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Azure Terraform training: Infrastructure Automation

3 days (21 hours)

Presentation

Automate the management of your Cloud infrastructure using HashiCorp's Terraform technology, and find out how to implement it in Microsoft Azure with our new training course. You'll be able to reduce deployment errors, or deploy same model several times over to reduce the cost of your environments.

Thanks to Terraform CLI, your entire team [is aware of infrastructure changes in real time](#), as well as their impact. This gives you complete control over your environment, and prevents unintentional modifications causing damage or major disruption to your production. Terraform efficiently provisions and secures your Azure-based Cloud infrastructure.

This Azure Terraform training course will teach you the principles of Cloud Computing and As-a-Code Infrastructure, you'll discover how to build an infrastructure with Azure's Cloud provider, HCL syntax as well as advanced provisioning management under Azure and the creation of AKS clusters with Kubernetes.

As with all our training courses, this one will introduce you to the latest version of Terraform on Azure, which at the time of writing is [Terraform 1.10.5](#).

Objectives

- Deployment of an AKS cluster adapted to production missions
- Strengthening the security of a cluster and associated Azure resources
- Deploy microservices applications with all related services (storage, input, network) tailored to the needs of the application
- Take advantage of AKS's exclusive features to improve application reliability, and optimize costs and use of resources

Target audience

- DevOps
- System administrators
- Infrastructure engineer
- Technical project managers
- Developers

Prerequisites

- Cloud and virtualization principles
- Network architecture
- Systems administration
- Basic knowledge of GIT

Technical requirements

- An Azure account
- Each user workstation must have :
 - A terminal
 - A text editor (Visual Code)
 - The right to install the Terraform binary
 - Azure CLI installed (this last option may be available during training)

Azure Terraform training program

Introduction

- Fundamental concepts of Cloud Computing
- How does Azure Resource Manager (ARM) work?
- Understanding basic services
- What is As-a-Code Infrastructure?
- Why use Terraform with Azure?
- Complete Terraform installation
- Configuring Terraform in the Azure ecosystem

Building an AKS infrastructure

- Infrastructure definition
- Creating your infrastructure step by step
- Resource management on Terraform
- Infrastructure modification, removal and deployment

HCL syntax

- Introducing Terraform HCL
- The different variables
- The different controls
- Explicit and implicit dependencies between resources
- Resource life cycles
- Count and for_each
- Templates and built-in functions

Azure network management

- Overview of the Azure network interface
- Azure VNET
- Azure Subnet
- Azure resource groups
- Dependencies
- Conditional expressions
- Safety optimization
- The state of Terraform

Terraform with Azure in depth

- Terraform Provisioner
- Terraform flow presentation
- Cycle control (Write, Plan and Apply)
- Implement and maintain
- Read, generate and configure
- Managing permissions
- Automate your workflow

Managing AKS services

- Updating your system
- Configuring tags
- Creating IAM policies
- Using load balancers
- Managing RDS instances
- Provision to AKS clusters

Troubleshooting

- Best practices to avoid mistakes
- The main errors encountered
- Terraform CLI issues
- Problems with Terraform Provider

Companies concerned

This course is aimed at both individuals and companies, large or small,

wishing to train its teams in a new advanced IT 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 which enables 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 for 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, 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.