The Oxford Clinical Intranet

CSW Health and the medical informatics team at the Oxford Radcliffe Hospital have worked together to develop the award winning Oxford Clinical Intranet. (*Information Management Awards, 1998*) This Intranet not only allows clinicians to pick up reports from eight different departmental systems, but also provides relevant clinical support from any one of some 500 linked computers.

The Problem

The Oxford Radcliffe Hospital is a large teaching hospital with over 1000 beds spread across three sites in and around Oxford. The problem of integrating and sharing information across many departmental systems has challenged the Oxford Radcliffe for many years. Dr Jonathan Kay, consultant chemical pathologist and Head of the Medical Informatics Group at the Oxford Radcliffe explained *"Many departments have chosen systems which are best of breeds, but this makes it difficult for a clinician to have one source of access to all."*
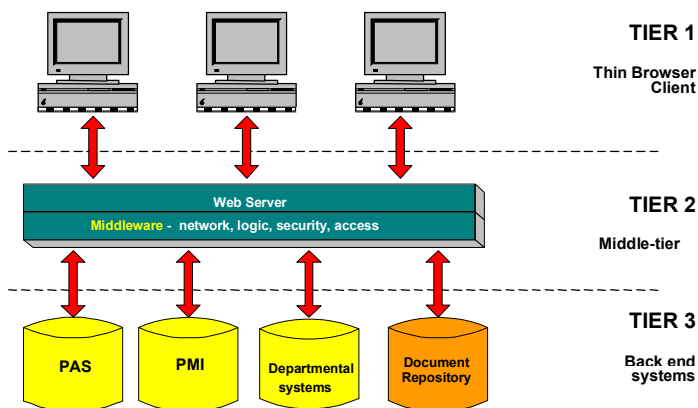
Objectives

The major objectives of the Oxford Clinical Intranet were:

1. To provide clinicians with access to information about their patients held on multiple remote disparate computer systems.

2. To achieve this using a thin-client architecture with cross-platform ability.

3. To provide the impression of a single Electronic Patient Record (EPR) for each patient.

4. To provide access to existing support and advisory information, developed both within the organisation and collected from other sites and projects.

5. To provide automated retrieval and presentation support information, which is contextually appropriate to the component of the EPR currently viewed by the clinician.
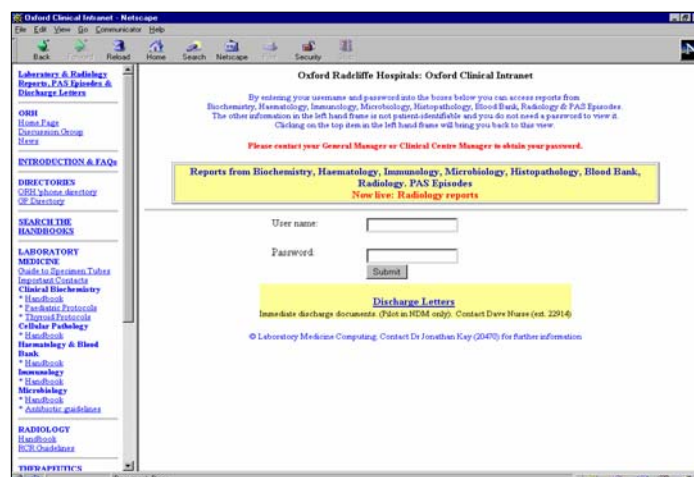
Figure 1: Intranet Architecture

Architecture and Content

The technical developments took place under the direction of David Nurse (now Head of Research at CSW) and used a three tier Intranet architecture to combine previously incompatible hardware and software, whilst delivering one common appearance on screen.

Tier 1 - A web browser on the clinicians' computer.

Tier 2 - Middleware, which appears as a web server to the clients and offers the following functions:

- Access control
- Storage of patient identification which can then be passed to servers without requiring re-entry by the user gateway and similar software to allow access to the servers.

Tier 3 - The end system servers and document repository

Intranet features

In addition to clinical applications, the Intranet provides a unique opportunity to organise and review clinical guidelines and protocols. Documents can be authored, peer reviewed and then published on the Intranet.

Examples of information currently available via the Oxford Clinical Intranet:

- Laboratory reports (including biochemistry, hamatology, immunology, histopathology, microbiology and virology) from three separate laboratory systems
- Blood Bank reports
- Radiology reports
- Immediate discharge documents generator
- PAS enquiries
- GP directory
- Staff directory
- Intranet BNF
- Departmental manuals
- Evidence based medicine journals
- Clinical procedures and guidelines

Results

Since 1996 the features available on the Oxford Clinical Intranet have steadily increased by adding further interfaces to departmental systems and extending the range of intranet applications available.

Usage had grown to nearly 1000 user sessions per day by October 1999 (see Fig 2). A formal evaluation of the Intranet carried out during the summer of 1999 confirmed that clinicians are finding the Intranet an invaluable source of both patient and support information.

Figure 2: Oxford Clinical Intranet, user sessions per day