



Cloud integration and AI enabled logistics

Enhancing Logistics Efficiency with AI and Predictive Analytics

AI Enabled Drilling Logistics

Cost optimization
Improved operational efficiency
Reduced carbon emissions
Enhanced AI decision-making

Executive summary:

In this case study, Vista Oil & Gas, a Latin American oil company, sought to optimize sand logistics and transportation through real-time monitoring and predictive analytics. Facing flaws in their initial application, Vista partnered with NowVertical, an expert in data analytics and cloud solutions. The collaboration resulted in enhanced predictive models, streamlined application architecture on Google Cloud, efficient real-time data ingestion, low-latency systems, and advanced algorithms for future behavior prediction. These improvements led to significant cost savings, reduced carbon emissions, and reinforced Vista's commitment to sustainability and operational excellence in the Latin American oil industry.

Business needs:

Vista Oil & Gas sought to optimize its sand logistics and transportation processes. To remain competitive and achieve its strategic goals of becoming a leading growth company with a strong focus on sustainability and efficiency. They identified the need for a solution that could provide real-time monitoring of their truck fleet's sand transportation, enabling data-driven decision-making and improved efficiency. These needs were critical for Vista Oil & Gas to streamline its operations and align with its broader commitment to sustainability.

Business results after implementation:

- **Cost Optimization:** The implementation of advanced predictive models and real-time monitoring led to substantial cost savings in sand logistics and transportation.
- **Improved Efficiency:** Vista Oil & Gas experienced significant improvements in operational efficiency, with streamlined processes and optimized routes.
- **Enhanced Decision-Making:** Real-time data ingestion and low-latency systems empowered Vista to make timely and data-driven decisions, resulting in better resource allocation.

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Overview:

Vista Oil & Gas is a prominent Latin American oil company that aspires to become a leading growth company while promoting sustainability and efficiency in its operations. With a focus on generating superior returns for shareholders, the company aims to achieve world-class levels of efficiency by reducing costs and carbon emissions. To optimize the cost and efficiency of sand logistics and transportation, Vista Oil & Gas developed an application that enables real-time monitoring of their truck fleet's sand transportation while visualizing current and future behavior indices in an oil well fracture. However, the application faced flaws and limitations in its logic and predictive models, prompting the need for a reliable partner to improve its capabilities.

Situation:

Vista Oil & Gas recognized the potential of enhancing sand logistics efficiency through real-time monitoring and predictive analytics. They developed an application to track the flow of their truck fleet transporting sand and analyze and visualize behavior indices in oil well fractures. Unfortunately, the initial application exhibited weaknesses in its logic and predictive models, hindering its effectiveness in optimizing sand transportation.

Approach:

To address the limitations of the existing application and achieve its optimization goals, Vista Oil & Gas partnered with NowVertical, a renowned company with expertise in data analytics, predictive modeling, and cloud-based



solutions. The collaboration aimed to enhance the application's capabilities and streamline its data and process architecture. The key focus areas of the partnership were as follows:

Predictive Model Design and Development:

NowVertical worked closely with Vista Oil & Gas to design and develop advanced predictive models. These models would harness real-time data from the truck fleet and integrate it with other relevant data sources to forecast sand transportation patterns accurately.

Application Back-end Development: The existing application required restructuring to accommodate the newly designed predictive models and ensure seamless integration with the cloud infrastructure. NowVertical leveraged its expertise in application development to optimize the back end for efficient data processing and analysis.

Restructuring in Google Cloud Platform:

NowVertical migrated the application to the Google Cloud Platform, taking advantage of its scalability and robust capabilities for real-time data processing. This restructuring aimed to efficiently handle the large volume of incoming data from the truck fleet and oil well fractures.

Real-time Data Ingestion: The collaboration focused on developing a robust system for real-time data ingestion. This enabled the

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application to handle continuous data streams from the truck fleet and oil well fractures, ensuring up-to-date and accurate information for decision-making.

Low-latency (Near-Real-Time) Systems: To address the instability in reported truck locations, NowVertical designed low-latency systems capable of processing and analyzing data rapidly. This approach enabled Vista Oil & Gas to make timely decisions despite fluctuating data availability.

Algorithm Design for Future Behavior Prediction: NowVertical devised sophisticated algorithms based on historical and real-time data to predict future behaviors. These algorithms empowered Vista Oil & Gas to anticipate sand transportation requirements and optimize logistics accordingly.

Outcome:

The collaboration between Vista Oil & Gas and NowVertical led to significant improvements in sand logistics efficiency and overall operations. The critical outcomes achieved were:

Enhanced Predictive Models: NowVertical's expertise in predictive modeling resulted in accurate and reliable forecasts, enabling Vista Oil & Gas to optimize sand transportation routes and schedules proactively.

Seamless Application Back-end: The restructured application's back-end streamlined data processing, ensuring quick analysis and inference generation from the collected data.

Efficient Google Cloud Platform Integration: The application's migration to Google Cloud Platform increased scalability and flexibility, enabling Vista Oil & Gas to handle growing data volumes without performance bottlenecks.

Real-time Data Ingestion: The developed real-time data ingestion system provided up-to-date insights, facilitating timely decision-making and better resource allocation.

Low-latency Systems: Implementing low-latency systems allowed Vista Oil & Gas to deal with fluctuations in truck location data effectively, ensuring continuous monitoring and analysis.

Future Behavior Prediction: NowVertical's advanced algorithms enabled Vista Oil & Gas to accurately forecast future sand transportation requirements, contributing to cost optimization and enhanced operational efficiency.

Through the successful collaboration with NowVertical, Vista Oil & Gas achieved its goal of promoting sustainability and efficiency while becoming a leading growth company in the Latin American oil industry. The optimized sand logistics process reduced costs and carbon emissions, driving superior returns for shareholders and reinforcing Vista's commitment to world-class operational standards.