HP Client Automation Enterprise

Core and Satellite

for the Windows® operating systems

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Concepts Guide

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Contents

1 Introduction

At the end of this chapter, you will:

- Know the scope and content of this book.
- Be familiar with terminology associated with HP Client Automation (HPCA).

Welcome to HP Client Automation Enterprise

The purpose of this guide is to give the reader a general understanding of HP Client Automation Enterprise (HPCA Enterprise, HPCA) and how it fits into an existing enterprise environment. The guide introduces, at a high-level, the components used to establish an HPCA environment, their capabilities, and how they relate to one another.

For information about the installation and configuration of HPCA products, go to the HP Software support web site or the appropriate HPCA publication.

The remaining chapters of this book contain the following topics:

- Chapter 2, HP Client Automation Enterprise Features
  This chapter discusses the key features, main components, and additional components that support HPCA Enterprise.
- Chapter 3, HPCA Architecture
  This chapter discusses how to use Core and Satellite servers to quickly set up and scale the infrastructure needed to support your managed-devices.
- Chapter 4, HPCA Functional Views
  This chapter describes some of the HPCA processes. It helps you gain an understanding of how HPCA works.

Terminology

The following terms are used frequently in this publication.

administrator

The person who uses the HP Client Automation (HPCA) Administrator to configure and maintain the HPCA environment.

agent computer

A computer (workstation or server) that has the HPCA agent software installed on it. It may also be referred to as a device.

desired state

The condition of a device as defined by the configuration parameters you set in the CSDB. These parameters include software, operating system, and policy.

device

A piece of hardware, such as a computer or ATM, that may be either a managed device or a target device.

HP Client Automation Administrator (Administrator)

A set of HP Client Automation Administrator tools (including the Agent Explorer, Packager, Publisher, CSDB Editor, Screen Painter, and the AMP Editor) that you use to manage the HPCA environment. The set installed onto a Core server does not include the Packager and Screen Painter, which should not be used on a Core server.

HPCA agent

The agent software (such as the Application Self-service Manager, Application Manager, Patch Manager, Inventory Manager and OS Manager) that runs on the managed device and communicates with the Configuration Server.

HPCA agent connect

The process by which a managed device communicates with the HPCA Configuration Server.

HPCA Configuration Server (Configuration Server)

In conjunction with the CSDB, a server that stores, manages, and distributes application package information, and manages policy relationships and information about managed devices. This server is mandatory in any HPCA environment; without it, the infrastructure will not function.

HPCA Configuration Server Database (CSDB)

An object-oriented database that stores all the information needed to manage assets on a device, including the software, patches, OS images and/or data that HPCA distributes, the policies that determine which users are entitled to which resources, and security and access rules for administrators. It has a hierarchical structure containing four levels: files, domains, classes, and instances.

HPCA Core

A critical server that maintains the authoritative data repository, policy entitlements and desired state configuration parameters for all resources being managed on clients. The Core server includes a complete set of Client Automation infrastructure necessary for authentication, centralized administration, reporting, configuration, resource deployment and satellite communications.

HPCA Satellite

A server that acts as an access point for HPCA agents' communications and resources.

managed device

A computer, ATM, or other piece of hardware, that is managed by HPCA.

package

A unit of software or data that can be published to the CSDB.

policy

A designation of the services to which a subscriber, an agent computer, or a managed device is entitled.

resolution

The process by which the object attribute values on a managed device are replaced with those that are required to achieve its desired state.

service

A group of related packages, methods, or behaviors organized into manageable units.

target device

A workstation or server on which you want to install, replace, or update software.

user or subscriber

The person who uses managed applications on a managed device.

HPCA Publications

While this book provides an overview of HPCA components and concepts, it is merely a starting point. You can find more information on all of the HPCA products on the HP Software support web site and the HPCA DVD media.

- When using the Core and Satellite, the most important guide to read and reference is the *Core and Satellite Servers Getting Started Guide.* This guide provides information for new users adopting the Core and Satellite infrastructure deployment model.
- Refer to the *HPCA Publications* appendix in the *Core and Satellite Servers Getting Started Guide* for a list of relevant publications. These publications describe how to prepare, publish, and deploy your data for management on your enterprise's agent computers.

The additional guides in the HPCA documentation set were written prior to the Core and Satellite deployment model, and assume a non-Core and Satellite model. The *Core and Satellite Servers Getting Started Guide* includes information on how to use the HPCA publications in a Core and Satellite environment.

Be sure to periodically check the HP Software support web site for new and updated publications.

2 HP Client Automation Enterprise Features

At the end of this chapter, you will:

- Know the features available with the HP Client Automation (HPCA) Enterprise family of management applications.
- Know the main components with HPCA: Core Server, Satellite Server, and Agents.
- Know the supporting components used with HPCA: Web-based Consoles, Administrator Publisher, and Image Preparation Wizard.

Overview

HP Client Automation is available in the following product levels, Starter, Standard, and Enterprise.

This guide presents information about the Enterprise level, which is capable of managing Windows and Linux clients in large, diverse, and complex environments.

For information on Starter or Standard levels, refer to the HP web site or the *HP Client Automation Starter and Standard Administrator Guide*.

The following section details the Client Automation features available with the appropriate Agent licenses:

- HP Client Automation Enterprise Features on page 17

The following sections contain summary information about the main HPCA components:

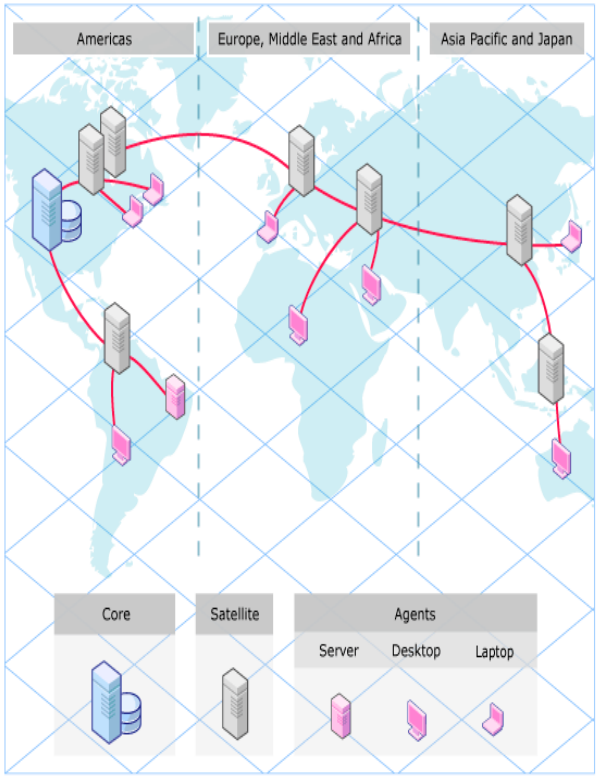
- HPCA Core Server on page 20
- HPCA Satellite Server on page 20
- HPCA Agents on page 21

The following sections contain summary information about the supporting HPCA components:

- HPCA Web-based Console on page 24
- HP Client Automation Administrator Publisher on page 25
- The Image Preparation Wizard on page 26

Figure 1 on page 17 illustrates a sample HPCA environment.

Figure 1 Sample HPCA Environment



HP Client Automation Enterprise Features

The following client management capabilities are available in HP Client Automation Enterprise:

- **Software deployment**
  Deploy packaged software to managed devices. Software can be distributed to locally or remotely connected PCs. If a device is on the network, but not powered on when the deployment job is run, the deployment process can power it on.
- **Hardware and software inventory**
  Collects hardware and software inventory from your HPCA-managed devices. The inventory information collected on devices is viewed through the Reporting Server. Reporting tools present the data in detailed or

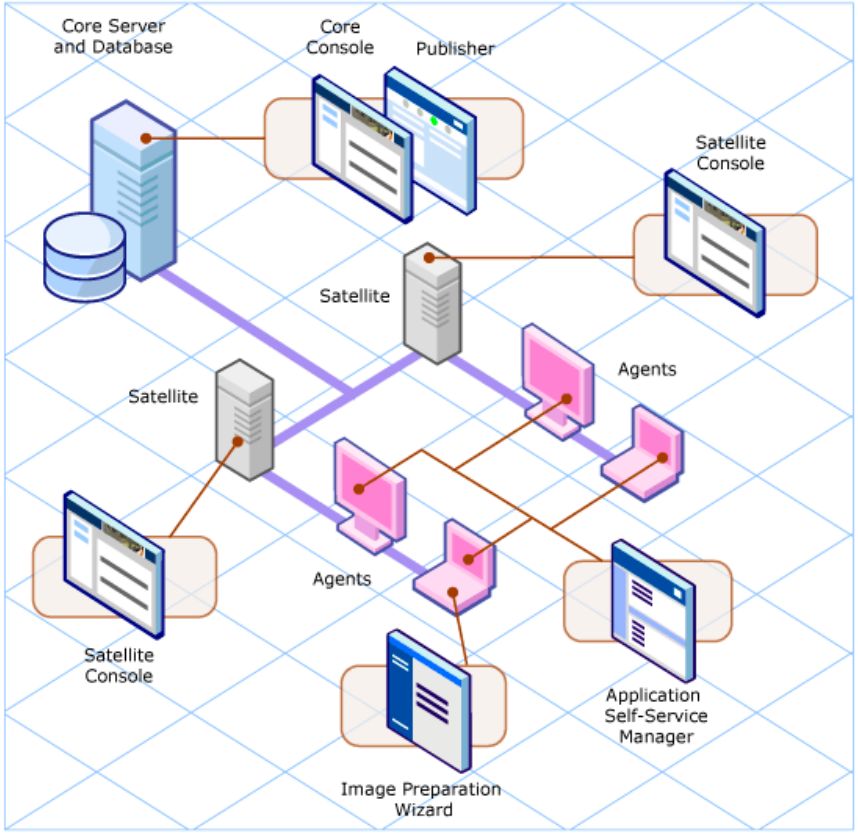
graphic views that can be easily filtered to show devices matching particular criteria.

- **Vulnerability management**
  Detect security vulnerabilities on managed clients in your enterprise and use the Enterprise Manager Dashboards to quickly assess the severity and scope of the related risk. You can then take steps to remediate these vulnerabilities.
- **OS deployment and management**
  Deploy and maintain supported Windows operating systems to clients. Operating systems can be deployed to bare metal devices (no existing operating system) or to devices currently running an existing supported Windows operating system.
- **Thin client management**
  Deploy operating systems and software to HP thin clients running Windows XPE, CE, and embedded Linux. Thin clients are computers that depend primarily on a central server for processing activities. HP provides many thin client device models.
- **Patch management**
  HP Client Automation Enterprise provides the ability to manage vendor patches in an environment. Patches are automatically acquired from Microsoft or another vendor. After acquisition, the software on the agents determines patch compliance, and patches can be deployed to the devices. After patches are deployed, they are regularly verified to ensure the device is protected against the security threat addressed by the patch.
- **Remote management**
  Administrators can take control of problem devices with integrated remote control capabilities in the Enterprise Manager and Portal consoles. Beyond remote control, administrators have additional power management capabilities, such as the ability to power down or reboot devices, and Wake-On-LAN.
- **Hardware alert reporting**
  Devices managed by HP Client Automation can be configured centrally to report hardware alerts, such as fan failure or chassis opening, on the clients or to the central console. Using the HP Client Management Interface (CMI), an administrator can target a system for repairs before other hardware components are affected.

Main Components

There are only three main components in this version of HPCA: the Core, the Satellites, and the Agents. The main components support consoles and administrative tools, as illustrated in the following figure and topics.

Figure 2 HPCA Main Components and Tools



New Core and Satellite Benefits

Both the Core and Satellite are new in the 7.20 release of HP Client Automation Enterprise. They include consolidated and preconfigured sets of existing HPCA infrastructure components that:

- Allow you to run a single program to automatically install all HPCA component services needed for a Core or Satellite.

- Require minimum post-installation configuration using a browser-based Console.
- Each run under a single Windows service that controls all component services.
- Minimize the required ports for HPCA communications.
- Make it simple to setup and expand the servers needed for HPCA across your enterprise.

HPCA Core Server

The **HP Client Automation Core** (**HPCA Core**) is a critical and required server in the HPCA environment. It maintains the *authoritative configuration repository* within its Configuration Server Database (CSDB). The Core provides an aggregated point of administration for all related Satellite servers, and provides consolidated administration and consolidated reporting from its SQL databases for Patch, Inventory, and Vulnerability Management. Customers may have only one such server, or many, depending on their requirements.

The Core Server runs the HPCA Core service that manages all component services, databases and directories under its control. A Core contains an entire set of HPCA infrastructure that is needed to support any feature, from Software to Patch to Vulnerability to OS management. For a detailed list of the Core Component Services, see the *Core and Satellite Getting Started Guide*.

From a Core server's Start menu or web browser, administrators can access the additional HP Client Automation operational consoles, including the Enterprise Manager, the Portal, the Reporting Server, and the Patch Manager Administrator.

Refer to Chapter 3, HPCA Architecture for more topics related to the Core Server.

HPCA Satellite Server

The **HP Client Automation Satellite** (**HPCA Satellite**) is a server that acts as the access point for Client Automation agents. A Satellite only contains data that has been replicated from the *authoritative configuration repository* on the Core, and thus Satellites can be added or removed from your environment as needed. Satellites are added to increase the scalability of your HPCA environment, and are placed at network locations that are strategic to your Agents. In a typical corporate computing environment, a

Satellite is located in “network proximity” to the Client Automation agents that it serves in order to enhance their performance and minimize the impact on the **Wide Area Network** (**WAN**).

Satellites can be configured to perform all or some of the following roles, which allows you to add Satellites with minimum footprints where they are needed:

- Configuration services (for Agent resolution of desired state)
- Data cache services (for software and patch data delivery)
- Policy (for connecting to an external directory for policy resolution)
- OS services (for OS images delivery)
- Thin client services (for Windows CE Agents, only)
- Multicast (for simultaneous distribution of data resources to multiple agents)

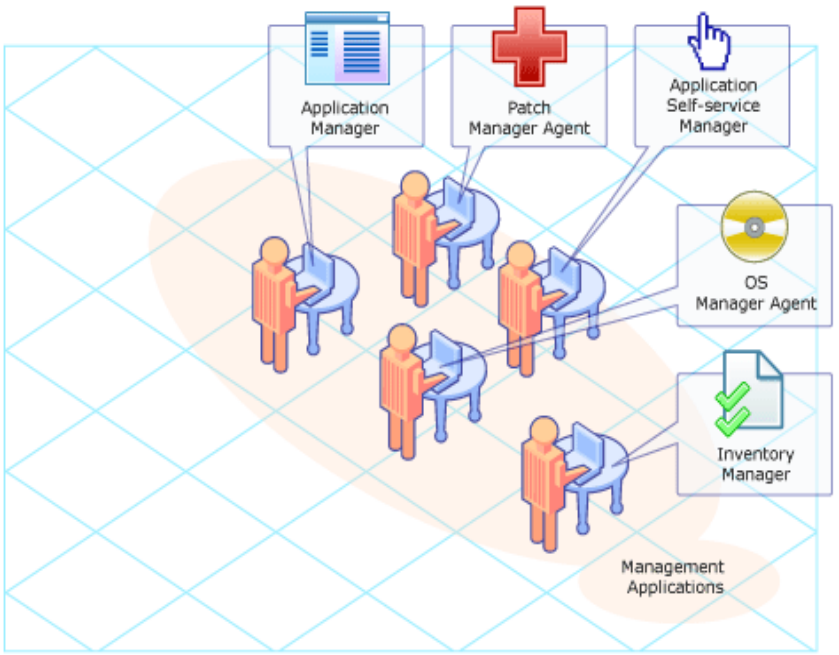
Similar to the Core Server, the Satellite Server runs the HPCA Satellite service that manages all component services under its control. For a detailed list of the Satellite Component Services, see the *Core and Satellite Getting Started Guide*.

Refer to Chapter 3, HPCA Functional Views for additional topics related to the Satellite Server.

HPCA Agents

The Agents are software plug-ins that an administrator deploys to the target devices in your enterprise, such as desktops, laptops, and thin clients. The Agents communicate with the HPCA Core and Satellite server components to enable HPCA Administrators to manage the discovery, deployment, configuration, repair, update, and removal of data on these devices.

Figure 3 HPCA management applications (agents)



There are several HPCA agents available for managing different aspects of the devices in your environment.

Table 1 below describes the essential functions of each of the HPCA agents.

Table 1 HPCA agents and essential functions

HPCA agent	Use
Application Manager	Deploys mandatory software services to unattended devices. Used to install, remove, verify, repair, and update data on a schedule or immediately. Also used to deploy complex client applications using Application Management Profiles, and to deploy applications for Windows Terminal Services.
Application Self-service Manager	Allows users to install, remove, verify and update the optional services to which they are entitled by an administrator. Provides a user interface with online help.

HPCA agent	Use
Patch Manager	Deploys and maintains vendor's security patches and bulletins. The Patch Manager agent: • Gathers information about security patches installed on the managed device. • Manages the deployment of patches. • Monitors the continued security vulnerability compliance of managed devices.
OS Manager	Enables your managed devices to work other OS Manager components to provision and manage operating systems on managed devices. The HPCA OS Manager: • Deploys operating systems based on policy assignments. • Can prompt the user to choose an operating system based on a set of criteria.
Inventory Manager	Tracks and reports hardware and software inventory on managed devices. Increases manageability of enterprise data by maintaining current inventory information collected across LAN, Internet, and dial-up links, and across a wide array of heterogeneous devices and operating systems.

Not all management applications are available for all operating systems and architectures. Consult the HPCA 7.20 Release Notes on the product media or on the HP web site for the most current information on platform availability.

Additional Components

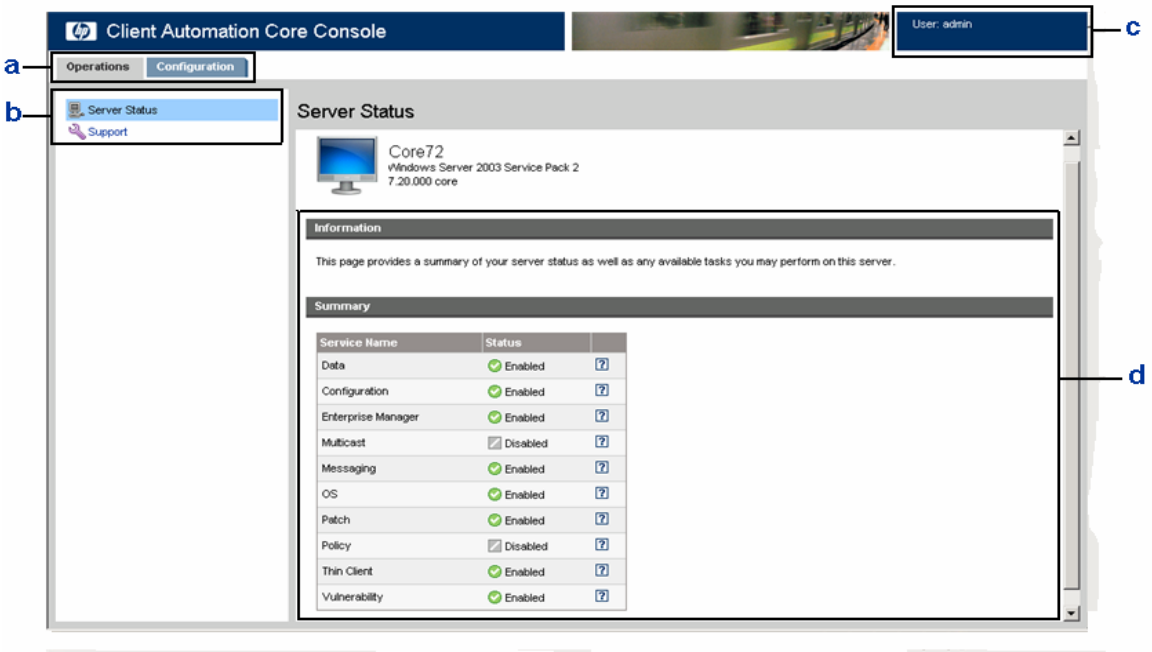
Several additional components are available, including administrative, management and reporting Consoles; Administrative packaging and publishing tools; and OS Image Capture tools.

HPCA Web-based Console

The web-based console installed on the Core or Satellite Servers can be accessed with appropriate credentials from any web-browser. Additional operational consoles can be accessed from the Core Server using the Windows Start menu, the browser's Favorites menu, or the web-page URLs listed below:

- **Core or Satellite Console – `http://`*`core_or_satellite_server`*`:3466`**
  Used by the system administrator to configure the Core or Satellite servers in the enterprise. The Satellite console is also used to synchronize contents between the Core and Satellite Servers. For more information, refer to the *HPCA Core and Satellite Servers Getting Started Guide*.
- **Enterprise Manager – `http://`*`core_server`*`:3466/em`**
  Agent management tool that enables administrators and authorized end users to view the status of your enterprise at a glance using the Operations, Vulnerability Management, and Patch dashboards. Administrators also use the Enterprise Manager to manage software, patches, and inventory and to set policy. For more information, refer to the *HP Client Automation Enterprise Manager User Guide*.
- **Reporting Server – `http://`*`core_server`*`:3466/rrs`**
  Reporting tool used by administrators and authorized end users to create and view consolidated reports on all managed devices in your enterprise for Hardware and Software Inventory, Patch Management, Vulnerability Management, and Application Management Profiles. Reports can access data from multiple SQL databases. For more information, refer to the *HP Client Automation Reporting Server Guide*.
- **Portal – `http://`*`core_server`*`:3466/rmp`**
  Provides web services in support of many HPCA activities. Used for OS Manager Administration tasks. Many Portal tasks are now available through the Enterprise Management console. For more information, refer to the *HP Client Automation Portal Guide* or the *HP Client Automation Enterprise Manager Guide.*
- **Patch Manager Administrator – `http://`*`core_server`*`:3466/patch`**
  Used by an administrator to define and run patch acquisitions, and synchronize acquired patches with the Patch SQL database.
- **Product Documentation - `http://`*`core_server`*`:3466/docs`**
  Provides access to the set of HP Client Automation guides provided with this release in Adobe Acrobat format.

Figure 4 HPCA Console areas



Legend

a **Console Tabs –** the tabs across the top of the console that allow you to navigate to the two main console areas

b **Workspace Tabs –** tabs displayed within each section

c **Login Identity –** area that displays the identity of the currently logged on user

d **Workspace -** main area where contents of each are displayed

HP Client Automation Administrator Publisher

The Administrator Publisher is used to publish software or operating system images to the CSDB on the HPCA Core Server. Software services can then be entitled and deployed to managed devices in your environment.

A **service** is any entry in the Software Library, Patch Library, or OS Library. A service **import deck** or **export deck** contains all components necessary to install a particular service (files and folder structures, for example).

The Publisher should be installed to the device from which you plan to select and configure software services. You can install the Administrator Publisher using the HP Client Automation Administrator installation file included on the HPCA Enterprise installation media.

- **HP Client Automation Agent Explorer**
  The Agent Explorer is a component of the HP Client Automation Administrator and is installed along with the Publisher. It is available to aid with troubleshooting and problem resolution and should not be used without direct instructions from HP Support.

The Image Preparation Wizard

The Image Preparation Wizard prepares and captures operating systems locally on a device. The wizard is part of the Image Preparation Wizard CD ISO that is available on the HPCA Enterprise DVD.

See *the HPCA OS Manager System Administrator User Guide* for more information.

Getting Help

Click the **Help**  button in the upper right corner of most console windows to open the online help.

Help is available from the Enterprise Manager console, the Publisher, Application Self-service Manager, and Image Preparation Wizard; they each contain specific online help based on information in their respective guides.

3 HPCA Architecture

At the end of this chapter you will:

- Know about the three main pieces needed to create any HP Client Automation environment: Core Server, Satellite Servers, and Agents.
- Understand the distinct roles played by the Core and Satellite Servers.
- Be aware of the various deployment architectures that are available to scale support for large or disperse enterprises.

Streamlined HPCA Framework

The Core and Satellite servers, first introduced in the 7.20 release, offer a very simple and flexible framework for building and expanding a Client Automation environment to meet the needs of any number of HPCA Agents in your environment. Because the Core and Satellite servers have fixed roles, there are now only three things to "stack and build" in your Client Automation environment:

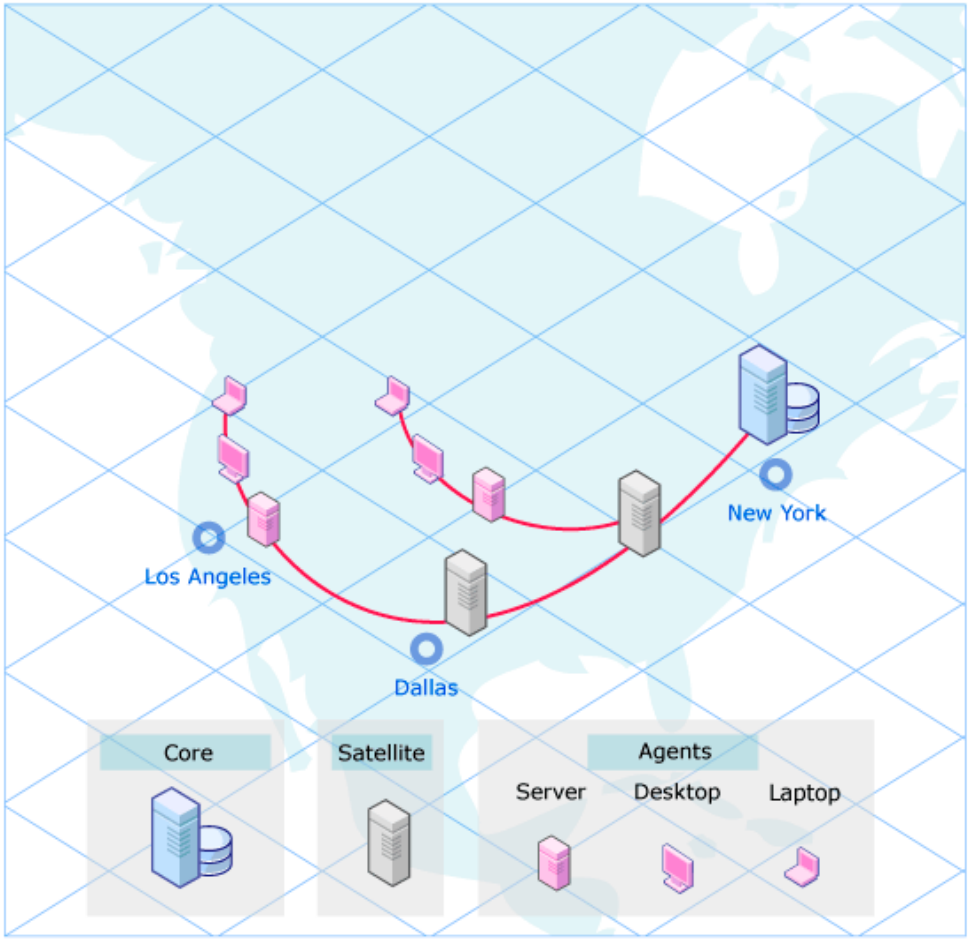
- Core
- Satellites
- Agents

To use a body metaphor for your HPCA environment:

- The Core represents the "head" and "brain" of HPCA with its embedded intelligence; it is a precious resource that stores the authoritative configuration respository, the consolidated reporting database, and hosts the interfaces with external acquisition sources for Patch and Vulnerability Management.
- The Satellites represent "limbs" used to extend the reach of the Core and perform activities—if given authority; depending on how they are sized and configured, they provide local sources for Agent resolution, data, or OS images.
- The Agents act as the "fingers" that touch and interact with the managed devices.

These basic 'building blocks' of an HPCA environment are illustrated in the following figure.

Figure 5 A typical HPCA environment



Consolidated Installations, Ports, and Services

When you install a Core server or Satellite server, you install a consolidated set of infrastructure services, consoles, and engines that are needed for that server's role. Post-installation configurations applied through the consoles establish connections to the desired internal or external databases and directory services. These consolidated server installations:

- Minimize the time it takes to install and configure the components.

- Require only a few exposed port numbers – individual component port numbers are internal.
- Allow for easy scaling by adding, configuring, or removing Satellite servers.

The Core server is installed with a full set of HPCA infrastructure (including those installed with a Satellite Server), but its distinct role is that it is the primary and authoritative repository source for configuring and managing Agent-content across the enterprise.

All of the component infrastructure services installed on a Core or Satellite run under the control of either the *HPCA Core service*, or the *HPCA Satellite service*.

Figure 6 below identifies a sample set of infrastructure component services installed onto a Core server and Satellite server; note that very few components are unique to a Core server.

Figure 6 Sample Services on Core and Satellites.

HPCA Core

Service Name	Status	State	
Data	Enabled	Running	
Configuration	Enabled	Running	
Enterprise Manager	Enabled	Running	
Multicast	Disabled	Stopped	
Messaging	Enabled	Running	
OS	Disabled	Stopped	
Patch	Enabled	Running	
Policy	Disabled	Stopped	
Thin Client	Disabled	Stopped	
Vulnerability	Enabled	Running	

HPCA Satellite

Service Name	Status
Data Cache	Enabled
Configuration	Enabled
Multicast	Disabled
Messaging	Enabled
OS	Disabled
Policy	Disabled
Thin Client	Disabled

The SQL Core and Patch Databases, used for consolidated Dashboards and reporting, reside only on the Core.

In small environments, it is possible to install only one Core server and use it to manage a limited number of HP Client Automation Agents. However, in most environments, adding Satellite servers will optimize performance in

managing Agents. A Satellite is always recommended for OS Manager support.

Core Functions Summary

The **HP Client Automation Enterprise Core** (**HPCA Core**) is the critical *authoritative repository* that maintains all configuration parameters, policy entitlements and data resources (from applications to patches to OS images) used to manage your clients; it provides an aggregated administration point for reporting activities and for all related Satellite servers. The Core contains all content acquisition sub-systems: such as Patch acquisition and the Vulnerability Management acquisition of OVAL security and vulnerability definitions. The Core is also the point of integration with any third-party systems from HP, ISV's, or a customer's own environment. A customer may have only one Core server, or many, depending on their requirements.

The set of components bundled into the Core installation include those needed to:

- Maintain desired state information
- Store data packages
- Automate software management activities
- Host and populate the consolidated reporting database
- Communicate with external directories, such as your own Policy Active Directory (AD or LDAP directory, and external networks used to acquire content to be managed, such as HP Live Network and Microsoft's site for downloading bulletins and patches.
- Communicate with downstream Satellites
- Administer your environment

Authoritative Configuration Repository

The vital role of the Core is to host the authoritative configuration repository. This is the CSDB that contains the configuration information for the software, patches, and OS images that are being managed through HP Client Automation. The Core CSDB is the source for all downstream Satellite CSDBs.

For more information on the Configuration Server and the CSDB refer to the *HP Client Automation Configuration Server User Guide (Configuration Server Guide)*..

Satellite Functions Summary

The **HP Client Automation Enterprise Satellites (HPCA Satellites)** are the access points to the Agents in your enterprise. The Satellites contain *recoverable* information only because their content is always replicated from the authoritative source on the Core. Satellites can, therefore, be rebuilt or recovered at any time by synchronizing the Satellite with the Core or upstream Satellite.

Numerous Satellites are typically used to increase the scalability of your HPCA environment. Satellites are placed in "network proximity" to the Client Automation agents that they serve in order to enhance their performance and minimize the impact on the **Wide Area Network** (**WAN**).

Satellites are not "masters" of any stable information and can, therefore, be rebuilt and recovered at any time by synchronizing it with a Core server or an upstream Satellite.

HP Client Automation Satellites can be configured as:

- **Full-service Mode**
  these are able to provide configuration services (Configuration Server), in addition to high-volume data-distribution services via unicast and multicast.
- **Streamlined Mode**
  these are able to provide the high-volume data services, as well as the OS-configuration services that are required for OS provisioning. They do not provide configuration services; rather your service access points should refer Client Automation agents to an upstream full-service Satellite or a Core server to satisfy those requests.

HPCA Satellites communicate upstream with either other Satellites or Core servers. The types and purpose of these communications are varied and consist of:

- Synchronization of partial or full data caches
- Synchronization of CSDBs
- Requests for policy resolution
- Requests for OS device status
- Informational messages for reporting the status of management activities by the Satellite and its Client Automation agents.

Flexible Configuration Options

Both the Core and Satellite Servers offer a Console that makes it easy to customize or reconfigure the component services. For example, you may want to designate specific Satellites as dedicated OS Manager Servers, and disable unneeded services on those Satellites.

Satellite Deployment Models

Satellites can be installed throughout the enterprise to offer the Agents as many points of access as needed. In smaller environments with a limited number of agents, only a single Satellite may be needed. In larger or more diverse environments, several or many Satellite servers may be needed in order to meet the performance, capacity, and availability needs of your Agents.

- The HPCA Satellite is an *access point* for Client Automation agents.
- Its *network proximity* to Client Automation agents alleviates the workload on the WAN, and facilitates faster and more reliable data transfer.
- The HPCA Satellite can be configured in one of two modes:
  - *Full-service*: offering configuration services as well as data services and OS configuration services to the Client Automation agents that it serves, or
  - *Streamlined*: offering high-volume data services and/or OS configuration services to the Client Automation agents that it serves.
- HPCA Satellites *communicate upstream* to other HPCA Satellites and the HPCA Core.

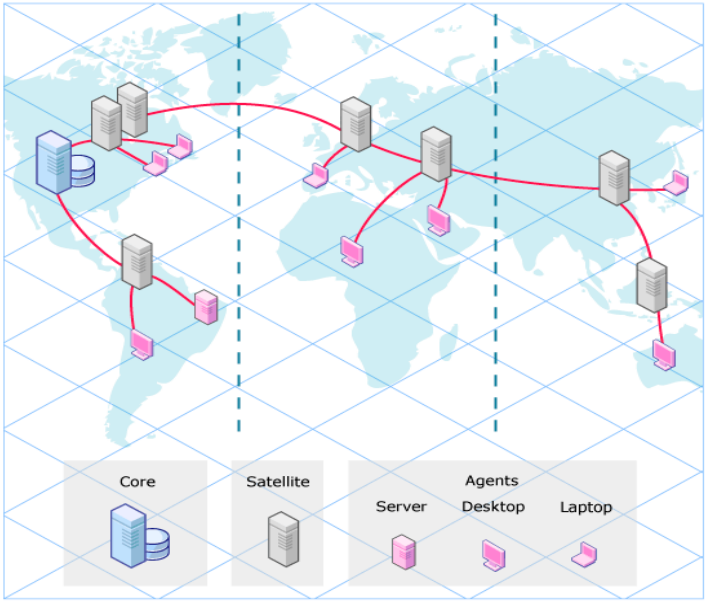
Locating Satellites in the Enterprise

Place Satellites at network locations that are strategic to your managed Agents. Satellites can be added and stacked either horizontally or vertically, as needed, to optimize overall performance. Factors that may influence where and how many Satellites you add to your environment include:

- Capacity – Add Satellite farms to scale support for large numbers of Agents.
- Availability – Add Satellites to ensure server availability.
- Network Proximity – Add Satellites to optimize network performance. For example, if some branches or sites in your enterprise have limited bandwidth, place additional Satellites in strategic locations to make the most efficient use of the available bandwidth.

In larger environments, Satellites can be scaled vertically, stacking multiple tiers of Satellites beneath a Core.

Figure 7 Satellites Scaled Horizontally and Vertically



Satellites can be added or removed at will; their repository contents are all replicated from the Core and all of their data services are a subset of those

available on the Core. The larger or more disperse your environment, the more Satellite servers you will want to consider.

Following installation, Satellites can be configured as full service or streamlined satellites.

Configuring Full or Streamlined Satellites

Full service Satellites have the ability to handle nearly all Agent requests on their own, without having to forward the request to an upstream Core. They have all services that are available to them enabled. These will include:

- Configuration Services:
  Configuration services include replicated versions of the Configuration Server and CSDB. This enables the Satellites to resolve the desired-state of Agents that connect to them. Policy Services enable an external policy directory, such as an Active Directory, to be accessed from the Satellite, for Agent resolution.
- Policy Services:
  Most customers have an existing LDAP directory they want to utilize for storing HPCA policy entitlements. Policy Services enables an external policy directory, such as an Active Directory, to be accessed directly from the Satellite, for Agent resolution.
- Messaging Service:
  Automatically route Agent-reported data back to the upstream server. This service is always enabled and cannot be disabled.
- Data Cache Services:
  Data Cache services store local caches of software, patch and OS image resource data for content delivery to Agents. Data cache services include the ability to distribute content using unicast or multicast. Multicast requires that service to be enabled.
- OS Manager services:
  OS Manager services store local caches of OS images for deployment to managed devices.
- Thin Client services:
  Service required to manage Agents on Windows CE thin clients.
- Multicast services:
  Enables the simultaneous distribution of data resources to multiple Agents. Used to distribute OS Manager images.

Steamlined satellites have one or more functions disabled, which means that the Agent requests they cannot fulfill locally will be directed to an upstream full-service Satellite or Core. For example, a streamlined satellite:

- May be primarily used to cache and deploy software and patch content to the Agents. This streamlined Satellite has a much smaller footprint than a full-service Satellite.
- May have Configuration Services disabled. Without a local Configuration service enabled, the Satellites forward Agent requests for desired-state resolution to an upstream Core or full service Satellite.
- May have the OS Manager, Thin Client, and Multicast services enabled or disabled.

Synchronizing the Core and Satellite Metadata and Data

After the Core's CSDB is populated with the configuration model and policy entitlements for the agents, the Core metadata and data need to be loaded onto the Satellite servers. The *Synchronize* task on a Satellite console is used to bring down the Core configuration (metadata) and resource data to the Satellites throughout your enterprise.

If there are multiple tiers of Satellite in your environment, the Satellites using the Core server as their upstream host are considered the first-tier Satellites. Use the Synchronize task from a first-tier Satellite to synchronize its contents with the Core. Then use the Synchronize task on the next tier Satellite to synchronize its contents with its upstream satellite host. Synchronize your Satellites throughout the enterprise using this method for any additional Satellite tiers in your enterprise.

Following the synchronization (sync) operation:

- The Core and Full-Service Satellites share the same metadata – or information about configuration, policies and managed data.
- The Core and Streamlined Satellites share the same resource cache for managed data (software, patches and OS images).

Tiered Architecture Example

The following example shows how to set up an HPCA environment to handle substantial numbers of Agents in multiple regions, and:

- Manage mandatory data using the Application Manager Agent.
- Discover and report on security vulnerabilities using the Enterprise Manager
- Analyze and manage vendor software patches with the Patch Manager Agent.
- Create policy entitlements using your existing external LDAP directory service.
- Use Satellites to distribute the configuration management of the devices across your enterprise.
- Place Streamlined Satellites in network locations that are strategic to your target devices.

You could easily use a Core Server with two tiers of Satellite servers to support this distributed environment.

1. Install a Core server. This automatically installs the needed Configuration Management and CSDB, Enterprise Manager, Patch Manager, Messaging, Reporting, and Policy Server components.

   Use the Core Console Configuration Tab to configure:

   — Messaging and Patch: The ODBC connections for Core and Patch DSNs. (Note: After the ODBC DSNs are configured, the Core server automatically initializes the SQL database tables for Core and Patch, as well as synchronizes the Patch tables with the CSDB.

   — Policy: The connection to an external Active Directory used to define your policy entitlements.

   Following the Core Console configuration steps, continue by using the Patch Manager Administrator console to setup the non-infrastructure configuration and acquisition items required for acquiring Microsoft or Linux patches.

   Also use the Enterprise Manager Console to complete the configuration of Enterprise Manager's access to HP Live Network; HP Live Network is used to automatically acquire OVAL definitions for Vulnerability Management.

2. Install Satellite Servers to distribute the configuration management of the devices across your network:

   — Specify the Core as their upstream server.

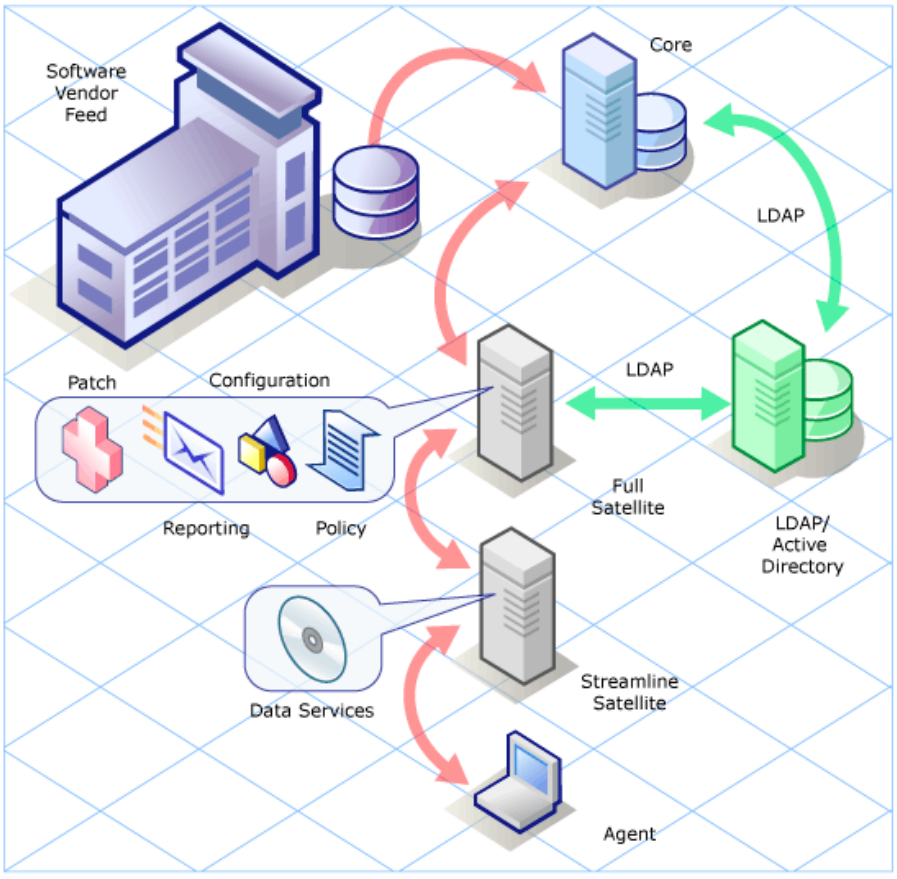
   — Keep these Satellites fully enabled for Configuration services and Data caching services.

- To access your existing external LDAP directory services for Policy information, also configure the Satellite to access this external directory for Policy.

3. Install additional Satellites close to the devices to be managed by HPCA:
   - Specify the full service Satellite as their upstream server.
   - Configure these Satellites to disable the Configuration service and any OS Manager service.
   - Leave Data Resources enabled.
4. Deploy Agents with the Application Manager and Patch Manager plug-ins to the devices in your enterprise.
5. Define Client Operation Profiles to direct the agents to connect to the appropriate Satellites in your environment.

A diagram of your network might be similar to Figure 8 on page 39.

Figure 8 HPCA Application and Patch Manager environment



At this stage, all of the architecture pieces are in place.

Software Publishing and Patch and Vulnerability Acquisition

The next steps are to:

1. Use the Administrator Publisher to package and publish the software to be managed to the Core CSDB.
2. Use the Patch Manager Administrator to run an acquisition to publish the patches to be managed to the Core CDSB.
3. Use the Enterprise Manager to acquire OVAL definitions using HP Live Network. These definitions are automatically published to the Core

CSDB in the Security domain as Vulnerability Discovery services. Refer to the *Enterprise Manager User Guide* for more information.

Adding Policy Entitlements

1. Use the Admin CSDB Editor or the Portal to add configuration information to build the desired state.
2. Use Enterprise Manager to add policy that entitles the software, patches, and the vulnerability discovery services to the agent devices.

Synchronize Satellites with their Upstream Host

1. Run the Satellite Synchronize Operation from the first tier, Full Service Satellite(s).
2. Run the Satellite Synchronize Operation from the second tier, Streamlined Satellite(s).

Agent Connections

Initiate agent connections through a Schedule, a Notify, or the HPCA Self-service Manager application. For information on these topics, refer to the *HP Client Automation Enterprise Manager User Guide* or the *HP Client Automation Application Manager and Application Self-service Manager Installation and Configuration Guide*.

4 HPCA Functional Views

At the end of this chapter, you will:

- Know the components and information flow for Vulnerability Management.
- Know the components and information flow for managing patches.
- Know about the components and processes used to capture, deploy and manage OS images.

Vulnerability Management View

Beginning with version 7.20, HP Client Automation offers a vulnerability management solution that enables you to detect security vulnerabilities on managed clients in your enterprise and quickly assess the severity and scope of the related risk. You can then take steps to remediate these vulnerabilities.

HPCA is integrated with the HP Live Network, a subscription service that tracks, triages, and analyzes the latest security vulnerability information available (see Figure 9 on page 43). You can configure the Enterprise Manager to automatically download new security vulnerability content from the HP Live Network on a periodic basis, rather than depend on a manual process. This content includes a vulnerability scanner for clients and detailed information about individual vulnerabilities, including descriptions, disclosure dates, severity levels, and suggested remediation solutions.

The HP Live Network content is then published to the Core Server's Configuration Server Database (CSDB), and managed clients can be subsequently scanned for vulnerabilities according to the schedule that you specify.

The Enterprise Manager provides a Vulnerability Management dashboard that shows the security vulnerability status of your enterprise at a glance. It also provides a Patch Management dashboard to help you quickly assess patch policy compliance across the enterprise and an HPCA Operations dashboard to show you the number and type of operations HPCA has performed over time.

For more information on using Enterprise Manager and providing Vulnerability Management for the managed agents in your enterprise, refer to the *HP Client Automation Enterprise Manager User Guide*.

Figure 9 Vulnerability Management in HPCA

Legend

1. Updated vulnerabilities are downloaded and analyzed by the HP Live Network team.
2. Updated vulnerabilities and scanner are downloaded by HPCA from HP Live Network.
3. Managed clients are scanned for vulnerabilities by HPCA.

Patch Management View

The Patch Manager Server and Patch Publisher on the Core server provide for automated patch acquisition and publishing of security bulletins and service packs.

The Patch Management architecture and processes require a Patch Manager SQL Database for storing and reporting on patch vulnerabilities.

Patch Management relies on the Patch Manager Server that is only installed on the Core Server. The Patch Manager Server is responsible for:

- Acquiring patches from vendors' web sites.
- Publishing patches to the PRIMARY.PATCHMGR Domain.
- Synchronizing patch information with the Patch Manager SQL Database.
- Automatically acquiring, publishing and deploying Patch Manager Agent updates.

For complete information on how to use HPCA to provide Patch Management for the managed agents in your environment, refer to the *HP Client Automation Patch Manager Installation and Configuration Guide*.

Patch Acquisition and Publishing

During the acquisition, the following happens:

1. The vendor's web site is contacted to prepare for the acquisition of bulletins.
3. Information about the security bulletins and service packs and (optionally) the actual patch files is downloaded. The information that is downloaded contains detailed data about each patch, such as supersedence, reboot requirements, and probe information.
4. An XML file is created for each security bulletin that is acquired and is put in that vendor's folder within the Patch Manager Server directory. These files are called **patch descriptor files**.
5. The PRIMARY.PATCHMGR Domain on the Core CSDB is populated with this information.
6. Services are created in the PRIMARY.PATCHMGR Domain for each of the acquired bulletins.

7 The PATCHMGR Domain is synchronized with your Patch Manager SQL database.

If you have already performed an acquisition, only instances that are different are updated.

Patch Manager Agent Maintenance

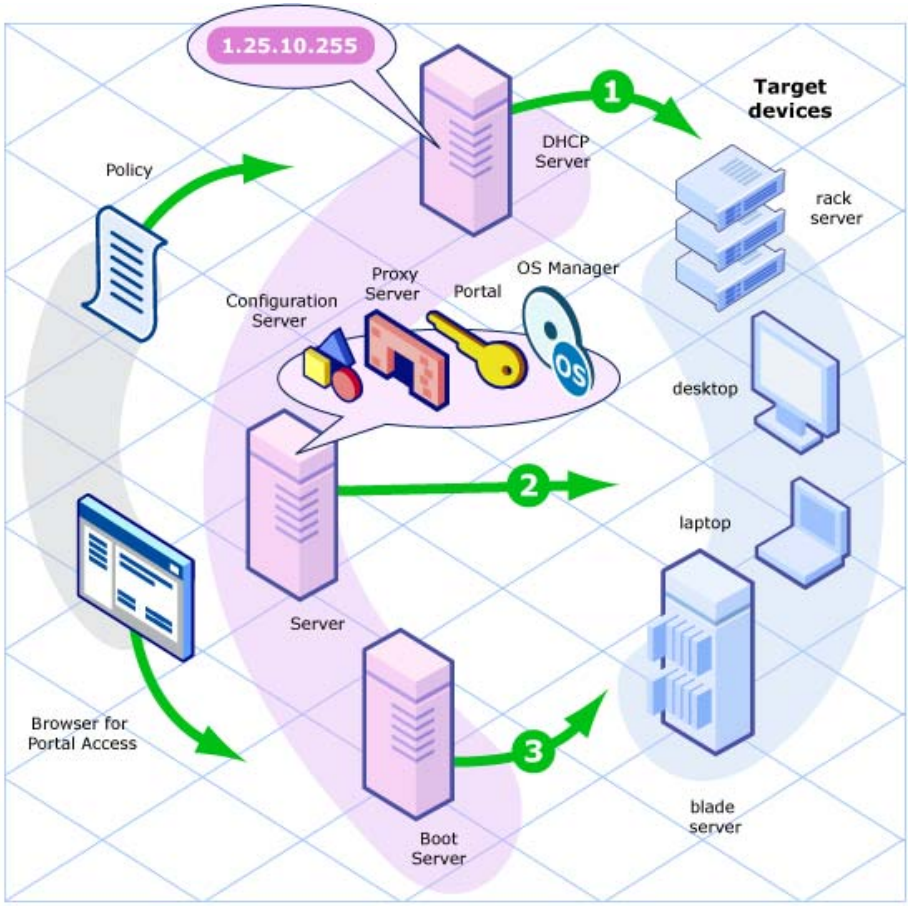
When you run a patch acquisition, you can also elect to have any available Agent Updates downloaded and automatically published and distributed to the Patch Manager Agents in your enterprise.

OS Management View

OS Manager's functional view adds a Boot Server and DHCP server to capture and deploy OS images to the managed devices in your Core and Satellite environment.

Refer to the *HP Client Automation OS Manager System Administrator Guide* for complete information on managing operating systems with HP Client Automation.

Figure 10 OS Manager deployment architecture in HPCA



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