Global Headquarters: 5 Speen Street Framingham, MA 01701 USA P.508.872.8200 F.508.935.4015 www.idc.com

IDC EXECUTIVE BRIEF

Thin Clients: A Cost-Effective Way to Improve Security

January 2004

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

Introduction

Enterprise thin clients can offer organizations an opportunity to achieve two seemingly contradictory goals: improving security while lowering IT costs.

Thin clients are diskless desktop devices that rely on a centralized server for their computing power. In contrast with a typical PC that may download applications via a client/server environment, thin clients are fully dependent on servers: all data and applications are stored on servers.

These systems have been touted for years as a low-cost means of enabling certain sectors of employees to work more effectively and efficiently. Thin clients have enjoyed strong annual growth but have yet to catch on in large numbers. However, IDC foresees accelerated growth for thin clients. Shipments will increase from 1.3 million worldwide in 2002 to 3.4 million in 2007, with compound annual growth rates (CAGRs) of 22.8% for units and 12.2% for revenue between 2003 and 2007. During this period, sales will double in the United States and more than triple in Europe and Asia.

This growth will be largely based on the ability of thin clients to help guarantee security by plugging many of the security holes created by PCs: user error, viruses residing on hard drives, and nonstandard security features across different machines. Because thin clients by definition centralize computing processes and decision making, they make it easier for IT departments to control security standards. Employees worry less about making mistakes that could compromise security. Thin clients even carry a lower risk of theft because they are useless when disconnected from the network.

Enterprise thin clients also provide financial advantages. Some of these relate to the hardware itself, with a lower acquisition cost per machine and lower overall maintenance costs. Central control also provides financial advantages by helping maintain standardization and lowering the cost of software updates.

25050-001 4010EB334

The combination of security and price is driving the popularity of thin clients in security-conscious organizations. Meanwhile, improvements in related server-centric technologies have made thin clients viable to a wider variety of users. Important upgrades include a more PC-like experience, Web services, and wireless networks.

Improving Security with Thin Clients

When backed up by robust network security, thin clients provide security advantages via three avenues: increased centralization, changes in how the user interacts with the machine, and the nature of the hardware itself.

Centralization

The key security improvements from thin clients come via centralization. When security procedures are administered centrally, companies can achieve improvements around:

- **Updates.** Organizations can more easily make sure they have the latest security features on every desktop. Keeping up with what software resides on hundreds of individual hard drives is a complex task. Many security problems occur when machines are attacked by viruses or other elements for which there are already well-known defenses. Many companies rely on users to install bug fixes sent by IT. This approach can result in unprotected PCs and an overall lack of continuity among the security software installed on different machines.

- **Monitoring and automation.** In the PC client/server world, IT departments strive to have a full view of the security environment, with an eye on spotting and handling virus infections, security issues, and other problems the moment they happen. Another goal is to automate security tasks as a way to save money and improve response times. Thin clients allow IT to more easily set up these security procedures across all user machines.

- **Network security.** Thin clients allow companies to deal with all security as *network* security, with less worry about the desktop environment. Viruses are typically unable to reside on these solid-state machines. In the PC world, networks can be repeatedly reinfected by viruses that lurk on employee hard drives.

User Interaction

Many security breaches come through user error — accidentally sending sensitive email, opening spam, and visiting unauthorized Web sites. Thin clients allow organizations to better control these activities. For instance, content management tools can be easily applied to all thin client users. Central backup and control of data can help ensure that employees do not make common mistakes that can allow intrusions or cause data loss.

Hardware Differences

Thin clients are generally not worth stealing because they do not function when disconnected from a central server. Furthermore, they do not have hard drives that can hold sensitive data.

These features contrast sharply with the value proposition of notebook computers, which are the fastest-growing end-user computer type in corporations. Notebooks take a sensitive hard drive and make it mobile and thus easy to steal and hard to recover. While notebooks are ideal for certain groups of users — mainly those for whom mobility is a top priority — companies should be careful about getting on the bandwagon to a full changeover to notebooks. Thin clients can be ideal for many workers and, in the era of wireless networks, are not necessarily an impediment to mobility within a workplace.

Saving Money with Thin Clients

Thin clients help companies save money in three key ways: lower costs per machine, better manageability, and reduced personnel costs.

Lower Costs per Machine

When thin clients first came out several years ago, some vendors tried to sell them using the argument that they cost far less than PCs. Indeed, thin clients do cost far less on average than PCs, but they also come with fewer components and little or no memory.

The real savings come over time in total cost of ownership (TCO). This includes not only original sales price but, more significantly, lower maintenance costs. Because thin clients have fewer parts, and often no moving parts, they generate less heat. Therefore, they are less likely to break down.

Thin clients are also generally faster and easier to set up than PCs, even for untrained users in remote offices. Furthermore, systems are entirely interchangeable. A very large part of the cost of replacing PCs is replicating the hard drive so that users can keep their files and applications. With thin clients, users are associated with a collection of data and applications on a central server that can be accessed from any thin client. If the machine on their desk breaks, they can be up and working as quickly as a new one can be plugged in. This capability helps avoid one of the biggest costs in corporate computing: user downtime.

Manageability

As noted above, thin clients allow centralized control and upgrades of software. While this manageability is especially important for security software, it is relevant for all types of software. Software upgrades can be costly, and problems caused by different employees using different versions of software can be even worse. Thin clients avoid both of these problems while reducing overall complexity.

Personnel Costs

Thin clients generally involve far less attention from IT. All computing and software problems are handled remotely, at the server level. This approach allows fewer IT staff to manage more machines across a larger geographical area. Because thin clients break down less frequently than PCs, IT staffs make far fewer trips to actual machines. Hardware problems can be managed by swapping out machines and then fixing the thin client at the central IT location or shipping it back to the manufacturer.

Other Drivers for Thin Clients

Thin clients are becoming more viable due to several related improvements, including:

- **Wireless networks**, especially wireless LANs (WLANs). These devices allow IT staff to set up wireless-enabled thin clients anywhere within a coverage area and even give users some mobility. Unlike notebook PCs, these devices become useless when taken out of the coverage area.

- **Web services.** This term describes a means for allowing diverse machines and applications to share information via soft integration; by using open technology standards, incompatible applications can communicate without any changes to underlying code. The adoption of Web services has left many more companies open to Web-centric computing environments. Integrating thin clients into such environments is generally easier than integrating them into more traditional PC-based environments.

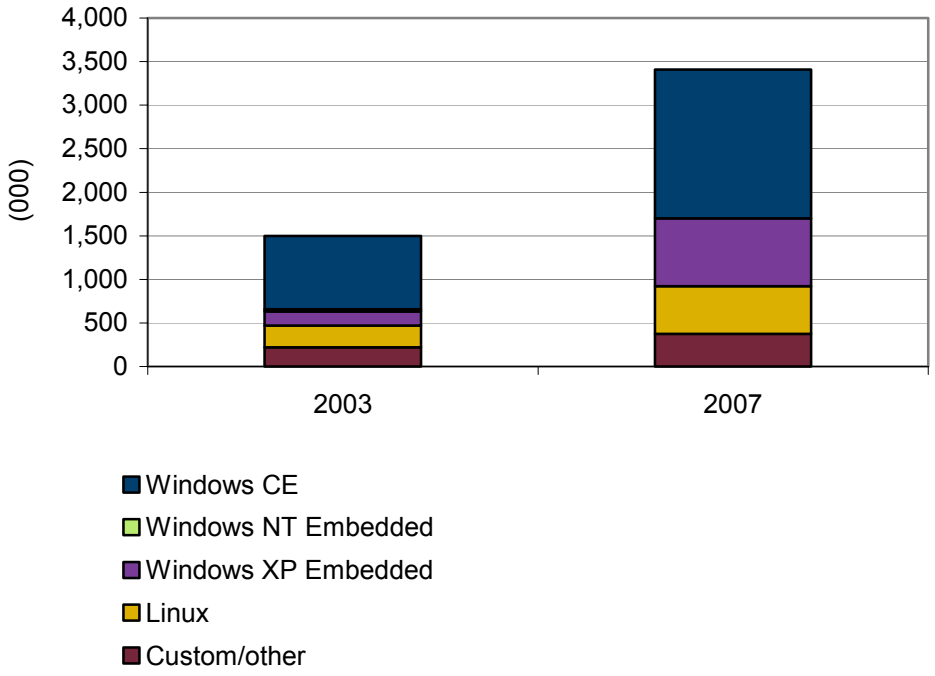
- **New form factors.** New devices will appear in the next year that open up more segments of the total potential market. These devices will include models that have at least some onboard memory.

- **New privacy laws.** The need for companies to protect user data and privacy is forcing many organizations to seek greater control over their computing environments. This is especially true in healthcare and financial services. Thin clients allow these organizations to institutionalize this control.

- **OS standardization.** Windows (CE and XP Embedded) and Linux are becoming standard OSes for many thin clients, lowering technology confusion and improving security. Such environments come with graphical user interfaces that are familiar to most computer users. This trend toward standardization is illustrated in Figure 1.

Figure 1

Worldwide Enterprise Thin Client Shipments by Operating System, 2003 and 2007



Source: IDC, 2004

Considerations

One of the most important considerations for companies evaluating thin clients is to match the appropriate access device with employees' needs. Thin clients are great resources for employees who have standard computing needs such as email, shared applications, data entry, and word processing. Key segments include manufacturing, retail, and healthcare. For instance, healthcare workers can use thin clients placed in strategic parts of a hospital to load updates on patients. Given that such workers must move around constantly, they can log in from any thin client and get their own specific work environment via the server.

However, thin clients are not generally the best choice for knowledge workers, engineers, and others who need the graphics bandwidth of a PC and the ability to load their own applications. Furthermore, business travelers will continue to need notebook computers.

Thin clients may also prove a difficult sell to top management in certain organizations. Many executives and even IT people know little about thin clients. For example, in a recent survey of IT managers conducted by IDC's European PC hardware analysts, nearly 30% of respondents had either never heard of thin clients or didn't know what a thin client is. While this means that more than

two-thirds of respondents knew what thin clients are, some still carried old prejudices about these devices.

Thin clients also go against the prevailing wisdom of the moment, which is to outfit nearly everyone in an organization with a notebook PC. While many companies are moving toward a more segmented understanding of computer resources for different individuals, the down economy is preventing many companies from engaging in radical changes in IT philosophy — even those that could save them large amounts of money.

Conclusion

A particular technology can no longer continue to provide a large competitive advantage if it has become ubiquitous. Client/server-based PC networks have reached that level of ubiquity.

Thin clients can provide an alternative that allows companies to maintain the same — or even higher — levels of computing power and security for a lower overall cost. For certain departments and users, thin clients provide an excellent opportunity to save money while improving security. Many of the security problems that are the hardest to fix in the PC-centric world become far less worrisome in a thin client environment. Meanwhile, thin clients work well with the current trend of organizations trying to exercise central control to improve security, privacy, and efficiency.

For organizations that would like to install thin clients, the first task is to determine who within the organization would use them and how. If the project must be sold to management or IT, it is best to emphasize how thin clients allow companies to achieve the seemingly mutually exclusive goals of saving money while improving security. Companies should also look toward complementary technologies, such as wireless, that have made thin clients more powerful. Finally, companies should look at thin clients and centralized IT as a way to deliver a strategic advantage to their organizations.