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INTEGRATED LIBRARY MANAGEMENT SYSTEM AND ITS EVALUATION CRITERIA

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Abstract

There are plenty of library management systems available in selecting the best one for the library. The different parameters can be considered in selecting the best ILMS to provide the best services to the patrons. Library management systems are now accessible through Local Area Network as well as Cloud Hosted platform. There are different types of devices which could connect to the library application server at anytime, anywhere and in any form of documents. The objective of the present study is to know the criteria for evaluation of integrated library management system This paper indicates some of the parameters which are very much relevant in this respect particularly in the present perspectives.

1. INTRODUCTION

An Integrated Library Management System (ILMS) plays important role in regular functioning of any library. With the advent of computer and communication technologies, printing technologies and modern networking technologies and their applications into the library and information centres; the way of the regular functions and activities are simultaneously changing day by day. There are various modules and standards which are very much important in respect of the applications of an ILMS in any organization. The modules of an ILMS are generally performs the functions and activities of each department of a library. There are separates modules for each departmental activity. We can think over the manual functioning of each segment of a library and try to get the picture into an ILMS with the same performing features. For example, functioning of the acquisition section may be performed through acquisition module, functioning of the circulation section would be performed through circulation module, functioning of the cataloguing and technical processing section would generally be performed with the help of the cataloguing module and so on. An ILMS generally contains the acquisition module, cat-

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aloguing module, circulation module, serial control module in addition to the patron, tools, administration and some other module and features. In the market there are mainly two types of ILMS available. One is Free and Open Source Software (FOSS) and on the other hand Commercial software. FOSS is generally available freely i.e. it is downloadable and options to customize and modify are there. Anyone can download, customize and modify as per requirements. Commercial software needs to be purchased. Depending on the requirements the price category varies including hardware specifications and license agreements.

2. MODERN LIBRARY COMMUNICATIONS

In the present perspectives library, the users of housekeeping module and user interface i.e. OPAC are easily accessible through different types of devices having network connection. It may be intranet or internet which facilitates the communication to the different devices with the library application server. The following Figure.1 show the how the different devices are being connected with the library database server in the present day scenario.

Library Database Server accessible through different devices

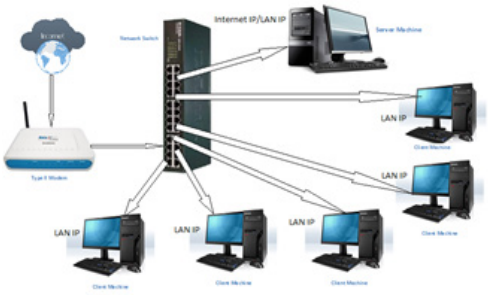
3. HOSTING OF ILMS

One can host the library management system to locally that means into a server within a local area network. In this case the server is located generally somewhere to the premises of the institutions or the library. It may be a separate data centre or an open place. And the server is connected to the other housekeeping computers as well as with the computers which are available for the users' community as a means of OPAC or WEBOPAC. However, the server may be created as a live server with the help of the internet IP (Internet Protocol) and having a good quality internet connection. On the other hand the library management system may be hosted to the cloud server which generally located outside the campus or premises and maintained by the third party vendor against some regular financial involvement. In this case strong network having internet facility with good speed is required to access and perform the entire library housekeeping operations as well as user interface. There are options in this case the both the main modules of the software are accessible from anywhere in the world. As we know that the present day library management systems are the browser-based applications. Any devices are eligible to access the application. Only need is to have a browser having internet connection.

3.1 LOCAL OR SELF HOSTING OF ILMS

In the cline-server architecture the library application software is generally installed into one computer having a network with other computers. The other computers are performed the role of client machine to play the activities of housekeeping and OPAC access point. The following Figure.2 shows a simple client server architecture which runs in intranet as well as

internet if there is public IP or internet IP assigned to the server machine with necessary configurations.



Basic Client-Servicer Architecture runs on Intranet as well as Internet

3.2 CLOUD HOSTING OF ILMS

Considering the different definitions of cloud computing it can be categorized into three as the service model of cloud computing:

3.2.1 Infrastructure as a Service (IaaS);

3.2.2 Platform as a Service (PaaS);

3.2.3 Software as a Service (SaaS).

3.2.1 Infrastructure as a Service (IaaS) :- This type of cloud computing is generally provide storage and processing capacity to the users who would be able to access or perform the different services with the help of the different types of modern hardware devices having online connectivity. The service provider generally manages huge quantity of computing resources to provide different types of on demand services to their customers. The service providers have the capabilities to arrange, manage and customize their resources as per the requirements of the end users with the help of the storage network capacity. In this system all the services are delivered through virtualized arrangement. In this environment the services are being offered with computing resources including servers, networking, storage, and data center space may be on a pay-per-use basis.

3.2.2 Platform as a Service (PaaS):- In lieu of the virtualized arrangement the service provider could set up a stage through software platform to run the required computer generated services to the customers. The service provider may also organize or install the customer created programme on the cloud to provide different services. PaaS provides a cloud-based platform with the entire thing required to support the complete lifespan of building and delivering web-based applications—without the cost and complexity of buying and managing the underlying hardware, software, provisioning and hosting.

3.2.3 Software as a Service (SaaS):- This may be the substitute of the locally designed software for any specific application purpose. In this case the service providers may also design the software considering the special application purpose of the customer and this software may run over a network as per the requirements. In this environment the Cloud-based applications run on distant computers “in the cloud” that are owned and operated by the service providers and that connect to users’ computers through Internet and, usually, a web browser. The G-mail service of Google may be considered as a cloud-based SaaS application which is the better substitute of the email programme run on our computer like Outlook.

Cloud hosting of the library management software generally relates to Software as a Service (SaaS) service application model through which anywhere access, anytime access and on any device access are preferable. In this platform no software has to be purchased. Generally the service providers install, update and maintain all the things. The customers or the users only can sign up and start the cloud applications. The data are accessible from any connected computer in the Network. From the Figure.3 we can easily observe that different devices including the library machines are easily connected to the cloud application server having integrated library management system installed into it. The users' of different type libraries having different needs are able to access their information in very speedy and smooth process with this type of infrastructure. An ILMS generally installed into the Saas (Software as a Service) platform of the cloud computing service model.

Cloud Hosting of Integrated Library Management System

4. EVALUATION CRITERIA

There are different library management software are available. Some of the Free and Open Source Software (FOSS) and Commercial software as Integrated Library Management System (ILMS) are as follows:

Open Source Software	Commercial Software
New GenLib	Libsys
Evergreen	Slim++
ABCD	VTLS
Avanti	SOUL
KOHA	LIBSUITE
Open Biblio	Alice
Open Book	
PHP MyLibrary	
GNU Library Management System	
E-Granthalaya	

None of the software can be the complete one and fulfil all the requirements of a library. There may have some advantages of a software and some disadvantages too. Any module of a particular software may be more useful, on the other hand other module of that software may not be more useful. Again, one or two modules of another software may be fruitful in comparison with the other and so on. Hence, we have to study and evaluate them one by one basing some criteria to select the most fruitful one for our library management purpose. Considering the modern day tools, techniques, standards and other technological developments and their applications some basic and important points should be considered in evaluating an ILMS. Those points may be discussed as follows:

4.1 An ILMS should be browser-based: we know that an ILMS has two parts one is housekeeping part and another is user interface or OPAC/WEBOPAC. The housekeeping part is for the housekeeping func-

tions and activities generally used by the library staff. Housekeeping part contains different modules such as accession, cataloguing, circulation, etc. On the other hand the user interface is for the user community. Users' generally hits their search terms or keywords using OPAC/ WEBOPAC interface of ILMS. Although, the modern ILMS has some additional features in the OPAC module in addition to the regular retrieval and access, such as making purchase suggestions, observing circulation history, overdue status, creation of own tags or folksonomy, social media integration, search interface for other libraries if integrated with the OPAC, display for new arrivals of documents, etc. The two parts of the ILMS may be worked in two ways. May be with the help of the browser, that means housekeeping part as well as user interface part both would be accessible via browser by typing the server IP address through Local Area Network (LAN) or by typing the URL (Uniform Resource Locator) if there is any domain name and hosted the server application through internet. On the other hand there may be required to install the client application into each machine to access the housekeeping part as well user interface part. In this case one has to install each and every machine or devices from which both the applications are to access. An ILMS should be browser-based that means both parts housekeeping and user interface would open with the help of the browsers like, Google Chrome, Mozilla, Opera, etc. So that it will be easier to use and access the features and functionalities of an ILMS. All the users' of the modules would be able to open the applications with the any types of devices-may it be a Desktop Computer, Laptop, tablet, mobile, etc. Only thing is that the devices should support and run the browser applications. If the devices have the network facilities then the ILMS modules may be accessible via internet. No minimum client device specifications are required in this case. The servers which are connected in the Local Area Network (LAN) is required local IP or LAN IP and it can be accessible in-house only i.e. intranet. On the other hand, the server if connected or hosted via web server then it is required the Internet IP or Public IP. The server having internet IP would be connected from anywhere in the world and from any type of devices having internet connotation. Browser-based software is always computer independent, software dependent as well as application dependent.

4.2 Effective Cost of Hardware and software: it is very much important as far the organization's fund concern. The ILMS should be low cost hardware dependent. The price of the ILMS itself also must not be highly expensive. However, the selection of the hardware should be considered on the basis of how many computers or devices would be connected with the server and what types of applications would run on the server as well as to the client. How many users' simultaneously would be accessed the server through ILMS modules that also should be considered in selecting the server configurations. For a small library a simple desktop computer may be considered as a server if an Open

Source Software is installed. Linux based software is generally required low cost hardware and software specifications in comparison with the commercial software.

4.3 Network Version: modern trend is the simultaneous access of the library resources from the different types of devices. Single user concept is obsolete. That is why the present day ILMS always be multiuser software and network ready. Multiuser software is called the network version. It can be run in Local Area Network (LAN) having client-server architecture and it can also be installed as web-based application through in-house data-centre or external hosting platform may be it cloud hosting.

4.4 Should be section based and supports extension: module based software is always user-friendly as the Graphical User Interface (GUI) displays the separate functioning for each module separately. Every departmental activity is generally distributed into the separate modules and any required customizations or configurations for one module must not affect to the other modules. There must have options to extend the additional features and functionalities as per requirements of the user organizations. Open source software in general have more modular and flexible as far as the extension facilities. Hence, an ILMS must be modular based and should supports necessary extensions.

4.5 Utility featured: an ILMS must have maximum functionality with optimum utilities as far as total library management concern. Because the full functionality reduces the errors and increases the output performances of the organization.

4.6 Scalability: it is very much important for software having its feature scalable particularly the software having RDBMS is required creation of different databases. A library management system holds lot of separate databases for different types of information resources. It also holds the different types of members' databases. At the same time there may have digital or electronic content of different formats which are related to the bibliographic resources and required to be stored into the same server. For this purpose the RDBMS of the ILMS must have proper scalability. Simultaneous access to the server is also affect the scalability features of the software as well as server. If the server and the software is not able to manage or stretched or scalable then the system may be collapsed. Scalability is very much helpfulness at the time of data migration also. Open sources software generally much more scalable and more hardware adaptable. For example Maria Db is more scalable than Mysql.

4.7 Ability to exchange and make use of information: to maintain the uniformity always we should maintain and follow the standards. Because if the software is not follow the international standards then it is not proper inter-operable. Inter-operability says the capacity of the software integration with any other software or databases particularly in respect of data import and export. If the database is open that means if the ILMS is an

Open Source Software then the database would be open so that it can be integrate with any other software as because it is using international standards like MARC 21, Z39.50, etc. As we all know that the MARC 21 is the container of the metadata of the information resources following international standards and helps in proper resource sharing.

4.8 Easy Installation process: installation procedure of any software should be always easy. Complex installation would be skilled-man and person dependent. Easy procedure installation would be helpful for anyone.

4.9 User-friendliness in handling: Graphic User Interface (GUI) of any software tells the easy operation side. Better GUI helps easiness in operation. Depending on the coding languages of the software GUI would be the more operational. JSP user interface and XML user interface is the better example to construct the user-friendliness of any software.

4.10 System performance: it is also an important point to be considered. If software contains proper load-balancing then the system would perform better. Designing of the software considering proper load-balancing will be the better one. The software using tomcat, apache generally has the better load-balancing system.

4.11 Platform support: the ILMS should support different platform whether it Windows, Linux, Mac OS, etc. Commercial software generally some limitations in respect of the platform support. But Open Source Software has the features of wider supporting platforms as it is more feasible than the commercial one. One software installed in windows platform may need to be installed into the Linux environment in future. Hence, flexibility in different Operating System and other system environment must contain the particular software which we would like to select.

4.12 Reputation: sometimes popularity of any software says it usefulness and demands in the market. But it may not be happens always true. We can go at first for that software, but of course we have study on that and evaluate the other criteria so that it will clear that what will happen with that software in future and its functionality to the respective institution.

4.13 Documentation: it is much important to have proper documentation of any ILMS. Generally commercial software has better and more documentations with the respective products. But in case of Open Source Software we have to concentrate about the community, forum, blogs, tutorials, etc. For the different documentation. Sometimes users also put good documentation in case of opens source software. In case of Open Source Software we all always do our effort to put a good documentations, if possible to any one place so that it could be helpful for anyone and further development for the software.

4.14 Support: here also the same case as of documentation. In case of open source software we have look forward to the forums, blogs, development community, wiki, tutorials, etc. For different types of

supports and bug fixing. But in commercial software they provide support with necessary payments.

4.15 Regular improvements: continuous development of any software is the adaptable feature because it helps in different bug fixing and incorporation of new things to increase the functionality of that particular software. Without regular development one software cannot exist in the market, cannot expand its features and working capacity.

4.16 Should support strategic and long-range planning: an ILMS must have proper roadmap that means what function and activities are to be done through it. How can we manage different problems, etc.

4.17 Resource sharing: resource sharing is the most important part particularly in the beginning of the 21st century. We all want to minimise our total cost over the automation of our libraries. Hence, we are to go forward to adopt the outer features of the software. We want to share our resources and at the same time we would like to incorporation or snatch the bibliographic information from other libraries to our database. So an ILMS must contain that types standards like MARC 21, Z39.50, etc.

4.18 Long term preservation: we all want to preserve our data i.e. bibliographic information of the all collection of our libraries properly. For this purpose the database using by the software should have the capability to preserve those data for the future so that we would be able to fix it any other software or system as per our need.

4.19 Computer security: security part of any software in always required. Open source software generally more secure in comparison with the other. Secure server, secure software always protects our data and information which are stored into the databases. Hence, an ILMS must be secured particularly when we will use it through web or cloud computing.

4.20 Back-up and restore: every software having a database should always be good backup and restore facilities. Because, if the system collapse or damage due to any natural calamity or disaster then we will be able to retrieve the data and able to migrate it again as per our needs.

4.21 Facilitate Transaction log analysis: Application software has the transaction log facilities which help of this we will be able to retrieve the each and every transaction happens in different times with dates. It is very important for an ILMS as far as our library service concern.

4.22 Workflow: each and every ILMS must have the clear workflow mechanism. So that the user of that software would be able to understand it different aspects and select it considering their requirements.

5. CONCLUSION

In the conclusion it can be said that everyone has to be very much careful in selecting an ILMS for our library function and activities. Considering the present scenario of the library, availability of fund, technical know-how, future

objectives and the above-mentioned criteria the institution / organisation should choose the particular one with the help which we can earn the optimum output and do better performances to provide satisfactory services to our user particularly at the present perspectives.

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