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Enterprise CIO Decisions

Guiding technology decision makers in the enterprise

INSIDE

Deploying and Enhancing Desktop Virtualization

CIOs aren't the only ones behind the push to virtual desktops—cost savings, greater mobility and employee demand have turned business execs into fans as well.

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Where Serious Technology Buyers Decide

Fun with Desktop Virtualization

FOR YEARS, the virtualization spotlight has mainly been focused on servers and storage—and rightfully so. The technology has evolved more quickly and had fewer roadblocks to overcome, and the economics of IT created a real demand for consolidation, which server and storage virtualization enabled.

That's changing. Virtual desktop infrastructure (VDI) is overcoming some of its inherent obstacles, like network bandwidth, and finding new applications in mobile workforce management.

In this edition of *Enterprise CIO Decisions Ezine*, you will read about new ways that VDI is gaining traction in the enterprise. For instance, Scottsdale Community College plans to save about $250,000 this year due to desktop virtualization. That may not seem like a lot, but this is a small college, and it's taking $50,000 of those savings and investing it in IT innovation grants for its faculty, writes SearchCIO.com News Director Christina Torode.

Mobility's role in the growth of desktop virtualization opportunities cannot be overstated. Senior News Writer Linda Tucci reports on the influence of iPhones and iPads, which are finding their way into the enterprise via skunkworks projects and bring-your-own-device policies.

In many ways, the opportunities of desktop virtualization are not driven by technology, but by a need for businesses to empower their employees while freeing their IT departments from being in the client-management business.

In all of the examples we cover here, the common thread is innovative IT managers looking for a way to improve the business and finding that all roads lead to VDI. SearchCIO.com contributor Niel Nickolaisen, vice president of strategy and innovation at EnergySolutions Inc. in Salt Lake City, even enjoins IT managers to "have some fun, take a chance and be prepared to fail and have to correct your course. The biggest risk is ignoring what just could be the next technology revolution." Sounds like good advice. ■

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UpFront

News, views and reviews
for senior technology managers

ON THE JOB

Design and Test Your Setup for Virtualization

ENTERPRISE desktop virtualization is an infrastructure overhaul that can lead to pushback from users and the business if performance levels suffer because of mistakes at the design and testing stages.

Many enterprises fumble at the design stage because they try to accommodate each and every user's distinct desktop profile. Instead of minimizing the number of desktop images, which can simplify desktop management by as much as 80%, many enterprises are overloading virtual servers with too many images, said Kevin Vogl, vice president of virtualization at systems integrator Champion Solutions Group Inc. in Boca Raton, Fla.

"I see enterprises that take a small group of users and, instead of giving that group one or two images, they end up with six [images] because a few people in the group use an application that the rest of the group doesn't," Vogl said.

Instead, applications that are unique to a few users should be delivered separately through application virtualization. Otherwise, an enterprise could end up with thousands of images to support, Vogl said.

Unlike some desktop virtualization pundits, Vogl said he believes hosted desktops put less strain on the network, not more—again, when the infrastructure is set up correctly. Users experience fewer jumps from server to server than before; that, in turn, puts less strain on the network when the desktop images and servers are connected to the main switch in the data center, Vogl said.

"Unlike the spoke-and-wheel

model, where all the end switches connect to the central hub and every PC hits that hub from different locations, with desktop virtualization, everything is connected to the same enterprise switch or hub, so less traffic is going over the network," Vogl said.

He added that in his experience, when implementing desktop virtualization, the best group to test first isn't the rank and file—it's top company management. "They are less likely to freak out if performance isn't as good, and will tell you exactly what has to be fixed," he said. "Also, it's a matter of perception. People at other levels of the company see that the big guys have something new and cool, and they want it, too."

Another prime guinea pig for enterprise desktop virtualization is the training room. Production isn't affected in training classes, and a variety of new classes can be created quickly and simply by reimaging thin clients for different types of training, Vogl said.

A prime guinea pig for enterprise desktop virtualization is the training room.

"And since a lot of people across the organization take training in some form, this proof-of-concept area can become a proving ground for production and user buy-in," Vogl said. —CHRISTINA TORODE

BY THE NUMBERS

INDIVIDUALIZED VIRTUAL DESKTOPS ON RISE

In 2010, 77% of organizations said they weren't going to provide for robust individualization of virtual desktops. In 2011, that number plunged to 21.9%. Dynamically layering the "personal" aspects of a dedicated personal computer onto a generic virtual machine allows personalization at less expense and with easier management than dedicating persistent virtual PCs allows.

SOURCE: "COMMUNICATIONS AND COMPUTING BENCHMARK: 2011/2012," THE NEMERTES RESEARCH GROUP INC.

ONE ON ONE

VIRTUAL DESKTOPS TAKE DATA INTO THE FIELD

NAME: Maytee Aspuro
TITLE: CIO and IT director
TIME IN THIS ROLE: Three years
ORGANIZATION: Wisconsin Department of Children and Families
HEADQUARTERS: Madison, Wis.
EMPLOYEES: 1,100 employees
IT STAFF MEMBERS: 42

In 2008, **Maytee Aspuro** was hired as CIO to build an IT department for the Wisconsin Department of Children and Families, a department formed in 2007 by the merger of three other government agencies. Saddled with outdated desktops and other systems, Aspuro needed to find a way to give field employees anytime, anywhere access to data and applications. She recently spoke with SearchCIO.com to explain how her team began last year converting 100 desktops for field employees and another 250 desktops within three months. By November, 750 more desktops will be virtualized.

Why did you decide on desktop virtualization as opposed to a traditional desktop refresh?
Employees want to use their own devices, so [desktop virtualization] was brought about in part to accommodate the work styles of our employees out in the field. Also, unfortunately, it would take the field employees 10 to 15 minutes to boot up the machines [we had], which was unacceptable.

Our social workers worked out of three locations, and in the past had to pack up and restart their computers in each new location. With VDI [virtual desktop infrastructure], all the data lives in the data center. They can take their virtual desktops with them, or boot up a virtual machine in a new location and get the same access to their data.

Having personal settings follow the user can be difficult. How did you handle personalization?
We used VMware View for desktop virtualization, but for personalization we used Unidesk. It's a personal


Maytee Aspuro

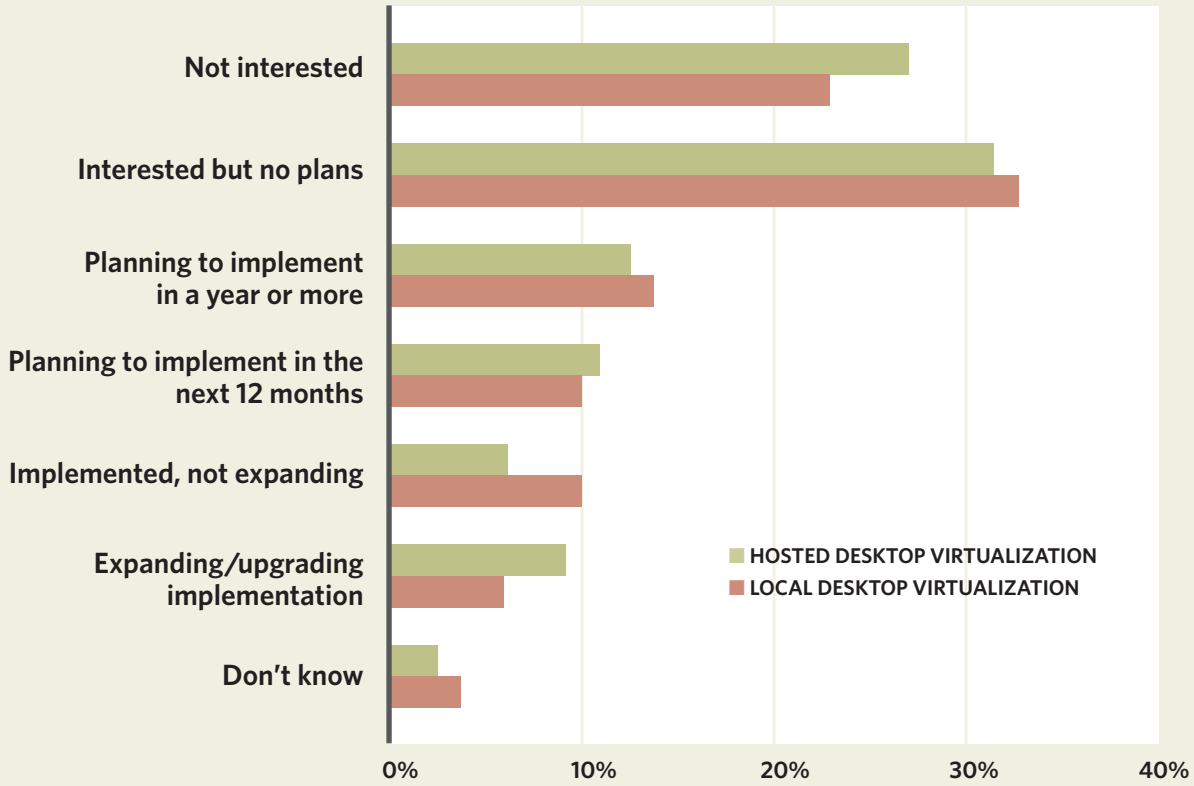
management tool that allows you to build a desktop in a virtual world that has the same characteristics as an individual's desktop. The virtual desktop is customized to their settings, and that personalization doesn't go away just because they restart their computer.

Did you have a backup plan just in case something didn't work out with the desktop virtualization project?

I also bought Lenovo laptops for employees in the field and fully loaded desktops. I wanted to make sure that we had a fallback plan and could use [traditional] desktops and laptops, given that we had about three months to deploy the virtual desktops. The deployment went well, so the hardware that we bought is being repurposed as thin clients.

DWELLING ON DESKTOP VIRTUALIZATION

What's your enterprise's exposure to hosted and local desktop virtualization?



SOURCE: "FORRSIGHTS HARDWARE SURVEY, Q3 2010," FORRESTER RESEARCH INC. SURVEY OF 388 ENTERPRISE ORGANIZATIONS, DEFINED AS THOSE WITH MORE THAN 1,000 EMPLOYEES.

You said the initial projects had to be done in a short period of time, within three months. How did you get the vendors to join forces to make this happen?
I was honest with them. I told them I couldn't fail at this. That it was being viewed as something completely new and other departments were watching what we were doing. I asked them for a commitment to do whatever was necessary to get through this successfully, and the main ones involved—HP, VMware and Unidesk—all stepped up.

> "We've realized a 30% savings for workstation support and about a 40% decrease in call volume to our help desk. That is partly because we got rid of a lot of outdated desktops."

Has the project been a success so far in terms of savings?
We've realized a 30% savings for workstation support and about a 40% decrease in call volume to our help desk. That is partly because we got rid of a lot of outdated desktops, and we have a much more consistent desktop experience that is easier to manage. We're also saving up to 70% in VDI storage, since one gold image of Microsoft Windows and single instances of standard applications can be shared across many desktops.

Based on the success we've had so far, based on employees' experiences, the state's Department of Administration announced that an interstate agency committee is going to start looking at VDI. They want to have a discussion [with us] on the best way for other departments to approach desktop virtualization.

You essentially built an IT department from scratch. What other projects are you working on in conjunction with desktop virtualization?
We are building shared services in an internal cloud, completing a network consolidation and virtualizing desktops. The three projects are really merging into one. Now we are also working toward establishing a charter for moving applications for the department's workforce to a hosted model on our [data center] infrastructure. Our administration asked us to do some discovery in terms of how we could host the applications on our infrastructure versus where they are currently hosted [by another department].

—CHRISTINA TORODE

BY THE Business, FOR THE Business

IT executives and experts discuss the trends that are making it easier to pitch virtualization as the answer to a host of business problems. BY CHRISTINA TORODE

THE DESKTOP virtualization tables have turned. Where once IT shops argued and pushed for the technology to solve their desktop administrative and security headaches, now the business is pushing IT to use desktop virtualization to resolve a potpourri of business problems.

At Honeywell International Inc., end users want access to an Adobe Flash-based SAP AG application on their iPads and other iOS devices, but such devices don't support Flash. End users are also pushing the company to a bring-your-own-device (BYOD) support model, and technicians need to provide remote support for the conglomerate's consumer, aerospace, automobile and other products at customer sites.

Baiju Shait, lead security architect at Honeywell, is investigating ways to resolve these scenarios while still protecting the company's vast data

Now the business is pushing IT to use desktop virtualization to resolve a potpourri of business problems.

assets. The solution he keeps coming up with is desktop virtualization.

Employees could "check out" a virtual machine with a Windows

image installed and get the same user experience as they would on a corporate machine or a mobile device with Flash-based apps, Shait said. By setting up an Internet-facing virtual desktop, there is no traffic coming into the Honeywell network. That resolves the problem of bridging a remote support technician directly to Honeywell's network and possibly transferring a virus; it also gives customer support and technicians the option of using whatever device they want, in turn supporting the BYOD push.

At the Warner Bros. Entertainment Inc. division of Time Warner, Angelo Salerno, vice president for enterprise architecture and engineering, MIS, is "leaning the way of desktop virtualization" for as many as 10,000 users at Warner Bros. He said he has two main reasons: "The CFO tapped my CIO on the shoulder and asked about the cost of [desktop] ownership and why it takes three years to roll out Windows 7 when he's heard that virtualization can accelerate all that and save money."

This is an interesting switch from even last year, when executives balked at the cost of desktop virtualization to support mainly offshore developers or select task workers. According to Gartner Inc., in 2010 the cost of supporting a hosted desktop was estimated to be 1.4 to 1.7 times more than the cost of supporting a physical desktop PC in terms of the infrastructure and skill set needed.

"Organizations are not doing [server-hosted desktops] necessarily to see that quick ROI," said Chris Wolf at this year's Gartner Catalyst

In 2010, the cost of supporting a hosted desktop was estimated to be 1.4 to 1.7 times more than the cost of supporting a physical desktop PC.

Conference in San Diego. "It's a strategic investment in lowering TCO long term—meaning in three to five years—that equates to a 10%-or-so reduction in [operating] costs." This is based on information from early desktop virtualization adopters among Gartner's client base, he said.

So, cost savings, at least in the short term, still is not a justifiable business case for desktop virtualization. Redirecting money that would have been spent on traditional desktop purchases or software and hardware refresh cycles is, however.

Dustin Fennell is vice president and CIO at Arizona's Scottsdale Community College, which has 11,000 students every semester and more than 1,000 employees. He

took the budget he would have used to support the college's traditional hardware and software tech-refresh cycle (including support costs) and repurposed it for desktop virtualization technologies.

> "I actually took money we were going to spend anyway to support an inefficient and expensive way to keep technology up to date, and redirected it to fund this new [desktop virtualization] project."
>
> —**DUSTIN FENNELL,** VP and CIO, Scottsdale Community College

"I didn't go to my organization and say, 'I need $2 million in capital todo this great project that's going to reduce our operational expenses and, in four years, have an ROI,'" Fennell said during a presentation at the Gartner conference. "I actually took money we were going to spend anyway to support an inefficient and expensive way to keep technology up to date, and redirected it to fund this new [desktop virtualization] project."

BACK TO SCHOOL WITH VIRTUALIZATION

Scottsdale Community College's reasons for adopting desktop virtualization technologies serve in many ways as a blueprint of what enterprises are already, or soon will be, dealing with:

- The college's IT and overall operating budget was cut starting in 2008.
- Fennell received a mandate from the college's directors to expand access to technology and support nontraditional learners (remote students from all over the world).
- The consumerization of IT was forcing the college to figure out how to deliver data and applications to students and faculty, regardless of which device they used or where they were located.
- The old way of supporting desktops—patching them and updating thousands of them multiple times—was not sustainable or cost-effective.

The diversity of devices students and faculty were opting to use proved particularly daunting to support, and eventually wiped out the college's policy of using approved-only devices. Now, "use what you want, and we'll support it," Fennell said.

Just how diverse were students' device choices? One student was accessing all his lessons and applications from his PlayStation 3. The college's IT department now can support even this device by giving students and faculty access to a Web interface. There, users log in with an Active Directory name and password; the gateway establishes a secure virtual private network tunnel and presents users with only the services available to them.

This tailored approach is accomplished through a series of desktop virtualization technologies and non-virtualized technologies, from installing the operating system on a local PC to hosted applications, hosted desktops, server-based computing and applications, and OS streaming.

"If you listen to the marketing hype, [virtual desktop infrastructure technology] is the 'one ring to rule them all.' That's not true," Fennell said. "Like any other project, we have to use various tools to appropriately deliver a solution."

PEOPLE-CENTRIC COMPUTING ENABLERS

Gartner's Wolf said he believes that desktop virtualization is but one enabler for people-centric computing, a model that most enterprises inevitably will have to support to stay relevant. People-centric computing lets users access data and applications from any device and their location of choice.

"[The] use case is about apps and data," Wolf said. "I don't have an affinity to a particular OS anymore. I use a lot of devices, and I'm just trying to get to my apps and data to do my job. It's as simple as that," he said.

Another factor pushing desktop virtualization? Widespread adoption of apps based on SaaS.

Another factor that's pushing businesses to desktop virtualization? Widespread adoption of applications based on the Software as a Service (SaaS) model, IT executives and experts said. SaaS-based applications require secure access to remote applications. Not supporting this model could lead to dissatisfaction among users, some of whom are bypassing IT to buy such services anyway. Desktop virtualization allows IT to maintain control of user access to SaaS-based apps while it supports users' desire for any-device-from-anywhere access to data. ■

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Deployment Strategies and Challenges

How are enterprises deploying virtual desktop technologies, and what challenges are they encountering? BY CHRISTINA TORODE

FOR NEAL KADERABECK, CIO at Hallmark Services Corp., desktop virtualization was but one piece of a larger business transformation project to update IT systems and processes and position his company for growth.

Desktop virtualization, however, was not an easy piece. Kaderabek's team converted 400 of the health insurance company's physical devices to virtual desktops using VMware Inc.'s desktop and server virtualization technologies.

"It's not as easy as it looks," Kaderabek said. "The hard part is getting the images created for every [user and department] role of the organization." That step alone took his team a year to complete.

When Hallmark Services began the project in early 2008, the Naperville, Ill.-based company was a trailblazer of sorts. "It required a lot of learning by the school of hard knocks," Kaderabek said. "My advice to anyone else choosing to virtualize desktops is to make sure you have some talent that has been there, done that."

Fortunately, enterprise organizations increasingly are sharing their desktop virtualization stories, along with lessons they've learned. The main technical recommendations from CIOs: Take a phased approach, and be prepared to invest in many types of desktop virtualization and nonvirtualized technologies to get the job done. Job No. 1 from a user perspective is creating a consistent application and data-service delivery experience for employees, regardless of the platform they're on.

"Think about [desktop virtualization] as a composition of multiple application delivery vehicles that make the experience transparent to users," said Chris Wolf, an analyst at

Gartner Inc. That might mean using a combination of technologies—not necessarily virtualized ones—to give users access to a portal of applications. "This really is a brokering technology, where virtualization can be one enabler. Software as a Service is another enabler; in fact, it is the No. 1 stop for the app onboarding workflow before [our clients] look to deploy apps internally," he said.

A PHASED APPROACH TO DESKTOP VIRTUALIZATION

For Elio Benincasa, assistant vice president for infrastructure management at Manulife Financial Corp., desktop virtualization began with server virtualization, progressed to application virtualization and has matured in the last couple of years into a technology stable enough for enterprise organizations the size of Toronto-based Manulife.

Starting with the U.S. life insurance division of Manulife, the justification for a virtual desktop infrastructure (VDI) was the need to support process workers, such as call center users; in-house and offshore application developers; and some administrative and operations staff. At the same time, Benincasa was called on to give developers a consistent look and feel when they access applications.

The challenge was that some development work was being done on Windows Server 2000 and some on Windows Server 2003, while users were on Windows XP Service Pack 1 and Windows XP SP2. Benincasa had to simplify the management and maintenance of multiple systems and give users a consistent experience with the applications, regardless of their platforms. A VDI allowed him to do both.

"VDI gave us a consistent look and feel for many platforms and for many users—from offshore developers to call center users," Benincasa said in his presentation at Gartner's Catalyst Conference 2011. "Another benefit was that training was simplified, and deploying a new [operating system] and new apps to the platforms became much easier."

In the beginning, the project's infrastructure was based on VMware and consisted of a server-hosted desktop and thin clients that took advantage of existing hardware platforms. Connection brokers identified users and provisioned virtual desktops based on roles and access privileges in the company.

Version 1 (as Benincasa calls it) for U.S. Life Insurance began in 2007. Today, he is working on a VDI plan for Manulife's U.S. Investment division with the same use-case scenarios: application developers, operations support staff and offshore database administrators. VMware's ESX hypervisor and VMware View had been the base technologies for the first desktop virtualization project. For this go-

around, his team is using Citrix Systems Inc.'s VDI infrastructure, with the ESX hypervisor as the back end.

"Our global infrastructure folks started developing standards during this first iteration and decided to go with the Citrix [brokering] platform with ESX on the back end this time," Benincasa said. A primary reason for the change is that ESX uses the PC-over-IP remote desktop protocol, but the Independent Computing Architecture protocol used by Citrix is a global standard at Manulife. "It's easier for us to run one protocol globally across all firewalls and regions," he said.

With version 2 under way, Benincasa has some advice to share:

- Understand why you're implementing VDI, who the users are and what kind of work they do: "User acceptance is a key thing. If you give users a solution that won't work with all of their apps, you're going to have a major problem."

- Some applications are still going to need a physical footprint. This was the case with Manulife's Bloomberg system that its traders use.

- The desktop virtualization landscape keeps changing. Keep an eye on it as you place your bets, and realize that acquisitions might affect your licensing terms.

- Sit down with your procurement team to define licensing terms with vendors under the VDI model. Is the per-user fee based on North American users? If it is, third-party offshore users will not be covered.

- You will be making significant infrastructure investments: "On the server side, you need to understand sizing. You don't want to implement and find out there's not enough memory running on the disks."

- The cost of persistent images in VDI is multiplied by each of those images.

- Have a provisioning mechanism in place that meets compliance requirements and prevents offshore developers from printing documents or walking away with information on devices like thumb drives.

HEAD OF THE CLASS

Dustin Fennell, vice president and CIO at Scottsdale Community College in Arizona, also is a big advocate of a phased-in approach to desktop virtualization. His team moved the college's IT systems to a fully operational VDI, with 250 applications virtualized to date.

The first goal was to make application delivery independent of plat-

forms and devices. "Get out of the business of managing end devices. Shift your mind-set to not care about the end device, who owns it or where it's coming from," Fennell said at Gartner Catalyst Conference 2011. To make this happen, start with applications, he advised. By virtualizing applications first, you can begin to deliver features to users immediately without having to overhaul your current infrastructure. Then, move on to virtual desktops to tackle applications that are graphic-intensive, such as Autodesk Inc.'s AutoCAD and Adobe Inc.'s Creative Suite 5.

In Fennell's view, another key element is a Web portal with a provisioning system that's based on Active Directory user access to deliver applications to users located anywhere and using any device. "We are leveraging desktop virtualization and a whole host of other virtualization technologies to create on-demand access to services that our users need to consume via whatever device they happen to be using, from wherever they happen to be," he said.

The college's desktop infrastructure includes local PCs with the operating system still installed, server-hosted applications, server-hosted desktops, server blade computing, application and OS streaming to local devices, and bare-metal hypervisors. "Using bare-metal machines, someone can come in and steal it and we don't care. It's a throwaway machine and no data resides on it," Fennell said.

Desktop virtualization saves Scottsdale Community College about $250,000 a year as a result of its ability to pool hardware and software resources, extend the life of hardware and decrease support—and reduce IT headcount as well, Fennell said. Of the money saved, a portion—$50,000—is being redirected to fund IT innovation grants for ideas culled from the college's faculty and staff.

The savings and improved service to students prompted the rest of Maricopa County's community college system to adopt Scottsdale's desktop virtualization strategy. This project will cover the needs of about 260,000 students annually and 12,000 employees. In the meantime, Scottsdale Community College continues to reap the rewards of desktop virtualization.

"We gained a competitive advantage over the 15 other colleges in the area competing for students, because [students] no longer have to make an educational decision based on the age of hardware or the software they can afford. We provide free access to the software they need, to any type of device," Fennell said. ■

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Make Your VDIs Pay Off

With the right strategy, you'll see your virtual desktop infrastructure efforts finally pay dividends. BY NIEL NICKOLAISEN

FOR YEARS, I was enchanted by the promise of the virtual desktop infrastructure (VDI). It seemed a natural extension of server and storage virtualization that could help me slow down my PC and laptop refresh cycle.

I saw VDI technology as a way to achieve unprecedented service levels for remote and travelling users. I imagined wiping out and re-creating a salesperson's device on the fly after he'd downloaded the latest malware. And with the trend to smaller, smarter mobile devices, a VDI seemed to promise a way to support a range of traditional and nontraditional devices.

Each time I pursued my VDI infatuation, however, I was spurned. Each time I launched a VDI pilot, the technology failed me. One time, a vendor promoting its VDI product told me that in order to get the end-device performance I desired, I would have to install racks of blade servers, then allocate a blade for each end-user device. Then I would have to upgrade (by quite a bit) my storage infrastructure. The thought

Each time I pursued my VDI infatuation, I was spurned. Each time I launched a VDI pilot, the technology failed me.

of having to replace my servers and storage somehow defeated one of the main reasons for a VDI—to eventually lower operating costs.

Vowing to never give up, I recently started another VDI pilot. This time, the driver was to allow employees to select their own devices—tablets, most likely.

Having failed at previous VDI attempts, I first did some networking and talked with someone—who knew someone—who had heard rumors of a VDI appliance that solved the processor density and storage problems. I tracked down the maker of this appliance and convinced the company to let us test it as part of the pilot. The appliance consists of management software and a series of solid-state drives. The solid-state drives provide incredibly high throughput and reduce the demand on data center processors and storage. In fact, when we used this appliance, we didn't have to make any changes to our data center infrastructure. In our initial test, we planned for an appliance-to-end-device ratio of 30-to-1. The appliance easily surpassed that density, and we now operate in the range of 50-to-1.

Once we figured out how to use a VDI to deliver our enterprise computing resources, we had to find a good group of volunteer pilot users. We wanted the group to include 30 power users of our business applications, and we wanted a good mix of local and remote users. As with many companies, most of our users are resistant to change, so we planned on doing some selling to enlist a test group. Once we made the announcement that volunteers would be the "cool kids" who got to use an IT-supported tablet in

"I did some networking and talked with someone ... who had heard rumors of a VDI appliance that solved processor density and storage problems."

◀ **Niel Nickolaisen**, VP of strategy and innovation, EnergySolutions Inc.

exchange for being guinea pigs, the line of willing candidates snaked out my door and filled my email inbox.

We are about two months into our pilot, and it's going well—well enough that our plan now is to move to our employee-selected device over the next year. If all goes well, laptops will be a thing of our past. And even better, now we are experimenting with sales and customer relationship management applications that run on our growing population of tablets. Next in our mobile application roadmap are field service and maintenance applications to improve our engineering and repair service levels and response times.

In planning for and deploying a VDI, we have had to overcome some objections and have learned a few things.

We were concerned about how we could support the types of devices our employees would select, and puzzled about this for a while. Then someone made the blindingly simple observation that most of our employees had tablets and computers at home that they somehow were able to support themselves. Couldn't they also self-support the work devices they selected? This has become our policy: If you select your own device, you support your own device.

Another VDI consideration: If you want to move from providing email to a tablet to providing the full range of enterprise computing resources, you need to do some experiments with your infrastructure. Even with our really slick VDI appliance, performance can be throttled by network bandwidth limits and traffic spikes. Such bottlenecks might not be an issue for a tablet email user, but they will frustrate people attempting ERP transactions.

This has become our policy: If you select your own device, you support your own device.

Based on the results of our pilot, it seems that VDI is maturing. From our perspective, now is the perfect time to experiment with VDI. That way, you can take a leadership role in delivering improved service levels at lower cost. So, have some fun, take a chance, and be prepared to fail and have to correct your course. The biggest risk is ignoring what just could be the next technology revolution. ■

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Selling Desktop Virtualization *with* Mobility

Enterprise desktop virtualization is getting a boost from iPad-wielding execs—and all the other mobile warriors. BY LINDA TUCCI

BLAME IT ON the iPad—and on the millions of other mobile devices in the hands of workers as they go about their jobs. Statistics are hard to come by, but mobility just might be the killer use case for virtualizing the desktop, according to CIOs and industry experts. The growing appetite for using smartphones and tablets to access desktops remotely—even if only in a pinch and only for limited use—appears to be accelerating deployments of enterprise desktop virtualization.

"I can't quantify it, but there is a link," said David Johnson, a senior analyst at Cambridge, Mass.-based Forrester Research Inc. "Mobility is a tipping-point issue for desktop virtualization."

Abha Kumar, head of corporate systems integration at The Vanguard Group Inc., understands the connection. The Valley Forge, Pa.-based mutual fund investment firm (which, unlike some of its competitors, does not have storefront offices) thinks of itself as a virtual company. In recent years it has equipped its workers—or crew members, as they are called—with the technology required to communicate with each other remotely, from videoconferencing to more than 1,000 SharePoint sites.

"All the technologies that we use are not interconnected with each other, so we are constantly looking at pieces to bridge the technology gap," Kumar said. "Ultimately, we

would like all of this to be seamless, so one of the things we are looking at is desktop virtualization. IT is piloting desktop virtualization for training employees and with small groups of people."

The potential benefits of enterprise desktop virtualization are not anything new for CIOs and their IT teams. Done right, virtualizing the desktop simplifies the provisioning of new desktops, lowers the cost of deploying new applications and maintaining old ones, and reduces downtime when hardware fails. It can also help IT squeeze every last drop out of creaky workstations. The No. 1 reason for doing desktop virtualization, according to studies from The Nemertes Research Group Inc., is desktop management. That was the reason cited by 64% of the 250 IT professionals Nemertes interviewed for its most recent annual survey of IT leaders.

LOW STARTUP COSTS

The startup costs for desktop virtualization, however, can be significant. It's expensive to upgrade a network, install the server infrastructure, manage the capacity of that infrastructure effectively and shift storage from the desktop to the data center. Plus, very few companies have had virtual desktops long enough to establish an ROI, consultants are quick to point out.

Virtualizing the desktop to support mobility shifts the emphasis from an IT operations-centric initiative to a user-focused service—and that shift can make all the difference. "You are giving somebody something they didn't have before. It's not just taking out costs; you are adding value," Forrester's Johnson said. "CIOs are selling their desktop virtualization initiatives with mobility."

A large retail clothing chain's IT executives, with whom Johnson recently spoke, are a case in point. After a concerted campaign by the IT department for virtualizing desktops to simplify and improve desktop support, the chain recently gave the project the green light. Desktop manageability and flexibility played into the decision. "But the thing that sealed the deal was the executive push. They wanted to get access to information they would otherwise have had a hard time getting when they were outside the office," Johnson said. The added cost to provide that quick access was deemed a fair tradeoff.

FROM IT SKUNKWORKS TO EXECUTIVE SUITE

The demand for the "at my fingertips" convenience of mobile computing is starting to spur full-scale virtual desktop deployments, agreed John Burke, principal research analyst and desktop virtualization expert at Mokena, Ill.-based Nemertes. "Because the virtual desktop is run-

ning inside the data center, it has extremely fast access to any data folks reach normally when they are at their desks. We're definitely seeing a connection," he said. Although the firm's latest annual survey did not ask directly about a link between supporting mobility and desktop virtualization, "many people did speak to us about that as being a use case they wanted to support," Burke said, for three reasons:

- They want to improve remote access to desktop tools with a mobile-enabled device.
- They want to improve security by providing an alternative to storing information on a mobile device.
- They want to improve productivity by giving users access to the fullest range of tools wherever they were working.

The push is even more notable because, until quite recently, mobility "was nearly irrelevant" to virtualizing desktops, Burke said. "It was a cool thing that the IT folks did for themselves because it was great to sit with your iPhone to reboot servers instead of having to go back to the computer to do it. That kind of motivation doesn't do very much to advance a [virtual desktop infrastructure] project or require one," he said. "It was done as a skunkworks thing for IT."

The "skunkworks thing" has moved to the executive suite, thanks mainly to the invasion of tablets in the enterprise, the iPad in particular, Burke and other experts said. In addition to their larger screen size, tablets' higher screen resolution and foldable keyboards have made it easier to for users to interact with desktop apps. On the technical side, latency issues have been significantly mitigated—if not solved—because of improvements in Internet performance generally and in protocols for communications between receivers and clients. "Microsoft's Remote Desktop Protocol, PCoIP [PC over IP] or HDX from Citrix Systems are much better at giving you a PC-like experience," Burke said.

THE HUMAN CHALLENGE

The biggest challenge CIOs will face when they deploy desktop virtualization to support mobile workers is the "human side," according to Forrester's Johnson. "We find that when companies try to drive this from the data center team, chances are they have overlooked some pretty fundamental factors for how people are going to use this stuff," he said.

Forrester recommends assembling a "hybrid" IT team that ranges from data center and desktop experts to folks who understand the various populations of users in the enterprise. IT needs to understand remote access to the desktop from

the user's perspective. "There are a lot of challenges and nuances to consider. It comes down to end-user and business-role personas in the organization," Johnson said.

No one has to tell that to Rick Roy, CIO at Madison, Wis.-based CUNA Mutual Group. He's in the middle of re-evaluating the desktop infrastructure for the insurance giant's 4,000 employees, including replacing as many as 2,000 laptops with iPads for the firm's independent sales force and adopting a bring-your-own-device policy. A year into the project, Roy's team has surveyed users extensively on the computing equipment they use for work, from desktops and laptops to mobile devices. "Getting our heads wrapped around this was a tremendous effort," he said, adding that the team ended up creating 18 personas (types of users) before making any decisions. Virtual desktops, which his IT team is engineering now, will ultimately be a cost saver, he said.

Vanguard's Kumar also is going slow with her desktop virtualization, carefully vetting which desktop applications can be accessed effectively, to avoid frustrating users, she said. And, as a business that is subject to strict regulations, security is another big concern for Vanguard. "Right now, we keep piloting with small groups," as opposed to a full-scale project, she said. ■

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