

Pantheon Report

Generated at 2018-06-18 08:30:24 (UTC).

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

Repeated the test of 16 congestion control schemes 3 times.

Each test lasted for 30 seconds running 1 flow.

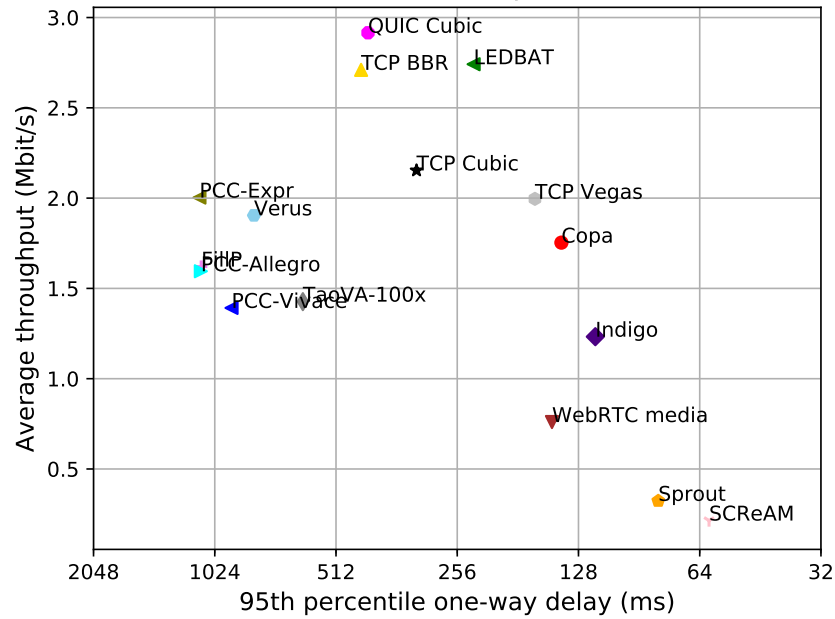
Increased UDP receive buffer to 16 MB (default) and 32 MB (max).

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

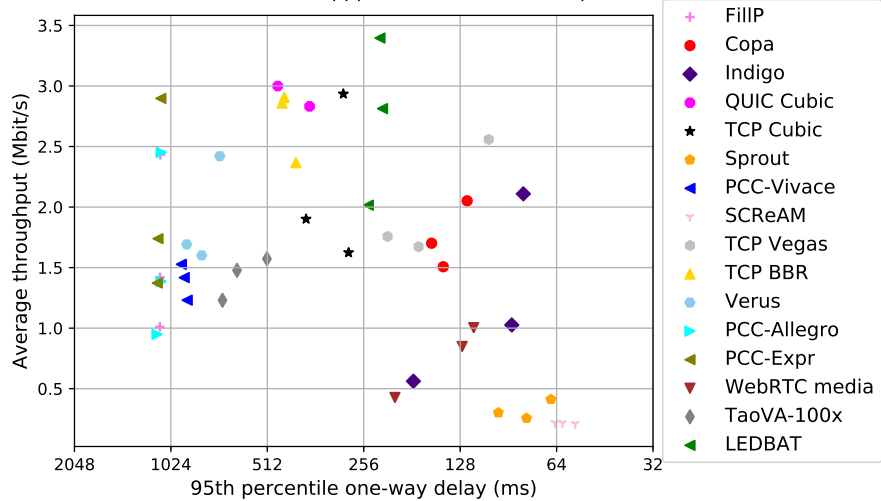
Git summary:

```
branch: master @ 9141c5f9450c85ea5ea2ea755a8e946998d3abf3
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/genericCC @ c7966e494a929986eaa5a9c169a7f381fe1bbbe5
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-quirk @ 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 AWS India 1 to India ppp0, 3 runs of 30s each per scheme
(mean of all runs by scheme)



test from AWS India 1 to India ppp0, 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	2.71	443.56	1.46
Copa	3	1.75	141.13	0.40
TCP Cubic	3	2.15	323.11	0.80
FillP	3	1.62	1106.49	56.93
Indigo	3	1.23	116.25	0.20
LEDBAT	3	2.74	233.14	0.30
PCC-Allegro	3	1.60	1108.74	46.32
PCC-Expr	3	2.00	1118.05	66.17
QUIC Cubic	2	2.92	426.38	0.79
SCReAM	3	0.22	60.68	0.12
Sprout	3	0.32	81.12	0.22
TaoVA-100x	3	1.43	618.84	4.71
TCP Vegas	3	2.00	164.19	0.29
Verus	3	1.90	818.44	4.56
PCC-Vivace	3	1.39	930.53	3.39
WebRTC media	3	0.76	148.96	0.12

Run 1: Statistics of TCP BBR

Start at: 2018-06-18 07:45:28

End at: 2018-06-18 07:45:58

Local clock offset: 13.776 ms

Remote clock offset: -3.329 ms

Below is generated by plot.py at 2018-06-18 08:29:52

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.37 Mbit/s

95th percentile per-packet one-way delay: 417.012 ms

Loss rate: 1.43%

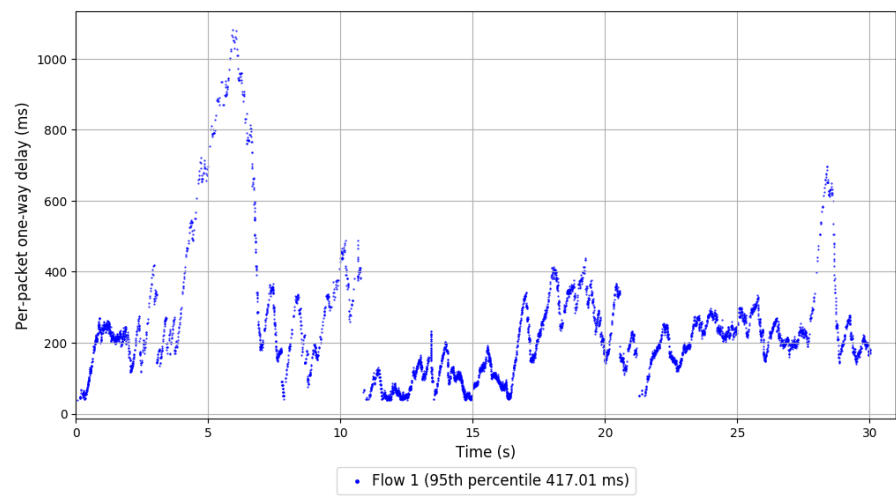
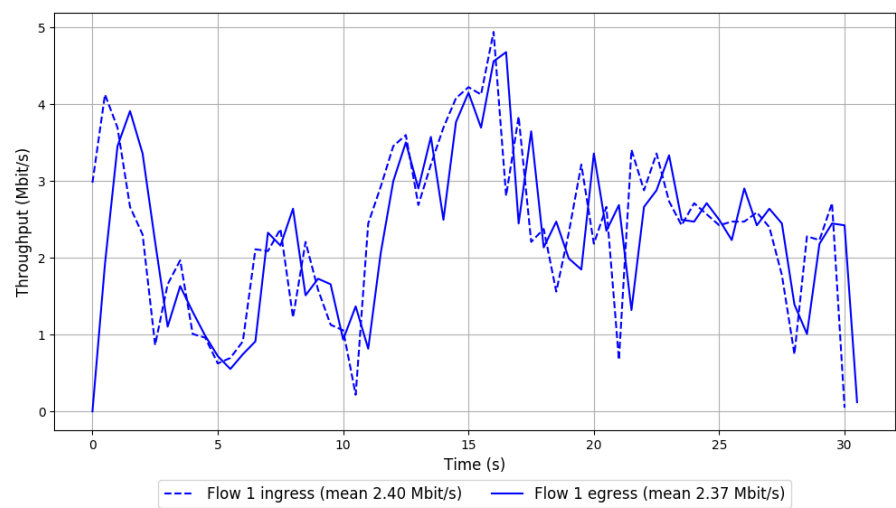
-- Flow 1:

Average throughput: 2.37 Mbit/s

95th percentile per-packet one-way delay: 417.012 ms

Loss rate: 1.43%

Run 1: Report of TCP BBR — Data Link

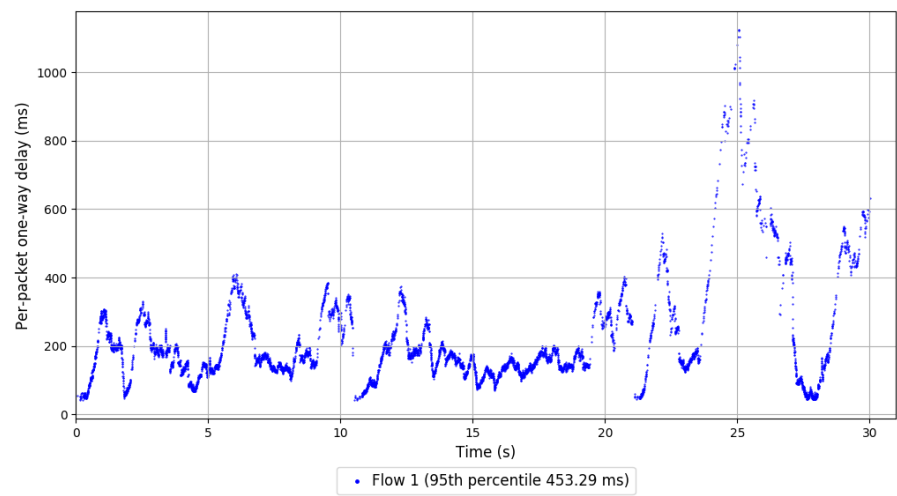
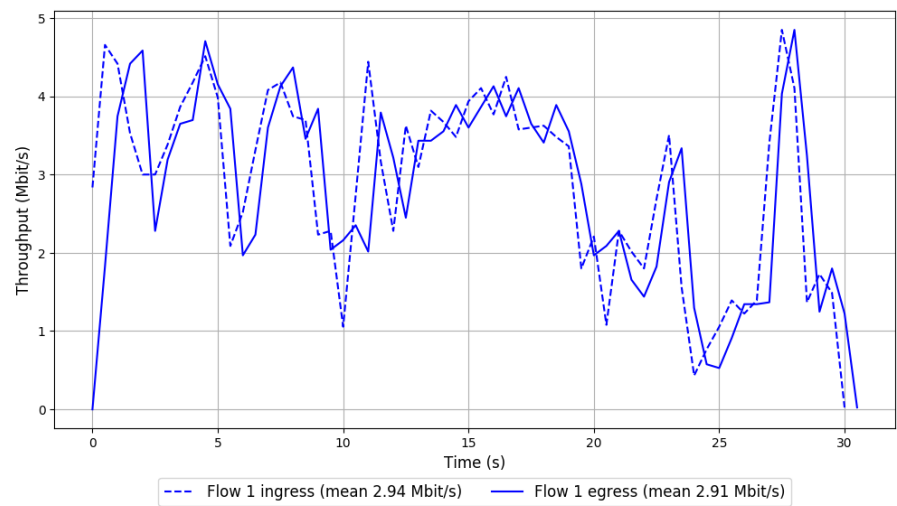


Run 2: Statistics of TCP BBR

Start at: 2018-06-18 08:02:47
End at: 2018-06-18 08:03:17
Local clock offset: 17.708 ms
Remote clock offset: -2.802 ms

Below is generated by plot.py at 2018-06-18 08:29:54
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.91 Mbit/s
95th percentile per-packet one-way delay: 453.292 ms
Loss rate: 1.48%
-- Flow 1:
Average throughput: 2.91 Mbit/s
95th percentile per-packet one-way delay: 453.292 ms
Loss rate: 1.48%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-06-18 08:20:26

End at: 2018-06-18 08:20:56

Local clock offset: 1.378 ms

Remote clock offset: -3.275 ms

Below is generated by plot.py at 2018-06-18 08:29:54

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.86 Mbit/s

95th percentile per-packet one-way delay: 460.389 ms

Loss rate: 1.46%

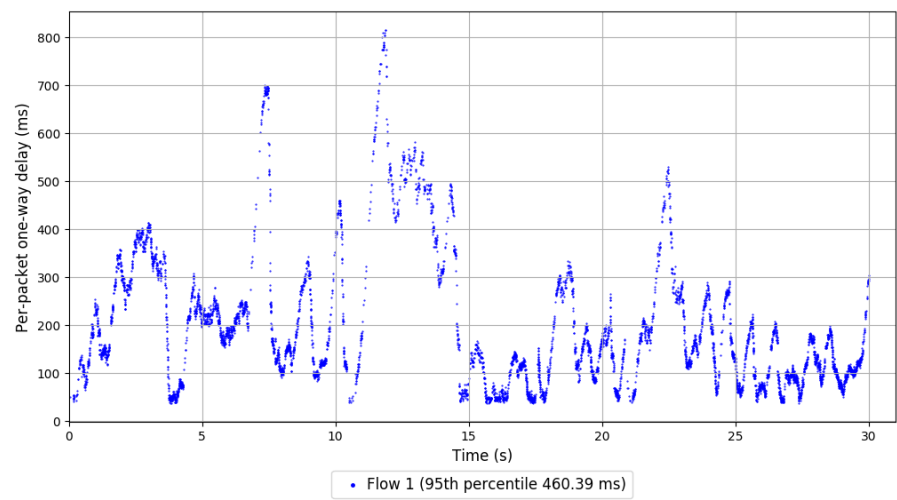
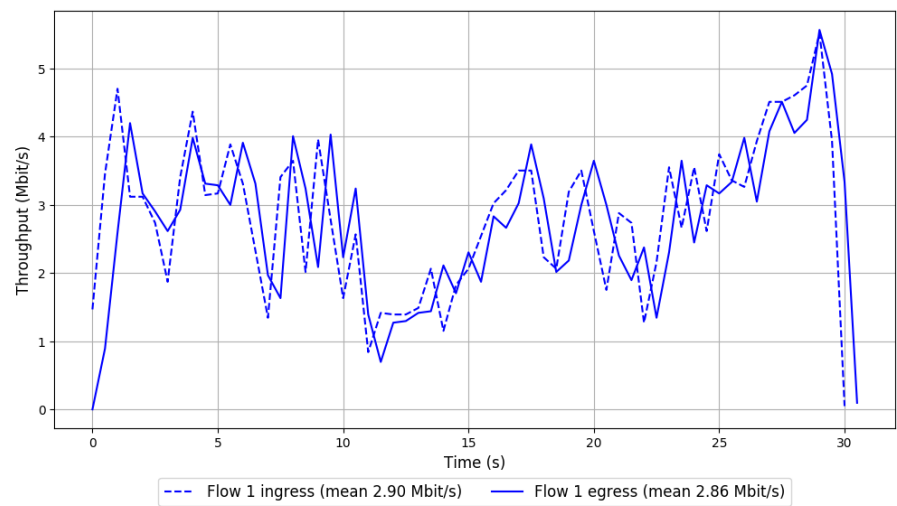
-- Flow 1:

Average throughput: 2.86 Mbit/s

95th percentile per-packet one-way delay: 460.389 ms

Loss rate: 1.46%

Run 3: Report of TCP BBR — Data Link

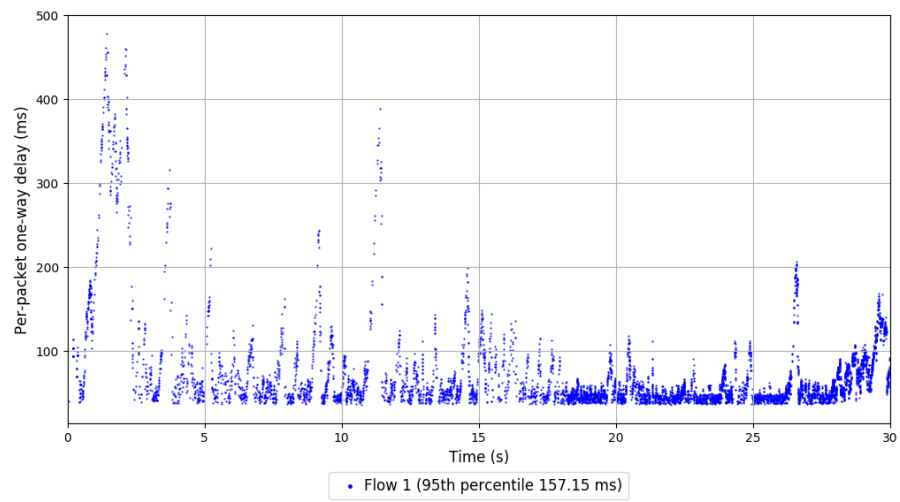
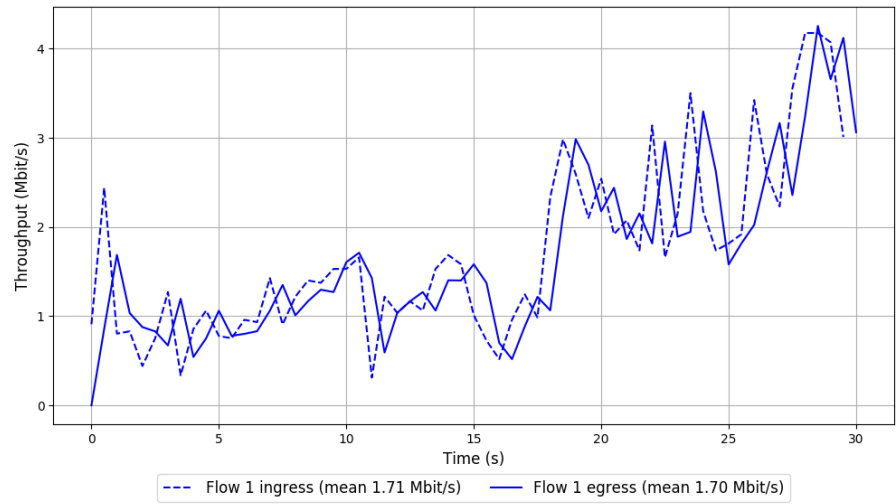


Run 1: Statistics of Copa

Start at: 2018-06-18 07:39:00
End at: 2018-06-18 07:39:30
Local clock offset: 10.266 ms
Remote clock offset: -4.023 ms

Below is generated by plot.py at 2018-06-18 08:29:54
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.70 Mbit/s
95th percentile per-packet one-way delay: 157.152 ms
Loss rate: 0.84%
-- Flow 1:
Average throughput: 1.70 Mbit/s
95th percentile per-packet one-way delay: 157.152 ms
Loss rate: 0.84%

Run 1: Report of Copa — Data Link

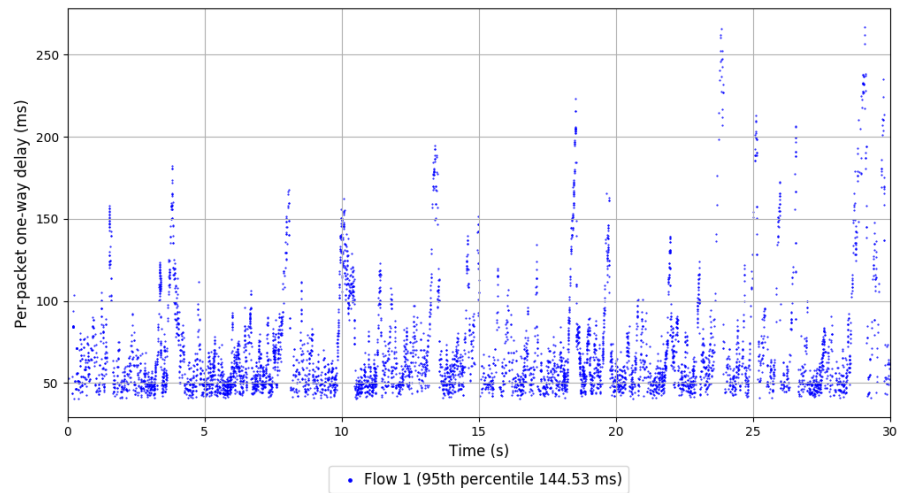
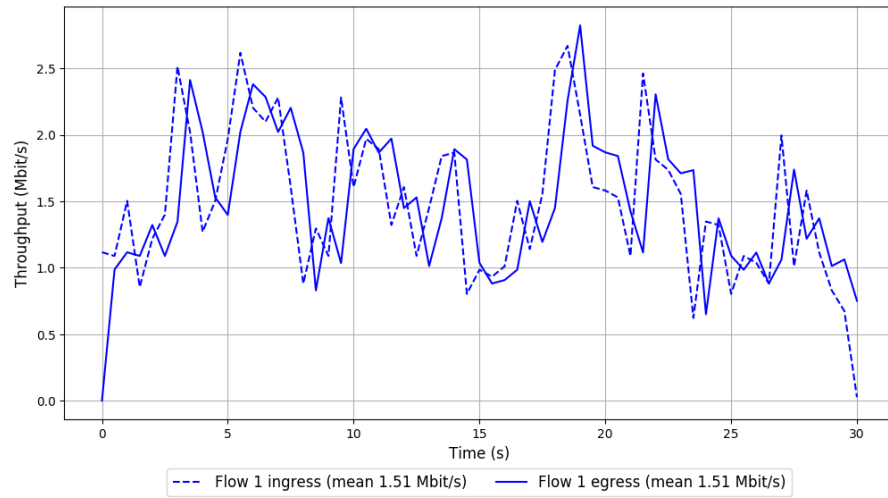


Run 2: Statistics of Copa

Start at: 2018-06-18 07:56:14
End at: 2018-06-18 07:56:44
Local clock offset: 14.039 ms
Remote clock offset: -4.377 ms

Below is generated by plot.py at 2018-06-18 08:29:54
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.51 Mbit/s
95th percentile per-packet one-way delay: 144.531 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 1.51 Mbit/s
95th percentile per-packet one-way delay: 144.531 ms
Loss rate: 0.17%

Run 2: Report of Copa — Data Link

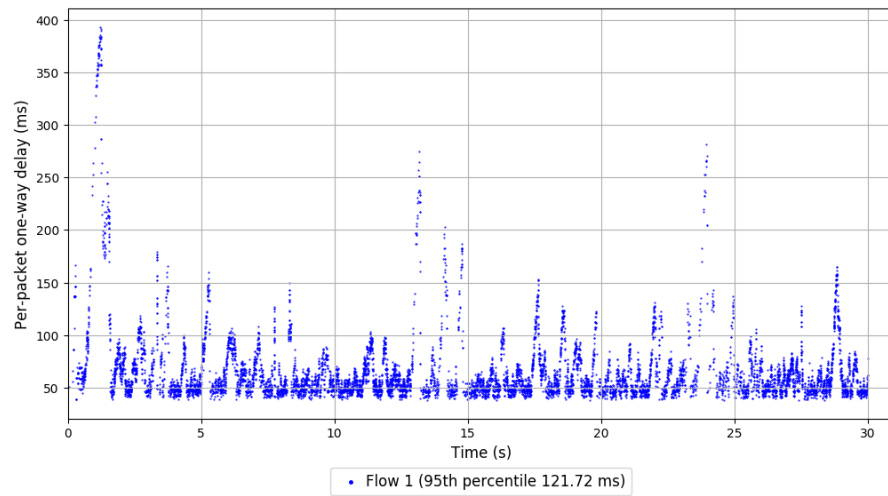
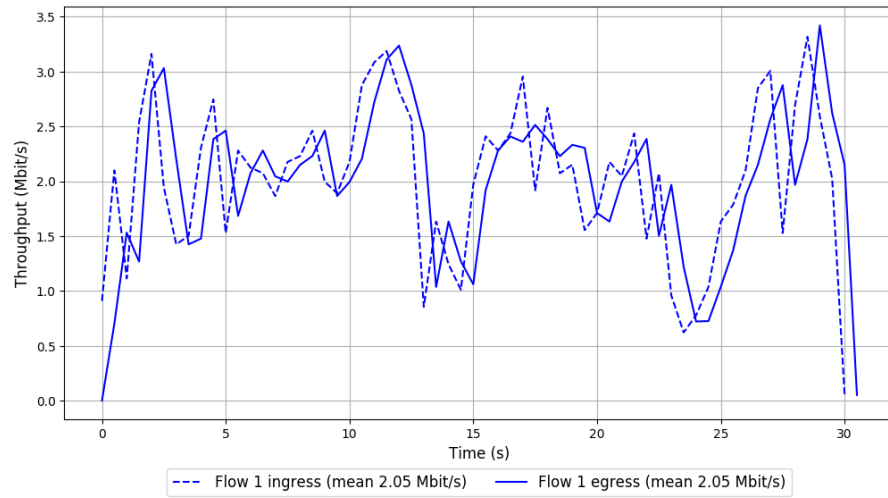


Run 3: Statistics of Copa

Start at: 2018-06-18 08:13:41
End at: 2018-06-18 08:14:11
Local clock offset: 5.39 ms
Remote clock offset: -2.396 ms

Below is generated by plot.py at 2018-06-18 08:29:55
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.05 Mbit/s
95th percentile per-packet one-way delay: 121.718 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 2.05 Mbit/s
95th percentile per-packet one-way delay: 121.718 ms
Loss rate: 0.19%

Run 3: Report of Copa — Data Link

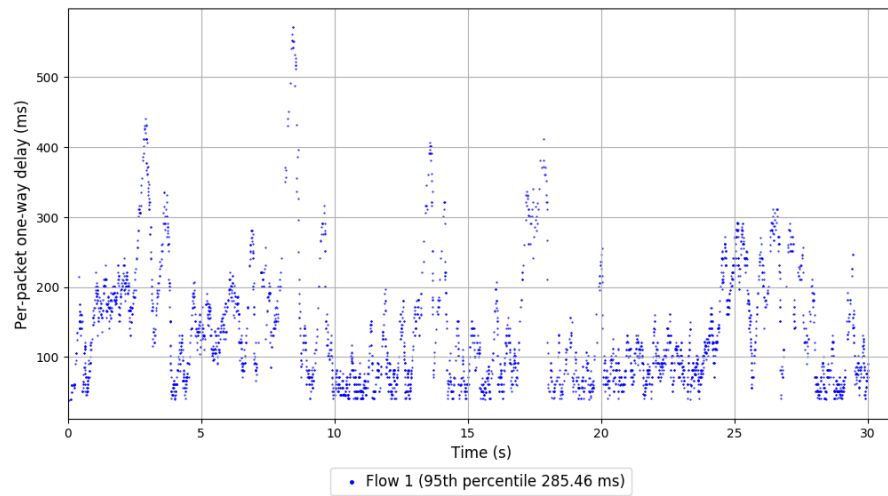
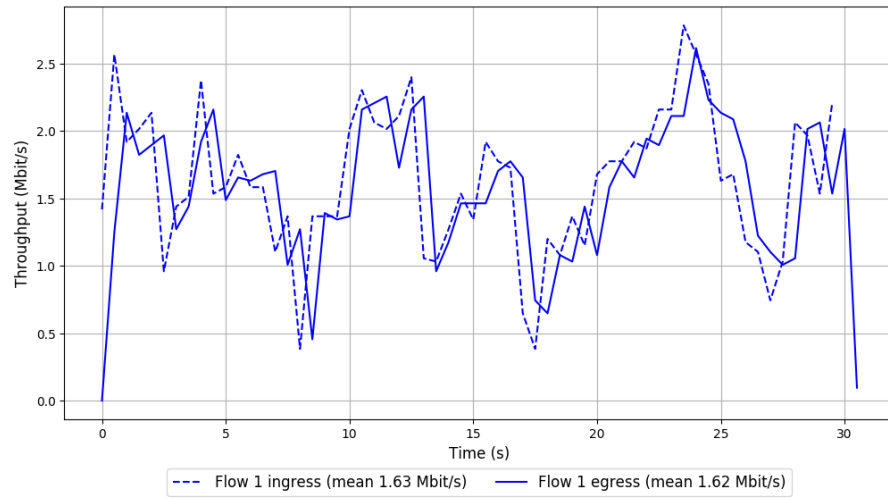


Run 1: Statistics of TCP Cubic

Start at: 2018-06-18 07:44:23
End at: 2018-06-18 07:44:53
Local clock offset: 13.319 ms
Remote clock offset: -2.798 ms

Below is generated by plot.py at 2018-06-18 08:29:55
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.62 Mbit/s
95th percentile per-packet one-way delay: 285.463 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 1.62 Mbit/s
95th percentile per-packet one-way delay: 285.463 ms
Loss rate: 0.66%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2018-06-18 08:01:42

End at: 2018-06-18 08:02:12

Local clock offset: 16.428 ms

Remote clock offset: -3.96 ms

Below is generated by plot.py at 2018-06-18 08:29:55

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.90 Mbit/s

95th percentile per-packet one-way delay: 387.500 ms

Loss rate: 0.94%

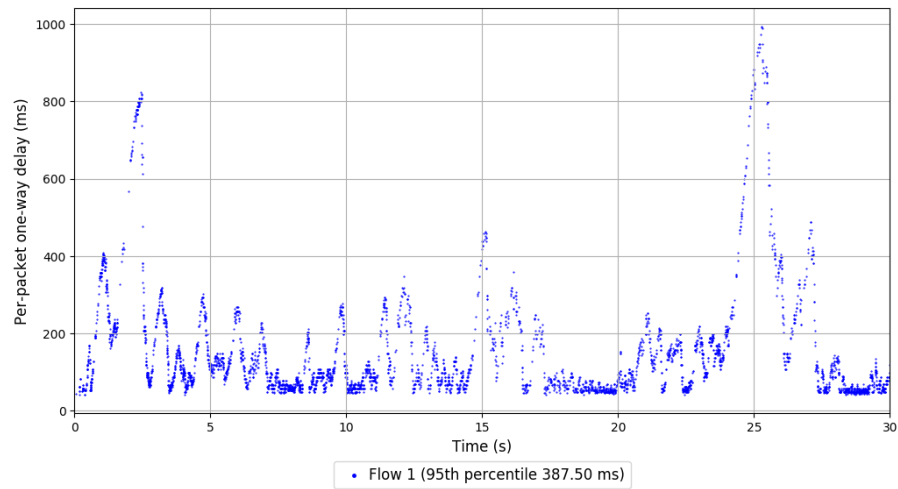
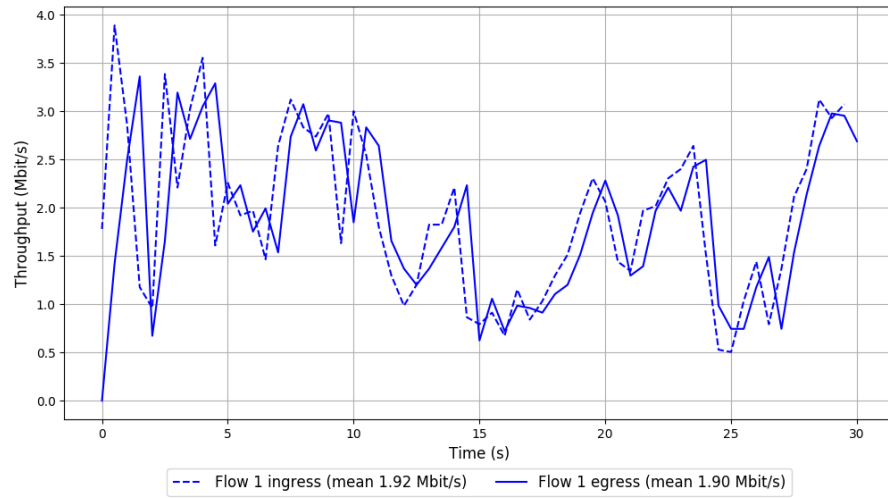
-- Flow 1:

Average throughput: 1.90 Mbit/s

95th percentile per-packet one-way delay: 387.500 ms

Loss rate: 0.94%

Run 2: Report of TCP Cubic — Data Link

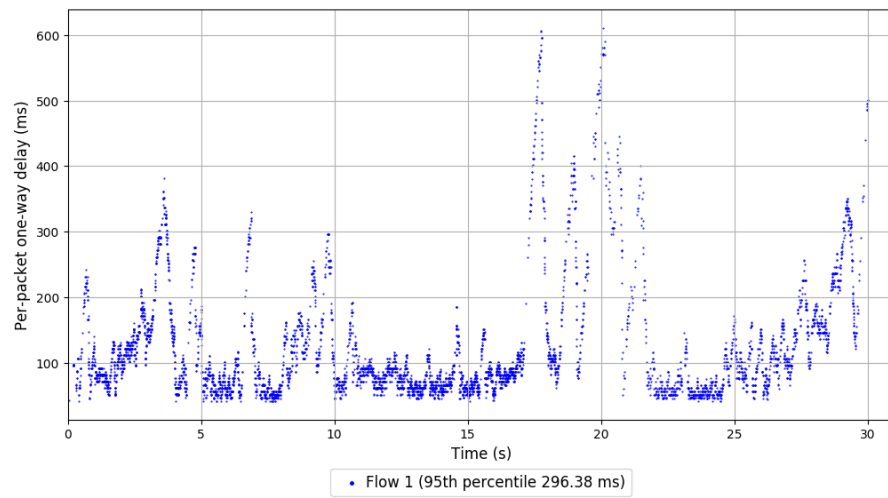
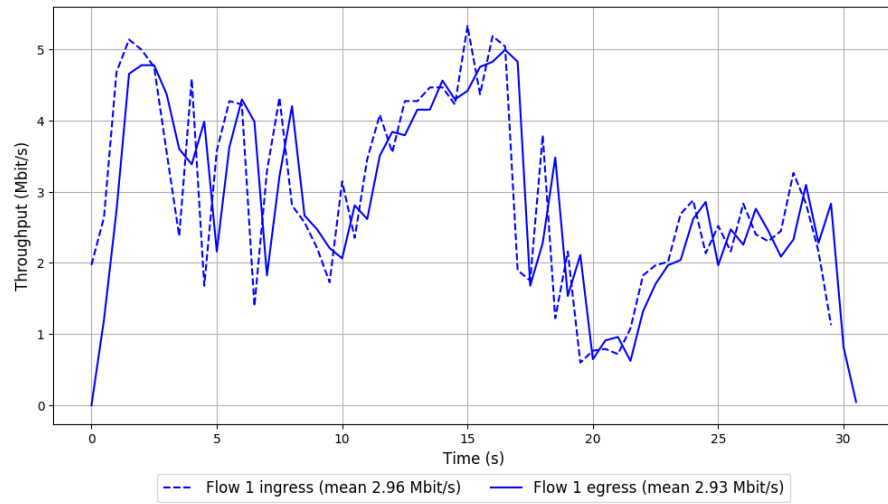


Run 3: Statistics of TCP Cubic

Start at: 2018-06-18 08:19:20
End at: 2018-06-18 08:19:50
Local clock offset: -0.133 ms
Remote clock offset: -3.227 ms

Below is generated by plot.py at 2018-06-18 08:29:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.93 Mbit/s
95th percentile per-packet one-way delay: 296.380 ms
Loss rate: 0.81%
-- Flow 1:
Average throughput: 2.93 Mbit/s
95th percentile per-packet one-way delay: 296.380 ms
Loss rate: 0.81%

Run 3: Report of TCP Cubic — Data Link

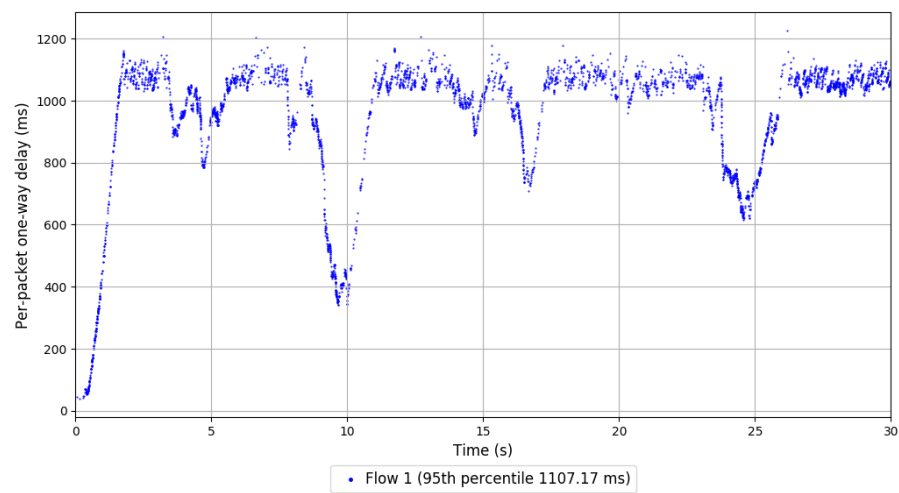
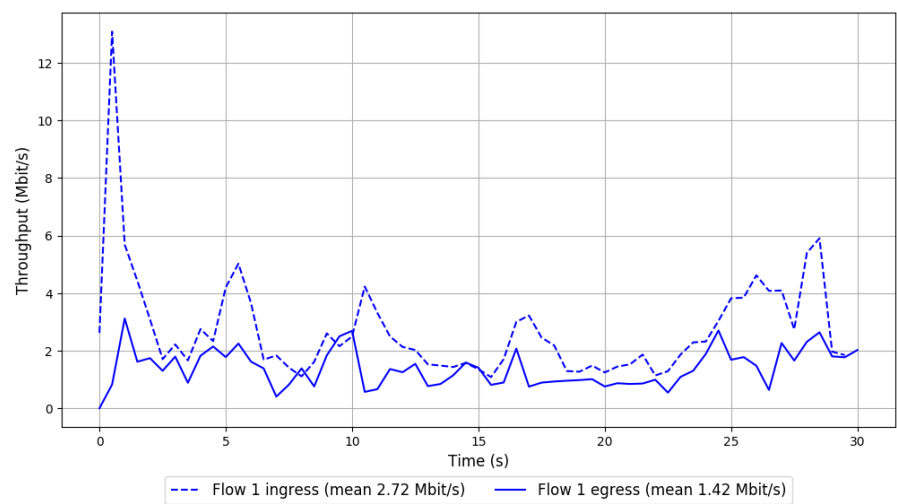


Run 1: Statistics of FillP

Start at: 2018-06-18 07:42:14
End at: 2018-06-18 07:42:44
Local clock offset: 11.956 ms
Remote clock offset: -2.935 ms

Below is generated by plot.py at 2018-06-18 08:29:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.42 Mbit/s
95th percentile per-packet one-way delay: 1107.171 ms
Loss rate: 47.85%
-- Flow 1:
Average throughput: 1.42 Mbit/s
95th percentile per-packet one-way delay: 1107.171 ms
Loss rate: 47.85%

Run 1: Report of FillP — Data Link



Run 2: Statistics of FillP

Start at: 2018-06-18 07:59:32

End at: 2018-06-18 08:00:02

Local clock offset: 19.204 ms

Remote clock offset: -2.84 ms

Below is generated by plot.py at 2018-06-18 08:29:58

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.01 Mbit/s

95th percentile per-packet one-way delay: 1108.505 ms

Loss rate: 68.37%

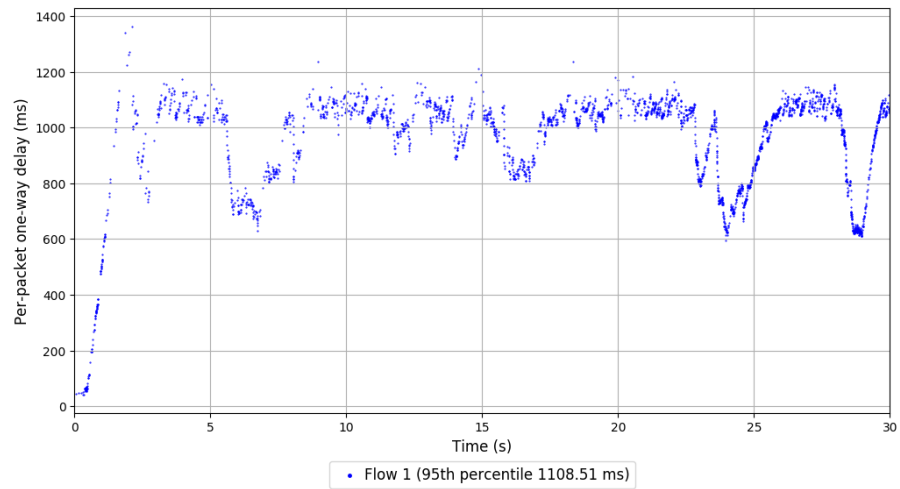
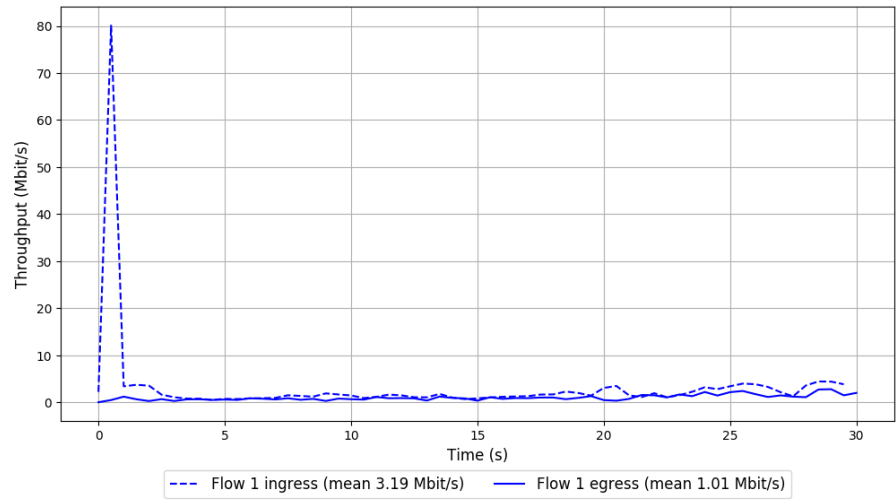
-- Flow 1:

Average throughput: 1.01 Mbit/s

95th percentile per-packet one-way delay: 1108.505 ms

Loss rate: 68.37%

Run 2: Report of FillP — Data Link

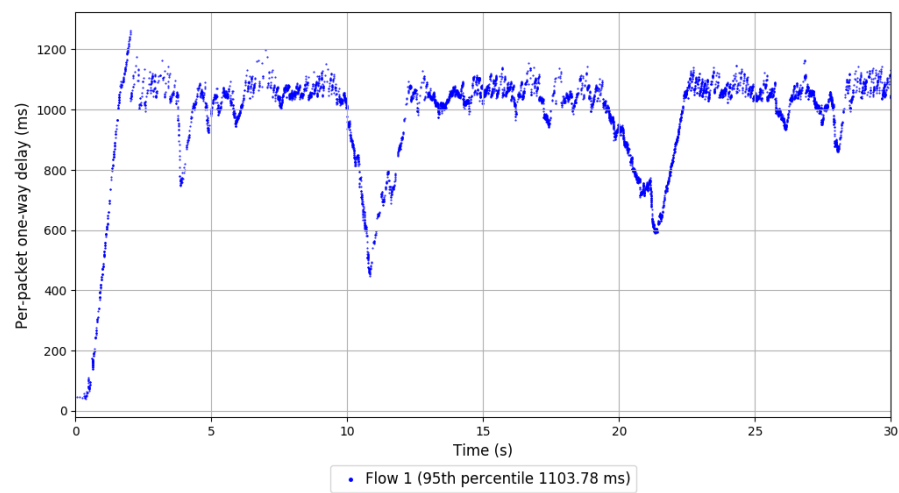
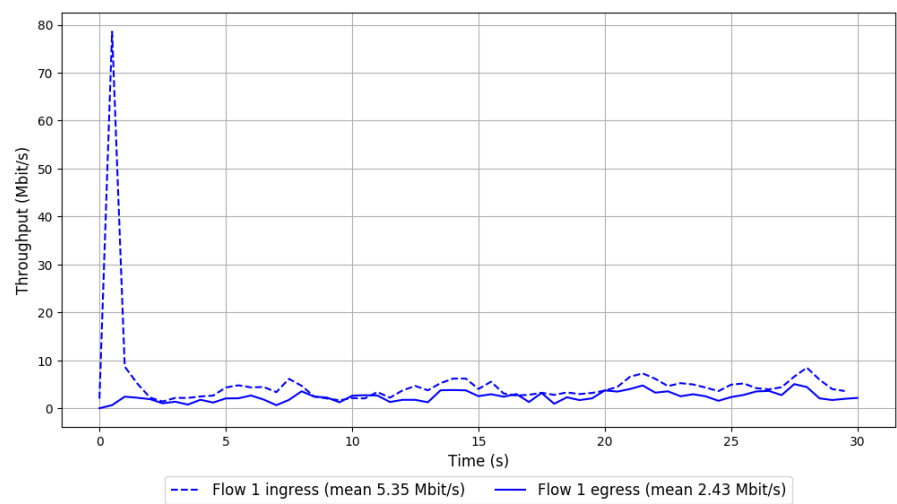


Run 3: Statistics of FillP

Start at: 2018-06-18 08:16:55
End at: 2018-06-18 08:17:25
Local clock offset: 0.619 ms
Remote clock offset: -4.515 ms

Below is generated by plot.py at 2018-06-18 08:30:01
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.43 Mbit/s
95th percentile per-packet one-way delay: 1103.779 ms
Loss rate: 54.56%
-- Flow 1:
Average throughput: 2.43 Mbit/s
95th percentile per-packet one-way delay: 1103.779 ms
Loss rate: 54.56%

Run 3: Report of FillP — Data Link

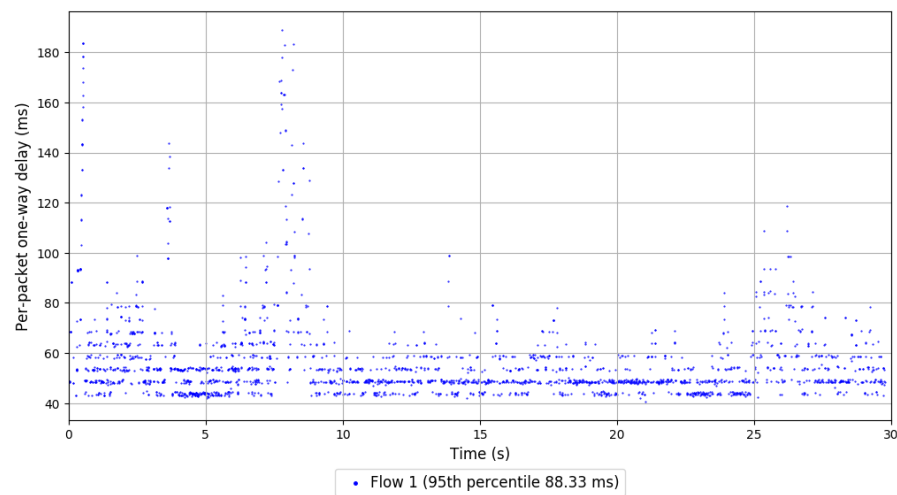
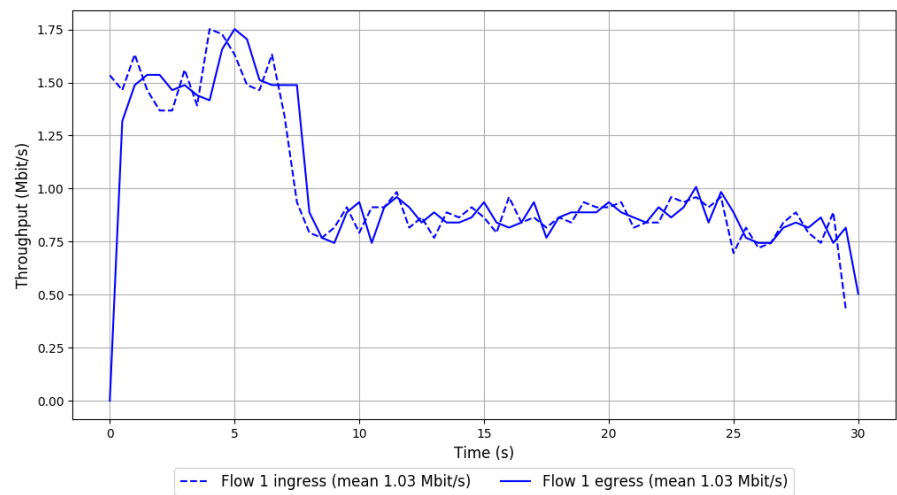


Run 1: Statistics of Indigo

Start at: 2018-06-18 07:49:46
End at: 2018-06-18 07:50:16
Local clock offset: 13.514 ms
Remote clock offset: -3.107 ms

Below is generated by plot.py at 2018-06-18 08:30:01
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.03 Mbit/s
95th percentile per-packet one-way delay: 88.330 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 1.03 Mbit/s
95th percentile per-packet one-way delay: 88.330 ms
Loss rate: 0.04%

Run 1: Report of Indigo — Data Link

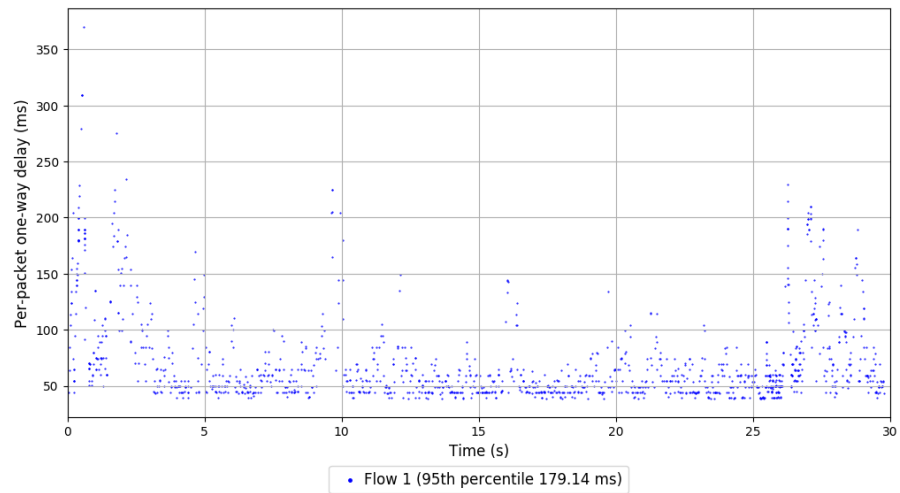
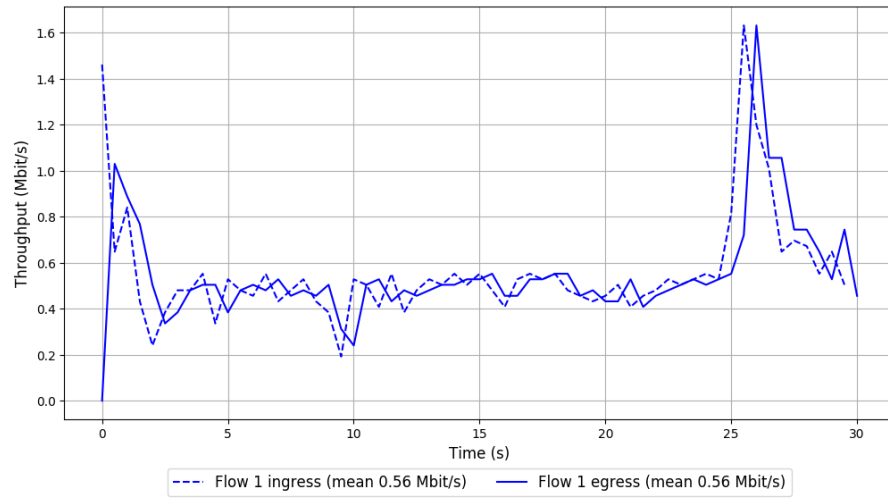


Run 2: Statistics of Indigo

Start at: 2018-06-18 08:07:06
End at: 2018-06-18 08:07:37
Local clock offset: 15.664 ms
Remote clock offset: -3.279 ms

Below is generated by plot.py at 2018-06-18 08:30:01
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 179.142 ms
Loss rate: 0.43%
-- Flow 1:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 179.142 ms
Loss rate: 0.43%

Run 2: Report of Indigo — Data Link

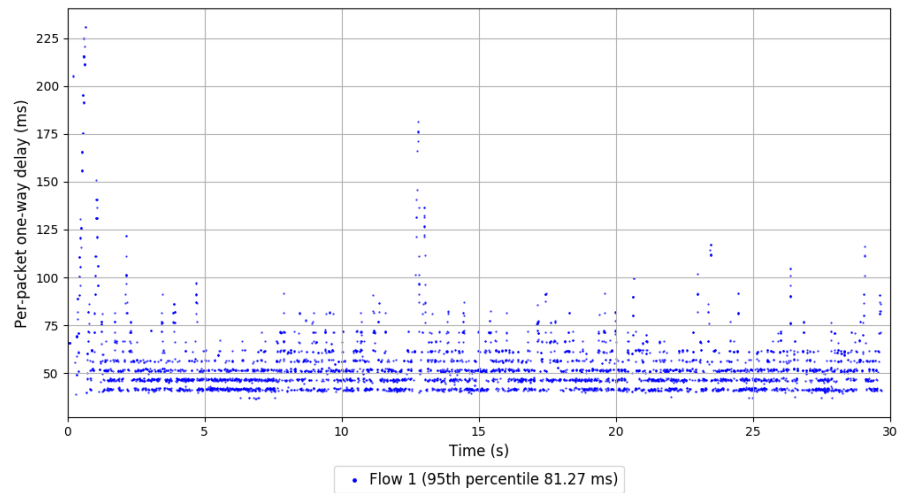
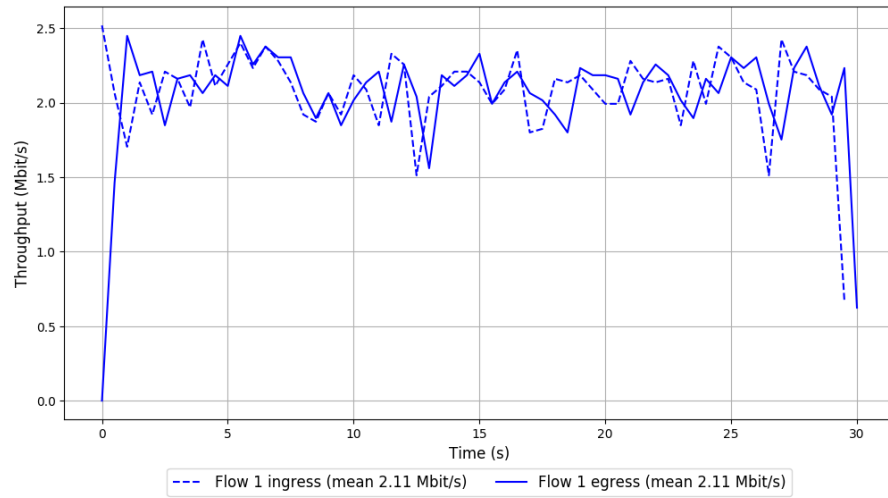


Run 3: Statistics of Indigo

Start at: 2018-06-18 08:24:52
End at: 2018-06-18 08:25:22
Local clock offset: -0.714 ms
Remote clock offset: -2.615 ms

Below is generated by plot.py at 2018-06-18 08:30:01
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.11 Mbit/s
95th percentile per-packet one-way delay: 81.271 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 2.11 Mbit/s
95th percentile per-packet one-way delay: 81.271 ms
Loss rate: 0.13%

Run 3: Report of Indigo — Data Link

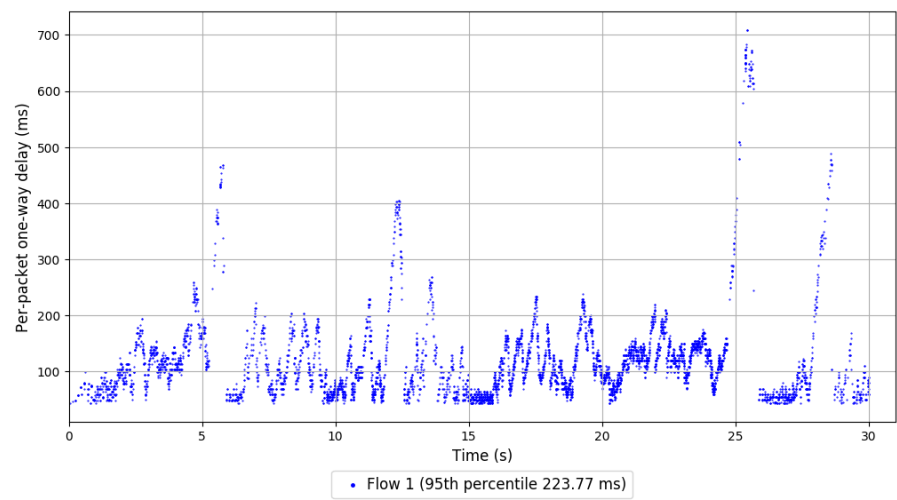
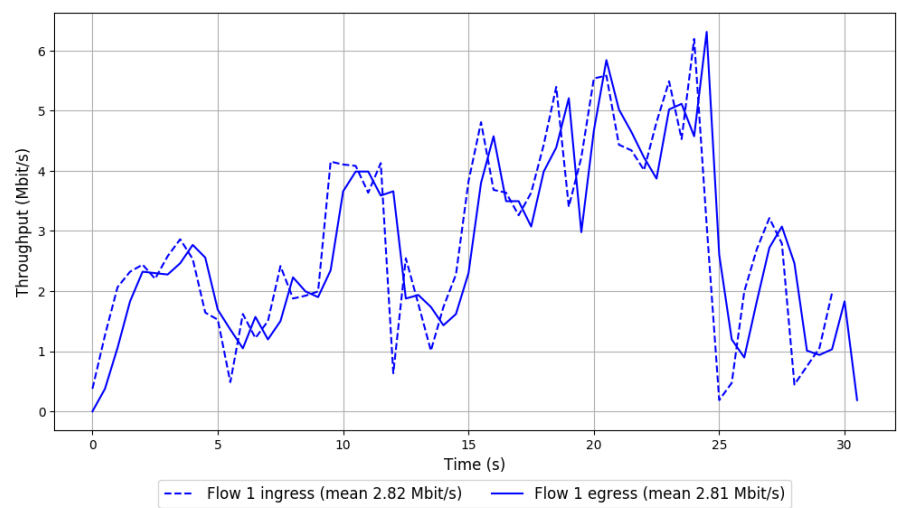


```
Run 1: Statistics of LEDBAT

Start at: 2018-06-18 07:48:42
End at: 2018-06-18 07:49:12
Local clock offset: 13.578 ms
Remote clock offset: -2.913 ms

# Below is generated by plot.py at 2018-06-18 08:30:02
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.81 Mbit/s
95th percentile per-packet one-way delay: 223.772 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 2.81 Mbit/s
95th percentile per-packet one-way delay: 223.772 ms
Loss rate: 0.13%
```

Run 1: Report of LEDBAT — Data Link

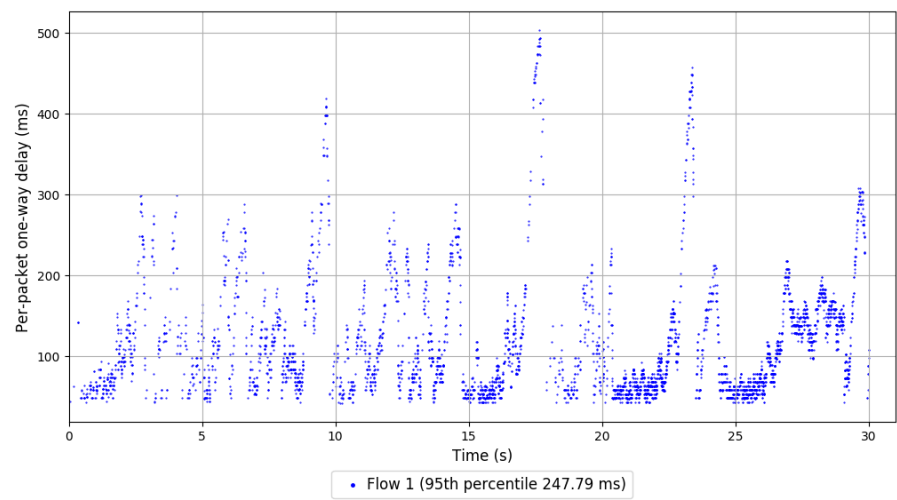
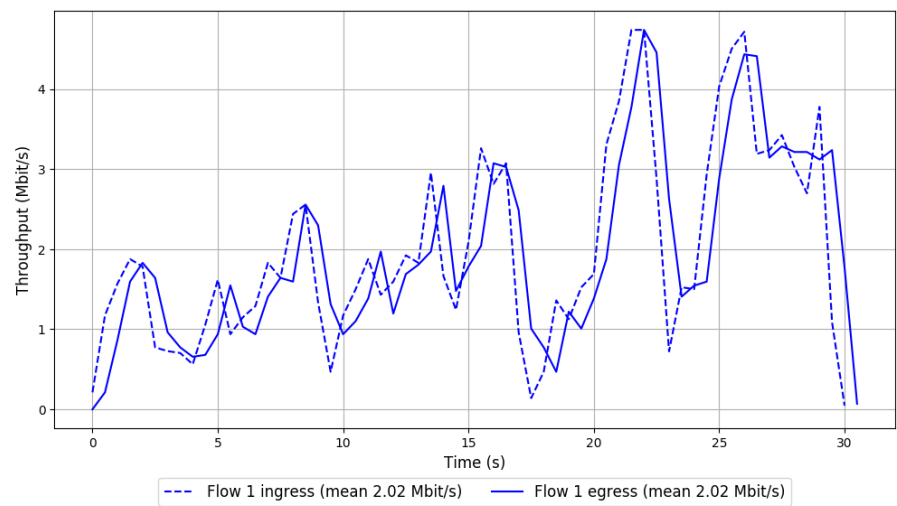


Run 2: Statistics of LEDBAT

Start at: 2018-06-18 08:06:01
End at: 2018-06-18 08:06:31
Local clock offset: 12.388 ms
Remote clock offset: -4.724 ms

Below is generated by plot.py at 2018-06-18 08:30:02
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.02 Mbit/s
95th percentile per-packet one-way delay: 247.787 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 2.02 Mbit/s
95th percentile per-packet one-way delay: 247.787 ms
Loss rate: 0.44%

Run 2: Report of LEDBAT — Data Link

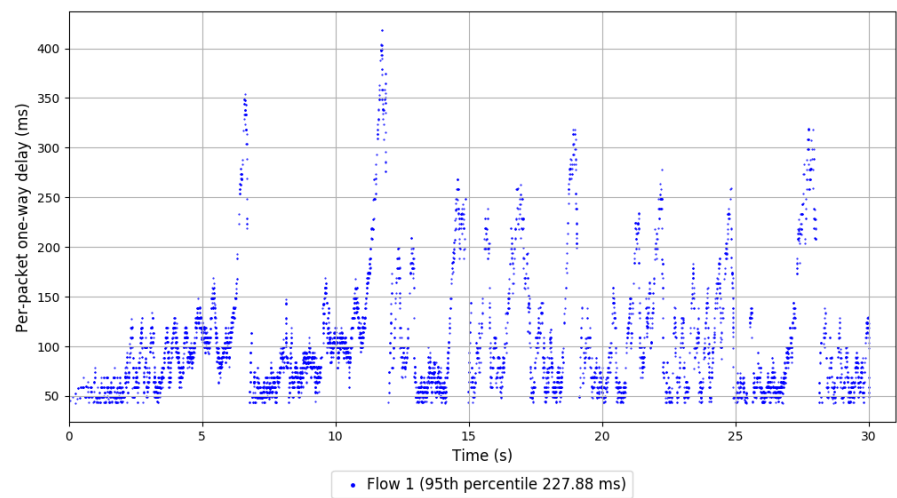
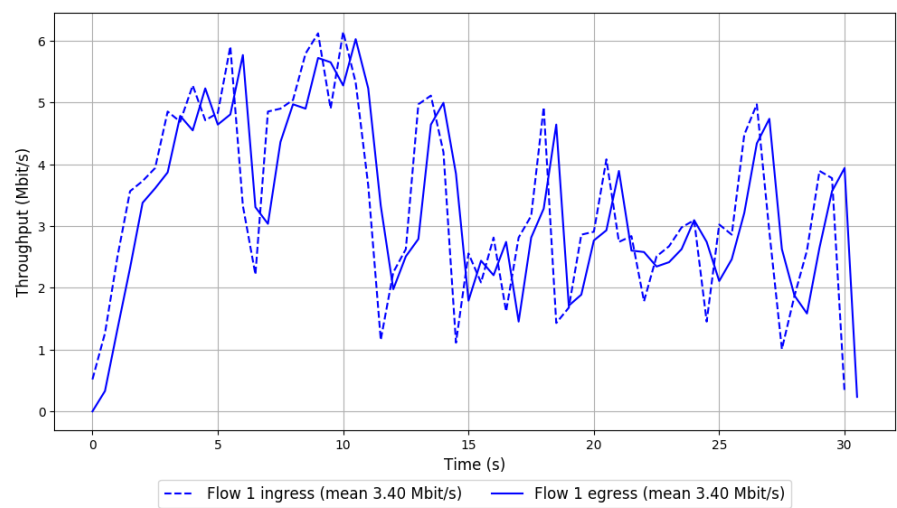


Run 3: Statistics of LEDBAT

Start at: 2018-06-18 08:23:46
End at: 2018-06-18 08:24:16
Local clock offset: -2.856 ms
Remote clock offset: -2.849 ms

Below is generated by plot.py at 2018-06-18 08:30:05
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.40 Mbit/s
95th percentile per-packet one-way delay: 227.875 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 3.40 Mbit/s
95th percentile per-packet one-way delay: 227.875 ms
Loss rate: 0.34%

Run 3: Report of LEDBAT — Data Link



Run 1: Statistics of PCC-Allegro

Start at: 2018-06-18 07:37:55

End at: 2018-06-18 07:38:25

Local clock offset: 12.715 ms

Remote clock offset: -5.279 ms

Below is generated by plot.py at 2018-06-18 08:30:05

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.39 Mbit/s

95th percentile per-packet one-way delay: 1098.071 ms

Loss rate: 34.29%

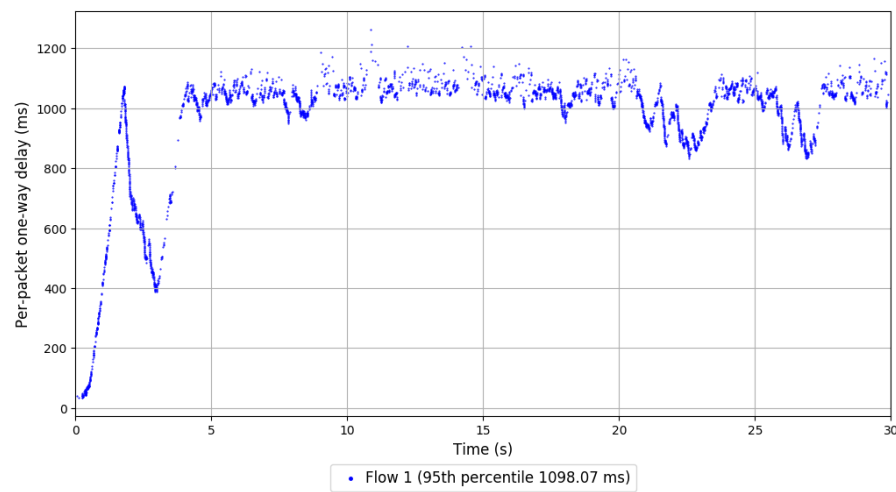
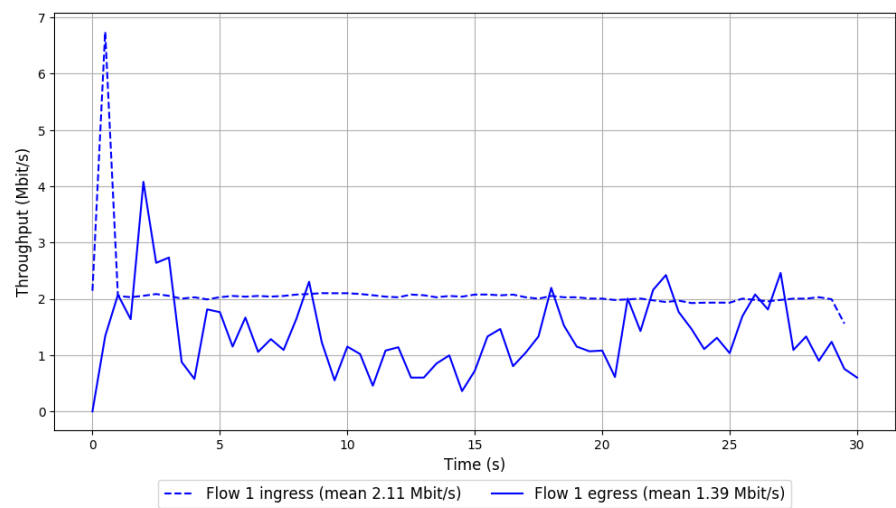
-- Flow 1:

Average throughput: 1.39 Mbit/s

95th percentile per-packet one-way delay: 1098.071 ms

Loss rate: 34.29%

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-06-18 07:55:10

End at: 2018-06-18 07:55:40

Local clock offset: 15.634 ms

Remote clock offset: -4.54 ms

Below is generated by plot.py at 2018-06-18 08:30:05

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.45 Mbit/s

95th percentile per-packet one-way delay: 1096.986 ms

Loss rate: 40.91%

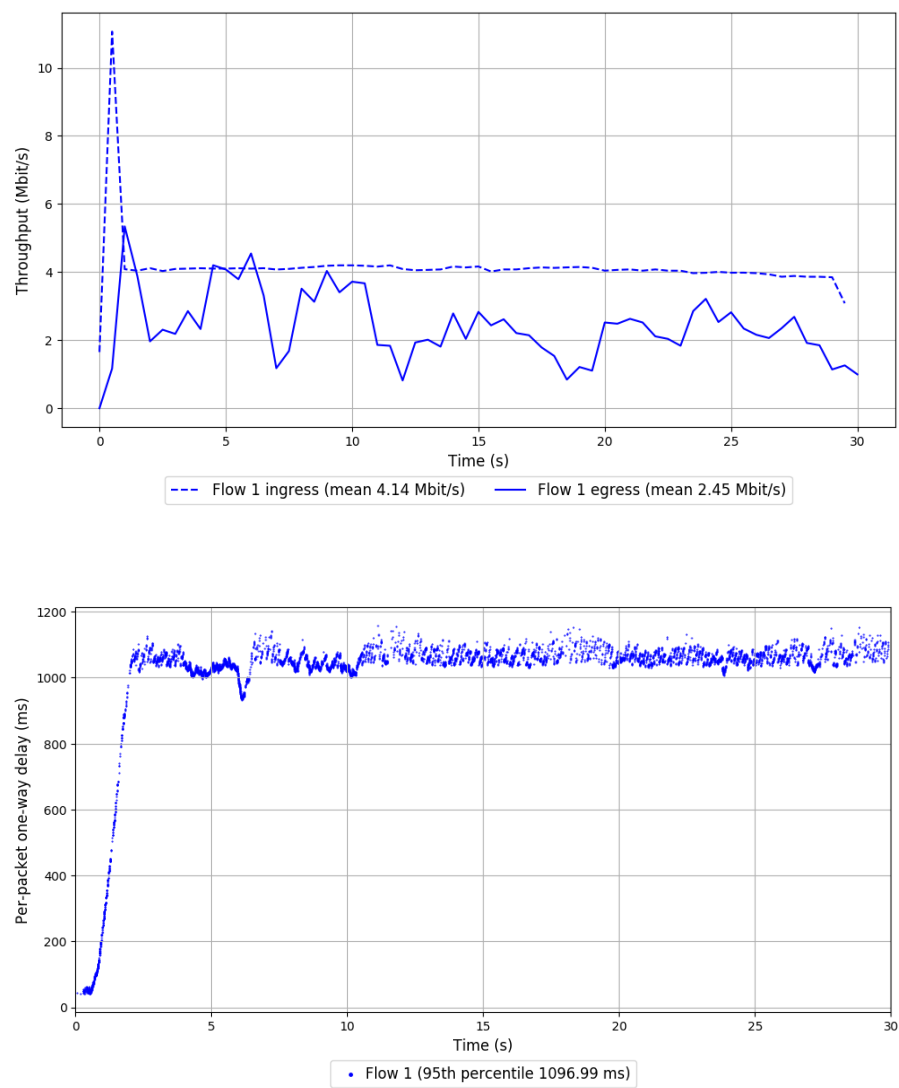
-- Flow 1:

Average throughput: 2.45 Mbit/s

95th percentile per-packet one-way delay: 1096.986 ms

Loss rate: 40.91%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-06-18 08:12:37

End at: 2018-06-18 08:13:07

Local clock offset: 4.154 ms

Remote clock offset: -1.918 ms

Below is generated by plot.py at 2018-06-18 08:30:05

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.95 Mbit/s

95th percentile per-packet one-way delay: 1131.156 ms

Loss rate: 63.75%

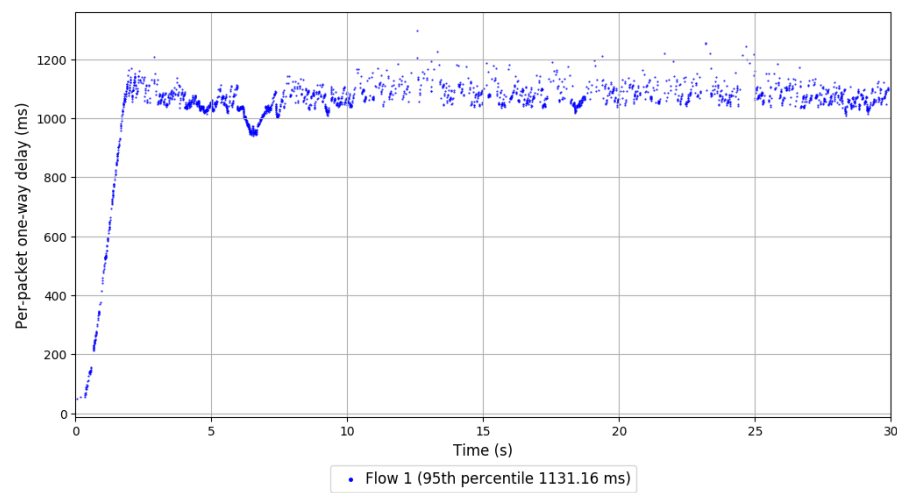
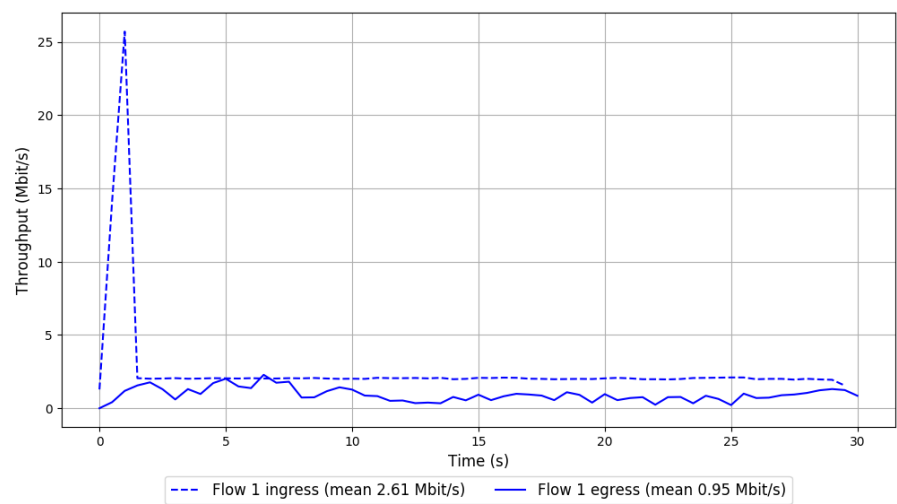
-- Flow 1:

Average throughput: 0.95 Mbit/s

95th percentile per-packet one-way delay: 1131.156 ms

Loss rate: 63.75%

Run 3: Report of PCC-Allegro — Data Link

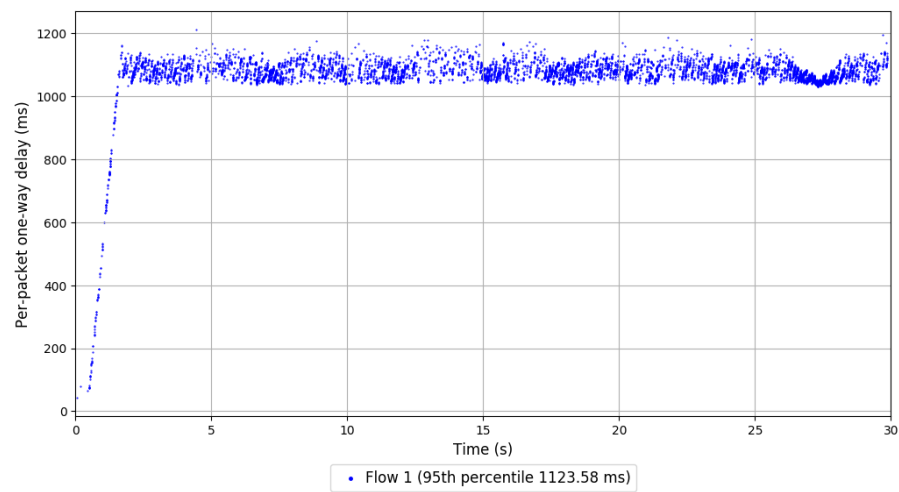
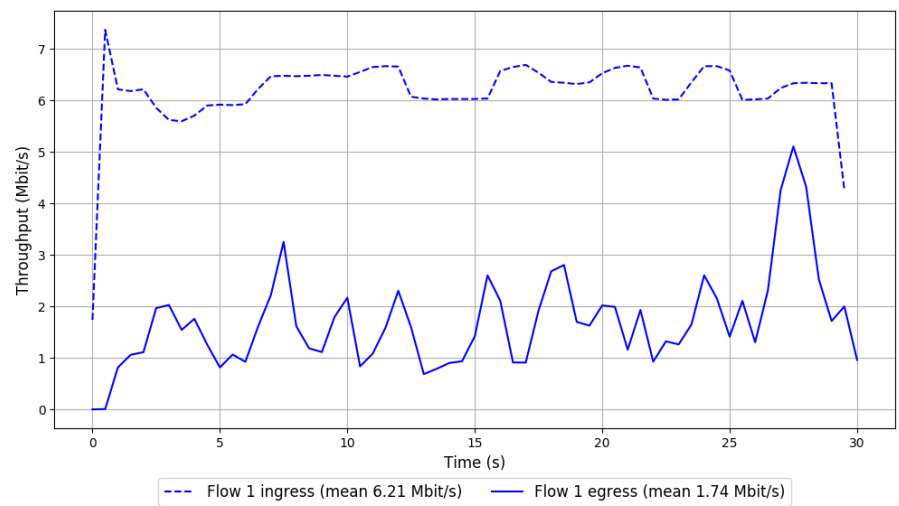


```
Run 1: Statistics of PCC-Expr

Start at: 2018-06-18 07:54:05
End at: 2018-06-18 07:54:35
Local clock offset: 14.61 ms
Remote clock offset: -3.048 ms

# Below is generated by plot.py at 2018-06-18 08:30:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.74 Mbit/s
95th percentile per-packet one-way delay: 1123.578 ms
Loss rate: 72.04%
-- Flow 1:
Average throughput: 1.74 Mbit/s
95th percentile per-packet one-way delay: 1123.578 ms
Loss rate: 72.04%
```

Run 1: Report of PCC-Expr — Data Link

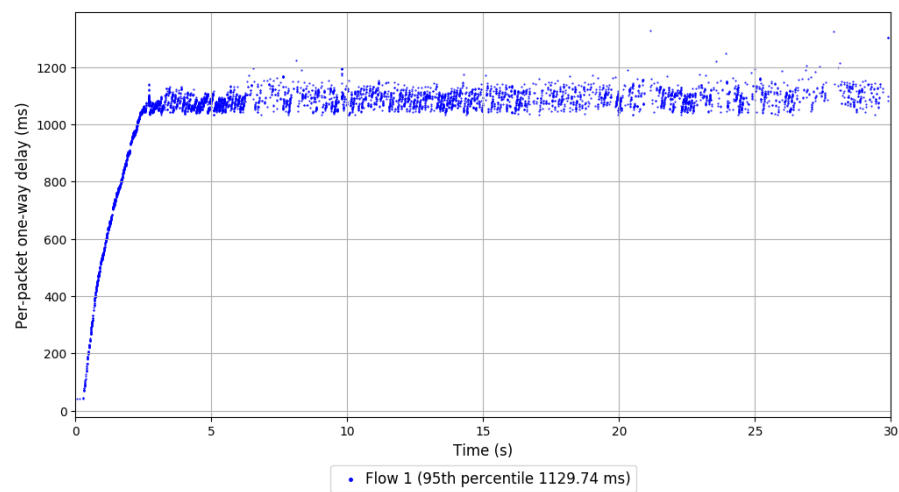
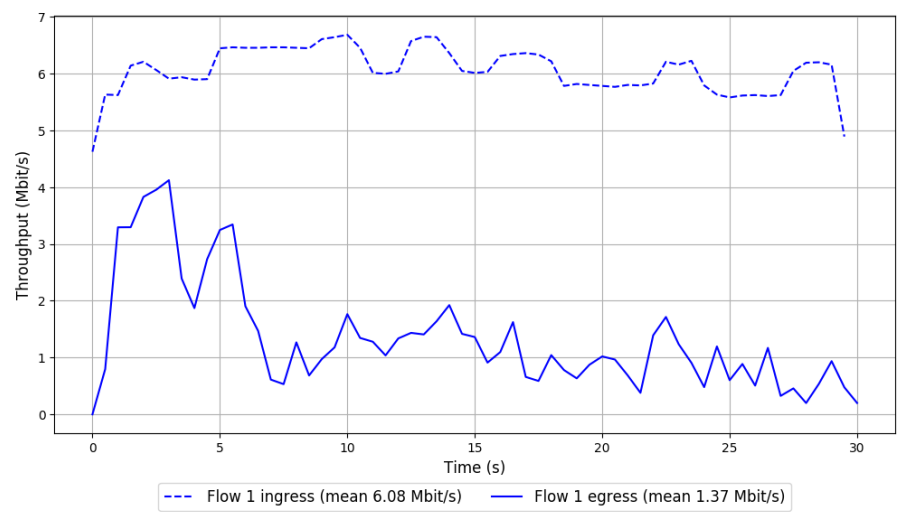


Run 2: Statistics of PCC-Expr

Start at: 2018-06-18 08:11:31
End at: 2018-06-18 08:12:01
Local clock offset: 6.838 ms
Remote clock offset: -3.421 ms

Below is generated by plot.py at 2018-06-18 08:30:13
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.37 Mbit/s
95th percentile per-packet one-way delay: 1129.737 ms
Loss rate: 77.48%
-- Flow 1:
Average throughput: 1.37 Mbit/s
95th percentile per-packet one-way delay: 1129.737 ms
Loss rate: 77.48%

Run 2: Report of PCC-Expr — Data Link

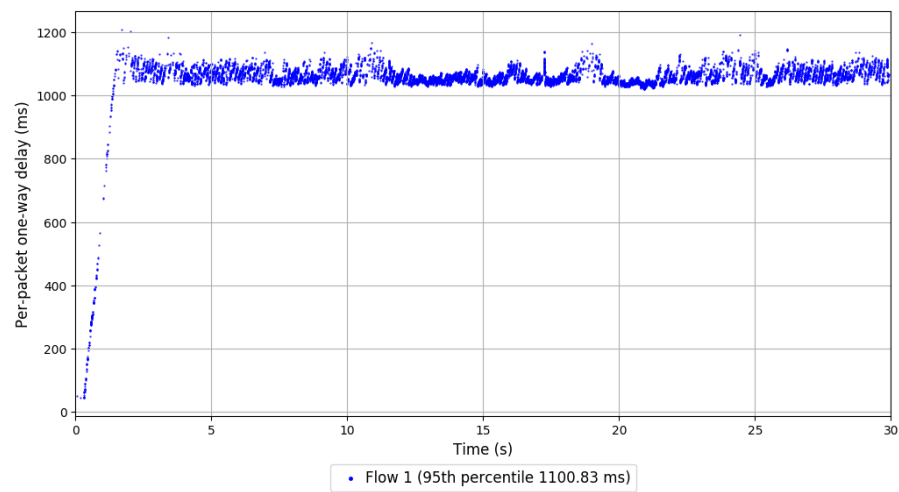
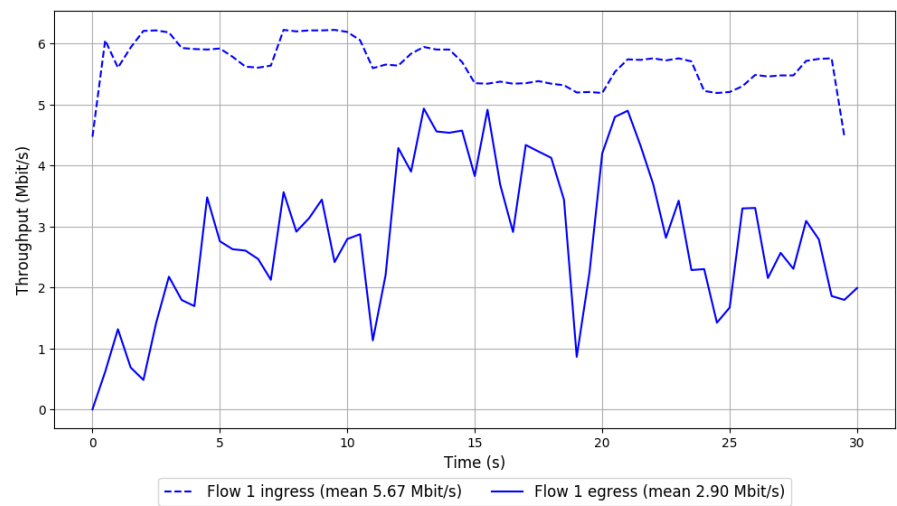


Run 3: Statistics of PCC-Expr

Start at: 2018-06-18 08:29:12
End at: 2018-06-18 08:29:42
Local clock offset: -0.151 ms
Remote clock offset: -2.002 ms

Below is generated by plot.py at 2018-06-18 08:30:16
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.90 Mbit/s
95th percentile per-packet one-way delay: 1100.830 ms
Loss rate: 49.00%
-- Flow 1:
Average throughput: 2.90 Mbit/s
95th percentile per-packet one-way delay: 1100.830 ms
Loss rate: 49.00%

Run 3: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

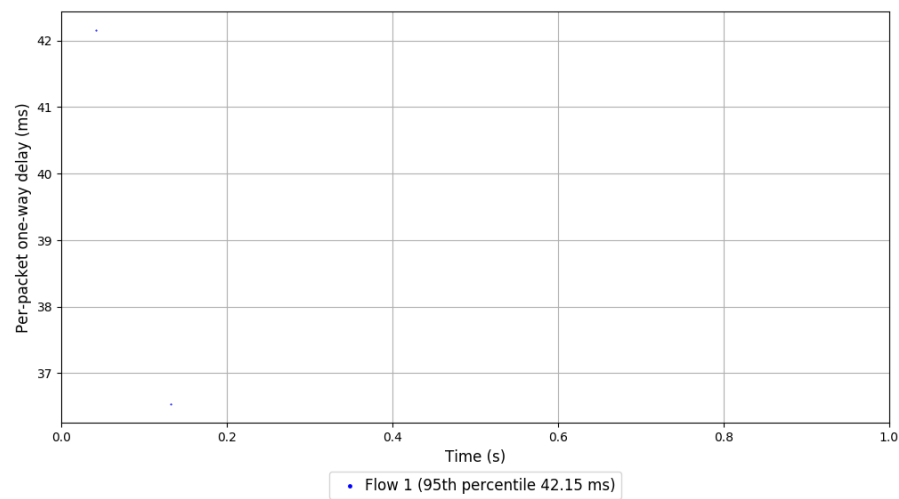
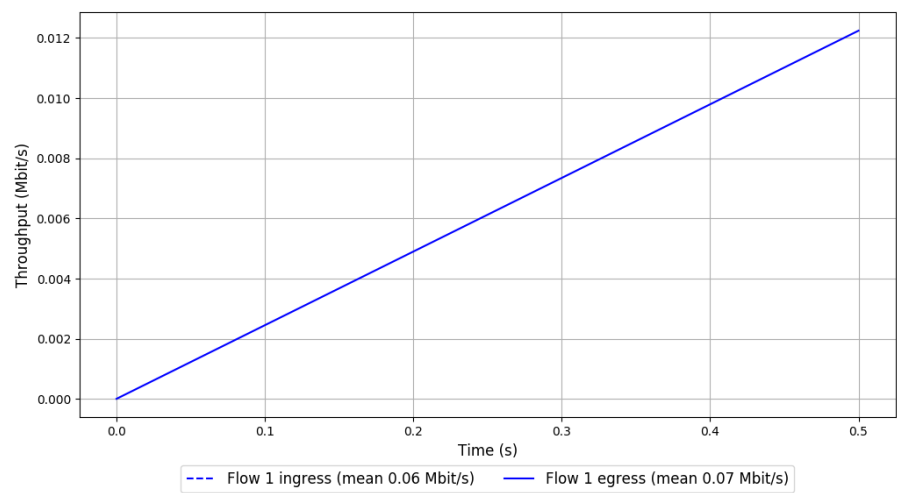
Start at: 2018-06-18 07:43:19

End at: 2018-06-18 07:43:49

Local clock offset: 13.317 ms

Remote clock offset: -3.471 ms

Run 1: Report of QUIC Cubic — Data Link

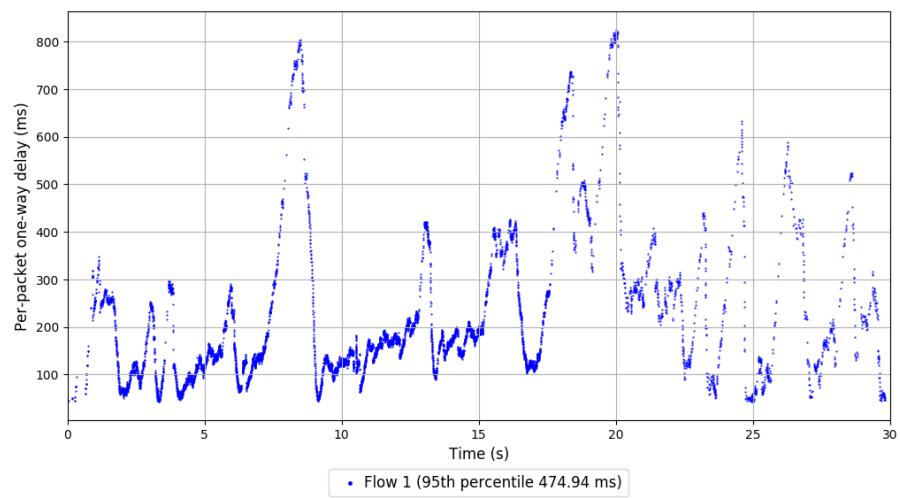
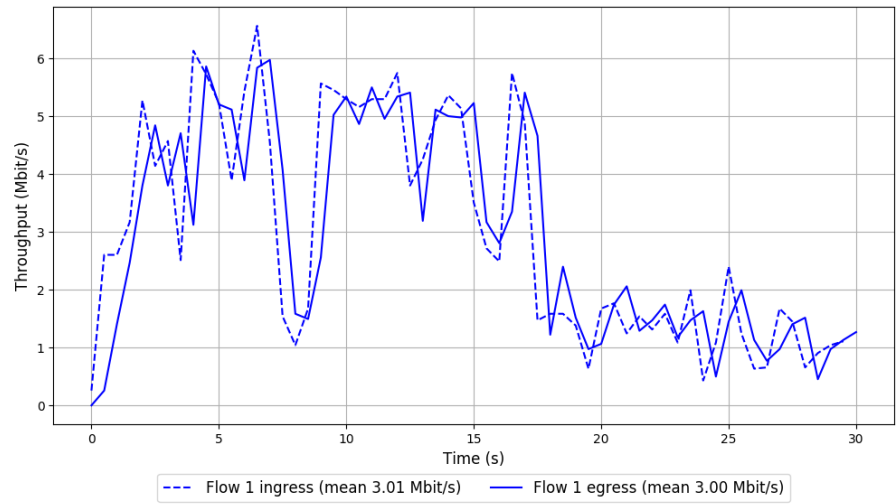


Run 2: Statistics of QUIC Cubic

Start at: 2018-06-18 08:00:37
End at: 2018-06-18 08:01:07
Local clock offset: 15.407 ms
Remote clock offset: -3.395 ms

Below is generated by plot.py at 2018-06-18 08:30:16
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.00 Mbit/s
95th percentile per-packet one-way delay: 474.943 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 3.00 Mbit/s
95th percentile per-packet one-way delay: 474.943 ms
Loss rate: 0.58%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-06-18 08:18:14

End at: 2018-06-18 08:18:44

Local clock offset: 3.105 ms

Remote clock offset: -3.956 ms

Below is generated by plot.py at 2018-06-18 08:30:16

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.83 Mbit/s

95th percentile per-packet one-way delay: 377.818 ms

Loss rate: 1.01%

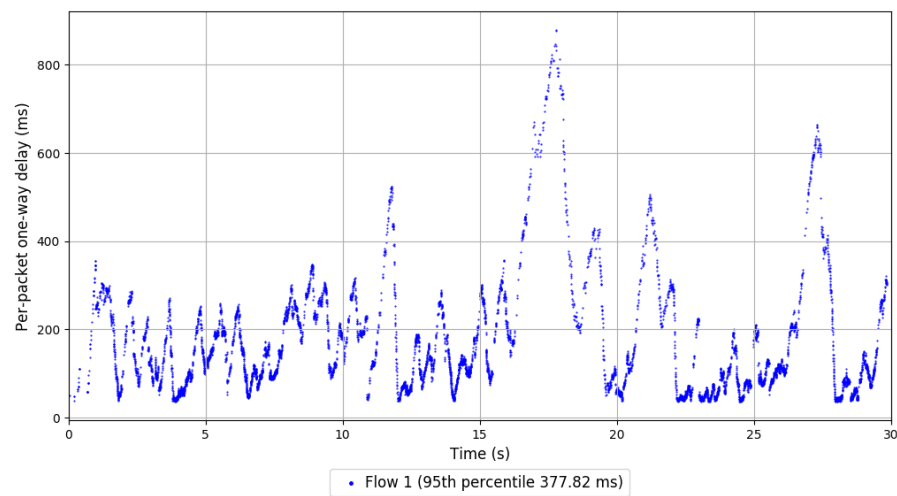
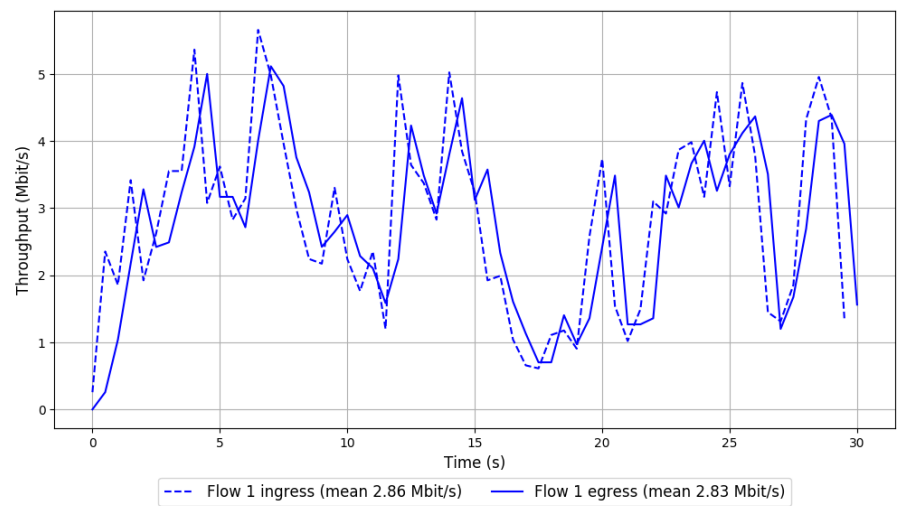
-- Flow 1:

Average throughput: 2.83 Mbit/s

95th percentile per-packet one-way delay: 377.818 ms

Loss rate: 1.01%

Run 3: Report of QUIC Cubic — Data Link



Run 1: Statistics of SCReAM

Start at: 2018-06-18 07:47:37

End at: 2018-06-18 07:48:07

Local clock offset: 15.209 ms

Remote clock offset: -3.65 ms

Below is generated by plot.py at 2018-06-18 08:30:16

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.21 Mbit/s

95th percentile per-packet one-way delay: 55.996 ms

Loss rate: 0.10%

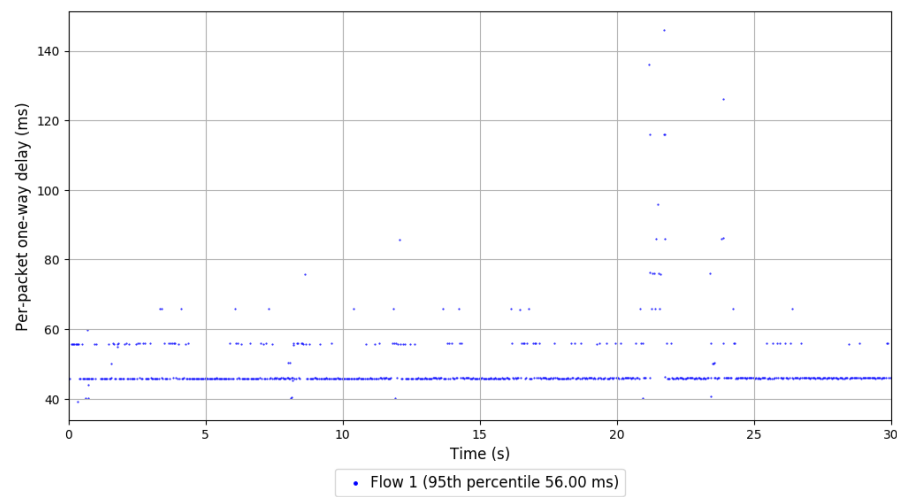
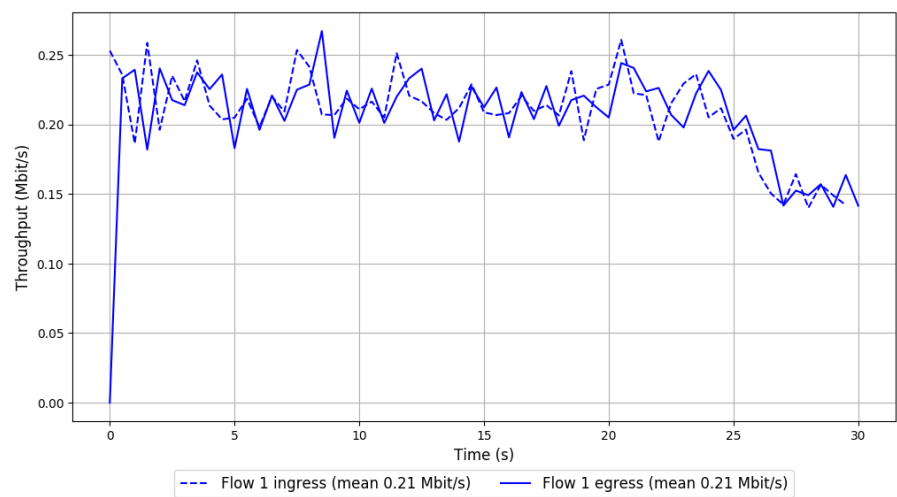
-- Flow 1:

Average throughput: 0.21 Mbit/s

95th percentile per-packet one-way delay: 55.996 ms

Loss rate: 0.10%

Run 1: Report of SReAM — Data Link

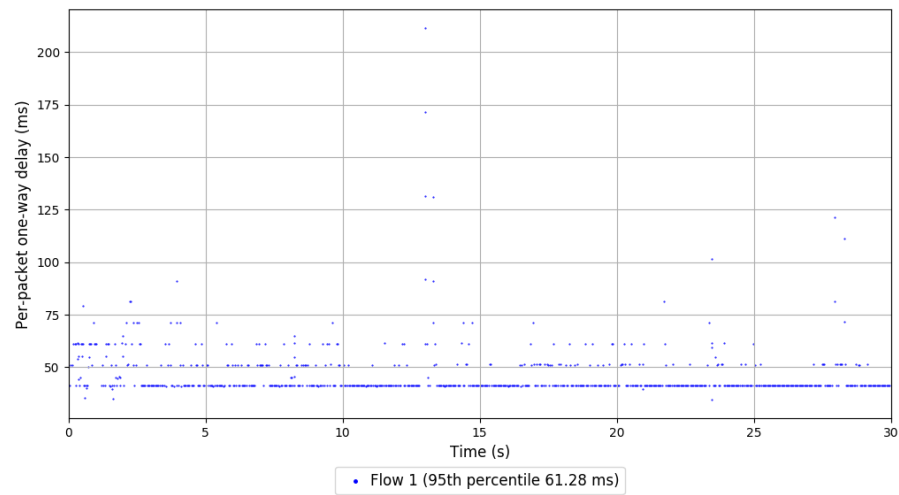
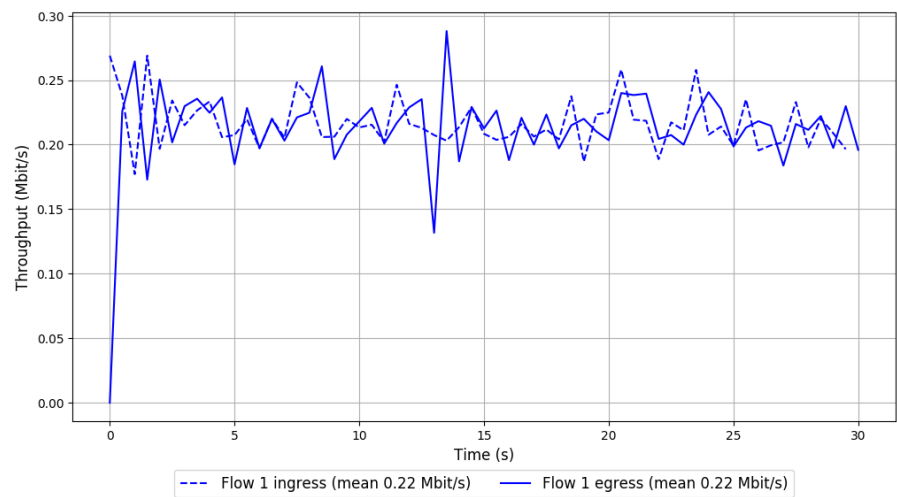


Run 2: Statistics of SCReAM

Start at: 2018-06-18 08:04:57
End at: 2018-06-18 08:05:27
Local clock offset: 17.041 ms
Remote clock offset: -4.997 ms

Below is generated by plot.py at 2018-06-18 08:30:16
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 61.284 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 61.284 ms
Loss rate: 0.13%

Run 2: Report of SReAM — Data Link

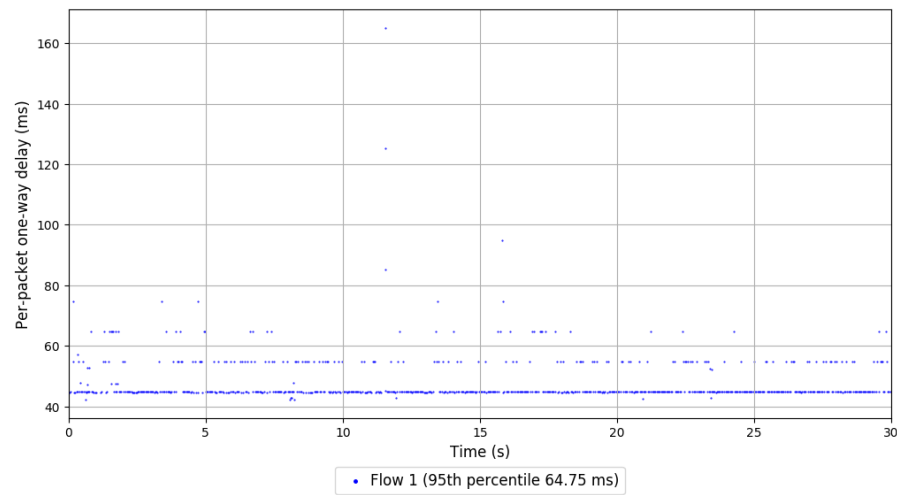
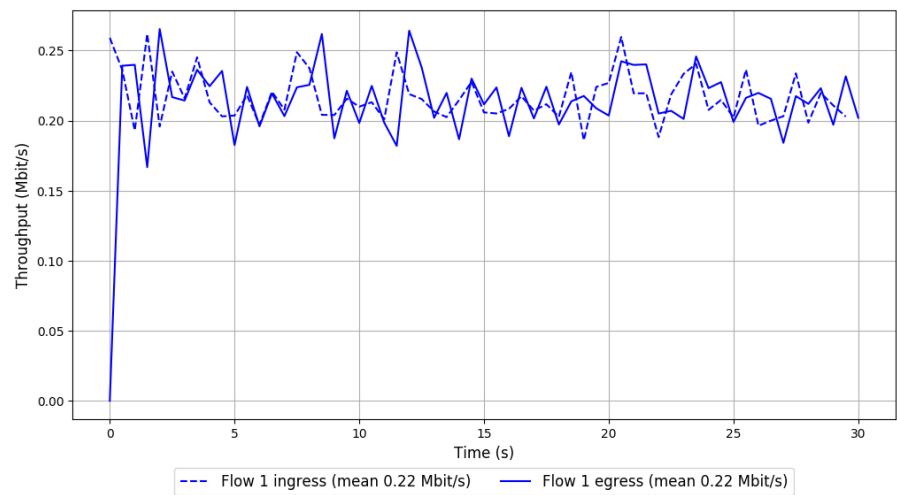


Run 3: Statistics of SCReAM

Start at: 2018-06-18 08:22:41
End at: 2018-06-18 08:23:11
Local clock offset: -1.092 ms
Remote clock offset: -1.798 ms

Below is generated by plot.py at 2018-06-18 08:30:16
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 64.752 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 64.752 ms
Loss rate: 0.13%

Run 3: Report of SReAM — Data Link

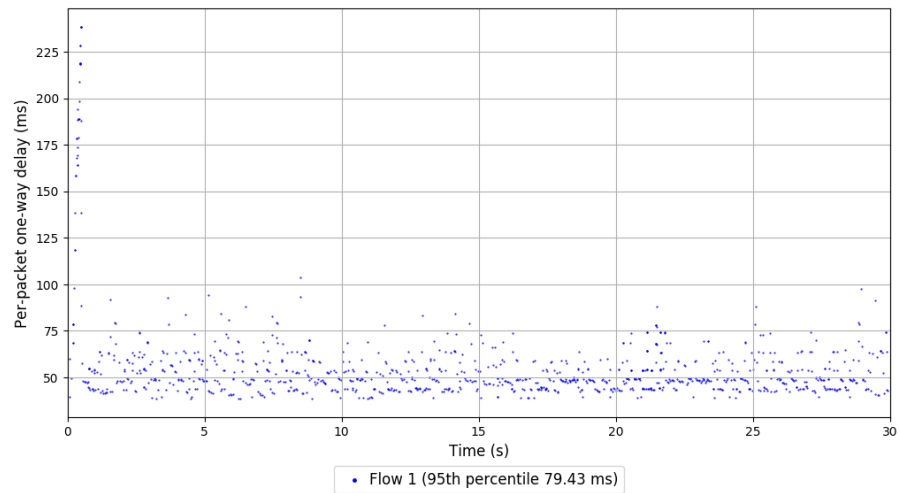
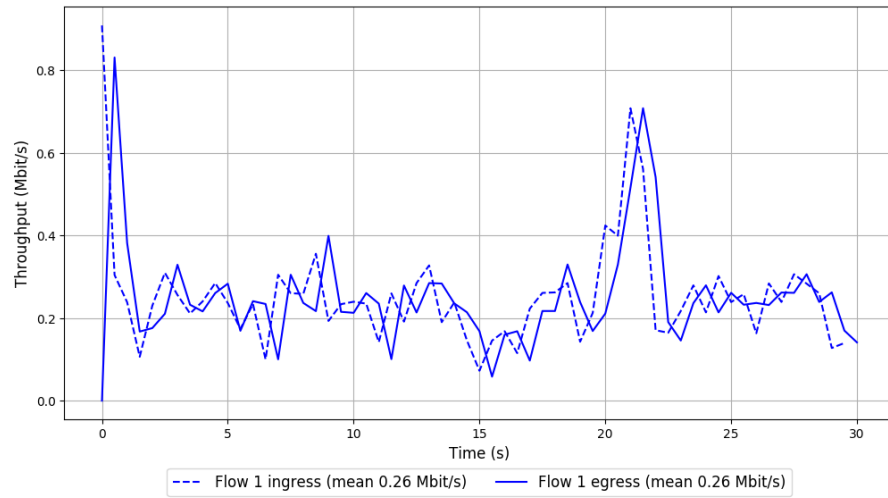


Run 1: Statistics of Sprout

Start at: 2018-06-18 07:53:00
End at: 2018-06-18 07:53:30
Local clock offset: 15.294 ms
Remote clock offset: -2.779 ms

Below is generated by plot.py at 2018-06-18 08:30:16
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.26 Mbit/s
95th percentile per-packet one-way delay: 79.429 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.26 Mbit/s
95th percentile per-packet one-way delay: 79.429 ms
Loss rate: 0.00%

Run 1: Report of Sprout — Data Link

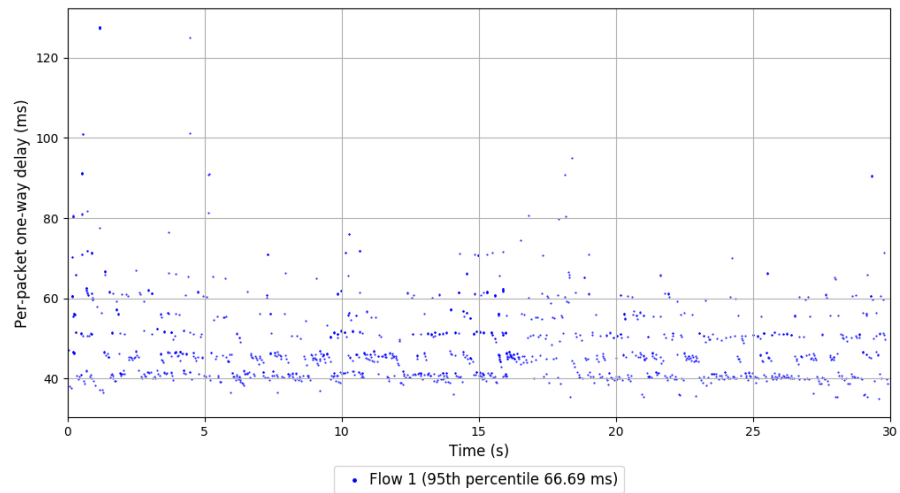
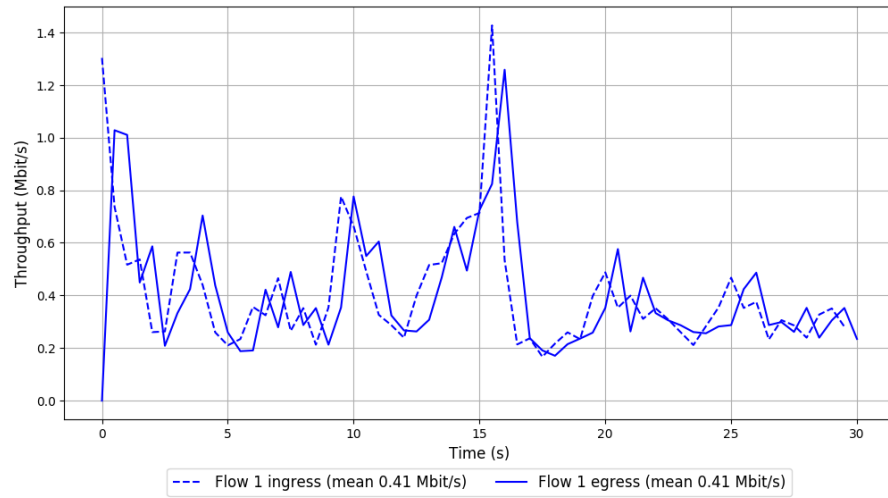


Run 2: Statistics of Sprout

Start at: 2018-06-18 08:10:26
End at: 2018-06-18 08:10:56
Local clock offset: 9.067 ms
Remote clock offset: -3.697 ms

Below is generated by plot.py at 2018-06-18 08:30:16
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.41 Mbit/s
95th percentile per-packet one-way delay: 66.695 ms
Loss rate: 0.28%
-- Flow 1:
Average throughput: 0.41 Mbit/s
95th percentile per-packet one-way delay: 66.695 ms
Loss rate: 0.28%

Run 2: Report of Sprout — Data Link

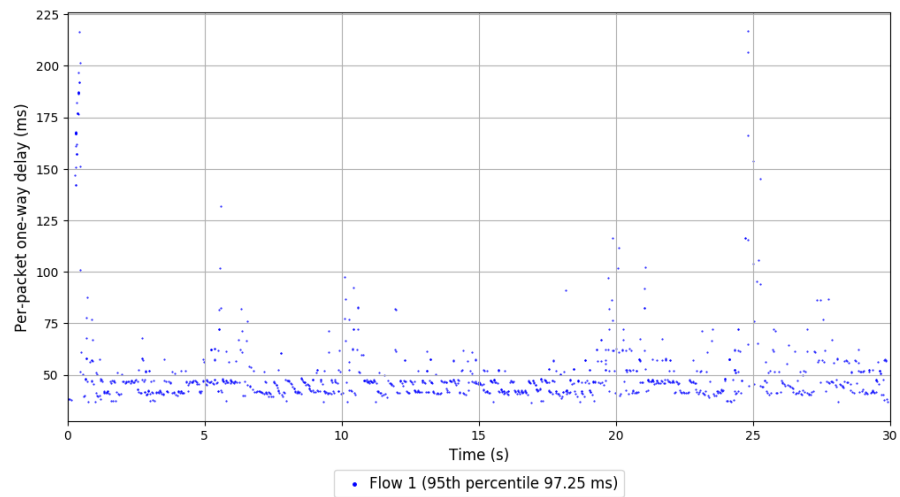
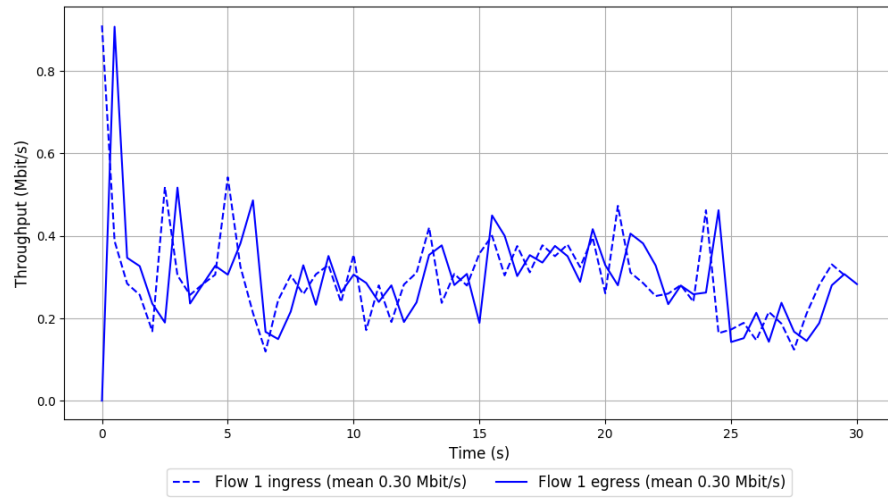


Run 3: Statistics of Sprout

Start at: 2018-06-18 08:28:07
End at: 2018-06-18 08:28:38
Local clock offset: -2.179 ms
Remote clock offset: -2.608 ms

Below is generated by plot.py at 2018-06-18 08:30:16
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 97.247 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 97.247 ms
Loss rate: 0.38%

Run 3: Report of Sprout — Data Link

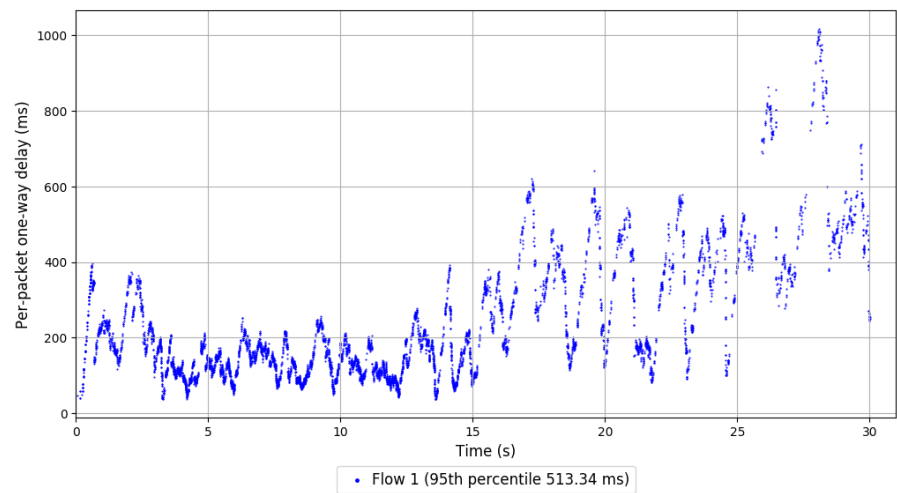
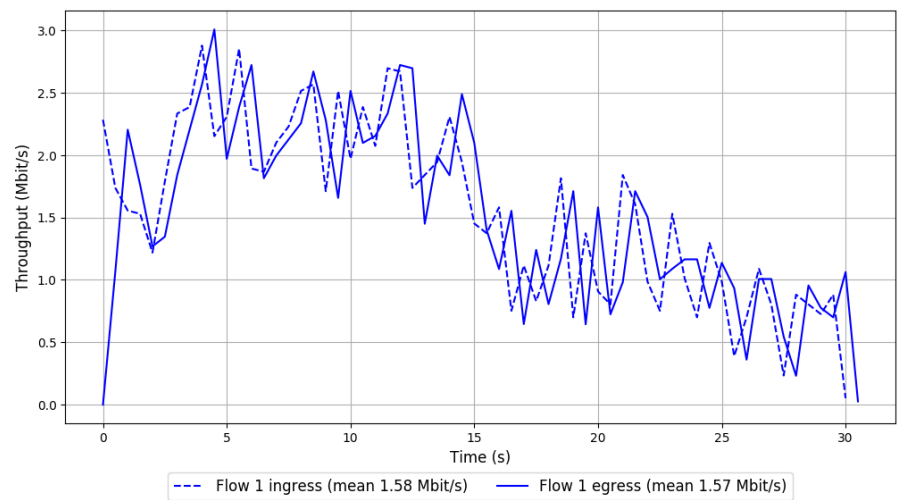


Run 1: Statistics of TaoVA-100x

Start at: 2018-06-18 07:41:09
End at: 2018-06-18 07:41:39
Local clock offset: 12.3 ms
Remote clock offset: -2.476 ms

Below is generated by plot.py at 2018-06-18 08:30:16
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.57 Mbit/s
95th percentile per-packet one-way delay: 513.338 ms
Loss rate: 0.88%
-- Flow 1:
Average throughput: 1.57 Mbit/s
95th percentile per-packet one-way delay: 513.338 ms
Loss rate: 0.88%

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-06-18 07:58:28

End at: 2018-06-18 07:58:58

Local clock offset: 18.176 ms

Remote clock offset: -3.5 ms

Below is generated by plot.py at 2018-06-18 08:30:16

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.23 Mbit/s

95th percentile per-packet one-way delay: 706.594 ms

Loss rate: 2.30%

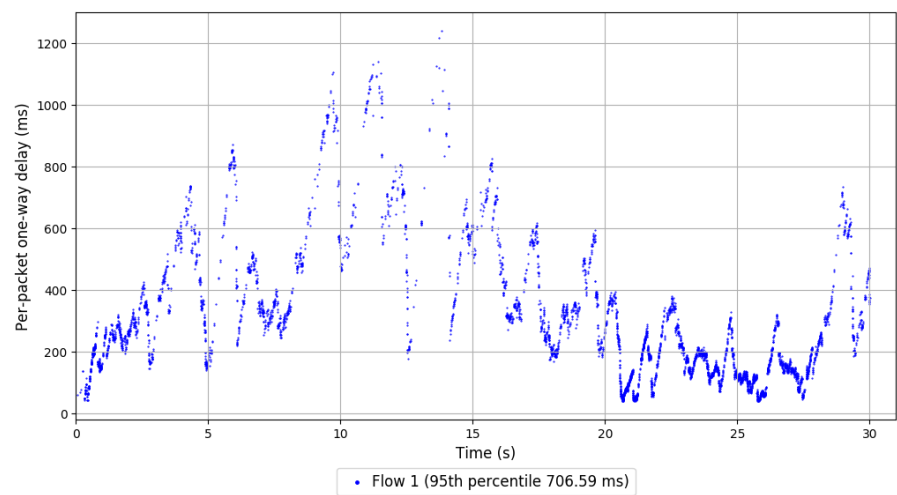
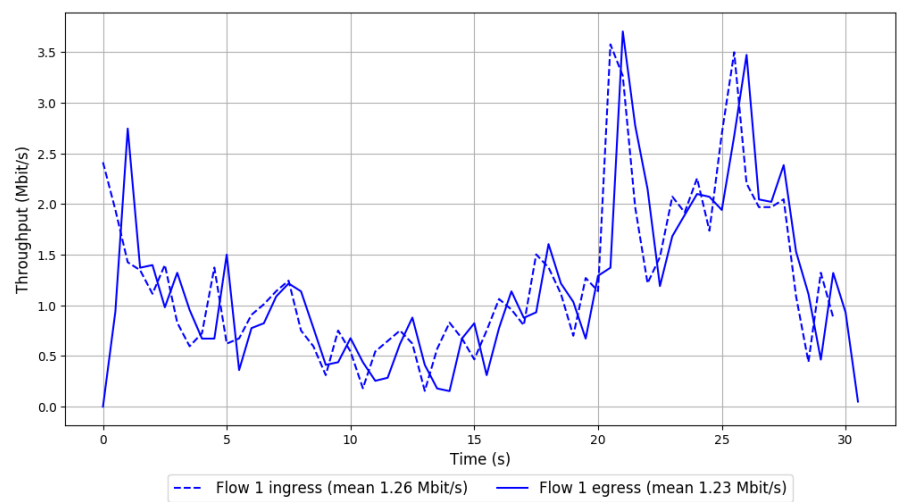
-- Flow 1:

Average throughput: 1.23 Mbit/s

95th percentile per-packet one-way delay: 706.594 ms

Loss rate: 2.30%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-06-18 08:15:50

End at: 2018-06-18 08:16:20

Local clock offset: 0.523 ms

Remote clock offset: -5.402 ms

Below is generated by plot.py at 2018-06-18 08:30:17

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.48 Mbit/s

95th percentile per-packet one-way delay: 636.600 ms

Loss rate: 10.96%

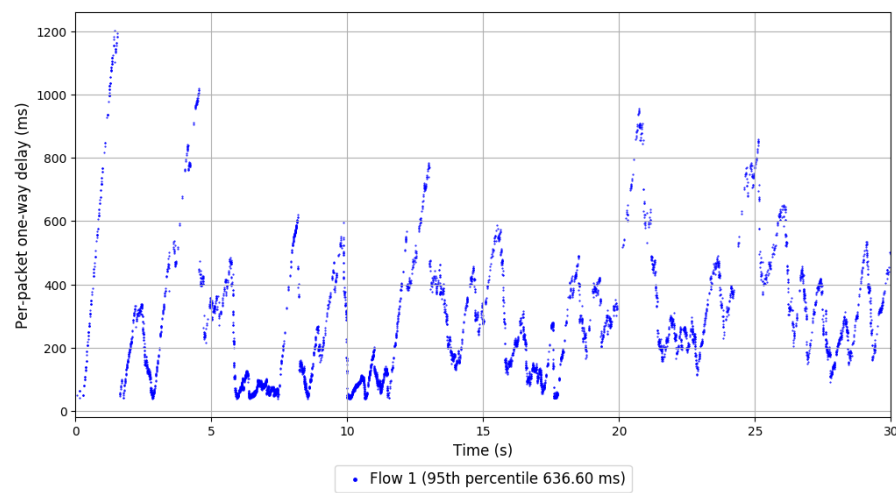
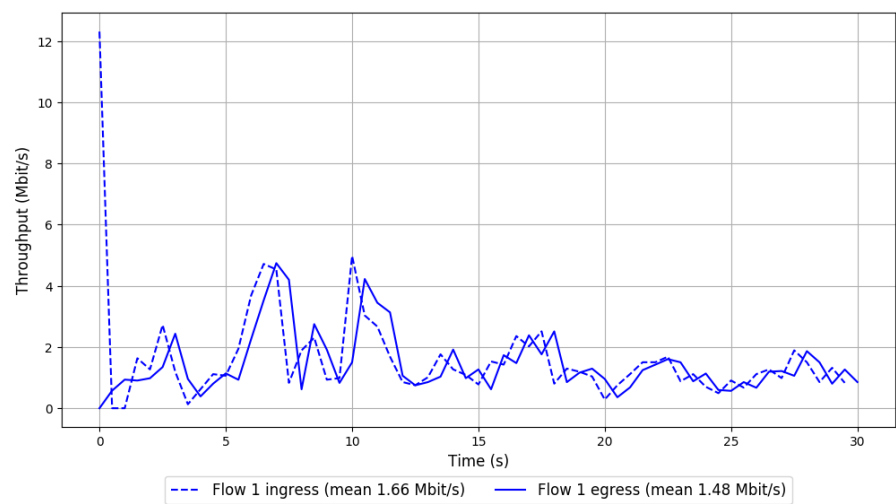
-- Flow 1:

Average throughput: 1.48 Mbit/s

95th percentile per-packet one-way delay: 636.600 ms

Loss rate: 10.96%

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

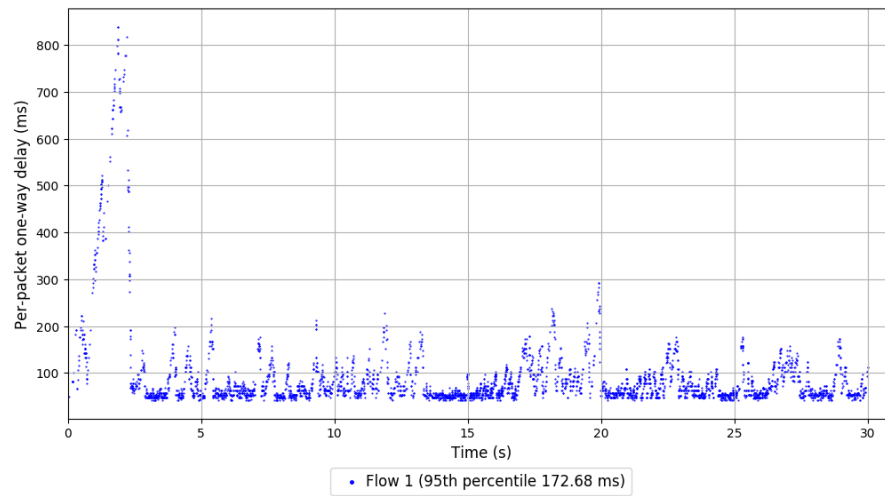
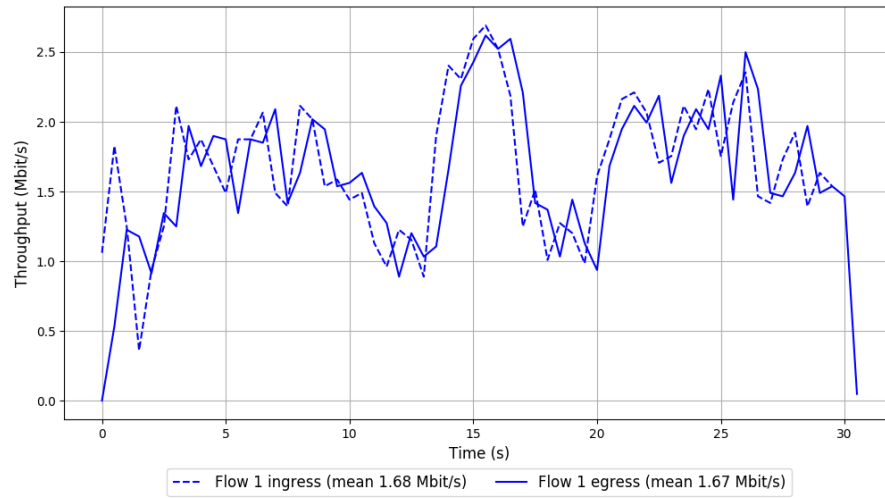


Run 1: Statistics of TCP Vegas

Start at: 2018-06-18 07:46:32
End at: 2018-06-18 07:47:02
Local clock offset: 7.236 ms
Remote clock offset: -9.067 ms

Below is generated by plot.py at 2018-06-18 08:30:17
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.67 Mbit/s
95th percentile per-packet one-way delay: 172.678 ms
Loss rate: 0.36%
-- Flow 1:
Average throughput: 1.67 Mbit/s
95th percentile per-packet one-way delay: 172.678 ms
Loss rate: 0.36%

Run 1: Report of TCP Vegas — Data Link

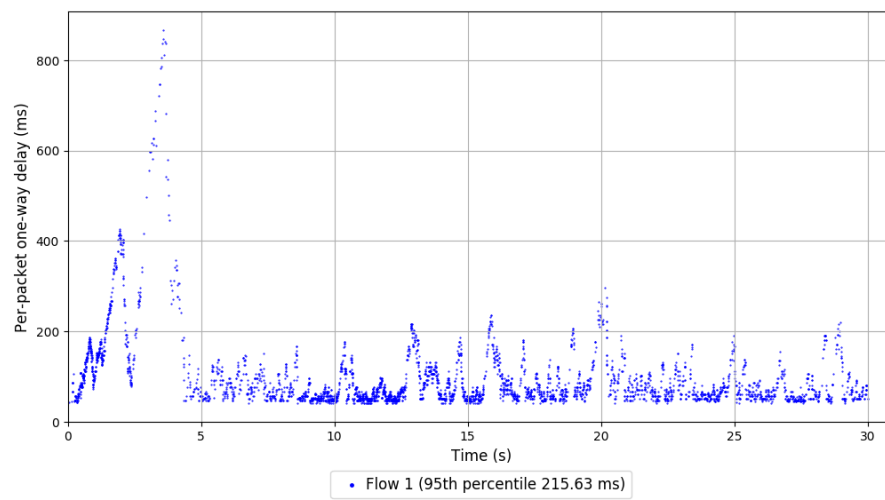
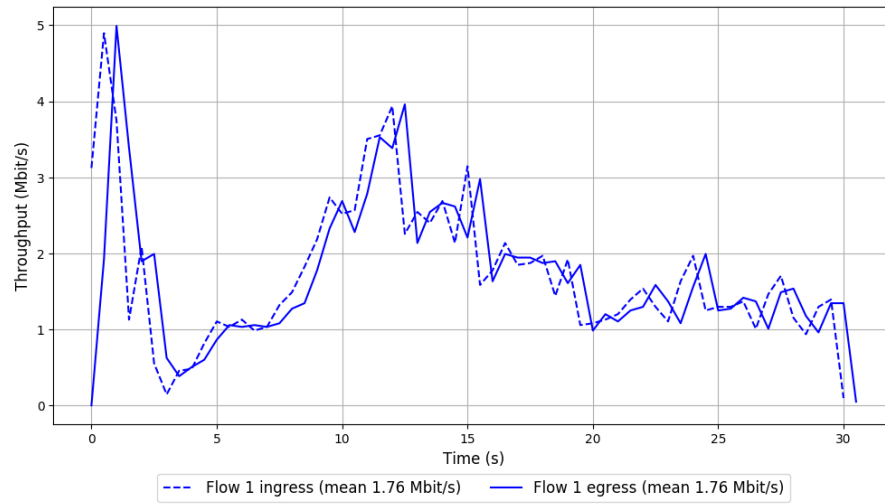


Run 2: Statistics of TCP Vegas

Start at: 2018-06-18 08:03:52
End at: 2018-06-18 08:04:22
Local clock offset: 19.175 ms
Remote clock offset: -3.466 ms

Below is generated by plot.py at 2018-06-18 08:30:17
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.76 Mbit/s
95th percentile per-packet one-way delay: 215.628 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 1.76 Mbit/s
95th percentile per-packet one-way delay: 215.628 ms
Loss rate: 0.41%

Run 2: Report of TCP Vegas — Data Link



Run 3: Statistics of TCP Vegas

Start at: 2018-06-18 08:21:32

End at: 2018-06-18 08:22:02

Local clock offset: 0.486 ms

Remote clock offset: -3.525 ms

Below is generated by plot.py at 2018-06-18 08:30:17

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.56 Mbit/s

95th percentile per-packet one-way delay: 104.259 ms

Loss rate: 0.09%

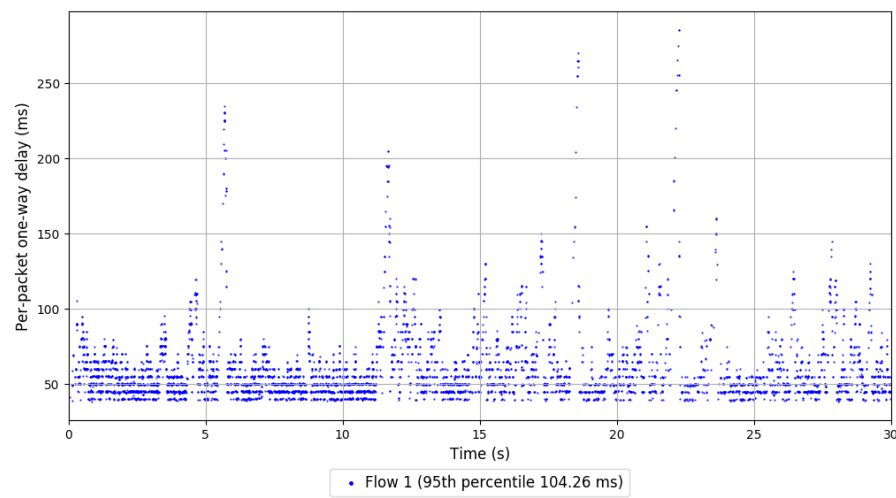
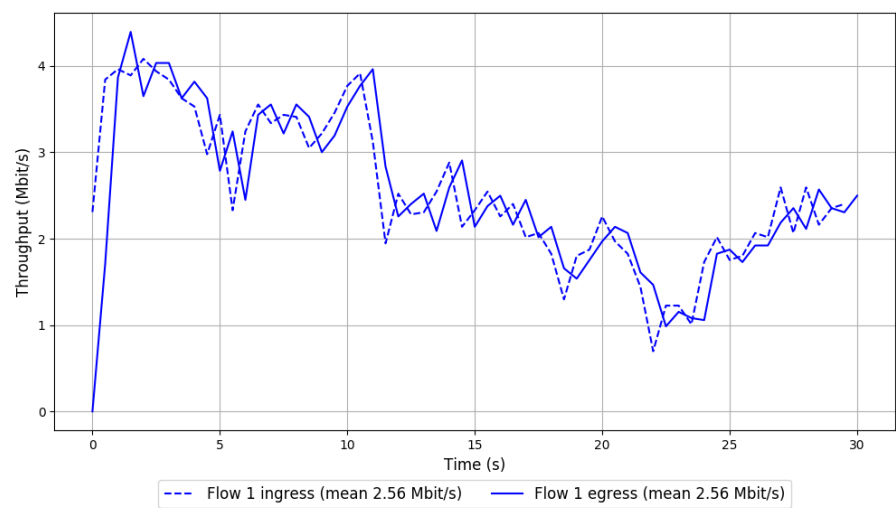
-- Flow 1:

Average throughput: 2.56 Mbit/s

95th percentile per-packet one-way delay: 104.259 ms

Loss rate: 0.09%

Run 3: Report of TCP Vegas — Data Link

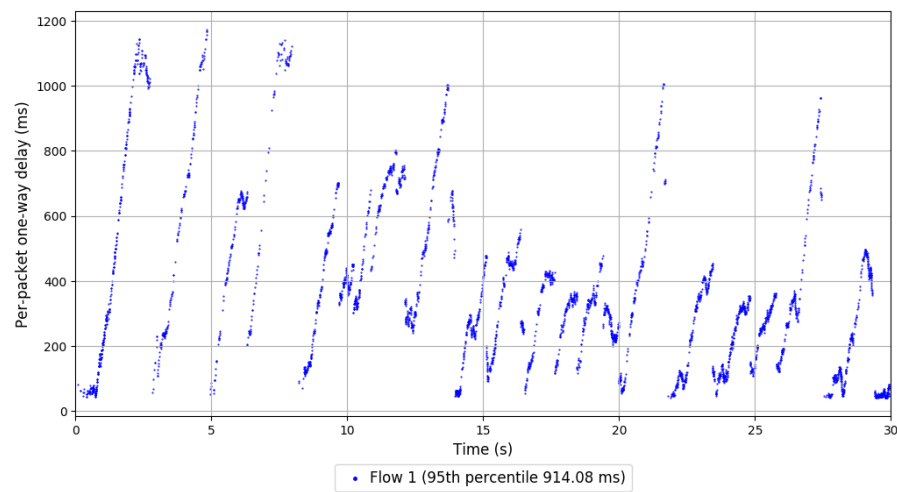
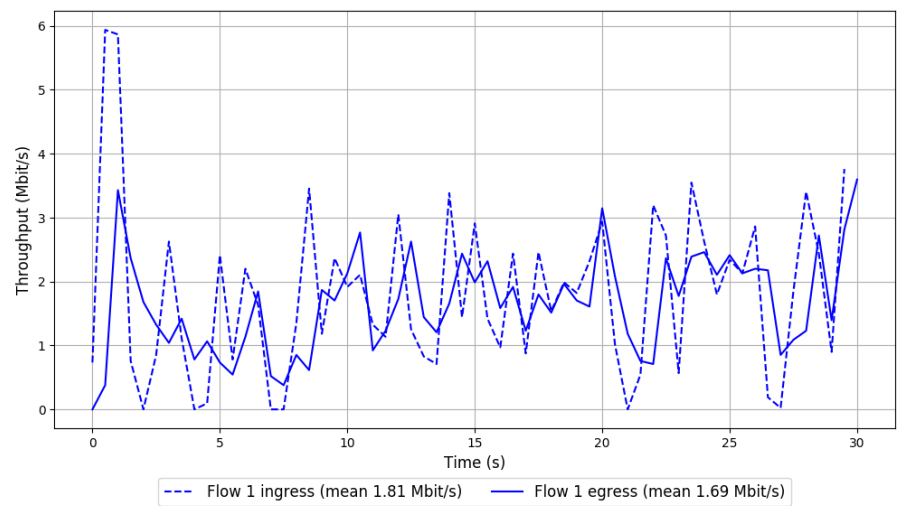


Run 1: Statistics of Verus

Start at: 2018-06-18 07:51:55
End at: 2018-06-18 07:52:25
Local clock offset: 14.807 ms
Remote clock offset: -2.944 ms

Below is generated by plot.py at 2018-06-18 08:30:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.69 Mbit/s
95th percentile per-packet one-way delay: 914.081 ms
Loss rate: 6.52%
-- Flow 1:
Average throughput: 1.69 Mbit/s
95th percentile per-packet one-way delay: 914.081 ms
Loss rate: 6.52%

Run 1: Report of Verus — Data Link

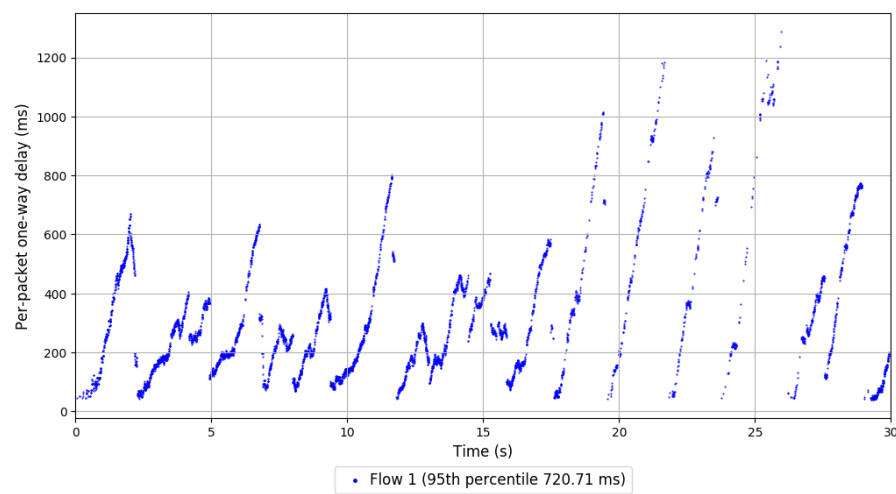
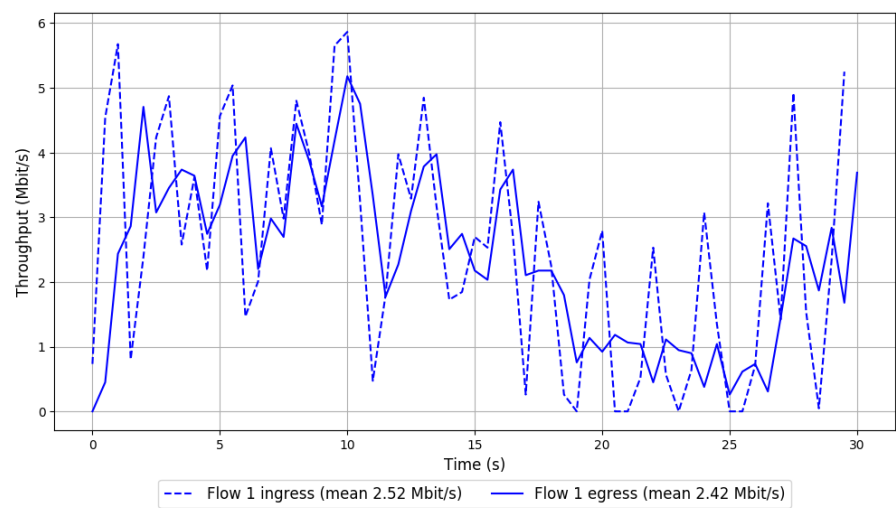


Run 2: Statistics of Verus

Start at: 2018-06-18 08:09:16
End at: 2018-06-18 08:09:46
Local clock offset: 10.163 ms
Remote clock offset: -3.095 ms

Below is generated by plot.py at 2018-06-18 08:30:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.42 Mbit/s
95th percentile per-packet one-way delay: 720.707 ms
Loss rate: 3.97%
-- Flow 1:
Average throughput: 2.42 Mbit/s
95th percentile per-packet one-way delay: 720.707 ms
Loss rate: 3.97%

Run 2: Report of Verus — Data Link

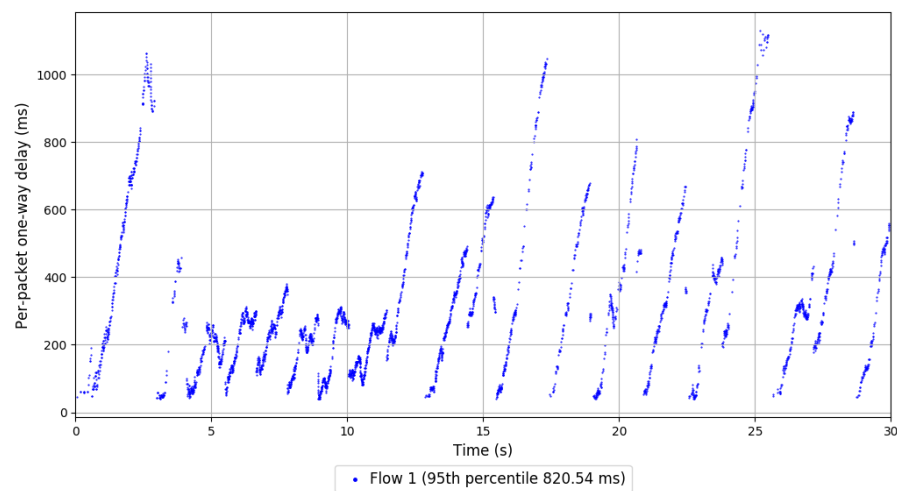
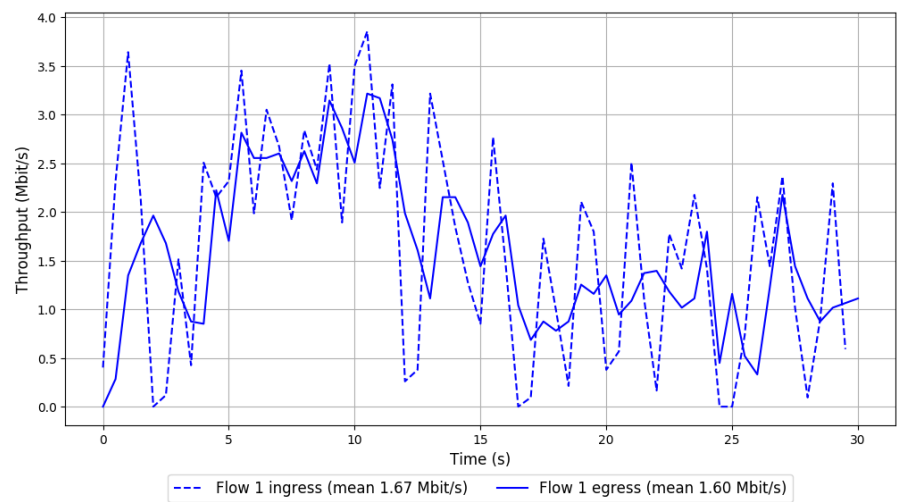


Run 3: Statistics of Verus

Start at: 2018-06-18 08:27:01
End at: 2018-06-18 08:27:31
Local clock offset: -1.773 ms
Remote clock offset: -2.116 ms

Below is generated by plot.py at 2018-06-18 08:30:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.60 Mbit/s
95th percentile per-packet one-way delay: 820.539 ms
Loss rate: 3.18%
-- Flow 1:
Average throughput: 1.60 Mbit/s
95th percentile per-packet one-way delay: 820.539 ms
Loss rate: 3.18%

Run 3: Report of Verus — Data Link



Run 1: Statistics of PCC-Vivace

Start at: 2018-06-18 07:40:04

End at: 2018-06-18 07:40:34

Local clock offset: 14.034 ms

Remote clock offset: -3.78 ms

Below is generated by plot.py at 2018-06-18 08:30:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.53 Mbit/s

95th percentile per-packet one-way delay: 950.081 ms

Loss rate: 3.41%

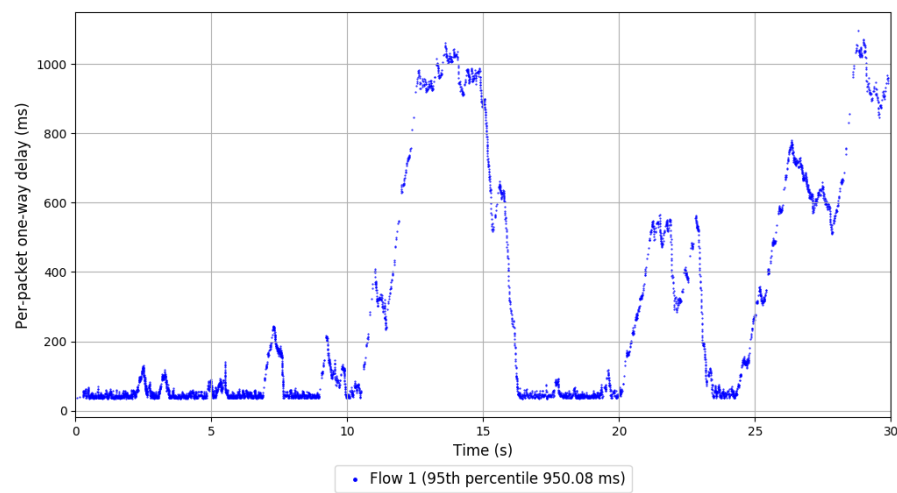
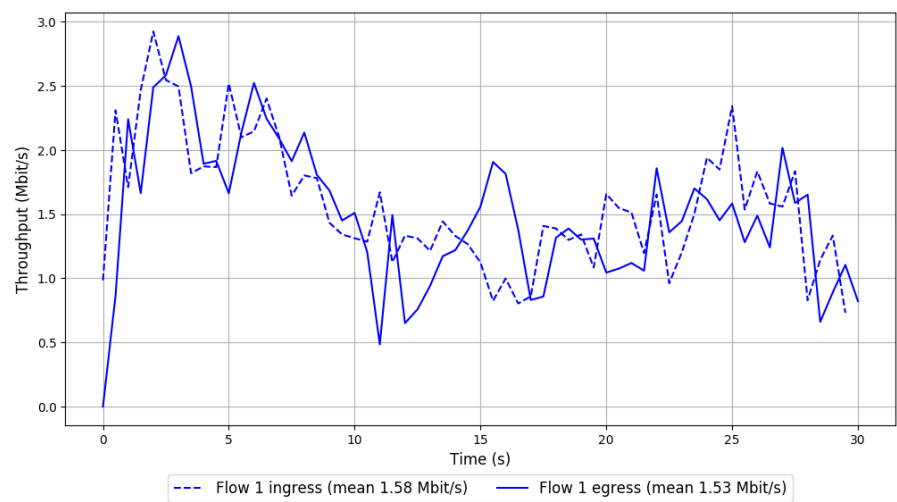
-- Flow 1:

Average throughput: 1.53 Mbit/s

95th percentile per-packet one-way delay: 950.081 ms

Loss rate: 3.41%

Run 1: Report of PCC-Vivace — Data Link

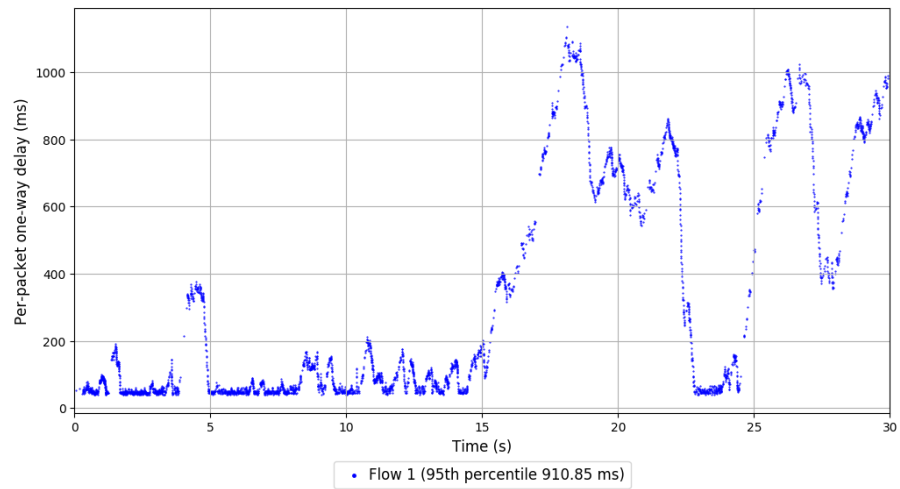
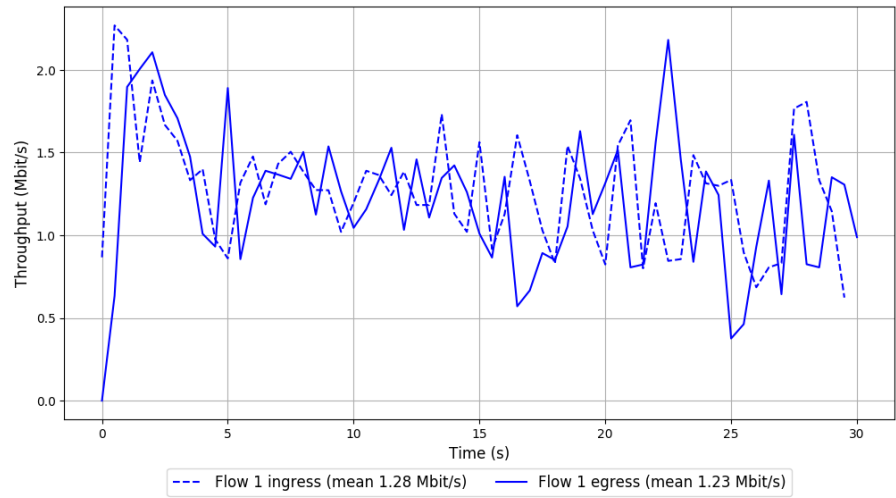


Run 2: Statistics of PCC-Vivace

Start at: 2018-06-18 07:57:19
End at: 2018-06-18 07:57:49
Local clock offset: 14.769 ms
Remote clock offset: -4.939 ms

Below is generated by plot.py at 2018-06-18 08:30:22
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.23 Mbit/s
95th percentile per-packet one-way delay: 910.847 ms
Loss rate: 3.93%
-- Flow 1:
Average throughput: 1.23 Mbit/s
95th percentile per-packet one-way delay: 910.847 ms
Loss rate: 3.93%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2018-06-18 08:14:46

End at: 2018-06-18 08:15:16

Local clock offset: 3.674 ms

Remote clock offset: -5.056 ms

Below is generated by plot.py at 2018-06-18 08:30:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.42 Mbit/s

95th percentile per-packet one-way delay: 930.667 ms

Loss rate: 2.82%

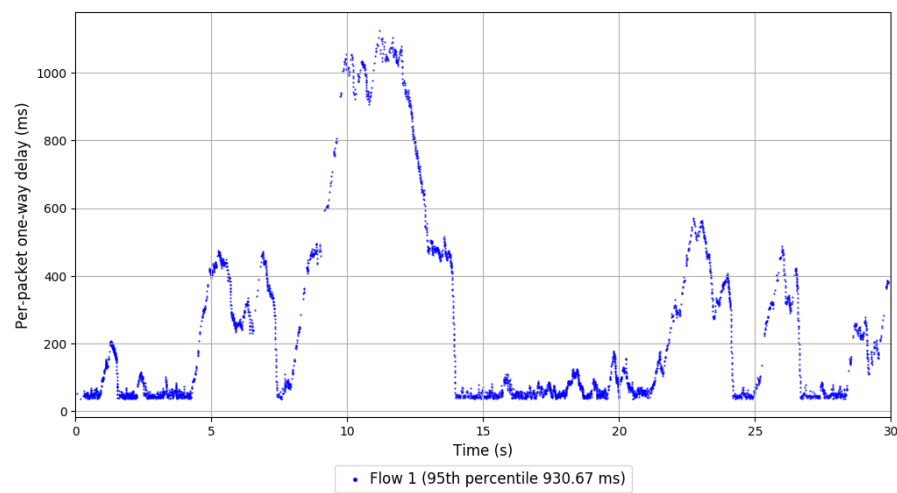
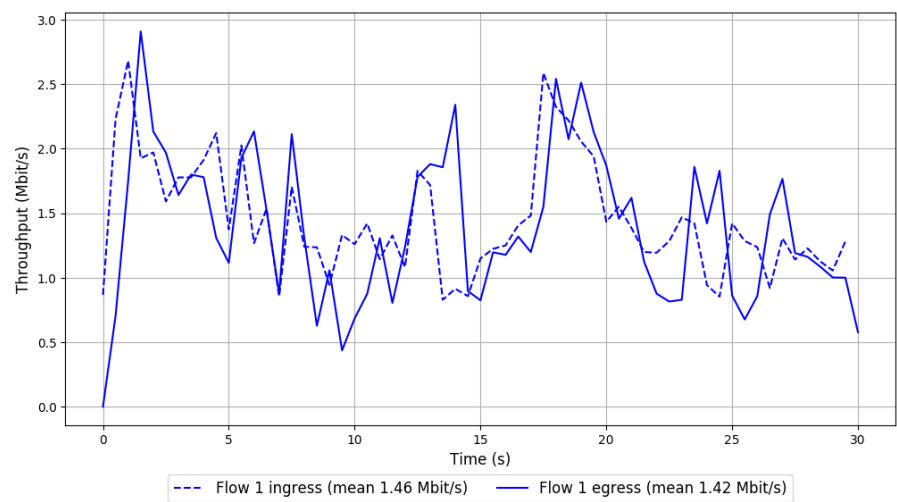
-- Flow 1:

Average throughput: 1.42 Mbit/s

95th percentile per-packet one-way delay: 930.667 ms

Loss rate: 2.82%

Run 3: Report of PCC-Vivace — Data Link

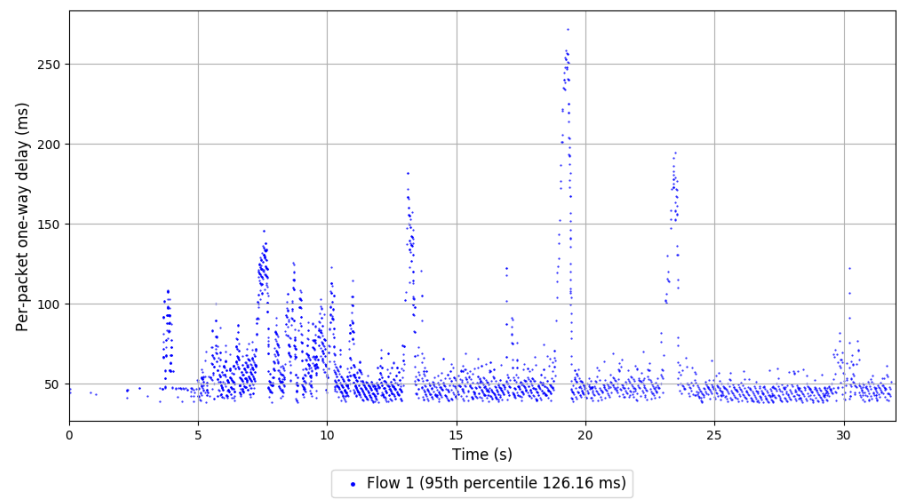
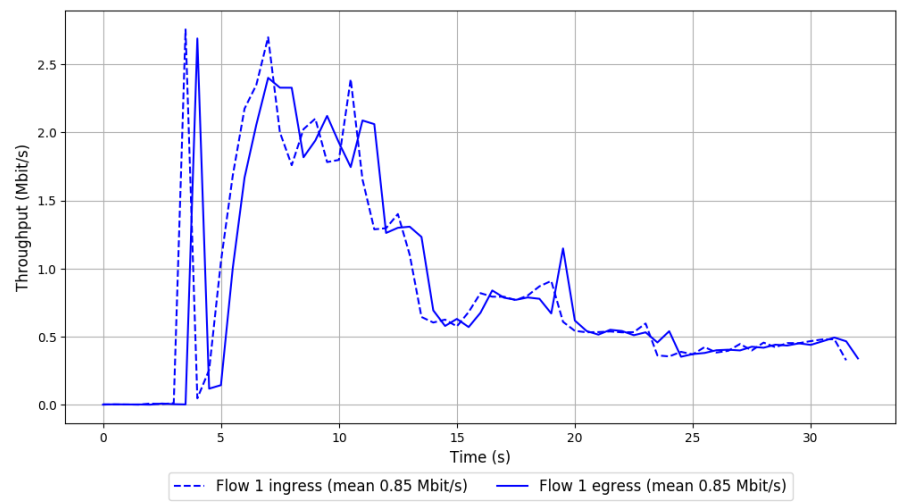


Run 1: Statistics of WebRTC media

Start at: 2018-06-18 07:50:51
End at: 2018-06-18 07:51:21
Local clock offset: 14.058 ms
Remote clock offset: -4.372 ms

Below is generated by plot.py at 2018-06-18 08:30:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.85 Mbit/s
95th percentile per-packet one-way delay: 126.159 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 0.85 Mbit/s
95th percentile per-packet one-way delay: 126.159 ms
Loss rate: 0.06%

Run 1: Report of WebRTC media — Data Link

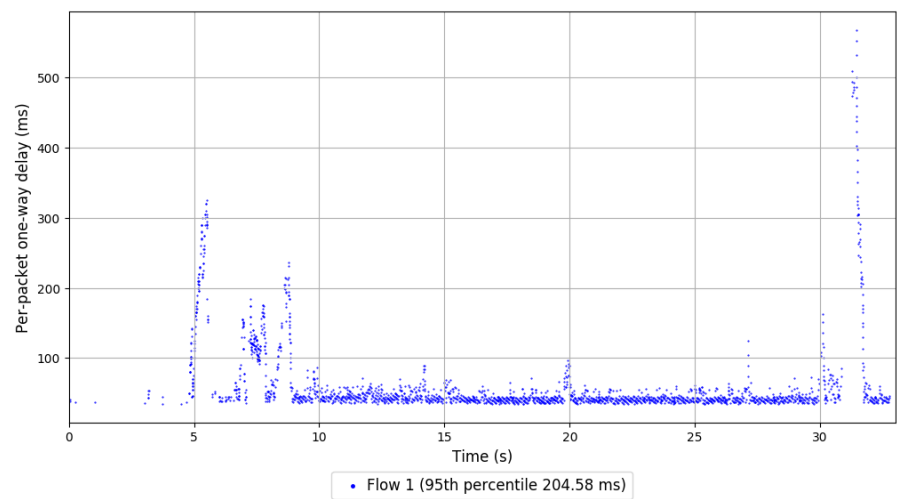
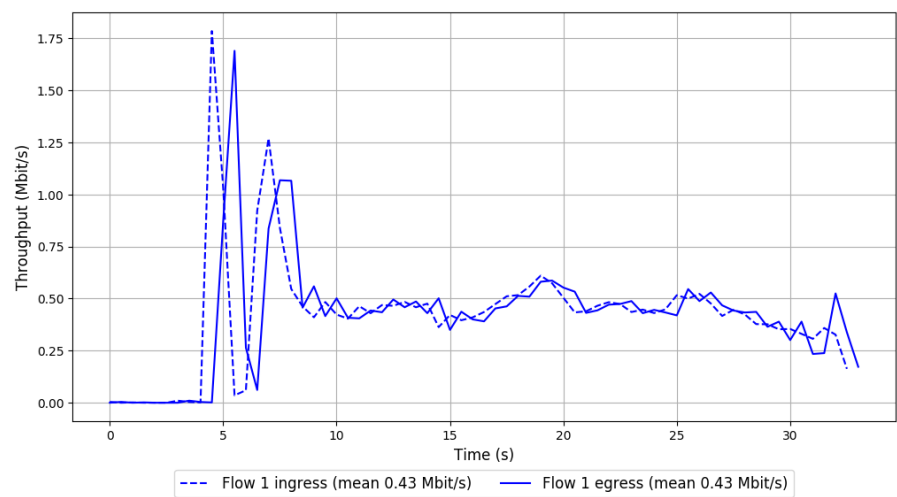


Run 2: Statistics of WebRTC media

Start at: 2018-06-18 08:08:11
End at: 2018-06-18 08:08:41
Local clock offset: 13.851 ms
Remote clock offset: -3.654 ms

Below is generated by plot.py at 2018-06-18 08:30:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 204.578 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 204.578 ms
Loss rate: 0.16%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-06-18 08:25:56
End at: 2018-06-18 08:26:26
Local clock offset: 0.312 ms
Remote clock offset: -2.221 ms

Below is generated by plot.py at 2018-06-18 08:30:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.00 Mbit/s
95th percentile per-packet one-way delay: 116.130 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 1.00 Mbit/s
95th percentile per-packet one-way delay: 116.130 ms
Loss rate: 0.15%

Run 3: Report of WebRTC media — Data Link

