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Rapyder Enabled 100x Engineers to Successfully Implement Automation on AWS Cloud with a Modern Infrastructure Approach.

100x

Introduction

100xEngineers is India's first AI Lab, where the team developed over six Generative AI tools in the past year, attracting more than 1.5 million users globally. Their goal is to empower engineers to become Generative AI experts. By leveraging Footprints, a cloud-based solution, they are simplifying the enhancement of real-world Generative AI capabilities.

» **Industry:**

EdTech

» **Offering**

Migration

» **AWS Services Used:**

AWS Landing Zone, AWS Lambda, AWS Simple storage service (S3), Sagemaker Notebooks, Amazon CloudWatch, Amazon SNS, AWS CloudTrail, Amazon S3, IAM, AWS SSO, AWS Organization, AWS Service Catalog, CloudFormation, AWS Config, Athena, Quicksight, AWS Billing and Cost Management.

Business Need

The customer is currently running an AI and ML-based cohort for students utilizing AWS Cloud services. With over 1,000 students participating, they aim to enhance and accelerate the existing workflow by leveraging scalability, elasticity, automation, and cost efficiency across multiple AWS services.

The customer outlined the following requirements to optimize their AWS environment:

Automated Deployment: Implement automation for deploying over 1,000 AWS child accounts from a centralized landing zone, streamlining account management.

SageMaker Notebook Automation: Set up automated deployment of SageMaker notebooks in child accounts, complete with pre-defined modules to enhance productivity.

Cost Intelligence Dashboard: Create a QuickSight dashboard for intelligent cost management and AWS service usage tracking, providing valuable insights for better decision-making.

Idle Notebook Management: Implement automation to automatically stop notebooks that have been idle for more than 30 minutes, optimizing resource utilization.

Account Revocation Automation: Establish automation to revoke AWS accounts based on a notebook runtime threshold of 30 hours per month, ensuring efficient resource management and cost control

Solution Approach

To meet the objectives outlined in the Customer Business Need section, Rapyder collaborated with the customer to develop an AWS Cloud Deployment Architecture for implementation. AWS best practices and principles of business continuity were meticulously applied throughout the implementation process, as detailed below:

» 1. **Resource Deployment in AWS North Virginia:** We will utilize the AWS North Virginia region for optimal resource deployment.

» 2. **AWS Landing Zone Creation:** A dedicated AWS landing zone will be established to manage each cohort through AWS child accounts.

» 3. **Master Account Integration:** All child accounts will be linked to a master account under the same Organizational Unit (OU), ensuring enforcement of guardrails for enhanced security.

» 4. **Service Deployment with CloudFormation:** We will leverage CloudFormation to deploy services across all child accounts using the AWS Service Catalog, ensuring consistency and efficiency.

» 5. **Dedicated SageMaker and Supporting Services:** Each child account will feature a dedicated SageMaker instance and other supporting AWS services, built directly from the landing zone.

» 6. **Idle Notebook Management:** Automation will be implemented to stop notebooks that have been idle for more than 30 minutes, based on OS kernel processes, optimizing resource utilization.

» 7. **DynamoDB for Time Tracking:** DynamoDB will be utilized to store the start and stop times of notebooks, effectively enforcing time limits on their usage.

» 8. **Lambda Integration for Data Management:** AWS Lambda will facilitate the seamless transfer of data to and from the DynamoDB table, ensuring smooth operations.

» 9. **Cost Intelligence Dashboard:** A comprehensive cost intelligence dashboard will be built in the master account, aggregating data from all child accounts based on AWS service usage.

» 10. **Comprehensive Monitoring with CloudTrail**: CloudTrail will be enabled across all regions to track API calls at the AWS account layer, providing transparency and accountability.

» 11. **AWS Config for Compliance:** AWS Config will be configured to assess, audit, and evaluate configurations on AWS, ensuring compliance and best practices are maintained.

Business Benefits:

» With this solution, the customer gained a secure, reliable, and scalable infrastructure tailored to their needs.

» They quickly and securely built their entire infrastructure using AWS Landing Zone and Service Catalog, streamlining deployment processes.

» With the assistance of the Rapyder team, the customer successfully implemented automation on AWS Cloud within the defined timeframe, adopting a modern approach to infrastructure building.

» The customer achieved 100% availability, ensuring uninterrupted access for learners and educators utilizing AWS AI/ML tools.

» By leveraging AWS managed services, the customer experienced enhanced performance, achieving sub-millisecond response times and improved visibility across AWS services.

» Utilizing AWS Managed Services like Landing Zone, Lambda, SQS, and SageMaker Notebooks relieved the customer of infrastructure management overhead, allowing them to focus on their core business objectives.

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