YASH
Technologies

More than what you think.

Case Study

Empowering Data-Driven Insights with Generative AI

About the Client

The client founded in 1837, is a global leader in agricultural and construction equipment, known for its iconic leaping deer logo and commitment to innovation. They offer a wide range of products, from tractors and harvesters to lawnmowers and engines, along with financial services and technology solutions to support their customers across the globe.

Engagement Snapshot

Headquarters: USA

Industry: Manufacturing

Geographical Impact: Global

Technology: Amazon Web Services (AWS), Python, Amazon Bedrock

Client Landscape: Agile, Data Analysis & Visualization, Generative AI

Business Needs

The client encountered difficulties in efficiently analyzing and visualizing the ever-increasing volume of structured data generated from their WorkSoft API test case results. This data held valuable insights, but it lacked an intuitive solution to unlock its full potential. The key requirements included:

- **Meaningful Insights Extraction:**
  The client needed an efficient way to gain valuable insights from their growing test case data. Existing methods were insufficient.

- **User-Driven Analysis:**
  They required a solution enabling users to define custom KPIs and explore data based on their specific business needs.

- **Automated Reporting & Visualization:**
  The goal was to automate the generation of visualizations and insights based on user queries, eliminating time-consuming manual processes.

- **Pattern & Takeaway Identification:**
  Automatically surfacing key takeaways and patterns from the data was crucial for improved decision-making.
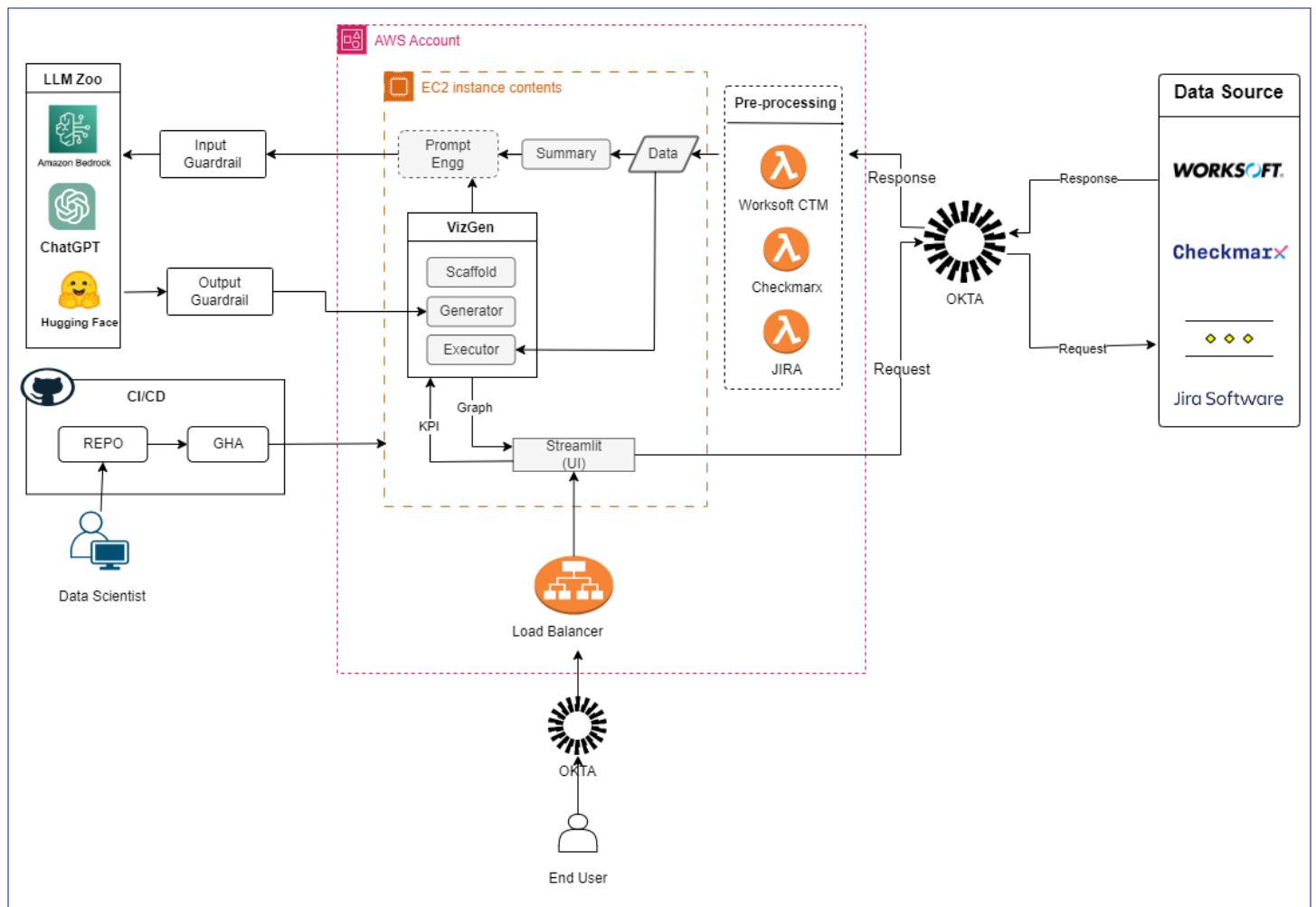
Solution

To encounter these challenges, YASH proposed a revolutionary cloud-based Generative AI solution. This innovative solution combined natural language processing for easy data exploration, automated data visualization for quick understanding, and advanced analytics for uncovering valuable insights. Delivered within 12 weeks, the system exceeded expectations. Users now interact with complex data through natural language queries, automatically generate relevant visualizations, and extract actionable insights. This significantly boosted the client's data analysis capabilities and drove efficiency gains across the organization. Our team designed a robust solution leveraging cutting-edge technologies:

- **Cloud Infrastructure:**
  We utilized AWS SageMaker and Lambda for seamless data processing and API integration. Additionally, Amazon Bedrock Service Access ensured smooth communication with Anthropic's Claude, a powerful Large Language Model (LLM).

- **Advanced Data Analysis:**
  Claude, the LLM, played a central role. It analyzed user prompts, interpreted their intent, and generated valuable insights from the data.

- **Automated Visualization:**
  VizGen, a learning-based approach, and an Auto-Visualization Library worked in tandem to automatically generate visualizations best suited to the user's needs and the data at hand.

- **Intuitive User Interface:**
  A user-friendly Streamlit UI, deployed on an EC2 instance, provided a seamless platform for interacting with the generative AI solution.

Solution Architecture

Technology Stack

- **AWS Services:**
  a. AWS SageMaker
  b. AWS Lambda
  c. AWS EC2
  d. AWS API gateway
  e. Amazon Bedrock
  f. AWS ECR

- **Programming Language:**
  a. Python

- **GenAI Services:**
  a. Bedrock Service
  b. Anthropic's Claude (Large Language Model)

- **Data Visualization:**
  a. VizGen
  b. Auto-Visualization Library

- **User Interface:**
  a. Streamlit

- **APIs and Integrations:**
  a. WorkSoft API
  b. Potential integrations: Jira, Plaid, Checkmarx

- **CI/CD Pipeline:**
  a. Github Repo
  b. Github Action
  c. Docker Image
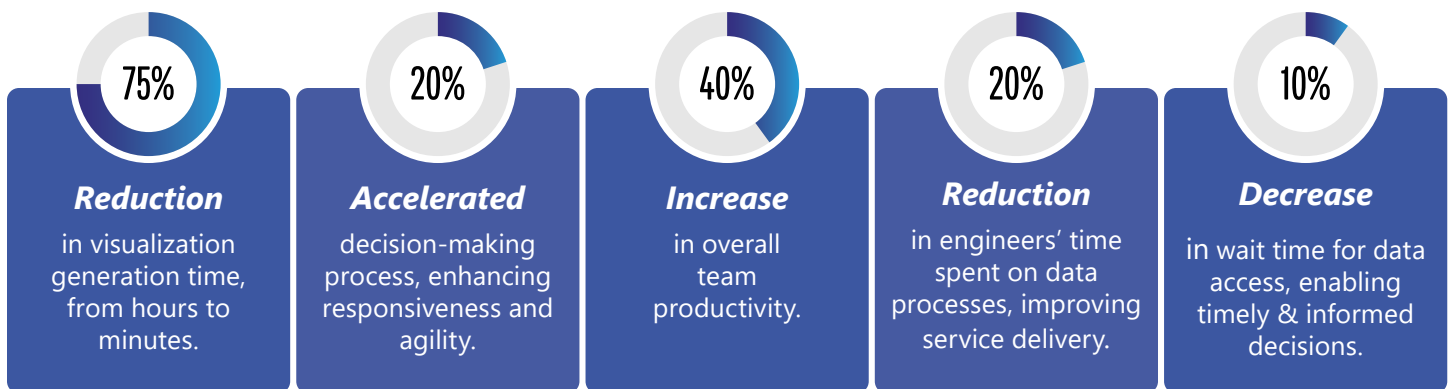 d. AWS ECR

- **Security:**
  a. OKTA

Business Benefits

The Generative AI solution delivered several benefits to the client:

- **Streamlined Analysis:** Users can easily explore data, define custom KPIs, and generate visualizations with natural language.

- **Reduced Visualization Time:** Generating visualizations went from hours to minutes, achieving a *remarkable 75% decrease.*

- **Enhanced Efficiency:** Automation frees up valuable time and reduces manual effort, leading to significantly faster data analysis and decision-making cycles.

- **Wider User Adoption:** A User-friendly interface encourages broader data analysis usage within the organization.

- **Increased Productivity:** Resource reallocation after automation boosted team *productivity by 40%.*

- **Future-Proof Technology:** The solution adapts and improves over time with its learning-based approach.

- **Scalability and Integration:** Modular design allows for seamless integration with other applications like Jira.

- **Cost Savings:** Automation reduces labor costs and increases efficiency, resulting in significant annual savings.

- **Security:** Okta-based role-based access control ensures secure data access across systems.

Impactful Outcomes

The Generative AI solution delivered several benefits to the client:

75%	20%	40%	20%	10%
Reduction in visualization generation time, from hours to minutes.	**Accelerated** decision-making process, enhancing responsiveness and agility.	**Increase** in overall team productivity.	**Reduction** in engineers' time spent on data processes, improving service delivery.	**Decrease** in wait time for data access, enabling timely & informed decisions.

For more information contact YASH expert today at *info@yash.com* or visit *www.yash.com*

About YASH Technologies

YASH Technologies focuses on customer success. As a leading technology services and outsourcing partner for large and fast growing global customers, the company leverages technology and flexible business models to drive innovation and value throughout its customer's enterprise. YASH customer-centric engagement and delivery framework integrates specialized domain and consulting capabilities with proprietary methodologies and solution offerings to provision application, infrastructure and end-user focused Right-Sourcing services. YASH is a SEI CMMI (Level 5) and an ISO 9001:2015 certified company with U.S. and India headquarters and regional sales and development offices globally with customers spread across 6 continents.

Global Presence

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