**I am pleased to share with you a Terraform configuration designed to deploy infrastructure on AWS efficiently. The configuration is encapsulated in a single file named main.tf, providing a comprehensive overview of the infrastructure components and their respective configurations.**

Here is a breakdown of the Terraform code included in main.tf:

* AWS Provider Configuration:
* The configuration begins with specifying the AWS provider and region, ensuring seamless integration with AWS services.
* Virtual Private Cloud (VPC) Creation:
* Utilizing the aws\_vpc resource, the configuration sets up a VPC with a designated CIDR block to establish a private network environment.
* ECS Cluster Setup:
* Leveraging the aws\_ecs\_cluster resource, an ECS cluster named "my-cluster" is created, configured to utilize Fargate as the capacity provider for optimal resource management.
* ECS Task Definition Definition:
* The aws\_ecs\_task\_definition resource defines a task named "my-task," specifying CPU, memory, networking mode (awsvpc), and container details such as the Docker image URL, port mappings, and essential attributes.
* ECS Service Deployment:
* Using the aws\_ecs\_service resource, an ECS service named "my-service" is deployed with the specified task definition, desired count, launch type (Fargate), and network configuration for seamless communication.
* DNS Management:
* Route 53 DNS components are managed through the aws\_route53\_zone and aws\_route53\_record resources, creating a DNS zone for "example.com" and a corresponding DNS record for "my-service.example.com" pointing to the ECS service's load balancer DNS name.
* IAM Role Creation:
* The configuration includes the creation of an IAM role (aws\_iam\_role) named "my-task-execution-role" for ECS task execution, ensuring secure access and permissions within the AWS environment.
* Networking and Security:
* Subnet creation (aws\_subnet) and security group setup (aws\_security\_group) are included to define networking boundaries and enforce security policies for the ECS service.

**This Terraform configuration encapsulates best practices for infrastructure deployment on AWS, providing a robust and scalable foundation for Java-based microservices deployment**