

Sun™ Cluster 3.1 for the Solaris™ OS (x86 Platform Edition)

A Full-Featured, Low-Cost, High-Availability Solution
for Sun x86 Systems



In today's increasingly competitive global economy, businesses demand application service continuity at a low cost. Organizations that deploy business-critical applications on x86-based systems are also faced with the need for application and data availability in order to maintain service levels.

Sun™ Cluster 3.1 software offers a unique approach to application service-level management, and is the industry's premier availability platform for improving the predictability and resilience that businesses expect from their application infrastructure — from the data center to single-CPU systems. A computing environment clustered using Sun Cluster 3.1 is a “service-level management” platform that enables customers to deploy combined applications as services, and automatically and dynamically provide availability, performance, and scalability of these services to better manage service levels.

Sun Cluster 3.1 for the Solaris™ Operating System (x86 Platform Edition) extends data center-class availability, scalability, and performance to x86-based systems. Sun Cluster 3.1 software for the Solaris OS (x86 Platform Edition) is a direct port of Sun Cluster 3.1 software for the Solaris OS (SPARC® Platform Edition), providing all of the high-availability features — such as Global File Systems, Global Devices, and Scalable Services — to low-cost Sun x86 systems.

Solaris 9 Operating System (x86 Platform Edition)

With the Solaris 9 OS (x86 Platform Edition), Sun expands the reach of the number one UNIX® — operating system to x86 servers, giving customers the freedom to choose the solution that best meets their business needs. The enterprise-class Solaris x86 OS delivers mainframe-class reliability, security, availability, and manageability on x86 systems. Licensed by over 1.25 million registered users to date, the Solaris x86 OS provides lower cost — particularly for Web services — and a full range of services and support from Sun and third-parties.

The Solaris 9 OS (x86 Platform Edition) is intended to provide the same benefits and features as the Solaris 9 OS (SPARC Platform Edition), extending Solaris software's value to x86 systems and making it the only industrial-grade UNIX OS available for both 64-bit and 32-bit systems. And with Solaris OS certification tools, Sun helps ensure developer and ISV support, giving Solaris software users simplified access to thousands of open source applications, as well as the ability to recompile code to provide the same enterprise-class applications on entry-level hardware from the SPARC platform.

With support for enterprise-class features, high reliability, and low cost, the Solaris 9 x86 OS is ideally suited for workgroup solutions such as messaging and calendaring; infrastructure solutions such as DNS, DHCP, and NFS; Web, application, and directory servers; and developer solutions.

Why Customers Choose Sun x86-based Platforms

Many companies today must provide higher service levels at lower costs, but find that goal difficult to accomplish on x86-based platforms from other vendors. They need to implement the high availability, scalability, performance, manageability, and flexibility inherent in UNIX platforms while reducing overall costs. And, they need interoperability between platforms to help protect their investments.

With Sun Cluster 3.1 software for the Solaris x86 OS, Sun now offers mission-critical high availability (HA) to Solaris OS x86-based systems, providing customers with more choice and flexibility to better match systems to financial situations.

With the Solaris OS (x86 Platform Edition), enterprises now have the flexibility to increase application service levels on x86 systems, while decreasing cost and risk.

Sun Cluster 3.1 Software and the Solaris OS for x86 Platforms

Sun Cluster 3.1 software takes general-purpose clustering beyond the realm of high availability by adding the simplicity of single-system manageability and the potential of seamless scalability to SPARC systems as well as x86-based systems. In essence, the cluster becomes a single managed entity, and presents itself and its services to clients as if it were an individual server.

The Sun Cluster 3.1 framework extends the Solaris OS, enabling core Solaris services — devices, file systems, and networks — to operate seamlessly across clustered systems while still maintaining full Solaris OS compatibility with existing applications. Sun Cluster 3.1 provides high availability and scalability to everyday Solaris x86 OS applications through continuous network and data availability. Plus, developers can write agents with the easy-to-use Sun Cluster 3.1 application programming interface (API) or SunPlex™ Agent Builder to achieve even higher levels of availability and scalability.

Sun Cluster 3.1 Software Key Benefits

Sun Cluster 3.1 software for the Solaris OS (x86 Platform Edition) offers a unique and extremely cost-effective approach to managing application service levels. And because it is a direct, feature-to-feature port of the Solaris SPARC version,

the Solaris x86 OS can be considered to be a premier, end-to-end, integrated application service delivery platform. With the benefits of Sun Cluster 3.1 software for the Solaris x86 OS — agent support, high availability, scalability, performance, manageability, low-cost development environments, interoperability, and security — enterprises now have the flexibility to increase application service levels on x86 systems while simultaneously decreasing cost and risk.

Supported Applications

Sun Cluster 3.1 software for the Solaris x86 OS currently supports the following applications, with more expected in the future:

Sun Java™ System Application Server Platform Edition and Standard Edition

- Sun Java System Message Queue
- Sun Java System Web Server
- Sun Java System Directory Server
- Sun Java System Calendar Server
- Sun Java System Messaging Server
- DNS
- NFS
- DHCP
- MySQL
- Apache Tomcat
- Samba

Sun Cluster 3.1 includes an easy-to-use SunPlex Agent Builder for supporting other applications.

High Availability

The most critical challenge in meeting service-level guarantees is availability. In a global economy, an organization's applications must be constantly available to avoid lost business. Sun Cluster 3.1 software delivers improved service levels for cost-effective applications, such as MySQL, by providing continuous network, data, and service availability, making recovery from failure transparent to clients. These capabilities enable IT teams to deliver higher, more predictable application service levels for applications such as MySQL or Apache Tomcat on x86-based systems while reducing risk and costs. Sun Cluster 3.1 automatically restarts a failed resource without manual intervention, enabling consistent applications services levels even on two-CPU systems.

Scalability

Sun Cluster 3.1 software allows applications to be distributed across nodes in the cluster, providing easy manageability, application scalability, and automatic recovery of service levels. For example, using the Scalable Sun Java System Web Server agent, system administrators can load balance Web services across multiple servers to achieve greater performance without sacrificing availability. With Sun Cluster Global Network Services, this load balancing is transparent to the clients because the cluster appears to them as a single IP address. And by adding more systems to the cluster, capacity and continuity can easily be increased.

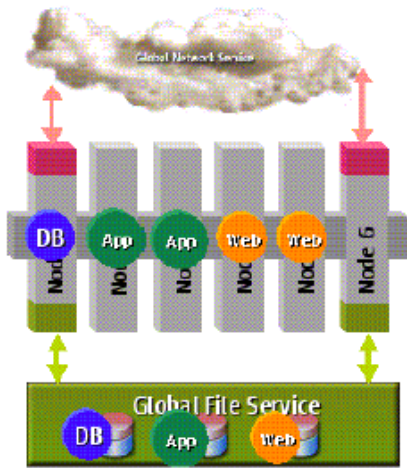
Performance

Along with the ability to failover, it is imperative when maintaining service levels that this failover happen quickly. Because key fault detection and recovery functions of Sun Cluster 3.1 software are integrated with the Solaris OS kernel, it is intended to provide fast error detection, fast software switchover, and parallelized application and infrastructure restarts.

When a failover occurs, the failed instance of the application automatically restarts on the same node if that node is healthy, or on the backup node if it is not. After the failover completes, the clients and applications access services and data transparently, unaware that the physical server has changed.

Manageability

Sun Cluster 3.1 software is designed to provide a powerful, flexible environment where multiple application services can be simultaneously deployed and easily managed as one system, with an easy-to-use interface. Applications can be implemented and administered across systems in a cluster without worrying about how they will find and access network and file services.



Sun Cluster 3.1 software includes SunPlex Manager — a system management tool that creates a centrally managed environment for easy administration, which in turn lowers operating costs. SunPlex Manager is a browser-based graphical user interface (GUI) tool designed to make it easier to install and manage systems that are clustered using Sun Cluster 3.1 software. Work can be performed from anywhere in the network using popular browsers in a secured heterogeneous environment. And since the x86 administration interfaces are the same as the SPARC versions, there is no need to retrain IT staff.

Low-Cost Development Environment

Sun provides a growing list of qualified Scalable and HA (Failover) agents. Alternatively, developers can use the SunPlex Agent Builder to develop Scalable or HA agents, providing scalability and high availability for any in-house applications customers may have written to provide extended functionality on the Solaris x86 OS platform, as well as other off-the-shelf applications. The SunPlex AgentBuilder generates agent code in Ksh or C with two simple clicks. Developers can also employ the Generic Agent functionality in the Agent Builder to quickly develop agents without writing or modifying code. The Generic Agent functionality generates a precompiled agent binary with tunable parameters to customize the agent. These are powerful features that can help significantly shorten development cycles for agents.

In addition, Sun Cluster 3.1 software can be configured as a single-node cluster, enabling developers to create cluster-enabled applications on a single node. This capability provides an extremely cost-effective platform for developing HA and Scalable agents.

Interoperability

Interoperability between system platforms is another important factor in maintaining service levels. The Solaris 9 OS (x86 Platform Edition) provides many features that make it easy to develop and port both Linux and SPARC applications to the x86 platform. One such application is Samba, which itself was developed to interoperate between UNIX and Microsoft Windows systems in order to reduce complexity and ease manageability. With the HA Samba agent, IT managers can now implement Samba on a low-cost x86 platform with the same high availability as a UNIX platform.

Flexibility

By offering Sun Cluster 3.1 software for the Solaris OS on both SPARC and x86-based systems, Sun gives customers extraordinary flexibility by providing data center-class high-availability features from x86-based systems to 106-CPU enterprise-class systems. With this extensive range of configurations, customer now have the ability to choose the solution that best meets their business needs. In addition, because it is possible to run similar software stacks on both SPARC and x86 systems, IT managers can choose to run familiar applications on lower cost systems without bearing the cost of retraining their staff. This is particularly true for Java Enterprise System applications.

Security

High levels of security also help improve applications service availability. Security hardening is supported on all of the Sun Cluster 3.1 software supported agents, providing a more secure environment for x86-based clusters. In addition, role-based access control (RBAC) features in SunPlex Manager strengthen cluster management and security.

Sun Cluster 3.1 Software and the Java Enterprise System

The Java Enterprise System offers a single, comprehensive software system with all of the critical enterprise network services that today's businesses need, packaged with end-to-end support, maintenance, education, and consulting — all delivered to customers at regular, predictable intervals. The core set of enterprise network services that the Java Enterprise System delivers includes Web and Application, Network Identity, Portal, Communication and Collaboration, Availability, and Security services.

Sun™ Cluster 3.1 for the Solaris™ OS (x86 Platform Edition)

Sun Cluster 3.1 software is one of the key components of the Java Enterprise System, enabling customers to deploy highly available applications in business- and mission-critical environments on low-cost x86-based systems. For example, customers may choose to implement Web services on x86-based systems because of the hardware's low acquisition cost, good performance for Web serving, and horizontal scalability. With Sun Cluster 3.1 software and the enterprise-class features of the Solaris OS for x86 platforms and AMD Opteron systems, along with HA support for MySQL and Java Enterprise System applications, it is now possible to implement a low-entry, low total cost of ownership (TCO) Web services environment with the same data center-class high availability and commitment to service levels as SPARC based systems.

In particular, Sun Cluster 3.1 on Sun Fire™ servers such as the Sun Fire V20z server offers an ideal platform for a horizontally scaled cluster, providing a low-cost, easily expandable, highly available solution for deploying Web infrastructure applications, database or development services, or other general-purpose Tier 1 and Tier 2 network applications with high-availability requirements.

Faster Deployments With Customer Ready Systems Program

Clustered solutions using Sun Cluster 3.1 software can be delivered through the Sun Customer Ready Systems (CRS) program as a custom solution. Sun CRS factory-integrated solutions are designed to deliver faster time to value for Sun customers deploying clustered environments.

Serious Software Made Simple

Sun provides a complete portfolio of affordable, interoperable, and open software systems designed to help maximize the utilization and efficiency of IT infrastructures. Built from the secure, highly available foundations of UNIX and Java, these systems deliver implementations that are preintegrated and backward compatible. Sun's portfolio consists of Solaris and Linux software for SPARC and x86 platforms, the N1™ Grid platform for dynamic and utility computing, and the Sun Java System — five integrated software systems for the data center, the desktop, the developer, mobile devices, and identity implementations.

About Sun Microsystems, Inc.

Since its inception in 1982, customers have continually turned to Sun to help them grow their business, lower their costs, and gain competitive advantage. Sun is a leading provider of industrial-strength hardware, software, services, and technologies that make the Net work.

For More Information

To learn more about Sun Cluster 3.1 software, visit sun.com/cluster. For information on the Java Enterprise System, go to sun.com/javaenterprisesystem. And for more information on the Solaris OS (x86 Platform Edition), see sun.com/solaris.

Learn More

Get the inside story on the trends and technologies shaping the future of computing by signing up for the Sun Inner Circle program. You'll receive a monthly newsletter packed with information, plus access to a wealth of resources. Register today at sun.com/joinic.

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