LabDay 2019:
Project Crappy Crocodile

Exploring a Serverless architecture for a video processing application.

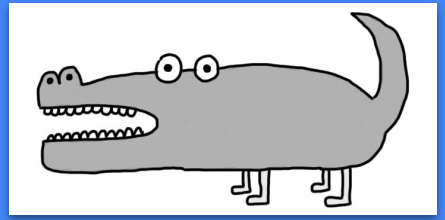
Purpose

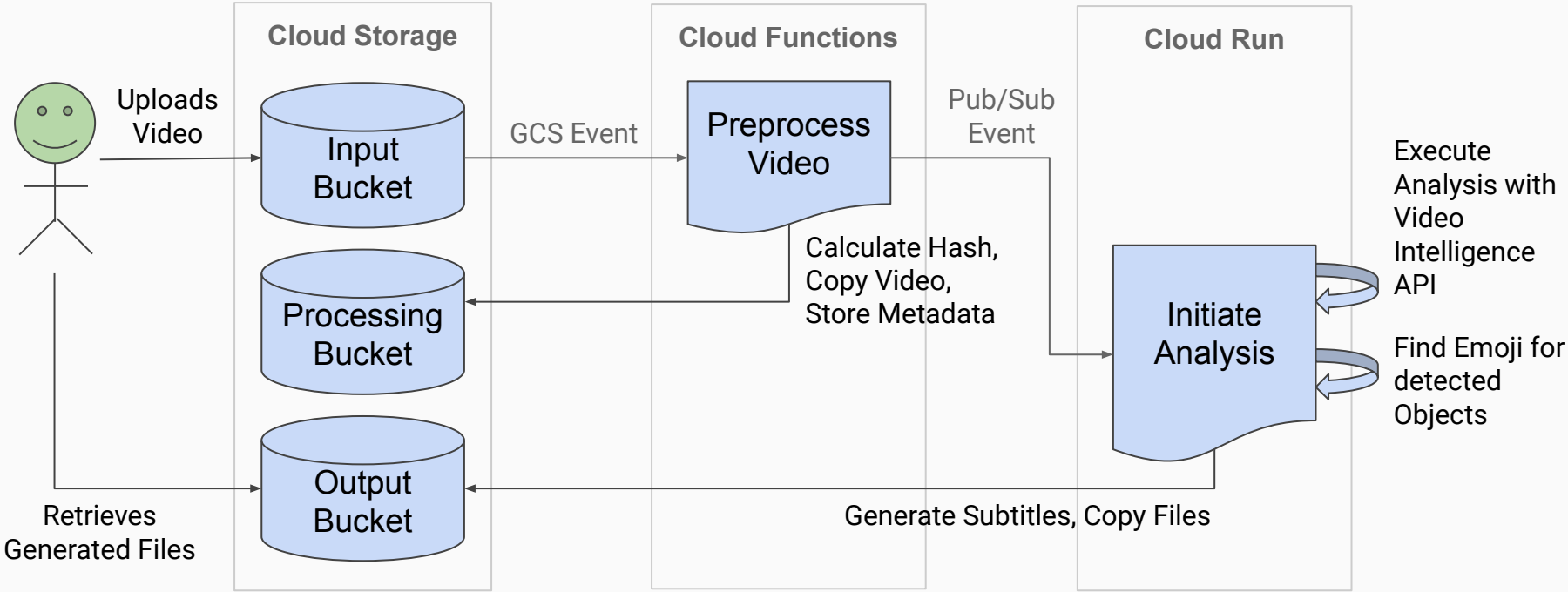
- Detect objects in a video, find fitting emojis for these objects and create Emoji subtitles from them.
- Implement Cloud Native architecture on Google Cloud using:
  - Persistence: Cloud Storage
  - Eventing: Cloud Storage Events, Cloud Pub/Sub
  - Serverless Compute: Cloud Functions, Cloud Run
  - Object Detection: Video Intelligence API
  - Emoji Conversion: emojidex.com API

Architecture

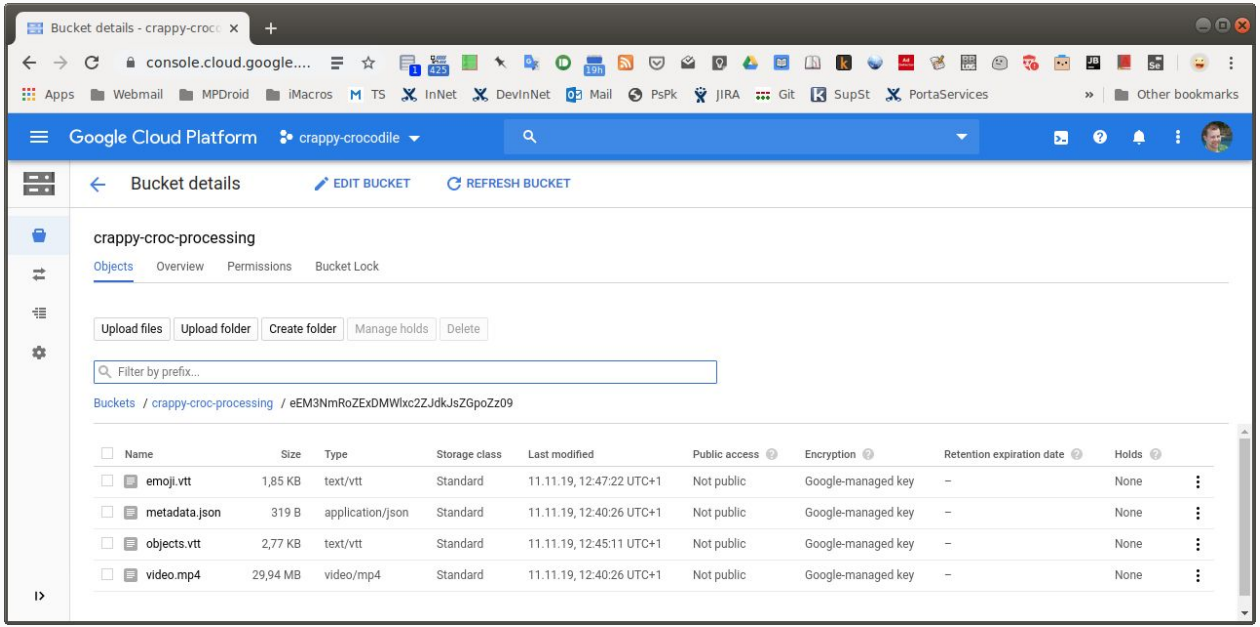
- Processing pipeline:
  - Uploading of video to Input Bucket triggers Preprocessing
  - Preprocessing:
    - Video is validated and some metadata is extracted
    - Moved to Processing Bucket
    - Pub/Sub event is triggered
  - Analysis:
    - Video is handed over to Video Intelligence API for object detections
    - Subtitle file is created using the detected scenes and objects
    - Another Subtitle file is created with the corresponding Emoji
    - Finished files are then moved to Output Bucket.

Architecture





Demo


Bucket details - crappy-croc
console.cloud.google....
Apps
Webmail
MPDroid
iMacros
TS
InNet
DevInNet
Mail
PsPk
JIRA
Git
SupSt
PortaServices
Other bookmarks
Google Cloud Platform
crappy-crocodile
Bucket details
EDIT BUCKET
REFRESH BUCKET
crappy-croc-processing
Objects
Overview
Permissions
Bucket Lock
Upload files
Upload folder
Create folder
Manage holds
Delete
Filter by prefix...
Buckets / crappy-croc-processing / eEM3NmRoZExDMWlxc2ZJdkJsZGpoZz09
Name
Size
Type
Storage class
Last modified
Public access
Encryption
Retention expiration date
Holds
emoji.vtt 1,85 KB text/vtt Standard 11.11.19, 12:47:22 UTC+1 Not public Google-managed key – None
metadata.json 319 B application/json Standard 11.11.19, 12:40:26 UTC+1 Not public Google-managed key – None
objects.vtt 2,77 KB text/vtt Standard 11.11.19, 12:45:11 UTC+1 Not public Google-managed key – None
video.mp4 29,94 MB video/mp4 Standard 11.11.19, 12:40:26 UTC+1 Not public Google-managed key – None

Results

Sources and Instructions : https://github.com/wtfc63/crappy-crocodile