



## Princeton Softech Seizes New Market Opportunities with VMware Lab Manager



### KEY HIGHLIGHTS

INDUSTRY: **TECHNOLOGY**

#### CHALLENGE

Princeton Softech wanted to extend its industry-leading enterprise data management solution to support hundreds of ERP and CRM application configurations without breaking the bank on testing hardware and manpower.

#### SOLUTION

VMware virtual infrastructure helped Princeton Softech constrain its testing hardware costs, while VMware Lab Manager alleviated the labor crunch for provisioning testing and development environments.

#### RESULTS

- Improved the server-to-administration ratio by 25x
- Reduced time for provisioning testing environments from weeks to seconds
- Deferred hundreds of thousands of dollars in hardware costs
- Maintained the current IT headcount to support test and development activities

*“Before acquiring VMware Lab Manager, we didn’t have the versatile, on-demand environment we needed. Virtualization helped, but even then, requiring IT support to provision specific environments created bottlenecks. Lab Manager allows us to support as many ERP and CRM environments as possible to satisfy the needs of our engineering talent and to achieve our business objectives.”*

Jim Rhodes, VMware Administrator, Princeton Softech

### Accelerating Time to Market without Increasing Headcount

As information technology becomes more and more central to the daily operations of large organizations, the amount of application data created, stored and queried is growing at a breakneck rate. Princeton Softech’s enterprise data management solution, Optim™ helps organizations deftly manage this tidal wave of data, allowing them to improve application performance, mitigate risk and control IT costs.

Optim provides comprehensive database archiving and test data management capabilities designed to help organizations align full-lifecycle data management with their business objectives. Archiving tames corporate databases by tiering data by age and business value. Test data management creates realistic, right-sized test databases to deliver reliable applications. “Originally, Optim only had to work with a few major flavors of database,” says Princeton Softech VMware Administrator, Jim Rhodes. “So our developers and QA engineers had to ensure that Optim worked flawlessly with Oracle, UDB, DB2, SQL Server, Sybase and Informix, which presented the only major compatibility issues.”

Originally, Princeton Softech’s QA test bed was straightforward, with few, relatively simple test environments to support. “We had a handful of high-powered workstations where we ran databases to test against,” recalls Rhodes. “But even this approach was far from ideal. To reduce costs, we would attempt to run databases on the same machines for different users, with varying degrees of success. Different database versions from the same provider would not run concurrently on the same machine. So if someone in QA needed to test against an Oracle 8.17 database, but testing was already in progress against Oracle 9 on that machine, we would have to bring up 8.17 on another machine. This was a time consuming major effort.”

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## New Opportunities Introduce Greater Complexity

While the Princeton Softech's IT department already had its hands full trying to support the basic testing environments needed by the development and QA teams, the realities of the company's desire to pursue new market opportunities added complexity. "The corporate database is only one part of a larger ecosystem of enterprise information handling," says Rhodes. "It was only natural that we would eventually provide integration with ERP and CRM applications. Oracle® E Business Suite, PeopleSoft® Enterprise, JD Edwards® EnterpriseOne and Siebel® Applications were all candidates for improved enterprise data management."

So, while expanding into a new market was a huge opportunity for Princeton Softech, it meant having to ensure compatibility with a larger number of complex application environments. "Originally, we had to ensure compatibility with different flavors of databases and the variability between different versions," recalls Rhodes. "Now, we have to support different flavors of ERP and CRM applications, each with its own different versions, in combination with each of the major databases. We moved from testing against a dozen combinations to supporting hundreds of application combinations."

The prospect of using a physical infrastructure to set up, tear down and archive the testing environments for each of those hundreds of combinations was daunting, if not infeasible. "What was initially a tough job was becoming impossible without increasing hardware spending and increasing our IT headcount," says Rhodes.

## Virtualization to the Rescue

While Princeton Softech was planning to expand its enterprise data management capabilities into the ERP and CRM application market, Jim Rhodes and his team became acquainted with virtualization. Rhodes recalls, "My manager said 'Let's give this a try,' so we started experimenting with a copy of VMware GSX Server."

With this new technology at their disposal, Princeton Softech soon realized the potential to improve operational efficiencies. "Once we saw what we could do with VMware virtualization technology, we quickly upgraded to ESX Server," says Rhodes.

The addition of VMware technology immediately eliminated the hardware constraints the IT group was encountering. "The problem of concurrently running multiple versions of the same database on the same physical machine disappeared," says Rhodes. "Also, VMware helped manage complex testing environments. For example, a JD Edwards testing environment requires a database machine, an application server, and a client machine to test against. With VMware software, we can create that environment with virtual machines within a single physical host, rather than three separate physical boxes."

But there were still challenges to overcome. "Some of these testing environments are really complex and, even when the machine is virtual, it still takes substantial time for IT to provision the virtual machine, set it up with the right operating system, the right flavor and version of database, and the right ERP or CRM applications to test against," says Rhodes.

## VMWARE VIRTUAL INFRASTRUCTURE AT WORK

- Running about six configurations from a three-machine JD Edwards configuration to a simple Windows 2000 server configuration
- VMware ESX 2.5.2 and VI3 on HP DL 585s and 2-CPU Dell 2650s
- VirtualCenter and VMotion on HP DL 585
- Hitachi HDS 9570 and AMS SANs, with 200 TB storage
- Guest operating systems include: Windows NT, 2000, 2003, XP Pro, and Vista; Solaris; Red Hat AS3, AS4, ES3, and ES4
- Virtual machines support: Oracle, UDB, DB2, SQL Server, Sybase and Informix databases; Oracle E Business Suite, PeopleSoft Enterprise, JD Edwards EnterpriseOne, Siebel Applications, Citrix, and Microsoft Exchange

Further, capturing and archiving complicated environment builds wasn't exactly simple. "We would spend days setting up a specific testing environment using virtual machines," recalls Rhodes. "When a QA engineer was done testing against a virtual machine for a particular build of code, we didn't want to throw it away because we knew he would need to test against it again the following week. So I found myself playing librarian to a growing set of virtual machines, each of which could be 50, 70 or even 150 gigabytes. I had to TAR zip whole virtual machines and copy them across our network to a SAN, which could take four hours."

In addition to trying to manage this growing sprawl of virtual machines, Rhodes was still limited to managing his library on a virtual machine-by-machine basis. As a result, each time a test environment was needed, he had to reconnect the virtual machines into the multi-tier application configurations required.

## VMware Lab Manager Helps Princeton Softech Ease Virtual Machine Sprawl and Enable Resource Sharing Across Teams

The ultimate solution lay in VMware Lab Manager, VMware's virtual lab automation system. VMware Lab Manager provides the capabilities to create, capture, suspend, index, archive and recreate complex testing environments, allowing Princeton Softech to fully leverage the latent power of its virtual infrastructure. "Prior to using VMware Lab Manager, our best solution was a makeshift library of TAR zipped single virtual machines. With Lab Manager, we simply capture the entire multi-virtual machine environment for future use. The time spent went from hours to seconds."

The self-service aspects of Lab Manager also helped relieve a strained IT department. "Our QA, development and product support teams all have browser-based access to the Lab Manager library of environments," says Rhodes. "With a few clicks, they can access an environment that fits their requirements. Or, if the needed environment does not exist, they can provision a new one. And Lab Manager allows me to control the number of virtual machines allocated to a given user to make sure that resources are being used effectively."

Further, if more than one team member needs access to the same environment at the same time, Lab Manager enables them to check an environment out of the library simultaneously, leaving a pristine, permanent copy in the library. "Before Lab Manager, in order to test in a particular environment, we would first have to tear down the development copy of the environment, creating a lot of churn with constant setup and teardown cycles" says Rhodes. "Lab Manager gives everyone immediate access to the environments they need."

Creating a self-service provisioning capability for development and testing has also freed the IT department to manage priorities. "Lab Manager allows the team to focus on high-value projects. For example, instead of spending time on environment builds for QA and development, we are preparing to upgrade our entire environment to VMware Infrastructure 3.

Princeton Softech is quite satisfied with its Lab Manager results. "Virtualization is key, but it didn't take us far enough," said Rhodes. "With Lab Manager, we are able to support our corporate objectives to move into new markets with thoroughly tested, reliable software solutions — without having to invest in extra manpower. VMware has enabled us to do something that we wanted and needed to do, but wouldn't have been able to do without Lab Manager."

## Results:

To date, Princeton Softech has achieved a wide range of benefits with VMware infrastructure and Lab Manager in place, including:

- Faster deployment of multi-tier test environments. "It used to take a week to define a testing environment, more time to order and configure the box, and so on," says Rhodes. "Now it's a series of mouse clicks, and most of the time does not involve IT."
- Improved the server-to-admin ratio. The IT headcount has remained the same, even while increasing support from 20 physical boxes to the current 37 ESX hosts and 500 virtual machines.
- Controlled server spending and IT headcount. "Going after the ERP and CRM application market without VMware technology would have required increased hardware spending and new IT hires to support additional testing," says Rhodes. "We still would have gone after that market, but there's no way we could have advanced as quickly."
- Fully leveraged engineering pool. Princeton Softech has more than 100 talented engineers dedicated to developing reliable enterprise data management solutions. The company must ensure that these engineers are fully supported with development and test environments they need to stay productive.
- Improved resource allocation controls. "Even with virtual infrastructure, there's still a cost to running an incremental virtual machine in a host," says Rhodes. "Lab Manager allows us to set controls on how many virtual machines allocated to a given user, to make sure our IT resources are used cost-effectively."
- Improved global distributed software support. Princeton Softech has offices in both France and Australia for sales and customer support. The ability to remotely access stored software configurations in Lab Manager helps those support teams to quickly address and resolve software implementation tasks.
- Deferred storage costs. "When we first started out with our virtual infrastructure, we had a 50 TB SAN," says Rhodes. "However, at the rate we were creating and storing 50 GB disk images of testing environments, we would have quickly required lots more storage. Lab Manager kept us from having to deal with that problem."
- Maintained data center resources. "Because we've been able to support 500 virtual machines on our virtual infrastructure running on 37 physical boxes, we haven't run into capacity, cooling or power issues at our in-house data center," says Rhodes. "Without virtualization, we would have outgrown our data center a long time ago."

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## Future Plans

As Princeton Softech continues to develop the next generation of its Optim enterprise data management solutions, the company plans to grow with VMware technology. "We will continue to rely on Lab Manager," says Rhodes. "As more members of our development and QA staff learn how easy it is to access and provision their own environments without help from IT, our development and testing activities will only become more efficient."

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