



# WebSphere CloudBurst Appliance

*Better, Faster, Cheaper!*

# The Application Infrastructure Portfolio

## *Solution Sets*

## *IBM Offerings*

Application  
Foundation



WebSphere Application Server Family  
WebSphere sMash  
CICS Transaction Server

Intelligent  
Management



**WebSphere CloudBurst Appliance**  
WebSphere Virtual Enterprise

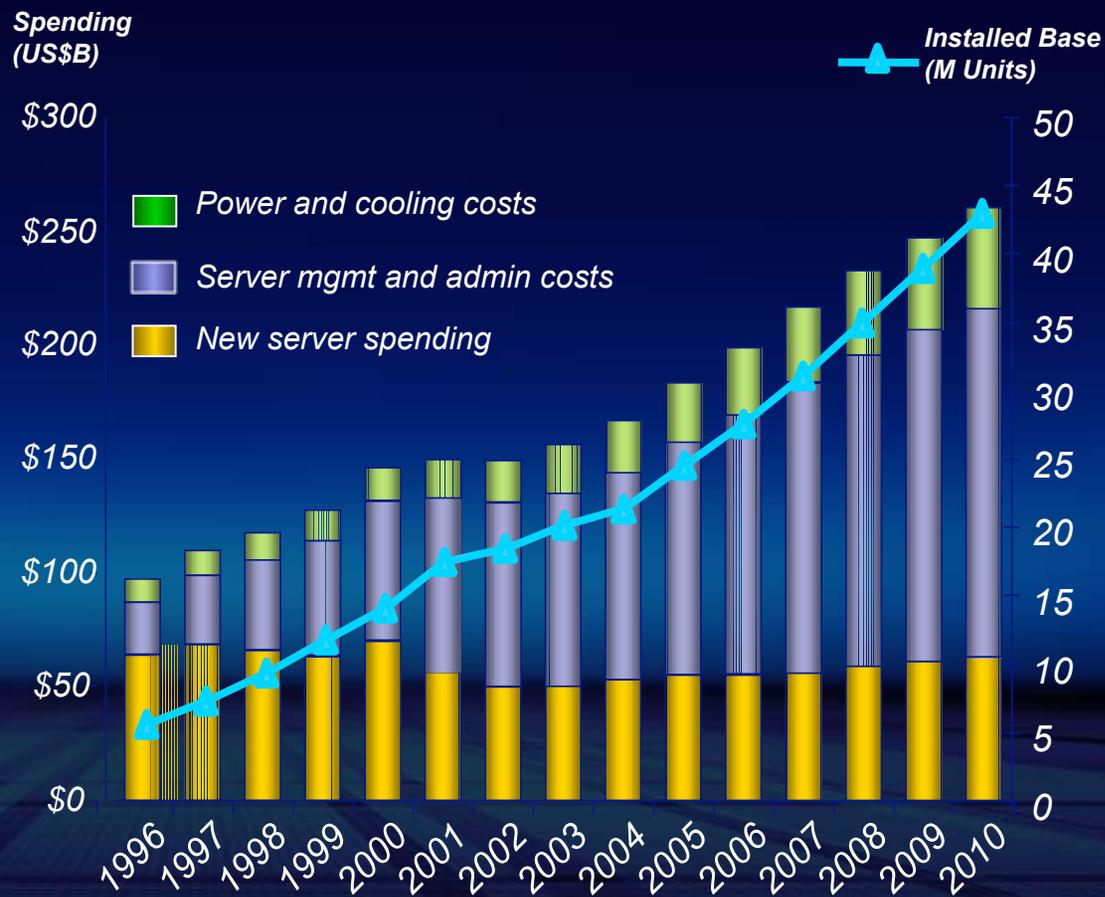
Extreme Transaction  
Processing



WebSphere eXtreme Scale  
WebSphere Compute Grid  
WebSphere RealTime

# IT costs are increasing

- Costs to manage systems has doubled since 2000
- Costs to power and cool systems has doubled since 2000
- Devices accessing data over networks doubling every 2.5 years
- Bandwidth consumed doubling every 1.5 years
- Data Doubling every 18 months<sup>1</sup>
- Server processing capacity doubling every 3 years<sup>2</sup>
- 10G Ethernet ports tripling over the next 5 years



Source: IDC, 2008

<sup>1</sup>WW TB Capacity Shipped on Enterprise Disk Storage Systems

<sup>2</sup>Server processing consumption doubles every 3 years

# What admin & management efficiencies can be made?

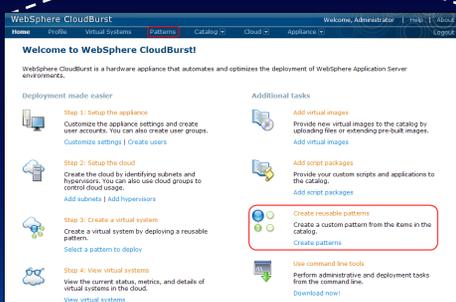
- The average lead time to get a new application environment up and running is 4-6 weeks
  - Approvals, procurement, shipment, HW installation, license procurement, OS installation, application installation, configuration
- 30% of bugs are introduced by inconsistent configurations
  - These bugs are often of the most difficult variety to detect
  - They often emerge when moving between dev/test, QA, production
- Because it's so expensive to set up an environment, there is an incentive to hold onto them even when no longer needed "just in case."
  - Future environments = new hardware, instead of recycling returned hardware, and this takes time and money

# WebSphere Clouds: 2 products

1) WebSphere CloudBurst Appliance (hardware)



2) CloudBurst dispenses WebSphere Application Server Hypervisor Edition Servers into a set of other machines

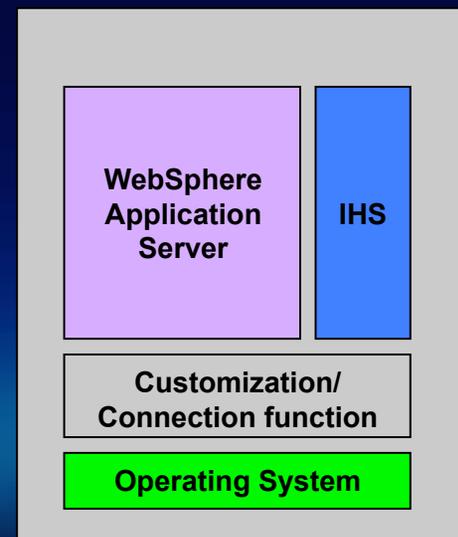


1) User requests WebSphere Application Server Hypervisor Edition Environment to be dispensed



3) User can access WebSphere Application Server Hypervisor Edition Servers (Virtual Image)

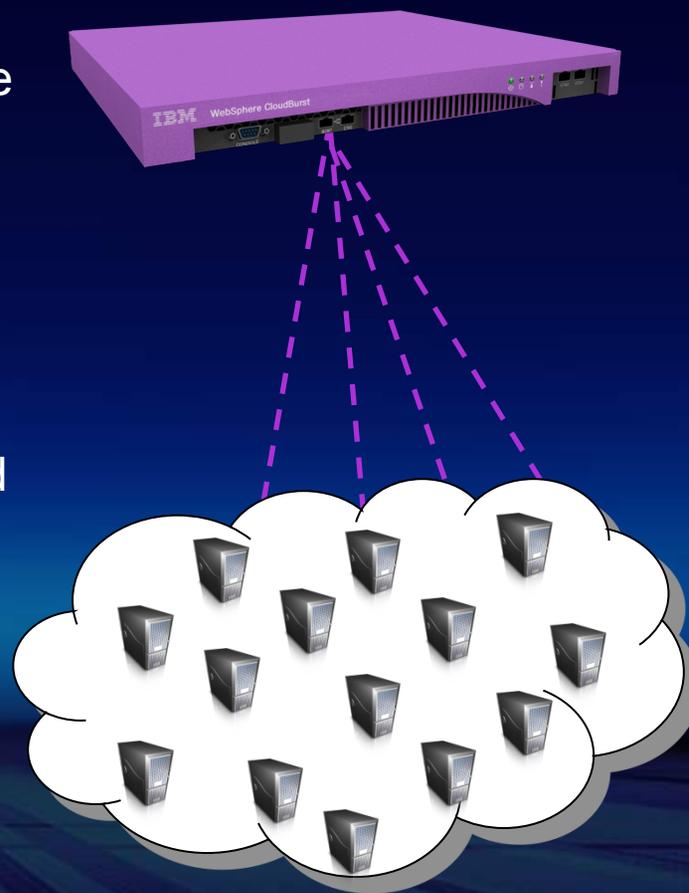
2) WAS HV (Virtual Image-software)



The WebSphere CloudBurst appliance dispenses these virtual images into a private cloud

# WebSphere CloudBurst Appliance

- Secure, self-service cloud management hardware appliance
- Unmatched WAS management (apply maintenance, federate cells, etc. - not black box)
- Dispenses hardened WAS patterns into a pool/ cloud of virtualized hardware running a supported hypervisor e.g. VMware ESX or PowerVM.
- Enables consistent & repeatable deployment of application environments based on patterns
- Integrates with existing infrastructure through programmable REST APIs

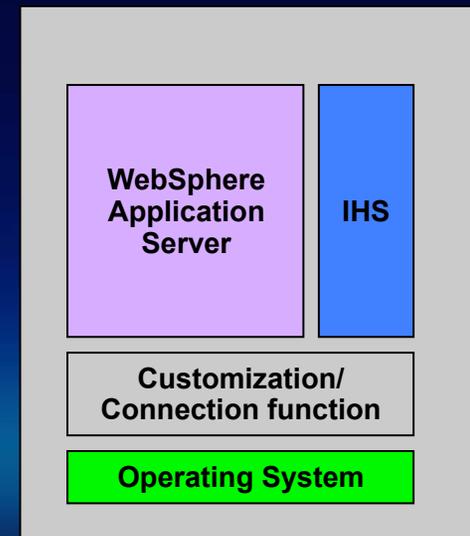


# What's new in WebSphere CloudBurst in 4Q09?

- **PowerVM supported as a deployment target**
  - Same patterns can be used on X86 and PowerVM by simply selecting the appropriate virtual image
  - Test on X86, go live on PowerVM, use WebSphere CloudBurst to manage it all!
  
- **Export/Import virtual images and patterns**
  - Enables artifacts to be created/configured once, and then shared amongst multiple WebSphere CloudBurst Appliances throughout the enterprise/globe
  
- **DB2 trial image preloaded on appliance**
  
- **Integration w/ Tivoli Service Automation Manager (TSAM) & IBM CloudBurst**
  - WebSphere CloudBurst can be managed and controlled by TSAM.
  - Customers who utilize TSAM for general purpose provisioning can integrate WebSphere CloudBurst into their existing framework for consistency

# WAS HyperVisor Edition (WAS HV)

- WAS shipped ready to run on a hypervisor
- No installation required (just run and choose a profile)
- Single virtual image capable of supporting single servers or clusters
- WAS v6.1 and v7 available at GA
- Full support for WAS Feature Packs
- Maintenance, support, and fixes through IBM for both WAS and Operating System
- Based on OVF standard



# Functional roadmap

- The following features are on our desired list of function, and will be included in future releases as priority deems appropriate:
  - Multi-product patterns
  - Red Hat support
  - Support for additional products managed by WebSphere CloudBurst (both IBM and non-IBM)
  - Appliance clustering
  - Expanded storage capacity
  - Elasticity of dispensed environments
  - System Z support (z/VM)
  - License management (ability to limit usage)

# IBM CloudBurst and WebSphere CloudBurst

provide cloud management capabilities with different approaches



	WebSphere CloudBurst Appliance	IBM CloudBurst
<b>Offering type</b>	Physical appliance	Services engagement + Bladecenter + set of provisioning and management software
<b>Applicable Scope</b>	Application middleware environments	General purpose cloud provisioning/management
<b>Hardware for cloud</b>	Bring your own (leverage underutilized assets in your datacenter)	Included in the offering (bladecenter w/ 3 blades in it)
<b>Items managed in cloud</b>	GA virtual images from IBM (Hypervisor Edition products) for select products	User-built images (whichever products customer chooses to build)
<b>Launched</b>	May 2009 @ IMPACT in Las Vegas	June 2009 in press release

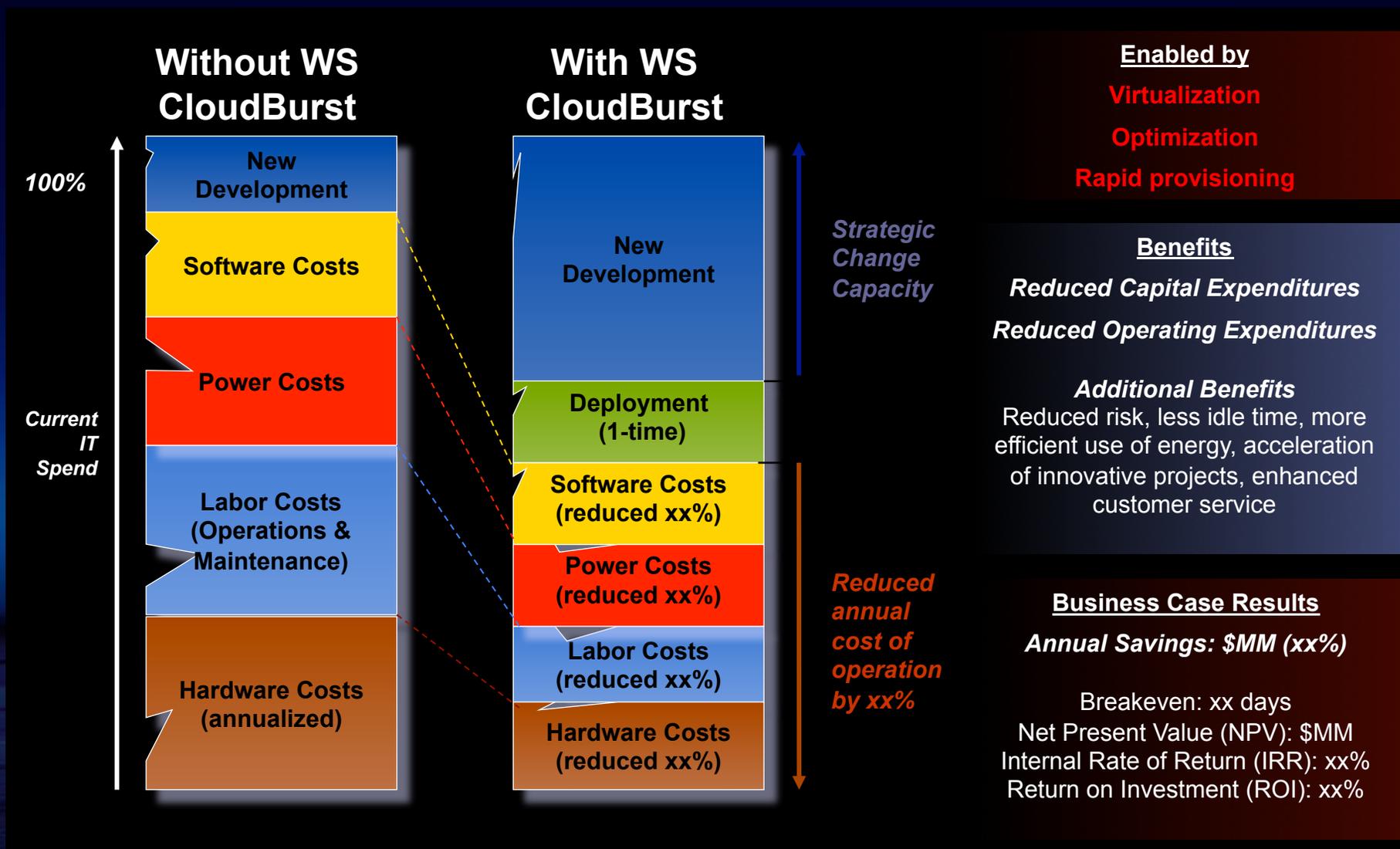
## IBM CloudBurst and WebSphere CloudBurst

combine to deliver depth and breadth in cloud management!

- **WebSphere CloudBurst Appliance delivers very deep, purposed value in managing WebSphere environments.**
- **IBM CloudBurst delivers very broad, general-purpose value in managing just about anything, and includes hardware for the cloud**
- **For scenarios which benefit from both, the two products interact.**
  - IBM CloudBurst can serve as the entry point through which WebSphere CloudBurst artifacts may be accessed.
  - A consistent portal is used for all of your infrastructure

# TCO Analysis

## Quantifies WS CloudBurst Benefits



# Insurance Company Improves fix management Using Smart SOA Infrastructure: WebSphere CloudBurst



## Industry Pains

- Deployment of maintenance takes approx. 30 minutes
- Deployment of maintenance is a manual process, often executed in the middle of the night

## Smarter Business Outcomes

- Deployment took 4 minutes!
- Deployment was automated
- Deployment was able to be scheduled, so no one had to wait up to kick off the process



# IBM Lab Increases Productivity and Agility Using Smart SOA Infrastructure: WebSphere CloudBurst



## Industry Pains

- OS security compliance issues due to virtualization
- Low rates of hardware utilization
- Agile development requires high quality and broader testing

## Smarter Business Outcomes

- No OS security compliance violations in 4 months
- Increased server utilization up to 90%
- Reduced standardized topology deployment from over 2 hours down to 18 minutes
- Leveraged existing hardware and software assets



## Why Smart SOA Infrastructure?

“The ability to provide compliant patterns and images in our public lab while leveraging the speed and rapid deployment of virtualization is significant for our efforts to consolidate hardware, and reduce costs while at the same time providing onDemand access to development and test environments necessary for Agile development”. **Frank Varone, Test and Quality Manager for WebSphere Application Server**

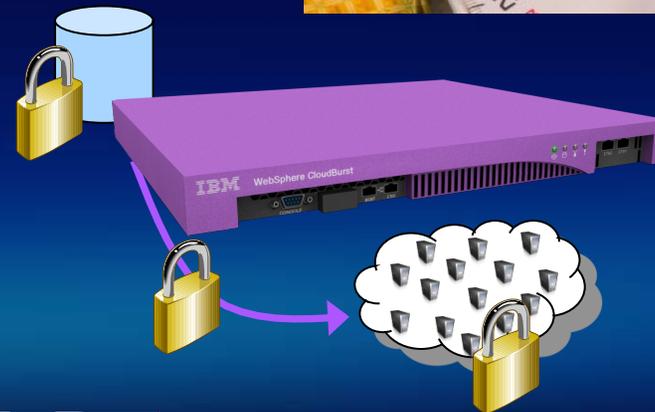
# How does this compare to competition?

## We deliver unique value that others cannot deliver:

- We offer a more integrated solution for a particular set of problems (IBM Software-related problems)
- We understand and control the software we dispense, and as a result, can remove more of the expensive, repetitive, and error-prone manual tasks that.
  - Other products can lay down black box images for each node in a WAS cell, but don't know how to:
    - **federate nodes into a cell**
    - **build clusters**
    - **apply maintenance**
- Appliance form factor delivers optimal security, simplicity, performance, and time-to-value
- IBM support – if the need arises, we put people on airplanes, and our clients WILL be successful

## Summary: What does WS CloudBurst do for me?

- Reduce risk/errors by codifying infrastructure
- Security throughout entire virtual image lifecycle
- Drastically reduce set up and configuration time
- Simplify maintenance and management



# Pricing and Packaging

- The following sequence of charts contain the pricing model, for WebSphere CloudBurst Appliance and WAS HV

# CloudBurst v1.0 solution components

## 1. CloudBurst Appliance



## 2. Set of X86 servers running ESX hypervisor



3. Cloud Capacity Entitlement (for size of cloud, in PVUs)



4. WAS HV Licenses (for size of cloud, in PVUs)

# CloudBurst v1.0 Solution Structure

- **CloudBurst Appliance consists of two Priced Components:**
  - **Hardware appliance** – includes some cloud capacity entitlement (1000 PVUs)
    - 9235-72X MTM in AAS
  - Cloud Capacity entitlement (in PVUs)
    - 9231-200 MTM in AAS

- **WebSphere Application Server Hypervisor Edition**
  - Sold through PPA
  - Brand new WAS HV licenses OR
  - Trade-ups from existing WAS ND, Base, Express licenses

- **Hardware including supported hypervisor**
  - Prerequisite

## Scenario

- **CloudBurst appliance** managing **WAS HV** in an X86 cloud that is **3500 PVU** in size. Assume 3500 PVU of **WAS ND** licenses being traded up.

- What must you already have?
  - X86 servers running ESX hypervisor, totaling 3500 PVU
- What do you buy?
  - **Appliance with 1000 PVU Cloud Cap. Ent. (9235-72X): \$45K**
  - **2500 PVU Cloud Cap. Entitlement (9231-200): \$37.5K**
  - **\*3500 PVU WAS ND -> HV trade-up (5724-H88): \$136.5K**

- **\*NOTE:** Customer may choose to purchase new WAS Hypervisor Edition licenses or trade-ups from existing licenses

 **CloudBurst Appliance + 1000 PVU cloud capacity entitlement**  
– \$45K per appliance

 **Additional Cloud Capacity Entitlement - \$15 per PVU**



WAS HV (3500 PVU)



# WebSphere CloudBurst Appliance support options

- **Support options**

- **Platinum - \$3,500/year**

- 24x7 phone support for firmware
    - 24x7 phone support for hardware
    - 4 hour replacement for hardware problems

- **Gold - \$1,050/year**

- 24x7 phone support for firmware
    - 9x5 phone support for hardware
    - Next business day replacement for hardware problems

- **1 year “Gold” support included w/ purchase**

- May be upgraded to “Platinum” support for this year for **\$2,450**

# Resources

- WebSphere CloudBurst
  - <http://ibm.com/cloudburst>
- WebSphere Application Server Hypervisor Edition
  - <http://www.ibm.com/software/webservers/appserv/hypervisor>
- Video with audio narration on business value at Education Assistant Site:
  - <http://publib.boulder.ibm.com/infocenter/ieduasst/v1r1m0/index.jsp> (scroll down and click on WebSphere CloudBurst Appliance)
- WebSphere Cloud Computing Community
  - <http://www.ibm.com/developerworks/spaces/websphereclouds>
- WebSphere CloudBurst demos
  - <http://www.youtube.com/websphereclouds>
- WebSphere CloudBurst articles
  - [Cloud computing for the enterprise, Part 2: Using WebSphere CloudBurst to create private clouds](#)
  - [Customizing with WebSphere CloudBurst, Part 1: Creating highly customized private clouds](#)
  - [Managing your private cloud: Introducing the WebSphere CloudBurst Appliance command line interface](#)

# Usage introduction

- The following charts provide an overview as to how a user interacts with WebSphere CloudBurst Appliance.
- This section of the overview may be omitted, based on audience preference.
- Also, you may view a demo at one of these locations:
  - <http://www.ibm.com/cloudburst>
  - [http://cattail.boulder.ibm.com/cattail/download/C75C46F0FE983DD8A09A04157F000001/2/deep\\_dive.zip](http://cattail.boulder.ibm.com/cattail/download/C75C46F0FE983DD8A09A04157F000001/2/deep_dive.zip)

# Using WebSphere CloudBurst: Key steps



1. Set up the cloud



2. Work with virtual images



3. Add script packages



4. Customize deployment patterns



5. Deploy virtual systems

# Set up the cloud – Identify hypervisors

- Identify eligible hypervisors in the cloud
- Hypervisors must be installed & running in the cloud before identification in CloudBurst

**HV-aimcp059**

Type: **ESX**

URL: <https://aimcp059.austin.ibm.com/sdk>

User name: root

Password: •••••••• [edit]

Security certificate: Accepted

Current status: Started (move to maintenance mode to make changes)

Performance:

	CPU usage	Memory usage
Active virtual machines:	2%	36% [show more]

In cloud group: [Default ESX group](#)

+ Virtual machines

+ Networks

+ Storage devices 16%

WebSphere CloudBurst

Welcome, Administrator | Help | About

Virtual Systems | Patterns | Catalog | Cloud | Appliance | Profile | Logout

Hypervisors

Search...

HV-aimcp059

HV-aimcp061

Describe the hypervisor you want to add.

Name:  A unique hypervisor name

Type: **ESX or ESXi**

Host name:  Remote location of the hypervisor

User name:  Remote user name

Password:

OK Cancel

# Set up the cloud – IP Addresses for Virtual Systems

- Describe pool of IP addresses to be used for deployments
- View / Add / Remove IPs later

**Subnet-9.3.75.0**

Subnet address:	9.3.75.0
Netmask:	255.255.255.0
Gateway:	9.3.75.1
Primary DNS:	9.0.7.1
Secondary DNS:	9.0.6.11

Hypervisors: HV-aimcp059 [remove]  
HV-aimcp061 [remove]

IP Addresses:

- 9.3.75.148 (aimcp148.austin.ibm.com) [remove]
- 9.3.75.149 (aimcp149.austin.ibm.com) [remove]
- 9.3.75.150 (aimcp150.austin.ibm.com) [remove]
- 9.3.75.151 (aimcp151.austin.ibm.com) [remove]

[show more]

Add range  to  Add

WebSphere CloudBurst

Welcome, Administrator | Help | About

Welcome Virtual Systems Patterns Catalog Cloud Appliance Profile Logout

IP Groups

Search...

Subnet-9.3.75.0

Describe the IP group you want to add.

Name:

Subnet address:

Netmask:

Gateway:

Primary DNS:

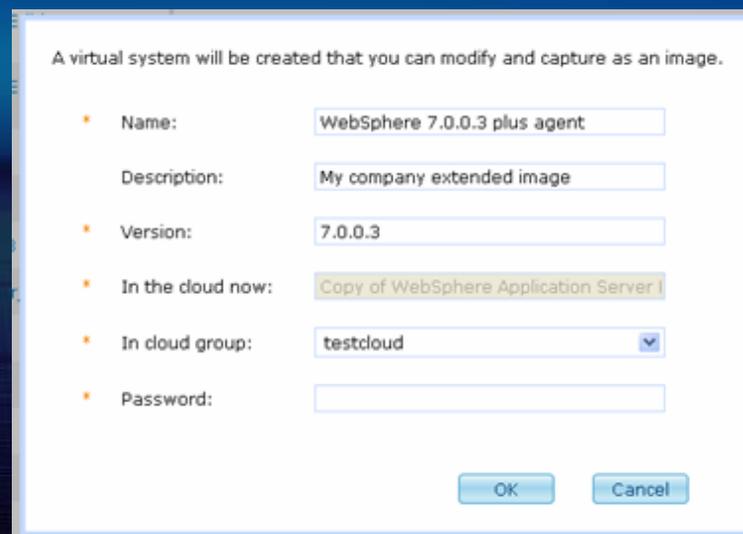
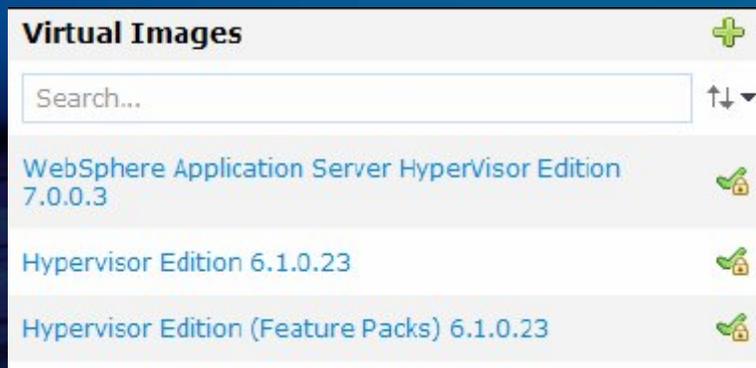
Secondary DNS:

OK Cancel

list for details  
S

# Work with Virtual images – Preloaded images

- CloudBurst comes preloaded with two virtual images
  - WAS HV 6.1.0.23
  - WAS HV 7.0.0.3
- By default these images are owned by the administrator
  - Administrator needs to grant permission to all required users of these virtual images
- These images can be customized to meet environment needs
  - Eg, add monitoring/corporate governance agents



# Work with Virtual images – Attributes

- Contains information specific to this virtual image such as
  - Which parts make up with virtual image
  - Which patterns and/or virtual systems are using parts from this virtual image
  - Who has been granted access to this pattern
- Extend and capture a virtual image

[Customize a copy](#) [Lock this image](#) [Delete](#)

WebSphere HV 7.0.0.3	
Description:	<a href="#">WebSphere HV :: 7.0.0.3</a>
Hypervisor type:	ESX
Version:	<a href="#">7.0.0.3</a>
Image reference number:	cf030909.36
Current status:	<input checked="" type="checkbox"/> Ready to use
Contains parts:	AdminAgent Custom Node DMGR IHS Only Node <a href="#">[+] More</a>
Included in patterns:	(none)
In the cloud now:	(none)
Access granted to:	<a href="#">Administrator</a> [owner] <input type="text" value="Add more..."/>
Extended from:	

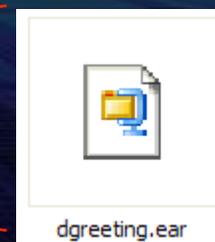
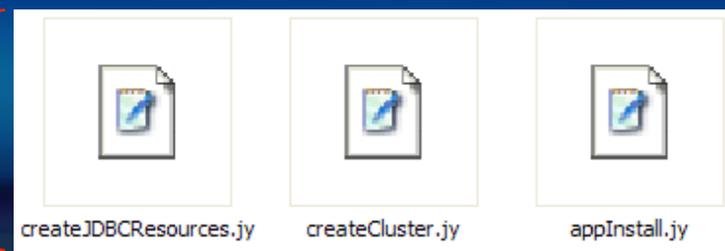
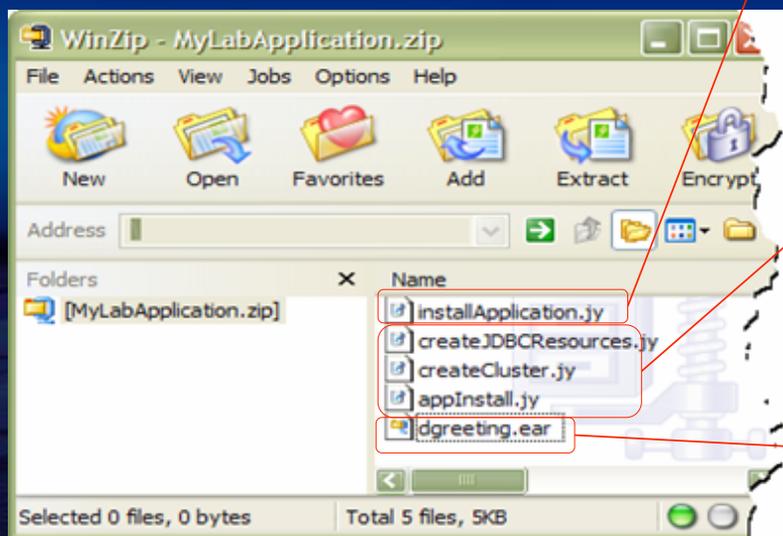
# Adding a script package – Package format

- Script packages represent setup and configuration logic to be completed once the virtual system has been deployed – create JDBC resources, deploy app
- Zipped into a single binary
- Example contents of a script package:

```
AdminTask.createApplicationServer('MyLabNode1', '{-name server1 -
templateName default -genUniquePorts true }')

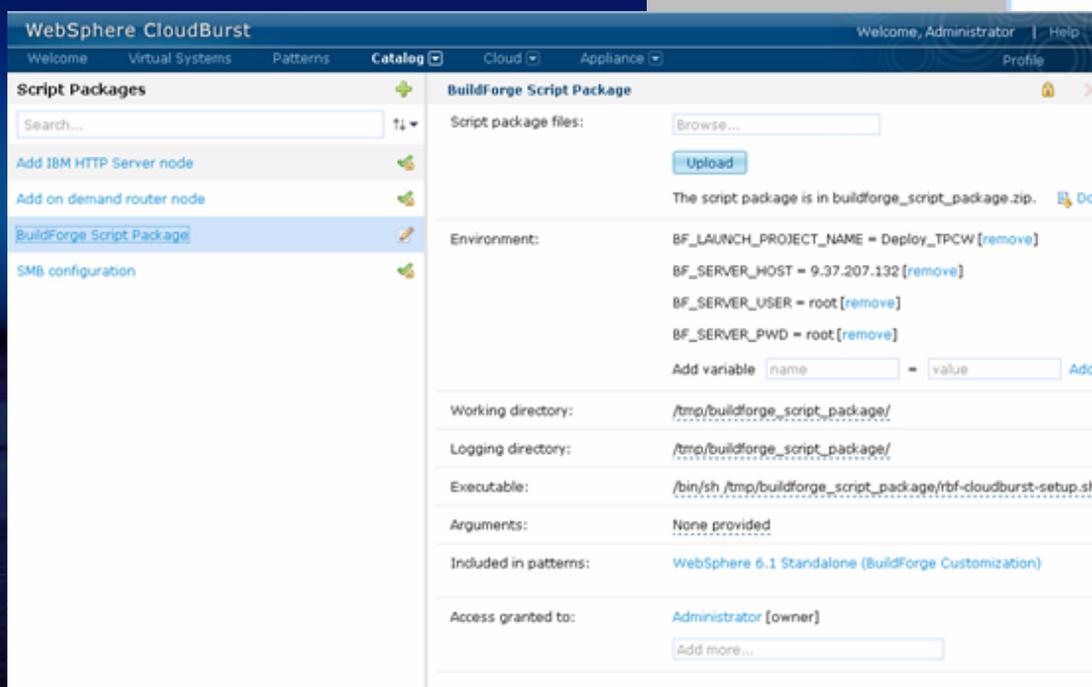
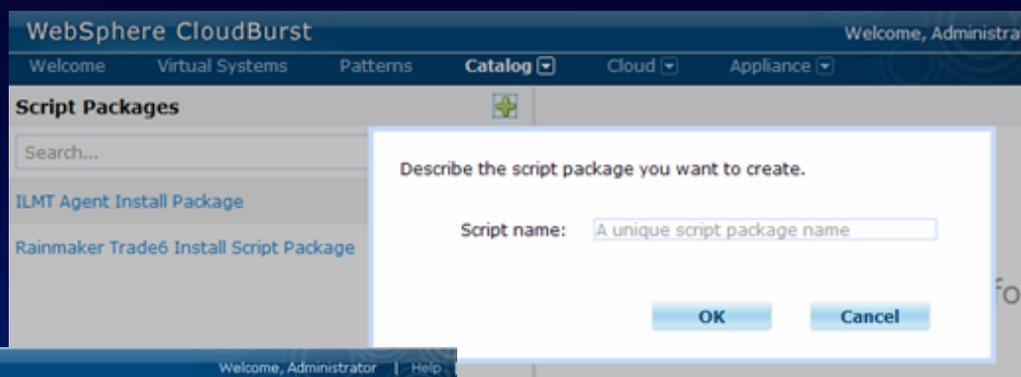
AdminApp.install('dgreeting.ear', '{ -cell MyLabCell -node MyLabNode1 -
server server1 -nopreCompileJSPs -distributeApp -
nouseMetaDataFromBinary -nodeployejb -appname greeting -
createMBeansForResources -noreloadEnabled -nodeployws -validateinstall
warn -noprocessEmbeddedConfig -filepermission
.*\.dll=755#.*\.so=755#.*\.a=755#.*\.sl=755 -
noallowDispatchRemoteInclude -noallowServiceRemoteInclude -
asyncRequestDispatchType DISABLED -nouseAutoLink}')
```

AdminConfig.save ()



# Adding a script package – Uploading the package

- Upload script package
- Create environment variables
- Specify an executable
- Supply arguments to the executable



# Deployment patterns – Preloaded patterns

CloudBurst comes preloaded with a set of “best practices” patterns

- Can be used as is, or as the starting point for creating custom patterns

## Sample preloaded patterns

WebSphere single server

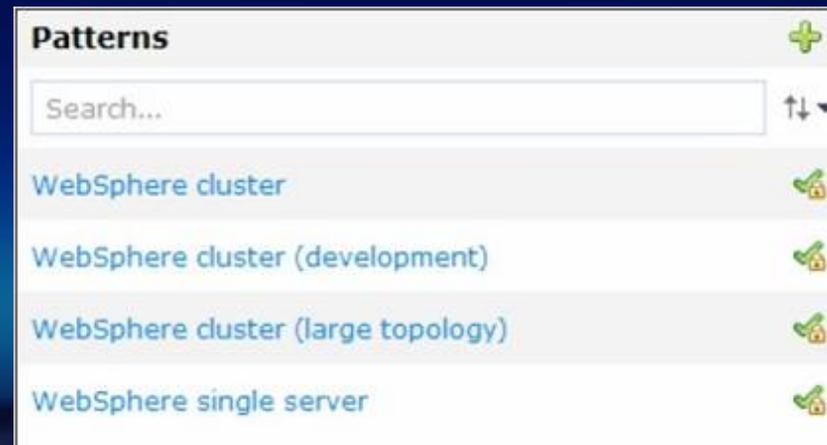
- 1 Standalone server
- Total of 1 virtual machine

WebSphere cluster (development)

- 1 Deployment manager / IHS
- 2 Custom nodes
- Total of 3 virtual machines

WebSphere cluster (large topology)

- 1 Deployment manager
- 10 Custom nodes
- 4 IBM HTTP servers
- Total of 15 virtual machines



# Deployment patterns – Create new pattern

The screenshot shows the WebSphere CloudBurst administrator interface. The top navigation bar includes 'Home', 'Profile', 'Virtual Systems', 'Patterns' (highlighted with a red box), 'Catalog', 'Cloud', 'Appliance', and 'Logout'. The main content area is titled 'Welcome to WebSphere CloudBurst!' and provides a brief overview of the appliance. It is divided into two columns: 'Deployment made easier' and 'Additional tasks'. The 'Deployment made easier' column lists four steps: 1. Setup the appliance, 2. Setup the cloud, 3. Create a virtual system, and 4. View virtual systems. The 'Additional tasks' column lists: Add virtual images, Add script packages, Create reusable patterns (highlighted with a red box), and Use command line tools. The 'Create reusable patterns' task is described as creating a custom pattern from items in the catalog.

WebSphere CloudBurst

Welcome, Administrator | Help | About

Home Profile Virtual Systems **Patterns** Catalog Cloud Appliance Logout

## Welcome to WebSphere CloudBurst!

WebSphere CloudBurst is a hardware appliance that automates and optimizes the deployment of WebSphere Application Server environments.

### Deployment made easier

**Step 1: Setup the appliance**  
Customize the appliance settings and create user accounts. You can also create user groups.  
[Customize settings](#) | [Create users](#)

**Step 2: Setup the cloud**  
Create the cloud by identifying subnets and hypervisors. You can also use cloud groups to control cloud usage.  
[Add subnets](#) | [Add hypervisors](#)

**Step 3: Create a virtual system**  
Create a virtual system by deploying a reusable pattern.  
[Select a pattern to deploy](#)

**Step 4: View virtual systems**  
View the current status, metrics, and details of virtual systems in the cloud.  
[View virtual systems](#)

### Additional tasks

**Add virtual images**  
Provide new virtual images to the catalog by uploading files or extending pre-built images.  
[Add virtual images](#)

**Add script packages**  
Provide your custom scripts and applications to the catalog.  
[Add script packages](#)

**Create reusable patterns**  
Create a custom pattern from the items in the catalog.  
[Create patterns](#)

**Use command line tools**  
Perform administrative and deployment tasks from the command line.  
[Download now!](#)

- Patterns can be created from scratch, or by extending an existing pattern

# Deployment patterns – Editing topology

- Assemble patterns by dragging virtual image parts and script packages from the palette on the left and dropping them on to the canvas on the right

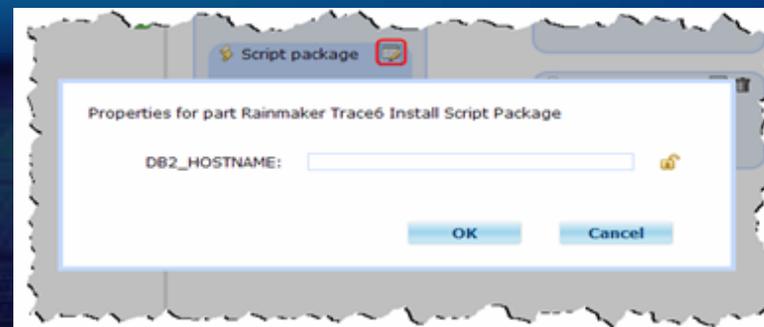
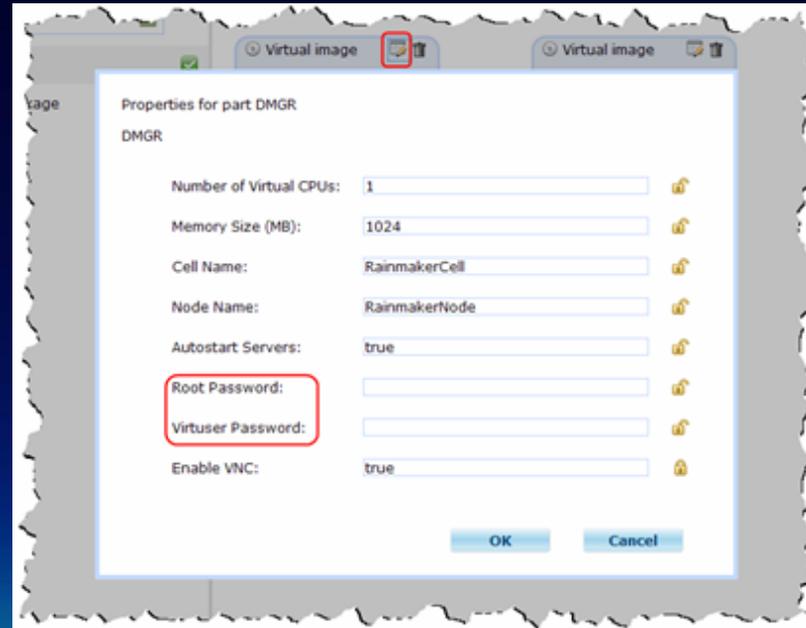
The screenshot displays the WebSphere CloudBurst Pattern Editor interface. The left pane, titled "Pattern Editor", contains a search bar and a list of virtual images. The right pane, titled "New1", shows the assembly process. A yellow callout box points to a spinner control on the "Custom Node" component, with the text "Choose # of nodes".

Virtual Image	Status
Conceptual Administrative Agent	✓
Conceptual Custom Node	✓
Conceptual Deployment Manager	✓
Conceptual IBM HTTP Server	✓
Conceptual Job Manager	✓
Conceptual On Demand Router	✓
Conceptual Standalone Node	✓

The canvas shows a "DMGR" component being dragged from the palette to a "Custom Node" component. The "Custom Node" component has a spinner control set to "3", indicating the number of nodes to be created.

## Deployment patterns -- Customizing pattern parts

- Customize each server in the topology to suit environment
- Only two attributes are required
  - Root Password
  - Virtuser Password
- Customize script package environment variables
- Customize now or during deployment



# Deployment patterns – Attributes and options

- Deploy, edit, clone, lock and delete your pattern
- View pattern topology
- View the virtual systems
- Permissions

Deploy pattern

**Trade Sample**

Description: None provided

Created on: Tuesday, March 17, 2009, 9:52:36 AM

Current status:

Updated on: Tuesday, March 17, 2009, 9:53:04 AM

In the cloud now: (none)

Access granted to: Administrator [owner]

Topology for this pattern:

Virtual image: WebSphere HV 7.0.0.3

DMGR → Custom Node

Rainmaker Trade6 Install Script Package

# Deploy virtual systems – Now or later

- Deploy immediately
- Deploy at some later date and time
- Run forever or until some later date and time

1. Deploy from  
Pattern Detail view



2. Click to  
schedule  
deployment

Describe the virtual system you want to deploy.

Virtual system name

Default ESX

Schedule deployment

Configure virtual parts

OK Cancel

Describe the virtual system you want to deploy.

Virtual system name

Schedule deployment

Start now

Start later...

3/13/2009

2:59 PM

Run indefinitely

Run until...

3/13/2009

2:59 PM

Configure virtual parts

OK Cancel

3. Start  
deployment  
now or later

# Deploy virtual systems – Optional configurations at deployment

- Configuration updates are specific to this deployment (virtual system)
- Root and Virtuser passwords are required for each deployment

1. Deploy from  
Pattern Detail view



Describe the virtual system you want to deploy.

Virtual system name

Schedule deployment

Configure virtual parts

DMGR ?

Custom Node ?

Custom Node ?

OK

Cancel

2. Click on  
part to  
configure

Fill in the required values for this part of the pattern.

Number of Virtual CPUs: 1

Memory Size (MB): 1024

Cell Name: RainmakerCell

Node Name: RainmakerNode

Autostart Servers: true

Root Password:

Virtuser Password:

Enable VNC: true

Copy these settings for all parts of this type

OK

Cancel

3. Configurable  
options

# Drastically reduce setup & configuration time

- From clicking “deploy” to having a running system
  - Eg, 4 node cluster: 30 minutes

The screenshot displays the WebSphere CloudBurst management interface. The main content area shows the details for a 'WAS Cluster' that has been successfully deployed. The 'Current status' is 'The virtual system has been deployed and is ready to use'. Below this, there is a 'History' section with a list of events and their timestamps.

Event	Timestamp
The virtual system has been deployed and is ready to use	Apr 10, 2009 7:13:34 AM
Starting virtual machine Custom Node 6	Apr 10, 2009 7:04:47 AM
Starting virtual machine Custom Node 5	Apr 10, 2009 6:58:05 AM
Starting virtual machine IHS Only Node 4	Apr 10, 2009 6:54:32 AM
Starting virtual machine DMGR 1	Apr 10, 2009 6:47:20 AM
Starting virtual machines	Apr 10, 2009 6:47:20 AM
Registering virtual machine Custom Node 6	Apr 10, 2009 6:47:03 AM
Registering virtual machine Custom Node 5	Apr 10, 2009 6:46:54 AM
Registering virtual machine IHS Only Node 4	Apr 10, 2009 6:46:45 AM
Registering virtual machine DMGR 1	Apr 10, 2009 6:46:35 AM
Starting virtual machines	Apr 10, 2009 6:46:35 AM
Transferring virtual images to hypervisors	Apr 10, 2009 6:45:49 AM
Cloud resources allocated	Apr 10, 2009 6:45:34 AM
Reserving cloud resources	Apr 10, 2009 6:45:16 AM
Processing has started	Apr 10, 2009 6:44:04 AM

# Security through the entire lifecycle

- SSH keys are stored in the appliance's secure vault
  - Protect images on disk in the appliance, on the wire while they're being dispensed, and in the cloud while they're running.
- Specify users and permissions at all levels:
  - Access to CloudBurst
  - View and edit rights of specific images and patterns
  - Passwords for dispensed virtual images

The screenshot displays the WebSphere CloudBurst management console. The main interface is divided into several sections:

- Virtual Images:** A list of virtual images including "WebSphere Application Server HyperVisor Edition 7.0.0.3", "Hypervisor Edition 6.1.0.23", and "Hypervisor Edition (Feature Packs) 6.1.0.23".
- Hypervisor Edition 6.1.0.23:** A detailed view of the selected image, showing properties such as Description, Hypervisor type (ESX), Version (6.1.0.23), Image reference number (fep230914.20), Current status (Read-only), and Access granted to (Administrator [owner]).
- Users:** A section for managing users, currently showing "Pattern Builder".
- Pattern Builder:** A configuration window for a user named "Pattern01", showing fields for User name, Email address (pattern@us.ibm.com), Password, Current status, Authored patterns, and In the cloud now. A red box highlights the Permissions section, which includes checkboxes for "Deploy patterns in the cloud", "Create new patterns", "Create new catalog content", "Cloud administration", and "Appliance administration".

# Reduce risk by codifying infrastructure

- “Lock” parameters, images, and patterns
- Freeze-dry best practices for repeated, consistent deployments

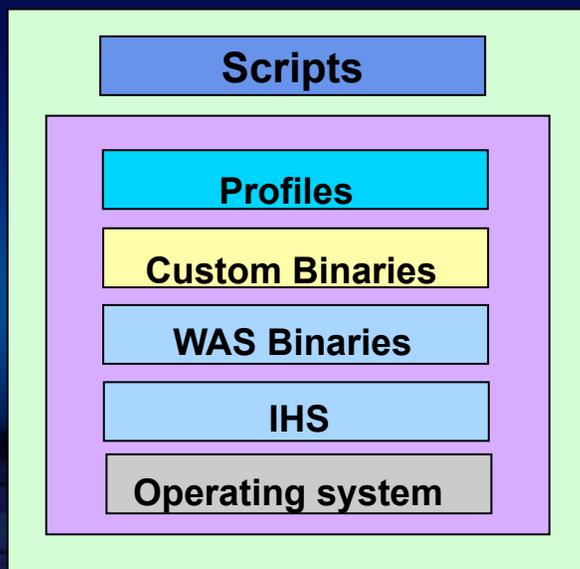
Properties for part Standalone server

Standalone server

Virtual CPUs:	<input type="text" value="1"/>	
Memory size (MB):	<input type="text" value="2048"/>	
Cell name:	<input type="text" value="CloudBurstCell"/>	
Node name:	<input type="text" value="CloudBurstNode"/>	

# Simplify maintenance and management

- Flexibly manage, change, and update the components of your patterns
- Monitor Virtual System health from the CloudBurst console



WebSphere CloudBurst

Welcome, Administrator

Virtual Systems

WAS Cluster

Created on: Apr 10, 2009 6:43:44 AM

From pattern: WebSphere cluster

Current status: The virtual system has been deployed and is ready to use

Updated on: Apr 10, 2009 7:13:40 AM

Access granted to: Administrator [owner]

Snapshot: Create Restore (none)

History

Virtual machines

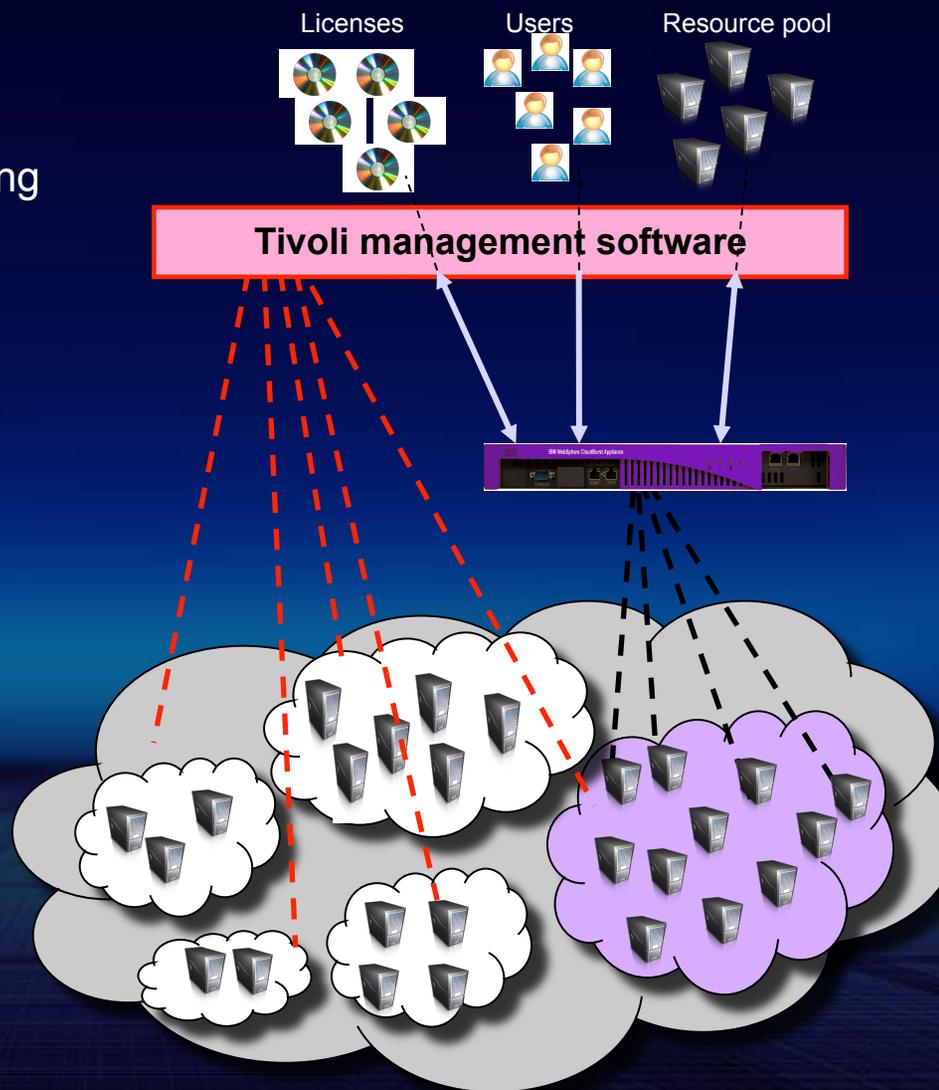
Name	CPU	Memory	SSH
WAS Cluster vm-014-146 dmgr	1%	47%	Login
WAS Cluster vm-014-145 ihs	1%	24%	Login
WAS Cluster vm-014-144 custom	2%	42%	Login
WAS Cluster vm-014-147 custom	1%	44%	Login

# DataCenter Integration

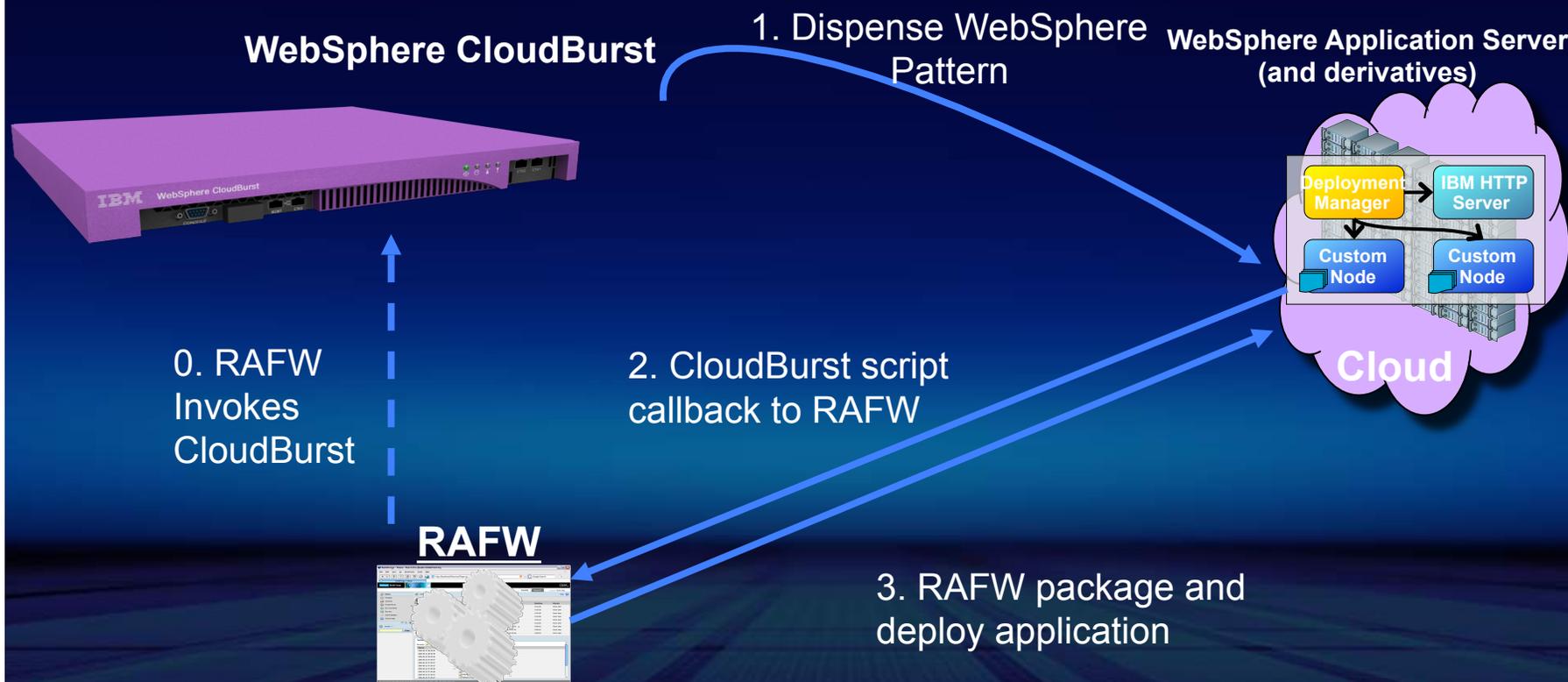
- The following charts provide an overview as to how WebSphere CloudBurst Appliance integrates with other IBM products.

# Datacenter integration

- Automation / resource provisioning
- Monitoring
- User management
- License management



# Rational Automation Framework for WebSphere and WebSphere CloudBurst



**Note:** This scenario can be extended to include additional Rational components including Rational Asset Manager, Rational AppScan, and Rational Software Architect

# Backup

# Server Virtualization Perspectives ...

WebSphere CloudBurst Appliance and WebSphere Application Server Hypervisor Edition both leverage the benefits of server virtualization (specifically a type 1 Hypervisor - VMware ESX in first release)

Both offerings extend the benefits received beyond what you get if you just use a hypervisor like ESX alone

2009

Cloud Computing

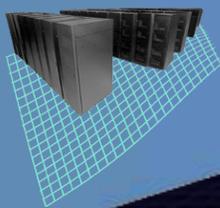
Virtualization

Software as a Service

Utility Computing

1990

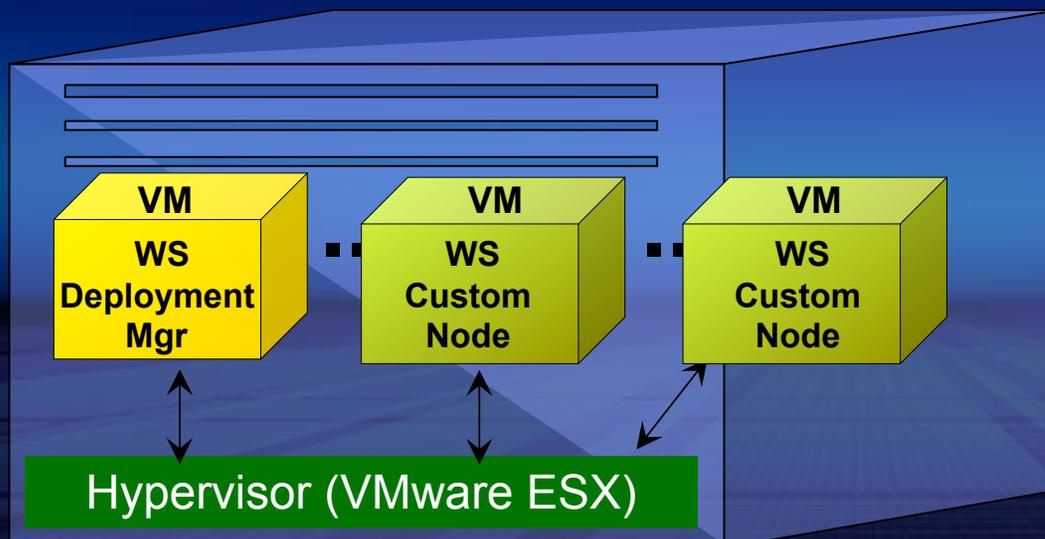
Grid Computing



# High Level Summary of Benefits of Server Virtualization

Allows you to run more than one logical machine on one physical machine; benefits being ...

1. **Increased resource utilization**
2. **Increased agility:** (start/stop and copy/modify of different configs quicker)
3. **Isolation**
4. **Portability**

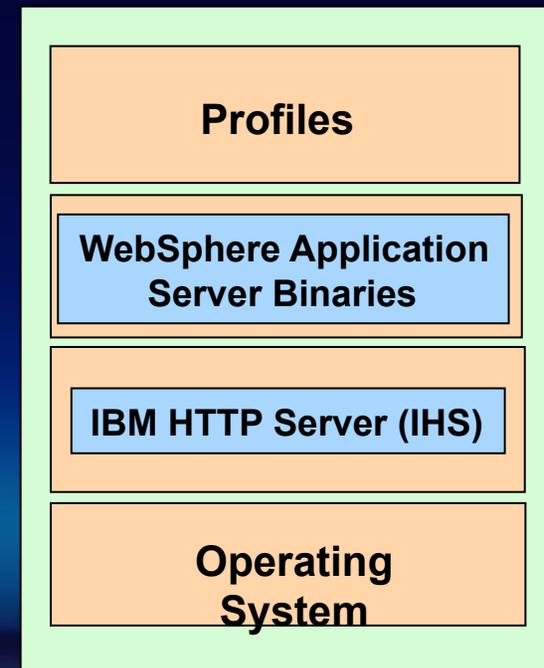


Both type 1 and type 2 hypervisors offer the server virtualization benefits above. Type 2 runs on top of the operating system and type 1 is more efficient since it replaces the operating system while still providing multiple self-contained logical systems with their own operating system to users.

# WebSphere Application Server Hypervisor Edition Offers Customers Benefits beyond Server Virtualization

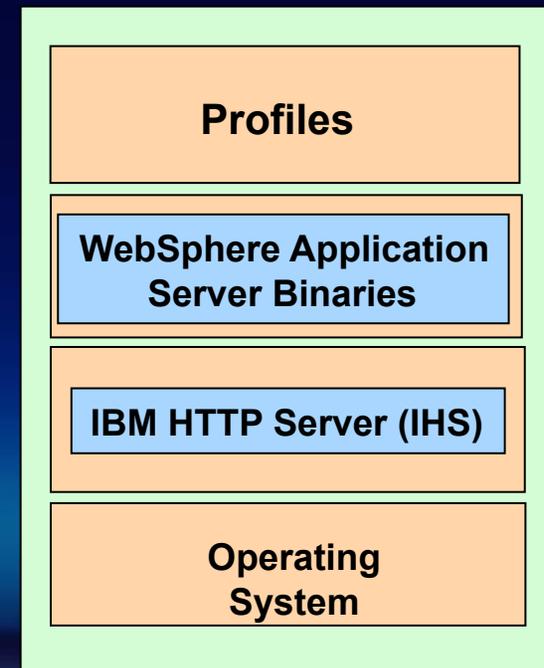
Offers the world-class clustering and high availability that WebSphere Application Server (WAS) offers and all the benefits of server virtualization plus

- Dramatically reduces time to install/config multiple images and keep them updated:
  - The operating system, the web server (HTTP Server), and WebSphere Application Server are already installed for you in a virtual image
  - WAS component profiles already created
  - Auto configs/tunes operating system and WAS following best practices.
  - Ability to create multiple virtual machines from the same virtual image saves on time to transfer images to/from disk, and the number of times an administrator needs to apply fixes/modifications!



## WebSphere Application Server Hypervisor Edition Offers Customers Benefits beyond Server Virtualization (*cont.*)

- Follows Open Virtualization Format (OVF) standards providing these benefits:
  - The image is compressed for rapid deployment over a network.
  - Platform independent (for release 1, SUSE 10.2 is the operating system or IBM services can assist with modifying for Red Hat. Additional platforms supported in the next release coming soon.)
  - Industry standard content verification and integrity checking, and provides a basic scheme for the management of software licensing. However, if you do not purchase WebSphere CloudBurst Appliance, you would have to write the code to perform the above



## WebSphere CloudBurst Appliance Offers Everything that Server Virtualization and WAS Hypervisor Edition Offer plus:

- WebSphere Application Server systems can be deployed and ready to use in minutes vs days/weeks
- Time/cost saving examples:
  - Several common/best practice WebSphere system configurations ready to deploy out-of-box
  - Drag and drop components and/or scripts to quickly create new system configurations (“patterns”)
  - Move, deploy, config/tune a virtual system in a few clicks/seconds of effort
  - Allows management via the web (Web 2.0), Command Line, or REST APIs
  - Avoids repetitive application of fixes and other changes desired in multiple systems
- User/group security for image management functions
- Appliance form factor provides additional consumability, performance, and security



## WebSphere CloudBurst Appliance Offers Everything that Server Virtualization and WAS Hypervisor Edition Offer plus: (*cont.*)

- Automatically makes smart decisions on where to deploy images based on CPU, memory, and disk available on the servers in the cloud of resources available Cloud resource utilization monitoring and reporting
- Data on user usage of virtual systems and cloud resources for charge back
- Integration with IBM License Metric Tool for sub-capacity license tracking
- Backup/restore (of images, scripts, patterns, user security permissions,...)

There is integration with Tivoli and RAFW

