



## ENV Variables

- VSCode → deployment.yaml + tag
  - index.js
- Build → Push
- deploy → update
- Service
- -- printenv

## Config-Maps

- Create CM from literal
- YAML
- Env
- EnvVar

# Secrets

X123ABC

Encode [Base64]

↳ opaque (key-value)

↳ Basic (user/pas)      Encrypted X

↳ SSH

↳ docker reg

↳ TLS

↳ K8s token

→ Create generic → decode

→ use in file → Create PAT

Create Repo → decode

→ Create docker

→ use in deployment → Build

    → Run Secret

# HPA

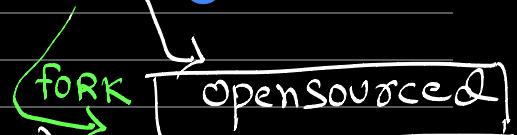
- Add Request / limits
- Enable metrics Server
- deployment / svc
- Post forwarder ①
- while loop ②
- HPA → (Enable | disable)

# Google (Kubernetes) Engine (GKE)

## Managed Service?

- Control Plane Management
- Node auto-repair, COS Images
- Cluster auto-scaling
- NAP
- Automatic Upgrade
- Automatic Security Patches
- UI dashboard
- Inbuilt add-on metric server
- CNI Plugin

developed by  
**Google**



additional features

- Infra maintenance, Scaling
- Advance security
- Integration with other cloud services
- Multi-cloud Capabilities

↳ PRODUCTION READY Kubernetes



# GKE MODES

## Standard ↴

- GCP will take care of control plane nodes.
- Worker node mgmt.
- you can use tPA, vPA, cluster autoscaler, Node auto Provisioning



## Autopilot

- GCP + Worker Nodes
- No operational overhead
- Fully Managed Service
- Nodes are added based on resource requests

# RELEASE CHANNELS

FEATURE Availability

FEATURE STABILITY

↳ RAPID

you get the GKE VERSION  
AS SOON AS IT IS AVAILABLE

STABLE  
2-3 MONTHS

AFTER REGULAR

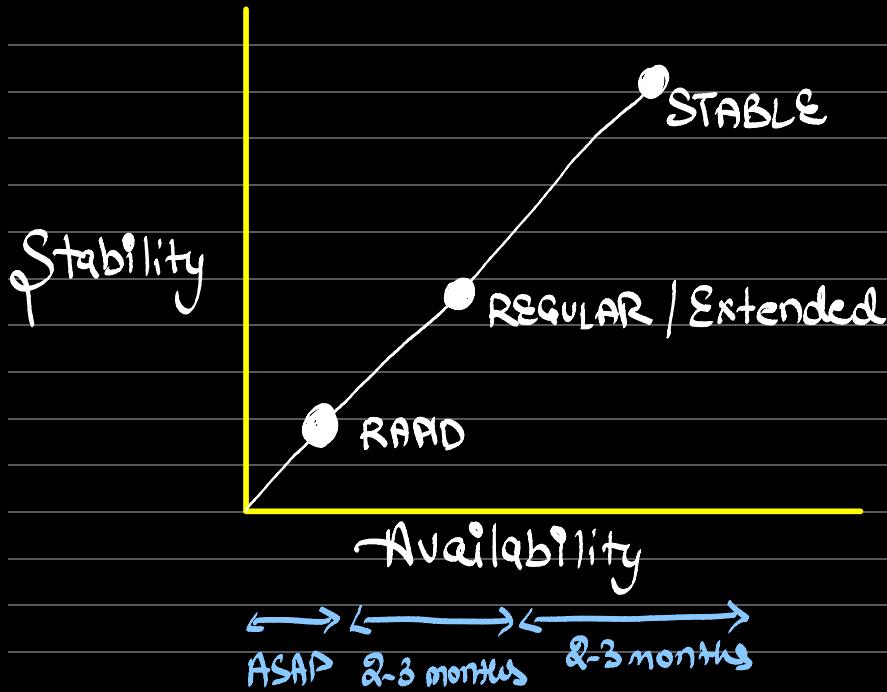
↳ EXTENDED

- Aligned  
with Regular +  
long term  
Support

↳ REGULAR (DEFAULT)

2-3 months after releasing  
in RAPID

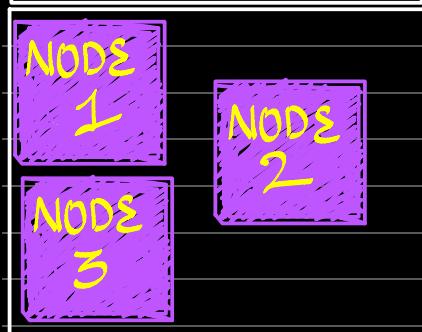
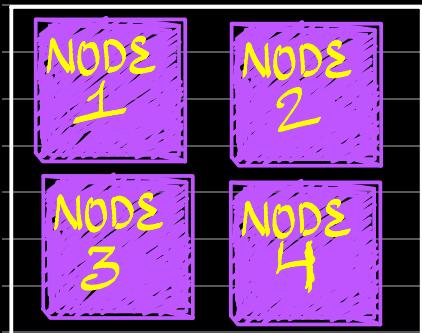
NO CHANNEL (NOT RECOMMENDED)



- Your clusters are auto-upgraded based on the release channel you opted
- for clusters Not Enrolled, GKE automatically upgrade the cluster once they reach End of Support.

# GKE NODE POOL

{Group of nodes with  
similar attributes}



NODE POOL → default  
Machine type → general purpose  
Image → COS

NodePool → Custom-NP  
Machine type → A3-ultra  
Storage → Local SSD

## NODE Auto-Provisioning (NAP)

\* GKE Automatically creates/delete Node pools

Cluster Autoscaler → add new nodes in existing  
node pools.

NAP Enabled ↳ Create new node pool based  
on specs of pending pods  
CPU, memory, storage, gpu, labels, schedule

# LKE Storage

(dynamic)  
Storage  
Class

[PDC]

Reclaim policy  
Binding mode

Pd CS<sup>i</sup> (Subtenant)  
Kunden CS<sup>i</sup>  
Akte Pd CS<sup>i</sup>

[PVC]

Bound  
[PV]

[PD]  
GCP