The newest generation of workers has never known a world without the Internet. These computer-savvy “digital natives,” as they are sometimes called, don’t typically rely on e-mail as their primary means of communication. They interact using a wide variety of real-time and socially enabled collaboration tools such as Twitter, Facebook, LinkedIn, instant messaging and cell phones.

If harnessed properly, the emerging real-time and social collaboration tools this generation uses in their personal lives can present organizations with new collaboration opportunities that increase innovation and productivity. Unfortunately, some organizations may struggle to see how they can successfully and securely integrate these new interactions into their traditional collaboration environments and evolving data center plans without introducing higher costs, complexity and risk.

Novell’s collaboration vision provides a roadmap for leveraging your existing IT infrastructure and strategies to securely, simply and cost-effectively converge the best of traditional collaboration environments and the latest real-time, social interactions.

The key pieces of the Novell collaboration vision include:
- An open, enterprise-ready architecture for bringing together disparate collaboration systems, tools and technologies
- Enterprise-level security, compliance and management applied to converging traditional and innovative next-generation collaboration environments

A world-class, new and innovative collaboration user experience.

**Figure 1:** Novell is building its next-generation open collaboration architecture on modern technologies that leverage Novell’s core technical strengths and bring together the right people, tools and interactions.
> Emerging Technologies, Powerful Foundation

Interoperability is at the core of everything Novell delivers. Novell recognizes that there are many great technologies that can contribute key pieces to your organization’s collaboration ecosystem. The truth is there are many more to come, too. All of those social networks can be hard to track and synchronize. Novell helps bring together all those pieces in a secure and compliant enterprise collaboration solution that drives innovation and growth for your business. So, instead of trying to make e-mail and office suites the center of its collaboration strategy as other vendors are doing, Novell is building its next-generation open collaboration architecture on modern technologies that leverage Novell’s core technical strengths and bring together the right people, tools and interactions. (See Figure 1.)

The Novell collaboration vision provides a long-term strategy that brings those tools and interactions together in a way that allows your people and technology to work as one—even while the market grows and evolves. To serve as the foundation for this vision, Novell will deliver an open collaboration architecture—one that encompasses all of the other elements discussed in this article. This architecture will ultimately include a number of new capabilities; however, Novell will be delivering critical elements of its collaboration architecture in the short-term as well.

The Novell collaboration vision provides a long-term strategy that brings those tools and interactions together in a way that allows your people and technology to work as one—even while the market grows and evolves.

For example, Novell soon plans to deliver Novell DataSync, a key architectural element that resides at the Collaboration Services layer. Novell DataSync is a bidirectional, many-to-many synchronization engine that connects disparate collaboration solutions, business-critical applications and mobile devices. Novell DataSync will play an integral role in seamlessly bringing together the people, tools and interactions that drive greater innovation and productivity.

Novell DataSync enables seamless back-end synchronization of e-mail, calendar items, tasks, events and any other collaboration data to multiple systems. It will allow external enterprise applications such as CRM, ERP and other business systems—along with content from traditional products such as GroupWise, Novell Teaming, Exchange and SharePoint—to be synchronized across systems. As changes occur in the systems connected to the synchronization engine, Novell DataSync stores those changes in real-time and allows other connected systems to access them. (See Figure 2.)

As a multisource, multtarget synchronization engine, Novell DataSync is not necessarily tied to any specific collaboration solution. However, its integration benefits will first be seen through connectors for Novell GroupWise and Novell Teaming. In addition to the GroupWise and Teaming connectors, Novell will soon release connectors for SharePoint, SugarCRM, salesforce.com and ActiveSync with plans to release connectors for Documentum and SAP in the near future. (See Figure 3.)

Additionally, Novell partners will be able to deliver custom connectors for their own and other third-party solutions through the Novell DataSync SDK and its open API. This will enable users to share relevant content from an even wider variety of collaboration and enterprise systems, including CRM, ECM and document management systems; cloud-based social applications and even competing collaboration solutions. Novell DataSync essentially enables you to link all your diverse silos of information so that workers can be more productive and capable of utilizing the information at their disposal.

Many of the architecture’s collaboration services will take advantage of technologies found in both current and future versions of the existing Novell product lines, including Novell Open Enterprise Server and SUSE Linux Enterprise Server. Technologies such as Novell Storage Manager and Dynamic Storage Technology will provide data location and lifecycle management services that deliver policy-based file distribution, enabling organizations to use policies to optimize how data is stored and accessed. Novell
Caching technologies will provide the foundation for enabling offline collaboration experiences and the architecture’s indexing and discovery capabilities will be key to allowing users to quickly find relevant information from within the system, across corporate data repositories or from the Internet.

At the Core Novell Services layers, Novell is delivering—and will continue to deliver in new ways—fully virtualized and orchestrated workload services that can run on traditional infrastructures, internal clouds or the external cloud. Utilizing Novell PlateSpin and Managed Objects offerings, the Novell collaboration architecture will also provide organizations with world-class workload management as their data centers grow and evolve. These workloads will be able to run in existing data centers, internal clouds or external clouds.

Secure, Controlled and Compliant

Designed for on-premises or cloud-based environments, the unique Novell approach blends traditional and social collaboration tools in a secure and controlled manner by wrapping them within the safety of Novell security solutions. By leveraging the strengths of Novell’s enterprise-proven security and compliance capabilities, the Novell collaboration architecture will enable your workers to take advantage of all their preferred interactions—whether traditional or next generation—in a secure manner. These capabilities will work hand-in-hand with the architecture to safeguard interactions, meet compliance requirements and allow collaboration tools to work harmoniously with robust identity and security services.

For example, Novell Identity Manager automates user provisioning and account management by synchronizing users’ identities between systems, such as corporate applications and collaboration tools. To facilitate security and compliance within the collaboration sphere, Novell will extend this capability to include Web services such as social networking systems. Within these identities, administrators will be able to store all the policies that control how, when and where users interact. As a result, with just a single identity, users will be able to access all their different systems—whether enterprise or social, or whether on-premise or in the cloud.

Specific to Novell DataSync, Novell Identity Manager will leverage content policy and identity controls to ensure that only relevant and authorized external content will be synchronized to and from the platform. Relevant data from personal e-mail, Twitter, Facebook and much more can also be synchronized based on identity and policy.

As another example, collaboration solutions could leverage Novell Access Manager to allow workers to invite people they trust to join their teams. Novell event monitoring technology could be used within the framework of the collaboration architecture to enable authorized agents to track everything that takes place online. As part of the Novell collaboration architecture, all of these core identity and security services will be delivered seamlessly across enterprise installations—whether they’re located on the premises or in the cloud.

Novell is uniquely positioned to deliver the next-generation collaboration environment that will best drive business innovation and productivity, while helping IT to fulfill its responsibility to protect and safeguard corporate assets.
> New User Experience, New User Innovation

At the user experience layer of the Novell Collaboration vision and architecture, Novell will introduce a new user interface that will be completely extensible and open to third-party applications. The new interface will deliver a revolutionary user experience that blends all the elements of authoring, collaboration and communication in a simple and powerful new way.

As a real-time, unified social and document collaboration environment, the new user experience promises to deliver the following functionality:

- A unified In-box for e-mail, social networking tools, chat and documents that combines personal, business, team and social interactions
- “Easy as e-mail” team creation and greater awareness of team presence
- Real-time commenting, activity monitoring and notifications
- Instant, fail-safe, real-time document co-browsing
- Collaborative authoring
- Synchronization and filtering of information from enterprise and consumer cloud services to deliver “live,” relevant information from many sources and formats

The new user interface will address head-on the growing problem that organizations and users face in having to use a multitude of collaboration tools. If you’re like most users, you often end up switching from a rich desktop application for e-mail and calendaring, to a browser for workspaces and back to other desktop applications for creating documents, presentations and spreadsheets. To join an online meeting or instant messaging session, you switch to a different rich client. Then you switch to yet another client or browser to access your enterprise applications. This frequent change in environment drains your productivity and increases the risk of errors. The new user experience from Novell will eliminate this application switching by providing a single, unified context where users can access all the tools, people and interactions they need to be productive.

This innovative user experience will also enable new collaborative interactions with a broader set of participants. Rather than relying solely on a push model that sends information out to an explicit audience, it will let you easily identify the most relevant and helpful target audiences. It will also enable the quick, ad hoc creation of distributed teams comprised of members that offer unique and innovative insights, expertise and experience.

For example, the user interface will provide an environment for ad-hoc swarming that solicits inventive solutions from customers, partners and suppliers when an urgent crisis or difficult business issue develops. This can enable productive new interactions among the right people inside and outside of the business.

Reducing reliance on the antiquated and bloated “attach-and-send” document collaboration model, the new Novell user interface will enable you to share, co-browse and co-author documents in the cloud without requiring e-mail or a Web meeting. The new user interface will leverage context filtering to help you reduce information overload and minimize the time and effort you spend finding the resources you need and ignoring those you don’t. It will let you follow people, groups and tags so you can easily get the information you are most interested in. The new interface will also provide the ability to monitor people and groups for updates—similar to the way you can monitor who's online in chat.

> New Integrated Interactions, New Business Success

Through its collaboration vision and strategy, Novell is uniquely positioned to deliver the next-generation collaboration environment that will best drive business innovation and productivity, while helping IT to fulfill its responsibility to protect and safeguard corporate assets. This new model promises to enable interactions that are more intuitive and designed for the way people collaborate today. Through the execution of its collaboration vision, Novell aims to help you bring together the right people, tools and interactions—empowering your people to collaborate as one and achieve the highest levels of innovation, productivity and success.
Resolving Problems Quickly and Easily
Novell Support Advisor and Novell Support Link

It is the end of the quarter, and as the system administrator for a finance department of more than 500 users, you are under a lot of pressure. Your network’s speed has reduced to a crawl, and your users are complaining as they work overtime to finish their reports before quarter’s end. They cannot wait for processes that used to be instantaneous, and you do not have the time to call customer support or thrash through the possible problems one by one. What do you do?

With Novell Support Advisor, you quickly analyze your servers, narrowing down the problem to an outdated LAN driver that you didn’t know about. In addition to finding the problem, Novell Support Advisor points you directly to the solution in the Novell Knowledgebase that has links to updated drivers. Downloading the new driver, you quickly fix the entire problem, and your department calls you the quarter-end hero!

Proactively, you can run regular “health checks” on your systems, identifying and solving potential problems even before they arise.

> Novell Support Advisor: The Best Self-Help Tool in the World

Novell Support Advisor provides you with a streamlined way to perform both reactive and proactive system diagnostic tasks typically provided by Novell Technical Services, but in a local, secure and automated way. Reactively, Novell Support Advisor allows you to deal with unexpected problems like the one illustrated in the scenario above. Proactively, you can run regular “health checks” on your systems, identifying and solving potential problems even before they arise.

With Novell Support Advisor installed and regularly updated, during a regular health check of your systems, you find other outdated drivers, this time before they impact your servers and affect your department’s productivity. While this proactive diagnostic and issue resolution does not result in the kind of level of public accolades that your earlier success at the end of the quarter, you know that you have helped your department dodge a bullet, and your colleagues—and especially your supervisor—comment on how smoothly the system functions.

Designed to support and diagnose SUSE Linux Enterprise Server, Open Enterprise Server (Linux) and associated products, Novell Support Advisor allows you to probe your systems for a variety of selectable service and functional options, such as:

- Connectivity
- eDirectory
- Open Enterprise Server
- Print
- SUSE Linux Enterprise
- Update and Security

Novell Support Advisor can be installed and run from:

- SUSE Linux Enterprise Desktop 11 or later
- SUSE Linux Enterprise Server 11 or later
- OpenSUSE 10.3 or later
- Microsoft Windows XP SP2 or later
- Microsoft Windows Vista
- Microsoft Windows Server 2003

Novell Support Advisor can run against and analyze these platforms:

- SUSE Linux Enterprise Server 9
- SUSE Linux Enterprise Server 10
- SUSE Linux Enterprise Server 11
- Open Enterprise Server 1.0
- Open Enterprise Server 2.0
- NetWare 5.x
- NetWare 6.x
- NetWare 6.5

Version 1.1, which is already available, also includes support for your upcoming migration from NetWare to OES!

Novell Support Advisor needs to be installed on a system that can communicate with both the servers within your local environment and the update server at Novell. When connected with the Novell update server, the Novell Support Advisor client automatically prompts you to update to the latest client version.

Novell Support Advisor

- Download Novell Support Advisor
- View a video demonstration of Novell Support Advisor
- View the planned Product Features and Roadmap
- Watch a video interview of the program manager
Additionally, the client prompts you to download newly released Novell Support Diagnostic Patterns (SDPs) from the Novell Update server as they are published by Novell Technical Support Experts. SDPs are patterns of code against which analysis is run resulting in known solutions provided by Novell Technical Support. SPDs are frequently compared to the virus definitions provided by premium anti-virus software programs such as McAfee. Just as new virus signature files allow anti-virus program to identify and then quarantine or delete dangerous viruses, Novell SDPs identify new problems, providing you with the ability to diagnose systems and resolve problems based on the most current issues known to Novell.

By being connected with local servers, this client can run a health diagnosis on selected systems by running a “health check” that gathers configuration and log files from the system being analyzed and compares them with Novell Support Diagnostic Patterns. This not only determines the current health state of the system, it also provides recommended solutions for resolving problems and preventing potential issues.

> Easy and Efficient to Use

The Novell Support Advisor performs its tasks in an automated way, using the latest diagnostic techniques and information available from the Novell Technical Services team. This diagnosis occurs securely and locally, and does not require sending log information to Novell for analysis.

When the data is gathered for a health check, some load occurs over a Secure Shell connection to the queried device, but once the data is collected, the connection is terminated so network and device load is minimized. The gathered data is then consolidated into an easy-to-use view that allows you to quickly see the state of the system. This view is presented as a dashboard that shows critical patterns in red and good patterns in green, identifying what segments in which systems need attention. (See Figure 1.) Novell Support Advisor then provides you potential solutions, allowing you to select the one that best addresses your situation.

**Novell Support Advisor In Action: Finding a Failure in the BNX2 Kernel Module**

While working on the phone to support another customer, Novell Technical Support Engineer Bryan Riley received an e-mail requesting help with a problem. Novell Support Advisor allowed Riley to start analyzing the supportconfig file sent in even as he resolved the first customer's call. Comparing the information received with a Novell SPD that marked a BNX2 kernel module, Riley was able to provide the customer with a quick solution to a problem that has been reported frequently recently by other customers, TID 7002506 “bnx2 driver drops packets - erratic behavior of UDP based applications and TCP slowness.”

“I was able to provide the customer with a solution suggested a few hours after being assigned, without devoting a lot of time on the issue,” said Riley. “Although this may not be the final solution for this request, it provides the customer with resolution of a problem that he may not have even known he had.”

*Figure 1: Novell Support Advisor dashboard lets you quickly see the state of the system and easily identify what segments in which systems need attention.*

![Novell Support Advisor dashboard](image)
This tool also builds an Analysis Archive Database, or tar ball archive, that preserves a history of health checks that have been run and the problems that have been addressed, allowing you to see trends and changes over time. A dashboard using the same color-coding scheme, a simple red = critical and green = good makes the information readily accessible.

Because the client is linked to Novell update servers to load pattern updates and new patterns, its value increases over time without requiring much administrator time. In addition, Novell has provided users with the ability to provide direct feedback and relevancy ratings for individual patterns. The user can select reporting on entire categories or select specific patterns from multiple categories, providing enormous flexibility as well as targeted feedback when diagnosing a problem.

Novell Support Link: When More Support Is Needed

If a problem is discovered where help is needed, a service request connection to the Novell Customer Center can be opened. In this scenario, Novell Support Link provides a highly efficient way for you to get the specific help that you need.

SUSE Linux Enterprise Server 11 already comes with an innovative diagnostic and reporting infrastructure to accelerate problem determination and issue resolution. Novell Support Link uses this data collection technology, accessible via a new YaST module, that automatically captures support configuration information and— if and when you want— sends it to Novell via secure HTTP as a tar ball archive. Novell Support Link integrates with Novell Customer Center to help resolve issues faster and more accurately; a Novell technical expert can evaluate the tar balls and then walk you through the solution.

Quick and Easy Problem Solving that Keeps Getting Better

With the new support infrastructure provided by Novell Support Advisor and Novell Support Link, problems are diagnosed more effectively and issues are resolved faster. You can view a demonstration of Novell Support Advisor as a video demonstration on the Novell Services Channel at http://www.youtube.com/watch?v=QmIRG3vFIQ. You can also download the Novell Support Advisor tool at http://support.novell.com/advisor.

As noted, Novell Support Advisor regularly updates its Support Diagnostic Patterns, and new patterns and solutions are regularly being produced, optimized and calibrated as a result of customer feedback. In addition, in coming months the same functionality of Support Link that is found in SUSE Linux Enterprise, will also be found in Novell Support Advisor as we add the ability to upload the same support data back to Novell via secure link.

Novell Support Advisor is also able to target and analyze NetWare systems, mainly to mitigate any migration issues while moving your NetWare servers over to Open Enterprise Server. So any Novell product running on either SUSE Linux Enterprise, Open Enterprise Server, OpenSUSE or NetWare will work with Novell Support Advisor.

With Novell Support Advisor and Novell Support Link, you have all the tools you need to resolve your network problems quickly and easily!

Novell Support Advisor In Action: Random Screen Blackouts from a Split Kernel

On May 18, 2008, another Novell Technical Support Engineer, Jason Booth, received a call from a customer whose screen was periodically turning black. Naturally Booth had the customer check his display configuration, but he was initially stumped when the configuration revealed no problems. Running Novell Support Advisor provided him the following supportcongif, http://www.novell.com/support/php/search.do?cmd=displayKC&docType=kc&externalId=7001056&serviceId=1&docTypeID=DT_TID_1_1&dialogId=56093412&stateId=0%200%2056095120, which revealed the customer’s server had a split kernel. Not only that, it had an old BNX driver, and these two problems were seriously hindering the server’s performance.

Booth then proceeded to familiarize the customer with the Novell Support Advisor Web site. When the customer downloaded the program and its updated SPDs, he became excited about being able to run his own diagnostics. Novell Support Advisor enabled him to find and resolve problems on his own without any further intervention by a Novell Technical Support Engineer.

Booth enthusiastically endorses Novell Support Advisor: “Novell Support Advisor is a wonderful tool for us on the front line ... I think about our current motto of ‘We fix problems quickly.’ Without this tool I would have spent more time researching logs and configuration files instead of fixing the problem quickly. The customer’s issue with the black screen has seemed to not come back after fixing his split kernel issue. Thank Novell Support Advisor!”
Easy Does It
Workflows Made Easy in Novell Teaming 2

Novell Teaming 2 is all about empowering users to be more innovative and productive. Not only does Teaming bring the right people with the right skills together in secure, interactive, online workspaces, but it also puts tools directly in the hands of your users that further boost productivity and enhance their interactions. Once you deploy Novell Teaming 2 and configure its powerful access controls, your users are free to immediately begin creating workspaces, sharing information, coordinating activities and moving business forward. They don’t have to wait for you or an army of Web developers to create Web pages. They can immediately create their own teams; share files; form discussion groups; create wikis, blogs, surveys and Web landing pages and even produce their own automated workflows.

The workflow engine in Novell Teaming facilitates everything from simple workflows to extremely complex business process workflows.

The built-in workflow capabilities in Novell Teaming 2 enable you and your users to automate, streamline and enhance processes to save time, eliminate errors and improve overall efficiency. The workflow engine in Novell Teaming facilitates everything from simple workflows to extremely complex business process workflows.

> Easy Creation

The nice thing about workflows in Novell Teaming is that you don’t have to be a developer to deploy or leverage their capabilities. The View and Form Designer in Novell Teaming makes it easy to create and customize all the elements of a basic workflow: States, Transitions, Entries (also known as forms), Folders, Notifications and On-entry/On-exit Settings and Access Controls.

Last year Novell Connection published an article that discusses workflow support in Novell Teaming, including workflow best practices and the concepts involved in creating simple to advanced workflows (See Workflow in Teaming). Although that article centers on workflows in the first version of Novell Teaming, most of what it covers still applies in Novell Teaming 2. Additionally, the Advanced User Guide for Novell Teaming 2 details how to create both simple and advanced workflows, generally consisting of the following basic steps:

- **Creating the workflow definition** – Define the caption (display name) and internal data name of the workflow.
- **Adding workflow states** – Define the caption, internal data name and description of each workflow state. Examples of states might include New Item, Review Item, Item Approved, etc.
- **Adding workflow transitions** – Define how an entry will move from one state to another. This might include transitioning immediately, after a specified amount of time, after a comment is entered, upon a manual action, in a customized manner or as a result of any other criteria you specify.
- **Adding actions** – Add the option to initiate certain actions when an entry enters or leaves a state. This might include sending an e-mail notification or moving an article or trouble ticket to a different folder.
- **Configuring access controls** – Specify who can access the entire workflow or specific states in the workflow.
- **Enabling the workflow for use** – Define when, where and how a workflow will start.

In addition to the instructions provided in the Advanced User Guide, Novell provides a number of articles on www.novell.com/connectionmagazine
workflow concepts and creation at
novell.com/communities/node/8585/teaming-2-tutorial-

> Ready-Made Workflows

Even though Novell Teaming makes it easy to create
and customize your own workflows, you don’t have to
start from scratch. In the Novell Teaming Library, Novell
provides a growing online collection of entry forms and
workflows you can download (or customize) to address
specific business problems. (Visit
novell.com/communities/coolsolutions/teaminglibrary)
Some of the most frequently downloaded workflows in
this library include Time Off Request, Employee Help
Desk, Catering Request, Travel Request, Meeting and
Room Request, Employee Self Evaluation, Bug/Issue
Management and Tracking, Bid List Application and
Expense Report.

Figure 2: The Form and View Designer interface for creating,
customizing and importing workflows is accessed in a workspace
from the Manage menu option.

For example, the Expense Report form and
workflow allows you to gather and track all of your
business-related expenses at the individual level. The
workflow first submits an expense report to the Records
Department for long-term storage. A copy of the
expense report is also submitted to the Statistics
Department to enable your organization to better
manage and understand costs.

The View and Form Designer in
Novell Teaming makes it easy to
create and customize all the
elements of a basic workflow.

Accordingly, the states for this workflow template
consist of Submit Expense Report, Finance
Department, Needs Attention, Report Processed and
Report Filed. (See Figure 1.) Each state includes a
transition definition that determines how the process
moves from that state to the next. Some of the states
have access controls or actions assigned to them as
well. For example, if an entry moves into the Needs
Attention state, a notification will be sent to the
appropriate user or group.

Figure 3: You can import form and workflow templates locally to
any workspace from within the Form and View Designer interface.

To take advantage of this template—or any other
workflow template you have downloaded—you can
deploy it globally by logging into Novell Teaming as an
administrator, selecting Site Administration under the
Manage tab and selecting Form and View Designers.
From within the Form and View Designers window,
select Import on the navigation bar, browse to the
location where you downloaded the zipped workflow
template and click OK.

Figure 4: After importing a workflow template, the Form and View
Designer interface lets you customize its definitions so it will run
properly in your environment.
In its Novell Teaming Library, Novell provides a growing online collection of entry forms and workflows that you can download (or customize) to address specific business problems.

To import a workflow into a local team workspace or folder, the process is very similar. Users simply navigate to the workspace or folder where they want the workflow to run—and one to which they have sufficient rights—and then select Form and View Designers under the Manage tab, select Import on the navigation bar, browse to the zipped workflow template and click OK. (See Figure 2 and Figure 3.)

Although the import is fast and very easy, you will likely need to make some modifications to the workflow or its form definitions to properly run it in your environment. The modifications might be as basic as changing the way the workflow forms or entry fields look to specifying what users may participate in the different states of the workflow. These modifications and customizations are done from within the Form and View Designers window. (See Figure 4.) The Novell Cool Solutions article titled Deployment Instructions Teaming 2 provides more details on how to deploy and customize the workflow templates available in the Novell Teaming Library.

Once you’ve customized your workflow, you simply need to enable it to work. To do this, navigate to the workspace or folder where you deployed the workflow and select Configure from the Manage tab. When the Configure Default Settings window displays, go to the Workflow Associations section. Here you can select the workflow to be automatically associated with the entries in this folder. Creating an association here will cause the specified workflow to start automatically when any entry is added to the folder. From the Allowed Workflows section in the same window, you can select the workflows that you want to make available for the folder; this setting defines the workflows that can be manually started at any time after the entry is created. For example, you might want to start a Document Review workflow on an entry when it is ready to be reviewed.

There are currently more than twenty workflows in the Novell Teaming Library and the list continues to grow. To help grow the library of workflows even further, Novell invites you to contribute your own workflows or suggestions for workflows by sending it in an e-mail to teaminglibrary@novell.com.

> Workflow Enhancement and Management
Novell Teaming 2 introduces a powerful new workflow feature that provides the ability to integrate workflows with third-party systems such as SAP, SalesForce.com or an Asterisk server. To extend a workflow in this manner, from within Form and View Designers, you can define a custom action on an On Entry or On Exit field of the workflow. (See Figure 5.) This custom action can call a custom Java class to perform specific developer-defined actions as the workflow transitions in to or out of any specific state. This includes the ability to talk to, pass data to, launch or receive data from external workflows.

Figure 5: Novell Teaming workflows can be extended to integrate with third-party systems by defining a custom action on an On Entry or On Exit field that calls a Java class.

Whether you deploy basic workflows or advanced workflows that integrate with other systems, Novell Teaming 2 lets you and your teams easily monitor and manage your workflows through custom workflow dashboards. These workflow dashboards present authorized workflow participants or managers with a summary view of the current state of their in-process workflows. For instance, dashboards can let help desk managers see at a glance how many trouble tickets are in the queue, how long have tickets been waiting to be assigned or how many have been resolved.

While Novell Teaming generally enables more efficient business, its workflow tools, templates, forms and customization capabilities enable faster, easier creation of streamlined and automated business processes that can help you and your team members innovate and be even more productive than ever before.
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 provide 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 to. 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 multuser 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 5 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
- Set up routing 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
tscient/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
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](http://www.novell.com) to see a full outline for Course 3103.

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**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**

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> **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
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

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 a 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, 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.
PROOF POINT

Setting Sights On Security
Cite Media Holding Group

Cite Media Holding Group (Cite) publishes 40 magazines in Taiwan, printing more than 20 million issues each year. Cite also has a catalogue of 15,000 books and adds more than 2,000 new titles each year while printing more than 13 million copies annually. The company has more than 1,200 employees and is a division of TOM Group Limited, an associate of Hutchison Whampoa Limited.

> Challenge
The increasing importance of the Internet and other non-physical distribution channels requires publishing companies to focus more and more on protecting and securing their networks. Cite has a large number of Web-based offerings, including online book purchasing tools, blogs, online magazines and game sites, which contribute significantly to its revenues.

The company built an extensive internal network with numerous connections to the outside world and equipped it with a variety of security and monitoring technologies. The difficulty was managing all the different tools to enable rapid, appropriate responses to perceived or actual security threats. Cite IT staff had to manually collect and collate log files from hundreds of different systems, analyze them to determine root causes, then attempt to resolve the issues.

The time and effort required to maintain network security represented a significant drain on resources. Cite was also concerned about the lack of speed in identifying and resolving security issues.

“By helping us identify and fix potential network security issues more rapidly, Novell Sentinel improves employee productivity and helps us to provide better security for our online business.”
–Elaine Kung
General Manager of Taiwan Operation Center
Cite Media Hoping Group

> Solution
Following a detailed evaluation of market-leading solutions, Cite selected Novell Sentinel as its central point of control for security monitoring and management. The Novell solution automatically aggregates information from thousands of log files across the Cite network, and provides customizable, real-time reporting on network health.

“Novell Sentinel has enabled us to bring together huge volumes of real-time data and distill it into accurate, user-friendly reports on emerging security threats.”
–Elaine Kung
General Manager of Taiwan Operation Center
Cite Media Hoping Group

“Before, it was an enormous challenge to determine the precise location of security issues in the network; we have hundreds of applications and servers and more than 1,400 PCs,” said Elaine Kung, general manager of the Taiwan operation center for Cite Media Holding Group. “Novell Sentinel has enabled us to bring together huge volumes of real-time data and distill it into accurate, user-friendly reports on emerging security threats.”

Cite implemented Novell Sentinel on three IBM BladeCenter servers running SUSE Linux Enterprise Server. The company uses the solution primarily to collate event information from its backbone network equipment. Cite worked with Mikotek, a Novell Partner, to design and implement the solution.

“The service we receive from Mikotek is excellent,” said Ms. Kung. “Their consultants are highly proactive and we value the advice and support they continue to provide.”

Novell Sentinel empowers Cite to be more proactive in its management of network security, effortlessly identifying potential issues before they have any significant impact.
The solution uses rules set by Cite to create appropriate alerts for given events, helping IT administrators to take the right action in a timely manner.

"The main advantages of the Novell solution are its openness and its customization capabilities," said Hank Young, senior manager of Cite's IT department. "Alternative solutions could only provide reports in standardized formats; Novell Sentinel gives us complete control and makes it easy to add new devices into the central reporting function."

Novell Sentinel also stores a full history of events, creating a detailed knowledgebase that enables Cite to easily identify and resolve issues that have occurred previously.

> Results
Novell Sentinel has enabled Cite to gain a clearer view of events across its large and complex network. By removing the need to manually collate and analyze data from hundreds of log files, the Novell solution has reduced the burden on the IT administrators and freed them up to deliver more effective problem resolution.

"Previously, there were gaps in our understanding of events and alerts on the network, because of the number and complexity of systems," said Mr. Young. "Novell Sentinel has simplified and centralized the task of network security monitoring, giving us an accurate picture of the health of the network in real time."

Since introducing Novell Sentinel, Cite has reduced the number of IT staff dedicated to network security from four to three, enabling improved focus on other strategic issues. The Novell solution provides higher-quality analysis than was achievable in the past and enables faster identification of root causes.

"Previously, it might take two hours to find the right log files, collate the relevant information and analyze it; with Novell Sentinel it takes just five minutes and the results are better," said Ms. Kung. "By helping us identify and fix potential network security issues more rapidly, Novell Sentinel improves employee productivity and helps us to provide better security for our online business."

Products and Services
· SUSE Linux Enterprise Server
· Novell Sentinel

Results
· Centralized network security reporting
· Delivered faster and more effective response to emerging threats
· Enabled 25 percent reduction in staff dedicated to network security