



BROCHURE

EPAM and Google Cloud Drive Innovation for the Energy Industry

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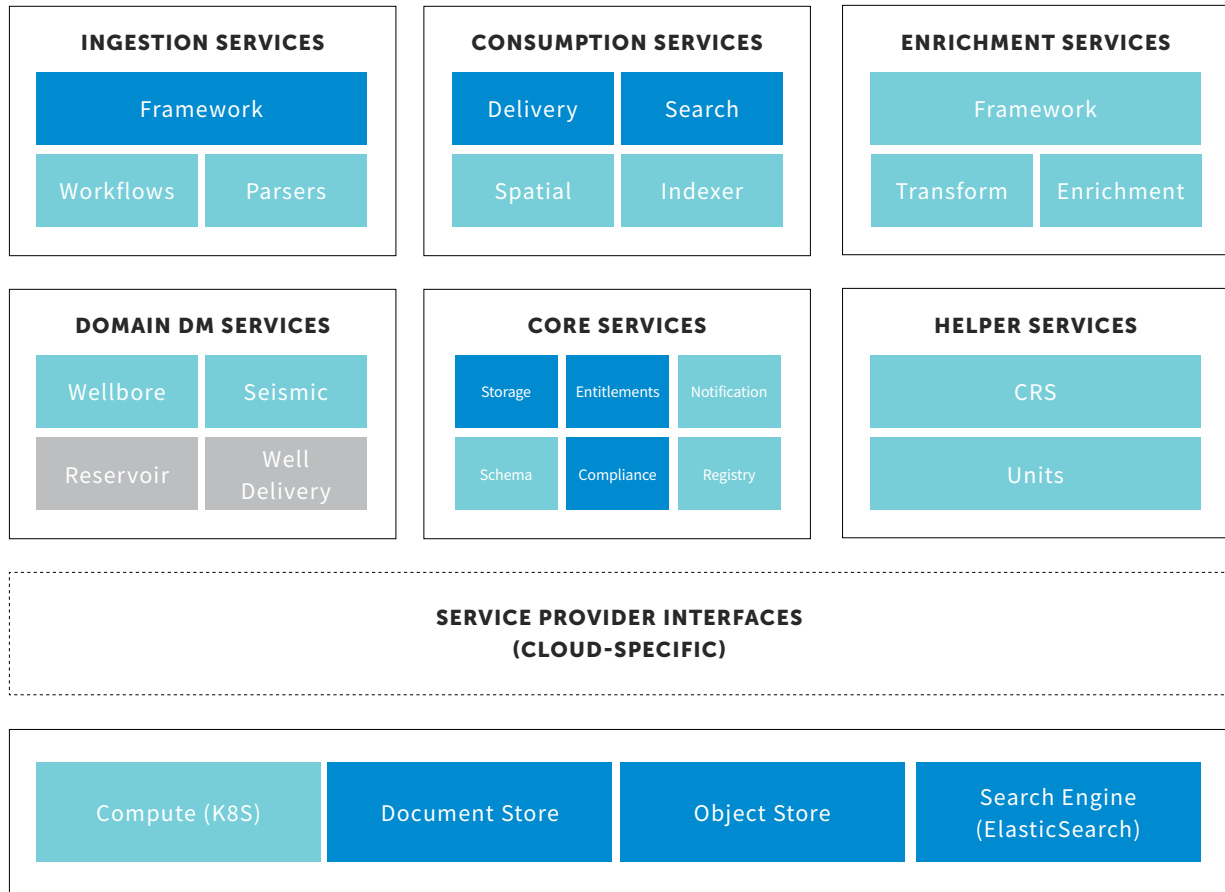
EPAM partners with Google Cloud to accelerate the deployment of customizable open source solutions through the Open Subsurface Data Universe (OSDU) initiative. By combining EPAM's software engineering and data analytics expertise with Google Cloud's deep capabilities in artificial intelligence (AI) and complex computational requirements, we deliver a universal, single data platform that drives innovation in the energy industry.

The Open Group, a vendor-neutral technology consortium, created the OSDU forum to develop a standard data platform—bringing together exploration, development and production data to transform the current complex data and application environment. The platform provides secure, reliable, global and performant access to all subsurface data through a flexible, multi-cloud approach. This functionality allows companies to accelerate the use of emerging digital solutions for better decision-making, faster delivery of capabilities, and reduced implementation and lifecycle costs across the subsurface community.

EPAM, GCP AND OSDU: A WINNING SOLUTION

As a Premier Google Partner and a member of the OSDU Management Committee, with decades of experience delivering cutting-edge technologies and strategies to enterprise clients in the energy industry, EPAM has built a collection of OSDU components optimized for the Google Cloud Platform (GCP) environment. GCP, with its Anthos capabilities, high-performance computing (HPC) and AI toolbox, is an ideal choice for implementing OSDU, whether in a single cloud, multi-cloud or hybrid cloud environment. EPAM expands the platform's capabilities and streamlines implementations from a technical, data strategy and adoption acceleration standpoint.

OSDU Scope



Auth/Z based on OpenID Connect



Game-changing OSDU Applications EPAM Can Enable on GCP

THE VIRTUAL DATA ROOM

CHALLENGE

When an oil and gas operator decides to sell an asset, there is a significant cost associated with setting up a data room where potential buyers view the asset's information. Well logs, seismic, reservoir simulations, financials and contracts must be readily available in a useable format. Consider a brownfield development up for bid. It contains potentially hundreds or thousands of wells of various vintages, complex processing facilities and a myriad of in-field flow lines. Data complexities include:

- Digital log curves from multiple vendors with different acronyms and formats
- Subsurface interpretations stored as grids from various applications in incompatible formats
- Paper copies of geologic reports, core analyses, sales contracts and drilling reports

SOLUTION

EPAM experts load data into OSDU via ingestion APIs, through optical scanning, PDF's, grids, LAS, SEG-Y and various other formats. All relevant data is then available to the purchaser regardless of which application suite was used. By utilizing GCP, the seller can alleviate the burden placed on internal IT resources and safely segregate proprietary corporate information and evaluation methodologies. There is immense value in using powerful search algorithms (e.g., Google Search) to quickly search through the unstructured data to find critical contractual information relevant to project economics or review drilling information to discover wells mechanically at risk. The interpretation of logs and seismic data can easily be accomplished by potential buyers using software they are already familiar with, regardless of the seller's interpretation packages of choice. Buyers can scrutinize and compare reservoir simulations without having the license for the original interpretation application. Powerful HPC processing capability, available through Google, allows a company to run boutique proprietary seismic processing routines. As the asset sale is completed, access to all hosted information can be easily terminated.



Game-changing OSDU Applications EPAM Can Enable on GCP

CONNECTED ENGINEER: AR TOOLBOX

CHALLENGE

Legacy oil fields and associated infrastructure contain a wide variety of equipment requiring diligent monitoring and proactive maintenance to maintain a safe and environmentally secure workplace. In addition to remote monitoring and analysis, onsite inspection and maintenance by a highly skilled workforce is required to maintain efficiency and safety at the highest levels. Diversity of legacy equipment, maintaining a highly trained workforce, budget and regulatory constraints are all challenges when operating a complex field in a safe and environmentally responsible manner.

SOLUTION

EPAM uses continuous real-time monitoring of field operating conditions to upload into the OSDU data cloud platform to allow data analytics and AI programs to continually monitor reservoir and equipment performance for well optimization, preemptive maintenance and just-in-time component procurement. In this instance, AR can reduce risk. For example, a production engineer arrives at the well site and dons AR safety glasses. The glasses identify the compressor based on location and the engineer retrieves the SOPs. As the engineer begins each step in the process, the glasses highlight components to ensure appropriate actions. Natural language statements and questions access relevant equipment-specific information. A built-in camera validates and ensures appropriate replacement components are used. Once maintenance is complete, real-time information on the startup sequence is reviewed on-site by the engineer and is checked by AI analytics prior to sign-off and released back to production. Access to and validation of SOPs and safety information using natural language, hands-free applications incorporated into familiar, required PPE enhances employee safety, expands the diversity of an employee's skill set and speeds the learning curve for equipment upgrades.



Game-changing OSDU Applications EPAM Can Enable on GCP

THE AI-ENABLED WELL FACTORY

CHALLENGE

Creating a comprehensive oil and gas field development plan can be an extremely complex undertaking. In a field with an unconventional reservoir, for example, there are hundreds of wells to be planned and drilled. Multiple drilling rigs run simultaneously with timely procurement of casing and pumps, in addition to the installation of flow lines and processing facilities. Uncertainty in future well performance and low productivity wells combined with the high cost of completions, land and manpower, mean low margins for many companies operating in an unconventional manner. Utilizing all the information from drilling, land, geology, finance and procurement in a comprehensive plan of development is required to achieve efficiency, at a minimum cost and in full regulatory compliance.

SOLUTION

EPAM uses accelerated GCP analytics and HPC to enable the development plan to become evergreen rather than static, allowing management to formulate a comprehensive strategy to execute efficiently, in an ever-changing oil field environment. The OSDU data platform provides the basis for ensuring that projects can access all relevant information and are evaluated on an equal basis. An AI module, accessing the information, can drive the drilling order to minimize costs and maximize reserves. The module uses deep learning and incorporates analogies from the surrounding area. Geologists interpret reserve estimates, engineering declines curve interpretations, drilling performance and procurement information to drive the drilling schedule and balance production through processing facilities to meet the company's production goals.



READY TO LEARN MORE?

Contact our experts today to learn how EPAM can help you create cutting-edge solutions by leveraging the benefits of OSDU on GCP.

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