Cloud Service Delivery: WellSTORE – Real-time Data Aggregation on AWS

Service Overview

Geologix provides a cloud-hosted service that aggregates real-time operational data from active drilling rigs and makes it available in a structured and reliable form to support automated rig activity reporting and performance analysis.

The service provides the means for operators to identify rig activity in real time and to perform efficiency and benchmarking analysis using their own workflows and tools. It is delivered as a fully managed cloud solution, with Geologix responsible for hosting, operation, monitoring, and support.

Cloud Platform and Hosting

The service is hosted entirely on Amazon Web Services (AWS). For this deployment, the AWS London region is used, reflecting the geographic focus of operations across Europe and the Atlantic region.

WellSTORE runs on AWS infrastructure through a custom configuration of servers and services. The platform is designed to scale based on project requirements, allowing the service to support multiple rigs and varying data volumes without architectural change.

AWS was selected due to its reliability, scalability, and mature cloud service ecosystem, enabling Geologix to deliver a robust and resilient service while maintaining flexibility as operational demands evolve.

Data Ingestion and Processing

The service aggregates time-based sensor data streamed in real time from drilling rigs located globally. Up to seven rigs are supported concurrently, with each rig typically providing 20–30 data channels at a minimum one-second frequency.

Data is transmitted securely to the WellSTORE platform on AWS, where it is standardised into an industry-specific data structure using established API standards. This allows downstream systems, applications, or users to retrieve data on demand to support activity detection, reporting, and performance analysis.

Where connectivity between a rig and the cloud platform is interrupted, local buffering software on the rig retains data and forwards it once the connection is restored, ensuring continuity of the dataset.

The system is designed to accept multiple input formats, allowing integration with rigs that do not provide data in a single consistent standard.

Reliability, Scalability, and Operations

WellSTORE has been used as a real-time data aggregation platform for over a decade and has supported data from more than 90 wells across multiple projects. The server platform holds recognised industry certification, demonstrating its credibility and suitability for operational use.

The cloud service is architected to allow additional rigs or data channels to be added, user accounts or API consumers to be created or revoked at any time, and secure access via user authentication and controlled API access.

Automated monitoring and alerting are in place to identify resource or connectivity issues, and operational dashboards provide visibility into system health to support issue resolution.

Support and Service Management

The service is supported by Geologix's 24/7 operations and engineering teams. Support covers the ongoing operation of the cloud platform, issue resolution, and assistance to users as required.

The managed service includes active monitoring, troubleshooting, and operational oversight, ensuring the platform remains reliable and responsive throughout its lifecycle.