

WEB-SCALE MANAGEMENT SERVICES: THE 21ST CENTURY SOLUTION

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ABSTRACT

Fast emerging information and communications technologies, internet connectivity, growth of social networking sites, etc., demand automation of organizations, institutions and firms, including libraries to achieve web-scale. Technological developments also bring out a paradigm shift in the collections, acquisitions, processing and dissemination of information in libraries. Responding to the information explosion created by information technology, the information seeking nature of user community also changed. In order to overcome the challenges posed by burgeoning information technology and to cope up with the changing information needs of the user community, the libraries should have an effective library management system that can allow the library to go global, while managing its affairs at home. The Web-Scale Management Service (WSM) is one such next-generation solution developed by OCLC, supported by a large community of librarians across the globe. Present paper reviews the emergence of WSM and discusses the importance of WSM in reducing the work-load on library staff by avoiding duplication of work. It also throws light on the initiatives to be adapted to build web-scale for libraries working in traditional conditions.

Key words: Web-Scale Management Services, WSM, Library Management System, Online Computer Library Center, Inc., OCLC, Ohio College Library Center, Library Automation, Professional Competence, Professional Development, Online Library Management Software and Information Science (LIS).

“We see OCLC Web-scale Management Services as a way to bring improvements and efficiencies to our staff functions in the areas of acquisition, processing, and circulation support. Moreover, a web-based approach makes sense to us; we want to manage information, not hardware.”

-- Mark Roosa, Dean of Libraries, Pepperdine University (Web-scale pilot participant)

1. INTRODUCTION

Information technology revolution has created information explosion. Growth of World Wide Web and increase in web based technologies, availability of low cost computers, user friendly operating systems, etc. contributed for high internet usage by the public. This further gave impetus to development and growth of social networking sites and online communities that allow people to create and join the groups of their interests, based on age, gender, tastes, interests, etc. High engagement of Internet user community with the social networking sites and online communities, made the corporations and even small business firms to market their products and services through the social networking sites. In order to reduce costs and to have economies of scale, several firms and organizations have implemented their own kind of management information systems.

On the other side, the technological growth also created a digital era, where the books, journals, magazines, newspapers and other information sources are digitized to make them freely available on Internet. Under this ever changing global information landscape, the libraries (treasure houses of knowledge), need a sound management system to effectively manage the back-end activities in libraries, reduce costs to have economies of scale. Sharing of information on back-end processes in libraries such as cataloguing, etc., also reduces the duplication of work by other libraries. This basic need led to the creation and development of a new kind of library management system, known as Web-scale Management Service (WMS) by Online Computer Library Center, Inc. (OCLC).

2. OCLC AND WEB-SCALE MANAGEMENT SERVICE

OCLC was founded in 1967 as a nonprofit library service and research organization. Originally incorporated as Ohio College Library Center, OCLC's main office is located in Dublin, Ohio. OCLC has become a largest consortium of librarians working across the globe, conducting research to develop computer-based information technology tools that help librarians to automate their libraries for smooth and effective functioning. Starting with the design of a computerized regional library system, OCLC hitherto has developed a number of tools for computer-based cataloging, eContent, preservation, reference, library management, Web services and resource sharing. By 2009, OCLC has served 71,000 libraries in 112 countries and others situated in various geographies.

It has been a long cherished dream of OCLC founder Fred Kilgour "to create an online union catalog through shared cataloging in order to reduce individual transaction costs for libraries." Keeping up the spirit, OCLC's member libraries have burnt oil to create WorldCat in 2006 as a global search engine of library materials. WorldCat Local was created in 2007 offering integrated search in the local library webpage. Leveraging on search engine technology, WorldCat is considered to be the largest online treasure offering search results on library materials across the globe. By 2009, over 25 million requests were forwarded to local libraries from users' search through WorldCat.

By July 2009, the website, WorldCat.org was fully become operational offering OCLC FirstSearch service online. In addition to regular search of library materials across the globe, the website allowed access to various electronic sources such as eBooks, eJournals, OCLC FirstSearch databases, eAudiobooks, Catalog of Art Museum Images Online (CAMIO) and ArchiveGrid archival collection descriptions.

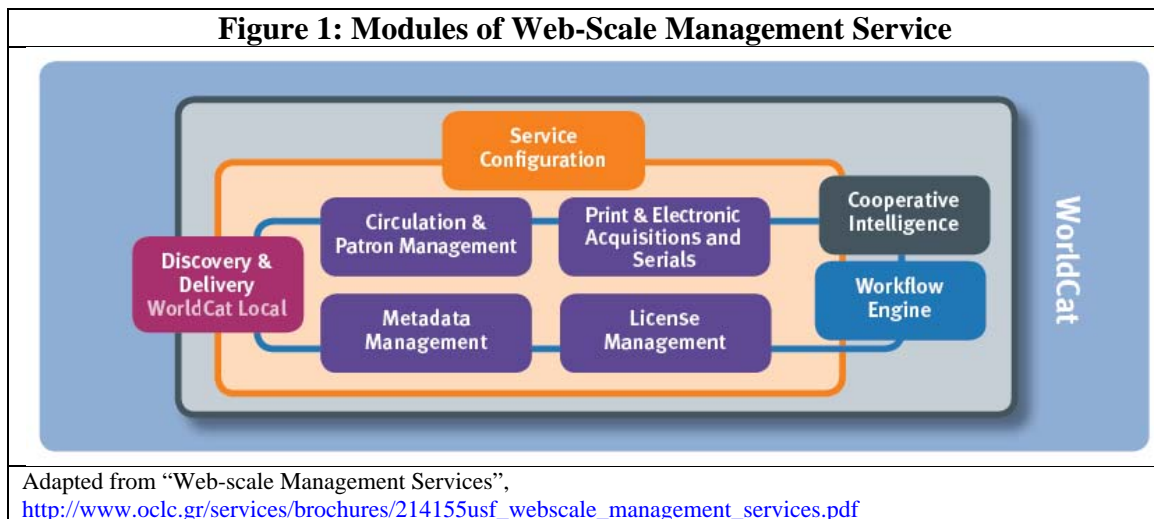
Encouraged by the success of WorldCat, OCLC's member libraries involved in constant research and development, which finally culminated in the creation of WSM. To create platform for the web-scale collaboration for resource sharing, the researchers took utmost care in following certain principles to develop a web-scale service. Some of they include:

- 2.1. **Security** – of both hardware and software
- 2.2. **Privacy** – of users including the libraries
- 2.3. **Economies of scale** – comparing and reducing costs
- 2.4. **Accessibility** – by minimizing congestion in network to meet demand and supply
- 2.5. **Scalability** – in connecting various organizations irrespective of their size
- 2.6. **User Interface** – by creating user friendly tools

Any web-scale program can run smoothly only if the above principles are taken care of in developing the application. So, the architects of WSM were keen on not to divert from the set of principles while designing the service.

3. WEB-SCALE MANAGEMENT SERVICE: ‘THE CLOUD’ LIBERATING LIBRARY SYSTEM

The much researched and developed product, WSM has eight modules (Figure 1) fitting together with each other, synchronizing every activity in the library, while reducing the time-consuming duplication of work and avoiding the repetitive task, which hitherto have been a part of library culture.



The eight modules of WSM covers a range of activities in libraries, such as cataloguing, circulation, acquisition, license management, workflow management, etc. (Exhibit I).

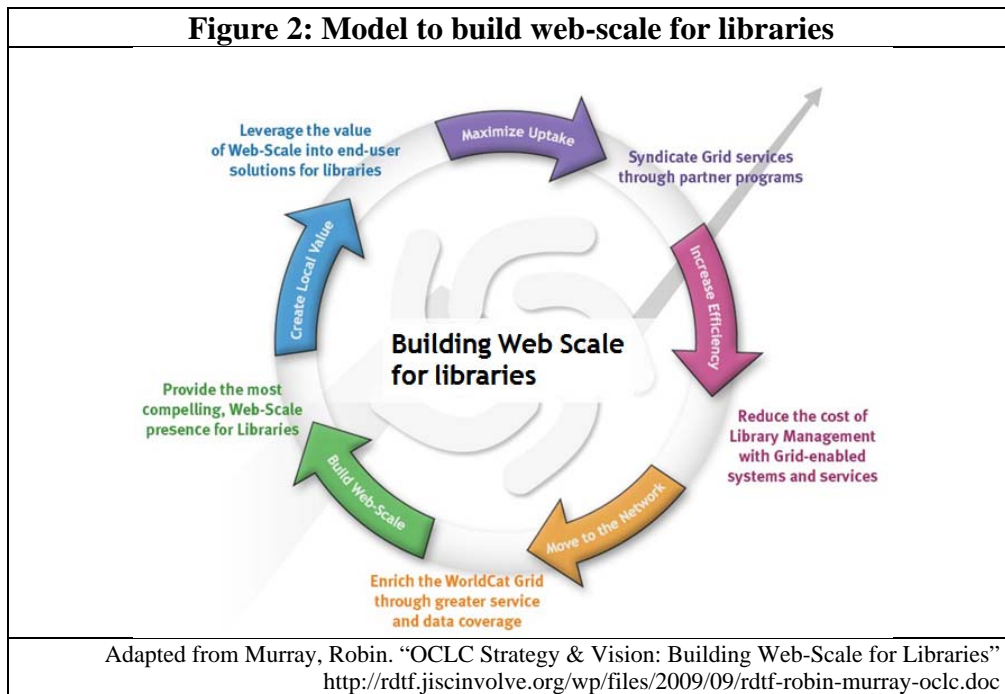
Exhibit I: Modules of WSM and Usage	
Module	Usage
Web-scale Cataloguing	Built over 40 years, WorldCat has vast bibliographic database that contains more than 16.5 crore records and 160 crore holdings and allows resource sharing and metadata management by libraries
Discovery & Delivery	Leveraging on search engine technology, it helps the user to locate the information sources including, printed material, audiovisuals and electronic and digital material online.
Workflow Engine	It helps in creating platform for work-sharing to support staff and systems, while presenting graphical representation of workflow.
Circulation and Patron Management	It simplifies the circulation and delivery tasks by operating through web browser from any computer, thus reducing any software installation or maintenance.
License Management	Saves time by helping in managing the entire library by using one system interconnected with other systems
Print, Electronic and Serials Acquisitions	Simplifies the acquisition process by helping in managing the user needs
OCLC Service Configuration	Enables configuration of OCLC products and avoids duplication of data entry and occurring of errors
Cooperative Intelligence	It provides statistical information on consortial funds, collection, user statistics, circulation, profile sharing, etc. in a nut-shell and helps in decision making.
Adapted from "Web-scale Management Services", http://www.oclc.gr/services/brochures/214155usf_webscale_management_services.pdf	

Thus, the eight modules of WSM cover entire library functions and helps in better management of internal affairs of library, while helping resource sharing and avoidance of work duplication. WSM in turn liberates librarians and their subordinate and support staff from regular duplicity of the work and saves time. As it is online based program, it is also known as 'the cloud' system. Having great features, WSM is considered as the 21st century solution for library automation and library management.

This is why many a library has started implementing and testing the WSM. These libraries include Craven, Pamlico, Carteret (CPC) Regional Libraries in North Carolina, Idaho Commission for Libraries including Boundary County Public Library, Payette County Public Libraries and the Cooperative Information Network (CIN), Orbis Cascade Alliance and Linfield College Libraries and Pepperdine University Libraries. These libraries have actively participated in the pilot project and are testing various modules of WSM. Thus, WSM has attracted attention from global librarians. Then, how to make a library achieve web-scale?

4. WEB-SCALE AND LIBRARY AND INFORMATION CENTERS

Robin Murray, Vice-President, Global Product Management, OCLC mentions, "building Web-Scale for libraries is at the heart of OCLC's vision and strategy". He offers a set of initiatives to be adapted by libraries to achieve web-scale (Figure 2).



According to Robin Murray, the initiatives are as follows:

4.1. “Provide the most compelling web-scale presence for Libraries – a large-scale, compelling presence on the web that drives traffic toward local library services.

4.2. Leverage the value of web-scale into end-user solutions for libraries – Provide local library views of this web-scale presence that surface and access local services.

4.3. Syndicate Grid services through partner programs – Provide web-service access to the web-scale platform to maximise usage and to encourage an eco-system of development partners and library developers to provide value-added services.

4.4. Reduce the cost of Library Management with Grid-enabled systems and services – leverage the economies of scale of network level services to dramatically reduce costs for libraries.

4.5. Enrich the WorldCat Grid through greater service and data coverage – by demonstrating the value of web-scale services generate gravitational pull for greater data and service aggregation, thus adding momentum to the fly-wheel.”

Adding to Robin Murray’s initiatives, **maintenance of rapport with online community through social networking sites** like facebook, twitter, etc., blogs, forums and other organized library networks also occupies an important place in building web-scale for libraries. It helps in building the value for the library among the user community, both online and offline. Thus, a library following traditional work procedures could get web-scale by being in constant touch with the online community. The social media networks and online communities not only help in gaining web-scale but also have the ability to convert a potential reader into a habitual reader.

5. CONCLUSION

Innovation nurtures survival. Thus, the libraries in the modern digital era have to work hard to achieve greater web-scale through innovative online practices. It all depends on the librarian and other library staff to adapt to the changing high-tech culture which brought paradigm shift in the library functions as well as user needs. Therefore, the librarian has to adapt search engine optimizing technologies to direct the right information to the right user at the right time by using proper keywords. Having internet skills on one side, and implementing WSM on other, surely build the web-scale for libraries. The libraries should develop their global networks and work closely with organizations like OCLC which aims at research in the development of tools that simplify the library work procedures.

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