

## **The Dollars and Sense of Using Linux and Open Source**

*SMBs Choose Open Source over  
Open Wallet*

It was nearly ten years ago. I was researching what was about to happen to the market for my client's proprietary software when I discovered that a large municipality in Florida had chosen to use "Open Source" for all its IT needs. I was, quite frankly, shocked.

My client had had a good run selling its software when Microsoft suddenly announced that it would be bundling that capability into Windows – my client's market was about to disappear. However, this Florida city wasn't buying Microsoft – they were building their mission-critical applications using shareware. "How could they get away with that?" I wondered. At that point in time, shareware seemed a risky proposition – sure it was "almost" free – but who'd be there to support it if no one was paying for support?

Some four years ago, I first heard about Star Office. Although I'd been a fan of Sun's for a long time, Sun seemed out of touch with what "real people" needed for "real business". Sun was offering tools for geeks, and ordinary folks were unequipped to embrace Linux and Open Source in a meaningful way. Real business people had laptops running Windows and Microsoft Office. UNIX and its derivatives were in the purview of the lunatic fringe – some of the smartest people in the world – but nowhere near ready for prime time, consumable by mere mortals or attractive to a serious business buyer.

That was then, and this is now. The past 10 years have seen a ubiquitous, persistent, penetrating deployment of technology. Ten years ago, hardly anyone had touched the Internet, let alone relied on it for daily life. For some people today, Internet access is as important as electricity and more important than having a phone. Computers and all-in-one devices are subsuming the markets for stereos, phones, faxes, and cameras. Kids sign into daycare using a keyboard. Wireless hotspots proclaim a new generation. Blink and we're obsolete.

The world is forever changed. Newer generations are maturing with a technology fluency that portends dramatic, continued change in every nuance of business, education, and science. There is no longer any business, school or science independent of IT.

Two significant trends continue to propel these changes. They are *commoditization* and *convergence*. As any technology matures and becomes widespread, the cost of its manufacture drops dramatically in a free market – goods get cheaper, and the cheaper they get, the more affordable and standardized they become. The more affordable they become the broader the market they can penetrate. Broader markets enable economies of scale, lowering costs and perpetuating the cycle – until the good itself is so cheap that it becomes an affordable component in something of greater value. This is commoditization.

One way to create greater value is to bring the capabilities and function of more than one product or service together into one product or service – providing convenience, saving cost and time, or reducing the overhead of managing more than one entity, reducing the space needed to operate multiple devices, systems, and appliances, and leveraging the synergies of proximity. For example, if copying, scanning, and faxing can be done by one machine that uses one kind of paper, the space needed for one machine is significantly less than that needed for three, and having to order and stock only one kind of paper means less work and fewer mistakes.

This new “all-in-one” product is the result of the independent maturing of three different technologies coming together or *converging* into one product.

We know these trends. We can buy a very decent PC for \$300. Who would buy a standalone fax machine when they can have a scanner, copier and color printer rolled in for the same price? Why buy a phone and an answering machine if you can have one device with both capabilities at a lower price?

So what does this have to do with Linux and Open Source? A lot.

We’ve all benefited from the commoditization of the PC, and the commoditization of virtually every device we can name – from toaster to CD player, from phone to hair dryer. The price of a consumer good falls in an open market.

Why then, does the everyday software for our PC cost more than the PC itself? It’s certainly not the cost of manufacture or the cost of materials. It is, quite simply, that we haven’t had a truly open market. We’ve been suffering from a monopoly grip. The good news is that the market has now opened. We have choices. And the price of software has plummeted, if you’re paying close attention.

### ***Once Upon a Monopoly***

In the beginning there was UNIX. Well, not exactly, but you need to know that UNIX has been around for decades, that it’s extremely stable, and that it was designed to scale across infinite numbers of users, networks, and devices, across geographies and time. It was on UNIX that the Internet was built.

And then there was DOS. And darkness was on the face of the earth. Well, not exactly. But DOS was designed as a cheap, single-user operating system. Its design did not consider other users, places or longevity. The operative word was cheap.

As PCs were deployed, they went out first with DOS, and then with Windows – a graphical approach to a single user environment. This might not have been so bad if Windows machines stayed at home and minded their own business. But we like to talk to other people and businesses, by way of our computers. And this has been especially true since the Internet was made publicly available more than a decade ago. Since that time, Microsoft has tried again and again, to fix the single-user environment and allow its users to play nicely with other users – but the original design was inadequate. The only problem is that the more they fix it, the more they want us to pay for it. Well, the good news is we don’t have to, and, if we’re smart, we won’t.

### ***The World In Which We Compute***

Businesses rely on application software. Application software sits on top of an operating system, which in turn sits on computer hardware (virtual or actual). We understand that hardware is a commodity. The next logical building block – the operating system – is becoming a commodity too. The generic operating system – the one that does all the stuff it needs to do to enable applications to run on top of it and manipulate the hardware underneath it, the one that is achieving commodity status – is Linux.

*“We trace shareware back as early as the 1950’s when IBM created a society to share code to help avoid repeated.”*

The tide has turned. Suddenly Linux is mainstream and the bedrock for future development. It’s the development target of choice for new applications, it’s the de facto standard in Computer Science education, and it’s the rallying cry for businesses (private and public) that want to escape from a single-vendor market and monopoly pricing.

### ***The Linux Tide***

Originally intended as a version of Unix for Intel servers, Linux has been ported to virtually every platform – to the IBM mainframe, to IBM’s Power chip platform, to Sun’s SPARC and to a whole host of other devices. You can find it on PDAs, on mobile phones, on supercomputers and network appliances, on domestic devices like the TiVo and even on games machines. According to press reports, even the next version of the Sony Playstation is expected to run Linux. Six of the ten largest computers in the world are based on Linux. Linux’s low cost and the availability of its source code make it irresistible to device manufacturers across the world.

Linux is the most broadly used operating system in the history of computing – no other single operating system spans the diversity of platform and purpose. Because of its widespread uptake, it’s a sound bet that Linux is here to stay. Linux is rapidly becoming *the* standard operating system. Its commercial use on the server is fully established, with many large corporations like Reuters, Cisco, Shell, Toyota, and Google deploying it in many areas. Linux has proved particularly popular in the financial sector where at least 70 percent of Wall Street is using it. Governments in Europe and the Far East as well as the US NSA have deployed Linux in server installations. Boasting the most extensive user community of any software product in the world, Linux has 567 user groups in 82 different countries worldwide, including 155 in the US and 240 in Europe.

### ***An OS is not enough***

Though Linux has been alive and well and functional for a very long time, it’s taken time for application availability to catch up – but catch up it has. We now have the basic business applications, and the majority of new software development is targeting Linux. Because Linux is available for all kinds of hardware, application developers can create applications that run across platforms. Software developers know that making Linux their target means they can quickly and easily reach the broadest spectrum of users. They need not worry about support or the cost of support for the operating system on which they rely. They know that they are working in the environment of choice for most of the world. Developing for Linux means building scalability into the application.

### ***Offering Up Open Source***

Open Source is the formal development of the idea of shareware. Practically since the emergence of the computer, there’s been a secondary market in “almost free” software. Developers in universities across the world, independent software developers, and, sometimes, even developers in large companies like Boeing developed software for local or personal use. If the software had no immediate commercial potential and wasn’t classified as Intellectual Property belonging to a commercial entity, the developers often shared the software for “free”, providing the source code as well as the executable code

It wasn't exactly free because you had to support the use of it yourself. Sometimes, they charged a small, voluntary fee – but the intention was not that they would be making a profit – rather that they could continue development in this “open” environment.

The Open Source movement emerged as an evolution and formalization of the shareware phenomenon. The idea was “to create shareware collaboratively”. A specific legal license was developed – referred to as the GPL –the *general public license* – to protect such products from commercial exploitation by marauding software vendors.

There's a lot more to the Open Source philosophy than the GPL. For a fuller discussion, check out the open source site: <http://www.opensource.org> . For our purposes here, think about open source software as communally developed, continuously extended and enhanced, with perpetual ongoing support. Linux and Open Source now have global commercial, academic and political support. The profundity of this universal adoption cannot be overstated. Never before has the computer industry come together in such away for so many important reasons. Linux and Open Source code herald a new world order in software.

## ***The Tide Rolls In***

The rapid growth of the Internet changed many things, including the destinies of Open Source enthusiasts. In April 1995, an Open Source product, the Apache web server, made its first public appearance and quickly became the world's dominant web server. The Apache was functional, robust and available at no charge. Microsoft introduced its own web server, IIS, also at no charge, but it couldn't catch the Apache.

Both the Apache web server and Linux were particularly attractive to ISPs because they could buy servers and deploy Linux with the Apache web server at low cost. Linux and Apache were well supported, robust and ran on most hardware, including old Intel based servers that might otherwise be discarded.

This was great success for the Open Source movement, but it didn't yet constitute success in the commercial IT market. Linux was not supported in a way that satisfied the corporate user, in part because there was no marketing engine behind it – just a powerful word-of-mouth campaign. Momentum built quickly when a few companies were founded to actively market Linux, most notably Red Hat in the US and SuSE in Europe. In 2000, the investment and endorsement of Linux by IBM, gave the necessary force to forever change the market. They chose to invest \$1 billion, in Linux – not just to assist in its development, but also to actively market the Linux platform. In announcing the investment, IBM CEO Lou Gerstner said, “IBM is convinced that Linux can do for business applications what the Internet did for networking and communications - make computing easier and free from proprietary operating systems”.

## ***OpenOffice Opens Up Open Source***

Linux adoption on the desktop has lagged – for one good reason: Businesses need, at minimum, an accessible user interface and a suite of office software that will handle their existing documents and data.

We believe OpenOffice, with the addition of one or two other mature Open Source desktop applications, gives us what we've been looking for. OpenOffice is not new –its development began in Germany in the mid-80s. It was acquired by Sun Microsystems in 1999, and it's on its way to hundreds of millions of desktops right this very moment.

Siemens Business Systems conducted detailed testing on the viability of the Linux desktop within its own business. In a pilot project, Siemens used its own office staff (rather than IT staff) to deploy the Ximian desktop and applications suite, including a version of OpenOffice. Siemens found that, in terms of training cost, Linux adoption on the desktop is no more expensive than a Microsoft upgrade. Siemens Senior program manager, Duncan McNutt, who oversaw the testing, concluded that Linux could save 20 to 30 percent in administration costs, 50 percent in hardware costs and 80 percent in licensing costs.

For other Linux adopters, the payoff has been significant as well – echoing the idea that reducing the cost of support is as important as reducing the cost of the software. The Burlington Coat Factory Warehouse Corporation deployed Linux some five years ago, gradually converting each of its some 350 stores in a rollout that took four years to complete. Burlington's CIO, Mike Prince commented, "We have more people supporting a handful of Windows users than roughly 7,000 Linux systems. Unless there's a hardware problem, we almost never have to do anything with them."

### ***Saying Yes to Linux***

2003 proved a landmark year for Linux on the desktop. In a sweeping victory for Linux, the government of the city of Munich chose to replace 14,000 Windows desktops with Linux desktops. Saying yes to Linux was simultaneously saying a very firm no to Microsoft. Over the course of the last two years we've seen more and more end-users and software vendors alike saying no to Microsoft – no more costly upgrades, no more licensing fees for office software, no more trusted partnership and channel relationships abused. Putting their future in the hands of a global development community that consistently and rigorously improves, tests and secures the Linux and Open Source software, the world has made a strong commitment to moving away from Microsoft.

In November last year, China made a deal with Sun Microsystems to deploy Linux on 200 million desktops. Denmark chose to migrate the PCs in all its schools – about 1.1 million in total.

The Finance Ministry of Israel, in what it described as a "purely economic decision" suspended purchases of Microsoft software and entered into a cooperative project with Sun Microsystems and IBM to design a Hebrew language version of OpenOffice software, to replace Microsoft Office. According to the Seattle Times, a Finance Ministry spokeswoman, speaking on condition of anonymity, said "The Israeli government will not be purchasing new products from Microsoft, but will implement its contract to secure existing systems."

Other national governments, including those of Britain, Brazil, Japan, South Korea, China, and Russia, are exploring open-source alternatives to Microsoft.

One key element in the widespread uptake of Linux and Open Source software is economic. Governments that are sensitive to the computer literacy of their populations understand clearly that price is an issue. Moving to Linux and Open Source not only drastically reduces the cost of software, it means older equipment deemed obsolete because it could not support the latest and greatest versions of Microsoft Windows, can be put to good use running Linux and open source software. It only makes sense.

Beyond economic incentives, Linux adopters claim improved security. The English and Welsh police forces chose to migrate to the Linux desktop for security reasons. In addition, they expect to save \$1.6m a year on the 3,500 PCs involved in the now completed pilot migration project – about \$450 per PC per year. Eventually this project will move about 60,000 PCs to Linux.

### ***Linux and Open Source in the SMB Market***

In general the SMB market is late in adopting new technology. The reasons are many-fold. We have scant resources – budget, time, and deep technology expertise. We want proven products – we don't have time or money to waste. We rely on what we know works.

We've been in a predicament these last few years. The economy has been difficult in general. The prices we've been getting for our goods and services have fallen. The technology needed to support contemporary business demands keeps increasing –and so do the costs. It has felt like there's been no hope in sight. But SMBs are changing.

A 2003 survey by Gartner estimated that 45 percent of SMBs were either using or experimenting with Linux. More surprisingly, a survey by Jupiter Research, a division of Jupitermedia Corp., found that 19 percent – nearly one in five SMBs – were already deploying Linux and other open source software on the desktop. The survey also found that 52 percent of SMBs believed that Microsoft cared more about its own interests than customers' needs.

For more than a decade, using office software has meant buying Microsoft. As we tally up our costs and recognize exactly how much “tribute” we're paying – the disproportionate costs are waking us up. Now there is hope in sight and it is Linux and open source. Thinking SMBs are moving to Linux and Open Source for many good reasons:

- Cost
- Security
- Protecting our Investment
- Because we can

As **cost** is a primary consideration in all our decisions, cost is a primary driver in moving to Linux. There's been a great deal of propaganda around the “Total Cost of Ownership” of Linux and Open Source. We ask you to consider the source. Also, ponder these very important considerations: Linux is what's being taught and used around the world. Continued and future development is being targeted to Linux.

The number of people trained in Linux will very quickly exceed, if it has not already exceeded, the number of people trained in Windows. Linux systems have proven themselves far more stable and requiring much less support than Windows systems. If the cost of support is considered in the cost of software, Linux is the far more economical choice. Linux PCs are now available for as little as \$199. Having to pay nothing for a highly functional operating system and business software is like getting a complete gourmet meal at a fast food price.

Linux systems are fundamentally more **secure** than Windows products for many reasons. First, and foremost, the original UNIX design, from whence Linux derives, considered security implications in a multi-user environment from the get-go. Additionally, a global community is actively devoting continuous effort to keeping Linux secure – and succeeding. An Evans Data Corporation survey reports that its responders view Linux as the most secure OS.

To leverage our current investments, and **protect our future**, Linux and open source software make the most sense. Linux can be loaded onto old PCs and works well on them. Further, a recent developer survey from Evans Data Corporation found that 62 percent of developers were using open source code in their applications and 64 percent of developers saw Linux as ready for mission critical applications. Simply put, the future *is* Linux and Open Source.

If we believe in an open market and fair competition, if we want the best goods at the best price, if we want to conduct business without losing our shirt, we will embrace Linux and Open Source not only because we can, but because we must. At first the change may feel awkward and inconvenient. But it's kinda like owning your house free and clear versus renting – yes, you're responsible for taking care of it, but you don't have a monthly rent payment to make and you're not at the mercy of a landlord who can jack the rent or kick you out at his prerogative.

Copyright 2004, Baroudi Bloor International Inc.

*This paper was written by Carol Baroudi and Robin Bloor of Baroudi Bloor International Inc., a research, analysis and strategic advisory company serving the IT industry.*

*Carol Baroudi is CEO and founder of Baroudi Bloor. She is the site guide for ITWorld's small/medium business computing site <http://smallbusiness.itworld.com>. Her more than 20 years IT industry experience include her role as VP, Emerging Technologies, at Hurwitz Group, her co-authorship of the best-selling Internet book of all time – The Internet For Dummies, information architecture, management consulting and software development. Contact her at [carol@baroudi.com](mailto:carol@baroudi.com).*

*Robin Bloor is Research Director of Baroudi Bloor and President of Bloor Research, one of the world's leading IT analyst and consultancy organization distributing research and analysis to IT user and vendor organizations throughout the world. Contact him at [robin@baroudi.com](mailto:robin@baroudi.com).*



BAROUDI BLOOR

175 Pleasant Street ◀ Arlington, MA 02476 ▶ 617-747-4045 ▶ [www.baroudi.com](http://www.baroudi.com)