Caché Case Study: IKEM

Application evolution

Web development

Object technology

Major Hospital in Prague Relies on InterSystems Technology to Make Applications More Valuable

The Institute for Clinical and Experimental Medicine (IKEM) in the Czech Republic is a leading transplantation, cardiology, and science center. In 2003, they built a medical information portal, based on InterSystems Caché®, which has since evolved into a central system for managing clinical data and investigations. The system is called Zlatokop, and it is a good example of an application that has been made more valuable by utilizing InterSystems technology.

"We are very pleased to have InterSystems as a technology partner. As long as they keep introducing innovations, we will keep using them to make our applications more valuable."

"At its inception, we envisioned Zlatokop as a Web-based search portal," says Dr. David Hačkajlo, team leader of the IKEM data center. "Like most large hospitals, IKEM had a central data processing and repository system. But specialized applications still stored information in 'satellite' databases that, for the most part, didn't communicate with each other. Zlatokop made it possible to search through all these disparate databases and see the results via a simple, unified interface."

The system supports two approaches to data searching: by patient, or by result. The first method yields an electronic patient record, presenting all test results in an easy-to-read format accessible by a Web browser. The second approach is useful for demographic and epidemiological studies. "We expected the ability to search by result would be appreciated mostly by our more scientifically-oriented users," says Dr. Hačkajlo, "but our clinicians also like it because it allows them to search for similar cases, which can help them make better diagnoses."

In 2005, Dr. Hačkajlo and the IKEM data center team revamped the data model for the Caché Server Pages (CSP) objects that Zlatokop uses to present search results. Under the new design, which takes advantage of Caché's code generation abilities, pages are constructed on the fly from separate classes that govern the function, appearance, search capabilities, and data sources of the page. Dr. Hačkajlo recalls, "The redesign had an unexpected benefit. The objects created within Zlatokop were so flexible and robust that we realized they could be used as the primary data structures for new applications. So, in addition to searching outside databases, Zlatokop could be the database for sub-systems within the hospital."

Over the course of the ensuing months, ten sub-systems, serving areas like the catheter laboratory and surgery, were developed on the Zlatokop platform. In the summer of 2006, a scheduling system for human resources was created. Using only data structures that were already defined within Zlatokop, the sub-system manages the scheduling information (shift-work, vacations, etc.) for everyone in the hospital. This information is then available for other purposes, such as assigning doctors to scheduled operations.

In addition to building new sub-systems, IKEM's efforts to make the information in existing hospital systems available to Zlatokop continued. For example, in order to include data from the picture archiving and communications system (PACS), Zlatokop had to be compliant with the DICOM (Digital Imaging and Communication in Medicine) protocol. "Because Caché supports multiple inheritance, it was relatively easy to 'DICOM-enable' our objects," says Dr. Hačkajlo.

How will Zlatokop continue to evolve? "We are working with InterSystems Ensemble now," Dr. Hačkajlo says, "using HL7 to connect to several systems that we can't get to any other way."

"We are very pleased to have InterSystems as a technology partner," he continues. "As long as they keep introducing innovations, we will keep using them to make our applications more valuable."

InterSystems Corporation

World Headquarters
One Memorial Drive
Cambridge, MA 02142-1356
Tel: +1.617.621.0600
Fax: +1.617.494.1631

InterSystems.com