

Data Powers the Oil & Gas Industry

BIG DATA, STREAMING, AND PREDICTIVE ANALYTICS IN OIL & GAS

Chesapeake Energy

Downtime can cost tens of thousands of dollars a day on lost production due to unexpected machine breakdown. IoT data streaming from more than 70 trillion sensor data points and robotic automation systems feeds was leveraged to build a predictive maintenance solution that has enabled six years of maintained production and slashed capital costs 80%.

As the oil and gas industry is grappling with a period of over supply, lower prices, and sustained uncertainty, they are increasingly relying on data and analytics as the key lever to drive operational efficiencies and stay competitive. It is reported that an average large refinery can generate over [one terabyte of data per day](#)¹. Data provides capabilities, but considering the volume, it is estimated that 99% of the acquired data is not used. The challenge oil and gas companies now face today is managing the volume of data growth, new and diverse data sources, and an increasing reliance on real-time and streaming data.

Cloudera offers an end-to-end data management and analytics platform that enables oil and gas entities to ingest, process, store, analyze, and model any type of data (structured, unstructured, or semi-structured data), anywhere—at the edge, on premise at the refinery, or in any public, private, or hybrid cloud. Cloudera Data Platform offers an integrated suite of proven and open source data management tools and analytics engines, to drive insights and action in real-time to enable some of the most compelling use cases for the oil and gas ecosystem, thus driving measurable business impacts.

How Cloudera Enables Oil & Gas Organizations

Today, major upstream, midstream, and refiners around the globe rely on Cloudera to enable data-driven use cases across the breadth of the oil and gas value chain. Here is a summary of some of the key data-driven use cases in oil and gas:

Exploration	Production	Mid/Downstream	Marketing/Sales
<ul style="list-style-type: none"> • Drilling analytics • Reservoir characterization • Real-time drilling operations • Predictive maintenance 	<ul style="list-style-type: none"> • Predictive maintenance • Wellhead monitoring & control • Reservoir simulation and optimization • Single view of operations and assets 	<ul style="list-style-type: none"> • Pipeline monitoring & management • Economic output optimization • Predictive maintenance • Supply chain optimization 	<ul style="list-style-type: none"> • Fleet optimization • Supply chain optimization • Website optimization • Merchandising optimization

Rowan Companies

Offshore crews operated with limited capacity with remote support because of limited access to real-time data. Rowan implemented a CDP foundation to supply seamless data connectivity for near real-time monitoring, troubleshooting, etc. that enabled remote monitoring of critical conditions with real-time data.

What Cloudera Offers the Oil and Gas Industry

Cloudera provides an end-to-end data management and analytics platform that can help the Oil and Gas ecosystem drive insights and action from any data, anywhere, in real-time.

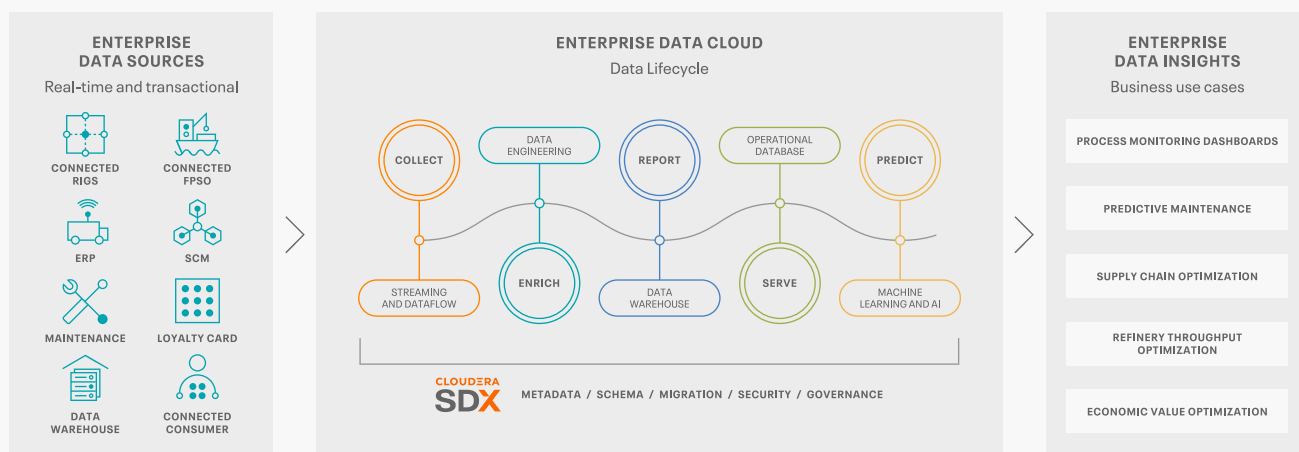
- **Ingest, process and analyze** high volumes of real-time data from any source—connected equipment, production sensors, historians, ERP and MES systems, historical archives, master data management databases, fleet vehicles, or worker wearables.
- Enable **predictive analytics** or apply **machine learning algorithms** to petabytes of data, while maintaining strict enterprise data security, governance, and compliance, audit trails across on-premise and cloud hybrid environments.
- Gain insights from **unstructured data sources** originating from process sensors, robotics, video streams, or acoustic sensors.
- Build, test, iterate, and deploy **machine learning models** to enable use cases such as real-time equipment monitoring, wellhead monitoring, predictive maintenance, etc.
- Provide **multiple analytical options** to drive insights, intelligence, and action from data at the edge, on-premise, or in any public, private, or hybrid cloud.

100% Open

A platform that is 100 percent open source, supporting your objectives to avoid vendor lock-in and accelerates enterprise innovation.

- Open compute enables efficient server, storage, and infrastructure designs for scalable computing
- Open architecture mitigates interoperability concerns
- Open APIs with visualization-agnostic tools
- Open cloud enables a cloud-agnostic approach

MULTI-FUNCTIONAL PLATFORM TO DRIVE OUTCOMES IN OIL AND GAS



Searcher Seismic

Combing through a library of 20PB of data made auditing and discovery nearly impossible Searcher Seismic created an enterprise data cloud offering self-service access to governed data for end-to-end analytics and ML workflows, thus reducing the need for manual processes to manage data, resulting in fewer human errors, a 3-4 person job is now a one-person job.

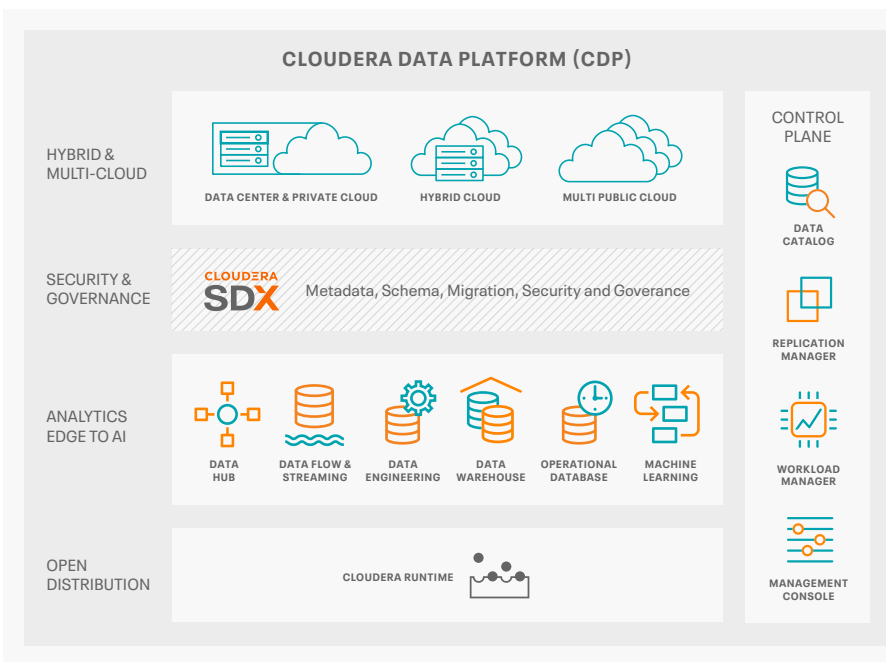
About Cloudera

At Cloudera, we believe that data can make what is impossible today, possible tomorrow. We empower people to transform complex data into clear and actionable insights. Cloudera delivers an enterprise data cloud for any data, anywhere, from the Edge to AI. Powered by the relentless innovation of the open source community, Cloudera advances digital transformation for the world's largest enterprises.

Learn more at cloudera.com

Cloudera Data Platform (CDP)

Cloudera Data Platform is the industry's first enterprise data cloud, offering a full range of analytic capabilities from the Edge to AI. CDP delivers powerful self-service analytics across hybrid and multi-cloud environments, CDP delivers a powerful platform that can collect, process, manage, analyze and model any data, anywhere to drive actionable insights and predictive analytics. And it's built 100% on open source.



Cloudera SDX provides enterprise-grade security and governance on all data including metadata, with dedicated, integrated interfaces to manage it. Data security, governance, and control policies can be set once and consistently enforced everywhere, reducing operational costs and business risks while also enabling complete infrastructure choice and flexibility.

To learn more about how Cloudera drives outcomes for oil and gas organizations, visit <https://www.cloudera.com/solutions/energy-and-utilities.html>.

Sources

¹ BehrTech Blog, behrtech.com, "16 Stats about Big Data and IoT in Oil and Gas".