

Thin Clients: Solving Business Problems at the Point of Data Access

Today information technology solutions are being driven by two key forces: the desire to centralize IT infrastructure for easier security and information management; and the need to create an agile, effective enterprise by giving users access to applications and data at the network edge, when and where they need it.

This Executive Brief explores the convergence of these trends in thin client computing, a centralized architecture for creating secure, reliable and cost-effective solutions in a variety of situations and industries.

THE CHALLENGE OF SECURITY AND COMPLIANCE

What's keeping information technology executives awake at night? According to a survey of executives in North America by market research firm International Data Corp., the top concern is security. It's deemed more important than even cost containment and cost reduction. And no wonder. Enterprises today face an increasing diversity of threats to their information infrastructure, at a time when business success directly hinges on the resilience of that infrastructure.

Malware such as viruses, worms and Trojan horses can cause devastating financial consequences. In June 2004, mi2g raised its estimate of the probability of a catastrophic global malware attack with damage surpassing \$100 billion from 2.5 percent to 30 percent.¹ Computer and data theft also pose serious threats. According to the 2003 BSI Computer Theft Survey, nearly half of respondents experienced computer theft or worked for an organization that had. Thieves were rarely caught and the value of the stolen data averaged more than \$690,000 per system.² Government regulations, such as the Sarbanes-Oxley Act and the Health Insurance Portability and Accountability Act, add a new dimension to the risks. Now corporations can incur steep fines or even criminal prosecution for failing to secure customer data and other information needed for financial audits or lawsuits.

IDC projects that spending on security and business continuity will grow twice as fast as total IT spending over the



next several years, reaching more than \$116 billion by 2007.³ Most of this money will go toward securing what is the collective Achilles heel of most organizations—unprotected desktop, telecommuter and road warrior PCs and notebooks.

Security has always involved protecting the network's gateway to the Internet, but today's attacks often proliferate via unprotected PCs. Unless all network endpoints—uncooperative users and all—are kept current with the latest anti-virus, spyware and operating system patches, the enterprise is at risk. Even if all systems were somehow kept up-to-date, application-level attacks for which patches have yet to be released could infect thousands of networks in a matter of hours or even minutes.

For many enterprises—especially those with sensitive security profiles—desktop and notebook security management can be overwhelming. Add to this the management and support burden inherent in the PC life cycle, and you have a costly and risky problem that will only worsen as access devices proliferate.

THIN CLIENTS: THE BETTER MOUSETRAP

There is a better solution. Imagine an IT infrastructure based on centralized applications and data, where only the centralized assets and the network gateway would need to be protected, monitored and managed. Such centralization would reduce security risk. And since it is far easier to monitor and control a centralized infrastructure than a distributed one, this would set companies on the right path toward regulatory compliance. The pluses of this approach have led IDC to name “a return to centralized applications that are cost-effectively provisioned, administered and managed through their life cycle”⁴ one of the major shifts in information technology today. Indeed, most enterprises would benefit from centralizing some aspects of their infrastructure now, rather than waiting until security threats or government mandates force the issue.

If centralization brings to mind the green screens of the mainframe era, think again. A powerful alternative is available in thin client, server-based computing. A server-based architecture delivers centralized applications and data that are far easier to secure and manage than distributed, client-server computing. Thin client users enjoy reliable, PC-like access to their applications and data at the network edge—when and where they need it—whether in the office or at a point of data access, such as a healthcare worker accessing records at a patient's bedside.

Thin clients are diskless devices that are connected to a server-based computing environment. In such a network, users enjoy the same productivity and application flexibility as PC users. But instead of running locally on PCs, applications run and the data is stored on secure and managed servers. Housed in a secure data center, the servers enable multiuser access to the full gamut of applications. Because all processing and storage occur on the server, only mouse movements, keystrokes and screen updates traverse

the network—not the company's precious data.

Because they are diskless and run only a lightweight operating system stored in flash memory, thin clients are simpler for IT staff to manage and secure than PCs. And users freed from operating complex software require less training, so they can be more productive—no “blue screen of death” with which to contend. With fewer moving parts, thin clients are more reliable than PCs, lessening break-fix scenarios and maximizing uptime. In addition, wireless thin clients provide secure, mobile access to applications and data. Both wireless and wired thin clients are available in a variety of form factors to support diverse applications and user needs.

CENTRALIZED SECURITY AND INFORMATION MANAGEMENT

From the IT administrator's perspective, the greatest advantage of thin client computing lies in centralized security and information management. Only the data center needs to be fortified, not each individual desktop. The “locked down” configuration of thin clients, with no floppy drives, extraneous peripherals or software downloads, plugs security holes inherent in PCs.

Being diskless, a stolen or lost thin client poses no security threat. Centralized systems also help enterprises recover more quickly from natural disasters and viral attacks. Business continuity solutions, such as failover systems and mirrored sites, are easier to implement in a centralized environment. In the event of a disaster that prevents employees from coming to work, server-centric computing facilitates application access from home.

Software administration and user support are also easier. Thin client management software has evolved so that large and complex infrastructures can be managed from a single console. Software updates and patches are performed centrally, as easy as downloading the updates on a central server and upgrading thousands of thin clients in minutes. Managed from the server, client deployment consists of plugging thin clients into the network and turning them on. Hot-spares can be kept locally or shipped to end users in the event of failure. And terminals can be automatically entered into their correct logical groups, making identification and subsequent management easier.

As a result, thin client, server-based computing can greatly reduce the burden on IT staff and lower total cost of ownership. Compared with PC-based environments, thin client computing has enabled fewer IT support staff to operate higher numbers of desktops. IT staff reductions of 50 percent are typical, says Bloor Research, rising as high as 75 percent in some deployments.⁵ With support tasks simplified, staff is free to focus on the business, rather than putting out fires.

Where should enterprises consider deploying thin clients? Any organization or department seeking a secure, stable and cost-effective environment may benefit. They are especially well suited for situations where users spend much of the day

¹mi2G Intelligence Unit

²Brigadoon Software, 2003 BSI Computer Theft Survey

³“2003 Enterprise Security Survey,” IDC

⁴“Linux and Open Source Software as a Desktop Platform,” IDC, May 2004

⁵“Thin Client Benefits in Practice,” Bloor Research, September 2003

accessing office productivity suites, browser-based applications such as ERP or CRM, or any task-oriented application. In short, thin clients can effectively replace PCs in a variety of fixed and mobile applications—on the corporate desktop, in call centers, in healthcare, at retail, in public places such as airports, in financial institutions, in government, in warehouses and on the factory floor.

THIN CLIENTS AT THE POINT OF CARE

Healthcare provides an excellent example of an environment that may benefit from thin client usage. Here, thin clients are being used to improve both the quality of patient care and IT operations. Driven by regulations such as HIPAA and the need for operational efficiency, healthcare organizations are moving to electronic patient health records (EHR), and thin clients offer reliable, secure access. Thin clients are often installed in hospital rooms and other common areas, but they really shine in mobile applications when wirelessly equipped and mounted on mobile medical carts.

According to the Mobile Healthcare Alliance (MoHCA), mobile healthcare can enhance the quality of care by allowing decisions to be made in real time from varying places. It does this by providing timely, secure, patient-specific information, as well as decision-support information—“what physicians and nurses want, when they want it.”⁶

Thin clients mounted on rolling medical carts deliver convenient access to EHR, medication information, and doctor schedules directly at the point of care, anywhere the wireless network reaches. This is far more efficient than manual methods and PC-based solutions. Since centralized records are always updated on the server in real time, any change is immediately available to anyone authorized to access the data. Thus clinicians are always working with the latest patient information.

These quality-of-care and efficiency benefits are more than matched by the advantages to IT administrators, who must ensure that systems comply with HIPAA's security and privacy regulations. Through centralization, thin clients make it easy to

CASE STUDY:

THIN CLIENTS GIVE JW MARRIOTT HOTEL AN EDGE

At the JW Marriott luxury hotel in Miami, guest rooms are equipped with every amenity—including high-speed Internet access and thin clients that provide an instant connection at the push of a button. Fulfilling the hotel's requirements for foolproof, maintenance-free computing, thin clients' intuitive design makes them easier for guests to use than connecting their own equipment to the available data jack. So far guests have offered nothing but compliments with regard to the in-room Internet access.

MDM Technical Solutions, the hotel's in-house IT provider, keeps the thin clients current using centralized management software. It enables the IT staff to upgrade thin clients by “flashing” the read-only memory, and to test configurations and manage inventory without distributing guests or visiting hotel rooms and meeting areas.

Other options, such as television-based Internet access, do not provide the experience expected by the hotel's upscale clientele. “The thin client terminals have a good screen image for email,” says Nicholas Corrachano, vice president of information technology, MDM Hotel Group. Ltd. “The response time on the terminals is very fast and the speed is better than other options.”

As the hotel group plans new residential and office developments in the Miami area, it is considering server-centric computing as an upscale amenity. Technology groups have chosen the JW Marriott Hotel for meetings and accommodations because of the high quality and pervasive technology access.

physically secure patient data in line with HIPAA requirements. Users can only run the server-based applications that administrators have allowed them to access. Being diskless, thin clients make it nearly impossible to pilfer data from the system. And their freedom from viruses and other malware further aids in HIPAA compliance. Server-based computing also helps administrators stay current with ongoing changes to the HIPAA regulation. If a new security patch must be applied to an office application, for instance, only the server need be patched, instead of the nightmare of patching and testing each individual PC.

Of course, an unauthorized user could attempt to access patient information from a thin client, but it is unlikely they would succeed. Thin clients offer solid features for user identification and authorization as might be required by HIPAA, including support for secure keyboards, smart cards, biometric readers, digital signatures, and more. Such solutions offer secure access to authorized users while enforcing security policies and the privacy of patient information.

AT THE POINT OF SALE

Reliable, secure access at the point of service/point of sale has

led thin clients to make inroads into the retail industry, where they are being used as desktop replacements, on countertops, in warehouses and on the retail floor. Specialized self-service applications such as electronic kiosks offer significant business benefits.

Kiosks based on thin clients can provide bridal and gift registry searches, Web-site promotion and product information, way-finding and product locator services, and interactive point-of-purchase displays. As a result, customers can serve themselves while the staff focuses on the personal touch or engages in other profitable activities. Benefits include higher productivity, lower costs and improved store operations. Employment kiosks are another promising application: kiosks at each store can collect information from job applicants, then sort and send details to HR personnel, who can be located anywhere on the network.

Multi-store retailers with many sites to manage and limited IT resources appreciate the centralization of server-based computing. Attach-and-go capabilities allow automatic device configuration and software deployment; once deployed, thin clients are highly reliable and can be supported and managed remotely, lowering the burden on IT staff. And wireless mobility helps retailers capitalize on retail promotions and changing business conditions. Wireless thin clients can be moved where the action is—into a busy department where a promotion is occurring and other places where wired workstations are impractical.

IN HOSPITALITY

It is rare in the hospitality industry to find a technology that can deliver new services to guests while simultaneously improving back-office processes and lowering costs. But that is happening now with thin clients, which are being deployed in hotel rooms and business centers to meet the computing needs of today's travelers. By providing a secure and reliable solution that is easy to manage, thin clients deliver a profitable service that eliminates the need for guests to carry their notebook computers.

Hotel managers have long considered installing PCs in hotel rooms, only to be deterred by the possibility of theft, security breaches and high maintenance costs. But due to their inherent resistance to viruses and theft, thin clients provide a needed layer of security for keeping data and applications safe. And busy IT staff appreciates centralized device management, instead of having to visit each room to service and update individual PCs.

The reliability and low acquisition costs of thin clients allow for tremendous savings, leading to a potential return on invest-

CASE STUDY:

THIN CLIENTS AID ENTERPRISE AGILITY AT SHOPKO

When ShopKo Stores, a Fortune 500 company headquartered in Green Bay, Wisc., decided to upgrade email software in 141 stores, it sought a solution that could be implemented without interrupting service. The solution also needed to offer access to both Windows-based applications and terminal emulation to support local and mainframe programs. The answer was thin client computing.

The standardized thin clients give ShopKo's employees one device with multiple functions and offer the company more flexibility in equipment inventory. Now, devices can be moved easily from one store to another, and new thin clients may be added without disruption of services or extensive setup, making the infrastructure more responsive and agile. And store employees have made the transition with little training.

"The feedback has been very positive," says Lana Delsart, project manager at ShopKo. "The store employees can run legacy mainframe applications on the same device as in-store applications, plus they now have the Microsoft Office suite of applications."

By deploying more than 1,000 thin clients, ShopKo should save a considerable sum. Thin clients are expected to cost \$1,000 less per device per year than PCs, mainly because the expense of hardware upgrades, software changes, support and administration for PCs far exceeds the cost of the thin client solution.

For ShopKo, the transition to thin-client computing is an evolutionary step into the future. The company knows that systems software is moving toward browser-based and centrally served applications. With its new infrastructure, ShopKo can quickly deploy innovative enterprise software solutions without costly hardware upgrades.

applications and data at the point of sale/point of service. Thin client computing addresses these challenges by delivering reliable, secure access in a centralized, cost-effective architecture that is easier to secure and manage than PC-based computing. Every IT and business executive should explore its potential to improve their business and technology operations.

ment of 300 to 800 percent every year, according to industry sources. Thin client technology allows hotels to focus on the important things—like serving guests.

FOR OCCASIONAL USERS

Ease of use, security and reliability make thin clients practical for occasional users who don't have their own computers. In factories and warehouses, and in any business with multiple shifts or high turnover, thin clients are ideal for occasional or shared use. By logging onto any shared workstation, workers can check HR benefits, surf the Web or send and receive e-mail.

With no moving parts such as fans and disk drives to break down, thin clients are more reliable than PCs—well suited to harsh industrial environments such as factories, warehouses and loading docks. And the thin client operating environment is easy to use compared with the typical PC, so even occasional users require little training. Multiple users can share the same thin clients by logging on using their unique security identifications, and wireless mobility allows deployment wherever the wireless network reaches.

CONCLUSION

Enterprises today are struggling to reconcile two key challenges: How to secure the IT infrastructure and information assets while creating an agile, effective enterprise by providing access to

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