

N1 Provisioning Server 3.0 Blades Edition

Rapidly design, configure, provision, and scale blade-based server farms — automatically.



Key feature highlights

Automates the configuration and deployment of servers, firewalls, load balancers, and network resources

Virtualizes resources to manage the blade server platform as a system

Delivers multitenancy N1 data center capabilities to the blade server platform

Offers an entry point to N1 that can grow to manage the entire data center

Provides an internal event database for integration with billing, inventory management, and service-level agreement (SLA) enforcement

Designed to enable the deployment of an entire server farm in under an hour

N1 Provisioning Server 3.0 Blades Edition software from Sun Microsystems provides a highly scalable and powerful management environment for the Sun Fire™ Blade Platform. Running on one or more dedicated servers, in an out-of-band management network, N1 Provisioning Server 3.0 Blades Edition enables users to rapidly design, configure, provision, and scale blade-based logical server farms automatically.

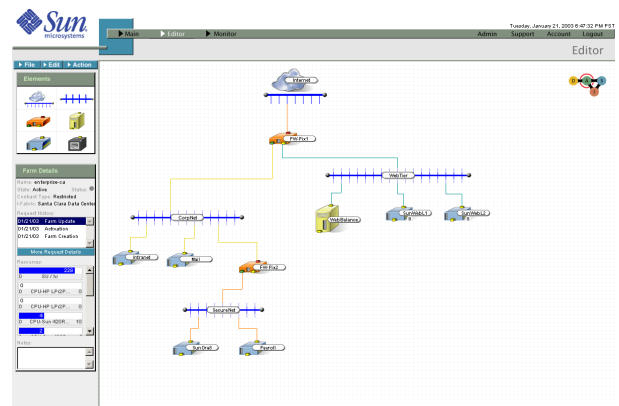
Logical server farms are a collection of logically internetworked blades that are provisioned by the software from a common pool of Sun Fire blades, drawn from one or more shelves. N1 Provisioning Server 3.0 Blades Edition software manages this blade pool, along with other networking resources — such as networking virtual local area networks (VLANs) and IP addresses — in a way that enables users to create, scale, reconfigure, and decommission securely separated blade-based server farms on the fly. Once blades are assigned and provisioned to a particular server farm, they are completely dedicated to that farm; there is no virtual partitioning of blades or sharing of physical blades across different logical farms.

Creation and Configuration of Logical Server Farms

N1 Provisioning Server 3.0 Blades Edition software automates the deployment of an infrastructure by enabling the virtual wiring together of server farms based on the networking diagram drawn by the user in the Web-based “drag and drop” design interface. Users can specify the following:

- Arbitrary network topologies
 - User-defined subnets and VLANs
- Server types and configurations
 - Server blade type (for configurations of blades with different capabilities, for example, disk size or amount of memory)
- Host names and network gateway

- Software image to be deployed to the blade
- Configuration of specialty blades, such as load balancers and SSL accelerators
- Connectivity to networks and devices outside the managed Sun Fire environment



N1 Provisioning Server 3.0 Blades Edition software is specifically focused on managing Sun Fire blades, shelves, and associated infrastructure.

Once a farm is created, N1 Provisioning Server 3.0 Blades Edition provides a full set of capabilities to manage the complete *life cycle* of deployment — including design activation, scaling, standby, and deactivation.

Activation

When the user has completed his or her design, N1 Provisioning Server 3.0 Blades Edition software automatically manages a number of processes in order to build the farm, including:

- Blade allocation and inventory tracking
- “Bare metal” software image distribution to server blades
- Load balancer and SSL accelerator configuration
- Ethernet switch management (automated VLAN creation)
- Automated IP address and DNS management

Scaling Farm Capacity

N1 Provisioning Server 3.0 Blades Edition software enables you to rapidly adjust — or *flex* — your server farm capacity up or down simply by changing the farm design from the Web-based interface. Adding a blade to a farm is as easy as dragging a new icon into the network design or increasing the number of servers represented in a server group. When N1 Provisioning Server 3.0 Blades Edition provisions a new blade to the farm, it automatically manages all aspects of the change; blade disk images are provisioned, and the blade is automatically added into the server farm.

Repurposing Blades

When it comes to quickly redeploying a blade to another function or to another server farm altogether, N1 Provisioning Server 3.0 Blades Edition software offers two options:

- Deactivate or scale down a single blade or the entire server farm.
- Place an existing, lower priority single blade or the entire server farm on “standby.”

With the standby feature, the system saves the complete farm configuration, including copies of the disk images, and frees the blades back into the free pool. All blades are completely scrubbed — for security purposes — prior to redeployment. At some future time, the complete standby farm can be recreated with a simple request through the N1 GUI.

Software Image Management and Distribution

N1 Provisioning Server 3.0 Blades Edition software provides a software image management system that features a library of master software images. The library can be housed on any NFS or FTP server connected to the management network. With the software image management system, you can effortlessly:

- Create new master images by copying blade disk volumes
 - Users can execute “snapshot” commands from the Web-based GUI
 - Users can snapshot servers, load balancers, and SSL accelerators
- Distribute images to blades
 - To deploy new blades
 - To replicate blades or scale an existing environment
 - To change the role or update images on currently deployed blades
- Track software image deployment across farms and users by image name and user-defined image attributes

Monitoring and Automated Failover

N1 Provisioning Server 3.0 Blades Edition software monitors the health and availability of the infrastructure. When the software detects that a blade has become unresponsive, it can perform an automatic replacement of the physical blade with another blade from the free resource pool. The software knows the configuration of every blade, so it can reconfigure a new blade into the identical role of a failed device.

During the failover process, N1 Provisioning Server 3.0 Blades Edition performs all the steps necessary for a successful transition, including:

- Allocating a new blade
- Loading the last snapshot of the failed blade onto the replacement blade (from the image library)
- Configuring the switch to place the new blade in the proper VLAN and subnet
- Booting the new blade and confirming its availability and health
- Moving the failed hardware into a special pool flagged for repair

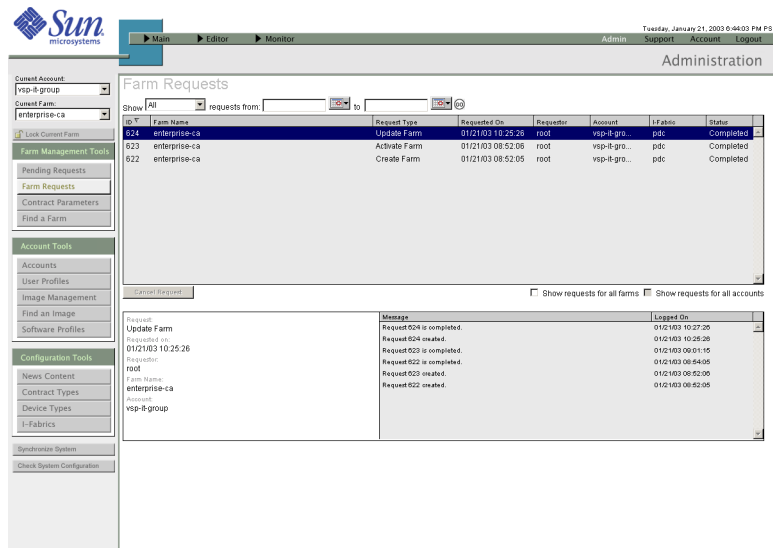
In addition to availability monitoring, N1 Provisioning Server 3.0 Blades Edition provides users with the ability to set monitoring and alarm thresholds for a basic set of performance monitors, including:

- CPU utilization
- Disk utilization
- Physical memory
- Virtual memory

User can specify notification preferences and receive notification when a threshold is exceeded.

Control Center Web-based Management Interface

N1 Provisioning Server 3.0 Blades Edition software features a Web-based graphical user interface (GUI). The Control Center GUI enables multiple users in an organization to independently design, create, and manage blades, and can manage any number of physical locations.



Administrative Management and Control Interface

In addition to the Control Center, N1 Provisioning Server 3.0 Blades Edition software provides a command-based interface that gives system administrators extensive control over the operation of the software. Through this interface, administrators can control configuration and operation of the infrastructure at a very fine level of granularity. For example, administrators can:

- Set automation preferences
- Analyze and troubleshoot system operation
- Access blade event history by group or server farm

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Physical Resource Management

N1 Provisioning Server 3.0 Blades Edition software completely tracks both the physical and logical attributes of your infrastructure. This capability provides you with the ability to:

- Obtain information on the physical connectivity of devices
- Quickly locate failed devices or faulty connections
- Track free and used blades

Secure, Multiuser Provisioning Environment

N1 Provisioning Server 3.0 Blades Edition software supports both multiuser and multifarm management by automatically managing the security and virtualization boundaries within your infrastructure. This means that multiple users across departments can securely create and self-manage their own server farms from a common pool of blades independently from others in their organization.

The software supports:

- Multiple groups or “accounts,” for example, each organization or department might have its own account
- Multiple users and active farms within an account
- Assignable hardware quotas to a farm

- Separate administrative “super-user” access
- Built-in workflow that includes administrative approval steps for farm activation and scaling
- Configurable provisioning permissions for farm scaling and device configuration actions

Self-Installable

N1 Provisioning Server 3.0 for Blade Edition software is designed to be customer installable and configurable.

Hardware Support

N1 Provisioning Server 3.0 Blades Edition software supports Sun Fire blades, shelves, and associated infrastructure. The software manages:

- Sun Fire B1600 Intelligent Shelf
- Sun Fire B100s SPARC® Blade Server
- Sun Fire x86 Blade Server¹
- Sun Fire Content Load Balancing Blade¹
- Sun Fire SSL Proxy Blade¹
- Built-in shelf switches
- Optional external switches, connected in a specified manner to provide layer additional Ethernet connectivity between multiple blade shelves

1. When available.

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