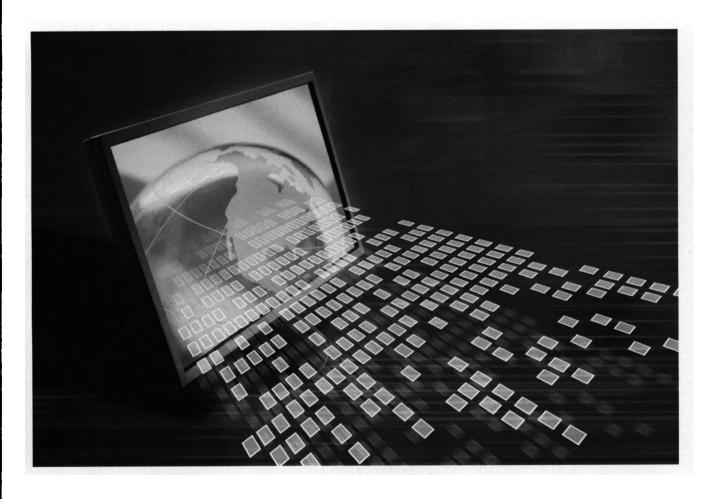# 20 Questions on Open Source Accounting Software

By Thomas Tribunella and James Baroody

Open source systems (OSS), such as Linux, have become a viable choice for operating platforms and servers. Currently, open source software programs are emerging with accounting, financial, and enterprise applications. The 20 questions answered below address the concerns of CPAs and managers interested in learning more about the implementation of OSS within their organizations.

Key areas of concern include functionality, compatibility, stability, pricing, software licensing, technical support, and mainte- nance costs. While accounting and financial OSS are still in the early stages of development, CPAs and managers should under- stand the technology in order to evaluate the suitability of these systems for their needs.

1. Why Are Open Source Accounting Systems Important?

As competition increases in the business environment, man- agers must search for new ways to operate more efficiently. OSSs have matured and gained widespread acceptance in the technical

> ## Under the OSS philosophy, a community of developers creates the accounting systems, and the intellectual property is open to the community.

infrastructure domain. With the emergence of full-function open source accounting systems, they are now a feasible alternative for organizations. OSSs can be downloaded free of charge and often have the same functions as expensive proprietary systems, allowing clients to migrate to OSS at a low total cost of ownership (TCO).

Open systems, such as Linux, have proven to be extremely stable, in part because the open source development model promotes the rapid correction of problems. While OSS accounting software packages are not as widely deployed and their track record is limited, the authors anticipate that they will prove to be stable applications.

2. What Are the Licensing Differences Between Open Source and Proprietary Software?

Traditional accounting systems are sold under a proprietary license agreement designed to protect the intellectual property of the developer. Under the OSS philosophy, a community of developers creates the accounting systems, and the intellectual property is open to the community. Users are able to read, redistribute, and modify the source code. They regularly improve the OSS by adapting it to various applications and fixing bugs. With an OSS, the user actually owns the software; under proprietary (closed source code) systems, the copyrights are leased. The General Public License (GPL) is the standard template typically used by OSS creators and vendors. In this same spirit, improvements that users make to the software must be made publicly available.

An OSS brings a remote but inherent risk of copyright violation claims. Users must be sure that there are no claims of copyright infringement. There have been isolated cases in which licensed or copyrighted software has been duplicated and placed into the OSS public domain. Unwitting users may then find themselves subject to licensing claims.

3. What Is the Relevance of OSS to Accounting and Enterprise Systems?

Historically, OSSs have focused on technology components such as the Linux operating system and the Apache web server technologies. Open source business applications are beginning to emerge. The most familiar of these is OpenOffice, an office suite that

EXHIBIT 1				
Open Source Maturity Model (OSMM)				
Element	Potential Score	Actual Score	Weighting Factor (default)	Weighted Score (actual x weighting factor)
1) Product Software	0 to 10		4	
2) Support	0 to 10		2	
3) Documentation	0 to 10		1	
4) Training	0 to 10		1	
5) Product Integrations	0 to 10		1	
6) Professional Services	0 to 10		1	
Total of Weighting Factors			10	
Product Maturity Score (max. = 100)				100

Purpose of Use:	Early Adopter	Pragmatist Use
Experimentation	25	40
Pilot	40	60
Production	60	70

supports word processing, presentation, and spreadsheet applications. A variety of accounting and enterprise applications are now available in OSS. Reflecting the potential these products have, venture capital is flowing into open source business applications.

4. How Extensive Is the Use of Open Source Accounting Systems?

The adoption of OSS accounting and enterprise systems is not widespread. Proprietary systems, such as QuickBooks, Peachtree, and Microsoft Office Accounting, dominate the market for small business systems. Closed source developers, such as SAP, Oracle, and Microsoft, dominate the enterprise systems market.

OSSs have been adopted in a number of commercial enterprises and industries, indicating that it is only a matter of time before development spreads to accounting and enterprise systems. OSSs will not replace existing Windows systems, but they will provide the market with a viable alternative.

Accordingly, some open source accounting systems are gaining market share. For example, Compiere reported 930,000 downloads of its enterprise system, and is supported by 44 partners on a worldwide basis.

5. Is There a Framework for Understanding the Maturity of Open Source Accounting Systems?

Maturity is important in an OSS because immature systems will not have a critical mass of support, consulting, training, vendors, and

EXHIBIT 2	
Advanced Application Features: Enterprise Scale Systems	
Application Module	**Description**
Financial	Includes general ledger, accounts receivable, accounts payable, legal consolidation, cost center accounting, product cost controlling, and activity-based costing.
Operations and Logistics	Includes inventory management, materials requirements planning, materials management, plant maintenance, production planning, project management, purchasing, quality management, routing management, shipping, and vendor evaluation.
Sales and Marketing	Includes order management, pricing, sales management, and sales planning.
Human Resources Management	Includes human resources time accounting, payroll, personnel planning, and travel expenses. Also includes vacation and sick time tracking.
System Administration and Management	Includes tools to support ERP system installation and management, such as security management.
Supply Chain Management (SCM)	Involves the management of information between partners in the supply chain to enable the control of goods, services, and money from the acquisition of raw materials to the final customer product.
Partner Relationship Management (PRM)	Supports communication between companies and their partners, making shipping schedules and real-time information available to all.
Auditing Information System	Includes tools for auditing businesses and systems, documenting the progress of an audit, and preparing reports.
Customer Relationship Management (CRM)	Includes one-on-one marketing, telemarketing, sales force management, call center automation, e-selling, data warehousing, and customer service.
Internal Controls Management	Includes tools to plan and manage enterprise systems audits and verify internal controls.
E-Business	Supports technology to enable employees, customers, suppliers, and business partners to collaborate. Includes business-to-business capabilities and business-to-consumer capabilities, such as web stores and Internet catalogs.
Strategic Enterprise Management	Includes tools to manage and integrate strategic planning, budgeting, forecasting, and performance management.

users. To address this issue, there are maturity models, such as the Open Source Maturity Model (OSMM), that measure the software's stage of development. The template for this model is shown in *Exhibit 1*.

The software elements, listed on the left-hand side of this exhibit, are scored based on their maturity. Each element is then given a weighting factor based on its importance to the organization. The element maturity scores are multiplied by the weighting factor, to generate element-weighted scores. In the final phase of the analysis, the element-weighted scores are totaled to produce a product maturity score. These are then compared to determine the best OSS. A well-designed maturity model should help managers understand the development and stability level of an OSS product.

6. What Are the OSS Functional Application Modules? Can They Be Mixed with Modules from Proprietary Systems?

Accounting software modules support specific functions, such as general ledger, accounts receivable, accounts payable, purchase order, sales order, inventory management, and fixed assets. OSS modules that are based on the same operating systems are often mixed and combined with the help of consultants. Software written to support this combination usually becomes publicly available. Most proprietary systems do not operate well with OSS modules at the functional application level.

7. Can OSSs Support Enterprise-Level Applications?

A few OSSs do operate at the enterprise level, including support for operations like inventory and manufacturing. For example, Compiere can do this with integrated business processes such as Quote-to-Cash, Requisition-to-Pay, CRM (Customer Relationship Management), PRM (Partner Relationship Management), Supply Chain Management, Performance Measurement, and Web Store. *Exhibit 2* lists several popular enterprise applications and their explanations.

8. Are OSSs Stable, Reliable, and Able to Process Transactions with Multiple Simultaneous Users?

The larger OSS enterprise software can accommodate many users. Because they run on stable servers and operating systems such as Linux and Windows, OSS applications run with stability and have little downtime.

9. Who Are the Major Vendors That Supply OSSs?

The major players and their related operating platforms, operating systems, and databases are listed in *Exhibit 3*.

10. What File Servers Support the Various Open Source Accounting Systems?

Microsoft Windows, Linux (Red Hat), Solaris (Sun), OS-Independent, Mac OS X, and Unix all have accounting applications that run on their platforms. OSS software will run on the most popular servers, such as Apache, which is the most common server with over 50% of all installations. Sun also supports some OSS accounting applications.

11. Where Can an Organization Get Support and Training?

Support and training depend upon the maturity and market penetration of the OSS accounting system. Mature, industry-leading systems have many partners and value-added resellers (VARs) that sponsor training and conferences. If support is needed, vendor websites will list training seminars and consulting partners. Before choosing a VAR, managers should ask the following questions:
■ How long has the VAR been in business?
■ What does the VAR charge for support?

EXHIBIT 3 — Popular OSS Accounting and Enterprise Products			
	Name of Product	**Operating System**	**Database (if any)**
Small Systems	Appx-Bang	Windows, OS-Independent, Linux	MySQL, Oracle
	BestBooks	OS-Independent	JDBC
	CentraView	Windows, Linux, Mac OSX	MySQL
	EzyBiz	Linux, OS-Independent	
	Grisbi	Windows	XML-Based
	Lazy8 Ledger	OS-Independent	
	Muhasebeci	Windows, Linux	MySQL
	NetAccounts	OS-Independent	
	OAJ/OpenAccounting	OS-Independent	
	OSAS	Windows	
	PHPBalanceSheet	OS-Independent	
	TinyBA	Windows, Linux	
	Traverse	Windows	SQL
	TurboCash	Windows	
	XIWA	Linux	
Enterprise Scale	Compiere	Windows, Linux	Oracle, MySQL
	GnuCash	Windows, Linux, Mac OSX	PostgreSQL
	NOLA Pro	Linux, Windows	
	SQL-Ledger	UNIX, Mac OSX, Windows	Perl DBI/DBD
	Tiny ERP	Linux	PostgreSQL
	Tustena CRM	Windows, Linux	SQL
	webERP	Windows, Linux	MySQL

■ What is the VAR's experience and client base?

■ Can the VAR support any customization of the software that may be required?

12. How Is Enterprise Level OSS Supported with Consulting?

To address the business processes within an individual organization, enterprise systems may require a significant amount of customization to meet specific requirements. Before adopting an OSS enterprise application, an organization must analyze the capability of the candidate software to support this customization. If the candidate software does not meet the needs of the organization as delivered, the organization must consider what tools and processes can be used to customize the enterprise system. Proprietary systems, such as SAP ERP and Oracle applications enable "configuration," which customizes the application to the business requirements without writing software. If configuration is not supported, then management must assess the possibility of adapting the software to meet the organization's needs.

Closely aligned with customization is another strategic question. The open source model generally requires that changes to the software be shared with the open source development community. Frequently, the specialization of business processes within an organization is a source of competitive advantage. Management should ask: What is the competitive threat from sharing these modifications with the open source community? To what extent might the organization be forced to disclose its unique business processes?

13. What Are the Costs Associated with OSS Accounting Systems?

The costs for an information system fall into several categories (see *Exhibit 4*). The primary savings for an organization adopting OSS come from the purchase cost. Generally, open source software is available for free or at a very low cost. Hardware requirements for Linux- and Unix-based operating systems (OS) are low because they run efficiently and can operate on old or used equipment. Consulting, training, and change man-

agement are usually very expensive when an organization converts to an OSS or any other system. Ongoing administrative and maintenance costs are unlikely to be significantly different for open source applications.

An additional dimension of cost and time affected by open source systems is the Request for Proposal (RFP) cycle. Much of the RFP process is invested in analyzing the licensing proposals from each potential vendor, assessing the payback from the investment, and negotiating the terms and conditions of acquiring the software. Organizations utilizing OSS business applications should see this process shortened and simplified because the software is usually free and the licensing agreements follow standard models.

The most common model for categorizing cost related to information systems is the total cost of ownership (TCO). The TCO model is shown in Exhibit 4. TCO includes all expenses associated with owning and maintaining work stations within an organization. It is a holistic view of IT-related cost at an enterprise level. TCO also

EXHIBIT 4 Total Cost of Ownership		
Acquisition	**Administrative Costs**	
	Control	**Operations**
Hardware Costs	Centralization: Control of software and network administration from one department.	Installation and Upgrades: Installing updates and new systems.
Software Costs	Standardization: Similar hardware and software configurations throughout the end-user community.	Evaluation: Analyzing the latest technology that is available.
		Power Consumption: Cost of energy per workstation.
		Training: Cost of helping end users understand system features.
		Downtime: Cost of system failures and repairs.
		Fuzz: Personal use of company systems.
		Auditing: Cost of monitoring systems.
		Viruses: Cost of repairing software and data from intrusions.
		Support: Cost of services to address user problems.

includes acquisition costs, control costs, and operation costs. Acquisition costs account for approximately 20% of total costs. It has been posited that investing in controls should reduce many operational costs.

14. Do OSSs Work Well with Relational Databases?

Some open source systems run on open source relational database management systems (RDMS). For example, WebERP runs on MySQL, which is a mature and stable open RDMS.

15. Do OSSs Support Web-Based Applications?

Online transactions, such as Internet shopping and electronic banking, are usually supported, and most web servers are based on open source platforms, such as Apache servers.

16. What Is the Audit Risk Associated with Open Systems?

Because the code is freely available, one could theoretically find a weakness in the program and violate the system, but because these systems are open, they are rapidly patched by users. Those patches become open and available to other users in the community. A well-maintained OSS should represent a low risk from a security point of view. There are very few reports of OSS applications being hacked.

17. What Factors Should Be Considered When Deciding to Acquire an OSS?

Factors for selecting an OSS for accounting applications are the same as for proprietary software:
- Does the application provide the required business functionality?
- Does the application work with the hardware and software technologies that are currently in use?
- Does the available support meet the needs of the organization?
- What level of training is required?
- What risks are associated with the selection of the OSS accounting application?
- Has this application been in the market for a significant amount of time?
- What is the track record of performance and reliability?
- What types of problems do users encounter with this product?

- Can the organization support the OSS with internal capabilities if vendor support is not available?

18. Do OSSs Support Standard Markup Languages?

The Extensible Markup Language (XML) is a standard created to overcome the restrictions of HTML by providing mechanisms to extend the types of information that can be exchanged. XBRL (Extensible Business Reporting Language) is an extension that was created using XML for financial applications. It is the markup language used to tag financial information for the SEC's EDGAR (Electronic Data Gathering and Retrieval) database. XBRL is currently being used by the SEC to accept financial reports.

The creation of languages such as XBRL will allow for the rapid communication of data between organizations, systems, and networks. XML and XBRL are both open system languages. Accordingly, most OSS accounting systems support XML-compliant data.

19. Do Open Source Systems Have Audit Modules?

The more widely used proprietary systems have audit modules that support the work of external auditors such as CPA firms and governmental regulators. OSSs are lagging in this area, but one provider, Tiny ERP, does have an audit module.

20. Where Can One Find More Information About OSS?

OSSs are in a state of rapid development, meaning that the Internet is the best place to look for current information. The following is a list of websites to learn more about this technology:
- American Bar Association: www.abanet.org/intelprop/
- CapGemini's Open Source Maturity Model: uk.capgemini.com/services/technology/opensource/
- Compiere ERP and CRM: www.compiere.org
- Extensible Markup Language (XML): www.w3c.org/xml
- Freshmeat: www.freshmeat.net
- GnuCash: www.gnucash.org
- Open Office: www.openoffice.org
- Source Forge: www.sourceforge.net
- The ERP fan club and user forum: www.erpfans.com

- Tiny ERP: www.tinyerp.com
- Tustena CRM: www.tustena.com.
- Web ERP: www.weberp.org
- David A. Wheeler's homepage, "Why OSS/FS? Look at the Numbers": www.dwheeler.com

OSS Making Inroads

OSSs for accounting are quickly making inroads into the business world. They are not well-developed at the enterprise level, but there are many small business accounting systems with a complete set of standard modules. Only a few of the sys-

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tems, however, are mature, with a network of vendors that support and train users, as well as provide consulting and installation. The lack of support should change as more venture capital flows into the OSS industry. Given their stability and low cost, one can make a strong business case for implementing an OSS. With time, these systems will gain greater acceptance from the business community. ❑

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