SMART INDIA HACKATHON 2024

Problem Statement

Building a Modern Version of
SocialCalc using Node.js, Go, or
Django can use AI tools like
copilot.

Key Features

Core Spreadsheet Functionalities:
We integrated Syncfusion **React Spreadsheet,** offering features like file protection, **data validation**, and advanced formatting for secure, efficient, and **customizable data management**

Real-Time Collaboration:
Real-time collaboration in **spreadsheets** allows simultaneous editing, live updates, and conflict resolution, enhancing productivity and teamwork through frameworks like **WebSockets** and **Firebase**.

Data Persistence and Security:
Data persistence and **security** ensure reliable **data storage and protection.** Key aspects include consistent backups, encryption, secure access controls, and compliance with **privacy regulations.**

User Authentication and Access Control:
We implemented **Clerk,** a **robust solution** that manages authentication, **user verification**, and access permissions, ensuring secure and **streamlined user management** across the application.

Responsive UI:
Responsive UI adapts to various screen sizes and devices, providing a seamless user experience through flexible layouts, **fluid grids,** and **media queries** for optimal display

TECHNICAL APPROACH

Algorithm Development:
Next.js & Express.js – Core technologies used for developing the OTH Algorithm.

Frontend Development:
Next.js for SSR, Tailwind CSS for responsive design, Aceternity and Shadcn UI for components.
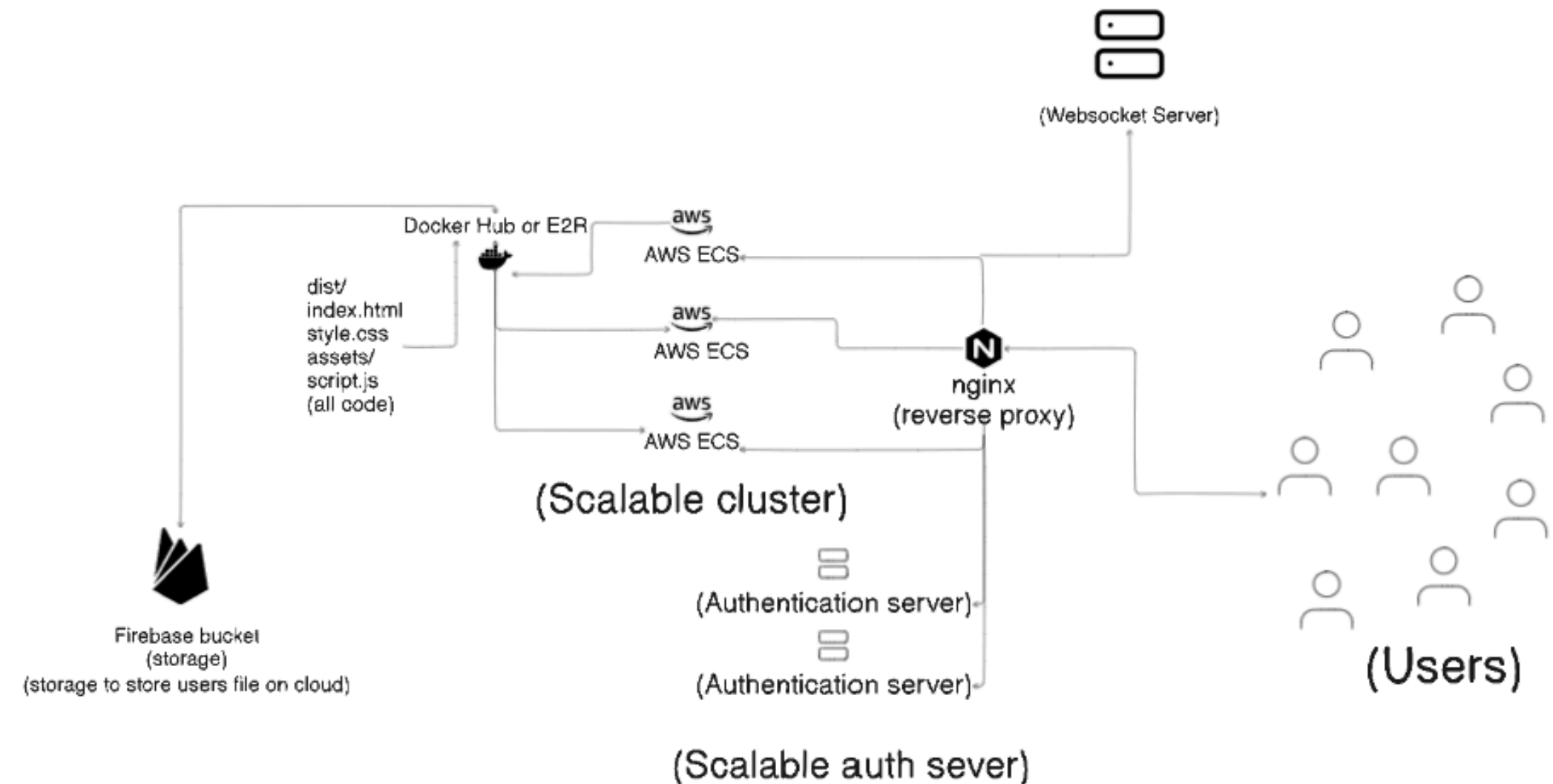
Backend Development:
Firebase, MongoDB, Clerk and NextAuth for authentication.

Devops:
AWS for cloud services and Docker for containerization.

Libraries and services:
EmailJS and Nodemailer for email services (Nodemailer for verification), and Syncfusion for spreadsheet components..
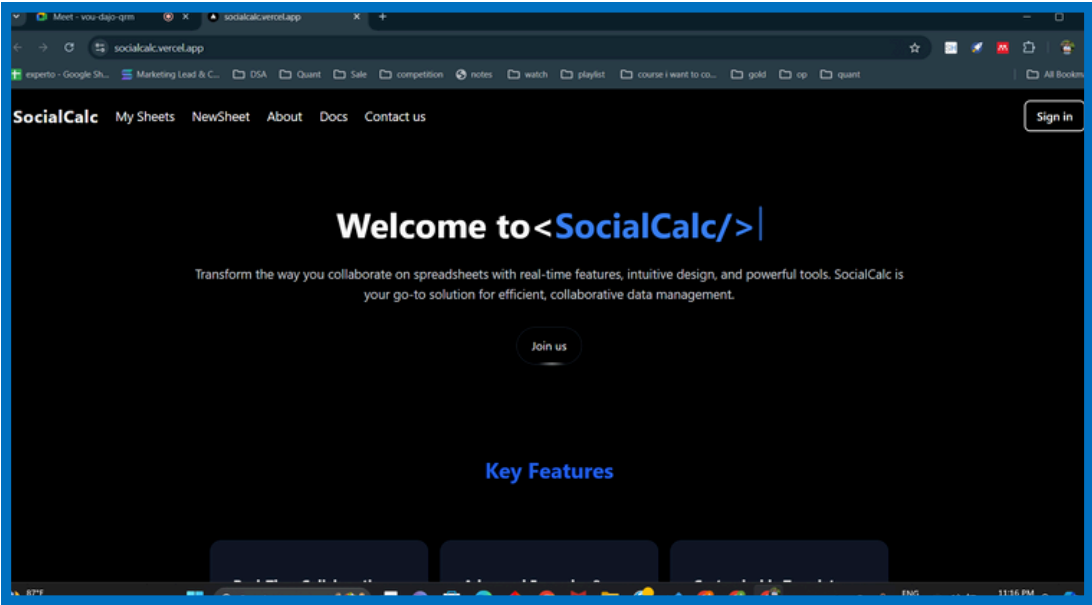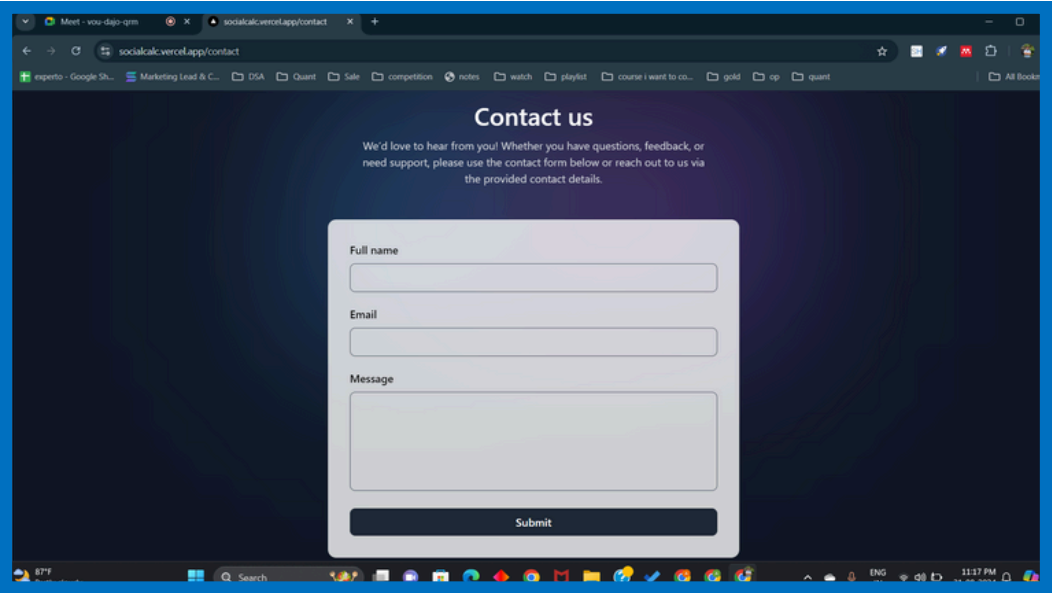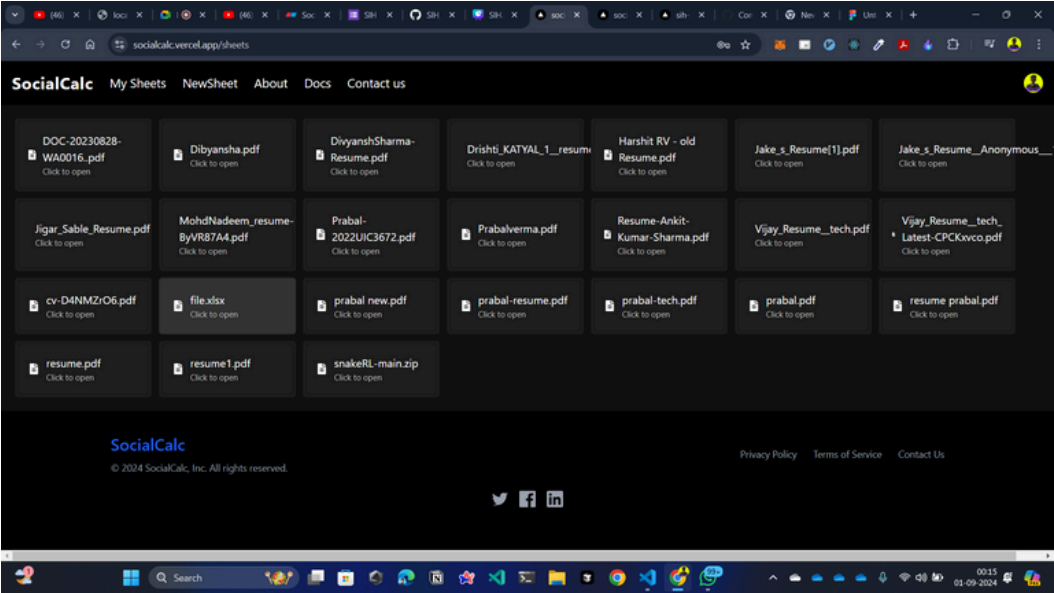

(Scalable Socialcalc Architecture)
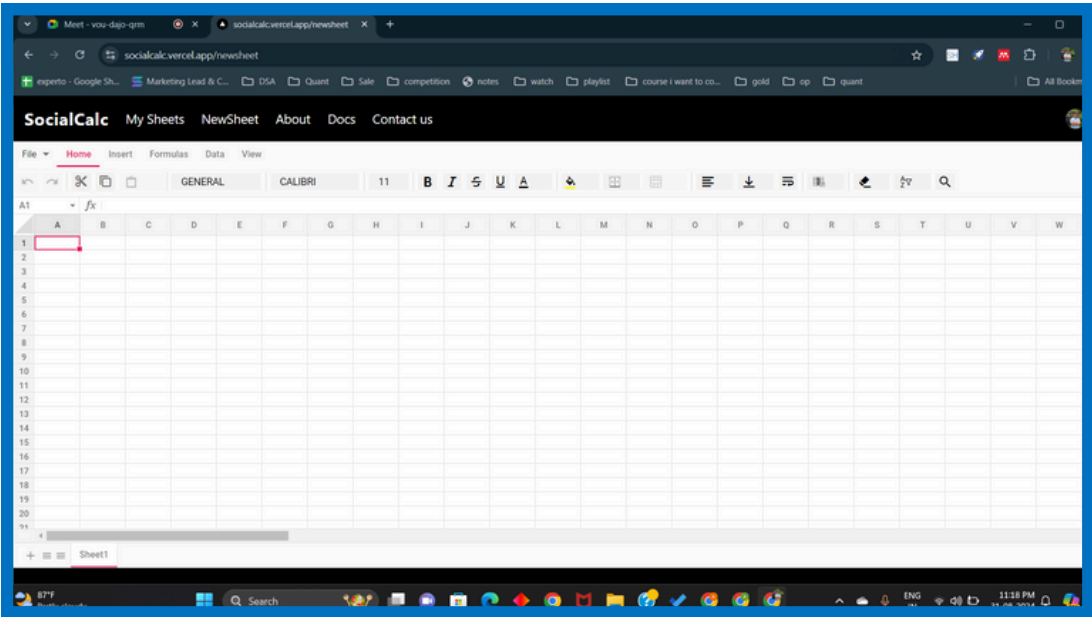
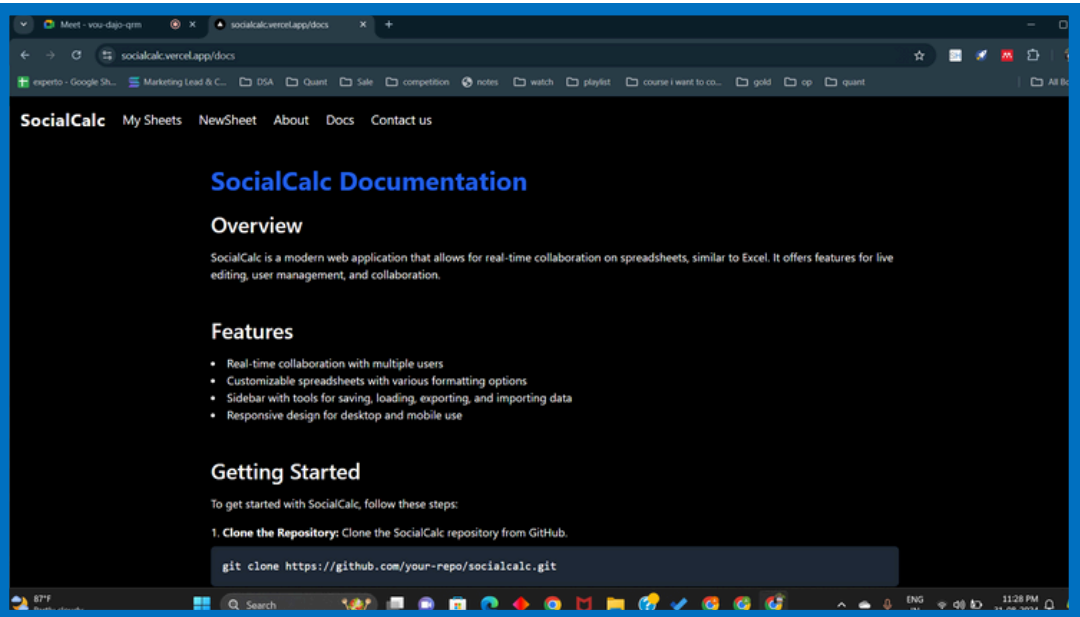Link to Diagram
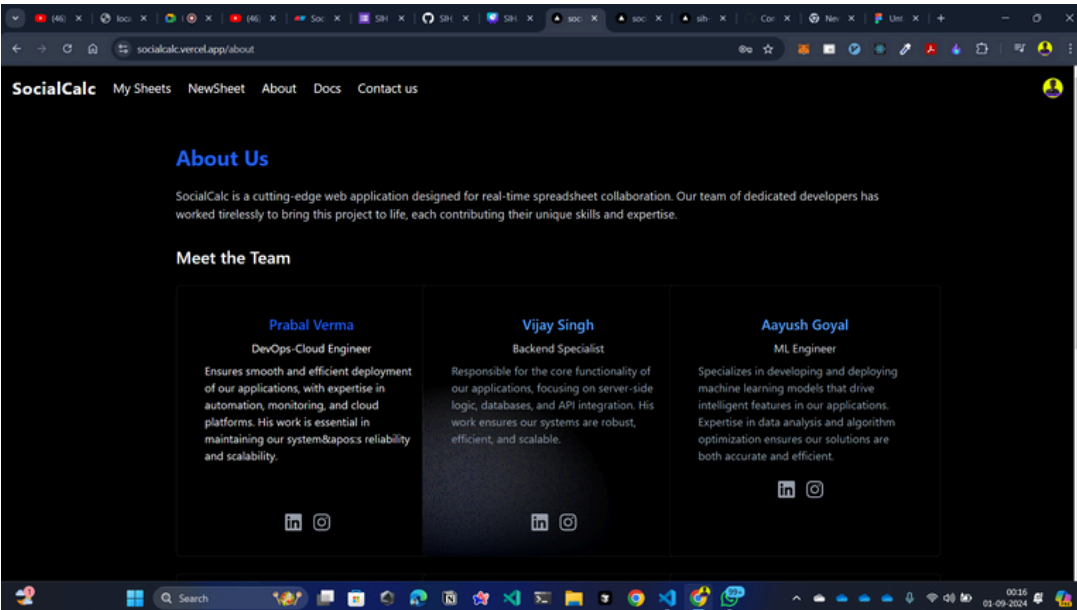
Demo screenshot
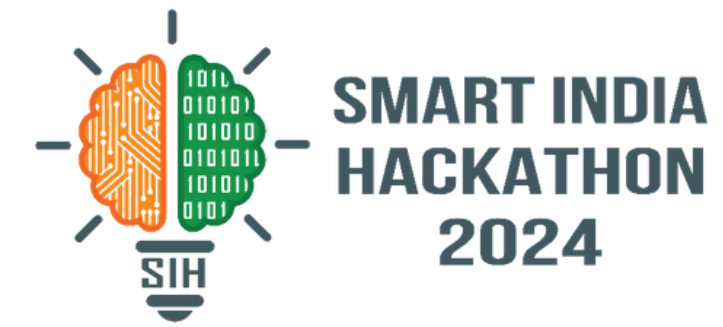
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Figma link

How scalability are handled, real time colaboration work

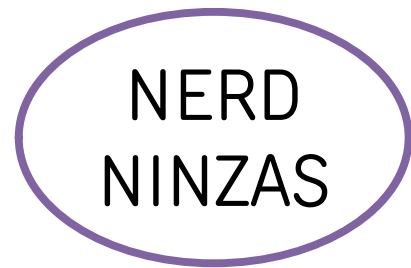## Scalability Strategies: Using Docker for User-Specific Containers

Containerization with Docker:

- Each user session is isolated in its own Docker container, ensuring that user activities do not interfere with one another.

- By using containers, we can provide a consistent and isolated environment for each user, which enhances both security and scalability.
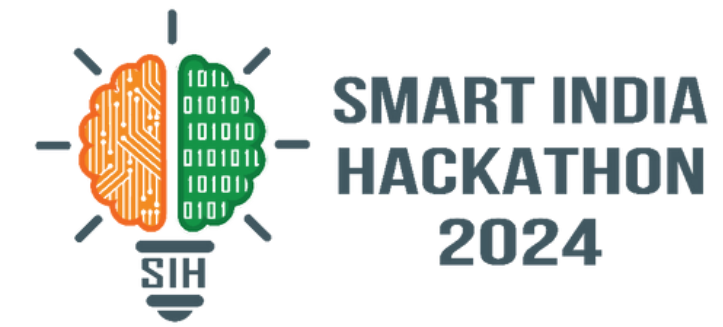
Implementation of Real-Time Collaboration: Using WebSockets

Real-Time Communication with WebSockets

- WebSockets enable full-duplex communication channels over a single, long-lived connection.

- This allows the server and clients to send and receive updates instantly without the need to constantly poll for changes.

Challenges and Solutions

Implementation of SocialCalc library

Outdated Practices: compatibility issues with modern development environments like node.js led us to find a different solution for **Real Time Collaboration.**

Solution- Websocket

Real-Time-Collaborations: WebSockets ideal for applications requiring real-time data exchange for **collaborative tools** like spreadsheets and is very much compatible with **node.js.**

Meet Our Team

NERD NINZAS

SMART INDIA HACKATHON 2024

Aayush Goyal
ML Engineer

Specializes in developing and deploying machine learning models that drive intelligent features in our applications.

Ankita
Lead Frontend

Leads the design and development of our user interface, ensuring a seamless and engaging user experience.

Tanya Sharma
Frontend-Backend

Excels in both frontend and backend development, delivering end-to-end solutions that ensure seamless user experiences and robust server-side functionality.

Vishal Vishu
Blockchain Engineer

Designs and implements blockchain solutions that ensure transparency, security, and efficiency.

Vijay Singh
Backend Specialist

Responsible for the core functionality of our applications, focusing on server-side logic, databases, and API integration.

Prabal Verma
DevOps-Cloud Engineer

Ensures smooth and efficient deployment of our applications, with expertise in automation, monitoring, and cloud platforms.