VMware Infrastructure for BEA WebLogic Applications - Use Cases
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VMware Infrastructure for BEA WebLogic Applications Use Cases

Introduction
The collaboration between BEA, Inc. and VMware, Inc. provides unique value to our customers. This document will discuss the benefits of five use cases for running BEA WebLogic™ applications on VMware Infrastructure. These use cases range from server containment to disaster recovery demonstrating tangible cost reduction, operational efficiency and time saving benefits.

BEA WebLogic Platform Overview
BEA offers products and services that enable enterprises to achieve faster time-to-value for critical business applications using open standards, web services and a Service-Oriented Architecture (SOA).

The BEA WebLogic Platform—which includes BEA WebLogic Server®, BEA WebLogic Portal®, BEA WebLogic Integration, BEA WebLogic Workshop®, BEA JRockit®—is the leading application platform suite for developers service-enabling their applications.

VMware Infrastructure Overview
VMware® Infrastructure is the most widely deployed software suite for optimizing and managing industry standard IT environments through virtualization – from the desktop to the data center. The only production-ready virtualization software suite, VMware Infrastructure is proven to deliver results at more than 20,000 customers of all sizes, used in a wide variety of environments and applications. The suite is fully optimized, rigorously tested and certified for the widest range of hardware, operating systems and software applications. VMware Infrastructure provides built-in management, resource optimization, application availability and operational automation capabilities that deliver transformative cost savings as well as increased operational efficiency, flexibility and IT service levels.
**Solution Architecture**

This is a graphic representation of the architecture for running BEA WebLogic Applications on VMware Infrastructure. It demonstrates the ability to run several applications on the same physical server by creating virtual machines containing the application, BEA WebLogic Platform and the operating system of choice. Using VMware Infrastructure enables deployment of virtual machines running different operating systems on the same physical server.

**Server Containment**

In traditional BEA WebLogic deployments, there is significant server sprawl primarily due to the need to provision separate systems for development, test and production environments. Each developer would require his own system and each test cycle would require dedicated servers assigned for the duration of the tests. This leads to over provisioning, manageability and resource issues resulting in higher ownership and operational costs.

VMware’s virtualization technology is able to contain server sprawl by running BEA WebLogic Servers in virtual machines consolidated onto fewer, highly scalable, reliable enterprise-class servers leading to increased server utilization.

Key Benefits:

1. Dedicated and isolated developer environments for all developers while consolidated to one physical system.
2. Multiple BEA WebLogic Servers on same physical system providing significant consolidation and lowering total cost of ownership (TCO).
3. Multiple OS and BEA WebLogic Server versions on the same system eliminating the need for dedicated hardware and provide for interoperability.
4. Multiple Test environments sharing same physical system eliminating the need for dedicated test systems.
5. Consolidate multiple BEA WebLogic Server instances on the same physical system in production achieving lower TCO.

Customers using VMware Infrastructure have been able to consolidate 10 or more virtual machines per physical processor, thereby drastically increasing server utilization and containing server sprawl.
Rapid Provisioning
VMware Virtualization solutions significantly reduce time to provision new BEA WebLogic (development, test or production) application environments. Typically, for a new deployment, it is required to procure new hardware, install the operating system and the applications. This process takes significant time and IT resources in addition to the need for dedicated hardware.

While using VMware Infrastructure, BEA customers can take advantage of Virtual Machine Libraries and virtual machine templates to provision new pre-configured BEA WebLogic application environments in minutes on virtualized infrastructure hardware. This provides for rapid BEA WebLogic application deployments with sophisticated automation capabilities, centralized control and responsibility for hardware resources while giving business units and application owners complete control over how resources are utilized.

Key Benefits:
2. BEA WebLogic Server development images can be passed directly to testers.
3. Testers can pass BEA WebLogic Server virtual machine images back to development for problem replication and resolution.
4. Recreate distributed BEA WebLogic Server production environment in a single physical system for test purposes.
5. Move Test/QA BEA WebLogic Server instances to production in minutes.
6. Reset Test Images (after test completion) from templates and virtual machine libraries cutting down on test setup and reset time.
7. Store different BEA WebLogic Server and versions in virtual machine libraries that can be provisioned instantly.

Change Management
Patching and upgrading existing applications is high on the list of IT challenges facing any BEA customer. IT departments face two key challenges in change management – testing patches and upgrades for compatibility with standard corporate hardware, OS and application configurations and efficiently deploying critical patches and upgrades throughout the enterprise. Traditionally, IT organizations need to procure hardware (mirroring production) and create test beds mirroring the OS and application configurations of the production environment.

With VMware Infrastructure, customers can clone production or create a set of virtual machine libraries mirroring production which can then be used to provision the test environment. The latest patches and upgrades can then be tested against these virtual machines running BEA WebLogic applications, while eliminating the need for dedicated hardware to perform these tests. These patches can then be rolled into production with minimal interruption to end users. In case of problems, the virtual machines can be instantly rolled back using snapshots.

Key Benefits:
1. Faster change management with fewer system resource requirements.
2. Patches can be tested on multiple configurations (OS, BEA WebLogic Server versions etc) concurrently while hosted on the same physical system.
3. Instant rollback of BEA WebLogic Server virtual machines using snapshots (during problem resolution).
4. Add/Upgrade BEA WebLogic applications independent of other BEA WebLogic components in production.
5. Create a library of standard production configurations to perform change management testing and deployment.
6. Dynamically migrate BEA WebLogic Server virtual machine instances to other systems while performing maintenance or changes on the current physical system without disruption to end users.
Data Center Optimization: Distributed Resource Management

A VMware Infrastructure environment provides additional management capabilities that help optimize the infrastructure resources used by BEA WebLogic and non-BEA WebLogic applications in an enterprise data center. BEA WebLogic Server clustering is able to balance the loads between BEA WebLogic Server instances within a BEA WebLogic cluster while VMware Infrastructure solutions address resource management across the entire data center infrastructure and across multiple BEA WebLogic Server clusters.

VMware Dynamic Resource Scheduler (DRS) dynamically allocates and balances computing capacity across a collection of hardware resources aggregated into logical resource pools. VMware DRS continuously monitors utilization across resource pools and intelligently allocates available resources among the virtual machines based on pre-defined rules that reflect business needs and changing priorities. When a BEA WebLogic Server virtual machine experiences an increased load, VMware DRS automatically allocates additional resources by redistributing virtual machines among the physical servers. VMware DRS optimizes IT environments to align resources with business goals while ensuring flexibility and efficient utilization of hardware resources.

Key Benefits:
1. Dynamically migrate development and test BEA WebLogic applications requiring additional capacity to the physical server with the optimal resource capacity.
2. Define resource pools, policies and priorities for different developer, test and production BEA WebLogic Server environments to efficiently manage resource allocation.
3. Allocate processor and memory resources to virtual machines running on the same physical servers and prioritize access to those resources across virtual machines.
4. Optimize BEA WebLogic Server deployment across a virtualized enterprise data center by providing reserved resource pools with pre-defined minimum and maximum resource requirements.
5. Resource Pools can be used to control resources available for BEA WebLogic and non-BEA WebLogic application environments.
6. Guaranteed IT autonomy and service levels to applications and business organizations.
7. Automate physical server maintenance by dynamically relocating BEA WebLogic Server virtual machines without disruption to end users.
8. Optimize the service level of distributed applications by controlling the aggregate allocation of resources for the entire set of virtual machines running the distributed BEA WebLogic and non-BEA WebLogic application environments.

High Availability: Business Continuity and Disaster Recovery

VMware virtualization works alongside BEA WebLogic Server clustering to deliver enhanced infrastructure and application capacity availability for critical business functions. Using VMware Infrastructure, customers can implement a unified disaster recovery (DR) platform that allows many production BEA WebLogic Server virtual machines to be recovered in the event of hardware failure without investing in costly one-to-one mapping of production and DR hardware. While a BEA WebLogic Server cluster consists of multiple BEA WebLogic Server instances running simultaneously and working together to provide application failover and load-balancing, VMware VMotion™ enables the live migration of running BEA WebLogic Server virtual machines from one physical server to another with zero downtime, continuous service availability, and complete transaction integrity. Live migration of virtual machines enables companies to perform hardware maintenance without scheduling downtime and disrupting business operations.

VMware HA provides easy to use, cost effective high availability for BEA WebLogic applications running in virtual machines. In the event of physical server failure, affected BEA WebLogic Server virtual machines are automatically restarted on other physical servers that have spare capacity. VMware HA minimizes downtime and IT service disruption while eliminating the need for dedicated stand-by hardware and installation of additional software. VMware HA provides uniform high availability across the entire virtualized IT environment without the cost and complexity of failover solutions tied to either operating systems or specific applications. VMware Consolidated Backup provides an easy to use, centralized facility for LAN-free backup of virtual machines. VMware Consolidated Backup simplifies backup administration and reduces the load for ESX Servers.

Key Benefits:
1. Development and Test Images can be saved for backup, audit etc. using snapshots and consolidated backup.
2. Layers of Images can be saved for regression (i.e., keep exact version of OS, BEA WebLogic Server, patches, state etc.) using snapshots and backup.
3. Snapshots enable point in time restores and rollbacks during test and development problem resolution.
4. Automatic failure detection of physical servers running the BEA WebLogic Servers in production.
5. Ensure capacity availability to support BEA WebLogic Server virtual machine failovers.
6. Automatic restart of failed BEA WebLogic Server virtual machines using VMware HA.
7. Full and incremental file backup of virtual machines using VMware consolidated backup.
8. Full image backup of BEA WebLogic Server virtual machines for disaster recovery
9. Migration of BEA WebLogic Server virtual machines from failing server hardware using Live Migration without disruption to end users.
10. Restore from snapshots and backups during system failures or disaster recovery
11. Failover over SAN during disaster recovery by using SAN replication and restarting BEA WebLogic Server virtual machines in DR sites.

Summary
Deploying BEA WebLogic applications on VMware Infrastructure will drive tangible benefits through the complete software lifecycle from development to high availability. By expediting and simplifying the application development and testing processes customers will experience faster time to production while maintaining high quality throughout these processes.

Rapid provisioning and change management in production environments will increase IT flexibility allowing timely response to sudden and changing business needs while data center optimization enables efficient resource pooling, maximizing hardware utilization.

Implementing business continuity solutions for BEA WebLogic applications on VMware Infrastructure delivers enhanced high availability without major investments in one-to-one mapping of production and DR hardware.

Together, BEA and VMware reduce the cost and deployment time while providing increased operational efficiencies and accelerated time to market driving lower TCO and increased ROI for their customers deploying BEA WebLogic applications on VMware Infrastructure.

BEA Systems, Inc.
BEA Systems, Inc. is a world leader in enterprise infrastructure software, delivering unified SOA platforms for business transformation and optimization. Customers depend on BEA Tuxedo®, WebLogic®, and AquaLogic™ product lines to help reduce IT complexity and leverage existing resources— for achieving a state of Business LiquidITy™ where enterprise assets are freed up to deliver maximum business value and grow new revenue streams. Find out more at bea.com.

VMware, Inc.
VMware is the global leader in virtual infrastructure software for industry-standard systems. The world’s largest companies use VMware solutions to simplify their IT, fully leverage their existing computing investments and respond faster to changing business demands. VMware is based in Palo Alto, California.