Learn Kubernetes Basics

Kubernetes

Kubernetes is a box management technology developed by Google lab to control containerized applications in various type of environments such as for example physical, virtual, and cloud infrastructure. It is definitely an open source system which helps in creating and managing containerization of application. This tutorial offers an breakdown of different type of features and functionalities of Kubernetes and teaches how to control the containerized infrastructure and application deployment.

Kubernetes within an open source container management tool hosted by Cloud Native Computing Foundation (CNCF). This really is also called the enhanced version of Borg which was developed at Google to control both long running processes and batch jobs, which was earlier handled by separate systems.

Kubernetes includes a convenience of automating deployment, scaling of application, and operations of application containers across clusters. It's capable of fabricating container centric infrastructure.

Following are a few of the important features of Kubernetes.

- ➢ Continues development, integration and deployment
- ➢ Containerized infrastructure

- Application-centric management
- Auto-scalable infrastructure
- Environment consistency across development testing and production
- Loosely coupled infrastructure, where each component can act as a separate unit
- Higher density of resource utilization
- Predictable infrastructure which is going to be created

One of many key components of Kubernetes is, it may run application on clusters of physical and virtual machine infrastructure. It even offers the capability to run applications on cloud. It helps in moving from host-centric infrastructure to container-centric infrastructure.

Kubernetes Concepts

Making use of Kubernetes requires understanding the different abstractions it uses to represent the state of the system, such as services, pods, volumes, namespaces, and deployments

- **Pod** - generally refers to a number of containers that ought to be controlled as just one application. A pod encapsulates application containers, storage resources, a distinctive network ID and other configuration on how best to run the containers.
- **Service** - pods are volatile, that is Kubernetes doesn't guarantee a given physical pod will undoubtedly be kept alive (for instance, the replication controller might kill and begin a new group of pods). Instead, a service represents a logical group of pods and acts as a gateway, allowing (client) pods to send requests to the service without having to keep an eye on which physical pods actually constitute the service.
- **Volume** - just like a box volume in Docker, but a Kubernetes volume relates to an entire pod and is attached to all containers in the pod. Kubernetes guarantees data is preserved across container restarts. The quantity will undoubtedly be removed only once the pod gets destroyed. Also, a pod can have multiple volumes (possibly of different types) associated.

- **Namespace** - an electronic cluster (a single physical cluster can run multiple virtual ones) designed for environments with many users spread across multiple teams or projects, for isolation of concerns. Resources in a very namespace should be unique and cannot access resources in an alternative namespace. Also, a namespace could be allocated a resource quota to prevent consuming more than its share of the physical cluster's overall resources.
- **Deployment** - describes the required state of a pod or perhaps a replica set, in a yaml file. The deployment controller then gradually updates the surroundings (for example, creating or deleting replicas) before the current state matches the required state specified in the deployment file. As an example, if the yaml file defines 2 replicas for a pod but only one is running, a supplementary one will get created. Remember that replicas managed using a deployment shouldn't be manipulated directly, only via new deployments.

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