

High Performance Data Management (HPDM) Solution

Meeting Industry Challenges using Oracle Data Management Appliances

Today, most of the oil and gas exploration and production (E&P) companies are well equipped with sophisticated front-end dashboards and simulation models that help understand when to analyze any of the events of oil well or replace critical equipment before failure. However, many companies are unable to leverage historical patterns and trends in data to effectively predict the issues and find solutions. There is a lot of data available in semi-structured and unstructured format accumulated over the years; hence it is very difficult to separate noise from relevant information.

The energy industry faces challenges majorly with the following four aspects:

DATA	ANALYSIS	EXECUTION	COLLABORATION
<ul style="list-style-type: none"> Massive amounts of data stored in disconnected systems Integration of unstructured, semi-structured, structured and spatial data Unfamiliar (new) dense data types like micro seismic, electromagnetic and Distributed Temperature Sensing 	<ul style="list-style-type: none"> Limited picture of the assets provided by isolated metrics and key performance indicators Limited capability to analyze the data and get insights to optimize drilling and production operations 	<ul style="list-style-type: none"> Inability to leverage enterprise data to improve efficiency in taking quality decisions Ability to take real-time decisions with more complex wells and fewer, less experienced personnel 	<ul style="list-style-type: none"> Manual and time-delayed collaboration amongst members of the asset team, which causes them to be mostly reactive instead of being proactive

The **Infosys High Performance Data Management (HPDM)** solution adds significant value to energy enterprises by making them able to analyze massive amounts of drilling and production **data-in-motion** (real-time data / fast data) and **data-at-rest** (big data) and extract valuable insights and analytics. The solution provides recommendations based on predictive analytics in order to help users make optimal, near real-time, tactical and strategic decisions.

HPDM Solution Overview

The Infosys HPDM solution is architected to achieve key objectives of analyzing the real-time drilling and production data-in-motion as well as the massive volumes of data-at-rest.

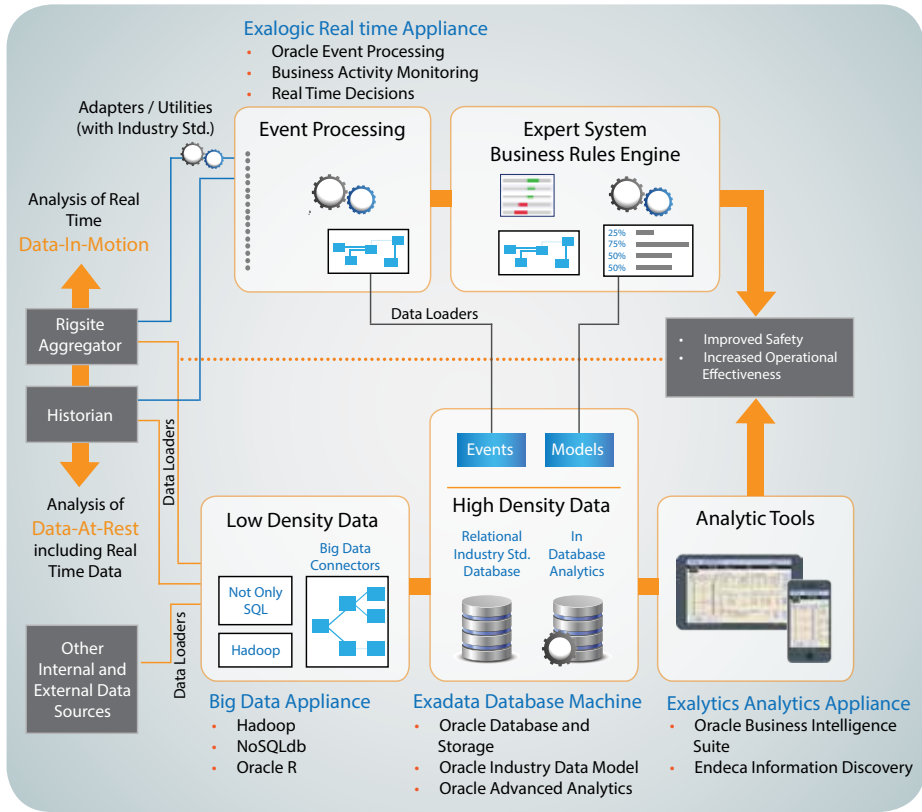
Analyzing real time drilling and production data-in-motion – The solution provides the ability to analyze the data streaming from the sensors. The value of analyzing this data in real time is to be able to:

- Pass that data through a set of event-based rules that help trigger alert messages for the operators. These are based on patterns that in case of occurrence can cause some issues. It represents the data in a visual format familiar to the operators for quick and easy understanding.

- Pass the same data through an expert system with a self-learning engine in order to uncover new patterns that may influence the decisions that the operators may need to make in real time. Once these new patterns are identified, the solution includes them into the event-based system for usual processing.

Analyzing the data-at-rest – The solution provides the ability to combine the data with other data sources that the company has access to (structured, semi-structured or unstructured). This leads to producing new analytics about drilling and production operations to improve the safety and efficiency of these operations over time.





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Business Benefits

Key transformations achieved from the solution include:

- Ability for engineering personnel to see the complete and most accurate information and data on all components of the assets across the time horizon
- Empowerment of enterprises to take decisions based on the total knowledge of the asset (current real time data, past real time data, trends/patterns, etc.)
- Ability to propose solutions based on successful historical resolutions

High level projected benefits include:

- Ability to access both current and past real-time drilling data as well as other structured, semi-structured and unstructured data sources
- Improved real time performance monitoring and predictive analytics
- Improved drilling performance and safety