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Versal – how cross-organizational collaboration helps solve industry challenges.

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Summary

Versal is the industry's first unified cloud-based digital ecosystem that offers access to the world's multi-client seismic data from participating vendors including CGG, PGS and TGS. Through strong and long-lasting cross-organizational collaboration, the partners have developed industry solutions which contribute to solving the growing problem of managing large volumes of complex and siloed subsurface data.

The collaborative nature, the proactive adoption of cloud-native technology, and engagement with industry initiatives like the OSDU Forum, have played a crucial role in advancing the development of Versal. This partnership has not only streamlined processes and reduced costs but also resulted in a more robust and versatile product, demonstrating that collaboration across domains can lead to innovative solutions and enhanced industry capabilities.

Versal – how cross-organizational collaboration helps solve industry challenges.

Introduction

Versal (https://versalearth.com) is the industry's first unified cloud-based digital ecosystem that offers access to the world's multi-client seismic data from participating vendors including CGG, PGS and TGS. Through strong and long-lasting cross-organizational collaboration, the partners have developed industry solutions which contribute to solving the growing problem of managing large volumes of complex and siloed subsurface data.

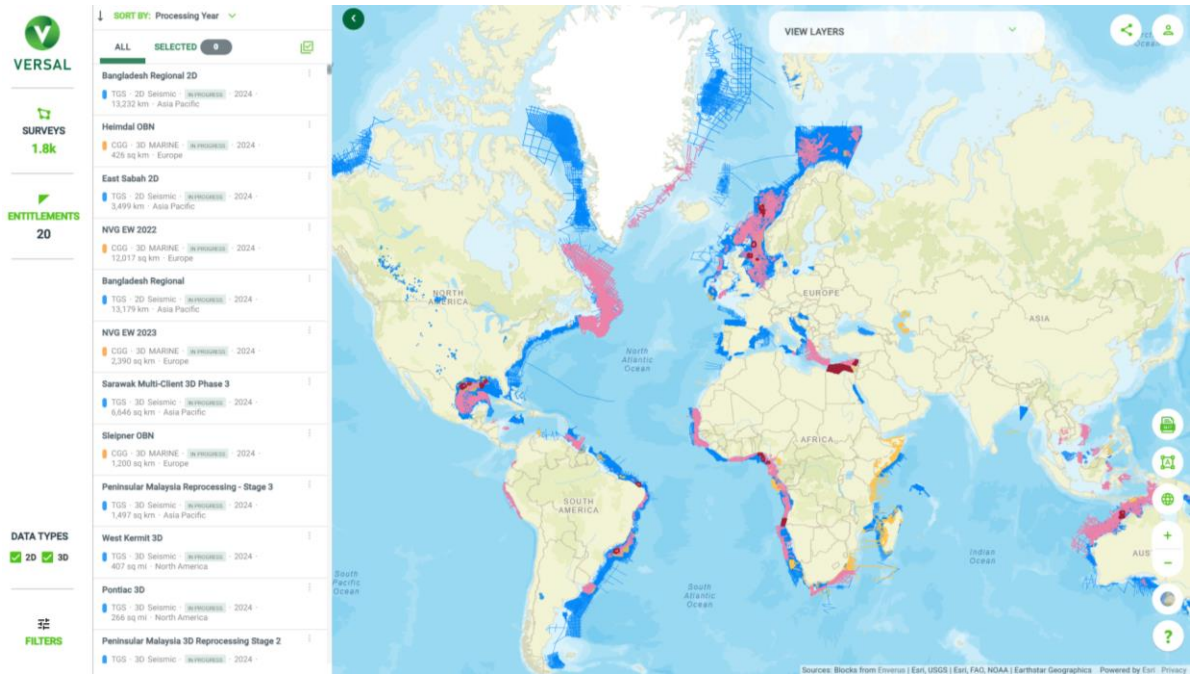

Figure 1 *Versal interface (screen capture from versalearth.com, 2023)*

Many operators have been working towards digital transformation across their enterprises to enhance the overall efficiency and effectiveness of their operations. On the upstream side, however, the complexity of the management and volume of E&P data, especially 2D & 3D multi-client seismic data, has slowed this process. Seismic data sets are both compute and storage intensive, but the industry is now placing a heightened focus on addressing these challenges and seeking innovative solutions to streamline and optimize the processing, analysis and storage of these datasets.

Since the start of the multi-client data programs acquisition in the early 1980's, the size of these datasets has grown significantly. Acquisition programs have become larger and data density has increased. Managing and storing hundreds of petabytes of data that have been acquired over the past four decades from multiple data vendors has proven challenging, time-consuming, and expensive for operators.

Significant changes in the industry such as mergers and acquisitions, regulatory updates, complex and long-lasting contractual terms and conditions, and the great crew-change, have made management of the seismic data, meta-data integrity, and data readiness responsibilities even more challenging. As a result, operators are sometimes unsure of their current seismic data entitlements, are missing contracts or reports for the datasets, or missing datasets altogether. These uncertainties negatively impact operational efficiencies to address the evolving landscape of seismic data challenges.

The objective of the talk is to provide insight into the development and implementation of the ecosystem and the cross-organizational collaboration process involved. It will demonstrate how coming together and working together, beyond the competitive backdrop, is key to solving problems for the industry. It

will also highlight the ongoing integration between OSDU and Versal, which ultimately will provide a cohesive solution that enables simplified points of access, reduce the end-user need to search multiple sources, and streamline the exploration and analysis process.

Method and/or Theory

To help solve the challenges, Versal, a joint venture between leading marine seismic data providers CGG, TGS and PGS, was formed. Versal is focused on providing unified and simple access for the industry to their multi-client data including associated meta-data and documents. Versal advances this digitalization journey by providing a multi-client data ecosystem to assist E&P operators to quickly find and organize data. Through establishing data standards between the multi-client data vendors, Versal provides a single point of access to multiple vendors' data via one ecosystem. In addition, this collaboration is actively working with OSDU to further enhance and foster greater industry interoperability standards.

Cross-organizational collaboration

During our talk we'll elaborate on the importance of cross-organizational collaboration, which has been key to the success of Versal. While Versal is developed and sustained by a third party, it demands attention, good collaboration, alignment, and precise communication between the partners. This is naturally not a given since all the partners are strong competitors in the multi-client market. The choice of a third-party developer was made to ensure impartiality in the code, and that no partner receives preferential treatment while committing to transparency. Each vendor has, since the start of Versal in 2020, dedicated considerable time and resources to the development of Versal. A steering committee consisting of EVP's from each partner has acted as a sounding board and assured the buy-in from each partner. The involvement of high-level executives emphasizes the strategic significance of Versal to each partner while sharing a vision for the industry. Furthermore, each partner has people dedicated from their respective organizations to cover different areas such as technical, marketing, and sales. This multifaceted approach ensures that Versal is not only technically robust but also strategically positioned in the competitive landscape.

Technical implementation

Versal architecture circles around supporting a cloud-agnostic environment and is built using cloud-native technology, allowing seamless integration with different cloud providers. As each vendor had pre-existing infrastructure and data lakes across different cloud environments, each supporting a myriad of internal and external solutions, the ecosystem had to be built to minimize disruptions and changes required on the part of the vendors. In addressing these challenges, the solution was for each vendor to build API's that the Versal application would interrogate for information requested by the end-user. These API's serve as communication gateways, allowing Versal to interact with the data in a standardized and efficient manner. This approach not only preserves the integrity of each vendor's existing infrastructure but also offers scalable architecture. Vendors can continue to maintain their unique environments while this decentralized, yet interconnected model promotes a collaborative ecosystem.

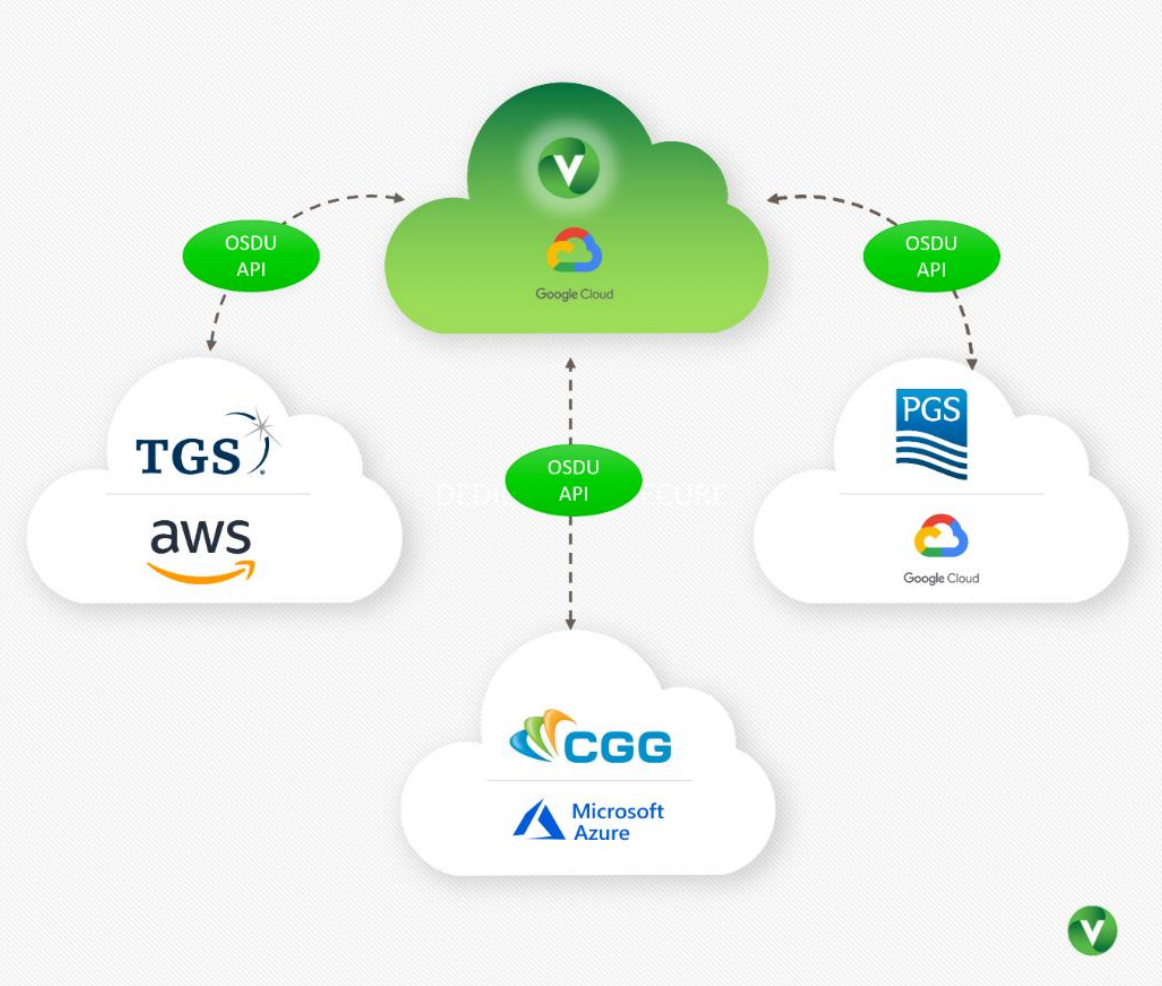

Figure 2 *Versal partners integration of OSDU API's feeding the Versal ecosystem. (Charles Nguyen, The Open Group Summit Houston, 2023)*

The Versal development team is currently engaging with the External Data Services (EDS) team to establish a seamless integration between OSDU and Versal using API's that allows the end-users to fetch and retrieve multi-client data directly through their OSDU instance. This collaboration with the OSDU Forum EDS committee ensures that the Versal implementation is fully compatible with defined standards and stays current to the evolving OSDU Forum specifications. Utilizing the EDS API's ensures a smooth and interoperable connection, providing users to find, catalog, visualize, and access their multi-client assets. This will ultimately allow a single enterprise integration point for access to the majority of the world's land and marine multi-client seismic data. Through this integration, Versal aims to become a central hub of data discovery and access to empower users to make informed decisions.

The Data Lake implementations are built on top of a commonly developed and shared OSDU "EDS Wrapper" that takes care of much of the complexity of the OSDU connection. The Versal user interface also takes full advantage of the OSDU Data Platform EDS API's. By utilizing the standard OSDU EDS API's, each Versal partner only needs to implement a single Data Lake that can power both the Versal user interface and any integrations that offer direct connections to customer systems.

By taking advantage of cloud native technology, like Docker images and Kubernetes deployment, code is collectively built and subsequently deployed to each vendor's unique cloud environment. There are many advantages to these technologies that are crucial to the Versal solution:

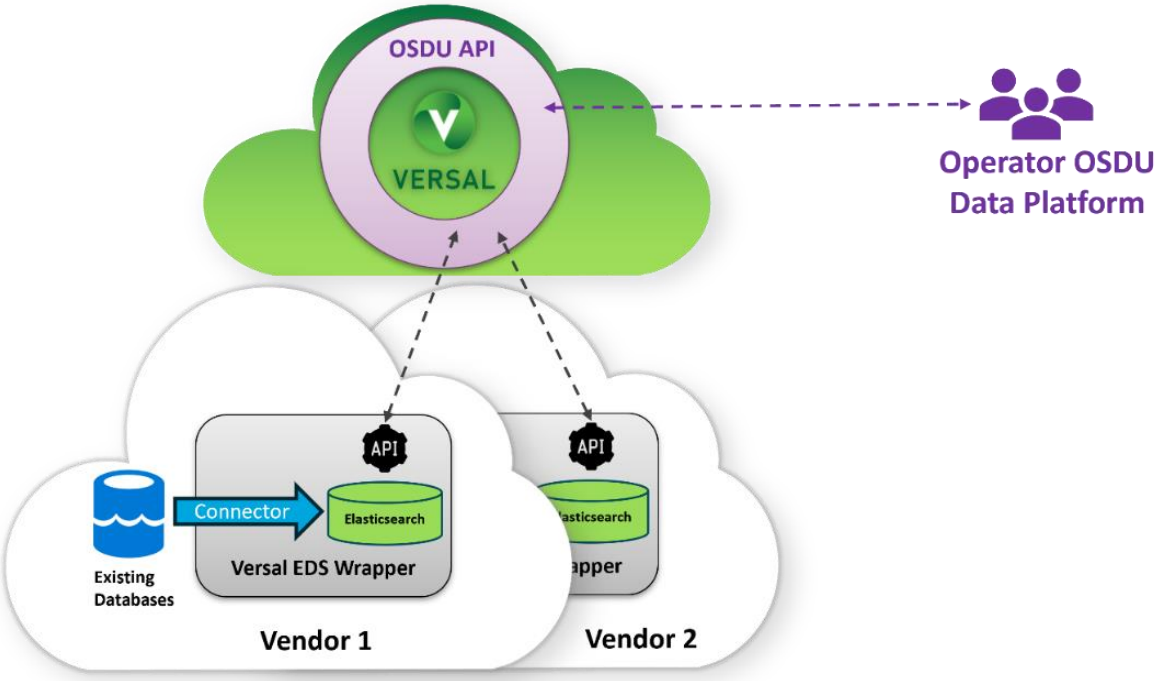

Figure 3 *Versal partners integration of EDS connectors to commonly developed "EDS wrapper." (Charles Nguyen, The Open Group Summit Houston, 2023)*

- Consistency across different environments, including development, testing, and production.
- The ability to scale applications horizontally by running multiple instances of containers.
- Providing process isolation, ensuring that each application runs in its own isolated environment.
- Being lightweight and portable, it eases the migration to different cloud providers.
- Having a large and active community, with a rich ecosystem of pre-built images.
- Automated deployments.

Conclusion

Versal is born out of a cross-organizational collaboration with the mission and vision of serving the industry. The collaborative nature, the proactive adoption of cloud-native technology, and engagement with industry initiatives like the OSDU Forum, have played a crucial role in advancing the development of Versal. This partnership has not only streamlined processes and reduced costs but also resulted in a more robust and versatile product, demonstrating that collaboration across domains can lead to innovative solutions and enhanced industry capabilities. The choice of technology and emphasis on vendor neutrality paves the way for other providers to join and only through widespread uptake and active participation will the industry truly benefit.

References

http://www.versalearth.com

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Nguyen, Charles [2023]. Versal integration with OSDU EDS. The Open Group Summit Houston, 2023, Oral Presentation