## Darshan Nikam Date: /03/2024

### **Project**

### **Multi-Account Data Migration and Scalable Application Deployment**

Objective

Create an architecture that allows for the migration of data between two AWS accounts, while also implementing auto-scaling, load balancing, custom metrics, and CloudWatch monitoring.

Components:

VPC Setup:

Set up Virtual Private Clouds (VPCs) in both AWS accounts.

Configure subnets, route tables, internet gateways, and security groups.

Establish a VPC peering connection between the two accounts to enable private communication.

Data Migration:

In the source AWS account, deploy a private RDS database within a custom VPC.

Set up an AWS Database Migration Service (DMS) task to replicate data from the source RDS to the destination RDS in the target AWS account.

Ensure proper network connectivity between the two VPCs and configure security group rules to allow DMS traffic.

Auto Scaling and Load Balancing:

Deploy an auto-scaling group of EC2 instances in the target AWS account within the custom VPC.

Set up an Application Load Balancer (ALB) to distribute incoming traffic among the EC2 instances.

Configure auto-scaling policies based on custom CloudWatch metrics (e.g., CPU utilization, request latency) to dynamically adjust the number of EC2 instances based on workload demand.

Custom Metrics and CloudWatch:

Implement custom application metrics using Amazon CloudWatch Embedded Metric Format (EMF) or CloudWatch custom metrics API.

Publish custom metrics related to application performance, resource utilization, or business KPIs to CloudWatch.

Create CloudWatch alarms to trigger notifications or automated actions based on predefined thresholds for custom metrics.

Project Workflow:

Data Migration Phase:

Initiate the data migration task using AWS DMS to replicate data from the source RDS to the destination RDS.

Monitor the progress of the migration task and ensure data consistency and integrity throughout the process.

Application Deployment Phase:

Deploy the scalable application stack consisting of EC2 instances and the ALB within the target VPC.

Configure auto-scaling policies and CloudWatch alarms to monitor and manage the application's performance and availability.

Test the load balancing and auto-scaling mechanisms under various traffic loads to ensure proper functionality and responsiveness.

Expected Outcomes:

Successful migration of data from the source RDS to the destination RDS across AWS accounts.

Deployment of a scalable application infrastructure capable of handling varying workloads.

Implementation of custom metrics and CloudWatch monitoring to track application performance and resource utilization.

Demonstration of VPC peering connection for secure communication between multiple AWS accounts.

This project will provide hands-on experience with various AWS services, including VPC, RDS, DMS, EC2, ALB, auto-scaling, and CloudWatch, while also addressing real-world scenarios related to data migration, application scalability, and monitoring.

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