

devfest 2022

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dden="" fixed="" aria-label='Hide  
Hide side navigation'
```

Automation Deployment with **GitOps** on **Google Cloud**



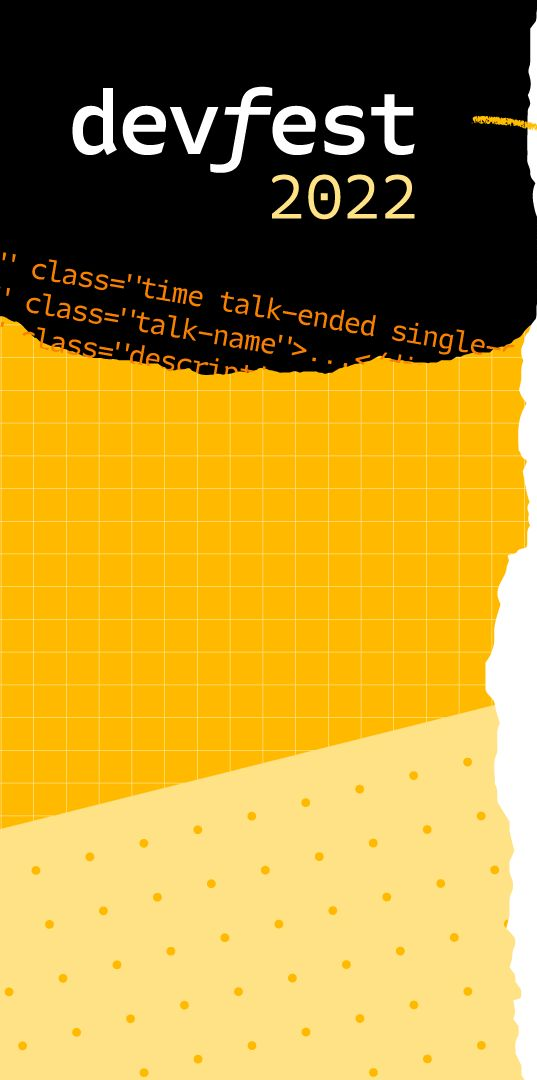
Google Developer Groups
Yogyakarta



Ananda Dwi Rahmawati

Sr. Cloud Engineer at Btech

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About Me



1. Student in Software Eng, UGM, Jul 2019 – present
2. Cloud Engineer, Btech, Jul 2019 – present
3. Tech background: System, Networking, IaaS & PaaS
Cloud, DevOps, a bit of Programming
4. Bangkit Academy Contributor & #RoadToGDE
Mentee
5. Open Source Enthusiast and Communities Member
6. <https://linktr.ee/misskecupbung>



Outline

1. What is GitOps?
2. Why Should I use GitOps?
3. GitOps Workflow?
4. GitOps Implementation?
5. Challenges?



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on class= 'devsite-book-nav-toggle'
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navigation' data-title='Hide side navigation'
-expanded='true'><span class='material-icons
' /></span></button>
```

“GitOps: versioned CI/CD on top of declarative infrastructure. Stop scripting and start shipping.”
— Kelsey Hightower

Source: <https://www.gitops.tech/>

Why Should I use **GitOps**?

Deploy Faster and More Often

Easy and Fast Error Recovery

Easier Credential Management

Self-documenting Deployment

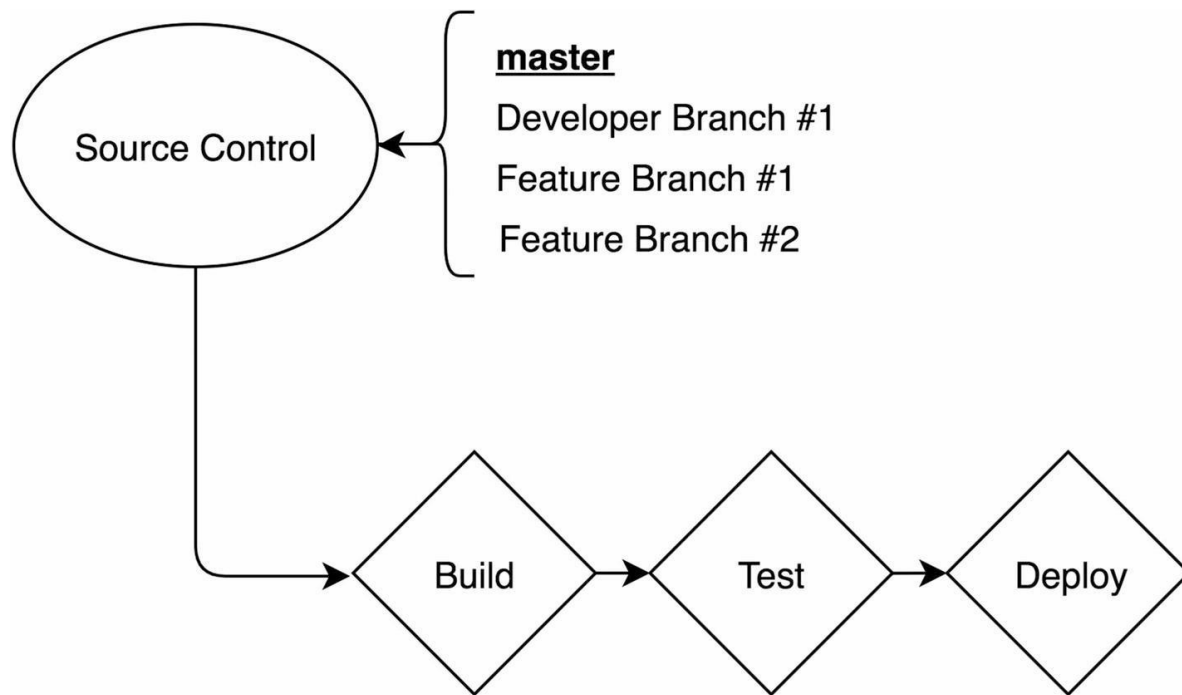
Shared-knowledge in Terms

Tools

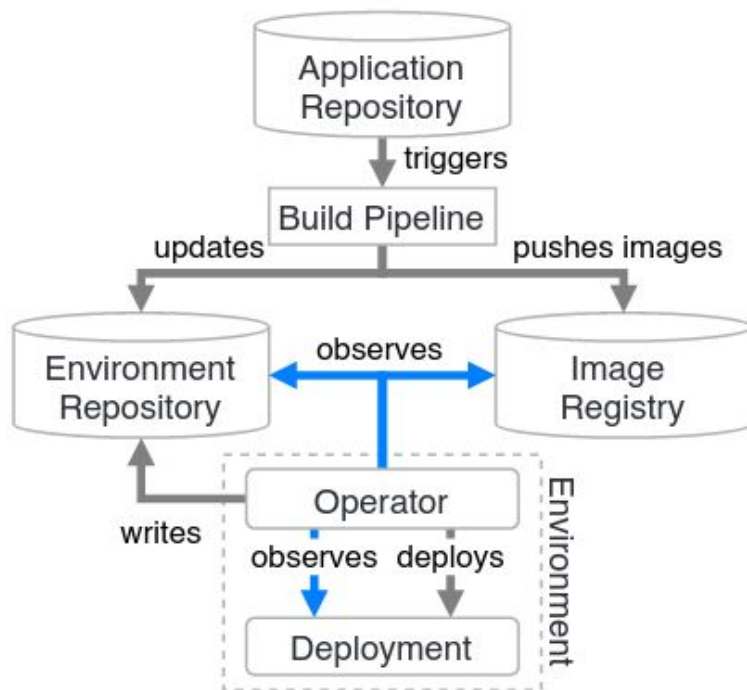
- ArgoCD
- Flux
- Helm Operator
- GitOps Engine
- GitOps Toolkit
- Gitkube
- JenkinsX
- Terragrunt
- WKSctl
- werf
- codefresh



GitOps Workflow



GitOps Implementation - Pull-based Implementation



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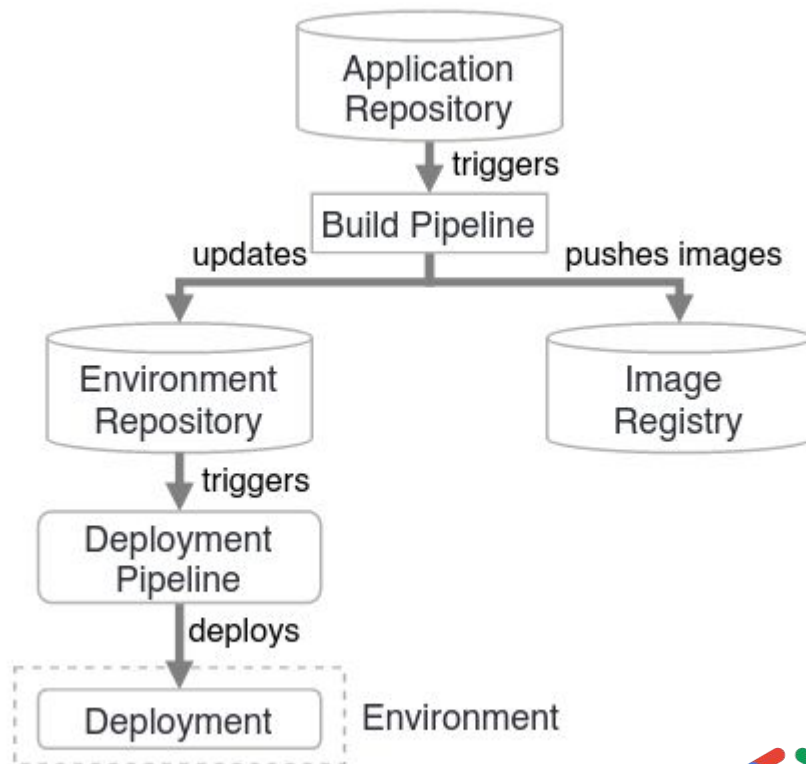
Tools

sing cloud provider: GCP

1. ● Kubernetes Cluster
2. ● Manage using Terraform
3. ● Semua resource dibuat dari terraform
4. ○ GKE
5. ○ CloudSQL
6. ○ Loadbalancer GCLB
7. ○ Pubsub
8. ○ Redis
9. ○ VM
10. ○ Firewall
11. ○ VP



GitOps Implementation - Push-based Deployments



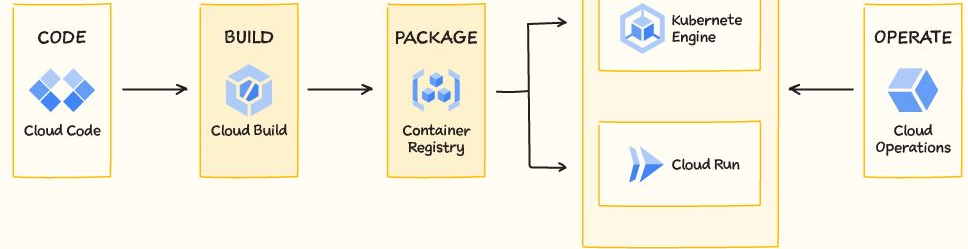


Cloud Build #GCPsketchnote

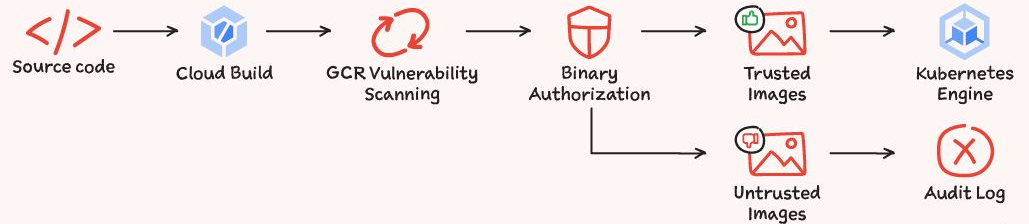
@PVERGADIA THECLOUDGIRL.DEV 11.16.2020

How do I create a cloud native CI/CD pipeline for containers?

CI/CD FOR CONTAINERS WITH GCP

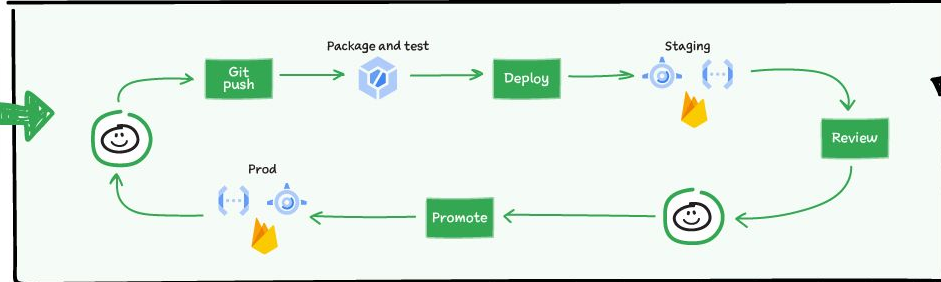
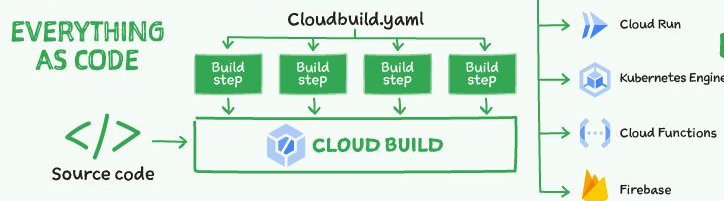


How does it help with Security?

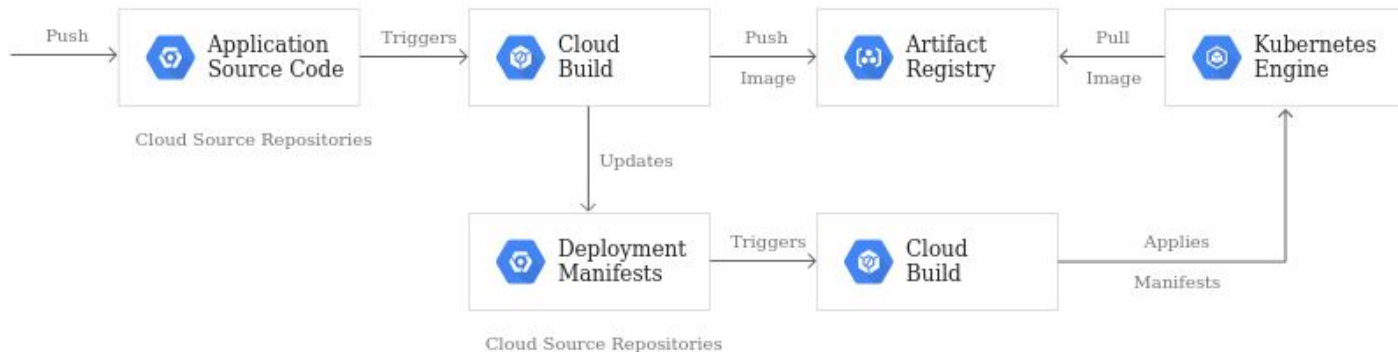


How does Cloud Build work?

EVERYTHING AS CODE



GitOps Implementation - Push-based Deployments



Source: <https://cloud.google.com/kubernetes-engine/docs/tutorials/gitops-cloud-build>

Try and Error :)

Filter Enter property name or value

Successful: pengedit-md-app - pengedit-md-app

Latest Build	Duration	Trigger description	Source
11/20/22, 8:09 AM	00:01:48	-	pengedit-md-app

Build History
Latest

[View all](#)

Average Duration
00:01:31

Successful: pengedit-md-env - pengedit-md-deploy

Latest Build	Duration	Trigger description	Source
11/20/22, 8:11 AM	00:00:27	-	pengedit-md-env

Build History
Latest

[View all](#)

Average Duration
00:00:21

Successful: 0fa728ec
Started on Nov 19, 2022, 11:15:03 PM

Trigger
[pengedit-md](#)

Source
 [pengedit-md-dev](#)

Branch
main

Commit
[5c1b4e5](#)

Steps

Duration

BUILD LOG

EXECUTION DETAILS

BUILD ARTIFACTS

Build Summary
2 Steps

☐ Wrap lines

☐ Show newest entries first

EXPAND

[VIEW RAW](#)

0: Build
build -t us-central1-docker.pk...

00:01:08

1: Push
push us-central1-docker.pkg...

00:00:15

80 - "Push": The push refers to repository [us-central1-docker.pkg.dev/dev-project-363217/pengedit-md/pengedit-md-env]

81 - "Push": 21ed1d21b301: Preparing

82 - "Push": f1ee136fa7f0: Preparing

83 - "Push": 85b3e99409fb: Preparing

84 - "Push": 67853533cc6: Preparing

85 - "Push": 65d358b7de11: Preparing

86 - "Push": f97384e8ccbc: Preparing

87 - "Push": d56e5e720148: Preparing

88 - "Push": bccc9f30bc1f: Preparing

89 - "Push": f97384e8ccbc: Waiting

90 - "Push": d56e5e720148: Waiting

91 - "Push": bccc9f30bc1f: Waiting

92 - "Push": 65d358b7de11: Layer already exists

93 - "Push": f97384e8ccbc: Layer already exists

94 - "Push": d56e5e720148: Layer already exists

95 - "Push": bccc9f30bc1f: Layer already exists

96 - "Push": 85b3e99409fb: Pushed

97 - "Push": f1ee136fa7f0: Pushed

98 - "Push": 67853533cc6: Pushed

99 - "Push": 21ed1d21b301: Pushed

100 - "Push": 5c1b4e5: digest: sha256:5cbddc740459f40b28b2c35b3f2f10d0c4a52d52f5f643672ca8deb9136b851a size: 101

101 | Step #1 - "Push"

102

Digests for pengedit-md

DELETE [SETUP INSTRUCTIONS](#)

us-central1-docker.pkg.dev

dev-project-363217

pengedit-md

pengedit-md

Filter Enter property name or value

☐	Name	Description	Tags	Created	Updated	
☐	c0fe028457fd		487c5a7	6 minutes ago	6 minutes ago	

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Challenges

1. Adoption
2. Environment
3. Tools
4. Cost



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References

1. <https://www.gitops.tech/>
2. <https://cloud.google.com/kubernetes-engine/docs/tutorials/gitops-cloud-build>



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Thank you!

