VIRTUALIZATION SAVES.

FROM ACQUISITION TO ADMINISTRATION, SERVER VIRTUALIZATION OFFERS COST SAVINGS AND MORE.

Stretching IT dollars is essential. And one of the main ways that a growing number of companies are making their IT budget dollars go farther is through server virtualization. The technology lets IT administrators create and run multiple server instances on shared host hardware.

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Simply put, server virtualization allows you to combine and consolidate workloads on a smaller number of physical servers. The main goal is to reduce costs and increase hardware utilization.

"Basically it allows users to maximize the value of their IT infrastructure investments," says Anil Desai, virtualization expert and consultant based in Austin, Texas. That can help increase ROI as well as reduce Total Cost of Ownership (TCO).

A virtualized server environment — which can be a single hardware machine or tens, hundreds or even thousands — provides a variety of technical, administrative and cost-saving benefits. These include:

- Better use of server capacity, compared to individual single-application server hardware, significantly reducing overall hardware costs along with power, cooling, cabling and space requirements
- Running server applications within dedicated Virtual Machines (VMs) on shared hardware for greater security, reliability and management flexibility compared to running multiple server applications within a single real or virtual machine
- Dramatically reduced server management time and effort, including routine and trouble-shooting administration as well as provisioning/de-provisioning of development, test and production server instances
- Given appropriate hardware and management tools, higher application reliability and availability, and better load/performance management
- More cost-effective, easier-to-provision and easier-to-utilize business continuity/disaster recovery capabilities

There's no doubt that server virtualization offers many benefits. Some are easy to quantify like reductions in hardware acquisition costs. Other may be more abstract and harder to put a dollar figure on. Regardless, the current economic downturn makes it the perfect time to find out what server virtualization can do for your firm.

» FIRST AMERICAN CORPORATION

One company that has been reaping the benefits of server virtualization is The First American Corporation, headquartered in Santa Ana, Calif. Here the firm's thousands of Windows servers are slowly but steadily being virtualized and consolidated for long-term savings as well as availability and management benefits.

A Fortune 500 company, First American is America's largest provider of business information, with 2007 annual revenues of approximately $6.2 billion. Through its family of companies, First American supplies everyone from consumers to businesses with data and analytics.

The company operates within five primary business segments including: Title Insurance and Services, Specialty Insurance, Information and Outsourcing Solutions, Data and Analytic Solutions, and Risk Mitigation and Business Solutions.

"For nearly every real estate transaction that has happened in the United States since 1900, we aggregate and resell that information," says Aaron Andrews, director of distributed systems, windows and virtualization, at First American's corporate IT group. "That information is then applied in many products and services, such as title searches."

Processing this data and the queries to do it takes lots of computing power — enough that reducing IT costs is an important endeavor. One way that First American has been pursuing this is through the use of server virtualization.

"We have been using virtualization for a few years, in our two main data centers located in Dallas, Texas and in Santa Ana," reports Andrews. "We began by doing an operational readiness assessment through HP and VMware to put together our standard computing infrastructure."

According to Andrews, First American is at least halfway through a multiyear move to new hardware and a virtualized server infrastructure. The firm currently has between 400 and 500 server hosts running virtual machines, and a few thousand physical servers that have not yet been virtualized.

"We are in the middle of a few large server refreshes that we're doing across 2008 to 2009," says Andrews. "We're moving from single- and dual-core machines to multi-core machines.

"The cost per virtual machine is phenomenal compared to a few years ago," he adds. "With up to 16 servers per host — for example, replacing up to 16 old machines with one new piece of hardware instead of buying 16 new ones — it's less expensive starting at the initial purchase."

By using virtualization, "The cost of a new system running the same number of application servers as VMs, on far fewer physical machines, is already less than the cost for a one-application-per-server architecture," Andrews says. "Our goal for server virtualization is to run between three and five VMs per core."

First American is using HP BladeSystem c-Class server blades as the primary hardware for its virtual server environments. "We are currently using the HP ProLiant BL460c blade server, which lets us get a higher density of VMs onto a blade," says Andrews.

Andrews goes on to say that reducing physical server count, and using a blade chassis architecture, is yielding IT budget savings for First American.

"We worked very diligently on the cost model," he says. "Our goal was 30 percent or more TCO savings per VM, versus physical boxes, including the associated costs of SAN [Storage Area Network], networking and personnel, based on a 36-month period. And we're seeing even greater numbers so far."

» SERVER VIRTUALIZATION IMPORTANCE

The technology is becoming a common, even standard practice. In fact, according to Forrester Research, more than

half of enterprises and Small- and Medium-sized Businesses (SMB) have adopted server virtualization.

"Generally, we see that most companies, once they have more than 100 servers, are in some stage of virtualizing servers or some portion of their infrastructure," reports John Sloan, Senior Research Analyst at the tech research firm Info-Tech. "And even about 35 percent of small companies are doing this."

"Consolidate and virtualize servers" was on the list of twenty ways that IT executives can reduce expenses according to Garner. This was reported by Gartner analysts David Cearley and Carl Claunch during a recent Gartner Symposium/ITxpo. In addition, "Virtualization 2.0" was on Gartner's list of "Top 10 Strategic Technologies for 2008."

Companies are turning to server virtualization not just for the role it plays in reducing hardware purchase costs, but also because of the bottom-line improvements that it can mean for operations and other IT costs. If fact, many see virtualization as a standard in the infrastructure environment as a core-enabling technology.

"We're starting to see a lot of businesses who have put in management directives calling for a default to be running in VM," comments Doug Strain, virtualization product manager, Insight Software, at HP. "Some even specify, 'CIO signoff needed to run on a physical server.'"

Although server virtualization may be new to many, "I talk all the time to IT folks in SMBs and even in some large organizations who are still just bringing server virtualization for consolidation online today," reports Gordon Haff, principle IT advisor at the analyst firm Illuminata. "It's still incredibly important for most IT, and we're nowhere near saturation."

» CONQUER BUDGET STRESS

"One of the most obvious cost-saving benefits of server-side virtualization continues to be enabling server consolidation," Illuminata's Haff says. "That's what brought server virtualization into the limelight in the first place."

From a number standpoint, it just makes sense. If you have to put in 20 new applications, but are now only buying two servers instead of 20, those two machines will be more robust than what you might have bought for single-application servers. However, the overall purchase will still be less expensive.

Info-Tech's Sloan says some companies report that even including the costs of virtualization tools, they are saving anywhere from 40 to 70 percent on server acquisition costs. This is due to reductions in investment, energy and general operating costs.

Savings in power and cooling for these servers will be fairly similar, coming down more or less commensurate with hardware reductions, according to Rob Smoot, group manager, product marketing at VMware. "You may be using 25-to-30 percent more power for each new server, but far less than if you'd added 20 new smaller servers."

In terms of ROI for virtualization, "We're seeing consistent positive results in the five-to-six month range, on consolidation ratios of four-through-eight-to-one," says Roger Klorese, senior director, product marketing, XenServer Product Group, at Citrix.

"For a six-to-one consolidation, we see people paying about 30-to-35 percent less on the initial hardware cost," Klorese says.

Even if your hardware isn't scheduled for a refresh in terms of its age (or amortization schedule), there may be good TCO reasons to do a hardware refresh and adopt virtualization even ahead of schedule. That's because today's more powerful servers are often consuming a lot less power than the boxes they are replacing.

One place that many companies can start leveraging virtualization is to look for systems with existing excess capacity, which can be used by adding virtualization, according to VMware's Smoot. "If they can avoid buying ten or twenty new servers, that represents savings." Keep in mind, there may still be some costs, such as new or more RAM or virtualization tools.

» ADDITIONAL VIRTUALIZATION BENEFITS

Server virtualization practitioners believe the monetary benefits of the technology go beyond reduced purchase costs.

"The consolidated environment, plus the blade chassis approach — instead of towers or racks — reduces costs for things like power, cooling and cabling," First American's Andrews adds. "It's a complete change from how servers have been done for the past 15 years."

Virtualization helps organizations reduce the number of physical servers needed. Fewer servers mean less power being used, resulting in less electricity and air conditioning being used.

In addition to server headcount reduction, "You have a class of ways that server virtualization can be used that are often talked about in the context of terms like 'dynamic IT' and 'virtualized infrastructure,'" says Illuminata's Haff.

"This includes being able to move workloads around, use virtualization-based services like backup that allow images of OSs and their apps to be stored/archived for compliance, et cetera," he says. "These can lead to cost savings, for example, being able to run a data center more efficiently." But, Haff cautions, "There's no simple equation you can put together."

» SERVERS VIRTUALIZATION-READY

Today's servers are more ready to accommodate virtualization, in a variety of ways. For example, features like Intel Virtualization Technology (Intel VT) and AMD Virtualization (AMD-V) technology can improve the performance of virtualization software and improve application response times.

Server vendors are also architecting new machines with virtualization in mind. "HP's BladeSystem product line has

been good for virtualization," Strain says. "Blade architecture and HP's iVirtualization provides a pre-install bootable image that is ready to virtualize out of the box. This saves on deployment time, and the software doesn't cost any more."

Other virtualization-oriented server features from HP include the HP Virtual Connect architecture, which is part of HP's BladeSystem c-Class server blades. It further simplifies the use of virtualization and VMs, while boosting efficiency and productivity in the data center, according to Strain.

"When the infrastructure is set up, but before the servers are purchased, details like MAC [Media Access Control] addresses and names for servers — that don't yet exist — can be set up and positioned in the network," he says. "Then, as new servers are added, these settings are automatically picked up. And if, say, you have to change out a server, that information stays the same."

HP also has several servers designed with virtualization in mind, Strain notes. "One gating factor for server virtualization tends to be memory — the more memory available, the better. On the ProLiant BL 495c G5 blade server and ProLiant DL 385 G5p rack-mount, we have increased the amount of memory that can be put in."

"VMware has tools that increase utilization, including memory utilization, to let you get more out of your physical memory," notes VMware's Smoot. "Our Distributed Resource Scheduler, using VMotion, lets you migrate and boot across your hardware, and move server VMs around to give the best service levels and highest utilization rates. This lets you get more VMs onto a VMware server, for more cost savings."

» VIRTUALIZATION PLANNING

While server virtualization reduces hardware purchase and other costs, "There is some initial investment up front," First American's Andrews cautions. "To engage in server virtualization on an enterprise scale, you need the tools and the investment in how to use them.

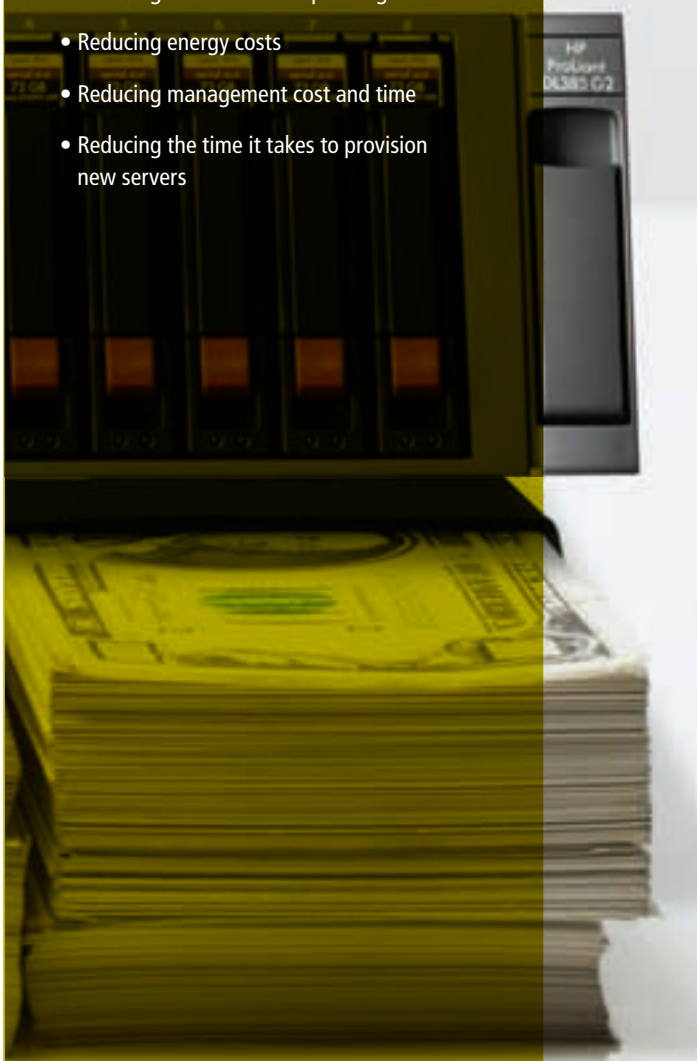
"The management software and the training aren't cheap, ditto gaining the understanding and knowledge of the physical environment, the applications and how to do virtualization," he adds. "And there are different ways to model this out as you begin deployment, depending on how you bill back your IT."

"Other cost benefits of server virtualization involve more soft costs, such as the benefits associated with using 'a more agile infrastructure,'" acknowledges Illuminata's Haff. "But if the focus is on saving money this month, server consolidation is primarily where the big win comes from, and it puts a foundation in place for the other things." ◊

REDUCE I.T. COSTS WHILE IMPROVING FLEXIBILITY AND RESPONSIVENESS

Don't let server sprawl and platform dependencies sap your business. Virtualization can help you take control of your server environment by:

- Reducing hardware and operating costs
- Reducing energy costs
- Reducing management cost and time
- Reducing the time it takes to provision new servers



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