

Federated Search Engines – the Unified Search Environment: The Western Health Library Experience

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Abstract:

This paper seeks to provide the 'low-down' and 'hands-on' experience in terms of processes involved, in the implementation of a Federated Search Engine, in a Health Sciences Library setting.

While the experience here is peculiar to our Health Sciences Library, the principles and applications far exceed these limitations, and are applicable in other Libraries.

Libraries in this 'cyber age' provide access to a variety of databases in a variety of disciplines. Federated search engines have emerged in order to provide a far - reaching service to our end users viz 'unifying' and providing 'cross searching' of databases and information. This saves valuable time by bridging the gap between 'searching' and 'acquiring' relevant information in a timely fashion.

It highlights the following:

What is Federated Searching?

What are the basic functionalities of the Unified Search Environment as used in NSW, VIC, ACT, NT, and WA state-wide public health information portals.

From chaos to cohesion - providing a single point of entry (a portal) allowing access to a myriad of on-line databases provided by a variety of vendors.

Using the "GO DIRECT" menu to log in and out of individual databases.

Basic Searching using the federated search.

The importance of the thesaurus.

Dealing with the vendor, in an effort to provide a constantly evolving and enhanced on-line access service to Users of the Organisation.

Why Federated Search is an aid, and not a replacement, for a librarian.

Pitfalls to look out for in the entire process.

In conclusion - is Federated Searching a good investment?

Looking to the future of Federated Searching including.

Automated Journal and Textbook authentication and linking.

Handing back control to the Librarian using Content Management Systems.

What is Federated Searching?

A historical perspective on the precursors to federated searching shows us that we have travelled a long way from the 1970's through to the 1990's. We've experienced and used and inflicted upon our users – multiple hard copy volumes and indexes, acoustical modems, desktop access via the growth and development of PC's in the early 1980's, CD ROM's in the mid 1980's, and by the mid 1990's databases were making a migration to the Internet. (Schwarzwalder 2000, p.73-75).

Todd Miller – founder of Webfeat (Miller 2004, p32) makes these observations that the Internet and Google are synonymous. Google is the 'black box' to information on the Internet, providing simultaneous searching of millions of resources in a convenient user friendly way. A 'one-stop-shop' for information retrieval.

According to Sadeh (2004) p.1-12 "all things being equal" it is better to search one place than several. The Google spell has taken our Users by storm. Why? Because it is so simple, provides excellent results with amazing speed and fuzzy searching takes into consideration both English and US spelling. In short and in general, Google addresses most users' needs adequately. The quality and content of information retrieved may be in question, as may be the authenticity and credibility of resources. Nevertheless it leaves end users with information, choices and possibilities that they can then process for themselves, and utilise or not utilise as the case may be.

Amazon.com is yet another example on the Internet of a de facto catalogue for the masses. Our users have been 'spoiled'. As Librarians, information managers, custodians and disseminators of information, we need to keep one step ahead of this trend along with our users expectations.

The proven success of Google has taught us, that if a person requires information they go to 'Google', if they require a book or CD they go to Amazon.com. We shouldn't force users to predetermine the information source as a precondition to their questions. Google has taught us quite powerfully that the 'user just wants a search box'. Arguments as to whether or not this is 'best' for the user are moot. It doesn't matter if it is best – if 'nobody' uses it! As Amazon and Google have demonstrated, users have a funny way of determining what is best for them!"

Roy Tennant from the California Digital Library said, 'Librarians love searching and users love finding' (Sadeh 2004, p.3). This couldn't be a truer statement!

All of the systems listed here went through a process of 'evolution' to bring us to where we are today, in terms of technology, storage, management, extraction and delivery of information.

As 'librarians', 'information managers', and 'knowledge managers' we have also evolved in our 'titles' and roles as custodians and disseminators of information.

We live in the age of information explosion. The imminent need to access, retrieve and disseminate information in a quick, functional, user-friendly manner has in itself created the need for a system or systems whereby this may be achieved. We live in a world where 'instant', 'immediately' and 'now' are hidden adjectives in the way we operate as humans

in all walks of life, or seek to at any rate. The sheer fast - lane and super highways that we travel on, has necessitated the invention and evolution of systems to match our lifestyles, expectations and business. The volume of information and the technology that is now available to us makes this a reality.

“Knowledge is power and this is true for library patrons and libraries. The more librarians and libraries can fully engage their information, the more central they become in the lives of their constituencies. According to Sen. Wendell Ford “If information is the currency of democracy, then libraries are the banks.” (Miller 2004, p.32).

The problem is that our information repositories have been made far too secure, with archaic information management and navigation tools, which unwittingly insulate our users from their vast intellectual currency. The paradox so elegantly demonstrated via Google is, that the most powerful information access approach, also happens to be the simplest and easiest. The most complex and least intuitive interfaces wind up ‘securing information’ not ‘facilitating information access’.

So what is Federated Searching?

Let me pose a few questions in order to answer the query.

- Does information in your organisation reside in ‘silos’?
- Do you and your users have to remember multiple passwords?
- Do you send your patrons to the OPAC terminal to find audio-visual, texts and journals held in-house? Then forward them on to yet another computer to find on-line e-journals and perhaps a third link located on the same computer or a different one for Internet access?
- Are your end users confused about one particular information source against another?
- Do results from a web search and a fee-based premium information source look totally different?
- When researching a subject can you imagine being able to do so in a single search, including subscription databases, Intranet search engines and electronic publications, instead of doing multiple searches across different sources and deleting duplicates?

The technology is here – federated search also known as parallel searching, meta-searching or broadcast searching is here.

Federated searching aggregates multiple channels of information into a single point. (Fryer 2004, p.34).

I’d like to describe it as a ‘draw-string’, bringing electronic on-line information together, thus unifying a myriad of subscription databases, digital repositories and the Internet through a ‘single gateway’ or portal.

This in itself reduces the time spent by the end user and librarians, in searching for information. It usually displays results in a common format. This provides the information in a ‘unified’ manner through one seamless gateway. Library users and librarians, then have the option of choosing which database they wish to continue to perform more ‘in-depth searching’ in. They also have the option to go back to the original menu of database options, to continue further searching other resources and databases.

Some major players in the development of federated search engines are, Muse Global (Muse Search), Fretwell-Downing (Zportal), Webfeat (Knowledge Prism), H.C.N.'s U.S.E. (Unified Search Environment) and many more. At Western Health we have chosen the latter.

These products offer users access to multiple databases, through one search interface.

Melbourne University is in the process of implementing a federated search solution called CoSI, (Common Search Interface) in order to provide cohesive access to their electronic resources. <http://www.lib.unimelb.edu.au/metalib/metalib01.html>

According to Schwarzwald (2000, p.73) "(rather) than an explosion in information we have had an explosion in access".

In the library space, federated search evolved from the 'broadcast search', which involved Z39.50 protocol. Libraries moving beyond virtual on-line catalogues, gave the ability to include subscription databases, the Internet and virtually anything in the electronic arena via authentication.

Meta search, federated search, cross-searching of databases, parallel search, single search and broadcast search are terms that describe the current trend of offering simultaneous searching of multiple e-resources.

Meta search offers simple and advanced search options. When a user submits a query to a Meta search system, it broadcasts it to heterogeneous information resources simultaneously. Even though Z39.50 protocol and compatibility exists, the Meta search system must make adjustments so that the databases search engine will make the relevant adjustments to produce appropriate answers to the query put forward. The algorithm displays the best results first. The process is in two stages. It delivers the query and obtains the number of hits, along with a reference to the result list.

Dialog, Lexis Nexis and Ovid are some of the database providers, who provide cross database searching within their collections for some time now.

Z39.50 protocol or standard was established in 1988 in order to offer a similar solution across library catalogues. Since Z39.50 was established prior to the web, it is difficult to use by the industry, and is not flexible for web protocols that are now available. Not all resources can be set up for Meta searching. Some use Z39.50 protocols, others web HTTP protocol and some XML, and yet others leave it to the meta-search vendor, to determine their methodology. Meta searching can be slow due to IP validation, filtering through a proxy server across resources both in-house and to external servers.

Nomenclature Confusion

Federated search engines are different to meta-search engines that are commonly found on the Internet.

Web search engines are 'free.' Federated search engines, on the other hand, cost anywhere from US \$750 to \$200,000 or more, depending upon the seats, design, functionality and targets or databases and subject categories and thesauri, which are

some of the key items that need to be contended with, and add to the cost of federated searching.

Web meta-search tools such as DogPile and MetCrawler run across multiple web search engines at once, returning sets of results grouped individually in each search source. Names such as VIVISMO and IXQUICK also spring to mind in this context.

In this context meta-search vendors are Muse Global's Muse Search, Web Feat's Prism that is used by Dynix, and Sirsi uses Muse Search, just to name a few common vendors (Wilson 2004).

In selecting a meta-search engine, one needs to bear in mind the following:

- The maximum number of resources the software can include
- The ease of setting up resource targets
- Availability of simple search options
- Speed of search results
- Limiting and refining searches
- Ranking results by relevance
- Export options i.e. print, e-mail, download
- Adequate statistics and reporting features (Wilson 2004, para. 12).

Standards and Development

NISO – (US) National Information Standards Organisation launched and continues to develop initiatives in order to develop and adopt standard search and retrieval protocols for meta-searching. XML – Web protocol and SOAP (Single Object Access Protocol)

Access/Vendor Issues with Federated Search

Verification, authentication and certification can be difficult for the federated search vendor. Since federated search engines don't hold the data locally i.e. the engines perform the search, and send the results back to the portal. The federated search engine must be able to access multiple password-protected databases behind the scenes, or IP validate all at the one time, and show users their results in one easy navigable interface.

The challenge for federated search vendors is to provide only licensed users access to databases, as specified for each licence agreement that is in place for the organisation.

Authentication

Authentication sets federated search engines apart from other expensive and highly sophisticated search software such as Verity and Autonomy. The latter usually restricts searches to internally generated information, ignoring subscription databases that enterprises have bought in-house.

All the user needs with federated searching is ID, password or IP validation along with files to be searched, and the federated search engine do the rest. (Wilson, 2004, Para 6).

The Set-up Process

The set up process is lengthy and time consuming for both the Library and the vendor.

In our experience with USE it took all of 9 months to set up from the time funding was available to several meetings with the vendor, phone-calls and e-mails. This is not the end of the process either! It continually evolves as databases change, or new resources are acquired and links are added to the federated search portal.

Interface issues

You need to decide how much time is to be devoted to design, who is the audience and should this audience be able to perform multiple searches, without having to do more than input their ID and password or IP authenticate, and type in the search query.

Removing Duplicates (de-duping)

Most federated search engines will de-dupe, some only when requested. However this opens up a Pandora's box about how the results are returned.

User habits indicate, that the end user views only the first ten hits or results. How do the vendor and the interface designer ensure that the highest hits are returned? This area is continually evolving, and it is up to the federated search engine provider, to provide what they can, to the best of their technological ability in this regard.

Benefits and Drawbacks of Federated Searching

- The end user benefits from using a federated search engine because it saves an enormous amount of time
 - However, federated searching is not for 'power searching' only basic Boolean commands can be used. The end user still requires 'in-depth' drilling down into various databases, for a more refined and detailed in-depth approach.
 - However, federated search engines are not static and are continually improving, and complex searches will no doubt be possible, in the not too distant future.
 - Initially all databases are unable to be cross – searched unless authentication is provided by the various owners of the databases.
 - True 'de-duping' would take hours. Currently only 10-20 records show up.
 - Relevancy rankings only works on words used in the 'citation' sometimes not even in the 'actual search term'.
 - Federated Searching is more a 'service' than software.
 - Native searches are restricted to the 'native database'.
- (Hane 2003)

Marketing Opportunities

Federated search engines can 'out Google, Google' by returning '*relevant results*'. It can also provide in house information eg. 'policy and procedure manuals' and as mentioned previously – databases subscribed to from various vendors.

What one needs to Consider before Purchasing a Federated Search Engine?

- Try out a system with your various in-house and vendor supplied databases, if at all possible. Determine whether authentication is possible using your 'target areas' i.e. subject areas and databases, OPAC's etc.
- Compatibility with standards such as Z39.50 and web standards previously described.

- If you only require Z39.50 compatibility then there is no need to go 'federated'.
- 100% database compatibility of the Federated Search Engine with your in-house and subscribed to databases, otherwise there is no point in going down this track.
- The ability to display full-text and true native interfaces. If 'screen scrapping' occurs and loses 'native database' functionality, it defeats the purpose of this whole exercise.
- Open URL compatibility with ALL databases.
- Access to external links via any link resolver for all searchable databases.
- The ability to export any database citation to EndNote, ProCite, RefWorks etc. would definitely be an advantage for the end user.
- Parse citations for all databases eg. Sort results by date, author, title etc.
- 24x7 monitoring and updates by Federated Search vendor
- Customer/User interfaces and hosting
- Make sure it works before you buy. Have a trial of the system
- Database searching by remote and in-house 'walk-up' users
- Check references, at least ring 3 users of the vendor's system, and find out the pros and cons before signing up.
- The cost of course that depends on your budget, and who holds the purse strings. Is there a consortium that could ease some of the pain in this regard and afford better leverage? Investigate before you buy.
- Don't pay a lot of money for a federated search product, unless it sits on top of a large and well-maintained knowledge base (Webfeat, 2005, p.1-2).

From Chaos to Cohesion – The Western Health, Health Sciences Library Experience: (How did we do it and why did we do it)?

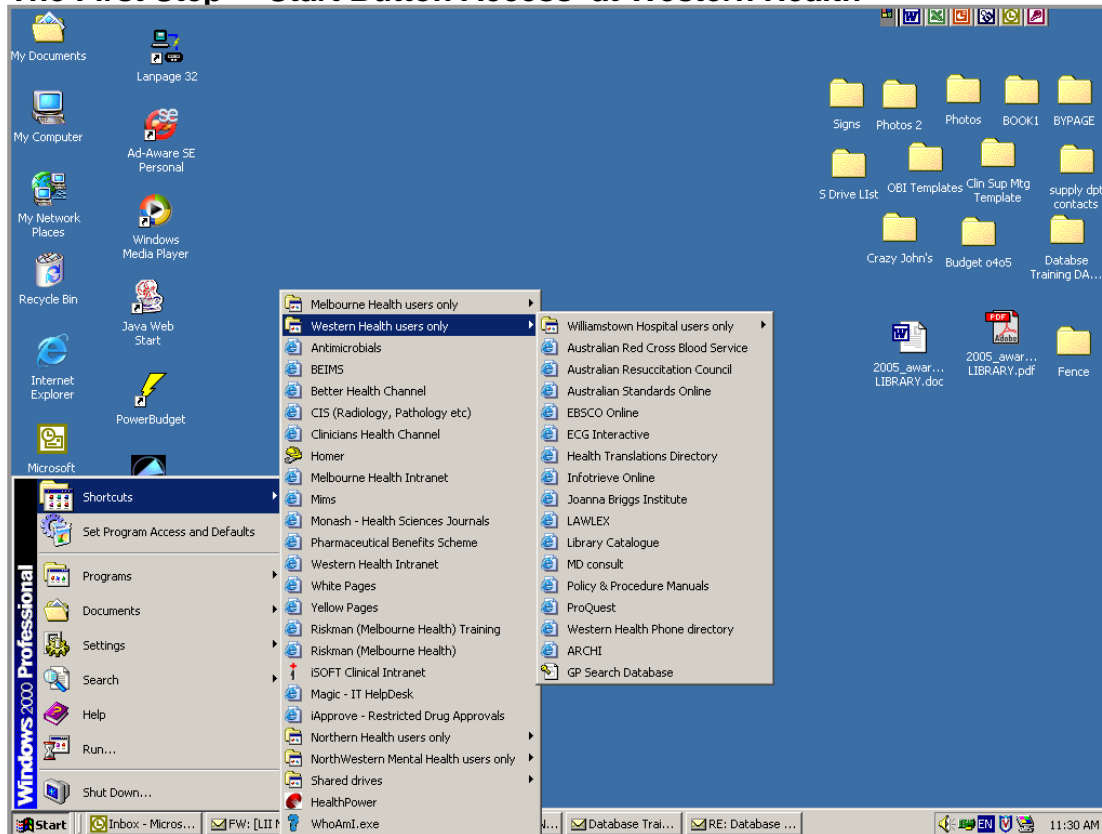
Background

Western Health comprises of 3 hospital sites, 2 nursing homes and a drug & alcohol service's unit. All these sites are set geographically apart.

The Library Service sought to provide equity of access to all Sites, particularly with on-line resources such as databases, e-texts, e-journals, on-line self-directed learning tools, and in other words providing a 'virtual library'.

This task was by no means an easy one. We were able to implement a host of relevant databases, and provided them via the 'start button' on every Western Health employees PC. Passwords segregated each databases, only adding to the mayhem of access points. This in turn created an extremely 'un-friendly' system of access, to otherwise relevant and useful information. We were providing the resources, however, in a distinctly 'chaotic non-cohesive' manner, through no fault of our own at the time. The IT infrastructure was in a nebulous stage, and we had to move step by step with it.

The First Step – ‘Start Button Access’ at Western Health



We were providing extremely costly resources, which were there for use. The ‘start button’, ‘excessive passwords’ and a ‘cumbersome authentication system’ shrouded these resources. It became a nightmare for both librarians trying to explain to users where and how to access information, as well as for our users, who were well and truly ‘bamboozled’ by this stage!

Part of our strategy to alleviate the above problems experienced by our users, was to run monthly and ad hoc sessions at all our Sites, to provide User Education and Literacy. This practice continues on a regular basis.

In addition to the above scenario, our Library Service also has to contend with shared access to the firewall and Internet, with other Organisations outside our Health Service or Network. We currently share this with the University of Melbourne, as well as the Royal Melbourne Hospital, and Northern Hospital. This has caused a number of untoward issues with passwords, IP validation and Server problems viz. space.

Part of the current IT infrastructure and linking with other organisations, (whom we previously networked with), is a legacy from the past. The current Western Health Service belonged to a much larger Network, due to State Government policy at the time.

However, (as is often the case), a change of State Government, brought about a de-aggregation of the North Western Health Care Network, as it was then called, into more ‘geographically’ positioned areas. Hospitals such as ours, which were located in the Western Suburbs, were grouped together to form what is now called, ‘Western Health’.

In spite of the de-aggregation of Networks, we continue to function with ‘shard services’ across the various Networks i.e. the IT department, whom we lean heavily upon, is one of

them. As with all 'shared services' there are problems, accessing assistance, or follow through with projects. Some of these aspects will be discussed further in the paper.

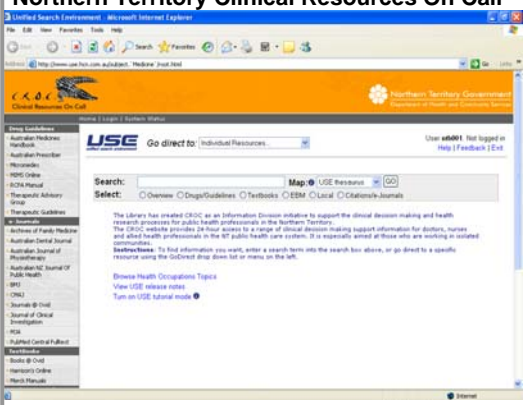
Moving Forward

In 2004 I had a chance to view H.C.N.'s (Health Communication Network's), Federated search engine called U.S.E. (Unified Search Environment). The cost was astronomical and left me drooling! However it was meant to be for us, and as sheer luck would have it, the Victorian D.H.S. (Department of Health) decided to purchase U.S.E. and provided it to all Metropolitan Teaching Hospitals, along with the Clinician's Health Channel Databases, which comprises of Ovid databases such as Medline, CINAHL, PsycInfo, e-texts, e-journals – the LWW (Lippincott Williams & Wilkins) collection, as well as DHS links to health and information. DHS funds the Clinician's Health Channel.

Similar to Victoria In Australia, the various state governments such as New South Wales, funds C.I.A.P. with a similar swag of databases, as also does the Northern Territory. They use rather an amusing and appropriate acronym for their portal, and call it C.R.O.C. (Clinical Resources On Call)! H.C.N. provides both services and hosts a number of databases on its servers, and of course works closely with other vendors to cross the authentication hurdles.

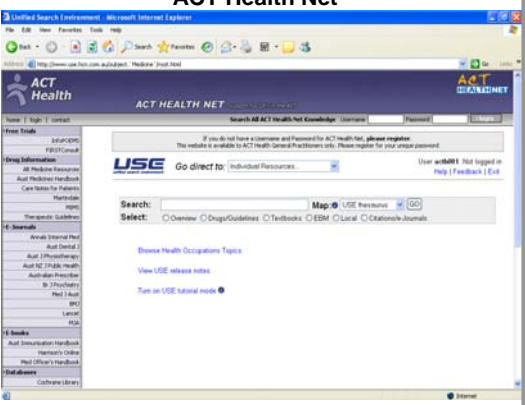
H.C.N.'s Current Products - Clinical Portals in Australia

Northern Territory Clinical Resources On Call



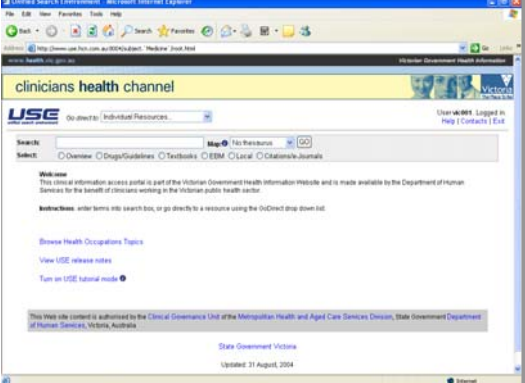
The screenshot shows the Northern Territory Clinical Resources On Call portal. It features a search bar with a 'Go direct to' dropdown menu and a 'User' field. Below the search bar, there are radio buttons for 'Overview', 'Diagnoses/Guidelines', 'Textbooks', 'EBM', 'Local', and 'Ovid/Elsevier Journals'. A 'Map' icon and 'USE Resources' are also visible. The main content area contains a search box and a list of search results.

ACT Health Net



The screenshot shows the ACT Health Net portal. It features a search bar with a 'Go direct to' dropdown menu and a 'User' field. Below the search bar, there are radio buttons for 'Overview', 'Diagnoses/Guidelines', 'Textbooks', 'EBM', 'Local', and 'Ovid/Elsevier Journals'. A 'Map' icon and 'USE Resources' are also visible. The main content area contains a search box and a list of search results.

DHS Vic Clinician's Health Channel



The screenshot shows the DHS Vic Clinician's Health Channel portal. It features a search bar with a 'Go direct to' dropdown menu and a 'User' field. Below the search bar, there are radio buttons for 'Overview', 'Diagnoses/Guidelines', 'Textbooks', 'EBM', 'Local', and 'Ovid/Elsevier Journals'. A 'Map' icon and 'USE Resources' are also visible. The main content area contains a search box and a list of search results.

USE is the leading Australian clinical portal - used by all public hospitals in NSW, Vic, WA, NT, ACT, and by the largest radiology group (DCA), Vet affairs dept, and by 15000 GP's and specialists in their offices

I had already by this stage written several letters to various organisations for a grant to cover the subscription to U.S.E. for 1 year. By Dec. 2004, I had made a lucky strike, and the money was provided! I remember the occasion well enough. I was on holiday, enjoying a BBQ and this call came in from work, notifying me that we had been successful in our bid for funds!

In January 2005 I eagerly phoned H.C.N., signalling them to go ahead with our Federated Search Engine Project. The money was there! We were able to pay up front for the next three years. This was due to the fact that DHS (Department of Human Services) had purchased U.S.E. for Clinician's Health Channel, as stated earlier.

The implementation took shape in the following phases:

Project Planning

- The Library Manager (myself) liaising with H.C.N.'s sales and technical staff
- Three-way conversations with Western Health's IT team, with the Library and H.C.N. on issues regarding the web, authentication such as IP/ password User ID/ and Server issues.
- Setting time frames for beta testing, going 'live', as well as launching, promoting, and educating our Users on the new service.

Metalib

- Resource selection
- Entry of resources on the portal
- Customised/tailored design of portal to suit Western Health
- Testing of resources
- Ongoing maintenance of systems
- Management of upgrades

SFX (open URL resolver)

- Setting resource parameters
- Setting SFX targets, such as e-journals, databases, texts, aggregated databases/journals eg. Ovid, MD Consult, Proquest etc. in our case.
- Production of SFX instructions
- Linking Users to journal articles and texts no matter where the journal article or text happens to be located
- Linking open URL's
- Ongoing maintenance guidelines
- NB some problems with SFX link resolvers are the 'dead links' eg. Ebsco, MD Consult, (to name a few vendors), who are reliant on the publishers interface. The chance for error increases, and SFX needs continual up dating when links break down. We have found that our EJS (on-line Ebsco journal titles) that are received free of cost along with our hard-copy subscription, end up in this category. One way around it is to use an A-Z journal provider who will keep an eye on this for you. We are currently looking into this aspect of it – for a fee of course!

Interface

- Reviewing existing interface
- Addressing authentication issues
- Incorporating U.S.E. with the Library's Web site
- User testing

Production

- Planning information sessions with Western Health Users via a launch of the new portal and federated search capabilities, at all the 3 major WH Hospitals – Williamstown, Western and Sunshine Hospitals.
- Instituting a portal naming competition. The end result was that the Library Committee chose W.H.A.L.E.S (Western Health Access to Library Electronic Services), which was one of several entries to the competition. A prize was given to the winner at one of the launches.
- Thereafter rigorous training sessions were held at all our sites, incorporating the new service.
- Promotional and publicity materials were distributed via e-mail and staff pigeonholes, as well as by word- of- mouth to all our users.

Input from Librarians and Users

- Constant feedback, either by way of constructive criticism or encouragement via Library Survey's run annually, ad hoc user feedback and comments by Librarians as they have used the system, has assisted in maintaining a worthwhile system for all concerned.

Training

- This has been an indispensable tool, and fosters a 'learning environment'.

Criteria & listing of resources on W.H.A.L.E.S

- ***Clinician's Health Channel Resources*** – Resources listed here are provided to all Vic. Metropolitan and country teaching hospitals, and funded by the Vic. State Govt. (LWW e-journals, [books@Ovid](#), CINAHL, Medline, PsycInfo, AustHealth Meditext, Clinical Evidence (BMJ), Full-Text CHC, Harrison's on-line, Therapeutic Guidelines x 12 titles, Joanna Briggs Institute, Cochrane along with help cards on various databases listed, Health Conferences, Vic. Govt. Health Information, Consumer Health Information – Better Health Channel.
- ***Western Health Paid Subscriptions to Databases, e-journals, e-text*** – This includes Library's Web Page, Horizon - Library Catalogue, e-journals such as Proquest, Ebsco, MD Consult, Vic. Health Libraries Consortium, Clinician's Health Channel LWW Collection, EJS which is Ebsco's free-online with hard-copy subscription titles, Up-To-Date, MD Consult, Lawlex, Aust. Resuscitation Council, Australian Standards, Paediatric Pharmacopoeia, ADCA (Alcohol and Drugs Council Australia).
- ***Interactive learning programme*** – ECG Interactive, Western Health Policy & Procedures.
- ***Helpful links*** – PubMed, NCBI (National Centre for Biotechnology Information), Health Translations Directory, Better Health Channel, Free Medical Books, Historical Anatomies, Evaluating Health Internet Health Information, The National Autistic Society.

- ***The 'go-direct-to' feature on the portal (W.H.A.L.E.S)*** – The portal has been set up with this feature – so that our users can click onto individual databases if they simply want to access a single database of their choosing and perform their search in it. The 'go direct to' menu comprises of Clinician's Health Channel Databases along with Western Health's subscription databases. These are listed alphabetically.
- ***Subject groupings/groupings by format and specialisation*** – Another feature available are groupings of resources mentioned previously including both Clinician's Health Channel Databases, as well as the Western Health subscription databases. The groupings are as follows –
- ***Overview searching*** – *This* allows the user to type in a term in the search box, and U.S.E. (Unified Search Environment), or the federated search engine we use, then retrieves information from all the sources of information listed on the Portal W.H.A.L.E.S. This includes all of Clinician's Health Channel and the Western Health Subscription Databases. Obviously for 'deep searching' or 'in-depth searching', the user would need to drill down into the particular database of interest, and refine the search.
- ***Drugs/Guides*** – This section groups together all drug texts and databases, allowing the user to do the same as in the 'Overview Search'. However, it allows them to drill down into the database of their choice, or flick through from one to the other. For students looking for textbook information only.
- ***Textbooks*** – This section contains key textbooks and reference material for quick access. It incorporates all the Clinician's Health Channel texts from the books@Ovid collection, Harrison's on-line, the MD Consult database textbooks, Merck Manual etc.
- ***Evidence Based Medicine*** – Databases such as Cochrane, Pedro, Joanna Briggs, and MD Consult guidelines.
- ***Citation Databases*** – Ovid Citation databases such as Medline, PsycInfo, CINAHL, MD Consult Medline options, along with e-journals attached to it, PubMed, Informit Meditext, Informit AMI, Science Direct (VHLC) collection of journals obviously linked through to Medline, hence residing in this grouping as well.
- ***Help feature*** – *This feature* on the portal provides a brief easy to use summary and screen dumps, in order to assist users with performing a search in all of the databases.
- ***Contact a Librarian*** – Our users can e-mail us to the generic e-mail address at the Western Health Library, and ask for assistance.
- ***Examples of the Portal – W.H.A.L.E.S. with screen dumps outlining the lay out described above:***

W.H.A.L.E.S Portal – Western Health Databases, CHC & Citation Databases

W.H.A.L.E.S Portal – Overview (all databases) & Library web page and cat.

W.H.A.L.E.S Portal – e-journals and drug/guidelines

W.H.A.L.E.S Portal 'Go Direct' feature

What were some of the pitfalls and problems we faced in the implementation process?

We don't live in a perfect world. One needs to rely on several parties in the implementation process, chief of which is the vendor providing the federated search product, other external vendors who provide the various databases, as well as ones internal IT Department.

Working with vendors who provide us with various databases, was probably the biggest hurdle of all with regards to authentication issues. However, I am glad to say, we were able to overcome all of our difficulties with a lot of hard work on all sides. My role was to co-ordinate and facilitate communication on various issues with H.C.N. and the various vendors concerned, Eg. Ebsco and MD Consult, to name a few.

Our next hurdle was the setting up of our EzProxy server. This took us over 13 months to achieve. However, we have recently managed to set this up successfully. Our users are now able to access information from home using their borrower id number and their surname. Once they leave the organization their details are taken off the system, and they are no longer eligible to access our databases. Up until this point, passwords had existed for remote access. This was not the most secure or the best outcome for all concerned.

Conclusion – Do federated search engines replace Librarians? Is it a worthwhile investment?

Sixty-five million years ago, the Cretaceous Period ended and with it, the dinosaurs. The Age of Reptiles came to an abrupt close, in the geological sense of time. This cataclysmic extinction is known as 'The Great Dying'.

The term 'dinosaur', which is Latin for 'terrible lizard', died out largely due to environmental change, and along with this change the dinosaurs died out – they could not change in a changing world.

Like these great extinct prehistoric creatures, we too are facing a time of extraordinary change; rapidly changing technologies like the Internet, fierce competition from both traditional supplier and brand new models, increasing customer expectations. All of which are driving change in our organizations, at a frantic pace, and we must keep up or we too will be gone.

Theoretically, we are better positioned. However, there are a number of striking similarities between our situation and the one the dinosaurs faced. We must guard against becoming the bureaucratic equivalent to these dim-witted, lumbering beasts. Our business is no longer simply an extension of the past, but a complex mosaic of new opportunities. Although change is always challenging, today the speed of change has become almost overwhelming.

Trend no. 1- the connected society

Society is already much more connected than it was some years ago and this trend increases. We see more WiFi and wireless devices, cell phones, PDA's pagers reaching ubiquity.

Trend no 2 – connected objects and places

As individual objects become 'smarter' and more connected, opportunities abound. These technologies are already being implemented in hospitals, retail and library environments. We see a world where 'objects' know 'what' and 'where' they are. Our buildings and utilities will never be the same.

Trend no 3 – connected enterprises

Desktop access to intranets and the Internet has made major changes. Real-time information, voice data convergence etc. All of this brings a global scale of management and ecosystem to contend with.

Librarians and information managers need to be visionary, innovative, flexible and responsive to change. To the fearful – things could get worse. To the hopeful – things could get better. To the confident – it is inspiring because the challenge exists to make things better.

Our roles are evolving and the future goes not to the meek and humble, but to those who focus on collaboration, – what does it mean to libraries today? Communities – what are the new and emerging partnerships? Learning – in a world of continuous learning- whither virtual libraries? Knowledge access – how do we move beyond access and actually engage the end user? *It's all about the end user* (Sommers, 2005).

I have detailed 5 technologies that improve User Access in this paper:

- Federated search engines
- Open URL resolvers
- Federated Identity management (IP authentication, passwords, library barcode number, proxy servers, and removing the password nightmare)!
- Interface – the challenge to empower users,
- 3rd. party licensed resources. Acquire appropriate resources and make them seamlessly available to our users, supplement the OPAC with Amazon/Google type content using a federated search engine.

All of this would surely lead to increased use of resources, as we have found at Western Health, and I hope, in other organisations that have gone down a similar track. Better asset management, equity of access, thus ensuring that all our users have access to a wealth of resources, sharing of information is improved, collections can be exchanged, it is more cost effective, it is more time and effort efficient.

Federated search engines have a universal applicability, in business, academia and largely in the information management arena. It is the spinal cord that connects a multiplicity of platforms and databases with users.

William Gibson noted that the future is here already; it is just not evenly distributed yet. Our vision and the challenges that lie ahead are endless!

Alan Kay said, the best way to predict our future is to invent it – and what better people to do it than us in this instance!

Federated Search engines need to develop further – however even at this stage you can do 'cool things' with it!

Does this technology lend itself to the thought that Librarians may well become obsolete? Far from it! (According to Steinbrook, (2006, p4) there are some astounding statistics on the habits of searchers/researches, referred from Search Engines to Web Sites of 844 HighWire Press titles.

HighWire Press Titles	
Google	56.7%
Other search engines	25.1%
PubMed	8.7%
Google Scholar	3.7%
Yahoo	3.4%
Highwire	2.1%
MSN	0.6%

The place and currency of Librarians, and the part we play in providing our expert assistance, guidance and indeed our knowledge of systems and processes, is surely another important link, in bringing together the end user, technology and information.

For example in the field of information literacy, 'quick and dirty' searching versus 'in depth' searching. Recognising the information required, finding the information and pointing our users in the right direction of their information requirements. Assisting users with a variety of diverse valuable and costly accredited information, via subscription databases. Helping them to navigate their way, through this maze of information.

Our roles are ever changing. We are needed to manage this over abundance of information, place it within the reach of our users in formats that are usable, user-friendly, quick and efficient and save our users valuable time.

We need to constantly engage with vendors, explore and new systems, deal with new challenges and package our resources in a palatable format for our users.

All of us librarians, libraries, publishers and vendors who care about creating a positive future vision for libraries and our communities, and achieving it, must evolve. According to Sommers (2005, p166) A 'Great Dying' is not an option. We can change in a changing world, because we will make the changes, together!

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