Open-Source And the COS Method of Bee-blio Troubleshooting

Introduction:
Recommended reading: Breeding, Marshall, 19.9.2009, presented later in the document "The Elusive Cost of Library Software".

Comparison between two alternatives:

1. **Assumptions used for the comparison** (to address an explanation for each line in the table):

    A. We are noticing recently the rapidly expanding trend of reducing the administrative costs of computer system for libraries. One way to achieve this goal is to acquire Open Source software platforms which are free of charge.

    B. Furthermore, we are noticing the trend to move to SaaS mode operating software, where all the components are installed in a server farm and are working through internet technologies around the Web.

    C. It is likely to assume that when a library chooses to obtain and implement a new computer system, they would expect to start using it immediately, and cannot effort to wait until the individuals you choose to implement the software, become familiar with the code to the Open Source platform chosen by the library. Therefore, the solution that requires a wait period to train the programmers using that platform (about 4-6 months at least), is not acceptable to the decision makers of renewable libraries.

2. **Preserving working knowledge of the software**:

    A. Every library manager must implement the training of a professional software team, to ensure familiarity at the highest level with all the components of the software and would allow them to add or modify new capabilities, locate errors and understand the cause for the errors in order to repair them.

    B. To ensure quick or immediate response to any request for uploading or deal with a problem at hand, the manager must act to preserve the knowledge of staff, over time. Therefore, we cannot rely on a single programmer. It is too risky, to put your eggs in one basket.

C. To prevent such a scenario, the manager must train a team of programmers, at least 2 professionals and obviously, pay them accordingly for their work.

D. Assuming that this specific computer system will be used by the library for about 5 years, the manager must retain and fund a software team, at least 5 man years, where the cost could reach conservatively $300K

3. **Hardware Redundancy and meeting demands of Use**:

A. To operate and maintain the library computer system, throughout the period and to ensure that the library becomes the center of regional culture, the team must install the software using servers' network able to withstand normal operating loads and retain integrity of functioning in the events of components malfunction.

B. When using Internet technologies, it is important to install Fire-Walls, as a primary prevention against security compromises, to maintain and protect the integrity of the information stored in the database management system. (E.g. - library catalogs, subscriber's personal data, order sequence of subscribers, subscribers waiting line, personal payment details, etc.).

C. When it comes to advanced management systems, it is customary to expect a reasonable level of redundancy and to install a back-up of the software on a "minimum configuration" of the next server system:

I) Application Server), will be installed within the environment of Cloud.
Clarification: It is better to install the system software on a dedicated server, but the cost will be prohibitive.
II) Database server.
III) Storage.
IV) Backup System.
Highlights: To most libraries, it is recommended to lease or rent a Hosting services network instead of buying dedicated servers.
V) The average cost of a system of this type (Hosting), may reach about $1,000 per month. Therefore, the average cost for 5 years, could reach - $60,000.

4. **Facing the dilemma of software updates (new versions):**

   A. Under this scenario each library that chooses to work in Open-Source mode and not COS mode may commence implementation of modified source code, or software code, or add new capabilities and/or make corrections for bugs that were found in the code. All those modifications or corrections will only address that specific library without central coordination with other libraries or branches, leading to chaos and limiting capabilities (Babylon Tower effects).

   B. In no time, the library will be unable to communicate with the original supplier or transfer revised new codes, and will not be able to upgrade the software version to that which contain the code developed by the original supplier of software code. As a result, Open Source software suffer from functional compatibility, at a lower than other alternatives.

   C. Furthermore, after each segment of new (revised) software code embedded in that version, there must acceptance and quality tests due to the developments and additions made. Usually, for those tasks the library would allocate a small handful of employees, who can devote limited number of hours of work. As a result, it is likely that quality and acceptance tests will be compromised.

5. **Collaborative Open Source - COS - The proposed solution**:

   A. Installing a central array of network - Octopus like Net:
   To provide quality support in a short period of time, working on the principle Octopus Net, requires only one installation of the software, which will serve simultaneously, all the libraries which are connected to the network in **real time**, and redirect the requests submitted by system users to the databases relevant to each library.

   Single installation of the software code that manages simultaneously hundreds and thousands of independent data bases and yet, independent of each other.

   B. Large central brain – an expanded “think tank” established can act jointly with professionals of all other libraries.

   The team will perform the following tasks simultaneously:
   I) Centralize command, common to all new capabilities that will be added in

the future to the system, for all libraries.

II) A common definition of priorities for development. Building a unified plan for all libraries.

C. Continuous development and repairs will only be made by the original team who developed the software platform. As a result, there will be only one version of the software. All the libraries which are participating in the “multi-brain ", will be able share the costs of developments, resulting in a much lower cost burden.

D. Acceptance tests (Q & A) will be done jointly, and simultaneously and only once, by all employees of the various libraries.

2. **Comparison table - the central key points** that shows the benefits of COS when compared to Open Source:

Point to compare	open source	common open source OS - COS
cost of purchasing a license , for a medium size public library with (30000-50000 items)	Free	$ 15K average
Required time for high level training of programmers for a code recognition, that will allow the support of the software and/or for further developments	six months	immediately
Required time to initiate the program after installation	3-6 months	Immediately – up to 1 month
Conversion of old catalogs	Long and expensive process, typically requires assistance from a third party, unfamiliar with library’s needs. Cost of the team performing the decoding and conversion, can reach - $10K and even more	Commencing work Immediately by the primary development Average cost about $5K
Continuous cost for a development team over 5 years period	$150K Labor cost for, 2 programmers and System operators,(as part time), for 5 years period	About $15K A monthly fee of 15% -20% of the cost of license and the conversion
Cost of purchasing servers, back-up system (application server, two database servers, Storage, back-up system, Load Balancer, Fire Wall), and operating in a server network for 5 years	$60K Require purchasing all the equipment, installation and run it in the server network.	$10K The system operates in SaaS mode Pay only for the hosting in the

		server network
Up-dating versions of the software	Updating the software version is difficult to synchronize in a local modified code with new versions were developed by the owner of the software	Synchronization and updating are done immediately to all the libraries on the network

Test of modifications and improvements that were executed using the local code are performed by librarians	Testing is carried out by the library's small team and examines only the software above. Each library can only check its own modifications, and in most cases, have no idea what was developed for other libraries	Testing takes place simultaneously, once only, by all the libraries that use the software, all of which examine in parallel the same software code.
Functional adaptation and improvement to the system is done By the librarian	Generally, Open Source software	High level of functional compatibility
The System - a dedicated library data management	Suffer from limited functional compatibility, when compared to alternative platform	High level of functional compatibility thanks to the "multi-brain's" identifying needs and defining priorities of developments
Total acquisition and operating cost – over 5 years period	Over $100K	Less than $50K

Summary:

The conclusion from the above comparison highlights the advantages of the COS solution, proposed by Bee-blio literally, in all the relevant areas, particularly:

1. Significantly reduce costs by a magnitude of 300%.
2. Instant activation.
3. Integrity of the software code is much higher - a common (unified) and simultaneous testing by all library staff worldwide.
3. Much broader range of ideas embedded in the software. The ideas are generated from the field of users and most importantly, the users set the development priorities.
4. Libraries need not worry about purchasing an array of servers, avoiding expensive and cumbersome operation.
5. Libraries do not have to worry about the daily backup.