

**PREFERRED STANDARDS TO SUPPORT NATIONAL
COOPERATION IN APPLYING TECHNOLOGY TO
VOCATIONAL EDUCATION AND TRAINING**

2000

PROPOSED PROJECTS

**FRAMEWORK FOR NATIONAL
COLLABORATION IN FLEXIBLE LEARNING IN
VOCATIONAL EDUCATION AND TRAINING**

2000-2004

**AUSTRALIAN NATIONAL TRAINING AUTHORITY
STRATEGY 2000 PROJECT 2/5.1**

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This document forms part of a series of reports on
Preferred Standards to Support National Cooperation in Applying Technology to
Vocational Education and Training

An initiative within the
Framework for National Collaboration in Flexible Learning in
Vocational Education and Training
2000-2004

All reports and consolidated recommendations are available at
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2000

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Date: 30 October 2000
Version: Final

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Document Information:

Acknowledgments: Thanks to Jon Henry for his comments.

Revision History:

Version	Date	Author	Comments
0.1	25 Oct 00	Margaret Turner	Initial list of proposed projects generated from Draft Reports and Working Group workshops
0.2 Final	30 Oct 00	Jon Henry	Comments added.

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Executive Summary

This report collates the additional project topics which were proposed during the course of the VET Preferred Standards Project. The proposed topics are outside the scope of the Preferred Standards Project, and significant pieces of work in their own right. They arose from discussion on the email lists and during the workshops.

1 Introduction

1.1 Purpose

This report collates the additional project topics which were proposed during the course of the VET Preferred Standards Project.

1.2 Background

The aim of the VET Preferred Standards 2000 Project is progress towards a nationally agreed, standards-based environment for the use of online training experiences. The Project will produce a revised and extended version of a document called [Preferred Standards to Support National Cooperation in Applying Technology to Vocational Education and Training](#).

The Project is part of the *Australian National Training Authority's Strategy 2000*, which commences the implementation of the *Framework for National Collaboration in Flexible Learning in Vocational Education and Training 2000-2004*, which, in turn, supports the broader scope of the *National Strategy for Vocational Education and Training*.

1.3 Scope

This report does not provide the background information which led to these project proposals. This is available in the project's final report, specifically in the technical reports.

1.4 Document Structure

A list of the project proposals is provided.

2 Proposed Projects

2.1 XML and the Electronic Student Record

[*Proposed Project*] It is recommended that the development of XML schemata required for the Australian VET sector be commenced. These developments should accompany all relevant initiatives in the VET Sector. This concept was considered by various Working Groups and extended to include an Electronic Student Record and the XML schema to support it.

2.2 Security

[*Proposed Project*] It is recommended that a project address security standards including those for secure delivery of information, authentication of student submissions (eg. online examination responses), server authentication, and copyright issues.

2.3 Wireless and Mobile Access

[*Proposed Project*] It is recommended that a project address standards for wireless and mobile access. This is a growth area within the educational and training sector and VET needs to harness its benefits, and integrate its technologies through the use of standards.

2.4 Framework for Online Training Delivery

The workshop identified three areas of online training that require standards of a general nature

1. Teaching
2. Tutoring
3. Assessment

Workshop members agreed that the development of a framework for online delivery would assist TAFE practitioners. The framework would provide an agreed terminology for online delivery (eg. definitions of “distributed training” and “broadcast”) and would consider issues such as “delivery, but not down the phone”. The framework would not be directed at the level of infrastructure or protocols, but at a broader view of the delivery technologies and the options they provide. For example, the framework would examine the current requirements (eg. bandwidth) for online delivery.

[*Proposed Project*] It is recommended that VET develop a framework for online delivery. The framework would provide an agreed terminology for online delivery and would consider delivery methods. The framework would not be directed at the level of infrastructure or protocols, but at a broader view of the delivery technologies and the options they provide.

2.5 Terminology

Terminology used by the Australian VET sector and the software applications implemented within the sector need to be consistent or to have a mapping between them. For example, “Units of competency” adheres to the National Framework, but is not used by American software where it is similar to a “module”. This project could be part of the broader framework project described above.

[*Proposed Project*] It is recommended that ANTA reconsiders the terminology of the National Training Framework. One possibility is to make changes which conform with IMS, SCORM or other international standards. Alternatively, precise definitions of Australian terms such as “competency”, “unit” etc should be made available.

2.6 Personnel and Organisational Information

VET stakeholders need to locate people and organisations that hold important information relevant to their learning or training experience. LDAP is a standard protocol aimed at accessing personnel and organisational metadata. As well as defining a protocol for accessing metadata it defines metadata for describing people and organisations. LDAP is defined in IETF RFC 2256.

[*Proposed Project*] VET should develop the Consultant's (DSTC's) proof-of-concept demonstration of a directory of practitioners in the VET sector. This directory is based on LDAP. Costs, standards and State/Territory responsibilities should be established.

2.7 Codecs

[*Proposed Project*] It is recommended that a project be established to examine the use of codecs, and produce guidelines for the choice of codecs and settings appropriate for training delivery within VET.

2.8 Virtual Reality

[*Proposed Project*] It is recommended that a project examine the technology and standards of Virtual Reality. The project would develop guidelines for equipment, software, and resource sharing and would lead to the implementation of pilot study modules. One possible topic for the pilot would be remote sensing image formats and the automatic conversion of these to virtual reality tours.

2.9 Thin Client Technologies

It is recommended that a project examines the value of thin client architectures in the VET domain. Thin client¹ could be a consideration for Office / Administrative work eg. word processing spreadsheets, and email. There are a variety of vendors that provide thin client hardware and software (see References).

Thin client solutions require a server to run the applications, a display engine to provide the user interface, and a communications protocol for the client-server interaction.

Communication protocols can be

- proprietary, e.g. Citrix ICA², Unix and Microsoft RDP³, or
- open, e.g. http or X Windows.

¹ "A "thin processing" client in a client/server environment that performs very little data processing. The client processes only keyboard input and screen output, and all application processing is done in the server. Examples are X Window terminals and Windows terminals. See X Window and Windows terminal. Contrast with fat client, which is a typical desktop PC performing all or most of the application processing" (TechWeb <http://www.techweb.com/encyclopedia/>)

² Independent Computing Architecture - the core of Citrix's MetaFrame and WinFrame software which enables a Windows or UNIX server to run an application for multiple users simultaneously while sending only the changes in the user interface to the client machine. This is similar to the days of mainframes, but with a graphical interface rather than character based one. ICA client support includes Windows, DOS, Macintosh, UNIX, Java and Web browsers. Numerous embedded devices are ICA-enabled as well. Originally known as the Intelligent Console Architecture, ICA provides a presentation services protocol that governs input/output between the server and clients. ICA also supports local ports for printing and other interconnections. The timeshared, multiuser processing that allows this all to take place is provided by the native capabilities of UNIX and the Terminal Server options in Windows NT and Windows 2000, the latter being the MultiWin kernel originally developed by Citrix and acquired by Microsoft. ICA is also used in WinFrame, Citrix's first implementation of this architecture.

³Remote Desktop Protocol - the presentation services protocol that governs input/output between a Windows terminal client and Windows Terminal Server. It is based on the T.share protocol.

Clients can be pure hardware or may make use of software.

Client software can be

- proprietary, e.g. Citrix Metaframe and Microsoft RAS , or
- open, e.g. web browser and X server software.

The application server may use

- proprietary software, e.g. from Citrix or Microsoft , or
- open systems software, e.g. Unix.

Software is available that can translate between protocols used by an application server (both open and proprietary) and open protocols for use by the clients. This software shields the user from proprietary protocols.

A hardware option for the client may be to utilise the existing hardware and purchase something like the "Esprit PC-TCV" which provides the following features:

- Delivers the Total Cost of Ownership savings when utilizing legacy PCs as ICA clients
- Links desktops to multi-user NT application servers
- Plugs into any 16-bit ISA slot
- Prevents Transfer of corporate data to desktop storage
- Windows 3.1, Windows 95, Windows NT and DOS Text applications using built-in OS and ICA engine -eliminating problems related to desktop OS
- Only uses PC's processor, keyboard, video board, memory, and mouse - no disk storage required -self contained card end emergencies caused by Hdd failure or corruption
- Sets Network access to be to PC, terminal or both
- Complies 100 percent with ICA/3 Protocol - guaranteed
- Provides Built in 10BaseT network interface
- Three year warranty

Esprit is used above as an example only. Other possibilities include an Oracle web appliance or Tarantella.

[Proposed Project] It is recommended that a project examine the nature and value of thin client architectures in the VET domain. Appropriate standards would be recommended.

2.10 Electronic Commerce, Smart Cards, and Financial Transactions

There are many developments occurring under the broad term of electronic commerce.

[Proposed Project] It is recommended that VET considers the banking standards for financial management and possible interconnectivity of VET management systems with banking systems. This could be part of a broader project that investigates the use of emerging ecommerce technologies such as smart cards and their potential use in transfer of student funds and student records.

3 Conclusion

This report has provided a list of proposed projects. This list evolved from discussions and workshops of the Preferred Standards Project.

4 References

Thin Client Hardware vendors

<http://www.espritsys.com/pctcv-f.html>

<http://www.ncd.com/>

<http://www.wyse.com/solution/position/index.htm>

<http://www.espritsys.com/>

<http://www.boundless.com/index.asp>