

DATA CENTER SOLUTIONS

Create an agile infrastructure



Novell.

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Agility

Agility is at the core of every organization's IT infrastructure because only agility lets you embrace change and capitalize on it—not just deal with it. Increase interoperability, achieve simplicity and become more flexible so you can meet the business demands of data centers today and in the future. The possibilities are endless when IT is truly agile. In short, it's making IT work as one.



novell.com/datacenter

Step It Up

The service-driven data center turns your IT infrastructure into a competitive tool by creating a data center that adjusts and reacts to your changing business needs on demand. With the service-driven data center, you can deliver the business services that your end users need, while following key IT processes, guaranteeing performance and maximizing IT infrastructure assets.

As a result, you become the ultimate service provider to your business, helping drive revenue and growth while reducing the cost, complexity and risk inherent in operating a data center.

No matter what challenges you face, we have a solution to help you build, manage and measure your data center. Our Data Center solutions can help you in the following areas:

Enterprise Linux Servers

1. UNIX* to Linux*
2. Mainframe Linux
3. High Availability and Mission-Critical Computing
4. Virtual Machine Guest
5. Real Time Linux

Virtualization and Workload Management

1. Dynamic Virtualization Management
2. Simplified Business Continuity
3. Enterprise Server Consolidation

Business Service Management

1. Mitigate the Risk of Technology Changes
2. Minimize the Risk of Outages
3. Communicate the Value of IT and Manage SLA Compliance
4. Monitor End-User Response Time Performance





ENTERPRISE LINUX SERVERS



Serving up rock-solid reliability. Enterprise Linux Server solutions from Novell combine maximum reliability and performance with the lowest cost of ownership. Our solutions are built on SUSE[®] Linux Enterprise, the most interoperable platform for mission-critical computing across physical and virtual environments.

Recommended by Microsoft and SAP, Enterprise Linux Server solutions offer the proven foundation you need to build a resilient infrastructure. Backed by the services of Novell and our partners, these solutions help you deliver your IT services reliably and responsively at the lowest cost.

**Scenario 1:
UNIX to Linux**

**Scenario 2:
Mainframe Linux**

**Scenario 3:
High Availability and Mission-Critical Computing**

**Scenario 4:
Virtual Machine Guest**

**Scenario 5:
Real Time Linux**

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Scenario 1: UNIX to Linux

You want a server platform that can do it all and do it well: run a variety of enterprise services while lowering costs, increasing flexibility and freedom, and delivering maximum reliability and performance. A decade ago, you might have chosen traditional UNIX, but older UNIX systems can no longer run the latest generation of IT services competitively or cost-effectively. Organizations worldwide are rethinking the cost of UNIX maintenance and upgrades in favor of the open source computing model and Linux. Novell and our partners offer proven services expertise to help you move your applications and workloads to Linux.

Customer Situation

A weather agency in Asia relied on its mixed-platform systems to provide timely and accurate weather information around the clock. The agency's computer systems were complex, consisting of multiple platforms for both weather forecasting and climate prediction.

In recent years, the agency had expanded its services to more customers and regions. As a result, the old communication system had become insufficient to meet the agency's needs. It needed a high-performance infrastructure to ensure data integrity, reduce system administration costs and prevent downtime.

The agency's UNIX infrastructure, consisting of disparate platforms from SCO and two other vendors, also placed a burden on the IT staff. Administration and maintenance costs were high, with IT staff spending a significant amount of time and effort trying to improve system performance.

The Solution

The agency recognized that to streamline its IT operation and improve its service, it needed to move to a more cost-effective, open system. The new system needed to deliver the reliability, performance and scalability of UNIX but with lower total cost of ownership, better interoperability and greater flexibility. The agency evaluated several Linux distributions and ultimately selected Novell as its Linux provider to ensure the stability and performance of its communication system.

Because the migration was a complex process, the agency worked directly with Novell's IT Consulting team to perform a workload inventory, skills assessment and much more. Once the assessment phase of the migration was complete, Novell helped the agency set up a Migration Program Office. This office ensured that the company had the support it needed throughout the migration process. In addition, Novell provided dedicated, on-site engineers and 24x7x365 phone support—so the agency always had access to people knowledgeable about its specific environment.

The agency's new communication system now uses Novell® software to run more than 80 servers. IT staff can easily scale systems as requirements change. And with the unique and open management capabilities of our solution, based on SUSE Linux Enterprise Server, the agency's IT staff can easily install, configure and update Linux servers securely, anywhere on the network, without a drop in service and without downtime.

In conjunction with our partner's hardware, UNIX to Linux migration capabilities from Novell have allowed the agency to run its mission-critical applications without interruption—the first priority in an industry where incorrect decisions can result in lost lives. This combination has also improved the agency's server management strategy. Novell helped the agency automate many data center management tasks, such as maintenance, subscription and support renewals, as well as the provisioning and deprovisioning of virtual machines to adjust to changing workload demands. IT staff members can finally focus on creating new solutions instead of performing routine management functions.

And to ensure the agency could effectively use its new resources, Novell offered Advanced Technical Training™ online. Virtual classroom technology allowed the agency's engineers in diverse locations to attend a single course—Migrating from UNIX to SUSE Linux Enterprise Server. This training allowed for a smooth transition to the agency's new platform.

By migrating its older UNIX environments to a solution based on SUSE Linux Enterprise Server, the agency minimized downtime and increased security and timely access to information. It also reduced its administration costs by 70 percent because the Novell solution uses policy-driven automation to deploy, manage and maintain Linux resources.



"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 Haidekker
Head of Data Center
FRITZ EGGGER GmbH & Co.

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Scenario 2: Mainframe Linux

You hear it every day: We need to contain or reduce data center costs, provide more services and become more agile. IT directors have typically responded to these challenges by adding more hardware to support the required workloads. However, this response leads to an increased cost of ownership (due to low server utilization rates, increased power and space requirements and more system administrators) and increased data center complexity (due to multiple hardware, software and system management solutions). Now you can solve these challenges and run your most important applications on the world's leading mainframe architecture using SUSE Linux Enterprise Server for System z.

Customer Situation

As the financial industry moves from paper-based to electronic transactions, financial institutions are tasked with handling enormous volumes of electronic data. This shift is requiring them to make significant investments in security, network capacity, system performance and storage, which can significantly impact IT budgets.

A major financial institution was weighed down with the costs of managing 500 servers, including 30 Sun Solaris systems with 60 processors, and multiple operating platforms. To keep pace with company growth, the institution was adding servers at the rate of 25 percent per year, and every 20 servers required additional administrative staff. The institution turned to SUSE Linux Enterprise Server running on the System z mainframe to control its expanding and expensive infrastructure.

In addition, as a financial institution with thousands of clients, the company needed to be sure it had a mission-critical solution. It simply could not afford to have downtime. It needed a solution that would ensure uptime and deliver business value.

The Solution

To replace its UNIX environment, the institution chose to partner with Novell and IBM for a solution built on SUSE Linux Enterprise Server for System z. The organization's executives knew they wanted a mainframe environment and decided that SUSE Linux Enterprise Server for System z was the best Linux distribution for the IBM® mainframe. Linux was a viable solution because it gave them the ability to scale across platforms, on mainframes, industry standard servers and more. In addition, Novell has strong relationships with companies such as IBM and SAP, which made the company feel even more confident about implementing this solution.

In its previous environment, the institution had a nearly one-to-one ratio of machines to applications, and yet only a fraction of each machine's processing power was being used. With virtualization, the institution was able to consolidate 30 Sun Solaris servers to five Integrated Facility for Linux (IFL) specialty processors on an IBM System z server. In this system, each IFL was running multiple, virtual instances of SUSE Linux Enterprise Server for System z. The institution also migrated the remaining 500 servers to 60 IBM blade servers. With this solution, the institution was able to consolidate all Sun servers and still have room to grow on the mainframe.

Virtual Linux servers in the five IFLs run all of the institution's mission-critical Web applications for financial services. The institution has more than 500,000 online users and a large percentage of these users visit a Web site twice a month on payday to pay their bills. It was critical for the institution to respond to increased transaction volumes on those days without having to pay for excess capacity.

With fewer physical servers to manage, the institution has dramatically reduced its security risks as well as its IT administration costs. Virtual Linux servers give the IT staff flexibility to respond quickly to business requests, and fewer people are needed to manage physical devices. The institution can now quickly create virtual Linux servers, rather than having to acquire and configure an expensive new server. By standardizing on Linux, the company can grow rapidly without the need for additional IT staff.

By migrating its UNIX environment to SUSE Linux Enterprise Server for System z running on IBM hardware, the institution consolidated its environment by more than 90 percent. It also has reduced its administrative costs by more than 60 percent and reduced software licensing costs by more than 90 percent.

Overall, the institution saved \$1.5 million in operating expenses in its first year and estimates a savings of \$9 million by 2011. Most important, the institution can easily handle business growth and increasing transaction volumes with the ability to set up virtual Linux servers in hours. It is no longer limited by technology; rather, the technology allows the institution to grow while keeping the budget stable or declining.

“Our entire Web environment is running on the IBM mainframe, with SUSE Linux Enterprise Server performing the HTTP and application serving tasks. SUSE Linux Enterprise is the ideal platform for our needs, offering stability, flexibility, scalability and easy management.”

Peter Wesel
Chief Organizer IT
Statistik Austria

“The SUSE Linux Enterprise solution is helping us cut costs, improve security and reduce downtime—giving us all the benefits of our previous UNIX and Windows infrastructure with none of the disadvantages. Moreover, the successful collaboration between Novell Services and our in-house team made us certain that Novell would be the right partner for our organization. Services deserves a lot of credit for helping us deliver the project rapidly and successfully.”

He Jun
Project Manager
ZTE Corporation

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Scenario 3: High Availability and Mission-Critical Computing

Customers have many applications and IT services that are so important to the business that if they become unavailable for even a short time, the organization may incur significant financial losses, violate laws and regulations or even endanger human life. For these workloads, customers require solutions that deliver maximum uptime—through high availability clustering, hardware redundancy and other approaches. Enterprise Linux Server solutions from Novell deliver the proven technologies you need, including automated failover, a clustered file system, clustered logical volume management and data replication.

Customer Situation

A large transportation agency is required by international law to provide a number of navigation services. These services are mainly focused on controlling the flow of air traffic and accepting, processing and forwarding flight schedules. The organization had developed a flight control system that was so fast, efficient and stable that it replaced all previous systems and was quickly installed at numerous airports. Most of the organization's applications were running in a proprietary UNIX environment, but it decided to move the flight control system to Linux.

The Solution

The organization chose SUSE Linux Enterprise Server as its strategic platform for all flight control workloads, and also decided to port many of its other applications from UNIX to Linux. By choosing SUSE Linux Enterprise Server, the organization avoided additional investment in proprietary platforms that fostered vendor lock-in, and instead realized dramatic improvements in the price/performance ratio of its systems.

In an industry where incorrect or delayed decisions could result in loss of life, maintaining high availability for systems is the number one priority. To ensure its systems are always available, the organization has implemented a high availability clustering solution with SUSE Linux Enterprise Server. This solution provides the same mission-critical reliability as proprietary high availability solutions but at a much lower cost of ownership.

The stability of SUSE Linux Enterprise Server greatly contributed to the success of the new flight control system. The system has been so successful that the organization has been able to market the software to other air navigation agencies.

Although cost considerations were secondary, the organization is still saving hundreds of thousands, if not millions, of euros on licensing fees. It is able to achieve these savings because SUSE Linux Enterprise Server offers enterprise-class reliability and performance at a much lower cost than proprietary alternatives.

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Scenario 4: Virtual Machine Guest

Virtualization offers dramatic benefits for your x86-based server infrastructure: reduced costs, simplified disaster recovery, higher availability, increased agility and more. With the emergence of several hypervisor technologies, you now have a choice between VMware®, Microsoft® Hyper-V®, and Xen®. You also have a choice among guest operating systems depending on the workload you are running. Generally, not all guest operating systems run with the same level of performance on all hypervisors. But now you can achieve a high level of performance in your virtual deployments, at the lowest cost of ownership, with SUSE Linux Enterprise Server—the “perfect guest” operating system for virtual workloads.

Customer Situation

A global media corporation operates several subsidiaries around the world. As part of a two-year update of the corporation’s IT infrastructure, it began to consolidate and virtualize hundreds of servers. To achieve this goal, the corporation had been using VMware ESX for testing and development and had begun rolling it out in production in limited fashion.

The corporation was also evaluating SUSE Linux Enterprise Server from Novell for several mission-critical applications, including ERP and its public Web site. While the IT staff was evaluating SUSE Linux Enterprise Server, it became impressed with the Xen hypervisor delivered as part of the operating system. After further research, it realized that SUSE Linux Enterprise Server offered a high performance, highly manageable virtualization solution for a fraction of the price of alternatives.

In addition, the corporation announced it would acquire another organization, one that was already testing Microsoft Hyper-V and had decided to deploy it in production. This global media corporation now faced the challenge of managing an environment with all three virtualization hypervisors—VMware ESX, Xen from Novell and Microsoft Hyper-V—in harmony, while keeping cost and complexity under control.

The Solution

While the corporation wanted to ensure that all of its virtualization technologies were being used efficiently, it also wanted to make optimal use of its resources. The IT staff needed a way to create a semblance of standardization without discarding the multiple virtualization technologies it had already begun adopting.

The corporation realized it could improve the manageability and performance of its virtual machines by standardizing on SUSE Linux Enterprise Server as its default guest operating system for Linux workloads. Extensive collaboration between Novell and the three hypervisor providers (VMware, Microsoft and the Xen community) has made SUSE Linux Enterprise Server the best choice for running virtual workloads across all three leading hypervisors.

To achieve its server consolidation efforts, the corporation took advantage of the cooperation between VMware and Novell, which has resulted in VMI (Virtual Machine Interface) support for paravirtualization in SUSE Linux Enterprise Server. Using Novell technologies, the corporation achieved greater performance of its VMware virtual machines and ultimately was able to consolidate more servers.

In addition, the corporation chose to leverage SUSE Linux Enterprise Server with Xen to achieve near-native virtual machine performance. Not only does Xen offer top performance and unbeatable value, but it is also fully supported by Novell, giving the corporation the help it needed to navigate the consolidation and virtual migration process.

Finally, the corporation wanted to benefit from the collaboration between Novell and Microsoft to ensure its new subsidiary was aligned with the corporation’s overall IT strategy. Because Microsoft and Novell operating systems have been certified as supported guests on each other’s hypervisors, the corporation now has unparalleled choice and flexibility with its new acquisition. Through the work of the joint Novell / Microsoft Interoperability Lab, the corporation can run SUSE Linux Enterprise Server “enlightened” on Hyper-V. Even better, SUSE Linux Enterprise Server is fully supported by Novell and Microsoft in this virtualized environment, giving the company confidence to deploy SUSE Linux Enterprise Server guests in production on Hyper-V.



“The performance of SUSE Linux Enterprise has been tremendous. We can deploy servers and applications with confidence in our 24x7 business where downtime is not an option. With an IT environment of our size, we carefully monitor the performance and service levels. I can’t remember an issue with SUSE Linux Enterprise that has affected our ability to support the business.”

Tim Toews

Senior Vice President and CIO
Office Depot

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Scenario 5: Real Time Linux

Many organizations today run time-sensitive applications for which success is measured in microseconds. These applications must start their processing at a particular time and finish within a set period. They must function with minimal delay, or latency, while remaining predictable. Our Enterprise Linux Server solutions enable you to run a wide variety of time-critical applications reliably and predictably, with a high quality of service, even under heavy system loads.

Customer Situation

An international medical equipment company was experiencing delays and downtime in the performance of its high-field MRI products. To keep costs down for providers and patients alike, the company needed to expand its processing capabilities without the added costs of upgrading its entire system. MRI technology often operates in time-critical situations and is necessary for precise patient care because it shows details that are not visible with other imaging techniques. It was imperative that the operating system function without interruption and deliver top-notch performance at the millisecond level to ensure quality image resolution.

The Solution

To implement the necessary upgrades and provide patients with shorter exam times, increased comfort and higher image quality, the company chose Novell for its real-time computing needs. Customers now have guaranteed performance—they no longer have to worry about delays during important procedures.

Novell delivers proper deterministic real-time behavior on Linux without a separate interface. This means it is user friendly, facilitating diagnostics and tuning of the complex software that delivers real-time performance. Our technology integrates seamlessly with other operating systems, delivering guaranteed performance in time-critical environments. And with more applications calling for real-time delivery of higher resolution images, the company is able to stay at the top of this highly competitive market.

The company was able to leverage its existing infrastructure because SUSE Linux Enterprise Real Time is supported on both 32-bit and 64-bit processor architectures. Moreover, it achieved guaranteed interrupt response time of less than 30 microseconds because it gives full control of operating system priorities to the user. It is engineered to make sure that, once a high-priority process is started, nothing interrupts it or pulls computing power away from it. This proven real-time technology has eliminated the company’s latency spikes, ensuring consistent performance and stability. It has also allowed the company to bring together medical technologies, health care information systems, and management consulting and support services to help customers achieve tangible and sustainable outcomes, both in the exam room and the boardroom.

Backed by proven open source technology, Novell helps the company lower costs, achieve guaranteed performance and increase stability. Ultimately, our technologies help physicians make sound medical decisions based on high-performing technology.

VIRTUALIZATION AND WORKLOAD MANAGEMENT



Maximize your efforts. Are you ready to respond to growing business demands more quickly? Or leverage virtualization to optimize, balance and protect all servers in the data center? Now you can.

With Virtualization and Workload Management solutions from Novell, you can reduce IT costs across the data center, leverage current technologies for a competitive advantage and keep business-critical applications running optimally and continuously. In addition, our PlateSpin® workload management capabilities enable you to consolidate and migrate servers across multiple data center locations, balance workloads between physical servers and virtual machines and protect a larger number of servers with faster recovery using virtualization.

Scenario 1:
Dynamic Virtualization Management

Scenario 2:
Simplified Business Continuity

Scenario 3:
Enterprise Server Consolidation



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Scenario 1: Dynamic Virtualization Management

The first wave of server virtualization promised greater cost savings and new IT efficiencies. However, most of the enterprises that have adopted virtualization are now facing the complex management challenges that come with an ever-evolving virtual environment. In fact, diminished visibility into and control over ever-growing virtual environments can expose organizations to new service level risks, inhibiting adoption and impairing IT's ability to validate the benefits virtualization can bring to the business. But now, with our dynamic virtualization management capabilities, you can maximize your IT investments, increase productivity and simplify the management of heterogeneous virtual environments.

Customer Situation

A large and growing systems integrator and IT service provider in the United States provides software as a service and high-availability infrastructure solutions. Its customers comprise a broad range of industries, including education, manufacturing and banking. The company was struggling to meet the needs of its large and varied client base that needed highly available solutions that would allow it to respond to changing business requirements. The company had already implemented a virtualization solution, but felt that it wasn't delivering the promised benefits. What the company needed was a way to manage the ongoing growth of its heterogeneous virtual environments and ensure existing virtual resources were fully optimized and balanced—all so it could deliver the services its customers required while reducing costs and improving productivity.

The Solution

After reviewing several solutions, the company decided to implement PlateSpin workload management solutions from Novell. These solutions, including our dynamic virtualization capabilities, helped the company control virtual machine sprawl and improve virtualization management. The company can now manage and administer virtual servers across several different physical locations with a single interface, which has reduced management time and lowered costs by 50 percent.

In addition, with the ability to manage virtual servers from a single location, the company can provide enhanced monitoring services for its customers. And PlateSpin Orchestrate, the foundation of the workload management solution, features a simplified console that allows the company to easily operate its heterogeneous virtual environment and start, stop, clone or migrate virtual machines. Now, when a customer submits a request for new or additional capacity, our PlateSpin workload management solutions check that the appropriate resources are available, finds the appropriate virtual server image in the library (or builds a new image if required), then works with other modules to provision the new environment. In the past, these were manual processes which took significantly longer to complete and tied up skilled IT personnel in repetitive, low-level administration.

Now, staff members can be more responsive to issues that arise, can spend less time answering support calls, and are freed up to focus on projects they couldn't devote time to before. By implementing our PlateSpin workload management solutions, the company was able to eliminate manual administration and move to fully automated provisioning and management of virtual machines. Our solution has significantly increased the speed of response to customer requirements, while simplifying resource management and cutting administrative workload. With this solution in place, the company can confidently manage its virtualization technologies, knowing that it is maximizing the benefits for itself and for its customers.



"Before PlateSpin Orchestrate, re-assigning computing resources was a relatively slow and difficult task. It was also difficult to manage security, and we were unable to achieve the granularity we wanted in providing secure, ring-fenced environments for customers. We are now able to immediately see what capacity is available on the grid and can respond very rapidly to new customer requirements."

Steve Osborn

Service Line Manager for Open Source Solutions
Gen-i

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Scenario 2: Simplified Business Continuity

If the majority of your business continuity budget is allocated to protect only your most critical applications, a large portion of your business applications are left under-protected by tape back-up or over-protected by more expensive clustering solutions. This approach forces you to pick and choose the applications you can effectively protect. With Novell, you can bridge the gap between performance-based high availability and affordable disaster recovery, giving you the power and control to cost-effectively protect all essential business applications in your data center.

Customer Situation

Faced with increased regulatory compliance pressure, IT staffing constraints, and merger and acquisition activities that increased the strain on its IT systems, a global investment firm needed to provide disaster recovery capabilities across a range of server workloads in its data center. With offices in New York, London, Frankfurt, Toronto and Dallas, the firm needed to improve recovery time and point objectives (RTO and RPO) for the physical and virtual server workloads running within its main data center site in New York. Specifically, the company needed to extend disaster recovery capabilities to server workloads such as Exchange, SharePoint; file and print servers, financial applications and custom applications—all in a simple, easy-to-manage and cost-effective manner.

The Solution

The company selected PlateSpin Forge® from Novell to provide the complete out-of-the-box protection it was looking for. And to ensure that the solution was implemented correctly, the company brought in a Novell partner—a small, regionally based systems integrator with specialized expertise in disaster recovery. Because the PlateSpin Forge disaster recovery hardware appliance ships with hardware, storage, replication software, management console and virtualization hypervisor preconfigured, the company—with the help of the Novell regional partner—was able to install and run Forge in the New York data center in less than one hour.

The company utilized the product's intuitive Web interface to identify a mix of physical and virtual server workloads to be protected and began replicating workloads to the PlateSpin Forge appliance as a virtual warm standby environment. PlateSpin's immediate notification of failure to mobile devices, such as the BlackBerry; and single click-over failover capability provided the company with a dramatically improved recovery time of minutes—rather than the days and weeks the company had traditionally experienced with tape-based solutions.

The company initially identified 12 key Windows® server workloads to be protected and determined the desired replication schedule for each, ranging from hourly to weekly, based on the desired recovery point objectives. In subsequent phases of the project, the company was able to add additional sets of workloads to be considered, leveraging existing PlateSpin Forge resources.

Using our embedded virtualization technology, the company set up a virtual private network to conduct quick and effective recovery tests to verify the integrity of its recovery plan. The company was able to review all of the test reports and logs for future verification and also gained a suite of preconfigured reports to provide ongoing analysis of the PlateSpin Forge recovery environment. In the event of an outage, protected workloads can be rapidly recovered and continue to run on the Forge appliance until they can be restored to the production environment.

By consolidating multiple physical and virtual workloads onto a single recovery appliance, the company was able to achieve a 25-to-1 workload protection ratio with no need for costly investments in duplicate hardware and software for one-to-one redundancy. PlateSpin Forge from Novell requires near-zero configuration and ships with everything the company needed to begin protecting workloads—for considerably less than if it had purchased and configured these components separately. The speed and ease with which the company is able to recover using Forge makes the solution extremely attractive as the company looks to improve its recovery time and point objectives across a broad range of server workloads.

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Scenario 3: Enterprise Server Consolidation

Virtualization can help you dramatically reduce data center costs and realize new IT efficiencies. As more organizations adopt server virtualization, they discover it is a must-have technology that can be extended across multiple data center locations and used for essential and non-essential business servers. Only enterprise server consolidation solutions from Novell enable you to virtualize Windows, Linux and UNIX business-critical servers into a VMware, Microsoft Hyper-V or Xen virtual environment across multiple data center locations.

Customer Situation

A major IT services company in Europe wanted to consolidate and virtualize its servers. The company's overall goal was to improve productivity by standardizing communication tools across the group, to strengthen security and to promote better IT control and cost-efficiency. The company began looking at ways to consolidate its numerous branch systems into a smaller number of physical servers in a central location. It initially selected virtualization software from a major vendor, but the cost of the approach was threatening to outweigh the potential benefits, so the company decided to use an alternative virtualization software.

These abilities were essential since one of the company's customers had a time-sensitive requirement for a Linux development environment. These virtualization and consolidation capabilities even benefit our customer's customer, who was able to build a virtual testing environment on the company's servers, completely circumventing the complex process of procurement and purchasing. This means the company spent its resources developing its offerings rather than chasing vendors.

Finding training on the Novell solution was easy. Company engineers attended Advanced Technical Training (ATT) classes on virtualization. Delivered at an engineer-to-engineer level, the company was able to ask about specific situations it had encountered in its environment and get specific answers it could put to immediate use.

Using our products, the company has cut its virtualization overhead from 40 percent to as low as five percent. Lower overhead keeps the company agile and gives it a distinct edge by allowing it to respond to its customers' requests and to business realities much faster than its competitors can. Virtualization allows the company to clone, migrate and restart environments quickly if the system crashes. The company has also reduced its power consumption, space requirements and cooling needs while using up to 95 percent of its available computing power, rather than the 60 percent it had been realizing with its previous virtualization solution.

Only Novell offers operating system-based virtualization with cross-platform systems management. It is the most robust and best-supported open source virtualization solution for Windows server consolidation, and it integrates seamlessly with your existing infrastructure. With our enterprise-grade open source solution, based on SUSE Linux Enterprise Server, the company was able to replace its existing server system, lower costs and increase performance throughout the enterprise.

The Solution

To resolve its physical server challenge, the company chose to consolidate using Virtualization and Consolidation from Novell and replaced its existing Windows servers with Linux servers. These new physical servers can now run as many Linux virtual machines as required, which means the company uses much more of its available computing power, even as it cuts cooling and power costs.

The company can now create preconfigured virtual machines and bring them into service on existing hardware automatically, whenever the workload demands them. We also made it easy for the company to create virtual environments quickly and easily. IT administrators can build testing and development environments in minutes, rather than hours or days, without affecting the production environment.

“Based on our initial results, we estimate the software cost of Xen and SUSE Linux Enterprise for virtualizing Windows systems is just 10 percent of competitor solutions. The difference is even greater if you consider that other solutions require more expensive hardware.”

Norihito Kuniyoshi
Managing Director
Casio Information Service Co., Ltd.



BUSINESS SERVICE MANAGEMENT



Novell delivers industry-recognized Business Service Management solutions that help you excel at your business. Our Business Service Management solutions work by dynamically linking business-related services to underlying applications, workloads and infrastructure components to minimize risk and manage the impact of changes. And we do all this so you get measurably better results.

With Business Service Management, IT users manage the infrastructure—not as a set of components, but as a set of services IT delivers to the business. And those services include order processing, online trading and e-mail. Let our solutions help you reduce downtime from IT outages by 50 to 70 percent or more. And do it while increasing staff productivity by as much as 33 percent and lowering operational costs by up to 30 percent.

**Scenario 1:
Mitigate the Risk of Technology Changes**

**Scenario 2:
Minimize the Impact of Outages**

**Scenario 3:
Communicate the Value of IT and Manage SLA Compliance**

**Scenario 4:
Monitor End-User Response Time Performance**



“CMDB has achieved a phenomenal level of attention among the IT population, rising from minimal levels of awareness in late 2006, to exceed awareness levels for ITIL itself...in 2008.”

Dennis Drogseth
EMA Associates
March 2009

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Scenario 1: Mitigate the Risk of Technology Changes

Customers report that as many as 60 percent of all IT outages are caused by “planned” changes. In most instances, these same companies have rigorous change control processes in place that are aligned with ITIL best practices; however, IT outages still occur. Our solutions incorporate a fully federated CMDB that combines essential capabilities into one, easy-to-use package. They give you a complete, accurate and real-time picture of your IT infrastructure, which means you can lower the risk of IT outages when changes are made to the systems.

Customer Situation

A large European pharmaceuticals manufacturer was tired of losing money to downtime. The problem was not that its systems were unreliable. It was that every planned change to the IT infrastructure resulted in unforeseen outages that sapped user productivity and IT budget. In fact, 60 percent of the company’s downtime came from technology dependencies that were not fully mapped.

With a global network that included more than 7,500 servers, the company already had numerous products that collected data about the network. IT had a lot of data, but still lacked a comprehensive, easy-to-understand view of the network’s applications, services and component technologies and the relationships and dependencies between them. This incomplete picture meant that, when IT made changes to one or more IT elements or systems, it caused outages in other IT systems in the process, no matter how carefully they planned. Users were losing productive time, while IT found it very difficult to meet service level agreements (SLAs).

The Solution

The company chose Business Service Management solutions from Novell and now gets a complete, accurate and real-time picture of its IT infrastructure—from IT component attributes to the relationships and dependencies between them.

The company wanted to leverage as much of its current IT investment as possible, so it hired a Novell partner firm with data center expertise to manage the deployment. The partner deployed a combination of Novell CMDB360™ and myCMDB™ solutions. Novell CMDB360 and myCMDB work together to provide a complete CMDB solution that starts with CMDB360—a fully federated CMDB that combines essential capabilities for reconciliation, visualization, synchronization, and real-time CI state into one, easy-to-use package. Novell myCMDB adds important modeling, analytical and data entry capabilities to target key usability and data accuracy issues that affect large CMDB projects and ensure they are an accurate reflection of the end-to-end IT infrastructure.

Novell CMDB360 and myCMDB allowed the company’s IT organization to more effectively model changes to the IT infrastructure before changing the actual production environment. Now, IT staff can see all potential impacts from IT changes and they can plan accordingly.

The end result is a lower risk of IT outages when changes are made to the IT infrastructure.

The solution also features Novell Business Service Manager, which combines pervasive IT data integration with a flexible and intelligent state-based service model. As a result, when outages do occur, IT staff can now use the built-in root cause and impact analytics of Novell Business Service Manager to speed problem isolation and remediation. With Novell Business Service Manager, the company can now manage the IT infrastructure as a set of services IT delivers to the business rather than as isolated components—an approach that has reduced the company’s downtime by as much as 70 percent.

With 24x7x365 unlimited access to the Novell Support Center, the company has confidence that any technical questions will be quickly resolved, optimizing the role of the technology. In addition, the company has an invaluable resource: an assigned support engineer (ASE). The ASE, while off site, is familiar with the company’s deployment and is well equipped to answer the company’s unique questions.

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Scenario 2: Minimize the Impact of Outages

Most large IT organizations today use multiple network, systems and applications management tools to monitor availability, performance and the overall health of their IT enterprise. But to manage end-to-end availability and performance effectively, the silos of information produced by heterogeneous tools must first be manually consolidated and correlated—a daunting and resource-intensive task. But with Novell solutions you can dramatically shorten the time it takes to diagnose and fix IT issues. In addition, we help you measurably reduce the duration of IT outages—typically as much as 50 to 70 percent.

Customer Situation

After an internal audit, an investment bank in Singapore discovered that a typical IT outage lasted as long as ten hours—and sometimes even more. Diagnosing the cause of a downed system was slow because the bank used multiple management tools to monitor availability, performance and the overall health of its global network. As a result, when a problem occurred, IT staff first had to manually consolidate and correlate large volumes of data produced by heterogeneous tools—a daunting and resource-intensive task.

These outages were not just inconveniences for IT, of course. They rippled through the whole business, causing lost productivity, negative publicity, and ultimately, lost profits.

The Solution

The bank deployed Business Service Management solutions from Novell to address the problem. Using the Novell solutions, IT staff has been able to determine the precise root cause of outages so they can be resolved much faster—or, in many cases, prevented altogether.

Novell Business Service Manager consolidates information from the bank’s existing IT management tools into a single application and service impact management dashboard. This “single-pane-of-glass” approach gives administrators a centralized view of the entire network—from its logical components such as services and applications, to its physical components such as servers and databases—as well as the relationships and dependencies between them. This comprehensive view of the network has dramatically shortened the time required to diagnose and fix problems, reducing the length of IT outages by as much as 70 percent.

The deployment also featured Novell myMO™ Dashboard—a customizable dashboard that delivers role-based views that the bank’s IT managers and executives use to monitor and manage critical applications and services in real time. Furthermore, the built-in reporting and analytics in the Novell solutions allow administrators to quickly isolate, prioritize and remediate IT problems as they arise.

With Novell solutions, the bank has achieved shorter IT outages with a better understanding of its IT infrastructure. This combination has helped drive down costs and risk while improving IT’s ability to deliver on its service level agreements.

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Scenario 3: Communicate the Value of IT and Manage SLA Compliance

Communicating business value has been a significant challenge for IT organizations for years. But now, with Novell solutions, you can get transparent, role-based views of the availability, performance and overall health of the applications and services that IT delivers to your business.

Customer Situation

A large telecommunications provider in South America began an aggressive program to cut costs and streamline operations. One of its targets was IT expenditures; the IT department had long been fighting the impression that it was a cost center “black hole” that consumed budget with little accountability. SLAs and availability benchmarks were in place but were difficult to track, and end users and executives alike wondered if they were getting the IT value they should be getting. Fortunately, when it was time for the IT audit, the CTO and IT administrators were ready.

The Solution

During the prior fiscal year, IT had deployed Business Service Management solutions from Novell to get greater visibility into the network and the quality of IT services delivery. Now, with Novell myMO Dashboards, IT administrators have an accurate, comprehensive and real-time view of applications and service health. They can monitor application performance and take action before SLA compliance is jeopardized instead of just reporting after the fact.

Novell Business Service Level Manager, a part of the deployment, monitors SLAs to accurately ensure that committed levels of IT service quality are met. The Novell solutions correlate data into a single, role-based view, so IT administrators can automatically measure and report on IT service level quality in real time. This capability has made it easier for the IT department to more effectively deliver high-quality IT services to the business in terms that non-IT executives can understand.

Monitoring and reporting functions are not the only value the Novell solutions have delivered. Novell myMO Dashboards feature bidirectional command and control capabilities which the firm’s IT administrators use to feed data back into the network. This capability makes the Novell solution an interactive management tool—not just a monitoring system. The intuitive and interactive interface of the Novell myMO Dashboards are Web 2.0 compliant and can be easily tailored to any specific IT or business role.

“We have never had a tool that could talk to so many back-end systems—both home grown and out-of-the-box. AT&T has spent \$215 million in customer enablement over the past five years. At Verizon Business, we’ve spent far less and now have a more advanced dashboard for our customers.”

Eric DeRose
Senior Product Manager
Verizon Business

“What the average employee could accomplish in eight hours before implementing Business Service Management can now be accomplished in 5.7.”

Novell ROI Study

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Scenario 4: Monitor End-User Response Time Performance

Maintaining high performance in mission-critical applications is a key responsibility of the corporate data center. And you're in charge of ensuring that happens. Novell solutions can provide a cost-effective, synthetic, end-user response time, performance-testing solution that is easy to buy and easy to implement. This means that you can not only measure performance, but also prevent performance degradations by proactively identifying problems and prioritizing their resolution.

Customer Situation

The IT department of a large American financial services firm was successful at maintaining high performance in mission-critical applications. However, end users still occasionally complained about application response time, so administrators decided to measure application performance from the end-user's perspective. The problem was that many market solutions were extremely expensive and would have cost the firm millions of dollars to implement.

The Solution

The firm found a cost-effective solution in Business Service Management solutions from Novell. Specifically, the firm deployed Novell Business Experience Manager™ to test application performance based on the quality of end-user experience by measuring such factors as response time. Now, instead of waiting for user complaints to alert them to a problem, IT administrators can prevent performance degradations by proactively identifying problems and prioritizing their resolution.

Novell Business Experience Manager is a single solution that enables active, passive and application monitoring by the IT staff. The firm's administrators use it to integrate, correlate and visualize real-time and historical application performance results. It even correlates data from the firm's existing Topaz and SiteScope applications, which allows additional returns on the firm's existing IT investments.

Looking to the Future

The service-driven data center is helping us deliver the business services your end users need. And as we look forward to the future, there is no doubt that the technology that will help us accomplish this is cloud computing. **However, with cloud computing comes a new set of challenges: how to simultaneously manage your flexible internal cloud and your legacy systems. And with the maturation of the public cloud, you even have a third capacity option—the external cloud.**

But whether you want to run a server farm, build an internal cloud, or provide hosting for the cloud, we are investing in that future. Our vision is to provide a unique combination of agnostic, interoperable and easy-to-use solutions that will let you deliver the services your users demand while reducing your total operational costs.

“Our vision is to provide the tools you need to manage your people and resources in a secure and compliant manner. And our goal is to do this across a distributed IT infrastructure—inside or outside of your enterprise.”

Ron W. Hovsepian
President and Chief Executive Officer
Novell, Inc.



Through our infrastructure software and ecosystem of partnerships, Novell harmoniously integrates mixed IT environments, allowing people and technology to work as one.

Mixed IT environments are a reality for almost all organizations, and we understand that you can't let this reality undermine your ability to compete. We enable businesses around the world to manage their mixed IT environments, helping them reduce cost, complexity and risk. Whatever solutions you're looking for—Data Center, Identity and Security, or End-User Computing—we have the tools to connect people to performance and business possibilities. Let us make IT work as one for you.

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**Novell®
Making IT Work
As One™**

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