

Virtualizing Oracle WebLogic Server on VMware vSphere

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Oracle WebLogic® Server, running on VMware vSphere™ provides customers with a tested and scalable Java EE application server platform for building, deploying and managing enterprise applications and services. By leveraging the power of infrastructure virtualization solutions delivered by VMware®, WebLogic Server deployments can be efficiently consolidated, rapidly provisioned and highly optimized in your virtualized datacenter.

This document introduces some of the key benefits, technical considerations, and resources available to customers who are considering a WebLogic server-based deployment on VMware vSphere.

Why run WebLogic Server on vSphere?

- **Isolation and Consolidation:** VMware vSphere provides a safe, secure environment for running several WebLogic server-based applications on the same physical server, using multiple guest operating systems, and isolating any faults occurring in one virtual machine from all others. Leveraging VMware’s consolidation capabilities also allows for greater utilization of physical resources.
- **Rapid provisioning:** VMware vSphere provides a flexible environment for rapid provisioning of WebLogic server-based applications due to its unique templating and encapsulation benefits. This rapid provisioning has also been demonstrated in VMware’s Lab Manager solution among others.
- **Change Management:** Virtualizing WebLogic Server allows you to migrate virtual machines across systems during datacenter maintenance operations and other changes. VMware virtualization also allows for instant rollback of

application virtual machines during problem resolution for any previous change applied.

- **High Availability/Disaster Recovery:** VMware vCenter Higher Availability (HA) and Distributed Resource Scheduler (DRS) facilities complement the equivalent features of WebLogic Server. Together, they provide hardware server-level, virtual machine-level and application-level recovery from failures.

Solution Overview:

- Type: Java Enterprise Edition middleware supporting Web-based and other enterprise applications and services
- Latest WebLogic Server product release: 11g
- WebLogic Server product information: <http://www.oracle.com/us/products/middleware/application-server/index.htm>
- Latest VMware release: vSphere 4
- vSphere product information: <http://www.vmware.com/products/vsphere>

WebLogic Server 11g combined with vSphere delivers substantially improved performance especially with hardware-assisted memory management for virtualization such as Intel’s Extended Page Tables (EPT) and AMD’s Rapid Virtualization Indexing (RVI) technologies. These technologies enhance an already ideal opportunity for customers to establish virtualization as the underlying platform. By using the vSphere platform they can gain benefits such as consolidation, hardware independence, vMotion™ migration, as well as VMware DRS/HA resource management, and simplified disaster recovery.

Solution Features

Challenges	Solution Features	Business Impact
Consolidate WebLogic Server instances while preserving application isolation	<ul style="list-style-type: none"> • Consolidate WebLogic Server instances on to fewer physical systems without sacrificing application/service isolation. Reduce machine counts in production, testing, and disaster recovery environments, thereby saving money. • Run multiple operating systems and different WebLogic Server versions on the same physical system, eliminating the need for dedicated hardware to run each one. Advances in x86 multi-core servers (including Intel EPT and AMD RVI) can rival the performance of high-end UNIX systems. 	<ul style="list-style-type: none"> • Many WebLogic Server hosts are operating at under-utilized levels today. VMware vSphere allows you to get the best return from your server hardware through consolidation. • Minimize rack/floor space, power, cooling, server-to-administrator ratios. • Fewer physical systems results in reduced total cost of ownership (TCO) and increased return on investment (ROI) in shortest possible time.

Challenges	Solution Features	Business Impact
Rapid Provisioning	<ul style="list-style-type: none"> Streamline activation, deployment, and validation of WebLogic Server instances by deploying from virtual machine templates. Using templates, you can optimize the rapid provisioning of WebLogic Server within virtual machines. Reduce deployment configuration problems due to manual error. Virtual machine snapshots and clones provide valuable tools in the testing cycle that are not available on physical systems. Libraries of known configurations can be maintained to store multiple application server setups that can be provisioned instantly to meet production and lab/testing requirements. 	<ul style="list-style-type: none"> Reduce time and expense when replicating WebLogic application features and functionality across instances. Minimize risk of outages and downtime during production rollout. Quickly respond to varying workloads by rapidly provisioning additional WebLogic Server instances during peak activity or business changes.
High Availability/Disaster Recovery	<ul style="list-style-type: none"> WebLogic Server has inherent application-level high availability based on its own use of clustering. VMware vSphere high availability solutions can be combined with WebLogic Server to achieve even higher levels of availability. VMware HA provides an automatic restart of virtual machines in the event of hardware failure –without clustering software. VMware vMotion and VMware DRS can be used to balance WebLogic Server workloads automatically. VMware FT provides continuous protection from server hardware failure that is independent of the guest operating system or applications. (VMware FT currently provides single vCPU support.) VMware Site Recovery Manager can be used to orchestrate WebLogic Server disaster recovery procedures to provide site resiliency and to reduce cost and complexities of traditional DR. 	<ul style="list-style-type: none"> Reduce complexity and cost of availability and recovery solutions using built-in vSphere features. Maintain and increase WebLogic Server application service levels with new options for high availability. VMware Site Recovery Manager improves reliability of your WebLogic Server Disaster Recovery and Business Continuity plan, and allows simulated tests of that plan at any time.
Change Management	<ul style="list-style-type: none"> Move virtual machine images quickly: Migrate test or QA virtual machines into production. Move development images directly to and from testing areas. Save multiple versions and stages of virtual machine test images. Roll back development or test virtual machines using snapshots. Recreate a distributed WebLogic Server production environment on a single virtualized server system for test purposes. 	<ul style="list-style-type: none"> Making changes to systems, whether in development, testing, QA, or even in production, is a much faster and simpler process with virtual machines than it is with physical machines. Reduce costs of maintaining multiple versions of your applications.

Frequently Asked Questions

- **What kind of testing has been done to validate this solution?**
Multiple performance studies have been performed inside VMware labs over the past several years. These studies show good linear scalability in performance of test applications on WebLogic Server. As you increase the number of virtual machines with instances of WebLogic Server in each one, a building block approach can be followed to scale up your application's user population.
- **If I have a problem with WebLogic Server running on VMware virtual infrastructure, who should I call for support?**
Oracle provides best-effort support for WebLogic Server running on VMware software. Customers can initiate a support call with either Oracle for WebLogic-related issues or with VMware support for VMware virtualization-related issues. The best practice and quickest way to isolate a problem is to have VMware and Oracle support teams working together jointly to resolve an issue.

Reference Customers

Here is a partial list of VMware customers who have already been successful in virtualizing applications on WebLogic Server.

- First American Financial Group:
https://www.vmware.com/files/pdf/partners/first_american_corp_cs_091207.pdf
- I2 Technologies India:
https://www.vmware.com/files/pdf/customers/apac_in_08Q1_ss_vmw_i2_technologies_english.pdf
- VMware Session on Oracle E-Business Suite from VMworld 2009 (This can be viewed without a password):
<http://www.vmworld.com/docs/DOC-3624>

Support

The following provides additional information on support, licensing and pricing.

- General software support for Oracle products in a VMware environment; MetaLink 269212.1 on the Oracle partner website:
<http://myoraclesupport.oracle.com>
or
<http://metalink.oracle.com>

NOTE: You will need to be registered as a support user to get to the MetaLink document itself.

Next Steps

If you have a WebLogic Server project currently and you are ready to get started virtualizing with VMware vSphere:

- View the VMworld E-Business Suite/WebLogic Server presentation at
[VMworld 2008: Session EA 4404 – Virtually Powering VMware](#)
- Contact your VMware representative for more information.

