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If you’ve been keeping up on Novell news, you know that GroupWise 8 is now available, and it’s worth the upgrade! eWeek.com recently highlighted the new release as one of its 2009 Products to Watch, noting its multi-platform support, user-customizable dashboards, and integration of e-mail, calendaring, contacts and task management with Web 2.0 collaboration tools to enhance user productivity. While the new installation program makes it easy to upgrade existing systems, you might want to bookmark the following tips from the Novell team that recently finished migrating its own 4,100 worldwide users.

Tip #1: Always update your primary domain first. This may seem obvious, but as the main administrative unit for the GroupWise system, the primary domain logically organizes all system post offices for addressing and routing purposes. And its database handles eDirectory user synchronization for the entire system. All updates must begin here.

Begin your update process by backing up the primary domain database. Next, run the GroupWise installation program and follow the prompts through the agent update. If installing on NetWare or Linux, the agents can remain running while the update is installed, but when updating a Windows system, the agents need to be shutdown first.

When the install has completed, restart the message transfer agent (MTA), which will use the newly installed data dictionary files to restructure the primary domain database. When the primary domain recovers, you can proceed with updating post offices under the primary domain or begin updating secondary domains. Note: You must update a post office’s own domain before the post office itself.

When a post office is updated and its post office agent (POA) is restarted, the agent will use the new post office dictionary files to update the post office database. Like the domain, a post office update is not complete until you update the database and have completed the recovery process. Remember that users cannot access the post office while the POA is shut down.

When updating GroupWise on a Windows platform, take the POA down during a new code installation. The agent need not remain down, however, on any platform while the post office database recovers. Existing GroupWise clients can still access their accounts during this process, but you must complete the recovery before any GroupWise 8 clients can connect.

Tip #2: Don’t sweat the Internet Agent update. Your existing GroupWise Internet Agent (GWIA) from GroupWise versions 5.x, 6.x and 7 will run successfully against a GroupWise 8 domain and post office. This means that you can continue to use it until all domains and post offices have been updated to version 8.

You can also update your GWIA to GroupWise 8 before the rest of the system as long as you don’t use POP/IMAP to access mailboxes through the GWIA. If you do use POP/IMAP through the GWIA, you’ll need to update all post offices first, as the agent in version 8 cannot talk to post offices in earlier releases.

Tip #3: Synchronize your domain, post office and WebAccess updates. Like the GWIA, the GroupWise 8 WebAccess Agent can’t access earlier domains and post offices, and existing agents older than version 5.5 SP3 won’t be able to access GroupWise 8 domains and post offices. In order to preserve WebAccess service while you update your system, keep the current version of WebAccess running until all post offices have been updated. If your domain and WebAccess services are on the same server, which is the recommended configuration, update the domain first. When the database recovery is complete, update the WebAccess Agent and Application.

You must update the WebAccess Application and Agent at the same time when starting with GroupWise 8. With previous GroupWise releases you could successfully run different versions of the WebAccess Agent and Application together, such as running a new version of the WebAccess Application on your Web server with the previous version of the WebAccess Agent for the domain.

In GroupWise 8, the recommended procedure is to first update all WebAccess Agents in your system, then immediately update all WebAccess Applications. Long-term use of the mixed-version configuration is not supported and can result in time zone problems. Update both the WebAccess Agent and the WebAccess Application to the same version to ensure proper functioning of GroupWise 8 WebAccess.

Tip #4: The update sequence for MTAs and post offices is platform-dependent. If you have MTAs and post offices running on the same server, the update sequence depends on your operating environment. In Linux, you can update the MTA without taking down the post office. You can do the same in NetWare if you’re running in protected memory. If not—or if you run GroupWise in a Windows environment—take down both agents. Bring up the GroupWise 8 MTA first and let it recover fully before starting the new POA. In all cases be sure to back up both databases before you begin.

If you have a large database that will take a long time to recover, use this workaround to expedite the process:
After updating, start both the MTA and POA. When the MTA has finished bumping to GroupWise 8, manually start the post office recovery by going into Options > Admin Status > Perform DB Recovery Now >Yes. This allows users to access their GroupWise accounts while the domain recovers.

Tip #5: Don’t update clients until the post offices are done. GroupWise 8 clients can’t access a post office that still uses an earlier version of GroupWise. Users who update to the GroupWise 8 client before their post office has been updated will not be able to access their post office.

Tip #6: The ConsoleOne update process now varies by platform. To administer GroupWise 8, you’ll need the new snap-ins for ConsoleOne. For a GroupWise system on NetWare or Windows, you can install ConsoleOne and run it either on a network server or on a local workstation. If you plan to use ConsoleOne on a local workstation, perform the GroupWise installation from that workstation.

For your convenience, ConsoleOne is included on the GroupWise 8 DVD and the downloaded GroupWise 8 image. The GroupWise Installation program lets you install ConsoleOne if needed. You can also use the GroupWise Installation program at a later time to install ConsoleOne and the GroupWise Administrator snap-ins on additional locations.

It’s important to note that for a GroupWise system on NetWare, you cannot run ConsoleOne to administer GroupWise at the NetWare server console. The GroupWise Administrator snap-ins to ConsoleOne do not run in that environment.

For a GroupWise system on Linux, ConsoleOne must already be installed before you set up your GroupWise system, and a separate installation process is required to update the ConsoleOne snap-ins on that machine.

> See the Complete Documentation Online
For detailed directions on upgrading your GroupWise system to version 8, see the online documentation at: http://www.novell.com/documentation/gw8/gw8_install/index.html?
page=/documentation/gw8/gw8_install/data/a8sdpzb.htm

Good luck, and welcome to GroupWise 8!
For a successful Windows 7 migration, the right set of tools consists of a Novell ZENworks trifecta—the combination of ZENworks Asset Management, ZENworks Application Virtualization and ZENworks Configuration Management.

*The Answers You Need*
As already mentioned, one of the first questions you might ask when considering migrating to Windows 7 is, what exactly do I migrate? Before you can answer that question, there is a series of questions you first need to answer in regard to your IT and business environment. Where are my Vista and XP devices actually located? Do these devices have the right hardware configuration to support Windows 7? If I move those devices to Windows 7, will their applications still work?

Figure 1: Novell ZENworks Asset Management leverages industry-leading discovery and software inventory capabilities to give you a clear picture of whether your environment is ready for a migration to Windows 7.
To answer these and many other questions, **Novell ZENworks Asset Management** leverages industry-leading discovery and software inventory capabilities to give you a clear picture of the hardware and software assets that exist in your environment. This arms you with the information you need to make the right choices before a migration even starts. For example, Novell ZENworks Asset Management lets you create readiness reports that show if the hardware in your environment will be compatible with Windows 7. (See Figure 1.)

These readiness reports also show you what software you have and identify any with known Windows 7 compatibility issues. It's crucial to your ongoing business operations to understand if a move to Windows 7 will break any of your key applications. This is especially true since according to Gartner, “ISVs often take 12 months or more before they officially support a new version of Windows, even for incremental releases such as Windows 7.” If you find that some of your applications will not work with Windows 7, ZENworks Asset Management can also help you determine how critical those applications actually are to your operations by reporting on how much your users use those applications.

Additionally, ZENworks Asset Management lets you easily manage the contracts and leases for all your IT assets. It gives you a complete understanding of the devices that might be due for a hardware refresh, further helping you to better manage your IT assets and prepare for a Windows 7 migration. (See Figure 2.) All of these inventory and reporting capabilities inherent to ZENworks Asset Management combine to give you the information and insights you need to understand how a Windows 7 migration will affect your environment and what you'll need to consider if you move forward.

> **Keeping Your Users Productive**

Migrations quite often create serious dilemmas for IT organizations. One of the biggest problems is the significant time spent on regression testing for packaged and custom applications. With all the different combinations of application configurations, versions and use cases, the burden placed on testing every single application on Windows 7 can be significant and put a serious damper on the migration project altogether. One of the key ways to solve this problem is with application virtualization.

With **Novell ZENworks Application Virtualization**, you can virtualize your applications and then easily run them on your operating system of choice, including Windows 7. Since virtual applications are fully isolated images that are not installed and don't commit changes to the Windows OS, registry or DLLs, they dramatically reduce the time of application packaging and testing, while eliminating any compatibility issues that may arise as applications are added to Windows 7. By leveraging the power of application virtualization, you can help your users quickly migrate to Windows 7, while continuing to reap the advantages ZENworks Application Virtualization brings to your Windows 7 environment.

For instance, you can eliminate failures caused by DLL conflicts and overwritten registry entries when rolling out new software in the future. You can...
strengthen desktop security by executing applications without granting administrator rights to end-users, and also improve mobile productivity by instantly running your virtual applications from a wide range of media like USB thumb drives. And you can gain these benefits without any change to the end-user experience. At the end of the day, ZENworks Application Virtualization plays a key role in the Windows 7 story by making sure all your applications can make the move quickly, with minimal business impact, and by keeping your workers highly productive and secure on Windows 7.

Novell ZENworks Asset Management lets you create readiness reports that show if the hardware in your environment will be compatible with Windows 7.

> Making the Move
Once you've used ZENworks Asset Management and ZENworks Application Virtualization to help you get ready for the move, Novell ZENworks Configuration Management can help you make the move quickly, efficiently and with as little disruption to your business as possible. ZENworks Configuration Management lets you create Windows 7 desktop images and then automatically deploy them to all your devices. As it deploys these images, Novell ZENworks Configuration Management will dynamically install all the correct hardware drivers and applications specific to the individual target devices. It also offers blackout schedules to let you schedule this automated process during times that won't disrupt the business. Leveraging wake-on-LAN technology, it can wake up devices, back-up data and migrate them to Windows 7 overnight.

Novell ZENworks Configuration Management cuts the time and pain of Windows 7 migrations by doing everything for you. Novell customers who've used ZENworks Configuration Management for OS migrations can attest to its effectiveness. The Greater Latrobe School District in Pennsylvania cut desktop imaging time by 50 percent and Richardson International in Canada reduced desktop imaging by 66 percent using ZENworks Configuration Management.

You can also use ZENworks Configuration Management to automatically and seamlessly roll-out any virtual applications you created with ZENworks Application Virtualization to your Windows 7 machines. Even after you've completed your migration to Windows 7, you can continue using ZENworks Configuration Management.

Figure 3: Novell ZENworks Application Virtualization provides you a quick and easy option for addressing application compatibility problems with a Windows 7 migration.
Management to benefit your enterprise. You can use it to automatically deliver personal settings and software applications, deploy updates and patches, and even perform remote management. The bottom-line is ZENworks Configuration Management reduces IT headaches, time and cost by automating the manual tasks of your migration while putting control back in your hands.

Perhaps one of the biggest benefits provided by ZENworks Configuration Management is that you gain freedom and flexibility that competing products don't provide. ZENworks Configuration Management runs on your choice of operating system (Windows or Linux), your choice of directory services (Active Directory or eDirectory) and your choice of database (Oracle, Microsoft SQL Server or Sybase). It's the industry's only endpoint device lifecycle management solution to offer this level of flexibility. Novell is all about interoperability. We won't lock you into a single vendor. The choice is always yours.

Novell ZENworks Configuration Management cuts the time and pain of Windows 7 migrations by doing everything for you.

> Put Success on Your Side

At Novell, we believe Windows 7 will be a key driver in the industry. Still, for any organization to migrate successfully, it needs to have the right things in place. Essentially it comes down to understanding three key things:

- What can I migrate to Windows 7?
- How do I do it?
- When I do it and how do I ensure my users stay productive?

You can choose to turn to homegrown tools, do things manually, or make the move with a clear plan and the right tools. With such a critical move, don't take a chance and risk failure. As Louis Pasteur once said, "chance favors the prepared mind." So, put the chances of success squarely on your side with the Novell ZENworks trifecta—ZENworks Asset Management, ZENworks Application Virtualization and ZENworks Configuration Management.

At some level, every major industry trend is simply a natural, inevitable response to pain—a new idea for relieving pressure and eliminating barriers that slow organizations down and cost them extra money. The current trend toward service-driven data centers and enterprise cloud computing is no exception. In practical terms, it’s nothing more or less than our industry’s latest attempt to fix a long list of problems and inefficiencies that have plagued traditional data centers for years.

We’re all familiar with the issues. Today, data center service delivery models are simply too slow, inefficient, inflexible and error prone to keep up with the current pace of business. In a traditional data center environment, it typically takes more than 90 days to purchase, deploy and provision the hardware and software needed for a new business service. Vendor lock-in issues often make it difficult or impossible to leverage best-of-breed tools. Slow, inefficient manual workflows tend to be unproductive and error prone, which often translates into unacceptable service delays and disruptions. And even though virtualization can dramatically reduce the cost and complexity of provisioning infrastructure, it can also hide the true costs of service delivery, which often leads to serious “infrastructure sprawl” problems.

Of course, these challenges are not limited to the realm of pure infrastructure management. Business services inevitably require the involvement of many different teams, from business service managers to application owners. These teams often bring different objectives and priorities to the table, and traditional data center environments often struggle to provide the flexibility and visibility needed to reconcile their interests and achieve their varied (and occasionally competing) goals.

> Exploring a Practical Approach to Cloud Computing

Businesses are turning to cloud computing in growing numbers, because it offers a new approach for solving these long-standing data center problems. As with any new trend, cloud computing also raises its own set of issues and questions, many of which revolve around the obvious security, protection and auditing implications associated with moving enterprise business services to public clouds. As a result, many organizations are asking whether it makes more sense to move their enterprise to the cloud—or bring cloud computing into their enterprise. A surprising number are discovering that the best, most practical answer may be “both.”

Making your own internal data center environment more “cloud like” allows you to immediately tap into many of the advantages of cloud computing, leverage existing infrastructure investments and avoid the current questions and risks associated with public clouds. This incremental approach also makes it easier to transition to a hybrid public/private cloud model in the future—after security, auditing and other public cloud issues have been addressed. In other words, many organizations view the creation of internal clouds and service-driven data centers as important stepping stones to a more full-blown private and public cloud computing model.

A Smart, Practical Path to Building an Internal Cloud

1. Build a Service-Driven Data Center that simplifies, accelerates and automates the deployment and management of business services
2. Create, publish and deploy standard infrastructure offerings
3. Add visibility and accountability to current and future capacity needs
4. Keep your infrastructure options open
5. Provide advanced business service management capabilities

> Finding Your Stepping Stones to Successful Cloud Computing

What does it mean to bring cloud computing into your data center? And exactly how do you go about creating and managing a data center infrastructure that provides all the advantages and benefits of internal cloud computing? Basics like virtualization and workload management are certainly important. But building an internal cloud is also about incorporating a “business services” layer of abstraction to your traditional data center infrastructure. In traditional data centers, computing power and storage capacity are combined into workloads, which are then used to run enterprise applications. Adding this new business services layer logically groups these server workloads based on the...
business services they support. This shifts the management focus to full business services—and away from the individual underlying components. The exact nature of this new business services layer may vary depending on the unique requirements of your organization, but it needs to include a few core characteristics and capabilities. Here are a few of the non-negotiable functions every service-driven data center should be able to perform:

1. **Simplify and accelerate the deployment of business services**
   Effective service-driven data centers dramatically simplify the provisioning process and reduce the time and effort required to deliver new business services. This includes automating every step of the deployment process, so your infrastructure team spends less time on manual, repeatable processes. It also involves giving business service managers and application owners more opportunities to perform certain management tasks themselves. This important self-service component translates directly into higher service levels, more efficiency and fewer distractions for your infrastructure team.

2. **Create, publish and deploy standard infrastructure offerings**
   A service-driven data center also provides a new model for defining infrastructure offerings and making them available to business service managers. With the right management tools, you can build a flexible repository of standard infrastructure offerings, including things like standard server images, pools of storage capacity, standard network access and so on, and then publish those services and make them available for fast, efficient deployment. This allows business service managers and application owners to browse through a list of available infrastructure services, assemble and customize the components they need, see the associated costs and then quickly deploy new workloads.

3. **Add visibility and accountability to current and future capacity needs**
   Next, your service-driven infrastructure needs to include tools for managing costs and understanding current and future capacity demands on the internal cloud. All too often, virtualized environments tend to “de-couple” computing and storage capacity from underlying hardware and software costs. This often causes business service managers and application owners to treat cloud resources as a free, inexhaustible pool,
which leads directly to underutilization of resources and cost overruns. Attaching concrete costs to specific cloud resources eliminates this problem and encourages responsible usage and deployment practices.

Your service-driven environment should also help you accurately predict future demands on your internal cloud. This includes providing a “pipeline tool” that gives business service managers the ability to enter basic information about future capacity needs without actually deploying new workloads. By collecting all this current and future usage and capacity information in one place and analyzing it carefully, infrastructure managers can gain a deeper understanding of how cloud resources are being used and how demands will change over time.

4. Keep your infrastructure options open
Growing demand inevitably leads to the need for new servers, storage hardware, operating system and other underlying physical infrastructure components. As you build your internal cloud, you should always look to avoid the dangers of vendor lock-in. This typically involves being aware of—and steering clear of—too much vertical integration and choosing a business service management solution that’s designed to support a heterogeneous cloud environment. This gives you the freedom to implement best of breed infrastructure components that make the most sense for your organization. It also simplifies the process of moving to a hybrid cloud computing model that leverages a diverse range of internal and external computing resources.

5. Provide advanced business service management capabilities
Finally, a successful internal cloud environment has to offer relevant insights, deep visibility and efficient management capabilities to everyone with a vested interest in specific business services, including business service managers, business service owners, application owners and infrastructure teams. This includes providing the ability to integrate and unify different silos of information; gather, normalize and correlate all the information about your internal cloud infrastructure; and map a wide range of physical, virtual and logical components onto a simple, meaningful service model dashboard. You should also be able to create custom dashboards for people with different roles, responsibilities and interests.

What About Cloud Security?
Even if you’re considering a mostly internal cloud deployment, you may still need to outsource some applications to an external cloud vendor. But in these software-as-a-service (SaaS) situations, how can you make sure your vendor is leveraging your existing systems and security policies—without exposing sensitive information like user identities and passwords in the public cloud?

Novell is tackling this difficult issue head on with a new Cloud Security Service that essentially “annexes” a segment of a public cloud. This unique solution holds enterprise identity information securely behind your firewall while still making it safely available to cloud applications, cloud identity providers and other cloud assets.

The next issue of Novell Connection will feature a detailed, full-length article on the capabilities and benefits of the Novell Cloud Security Service. In the meantime, you can visit www.novell.com/products/cloud-security-service/ for more information about this important new offering.

Learn More about Novell and Cloud Computing
Visit www.novell.com/cloud

Creating Successful Internal Clouds with Novell Solutions
Novell is ready to help you create a service-driven data center environment that brings all these capabilities together to deliver the full promise and potential of cloud computing and sets the stage for more extensive hybrid internal/external cloud computing solutions in the future. This includes fast and proven SUSE Linux Enterprise Server offerings that are ideal for cloud computing environments, a complete range of PlateSpin virtualization and workload management products and a variety of advanced Novell Business Service Management solutions. Together, these technologies can transform your traditional data center into a more efficient, agile and automated service-driven environment—and provide all the stepping stones you need to reach your most ambitious cloud computing goals.
It's Time for a Change
Why Now is the Time to Upgrade to Novell Open Enterprise Server

NetWare revolutionized the industry in the early 1980s and still provides many Novell customers an efficient, reliable networking product today. Despite the obvious advantages of newer products, especially Novell Open Enterprise Server on Linux, many long-standing customers have had little incentive to change. However, while some degree of support will continue for NetWare until 2015, the pending end to the general support phase of the NetWare lifecycle, scheduled for early 2010, is leading many to realize that now is, in fact, the time for them to upgrade to our new premium product.

> The NetWare Lifecycle
Since its introduction in the early 1980s, NetWare has had an illustrious life, earning extensive user loyalty and establishing itself globally as the network platform of choice. Customers have come to value the reliability and security of NetWare, leading them to wonder why the product would ever be moved through the standard lifecycle phases. The reason is primarily because hardware and software manufacturers are increasingly narrowing their support, mainly to Windows and Linux platforms, leaving customers that are running NetWare with fewer and fewer choices.

On top of market trends, all software products have a lifecycle. According to Novell product lifecycle norms, Novell provides a three-tiered ongoing support lifecycle for NetWare: General Support, which will end on March 7, 2010; Extended Support, ending March 7, 2012, and Self-Support, continuing until March 7, 2015.

It is important to note that while Novell and the market are focusing more and more on the Linux platform, Novell understands that many customers still find NetWare as their network OS of choice.

"Novell support for Linux has been excellent. We've now moved Linux from a hypothetical idea to a mission-critical platform in our organization."

—Eric Leader, Chief Technology Architect, Catholic Healthcare West

Considering the economic climate and that upgrade efforts might not be top priority in 2009, Novell is still going to support its customers who cannot invest in the upgrade at this time. As long as customers are current with maintenance, they can enjoy the extended support period for free.

This promotion will allow current customers to keep using the product they know and love while planning to upgrade when it makes sense. For details on the Novell Support Lifecycle for NetWare and other products, go to http://support.novell.com/lifecycle/.

If You're Opting To Not Upgrade Now
We understand that some customers cannot undertake an upgrade right now. If you're one of these customers, and if you remain current on Netware Maintenance, Novell will be offering you free extended support for two additional years beyond the product's end-of-general-support date—which in this case is through March of 2012. That means that you can receive unlimited call-in service requests for as long as you are current with Maintenance. This does not mean that Novell will be extending the general support phase, which typically includes engineering investments. Ongoing development investment in the product will continue to be at the discretion of Novell. For Academic customers, your current support agreement will be honored in the extended support phase.

> The Value of Novell Open Enterprise Server on Linux
In the meantime, Novell has invested heavily in porting all the reliable, familiar NetWare services to Novell Open Enterprise Server 2 SP1, which comes with all of the additional benefits of running on the Linux platform that delivers the robust networking services you had with NetWare, plus the added choice, flexibility and cost savings provided by SUSE Linux Enterprise Server.

Indeed, the Linux platform is increasingly becoming the operating system of choice, even over Windows. First, Linux offers choice and flexibility. Whereas there is only one Windows vendor, Linux has several “flavors” or vendor versions. Because you can choose from any hardware that supports SUSE Linux Enterprise, you can take advantage of commodity hardware for the first time in a long while. Beyond that, Linux is more flexible in that user access to source codes allows you to customize the platform yourself.
It's Time for a Change  
TECH TALK 2 by David J. Dennison

Second, Novell Open Enterprise Server is a powerful consolidation platform because it is based on Linux, which allows you to consolidate your servers through virtualization. In addition, it inherits support for the thousands of software applications that run on SUSE Linux Enterprise.

**Benefits of Open Enterprise Server 2, Service Pack 1**

New features shipping with Service Pack 1 include more than patches and bug fixes. With this product, you will receive additional benefits such as:

- Domain Services for Windows, an innovative technology that allows eDirectory to appear like Active Directory, streamlining authentication between Windows workstations and the central identity vault.
- Novell-engineered AFP and CIFS protocol support that allows enterprise-class scalability for Mac and PC client access to the network and file system.
- iFolder, which now delivers group folders, multiple iFolders per user, and enhanced clients for Mac and Linux.
- Enhanced upgrade tools that make it easier for customers to upgrade from NetWare to Open Enterprise Server-Linux than from an older version of NetWare to the latest version of NetWare.
  - Upgraded GUI and serverID swap that allow you to migrate the configuration of a running NetWare server to an Open Enterprise Server 2-Linux server.
  - A dashboard view that identifies the job status, overall status, throughput, timings and more—during the entire migration.
  - Ability to integrate tasks into a single overall view: Single entry of eDirectory/server details. Dependant services can be migrated together or separately.
- Native 64-bit eDirectory can now use the entire addressable memory on an x86-64 CPU.
- LDAP Auditing means enhanced authentication support, directory monitoring, as well as 64-bit versions of NCP, PKIS and NMAS.
- Software Developer Kit (SDK) for iPrint that allows partners to provide print accounting tools for Linux.

**Upgrading: A Smart Decision All-around**

In this economic climate, the smart move is to upgrade now, especially since Novell Open Enterprise Server comes with so many money-saving features. You need to look beyond license costs alone and remember that if you opt to move away from the Novell platform you'll find *hidden costs* such as:

- Doubling hardware
- Moving file systems
- Needing to touch every device in your environment
- Retraining administrators and end users
- Incurring the risk of many manual processes

On the flip side, upgrading is a smart tactical decision—one that allows you to:

- Leverage existing skill sets while streamlining management of mixed environments
- Achieve efficiencies in storage management and server usage
- Empower your end users with automated storage, print and networking utilities, which takes the load off your administrators

More broadly, upgrading is a smart strategic decision that aligns your infrastructure to where market growth and innovation are occurring; offers powerful consolidation opportunities; provides more options for hardware and software; and helps you incur less cost, risk and effort.

**Upgrade Successes**

- Fifty one percent of customers have deployed Novell Open Enterprise Server on Linux on at least 25 percent of their Novell infrastructure servers.
- Eighty percent of customers who have deployed the product on Linux are "satisfied" or "extremely satisfied" with those workloads.
- Customers using Open Enterprise Server on Linux often start their deployments with iManager, Novell Storage Services (NSS) and DNS/DHCP.

**How You Can Benefit**

- Upgrading is easy, and we're giving you a lot of tools and resources to help.
- In this economic climate, the smart move is to upgrade, not migrate, especially since the product comes with so many money-saving features.
- Novell Open Enterprise Server is a powerful consolidation platform, because it is based on Linux. Hence, this solution gives you a lot of options to help you save more money, by consolidating your servers in the data center via virtualization, for example.
Move IT: Helping You Upgrade Painless and Economically

Novell has invested heavily in making the actual transition from NetWare to Novell Open Enterprise Server 2 Service Pack 1 as easy as possible. A simple graphical user interface allows point-and-click migrations from NetWare to Linux, along with customizable scheduling, notifications and server identity transfer.

Still, we realize that the decision to upgrade can be harder than the actual transition itself. Thus to help you, our loyal NetWare customers, as you consider your options, Novell is launching a global, holistic campaign called “Move IT.” Its purpose is to help all customers still running NetWare overcome Linux adoption barriers with offers, programs and communications during the next year. Details can be found at www.novell.com/upgrade. The campaign currently includes the following offers, each of which is also described below:

- A Revised and Updated Upgrade Best Practices Guide
- Built-in Upgrade Tools: Our migration GUI makes it easier than ever to migrate NetWare servers to Open Enterprise Server on Linux.
- New services that help your organization with the upgrade include:
  - Fast Track: Bundled Offerings of Essential Services
  - Free On-demand Web-based Training
  - Novell Upgrade Advisor

Best Practices: Upgrading to Open Enterprise Server—Planning and Implementation Guide

What This Guide Provides
The guide gives an overview of the planning and implementation processes involved in upgrading from NetWare to Open Enterprise Server 2 Service Pack 1. It provides overview and planning information along with links to specific implementation instructions that are found on the Web.

What This Guide Does Not Replace
It does not replace the specific upgrading and planning instructions found in the regular installation and migration guides. You should follow those carefully to ensure a successful upgrade to Open Enterprise Server.

For the most recent version of this guide, see the Open Enterprise Server 2 Documentation Web site.

Fast Track: Bundled Offerings of Essential Services

This bundle of integrated services is designed to help you make the move from NetWare to Open Enterprise Server. Based on best practices and world-class support, this offering will help you upgrade successfully and ensure that you have all the skills you will need to administer the Open Enterprise Server environment.

This offer includes:
- A technical assessment
- A high-level design and upgrade plan, including related documentation
- Five consecutive days (including travel expenses) of predefined, on-site consulting delivered by Novell Professional Services or a qualified Novell partner
- Three one-year subscriptions to the End-user Computing On-demand Web-based training course library

Depending upon the edition purchased, this offer can also include:
- Two Scheduled Standard calls or two Service Requests (Standard Edition)
- Or, two four-hour blocks of Scheduled Standby support if you are current with maintenance (Enterprise Edition)

For more details, see Fast Track on the Web.
On-demand Training: Bridging NetWare Skills to Novell Open Enterprise Server 2

If you're an experienced NetWare engineer, this course will reintroduce you to the skills you already have that can help you administer Novell Open Enterprise Server 2 services running on SUSE Linux Enterprise Server. You will find that many of your existing NetWare server managements skills, in areas such as Novell Storage Services and iPrint, will transfer seamlessly to Novell Open Enterprise Server on Linux.

In addition to the management tools, this course discusses command line equivalents so you can quickly reference how NetWare command line tasks are done on a Linux server.

Course objectives include:

- Describe the role and function of Open Enterprise Server 2
- Become familiar with Linux
- Complete NetWare server tasks on SUSE Linux Enterprise Server 10
- Prepare SUSE Linux Enterprise Server 10 for Open Enterprise Server 2
- Install Open Enterprise Server 2 on SUSE Linux Enterprise Server 10
- Use Open Enterprise Server 2 management tools
- Use Open Enterprise Server 2 migration tools

For video demonstrations and labs, see the “Tell Me” and “Show Me” steps at Bridging NetWare Skills to Open Enterprise Server 2.

Novell Upgrade Advisor

This new offering allows you to get targeted, premium support from a designated Novell Advantage Support Engineer for the critical task of upgrading NetWare servers to Novell Open Enterprise Server — at a fraction of the cost of an Advantage Support Engineer contract. This offering, also available through Novell partners and with regular program discounts, such as MLA and VLA, includes:

- A single point-of-contact for all service requests pertaining to upgrades from NetWare to Open Enterprise Server. (Currently, Advantage Support Engineer contracts start at $60,000 or with high levels of maintenance, making this offer a great deal.)
- An introductory environmental interview and assessment by the Advantage Support Engineer
- Sold through Deal Registration System, and program discounts, such as MLA and VLA, apply to this offering.
- 90 days of Advantage Support for 10 upgrade-related service requests

See our Services Flyer on Novell Upgrade Advisor for more details.

To learn more about available upgrade promotions, go to our "Upgrade Now" promotional Web site.

Where can I get more information and/or assistance upgrading?

- “Move IT” Programs to Support Upgrades: http://www.novell.com/upgrade
- Video Message from Ron Hovsepian: http://www.novell.com/communities/node/7700/move-it
- NetWare Lifecycle explanation: http://support.novell.com/lifecycle
More of What You Need, When You Need It
Novell Adds Several New Courses to On-demand Training

The Novell On-demand Training direction is simple and it just happens to be filling the biggest customer-satisfaction need for Novell training customers: making courses available to as many users as possible in an easily consumable way. Novell is moving into Web-based e-learning to meet the needs of students who don’t have classroom training available in their area or, with this economy, in their budget.

In the April issue of Novell Connection the article “What You Need, When You Need It: Getting Novell On-demand Training When You Want It Wherever you Are” introduced the value of On-Demand Training, a delivery method that provides a convenient and flexible way to access Novell training courses that is available whenever and wherever you are from within a browser. (Check out the complimentary On-demand Training Courses here so you can actually experience them.)

The perfect option if you do not have the time or budget for onsite or even scheduled online classroom training, On-demand Training eliminates the need for you to take time away from work for travel and training. It reduces expenses and lost productivity while still giving you the expertise you need to remain competitive. With On-demand Training, Novell is also able to more easily reach students who prefer the digital type of learning experience, a group of us that is obviously growing every day.

“What You Need, When You Need It” focused on the value, flexibility, convenience, quality and content provided by this important training option. In regard to this last benefit—content—we noted that at the time, Novell was offering 40 courses for new product users, administrators, technical experts and end users. Furthermore, we promised that Novell would be providing an even more diverse and ever-growing library that covers the spectrum of Novell solutions.

That time is now. New users, as well as those holding current one-year subscriptions will have access not only to the original library but to many exciting courses being unveiled within the year. These include four important SUSE Linux Enterprise 11 courses that are available this month and two more that will be added by the end of the year. Stay tuned in an upcoming issue to read more about the other two courses.

Four New SUSE Linux Enterprise 11 Courses Now Available

Four new courses in the On-demand Training library have now been made available in the high-level training that previously were available only through Partner-led training and self-study kits. The first of these four courses provides training at a novice and intermediate level that will help you prepare to pass the Certified Linux Administrator (CLA) 11 certification exam # 050-720 and become a CLA. The others prepare you for the Certified Linux Professional (CLP) 11 Practicum exam, and the planned Certified Linux Desktop Professional (CLDP). These important credentials and exams demonstrate and prove your abilities to current and prospective employers. And as we all know, enough can’t be said about taking care of yourself in that regard.

Before we jump into deeper descriptions of each course, you should know a bit more about the learning paths. If you’re going for more skills for the server, you’ll want to take 3101, then 3102 and then 3103. If you want to focus on the desktop, start with the same first two courses, 3101 and 3102, then take 3104. For more information about the CLA learning path, click here. For more information on the CLP learning path, click here.

SUSE Linux Enterprise 11 Fundamentals (Course 3101 v1)

Want to learn the basics of SUSE Linux Enterprise 11? Interested in becoming a Certified Linux Administrator? This course is for you.

Designed for beginners, this course requires you to have only basic computer skills on any operating system. This course is ideal for you if you have little or no experience with any distribution of Linux or if you are specifically seeking a fundamental understanding of the SUSE Linux Enterprise 11 operating system. A course that would usually take three days when delivered as Partner-led training, the On-demand version of this course enables you to complete it at your own pace, taking either more or less time. In addition, you can go back and repeat sections or the entire course as often as you want or need. It introduces you to the fundamentals of Linux and helps you gain a basic understanding of the core features of the SUSE Linux Enterprise 11 operating system. It is also the first of a two-course path towards the CLA 11 exam.
Participants are taught essential skills that are prerequisites for entry-level Linux administrators or help desk technicians. These include:

- First steps with Linux
- Use the Linux desktop
- Locate and use Help resources
- Manage Linux file system
- Work with the Linux shell and command line
- Administer Linux with YaST
- Manage user, groups and permissions
- Use Linux text editors
- Manage software with RPM

Click [here](#) to see a full outline for Course 3101.

### Course Outline - SUSE Linux Enterprise 11 Fundamentals (Course 3101 v1)

#### Section 1: First Steps with Linux
- Overview of the Linux Desktop
- Use the GNOME desktop environment
- Access the command line interface from the desktop

#### Section 2: Locate and Use Help Resources
- Access and use man pages
- Use info pages
- Access release notes and white papers
- Use GUI-based Help
- Find Help on the Web

#### Section 3: Manage Linux File System
- Understand the File System Hierarchy Standard (FHS)
- Identify file types in the Linux system
- Change directories and list directory contents
- Create and view files
- Work with files and directories
- Find files on Linux
- Search file content

#### Section 4: Work with the Linux Shell and CLI
- Get to know the command shells
- Understand the multiluser environment
- Execute commands at the command line
- Get to know common command line tasks
- Understand command syntax and special characters
- Use piping and redirection

#### Section 5: Administer Linux with YaST
- Get to know YaST
- Network-config with YaST
- Add a printer

- Software management with YaST
- Understand the role of SuSEconfig

#### Section 6: Manage Users, Groups, and Permissions
- Manage user and group accounts with YaST
- Describe basic Linux user security features
- Manage user and group accounts from the command line interface
- Manage file permissions and ownership
- Ensure file system security

#### Section 7: Use Linux Text Editors
- Get to know Linux text editors
- Use the editor vi to edit files

#### Section 8: Manage Software with RPM
- Manage RPM software packages
- Manage RPM software sources/catalogs with Zypp
- Update and patch SUSE Linux Enterprise

> **SUSE Linux Enterprise 11 Administration (Course 3102 v1)**

Are you looking to develop basic administration skills for SUSE Linux Enterprise 11? Are you preparing to take the Certified Linux Professional Practicum? Here's what you should know.

This intermediate course is designed for you if you're a system administrator who needs to become more familiar with the Linux operating system. It's also ideal if you want to prepare for the Novell CLA 11 Exam. Before taking Course 3102, you should have a fundamental knowledge of the Linux operating system, which you might have from just diving in and using it, or you can gain that knowledge through Course 3101 – SUSE Linux Enterprise 11 Fundamentals or an equivalent course.

Completion of this course prepares you for the CLA 11 exam # 050-720. A course that would normally take five full days via Partner-led training, it will help you master the following concepts and skills fundamental to understanding SUSE Linux Enterprise 11:

- Install SUSE Linux Enterprise Server 11
- Manage system installation
- Administer Linux processes and services
- Administer storage in a Linux environment
- Configure the network
- Manage hardware
- Configure remote access
- Monitor SUSE Linux Enterprise Server 11
- Automate tasks
- Manage backup and recovery
- Administer user access and security

Click [here](#) to see a full outline for Course 3102.
Course Outline - SUSE Linux Enterprise 11 Administration (Course 3102 v1)

Section 1: Install SUSE Linux Enterprise
- Perform a SUSE Linux Enterprise 11 installation
- Configure the SUSE Linux Enterprise 11 installation
- Troubleshoot the installation process
- Install exercise for both SUSE Linux Enterprise Server and SUSE Linux Enterprise Desktop

Section 2: Manage System Initialization
- Describe the Linux load procedure
- GRUB (Grand Unified Bootloader)
- Manage Runlevels

Section 3: Administer Linux Processes and Services
- View and manage processes (kill, jobs, etc.)
- Manage daemon processes (/etc/init.d/script start, etc.)

Section 4: Administer Storage
- Select a Linux file system
- Configure Linux file system partitions
- Manage Linux file system
- Configure LVM and software RAID
- Set up and configure disk quotas

Section 5: Configure the Network
- Understand Linux network terms
- Manage the network configuration info from YaST
- Set up network interfaces with the ip tool
- Test the network connection with CLI tools
- Configure host name and name resolution

Section 6: Manage Hardware
- Describe the difference between devices and interfaces
- Describe how device drivers work
- Describe how device drivers are loaded
- Manage kernel modules manually
- Describe the sysfs file system
- Describe how udev works
- Obtain hardware configuration info from YaST

Section 7: Configure Remote Access
- Provide secure remote access with OpenSSH
- Enable remote administration with YaST and VNC
- tsclient/rdesktop, nomad

Section 8: Monitor SUSE Linux Enterprise 11
- Monitor a SUSE Linux Enterprise Server 11 System
- Use system logging services
- Monitor login activity

Section 9: Automate Tasks
- Schedule jobs with cron
- Schedule jobs with at

Section 10: Manage Backup and Recovery
- Develop a backup strategy
- Back up files with YaST
- Create backups with tar
- Work with magnetic tapes
- Copy data with dd
- Mirror directories with rsync

Section 11: Administer User Access and Security
- Configure user authentication with PAM
- Manage and secure the Linux user environment
- ACLs
- Improve application security using AppArmor
- Create and manage profiles using AppArmor
- Control AppArmor
- Monitor AppArmor
- Use SuSEfirewall2

SUSE Linux Enterprise Server 11 Administration (Course 3103 v1)
Are you looking to develop a more complete set of administration skills for SUSE Linux Enterprise 11? Are you preparing to take the Certified Linux Professional 11 Practicum? Read on.

SUSE Linux Enterprise Server is a highly reliable, interoperable and manageable server operating system that enables you to cost-effectively and securely deliver mission-critical services. This intermediate course is designed for you if you already have experience with Linux, including general system configuration and command line work. It's also ideal if you're seeking more administration skills on SUSE Linux Enterprise Server 11, and also if you have completed the two previous courses in the Novell CLP 11 curriculum, and if you're preparing to take the Novell CLP 11 Practicum. Before taking this course, it is highly recommended that you have a good working knowledge of Linux and should be able to handle the following tasks, all of which are taught in Courses 3101 and 3102:
- Install SUSE Linux Enterprise Server 11
- Perform partitioning and file system setup and maintenance
- Perform system configuration including network setup and user management
- Manage software packages
- Work on the command line including file management and text editing
More of What You Need, When You Need It

Covering five days worth of material if taken via Partner-led training, this course covers the core elements of SUSE Linux Enterprise Server 11 administration, including topics such as:

- Configure fundamental networking services
- Manage printing
- Configure and use Open LDAP
- Configure and use Samba
- Configure a Web server
- Configure and use IPv6
- Perform a health check and performance tuning
- Create shell scripts
- Deploy SUSE Linux Enterprise
- Xen
- LiveFire Exercise

Click here to see a full outline for Course 3103.

Course Outline - SUSE Linux Enterprise Server 11 Administration (Course 3103 v1)

**Section 1: Configure Fundamental Networking Services**
- Configure NFS
- Configure time on SUSE Linux Enterprise Server 11
- Enable the Extended Internet Daemon (xinetd)
- Enable an FTP Server

**Section 2: Manage Printing**
- Configure CUPS
- Manage print jobs and queues
- Understand how CUPS works
- Configure and manage print server access
- Use the Web interface to manage a CUPS server

**Section 3: Configure and Use Open LDAP**
- Understand the basics of LDAP
- Install and set up an OpenLDAP server
- Add, modify and delete entries in the OpenLDAP database
- Query the OpenLDAP database
- Activate OpenLDAP authentication

**Section 4: Configure and Use Samba**
- Understand Samba
- Configure a simple file server
- Configure user Authentication
- Use the Samba client tools
- Use Samba as a domain controller
- Integrate Samba in a Windows domain
- Configure Samba as a print server

**Section 5: Configure a Web Server**
- Set up a basic Web server
- Configure virtual hosts
- Limit access to the Web server
- Configure Apache with OpenSSL
- Install PHP

**Section 6: Configure and Use IPv6**
- IPv6 theory
- IPv6 on SUSE Linux Enterprise 11

**Section 7: Perform a Health Check and Performance Tuning**
- Find performance bottlenecks
- Reduce system memory load
- Optimize the storage system
- Tune the network performance

**Section 8: Create Shell Scripts**
- Understand the course project
- Use basic script elements
- Understand variables and command substitution
- Use control structures
- Use arithmetic operators
- Read user input
- Use arrays
- Finalize the course project
- Use advanced scripting techniques
- Learn about useful commands in shell scripts

**Section 9: Deploy SUSE Linux Enterprise**
- Installation options and deployment strategies
- Installation server: set up and use
- Set up of PXE boot for installation
- Auto-installation basics
- The configuration file for AutoYaST
- Automated installation

**Section 10: Xen**
- Understand how virtualization with Xen works
- Install Xen
- Manage Xen domains with Virt-Manager
- Manage Xen domains from the command line
- Understand Xen networking

**Section 11: LifeFire Exercise**

> SUSE Linux Enterprise Desktop 11 Administration (Course 3104 v1)

Do you administer SUSE Linux Desktops in your enterprise? Want to prepare for the coming Certified Linux Desktop Professional exam? This course will help prepare you to pass it!

SUSE Linux Enterprise desktops can save your business money by reducing licensing costs and being more secure against virus attacks. In this intermediate course, you will learn how to install, configure and manage SUSE Linux Enterprise Desktops. It also
More of What You Need, When You Need It  

TECH TALK 4 by Eric D. Hunstman continued

covers important administrative functions such as managing software and printing as well as how to tackle large scale desktop deployments in your business. You should be familiar with basic elements of Linux administration as well as the Windows desktop.

Coming soon to On-demand Training, Course 3104 is the culminating course in the SUSE Linux Enterprise desktop administrator curriculum. (Click here to see the CLA learning path and here to see the CLP learning path.) As with the other courses in this 3100 series, this On-demand Training version allows you to complete it at your own pace instead of what would normally take five full days if taken in a partner-led classroom. It covers common tasks that a system administrator of SUSE Linux Enterprise Desktop 11 has to perform, such as installation, configuration of the desktop environment, software management, management of processes, printing, integration into existing environments and roll out of a large number of installations throughout your enterprise.

Specific topics covered include the following:

- Customizing the graphical interface of the SUSE Linux Enterprise Desktop
- Locking down the SUSE Linux Enterprise Desktop
- Using the NetWorkManager to configure the network
- Activating and using IPv6
- Integrating SUSE Linux Enterprise Desktop into an Active Directory environment
- Integrating SUSE Linux Enterprise Desktop into an eDirectory environment
- Integrating SUSE Linux Enterprise Desktop into a UNIX environment
- Accessing remote desktops
- Using multimedia on a SUSE Linux Enterprise Desktop
- Configuring e-mail
- Creating shell scripts
- Deploying SUSE Linux Enterprise Desktop

Click here to see a full outline for Course 3104.

Course Outline - SUSE Linux Enterprise Desktop 11 Administration (Course 3104 v1)

Section 1: Customize the Graphical Interface on SUSE Linux Enterprise Desktop 11

- Configure X, Xgl and Compiz
- Customize the GNOME user interface
- Customize applications

Section 2: Lock Down the SUSE Linux Enterprise Desktop

- Control mounting of CD-ROM, DVD and USB drives
- Define mandatory settings with GConf and desktop profiles
- Use policy kit to configure application policies
- Use file system encryption

Section 3: Use the NetworkManager to Configure the Network

- Understand NetworkManager basics
- Access wired networks
- Access wireless networks
- Configure virtual private networks (VPNs)
- Configure mobile broadband connections
- Configure DSL

Section 4: Activate and Use IPv6

- Understand the IPv6 theory
- Activate and use IPv6 on SUSE Linux Enterprise 11

Section 5: Integrate SUSE Linux Enterprise Desktop 11 into an Active Directory Environment

- Describe how SUSE Linux Enterprise Desktop 11 integrates with Active Directory
- Configure Active Directory integration
- Access shared domain resources

Section 6: Integrate SUSE Linux Enterprise Desktop 11 into a Novell eDirectory Environment

- Describe how the Novell Client for Linux works
- Install and configure the Novell Client for Linux on SUSE Linux Enterprise Desktop 11
- Authenticate to a Novell Open Enterprise Server 2 Server Using the Novell Client for Linux
- Use Novell iPrint on SUSE Linux Enterprise Desktop 11
- Use iFolder on SUSE Linux Enterprise Desktop 11

Section 7: Integrate SUSE Linux Enterprise Desktop 11 into a UNIX Environment

- Accessing NFS file shares
- Authenticating to LDAP
- Printing to CUPS printers

Section 8: Access Remote Desktops Using Nomad

- Describe how Nomad works
- Install and configure Nomad
- Access desktops remotely with Nomad
- Troubleshoot common Nomad problems

SECTION 9: Use Multimedia on the SUSE Linux Enterprise Desktop

- Use Banshee
- Use Moonlight
More of What You Need, When You Need It

TECH TALK 4 by Eric D. Hunstman continued

Section 10: Configure E-mail
- Configure the Evolution e-mail client on SUSE Linux Enterprise Desktop 11
- Configure the GroupWise client on SUSE Linux Enterprise Desktop 11

Section 11: Create Shell Scripts
- Understand the bash basics
- Use basic script elements
- Understand variables and command substitution
- Use control structures
- Use arithmetic operators
- Read user input
- Use arrays
- Finalize the course project
- Use advanced scripting techniques
- Learn about useful commands in shell scripts

SECTION 12: Deploy SUSE Linux Enterprise Desktop 11
- Understand auto-installation basics
- Create an configuration file for AutoYaST
- Use an installation server
- Perform an automated installation

Linux Enterprise Courses Coming Soon
The following two SUSE Linux Enterprise-related courses are slated to be released before the end of 2009, so stay tuned for those to also be available in On-demand Training.

Novell's Guide to CompTIA's Linux+ with SUSE Linux Enterprise 11 (Course 3106)
This new course, slated to release in October 2009, will be available as an On-demand course a few months after its release as a Partner-led course or study kit. A course that will work well in the academic market, it will prepare you for the non-vendor specific CompTIA Linux+ test, which is an industry-recognized certification.

Migrating from Red Hat 5 to SUSE Linux Enterprise Server 11 (Course 8011)
When this course is released, it will prepare you to migrate services running on a Red Hat server to run on a SUSE Linux Enterprise Server system.

Subscribing to On-demand Training
An annual subscription for On-demand Training costs US$1,795 per user. This gives you an All-Access Pass which opens the entire On-demand Training library to you whenever you need it. Novell also just announced the option to be able to buy Solution Libraries in the On-demand Training Library. Contact a Novell sales representative by calling 1-800-529-3400 or click here to find out more about your options.

As Novell continues to develop and focus its training on new technologies to meet new challenges, its world-recognized training will continue to provide you with what you need, when you need it!

Why These On-Demand Courses are Good for Your Career
Good training keeps others from surpassing your skills, thereby improving your job security at the same time you are increasing your company's productivity. In this tough economic climate, when budgets are tight and time is at a premium, On-demand courses help you secure the training you need and prepares you for the exams and certifications that demonstrate your abilities to employers.

Advantages of Course 3101 – 3102
- Based on the SUSE Linux Enterprise 11 code (not SUSE Linux Enterprise Server or SUSE Linux Enterprise Desktop), these courses provide the foundational knowledge of SUSE Linux Enterprise from which you can branch off to a specialization into server or desktop or other specialty such as SUSE Linux Enterprise Real Time or SUSE Linux Enterprise Advanced Server.
   - These two courses constitute the Certified Linux Administrator (CLA) 11 certification learning path.

Advantages of Course 3103
- This course provides you training on tasks specific to server administration.
  - A CLA certification plus the completion of Course 3103 prepares you for the Certified Linux Professional (CLP) 11 Practicum exam.

Advantages of Course 3104
- This course provides you training on tasks specific to desktop administration as opposed to administration of the server.

Novell has announced a plan for a Certified Linux Desktop Professional 11 (CLDP) exam. Keep watching for more information concerning this new certification. Having a CLA certification plus the completion of course 3104 will prepare you for this exam, providing you with what will prove to be an important credential in the IT industry.
If you want to introduce a Linux desktop into your existing Windows environment, the release of SUSE Linux Enterprise Desktop 11 just might be your answer. Billed as the most interoperable desktop and the market’s only enterprise-quality Linux desktop, SUSE Linux Enterprise Desktop 11 offers seamless interoperability with existing enterprise systems and dozens of essential productivity applications. It works with Novell GroupWise and Microsoft Exchange collaboration servers and is also fully compatible with Novell eDirectory, Microsoft Active Directory and other networking and directory standards.

As the most interoperable desktop and the market’s only enterprise-quality Linux desktop, SUSE Linux Enterprise Desktop 11 offers seamless interoperability with existing enterprise systems and dozens of essential productivity applications.

To see what the latest iteration of Linux desktop has to offer, download the evaluation software. I’ll highlight some of the key features below so you’ll know what to look for as you test drive the product.

> Interoperability Enhancements
As expected, SUSE Linux Enterprise Desktop 11 includes all the latest updates to the Linux kernel, and refreshed versions of its packages and applications. It contains the latest versions of Firefox, the Novell Edition of OpenOffice.org, Novell Evolution, and more. See Figure 1 for a summary of the key packages and versions that make up SUSE Linux Enterprise Desktop 11.

If you’re not already familiar with it, the Novell Edition of OpenOffice.org is a complete office productivity suite that comes with word processing, spreadsheet, presentation, drawing and database capabilities. The nice thing about the Novell Edition of the suite is that it features enhancements not found in the upstream version of OpenOffice.org. For example, the version of the suite that ships in SUSE Linux Enterprise Desktop 11 includes richer file import capabilities (e.g., WordPerfect, Microsoft Works, Lotus WordPro and scalable vector graphics files), stronger VBA and PivotTable support in Calc, anti-aliasing capabilities in Impress, WebDAV locking capabilities and GroupWise integration.

OpenOffice.org Novell Edition offers improved interoperability of files being passed between the OpenOffice.org suite and the Microsoft Office suite. For example, in the past you could import Word documents into OpenOffice.org, but when you exported them back out to Word, the formatting wasn’t always quite right. Now with the enhancements in the Novell Edition of OpenOffice.org 3.0, you can seamlessly open and save those Word documents in OpenOffice.org and the formatting will remain the same regardless of what suite you use to view and edit it. Novell refers to this new capability as “roundtrip fidelity.” In addition, OpenOffice.org supports the import of Office Open XML, Microsoft’s default file format with the release of Microsoft Office 2007.

As another interoperability enhancement, integration of the Mono open source class libraries and runtime environment has been introduced to SUSE Linux Enterprise Desktop 11. This provides Linux support for .NET applications, enabling them in most cases to run natively on the Linux desktop. A tool called MoMA (Mono Migration Analyzer) is provided to help identify issues when porting your .NET applications to Linux. While the libraries needed to run these applications can automatically be installed with the desktop, you can also download the Mono framework for development purposes if desired. In fact, Novell used this framework

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**Figure 1:** SUSE Linux Enterprise Desktop 11 contains the latest versions of Firefox, the Novell Edition of OpenOffice.org, Novell Evolution, and more.
Novell Edition of OpenOffice.org is a complete office productivity suite that comes with word processing, spreadsheet, presentation, drawing and database capabilities.

to develop a Firefox plug-in included with the desktop distribution called Moonlight. Moonlight enables support for Windows media formats (i.e., WMA and WMV), and allows users to browse Microsoft Silverlight-enabled Web sites.

Greater Microsoft Exchange interoperability has also been added to this release. The Novell Evolution mail client in SUSE Linux Enterprise Desktop 11 has been updated to support backend integration with Exchange 2007 and all other versions of Exchange, as well as support for Novell GroupWise 8. As the most widely used Linux collaboration client in the world, Evolution seamlessly integrates e-mail, calendars, contact management and task lists into a single easy-to-use application designed for the needs of enterprise users.

The final key interoperability aspect of the SUSE Linux Enterprise Desktop 11 release is an inclusion of Likewise Enterprise, an enterprise software solution that improves the level of integration between the desktop and Active Directory. For IT managers in Active Directory (AD) environments, this means that your Windows and Linux desktops can authenticate with AD and that you can also leverage AD to centrally manage both groups of devices through the use of group policy objects. Likewise, Enterprise enables you to define group- and role-based access to your corporate assets for your Linux desktops, just as you do for your Windows desktops.

> More Granular Security

In addition to greater interoperability, they’ve also built in greater security to SUSE Linux Enterprise Desktop 11. The prime example of this is the PolicyKit, a new feature that gives you increased flexibility in granting your users the ability to make some system changes without having to give them root access to the system. While the major use case for the PolicyKit will likely be in allowing users to install applications without them needing root privileges, it provides a number of other controls as well, such as controlling access to removable media, adding or removing printers, modifying the backup schedule, enabling or disabling Bluetooth, and more.

When a user attempts to carry out a privileged operation that is PolicyKit enabled, PolicyKit will be asked whether or not the user is entitled to perform that operation. Possible answers include “yes,” “no,” or “authentication needed.” In the “authentication needed” scenario, you have the option to require users to authenticate as themselves or as root. Additionally, PolicyKit privileges can be either implicit or explicit.
SUSE Linux Enterprise Desktop 11 features key green IT innovations without impacting productivity.

Implicit means that the policy applies to all your users and explicit applies to specific users or groups.

To set or modify PolicyKit privileges you can use either the graphical Authorizations tool inherent to the GNOME graphical desktop interface, the PolicyKit command line tool or by directly modifying PolicyKit configuration files. (See Figure 2.) To manage the privileges on an enterprise-wide basis, it’s probably best to make changes at the configuration file level. You can then push those policy settings out to your users’ desktops through a variety of options. If your policies are fairly uniform, it can simply be part of an AutoYaST image that you use for all your Linux desktops. To give you more granular control, you can distribute the policies settings based on roles using group policy objects or the policy-driven automation of ZENworks Linux Management.

In regard to other aspects of security, SUSE Linux Enterprise Desktop 11 continues to use AppArmor for application security. While the AppArmor functionality in this release is essentially identical to that of the previous release, it has been updated to work with newer applications and software updates.

> Green IT Innovations

SUSE Linux Enterprise Desktop 11 features key green IT innovations without impacting productivity. It includes new smart power management capabilities such as CPU throttling, switching off the hard drive when not needed and dimming the display when idle. It also includes improvements that put the desktop into hibernation and sleep modes. Finally, a new Power History interface makes your green IT experience very visual. You can see how your usage behavior is impacting battery life and how the operating system is adapting to this usage.

In addition, SUSE Linux Enterprise Desktop 11 features Nomad. Nomad is a suite of remote desktop protocol tools that delivers near-native graphics performance when you access SUSE Linux Enterprise Desktop remotely. This allows you to dramatically cut costs by configuring SUSE Linux Enterprise for green, server-based computing environments. For instance, you can now run SUSE Linux Enterprise Desktop virtually in the data center or in the cloud without compromising the high quality and performance you would expect from a local desktop experience.

Figure 3: The application switcher enables you to rotate through 3D thumbnail views of your applications, making it easier to see and find the application you want.
Productive Usability and Deployment Flexibility

The overall look and feel of the GNOME desktop graphical interface is basically unchanged in this release. It still provides integrated search capabilities and real-time indexing of the desktop, new accessibility features for disabled users such as the Orca screen reader and 3D desktop effects that enable more effective organization of your desktop. In the area of 3D desktop effects, one visual enhancement, known as the application switcher, has been added to SUSE Linux Enterprise Desktop 11. When you Alt+Tab through your open applications, the application switcher rotates through 3D thumbnail views of your applications, making it easier to see and find the application you want. (See Figure 3.)

SUSE Linux Enterprise Desktop 11 also provides you flexible deployment options. You can use it as a general-purpose desktop platform or tailored for use in thick- or thin-client configurations. To facilitate deployment, you can take advantage of the automated installation provided by AutoYaST, the central management capabilities of ZENworks Linux Management, or both of them together. Finally, Novell is continuing to work with its hardware platform partners to preload SUSE Linux Enterprise Desktop on a wide range of form factors, including desktops, notebooks, netbooks, nettops, workstations and thin clients. But don’t wait until then to check out the enhancements that make it the most interoperable desktop available and the market’s only enterprise-quality Linux desktop. See what SUSE Linux Enterprise Desktop 11 can do for you.
Novell Data Center and IT in Action Media Gallery

Explore Novell’s Latest Educational Masterpieces

Artists use galleries to give the public access to their most interesting and valuable work. Now, Novell is taking a cue from the art world and assembling some of its freshest and most relevant educational content into two new media galleries. These rich, interactive online resources owe most of their content to two recent live multi-city tours—the IT in Action tour and the Data Center Evolution tour.

Packaged and organized in one convenient location, each gallery includes more than a dozen video presentations, software demos and other related online training and educational resources. Each gallery features the very latest and most up-to-date content on Novell strategies, technologies and solutions in specific areas. And of course, all this in-depth, interactive information is available to you completely free of charge.

Keep reading to explore some of the highlights of the Service-Driven Data Center and IT in Action Media Galleries. Then, check them out for yourself and start taking full advantage of these great new learning resources.

Visit Novell’s Latest Media Galleries

Explore these collections of Novell’s latest video presentations, webcasts and product demos:

- Service-Driven Data Center Media Gallery
- IT in Action Media Gallery

The Service-Driven Data Center Media Gallery

> Evolve to a Service-Driven Data Center

What does a next-generation, service-driven data center look like? What benefits can it offer your organization? Most important, how do you build, manage and measure the effectiveness of a best practice data center environment—even in the face of limited resources and budget cuts? With nearly five hours of new training and educational content, including video presentations, demos and other supporting technical information, the Novell Service-Driven Data Center Media Gallery explores the answers to these crucial questions in detail. Some of the highlights include:

- **Build a Service-Driven Data Center**—This two-part video presentation explores the advantages of using SUSE Linux Enterprise to create a more flexible, efficient and reliable data center environment. You’ll learn exactly how SUSE Linux Enterprise can help you create a new kind of data center that supports your most demanding mission-critical workloads, and how it accommodates a complete range of physical and virtual server platforms and supports your whole heterogeneous IT environment.

- **Manage Your Service-Driven Data Center**—In this 30-minute presentation you’ll get a detailed overview of how PlateSpin products from Novell can help you manage your service-driven data center with sophisticated workload management, smart server consolidation and consolidated disaster recovery solutions. You’ll explore innovative approaches and techniques for lowering data center costs, optimizing performance and managing risks.

- **Measure Your Service-Driven Data Center**—This 18-minute presentation will show you how Novell Business Services can help you measure your service-driven data center by viewing your whole IT infrastructure as a unified set of business services, rather than a disjointed collection of IT technology. You’ll learn how Novell Business Service Management solutions make it possible to prioritize issues and place them in a business context, identify and fix the issues that are affecting your business the most and gain a more complete view of your IT infrastructure.

The Service-Driven Data Center Media Gallery expands these core build, manage and measure concepts with a wealth of product demos and other supporting technical information. It’s clearly one of the best places to learn how Novell can accelerate and enhance your efforts to build a cost effective data center environment. And it’s all waiting for you. >Visit the Service-Driven Data Center Media Gallery Now.
Experience IT in Action

The IT in Action Media Gallery offers the same mix of video presentations, demos and technical resources as the Service-Driven Data Center gallery and has an exclusive focus on Novell Collaboration, Endpoint Management, Enterprise Linux Desktop and Identity and Security solutions. With nearly 15 hours of up-to-date video presentations and demos, and new content being added all the time, it’s a treasure trove of information you can use to boost productivity, accelerate innovation, improve security, extend your IT resources, save time and create a more effective workgroup computing environment. Where should you start? It’s really up to you, but here’s a quick preview of some of the most popular presentations and demos:

- **Moving Your Novell GroupWise System to Linux demo**—This popular 11-minute demo guides you through the process of migrating your GroupWise System to the Linux platform, where you can take full advantage of low-cost commodity hardware, new server consolidation opportunities and a long list of valuable open source software add-ons.

- **Novell Teaming Beta Installation Quickstart demo**—The next version of Novell Teaming is generating a lot of excitement and this 15-minute session will give you the technical information you need to get started quickly. This includes instructions for installing the beta version of the upcoming release, tips for integrating the new version with Novell GroupWise and Novell eDirectory, configuration and customization best practices and other information that will help ensure a fast, trouble-free deployment.

- **Privileged User Manager demo**—This 30-minute demonstration drills down into the details of using Novell’s popular Privileged User Manager, including the product’s rule-creation tools, reusable script and command libraries, color-coded audit records and much more.

- **Novell ZENworks 10 Configuration Management Best Practices webcast**—This 22-minute session guides you through a proven, best practice approach for designing, configuring and deploying ZENworks Configuration Management 10 in your organization.

- **Unstructured Data Storage webcast**—In this unique 42-minute Legends of Engineering live chat webcast, a panel of distinguished Novell storage engineers discuss issues and take questions directly from Novell customers. Tune in to hear the team that developed Novell Dynamic Storage Technology discuss the details of putting automated, policy-driven storage to work in real IT environments. If you like this format, the IT in Action Media Gallery features four other highly rated Legends of Engineering live chat discussions: The Ins and Outs of File Systems, Novell Open Enterprise Server Futures, Interoperability with Windows and Interoperability with Macintosh.

The IT in Action Media Gallery represents the most complete, up-to-date and in-depth collection of multimedia content surrounding Novell’s Collaboration, Enterprise Linux Desktop, Endpoint Management and Security and Identity technologies and solutions. Don’t miss this opportunity to explore these resources and use them to improve and enhance your IT infrastructure. [Visit the IT in Action Media Gallery Now.](#)

Check out additional Novell learning resources:
- Novell Advanced Technical Training
- Upcoming face-to-face tours and seminars
- Additional online training

> Beyond the Media Galleries

The Service-Driven Data Center and IT in Action Media Galleries are important components of a broader effort to bring new educational and training opportunities directly to you. This includes more Novell face-to-face seminars and educational opportunities in your area and a range of new fee-based Advanced Technical Training options that bring quality, in-depth technical training directly to your city or computer screen. Together, these city-to-city tours, media galleries and new advanced technical training options can help you make the very most of your Novell solutions—with zero impact on your travel budget.
Treasure Island
A Deep Dive into ZENworks Application Virtualization 7.1

Dealing with software conflicts, incompatibility between software and OS versions, and testing applications in new environments can create a significant drain on IT resources as well as cut into user productivity. One of the major causes of application failure is from application conflicts created by DLL files getting over written and registry settings being changed as a result of new software installations. By isolating the application from its underlying operating system through application virtualization, these problems can be drastically reduced and, in many cases, completely eliminated. In fact, industry analysts indicate that by taking advantage of virtual applications you can realize a 60 percent reduction in costs associated with testing, packaging and supporting an application.

In addition to its fast and easy methods for creating virtual applications, ZENworks Application Virtualization also has advanced configuration features that provide you a higher level of customization.

> Virtual Apps Made Easy
ZENworks Application Virtualization does not require the deployment of any client-side or agent-side software. Instead, it uses an easy-to-use packaging utility that lets you quickly repackage and customize your application into a standard Windows executable that you can deploy using any software delivery mechanism you have.

The packaging utility enables you to build applications in a variety of ways. The first method is by using the auto-configuration wizard for popular applications. The wizards guide you through a step-by-step process to build and customize applications such as Internet Explorer, Firefox and GroupWise, or common components including the .NET Framework, Java and Adobe Flash Player. Using this method you can virtualize a popular application in as little as five minutes.

For applications not covered by the auto-configuration wizard, ZENworks Application Virtualization provides a snapshot method that captures a system’s state before and after an application is installed. It then automatically configures the virtual application settings based on the system changes it detects. As a third method, if you use Novell ZENworks to package and distribute applications, you can also use ZENworks Application Virtualization to quickly convert your legacy ZENworks AXT-based applications into virtual applications.

> Advanced Configuration
In addition to its fast and easy methods for creating virtual applications, ZENworks Application Virtualization also has advanced configuration features that provide you a higher level of customization. For example, you can restrict how long a virtual application can be used. This application expiration feature is useful if you need to provide applications on a short-term basis, such as to contractors, temporary employees or students.

Configuring application expiration is as simple as clicking the Expiration tab in the build interface and setting the number of days or the date when the application will no longer be allowed to execute. (See Figure 1.)
expiration feature also gives you the ability to warn the user that the application is about to expire or has already expired.

Another advanced configuration feature is the ability to impose security restrictions on your virtual applications. Since virtual applications simplify deployment by allowing you to easily copy the executable file from one machine to another, they also make it easy for unauthorized personnel to access the software. You can prevent unauthorized use by leveraging the integration between ZENworks Application Virtualization and Novell ZENworks Configuration Management.

With this feature, you can prevent your virtual applications from running on machines that don’t have the ZENworks Configuration Management agent. You can also further restrict operation to workstations registered to a given ZENworks Configuration Management zone. Implementing this feature ensures the application will only run on devices you manage. (See Figure 2.) Additionally, since ZENworks Configuration Management provides asset inventory and asset management, you can successfully track the dissemination of the virtual application among the devices in your environment.

One of the most powerful advanced features that ZENworks Application Virtualization provides administrators is the ability to customize how the virtual environment will interact with the host environment through the isolation of a given directory or registry key. This allows you to control what application related files and registry entries can be modified on the host machine versus the virtual environment. The solution provides three modes of control for this isolation feature: Merge, Full and Write Copy. (See Figure 3.)

The Merge mode allows the virtual application to read and write files to the selected directory. This is the typical behavior of common folders such as My Documents. By default, this ensures that documents saved to My Documents end up in the user’s actual My Documents folder.
Key Features
ZENworks Application Virtualization provides the following key features:

- **Creation of a single executable file** – Packages all application files, settings, runtimes and other components into a single compact executable that runs anywhere.

- **Eliminates problems with Windows Vista/7** – Since it eliminates the need to access privileged system resources, it reduces Windows Vista/7 UAC prompts and eliminates most compatibility errors.

- **Integrates with ZENworks Configuration Management** – With its ability to leverage ZENworks Configuration Management, ZENworks Application Virtualization lets you quickly and easily secure virtual applications and publish them to ZENworks Configuration Management zones as a Windows Bundle that can then be deployed in the traditional ZENworks way.

- **Easy application registration** – Employs an easy-to-use tool to register the virtual application with the host OS to ensure file associations and shortcuts perform properly.

- **Intuitive user interface** – Simplifies the creation and customization of virtual applications, including a one-click component configuration that quickly adds popular runtimes, components and viewers to virtual application executables.

The Full mode only allows the application to read or write files to the virtual file system. If you set My Documents to Full, then the user would only see the contents of the My Documents folder in the virtual application’s sandbox. The sandbox is an isolated area in the virtual environment for storing user-defined settings and files. Additionally, the application would write all of the user’s saved files to the sandbox. The Full mode is especially useful if you want...
The Write Copy mode allows the application to read from the host, but it always writes any changes to the sandbox. This mode is useful when a file or files are needed from the host machine, but you want to make sure the virtual application cannot impact the host.

The Merge and Full options can also be used for isolating registry settings. In other words, you can control whether the application has access to registry keys not included in the sandbox.

Whether you use its basic or advanced configuration features, ZENworks Application Virtualization gives you the ability to create custom and secure virtual applications that eliminate the traditional overhead of managing Windows applications.

> The XLayer
In addition to letting you create virtual applications, ZENworks Application Virtualization also allows you to build a virtual set of self-contained components called an XLayer. An XLayer would be comprised of various files, registry entries or other components that a certain application might require, such as your browser needing a certain version of Java. When you create an XLayer it can be dynamically used by a virtual application or can be embedded into an application. Building an XLayer file simply requires you to change the Project Type in the solution’s interface to Component instead of Application.

A typical usage for an XLayer would be to create a reusable set of self-contained virtual components that can be leveraged by multiple virtual applications. For example, the prebuilt run times available in ZENworks Application Virtualization (i.e., .NET Framework, Flash Player and the Java Runtime Environment) can be injected into a virtual application at build time. To do this you simply click the button in the toolbar that represents the component you want to inject and it will embed the component when it builds the virtual application. By embedding these required components into the virtual application you only have to distribute a single executable file, rather than all the other applications or files it depends on for proper execution.

Another common use case for XLayers is patching your virtual applications. Since virtual applications run in an isolated environment, they generally can’t be patched using traditional self-updating methods. Rather than recreating an entirely new patched version of the virtual application, you can create an XLayer that contains the patched information. This file can then be distributed to your user machines and placed in the same directory as the parent virtual application. By doing this, the next time the application launches, the application will dynamically load the contents of the XLayer file, patching the application. To create an XLayer patch file, you install the baseline application on your build machine and then use the snapshot mode to capture the patch information as you apply the patch to the application.

XLayer files can also be used for common application plug-ins, such as Microsoft Silverlight or Adobe Reader for your Web browser. Without the ability to use XLayers...
Packaging Best Practices

To ensure the virtual applications you build with ZENworks Application Virtualization run properly in their isolated virtual environments on any Windows machine, it is important that you adhere to the following best practices.

• **Use a clean machine when packaging** – When packaging applications with the ZENworks Application Packager you should ensure that only the operating system and baseline patches for all devices in your environment are present. If you use a machine with other software, your virtual application may not contain all of the files and registry settings it needs to run.

• **For applications that exist as pre-builds, start with the pre-build** – When using applications that have been prepackaged, such as Internet Explorer, it is recommended that you use the prepackaged application as a starting point. You can then perform additional customization as needed.

• **Set the sandbox path according to your needs** – Depending on the delivery and means the user will use to run the application, make sure you select the proper sandbox location. For instance, if you are building an application that runs on a USB stick, make sure the sandbox is on the USB stick as well. This ensures that any data the user saves is written to the stick and not to the local machine.

• **Clean up the application** – As with most software packages, depending on what background operations occur, the application packaging process may identify registry settings and file data that are not application related. This can cause these unassociated settings and files to be included in the virtual application. To prevent this, prior to building the application, review the files and registry information and clean up items that may not be related.

• **Save a copy of the XAPPL** – The XAPPL is the instruction file that is used to build the application. If you save the XAPPL and files that accompany it, you can always make more changes over time.

• **Consider using whole machine virtualization for the packaging machine** – Using whole machine virtualization such as VMware, Virtual Box or Virtual PC allows you to have a base environment for packaging that you can rapidly revert to when you need to create new applications.

• **Don’t try to package applications that install drivers or other system level components** – ZENworks Application Virtualization can only package applications that run in user mode. for your plug-in components, you would have to create different versions of the same virtual application, each containing the different plug-ins your different users need. Instead, by building your plug-ins as virtual components, you can create a single baseline version of the virtual application and place its associated plug-in XLayer files as needed on user machines in the directory where the application resides. This allows the plug-ins to be automatically loaded the next time the application launches.

Whether you use its basic or advanced configuration features, ZENworks Application Virtualization gives you the ability to create custom and secure virtual applications that eliminate the traditional overhead of managing Windows applications. ZENworks Application Virtualization also enables you to simplify and accelerate application rollouts, while reducing downtime and helpdesk calls, and providing you greater application portability, flexibility and interoperability.
Better Document Management

When you first take a look at Novell Teaming, it’s likely because you want a better way for your users to collaborate and share information with their peers. As you dig in and start to use it yourself, you’ll get even better insight on the value it delivers such as the ability it gives you to generate great ideas; then share, act and preserve them; and then leverage those ideas for other projects. Spanning all three of these value areas, Novell Teaming includes document collaboration/management capabilities that enable users to better manage the lifecycle of the content they create.

Novell Teaming delivers basic document management for the masses that is easy to use, effective and inexpensive.

It should be noted upfront that the document management capabilities in Novell Teaming are not on the grand scale that you would find with a comprehensive and expensive document management platform. Rather, Novell Teaming delivers basic document management for the masses that is easy to use, effective and inexpensive. Perhaps more important is that Novell Teaming enables you to move from the inefficient, error-prone, but often used e-mail attachment-based document-management scheme to a more efficient and easy-to-use paradigm with version control, access control, histories and powerful workflow capabilities.

- Managing the Document Lifecycle
  E-mail was never really designed as a tool for content creation, but we use it that way all the time. You create a document and e-mail it out to your team members for review. Hours or days later, you receive five or so e-mails back, all with updated versions of your document attached. You then spend hours sorting through and consolidating the edits and comments. When there are conflicts, you have to decide which edits trump other edits, then hope you guessed correctly. If you don’t want to do the guesswork, you often must have a conference between team members just to sort out the conflicts. The further you go down the revision path, the more complex the problems become. For instance, you might be on your fifth round of edits when you receive an e-mail attachment full of significant edits, but they’re all based on the first version of the document. What do you do then?

Novell Teaming gives you much better control of the document lifecycle by providing a central workspace for document sharing, collaborating, reviewing and revising needs.

Rather than e-mailing your document as an attachment to all your team members for review, you simply post it to a folder in your team workspace.

To post a file to collaborate on, you simply navigate to the folder in the team workspace where you want to store it and click on either Add File Entry or Add Files to Folder. (See Figure 1.) Add File Entry allows you to browse to the file to be uploaded. Add Files to Folder prompts you to drag the desired files from your desktop to the displayed folder icon. (See Figure 2.)

Every time you post or update a file, your team members will be able to automatically see it as a recently added item under the What’s New in Team Folders section of their personal workspaces. (See Figure 3.) If you want to make sure team members know the file has been posted for review, all it takes is a quick click to send them an e-mail from within the team.
workspace or your personal workspace. Also, team members who have subscribed to that folder or file entry will automatically be notified when any activity, such as new postings, updates or comments, takes place.

When team members visit the team workspace and click on the posted document, Novell Teaming displays a View window that provides a number of options for acting on the file, including view, edit, export/import, comment, modify, reserve/unreserve, copy, move, delete, report and share. (See Figure 4.) The View window also shows you who posted the file and when, as well as who most recently modified the file and when that modification was made.

Click on the View option beside the filename to display an HTML-formatted version of the file in a new browser window. If you click Edit, Novell Teaming locks the file and allows you to edit it from within Novell Teaming. While it’s locked in this edit mode, no other team members can modify the file, helping you to ensure version consistency.

If you want to work on the file offline, click the Reserve option from the View window navigation bar and then download the file to your local machine for editing. The Reserve option is essentially a document “check-out” capability that locks the file so only you can modify, move, copy or delete the file. (See Figure 5.) When you’re ready to check the file back in and unlock it to allow others to work on it, simply upload the new version and click Unreserve.

The View window also provides a listing of all the previous versions of the file, including who modified them and when. (See Figure 6.) You can view any of the previous versions by simply clicking on one of them. One of the feature improvements in Novell Teaming 2 is that the Previous Versions default list only shows information for the last three file versions, instead of the complete list, which can get quite lengthy. Novell Teaming 2 does, however, give you the option to see the entire list if you prefer.

Novell Teaming makes it easy to comment on a document so others can quickly see the comment without having to search for it embedded deep within the document. Posted comments display on the View window and show the comment contents, who posted it and when. Of course, you can still use comment capabilities inherent to the file’s native application, but the Novell Teaming comment feature gives you a more visible option that can
The custom forms and workflow capabilities in Novell Teaming also give you the ability to add formal structure and automated processes to the management of your documents. These workflow capabilities also enable you to go beyond just managing content contained in files that you upload or import; they also give you a means to manage content posted in wikis, discussion forums or landing pages as well.

For example, you might have a landing page where you publish internal articles each month on workplace safety or improving customer relationships. Custom forms and workflows could be created to handle the process from initial article submission by the author to reviews for language and technical accuracy. The documents could move from various staging folders as different versions are accepted or rejected until it is approved for publication and automatically transitioned onto the landing page. (See Figure 7.) In fact, the Novell Teaming Library contains an article review workflow template that you can download and customize to fit your organization’s needs. (Visit novell.com/communities/cool/solutions/teaminglibrary.)

Managing all the content users and teams generate in support of your organization’s success is no small task. By leveraging the embedded workflow capabilities in Novell Teaming, you can get in the flow and manage your document lifecycles with ease.

Get in the Flow

The custom forms and workflow capabilities in Novell Teaming also give you the ability to add formal structure and automated processes to the management of your documents. A simple example is using a workflow to force a review of certain documents every few months by particular team members. A more elaborate example would involve having a workflow automatically govern the whole process of checking in file updates, notifying team members to review the files, warn team members when final updates are due, move documents through different staging folders as the review cycle progresses and more.
Novell Teaming, your users can take on much of the responsibility themselves—easily creating business processes to transition documents and content throughout the entire organization. It even gives every user the power to document their work and processes to make the whole organization more efficient and productive.

It’s understood that full-featured document management is out of reach for most users and businesses due to its expense and complexity. However, the basic, yet powerful capabilities in Novell Teaming, deliver many of the essential document sharing, tracking, versioning and process controls that most organizations need. Even though you might not initially leverage Novell Teaming for document management, that functionality can easily become an integral and highly customizable part of your core collaboration platform at no additional cost—and that’s always a welcome benefit.
Management Made Easy
Novell ZENworks 10 Configuration Management SP2

The release last of Novell ZENworks 10 Configuration Management SP2 delivers thousands of feature enhancements and bug fixes that further improve the solution. A number of the improvements bring shared benefits to ZENworks Configuration Management, ZENworks Asset Management and ZENworks Patch Management – three key products in Novell Endpoint Management solutions. Other improvements enrich specific capabilities of the individual products themselves. This article highlights some of these key shared and product-specific enhancements.

Shared Enhancements

Installation and Administration Flexibility
The first shared enhancement that ZENworks 10 Configuration Management SP2 provides is greater flexibility in terms of product installation and administration. With this release you can now run both ZENworks Configuration Management and ZENworks Asset Management as standalone solutions. You can choose which of the individual solutions to actually be installed and activated. You also have the option to dictate which of the individual ZENworks solutions will display in the ZENworks Control Center console.

For example, if you only have a license for ZENworks Configuration Management, then the ZENworks Asset Management and ZENworks Patch Management feature set can be disabled so those services don’t show up in the console. This leaves you with a much cleaner, leaner and easier-to-use administrative interface.

This ability to pick and choose extends to the ZENworks Adaptive Agent as well. With ZENworks 10 Configuration Management SP2, only the agent features that you enable as an administrator will be implemented on your managed devices, allowing the deployed agent to have a smaller footprint. Specifically, you have the ability to uninstall, enable or disable any of the following features:

- Asset Management
- Bundle Management
- Image Management
- Patch Management
- Policy Management
- Remote Management
- User Management

Figure 1: ZENworks 10 Asset Management SP2 lets you allocate licenses by device or demographics, such as by site, department or cost center.
Novell ZENworks 10 Configuration Management SP2 delivers thousands of feature enhancements and bug fixes that further improve the solution’s stability, scalability and flexibility.

> Improved Reporting Capabilities
Novell has also completely redesigned reporting in ZENworks 10 Configuration Management SP2, providing a single universe for cross-product reporting. Rebranded as the ZENworks Reporting Server, this cross-product reporting engine enables you to build and customize reports that span ZENworks Configuration Management, ZENworks Asset Management and ZENworks Patch Management.

The new reporting universe now has 1,350 objects or fields that you can use to create reports, extending your ability to generate reports on just about anything you want. Novell has made it much easier to access and report on the fields and items that you want. The reporting interface is richer, more user-friendly and structured in a more intuitive manner to simplify and enhance your ability to build reports. The ZENworks Reporting Server has also added support for Windows 2008 Server, as well as 64-bit versions of Linux and Windows servers.

> Broader Cross-Platform Capabilities
New platform support is not isolated only to the reporting server. In Support Pack 1, Novell introduced the concept of satellites, which can be a server or workstation that can perform certain roles that a ZENworks primary server typically performs. Satellites are ideal for branch offices or locations with slow WAN links, allowing you to offload local tasks to the satellite to improve performance.

When this functionality was first released, only managed Windows devices could act as satellites. Now satellites can be hosted on Linux devices running SUSE Linux Enterprise Server 10 SP2, Novell Open Enterprise Server 2 SP1/SP2 or SUSE Linux Enterprise Desktop 10 SP1/SP2. This gives you the ability to better leverage your Linux infrastructure not only for your primary ZENworks servers, but for your satellite systems as well.

Novell has added new platform support in other areas as well. Windows 2008 SP2 is now supported on ZENworks primary servers, satellite systems and managed devices while Windows Vista SP2 is now supported on managed devices. All of this added platform support combines to give you even greater choice and interoperability.

Further extending your choice and interoperability, ZENworks 10 Configuration Management SP2 is providing “experimental” support for Windows 7 devices. This means that you should be able to discover and manage Windows 7 workstations using much of the functionality in this new ZENworks release. If you experience problems or issues managing these devices, you can report them to Novell to address any compatibility issues as quickly as possible.

Solution Specific

> ZENworks 10 Configuration Management SP2
Many of the enhancements specific to ZENworks Configuration Management were simply responses to common requests from customers. These suggestions include the addition of a bundle activity indicator, which is basically a progress bar that lets users know that ZENworks is performing some type of action on their devices. Other customer-requested enhancements
include the ability to keep users from being removed from their volatile user cache for a set amount of time, the option to specify certain IP addresses be excluded from discovery tasks, TFTP folder replication, LDAP inventory importing and more.

In addition to addressing a significant number of common customer requests, Novell has also added Ghost imaging support to ZENworks Configuration Management. This enables customers to leverage existing investments in Ghost, but drive and manage the imaging and image deployment process from within the ZENworks Control Center.

ZENworks 10 Configuration Management SP2 also enables you to manage devices outside your corporate firewall without requiring you to use a VPN. It employs a remote management proxy to route remote management requests and operations through your Network Address Translation (NAT) firewalls and routers.

With this support pack, only the agent features that you enable as an administrator will be implemented on your managed devices, allowing the deployed agent to have a smaller footprint.

> ZENworks 10 Asset Management SP2

This support pack introduces a number of enhancements that are specific to ZENworks Asset Management as well. One of the first ones you’ll notice is the addition of a graphical snapshot of key asset management metrics in the ZENworks Control Center. This gives you a quick view into your license status and asset infrastructure.

License allocation is another key feature new to ZENworks Asset Management. (See Figure 1.) This allows you to allocate licenses by leveraging both device and demographic data, such as site, department or cost center. For example, you can allocate licenses to specific workstations as well as to all workstations at a specific site or within a certain department. Once these licenses are allocated, you can view whether or not they are actually being used and easily reallocate them as necessary.

The solution also displays new software usage data in the Discovered Product list and in the ZENworks Control Center. (See Figure 2.) This allows you to see how many products are installed against your licenses and how many of those licenses are actively being used.

Additionally, the migration utility for ZENworks Asset Management now supports Oracle-to-Oracle database migration of asset management data. As a result, you can migrate ZENworks Asset Management 7.5 data in one Oracle database to an Oracle database being used for ZENworks 10 Configuration Management SP2.

Figure 3: ZENworks 10 Patch Management SP2 presents a graphical dashboard in the ZENworks Control Center that gives you a quick summary of patch management status as well as patch compliance history.
> ZENworks 10 Patch Management SP2
Specific to ZENworks Patch Management, this release delivers two main enhancements. The first enhancement focuses on improving the user’s experience by providing a “snooze” capability for patch deployments. This allows administrators to configure a patch deployment to prompt users before actually laying down the patch and giving the user the option to delay the patch installation to a more convenient time. This can eliminate untimely work interruptions while still giving the administrator full control of when and how long a patch deployment can be delayed.

The second enhancement to ZENworks Patch Management is the addition of dashboard charts in the ZENworks Control Center. (See Figure 3.) This enhancement uses pie charts and line graphs to give administrators a quick summary of patch management status as well as patch compliance history. When needed, you can click on the graphics to drill down and see the detailed numbers behind the graphs.

In addition to these two main enhancements, ZENworks Patch Management has been updated in other areas as well, including a redesign of the vulnerabilities page and new filtering categories to further facilitate patch administration.

All the shared and product-specific ZENworks improvements combine to enhance and simplify your overall administrative experience.

All of these shared and product-specific ZENworks improvements combine to enhance and simplify your overall administrative experience. They further improve the solution’s quality, stability and usability. They build on and strengthen the user-focused and policy-based management approach of Novell Endpoint Management solutions, while giving you even greater freedom of choice as a flexible cross-platform solution with a complete range of advanced configuration management capabilities that makes it easier than ever to manage your desktops.
As an IT administrator, do you have small amounts of down time sprinkled throughout your day while you wait for installations or upgrades to finish? Now you can use spare blocks of time like that to upgrade your own knowledge and become more competitive in your field. With changes and additions to its popular On-demand Training, Novell has the perfect training option to give you a boost in your next pay raise, a better chance at a promotion or at least a little more job security.

One of the great advantages of Novell training is its versatility. We are constantly improving our training options to respond to changing industry needs. At a time when job security is increasingly dependent upon your ability to perform efficiently and solve problems quickly, our training programs are essential to your ongoing efforts to stay qualified and improve your skills. Accordingly, as we move into this new year, Novell is adding features to one of its best training options, On-demand Training, that will improve your skills and help make you indispensable.

Novell On-demand Training has always provided a convenient and flexible delivery method that is available whenever and wherever you are. Consisting of technology demos and recorded instructor lectures, On-demand Training eliminates the need for time away from work for travel and training, reducing expenses and lost productivity while still giving you the expertise you need to remain competitive.

A previous article, What You Need, When You Need It: Getting Novell On-demand Training When You Want It Wherever You Are, summarizes the benefits that make On-demand Training such an attractive training option. These include its value, flexibility, convenience, quality and content. Since its introduction, Novell has continued to add to the expanding content of On-demand Training, and future articles will highlight new

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Figure 1: One of the Quick Fix modules that is already available in On-demand Training can help you learn how to reduce, and maybe even eliminate, those pesky, time-wasting end-user phone calls to the Help Desk when users forget their passwords or want help resetting them.
What's New In On-demand TREND TALK 11 by Eric D. Huntsman continued

courses that will be added this year. But as 2010 is getting under way, new features are already increasing the value, flexibility and overall quality of this training. These include On-demand Training’s support of Quick Fix with modules that deal with common support issues, as well as the soon-to-be-introduced simulations and quizzes.

>Support Quick Fix

These short training modules address a wide range of topics such as common technical support issues, migrations, troubleshooting and advanced coverage of specific product features or functionality. For example, Implementing Password Management: How to Stop that Phone from Ringing is a Quick Fix module that is already available in On-demand Training. (See Figure 1.) It can help you learn how to reduce, and maybe even eliminate, those pesky, time-wasting end-user phone calls to the Help Desk when users forget their passwords or want help resetting them. For many Help Desks, that can be a majority of calls. Reducing those calls by even half could free up your Help Desk staff to work on higher priority projects. Now imagine eliminating them altogether!

What Customers Are Saying about On-demand Training

“The Novell On-demand Training gave me the tools and flexibility to get my team trained and certified at convenient times for them. With traditional training methods it would have required a significant time investment that would have prevented many of our engineers from being able to participate.” — Dan Elder

“The On-demand Training site makes it easier to attend training. You can go at your own speed and in your spare time. If you can't complete an entire module in one session, when you start back up again, you can pick up from where you left off. It is perfect for people whose schedule changes from day to day.” — Annette Barragan

“On-demand Training is the best type of training for me because I can access it whenever I want, and from wherever I want, even when I’m on the road making field visits to our satellite offices.” — David, Tennessee

“The best part about On-demand Training for me is that I can go through the training modules as many times as I want until I really know I have the information under my control. Some of them have really helped prepare me for Linux certification exams. I love On-demand!” — Elaine, New Jersey

Figure 2: Quizzes help you make sure you have mastered the material covered in a given module. They are already implemented in CLA and CLP courses. In 2010 Novell will be adding them to all courses being released by the end of the summer of 2010.
This year, Novell On-demand Training is adding more of these useful Quick Fix support modules. For instance, if you have upgraded or are planning to upgrade to the next generation of Novell ZENworks, you will not want to miss one of the Migrations Quick Fixes—Migrating a Traditional Novell ZENworks Environment to Novell ZENworks 10 Configuration Management. It will answer most of your questions about the migration and even walk you through the process so you see exactly how it works. Then you’ll be much more comfortable when you migrate your own environment.

One of the Troubleshooting Quick Fixes, Novell eDirectory Advanced Troubleshooting, can help you resolve some of the more advanced support issues customers have with eDirectory without having to contact a Novell Customer Support Technician.

If you want some advanced training of specific product features, Managing Software Packages and Bundles with Novell ZENworks 10 Configuration Management will teach you not only how to manage the software applications you have installed on your network and workstations, but also how to stay within your legal license limits when it comes to Sarbanes-Oxley reporting. You can never be too safe when it comes to that.

>Coming Soon: Simulations and Quizzes

In the coming months we’ll be adding simulations and quizzes to many of the On-demand Training modules. These simulations show the product in action and focus on the steps in the lab. You can interact with it in a simulated working environment so you can take the same steps the instructor takes. Some of the simulations that will be released by BrainShare in March of 2010 are for the Novell Certified Linux Administrator (CLA) courses (Course 3101 and Course 3102). Novell will continue to add simulations to courses as they are released.

Quizzes help you make sure you have mastered the material covered in a given module. (See Figure 2.) Novell already has quizzes in the CLA and Novell Certified Linux Professional courses and will start adding quizzes to all courses being released by the end of the summer of 2010.

>Why Novell On-demand Training in 2010 Cannot Be Beat

We’ve been working hard to improve the already-great benefits of Novell On-demand Training. With these new features, you get an even greater value at the same price; both the quality of the training and its content are improved with the addition of simulations and Quick Fix support. Now you can even make sure you master the improved content with the quizzes.

With these additions, the advantages of On-demand Training are greater than ever. Even random moments of downtime can now be productive. So next time you have a few extra minutes to wait for an upgrade or installation to finish, or even those last few minutes of your lunch break, take that time to invest in yourself: earn a little more job security and go through an On-demand Training module. Take your pick. There are a lot of options and we keep adding more all the time.

Stay tuned, because in the next few issues of Novell Connection, we’ll keep you up to date with what we’re adding to the On-demand Training Library so you can stay up to date with your job security.

Getting Up to Speed with Novell On-demand Training

- What You Need, When You Need It: Getting Novell On-demand Training When You Want it Wherever You Are
- Sweet Dream: ATT Online Training: Almost As Good As Being There
- More of What You Need, When You Need It: Novell Adds Several New Courses to On-demand Training
- What You Need to Be at the Top of the Linux Field

www.novell.com/connectionmagazine
Watch On-demand Courses in Action

- Configuring a Linux High Availability Cluster on Novell SUSE Linux Enterprise Server 10
- Novell Advanced eDirectory Troubleshooting
- Novell GroupWise 8 Upgrading your Existing Novell GroupWise Environment
- Novell Open Enterprise Server 2 SP1 Migration Strategies
- Novell SUSE Linux Troubleshooting
- Upgrading to Novell Open Enterprise Server 2 SP1
- Novell Identity Manager Implementing Password Management
- Novell ZENworks 10 Configuration Management
- Configuring and Deploying Patch Management with Novell ZENworks 10 Configuration Management
- Managing Software Packages and Bundles with Novell ZENworks 10 Configuration Management
- Migrating a Traditional Novell ZENworks Environment to Novell ZENworks 10 Configuration Management
- Introduction to Novell Teaming and Conferencing
- Novell Compliance Management Resource Kit
If yours is like most IT organizations, today’s economic downturn is forcing you to look long and hard at driving down costs, and Linux certainly has significant cost advantages over proprietary operating platforms. That presents a problem for .NET shops. They typically have a repertoire of .NET applications, many of them handling critical business processes. The problem is that .NET applications don’t run in the Linux environment.

What’s more, organizations deploying .NET have made a considerable investment in developers skilled in .NET and Visual Studio, and pushing these developers outside their Visual Studio comfort zone is costly and involves long learning curves. Hiring new developers with skills in other environments is even more costly, and new developers face a significant learning curve in coming up to speed on the organization’s business.

If yours is a .NET shop, Novell has the key that enables you and your organization to leverage .NET applications and Visual Studio skills in Linux environments. How? With Mono and Mono Tools for Visual Studio.

Mono is a software platform that allows you to run .NET applications on other platforms. Sponsored by Novell, Mono is an open source implementation of Microsoft's .NET Framework based on the ECMA standards for C# and the Common Language Runtime. It provides a runtime environment that can execute compiled .NET code on a wide variety of operating platforms, including Linux, UNIX, Mac OS X and even mainframes (a capability unique to Mono).

The Mono Tools for Visual Studio is a new offering for developers targeting the Mono platform. It’s a plug-in for Microsoft Visual Studio that enables developers to develop .NET applications for execution on Mono-enabled platforms, all within the developer’s preferred development environment—Visual Studio. With Mono Tools for Visual Studio, developers can build, debug and deploy .NET applications targeting other platforms, including Linux, while continuing to leverage the extensive ecosystem of code, libraries and tools available for .NET.

With Mono and Mono Tools for Visual Studio, .NET-skilled developers can easily migrate .NET applications to Linux. What’s more, they can develop, debug, test and deploy new .NET applications for Linux as well as other platforms, all without leaving their Visual Studio comfort zone. This article presents a straightforward, five-step process for using Mono and Mono Tools for Visual Studio to move from .NET to Linux. The Mono Tools automate much of the work.

> **Step 1: Prepare Your Workstation**

First, you need to configure your Visual Studio workstation for Mono. To do so, download and install the following software on your Visual Studio workstation:

**Figure 1: Mono Tools adds a Mono command and drop-down menu to the Visual Studio menu bar.**

![Image of Visual Studio menu bar with Mono Tools installed](image)

1. **Mono 2.4 (or later)**
   
   **Goto:** [http://www.go-mono.com/mono-downloads/download.html](http://www.go-mono.com/mono-downloads/download.html) and download and install the latest version of Mono for Windows. This also installs the Mono xsp development Web server. This step supports the *Run Locally in Mono* command on the Mono drop-down menu.

2. **VMware Player or Virtual PC**
   
   You will need to install either VMware or Virtual PC to run Linux and MonoVS server on your workstation. (The Mono Project recommends VMware.) **Goto:** [www.vmware.com](http://www.vmware.com) or [www.microsoft.com/windows/virtual-pc](http://www.microsoft.com/windows/virtual-pc) and download and install the hypervisor you prefer.
MonoVS Server
Goto: http://www.go-mono.com/monotools/download/ and download and unzip the MonoTools Server image for either VMware or Virtual PC. This image contains openSUSE, Apache 2 and Mono for Linux configured for one of the two supported hypervisors.

This step supports the Run Remotely in Mono, Debug Remotely in Mono and Create Linux Package for Project commands on the Mono drop-down menu.

You are now ready to migrate your .NET applications to Linux.

> Step 2: Analyze the Application with MoMA
In this step, you use the Mono Migration Analyzer (MoMA) to analyze your application to identify any incompatibilities between .NET and Mono. For example, MoMA identifies platform-specific calls, such as P/Invoke, and other areas that are not yet supported by Mono. You will have to address these incompatibilities in the course of migrating your .NET application to Mono.

MoMA identifies the source of each incompatibility in a detailed report that you can use to estimate the effort required to migrate the application to Linux. Of course, not all .NET applications can be easily migrated. However, of the thousands of .NET applications that have been analyzed with MoMA, the vast majority could be migrated, most with little or no modification.

To analyze a .NET application, you first load it and its project files into Visual Studio. Then, you analyze it using MoMA. To do so, select Analyze for Mono Migration (MoMA) on the Mono drop-down menu.

MoMA will build the solution, analyze it, and report errors, warnings, and informational messages in the Visual Studio Error List window. The issues will be rated. Clicking on an issue causes Visual Studio to jump to the affected code.

In most cases, you can quickly clear the issues identified by MoMA using Visual Studio Editor. When you have addressed all incompatibility issues identified by MoMA, you are ready to move to the next step.

> Step 3: Run the Application Locally
While the MoMA tool is comprehensive, some issues may not show up until runtime. Consequently, Novell recommends that, after you analyze your application with MoMA and address all identified issues, you run it locally on your Windows workstation using Mono. To do so, Select Run Locally in Mono on the Mono drop-down menu. This runs the application on Mono for Windows which you installed in Step 1.

Running locally on Mono permits you to focus on incompatibilities between Mono and .NET. In the next step, you’ll eliminate any differences between running on Windows and running on Linux.

Remaining incompatibilities between Mono and .NET will likely manifest as application crashes or inconsistencies in user experience and behavior occur. Crashes usually generate stack traces with line numbers indicating where the exceptions occurred in code. Using the stack traces and Visual Studio Editor, rewrite any error-causing sections of the application code and run it locally on Mono again. Continue until you can run the application without error.

When you have addressed all incompatibilities, you are ready to move to the next step which is to run the application on a remote Linux machine.

> Step 4: Run and Debug the Application on a Remote Linux Machine
Here, you take advantage of the debugger integration offered with Mono Tools for Visual Studio, enabling you to debug the application on the target platform of Mono on Linux. This step may uncover issues that do not arise when running the application locally on Mono on Windows, but will show up when running the application on Mono on Linux. (For example, the application may include embedded explicit file and path names. Unlike Windows, the Linux file system is case-sensitive with respect to file and path names.)

PRO TIP: The integrated version of MoMA analyzes only the code written by the developer because that’s all the developer is enabled to change. Third-party libraries may also have incompatibilities that might generate warnings, but these warnings would be a distraction in this step. If you do wish to see these additional incompatibilities as well as application code incompatibilities, you can obtain a stand-alone version of MoMA that analyzes all .NET code, including third-party dependencies. To obtain a copy, go to http://mono-project.com/MoMA.
If database migration is required, you may need to alter connection strings and URLs. However, this is usually unnecessary because Mono supports connecting to Microsoft SQL Server and most other databases over the network.

To run and debug your application on the target Linux machine, select **Debug Remotely in Mono** on the Mono drop-down menu.

The **Choose Remote Host** dialog will appear. (See Figure 2.)

Choose the target host and click **OK**. Mono Tools will deploy the application to the target server. Web applications will be launched in your default browser. Desktop applications will open on the target machine’s desktop. A balloon will appear over the MonoVS tray application in your workstation indicating that a remote instance of the application is running. (See Figure 3.)

If a crash occurs on the remote machine, the debugger will suspend execution and allow you to examine and correct the exception within Visual Studio.

When you are able to run the application error free on the remote Linux machine, you are then ready to deploy it to the target machines.

**Step 5: Deploy the Application**

Here, you have a few options. You can deploy Web applications by merely copying the project files to the target machines. In the case of a Web site, you might choose to first compile the application using the Visual Studio **Publish** option of the **Build** command, and then copy the compiled files to the target server.

You may choose to create an installable RPM Package (the Linux equivalent of a Windows MSI build file) for distribution. To create an RPM package, first open the application project in Visual Studio. Click **Build** on the Visual Studio Menu Bar. Select **Create Linux Package for Project** on the Mono drop-down menu.

This launches a wizard that guides you through a series of steps in which you configure the application package. Mono Tools builds the RPM and saves the file to the location that you specified, optionally leaving a copy on the server used to build it.

Another option is to create an appliance. Here, you have your choice of creating a software appliance, a virtual appliance or a hardware appliance. Appliances permit you to deploy self-booting, ready-to-run solutions (such as customer demos) to customers and cloud providers running hypervisors, and ready-to-run applications on plug-and-play hardware (such as DVDs and USB sticks).

To create a SUSE Linux appliance, first create an RPM package, and then select **Create SUSE Powered Appliance** on the Mono drop-down menu. This invokes the **SUSE Studio Appliance Wizard**—a Novell sponsored online service. (See Figure 4.)

The wizard will take you though the necessary steps to build the appliance. Once you’ve built your appliance, you can visit the SUSE Studio Web site at [http://susestudio.com](http://susestudio.com) to test the appliance and download the finished product.

> **Enjoy the Freedom**

The combination of Mono and Mono Tools for Visual Studio eliminates the pain and cost previously associated with moving from .NET to Linux. It simplifies the task of migrating .NET applications to Linux, and allows your .NET developers to remain in their Visual Studio comfort zone.

With Mono and Mono Tools for Visual Studio, you can take advantage of the cost savings, increased deployment options and addressable market enabled by Linux, while leveraging the investment you’ve made in .NET. Your .NET developers will thank you and so will your CFO.
For More Information
Pull The Trigger

Enhancements in Novell Open Enterprise Server 2 SP2. Make the Time to Move to Linux.

The March 7, 2010 general end-of-support date for NetWare is fast approaching, but if you haven’t made the move from NetWare to Linux, the latest support pack for Novell Open Enterprise Server 2 will likely convince you that now is the time to pull the upgrade trigger. Novell designed Support Pack 2 to deliver the updates and enhancements you’ve been waiting on to make the move to Linux. This article focuses on the Support Pack 2 features that make the move to Linux better than ever.

> Cross-Protocol File Locking

With the perpetual focus on interoperability, Novell provided Linux support for the Apple Filing Protocol (AFP) and the Common Internet File System (CIFS) protocol in its first support pack for Novell Open Enterprise Server 2. While this protocol support enabled native network file services for Mac OS and Windows clients accessing a Linux server, this initial release had limitations in terms of cross-protocol file locking. Novell Open Enterprise Server 2 SP2 eliminates these limitations by providing secure file locking regardless of whether a user is using an NCP, AFP or CIFS client.

With the number of Mac users increasing in the enterprise and education sectors, cross-protocol file locking makes it easier for Mac and Windows users to share files. It also gives you greater flexibility in supporting your Windows users. Instead of requiring a whole group of users to either use the Novell NCP Client or go native with CIFS, you can now let individual users choose. (See Figure 1.)

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Figure 1: Cross-protocol file locking in Novell Open Enterprise Server 2 SP2 makes it easier for Mac and Windows users to share files.
Perhaps the greatest benefit cross-protocol file locking provides is the maintenance and hardware savings you’ll gain through server consolidation.

If you had been using these native file services protocols on your Linux servers previously, to prevent inadvertent file corruption, you had to segment your servers. For example, you might have one server running AFP to support your Mac users, another server running CIFS to support your native Windows users, and yet another server for Windows users using the NCP client. With the cross-protocol file locking in Novell Open Enterprise Server 2 SP2, you can consolidate these functions onto a single server to support all of your client scenarios.

When you deploy Novell Open Enterprise Server 2 SP2, cross-protocol file locking will automatically be turned on, enabling file share modes. Share modes prevent applications from incorrectly assuming that they have exclusive access to a file. They allow applications running from Samba clients, Novell AFP clients, Novell CIFS clients and NCP clients to specify whether or not they will allow other clients to read and/or write to a file while they are using it. The typical scenario for share modes allows other clients to read the same file, but not write to it while the primary client is using it.

If you don’t have plans to use multiple access protocols, you can disable cross-protocol file locking to increase server performance. For example, if a server will only be accessed through NCP—with neither AFP nor CIFS installed—you can achieve an NCP performance gain of about 10 percent by disabling cross-protocol file locking. However, you need to be aware that if you later install AFP or CIFS and forget to re-enable cross-protocol file locking, you create the potential for data corruption to occur. Additionally, your cross-protocol file locking settings have implications for clustering, since the cross-protocol file locking settings for clustered nodes must match.

Figure 2: Novell Open Enterprise Server 2 SP2 enables real-time capturing and logging of events that occur in the NSS file system on Linux servers.
To disable or re-enable cross-protocol file locking, you simply use Novell Remote Manager for Linux to do the following:

1. Log in to the server as the root user
2. Select Manage NCP Services | Manage Server to view the Server Parameter Information
3. Click the link for the CROSS_PROTOCOL_LOCKS setting
4. In the New Value field, enter a “0” to disable cross-protocol file locking or a “1” to enable it
5. Click Change to save your new settings

If preferred, you can also disable or enable cross-protocol file locking by modifying the /etc/opt/novell/ncpserv.conf configuration file in a text editor and restarting the Novell eDirectory (ndsd) Daemon.

> NSS Audits

Another major enhancement Novell Open Enterprise Server 2 SP2 offers is the ability to provide real-time capturing and logging of events that occur in the NSS file system on your Linux servers. (See Figure 2.) In today’s regulated world, this can greatly facilitate compliance efforts by allowing you to audit who accessed which files on your NSS volumes and when they were accessed. This feature is provided via an NSS auditing engine that the service pack installs by default for NSS volumes. It also includes an application interface that auditing client applications can access in order to address specific compliance requirements.

For real-time analysis of events, you can use Novell Sentinel to automate the process of monitoring, identifying and responding to policy violations across your enterprise, as well as delivering compliance metrics to demonstrate the effectiveness of your critical IT controls. If you just need the ability to monitor and capture events for future auditing, you can take advantage of the simplified compliance and security that Novell Sentinel Log Manager delivers.

In addition to supporting audits of NSS events on Linux servers, Novell Sentinel and Novell Sentinel Log Manager monitor and capture events from SUSE Linux Enterprise Server, Novell eDirectory, Novell iManager, Novell Identity Manager, Novell Access Manager, NetWare, NMAS, and a wide variety of operating systems, databases and security systems from vendors like Apache, Check Point, Cisco, HP, IBM, McAfee, Microsoft, Nortel, Oracle, Red Hat, SAP, Sun, Symantec and more.

Figure 3: Novell Open Enterprise Server 2 SP2 provides an excellent landing place for the move from NetWare to Linux.
Novell Sentinel and Novell Sentinel Log Manager support these solutions through a collection of connectors and collectors that provide remote protocol connections, as well as mapping, parsing, normalizing and enhancing collected audit data. If you already have Sentinel or Sentinel Log Manager, you can immediately start taking advantage of the NSS audit feature in Novell Open Enterprise Server 2 SP2 by visiting the Sentinel plugins Web site and downloading and installing the Sentinel Agent (found under the Utilities tab) and the Novell Open Enterprise Server Collector Pack (found under the Collectors tab). Detailed installation instructions can be found in the Sentinel Agent documentation also available on the plugins Web site.

> More Value
Beyond NSS auditing and cross-protocol file locking, Novell Open Enterprise Server 2 SP2 delivers several other valuable enhancements. The first of these is that it is now based on SUSE Linux Enterprise Server 10 SP3. This enables you to take advantage of the latest, higher performing hardware, as well as a broader array of certified software applications.

Novell Open Enterprise Server 2 SP2 also adds Active Directory Support for Novell iFolder. This is big news for organizations with an AD infrastructure that have long wanted to let their users take advantage of iFolder’s ability to synchronize, back up, share and access their files no matter where they are or what machine they’re using. To take advantage of this new capability, during the installation process you simply choose Active Directory as the LDAP source for iFolder and then specify the AD server’s host name/IP address, LDAP port, and LDAP secure port.

The list of additional new features included in this latest support pack includes the following:
• iFolder and iPrint client support for Windows 7, Mac 10.6, and SUSE Linux Enterprise Desktop 11
• Support for universal printer drivers in iPrint
• The ability to access DFS Junctions through a CIFS connection
• Unified remote server navigation for FTP servers across the enterprise, providing automatic authentication if you change to a directory on another server; an enhanced installation process for Domain Services for Windows, focused on simplicity and usability
• Performance increases for AFP, NCP and Samba users

> The Tools to Move
Making it easier than ever to move to Linux, the migration utilities for Novell Open Enterprise Server 2 SP2 have also been improved with superior error logging, better health checks, automatic population of fields with values used in previous upgrades and more.

Through its Move It program, Novell also continues to provide training and support tools that streamline the upgrade path, including an Upgrade Advisor Support offering that lets you engage the services of a designated support expert to assist you with upgrade-related issues for 90 days, a free on-demand training course designed to bridge your NetWare skills to Novell Open Enterprise Server 2, and a cost-effective services bundle that puts you on the fast track from NetWare to Open Enterprise Server with IT consulting, technical training and support expertise.

With the last of the major features being ported to Linux in this release, Novell Open Enterprise Server 2 SP2 is an excellent landing place for your move from NetWare to Linux. (See Figure 3.) It has everything you need from NetWare, while offering the smoothest and easiest upgrade for your investment. With the end-of-general-support date for NetWare just around the corner, there’s every reason to start experiencing the benefits of Linux. Now more than ever, it’s time to pull the upgrade trigger with Novell Open Enterprise Server 2 SP2.
How to Learn More, Pay Less And Get Certified at BrainShare 2010

BrainShare 2010

The official BrainShare clock is counting down fast, and time is running out on many of the biggest and most attractive early-bird perks and discounts. Fortunately, it’s still not too late to pay less for the technical conference that’s determined to help you learn more than any other event you attend this year. Register by February 19th to take advantage of the steepest early-bird discounts, claim your free self-study kit and explore new options for getting certified at BrainShare 2010.

Novell BrainShare 2010 Basics

- Conference Dates: March 21-25, 2010
- Location: Salt Lake City Convention Center
- Early-bird Registration (US$1,395): Ends February 19, 2010

>Register Now!

> Big Savings and Free Training You Can't Afford to Miss

Exactly how much will you save by hurrying to register for BrainShare by February 19th? How does $800 sound? By beating the deadline, you’ll pay only $1,395 after the $300 early-bird discount—and then receive a self-study kit valued at $495 while supplies last. These self-guided training bundles provide the software, curriculum and testing materials you need to gain crucial foundational knowledge about Novell products and apply that knowledge to specific tasks. As part of this special offer, you can choose from any of the following self-study kits:

- Novell ZENworks 10 Configuration Management Administration
- Novell GroupWise 8 Administration
- Novell Identity Manager 3.5 Administration
- Implementing Novell Open Enterprise Server 2 for Linux
- SUSE Linux Enterprise Server 11 Certified Linux Engineer

Simply specify which self-study kit you’d like to receive during the online BrainShare registration process. Then, you can pick up the materials when you arrive in Salt Lake City and check in at the BrainShare registration counter.

Get Certified at BrainShare 2010

The following traditional and advanced practicum tests are available at BrainShare 2010—all at a 25 percent discount. Just check in at the Certification Program table when you arrive to get started:

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- Certified Workload Management Administrator
- Certified Linux Administrator 11
- Certified Linux Desktop Administrator
- Novell Certified Administrator
- Novell Certified Engineer
- Novell Certified Linux Professional 11
- Novell Certified Linux Engineer 10
- Certified Novell Administrator
- Certified Novell Engineer
- Certified Novell Instructor
- Novell Academic Instructor

Practicum Tests

- Novell Certified Engineer
- Novell Certified Linux Professional
- Novell Certified Linux Engineer

>Certification Made Easy (and Affordable)

BrainShare has always been a prime source of hard-hitting technical information with more than 450 hours of technical sessions, hands-on labs and other activities. This year, the BrainShare team is going even further—by offering more convenient testing and certification opportunities than ever before. That means you can walk away after your week at BrainShare with both the knowledge and the professional certifications you need to enhance your career and improve your job performance. Make sure you explore and take advantage of:

- An expanded Certification Program table where you can check in, find out exactly what you need to do to earn new or renew existing certifications, and even pick up colored pin-on ribbons to show off the certifications you’ve earned.
• An expanded Testing Program table where you can quickly register and check in for certification exams. This year, every traditional certification test Novell offers will be available onsite at BrainShare.

• Advanced Novell Practicum Testing. These rigorous, scenario-based exams enhance your existing Novell certifications and prove you're the best at what you do. This year, for the first time ever, you can take a range of advanced Practicum tests during your week at BrainShare.

• Twenty-five percent discounts on all certification tests. Taking certification tests at BrainShare is more convenient. It's also less expensive. Don't miss this chance to save 25 percent on every certification test you take.

> Register Today
Many of the best BrainShare 2010 early-bird discounts and special offers are about to expire. That means it's definitely time to get registered, complete your Wish List and finalize your schedule. Then, you'll be all set to learn more, get certified and make the most of your BrainShare 2010 experience.

Your Last-Minute BrainShare 2010 Checklist:

• Register by January 19 to take advantage of a $300 early-bird discount and claim a self-study kit valued at $495.

• Check out the BrainShare 2010 session catalog and fill out your Wish List. Both are available right now!

• Use the BrainShare Session Scheduler to sign up for courses starting February 22nd.

• Make plans to visit the Certification Program table and get certified during your week at BrainShare.
Western & Southern Financial Group
Increasing Efficiency with Novell Access Governance Suite and Novell Identity Manager

Most financial services companies today are facing increasing regulatory requirements. Western & Southern adopted Novell Access Governance Suite and Novell Identity Manager to automate compliance processes, without the need for additional headcount.

Overview
A Fortune 500 company, Western & Southern Financial Group (Western & Southern) provides life insurance, annuities, mutual funds and investment management through one or more of its member companies. The company is one of the 10 highest-rated life insurance groups in the world according to Standard & Poor’s and has assets owned, managed and under care in excess of $42 billion as of December 31, 2008.

“Novell Access Governance Suite is an integral part of our plan to maintain the highest levels of security and meet our regulatory requirements. It is also the most efficient and cost-effective solution for us.”

Mark W. Pfefferman
Assistant Vice President & Director of the Identity & Access Management Program
Western & Southern Financial Group

Challenge
As states adopt new insurance regulations, both public and private insurance companies have had to increase their compliance initiatives. Western & Southern must comply with the new Model Audit Rule (MAR) regulations sponsored by the National Association of Insurance Commissioners (NAIC), as well as several other regulatory requirements including HIPAA and Graham-Leach-Bliley.

Instead of increasing headcount to manage the additional reporting, monitoring and auditing required, Western & Southern wanted to automate many of its compliance-related processes. The company also wanted to increase security to maintain its superior reputation and rapid growth rate.

Solution
Western & Southern consulted with Gartner and evaluated a variety of solutions, including Microsoft, BMC, IBM and Tivoli, before selecting Novell Access Governance Suite and Novell Identity Manager.

“Novell offers a cost-effective, integrated suite of products across the entire identity management spectrum,” said Mark W. Pfefferman, Assistant Vice President & Director of the Identity & Access Management Program at Western & Southern Financial Group. “Novell has a good vision for what we are trying to accomplish and we found that Novell Access Governance Suite fills an important niche in the market.”

As the foundation of its identity management platform, Western & Southern uses Novell Identity Manager to automatically synchronize user identity information across multiple systems including Novell eDirectory, Microsoft Active Directory and Microsoft Exchange. In the past, manual provisioning processes could often take up to a week. Now the IT team can provision new users with access to everything they need in less than a day.

“Our user provisioning process needs to be air tight,” said Pfefferman. “With Novell Identity Manager, we get automatic feeds from our HR system and can give new users access to our network and e-mail their first day on the job.”

Novell Access Governance Suite includes two components that will help Western & Southern meet new compliance requirements: Novell Roles Lifecycle Manager to simplify access control based on user roles; and Novell Compliance Certification Manager to automate the monitoring, reporting and remediation of access privileges.

The combination of Novell Identity Manager and Novell Access Governance Suite will help Western & Southern to map business roles to IT entitlements, allowing the company to provision access to systems and resources based on the user’s role in the organization. The company can then certify to auditors that the appropriate roles and entitlements are in place according to internal policies and external regulations.

Western & Southern is working with Deloitte & Touche LLP on its enterprise roles management initiative to automate the company’s compliance processes.

“The amount of time and energy required by companies to achieve compliance with a host of regulatory requirements is growing exponentially,” said
Lyle Carlson, Director at Deloitte & Touche LLP.

“Establishing a roles-based infrastructure is a smart way for clients to simplify and automate much of their compliance management.”

“Our experience with the Deloitte & Touche team has been outstanding,” said Pfefferman. “They are extremely professional, knowledgeable and business savvy. They bring a set of skills and methodology—especially with enterprise roles management—that will dramatically improve our ability to automate user provisioning and compliance-related monitoring and reporting.”

Novell Identity Manager will provide Western & Southern with a standardized and simplified process for provisioning entitlements based on roles, while Novell Access Governance Suite will enable the company to report on user access rights.

Because the Novell solution automates provisioning processes and provides monitoring and reporting of user access rights, Western & Southern can avoid hiring additional temporary or permanent IT staff.

>Results

To address increasing compliance requirements, Novell Access Governance Suite will give Western & Southern greater visibility into user access rights, as well as a platform to support roles-based access controls. Such control will improve compliance with key regulatory requirements, including NAIC MAR, without the need for additional headcount.

Using Novell Identity Manager, Western & Southern has reduced the time spent on user provisioning by 80 percent and reduced password-related helpdesk calls by 45 percent. By reducing user administrative time, the IT staff can focus on more strategic projects to help the company be more agile and responsive to customer needs.

“Novell Access Governance Suite is an integral part of our plan to maintain the highest levels of security and meet our regulatory requirements,” said Pfefferman. “It is also the most efficient and cost-effective solution for us.”

“Novell Access Governance Suite will help us dramatically improve security with the ability to display complex reports in a user-friendly Web interface. Too much information is overwhelming. When we make reports easier to review, we make it easy for business managers to certify users’ access rights on a much more regular basis.”

Mark W. Pfefferman
Assistant Vice President & Director of the Identity & Access Management Program
Western & Southern Financial Group