

## Going Thoroughly Virtual



**By using virtualization throughout your clients' entire IT infrastructure — from servers to desktops and applications to storage — you can deliver greater levels of agility, mobility, and efficiency.**

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Virtualization has been around for years, to the point where it is no longer an emerging technology. For channel partners in particular, enlisting virtualization to tackle all manner of server challenges such as sprawl, runaway power and cooling costs, cumbersome provisioning, and rigid deployment scenarios is old hat. Yet consolidating servers is only one way that channel partners can tap into virtualization. By using virtualization in a variety of ways throughout the entire IT infrastructure—from servers to desktops and applications to storage—channel partners can deliver greater levels of agility, mobility, and efficiency to their clients.

“Virtualization is really a mainstream technology now,” says Simon Bramfitt, founder and analyst at Entelechy Associates in San Francisco, who specializes in enterprise desktop, mobile, and application virtualization, as well as delivery and management technologies. “Every channel partner must be doing something with it in general,” he says of virtualization.

Yet even the common scenario of using virtualization to consolidate servers for email and file/print has become somewhat more sophisticated for the typical channel partner, since many are turning to clusters of machines to avoid a single point of failure rather than consolidating server-based services on one machine.

“You can build a cluster using blades with a common backplane, networking plane, or storage plane,” says Edward Haletky, an author, technologist, analyst, and consultant based in Austin, Texas. Essentially, these clusters involve x86 machines for compute, as well as networking and

storage in a single package. “This kind of converged infrastructure is becoming very popular,” says Haletky. “Virtualization is the software layer on top that makes it all work together.”

Yet going completely virtual, at least in terms of providing comprehensive virtualization options to clients, is no easy task. Haletky should know; he runs a completely virtual environment for customers and uses that environment at the two companies he owns, AstroArch Consulting Inc. and The Virtualization Practice LLC, an analyst firm.

“Practitioners inside the channel partners themselves tend to be extremely high-end architects; they do a very good job architecting the solutions and making sure their clients get the right bits and pieces,” Haletky explains. Yet he is unsure if channel partners push for 100 percent virtualization. The chief reason may have more to do with sheer economics than any unfamiliarity with virtualization. “Channel partners are trying to make money as well as give clients a solution, so they tend to push whatever they are selling,” he says. “Getting to 80 percent virtualization is easy; getting to 100 percent takes an immense amount of work.”

As Haletky defines it, running an environment that is 100 percent virtualized means that every physical machine, including desktops, runs a hypervisor in some form. Getting to this state is less of a technical issue than a sales and change-management challenge. “There is a lot of historical baggage in an environment in which you often can upgrade one aspect but can’t upgrade another system,” Haletky explains. As a result, going completely virtual requires significant management buy-in from clients, something that is not likely to happen without a compelling business case for changing the status quo.

Server virtualization had such a compelling business case. Consolidating many physical machines into a single box that could run multiple virtual ones had quantifiable operational and capital ROI, not to mention the increased speed with which new servers could be provisioned or taken offline. The same clear benefits are not readily apparent with other forms of virtualization. Indeed, “Virtualization takes time and experience,” says Scott Fluegge, president and general manager of **JDL Technologies**, a managed services provider in Ft. Lauderdale, Fla. “There are hundreds of ways to configure things, and many things behind the scenes [at clients’ offices] to understand,” he says.

Plus, typical SMBs are not likely to understand how virtualization can be implemented to help their businesses. Without a groundswell among clients to go completely virtual, channel partners may be reluctant to take the initiative. Yet among SMBs, there are great opportunities to expand virtualization beyond the server room, beginning with perhaps the most relevant—desktop virtualization.

### **The Desktop Virtualization Movement**

Desktop virtualization technologies come in a variety of forms, but essentially they decouple an operating system from the underlying hardware via a hypervisor, with the end result of isolating a

particular client environment from any other OSs running on the same physical device. "The movement to desktop virtualization began with large enterprises," says Bramfitt. "The goal was to achieve a more efficient way to manage and deliver desktops."

Unlike server consolidation, which was geared at reducing costs by improving resource utilization, desktop virtualization was seen as a way to improve the management paradigm for end-user computing, with updates and patches managed from a central location. For most SMBs, the inherent appeal of such a scenario was limited, especially given the cost and complexity of early desktop virtualization technologies. This is now changing, thanks to lower costs and improvements in virtual desktop performance combined with the move to mobility and BYOD.

As Haletky sees it, road warriors make a perfect case for virtual desktops. "It is fairly easy to provide them with a virtual desktop through a VPN," he says. "They just log in wherever they are and access whatever they need." The data itself remains secure in the data center, and end users can access it via heterogeneous devices; hence virtual desktops are a good solution where BYOD is prevalent.

Depending on how a virtual desktop infrastructure is built and configured, the technology can also enhance security by mitigating viruses, says Fluegge. "On a technical level, you can boot up a desktop and one image of that desktop is created," he explains. "There is one OS and copies are shared by everyone once it is already booted up; anyone who is infected by a virus is infected for the duration of the session." The master copy of the OS remains pristine and is copied the next time boot up occurs. "As soon as that OS is rebooted, no one is infected by the virus," he says.

Another selling point of the technology: Desktop hardware can last longer. With the actual compute power in the data center, desktops don't need to be replaced on a typical three-year cycle. SMBs can even forgo more expensive desktops in favor of less expensive thin clients with a keyboard and monitor plugged into them. Yet deploying virtual desktops does not represent an immediate cost savings.

"Virtual desktops are considered to be an upgrade," says Haletky. "The ROI of virtual desktops is debatable because it can cost almost as much as a hardware upgrade depending on the environment." Rather than buy employees new laptops, an SMB may have to purchase new servers and install virtual desktop software on them. "The selling points of virtual desktops are better management, maintenance, and security," Fluegge says.

Flexibility is also an advantage with virtual desktops, particularly at organizations that have a variable workforce (think tax preparation firms) or access sensitive data outside of a secure corporate network (think law firms). Access to a desktop can be set up and turned off as if it were a utility, allowing organizations to both enable and control who gets access and when.

## **Application Virtualization Grows**

Application virtualization, which relies on software to isolate an application from the host OS and other applications running locally, can go hand-in-hand with desktop virtualization. Unlike virtual desktops that deliver the entire desktop to end users from a data center, application virtualization delivers just an application. "Application virtualization has been growing steadily," says Bil Martin, the national practice lead for system management and the virtualization practice at IT service provider InfraScience LLC in Alpharetta, Ga. "Initially, many channel partners used application virtualization to deal with compatibility issues when moving from Windows XP," he says. As channel partners have migrated client desktops to new OSs, he continues, "They are now looking to deploy application virtualization for what is really designed for: isolation and better management."

Application isolation can be ideal in environments that require both security and mobility, such as in hospitals where doctors access patient data from a variety of settings. While in the hospital, they may use a tablet to access data in an office; then at home, doctors may opt to use a laptop. Since the application is essentially streamed to the client device, this is something that can be accommodated with application virtualization. "Even with a totally different environment, application virtualization can allow end users to have the same application and the same experience," Fluegge says.

Application virtualization is also ideal for streaming applications to tablets and smartphones where a small screen size makes running an entire desktop a frustrating experience. "Delivering enterprise applications using tools like Citrix XenApp is a much better way to deliver an app to a small-form-factor device," says Bramfitt.

Storage is yet another area where virtualization can be implemented. Essentially, storage virtualization involves pooling disparate storage, whether local or shared, so that it can be accessed and used in a common way. Among SMBs, the usage case for storage virtualization is somewhat limited, according to Martin. He sees SMBs using both network and storage virtualization primarily to isolate workloads on one physical network—appropriate where an organization has multiple customers and multiple environments. Another appropriate use is to isolate a test/development environment. "SMBs that create new applications and want to test those applications as realistically as possible and manage them as in production, can do so while making sure they don't touch production," Martin explains.

Overall, the trend among channel partners should be to enlist virtualization technology wherever and whenever possible. "In today's market, 75 percent of IT pros or more are doing something with virtualization," Martin says. "You simply are not going to survive without it."

## **Handling Virtualization's Complexities**

"In a small environment, virtualization can be simple," says Simon Bramfitt of Entelechy

Associates. "But the technology can get more complex very quickly." The reason for the complexity has much to do with the sheer number of ways that various aspects of virtualization can be deployed. How desktops are virtualized at one organization may not be suitable at another organization. And delivering client-side virtualization can involve either desktop virtualization, application virtualization, or both.

"I look at application virtualization and virtualized desktops as six of one, a half dozen of the other," says Edward Haletky, a virtualization analyst and consultant. "Which one works best depends on what the environment looks like," he says. As a result, mastering the intricacies of virtualization is often a daunting task.

Start simple, advises Haletky. "If you're selling servers, do so with hypervisors." Another option: Find a consultant with in-depth virtualization experience who is willing to serve as something of a backstop by imparting industry knowledge and training. Lean heavily as well on the various virtualization vendors for training and expert advice. "Look at the virtualization communities at VMware, Microsoft, Citrix, and Red Hat," says Haletky. "There are many experts who are willing to help."

Converged infrastructure products that combine compute, storage, and networking in a single platform or appliance "make it easier to launch into virtualization," says Bil Martin of InfraScience. "Vendors are already putting storage, servers, and networking into one box and doing the tuning of all the components you may need."

Channel partners can also resell virtualized platforms that other partners are providing. For example, offer white label desktop-as-a-service virtual platforms from one provider and then offer the consulting and onboarding services. "This allows channel partners to get into providing virtual desktops with very little risk and no capital investment," Bramfitt says.

Even with ways to get into virtualization quickly, long-term success will be harder to come by. "To be successful, channel partners need to have a specialization and focus," says Scott Fluegge of JDL Technologies. "In addition to having dedicated resources for network, server, and storage expertise, channel partners need to make a strong investment in understanding the business requirements of the customer."

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