

## Thin clients

### **> Benefits and savings of using thin clients**

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This whitepaper describes the advantages of using thin clients as opposed to PCs (fat clients), and demonstrates how thin clients can produce significant cost savings both initially and over time. A formula is explained that allows you to quickly calculate the savings that your enterprise could make using thin client computing.

## ➤ Introduction

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Thin client computing is booming and not without reason: It's solving the growing management problem of PCs (fat clients), and is introducing huge savings on support, hardware and upgrade costs. Furthermore, it is allowing employees to telework/roam more easily. Various enterprises which have made the switch are reaping the benefits, reporting huge cost savings, as well increases in reliability and productivity.

Thin clients are proven to be more reliable and easier to manage than PCs (fat clients). They rely on the principles of server-based computing (SBC) - a technology whereby applications are deployed, managed, supported and executed on the server and not on the client - solving the many fundamental problems associated with managing the applications on the client itself.

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## ➤ What are thin clients?

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A thin client is a general term for a device that relies on a server to operate. It provides a display device, keyboard and mouse and basic processing power in order to interact with the server. A thin client device contains no moving parts such as fans or hard drives (in the case of a dedicated thin client device). It does not store any of the data locally – it is very thin in features and functionality – hence the term 'thin client'.

A thin client often does not contain local storage and requires little processing resources. Thin client hardware can be a converted old PC, a new dedicated thin client device or simply a new low cost PC with a thin client OS installed.

Thin clients present a user with the same look and feel of a traditional desktop and can run any software – Windows, Linux, UNIX, Mainframe, Java, etc. – allowing for easy integration with the existing IT solution.

## ➤ What are the benefits of using thin clients?

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The most compelling advantage of using thin clients is to cost cuts. A study conducted by Bloor Research (<http://www.bloor-research.com/>) shows that “Deploying thin client technology across enterprises can cut costs by up to 70%” ([http://www.2x.com/whitepapers/Thin\\_Client\\_Benefits\\_in\\_Practice\\_English\\_Version.pdf](http://www.2x.com/whitepapers/Thin_Client_Benefits_in_Practice_English_Version.pdf))

In a study entitled “Thin-Client vs. Fat-Client TCO” Gartner concluded that "Thin client deployment also offers a quick return on investment (ROI) with a payback period of three months for thin clients."

However, Server Based Computing offers many other benefits beyond simply saving costs:

**Worldwide access to work files and enterprise applications** - Thin client computing enables increased productivity by allowing workers to work from anywhere in the world. This is crucial as in 2007 more than 60 million people will be telecommuting while 5 million office jobs will be assigned to branch locations, according to the IT analyst group, Gartner Inc. Employees can access their personal desktop from a fat client or notebook, making it easy to telework from home or while on the road. With this system, supporting a mobile workforce simply involves updating the application software on the servers. Workers are guaranteed secure and instant access to enterprise applications and personal data, from any device and over any network speed.

**Reduced administration and end user support** - Thin clients are far simpler to manage since the thin client OS is deployed centrally and only includes a remote terminal client. Having a single point of administration reduces overall administration costs and saves on maintenance time. Administrators can perform upgrades, deploy patches, applications and virus updates solely on the terminal servers for thousands of users, without having to visit the individual workstations.

**Adding or replacing thin clients is far easier** - In a server based computing environment, adding desktops for new recruits can be done in a matter of minutes. Also, should a thin client device fail, the desktop can be restored in minutes simply by replacing the thin client device (they are so cheap you can have a number of them in your store for emergency).

**Increased reliability: Longer MTBF** - Thin client devices don't have moving parts or fans, and therefore have a MTBF (mean time before failure) which is far longer than a normal PC. Gartner, Inc., reports the average thin client MTBF is about 175,000 hours, compared to 25,000 hours for PCs.

**Increased security: Less risk of viruses** - A server operating system is proven to be more secure than a desktop OS. Thin clients do away with hard drives and floppy drives and administrators can restrict the access to USB sticks and CD ROMS. This in turn prevents users from loading foreign applications onto the devices, thus increasing security levels and virtually eliminating viruses. It is also a secure approach for home working, as no corporate data is downloaded to virus prone home computers.

**Lessens the risk of data theft** - Having all data stored on central servers eliminates the risk of important company data falling into the wrong hands should a fat client or notebook be lost or stolen. When working from home, there is also no need for corporate data to be transported between office to home on disks or memory cards.

**Disaster recovery: Data is more secure and easier to backup** - If a terminal fails, important data isn't lost since it is stored on the server. Having a centralized storage system allows for faster and easier backups as well as efficient disaster recovery.

**Lower power consumption: Save on electricity and heat generation** - A thin client device uses only a third of the power a PC uses and generates far less heat and noise, resulting in substantial savings.

**Smaller footprint: Save on space** - Thin client devices are usually smaller than PCs - the size of an external modem or small VCR. Their compact size allows thin clients to be hidden under desktops or even mounted on walls or under desks.

**Easy licensing management and conformance to legal requirements** - Due to the centralization, software licensing becomes far easier to monitor and manage. Only the servers need to be audited, not the thin client itself. Legal conformance with data protection laws such as the UK's Data Protection Act and America's HIPPA is also made easier due to the data being centralized. Protecting personal records and privacy becomes much simpler than with distributed

client/server data. It is also easier and cheaper to respond to any legal questions or cases since potential evidence is centralized.

**Reduce capital expense on computer hardware** - Thin client devices are cheaper to purchase than PCs. You don't need much processing power and you can use the hardware for a longer period of time (on average, 6 years instead of 3 years). You can also choose to extend the lifespan of your current computers by converting them to thin clients (even a Pentium II could make an acceptable thin client!).

## ➤ Environments that could benefit from thin client computing

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- High-security areas where data protection and security are important such as government offices, law firms, etc.
- Public use facilities such as Internet cafes which are virus-prone.
- Environments with a tendency to user tampering such as public libraries and schools.
- Companies that need to integrate different IT environments quickly, for example, when undergoing a merger or purchase.
- Desktops with frequent data and/or application changes.
- Environments which cannot afford desktop downtime such as an airline check-in desk.
- Companies with mobile workers who need access from anywhere.
- Environments with complex software license management.
- Administrative workers and support staff.

## ➤ 2X fat2thin savings calculator – How much can you save?

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Switching to thin client devices presents considerable costs savings. The fashion retailer Armani Exchange reported a 60% reduction in cost when it deployed thin clients in 2005. You can easily find out how much you could save with the 2X Fat2Thin calculator available on [www.2x.com/calculator/fat2thin.htm](http://www.2x.com/calculator/fat2thin.htm).

Simply fill in the number of PCs that you will convert to thin clients (or replace with dedicated with thin client devices). The number of PCs that you will replace by thin clients is represented as an X and the following formula is applied:

$X \times \$1000$	+	$X \times \$208$	-	$X \times 50$	=	<b>TOTAL SAVINGS</b>
Savings on administration* <sup>1</sup>		Savings on hardware* <sup>2</sup>		Extra cost* <sup>3</sup>		

The result shows how much lower the Total Cost of Ownership is of thin client desktops compared to fat client desktops. Following is an explanation as to how these amounts were reached:

### \*1Explanation of savings on administration

These were calculated at \$1000 per PC. Many research studies indicate that the amount is between \$800 and \$1,700 (for example, see [http://h18004.www1.hp.com/products/thinclients/target\\_market.html](http://h18004.www1.hp.com/products/thinclients/target_market.html), [http://www.1st-computer-networks.co.uk/t\\_c\\_computing.html](http://www.1st-computer-networks.co.uk/t_c_computing.html) and <http://www.thinplanet.com/opinion/matrix.asp>) per year. Beyond day-to-day maintenance of installation of patches, software upgrades, etc, there is also the 3 year upgrade cycle which requires an administrator to move all the data and profiles to the new PC. On average this will cost \$300 per PC, making for an additional cost of \$50 per year (over a 6 year period). Since administration is simplified, an enterprise will require fewer IT staff to perform the same number functions. This means lower training costs and fewer salaries to pay. Bloor Research estimates that the number of helpdesk staff needed can be reduced typically by 50% and often by 75%.

### **\*2 Explanation of savings on client hardware**

These were calculated to be \$208 per PC per year. You can get an adequate thin client for \$250, in contrast with the average price for a PC of about \$750 – this results in a saving of \$500. However, because PC hardware has to be upgraded approximately every 3 years as opposed to a thin client which only needs to be replaced every 6 years, the savings increase to \$1250 over a span of 6 years (\$1500 spent on 2 PCs as opposed to \$250 on 1 thin client device). This amount is then divided by 6 to calculate a yearly saving. If you are using existing PCs instead of thin clients, the hardware savings can still be applied because you would be extending the life span of the converted computers. Furthermore, the MTBF of a thin client device is higher and it uses far less energy.

### **\*3 Explanation of extra server hardware costs**

These were calculated at \$50 per user. Because all processing is done on the server, when using thin clients you will need to buy additional servers to act as terminal servers. On average 30 users will need a dual processor server with 4 gigs of RAM and SCSI hard disks. A brand name server should cost around \$4,500 and will depreciate on average in 3 years (in reality you can use them for longer than that).

## **> Conclusion**

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This paper discussed a number of benefits when using thin clients as opposed to PCs (fat clients) and aimed to give an idea of the cost savings attained by making the switch. In a nutshell, thin clients:

- cost less
- are much easier to manage
- are more reliable
- are more secure than PCs.

## **> About 2X ThinClientServer**

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2X ThinClientServer is complete solution for the central deployment, configuration and management of thin clients & user's connection settings. Both PCs (converted 2 thinclients) & thin client devices from any vendor are supported via 2XThinClientOS. Thin client settings (RDP / ICA / NX), screen size, Terminal server type (Windows/Citrix/Linux etc) and name can be controlled centrally by user, group or department (Active Directory/LDAP).

## **> About 2X TerminalServer**

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2X TerminalServer for Linux is a server-based computing solution that provides users with a secure, personal Linux desktop, from anywhere in the world and over any connection speed. With it you can reduce PC administration and make big savings on Microsoft server, client access (CALs) and application (Office) licenses.

## **> About 2X**

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2X Software Ltd - 2X - is a new company developing software for the booming server-based computing market. The thin client market is forecasted to grow at 22.8% each year until 2008 (IDC). The yearly number of thin clients sold will increase from 1.5 million to 3.4 million in 2007.

The company's product line includes a thin client server for Windows and Linux, a terminal server for Linux, application tunneling of Windows and Linux apps and a suite of add-on products for Microsoft Terminal Services. Both products leverage the open source Linux operating system.

2X is a privately held company. Its management team is backed by years of experience in developing and selling network infrastructure software. 2X is a Novell, RedHat and IBM ISV partner. More info available on [www.2x.com](http://www.2x.com).

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