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Mark Logic technology key to success of Army's Warrior Knowledge Base

The U.S. Army's Battle Command Knowledge System, a major subordinate organization of the Army Combined Arms Center at Fort Leavenworth, Kan., has implemented Mark Logic Corp.'s MarkLogic Server to support a mission-essential knowledge-management and information-sharing requirement.

By Josh Cable

The Army's Battle Command Knowledge System – the Warrior Knowledge Base – was designed to take advantage of the XQuery Data Model and was implemented using Mark Logic's technology and consulting services.

MarkLogic Server enables soldiers preparing for a mission to rapidly discover, access and use trusted and managed content, according to San Carlos, Calif.-based Mark Logic Corp. Soldiers can build virtual documents in minutes, pulling together the most relevant content from many search results, such as lessons learned, reports and articles written by experienced soldiers, civilians and contractors.

MarkLogic Server helps the experienced soldier share information with the inexperienced, according to Mark Logic Corp. Rapid knowledge transfer empowers war fighters to adapt to changing situations and apply new tactics faster than the enemy.

Warrior Knowledge Base provides faster, less structured information-sharing

The Army is highly regarded for its ability to collect and analyze the results of operations and training programs and then incorporate the lessons learned into doctrine and operating procedures, Mark Logic pointed out. Because the enemy adapts rapidly in a counterinsurgency environment, the Army needed a more rapid and

less structured way to share knowledge. Battle Command Knowledge System professional forums such as Logistics Net and Leader Net enable the rapid transfer of knowledge to support the Army's new counterinsurgency doctrine. After it is vetted and published, new knowledge then can be placed in an extensible markup language (XML)-based repository so it can be easily discovered, accessed and used by deploying and deployed war fighters.

To meet this need, the Battle Command Knowledge System developed the Warrior Knowledge Base repository, search utility and content management system powered by MarkLogic Server. Forum members can quickly discover content in the Warrior Knowledge Base and then link to it within a discussion area for further development of the discussion topic.

“Connecting our 90,000-plus members with relevant documents in the [Warrior Knowledge Base] repository within seconds, and then sharing that content with other forum members, is our goal,” said Mark Uhart, Warrior Knowledge Base integrator and knowledge management consultant. “The [Warrior Knowledge Base] shows promising capabilities that have already demonstrated great utility. For example, doctrinal content in Army field manuals published in English-Arabic (used in Iraq) or English-Pushto (used in Afghanistan) can be difficult to discover, access and understand using a traditional

database approach. The file sizes are also very large, which could make finding relevant content a time-consuming task on a low-bandwidth network. The metadata assigned to these types of documents, and the fact that content can be discovered and viewed page-by-page without having to download the file, allows discovery and use of only the relevant content. [The Battle Command Knowledge System] has the capability to store and manage content in 37 different languages.”

By applying metadata based on the Defense Department’s metadata specification, content is managed automatically by applying metadata properties such as the “valid-until” date. By applying a schema standard used by the Defense Department community, MarkLogic Server manages the work flow until the file is transferred to archives or deleted by the content manager, saving the Army time and resources.

“We knew we had to provide content discovery and access at the page level to be of any value to forward-deployed soldiers and the DOD/DA contractors and civilians who support them,” Uhart said. “They have neither the bandwidth nor the time to download a large file only to discover it’s not what they wanted. The application program interface developed by Mark Logic for the Army is unique in that it parses and indexes content at the page level, and applies discovery metadata based on the [Defense Department metadata specification] and a [Battle Command Knowledge System] customized schema.”

Meeting DOD Net-Centric Data Strategy requirements

Mark Logic also helped the Battle Command Knowledge System meet Department of Defense Net-Centric Data Strategy

requirements to make data “visible, accessible, understandable, trusted, interoperable, manageable and responsive to user needs via a service-oriented architecture,” Uhart added.

To overcome the lack of “data asset visibility” across Defense Department components, the department provided data-sharing implementation and technical guidance. Because XML-based discovery metadata is considered the most flexible means of sharing discovery metadata throughout the Department of Defense, the Battle Command Knowledge System adopted the XML standard. Mark Logic’s expertise in XML-based solutions allowed the Battle Command Knowledge System to accelerate its path to compliance with the Defense Department’s Net-Centric Data (sharing) Strategy.

“Mark Logic’s technology and software engineering expertise were important to the success of this project,” Uhart said. “We needed a solution that would maximize our use of XML and XQuery so soldiers, DA civilians and DOD contractors could find what they need and quickly apply it, and Mark Logic delivered. MarkLogic Server takes full advantage of XML, and the Mark Logic engineering team is there every step of the way, providing us with the experience and direction to make this a successful program. Thanks to Mark Logic, [Battle Command Knowledge System] is one of the first organizations to employ XML-based technology to achieve KM objectives in such an innovative way. Our next step is to integrate our knowledge base with that of others and move interoperability into the joint, interagency and multinational environment.”

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