Serverless Test Overview

Edge Video utilized AWS cloud infrastructure to connect 1,000+ HTML5 players into the Edge Video network. The purpose of this was to demonstrate the scalability of the Edge Video network and measure the bandwidth reduction when compared to a traditional server-based live-streaming platform.

Technical Details Of The Test

July 15, 2020: AWS lambda functions were created in the us-east-1 and us-west-2 regions. Arguments to the function are a URL and a maximum execution time. The function runs a headless version of chromium which loads our player's URL and then waits for a specified period of time - in this case 10 minutes - allowing JavaScript to execute. The function was invoked repeatedly in parallel resulting in varying conditions throughout the testing period as the number of nodes increased from 0 and peaked at approximately 1,250.

Data collection: Each node connected to a websocket server to provide us with a real-time view of the Edge Video network, from that we logged the number of bytes being sent between nodes. Our source peer and peering server are hosted on AWS - the server bandwidth numbers used were obtained by querying AWS for metric data.

Results: Within 5 minutes of the test starting and until test completion we observed ingress reductions above 40x and egress reductions above 150x - we are fairly confident these represent the lower bounds of the data reduction our technology offers. Egress results include a not-insignificant amount of overhead as the AWS metrics do not differentiate between video network data and the analytics information we collected throughout the test.

In Reduction (lower bound) and Out Reduction (lower bound)
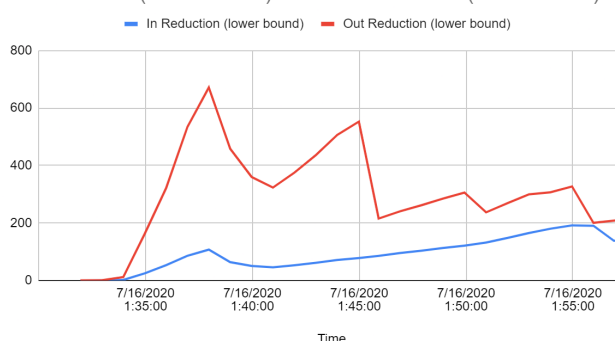
Test Results

During the test 136GB was transferred out of the Edge Video Network while 400MB was transferred out of the AWS servers saving 135.6GB.

Notes: Data provided by Amazon has a resolution of 5 minutes - the amount of data reduction we're able to calculate at any given minute would be imprecise and was thus calculated as a lower-bound (using the next available number from Amazon).

Conclusion: The bandwidth savings seen when providers move to the Edge Video network after Edge Network costs is 10X, or 5X with double the video quality. As our solution and testing methodologies are still in active development we expect future results to be even more promising than what we have already obtained.

Data available at: https://docs.google.com/spreadsheets/d/1FeeP_mUV_erBT96Qc--zywYGyaaCgWKlCkYQlyGE7XM