





Google Cloud $f(x)$

What do they do? Do they do things? Let's find out!



Characteristics

Cloud Functions	GCF
Single-Concern 	✓
Short-Lived 	✓
Light-Weight 	✓
Scalable 	✓

Cloud Function Vendors

- Amazon AWS
 - AWS Lambda
- Microsoft Azure
 - Azure Functions
- Google Cloud Platform
 - Google Cloud Functions

Workflow

```
exports.task = async (event) => {  
  //...  
}
```

CODE

PROFIT

```
$ gcloud functions deploy task \
```

DEPLOY

```
$ curl http://us-central1-  
...  
...  
...
```

TRIGGER

Web Console

gcloud
CLI

Where are the costs

- Only when triggered
- Leveraging other services (GSC, PubSub, etc...)

We're building Mainframe 2.0

-- some Amazon guy

Triggers

- HTTP
- PubSub
- Google Cloud Storage

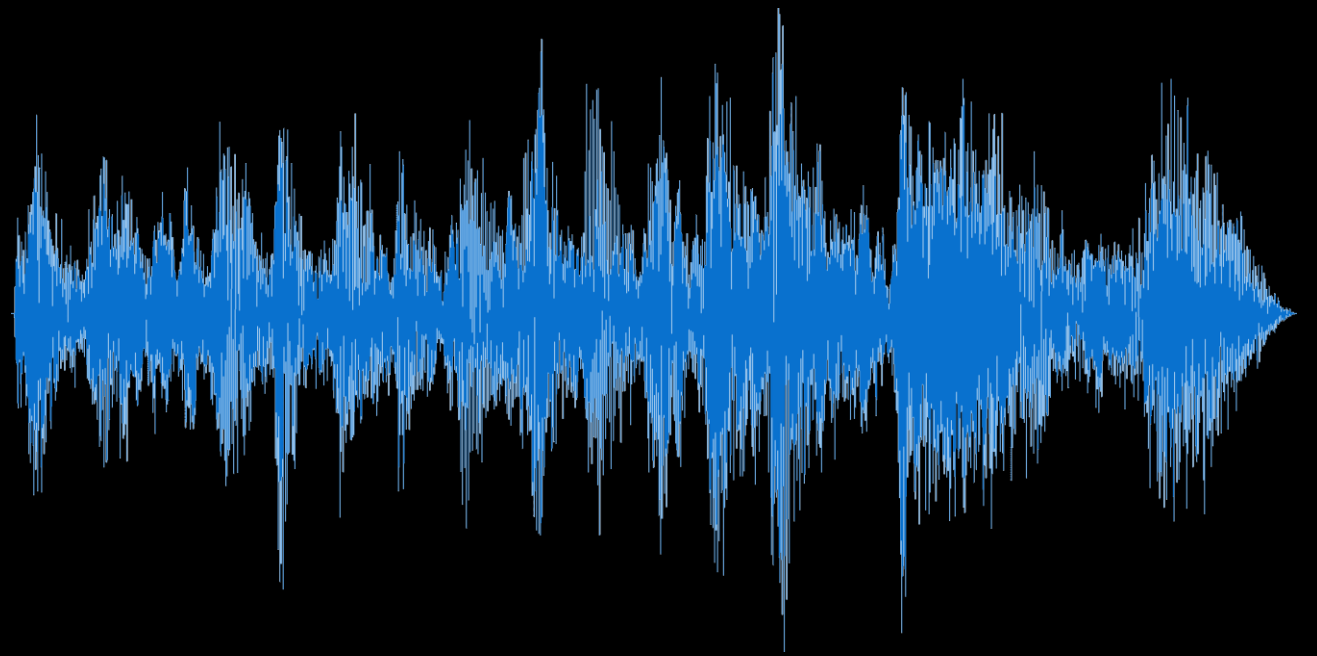
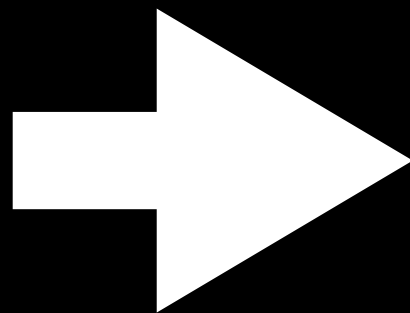
Testing

- `npm install -g @google-cloud/functions-emulator`
- `functions start`
- `functions deploy check-operation-progress \`
`--trigger-http -t 500s \`
`--entry-point checkOperationProgress`
- `functions inspect check-operation-progress`
 - **Attach debugger (i.e. VSCode)**
- `functions call check-operation-progress \`
`--data='{ "operationId": "1359558309687340817" } '`

Example



MP3



Steps

- Upload
- Transcode
- Store
- Notify
- Delete

Upload

- Where will we store mp3s?
 - Google Cloud Storage
- How will the user upload them?
 - Signed URLs

Transcode

- How will we convert MP3 -> Waveform?
 - ffmpeg!
- You can run ffmpeg on GCP?
 - Yes!
- How?
 - A few node modules...

Waveform Storage

- Where will we store the waveform image?
 - Google Cloud Storage
- How will the user access it?
 - Read permissions: public

Notify

- How will we know when ffmpeg is done?
 - We'll get a callback
- How will we facilitate the callback?
 - Google PubSub Push
 - However, we will cheat 😊

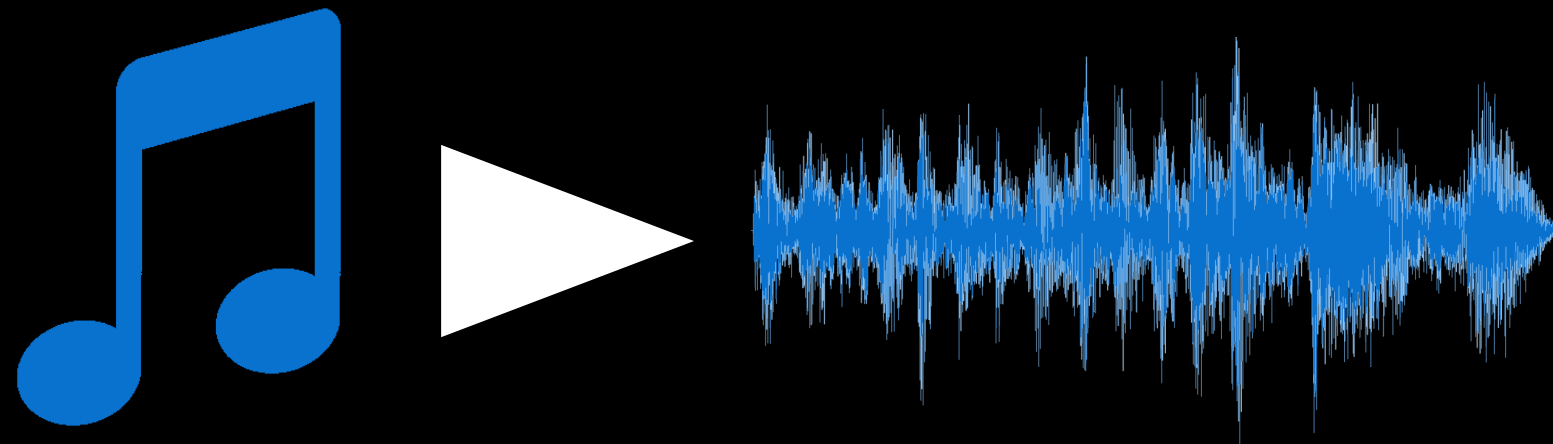
Delete

- How will we delete the MP3?
 - We can either:
 - Delete the file when ffmpeg is done
 - Upon the waveform saving to the bucket
 - Place a message on a queue

Prerequisites

- GSC bucket: `prdc19-video-upload`
- Service account with appropriate permissions
 - Service Account Token Creator
 - Ability to sign URLs
 - Storage Object Admin
 - Preferably at the bucket-level

DEMO



Things to consider...

- Evaluate your needs
- Vendor lock
- Non-deterministic response-times