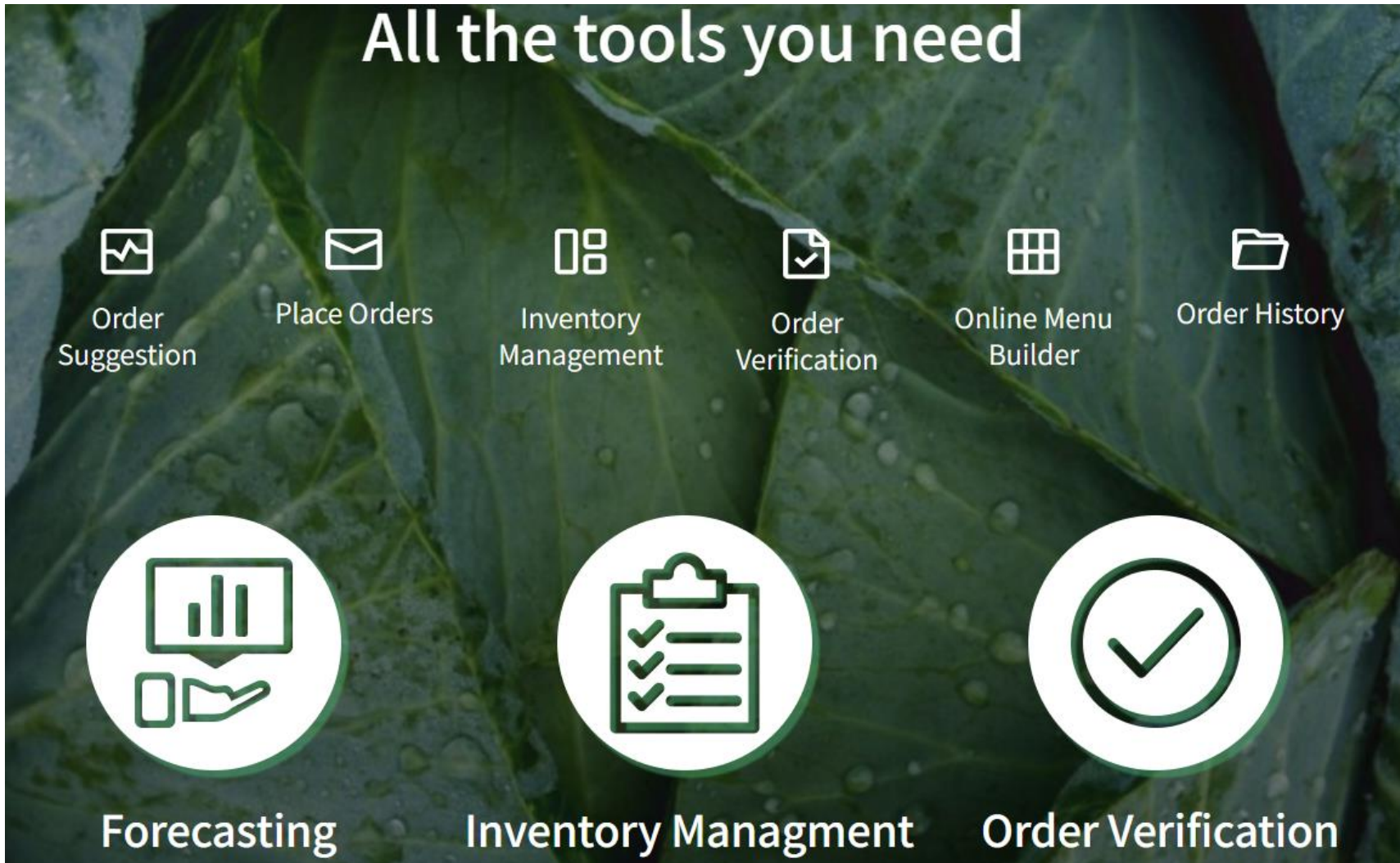
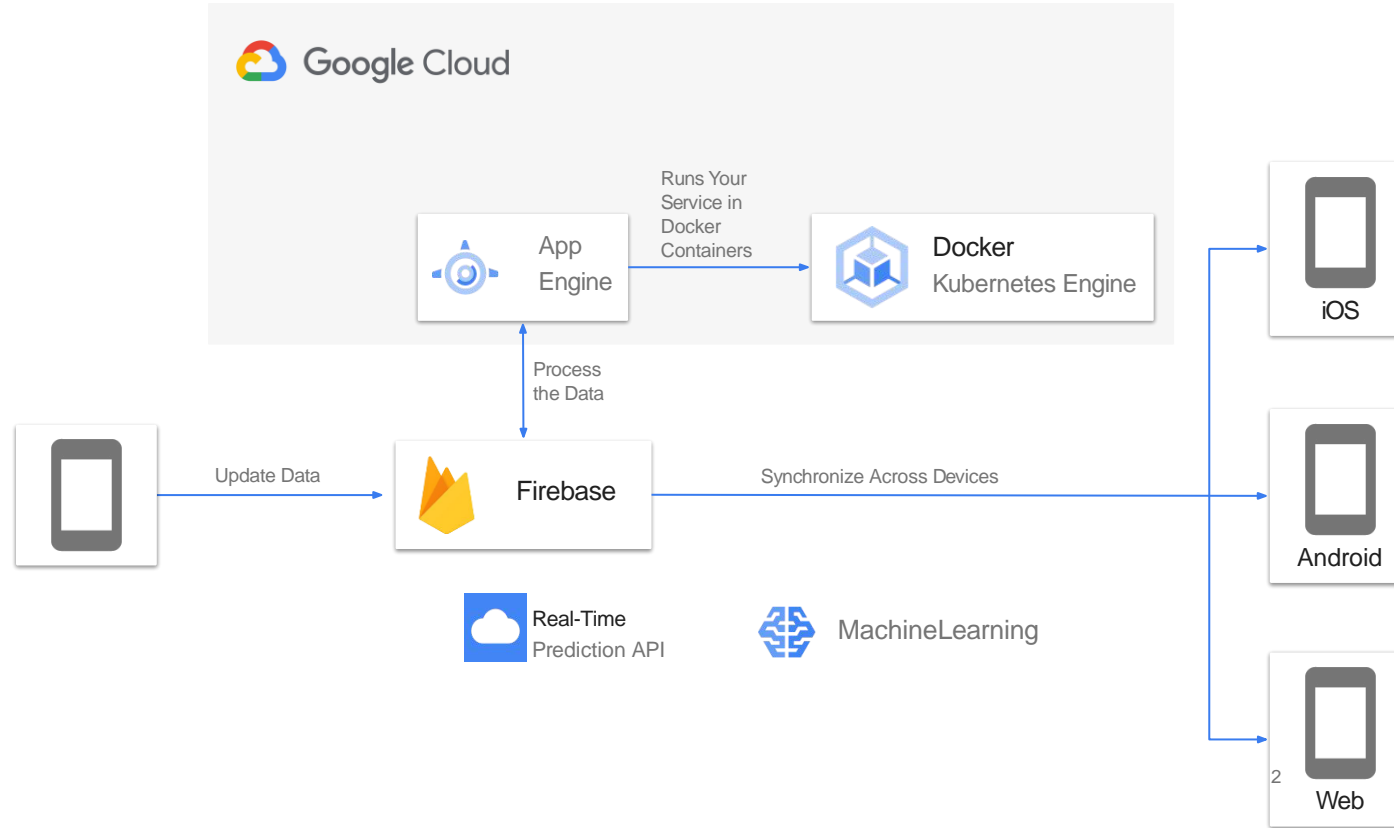


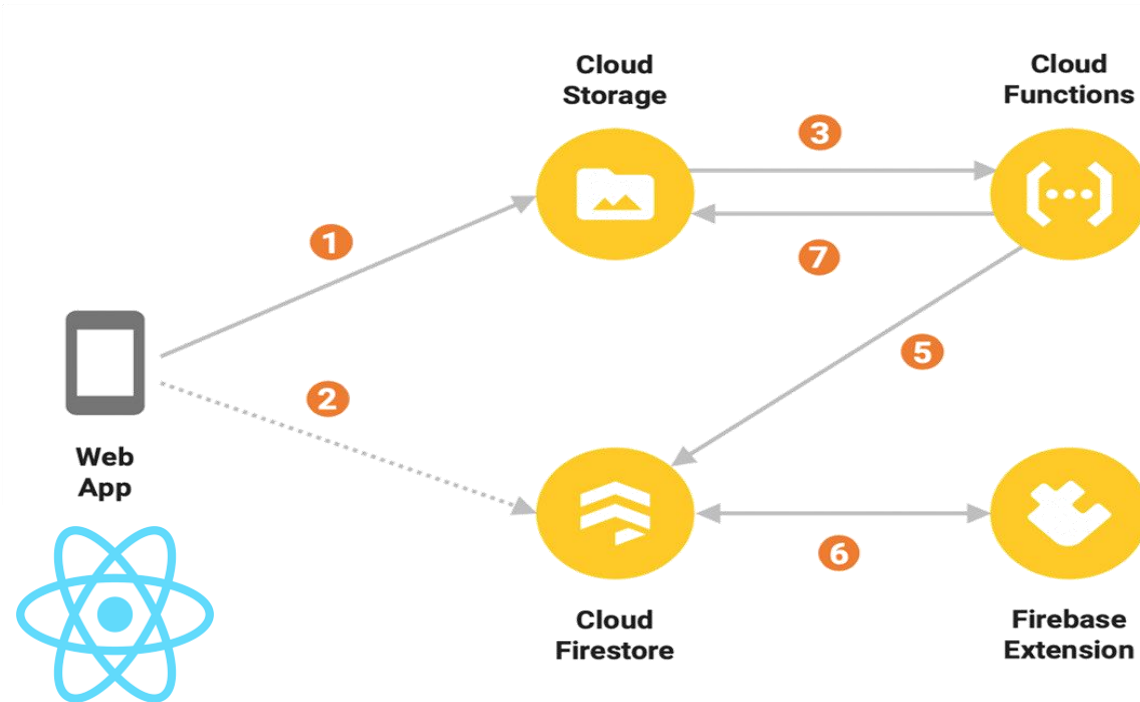
# Is this still the plan? What is next?



# GCP, Firebase and Services on Managed VMs



# Greenbytes App : Firebase and Cloud Functions



Cloud Functions can handle events in Cloud Firestore in the same Cloud project as the function. You can read and/or update Cloud Firestore in response to these events using the [Firestore APIs and client libraries](#).

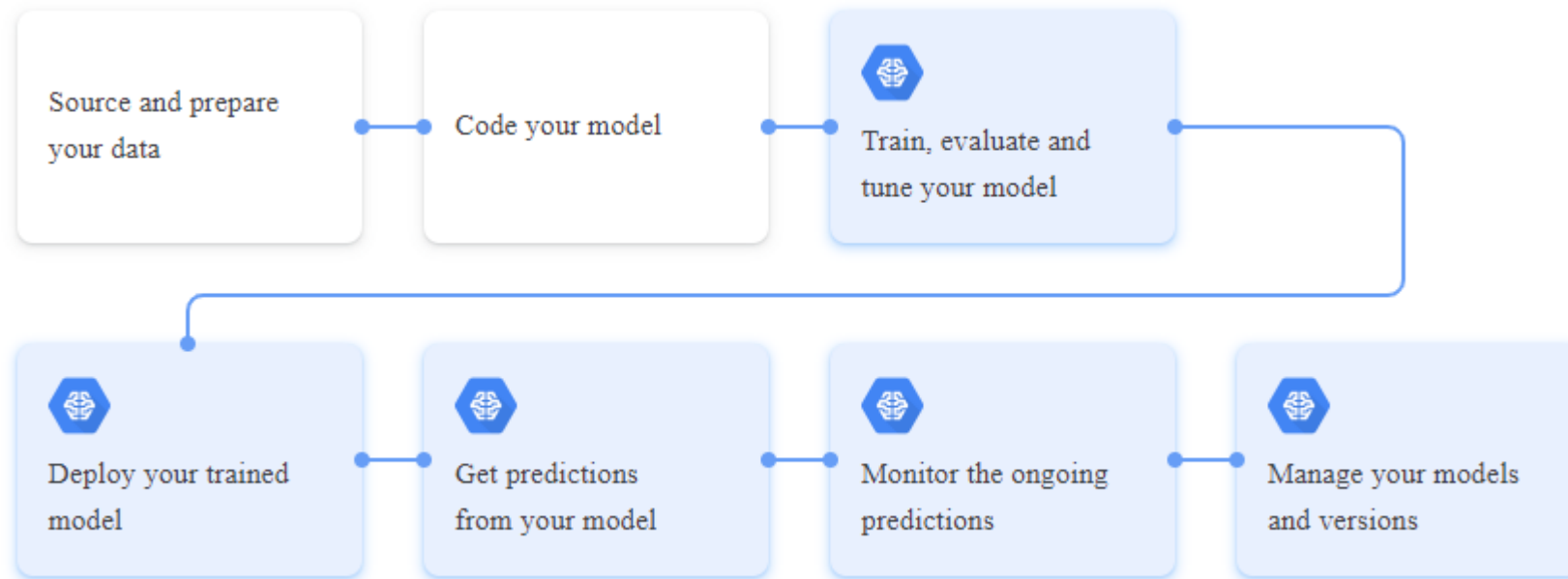
In a typical lifecycle, a Cloud Firestore function does the following:

- Waits for changes to a particular document.

- Triggers when an event occurs and performs its tasks.

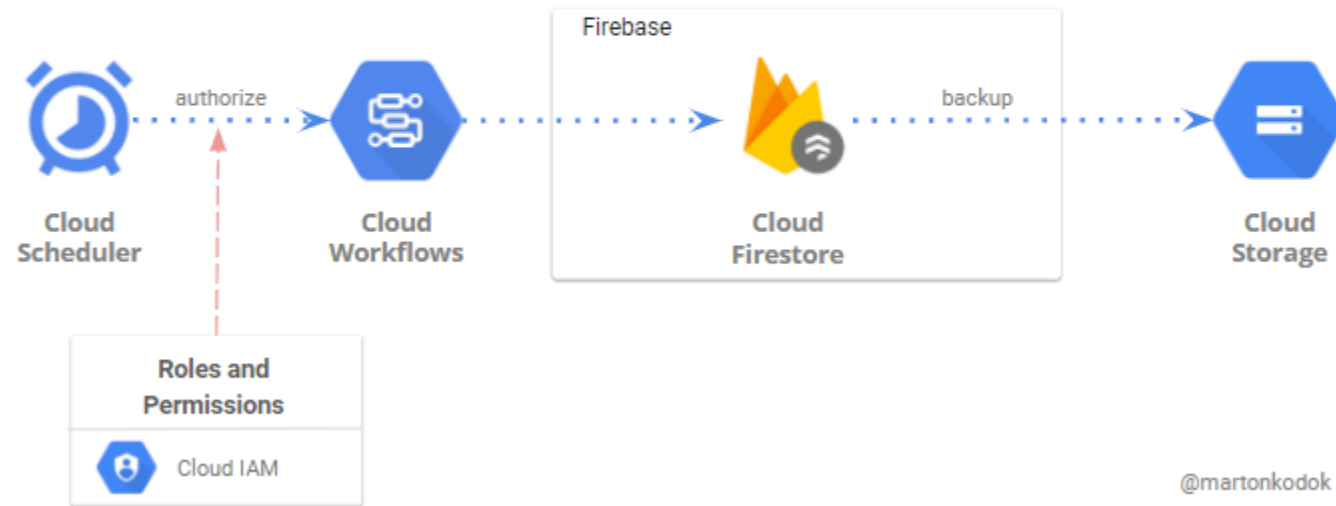
- Receives a data object with a snapshot of the affected document. For write or update events, the data object contains snapshots representing document state before and after the triggering event.

# ML and Prediction side



# Firestore databases backed up on GCP

## Firestore Backups via Cloud Workflows



@martonkodok

# Current APIs and tools used to extract data from POS

## POS systems

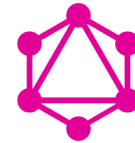


MATHÖLL



**Rapyd**

## API tools, RESTful API and tools



Swagger<sup>™</sup>  
Supported by SMARTBEAR



POSTMAN



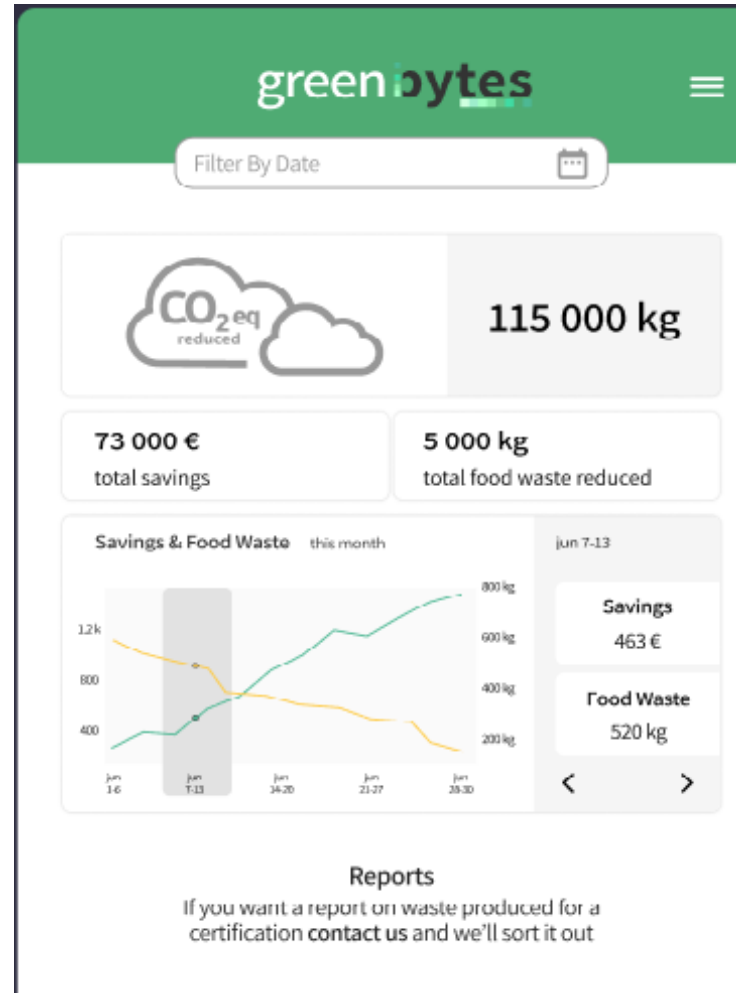
# Transition to generic integration with POS; parameterize variables by passing on identifiers (to get data)

- List all potential POS/APIs from Iceland and other countries
- In order to transition from particular (hard coded) to general, determine standard fields required POS for data extracts such as:

Potentially built in a query builder form with firestore data with parameters

- Link API example for dk : GET /api/v1/product/transaction/{page}/{count}\*
  - Tokens and Identifiers
  - Fields:
    - ID /Name
    - Date
    - Quantity sold

# Create screen for visual feedback on savings and impact for app users (already wireframed)

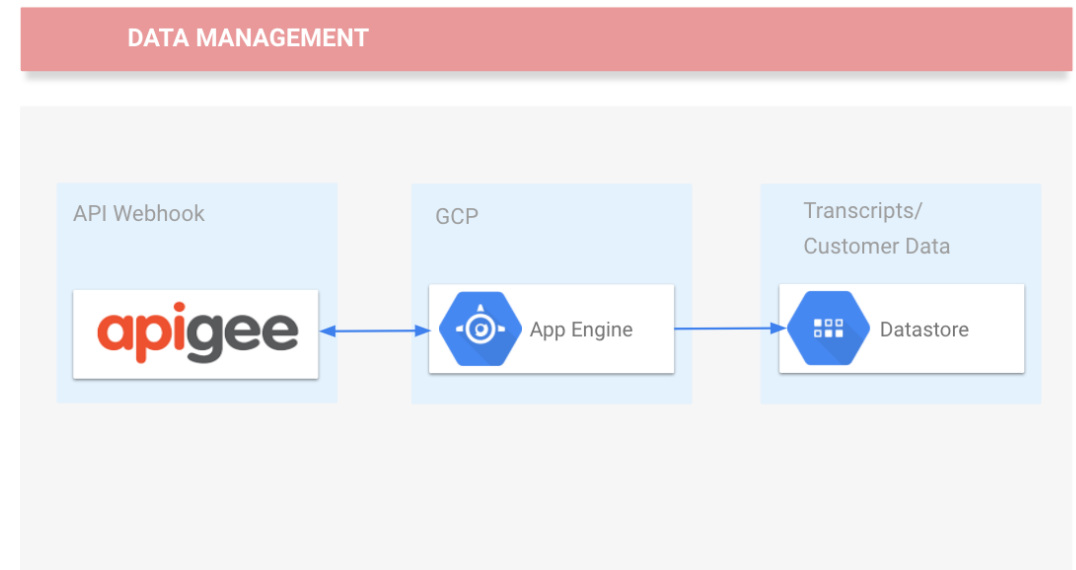




# Ideas for the future app: integration of APIs

- Potential approach for integration of multiple POS systems APIgee from GCP, however the integration of APIGee service will require a learning curve and present cost.

[https://www.qwiklabs.com/focuses/798?locale=zh\\_TW&parent=catalog](https://www.qwiklabs.com/focuses/798?locale=zh_TW&parent=catalog)



# Ideas for the future : Scaling with Kubernetes

Scaling with Kubernetes.  
Kubernetes are difficult to configure, but if executed well, scaling can become a easy to maintain task

<https://cloud.google.com/kubernetes-engine/docs/how-to/scaling-apps>

