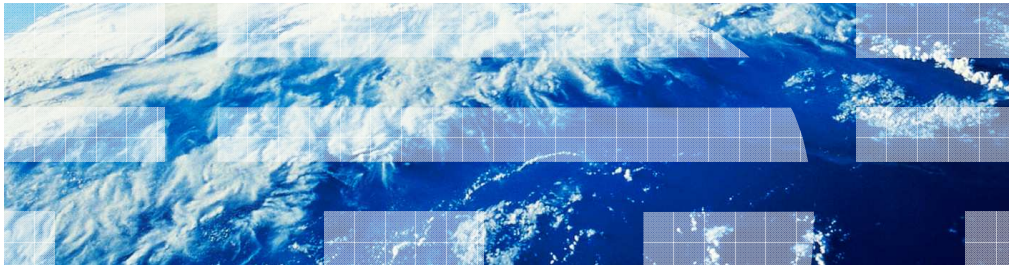


# IBM WebSphere CloudBurst

## Troubleshooting



This presentation will discuss IBM WebSphere® CloudBurst™ troubleshooting.

## Overview

- IBM WebSphere CloudBurst appliance troubleshooting
  - Details of the Troubleshooting tools
- Other troubleshooting hints
  - Domain Name Server
  - Virtual Systems
- Summary

This presentation will discuss troubleshooting the IBM WebSphere CloudBurst appliance. First, you will see detailed information about the Troubleshooting tools provided from the **Appliance** tab in the administrative console. Then you will see additional information related to problems with the Domain Name Server (DNS) and information about virtual systems. The last slide is a summary of this presentation.

## ***CloudBurst appliance troubleshooting***

This section will discuss troubleshooting the CloudBurst device.

## Troubleshooting categories

- If suspected problem is within WebSphere CloudBurst firmware or software
  - Take snapshot if you see the error within WebSphere CloudBurst administrative console
  - Use **Appliance > Troubleshooting** tools
- If suspected problem is not related to WebSphere CloudBurst firmware or software, such as a specification or definition error
  - WebSphere CloudBurst tools can help
    - Convenient links to logs, SSH, VNC, WebSphere Application Server administrative console
    - **Appliance > Troubleshooting** tools to review logging, auditing and to test outbound connections
  - Problems within a deployed virtual system typically require conventional operating system problem determination, including review of WebSphere Application Server logs

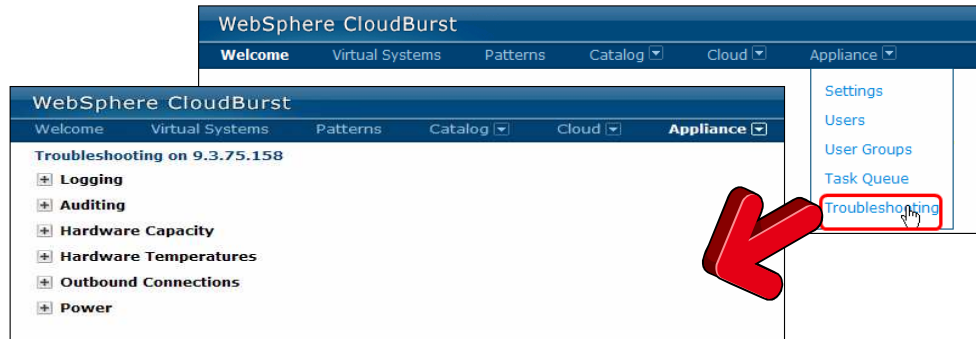
When troubleshooting problems that you suspect are related to the WebSphere CloudBurst firmware or software, you should consider first taking a snapshot of the screen where the error becomes apparent. The next step typically involves using the **Troubleshooting** tools in the WebSphere CloudBurst administrative console, which are discussed on the following slides.

If the issue is outside the scope of WebSphere CloudBurst firmware or software, such as a suspected specification or definition error or an error within a hypervisor, you can still use the appliance administrative console to assist in problem determination. The WebSphere CloudBurst administrative console provides convenient links to remote logs, to SSH and VNC facilities, and links to the WebSphere Application Server administrative console for the deployed virtual systems. In addition, you can use the **Troubleshooting** tools within the **Appliances** tab to review the appliance logs and audit logs, and to test outbound connections. For problems within the deployed virtual system and WebSphere Application Server, you typically should use traditional troubleshooting techniques appropriate for that particular operating system, which can include reviewing the WebSphere Application Server logs. You can access the deployed virtual system using SSH or VNC facilities, or you can access the WebSphere Application Server administrative console for the deployed virtual system.

.

## WebSphere CloudBurst troubleshooting

- **Troubleshooting** link in **Appliance** tab
  - Download and examine log and audit files
  - Review appliance memory and disk capacity and usage
  - Check appliance temperatures
  - Test network connections
  - Power off or restart the hardware



You can access the **Troubleshooting** page from the **Appliance** tab in the WebSphere CloudBurst administrative console. The Troubleshooting page has several tools to help you diagnose WebSphere CloudBurst problems. You can download and examine log and audit files, review the appliance memory and disk capacity and usage, check internal appliance temperatures, test outbound connections, and power off or restart the appliance.

## Logging

- View current error file
- View current trace file
- Download log files
- Configure trace levels

WebSphere CloudBurst

[Welcome](#) [Virtual Systems](#) [Patterns](#) [Catalog](#) [Cloud](#) [Appliance](#)

**Troubleshooting on 9.3.75.158**

**Logging**

[View current error file](#)

[View current trace file](#)   [Download log files](#)

**Configure trace levels**

Default logger	INFO	×
app.resources	ALL	×
app.resources.healthCheck	FINE	×
app.resources.logViewerMgr	FINE	×
app.scripts.groovy.rainmaker.appliance	ALL	×
app.scripts.groovy.rainmaker.backup	ALL	×
app.scripts.groovy.rainmaker.cloud	FINEST	×
app.scripts.groovy.rainmaker.instances	FINEST	×
app.scripts.groovy.rainmaker.rest	ALL	×
app.scripts.groovy.rainmaker.rest.ValidateSession	INFO	×
app.scripts.groovy.rainmaker.scripts	FINEST	×
app.scripts.groovy.rainmaker.templates	FINEST	×

Within the logging page, you view the current error file, view the current trace file, download the log files, or even configure trace levels. If you do not have specific instructions from IBM support for configuring the trace levels, you should use the default settings. You can review the current error file or current trace file for obvious errors. For problems you submit to IBM support, you must provide the log files. You can download a complete set of log files from the appliance by clicking **Download log files**.

## Auditing

- Audit data contains records of user activity for objects stored on the appliance
  - Download all audit data
  - Download audit data filtered by date and time

The screenshot shows the 'WebSphere CloudBurst' interface with the 'Appliance' tab selected. Under the 'Auditing' section, there are two options: 'Download all data' and 'Download filtered data'. The 'Download filtered data' option is expanded to show a date range filter. The filter includes fields for 'Start date' (Jan 1, 2010) and 'End date' (Jan 7, 2010), both with a time of 9:19 AM. A 'Time zone' dropdown menu is set to 'CST (US Central Time)'. The interface also shows a 'Logging' section with a plus sign icon.

7

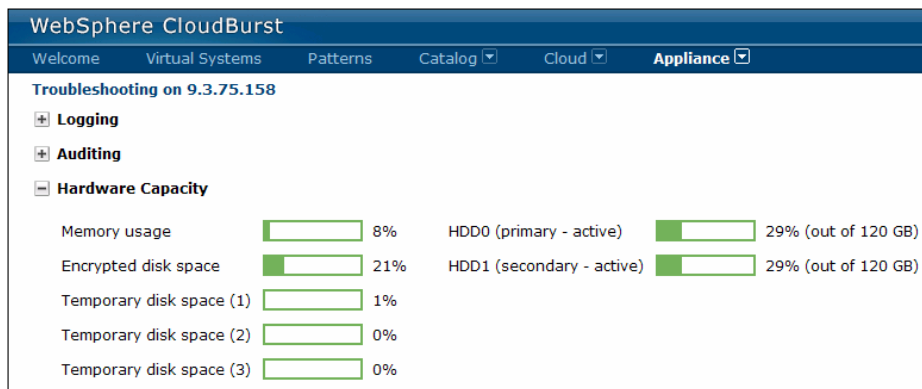
Troubleshooting

© 2010 IBM Corporation

The audit data contains records of user activity for auditable objects stored on the appliance. For example, using audit data, you can determine when virtual systems, cloud groups, hypervisors, and patterns are created, updated or deleted. Click **Download all data** to retrieve all audit data that exists on the appliance. Alternatively, set a date and time range, and then click **Download filtered data** to retrieve audit data within the specified date and time range.

## Hardware Capacity



- Shows memory and disk capacity
- Green if usage is below 80%
- Red if usage is 80% or greater

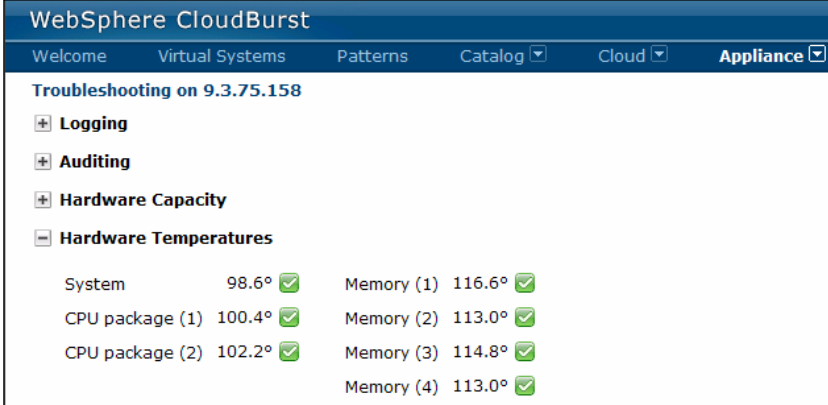


**Hardware capacity** shows you the memory usage and disk space statistics for the appliance. If the usage is below 80 percent, the graphs will display in green. If the usage is 80 percent or greater, the graphs will display in red. If the usage is unexpectedly high or critically high, you should open a problem to IBM support, including a snapshot of the screen image.



## Hardware temperatures

- Reports the temperature of internal components
- A check mark in a green square indicates safe range 
- An exclamation mark on a yellow triangle indicates unsafe range 



Component	Temperature	Status
System	98.6°	Safe
CPU package (1)	100.4°	Safe
CPU package (2)	102.2°	Safe
Memory (1)	116.6°	Safe
Memory (2)	113.0°	Safe
Memory (3)	114.8°	Safe
Memory (4)	113.0°	Safe

9

Troubleshooting

© 2010 IBM Corporation

The **Hardware Temperatures** page shows the temperature of internal components within the WebSphere CloudBurst appliance. The green check icon is displayed if the temperature is within the safe range, and the yellow exclamation mark icon is displayed if the temperature is outside the safe range.

## Outbound connections

- Allows you to ping remote hosts from the appliance
- Ping with IP address or with host name
- Tip: also ping the appliance from the remote host as well

The screenshot shows the 'WebSphere CloudBurst' interface. The top navigation bar includes 'Welcome', 'Virtual Systems', 'Patterns', 'Catalog', 'Cloud', and 'Appliance'. The main content area is titled 'Troubleshooting on 9.3.75.158' and lists several categories: Logging, Auditing, Hardware Capacity, Hardware Temperatures, and Outbound Connections. The 'Outbound Connections' section is expanded to show three entries:

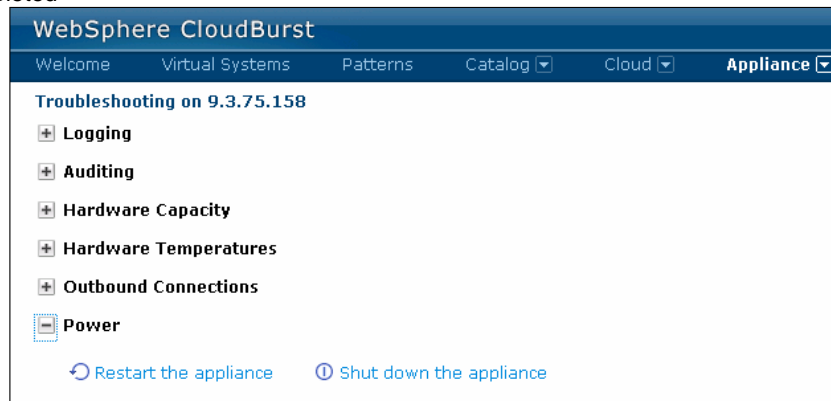
- Entry 1: 'Ping remote host' field contains '9.3.252.160'. A 'Ping' button is highlighted with a mouse cursor, and a green checkmark is visible to its right. A yellow speech bubble labeled 'Successful' points to the checkmark.
- Entry 2: 'Ping remote host' field contains 'qta160.austin.ibm.com'. A 'Ping' button is highlighted with a mouse cursor, and a green checkmark is visible to its right. A yellow speech bubble labeled 'Successful' points to the checkmark.
- Entry 3: 'Ping remote host' field contains '9.3.252.159'. A 'Ping' button is highlighted with a mouse cursor, and a red circle with an 'X' is visible to its right. A yellow speech bubble labeled 'Failed' points to the red circle.

At the bottom left of the screenshot, the number '10' is displayed. At the bottom center, the word 'Troubleshooting' is displayed. At the bottom right, the copyright notice '© 2010 IBM Corporation' is displayed.

The **Outbound Connections** page allows you to ping a remote host using the IP address or using the host name. If the ping is successful, you will see a green box with a check mark to the right of the **Ping** button. If it is unsuccessful, you will see a red circle with an X to the right of the **Ping** button. If you suspect a Domain Name Server issue or communication issue, you should also ping the appliance from the remote host as well, first using the appliance IP address and again using the appliance host name.

## Power

- Allow you to restart or shut down the appliance
- A confirmation message is issued to prevent accidental shut downs
- You can choose the action to be immediate or to be queued until current appliance tasks are completed



The Power administration options allow you to restart the appliance or to shut down the appliance. For both actions, you receive a confirmation message so that the action is not accidentally invoked. In addition, you can choose the action to be immediate, or the action can be delayed until all current appliance tasks have completed.

## ***Other troubleshooting hints***

This section will discuss troubleshooting hints related to the WebSphere CloudBurst appliance.

## Domain name server

- WebSphere CloudBurst requires that you define a Domain Name Server (DNS) for virtual system deployment
  - **Appliance > Settings > Domain Name Servers**
- **All IP addressable resources, including hypervisors, target addresses in IP Groups, and the WebSphere CloudBurst appliance itself, must be defined within the DNS**
  - **Forward and reverse DNS lookup is required**
    - Forward lookup – resolving a host name to a valid IP address
    - Reverse lookup – resolving an IP address to a valid host name

When you initially configure WebSphere CloudBurst, you must define the address of a Domain Name Server, or DNS. The setting is accessed within the **Appliance** tab, clicking on **Settings**, and expanding **Domain Name Servers**. All IP addressable resources related to the WebSphere CloudBurst environment must be defined within the DNS, including hypervisors, target addresses within IP groups, and even the WebSphere CloudBurst appliance itself. In addition, all addressable resources must be resolvable by both forward and reverse lookup. A successful forward lookup is when the appliance can resolve a host name to a valid IP Address. A successful reverse lookup is when the appliance can resolve an IP address to a valid host name. Failure to properly define resources within the DNS can cause problems that are sometimes difficult to diagnose.

## Virtual systems

- View the status for most commonly needed information
- **Virtual Systems > (your\_virtual\_system)**
- Expand **History** and **Virtual machines** for more information

PowerVM V7007 Single Server Virtual System

Created on:	Dec 18, 2009 3:05:45 PM
From pattern:	PowerVM V7007 Single Server VS
Current status:	The virtual system has been deployed and is ready to use
Updated on:	Jan 6, 2010 12:17:07 PM
Access granted to:	Administrator [owner] <input type="text" value="Add more..."/>
Snapshot:	Snapshots are not currently supported by PowerVM
<input type="checkbox"/> History	
<input type="checkbox"/> Virtual machines	

14 Troubleshooting © 2010 IBM Corporation

If you are having problems with a virtual system deployment, you will want to review all the information within the virtual system entry of interest. When you click an individual entry within the list of **Virtual Systems**, you will first see the most commonly needed status information. This includes the pattern from which the virtual system was created, the current status of the virtual system, and the list of users with access. Below that are the **History** section and the **Virtual machines** section, which you will see in the next slides.

## Virtual systems - History

- Expand **History** to review the activity that occurred during the deployment of the virtual system
- Most recent entries are at the top

History	
The virtual system has been deployed and is ready to use	Dec 18, 2009 4:31:55 PM
Executing script package Server configuration on virtual machine PowerVM V7007 Single Server Virtual System qta160 default	Dec 18, 2009 4:24:47 PM
Starting virtual machine PowerVM V7007 Single Server Virtual System qta160 default	Dec 18, 2009 4:19:29 PM
Starting virtual machines	Dec 18, 2009 4:19:29 PM
Network Installation Management (NIM) Base Operating System installation complete	Dec 18, 2009 4:19:18 PM
Network Installation Management (NIM) status is qta160: BOS install 86% complete : Network Install Manager customization.	Dec 18, 2009 4:15:34 PM
Network Installation Management (NIM) status is qta160: BOS install 71% complete : 86% of mksysb data restored.	Dec 18, 2009 4:14:01 PM
Network Installation Management (NIM) status is qta160: BOS install 71% complete : 85% of mksysb data restored.	Dec 18, 2009 4:12:28 PM
Network Installation Management (NIM) status is qta160: BOS install 70% complete : 84% of mksysb data restored.	Dec 18, 2009 4:10:55 PM
Network Installation Management (NIM) status is qta160: BOS install 69% complete : 83% of mksysb data restored.	Dec 18, 2009 4:09:21 PM

When you expand the **History** section for a virtual system, you will see a list of actions that were performed during the deployment of the virtual system, each with a date and time stamp. You can look for errors within the history to assist with problem determination. In addition, the time stamps give you a good idea of how long individual actions took to complete.

The screenshot displays the IBM PowerVM V7007 Single Server Virtual System interface. The main window shows a list of virtual machines under the heading 'Virtual machines'. One VM is selected, showing its details in a sidebar. The details are organized into sections: General information, Hardware and network, WebSphere configuration, and Script Packages. Callout boxes point to specific elements: 'General Information' points to the top section; 'Hardware and network' points to the processor and memory details; 'WebSphere configuration' points to the installation details; 'Script packages' points to the list of scripts and their log files; and 'WebSphere console link' points to the 'Consoles' link at the bottom. An 'SSH login link' is also highlighted in a callout box at the top right of the VM details.

If you expand the **Virtual machines** section of your virtual systems entry, you will see a list of each virtual machine in its own section, which in turn can be expanded. Each virtual machine section contains a great deal of information. First, the **General Information** section provides basic information about the virtual machine, including its current state, hypervisor, and cloud group. Below that you see the **Hardware and network** information, including the processor information, virtual memory, and the host name and IP address. Under that you see information called **WebSphere configuration**, which refers to the WebSphere Application Server installation on that virtual machine. Farther down you see a section entitled **Script Packages**. That section lists the scripts that ran during the virtual machine creation. To the right of the script package names you see – circled in red – the associated log files. You'll see more information about those on the next slide. At the bottom of the screen you see the link to the WebSphere Application Server administrative console. If this is a VMWare deployment, you will see a **VNC** link to the right of the **WebSphere** link, if the optional VNC function was permitted by the creator of the virtual system. Finally, at the upper right of the slide you see the link for the SSH login to the virtual machine.



## Virtual systems – Script packages

- Lists the scripts that ran for that virtual system
- Click the links to the right to download or view the log files

**Script Packages**

Script Name	Status	Timestamp	Log Files
wasHVNoClusterPatternConfiguratic	✓	Dec 18, 2009 4:31:36 PM	<a href="#">remote_std_out.log</a> <a href="#">remote_std_err.log</a>
WebSphere Hypervisor Edition Startup Logs	✓	Dec 18, 2009 4:31:50 PM	<a href="#">remote_std_out.log</a> <a href="#">remote_std_err.log</a>

```

remote_std_out.log.txt - WordPad
File Edit View Insert Format Help
Buildfile: /opt/IBM/WebSphere/AppServer/bin/CloudBurstScripts/wasHVPatternConfiguration.ant
init:
[echo] WAS_HOME: /opt/IBM/WebSphere/AppServer
[echo] profilePath: /opt/IBM/WebSphere/Profiles/DefaultAppSrv01
detectCurrentOSFamily:
[echo] Detected current OS family to be: unix
convertWASHomeToUNIXstylePath:
resolveWSADMINExecutableForTheCurrentPlatform:
[echo] wsadmin interpreter set to: /opt/IBM/WebSphere/Profiles/DefaultAppSrv01/bin/wsadmin.sh
GrabWAdminIDAndPasswordFromEnv:
[echo] grabbed from env WAS_USERNAME of virtuser
[echo] grabbed from env WAS_PASSWORD of xxxxxxxxx
setVirtualImagePropertiesFile:
CheckVirtualImagePropertiesFile:
[echo] virtualimage.properties is /etc/virtualimage.properties
  
```

17 For Help, press F1 NUM 2010 IBM Corporation

You can review the logs for the scripts that run for each virtual machine. The scripts are listed under the details of each virtual machine, in a section called **Script Packages**. The script package section contains information about configuration scripts, WebSphere Hypervisor Edition Startup scripts, and custom scripts that you deploy. The script name is listed at the left and the related log file name is listed at the right. Each log file name is a link for the actual log file itself, so you can click each link to download or view the log files. A script can be defined to run at virtual system creation time, virtual system deletion time, or you can manually initiate the script yourself. You should review your custom script log closely for errors or unexpected operation.

## ***Summary***

This section will summarize the troubleshooting options available for the IBM CloudBurst device.

## Summary

- Try to determine if problem is with WebSphere CloudBurst itself or with a particular virtual system or resource that you have defined
- Use the Troubleshooting tools to assist you with debugging
- Problems within an individual virtual machine often require traditional diagnostic techniques for the operating system and for WebSphere Application Server
- If you suspect a WebSphere CloudBurst problem, remember to take a snapshot of the error and then download the log files
- Ensure you have two-way communications between the appliance and hypervisors or target addresses
- Remember that all IP resources must be defined within the DNS and must allow forward and reverse DNS lookup
- Review the individual virtual systems entries for clues about problems related to the deployment or start of a virtual system
- Review the script packages logs to ensure for errors or incorrect operation

In summary, you should try to determine if the suspected problem is with the WebSphere CloudBurst appliance itself or with a particular virtual system or resource that you have defined. You can use the Troubleshooting tools to assist you with debugging. If you suspect the problem is within an individual virtual machine, you will often need to use traditional diagnostic techniques appropriate for that operating system environment and for WebSphere Application Server. If you suspect you have a WebSphere CloudBurst problem, remember to take a screen snapshot of the error and then collect the appliance log files for IBM Support. For communications issues, ensure that you have two-way communications between the appliance and the target hosts or the hypervisors. All IP resources used by WebSphere CloudBurst must be defined within the Domain Name Server, including the WebSphere CloudBurst appliance itself. All entries within the DNS must allow forward and reverse DNS lookup. Review the individual virtual systems entries for clues about problems related to deployment or start of a virtual system. Remember to review the script packages logs for errors or incorrect operation.



## Feedback

Your feedback is valuable

You can help improve the quality of IBM Education Assistant content to better meet your needs by providing feedback.

- Did you find this module useful?
- Did it help you solve a problem or answer a question?
- Do you have suggestions for improvements?

Click to send e-mail feedback:

[mailto:iea@us.ibm.com?subject=Feedback\\_about\\_CB11\\_Troubleshooting.ppt](mailto:iea@us.ibm.com?subject=Feedback_about_CB11_Troubleshooting.ppt)

This module is also available in PDF format at: [../CB11\\_Troubleshooting.pdf](..../CB11_Troubleshooting.pdf)

You can help improve the quality of IBM Education Assistant content by providing feedback.



## Trademarks, disclaimer, and copyright information

IBM, the IBM logo, ibm.com, CloudBurst, and WebSphere are trademarks or registered trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of other IBM trademarks is available on the Web at "[Copyright and trademark information](http://www.ibm.com/legal/copytrade.shtml)" at <http://www.ibm.com/legal/copytrade.shtml>

THE INFORMATION CONTAINED IN THIS PRESENTATION IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY. WHILE EFFORTS WERE MADE TO VERIFY THE COMPLETENESS AND ACCURACY OF THE INFORMATION CONTAINED IN THIS PRESENTATION, IT IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. IN ADDITION, THIS INFORMATION IS BASED ON IBM'S CURRENT PRODUCT PLANS AND STRATEGY, WHICH ARE SUBJECT TO CHANGE BY IBM WITHOUT NOTICE. IBM SHALL NOT BE RESPONSIBLE FOR ANY DAMAGES ARISING OUT OF THE USE OF, OR OTHERWISE RELATED TO, THIS PRESENTATION OR ANY OTHER DOCUMENTATION. NOTHING CONTAINED IN THIS PRESENTATION IS INTENDED TO, NOR SHALL HAVE THE EFFECT OF, CREATING ANY WARRANTIES OR REPRESENTATIONS FROM IBM (OR ITS SUPPLIERS OR LICENSORS), OR ALTERING THE TERMS AND CONDITIONS OF ANY AGREEMENT OR LICENSE GOVERNING THE USE OF IBM PRODUCTS OR SOFTWARE.

© Copyright International Business Machines Corporation 2010. All rights reserved.