An Oracle White Paper
July 2009

Oracle WebLogic Suite 11*g*
Benefit Your Business with Fast, Efficient Middleware

Executive Overview

Modern enterprise software infrastructure must keep pace with dynamic business needs. As a business changes through growth, contraction, or seasonal variation, its middleware must be flexible, cost-efficient, and easily modified to accommodate this fluctuation. Oracle Fusion Middleware 11*g* is a modern application infrastructure foundation. Its unique design principles-complete, integrated, hot-pluggable, and best-of-breed-improve the agility and intelligence of business applications while maximizing IT efficiency and lowering costs. Oracle WebLogic Suite, a foundational element of Oracle Fusion Middleware, offers the ideal mix of performance, scalability, and operational efficiency to support modern IT requirements driven by ever-changing business needs.

Introduction

Before discussing the benefits of Oracle WebLogic Suite 11*g*, it is important to understand a key IT approach that the product is designed to support: grid computing. Grid computing enables groups of networked computers to be pooled and provisioned on demand to meet the changing needs of business. Instead of dedicated servers and storage for each application, grid computing enables multiple applications to share computing infrastructure, resulting in much greater flexibility, cost, power efficiency, performance, scalability and availability, all at the same time.

Who needs grid computing? Businesses small and large benefit from grid computing. The business benefits of grid computing are a result of: 1) higher utilization of existing hardware often reducing capital expenses, 2) lower administration costs as the entire system is managed holistically vs. server-by-server, and 3) more satisfied users as application performance is consistent and reliable. If your enterprise services and applications require more then a single, stand-alone application server you are a candidate for grid computing. The poor economics of provisioning software infrastructure

on a per-application basis can no longer be justified or excused. Efficiency and superior application responsiveness are a must. Grid computing is a foundation for obtaining both.

Oracle pioneered grid computing starting in the database tier of enterprise IT software. Grid computing has existed in the database tier for many years. More recently, Oracle introduced the application grid approach to middleware. This initiative brings the elements of grid computing to Oracle Fusion Middleware. Application grid enables pooling and sharing of application server and other resources to gain similar benefits to those found in the database grid. Oracle WebLogic Suite 11*g* is a key foundation offering upon which to develop and deploy enterprise applications in an application grid architecture. At its core is Oracle WebLogic Server 11*g*, the world's highest-performance and most reliable Java EE application server. In addition, Oracle Coherence and Oracle Enterprise Manager are included to provide new levels of scalability, performance, and manageability. To summarize:

- Grid computing pools and shares networked resources to help enable dynamic businesses
- Application grid is an IT approach bringing grid computing to Oracle Fusion Middleware
- Oracle WebLogic Suite 11*g* is the essential foundation for application grid
- Business benefits: flexible, agile enterprise software infrastructure helps to outperform competitors while reducing operational costs

Dramatically increase the utilization of enterprise software infrastructure and deliver superior end-user quality-of-service by adopting application grid. Implement application grid with Oracle WebLogic Suite 11*g* in support of Java-based services and applications

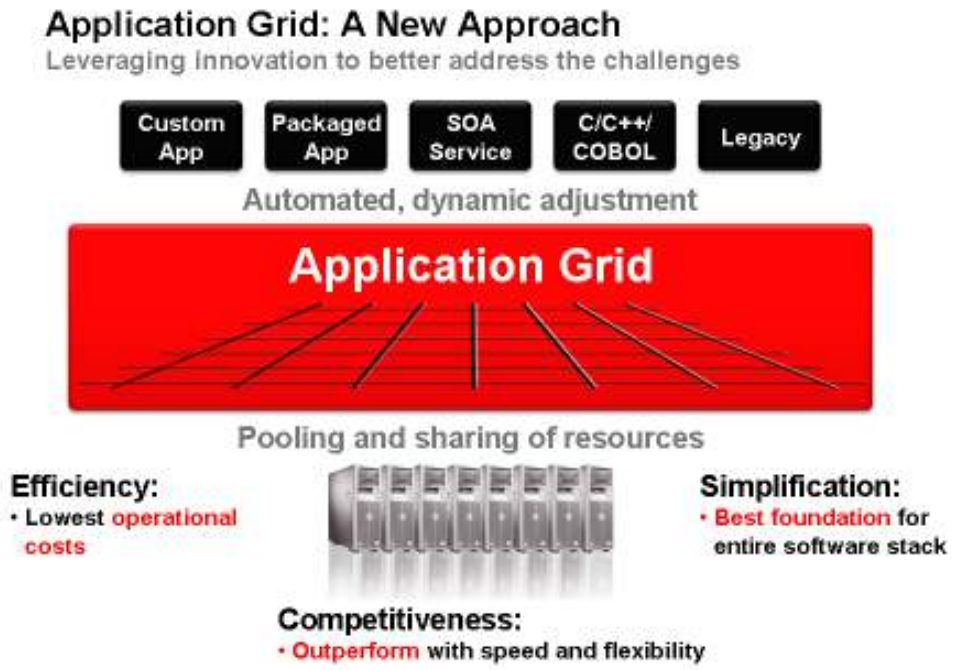

Figure 1: Application Grid – an IT approach for greater efficiency, competitiveness and simplification of middleware.

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Ease of interoperability, unfailing reliability, technological leadership, watertight security, compliance, clear control and monitoring are all prerequisites for VocaLink Payment Platform. Oracle WebLogic Server delivers all of these, while simplifying and unifying the infrastructure.

— Nick Masterson-Jones, VocaLink

Outperform the competition

Speed matters. Whether supporting customer-facing applications or software that will only be used behind the firewall, application responsiveness is critical. Ensuring applications remain available – at speed - can dictate business success. End-user customers expect always-on, instant responses from their applications. They will find and use another provider if your IT systems do not deliver. Oracle WebLogic Suite 11*g* includes the necessary components to supply high performance. Application server performance inversely affects capital expense and operating expense: as performance increases, capital and operating expenses decrease through efficiency.

Oracle WebLogic Server, the fastest application server

Oracle WebLogic Server 11*g* delivers proven best performance. Whether running one, two or many application server instances in support of your applications, Oracle WebLogic Server provides the fastest performance. Many data centers are deploying the latest hardware architectures including multi-core chips, 64-bit memory and high speed network connections. Oracle WebLogic Server 11*g* takes advantage of modern hardware to deliver superior results to end users. Application server speed not only benefits end users, but also helps reduce cost in the form of hardware savings (more transactions per server) and management overhead (fewer servers to manage).

Oracle JRockit, the engine under the hood

A Java Virtual Machine (JVM) lies at the heart of Java-based enterprise software. It is the critical engine interfacing between hardware and the application server. Included with Oracle WebLogic Server 11*g* is Oracle JRockit; the fastest JVM in the industry. It is tuned and optimized to deliver server-side performance on systems with 32-bit and 64-bit memory across the most popular chip types. While other JVMs are supported by WebLogic Server, only Oracle JRockit delivers the speed to keep competitors at bay. Additionally, a real time variant provides smooth, predictable performance helping to ensure a consistent application experience for users.

We can genuinely say that, compared with our experiences with other application servers, Oracle WebLogic Server is a software product that can be installed without any problem whatsoever."

— **Ilaria Doria,** Pirelli Group

Oracle Coherence, speed at scale

In many cases, applications are constrained by the memory available on the local machine they are deployed to. Oracle Coherence, as part of WebLogic Suite 11*g*, pools all the available memory across systems and makes it available to applications. This shared pool of memory can host data that is needed for application use. Bringing data closer to the applications for processing dramatically improves performance by reducing queries to the database. Oracle Coherence also includes clustering so that data is replicated and not susceptible to loss should any single system fail. Beyond improving application speed, Oracle Coherence also helps accommodate more users without degrading performance. This means getting the most out of your existing hardware investment and reducing capital expense.

Messaging superhighway

Applications don't work in isolation. Connecting and communicating to other services and applications within your environment is essential. Oracle Enterprise Grid Messaging is a high performance and reliable architecture for application-to-application communication based on Java Message Service (JMS). Integrating with other messaging systems including .NET and Oracle Advanced Queuing (AQ) means application messages will be exchanged reliably. Persistent messages increase performance even further supporting an already high performance WebLogic Suite architecture. Instead of purchasing a standalone messaging product, leveraging the built-in JMS infrastructure is not only fast, but cost-effective.

Agility is also key to outperforming

It's not enough to simply have the most responsive applications. To truly outperform your competitors, you also need support for agility—the ability to quickly change applications and deploy new ones. WebLogic Suite 11*g* leverages and extends WebLogic Server's long history of deployment advantages: fast and easy application lifecycle management, zero-downtime rollout of new versions, patches, or individual components, and fast, reliable rollback. All this means you can iterate, update, maneuver, and compete with agility and confidence.

Performance benefits impact your customers

Ultimately speed directly benefits end-users. When transacting business on your site, speed helps increase responsiveness so customers don't abandon shopping carts or other activities and head to your competitors. High performance reduces delays and helps make doing business with you a breeze increasing customer satisfaction and helping ensure return visits and referrals.

Lowest Operational Costs

Cost matters. IT needs an application server that doesn't require a lot of human capital to keep it up and running. A highly reliable system is a must. Deploying applications and the infrastructure they need must be easy. Reallocating underlying infrastructure must also be hassle-free. Getting information from deployed applications to ensure peek performance is also critical. Oracle WebLogic Suite 11*g* includes the necessary tools that span the entire suite to keep costs down and systems up.

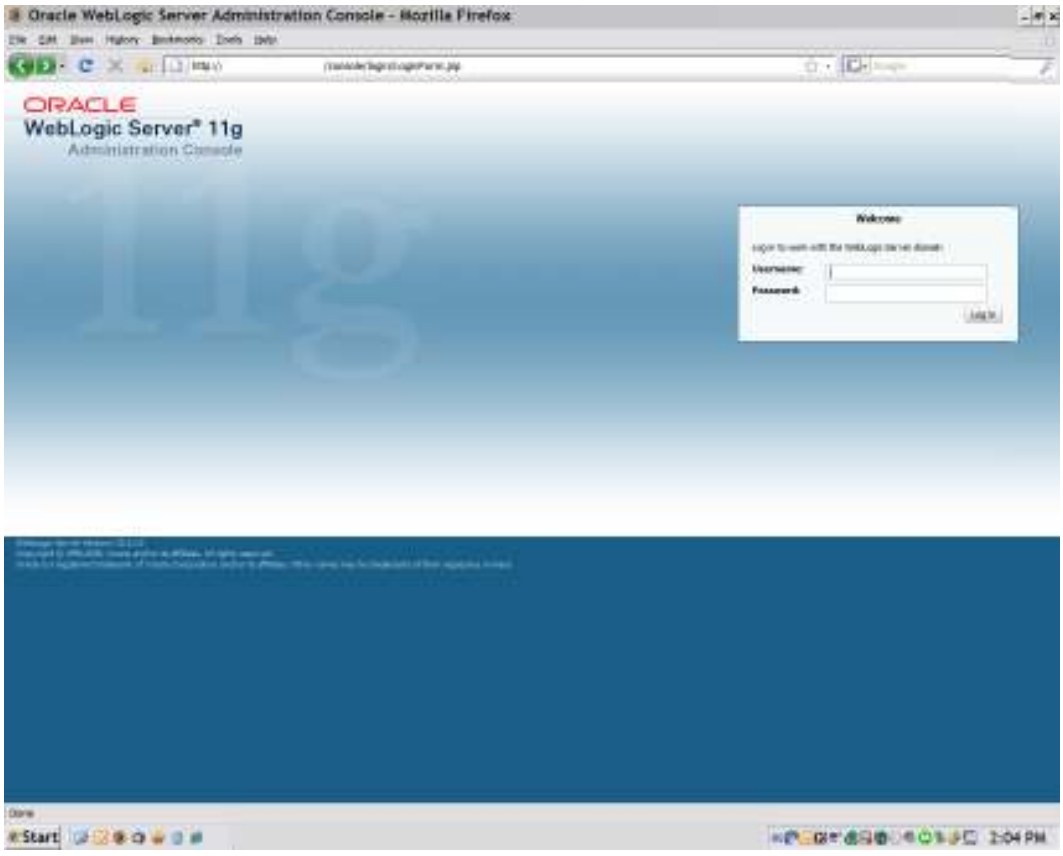

Figure 2: Oracle WebLogic Server 11*g* Administration Console login screen

Real Operations Insight

For administrators, getting the information they need from running systems to ensure smooth operation can be a challenge. It can also be costly if the system or application performs poorly. Oracle WebLogic Suite 11*g* provides Real Operations Insight that includes powerful facilities to monitor and diagnose issues. For example, operations teams can take advantage of the Oracle Enterprise Manager Diagnostics Pack including Grid Control to manage many nodes of Oracle WebLogic Server from a single console: start and stop services, monitor and manage application across domains, view most accessed components, and more. Included is the Application Diagnostics For Java technology (AD4J) that allows for deep monitoring, management, and optimization of applications running on Java Virtual Machines.

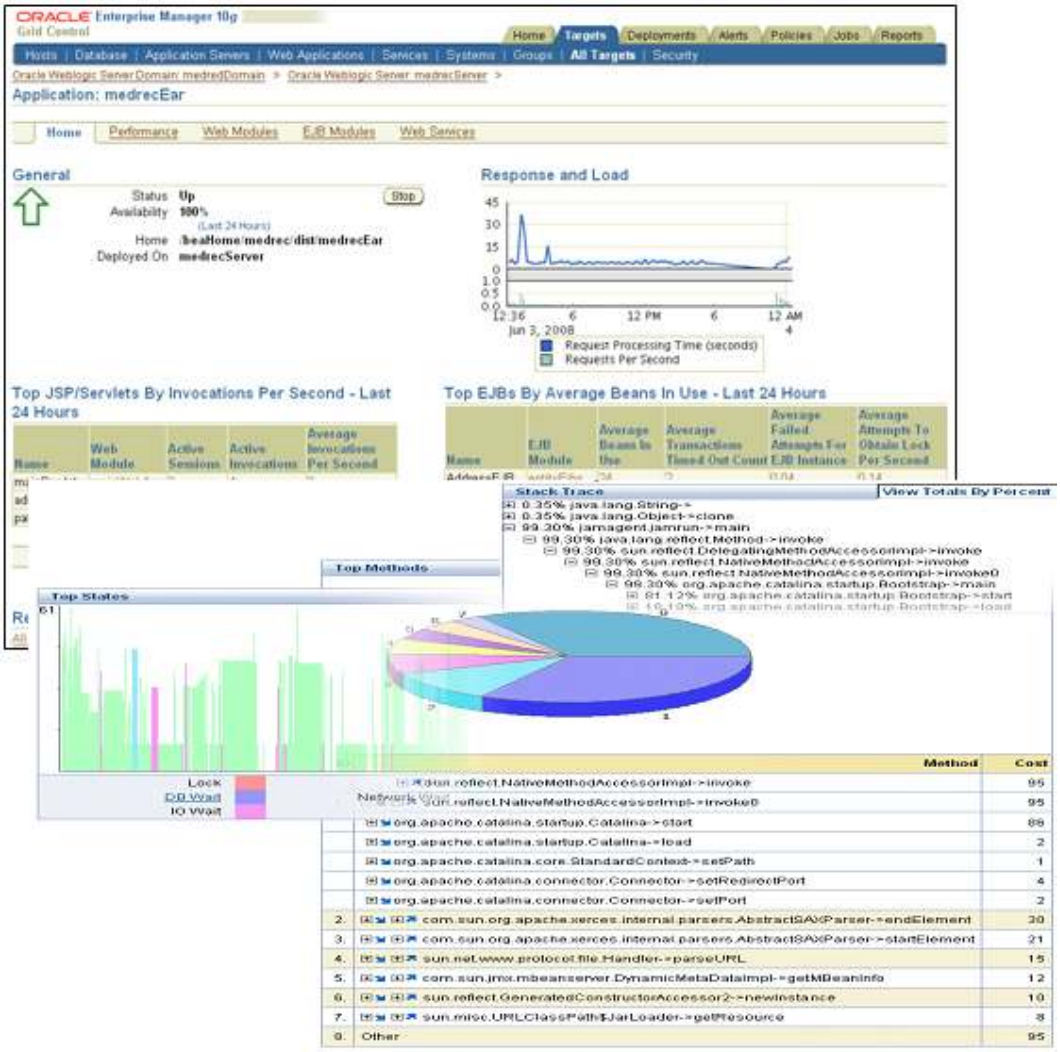

Figure 3: Oracle Enterprise Manager and Application Diagnostics for Java

In addition, Oracle JRockit JVM customers can also leverage JRockit Mission Control to optimize applications using runtime analysis and memory leak detection tools. And finally, when leveraging the Coherence in-memory data grid, the Enterprise Management Pack for Oracle Coherence provides comprehensive tools for monitoring and reporting Coherence activity.

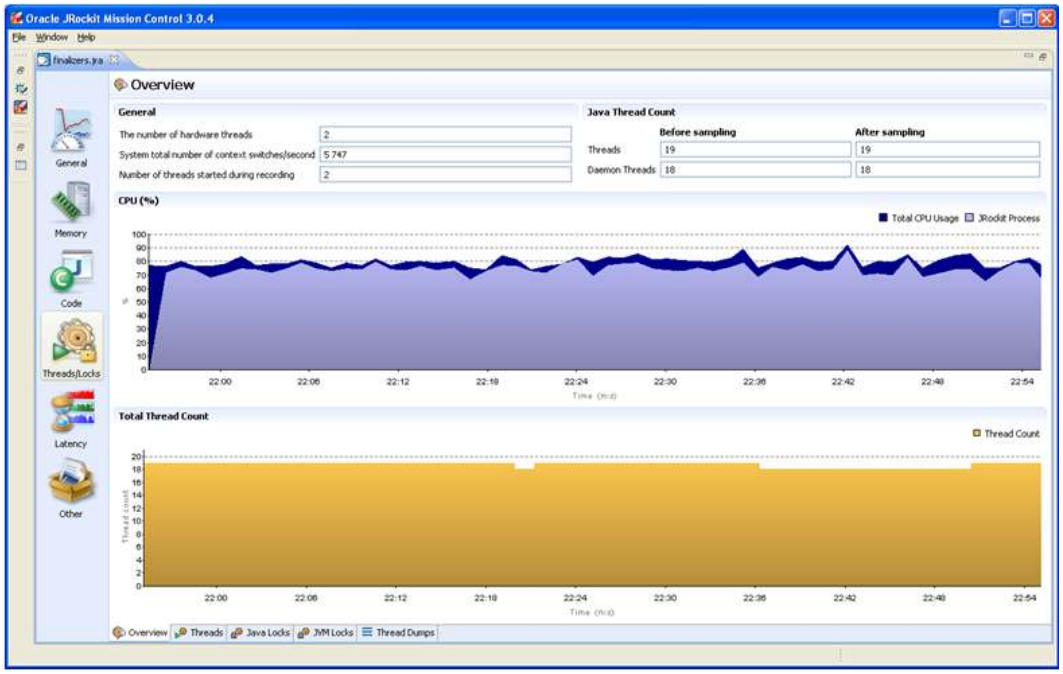

Figure 4: Oracle JRockit Mission Control display

Real Operations Automation

Responding to business need is difficult for IT if operations are manual. Real Operations Automation affords a highly automated WebLogic Server environment. Configuring domains and clusters through automation and scripting ensures repetitive tasks are executed properly without human error. Dynamic resource management helps consolidate applications to fewer servers as needed while shutting-down inactive instances for cost and power savings. Real Operations Automation takes as input the unique metrics provided by Real Operations Insight to ensure timely, accurate, and fine-grained optimization.

Adaptive Management

Application Service-Level-Agreements (SLAs) govern the quality of service requirements for applications. Ensuring SLAs are met by reallocating systems can be tedious and expensive. Oracle WebLogic Operations Control automates the adaptive management of applications making it easy to keep applications running at peak performance. When predefined conditions occur, Oracle WebLogic Operations Control can allocate or deallocate WebLogic Server instances as needed. This frees administrators from manually monitoring and manipulating servers lowering associated costs.

Operational benefits impact your customers

While behind the scenes and not directly exposed to customers, operational efficiency effects your customers in non-obvious ways. As fewer IT people are needed to manage and run systems with higher uptime, they can be reallocated toward creating new services in support of the business. Rapidly building and deploying new applications offering superior customer service and convenience will have customers returning to your site while simultaneously reducing expense traditionally allocated just to maintain your systems.

Flexibility and Agility

What do you get with high performance and simplified, adaptive management? Flexible and agile enterprise software infrastructure such that you can deploy and adjust applications as your business changes. With a successful marketing effort like a new product launch comes additional customers and users which can be accommodated more easily using Oracle WebLogic Suite 11*g*. Reallocating resources quickly in support of new users can be accomplished without long deployment cycles. As demand varies, shifting those resources to another effort is fast and easy.

Conclusion

Business is unpredictable and susceptible to frequent change. Modern IT needs to be agile and adapt quickly. Oracle WebLogic Suite 11*g* is the foundation cornerstone upon which to build enterprise applications that are fast, nimble, and easy to manage. Outperform your competitors while lowering operational costs on the best foundation for your enterprise.

White Paper Title
July 2009
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