Chapter V

Systematic Development of Internet Sites: Extending Approaches of Conceptual Modeling

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ABSTRACT

Internet information services are developed everywhere. Such services include content generation and functionality support that have to be modeled in a consistent way. Here, we show how concepts of conceptual modeling can be used for systematic development of Internet sites. We give an introduction into our methodology of modeling Internet applications resulting in the Cottbus Internet site development language (SiteLang). The language has an operational semantics based on entity-relationship structuring and abstract state machines. It allows specification of entire Web sites, i.e., of structuring, behavior, information support, and of the interaction and story space. The methodology supports applications in different environments, e.g., Internet Web sites, WAP technology, or TV channels.

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INTRODUCTION

Nowadays, “Internet” is one of the main buzzwords in journals and newspapers. However, to become a vital and fruitful source for information presentation, extraction, acquisition, and maintenance, concepts have to be developed that allow flexible and adaptable services. Fundamental design concepts are required but still missing.

Internet Information Systems

In the scope of this paper, we observe a number of general tendencies that were easing Web site development.

Tendency toward Large Sophisticated Web Sites

In the beginning, Web sites of more than 500 pages were rarely encountered. Meanwhile, Web sites are becoming larger and larger and tend to provide a total and integral service according to the entire scope. The maintenance and update problem forced Web developers to reuse techniques developed for conceptual modeling of database systems.

Transfer of Business Applications to the Web

Enterprises discovered that their business can be partially transferred to the Web. The support of business processes in the Web is, however, completely different. Large and closed B2B sites are now developed and employed by almost all larger companies with exchange of products.

From Fancy Graphics Heaps toward Skillful XML Suites

In the past, Internet site development was largely understood as development of graphical site presentation. More than three-score good books are found on sites of booksellers. Meanwhile, people understood the necessity of sophisticated script languages. The advent of XML led to unification and simplification of Web site programming.

Database Middleware

Because the maintenance of consistency of Web sites can be based on database paradigms, database support has been intensively included in Web sites. Currently, information-intensive Web sites are entirely based on database support (sometimes also using incomplete systems such as mySQL).

Thus, we observe that Internet sites become similar to large information systems with a specific scope on distributivity of subsites and sophisticated interaction support.
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