

Portworx-Kubernetes-Docker

Course Summary

Description

Containerization has taken the IT world by storm, in the last few years. Large software houses, starting from Google and Amazon, are running significant portions of their production load in containers.

Kubernetes is an open-source system for automating deployment, scaling, and management of containerized applications. It groups containers that make up an application into logical units for easy management and discovery. Kubernetes builds upon 15 years of experience of running production workloads at Google, combined with best-of-breed ideas and practices from the community.

The Portworx Enterprise Storage Platform is your end-to-end storage and data management solution for all your Kubernetes projects, including container-based CaaS, DBaaS, SaaS, and Disaster Recovery initiatives. Your apps will benefit from container-granular storage, disaster recovery, data security, multi-cloud migrations and more.

This course introduces the students to Portworx and containers in general, then continues with Kubernetes, its architecture, its use in production, and its best practices.

Objectives

At the end of this course, students will be able to:

- Learn about Portworx installation, administration, and best practices
- Understand Docker and Kubernetes concepts and architecture
- Orchestrate Docker containers with Kubernetes
- Master practical Kubernetes applications

Topics

- Container Fundamentals (prerequisite, will be covered if needed)
- Introduction to Portworx
- Kubernetes Specific Curriculum
- Overview of the following concepts for Kubernetes
- Stateful Applications and Kubernetes
- Automating Kubernetes Deployments with Terraform

Audience

This course is designed for developers and architects.

Prerequisites

Before taking this course, students should be comfortable with Linux and command-line operations, and familiar with software development.

Duration

Four days

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Course Outline

I. Container Fundamentals (prerequisite, will be covered if needed)

- A. Docker Overview
- B. Docker Operations
- C. Docker use cases
- D. CLI tools
- E. Health checks
- F. Labs

II. Introduction to Portworx

- A. Portworx Control Plane
- B. Install Portworx Standalone Mode
- C. Architecture Overview
- D. Lab: Install Portworx on Docker Standalone, PXCTL Introduction

III. Kubernetes Specific Curriculum

- A. Container Review
- B. Orchestration
- C. Kubernetes Architecture
- D. Pods and Configs
- E. Deployments and Replica Sets
- F. Autoscaling
- G. Services and Networking
- H. Managing State
- I. Labs: Kubernetes, Portworx on Kubernetes

IV. Overview of the following concepts for Kubernetes

- A. Kubernetes Design Patterns and Stateful Sets
- B. Inside Services and Load Balancing
- C. DNS and Service Discovery
- D. Kubernetes in the Cloud and SDN
- E. Labs

V. Stateful Applications and Kubernetes

- A. Storing the state of an application
- B. NoSQL overview
- C. etcd, a distributed key-value store
- D. Setup, administration, deployment
- E. etcd, the primary Kubernetes datastore
- F. etcd security and backup

VI. Automating Kubernetes Deployments with Terraform

- A. Automating Infrastructure deployment
- B. Introducing Terraform
- C. Terraform and Kubernetes
- D. Vendor-Neutral Cloud deployments with Terraform