

Make the Move from UNIX* to Linux*: Now is the Time

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Executive Summary

According to Gartner, Linux has entered its third generation, becoming a recognized data center operating system that provides a highly reliable platform for mission-critical applications and databases. Gartner forecasts a 2009 Linux server solution market of \$10.5 billion, of which at least 20 percent will comprise these mission-critical deployments.

Open-Source Software in the Server OS Market, 2008: The State of Linux
Gartner, March 2008, #G00155237

For the past 15 years, UNIX* has established a history of solid reliability in the data center. It typically runs mission-critical applications, including back-end databases, and it has a reputation for good performance, high reliability, proven scalability and trustworthy security. But these benefits come at a high total cost of ownership (TCO). UNIX generally requires expensive proprietary software and hardware, as well as budget-draining annual maintenance costs. These expenses are a key factor in recent, widespread migrations to other platforms—in particular, Linux*.

Today's IT professionals are making strategic investments in Linux, preferring its open architecture and low cost to the proprietary—and very expensive—UNIX platform. As an IT manager, you will find that migrating to Linux offers several opportunities for optimizing your data center and controlling costs. You should give Linux serious consideration, especially if you:

- *Need to replace aging and expensive proprietary hardware*
- *Are looking for a flexible operating system that works well with your other systems*
- *Are seeking to consolidate applications or systems to reduce TCO*
- *Want to deploy or upgrade applications without relying on UNIX or RISC-based hardware that may not be supported in the future*
- *Have a UNIX maintenance contract that is expiring soon*
- *Are tired of being locked into a single vendor*

Linux elevates enterprise computing: you get the power, reliability and scalability of UNIX, but you pay up to 75 percent less for it.

You get a system that supports your entire infrastructure, works with thousands of applications and is the focus of developer efforts worldwide. And you get a flexible, interoperable, highly manageable platform that serves your full computing needs—while you benefit from a robust and growing ecosystem of applications and support to meet your IT and business goals for years to come.

Linux: Better Performance, Greater Savings

As you plan your move to Linux, its flexibility gives you many deployment options. You can start slowly at the edge of your enterprise, migrating basic infrastructure services like Web serving and DNS/DHCP. Or, you can plunge in and deploy Linux to run enterprise applications and host databases just as thousands of companies already do. Whatever your choice, Linux is equal to the task.

You want a server platform that can do it all: run your infrastructure services, support enterprise applications and host the databases at the heart of your organization. What's more, you need a platform you can count on—one synonymous with reliability and security—that doesn't decimate your budget. A decade ago, you might have chosen UNIX. Now, UNIX is showing its age. Older UNIX systems cannot run the latest generation of IT services without significant—and expensive—upgrades to proprietary hardware and software. Moreover, ongoing UNIX maintenance costs crowd out your ability to invest in innovation and new services. Thousands of organizations are now rejecting these upgrade and maintenance costs in favor of modern and cost-effective Linux with x86-based servers.

Why Linux? Its performance, security, scalability, reliability and usability are rapidly establishing Linux as the operating system of choice for enterprise deployments. As Gartner noted, Linux has reached its third generation, and is scalable and reliable enough for workloads that have traditionally been relegated to proprietary UNIX hardware and software.¹ Gartner further observed, “Linux is growing rapidly as the database management system (DBMS) platform of choice.”² And the consulting firm REALTECH noted, “There is no doubt that the movement towards Linux in SAP data centers is gaining momentum fast. The stability and readiness [of Linux] for business-critical applications are [already] assumed.”³

Linux also delivers new options for lowering costs. Instead of pouring more money into expensive, proprietary UNIX servers, Linux allows you to move mission-critical workloads to much less costly—but extremely powerful—Intel* and AMD* processor-based servers, including 64-bit single- and multi-core architectures. In fact, by linking x86 processors together through powerful virtualization software, you can build systems that are much more powerful than UNIX at a lower cost. If you’re still running UNIX, it’s time to look at what Linux can deliver to your organization.

When it comes to Linux, the choice of vendor matters. Novell® offers the Linux server operating system proven in the most demanding data center environments. SUSE® Linux Enterprise Server features the most advanced and mature Linux technology available to support the mission-critical services, applications and databases that drive your business. It delivers the reliability, performance, scalability and usability you expect from traditional UNIX, at a fraction of the cost. And Novell and our partners enable low-risk migration from UNIX to Linux, with a variety of migration paths and porting and support services.

What’s more, SUSE Linux Enterprise Server is backed by a global, enterprise-class ecosystem that includes technical support,

consulting services, training, certification and an extensive partner network. If you are considering migrating from UNIX to enterprise-class Linux, there’s no better choice than Novell.

Flexibility and Options

As an open source technology, Linux gives you considerable flexibility in implementing solutions that best meet your specific requirements. Linux works with thousands of applications and is the focus of developer efforts worldwide. Best of all, you get this flexibility and interoperability while lowering your costs and gaining independence from vendor lock-in.

The Linux Value Proposition

Linux delivers significant benefits—ranging from affordable hardware and software, to proven and affordable virtualization options, to interoperability, openness and vendor independence. For many UNIX users, moving to Linux is a logical choice:

- *As Linux is open source and community-driven, it offers a clear and open technology road map.*
- *Linux is reliable, secure and stable, and provides enterprise-class scalability and performance—capabilities required to run mission-critical data center workloads.*
- *The similarities between the UNIX and Linux operating environments simplify application migration and IT staff training.*
- *Linux receives the support of a large open source community that is committed to the security and viability of the platform. UNIX customers often wait weeks or months for their vendors to provide support packs or security patches for bug fixes. With Linux, you might wait only a few days—or even hours.*
- *The number of independent hardware vendors (IHVs) and independent software vendors (ISVs) supporting Linux has grown dramatically. Hardware vendors supporting Linux include IBM, HP, Dell, Fujitsu / Fujitsu*



“The cost savings with SUSE Linux Enterprise Server have been great, but being able to avoid seeing our systems approach red-line conditions is priceless. We are getting unbeatable performance on lower-cost hardware, and we are well prepared for the next rounds of market volume increases.”

Norbert Thier

Manager of Server Systems
Susquehanna International Group

Read the whole story at:
www.novell.com/success/sig.html

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- 1 Gartner report G00152086, “What is Third-Generation Linux,” October 2007.
 - 2 Gartner, “Does Unix Have a Future?,” Gartner Annual Data Center Conference, November 2007.
 - 3 REALTECH white paper, “The Trend from UNIX to Linux in SAP Data Centers,” April 2008.

Linux is powerful, secure and reliable, and it is quickly becoming the operating system of choice for enterprise deployments. Companies start by implementing Linux for general infrastructure roles—such as Web serving and DNS/DHCP—and then move it to the core of the enterprise, where it supports mission-critical applications and databases in the data center.



“Historically, Linux was often used in the lighter-weight infrastructure software segment—such as file/print, office productivity applications, and Web servers. Increasingly, Forrester’s clients are deploying Linux to handle the heavy-lifting tasks of the high performance technical computing (HPTC) and mission-critical business applications from vendors like SAP and Oracle. Leading independent software vendors (ISVs), server systems vendors, and professional services are optimizing their Linux solutions for more complex line-of-business, mission-critical environments.”

Why Choose Linux On A Mainframe?
Forrester Research,
January 17, 2007

- Although it's difficult to predict exact cost reductions that will result from a UNIX to Linux move, x86 machines or clusters can cost up to 75 percent less than RISC-based UNIX systems with equivalent performance. Linux also slashes hardware maintenance costs. Annual maintenance for industry-standard x86 systems can be 90 percent less than the maintenance for the older UNIX hardware. Finally, annual software maintenance fees for Linux operating systems are often 60 percent or more below the cost of UNIX operating system maintenance fees.

Siemens, Sun, Unisys, SGI and many others. Software vendors include BMC Software, IBM Software Group, McAfee, Oracle, SAP, Software AG, Symantec/Veritas and many others.

- Linux provides you with a wide choice of hardware vendors and Linux distributors. Although UNIX is marketed as an open system, the reality is that you are usually tied to a particular hardware vendor. In contrast, Linux is truly an open and hardware-agnostic environment that runs on numerous processor architectures.

Enterprise Deployments

Considerable savings are compelling many organizations to move from UNIX to Linux. Most of these organizations complete their migrations during major IT milestones, switching platforms as they upgrade hardware or key software, or when they renew maintenance. So, how exactly are these businesses using Linux? Just as they used UNIX—to support infrastructure services, enterprise applications and mission-critical databases throughout the organization.

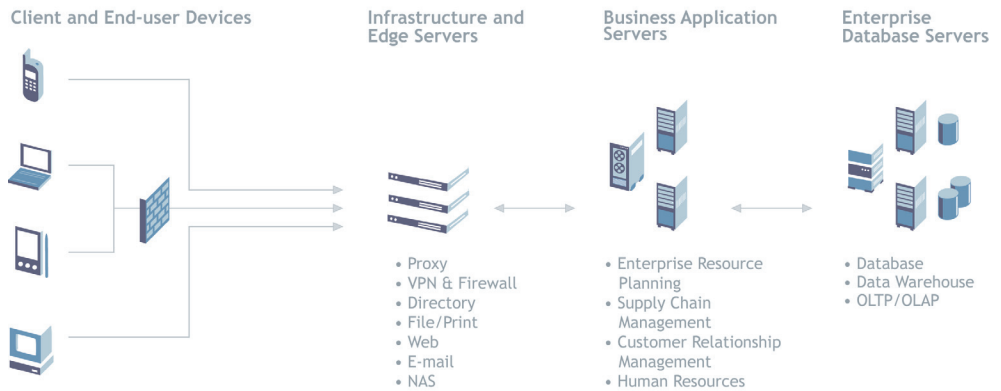


Figure 1. Linux deployment in the enterprise

Edge Computing and Infrastructure Services

Your business depends on its “edge” servers, the ones that connect users to the Web, e-mail, storage, files, printers and other key infrastructure services. If your company—like many others—originally deployed these services on UNIX, it may be time for a change. Savvy IT professionals are rapidly moving to Linux for edge computing and infrastructure workloads. Linux delivers a significant cost advantage over UNIX. It has become the reference platform for many commercial databases and is the current focus of widespread developer efforts. Linux is also compatible with thousands of existing applications and brings security, reliability and affordability to edge computing. Linux supports numerous infrastructure services and workloads, including the following:

- *Web servers*
- *Firewall*
- *DNS*
- *DHCP*
- *File/print*
- *Mail*
- *Proxy*
- *Caching*
- *VPN*
- *WAP*
- *VoIP gateway*
- *Directory*
- *Security*
- *Load balancing*
- *NAS*

By migrating to Linux, you can deliver the same set of Web and edge services to your end users, with the same levels of performance, reliability, scalability and security—but at much lower levels of annual investment. Savings of up to 75 percent for hardware, maintenance and software expenses are not uncommon. Linux can be deployed on the major enterprise hardware architectures, including x86 machines, clusters, grid environments and mainframes.

For new edge deployments, or IT initiatives, Linux is often the preferred platform. If you are still running your edge servers and infrastructure workloads on UNIX, you should consider switching to Linux. You'll be able to replace your expensive UNIX machines and infrastructure with a strong, enterprise-class operating system that delivers reliability, scalability and security—and saves you money.

Enterprise Applications

Mission-critical applications factor heavily in your organization's day-to-day operations and overall success. These include applications for enterprise resource management, supply chain management, customer relationship management, other line-of-business applications and proprietary internal systems. In most cases, you can now deploy these same applications on Linux across a variety of processor architectures using both “scale-out” and “scale-up” approaches.

By switching to Linux, you'll be able to transition your IT infrastructure from expensive, closed architectures to lower-cost, industry-standard servers. You'll save anywhere from thousands of dollars to potentially millions of dollars annually. Today, Linux is supported for numerous large-scale applications, such as those of commercial database vendors—including Oracle and IBM—and critical corporate applications like SAP*. For many vendors, Linux has become the reference platform for database development; this means that new applications are developed first for Linux and then ported to other platforms.

It's no surprise that because of the expenses associated with maintaining UNIX deployments, IT directors everywhere are adopting Linux for enterprise application loads. By migrating their application infrastructure to Linux systems, they can achieve the same levels of performance and reliability with much lower levels of annual investment.



“We had more than 10 years of experience with UNIX, so moving to Linux was a logical step. The transition was relatively easy, since our employees could use their existing skills with very little re-training required.”

Matthias Heidegger

Head of Data Center
FRITZ EGGER GmbH & Co.
(This project was the world's largest SAP implementation on x86 Linux.)

Read the whole story at:
www.novell.com/success/fritzegger.html



“Linux gives us a reliable platform for business software. As a data center provider, customers depend on us to deliver high performance solutions. We can implement solutions faster and at a lower cost with SUSE Linux Enterprise Server than we could with UNIX.”

Michael Gebauer

Solution Architect
Siemens IT Solutions and Services

Read the whole story at:
www.novell.com/success/siemens.html

More than 2,500 applications—from leading ISVs as well as the open source community—are certified to run on SUSE Linux Enterprise Server.

Here are just a few of the vendors and product lines supported:

- Arkeia
- BEA
- BMC Software
- Computer Associates
- Egenera
- IBM Cognos
- IBM Lotus
- IBM Tivoli
- IBM WebSphere
- Legato
- Lutris
- Metrowerks
- MySQL
- Oracle
- PolyServe
- Progress Software
- Quadratec
- SAP
- SAS
- Sendmail
- Software AG
- SteelEye
- SugarCRM
- Sybase
- Symantec/Veritas
- Teamware
- TIBCO
- Trend Micro
- VMware

	2008	2009	2010	2011	2008–2011 CAGR
Linux	1.55 million	1.71 million	1.86 million	2.01 million	9.0%
UNIX	0.54 million	0.49 million	0.48 million	0.47 million	–4.5%

Figure 2. Worldwide server operating environments—paid new license shipments / subscriptions (Source: Worldwide Client and Server Operating Environments 2008–2012 Forecast: The Era of Hypervisor-Induced Transitions, IDC report 211564, April 2008).

In many cases, moving to Linux is not a major project because several ISVs that provide applications on UNIX also deliver Linux versions of their applications. For specialized in-house or heavily customized applications, the similarity of Linux to UNIX helps to reduce the complexity of application porting or migration. And in today’s market, there are many skilled consultants who can work with you to move your applications to Linux.

Many companies are now considering a refresh of their enterprise resource planning (ERP) systems, since the last wave of major upgrades took place in 1999 and 2000. If you’re considering an upgrade, it is also a good time to examine the underlying operating system for your ERP applications. By moving to Linux, you can save significant expenditures on both software and hardware—helping you achieve budget reduction goals or redeploy spending to high-value projects that enable growth and competitive advantage. Figure 2 demonstrates the continuing growth of Linux and decline of UNIX.

SAP customers can even receive integrated support for both SAP applications and SUSE Linux Enterprise Server directly from SAP. Through a strategic partnership with Novell, SAP officially recommends SUSE Linux Enterprise Server as a preferred platform for customers who want to deploy SAP applications on Linux.

Mission-critical Relational Databases

Relational databases sit at the heart of every enterprise, providing mission-critical data that drives the business. Naturally, your IT department deploys enterprise databases on the most powerful servers and most robust

operating systems. It’s no surprise, then, that data serving consumes a significant portion of your IT budget and resources.

Historically, enterprise databases have been deployed on UNIX, OS/2* and Windows*. Now, Linux delivers the same—or better—reliability, performance, scalability and manageability at a fraction of the cost.

With the maturation of Linux into an enterprise-class operating system, IT executives now have a choice for database deployments. Linux is supported by major commercial database vendors, including Oracle and IBM. In situations where a commercial database is not required, robust open source alternatives, such as MySQL and PostgreSQL, are also available on Linux.

In fact, as Linux has grown in enterprise deployments, new database releases are now being developed first for Linux and then ported to other platforms. Because of the substantial costs associated with maintaining UNIX hardware and software, IT organizations worldwide are adopting Linux for enterprise database workloads.

The Benefits of Linux

When you migrate your workloads from UNIX to Linux, you’ll experience dramatic benefits:

- **Better performance at lower cost.** *Linux runs on five different processor architectures—including commodity x86-based servers—all of which offer better price to performance ratios than UNIX on older RISC-based systems.*
- **Lower lifecycle costs.** *With Linux, there’s no need to pay UNIX-level hardware*

maintenance, and you can add or subtract servers as needed. There's also a lower purchase cost of hardware and software (up to 80 percent lower on Linux).

- **Better utilization of assets through virtualization.** *You can easily virtualize Linux servers and move them to where they are needed, eliminating stranded capacity and over-provisioning. You can also run virtualized Windows and other guests at near-native performance on the same Linux host.*
- **Improved operational efficiency.** *With Linux, you have one place to install and manage software and only one set of file systems to back up.*
- **Vendor independence.** *With Linux, you choose from numerous hardware and OS vendors and are not locked into a single choice over time.*

By moving from UNIX to Linux, organizations have seen savings of up to 80 percent in their hardware acquisition and maintenance costs, and up to 90 percent on software costs. When migrating from UNIX to SUSE Linux Enterprise Server, customers typically realize a 20 to 40 percent reduction in total costs—including all migration costs—over a period of three years. At the same time, they gain the flexibility and freedom of an open system, as well as the increased manageability of a system that's designed for interoperability with Windows and offers a wide range of certified hardware platforms and software applications.

If these savings and benefits appeal to you, free yourself from proprietary UNIX and move to the greater value of Linux.

Novell: The Right Choice for Linux

However you choose to deploy Linux in your enterprise, you need a Linux distribution—and vendor—you can rely on. The ideal vendor will deliver all of the following:

- *An enterprise-ready Linux distribution that supports complex high-end applications,*

With hundreds of talented engineers, Novell contributes heavily to key open source projects, including the Linux kernel, Linux-HA (High Availability Linux) and Xen.

with reliability and performance equal to or greater than UNIX

- *A scalable operating system that is flexible, easy to use, and interoperates with your existing heterogeneous infrastructure*
- *Value-added software and tools to simplify Linux deployment and management for a quick, trouble-free migration*
- *A comprehensive support ecosystem—including technical support, consulting, training, certification and partnerships—to support you before, during and after migration*

Novell best meets these criteria, combining the world's most advanced Linux technology with more than 20 years' experience in enterprise software, support and services. SUSE Linux Enterprise Server from Novell is the Linux distribution of choice for enterprise data center computing. Thousands of applications run on it because it provides a foundation for secure, reliable and cost-effective computing. For all of these reasons—and a vibrant services ecosystem—Novell is the clear choice to help you reap the benefits of open source computing and expand your use of Linux.

Enterprise-ready Linux

SUSE Linux Enterprise Server is an enterprise-quality server designed to handle mission-critical workloads in the data center. It offers an open, scalable, high-performance platform that comes with application security, virtualization and integrated systems management across a full range of hardware architectures. Supported and certified by the world's leading hardware and software vendors, SUSE Linux Enterprise Server is backed by award-winning

Supported Hardware:

- AMD
- Dell
- EMC
- Fujitsu and Fujitsu Siemens
- HP
- IBM
- Intel
- Network Appliance
- SGI
- Sun
- Unisys

Supported Processor Architectures:

- AMD64
- IBM POWER
- IBM S/390
- IBM System z
- Intel Itanium
- Intel 64
- x86

Supported Databases:

- IBM DB2
- MySQL
- Oracle8
- Oracle9i
- Oracle 10g
- Oracle RAC
- PostgreSQL

Supported Cluster

File Systems:

- OCFS 2
- PolyServe
- Veritas

To see if your applications already run on
SUSE Linux Enterprise Server, visit:
www.novell.com/partnerguid



“With SUSE Linux Enterprise, we have reduced our IT maintenance workload by 70 percent, and reduced downtime by 90 percent.”

He Jun

Project Manager
ZTE Corporation

Read the whole story at:
www.novell.com/success/zte_corporation.html

4 Ideas International, “HP Proves Linux Reaches New Scale-Up Heights,” December 2007.

5 IDC, “Unix Migration: Market Analysis and End-User Survey Results,” non-published presentation, March 2007.

Novell technical support and a global ecosystem of partners and services.

SUSE Linux Enterprise Server can be deployed as a general-purpose server or can be tailored to run a variety of specialized workloads, and it offers seamless interoperability with your existing data center infrastructure. With SUSE Linux Enterprise Server, your business can dramatically reduce costs while deploying the most secure and reliable data center server available.

With advanced memory management and processor support, Native POSIX Thread Library (NPTL), and advanced I/O capabilities, SUSE Linux Enterprise Server matches UNIX systems in performance and scalability for large-scale server deployments:

- According to HP, “solid performance evidence [indicates] that with almost no tuning, the Linux kernel scales well on systems with 32 cores and beyond running typical commercial workloads, and on systems with 64 cores and beyond running typical HPC [high-performance computing] workloads.”⁴
- It can also be massively scaled out—on specific Itanium systems it scales to 4,096 processors and supports over 10 TB of RAM.
- It supports the latest network-acceleration technologies to gain network performance for I/O-intensive applications (for example, Intel QuickData Technology).

With hundreds of talented open source engineers, Novell contributes heavily to key open source projects, including the Linux kernel, Linux-HA (High Availability Linux, including Heartbeat 2), Xen*, GCC, YaST, Mono®, Samba, the GNOME and KDE

desktops, Novell Evolution™, AppArmor®, Mozilla* and OpenOffice.org.

Interoperability and Flexibility

Almost all data centers have some combination of Linux, UNIX and Windows servers. Each year about 20 percent of the UNIX installed base migrates to Linux, Windows, another UNIX platform or another platform. More than 500,000 UNIX systems are migrated each year, and more than 80 percent of the migrated UNIX systems end up on Linux and Windows.⁵

As an IT director, you want maximum interoperability among your systems. If you migrate your UNIX systems to SUSE Linux Enterprise Server, you receive the benefits of the most robust Linux platform on the market, and you achieve far greater interoperability with your Windows systems.

- **Broad file system support.** *SUSE Linux Enterprise Server is the only Linux operating system that offers broad enterprise support for a number of file systems out of the box—including ext3, ReiserFS v3, XFS and OCFS2. Each of these file systems offers advantages for specific application and workload types, so customers can choose the best system for their specific needs. For example, you can run XFS and ReiserFS with more than 8TB in a single file system. And with the continuing development of robust open source solutions for high availability, hardening of the Linux kernel, maturation of file systems, and Novell working to test, integrate and support all these components in SUSE Linux Enterprise, you can count on even higher levels of flexibility, reliability and availability in the years to come.*
- **Virtualization.** *SUSE Linux Enterprise Server includes integrated Xen virtualization at no extra cost. Managed by your choice of YaST or Novell ZENworks® Virtual Machine Management, Xen supports bidirectional virtualization with Microsoft* Hyper-V, Microsoft Virtual Server 2005 R2, Windows*

Server 2003 R2 and Windows Server 2008. With this interoperability, you can run SUSE Linux Enterprise Server on Windows Server 2008 and Windows Server 2008 on SUSE Linux Enterprise Server—with near-native performance and with full support from both Novell and Microsoft. And while typical servers run at less than 20 percent utilization, Xen virtualization allows you to increase utilization to 50 percent or more, getting far more value from your IT investments without having to purchase an expensive, proprietary virtualization solution.

- **Heterogeneous systems management.** *The use of WS-Management standards provides the interoperability you need to manage mixed environments of SUSE Linux Enterprise Server and Windows. UNIX systems are much more difficult to manage with Windows in a heterogeneous environment—and UNIX doesn't support bidirectional virtualization with Windows.*
- **Directory/identity federation.** *You will benefit from improved identity interoperability and improved access control between Microsoft and Novell products and IT resources managed with either Novell eDirectory™ or Microsoft Active Directory*. Your authorized users can seamlessly access Web-based systems, whether their user accounts principally reside in Novell eDirectory or Microsoft Active Directory.*
- **Committed partnership.** *The Technical Cooperation Agreement⁶ between Novell and Microsoft ensures that SUSE Linux Enterprise Server and Windows solutions will work well together today and in the future. The agreement includes full support for Windows virtualized on SUSE Linux Enterprise Server and vice versa.*

Integrated Security

Today's enterprises are expected to be 24x7 operations. Maximizing uptime can mean the difference between winning and losing business. SUSE Linux Enterprise Server greatly improves the probability that your systems will remain up and running, by providing a multitude of security-related

services, ranging from antivirus programs to network firewalls.

It provides even more with the inclusion of AppArmor, the enterprise-class application security solution. AppArmor protects the operating system and its applications from attacks, malicious applications and viruses. Its advanced toolset largely automates the development of program-specific security, requiring no new IT expertise. So whether an attack originates internally or externally, and whether vulnerabilities are known or unknown, SUSE Linux Enterprise Server with AppArmor provides a simple way to ensure server integrity, reduce administration costs and prevent downtime-related business losses.

High Availability and Clustering

SUSE Linux Enterprise Server is designed for mission-critical use and minimal downtime. With its high availability features, your IT administrators can rely on Hotplug services; change hard disks, processors, and other devices at runtime; and use the administration console to configure clustered-server deployments.

SUSE Linux Enterprise Server also includes a robust High Availability Storage Infrastructure. Traditionally, organizations' need for data-storage management solutions to ensure business continuity was met by proprietary technologies that came at a high price. Today, SUSE Linux Enterprise Server addresses enterprise storage requirements at no additional cost.

SUSE Linux Enterprise Server binds multi-node failover (Heartbeat 2) with a clustered file system (Oracle Cluster File System 2, or OCFS2) and a "cluster aware" volume manager (Enterprise Volume Management System, or EVMS). Together, these integrated components enable you to support business-critical workloads previously reserved for traditional UNIX and mainframe systems. Without this solution, you would have to purchase a number of expensive proprietary



“Our key processes rely on our ability to access our IT systems 24x7, securely and with no glitches. We adopted SUSE Linux Enterprise Server as the platform for our core applications, messaging and intranet services. SUSE Linux Enterprise Server promises high reliability and availability, and the product truly delivers on these promises—we have not had a single second of downtime on the Linux platform.”

Antti Nummiranta

IT Director
Finland Ministry of Defence

Read more at:

www.novell.com/news/press/finlands_ministry_of_defence_taps_novell_for_move_to_linux

⁶ See: www.novell.com/linux2/microsoft/ and www.moreinterop.com/



“We are saving hundreds of thousands, if not millions, of euros on license fees—both at the development stage and when the systems are in operation. SUSE Linux Enterprise Server offers the same enterprise-class stability and performance as other UNIX derivatives, but at lower cost of ownership. No air traffic control center can afford to have system failures, however high the peak traffic becomes. Therefore our requirements for production and development systems focus particularly on the stability and performance of the operating system. SUSE Linux Enterprise Server meets our demanding requirements for both aspects.”

Ralf Heidger

Head of SHIT,
PHOENIX Development
DFS Deutsche Flugsicherung GmbH
(German Air Traffic Control)

Read the whole story at:
www.novell.com/success/dfs.html

components, and then integrate them in such a way as to prevent conflicting administration operations from affecting shared storage.

The High Availability Storage Infrastructure has also been validated by SAP LinuxLabs as a multinode high availability solution for SAP applications. In other words, it's a proven, robust, enterprise-class solution that offers tremendous value without adding any cost—something that no UNIX vendor or competing Linux vendor can provide.

SUSE Linux Enterprise Server is the only enterprise-class Linux server to:

- *Ship a fully integrated, multinode, high availability solution at no extra cost. Heartbeat v2 is part of SUSE Linux Enterprise Server and supports up to 16 nodes simultaneously (tested case).*
- *Allow the integrated cluster software to be easily installed and configured, using the YaST setup tool.*
- *Provide cluster-aware multipath fault tolerance for a wide variety of industry-standard storage subsystems.*
- *Run Oracle Real Application Clusters (RAC) out of the box, with no need to update the OCFS2 file system—a capability no other vendor can provide.*
- *Offer a proven high-availability stack for SAP applications that has been validated by SAP LinuxLabs.*

Virtualization

SUSE Linux Enterprise Server was the first enterprise-class Linux distribution to support Xen 3—the open source standard for virtualization services—on x86-based architectures. Virtualization on commodity hardware means that you can improve server utilization by increasing the number of applications a server runs and leveraging excess data center capacity at peak times, a technique also called utility computing or “on-demand” computing. You can also free up physical

servers by migrating disparate workloads onto virtual machines, redeploying the liberated server resources to other projects.

Novell has further increased its virtualization advantage over other vendors by supporting an unlimited number of guest operating systems at no extra charge. And there's no requirement for the guest operating systems to match the underlying operating system—unlike competing solutions. You get unmatched flexibility in addition to new opportunities for server consolidation and cost reduction.

Simplified Administration

Novell delivers the best Linux system management capabilities on the market, integrating unique management tools that drive down your cost to deploy, update and manage Linux throughout its lifecycle and address the challenges emerging in today's data center:

- *YaST, the administration, configuration and deployment tool integrated in the SUSE Linux Enterprise platform, is used to configure every aspect of the system. If you are adding users or configuring applications—such as DNS, Apache Web servers, Samba fileshares, or Xen virtual servers—YaST is there to help. Because YaST is an open source solution, many third-party companies have also provided YaST “plug-ins” so that you can easily administer their applications within YaST. For example, SUSE Linux Enterprise Server ships with YaST plug-ins for both SAP and Oracle applications and databases. And if you're familiar with UNIX management, you'll be right at home with the excellent usability of YaST—including its graphical tools for single server management as well as its text console interface for remote accessibility.*
- *AutoYaST is an extension to YaST that automates installation to a large number of machines. AutoYaST saves a tremendous amount of time because installations can*

be performed in parallel and without user intervention.

- *SUSE Linux Enterprise Server seamlessly integrates with Novell Customer Center so that customers and partners can easily manage their subscriptions and support entitlements. This approach ensures uninterrupted access to software updates and security patches.*
- *SUSE Linux Enterprise Server has adopted the common information management (CIM) open standard as a vendor-independent framework for systems management. This allows other CIM-enabled systems management solutions to easily work with SUSE Linux Enterprise Server systems. And with the latest Service Packs for SUSE Linux Enterprise Server, Novell has added even more CIM providers and management user interfaces to improve systems management capabilities and interoperability—further extending its market-leading position in the adoption and promotion of open source CIM management.*
- *As enterprise networks grow, Novell ZENworks Linux Management can be used to augment the YaST tools and provide centralized control of any Linux system in the enterprise. Novell ZENworks Linux Management can provide imaging, remote control, inventory and software management—efficiently managing systems and lowering IT costs.*
- *PlateSpin® Orchestrate provides advanced virtualization management capabilities. The product allows you to manage a group of physical servers—including Linux, UNIX and Windows—and virtual machines in a heterogeneous data center. PlateSpin Orchestrate VM Client is a management interface that you can use to manage the lifecycle of virtual machines in your enterprise, including creating, starting, stopping, migrating and deleting virtual machines.*

Novell is also the only Linux vendor with an array of advanced networking services and cross-platform identity and access

management solutions. These solutions—combined with an integrated service-oriented architecture (SOA) environment—can help you rapidly expand your use of Linux into complex business applications.

Comprehensive Support Ecosystem

Linux gives you the technology advantage, and choosing Novell as your vendor gives you the business advantage. In fact, 80 percent of Fortune 500 companies are Novell customers. With Novell, you have an entire ecosystem of services focused on your success. Novell and our partners provide high-value, low-risk services for Linux today, giving you an edge over competitors:

- **Technical services and support.** *Novell and our partners have the Linux expertise to provide you with the confidence and peace of mind that, should technical issues arise, you are being assisted by the industry's finest. Novell experts are standing by to provide you with the support you need, when you need it—online, on the phone or on site. Novell is the only Linux vendor to receive Support Center Practice (SCP) Certification, an internationally recognized standard developed by the Service and Support Professionals Association and a consortium of IT firms. VARBusiness Report Card ranked Novell as number one in server operating system support, primarily because Novell Technical Support meets more than 99 percent of its service-level agreements and 65 percent of all calls are resolved within five minutes. The award-winning Novell support team has global reach and a proven track record of excellence, including 11 major global support centers, with hundreds of Linux-trained engineers in every region of the world, providing 24x7x365 availability and the highest levels of responsiveness.*
- **Business and IT consulting.** *Novell Consulting® is a team of highly skilled professionals worldwide, each with a mission to ensure you get the maximum*



“The key benefit of running the same operating system on all our machines is that it enables us to realize cost savings, not just in terms of software licensing, but hardware, too. SUSE Linux Enterprise gives us complete independence in our choice of hardware vendor, so we can always buy the best-value machines at any given time. What’s more, Linux offers very high performance on standard x86 processor technology, so we do not need to invest in more expensive proprietary chipsets.”

Norbert Diehl

*Head of IT
MTU Aero Engines*

Read the whole story at:
www.novell.com/success/mtu.html



“The Novell team behind SUSE Linux Enterprise has a strong focus on stability and security, making the platform extremely well-suited to the business environment. It is reassuring for us and for our customers that Novell ships SUSE Linux Enterprise Server with a seven-year warranty. And with SUSE Linux Enterprise, we can complete patches and upgrades in minutes, not the hours typically required by other operating systems.”

Jan Aril Sigvartsen

CEO
WebDeal

Read the whole story at:
www.novell.com/success/webdeal.html

value from your Novell investment. With expertise in Solaris, SCO UNIX, AIX, and HP/UX, Novell Consulting offers a range of world-class implementation services. Novell Consulting is dedicated to helping you minimize implementation time, reduce risk and enjoy rock-solid performance. Our consulting and systems integration partners also deliver proven Linux implementation and migration services, offering you additional choice.

- **Training and certification.** *Novell Training Services prepares you and your technical staff with the education and expertise needed to take advantage of the growing business and career opportunities promised by the increasing adoption of Linux in the enterprise. In addition to the internal training organization, Novell has more than 900 commercial and academic training partners worldwide, who are all ready to offer the latest education on SUSE Linux Enterprise to every level of your organization, from beginners to experts. From customized training to certification, advanced instruction and events, Novell Training Services delivers the full spectrum of training elements that contribute to your continued success.*
- **Extensive partner network.** *Novell has a broad technology partner network with more than 1,300 members who can help you to deploy and manage SUSE Linux Enterprise Server, no matter the size of your organization.*
- **Certified hardware and software.** *Certifications for an operating system are essential for productive and secure operation. Only the complete certification of a solution stack—that is, integrated certifications for hardware, operating systems and software—creates the type of data center security needed to run centralized applications.*

Making the Move: Low Costs, Limitless Possibilities

Linux saves you money, but it does more than that: it opens exciting new opportunities for growth. With the money you save on UNIX systems, you can explore strategic initiatives, fund critical research, or entice talented IT personnel. When you choose SUSE Linux Enterprise Server from Novell, you get the best-engineered Linux from a vendor that can deliver a global ecosystem to support it. You can deploy SUSE Linux Enterprise Server on servers that suit your budget. It doesn't matter if you're running commodity "white boxes," blades, racks, clusters or mainframes. SUSE Linux Enterprise Server supports your choice.

When you choose Novell, you get:

- *The most robust, scalable and powerful Linux platform on the market*
- *A data center solution that fits seamlessly into your existing environment*
- *Value-added software that simplifies deployment and management of your Linux infrastructure*
- *A broad selection of open and closed source software optimized to run on a Linux platform*
- *Technical support available 24x7x365 from hundreds of Linux-trained support technicians worldwide*
- *A consulting organization to support you from design through implementation*
- *Training that can bring your IT staff up to speed on the latest technologies*
- *Thousands of partners who deliver the hardware and software solutions you need*

Moving your infrastructure services, enterprise applications, and essential databases to Linux is now a clear and proven choice.

Novell is here to help in whatever capacity you need, whether it's through enterprise-caliber software, superior support, a broad selection of services or all of the above. You deserve expertise and answers tailored to your company and, above all, you deserve a vendor that will exceed your expectations

and be your partner every step of the way. Novell is that company. Start planning your move to Linux today.

For more information, visit: www.novell.com/linux/unixtolinux

www.novell.com



Contact your local Novell
Solutions Provider, or call
Novell at:

1 800 714 3400 U.S./Canada
1 801 861 1349 Worldwide
1 801 861 8473 Facsimile

Novell, Inc.
404 Wyman Street
Waltham, MA 02451 USA