

Case Study: Oil & Gas

The Right Data at the Right Time

TGS, one of the world's largest sub-surface data providers, speeds access to insights via an online information ecosystem. This system is powered by a cloud-based big data analytics solution, enabling its oil and gas customers to make more informed drilling decisions.

In the oil and gas industry, few things are more important than drilling in the right spot. Getting that decision wrong means significant wasted time and money, putting the business in jeopardy. It's not surprising, then, that oil and gas companies hedge their bets by tapping into vast amounts of data to better understand what is happening on and below the ocean's floor.

TGS is one of the largest providers of 2-D, 3-D and other forms of sub-surface data. Long an industry leader, TGS was seeking a way to reduce the time to produce sub-surface data in a useable format for customers. At that time, the process was cumbersome. The raw data that was processed at a data center needed to be segmented and cut onto physical tapes that were shipped to customers. This manual process was expensive and did not allow for immediate revenue realization.

At a glance

TGS is a \$585 million global company that provides world's largest sub-surface data provider to oil and gas companies. In June 2018, TGS needed a better way to help its clients access the 2-D and 3-D seismic data that enables them to make accurate decisions on where to drill, both onshore and offshore. Before creation of the TGS data lake, customers had no direct visibility into sub-surface, geological or meta data, and it took too long to deliver insights.

Outcomes

Using the Cognizant BigDecisions® data analytics platform, TGS was able to achieve a number of business benefits, including:

- 95% savings in time spent pinpointing optimal locations to drill



“Our data tape systems were holding us back,” recalls Sathiya Namasivayam, global director of software and data analytics, TGS. “We had to organize, assemble and cut the tape, check the quality, and ship them. Using tape also meant that our clients had to spend time managing the data.”

Namasivayam was eyeing a big data analytics solution to organize TGS’s petabytes of data so customers could search for and consume the data relevant to them more easily, and in an understandable and actionable format. Selecting a solution that would run in the cloud was also a priority.

Centralized, searchable, real-time catalog

In September 2018, the TGS team selected the Cognizant BigDecisions® data analytics platform running on the AWS public cloud to power its data-as-a-service (DaaS) data and insights offering. Cognizant BigDecisions® ingests the seismic data directly to the cloud, allowing a 75% improvement in the speed of meta data extraction. It also enables an end-to-end searchable repository of metadata for easy search and cataloging.

Moreover, customers can now access personalized geospatial mapping data that lets them pinpoint the insights they need, with delivery of data within five hours. Previously, this process took an average of five days. This helps customers greatly reduce the amount of time spent deciding where to drill, and eliminates the chance of coming up empty. With this solution, customers are able to preview data online, drill down and examine data from various perspectives before making a purchase decision.

“They can now see the data they want to purchase and have it immediately delivered. They don’t have to wait for data. It is immediately available to the business,” says Namasivayam.

TGS had worked with Cognizant for several years in other areas of the business, so Namasivayam was confident in our expertise in cloud solutions and data modernization, as well as our experience in the energy industry. He saw the Cognizant BigDecisions® platform as an advantage for data

- Created an online insights platform from which customers can serve themselves the data they seek
- Boosted speed of information delivery to customers, from five days to five hours
- Migrated roughly 1.5 petabytes (PB) of data, 4.5 billion data records and more than 11,000 complex files to the public cloud via Amazon Web Services (AWS), greatly increasing agility
- Faster access to mapping data

modernization over other offerings. “We used Cognizant BigDecisions® for a proof-of-concept, and it out-performed the competition,” he says. “We use this in onboarding, processing and curating our data, as well as making it easily searchable for our clients.”

The team began by migrating 200TB of tape-based data to the cloud. TGS implemented an AWS-based data lake solution to process petabyte-scale sub-surface data and enable searching of specific data points. This solution leverages various AWS services such as S3 for data management and storage. AWS EMR and Lambda were used for data processing, and auto-scaling functionality was used to scale-up the clusters to meet TGS’s growing compute demand. The solution also made use of Elasticsearch to enable search capability.

Thanks to Cognizant BigDecisions®, TGS’s data lake was rolled out efficiently and with strong governance. The system went live with 1.5 petabytes (PB) of data, 4.5 billion data records and more than 11,000 complex files. It has ingested 2.6PB of data so far.

This data modernization project has helped elevate TGS from being a data provider to a source of real sub-surface insights that customers are using to inform their own innovations.

As Namasivayam well understands, helping your customers succeed is a sure way to grow your

business. “Now that the data is curated, standardized and organized, our clients can easily check the meta data and consume just the data they are interested in,” he says. “This also helps data science teams both internal to TGS as well our clients’ to consume this data and focus on AI/ML solutions instead of conditioning and standardizing

the data.” TGS is adding more data types to its data lake for clients to consume. Now that its customers can easily serve themselves the insights they need to make the right drilling choices, TGS projects it will grow revenue significantly over the next three years.

About TGS

TGS provides global subsurface data products and services to the energy industry through investments in multi-client data projects in frontier, emerging and mature markets worldwide. Our extensive onshore and offshore libraries include seismic data, magnetic and gravity data, multibeam and coring data, digital well logs and production data from deep water offshore to conventional and unconventional onshore plays worldwide. Additionally, we offer advanced processing and imaging services, interpretation products and data integration solutions.

Their website is: <https://www.tgs.com>.

About Cognizant

Cognizant (Nasdaq-100: CTSI) is one of the world's leading professional services companies, transforming clients' business, operating and technology models for the digital era. Our unique industry-based, consultative approach helps clients envision, build and run more innovative and efficient businesses. Headquartered in the U.S., Cognizant is ranked 194 on the Fortune 500 and is consistently listed among the most admired companies in the world. Learn how Cognizant helps clients lead with digital at www.cognizant.com or follow us [@Cognizant](https://twitter.com/Cognizant).

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