

Oracle Solaris 11: Engineered for the Cloud



KEY BENEFITS

- Simplifies cloud operations in a heterogeneous data center environment
- Provides secure, agile, and compliant application provisioning optimized for the complete software lifecycle
- Runs mission-critical workloads without restrictions with zero-overhead virtualization
- Maintains service levels through application-driven resource management
- Reduces the cost of meeting compliance regulation
- Maximizes performance and efficiency and reduces costs through "Oracle on Oracle" solutions

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 through Elastic Virtual Switch
- Integrated compliance monitoring and reporting

Oracle Solaris 11 is a complete, integrated, and open platform engineered for large-scale enterprise cloud environments. It combines a complete distribution of OpenStack and provides no-compromise virtualization, powerful application-driven software defined networking, and secure and compliant application deployment, all in a single, supported cloud offering.

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.

A full OpenStack-based cloud can be up and running in minutes on Oracle Solaris 11 using a preconfigured Oracle Solaris Unified Archive image that includes all the OpenStack services, ready to run your first compute instance. With integrated lifecycle management technologies, a single click updates the cloud all the way down to the firmware including all virtualized environments, with 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 enabled administrators to manage a larger number of virtual machines (VMs), which led to a 16x efficiency gain compared to managing VMs with leading Linux-based platforms.

No-Compromise Virtualization

Oracle Solaris 11 enables no-compromise virtualization, allowing enterprise workloads to be run within a virtual environment with 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 providing a highly integrated and capable virtualization offering. In stark contrast, the leading virtualization technology vendor imparts a 25 percent "virtualization tax" by requiring a greater number of systems that must be managed, causing higher latencies, and incurring higher cost to businesses.

Kernel Zones, a new feature of Oracle Solaris Zones added with Oracle Solaris 11, provides zero-overhead virtualization capability that enables independent kernel versions and independent patching for greater flexibility with application workloads.

RELATED PRODUCTS

Oracle recommends the use of the following products alongside Oracle Solaris:

- Oracle Solaris Cluster, which provides high availability
- The Oracle Enterprise Manager Ops Center management suite
- The Oracle Solaris Studio compiler

RELATED SERVICES

Oracle offers the following support options for Oracle Solaris:

- Oracle Premier Support for Systems
- Oracle Premier Support for Operating Systems
- Oracle Solaris Premier Subscription for Non-Oracle Hardware

The combination of Oracle Solaris Zones, Oracle VM Server for SPARC, and physical domains in Oracle's high-end system portfolio provides extreme administrative efficiency and a feature-rich environment 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.

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) into 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.

Agile and Compliant Application Deployment

Agility, flexibility, and time to market are key factors for businesses moving to cloud environments. Oracle Solaris 11 introduced a new archive format called Unified Archives, which enables applications to be deployed twice as fast as they can be deployed with leading Linux-based platforms. Unified Archives enable the rapid cloning of virtualized and bare-metal application environments through the development, test, and production lifecycle with full virtual-to-physical and physical-to-virtual portability.

This integrated deployment workflow has been extended to ensure 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 through Oracle Solaris Immutable Zones. Immutable zones help to ensure that applications are not compromised and are always compliant, which is critical when deploying thousands of VMs in a cloud environment.

Engineered to Work Together

Oracle has an unmatched ability to offer businesses a complete hardware and software solution—from applications, middleware, and databases, through to servers and storage. This complete solution has been engineered together at every level of the software and hardware stack, delivering the best possible performance for data center workloads: up to 10x faster with 16x higher productivity at 10x less cost.

Oracle Solaris 11 is a key component in this solution and is the foundation for Oracle's engineered systems. Continuous coengineering between Oracle teams has led to unique capabilities such as dynamic Oracle Database system global area (SGA) resizing without system reboot, latency detection in Oracle Database I/O outlier traffic through Oracle Solaris DTrace, and a continuing ability to run Java applications at huge scale with large page support for the Java Virtual Machine.

Driving Data Center Cost Efficiency

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, the SPARC processor has 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 Database In-Memory Query Acceleration and Silicon Secured Memory, which enables faster and more-secure applications. Businesses are achieving significant advantages with Oracle's virtualization solutions by avoiding the virtualization performance tax of other leading virtualization vendors while also increasing VM density per system.

The combination of Oracle Solaris and SPARC-based hardware is also driving a reduction in management costs with a 6x savings when 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 when compared to conventional x86 virtualization solutions. While this might seem like small savings, their total savings could increase to over US\$20 million over time in their environment of over 40,000 VMs. 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

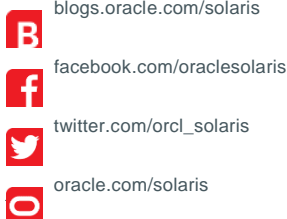
For more information about Oracle Solaris 11, visit oracle.com/solaris.



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For more information about Oracle Solaris, visit oracle.com or call +1.800.ORACLE1 to speak to an Oracle representative.

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Integrated Cloud Applications & Platform Services

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