Kubernetes Cluster

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Discussion

A Kubernetes Cluster is a coordinated computing platform comprising Kubernetes control-plane components and one or more worker nodes that schedule, execute, connect, and manage containerized workloads.

A Kubernetes Cluster may include:

- Kubernetes control-plane components
- Worker nodes
- Cluster networking
- Service discovery
- Storage integration
- Identity and access configuration
- Admission controls
- Security controls
- Monitoring integration
- Logging integration

The control plane manages the desired and observed state of Kubernetes resources.

Worker nodes execute the containers and supporting runtime components associated with deployed Containerized Workloads.

A Kubernetes Cluster differs from a container runtime:

- A container runtime creates and operates containers
- A Kubernetes Cluster coordinates containers, workloads, resources, scheduling, networking, and related platform behavior across one or more nodes

A Kubernetes Cluster may operate:

- Within a single Infrastructure Environment
- Across multiple availability zones
- On physical machines
- On Virtual Machines
- Through a provider-managed service
- In a Connected, Disconnected, or Air-Gapped Environment

Definition

coordinated computing platform comprising Kubernetes control-plane components and one or more worker nodes that schedule, execute, connect, and manage Containerized Workloads

Source

Dido Solutions, Inc. and Jackrabbit Consulting, Inc.

Note

A Kubernetes Cluster does not by itself establish that the cluster is:

- Securely configured
- Highly available
- Compliant
- Connected to an external network
- Suitable for production use
- Authorized to execute a particular Workload

Separate requirements govern those determinations.

The term does not prescribe a Kubernetes distribution, version, installation method, node topology, container runtime, network implementation, storage implementation, or provider.

Example

Crucible deploys a Kubernetes Cluster consisting of control-plane components, three worker nodes, cluster networking, storage integration, identity controls, logging, and monitoring.
