

Setting up an international recruitment solution across the group of Deutsche Telekom AG using BEA WLS 8, Signsoft intelliBO and Oracle 9i.

Abstract

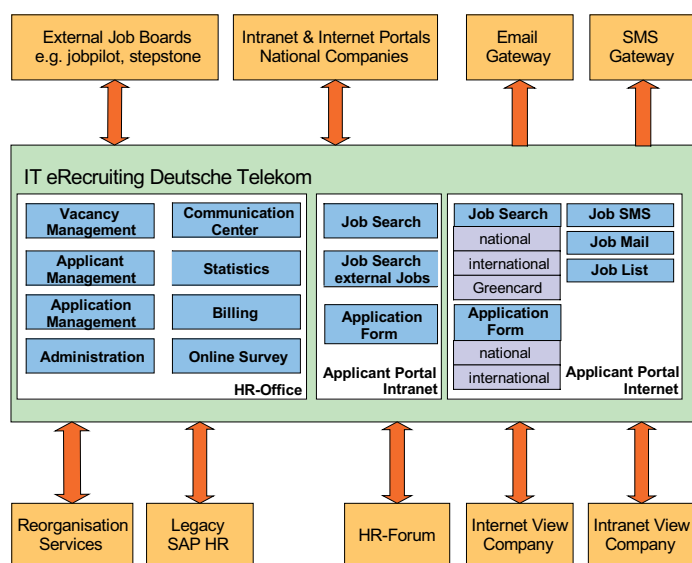
The Deutsche Telekom AG set up an international recruitment solution containing the processes of advertisement of vacancies, job search, online application and management of applicants as well as interfaces to all adjacent systems. This article explains the project and the experience with the technologies used with particular focus on Signsofts persistence tool intelliBO.

The customer

The Deutsche Telekom AG is one of the global leading telecommunication companies. It offers its customers the whole range of modern IT and telecommunication services.

The project

In September 2003 Deutsche Telekom AG commissioned T-Systems, Business Unit Multimedia Solution to implement a global and corporation-wide solution for the recruitment process. The system had to contain the processes of advertisement of vacancies, search for job offers, online application and management of applicants as well as interfaces to adjacent software systems. T-Systems had to integrate a number of SAP Systems of several business units, external job markets (Jobscout 24, Jobpilot, Stepstone, Wimmex), the IT of the HR service provider vivovento as well as gateways to SMS and email services.



Due to the international use of the solution, the quantity structure required high standards of the load and performance behaviour. Annually the system is processing up to 100.000 applications which contain extensive information about the applicant. Users are accessing the applicant's portal via inter- or intranet as well as external

career markets. More than 1.000 HR employees and 5000 executives, including HROffice, are involved in the processes of advertisement of vacancies and recruitment. Up to 10.000 dynamic system interactions per hour are accomplished. Furthermore the application has to accommodate simultaneous administration of approx. 500.000 objects in memory.

By Setting up a central recruiting solution for all subsidiaries and business units within Deutsche Telekom AG significant process improvements regarding quality and quantity have been achieved. Among other things the processing time of applications has been shortened and by the use of a central database the licensing costs for different channels of publication have been reduced.

Since December 2004 the solution is in productive use. Job search as well as the online application can be accessed at <http://hr.telekom.de/cms/HR-Internet/en/>.

System architecture

Due to the requirements:

- Integration of numerous foreign languages
- Capable GUI via Web Browser as Thin-Client
- Security of transaction
- Largely independent modules that can be combined
- Easy to expand and to upgrade according to future demands

T-Systems chose a multilayered Java/J2EE architecture. The application server is BEA WLS 8 on IBM based hardware and for data management Oracle 9i has been selected.

The application has been designed in multiple tiers. The *presentation layer* has been developed with HTML, Cascading Stylesheets, JavaScript and the Struts framework for the implementation of the model-view-controller architecture.

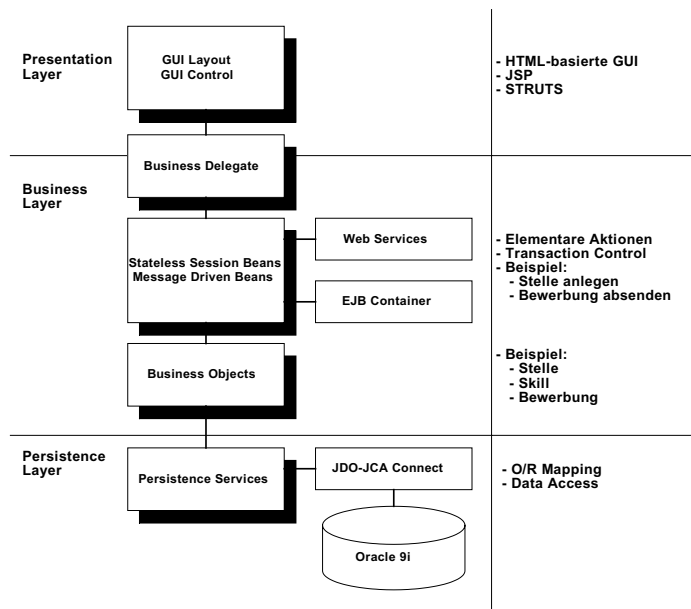
The *business layer* provides complex functions for advertisement, job search, online application, and applicant management as well as interfaces to the surrounding applications. To reduce interdependencies between business and presentation layer an intermediate business delegate is being used to achieve a loose coupling.

Business logic has been implemented as a separate tier of Enterprise Java Beans (EJB). This layer provides services such as „Create Vacancy“, „Edit Skill Specification“ or „Select Workflow“. The EJB's work on the actual business objects, as for instance „Vacancy“, „Application“ or „Skill Specification“.

For persisting the business objects to a relational database Java Data Objects (JDO) technology has been chosen. The use of a J2EE compliant application server, in this case Bea WLS, would have allowed to employ one of the approaches defined in J2EE as well, but Bean Managed Persistence (BMP) has been dismissed because it requires too much effort to accommodate changes in the entity relationship or

the object model whereas Container Managed Persistence (CMP) does not allow for comfortable representation of complex object relations.

JDO on the other hand defines a lightweight mapping of Java objects to relational data, transparently monitors all changes to persistent objects and synchronizes the objects with their representation in the datastore.



After an evaluation of the market and detailed examination the persistence middleware intelliBO by Signsoft has been selected as implementation of the JDO standard. Signsoft intelliBO's support for creating a database model from the object model eased the production of database entities and relations and dispensed the need for separate documentation of the entity relationship model. Therefore UML charts are now used as the sole documentation of objects and their relations.

In- and outbound communication have been implemented with the help of web services, largely, and third party systems are encapsulated using adapter classes. The adapters exchange messages with the respective third party system either uni- or bidirectionally, thus greatly reducing the consequences of changes to the third party system on the application.

Experiences during the project

The achievements of the project regarding performance, stability and scalability are excellent. The application accomplishes response times of less than one second despite the large quantity structure. Initial doubts as to whether the use of JDO could lead to decreased performance when dealing with large data objects (i. e. attachments of applications) have been disproved.

Permanent improvement during the development provides the high performance of the application. Regular profiling using JProbe and load tests helped in identifying frequently (unnecessary) downloaded objects. Customization of fetch groups for thus identified hotspots led to further improvements to the load behavior of the application. Thereby the foundation for this excellent achievement has been placed.

Forecast

Signsoft intelliBO is a persistence solution that provides a very efficient persistence layer in both, the J2EE application server environment and the conventional J2SE application. The project proved its dependability, scalability, security and high performance. Therefore, T-Systems Business Unit Multimedia Solutions, intends to use Signsoft intelliBO in future projects. The existing solution is currently being complemented by further business processes. Beside this, due to its success, T-Systems is marketing the complete recruiting package.

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