Oil Information Technology Journal

Volume 18 Number 12 | 197th issue | December 2013

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Tullow's master data

Boro Solutions applies military-strength semantics in 'Clean' and 'Pure' approach to complex oil country data landscape. Industrial ontology leverages Department of defense framework.

For oil and gas focused attendees, the highlight of the IRM UK Enterprise data and business intelligence conference held last month in London was the presentation on a 'robust common master data foundation for oil and gas' made by Tullow Oil's Mesbah Khan and Chris Partridge of Boro* Solutions. The upstream presents a complex landscape of vendors, contracts and assets. Each contractor has a different system and interoperability is a problem. Tullow's approach has been to focus on consistent terminology and clean data across drilling, development, operations, finance and legal.

The Boro methodology is a 'Clean' and 'Pure' data architecture developed for the oil and gas vertical. 'Clean' describes the overall process of data consolidation, loading, enrichment, assimilation and 'novation.' Further deconstruction of the awkward acronym reveals a sequence of data cleansing and repackaging into a single 'Pure' model *sans* duplication—the holy grail of a single source of the truth.

'Pure' in turn breaks out as a 'precise, unambiguous, re-usable and extensible' view of the data world that seeks to build bridges between islands of transactional data. This is achieved using a semantic layer and a foundational ontology. The latter builds on Matthew West's work for Shell on extensional 4D (time based) data modeling such that, for instance, petroleum agreements can be modeled as objects that vary in time and spatial extent.

Further ontologies describe complex relationships between joint venture partners, social entity, business units and group legal structures.

After his talk we quizzed Partridge on how Boro integrates the standards space. He pointed us to a presentation (0101) showing the evolution of Boro's industrial ontology from roots in ISO 15926 Part 2, 'Ideas,' the International defense enterprise architecture specification (0102) and the US 'DoDaf' Department of defense architectural framework (0103).

Ontological modeling is not for the fainthearted. Prior work for Shell on the Boro website has it that, 'ontological understanding needs to be separated from epistemological and implementational gloss' and that 'collaboration between conceptual information systems modelers and those involved in philosophical ontology is potentially fruitful.'

Tullow's ontology derives more prosaically from IBM Maximo. Other industry data models (Witsml, PPDM, Norsok) appear to have been found wanting. The Tullow development was a four person-year project. The IRM-UK presentation was made with Prezi (0104), a snazzy alternative to boring old PowerPoint. Visit IRM-UK on 0105 and Boro on links/1312_0106.

** Boro—Business object reference ontologies.*

ZetaAnalytics

Hadoop-based platform offers real-time analytics of Witsml data. Drilling and completion engineering 'smarts' embedded in data warehouse environment.

Halliburton has rebranded its recently-acquired UReason solution environment (USE) for real-time analytics as Zeta-Analytics. Zeta is a 'big data' platform architected for drilling and completions. Zeta captures Witsml feeds to a data warehouse (qualified solutions include Teradata, EMC Greenplum and IBM/Netezza). The toolset acts as a bridge to more static data in Landmark's engineering data model, EDM. An Apache Hadoop cluster is deployed for real time model scoring.

The Zeta philosophy is that much of the real-time data streaming from the digital oilfield is discarded after drilling even though it has the potential to improve future operations. The Hadoop-based framework provides a unified data model with embedded drilling knowledge. Models can be tuned to new drilling environments and deployed across multiple wells.

UReason's technology has previous oil and gas form, in process control and intelligent alarm management. The technology is claimed to provide operators with more time to react to 'incipient abnormal situations.' UReason underpins Invensys' WAM alarm management. More from Landmark on www.landmarksoftware.com.