

Integrating Novell NetWare onto Dell PowerEdge Server Platforms

By Cindy Stap, Paul Rad, Mark Cowley, and Keith Matteson

This article provides an overview of the products, software tools, and information required for successfully implementing the Novell® NetWare® 5.1 and NetWare 6.0 operating systems on Dell™ PowerEdge™ servers.

The majority of Dell™ PowerEdge™ servers support the Novell® NetWare® network operating system (NOS). The support includes embedded peripherals and Dell-supported add-in cards. This article examines how NetWare works with PowerEdge servers: its installation, management, and integration with other technologies such as the Intel® Xeon™ processor.

Understanding NetWare installation on PowerEdge servers

IT administrators deploying Dell PowerEdge servers can have the Novell NetWare software pre-installed by Dell prior to shipment of the servers or they can install the software on site. The following sections detail factory and on-site options for installation.

Purchasing pre-installed NetWare

Dell offers several methods for purchasing Novell NetWare on PowerEdge servers. One method is a simple hard drive partitioning scheme known as “No OS-NetWare” factory install. At the factory, Dell partitions the server’s hard drives for DOS and configures the RAID volumes so that the server is ready for NetWare installation.

A second method for buying Novell NetWare on Dell PowerEdge servers is through the Dell Custom Factory Install (CFI)

program. This program allows administrators to specify unique configurations built to their specifications. If customers require special applications or configurations or if they need more than one server with identical configurations, CFI can provide this high level of customization. In addition, the CFI program’s highly trained teams offer expert assistance and project management and can help ensure a smooth transition from the initial system design to the final delivery and installation. CFI also can help reduce the compatibility problems typically associated with multiplatform environments.

Using OpenManage Server Assistant to install NetWare

Using Dell OpenManage™ Server Assistant is the preferred method for on-site installations of NetWare 5.1 and NetWare 6.0. It contains up-to-date, supported drivers for each server platform and peripherals set. Server Assistant automates installation for NetWare 5.1 and 6.0 after it prompts the administrator for configuration requirements (see Figure 1). For example, Server Assistant asks for the desired boot configuration, NetWare partition sizes, and SYS volume size. It will also request TCP/IP and Novell Internetwork Packet Exchange™ (IPX™) configuration specifications for all LAN adapters. Once it acquires this information, Server Assistant asks for the NetWare media and launches a hands-off installation using the specified configuration.

Manually installing NetWare

Administrators can also manually install NetWare using the CD that accompanies the software. After the installation is complete, the administrator should create a directory called C:\dell\drivers and copy all Dell-specific drivers to it. Creating this directory is important because, in newer releases of Novell support packs, the support pack software searches for the C:\dell\drivers directory but will not overwrite the drivers contained in it.

Examining systems management options for NetWare-based platforms

Dell OpenManage products provide an overall server management capability for Dell PowerEdge servers that run Novell NetWare. These products allow administrators to take inventory, monitor status, and control PowerEdge servers easily from a central or remote location.

Dell OpenManage IT Assistant, a one-to-many management tool, and Dell OpenManage Server Administrator, an individual server management tool, work together to facilitate the remote management of a system (see Figure 2). Dell OpenManage Storage Management helps administrators manage storage devices, and both Dell Remote Assistant Card II (DRAC II) and Dell Remote Access Card III (DRAC III) enable remote server access. All these OpenManage products support both NetWare 5.1 and 6.0.

Centralizing server management: OpenManage IT Assistant

Using OpenManage IT Assistant, administrators can perform system discovery, asset management, inventory management, event monitoring, and configuration of remote PowerEdge servers. This

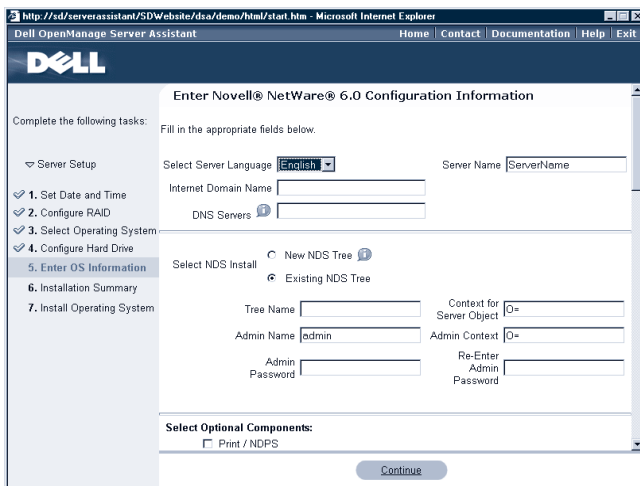


Figure 1. User interface for Dell Server Assistant

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tool performs these functions through Dell OpenManage Server Agent, which has direct access to the management chip and instrumentation parameters of the remote servers.

Managing individual servers: OpenManage Server Administrator

OpenManage Server Administrator (see Figure 3) allows administrators to manage a PowerEdge server from a remote location. Server Administrator can monitor and control the health of the server and send alerts to the remote management console when faults occur.

Server Administrator includes a low-level hardware instrumentation service, which allows access to hardware, BIOS, and firmware for monitoring server health and enabling automatic alerts before problems occur. It provides this service by accessing the server management chip and the instrumentation built into a PowerEdge server. The management chip uses a dedicated management bus, not system buses, and has its own computing power so that the hardware-monitoring task will not consume CPU cycles.

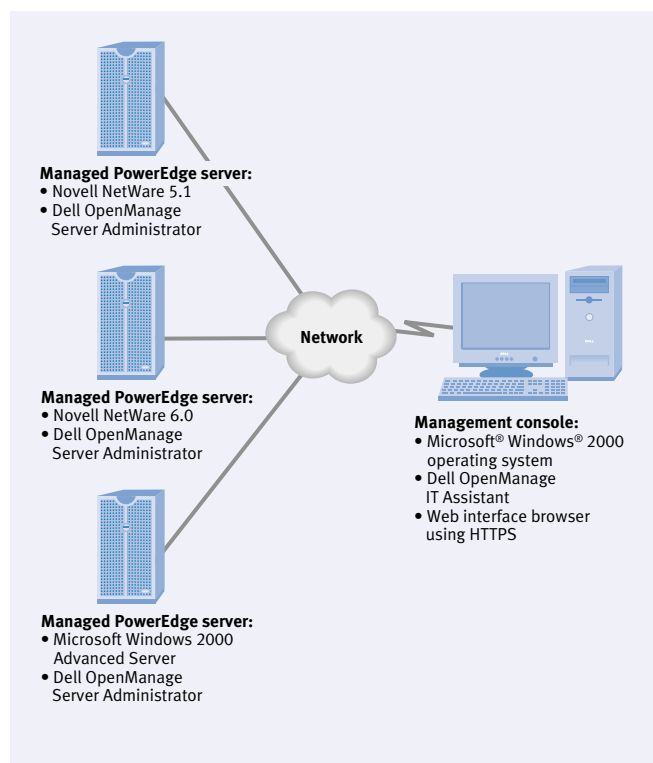


Figure 2. Using OpenManage IT Assistant and OpenManage Server Administrator to manage Dell servers running Novell NetWare

THE NOVELL YES, TESTED AND APPROVED PROGRAM

The Novell YES, Tested and Approved™ certification program identifies hardware and software products that have proven compatible with Novell products. Each certification includes a bulletin explaining the testing process and configuration details specific to that product. Dell submits bulletins only for servers that have been Dell-tested and for which it has support staff ready to assist customers with any potential compatibility issues. IT administrators can locate these certification bulletins on the Novell Web site:

- ▶ **Yes, Tested and Approved Program home page (<http://developer.novell.com/yespgm>):** Learn more about the Novell product certification program by visiting this Web site.

- ▶ **Novell Solutions Search (http://developer.novell.com/nss/nss_advanced_search.jsp):** Find a specific PowerEdge server certification by using this Web site: type “PowerEdge XXXX” (where XXXX is the specific model number) in the Keywords field, choose “using all of these words” from the drop-down menu, and then click the Search button. To find all Dell server certifications, type “PowerEdge” in the Keywords field. To find all Dell product certifications, select “Dell Computer Corporation” from the drop-down menu in the Company Name field, leave the Keywords field blank, and click the Search button.

Managing storage: OpenManage Storage Management

Dell OpenManage Storage Management provides a single interface for SCSI and Fibre Channel RAID configurations. It also enables disk and volume management. By using Storage Management, administrators can monitor the status of the storage, create and configure virtual disks, and manage RAID and non-RAID storage.

Accessing servers remotely: DRAC II and DRAC III

DRAC II and DRAC III provide constant access to a Dell PowerEdge server, even when that server is powered off. This constant access can help administrators maintain high availability and productivity. DRAC II and DRAC III support

remote access to a managed server through in-band connections (network) and out-of-band connections (remote access ports). DRAC III offers the additional feature of remote server management through console redirection.

Keeping drivers updated: OpenManage Subscription Service

Dell offers a subscription service so that administrators always have access to the most up-to-date drivers. This subscription service is available when purchasing a new server or by contacting a sales representative.

Integrating the Intel Xeon processor

Dell servers equipped with the Intel Xeon processor, such as the PowerEdge 2650 and the PowerEdge 4600, require a patch to run the Novell NetWare 5.1 NOS. On these systems, the installation hangs when SYMCJIT.NLM is loaded. To solve this problem, administrators can download the 4pent.exe file, which contains a new version of SYMCJIT.NLM, from the Novell Web site. They can either install this patch themselves or use Dell OpenManage Server Assistant to automatically integrate the newer version of the SYMCJIT.NLM file. Using Server Assistant to install NetWare 5.1 on Intel Xeon processor-based systems makes this issue completely transparent because Server Assistant already contains the patch.

Enabling Intel Hyper-Threading on NetWare

The Intel Hyper-Threading technology incorporated into Intel Xeon processors enables one physical processor to appear as two logical processors to the operating system. This feature can enhance performance by allowing a processor to share hardware resources

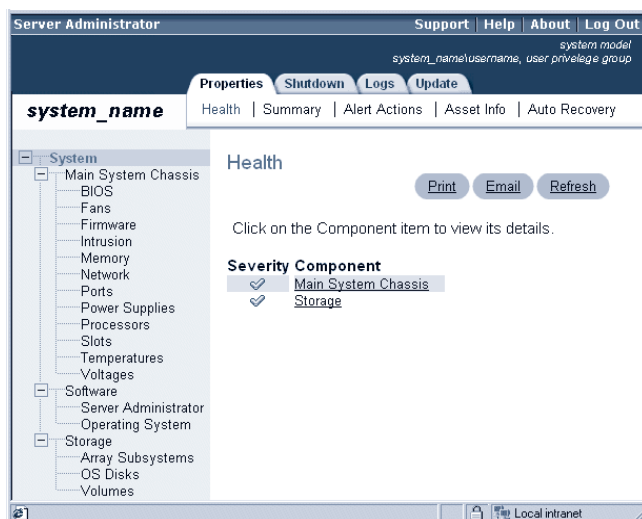


Figure 3. User interface for Dell OpenManage Server Administrator

and execute two tasks simultaneously. NetWare first began taking advantage of this technology in NetWare 6.0 Support Pack 1 (SP1), but NetWare 5.1 can also support Hyper-Threading if Support Pack 5 (SP5) is applied. In both versions of NetWare, the support is enabled by loading ACPIDRV.PSM rather than MPS14.PSM.


For more information on using Hyper-Threading with NetWare, see “Incorporating Hyper-Threading Technology into a NetWare-Based Platform” by Dana Henriksen in the August 2002 issue of *Dell Power Solutions*.

Integrating USB keyboards and mice

Universal Serial Bus (USB) keyboards and mice can only be used with Novell NetWare if the server’s system BIOS supports USB emulation. This emulation allows a USB keyboard or mouse to appear to the server as a PS/2 device before the operating system is loaded. To ensure full support of USB devices on PowerEdge servers running NetWare, administrators should use Dell Server Assistant when installing the NOS. For NetWare 5.1, administrators should install the NetWare 5.1 NOS using a PS/2 keyboard and mouse, apply NetWare 5.1 Support Pack 4 (SP4) or later, and then switch to a USB keyboard and mouse.

NetWare 6.0 is the first version of NetWare with native support for USB keyboards and mice. Native-mode USB support means that as NetWare starts up, it loads drivers that interface directly with the USB controller. Administrators must install NetWare 6.0 SP1 (or later) if a USB keyboard, mouse, or both will be used on a Dell system because some enhancements and bug fixes specific to USB were included in SP1. These newer USB files are also included in Dell OpenManage Server Assistant so that administrators can install NetWare using a USB keyboard and mouse.

Integrating NetWare into Dell-based environments

During the coming years, Dell and Novell plan to continue working together, creating tested and certified NetWare configurations for PowerEdge servers. Administrators may choose to have NetWare pre-installed by Dell, or they may install the software themselves—manually or through Dell OpenManage Server Assistant. Several other Dell OpenManage products are also available to help administrators manage PowerEdge servers that run the NetWare NOS. 

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FOR MORE INFORMATION

Dell-Novell partnership, white papers, and case studies:
<http://www.dell.com/novell>

Dell OpenManage Subscription Service:
http://www.dell.com/us/en/biz/services/service_OM_subscr_svc.htm

Dell software and peripherals:
http://www.dell.com/us/en/gen/topics/segtopic_software_seg.htm

Intel Hyper-Threading technology:
<http://developer.intel.com/technology/hyperthread>

Services for Novell operating systems on Dell servers:
http://www.dell.com/us/en/biz/services/service_esgNovellOS.htm