

Paper UC1368

**Status: Accepted**

Defense Application Development - I

Tuesday July 26, 2005 - 10:30 AM

Room 28-D

About Your Paper

**Conference**

User Conference

**Paper Title**

Dynamic Application for ArcGIS Using .NET WinForms, Oracle Stored Procedures

**Paper Abstract**

Management of the deployment, maintenance, and update cycle for complex client-side ArcGIS applications is a primary obstacle to large-scale Enterprise GIS implementations. To address this problem, The U.S. Army Corps of Engineers Remote Sensing/GIS Center has developed a suite of tools for ArcGIS that allows windows to form objects like textboxes, buttons, and drop-down lists to be configured at runtime using Microsoft .NET technology and database-driven form objects. The application suite consists of database tables of form objects and stored procedures accessed through an administrative database. The Oracle database-driven suite allows dynamic configuration of tools based upon server-side logic. When an application requires updating (because of database changes or otherwise), the system administrator makes changes to layout and functionality at the centralized database. Changes are propagated to users immediately (with a simple refresh button) rather than requiring multiple system administrators to re-install the application on hundreds of computers (requiring time and money).

**Paper**

As stated above, management of the deployment, maintenance, and update cycle for complex client-side ArcGIS applications is a primary obstacle to large-scale Enterprise GIS implementations. To address this problem, The U.S. Army Corps of Engineers Remote Sensing/GIS Center has developed a suite of tools for ArcGIS that allows windows to form objects like textboxes, buttons, and drop-down lists to be configured at runtime using Microsoft .NET technology and database-driven form objects.

With the advent of Microsoft.NET's software tools, it is now possible to write complex client-side tools for ArcGIS with server-side control of the objects within the client tools. In addition, server-side code can be executed by calling PL/SQL packages from the Visual Basic.NET code. As part of the Army Corps of Engineers R&D program, the Remote Sensing/GIS Center of Expertise has been working on extensions to ArcGIS 9.0 that are driven by an Oracle relational database. Form objects such as buttons, textboxes and controls are stored in the database with their various properties, and created dynamically at runtime using Microsoft.NET's Visual Basic software. Buttons and tools on the extension then execute PL/SQL modules on the server to run queries, view, update, add and delete information from the centralized database. This allows the GIS analyst to interact with Corps Enterprise databases such as the Ombil Regulatory Module and other Corps-wide information management systems.

When changes in the software are needed, the developers and the RS/GIS Center can modify, add or delete objects from the database, or modify PL/SQL code to enhance the software. Any changes are rolled out in real-time to all users of the software, with no need for a new release of the extension and no time required for system administrators to visit each machine, log on and install the new software.

This new class of software will be a cost-effective solution to Enterprise GIS applications that integrate Oracle Relational Databases with ArcGIS client software.

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