

# Jenkins in K8S

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- Fullname : Vinsen Muliadi aka VMuliadi (ID)
- Playing RPG and RTS; Tea Brewing; Fish Keeping;
- Site Reliability Engineer; AccelByte Inc.

# What is Jenkins?

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- CI/CD - Continuous Integration / Continuous Development
- Scripted and Declarative Pipeline (choose your model)
- Highly configurable. Suit to your working model
- Free and Open Source Software
- Definitely DevOps must-have



# What is Kubernetes?

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- Container orchestration (cluster management)
- Using docker (“podman” - RHEL guy) container image
- HA and blazing fast without pain in the back
- Solve problem with unique and efficient way





## Jenkins Service in Kubernetes

- Jenkins jalan di dua port yang berbeda. 50000/TCP (master - slave) dan 8080/TCP (web interface)
- Data disimpan di dalam persistent disk (data tidak dihapus ketika kubernetes pod di delete).

Kubernetes Deployment dengan Kubernetes StatefulSet memiliki fungsi yang sama, membuat “service” di kubernetes, bedanya Deployment bersifat stateless (data tidak disimpan di dalam persistent disk, bersifat ephemeral) dan StatefulSet bersifat stateful (data disimpan di dalam persistent disk).

- [K8S] Statefulset over Deployment
- [K8S] Service load balancer -> Set DNS Record
- [K8S] No setup wizard for Jenkins (JAVA\_OPTS envvars)
- [Jenkins] <https://github.com/jenkinsci/kubernetes-plugin>
- Manage Jenkins -> Configure System -> New Cloud -> K8S  
URL : <https://kubernetes.default.svc.cluster.local>  
Cred : PKCS12 client-certificate-data client-key-data  
Cert : base64 dari client-certificate-data  
Centang “Disable HTTPS Certificate Check”

# Jenkins Overview

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- Jenkins Master -> Kubernetes Statefulset
- Jenkins Slaves -> Kubernetes Pod
- Compatible dengan scripted dan declarative pipeline
- Customizable Jenkins Slave usage (consecutive / parallel)
- Customizable Jenkins Slave dengan K8S pod dan VM instance



# Jenkinsfile



```
agent {
  kubernetes {
    label "LABEL_NAME"
    containerTemplate {
      name "CONTAINER_NAME"
      image "DOCKER_IMAGE"
      ttyEnabled true
      command 'cat'
      privileged true
      alwaysPullImage true
    }
  }
}

stages {
  stage("Doing someting") {
    // DOING SOMETHING
  }
}
```

```
podTemplate(
  label: "LABEL_NAME",
  containers: [
    containerTemplate(
      name: "CONTAINER_NAME",
      image: "DOCKER_IMAGE",
      command: "cat",
      ttyEnabled: true
    )
  ]
) {
  node("LABEL_NAME") {
    stage("Doing something") {
      // DOING SOMETHING
    }
  }
}
```

```
podTemplate(
  label: "LABEL_NAME",
  yaml: """
  spec:
    containers:
      - name: logrotator-builder
        image: "GCR_PRIVATE_REGISTRY"
        command: cat
  """
) {
  node("LABEL_NAME") {
    stage("Doing something") {
      // DOING SOMETHING
    }
  }
}
```







- Jenkins X. <https://jenkins-x.io/>. pipeline automation, built-in GitOps and preview environments
- Support banyak bahasa pemrograman seperti Golang, Python, NodeJS, Swift, Java (lengkap dengan builder), Ruby, Rust, dan Scala.
- Development still on-going. Masih support Github dan Gitea. Bitbucket dan Gitlab masih on-development. Alpha masih buggy.

<https://github.com/jenkins-x/jx/issues/445>



# TERIMA KASIH

sh “exit 0”



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- Database load balancing. Kita bisa membuat load balancing untuk database dengan menggunakan tool yang bernama HAProxy. Karena HAProxy *based-on* TCP connection, database seperti MySQL (3306/TCP) dan PostgreSQL (5432/TCP) bisa dibuat jadi LB. Untuk masalah Master-Slave connection, bisa di-set di masing-masing database server dan dihubungkan via konfigurasi di HAProxy.

