

SUSE® Linux Enterprise: Differentiation Through Interoperability

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The Mixed Environment Imperative

What IT managers need from their vendors isn't another forklift roadmap to perfect order and efficiency, but hardware and software products that work together simply, reliably, securely and affordably.

† Source: Gartner 25th annual Data Center Conference interactive polling results. December 2006.

Heterogeneous IT environments are a fact of life in large organizations. According to recent Gartner research, more than two thirds of all enterprise data centers operate mixed hardware and software environments.† So, however appealing a technology monoculture might seem to hard-pressed administrators, most will have to continue making the best of messy, organic diversity.

What IT managers need from their vendors isn't another forklift roadmap to perfect order and efficiency, but hardware and software products that work together simply, reliably, securely and affordably. They need the flexibility to grow and adapt their environments to changing business needs without forced choices that limit their future options.

Instead, they have had to contend with a data center divided between two increasingly dominant operating environments—Linux* and Windows*—with minimal interoperability, separate management tools and distinct administrative skill sets: a perfect prescription for institutional inefficiency. Understandably, customers are pushing back, demanding technology products that work together to simplify their environments, reduce their costs, and improve their efficiency in supporting business operations.

The problem is that interoperability doesn't happen spontaneously, especially given the technical and cultural gulf that has developed between the proprietary and open source software worlds. Open standards alone aren't sufficient. Practical, commercial interoperability requires die-hard competitors to actively collaborate on joint solutions that serve the customers' interests first and foremost.

Driving Interoperability into the Data Center and Beyond

Fortunately, collaboration and interoperability are coded into the Novell® genome. We understand that IT complexity can't be allowed to undermine an organization's ability to compete, and we're dedicated to helping our customers drive the cost, inefficiency and risk out of their mixed environments. We deliver on that dedication with award-winning management software that seamlessly integrates multiple platforms, and with the industry's most interoperable platform for enterprise computing, SUSE® Linux Enterprise.

Alone among Linux distributions, SUSE Linux Enterprise offers:

- *Extensive interoperability with Windows based on collaborative development and testing, including Microsoft* endorsement and technical support for mixed SUSE Linux Enterprise–Windows environments.*
- *Extensive integration with existing directory solutions and UNIX* platforms.*
- *A single code base from the desktop to mainframe.*
- *Certified operation on 32-bit and 64-bit chip architectures from AMD, IBM and Intel—from x86 to IBM* System z*.*

None of this is accidental. Driving SUSE Linux Enterprise to the forefront of hardware and software interoperability is a cornerstone of the long-term Novell business strategy. We invest in interoperability wherever we find it to be in the best interest of our customers and can enlist the participation of other industry leaders. Simply put, we believe that we can best differentiate our products

and our company by making our customers' lives simpler, easier, more productive, stable and secure.

Bridging the Linux–Windows Divide: the Novell and Microsoft Agreement

The November 2006 technical collaboration agreement (TCA) between Novell and Microsoft was a milestone in the technology industry. Together we are putting an end to the era of Balkanized data centers and institutionalized inefficiency in IT operations by collaboratively building, marketing and supporting new solutions to make Windows and Linux work better together. Four areas of collaboration were identified in the original announcement; two more have been added as increasing engagement has revealed further opportunities.

Bi-directional Virtualization

Virtualization is a critically important innovation, particularly in the data center where it may help solve chronic problems of resource utilization, efficiency, scalability and manageability. Administrators can use virtualized infrastructure to provide new levels of flexibility and reliability at significantly lower cost, by consolidating underutilized resources and integrating distributed systems into a powerful, highly adaptive and easily managed enterprise platform.

Under the TCA, Novell and Microsoft committed to delivering new, interoperable virtualization solutions that:

- *Host SUSE Linux Enterprise Server 10 as a fully virtualized guest on Microsoft Virtual Server 2005*
- *Host SUSE Linux Enterprise Server 10 as an enlightened guest on Windows Server 2008 with Windows Hyper-V virtualization technology*

- *Host Windows Server 2008 as a paravirtualized guest on SUSE Linux Enterprise Server 10 with Xen* technology*
- *Provide automated management of Linux and Windows virtual machines running in each environment.*

Current Status—The first and last of these objectives have been successfully achieved. SUSE Linux Enterprise Server 10 is available for download as a Microsoft Virtual Hard Drive image file that runs as a fully virtualized guest on Microsoft Virtual Server 2005 R2, and on version R2 SP1, which further enhances Linux guest performance with support for Intel-VT* and AMD-V* virtualization technologies. Complete virtual infrastructure management capabilities are available in both Novell ZENworks® Orchestrator, which delivers lifecycle management of VMware*, Xen and Microsoft virtual machines, and in Microsoft System Center Virtual Machine Manager, which can deploy, configure, control and migrate Linux virtual machines.

Progress toward the second and third objectives is ongoing and on-track. Novell and Microsoft are collaborating on the development of software “shims” to provide a translation interface between the Xen and Hyper-V hypervisors implemented in SUSE Linux Enterprise 10 and Windows Server 2008 (formerly codenamed: Longhorn) respectively. These efforts will be completed with the release of Windows Server Virtualization, projected for three to six months after the release of Windows Server 2008.

The ability to deploy and manage enlightened virtual Windows servers in a Linux environment is a significant achievement in and of itself. The assurance of full collaborative technical support for both the physical and virtualized environments, by Novell and Microsoft, marks a sea change in the software industry.

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Microsoft and Novell have also committed to improving directory and identity interoperability between our respective products using standards-based protocols such as WS-Federation and WS-Security.

Standards-based Systems Management

Web services and service-oriented architectures are among the most powerful and flexible technologies available for enabling cross-platform interoperability. Novell and Microsoft are working together to develop management solutions based on Web services that will simplify the administration of mixed Windows and SUSE Linux Enterprise environments. Specifically, we are leveraging the Distributed Management Task Force's (DMTF) Web Services for Management (WS-MAN) specification which exposes management resources via a set of Web services protocols.

Web Services Management:

- *Provides a universal management protocol that all types of devices can use to share data about themselves and simplify management*
- *Enables IT managers to remotely access heterogeneous devices on their networks via a firewall-friendly management protocol*
- *Introduces uniformity of management operations*
- *Addresses customers' concerns about the high total cost of ownership (TCO) associated with managing heterogeneous data centers.*

Under the TCA, Novell and Microsoft pledged to:

- *Implement a WS-MAN-compliant protocol stack in each company's operating systems, applications and resource management*

solutions, and to verify interoperability via collaborative planning and testing.

- *(Novell) contribute to, and ensure the availability of, an open source implementation of the WS-Management specification.*

Current Status—Microsoft and Novell have adopted a common framework for implementing WS-Management-based solutions that both companies will leverage to enable cross-platform management in future products—including third-party products.

Novell has begun working directly with the open source community to develop an open source implementation of the WS-Management specification. We are providing significant new contributions to the opensman.org open source project, an open source version of the WS-Management standard that will allow any Linux distribution to interoperate with the Microsoft Systems Management framework.

In addition, Novell has enhanced openSUSE® 10.3 with technology to instrument Web services for WS-MAN and will officially support WS-MAN in SUSE Linux Enterprise Server 11.

Directory and Identity Federation

Directories contain the structure and content that often provide the raw material for identity, and directory interoperability across platforms is the basis of identity interoperability across domains. Microsoft and Novell have also committed to improving directory and identity interoperability between our respective products using standards-based protocols such as WS-Federation and WS-Security. Our specific goals include:

- *Improving access control for IT resources managed with either Novell eDirectory™ or Active Directory*.*
- *Enabling seamless user access to Web-based services regardless of whether their*

principal user accounts reside in Novell eDirectory or Active Directory.

Identity must be infrastructure-agnostic while still maintaining functionality and security, and the current method of using **Lightweight Directory Access Protocol** (LDAP) is neither scalable nor secure. The work that we're doing will allow organizations with heterogeneous environments to securely share a user's identity information over federation trusts.

Current Status—The TCA defines the ability to access applications through federation using WS-Federation and WS-Trust through Novell Access Manager™ and Active Directory Federation Services (ADFS). In this environment, if an application is identity-enabled through ADFS, then a user whose principal account resides in eDirectory will access that application through ADFS. Novell demonstrated this capability at BrainShare® 2007, by allowing an eDirectory user to access Microsoft SharePoint*. Novell Access Manager 3.1 will have this federation capability included.

Further, Novell is developing an open source identity selector for SUSE Linux Enterprise that will allow Linux and other non-Windows users to use their choice of identity selectors to browse and authenticate against a Windows backend. The open source identity selector will provide functionality similar to that of Windows CardSpace* (Microsoft's cross-environment identity system), but built on open, standard WS-* protocols. CardSpace securely stores a user's digital identities and provides a unified interface for choosing the identity for a particular transaction, such as logging in to a Web site. Linux implementation by Novell will be fully interoperable with CardSpace, and will be made available in Java*, C++ and C# versions, as well as provide a browser plug-in to Firefox.

In addition to incorporating the new identity selector with Novell Access Manager 3.1,

Novell is providing a reference implementation which will be submitted to the open source community based on the WS-I specification referenced under Microsoft's Open Specification Promise (OSP). The Bandit™ project (www.bandit-project.org) provides a thin IDP and WS-Trust functionality to allow an enterprise to "test the identity waters." This work extends CardSpace to multiple platforms and advances it as a viable method of identity in heterogeneous environments.

Office Document Formats

The TCA also addresses the need to improve the current state of interoperability between office productivity applications. To this end, Novell is cooperating with Microsoft and others on a project to create bi-directional open source translators for sharing word processing, spreadsheet and presentation documents between OpenOffice.org and Microsoft Office.

Current Status—To facilitate conversion between Microsoft Office's ECMA-compliant Open XML format and the open source, ISO-standardized OpenDocument formats used by SUSE Linux Enterprise, the open source community is developing translator plug-ins for OpenOffice.org Novell edition and for several versions of Microsoft Office. The translators have been completed and are now available for use. Novell will release the code to integrate the Open XML format into its products as open source, and will submit it for inclusion in the OpenOffice.org project. As a result, end users will be able to more easily share files between Microsoft Office and OpenOffice.org, and their documents will better maintain consistent formats, formulas and style templates. Users can download the latest version of the translators for OpenOffice.org Novell edition at <http://download.novell.com>. The open source Open XML/ODF Translator project can be viewed at: <http://sourceforge.net/projects/odf-converter>

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Moonlight™

Moonlight is an open source implementation of Silverlight*, Microsoft's new browser plug-in for viewing rich media Web applications. Moonlight will give Linux users and developers the same multimedia experience as those who use Silverlight on Windows and Apple* systems. The project is currently in development using Mono®, the open source implementation of Microsoft's .NET architecture. The project site can be found at: www.mono-project.com/Moonlight

Accessibility Frameworks for the Disabled

Finally, Novell and Microsoft are collaborating to develop an adapter that allows Microsoft's User Interface Automation (UIA) specification to work well with existing Linux accessibility projects and complement the investments made by Sun Microsystems, IBM Corp., and others. To promote interoperability between leading accessibility frameworks in the market, Novell work will be open source and will make the UIA framework cross-platform.

Real Commitments, Real Resources

Collaborative development is all well and good, but bet-the-farm interoperability can only be guaranteed by rigorous, sustained testing under the full range of real-life operating conditions. To ensure that our deliveries live up to our promises, Novell and Microsoft have invested in a substantial interoperability laboratory—the only such facility co-operated by Microsoft and any open source developer. Both organizations have contributed significant resources—human, technical and financial—to ensure that our products will perform predictably together in any business environment.

The Novell–Microsoft Interoperability Lab

Located in Cambridge, Massachusetts, the Novell–Microsoft interoperability lab first

powered up in September 2007. The 2,500 square-foot lab and workspace houses a combined team of the best and brightest software engineers from both organizations, and is a core resource for product engineering teams worldwide. Test facilities include more than 80 servers of varying architectures using Intel* dual-core and quad-core Xeon* processors and AMD* dual-core Opteron* chips, as well as a multi-terabyte Fibre Channel SAN array from HP.

The lab's first focus is evaluating the joint Novell–Microsoft virtualization solution. Lab staff is actively testing Windows Server 2008 running as a virtual machine on SUSE Linux Enterprise as well as SUSE Linux Enterprise running in a virtual machine on Windows Server 2008 Hyper-V. Assessment tools include the Windows Server 2008 stress tests included in the Windows certification suite (WHQL). These formal test sequences don't provide the staff's only insights into virtualization solution performance: all the lab's own IT services, including DHCP, DNS, PXE are running virtualized on Microsoft Windows Server and SUSE Linux Enterprise.

Additional priorities for the lab include standards-based systems management, identity federation and compatibility of office document formats. In the long term, Novell and Microsoft hope to involve other vendors and technologies, making the lab an industry resource that fully reflects the current heterogeneous IT environments and interoperability challenges facing enterprise customers today.

A Platform Primed for Windows Interoperability

While the entire SUSE Linux Enterprise platform has been designed and engineered with interoperability in mind, certain core components have been specifically optimized for Windows–Linux interoperability.

- **SUSE Linux Enterprise Server.** *SUSE Linux Enterprise Server, the best platform*

for mission-critical workloads in your data center, includes the Xen hypervisor, an open source virtual machine (VM) monitor that coordinates low-level interactions between virtual machines and physical hardware. When you run your physical server on the latest x86-based processors from Intel (Intel VT) or AMD (AMD-V), you can take advantage of the benefits of Xen 3, which supports both paravirtualized and fully virtualized VMs.

- **SUSE Linux Enterprise Virtual Machine Driver Pack.** *This paravirtualized driver pack strengthens connectivity between guest operating systems and the underlying hypervisor. It uses additional channels of communication that improve performance and allow virtualized guests, such as Windows, to achieve powerful, near-native performance levels.*
- **SUSE Linux Enterprise Desktop.** *SUSE Linux Enterprise Desktop is the market's only enterprise-quality Linux desktop that's ready for routine business use. Developed and backed by Novell, SUSE Linux Enterprise Desktop provides market-leading usability, seamless interoperability with existing enterprise systems, and dozens of essential office applications. It also delivers unparalleled levels of flexibility for desktop clients. You can deploy it as a general-purpose desktop, as a high-end engineering workstation, and more. With SUSE Linux Enterprise Desktop, your business can dramatically reduce costs, improve end-user security and increase workforce productivity.*

Linux–Windows Interoperability Delivers Bankable Benefits

With its Microsoft partnership, Novell has established clear leadership among Linux and open source providers for interoperability in mixed source environments. Microsoft officially recommends SUSE Linux Enterprise as its preferred and recommended Linux distribution, clearly differentiating the unique value

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proposition of Novell and SUSE Linux Enterprise for organizations seeking greater efficiency, flexibility, scalability and economy in their IT environments. Our jointly developed solutions support your efforts to drive operational improvements by:

- *Reducing complexity and simplifying the management of your mixed Linux–Windows deployments*
- *Increasing your productivity by reducing routine maintenance and freeing up resources for projects that drive revenue and add value*
- *Enhancing your flexibility in workload provisioning*
- *Improving your technical support by eliminating questions of vendor responsibility*
- *Lowering costs so you can do more with the hardware and software you already have.*

The Sweet Spot: Target Workloads for Windows Virtualization

Many organizations will find that the greatest immediate value opportunity of Linux–Windows interoperability lies in the ability to virtualize Windows workloads on SUSE Linux Enterprise, using the Xen hypervisor and virtual machine drivers that have been jointly developed by Microsoft and Novell. Currently, Novell is the only vendor endorsed by Microsoft as a supported configuration. More importantly, when customers with virtualized Windows workloads running on SUSE Linux Enterprise call Microsoft for support, Microsoft is committed to provide it. It's a comprehensive support arrangement that is unique to the partnership, and a major benefit to our joint customers.

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The higher support level that Microsoft provides to mixed Windows–SUSE Linux Enterprise environments is a unique benefit of the Novell–Microsoft agreement.

Novell is the only partner for non-Microsoft hardware virtualization.

Novell currently offers virtual machine drivers that enable Windows 2000, and Windows Server 2003 to run as guest operating systems on a Xen hypervisor. And with the availability of Windows Server 2008, our interoperability has been extended to that new platform. When considering which Windows workloads might be targeted for virtualization on SUSE Linux Enterprise, we suggest you prioritize the following services and applications.

Stranded Applications

- *Smaller or legacy applications on dedicated servers*
- *Applications that run in a batch process and are often idle*
- *Duplicate applications that run on dedicated hardware*
- *Vertical applications running on unsupported Windows releases. Many of these will be niche applications that have not been migrated off old hardware. Imagine moving four or more stranded Windows 2000 applications onto one new server.*

Targeted Microsoft Workloads

All Microsoft software is covered except:

- *Microsoft SharePoint Server Portal*
- *Microsoft Speech Server*
- *Microsoft ISA Server 2000 & 2004*
- *Microsoft Identity Integration Server 2003*
- *Microsoft Identity Integration Feature Pack*
- *Microsoft Identity Lifecycle Manager 2007*
- *Microsoft Forefront Client Security*
- *Microsoft Dynamics AX Dynamics*

Target Microsoft Operating Systems

- *Windows 2000*
- *Windows 2003*
- *Windows Server 2008*

Customers currently using Windows 2000 and 2003 can virtualize these operating systems on SUSE Linux Enterprise and receive joint support from Microsoft providing they have a Premier-level support agreement with Microsoft. If those requirements are met, Microsoft has agreed to the following level of technical support.

Microsoft will jointly support certain non-Microsoft hardware virtualization software from vendors with which Microsoft has established a support relationship that covers virtualization solutions. This joint support will include coordinating with the vendor to investigate support issues. Where issues are confirmed to be unrelated to the non-Microsoft hardware virtualization software, Microsoft will support its software in a manner that is consistent with support provided when that software is not running together with non-Microsoft hardware virtualization software. Novell is the only partner for non-Microsoft hardware virtualization.

The distinctive element of this support agreement is that Microsoft will provide the same level of support for virtualized Windows workloads running on SUSE Linux Enterprise as they would for applications running natively on Windows and a dedicated server. If instead, the virtualization platform were from Red Hat*, VMware*, Citrix*/XenSource* or any other vendor, Microsoft would provide a much lower level of support, using “commercially reasonable” efforts to investigate potential issues between the application and non-Microsoft virtualization layer. In such cases, Microsoft often requires the issue to be reproduced independently

from the non-Microsoft hardware virtualization software.

The higher support level that Microsoft provides to mixed Windows–SUSE Linux Enterprise environments is a unique benefit of the Novell–Microsoft interoperability agreement that represents differentiating value for customers who plan to deploy cross-platform virtualization technologies.

Beyond Microsoft: Directory, Identity and UNIX Integration

Beyond our partnership with Microsoft, SUSE Linux Enterprise has been designed with today's heterogeneous data center in mind, leveraging Samba technology to seamlessly integrate with and support existing Windows file and print environments. It plugs smoothly into existing directory and domain infrastructures, including Microsoft Active Directory and Domains, Novell eDirectory and openLDAP. With its broad use of open standards, SUSE Linux Enterprise enables you to share information across any IT system so that you can easily communicate between business divisions or business partners.

On the UNIX side of the data center, Novell and SUSE Linux Enterprise have significant shared heritage. Novell owns UnixWare, one of the earliest commercial versions of UNIX and remains the owner of the copyright for UNIX. Linux and UNIX are both open systems, which means both adhere to open standards for interoperability purposes. The most important open standard in this space is the POSIX family of specifications for UNIX-compatible APIs. Because SUSE Linux Enterprise, like all current UNIX versions, is POSIX-compliant, there is inherent interoperability between the platforms. Examples include lazy-mount and unmount capabilities that reduce the number of simultaneous

mounts per client, and the sharing of maps with Solaris*, HP/UX*, IBM AIX* and other UNIX systems.

Any-architecture Hardware Support

Successful interoperability isn't just about software integration. SUSE Linux Enterprise is also supported by all leading hardware vendors. Whether you want to run SUSE Linux Enterprise on servers, clients, single-processor whitebox systems, blades or the largest mainframes Novell has you covered. SUSE Linux Enterprise is fully certified on the latest servers, workstations, desktops and laptops from IBM, Dell, Fujitsu, HP, Lenovo, Silicon Graphics, Sun, Unisys and others.

Novell also works closely with Intel, AMD and IBM to ensure that SUSE Linux Enterprise runs on the widest array of chipsets on the market, including:

- AMD64
- IBM Power* (IBM System i and IBM System p)
- IBM System z* (64-bit)
- Intel64
- Itanium* Processor Family (Itanium II or newer)
- x86

Novell engineering teams collaborate closely with their peers at our hardware partners to ensure that SUSE Linux Enterprise supports most new hardware features and functions at launch.

Examples of customer and community benefits flowing from this collaboration include:

- *Novell collaboration with Intel to support the latest platform technologies in SUSE Linux Enterprise Server/SUSE Linux Enterprise*

Novell engineering teams collaborate closely with their peers at our hardware partners to ensure that SUSE Linux Enterprise supports most new hardware features and functions at launch. While much of this work is open sourced and thus available to the community, it gives SUSE Linux Enterprise users a distinct advantage over competitors using other Linux distributions—the ability to immediately deploy new, highest-performance hardware as soon as it becomes available.

Novell interoperability work with Microsoft is an industry innovation that is funding millions of dollars in open source engineering and development, and driving new Linux adoption that benefits the entire community.

Desktop. This includes support for CPUs, chipsets, BIOS, Power management, ACPI and network traffic handling.

- *Ongoing work with Intel to ensure constant improvement in power management that not only improve Novell products, but the Linux kernel.*
- *At-launch support for AMD-V chipsets in SUSE Linux Enterprise 10, the first operating system to fully exploit the virtualization enhancements in this chip. SUSE Linux Enterprise customers were able to leverage all AMD-V functionality more than six months earlier than other operating system users.*
- *At-launch support in SUSE Linux Enterprise SP1 for rapid virtualization indexing on AMD's Barcelona chip. No other operating system had this capability.*
- *Advance development with IBM to prepare SUSE Linux Enterprise for new System z enhancements. As an example, Novell received IBM patches for the 2.6.16 Kernel (the SLES 10 Version) to enable new machines features.*
- *Collaboration with IBM to improve system administration support for System z hardware in SUSE Linux Enterprise that has enabled significantly greater functionality than any other Linux distribution.*

These partnerships ensure that users can deploy SUSE Linux Enterprise on any hardware platform, from the desktop to the data center, with complete confidence that their services and applications will fully leverage the features, capabilities and performance of the hardware investment.

An Open Approach to Interoperability

Even if the Novell partnership with Microsoft is in place for some time now, some misperception still persists regarding the partnership. The fact is that there was only one motivation for this partnership: to provide the Windows

interoperability that enterprise Linux customers were asking for. In a recent IDC study of Linux users, 40 percent of all respondents claimed Windows interoperability as their largest obstacle to deploying Linux.

Novell remains committed to open source standards, organizations and community-based development, but customers need interoperability today. Our work with Microsoft is designed to bridge the gap between open source and proprietary software business models in the only way possible—direct collaboration. In working with Microsoft, Novell is not only improving its own products, we are creating new open standards that are available to all other vendors and developers. Consider just a few examples:

- *Much of the work related to bi-directional virtualization adapters will be open sourced*
- *An open source implementation of the WS-MAN specification for cross-platform management tools*
- *Identity selectors that allow eDirectory and Active Directory to federate*
- *Document format translators that allow seamless document translation between OpenOffice.org and Microsoft's OpenOffice XML document format*
- *Project Moonlight: an open source implementation of Microsoft's Silverlight rich interactive Web services browser, built using the Mono development platform*
- *A new open source project to develop an adapter for handicapped users that allows Microsoft's UIA framework to work with existing Linux accessibility projects sponsored by Sun and IBM.*

Interoperability work by Novell with Microsoft is an industry innovation that is funding millions of dollars in open source engineering and development, and driving new Linux adoption that benefits the entire community.

A Commitment to Collaboration

Novell is unique among software companies in that it has long pursued a hybrid development model—part open source, part proprietary—that directly benefits a broad stakeholder population of customers, channel partners, collaborators and open source community members. Our Open Platforms Solutions business unit delivers commercial open-source solutions based upon our SUSE Linux Enterprise platform. Our other business units—focusing on solutions for Collaboration, Identity and Security Management, and Systems and Resource Management—build enterprise services and solutions that run on and manage a variety of operating systems, including Linux, Windows, UNIX and our NetWare®/Open Enterprise Server product. The common thread that binds these two different development approaches is a commitment to deliver the software our customers need.

SUSE Linux Enterprise: Differentiation through Interoperability

In part because our business model is inherently collaborative, Novell has embraced simple, reliable interoperability as one of the

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most powerful ways to differentiate our software products in the enterprise marketplace. SUSE Linux Enterprise is the most interoperable platform for enterprise computing, from the desktop to the data center. It offers a complete open source platform that works seamlessly across hardware architectures and is the only Linux operating system that has been optimized to work with Microsoft Windows. From bi-directional virtualization to standards-based systems management to directory synchronization, interoperability is an intrinsic and differentiated capability that been built into the fabric of the SUSE Linux Enterprise platform.

Our Open Platforms Solutions business unit delivers commercial open-source solutions based upon our SUSE Linux Enterprise platform. Our other business units—focusing on solutions for Collaboration, Identity and Security Management, and Systems and Resource Management—build enterprise services and solutions that run on and manage a variety of operating systems

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