

# Vendors In Virtual IT

## The Critical Triangle for Cost Efficient Servers: Consolidation, Virtualization, and Vendor Management

During the IT “boom years,” IT budgets expanded at an unprecedented rate; computing hardware costs declined and the use of application-specific servers proliferated. At the same time, networks expanded to every corner of the enterprise and access to centralized software services became widespread. With the new century, the IT economy contracted following the collapse of the “.com bubble” companies. IT management became focused on controlling IT expenditure and deriving the greatest benefit from all assets already in inventory.

However, the number of servers remained high. In a recent analysis Computer Economics ([www.computereconomics.com](http://www.computereconomics.com)) reported that: “Computer Economics IT spending surveys over the past three years have seen strong increases in acquisition of computer servers, especially for mid-range servers (those costing between \$50,000 and \$500,000) and low end servers (those costing less than \$50,000).” Ever declining cost is one reason for the strong growth in these categories of computer hardware. A second reason is that IT organizations tend to simply add new servers for every new application or processing requirement.

These trends have led to a situation where many data centers are crammed with servers that are largely unused. “...Nearly 80% of production UNIX servers are less than 20% utilized. For Windows servers, the situation is even worse. Over 90% of the servers running the Windows operating system utilize less than 20% of their capacity.” (Computer Economics “Most Windows and UNIX Servers Are Underutilized,” November, 2006). In too many organizations the server farm keeps a crew of IT people busy around-the-clock. As reported by Computer Economics, many of these physical servers have capacity that is not being used. This excess capacity leads to the opportunity to consolidate servers, reduce the total number of server vendors and better manage the computing server resources deployed across the enterprise. Another major component of today’s server savings programs is to consider the use of virtualization as well as consolidation and vendor management.

### The how-to guide to Consolidation, Virtualization, and Vendor Management

With the right tools, IT professionals can evaluate the utilization of the individual devices and determine which device can support multiple applications. This evaluation can lead to a determination of which processes can be consolidated, which maintenance agreements can be terminated and which power-hungry server farms can be shut or pared down. Server consolidation also requires an examination of what equipment is leased and what is owned, a record of the maintenance history of each device and the hardware and software configuration of each server. Server consolidation can lead to vendor consolidation, reducing the number of suppliers and separate maintenance contracts.

As part of a server and vendor consolidation program, the IT team can license software that allows them to create virtual servers, the use of which is not restricted by the design of, or application installed on, the physical devices. This virtualization software simulates the operation of a physical server and suddenly a whole new world of capacity planning opens up. There is no doubt that virtualization is changing the computing environment, economically utilizing excess capacity, adding flexibility and server functionality but adding complexity to the IT asset management function.

Numerous vendors have virtualization offerings, extending to the mainframe, server or even the desktop. However, IT professionals remain responsible for managing the enterprise’s IT assets whether they are physical devices or virtual devices. One key factor is that software which is used in a virtual environment still requires proper licensing use consistent with the applicable software license agreement. With the introduction of virtualization, the IT professional responsible for the distributed networked environment should determine:

- Do they have the tools to identify and inventory the software that can be used in a virtual environment?



- Can the organization determine that the software slated for use in a virtual environment is licensed for that use?
- If the virtualization technology requires an OS on the host machine, is that OS reported in the organization's count of licensed software?

IT managers need to closely examine their IT asset management information to determine if the hardware and software associated with the virtual devices are being properly discovered and reported.

### **The need for information**

IT asset managers frequently uncover unexpected complications when consolidating servers or incorporating virtualization. While IT operations focus on the direct implementation of the technology, the downstream impact on business and management reporting fall under the purview of the IT asset manager. With virtualization, the reconciliation of the related software packages and identification of the virtual environments are critical points to ensure compliance and network security. The financial and contractual aspects of the assets involved must be reviewed to ensure that the new technology has not created unplanned expenses and difficulties.

IT asset management tools play a key role in identifying the business issues that can arise from a technology change and present a valuable resource for professional IT Asset Management professionals. The solutions used for ITAM are critical in that they provide multi-faceted data on assets rather than focusing on a single attribute. Advanced IT asset management solutions identify configuration, legal, logistical and ownership issues, many of the key issues that must be addressed for server consolidation and/or virtualization. The expected change in vendor mix, with the possibility of vendor reduction and contractual changes essential in a virtualized environment are equally supported by IT asset management.

### **Making the consolidation decision**

An automated inventory solution provides the exact configuration of each server which is the basis for determining which devices have the capacity to handle multiple applications, which devices are running only one application or a limited number of applications and the degree to which each server is utilized based on software usage information. Software usage provides valuable insight into the traffic that a particular server receives and the nature of that traffic.

In addition to configuration information, business information is critical to the decisions on a consolidation or virtualization project. Such information includes ownership information such as if the device is leased or owned, when the lease is up, which devices are under warranty or maintenance, when warranty expires or when maintenance is renewed. There may be financial incentives tied to continued use of the servers that should be considered in the decision.

When considering consolidation and/or virtualization, vendor management related issues and opportunities arise. Choices on servers to consolidate may be impacted by the hardware vendor and the state of the agreements with that vendor. There may be servers under individual maintenance agreements or they may be consolidated into a single-fee contract. Consolidation may be an opportunity to reduce the number of manufacturers to build a preferred status with those vendors. Manufacturers may differ on whether the servers are supplied with an OS or whether the servers have a variety of commercial and open-source OS platforms. The IT asset lifecycle solution is capable of providing this information, giving the IT professionals the guidance necessary to determine if vendor consolidation is practical. The purpose of this analysis is to determine where actual savings can be realized.

Knowing what company supplied the software is important to vendor management, especially in a server consolidation environment. Maintenance contracts are usually placed with the supplier, even if different software resellers supplied the same software at different times. An examination of the maintenance agreement terms, the predominance of any particular vendor and an awareness of what and how many software licenses will be retired or pooled will assist in vendor selection decisions and any potential license re-negotiations.

### **The software impact**

During consolidation and virtualization, the software considerations can be the most difficult to investigate. For software information, ITAM business practices and the solutions used to implement them are the primary source as ITAM focuses on accountability for financial and legal ownership within the organization. That means that the departments using a specific application can be considered in case there are security, legal or governance reasons that limit the ability to consolidate. In general, the software license governing the current server applications must be reviewed for restrictions or terms impacting virtualization. This information can easily be extracted in easy to read reports from IT asset lifecycle management tools.

Four main questions come into play when evaluating the software impact:

- I. Are there duplicate server applications that can be consolidated on single server
- II. Are there license restrictions on using the software in a virtual environment
- III. What applications are deployed, are they fully licensed and how much are they used
- IV. What vendors supplied the software?

The answers to these critical questions can be derived from the information stored in the organizations' IT asset management solutions.

A current inventory scan of the network will report all of the deployed server software packages and duplicate titles can be identified. As servers are consolidated, fewer discrete copies of the operating system and other general use applications will be needed. In the case of virtualized servers, each virtual machine will need a dedicated OS, and licenses from retired servers may be reallocated.

However, when reallocating any software the license terms must be examined. The contract information held in the IT lifecycle management solution can be used to examine the software license terms and conditions and to provide guidance as to what software can be run on virtual machines, which have specific provisions regarding virtualization and which, if any, prohibit the practice entirely. Furthermore, shifting the software from a single processor server to a multi-processor machine may have software license fee implications. Using an IT lifecycle management solution permits the IT professional to make intelligent choices regarding what software is impacted by consolidation and virtualization.

It becomes clear that having a complete software inventory is a key component of any consolidation/virtualization effort. However, knowing what is deployed is only half of the equation. Knowing how it is licensed and if there is an over- or under-licensing situation are critical. An automated software reconciliation solution will enable the company to quickly determine if all of its server software is fully licensed, if there are excess licenses, and if any package is under-licensed, how consolidation can work to rectify that situation.

Finally, determining the degree to which the server and the associated software are used is crucial to both consolidation decisions and vendor decisions. By using a software usage tool, IT professionals can gain further insight as to what devices are under-utilized, which applications are essential to the operation and which are marginally accessed. This information is a necessary component of any server consolidation decisions.

## Managing Software in a Virtualized Environment

Virtualized servers are subject to the same fundamental licensing terms as software installed on dedicated servers. The user must be able to show that a license exists for each copy of the software deployed to the servers. Effective software inventory requires the IT asset management software to have some special attributes. In the virtual environment, discovery agents must be placed on a virtual machine in the same way they would be placed on a real machine. The agent will then discover all of the software information on the virtual machine to the same detail that it does on physical devices. Moreover, if there are multiple virtual machines running on a single physical device, then the IT asset management solution must be a report for every virtual machine. For the purposes of the IT asset manager, each virtual server must report separately to ensure a clear picture of the environment is provided.

## Hardware Detection in a Virtualized Server Environment

From the network perspective, a virtual machine should be discovered, inventoried and reported as if it were a physical device with a separate IP address and running a separate operating system. The IT asset management solution should run a separate agent on every virtual machine in the same way it does on the physical devices. Since virtualization technology is relatively new, there is some variability in how well the real hardware reports once the server has been virtualized. Careful analysis via IT asset management discovery is an important step when choosing the virtualization vendor.

## Vendor Management and Consolidation

Many organizations are trying to get to the point where they have "one throat to choke." This probably is an unrealistic goal with regard to a complex IT infrastructure and network, but server consolidation can definitely be a means of reducing the number of vendors represented in a datacenter. Consider the following:



- Server consolidation and virtualization results in fewer servers. Depending on the original distribution of vendors, the server configurations and the utilization of the software, an array of vendors can be pared down to one or two. Reducing the number of vendors eliminates excess maintenance fees and provides the organization added leverage with regard to the remaining vendors.
- Reducing the number of servers may enable the organization to standardize on an operating system. This situation can result in a software license and maintenance contract renegotiation with the various vendors as the selection is made. This change will reduce the number of software support contracts and streamline internal help desk operations.
- In most cases, fewer vendor points of contact improves communications and often results in improved service. The organization's relationship with the vendor is strengthened and the vendor becomes more responsive as the relationship evolves.

### Taking a Coordinated Approach

Most organizations have a goal of optimizing the use of their IT assets and consider server consolidation and virtualization key methods of reaching that goal. In a recent survey conducted by Eracent, 76% of all respondents reported server consolidation as one of their top IT initiatives for 2007 (the full survey is available at [www.eracent.com](http://www.eracent.com).) Server consolidation permits improved vendor management, reduced maintenance costs and reduced power consumption. However, to obtain these benefits, organizations need to have critical information about their server assets, including physical configuration, utilization, degree of specialization, reliability, related software license restrictions and contract terms and conditions. Companies that maintain the tools needed to collect the key IT asset information have a significant advantage in effectively realizing benefits from their server consolidation efforts.

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