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Drilling Deep with SAP HANA

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Pacific Drilling Opens Pipeline to Business Insight

by **Ken Murphy**, Senior Writer

Ultra-deepwater drilling can be a lucrative business, as contractual day rates for drillships start at nearly \$500,000 and run more for vessels capable of drilling up to 12,000 feet to the ocean floor — such as the modern four-vessel fleet operated by Pacific Drilling. Little is left to chance since something as simple as a delayed part delivery could halt operations and compromise the day rate until it is safe for the work to resume.

For a growing industry player like Pacific Drilling, which is focused solely on ultra-deepwater drilling — roughly defined as depths exceeding 7,500 feet, about the start of what's known as the “Lower Midnight Zone” of the world's oceans — having a window into all aspects of its complex business is paramount. The company's fleet currently consists of one drillship in the US Gulf of Mexico, one off the coast of Brazil, and two off the coast of Nigeria, with another four drillships under construction.

While maximum efficiency is crucial in the day-to-day running of a drillship, with contracts stipulating 24/7 operations, it is equally important in every business process that supports construction and operation, such as supply chain and warehouse management, procurement, maintenance, and of course, financials and human capital management.

“Because we operate in such remote locations, it takes a minimum of four months for a spare part to reach the vessel off the coast of Nigeria, for example, from the time the part is ordered, manufactured, shipped, cleared through customs, and shipped to the vessel,” says Yoram Borodaty, IT Manager of Enterprise Applications for Pacific Drilling. “Running maintenance and logistics effectively to ensure personnel and environmental safety is at the very core of our business.”

With roughly 1,200 employees — expected to grow to 1,500 in 2014 — Pacific Drilling requires more actionable

insight into the interweaving complexities of its expanding business than it did when it initiated construction of its first drillship in 2008 with just 12 employees. While the company went live with SAP Business Suite at that time, still-maturing processes put reporting and analytics on the back burner. Reporting was limited to pulling data from its relational database and preparing reports using spreadsheets.

Rapid business growth, however, made this process untenable for the long term. Pacific Drilling delivered its first vessel in 2010 and by the end of 2012, it had signed six drilling contracts, ordered construction of three additional rigs, and delivered another three vessels. The company's SAP landscape was also growing. After going live with SAP ERP in 2009, the company added several other applications and solutions to its landscape, including SAP functionality for warehouse management, plant maintenance, human capital management, payroll, business planning and consolidation, and governance, risk, and compliance.

“With mature processes, it then became time to measure our efficiency and performance,” Borodaty says. “We have reached a point where understanding our processes better and how to optimize them will make a difference — not just procuring the widgets, but measuring our performance around how we do that. That was our business case for having a consolidated analytics platform.”

Breaking the Surface

In 2012, Pacific Drilling began exploring options for building this analytics platform, and shortly, settled on utilizing SAP HANA as a data foundation within its SAP ERP environment. The intention was for SAP HANA to act as a sidecar accelerator for the core SAP ERP applications with a specific focus on the functionality for financials, controlling, and profitability analysis. In addition to

At a Glance

Goal: A consolidated, analytics platform for real-time insights into 24/7 worldwide operations

Strategy: Upgraded to SAP Business Suite powered by SAP HANA, to be followed by SAP HANA Live and SAP BusinessObjects BI 4.1 implementations

Outcome: Real-time insight into operations supporting management of four ultra-deepwater drillships, reduction of time to value for analytics and dashboard development, and simplification of the IT landscape



Company Snapshot

Pacific Drilling

Headquarters: Houston, Texas

Industry: Oil and gas

Employees: 1,200

Company details:

- Its drilling vessels can drill in water depths up to 12,000 feet and drill to depths of up to 40,000 feet below the sea floor
- Along with Chevron, Pacific Drilling is developing and pioneering dual-gradient drilling technology, which helps overcome ultra-deepwater drilling challenges
- One of its drillships, Pacific Bora, recently reached a two-year mark without a lost-time incident (LTI); two other drillships, Pacific Scirocco and Pacific Mistral, reached the one-year mark

SAP solutions:

- SAP Business Suite powered by SAP HANA
- SAP ERP 6.0
- SAP HANA Live
- SAP BusinessObjects BI solutions
- SAP Business Planning and Consolidation
- SAP NetWeaver Portal
- SAP NetWeaver BW

providing more insight into the business processes this functionality supports, Pacific Drilling thought SAP HANA could provide the power to analyze data from multiple sources on the same database platform, and analyze data in virtual real time through in-memory processing capabilities, without any significant lag between sourcing the SAP ERP data and delivering meaningful data to end users. Also key in this decision was the fact that data cubes were no longer needed; not being pre-constrained opened endless possibilities while reducing the time to value for reports and dashboards.

Pacific Drilling had settled on this SAP HANA use case and acquired the necessary approvals and licenses. When SAP announced the availability of SAP Business Suite powered by SAP HANA earlier this year, the company took a longer look at its own landscape, again factoring in ambitious growth plans. It decided that this model, which can simplify the landscape and eliminate information transfer for SAP ERP data, would provide an even more comprehensive analytical foundation than running SAP HANA as an accelerator only for specific applications within SAP ERP.

“Just the fact that we could merge our business intelligence (BI) analytics and transactional database all on the same SAP HANA platform was an attractive option,” Borodaty says. “We did an evaluation and decided that running our SAP Business Suite on SAP HANA is in line with our company philosophy of doing things differently. We don’t do something just because that’s how others did it in the past. We are always looking at a better way of doing it.”

“Rubble Zones”

By altering the SAP HANA strategy midstream, Pacific Drilling set an aggressive timeline to achieve one of its primary objectives, which was going live with SAP BusinessObjects BI solutions in 2013. One goal for the year was an upgrade to enhancement pack 6 for SAP ERP 6.0 and a hardware replacement. With the SAP Business Suite on SAP HANA project green-lighted at the end of March 2013, the company set out on a ramp-up timeline that included a proof of concept in place by May 2013, and a projected go-live of July 2013.

The applications team turned project organization, testing, and remediation over to long-standing systems integrator Deloitte to meet its bold timeline and stay on budget for the complex project, which included an upgrade from enhancement pack 3 to enhancement pack 6, a move of SAP ERP and SAP NetWeaver Portal to a virtual environment, and of course, the migration to the SAP HANA platform. The team relied on other long-standing partners to embark on the journey: Capgemini for Basis and hosting support, HP for hardware, and SAP services for technical expertise and coaching. “Every party involved gave its absolute best and played its part in harmony to make this challenging project a success,” Borodaty says.

With a conventional upgrade combined with a move to a new integrated data platform that would support multiple applications, on new and unfamiliar technology, no less, Pacific Drilling’s relatively small IT organization relied heavily on Deloitte’s experience with migration projects. (For more information about Deloitte’s integral role in the project, see the sidebar at the end of the article.)

Pacific Drilling's previous database landscape consisted of production, quality assurance, development, sandbox, and disaster recovery environments. An interesting benefit of SAP HANA, according to Borodaty, is a single appliance can support multiple environments, each having multiple databases. Post migration to the SAP HANA platform, only two appliances are needed to cover the production and non-production systems. With the migration, one concern was higher recovery point objective (RPO) and recovery time objective (RTO) levels, an important consideration for a company running one SAP ERP instance to support 24/7 operations. However, an SAP-certified asynchronous replication solution can help eliminate disaster recovery exposure.

Last but not least, Borodaty says, "It took us awhile to fully understand memory requirements and how SAP HANA utilizes memory. After we started the project, we realized that we'd need additional memory for production. That was our final hurdle prior to go-live."

Deepwater Breakthrough

Pacific Drilling went live with SAP Business Suite powered by SAP HANA in July 2013, less than four months after its decision to implement. To drive full value from the project, the next step is an immediate implementation of the SAP BusinessObjects BI platform and of SAP HANA Live as a ramp-up customer.

While moving to the SAP HANA platform for its mission-critical business processes helped streamline the IT landscape, the objective in implementing SAP BusinessObjects BI 4.1 is to give advanced reporting capabilities and help with decision making throughout the organization.

As Borodaty explains, "A manager of a vessel wants to have accurate up-to-date, relevant information on costs, revenue, operational performance, equipment reliability, and anything else that's related to running the vessel more efficiently. And that level of insight is going to filter top to bottom in the organization, opening up new possibilities in real-time analysis for finance, of course, but also procurement and supply chain, maintenance, and human resources, empowering anyone touching SAP software."

Overall, by powering its SAP Business Suite on SAP HANA, Pacific Drilling overcame obstacles similar to those encountered by its drillships "down-hole." But instead of high-pressure gas pockets, depleted sands, and rubble zones stopping a drill in its tracks, the company's obstacles were created by having to muddle through various reports, queries, and spreadsheets to achieve visibility into operations.

Similar to finally reaching the ocean floor, Pacific Drilling now has a path to retrieving the deposits of actionable intelligence it was aiming for.

"IT organizations in a drilling company operate in very challenging conditions," Borodaty explains. "Even though our users are literally in the middle of the ocean, they connect to SAP systems through satellite links. Our information system is still real time and consolidated. Everyone looks at the exact same data, 24/7. We made this work. We wanted this to be true for us with analytics as well — everything connected, real time, fully exposed, for one version of the truth. This is our vision, and we believe it will give us a competitive edge." ■

Deloitte Helps Pacific Drilling Go Deeper with an SAP HANA Platform Upgrade to Enable Real-Time Advanced Analytics

Deloitte is widely recognized as a leader in practical applications of SAP HANA's in-memory computing technology. From business case development to system design, migration, testing, and development, Deloitte practitioners are known for bringing a combination of their hands-on experience and strategic insight to their engagements.

When Houston-based Pacific Drilling sought migrating to SAP HANA to help position it for future growth and a greater competitive edge, it turned to Deloitte. Deloitte was already providing application management and support services to the ultra-deepwater drilling company, which implemented the SAP ERP 6.0 platform several years before. Deloitte assisted Pacific Drilling, an SAP ramp-up customer, with the SAP HANA migration, along with program management responsibilities. Deloitte first used the enhancement pack 6 toolkit to complete and validate the upgrade to enhancement pack 6 — the minimum requirement for the SAP HANA platform. Deloitte then assisted with the data migration to the new SAP HANA appliance, including system validation and testing to confirm it was working appropriately. Pacific Drilling went live with the SAP HANA and SAP ERP project on July 29, 2013.

Deloitte helped manage the day-to-day activities to keep the entire project on budget and in line with the tight, aggressive deadlines. This meant daily calls to coordinate all team members, who were located across the country. This also meant staying on top of software releases and patches and other issues, since the environment was being built and tested quickly.

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