

Sun™ N1 Advanced Architecture for SAP Solutions

Virtualizing and Optimizing SAP Environments



Highlights

- Reduce complexity — by virtualizing SAP application services across an optimized pool of resources
- Reduce operating costs — with a totally open, interoperable infrastructure that makes more efficient use of resources
- Improve flexibility — simplify, standardize, and automate resource utilization to achieve service levels
- Reduce risk — with a proven reference architecture, Sun Services, and automated provisioning, deployment, monitoring, and analyzing tools
- Improve business processes — by constantly changing and innovating the IT infrastructure to gain competitive advantage
- Increase application availability — with Sun Java™ Availability Suite for failover, redundancy, and disaster recovery
- Improve security and compliance — with secure, automated processes to help control access and eliminate errors



In today's hyper-competitive global economy, information — and by extension, Information Technology — drives the company. But the days of unfettered IT spending, deploying applications such as SAP NetWeaver on large, separate servers with overhead capacity to provide services, are long gone. It is now imperative that IT become a cost-effective, strategic asset to organizations to help them achieve constantly changing business goals. To accomplish this, IT managers need the option to customize where they can gain competitive advantage and standardize where they can realize economies of scale. For SAP environments this means virtualizing the SAP Enterprise Services Architecture (ESA) across an optimized pool of resources and customizing resource utilization to meet the needs of Service Level Agreements. The Sun™ N1 Advanced Architecture for SAP Solutions does just that, helping IT implement a smarter enterprise through innovation with smarter services, solutions, ideas, and answers.

N1 Advanced Architecture for SAP Solutions

The N1 Advanced Architecture for SAP Solutions defines an architecture as well as implementation and management practices that build from the same concepts SAP defines as Adaptive Computing — creating a highly adaptable and flexible computing infrastructure through virtualization, optimization, and resource management.

Specifically designed to address the challenges of complexity, limited budgets, flexibility, and the need to reduce the risk of changing production systems, the N1 Advanced

Architecture for SAP Solutions encompasses:

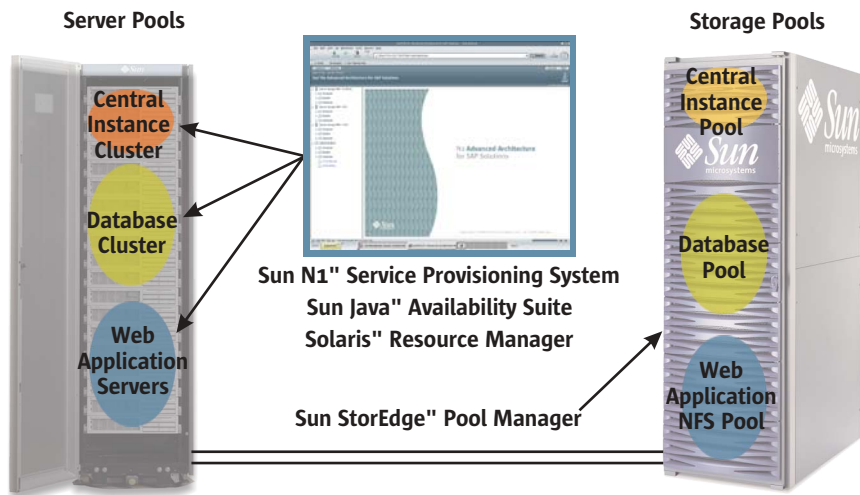
- A proven reference architecture to virtualize and optimize the SAP environment
- Sun™ Solution Centers for SAP Solutions to fine-tune the solution and minimize risk
- A complete portfolio of Sun Services to help design and implement the solution
- The N1 Advanced Architecture Manager, Builder, Deployer, and Analyzer for SAP Solutions to provision, deploy, monitor, and analyze the SAP environment
- The Sun Joint Support Center for SAP Solutions to resolve interoperability issues

N1 Advanced Architecture for SAP Solutions Reference Architecture

To streamline the infrastructure for an SAP ESA environment, Sun developed a tested and tuned reference architecture that is cost-effective to implement and manage, and is designed to optimize performance and availability. Sun's N1 architecture extends beyond actual products to encompass a set of principles to optimize and better manage the data center — virtualization, layered pools, provisioning, high availability, and central management.

The reference architecture optimizes the SAP environment to deliver all of the required services while minimizing the number of servers and amount of redundant capacity. Sun's answer to SAP server sprawl is to implement each SAP component on a common set of servers, based on their need for scalability and availability. Rather than installing separate, under-utilized database servers for each SAP component, a pool of clustered servers is used to host all databases instances. A similar approach is applied to application and central instance components. In addition, the architecture can be implemented horizontally, vertically, or both, depending on the needs and design philosophy of the organization.

The infrastructure is virtualized via a combination of Adaptive Computing and the Sun Java Availability Suite's Sun™ Cluster software. The Adaptive Computing approach enables SAP NetWeaver application services to be decoupled from specific servers. The N1 Advanced Architecture for SAP Solutions Reference Architecture is certified and compliant with the Adaptive Computing Compliance test. And Sun Cluster software provides global services that make clustered nodes appear as a single system.



Virtualized and Optimized SAP Environment

The reference architecture is designed to provide the following benefits:

- **Increased scalability** — The infrastructure is designed to scale by simply adding more resources (servers, CPUs, memory, networking, or storage) to a pool.
- **Reduced costs** — By optimizing resource utilization. Having fewer assets to manage can free staff for more strategic projects and lower indirect operating costs such as floor space, power, and cooling.
- **Improved service levels** — By utilizing Sun management tools such as Sun™ N1 Service Provisioning System software, Sun Management Center, and Solaris™ Resource Manager software to provide granular control of resources. A virtualized environment is easier to manage and optimize by dynamically allocating resources between applications, allowing services to scale seamlessly with demand.
- **Increased availability** — The Java Availability Suite is employed both to provide pools of resource and failover services for high availability. Application services can fail over within the same system or another system in the cluster. As an additional option, disaster recovery can be implemented across any distance with Sun™ Cluster Geographic Edition software to

enable applications to fail over to distance-separated clusters.

- **Improved flexibility** — By simplifying the infrastructure, standardizing on common platforms and tools, and automating resource utilization.

Sun Services

Sun offers two key sets of service solutions to help IT organizations evaluate, architect, implement, and manage the N1 Advanced Architecture for SAP Solutions — services offered within the Sun Solution Center for SAP Solutions, and specialized Sun Services for SAP Solutions.

Sun Solution Center for SAP Solutions

The Sun Solution Center for SAP Solutions is a global resource of SAP consulting and solution expertise. The Sun Solution Center for SAP Solutions consultants and architects provide a full range of services tailored to specific needs — including capacity planning, solution design, architecture, deployment, migration, consolidation, and integration of ISV enterprise applications, all leveraging Sun's world-class products, technologies and experience. The global network of Sun experts help move concepts from the drawing board to production fast and help ensure that the results are beyond expectations. IT staff can leverage the

combined expertise of Sun engineers and consultants — world-class partners that include system integrators, solutions providers, ISVs, services providers, and OEMs — all in one place, sharing ideas and knowledge, and focused on helping to minimize the business and technical risks, costs, and implementation time frames of the N1 Advanced Architecture for SAP Solutions.

Sun Services for SAP Solutions

Sun offers several levels of services to help organizations develop and deliver a smarter SAP environment. Sun consultants initially meet with IT staff in the Sun N1 Advanced Architecture for SAP Solutions Workshop to learn about the SAP environment, identify key business drivers, and to articulate Sun's N1 Advanced Architecture for SAP Solutions vision and provide a road map for getting there.

In the Sun N1 Advanced Architecture for SAP Solutions Justification Review, Sun examines the complete SAP requirements in discussion

with key technical and business staff members to gather sufficient data to establish critical success criteria to the business, to identify technology drivers, to determine the required server and storage resources for each system instance, and carry out a total cost of ownership study for two options — an optimized architecture and traditional separate landscape architecture — to help predict cost savings estimates.

The Sun N1 Advanced Architecture for SAP Solutions Architecture Service uses the findings from the assessment phase, including the business requirements, to produce a detailed design for the SAP system infrastructure that fits the organization performance, capacity, and regulatory compliance needs, business continuity plans, and business process requirements.

After the architecture is defined, Sun, in conjunction with IT staff and any partners, implements the agreed upon infrastructure, utilizing

the N1 Advanced Architecture Builder and Deployer for SAP Solutions to build and deploy the individual servers. Once implemented, an extensive series of tests are performed to help ensure the infrastructure meets the specified requirements.

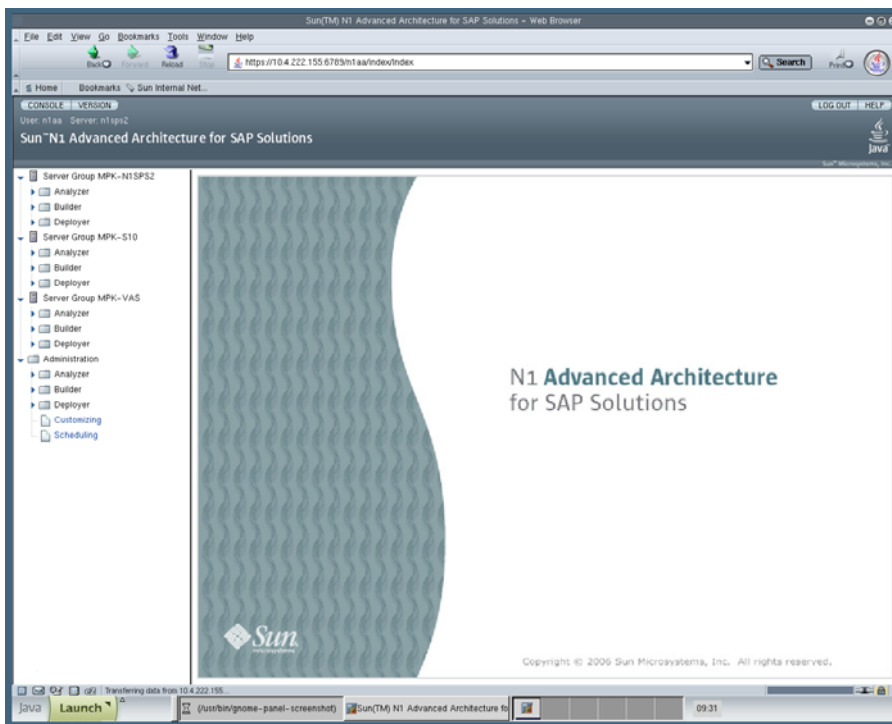
To capitalize on the greater flexibility of the new infrastructure, Sun can also assist the IT staff as required to develop new operational

“The N1 Advanced Architecture for SAP Solutions adds value through innovation with smarter infrastructures and services.”

procedures and processes. This can include interim operations management, skills transfer, formal on-site and off-site training, as well as assistance in setting up the N1 Advanced Architecture Analyzer module to constantly analyze the environment for better resource utilization.

N1 Advanced Architecture Manager, Builder, Deployer, and Analyzer for SAP Solutions

The N1 Advanced Architecture Manager for SAP Solutions is designed to provide tools to help IT managers make smarter decisions and make changes to the SAP infrastructure quickly, easily, and with little risk to production systems — utilizing Sun N1 Service Provisioning System pre-built modules and Sun Java Availability Suite. It consists of a customized Java technology-based Web browser interface, called the N1 Advanced Architecture Manager, and three modules — N1 Advanced Architecture Builder, N1 Advanced Architecture Deployer, and N1 Advanced Architecture Analyzer — that transform the entire SAP



infrastructure and the data center into a virtual system. The performance of this virtual system and specified service levels are continually monitored, controlled, and managed. And, changes occur quickly with a minimum of effort or risk.

With the N1 Advanced Architecture for SAP Solutions, IT operators can deploy, provision, manage, and change pools of resources and application services, monitor service levels, and analyze the environment — all from a single Web browser interface — delivering more business flexibility through virtualization, application and resource provisioning, monitoring, and central management. In addition, the N1 Advanced Architecture Deployer module is certified to integrate with the Adaptive Computing Controller to move SAP applications to other servers in a safe and simple way.

One of the main concepts of Sun's N1 vision is to centralize management to make it easier to manage complex environments and meet service level agreements. The N1 Advanced Architecture Manager leverages several tools to manage large collections of systems with a minimum of system administration effort as if they were a single system — Sun Cluster commands to centrally manage virtualized services on Sun Cluster, N1 Service Provisioning System for provisioning hardware and software, Sun Management Center to monitor the Solaris™ Operating System and Sun hardware, Solaris Resource Manager for managing CPU resource across domains and Solaris Containers, Sun Java Directory Server for a centralized naming service, and Sun

StorEdge™ Pool Manager software to centrally manage Sun storage systems.

Sun N1 Service Provisioning System

For applications other than SAP, the N1 Service Provisioning System can also be used to automate the process of building, deploying, and provisioning the entire application infrastructure across multiple tiers, to bare metal heterogeneous systems including the Solaris 9 and 10 OS, Red Hat Linux 3.0, and Microsoft Windows Server 2000. At the touch of a button, it automatically checks application dependencies, deploys needed software from a central repository, configures applications, and logs all actions. By eliminating manual, repetitive tasks, it accelerates service deployment, and can improve security and compliance by automating processes, controlling access, and eliminating errors.

Sun Joint Support Center for SAP Solutions

Today, more than ever, the number of applications and the rate of change can introduce interoperability issues that can be difficult to diagnose. The Sun Joint Support Center for SAP Solutions (JCS) provides 24/7 worldwide support to rapidly resolve any interoperability issues between Sun platforms and SAP software. The JCS provides SunSpectrum PlatinumSM and SunSpectrum GoldSM support customers with specific SAP expertise in resolving complex issues related to the integrated software stack running on Sun systems. Dedicated Sun senior support engineers are specially trained to help quickly resolve problems and therefore decrease downtime. And for those environments running on the Solaris 10 Operating System, interoperability

Learn More

To learn more about the Sun N1 Advanced Architecture for SAP Solutions, see www.sun.com/sapn1aa

issues can be pinpointed even faster with Solaris Dynamic Tracing, a feature that can non-disruptively trace processes on production systems.

Conclusion

Today the IT infrastructure does not just support the business, it's an integral part of the business that must be adaptable to provide high performance, availability, and cost-effectiveness. To deliver the flexibility required to be competitive, enterprises look for partners who intimately understand their challenges and collaborate to provide solutions to address them. Sun and SAP have been partnering for years to do just that, providing innovative, cost-effective, end-to-end solutions to help companies drive growth.

All of the flexibility enabled by the N1 Advanced Architecture for SAP Solutions helps improve business processes by constantly changing and innovating the IT infrastructure to gain competitive advantage. At Sun, we call that a truly Smarter Enterprise.