Marathon Oil

Explores **SAP HANA** to Enhance Performance of Financial Reporting Systems

by **Ken Murphy**, Senior Writer

In transitioning from a fully integrated oil company with downstream operations to an independent international exploration and production (E&P) company two years ago, Marathon Oil Corporation's financial reporting technology systems underwent significant changes. In broad terms, since becoming an independent E&P company, Marathon Oil has continued its strong focus on financial analysis and cash flow management, but has also enabled more granular detail in its financial reporting systems.

At a Glance

Goal: Enhance financial reporting capabilities in line with a transition to an independent upstream oil and gas company

Strategy: Implemented SAP NetWeaver Business Warehouse 7.3 powered by SAP HANA

Outcome: A standardized ad hoc reporting environment, timely and responsive reporting capabilities, and the ability to run batch loads four times a day instead of overnight

Even before spinning off the downstream component of its operations, which Marathon Oil announced in January 2011 and completed in six months, the company had started to explore modernizing its IT landscape to keep up with the growth of its E&P business — this side of the business collects massive amounts of financial data as an infrastructure-heavy oil and gas producer. The motivation to update IT systems was that the landscape, which included one instance of SAP ERP to run financials for the worldwide operations, had significant customized logic in its third-party extract, transform, and load (ETL) tool and an intermediary warehouse that sat between SAP ERP and SAP NetWeaver Business Warehouse (SAP NetWeaver BW) 7.0. The lack of standardized master data was a major driver for much of the customized logic.

With the 2011 spinoff, Marathon Oil wanted to ensure that a reconfigured IT landscape could scale with the company's expected growth and allow for a highly responsive enterprise data warehouse platform. Marathon Oil's legacy system consisted of an Oracle database collecting SAP ERP financial data and then repositioning the data into SAP NetWeaver BW with an ETL tool. While slow overnight batch loads as well as online queries were an accepted norm, changing a query was a lengthy process, with logic in multiple places acting as roadblocks that can delay reactions to business changes.

"Our picture was quite convoluted, and the long, complex process didn't allow us to be as responsive to the business as we would have liked," says Marty Henderson, Marathon Oil's SAP Business Intelligence Projects Lead. "To address performance issues, we created a lot of very specific reports to meet various needs across the enterprise — and with all that complexity and logic added over time, it was time consuming to reconcile everything back to SAP ERP."

While spinning off its downstream business was a major rationale for an upgrade, it wasn't Marathon Oil's only consideration. There was a strong business case for standardization. "In addition to spending time reconciling data across the company, we also had people who needed to reconcile information from internal management reports to external reports," says Dusty Wilkerson, Financial Analyst at Marathon Oil. "These employees were the ones feeling the pain of trying to analyze assets in one part of the company compared with another. With the spin-off of the downstream business, we knew we needed to better align our financials with our new independent E&P peer companies, and we also had an opportunity to realize efficiencies in our reporting and analysis."

Exploration

Marathon Oil identified enhanced financial reporting as the core deliverable for a much larger system upgrade, which included SAP ERP and SAP NetWeaver BW 7.3 upgrades and implementations of SAP BusinessObjects 4.0 reporting suite as well as SAP Business Planning and Consolidation, version for SAP NetWeaver, and SAP Spend Performance Management. Marathon Oil chose SAP HANA as an in-memory database to replace its Oracle database and the appliance to boost performance of its SAP NetWeaver BW environment. According to Henderson, the company chose SAP HANA primarily because it offered the clearest path toward mitigating inadequate performance of its existing IT environment.

"The business case I took to the project board addressed performance as a critical part of the project's success," Henderson says. "It doesn't matter how good a report is — if it takes minutes to come back, it's not going to be viewed favorably by our clients."

The initiative, which was dubbed the Mustang project, started in October 2011. The reporting team focused on cleaning up and archiving data from its existing database prior to migrating to the SAP HANA platform to ensure that any issues that cropped up in the ensuing upgrade were relevant.

Henderson attributes an embedded cutover team — a component that Marathon Oil's systems integrator Deloitte Consulting employs as a standard practice — with helping to ensure a seamless move to production. "This team was critical to our success because no item was too small," Henderson says. "There was a lot of rigor around making sure all of the steps were covered, and they kept fine-tuning the process." (For more information about Deloitte's integral role in the project, refer to the sidebar at the end of the article.)

Unearthing Impediments

For Marathon Oil, a key challenge presented itself during project development shortly after implementing the first

Company Snapshot

Marathon Oil Corporation

Headquarters: Houston, Texas
Industry: Oil and gas
Revenue: $15.7 billion (2012)
Net income: $1.6 billion (2012)
Employees: 3,400
Company details:
- An international energy company
- Had net proved reserves of 2 billion barrels of oil equivalent in North America, Europe, and Africa at the end of 2012
- Public company (NYSE: MRO)
- www.marathonoil.com

SAP solutions:
- SAP HANA
- SAP NetWeaver BW 7.3 powered by SAP HANA
- SAP ERP 6.0 (EHP 5)
- SAP BusinessObjects solutions
- SAP Business Planning and Consolidation
- SAP Spend Performance Management

SAP HANA instance: the company was faced with several version and support pack upgrades for both SAP NetWeaver BW and SAP HANA. This changing baseline meant that Marathon Oil had to continually revalidate and re-transport its environment — with roughly 1,200 re-transports during development. Of course, this also entailed additional testing. "While it's not an ideal way to run a project, we did end up becoming comfortable with it and were able to manage it," Henderson says. "We did so many business warehouse validations, we joked we were the BW validation team. We went through an upgrade/migration validation many, many times."

In addition to the version upgrades, Marathon Oil also had to adapt to new hardware to support its SAP HANA platform. To mitigate risks associated with leading-edge hardware, Marathon Oil re-evaluated its architectural design for SAP HANA and opted to set up some contingencies, moving from a single node to a four-node scale out with a high availability node in the production and quality assurance environments.

While this slight delay threatened to prolong the project timeline, Marathon Oil met its scheduled go-live date. Before it processed a single transaction, the company realized that, just by nature of its new configuration, the new system environment would deliver results.

With the in-memory processing power of SAP HANA, Marathon Oil's financial transactions now take a far more streamlined path than in the previous landscape, where the ETL processes without standard SAP extractors in the relational database created a holding pattern before moving the data into the SAP warehouse. With SAP HANA powering SAP NetWeaver BW, that entire "middle man" process is now eliminated, and Marathon Oil can report straight off of the data warehouse with transactions loaded directly from its SAP ERP instance.

Rise to the Surface

With standardized reporting across all organizational assets, both the business and IT welcomed the reprieve from managing various internal financial reports. The use of standard SAP master data made reconciliations far easier for business users, while the IT organization no longer had to be consulted to sort through a series of various logics to answer a question concerning the mechanics of the report.

"It gets back to reacting to changes for the entire organization," Wilkerson says. "We knew we had to provide a standard platform not only from a business analysis standpoint, but also from a technical standpoint so that we could address changes in a fast-moving environment. Until we put that platform in place, we would continue building internal reports requiring a lot of inefficient reconciliation efforts."

While improved speed is also a big benefit of the project — according to Henderson, some reports that had taken minutes to return are now delivered in a few seconds — it's not easily quantifiable for Marathon Oil because its entire reporting structure is so different. In addition, the business now has finer granularity of financial data in SAP NetWeaver BW. The more immediate and measurable benefit has been the standardized real-time

reporting lessening the support needed to run several reports for specific queries. Also, previous nightly batch loads are now done four times a day, with hourly loads of financial data during critical times.

"By empowering people in an ad hoc environment to get the information themselves, we changed the game," Wilkerson says. "We realized that everyone's needs would be different and would continuously change. People have more information at their fingertips now and can do new things they could never do before, but it will take a while until we can accurately measure performance improvements with the new tools."

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*— **Dusty Wilkerson**, Financial Analyst, Marathon Oil*

Platform for Growth

To help make sure both IT and the business maintain this new level of standardization, with SAP master data recognized as the single source of truth, Marathon Oil created a Reporting and Governance Center of Excellence to oversee the new reporting structure. The group also oversees extensive training opportunities for front-end users, including course instruction that focuses on real-world E&P financial analysis case studies.

That training, Wilkerson says, is ongoing. "A goal of the project was efficiency in financial analysis, and we will get there, but we're still in a learning curve and will always be in that curve in a sense," he says. "When you go live and day-to-day activities begin to change, there are often acceptance issues and areas where efficiencies can still be gained. Having just gone live this year, as we start building on the platform, we'll begin to see more and more benefits."

With the Mustang project a success, one of Marathon Oil's considerations is whether to put SAP Business Suite on SAP HANA to address operational reporting outside of financials. While merely a possibility at this point, there is consideration for pulling all core financial data into the SAP NetWeaver BW environment. From a technical standpoint, deciding factors include implementing SAP Landscape Transformation to update BW data in real time, as well as looking at improving its plant maintenance system for enhanced analytics around equipment performance.

Regardless of future plans, with SAP HANA providing Marathon Oil a centralized in-memory database platform and conduit between its SAP ERP and reporting landscapes, the business has the architecture in place to invest in and explore other IT projects that not too long ago might have seemed far-fetched. Like an oil well about to be drilled, Marathon Oil is poised to capture the full value of SAP HANA. ∎