

Report to the AARNet Advisory Board

AARNet Directory Services Project

Prepared by:
Graham Rees
AARNet-DS Project Manager
The University of Queensland

May 15, 1991

Introduction

This report is made to the AARNet Advisory Board about the AARNet Directory Services Project. This project proposes to implement a pilot, national electronic directory based on the CCITT X.500 Recommendations. The participants are The University of Queensland, The University of Sydney, Monash University, The University of Adelaide and the CSIRO, Division of Information of Technology.

The directory has been implemented using the ISODE/QUIPU software. Four computers systems have been purchased to provide the Directory Service Agents (DSAs) for this project. However, there are a number of other DSAs in Australia which are all linked to the international Directory Information Tree (DIT) consisting of QUIPU DSAs.

The main aims of the project are to gain experience in implementing, populating, operating and managing a large distributed directory. The project began late in December 1990 and will present its final report to the AARNet Board at the Networkshop, in Hobart, in December 1991.

History

The AARNet Advisory Board received a number of proposals in 1990 requesting funds to develop electronic directories in the AARNet context. The Board requested that the proposers combine their requests in order to better focus scarce resources. This was achieved at a meeting held at The University of Queensland on 6 December 1990, and a proposal was presented to the Board about a week later. The combined proposal was accepted by the Board on 20 December 1990.

Present Status

The meeting on 6 December was the first time most of the participants had met face-to-face and to consider a cooperative project of this nature. There was a great deal of discussion about how to implement the project to provide meaningful results from the project and to provide a base for the continued development of directory services within AARNet. At that time, The University of Queensland was the only site to have a machine dedicated as a DSA. It was decided to purchase 4 computer systems to be used for development and to operate as dedicated DSAs in Brisbane, Sydney, Melbourne and Adelaide. It is anticipated that, at the conclusion of this project, these machines will provide regional support for directory services in those States.

The first task then was to purchase suitable systems for the DSAs. The systems were sized with sufficient capacity so as not to limit development during the project. Both DEC and SUN were approached on the basis of being a partner in the project rather than just as a vendor. DEC were very enthusiastic at this approach and the purchase of four DEC 3100 Ultrix systems at 75% discount was negotiated under Digital's External Research Program. These negotiations and the subsequent equipment delivery took somewhat longer than expected, with the result that the project is now behind what was initially anticipated.

A Face-to-Face meeting was organised for April 18/19 at The University of Sydney to organise the next stages of the project. The minutes of this meeting are attached to this report. By early May, all the equipment had been delivered, acceptance tested and the ISODE/QUIPU software installed. Work is now proceeding on populating the DSAs.

Project Schedule

1Q91

- Development of Project Management Structure
- Initial Project Implementation Plan
- Hardware Acquisition

2Q91

- Face-to-Face meeting April 18/19: Continued development of the project implementation plan.
- April 30: DSA systems installed and ISODE/QUIPU software operating.
- May 31: Report to AARNet Advisory Board
- May - July: Populating DSAs and associated update and management procedures.
- Planning Focussed projects

3Q91

- Aug 23: Report to AARNet Advisory Board
- Sep 24/27: Face-to-Face meeting at AUUG, Sydney.
- Focussed Projects

4Q91

- Nov 25: Report to AARNet Advisory Board
- Workshop December 2/4, Hobart: Final Project Report

Implementation

The basis for the directory service is the ISODE/QUIPU software. The ISODE software is a non-proprietary implementation of some of the ISO Open Systems Interconnect (OSI) protocols; in particular, the upper layer protocols in the Application, Presentation, Session and Transport Layers. ISODE uses the TCP/IP protocol suite as an underlying transport mechanism. The purpose of producing this software and making it openly available was to accelerate the process of development of applications in the OSI protocol suite and provide a base for experimentation and testing of these protocols. ISODE has been in development since 1985 and ports exist onto a wide range of Unix systems, with experimental ports onto DEC VMS and IBM VM systems.

QUIPU is a public domain implementation of the OSI Directory as specified in the CCITT X.500 Recommendations / ISO 9594 for Directory Services [1988]. QUIPU is distributed with the ISODE software and was developed to provide an environment for experimentation and pilot X.500 Directory Systems. It originated in 1987 at University College London (UCL) as an ESPRIT project but has subsequently been supported by the Joint Network Team (JNT). QUIPU now forms the core DSA for a number of significant pilot directory systems around the world. There was 175 DSAs with over 300,000 entries spread over 349 organisations, world wide, in late 1990. In Australia there are 12 DSAs with over 10,000 entries. This forms the only X.500 distributed directory in service world wide.

Funding

Expenditure to date for the 4 DEC systems at \$10,930 each is \$43,720. Other expenditure incurred has not been finalised as yet.

Project management

Cooperation between the participants has been very good. The main means of communications is a project electronic mail distribution group. Mail addressed to: "aarn-ds@brolga.cc.uq.oz.au" distributes to all the project participants. There has been an average of 2/3 mail messages per working day during 1991 with peaks of around 10 per day. The group is sensitive to this form of communications and responses to queries are generally fairly quick, certainly no more than a day. The messages are mainly quite short, comprising only a few lines to a page at most.

There is still a need for face-to-face meetings where a great deal of work can be covered in a few hours. These meetings combined with the electronic conferencing provides an extremely productive environment in which to progress a distributed development project of this nature.

Archives of information and programs are maintained for easy access via FTP.

One important observed outcome, which was not expected to become so apparent this early into the project, is that the effort being put into directory services is now focussed nationally. Certainly all the participants knew of the individual effort going into this area and communicated with and supported one another, but it was a very loose liaison. The AARNet Directory Services Project has effected the coordinated development of directory services within AARNet nationally and provided important links to the international DS community which would not have happened otherwise.

Interoperation

No work has been planned in detail in this area at present.

Participation of Others

There have been a few enquiries about participation with others in Australia. This includes people with an interest in running DSAs and students and others wanting to develop DUAs. An installation script is being developed to allow a naive user to boot up a QUIPU directory in

the Australian environment in a meaningful and easy way. Further work is be done in this area.

Liaison with other Directory Service Groups

In the USA there are a number of projects underway in the directory service area. In the main this is focussed through the Internet Engineering Task Force (IETF). The chairman of the IETF Working Group on Directory Services, Steve Kille, is from the University College of London and is also represented on various UK and European working groups. In effect the total world wide effort is fairly well, but informally, coordinated through various liaisons and electronic distribution groups. The AARNet DS Project has established a good working relationship with these international groups.

Publicity

To date very little publicity has been undertaken and no technical papers have been produced.

Attachments

Face-to-Face Minutes & Action List

DEC ERP Contract