



Anadarko Produces Operating Cost Advantages

Fast implementation of real-time analytics, answers on the fly

“We see live data coming in, and we have plug and play analytics models to process the live data and generate results. Without having to make a phone call, the drillers get the message, ‘Please act in this manner.’ Users can interact with the data and send it back for StreamBase to redo calculations on the fly. That’s out-of-the-box in StreamBase. We believe this is going to give us an advantage, and profit for our shareholders.”

—Data Scientist Dingzhou Cao

CHALLENGE

Anadarko wants to increase value to its stockholders, and the plan was to do that by lowering operating cost and improving technology. Its Advanced Analytics and Emerging Technology organization was created to achieve those objectives.

In drilling, there are 86,000 rows of data a day from a single rig, and if there are 12 to 20 rigs, the rows of data multiply to millions very quickly. “We wanted answers and context, not just numbers,” said Data Scientist Dingzhou Cao. With analytics, everyone could look at data in the same way, whether they were a driller, consultant, or engineer.

SOLUTION

Engineers, data scientists, and data engineers across the company use TIBCO Spotfire® analytics to connect to databases, pull up data, interact with it, and create their own visualizations. “Anadarko has been a Spotfire® analytics client longer than I know; we widely adopted it for all our operations. It made sense to talk to TIBCO when we decided to find an event flow processor for real-time data,” said Cao.

Coding is not required to build a real-time system using TIBCO StreamBase® streaming analytics. StreamBase® provides the flow-diagram type user interface (visual development environment) that is easy for an engineer or a data scientist to use, and TIBCO’s analytic engines are available inside this platform. Users can process the data or write models using R or Python. Further, it’s agnostic. It has all the connectors, so Anadarko can access any kind of data—CSV, SQL server, Oracle, Hadoop, WDSL, Osi Pi, WITSML, WITSO, and others. “We worked with TIBCO engineers for a few months and quickly had a prototype,” said Cao.

DETAIL

3 VS. 10-12

Months to develop a real-time system with StreamBase vs. open source

ANADARKO

An independent oil and natural gas exploration and production company, Anadarko Petroleum Corporation, explores for oil and gas in Africa, the Gulf of Mexico, South America, and onshore in the United States.

FAST FACTS

Headquarters: Woodlands, TX
Employees: 4,500+
Reserves: 1.7 billion barrels

BENEFITS

FAST IMPLEMENTATION OF REAL-TIME STREAM ANALYTICS

“With a drilling engineer, a data scientist, and two TIBCO developers, we accomplished in three months what could have taken a lot longer; and the lean implementation saved us a lot of fees for outside expertise and IT support,” Cao said. “With open source, it would have taken at least 10 to 12 months to build a similar system. From the perspective of a data scientist, I really like the Spotfire tool for visualizing big data, and I use StreamBase for building real-time systems.”

He points out that the open source community has more than 20 tools, but you need to configure each one and bring them together to make them flow, which can be a timely process. In addition, integration of many tools is not optimum. “With StreamBase, everything is in one platform. It gives me more time to do data science instead of data engineering/software development, so turnaround is very quick.”

REAL-TIME DRILLING ANALYTICS SYSTEM

Anadarko wanted an open streaming analytics system to enable changes of the drilling data source and connections to another data source, resulting in a different real-time system. The current WITSML adapter has 15 to 20 seconds latency; TIBCO's WITSO adapter reduces latency to one to two seconds. There are several analytics modules in the real time drilling system. For example, the Sliding Drilling Guidance module provides instructions on how to follow the planned well path; the Well Bore Trajectory Control module provides guidance for correcting a deviation from the planned well path.

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FUTURE

“We believe this is going to give us an advantage, and profit for our shareholders,” said Cao.



Global Headquarters
3307 Hillview Avenue
Palo Alto, CA 94304
+1 650-846-1000 TEL
+1 800-420-8450
+1 650-846-1005 FAX
www.tibco.com

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