ies
Brazil
Technology & Innovation

11 de Novembro | 11:30

Panorama atual da implementação da arquitetura OSDU, desafios e oportunidades.

Juliana Fernandes Araújo

Analista de Dados IES Brazil

THE Open GROUP

BRASIL TALKS
CONFERÊNCIA 2022

ARQUITETURA & PADRÕES ABERTOS

SÃO PAULO **08-11 NOVEMBRO**

PATROCINADORES:

MEGA · avolution ABACUS · software AG · centus consultoria e negócios · smar Technology Company · pwc · GRUPO MULT

IES Brazil
Technology & Innovation

Services

- Sales
- Marketing
- Support
- Consulting
- Training

Technologies

- Mature Technologies
- High ROI
- Proven Results
- World Class
- In use at IOCs

IesBrazil & OSDU Timeline

OSDU M13 RELEASE AND RECOGNITION

IesBrazil very proud with contributions to OSDU Consortium.

Juliana Fernandes
Analista de Dados - IesBrazil

Thiago Moreira
Analista de Dados - IesBrazil

Pre-shipping – BP, dgBes, iesBrazil, Cegal, Chevron, Equinor, HCL, Halliburton, InfoSys, INT, Katalyst, Schlumberger, Shell, Sword Group, WiPro

Andre Mosley, Ankit Goyal, Bert Kampes, Chad Leong, David Glass, Debasis Chatterjee, Farid Ibrahim, Grant Marblestone, Jill Rebecca, Juliana Fernandes, Kamlesh Todai, Michael Arneson, Naufal Noori, Per Helge Aarnes, Raman Singh, Samiullah Ghousudeen, Somnath Das, Thiago Moreira

IesBrazil Technology & Innovation — THE OPEN GROUP OSDU FORUM MEMBER

Open

August

ublic release M13
nd recognition

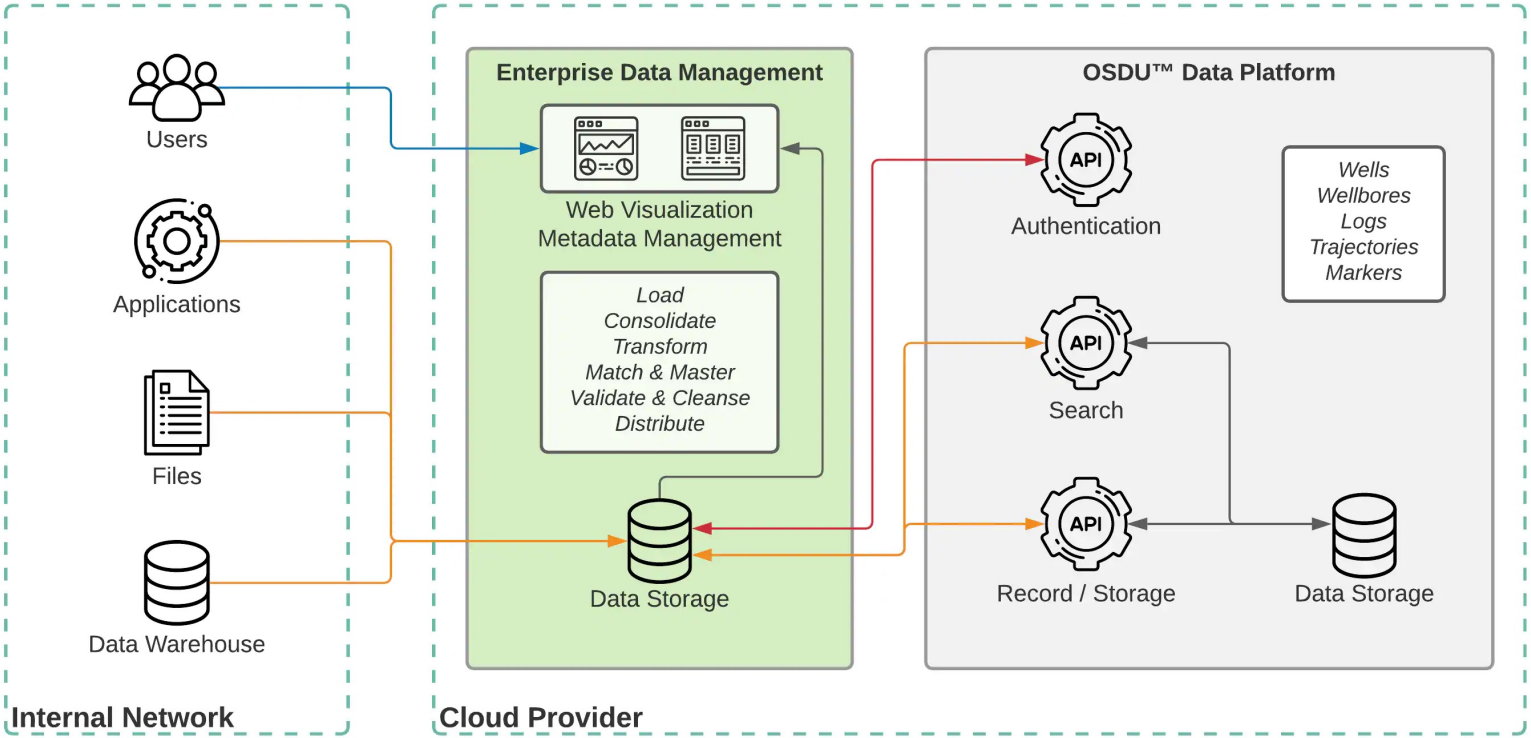
November

First well ingested by IesBrazil

April

Start Pre-Shipping Tests R3M11

OSDU
HOW IT WORKS?



https://ihsmarkit.com/products/edm-osdu-integration.html

OSDU MASTER DATA

- Activity Plan
- Agreement
- Evaluation Plan
- Organization

- Basin
- Boundary Feature
- Geopolitical Entity

- Field
- Play
- Prospect
- Reservoir
- Risk

- BHARun
- Casing Design
- Coring
- Fluids Program
- Fluids Report
- Geometric Target Set
- Hole Section
- Isolated Interval
- Operations Report
- Perforation Interval
- Perforation Job
- Planned Cement Job

- Reference Level
- Rig
- Rock Sample
- Rock Volume
- Well
- Well Activity Program
- Well Barrier Element
- Test
- Wellbore Architecture
- Wellbore Opening
- Well Planning Well
- Well Planning Wellbore

- Seismic 2D Interpretation Set
- Seismic 3D Interpretation Set
- Seismic Acquisition Survey
- Seismic Processing Project
- Survey Program

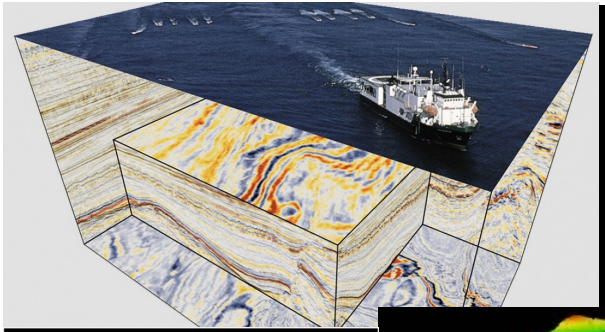
OSDU MASTER DATA

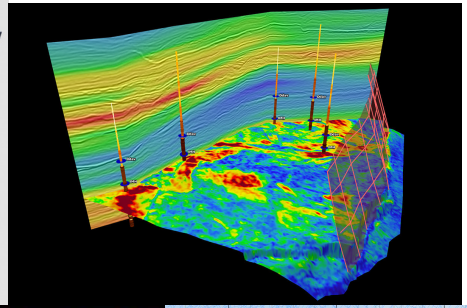
OSDU SEISMIC DATA

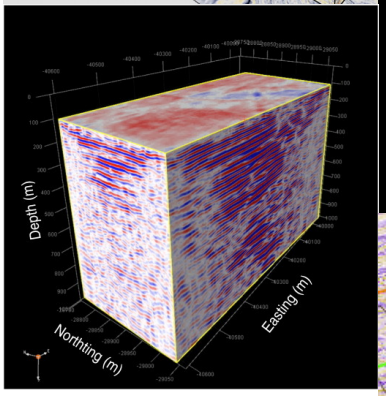
- Earth ultrasound;
- 1st information in search of Oil and Gas;
- Seismic data is the largest digital collection of data in oil industry;
- 3D seismic revolutionized the use of seismic exponentially in the 1980s, and now data in Nodes and 4D causes an explosion in data volume;
- 20 Peta Bytes of seismic data in Brazil, growing exponentially every day.

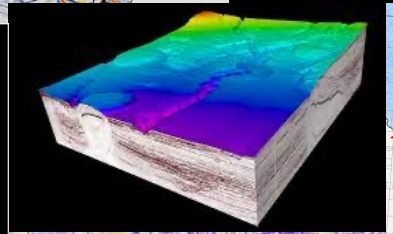
OSDU
SEISMIC DATA

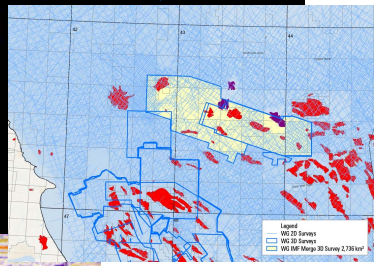
- Seismic Data SEGY
- Seismic Data VDS
- Seismic 2D Interpretation Set
- Seismic 3D Interpretation Set
- Seismic Acquisition Survey
- Seismic Processing Project
- Survey Program

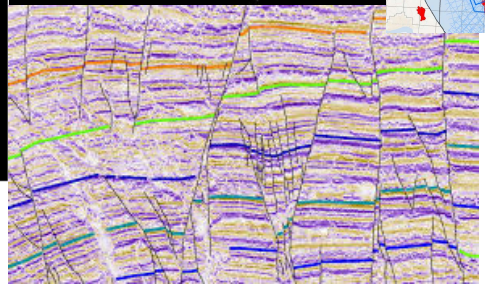












- Well drilling consolidates the actual information of an oil or gas reservoir;
- Data on wells are obtained in Exploration and Production;
- Several technologies, including Seismics, are used with the well to better understand the formations in subsurface;
- Massive collection available, around 1 PetaByte with a slow growth

OSDU
WELL AND WELLBORE DATA

- Well
- Well Activity Program
- Well Barrier Element Test
- Wellbore Architecture
- Wellbore Opening
- Well Planning Well
- Well Planning Wellbore
- Geometric Target Set
- Hole Section
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- Fluids Program
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- Rock Sample
- Rock Volume
- Rig
- Reference Level
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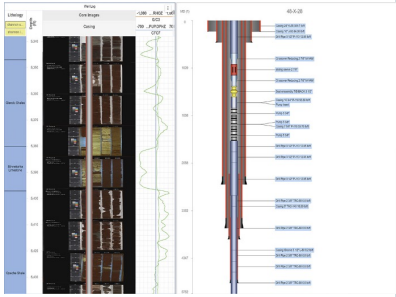
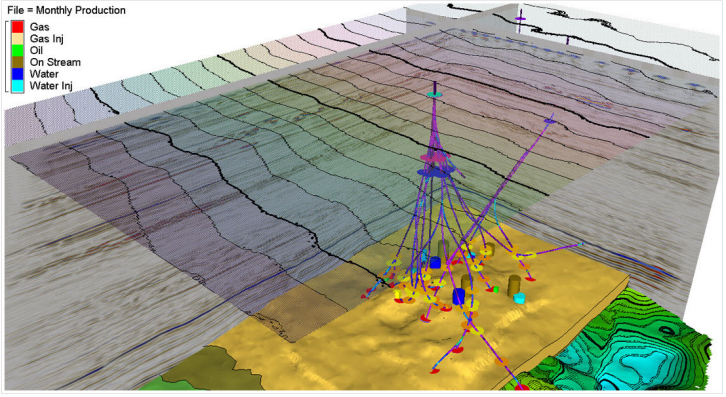
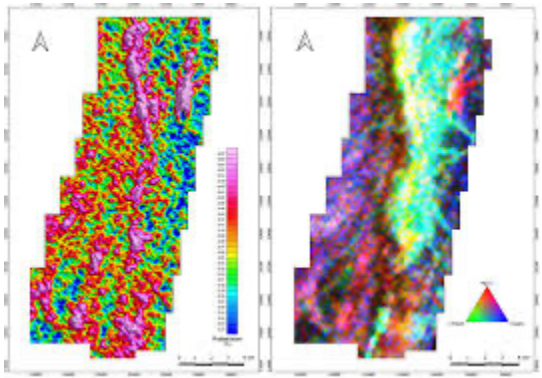
- BHARun

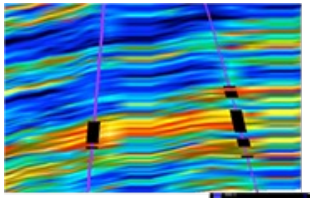


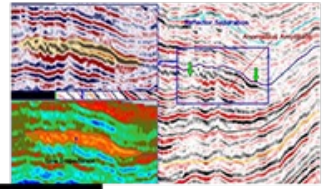


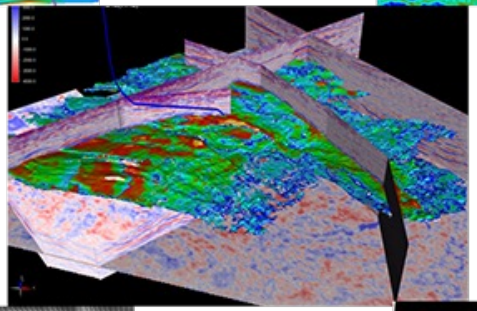
OSDU
RESERVOIR DATA

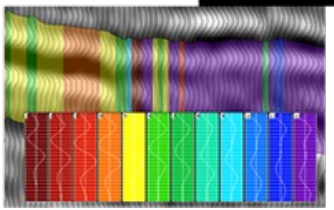
- Field
- Play
- Prospect
- Reservoir
- Risk

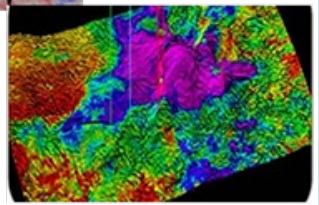


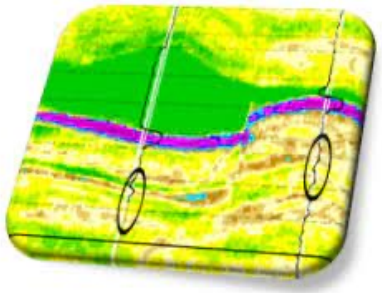






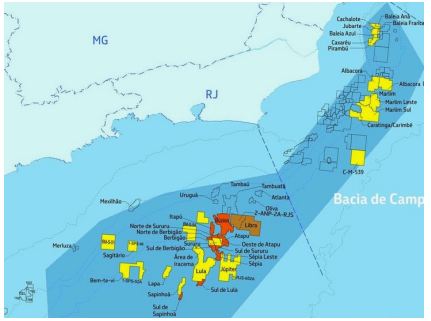


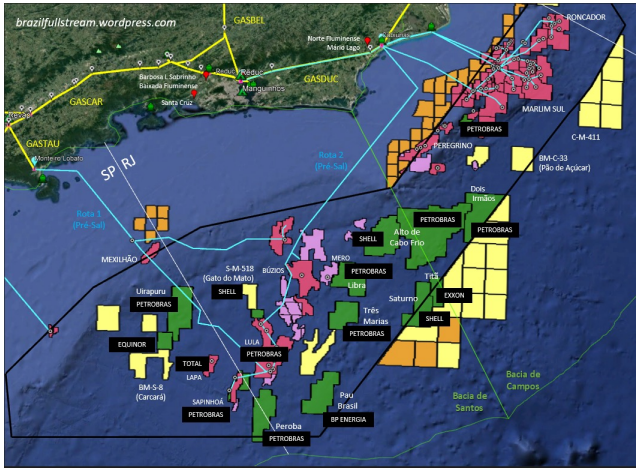




OSDU
CULTURAL, LEGAL & COMMERCIAL DATA

- Basin
- Boundary Feature
- Geopolitical Entity
- Activity Plan
- Agreement
- Evaluation Plan
- Organization





OSDU
MAIN CHALLENGES

- ***DATA INGESTION***
- ***GOVERNANCE***
- ***ULTRA LARGE VOLUMES FLOW***
- ***AUTOMATION IN SCALE***
- ***USER INTERFACE***

DATA INGESTION

- Manual and slow process without automation;
- Input data are not standard among many data sources;
- Metadata extraction is an unique process for each data, on the real world the same algorithm may work for one dataset and not for another dataset, both from the same source;
- Need for a multidisciplinary team to retrieve the information for the metadata.

GOVERNANCE

- OSDU is a mix of many open-source services and tools that requires a cross and multi knowledge of different technologies in that new domain;
- Technical team requires knowledge and skills on cloud service providers technologies such as: Apache AirFlow, NoSQL Databases, S3 Buckets, AWS Cognito, AWS CloudFormation, JSON Architecture, Kafka, Containers, Kubernetes, Route53, EC2, and others;
- Guarantee different layers of security and access: in data at rest, in data in motion, in authentication and in authorization.

ULTRA LARGE VOLUMES

- O&G industry handles a huge volume of data such as seismic files and needs a very strict strategy to store and access that data with a good performance;
- Compression - Cloud Costs;
- Transformation - Access Performance and Streaming;
- Petabytes of seismic data needs to flow into Oil&Gas technological projects sharing data and knowledge among partners to allow better economical decisions. Virtual Data Colaborative Room over the cloud.

AUTOMATION AT SCALE

- OSDU is a classic big data scenario and that imposes many challenges to scale automation processes such ingest data, for example;
- Each ingestion process and model is unique;
- Extreme Variety of data formats and models.

USER INTERFACE

Required interface for better productivity:

- Data Ingestion, Management & QC;
- Entitlements – User Admin & Access permissions;
- API Catalog.

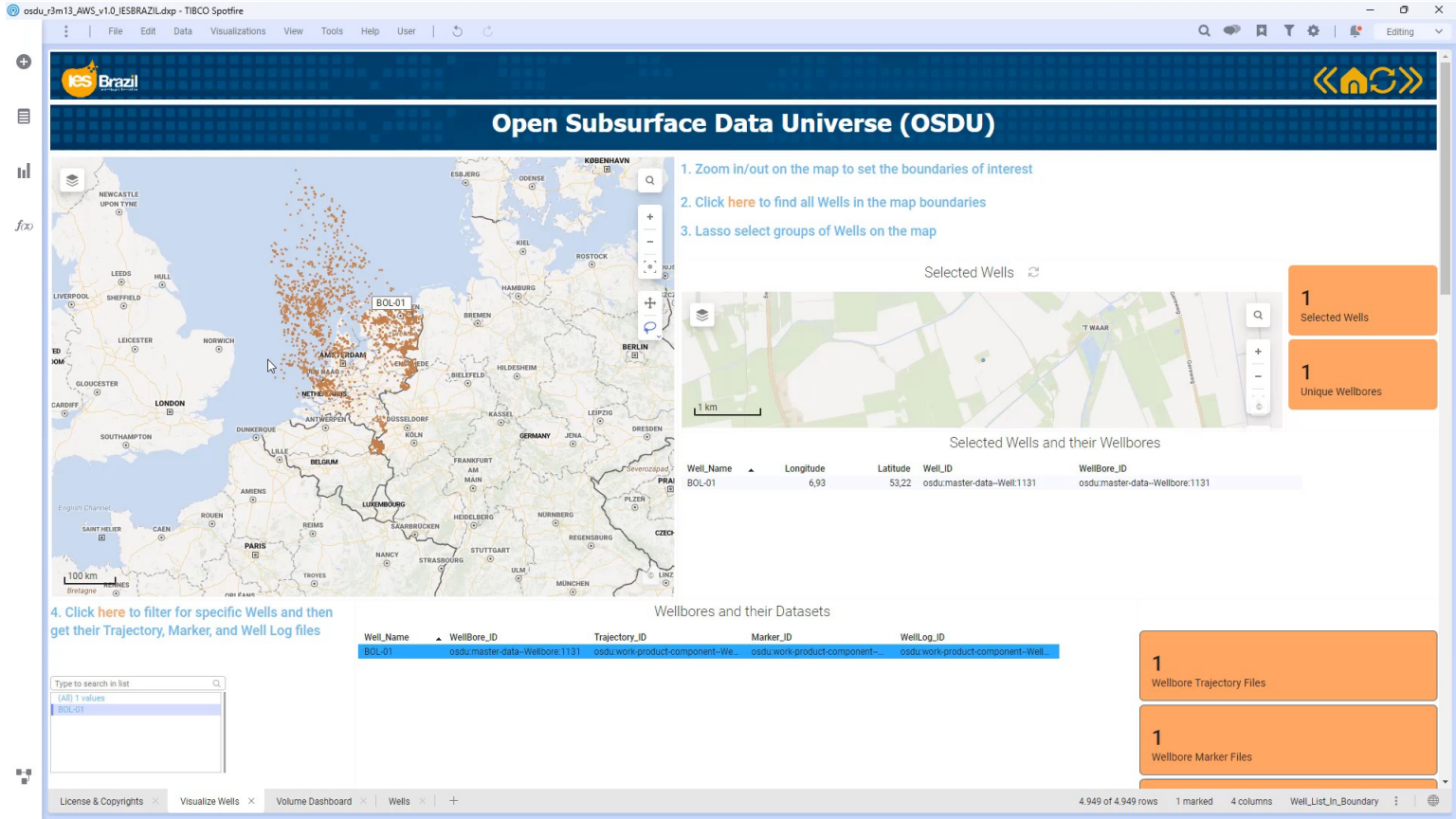
OSDU
MAIN BENEFITS

- Integration among companies and sectors;
- Data sharing between owners;
- Eliminates physical barriers for data transfer;
- Adoption new technologies, streaming;
- Better data visibility;
- Fast conversion between industry standards;
- Standardized access for any tool to an indexed and organized data;
- Eliminate data silos between domains;

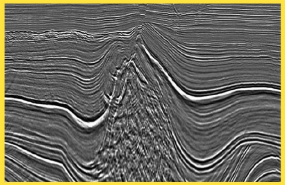
OSDU
MAIN BENEFITS

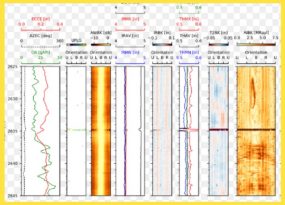
OSDU allows the developers to focus in enhancing and creating new functionalities on their architecture instead of spending many hours of coding to create methods and APIs to interact with the data. As a result, all functionalities are easily replicable between any OSDU instances. This allows O&G companies to invest more on algorithms and less in data management.

TIBCO-SPOTFIRE
ANALYTICS DIRECT FROM OSDU DATA



DATA UNIVERSE





.segy

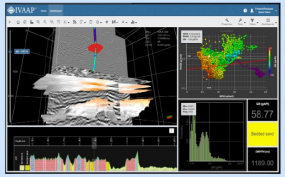
.vds

.las

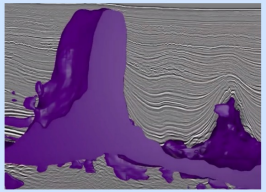
.dlis

DATA INGESTION

Analytics, Data Science



Data Management & Visualization



AI ML

OSDU™

Open Subsurface Data Universe

LIVE STREAMING

.sgy

PaleoScan

BR

equinor

Chevron

DATA CONSUMPTION

THANK YOU!

Agnostic, customizable, open-source and cloud native data loading and visualization

Advanced AI algorithm for Seismic Interpretation, using VDS™ format with seismic streaming

Data Science and Analysis Environment, High Analytical Maturity, Corporate Governance, Data Consumption

Partnership with Amazon for deployment, support of OSDU instances and data ingestion

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