



Chapter II

Enterprise Metadata for Reliable Web Applications

R. Todd Stephens, BellSouth Corporation, USA

Abstract

This chapter examines the critical task of governing the Web application environment with enterprise metadata methodologies. As organizations move to higher levels of maturity, the ability to manage and understand the entire environment is one of the most critical aspects of the architecture. Metadata can be defined as information pertaining to the Web application environment that the organization defines as critical to the business. Successful metadata management requires a comprehensive strategy and framework which will be presented through historical, current-state, and future perspectives. The author expects that by understanding the role of metadata within the Web application environment, researchers will continue to expand the body of knowledge around asset management and overall architecture governance.

Introduction

Hardly a book or magazine can be picked up that does not mention the focus to achieve enterprise effectiveness or share information which allows the organization to react in an effective manner. Terms used to describe this process include organizational learning, institutional memory, and knowledge management. Organizations have the tools and techniques to share and disseminate information throughout all levels of the firm. What does it take to become a knowledge-based organization in a Web-enabled environment? More specifically, how will an organization that is deploying Web-based applications integrate the level of knowledge required in order to manage and govern the environment as a portfolio of assets? A solid metadata management strategy is a great start.

Today's business competitive landscape requires information systems to be operational 24 hours a day. Downtime can result in a significant amount of revenue to be lost; this is especially true in the online environment. This chapter is not about knowledge management, but rather building an environment to support reliable Web applications. Building applications requires a complete understanding of the entire information technology environment. The first generation of applications required only a limited understanding of the environment since most applications were built in a stovepipe fashion and required only low levels of integration. That is to say, applications performed simple data processing or reporting without concern of the disparate areas of the business. These data feeds moved around the company in a point-to-point fashion without much concern for the integration or reuse at an enterprise level. Many of the major functions that metadata can provide revolve around the integration of technology assets. Projects like a data warehouse or Enterprise Application Integration (EAI) provided excellent opportunities to push the metadata philosophy into the main stream of information management. Today, service oriented architecture (SOA) and the push toward a Web-enabled environment provide a great deal of opportunity for integrating metadata at the enterprise level.

Metadata has traditionally been defined as “data about data” or “information about information”. Pöyry, Peltö-Aho, and Juha Puustjärvi (2002) define metadata as a discipline that is descriptive and classifying information about an object. Metadata describes data, information, and knowledge within various levels of context (Tannenbaum, 2001). Today, with the advent of technologies such as hypermedia and heuristically-based searching and indexing, a new, broader, more generic definition of metadata is needed. This definition should include the traditional concepts, but it should add the concepts of existence, perspective, modeling, and topicality. A new definition should recognize that much, if not most, of enterprise data is not found in traditional relational database management systems (RDBMS), but rather, it is found in the myriad technological assets and views of those assets that exist at any point in time. The enterprise definition of metadata is as follows:

Metadata is structured, semi-structured, and unstructured data which describes the characteristics of a resource (external source of information) or asset (internal source of information). Metadata is about knowledge, which is the ability to turn information and data into effective action.

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