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Sign up

Hashicorp Nomad training

3 days (21 hours)

Presentation

Manage your containers efficiently with our Hashicorp Nomad training, the alternative to Kubernetes by Hashicorp. Our comprehensive program begins with a presentation of the tool (architecture, components, interface...), the various use cases and a detailed comparison with Kubernetes. At the heart of our training, you'll find out how to install and configure this container orchestrator on different platforms. You'll also learn about the security aspects of access control, TLS encryption and Gossip. We'll teach you how to manage jobs and tasks with HCL2. This will enable you to optimize your deployments by making good use of resources, constraints, volumes and storage. At the end of the course, you'll also be able to monitor Nomad using various services, implement autoscaling and administer node pools. Our Nomad training course will be based on the latest version, Hashicorp Nomad 1.7.

Objectives

- Understanding the differences between HashiCorp Nomad and Kubernetes
- How to install and configure Nomad
- Efficiently manage application deployments and updates
- Implementing security strategies

Target audience

- DevOps
- Developers
- System administrators
- Cloud Architects

Prerequisites

- Basic knowledge of container orchestration

- Basic knowledge and handling of a Linux system

Technical requirements

- Nomad server configuration :
  - 4 to 8+ cores
  - 16 to 32 GB+ memory
  - 40 to 80 GB+ fast disk
- Network latency of less than 10 milliseconds between servers
- Root privileges for Linux users

Hashicorp Nomad training program

INTRODUCTION

- Introducing HashiCorp Nomad
- Nomad vs Kubernetes
- Use cases
- Nomad architecture
- The components
- Nomad migration strategy

NOMAD INSTALLATION AND CONFIGURATION

- Detailed Nomad installation
  - macOS
  - Linux
  - Windows
- Navigating the user interface
- Initial configuration of the Nomad cluster
- Securing Nomad
  - TLS
  - Gossip encryption
- Configuring ACLs for access control
- Nomad service management

FUNDAMENTAL CONCEPTS

- The tasks
- Jobs
- Task groups
- Using job specifications in HCL2

- Managing resources and constraints
- Volume configuration
- Storage management

JOB AND TASK MANAGEMENT

- Creation and submission of job specifications
- Deployment
- Updating applications
- Failure management
- Recovery strategies
- Advanced use of tasks

SECURITY AND ACCESS CONTROL

- ACL policy implementation
- Roles and permissions management
- Strategies for securing transactions and sensitive data

NETWORKING

- Network configuration for jobs with CNI
- Integration with Consul for service discovery
- Service Mesh
- Advanced network management

AUTOSCALING AND RESOURCE MANAGEMENT

- Understanding autoscaling and scaling policies in Nomad
- Using APIs and CLIs
- Configuration of autoscaling and telemetry plugins
- Node pool and resource allocation management

MONITORING

- Nomad environment monitoring with integrated and third-party tools
- Manage application logs and performance metrics
- Rotating the Gossip encryption key
- Good maintenance practices

Companies concerned

This course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced computer technology, or to acquire specific business knowledge or modern methods.

Positioning on entry to training

Positioning at the start of training complies with Qualiopi quality criteria. As soon as registration is finalized, the learner receives a self-assessment questionnaire enabling us to assess his or her estimated level of proficiency in different types of technology, as well as his or her expectations and personal objectives with regard to the training to come, within the limits imposed by the selected format. This questionnaire also enables us to anticipate any connection or security difficulties within the company (intra-company or virtual classroom) which could be problematic for the follow-up and smooth running of the training session.

Teaching methods

Practical course: 60% Practical, 40% Theory. Training material distributed in digital format to all participants.

Organization

The course alternates theoretical input from the trainer, supported by examples, with brainstorming sessions and group work.

Validation

At the end of the session, a multiple-choice questionnaire verifies the correct acquisition of skills.

Sanction

A certificate will be issued to each trainee who completes the course.