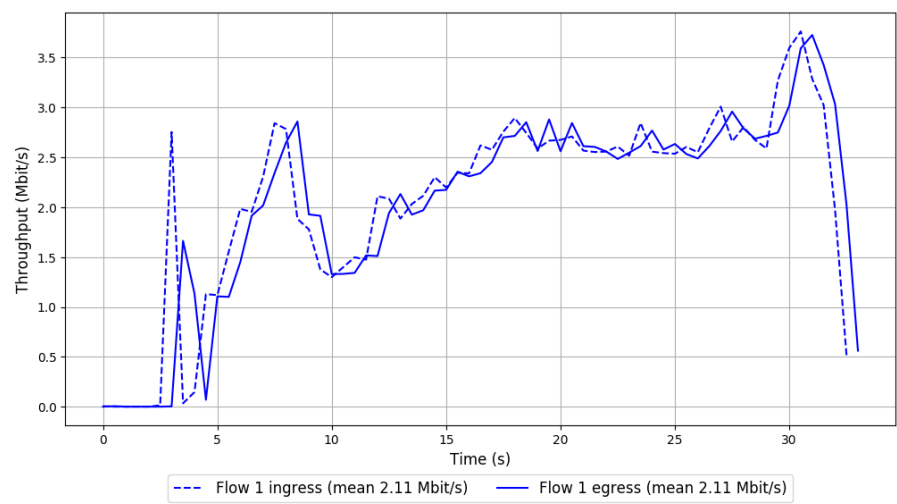


Run 2: Statistics of WebRTC media

Start at: 2018-07-18 00:06:33  
End at: 2018-07-18 00:07:03  
Local clock offset: -0.904 ms  
Remote clock offset: -12.088 ms

# Below is generated by plot.py at 2018-07-18 00:34:47  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 2.11 Mbit/s  
95th percentile per-packet one-way delay: 87.568 ms  
Loss rate: 0.16%  
-- Flow 1:  
Average throughput: 2.11 Mbit/s  
95th percentile per-packet one-way delay: 87.568 ms  
Loss rate: 0.16%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-07-18 00:24:51  
End at: 2018-07-18 00:25:21  
Local clock offset: -0.643 ms  
Remote clock offset: -14.538 ms

# Below is generated by plot.py at 2018-07-18 00:34:47  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 1.17 Mbit/s  
95th percentile per-packet one-way delay: 141.285 ms  
Loss rate: 0.45%  
-- Flow 1:  
Average throughput: 1.17 Mbit/s  
95th percentile per-packet one-way delay: 141.285 ms  
Loss rate: 0.45%



Run 3: Report of WebRTC media — Data Link

