Docker and Kubernetes Training

Duration: **2 Day**

BILGINC IT Academy
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Overview

The Docker and Kubernetes Training course is designed to give participants a comprehensive foundation in Docker and Kubernetes technologies. Throughout the course, attendees explore the essential components and capabilities of Kubernetes, including Pods, Labels, Volumes, Controllers, Services, and other important Kubernetes objects.

The training takes participants from initial installation through the practical use and management of Kubernetes environments. Instructor-led sessions are supported by hands-on laboratory exercises, allowing attendees to gain practical experience in configuring and managing Kubernetes objects.

The course also covers Kubernetes architecture, networking, service discovery, scaling, load balancing, data persistence, and cluster management. Advanced functionality and fundamental security considerations are included to help participants develop the knowledge required to operate Kubernetes clusters more safely and effectively in production environments.

Prerequisites

Participants should ideally have familiarity with:

- The Linux command line, Linux file system, Linux networking, and Bash scripting
- Computer programming concepts and methodologies
- Docker and Linux container technologies

Who Should Attend

This training is suitable for individuals and teams who want to develop a strong foundation in Kubernetes and understand container orchestration requirements for building services that are secure, robust, highly available, resilient, and self-healing.

The course is particularly relevant for:

- Developers
- Operations Teams
- DevOps Professionals
- QA Engineers
- IT Project Managers

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Outline

Day 1 – Docker and Kubernetes Fundamentals

- Docker and Linux container technologies
- Docker container lifecycle
- Working with Docker images
- Network communication between containers
- Data persistence in container environments
- Container orchestration requirements and available options
- Introduction to Kubernetes and other orchestration systems
- Core Kubernetes concepts:
  - Pods
  - Labels
  - Controllers
  - Services
  - Secrets
  - Persistent Data Volumes
  - Claims
  - Namespaces
  - Quotas

Day 2 – Kubernetes Architecture, Networking and Cluster Management

- Kubernetes reference architecture and its core components
- Container networking model in Kubernetes
- Service discovery, scaling, and load balancing
- Using DNS for service discovery
- Ingress Controller and reverse proxy
- Application state persistence and the Kubernetes data volume model
- Kubernetes storage backend options:
  - Local Storage
  - NFS
  - GlusterFS
  - Ceph
- Cluster management
- Deploying applications and services on a Kubernetes cluster