

Dell X-Image: Putting Image Management Into Focus as a Tool for Reducing Costs

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Dell X-Image: Putting Image Management Into Focus as a Tool for Reducing Costs

Businesses today face an increasingly difficult task in deploying and managing software images for their desktops, notebooks and workstations across their corporate environments. At the same time, technology budgets are flat or are being reduced, and IT managers are being asked to do more with less. As a result, customers are on the lookout for products, services and tools that will cut costs, increase efficiencies and improve overall IT management.

Dell recently unveiled a new service designed to assist customers as they attempt to alleviate their management headaches while simultaneously reducing costs. The new service, called X-Image, allows IT managers to develop a hardware-independent client image that can be deployed across all types of Dell desktop, notebook and workstation platforms, running either Windows 2000 or Windows XP. The goal of X-Image is:

- To reduce the number of base images that customers need to manage for their client platforms;
- To simplify a previously complex management task; and
- To reduce the time and costs associated with client management.

In this analysis, Summit Strategies reviews why and how Dell developed X-Image; the management challenges that X-Image can help simplify; and how X-Image has been successfully deployed among several customers, including a major government client and Dell's own internal IT organization.

In the current economy, Summit Strategies believes that businesses need to take advantage of products and services that help streamline management functions, reign in spending and achieve higher levels of management efficiency. In our view, X-Image is a tool that effectively addresses key customer needs and pain points around image management. In addition, Dell is committed to expanding X-Image in the future, and to providing other tools and services that offer customers even greater resources for their overall IT management strategies.

John Madden
jmadden@summitstrat.com

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It's no secret that customers want simplicity in the way they design, deploy and manage their IT systems. In the current economy, IT managers are under orders to reduce costs wherever and whenever possible—whether in managing desktop platforms, deploying new Internet infrastructure components, or improving efficiency in current IT systems. Customers are also struggling to do more with less; overall IT spending remains flat, with few signs of improvement forecasted in the coming months. This environment has corporations of all sizes trying to free up their IT personnel from mundane management tasks, in order to concentrate on more critical, and more profitable, IT projects.

Dell, the market-leading computer vendor, has taken this customer mission to heart as it has rolled out its deployment services offerings. It is also taking a life-cycle approach to the deployment of enterprise IT systems—from its desktops and notebooks, to its OpenManage systems-management platform, to its service and support operations. The vendor couples this holistic approach with a direct manufacturing model that has allowed Dell to offer reliable products and services at extremely competitive prices. On top of all this, the vendor also is introducing new tools and services that permit customers to reduce the management headaches (and costs) associated with running end-to-end systems.

To that end, Dell recently unveiled X-Image, a custom image-management service that allows customers to develop and deploy a hardware-independent image for all types of Windows-based Dell desktop, notebook and workstation platforms. The “image” of a desktop or other computing device is the profile of the software and settings configured on the device. The goal of X-Image is to significantly decrease the time and effort required of corporate customers to manage their Dell desktop, notebook and workstation images, thereby reducing overall IT management costs and making a previously complex process relatively straightforward. In this paper, we briefly review how Dell X-Image works, examine the benefits that X-Image has already delivered to customers (including Dell's own internal IT department) and conclude with some thoughts on how

effective X-Image can be in assisting IT managers' ongoing mission of management simplification and cost cutting.

Section 1 Dell's X-Image at a Glance

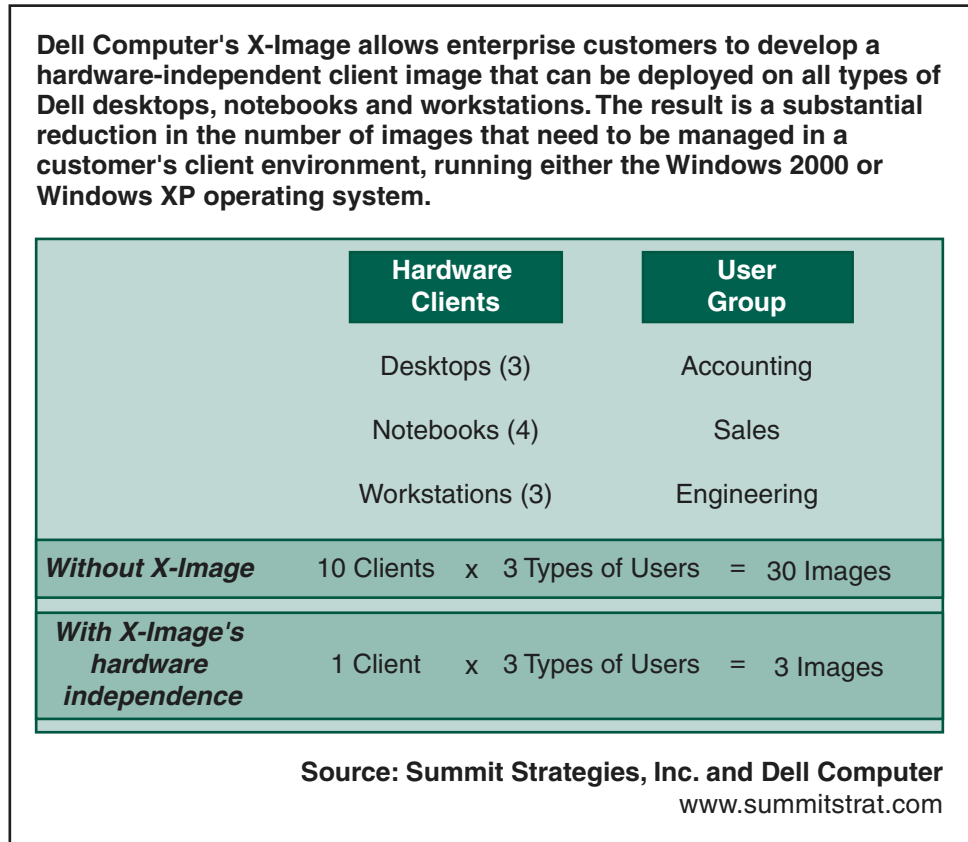
The concept of client-image management is not new, but the execution of the concept has often been clunky and problematic. Corporate customers for years have had to wrestle with building and deploying client-device images—consisting of a client operating system, hardware device drivers, applications and their settings—and maintaining them for the different client platforms (desktops, notebooks and workstations) used throughout their organization. Companies with mixtures of older and newer PCs and laptops have had to maintain distinct images for each version, complete with the appropriate device drivers (program routines that connect command language in peripheral devices, such as monitors, keyboards, etc. to a specific operating system). A change to those drivers on any platform, for example, requires a customer to build and distribute a new updated image for that client. In addition, client-device requirements differ among various corporate departments and user-group categories; different groups use applications specific to their work or job functions, and each requires its own individual client image.

The larger or more diverse an organization, the greater the potential for trouble in managing and maintaining client images. The scope of the management task becomes clear when considering that large corporations with thousands of end users may have to construct and maintain dozens of unique client-device images (see Figure). In many cases, a customer's IT staff needs to spend untold hours simply keeping track of which image belongs on which client, and troubleshooting support incidents—taking the IT staffers away from their core competencies and other mission-critical duties.

X-Image's main goal is to reduce the number of images that IT managers need to build and maintain for their entire Windows-based client environment, and to simplify the process of upgrading or updating those images. Currently, X-Image is available on all Dell client platforms (Optiplex desktops, Latitude notebooks and Precision workstations) running either the Windows 2000 or Windows XP operating system. Many customers maintain their client images on a ghosting server, a server that contains "gold standard" or base images with pre-configured device drivers and applications that can be cloned onto clients as needed. What makes X-Image unique—and what distinguishes it from other available image-management offerings—is a characteristic that previously was not available from Dell: hardware independence. Images for the Optiplex, Latitude and Precision models currently require distinct images; X-Image lets corporate customers build one image that can run on all three. That reduces the number of base images, which can then be customized with applications specific to each corporate department or end-user job function.

Figure

X-Image's Impact on Client Management



Dell started development of X-Image in the fall of 2001. At the time, Dell's customers were consistently citing image management as a major support issue that grew more complex each time Dell released a new version of a desktop, notebook, or device driver. (This problem, of course, applies to other vendors as well.) What's more, customers were experiencing problems after they downloaded device drivers from the dell.com support site, and then attempted to load them onto client systems using the Unattended Install feature of Windows 2000 or Windows XP, which allows updates to be loaded without human interaction or intervention. Often, some of the drivers would load, but others would not, leaving customers to rebuild or tweak images on their own.

This situation helped Dell realize that it could provide significant customer benefits in two ways. First, Dell could work with customers to develop custom images that were tuned to be hardware independent, and would work regardless of the type or age of a customer's Dell hardware clients. That would allow a customer's images to be standardized, but also provide enough flexibility to customize images as needed for different corporate departments or user groups. (Although users would still need to create images for specific workgroups, they could reduce the number of base client images that they needed to handle.) Second, Dell could ensure that

the images (and the appropriate drivers) were configured and tested to work effectively with the Windows Unattended Install feature.

At present, X-Image is available on currently shipping Dell client platforms running Windows 2000 or Windows XP. When developing X-Image, the vendor decided it had to select a base hardware abstraction layer (HAL) in Windows to work from. As a result, X-Image works on Dell platforms with a PIC-level (programmable interrupt controller) HAL, but is not available for older Dell models that do not use PIC-level HAL. In a typical engagement, a customer will work with Dell engineers to build their client-device image (or images), starting with one of the PIC-level HAL platforms, and adding the appropriate OS and applications. Typically, those applications include browser software, the Microsoft Office suite, anti-virus software and company- or department-specific applications (sales, accounting, etc.) Dell also will help the customer set the appropriate Windows policies and test the image to ensure it can work in Unattended Install mode.

Customers that were used to dealing with a dozen or more images in their IT environments now have the potential to migrate to only one, two or a handful of images. In addition, a large global enterprise customer that currently manages dozens of images among a variety of client models per department (accounting, human resources, etc.) could cut that number significantly, thanks to the hardware-independent nature of X-Image. When a client is added to a network, the appropriate image can be automatically loaded from a ghosting server, with virtually no intervention from IT personnel. Future upgrades and patches need only be applied to the base-client image or images, and can then be loaded onto all client machines. If customers prefer, they don't need to use a ghosting server to take advantage of X-Image. IT personnel can use CDs or DVDs to load the images, install patches or upgrades when needed. Thanks to the reduction in the number of images customers need to support, there is a consequent reduction in the number of distinct CDs or DVDs they need to distribute and manage.

Pricing for X-Image varies from customer to customer. X-Image is currently available through Dell Image Management Services and through Dell's custom factory integration model, in which Dell engineers work with customers to build and test base images. Dell officials are already planning to refine and expand X-Image's capabilities in the coming year. For example, SCSI and SP1 support will be available by February 1. Dell officials say the X-Image concept could be extended beyond desktop platforms to servers and other devices. Although such capabilities are currently not on the product roadmap, Dell would explore such options, if customers asked for them.

Section 2 X-Image in the Real World

Prior to its commercial release, Dell performed extensive testing on X-Image with several pilot customers in a variety of vertical industries. And, recognizing that Dell should be its own best IT customer, the company uti-

lizes X-Image in part of its own corporate desktop environment. We detail one government customer's experience with X-Image, as well as that of Dell's internal IT department, illustrating the types of benefits that X-Image can deliver.

U.S. Army Reserve

The U.S. Army Reserve's 88th Regional Support Command (RSC), headquartered in Minneapolis, is the regional office responsible for managing IT systems for six states, encompassing 150 sites and some 6,000 desktops and notebooks. At peak times, as many as 28,000 end users are logged in (there are some 4,000 full-time users). The 88th RSC is the first unit in the U.S. Army to use X-Image, consolidating 17 separate Dell client images—encompassing a range of Dell desktops, workstations and notebooks—into one.

Before X-Image, the 88th RSC, although standardized on Dell clients, was using a server to store multiple images that had to be constantly tweaked and maintained. For example, the RSC utilizes two types of Dell GX150 Optiplex desktops, and the only difference between the images is the video device driver. Copies of each base image needed to be preserved, because, if the wrong image were loaded onto a client, the desktop wouldn't work properly. If a problem did occur, tracking down and installing the right image was a time-consuming exercise.

The other major challenge was in dealing with updates and patches. If a service pack for Internet Explorer was released, for example, each client image needed to be updated, then distributed on multiple CDs that were sent out to each of the RSC's 150 sites. Support personnel at each site would then need to physically load the updated image on each machine, making sure to use the proper stack of CDs. With X-Image, only the single base image needs to be updated; the revised image can then be pushed out to all clients from the RSC's network-operations center. In some cases, the updated image might not load onto certain machines because they are not set to the proper base-client standard. The RSC will still need to send out CDs, but only one set of CDs to update the single X-Image—not 17 for multiple images.

The RSC started using X-Image about four months ago, and the tool has already resulted in substantial time, management and costs savings. Originally, the RSC had two full-time IT staffers who did nothing but image management. Now those same two staffers are able to take on other projects. A client-image installation that formerly took days now takes hours. The experience with X-Image at the 88th RSC has gone so well that a movement is underway to try to consolidate all client images across the nation's 10 RSCs to one image. This would allow the image to be standardized, with the same necessary security settings and base-level applications. But, the base X-Image is modular and flexible enough to be customized to include applications specific to each regional RSC, if needed.

Dell Computer

Dell's own internal use of X-Image was somewhat coincidental. Dell has 5,000 workstations in its manufacturing division running the Windows 2000 operating system. Earlier this year, Dell's internal IT staff learned that Dell lab personnel were tweaking X-Image for Windows 2000, and opted to work closely with them to perfect base-client images, using the manufacturing division as something of a testing ground. The end result was that Dell was able to consolidate the 25 images specific to its manufacturing unit down to one.

Following that success, Dell's internal IT staff set out to apply the lessons learned on the Windows 2000 deployment to a planned upgrade of 20,000 corporate clients from Windows 2000 to Windows XP. The IT staff had already been working on building base XP images for employees' older machines, as well as newer ones. The staff was determined to cut down on the time and resources that were devoted solely to image management. In the Windows 2000 upgrade, the staff originally needed to create separate images for notebooks and desktops, a separate image for sales and support, and another image that included additional sales-focused applications. That was at least four images "right out of the gate," as one IT manager said. Then, each image needed to be tested and validated with the proper drivers and applications—eventually leading to 25 separate images.

The Windows XP migration is currently in progress, and Dell's IT staff is attempting to use only two primary X-Images for its entire client environment. Dell's internal IT staff believes the X-Image has saved time in two ways; the X-Image is malleable enough that they can add device drivers as needed, and the installation process has been greatly accelerated. Utilizing the Unattended Install feature in Windows, loading a full image onto a machine can take less than an hour, according to Dell IT. This has helped Dell's staff meet its internal goals to have a substantial number of the 20,000 corporate machines upgraded to Windows XP by the end of 2002.

Section 3 X-Image Provides Clearer View of Client Management

At a time when customers are grasping for tools and services that centralize, automate and simplify management functions across their IT systems, the arrival of Dell's X-Image in the market is opportune. Dell customers should not consider X-Image to be the cure-all for every client-maintenance and support issue. It is, however, an important point service that, when incorporated into a focused IT management strategy, could be seen as a strategic asset.

Some of the benefits of deploying X-Image are more direct. One of them is X-Image's hardware-independent nature, allowing a single image to be loaded onto a variety of hardware clients. This represents a sea change for customers accustomed to trying to match up the appropriate image with

the appropriate machine, or used to hauling around stacks of CDs to each end user's machine in order to keep client images current. It should be noted that X-Image still could require a stack of CDs for a single image, depending on the size of the image, but the process of keeping track of those CDs can be greatly simplified. In addition, X-Image allows for equal parts of standardization and customization. Corporate customers can standardize their client platforms on one base image or a small set of base images, allowing for faster deployment and upgrade capabilities. X-Image is flexible enough, however, that certain images can be easily customized, adding drivers and applications that are applicable only to certain departments or groups of users.

Other benefits—such as time savings, the reallocation of IT resources and end-user satisfaction—are more subtle, and will vary from customer to customer. IT personnel devoted exclusively to image management will now be freed up to be involved in other projects, resulting in a more productive IT staff. In addition, corporate IT managers are beginning to view themselves more and more as internal service providers, measuring their success by the same customer-satisfaction metrics that are used with external customers. X-Image is a valuable tool in solving client-support issues, and can ultimately result in higher satisfaction among end users.

Dell's X-Image is currently available on Dell's Windows-based platforms. Customers that have standardized on competing platforms, or that have multi-vendor client environments, may not be able to take advantage of X-Image today. A vendor that is able to develop a tool that provides for hardware-independent images across competing platforms from different vendors would find a very receptive audience among enterprise customers. For now, however, Dell's X-Image is an important step toward better image management, and provides a variety of consequential benefits to cash-strapped and resource-constrained IT shops.

John Madden
jmadden@summitstrat.com