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Strategic Snapshot

Penguin Dreams:
Can Linux Help SMBs to Fly?
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INTRODUCTION

A study of IT history reveals a landscape of supercessions, of once-unbeatable companies and technologies rising and falling sometimes by miscalculations, sometimes by hubris, and sometimes by the rise of some new, often unexpected champion. In The Innovator's Dilemma *author Clayton Christensen discusses the messy dynamic between "sustaining" and "disruptive" technologies. To Christensen, sustaining technologies evolve predictably along lines that reflect the perceived desires of IT customers. Disruptive technologies tend to be less complex, less powerful, and most importantly, less expensive than sustaining technologies, but are capable of performing well in certain applications. While these capabilities may not be appreciated initially by sustaining technology advocates, they are "good enough" to help emerging technologies garner the market share required to survive, mature, and become even more disruptive.*

The arrival of Linux in the late 1990s provides a notable example of how a disruptive technology emerges, evolves, and eventually finds its way into the mainstream. Essentially, Linux was a UNIX variant initially developed by Linus Torvalds, designed to run on multiple platforms, including RISC, mainframe, and industry standard IA-32 hardware. Torvalds' decision to open his initial source code for public input/alteration was a dramatic departure from the typical proprietary product development model, as was the quick and enthusiastic embrace of Linux by the software community. Within months, this enthusiasm gained the weight of religious fervor among many Linux adherents, who publicly imagined a happy future where Open Standards Linux solutions would eventually displace Microsoft's and others' iron-fisted control of the commercial software market.

The truth, as usual, is a bit more complex. Somewhere between Linux adherents' vision of an Open Source future and Microsoft's proprietary hold on commercial desktop software lay the practical realities of building momentum around a new business technology platform which is Linux. In this paper, we will examine the origins, evolution, and current state of Linux in the enterprise, and focus specific attention on the role Linux solutions play in Small to Medium Business (SMBs). To this end, we will discuss issues and concerns that are critically important to SMBs, and consider how Linux solution vendors, particularly IBM, are responding.

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Linux Enters the Enterprise

Aspirations for Linux as an operating environment for businesses date back to its inception in the late 1990s by Linus Torvalds, who designed Linux as a UNIX variant to run on multiple platforms. Torvalds' decision to open his initial source code for public input and alteration was a dramatic departure from the typical proprietary product development model, as was the rapid and enthusiastic embrace of Linux by the software community. Within months, this enthusiasm amongst early adopters gained the weight of religious fervor among many Linux adherents seeking alternatives to existing proprietary solutions. Thus Linux took a seat in IT history as a disruptive technology: a less complex and less expensive alternative to entrenched proprietary solutions, yet quite capable of performing well for many applications.

The hype-fueled climate of these earlier times combined with grandiose visions (some would say hallucinations) of unseating Microsoft's stranglehold on the desktop and derailing its increasing software hegemony created an air of management suspicion around Linux. However, as with most technological advancements, over time more business-focused minds began to see the inherent potential of Linux in a corporate setting and soon recognized the pragmatic opportunity for Open Source infrastructure solutions. This potential also resonated with IT management and staff, and as IT vendors and Independent Software Vendors (ISVs) began to embrace Linux, it built market momentum. With growing input, investment, and support from industry participants, Linux evolved per vendor clients' desires, thereby driving its evolution from a disruptive to a sustaining technology.

Where and Why Linux Is Winning

Today, the support and investment that Linux enjoys from vendors is driven as much by their desire for success as by the technology's own merits and business value. The original promise behind Linux – a multi-platform UNIX-style offering that scales from PC desktops to main-frame computers – is now becoming a reality. Relative to rival proprietary solutions, Linux is proving a cost-effective and stable environment for deployment in Small and Medium Businesses (SMBs) while ISV support for the desktop, middleware, and ebusiness is impressive and growing. Companies are discovering that Linux represents a practical upgrade path for legacy UNIX solutions, as well as for their state-of-the-art application requirements.

Linux's appeal is spreading internationally also, with governments in countries such as Germany and China, as well as departments of the federal government including the Department of Defense and localities such as Houston, Texas demonstrating their support, thus lending Linux increasing credibility as a global IT solution that offers companies a secure development environment for business applications. This, combined with growing support from a wide variety of IT vendors and ISVs, is helping articulate the bottom-line impact Linux affords organizations of every kind.

Linux and SMBs: Special Issues and Concerns

Companies of all sizes are discovering the business benefits Linux delivers. Yet SMBs represent a unique demographic with specific concerns to address. SMBs tend to be the most practical of businesses: their long-term growth and profitability potential are governed by decisions grounded in a "scale-the-business" mentality. Compounding SMBs' pragmatism is the entrenched risk-averse sentiment of a business entity that is quite able yet often hesitant to embrace change. With this in mind, it is clear that FUD – fear, uncertainty, and doubt –

remain the largest obstacle to SMB's deployment of Linux. Beneath the benefits preached by the industry at large lie concerns associated with switching to Linux, including weighing immediate and longer-term costs against perceived and real benefits. The fear of change may remain the greatest psychological hurdle for Linux vendors to overcome in convincing SMBs of Linux's long-term pragmatic value.

The Linux Advantage for SMBs

What SMBs Stand to Gain from Linux Migration

FUD may have hindered Linux adoption in its formative years. But today, Linux adoption is enjoying impressive gains as SMBs come to realize the real business advantages afforded by Linux, including the benefits afforded by developing in the Open Source and Open Standards environment. For developers Linux represents a single platform for code development, regardless of the underlying hardware. This is in stark contrast to traditional UNIX developments, which must first cater to the specific requirements of a given hardware and operating system combination, then deal with the nuances of migrating software to sibling platforms. In a Linux world, this labor is reduced to a single platform that requires no migration effort outside that of a possible recompilation. As a result, an Open Standards environment can dramatically expand the number of supporters, suppliers, and developers a vendor can target with its offerings: a notable consideration in an increasingly competitive global marketplace.

Financial personnel should take note that migrating to Linux can afford SMBs substantial cost savings over proprietary alternative applications, while IT departments will understand Linux's increased flexibility as an infrastructure solution. Linux can be installed on platforms from numerous vendors, which provides greater flexibility in migration costs while mitigating concerns regarding hardware vendor lock-in over time. In addition, Linux can also be deployed on under-utilized or repurposed hardware, thus granting the SMB even greater flexibility. Similarly, Linux offers increased scalability for important software applications. Solutions that were once deemed too expensive for the SMB due to the cost of the hardware and the vendor's cost to develop the application on multiple hardware platforms can now take advantage of the lower-cost structure of the Linux platform to deliver a new class of SMB solutions at affordable price points. This cost structure takes a number of forms, including the ability to purchase a Linux license to be deployed across a company's IT environment without paying additional per-server fees. With this and other newly affordable solutions, SMBs can seek to improve their business flexibility, sharpen their competitive advantage, and garner customer insights once thought unavailable. Linux can provide a competitive advantage to SMBs that is analogous to what ebusiness did for SMBs in the early 1990s. This is a particularly appealing aspect of Linux as SMBs are rightly focused on future growth potential; migrating to Linux presents SMBs with a broader range of options for current and future business operations than many other solutions.

ISVs and Linux: A Key Issue for SMBs

Channel partner and ISV support is a key market signal that a new technology is enjoying positive adoption momentum. Since SMB customers rely heavily on ISVs and other channel partners to deliver IT solutions, the channels' support for Linux is critical to ensure Linux's adoption in this market segment. As Linux becomes ever more mainstream, a broadening range of business ISVs continue to show support for it. For example, a number of ISVs have stepped up with Linux offerings for the back office, including Clear Technologies, eOne Group, JD Edwards, SAP, and Mainline.

In addition, Linux support is brewing at the desktop. Although a clear leader for office productivity suites has not emerged, available solutions include IBM's Lotus productivity and

collaboration products, Ximian's Enterprise Desktop productivity suite and Sun Micro-systems' Star Office productivity suite. Nonetheless, the more critical issue is whether Linux on the server is incompatible with Microsoft or any vendor's desktop applications.

In an Open Standards environment, the standards, not the application, are the important factor. Hence, any ISV's offering that is standards-compliant should achieve the same level of compatibility regardless of whether it is Linux-based or not. However, in its On Demand initiative IBM is taking the further step of fully integrating Linux solutions across its greater product offerings, so that channel partners and SMB customers will not be saddled with the cost and effort of dealing with unexpected incompatibility issues.

IBM and Linux: The Big Blue Difference

A broad range of concerns face SMBs considering Linux and a seemingly broader range of vendors are jostling for position to address them. SMBs should seek to partner with a vendor that not only can bridge the transition from their current environment to Linux-enabled solutions but will be around to address any future needs. IBM's longstanding support of Linux is well documented, but the company is also devoting its energy and resources to understanding and meeting SMBs' Linux migration requirements.

Product Support

One concern IBM squarely addresses is the need for extensive Linux product support. IBM is investing in Linux across the breadth of its product offerings, bolstering its reputation as a global solutions provider. This should reassure customer concerns that Linux commitments are just passing phenomena. True to one of Linux's signature characteristics, IBM offers virtually unlimited hardware scalability with Linux support across all of its eServer product families including xSeries (Intel), pSeries (POWER), iSeries (POWER), and zSeries (mainframe) architectures. Since the Linux platform is not bound to a specific set of hardware, applications developed on the Intel architecture (for example) can be easily adapted for more powerful hardware as the need arises by simply recompiling software on the new hardware. This provides SMBs a well-defined Linux growth path on well-established IBM hardware solutions.

Linux support has also become an important component of IBM's flagship middleware and software offerings, including WebSphere, DB2, Tivoli, Lotus and more. Additionally, IBM's middleware forms the basis of the company's new Express brand portfolio. These new offerings include new hardware, software, services, solutions, and financing offerings designed to meet specific criteria for medium-sized businesses with respect to function, ease of use and management, and price. The Express portfolio is likely to play a key role in IBM's long-term strategy for supporting SMB customers and developers.

Given Linux's capacity for gluing together densely clustered heterogeneous IT solutions, such as grid (a network of servers with each contributing resources to a given workload) and/or High Performance Computing (HPC) environments, middleware support for Linux is a notably strategic effort by IBM. In this same spirit, IBM's On Demand initiative, while providing dynamic scaling of IT resources within the company, can also operate as a utility-style service via IBM's hosted data centers. This capability provides a flexible approach to support companies with smaller but still mission-critical workloads through virtual Linux servers within larger mainframe environments. On Demand represents increased flexibility and computing capabilities for SMBs looking to consolidate IT effort while embracing Linux.

Business Support

Perhaps most reassuring to SMBs considering Linux is that in choosing IBM and its Business Partners (BPs) for Linux migration efforts, SMBs can feel comfortable knowing they have

chosen a solution with the vendor wherewithal to endure business cycles and industry swings. IBM has successfully weathered decades of economic and industry cycles; its business longevity is unquestioned. SMBs seeking a partner for Linux solutions are sure to appreciate the security IBM offers over the competition be they competitive systems vendors who may have staying power but have only recently embraced a Linux strategy, or smaller, opportunistic Linux shops that cannot demonstrate long-term business viability.

The IBM Global Services and support organization should also inspire long-term confidence in SMB customers seeking a Linux solutions provider, as IBM and IBM BPs will be waiting in the wings as they have for countless prior offerings. Although rival service offerings strive to offer post-deployment consulting and assistance, IBM's Global Services reputation precedes it.

Industry Support

Vendors can show support for a new and promising technology with public support or peripheral product support. Yet only a subset of vendors gets actively involved with a new technology's roadmap and planning. IBM has developed a notable track record of participation in influential Open Source organizations, affirming the company's desire and commitment to contribute to Linux's development through the Open Source community.

IBM also has strong relationships with SMB-focused ISVs and understands their customers' needs. This is one of the most important factors for SMBs considering a Linux solution provider: the active interest and support of a vendor that understands the constraints and desires specific to SMB customers. IBM has an impressive lineup of product support in technology leading markets such as Digital Media and Life Sciences but it also has a rich channel of business partners that can deliver IBM solutions on Linux for virtually any vertical or market segmentation.

Case Studies and Customer Illustrations

Products, deployment theories, and marketing materials are fine, but are concrete examples available that demonstrate where Linux is providing competitive value to SMBs? The answer is a definitive "yes." To illustrate the business value of Linux-based solutions for SMBs, we offer the following review of where and how Linux is making a difference around the globe for SMBs today.

Growing Sales and Ecommerce through Linux

The challenge of growing sales is well understood by every business. Add to this the complexity and relative novelty of ecommerce and many a company may find itself mired in technological details and costs that may suggest that potential risks outweigh possible benefits. This is where expertise from IBM and IBM BPs can make the difference between thriving in new market opportunities and getting lost along the IT migration pathway.

eOne Group

eOne group is an ISV and IBM BP based in Omaha, NE that focuses on ecommerce solutions for SMBs that are typically in the manufacturing, distribution, retailing, apparel, and catalogs marketplace. The company's flagship product, eOne Commerce, provides selling, promotion, and marketing applications for the B2B and B2C markets, including integration with existing catalog, ERP, fulfillment applications, and other capabilities. In essence, eOne's solution provides an electronic retail store with employees that never sleep.

eOne Group released its first Linux based application in 2000 and since that time has seen Linux-based solutions grow to represent approximately three-quarters of its business. Two of

its customers, namely Wolfermans and Tommy Hilfiger, deployed IBM-enabled Linux solutions to solve customer growth challenges that they faced.

Wolfermans

Wolfermans, a purveyor of specialty foods and gourmet-baked goods, was founded in Kansas City, MO in 1888. In 1987, Wolfermans began selling primarily through mail-order catalogs and in the 1990s through its Web site. During the past four years, the company's Internet business boomed and its existing Web infrastructure consisting largely of CGI and old data access methods resulted in Web page loading times the company describes as "dreadful." Furthermore, since the holiday season accounts for 80% of Wolfermans' sales, the new solution had to not only scale to meet continuing sales growth, it had to operate at peak load for a sustained period during peak demand. Clearly, the existing solution could not scale to meet the challenges of an expanding business.

Wolfermans, through the assistance of IBM Business Partner eOne Group, deployed an IBM Linux cluster, which includes eServer x330 systems, WebSphere Web Application Server software, and DB2 database software, to power its online ecommerce site. With the new Linux cluster, Wolfermans has seen improved Web site performance that can scale to handle the demands of hundreds of thousands of online shoppers: a critical consideration given the estimated 1 million daily users that frequent the Web site during the holiday season. This new bundled IBM solution integrated with existing ERP, invoicing, and order history systems so the company was able to grow with the market demand for its products without creating another isolated silo of information within its organization.

Because of Wolfermans' decision to deploy a Linux based solution from IBM and eOne Group, the company was able to meet the latent demand in its new sales channel and grow top line revenue from a new class of previously untapped customers. In addition, the company is well positioned to scale to meet the increasing demand for its products, especially during peak times. This is a significant competitive advantage.

Tommy Hilfiger Garners New Distribution Channels through Linux-Based Solutions

Tommy Hilfiger designs and sells clothing, accessories, footwear, fragrances, and home furnishings. Historically these items were only sold in large department stores. The company recognized that it was not reaching customers who shopped in specialty and boutique shops, thus missing these opportunities to drive top-line business growth. However, Tommy Hilfiger maintained complex production and distribution channels and purchasing was typically accomplished through EDI and a direct sales force. The cost of implementing EDI in this market segment was prohibitive and the alternative of human management of a paper trial was equally onerous. Thus, the company decided to deploy a new B2B ebusiness solution.

The existing infrastructure included multiple back offices systems based upon HP, IBM Netfinity, and AS/400 servers operating under UNIX or Windows NT operating systems, with Sybase and DB2 databases, and many custom applications. The new Web infrastructure, designed and built by IBM BP eOne Group, includes IBM eServer xSeries servers running Linux to handle Web-based transactions, integrated online with IBM eServer iSeries servers running Java that are tied to existing wholesale and warehouse management systems.

With this new infrastructure, Tommy Hilfiger was able to create a new B2B portal for the company's specialty retailers and sales force that allows them to view select core and seasonal apparel products and other available inventory in real-time, as well as place, track and ship orders. Based upon the success of the portal, the company then decided to deploy a business-to-plant Web site that connects Tommy Hilfiger's global production facilities in order to speed design-to-product time and significantly decrease costs. In addition, the

company was able to create a virtual store that allows company employees to shop online at any time as opposed to the limited hours available in a conventional employee store.

Because of Tommy Hilfiger's decision to deploy a Linux-based solution from IBM and eOne Group, the company was able to develop new sales channels to reach untapped customers, decrease its production costs and time to market, and create a new employee benefit, all while leveraging its existing IT investment. Notably, the entire process of deploying, integrating, and launching the new B2B portal was completed in less than ninety days with no interruptions to ongoing business functions.

Delivering Information on the Road through Linux

Aitana SBS

Aitana Software Business Solutions, an ISV and IBM Business Partner based in Valencia, Spain, is a developer of software solutions for IBM iSeries and xSeries customers that are seeking Internet-based solutions such as knowledge management, Internet portals, and ebusiness transaction solutions, amongst others. The company specializes in collaboration solutions based on IBM Lotus Domino, WebSphere, and DB2, and either licenses its applications or delivers them as an Application Service Provider (ASP). Customers include banks, manufacturing, and industries with legacy systems that seeking to update their solutions to Internet standards.

One of Aitana's more interesting IBM-enabled Linux offerings was delivered to Bussitel, a company with some unique challenges and opportunities.

Bussitel

Bussitel is a Spanish firm that installs computer systems in public buses, incorporating audio/visual transportation and entertainment information and advertisements from local firms that provide Bussitel revenues. The system, known as Canal Bussi, is based upon a slimmed-down version of Linux and has been deployed in Valencia and Seville, with talks underway to provide a system for Barcelona. Buses are more challenging to equip than trains because their movements are freer than those of trains, but Bussitel has created a solution to this problem.

Initially Bussitel had created its prototype solution on a Windows platform, but it encountered several problems in the operating environment and available database and application software. As result, alternative technologies were examined and Linux was deemed a better choice. Since the computer systems on the buses are custom manufactured, the ability to modify the underlying operating system provided Bussitel additional design flexibility. The onboard systems communicate with servers at the bus garages and the data center in a heterogeneous mix of operating systems and hardware.

The bus system is automated end-to-end, with the next day's information and advertising data updated automatically. To update ads on the buses, the company deployed an Aitana SBS-developed system including IBM eServer xSeries servers and Lotus Domino to replicate content from its data center to the bus garages and from there to the buses through a radio network. Given the hundreds of buses to supply in a typical major city, the initial setup cost is considerable. Through Linux, Bussitel has been able to develop an affordable infrastructure that it and advertisers can depend on. The cost effectiveness of IBM's eServer xSeries made them a logical choice. However, IBM's and Aitana's commitment to Linux also makes scaling future server capacity a simple affair. Migration from eServer xSeries and other IBM eServer products can be achieved as easily as through recompilation of the application. Thus scaling the solution to meet the needs of a metropolitan or regional bus operator is not artificially constrained by the design limitations of a single hardware/software platform.

The reliability of this Linux based solution provided by IBM and IBM BP Aitana SBS means that bus riders receive a consistent information experience during their transport. Bussitel's reliable information and advertising solution guarantees advertisers that their messages will be delivered on a deployment platform whose cost can be reasonably recouped. Gone are the embarrassing system crashes that were prevalent in the pre-Linux solution, as are the refunds due to advertisers when their information was not delivered due to system failures. This Linux based solution from IBM and Aitana SBS offers the high reliability and performance necessary to deliver information, even when in motion.

Summary

The lofty original promise that Linux would dethrone Microsoft in business IT environments proved both a blessing and a curse. Linux gained temporary credibility in its association against the entrenched company software giant. However, with this came heightened expectations, to which a new and disruptive technology could never realistically live up. Linux's potential to evolve from a disruptive to a sustaining technology rested with established vendors and IT departments willing to explore Linux with an eye toward its potential business value, not just its potential to depose Microsoft or other proprietary solution providers.

With time, interest, and investment from IT organizations and cost-conscious boardrooms, Linux-based solutions are evolving and maturing into convincing alternatives that can meet SMB's IT needs. Relative to rival proprietary solutions, Linux is proving a cost-effective and stable UNIX-like environment for SMB deployments. ISV support for Linux – for the desktop, middleware, and ebusiness infrastructures – is impressive and growing, and Linux has gained international momentum as well, affording it a reputation as a global business solution.

For the traditionally pragmatic SMB, concerns over the impact of switching to Linux are prudent, but can be effectively answered by carefully weighing the costs and benefits of a Linux migration. Nonetheless, businesses are discovering that Linux represents a practical upgrade path for legacy SMB UNIX solutions, as well as for their state of the art application deployments. Valid concerns may be raised over the availability of adequate technical support and training, but IBM is one vendor that is seizing the opportunity to address such concerns for SMBs.

IBM's embrace of Open Source affords Linux the traditional corporate value that Big Blue represents. By supporting Linux solutions across the breadth of its product offerings, IBM is assuring the once upstart operating system a place in its own and the IT market's long-term business software vision. In addition, IBM's Global Services as well as IBM Business Partners, the Leaders for Linux, are capable of providing adequate support for SMBs before, during, and after their Linux migrations. IBM and IBM BPs have invested the time and resources to understand SMBs' unique needs, and have built strong relationships that can deliver robust, scalable, and effective IBM solutions on Linux.

IBM has harnessed the disruptive power of Linux and is channeling it into sustainable business solutions. The company understands SMBs' reputations for pragmatic business planning and is delivering solutions that offer SMBs — and Linux at large — a sustainable and pragmatic growth path. The potential of Linux-based solutions is a strategic competitive issue for SMBs. Given the cost competitive nature of today's economic climate, SMBs that take advantage of the inherent cost savings afforded by Linux-based solutions have the potential to harness significant business value and competitive advantage. For SMBs that are pondering a Linux migration, the collective efforts of IBM warrant serious consideration.