

Customer Overview

SCSK is a leader in delivering innovative IT solutions, focusing on harnessing AI/ML technologies for large-scale industrial and enterprise applications. To stay ahead in the competitive market, SCSK aimed to streamline its ML operations (MLOps) and leverage Generative AI capabilities to enhance innovation and productivity.

Customer Challenges

SCSK encountered the following challenges in its AI/ML technologies

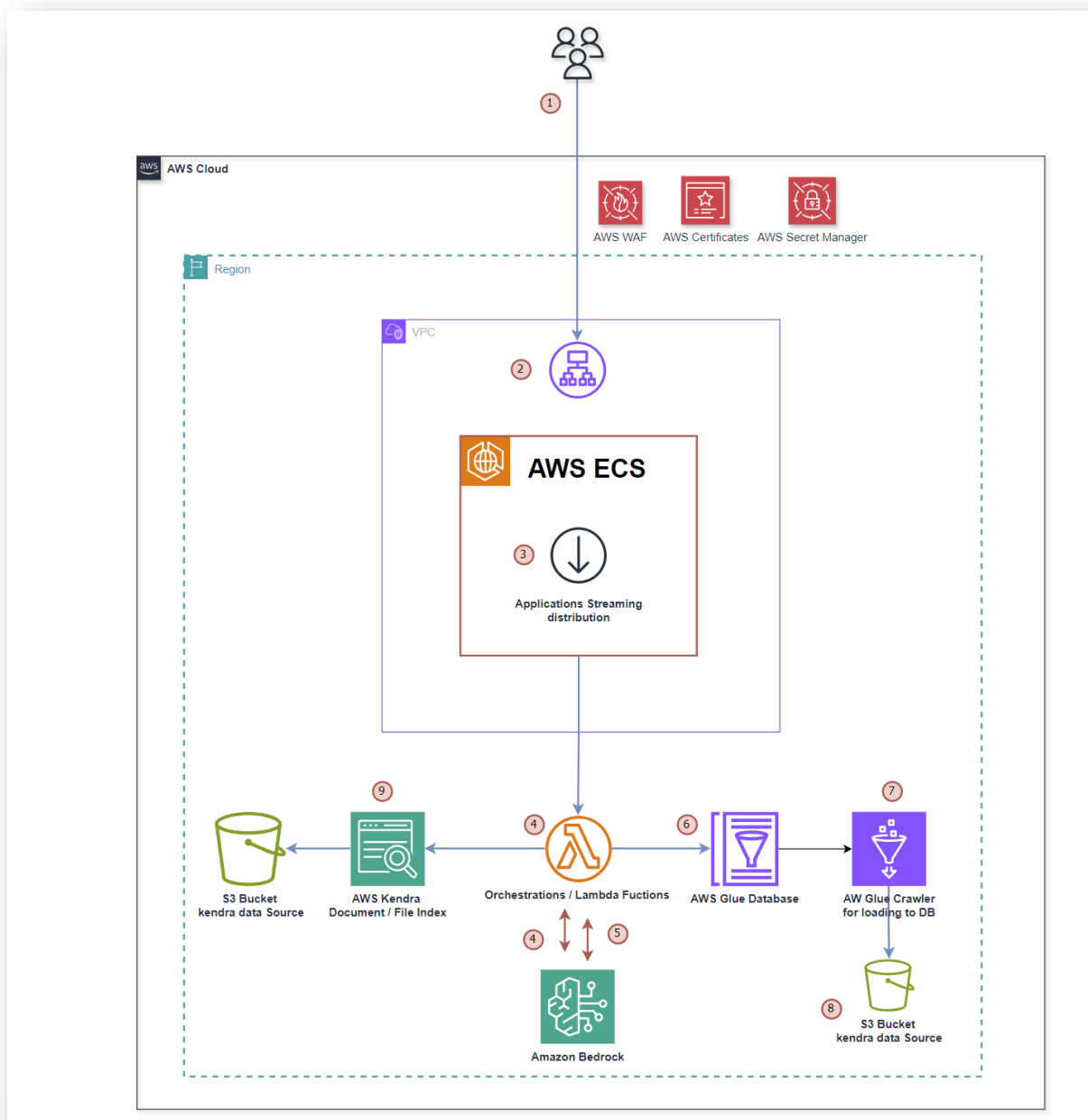
1. **Complex MLOps Workflows** Managing and deploying machine learning models at scale was labour-intensive and error-prone.
2. **Integration of Generative AI** Incorporating advanced Generative AI capabilities like natural language processing and data synthesis into existing workflows was complex.
3. **High Computational Costs** Scaling AI/ML pipelines efficiently while managing computational expenses posed a significant challenge.

Solutions Provided by CloudiQS

CloudiQS designed a robust solution leveraging AWS services tailored for SCSK's needs

- **MLOps with Amazon SageMaker** Automated model training, tuning, and deployment workflows using SageMaker's built-in features, including SageMaker Pipelines for end-to-end MLOps.
- **Generative AI with Amazon Bedrock** Integrated Bedrock's managed foundation models to enable SCSK to build and deploy advanced Generative AI solutions without needing specialized infrastructure.
- **Data Processing with AWS Glue** Streamlined data ingestion and preparation for machine learning models, reducing manual data engineering overhead.
- **Cost Optimization with AWS Spot Instances** Leveraged cost-efficient compute capacity for training large-scale AI models.
- **Scalable Infrastructure with Amazon ECS and Elastic Load Balancing** Provided the flexibility and power required for high-performance AI workloads.
- **Enhanced Security with AWS IAM and KMS** Ensured secure access controls and encryption for sensitive data and models.
- **Search and Indexing with Amazon Kendra** Implemented intelligent document and file indexing capabilities for efficient information retrieval.
- **Query Analysis with Amazon Athena** Enabled seamless exploration and querying of data within the ecosystem.

Advanced Architecture



The architecture incorporated the following technology stack, as illustrated in the attached diagram

1. **Amazon ECS** Centralized the application streaming distribution for scalability and reliability.
2. **AWS Lambda** Facilitated orchestration and workflow automation for data and AI operations.
3. **Amazon Bedrock** Integrated to enable advanced Generative AI capabilities and enhance Natural Language Processing (NLP) functionalities.

4. **AWS Glue** Enabled streamlined data ingestion, transformation, and preparation for ML pipelines.
5. **Amazon Kendra** Provided advanced search and indexing for efficient knowledge retrieval.
6. **Amazon S3** Acted as the primary data repository for structured and unstructured data sources.
7. **Amazon Athena** Enabled efficient querying and exploration of data stored in S3.
8. **Elastic Load Balancing** Ensured reliable distribution of workloads across Amazon ECS tasks.

Generative AI Assistants

Using a combination of Retrieval-Augmented Generation (RAG) and ReAct prompting, SCSK was able to develop advanced chat-based AI assistants. These assistants provided

- Context-aware responses using real-time indexed data.
- Enhanced productivity tools for knowledge workers.
- Scalable interaction systems for enterprise customers.

Results and Benefits

1. **Streamlined MLOps** Automated and standardized workflows reduced time-to-market for AI/ML models.
2. **Innovation with Generative AI** SCSK was enabled to launch advanced Generative AI applications, including chatbots and intelligent data synthesis tools.
3. **Cost Efficiency** Optimized compute usage lowered AI/ML operational costs without compromising performance.
4. **Scalable AI Infrastructure** Built a future-ready, scalable environment to support ongoing innovation.
5. **Improved Productivity** Automated repetitive tasks freed up resources for strategic AI initiatives.

Testimonial

"CloudiQS' expertise in AI and AWS allowed us to transform our ML workflows and harness the power of Generative AI. Their solutions have empowered us to innovate faster and more efficiently." — Amir Tavakoli, Data Scientist, SCSK

Why CloudiQS?

CloudiQS specializes in delivering cutting-edge AWS solutions, including MLOps, AI/ML optimization, and Generative AI integration. With a customer-focused approach,

CloudiQS ensures businesses achieve transformative results by leveraging AWS's robust ecosystem.

Key Takeaways

- **Industry** Technology (AI/ML Solutions)
- **Solution** AWS MLOps and Generative AI Integration
- **AWS Services** Amazon ECS, Amazon Bedrock, Amazon SageMaker, AWS Glue, Amazon Kendra, Elastic Load Balancing, AWS IAM, KMS, and Amazon Athena.
- **Outcome** Streamlined workflows, reduced costs, and advanced Generative AI capabilities.

Contact CloudiQS

Discover how CloudiQS can transform your business with AWS-powered solutions tailored to your needs.