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Strategic Snapshot

IBM and SUSE Drive Linux Enterprise Readiness for European Mid-Market

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June 2004

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ABSTRACT

Like many of their larger counterparts, mid-market businesses are experimenting with Linux and open source software due to their reputation for being lower cost than traditional alternatives. This is a low-risk option for many businesses, as evaluation copies are generally free, and there has always been extensive help available on the Internet for novices. However, despite overwhelmingly positive experiences with Linux, roadblocks remain before widespread corporate adoption advances and Linux becomes a strategic enterprise operating system.

The operating system sits at the heart of a stack of software between the hardware and the applications. Integrated database, middleware, and network services are additional necessary components of the stack and are usually addressed piecemeal rather than in an integrated fashion. Now, however, companies such as SUSE, part of Novell, and IBM have developed and integrated these and other components of the stack to give Linux environments the capabilities necessary to give businesses the confidence needed to deploy Linux strategically within their organisations.

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Overview

Linux arrived in IT departments from a different starting point than most operating systems, arriving in a grassroots manner, rather than through traditional IT project bids. Despite overwhelmingly positive experiences with Linux, several barriers to adoption remain impeding widespread corporate adoption so that Linux could become a strategic enterprise operating system. Like many of their larger counterparts, many mid-market businesses began to experiment with Linux and open source software due to their reputation for being lower cost than traditional alternatives. Some IT managers initially experienced Linux by downloading and installing a copy on a computer at home or in the office and experimenting with it. Others bought a distribution and began to interact with their peers on various Web sites in order to share their experiences with and opinions on the product. Initial implementations of Linux were for infrastructure servers providing Internet services such as firewall or Web servers or for file and print. In this manner, deployment of open source solutions was at minimal risk to the enterprise infrastructure.

As experience and confidence grew, some began to experiment with developing enterprise applications for Linux from the ground up through a combination of open source and vendor supported tools. This generally required IT managers to become Linux-savvy as they became responsible for overall integration. More recently, application vendors began offering Linux versions of their applications and IT managers have began to test these products for use, bringing enterprise Linux a step closer to reality. However, Linux has been missing several components necessary for strategic enterprise adoption. In general, Linux has not displaced existing applications, especially not data centre applications that have been optimised for specific architectures. Linux has also not played a big role in the network, as many of the pieces were missing or were not sufficiently integrated with the rest of the software stack.

The operating system sits at the heart of a stack of software between the hardware and the applications. Integrated database, middleware, and network services are necessary components of the stack but in the case of Linux, the approach was piecemeal as opposed to integrated. Now, however, companies such as SUSE, part of Novell, and IBM have developed and integrated these and other components of the stack for Linux environments providing the necessary capabilities for businesses to be able to make a strategic IT investment based upon Linux.

After their purchase of German-based SUSE, Novell have created Linux distributions that provide corporate-ready versions of the operating system as well as the corresponding network services necessary to support it. IBM have created offerings combining their hardware, software, and services to provide the levels of reliability, scalability, and serviceability their customers expect from other operating systems like UNIX or Windows. In this report, we will look at how IBM and SUSE are working together to make Linux a viable enterprise operating system for the mid market. We will also provide two case studies of European companies that have implemented SUSE Linux on IBM servers to take their business to the next level within their own enterprises.

SUSE and Novell: New Strengths and Old Standards

SUSE started in Nuremburg Germany in 1992 and as the first commercial Linux vendor have grown into one of the world's leading Linux providers. In November 2003, they were acquired by Novell, a company with a rich history of networking services, who had previously purchased Ximian, a provider of Linux desktop and application management solutions. By combining the strengths of these technologies, Novell are developing a full range of Linux solutions for the enterprise.

Trusted Enterprise Brand

In addition to technology, Novell bring a trusted enterprise brand and infrastructure to the world of Linux distributions. With offices across Europe, Novell offer extensive support, education, consulting services, and a partner network that extends SUSE's touch points into the customer base. Novell's strong history with mid-market companies and with the public sector, a key group of early Linux supporters, positions them to drive Linux in new directions for a variety of constituent services in both of these markets.

Partner Programmes

In support of the mid-market, Novell have announced an enhanced partner programme, incorporating the existing SUSE partners, and providing new certifications and programmes designed to help Novell partners develop Linux expertise. They have identified Linux as an area of specialty for all Novell partners focusing not only on the SUSE Linux platform but also related infrastructure, including storage, clustering, and cross-platform management. Novell partners can help customers integrate Linux into all aspects of their IT infrastructure.

Open Source Support

Novell have spent the last year strengthening their support for open source and broadening their portfolio of offerings. In August, they purchased Ximian, which offers products that provide centralised software management and updates for the enterprise, as well as providing desktop software and applications for Linux. In December, they joined the Open Source Development Labs (OSDL). For many in the open source community, this cemented Novell's position as a serious supporter and contributor to the open source movement and gave them the credibility they needed to succeed in the market.

Integrated Linux Services

In December, Novell announced Nterprise, an integrated package of Linux services, to provide file and print, messaging, directory, and management services. Additionally, Novell launched ZENworks 6.5, which included Ximian Red Carpet Enterprise with automated patch management software as well as Linux software management and support of Windows 2003, allowing greater cross-platform management. This provides many of the network services needed to run Linux as an enterprise class operating system, and leverages much of Novell's technological prowess. Furthermore, Novell announced the Open Enterprise Server, which combines NetWare, SUSE Linux, and Nterprise into a single integrated package.

IBM: Optimised Infrastructure and Services for Mid-market Linux

IBM have a strong commitment to the Linux operating system as one of the first major vendors to embrace the technology. Despite a strong portfolio of own-grown technologies and solutions, IBM realised early on that Linux and the open source movement would reshape markets, and they were quick to begin integrating Linux offerings across their product lines. IBM were also one of the first hardware vendors to bring service and support for the Linux platform to their server line, clearing two of the initial barriers to enterprise Linux adoption: vendor support of the platform, and dedication to it.

Across the Hardware Line: Linux Support

IBM have committed to providing Linux across their eServer family of servers including the zSeries mainframes, Power-based iSeries and pSeries, and Intel based xSeries, as well as the BladeCentre and Opteron-based systems. IBM have also ensured that IBM cluster products and storage work with Linux. Additionally, all of IBM's software products offer Linux versions for various environments. From the DB2 database to the Rational software for

application development, from Lotus Domino to WebSphere and Tivoli, IBM software has committed to the Linux operating system.

Vertical Competency and Focus

To deliver vertically focused solutions, IBM have opened Linux Competency Centres around the world. At the infrastructure, or server level, IBM have Integrated Platform Express, which is offered through their business partners. These solutions provide a platform that is integrated, tested, and optimised for mid-market businesses. IBM include both software and hardware in their offering including the hardware, SUSE Linux, DB2 Universal Database Express, a special mid-market version of DB2, and WebSphere Appserver Express, also designed for mid-market customers. These solutions give customers integrated Linux solutions intended to get customer solutions up and running as quickly as possible.

Working in Partnership to Grow Linux

IBM responded to Novell's acquisition of SUSE by investing $50 million in Novell and purchasing the equivalent amount of Novell stock to strengthen their commitment and investment in the future of Linux. IBM and Novell have also extended their existing agreements for development and promotion of Linux enabling IBM to sell and preinstall SUSE on its entire range of eServers. In conjunction with ongoing development, the two companies have opened an Integration Centre for optimisation of SUSE Linux with IBM software offerings focusing on DB2. This focus on database optimisation and integration is another important step in customers' comfort level with Linux as an enterprise operating system.

World Class Security

Security is a concern for business and governments alike. In January, SUSE Linux Enterprise Server 8 with Service Pack 3 running on IBM eServers attained Controlled Access Protection Profile compliance under The Common Criteria for Information Security Evaluation (CC), which is also known as CAPP/EAL3+. They also have Common Operating Environment (COE) compliance on the xSeries and zSeries platforms, with the other platforms following. The evaluation was completed by atsec information security GmbH, a vendor-independent IT security consulting company based in Germany that is accredited by the German Federal Office for Information Security (BSI) and recognised by the U.S. government.

A Viable Alternative

One reason organisations want to increase Linux use is to reduce dependency on Microsoft products. There are several reasons customers are looking for alternatives to Windows. Most of them involve inflection points, where the pain of standing still is greater than the pain involved in changing the environment. Several of these issues are:

- There is a growing need for directory services, and Active Directory is not the simplest or optimal solution;
- Scaling of Windows installations with their traditional one server per application methodology is not cost effective for many;
- Software licensing costs are high and in many cases have increased sharply;
- Upgrading complex Windows environments is becoming cost-prohibitive and are an administrative headache;
- Security problems related to viruses and worms have become a significant distraction.

The Trust Factor

Relationships with resellers, systems integrators, and trusted vendors, and experience with products are important to technology buyers. While many companies purchase open source products because they offer lower acquisition prices, they will also continue to rely on vendor-owned products that they trust or that have become their corporate computing standards. IBM and Novell are trusted brands with trusted products and equally trusted partners with long histories of successful implementations. Incorporating Linux into their product lines and committing to open source development are ways to help Linux gain credibility for enterprise environments and position these companies to meet the demands of the market.

Case Studies

The following are two case studies that highlight users of SUSE Linux on IBM servers. The first is TTS Shipping Ltd., a shipping company located in the Midlands of the United Kingdom. They are a classic mid-sized company with homegrown, mission-critical applications running in a mixed Windows and Linux environment. They are an example of a company that had the opportunity to build their system from the ground up on Linux rather than porting an existing application. Their story is about making compromises between costs and capabilities without sacrificing quality, while improving serviceability.

Banco do Brazil's headquarters in London functions like a centralised IT department for a network of SMBs that are the branch offices located around Europe. As the branch offices are integrated into the central system, they move existing infrastructure and costs from organisations that had autonomous IT departments to the central facility, providing maximum capability with minimum cost.

TTS Shipping Ltd

TTS is a shipping company founded in 1988 and based in Leicestershire, United Kingdom. While it may seem odd to have a shipping company located inland, they are in fact equidistant from all ports, and have found that there is no need to be physically near the ships. TTS are reliant on the data and information that their IT systems generate for them, as they are a pure-play logistics company. The focus of their business is forest products from Finland, Sweden, Russia, and the Baltic Republics imported to the UK, mostly through eastern and southern ports and then shipped inland. TTS neither purchase nor sell the products they ship. In fact, they do not own any ships and use time charter or contracts of affreightment to get their products from seller to buyer. TTS advertise regular routes, and then make agreements with their clients to bring the wood from one of the eastern countries to the UK. TTS success is measured on how efficiently they make this process happen.

Efficient Logistics: The Competitive Advantage

TTS are a mid-market enterprise with thirteen employees, yet they supply 10-15% of the UK's timber. They stay lean because the company's operations are logistics, which can be handled automatically with the right systems, and they do not own any of the physical steps in the supply chain. The one thing they do own and control is IT. Most of the employees have been involved in some sort of shipping business for over thirty years with various manual systems, and are very knowledgeable in the process. However, TTS interact with ports that use a wide range of technologies depending on the country. Baltic countries tend to be the most technically advanced, relying on computers, while the Swedes and Finns are heavily dependent on traditional phone and fax technologies. TTS had the challenge to take advantage of the latest technology despite the need to support interactions with partners and clients utilising decades-old technology. In 1998, they hired an IT person who could write a custom programme that they decided would be superior to off-the-shelf products available at the time. This in turn has become their competitive advantage.

Implementation

Creating and implementing a new system meant an upgrade of existing technology, as well as an opportunity to explore new alternatives. Automation was also a challenge, since TTS had perfected a manual process over time; they did not want to adapt their processes to the technology, they wanted the technology be flexible enough to adapt to their processes. This required several immediate changes. TTS had been using inexpensive industry-standard white-box servers. However, there were issues of reliability and serviceability. Due to TTS's increasing dependency on the software to run their business, they opted for IBM Netfinity systems and later the eServer xSeries. TTS felt that IBM could guarantee them the reliability they needed, especially with the Update Express CDs. With this new system, TTS would be wholly dependent on the servers and if the computers stopped, then the business stopped. TTS are happy to report that the IBM servers have far exceeded their expectations and they have since purchased upgraded support contracts. They have found that IBM understand that these servers are running business-critical applications and take their needs seriously.

TTS started with two servers in 1998, one of which runs Microsoft Exchange Server while the second provides file and print services as well as the database. TTS were already using Borland Interbase for their database, and decided that the Samba open source-based file and print services were advanced enough for their needs. Since both these products supported the Linux OS, TTS chose Red Hat Linux for the second server because it was less expensive than adding Microsoft licenses. TTS management viewed Linux as a no-cost and therefore low-risk option. Since they were developing their software, if Linux did not work out, they could always fall back to a Windows-based solution. From a business perspective, it was a no-risk option as well. Since they had made the decision to invest in branded servers instead of white boxes, they saw the trade-off with Linux as a way to balance costs. As a small business, TTS wanted to be able to retain their freedom of choice and not become too dependent on one vendor, and believed that Linux allowed them to retain this freedom. TTS report that Linux has met their expectations and provides a good, solid base to work from with fewer hassles than other systems. Long-term plans include moving the workstations over to Linux, but that is dependent upon the availability of high-quality desktop applications. According to their IT manager, Linux is not about a war, it is just good for business.

Savings and Realisations

The system took eighteen months to get full production, and they have been adding to it ever since. The most notable change in operations has been the shift from phone-based to email-based communication in their interactions with partners and clients, yielding a savings of over £50,000 a year. The Linux installation continues to grow. After six months with two servers, TTS purchased a third server dedicated to faxing, which is also Windows-based. Last year they purchased a fourth server for Postfix mail transfer and antivirus software running SUSE Linux Enterprise Server. This server quarantines the Exchange server against spam and viruses by cleaning mail through the antivirus and anti-spam software first and then forwarding it to the Exchange server for normal processing. At this point TTS also switched their other Linux server from Red Hat to SUSE in order to take advantage of the support offer from IBM and SUSE. For the price of the server, IBM bundled in support, which is crucial to a small business. TTS are pleased with SUSE and find them responsive to their needs; they continue to develop in-house applications on Borland's Kylix to run on the Linux server.

Banco do Brasil in Europe

Banco do Brasil in London are the European headquarters of the world's largest Latin American bank. The bank has over 4,000 branch offices worldwide, including over 2,600 cities in Brazil, as well as over 7,000 points of sale and more than 78,000 employees in Brazil. While business decisions are driven from the headquarters in Brasilia, the London office focuses on treasury and money market activities, and provides other services as its

European headquarters. It is the location for trade finance for UK companies seeking to do business in Brazil as well as a gateway for local and retail business for Brazilian nationals living in the UK. Banco do Brasil also offer banking services for Brazilian companies seeking to do business in countries other than the UK, and they also provide their services to governmental bodies.

The London headquarters office is also responsible for all European locations, which include two offices in London, BB Securities, which is owned by the Bank, as well as offices in Amsterdam, Frankfurt, Lisbon, Madrid, Milan, Paris, Rome, and Vienna. Each location is a fully operational bank branch, with the exceptions of Rome, which is an office of the Milan branch, and Vienna, which is a bank subsidiary. These branches were run originally as independent organisations, with each location having its own autonomous IT organisation.

Time to Make a Change and Consolidate

About five years ago, with the approach of the Euro and the year 2000, Banco do Brasil decided to centralise IT in London. At the same time, the banking system in Europe was undergoing consolidation by the European Union with the introduction of the Euro. Banco do Brasil realised they could take advantage of this consolidation to consolidate their own disparate IT systems, standardise development processes within the bank and standardise how information is presented. Additionally, as new technologies appear, they could more easily introduce them across all their locations. Managers move from location to location, and standardised systems would allow them to make an easier transition. Additionally, having a unified system across Europe makes auditing easier. Consolidation became the focus of the bank's technical efforts with the goal of improving management of the infrastructure, simplifying the technology environment at the branches, and capturing the implied cost savings. The group also wanted to simplify the client side by using a Web browser as the application interface.

The bank also had to select a single set of applications covering a wide swath of already deployed solutions for back office, securities, email, payments, banking systems such as regulatory reporting, interfaces to other banks, and reconciliation of transactions. There were also applications for market information, market analysis, and real-time trading tools. In total, the consolidated IT organisation was responsible for centralising over fifty applications into the central data processing centre.

In addition to the computer applications, the bank had to integrate BB Worldnet, their global communications network. It is one of the largest private networks in the world, linking all of the international branches to Brazil. There is a regional hub in London, as well as in New York and Tokyo. Each of the international branches is a satellite of the hub. The London organisation was given responsibility for managing the European portion of the network and making sure that all applications connected to the wide area network. This was a large undertaking for the bank: they had never attempted it outside of Brazil.

Implementation

When Banco do Brasil started to think about consolidation, they looked at Linux, and particularly SUSE Linux as the operating system. The parent bank in Brazil is a passionate proponent of open source software, so the London team was strongly encouraged to use it. At the time they were looking to implement their solution, SUSE was the only Linux that had 64-bit capabilities. Members of the IT department started to experiment with Linux to gain familiarity. They found that it was powerful, could be easily used, and reliable.

The bank tackled file and print services first, as it was easy to consolidate across the geography. They chose to run diskless IBM eServer xSeries servers at the branches, consolidating the disks in London onto an IBM eServer iSeries running Linux. This model is much easier to replicate at the various branches, because it allows the IT department to control the file server operating environment and ensure that users have a consistent interface and application versions. The IT department was also looking to implement Lotus,

which also has many products available on Linux. For high availability on the file services, there is a mirror of the data running on another xSeries system. Because the iSeries integrates xSeries servers into its operations, the basic integration of the two architectures was mostly turnkey while facilitating the shift of applications to Linux. The back-end iSeries is also providing DNS and DHCP services. Consolidation of various services is possible on one iSeries system using the partitioning technology inherent in the architecture.

The bank also uses Linux for large volume data storage on a second iSeries while a third iSeries is running specific banking applications. At the bank's disaster recovery site, they have a fourth iSeries that has three logical partitions. Each partition is a back up of one of the three iSeries production environments.

Wisdom from Banco do Brasil

Banco do Brasil's IT staff are quick to point out that moving an entire infrastructure to Linux is an evolutionary and not a revolutionary process, often requiring extensive work with software suppliers. While Lotus, IBM, and others provide Linux support for most horizontal application needs, vertical applications such as those used by the bank provide some unique challenges. Since there is rarely a single banking application that provides all the needed capabilities, smaller niche applications are also required. This requires the IT staff to integrate larger applications with smaller applications. Fortunately for the bank, these smaller vendors are beginning to try Linux and are finding it to their liking. Like many customers, Banco do Brasil are encouraging their suppliers to try these technologies, because they do not want to become a software development centre, especially in a regional headquarters.

Banco do Brasil have found that limitations to Linux in the banking industry are not technical, but are driven by a shortage of inhouse skill sets. Quite reasonably, they point out that Linux cannot be implemented overnight, and recommend taking a year to invest nominally in the technology while getting the IT staff comfortable with the technology. They also emphasise that Linux is easier to use away from the end-user or client side. End users are entrenched in their desktop preferences and can only be changed slowly, over time. Aspects of Outlook can be replaced with Notes and Excel and Word can be replaced by web-based versions. They argue that the Linux operating system is in fact the last thing to bring to the desktop environment.

Once this transition takes place, opening a new site will be easy and quick for the IT department: all they will require is a communications link. The banking services reside in the London headquarters, and as long as the graphical user interface is similar to what is used in other locations, Linux can be deployed to employees in new locations virtually by remote control.

The work that Banco do Brasil have done so far has had positive results. While the work is not finished, they are beginning to see the benefits of a consolidated environment. They have found a reduction in the number of servers used and in the amount of maintenance required, and the network backups have become more reliable and disaster recovery easier. The IT department will continue to focus on the server for Linux and caution others that Linux requires the same time and education that all other operating environments require in order to derive maximum benefit.

Summary

Linux has become a familiar tool in the IT department for exploration and widespread use as an infrastructure server operating system. Companies are now less hesitant to take Linux into mission-critical environments due to limitations in its maturity. IBM and Novell/SUSE have successfully collaborated to address many of these issues and make Linux ready for strategic data centre use. The partnership of these two companies provides the necessary reassurance to cautious IT decision-makers that Linux is ready for prime time. SUSE's

distributions offer state-of-the-art tested Linux, combined now with Novell's network services expertise, as well as their broad market reach to provide customers with the services, support, education, and consulting needed to create Linux solutions. IBM's hardware provides the platform for businesses that need scalability, reliability, performance, and security. IBM's software provides the database and middleware tools needed to develop and run enterprise applications combining Express versions of their products that are integrated and tested to ensure rapid deployment.

To take advantage of Linux, mid-market companies should start with an audit of where Linux has a role to play within their organisations. A sensible first use is for infrastructure services such as file and print or firewall, where Linux is proven and well understood. The next logical progression is email, and further integration of Linux within the existing infrastructure. From there organisations can investigate moving other applications to Linux as an alternative to growing an existing environment, as a way to lower costs, respond to security issues, or take advantage of Linux's interoperability with a wide range of technologies. The growing base of success stories indicates that a range of mid-market businesses are using Linux with favourable results and are willing to discuss its benefits to their business and help other IT managers understand how it can benefit them too.