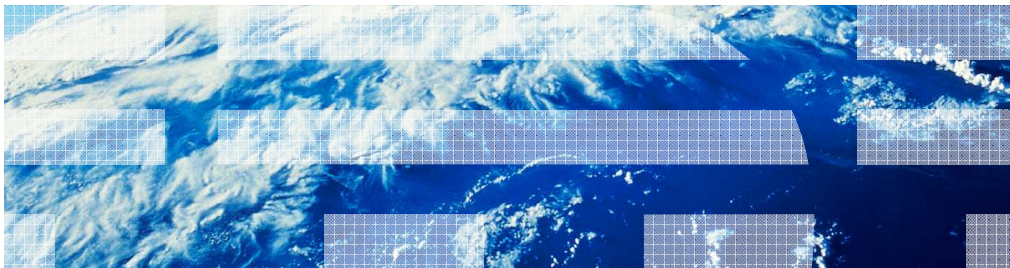

IBM WebSphere CloudBurst Appliance V2.0

Overview



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This presentation will cover the new features introduced in IBM WebSphere® CloudBurst™ Appliance V2.0.

Agenda

- Intelligent Management Pack
- Dynamic virtual machine operations
- License tracking and placement
- Multi-image pattern composition
- SNMP management
- Red Hat Enterprise Linux® virtual image
- Virtual image refresh
- Miscellaneous enhancements
- Summary

This presentation will cover the new features of the IBM WebSphere CloudBurst Appliance V2.0 release of the product. The topics covered are “Intelligent Management Pack”, “Dynamic virtual machine operations”, “License tracking and placement”, “Multi-image pattern composition”, “SNMP management”, “Red Hat Enterprise Linux virtual image”, “Virtual image refresh” and a few miscellaneous enhancements. As you can see there are many new features introduced in the V2.0 release.



Section

Intelligent Management Pack

3

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This section will cover the Intelligent Management Pack.

Intelligent Management Pack

- Intelligent Management Pack feature set is similar to WebSphere® Virtual Enterprise's feature set
- WebSphere CloudBurst™ Appliance benefits
 - Easily configurable WebSphere Application Server topologies with advanced functionality
 - Support “best practices” through pre-defined patterns and script packages
- Intelligent Management Pack benefits
 - Improve application performance and deliver response times to meet service level agreements
 - Increase application availability and minimize administration costs
- All integration features are supported on VMware, PowerVM™ and zVM platforms

The Intelligent Management Pack features are similar to the WebSphere Virtual Enterprise features. It must be emphasized that the Intelligent Management Pack and WebSphere Virtual Enterprise are similar, but not the same. They are similar enough that existing WebSphere Virtual Enterprise documentation can be used as a training mechanism.

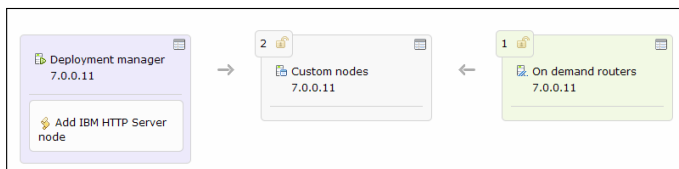
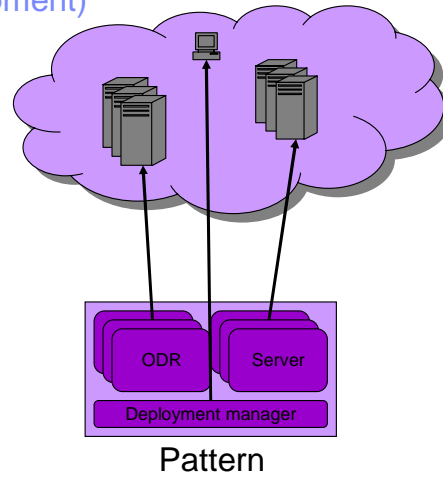
WebSphere CloudBurst allows users to quickly, easily and repeatedly deploy enhanced environments with advanced functionality.

The Intelligent Management Pack offers improved performance and response times to meet or exceed service level agreements. In addition you gain increased application availability and minimized administrative costs. The Intelligent Management Pack offers many features and benefits. This education piece will only scratch the surface of what is available. To get a better picture of what the Intelligent Management Pack feature offers review the Intelligent Management Pack education piece.

The intelligent management pack features are supported on the three hypervisor platforms, VMware, PowerVM and z/VM.

WebSphere advanced cluster (development)

- Single cell consisting of
 - One or more On Demand Routers (ODRs)
 - One or more application servers
 - One deployment manager
 - No web server
- ODR tier -> application server tier



5

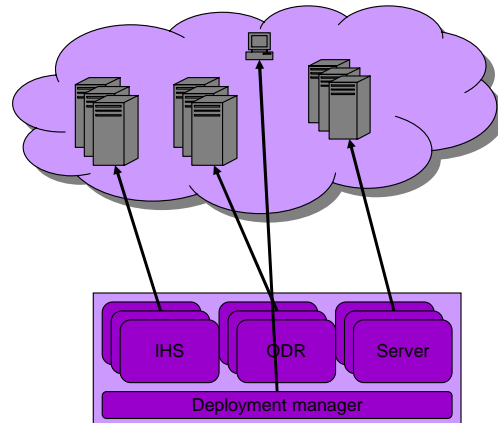
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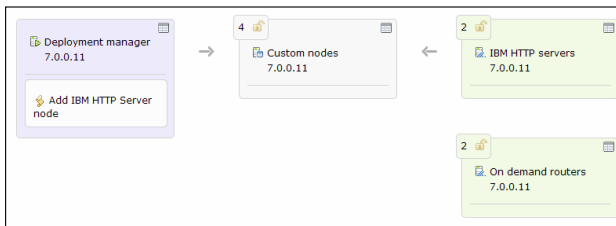
Two enhanced patterns come preloaded on the appliance. There is the “WebSphere advanced cluster (development)” pattern, which is targeted at the development environment and the “WebSphere advanced cluster” pattern, which is targeted at the production environment. This slide shows the pattern targeted at the development environment.

WebSphere advanced cluster

- Single cell consisting of
 - One or more web servers
 - One or more on demand routers
 - One or more application servers
 - One deployment manager
- Web server tier → ODR tier → application server tier



Pattern



This slide shows the pattern targeted at the production environment. The main difference between this pattern and the preceding pattern are the high availability features.

Intelligent Management Pack configurable options

- **Health management**
 - Excessive heap usage
 - Memory leak
 - Maximum server age
 - Email notification list
 - Maximum requests served
 - Excessive number of timed out requests
 - Excessive average response time
 - Storm drain detection

- **Overload protection**
 - Memory overload protection
 - CPU overload protection

- **Dynamic clustering**

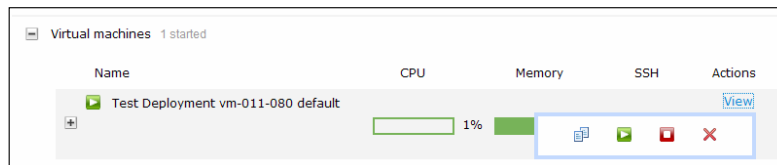
New options were added to the “Advanced options” panel to support the Intelligent Management Pack feature. There are options for “Health management”, “Overload protection” and “Dynamic clustering”.

Dynamic virtual machine operations

This section will give an overview of the new dynamic virtual machine operations.

Dynamic virtual machine operations

- Create a clone of an existing virtual machine to handle increased workload
 - Script packages marked for “on virtual system creation” are executed
- Delete a clone of an existing virtual machine when workload decreases or virtual machine is behaving improperly
 - Script packages marked for “on virtual system deletion” are executed
- Manual intervention required
 - Your responsibility to monitor the environment and clone or delete the virtual machines
 - Your responsibility to regenerate routing rules on virtual machine clone
 - Your responsibility to drain active activity of clone prior to virtual machine delete



Name	CPU	Memory	SSH	Actions
Test Deployment vm-011-080 default	1%			View [Clone] [Start] [Stop] [Delete]

The WebSphere CloudBurst dynamic virtual machine operations give you the ability to add and remove individual virtual machines after deployment in order to handle increased or decreased workload. This feature is not automatic and requires manual monitoring of the environment. The Intelligent Management Pack takes this one step further by monitoring the environment for you and taking corrective action when necessary.

License tracking and placement

This section will give an overview of license tracking and placement support.

License tracking and placement

Product Licenses

License reporting

Track license usage

Download license usage **1. Downloading license usage data**

License awareness

Notify virtual image owners when license usage reaches the thresholds set below **2. Configuring e-mail notifications for a warning threshold**

IBM products

Below are the products that can be deployed from this appliance. The list is generated by checking the contents of your virtual images against the product list in the IBM Software Catalog. You can specify how many processor value units (PVUs) you own for each product. When enabled, license awareness will alert you when PVU usage approaches a given threshold.

Update IBM Software Catalog and Processor Value Unit (PVU) Table **3. Updating the software catalog or PVU table**

Product	Product ID	Enforcement	Licenses owned (PVUs)	Notify if usage reaches	Licenses available (PVUs)	Virtual systems
IBM WEBSPPHERE APPLICATION SERVER HYPERVISOR EDITION FOR NOVELL SUSE LINUX ENTERPRISE SERVER (SLES) PROCESSOR VALUE UNIT (PVU) SW SUBSCRIPTION & SUPPORT RENEWAL	5724-X89	Warn	1000	0.0 %	750	2

4. Adding products to the product list

5. Working with license enforcement options

The WebSphere CloudBurst Appliance makes it very easy to deploy new environments. This, coupled with a limited number of environment licenses, can lead to you going over your license allotment without even being aware of it. License tracking and placement gives you the ability to specify an allotment of licenses and track your deployments to that allotment. You can also define the actions to take when your deployments near the maximum. These actions are to ignore and continue with the deployment, warn and send an email or to enforce, which will prevent the deployment from occurring.

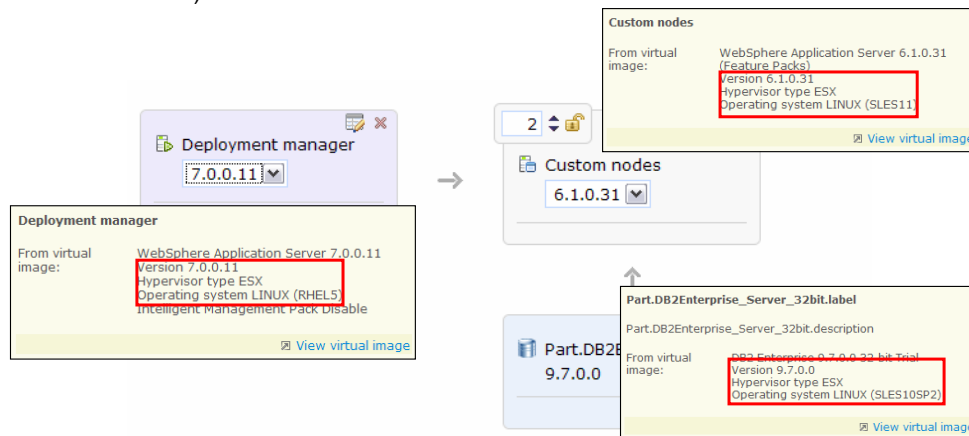
All licensing features, license tracking and license reporting, have been grouped together under the catalog tab.

Multi-image pattern composition

This section will give an overview of the multi-image pattern composition support.

Multi-image composition (example)

- Allows you to compose a single pattern that spans multiple IBM products and versions
- All virtual image parts making up a pattern must come from the same architecture (ESX, PowerVM or z/VM)



13

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Multi-image composition allows you to mix and match IBM products and versions. The only restriction is that the hardware architecture for the entire pattern must be of one type, either ESX, PowerVM or z/VM. This restriction is not a restriction imposed by the pattern directly, but rather the fact that in V2.0 you are still only able to deploy a single pattern to a single cloud group. A cloud group is homogeneous when it comes to the hardware architecture that makes up the cloud group.

The screen capture on this slide shows a single pattern consisting of three virtual image parts each of which is of a different version or product. Prior to V2.0, this configuration would have required three separate patterns.

SNMP management

This section will give an overview of the SNMP management support.

SNMP management

- Manage the WebSphere CloudBurst Appliance using the industry standard Simple Network Management Protocol (SNMP)
- Appliance can be monitored as part of the larger datacenter using products such as:
 - IBM Tivoli® Composite Application Manager (ITCAM)
 - IBM Director
 - HP OpenView
 - Any monitoring client that can consume MIB-II data

The WebSphere CloudBurst Appliance does not stand alone in your datacenter, it is one system among many. Data centers can be quite large and complex and there needs to be a way to manage the systems that make up the data center.

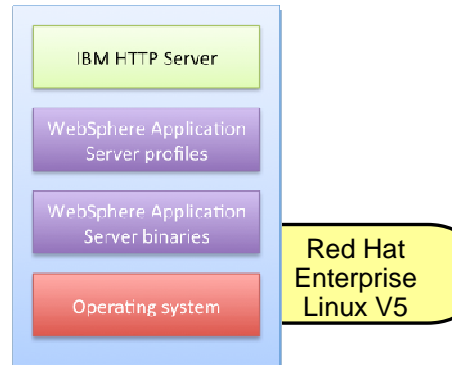
To accommodate this need for centralized datacenter management, WebSphere CloudBurst V2.0 introduces SNMP support. SNMP is an industry standard management protocol, that numerous products support. These include: IBM Tivoli Composite Application Manager (ITCAM), IBM Director, HP OpenView or any management client that can consume MIB-II data..

Red Hat Enterprise Linux virtual image

This section will give an overview of the new virtual image addition that includes Red Hat Enterprise Linux.

Red Hat Enterprise Linux virtual image

- WebSphere Application Server Hypervisor Edition V7.0 with Red Hat Enterprise Linux V5 for VMware



A new WebSphere Application Server V7.0 virtual image has been created. This virtual image is based on Red Hat Enterprise Linux V5 operating system and will run on VMware ESX.

Virtual image refresh

This section will give an overview of the updated WebSphere Application Server virtual images.

Virtual image refresh

- Some existing virtual images have been updated with a new version of the operating system
 - IBM WebSphere Application Server Hypervisor Edition V6.1 with SuSe Linux Enterprise Server **V11** for VMware
 - IBM WebSphere Application Server Hypervisor Edition V7.0 with SuSe Linux Enterprise Server **V11** for VMware

The WebSphere Application Server virtual images for VMware went through a refresh. SuSe has been upgraded to V11 for both virtual images running WebSphere Application Server V6.1 and V7.0.

Miscellaneous enhancements

This section will go over several miscellaneous enhancements to the product.

Miscellaneous enhancements

- Security
 - Read-only access to “Appliance” and “Cloud” panels
- Script package
 - Ability to clone
 - Ability to upload a single file as opposed to a .zip or .tar file
- Virtual image
 - Ability to target both HTTP and SSH (file transferred using SCP) servers
- Cloud group
 - Overcommit storage
 - Disable/enable linked clones
- Virtual system
 - Snapshot description field added
- Appliance
 - Appliance link added to email notifications
 - Backup/restore target validation

In addition to the more impressive mainline features that were added in V2.0, there were numerous smaller enhancements added to V2.0 as well. These smaller enhancements touch every area of the appliance, including security, script package, virtual image, cloud group, virtual system and appliance configuration. The next few slides will take a deeper look into each of these enhancements.

Security - Read-only access to “Appliance” and “Cloud” panels

- Read-only permission added to permissions
 - Cloud administration
 - Appliance administration
- Ability to view the “Cloud” and “Appliance” information, but not edit

<input checked="" type="checkbox"/>	Deploy patterns in the cloud
<input type="checkbox"/>	Create new patterns
<input type="checkbox"/>	Create new catalog content
<input checked="" type="checkbox"/>	Cloud administration
<input checked="" type="radio"/>	Read-only view
<input type="radio"/>	Full permissions
<input checked="" type="checkbox"/>	Appliance administration
<input checked="" type="radio"/>	Read-only view
<input type="radio"/>	Full permissions
<input type="checkbox"/>	IBM License Metric Tool (ILMT)

A read-only permission setting was added to both the “Cloud administration” and “Appliance administration” permissions. A user with this permission is allowed to view all of the information under the “Cloud” and “Appliance” tab, but not make any changes to the information.

These settings can be useful when a user with default, or non-administrative authority, needs to diagnose a problem. With this read-only enhancement, you can now view cloud settings and download logs to help diagnose an issue. Before this enhancement, you either needed to contact an administrator with authority to view this information or the user needed to be granted administrative level authorities.

Security – HTTP session timeout

- Session inactivity timeout configurable
 - Administrative UI
 - Command-line interface
- Default is 24 hours
 - Configurable in hours and minutes


The screenshot shows a configuration page for Security. Under the 'Sessions' section, the 'Logout inactive users after' setting is set to 24 hours. The 'save' button is visible next to the input field.

The ability to timeout the HTTP session between the client and server is now configurable. Before V2.0, the timeout was set to 24 hours and was not configurable. In V2.0, the default is 24 hours, but the value is configurable down to the minute. To configure this setting, navigate to **Appliance > Settings** and expand the **Security** twisty.


Script package – single file upload

- Upload a single file when creating a script package
- Avoids having to create a .zip or .tgz to wrapper your file before uploading

Test Script - Single File

Current status:  Draft

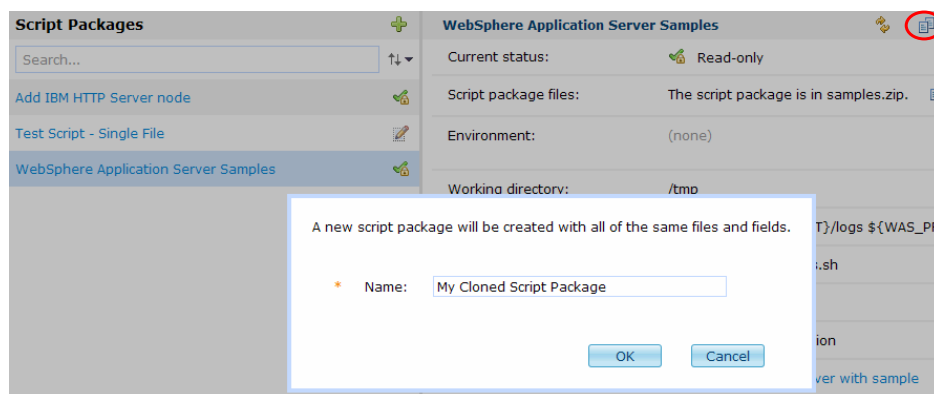
Script package files:

The script package is in [configureProduct.jy](#)  [Download](#)

If your script package consists only of a single file you are now able to upload that single file. Before V2.0, you were required to create a .zip or .tgz to wrapper the single file before uploading.

Script package - clone

- Ability to create a clone of an existing script package added
 - Saves time and removes data entry errors



25

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You now have the ability to clone a script package. Located in the upper right corner of the script package attributes panel is a clone icon. Click this icon, enter a name for the cloned script package, and you are done. This will create a clone, or rather an exact copy, of the original script package, including any uploaded artifacts. At this point the original and clone are independent artifacts and must be managed as such.

Virtual image - SCP support

- No longer required to host the virtual image on an HTTP server when importing by way of the UI
- Import virtual images using SCP
- Remove the "http://" prefix from URL entered in the "OVA file location" field

Enter the remote path of the virtual image you want to import.

* OVA file location:

User name:

Password:

Verify password:

OK Cancel

HTTP server

Enter the remote path of the virtual image you want to import.

* OVA file location:

User name:

Password:

Verify password:

OK Cancel

SSH server

New to V2.0, is the ability to import virtual images hosted on a SSH server using both the UI and command-line interface. The virtual image import panel has not changed. To specify a SSH server you just do not pre-pend "http://" to the host name. This is shown in the graphic on the right.

Cloud group – overcommit storage

- Use a percentage of the reserved storage that is not actively being consumed by existing deployed virtual machines

autoBVT ESX Cloud	
Description:	autoBVT ESX cloud
Created on:	Mar 9, 2010 10:19:13 PM
Type:	Custom cloud group
Current status:	All hypervisors available
Updated on:	Mar 9, 2010 10:19:13 PM
Hypervisor type:	ESX or ESXi
Use linked clones:	Enable
Overcommit storage by:	0 % <small>You must specify a value greater than zero to overcommit storage.</small>

Each virtual image is created with a maximum storage requirement. This maximum storage requirement equates to how large the resulting virtual machine can grow once it is deployed into the cloud.

During the deployment process, WebSphere CloudBurst will create a virtual machine and track the maximum storage requirement of the virtual machine along with all other currently deployed virtual machines. Before V2.0, the total maximum storage requirements of all currently deployed virtual machines cannot exceed the total storage available to the hypervisor. In V2.0, you are allowed to overcommit maximum storage by a percentage.

The logic behind allowing you to overcommit storage is that a virtual machine has a maximum storage requirement, but it is unlikely that the actual storage being used is equal to the maximum. It is also very unlikely that all of the currently deployed virtual machines are meeting their maximum storage requirements.

An example, think of a college parking lot. There are 100 parking places. They sell 130 parking permits, with the assumption and assumed risk that all 130 college students will not want to park their car at the same time. The risk here is that all 130 students will try to park at the same time and 30 are denied. Is this an acceptable risk? You will have to make the same decision in your usage scenario.

Cloud group – disable/enable linked clones

- Linked clone disablement/enablement feature gives you the ability to make decisions about storage, isolation and security based on your usage scenario
- **Enabling** linked clones (default)
 - Reduces storage requirements as multiple virtual machines share a single set of OVA files
 - Reduces virtual machine isolation and security as multiple virtual machines share a single set of OVA files
- **Disabling** linked clones
 - Increases storage requirements as each virtual machine contains the complete set of OVA files

autoBVT ESX Cloud	
Description:	autoBVT ESX cloud
Created on:	Mar 9, 2010 10:19:13 PM
Type:	Custom cloud group
Current status:	All hypervisors available
Updated on:	Mar 9, 2010 10:19:13 PM
Hypervisor type:	ESX or ESXi
Use linked clones:	Enable
Overcommit storage by:	0 % <small>You must specify a value greater than zero to overcommit storage.</small>

28

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The linked clone disablement and enablement feature gives you the ability to make decisions about hypervisor storage and virtual machine isolation and security based on your scenario or company policies.

If you are interested in minimizing storage requirements and are not overly concerned with virtual machine isolation and security then you will choose “Enabled” in the “Use linked clones” field. The result of enabling linked clones is that your virtual machine will share a common OVA backend with other virtual machines. If the backend gets corrupted then all virtual machines associated with the backend can potentially be corrupted.

If virtual machine isolation and security are your primary concern then choose “Disable” in the “Use linked clones” field. This choice does increase the storage requirements. The result of disabling linked clones is that your virtual machine will not share a common OVA backend, instead it is a self contained unit. Since it is a self contained unit it is isolated from the rest of your virtual machines enhancing security.

Both choices have their negatives and positives. You will need to prioritize your requirements and make a decision to disable or enable linked clones based on your usage scenario or company policies. To enable or disable this feature navigate to “Cloud > Cloud Groups > your_cloud_group”.

Virtual system - snapshot description field added

- A description field has been added to the virtual system snapshot

Snapshot:	<input type="button" value="Create"/>	<input type="button" value="Restore"/>
	Mar 1, 2010 1:37:36 PM ✕	
	<u>My snapshot description goes here.</u>	

A description field has been added to the virtual system snapshot. When you create a snapshot, a dashed underlined field opens with the text "Snapshot description". Click this text and enter your description.

Appliance - Appliance link added to email notifications

- WebSphere CloudBurst notification emails now contain a link to the WebSphere CloudBurst Appliance that they originated from
- Avoids origination confusion if you are managing multiple WebSphere CloudBurst Appliances

WebSphere CloudBurst notification emails now contain a link to the WebSphere CloudBurst Appliance that they originated from. This is to avoid confusion if you are managing multiple WebSphere CloudBurst Appliances.

Appliance - backup/restore target validation

- Preemptively validate settings and target host before performing appliance backup
 - Verification that target host exists and that SSH is enabled
 - Verification that the user credentials you specified are valid
- “Test connection” button added to backup ‘Step 1’ to manually invoke the validation

Step 1: Find a place to store your backups

This step is required. You must specify where backups will be stored.

Host:

Path:

User name:

Password: [hide]

Preemptive validation of the target host and connection settings is available when backing up the appliance. A “Test connection” button has been added to Step one of the Appliance > Settings > Backup and Restore page. This button will test that the target host exists, the target host is running a SSH server and that the user credentials are valid. Before V2.0, this validation existed, but it happened during the actual backup operation. It still does happen during the actual backup operation.

Summary

This section will give an overview of what you covered in the presentation.

Summary

- Intelligent Management Pack
- Dynamic virtual machine operations
- License tracking and placement
- Multi-image pattern composition
- SNMP management
- Red Hat Enterprise Linux virtual image
- Virtual image refresh
- Miscellaneous enhancements

In this presentation you have been shown many new features that are included in the WebSphere CloudBurst Appliance V2.0. You have seen information on the Intelligent Management Pack, real time virtual machine creation and deletion, license tracking, multi-image composition and SNMP management capabilities. In addition, you have seen that the virtual images have been refreshed, including the addition of virtual images based on Red Hat and the update to the SuSe V11 operating system on the existing virtual images. Finally, you covered many small, but no less important, enhancements to the product, such as security, virtual images, script packages, virtual system and appliance updates.



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