GLOSSARY OF DEVOPS KUBERNETES CONTAINERS TERMS

A Quick Reference Guide to DevOps Kubernetes Containers Terminology

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Glossary of Kubernetes Containers Terms

Term	Definition
DevOps	A software development approach that combines development (Dev) and operations (Ops) to increase efficiency and reduce time to market
Continuous Integration (CI)	The practice of continuously merging, testing, and building code changes to identify issues early
Continuous Delivery (CD)	The practice of continuously deploying code changes to a staging or production environment
Kubernetes	An open-source container orchestration platform designed to automate the deployment, scaling, and management of containerized applications
Containerization	A method of packaging an application and its dependencies into a single package called a container
Microservices	An architectural style that structures an application as a collection of loosely coupled, independently deployable services
YAML	A human-readable data serialization format used for configuration files in Kubernetes
API	Application Programming Interface - a set of protocols and standards for building and accessing software applications
Node	A physical or virtual machine that runs containers in a Kubernetes cluster

Term	Definition
Namespace	A virtual cluster within a Kubernetes cluster that can be used to partition resources
Replication Controller	A Kubernetes resource that ensures that a specified number of replicas of a pod are running
Service	A Kubernetes resource that provides a stable IP address and DNS name for a set of pods
Pod	The smallest deployable unit in Kubernetes, consisting of one or more containers
Deployment	A Kubernetes resource that manages a set of replicas of a pod and provides features like rolling updates
StatefulSet	A Kubernetes resource used for managing stateful applications, where each pod needs a stable hostname and persistent storage
Ingress	A Kubernetes resource that manages external access to services in a cluster
Helm	A package manager for Kubernetes that simplifies the installation and management of applications
Load Balancer	A Kubernetes resource that distributes incoming network traffic across a set of pods
Persistent Volume	A Kubernetes resource used for providing durable storage for containers

Term	Definition
Secret	A Kubernetes resource used for storing sensitive information like passwords or keys
ConfigMap	A Kubernetes resource used for storing configuration data as key-value pairs
DaemonSet	A Kubernetes resource that ensures that a specific pod is running on all nodes in a cluster
Operator	A Kubernetes resource that extends the Kubernetes API with custom resources and controllers
Rolling Update	A Kubernetes deployment strategy that updates a set of replicas one at a time, while keeping the application available
Canary Deployment	A Kubernetes deployment strategy that gradually introduces a new version of an application to a subset of users
Blue/Green Deployment	A Kubernetes deployment strategy that switches traffic from one version of an application to another
Horizontal Scaling	A Kubernetes feature that enables the automatic scaling of replicas based on CPU or memory usage
Vertical Scaling	A Kubernetes feature that enables the resizing of a pod or node to accommodate larger workloads
Service Mesh	A Kubernetes add-on that provides features like traffic management, load balancing, and service discovery

Term	Definition
Canary deployment	A deployment technique that gradually rolls out new code changes to a small percentage of users or servers to test for bugs or issues before full deployment.
Service mesh	A dedicated infrastructure layer for managing service-to-service communication in a microservices architecture.
GitOps	A way to manage infrastructure and deployments using Git version control as the single source of truth.
Pod	The smallest deployable unit in Kubernetes, consisting of one or more containers that share network and storage resources.
Operator	A Kubernetes extension that uses custom resources and controllers to automate application management tasks.
Helm	A package manager for Kubernetes that allows for easy installation and management of complex applications.
Sidecar container	A secondary container that runs alongside the main container in a pod to provide additional functionality, such as logging or security.
Ingress	A Kubernetes resource that manages external access to services in a cluster.

Term	Definition
Volume	A Kubernetes object that provides persistent storage for a pod or container.
Replica set	A Kubernetes object that ensures a specified number of identical pods are running at all times.
Stateful set	A Kubernetes object that manages the deployment and scaling of stateful applications, such as databases.
Node	A physical or virtual machine that runs one or more pods in a Kubernetes cluster.
Cron job	A Kubernetes object that schedules and runs jobs at specified intervals, similar to a cron job in Unix.
Container image	A lightweight, standalone package that includes everything needed to run an application, such as code, libraries, and dependencies.
Container registry	A repository for storing and distributing container images, such as Docker Hub or Google Container Registry.
Manifest	A declarative configuration file that defines the desired state of a Kubernetes object.
CICD	Short for continuous integration and continuous deployment, a DevOps practice that involves automating the build, testing, and deployment of software.

Term	Definition
Autoscaling	A Kubernetes feature that automatically scales up or down the number of pods in a deployment based on resource usage.
Node pool	A group of nodes in a Kubernetes cluster that have similar hardware configurations and are used for running specific workloads.
Rolling update	A deployment strategy that updates pods in a rolling fashion, one at a time, to minimize downtime and ensure availability.
Load balancer	A Kubernetes resource that distributes traffic evenly across multiple pods or nodes in a cluster.
Kubelet	A Kubernetes agent that runs on each node and manages the state of pods and containers.
Namespace	A Kubernetes object that provides a way to group and isolate resources in a cluster.
Daemon set	A Kubernetes object that ensures a pod runs on all nodes in a cluster, typically used for system-level tasks like logging or monitoring.
Resource quota	A Kubernetes object that limits the amount of CPU, memory, and storage that a pod or container can consume.

Term	Definition
Taint	A Kubernetes feature that allows nodes to be marked as unschedulable, preventing pods from running on them unless they tolerate the taint.
Annotation	A metadata tag that can be added to Kubernetes objects to provide additional information or context.
Custom resource definition	A Kubernetes feature that allows users to define custom resources and controllers for managing application-specific objects.
Stateful application	An application that stores data in a stateful manner, such as a database, and requires special considerations for scaling and deployment.
Config map	A Kubernetes object that provides a way to store configuration data as key-value pairs or files, separate from the application code
Horizontal Pod Autoscaler	A Kubernetes controller that automatically adjusts the number of replicas of a pod based on CPU usage
Rolling Update	A strategy for updating a deployment in Kubernetes, where new pods are created and old pods are deleted in a controlled manner to ensure zero downtime
ConfigMap	A Kubernetes resource that allows decoupling of configuration from code by storing configuration data as key-value pairs

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