

Fulcrum develops an easy to use Java based Proposal Management Solution for customized user management and a 50% reduction in maintenance costs for one of the largest university consortiums in the USA

Industry

Education and Research

Technology Used

Java 1.5
Struts
AJAX
SSL
iBatis
Tomcat 6.0
Oracle 9i



Brief History

The client is a comprehensive doctoral and research extensive university. Founded in 1910, the ir vision is to be a leading university in engaging and empowering individuals to transform lives and communities. The University serves nearly 16,000 students on the main campus in, and at five teaching and research sites.

The Mississippi Research Consortium (MRC), formed in 1986, is a coalition of Mississippi's four research universities:

- Jackson State University
- Mississippi State University
- University of Mississippi
- University of Southern Mississippi

The MRC entered into a cooperative agreement with NASA's John C. Stennis Space Center located in Hancock County, MS, to provide technical assistance to federal agencies and contractors located at the Center.

Business Challenge

The existing application used to monitor and manage the proposals served in MRC had the following shortfall

- Lacked of user management and access control.
- Proprietary code base, hence limited scalability and expandability.
- Grouping of the proposal and the respective responses; The MRC administrators found this very cumbersome.
- Un-optimized database design, which lead to data issues as the database increased in size.
- File system based storage; this made the application un-portable and hard to maintain.
- Lack of Document Management System.
- Ease of use of the application.

Solution

The Fulcrum Logic competency center for transactional application proposed a simple yet robust Java based solution and the back end architecture which resulted in a scalable and reliable application to overcome the above mentioned business challenges.

To add to it, the Fulcrum COE for GUI Design and UX; studied the user interactions to provide maximised user experience.

- A fully configurable email interceptor engine running in the background, transparent to the user.
- Next level user interface that is simple yet powerful. For eg: An activity needing 5 mouse clicks to complete could now be done in less then 2 clicks.
- Inbuilt change-notification mechanism to update the stakeholders of the change in the proposals.
- Document Management System to store and retrieve the files effeciently.
- Role based user authentication.
- Normalized database architecture.
- Migration of the legecy data from de-normalized form.

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Proposed Architecture

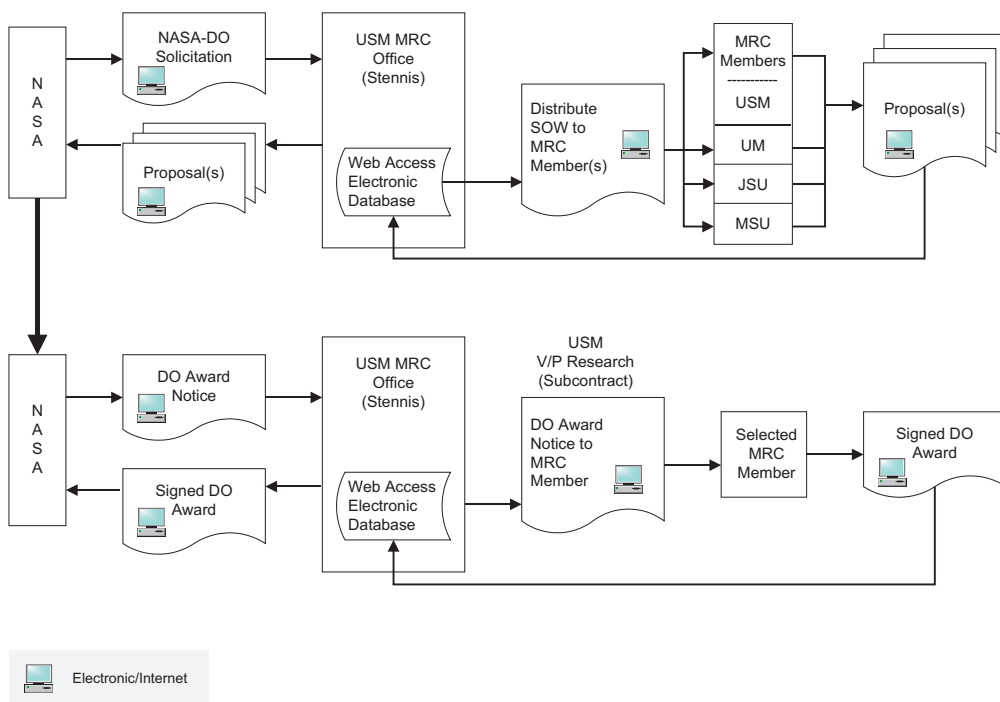
Application design was based on the layered architecture with Presentation, Business and Data Layer using following technologies:

- Java 1.5
- Mail API
- Struts for presentation layer with AJAX UI controls
- Tomcat 6.0
- iBatis was used as a persistent layer for simplicity and portability.
- Oracle for optimized backend storage.
- SSL for added security.

Benefits:

- Maintenance time reduced to 50%
- Work delegation was not possible by the introduction of role based authentication.
- Easier to set-up and configure. No code change required to adopt the changing infrastructure. Hot pluggable to any kind of mail infrastructure.
- Modularized coding to increase the in-project reusability.

Proposed MRC Process



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