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#### The coming revolution in library software

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#### **ABSTRACT**

*Few libraries have any experience with, or are even aware of, open source software distributed by a commercial vendor. Yet this emerging model of software development and distribution will have a dramatic effect on the library market once librarians understand its value and begin to act on that understanding. When the software code itself can be freely examined and used, the dynamics of the marketplace changes. The end result of these new market dynamics will be that vendors of open source software will produce higher quality software at lower prices than vendors of proprietary software.*

#### THE PRESENTATION

This presentation discusses open source software from the perspective of a commercial vendor. One of the difficulties of presenting from this perspective is that very few librarians know that there are commercial vendors that make a business around distributing open source software to libraries, and fewer still who understand that the commercial distribution of open source software represents an entirely new form of doing business in the library market.

By the end of this presentation, I hope it will become clear why I chose the title I did--The Coming Revolution in Library Software.

Any discussion about this topic must start from an understanding of the proper meaning of open source software. The previous speaker has discussed this in sufficient detail, so I will not repeat what he said.

But I do want to put the entire issue of "What is open source software?" into a market perspective. I have attended a number of programs in which either I or Sebastian Hammer, a co-founder and the CEO of Index Data, have participated in panels and presentations with other vendors. Our experience at those events convinces me that some library vendors either do not understand the meaning of open source software, or they are intentionally trying to mislead the library community about its real meaning and significance.

So while I will not repeat what Reinhard has gone over, I do want to say a few words about what open source software is not--in case your impression of open source software has been influenced by misinformation.

Open source software is not a type of software. Open source refers only to the legal terms of the distribution license. It does not refer to the quality or level of support of the software. And whether or not software follows open standards, or whether it is provided by a commercial company or a not-for-profit institution, also have nothing to do with whether it has an open source license or a proprietary license.

I have heard more than one vendor of proprietary software state that any software that follows open standards and that has functionality that is exposed through open application programming interfaces is open source software. This is just not true.

It is unfortunate that the term "open source" has come to modify the word "software," because in truth, what it really refers to is the legal terms of the license under which the software is distributed.

Why do I make such a big deal about this? Because I believe that vendors of proprietary library software have a vested interest in keeping librarians confused about the nature and implications of the open source distribution model. When librarians properly understand the nature and implications of the open source license, a profound change will occur in the library software market: software will become less expensive and easier to use, and libraries will have more control over its use and development than they now do with proprietary software. These impending changes flow directly from the unique terms of an open source license.

To sum up what Reinhard has said, the major characteristics of the GNU General Public License, one of the two basic types of open source software licenses, are as follows:

Everyone has the right to copy, distribute and modify the software without limit--as well as to look at the source code--that is, the actual programming code that the software consists of. And if anyone distributes the software to another party, that distributor must also abide by the terms of the open source license, which means that that they must also give others the same rights to copy and modify the software as they have been given. In other words, the free accessibility of the software and the ability to freely alter it are self-perpetuated by the open source GNU General

Public License.

Here is a quote from the preamble to the standard GNU General Public License that nicely sums this up:

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the General Public License is intended to guarantee your freedom to share and change it.

Next I want to say a few words about how the characteristics of proprietary software have shaped the library marketplace and the behavior of both vendors and libraries.

Both vendors and libraries take for granted that the customer is not permitted to look at the programming code and cannot give away any copies of the software without the express permission of the vendor.

Typically, the library licenses a black box. Is the software well designed? The answer is almost impossible to obtain. Is a given bug or a functional limitation easy to fix or is it so embedded in the software architecture that it would take a major rewrite to overcome? Again, the answer is almost impossible to obtain.

Because the software code is kept secret, a library must evaluate it indirectly, by its particular functionality, which any programmer will tell you, is only one indication of the quality of the software and is no indication at all of its developmental potential or the ease with which it can be maintained and debugged.

A saying has emerged out of these market conditions that has become a mantra for many libraries: never buy a "pig-in-a-poke." For those unfamiliar with old English, a poke is a small sack or bag that was once used to carry pigs to market. The saying implies that a buyer should be wary and always take the pig out of the poke before purchasing it. Many other cultures have similar expressions. The idea behind the saying as it relates to obtaining library software is that librarians should never trust what a vendor says about its software and its future development. They should only purchase what they can see and experience for themselves: the current functionality of the software. To rely on anything else is to fall into the trap of buying a "pig-in-a-poke" and getting cheated.

The reason why this expression resonates with librarians is because the software market is filled with proprietary software that is kept secret. It can only be evaluated indirectly, by using it or seeing it used at another library, or by reading what the vendor has written about it--but never by examining it directly. On the other hand, if library software were distributed under an open source license, any experienced programmer could look at and evaluate the code itself--and could see its strengths and weaknesses, its limitations and its potential directly--in addition to actually using it.

Imagine if no one were allowed to look under the hood of a car, either before or after it was bought. While you can tell a lot about a car by driving it, there are many things you can only find out if you are able to look under the hood. Even those of us who are mechanically challenged can

learn from the experts who look under the hood and evaluate for us what they see. The same is true for software.

In a market filled with open source software, library consultants who help libraries evaluate software packages would have programmers on staff who could objectively evaluate the quality of the code itself. The result would be a body of evaluation literature that would give librarians a true picture of the strengths and weaknesses of software products. But lacking the ability to look at the actual software, libraries have fallen back on making long lists of functional specifications and asking vendors to tell them if their software meets those specifications.

By thinking about this situation for a moment, I am sure you will realize that the current RFP process, in which libraries ask vendors to respond to questions about the functionality of their software and rely on those answers for evaluating a software solution, is almost completely predicated on the idea that the software can only be objectively evaluated by its current functionality because the actual software itself is, by its legal status, hidden from view.

I would now like to say a few words about the conditions necessary for commercial open source software to thrive in the library marketplace. I define “commercial open source software” as software that is developed or maintained by a commercial company and distributed under an open source license.

I have always been a daydreamer. Recently I have been dreaming a lot about a library market in which commercial open source software thrives and is widely sought after. But because I have to make a living in the world that exists, not the one I dream about, I quickly get jerked back to a reality in which a small firm distributing open source software has to struggle hard to win contracts with libraries in the market that exists today, not as I daydream it might become.

But this morning I would like to share my hopes with you, so that you can see from my perspective the conditions under which the value of commercial open source software will be appreciated by libraries--where a software product will be judged by its potential value to a library, not by the number of customers that are currently using it.

In my dreamworld, librarians understand that when a vendor cannot sell the right to use a piece of software, but can only sell services around that software, the library gets more for its money. I imagine that it is common sense among librarians that when a vendor can only make money by providing installation services, customization services and support services around otherwise free software, the money that libraries spend on these services will naturally tend to give them excellent value.

In my imaginary world, if the price is not fair or the service is not good, but libraries still like the software, they will find a better installation price or a better service to support it, because some enterprising person will see a market opportunity and offer better services or lower prices. This will happen when software is open source, because anyone has the right to offer support services for it. And if the software itself is flawed, some programmer somewhere will fix it or re-work it to make it better. Just as you can go to any tailor to alter or repair the clothes you bought, in my dreamworld where open source software predominates, you will be able to go to any software company willing to provide services for the software you want to use.

When I am dreaming, librarians understand that any money they give to a vendor of open source software for developing features and functionality that does not already exist in the software, will flow directly back into the library community at large. That these new features will then be freely available for all other libraries, because they too will be open sourced.

Also in my dream, librarians and my fellow co-workers at Index Data understand that a small software company, if it started to get more business than it could handle, would not have to expand in size in proportion to the new business it gets. Rather, it could make the software easier to install so that more people could use it without paying experts to install it. That if a library software company had several hundred paying customers, it could have hundreds and even thousands more libraries using its software without making any payments what-so-ever, and still earn a good living

In my dream, the more libraries that use Index Data software and pay us for support and development services, the easier it becomes for other libraries that cannot afford those services to use the software without paying us. In this way, libraries in the developed world help create opportunities for libraries in developing economies by supporting the distribution and development of open source software that can be freely used by these libraries.

In my dream, every librarian is aware that an open-source commercial vendor such as Index Data, which pledges to fix any bug within 10 working days, has a quality of support that cannot be matched by vendors of proprietary software, because open source software can be freely inspected, and no self-respecting developer is going to let buggy code out the door when peers around the world can look at it.

Also in my dream, young entrepreneurial programmers and librarians see the potential of the open source distribution model and form companies to develop their own software and release it under an open source license, and also offer installation and support services around existing open source software developed by academic communities around the world.

As an aside, I will acknowledge that quite a bit of open source software is not up to commercial software standards because it has been developed in academic environments where programmers will still keep their jobs even if the software they develop is not readily usable by non-technical librarians. As the well known quote by Donald Norman puts it, "Academics get paid for being clever, not for being right." The discipline of a free and open market is harsh. If your livelihood depends on producing software that other people will want to use and pay you to support and develop, you will very likely strive hard to understand and meet the needs of your customers; much harder, probably, than will programmers who continue to make a comfortable living whether or not the software they develop meets the needs of potential users.

In my dream, the best of the open source academic-based library software initiatives get adopted by commercial companies that refashion the software to be robust, flexible and easy to use--and libraries respond by purchasing their installation, customization and support services.

Advertising professionals say that effective marketing is all about swaying peoples' emotions and making them feel good about being associated with a product, but in my dreamworld potential

customers understand the real value of the service a company provides.

In a free and open market, in which no secrets are kept and software can be freely distributed, the end result will be cheaper and better software for libraries and their end users. I guess I am an optimist and rationalist at heart, because I believe that all it takes for high quality open source software to be successful in the marketplace is for librarians to begin to appreciate its value, and to let go of the largely unexamined assumptions of a market based on proprietary software.

A few people who share my appreciation for the value of open source software for libraries have suggested that at some point in time, an existing vendor of proprietary software will see the light and switch their existing products over to an open source distribution license because they know it will benefit libraries and because they believe there is a good living to be made with this approach.

This is unlikely to happen. I am sure that there are vendors out there that see the advantages of the open source distribution model for libraries, but it would not be prudent for them to admit this publicly. The most they are likely to ever admit to is that open source distribution has its place at the periphery of library software, and that they are all for promoting it--and for keeping it at the periphery.

The reason vendors of proprietary software are unlikely to acknowledge the advantages open source software is because good open source software almost always has to be written from the ground up. Existing proprietary software cannot be easily altered and made open source. Much proprietary software is written hastily so it can be gotten out the door as soon as possible. After all, why shouldn't it be, since speed-to-market is the most critical element to the success of a product when no one is allowed to see the actual code? To allow code developed under these circumstances to be openly examined by anyone would lead to embarrassment.

Another reason why it is unlikely that a vendor will just switch to an open source distribution license is that most vendors use third party proprietary software to build their applications. In order to release these applications under an open source license, they would have to replace all the pieces of code that they obtained under restrictive proprietary licenses from other companies. That would be a very expensive proposition.

The best that we can expect from existing vendors is that they will develop or acquire new software programs under an open source license. VTLS has done this with its VITAL product, based on the FEDORA Project, which develops open-source repository software.

Most vendor representatives in library software sales and marketing spend the bulk of their time trying to increase awareness of their products, while promoting all of their positive characteristics and diverting attention from their limitations and flaws. Sometimes I wish my job were that simple. When I talk to librarians about Index Data's software, I often find that they are filled with assumptions and preconceived notions that prejudice them against considering an open source alternative to proprietary software. They view open source software as a risk, because it is something new and because it has not yet captured a significant portion of the library market.

Library decision makers, I find, tend to be very conservative and risk-averse, and are thus hesitant

to commit to a new paradigm of library software acquisition. But lately I have been sensing a growing awareness that open source licensing has the potential to fix a distribution system based on proprietary software that, from the library's point-of-view, is broken--that has resulted in mediocre software, slow development and unsatisfactory service. I sense that librarians are more ready than ever to experiment with a new form of software distribution that will better meet their needs and the needs of their users.

The turning point will come when libraries begin to appreciate the new realities and opportunities presented by an open source distribution. When that turning point comes, the change will be rapid and dramatic, and doubts about the solid advantages of using open source commercial software will evaporate. When that time comes, the revolution in library software will begin.