

# PC blades deliver lower costs, higher performance and improved security

The third generation of computing architecture provides the strengths of thin- and thick-client computing without their standard weaknesses.

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**T**he typical desktop PC brought power and flexibility to the end-user, which he or she needs to run complex applications and speed up transactions. The problem was that it increased security and manageability. Over the past ten years the problem has gotten significantly worse with the costs and management considerations. The driving factor to get the third generation of computer—the first generation was mainframe and the second generation includes thin client and PCs—is to figure out how to overcome the management and security factors and yet maintain the same experience for the end users, who are even now looking for faster ways of enacting transactions and have become used to having the full power of a second-generation computer at their desktop. Now, with the introduction of the Blade PC computing paradigm, which marries the benefits of thin- and thick-client computing—lower costs and improved manageability, security and availability without the common hindrances associated with the previous computing paradigms.

Similar to Blade Servers, Blade PCs consist of blades that hold the individual system's processor, memory, hard disk drive and network adapter and sit in a common chassis. The user's monitor, keyboard, mouse and other peripherals connect to a user connection device that sits on the user's desktop and, in turn, connects to the PC Blade chassis via a standard Category 5 networking cable. Currently, shipping PC Blade solutions are on the same Intel treadmill as their standard PC competition, which means that there is no lag in the adoption of the latest computing technologies with PC Blades.

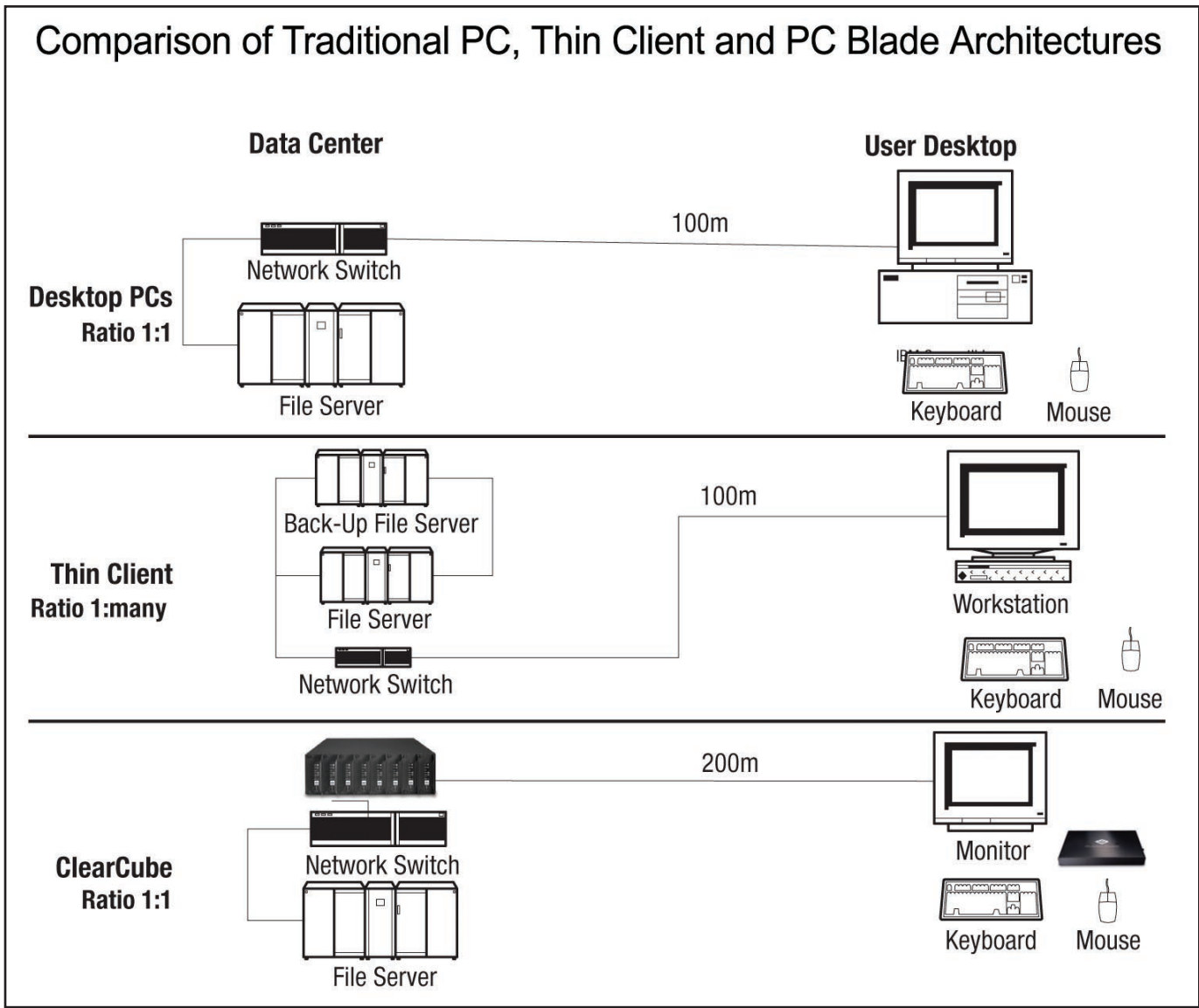
Although at first blush it may appear similar to thin client

computing, PC Blade architecture differs from thin clients in a number of important ways. First, PC Blade architecture provides the end user with a standard PC desktop work environment—the only thing missing is the beige box at their feet. Thin clients are efficient for single-task environments, but migrating knowledge workers with a learned set of behaviors for this sort of environment tends to lead to increased management issues. Secondly, thin clients share the same server-based processing resources that can limit the transaction speeds. With PC Blades, the individual end users are connected directly to the dedicated processors of their PCs that provide a more robust processing environment.

Financial firms that have already deployed this new computing architecture have already seen a 30 percent decrease in their operations costs with PC Blades. Although the initial cost of deploying the solution is slightly higher than a typical PC, between \$1,300 to \$2,200 depending on the system configuration and bundled management software, the immediate return-on-investment can be realized by the cost savings associated with swapping PC Blades in and out of a chassis in a server room rather than the industry average of \$850 to \$1,000 per PC financial firms pay to physically roll out new PCs to the trading desks. And since Blade PCs use existing network technology to connect the users' desktops to the Blade PC chassis, the sunk networking investments are protected.

One perceived limitation of PC Blades may be the fact that currently there are a limited number of vendors that offer a shipping solution. Because of this, organizations will not be successful using their previous purchasing strategies of pit-

### Comparison of Traditional PC, Thin Client and PC Blade Architectures



ting multiple vendors against each other to maintain a low initial acquisition cost for PC Blades. This concern is negligible since the majority of costs associated with PCs come from management and support rather than acquisition. Even if an organization was able to acquire desktops for free, it would still be paying roughly \$6,000 over the life of the system for support. The savings on the free PC would come out roughly \$200 per year over the three-year life of the system. PC Blades, on average, save roughly 30% over the life cycle of the system, or \$1,800 per year in savings.

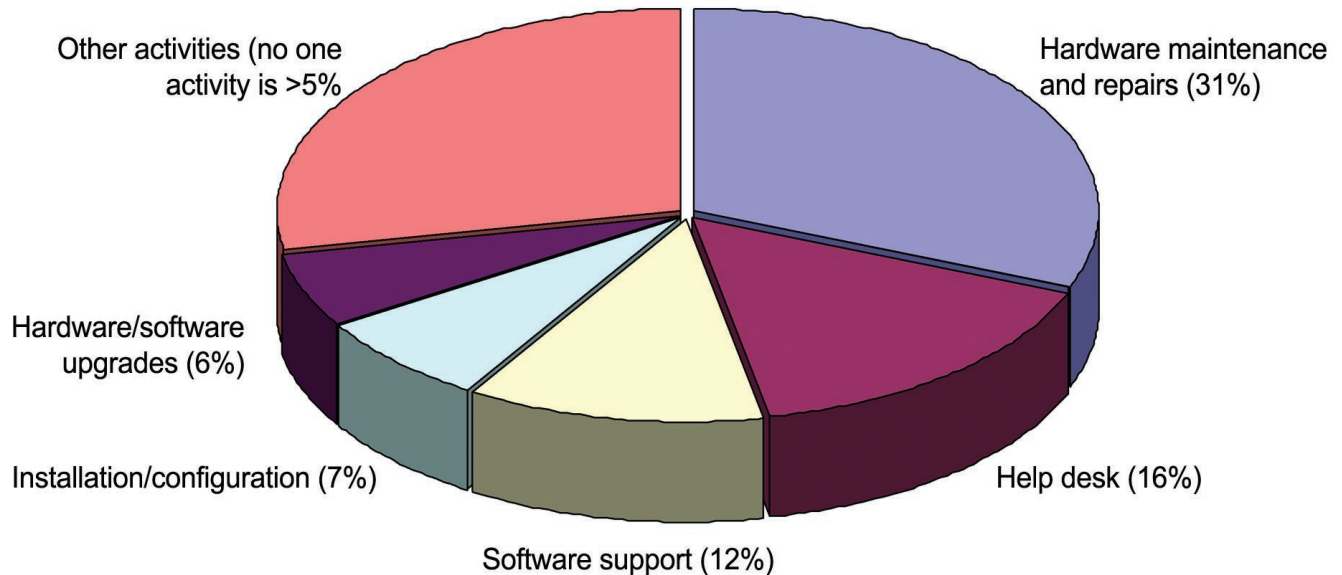
The chassis-based architecture immediately provides saving in real estate costs and electrical and HVAC consumption compared to the typical PC deployment. Instead of having approximately 100 PC and 100 uninterrupted power sup-

plies (UPSs), the first and second largest heat generators on a trading floor, it all can be reduced to one chassis that requires much less power and fewer UPSs that can be located either in the server room or in the existing wiring closets spread throughout the organization.

An additional benefit of the chassis-based architecture is the relatively simple task of creating a dual-boot environment on each PC Blade that would provide a typical desktop environment during trading hours and a Beowulf-clustered Linux environment during the off-hours, which could be integrated into an organization's grid computing fabric.

Even if an organization decided for some reason not to take advantage of the dual boot capabilities, the chassis-based configuration provides easily accessible network stor-

### Time Spent on Various Desktop Services by IT Managers



age. Most PC Blades shipping today come with a 40GB hard disk, but the average disk image measures only 10GB, leaving 30GB per drive to be exploited. In a fully loaded chassis, which can house approximately 100 blades, the individual hard disks can be configured to tap approximately 3 TBs worth of unused network storage.

The true cost savings of PC Blades, however, don't come into their own until one looks at the TCO savings that this solution provides. According to a recent IDC Research study, the analyst firm estimates that an organization supporting 100 seats can save the equivalent of \$35,120 annually by adopting a PC Blade solution, and this saving can scale up to an estimated \$2 million for an organization with roughly 6,000 supported seats. These dramatic savings can be easily traded to the centralized nature of PC Blades, which reduces the amount of time of effort IT departments need to spend on handling help desks requests, configuring new users, and upgrading existing systems.

For example, the average IT worker spends nearly 72% of his or her working hours supporting hardware and software, rolling out upgrades and performing help desk functions. This leaves only 28% of their day available to develop and deploy to computing systems and applications that provide a competitive advantage for the organization. By deploying a PC Blade solution, IT departments can significantly reduce the amount of time associated with these routine tasks.

Nearly two-thirds of all help desk requests take an hour or less to perform with the remaining request, on average, tak-

ing from one to 12 hours. A simple task, such as getting a typical desktop PC that has failed up and running, can take anywhere from 15 minutes to an entire day. With a Blade PC, the same task can be done in as little as three minutes by moving a copy of the system's contents and settings to a waiting PC Blade by using management software from any place on the corporate network with minimal human labor. Such support improvements can reduce the average individual user downtime from 24 hours per year, or a loss of three days of productivity, to a little less than eight hours per year, or a gain of 16 hours of productivity per employee, IDC Research shows.

Another dramatic time savings IT departments have experienced since deploying PC Blade architecture is the amount of time it takes to deploy new users. When deploying new users on typical desktop PCs, it took the IT staff approximately seven and a half hours to configure the system, load the necessary software and provide all the necessary rights for the new user. By switching to PC Blade solutions, IT departments reduced this time from roughly 90% to just a little over half an hour to perform the same tasks from a remote management station.

The same study shows that the amount of time it requires to move, change or upgrade a PC desktop ranges from four to seven hours. By switching to a PC Blade architecture, this drops 57% to two hours. Now what once required an army of IT workers an entire weekend to perform can be performed by a few IT personnel in over a few hours.

## PC Blade Impact on Cost of Ownership Components

<b>Capital</b>	<b>Acquisition &amp; Deployment</b>	<b>Administration</b>	<b>Technical Support</b>	<b>End User Operations</b>
<b>Increased Cost</b>	<b>No Change or Varies</b>	<b>Decreased Cost</b>	<b>Decreased Cost</b>	<b>Decreased Cost</b>
PC	Purchasing	Asset Mgt.	Help Desk	Data Mgt.
<b>No Change or Varies</b>	Cabling	Security	(Level 0/1 support)	Recovery
Closet Space	<b>Decreased Cost</b>	S/W License	Level 2 Support	Downtime
HVAC Closet	Staging	(Enforcement)	Level 3 Support	Self Support
<b>Decreased Cost</b>	Integration	Physical Audit	(engineering)	Peer Support
Floor Space	Testing	Inventory Mgt.	Break/Fix	Misdiagnosis
Upgrades	Installation	Add User	Service/PM	
Spares	Disposal	Move User	(outsourced)	
HVAC Floor	Shipping	H/W Upgrade	End User	
Power at Desk		S/W Upgrade	Training	
Staging &			S/W Distribution	
Storage Space			User Data Mgt.	
Asset Theft			Virus Mgt.	
UPS				

Source: Company Analysis

With such a dramatic savings in man-hours, many departments that have adopted PC Blade architecture have found that their staff can handle the support of 23 percent more users, going from a support person to PC ratio of 1:91 to 1:115, and are able to support more users without any additional investment in head count.

An added benefit, besides improved management capabilities, of the centralized-nature of PC Blade architecture is that of added physical security. By removing the individual PC from the desktop, it eliminates the nuisance of shrinkage when it comes to memory, drives and peripherals by placing the PCs in the most secure area in the corporation, the server rooms and local wiring closets. But, more importantly, it prevents end users from uploading and downloading unauthorized content to the corporate network. The immediate benefits of this include a more stable computing environment since unapproved applications will not be altering the system's configuration. Regular desktop PCs on average have a 96 percent uptime rating, according to IDC Research, PC Blades have an average uptime of 99.9 percent, which is much closer to the average server with its 99.999 percent uptime.

Because the user-connection device that sits on the desk-

top and connects the keyboard, mouse, printer and scanner to the Blade PC uses the Universal Serial Bus (USB) architecture, vendors have made sure to disable the USB-prefix for portable mass storage devices within the hardware as well as the management application so that end users would not be able to bypass existing network security.

This ability to manage users' network uploading and downloading abilities also will ensure that corporate proprietary intellectual property, such as client lists, portfolio contents and other sensitive data, that sits on the corporate network stays on the corporate network.

Blade PCs also provide a more robust business continuity capabilities over standard desktops. With desktops, if information was stored on the local hard disk, that information would be lost if the PC were destroyed and the data wasn't backed up onto the corporate network. With the same management, software applications that lets IT managers copy a hard drive image from one PC Blade to another from anywhere on the network, the same capability can also map images of all downed systems to other PC Blades on the corporate network, either in the same location or across the corporate WAN connection, making disaster recovery tasks much easier to execute from any location.