

REUSE OF NATIONAL INFRA- STRUCTURE

→ PUTTING TEACHERS IN
TOUCH WITH EACH OTHER

Education Services Australia's website me.edu.au helps teachers to network and share ideas and resources in a secure environment. This pilot was designed to allow Catholic Education Office Melbourne's teachers access to me.edu.au from within their authenticated e-learning environment without needing to create yet another login. An innovative combination of SIF identity provisioning and OpenID authorisation (using the strongest points of both technologies) allows CEOM to retain continuous management of its staff's identities while providing them with Single Sign On access to the resources of a trusted third party.

→ WHAT WAS THE PROBLEM?

Good teachers are always in search of new ideas, resources and inspirations for their work. The me.edu.au teacher networking site hosted by Education Services Australia (ESA) is designed to put teachers in touch with each other and create communities of interest where subjects, such as online safety and cyber-storytelling, can be discussed and resources shared. Facebook-like tools such as profiles, newsgroups and blogs are also available on this site.

To be successful, a social networking site needs a critical mass of members and resources so that users have a better chance of making a useful connection to people or content. Busy teachers need transparent access to such sites without the barrier of additional logins and passwords.

To enable seamless access, jurisdictions

need to send teacher login lists to the provider of the social networking service. This traditionally requires the jurisdiction to relinquish control over that information, creating risks to privacy and information quality.

The Catholic Education Office Melbourne (CEOM) manages a wide range of internal ICT systems and wishes to enable additional services from external providers without surrendering their user login control.

→ HOW WAS THE PROBLEM SOLVED USING SIF?

This pilot used a combination of SIF and OpenID to address access and control issues. The pilot demonstrates that teachers from the Catholic schools network can access me.edu.au without new logins and passwords. Additionally, SIF allows ICT managers at the CEOM to control what information is stored in

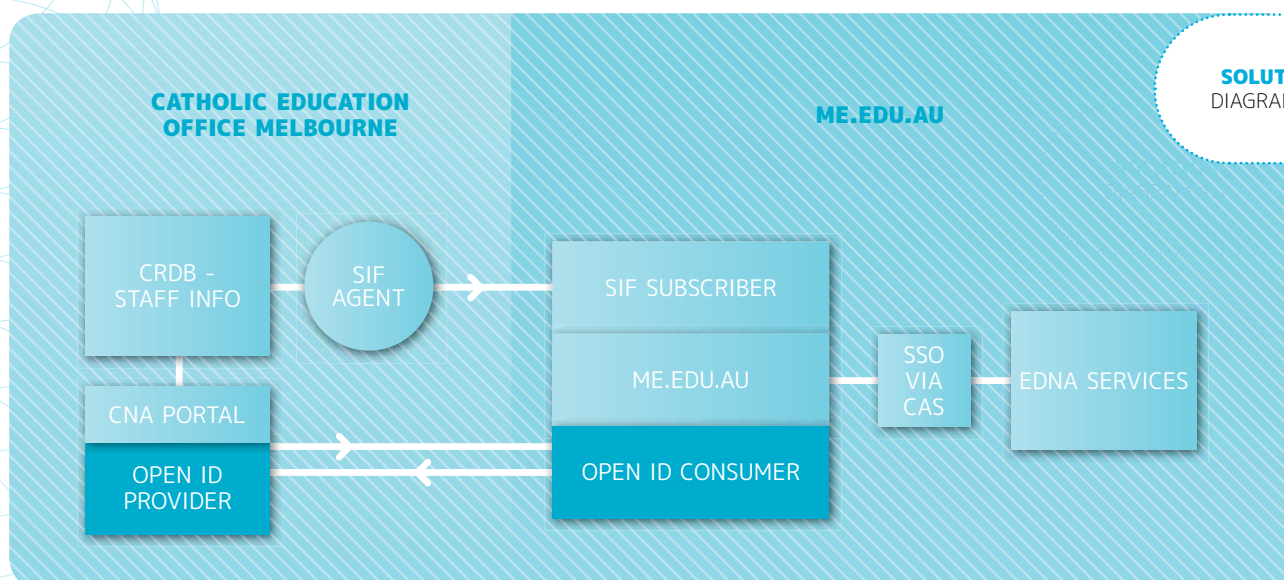
→ BACKGROUND

The Digital Education Revolution envisages "technology enriched learning environments" for all young Australians. Putting the right information at the right time into the hands of learners, teachers, parents and policy makers is critical for its success.

Since 2007 Chief Information Officers from Australia's state and territory education systems, together with colleagues from the Catholic and Independent school sectors, supported by the Commonwealth Department of Education, Employment and Workplace Relations, have been building an open standard for interoperability between Australian schools to enable information to be used when and where it is needed. The work has centered on the use of the Systems Interoperability Framework (SIF) to facilitate the exchange of information.

This initiative, known as "Towards SIF AU", has developed a national specification - the SIF Implementation Specification (Australia) - and a business case identifying the costs and benefits of adopting SIF. A program of 12 pilot projects solving practical interoperability challenges has shown the clear benefits of working together and using SIF to solve common problems.

This is a summary case study of one of these pilots.



me.edu.au while still directly managing teacher access.

SIF is used to transfer data from teacher profiles located in the CEOM's Central Repository Database (CRDB) to the me.edu.au online collaboration system at ESA, establishing a profile for each teacher in the system and automatically enrolling them in interest groups and other features of the collaboration site. Data transferred includes teaching levels, teaching areas and special interests.

Currently me.edu.au users must complete their profiles and enrol in other services manually. The pilot used SIF to largely automate the enrolment process for teachers in several test Catholic schools. Relevant teacher profile information was transported from the CEOM CRDB database into me.edu.au and used to automatically establish an account for each teacher, along with their me.edu.au profile and community group membership. Sophisticated business rules were established to maintain user integrity, requiring changes to me.edu.au. For example, a user whose details were maintained from CEOM would be unable to change that information in their me.edu.au profile.

Data for the pilot was mastered in the CEOM database. Scrambled data was used for this pilot pending the resolution of trusted federation policy discussions..

→ OPENID

Single Sign On was achieved using OpenID, with the CEOM staff database as the identity provider. When a user is already logged into the CNA portal, a link enables a transparent logon to me.edu.au.

→ BENEFITS

JURISDICTION BENEFITS

Many insights have been gained though having a SIF solution tested in the context of cross-jurisdictional needs and infrastructure. Development staff have increased their capability in interoperability. Methods, examples and an emerging culture of sharing of information about interoperability has been established. Additionally, the pilot projects provided a model for replacing existing bespoke solutions with an approach based on open standards, and explored real-world issues associated with that process.

Participants have gained tangible benefits from helping to create a piece of national infrastructure. The open source agents and frameworks created can be reused collaboratively, with the advantage that shared maintenance reduces costs, expertise is preserved and a larger pool of users can share problem solving. This continues the development

of a knowledge- and code-base that can be reused across Australia, distributing capability to assist jurisdictions as they address the complex challenges of the Digital Education Revolution.

WIDER BENEFITS

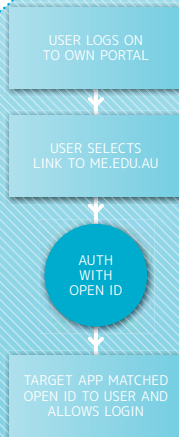
This pilot has assisted in the testing and implementation of the newly-developed Australian SIF standard. In addition, SIF skills are transferable to other jurisdictions or vendors, and both open source code and the lessons preserved in the knowledge base can be reused in future projects. Finally, the national SIF AU program took responsibility for reducing barriers and costs of the current problems that jurisdictions are trying to solve, developing through this project a solution pattern directly applicable to other situations.

BUSINESS BENEFITS

The generic OpenID solution developed, applied with variations across three pilots, retains applicability to future projects which use SIF to provision authentication. Participants in this pilot collaborated with two other pilots to generate components towards both pilot and future production solutions. Open source components, the solution pattern and associated knowledge assets developed through this project are directly relevant and available to other

“THE FRAMEWORK IS A COMMON PLACE TO PUT THINGS SO I DON’T HAVE TO WORRY ABOUT THOSE ISSUES ANY MORE.”

OPEN ID DIAGRAM 1.2



situations where a school or school system wishes to embed a service provided by a third party into its digital learning environment. At least one future project plans to use the software agent developed in this pilot.

The project generated a subscriber cache used with the Common Framework, both of which were re-used by another pilot project.

The successful outcome of this pilot has demonstrated that the CEOM can improve teacher access to me.edu.au resources while still maintaining control of that access. Additionally, ESA has the potential to improve user enrolments to me.edu.au, thereby improving its social network and resources.

Pilot participants now understand many of the intricacies of managing the provisioning of staff identities into third-party systems, such as dealing with staff who teach at multiple schools or who are changing schools. A major contribution was the clarification of teachers' roles both nationally and in the SIF AU specification. This promises potential benefits in linking teachers, reporting and many other areas.

The pilot completed within timeframe despite a serious delay due to external dependencies on database redevelopment and infrastructure setup for SSL (Secure Sockets Layer) certificates. The recovery from these delays demonstrates the speed and flexibility of development with SIF.

→ PARTICIPANTS

The project was sponsored by Jeff Gunn, Manager of Business Systems at CEOM and Jerry Leeson, Business Solutions Manager at ESA. Funding was provided through the Towards SIF AU Program as a part of the Federal Government's Digital Education Revolution (DER). All participants contributed in kind to this new approach to solving real-world problems.

Software development and technical support for this project was undertaken by a commercial provider (RM Asia Pacific) and ESA. RM Asia Pacific developed the SIF Agent for the CEOM. ESA developed the SIF Agent for me.edu.au. Both participants provided their time and expertise, and contributed to the project knowledgebase throughout the project. The Towards SIF AU Program acknowledges their contributions.

The Zone Integration Server (ZIS) used in the pilot was provided by the National Systems Interoperability Service (NSIS) which was established as a shared resource for the Towards SIF AU Program. RM Asia Pacific and Edustructures provided Agent Software Development Kits (ASDKs) and support for the pilots.

→ PARTICIPANT EXPERIENCE OF THE PILOT

Developers found that reuse of frameworks and knowledge benefitted other pilots. One ESA developer who worked on two pilots said:

"[Comparing my development of the RNI and SCO agents] the SCO one has taken a

lot less time...A lot of the agent code was very similar!" [Developer 2/6/10]

The same developer wrote a framework which he could reuse, then contributed it as open source for others:

"...the sort of framework things I've written are based on the fact that I've had to do a second agent - knowing all the problems, the things I had to overcome, putting that in a common place so I don't have to worry about those issues anymore." [Developer 2/6/10]

Developers at the CEOM also anticipated reuse benefits for other projects:

"... we can reuse our CEOM Staff agent in the EWA project, adding some additional bits and pieces." [Architect 2/6/10]

Sharing of information across jurisdictions meant that policy issues sometimes became greater dependencies than technical issues:

"We're doing a lot of cross jurisdictional access in terms of the data protection. That sort of sharing of information -- the policy side of things. Technically, it is straightforward to share...these were an extra dimension to the projects which we didn't have in [Phase One pilots]" [Architect 2/6/10]

→ KEY FINDINGS

As the pilot progressed, a number of key findings emerged:

- **Development time and cost was reduced** due to co-learning, collaboration and working to a common data specification. Using the groupsite, people worked together with increasing enthusiasm and confidence, updating



each other's documents, helping each other across jurisdictions, and sharing access to experts.

- **The SIF AU Specification supported the interoperability needs of the pilot program.** However, to continue to serve the needs of the Australian education sector, the SIF AU specification requires ongoing development, including regular engagement with local industry and SIF vendors.
- **Widespread reuse of many project elements saves time:** Reuse of existing and newly developed frameworks, and an OpenID model that could be varied for individual pilot needs, reduced development time in this and other pilots.
- **Policy issues take time to resolve, but provide useful models for the future:** Policy issues and discussions emerging from this pilot laid the groundwork for a 'trust federation' which could be adapted by other cross-jurisdiction projects in the future.
- **Third-party dependencies delay otherwise rapid SIF development:** The pilot experienced some delays due to external dependencies including database redevelopment and infrastructure setup for SSL (Secure Sockets Layer) certificates. The project finished on time owing to savings achieved by rapid SIF development. Approaches for managing such dependencies will be important to future projects.

→ NEXT STEPS

On successful conclusion of this pilot the following steps were recommended:

- Actively communicate lessons from this pilot to stakeholders undertaking similar system development
- Pass on any data mappings requiring extension or creation of SIF Objects to the SIF AU Data Standards Working Group (DSWG) to improve the evolving SIF AU specification.
- Reuse open source agents (in particular the publishing agent) developed in this pilot in a production version of this project, as well as in other similar projects.
- Continue to work towards trusted federation policy between ESA, the Department of Education and Early

Childhood Development and the CEOM, both for a potential production version of this pilot and as a reusable model for other cross-jurisdiction production projects.

- Redevelop the publishing agent for use in future projects.

→ ABOUT THE SYSTEMS INTEROPERABILITY FRAMEWORK

The Systems Interoperability Framework (SIF) is a simple but powerful approach to integrating information from diverse computer systems. SIF manages both the "what" and the "how" of information sharing. Its core components are: a specification of what is to be transferred (the SIF Implementation Specification); a software agent that maps the information in a computer system to the Specification; and a "traffic cop" directing the flow of information between systems known as the Zone Integration Server (ZIS).

The SIF Implementation Specification (Australia) is administered in Australia by the SIF Association Australian Management Board, and internationally certified by the SIF Association.

→ ACKNOWLEDGEMENTS

The Towards SIF AU Program acknowledges support provided by participating education authorities and the Online

Curriculum Resources and Digital Architecture initiative, one of a suite of initiatives under the Australian Government's Digital Education Revolution (DER) provided by the Department of Education, Employment and Workplace Relations. The program was managed by the Towards SIF AU team based at the Victorian Department of Education and Early Childhood Development.

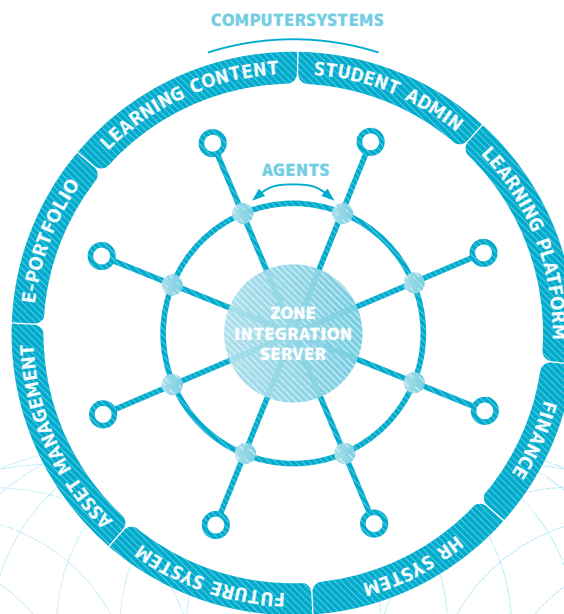
→ MORE INFORMATION

This study forms one of 12 case studies on pilots from Tasmania, WA, SA, Catholic Education Office Melbourne, Enterprise Scale SIF, National Systems Interoperability Service and the SIF AU Specification, as well as Scootle Integration (TAS), Tri-Borders (WA, SA & NT), Cross Jurisdiction Integration (VIC & CEO), Reuse of National Infrastructure (CEOM & ESA) and Learning Platform Independence (ACT & MELCOE).

For more detailed information: Find case studies, the SIF AU Pilot Program Report and other useful information on the SIF AU website:

<http://au.sifassociation.org/>

Contact SIF AU by email: info-au@sifassociation.org



THE SIF ARCHITECTURE
DIAGRAM 1.3

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