Container-based CI/CD pipeline

Overview

Container-based CI/CD pipeline provides an integrated development environment that supports application development convenience and collaboration to increase development productivity. It improves development productivity by automating the build, test, and deployment process while enhancing the code quality through source history management and automatic verification.

In addition, continuous monitoring helps analyze performance changes before and after application deployment and enable early response to service failures.

Architecture Diagram

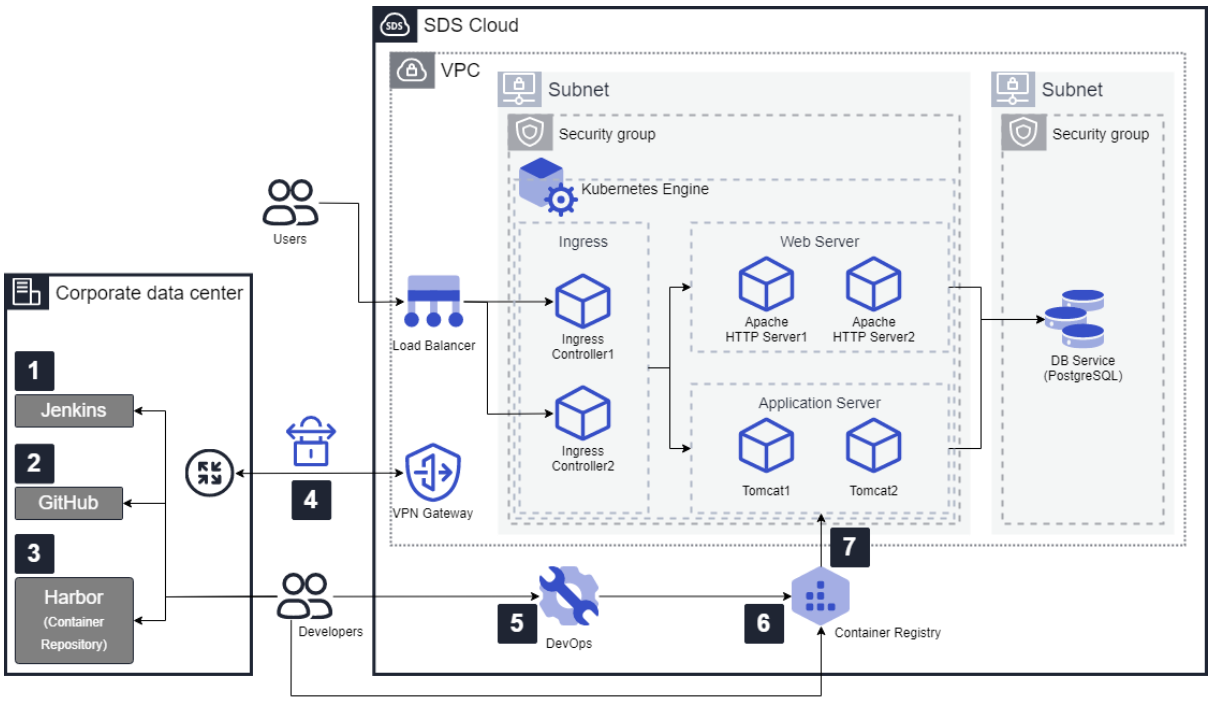

Figure 1. Container-based CI/CD pipeline

1. Establish source configuration management in the on-premises environment.
2. Establish an environment for continuous integration (CI) and continuous distribution (CD) within the on-premises environment.

3. Build a **Container Registry** that allows applications developed in the on-premises environment to be stored/managed as containers.
4. You can connect the on-premises environment to the customer's **Kubernetes Engine** of SDS Cloud by applying for a **VPN** service to deploy your application in the **Kubernetes Engine**.
5. If it is difficult to build an on-premises environment, you can apply for **DevOps** provided by SDS Cloud to configure an automated CI/CD pipeline.
6. After applying for **Container Registry**, you can create container images of the applications built in DevOps and store them in the Registry.
7. Developed applications can be reflected by continuously deploying the saved container applications to **Kubernetes Engine**.

Use Cases

A. Development environments of defect analysis system

The development environment setting can significantly accelerate from 2 days to within 5 minutes by building an automated defect classification and analysis system in a container-based Kubernetes Engine environment and utilizing DevOps' automated CI/CD pipeline.

B. Development environments for converting management information system to containers

Configuration of the development environment for a management information system usually takes at least 1-2 weeks but DevOps service enables immediate configuration. The service dramatically improves development productivity by automating the process of image containerization and deployment of developed applications, environment settings, and execution environments.

Pre-requisites

None.

Limitations

None.

Considerations

In the case of on-premises configuration, CI/CD S/W and Pipeline must be directly configured on the customer's H/W.

In order to connect with on-premises and **Kubernetes Engine**, request for a **VPN** offering is available. The IP band must be specified to avoid any conflicts between the subnet IP band of the **VPC** and the customer's Network IP address. In addition, **VPC** Firewall and **Security Group** need to be registered so that the worker nodes of **Kubernetes Engine** can connect to **Container Registry** on customer's on-premises.

Relate Products

SCP Essential Services

- Kubernetes Engine
- Kubernetes Apps
- VPC
- Virtual Server
- Load Balancer
- File Storage
- DevOps Tools (To be available in 2022)
- Container Registry (To be available in 2022)

Related Documents

- Container-based web application