SEAGATE | **TERRADEPTH**

Case Study

Terradepth Picks Lyve Mobile for Offloading Oceanic Data

Moving data from autonomous underwater vehicles to end users—quickly and easily.

For a company providing organizations around the world with online ocean-based data generated by autonomous submersible vehicles, offloading that data quickly and securely is a big priority. Lyve™ Mobile by Seagate® is the ruggedized, high-capacity, easily integrated solution, enabling Terradepth to foster "an expansive, in-depth understanding of the sub-sea environment."

- **High Capacity** – when miles from shore/submerged

- **Performance** – helps AxVs return to work

- **Smart Mobility** – simple plug-in/removal/carry

- **Simple, Safe, Secure** – encrypted and rugged

LYVE™ Mobile

Supporting Ocean Data as a Service

Terradepth (www.terradepth.com), headquartered in Austin, TX, was founded in 2018 with the aim to provide ocean data as a service, or ODaaS (which the company has trademarked). The company saw the need to provide customers the ability to collect ocean data, as well as make it more available for analysis via collaborative, cloud-backed, browser-based tools.


Their Goal

The Data Must Flow

Terradepth's aim is to make the data journey from autonomous underwater vehicles (AUVs) to end users for review and action quick and easy.
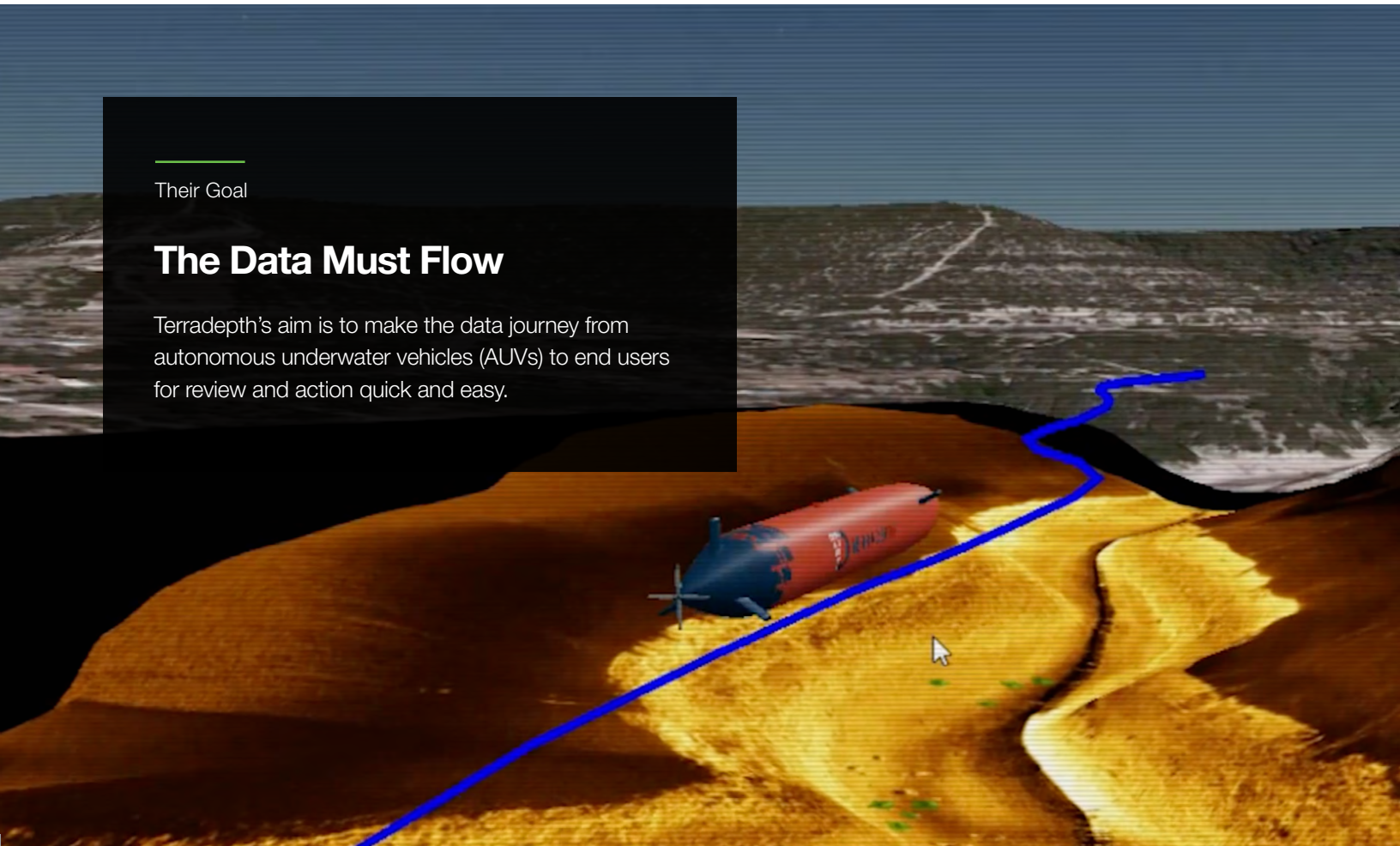
Wanted: Smooth Data Stream in Rough Waters

Terradepth's submersibles operate in some of the most inhospitable spots on the planet, frequently in the most remote ocean depths. When developing their operations, they knew they'd be challenged to provide reliable data transfer from their AUVs to customers. Often, traditional networking from their survey locations isn't an option, thereby requiring a steadfast solution in severe environments.
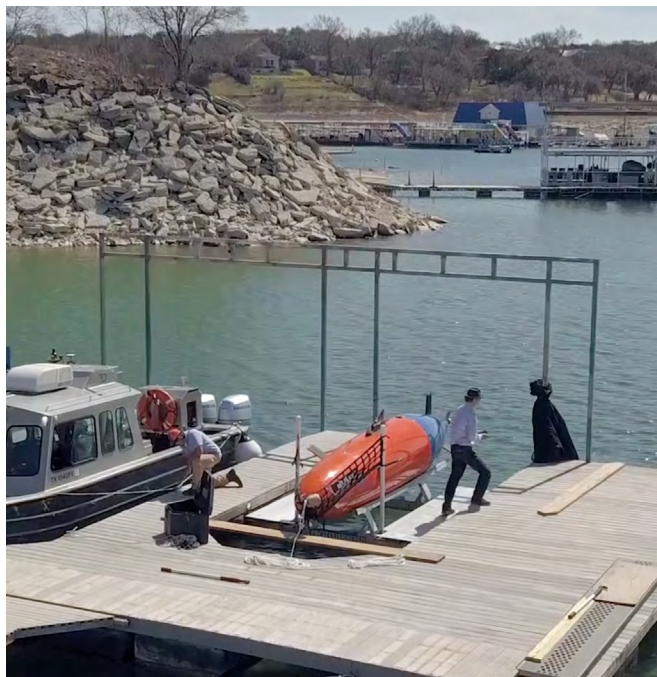
Data Transfer in Depth

Terradepth provides customers a variety of data sets including those for bathymetry (the measurement of depth of water in oceans, seas, or lakes) and hydrography (the science of surveying and charting bodies of water, such as seas, lakes, and rivers), which help toward endeavors such as geospatial mapping. The company utilizes a cloud-backed, browser-based, geospatial data platform called Absolute Ocean to provide storage, search, visualization, and analysis of collected ocean data. Among the industries served are the renewable energy market, offshore telecommunications and government concerns, and many organizations involved in ocean-based research and development. The company's goal is to become the ocean data repository for organizations to add and/or remove data, market their data, and launch new products involving different types of ocean-based data for their own customers.

Currently, most ocean geospatial data is saved locally and not utilized through the cloud, according to Terradepth Chief Revenue Officer Ken Childress. In addition, the data is typically processed, viewed, shared, and generally used within organizations' workflows via desktop-based software rather than through internet access. Childress notes that Terradepth is trying to move the experience of collecting, sharing, and cataloging ocean data from something like using an older, legacy, static mapping website to something akin to today's modern, dynamic, interactive online map applications. According to Childress, only between 10 and 15 percent of the ocean floor is adequately mapped to modern standards, so both modernization and expansion are focus points for the company.

To create their intended "ocean data exchange," Terradepth realized early on that they would require a

reliable, sturdy, modern method of data transfer in the field (at the edge). The data collection process typically involves using AxVs (so called due to their autonomous surface and subsurface capabilities), moving between semi-submerged and "at depth" operation modes. The AxVs are deployed either from shore, via aerial platform, or from a surface vessel, and the missions are controlled from Terradepth's operations center in Austin. When topside, the AxV handles data collection at the sea surface, communications, and navigation assistance, and when submerged, the vehicle conducts its surveying mission.

Terradepth began working with Seagate early on during its business development. They required a data transfer solution that was ruggedized for extreme environments, could easily connect to their AxVs, handle the high amount of data that their missions produce, and would easily connect back into a data center rack for ingestion and immediate use within their Absolute Ocean platform. Seagate was able to deliver with the Lyve Mobile Array; a data transfer as a service solution for Terradepth's ocean data as a service. Accumulated data from the AxVs is retrieved at the end of a mission via cable connection by operators on land or on surface vessels and saved to 96-terabyte Lyve Mobile Arrays. The edge-collected data is then transferred in bulk, using a SAS high-speed interface, into a Rackmount Receiver to Terradepth's on-premises cloud access point, where it is then automatically processed and made viewable. Terradepth appreciates the subscription-based model of Lyve Mobile, which lets them benefit from the high capacity, performance, smart mobility, simplicity, and security of

the solution through easy monthly or annual payments, as they choose, rather than as one large capital expense.

Terradepth is harnessing the many benefits of implementing Lyve Mobile, especially its high capacity and ease of use in the field (or, more aptly, out at sea). The company continually refines its services and appreciates their working relationship with Seagate to evolve its own offerings to its customers.

"That type of mobility," Childress commented, "it's just practical for us, considering the volumes of data involved. Being aligned with a company like Seagate and its experience makes it even more attractive."

By 2024, Terradepth aims for its AxV missions to implement a tandem vehicle deployment method, where one vehicle is topside while the other is submersed, with both providing data to operators and subsequently through Lyve Mobile to cloud upload. Long-term plans could involve possible integration of Lyve Mobile hardware into the AxV chassis itself.

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"For us, the faster we can get the data into our cloud environment as a service provider," Childress said, "the faster we can deliver it visually and collaboratively."

High Data Volume in the High Seas

"We were introduced to Lyve Mobile early, with an initial need for high-volume data collection," explains Childress. "We have vehicles that will collect dozens of gigabytes of data in a very short period, with certain sensor suites that could collect many terabytes of data in just a few days. We now have a system, with Lyve Mobile, that operates out in the open ocean for extended lengths of time and offers high-volume capabilities."

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"To get data off the platform and into a usable network as quickly as possible, leveraging high-capacity, easily mobile systems like Lyve Mobile—that's a pitch we can make, and have made, to our customers."

KEN CHILDRESS, CHIEF REVENUE OFFICER, TERRADEPTH

Products Used

LYVE MOBILE ARRAY

Lyve Mobile Array transfers mass data sets quickly and securely.

LYVE MOBILE RACKMOUNT RECEIVER

Lyve Mobile Rackmount Receiver provides a data center storage system with redundant power and high-speed interfaces.

Ready to Learn More?

Our storage specialists are here to help you find the right solution for your data challenges. **Talk to an expert**.

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