Oracle Solaris 11:
Security, Speed, Simplicity

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Oracle Solaris 11.3 is the world's most advanced enterprise operating system. It is a secure, integrated, and open platform engineered for large-scale enterprise cloud environments, allowing organizations to deploy enterprise mission-critical applications safely and securely with no compromise. It combines all the security and compliance capabilities needed in the data center today together with OpenStack, zero-overhead virtualization, and agile application deployment—all in a single, supported cloud platform.

KEY FEATURES

Oracle Solaris enables customers to easily build efficient, secure, and compliant cloud environments.

- Centralized cloud management with OpenStack
- Cloud-ready application provisioning in minutes with Unified Archives
- No-compromise virtualization with Oracle Solaris Zones and Kernel Zones
- Application-driven software defined networking with Elastic Virtual Switch
- Integrated compliance monitoring and reporting

World-Class, Industry-Leading Security

Oracle Solaris combines the power of industry-standard and unique OS security features, antimalware capabilities, and compliance management tools for low-risk application deployments and cloud infrastructure. With zero-overhead encryption technology, organizations can protect data in memory, at rest, and in motion.

- Ensure a secure infrastructure through hardware enforced antimalware protections via Oracle's Software in Silicon technology, which provides unique security mechanisms and industry-standard security controls
- Compared to a Linux/x86 platform, Oracle's SPARC M7 processor enables Oracle Solaris to run the AES-CFB encryption algorithm 4x faster and the SHA512 encryption algorithm 17.9x faster.
- Simplify generating compliance reports by using the Oracle Solaris compliance tool. Built-in security policies include PCI-DSS and Oracle's recommended configurations.
- Sandbox applications, users, and virtual machines via centralized security requirements while delegating necessary access to business units for operational flexibility and centralized control.
- Deliver hardware-assisted cryptography for Oracle Database, Java Cryptography Extension middleware, or any application.
- Oracle Solaris enhances the OpenStack security posture by automatically sandboxing the infrastructure services, limiting allowed behavior, and providing seamless methods to administer, delegate, and record administrative actions across hardware, software infrastructure, and application tiers.

The Oracle Solaris integrated deployment workflow ensures businesses can stay secure and compliant from the very start. Once an application environment has been developed, tested, and certified, it can be securely deployed and locked down for production use with Oracle Solaris Immutable Zones. This helps to ensure that applications are not compromised and are always compliant, which is critical when deploying thousands of virtual machines (VMs) in a cloud environment.

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Higher Performance, Higher Density Virtualization

Oracle Solaris 11 enables no-compromise virtualization, allowing enterprise workloads to be run within a virtual environment at no performance cost as if they were being run in a bare-metal environment. Oracle Solaris Zones technology has been used in production for over a decade to provide a highly integrated and capable virtualization offering. In stark contrast, the leading virtualization technology vendor imparts a 25 percent "virtualization tax," meaning it requires a greater number of systems that must be managed, and it incurs higher latencies and, ultimately, higher cost to businesses.

Oracle Solaris Kernel Zones provide a zero-overhead virtualization capability that combines independent kernel versions, independent patch levels, and secure live migration for greater flexibility with application workloads. The combination of Oracle Solaris Zones, Oracle VM Server for SPARC, and physical domains in Oracle's high-end system portfolio provides a feature-rich environment with extreme administrative efficiency to suit every workload. In addition, both Oracle Solaris Zones and Oracle VM Server for SPARC are recognized as license boundaries by most enterprise software vendors, leading to significant cost savings.

An Enterprise OpenStack Distribution

Oracle Solaris 11 includes a full distribution of OpenStack—the popular open source project that provides cloud management infrastructure—as a standard, supported part of the platform. Integrated into all the core technology foundations, Oracle OpenStack for Oracle Solaris provides a seamless, enterprise-class experience for managing compute, storage, and network resources in the data center through a centralized web-based portal. This combination enables organizations to securely deliver services in minutes rather than weeks or months and, using OpenStack's vendor-neutral API, also manage a heterogeneous mix of hypervisors and infrastructure in the data center.

Application-Driven Software Defined Networking

With the trend towards cloud computing, businesses are struggling to translate existing quality of service metrics for service-level agreements (SLAs) to more-complex environments that have a greater amount of consolidation and multitenancy. Oracle Solaris 11 includes integrated software defined networking (SDN) technologies to provide much greater application agility without the added overhead of expensive network hardware.

Elastic Virtual Switch in Oracle Solaris 11 enables application agility across a completely distributed set of systems and across an arbitrary geographic region without having to redefine the physical network topology. Through the use of VxLANs and centralized virtual switching, the physical network infrastructure can be entirely decoupled, leading to lower hardware costs, greater network density, and more-flexible resource control.

Oracle Solaris 11 uniquely extends this base SDN functionality up into the application layer (Layer 7), including all Java based applications, by exposing APIs that enable applications to drive their own priority traffic through a series of resource flows right down to the underlying storage. This advanced capability enables the automation of

resource management and the ability to meet critical cloud SLAs.

Driving Data Center Efficiency and Lowering Costs

The combination of Oracle Solaris and Oracle's SPARC and x86 hardware is redefining data center economics, dramatically reducing the cost of IT, and increasing performance. Through Oracle's increased investment in software and hardware R&D, Oracle's SPARC processors have established dramatic performance leadership with a 2x performance improvement for each processor generation and record-breaking benchmarks. Oracle's revolutionary Software in Silicon technology further pushes these performance boundaries by implementing accelerators directly onto the processor to deliver a rich set of features, such as In-Memory Query Acceleration and Silicon Secured Memory, enabling faster and more secure applications. Businesses are achieving significant advantages in Oracle's virtualization solutions by avoiding the virtualization performance tax and the licensing costs of other leading virtualization vendors, while also increasing VM density per system.

With integrated lifecycle management technologies, a single command updates the cloud all the way down to the firmware, including all virtualized environments, and provides the ability to do a full fail-safe rollback if necessary. For a major US financial customer, the overall simplicity of Oracle Solaris software lifecycle management has enabled administrators to manage a larger number of VMs, which led to a 16x efficiency gain compared to managing VMs with the leading Linux-based platforms.

The combination of Oracle Solaris and SPARC-based hardware is also driving a reduction in management costs with a 6x savings compared to an equivalent solution using Red Hat Enterprise Linux and x86-based systems over a three-year period. A major US telecommunications provider also saw significant savings through improved management. After deploying Oracle Solaris 11, they calculated they had saved over US$500 per VM compared to conventional x86 virtualization solutions. These benefits come from the improvements that Oracle has made to simplify administration, eliminate the cost of compliance, and use hardware more efficiently.

More Information

For more information about Oracle Solaris 11, visit oracle.com/solaris.

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For more information about Oracle Solaris call +1.800.ORACLE1 to speak to an Oracle representative.

Integrated Cloud Applications & Platform Services