

What Virtualization Means for Small Business

By [Drew Robb](#)

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[Virtualization](#) is the latest buzzword steamrolling across the IT landscape, influencing every computer room in its path. Everyone is doing it, according to analysts. Everybody needs it, say the vendors. But does it really add any value to the small business? As usual the answer varies from company to company.

If you own or manage a small shop with a handful of servers and a bookkeeper that doubles as your IT guy two hours per day, don't even bother reading the rest of this article. For those of you with more substantial computing needs, who seem to have way too many servers or skyrocketing IT costs, virtualization may offer some relief.

"Companies with IT teams of one to four people or firms with 60 or fewer employees often don't have the level of sophistication required to make virtualization pay," said Chip Nickolett, president of [Comprehensive Consulting Solutions](#) Inc., that has helped several small businesses take their first steps into the virtual world. "In these environments, the benefit of virtualization would be marginal at best."

These are not hard-and-fast numbers, of course. Tiny firms in financial services, law and other sectors sometimes have both significant IT requirements, the budget and the staff required to make virtualization pay big dividends.

Understanding the V Word

But let's start with a statement to clarify what virtualization is in simple terms – not as easy a task as it sounds. You have to speak to the geeks in order to get a definition and it's not in their DNA to use laymen's terms. So what does the V word mean?

"Virtualization enables one server or computer to act as many," said Dan Chu, vice president of emerging products and markets at [VMware](#). "Instead of keeping your important programs on separate servers so that if one application or server fails, the other applications aren't affected, virtualization software lets you run many applications on the same server."

In such a scenario, you actually have one server sitting on the floor, but it acts as though it were several servers. Virtualization software enables that server to be split up into different partitions.

For example, one server could act as, say, three virtual servers with each virtual server running an application (i.e., file server, Web server and e-mail server). Each virtual server acts completely independently from one another so that if one crashes, the others are not affected. The net result is that you have to buy only one server and pay for its power consumption. You get the benefit of three servers for the cost of one.

"The way that I explain it to people is that virtualization is a way to make an environment portable," said Nickolett.

This means that software can be easily relocated to a larger or smaller machine or even moved from one operating system to another. This is accomplished by splitting one physical server into numerous virtual servers or virtual machines (VM). Each VM hosts a specific application or set of software. As everything is virtual, it is easy to move the VMs around and make changes in the IT environment.

Some small businesses embark upon the virtualization journey as a way to simplify disaster recovery. Typically, they just went through their first disaster and experienced a nightmare trying to recover their systems: finding the right back up tapes, hooking them up to new hardware, and finding all sorts of problems – like not having a record of their software licenses and not being able to find the original CDs for their operating systems and programs.

They have to go through the laborious task of re-installing and re-configuring everything and making it work on the new hardware and then figuring out how to get the data from the tapes back into the systems. This process can take many days if you're not familiar with it.

Virtualization, on the other hand, makes it relatively easy to capture everything onto a single system image, which makes recovery a snap. "A virtual image makes recovery or failover faster, easier and more foolproof," said Nickolett. "Like anything, it requires planning and testing, but it can be an attractive alternative for some businesses."

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Blossoming Trend

There is no doubt that virtualization is catching on like wildfire. Just about every large and mid-sized firm is already doing it extensively, and now it is percolating down into the small business strata.

"Virtualization is exploding in popularity," said Jim Smith, a performance specialist at TeamQuest Corp. "Virtual machine deployments are expected to grow from 540,000 in 2006 to more than four million 2009."

He cautions, though that while the benefits are widely advertised, the complexities have not been comprehensively discussed. VMs add a whole new layer of administration to IT. If you're already well schooled in IT complexity, fine. But for companies still coming to terms with internal networking or hooking up servers to storage arrays, virtualization is going to mean the addition of a highly paid specialist into the fold. So it's by no means a must-have technology for many smaller organizations.

Smith makes the point that a good reason to use virtualization is to improve the utilization rate of hardware – i.e., how much processing power your server uses to run the application. Many companies, for example, buy a server for every application they run. But you can end up with dozens of servers on the floor, most of which are very poorly utilized.

What this adds up to is that you have a hefty power and cooling bill but aren't getting much return on the money. Low utilization means computers aren't been used to their limits and that represents an awful lot of inefficiency.

"When people look, they are often shocked to find that many servers are running at utilization levels of less than 12 percent," said Smith. "Since 9/11, however, the tide has been turning and the ongoing trend is to maximize utilization rates. And server virtualization certainly plays a big part in solving this problem."

This brings many other advantages to the IT world. Server deployment can now be done far more rapidly. Instead of hours or days, it can be done with a virtual machine within the hour. Other benefits include a reduction in the amount of space required for your computers. That in turn leads to lower costs for ventilation, electrical and cooling.

Different vendors, of course, advocate their own virtualization schemes, and the various approaches can be quite confusing. For the purposes of this article, we will discuss only the options that small businesses would likely encounter.

VMware

VMware is the darling of the marketplace. Just about every company of any size engages some form of VMware deployment. VMware ESX Server is software-based virtualization that facilitates hardware sharing. It makes it possible to have a powerful processor shared by multiple virtual machines and to behave as though they were completely separate servers.

Microsoft Windows Virtual Server

Windows Virtual Server (WVS) is also software-based, and like VMware, it lets you share hardware resources such as memory and CPUs.

Let's move this over into one possible scenario. HP offers a product for small businesses named the [HP c3000](#) (also known by its nickname, Shorty). This is, in essence, just a chassis or enclosure to hold [blade servers](#) (thin, streamlined servers).

You can buy a c3000 enclosure for with power supplies, fans and management software for less than \$5,000. It can hold two-to-eight server blades, which range between \$2,100 and \$5,000 each, depending on processor, memory and configuration. There are some additional costs for storage and networking. Depending on the mix of devices, a Shorty enclosure may cost between \$7,000 and \$45,000.

This hardware from HP supports VMware, WVS and other virtualization solutions. By consolidating all of IT into a couple of these boxes, it is possible to establish a powerful virtual world composed of scores of virtual servers. Now set up another such box at a remote location and disaster recovery and you simplify backup tremendously.

"We have customers using the c3000 for virtualization projects," said Barry Sinclair, product manager for HP c3000. "One small business customer has four enclosures (two in each of two sites in a virtualized environment, and it is handling disaster recovery scenarios between sites."

Virtualization in the Real World

Let's end by looking at how one small business benefits from virtualization. The [Los Angeles Universal Preschool](#) (LAUP) is non-profit with a goal to make voluntary, high-quality preschool available to every four year old in Los Angeles County. It has several physical servers running VMware. Each physical server represents 15 to 20 virtual machines.

"The cost of purchasing physical servers would have easily run over \$100,000," said Robert Lazo, director of systems and operations at LAUP. "VMware technology allowed us to avoid that expense."

Other benefits reported by Lazo include being able to set up a new server in less than five minutes. Such a task would have taken many hours previously.

LAUP, however, has a well-established IT staff of seven people to service 150 employees. And that's probably the make-break point of virtualization – it's great if you have clued-in people who are coping with IT headaches on a daily basis. But if your business is coping fine without high-level computing expertise, it's probably safe to give virtualization a miss.

Drew Robb is a Los Angeles-based freelancer specializing in technology and engineering. Originally from Scotland, he graduated with a degree in geology from Glasgow's Strathclyde University. In recent years he has authored hundreds of articles as well as the book, Server Disk Management by CRC Press.

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