Digital Libraries and Related Research at RAL

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Introduction

Rutherford Appleton Laboratory (RAL) has been involved in many projects, some of which employed a few of the techniques associated with digital libraries. Three of these projects will be described briefly.

Library System

In the early 1980s, the RAL Library defined its requirements for an integrated Library catalogue and circulations control system. Our design was based on the integration of two software systems:

- catalogue: based on a free text retrieval system STATUS, developed/marketed by STATUS/IQ Ltd, England
- circulations control: based on a relational database system, initially INFO and later IBM's SQL/DS.

At the time, this was an advanced system using a novel approach to provide a fully integrated library system. It ran until September 1995 when it was replaced by Unicorn, Sirsi Ltd.

Document Repository

Starting from 1984, RAL used IBM's Office Vision (OV, formerly known as PROFS) which provided the following facilities for all staff:
- email
- diary functions
- word processing and document repository
- access to information systems, e.g. staff directories, financial information.

However, there were sometimes problems in finding documents as they could only be retrieved by title, author or keywords. This was not very useful for finding a document which referred to a specific topic, for example from minutes of committee meetings.

We designed a system where all words within the documents were indexed, and full OV document functionality was available. We used STATUS for the indexing and as a search engine. This work was done in collaboration with STATUS/IQ Ltd and they marketed the new system - PROFOUND - to other organisations in the UK. Although PROFOUND was more a document management/retrieval system than a digital library as such, many of the features are common to both.

International Database

Representatives of research organisations of the G7 countries (Canada, France, Germany, Italy, Japan, the UK and the USA) meet regularly to discuss scientific and technological issues. At a meeting in 1987, they agreed to promote further collaboration by exchanging information about current funded research projects. Two representatives from each country were given the task of finding a solution and implementing a prototype system to prove the feasibility of the project.

A similar project - IDEAS (International Data Exchange and Access for Science) - had already started with colleagues in France and Italy in 1985. IDEAS (1) was replaced by the new project - EXIRPTS (EXchange of Information of Research ProjecTS) (2).

Some problems were encountered. For example, not everyone had the same hardware or software, or even a database of research projects. The existing databases had been set up to provide specific functions within an organisation, so major changes were not possible. There were insufficient resources to create a central database.

We agreed that a subset of information about each project would be stored locally at each organisation using the locally available information retrieval system. Protocols (3) were designed and developed for sending remote queries to the other institutes for more detailed information about selected projects, for performing the query, and for returning the results of the query to the user. The protocols controlled and monitored the remote queries across the networks. This was the earliest demonstration of a working heterogeneous distributed database system, and is clearly a technology of interest for heterogeneous library systems (i.e. including ones not using the same server technology).

The software was implemented jointly with colleagues at the CNR, Milan; and although the feasibility of the protocols were proven in late 1991 no further funding for the project was provided.

World-Wide Web

We are involved in WWW activities, including the World Wide Web Consortium and the ERCIM WWW Working Group, and we use web technology to disseminate information (notices, information bulletins; providing access to the internal financial system, staff directories, etc.) to CCLRC staff. Clearly, the WWW extensions we are working on for richer types, query, optimised performance, caching, security, etc. are all relevant.

We have also worked with Milton Park in Oxfordshire in setting up their World Wide Web pages (4). Milton Park has a large proportion of high-tech and science based companies, and it is about 5 miles from RAL.

The Future

RAL has acquired Dienst and we are setting up the server. We are new to Digital Libraries, but our experience from these and other projects will enable us to participate in and contribute to the DELOS and SAMOS projects.

References

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