Changes in the code is captured & processed

cloudbuild.yaml

User
Code push to a branch

Github

Trigger

Cloud Build

Docker container is built

Artifact Registry

To trigger the Vertex AI pipeline

Cloud Functions

Bash script to do HTTP trigger
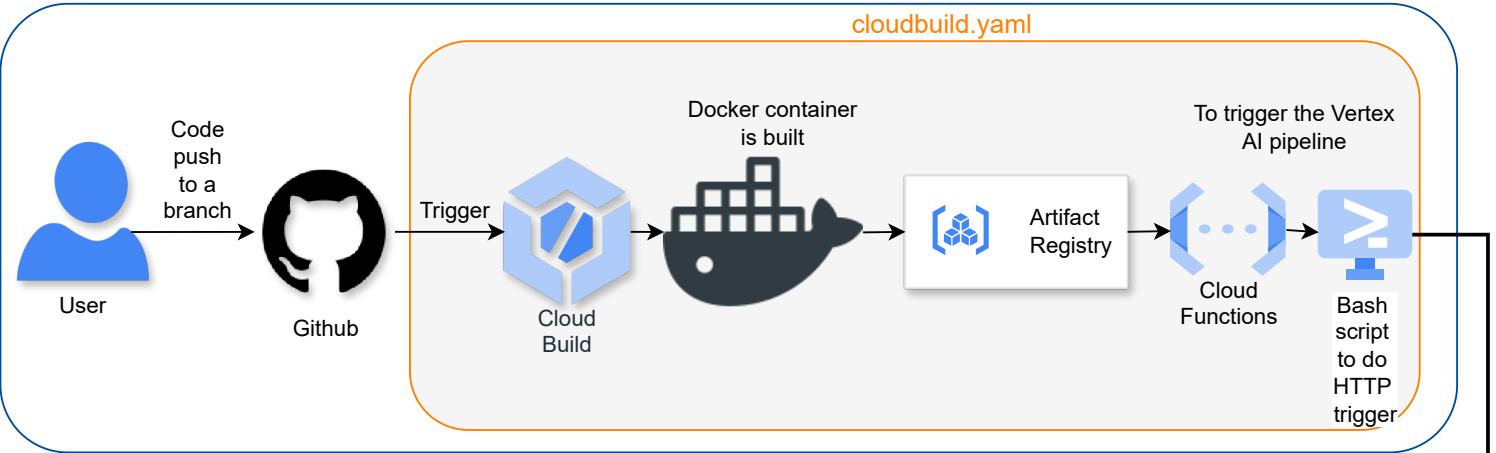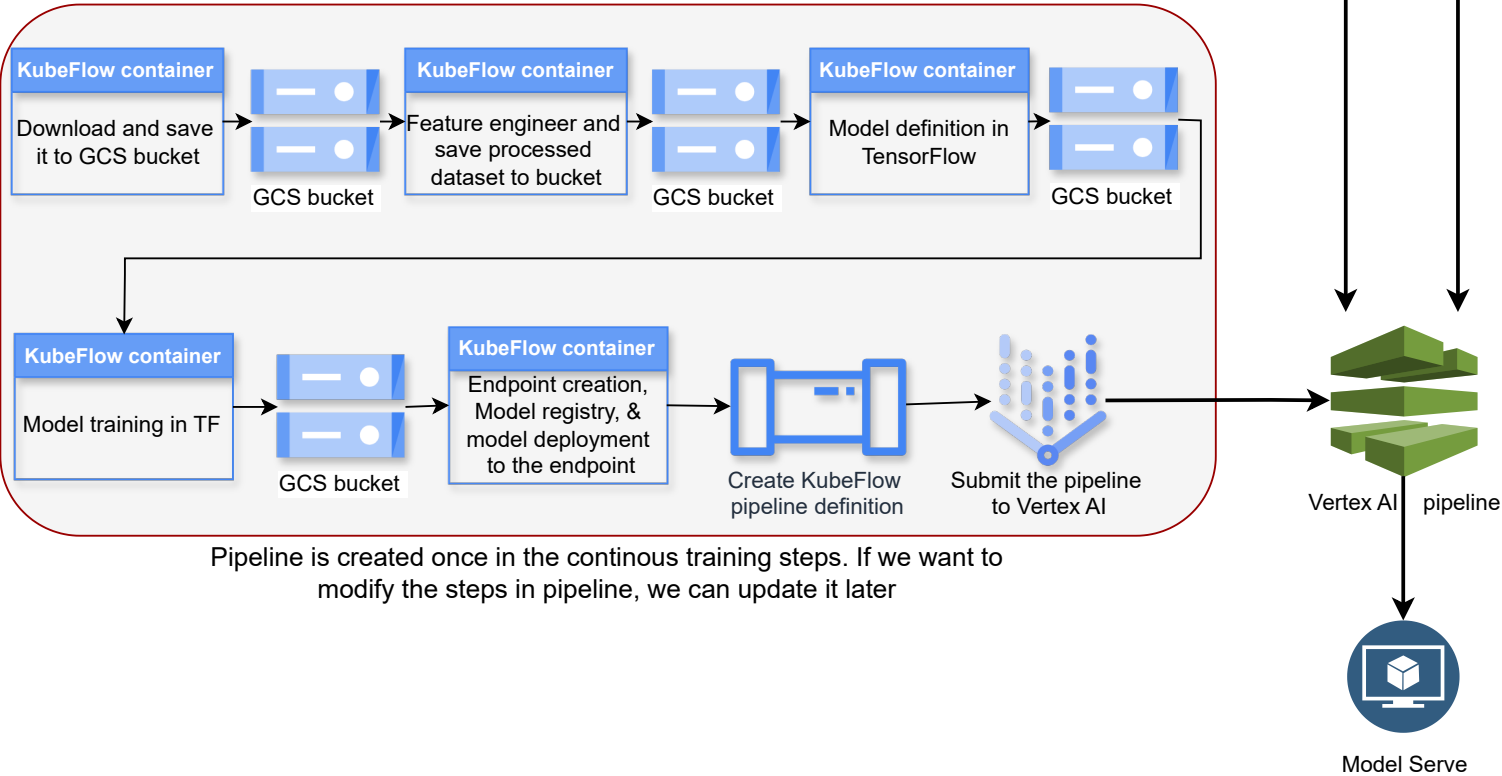
This Dockerfile defines a custom container for your pipeline. Whenever there are code changes, it will trigger the pipeline to run the training process.

Changes in the dataset using batch processing in DataFlow

Push the msg to pub/sub when a new file is uploaded

Cloud function is triggered when a new msg is published to topic

Cloud function: call DataFlow job & publish a msg to a topic

To trigger the Vertex AI pipeline

Cloud Storage

Pub/Sub

Dataflow

Pub/Sub

Cloud Functions
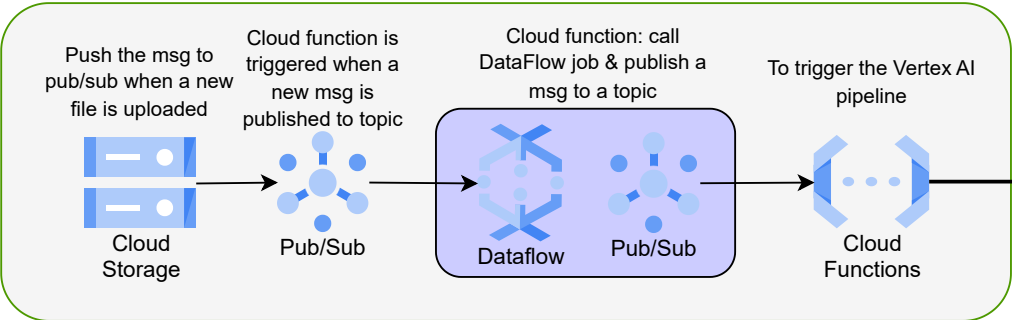
We need to trigger the pipeline once the dataset is changed a lot

Vertex AI pipeline creation using KubeFlow and TF

KubeFlow container
Download and save it to GCS bucket

GCS bucket

KubeFlow container
Feature engineer and save processed dataset to bucket

GCS bucket

KubeFlow container
Model definition in TensorFlow

GCS bucket

KubeFlow container
Model training in TF

GCS bucket

KubeFlow container
Endpoint creation, Model registry, & model deployment to the endpoint

Create KubeFlow pipeline definition

Submit the pipeline to Vertex AI

Vertex AI pipeline

Pipeline is created once in the continous training steps. If we want to modify the steps in pipeline, we can update it later

Model Serve