

Pantheon Report

Generated at 2018-06-19 01:10:37 (UTC).

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

Repeated the test of 16 congestion control schemes 3 times.

Each test lasted for 30 seconds running 1 flow.

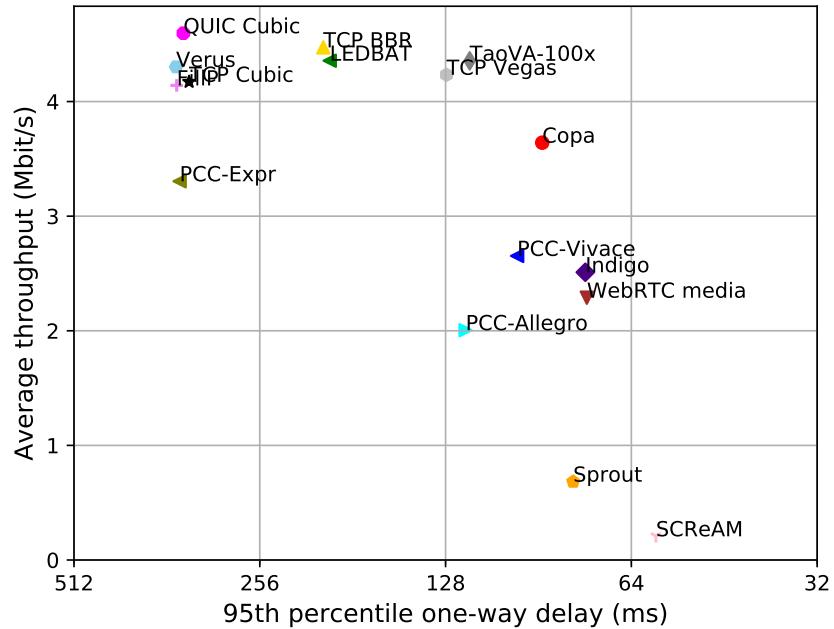
Increased UDP receive buffer to 16 MB (default) and 32 MB (max).

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

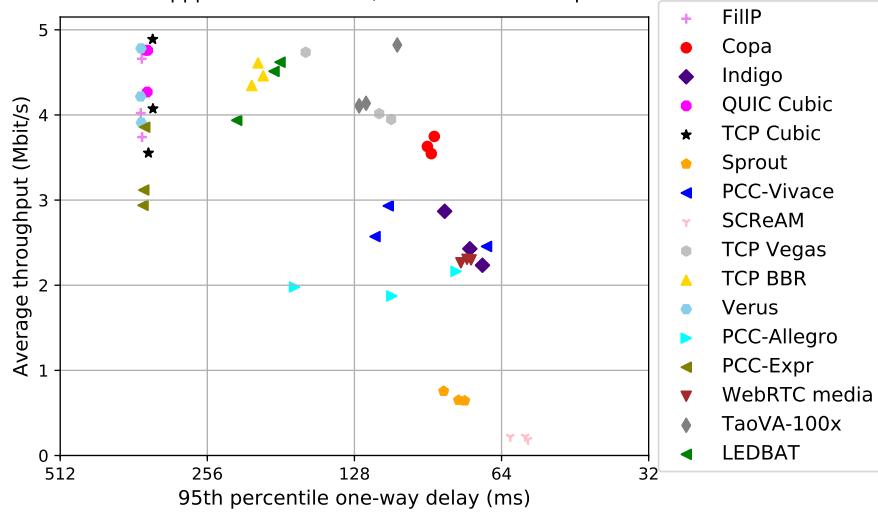
Git summary:

```
branch: master @ 9141c5f9450c85ea5ea2ea755a8e946998d3abf3
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/genericCC @ c7966e494a929986eaa5a9c169a7f381fe1bbbe5
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eab4a906ce6bb7cf3cf
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-quic @ 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



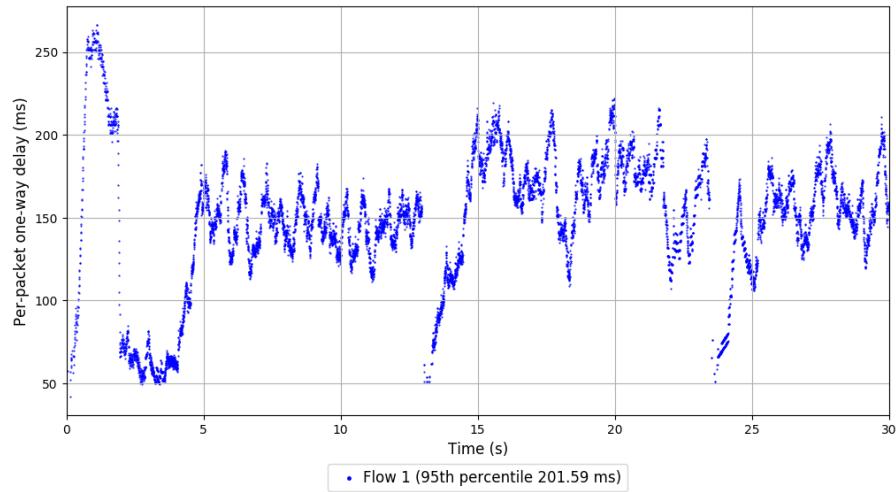
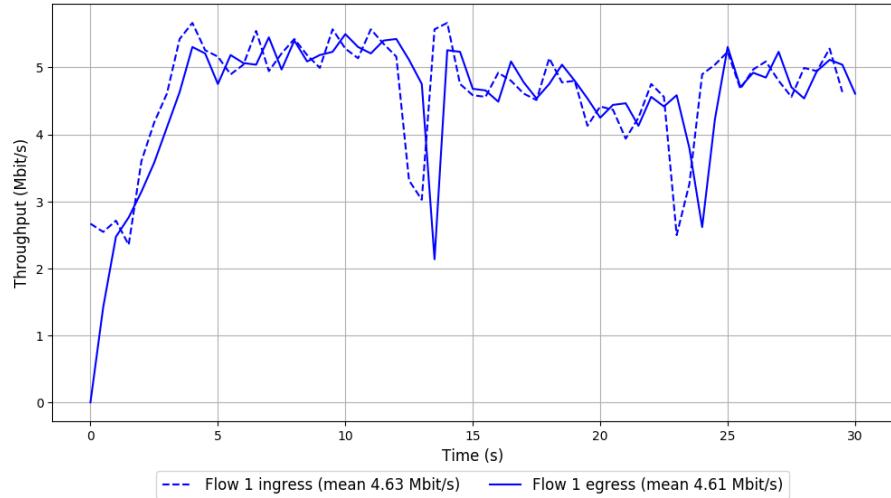
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	4.47	201.98	0.63
Copa	3	3.64	89.25	0.32
TCP Cubic	3	4.17	333.25	1.73
FillP	3	4.14	349.03	24.46
Indigo	3	2.51	76.00	0.22
LEDBAT	3	4.36	197.23	0.56
PCC-Allegro	3	2.00	118.76	5.05
PCC-Expr	3	3.31	345.27	12.86
QUIC Cubic	3	4.60	340.48	3.15
SCReAM	3	0.21	58.40	0.25
Sprout	3	0.68	79.51	0.19
TaoVA-100x	3	4.36	116.98	1.03
TCP Vegas	3	4.24	127.54	0.33
Verus	3	4.30	349.91	29.00
PCC-Vivace	3	2.65	98.01	0.29
WebRTC media	3	2.29	75.57	0.17

Run 1: Statistics of TCP BBR

```
Start at: 2018-06-19 00:31:14
End at: 2018-06-19 00:31:44
Local clock offset: -1.446 ms
Remote clock offset: -3.635 ms

# Below is generated by plot.py at 2018-06-19 01:09:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.61 Mbit/s
95th percentile per-packet one-way delay: 201.592 ms
Loss rate: 0.60%
-- Flow 1:
Average throughput: 4.61 Mbit/s
95th percentile per-packet one-way delay: 201.592 ms
Loss rate: 0.60%
```

Run 1: Report of TCP BBR — Data Link

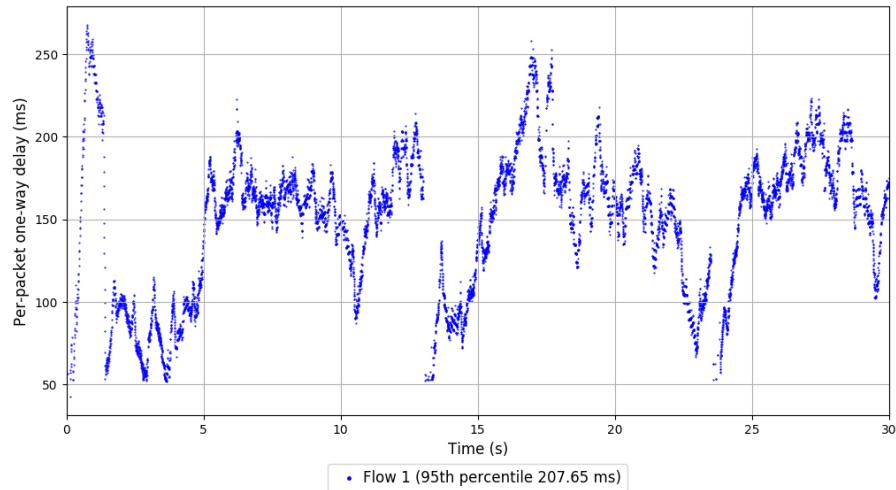
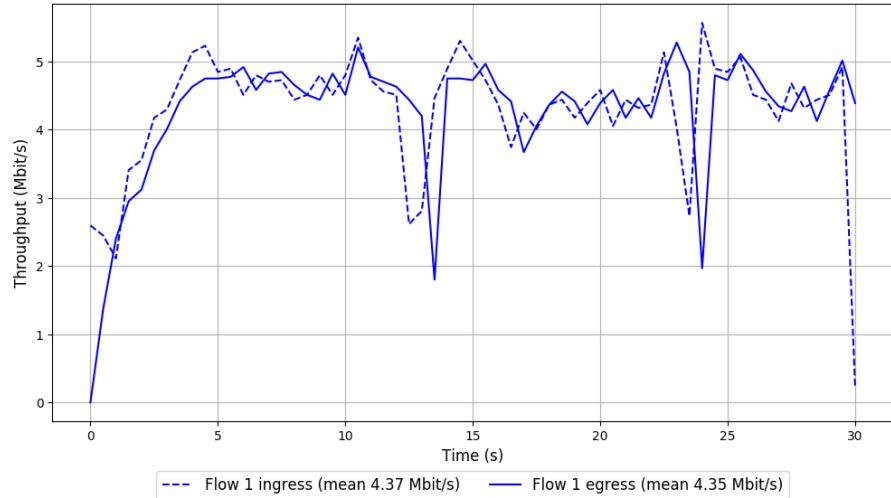


Run 2: Statistics of TCP BBR

```
Start at: 2018-06-19 00:48:35
End at: 2018-06-19 00:49:05
Local clock offset: 0.994 ms
Remote clock offset: -5.626 ms

# Below is generated by plot.py at 2018-06-19 01:09:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.35 Mbit/s
95th percentile per-packet one-way delay: 207.650 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 4.35 Mbit/s
95th percentile per-packet one-way delay: 207.650 ms
Loss rate: 0.74%
```

Run 2: Report of TCP BBR — Data Link

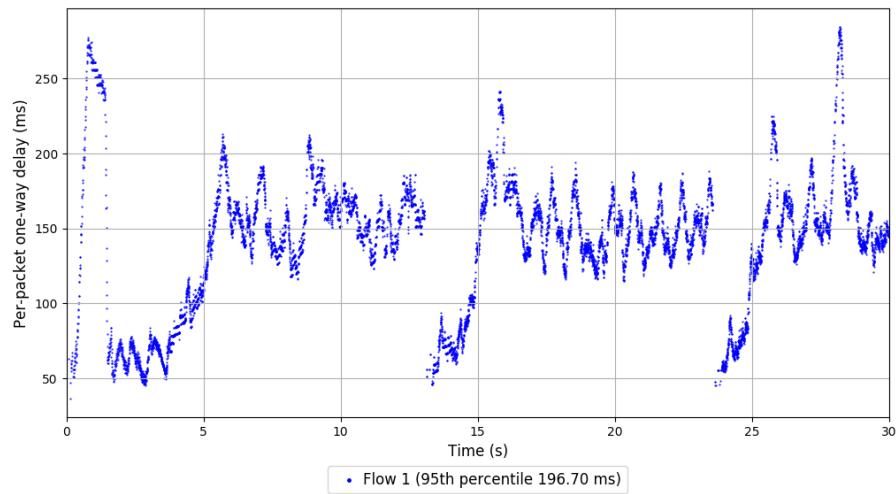
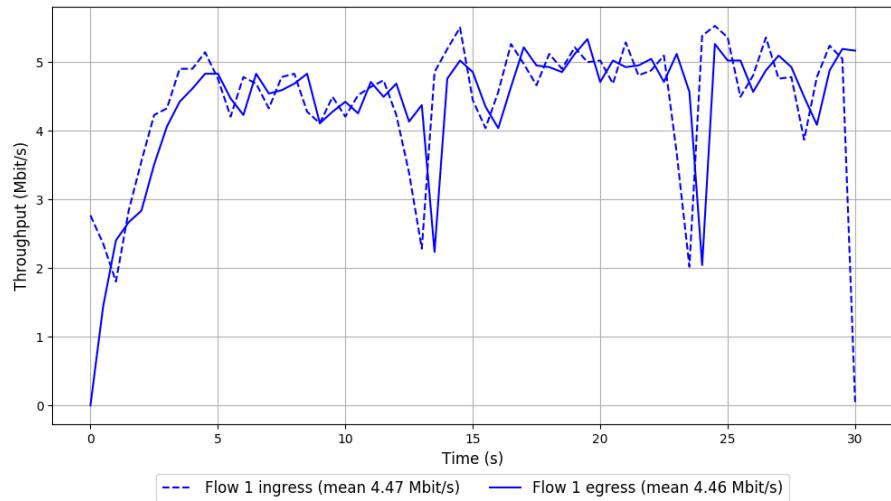


Run 3: Statistics of TCP BBR

```
Start at: 2018-06-19 01:05:58
End at: 2018-06-19 01:06:28
Local clock offset: -7.956 ms
Remote clock offset: -10.905 ms

# Below is generated by plot.py at 2018-06-19 01:09:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.46 Mbit/s
95th percentile per-packet one-way delay: 196.697 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 4.46 Mbit/s
95th percentile per-packet one-way delay: 196.697 ms
Loss rate: 0.55%
```

Run 3: Report of TCP BBR — Data Link

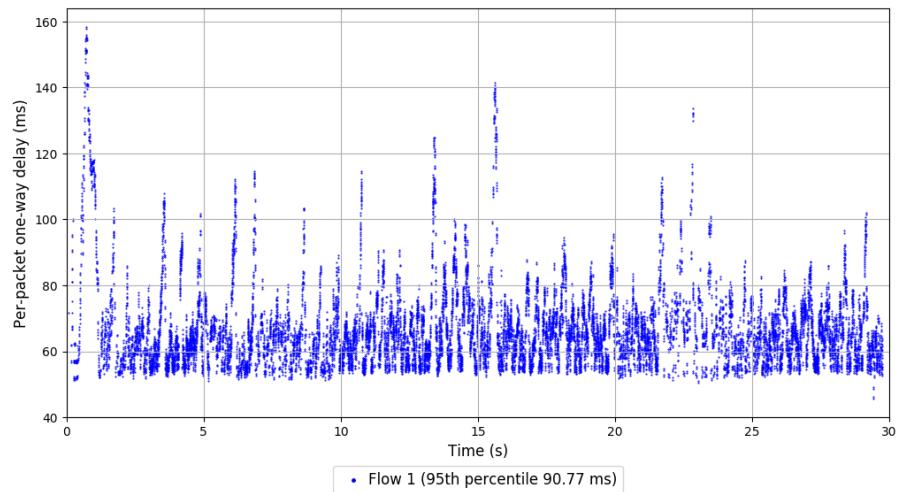
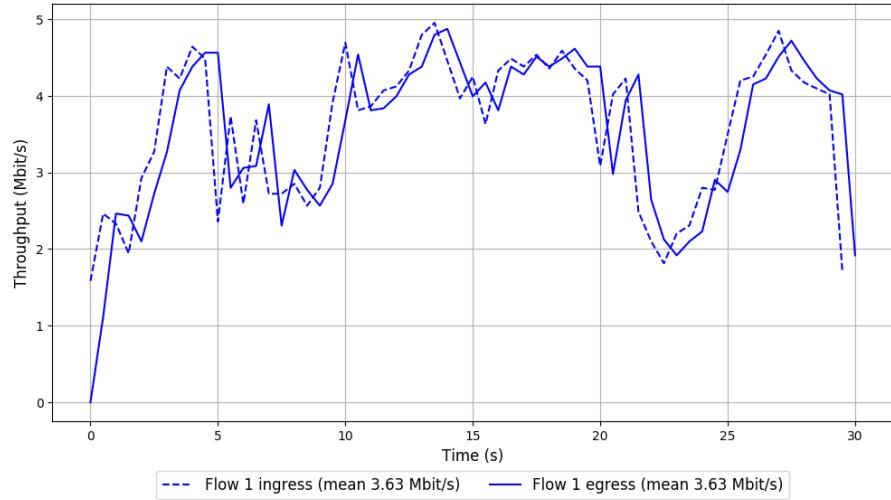


Run 1: Statistics of Copa

```
Start at: 2018-06-19 00:20:26
End at: 2018-06-19 00:20:56
Local clock offset: 1.58 ms
Remote clock offset: -2.897 ms

# Below is generated by plot.py at 2018-06-19 01:10:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.63 Mbit/s
95th percentile per-packet one-way delay: 90.771 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 3.63 Mbit/s
95th percentile per-packet one-way delay: 90.771 ms
Loss rate: 0.16%
```

Run 1: Report of Copa — Data Link

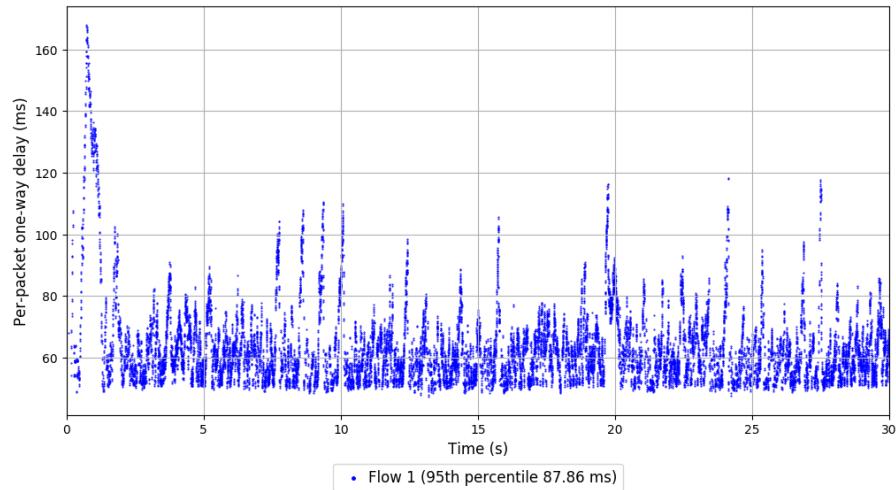
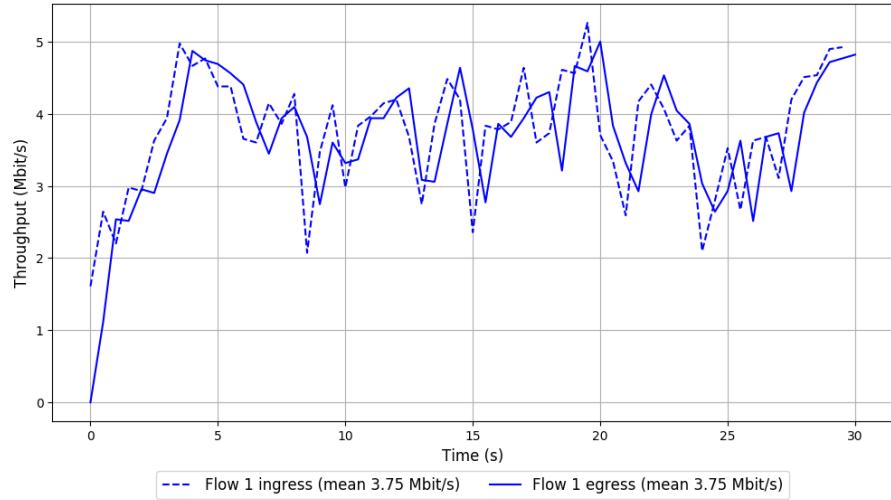


Run 2: Statistics of Copa

```
Start at: 2018-06-19 00:37:42
End at: 2018-06-19 00:38:13
Local clock offset: -1.59 ms
Remote clock offset: -3.428 ms

# Below is generated by plot.py at 2018-06-19 01:10:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.75 Mbit/s
95th percentile per-packet one-way delay: 87.855 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 3.75 Mbit/s
95th percentile per-packet one-way delay: 87.855 ms
Loss rate: 0.35%
```

Run 2: Report of Copa — Data Link

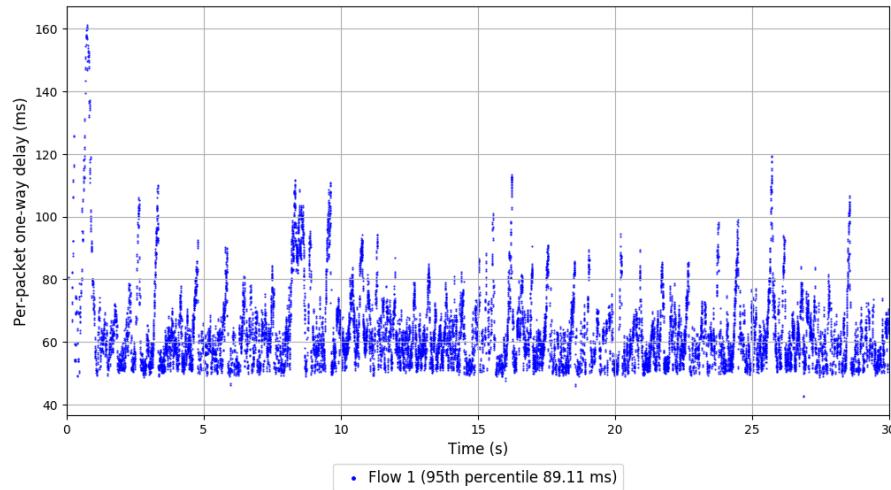
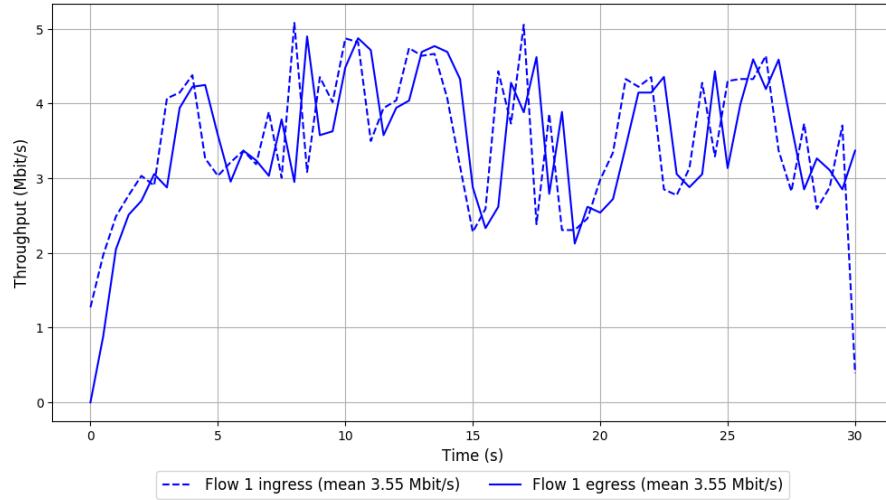


Run 3: Statistics of Copa

```
Start at: 2018-06-19 00:55:04
End at: 2018-06-19 00:55:34
Local clock offset: -1.834 ms
Remote clock offset: -7.339 ms

# Below is generated by plot.py at 2018-06-19 01:10:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.55 Mbit/s
95th percentile per-packet one-way delay: 89.110 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 3.55 Mbit/s
95th percentile per-packet one-way delay: 89.110 ms
Loss rate: 0.46%
```

Run 3: Report of Copa — Data Link

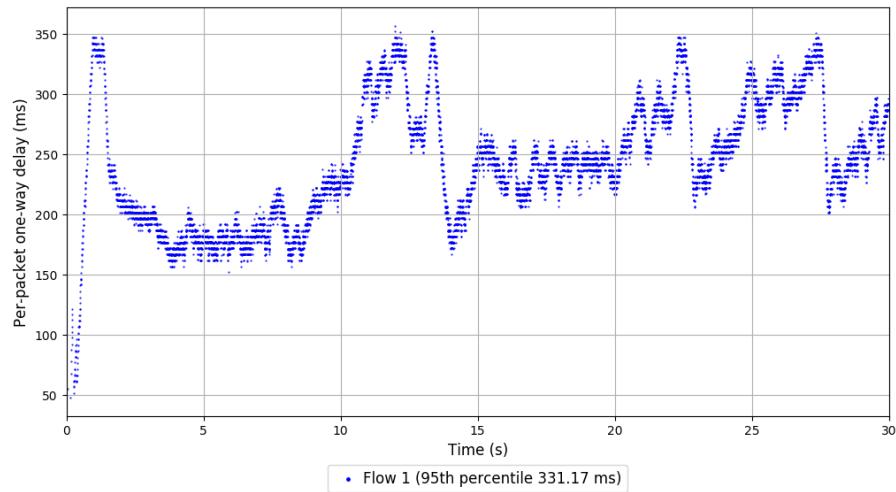
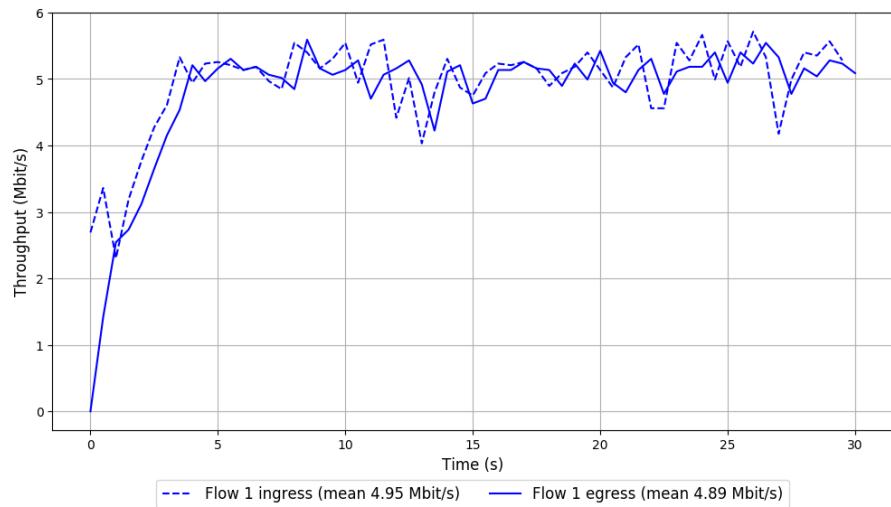


```
Run 1: Statistics of TCP Cubic
```

```
Start at: 2018-06-19 00:25:49
End at: 2018-06-19 00:26:19
Local clock offset: -1.661 ms
Remote clock offset: -2.419 ms

# Below is generated by plot.py at 2018-06-19 01:10:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.89 Mbit/s
95th percentile per-packet one-way delay: 331.172 ms
Loss rate: 1.52%
-- Flow 1:
Average throughput: 4.89 Mbit/s
95th percentile per-packet one-way delay: 331.172 ms
Loss rate: 1.52%
```

Run 1: Report of TCP Cubic — Data Link

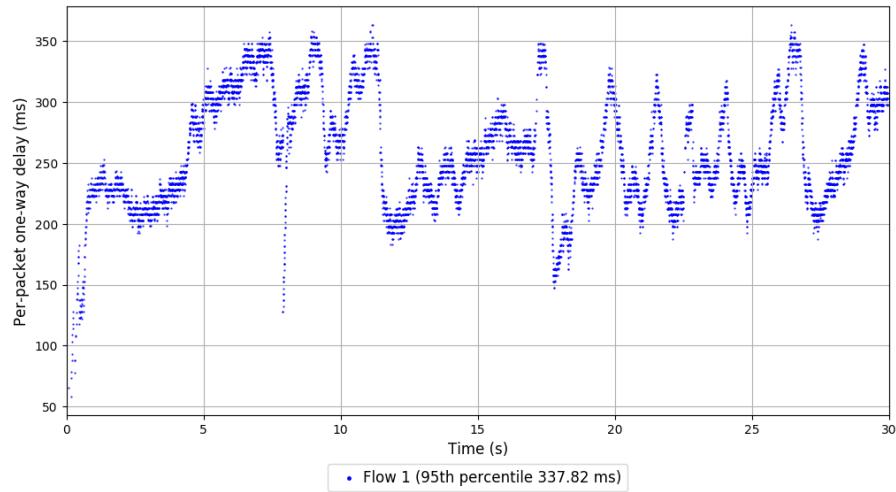
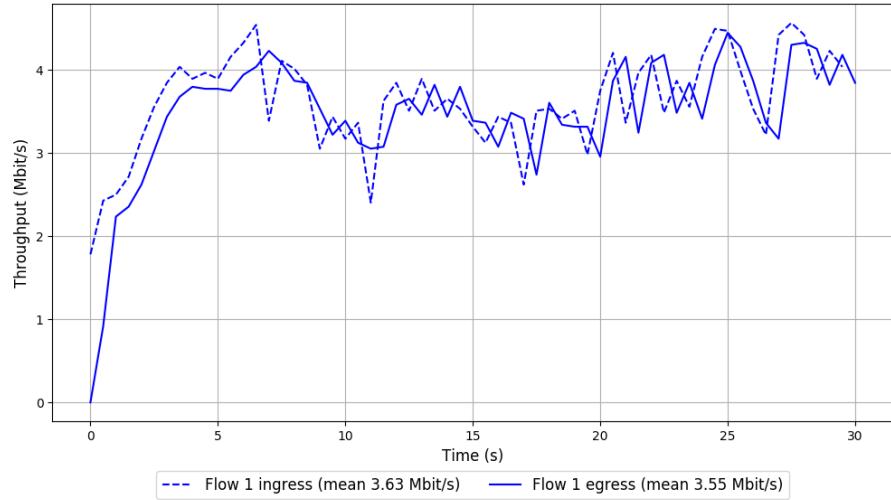


Run 2: Statistics of TCP Cubic

```
Start at: 2018-06-19 00:43:10
End at: 2018-06-19 00:43:40
Local clock offset: -0.78 ms
Remote clock offset: -4.784 ms

# Below is generated by plot.py at 2018-06-19 01:10:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.55 Mbit/s
95th percentile per-packet one-way delay: 337.817 ms
Loss rate: 2.32%
-- Flow 1:
Average throughput: 3.55 Mbit/s
95th percentile per-packet one-way delay: 337.817 ms
Loss rate: 2.32%
```

Run 2: Report of TCP Cubic — Data Link

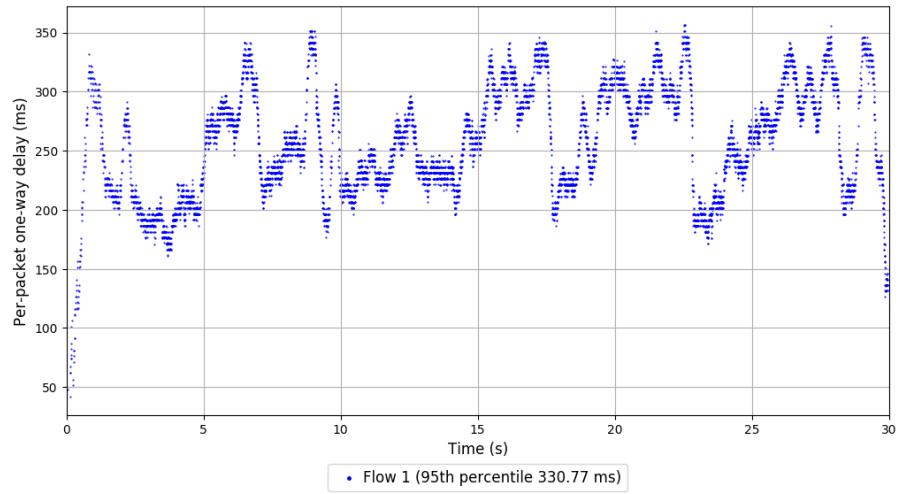
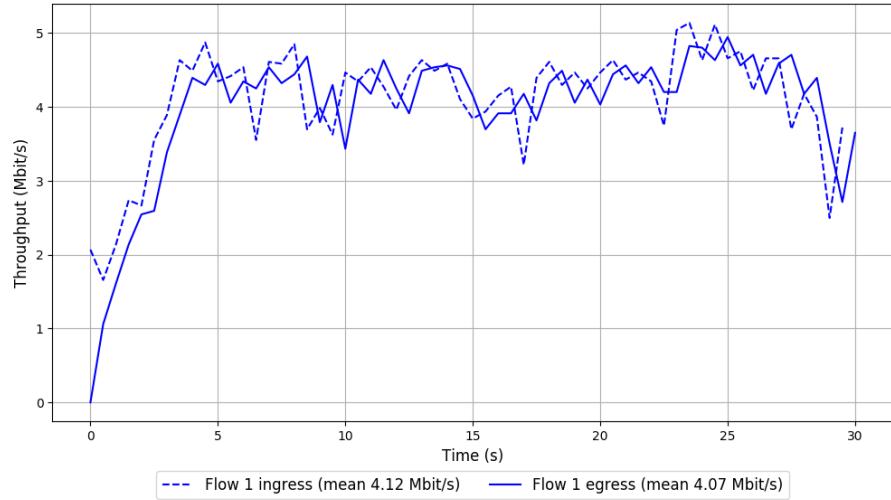


Run 3: Statistics of TCP Cubic

```
Start at: 2018-06-19 01:00:34
End at: 2018-06-19 01:01:04
Local clock offset: -1.746 ms
Remote clock offset: -6.963 ms

# Below is generated by plot.py at 2018-06-19 01:10:02
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.07 Mbit/s
95th percentile per-packet one-way delay: 330.766 ms
Loss rate: 1.35%
-- Flow 1:
Average throughput: 4.07 Mbit/s
95th percentile per-packet one-way delay: 330.766 ms
Loss rate: 1.35%
```

Run 3: Report of TCP Cubic — Data Link

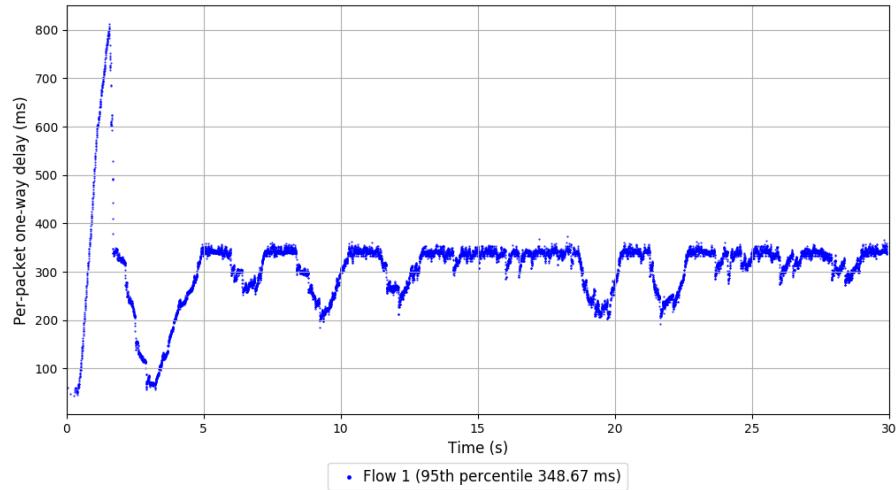
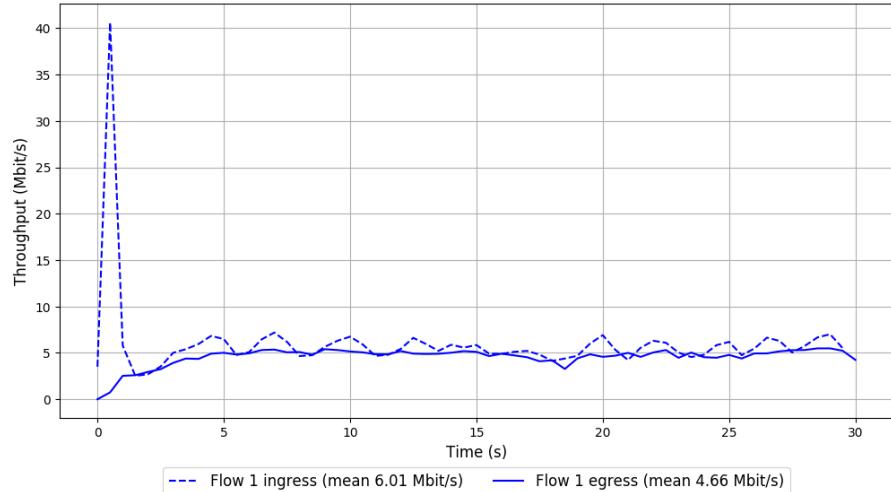


```
Run 1: Statistics of FillP

Start at: 2018-06-19 00:27:59
End at: 2018-06-19 00:28:29
Local clock offset: 0.316 ms
Remote clock offset: -2.555 ms

# Below is generated by plot.py at 2018-06-19 01:10:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.66 Mbit/s
95th percentile per-packet one-way delay: 348.673 ms
Loss rate: 22.68%
-- Flow 1:
Average throughput: 4.66 Mbit/s
95th percentile per-packet one-way delay: 348.673 ms
Loss rate: 22.68%
```

Run 1: Report of FillP — Data Link

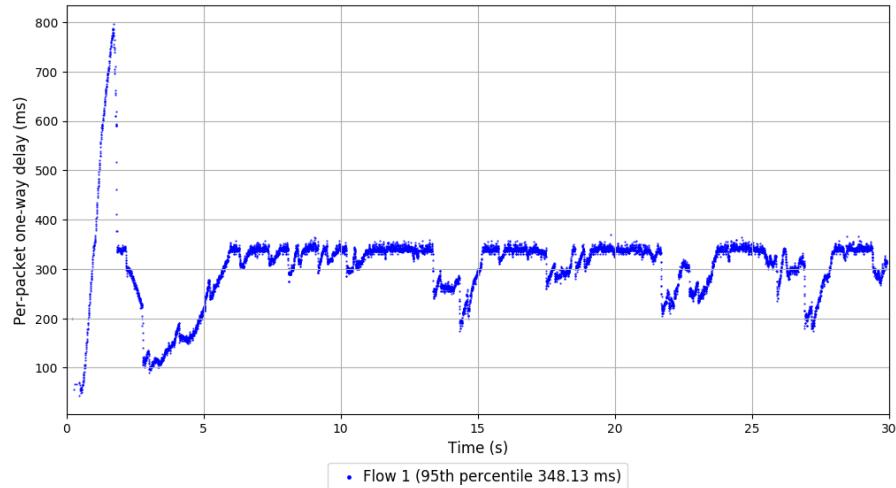
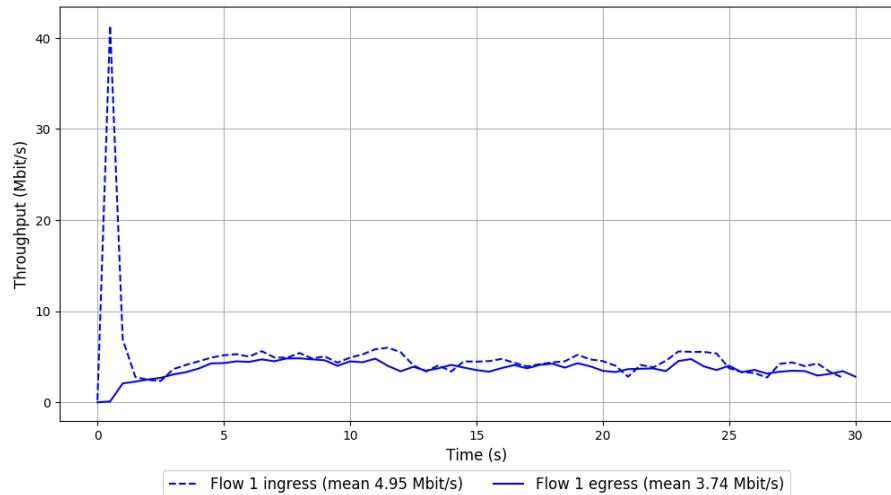


Run 2: Statistics of FillP

```
Start at: 2018-06-19 00:45:21
End at: 2018-06-19 00:45:51
Local clock offset: -2.262 ms
Remote clock offset: -5.246 ms

# Below is generated by plot.py at 2018-06-19 01:10:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.74 Mbit/s
95th percentile per-packet one-way delay: 348.126 ms
Loss rate: 25.06%
-- Flow 1:
Average throughput: 3.74 Mbit/s
95th percentile per-packet one-way delay: 348.126 ms
Loss rate: 25.06%
```

Run 2: Report of FillP — Data Link

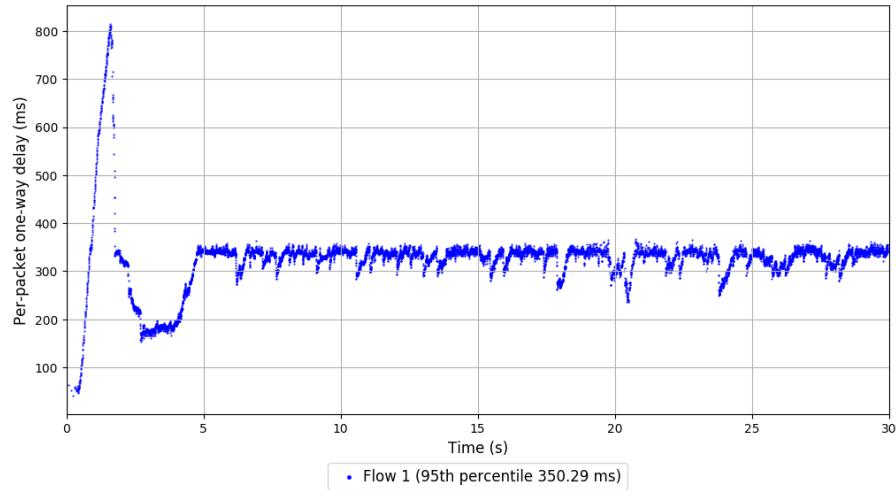
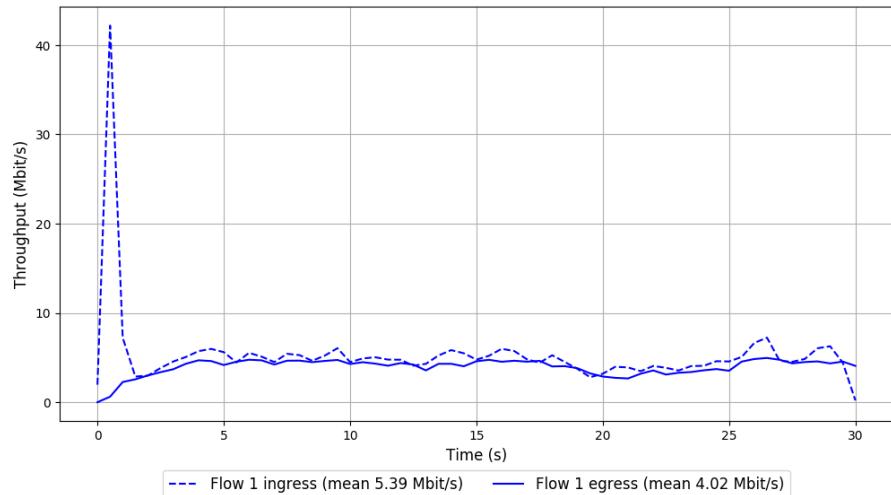


Run 3: Statistics of FillP

```
Start at: 2018-06-19 01:02:44
End at: 2018-06-19 01:03:14
Local clock offset: -0.285 ms
Remote clock offset: -6.81 ms

# Below is generated by plot.py at 2018-06-19 01:10:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.02 Mbit/s
95th percentile per-packet one-way delay: 350.288 ms
Loss rate: 25.65%
-- Flow 1:
Average throughput: 4.02 Mbit/s
95th percentile per-packet one-way delay: 350.288 ms
Loss rate: 25.65%
```

Run 3: Report of FillP — Data Link

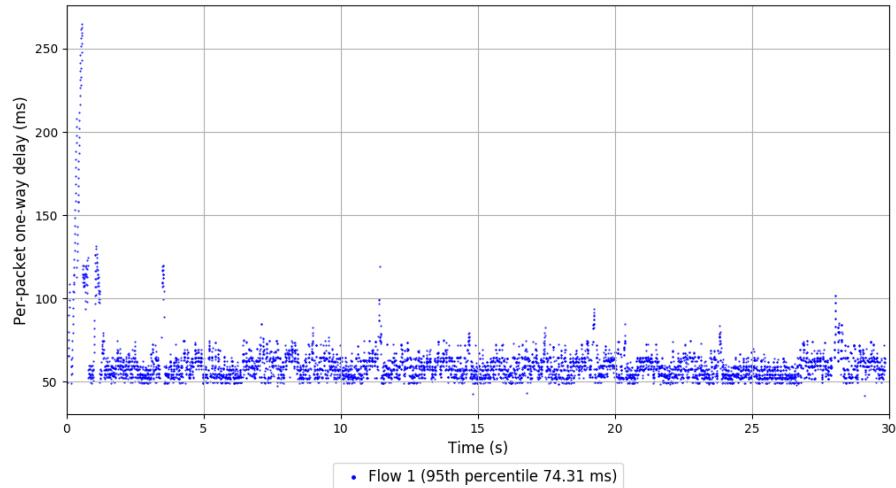
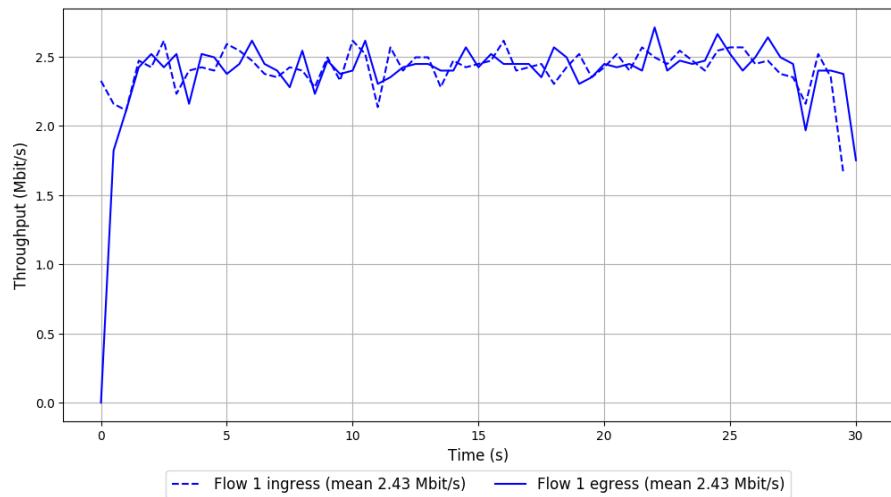


Run 1: Statistics of Indigo

```
Start at: 2018-06-19 00:18:17
End at: 2018-06-19 00:18:47
Local clock offset: -0.978 ms
Remote clock offset: -2.259 ms

# Below is generated by plot.py at 2018-06-19 01:10:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.43 Mbit/s
95th percentile per-packet one-way delay: 74.309 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 2.43 Mbit/s
95th percentile per-packet one-way delay: 74.309 ms
Loss rate: 0.17%
```

Run 1: Report of Indigo — Data Link

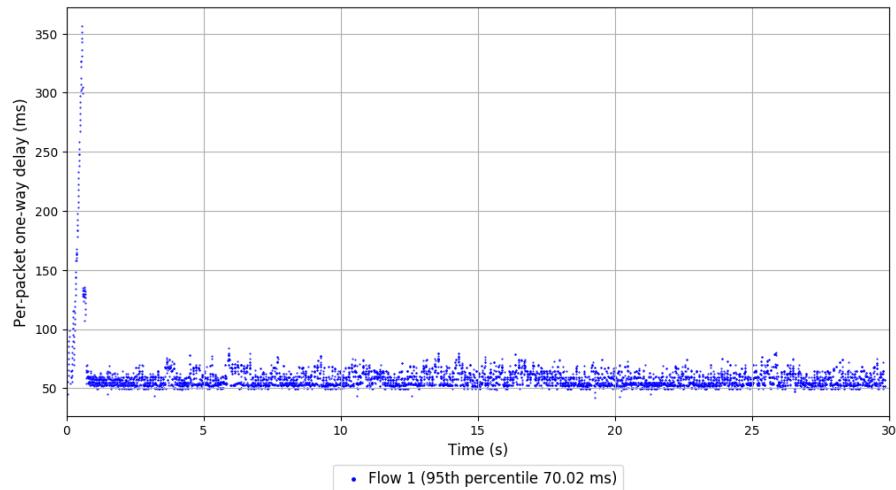
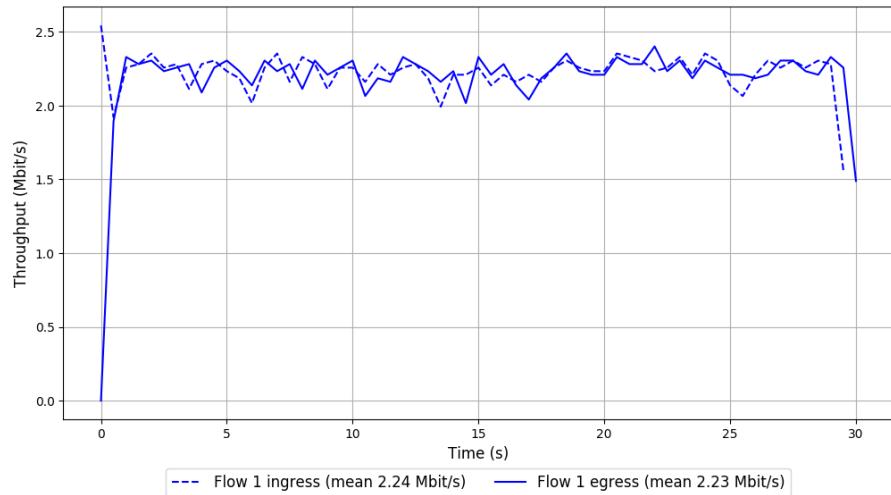


Run 2: Statistics of Indigo

```
Start at: 2018-06-19 00:35:33
End at: 2018-06-19 00:36:03
Local clock offset: -1.502 ms
Remote clock offset: -3.591 ms

# Below is generated by plot.py at 2018-06-19 01:10:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.23 Mbit/s
95th percentile per-packet one-way delay: 70.019 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 2.23 Mbit/s
95th percentile per-packet one-way delay: 70.019 ms
Loss rate: 0.27%
```

Run 2: Report of Indigo — Data Link

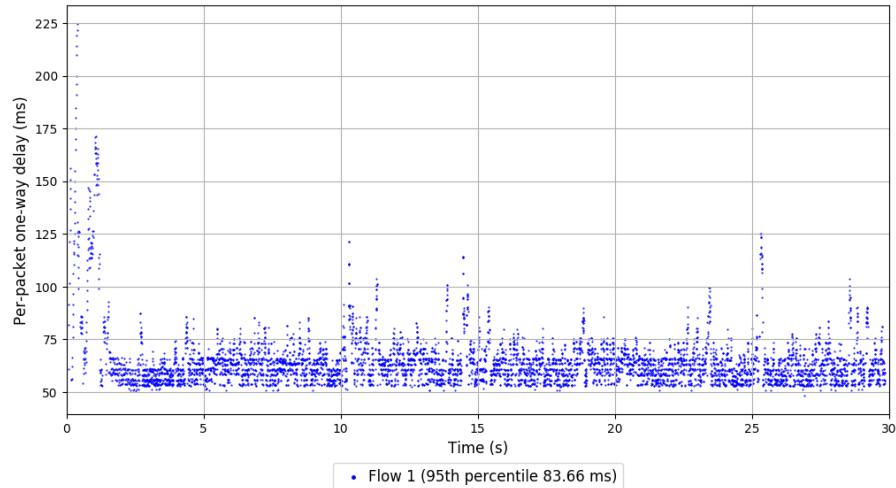
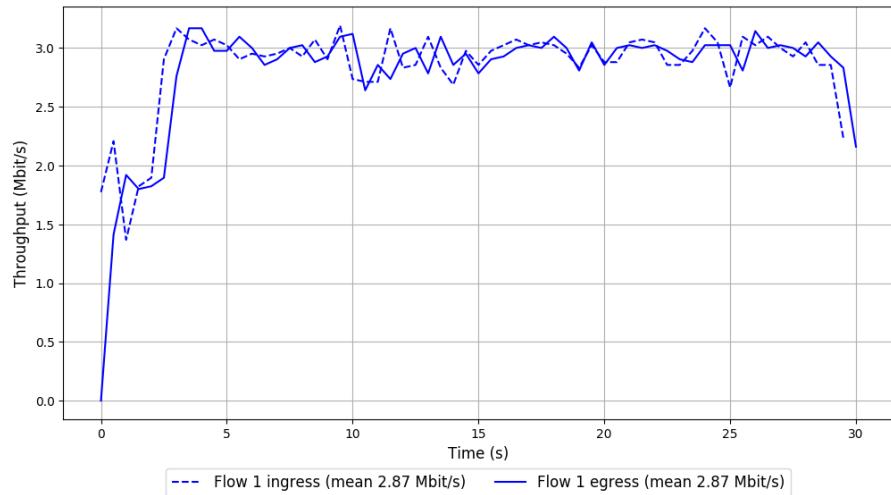


Run 3: Statistics of Indigo

```
Start at: 2018-06-19 00:52:54
End at: 2018-06-19 00:53:24
Local clock offset: 0.257 ms
Remote clock offset: -6.469 ms

# Below is generated by plot.py at 2018-06-19 01:10:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.87 Mbit/s
95th percentile per-packet one-way delay: 83.664 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 2.87 Mbit/s
95th percentile per-packet one-way delay: 83.664 ms
Loss rate: 0.21%
```

Run 3: Report of Indigo — Data Link

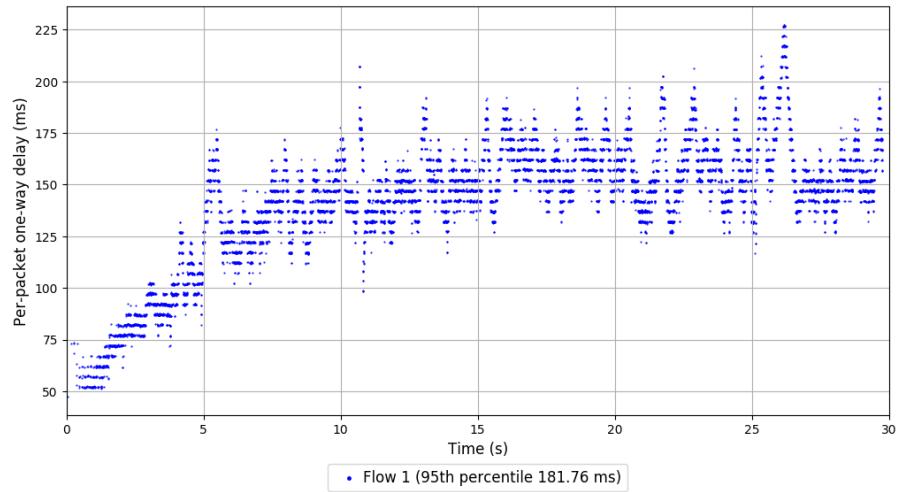
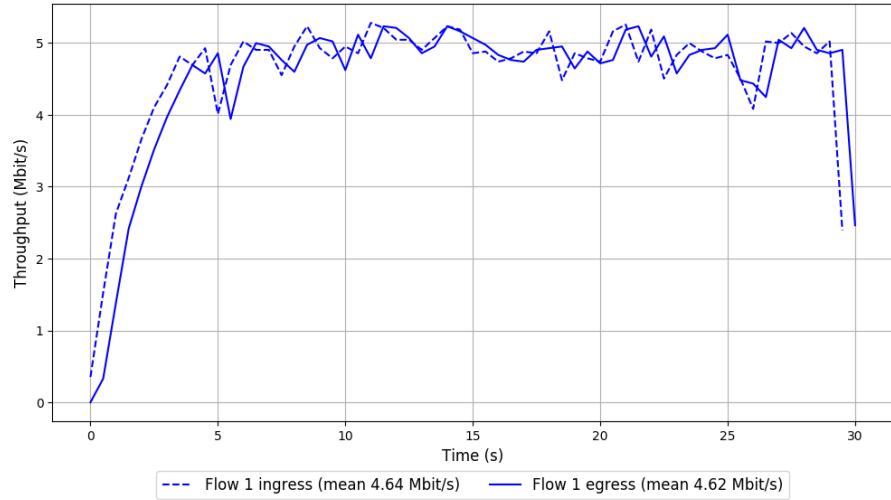


```
Run 1: Statistics of LEDBAT
```

```
Start at: 2018-06-19 00:24:45
End at: 2018-06-19 00:25:15
Local clock offset: -1.066 ms
Remote clock offset: -2.138 ms

# Below is generated by plot.py at 2018-06-19 01:10:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.62 Mbit/s
95th percentile per-packet one-way delay: 181.765 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 4.62 Mbit/s
95th percentile per-packet one-way delay: 181.765 ms
Loss rate: 0.56%
```

Run 1: Report of LEDBAT — Data Link

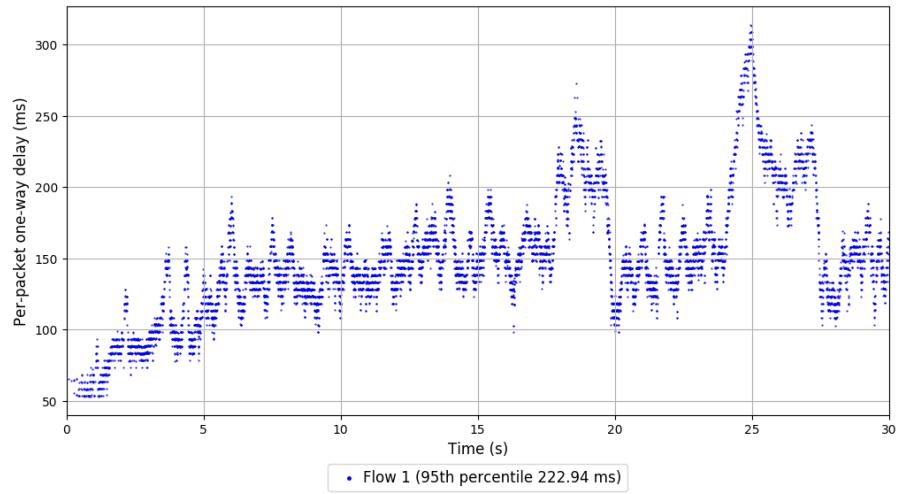
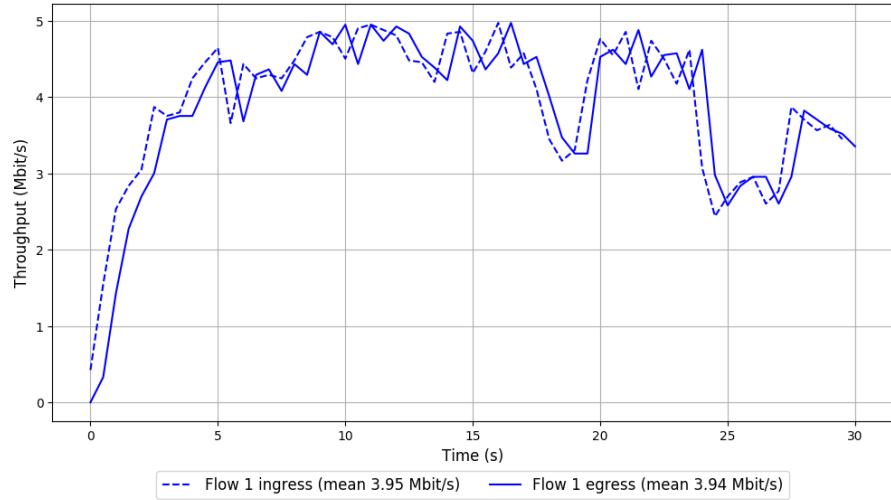


Run 2: Statistics of LEDBAT

```
Start at: 2018-06-19 00:42:00
End at: 2018-06-19 00:42:31
Local clock offset: -0.553 ms
Remote clock offset: -4.668 ms

# Below is generated by plot.py at 2018-06-19 01:10:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.94 Mbit/s
95th percentile per-packet one-way delay: 222.940 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 3.94 Mbit/s
95th percentile per-packet one-way delay: 222.940 ms
Loss rate: 0.51%
```

Run 2: Report of LEDBAT — Data Link

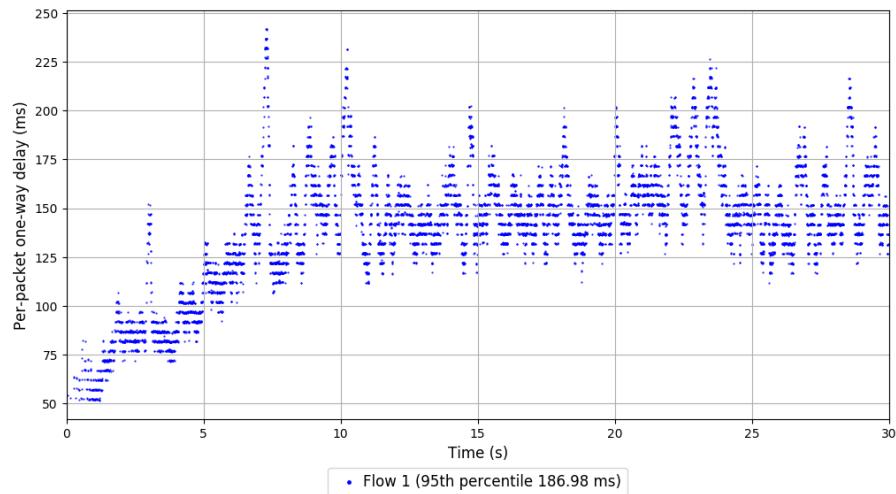
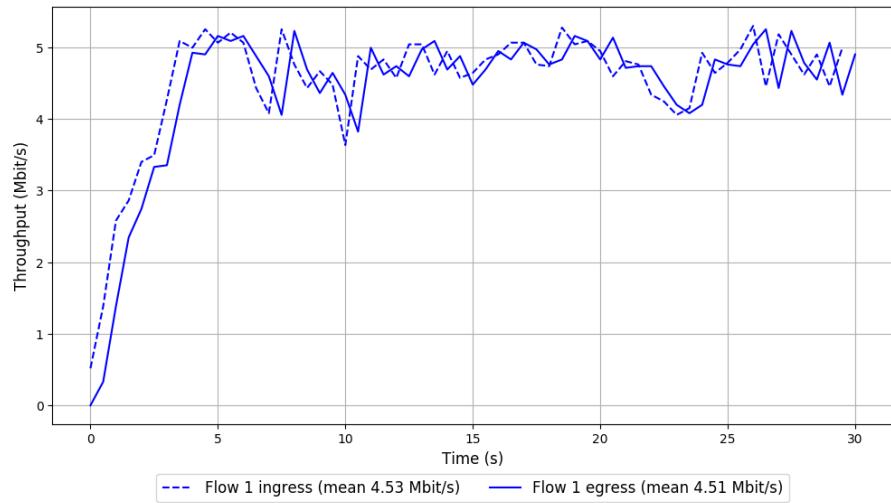


Run 3: Statistics of LEDBAT

```
Start at: 2018-06-19 00:59:29
End at: 2018-06-19 00:59:59
Local clock offset: -1.577 ms
Remote clock offset: -7.043 ms

# Below is generated by plot.py at 2018-06-19 01:10:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.51 Mbit/s
95th percentile per-packet one-way delay: 186.984 ms
Loss rate: 0.60%
-- Flow 1:
Average throughput: 4.51 Mbit/s
95th percentile per-packet one-way delay: 186.984 ms
Loss rate: 0.60%
```

Run 3: Report of LEDBAT — Data Link

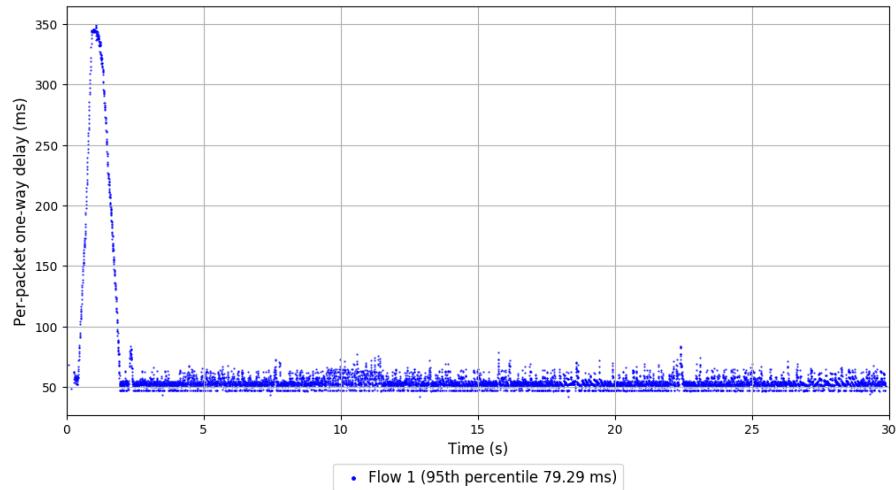
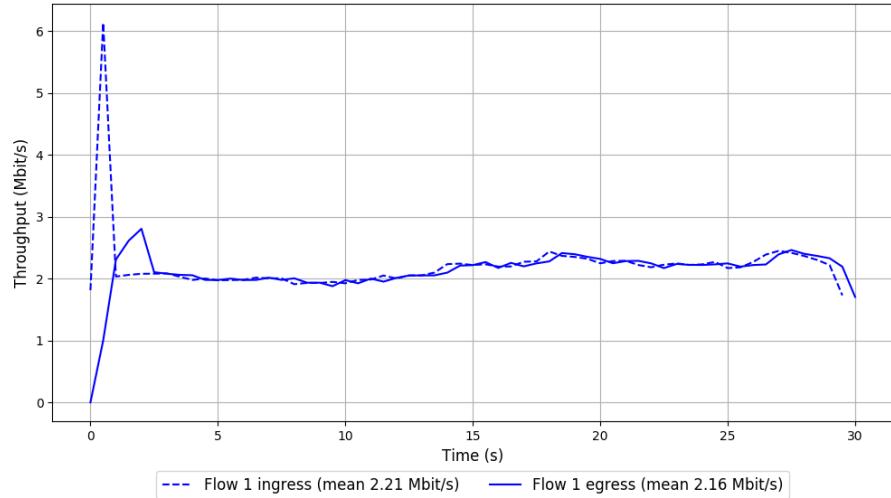


```
Run 1: Statistics of PCC-Allegro
```

```
Start at: 2018-06-19 00:30:09
End at: 2018-06-19 00:30:39
Local clock offset: 0.808 ms
Remote clock offset: -2.335 ms

# Below is generated by plot.py at 2018-06-19 01:10:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.16 Mbit/s
95th percentile per-packet one-way delay: 79.293 ms
Loss rate: 2.54%
-- Flow 1:
Average throughput: 2.16 Mbit/s
95th percentile per-packet one-way delay: 79.293 ms
Loss rate: 2.54%
```

Run 1: Report of PCC-Allegro — Data Link

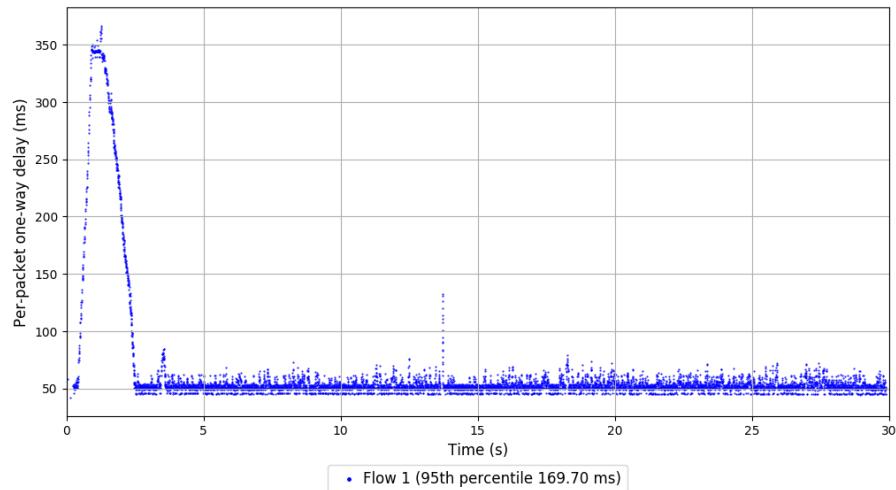
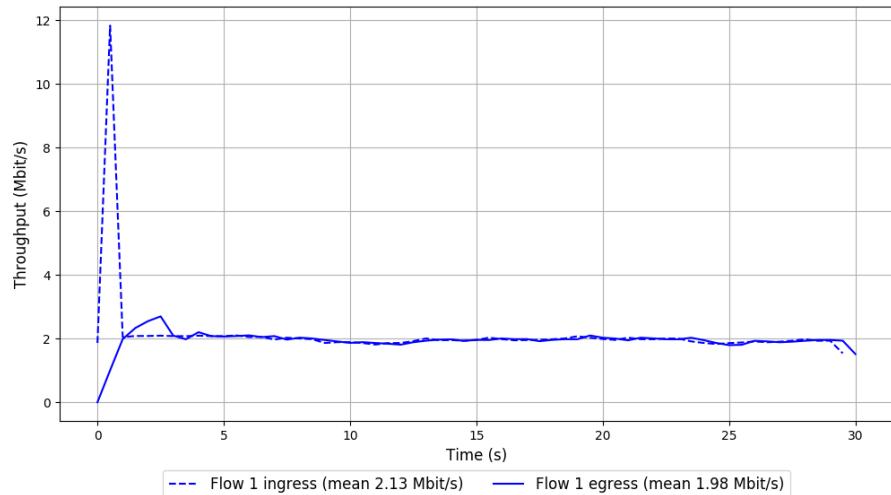


Run 2: Statistics of PCC-Allegro

```
Start at: 2018-06-19 00:47:31
End at: 2018-06-19 00:48:01
Local clock offset: -2.035 ms
Remote clock offset: -5.919 ms

# Below is generated by plot.py at 2018-06-19 01:10:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.98 Mbit/s
95th percentile per-packet one-way delay: 169.702 ms
Loss rate: 7.33%
-- Flow 1:
Average throughput: 1.98 Mbit/s
95th percentile per-packet one-way delay: 169.702 ms
Loss rate: 7.33%
```

Run 2: Report of PCC-Allegro — Data Link

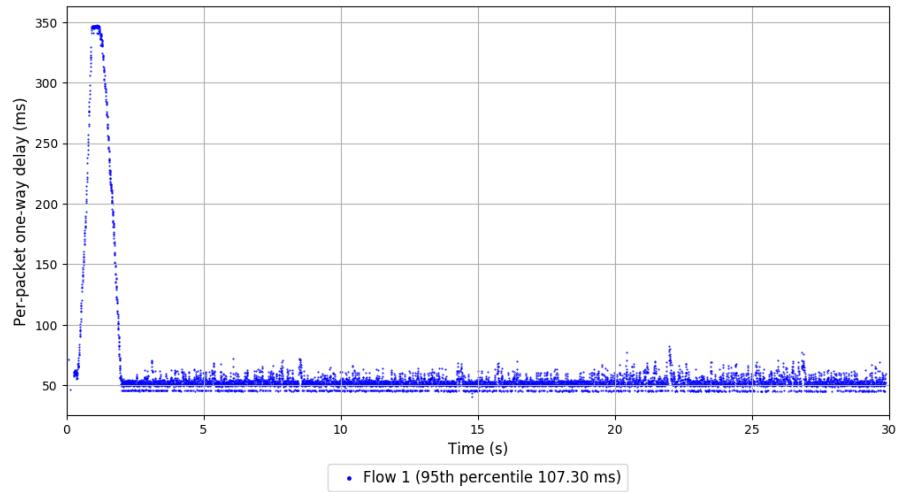
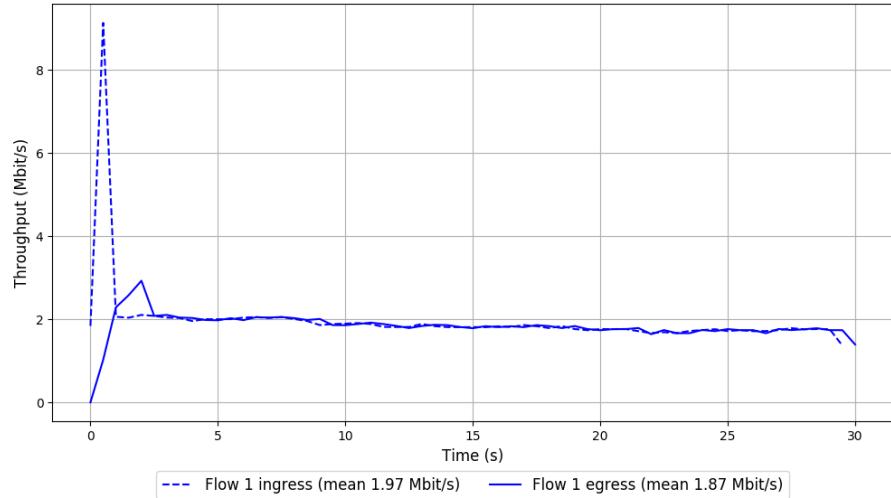


```
Run 3: Statistics of PCC-Allegro
```

```
Start at: 2018-06-19 01:04:54
End at: 2018-06-19 01:05:24
Local clock offset: -1.172 ms
Remote clock offset: -8.198 ms

# Below is generated by plot.py at 2018-06-19 01:10:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.87 Mbit/s
95th percentile per-packet one-way delay: 107.298 ms
Loss rate: 5.27%
-- Flow 1:
Average throughput: 1.87 Mbit/s
95th percentile per-packet one-way delay: 107.298 ms
Loss rate: 5.27%
```

Run 3: Report of PCC-Allegro — Data Link

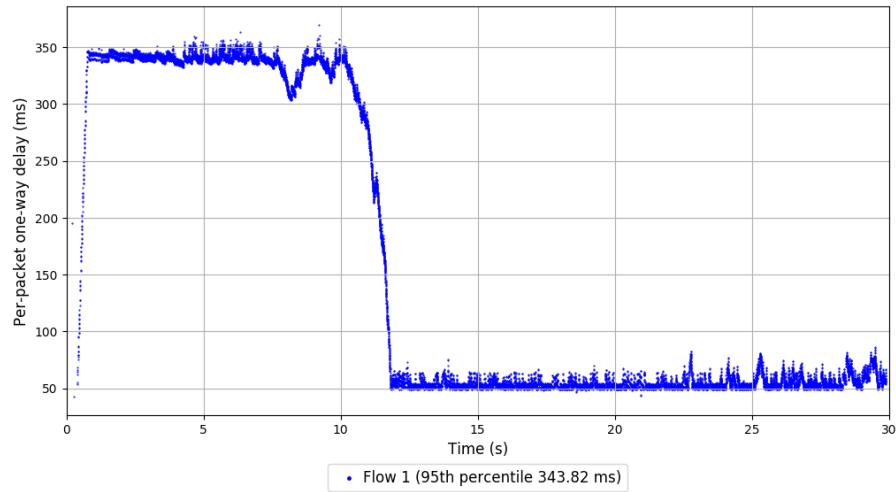
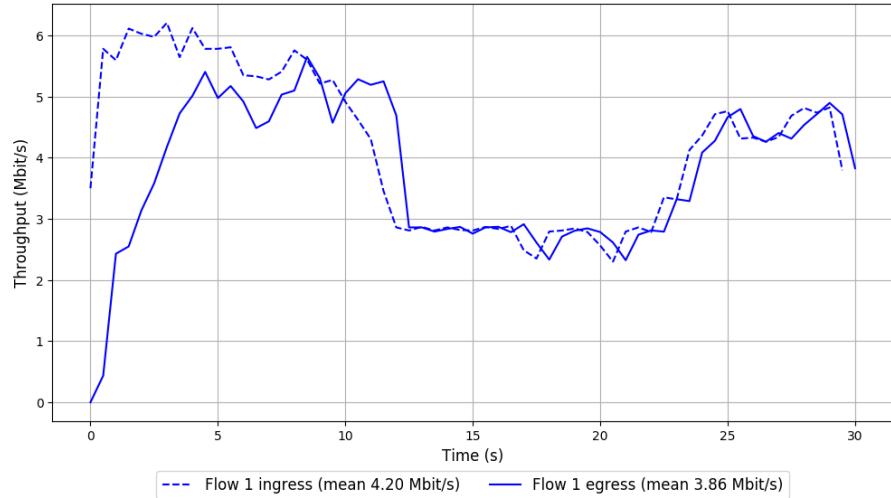


```
Run 1: Statistics of PCC-Expr
```

```
Start at: 2018-06-19 00:26:54
End at: 2018-06-19 00:27:24
Local clock offset: -1.161 ms
Remote clock offset: -3.143 ms

# Below is generated by plot.py at 2018-06-19 01:10:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.86 Mbit/s
95th percentile per-packet one-way delay: 343.821 ms
Loss rate: 8.91%
-- Flow 1:
Average throughput: 3.86 Mbit/s
95th percentile per-packet one-way delay: 343.821 ms
Loss rate: 8.91%
```

Run 1: Report of PCC-Expr — Data Link

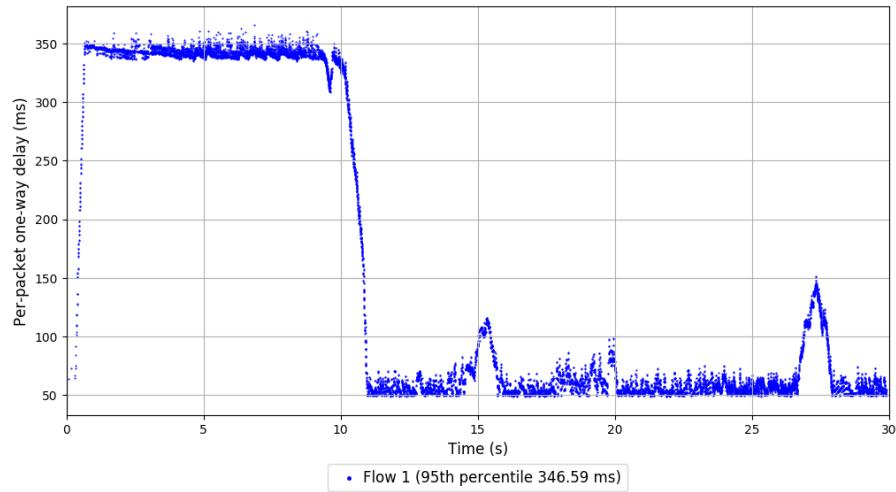
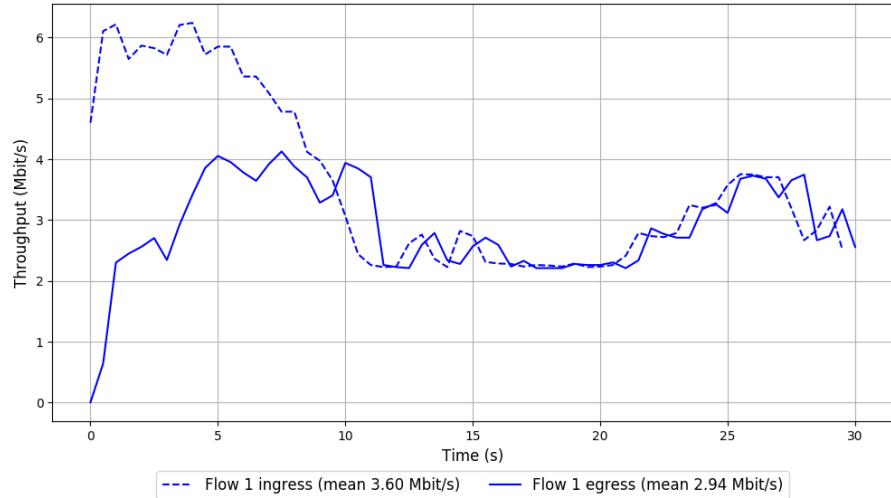


Run 2: Statistics of PCC-Expr

```
Start at: 2018-06-19 00:44:15
End at: 2018-06-19 00:44:45
Local clock offset: -1.137 ms
Remote clock offset: -4.841 ms

# Below is generated by plot.py at 2018-06-19 01:10:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.94 Mbit/s
95th percentile per-packet one-way delay: 346.594 ms
Loss rate: 18.65%
-- Flow 1:
Average throughput: 2.94 Mbit/s
95th percentile per-packet one-way delay: 346.594 ms
Loss rate: 18.65%
```

Run 2: Report of PCC-Expr — Data Link

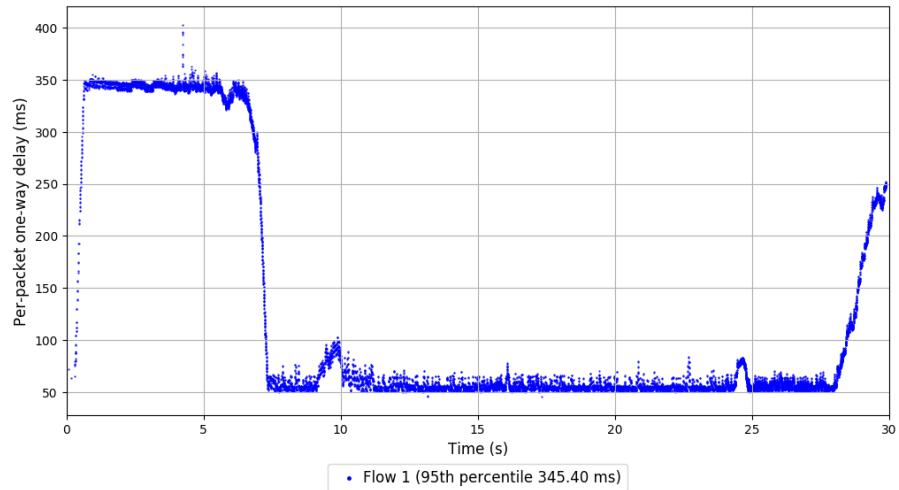
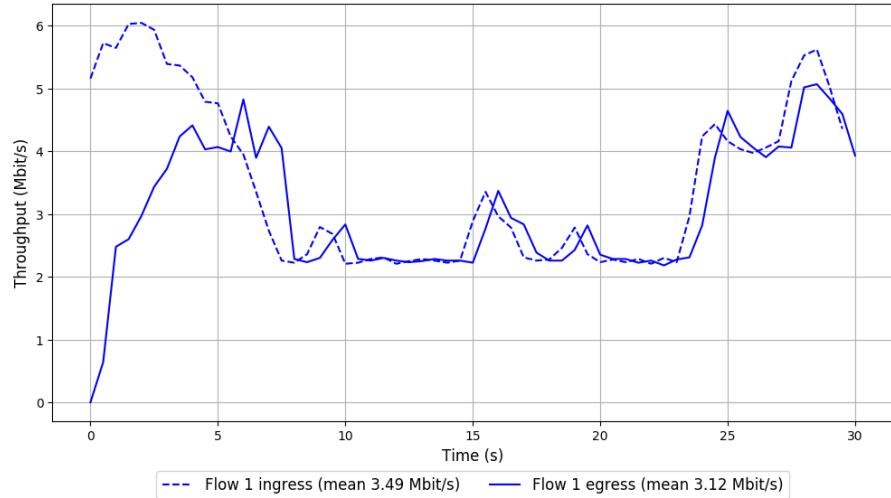


Run 3: Statistics of PCC-Expr

```
Start at: 2018-06-19 01:01:39
End at: 2018-06-19 01:02:09
Local clock offset: 0.135 ms
Remote clock offset: -7.74 ms

# Below is generated by plot.py at 2018-06-19 01:10:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.12 Mbit/s
95th percentile per-packet one-way delay: 345.397 ms
Loss rate: 11.02%
-- Flow 1:
Average throughput: 3.12 Mbit/s
95th percentile per-packet one-way delay: 345.397 ms
Loss rate: 11.02%
```

Run 3: Report of PCC-Expr — Data Link

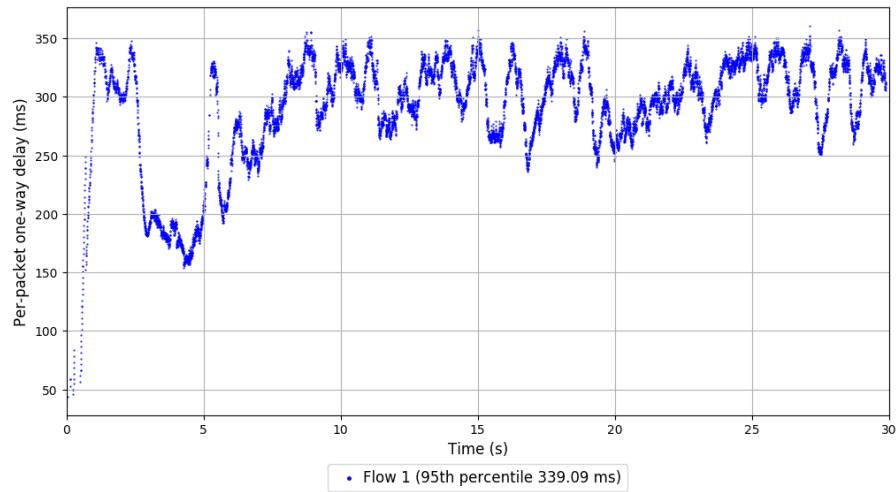
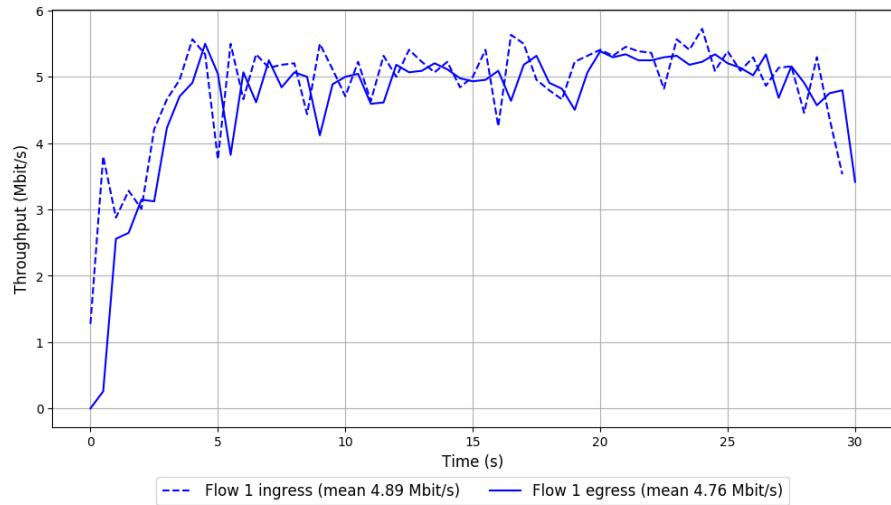


```
Run 1: Statistics of QUIC Cubic
```

```
Start at: 2018-06-19 00:22:35
End at: 2018-06-19 00:23:05
Local clock offset: -1.377 ms
Remote clock offset: -2.243 ms

# Below is generated by plot.py at 2018-06-19 01:10:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.76 Mbit/s
95th percentile per-packet one-way delay: 339.087 ms
Loss rate: 2.86%
-- Flow 1:
Average throughput: 4.76 Mbit/s
95th percentile per-packet one-way delay: 339.087 ms
Loss rate: 2.86%
```

Run 1: Report of QUIC Cubic — Data Link

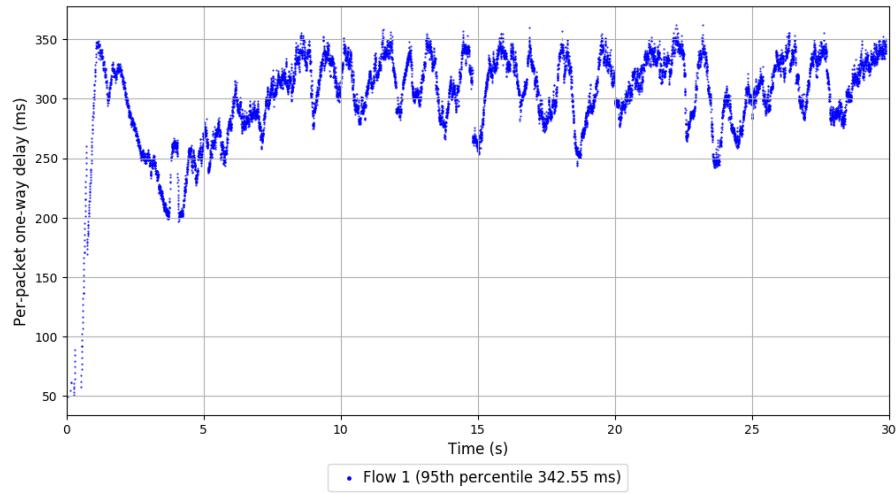
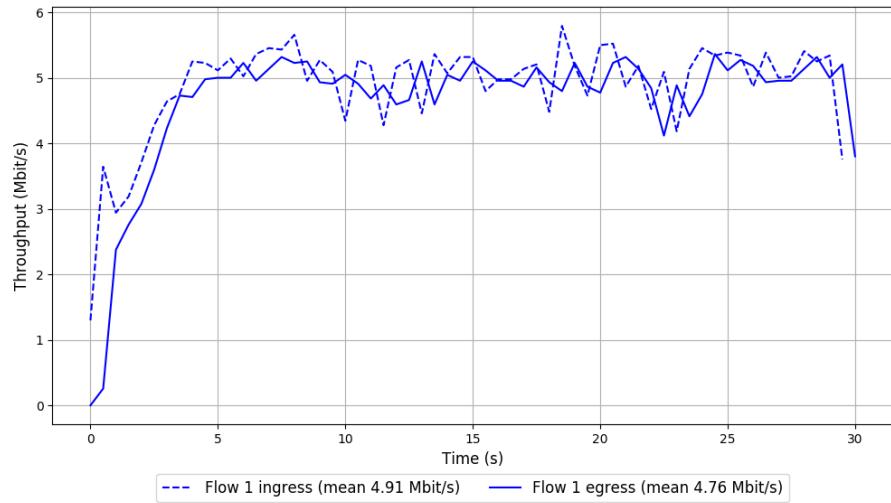


Run 2: Statistics of QUIC Cubic

```
Start at: 2018-06-19 00:39:52
End at: 2018-06-19 00:40:22
Local clock offset: 0.674 ms
Remote clock offset: -3.367 ms

# Below is generated by plot.py at 2018-06-19 01:10:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.76 Mbit/s
95th percentile per-packet one-way delay: 342.549 ms
Loss rate: 3.18%
-- Flow 1:
Average throughput: 4.76 Mbit/s
95th percentile per-packet one-way delay: 342.549 ms
Loss rate: 3.18%
```

Run 2: Report of QUIC Cubic — Data Link

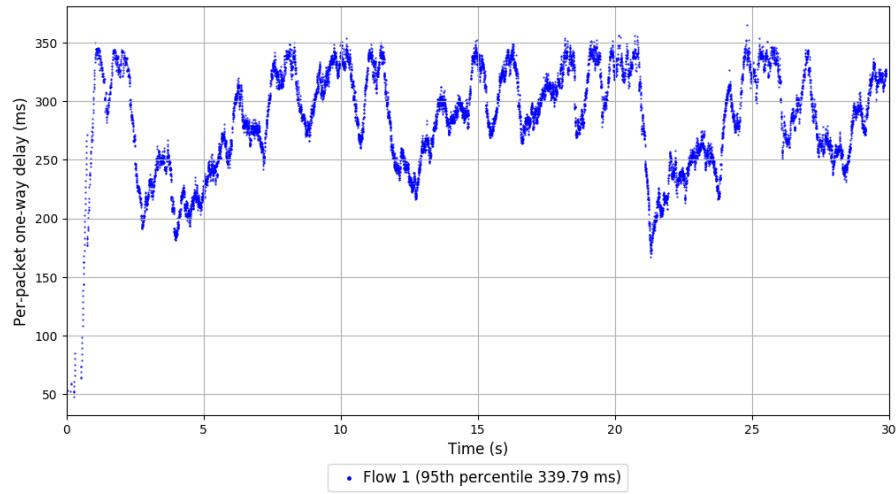
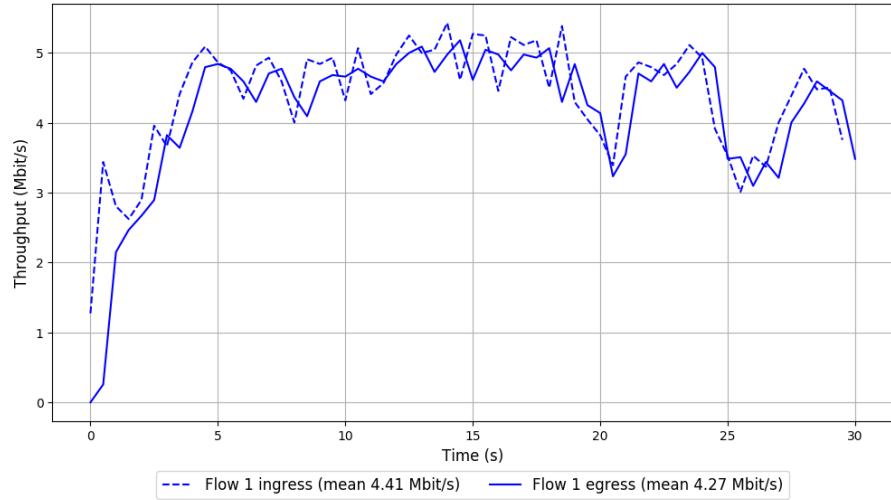


Run 3: Statistics of QUIC Cubic

```
Start at: 2018-06-19 00:57:15
End at: 2018-06-19 00:57:45
Local clock offset: -2.289 ms
Remote clock offset: -7.7 ms

# Below is generated by plot.py at 2018-06-19 01:10:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.27 Mbit/s
95th percentile per-packet one-way delay: 339.793 ms
Loss rate: 3.40%
-- Flow 1:
Average throughput: 4.27 Mbit/s
95th percentile per-packet one-way delay: 339.793 ms
Loss rate: 3.40%
```

Run 3: Report of QUIC Cubic — Data Link

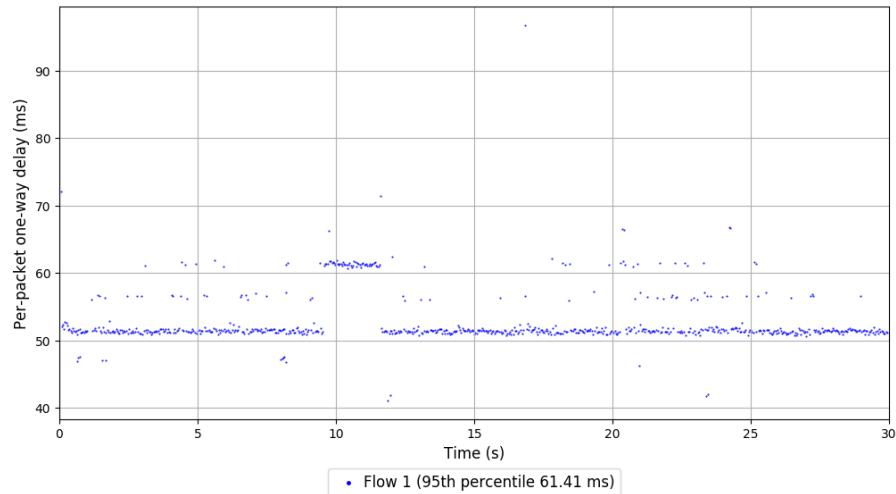
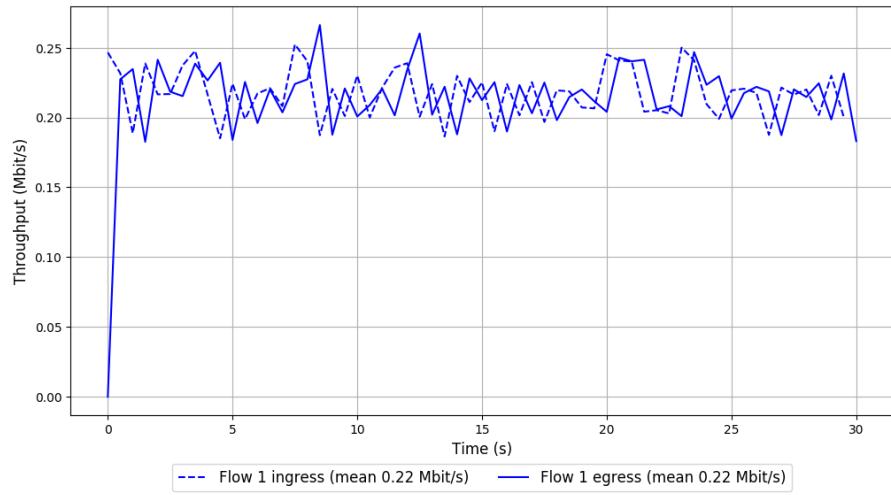


```
Run 1: Statistics of SCReAM
```

```
Start at: 2018-06-19 00:33:23
End at: 2018-06-19 00:33:53
Local clock offset: 1.301 ms
Remote clock offset: -2.975 ms

# Below is generated by plot.py at 2018-06-19 01:10:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 61.414 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 61.414 ms
Loss rate: 0.26%
```

Run 1: Report of SCReAM — Data Link

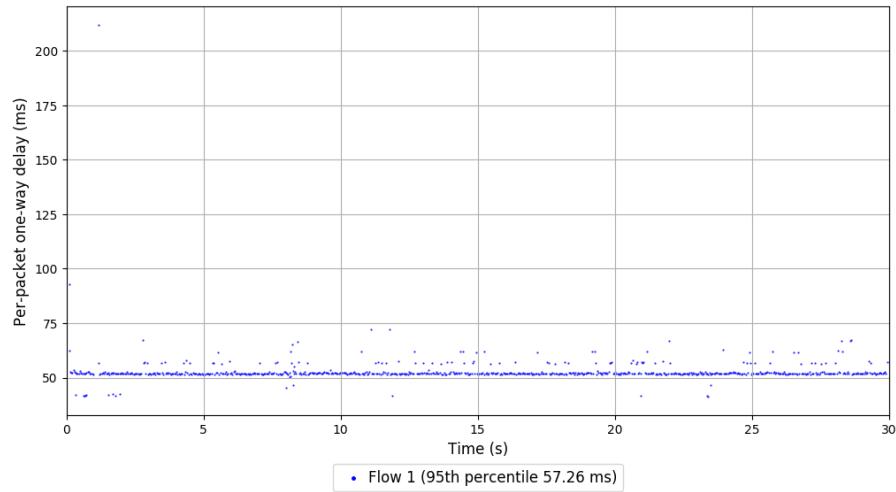
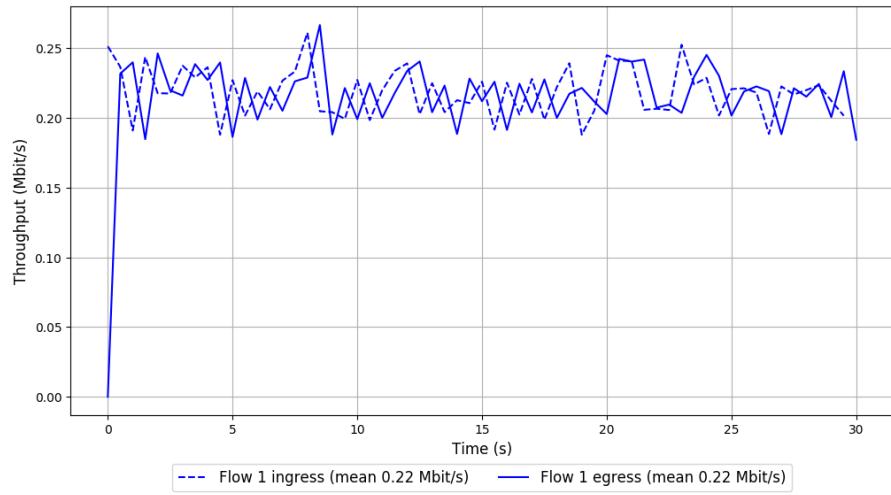


Run 2: Statistics of SCReAM

```
Start at: 2018-06-19 00:50:45
End at: 2018-06-19 00:51:15
Local clock offset: 0.292 ms
Remote clock offset: -6.959 ms

# Below is generated by plot.py at 2018-06-19 01:10:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.255 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.255 ms
Loss rate: 0.26%
```

Run 2: Report of SCReAM — Data Link

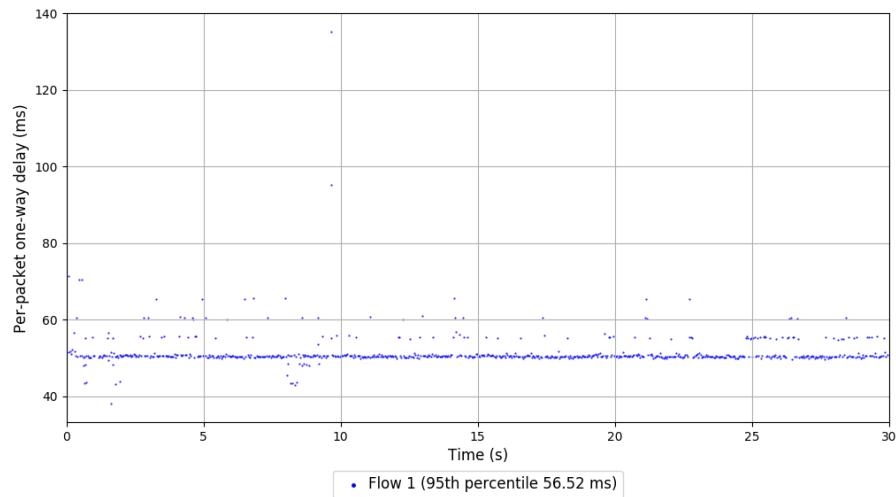
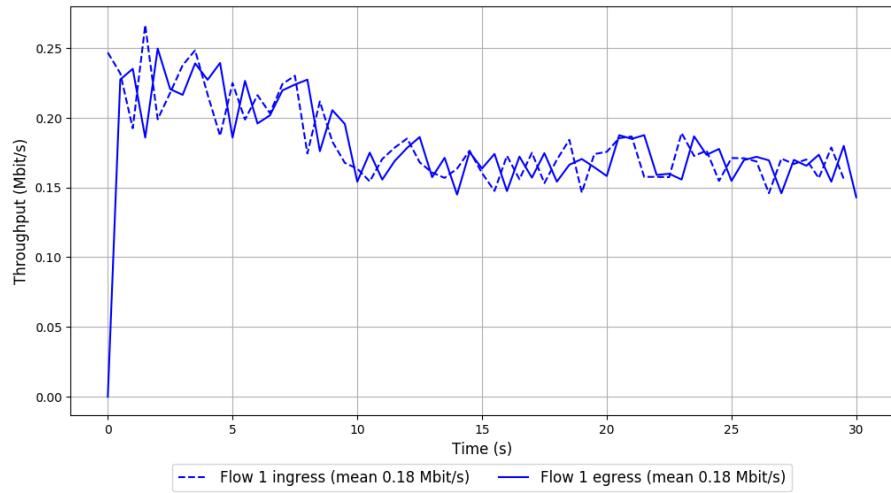


Run 3: Statistics of SCReAM

```
Start at: 2018-06-19 01:08:09
End at: 2018-06-19 01:08:39
Local clock offset: 0.272 ms
Remote clock offset: -7.625 ms

# Below is generated by plot.py at 2018-06-19 01:10:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 56.518 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 56.518 ms
Loss rate: 0.24%
```

Run 3: Report of SCReAM — Data Link

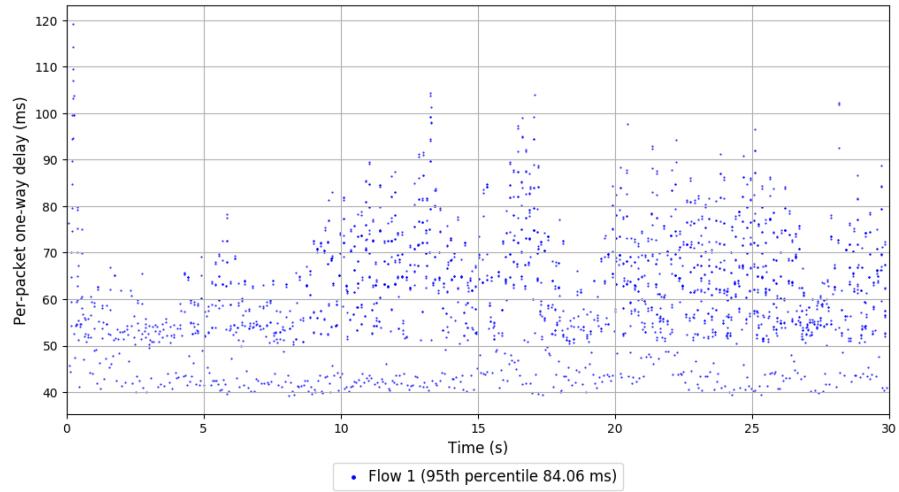
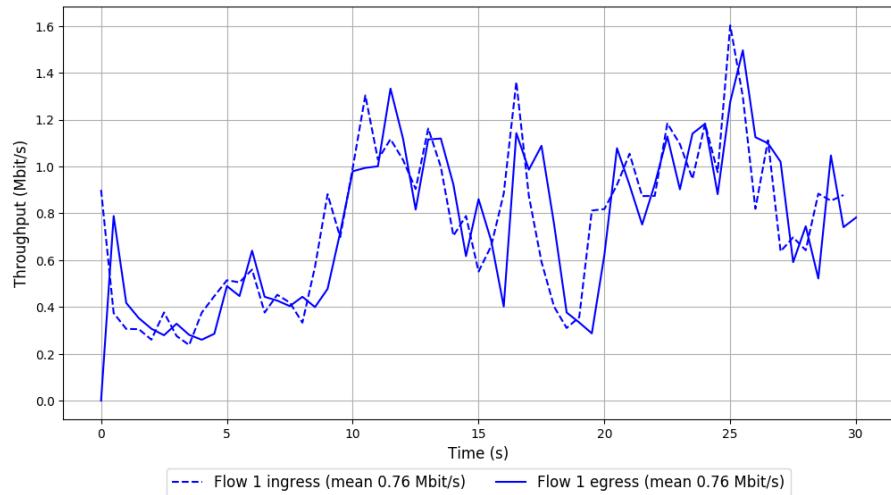


Run 1: Statistics of Sprout

```
Start at: 2018-06-19 00:23:40
End at: 2018-06-19 00:24:10
Local clock offset: 1.589 ms
Remote clock offset: -1.839 ms

# Below is generated by plot.py at 2018-06-19 01:10:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.76 Mbit/s
95th percentile per-packet one-way delay: 84.060 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 0.76 Mbit/s
95th percentile per-packet one-way delay: 84.060 ms
Loss rate: 0.57%
```

Run 1: Report of Sprout — Data Link

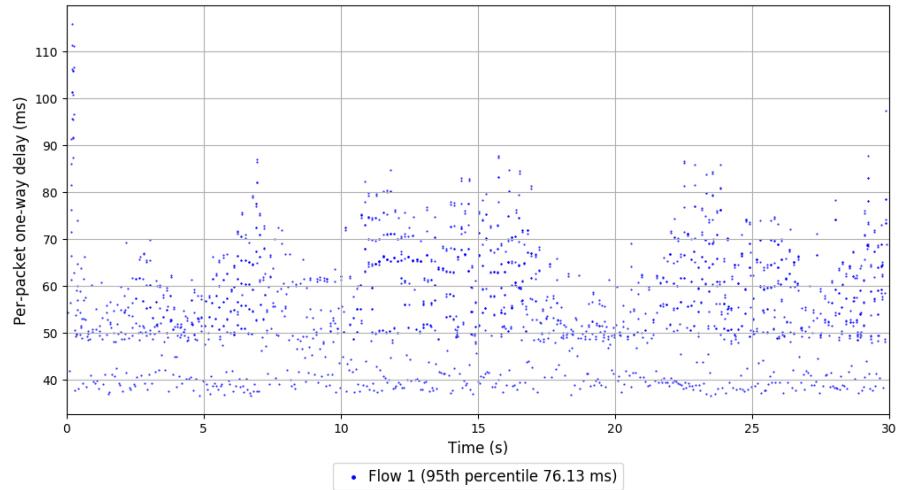
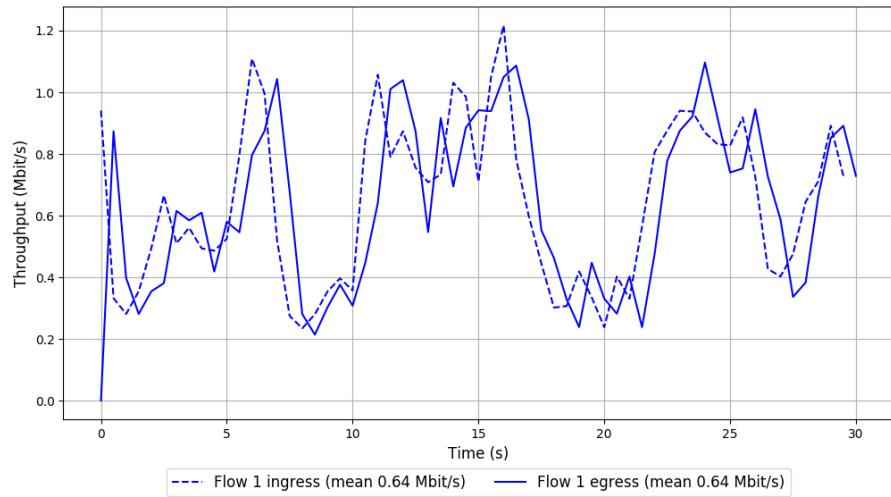


Run 2: Statistics of Sprout

```
Start at: 2018-06-19 00:40:56
End at: 2018-06-19 00:41:26
Local clock offset: -2.676 ms
Remote clock offset: -4.399 ms

# Below is generated by plot.py at 2018-06-19 01:10:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.64 Mbit/s
95th percentile per-packet one-way delay: 76.130 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.64 Mbit/s
95th percentile per-packet one-way delay: 76.130 ms
Loss rate: 0.00%
```

Run 2: Report of Sprout — Data Link

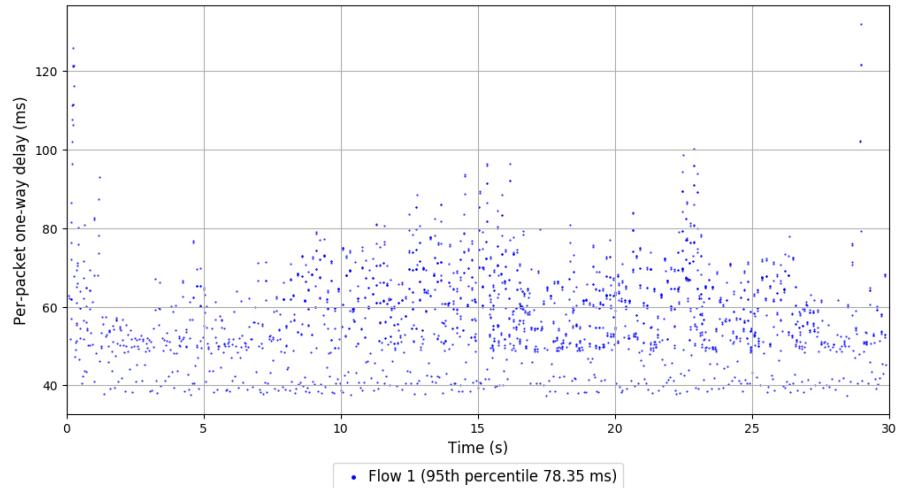
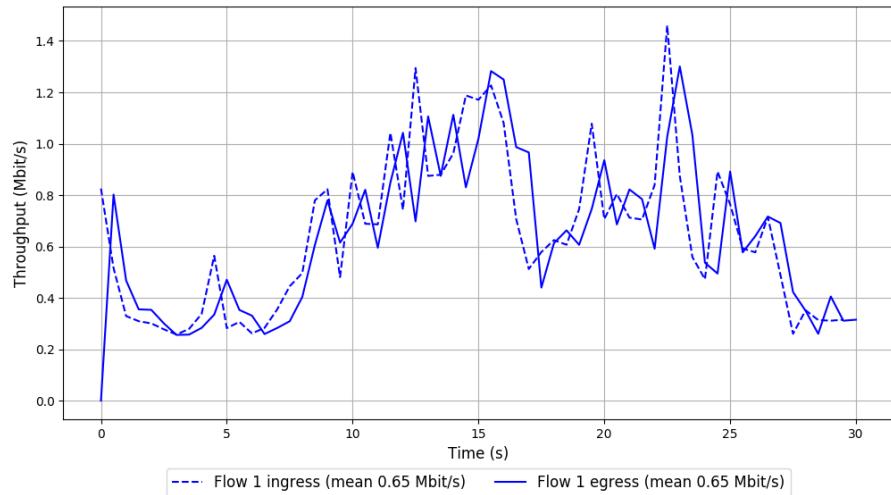


Run 3: Statistics of Sprout

```
Start at: 2018-06-19 00:58:25
End at: 2018-06-19 00:58:55
Local clock offset: -1.845 ms
Remote clock offset: -6.984 ms

# Below is generated by plot.py at 2018-06-19 01:10:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.65 Mbit/s
95th percentile per-packet one-way delay: 78.354 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.65 Mbit/s
95th percentile per-packet one-way delay: 78.354 ms
Loss rate: 0.00%
```

Run 3: Report of Sprout — Data Link

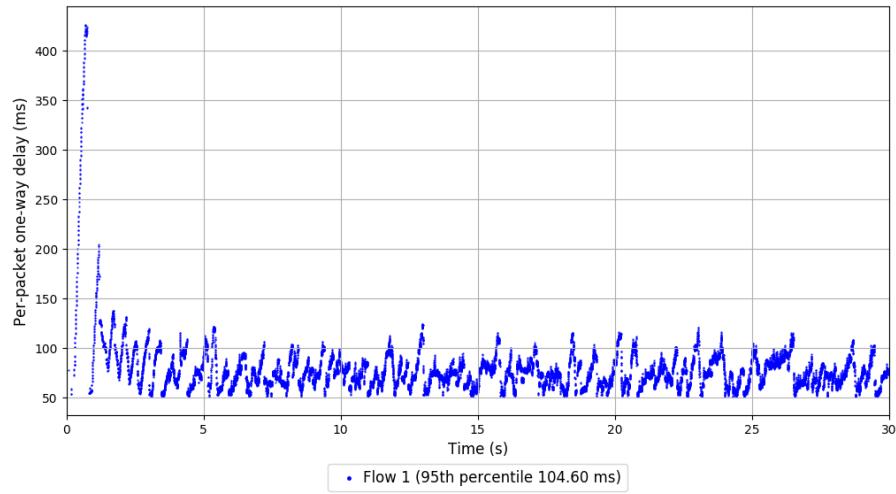
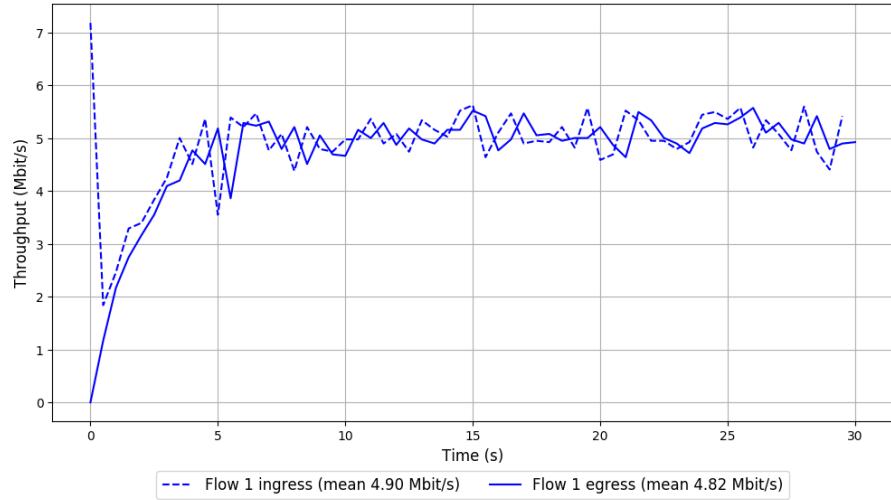


Run 1: Statistics of TaoVA-100x

```
Start at: 2018-06-19 00:32:18
End at: 2018-06-19 00:32:48
Local clock offset: 0.937 ms
Remote clock offset: -2.669 ms

# Below is generated by plot.py at 2018-06-19 01:10:31
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.82 Mbit/s
95th percentile per-packet one-way delay: 104.599 ms
Loss rate: 1.89%
-- Flow 1:
Average throughput: 4.82 Mbit/s
95th percentile per-packet one-way delay: 104.599 ms
Loss rate: 1.89%
```

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

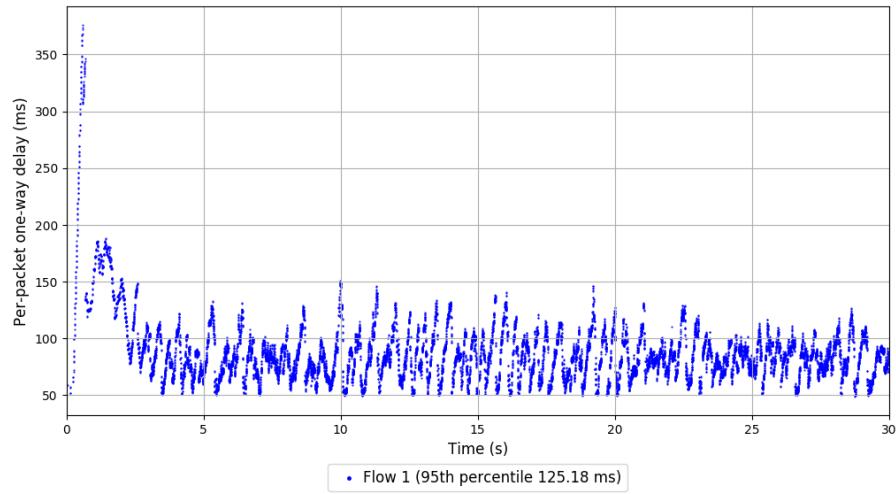
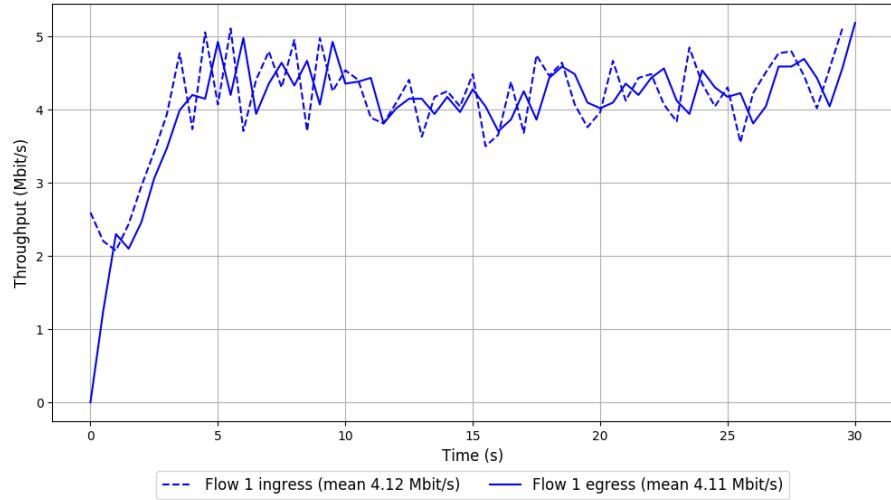


Run 2: Statistics of TaoVA-100x

```
Start at: 2018-06-19 00:49:40
End at: 2018-06-19 00:50:10
Local clock offset: -1.26 ms
Remote clock offset: -6.617 ms

# Below is generated by plot.py at 2018-06-19 01:10:31
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.11 Mbit/s
95th percentile per-packet one-way delay: 125.176 ms
Loss rate: 0.53%
-- Flow 1:
Average throughput: 4.11 Mbit/s
95th percentile per-packet one-way delay: 125.176 ms
Loss rate: 0.53%
```

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

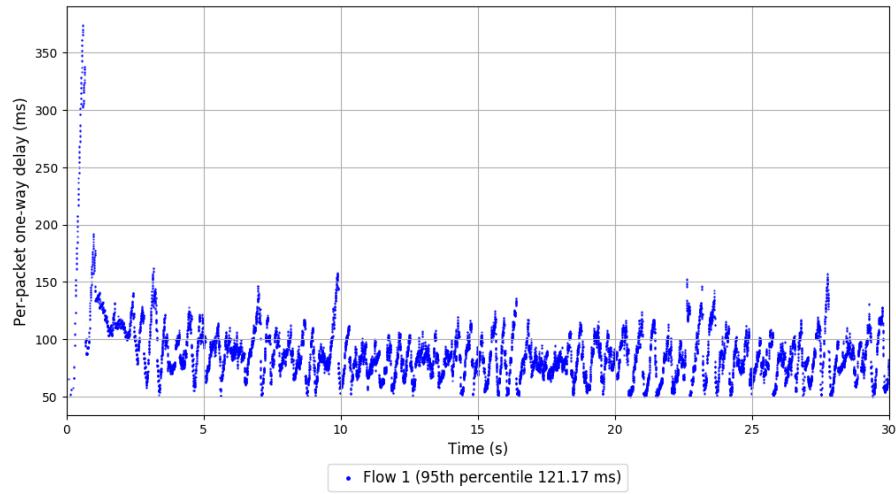
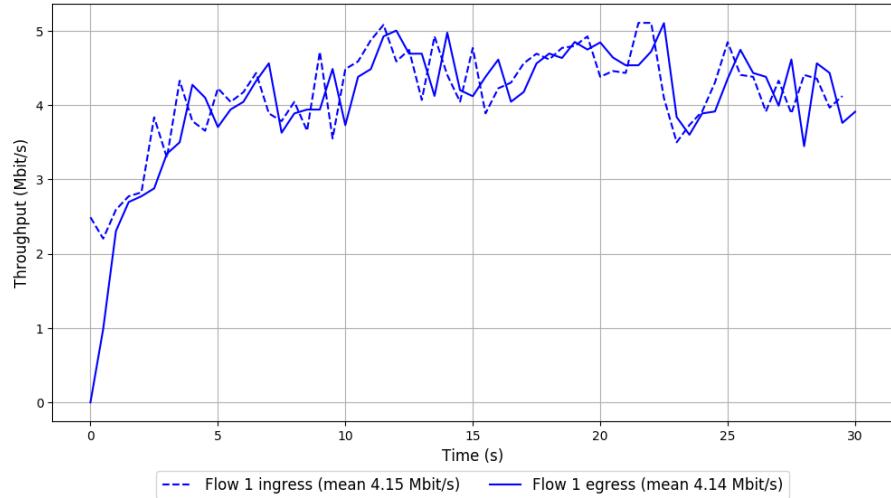


Run 3: Statistics of TaoVA-100x

```
Start at: 2018-06-19 01:07:04
End at: 2018-06-19 01:07:34
Local clock offset: 0.988 ms
Remote clock offset: -8.199 ms

# Below is generated by plot.py at 2018-06-19 01:10:31
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.14 Mbit/s
95th percentile per-packet one-way delay: 121.168 ms
Loss rate: 0.68%
-- Flow 1:
Average throughput: 4.14 Mbit/s
95th percentile per-packet one-way delay: 121.168 ms
Loss rate: 0.68%
```

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

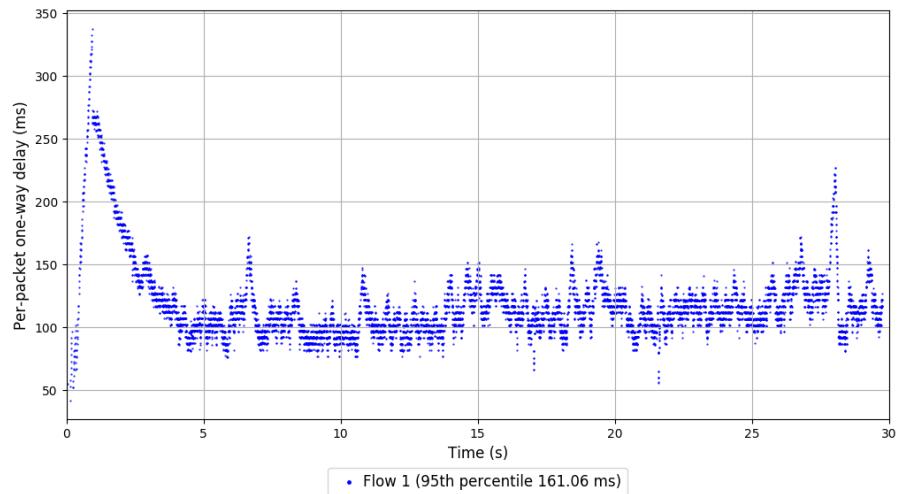
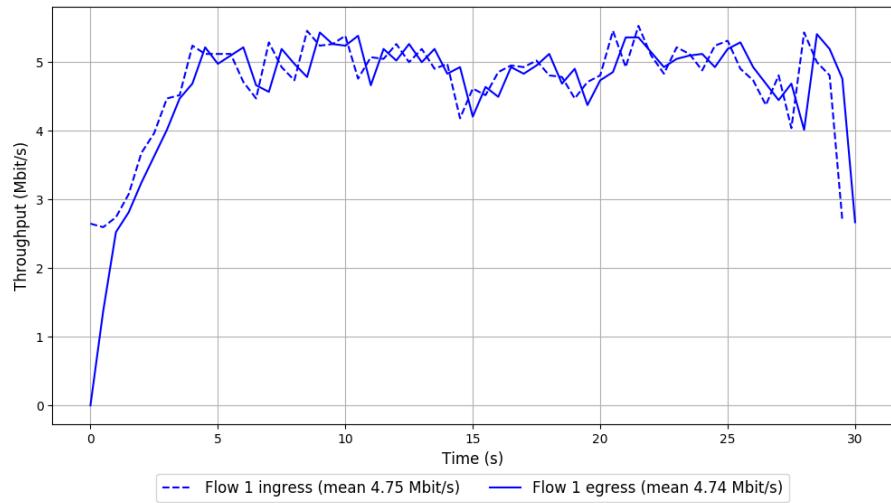


Run 1: Statistics of TCP Vegas

```
Start at: 2018-06-19 00:29:04
End at: 2018-06-19 00:29:34
Local clock offset: -1.293 ms
Remote clock offset: -3.126 ms

# Below is generated by plot.py at 2018-06-19 01:10:31
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.74 Mbit/s
95th percentile per-packet one-way delay: 161.055 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 4.74 Mbit/s
95th percentile per-packet one-way delay: 161.055 ms
Loss rate: 0.42%
```

Run 1: Report of TCP Vegas — Data Link

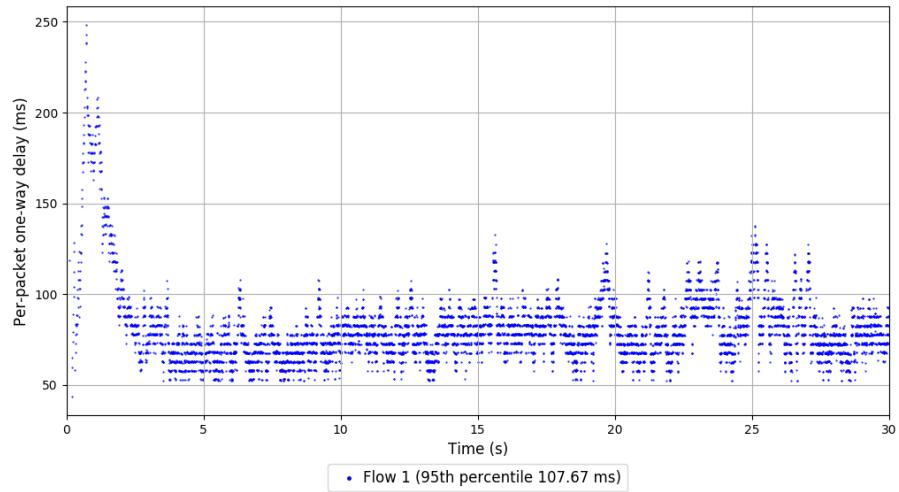
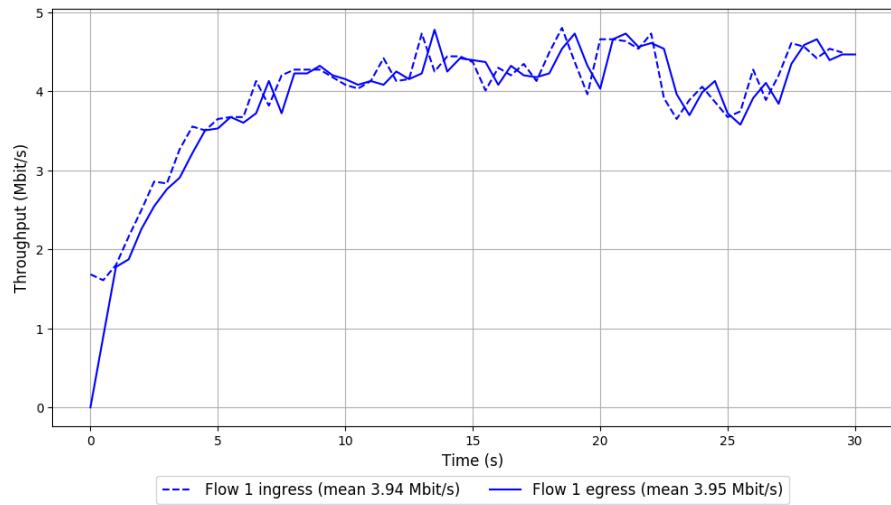


Run 2: Statistics of TCP Vegas

```
Start at: 2018-06-19 00:46:25
End at: 2018-06-19 00:46:55
Local clock offset: 0.069 ms
Remote clock offset: -5.595 ms

# Below is generated by plot.py at 2018-06-19 01:10:31
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.95 Mbit/s
95th percentile per-packet one-way delay: 107.666 ms
Loss rate: 0.31%
-- Flow 1:
Average throughput: 3.95 Mbit/s
95th percentile per-packet one-way delay: 107.666 ms
Loss rate: 0.31%
```

Run 2: Report of TCP Vegas — Data Link

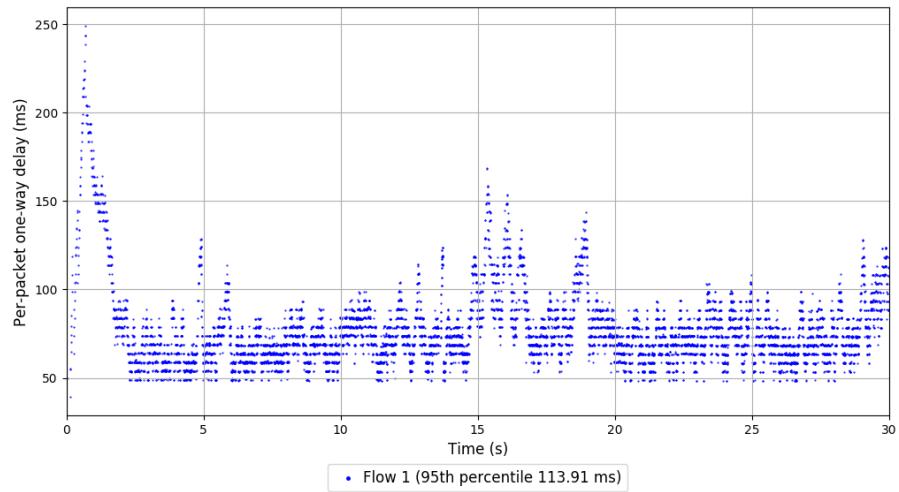
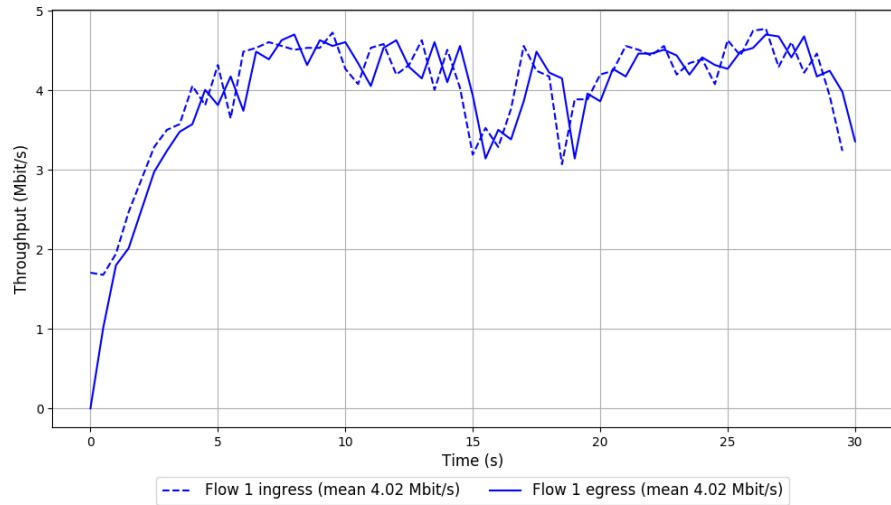


Run 3: Statistics of TCP Vegas

```
Start at: 2018-06-19 01:03:49
End at: 2018-06-19 01:04:19
Local clock offset: -2.778 ms
Remote clock offset: -6.811 ms

# Below is generated by plot.py at 2018-06-19 01:10:31
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.02 Mbit/s
95th percentile per-packet one-way delay: 113.906 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 4.02 Mbit/s
95th percentile per-packet one-way delay: 113.906 ms
Loss rate: 0.27%
```

Run 3: Report of TCP Vegas — Data Link

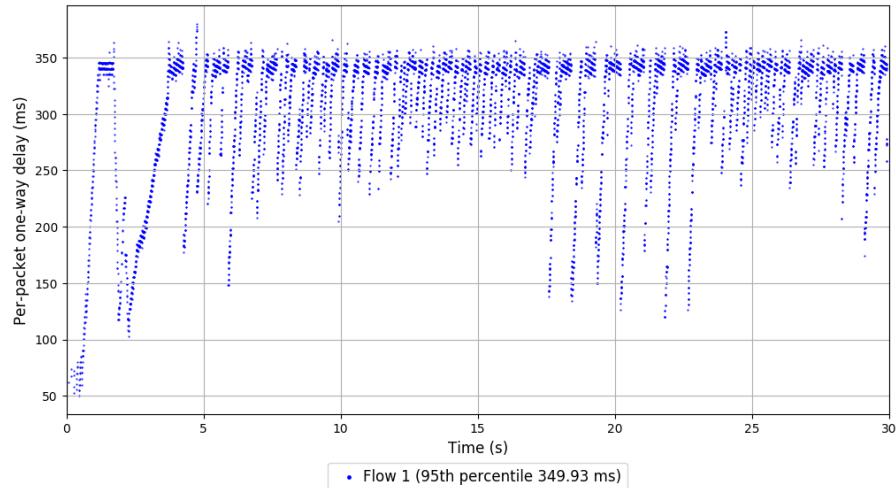
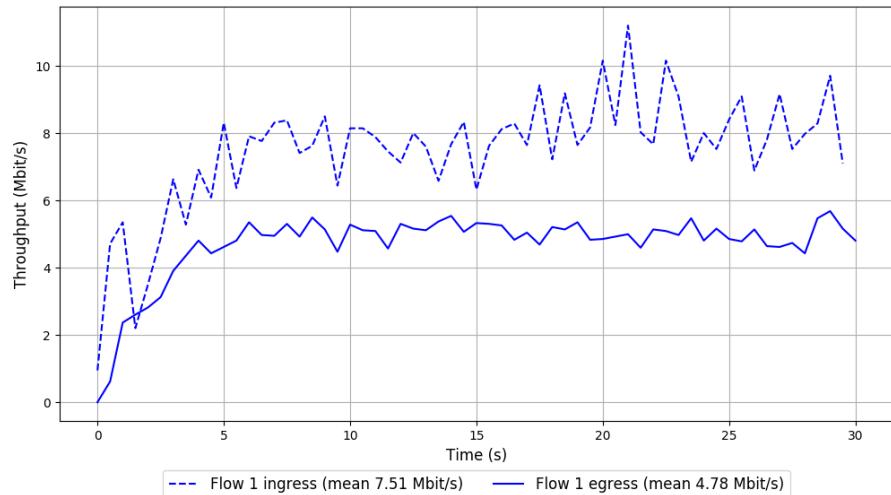


Run 1: Statistics of Verus

```
Start at: 2018-06-19 00:34:28
End at: 2018-06-19 00:34:58
Local clock offset: -1.351 ms
Remote clock offset: -2.982 ms

# Below is generated by plot.py at 2018-06-19 01:10:31
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.78 Mbit/s
95th percentile per-packet one-way delay: 349.931 ms
Loss rate: 36.35%
-- Flow 1:
Average throughput: 4.78 Mbit/s
95th percentile per-packet one-way delay: 349.931 ms
Loss rate: 36.35%
```

Run 1: Report of Verus — Data Link

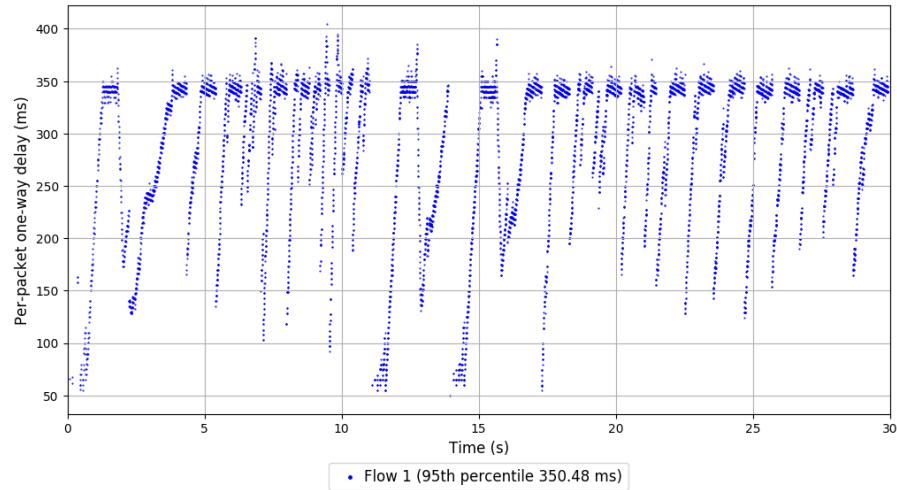
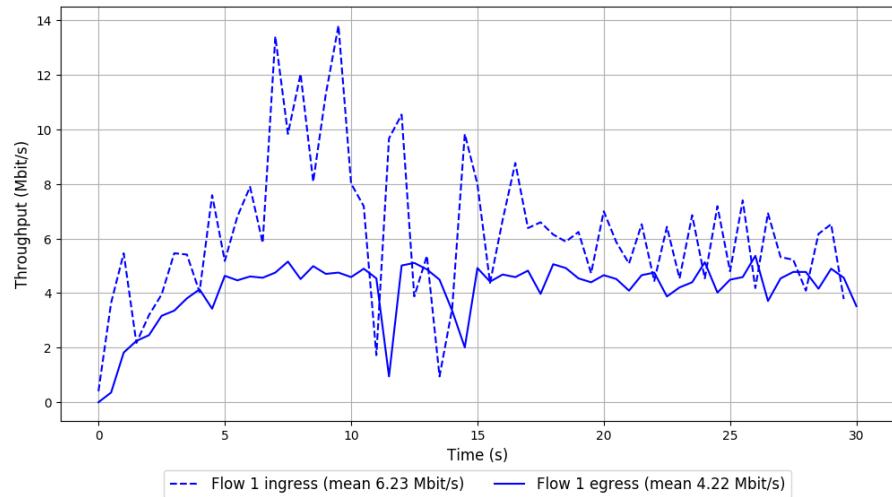


Run 2: Statistics of Verus

```
Start at: 2018-06-19 00:51:50
End at: 2018-06-19 00:52:20
Local clock offset: -2.213 ms
Remote clock offset: -7.092 ms

# Below is generated by plot.py at 2018-06-19 01:10:31
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.22 Mbit/s
95th percentile per-packet one-way delay: 350.479 ms
Loss rate: 32.48%
-- Flow 1:
Average throughput: 4.22 Mbit/s
95th percentile per-packet one-way delay: 350.479 ms
Loss rate: 32.48%
```

Run 2: Report of Verus — Data Link

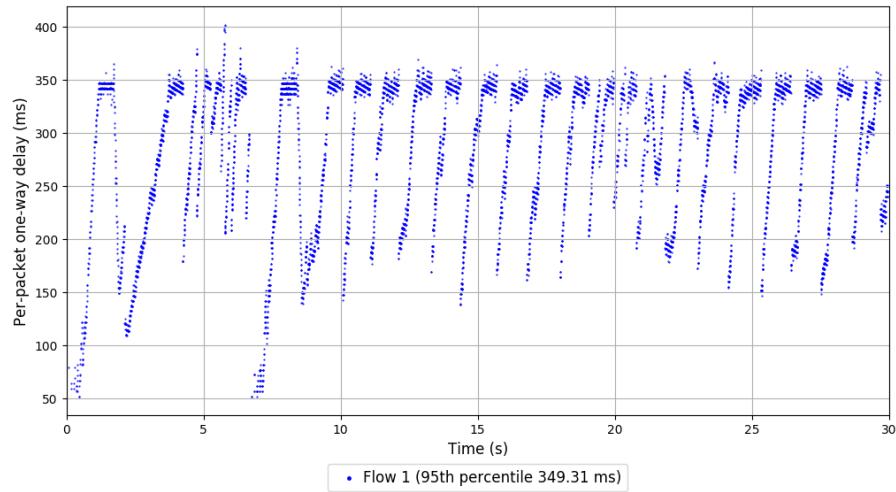
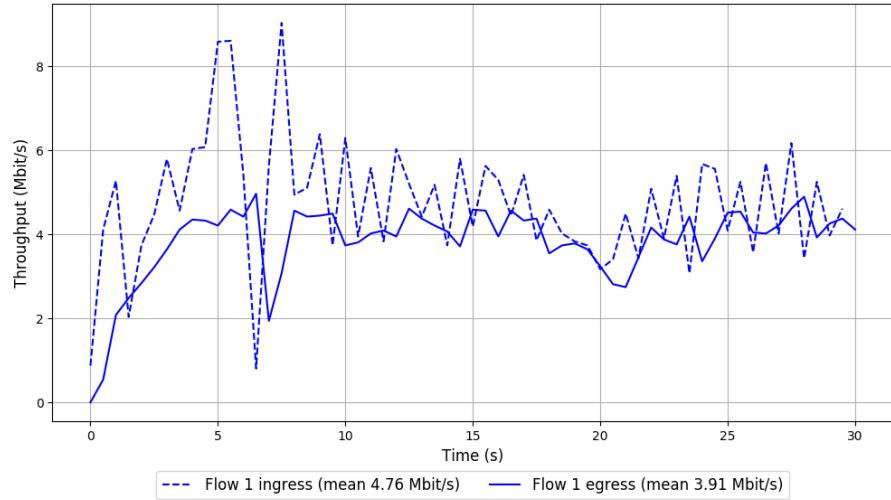


Run 3: Statistics of Verus

```
Start at: 2018-06-19 01:09:14
End at: 2018-06-19 01:09:44
Local clock offset: 2.016 ms
Remote clock offset: -8.866 ms

# Below is generated by plot.py at 2018-06-19 01:10:32
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.91 Mbit/s
95th percentile per-packet one-way delay: 349.306 ms
Loss rate: 18.17%
-- Flow 1:
Average throughput: 3.91 Mbit/s
95th percentile per-packet one-way delay: 349.306 ms
Loss rate: 18.17%
```

Run 3: Report of Verus — Data Link

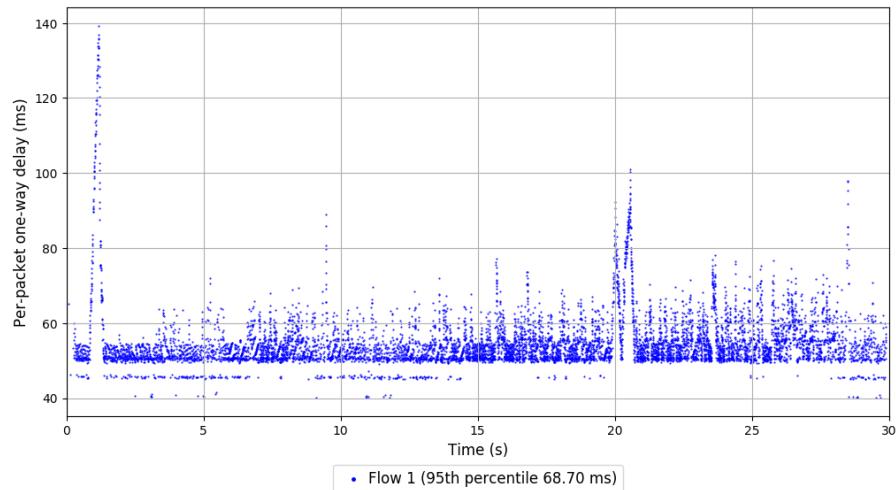
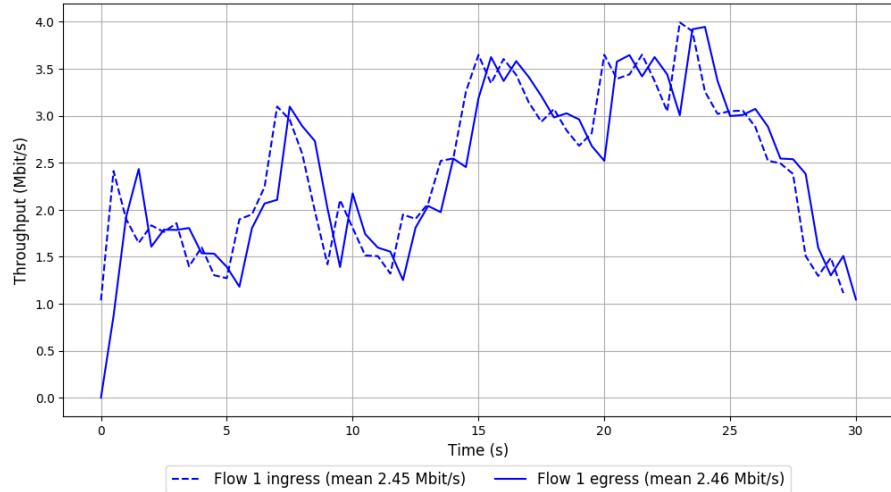


```
Run 1: Statistics of PCC-Vivace
```

```
Start at: 2018-06-19 00:19:22
End at: 2018-06-19 00:19:52
Local clock offset: 0.888 ms
Remote clock offset: -2.111 ms

# Below is generated by plot.py at 2018-06-19 01:10:32
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.46 Mbit/s
95th percentile per-packet one-way delay: 68.703 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 2.46 Mbit/s
95th percentile per-packet one-way delay: 68.703 ms
Loss rate: 0.14%
```

Run 1: Report of PCC-Vivace — Data Link

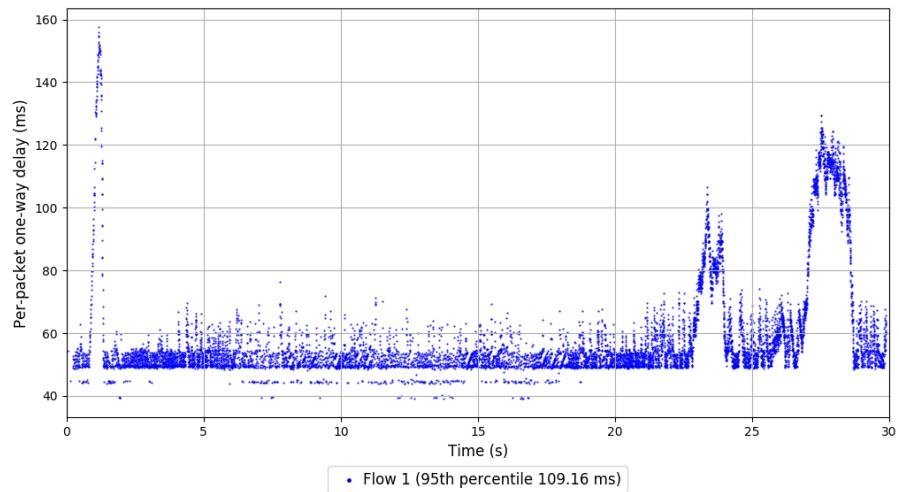
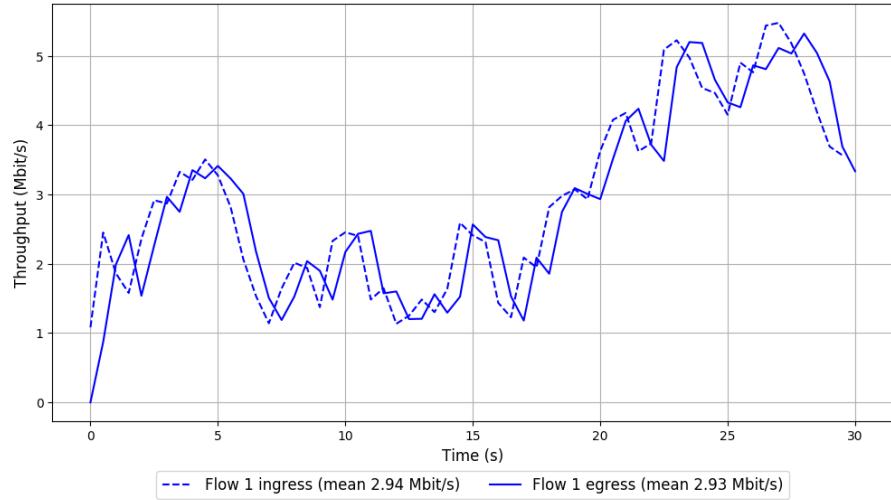


Run 2: Statistics of PCC-Vivace

```
Start at: 2018-06-19 00:36:38
End at: 2018-06-19 00:37:08
Local clock offset: -1.521 ms
Remote clock offset: -3.669 ms

# Below is generated by plot.py at 2018-06-19 01:10:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.93 Mbit/s
95th percentile per-packet one-way delay: 109.160 ms
Loss rate: 0.36%
-- Flow 1:
Average throughput: 2.93 Mbit/s
95th percentile per-packet one-way delay: 109.160 ms
Loss rate: 0.36%
```

Run 2: Report of PCC-Vivace — Data Link

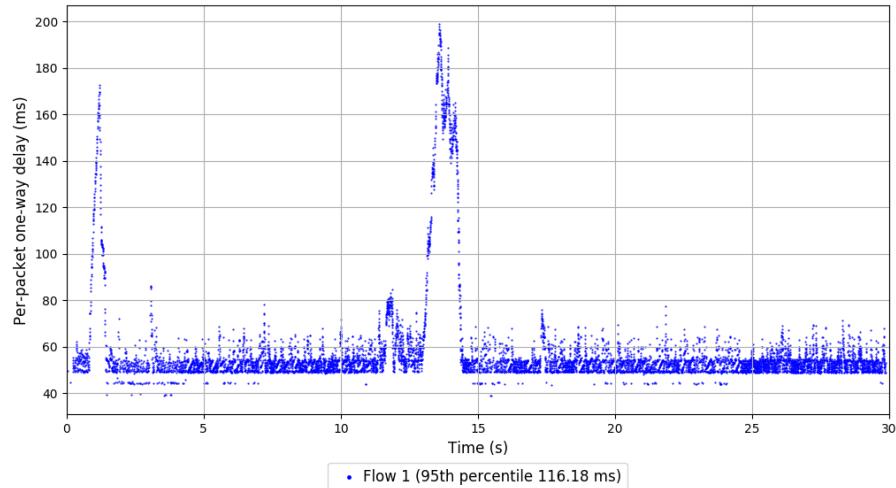
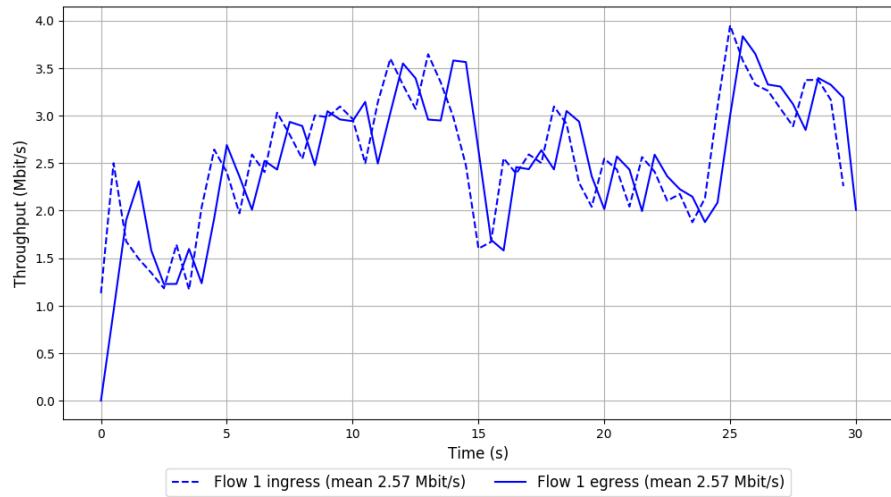


Run 3: Statistics of PCC-Vivace

```
Start at: 2018-06-19 00:53:59
End at: 2018-06-19 00:54:29
Local clock offset: -1.233 ms
Remote clock offset: -6.894 ms

# Below is generated by plot.py at 2018-06-19 01:10:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.57 Mbit/s
95th percentile per-packet one-way delay: 116.178 ms
Loss rate: 0.37%
-- Flow 1:
Average throughput: 2.57 Mbit/s
95th percentile per-packet one-way delay: 116.178 ms
Loss rate: 0.37%
```

Run 3: Report of PCC-Vivace — Data Link

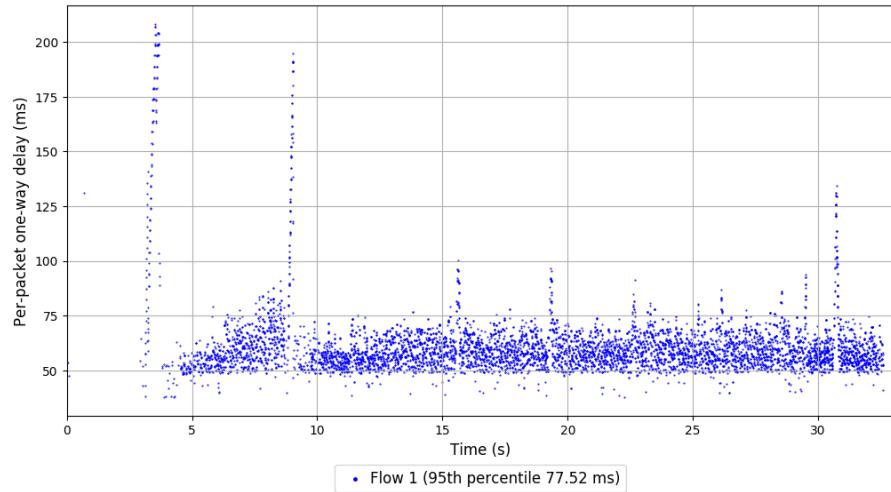
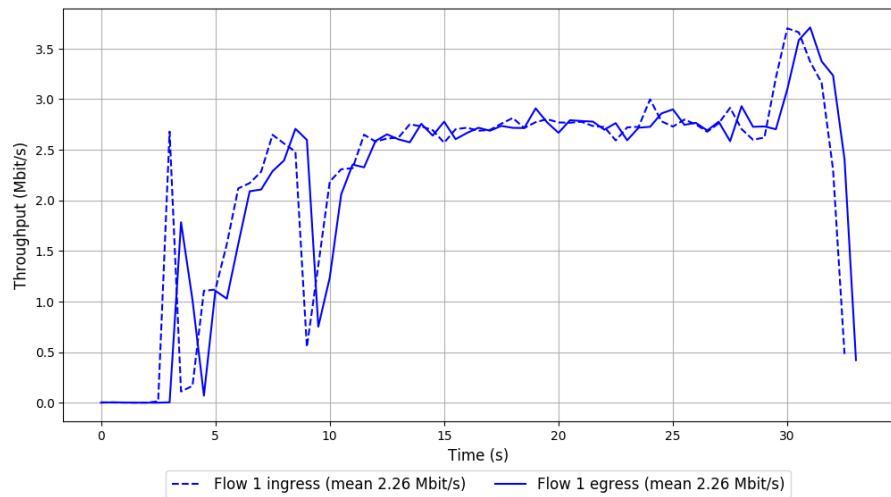


```
Run 1: Statistics of WebRTC media

Start at: 2018-06-19 00:21:31
End at: 2018-06-19 00:22:01
Local clock offset: -0.806 ms
Remote clock offset: -2.461 ms

# Below is generated by plot.py at 2018-06-19 01:10:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.26 Mbit/s
95th percentile per-packet one-way delay: 77.519 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 2.26 Mbit/s
95th percentile per-packet one-way delay: 77.519 ms
Loss rate: 0.20%
```

Run 1: Report of WebRTC media — Data Link

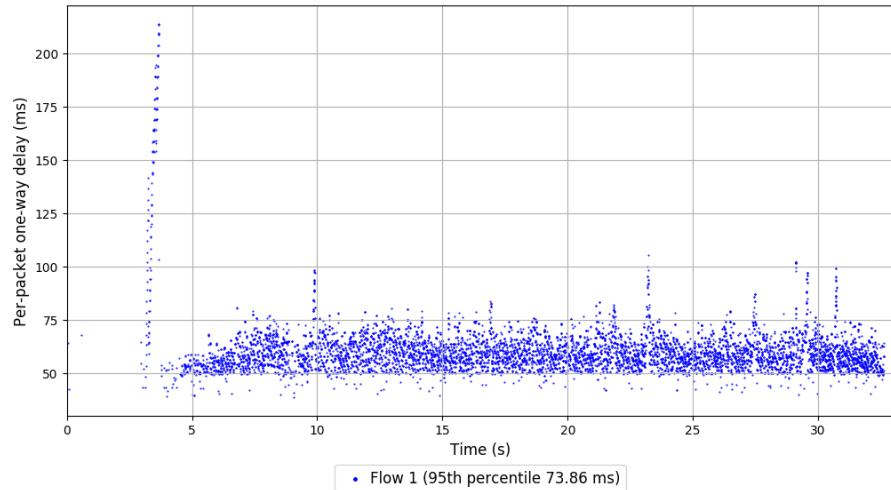
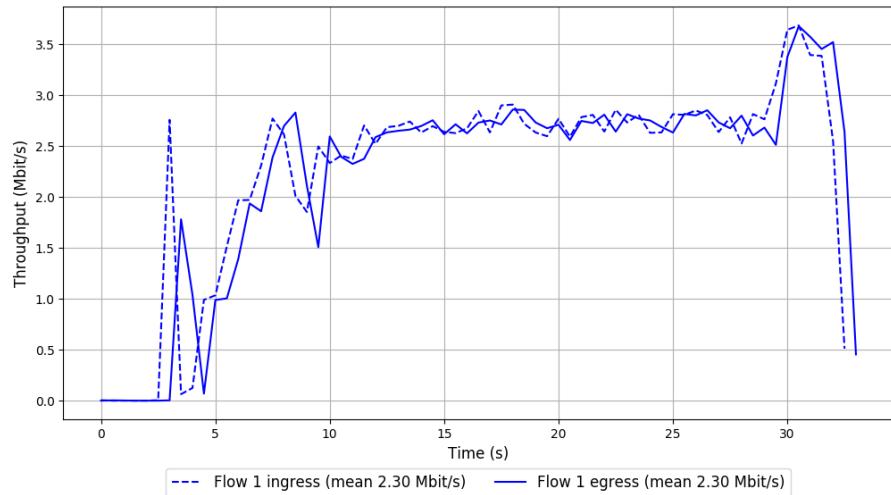


Run 2: Statistics of WebRTC media

```
Start at: 2018-06-19 00:38:47
End at: 2018-06-19 00:39:17
Local clock offset: -1.261 ms
Remote clock offset: -3.552 ms

# Below is generated by plot.py at 2018-06-19 01:10:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.30 Mbit/s
95th percentile per-packet one-way delay: 73.857 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 2.30 Mbit/s
95th percentile per-packet one-way delay: 73.857 ms
Loss rate: 0.15%
```

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

```
Start at: 2018-06-19 00:56:10
End at: 2018-06-19 00:56:40
Local clock offset: -1.844 ms
Remote clock offset: -6.983 ms

# Below is generated by plot.py at 2018-06-19 01:10:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.30 Mbit/s
95th percentile per-packet one-way delay: 75.323 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 2.30 Mbit/s
95th percentile per-packet one-way delay: 75.323 ms
Loss rate: 0.15%
```

Run 3: Report of WebRTC media — Data Link

