

Enabling Cloud Computing with WebSphere

Podcast Education Series

WebSphere CloudBurst Appliance – a technical overview
Ruth Willenborg, Senior Technical Staff Member, IBM



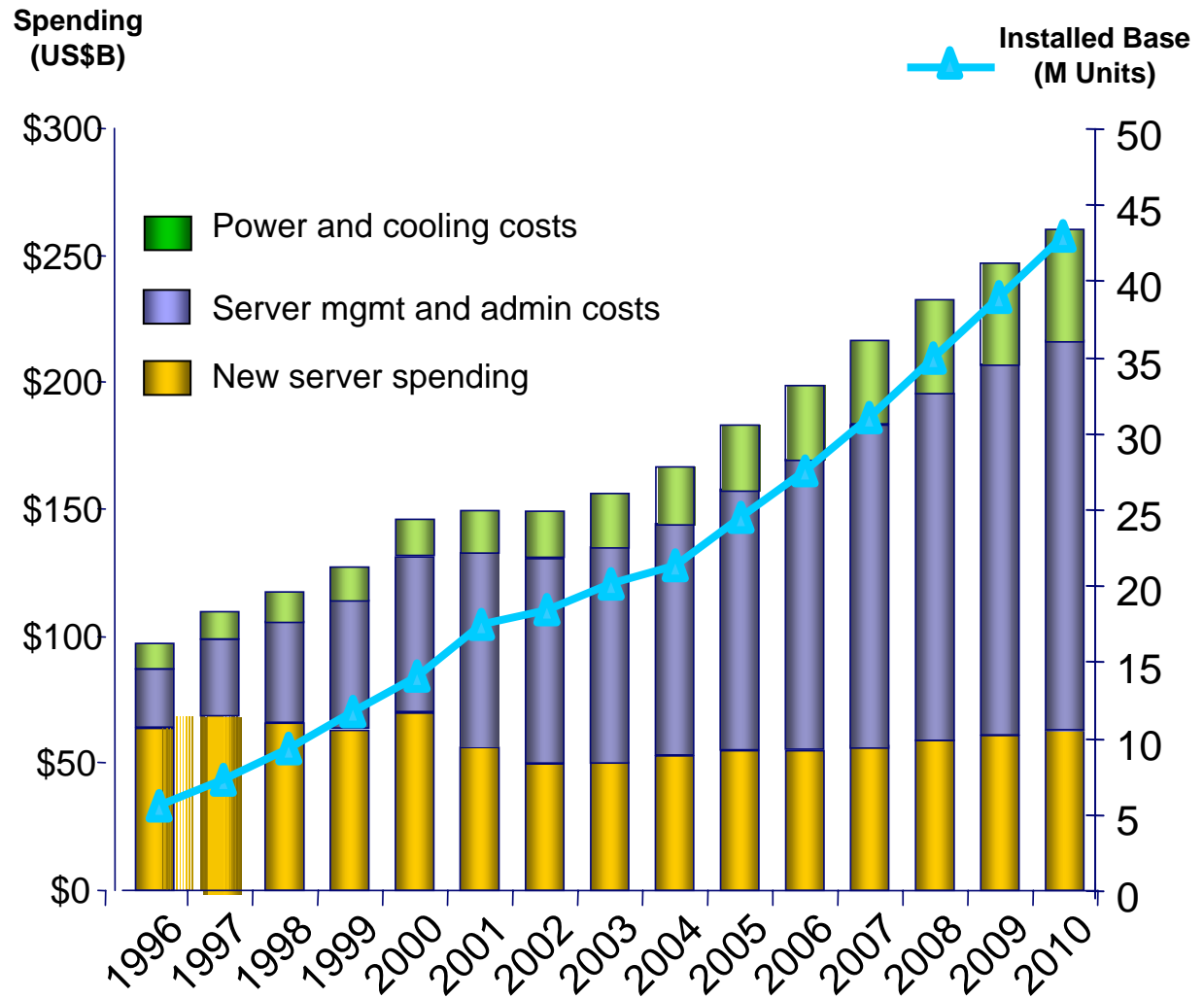
Brought to you by the Global WebSphere Community @ websphereusergroup.org

Agenda

- Overview
- Concepts
- Resources

IT costs continue to increase

- **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 months¹**
- **Server processing capacity doubling every 3 years²**
- **10G Ethernet ports tripling over the next 5 years**



Source: IDC, 2008

¹WW TB Capacity Shipped on Enterprise Disk Storage Systems

²Server processing consumption doubles every 3 years

Cloud Computing Delivery Model

Flexible Delivery Models

Public ...

- Service provider owned and managed.
- Access by subscription.
- Delivers select set of standardized business process, application and/or infrastructure services on a flexible price per use basis.

....Standardization, capital preservation, flexibility and time to deploy



Private ...

- Privately owned and managed.
- Access limited to client and its partner network
- **Drives efficiency, standardization and best practices while retaining greater customization and control**

.... Customization, efficiency, availability, resiliency, security and privacy

Hybrid ...

- Access to client, partner network, and third party resources

ORGANIZATION → CULTURE → GOVERNANCE

...service sourcing and service value

Accelerate time to value in virtualized environments

WebSphere CloudBurst Appliance

- Secure cloud management appliance
- Reduce setup time for WebSphere environments
- Codify your infrastructure for reduced risk
- Simplified maintenance and management
- Dispenses WebSphere virtual image software

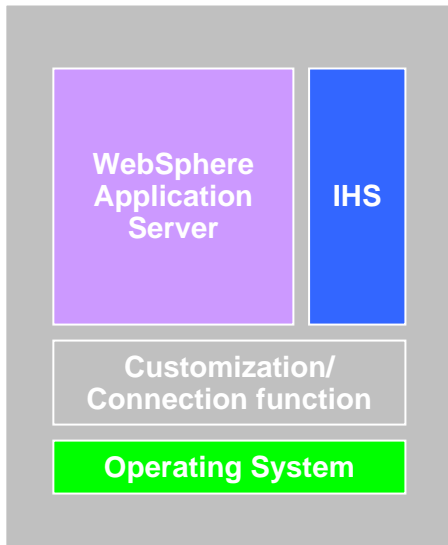
IBM Hypervisor Edition Products

- New editions of products optimized for virtualized environments
- Pre-configured, ready to run on a hypervisor
- Virtual image software supported and maintained by IBM



IBM Hypervisor Edition Products

- Shipped ready to run on a hypervisor (VMware ESX, PowerVM, z/VM)
- Open Virtualization Format standard base packaging
- No installation required (just run)
- Maintenance, support, and fixes through IBM for entire image



WebSphere Application Server Hypervisor Edition v6.1 and v7

- Single virtual image capable of supporting single servers or clusters
- Full support for WAS Feature Packs
- VMware ESX, PowerVM, zVM

WebSphere Process Server Hypervisor Edition v6.2 and v7

- Single virtual image for single server and clusters
- Pre-configured database
- VMware ESX and PowerVM

WebSphere Portal Hypervisor Edition v6.1.5

- Single virtual image for single server and clusters
- Pre-configured database

DB2 Enterprise virtual image

What is WebSphere CloudBurst?

1. An appliance from IBM...

Includes

- hardware
- WebSphere CloudBurst function
- WebSphere Application Server images
- WebSphere Application Server patterns

Users and Groups OVF images Patterns and Scripts

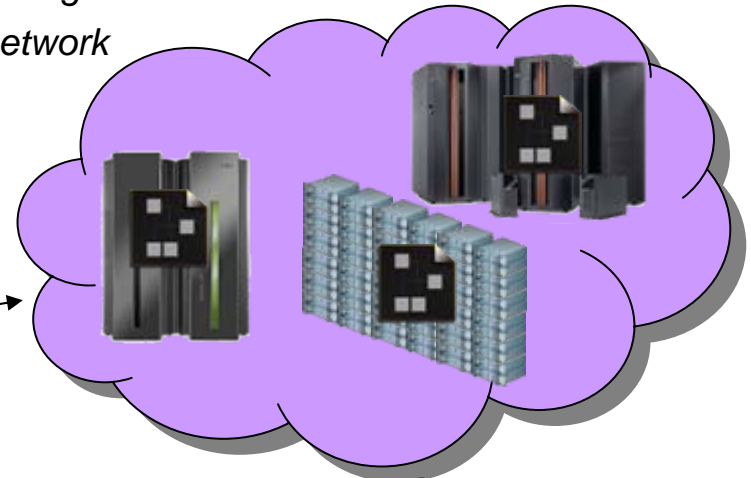


Web 2.0 UI, CLI, and REST APIs

2. ...that manages your on-premise cloud...

Bring your own Enterprise cloud

- Hypervisors (VMware, PowerVM, zVM)
- storage
- network



3. ... comprising WebSphere Virtual Systems

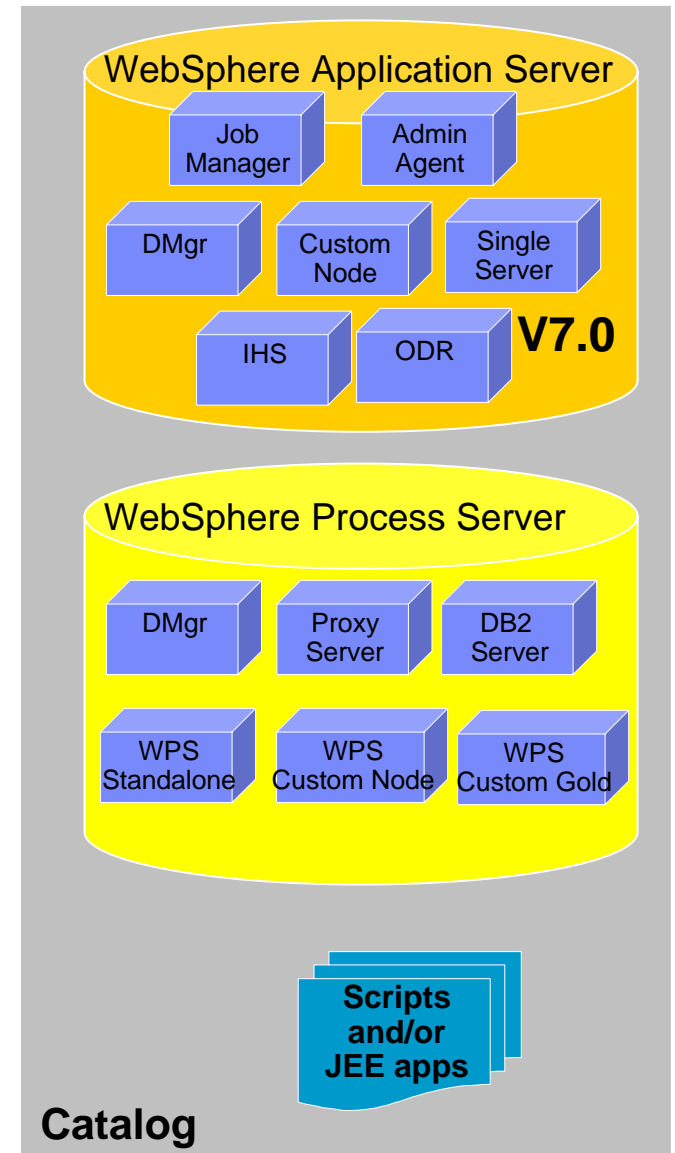
- Customize and extend images and patterns for your applications
- Dispense and run in the cloud
- Life-cycle management and optimization

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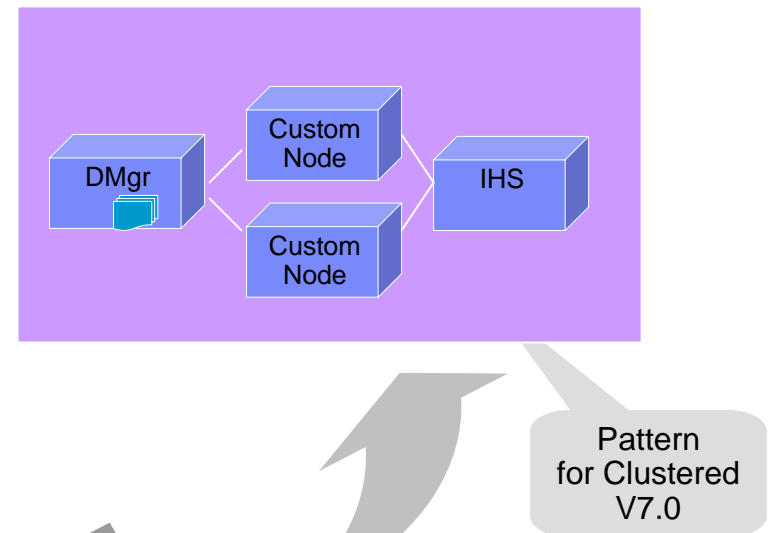
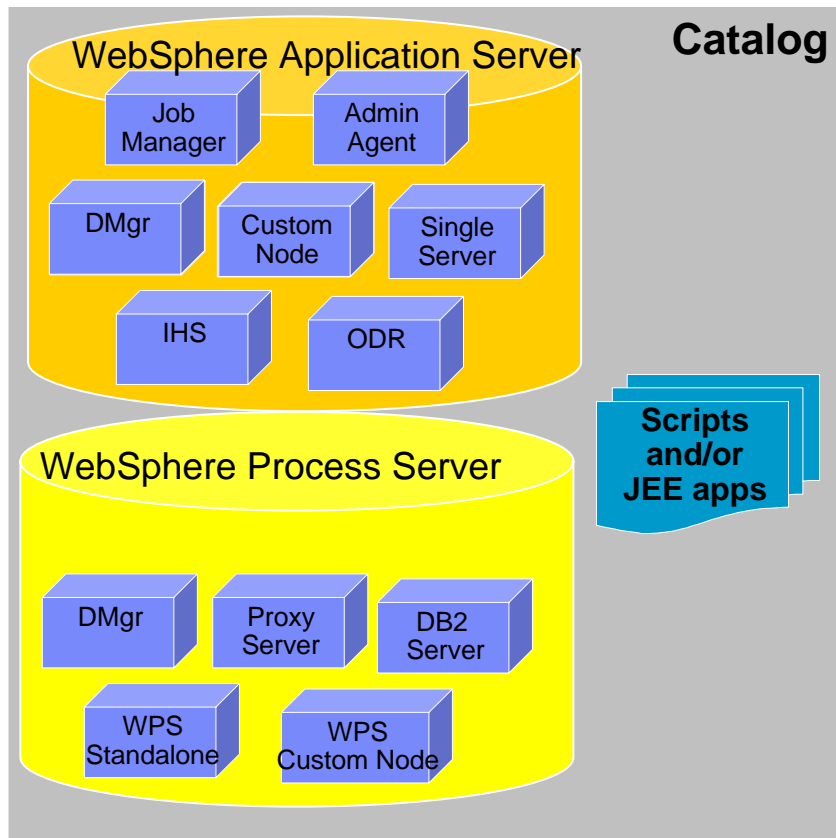
Catalog

- IBM provided Virtual Images
 - WebSphere Application Server Hypervisor Edition (V6.1, V7.0)
 - WebSphere Process Server
 - WebSphere Portal Server
 - DB2 Enterprise
- User supplied Script packages
 - wsadmin or other scripts
 - JEE applications



Patterns

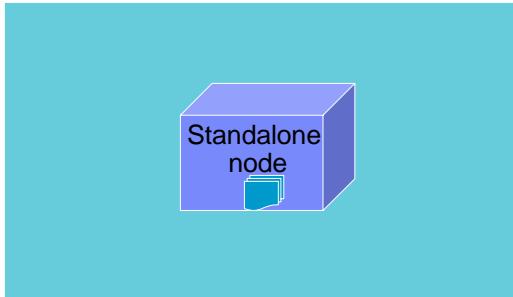
- Pattern is one or more virtual images and script packages from the catalog to satisfy a certain deployment topology
- Example: Creating pattern of WebSphere V7.0 Clustered topology



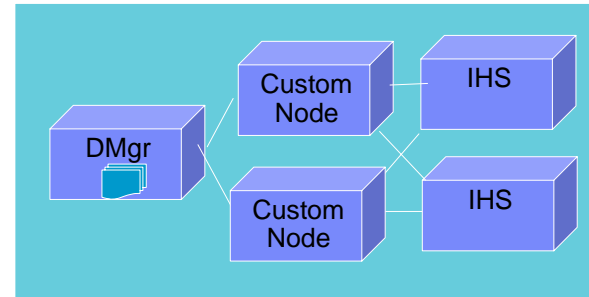
Create Pattern from components available in Catalog

Example Preloaded WebSphere Application Server Patterns

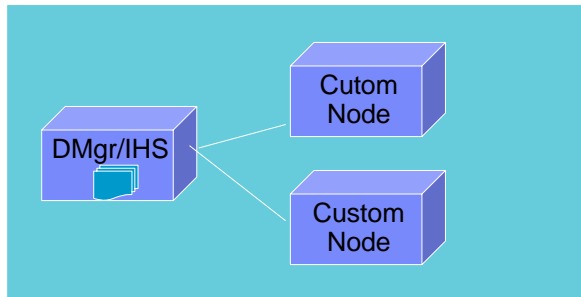
Single Server



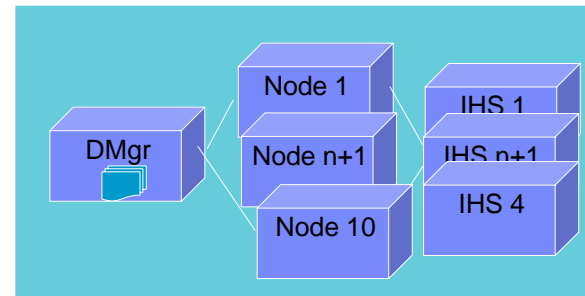
WebSphere cluster



WebSphere cluster (dev)



WebSphere cluster (large)



Advanced Options for messaging, session persistence, and global security available

WebSphere Process Server patterns

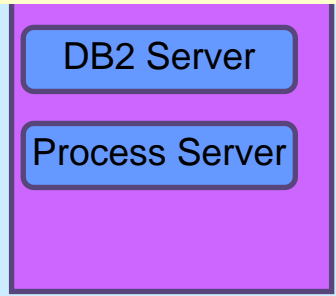
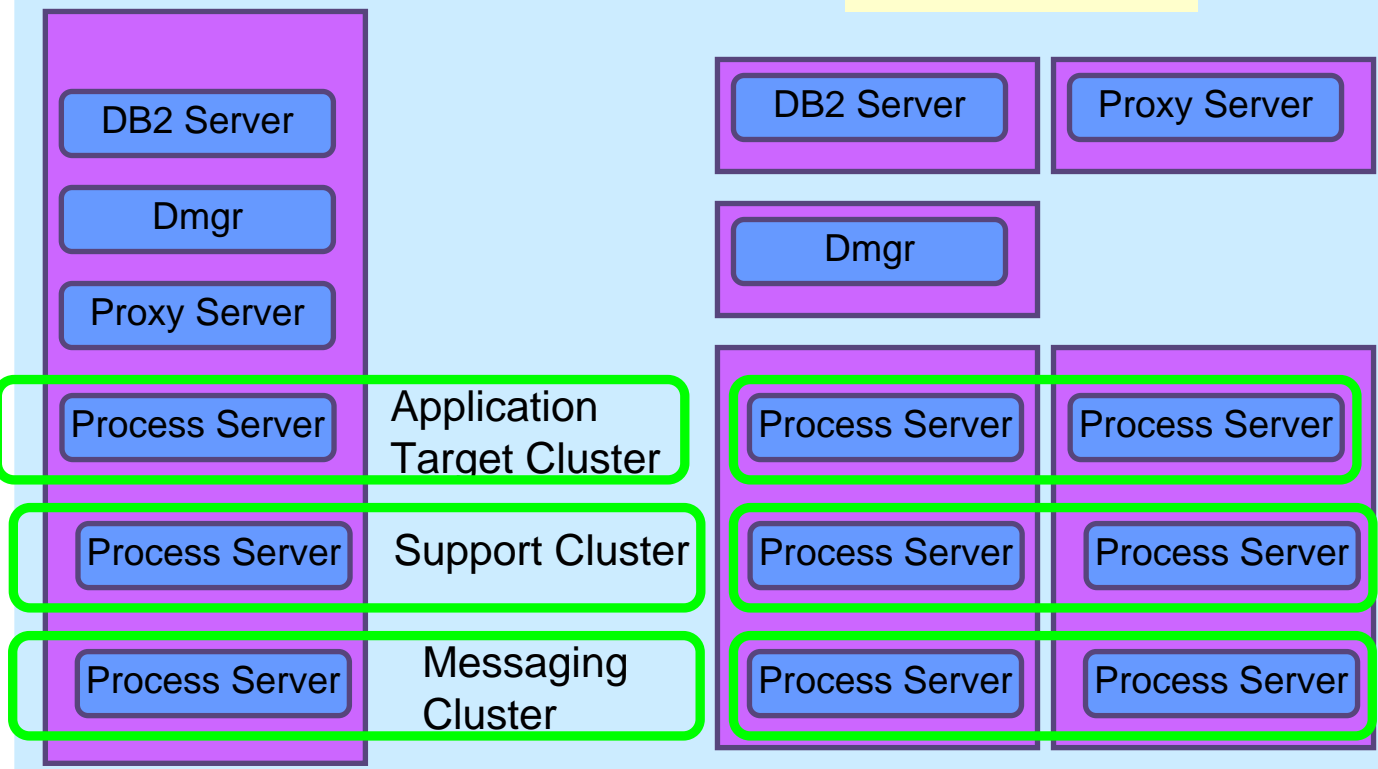
Remote messaging, remote support Process Server deployment pattern

Single Machine
Simulated scalable

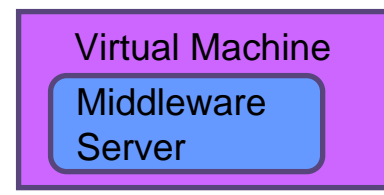
Five machines,
scalable

Stand Alone

Single Java
Virtual Machine
(JVM)

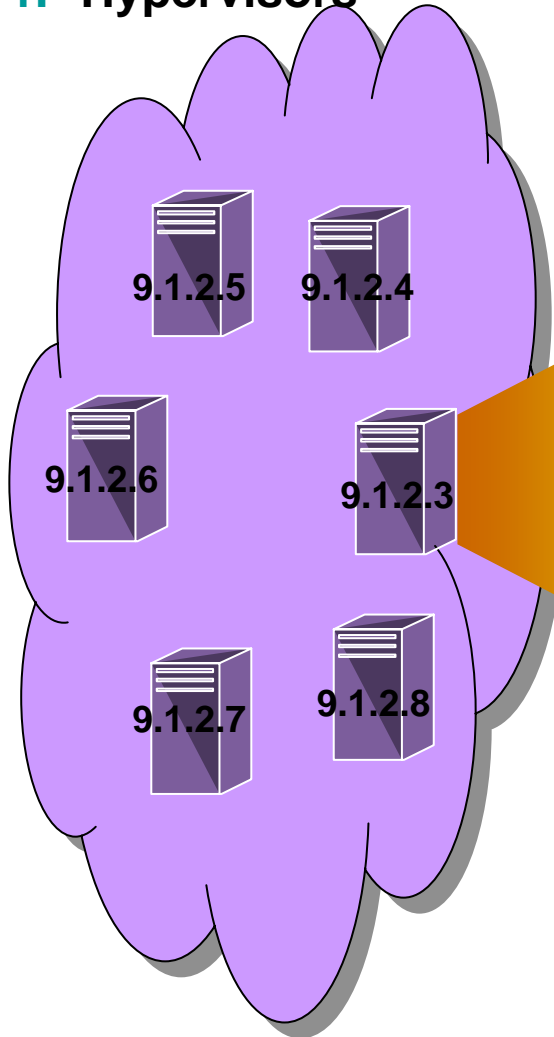


Key



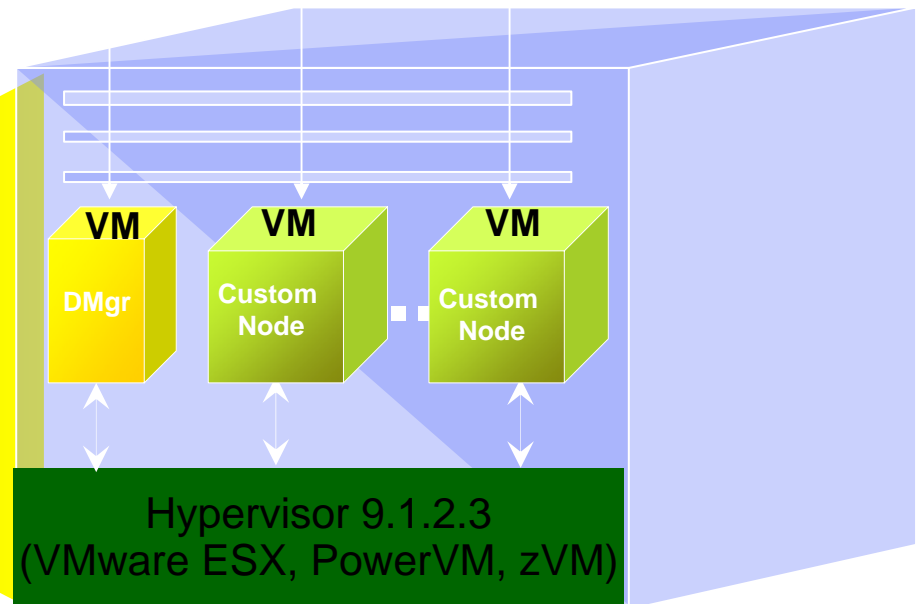
Bring your own private cloud

1. Hypervisors



3. IP Address Pool

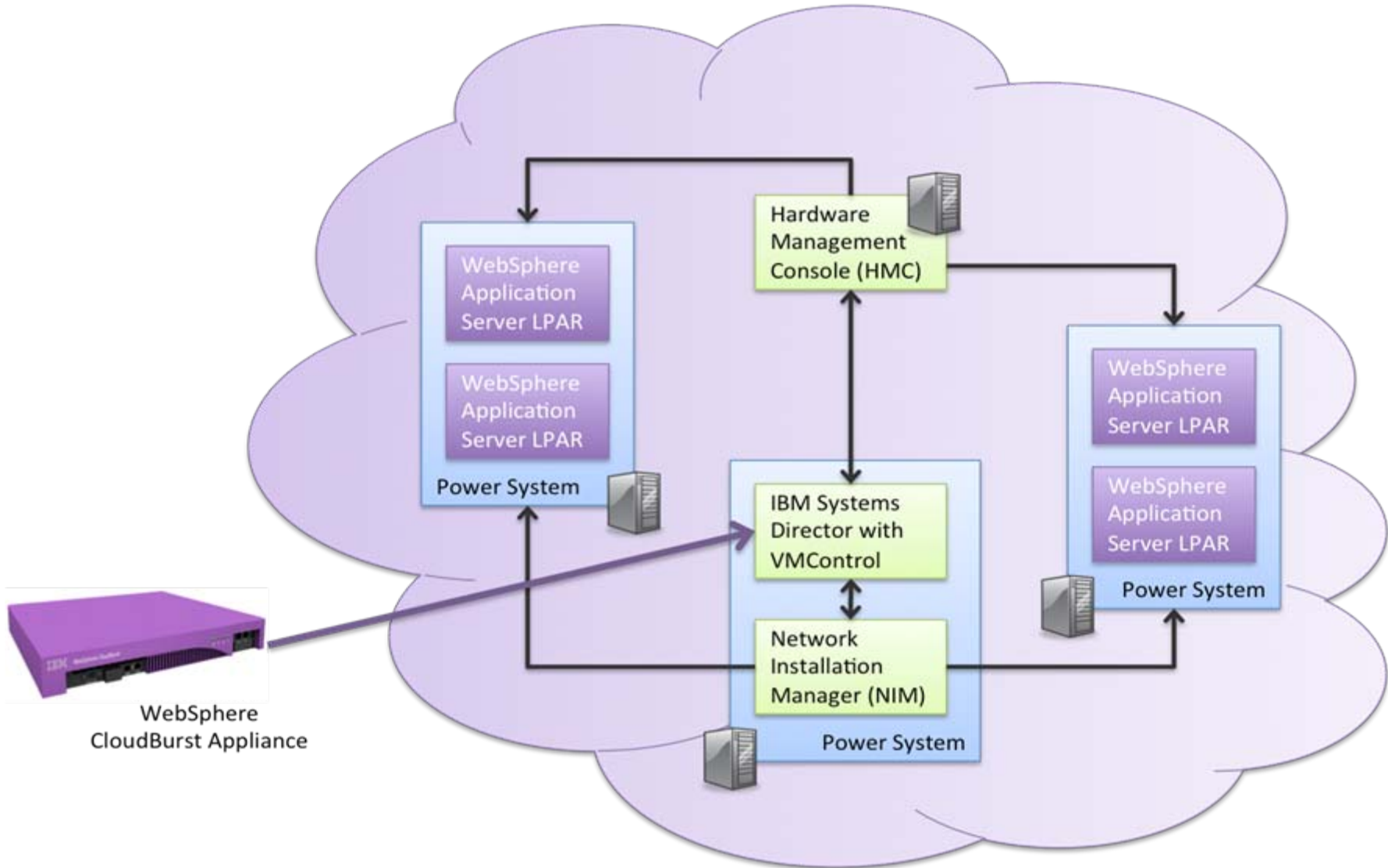
- 172.1.2.3
- 172.1.2.4
- 172.1.2.5
- 172.1.2.6
- 172.1.2.7
- 172.1.2.8



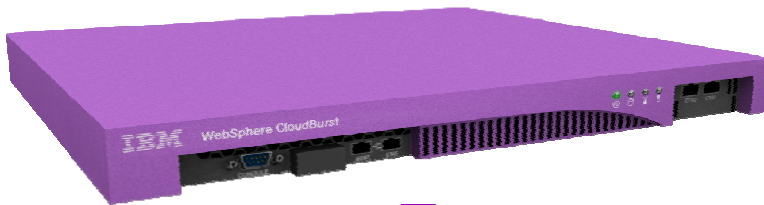
2. Storage



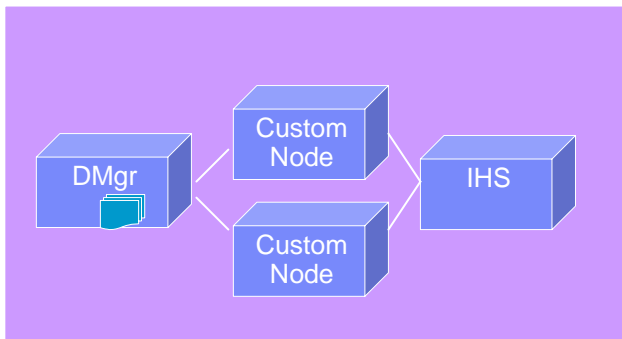
WCA with PowerVM Scenario



From Pattern to Virtual System

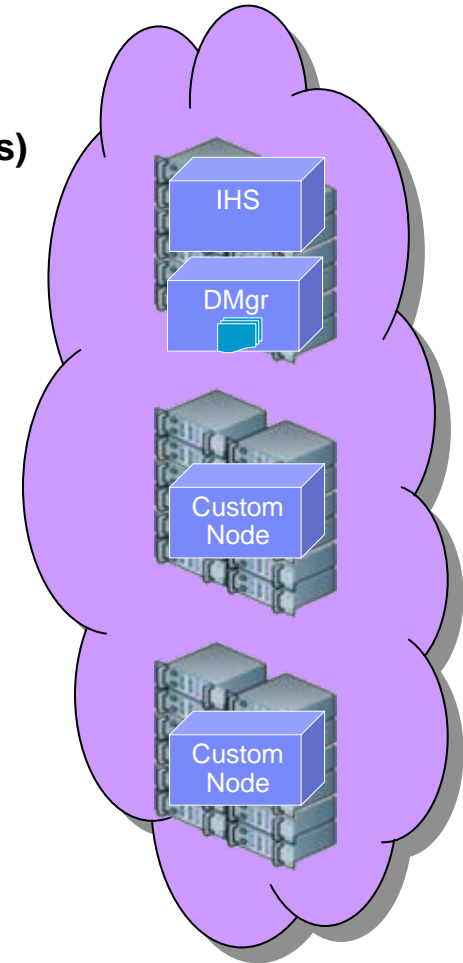


1. Choose hypervisor(s)
2. Create virtual machines
3. Inject IP addresses
4. Start VMs and WebSphere
5. Run scripts

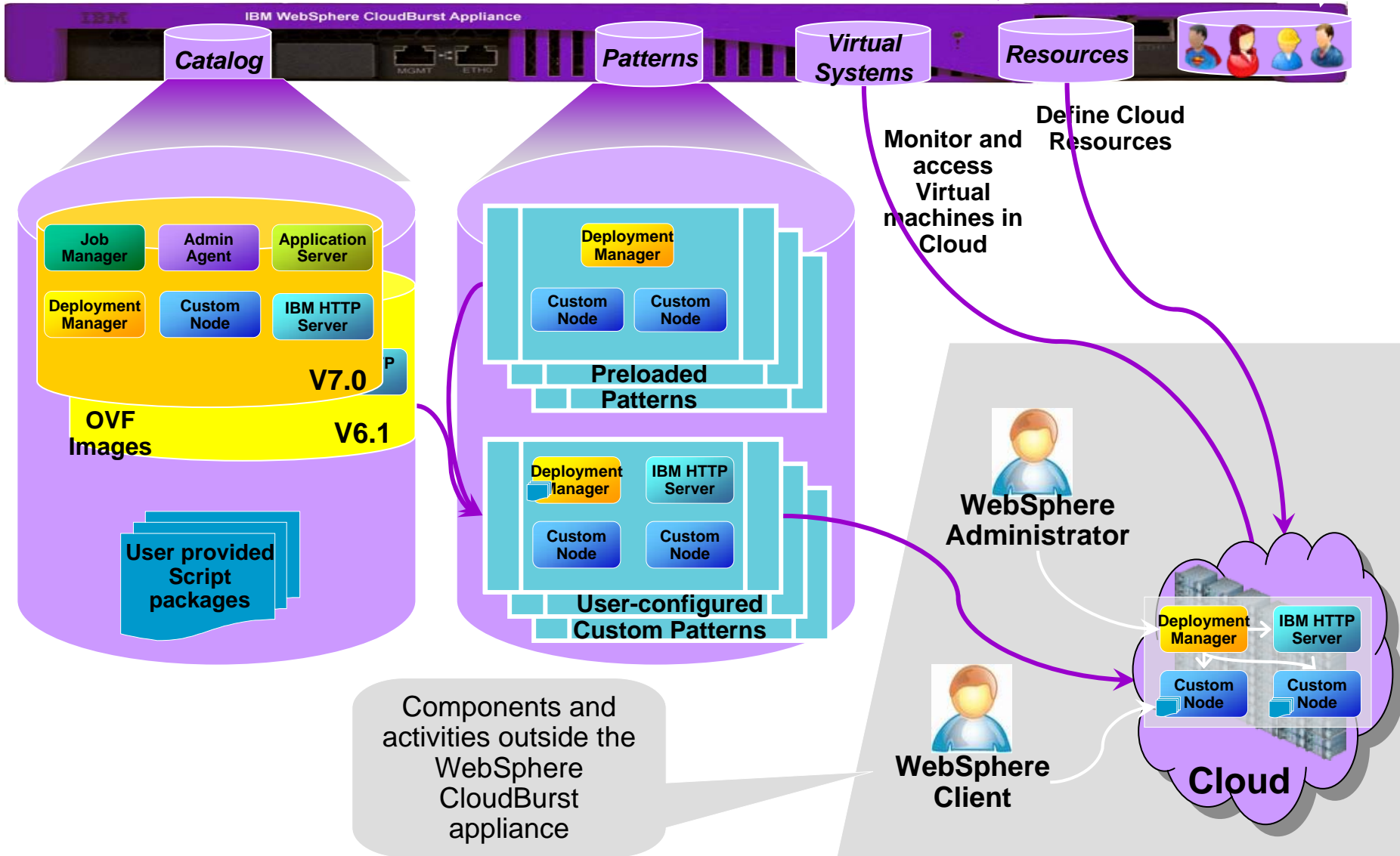


Placement of Virtual Images

Pattern



Bringing it all together

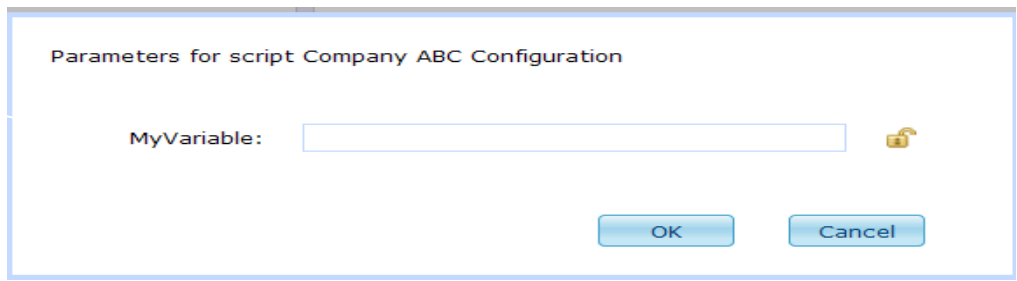
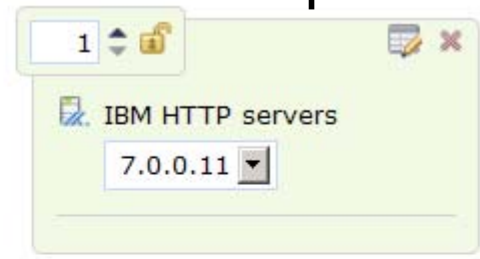
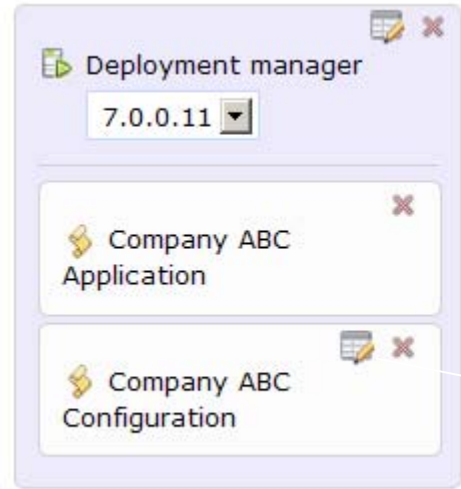


Opportunities for customization

1. Within the Image (Extend/Capture)



2. Within the pattern



3. With script packages and parameters

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WebSphere CloudBurst Releases



Appliance

- VMWare ESX support
- Predefined patterns for clustering, HA, messaging deployments
- Maintenance and update

- PowerVM support
- z/VM hypervisor support (1.1.1, March 2010)
- Import/Export for patterns and images
- VMware Virtual Center integration

- Multi Image Pattern Composition
- Elasticity
- Intelligent management
- License Awareness
- New Predefined Patterns for advanced features
- SNMP support

Downloadable Virtual Images

- WebSphere Hypervisor Edition V6.1 and V7
- SUSE Linux 10.2(VMware)

- WebSphere Hypervisor Edition V6.1 and V7 with AIX 6.1.2 for PowerVM
- SLES 11 zLinux (1.1.1)
- DB2 Enterprise trial (VMware)

- WebSphere Application Server Hypervisor Edition Intelligent Management Pack
- WebSphere Application Server Hypervisor Edition V7.0 with RedHat Enterprise Linux V5 (VMware)

- Portal (Beta) – Jan 2010

- WebSphere Process Server (VMware, AIX)
- WebSphere Portal Server (VMware)-Aug 2010

- Rational Automation Framework for WebSphere (RAFW) and BuildForge integration

- Rational Software Architect Integration
- IBM CloudBurst 1.2 and Tivoli Service Automation Manager 7.2 integration

- Community script repository
- Enhanced integration with Rational products

IBM Lab Use Case Scenario

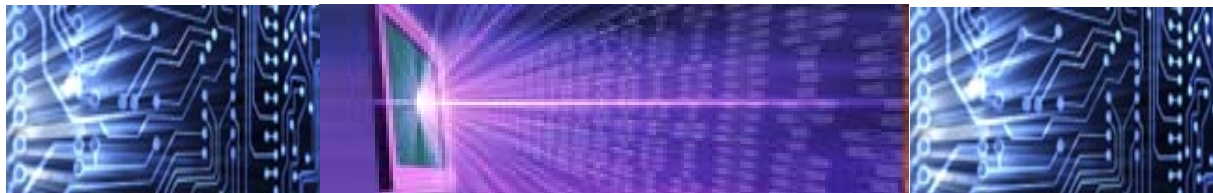


Industry Pains

- 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 12 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







\$500K in direct savings, **\$2.1M** in enabled efficiency gains through Agile development practices in the first year of deployment

WebSphere CloudBurst Samples Gallery

- **Free** sample code to speed up your adoption path
 - Sample script packages for common configuration actions
 - Sample CLI scripts for useful automation tasks
- **Go there now!** <http://bit.ly/wcaSamplesGallery>

 <p>Construct a full WebSphere Application Server Cell in a single virtual machine</p> <p>Details Download</p>	 <p>Configure a data source for the WebSphere Application Server</p> <p>Details Download</p>
 <p>Install an application on WebSphere Application Server</p> <p>Details Download</p>	 <p>Set custom properties on a WebSphere Application Server instance</p> <p>Details Download</p>

 <p>Parse an ATOM feed to create new script packages and patterns</p> <p>Details Download</p>	 <p>Deploy and integrate DB2 and WebSphere Application Server instances</p> <p>Details Download</p>
 <p>Apply upgrades to all your virtual systems</p> <p>Details Download</p>	 <p>Print an inventory of your virtual systems</p> <p>Details Download</p>

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://bit.ly/wcaYouTubePlaylist>
- WebSphere CloudBurst articles
 - [Cloud computing for the enterprise, Part 3: Using WebSphere CloudBurst to create private clouds](#)
 - [Customizing with WebSphere CloudBurst, Parts 1-5: Creating highly customized private clouds](#)
 - [Managing your private cloud: Introducing the WebSphere CloudBurst Appliance command line interface](#)

Summary: What does WebSphere 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

