Day 1: Introduction to Terraform and Terraform Basics

Getting Started with Terraform: An Introduction and Core Concepts

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TerraWeek Day 1

- What is Terraform and how can it help you manage infrastructure as code?
  ✦ Terraform is an open-source infrastructure as code (IaC) tool developed by HashiCorp. It is designed to help automate and manage infrastructure resources efficiently. Terraform allows you to define your infrastructure, including servers, networks, databases, and other cloud resources, as code in a configuration file, typically written in HashiCorp Configuration Language (HCL). The core Terraform workflow has three steps:

  1. **Write** - Author infrastructure as code.
  2. **Plan** - Preview changes before applying.
  3. **Apply** - Provision of reproducible infrastructure.

This guide walks through how each of these three steps plays out in the context of working as an individual practitioner, how they evolve when a team is collaborating

on infrastructure, and how Terraform Cloud enables this workflow to run smoothly for entire organizations.

- Why do we need Terraform and how does it simplify infrastructure provisioning?
  ✦ Terraform allows you to build, change, and version your infrastructure using code techniques.
  Terraform simplifies infrastructure provisioning by automating and standardizing the process, making it more reliable, efficient, and consistent. It aligns with modern DevOps practices and supports the dynamic nature of cloud and hybrid cloud environments.

- How can you install Terraform and set up the environment for AWS, Azure, or GCP?
  ✦ By using the below commands:

```
wget -O- https://apt.releases.hashicorp.com/gpg | sudo gpg --dearmor -o
```

- Explain the important terminologies of Terraform with the example at least (5 crucial terminologies).

✦ Here are the important terminologies of these Terraform terminologies:

1. **Provider**: Manages resources in a specific cloud or infrastructure platform.

```
provider "aws" {
  region = "us-east-1"
}
```

2. **Resource**: Defines and provisions infrastructure objects within a provider.

```
resource "aws_instance" "example" {
  ami           = "ami-0c55b159cbfafe1f0"
  instance_type = "t2.micro"
}
```

3. **Module**: A reusable component for organizing and provisioning resources.

```
module "vpc" {
  source = "./modules/vpc"
  vpc_name = "my-vpc"
}
```

4. **Variable**: Parameters that make configurations flexible and reusable.

```
variable "instance_count" {
  description = "Number of instances to create"
  type        = number
  default     = 2
}
```

5. **Output**: Extracts and displays information from your infrastructure after creation.

```
output "instance_public_ip" {
  value = aws_instance.example.public_ip
}
```

Watch this Reference Video

Happy Learning! :)

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