

Event Management for Oil and Gas – QHSE

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Abstract

Business Purpose: Solution that allows Oil & Gas enterprise employees to systematically report risks so that Oil & Gas enterprise's QHSE can manage these risks. Event reporting will transition seamlessly with the Investigation and Action Item workflows as needed.

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Architecture Perspective: Enable a seamless, integrated solution applying the potential of automation, align with Customer platform while allowing for technological scaling necessary to support business growth and evolution.

At the heart of its functionality is its Event Reporting feature and root cause analysis, using micro-services design with multiple integrations are required for creating/editing Event Reports, gathering information for them and sharing information out for other processes.

Event Management platform is a powerful enterprise application used for Quality, Health, Safety, and Environment (QHSE) management. This product enables vendor-partners to report events and determine the root cause of those events, ultimately mitigating risks and improving safety.

Platform enables a seamless, integrated solution applying the potential of automation, align with EM platform while allowing for technological scaling necessary to support business growth and evolution.

AI-driven event reporting system using Azure open AI capabilities and Atlas-Mongo; i.e a conversational input to create an event report. Solution shows an alternative modern user experience of event reporting by leveraging natural language inputs, allowing users to interact with the system through intuitive, plain-language queries, and supporting multilingual functionality to cater to a global user base.

Keywords: Event Management, Oil, Gas, QHSE.

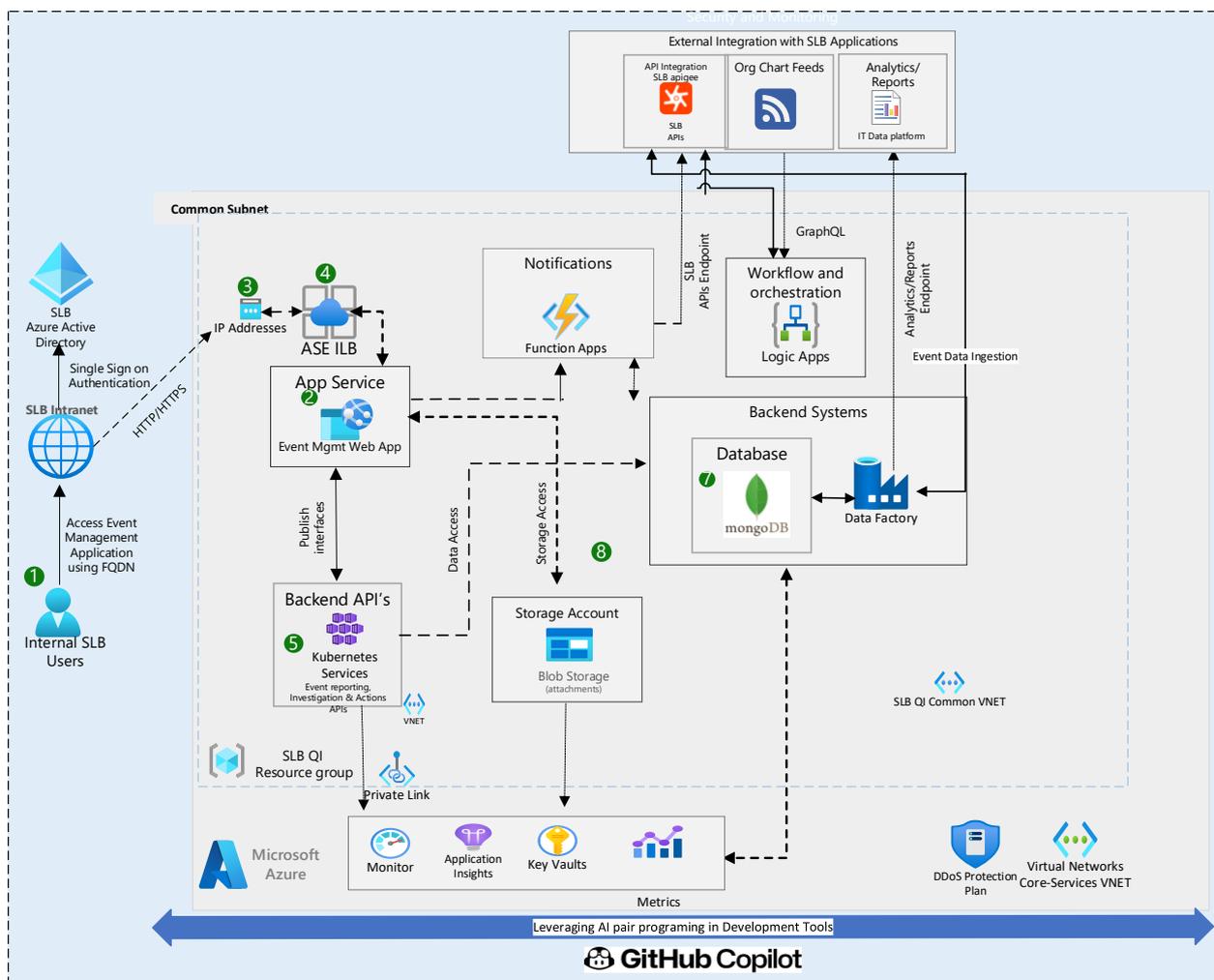
Solution and Business Outcome

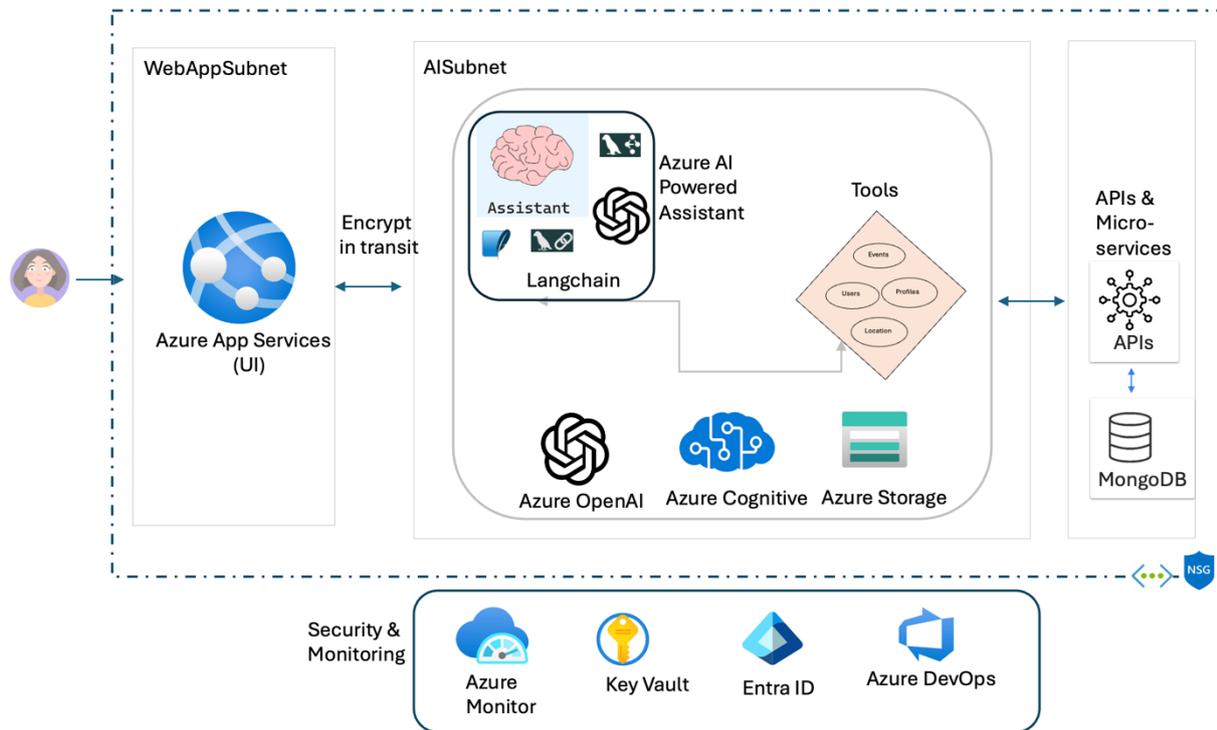
- Solution offers that allows Oil & Gas enterprise employees to systematically report risks so that Oil & Gas enterprise's QHSE can manage these risks.
- Event reporting will transition seamlessly with the Investigation and Action Item workflows as needed.
- Multiple integrations are required for creating/editing.
- Event Reports, gathering information for them and sharing information out for other processes.
 - Architecture Perspective: Enable a seamless, integrated solution applying the potential of automation, align with platform while allowing for technological scaling necessary to support business growth and evolution.
 - Stream RAW event data into Oil & Gas enterprise's IT Data Platform for publish and subscribe
 - Built an alternative modern user experience of event reporting by leveraging natural language inputs, allowing users to interact with the system through intuitive, plain-language queries, and supporting multilingual functionality to cater to a global user base.
 - PWA desktop focused; intuitive and responsive design for Tablet and Desktop users to be able to collaborate with others involved in the process.
 - Built to Oil and Gas enterprise standards, QP's & DLO.
 - Rule configurations for event reporting, investigation and actions.

- Automated workflows, Notifications, and Escalation service.

Architecture

- **Azure App Services** Web App and API App host web applications and RESTful APIs.
- A responsive web application using Angular.js, java library targeting desktop and tablets devices.
- **Azure Application Gateway** is a web traffic load balancer operating at Layer 7 that manages traffic to the web application
- **Web Application Firewall (WAF)** is a feature of Application Gateway.
- **Azure Logic Apps** is a serverless platform for building enterprise workflows that integrate applications, data, and services.
- **Backend Rest APIs** will provide SLB Event Mgmt. App core domain features which are exposed through the Azure API management.
- **Azure blob storage** will be used to manage app attachments or uploaded documents.
- **Atlas-Mongo Database** would be best on AEGIS to use because most of the data in this application is **multi-structured and transactional**, also with some data as documents and Blobs.
- **GitHub Copilot:** Will leverage AI pair programming using GitHub Copilot as Development tool.
- **Frontend:** Standard is Azure App Service for deploying front end application for user interfacing/Prompt Submissions; For QI, we shall use Angular Interface.
- **Azure OpenAI, Langchain & Cognitive services:** AI models, Search service.
- **Azure Storage:** Upload own data sources – pdf, word files to build knowledge management and enable prompt-based FAQs, references.
- **Other enabling services** – App Insights, Key vault, ADO (CICD).





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