

Delivering on the Promise of Wireless Applications

What happened to the all-pervasive mobile computing revolution? A major obstacle has been in the development of flexible wireless applications even with the current plethora of available software tools. These rapid application development (RAD) tools have a multitude of features and also many limitations for wireless platforms. IT developers must make careful choices in developing mission-critical enterprise applications and most times assemble a collection of different RAD tools for different functions such as forms, reports and databases, adding complexity to any test and development QA procedures.

In addition to the numerous RAD tools, there are many competing technologies for mobile Platforms such as: HTML/XHTML, WAP/WML, WAP/XHTML, i-Mode/cHTML, WebClipping, VoiceXML etc - together with alternative approaches such as HDML (handheld device markup language). Applications developers may focus on producing content in XML and then use XSLT-based transformations to convert the data for a platform. Others may choose the ASP.NET solution that develops webs forms in device-independent way with customized conversion for a particular target device.

But there are specifics of each technology that raise problems. For instance, in WAP technology each mobile terminal has its own limitation for the size of the atomic data portion (WML deck) it can process. Developers have to limit assume that this size to 1500 bytes. The result is that UI forms that are acceptable on one device may be unusable on another. In addition, WAP devices vary substantially in the presentation capabilities - some mobile phones are only able to produce 3-4 lines of text like most Nokia devices while others are equipped with large screens comparable to those of PDAs. Most likely the developers will be required to develop different set of presentation forms for such terminals.

What about making the data available for preloaded access as in WebClipping applications? What about the same data being available using voice-based applications? These are challenges that complicate matters further so the developers have to write many thousands of lines of UI specific code, increasing the difficulties in creating

practical solutions for the many mission-critical enterprise business applications. Of course, organizations may decide to standardize on one mobile platform and software environment, and then face the real risk of obsolescence with a consequent loss in competitive advantage. Even when selecting a platform, these organizations limit the number of mobile device types (sometimes to one), they limit number of business tasks that can be performed from mobile device, and they provide proprietary network connectivity (like Palm VII with CDPD). We then see that the number of end user applications and user interfaces becomes severely limited. Commercially successful mobile devices such as RIMM's Blackberry have limited functionality. Making corporate data accessible to a remote workforce or partners is still a challenging and expensive task for most enterprises.

New generation tools such as ITC Software's BeanExplorer Enterprise Edition provide end-to-end applications development and flexible customization. Leveraging previously developed enterprise applications, developers using BeanExplorer can quickly create mobile applications with custom flexibility to effectively use the range of wireless technologies that exist in the today's market. *Developer effort shifts from implementing UIs for variety of mobile terminals to the task of implementing business logic required for mobile users and adapting legacy information systems for the mobile world.*

BeanExplorer features include: a methodology and software framework of object-relational mapping for the relational data located in the corporate data warehouses; software framework for identifying which of the corporate data is intended for a given end user (or the set of users acting in a similar role); set of tools for generating user interface (UI) from the data definitions - either as interfaces for thick clients written in Java or interfaces for "thin" clients like web browsers and mobile terminals, since the UI is generated on demand it can be easily customized to meet the constraints of every particular terminal or browser, and; a software framework generating applications to integrate the these technologies into a single application for developers. *BeanExplorer generates complete applications for corporate end users based on the meta-information available for the enterprise data.*

BeanExplorer has the following functions:

- The set of SQL scripts to be deployed onto corporate SQL server. These scripts decompose enterprise legacy logic into set of classes, their instances and appropriates
- J2EE-based web application to be integrated into corporate middleware. This application contains the set of libraries for automatic generation of web forms for web browsers and mobile terminals
- Java libraries to assist implementation of OOP-based operations on corporate data acting as "wrappers" for legacy enterprise logic and relational data
- Java libraries to assist creation of "thick" client Java applications with the same auto generate UIs

BeanExplorer's approach addresses most problems of the traditional application development process. There is no need to design limitless input/view/reporting forms and validate data for/from them - the forms are generated automatically and validity of data ensured automatically. There is no need for application developers to write code to maintain "classified" access - they only need to implement operations in OOP terms and access to them will be assigned by a system administrator. Data integrity issues are also handled automatically due automatic generation of data accessing forms.

The approaches implemented in BeanExplorer substantially reduce the time and lines of code required for implementing corporate applications for mobile appliances. BeanExplorer may be the enabling development environment that brings a second, more productive life to many mobile technologies like WAP by facilitating incremental, low cost enhancements of enterprise applications with wireless capabilities.

Download an evaluation version from: www.itcsoftware.com

921 words, Oct 2002, by: Roger Krieger, Sergey Zhatchenko, and Michael Kayat
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