Build a Serverless Github Bot in GCP

Franklin Diaz

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Tuesday January 10, 2023

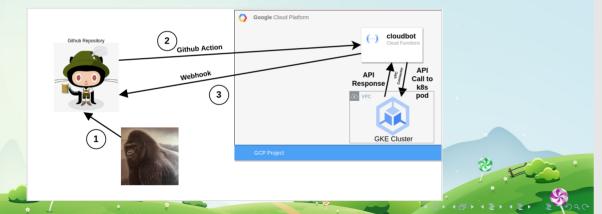
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Overview: Usage

The big picture for operation.



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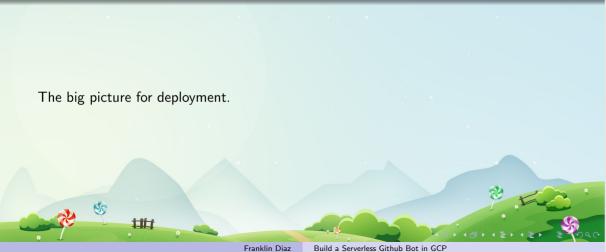
Build a Serverless Github Bot in GCP 2023-01-07 -INTRODUCTION

Overview: Usage



- Notice that a full working version of this project is running on the Github repository for the project.
- In the first step, you push a code change to your github repository.
- In step 2, a GH action triggers a call to the the cloud function in GCP.
- In step 3, the cloud function makes a call to the webhook in Github.

Overview: Deployment



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INTRODUCTION

Overview: Deployment

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The big picture for deployment.

Overview: Deployment

Outline

A high level overview of the learning path is as follows:

- Prerequisites
- Github setup.
- Set up a development environment.

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- Review the Python source for the bot.
- Configure Terraform and deploy the bot.
- Test it out.
- Explore possibilities for extending the functionality.



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-PRE-WORK



Setup: VSCode

VSCode (https://code.visualstudio.com)

- Windows 64 bit User Installer: VSCodeUserSetup-x64-1.73.1.exe
- Mac Universal: VSCode-darwin-universal.zip
- Linux (Debian, Ubuntu): code_1.73.1-1667967334_amd64.deb
- Linux (Red Hat, Fedora, SUSE): code-1.73.1-1667967421.el7.x86_64.rpm

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Build a Serverless Github Bot in GCP -PRE-WORK

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Click this link for details on using dev containers in VSCode

Setup: git

GIT (https://git-scm.com/downloads)

- Windows 32 Bit: Git-2.38.1-64-bit.exe
- Windows 64 Bit: Git-2.38.1-32-bit.exe
- Mac: git-2.15.0-intel-universal-mavericks.dmg



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Setup: Docker Desktop

Docker Desktop (https://www.docker.com/)

- Windows: Docker Desktop Installer.exe
- MacOS (Intel Chip): Docker.dmg
- MacOS (M1 Chip): Docker.dmg
- Linux instructions can be found: here

Click here to see Docker setup steps from Microsoft



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• this is a test

Setup: Clone and Open the Project Repository

- Time to clone the repository.
- Click this link for the Github repository
- In VSCode, press F1 and enter the command "Dev Containers: Open Folder in Container"
 - You can also choose "Dev Containers: Open Workspace in Container"
 - Here is the Microsoft VSCode dev containers tutorial
- From the top menu select "Terminal New Terminal"
- Now "cd /workspaces/workshop-codemash-2023/bin" and type

"setup-dev-env.sh"

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Build a Serverless Github Bot in GCP -PRE-WORK

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Google Cloud: Account Setup

- Sign up for a free tier GCP account.
- Navigate to https://cloud.google.com/ and make sure you have a usable project to work in.
- Here is some infomration about creating projects in GCP



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Google Cloud: Update Project Name and Login

- Update your project name in the file "/workspaces/workshop-codemash-2023/.envrc"
- Update your project name in the file "/workspaces/workshop-codemash-2023/src/config.ini"
- Type the command "direnv allow ." to reload the ENV variables.
- In the dev container, run the command "gcloud auth login" and follow the directions there.
- Verify you are connected to GCP with the command "gcloud auth list".

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Build a Serverless Github Bot in GCP IN CLASS SETUP

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Google Cloud: Create Service User

We create a service user in GCP with limited scope of permissions.



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We create a service user in GCP with limited scope of permissions

Google Cloud: Create Secret in Secrets Mgr

• The Cloud Function is expecting us to create a secret named "gh_secret_token".



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The Python Application

Discuss the code for the cloud function, see how all that works.



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The Python Application

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The Python Application

Discuss the code for the cloud function, see how all that works

-TERRAFORM



The Terraform Installer

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We use Terraform to automate the Cloud Function installation.

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Build a Serverless Github Bot in GCP TERRAFORM

The Terraform Installer

The Terraform Installer

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Deploying with Terraform



Build a Serverless Github Bot in GCP —TERRAFORM —Deploying with Terraform

Deploying with Terraform

Let's do a Terraform deployment.

EXTRA



Extra: Dockerfile and docker-compose.yml

Check out the docker container and framework, see how all that works.



Build a Serverless Github Bot in GCP -EXTRA

2023-01-07 Extra: Dockerfile and docker-compose.yml Extra: Dockerfile and docker-compose.vml

Check out the docker container and framework, see how all that works

Extra: Connect it to your GKE cluster

I can demo this or we can try it if we have time.



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Extra: GNU Autotools

Wow we must be super bored lets play with GNU Autotools.



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Future: Scan the PR comments for commands

The Cloud Function could monitor the PR for certain strings, using these to trigger actions.



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Resources

Click here for Session Details

Project source files are available:

https://github.com/devsecfranklin/workshop-codemash-2023

Prerequisites are available at this link.



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> Click here for Session Details https://github.com/devsecfranklin/workshop-codemash-2023

Resources

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Project source files are available Prerensisites are available at this link

Contact



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└─ Contact

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