



## Managing the Migration to Open Source Technologies

### *Maintaining Multi-Platform Environments without Sacrificing Data Protection*

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Open source technologies are gaining momentum as a viable backbone for core computing requirements, resulting in soaring popularity for Linux worldwide. In fact, 2006 was a banner year for Linux, powered by a record surge in enterprise deployments as well as broad-based validations from industry heavyweights, including Oracle and Microsoft.

Oracle projects that more than 50 percent of its customers will be using Linux by 2010, if not sooner. The company's October 2006 announcement of "Unbreakable Linux" was meant to speed adoption by giving customers the same enterprise-level support as its cadre of database, middleware and application products. In doing so, Oracle hopes to move the Linux operating system farther up the data centre ladder while offering improved and more cost-effective support. Oracle also has announced widespread industry endorsements from leading hardware and software vendors, including IBM, Dell, HP, Intel, EMC and BMC.

In an unusual and unexpected move, Microsoft and Novell joined forces in November 2006 to unite open-source and proprietary source software. The two titans now are collaborating on the development of specific technologies, including virtualisation, to ease the integration of Windows- and Linux-based environments. According to many industry watchers, this partnership underscores the growing power of Linux while reinforcing the reality that increasing numbers of enterprises are commingling Windows and Linux.

According to Gartner Group's forecast for total storage management software by platform, Linux shows the strongest potential, with a 35.2 percent Compound Annual Growth Rate (CAGR) through the remainder of the decade. As the fastest growing operating system and storage management software opportunity in the market today, Linux continues to gain substantial traction in companies of all types and sizes, from mid-range organisations to large-scale enterprises running mission-critical applications.

Deployments of Linux are expected to continue rising for the foreseeable future, according to several industry analysts. For example, a report released in January 2007, from Westport, Conn.-based Saugatuck Technology Inc. revealed that 20 percent of 133 IT professionals surveyed currently have or are planning to deploy Linux by the end of this year. This activity is projected to result in nearly 50 percent of all enterprise data centres using Linux to support mission-critical applications by 2011. This year alone, IDC predicts the market share based on unit sales of Linux servers will rise from 24 percent to 33 percent. Meanwhile, a Forrester Research survey revealed 52 percent of business users are replacing Windows servers with Linux.



By no means is the ascension of Linux a death knell for Windows, which market analysts say will remain strong as more and more corporate data centres transform into multi-OS shops. According to Saugatuck Technology, over the next 12 to 24 months, Windows and Linux will remain an unstoppable duo for data centres' new application deployment scenarios.

### **Applications Drive Adoption**

Perhaps the most valuable validation that Linux is ready for primetime in enterprise and data centre environments is its ever-increasing application support. Beyond already being a staple for use in web portals and web hosting as part of the LAMP stack, Linux is winning broader acceptance as a platform for mission-critical databases, messaging, enterprise resource planning (ERP) and payroll. In response, enterprise software vendors increasingly are porting applications to Linux, resulting in wide-scale deployments across all industries, including finance, retail, government, manufacturing and education.

Since shipping its core R/3 product line on Linux in 1999, SAP reports a steady increase in installations on Linux worldwide. Last year an increasing number of large-scale migrations of ERP applications migrated to Linux, mostly in quest of budget savings. Oracle also has been a long-standing contributor to the Linux community. Since producing its first commercial Linux database in 1998, Oracle has continually focused significant engineering resources to improving the Linux experience for enterprise users. More than 20 percent of Oracle's customers currently use Linux while nearly 2,000 software companies support Oracle on Linux.

MySQL AB, developer of the widely popular MySQL open source database, has gained so much market traction that Oracle tried to acquire the company in February 2006. In turning down the offer, the open-source software developer reiterated its focus on next-generation application development. With more than 10 million active installations and high-profile customers, including Yahoo, Suzuki, NASA and Alcatel, it's clear that MySQL implementations are accelerating overall Linux adoption rates.

To reinforce the growing acceptance of Linux as a host platform for business-critical databases, IDC projects that databases running on Linux and other open sources will represent 18.6 percent of the market by 2010. With a compound annual growth rate of 28 percent during this period, Linux will be second only to Windows by 2011 in host environments for databases.

Among the big Linux hardware players, IBM posts the greatest ongoing growth as the company continues to incorporate open source technologies into more and more of its products. Building upon its commitment to Linux and virtualisation technologies, IBM announced last July that its portfolio of middleware and systems platforms would support Novell's new SUSE Linux Enterprise 10 offerings. With more than 15,000 IBM Linux customer engagements worldwide, Big Blue has helped legitimise Linux as a leading server operating system.

The rising tide of Linux support also has permeated the storage arena with Linux gaining as underlying enterprise storage OS. For Network Attached Storage (NAS) and Storage Area Network (SAN) deployments, Linux is attractive because it offers performance, compatibility and price advantages. Network Appliance, a world leader in unified storage



solutions, has bundled Linux into its NAS and SAN products. For NetApp, some of its largest customers in the animation, financial and government industries turned to Linux and NetApp-based NFS for broad “scale-out” applications where a shared data environment they call a StorageGrid is being implemented.

### **A Solid Business Case for Linux Migrations**

The ability to install more affordable hardware and take advantage of many more software choices results in higher-performance, lower-cost technology deployments. To that end, the long-term value proposition for migrating to Linux is a compelling incentive. Reducing costs has been a dominant driver for Linux adoption, especially at the expense of Unix, because the tab for software and porting is low to non-existent.

Early on, high-profile Linux migrations at Amazon and Intel received a lot of industry attention, especially when Amazon reported a 25 percent cost reduction in switching from proprietary Unix servers to Linux. Intel’s migration from massive, costly Unix servers to small Linux servers is said to have saved \$200 million in its first year of operation alone.

The business case for Linux migrations, especially from a Unix environment, is pretty straightforward and takes the following into consideration:

- Reduced capital expenditures,
- Lowered administrative costs,
- Decreased operating system license fees,
- Minimal training requirements,
- Greater flexibility and control in leveraging off-the-shelf and custom applications.

Often, Linux gets its start supporting a specific application or workgroup and over time permeates the organisation in growing numbers to take on larger and more critical roles in supporting corporate computing workloads. In addition to commingling with Windows, Linux also must coexist with legacy Unix as well as Apple Macintosh platforms in increasingly heterogeneous environments. While the business case to support Linux migration is a solid one, companies may find themselves on shaky ground when facing the realities of supporting a mix of different computing platforms.

### **The Current State of Multi-Platform Data Protection**

The vital role Linux now plays in the enterprise has sparked a new debate about how to incorporate it into an overall strategy that safeguards all data, regardless of the platform and application within which it resides. The conundrum only becomes more complex when taking into account all the different Linux distributions gaining traction worldwide, including AsianUX, Debian, FreeBSD, Mandriva, Miracle, Red Hat, SGI, Novell SUSE SLES, Turbolinux, etc.

While the consensus seems to favour relying on a single cross-platform solution to manage and protect heterogeneous data, the reality is many organisations have yet--or do not know how--to accomplish this feat. To make matters more complicated, many of the larger data protection vendors have been slow to support Linux, forcing end-users to run Linux hardware as clients to a Windows backup server. This type of band-aid fix typically is only sufficient until the Linux system expands to support larger, more data-



intensive applications and databases. Ultimately, this approach proves inadequate and makes it difficult to meet ever-increasing backup windows.

In order to make separate solutions work together, time-constrained IT staffers are forced to write additional and/or manual scripts to conduct Linux backup and recovery procedures for applications that are not being protected properly by older data protection solutions. While the result provides a certain level of data protection, it also creates an isolated "island," which requires its own administration and management nightmares.

The proliferation of separate solutions for different platforms ultimately is insufficient and costly. In addition, this practice cannot provide one unified picture that integrates status, functionality, administration and reporting of the separate platforms. Enterprises need centralised, integrated, OS-agnostic data protection to effectively safeguard mixed-platform environments.

### **Achieving Advanced Data Protection**

Multi-platform backup and recovery is the first line of defence in ensuring the well-being of Linux environments. To that end, it's imperative to seek a platform-independent solution that works as well in backing up Linux, Solaris and Macintosh environments as it does with Windows or AIX. Once the backup and recovery bases are covered, it makes sense to seek advanced capabilities for heightened data protection. In this quest, savvy IT departments are evaluating a growing suite of solutions that go well beyond backup and recovery, including:

- Real-time replication,
- Snapshots,
- Centralised reporting and administration,
- Continuous Data Protection (CDP),
- Disaster recovery,
- Business continuity.

Many industry analysts claim the days of backup and recovery alone are gone as companies demand additional and often more sophisticated capabilities to increase business resiliency while lowering risks. An emerging class of integrated, real-time, byte-level replication products delivers continuous, multi-platform protection to bolster business continuity strategies. Byte-based replication will yield more granular data protection while also providing both scalable performance and application relevance to support growing Linux environments.

Other compelling business benefits from real-time replication include streamlining consolidated backups, easing Linux server migrations, improving content distribution as well as optimising geographically dispersed SAN clusters. The ability to install real-time replication on existing production and new target servers without disruption or special hardware is especially important during Linux server migrations. By enabling real-time replication of data to the target platform, companies can realise potential cost savings and other benefits of migrating to Linux but without any associated downtime of mission-critical applications.

Byte-level replication will yield more granular data protection while providing both the scalable performance and application relevance to support growing Linux environments.



Additionally, real-time, asynchronous replication is ideally suited for disaster recovery applications.

Regardless of whether the priority is simple backup and recovery or far-reaching business continuity, it's important to find solutions that are platform independent so they work seamlessly across all platforms. The need to move and protect data regardless of its source is spawning a new breed of heterogeneous data protection products that are raising the bar in terms of flexibility, control and integration.

With integrated data protection, companies can manage a single set of resources across all platforms from a centralised console. A single point of control is essential for ensuring operational efficiencies while boosting staff productivity. In fact, centralised management of multi-platform data protection can result in a 10x reduction in administrative costs while yielding a 7x-to-9x overall cost savings. Additionally, streamlining implementation and ongoing administration will reduce future labour costs to lower total cost of ownership (TCO) while improving return on data protection investments.

Putting in place an integrated, holistic solution for cross-platform data protection sets the stage for the highest levels of business continuity. As Linux continues to pick up steam as a global phenomenon, it will become even more crucial to select data protection products that have consistent, cohesive capabilities across all platforms. Over time, the demand for multi-platform data protection will surge right along with rapidly rising Linux deployments. As a result, organisations of all sizes will be able to safeguard critical, mixed environments without giving up anything or sacrificing their budgets, resources or requirements for comprehensive, cross-platform business continuity.

## **SIDEBAR ONE**

### **Ten Steps to Better Multi-Platform Data Protection**

Companies looking to implement a data protection solution that works seamlessly across multiple platforms should consider the following guidelines:

- Make sure that data protection is not looked at as an afterthought. While protecting long-existing platforms may seem like a well-oiled routine, Linux migrations can create new sets of challenges when it comes to protecting data. So do not deploy Linux first and then debate backup options later.
- Don't make the assumption that your existing backup and recovery products will work seamlessly in Linux environments. Also, running Linux as a backup client may prove problematic when dealing with data-intensive applications.
- Look beyond IT when considering Linux migrations; look across your entire environment to determine whether Linux is a viable solution for remote sites as well as the datacentre.
- Be sure your data protection solution supports your particular "flavour" of Linux. It is not a given that all global Linux distributions have widespread support.
- Make sure your organisation possesses the proper skill set to manage a Linux migration as well as support ongoing data protection requirements. Centralised administration that treats all data equal and does not require unique expertise is optimal.
- Understand that true data protection is more than just backup and recovery. Be sure to take into consideration advanced functionality, including replication, snapshots, reporting, disaster recovery and business continuity.



- Byte-level, real-time replication provides more granular protection while easing Linux server migrations.
- Choose data protection solutions that are file-system independent so they'll work seamlessly across all platforms.
- Centralised management with a single point of control is essential for ensuring operational efficiencies while boosting staff productivity.
- Focus on best-of-class data protection solutions that scale sufficiently to meet both current and emerging business requirements.

## **SIDEBAR TWO**

### **The Current State of Multi-Platform Data Protection**

The characteristics of advanced multi-platform solutions should include the following:

- **Flexibility:** To seamlessly support all operating environments and function independently of hardware and server platforms;
- **Integration:** Work with each other and provide centralised management capabilities across all operating environments;
- **Simplicity:** Straightforward and easy to deploy and use without having to learn unique capabilities on every platform;
- **Total Cost of Ownership:** Must drive down users' total costs, not just at installation, but also operationally over time;
- **Scalability:** To maintain pace as environments grow and change, including broad application support.

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