Application of Open Source Software in Libraries

Ashok L. Pathade

Siddharth College Jafrabad, Dist- Jalna -43120

Corresponding Author - Ashok L. Pathade

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Abstract:

Open source software does not need the initial cost of commercial software and enables libraries to have greater control over their working environment. Library professionals should be aware of the advantages of open source software and should be involved in their development. There are a number of open source software's are available for all types of applications that are carried out regularly in libraries. The paper highlights OSS concept, OSS commandments, character of OSS, its features, benefits and barriers of OSS and their application in the library.

Keywords: Open Source software, Character, Reasons for choosing OSS, Libraries, Free Software.

Introduction:

Open Source Software tools for integrated library management have become available to librarians under various initiatives such as Koha, Evergreen, OPALS, New gen lib and PMB. Digital library software like D space and Greenstone are used by many libraries all over the world to provide access to digital documents, often with full-text retrieval capabilities. To meet the evolving needs of library patrons all libraries are looking for affordable solutions. Many librarians are now learning these open source software without any technical help and getting mastery over them as the installation procedure is very easy for some software and can work in any environment. They are more user-friendly, stable and extremely rich in features.

Along with that, the cost and flexibility ares major reasons for the growing use of these open sources software's in libraries, especially in conditions, quite common in libraries in the Southern hemisphere, where staff time (for learning to manage and run the software) is more abundant than budget for purchase of software and its maintenance/support.

Open Source Software concept:

It is computer software that is available in source code from which the source code and certain other rights normally reserved for copyright holders are provided under a software license that permits users to study. Change, improve and at times also to distribute the software. Some open source licenses meet the requirement of the open source definition.

Some open source software is available within the public domain. Open source software is very often developed in a public collaborative manner. It is the most prominent example of open-source development and often compared to user generated content or open content movement. There are many shared principles between OSS and librarianship, especially the free and equal access to information. Because of the freedom of the use of OSS it is possible to have greater control over the ways computers function and therefore greater control over how libraries operate. Anybody who works with computers on a daily basis can contribute to OSS because of things like information architecture. Usability testing, documentation and staffing are key skills required for successful projects and these skills are inherent in the people who use computers as a primary tool in their work. The implementation of OSS in libraries represents a method for improving library service and collection. Open software means are **"Open source promotes software reliability and quality by supporting independent peer review and rapid evolution of source code. To be certified as open source, the license of a program must guarantee the right to read, redistribute, modify, and use it freely."**

Open Source Software Commandments:

As identified by OSI (Open Source Initiative) there are ten criteria for a software product to be called open source. OSI also certifies a software license as an OSI certified license on the basis of Ten Commandments as detailed below:

Free Redistribution:

The license shall not restrict any party from selling or giving away the software as a component of an aggregate software distribution containing programmes from several different sources. The license shall not require a royalty to other fee for such sale

Source code:

The programme must include source code and must allow distribution in source code as well as compiled form.

Derived work

The programme must allow modifications and derived works and must allow them to be distributed under the same terms as the license of the original software.

Integrity of the author's source code:

The license may restrict source code from being distributed in modified form only of the license allows the distributions of patch files‖ with the source code for the purpose of modifying the programme at build time.

No Discrimination against persons or group:

In order to get the maximum benefit from the process, the maximum diversity of persons and groups should be

Ashok L. Pathade

equally eligible to contribute to open source.

No discrimination against field of Endeavour:

The license must not restrict anyone from making use of the programme in a specific field or Endeavour.

Distribution of license:

The rights attached to the programme must apply to all to whom the programme is redistributed without the need for execution of an additional license by those parties.

License must not be specific to a product:

The rights attached to the programme must not depend on the programmes being part o a particular software distribution.

License must not restrict other software :

The license must not place restrictions on other Software that is distributed along with the licensed software.

The license must be technology Neutral :

No provision of the license may be predicted on any individual technology or style of interface.

Character of OSS

Ashok L. Pathade

The following important character of OSS

1. It is generally acquired freely.
2. Manufacturer or developer has no right to claim royalties on the distribution or use.
3. No denial to an individual or to a group to access source code of the software.
4. Source code is accessible to the user and distributed with the software.
5. It has provision of modification and derivation under the programme's original name.
6. The Rights of facilities attached to the programme must not depend on the programmes being part of a particular software distribution.
7. Licensed software cannot place restrictions on other software that is distributed with it.
8. Distribution of license should not be specific to a product and license should be technology neutral, etc.

Reasons for choose OSS

Price of the library software is very high. Most of the libraries are not in a position to buy high priced commercial software due to severe budget constraints. Kaushik et. al.(2011) has mentioned various advantages of the open source like unrestricted use free of cost community involvement in development and maintenance of software competence compared to other commercial software and the issues of copyright etc. the obvious recognized reasons for the organization

like libraries to choose open source software for automation purposes is no cost . There is no restriction but everyone can use, study, modify and distribute the open source software, Regardless of a person's position, wealth, and social conditions etc. The social aspect of open source software is tremendous. The development and maintenance of this type of software can be done with community-based activities. Anybody can contribute to the social group engaged in its development. 'Open source software projects encourage innovation and collaboration of community members' peer group members are very much involved in these activities. It is also the reason in favour of open source software as it is interoperable, customizable according to the needs and standards. The most judicious reason in favour of the use of open source software is the legal aspect. The licenses are committed to users freedom of use, modification and redistribution of the programme.

OSS Installation in Libraries :

Installation and maintenance of open source software is another hurdle to be overcome by libraries if they wish to install themselves. Libraries
without in house computer professional's support can approach open source service providers for installation and maintenance.

- Users can download the binary and source code of open source software from the website or other open source software

- Ensure the compatibility of the software with the destined operating system before installation
- Open source software can update with new releases either using binary distribution packages or using Concurrent Versions System (CVS) without any payment.
- Open source software requires a greater degree of computing responsibility than commercial software. Libraries need to have a greater degree of computing knowledge, but no one is expecting every librarian to become a computer programmer

Benefits of OSS :

1. Software does not depend on specific hardware or operating system platform in order to function.
2. Open source software has no restriction in a unilateral way on how the software could be used.
3. The source code is available to users and they have the rights to modify it.
4. The modified and improved source can be freely redistributed for the benefits of others.
5. Open Source is not dependent on the company or author that originally created it.
6. Most open source software's are with high quality, which are well designed and can be efficiently used in coding

Ashok L. Pathade

Barriers in Using OSS :

1. The codes are too complicated for novice users to understand.
2. Lack of formal support and training that a commercial software package offers
3. Open source software is not secure enough.
4. Installing and maintaining open source software is generally requires a higher level of technological expertise
5. There is no particular official monitoring the works of a programmer improving the codes. This is because anyone is free to use, modify or even distribute the codes
6. Open source software is not a user friendly system.

Open Source Software's Used in Library:

Open source software is helping libraries to improve their services in many ways. Library professionals around the World are making use these open source software's to develop digital libraries and also to offer many more services to its users. Some important open source software which are widely used and their website address are mentioned below.

Examples of open source software for Libraries

Koha, New Gen Lib, Evergreen, Greenstone Digital Library software,

D Space, E Prints etc.

Koha: **http://koha.org**

Koha is an integrated library management system that was originally developed in New Zealand. It requires supporting software Apache as web server, MySQL as backend RDBMS and PERL as scripting language, these software's are also freely available. Because of these rich features many libraries are migrating to Koha software. It is basically designed to work on Linux operating systems, but it can be installed on systems with Windows 2000 and Windows NT also. Koha supports all major library housekeeping operations except serial control.

New Gen Lib: http://verussolutions.biz

It is an integrated library management system developed by Verus Solutions Pvt. Ltd. Many libraries across the globe are using New Gen Lib as their Primary integrated library management system. The software is written in JAVA and it can be installed on Linux and Windows operating systems. Open source software's such as Posture SQL, Apache Tomcat, Solidest are also essentials to install and run New Gen Lib. The latest version 3.1.1 was released in April 2015.

Evergreen http://www.open-its.org

Evergreen is an open source consortia quality integrated Library system that helps library patrons find and discover library material and helps librarian manage catalogue and circulate those materials, no matter how large or complex the libraries, initially developed by the Georgia public library service for public information Network for Electronic service a state-

Ashok L. Pathade

wide resource sharing consortium with over 270 member libraries. Beyond PINES the Evergreen ILS deployed worldwide in hundreds of libraries and is used to power the number of state-wide consortia catalogues. In 2007, the original Evergreen development team formed a commercial company around the software, Equinox software which provides custom support, development, migration, training and consultation for Evergreen.

Greenstone: http://www.greenstone.org

Greenstone has been developed at the University of Waikato in New Zealand and its development is supported by UNESCO. Greenstone Digital Library Software is a suite of software for building and

distributing digital library collections. Greenstone was designed as an open source application that institutions and organizations could run with relatively few resources.

D Space: http://www.dspace.org

D space is a digital system to capture, store, index, preserve and redistribute the intellectual output of a faculty in digital formats. It was developed by Massachusetts Institute of Technology (MIT) libraries and Hewlett-Packard (HP). D Space preserves and enables easy and open access to all types of digital content including text, images, moving images, mpegs and data sets. D space is the most popular among the digital library solutions available in the open source domain, and as of January 2015, ROAR has recorded 1619 implementations, making it by far the most popular and tested repository.

Ashok L. Pathade

E Prints: http://www.eprints.org/

E Prints is a free and open-source software package originally developed by researchers at the University of Southampton School of Electronics and Computer Science in 2000. It was designed specifically for archiving

research papers, theses and teaching materials, though it can accept any content. As of January 2016, ROAR has recorded 583 implementations, making it the second most popular platform. E Prints is fairly interoperable and supports OAI-PMH and SWORD.

Other important software

Mozilla   Firefox: https://www.mozilla.org/en-US/

Moodle:http://www.moodle.org/

Open Office:https://www.**openoffice**.org/

Fedora: http://fedoraproject.org

CERN:
http://cdsware.cern.ch/edsware/overview.html

CDS/ISIS   for   Windows
http://www.unesco.org/webworld/isis/isis/html

Conclusion:

Open source products are gaining functionality at a relatively rapid pace. New advances in ICT have brought about great opportunities for libraries so that they can fulfil their mission of providing the community with relevant, timely and up-to-date information. The emergence of the open access movement provides a platform to make scholarly communication available worldwide by eliminating the economic, technical and legal barriers to

access. Now libraries have to make the best use of these opportunities to justify their role as a viable player in teaching and research. Libraries should train their professionals, so that they can cope with new information communication technologies. They have to understand the changing dynamism in communication of scholarly literature in the digital and networked world of knowledge. Open software has much potential for libraries and it also incorporates an interface that makes it easy for people to create their own library collection. The open source software has progressed past the point where its viability can seriously be questioned. There is no denying the fact that open source software enables bridging the digital divide in more ways than one.

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Ashok L. Pathade