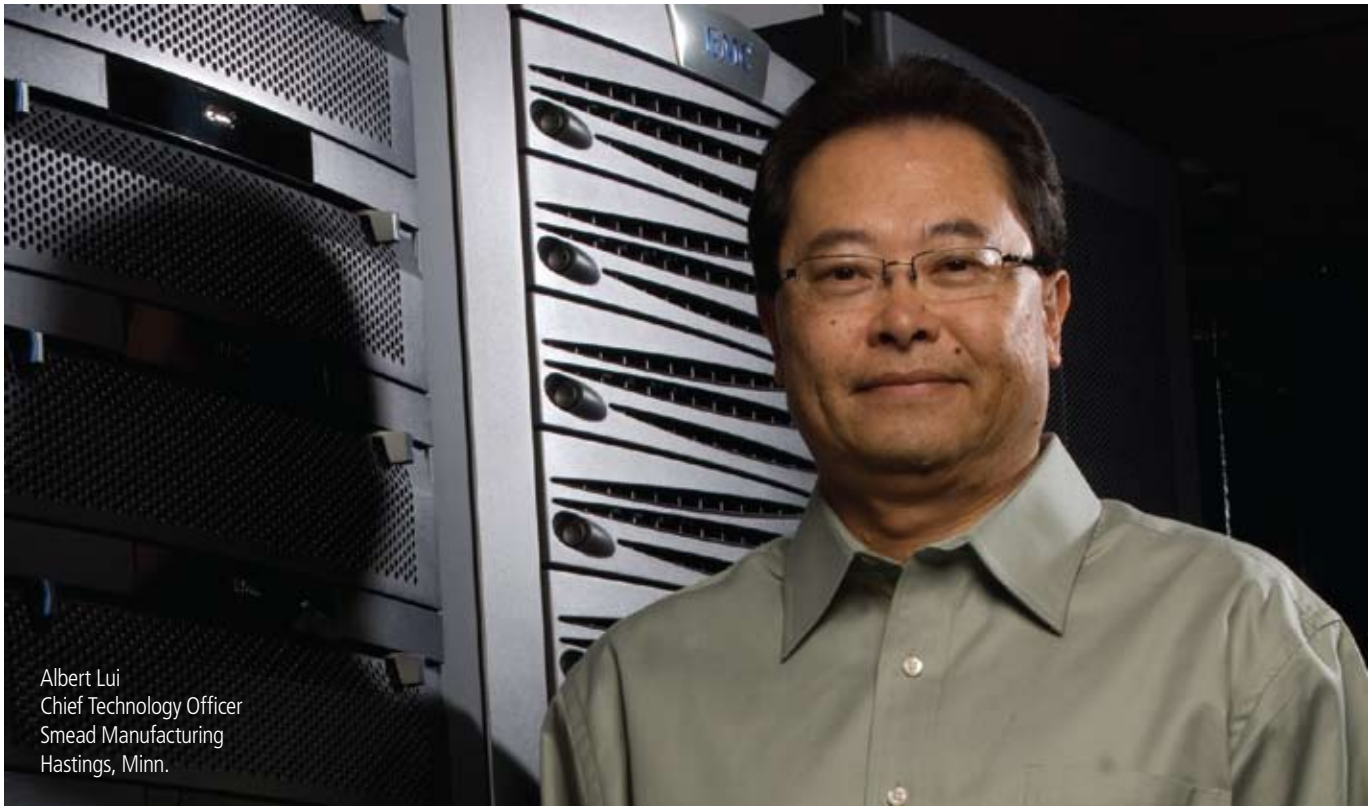
Virtualization Values

Smead Manufacturing estimates savings in the millions of dollars from its server virtualization initiative.



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Today's volatile business world calls for organizations to stay agile and efficient. Unfortunately, data centers and server rooms have grown increasingly complex — to the point of being unwieldy and difficult to manage.

Server sprawl is the result of running a single server with one Operating System (OS) and one application. With server sprawl, up to 85 percent of each server's resources could go unused. The resulting excesses in hardware, power, cooling and management could lead to infrastructure instability.

While downtime is good for vacations, it's not good for business. Just ask the IT team at Smead Manufacturing. When the firm experienced an unexpected outage of its legacy PeopleSoft Supply Chain Management (SCM) system, it resulted in three days of downtime.

When an unexpected outage occurs, it can have major repercussions on any business. Fortunately for Smead, a solid solution — server virtualization and the resulting consolidation and disaster-recovery advantages — meant that it wouldn't happen again.

Smead Streamlines

Headquartered in Hastings, Minn., Smead Manufacturing is a leading supplier of office filing products and records-management systems. The firm's products are distributed through the likes of Office Depot, Staples and other office supply stores and retailers.

Smead's IT department includes 42 people, according to Albert Lui, chief technology officer. On the technical infrastructure side, there are 11 technicians responsible for supporting networks, servers, database, desktop infrastructure, telcom phone system and Voice over Internet Protocol (VoIP) plus other miscellaneous duties.

The firm's first foray into server virtualization occurred about six years ago. Since that time, Smead has experienced some network improvements related to the virtualization efforts. However, the company didn't fully buy into the application until the downtime occurred.

Turning Point

"Running a [legacy] PeopleSoft suite of SCM software, two versions behind, meant that the applications required an older operating system and older hardware technology to support it," Lui says.

"While security patches were being performed on the Microsoft Cluster Server Software [CSS], the configuration was broken," he adds. A break in the shared-disk configuration or damaged data on the disks meant the system was down for a few days.

Debilitating as it was, the breakdown confirmed the obvious. The firm needed updated server technology to sustain the legacy applications in the future.

"Furthermore, when we looked at the [server] utilization report, it confirmed the fact that we were terribly underutilized," Lui says. In fact, the report showed that 85 percent of servers were only running at an average of 15-to-20 percent capacity.

"We immediately presented virtualization as the solution. It would provide us with better utilization of all the resources on the server side," Lui adds. "In addition, we could support applications on older OSs in a virtual machine to continue sustained applications."

Given the potential ROI, Lui and his team got complete buy-in from the business side of the company. In fact, $1.3 million in funding was allocated to get the server virtualization project completed.

Virtualization Savings

The Physical-to-Virtual (P2V) migration process began in April 2008. And the virtualized infrastructure was put into production at the end of last September. "We started with 206 physical servers in August 2008," Lui says. "As of March 2009, we only have 107 physical servers.

"We virtualized 99 physical servers in that time," he adds. "Now, when new applications come in, we don't buy more physical machines. We just add more virtual servers to the system. Thus far, we've avoided purchasing 48 new servers."

Moving from the P2V turned out to be a straightforward process. "Once you put it into production, it goes very fast," says Klaas Snater, senior network analyst. "Our original target was to virtualize 45 servers. We completed that within three weeks."

Once the company determined that server consolidation via virtualization was the best approach, one of the major objectives was to virtualize all commodity servers used to sustain the PeopleSoft suite of apps and other critical lines of business applications.

"We needed something to sustain use of the applications that we had [legacy PeopleSoft system]," Lui says. "This was rather than spending millions on an upgrade for the SCM system."

To the delight of all stakeholders, the project came in under budget by $380,000. What's more, according to Lui, "The cost avoidance of new servers within the first four-to-five months was close to $915,000 in commodity servers."

"We achieved our primary objective, which was the ability to support older operating systems where newer hardware was incapable of running the legacy applications," says Daniel Sorenson, lead technical analyst at Smead.

"We also realized power savings by utilizing fewer servers," Sorenson adds. "As we looked at our redundant Uninterruptible Power Supply [UPS] systems, we were using the maximum of our UPS load.

"Over the course of 12 months, we've dropped 10kVA, relieving the maximum threshold of the redundant UPS systems." Reductions in power and cooling costs are a by-product of server virtualization.

Microsoft Shop

The firm's choice to go with a Microsoft Hyper-V Server environment started six years ago. This was when Microsoft acquired Connectix, which later became Virtual PC, Virtual Server and finally Hyper-V.

"At that time, we had joint ventures with Microsoft and Unisys to do testing on the Unisys ES7000," Lui says. "We found the virtualization software was not scalable enough as it was limited to only using one CPU. So we put it aside.

"We were really looking to increase utilization and consolidation," he adds. "So we were exploring different types of technology. Through

a nondisclosure agreement with Microsoft, we knew that they had a good strategy for virtualization.

"Since we already were running a Microsoft platform, that gave us the best cost of ownership," he says. "That's why we picked the Hyper-V product above any others."

"We tested other solutions, but they did not perform to our satisfaction," Sorenson says. "The same applications we tested in Hyper-V showed better performance and met our application performance requirements."

"The beauty of Hyper-V is that you have the same [virtual] hardware all over the place," Snater adds. "So you don't have to find different drivers for a variety of servers. And you don't have to find different products to support the applications. That's a big win in time savings and troubleshooting."

AT A GLANCE

COMPANY: Smead Manufacturing

HEADQUARTERS: Hastings, Minn.

EMPLOYEES: 1450

IT STAFF: 42

BUSINESS: Smead Manufacturing Company is a leader in office filing products and records management systems. The firm was established in 1906 in Hastings, Minn. Smead is a privately held, certified Women's Business Enterprise (WBE) offering thousands of organizational products for use in the home or office.

DATA CENTER: Hastings, Minn.

VIRTUALIZATION SOFTWARE: Microsoft Hyper-V Server, Microsoft System Center Operations Manager (SCOM), Microsoft System Center Configuration Manager (SCCM), Microsoft System Center Virtual Machine Manager (SCVMM) and Microsoft System Center Data Protection Manager (SCDPM).

Expanded Use

Smead currently has close to 60 services running in its service catalog — a list of services that the firm provides to staff and customers. Almost 80 percent are now in a virtualized environment.

The P2V migration itself is very efficient and fast, according to Snater. "The only thing that we are missing is the capability of going back from virtual to physical," Snater adds. "Microsoft doesn't support that."

But why go back at all? Business needs change and demand for application size changes. And the firm may need more flexibility in the future.

"If a developer doesn't support virtual server and they want us to reproduce an application error, you may have to be able to put it on a physical box again without reinstalling everything," Snater says.

Third-party vendors do offer a way to go back to physical servers. However, it's at an additional cost. Smead has acquired a few licenses of the app but has not used them.

"To be honest, you're taking some risk in moving some non-Hyper-V supported applications over to Hyper-V," says Snater. "But we tested them and they run. And we haven't experienced issues.

"We have a process server that determines whether an application can be virtualized," he adds. "So we use a third-party V2P as a potential fallback."

The company has also taken the leap to virtualize its Logan, Ohio disaster-recovery site. "We know that disaster recovery is much easier and faster with a virtualized system," Lui notes.

By day, the disaster-recovery site is a development test system. But in the event that a disaster does occur, the company can enable the system for disaster-recovery mode and activate the production copy whether it's a database or applications.

"We look at this strategy as a method for efficiency," Sorenson adds. "It enables a copy of our production virtual machines at our DR site.

"Our goal would be to not have to have completely separate parallel systems and minimize that complexity," he adds. "We are replicating our database every day over there so we have a disaster system ready any time."

Virtualization ROI

Smead has been avoiding buying incremental servers, beside the capital investment of the Unisys ES7000. "We haven't bought any commodity servers for two years," Lui says.

"I don't need to buy new servers for technology refresh or new applications," he adds. "And when we retire those servers, I cut down all the maintenance costs of keeping them."

By his calculation, the company has saved close to $915,000 in cost avoidance alone. "If I look at operations expansion and increase in application requirements, I figure we could save $3.2 million over five years," Lui notes.

In the next few months, Lui and his team will begin overseeing two branches of the seven total branches that Smead operates in North America. These are currently not under his administration and management.

"We're going to use virtualization to take them over and consolidate all their servers and applications on our data center here in Hastings," he says. That cost reduction has not been completed or counted in the noted $3.2 million in savings.

Managing the Virtual Environment

Smead implemented Microsoft System Center Operations Manager (SCOM) 2007 to help manage performance and operations. The service-management product works with Microsoft software and applications, enabling greater control of the IT environment.

The company is also using Microsoft Systems Center Configuration Manager (SCCM). "We use SCCM to manage an inventory of all our servers including the virtual machines," Sorenson says.

"And we plan to implement the Desired Configuration Management [DCM] module," he adds. "This is to make sure that all the VMs are identically configured."

The firm uses Systems Center Virtual Machine Manager (SCVMM) to manage the Hyper-V environment and provision physical-to-virtual capabilities, while managing the overall virtual machine and Hyper-V infrastructure.

"Now we have a standard image or standard build that's given us the ability to provision a new machine in 15 or 20 minutes compared to a whole day before virtualization," says Snater. "What we're looking at is the automated provisioning or portal provisioning to be in place within six months.

"With the configuration manager, we use SCCM 2007 primarily for hardware and software inventory and reporting and software distribution," he adds. In the realm of virtualization, Smead is looking at using it for patch management as well.

And for Hyper-V virtual environment backup and recovery, the firm uses Microsoft's System Center Data Protection Manager (SCDPM).

Future Initiatives

For the near future, Lui and his team will continue with the firm's virtualization initiative. This includes virtualizing the disaster-recovery site. "We'll absolutely avoid any more hardware until it's really necessary," he says.

"In the next 12 months, we're going to take advantage of SCOM and SCCM further," says Sorenson. "It's not just for notification alerts; we need to take it to the next level, for example, using SCOM for application monitoring."

There's also a plan to use SCCM to do operating system deployment and design configuration management. This is to manage every server and virtual machine.

"On the server side, we're already on track," says Lui. "We need to switch gears with service improvements within our IT operations, together with desktop optimization by virtualizing all our desktops."

Productive Partnership

A key partner to Smead Manufacturing in its virtualization initiative is CDW. For technical expertise and assistance with the build out, Albert Lui, chief technology officer at Smead, worked with the CDW Advanced Technology Services team.

Smead had the CDW AT team implement Microsoft's System Center Data Protection Manager (SCDPM) for Hyper-V virtual environment backup and recovery. "Being able to recover yesterday's Virtual Hard Drive [VHD] from disk, after a production system hardware failure, is significant," says Michael Van Cleave, technical specialist, monitoring and management at CDW.

"CDW also worked on our Cisco network and did a good, detailed job making improvements and re-architecting," says Lui. "They were always there to help us and provide workable solutions."

CDW also assisted with installation of the firm's IBM BladeCenter blade servers. "It was a very successful implementation," Lui says. "We were getting low on power and floor space, and we needed to provide systems to run our new applications.

"The CDW team did a good job planning," he adds. "We didn't get any surprises when we went to implement the system."

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