State of Hawaii Excellence in Technology Award Nomination

Single Sign On (SSO) for the Hawaii State Department of Education

- Cross-Boundary Collaboration and Partnerships
- Data, Information and Knowledge Management
- Digital Government: Government to Business (G to B)
- Digital Government: Government to Citizen (G to C)
- Fast Track Solutions
- Enterprise IT Management Initiatives
- Improving State Operations
- Information Communications Technology (ICT) Innovations
- Open Government Initiatives
- Cyber Security Initiatives

David Wu

Tel: (808) 586-3307

State of Hawaii

Project Initiation Date: June 29, 2012

Project Completion Date: November 9, 2012
Executive Summary

As the number of deployed systems and reporting tools increases, managing access to those systems for the Hawaii State Department of Education’s (HiDOE) 25,000 staff had become increasingly complex. The Single Sign-On (SSO) project aimed to enhance and strengthen HIDOE’s identity management system by simplifying user access to key applications while maintaining the required data security and privacy standards.

The implemented SSO system provides secure access to critical web resources while protecting systems from direct exposure. It is an integrated security solution that enables HiDOE to provide employees, customers and partners with secure, browser-based access to essential information without adding infrastructure or complexity.

The SSO project started on June 29, 2012. HiDOE managers, staff, and the vendors worked closely together throughout the implementation process and on November 9, 2012 a memo was sent out to all staff by Superintendent Kathryn Matayoshi informing staff that the SSO system was available for use and contained 5 critical application used by HiDOE which were:

- DSI Data for School Improvement
- eHRD Human Resources
- Kronos –Time and Attendance
- LDS Longitudinal Data System
- FRS Financial Reporting System
- SSES Statewide Student Enrollment System

At the time of this award nomination application writing there are now 12 applications currently running in SSO (including our Student Information System, Facilities Management System and our Customer Support website).

The introduction of the SSO system represents a milestone in the way the HiDOE utilizes its resources. Now even the most disparate applications can flow seamlessly from one to another by having users use a single username and password to sign on at the very beginning of the session.
Description of the Business Problem and Solution

Problem:
As the number of deployed systems and reporting tools increases, managing access to those systems for the Hawaii State Department of Education’s (HiDOE) 25,000 staff had become increasingly complex. The Single Sign-On (SSO) project aimed to enhance and strengthen HIDOE’s identity management system by simplifying user access to key applications while maintaining the required data security and privacy standards.

Desired Results:
- Simplify user access for HiDOE employees to key applications.
- Define and implement processes to provision access to key applications
- Ensure compliance with data security and privacy standards and regulations.

Solution:
The SSO system selected provides secure access to critical web resources while protecting systems from direct exposure. It is an integrated security solution that enables HiDOE to provide employees, customers, and partners with secure, browser-based access to essential information without adding infrastructure or complexity.

The SSO Proxy Service protects the information on one or more content servers by intercepting, processing, and controlling the access request to the Web content. While users believe they are going directly to the protected Web site, all requests for Web content are directed to the Proxy Service. The Proxy Service checks the contents of the request and if the request contains a valid session identifier (SID), showing that the user has been authenticated and authorized, the user is allowed to access the content via the Proxy Service.

This system was chosen over several other options for its comprehensive solution that integrated both aspects of SSO and Identity Management (IDM).

SSO System Attributes:
- Removes vulnerability of systems, data and applications
- Supports a wide range of authentication methods and security systems
- Enables single sign-on across multiple Web servers
- Role-based access control
- Compliance – audit, access control and segregation of duties
- Form-Fill Single SSO
- SSO saves and replays application credentials
- Many applications don’t yet support SAML, so password capture/replay is the next best thing
Thanks to its reverse-proxy architecture, SSO can detect that a login form is being displayed by the application, and automatically insert the user's saved username and password.

Unlike browser password replay solutions, SSO stores the encrypted credentials safely behind the corporate firewall.

The user can opt out of form fill single sign-on if desired.

SSO provides seamless user navigation through the listed HiDOE applications by managing all HiDOE users' application user name and passwords within a single interface. This will simplify the day-to-day usage, operation, and management for all HiDOE user groups navigating and utilizing the listed applications.

**Implementation Process:**
All aspects of the implementation process were defined, managed, and controlled by State employees. Oversight of the project and the outcomes were also the responsibility of State employees. The simplified implementation process that was followed is listed below:

- Assess the readiness of each application for SSO
- Plan the implementation of SSO on each application
- Implement the SSO platform on each application
- Test the SSO solution, which includes:
  - Identifying problems
  - Finding solutions to the problems
  - Developing the solution
  - Implementing the solution
- Determine training needs
- Develop training materials
- Production deployment of each application

**Project Status:**
The SSO project started on June 29, 2012 with the signing of the Request for Proposal (RFP) contract. HiDOE managers, staff, and the vendors worked closely together throughout the implementation process and on November 9, 2012 a memo was sent out to all staff by Superintendent Matayoshi informing staff that the SSO system was available for use and contained 5 critical application used by HiDOE which were:

- DSI Data for School Improvement
- eHR – Human Resources
- Kronos – Time and Attendance
- LDS Longitudinal Data System
- FRS Financial Reporting System
- SSES Statewide Student Enrollment System

The SSO application is now a key component of the HiDOE infrastructure plan and more applications and functionality are being added. At the time of this award nomination application writing there are now 12 applications currently running in SSO.
(including our Student Information System, Facilities Management System and our Customer Support website).

**Significance of the project to the improvement of the operation of government**

The introduction of the SSO system represents a milestone in the way the HiDOE utilizes its resources. Now, even the most disparate applications can flow seamlessly from one to another by having users use a single username and password to sign on at the very beginning of the session.

A number of beneficiary and stakeholder groups have benefited from the introduction of SSO which include:

- All staff – who no longer need to remember separate usernames and passwords for SSO enabled applications
- Application owners – who can encourage greater adoption of their applications by having staff, who often forget their credentials, sign on more easily
- Customer Service Desk – who have less service calls relating to the forgetting of usernames and passwords and/or having password resets requested.

**Benefits of the Project**

The SSO project has had a constructive and positive impact on the way HiDOE is and will be conducting business going forward. Effected parties range from the Customer Service Desk representatives to the various HiDOE application owners all the way to the individual staff members at HiDOE. The impact of having SSO as a solution is that it very much reduces the administrative burden in some areas while improving the user experience of all users and ultimately the productivity of all staff by reducing barriers that they might encounter while performing their daily duties.

Prior to the introduction of SSO staff would need to remember usernames and passwords for each application causing frustration and ultimately resulted in some staff not being able to use some applications. With the introduction of SSO all that is required is for staff to remember one username and password and all SSO enabled applications will become available to them.

Security, as provided by the reverse proxy technology, is a benefit that is not seen by the staff but adds an additional layer of protection by hiding the actual secured website and instead redirects users to the Proxy Service.

The problem with having multiple usernames and passwords has long been an issue with staff who sometimes need to access in excess of 10 applications in the course of their regular duties. Feedback from the field has been overwhelmingly positive for the simplification that the SSO service provides and staffs are anxiously awaiting the release of additional applications and capabilities from the SSO project.
The SSO project will also be tied into our Active Directory project and Converged Infrastructure project that would eventually provide users with not only the ability to have SSO for web based applications, which is what is in place with this launch, but also access to the network and all related resources. When this is done a user would be able to sit down with their PC/Mac/Tablet and through a Single Sign On when accessing their device would be able to inform the network of who they are, where they are, what applications (both web based and client based) they have access to and what peripheral equipment they have access to. In addition staff will also be able to request new accounts, services, and even hardware through a shopping cart application that operates very similar to Amazon’s version. Also with the increase in services that we will be providing to staff the tied systems will also introduce very granular auditing and monitoring that will allow reports to be generated that will provide details on who requested a service, who approved the service for that individual, reports on usage of that service, as well as information on the closing/suspension of the services or accounts for all 25,000 staff at HiDOE. All of these services have been identified, designed and procured. With the launch of SSO the work on the software and hardware is progressing well towards the goal of having the vision realized by late 2015.