AWS Lambda Implementation for Morung Express

aws partner network

Executive Summary

Introduction

The Morung Express is an independent English language newspaper and they are based out of Nagaland, India. To improve their advertising campaign, client wants to maximize their return on investment by achieving advertising objectives such as increased brand awareness, driving website traffic, enhanced customer engagement and improve conversion rates by adapting to industry-standard best practices. The client approached CloudThat for a serverless solution that is cost-effective, secure, and scalable.

Customer Challenge:

The customer faced multiple challenges in the existing infrastructure, with on-premises storage as a major issue. Data is scattered across multiple locations/ devices resulting in reduced accessibility and hindered efficiency due to the scattered nature of their data across multiple locations. This resulted in difficulties accessing the data when needed and negatively impacted their overall efficiency in handling and analyzing the data The client incurred high costs as data was being stored in the physical hard disks (15TB). They were analyzing data such as image, video, and document files manually which required and manual labor taking over 5 hours per day. Client intends to leverage AWS ecosystem such as AWS Lambda, Amazon DynamoDB, Amazon S3, and pretrained AI services like Amazon Rekognition to analyze user data and provide insights for faster decision making.

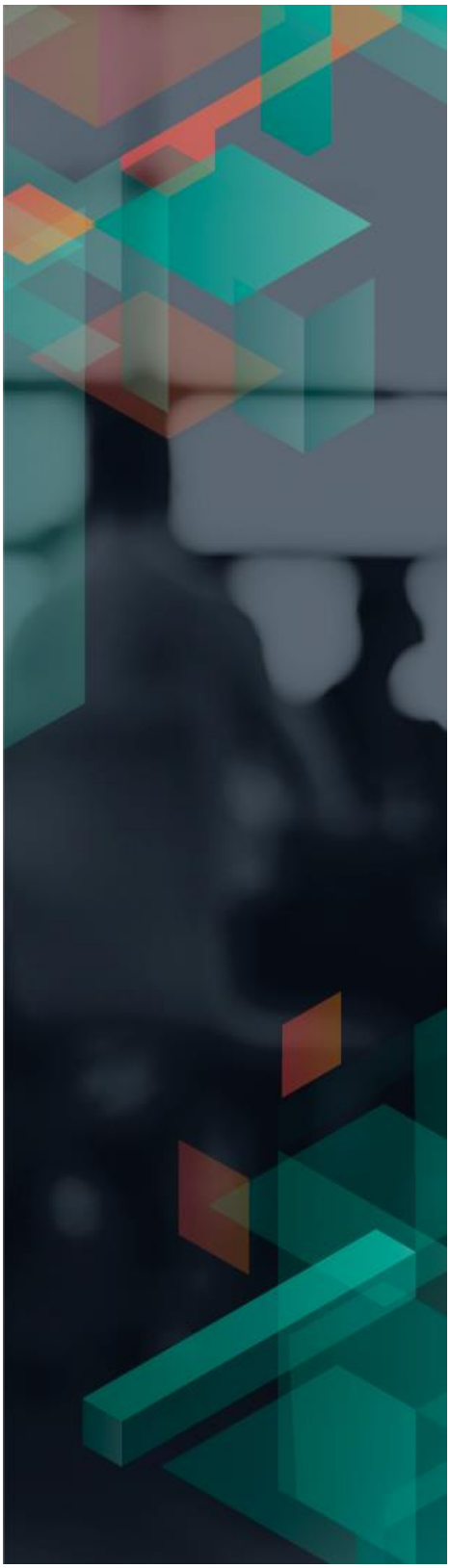
Solution:

- The AWS Lambda function leverage AWS services like Amazon Rekognition and Amazon Comprehend to analyze the images, videos, and text data related to the campaign.
- Implementing the data pipeline fetching the meta data from the Amazon S3 (user uploaded objects) and uploading it to the Amazon DynamoDB.
- Data is stored in Amazon S3 using proper prefixes based on the user's metadata, improving accessibility of the data in the front-end application.
- Amazon API Gateway serves as the entry point for requests from the front-end application. The Amazon API Gateway directs these requests to the frontend Lambda function
- Enabled Amazon DynamoDB streams which is filtered based on the supported file type (jpeg, png, mp4, pdf, and txt) using the AWS Lambda filter option.
- The supported filetype events triggers AWS Lambda which further do the AI/ML processing.
- AWS Lambda is implemented for the AI/ML Solutions:
    - Implemented entities detection using the Amazon Comprehend
    - Implemented celebrity detection and object detection using the Amazon Rekognition
- This AWS Lambda filter has helped us reducing the unnecessary AWS Lambda invocations and reducing the overall cost.

About Morung Express

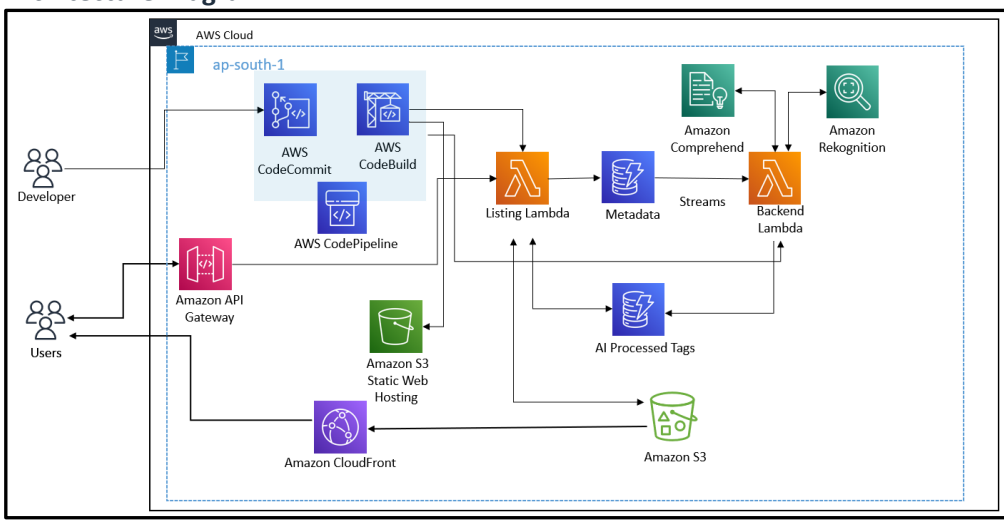
THE MORUNG EXPRESS

The Morung Express is an independent English language newspaper which provides an alternative voice to the dominant status quo. They are based out of Nagaland, India, The Morung Express was conceived from the Naga people's historical realities and is guided by their voices and experiences. It is the first print newspaper in Nagaland with an online edition.



- Backend Amazon Dynamo DB is used to store the AI/ML Processed results
- AWS CloudWatch Logs are enabled to monitor the performance and behavior of the AWS Lambda functions
- Implemented a CI/CD pipeline leveraging AWS services like AWS CodeBuild, AWS CodePipeline to automate code developments stored on AWS CodeCommit.
- The AWS services leveraged in building the solution are AWS Lambda, Amazon DynamoDB, Amazon API Gateway, Amazon Comprehend, Amazon Rekognition, Amazon CloudFront, and Amazon S3.

Architecture Diagram



The above architecture diagram illustrates high-level infrastructure components of the client's production environment. The AWS Lambda functions are the core of this architecture, as they handle metadata extraction, AI service invocation, and data storage. The functions are designed to be lightweight and highly scalable, which allows them to handle large volumes of data with minimal processing delay. AWS Lambda provides the flexibility and scalability needed to support this architecture, making it a powerful solution for handling data processing tasks.

Conclusion

- Successful data orchestration with centralized solution has increased productivity in organizing and categorizing the large amount of data by 80%.
- AI/ML-driven data analysis automation and Amazon S3 storage solutions yield 50% cost savings and enhanced operational efficiency by eliminating manual labour, optimizing storage costs, and improving resource utilization.

About CloudThat

CloudThat is the official AWS (Amazon Web Services) Advanced Consulting Partner, AWS DevOps Competency Partner, AWS Data and Analytics Competency Partner, Amazon QuickSight Service Delivery Partner, and Amazon EKS Service Delivery Partner, helping people develop knowledge of the cloud and help their businesses aim for higher goals using best-in-industry cloud computing practices and expertise. We are on a mission to build a robust cloud computing ecosystem by disseminating knowledge on technological intricacies within the cloud space. Our blogs, webinars, case studies, and whitepapers enable all the stakeholders in the cloud computing sphere.

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