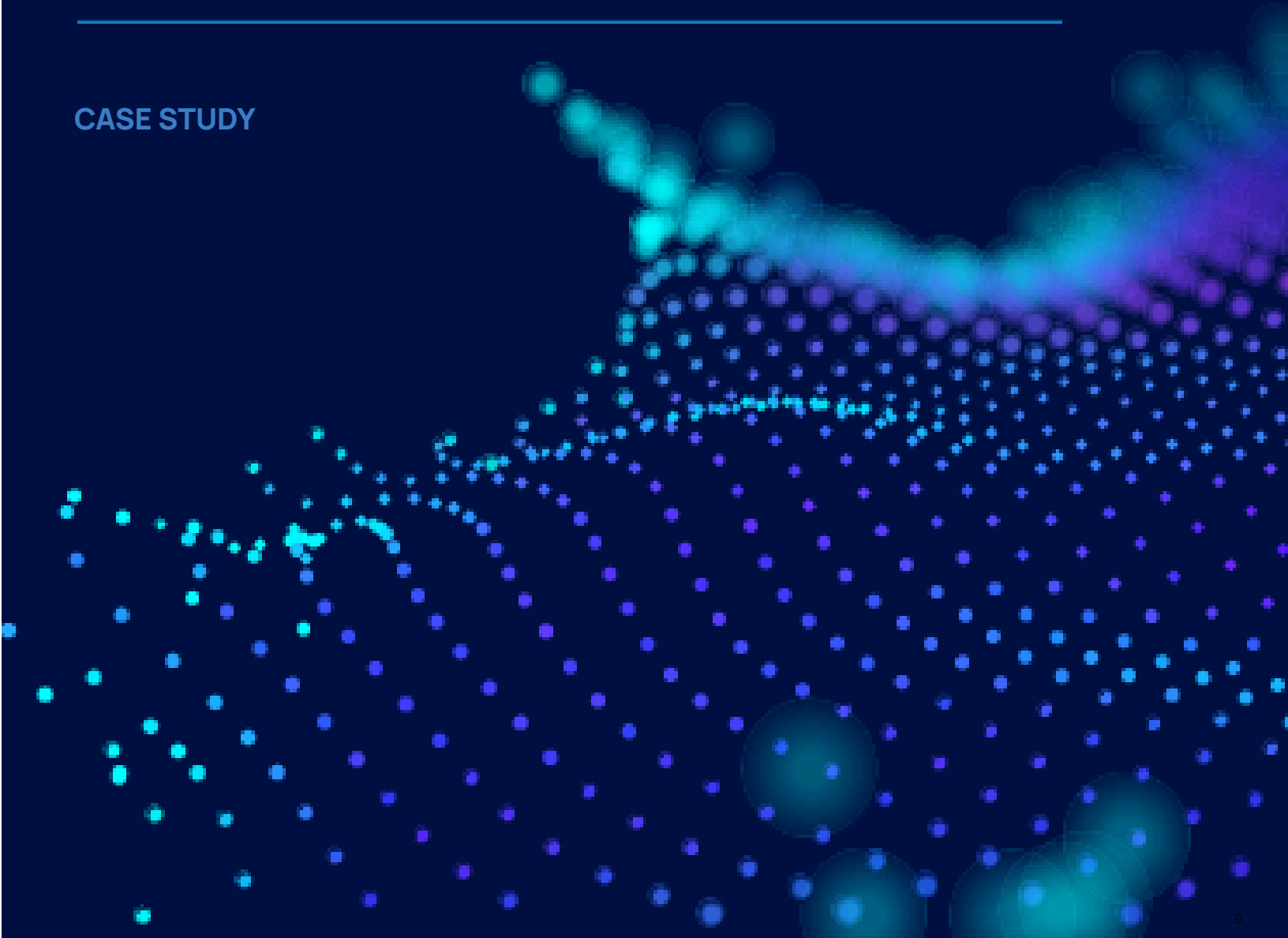


Revolutionizing Global Basin Analysis and Discoverability for Exploration Geology

CASE STUDY





Revolutionizing Global Basin Analysis and Discoverability for Exploration Geology

The Opportunity

Geological data management is a complex task that exploratory researchers grapple with. The data resided in disparate systems and inconsistent formats, ranging from structured databases and unstructured text to images, well logs, and surveys.

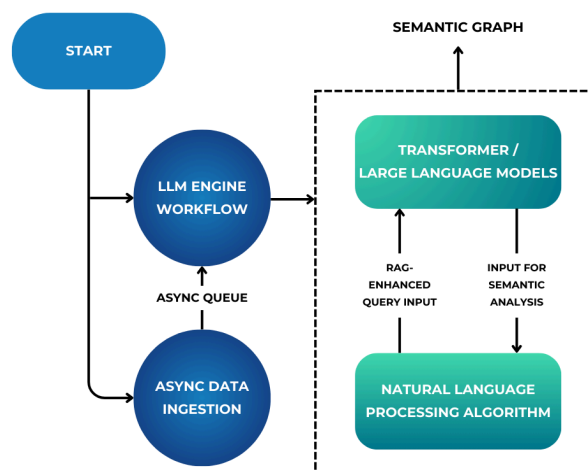
This diversity posed a formidable challenge in information management, as data ingestion and integration were complex, time-consuming, and resource-intensive. Moreover, the vast volumes of geological information required expert interpretation to distill actionable insights, often resulting in missed opportunities due to the time and resources consumed.

Figure 1: This diagram shows a simplified view of the system's data ingestion and data processing workflow, with arrows indicating the data flow in the system.

The Solution

Querent stepped in to tackle these challenges head on. **The AI-driven tool was employed to map and analyze semantic relationships between various geological entities such as rock types, geological periods, and structural features.** Querent showcased its effectiveness in integrating large volumes of data from various sources to create unified, searchable semantic graphs.

The first step was to utilize Querent to apply AI-driven semantic graph computing in a data fabric architecture. This reduced data interpretation time and resources, provided a comprehensive understanding of the geological landscape, and enabled efficient and informed decision-making.



Semantic graph computing enables researchers to conduct exploratory data analysis across the entire dataset.

This has the potential to uncover hidden knowledge and associations that may have gone unnoticed, allowing researchers to quickly test hypotheses, investigate any anomalies, and discover new insights and information.

The Impact

The holistic approach adopted by Querent:

- elevated the efficiency of data exploration.
- deepened the interpretative capabilities within the realm of geological research.
- enriched the methodological landscape of the discipline.
- reduced the burden on experts providing research teams with strategic decision support.

By merging data from structured databases, unstructured text, images, well logs, and surveys, Querent created a series of unified and searchable graphs. Leveraging semantic knowledge graphs to uncover and analyze relationships between entities helps bridge the gap between extensive, unstructured datasets and extract actionable insights.

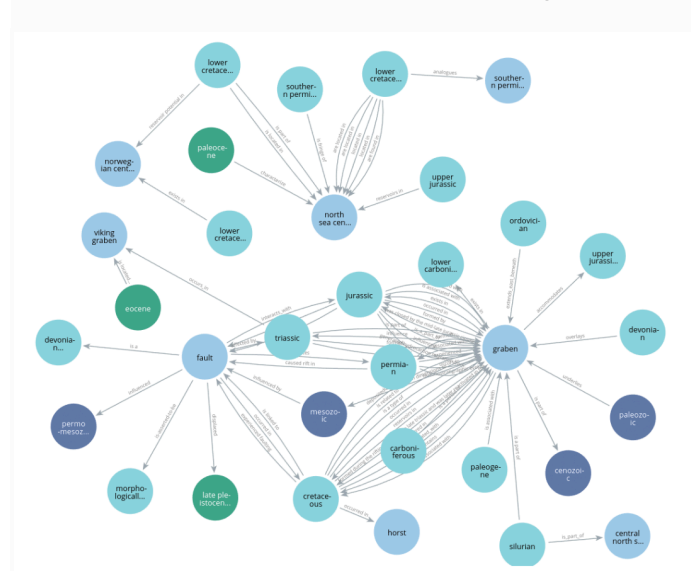


Figure 2: Mapping structural features to geological eras, and periods in the North Sea basin

The Outcome

Querent's solution brought about a significant transformation in data management and analysis processes. The data fabric architecture enhanced the dataset's discoverability and applicability, utilizing deep-seated interconnections and contextual subtleties intrinsic to the data.

This not only streamlines the retrieval of intricate geological data but also adds a layer of verifiability indicating the broader applicability of AI and machine learning across disciplines to unravel complex data intricacies.

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