

Preface

Since computers were introduced to automate organization management, information system evolution has influenced data management considerably. Applications demand more and more services from information stored in computing systems. These new services impose more stringent conditions on the currently prevailing client/server architectures and relational database management systems (DBMSs). For the purpose of this book, those demands can be arranged along three aspects, namely:

Enhancements on the structural side. The tabular representation of data has proved to be suitable for applications, such as insurance and banking, that have to process large volumes of well-formatted data. However, newer applications such as computer-aided manufacturing or geographic information systems have a tough job attempting to fit more elaborate structures into flat records. Moreover, the SQL'92 types are clearly insufficient to tackle time or multimedia concerns.

Improvements on the behavioral side. Data are no longer the only aspect to be shared. Code can, and must, be shared. DBMS providers are striving to make their products evolve from data servers to code servers. The introduction of rules to support active and deductive capabilities and the inclusion of user-defined data types are now part of that trend.

Architectural issues. New applications need access to heterogeneous and distributed data, require a higher throughput (e.g., large number of transactions in e-commerce applications), or need to share code. The client/server architecture cannot always meet those new demands.