



ClearCube

A New Paradigm in Reducing Desktop Management Costs

An IDC White Paper

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Introduction

Though it may seem like PCs have been around forever, the reality is that until the mid-1970s, most computers in corporations were large, centralized machines staffed with a team of technicians responsible for keeping them up and running. The advent and adoption of the PC created distributed computing, which allows the power of computing to be spread throughout the enterprise but also distributes users' computer problems. Adoption of the PC was driven by a need for more individual power. Although this need was addressed by the advent of the personal computer, it was done so at the added cost of increased management. To diagnose and resolve all of these PC-related problems in a centralized fashion, corporations created internal help desks and ramped up IT staff to handle technical support problems at the employee's desktop.

Today, many enterprises are looking at alternatives to more easily and efficiently manage their desktop computers. Some of the drivers of more efficient desktop management include an increased focus on

IDC Opinion

In interviews with ClearCube Technology's customers, IDC found that ClearCube's technology can enable customers to radically maximize the efficiencies of managing their PC infrastructures while significantly improving worker productivity. The impact of these factors can enhance both top-line and bottom-line performance while reducing operating costs. Overall, the 17 customers examined for this study realized significant benefits from leveraging ClearCube technology. IDC found that a customer with a 100-seat ClearCube implementation could save the equivalent of \$35,120 annually in IT time. Based on this data, IDC calculated that a firm of 5,720 employees — the average used for this study — could realize potential savings of \$2 million annually in desktop management costs as a result of implementing ClearCube. Moreover, the potential increase in employee productivity for this size firm could amount to the equivalent of 25 employees at essentially no additional cost. While ClearCube is not appropriate for all organizations, it does allow certain types of companies to do more with less.

using technology to improve employee productivity, an increasingly complex IT environment, the rising costs of supporting the hardware and software in that environment, and the challenge of hiring and retaining qualified IT professionals to manage these systems. Further complicating these challenges is the pressure on organizations to leverage their IT infrastructures as a competitive advantage, an advantage that relies on doing more with less. In order to address some of these issues, this white paper:

- Discusses challenges associated with managing the desktop infrastructure in an enterprise, including employees' productivity and PC downtime, IT complexity, cost of hardware and software support, and the IT skills shortage
- Introduces ClearCube Technology, a company that has developed a way to mitigate many of these problems through an innovative alternative to traditional desktop management
- Presents the findings of interviews with 17 ClearCube customers that show how these customers have saved time and money while increasing productivity as a result of implementing the ClearCube architecture

Challenges of Managing the Desktop Environment the “Traditional” Way

Employee Productivity and PC Downtime

Call volumes to help desks are rising. Applications are becoming more complex, and employees are using them to do more tasks than ever before. When questions and problems arise with these applications, the PC support help desk is typically the first resource called. Meanwhile, upper management is becoming more aware of the impact that PC woes and “downtime” have on employee productivity. When employees cannot access the data and applications stored on their PCs, that downtime costs the company money. In the traditional desktop management environment, the employee has to call the help desk and may even wait several hours for an IT staff member to respond.

IDC research shows that the average ratio in a commercial business-processing environment is approximately 100 PCs per IT support staff member (i.e., help desk). Although 64% of help desk calls are handled in less than one hour, almost 36% of help desk calls can take anywhere from one to 12 hours (see Table 1). Over time, PC downtime accumulates and results in a significant amount of lost productivity for the employee and the company.

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Table 1
Time Required to Resolve Help Desk Calls

| Time Required (hours) | Percentage of Calls (%) |
|-----------------------|-------------------------|
| < 1 | 64.2 |
| 1–3 | 17.1 |
| 3–6 | 10.9 |
| 6–12 | 7.8 |

Source: IDC, 2001

Increasingly Complex IT Environment

The world of IT has moved from what seemed like the simplicity of the mainframe world in which a few large computing systems managed all IT functions to a potpourri of IT architectures that include a vast array of technologies. Today's IT environment, while still dominated by the traditional PC, has expanded with the introduction of portable devices, from laptops and personal digital assistants (PDAs) such as Palm Pilots, to wireless environments and Web technologies. Combining all of these new capabilities and technologies is taxing the ability of most organizations to maintain control of their IT infrastructures.

The complexity of the IT environment is magnified by the distribution of resources across multiple sites, often in multiple states or countries. As a result, most enterprises must maintain an IT staff at each office location to resolve issues at the local desktop. The result may be costly and inefficient, particularly for companies that have IT staff at offices with a small number of users, thus lowering the average ratio of 100 PCs per IT support staff member.

Rising Cost of Hardware and Software Support

The support function within IT often takes a back seat to more high-profile project initiatives. Yet, IDC research has found that IT managers spend nearly 60% of their time addressing hardware and software support issues and responding to help desk inquiries (see Figure 1).

These internal support activities not only monopolize a majority of IT staff time but also are generally viewed as a cost center. In fact, IDC research has shown that the staffing needed to provide the support services associated with the continual operation of hardware equipment and software applications can represent 50–60% of the total cost of owning a PC.

Hiring and Retaining Qualified IT Professionals

The shortage of technically skilled professionals continues to rise. According to IDC, at the end of 2000, almost 760,000 unfilled IT worker positions existed in the United States. With demand for IT help rising to more than 5.4 million positions in 2002, the shortfall

between supply and demand is expected to increase to almost 850,000 positions in the United States in 2002 (see Table 2).

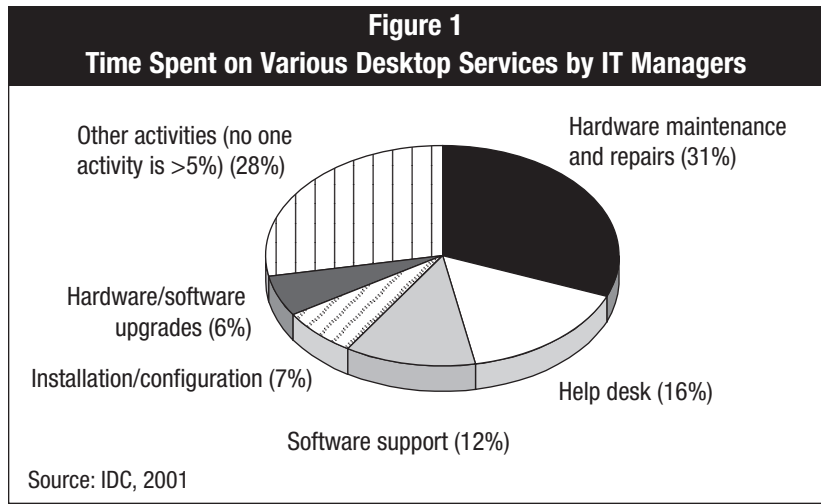


Table 2
Skills Shortage in the United States

| | 1999 | 2000 | 2001 | 2002 |
|-----------------|-----------|-----------|-----------|-----------|
| Supply | 3,685,408 | 4,054,397 | 4,460,331 | 4,906,907 |
| Demand | 4,061,566 | 4,468,235 | 4,915,624 | 5,407,808 |
| Skills shortage | 722,158 | 759,838 | 801,293 | 846,901 |

Source: IDC, 2001

In light of these challenges, many companies are constantly looking for more efficient alternatives to manage the desktop environment. With its architecture for desktop PCs, ClearCube has developed a viable solution to the challenges facing all IT departments.

ClearCube: An Alternative to Traditional Desktop Management

ClearCube Technology, founded in 1997 and based in Austin, Texas, has developed a solution to the traditional challenges of desktop management. ClearCube provides a managed desktop architecture that delivers dedicated, Intel-based PC functionality to the desktop from a centralized, rackmounted environment. By taking the PCs off the desktop and centralizing them in a back room with the servers, ClearCube dramatically increases manageability, agility, and security while providing mission-critical reliability and improvements in uptime — all without adding to IT staff.

A Look at ClearCube Technology

ClearCube's architecture includes a managed desktop solution that provides customers with the ability to dramatically increase control, security, mission-critical reliability, and significantly improve system uptime — without compromising the PC's performance. Figure 2 provides a holistic view of three types of architectures: the traditional “fat rich” PC client/server, a pure thin-client environment, and ClearCube's desktop architecture.

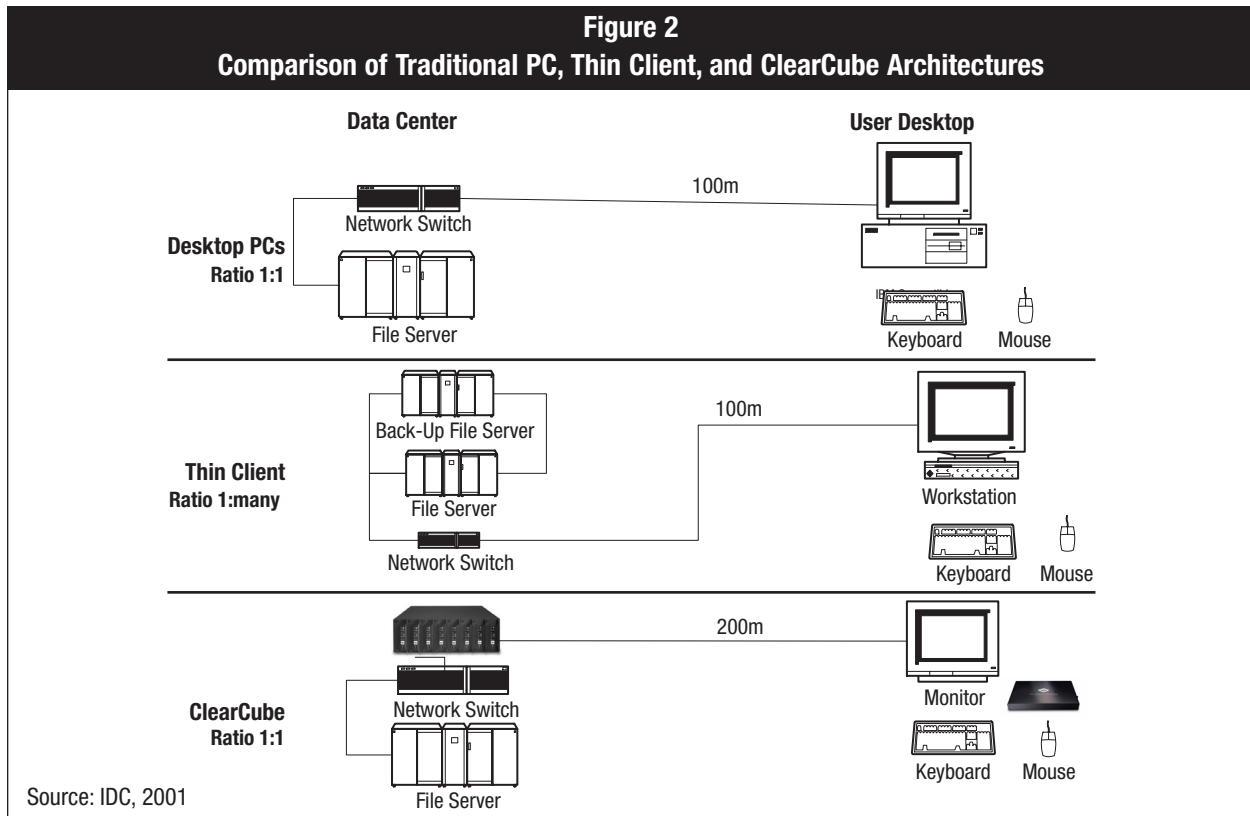


Table 3 highlights the essential differences between these three types of architecture. ClearCube's architecture provides a hybrid between the two predominant computing architectures. ClearCube's CPU Blade is essentially the PC with a dedicated hard drive and memory, but it is rackmounted back in the data center.

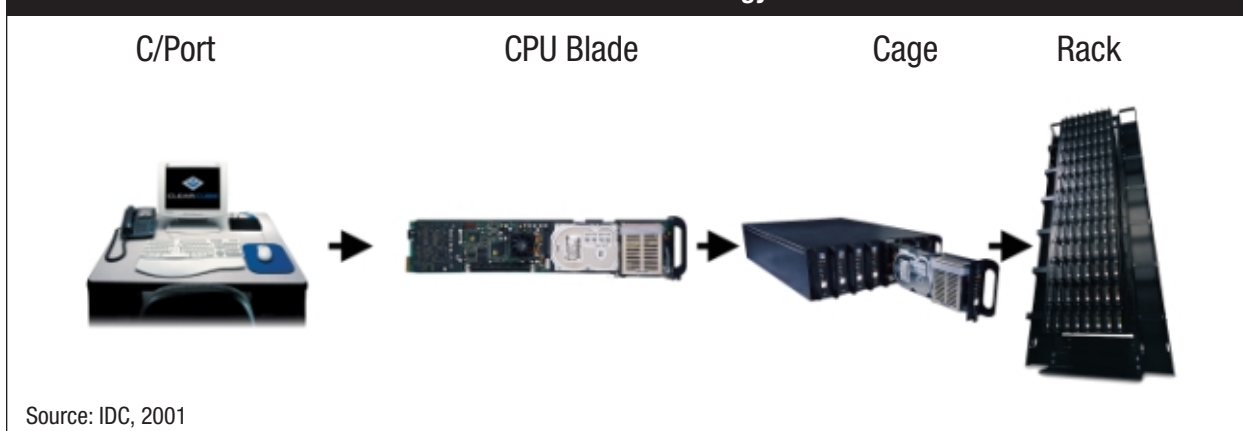
Similar to a thin client environment, ClearCube's Command Port (C/Port) sits on the desktop, acting as a terminal for the CPU Blade back in the data center. This C/Port provides users with a complete desktop experience without having a PC at their feet. ClearCube's distance technology allows the computer to be rackmounted in a secure room away from the users; in this room resides the CPU Blade. ClearCube's CPU Blade is a rackmountable 3U desktop that is just like a traditional managed desktop, providing each user with his or her own dedicated PC (see Figure 3).

Table 3
Key Architectural Differences

| Key Differences | |
|------------------------|---|
| PCs | All processing, memory, and storage functions are located physically at the desktop within the hard drive. The viewer screen is integrated with the PC. |
| Thin clients | All processing, memory, and storage functions are located “remotely” and shared by all users on a central server or mainframe system. The user accesses processing power remotely through a “dumb” or standalone screen. |
| ClearCube | User experience is just like a traditional PC but without a hard drive at the individual’s feet. ClearCube provides each user with a dedicated machine that is rackmounted in a data center. These machines are referred to as CPU Blades. |

Source: IDC, 2001

Figure 3
ClearCube’s Technology



Evaluating the Costs and Benefits of the ClearCube Architecture

To demonstrate the business and financial benefits of the ClearCube architecture compared to the traditional approach to desktop PC management, IDC conducted in-depth interviews with 17 ClearCube customers. Customers ranged in size from \$45 million to \$5.5 billion in revenue and represent a variety of industries, including telecommunications, business services, manufacturing, and financial services. Table 4 shows key characteristics of the customers interviewed.

Table 4
ClearCube's Customers at a Glance

| | Range | Average |
|---|--------------------------|---------------|
| Number of employees onsite | 75–1,500 | 360 |
| Total number of employees | 54–42,000 | 5,720 |
| Total number of sites (physical establishments) | 1–200 | 31 |
| Annual revenue | \$20 million–\$5 billion | \$810 million |

N = 17
Source: IDC, 2001

ClearCube: Enabling Internal IT Departments to Do More with Less

Overall, the 17 customers interviewed for this study realized significant operational improvements by leveraging ClearCube technology. These benefits included:

- Reductions in downtime
- Increases in productivity due to fewer trips to the desktop, faster time to configure new users, and faster moves, adds, changes, and upgrades
- An increase in the number of PCs per IT staff

All of these improvements contributed to significant operational savings for ClearCube's customers.

Reduction in Downtime

Before implementing ClearCube's architecture, enterprise customers were experiencing an average of two hours of PC downtime per month per user. This equates to 24 hours in lost productivity each year per employee.

However, similar to a server environment, ClearCube aims to provide a level of uptime that is higher than a PC. More specifically, the downtime experienced by companies is equivalent to 98.8% uptime versus 99.7% with ClearCube technology. In fact, according to IDC's research, after implementing ClearCube, the same customers reduced downtime to an average of 38 minutes per month per user, a 68% reduction in downtime and a potential increase in productivity of 16.4 hours per year per employee. This equates to more than two full work days per user.

Fewer Trips to the Desktop

As computing environments become more distributed, IT staff must support PCs in multiple buildings, on multiple sites, and, often, in multiple ZIP codes. When problems arise, IT staff spends valuable time traveling to the desktop.

With ClearCube’s architecture, customers can dramatically reduce IT staff time making visits to the desktop. IDC’s research found that before implementing ClearCube, customers’ IT departments were spending an average of 21% of their work week making visits to the desktop. After implementing ClearCube, they reduced their trips to the desktop to 5%, an average reduction of 16%. With fewer trips to the desktop, IT staff can use their time for other activities. IDC calculated that the time savings as a result of fewer trips to the desktop equates to an increase in productivity of almost 333 hours a year per IT staff member (see Table 5).

| Table 5 | | |
|---|---------------|----------------|
| Time Savings from Fewer Trips to the Desktop | | |
| | Pre-ClearCube | Post-ClearCube |
| Percent of time making trips to the desktop | 21 | 5 |
| <i>Assume 2,080 work hours/year</i> | | |
| Time making trips to the desktop (hours) | 437 | 104 |
| <i>Time “savings” = 332.8 hours</i> | | |
| N = 17 | | |
| Source: IDC, 2001 | | |

Based on this statistic, a company with a 10-member IT support staff could increase productivity by more than 3,300 hours a year — or 1.6 working years — allowing IT staff to focus on projects that better align with the companies’ core competencies.

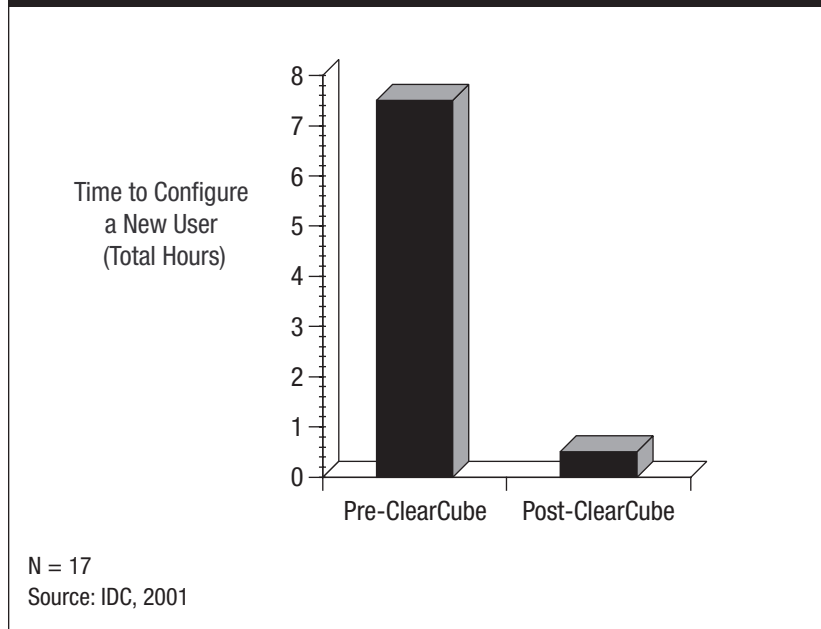
Faster Time to Configure New Users

With employee turnover of 15% per year, the time for IT staff to configure new users can be significant. Before implementing ClearCube, IT staff members were spending an average of 7.34 hours to prepare, install, and configure a PC workstation for a new employee. In many organizations, new employees were waiting days without access to a PC or the necessary productivity applications. After implementing ClearCube, customers were able to reduce the time to configure a new user to only 34 minutes, a 92% reduction in installation time (see Figure 4).

Faster Moves, Adds, and Changes

One of the most time-consuming activities for PC support staff is moving, adding, or changing PC hardware. Typically, each time a new employee is hired, each time an employee changes his or her workstation, and each time a department or a company relocates, the company must deploy IT staff. For example, a Manhattan investment firm

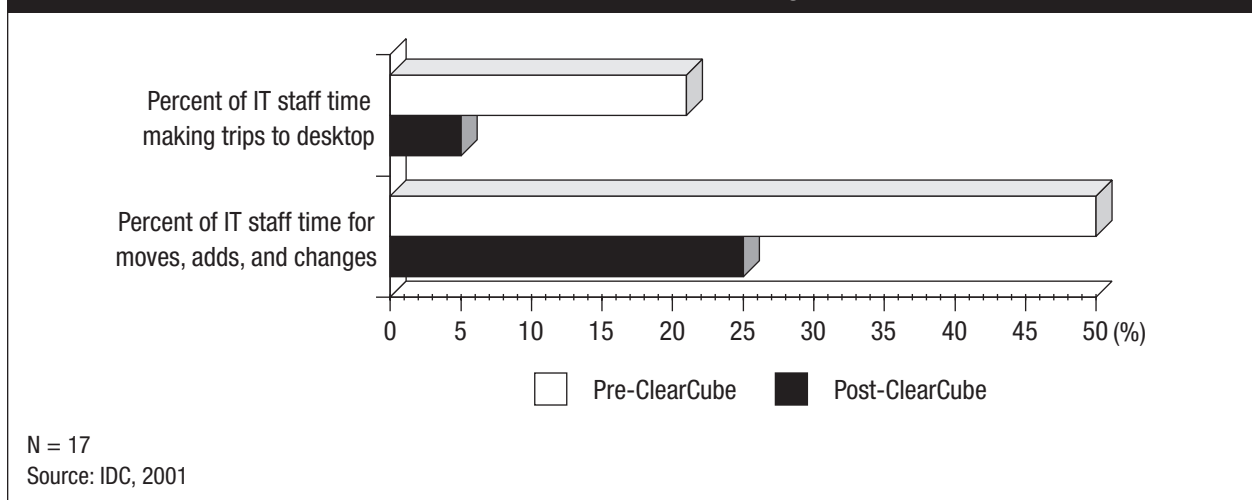
Figure 4
Reduced Time to Configure New Users



said it moves all of its traders at least once a year, at the average cost of \$1,000 per move.

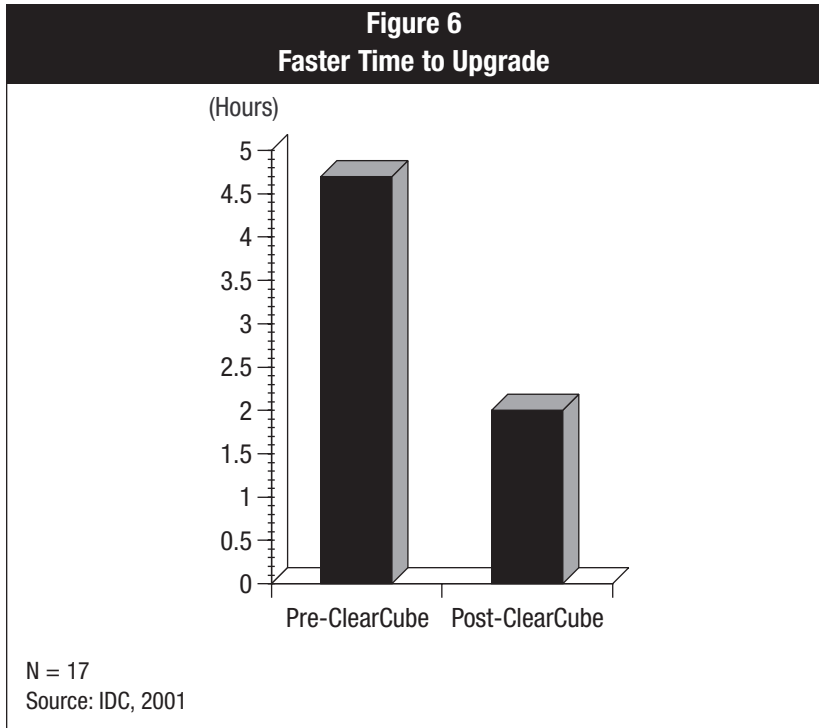
This time released as a result of ClearCube can dramatically increase the productivity of internal IT staff. In fact, before implementing ClearCube, customers' IT staffs were spending an average of 50% of IT staff time on moves, adds, and changes. After implementing ClearCube technology, customers saw the amount of IT staff time spent on moves, adds, and changes drop by 25% (see Figure 5).

Figure 5
Faster Moves, Adds, and Changes



Faster Time to Upgrade

ClearCube customers not only reduced the time for moving, adding, and changing a PC but also significantly reduced the time required to upgrade PC technologies. On average, ClearCube customers were able to reduce the time to upgrade from 4.7 hours to two hours per PC — a reduction of 57% (see Figure 6).



Reduced Demand on PC Support Staff

Due to the simplicity of the ClearCube technology, ClearCube customers are able to add new users with desktops without adding IT staff. IDC's research with ClearCube customers found that customers were able to increase their number of users by 23% without additional burden to IT staff. In fact, before implementing ClearCube, customers maintained an average of 91 PCs per IT staff member with an average of approximately three IT staff. After implementing ClearCube, customers were able to increase this ratio to 115 PCs per IT staff member — while maintaining the same staff levels and without adding or expending additional resources (see Table 6). Although customers are unlikely to reduce IT staff, ClearCube does free up IT resources and funds for more value-added activities, such as strategic ebusiness or networking activities.

Table 6
Number of Desktop PCs and IT Staff Supporting Them:
Pre- and Post-ClearCube

| | Pre-ClearCube | Post-ClearCube |
|---|---------------|----------------|
| Number of desktop PCs | 308 | 380 |
| Number of desktop support staff | 3.4 | 3.3 |
| Number of desktop PCs per IT staff member | 91 | 115 |

N = 17
Source: IDC, 2001

Total Operational Savings

Customers realized a number of benefits as a result of implementing ClearCube, including:

- Reductions in downtime
- Increases in productivity due to fewer trips to the desktop, faster time to configure new users, faster moves, adds, changes, and upgrades
- An increase in the number of PCs per IT staff

The net result of these productivity improvements is significant operational savings for ClearCube’s customers.

As shown in Figure 7, the total time saved per IT staff member in a 100-seat ClearCube implementation during the course of one year for this study is 28 weeks. This is a combination of fewer trips to the desktop (nine weeks), less time for moves, adds, and changes (14 weeks), and faster time to configure new users (five weeks).

Financially, based on an average annual IT staff salary of \$65,000, the 28-work-week savings equate to \$35,120 in annual savings for a 100-seat implementation. While this may not seem significant, it can amount to huge savings for a large or midmarket enterprise. For example, measured against the average size organization of this study of approximately 5,720 employees and using a ratio of 100 PCs per IT staff member, an enterprise with a 5,720-seat ClearCube implementation could realize an opportunity of more than \$2 million annually (see Table 7 for calculations and assumptions) in desktop management costs.

Figure 8 shows the operational cost savings for companies of varying size. Based on the data from existing ClearCube customers, a company with 100 users can expect to save \$105,000 over the useful life of the technology due to the efficiency and productivity gains associated with ClearCube (\$35,000 annually over a three-year period). A large Fortune 1000 company with 10,000 users potentially can save more than \$3.5 million annually in operating costs. While these potential savings do not necessarily mean that ClearCube customers will, or can, reduce costs and IT staff, they do imply that they are able to reallocate valuable IT staff time for more productive, nonsupport activities.

Figure 7
Number of Work Weeks Saved Based on a 100-Seat Implementation

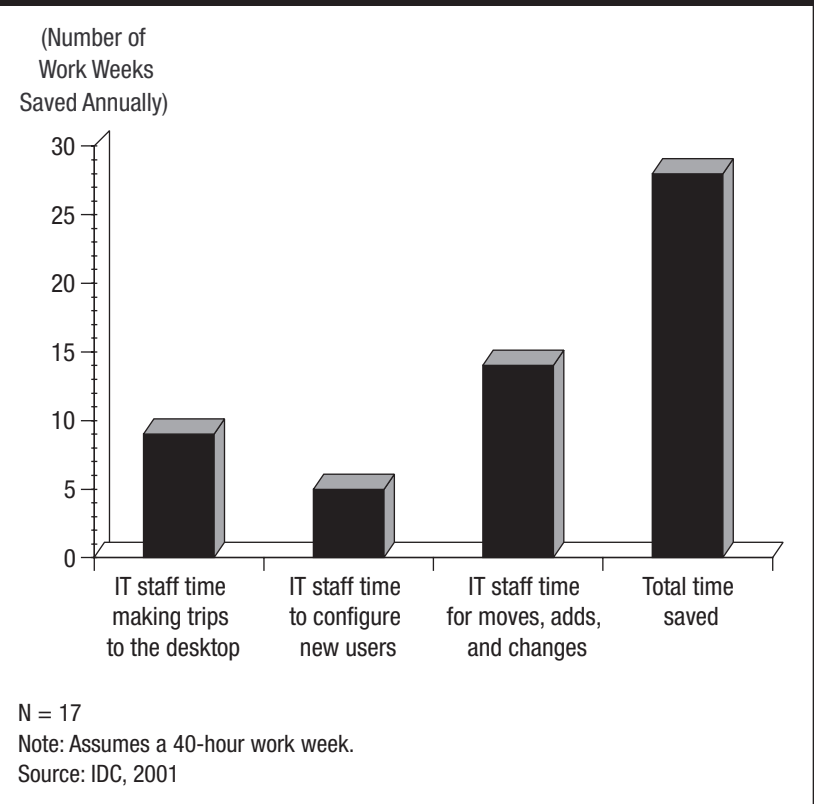
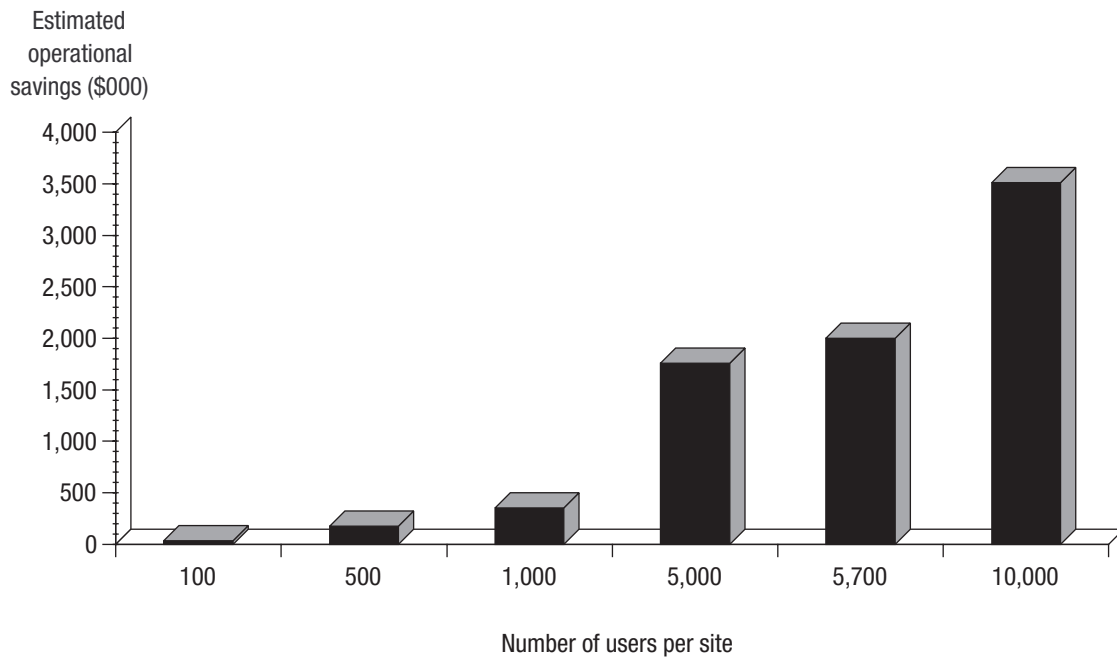


Table 7
Operational Savings from ClearCube: Calculations and Assumptions

| | Data |
|--|------------------------------|
| Time saved per IT support staff member (monthly) as a result of time savings/increases in productivity due to fewer trips to the desktop, faster time to configure new users, faster moves, adds, changes, and upgrades* | 93.7 hours |
| Time saved per IT staff member (annualized, assuming 2,080 work hours/year) | 1,124 hours or 28 weeks |
| Assume ratio of 100 PCs per IT staff member (i.e., one support) staff person for a 100-PC firm) | 1 |
| Assume salary of \$65,000 per year | \$65,000 x (1,124/2,080) |
| Estimated annual cost savings for a 100-seat implementation | \$35,120 |
| Estimated annual cost savings for a 5,720-seat implementation (w/ 57 support staff) | \$2,001,840 or 57 x \$35,120 |

* These are hard-cost savings and exclude time for user training and user downtime.
 Note: Data is approximate and is based on averages of 17 ClearCube customers.
 Source: IDC, 2001

Figure 8
Estimated Operational Cost Savings by Implementation Size (\$000)



Note: Projected estimates based on responses from 17 ClearCube customers.
Source: IDC, 2001

The ClearCube Experience: Benefits and Challenges

In addition to the time and cost savings realized by current ClearCube customers, some companies have realized additional benefits from the ClearCube model. Nearly all responses to this question were positive, with only a few indicating any shortcomings or limitations of the technology. The most common benefits included the following:

- Saving space at the desktop
- Providing greater control from damage done by users, both from loading personal software to physical interaction
- Simplifying upgrades and configurations for new users
- Enhancing security
- Reducing complexity in managing desktop environment
- Improving reliability and performance while reducing user downtime

Although the benefits are overwhelming, ClearCube is not perfectly suited for all users and all environments. For example, ClearCube is not a mobile technology. While ClearCube can be used in conjunction with — or as an enabler of — a mobile environment, it may be better suited for certain desktop environments. ClearCube appropriately targets enterprises such as brokerage houses, call centers, or other organizations that

require significant computing power at the desktop for a large number of users that demand manageability, uptime, and security.

ClearCube may also be better suited for larger organizations. IDC's research found that a 100-seat firm would save more than \$35,000 a year. While this is not significant, the potential savings for a 5,000-seat implementation is almost \$2 million. Moreover, ClearCube is a managed desktop environment. Users essentially need to go through the IT department to add new applications or personal software (e.g., games). While the managed nature of ClearCube may seem confining to some users, it actually enables the IT department to maintain a higher degree of control and security.

Conclusion

Overall, the 17 customers examined for this study realized significant benefits from leveraging ClearCube technology. For the average size firm of 5,720 people used for this study, the potential savings in managing their desktop environments could reach more than \$2 million annually. Furthermore, the potential increase in employee productivity for this size firm could amount to adding 25 employees at essentially no additional cost. These results indicate that ClearCube's technology can enable customers to radically maximize the efficiencies of the PC infrastructures while significantly improving worker productivity. The impact of these factors will enhance both top-line and bottom-line performance while reducing operating costs. That is to say, revenue should go up, operating costs down, and net income should improve.

Additional benefits of ClearCube's technology included saving space at the desktop; providing greater control from damage done by users; simplifying integration, configuration, and upgrades; enhancing security; and improving the reliability of the PC system. Despite some initial resistance, end users were very receptive to ClearCube's technology and, in one case, even enjoyed showcasing it.

It is clear that these customers have realized significant benefits and financial returns as a result of leveraging ClearCube's technology. As businesses turn to new PC technologies to improve their infrastructures, IDC believes it is critical to evaluate these technologies on their ability to not only meet critical business needs but also reduce the overall costs in servicing these technologies while improving the ability of users to leverage greater productivity from them.

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