ORACLE COMMUNICATIONS
SERVICE AVAILABILITY MACHINE

Oracle Communications Service Availability Machine (OCSAM) is an integrated hardware and software solution that enables network equipment providers and communications service providers to quickly deliver new applications requiring session integrity and up to seven nines of availability. OCSAM ensures an uninterrupted customer experience for critical mobile and communications applications. It accelerates time-to-market and enables you to focus on innovative applications, not infrastructure. The pre-integrated, pre-tested commercial off-the-shelf OCSAM solution significantly reduces operating costs, and lowers project risks for even the most challenging new or next generation applications and services.

Service Availability with Session Integrity

Delivering new and innovative communications applications has changed dramatically in recent years. Differentiation and driving growth in the telecom marketplace is now centered on delivering new and innovative applications quickly to the market. Rapid growth in smart phones and mobile applications, accelerating customer expectations, and heightened competition from new players in the value chain have combined to create a major challenge for network equipment providers and communications service providers. This challenge is amplified by the need for this new generation of applications to deliver higher levels of availability than ever before. The traditional metric of “more 9s is better” is no longer a sufficient criterion for success. The combination of these trends means that equipment providers need new approaches to not only satisfy their service provider customers, but also to differentiate themselves in the marketplace. System faults that interrupt the customer experience and lose the state of an application session are no longer acceptable in this environment. A solution that preserves the application state and continuous service is required for these applications. Oracle Communications Service Availability Machine provides this unique capability and will enable you to accelerate time-to-market and reduce project risk for this new generation of applications.

Oracle Communications Service Availability Machine – Overview

The architecture of the OCSAM solution includes all the hardware and software needed to develop and deploy network applications that require the highest degrees of availability. It begins with the foundation of the Sun Netra 6000 carrier-grade hardware and Oracle Linux or Solaris 10 operating system. The Oracle Communications Service Availability software leverages this foundation and provides a comprehensive suite of services that are needed for highly available network applications.
Figure 1: The integration of all the hardware and software necessary for delivering service availability applications into a unified solution is a significant benefit of OCSAM.

Unified Availability

OCSAM Unified Availability provides multiple availability management options that can manage the availability of the applications hosted on the platform while considering not just the state of the managed applications but also the underlying platform resources on which the applications directly or indirectly rely. This ensures that all applications on the platform are managed with a cohesive availability management model that considers the state of all resources, not just the state of the applications. OCSAM Unified Availability manages the lifecycle of all managed applications while monitoring the health and availability of the applications and the underlying platform resources.

Unified Availability provides two different availability management options, both built upon a common cluster membership framework:

- Oracle Clusterware
- Oracle Communications Service Availability

Oracle Clusterware

Traditionally utilized in the IT or enterprise space for applications that require data integrity, Oracle Clusterware provides a simple application integration model to ensure the availability of application and other resources distributed across a set of cluster nodes.

Oracle Communications Service Availability

The Oracle Communications Service Availability software includes a comprehensive range of availability, systems management, and application services. It is the centerpiece of the OCSAM solution and provides a set of unique capabilities and features that enable the zero-downtime user experience. All these services within OCSAM follow the AIS (Application Interface Specification) specification of the SA Forum.

Availability Management Services

At the core of the availability software suite is the Availability Management Framework (AMF). It is the foundational component for defining and delivering availability within the solution. AMF is an integrated framework that coordinates all the resources within a cluster to ensure there is no single point of failure. The framework monitors system health; ensures
rapid, stateful failover, manages outages, and supports a rich set of redundancy models, including: 2N, N+1, N + M, N-way, N-way active, and no-redundancy.

AMF provides systems designers with the tools to craft a system model that dictates behaviors at run time. These capabilities drive a comprehensive and automated fault management cycle that detects faults and uses deterministic modeling to isolate and repair issues and restore the system to a state of health, typically meeting sub-second MTTR (Mean Time to Recovery) targets necessary to maintain application state and ensure session integrity.

System Management Services

The System Management building blocks within OCSAM enable the creation of various types of management and notification functionality. Key services include the Notification Service for notification generation and reception, Log Service for system-level logging, and the Information Model Management, a system configuration repository that can be used by OCSAM and your applications.

Application Services

Application Services simplify the development of applications that require service availability. Services provided include the Event Service and Message Service communication services for high-speed intra- and internode communications between applications, Cluster Membership Service for cluster node membership notifications, and a Checkpoint Service that facilitate state synchronization between active and standby applications distributed across a system. The Checkpoint Service plays a central role in OCSAM’s unique ability to deliver stateful and seamless recovery from faults of all types.

Platform Management Services

For management of hardware platforms, Service Availability includes platform management services as defined by the SA Forum Platform Management (PLM) Service. PLM interacts with the HPI library interface that is provided with the Sun Netra 6000.

Figure 2: OCSAM’s availability and management services include the full range of services needed to deliver the highest levels of availability and full application session integrity.

Hardware Platform and Operating Environment

The hardware platform of the Oracle Communications Service Availability Machine Solution is the Sun Netra 6000 blade server, a modular system with carrier-grade reliability that is ideal for applications requiring service availability. Key features and capabilities include extended product lifecycles, NEBS Level 3 certification, and choice of AC or DC chassis.
Users can choose either Oracle Linux or Oracle Solaris as their operating environment for OCSAM. In addition, a virtualized platform using Oracle VM is an optional OCSAM deployment configuration on x86 blades, with Oracle Linux as guest operating system. Oracle VM is a virtualization solution that makes applications of diverse workload types easier to deploy, manage, and support. It is proven to reduce operating costs while simultaneously increasing platform scalability and resource utilization. It also provides a framework to facilitate the deployment and operation of applications that is rapid, repeatable, and error free.

**OCSAM – An Integrated Solution**

The integration of all the hardware and software necessary for delivering service availability applications into a unified solution is a significant benefit of the OCSAM solution. There are several key points of integration and optimization:

- The OCSAM availability software is optimized for, and tightly integrated with, the Sun Netra 6000 blade server.
- Sample fault, recovery, and repair scenarios for all system components are included to help model different redundancy scenarios.

Oracle’s complete system lifecycle support maintains full compatibility between component upgrades and the overall system, enabling you to take advantage of the latest improvements without concern for stability or performance of the platform.

All these elements add up to the key benefit of shorter project lifecycles, shorter test cycles, and an overall higher quality final platform for your unique applications and services.

### Hardware and Operating System Specifications

<table>
<thead>
<tr>
<th>Sun Netra 6000 Chassis</th>
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<tbody>
<tr>
<td><strong>Blades</strong></td>
<td>Up to 10 Netra X3-2B Server Modules or Netra SPARC T4-1B Server Modules</td>
</tr>
<tr>
<td><strong>Network Express Module (NEM)</strong></td>
<td>2 Sun Blade 6000 Ethernet Switched NEM 24p 10 GbE</td>
</tr>
<tr>
<td><strong>Server Modules</strong></td>
<td>Netra Blade X3-2B</td>
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<tr>
<td><strong>Memory</strong></td>
<td>64 GB</td>
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<tr>
<td><strong>Storage</strong></td>
<td>1.2 TB</td>
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<tr>
<td><strong>Operating System</strong></td>
<td>Oracle Linux 5.7</td>
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</tbody>
</table>

**Contact Us**

For more information about Oracle Communications Service Availability Machine, visit oracle.com or call +1.800.ORACLE1 to speak to an Oracle representative.

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