

# Sun™ N1 Service Provisioning System

Automating Application Life Cycle Management Across Heterogeneous Environments



## Highlights

- Simplify, standardize, automate IT infrastructure for business service delivery
- Speed installation with prebuilt models for commonly used applications, operating systems
- Eliminate need to rely on ad-hoc scripts and manual procedures, virtually eradicating installation errors and increasing application availability
- Automate time-consuming tasks of deploying and updating applications across multiple systems
- Reduce errors using simulation, automation, roll-back, configuration comparison features
- Fine-tune deployment plans with object-oriented modeling approach
- Support application provisioning to Solaris™ 10 Containers
- SPS Modeller integration with Netbeans for rapid plugin development



Managing complex application environments to meet the needs of rapidly evolving business conditions is an overwhelming challenge for today's IT operators. While there are many tools for developing, testing, and monitoring applications, automated solutions are scarce for efficiently and consistently provisioning applications and managing the application life cycle. Currently, IT operators rely on custom scripts to manually configure and deploy applications — a time-consuming process that fosters inconsistent policies.

Quite often, these scripts are developed just minutes before they are needed for production roll out, without being thoroughly tested for accuracy or completeness. They frequently omit essential steps, miscalculate system requirements, or overlook key information such as software dependencies and configuration status. The result: deployment errors, application downtime, and IT operators frantically trying to troubleshoot problems and restore service.

In order to manage diverse and dynamic environments, IT operators need a robust tool that automates the application provisioning and reprovisioning process, enables them to configure and deploy applications more consistently and reliably, and eliminates the time-intensive and error-prone aspects of scripts.

### Sun™ N1 Service Provisioning System

The Sun™ N1 Service Provisioning System simplifies application life cycle management by rapidly provisioning business services that span multiple tiers — Web servers, application servers, and databases — across heterogeneous environments. The N1 Service Provisioning System can provision the entire software stack, from the OS to application services. It also enables IT operators to

provision application services into Solaris™ Containers to help consolidate servers and optimize resource utilization. In addition, the N1 Service Provisioning System can easily reprovision business services to manage ever-changing business needs.

To manage complexity and change, IT organizations need accurate and timely information about tens of thousands of files on hundreds of servers. Managing applications in data center environments requires the capability to model the environment, simulate deployments, compare applications, track configuration changes, control application versions, and integrate with other applications.

The N1Service Provisioning System enables IT operators to deploy, configure, update, and reprovision business services. At the touch of a button, it automatically checks application dependencies, deploys needed software from a central repository, configures applications based on predefined models, and logs all actions for later analysis. By eliminating manual, repetitive tasks, it allows organizations to simplify complex application installation and configuration, which accelerates business service deployment and delivery times, increases application availability, reduces operating expenses, and frees IT operators to concentrate on business goals.

While many application provisioning solutions in the market support script-based technology, the N1 Service Provisioning System uses a state-of-the-art, object-oriented modeling approach. This makes it easier for IT operators to customize their application environments to meet business needs, and fine-tune deployment procedures to gain the maximum benefits of automation while speeding deployment time.

### Operating system provisioning

The N1 Service Provisioning System enables IT operators to remotely install and configure operating systems using prebuilt models for the Solaris OS, Red Hat Linux Advanced Server, and Microsoft Windows Server. With this feature, IT operators can provision the entire software stack, from the OS to application services, using a single tool. Additionally, it includes a prebuilt model for deploying Solaris patches and packages, as well as for creating and managing Solaris 10 Containers.

### Multitier application provisioning

The N1 Service Provisioning System is ideal for IT operators who need to deploy complex business services that span multiple tiers — Web servers, application servers, and databases — across heterogeneous environments. A central data repository stores configuration information about each application, making it possible to automatically deploy a business service across multiple tiers. In addition, IT operators can set various parameters that allow applications to be dynamically deployed in different environments to support the entire application life cycle. For example, parameters can be easily modified to deploy the application in development, test, or production environments. They can also be changed to reprovision systems between tiers, or for other functions to meet changing business needs.

### Application portfolio

The N1 Service Provisioning System provides prebuilt models for selected Web servers, application servers, and databases. IT operators can use these models to perform standard configuration and deployment operations. The models can also be modified to incorporate the unique needs of any installation, or combined with others to create a larger model for an integrated business service.

### Configuration comparison

Not all configuration changes occur through the N1 Service Provisioning System. When these changes occur out-of-band, they can be hard to track. For example, if multiple IT operators make changes to the same application, the changes may not be apparent to each operator. The N1 Service Provisioning System provides the ability to perform a configuration comparison and generate a report. This enables IT operators to compare two different configurations in an application's history — on an ad hoc or scheduled basis — and identify changes that may have been made to the applications in the stack. Errors and unauthorized changes can be quickly identified and corrected through automated procedures based on the component.

### Deployment simulation

The N1 Service Provisioning System helps reduce configuration errors, while it decreases deployment time and potential downtime for system changes. One way it accomplishes this is by enabling the IT operator to simulate the deployment process — helping to ensure that key criteria such as connectivity, permissions, disk space, and dependencies between applications are met — prior to installing software or implementing changes.

### Version control and roll back

The N1 Service Provisioning System includes versioning capabilities for maintaining and provisioning multiple versions of applications. All execution steps and their results are kept in audit logs in a central repository to provide deployment and configuration data. This enables rapid, root-cause analysis and rollback to previous states, making it easier to fix problems and helping to ensure that applications comply with regulations and data center standards.

### Role-based access control

The N1 Service Provisioning System also provides a number of security features, including the ability to grant specific management permissions to individual IT operators and authenticate them via the Lightweight Directory Access Protocol (LDAP), Microsoft Active Directory, or internal passwords. This provides a unified user management system with a single point of authentication.

### Software developer kit

The N1 Service Provisioning System can be extended to meet unique business requirements by developing new models with the SDK, which provides APIs to help data center developers and independent software developers (ISVs) build and integrate custom models into the N1 Service Provisioning System.

### Java API

For provisioning purposes, customers can tightly integrate the N1 Service Provisioning System with their applications using the Java APIs. They can further customize their application environments and create their own application user interfaces while utilizing the underlying, proven capabilities of the N1 Service Provisioning System.

### Sun N1 Service Provisioning System capabilities at a glance

Feature	Function	Benefits
Multitier Application Provisioning	Provisions application running on Solaris, Linux, Windows, AIX, and HP-UX across multiple tiers	Reduces reliance on scripts and manual procedures to provision, change, and reprovision application services across multiple tiers
Application Portfolio	Offers prebuilt models for deploying application servers, Web servers, and databases	Accelerates delivery business services
Netbeans Plugin	Enables the development of SPS artifacts such as plans, components and plugin in a rich IDE environment	Eliminates errors in XML authoring and reduces the time to develop a plugin
Configuration Comparison	Checks for differences between two installed application instances	Helps ensure compliance by enabling users to identify and track all changes, including errors and unauthorized changes, between deployments
Deployment Simulation	Simulates deployment process prior to implementing changes, ensuring that key criteria such as connectivity, permission, disk space, and dependencies are met	Helps reduce configuration errors, increasing application availability
Version Control and Rollback	Records every action taken by administrators across applications and managed servers — enables rollback to previous states	Provides historical record of changes; enables administrators to quickly revert back to previous states, decreasing application downtime
Role-Based Access Control (RBAC)	Grants specific management permissions to specific users, authenticating users via LDAP or Microsoft Active Directory	Provides increased security controls to help comply with regulations — administrators can specify the minimum/maximum username and password length, mandate a character set to which user name and password must adhere and allow these rules to be configurable
Software Developer Kit (SDK)	Provides APIs to help developers build custom models for provisioning specific applications	Extends N1 Service Provisioning System to help develop components and plans to meet specific business requirements
Java Application Programming Interface (API)	Enables N1 Service Provisioning System to be integrated as part of an existing application	Allows customers to create their own user interfaces while utilizing underlying capabilities of N1 Service Provisioning System
Solaris Containers Support	Provides prebuilt models to provision applications to Solaris Containers	Simplifies and accelerates server consolidation

### Platform support

N1 Service Provisioning System is supported on these operating system platforms:

#### Master server

- Solaris 8, 9, and 10 SPARC Operating System
- Solaris 9, 10 x86 Operating Systems
- Red Hat Linux Advanced Server 3.0 (32/64 bit), 4.0 (32/64 bit)
- Microsoft Windows 2000 Advanced Server

#### Remote agent and local distributor

- Solaris 8, 9 and 10 SPARC Operating System
- Solaris 9 and 10 x86 Operating Systems
- Red Hat Linux Advanced Server 3.0 (32/64 bit), 4.0 (32/64 bit)
- IBM AIX 5.2 and 5.3
- Microsoft Windows Server 2003 SE and AE (32/64 bit)
- Microsoft Windows 2003 Server
- Microsoft Windows 2003 Web Edition
- HP-UX 11i
- SUSE Linux Enterprise 8.0, 9.0

### Conclusion

N1 Service Provisioning System revolutionizes IT operations by helping to relieve IT operators of the mundane, repetitive, time-consuming, error-prone, and expensive tasks of manually provisioning business services. With N1 Service Provisioning System, IT operators can provision the entire software stack, from operating systems to multitier applications, with a single tool. It enables IT organizations to simplify, standardize, and automate end-to-end business service delivery at the touch of a button.

#### Learn More

To learn more about the Sun N1 Service Provisioning System, please visit:

[www.sun.com/software/products/service\\_provisioning/index.xml](http://www.sun.com/software/products/service_provisioning/index.xml)