Category: DevOps

Kubernetes From A to Z #030102

Das Trainings findet sich vom 16.06.2025 bis zum 27.06.2025 statt

und wird auf Englisch gehalten

Es läuft von 08:30 bis 17:00.

Das Training findet sich nur Online statt.

Category:	DevOps
Boot Camp Training Program BCTP:	Kubernetes Fundamentals and Operations (10 days X 8hours)
Key Learning	● Build, test, and publish Docker container images ● Become familiar with YAML files that define Kubernetes objects ● Understand core Kubernetes user concepts, including pods, services, and deployments ● Use kubectl, the Kubernetes CLI, and learn about its commands and options ● Understand the architecture of Kubernetes (control plane and its components, worker nodes, and kubelet) ● Learn how to troubleshoot Kubernetes deployments ● Apply resource requests, limits, and probes to deployments ● Learn Containerization and Autoscalling ● Manage dynamic application configuration using ConfigMaps and Secrets ● Deploy other workloads, including DaemonSets, Jobs, and CronJobs ● Learn user-facing security with SecurityContext, RBAC, and network policies ● Learn how to be familiar with CI/CD Tools
Requirements	● Knowledge of Linux concepts and the command line as well as general Networking knowledge is required.
Content Modules	Module/day 1: Create First Container Chapter 1: Basic concepts, history, alternatives ● You will learn what Kubernetes is, where it comes from, and why you should get to know it

	● Use kubectl, Kubernetes CLI, Commands and Options Chapter 2: Construction of the cluster ● You will learn what Kubernetes-Architecture and basic components a Kubernetes cluster is made of. ● Installation methods and available versions ● You will learn a list of the most popular Kubernetes installers and their cloud providers. Module/day 2: APIs Chapter 3: Kubernetes API 5 ● You will understand what communication inside the cluster looks like and what are the core components of the Kubernetes API. Chapter 4: Cluster launching ● You will run a Kubernetes cluster locally and learn at least two ways to connect to it. You will build image and create your first container in Kubernetes. Module/day 3: Pods & Deployment Chapter 5: Pod basics ● You will take a closer look at the core component of an application in Kubernetes - pod. ● You will learn how Pod differs from a container. You will run the pod application, monitor and change it. Chapter 6: Pod in details ● You will learn the advanced Pod settings necessary for your application Chapter 7: Other Kubernetes APIs ● You will learn about the other core objects in the Kubernetes API such as Node, ConfigMap, and Secret. Chapter 8: Running an application in Kubernetes ● You will learn what, apart from the feed itself, is also needed to run an efficient application in Kubernetes. ● You will learn to do zero-downtime-deployment using Kubernetes ● Manage dynamic application configuration using ConfigMaps and Secrets ● Deploy other workloads, including DaemonSets, Jobs, and CronJobs Module/day 4: Networking and Application Installation Chapter 1: Service Discovery in Kubernetes ● You will learn about how DNS works in a cluster and how applications connect to each other and are published outside the cluster.

	● You will learn how the network works in Kubernetes ● ClusterIP, NodePort and Load Balancer Chapter 2: Ingress ● You'll learn what Ingress is in Kubernetes, how to use it, and why it's worth it. Chapter 3: Persistent data in the cluster ● You will learn what volumens are, how they are created and assembled. ● You will meet StatefulSet and find out why it is unique Chapter 4: Helm ● Define, install and upgrade Kubernetes Applications with Helm ● You will understand what Helm is and how to use it for releases. Module/day 5: Application Autoscalling Chapter 1: Kubernetes and Gitlab 6 ● You will configure Gitlab to work with Kubernetes and automatically release the app. Chapter 2: Other ways to start the application ● You will learn about one-time tasks defined by Job and CronJob ● You will learn how DaemonSet starts Pods Chapter 3: Autoscale ● You will practice how to autoscale an application in Kubernetes Module/day 6: Monitoring and Security Chapter 1: Portainer How to deploy software containers across your fleet of Edge devices securely. Chapter 2: Logging Chapter 3: Monitoring Chapter 4: Security and Network Policy • Network policy • Applying a NetworkPolicy • Security Context • Run As User/Group • Service accounts • Role-based access control

	Module/day 7: CI/CD Tools Chapter 1: Working with multiple Environments Chapter 2: CI/CD tools Jenkins, Bamboo, Maven, Selenium, Puppet, Terraform, Ansible, Grafana, Prometheus Chapter 3: Project Exercises Module/day 8: CI/CD Exercises Using Jenkins, Bamboo, Maven, Selenium, Puppet, Terraform, Ansible, Grafana, Prometheus Module/day 9: Cluster Operations • Onboarding new applications • Backups • Upgrading • Drain and cordon commands • Impact of an upgrade to running applications • Troubleshooting commands • VMware Tanzu™ portfolio overview Module/day 10: Performance & Containerization Chapter 1: Performance optimization with Uvicorn Chapter 2: Deployment (Heroku Serverless and Nine Remote) Chapter 3: Containerization (Docker & Kubernetes)