

# IBM Systems Solution for Branch Banking: Installation Guide

**Environmental considerations** 

**Solution details** 

Installation instructions

Amarjit Bahl Ira Chavis George Dillard Mike Ebbers



ibm.com/redbooks



International Technical Support Organization

# IBM Systems Solution for Branch Banking: Installation Guide

February 2007

Note: Before using this information and the product it supports, read the information in "Notices" on page v.

#### First Edition (February 2007)

This edition applies to Version 5.10 of IBM Director.

© Copyright International Business Machines Corporation 2007. All rights reserved. Note to U.S. Government Users Restricted Rights -- Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

# Contents

Notices	v vi
Preface         The team that wrote this book         Become a published author         Comments welcome	vii vii viii viii
Chapter 1. Introduction	1
1.1 Industry overview	2 3
Chapter 2. Solution details	5
2.2 Solution components.         2.2.1 Hardware	6 7
2.2.2 Software       2.3 Network architecture	8 9
<ul><li>2.4 Hardware/software requirements</li><li>2.5 Implementation overview</li></ul>	10 11
Chapter 3. Installation and configuration of IBM Director.	13
3.1 IBM Director Server.         3.2 IBM Director Agent	14 14
3.3 Installing IBM Director	14 17
3.5 Discovery preferences for presence check	17
3.6 Configuring the IBM Director Server	18 18
3.6.2 Server preferences for inventory refresh.	20 21
3.6.4 User administration	21
3.7.1 Creating event action plans	24
Chapter 4. Installation and configuration of Altiris Deployment Server	27
4.2 Installing	28
4.3.1 Aclient configuration	29 30
4.3.2 Deployment Server global configuration	31
4.3.4 Computer object import.	31
4.3.5 Blade configuration	32
4.3.7 Boot image configuration	33
4.4 Testing scenarios	33 ⊲⊿
4.4.2 Scenario 2: Blade is removed and a new one inserted	34

4.4.3 Scenario 3: Blade is removed then reinserted into a new slot	34
4.4.4 Scenario 4: Blade is removed, new blade inserted, old blade reinserted	34
4.4.5 Scenario 5: Server rebuild	35
	07
Chapter 5. Other Installation and configuration steps	37
5.1 Installing the ClearCube Upert eliente	38
5.2 Configuring the ClearCube I/Port clients.	38
5.3 Installing and conliguring the DataCom Digital Surveillance solution	38
Chapter 6. Installing the Blade Storage Server Gateway	39
6.1 Configure your IBM BladeCenter HS20 storage server	40
Chapter 7. Installing VMware ESX	45
Chapter 8. Creating the ClearCube Model virtual machines on VMware ESX	47
8.1 Create a virtual machine	48
8.2 Installing the VMware remote console	52
8.3 Creating the ClearCube base image	53
8.4 Post-installation tasks	56
8.5 Service packs and hot fixes	56
8.6 Applications	56
8.7 Enabling remote access to the virtual machine	56
8.8 Installing the VMware tools	56
8.9 Installing the IBM Director Agent	57
8 10 Installing the ClearCube Grid Center client	57
8 11 Bunning the Syspren setun manager	58
9.12 Pupping Sysprep Setup manager	50
8.12 Floring the model image to grade the client virtual machines	00
8.13 Cioning the model image to create the client virtual machines	61
8.14 Starting, running, and configuring the client virtual machines.	62
8.15 Post-installation tasks	64
Appendix A Teller application	65
Sonver installation	05
	00
	00
	07
Related publications	69
IBM Redbooks	69
Other publications	69
Online resources	70
How to get IBM Redbooks	70
Help from IBM	71
Index	73

# Notices

This information was developed for products and services offered in the U.S.A.

IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing, IBM Corporation, North Castle Drive, Armonk, NY 10504-1785 U.S.A.

The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law: INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-IBM Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product and use of those Web sites is at your own risk.

IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

#### **COPYRIGHT LICENSE:**

This information contains sample application programs in source language, which illustrate programming techniques on various operating platforms. You may copy, modify, and distribute these sample programs in any form without payment to IBM, for the purposes of developing, using, marketing or distributing application programs conforming to the application programming interface for the operating platform for which the sample programs are written. These examples have not been thoroughly tested under all conditions. IBM, therefore, cannot guarantee or imply reliability, serviceability, or function of these programs.

# Trademarks

The following terms are trademarks of the International Business Machines Corporation in the United States, other countries, or both:

BladeCenter® Cloudscape™ DB2® eServer™ Everyplace® IBM® POWER™ Redbooks™ Redbooks (logo) <sup>™</sup> ServerGuide™ System x™ Tivoli® Wake on LAN® WebSphere® xSeries® z/OS®

The following terms are trademarks of other companies:

Java, J2EE, and all Java-based trademarks are trademarks of Sun Microsystems, Inc. in the United States, other countries, or both.

Active Directory, Microsoft, Windows, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.

Intel, Intel logo, Intel Inside logo, and Intel Centrino logo are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States, other countries, or both.

Linux is a trademark of Linus Torvalds in the United States, other countries, or both.

Other company, product, or service names may be trademarks or service marks of others.

# Preface

IBM® Systems Solution for Branch Banking is targeted to the financial institutions that have chosen to keep a decentralized infrastructure. This is approximately 50% of the customer base. This solution is technology-rich, and will therefore be most attractive to those banks who plan to have a technology refresh—that is, those who have not done a major upgrade of their branch infrastructure for the past 5 to 10 years.

Systems Solution for Branch Banking is a hardware and software solution that enables banks to provide a common, easy-to-support IT infrastructure in their branch locations. The solution takes into consideration that the skills required to upgrade or maintain the infrastructure in the branch do not exist, so we provide a remote management function. Although a common solution has been defined, each implementation may have its own unique variations, depending on the network, software, and hardware environments.

This IBM Redbook discusses how to install and configure the components of the Systems Solution for Branch Banking.

Your feedback is welcome. Send an e-mail to: csi@us.ibm.com

## The team that wrote this book

This book was produced by a team of specialists from around the world working at the International Technical Support Organization, Poughkeepsie Center.

**Amarjit Bahl** is an IBM Certified IT Architect and a Certified Project Management Professional (PMP). He has filed three patents and published various technical papers about grid and distributed technologies. His areas of expertise are application architecture, application design, and implementation.

**Ira Chavis** is a Certified Consulting IT Specialist in the Industry Solutions and Proof of Concept Centers in IBM Systems and Technology Group. Working in the Center for Solution Integration, he currently specializes in infrastructure architecture and solutions involving IBM server and storage technologies. He has more than 26 years of diversified software engineering and IT experience. Prior to working at IBM, Ira worked at Digital Equipment Corporation in various assignments. Ira holds certifications as an IBM eServer<sup>™</sup> Certified Expert in xSeries<sup>®</sup>, IBM Grid Technical Sales, Microsoft<sup>®</sup> Certified System Engineer (NT4), and Red Hat Certified Technician.

**George Dillard** is a PMI certified project manager in the Center for Solution Integration. He has more than six years of experience in leading solution projects and customer engagements, leveraging IBM STG technologies to solve customer business problems. Prior to that he spent 16 years in z/OS® solution and performance test as a technical team leader, George has co-authored a number of technical publications about z/OS and related subsystems performance.

#### Thanks to the following people for their contributions to this project:

#### Mike Ebbers

International Technical Support Organization, Poughkeepsie Center

#### Greg Pruett

Carlos Santana

IBM Systems &Technology Group, System x<sup>™</sup> Developmentj, Raleigh

### Become a published author

Join us for a two- to six-week residency program! Help write an IBM Redbook dealing with specific products or solutions, while getting hands-on experience with leading-edge technologies. You'll have the opportunity to team with IBM technical professionals, Business Partners, and clients.

Your efforts will help increase product acceptance and customer satisfaction. As a bonus, you'll develop a network of contacts in IBM development labs, and increase your productivity and marketability.

Find out more about the residency program, browse the residency index, and apply online at:

ibm.com/redbooks/residencies.html

### **Comments welcome**

Your comments are important to us!

We want our Redbooks<sup>™</sup> to be as helpful as possible. Send us your comments about this or other Redbooks in one of the following ways:

Use the online Contact us review redbook form found at:

ibm.com/redbooks

Send your comments in an e-mail to:

redbooks@us.ibm.com

Mail your comments to:

IBM Corporation, International Technical Support Organization Dept. HYTD Mail Station P099 2455 South Road Poughkeepsie, NY 12601-5400

# 1

# Introduction

IBM Systems Solution for Branch Banking is a hardware and software solution that enables banks to provide a common, easy-to-support IT infrastructure in their branch locations. The solution takes into consideration that the skills required to upgrade or maintain the infrastructure in the branch do not exist, so we provide a remote management function. Although a common solution has been defined, each implementation may have its own unique variations depending on the network, software, and hardware environments.

## 1.1 Industry overview

The retail banking industry is looking to leverage on demand technologies to integrate all of a customer's interactions with the bank to expand and enrich the customer relationship. This initiative is driving a shift in the view of business conducted by the customer at the branch from the traditional focus on financial transactions to one that looks more like retail sales. This increased focus on the customer is also driving a shift in the focus in the selection of Information Technology (IT) infrastructures from the traditional attributes such as function and price to include non-functional requirements such as flexibility, security, and low-cost maintenance.

The infrastructure that supports this new view must be flexible enough to include new devices such as video kiosks and assisted teller machines in addition to traditional banking equipment and IT applications. It must be secure and it must be able to be managed and operated from a remote site, because having IT skills at the local branch is impractical.

Although a fully centralized database is necessary for many banking applications, several requirements call for IT assets to be located at the branch.

Examples of these are:

- ► The use of large digital video files, which increases the need for local caching.
- Automation of application maintenance, which drives the need for local file staging, enabling clients to update at convenient times and conserving network bandwidth at the central site.
- The need for offline processing (that is, continuing to operate without connectivity to the central site), which means that a certain level of processing and storage capabilities must remain at the branch.

Additional factors that drive increased investment in branch bank IT infrastructure include:

- Replacing obsolete technology in the branch that hampers achievement of branch sales and servicing objectives.
- Upgrading the branch network infrastructure to enable browser-based environments.
- ► CRM-enabling the teller to empower branch staff to sell and service.
- Process streamlining and re-engineering to ensure greater automation, efficiency, and customer service.
- Increasing self-service capabilities in the branch.
- In the short term, driving legacy systems out of the branch will be the single most important technology driver. A survey of 50 U.S. banks found that technology obsolescence was the key driver for 27% of banks, and moving to a browser-based environment was the key driver for 31%.

In this book, we focus on the bank branch infrastructure consolidation due to renewed branch importance. It has been seen that the branches have received minimum upgrade investments. There are desktops and servers all over the branch, and not many people in the branch are technical enough to make changes or upgrades to the software or hardware. The customer expectation at the branch has increased and the business processes are inefficient and ineffective. The technology solutions are obsolete. The banks have acknowledged that branches are a key ingredient to success with their multi-channel efforts and are refocusing attention and investments in their branch networks.

## 1.2 Solution architecture overview

The Systems Solution for Branch Banking infrastructure provides:

- Flexibility: New components can be added with little or no disruption to the existing environment and new technology can be easily accommodated.
- Rich security: Outside accessibility to the system is minimized down to the individual teller workstations, and security mechanisms such as automated virus definition updates are easily implemented.
- Easy maintenance: The infrastructure can be fully monitored and maintained from a remote location, including installations requiring client reboots.

Systems Solution for Branch Banking is targeted to the financial institutions that have chosen to keep a decentralized infrastructure. This is approximately 50% of the customer base. This solution is a technology sell, and therefore will be most attractive to those banks that are due for a technology refresh; that is, those that have not done a major upgrade of their branch infrastructure for the past 5 to 10 years.



Figure 1-1 Architecture components

- Branch servers provide:
  - Branch file server: Contains files and databases for local use. The files may be application data or could be staged updates for system files.
  - Local application server: Contains local applications that are accessed by client workstations within the branch. It may also contain a single application that runs on behalf of the branch, such as Video Surveillance.

- Hosted client server

Leverages virtualization technology to provide the capability to host multiple clients on a single server or blade, replacing all or most of the desktop PCs in the branch. This capability simplifies management of hardware, deployment of new software images, and maintenance by leveraging virtualization technology.

- The solution provides a robust platform for remote management by combining IBM Director with management software such as Tivoli® Business Systems Manager, Remote Deployment Manager, or other management software. Remote management provides the following capabilities:
  - A single management module for the entire server, which includes all blades on an IBM BladeCenter®.
  - *Remote provisioning* of the entire software stack from operating system to application.
  - Update of application software, including software that requires a reboot of the client. Clients can be updated directly or update files can be staged for processing during non-peak hours.
  - *Management of individual clients:* hosted clients can be individually reprovisioned according to business needs.
  - Managed desktop and workplaces that support different application views and access by user or by client type.
- Branch networking:
  - Basic connectivity to a local area network is provided by an integrated switch in the Systems Solution for Branch Banking infrastructure.
  - Firewalls and virtual networking can be implemented via software on a server or may be provided directly as part of the network routing equipment.
  - Expanded network services such as voice over IP (VoIP) can be integrated into the infrastructure as well.
- Branch applications:
  - Branch banking applications themselves are not provided as part of the infrastructure. Stand-alone applications can be contained on a local application server. Desktop applications can be included in hosted client images.
  - The modular nature of Systems Solution for Branch Banking allows for the insertion of a new local application server with little or no disruption to the existing infrastructure.
- Pervasive security: Security is implemented at each layer of the system.
  - Network security provides traditional security components such as firewalls and virtual networking. This capability can also be implemented through traditional network routing equipment. Through the use of the BladeCenter integrated switches, software routing, firewalls and virtual networking can be included as part of the solution, eliminating the need for external equipment at the branch.
  - At the application level, additional layers of security are provided through the hosted clients and managed desktops that provide central control of individual clients and client applications.
  - Remote application management provides the capability for automated updates of virus definition files.
  - The optional Video Surveillance feature can assist in the physical security of the branch bank.

# 2

# **Solution details**

This chapter discusses the elements of the solution, including overall architecture, hardware, software, and the network.

# 2.1 Physical architecture of the solution

Figure 2-1 shows all the major components of the solution in the overall architecture. The components on the left of the firewall are present in the bank branch, and the components on the right are located at the Central site. The branch comprises the tellers with their applications on the hosted clients with servers such as the staging server, file server, and the application server. This entire infrastructure is hosted on a BladeCenter, making the management of the infrastructure easy. We can enhance the solution by adding existing technologies such as the wireless capability and the VoIP infrastructure shown in the figure.

The Central site contains the System Management infrastructure: Provisioning, Software distribution, and the System Monitor. This is accomplished by the IBM Director/Altiris combination (one of several IBM Director and management software combinations).



Figure 2-1 Physical architecture of the solution

# 2.2 Solution components

This section lists the hardware and software that we included in our solution.

#### 2.2.1 Hardware

#### BladeCenter chassis and blade servers

BladeCenter is a chassis that houses the blade servers and provides a broad range of networking options integrated into the chassis to simplify infrastructure complexity and manageability while lowering total cost of ownership. The BladeCenter supports 2-way POWER<sup>™</sup> processor based servers and 4-way Intel® processor based servers. The BladeCenter design makes them highly flexible and scalable. The blades in the BladeCenter are slim, hot-swappable blade servers that fit in a single chassis similar to books in a bookshelf. Each is an independent server, with its own processors, memory, storage, network controllers, operating system, and applications. The blade server simply slides into a bay in the chassis and plugs into a midplane or backplane, sharing power, fans, floppy drives, switches, and ports with other blade servers.

The BladeCenter simplifies the task of running down hundreds of cables strung through racks just to add and remove servers. With switches and power units shared, precious space is freed up -- and blade servers enable higher density with far greater ease.

#### DataCom Digital Surveillance Solution

DataCom is a Digital Surveillance solution. The DataCom PCI card can be inserted into an HS20 BladeCenter via a PCI Expansion card. DataCom Systems uses the IBM System x or BladeCenter servers to integrate and centralize network security and surveillance applications in response to security threats (both internal and external). The server offers a level of stability and support due to the modular design of the BladeCenter architecture. With the DataCom products we can monitor real-time video using a network connection and also integrate analog or IP network cameras.

#### Hosted Client - ClearCube I/Ports and supporting hardware

For this solution ClearCube provides hosted client capabilities. It is a compact device, similar in size to a cable modem, which connects to virtual clients running on the BladeCenter using the user's monitor, keyboard, mouse, speakers, and USB peripherals. This device uses standard Ethernet to connect to a centralized BladeCenter that houses the blade servers. The data on the blade servers is protected because the I/Port does not allow connection of a mass storage device. In our solution we are using the I/Port along with the supporting hardware (monitor, keyboard, mouse, speakers, and so forth).

#### **VoIP Gateway and VoIP phones**

VoIP is the process of transporting digitized speech in IP packets over a wide area network such as the Internet. The speech can be a real-time voice conversation or a non real-time transaction such as voice mail. A VoIP Gateway or a Soft switch or a Gatekeeper is a generic term for a device that handles VoIP data and signaling traffic. VoIP phones are special phones that can be used to access a VoIP network. VoIP phones can get the traditional dial tone when used with an adapter. VoIP also allows making calls directly from the computer, which can act as the phone. To use a VoIP network, you must have high-speed internet access such as DSL or cable. VoIP has some unique benefits: The technology is digital and travels over high-speed network so you can attach an intelligent VoIP phone or computer to the network and use it to create value-added customized programs as with any traditional program for a device.

Although the deployment of VoIP is a key part of the Systems Solution for Branch Banking, installation details are beyond the scope of this guide. Consult your VoIP hardware documentation for installation details.

#### 2.2.2 Software

#### Windows Storage Server

Windows® Storage Server provides file-sharing services for storing common applications and images to support remote bank branches.

#### **IBM Director**

IBM Director provides out-of-band management of the BladeCenter chassis as well as services such as resource monitoring and software distribution to the running operating systems on the blades. IBM Director includes tasks to facilitate the initial discovery of new hardware, setup, and configuration of groups of servers, and ongoing monitoring and change management throughout the operational life of the hardware.

The IBM Director product consists of three components:

- IBM Director Server is the main daemon—or aggregation point—for discovering and managing resources, communicating to the console and endpoint agents, and authenticating and regulating access privileges. It is also the container for all of the task-based services and the engine for receiving events and dispatching automated actions.
- IBM Director Agent runs in the operating system of the endpoint server platforms that are being managed. The IBM Director Server can discover and manage the operating systems where the IBM Director Agent is installed. The agent provides industry-standard instrumentation that can be integrated with the IBM Director Server or easily integrated into third-party systems management tools.
- ► *IBM Director Console* provides a graphical user interface with a consistent look and feel for all server platforms and devices maintained by the management server.

#### **Altiris Deployment solution**

Altiris' Deployment solution contains two main components: the Deployment Server (DS) and the integration modules that are required to integrate the Deployment Server with Altiris' Notification Server.

Deployment Server provides the following functionality for Systems Solution for Branch Banking:

- Imaging
- Software distribution
- Support for PXE and Wake on LAN®
- Support for Windows and Linux®

Using a combination of imaging, software distribution, and PXE, it is entirely possible to rebuild a failed system from the ground up using Deployment Server. Continued steady state management is possible through the use of Deployment Server's client software (Aclient). The client software enables the remote distribution of software, as well as other activities to targeted systems as needed.

Deployment Server activities, called "Jobs," represent a series of tasks to be performed by the client system or Deployment Server. They can be built with tasks to automatically create and deploy hard disk images, back up and distribute software or personality settings, add printers, configure computer settings, and perform all aspects of IT administration.

Jobs can be run immediately against a single computer or group of computers or scheduled to run at a specified time. Furthermore, a repetitive schedule can be created so that

administrative jobs can be automated. Jobs can be linked so that the successful completion of one job will lead to the automatic scheduling of another job.

#### VMware ESX

VMware ESX server is used for virtualized infrastructure for partitioning, consolidation, and managing servers. It provides the ability to host multiple virtualized servers on a common computing platform. Hardware dependencies are isolated by VMware so that underlying processors, memory, storage, and adapter cards (network/storage) are available to be shared by each virtual machine. The number of virtual hosts each server may support is limited by the number and speed of processors and the amount of available disk space.

#### **Banking Teller Application (optional)**

This is the actual application that simulates the teller environment and enables us to test the underlying infrastructure. Refer to Appendix A, "Teller application" on page 65.

The banking teller application simulates all major functionalities of a bank branch teller. It is a WebSphere® Everyplace® client 6.0 that extends the J2EE<sup>™</sup> programming model to the client for performance and operational resiliency. It can perform such functions as:

- Look, modify. and delete account holder details
- Create bank accounts
- Transfer money between accounts
- Deposit and withdraw money

This application can run in both online and offline modes. In offline mode the transaction data is stored locally and synchronized with the server as soon as the application comes online.

There are two components to this application. The server component has the server application deployed on WebSphere Application Server, MQ, and the database. The client is WebSphere Everyplace Client, which hosts the client application and makes connections to the server using Web services.

### 2.3 Network architecture

This solution is on a flat network as shown in Figure 2-2 on page 10. All servers are hosted in a BladeCenter that is connected to the internal network. Network-connected components are:

- Bank branch site
  - Storage server
  - Test application on the hosted client
- Central site
  - Systems management components
  - VMware images

In a real deployment, a more complex network topology would be implemented that would have firewalls and VPNs to separate the central site from the branch office.



Figure 2-2 Network architecture of the solution

Networking prerequisites:

- Installed and configured DHCP server
- DNS server (newly installed or existing)
- Other networking considerations, such as Port Fast Enabled

# 2.4 Hardware/software requirements

- ► IBM BladeCenter HS20
  - WIndows 2003 Server with Service Pack 1
  - Two Cisco Intelligent Ethernet Switch Modules for:
  - Public Network
  - Client Network
- One IBM HS20 Blade Storage Server Gateway to host
  - Windows 2003 Server with Service Pack 1
  - DNS
  - DHCP
  - IBM Director V4.22
  - MS SQL Server 2000 SP4
  - Symantec Antivirus
  - Altiris Deployment Solution V6.5
  - WinZip V9.1
  - ClearCube Grid Center V4.x
- One IBM HS20 blade server (two CPUs / 8 GB Memory / two 73 GB drives) to host
  - VMware ESX V2.524
  - 4 x Windows XP Professional for hosted clients
  - IBM Director Agent V4.22

# 2.5 Implementation overview

The rest of this book is provided to help you set up an instance of this solution. The installation is done in the following order:

- 1. "Installation and configuration of IBM Director" on page 13
- 2. "Installation and configuration of Altiris Deployment Server" on page 27
- 3. "Other installation and configuration steps" on page 37
- 4. "Installing the Blade Storage Server Gateway" on page 39
- 5. "Installing VMware ESX" on page 45
- 6. "Creating the ClearCube Model virtual machines on VMware ESX" on page 47
- 7. "Configuring the ClearCube I/Port clients" on page 38
- 8. "Installing and configuring the DataCom Digital Surveillance solution" on page 38



3

# Installation and configuration of IBM Director

IBM Director is a comprehensive systems manager designed for use across the IBM eServer product family. It is an integrated, easy-to-use suite of tools, that provides clients with flexible systems-management abilities to help maximize system availability and lower IT costs. IT administrators can view and track the hardware configuration of remote systems and monitor the component performance of processors, disks, and memory.

## 3.1 IBM Director Server

The software products used in our lab environment were:

- Microsoft Windows 2003 Server Service Pack 1
- IBM Director Server 4.22

Each IBM Director Server can be installed with default options as described in the *IBM Director 4.20 - Installation and Configuration Guide* publication. Active Directory® is not required, but it or another supported LDAP user directory may be used to facilitate common user accounts and passwords across the IBM Director Servers in the farm.

The IBM Director Server includes an unattended installation option, which is convenient for deploying large numbers of management servers.

### 3.2 IBM Director Agent

The IBM Director Agent can be installed on each target operating system to be managed. The Director agent enables tasks such as resource monitoring, software distribution, remote control, and process management.

In order to install the agent, it is recommended to use the unattended install option and to configure the DirAgent.RSP response file to specify the AddKnownServerAddress statement. When AddKnownServerAddress is specified and the Discovery Preferences setting "Auto-add unknown agents which contact the server" has been specified in the Director server, a new native managed object representing the agent will automatically be added to the server and inventoried when the agent is installed.

# 3.3 Installing IBM Director

IBM Director will be installed on your system management server:

- Log onto your IBM Director Server. We used a user ID of Administrator and a password of passw0rd.
- 2. Insert the IBM Director CD 1 into your CD-ROM Drive.

3. The main installation menu opens. Click Install IBM Director.

IBM Director	
INSTALL IBM DIRECTOR	
BROWSE CONTENTS	
PRODUCT DOCUMENTATION	
IBM SUPPORT WEB SITE	
1001010	
0101101	EXIT

Figure 3-1 Director main menu

- 4. Choose the installation type. Click **IBM Director Server Installation** to start the installation.
- 5. Click **Next** to continue the installation.
- 6. Click Accept the license agreement and click Next to continue the installation.
- 7. Click Next.
- 8. Accept the default Features and installation directory and click **Next** to continue. If you want to install any additional IBM Director features, you may choose them at this time.
- 9. Fill out the required IBM Director Service account information as follows:

Local Computer or domain	your server name
User Name	administrator
Password	passw0rd (or the administrator account password you chose when installing the server
Confirm Password	passwOrd

#### 10.Click Next to continue.

🙀 IBM Director Server - InstallShield Wizard	×
<b>IBM Director service account information</b> Provide the following information about the IBM Director service account.	
Local computer name or domain:	
dcx55	
∐ser name:	
administrator	
Password:	
*****	
Confirm password:	
*****	
InstallShield	
< <u>B</u> ack <u>N</u> ext >	Cancel

Figure 3-2 Enter service account information

11. Accept the default encryption settings (unchecked) and click Next.

- 12. Accept the Software Distribution settings and click **Next**. If you want to change the location of the Software Distribution directories you may do so at this time.
- 13. You are now ready to install IBM Director. Click Install.
- 14. Validate the IBM Director Agent network driver configuration and click OK.
- 15. IBM Director requires a database to store data objects in. For most configurations, you can select the Microsoft Jet 4.0 database and click **Next**. If you want to use another database engine, choose the database. You might be asked for additional configuration information depending on your database vendor.
- 16. When the installation ends, click **Finish** to complete the process. You will then be asked to reboot your system so that IBM Director will configure properly when the system reboots.

# 3.4 Running the IBM Director Console

All remote access to the IBM Director Server is done via the IBM Director Console. To launch the console:

- 1. Open the Windows Start Menu.
- 2. Run the console by selecting **IBM Director**  $\rightarrow$  **IBM Director Console**.
- 3. The Director Console opens and you will be required to log in to the IBM Director Server.
- Enter the host name of the server and the user ID and password you entered during the IBM Director Server setup installation. (For our example, we used administrator and passw0rd.) Click OK.
- 5. Click **Next** to continue.



Figure 3-3 IBM Director Console

## 3.5 Discovery preferences for presence check

For WAN environments, it is often desirable to minimize the amount of management traffic across the wide area network links. To configure IBM Director for managing across a WAN, it is recommended that you disable the auto-discovery and presence check features. Under the Options menu in Discovery preferences, set these features to Disabled. Also, change the presence check period to Disabled on the SNMP devices, BladeCenter Chassis, and Physical Platforms tabs.

You also might want to enable the **Auto-add unknown agents which contact the server** setting if you plan to install IBM Director Agents. This feature enables agents to automatically add themselves as managed objects into the IBM Director Server when using the unattended install feature of the agent, thus eliminating the need to perform a broadcast or multicast-based discovery of agents from the server. See Figure 3-4 on page 18.

	General O System Dis	covery (IP)	
M Director Systems			
ulo-discover period (hours)	Disabled -		
resence Check period (minutes	) 15 -		
Automatically secure unsecure	Disable d		
Auto-add unknown agents whi	ch <sub>3</sub> <sup>2</sup>		
	4		
	6 *		

Figure 3-4 Specify discovery preferences

## 3.6 Configuring the IBM Director Server

Here we specify our preferences.

#### 3.6.1 Naming conventions for discovery preferences

Under **Options**  $\rightarrow$  **Discovery Preferences**, you can configure an automatic naming rule for BladeCenter chassis and blade objects. This rule enables blades to be renamed automatically according to an assigned naming convention when new blades are discovered or inserted. For this environment, you should manually assign each new chassis a name indicating its branch or location. An automatic naming rule can then be configured for the blades to name them according to the branch (chassis name) and blade slot (location within the chassis). This naming convention should be followed throughout the solution, in order to ensure easy navigation between the hierarchical console, IBM Director Console, and other consoles. Figure 3-5 on page 19 shows how to configure a naming convention for the blades in the Discovery Preferences for Physical Platforms. The naming convention can be used in conjunction with the Auto Rename task on BladeCenter objects.

For Physical Platforms naming rules:

1. Select **Options**  $\rightarrow$  **Discovery Preferences**.

- 2. Click the **Physical Platforms** tab.
- 3. Remove all parameters from the selected parameters list.
- 4. From the Available Parameters list, select:
  - %CHASSIS\_NAME%
  - Insert Additional Text for -
  - **Insert addtional text** for Blade
  - Insert a space ("")
  - %CHASSIS\_SLOT%

All Groups <b>41</b> All Systems and <b>11</b> BladeCenter Cf <b>111</b> Chas	1 Devices	Store1	Asset ID	
🗰 Chas 🚬 Disco	10 a a la	- Store 1-Blade 2	BladeCenter Assistant     CIM Browser	
	very Preferences			. 🗆 🗙
Chas IBM Dire	ctor Systems SNMP	Devices BladeCenter Chassis Physical	Platforms	
Chas Dive	ical Platforme			1
Hard Pres A Hard FiBM C Nami Fiseric Nam	ence Check period (mir ng Convention Templa ing Template:	nutes) Disabled *		
Platfc %CH	ASSIS_NAME%-Blade	%CHASSIS_SLOT%		
Platfc RMOI Avail:	able Parameters	Selected Parameters		
Scals %SF SNM %SF SNM %SF Store %C(	P_IP_ADDRESS% P_HOSTNAME% P_ASSET_TAG% R_AGENT_NAME% DMPUTER_NAME%	%CHASSIS_NAME%     Blade     %CHASSIS_SLOT%		
😼 Store 🛛 🗠 🗠	ertadditional test			

Figure 3-5 Specify physical platform name rules

5. Click the BladeCenter Chassis tab (Figure 3-6 on page 20).

- 6. For BladeCenter chassis naming rules:
  - a. Remove all parameters from the Selected Parameters list.
  - b. From the Available Parameters list select %MM\_NAME%.
- 7. Click **OK.**

a Director systems   snimp Device	SMI-S Storage De	evices BladerCenter	Chassis Physical Platforms	
BladeCenter Chassis				
Auto-discover period (hours)	Disabled 💌			
Presence Check period (minutes)	15 -			
Naming Convention Template for B	adeCenter Chassis			
Naming Template:				
%MM_NAME%				
tusileble Devenueters	Coloriad	Devenuelava		
Available Falantelets	Selected	Falaliteters		
% CHASSIS MACHINE TYPE MO	DELSA & MM N	IAMELS.		
% CHASSIS_MACHINE_TYPE_MC %CHASSIS_SERIAL_NUMBER%	DEL% - % MM_N	IAMEL%		
% CHASSIS_MACHINE_TYPE_M0 %CHASSIS_SERIAL_NUMBER% %CHASSIS_FRU%		IAMEL%		
% CHASSIS_MACHINE_TYPE_MC %CHASSIS_SERIAL_NUMBER% %CHASSIS_FRU% %MM_NAME% %MM_SERIAL_NUMBER%		IAMEL%		
% CHASSIS_MACHINE_TYPE_M0 %CHASSIS_SERIAL_NUMBER% %CMASSIS_FRV% %MM_NAME% %MM_SERIAL_NUMBER% %MM_IPADDRESS% Insert additional text		IAMEL%		
% CHASSIS_MACHINE_TYPE_M0 %CHASSIS_SERIAL_NUMBER% %CHASSIS_FRU% %MM_NAME% %MM_SERIAL_NUMBER% %MM_IPADDRESS% Insert additional text	Add Remo	ve		

Figure 3-6 Specify BladeCenter chassis naming rules

#### 3.6.2 Server preferences for inventory refresh

To minimize network traffic over the WAN links, you are recommended to disable inventory refresh after the initial inventory collection. Inventory is collected automatically any time a new object is added into the Director server, and inventory collection may be refreshed manually on specific objects at any time. Periodic inventory refresh may be disabled under **Option**  $\rightarrow$  **Server Preferences** as shown in Figure 3-7. Even with the inventory refresh disabled, Director's inventory will still be updated automatically when new objects are added and when blades and I/O modules are inserted or removed.

Server Preferences	
File Distribution Servers Software Distribution Database Remote Control Inventory Collection Preferences	SNMP Event Management
Timeout Period Settings	
Refresh Interval Settings	
Collection Settings	
Collect On Discovery Collect Installed Packages Data Collec	t Patches Data 🔲 Collect Software Data
	Reset Defaults
	OK Cancel Help

Figure 3-7 Specify server preferences for inventory refresh

#### 3.6.3 Server preferences for software distribution (optional)

If you are planning to use the IBM Director software distribution or update assistant tasks, you must install Director agent on each target OS and configure a remote File Distribution Server for each branch under **Options**  $\rightarrow$  **Server Preferences**. The remote file distribution server acts as a remote file repository for the software packages to be distributed to endpoints. The remote file distribution server either may be populated automatically by IBM Director, or manually populated by some other means such as a satellite downlink. Note that distribution of IBM UpdateXpress software packages can be performed through the Update Assistant wizard under the Software Distribution task. Additional software distribution features in IBM Director server.

On the Software Distribution tab under Server Preferences, ensure that the setting **Do not** stream distribution if redirected distribution fails is checked.

Director Console Director Tasks Associations O	ptions Window Help		
Server Preferences	re Distribution (Database (Domete Control (Stil		
Inventory	Collection Preferences	Event Management	-
Share Names-	Selected Details Share Name:	Tocifs1.store1.com/directorswd	
		300	
Shi	are Name	Tocifs1.store2.cm/directorswd	I
Na	kimum Disk Space (mb)	500	1 D
Ma	kimum Managed Systems	10	
	Limit bandwidth between server and share (kbps)	10	
Add E Us	File Distribution Server Account Information or ID on FTP server		
Pa	nfirm Password		
		OK Cancel	
Ready	Host: bach1 hosted	com User ID: BACH1Vioadmin 6:52	PMEDT

Figure 3-8 shows how to configure a remote file distribution server for each branch.

Figure 3-8 Configure a remote file distribution server

#### 3.6.4 User administration

IBM Director includes role-based security, which enables individual administrators to view only specific groups of objects or tasks. This can be used to give particular administrators access only to certain branches.

To give multiple administrators access to IBM Director, first add the users to the diradmin user group in the operating system or LDAP user directory (for example, Active Directory). Then, in the IBM Director Console, use the **Options**  $\rightarrow$  **User Administration** task as shown in Figure 3-9 on page 22 to configure which groups each user is allowed to access.

IBM Director Console		_ D ×
the contrasts Associations Uptions with	naow Help	
Groups Groups Groups Groups Prices Price Pr	Oup Contents : Chassis Membership (12)         User Editor         User Properties         Privileges         Group Access         Limit user access only to the groups liste         Limit user to read-only access of groups         Unassigned Groups         Branching Flagunities and Flagunities memory         Branching RMON Devices	Tasks
BACH1Vdministrator BACH1Vdministrator BACH1VDNRt BACH1Vprint BACH1Vprint BACH1Vbinkcontrol BACH1Vbiodb BACH1Vbiodb BACH1Vbiodb BACH1Vbiodb BACH1Vbiodb BACH1Vbiodap	Scalable Systems and Membe     SNMP Devices     Store 1     Store 3     Store 5     Store 7     Store 9     Systems with ASF     Systems with ASF     Systems with Asset ID     Systems with CIM	Store 2 Store 4 Store 6
Ready     Store 3	bbA	Remove
Ready		OK Cancel Help

Figure 3-9 User administration menu

For a WAN environment, it is probably desirable to restrict users from performing particular tasks or operations that might not be appropriate for the environment. Figure 3-10 shows how to restrict user privileges to prevent access to the Discovery and Server Preferences and to prevent operations such as discovery from being performed by the user.



Figure 3-10 Specify user privileges

IBM Director administrator accounts can also be configured to only be able to see specific tasks that are appropriate for the environment, as shown in Figure 3-11.



Figure 3-11 IBM Director administrator account preferences

# 3.7 Configuring associations in the console

To show a tree view of the blades and switch devices contained in each BladeCenter chassis, you can turn on the Chassis Membership association. Right-click on white space in the Group Contents pane and select **Associations**  $\rightarrow$  **Chassis Membership** as shown in Figure 3-12.



Figure 3-12 Chassis membership association

#### 3.7.1 Creating event action plans

Among the most powerful features in IBM Director are the ability to create filters for incoming events and associate automated actions to occur in response to the events. The event filters and action handlers can be customized in the Event Action Plan Builder, which can be accessed from the hammer icon on the toolbar.

Figure 3-13 on page 25 shows how to create a simple event filter to capture all out-of-band events from any BladeCenter chassis. Out-of-band BladeCenter events appear under the MPA event type in the Event Filter Builder. An event action plan can be created that binds this event filter to a set of actions. Actions might include responses such as sending e-mail, forwarding an SNMP trap, or executing a command line program to dispatch a trouble ticket. To activate the Event Action Plan, drag and drop it onto a group of systems, such as the Chassis and Chassis Members dynamic group.



Figure 3-13 Create an event filter

Table 3-1 lists the ou	it-of-band ovo	nte from the B	aladoContor Ma	anagomont Modulo
	at-or-barid eve		aueventer ma	anagement woulde.

MPA.Component.I/O Module.Inserted	MPA.Component.Service Processor.Configuration
MPA.Component.I/O Module.Removed	MPA.Component.Service Processor.Log
MPA.Component.I/O Module.Configuration	MPA.Component.Service Processor.Redundancy
MPA.Component.I/O Module.Redundancy	MPA.Component.Service Processor.Network Stack
MPA.Component.I/O Module.Failed	MPA.Component.Service Processor.Test
MPA.Component.I/O Module.POST	MPA.Component.Service Processor.OOB.Enabled
MPA.Component.I/O Module.Power.On	MPA.Component.Service Processor.OOB.Disabled
MPA.Component.I/O Module.Power.Off	MPA.Component.Service Processor.Secure OOB.Enabled
MPA.Component.I/O Module.Insufficient Power	MPA.Component.Service Processor.Secure OOB.Disabled
MPA.Component.Fan.Inserted	MPA.Component.Service Processor.Failover
MPA.Component.Fan.Removed	MPA.Component.DASD.Inserted
MPA.Component.Fan.Failed	MPA.Component.DASD.Removed
MPA.Component.Fan.PFA	MPA.Component.DASD.Failed
MPA.Component.Power Supply.Inserted	MPA.Component.VRM.Failed
MPA.Component.Power Supply.Removed	MPA.Component.USB.Inserted

MPA.Component.Power Supply.Failed	MPA.Component.USB.Removed
MPA.Component.Power Subsystem.Redundancy	MPA.Component.USB.Owner
MPA.Component.Power Subsystem.Over Current	MPA.Component.KVM.Owner
MPA.Component.Power Subsystem.Low Fuel	MPA.Component.Chassis.Configuration
MPA.Component.Power Subsystem.Over Subscription	MPA.Component.Chassis.Failed
MPA.Component.Power Subsystem.Mismatched Power Supplies	MPA.Component.Server.Power.On
MPA.Component.Blade Server.Inserted	MPA.Component.Server.Power.Off
MPA.Component.Blade Server.Removed	MPA.Component.PFA
MPA.Component.Blade Server.Communication	MPA.Component.DIMM.Failed
MPA.Component.Blade Server.Insufficient Power	MPA.Component.Bus.Communication
MPA.Component.Blade Server.Throttled	MPA.Component.CPU.Failed
MPA.Component.Blade Server.VPD	MPA.Component.CPU.Configuration
MPA.Component.Blade Server.Over Power Budget	MPA.Deployment.POST
MPA.Component.Blade Server.Capacity on Demand.Enabled	MPA.Deployment.Boot
MPA.Component.Service Processor.Active	MPA.Deployment.OS
MPA.Component.Service Processor.Inserted	MPA.Environmental.Temperature
MPA.Component.Service Processor.Removed	MPA.Environmental.Voltage
# 4

# Installation and configuration of Altiris Deployment Server

Altiris' Deployment solution contains two main components: the Deployment Server (DS) and the integration modules required to integrate the Deployment Server with Altiris' Notification Server. This chapter discusses how to install and test the components.

## 4.1 Planning and prerequisites

For the installation of Altiris Deployment Server, a system should meet the following requirements:

- Windows 2003 Server R2
- ► IIS (if Web access to the Deployment Server is required)
- RAM: 2 GB, although 4 GB is preferable if other services will be running on the system (such as IBM Director).
- SQL Server 2005 (SQL 2005 requires TCP/IP be enabled before use with Deployment Server)

**Note:** The installation file comes in two flavors. One allows for the installation of the Deployment Server only. The other install file contains the Deployment Server and the integration modules for Notification Server. To install this version a Notification Server must be available for the installation. Both installation files are available by selecting the **Download Evaluation** link at:

http://www.altiris.com/products/DeploymentSolutionIBM/

At a minimum, two Deployment Servers are needed to support the Systems Solution for Branch Banking solution: One of the servers is for development of jobs for use in the environment and management of the other Deployment Servers servers, and the second server is for managing the individual remote locations. Additional Deployment Servers can be added depending on the number of remote locations to be supported. As noted earlier, each Deployment Server can handle approximately 100 remote locations.

Blades in the remote locations must be able to map a drive back to the Deployment Server (using CIFS) because the Deployment Server must be able to pass jobs to the clients when booted to a managed state. However, the amount of traffic passed over this mapping is limited to the bootwork.exe and any configuration or batch files due to pending jobs.

#### 4.2 Installing

A normal installation of Deployment Server is required for the Systems Solution for Branch Banking architecture, but not every component has to be installed. In particular the Web console might not have to be installed depending on administrative access requirements. To select which functions will be installed when running the DS installation, select the Custom Install option when starting the installation.

Deployment Server 6.8 Select the type of installation to perform	S altiris
Pre-Installation	
O Simple I <u>n</u> stall Helper	
Check for and install required third-party software on local computer.	
Installation Type	
O Simple Install	
Install all components on local computer.	
Include <u>P</u> XE Server	
Custom Install	
Install components on remote or local computers and customize options.	
C Thin Client Install	
Install DS Thin Client view.	
Include <u>P</u> XE Server	
C Component Install	
Install additional Deployment Server components.	
<u>I</u> nstall Cancel	Help

Figure 4-1 Deployment Server installation program startup window

# 4.3 Configuration and maintenance

After the DS is installed, you must perform some post-installation tasks:

- 1. Configure Aclient global configuration
- 2. Configure DS global configuration
- 3. Import sample jobs (optional)
- 4. Import computer object and group membership (optional)
- 5. Blade configuration
- 6. Maintenance of the DS

#### 4.3.1 Aclient configuration

Global settings can be set for the Aclient within the DS console by going to **Tools**  $\rightarrow$ **Options**  $\rightarrow$  **Agent Settings** (Figure 4-2). Select the **Force new agents to take these default settings** check box, and click **Change Default Settings**. When enabled, these settings are forced on new systems that connect to the Deployment Server for the first time. Any of the client settings can be configured and should be reviewed on a per-client basis.

Program Opti	ions				×
Console RapiDepl	e   loy	Global Agent Settings	Task Password Custom Data Sourc	Domain A ces   Virti	Accounts
	hese op	ntions control default age	nt settings and how they	vare handled.	
- Window:	s Agent You ca they c setting Eo <u>C</u> h	Settings an force all new agents to onnect to the server, eve s using an input file. rce new agents to take t ange Default Settings nt Settings	o take default settings th n if they were installed v hese default settings	e first time with custom	
2	When defaul chang Fo Ch	new Automation agents : settings from the server, ed in the console. rce new Automation age ange Default Settings	connect, they will receiv The agent will keep the nts to take these setting:	re these e settings until s	
		OK	Cancel	Apply	Help

Figure 4-2 Specifying agent settings

#### 4.3.2 Deployment Server global configuration

In support of IBM blade servers, you must change the primary lookup key for the Deployment Server. This is because DS, by default, uses the MAC address of a system as the primary lookup within the system. With blades that have multiple network interfaces, this can be problematic. Changing it to the serial number alleviates any potential problems.

This setting can be changed by going to **Tools**  $\rightarrow$  **Options**  $\rightarrow$  **Global**. Select the drop-down list at the bottom of the page and click **Serial Number**. Click **OK** when done.

Program Options		×
RapiDeploy Agent Settings Console Global	Custom Data Source Task Password	s Virtual Centers Domain Accounts
<ul> <li>Delete history entries older than 30</li> <li>Remove inactive computers after 30</li> <li>Synchronize display names with computer and the second seco</li></ul>	days days er names os to immediately retry es with available regular	licenses
Remote control ports Primary: 5001 <u>P</u> rimary lookup key: MAC Address     Sysprep Settings	S <u>e</u> condary(Optiona	al):  5002
OK	Cancel	Apply Help

Figure 4-3 Global tab with the global program options

One other setting of note on this panel is "Synchronize display names with computer names." Setting this checkbox causes the name of a computer object within the DS to match its Windows host name.

#### 4.3.3 Import sample jobs

The Systems Solution for Branch Banking architecture includes a few sample jobs that can be used either directly or as a reference for building new jobs. In particular, these jobs cover the automated installation of the PXE server, replication of PXE boot images, and configuration and FileStore replication. Use *either* of the following actions to import the jobs:

- Right-click on a folder or object within the Jobs panel in the DS console and select Import. or
- Select an object in the Jobs panel and go to File  $\rightarrow$  Import/Export  $\rightarrow$  Import Jobs.

Either method opens a window that enables the user to specify the file to import and where to import it to. In the folder the file was imported to, a new folder appears called Systems Solution for Branch Banking jobs that contains the jobs that were previously described.

IBM also provides functional DS jobs within their ServerGuide<sup>™</sup> offerings. The jobs offered within the ServerGuide can be used for server installation (including image creation and

capture), raid configuration, and firmware updating. Again, these jobs either can be used as is or modified as needed. See the ServerGuide documentation for help with installation and use of these jobs.

#### 4.3.4 Computer object import

Computer objects can be imported within the DS console. Imported objects are considered "virtual" objects until a client system contacts the DS and matches an existing virtual object record. At that point, the object becomes a "real" object that can be managed. A CSV file format is supported by Altiris and is defined in the product documentation. If IBM Director is being utilized it is possible to get all of the necessary information about the actual hardware in the environment from IBM Director and is use it to create an import file that can be used to populate the DS. This includes group membership information. Importing computer objects is achieved by going to: File  $\rightarrow$  Import/Export  $\rightarrow$  Import Computers and selecting an import file from the resulting open file dialog box.

Pre-populating the console can be an affective way of ensuring a consistent navigational experience within the console. It is recommended that each remote location be treated as a group and that all of the blade servers for that same remote location are members of the group. This will produce a structure that is easy to navigate within the DS console.



Figure 4-4 Server grouping in the DS console

#### 4.3.5 Blade configuration

Blade servers must be configured to use PXE for use within the Systems Solution for Branch Banking architecture. A blade with multiple NICs should be configured so that only one of them boots to PXE. This can be configured in a blade's BIOS configuration, and should be done to keep the blades from attempting multiple PXE boots upon each reboot. Furthermore, if the primary lookup key (as noted above) is not modified, the DS might register multiple objects. This is because, by default, a system's MAC address is used as the primary lookup. Because each NIC has a different MAC address, this can lead the DS to think that each responding NIC is a separate system.

#### 4.3.6 Maintenance of the Deployment Servers

The deployment servers used in the Systems Solution for Branch Banking should be backed up on a regular basis. In particular the DS database (eXpress) should be backed up, as well as the entire "express" share directory (c:\Program Files\Altiris\express\Deployment Server\ if installed in the default location).

In case of system loss or failure, the server can be rebuilt if these things are available. Rebuild the server, reinstall SQL Server, and rebuild the database, then install the DS software. It will detect the existing database and ask whether it should be overwritten; keep the current database. As a final step after installation, rebuild the previous "express" share directory. This will complete the rebuild of the system.

#### 4.3.7 Boot image configuration

The boot images for Initial Deployment and Managed PC must be configured to map a drive back to the correct Deployment Servers. By default boot images will need to be maintained for each Deployment Server. This is because the boot image contains information that points the image back to the supporting Deployment Server. Boot Images can be configured using the Boot Disk Creator.

Map a secondary drive to the local FileStore using the Boot Disk Creator Wizard. (Or you can modify the autoexec.bat file to do this mapping.) As mentioned in the overview, how the local FileStore is found depends on the client environment. The recommended approach is to have the NetBIOS name be consistent across the environment. If this is not possible, there are other approaches including using lookup tables based on subnet and DNS naming approaches. In either case finding a local FileStore is necessary if the WAN traffic is to be kept to a minimum.

DS provides some samples for accomplishing this. Visit:

http://kb.altiris.com/display/2n/kb/article.asp?aid=31186&n=1&s=1

To learn about new PXE redirection features, visit:

http://kb.altiris.com/display/2n/kb/article.asp?aid=24298&n=1&s=1

After the boot disk images have been modified it is necessary to create the PXE boot image by going into the PXE Configuration tool, selecting either **Initial Deployment** or **Managed PC** and clicking the **Make Boot Files** button. This relaunches the Boot Disk Creator tool. Right-click the appropriate boot image and select **Create PXE boot file** to create the boot image.

Because the boot image is now local to the Deployment Server, it must be copied to the FileStore for replication out to the remote locations. This can be further automated using a DS job. When replication is complete, the boot images are automatically replicated to the local PXE servers for use.

#### 4.4 Testing scenarios

This section discusses various situations that might come up when the Systems Solution for Branch Banking architecture is in place. In particular, it outlines various scenarios and how to deal with them.

The Altiris Deployment Server supports "rip and replace" functionality for blades through the use of its Server Deployment Rules (also known as change rules). Currently, four deployment rules can be selected and configured (Table 4-1).

Table 4-1 Deployment rules:

Name:	Functionality:
Re-deploy computer	Rebuilds a blade by reviewing its job history, finding the last imaging job that was run, and starting from that point re-running the imaging job and every subsequent job thereby rebuilding the system. This occurs when a new blade is inserted into a redeploy configured slot in the chassis.
Run predefined job	Runs a specified job whenever a new blade is detected in a slot.
Ignore the change	Allows a new blade inserted in a slot to be ignored. If a known blade is inserted into a slot its slot information will be updated to reflect the new position.
Wait for user interaction	A new server comes up and waits for an administrator to do something. An icon on the DS console indicates that the server is waiting (yellow yield symbol).

This functionality appears only on installed and identified blades. It can be found on a computer object's properties under the Bay option. By default the rule is set to Wait for User Interaction, which enables a system to come up and wait for an administrator to deploy any necessary jobs to the system.

For the Systems Solution for Branch Banking architecture it was decided that the default rule worked exceptionally well for most cases. The default setting allows systems to come up without having unexpected behavior. The text below describes the behavior of the system under various scenarios using this configuration. It is assumed that PXE is for all the systems in question and that PXE services are running.

#### 4.4.1 Scenario 1: Blade removed and reinserted

In this scenario a blade is having some necessary work done on it. The blade is removed from the chassis; the necessary work is performed then reinserted into the chassis. The system boots to a Managed PC state, reports its status, then reboots into the local operating system.

#### 4.4.2 Scenario 2: Blade is removed and a new one inserted

In this scenario a blade is removed due to problems. A new blade is inserted into the same slot. The blade is recognized as a new system and is treated as such. The blade boots into Initial Deployment and waits for instructions. In the DS Console, the blade object is identified by its serial number and exists in the same location as the previous blade.

#### 4.4.3 Scenario 3: Blade is removed then reinserted into a new slot

A blade is removed from the chassis, then reinserted into the wrong slot. The blade boots into a Managed PC state, reports its status, then reboots into the local operating system. The information in the DS console is updated to reflect the new slot location.

#### 4.4.4 Scenario 4: Blade is removed, new blade inserted, old blade reinserted

This scenario is a special case. Different behaviors are seen, depending on the order of insertion. For this example, we have blades 1 and 2. If blade 1 is removed from the chassis, then reinserted into a different slot, blade 1 will be treated as a known system and will eventually boot into the local operating system. Furthermore, the slot information of blade 1

will be updated to reflect its new position in the chassis. If, however, a new blade (blade 2) is inserted into the chassis in the same slot that blade 1 originally occupied and before blade 1 is reinserted, something interesting happens. Blade 2 is a new blade, unknown to the Deployment Server and is treated as such. It will boot to Initial Deployment and wait for further instructions. Interestingly, within the DS console, instead of receiving a new computer object under New Computers, the old blade 1 object is updated to reflect the new blade's serial number and name. Now, when blade 1 is reinserted into the chassis in a different slot or the same slot it is treated as a new system and is unknown to the Deployment Server. It will boot to Initial Deployment Server. It will boot to Initial Deployment Server knew about the system was overwritten when blade 2 was inserted into the chassis.

#### 4.4.5 Scenario 5: Server rebuild

Server failure is a normal event in any IT environment. How it is dealt with, however, is another matter entirely. One of the goals for the Systems Solution for Branch Banking architecture is to support a retail environment remotely with as little administrative overhead as possible. To that end, rebuilding a server remotely is entirely possible. In fact, rebuilding one of the supporting blades is entirely possible. The following steps outline the process that is required to "rebuild" a management server in a catastrophic failure:

- 1. Delete the existing blade object out of the DS console.
- 2. Fix or replace the broken blade and insert it into the chassis.
- 3. Start the blade. Because it is unknown to the system, it will boot to Initial Deployment state and wait for further jobs. At this point the system is ready to have jobs deployed to it. Depending on the blade setup configuration, jobs might have to be deployed to configure RAID or disk access. Otherwise an imaging job can be deployed.
- 4. After an operating system has been deployed, any necessary configuration jobs can be deployed to finish the configuration such as system renames, IP configuration, and so on.
- 5. After the OS is functional, other services can be reinstalled onto the system. The first thing that should go back onto a supporting blade is the FileStore, because most DS jobs utilize files from the FileStore.
- 6. Following the FileStore installation, the PXE server installation can be deployed.

**Note:** PXE Services should be installed only after the system has received a static address. DHCP reservations can also be used to ensure that the system is assigned the same address at each boot. The PXE service is bound to the IP address and will break if the IP address changes. If the IP address does need to change, uninstalling and reinstalling the service will fix any problems.

- 7. After the PXE server installation is complete the PXE management configuration job should be deployed.
- As the final piece of the PXE services, the current boot disk images should be deployed to the PXE server.
- 9. At this point the blade is rebuilt. Other services can be deployed to the system as needed.



5

# Other installation and configuration steps

Some of the components, including ClearCube and DataCom, can be installed by using documentation and downloads from their Web sites. This chapter provides those links.

# 5.1 Installing the ClearCube Grid Center software

See the ClearCube Web site for installation documentation, including:

- Hosted Client Solutions with IBM BladeCenter and ClearCube Management Software http://www.clearcube.com/downloads/english/IBM\_CC\_solution.pdf
- ClearCube Grid Center (Now ClearCube Sentral) http://www.clearcube.com/controller/software.php
- Site Preparation for ClearCube Installation http://www.clearcube.com/support/controller/downloads.php?id=292
- ClearCube Grid Center Admin Guide: http://www.clearcube.com/support/controller/downloads.php?id=260

For instructions on implementing the ClearCube Grid Center software, refer to their Web site:

Grid Center Admin Guide 4.11 http://www.clearcube.com/support/controller/downloads.php?id=260

See the ClearCube links in "Related publications" on page 69.

# 5.2 Configuring the ClearCube I/Port clients

For instructions on configuring a ClearCube I/Port client, see the following documents:

- ClearCube I/Port http://www.clearcube.com/controller/user\_port.php
- I/Port Quick Reference Guide http://www.clearcube.com/support/controller/downloads.php?id=264
- ► I/Port 18020/18820 Quick Start Guide

http://www.clearcube.com/support/controller/downloads.php?id=345

I/Port I8020/I8820 Quick Start Guide http://www.clearcube.com/downloads/english/GridCenterDatasheet.pdf

See the ClearCube publications listed in "Related publications" on page 69).

# 5.3 Installing and configuring the DataCom Digital Surveillance solution

See the DataCom Web site http://www.datacomnvs.com for documentation such as this:

- Frequently Asked Questions: http://www.datacomnvs.com/adobe%20files/Frequently%20Asked%20Questions.doc
- DataCom Systems Network Video Servers: http://www.datacomnvs.com/adobe%20files/Product\_Overview\_VAR\_1.0.pdf
- Installing and configuring the DataCom Digital Surveillance solution http://www.datacomvideo.com/index.html

6

# Installing the Blade Storage Server Gateway

Windows Storage Server provides file-sharing services for storing common applications and images to support remote bank branches. This chapter explains how to configure Windows to allow sharing between servers.

## 6.1 Configure your IBM BladeCenter HS20 storage server

- 1. Log onto your IBM HS20 Storage Server using the administrator name and password you used when configuring the server.
- 2. To access the server, enter https://servername:8098 in your Web browser.
- 3. When you see a security warning to accept the certificate, click Yes to continue.
- 4. Enter your administrator name and password, and click **OK**. You might need to repeat this process a second time depending on your network configuration.
- 5. The storage server administration window opens. You need to create two folders and then share them as network resources. To create the folders, click the **Shares** tab.



Figure 6-1 Storage server administration main menu

6. The Shares window opens. Click the Shares sub-tab.



Figure 6-2 Shares tab

7. In the Shares sub-tab window, create two shares called Altiris and FileStore. To create the file share, click **New**.

Shared Folders - Microsoft I	nternet Explorer				
Eile Edit Yiew Favorites Io	ools <u>H</u> elp				
🌀 Back 🔹 🕥 - 💌 🗷	🖌 🎾 Search 🦻	😽 Favorites	) 🔗 🍓 🗖		
Address 🗃 https://b71n05.pbm.iho	st.com:8098/admin/shares/s	hares.asp?Tab1=T	absShares&Tab2=TabsSh	aresFileSharing&ReturnURL	=tas 🗙 🔁 Go
	b71n05 Ø Status	: Information			Windows <sup>®</sup> Windows <sup>®</sup> Powered
Welcome Status Network	Disks Users Shar	es Maintena	nce Help		Z
Folders   Shares   Sharing Prot	ocols   Directory Quota	Storage Report	ts   File Screening		
Shared Folders					
You can manage shared fol	ders on the server, ar	nd publish shar	es using Distribute	d File System (DFS).	
Search: Share Name 💌			1.3	]	
Share Name	Share Path	Type	Comment	Tasks	
				Almass	

Figure 6-3 Shares sub-tab

8. To create file FileStore file share, enter the following information:

FileStore
c:\FileStore
Yes
Windows

Create new share - M	Aicrosoft Internet Explorer		
Eile Edit View Favor	rites Iools Help	-	
🚱 Back 🔹 🕥 - [	💌 😰 🏠 🔎 Search 🬟 Favorites 🤣 😥 🔌 📧		
Address 🙋 https://b71n05	5.pbm.ihost.com:8098/admin/sh_taskframes.asp?Title=Create%20new%20share&URL=shares/share_new.asp?Ta 🌱 🔮	Go	
	b71n05 Status: Information	te 🔨	
Welcome Status Ne	etwork Disks Users Shares Maintenance Help	?	
Folders Shares Shar	ring Protocols   Directory Quota   Storage Reports   File Screening		
New Share		a 11	
		- 11	
General Windows Sharing	Share name: FileStore		
UNIX Sharing	Share path: c:\FileStore Create folder		
FTP Sharing		and a second	
Web Sharing	Select the clients for which you want to allow access to the share.		
	Vindows (Microsoft SMB)		
	UNIX (NES)		
	LI FTP		
	Web (HTTP) - Web sharing is currently stopped.		
	You can publish the selected shares in a DFS root, which will provide user access to the shares using the DFS path.	1.111.1	
	Publish to DFS root:		
	Share will be accessible from:		

Figure 6-4 Create file share definition

9. When you have entered the required information, click the **Windows Sharing** tab in the left navigation bar.



Figure 6-5 Windows sharing tab

10.Set the permissions so that remote users can write to the directory. For our example, we set up the following privileges:

EveryoneReadAdministratorFull Control

- 11. To add authorized users to the Share, click **User** in the user list then click **Add**. When the user or group is in the list, change the Allow setting to **Full Control**. Click **OK** when you are done.
- 12. Repeat the previous steps for the Altiris file share using the following settings:

Share Name	Altiris
Share Path	c:\FileStore\Altiris
Create folder	Yes
Share Type	Windows

Windows Sharing permissions:EveryoneReadAdministratorFull Control

When you are through creating the Altiris share, a list of shares on the Windows Storage Server is displayed.

hared Folders - Microsof	t Internet Explorer				
e Edit Yew Favorites	Iools Help		IN STATISTICS	Reference and the	and adding the
🕽 Back 🔹 🐑 - 💌	😰 🏠 🔎 Search 🚽	Favorites 🚱	🔊 - 🚴 🗖	•	
ress 🎒 https://b71n05.phm.	bost.com:8098/admin/sbares/sh	ares.asn?tabl=Tab	sSharesNtah2=TahsShar	esfileSharing%SAPageKeym9	5682E4E2A2A881D88C7
and a second sec	h74 - 05	erestasp: esst=1ab	55 6 650 650 - 1 6555 16	osi nesina ngo_sin agalas) - s	Monardi
	D/1005 (1) Status:	Information			Windows Powered
Income   Chatture   Methuar	t Dieke Utenes Char	an Maintanan			
ers Shares Sharing P	rotocols Directory Quota	Storage Report	s File Screening		
and a shares ( sharing t	energy ( energy ( doing	l analysis after setting	- 1 - 1 - 2 - 2		
hared Folders					
ou can manage shared i	folders on the server, an	d publish share	s using Distributed	File System (DFS).	
Search: Share Name		▶ Go		1	
Share Name	Share Path	Type	Comment	Tasks	
Altiris	c./FileStore/Altiris	W		Naw	
FileStore	c:/FileStore	W		Delete	
				Publich in OPS	
I=Windows (Microsoft C	MD)				
/-Windows (Microsoft S	MB)		<u> </u>		
/=Windows (Microsoft S	MB)				
/=Windows (Microsoft S	МВ)				

Figure 6-6 List of shared folders

If both shares are listed, you may close your browser window. You are through configuring the IBM BladeCenter HS20 Storage Server.



# 7

# Installing VMware ESX

See the VMware Web site for installation information about VMware ESX:

#### http://www.vmware.com/products/vi/esx/

At that site, click **Documentation** to find a list of manuals about VMware. Then click each VMware product to view the release notes, manuals, guides, and resources that are available for all versions of that product. For white papers, tech notes, compatibility guides, and other technical papers, click **Technical Papers**.

- Data Center Products
  - VMware Infrastructure 3 (ESX Server 3.x, VirtualCenter 2.x & VCB)
  - Compatibility guides, release notes, online library, and resources
- VMware ESX Server 2.x
  - Compatibility guides, release notes, manuals, and guides
- VMware VirtualCenter 1.x
  - Release notes, manuals, and guides
- VMware SDK & API
  - Resources for VI SDK, CIM SDK, Guest SDK, Programming API, and Scripting API
  - Development and Testing Products
- VMware Workstation
  - Release notes, manuals, and guides
- VMware Server
  - Release notes, manuals, and guides



# Creating the ClearCube Model virtual machines on VMware ESX

VMWare ESX server is used for virtualized infrastructure for partitioning, consolidation, and managing servers. It provides the ability to host multiple virtualized servers on a common computing platform. This chapter describes how to install the software.

# 8.1 Create a virtual machine

- 1. Log onto VMware by entering http://machine in your Web browser, where machine is the host name of your VMware server.
- 2. To the security alert to accept the certificate, click Yes.
- 3. Log onto the VMware server using the super user ID that you assigned during the VMware installation. In our example, we used root and passw0rd.
- 4. After entering the super user ID, click Log in to open the VMware Management interface.

b75g02.pbm.ihost.com: VMwar	Management Interface - Mic	rosoft Internet Explorer	
Ele Edit Yew Favorites Tools	Help		
🔇 Back + 🔘 - 💌 🖉 🤇	🏠 🔎 Search 🔶 Favorites	🚱 🍰 🗟 · 🔜 🍰	<b>e</b> 3
Google - b72mme.pbm.ihst.com	🕻 Ġ Search 🔹 😽 Check 🔹	🔌 Autolink 🕝 🛃 Options 🌛 🐻 b7:	2mme 🔕 pbm 🔕 ihst 🔕 com
eb¥ •	Search + 🔰 Account -	🖁 My eBay  🇯 Alerts + 🎒 Buying 🔹 💙	Favorites - BCustomize
Address 😸 https://b75g02.pbm.ihost.co	n/vmware/en/		
Links 👸 Webmail 🗃 XM RADIO 👸 d	raigslist 👸 SplashBlog 👸 Poding	🗃 🗃 iPodlounge 📓 Lonely Planet 🗿 tre	eocentral 👩 Mandolin Cafe 🍵 MandoZine
C2 VMware ESX Server 2.5.2 build Status Monitor Memory Optic Last updated Tue Nov 1 14:15:56 ES	ns ST 2005	ost.com	Refresh   Manage Files   Help   Log
System Summary			5 Minute Averag
Processor Cores (2)		Memory (8.0 G)	
Virtual Machines	0%	Virtual Machines	94.8 M
System Total	3 %	System Total	419.8 M
Virtual Machines (0)			
No virtual m	achines are registered with	this system. Click Add Virtual Macl	hine to create one.
Download VMware Remote Console:	Windows (exe)   Linux (rpm)	Linux (tar.gz)	add Virtual Machine
Copyright © 1998-2005 VMware, In Protected by one or more of U.S. Pa VMware, the VMware "boxes" logo,	c. All rights reserved. tent Nos. 6,397,242, 6,496,847, SSX Server, ESX Server, Virtua	6,704,925, 6,711,672, 6,725,289 and SMP and VMotion are trademarks of V	6,735,601; patents pending. /Mware, Inc.
Figure 8-1 VMware managem	ent interface		

5. Create a virtual machine that will be used as a base image for creating several virtual machines. Click **Add Virtual Machine** on the VMware Management Interface.

🖆 https://b75g02.pbm.ihost.com - b75g02.pbm.ihost.com: Add Virtual Mac 🔳 🗖 🔀				
🖶 VMware ESX Server 2.5.2	build-16390   root@b75g02.pbm.i	host.com		
ClearCube Base Image				
Virtual Machine Configuration	DN			
Standard Options				
Guest Operating System	Microsoft Windows XP Professio	onal	~	
Display Name	ClearCube Base Image			
Location	/root/vmware/winXPPro/ccvmE	ase.vmx		
Help		Next >	Cancel	
🙋 Done		🔒 😵 Internet		

Figure 8-2 Add virtual machine

6. In the Add Virtual Machine window, change the standard options as follows:

Guest Operating System	Microsoft Windows XP Professional
Display Name	ClearCube Base Image
Location	/root/vmware/winXPPro/ccvmBase.vmx

7. Click Next.

8. The Virtual Machine Configuration appears, where you can change the memory settings. In our configuration we used 1024 MB. Depending on the amount of server memory you have and the number of virtual machines, this value might have to change. After changing the memory settings, click **Next**.

https://b75g02.pbm.ihost.com - b	75g02.pbm.	ihost.com: Add Virtual Mac	
🖶 ¥Mware ESX Server 2.5.2 build-	16390   root	@b75g02.pbm.ihost.com	
ClearCube Base Image			
Virtual Machine Configuration			
Processors			
Virtual machines running Microsoft Wir a single processor.	ndows XP Pro	fessional may only be configured (	vith
Memory			
Suggested: 256 M Guest Min: 128 M	Runnable M	ax: 3600 M (1P), 3600 M (2P)	
Memory (in multiples of 4)		10	24 M
Workloads			
Citrix Terminal Services			
			~
Help		≪ Back Next >	Cancel
		🔒 🔮 Internet	:

Figure 8-3 Virtual machine configuration

9. At the warning regarding SCSI driver support for VMware and Windows XP, click **OK** to create your virtual machine.

10.Now create a virtual disk for the virtual machine to use. Click Create Blank Virtual disk.

🔄 https://b75g02.pbm.ihost.com - b75g02.pbm.ihost.com: ClearCube Base 🗔 🗖 🔀				
YMware ESX Server 2.5.2 build-16390   root@b75g02.pbm.ihost.com				
Virtual Disk Add a hard disk to Which type of virtual d	your virtual machine. Isk would you like to add?			
Blank	Create a new virtual disk.			
Existing	Attach an existing virtual disk to your virtual machine.			
System LUN/Disk	Give your virtual machine direct access to a SAN LUN.			



11. The Edit Virtual Disk Configuration window opens. Enter the following settings for your virtual disk. (In our example, we have assigned an 8 GB virtual disk to this virtual machine. Depending on your local or SAN-based storage you may alter this value depending on your requirements.)

Image File Locationvmhba2:0:0:5: 21.8 G free (If you have additional storage attached<br/>to your server, you may choose it from the pull-down menu.)Image File Name<br/>CapacityccvmBase.vmdk<br/>8000 M

Click **Next** to continue.

🗿 https://b75g02.pbm.ihost.com - b75g02.pbm.ihost.com: ClearCube Base 🔳 💷 🔀				
@ ¥Mware ESX Server 2.5.2 bui	WMware ESX Server 2.5.2 build-16390   root@b75g02.pbm.ihost.com			
Virtual Disk Add a hard disk to your virt	tual machine.			
Edit Virtual Disk Configuration	and a second			
Disk Image				
Image File Location	vmhba2:0:0:5: 21.8 G free			
Image File Name	ccvmBase.vmdk			
Capacity	8000 M			
Virtual Device				
Virtual SCSI Node	0:0			
Disk Mode				
Persistent	Changes are immediately and permanently written to the virtual disk.			
O Nonpersistent	Changes are discarded when the virtual machine powers off.			
🔿 Undoable	Changes are saved, discarded or appended at your discretion.			
O Append	Changes are appended to a redo log when the virtual machine powers off.			
Неір	< Back Next ➤ Cancel			
🛃 Done	🔒 🥶 Internet			

Figure 8-5 Edit virtual disk configuration

12. Finally, the virtual machine configuration is finalized. The virtual machine control window for your ClearCube base image opens.



Figure 8-6 Virtual machine control window

## 8.2 Installing the VMware remote console

To interact with VMware virtual hosts, you must download the VMware Remote Console. This can be done from the VMware Management interface main window.

- 1. At the bottom of the window, click the link for the remote console. In our example, we install the Windows version.
- 2. When you click the link, you will be asked to save or run the executable. Click **Run**. After the file is downloaded to your workstation, the installation program will start.
- 3. Click Next.
- 4. Accept the license agreement and click Next.
- 5. Accept the default installation directory and click Next.
- 6. Now you are ready to install. Click Install to continue.
- 7. After several minutes, the installation completes. Click Finish.

## 8.3 Creating the ClearCube base image

Now create a base image of a virtual machine:

- 1. Before you create the base image, you must download the VMware virtual SCSI driver from <a href="http://www.vmware.com/download">http://www.vmware.com/download</a>. The file is called <a href="http://wws.si-1.2.0.2.flp">wmscsi-1.2.0.2.flp</a>. After downloading the file, FTP it to the VMware server under the /tmp directory. You will need this file for installing Windows XP Professional.
- 2. Insert the Windows XP Professional CD in the CD drive of your IBM BladeCenter and click **Media select** to assign the CD drive to your blade server.
- 3. Open the VMware remote console for the ClearCube Base Image by double-clicking the Windows icon to the left of the virtual machine name. When you click on the machine name, the remote console login opens.
- 4. Enter the super user ID password you used when you installed VMware ESX. In our example we enter passw0rd as our password.
- 5. The remote console window opens. Power on the virtual machine by clicking **Power On** in the upper remote console window. The VMware virtual host boots.

D ClearCube Base Imag	e - b75g02.pbm.ihost.com VMware ESX Server	VMware Remote Console	
Elle Bower Settings Dovid	os ⊻iew Help		
Power Off 🛛 🕨 Power O	n 🔸 💵 Suspend 🦂 🧐 Reset 🕞 🚺 Detach and E	xit	
VMware ESX Server: I	75g02.pbm.ihost.com	remo	te console
ClearCube Base I	mage	🗊 vmware	
Status: Powered off This virtual machine is powe virtual machine, click the Po	red off. It is like a physical computer with the power switch turn wer On button.	ed off. To start this	
Device	Summary		
<ul> <li>Memory - Processors</li> <li>Viitual Disk (SCSI 0:0)</li> <li>DVD/CD-ROM (IDE 0:0)</li> <li>Floppy Drive (A:)</li> <li>Network Adapter</li> <li>Display</li> </ul>	1024 MB - 1 VCPUs Persistent Using drive /dev/cdrom Using drive /dev/fd0 Monitor Device High Color (16 bit)		
Click Power On to start virtual m	achine.		8

Figure 8-7 Remote console window

- 6. When the Windows XP Installation starts, press F6 as prompted, because you will need to load a third-party SCSI driver.
- 7. The Windows installation continues. Press S to specify additional drives.
- 8. At this point, you must exit the VMware remote console by pressing Control+Alt. Control returns to the Remote console menu.

- Attach to the VMware virtual SCSI driver that was downloaded in step 1. Select Devices → Floppy0 → Edit.
- 10. The Configuration Editor opens. Change the floppy connection from physical drive /dev/fd0 by selecting **Use Floppy Image** and entering or browsing to the following floppy image file: /tmp/vmscsi-1.2.0.2.flp/. Click **OK** to continue.

Configuration Editor - /root/vmware/winXPPro/ccvmBase					3	
Hardware 0	ptions Advanc	ed				
Device Memory - Virtual Di DVD/CD Floppy D Network Display	Processors isk (SCSI 0:0) -ROM (IDE 0:0) rive (A:) Adapter	Summary 1024 MB - 1 VCPUs Persistent Using image /tmp/X1APV Disconnected Monitor Device High Color (16 bit)	Device status     Connected     Connect at power o     Connection     Use physical drive:     /dev//d0     Use floppy image:	n	Browse	
				Create	Browse	
	<u>- 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</u>	Add Hemove	ОК	Cancel	<u>H</u> elp	

Figure 8-8 Configuration editor of remote console menu

- 11. Attach the floppy image to the virtual machine by selecting  $\textbf{Devices} \rightarrow \textbf{Floppy0} \rightarrow \textbf{Connect}.$
- 12.Now attach back to the remote console to continue with the Windows XP installation.
- 13. Click **S** in the VMware remote console to specify the virtual SCSI driver. The driver selection window opens. Choose the **VMware SCSI Driver** and press Enter.
- 14. Insert disk when prompted.

#### 15. When prompted, press Enter to access the floppy image.



Figure 8-9 Select device to be loaded

- 16. The VMware SCSI controller driver is installed. You are asked whether you want to install more drivers; we do not need to do any more, so press Enter to continue.
- 17. Windows setup continues as normal. It is beyond the scope of this document to show all the steps involved with installing Windows, but we show the specific tasks and configuration relative to this solution.
- 18. Choose to perform a standard installation as follows:
  - a. Choose a standard installation.
  - b. Create a partition that contains the entire VMware file system size you choose previously.
  - c. Format the file system as NTFS.
  - d. During the Windows Graphical setup, you will be asked to choose an administrator password. In our example we used passw0rd.
  - e. During the Windows Graphical setup, you will be asked to choose a user name and password. In our example we used user1 and passw0rd.
  - f. Take the default network settings.
  - g. Choose the correct time zone and set the clock to your local time.
- 19.When the Windows installation is completed, you should disconnect the virtual floppy by selecting **Devices** → **Floppy0** → **Disconnect**.

#### 8.4 Post-installation tasks

After the initial Windows XP Professional installation completes, several other tasks must be completed before we prepare the virtual machine model so that cloned virtual machines may be created.

### 8.5 Service packs and hot fixes

You should install the latest available service pack for Windows XP professional in addition to all required hot fixes, which are available from the Microsoft Download service. This can be set up so all fixes are automatically downloaded to your Windows XP installation.

### 8.6 Applications

You should install all applications that you would like to include in the model image so that they will be available in all of the cloned virtual machines you will be creating. In our example, we have included Symantec AntiVirus, WinZip, and Adobe Acrobat Reader. Do not install a Java<sup>™</sup> Runtime Environment at this time, because the ClearCube GridCenter client will install its own version.

#### 8.7 Enabling remote access to the virtual machine

ClearCube Grid Center uses RDP (Remote Desktop Protocol) to allow access from I/Ports to the virtual machines, so we must enable the users for remote access:

- 1. From the Windows Start Menu, open the control panel from the settings menu.
- 2. In the control panel, click the System icon.
- 3. When the system icon appears, select the **Remote** Tab.
- 4. Under Remote properties, select Allow users to connect remotely to this computer and click OK.
- 5. Close the system properties page and close the control panel.

# 8.8 Installing the VMware tools

VMware tools must be installed in the virtual machines model we are creating. The VMware tools provide specialized drivers and increase performance of the virtual machine environment.

To install VMware tools:

- 1. Make sure your ClearCube Base image virtual machine is booted and the VMware remote console has been started.
- From the VMware Remote Console main menu, select Settings → VMware Tools Install.
- A window opens asking whether to install or cancel the VMware tools installation. Click Install to continue.
- 4. When the VMware tools installation screen appears, click Next.
- 5. When the setup type screen appears, pick **Typical** and **Next** to continue.

- 6. Click Install to start installing VMware tools.
- You might be asked several times to accept the installation of a driver that has not passed Microsoft Certified Driver testing. This is normal; choose the **Continue Anyway** button to continue.
- 8. After all of the drivers are installed, the VMware tools installation will be completed.
- 9. Click Finish.
- 10. The VMware virtual machine must reboot so that VMware tools can run. When asked to reboot the virtual machine, click Yes to restart your system.

#### 8.9 Installing the IBM Director Agent

- 1. Insert your IBM Director CD. The installation menu appears.
- 2. Click Install IBM Director.
- 3. Click IBM Director Agent Installation.
- 4. The Installer opens. Click Next.
- 5. Accept the license agreement and click Next.
- 6. Choose the default installation directory and options and click Next.
- Accept the default security options. (If your site requires these, be sure that these options match the ones you used when you installed the IBM Director Server). Click Next.
- 8. Accept the default Software distribution settings and click Next.
- 9. Begin the installation by clicking Install.
- 10.Make sure **Enable driver** is checked when network driver configuration dialog appears, then click **OK**.
- 11. When the installation is complete, you will be required to reboot the machine. Click **Yes** to reboot.

## 8.10 Installing the ClearCube Grid Center client

ClearCube Grid Center requires a client component to be installed on each virtual machine so that the Grid Center server can make connections between the I/Ports and the virtual machines.

To install the ClearCube Grid Center client:

- 1. Make sure your ClearCube Base image virtual machine is booted and the VMware remote console has been started.
- Insert your ClearCube Grid Center CD into the CD drive of your IBM BladeCenter and click Media select to assign the CD drive to your blade server.

The ClearCube Grid Center installation page opens.

- To start the installation, choose the Grid Center 4.1 One-step installation. If you receive a security warning about running a downloaded application, choose **Open** to run the application.
- 4. The installation wizard opens. Click Next to continue.
- 5. At the warning about removing older versions of Grid Center, just click **OK** to continue.

- 6. The installation setup type opens. Select **Grid Center Blade Client** and click **Next** to continue.
- 7. The Select feature installation window opens. Accept the default and install all features listed.
- 8. If you receive a security warning about running a downloaded application, choose **Open** to run the application.
- 9. The ClearCube Grid Center client installation begins. You will be asked to enter some organization information such as user name and organization. Take the defaults that were entered when you installed Windows.
- 10. Click **Yes** to accept the license agreement. The installation finishes. The last step is to configure the primary and secondary names of the Grid Center server we installed previously.
- 11. Enter the host name of the Grid Server in both the primary and secondary fields and click **Next** to continue.
- 12. You will be guided through installing the following features:
  - Java 2 Runtime
  - Active State Perl
  - Perl Plug-in 1.1 for ClearCube Technology
  - ClearCube Distributed Computing Infrastructure

Click Next to continue.

For each product installation, take the default installation options. If you receive a security warning about running a downloaded application, choose **Open** to run the application.

Four separate product installations will be performed sequentially.

13. Finally, reboot the virtual machine when the ClearCube Client has been installed. Choose **Yes, I want to restart my computer** to reboot the system.

### 8.11 Running the Sysprep setup manager

To enable a system to be copied or cloned to other systems, the base version of the image must be prepared by using the Sysprep program:

- 1. Make sure your ClearCube Base image virtual machine is booted and the VMware remote console has been started.
- 2. Log onto the ClearCube Base image virtual machine as user1.
- 3. Insert your Windows XP Installation CD in the CD Drive of your IBM BladeCenter and click Media select to assign the CD Drive to your blade server.
- 4. Using the Windows explorer, browse the Windows XP Professional installation CD located in Drive D.
- 5. Create a folder on your local hard drive call c:\sysprep.
- 6. Copy deploy.cab from the \support\tools directory of the CD to your local hard disk in a folder called c:\sysprep.
- Open deploy.cab and extract the contents to the c:\sysprep directory using WinZip or Windows' built-in compression tool.

After you have expanded the contents of deploy.cab into c:\sysprep, run the Sysprep setup manager. This application helps prepare the answer file that will be used when Sysprep is run.

- 8. From the Windows start menu, launch the Sysprep setup manager by running c:\sysprep\setupmgr.exe.
- 9. The setup manager opens. Click Next.
- 10. Create a new sysprep.inf file by choosing **Create new** and clicking **Next**. If you have an existing sysprep.inf file you want to work with, you may copy it to the system and select **Modify existing**, including the file you want to modify.
- 11. Choose Sysprep setup as the setup type and click Next to continue.
- 12. Choose Windows XP Professional as the product type and click Next to continue.
- 13. Choose Yes, fully automate the installation. Click Next.

Name and Organization You can customize Windows Setup by providing a default name and organization. Type the default name and organization you want to use. If you leave these boxes blank, the name and organization will not be specified in the answer file, and the end user will be prompted to enter the information during Windows Setup.
Name: CSI Organization: IBM Corporation
On the left side of this page, the steps of Setup Manager are shown for your information. The highlighted step is your current position. You can move to any step in Setup Manager by clicking that step in the list.

Figure 8-10 Setup manager

The Setup Manager opens. Enter the information, which will be used for every cloned system. To change the settings for a given category, click the setting on the left pane. The values to be set will appear on the right.

The following settings should be made:

- General Settings
- Name and Organization
- Time Zone
- Product Key
- Network Settings
- Computer Name (select automatically generate computer name option)
- Advanced Settings
- 14. Click **Next** to cycle through each settings category. When you are done, you will be prompted to save the Sysprep file to c:\sysprep\sysprep.inf. Take the default setting and click **OK**.
- 15. When you are done, the Sysprep setup manager closes. Click Cancel to complete.

You may view the details of the settings that are to be written to c:\sysprep\sysprep.ini file by using Windows Notepad or another text editor.

# 8.12 Running Sysprep

After the Sysprep setup manager has been run and a sysprep. Inf file has been prepared, run Sysprep. Ensure that all prerequisite software has been installed on your system that you want to be included as your base. After Sysprep is run the clone systems will be created. If you want to add additional applications, you must go back and update the model image or add the application to each system individually.

- 1. From the Windows Start menu, Ichoose **Run**, and launch Sysprep by typing c:\sysprep\sysprep.exe.
- 2. When Sysprep starts a warning is displayed. Read the warning and click **OK** to continue.
- From the System Preparation Tool configuration window (Figure 8-11), choose Use Mini-Setup because we have prepared a sysprep.inf file. Using mini-setup runs a fully unattended installation of the Windows XP virtual machine when cloned.
- 4. Click **Reseal**. This causes the sysprep.inf file to be read and the system preparation process to run. When it completes, the system will shut down.



Figure 8-11 System preparation tool configuration screen

You are now ready to create clone virtual machines to use as your ClearCube I/Port clients.

# 8.13 Cloning the model image to create the client virtual machines

Now that we have prepared the model image, we must clone the model image to create the actual client virtual machines. This is done by copying the actual disk file on the VMFS (VMware file system) and creating a new copy.

1. To clone the model image, click the **Manage Files** link of the VMware management interface. It is located on the upper-right section of the window.

b75g02.pbm.ihost.com: VMware Managem	ent Interface - Microsoft	Internet Explorer			
Ele Edit Yew Favorites Lools Help					
🌀 Back 🔹 🐑 · 🖹 💈 🏠 🔎 Se	arch 🧙 Favorites 🥝	🔊 • 🌺 🖬 • 🔜	Å 😑 🚳		
Address 👜 https://b75g02.pbm.host.com/vmware/en/			🛩 🛃 Go		
🖗 VMware ESX Server 2.5.2 build-16390	root@b75g02.pbm.ihost.co	m			
Status Monitor Memory Options			Refresh   Manage Filès   Help   Log Out		
Last updated Tue Nov 1 14:51:39 EST 2005					
System Summary			5 Minute Average		
Processor Cores (2)		Memory (8.0 G)			
Virtual Machines	0 %	Virtual Machines	0 0311(0311(031110)		
System Services	1 %	System Services	412.2 M		
System Total	1%	System Total	412.2 M		
Virtual Machines (1)					
HB Display Name			Up No. % CPU RAM		
ClearCube Base Image Powered off			1P 00000000		
Download VMware Remote Console: Windows (e	exe)   Linux (rpm)   Linux	(tar.gz)	🛍 Add Virtual Machine		
Copyright © 1998-2005 VMware, Inc. All rights Protected by one or more of U.S. Patent Nos. 6, VMware, the VMware "boxes" logo, GSX Server	reserved. 397,242, 6,496,847, 6,704 , ESX Server, Virtual SMP	9,925, 6,711,672, 6,725,289 and VMotion are trademarks	and 6,735,601; patents pending. of VMware, Inc.		

Figure 8-12 Specifying cloning process

2. The VMware File Manager window opens. Click the **vmfs** directory tree and then the device directory, which has space to hold the copies of the cloned virtual machines. Your output should look similar to Figure 8-13.



Figure 8-13 VMware file manager

- 3. Click the **ccvmBase.vmdk** file and click **Copy** on the lower-right section of the window.
- 4. Click Paste.
- 5. When the copy is completed, you must rename the copied version, which is called copy\_of\_ccvmBase.vmdk. To rename this file, click on the file name and click the **Edit properties** button located on the bottom-right section of the screen.
- 6. The Edit Properties window opens. Change the name of the file to teller01.vmdk and click **OK**.
- 7. When the move is completed, the new virtual machine file will be listed.
- 8. Repeat the copy-and-paste using the ccvmBase.vmdk base image for as many virtual machines as you require. In our environment, we used three client virtual machines.

# 8.14 Starting, running, and configuring the client virtual machines

We now create the virtual machines that will be used to host our virtual clients:

- 1. Click Add Virtual Machine on the VMware Management Interface.
- 2. The Add virtual machine window opens. Change the standard options as follows:

Guest Operating System	Microsoft Windows XP Professional
Display Name	teller01
Location	/root/vmware/winXPPro/teller01.vmx

- 3. Click Next.
- 4. The Virtual Machine Configuration opens. Depending on the amount of server memory you have and the number of virtual machines, the memory settings value might have to change. In our configuration we used 1024 MB.

https://b75g02.pbm.ihost.com - b75g02.pbm.ihost.com: Add Virtual Mac	🔳 🗖 🔀
🔁 VMware ESX Server 2.5.2 build-16390   root@b75g02.pbm.ihost.com	
Add Virtual Machine teller01	
Virtual Machine Configuration	
Processors	
Virtual machines running Microsoft Windows XP Professional may only be configu a single processor.	ired with
Memory	
Suggested: 256 M Guest Min: 128 M Runnable Max: 3600 M (1P), 3600 M (2P)	
Memory (in multiples of 4)	1024 M
Workloads	
Citrix Terminal Services	
Help Sack Next >	Cancel
🔊 Done 🕒 🔮 Internet	

Figure 8-14 Specify memory settings
- 5. After changing the memory settings, click Next.
- 6. At the warning regarding SCSI driver support for VMware and Windows XP, click **OK** to continue.
- 7. Your virtual machine is created. Next, create a virtual disk for the virtual machine to use. Click **Existing Virtual disk** to continue.
- 8. Choose the location and name of the existing virtual disk to use for the virtual machine.

Image File Location Choose location where you copied the model virtual disk in the previous step

Image File Name teller01.vmdk

- 9. Click **Next** to continue.
- 10. The virtual machine configuration is finalized. The virtual machine control window for our ClearCube base image opens.

atus Monitor CPU M	emory Disk Network Hard	ware Options Users	and Events	lefresh   Help   Cl
st updated Wed Nov 2 13	:04:58 EST 2005			
teller02	ff			
emovable Devices		Other Hardware		
Floppy Drive	Remove   Edit	Processors and Ma	emory	Edit
Connected	No	Processors	1	
Connect at Power On	No	Memory	256 M	
Device	System Floppy Drive	SCSI Controller 0		Edit
Location	/dev/fd0	Virtual Device	vmxbuslogi	c
DVD/CD-ROM Drive (IDE 0:0) Remove   Edit		Bus Sharing	none	
Connected	No	📼 Virtual Disk (SCST	0:0)	Remove   Edit
Connect at Power On	Yes	Device	UMware Dic	k Image
Device	System DVD/CD-ROM Drive	Location	vmfs_1:tell	r02.vmdk
Location	/dev/cdrom	Mode	Persistent	102.1111GK
Network Adapter	Remove   Edit		. cr sisteric	
Connected	No	📃 Display		Edit
Connect at Power On	Yes	Colors	Thousands	of Colors (16 bit)
Network Connection	Network0			
Virtual Device	vlance			

Figure 8-15 Finalized virtual machine configuration

- 11. Make sure that the virtual machine starts when VMware starts (this is an implementation issue that should be decided). We want to edit the startup options.
- 12.Click the **Options** tab.

13. Change the system start options by clicking Edit next to the System Startup Options.

https://b75g02.pbm.ihost.com - b75g02.pbm.	ihost.com: teller(	01 - Microso	ft Internet Explore	r	
🖶 YMware ESX Server 2.5.2 build-16390   rooti	@b75g02.pbm.ihos	t.com			
Status Monitor CPU Memory Disk Netwo	rk Hardware	Options U	sers and Events		Help   Close
Last updated Thu Nov 3 10:42:51 EST 2005					
teller01					
- Powered on					1.2
Virtual Machine Configuration					<u>^</u>
Standard Options					Edit
Display Name	teller01				
Guest Operating System	Microsoft Wind	lows XP Profe	essional		
Suspend File Location					
Enable Logging	Yes				
Run with Debugging Information	No				
System Startup Options					Edit
At System Startup	Do not start vi	irtual machin	e		
Continue Starting Other Virtual Machines After					
System Shutdown Options					Edit
At System Shutdown	Power off virtu	ual machine			
Continue Stopping Other Virtual Machines After	3 minutes (sys	stem default)	at most		
Verbose Options					
If you need to view, add or modify configuration pa	rameters directly,	click here.			
					V
Done Done			<b>a</b>	Internel	t .,

Figure 8-16 Specify system start options

- 14.Select the Start virtual machine checkbox and click OK.
- 15. Close the Virtual Machine Configuration window.
- 16. Repeat the virtual machine creation process for as many virtual clients you need to create. Remember, this is usually limited by the amount of memory and disk storage is available.

#### 8.15 Post-installation tasks

After rebooting each client virtual machine, you need to rename the client VM changing the system name in the Windows XP Control Panel system applet

- 1. Click Start → Control Panel.
- 2. Click the System Applet.
- 3. Click the Computer Name tab.
- 4. Click **Change** to rename the computer.
- 5. Enter the client virtual machine's new name in the Computer Name field.
- 6. Click Apply. You will then be prompted to reboot.
- 7. Reboot the client virtual machine.

# Α

## **Teller** application

This chapter describes how to install the application that simulates the teller environment and enables us to test the underlying infrastructure. It simulates all of the major functionalities of a bank branch teller. It is a WebSphere Everyplace client 6.0 extending the J2EE programming model to the client for performance and operational resiliency. It can perform functions like:

- Look, modify, and delete the account holder details
- Create bank accounts
- Transfer money between accounts
- Deposit and withdraw money

This application can run in both online and offline modes. When in offline mode the transaction data is stored locally and synchronized with the server as soon as the application comes online.

There are two components to this application. The server component has the server application deployed on WebSphere Application Server, WebSphere MQ, and the database. The client is WebSphere Everyplace Client, which hosts the client application and makes connections to the server using Web services.

#### Server installation

Use the following steps to get the server installed:

- 1. Get the server image (eserver25b1\_new).
- 2. Boot the image in VMware and log in as root with the password ibmpass.
- 3. Run **yast2** or your tool of choice and change the IP address to something valid in your environment.
- 4. Check the file /etc/hosts and verify that eserver.networkfi.test is mapped to your new IP address. Yast2 should have done this for you.
- 5. Make sure eserver.netwokfi.test is resolvable on all clients that will connect to this server (suggest putting in master image).
- 6. Reboot the image.
- 7. After the system comes up, log in again (/root/ibmpass).
- 8. Most needed services start up as iniit.d daemons. Only WebSphere Application Server and the MQe gateway have to be started manually. Enter:

/opt/WebSphere/AppServer/bin/startServer.sh server1

to start WebSphere Application Server. You can log in to the WebSphere admin console as wpsadmin/ibmpass.

- Enter /opt/WebSphere/AppServer/bin/startMQe.sh to start the MQe gateway.
- To shut down cleanly, use /opt/WebSphere/AppServer/bin/stopServer.sh server1. After this completes you may shut down the OS normally.
- 11. From now on, begin at step 5 above when starting the image.

#### **Client installation**

Required software:

- WebSphere Everyplace Client Deployment code
- Modified com.ibm.pvc.wct.platform plug-in files
- com.ibm.bankdemo.site.jar and bankdemo\_wsclient.properties files

Use the following steps to get the client installed:

- 1. Install the WebSphere Everyplace Client by unzipping the zip file (select full installation, do *not* select the WEDM server-managed configuration).
- Back up the com.ibm.pvc.wct.platform plug-in in /Program Files/IBM/WED/rcp/eclipse/plugins and replace it with the new plug-in with custom OFN images and branding.
- 3. Copy com.ibm.bankdemo.site.jar and bankdemo\_wsclient.properties to a temporary directory on the client.
- 4. Make sure your client has a /etc/hosts (or the equivalent) entry for eserver.networkfi.test that points to the server image.
- Start the WED (WebSphere Everyplace Deployment) client and select Install under Applications.
- Click Add zip/jar location and select the site jar above. Make sure the com.ibm.bankdemo.site.jar appears in the location list and is checked.

- 7. Click **Next**. Make sure the "com.ibm.bankdemo.sample feature for WebSphere Everyplace Deployment..." feature (and only that feature—not the samples gallery for RAD) is checked.
- 8. Click **Next** again. Make sure the location selected is under C:/Program Files/IBM/WED/shared (or /opt/IBM/WED/shared). Click **Finish**. Choose **Install anyway** when warned about unsigned features.
- 9. Shut down WebSphere Everyplace Deployment after it restarts.
- 10.Copy the properties file (overwriting the one that is already there) to C:/Program Files/WED/shared/eclipse/plugins/com.ibm.bannkdemo.wsclient\_1.0.0.
- 11. Start the client. Click Open and launch OFN Teller Application.

#### Test scenario

The teller (Sally Thomas) starts her client system and launches the WebSphere Everyplace Deployment client. The WED workbench appears with the branding and visuals associated with the financial institution.

Sally opens the OFN Teller from the WED application switcher and logs in. The OFN network status indicator shows online. She logs in to the system using sallyt and ibmpass. The ID and password are prefilled. The application will accept any user ID and password entered.

Alice Sheen and John Walker walk up to the teller to make a deposit. Alice wants to make a deposit and John wants to make a withdrawal. Sally is already logged in to OFN Teller. Sally chooses **Open customer session** in OFN Teller and runs a customer search on John's last name Walker. She then selects and opens the only account in the list, which is John's checking account.

😔 WebSphere I	iveryplace Deployment		
File Application 1	ilew Halp		
	l Teller		open financial network
Cipen	Customer Profile (Horizontal) Browser	Address: 123 Anderson Lane New York, MY-10001 USA Savings Enal: mbix/9yse.com Home Phone #: 539-475-4355 Work Phone #: 243-143-9534	
	Customer Session: Mile Blar	Account Details 22 About the Teller Application Journal Customer: Mike Blair ID: mblair Account: 254322330935 (Savings) • Account: 254322330935 Type: Savings Balance: \$1,750.00 Available: \$1,640.00 Recent Transactions:	
	Customer: Miles Blair ID: mbbis Account: Biskboots00005 (Senings) = Bislance: \$2,780.00 Available: \$2,540.00	Date Transaction Type 9(29)05 Withdrawal 9(24)05 Withdrawal 9(24)05 Withdrawal 9(24)05 Transfer to account 294311310836 6(31106) Deposet 12(30)03 Cash deposit 10(30)03 Account preate	Amount     Dalance       (\$200.00)     \$2,750.00       (\$200.00)     \$2,750.00       (\$250.00)     \$2,750.00       \$320.00     \$2,500.00       \$320.00     \$3,120.00       \$4,000.00     \$3,120.00       \$2,000.00     \$2,000.00

Figure A-1 OFN teller application customer profile screen

Sally pulls up information on John Walker's account. The OFN customer profile view displays John's user profile, including a photograph. Sally selects **Withdrawal** from the OFN Teller navigation view, and enters the total. Sally confirms the amount, clicks **Done**, and hands John the cash.

John leaves, and Alice Sheen walks up to the teller and makes a deposit. Sally is already logged in to OFN Teller. Between the time John left and when Alice enters the branch, the leased line connection to the datacenter has gone down. The OFN network status indicator shows offline.

The Teller application is built on the access services provided with WebSphere Everyplace Deployment 6.0. When online, OFN uses a synchronous communication model that uses the *JSR172 Web Services client* for accessing customer and account information, and performing transactions.

Sally selects **Open a customer session** in OFN Teller. The search panel opens. Sally selects **Account Number** and searches for Alice's account number 294311310536. The search finds there are two names on this account. Sally double-clicks on **Alice Sheen** to open the customer session.

OFN Teller pulls up information on Alice Sheen's account. The OFN customer profile view displays Alice's user profile without a photograph. In the offline scenario, OFN Teller uses cached customer records. The photograph is not displayed because the DB2® Sync Server administrator specified a policy that the photographs are not cached.

The following WebSphere Everyplace Deployment 6.0 access services are used:

- ► DB2 Everyplace for caching the customer records and journal information locally on the client. In addition to DB2e, WebSphere Everyplace Deployment also provides Cloudscape<sup>™</sup> as an alternative for developers that require greater functionality on the client.
- Mobile Services iSync for policy-based synchronization of account information for offline transactions. iSync can sync to both DB2e and Cloudscape.

Sally selects **Deposit** from the OFN Teller navigation view, and enters a total. Sally confirms the amount, clicks **Done**, and hands Alice a receipt. Alice walks out.

Sally looks at the journal and notes that the transaction is "pending."

During the conversation, the network connection is reestablished. The OFN connectivity indicator turns green to indicate that the connection to the datacenter has been restored. Sally checks the journal and notes that the transaction result changes to "completed" within the journal.

In the offline scenario, OFN Teller stores the transactions locally. When the connection is restored, the transactions are sent to the back end in the correct sequence. This capability was built using the MQ Everyplace client, which is one of the access services provided with the WebSphere Everyplace Deployment 6.0 platform. This same *asynchronous* model could also be used when in online mode to increase responsiveness of the application. (For example, if the transaction takes a while to complete, the user can proceed with other tasks.)

## **Related publications**

The publications listed in this section are considered particularly suitable for a more detailed discussion of the topics covered in this book.

#### **IBM Redbooks**

For information about ordering these publications, see "How to get IBM Redbooks" on page 70. Note that some of the documents referenced here may be available in softcopy only.

Implementing IBM Director 5.10, SG24-6188

#### Other publications

These publications are also relevant as further information sources:

IBM Director: http://www-03.ibm.com/systems/management/director/index.html

Click Documentation and Resources in the navigator box on the left of the page.

- IBM Director v5.10
- IBM Director Compatibility v5.10 (45 KB)
- IBM Director Compatibility v5.10 Update 2 (250 KB)
- IBM Director Hardware and Software Support Guide v5.10 Update 3 (formly named the IBM Director Compatibility) (299 KB)
- IBM Director Release Notes v5.10 (348 KB)
- IBM Director Release Notes v5.10 Update 1 (470 KB)
- IBM Director Release Notes v5.10 Update 2 (459 KB)
- IBM Director Release Notes v5.10 Update 3 (739 KB)
- IBM Director Information Center
- IBM Director Systems Management Guide (8.96 MB)
- IBM Director Installation and Configuration Guide (6.30 MB)
- IBM Director Events Reference (4.62 MB)
- Upward Integration Modules Installation Guide (1.02 MB)
- IBM Director SNMP Support (250 KB)
- IBM Director and VMware
- IBM Director and Linux
- IBM Director User Forum
- Altiris: http://www.altirispro.com/Products/Altiris/index.html
  - Deployment Solution 6.5 Reference Guide
  - Deployment Solution 6.1 SP1
  - PC Transplant 6.1 Product Guide
  - PC Transplant Pro 4.0 Service Pack Release Notes
  - RapidDeploy 6.1 Product Guide
  - RapidDeploy 6.1 Release Notes
  - RapidInstall 3.1 Release Documentation
  - RapidInstall 3.1 User Guide
- ClearCube: http://www.clearcube.com
  - Hosted Client Solutions with IBM BladeCenter and ClearCube Management Software http://www.clearcube.com/downloads/english/IBM\_CC\_solution.pdf

- Site Preparation for ClearCube Installation http://www.clearcube.com/support/controller/downloads.php?id=292
- ClearCube Grid Center Admin Guide http://www.clearcube.com/support/controller/downloads.php?id=260
- ClearCube I/Port http://www.clearcube.com/controller/user port.php
- I/Port Quick Reference Guide http://www.clearcube.com/support/controller/downloads.php?id=264
- I/Port I8020/I8820 Quick Start Guide
  - http://www.clearcube.com/support/controller/downloads.php?id=345
- I/Port I8020/I8820 Quick Start Guide
  - http://www.clearcube.com/downloads/english/GridCenterDatasheet.pdf
- DataCom: http://www.datacomnvs.com
  - Frequently Asked Questions http://www.datacomnvs.com/adobe%20files/Frequently%20Asked%20Questions.doc
  - DataCom Systems Network Video Servers http://www.datacomnvs.com/adobe%20files/Product\_Overview\_VAR\_1.0.pdf

#### **Online resources**

These Web sites are also relevant as further information sources:

- Windows Storage Server http://www.microsoft.com/windowsserversystem/wss2003/default.mspx
- ► Altiris Deployment Solution

http://www.altiris.com/Products/DeploymentSolution.aspx

VMware ESX

http://www.vmware.com/products/vi/esx/

- ClearCube Grid Center (now ClearCube Sentral) http://www.clearcube.com/controller/software.php
- IBM BladeCenter and BladeServers

http://www-03.ibm.com/systems/bladecenter

Installing and configuring the DataCom Digital Surveillance solution

http://www.datacomvideo.com/index.html

#### How to get IBM Redbooks

You can search for, view, or download IBM Redbooks, Redpapers, Hints and Tips, draft publications and Additional materials, as well as order hardcopy Redbooks or CD-ROMs, at this Web site:

ibm.com/redbooks

### Help from IBM

IBM Support and downloads

ibm.com/support

**IBM Global Services** 

ibm.com/services



## Index

#### Α

Aclient configuration 30 Altiris Deployment solution 8

#### В

banking teller application 9 Blade configuration 32 BladeCenter chassis and blade servers 7 boot image configuration 33

#### С

ClearCube Grid Center client installing 57 ClearCube Grid Center software installing 37 client Installation 66 cloning the model image to create the client virtual machines 61 computer object import 32 configure your IBM BladeCenter HS20 storage server 40 configuring associations in the console 24 create a virtual machine 48 creating event action plans 24 creating the ClearCube base image 53 creating the ClearCube Model virtual machines on VMWare ESX 47 applications 56 post installation tasks 56

#### D

DataCom digital Surveillance solution 7 DB2 Everyplace 68 Deployment Server (DS) 8 Deployment Server global configuration 31 discovery preferences for presence check 17

#### Ε

enabling remote access to the virtual machine 56 eServer Blade Storage Server Gateway installing 39

#### Η

hardware/software requirements 10 hosted client - ClearCube I/Ports and supporting hardware 7

#### I

IBM Director 8 installation and configuration 13 installing 14 IBM Director Agent 8, 14 installing 57 IBM Director Console 8 IBM Director Server 8, 14 configuring 18 import sample jobs 31 industry overview 2 information technology (IT) 2 installation and configuration of Altiris 27 configuration and maintenance 29 installing 28 planning and prerequisites 28

#### Μ

maintenance of the Deployment Servers 33 Mobile Services iSync 68

#### Ν

naming conventions for discovery preferences 18 network architecture 9

#### Ρ

physical architecture of the solution 6

#### R

RDP (Remote Desktop Protocol) 56 Redbooks Web site 70 Contact us viii running Sysprep 60 running the IBM Director Console 17 running the Sysprep setup manager 58

#### S

server installation 66 server preferences for inventory refresh 20 for software distribution 21 services packs and hot fixes 56 solution architecture overview 3 solution components 6 hardware 7 software 7 solution details 5 starting, running and configuring the client virtual machines 62

#### T

teller application 65 test scenario 67 testing scenarios 33 scenario 1 - Blade removed and reinserted 34 scenario 2 - Blade is removed and a new one inserted 34 scenario 3 - Blade is removed and then reinserted into a new slot 34 scenario 4 - Blade is removed, new blade inserted, old blade reinserted 34 scenario 5 - server rebuild 35

#### U

user administration 21

#### V

VMFS (VMWare file system) 61 VMWare ESX 9 installing 45 VMWare remote console installing 52 VMWare tools installing 56 voice over IP (VoIP) 4 VoIP Gateway and VoIP phones 7

#### W

WED (WebSphere Everyplace Deployment) 66 Windows Storage Server 8

(0.2"spine) 0.17"<->0.473" 90<->249 pages IBM Systems Solution for Branch Banking: Installation Guide





## IBM Systems Solution for Branch Banking: Installation Guide



#### Environmental considerations

**Solution details** 

Installation instructions Systems Solution for Branch Banking is targeted to the financial institutions that have chosen to keep a decentralized infrastructure. This is approximately 50% of the customer base. This solution is a technology sell, and will therefore be most attractive to banks that are due for a technology refresh (that is, those that have not done a major upgrade of their branch infrastructure for the past 5 to 10 years).

This IBM Redbook discusses how to install and configure the components of the Systems Solution for Branch Banking, a hardware and software solution that enables banks to provide a common, easy-to-support IT infrastructure in their branch locations. The solution takes into consideration that the skills required to upgrade or maintain the infrastructure in the branch does not exist, so we provide a remote management function. While a common solution has been defined, each implementation may have its own unique variations depending on the network, software, and hardware environments.

#### INTERNATIONAL TECHNICAL SUPPORT ORGANIZATION

#### BUILDING TECHNICAL INFORMATION BASED ON PRACTICAL EXPERIENCE

IBM Redbooks are developed by the IBM International Technical Support Organization. Experts from IBM, Customers and Partners from around the world create timely technical information based on realistic scenarios. Specific recommendations are provided to help you implement IT solutions more effectively in your environment.

For more information: ibm.com/redbooks

SG24-7396-00

ISBN 0738489816