Welfare Peer Technical Assistance Network

Site Visit to New Mexico's Human Services Department

Information Technology Division

Santa Fe, New Mexico

October 21, 2008

Prepared for:

Administration for Children and Families
Office of Family Assistance

Site Visit to New Mexico Human Services Department,
Information Technology Division in Santa Fe, New Mexico
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Purpose

On October 21, 2008, the Welfare Peer Technical Assistance Network conducted a site visit to support the New Mexico Human Services Department (HSD) Information Technology Division (ITD) to assess technical options to transferring the Wisconsin ACCESS system to New Mexico. New Mexico needed technical assistance to evaluate:

- Adapting ACCESS to New Mexico HSD programs and technical environment;
- Incorporating a Commercial-Off-The-Shelf (COTS) rules engine into ACCESS; and
- Integrating ACCESS with an Electronic Document Management System.

Participants

- Jan Christine, New Mexico Human Services Department
- Al Fleming, Federal Project Officer, Office of Family Assistance, Administration for Children and Families
- Jacqueline Thomas, Project Director, Welfare Peer Technical Assistance Network (Dixon Group)
- John Blyskal, Consultant, Welfare Peer Technical Assistance Network (ICF International)
- Tim Saar, Vice President of Technology, Chicago Systems Group, Inc.
- Deneen Omer, Senior Principal, Chicago Systems Group, Inc.
- Chris Hayes, New Mexico Human Services Department
- Marty Katz, New Mexico Human Services Department
- Judy Katz, New Mexico Human Services Department
- Maxine Lopez, New Mexico Human Services Department

Background

The purpose of the site visit to New Mexico was to provide technical assistance to New Mexico because they wanted to replace their Income Support Division system (ISD2). Several New Mexico Human Services Department assistance programs use ISD2 for eligibility determination, benefit delivery, case management, financial, reporting, and claims processing. The ISD2 system interfaces with other government agencies and private sector companies, and has been in operation for about twenty years. The ISD2 system is near the end of its lifecycle and is based on COBAL-VSAM technology. The Department plans to move to a Web-based open architecture built on a Service Oriented Architecture (SOA) strategy.

In addition to replacing ISD2, New Mexico is implementing an Enterprise Eligibility System (EES) that will provide citizens access to multiple state agency programs through an Internet portal. The EES will automate eligibility screening, intake, and application for assistance functions, as well as serve as the public facing front-end. EES will integrate with the ISD2 replacement system and evolve to assume some of the ISD2 eligibility determination processing functions. Seven state agencies (including the New Mexico Human Services Department) are participating in the project.

Three key capabilities are part of New Mexico's Human Services Department's near term technical strategy: a Web-enabled front end; document imaging and management; and a business intelligence

capability. This Welfare Peer TA event focused on how New Mexico can use ACCESS to support the front end, and provide guidance for ACCESS to interoperate with the other two capabilities.

The Wisconsin ACCESS application is a fast, user-friendly internet tool with the capacity to:

- Screen for low or no-cost health, nutrition and other programs;
- Apply online for FoodShare, Medicaid, or BadgerCare Plus (including Family Planning Services);
- Obtain up-to-date information about the status of their FoodShare, Medicaid, BadgerCare Plus (including Family Planning Services), SeniorCare, or Caretaker Supplement benefits; and
- Report changes to local, county, or Tribal agencies.

HSD is currently considering implementing the eligibility screening and application processing functionality of the ACCESS system. The ACCESS system builds upon Java Enterprise Edition (J2EE) technology with an IBM DB2 Database. The New Mexico Human Services Department is considering Oracle for the database and deploying the application across an n-tier technical infrastructure.

Prior to the on site meeting, Chicago Systems Group, Inc. (CSG) conducted a technical quick-look review of the ACCESS application source code provided by New Mexico. The review focused on describing the existing software application structure and functionality; looking at how to adapt the application to accommodate HSD programs; and investigating how to deploy ACCESS within the planned technical environment. Discussion focused on three main topic areas:

- Part 1, ACCESS Application Architecture;
- Part 2, Extending and Enhancing ACCESS; and
- Part 3, Hardware and Software Infrastructure.

Adapting ACCESS

Adapting ACCESS to New Mexico's Human Services Department Programs and Technical Environment

During the Welfare Peer TA Visit, the TA team and New Mexico's Human Services Department discussed how to adapt Wisconsin ACCESS to New Mexico's programs and technical environment:

- The ACCESS system is constructed from a custom framework that appears modular and configurable, with limited use of open-source software. It exhibits generally accepted J2EE design principles and patterns such as Model-View-Controller/front-end controller, heavy use of abstract and base classes, multiple use of class factories, and use of many Extensible Markup Language (XML) configuration files. The data model and application code support multiple Wisconsin health and nutrition programs, implemented as separate Java packages. No overarching concerns were discussed on the site visit in regards to adapting the application to support New Mexico's Human Services Department programs, although the learning curve for developers may be steep. In order to help manage this risk the project will use an integrated development approach with teams composed of state and contractor members. This will allow state employees to take over all maintenance and operation responsibilities once New Mexico implements the system.

- For the presentation layer, a conventional Java Server Pages approach is used. Pages are derived from a standard template; and a custom Tag Library is used to standardize rendering, validation, and error messages. Tags interact with the security framework at the page and

component level. Message resources support internationalization. It was noted that some business logic does appear to be scripted into the Java Server Pages.

- The control and navigation layer primarily follows a single controller model (common J2EE approach, for example, as implemented in the Struts or Spring frameworks). The service controller layer hides the complexity of the Enterprise Java Beans. The controller has hooks for handling transactions and interacts with the security manager. XML files define navigation paths.

- For the business layer, the service controller hides the Enterprise Java Beans. All Enterprise Java Beans are session beans. Some hard-coded data values were noted (constants) in the business objects. This layer appears to provide security and transaction control. (The team was not able to investigate fully the security implementation within the quick-look review timeframe).

- The Database persistence layer uses embedded Standard Query Language (SQL), targeting a DB2 database. The queries appear straightforward and no significant issues porting to an Oracle database were identified. There appears to be a fair amount of dynamic SQL statements. This portion may need review for possible SQL injection vulnerabilities. A framework specific connection manager controls database connections. Instead of using native java security APIs to handle sensitive information, the system uses a framework specific means of obtaining and passing in security credentials.

- Security is primarily enforced through interaction of the Tag Library and EJBs with a security manage. A refined security model uses a Lightweight Directory Access Protocol (LDAP) approach. The model appears straightforward to extend and adapt.

- The Open Source Log4J logging utility provides application message logging. Exceptions are wrapped in a single place to allow exception handlers to interact with the logger. XML configuration files are accessed through a common configuration manager.

- In the Wisconsin ACCESS, the online application for assistance data is sent directly to the eligibility determination function in the CARES Worker Web. The New Mexico team discussed a loosely coupled approach to keep initial integration with ISD2 to a minimum. The ability of ACCESS to generate and transfer a PDF of the application for assistance (with metadata) to an "inbox" appeared feasible.

- Also noted were several opportunities to enhance and modernize the ACCESS code base. Strategies include replacing the EJBs with lighter weight components, as well as revising the Data Access Layer using the Hibernate or iBATIS frameworks. New Mexico Human Services Department may also consider using Java APIs for security.

- The structure of the ACCESS application follows generally accepted enterprise application design guidelines and no significant issues were noted in being able to deploy it within the New Mexico technical architecture.

Incorporating a COTS Rules Engine into ACCESS

ACCESS primarily uses Java code in the EJBs to implement the business logic (some business logic is also encoded in the JSP scripts). Due to the modular structure of the application, adapting

ACCESS to implement a rules engine appears feasible. One approach would be to replace the EJB custom logic at the business services layer with base and utility classes to abstract the rules engine. XML configuration files can be used to parameterize access to the rule-base.

Integrating ACCESS with an Electronic Document Management System

New Mexico is considering implementation of a document management system for electronically rendering and managing case artifacts. The ACCESS application would therefore need to interact with this system. Integration with the document management system appears to be feasible and straightforward. This would entail modifying the service objects that interact with the content manager. The data access objects at the persistence layer would also change. One technical approach discussed for initially integrating ACCESS was transferring an application for assistance as a PDF document (with metadata) to the content system and having that system notify the worker and manage workflow.

Web References

- http://www.hsd.state.nm.us/
- http://www.hsd.state.nm.us/doit/
- http://dhs.wisconsin.gov/
- https://access.wisconsin.gov/access/