

SAP R/3: A Database Application System

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Background

Many database applications in the real world are no longer built on top of a stand-alone database system. Rather, generic (standard) application systems are employed in which the database system is one integrated component. SAP is the market leader for integrated business administration systems, and its SAP R/3 product is a comprehensive software system which integrates modules for finance, material management, sales and distribution, etc. From an architectural point of view, SAP R/3 is a client/server application system with a relational database system as back-end. SAP supports a choice between a variety of commercial relational database products.

Overview of the Tutorial

The goal of this tutorial is to present the distributed system architecture, the data model, the database programming language, the database interfaces, the transaction and process model and the system evolution concepts of SAP R/3 and to relate them to established database and distributed system concepts. In particular, we cover the following points in this tutorial:

1. The external interfaces for application development: We will cover the customization of SAP R/3, enterprise modeling with SAP R/3, objects of the SAP R/3 data dictionary, ABAP/4 and the DynPro concept, the process and system architecture, and a perspective on business objects and componentization.
2. The internal SAP R/3 interfaces to the database system: We will discuss the DBMS-requirements imposed by the R/3 system. In particular we want to address the different languages to access the database, the client-server architecture between the application server and the DBMS server, the buffering within the application

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SIGMOD '98 Seattle, WA, USA
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servers, the database schema of R/3, and the performance issues.

3. OLAP of data stored by SAP R/3: We will study the performance of decision support queries executed directly on the operational SAP database in comparison to a data warehouse approach – i.e. extracting the data from the R/3 system and maintaining it in a dedicated data warehouse (e.g. SAP's EIS or SAP's Business Information Warehouse) for OLAP queries.

Target Audience

We expect this tutorial to be of particular interest for users and developers of database application systems as well as for database system developers and researchers.

Instructors

Alfons Kemper is a full professor of Computer Science at the University of Passau, Germany. His research interests center around the design and realization of advanced database technology. His work emphasizes performance issues, such as novel indexing, query optimization and query processing techniques.

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