

Establishing a Semantic **Enterprise Architecture** Infrastructure in a Large Retail Bank using TopBraid Suite™

SOLUTION CONTEXT AND REQUIREMENTS:

Starting in the 1990s and continuing through the next decade, retail banks were notorious for their mergers. It is not uncommon for a single account to have passed through four different banks as a result of these mergers. The new conglomerate banks inherited a legacy of account types, data management applications, databases, and customer services. Retention of those customers often depended on being able to reliably manage this wide array of information sources.

LR Bank formed an **Enterprise Architecture (EA)** team to map out the information sources so that the bank could know where to look for particular information, and how information in one source was related to information in another. The resulting structure can be used for a wide variety of applications, ranging from simple policy management (which data sources have current information? Which ones are being phased out?) to information integrations (what are all the things I know about this business function?), to sophisticated analytics (what systems will be impacted if I change the technology that implements this information source?).

CHALLENGES:

- Previous Enterprise Architecture efforts had resulted in “Silos” of unconnected information about the enterprise. How could this information, represented in different forms of UML, XML, or even custom spreadsheets be harvested as input to an integrated Executable Enterprise Architecture?
- If changes are proposed to some information system, how can we quickly assess what impact may it have in the enterprise?
- Different business units refer to accounts in different (but identifiable) ways. How can we get a 360 degree picture of an account?
- Valuable enterprise architecture resources and integrated, mappable structures are being made available by organizations outside the bank, including TOGAF and FEA. How can we take advantage of these in our own EA work?

Semantic Web Technology Capabilities / Benefits

Enterprise Architecture has emerged from a pure IT discipline to an embedded business tool that can focus on business-centered capability management. To support the business needs of complex, distributed enterprises, Enterprise Architecture practice and enabling technology/tools are evolving from Reference-only (text, models) to Interoperable (standards based) to Executable (federated, model-based, semantic-enabled). Semantic web technology not only makes it easier to aggregate and analyze information, but also paves the road to active or executable enterprise architectures driven by its capabilities for expressing, querying and federating enterprise models and information. Commitment to the Semantic Web standards as the basis of the enterprise information infrastructure brings the following benefits:

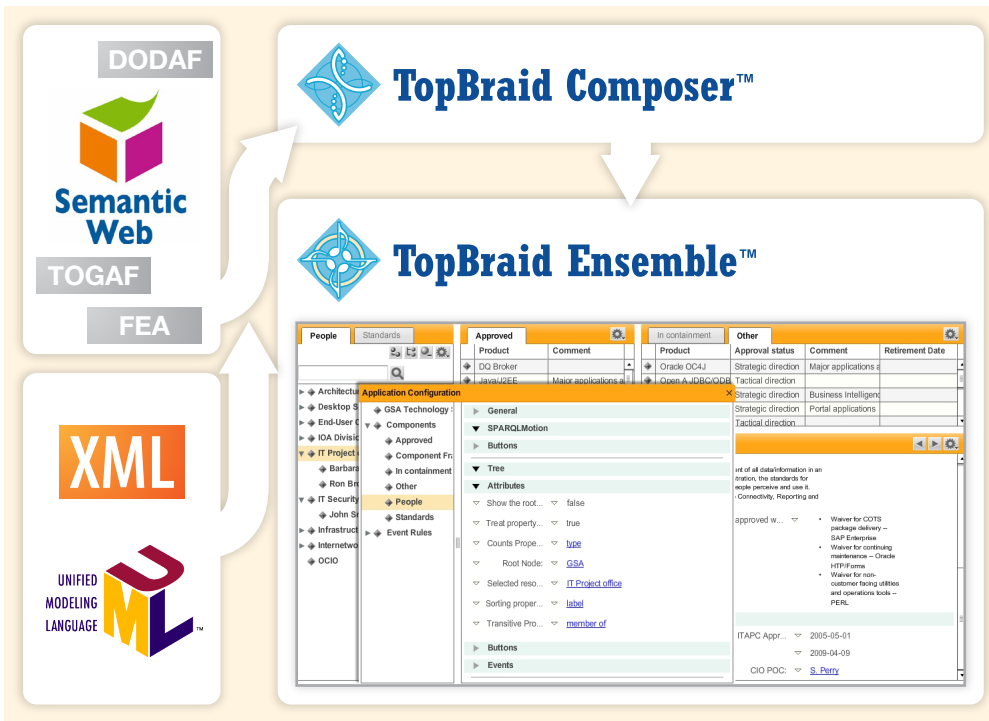
- The Semantic Web standards RDF and RDFS provide the infrastructure for creating a web of information, whether on the public internet or within enterprise intranets. Like the familiar World Wide Web, the Semantic Web is easily extensible, breaking out of information silos once and for all.
- The Semantic Web standard OWL provides a logical language for describing semantic relationships between data sources. Connections that previously had to be accomplished with custom software can now be described in a standard, declarative way.
- External resources (like TOGAF and FEA) are easily ported and integrated into RDF, allowing them to be integrated easily into an enterprise architecture.



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Different stakeholders use TopBraid Ensemble™ to customize the information display according to their own needs. Customization ranges from simple changes in columns and forms displaying information, to more elaborate assembly of information layouts and interactions. Regardless of how they view the information, all of them are consulting the same integrated enterprise architecture representation in a consistent way.

TopBraid Suite™ Capabilities

TopBraid Suite is an integrated, complete lifecycle semantic application development product suite that allows users to design, assemble, deploy, and collaborate within a new generation of dynamic business applications. Building on the capabilities and benefits that come from Semantic Web standards, it provides complete support for EA solutions with the following integrated products:

- TopBraid Composer™ allows enterprise architects to harvest schemas and data from any data source - including spreadsheets, XML, and UML - allowing them to integrate silos of information.
- TopBraid Composer Maestro Edition™ allows enterprise architects to prototype web-based applications leveraging SPARQLMotion™ visual scripting language to create data processing chains and a built-in personal edition of TopBraid Ensemble to configure and assemble ready to use UI components.
- TopBraid Ensemble™ provides a wide range of application customization functionality for users of all types, including casual business users and power users.
- TopBraid Live™ provides access to live enterprise information sources like databases and spreadsheets, allowing the enterprise architecture to respond to live information in the real enterprise systems.

The EA group at LR Bank began by using TopBraid Composer to create a model of its business, independent of any particular application implementation details. They then connected a select number of high-profile data sources to this model, describing how the data sources mapped together. This combined model constituted a relatively small but immediately useful, executable enterprise architecture.

As the enterprise architecture grows, more and more sources are brought into the enterprise web, including the

information formerly locked into other EA applications (via XML or UML imports within TopBraid Composer), controlled vocabularies (via custom spreadsheet import), databases (via TopBraid Live's database connections) and any other information sources. The use of TopBraid Suite allows LR Bank to create an ever-expanding web of information within its expanding and executable Enterprise Architecture.

Benefits of Semantic Enterprise Architecture Solutions built with TopBraid Suite

While SOA has evolved from pure technology considerations to embrace organization and process aspects of business, not enough attention has been given to the requirements for a distinct semantic layer to mediate between the nomenclature and concerns of business and those of IT. The specific capabilities and approach of Semantic Enterprise Architecture can address this situation. TopBraid Suite encompasses the full spectrum of Semantic Web tools and technologies necessary to build and deploy Semantic Enterprise Architecture solutions that are designed for users and built for change.

Enterprise Architecture solutions built with TopBraid Suite include many business benefits such as cost reduction, improved business IT alignment and more focused risk management by providing:

- Standards-based capture and management of enterprise information models and metadata
- Information aggregation across diverse enterprise data sources
- Support for workflows, alerts, business reports, compliance audits and other analytics
- Support and compliance with the Federal Enterprise Architecture (FEA) including Federal Transition Framework (FTF) and the Data Reference Model (DRM)