

# NDS Integration for PeopleSoft

## Bridging the Gap Between Human Resources and IT

Linda Kennard

**T**oday, the receptionist who sat bored at the front desk for five gum-filled days was fired. You don't know why. You only know that this termination, or *term*, will cost you in the Information Technology (IT) department and your coworkers in the human resource (HR) department a little time. Your HR coworkers will update the employee's record in the PeopleSoft Human Resource Management System (HRMS) to a termination status. If your HR coworkers follow procedures, they will inform you and others in the IT department that this "term" is legitimate. You will then delete the bubble-blowing receptionist's Novell Directory Services (NDS) and e-mail accounts.

Although this database cleaning will cost you probably only five or ten minutes, wouldn't it be nice if the NDS account disappeared when HR terminated the PeopleSoft record? Wouldn't it be convenient if the e-mail account also vanished into thin cyber-air? This level of convenience is possible, and what makes it possible isn't magic. It's NDS Integration for PeopleSoft.

NDS Integration for PeopleSoft is both a Novell business product and a Novell Consulting offering that integrates the PeopleSoft HRMS and NDS databases. PeopleSoft is a leading provider of Enterprise Resource Planning (ERP) applications geared toward a range of private and public industries, including government, higher education, and healthcare. (For more information about PeopleSoft, visit the PeopleSoft web site at <http://www.peoplesoft.com>.) PeopleSoft HRMS is a business-process solution that works with any PeopleSoft industry-specific application to help manage *people data*, the information that HR maintains about people working at your company. (For example, people data includes employees' names, addresses, birth dates, salaries, and information about benefits and retirement plans.)

NDS Integration for PeopleSoft integrates your company's PeopleSoft HRMS and NDS databases through software components that Novell consultants install on network clients and servers. Before installing and configuring these components, Novell consultants work closely with your company's IT and HR personnel to understand the business and network processes related to maintaining your company's people data. For example, Novell consultants study the processes surrounding hiring, firing, and transferring employees; the policies for creating new NDS accounts; and the people data to which employees and HR managers will most likely want access.

When the Novell consultants are satisfied that they understand those business processes and your company's network oper-



ations, these consultants configure a customized NDS Integration for PeopleSoft solution for your company. NDS Integration for PeopleSoft offers components that provide the following benefits:

- User account automation and data synchronization
- Self-service access to PeopleSoft data
- Single username and password (for web clients) and single login (for PeopleSoft clients)

Novell Consulting sells these components separately, enabling you to choose the benefits your company needs. The single sign-on and self-service components are available today. The user account automation and data synchronization components will be available soon. (For pricing and availability information, see [http://consulting.novell.com/solutions/ndsint\\_ps.html](http://consulting.novell.com/solutions/ndsint_ps.html).)

In addition, Novell consultants are "continuously developing [NDS Integration for PeopleSoft] components based on customers' needs," states Todd Powell, Novell product manager, "and we keep rolling in these newly developed components." In other words, Powell explains, "If [customers] want it, we'll build it."

### SYNCH IT!

With NDS Integration for PeopleSoft, HR won't need to tell you that the receptionist has been fired. You'll probably still hear about the receptionist's sticky exit through the rumor network, but you won't have to touch the data network—nor will anyone else in IT. Instead, HR will terminate the receptionist's employee record in the PeopleSoft database. NDS Integration for PeopleSoft will then trigger a process that will ensure that the receptionist's NDS and e-mail accounts are automatically deleted or disabled (depending on the policies you have defined in NDS). Likewise, when HR creates a record in the PeopleSoft database for the newly hired receptionist, NDS Integration for PeopleSoft will trigger a process that ensures that the NDS and e-mail accounts are created for the new employee.

NDS Integration for PeopleSoft can also trigger processes that update information in NDS. NDS Integration for PeopleSoft triggers these update processes when employees or HR managers change particular fields in PeopleSoft employee records (fields to which you have granted employees and HR managers rights in

NDS). NDS Integration for PeopleSoft synchronizes PeopleSoft data that you explicitly choose to synchronize with NDS—that is, data you choose to make “NDS aware.”

You can also choose to synchronize your company’s e-mail directory with the PeopleSoft database. NDS Integration for PeopleSoft then triggers processes that update corresponding data fields in an e-mail directory.

As part of their initial consulting services, Novell consultants work with your company’s IT and HR personnel to determine which PeopleSoft data you would like to synchronize with NDS. Novell consultants also help you determine which data fields in your e-mail directory you want to synchronize with NDS. (When the user account automation and data synchronization component is first available, it will support GroupWise versions 5.2 and above. Soon after, this component will also support Lotus Notes and Microsoft Exchange.)

Initially, the data synchronization that NDS Integration for PeopleSoft provides

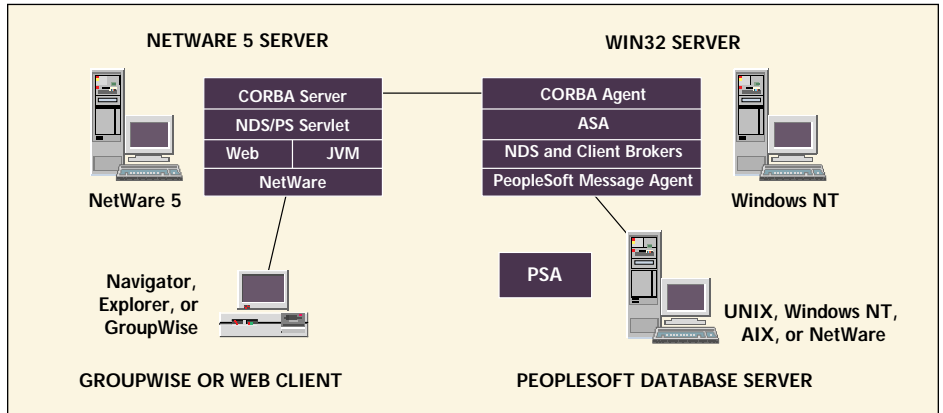


Figure 1. NDS Integration for PeopleSoft components run on one of three servers—a NetWare 5 server, a server running PeopleSoft 6 or higher, and a server running Win32.

works only in one direction: PeopleSoft to NDS to e-mail directory. However, ultimately, Novell Consulting plans to allow for bidirectional data synchronization: e-mail directory to NDS to PeopleSoft. For example, when an e-mail application, such as GroupWise, updates NDS and modifies NDS database fields that you have explicitly requested to synchronize with the PeopleSoft database, NDS Integration for

PeopleSoft will be able to push that data through to the PeopleSoft database.

**HOW DOES IT WORK?**

When an employee record in the PeopleSoft database is created, modified, or terminated, two major architectural agents work behind the scenes to enable user account automation and data synchronization among PeopleSoft, NDS,

**CyberState  
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**7 3/8" x 4 7/8"  
( 7.375" x 4.875")**

## Helping Others Help Themselves

Using the self-service component of NDS Integration for PeopleSoft, you can create forms that enable users to access their PeopleSoft data from a GroupWise client or web browser. Creating self-service forms “can be very simple,” says Novell senior consultant and architect Dave Horne. For example, during a recent demonstration, Horne created a new form, loaded that form into NDS, and made the form available to GroupWise clients—within only five minutes. If Horne had wanted to make the form available to web browsers, he admits, it would have taken another five minutes.

To create self-service forms, you use the Forms Wizard and a snap-in tool for the NetWare Administrator (NWADMIN) utility, which are included with NDS Integration for PeopleSoft. The Forms Wizard is a graphical tool that you install on a NetWare 32-bit client. When you use the Forms Wizard to create self-service forms, it automatically generates the HTML code that enables GroupWise clients and web browsers to access and display the forms. To create self-service forms, you complete the following basic steps:

1. Using PeopleSoft tools, identify the data in PeopleSoft that will populate the fields on the self-service forms, and define the process for retrieving that data by recording the PeopleSoft menu path to that data.
2. From a NetWare 32-bit client, launch the Forms Wizard.
3. Using the Forms Wizard, call up the process you created in PeopleSoft. The Forms Wizard will generate a default HTML form.
4. Designate the fields on the form that you will allow users to write to and the fields that will contain view-only information.
5. Select the option to save this form as an NDS object. The Forms Wizard then creates an NDS Form object.
6. Using the workstation on which you have installed the NWADMIN snap-in tool for the self-service component, launch the NW-

ADMIN utility. Next, locate and open the new Form object.

7. Open the Form object’s Text page to view the HTML code for the form that the Forms Wizard has generated.
8. Export the form to a file.
9. Exit or minimize the NWADMIN utility, and open the newly created file in an HTML editor of your choice.
10. You can use the HTML editor to customize the form. For example, you can change the font style and size, rearrange the form’s format, and add graphics such as your company logo. As long as the HTML tag lines remain the same, you can change the form in any way you like.
11. Save the file, exit the HTML editor, and reopen the NWADMIN utility.
12. In the NWADMIN utility, import the form into the Form object.
13. Grant rights to users who need to access and use the form associated with this Form object.
14. To make the new form available to GroupWise clients, you do not need to make any changes to the HTML code. Simply assign the Form object to the Forms Processor object. Finally, refresh the cache of forms that are available to the GroupWise Server Manager. Users that have the necessary rights can now access the form you created from any GroupWise client.
15. To make the form available to web browsers, you must change the form method = tag line in the form’s HTML code. (See Figure 2.) The new tag line must make this form recognizable to the Java servlet that runs on a NetWare 5 server and enables web browsers to communicate with the PeopleSoft database. (For more information about this servlet and the NDS Integration for PeopleSoft architecture, see Figure 1 on p. 29 and the main article.) Next, save the form to a forms subdirectory in the web server directory. Finally, create a link to the form to make it available on the web. Users who have the rights can now access the form from a web browser. ●

and your company’s e-mail directory:

- PeopleSoft Services Agent (PSA), which is a collection of software processes and components
- Account Synchronization Agent (ASA), which is a collection of components

The software processes and components that comprise these agents run on one or more of three servers. (See Figure 1 on p. 29.)

- A NetWare 5 server
- A database server running PeopleSoft 6 or higher
- A server running Microsoft Win32, which Novell recommends you run on top of Windows NT 4 or higher with Service Pack 3 or higher

The software processes and components that comprise PSA run on the Peo-

pleSoft database server. Among its other functions, PSA maintains a queue of all the changes to the PeopleSoft database about which NDS should be aware. (In PeopleSoft terminology, this queue is called a *worklist*.)

Specifically, when a PeopleSoft employee record is created or terminated, a PeopleSoft process called *Workflow* initiates an Add or Disable event, which triggers PSA to list that event in the NDS Integration for PeopleSoft queue. Likewise, when NDS-aware data in an existing PeopleSoft record is changed, *Workflow* initiates an Update event, which triggers PSA to list the Update event in the queue.

The events listed in the queue are then processed by ASA. Most of the ASA components run on the Win32 server, which functions as a gateway between the NetWare 5 and PeopleSoft servers. The ASA components include (but are not limited to) the following: an NDS agent or broker and the NDS

Integration for PeopleSoft snap-in module for the NetWare Administrator (NWADMIN) utility.

An NDS broker runs on the Win32 server and communicates with the PeopleSoft database through a PeopleSoft application programming interface (API) called *PeopleSoft Message Agent*, which also runs on the Win32 server. (See Figure 1 on p. 29.) Interfacing with the PeopleSoft Message Agent, the NDS broker periodically checks the NDS Integration for PeopleSoft queue. When the NDS broker finds an Add, Disable, or Update event listed in the queue, the NDS broker and other ASA components process the event after consulting policies that are stored in NDS.

To define these NDS policies, you use the Policy Manager, which you create using the NDS Integration for PeopleSoft snap-in for the NWADMIN utility. These policies dictate how, when, and where NDS Integration for PeopleSoft should create, delete, or modify NDS and e-mail

accounts. The policies you create clarify details such as the following:

- How to generate a username and password for new NDS accounts
- What rights and privileges to assign to newly created NDS User objects
- Whether or not to create an e-mail account when HR creates a new hire in PeopleSoft

In other words, based on the policies you define in NDS, ASA determines how to process a PeopleSoft event, which the NDS broker (a component of ASA) finds listed in the NDS Integration for PeopleSoft queue. For example, suppose that Harold HR guy creates a new employee record in PeopleSoft for employee Ed, the new receptionist. When Harold creates this record, PeopleSoft Workflow initiates an Add event, which in turn triggers PSA to list that Add event in the NDS Integration for PeopleSoft queue. When the NDS broker learns about the Add event, the broker and other ASA components process that event by creating an NDS account and an e-mail account for Ed according to predefined NDS policies.

#### HELP YOURSELF!

Because Ed's new company uses the user account automation and data synchronization component of NDS Integration for PeopleSoft, receptionist Ed will have network and e-mail accounts before he has read even half of the employee handbook. When Ed finishes reading the employee handbook, he will be able to log in to the network and get to work—he loses no time (and the company, therefore, wastes no money) waiting for his network and e-mail accounts. If the company has implemented the NDS Integration for PeopleSoft self-service component, Ed may also be able to view and correct any errors on his employee record before the end of his first day.

NDS Integration for PeopleSoft offers self-service access to PeopleSoft data from a GroupWise client or a web browser. To enable this self-service access, you use the *Forms Wizard*, a 32-bit application that is included with NDS Integration for PeopleSoft, to create HTML forms. (For more information about creating self-service forms, see "Helping Others Help Themselves.") You control users' rights to view and use these forms through NDS. In addition, you can use the Forms Wizard to specify

whether users can only view the information in a field or whether they can modify that information.

NDS Integration for PeopleSoft includes ten basic HTML forms that allow users to access their PeopleSoft data. These generic forms enable access to PeopleSoft data such as the following: personal address and phone number, social security number, beneficiary data, emergency contacts, and compensation data.

You can use these generic forms as they are, or you can customize them. For example, you can change the font style and size, add graphics, or insert your company

logo. You can also create additional forms to enable access to other PeopleSoft data.

To control users' rights to access and use the NDS Integration for PeopleSoft self-service forms, you use the form's corresponding NDS object. Depending on

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Tag lines at the beginning of the name and address self-service form for web browsers:
<html>
<head>
<title>Change Address and Phone</title>
</head>
<body bgcolor="#ffffff" link="#000000" vlink="#c50021" alink="#ff7d00">
<form method=POST ACTION="/servlet/NPSServlet">
<INPUT type=hidden NAME="command" value="submitForm">
<INPUT type=hidden NAME="formName" value="Address and Phone">
<p>
<table width="494" border="0">

Tag lines at the beginning of the name and address self-service form for GroupWise clients:
<html>
<head>
<title>Change Address and Phone</title>
</head>
<body bgcolor="#ffffff" link="#000000" vlink="#c50021" alink="#ff7d00">
<form method=get>
<p>
<table width="494" border="0">
```

Figure 2. The <form method=> tag line determines if the self-service form is for web browsers or for GroupWise clients.

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1/3 Page  
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**4 7/8" x 4 7/8"  
( 4.875" x 4.875")**



Figure 3. The Personal Identity Center is a Java-based application that enables web users to access NDS Integration for PeopleSoft services.

the options you select when you create the form, the Forms Wizard creates this NDS object automatically, or you create it manually. When a user tries to access a self-service form, both the GroupWise and web-based clients check NDS to determine if the user has been granted rights to the form's NDS object. (See "Helping Others Help Themselves" on p. 30.)

### USING THE GROUPWISE CLIENT

As you might expect, the way users access self-service forms from a GroupWise client differs from the way users access self-service forms from a web browser. To access PeopleSoft data via self-service forms, GroupWise clients run a customized third-party object (C3PO) application that Novell Consulting created. (This C3PO application is included with NDS Integration for PeopleSoft.) When you install this C3PO application, a Request Form button appears on the GroupWise control bar. If users click the Request Form button, they see a Form dialog box that displays all of the self-service forms to which they have NDS rights. When users select a form, the C3PO application sends a message to a GroupWise client broker, another ASA component that runs on the Win32 server. (See Figure 1 on p. 29.)

This client broker in turn communicates with the PeopleSoft database (via the PeopleSoft Message Agent) to retrieve the user's HR information from his or her PeopleSoft record. The client broker uses this information to complete the fields on the requested form, and the completed form appears as a new object in the

user's GroupWise universal mailbox. When users double-click this object, an HTML viewer displays the form.

### USING THE WEB CLIENT

Users who want to access PeopleSoft data from a web browser simply enter the URL to your company's Personal Identity Center. (See Figure 3.) The Personal Identity Center is a Java-based application that enables web users to access NDS Integration for PeopleSoft services. For example, the Personal Identity Center provides links to tools that can search the NDS tree and links to self-service forms. This Personal Identity Center and the services to which it provides links are made possible through a Java servlet running on the NetWare 5 server. (For more information about Java servlets, see the related article on p. 6.)

When users click the self-service button on the Personal Identity Center, they see a list of the forms to which they have NDS rights. When users select a particular form, the Java servlet requests the PeopleSoft information required to complete that form. The servlet sends this request to an ASA web client broker via Common Object Request Broker Architecture (CORBA) agents running on the NetWare 5 and Win32 servers. (See Figure 1 on p. 29.)

The web client broker communicates with the PeopleSoft database (via the PeopleSoft Message Agent) to retrieve the user's HR data from PeopleSoft. The client broker uses this data to complete the fields on the requested form and sends the completed form to the user's browser, which in turn displays the form.

If Ed's company is using the self-service component of NDS Integration for PeopleSoft, Ed can log in to the network, open his browser, and access the Personal Identity Center on his company's intranet. From this site, Ed can access the self-service forms to which he has been granted rights in NDS. Using these forms, Ed can check and correct the information HR has entered in his employee record.

### ONE USERNAME, ONE PASSWORD

When Ed clicks on the link to the web-based self-service forms, a login dialog box prompts him to enter the credentials that verify his right to access his HR information stored in the PeopleSoft database. Ed doesn't need a separate set of credentials to use these self-service forms. Rather, Ed can use his NDS username and password. Using NDS credentials to access PeopleSoft data from a web browser is made possible through a Java class in the servlet running on the NetWare 5 server.

This Java class uses PeopleSoft employee ID numbers as links between NDS and the PeopleSoft database. When users enter their NDS username and password to access their PeopleSoft data, the Java class in the servlet validates those credentials in NDS. Next, the Java class makes that user's employee ID number (stored in NDS) available to the PeopleSoft database, enabling the user to access the PeopleSoft database—without having to remember and enter a PeopleSoft employee ID. (For more information about Java classes, see the related article on p. 6.)

NetWare 5 User objects already include employee ID fields. However, NetWare 4 User objects do not. If you are running NetWare 4, NDS Integration for PeopleSoft extends the NDS schema to create an employee ID field. NDS Integration for PeopleSoft also includes a utility that helps you ensure that the PeopleSoft employee IDs are mapped and copied to the appropriate NDS User objects.

In-house and third-party developers can also use this Java class "to enable their applications to be NDS aware," says Novell senior consultant and architect Dave Horne. By "NDS aware" applications, Horne means applications to which users can gain access using only their NDS credentials. In fact, Novell has worked with third-party vendors to apply this technology to two other HR applications: the Employee Builder Series (EBS), a performance management system from

Austin-Hayne Corp. (<http://www.austin-hayne.com>), and a time-and-attendance module for ClickHR from Interactive Corporate Communications Inc. (<http://www.interactivecorp.com>).

Novell has used the Java class component of the NDS Integration for PeopleSoft servlet to make all of these applications NDS aware. Diana Christides, Novell's director of people data and systems, finds that this technology makes her life easier. Christides says, "We no longer have to hand each of our managers an ID number and password for each application. Managers just use their NDS credentials."

#### LOG IN ONCE AND FOR ALL

In addition to enabling users to enter their NDS credentials to access the web-based self-service component, NDS Integration for PeopleSoft provides a single sign-on for PeopleSoft administrators and users. (PeopleSoft administrators and users have PeopleSoft accounts and use the PeopleSoft client to access the business functionality of PeopleSoft.) To access their PeopleSoft accounts, PeopleSoft administrators and users log in once to the network, and thereafter, they can use their PeopleSoft account any time—without having to log in again to NDS or to PeopleSoft. This single login is possible because NDS Integration for PeopleSoft uses NetWare 5's secret store technology.

In general, secret store technology enables you to store users' access credentials for other applications securely in NDS. Secret store technology extends the NDS schema to store users' secrets (that is, credentials to third-party applications) as properties of NDS User objects. If credentials for a third-party application are in the NDS secret store, users will not have to reenter those credentials. Credentials are entered in secret store in one of two ways:

- Using a snap-in module to the NWADMIN utility, you enter the users' credentials in NDS secret store.
- When accessing an application for the first time, users complete the login screen by entering their credentials, which are then automatically sent to and stored in NDS secret store.

A file on the client side of an application must be modified to enable the application to retrieve users' credentials from NDS. This file calls NDS to verify the user has an authenticated connection to the

network and to retrieve the secret.

In the case of PeopleSoft, Novell Consulting has modified an existing PeopleSoft file. When a user double-clicks the PeopleSoft icon on the desktop, the PeopleSoft client calls this file. The file checks NDS for the user's credentials in secret store. If NDS finds the user's credentials, those credentials are used to authenticate the user to PeopleSoft. If secret store is empty for that user, the user is prompted to enter his or her credentials. (For more information about NetWare 5's secret store technology, see "With NICI, It's All Holes Barred," *NetWare Connection*, Dec. 1998, p. 15. You can download this article from <http://www.nwconnection.com/past.1>.)

#### A MINUTE SAVED IS A DOLLAR EARNED

Regardless of which NDS Integration for PeopleSoft components you choose, one thing is certain: NDS Integration for PeopleSoft will help your company save time and money. How much money will your company save? Naturally, the potential savings vary from company to company. However, on its web site, Novell Consulting has posted a Return on Investment (ROI) calculator for NDS Integration for PeopleSoft. (See Figure 4.) The ROI calculator can help you estimate the ROI for your company. (You can access the ROI calculator at <http://consulting.novell.com/solutions/roi.htm>.)

The ROI calculator helps you estimate savings based on the hypothetical implementation of one or all of the standard NDS Integration for PeopleSoft components. For each component, you are asked to estimate how much money your company spends now performing tasks related to that component. The calculator then estimates your company's annual savings.

By default, the calculator offers Novell

Number of Employees: <input type="text" value="0"/>			
<u>User Account Automation and Synchronization</u>			
	Cost / Acc't	New / Week	Annual Savings
Creating NDS accounts	<input type="text" value="\$15"/>	<input type="text" value="0"/>	<input type="text" value="\$0"/>
Creating e-mail accounts	<input type="text" value="\$15"/>	<input type="text" value="0"/>	<input type="text" value="\$0"/>
	Cost / Acc't	Acc't / Week	Annual Savings
Deleting NDS accounts	<input type="text" value="\$15"/>	<input type="text" value="0"/>	<input type="text" value="\$0"/>
Deleting e-mail accounts	<input type="text" value="\$15"/>	<input type="text" value="0"/>	<input type="text" value="\$0"/>
Changing NDS accounts	<input type="text" value="\$15"/>	<input type="text" value="0"/>	<input type="text" value="\$0"/>
	Cost / Hour	Hours / Day	Annual Savings
Lost productivity waiting for new accounts	<input type="text" value="\$20"/>	<input type="text" value="0"/>	<input type="text" value="\$0"/>
	<input type="text" value="Days / User"/>	<input type="text" value="New / Week"/>	
<u>Employee Self-Service</u>			
	Cost / Call	Calls / Week	Annual Savings
Calls to HR for personal data	<input type="text" value="\$25"/>	<input type="text" value="0"/>	<input type="text" value="\$0"/>
	Cost / User	New / Week	Annual Savings
Setting up users w/ PeopleSoft operator IDs	<input type="text" value="\$20"/>	<input type="text" value="0"/>	<input type="text" value="\$0"/>
<u>Single Sign-on</u>			
	Cost / User	Employees	Annual Savings
Ongoing admin of passwords	<input type="text" value="\$2"/>	<input type="text" value="0"/>	<input type="text" value="\$0"/>
<u>Data Synchronization</u>			
	Cost / Update	Upd / Week	Annual Savings
Changing data across different databases	<input type="text" value="\$0"/>	<input type="text" value="0"/>	<input type="text" value="\$0"/>
<b>Total Annual Savings</b>			<input type="text" value="\$0"/>
<b>NDS Integration for PeopleSoft SOW Cost</b>			<input type="text" value=""/>
<b>Payback Time</b>			<input type="text" value=""/>

Figure 4. The Return on Investment (ROI) calculator helps you estimate how much money your company can save by implementing NDS Integration for PeopleSoft components.

Consulting's own conservative estimates. For example, under the Employee Self-Service heading, Novell Consulting estimates that your company spends about \$25 each time an employee calls HR with a question about his or her own information. Imagine how many of a company's 500 or more employees call HR each week to figure out how many vacation hours they've accrued or to change their telephone number or address. Although the cost of a single phone call is deceptively low, \$25 per call adds up quickly, even if HR handles as few as 10 calls per week.

Novell Consulting also conservatively estimates that you spend \$15 each time you create, delete, or change an NDS account. Again, \$15 per account may not sound like a lot if you're working at a company with fewer than 100 employees. But imagine how many employees are hired, terminated, and transferred each week at a company with 500 or more employees. When you imagine that number, you can see how quickly \$15 here and there can add up—and how quickly NDS Integration for PeopleSoft will pay for itself.

Linda Kennard works for Niche Associates, which is based in Sandy, Utah. ●