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 AWSW 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

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 LLM Toolkit

- 🖥 Lecture + Lab: Large Language Model toolkit for AI Solution 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

Prerequisites

Although not required, students with some experience programming, or pre-existing knowledge of Azure or other cloud architecture, will most appreciate the technical nature of this hands-on course.

Next Courses

- Jenkins Automation Server Essentials (2 days)
- Ansible Essentials (5 days)
- Go Essentials (5 days)
- Git and GitHub (2 days)
- Git and GitLab (2 days)

Certification

- Managing AWS with Terraform - Certification Project