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I D C E X E C U T I V E B R I E F

Thin Clients: Selecting the Right Desktop Strategy for Your Organization

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Adapted from *Worldwide Enterprise Thin Client Forecast and Analysis, 2002-2007: The Rise of Thin Machines* by Bob O'Donnell, IDC #30016

Introduction

Installing thin clients can help many companies gain more for their hardware investments. Personal computers are still the de facto standard for corporate desktops, but increasingly, strategically focused IT departments are looking to alternatives for a competitive advantage.

Enterprise thin clients are diskless desktop devices that function as part of a network, access applications running on a server, and store all of their applications and data on the server. Thin client shipments have been growing slowly, but IDC believes sales will begin to grow more quickly as companies look at how to gain more for their IT dollars. This is also an opportune time to consider clients because many companies currently need to replace large numbers of machines as part of a long-overdue PC refresh cycle. Finally, many companies are adopting thin clients as part of integrated solutions, such as kiosks, carts, or wireless deployments.

Thin clients can offer significant advantages in terms of cost, convenience, and manageability — if properly deployed. These advantages are pushing thin client sales to begin to fulfill their long-predicted growth, as shown in Figure 1.

Thin clients are excellent tools for many users and industries, but they are not ideal in all cases. When looking at a thin client deployment, companies must answer the following questions:

- **Who?** Which employees will use the machines? What is it about their jobs that make thin clients appropriate?
- **Where?** In what types of facilities and locations will these machines be deployed?
- **What?** Which thin client form factors will be the most appropriate to the employees and tasks in question?

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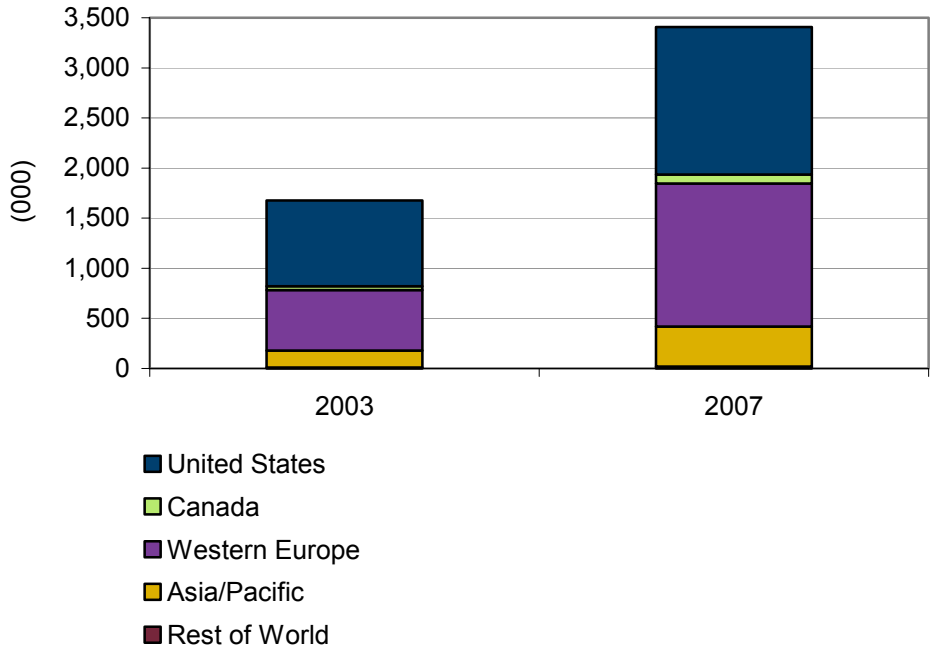
- **How?** What types of networks will be used to connect these machines, and to what back-end infrastructure? Also, companies must consider working with vendors that will help them install thin clients as part of a coherent computing system.

The Advantages of Thin Clients

Personal computing in the corporation is following two seemingly contradictory trends at the moment: mobility and centralization. The former has gained the most attention recently, with the growing popularity of notebook computers, especially among knowledge workers and business travelers.

Figure 1

Worldwide Enterprise Thin Client Shipments by Region, 2003 and 2007



Source: IDC, 2003

However, rather than being competing trends, the rise of notebooks and thin clients instead signals two sides of the same trend: the end of treating all computer users the same. Different users have different needs.

Notebooks make sense for many users, but they are not an ideal one-size-fits-all solution for everyone. While they address mobility

issues, notebooks do not aid in the goal of centralizing computing resources. Many companies are pursuing centralization to standardize computing resources, control costs, and improve security.

Thin clients enable centralization by moving decision-making and data storage from the desktop to the server, where these processes can be better controlled by IT. By combining a centralization strategy with thin clients, companies can take advantage of thin clients' unique benefits in terms of security, manageability, affordability, and reliability.

Thin clients arguably offer the best solution for many types of workers, especially those working in campus- or factory-type environments. Some companies are also using them for branch and home offices as a means to get users up and running quickly, while keeping them well-integrated into the overall corporate computing infrastructure; thin clients are especially prevalent among remote workers in Europe. Finally, some firms are finding thin clients to be the perfect computers for mobile carts and other newer types of workstations.

The contrast between PC notebooks and thin clients is highly relevant to many companies right now because they are finally replacing many older machines. The decisions that companies make now will make huge differences over time, especially since most of the cost of a computer comes not from the original purchase price but in ongoing support and maintenance. Key advantages of thin clients include:

- **Cost.** This is the most commonly cited advantage of thin clients. On a per unit basis, they are generally far less expensive than PCs because of the lack of onboard memory. This, in turn, means that thin clients have few or no moving parts, which makes them inherently less likely to break down. Other savings can come from the centralization of computing power and ease of managing devices. Finally, hardware becomes almost entirely interchangeable; one thin client can be switched for another, with the end-user employee suffering little or no downtime.

- **Manageability and centralization.** Thin clients fit a major trend in corporate computing — centralizing management of computing resources. Because they rely on servers to store information and run programs, thin clients are centralized by default. Rather than working machine by machine, IT staff can manage software upgrades, user authorizations, and corporate IT policy for all thin client users.

- **Security.** One key place in which this centralization strategy plays out is in security. Rather than relying on end users to update their security settings, IT staff can maintain all security software, making sure it is consistent and up-to-date across all thin client users. Furthermore, most thin clients do not have hard drives. This means that they cannot act as a haven for viruses or

as a means of losing important intellectual property, as often happens when notebook computers are stolen. Finally, because thin clients do not function without a centralized server, they are less of a target for thieves.

- **Reliability.** Thin clients can increase reliability in a number of ways. For one thing, users are no longer susceptible to the well-known vagaries of end-users operating systems and the "blue screen of death." Given the strides that have been made in ensuring network uptime, this is generally the more reliable option.

From the perspective of end users, thin clients can offer:

- **Simplicity.** Thin clients liberate users to get their jobs done without having to deal with the unproductive overhead of managing a PC, operating system, and applications. Meanwhile, both machines and interfaces can be designed to be task-oriented, minimizing employee-training needs.

- **Flexibility of access.** Users can work from any location in which a connected thin client is available. This means that users can log on from any thin client within a network and have access to their own applications and information. Multiple users can share the same machine, enabling mobile workers and people employed on different shifts.

- **Upgrades.** Thin clients can help free users from ongoing PC upgrade cycles. By centralizing software upgrades, companies can give users access to the computing power they need.

Who Are Prime Candidates for Using Thin Clients?

Thin clients work well for numerous types of industries and employees. The common denominators are users and departments that have a need for a stable environment and a company that has need for reliability, cost control, and security. It is sometimes easier to define who is not a good candidate: someone who travels and someone with the need for power graphics and those who have to load their own applications. Key vertical industry users of thin clients include:

- **Healthcare.** Healthcare facilities, such as hospitals, feature large numbers of workers who are mobile within a defined workspace and must often share working environments such as nurse's stations and exam room terminals. These workers must also access and input large amounts of constantly changing information. Such environments are also often quite insecure, with patients and visitors moving around, making the lower theft potential of thin clients attractive. Many healthcare institutions are installing thin clients on mobile medical carts and connecting them with wireless networks. Finally, healthcare institutions are looking to centralize control of computing in order to comply with HIPAA regulations.

- **Retail/wholesale.** Thin clients are the system of choice for kiosks. Plus, the ability of workers to share multiple machines while accessing information for transactions is a key factor in warehousing and point of service (POS) environments.

- **Manufacturing.** Like the other workspaces mentioned above, manufacturing concerns feature very large facilities. Many workers, especially supervisors, need to move around in these factories in ways that make PCs inconvenient. By installing thin clients at various key locations, companies can allow these workers to have all the computing access they need. Furthermore, many companies are opening new factories overseas and thin clients can offer a way to connect these facilities quickly.

- **Other industries.** Obviously, this list could go on. Other prime users include industries that share these needs for security, shared workspaces, and mobility within defined work areas. These include education, financial services, transportation, and hospitality.

This, of course, is only a partial list of the industries and job functions in which thin clients are appropriate. All of these examples share certain characteristics that companies can use in order to evaluate their own employees and computing needs to determine if and how thin clients may be deployed. Important factors include:

- **Particular job functions.** Thin clients can offer an ideal solution for employees in administrative, data entry, and call center functions, whose main job involves information input or access to a centralized database. By centralizing updates and data storage, thin clients help eliminate versioning problems that may crop up with PCs. Thin clients can also be useful in a full-scale data warehousing facility, in which employees may need to access information from different locations.

- **Shared workspaces.** Do the employees in question typically have their own private workspaces, and if so, is this a necessary condition of doing their jobs? Thin clients can allow for companies to buy a smaller number of overall machines and to utilize the same workspaces across multiple shifts.

- **Mobility.** Must workers move around within a defined workspace? Can this workspace be equipped with a wired or wireless network? Factories, hospitals, and warehouses are key examples of these types of workspaces, but offices and campuses often share these characteristics. In many such large workspaces, networks of PCs are not feasible, affordable, or necessary.

Types of Thin Clients

Once a company has decided to invest in thin clients, and has determined which workers and uses they will address, they must answer questions surrounding form factors and software.

Form Factor

Thin clients come in two main forms: standalone and wireless. Standalone machines dominate. Such systems can allow companies to use displays they may already have in stock. Machines with built-in monitors can offer ease of deployment, but may detract from the modularity advantage of thin clients. There are also new, more powerful types of thin clients coming on the market that offer some onboard memory, along with faster processing.

Meanwhile, wireless is becoming an increasingly popular means of linking together thin clients, and can allow individual machines to be mobile within a defined workspace. While wireless is not a form factor per se, wireless capabilities can affect how thin clients are deployed. For instance, they can be mounted on carts within a hospital or other environment.

Software

Companies also have choices in terms of which type of software they deploy to power thin clients. While most end users will not care what type of software they are using, being able to choose from a variety of software systems to power thin clients can help companies make sure their thin clients are cost effective and better integrated with the overall enterprise computing environment. The leading software choices for powering thin clients include:

- **Windows (XP Embedded, NT Embedded, CE).** While the overall Windows mix will increase slightly, to 73% of the total in 2007, a larger potion of that will be Windows XP Embedded, which offers a more-PC like experience but also generally demands some flash memory installation. The Windows CE portion will shrink. As prices decrease and performance increases for flash memory, XP will become more attractive to many users. IDC predicts Windows CE to command 50.1% share in 2007 and XP Embedded to take 22.9%.

- **Linux.** The low cost and high network-related reliability make Linux an attracted system for running thin clients in many companies. Such Linux-based systems can also be very useful in Unix-based environments, particularly when users must access large Unix-based databases.

- **Custom/other.** There have been many different operating systems deployed and developed to run thin clients. The most successful and widespread of these have generally been Unix-based. However, this segment will shrink significantly over the coming years.

Considerations

Thin clients are not the ideal choice for workers who rely on very complex applications or who travel outside of an office environment. For the various types of business travelers, notebook computers or specialized handhelds are probably more appropriate solutions. Meanwhile, some workers require large amounts of onboard memory to store and run powerful applications and datasets. Examples include engineers, scientists, and many classes of knowledge workers.

Many companies may also feel safer following the prevailing wisdom of the moment — that is, outfitting all users with laptops. Thin client awareness is growing, but still lags in some companies and sectors. Meanwhile PC prices are falling. This may make PCs seem more attractive, even though thin clients are still more cost effective for many companies and uses. The solution to this problem is for companies to look at the specific computing needs of each user. Many users don't need PCs, let alone notebooks.

Finally, transitional issues need to be addressed. In most cases, companies will be moving users from PCs to thin clients. This brings up issues such as reconfiguring servers to handle the full range of applications and data needed by thin clients. These greater demands, compared to the server needs of PCs, will probably require the purchase of new servers. It may also require retraining staff and redeploying them to more strategic business/IT alignment initiatives.

Conclusion

Thin clients can offer significant advantages when properly deployed. While cost has been the major factor touted by many thin client proponents, these machines can also improve security, manageability, and simplicity. Furthermore, thin clients can offer "hidden" benefits, such as allowing IT departments the ability to codify and enforce IT best practices and liberate their staff to work on more strategic business/IT alignment initiatives. The networked, centralized nature of these devices helps solve common problems around security, backup, and other pressing IT issues.