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Apps Make Semantic Web a Reality
By Yvonne L. Lee

April 1, 2005 — SAN FRANCISCO — The Semantic Web has moved from a theoretical construct to its initial uses in building systems that ensure legal compliance, track terrorists, create smarter movie-search applications and integrate corporate IT, according to attendees at the Semantic Technology Conference held here in March.

The market for semantic technologies will grow at a compound annual growth rate of between 60 percent and 70 percent until 2010, when it will grow from its current size of US$2 billion to $63 billion, according to TopQuadrant, a consulting firm that specializes in Semantic Web technologies.

New tools are coming not with fancy names reflecting the World Wide Web Consortium's next great vision, but as an evolution of current Web services and database technology, said Eric Miller, the W3C's Semantic Web activity lead. The current Web is an extension of tools such as gopher and ftp that existed in the early 1990s, he asserted. These tools linked files together but did not reveal anything about the text inside the files. The current Web links documents and can be searched according to the text inside the files, but doesn't reveal context of the text, he said. The Semantic Web takes that next step.

Existing applications that will add Semantic Web capabilities include Adobe's Extensible Metadata Platform (XMP) and Oracle's database. XMP is an open-source package available now for tagging information. It adheres to the W3C's Resource Description Framework (RDF), which is one of the pillars of the Semantic Web. The other two are the Web Ontology Language (OWL) and XML.

RDF is a metadata model for describing objects and the relationships among them. OWL is a markup language for creating exhaustive descriptions— ontologies—of objects. The software development kit includes documentation, tools and sample code for creating applications that use this metadata for intelligent searches across various file types.

Oracle will include RDF support in Database10g Release 2 later this year, according to Miller.

Although a scant eight companies together with Stanford University's Knowledge Systems Lab presented at the expo portion of the show, several companies said their products were being used in government, financial and commercial applications.

Amit Sheth, chief technology officer at Semagix, said his company's Freedom software was being used by an unidentified bank to help comply with the U.S. government's Patriot Act, by a European police force to follow crime patterns, and by a telephone service provider to create an application that provides information about pay-per-view movies.

He also said Regulatory Data Corp., a group founded by 20 of the global banks, is using it to help minimize risks of money laundering, fraud and terrorist financing.
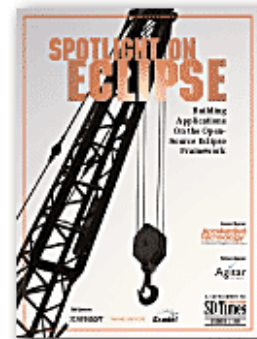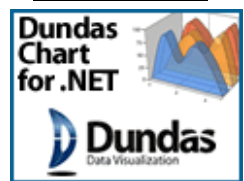
financing.

The Patriot Act requires banks to track and account for the customers with whom they do transactions. Sheth said his application could provide the contextual information that goes beyond business intelligence applications and standard search engines to show relationships among people and organizations.

"Typically, when you type something in Google, it doesn't know if it's a name of a person or something like that," he said.
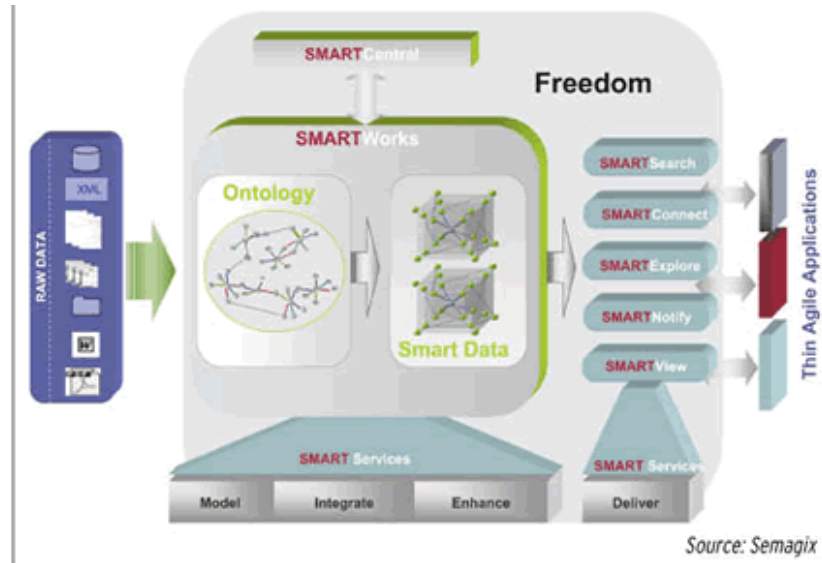
Semagix's Freedom includes a repository for data and ontologies, a processing engine and presentation services.

Freedom can tie together information from a variety of different formatted data sources to ferret out that a customer may have a relationship with someone associated with a terrorist organization, he said.

The software also could sift through what he called "dirty" data with acronyms, spelling errors, multiple formats or formats that are inappropriate for the field.

Another application financial organizations are using to sift through data is Unicorn's Unicorn System. "Enterprises have accumulated an incredible amount of mess," said Unicorn CEO Zvi Schreiber.

The system includes a repository linking various enterprise data sources and the ontologies, metadata scanners, mapping tools to visually map schema to ontology models, and modeling tools.

In addition to investment banks, the Metropolitan Life Insurance Company, the U.S. Department of Defense and the Tennessee Valley Authority have used Unicorn to integrate enterprise data, to comply with regulations such as Sarbanes-Oxley, the Patriot Act and Basel II, and to automate processes, Schreiber said.

"We're tying semantics back to real IT systems," he said. "By attaching business meaning to the IT systems, then [organizations are] able to comply better."

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