



Federal Defense Information Agency

MetaMatrix Implementation

Business Challenge

This government agency is responsible for planning, developing, fielding, operating, and supporting command, control communications, and information systems for the U.S. military. Recognizing the need to provide commanders in the field with a better and more integrated source of logistics information, the Agency chose MetaMatrix as an integral part of their Enterprise Information Integration (EII) strategy. The Agency also needed to implement a robust reporting and business intelligence (BI) solution for delivering analysis capabilities to the end-user, and chose Information Builder's WebFOCUS for their BI solution.

The Solution

For the initial phase of the project, eleven disparate data sources required integration in the MetaMatrix EII environment. These separate data sources were modeled as one virtual database; thus, to an end-user or client application, there appeared to be only one database instead of thirteen. Acumen Solutions began by analyzing over 200 existing queries that the end-users required. During the analysis, the team looked for and documented the common parts of the queries to ensure that, when the data sources were modeled as one, reuse was maximized. During analysis the team also created a standard naming convention and ensured that data types were consistent across common fields.

Created a powerful mechanism for easily obtaining answers to important questions within the Enterprise.

Adding data sources or making changes to underlying data structures no longer affect system up time.

The virtual database (VDB) was architected following EII best practices. The VDB consisted of a physical layer, which is a copy of the actual data sources, and three virtual layers. The VDB was modeled with a bottom-up and a top-down approach. The actual data sources at the bottom drove the physical layer, and the end result, the queries, dictated how the three virtual layers would behave. Each virtual layer was modeled with this end result in mind and conformed to the naming standards.

It was important to the Agency that the data sources be protected from unauthorized users and from queries that could potentially bring down the servers due to the volume of data returned. The Acumen Solutions team controlled user authorization at the connector level in the MetaMatrix server. To protect the data sources, during deployment of

The VDB, only the virtual tables required for running the queries were exposed to the end-users and client applications.

The Agency maintains data *about* the queries. Examples of this metadata include but are not limited to: required input parameters, display labels, and pick list information. The metadata, housed in MetaMatrix, was used to drive query execution and front-end application processing. WebFOCUS, the chosen front-end BI tool, needed to consume the metadata for query execution. The Acumen Solutions team extended the MetaMatrix product to store the metadata in a custom metamodel and modified the VDB creation process to include the metadata artifact generation. The metadata artifact was generated as an XML document that, when parsed, could control the WebFOCUS application processing.

Adding the custom metamodel to MetaMatrix was a full lifecycle software development effort that involved UML modeling in Rational Rose, Eclipse EMF, Java, and XML. The team followed configuration management best practices using the MetaMatrix repository and ClearCase.

Technical/Business Expertise

The technology expertise used by the Acumen Solutions team included:

- MetaMatrix
- Data Modeling Techniques
- SQL
- Rational Rose
- Eclipse EMF
- JAVA
- XML

Return on Investment

The customer has provided their end-users a powerful mechanism for obtaining answers to important questions. The users are not limited to the boundaries of one data source. Many databases were made to look as one in the carefully architected EII environment. Adding additional data sources or changing the underlying data structures will be seamless to the user and will not affect system up time. Additionally, the environment has the flexibility to add functionality such as ad hoc reporting.