WHITE PAPER

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PC Deployment

Adding new personal computers to a network or upgrading to a new version of software improves end-user productivity and helps address the business needs of a company. However, these improvements often increase the need for information technology (IT) management and support. In particular, Compaq understands that higher IT management costs are often attributed to:

- *Adding new generation personal computer products to an existing personal computer network*
- *Managing changes in hardware and software during the lifecycle of the personal computer*

Compaq is committed to reducing the cost and complexity associated with these changes by delivering tools to manage hardware and software change in the personal computer environment. Change Management, Compaq's new initiative to dramatically improve lifecycle management costs for the Compaq Deskpro Family of Personal Computers, includes tools and process improvements in three areas:

- *PC Deployment–to simplify the deployment of new generation personal computers*
- *Change Control–to control changes in Deskpro hardware and software*
- *System Maintenance–to ease the distribution of system software updates*

This white paper focuses on PC Deployment, describing its importance and the various deployment methods available. The paper also describes what Compaq is doing to make the Compaq Deskpro the easiest platform to deploy in a business environment.

This paper and other relevant documents may be located at http://www.compaq.com/im/change.

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PC Deployment

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What Is PC Deployment?

PC Deployment includes all the tools and processes needed to move new Compaq Deskpro personal computers from the loading dock into the connected world of business computing. An essential part of the deployment operation is to configure the Deskpro personal computer with the right mix of software, meeting the requirements of the business and the end-user. Compaq focuses its PC Deployment efforts in this area to help customers configure their Deskpro personal computers with the right software images, including the operating system, device drivers, ROM BIOS firmware, and applications.

Importance of PC Deployment

When Compaq Deskpro personal computers arrive at customer sites, those computers include preinstalled software images that allow customers to begin using the computers immediately after the images are unbundled. Customers often have other software applications that aren't included in the preinstalled software image that they want to install on their computers, and so have a need for a customized software image. In fact, many customers reduce support costs by maintaining consistency in the software deployed on new Deskpro personal computers, purchased over an extended period of time. While Compaq delivers a stable and consistent set of preinstalled software during the computer's lifecycle, some customers prefer to remove that software and replace it with their own set of customized and standardized software. Installing a customized software image before the computer reaches the end-user is often the least expensive and least disruptive method of ensuring consistency.

PC Deployment Methods

There are several methods by which a company can deploy a customized software image:

- Installing additional software applications alongside the preinstalled operating system image provided by the computer manufacturer
- Using Microsoft deployment tools, such as MS Batch or NT Distribution Share (NTDS), to replace the preinstalled software with a customized software image
- Using a Preboot Execution Environment (PXE)–based tool, such as Intel LANDesk Configuration Manager, to replace the preinstalled software with a customized software image
- Using a disk cloning process to copy the contents from one hard drive to another

No one method is best for all customers; each method has specific advantages and disadvantages. The best deployment method depends on a customer's information technology environment and processes. There are many reasons why a customer would choose one deployment method over another, but some factors to consider are:

- Number of computers being deployed
- Types of computer configurations being deployed
  - One model vs. a variety of models
  - Net PC or a PC with no diskette drive vs. standard PC
- Deployment environment and process
  - Configuration center
  - Production network

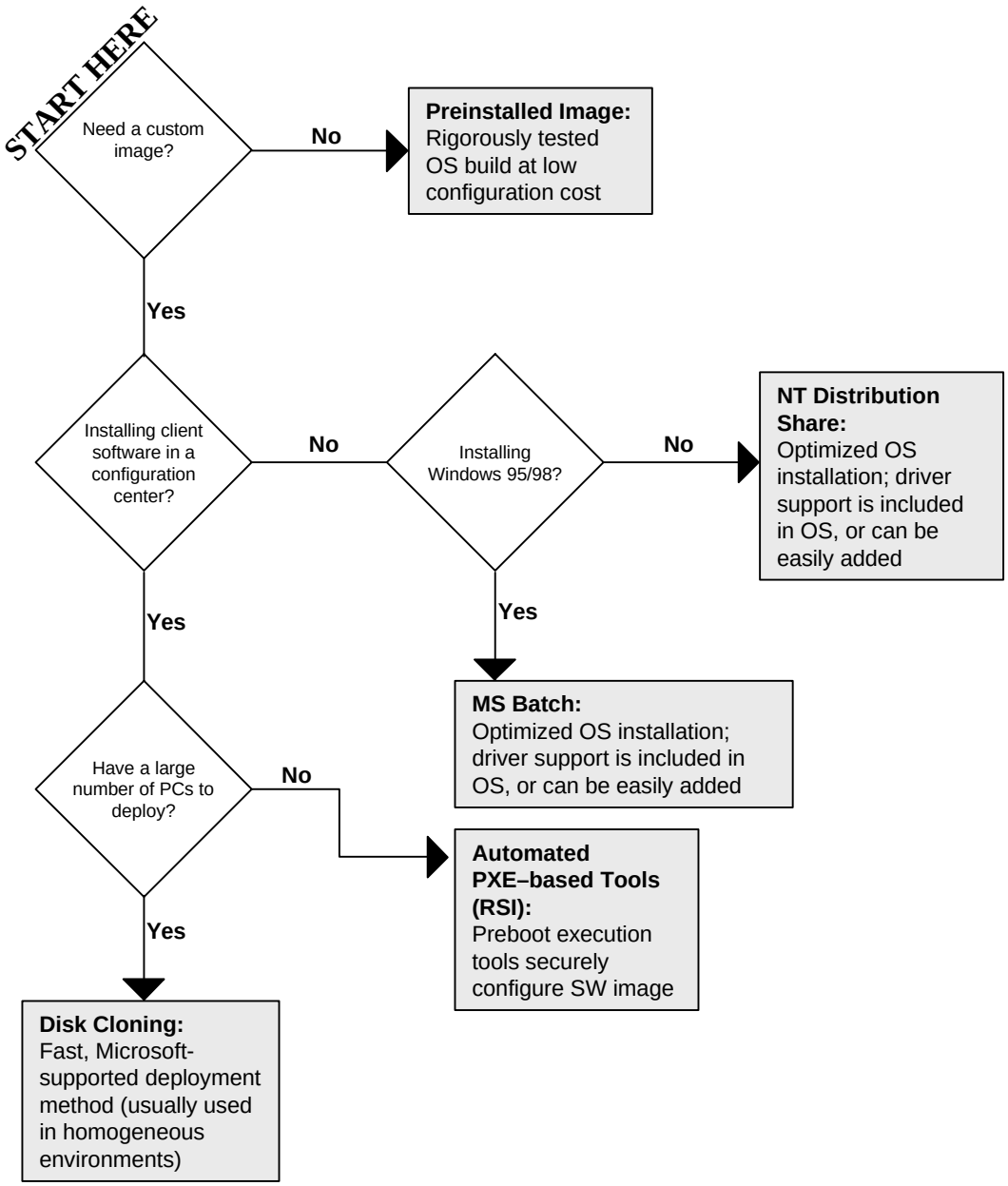
The following tables provide more detailed information about each deployment method.

Deployment Method	Description	Advantages	Disadvantages	Number of PCs Installed At One Time	PC Configuration Types	Location of PC Configuration
Preinstalled Image	Software image preinstalled by the computer manufacturer. Customer installs additional software along with this image.	♦ Provides rigorously tested operating system build. ♦ Reduces customer configuration costs.	♦ Preinstalled image is not integrated with customer applications and may not include the customer's preferred version of the operating system and device drivers.	Small	Heterogeneous PC environment	On site, where customer uses a limited set of standard applications.
Microsoft Tools	Customer uses Microsoft software deployment tools, such as MS Batch or NT Distribution Share (NTDS) to install a custom software image over a network	♦ Provides the most optimized operating system installation for deploying new PCs. ♦ Allows deployment of consistent images across different platforms. ♦ Does not require the purchase of additional tools.	♦ Requires boot diskette; process is not fully automated. ♦ Provides inadequate help as to what software can be integrated with the operating system and how this software should be integrated. ♦ Provides limited hardware support with older operating system versions, because driver support for newer products is not included with the OS. ♦ Provides limited tools for automating the custom software image creation. ♦ Requires custom configuration for drivers and system files not included with the OS. Configuration can be nonintuitive and time-consuming. ♦ Does not include standard tools or processes for ROM configuration.	Small - large	Heterogeneous PC environment, with need for optimized hardware integration.	Configuration center, where security is not an issue: ♦ Minimizes end user disruption ♦ Reduces network bandwidth issues **NOTE:** Can use the Compaq Multi-NIC Boot Utility (MNBU) to automate this process. MNBU boots the PC, detects the NIC, loads the NIC DOS driver, and then launches an executable file on the network drive (e.g., Microsoft Tools).

Deployment Method	Description	Advantages	Disadvantages	Number of PCs Installed At One Time	PC Configuration Types	Location of PC Configuration
Automated PXE–based Tools (Remote System Installation [RSI])	Automates the software installation process for PCs with PXE (preboot execution environment) support. These tools will securely configure a specific software image via a corporate network by booting the PC to a server and then installing the software. The underlying process is similar to the Microsoft Tools.	♦ Graphical user interface (GUI) makes deployment process easier and more intuitive. ♦ Provides standard process for ROM configuration. ♦ Does not require a boot diskette for PXE-support NICs. ♦ Capable of giving you a choice of different software images for installation.	♦ Requires login on client side (not totally automated). ♦ Only one RSI tool is available: Intel LANDesk Configuration Manager (LCM) ♦ LCM is licensed on a per-seat basis.	5 at a time	♦ Net PCs ♦ PCs with no diskette drives ♦ PCs where there is a need for frequent redeployment of software	Configuration center or anywhere on the network; security features limit capability to authorized personnel only.
Disk Cloning	Allows the creation of a standard software image that is then duplicated, or "cloned," on multiple PCs or hard drives.	♦ Provides a fast method for software deployment.	♦ Requires installation of least common denominator drivers and software, so is not appropriate for a mixed hardware environment. ♦ May not yield an optimized operating system installation because of hardware differences. ♦ Does not include standard tools or processes for ROM configuration.	Large	Homogeneous PC environment, with need for hardware optimization and rapid deployment.	Configuration center.

PC Deployment Tool Selection Process

Why do companies use different methods to deploy software images? This flowchart includes some of the common considerations, as well as the deployment tools and processes that best suit different needs.



What Is Compaq Doing to Make PC Deployment Easier?

Compaq is committed to easing PC Deployment by providing the following documentation and software utilities:

- *Compaq Guide to PC Deployment*, including the following white papers:
  - *Network Installation of Microsoft Windows 95 Using LANDesk Configuration Manager on Compaq Deskpro EP and Deskpro EN Series of Personal Computers*
  - *Network Installation of Microsoft Windows NT Workstation 4.0 Using LANDesk Configuration Manager on Compaq Deskpro EP and Deskpro EN Series of Personal Computers*
  - *Network Installation of Microsoft Windows 95 on Compaq Deskpro EP and Deskpro EN Series of Personal Computers Using Microsoft Tools*
  - *Network Installation of Microsoft Windows 98 on Compaq Deskpro EP and Deskpro EN Series of Personal Computers Using Microsoft Tools*
  - *Network Installation of Microsoft Windows NT Workstation 4.0 on Compaq Deskpro EP and Deskpro EN Series of Personal Computers Using Microsoft Tools*
  - *Using the Multi-NIC Boot Utility*
- Utilities that facilitate PC Deployment, as follows:
  - Multi-NIC Boot Utility (MNBU)
  - Operating System Installation Readiness Utility (OSIRU) for Compaq Deskpro EN and EP Series Personal Computers
  - Compaq Universal Serial Bus (USB) Supplement Wrapper

Using Microsoft Tools for PC Deployment

The following white papers include instructions for integrating Compaq software deliverables into Microsoft installation tools:

- *Network Installation of Microsoft Windows 95 on Compaq Deskpro EP and Deskpro EN Series of Personal Computers Using Microsoft Tools*
- *Network Installation of Microsoft Windows 98 on Compaq Deskpro EP and Deskpro EN Series of Personal Computers Using Microsoft Tools*
- *Network Installation of Microsoft Windows NT Workstation 4.0 on Compaq Deskpro EP and Deskpro EN Series of Personal Computers Using Microsoft Tools*

The three papers listed above include sample scripts to help with installation of the following Compaq software deliverables:

- Device drivers
- Management agents
- Operating system fixes
- Diagnostics

Using PXE–Based Tools for PC Deployment

The following white papers include instructions for integrating Compaq software deliverables into the Intel LANDesk Configuration Manager, a PXE–based deployment tool. The papers assist you in configuring LANDesk Configuration Manager and in automating the operating system installation process.

- *Network Installation of Microsoft Windows 95 Using LANDesk Configuration Manager on Compaq Deskpro EP and Deskpro EN Series of Personal Computers*
- *Network Installation of Microsoft Windows NT Workstation 4.0 Using LANDesk Configuration Manager on Compaq Deskpro EP and Deskpro EN Series of Personal Computers*

The two papers listed above include sample scripts to help with installation of the following Compaq software deliverables:

- Device drivers
- Management agents
- Operating system fixes
- Diagnostics

The papers also document how to:

- Flash the ROM before operating system installation
- Partition the hard drive
- Configure boot server to support all current Compaq NICs

Multi-NIC Boot Utility

The Multi-NIC Boot Utility is a new Compaq software tool that automates the boot process while using Microsoft deployment tools. This utility automatically identifies the installed network interface controller (NIC), loads the appropriate NIC DOS driver, and boots the computer to a network drive specified by the network administrator.

The Multi-NIC Boot Utility eliminates the:

- need to know the type of NIC used in a Deskpro personal computer
- requirement to create a separate boot diskette for different types of NICs; one boot diskette serves all supported NICs

The utility provides standard support for all current Compaq NICs and can be extended to third party NICs.

Operating System Installation Readiness Utility for Compaq Deskpro EN and EP Series Personal Computers

The Operating System Installation Readiness Utility for Compaq Deskpro EN and EP Series Personal Computers (OSIRU98) is an update of the existing Compaq software utility that supported previous Compaq Deskpro systems. This utility helps automate the operating system install process. OSIRU98 allows a system administrator to partition and format the primary hard drive without any interaction from the end user.

Compaq Universal Serial Bus Supplement Wrapper

The Compaq Universal Serial Bus (USB) Supplement Wrapper (CPQUSB.EXE) allows installation of the Microsoft Windows 95 OSR 2.1 supplement (USBSUPP.EXE) without user interaction.

Summary

The PC Deployment method you choose depends on your deployment size and type, as well as your information technology environment and processes. Whatever you choose, Compaq delivers products, services, and support for each deployment method. Compaq is committed to helping corporate customers reduce the time and cost of deploying Compaq Deskpro personal computers in the customers' environments. When new operating systems are released, such as Microsoft Windows NT 5.0, you can depend on Compaq to provide full deployment support.