

HP COMPAQ T5000 THIN CLIENT SERIES

Simple, dependable, manageable, and more secure solutions for your business environment



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HP helps you gain a competitive edge and simplify IT management by providing affordable thin clients with enhanced security features and Microsoft® Windows® and Linux operating systems for your server-based or blade PC computing solutions. HP thin clients lead the way with proven business technology for maximum security and lower ownership costs through reliable and consistent products that are easy to buy, deploy, and manage for outstanding investment protection.

EXECUTIVE SUMMARY

More and more organizations are recognizing the benefits of server-based computing (SBC) in conjunction with thin clients. Thin clients deliver a desktop experience in work environments where end users have a well-defined set of tasks, such as general office applications in medical, financial, educational, government, manufacturing, distribution, or call center environments. Above all, they provide you with:

- Fast, convenient access to applications
- Rapid, centralized deployment of new applications
- Controlled, secure environment with no removable media, helping reduce the risk of viruses and product or data theft
- Simplified client architecture and reduced hardware maintenance costs
- Server utilization optimized by load-balancing features that automatically route user sessions to the server with the lightest load
- Improved, simplified manageability that reduces the workload for IT staff
- Enhanced security and backup
- Software from Microsoft and Citrix that delivers an ideal SBC solution

This document helps you evaluate HP's thin client offerings, including key features and benefits. In addition, it offers an overview of SBC and SBC components, and provides sample scenarios showing how thin clients can meet various business needs.

WHAT IS A THIN CLIENT?

A thin client is a computing device without a hard drive, which displays data and applications from remotely located servers, blade PCs, or virtual desktops. There are three major models of thin client computing, discussed on the following pages.

SERVER-BASED COMPUTING MODEL

In the traditional server-based computing model, the thin client runs the user interface and transmits the mouse clicks and keyboard data to a server. User applications run on the server, and the video data is sent back to the client for display. In this computing model, thin clients are typically utilized as part of a Citrix Presentation Server or Microsoft Terminal Services deployment.

Many companies choose server-based computing to centralize application deployment and database information, or to deploy Web portals. Thin clients can also be used to access the Internet through a browser, or to replace older devices commonly referred to as "green screen" terminals. Offering the look and feel of a regular Microsoft Windows PC, thin clients allow businesses to centralize computing power, storage, applications, and data on servers running in a data center.

CONSOLIDATED CLIENT INFRASTRUCTURE (CCI)¹

Thin clients are also an important component of a Consolidated Client Infrastructure (CCI) solution, an entirely new computing model being introduced by HP.

The Consolidated Client Infrastructure (CCI) solution centralizes desktop computing and storage resources into easily managed, highly secure data centers, while providing end users with the convenience and familiarity of a traditional desktop environment. It provides a dynamic workplace solution that may dramatically lower desktop total cost of ownership (TCO) while raising levels of security, service quality, and ease of management. CCI is an example of HP virtualization solutions—solutions that enable an adaptive enterprise where business and IT are synchronized to capitalize on change.

Leveraging combined product and services offerings from HP, CCI is a three-tiered architecture that consists of:

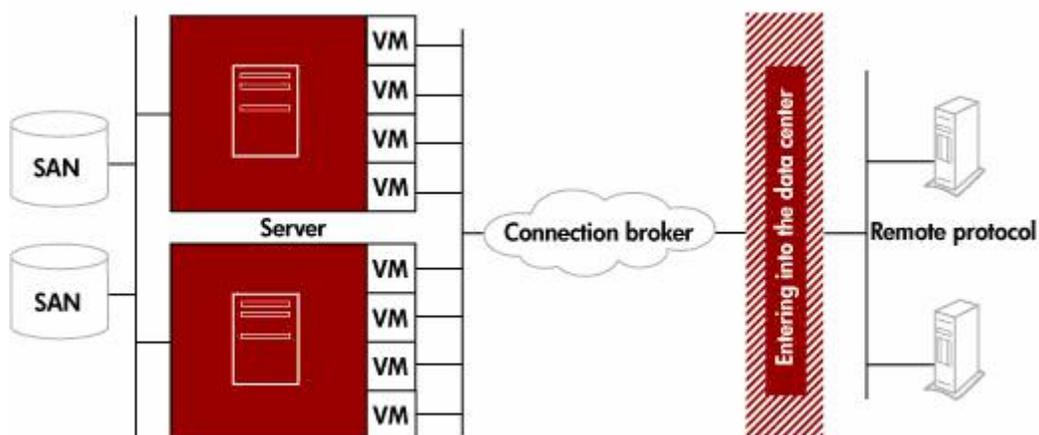
- An access tier using thin clients
- A compute tier with racks of blade PCs inside a data center
- A resource tier made up of a storage pool, network printers, application servers, and other networked resources, also inside the data center

With CCI, end users access their applications and data in a customized environment—just as they do today. The difference is that users work on a thin client and establish a one-to-one connection with dynamically allocated blade PCs and centralized storage. Individual desktop images and data are stored and controlled in an IT infrastructure in the data center.

VIRTUAL DESKTOP INFRASTRUCTURE (VDI)

In HP's Virtual Desktop Infrastructure (VDI) solution, end-user PCs are replaced by HP thin clients, reducing the need for desktop support resources. High reliability servers, either HP BladeSystem or ProLiant, provide the backbone of the solution, with an optional HP SAN or local storage component.

Figure 1. Demonstration of VDI



¹ Not available in all regions.

A remote connection protocol enables the user to retrieve a desktop for use on a local device. The end user connects to a virtual machine to retrieve the desktop, which can be controlled by policies. Connection broker software can be used to ensure service continuity and a customized environment.

The virtualization software layer provides the many-to-one desktop-to-server relationship, and includes HP partners such as VMware, Microsoft Virtual Server (MSVS), and Citrix. VMware and MSVS are virtualization technologies that house guest operating systems and applications in individual virtual machines on the server. Citrix can be used in the traditional terminal services environment, or with their new desktop broker product.

With HP's VDI, end users access their applications and data in a customized environment—just as they do today. The difference is users work on a thin client and establish a many-to-one connection with dynamically allocated blade PCs and centralized storage. Individual desktop images and data are stored and controlled in an IT infrastructure in the data center.

WHAT'S IN A THIN CLIENT?

A basic thin client consists of a processor, flash memory for storing the embedded operating system, local RAM, a network adapter, and standard input/output for the display and other select peripherals. HP thin clients have no moving parts, offering higher reliability than a PC, lower ownership costs, enhanced security, and extended product life. These small, robust devices consume significantly less energy than a desktop PC, emit less heat into your office spaces, have a much smaller footprint than a desktop, and are practically silent.

Thin clients are based on the Microsoft Windows Embedded family of operating systems—which includes Microsoft Windows CE 5.0 and Microsoft Windows XP Embedded—and the Linux operating system. These devices are key components in server-based computing solutions where applications are deployed through the Terminal Services functionality of the Microsoft Windows 2003 Server family, through Citrix Presentation Server, Web-based services, or blade PCs.

Thin clients and power applications

Thin clients are not recommended for some applications, such as those involving workers who need powerful local processing and significant storage. These workers typically include engineers, graphic artists, multimedia developers, and designers.

WHO NEEDS THIN CLIENTS?

Thin clients can meet many business needs:

- Businesses where end users have a well-defined set of tasks, such as general office applications in medical, financial, educational, government, manufacturing, distribution, or call center environments. Users can run a wide range of office software such as Microsoft Word, Excel, and PowerPoint, or unique line-of-business applications.
- Businesses that require a highly available network of computers connected to a centralized server running mission-critical applications can greatly benefit from the reliability of thin clients. Hospitals, insurance agencies, airline reservation centers, and hotels are typical businesses that fall into this category.
- Businesses with departments that carry out highly standardized computing tasks, such as sales or service call centers, data entry departments, or technical support desks, may realize substantial cost savings by deploying thin clients rather than desktop PCs. The computing power and flexibility of a desktop PC are often unnecessary and potentially undesirable in this environment—users may load local applications, reconfigure, or otherwise tamper with the integrity of a desktop PC.
- Educational institutions and similar organizations typically need more computing resources on an ever-shrinking budget. Universities and schools with under-resourced IT departments must keep hundreds or thousands of computers up and running with the latest software, despite supporting multiple users per machine. Thin clients can meet these challenges in two ways: Firstly, with their solid construction and lack of moving parts, thin clients are designed to withstand heavy usage. Secondly, because applications and storage usually reside on the server, the latest versions are always available to every user.
- Businesses using dumb terminals can upgrade to thin clients to offer a more robust platform that can handle e-mail programs (such as Microsoft Outlook 2003) and common business applications (such as Microsoft Word or Excel). The HP Compaq t5000 Thin Client Series offers optional expansion capabilities through an external MultiBay that can accept a hard drive, diskette drive, or CD-ROM drive. Terminal emulation gives thin clients access to legacy database information.
- IT managers at Fortune 1000 businesses which have aggressive cost-cutting agendas are challenged to do more with less on a daily basis. Thin clients typically promote cost savings and simplify IT tasks by allowing network administrators to update software remotely rather than deploy it repeatedly at the desktop. In addition, new thin clients are easy to deploy—often in less than 15 minutes.

HP COMPAQ THIN CLIENTS

This section provides an overview of thin client solutions offered by HP and compares the key features of each. This section also outlines management software supplied with these thin clients.

WHAT'S SPECIAL ABOUT THESE PRODUCTS?

Enhanced security

- **Data security.** No removable media drives or hard drives help prevent data theft or loss, and critical information is stored on network storage, ensuring reliable backup and redundancy. Additionally, when the client logs into a Citrix server or Microsoft Terminal Server for a client session, the data can be encrypted to ensure your session is secure.
- **Stateless capability.** Stateless capability on the HP Compaq t5135 Thin Client enhances security and manageability by eliminating all required settings from the clients and instead storing settings on the server.
- **Virus and worm protection.** Every HP Compaq t5720 Thin Client with XPe ships with HP Sygate Security Agent preinstalled and Windows Embedded SP2. This provides a multilayered security approach that includes an application-centric firewall, application control, intrusion prevention, and

policy enforcement. Sygate locks down the network communication of the thin client to only the required applications and network traffic, helping to ensure that no malicious application can send data to or from the embedded device. All data entering or exiting the unit is analyzed against signatures of known attacks and behavioral patterns of unknown attacks, effectively protecting the thin client. The HP/Sygate solution provides a more secure device and a comprehensive solution to ensure that mission-critical applications and networks are not compromised.

- **Premium security.** Only HP offers the exclusive antivirus and firewall protection of Symantec Embedded Security, an option for the HP Compaq t5720 Thin Client with XPe. You get all the firewall features of the Sygate Security Agent, plus Symantec Embedded Antivirus, which fills the firewall gap by helping guard against data loss from Web browser exploits.

Better system protection

Since thin clients have no removable media disk drives, users are less likely to introduce new software into the system, which means fewer hardware and software conflicts, fewer configuration issues, and reduced threat of viruses. Thin clients typically connect to application servers for operation, reducing the likelihood of product or data theft. A secure USB compartment (on select models) protects valuable USB options like wireless against tampering and theft while providing a more streamlined look. For even more security, some customers may add options such as smart card readers or biometrics to provide an additional, more sophisticated level of user authentication.

Industry-standard components

Users get PC-like performance thanks to industry-standard architecture, discrete BIOS, and a complete Microsoft Windows or Linux embedded operating system. The hardware, BIOS, and image layers used on these models are standard PC technology, already tested by millions of PC users. This means that HP's thin client customers can reap the benefits of already-proven technology while leveraging existing IT skill sets.

- **Support for new Remote Desktop Computing solutions.** Whether you are deploying thin clients with a traditional server based deployment, HP's Consolidated Client Infrastructure, or HP's Virtual Desktop Infrastructure, there is an HP thin client that is right for your environment.
- **More flexibility.** Optional PCI expansion slots on the HP Compaq t5720 and HP Compaq t5725 provide more support for options. USB 2.0 support enables faster data transfer with peripherals.
- **Quick problem resolution.** Problem diagnosis can be much simpler on a thin client than on a standard PC, where the variables are greater.
- **Improved efficiency and reliability.** Solid-state design with no moving parts offers higher reliability than traditional PCs, resulting in fewer maintenance events and less down time. No moving parts also means no audible noise and longer life expectancy. HP thin clients are power-efficient and use much less wattage than a PC.
- **Excellent performance.** The innovative design of the HP Compaq t5000 Thin Client Series includes the highest performing processors available for thin clients today, with leading price/performance in every class, including features such as an internal amplified speaker, 16 MB shared graphics memory, IDE flash memory, and an easy-to-install stand that allows vertical or horizontal positioning for integration into most environments. The cable-free internal design simplifies serviceability and increases reliability.
- **Lower total cost of ownership.** Improved reliability and industry-standard components help HP thin clients lower your total ownership costs. Thin clients also reduce the chances of data loss or theft, because all data and applications are stored remotely. Help desk support calls are reduced since the client image is simple and controlled, and server-hosted applications are carefully controlled and managed by the IT administrator for enhanced reliability.
- **Rapid client deployment.** HP thin clients run "out of the box" with a familiar desktop environment, taking just minutes to set up. Establishing your client network is also easy with built-in HP ThinState tools. Full integration with HP OpenView Client Configuration Manager and Altiris Management Solution makes image deployment and thin client management easy.

- **Rapid application deployment.** Since application software is hosted remotely, it's easy to upgrade users quickly and inexpensively to the latest applications by updating the server or blade disk image. Users can be set up and ready to start working within minutes. Software upgrades and changes are also done centrally, not on individual client PCs, so ongoing maintenance and support may be dramatically reduced when compared to standard PC deployment.
- **Global coverage.** A limited global three-year hardware warranty is available in more than 100 countries.
- **Flexible management solutions.** From our simple HP ThinState tools to full-featured Altiris Deployment Solution and HP OpenView Client Configuration Manager, you can manage thin clients, PCs, and servers without getting locked into a vendor's proprietary management tool. HP ThinState Tools allow you to easily deploy custom images or settings to other thin clients through common USB flash drives, FTP servers, or Microsoft's Server Message Block technology on any PC (varies by model).

Figure 2. HP Compaq t5000 Thin Client Series



HP COMPAQ T5135 THIN CLIENT

The HP Compaq t5135 Thin Client—our simplest solution at our best price—delivers all the advantages of server-based computing for task-oriented workers using general office applications or your specific line of business software. The HP t5135 is best for customers looking for a simple, low cost server-based computing solution with support for ICA and RDP connectivity and a set of basic options.

Key features include:

Easy to buy

HP thin clients are easy to buy from your local and online HP reseller or direct from HP in more than 100 countries around the globe, with the peace of mind you gain from HP service and support.

Easy to deploy

- The HP Compaq t5135 Thin Client is ready to run out of the box, with a simple look and feel.
- Stateless capability means that you can simply attach the client to your network and settings and connections download automatically when the user logs on.
- HP ThinConnect simplifies connectivity to remote sessions.

Easy to manage

- Simply and more securely manage thin clients and all your network PCs and servers end to end thanks to HP's alliance with Altiris.
- Easily capture and deploy new settings to multiple thin clients with simple, on-screen instructions using HP ThinState Tools.

- Full integration with and a license for HP OpenView Client Configuration Manager simplify management.

Easy to secure

- Run with settings stored locally or run in a stateless mode in which all global and user-specific settings are downloaded when user logs on. The settings are deleted (by default) at the end of the user session. Enjoy greater security with all critical user data and applications housed on your secure, centralized server.
- Configure user environment to limit access to settings and parameters as a more secure, single-purpose appliance or with a familiar windows desktop.
- Maximize data security by configuring local storage (disabled by default).
- Configure local user permissions for scrutinized security.
- Lock down user access and data ports by remotely configuring the BIOS from your centralized management console.
- Protect your corporate data by storing files on your secure, centralized server.
- Enhance secure access to your network by adding a smart card reader for two-factor authentication.
- Secure USB compartment protects USB options against tampering and theft. Ideal for wireless devices.

Value-packed features

- 400 MHz Via processor
- 64 MB flash memory for drivers and applications, 1 28 MB² of system memory
- Includes HP ThinConnect, Citrix ICA client, rdesktop RDP client, VNC connectivity, ThinPrint, and support for Citrix Remote Desktop Broker.
- Eight USB 2.0 ports, as well as legacy support including parallel, serial, and PS/2 connections
- MultiBay and support for smart card reader

HP COMPAQ T5530 THIN CLIENT

The HP Compaq t5530 Thin Client offers enhanced features for mainstream business use, with support for legacy ports and software support for ICA, RDP, terminal emulation, media player, and basic Web browsing.

Key features include:

Easy to buy

HP thin clients are easy to buy from your local and online HP reseller or direct from HP in more than 100 countries around the globe, with the peace of mind you gain from HP service and support.

Easy to deploy

- The HP Compaq t5530 thin client is ready to run out of the box, with a familiar look and feel.
- Initial deployment is easier with HP's automated setup and configuration technology.

Easy to manage

- Simply and more securely manage thin clients and all your network PCs and servers, thanks to HP's alliance with Altiris.
- Exclusive, built-in HP ThinState tools allow you to use the HP t5530 as a "master" client to capture and deploy custom images or settings on a USB flash drive or on the thin client itself, and then easily deploy it to "target" thin clients through common USB flash drives, FTP servers, or Microsoft's Server Message Block technology on any PC.

² 16 MB of system RAM is reserved for video graphics usage.

- Full integration with and a license for HP OpenView Client Configuration Manager simplifies image management.

Easy to secure

- Configure user environment to limit access to settings and parameters as a more secure, single-purpose appliance or with a familiar windows desktop.
- Maximize your data security by disabling local storage.
- Configure local user permissions for scrutinized security.
- Lock down user access and data ports by remotely configuring the BIOS from your centralized management console.
- Protect your corporate data by storing files on your secure, centralized server.
- Enhance secure access to your network by adding a smart card reader for two-factor authentication.
- Secure USB compartment protects USB options against tampering and theft.

Performance at a great price

- Microsoft Windows CE 5.0
- 800 MHz Via processor
- 64 MB flash memory for drivers and applications, 128 MB³ of system memory
- Includes Citrix ICA, Microsoft's RDP client, Internet Explorer, Windows Media Player, terminal emulators, VNC shadowing, ThinPrint, and support for Citrix Remote Desktop Broker
- Eight USB ports for Plug and Play support, serial, PS/2 and parallel ports, and wireless LAN
- MultiBay and security options

HP COMPAQ T5720 THIN CLIENT

With desktop-like features at a compelling price, the HP Compaq t5720 Thin Client is ideal for customers requiring a more powerful and flexible thin client with a windows-like interface, full featured browser for rich web experience, customer configurability, and the broadest availability of hardware and software components for installation.

Key features include:

Easy to buy

HP thin clients are easy to buy from your local and online HP reseller or direct from HP in more than 100 countries around the globe, with the peace of mind you gain from HP service and support.

Easy to deploy

- The HP Compaq t5720 thin client is ready to run out of the box, with a familiar look and feel.
- The innovative HP Quick Release allows this small, attractive chassis to be mounted on a wall or swing arm, under a desk or shelf, behind a display or monitor stand, or bundled with another VESA-compliant device.⁴

Easy to manage

- Simply and more securely manage thin clients and all your network PCs and servers, thanks to HP's alliance with Altiris.
- Easily deploy, configure, and manage software on HP's thin clients using HP ThinState Tools with simple USB flash key for image capture and deployment, or HP OpenView Client Configuration Manager.

³ 16 MB of system RAM is reserved for video graphics usage.

⁴ HP Quick Release and mounting hardware sold separately. HP Quick Release is bundled standard on select HP monitors and sold separately as an option.

Easy to secure

- Enhanced Write Filter helps prevent unauthorized application installations, and helps prevent virus writing to disk.
- Maximize your data security by disabling local storage.
- Protect your corporate data by storing files on your secure, centralized server.
- Locked-down user profile limits OS vulnerability.
- Every HP Compaq t5720 Thin Client ships with the HP Sygate Security Agent pre-installed. The HP Sygate Security Agent is a multilayered security approach including an application-centric firewall, application control, intrusion prevention, and policy enforcement that:
 - Limits thin client network communication to only required applications and network traffic.
 - Ensures no malicious application can send data to or from the embedded device.
 - Analyzes all input/output data against signatures of known attackers and behavioral patterns of unknown attackers, effectively protecting the embedded device.
 - Provides a more secure thin client, with a comprehensive solution to ensure that mission critical applications and networks are not compromised.
- Achieve our highest level of protection from worms, Trojans, and viruses with Symantec Embedded Security, which is an exclusive option for the HP Compaq t5720 Thin Client.
- Enhance secure access to your network by adding a smart card reader for two-factor authentication.
- Secure USB compartment protects USB options against tampering and theft.

Innovative, expandable design

- Small, attractive chassis can be mounted horizontally or vertically.
- Reclaim desktop space with the innovative HP Quick Release, which allows easy mounting on a wall or swing arm, under a desk or shelf, behind a display or monitor stand, or bundled with another VESA-compliant device.⁵
- Maximize functionality with HP's optional PCI expansion slot, which lets you install a wide range of devices, including wireless networking, a dial-up modem, and additional graphics (sold separately).
- External storage options include disk-on-key, CD-ROM drive, diskette drive, and hard drive (sold separately).

Flexible

- Microsoft Windows XP Embedded with Service Pack 2 operating system
- AMD Geode NX 1500 processor
- 1 GB⁶ or 512 MB standard flash memory—ample storage for drivers and applications
- 256 MB or 512 MB of system memory⁷
- SiS741 GX Integrated / UMA graphics with 16 MB of shared graphics memory
- Common code base with XP Pro and local application support for:
 - Customer developed applications
 - Communication/collaboration apps (VOIP, NetMeeting, IM)
 - Database access apps (SAP, PeopleSoft, financial, etc.)
- Includes Citrix ICA, Microsoft's RDP client, Internet Explorer, Windows Media Player, terminal emulators, ThinPrint, and support for Citrix Remote Desktop Broker
- XP driver support offering maximum flexibility in options and peripheral choice
- Multimedia experience (smooth video/audio)
- Alignment with desktop OS standards

⁵ HP Quick Release and mounting hardware sold separately. HP Quick Release is bundled standard on select HP monitors and sold separately as an option.

⁶ 1 GB Flash model only available with 512 MB memory configuration as standard SKU.

⁷ 16 MB of system RAM is reserved for processor usage on 800-MHz model; 24 MB of system RAM is reserved for processor usage on 1.2 GHz model.

- Administrator-enabled customization
- Active Directory compliant access device
- XP security feature support (apps/HW)
- Six USB 2.0 ports, as well legacy support including parallel, serial, and PS/2 connections

HP COMPAQ T5725 THIN CLIENT

With a compelling price, the HP Compaq t5725 Thin Client is a powerful Linux client that delivers a familiar desktop experience.

Key features include:

Easy to buy

HP thin clients are easy to buy from your local and online HP reseller or direct from HP in more than 100 countries around the globe, with the peace of mind you gain from HP service and support.

Easy to deploy

The HP Compaq t5725 Thin Client is ready to run out of the box, with a familiar look and feel.

Easy to manage

- Simply and more securely manage thin clients and all your network PCs and servers, thanks to HP's alliance with Altiris.
- Easily deploy, configure, and manage software on HP's thin clients using HP ThinState Tools or HP OpenView Client Configuration Manager.

Easy to secure

- Lock down user access and data ports by remotely configuring the BIOS from your centralized management console.
- Maximize your data security by disabling local storage.
- Protect your corporate data by storing files on your secure, centralized server.
- Enhance secure access to your networks by adding smart card readers for two-factor authentication.

Innovative, expandable design

- Small, attractive chassis can be mounted horizontally or vertically.
- Reclaim desktop space with the innovative HP Quick Release, which allows easy mounting on a wall or swing arm, under a desk or shelf, behind a display or monitor stand, or bundled with another VESA-compliant device.⁸
- Maximize functionality with HP's optional PCI expansion slot, which lets you install a wide range of devices, including wireless networking, a dial-up modem, and additional graphics (sold separately).
- External storage options include disk-on-key, CD-ROM drive, diskette drive, and hard drive (sold separately).

Flexible

- AMD Geode NX 1500 processor
- Up to 1 GB Flash memory—ample storage for drivers and applications
- Up to 1 GB system memory⁹
- SiS741 GX Integrated/UMA graphics with 16 MB of shared graphics memory
- Common code base with Debian Linux and local application support for:

⁸ HP Quick Release and mounting hardware sold separately. HP Quick Release is bundled standard on select HP monitors and sold separately as an option.

⁹ 16 MB of system RAM is reserved for video graphics usage.

- Alignment with desktop Linux OS standards
- Administrator-enabled customization
- Customer developed applications
- Many open-source applications available on the Internet, such as collaboration, communication, and database applications
- Debian Linux driver support offers flexibility in options and peripheral choice
- Open-source anti-virus software available on the Internet
- Firefox browser, Citrix ICA, rdesktop RDP client, HP Connection Administrator, XDMCP, and Altiris manageability, VNC shadowing, ThinPrint, and support for Citrix Remote Desktop Broker
- Multiple-head video solutions available from HP and Matrox
- Six USB 2.0 ports as well as legacy support including parallel, serial, and PS/2 connections

HP Linux strategy offers:

- Complete solutions
 - Comprehensive Linux Ecosystem from development, testing, QA, and customer support
 - Alliances with leading ISVs for business applications and high performance compute clusters
 - A complete Linux portfolio of services, consulting, and support from HP Services delivered worldwide
- Freedom and flexibility

THIN CLIENT OPTIONS

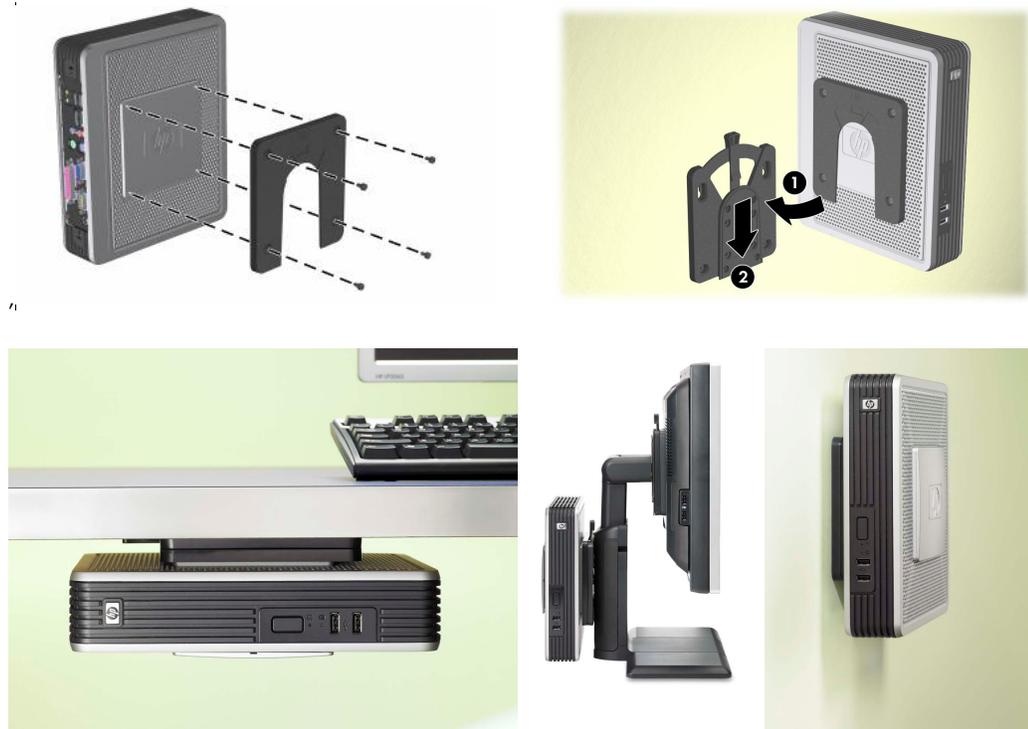
A wide variety of options (sold separately) are available to help provide customers with greater flexibility in expanding their work capabilities. Some HP options are Plug and Play ready with preloaded drivers to ease deployment and help you save time. Those options that are not Plug and Play have “add ons” defined for quick deployment.

FLEXIBILITY

The HP Quick Release is a unique and first-of-its-kind mounting solution that enables you to use the HP Compaq t5135, t5530, t5720 and t5725 Thin Clients alongside an array of VESA-compliant devices in a variety of multiple configurations.

The HP Quick Release is innovative and applicable across a broad range of current and future HP products, including LCD monitors, LCD TVs, projectors, and desktop products. The HP Quick Release ships standard with the 19-inch HP LP1965, 20-inch HP LP2065, 24-inch HP LP2465, and 30-inch LP3065 Flat Panel Monitors, and is also available for purchase as a standalone option.

Figure 3 HP Compaq t5720 Thin Client connected to the HP Quick Release enables mounting on a wall, under a desk, or behind a monitor



With the HP Quick Release, you can quickly and conveniently mount the HP Compaq t5135, t5530, t5720 and t5725 Thin Clients in a variety of settings, including:

- Under the desk
- On a wall
- On a swing arm
- Under a desk
- Under a shelf
- Behind a display
- Behind a monitor stand
- Mounted with a monitor on a wall
- Bundled with another VESA-compliant device

The HP Quick Release allows you to create the "invisible client," mounted securely and safely out of view. For more information, please see the HP Quick Release QuickSpecs or Data Sheet document.

STORAGE

Local storage is available for all HP Compaq thin clients through the use of such devices as disk-on-key and MultiBay options.

- **Disk-on-key.** The disk-on-key is a small USB removable storage device with 32 MB or greater of file storage capacity. Lightweight and compact, it plugs into the USB port of a thin client or PC and acts like any other mass storage device. The host computer immediately detects the disk-on-key, recognizing it as a supplementary removable drive, and assigns it a drive letter. Files located on the system can be moved to the device for storage or for transfer to another computer, much as would be done with a diskette drive. The benefits of the disk-on-key include its large capacity, the convenience of Plug and Play, and the flexibility of transporting data on a small storage device.
- **MultiBay.** The Compaq External MultiBay supports a 1.44-MB diskette drive, 80-GB hard drive, or CD-ROM drive options.

SECURITY

HP thin clients include security features such as:

- HP Sygate Security Agent, preinstalled on HP Compaq t5720 Thin Client models
- Symantec Embedded Security, an exclusive option for the HP Compaq t5720 Thin Client to help achieve our highest level of protection from worms, Trojans, and viruses
- Additional personalized security from security lock and HP Smart Card Keyboard (sold separately), to help prevent theft or unauthorized access to the thin client hardware

PCI EXPANSION MODULE

An optional PCI Expansion Module is available for the HP Compaq t5720 Thin Client and HP Compaq t5725 Thin Client. Some examples of optional PCI devices include wireless networking cards (802.11b/g), dial-up modems, additional graphics, and input/output options.

ALTIRIS DEPLOYMENT SOLUTION

Altiris Deployment Solution offers a single, comprehensive management solution for your HP thin clients, desktops, and notebooks. Reduce the number of management programs your IT staff must maintain and learn, and simplify management of computing resources.

From a central console, an administrator can use Altiris Deployment Solution to plan, deploy, and manage HP Compaq t5000 Thin Clients—from routine, daily tasks to the occasional large job such as disaster recovery or a large-scale software update. Capabilities include the following:

- **Centralized management.** Altiris Deployment Solution allows administrators to deploy and manage all thin clients from a centralized console.
- **Mass deployments.** Administrators can easily handle large-scale thin client deployments, installing software, assigning unique security IDs, and configuring user names, IP addresses, and other network settings from a remote console.
- **Upgrades.** After the thin clients have been deployed, Altiris Deployment Solution can manage day-to-day upgrades and redeployments—distributing applications, installing service packs, and more.
- **Migrations.** When a thin client is retired, the administrator can easily capture desktop, network, and application settings, and migrate them to the replacement device.
- **Help desk responses.** Altiris Deployment Solution allows the administrator to browse, diagnose, and in some cases, repair thin client issues from a central console. Detailed hardware and software inventories, along with remote control and chat features, help simplify remote diagnosis. Histories of tasks assigned to each thin client make it easy to restore a device to a previous working state.
- **Disaster recovery.** To ease disaster recovery efforts, Altiris Deployment Solution can automatically back up or restore configurations, settings, registries, and more.

HP OPENVIEW CLIENT CONFIGURATION MANAGER

HP OpenView Client Configuration Manager is a task-based management solution for Windows and HP thin client environments that is easy to use and quick to deploy, while providing a strong foundation for future requirements. Providing administrators with out-of-the-box functionality for hardware and software management, HP OpenView Client Configuration Manager provides the IT professional with:

Integrated software management

- Inventory collection that accurately discovers and inventories installed hardware and software assets on managed devices.
- Operating system deployment and settings migration that enable bare-metal deployment of operating systems and migration to new operating systems while preserving application and user settings.
- Software distribution (including updates) to locally- and remotely-connected end users.

Integrated hardware management

- Remote control enables administrators to remotely troubleshoot PCs to resolve user problems and perform various power management operations.
- Free version provides basic hardware management for HP desktops and notebooks, and software and hardware management for HP thin clients.
- Installs in under an hour and provides out-of-the-box functionality for common management use cases.
- Designed for self-deployment and self-learning and allows IT administration from an integrated Web-based console.

FEATURE COMPARISON

Table 1. Feature comparison of HP Compaq t5000 Thin Client family

Model	t5135 Thin Client	t5530 Thin Client	t5720 Thin Client	t5725 Thin Client
Hardware and operating system	VIA Eden 400 MHz 64 MB Flash, 128 MB RAM ¹ Maximum video resolution is 1600x1200, 24 bit @60 Hz HP ThinConnect	VIA Eden 800 MHz 64 MB Flash, 128 MB RAM ¹ Maximum video resolution is 1600x1200, 32 bit @60 Hz Microsoft® Windows® CE 5.0	AMD Geode NX 1500 Up to 1GB Flash and RAM ¹ Maximum video resolution is 2048x1536, 32 bit @60 Hz Microsoft Windows XPe, SP2	AMD Geode NX 1500 512 MB Flash, 256 MB RAM ¹ Maximum video resolution is 1600x1200, 24 bit @85 Hz Debian Linux 3.1 (Kernel 2.6)
Supported hardware and ports	USB and PS/2 keyboard and mouse support, VGA-type video output (DB-15) 2 USB 2.0 ports in secure compartment (t5135/t5530); 2 USB 2.0 ports in front; 4 USB 2.0 ports in back Optional PCI expansion module (t5720/t5725); 1 Serial, 1 Parallel, 2 PS/2, 1 RJ-45, Cable Lock; 10/100 Base T; PCI/USB Wireless and Modem support (varies by model) HP Quick Release support			
Manageability and deployment	Full license of Altiris Deployment Solution included with every thin client Fully integrated with and licensed for HP OpenView Client Configuration Manager for quick deployment of images and client management			
	<ul style="list-style-type: none"> Automatic image and settings upgrade from FTP Stateless mode: store settings on server, download only for the duration of session 	<ul style="list-style-type: none"> Automatic image, settings, and add-ons upgrade from FTP 	<ul style="list-style-type: none"> Automatic settings upgrade from FTP 	
HP ThinState Tools	Make changes to image/settings on "master" thin client, then deploy to multiple "target" clients: Built in, easy-to-use deployment tools!			
Data captured:	Settings	Image and settings	Image and settings	Image and settings
Capture changes from master thin client to:	USB flash drive	USB flash drive; Internal memory of thin client	USB flash drive	USB flash drive
Deploy changes to target thin clients with:	USB flash drive	<ul style="list-style-type: none"> USB flash drive Network ("Master" thin client acts as FTP server) PC (using SMB protocol) 	USB flash drive	USB flash drive
Terminal emulations	None	TeemTalk for Windows	TeemTalk for Windows	TeemTalk for Linux
Security	<ul style="list-style-type: none"> Admin/User passwords Remotely configurable BIOS Smart card support Lockable USB ports 	<ul style="list-style-type: none"> Admin/User passwords Remotely configurable BIOS Smart card support Lockable USB ports Configurable local storage, (USB mass storage configurability) 	<ul style="list-style-type: none"> HP Sygate Security Agent (SSA) including an application-centric firewall, application control, intrusion prevention, and policy enforcement Symantec Embedded Security Configurable local storage, (NTFS security and USB mass storage configurability) Prevent unauthorized installation and viruses with enhanced Write Filter Disable local storage Lock user profiles to limit OS vulnerability 	<ul style="list-style-type: none"> Admin/User passwords Remotely configurable BIOS Smart card support Configurable local storage
Brokers	Not applicable	HP PC Session Allocation Manager Software for the HP Consolidated Client Infrastructure (CCI) Citrix Desktop Broker for VMware Virtual Desktop Infrastructure (VDI) using RDP		
Server OS support	Support for latest terminal servers from Citrix and Microsoft. For details, refer to product datasheets.			

Dimensions (h x w x d)

Without stand:	185.7 x 185.7 x 52.4 mm (7.31 x 7.31 x 2.06 in)	250.18 x 65.78 x 205.48 mm (9.85 x 2.59 x 8.09 in)
With stand:	Stand adds 19 mm (0.75 in) to height	271.09 x 110 x 237.1 mm (10.67 x 4.33 x 9.33 in)
Power	Worldwide, Auto-sensing 100-240 VAC, 50-60 Hz, 40W power supply	
Temperature range	50° to 104° F (10° to 40° C) (operating) -22° to 140° F (-30° to 60° C) (non-operating) 50° to 95° F (10° to 35° C) (operating, HP Quick Release with a flat panel monitor or PCI expansion module) t5720/t5725 only	
Warranty	Three-year limited hardware warranty. Certain restrictions apply. Visit the HP Customer Support Center online for details.	

¹16 MB of system RAM is reserved for video graphics usage

¹16 MB of system RAM is reserved for video graphics usage on t5135, t5530, t5720, and t5725.

²1 GB Flash model only available with 512 MB RAM configuration as standard SKU (Windows XPe only).

³Width is 87.4 mm/3.6 in with PCI Expansion Module

⁴7 kg/15.5 lb with PCI Expansion Module

IMPLEMENTING AN SBC ENVIRONMENT

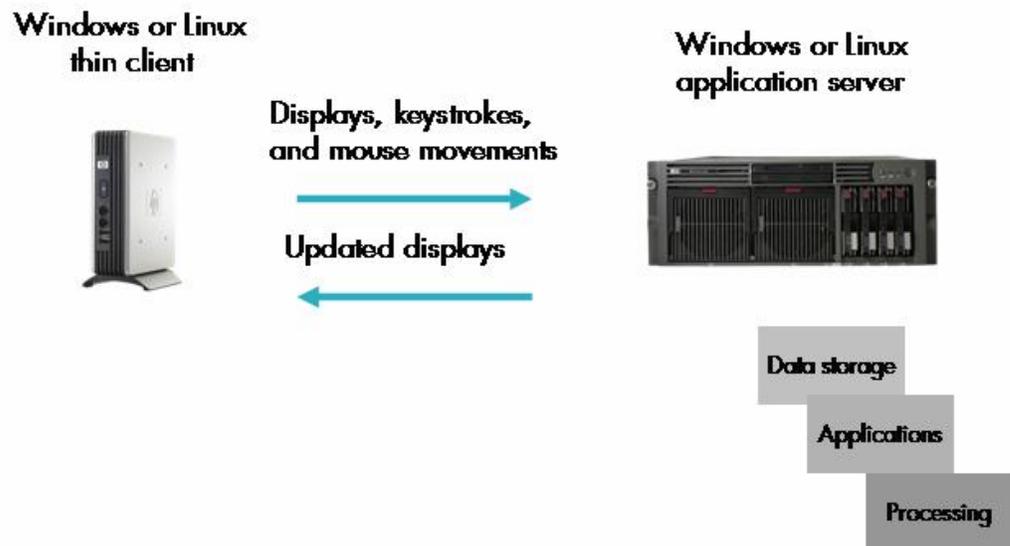
To help the customer maximize the benefits of a thin client environment, HP works closely with Microsoft, Debian, Citrix, and other software leaders in the thin client marketplace. The following section describes components of an SBC solution using thin clients.

THE MICROSOFT COMPONENT

A thin client running Windows CE 5.0 or Windows XP Embedded supports the latest version of Citrix Presentation Server running in a Windows server environment. In an SBC environment, Terminal Services running on Windows Server 2003 allow application execution, data processing, and data storage to occur on the server. Using terminal emulation software, the thin client sends only display refreshes, keystrokes, and mouse movements to the application server. The server carries out the specified actions on locally stored data and then returns an updated display to the thin client (as shown in Figure 3).

This approach promotes centralized application management, minimizing network bandwidth requirements between application servers and thin clients. With only displays, keystrokes, and mouse movements as network traffic, communications are minimal and inherently more secure.

Figure 4. Overview of communications between the thin client and the application server



THE LINUX COMPONENT

An HP Linux thin client supports the latest version of Citrix Presentation Server running in a Linux server environment; or your client can use an X-terminal session to log onto a Linux or UNIX® server.

THE CITRIX COMPONENT

Citrix Presentation Server is an industry-leading solution for centrally managing Windows applications and delivering their functionality as a secure service to thin clients—throughout the business.

Citrix Presentation Server is designed to enhance the capabilities of Windows Server 2003, UNIX servers, and Linux servers. It provides the exceptional scalability, interoperability, manageability, flexibility, end-to-end security, and network leverage that businesses require from an application-serving solution. Benefits include:

- **Internet leverage.** Data center managers can more easily deliver the functionality of any application to a thin client's Web browser without writing a single line of code. With Citrix Presentation Server's built-in secure gateway, Internet access is simple and secure, and end-to-end security is strong.
- **Manageability and scalability.** Citrix Presentation Server delivers the power to centrally configure and manage application servers using robust system management capabilities that can be integrated with third-party network management solutions (such as HP OpenView).

Adaptive infrastructure and sizing

An adaptive enterprise infrastructure is only as good as its ability to effectively run leading operating systems and applications. HP rigorously tests, optimizes, and certifies HP ProLiant servers to run applications from the leading independent software vendors.

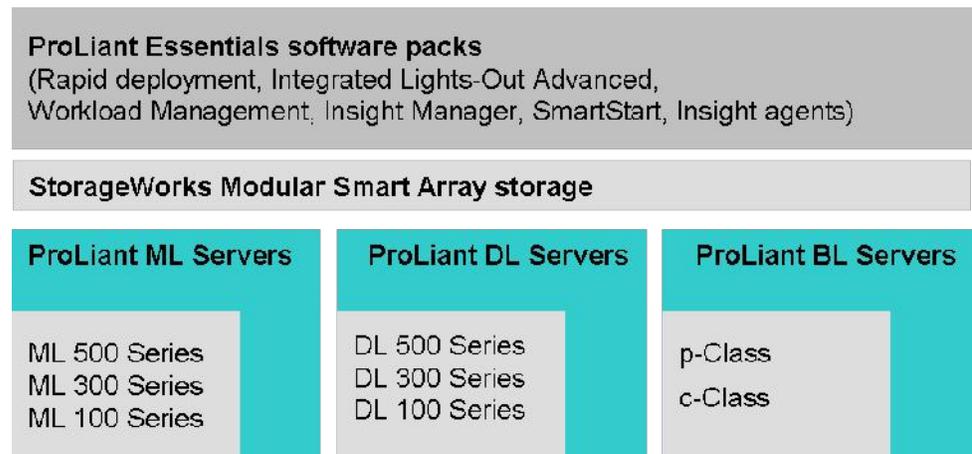
From planning and design to implementation and management, professionals from HP Services can help customers achieve their business objectives quickly and cost-effectively.

THE HP COMPONENT

When applications are centralized, rather than dispersed between individual thin clients, selecting a suitable server becomes even more critical. HP can deliver flexible, industry-standard server solutions to meet all customer needs—from a simple workgroup to a company-wide deployment. Whether deployed individually or clustered in server farms, HP servers can handle the most demanding tasks.

HP understands that businesses must adapt to survive, do more with less, and respond faster with fewer resources. With the HP ProLiant Advantage, now you can. The HP ProLiant Advantage combines solution integration and service expertise with an adaptive infrastructure (shown in Figure 4) consisting of versatile, industry-standard HP ProLiant servers, integrated HP Smart Array storage, and HP ProLiant Essentials software.

Figure 5. The three layers of adaptive infrastructure



Delivering the power, speed, manageability, scalability, and high availability required for thousands of users to access business-critical applications, HP ProLiant servers are ideal for the demanding thin client environment. In addition, these servers are optimized for use with Microsoft Windows Server 2003 and Citrix Presentation Server software.

THE HP ADVANTAGE

When you buy from HP, you get more than just a well-designed thin client solution. You get the peace of mind that comes from knowing HP is a global leader in thin client sales. You also get all the advantages that come from doing business with HP, including the following:

- Complete server to client solution provider—“one-stop shop,” from hardware to professional services
- Global availability, service, and support through our broad network of 65,000 sales and service professionals in 160 countries around the world
- HP quality and reliability
- Compatibility and use of industry standards

Figure 6. Server



CHOOSING A SERVER

The sizing of the server is highly dependent on the computing requirements of the end users. As a general rule of thumb, a 2-way server would support 50 thin clients; a 4-way would support 100 clients, and so on. Heavier use would require more memory, storage, and processing power. As a world leader in servers, HP delivers the fast performance and reliability that are essential for thin client server environments. HP provides a wide choice of high-quality servers, allowing you to scale performance for any level of your business. HP ProLiant server offerings include the following:

HP ProLiant ML servers

HP ProLiant ML servers are designed to provide maximum internal storage and I/O flexibility for rack or tower deployments. These workhorses can handle intensive applications ranging from enterprise resource planning (ERP) to e-commerce hosting. With up to eight processors, up to 11 PCI slots, next-generation PCI hot plug, and redundant power and cooling, HP ProLiant ML servers are ideal for high-volume, 24 × 7 data center environments.

HP ProLiant DL servers

HP ProLiant DL servers deliver enterprise-class performance with robust, affordable multiprocessors in a slim (1U–7U) form factor that is ideal for multi-server rack environments. Optimized for clustering operations and attached external storage, HP ProLiant DL servers can handle jobs as large as data warehousing or as small as Web hosting.

HP ProLiant BL servers

HP offers two families of HP ProLiant BL server blades: c-Class and p-Class.

- **c-Class.** These server blades share the same enterprise-class features and design standards of traditional HP ProLiant servers. They offer support for hot-plug hard-drives, multiple I/O cards, multi-function network interconnects and Integrated Lights Out. In addition, they offer more than double the memory and I/O expansion of most other server blades.
- **p-Class.** HP ProLiant p-Class server blades deliver higher levels of performance and availability for high-performance front-end, mid-tier, and back-end applications.

Figure 7. Blade PC



BLADE PC

As discussed earlier in this document, the Consolidated Client Infrastructure (CCI) solution from HP centralizes desktop compute and storage resources into easily managed, highly secure data centers, while giving end users the convenience and familiarity of a traditional desktop environment. CCI provides a dynamic workplace solution that may dramatically lower desktop total cost of ownership and raise levels of security, service quality, and ease of management.

The HP blade PC works with thin clients as the second tier in a CCI installation. It has a 3U form factor that provides extreme density, thermal efficiencies designed to minimize power and cooling requirements, memory expandability to 2 GB for good performance while working in your mainstream applications, and dual 10/100 integrated network controllers that help maximize throughput efficiencies. The 40 GB hard drive provides ample storage for accessing and working with data.

Figure 8. HP monitors



CHOOSING A MONITOR

HP is a world leader in monitors, featuring award-winning CRT monitors and a range of 15- to 30-inch diagonal flat panel displays. Whatever the application, HP has the right display solution.

Monitor key features include:

- **Price/performance.** Optimum combination of price and performance for businesses that need value and reliability
- **Advanced technologies.** Select HP flat panel monitors include built-in USB hubs for easy peripheral connectivity from the monitor. HP Display LiteSaver enables pre-set sleep modes to conserve energy and improve lifespan.
- **Compatibility.** Thorough testing for reliability and compatibility
- **Manageability.** Plug and Play ready, Asset Management support
- **Designed for user comfort.** Anti-static/anti-glare screens, concealed cable management, tilt and swivel stands, pivot rotation (select models), HP Quick Release (select models)

For complete details, visit www.hp.com/go/monitors.

HP LIFECYCLE SOLUTIONS

HP thin clients are supported under HP Lifecycle Solutions, delivering a broad selection of tools, information, and services that help users manage their PC lifecycle strategy. Along with HP Lifecycle Solutions, users also get the benefit of a single point of accountability, and the flexibility to choose the program and level of support most appropriate to their environment. HP Lifecycle Solutions cover key areas, including:

- **Planning.** Assessment of total cost of ownership, availability review, network design, product selection, roadmap review, acquisition financing, proof-of-concept evaluation, and PC certification testing
- **Deployment.** PC custom configuration, lease process integration, and hardware, software, and intranet installation and startup
- **Management.** Day-to-day tasks such as custom help desk management, financial asset tracking, change control and notification, and hardware maintenance and application support
- **Transition.** Lease-based reclamation and disposal, computer asset recovery, and lease-based technology refresh—all of which can help you take advantage of the latest PC technologies

HP CARE PACK SERVICES

Protect your business from day one. HP stands behind its products with a three-year limited warranty. However, a warranty is meant to protect against hardware defects, not to safeguard your business. With HP Care Pack Services, you can easily select the right services to help limit downtime which can sap productivity and may impact revenues in your business.

HP Care Pack Services¹⁰ are convenient service packages designed to give you just the level of service you want for HP products. Features include the following:

- **Global and local service.** HP serves customers worldwide with over 65,000 services professionals in 160 countries, plus the industry's largest channel partner network. Selected regional packages are tuned to local needs.
- **HP expertise.** HP provides fast response time and repair commitments globally with customer support personnel who have specific expertise with Microsoft, UNIX, Linux, and Cisco platforms, as well as storage, system management, security, and printing and imaging.

¹⁰ Services may vary depending on your geographic location. Restrictions and limitations apply. For details, visit www.hp.com/go/carepack.

- **Full range of offerings.** HP Care Pack Services support major hardware and software technologies, with maintenance services such as next-day exchange and accidental damage coverage for notebooks. Other services include:
 - **Hardware support.** Remote troubleshooting, escalation management, and customer choice of onsite support offerings, such as 4-hour response time with 24 × 7 availability and next-day response within standard business hours on selected HP hardware.¹¹
 - **Installation services.** Fast reliable turnaround coordinated with the delivery of HP equipment, site preparation and verification, installation of all HP hardware and selected third-party products, and installation and verification of included HP software.
 - **Education services.** Training in more than 200 classroom courses delivered from HP and partner locations worldwide to 200,000 + IT professionals each year.
- **Deep strategic relationships.** HP actively builds alliances with major solution providers, including Microsoft, SAP, Cisco, Oracle®, and dozens of others.
- **Knowledge management.** HP actively captures, integrates, and distributes information to continuously improve the problem-solving process. The result of every interaction is fed into our worldwide knowledge base to become a repeatable solution, giving customers and service engineers access to high-quality and up-to-date information.
- **Ease of use.** HP Care Pack Services feature a simple ordering capability through online and physical channels. Support is offered across any piece of IT infrastructure you purchase from HP, from desktop to data center, including award-winning Web-based support and Instant Support Professional for remote support.

HP QUALITY AND RELIABILITY

HP prides itself on its reputation for high-quality products—and HP thin clients are a testament to that reputation. Our quality and reliability help reduce maintenance, repair, and support costs throughout the thin client lifecycle and can result in a higher residual value for HP thin clients. Here’s how HP builds quality into every thin client:

- **Customer feedback.** The evolution of HP thin clients is a direct result of extensive customer feedback, including focus groups, trade shows, customer visits, support calls, human factors studies, and surveys of thin client users.
- **Testing.** Numerous teams within HP ensure reliability and long life by testing every model in a variety of networked environments. We systematically push HP models past reasonable limits to help ensure that the toughest workplace conditions have minimal impact.
- **Factory audits.** Before leaving the factory, HP does a comprehensive examination on random samples to guard against defects and improve out-of-the-box operation.
- **Engineering excellence.** HP quality does not stop at the factory door. Our service and engineering teams continue to support each unit throughout its lifecycle. The award-winning HP call center quickly resolves many issues on the first call.

HP COMPATIBILITY/INDUSTRY STANDARDS

Due to our longstanding industry relationships with Intel®, Microsoft, and many other industry leaders, HP thin clients are engineered for maximum compatibility in most business applications. HP products are extensively tested for compatibility in environments simulating real-world conditions with leading hardware components. HP thin clients that run the Windows CE 5.0 and Windows XP Embedded operating systems are Microsoft certified.

¹¹ Service levels and response times may vary depending on your geographic location. Restrictions and limitations apply. For details, visit www.hp.com/go/carepack.

HP products are built around industry standards. HP serves as a major driver and participant in most of the industry's leading standards-setting organizations. This ensures that HP products and technologies continue to provide solutions that maximize interoperability and upgradeability throughout every major technological revolution.

CONCLUSION

All the features of the HP Compaq t5000 Thin Client series combine to make them the ideal business computing solution for customers with centralized computing needs, accounts seeking a total out-of-the-box solution, and IT managers who are looking for the most easily managed network. Designed to simplify IT management, HP thin clients are backed by the HP reputation for quality, reliability, and compatibility. For more product details and availability, check with your HP account manager or an authorized HP reseller.

APPENDIX: SAMPLE SCENARIOS

This section outlines sample SBC scenarios.

BUSINESS APPLICATION SOLUTION

Business case:

A school district may have 200 schools, each with a computer learning center where up to 50 students are using computers at any given time.

The solution:

The school district deploys two HP ProLiant servers at district headquarters—one as a data store, the other to manage and deploy software applications to a server at each school.

Each school uses a local server to give the HP thin clients fast, convenient access to applications. With no on-board storage, thin clients offer protection from accidental system file deletion or reconfiguration, and students are unlikely to introduce viruses from external sources. The lack of moving parts gives the thin clients added reliability and no audible noises.

Business case:

A large bank has multiple branch locations, all using the same software applications to collect and process data on cash transactions.

The solution:

An HP thin client is used at each teller's station to input information. With a diskless system, there is less risk of data theft or a virus attack. In addition, the lower power consumption of thin clients can reduce the bank's operating costs, plus noise levels are kept to a minimum since there are no moving parts. Should the bank want additional storage capabilities for their tellers, they can use an optional external MultiBay to add a hard drive or a CD-ROM drive.

HP ProLiant application servers deliver maximum performance and availability for the most demanding business applications. The joint HP, Microsoft, and Citrix SBC solution promotes centralized application management.

CITRIX PORTAL SOLUTION

Business case:

A global corporation has many remote offices and allows certain employees to work from home. However, conventional T1 or T3 network connections are expensive and not always available.

The solution:

A portal solution offers easy, inexpensive access over the Internet. Employees in remote offices or those working from home receive secure access to the same server-based applications as workers in the office, and IT staff can manage all thin clients from a central location.

Providing HP Compaq t5720 or t5725 Thin Client devices for remote workers is a low-cost alternative when the full power of a desktop PC is not needed, but desktop-like features are required for extra processing power, faster refreshes, and users who want a broader range of capabilities than is usually available on thin clients.

WIRELESS SOLUTION

Business case:

The employees of a startup real estate business are moving into an old building to begin operations. The building has no network connections.

The solution:

A combined wireless LAN¹² and SBC solution offers a fast, easy way to establish a network and get employees working. Using wireless connectivity means no delays from removing old wiring or running new cables.

- An HP ProLiant server hosts all real estate and office applications.
- Thin clients are preconfigured and ready to go once connected to the wireless LAN.
- Employees can mix Web-based and Windows-based applications using the same secure browser.

¹² A standard WLAN infrastructure may be required for applicable wireless communication.

FOR MORE INFORMATION

For more information about HP thin clients or any other HP product, contact your HP Authorized Reseller or visit these online locations to learn more about HP products, services, and support:

HP home page: www.hp.com/sbso/busproducts.html

HP desktop or thin client information: www.hp.com/desktops

HP workstations information: www.hp.com/workstations

HP notebook information: www.hp.com/go/notebooks

HP notebooks options information: www.hp.com/notebooks/options

HP desktop options information: www.hp.com/desktops/options

HP monitors: www.hp.com/go/monitors

HP Tablet PC: www.hp.com/go/tabletpc

HP iPAQ Pocket PCs: www.hp.com/go/ipaq

HP security: www.hp.com/go/security

HP Services: www.hp.com/go/services

HP support: www.hp.com/go/support

HP Care Pack: www.hp.com/hps/carepack

“How to buy”: www.hp.com/buy/howtobuy

To learn more, visit www.hp.com/products/thinclients

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HP Compaq t5000 Thin Client Series

