Git-Based Infrastructure Management System with Jenkins Email Notifications

Overview

This project automates infrastructure deployment and management using Git, Terraform, Ansible, and Jenkins. It provisions cloud resources, configures them, and integrates email notifications for Jenkins pipeline results.

Features

- **Infrastructure as Code (IaC):** Uses Terraform to provision AWS EC2 instances.

- **Configuration Management:** Uses Ansible to configure servers.

- **CI/CD Automation:** Jenkins automates deployment.

- **Git Version Control:** Tracks changes and enables collaborative development.

- **Email Notifications:** Jenkins sends email updates on pipeline execution.

Prerequisites

Ensure the following tools are installed:

- **Git** (sudo apt install git)

- **Terraform** (sudo apt install terraform)

- **Ansible** (sudo apt install ansible)

- **Jenkins** (Installed and running)

- **AWS CLI** (sudo apt install awscli)

- **An SMTP Email Account** (e.g., Gmail, Outlook, etc.)

Project Setup

Step 1: Clone Repository

git clone https://github.com/your-repo/infra-management.git

cd infra-management

Step 2: Configure AWS Credentials

aws configure

Provide your **AWS Access Key**, **Secret Key**, **Region**, and **Output Format**.

Step 3: Set Up Terraform

- Define AWS EC2 instance in main.tf.

- Run:

- terraform init

- terraform apply -auto-approve

Step 4: Configure Ansible

- Add instance details to inventory.

- Create playbook.yml to install and configure services.

- Run:

- ansible-playbook -i inventory playbook.yml

Step 5: Configure Jenkins for Email Notifications

1. Install the **Mailer Plugin** in Jenkins.

2. Configure **SMTP settings** under **Manage Jenkins > Configure System**.

3. Add email notifications to the **Jenkins pipeline**.

Step 6: Automate with Jenkins Pipeline

- Create a Jenkinsfile with steps for Terraform and Ansible execution.

- Push changes to GitHub.

- Create a Jenkins pipeline job linked to the repository.

Project Structure

```
infra-management/
|── terraform/
|    ├── main.tf
|── ansible/
|    ├── inventory
|    ├── playbook.yml
|── jenkins/
|    ├── Jenkinsfile
|── README.md
```

Contribution

1. Fork the repository.

2. Create a feature branch.

3. Commit changes and create a pull request.