Managing AWS with Terraform

- 3 Days
- Lecture and Hands-on Labs
- Includes all objectives found on HashiCorp's Terraform Associate Certification

Course Overview

As enterprises seek to deploy and maintain increasingly complex AWS cloud infrastructure, there is a necessity to use "Infrastructure as Code" (IaC) tools, like Terraform. An open-source, state management tool developed by HashiCorp, Terraform allows developers to use a common coding interface to work through their various clouds safely and efficiently. Attendees will leave being able to write and understand Terraform code (HCL), have a clear understanding of Terraform's various components and supporting tools, as well as when to reach for Terraform over another IaC tool, such as Ansible.

Review this course online at https://www.alta3.com/courses/terraform-aws

Students are responsible for ensuring all required accounts, software, licenses, and online resources are accessible and functioning prior to class. See the prerequisites section for more details.

Who Should Attend

- DevOps Engineers
- Software Developers
- Technical Managers and Leads
- System and Cloud Administrators
- Network Engineers and Developers

What You'll Learn

- Writing Terraform HCL code for managing AWS
- Deploying into AWS
- Where Terraform fits in the Enterprise CI/CD model
- Differences between Terraform and Ansible
- Best practices
- Prepare for HashiCorp's Terraform Associate Certification
- AI LLM prompt engineering for Terraform snippets and jumpstarting solutions

Outline

AI Lab Assistance

Introduction to Terraform

- Lecture: Terraform Course Map
- Lecture: Introduction to Terraform and AWS

Software Control Management

- Lecture + Lab: SCM Option #1 - GitHub
- Lecture + Lab: SCM Option #2 - GitLab

Overview of Terraform

- Lecture + Lab: Terraform Install

Terraform Modules

- Lecture: Terraform HCL Syntax
- Lecture + Lab: Up and Running with Terraform
- Lecture + Lab: Terraform Variables
- Lecture + Lab: Output Values
- Lecture: Avoid the :latest Tag

AWS

- Lecture: Managing AWS with Terraform
- Lecture + Lab: Terraform and AWS
- Lecture: Exploring Terraform AWS modules
- Lecture + Lab: Starting with VPC
- Lecture + Lab: Creating EC2 Instances
- Lecture + Lab: Tracking State with S3 and Databases
- Lecture + Lab: Creating an AWS Module

Beyond Basics

- Lecture + Lab: Terraform CLI Workspaces
- Lecture + Lab: Terraform Expressions and Errors
- Lecture + Lab: Resources - replace vs taint
- Lecture + Lab: Dynamic Operations with Functions
- Lecture + Lab: Creating a Terraform Module
- Lecture + Lab: Moving State - terraform state mv
- Lecture + Lab: Dynamic Provisioning with tfvars Files
- Lecture + Lab: Data Sources and HTTP Provider

Loops

- Lecture: for_each
- Lecture + Lab: Looping Constructs - for_each

Provisioning

- Lecture + Lab: local-exec Provisioner
- Lecture + Lab: Creating Delays
- Lecture + Lab: Terraform - templatefile Function

Terraform Cloud

- Lecture + Lab: Terraform Cloud and Terraform Enterprise
- Lecture + Lab: Triggering Cloud Builds via Git Commits

Dynamic Blocks

- Lecture + Lab: Dynamic Blocks

Terraform and Enterprise

- Lecture + Lab: Deploy a Go RESTful API microservice with Terraform
- Lecture: Terraform vs. Ansible
- Lecture + Lab: Terraform and Ansible

Helpful DevOps Tools (OPTIONAL)

- Lecture + Lab: GitHub Actions - GitLeaks
- Lecture + Lab: GitHub Actions - Terraform

Terraform Review

- Lecture: HashiCorp Terraform Study Guide

Certification

- Managing AWS with Terraform - Certification Project