

Kubernetes Architect and Components

what is container?

A container is a standard unit of software that packages up code and all its dependencies so the application runs quickly and reliably from one computing.

what is runtime?

A container runtime, also known as container engine, is a software component that can run containers on a host operating system.

what is image

A container image is an unchangeable, static file that includes executable code so it can run an isolated process

what is registry

A container registry is a repository—or collection of repositories—used to store and access container images.

what is container orchestration platform

-Container orchestration automates and simplifies provisioning, and deployment and management of containerized applications. IBM

-Container orchestration automates the deployment, management, scaling, and networking of containers. Enterprises that need to deploy. redhat

-Container orchestration is the automation of much of the operational effort required to run containerized workloads and services. VMware

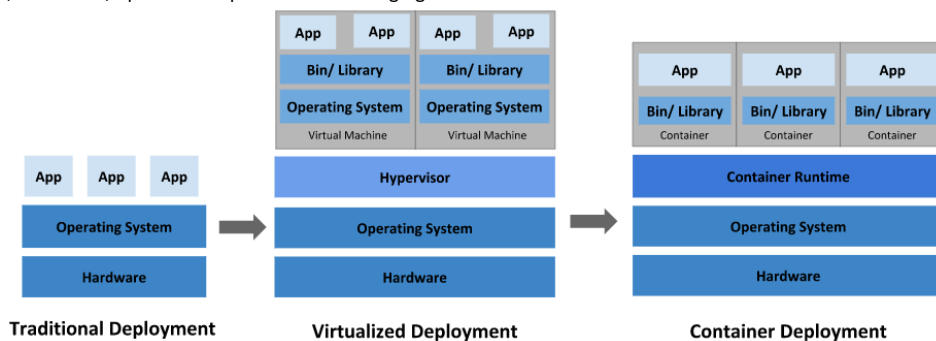
what is Kubernetes

<https://kubernetes.io/>

Kubernetes, also known as K8s, is an open-source system for automating deployment, scaling, and management of containerized applications.

Understand Kubernetes

Kubernetes is a portable, extensible, open-source platform for managing containerized workloads and service.



Kubernetes Components

in Kubernetes by default, we have 2 types of node

1-master

2-worker

MasterNode/ControlPlane

manages the worker nodes and the Pods in the cluster

workerNode

A Kubernetes cluster consists of a set of worker machines, called nodes, that run containerized applications. Every cluster has at least one worker node.

The worker nodes host the Pods that are the components of the application workload.

MasterNode Components

1-apiserver

The API server is a component of the Kubernetes control plane that exposes the Kubernetes API. The API server is the front end for the Kubernetes control plane.

2-etcd

<https://etcd.io/>

A distributed, reliable key-value store for the most critical data of a distributed system. Its K8s Database.

3-scheduler

Control plane component that watches for newly created Pods with no assigned node, and selects a node for them to run on.

4-controller-manager

Control plane component that runs controller processes.

WorkerNode Components

1-Container runtime

The container runtime is the software that is responsible for running containers.

2-kubelet

An agent that runs on each node in the cluster. It makes sure that containers are running in a Pod.

3- kube-proxy

kube-proxy is a network proxy that runs on each node in your cluster, implementing part of the Kubernetes Service concept.