

A Case Study of an Integrated University Portal

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INTRODUCTION

The increasing complexity and interdependence of campus technology systems poses a significant challenge to universities. Such efforts cannot be solely the domain of a university technology department but requires participation across the institution in order to ensure success. As Irvine (2003) noted, “a decision about course management platforms or portals and their interoperability with other campus systems is a critical institution-wide issue that involves the whole university community” (p. 5). This case study considers the development of an Oracle-powered database-driven student and faculty information single-sign-on portal at Regent University called myRegent. This recently developed portal integrates with our existing student information and learning management systems, SCT Banner, and Blackboard Learning System respectively.

From its inception, Regent University has leveraged technology to allow students to participate in graduate education without limiting students to live in a particular geographical location during the course of their studies. Since 1989, the faculty have harnessed distance education technologies and corresponding instructional models to extend educational access beyond Southeastern Virginia. In the years since the first distance education courses were offered, Regent University’s off-campus programs have undergone the following technological progression:

- **1989:** Off-campus courses offered using audiotaped lectures on cassettes.
- **1995:** Implemented the PC-based TopClass software, which provided a secure online discussion forum to increase interactivity.
- **1997:** Implemented a Cold Fusion database-driven Web site, which increased capabilities and features for threaded discussions.
- **1997:** Upgraded to the Web-based TopClass learning management system providing an online learning environment for distance courses.
- **1997:** Adopted Web textbooks published by Prentice Hall Business Publishing for use in online courses to reduce learner costs.

- **1999:** Adopted the Blackboard Learning Management System—marking Regent University as one of the first 100 schools to do so—and unifying all online programs into a single online learning environment.
- **2004:** Integrated HorizonWimba into the Blackboard system to add rich-media synchronous features into the online classroom.
- **2005-2006:** Rolled out myRegent portal across campus, providing a single-sign-in to an increased set of online educational features.

Regent University’s Information Technology Department also assisted in the design and development of a digital media database called ROMA (Regent Online Media Assets). Through a Web interface, our faculty can browse and download images, audio and video clips, and other learning materials through a central database. This rich media database server enables faculty to use and reuse these media assets or learning objects in their online and campus courses. This is consistent with Gilbert’s (2003) call for structured and searchable collections of instructional content to enable faculty to easily locate quality materials admit the electronic chaos.

Both the faculty and administrative staff of the university are adept at using technology to allow students to complete all of their studies off-campus. Most recently, the university has used video-teleconferencing and Web technologies to promote distance learning. Given the growing number of distance-learning students, a single portal allowing a student access to services regardless of geographic location is of particular importance to this university. Furthermore, such a portal will benefit on-campus students by simplifying and increasing access to relevant information and enabling campus students to access these materials during the academic years and summers.

PORTAL PURPOSE AND DEVELOPMENT

Regent University maintains a university home page at <http://www.regent.edu>. This newly redesigned, Oracle database-driven Web site provides a convenient way for

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prospective students, current students, alumni and friends, faculty and staff to access administrative and departmental services. The Regent University home page averages more than 25,000 page views per day. In addition, students have access to the user-centered library portal with a customizable interface to collections of Internet resources, including over 100 separate online academic and professional databases, which are available 24/7 to faculty and students with Internet access. The university also provides the Blackboard Learning System (2006) for online and blended courses, as well as SCT Banner (2006) for our student information system. In short, our students, faculty, and staff currently use a variety of self-service portals ranging from admissions, course registration, tuition payment, review of pay slip information, and access to digital databases.

With all of these resources available to the university community, there is a serious problem of information overload, which prevents members from making effective use of the resources. Campus surveys have repeatedly demonstrated high levels of satisfaction with individual online resources but widely varying usage levels, which have led us to conclude that many quality resources are simply being overlooked (Baker, 2003). Accordingly, we proposed the development of a single-sign-on portal to enable us to better serve our university customers (i.e., students, staff, administrators, and faculty) more effectively. Such a portal would be a truly integrated product, which would allow users to control what they see—customize, personalize, and choose content—and generally make things simple. Our twin goals were to increase customer satisfaction as well as promote higher productivity.

We believed that the information technology (IT) department was the ideal organization to spearhead this managed learning environment development because of the technical challenges involved with such a project (JISC, 2002). Furthermore, IT was in the unique position to serve as a university-wide facilitator, promote integration, recommend ways to change business processes, and, finally, because IT knows the most about how the various schools and departments function. This project was seen as strategic for two reasons. First, the university recognizes the need to use technology to improve the learning experience for students and to improve the business of the university. Second, good applications help the university develop an advantage over other universities that compete for tech savvy students.

As we consider the development of the myRegent portal, we adopted an incremental development cycle. In other words, the first site we launched was not our final site but rather we are building the site incrementally. We want to decentralize some of the portal management so departments can manage their own data and yet provide a single sign-on access to offer quick and easy availability to all our systems. Key issues that we're addressing include standards for the user interface (i.e., look and feel), systems integration, and how

to enable the development of custom modules to enhance the portal's features. We want the users to know they are dealing with one institution—Regent University—when they navigate our portal.

We went with an Oracle-based solution in no small part because of our strong relations with key vendors such as Oracle, Blackboard, Sun Microsystems, and SCT. Regent has an accomplished marketing department and the university has acted as an impressive, supportive showcase environment for vendors to demonstrate technology to potential clients. In 2002, Regent hosted a higher education technology seminar sponsored by Oracle Consulting. Participants were universities in the Hampton Roads and Richmond area that hold a U.S. Campus License for one or more Oracle products. Additionally, the university has acquired expertise with Oracle Financials, SCT Banner, and other critical enterprise applications. Our success has been due to the deliberate policy of hiring the best team, training that team, and using standard project and change management techniques to effectively manage and control implementations.

The CampusEAI Oracle Portal (2006) software provided both a challenge and an opportunity for the IT staff to jumpstart an initiative we have been actively pursuing for the past few months. The Regent University team is already a cohesive unit that is skilled and knowledgeable in the area of portal implementation and system integration. The staff members have prior experience in full-scale development of a commercial portal. The staff already has solved the technical issues that would present challenges in the implementation of such a project.

The university developed a custom, Web-enabled application using the Cold Fusion Web-database integration platform with a back-end Oracle database system. The objective of this application is to allow users to synchronize passwords across Regent's network domains, detect unauthorized access attempts, and ensure strong password management. The IT department then performed an analysis of the various mechanisms that disparate applications use to handle security. The department considered encryption schemes, two-tier vs. three-tier implementations, and methods for secure handling of the password. IT then moved to eliminate all the internal mechanisms that allow a user to change his password independent of the custom application. In parallel, Regent University has been revisiting its own administrative policy concerning naming conventions for user accounts and utilize a central creation point to ensure consistency, prevent duplication, and multiple assignments.

The portal is still in early stages of roll-out. Our focus right now is on the education of users about this new single-sign-on approach and the elimination of separate username and password combinations. As a result of this project, we're continuing to become more user-oriented, addressing operational issues as they are discovered, and continuing to find and implement tools that makes the business of

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