

**ORACLE®**

---

**OPTIMIZED SOLUTIONS**

An Oracle White Paper  
September 2010

## Oracle Optimized Solution for WebCenter – A Business White Paper

**ORACLE®**

Executive Overview .....	1
Introduction .....	2
Doing Business Over the Internet .....	4
Security's Impact to Business .....	4
SPARC T3 Server .....	5
Zero Cost Cryptography Acceleration .....	6
WebCenter Suite 11g.....	6
Conclusion .....	7
References.....	8
Additional Resources .....	8

## Executive Overview

Computing architecture has grown and organizations continue to demand new levels of scalability, performance, and security from their compute platforms. At the same time, web services and rapidly escalating Internet use are driving competitive organizations to lead with innovative new services and scalable dynamic infrastructure. Virtualization is evolving and organizations are constantly finding new applications that foster new demands for performance, security, density, and scalability. With a consistent design for cloud computing, agility is paramount, and companies must be able to respond quickly to unpredictable need for capacity. At the same time, datacenters are running out of space, power, and cooling. Scalable and dynamic infrastructures must lead with consolidation with elasticity, controlled costs, efficient management cost, share compute resources and increase utilization, and think about metering resources. This is the environment where Oracle is targeting the WebCenter, x86 and SPARC T3 platform.

IT organizations need systems to provide performance, density, scalability and security. One of the most important network computing technologies that is often overlooked is Security. Enterprise 2.0 has put more pressure on server platforms to perform with rich Internet applications and web services. Furthermore, security requirements are imperative to protect valuable information that flows across the network. Encryption capabilities are essential to the network environment and put even more computational loads on servers.

In 1982, Sun coined the phrase “The Network is the Computer,” and this phrase has never been more accurate today in modern data centers across the world. With security at the heart of all enterprise and departmental data centers, Oracle has designed SPARC T3 processors with high performance

security that uses far less resources than the latest x86 processor technology. These servers with reduced system overhead, encryption accelerations, scalability improvements, equates to better consolidation of servers, faster SSL processing, better protection of information on the network, and lower TCO.

## Introduction

Improved business collaboration and easier information sharing within an enterprise can provide a strong competitive advantage. Enterprise 2.0-enabled portals, composite applications and Web sites provide a way for enterprises to achieve their collaboration and communication goals of improving communication, increasing employee productivity, and promoting business agility.

Planning a Web portal deployment has traditionally required time and technical expertise on many disciplines. Selecting portal software alone is not enough. Choosing hardware components such as servers, storage, and networking that can provide a solid foundation, and integrating and deploying the software infrastructure, including the Web, application, and database server software, is equally important. Security requirements to protect information are compelling IT organizations to implement data encryption across the network, performance, scalability, and total cost of ownership continue to drive business decisions.

The Oracle Optimized Solution for Oracle WebCenter 11g is the technical complement of this paper, and provides competitive advantages for enterprise Web portal deployment, improving performance and reliability while simplifying management and speeding deployment. Oracle is the only vendor to offer full-stack management, from applications and operating system to servers and

storage, with Oracle Enterprise Manager Ops Center. The fully integrated and pretested architecture, using systems optimized to run Oracle applications, can help reduce deployment time and expense. The SPARC T3 based servers with on-chip cryptographic acceleration eliminate the need for additional coprocessor cards, special licensing, or add-on components. This can help reduce system overhead and improve performance and responsiveness across the entire solution—performance gains that are especially beneficial for environments such as government and military service, accounting, personnel information, e-commerce, and health care (Health Insurance Portability and Accountability Act, or HIPAA, compliance) that require secure communications.

## Doing Business Over the Internet

Transferring sensitive data over the web in a secure environment is paramount to the success of any company. As well as gaining the trust of online customers, business associates, and employees with applications that operated in a secure infrastructure. Consumers are very concerned about identity theft. E-commerce applications are equally as concerned about providing their personal information to un-trusted sources. Sensitive information needs to be protected everywhere on the network – Intranet and extranet.

Businesses need to protect two primary assets of value to cybercriminals: information and computing resources. People are reluctant to provide personal information such as credit card, social security numbers, passwords, health details, and other confidential data. Corporate information is equally vulnerable in protecting proprietary information, employee information, intellectual property, and trade secrets. The major concern with sensitive information flowing over the Internet is that it can be intercepted mid-flight, or destination web sites that are operated by people with malicious intent.

Information submitted to an unsecured web site is at risk and businesses need to incorporate the use of SSL Certificates to encrypt and protect data. The additional compute resources to operate a secure environment must not be overlooked. A lot of server resources are consumed in encryption and verification operations of a secure infrastructure. Built-in hardware cryptographic acceleration is the best solution for the following reasons:

- Less cost to implement a solution when security hardware is built in
- More secure when security is designed into a system
- System resources (CPU and memory) can be used for other operations such as user applications
- Consolidate servers to run a greener data center

Online businesses have much to gain by addressing these customer concerns and provide a secure infrastructure to conduct business. There are innovative technologies from Oracle to address these concerns and protect sensitive data, authenticate web sites, and build trust. Oracle WebCenter will address these concerns to operate in a secure environment and the SPARC T3 Server will provide the performance needed.

## Security's Impact to Business

The full costs are high when a security breach or data loss occurs. The true cost of inadequate security practices can also be measured of not implementing innovative procedures and processes because of fear of potential problems. These issues are not unfounded with significant risks to changing workflow and opening systems to install and configure cryptographic accelerators. The built-in cryptographic accelerators from Oracle alleviate these issues of managing and installing cryptographic acceleration. The solution has zero additional cost and is implemented in a fraction of the time with more reliability (less components that can fail).

## SPARC T3 Server

Oracle's newest high-performance servers, the SPARC T3 server family, deliver massive throughput, high reliability, and expandability with superior Secure Socket Layer (SSL) processing. The SPARC T3-1, T3-2, and T3-4 servers feature one, two, or four SPARC T3 processors with chip multithreading (CMT) technology respectively. These processors feature 16 cores with 8 threads per core, for a total of 128 threads per processor, and up to 128 GB of memory. The 16 on-chip cryptography accelerators provide wire-speed cryptography support for increased performance and decreased latency of security-related operations. With dual on-chip 10 Gigabit Ethernet and PCIe interfaces on each SPARC T3 processor, these servers deliver high I/O bandwidth with low latency. Redundant, hot-swappable disks, power supplies, and fans add to the system's reliability.



Figure 1. SPARC T3-2 Server

A key feature of the SPARC T3 processor architecture is its cryptography acceleration. Each of the processor's 16 cores contains a Stream Processor Unit (SPU) for accelerating the data-intensive encryption and decryption operations, speeding performance and freeing the CPU to handle other computations. With this architecture, 16 threads per core can concurrently process Secure Socket Layer (SSL) operations. This highly concurrent cryptography processing provides excellent scalability with up to 10 times faster transaction processing of SSL transactions compared to other leading x86 processors with three times less CPU overhead.

Up to 10x Performance

1/3 less System Resources

Protection

Figure 2. The SPARC T3 Advantages over the leading X86 Architectures

## Zero Cost Cryptography Acceleration

Security enhancements on WebCenter applications are becoming an unconditional requirement for all computers in the data center. Fast encryption of SSL signatures is another unconditional requirement that will foster consolidation of servers, lower total cost of ownership, and a better security model.

Many modern systems do not have hardware cryptographic acceleration built in, therefore adding on cryptographic acceleration PCI cards can be less reliable, lower performance, and increases the total cost of ownership. The SPARC T3 processor offers 16 on-chip Streams Processing Unit (SPU), one for each core. The SPU is used to offload and accelerate SSL encryption operations without compromising the performance of processor. The Oracle Enterprise T3 system with the SPARC T3 processor is the key to zero cost cryptography with more reliability, easy to use, and better performance.

## WebCenter Suite 11g

Web Center Suite 11g, an integrated suite of products, provides a complete, open, and manageable enterprise portal framework. Its unified, standards-based portal framework supports the creation of all types of enterprise portals, communities, Internet or intranet Web sites, and composite applications. This comprehensive set of tools, services and out-of-the box solutions is designed for use by business users as well as application developers, providing the tools to quickly create and deliver Web 2.0 applications and portals.

WebCenter Suite 11g components include:

**Oracle WebCenter Framework**—a declarative JavaServer Faces (JSF) framework that embeds Asynchronous JavaScript and XML (AJAX) components, portlets, and content to create context-rich, customizable applications

**Oracle WebCenter Services**—social computing services such as wikis, blogs, RSS, discussion forums, and social networking that can be embedded directly into applications

**WebCenter Spaces**—out-of-the box collaborative application to manage personal information, group projects, and dynamic online communities

**Additional Value-Add Components**—restricted use licenses of select Oracle technology components such as Oracle Universal Content Management, Secure Enterprise Search and Presence and Communications Services

**Oracle WebCenter Interaction**—an integrated collection of components for deploying communities and composite applications over diverse platforms that offer native support for both Microsoft .NET and Java

**Oracle WebLogic Portal**—a service-oriented foundation, tightly integrated with Oracle WebLogic Server, for custom portal solutions

*Oracle WebCenter Anywhere*—a set of wireless services that enable users to connect with Oracle WebCenter Suite from any connected device, including desktop and mobile applications

## Conclusion

The Oracle Optimized Solution for WebCenter provides a complete applications-to-disk Web portal reference architecture that combines highly scalable servers and leading-edge storage and networking technologies with best-of-breed software from Oracle. Optimized hardware components such as the SPARC T3 servers—with 128 threads per SPARC T3 processor, on-chip cryptographic acceleration, and on-chip networking—provide the high throughput, high data encryption performance, and low latency that are critical for Web portal applications.

Testing performed on the Oracle Optimized Solution for WebCenter 11g demonstrated outstanding performance, with up to 10 times faster transaction processing of Secure Socket Layer (SSL) transactions compared to other leading x86 processor technologies. For businesses to succeed and thrive in today's Internet, they must manage security processes and leverage innovative technologies such as SPARC T3 server.

## References

TABLE 1. REFERENCES FOR MORE INFORMATION

DESCRIPTION	URL
Oracle WebCenter Suite	<a href="http://www.oracle.com/technetwork/middleware/webcenter/overview/index.html">www.oracle.com/technetwork/middleware/webcenter/overview/index.html</a>
Oracle Database 11g	<a href="http://www.oracle.com/us/products/database/index.html">www.oracle.com/us/products/database/index.html</a>
Sun Server and Storage Systems	<a href="http://www.oracle.com/us/products/servers-storage/index.html">www.oracle.com/us/products/servers-storage/index.html</a>
Brocade	<a href="http://www.brocade.com/products-solutions/products/application-delivery">www.brocade.com/products-solutions/products/application-delivery</a>
Optimized Solutions Program	<a href="http://www.oracle.com/goto/optimizedsolutions">http://www.oracle.com/goto/optimizedsolutions</a>

## Additional Resources

TABLE 2. ADDITIONAL RECOURCES FOR MORE INFORMATION

DESCRIPTION	URL
Cryptography Acceleration on SPARC T2 Systems	<a href="http://blogs.sun.com/ningsun/entry/cryptography_acceleration_on_SPARC_t2">http://blogs.sun.com/ningsun/entry/cryptography_acceleration_on_SPARC_t2</a>
Core Security Patterns Weblog	<a href="http://www.coresecuritypatterns.com/blogs/?p=1069">http://www.coresecuritypatterns.com/blogs/?p=1069</a>



Oracle is committed to developing practices and products that help protect the environment

Oracle Optimized Solution for WebCenter  
March 2011

Oracle Corporation  
World Headquarters  
500 Oracle Parkway  
Redwood Shores, CA 94065  
U.S.A.

Worldwide Inquiries:  
Phone: +1.650.506.7000  
Fax: +1.650.506.7200  
oracle.com

Copyright © 2011, Oracle and/or its affiliates. All rights reserved. This document is provided for information purposes only and the contents hereof are subject to change without notice. This document is not warranted to be error-free, nor subject to any other warranties or conditions, whether expressed orally or implied in law, including implied warranties and conditions of merchantability or fitness for a particular purpose. We specifically disclaim any liability with respect to this document and no contractual obligations are formed either directly or indirectly by this document. This document may not be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, without our prior written permission.

Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. Intel and Intel Xeon are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. UNIX is a registered trademark licensed through X/Open Company, Ltd. 0410

**Hardware and Software, Engineered to Work Together**