IBM
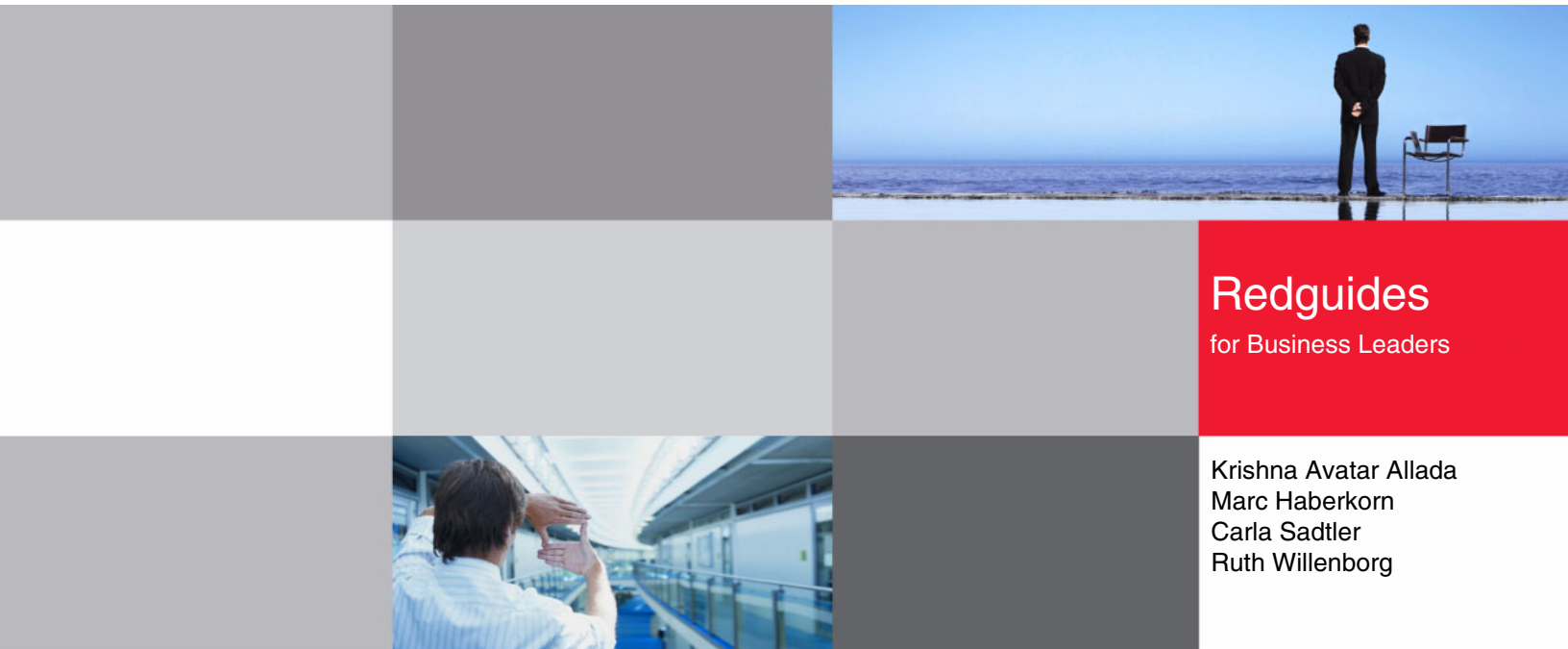
Rapid WebSphere Application Server Provisioning with WebSphere CloudBurst Appliance

Redguides
for Business Leaders

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- Deploy new WebSphere Application Server environments faster

- Ensure new systems are consistent and compliant

- Drive down operational costs

Redbooks

IBM WebSphere CloudBurst Appliance

This IBM® Redguide™ publication provides a high level overview of the new IBM WebSphere® CloudBurst™ Appliance, including current issues being faced in the information technology (IT) industry and how WebSphere CloudBurst can address many of these issues.

Executive overview

Cloud computing is a concept that describes the pooling of computing resources in a "cloud" to provide a single source of computing power to multiple users. The cloud manager provides a self-service deployment interface that maintains permissions, information about cloud artifacts such as virtual images and patterns, and resource usage (for chargeback).

The WebSphere CloudBurst Appliance is a secure hardware appliance that represents such a cloud manager. It optimizes the configuration, deployment, and management of WebSphere Application Server environments in a cloud. While the WebSphere CloudBurst Appliance is targeted for private or on-premise cloud computing environments, it can also be used by service providers providing hosted public clouds and software-as-a-service environments to simplify and standardize repeated deployments of their software.

WebSphere CloudBurst Appliance is part of a powerful and comprehensive set of cloud computing and virtualization solutions for intelligently deploying and managing service-oriented architecture (SOA) applications, services, and environments to achieve smarter business outcomes. These solutions deliver robustness and agility to enable applications to adapt to changing market conditions while lowering costs.

The issues facing businesses today

IT costs are continually increasing, often due to higher administration and operation costs, and from low utilization of servers that are consuming valuable space and power. These trends have increased the interest in the IT industry to use improved management and server consolidation capabilities as the means to reduce these costs.

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The need for a consolidated infrastructure extends to the IBM WebSphere environments within the data center. Like other applications, current WebSphere environments, particularly development and test, often span many different servers, all running at low utilization. This inefficient use of resources can lead to higher power and space costs than necessary.

Reducing operational cost is perhaps an even more significant concern. Much of the administrative cost in an IT environment is driven by the amount of work involved in designing, installing, configuring, and maintaining solutions composed from different software components. For example, administration of a WebSphere solution includes installing, configuring, and applying patches to operating systems, middleware, and application software across multiple servers, and that is assuming hardware is available. A faster, more repeatable process to get WebSphere Application Server environments up and running is needed.

Is WebSphere CloudBurst right for you?

When considering WebSphere CloudBurst for your enterprise, consider your responses to the following questions.

► From "determination of need" to "running application," how many people have to move to get an application environment running? Would you like to reduce this number?

► Does your test team spend too much time preparing and destroying environments? Would you like to streamline this process?

► Does your environment experience virtual machine sprawl because resources are not relinquished? Would you like to take better control of your resources?

► Do bugs come out late in your development cycle due to inconsistencies between development and test, QA, and production? Would you like to establish consistency across the life cycle?

► Is your infrastructure team's productivity hindered by process? Would you like to simplify processes while introducing consistency and efficiency?

The answers to these can help you understand the value that WebSphere CloudBurst can bring to your IT operations.

What WebSphere CloudBurst can do for you

WebSphere CloudBurst (Figure 1 on page 3) is a self-service cloud management device that delivers immediate return on investment through decreased labor cost to IT operations and increased hardware utilization. It is a new class of hardware appliance that sits in a data center, dispensing WebSphere Application Server topologies into an external pool (cloud) of virtualized hardware, which must be provided by you.
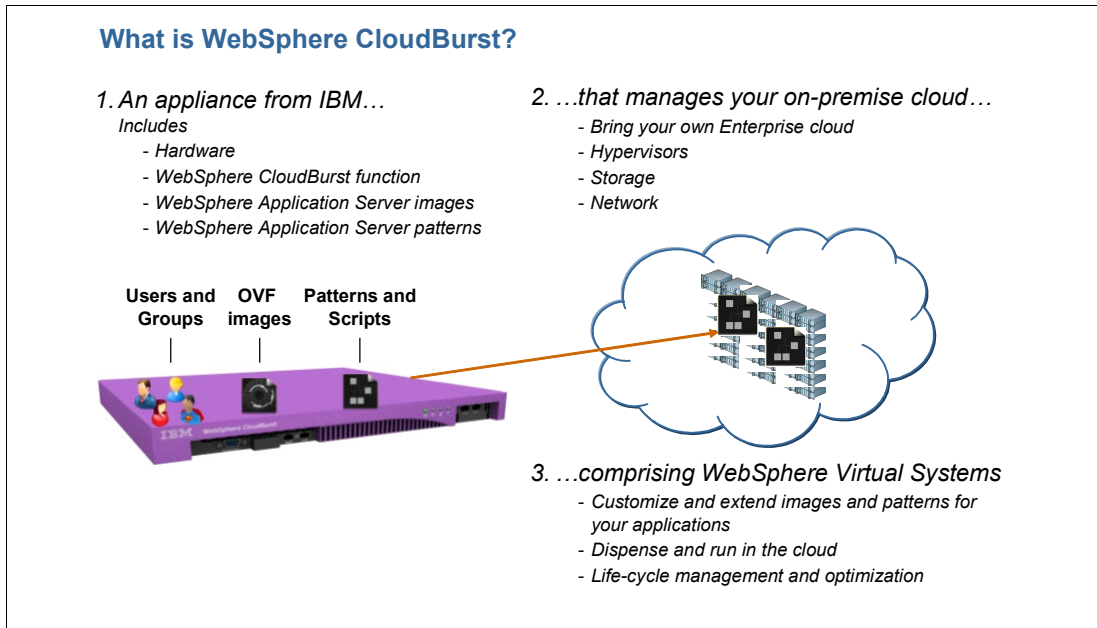
What is WebSphere CloudBurst?

1. *An appliance from IBM…*
   Includes
   - *Hardware*
   - *WebSphere CloudBurst function*
   - *WebSphere Application Server images*
   - *WebSphere Application Server patterns*

2. *…that manages your on-premise cloud…*
   - *Bring your own Enterprise cloud*
   - *Hypervisors*
   - *Storage*
   - *Network*

Users and Groups   **OVF images**   **Patterns and Scripts**

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*

Figure 1   What is WebSphere CloudBurst?

WebSphere CloudBurst Appliance helps you easily and quickly develop, test, and deploy business application environments, ending the use of manual, complex, and time intensive processes associated with creating application environments. Its role is to deploy and monitor runtime environments. Once the topology is deployed using WebSphere CloudBurst, the users and administrators connect directly to the deployed WebSphere environments.

The WebSphere CloudBurst appliance does not play any role in the operations and running of the deployed WebSphere Application Server environments. As such, it is not in the critical data path for a particular environment, once that environment is running. At the end of a reservation, resources are automatically returned to the shared resource pool and logged for internal chargeback purposes.

WebSphere CloudBurst Appliance brings together pre-configured WebSphere Application Server Hypervisor Edition virtual images and patterns of WebSphere application environments that are based on more than 10 years of experience. WebSphere CloudBurst understands the software it manages, and as such, does not treat it as a black box. This means that more can be done toward the goal of removing manual labor and administrative cost from IT operations, when compared to more general purpose competition. For example, WebSphere CloudBurst not only stands up individual instances of IBM software products, but configures them to communicate and work together. It is also able to apply IBM-provided fixpacks to operating systems or middleware that have been dispensed into the cloud.

WebSphere CloudBurst allows you to use existing hardware in your datacenter as the cloud into which WebSphere CloudBurst deploys its patterns. This hardware must be running a supported hypervisor (for example, VMware® ESX or ESXi). A hypervisor is a software virtualization program that provides a layer of abstraction between operating systems and physical resources on a machine. This abstraction enables multiple operating systems and application stacks to run on a single physical resource, enabling higher levels of resource utilization.

Improve consistency and compliance across deployments

Without central management of runtime environments, you often find that within an organization each person or department supplies their own unique environment and configuration. This can lead to excessive time spent in building, deploying, and maintaining these systems across the departments. It can also lead to unpredictability in runtime performance and compliance.

WebSphere CloudBurst allows you to simplify the maintenance and management of complex environments. It allows you to establish a catalog of virtual images and patterns that provide the basis for the systems. Users can leverage artifacts in this catalog either as the precise environment they need, or as the basis for further customization (depending on configured permissions). This ensures consistency across deployments by reducing the number of configurations and by driving compliance to company standards. It also reduces the number of configurations that have to be maintained.

Deploy and update systems faster and more efficiently

Building new systems can be involved, and when done manually, can be a slow process that is prone to error. The steps include installing and customizing the operating systems, installing the middleware and bringing it up to current maintenance levels, and building and customizing the WebSphere topology. This can take days or even weeks depending on the number of systems and the complexity of the configuration. Deploying applications to those systems can also take significant time.

With WebSphere CloudBurst, new runtime environments can be defined quickly by using existing virtual images and patterns. The virtual images can be used as is, or can be extended and customized for your unique deployment needs. WebSphere CloudBurst dispenses WebSphere virtual image software that is pre-installed, configured, optimized, and ready to run. Dispensing the systems to the cloud can be done quickly and efficiently, with the appliance ensuring that hardware resource usage is optimized. Each organization has control over customizing and dispensing the systems, leading to a more efficient process with less human resources required.

Not only does WebSphere CloudBurst allow organizations to build and deploy systems faster, the repeatability of the process can significantly reduce the risk of errors in the configuration and deployment.

Drive down costs

WebSphere CloudBurst can help to significantly drive down the cost of IT. By eliminating many of the tasks required to build, deploy, and manage the resources for a WebSphere environment, you can greatly improve the efficiency of your IT staff. With low to no touch deployment, administrators that were maintaining a few servers, can increase the number of servers they control.

Making it possible to consolidate and use existing hardware resources efficiently can reduce the number of servers required. Servers that traditionally ran at low utilization rates now run at higher rates. This has advantages in both the cost of hardware and in the cost of the space, energy, and cooling requirements to run that hardware.

Due to WebSphere CloudBurst's unique ability to understand the software it is dispensing, it can remove more manual cost than general purpose alternatives, by going farther than just installation.

Maximize resources across departments

IT organizations realize the advantages of reducing hardware expenditures by allowing multiple organizations to consolidate resources. This can mean moving individual development and test machines into a common pool. Until they see the benefits of this new model, organizations are often reluctant to give up exclusive control of their hardware. Security, user/group/permissions, and usage tracking mechanisms for chargeback purposes exist in WebSphere CloudBurst to help ease this initial reluctance. Some detail on these mechanisms is given next.

All the credentials for shared resources in the cloud are kept on encrypted flash inside the appliance. The appliance is tamper-resistant. If someone tries to get inside the appliance, it will not work anymore. The images are all encrypted on the appliance. The management capabilities allow for segmenting the cloud by organization, and also provide fine-grained access control to images, patterns, and scripts so that organizations have full control over who can see and use assets within or across organization.

WebSphere CloudBurst allows a self-service model. Self-service can also be chaos without proper controls. While the development, test, and production departments prefer a self-service model of building WebSphere environments for quick turn-around, the IT department will understandably have concerns with losing control, non-compliance, and other aspects of managing IT resources. The WebSphere CloudBurst roles and permissions model facilitates self-service access while controlling what is

dispensed and by whom. Roles restrict who can create and modify images, patterns, and scripts. For example, you can have folks who can dispense environments but they cannot change the image that is dispensed. Permissions allow fine-grained control to specific images, patterns, and scripts. For example, production HR patterns could not be accessed by anyone other than the HR operations team. This combination of security mechanisms allow the company to lock down WebSphere CloudBurst to only dispense approved, compliant images and patterns.

Optimize performance, hardware, and infrastructure

WebSphere CloudBurst Appliance uses real-time performance data for CPU, memory, and storage to make placement decisions to optimize the overall performance of the cloud. In addition, WebSphere CloudBurst is aware of both the virtual machines and the underlying physical servers and will place WebSphere cells to maximize both performance and availability. For example, custom nodes will be spread across physical servers to avoid single point of failure from the underlying physical server.

Establish reporting for charging users

Cloud computing is often associated with pay-for-use pricing structures. To achieve this, of course, cloud resource usage must be tracked and reported. WebSphere CloudBurst provides statistics about cloud usage that support chargeback in the enterprise. For each user within WebSphere CloudBurst, administrators can retrieve information about their virtual machine usage and CPU, memory, and IP utilization rates. All of this information can be viewed within the WebSphere CloudBurst console or it can be downloaded into a spreadsheet.

In addition to resource usage by user, WebSphere CloudBurst also provides information about the usage of the cloud's resources. The utilization rates of physical and virtual CPU and memory usage, IP usage, and storage usage are all available in the WebSphere CloudBurst console.

Why an appliance?

The WebSphere CloudBurst Appliance is a purpose-built, optimized set of hardware and firmware. As shown in Figure 2, this form delivers a number of benefits that go beyond what can be done with off-the-shelf parts.
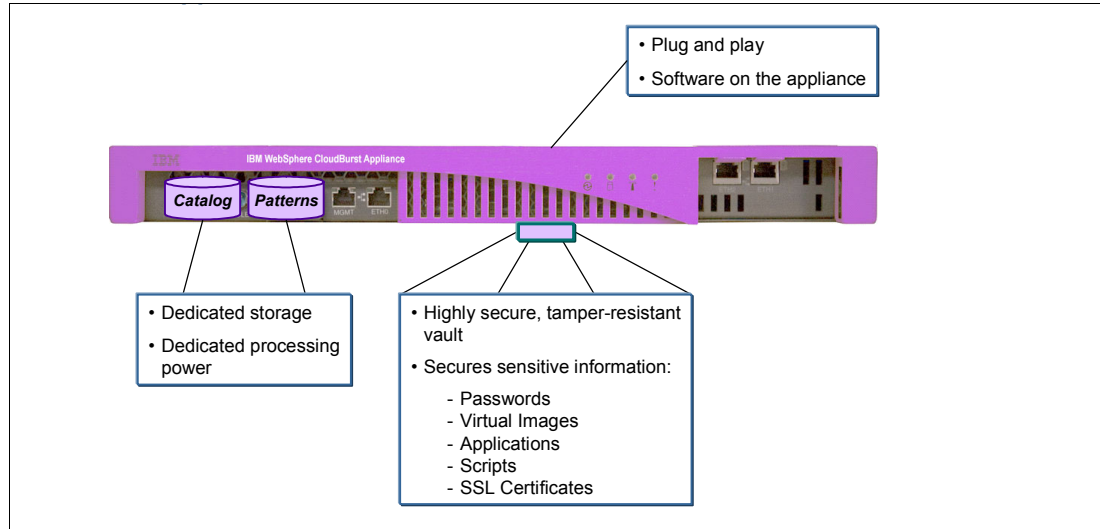

Figure 2   Why appliance form?

Advanced security assurance: Restricting access

The WebSphere CloudBurst Appliance is able to provide unparalleled security features because it is a pre-integrated set of hardware and software.

► The appliance is physically tamper resistant. It has tamper resistant screws and will not reboot if opened.

► The only access is through the WebSphere CloudBurst Appliance Web user interface, the command line interface (CLI), or the REST interfaces. There is no shell. This protects against many security threats or user errors that would be exposed through a standard OS in a non-appliance form factor.

► The appliance contains only the software and services that are required for function. This ensures that vulnerabilities are not exposed by non-critical software.

► The appliance software is controlled. Therefore, it can ensure that no entrusted software is run on the appliance. This eliminates many threats or errors that could be introduced by non-certified software.

► The appliance encrypts all drives with keys that are physically tied to the hardware. Encryption keys used for VM management are also protected on encrypted internal flash drives. This level of assurance would be difficult, if not impossible, on a non-integrated hardware/software platform.

More efficient storage

Storage is a valuable resource in this appliance, and maximizing the efficiency of its use is quite important. One fact of life that must be dealt with is that virtual images are generally large. Combine this fact with the frequent need to extend and re-capture images, and there is a clear need to streamline the storage of image customizations. The storage driver on the WebSphere CloudBurst Appliance does this. When an image is loaded into the appliance, it is "shredded" into parts by the storage driver. When an image is later customized and re-loaded into the appliance, it is similarly shredded in a consistent and deterministic way. These

collections of image shreds are then compared, and only the new or modified ones are stored. The impact on overall storage utilization is significant. This can only be achieved in the controlled environment of the appliance.

Quick time to value: A shorter runway to an optimized configuration

As a purpose-built pre-integrated appliance, the WebSphere CloudBurst Appliance includes only the necessary firmware, including an embedded operating system, which is tuned for the appliance hardware and patented image management functionality. The setup time is vastly quicker than trying to install and assemble the individual components. The appliance can be racked along side the hardware resources it will be controlling, configured, and ready for doing deployments much more quickly than the alternative scenario of finding the right hardware, installing the software, configuring the software, and so forth. Additionally, you need not be concerned with having the correct hardware (network, hard drives, flash drives, and so forth), firmware, middleware, and applications to support the function. WebSphere CloudBurst Appliance enables the solution to be assembled more quickly, run more efficiently, and behave more predictably.

Lower total cost of ownership: Less complexity, maintenance, testing

The management expense of the appliance is much lower because it is a single entity. Frequently, other servers must have firmware, OS, middleware, or applications updated. Those updates may have dependencies on other components. Conflicts occur. This becomes a time-consuming and expensive process to manage. With a single appliance, with single updates, this expensive process is eliminated and requires less skill. Also, the solution has been fully tested, including function and performance.

WebSphere CloudBurst: Simple to use and highly customizable

As depicted in Figure 3, the steps to implement WebSphere CloudBurst are simple.
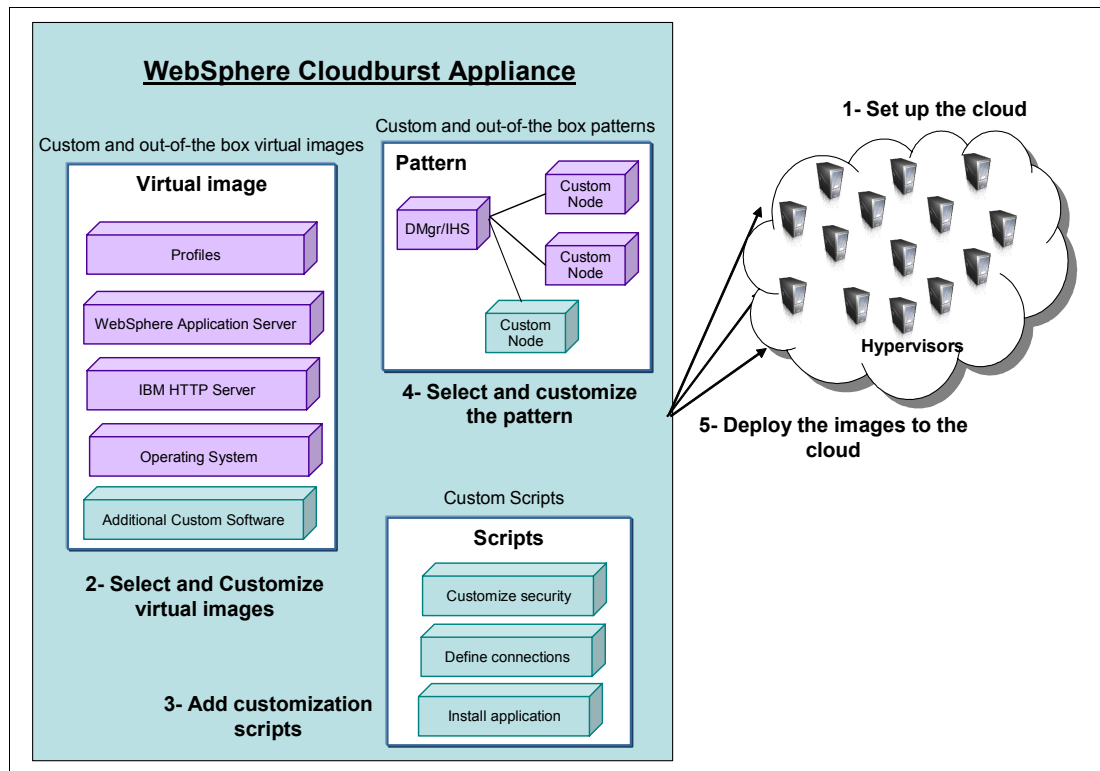

Figure 3   WebSphere CloudBurst technology

The following steps outline the process used to implement WebSphere Cloudburst:

1. Identify the hardware, hypervisors, and networking for the cloud.

2. Select and customize virtual images.

3. Add script packages to customize the deployed WebSphere Application Server environment.

4. Use pre-loaded or customized patterns to describe the WebSphere Application Server topology to be deployed. Drag-and-drop technology allows you to build patterns from virtual images easily.

5. Deploy virtual systems to the cloud with a push of a button.

Each step is made easy in WebSphere CloudBurst, with pre-loaded images and patterns to work from, drag-and-drop technology to help you build the components, and one click deployment.

Virtual images

The WebSphere CloudBurst appliance provides virtual images that are immediately available for use or can be customized. The images are WebSphere Application Server Hypervisor Edition images, a packaging of IBM WebSphere Application Server that is optimized for virtual environments. With the WebSphere Application Server Hypervisor Edition, users get a pre-installed operating system, WebSphere Application Server, and HTTP server. These virtual images are used by the appliance to create virtual machines for deployment into the cloud.

Virtual images follow the Open Virtualization format (OVF) specification, which is an industry standard specification for packaging and distribution of virtual appliances containing one or more virtual machines. Using OVF provides benefits in providing a standard mechanism to communicate virtual machine resource requirements to different hypervisors. In addition, OVF standardizes the mechanism to pass parameter information into a virtual machine.

Patterns

WebSphere CloudBurst uses patterns to define the WebSphere Application Server topology for deployment. WebSphere CloudBurst includes pre-configured patterns based on years of WebSphere best practices. These patterns have been hardened and tuned to ensure high-performing WebSphere environments. These patterns can be used as-is, or can be cloned and customized.

Patterns are similar to templates that can be used to deploy on the cloud. Each virtual image in the pattern is deployed as its own virtual machine into the cloud. A pattern that has been deployed is called a virtual system.

WebSphere CloudBurst is said to be middleware aware as it has knowledge of how to dispense each pattern, including how properly to bring infrastructure online and initialized. For instance, WebSphere CloudBurst can recognize that an application is to be dispensed through a deployment manager as opposed to individual nodes in a cluster. It understands the relationship between the clustered nodes and the DMgr.

Once a pattern has been created in the WebSphere CloudBurst appliance, the pattern can be reused to create multiple identical WebSphere environments in the cloud. Just as with the custom images, these custom patterns are stored on the appliance, and can be reused as necessary to ensure consistent, repeatable WebSphere environments.

Deployment

An administrator dedicates a set of the data center servers to the cloud. This cloud of servers will be used by WebSphere CloudBurst as the pool of machines into which it dispenses WebSphere Application Server. Instead of installing and configuring the WebSphere Application Servers on each of the machines, a WebSphere CloudBurst administrator creates the WebSphere topology as a pattern and deploys that pattern into the cloud.

Customization

The software delivered to the cloud is highly customizable. This customization can occur at multiple layers, corresponding to typical IT roles.

► Virtual images can be extended to include additional software, for example Java™ Database Connectivity (JDBC) drivers, adaptors, firewalls, and anti-virus programs.

► Patterns can be customized to create WebSphere topologies that meet the requirements for each type of deployment.

► The WebSphere installations can be customized with scripts that specify configuration actions to be taken at deployment, for example installing applications, configuring resources, and customizing security settings.

These customization options can be saved for repeated deployments. In addition, the operations team can provide customizations that are unique to a deployment, for example passwords.

Working together: IBM WebSphere CloudBurst Appliance and IBM CloudBurst

The IBM Cloud portfolio is the industry's first set of commercial "cloud" services and integrated products for the enterprise, providing clients a reliable way to standardize IT functions that are rapidly becoming too costly or difficult to use. Included in these offerings is IBM CloudBurst, a complete IBM Service Management package of hardware, software and services, which simplifies your cloud computing acquisition and deployment. Built on the IBM BladeCenter® platform, IBM CloudBurst provides pre-installed, fully integrated service management capabilities across hardware, middleware and applications.

IBM CloudBurst is a complimentary product to IBM WebSphere CloudBurst Appliance. The two products can be used together to bring deep expertise in building and managing application environments, broader cloud management capabilities, and hardware into a private cloud environment.

WebSphere CloudBurst Appliance helps developers and people in operations establish and deploy software images and patterns that are deployed into a cloud environment. However, this offering requires a cloud environment in which to dispense these images and patterns. This is where IBM CloudBurst comes into play. IBM CloudBurst is a fully enabled cloud for use by enterprises not wanting to create a cloud environment out of existing assets. So, think of WebSphere CloudBurst as the "dispenser" of software environments into a private cloud and IBM CloudBurst as the "recipient" private cloud environment.

Data center integration

WebSphere CloudBurst fits a specific need in the data center and can itself be integrated with and managed by broader enterprise service management and automation tools including Tivoli® Management Software. Data center integration includes optionally integrating WebSphere CloudBurst Appliance capabilities into enterprise solutions for automated resource provisioning, monitoring, user, and license management, as shown in Figure 4 on page 11.
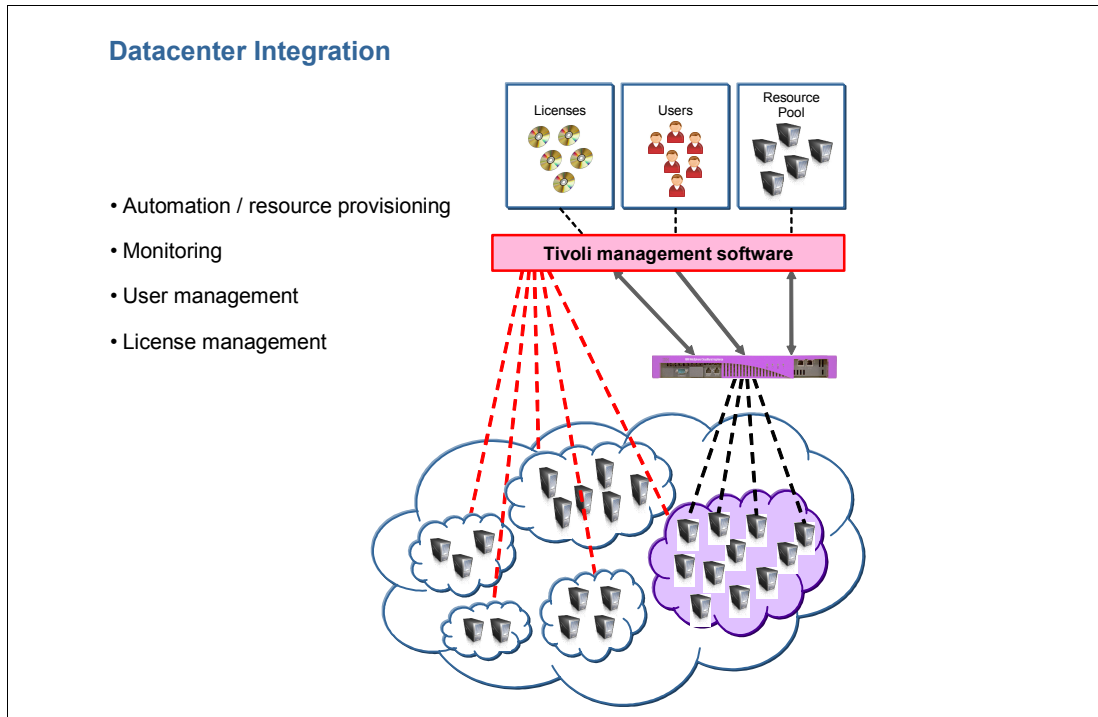
Figure 4   Data center integration

WebSphere CloudBurst provides immediately available integration with both user and license management capabilities. For license management, WebSphere CloudBurst can be configured to use IBM License Metric Tool. When this integration is selected, WebSphere CloudBurst automatically includes the licensing agent in each of the virtual machines it dispenses, as well as automatically configuring the agent to communicate with the appropriate ILMT server. This is especially useful for sub-capacity licensing, where tracking at this granularity is required. For user management, WebSphere CloudBurst can be integrated with a directory server, including IBM Tivoli Directory Server.

The WebSphere CloudBurst extend/capture and scripting capabilities can be used to incorporate and configure enterprise monitoring agents quickly into each deployed virtual machine. For example, IBM Tivoli Monitoring agents for the operating system and WebSphere Application Server can be placed into the WebSphere Hypervisor Edition through the extend/capture capability along with a simple configuration script. Once this is done, every dispensed image will automatically include the configured agent. With the addition of the agent, IBM Tivoli Monitoring provides data center monitoring that encompasses the WebSphere CloudBurst hypervisors (for example, VMware ESX servers), the virtual machines running WebSphere Application Server, as well as diving deep into the WebSphere servers running within the virtual machine.

In addition to the Web 2.0 UI, WebSphere CloudBurst provides both a Command Line Interface and REST APIs for data center automation and integration with automated resource provisioning solutions. For example, WebSphere CloudBurst deployments can be automated into service management automation solutions such as Tivoli Service Automation Manager to provide additional process automation and control over the end to end provisioning process.

Rational Automation Framework for WebSphere and WebSphere CloudBurst

WebSphere CloudBurst also presents integration capabilities with Rational® offerings. In particular, products such as Rational Build Forge® and the Rational Automation Framework for WebSphere can combine with WebSphere CloudBurst to create fully automated workflows that include provisioning a middleware environment, building software, packaging software, and then installing that software to the environment.

IBM Rational Automation Framework for WebSphere is an execution framework designed specifically to automate installation, maintenance, configuration change management, and application deployment for WebSphere Application Server and WebSphere Portal. When used with WebSphere CloudBurst as shown in Figure 5, it can be used to customize the patterns used to build the WebSphere Application Server environment, providing more than 400 field-proven, automated tasks for configuration and application deployment. This integration requires that the WebSphere environment be defined to Rational Automation Framework. Automation plans in Rational Automation Framework can then invoke WebSphere CloudBurst to dispense a pattern into the cloud. Once the application serving environment has been built, Rational Automation Framework can automatically deploy applications to the new application servers.
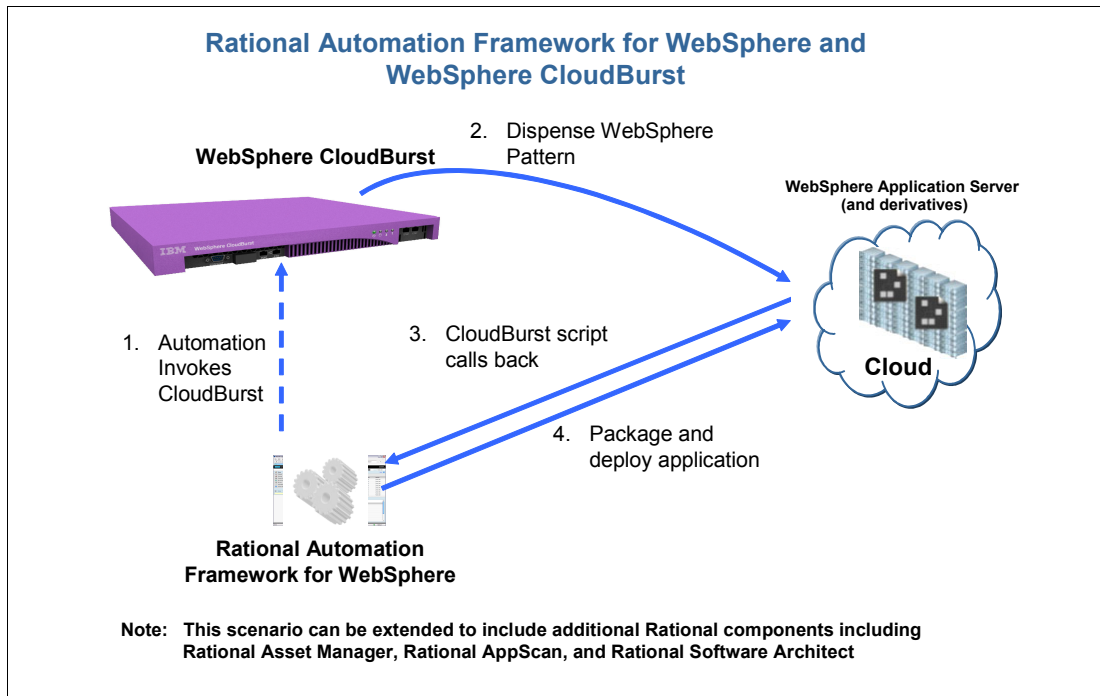

Figure 5   Rational Automation Framework for WebSphere and WebSphere CloudBurst

Using Rational Automation Framework together with WebSphere CloudBurst can improve delivery efficiencies for development, test, and production scenarios leading to faster time to market, higher-quality software and rapid return on investment. IBM Rational Automation Framework for WebSphere is a chargeable component of IBM Rational Build Forge.

An IBM lab increases productivity and agility using Smart SOA infrastructure: WebSphere CloudBurst

The WebSphere Lab Innovations group within IBM has implemented WebSphere CloudBurst to manage their development and test systems. They have already seen the benefits of virtualization and WebSphere CloudBurst in terms of reduced time for deployments, server utilization, environment consistency, and release and topology managment using CloudBurst Patterns. Currently they are building up the size of the lab's virtual image capacity and rolling the solution out to the WebSphere development and test organizations with positive feedback.

Elimination of operating security issues

Virtualization solutions are dynamic by nature, and within the test lab the use of virtualization deployments previously resulted in a high rate of security compliance issues. Machine registration schemes and heavy use of firewalls were used to reduce the security risk, but these strategies often introduced delays and other barriers to adequate testing.

Now, with WebSphere CloudBurst, the test systems are deployed rapidly with minimal risk. The deployed software is taken from a catalog where only images with approved levels of operating systems and software are available. Tight control of the catalog ensures that all deployed images have the proper security patches applied and are compliant with IBM security requirements. The combination of image extension capability and the use of scripts allow for a flexible and maintainable catalog of compliant images. The security department knows that the systems are reliable, making separation of individual labs by firewalls unnecessary. Security warnings and violations have been virtually eliminated.

Hardware utilization improvements

Like most companies, new hardware purchases are limited and costs are increasing. In the test lab, users checked out entire physical servers from a shared pool of hardware for their exclusive use. This placed a real limitation on the systems available at any given time. In addition, sampling showed that the utilization of the physical resources within a fully used WebSphere test lab was between 6% and 12%. Productivity in the test labs was being gated by hardware availability, yet the resources were being poorly utilized.

Now, with WebSphere CloudBurst, test environments are built using VMware images. Multiple testers can be using multiple VMware images on a single physical machine, greatly increasing the availability and utilization of systems. WebSphere CloudBurst determines how to place the VMware images within the cloud to maximize resource usage. In the initial deployment of WebSphere CloudBurst in the test lab, utilization rates up to 90% were achieved across a heterogeneous set of hardware.

Topology reliability and availability

The lab requires that tests be conducted on complex WebSphere environments. These tests must be repeatable and run in a consistent test environment to ensure compatible and measurable results. While automation solutions have been used to create the environment for these test cycles, the solutions were difficult to implement and maintain. The internal deployment automation required significant investment, yet the failure rates were still high.

WebSphere CloudBurst has provided a simple solution for reliable deployments of the topologies. And with WebSphere Cloudburst, a significant reduction in the time spent in deploying topologies has been realized. Deployment of complex topologies including clusters, applications, resources configuration can consistently be achieved in under half an hour instead of several hours with traditional automation, or days using manual deployments. In combination with the hardware utilization improvements, the availability of test environments

to the developers and test teams has been greatly increased. These results have had a significant impact on the WebSphere Application Server test and service stream direction. WebSphere Cloudburst will certainly increase the quality of testing and speed to market though test efficency and availability.

Summary

In summary, WebSphere CloudBurst provides high business value through increased efficiency, cost-effectiveness, and usability of WebSphere topologies in a data center by taking advantage of cloud computing principles.

The IBM WebSphere CloudBurst appliance lowers cost through reduced labor cost, higher hardware utilization, fewer errors, and less power consumption. It can provide faster time to value by automating repetitive, time-consuming, manual tasks. It empowers individual application managers, developers, or testers to perform business without lengthy approval processes.

By packaging WebSphere virtualization and WebSphere intelligence along with easy-to-use interfaces, WebSphere CloudBurst brings private WebSphere clouds to the enterprise.

WebSphere CloudBurst ships with environment patterns that codify 10 years of WebSphere management best practices. WebSphere environments can be customized and captured once, then are able to be dispensed at the push of a button. It increases agility, rapid set up and tear down of WebSphere Application Server environments means less time spent managing WebSphere environments, and it integrates well into your enterprise.

One of the strengths of WebSphere CloudBurst is the ease of dispensing an optimized solution, more than just provisioning a few virtual machines, or deploying and installing some middleware. WebSphere CloudBurst supports dispensing complex and loosely-connected middleware with inherent knowledge of that infrastructure. WebSphere CloudBurst is thus uniquely positioned to dispense secure and optimized solutions into a cloud.

Where to learn more

For more information on WebSphere CloudBurst Appliance and IBM Cloud computing, see the following resources:

► WebSphere CloudBurst Value Assessment workshop

The WebSphere CloudBurst Value Assessment uses a flexible and proven financial model to capture and compare current and anticipated costs as opposed to benefits over a multi-year period. Use of our cost model allows you to understand better the cost components, evaluate alternatives, and develop project plans with greater confidence.

IBM offers this WebSphere CloudBurst Value Assessment to clients who are actively seeking to optimize their application server environment, as well as improve upon current provisioning times and related costs.

For more information, contact your Software Sales Representative.

► Discovering the Value of WebSphere CloudBurst Appliance: An IBM Proof of Technology

This Proof of Technology is for IT managers and architects who are evaluating IBM WebSphere CloudBurst. It is designed for clients who are interested in implementing a highly available and scalable e-business infrastructure using the IBM WebSphere CloudBurst Appliance. Presentations and several hours of hands-on lab exercises will

enable clients to understand how to accelerate the deployment of enterprise applications using WebSphere CloudBurst and improve the management of their application infrastructure.

For more information, contact your Software Sales Representative.

► Cloud computing for the enterprise: Part 1: Capturing the cloud

http://www.ibm.com/developerworks/websphere/techjournal/0904_amrhein/0904_amrhein.html

► Cloud computing for the enterprise, Part 3: Using WebSphere CloudBurst to create private clouds

http://www.ibm.com/developerworks/websphere/techjournal/0906_amrhein/0906_amrhein.html?S_TACT=105AGY82&S_CMP=MAVE

► Customizing with WebSphere CloudBurst, Part 1: Creating highly customized private clouds

http://www.ibm.com/developerworks/websphere/techjournal/0907_amrhein/0907_amrhein.html

► Free trial download of WebSphere Application Server Hypervisor Edition

http://www.ibm.com/developerworks/downloads/ws/wasnd/learn.html

► WebSphere CloudBurst self-paced training in IBM Education Assistant

http://publib.boulder.ibm.com/infocenter/ieduasst/v1r1m0/index.jsp?topic=/com.ibm.iea.CloudBurstappliance/plugin_coverpage.html

► List of supported software for WebSphere Application Server Hypervisor Edition V7.0

http://www-01.ibm.com/support/docview.wss?rs=4008&uid=swg27015835

► View the press release at the following Web page:

http://www-03.ibm.com/press/us/en/pressrelease/27720.wss

The team who wrote this guide

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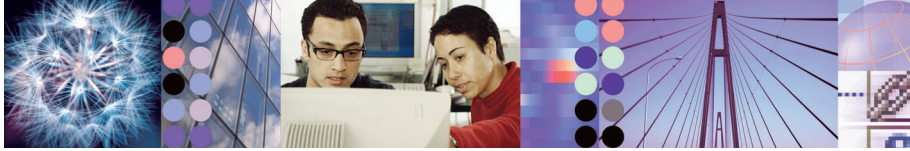
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