

SOLARIS

ORACLE SOLARIS CLUSTER FEATURES AND BENEFITS

Oracle Solaris Cluster is the enterprise high availability and disaster recovery solution for Oracle Solaris 11, the first cloud OS. It extends Oracle Solaris to deliver the infrastructure required for deploying mission critical workloads in private, public and hybrid clouds as well as enterprise data centers.

Features and Benefits	
High Availability	
Kernel Integration	Kernel integration enable instant server failure detection and load resilient heartbeats for faster and more reliable application recovery and reduced downtime
Disk fencing	Fencing helps ensuring data integrity in case of server outages by preventing failing nodes to access to storage and corrupting data. With Oracle Solaris Cluster the appropriate fencing protocol can discovered automatically or chosen per storage device to adapt to the available hardware: choices include SCSI 3, SCSI 2, per-device discovery or no SCSI fencing.
Quorum	Quorum helps prevent data corruption lead by catastrophic situation such as split brain or amnesia leading to data corruption. Supported Quorum Devices include disk-based quorum, software quorum as well as quorum server. This flexibility allows customers to tailor their quorum solution to their storage and system topology, satisfying a wide range of HA and cost requirements.
Component Monitoring	<p>Constant monitoring allow to prevent outages through early detection of failures. All components of the Oracle Solaris Cluster are monitored including server, network, disks, storage resources, quorum. Health and effective availability of file systems, such as ZFS storage pools, and global devices used by the clustered applications are monitored and corrective action is initiated when possible. All disk paths can be monitored and configured to automatically reboot a node in case of multiple path failure.</p> <p>Active monitoring brings increased service availability through early detection of issues, such as outages and operator errors, and easier error diagnostics during application bring-up phase.</p>
Integration with Oracle Solaris service management facility services	Administrators can easily move Oracle Solaris service management facility-enabled applications from a single-node Oracle Solaris environment to a multi-node Oracle Solaris Cluster environment, increasing availability with little or no development effort.
Configuration Checker	The checker enables detecting vulnerable cluster configurations regularly and rapidly, limiting failures due to mis-configuration throughout the lifetime of the cluster.

Virtualization	
Oracle Solaris Zones Clusters	<p>Oracle Solaris Zone clusters are virtual clusters based on zones. They are perfect environment to consolidate multiple applications or multi-tiered workloads onto a single physical cluster configuration. They provide</p> <ul style="list-style-type: none"> * Full service protection through fine-grained monitoring of application, policy-based restart and failover within virtual cluster * Reliable operations of multi-tiered workloads through management of dependencies inside and across zones clusters * Ease of use and administrative isolation through delegated administration extended to virtual cluster
Oracle Solaris Failover Zones	<p>Oracle Solaris failover zones protect the availability of applications at the zone level. It does monitor and control the zone itself, failing over automatically the full workload between servers in case of a failure or switching it over on request. Resource dependencies are managed as well as load balancing and priority policies. This feature is ideal for packaged, closed workloads and supports both Oracle Solaris 11 zones and Oracle Solaris 10 zones, facilitating migration.</p>
Oracle VM for SPARC support	<p>Oracle Solaris Cluster can provide protection from failure, management of resource dependencies and cluster load-balancing to Oracle VM for SPARC domains, either at the application level or at the virtual guest level.</p> <p>When the domain is configured as standard cluster node Oracle Solaris Cluster does provide failover and management of the applications running within the virtual guest.</p> <p>When the domain is configured as a failover resource it is failed over automatically in case of failure. Upon request it can also be moved across servers using live migration.</p>
Disaster Recovery	
	Reliable protection from disaster
Campus Cluster	<p>To limit service outages due to a local outage (such as power cut, building flooding) it is possible to stretch a cluster across a campus or metropolitan area.</p> <p>Oracle Solaris Cluster automates the failover procedures to be used in case of an outage therefore minimizing human error, improving the recovery time and overall availability of the protected services.</p> <p>[Oracle Solaris 10: EMC SRDF, HDS Truecopy, and Hitachi Universal Replicator (HUR)]</p>
Geographic Cluster	<p>Oracle Solaris Cluster Geographic Edition feature protects applications from unexpected disruptions by using multiple clusters separated by a large distance and by using a redundant and secure infrastructure between these clusters. Combined with data replication software, this option enables services to tolerate disasters by migrating applications to a geographically separated secondary cluster.</p> <p>Any supported application can be deployed, including in a Oracle Solaris Zones configuration. Supported replication technologies on Oracle Solaris 11 include Sun StorageTek Availability Suite and Oracle Data Guard and MySQL Replication. For replication technologies that are not supported out-of-the-box, a script based replication module can be used to enable integration..</p> <p>[Oracle Solaris 10: EMC SRDF, HDS Truecopy, HUR, Sun StorageTek Availability Suite, Oracle Data Guard and MySQL Replication]</p>
Pre-tested, Supported components	
Choice of storage technologies	<p>Oracle Solaris Cluster can be used in combination with different storage technologies such as FC, SCSI, iSCSI, NAS storage</p>
Choice of File Systems and Volume	<p>Root file systems: UFS, ZFS [Veritas VxFS*] Failover file systems: ZFS, UFS, NFS, QFS, [VxFS*] Cluster file system: PxFS, shared QFS (with Oracle RAC), Oracle ACFS</p>

	Volume Manager: SVM, ASM, ZFS (on top of ZFS file system),[Veritas VxVM*] * only on Oracle Solaris 10
Choice of networking technologies and protocols	Infiniband, Fast/Gigabit/10 Gigabit Ethernet, IPMP, Trunking, Jumbo Frames, VLAN IPv4, IPv6, SCTP, RDS
Choice of servers	Up to 8 x64 nodes or up to 16 SPARC nodes
Ease of operations	
Oracle Enterprise Manager OPS Center	Oracle EM Ops Center facilitates provisioning and management of cluster deployments with automated cluster topology discovery and full orchestration of cluster-wide patching and configuration updating.
Easy-to-Use Command Line Interface	Object-oriented command line interface provides a consistent and familiar structure across the entire command set, making it easy to learn and use thereby limiting human error. Command logging enables tracking and replay.
Oracle RAC 10g, 11g integration and administration	Automatic installation and wizard-led configuration enable faster set-up of Oracle RAC and ASM with Oracle Solaris Cluster. Specific Oracle RAC management integration enables faster failure detection and simplification of administration.
Applications Support Increased application availability, simplified service deployment	
Applications Support on Oracle Solaris 11	
	Apache Apache Tomcat DHCP DNS NFS Oracle Database 11.2.0.3 single instance Oracle Database 11.2.0.3 Real Application Clusters WebLogic Server
Applications Support on Oracle Solaris 10	
Oracle Applications and Components	Oracle iPlanet Web Server Oracle iPlanet Web Proxy Server Oracle Communications Enterprise Mobility Server Sun Java System Message Queue Sun Java System Directory Server Oracle Communication Messaging Exchange Server Oracle Grid Engine Sun Service Provisioning System Oracle Solaris Containers (HA Agent) Oracle VM Server for SPARC (HA Agent) Oracle single instance database Oracle RAC Oracle E-Business Suite Oracle Application Server Oracle WebLogic Server Oracle Business Intelligence Enterprise Edition Oracle PeopleSoft Enterprise Oracle MySQL, MySQL Cluster Oracle TimesTen Oracle Siebel CRM
Other Applications	Agfa IMPAX Apache Proxy Server (HA and scalable) Apache Web Server (HA and scalable) Apache Tomcat DNS DHCP IBM WebSphere MQ IBM WebSphere Message Broker Informix Dynamic Server

	Kerberos NFS PostgreSQL Samba SAP SAP liveCache SAP Enqueue Server SAP SAPDB/Max DB SWIFT Alliance Access SWIFT Alliance Gateway Sybase ASE Note: available from 3rd party vendor: Symantec Netbackup, IBM DB2
Security	
Oracle Solaris 10	Oracle Solaris Trusted Extensions RBAC
Oracle Solaris 11	RBAC



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Hardware and Software, Engineered to Work Together

