running virtualization in some form within five years. It is the cheapest, easiest and most reliable way to run applications. We expect firms of all sizes to run virtualization because some of you will use virtualization on your servers, some will use it on your desktops, and some of you will use the new Windows XP virtualization feature in Windows 7.

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If you haven't heard by now, consider this article your notice that virtualization is coming your way. I strongly believe that all firms from smallest to largest will be running virtualization in some form within five years. It is the cheapest, easiest and most reliable way to run applications. We expect firms of all sizes to run virtualization because some of you will use virtualization on your servers, some will use it on your desktops, and some of you will use the new Windows XP virtualization feature in Windows 7. The most progressive of you will use all of these types of virtualization. You may believe that you won't run virtualized if you are using cloud computing or Software as a Service (SaaS), but many of these applications are virtualized, as well, and the virtualization is completely transparent to you.

WHAT IS VIRTUALIZATION?
Virtualization uses a piece of software called a virtual operating system to allow you to run one or more other operating systems on the same machine. The key advantages for virtualization include the following: a reduction of installation time and expense, more reliability while running applications, almost all applications run faster when they are virtualized because of efficiencies in the virtual operating systems, portability of applications from one machine to another and much easier business continuity/disaster recovery.

The economics for small shops are obvious since the virtual operation systems are

First, let's make sure you understand the two major types of virtualization: server virtualization and desktop virtualization (which will be discussed in the next section). Server virtualization has been around since the 1960s and has been working on personal computers since the 1990s. This is not new technology, and it has become popular because it is so cost effective and easy. There are literally dozens of solutions or options for virtualizing servers. The most popular options for servers are VMware, Citrix XenServer and Microsoft HyperV.

For small firms, we recommend the free version of VMware ESX. This product can be installed on the server, and then the operating systems and applications of your choice can be added. A popular installation would be to install the free ESX, along with Small Business Server and Microsoft Terminal Server for remote access on the same machine. For most firms, this approach saves the entire cost of purchasing a second server to enable remote access. The server virtual machines are disk files that can be copied to a desktop machine that also has the free version of VMware ESX installed so you can continue to run your servers in the event of major hardware failure.

Alternatively, you can install a NetRescue appliance (www.nmgi.com/netrescue) to do all of your backups and host your virtual servers in the event of a failure. Using this strategy on your servers, you should never be down more than 15 minutes, and should never lose more than 15 minutes worth of data. An additional benefit of using the NetRescue appliance is that your virtual servers can be automatically backed up off-site every night.

For larger CPA firms and businesses, we recommend using the Enterprise version of VMware with full disaster recovery options with a Storage Area Network running in conjunction with the virtualized servers. This approach protects against a complete server failure while allowing all users to continue to operate. Three physical servers

have the capability of supporting the equivalence of 24 to 36 servers, and can easily

Today, I won't run a desktop or laptop without virtualization software installed. My applications easily move from one computer to another by copying a disk file one time, saving hours in a new computer setup, and providing a way to run my applications in the event of a catastrophic failure or theft of my equipment.

Key competitors in the desktop space include: VMware Workstation or VMware Fusion for the Mac, and Microsoft Virtual PC or Windows 7 with Windows XP virtualization. Each of these products has different features and capabilities that make one or the other better for the right situation. Personally, I run VMware Workstation on my production machines. The reason? The small licensing fees allow me to create virtual machines that I can run on a Windows laptop, Apple Mac, on a Linux workstation or on a server with no changes. This option gives me true portability of my applications to any environment.

The new Windows 7 operating system has a mode called Windows XP virtualization that allows you to run applications as a transparent virtual machine. This allows older applications like QuickBooks 2005 or a tax program from before 2006 to run on the latest operating system. The installation is easy and the virtualization operation is so transparent that you'll be hard-pressed to understand that you are truly running a virtual machine.

The next evolution of desktop virtualization is particularly important for you to understand. Desktop virtual machines are now being run off of larger servers. The advantages are more speed, less maintenance and the ability to use lower-powered hardware including Thin Clients as workstations for end-users. This technology still has some rough edges for laptop users who disconnect their machine and go to the field, but it is very smooth for users who spend most of their time in-house or at homes.

For example, the typical tax preparer could have a virtual desktop that is run from a

time you calculate software licensing, hardware costs, installation and maintenance, you will find that virtual desktops will also drive down the cost of computing.

VIRTUALIZATION – ALL COMPUTERS LEFT BEHIND
Virtual servers and desktops reduce our dependency on physical equipment while driving out cost and increasing speeds. Some effort is being made to run virtual machines on Netbooks and multi-function phones at this time, as well. The bottom line for you and your firm is that virtualization can allow you to work with greater independence from physical computers at greater speed with more reliability and with lower costs.

Technology

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