OpenAg™ Cloud Description

v5 Design (as of 2019-05-30 by rbaynes)

- App Engine flex environment deployments
  - MQTT / PubSub service to validate and store messages.
  - Notification service, manages notifications on a schedule.
  - ReactJS web EDU UI.
  - Flask API for EDU UI.
- EDU UI
  - Our educator and student focused UI which can display data and images from the devices associated with their user account.
  - User can send a recipe to the device.
  - User can view the notifications acknowledge them.
  - User can store horticulture measurements of their plant.
- Notification service
  - Manages scheduled and recurring notifications per device.
  - Tracks runs (of recipes) for use by the UI data display.
- MQTT / PubSub IoT messaging
  - Secure data publishing from all devices and individual device control.
- IoT Core device registry
  - Manages our IoT devices.
- Firebase cloud function
  - Open function to accept IoT device public key and save to Firestore collection
  - Open function to accept a POSTed image from a device and save it.
- Firestore
  - IoT device public key collection.
- BigQuery
  - Research data, recipes, long term data warehouse.
- Datastore
  - Realtime cache of user and device data. Anything the UI renders is cached and stored here.
- Storage
  - Images, timelapses
  - Backups

Future Additions

- App Engine
  - Image time lapse creation task (Dataflow)

- ML for CV tasks
- Data analytics
- Memcached