Linux in America

From a classroom in Finland to global domination, Linux is making it big everywhere. **John Brandon** uncovers the next step in the push for global domination – how Linux is invading America.

Our expert

John Brandon
John Brandon is a 20-year veteran of computing, having used Linux since its inception along with other OS flavours (including Lisa, OS/2, Mac, and a few other commercial options). He has the distinction of being a former IT director turned journalist.

What started out as a grassroots movement is slowly building into a full-frontal assault. Linux in the US has always been on the radar – after all, the kernel has powered countless consumer electronics devices, portable media players, and set-top boxes for the past 20 years.

Yet, there has been a noticeable shift in all segments of American industry, including large several major retailers, the US Air Force and universities, which choose the platform for increased security and stability. It's an interesting twist of fate because, as most Linux users know, the operating system and open source software in general is sometimes dismissed by pundits as a minor player because of its informal development model (a perception that is changing) and fragile support infrastructure. Yet even those 'barriers to entry' are changing.

So what does this shift mean for Linux? In many ways, the examples below reveal how the OS is being taken more seriously across a wider demographic, how it spurs innovation and technical solutions that the old methods and practices just can't deliver any longer.

In a few years – maybe five, or 10 or 20 – Linux will continue to invade the US market and other parts of the world, especially as more and more companies and institutions discover how they can bring innovative ideas into their IT departments and challenge the conventional rules.

> **"Linux is being taken more seriously across a wider demographic"**

Linux in business

It's no surprise that Linux has invaded businesses across the USA, though you might be surprised to learn that – much as Ubuntu gets the lion's share of the attention – it is not necessarily the distribution of choice in a large enterprise or even for a small company. Instead, Red Hat and Novell seem to have a corner on the business market in the US. Red Hat lists 47 successful deployments in US companies such as McKesson, Comcast, AIG, Warner Music Group and Ticketmaster. In most cases, these are sweeping deployments of server software, customer asset management systems, and mission-critical applications – not just minor installations for low-level computer systems in a data centre.

Metropolitan Bank Group in Chicago gives us typical example of Linux making inroads within a large company. With 85 branches in the Midwest and assets valued at over $3 billion, the bank examined the open source options for several years before making a decision to move to Novell SUSE, mostly beccause of the large-company support they would receive, but also because finding local support had been difficult. Thomas Johnson, the bank's IT director, says there is a perception that open source support is either non-existent or offered only by tech gurus. Today, he sees the Linux market maturing.

Cost benefits and flexibility

"With some of these larger corporations taking the reins for supporting the open source applications, I think the open source community will realise more buy-in from larger businesses," says Johnson. "Let's face it, businesses have enough risk without wondering how they are going to get support for one of the platforms that their critical application is running on. [Because of that] I think support for Linux in the United States is still in its infancy, but more and more companies are seeing the cost benefits, flexibility, and versatility of the operating system as well as open source applications."

"When start to talk about Linux, you tend to naturally flow into a discussion about the applications," continues Johnson. "The conversation turns into more of a discussion about the applications more than the operating system – which is really a compliment, because that just goes to show you that the operating system is doing exactly what it is supposed to be doing."

Another large company taking advantage of Linux is Office Depot, which in the US has spot-name recognition. With

❯ **Along with Red Hat, Novell dominates the lucrative business market.**

Ticketmaster

Who?
Ticketmaster is an online ticket distribution company, controlling over half the US market in ticket sales. Go to a gig by any major artist; you'll have to buy your tickets through Ticketmaster.
What do they use?
Strongmail Enterprise and Oracle running on Red Hat, to add email to its existing CRM system.

Warner Music Group

Who?
Warner Music Group is one of the world's biggest record companies. Flick through your record collection; much of it will be published by Warner.
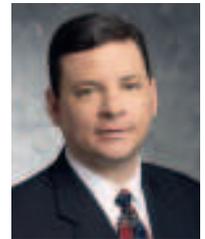**What do they use?**
JBoss Application Server, *Hibernate* and *Apache Tomcat*, as part of a massive customer asset management system.

1,212 stores in the US and some 50,000 employees, the retailer (which also has a strong online presence, with $4.7 billion in annual sales) primarily chose Linux because it runs on commodity hardware that may not match the spec required for Windows.

"The main application that Office Depot utilises through Linux is our *PeopleSoft* human resources system," says Mike Kirschner, vice president of IT for Office Depot. "The application supports our company's HR department – which supports approximately 52,000 global associates."

Even traditional software firms are starting to feel the open source love. One example is *IBM Lotus Domino* for Linux, which is

❯ **Mike Kirschner: "Linux is a cost-efficient option for us that uses commodity hardware".**

> ## "Even traditional software firms are starting to feel the open source love"

a robust server platform that provides the foundation for *Lotus Notes* (also available as a Linux client). Even though IBM is a commercial entity and holds rigidly to a corporate development and support mindset, it relies on its customers to help develop new features. Today, companies like IBM can't imagine what it would be like to develop software in a closed environment. (In some ways, Microsoft has also adopted the open source mindset, releasing early software builds called community technology previews for products that have always been tightly guarded secrets.) »

❯ **Office Depot's *PeopleSoft* handles the HR records of more than 50,000 employees.**
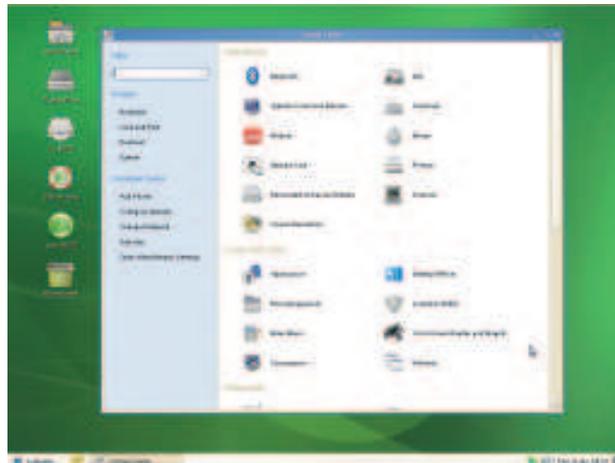
Linux in education

One walk around a modern classroom in the US – in the elementary and high school ages or at college level – and the shift to Linux becomes equally clear. While still dominated by Windows machines, classrooms often have a row of Ubuntu-powered desktops positioned for all to see, usually running educational software and well-populated with students who want to learn the latest thing and keep pace with technology. Given the choice, students will load a Linux distro on their own laptop because it enables them to experiment with new software, new development frameworks, and new concepts.

Linux is making progress as it is adopted by more and more school districts, both in terms of an enterprise platform serving applications and storing data, but also as a client platform for students. At San Diego United Schools district, 130,000 students (most of whom are in the upper classes) will have the opportunity to use the SUSE 10 operating system and open source software as part of their education program. "This mobile computing program will help students develop the cognitive tools that they will need to compete in the global economy," said Dan Wolfson, program manager of educational technology for the Office of the Deputy Superintendent of San Diego City Schools. "To be beneficial to students and cost effective for the district at the same time, our desktop operating platform needs to meet high standards of reliability, ease of use and administration, as well as being affordable. SUSE Linux Enterprise Desktop clearly meets those requirements."

Moving to Moodle

At Oakland University, the Linux OS provides more flexibility to grow because of the lower costs of installation and because it offers the ability to choose how and when the university receives commercial support, says Jim Pharis, a Linux systems programmer at Oakland. Pharis says Linux is now at a crossroads in US schools as a back-end platform for servers and as a thin client for classrooms where more students can get exposure to computing.

"We have a large Linux environment running a variety of production grade services," says Pharis. "Services we deploy run the gamut from applications that support our internal operations to course management software for streamlining communication

❯ Linux is making progress on the desktop too – 130,000 students in San Diego schools have the option to use SLED.

between students and their professors. For example, earlier this year we migrated 30,000 students and faculty to an open source course management system called *Moodle*. The feedback from our users has been overwhelmingly positive."

One key driver in the US education market is that many new world relief programs – including One Laptop Per Child – have show the American education system how computing can reach more students when it is based on low-cost or free software. New laptops such as the Asus EEE – which is primarily intended for classroom use and comes with a customised distro with educational tools and games – also point to a client trend. Wal-Mart, the largest retailer in the world and based in Arkansas, sells the low-cost Everex CloudBook laptop for US $399 and uses the gOS, which is perfect for students. Large US laptop makers such as Acer, Dell, and HP all offer low-cost Linux-based laptops. (Incidentally, Wal-Mart, the world's biggest retailer, also uses Linux for all enterprise computing in all of its 2,500 stores in the USA.)

❯ Over 30,000 students and staff at Oakland University use *Moodle*, to manage their studies.

Edubuntu

What?
Edubuntu is an official Canonical fork of the mighty Ubuntu distro, loaded with educational apps aimed at young children. If you've used Linux as part of a schools initiative, the chances are that you've used Edubuntu.
Who uses it?
The most recent major Edubuntu deployment was in FYR Macedonia, where 7,000 thin client computers loaded with Ubuntu have been deployed as part of the Macedonian Ministry of Education and Science's 'Computer for Every Child' project.

Linux in government

Local and federal governments have embraced Linux in addition to education and business markets. Budgets are tight at all levels, so a key driver is the cost of entry for the OS and for open source software in general. St Paul – located in Minnesota in the Midwest – uses SUSE Linux for all enterprise computing, serving collaboration software to the desktop. The Nevada Department of Corrections uses SUSE as well for enterprise computing in all 24 of their prisons and for all 2,600 employees. In Ohio, the office of the attorney general uses use a Linux-based identity management system with support from

> ## "The US Army manages the records of 1.2 million soldiers using RHEL"

Novell. Yuba County government in California uses Linux for enterprise computing, mostly because of the low costs and benefits of using commodity hardware.

Perhaps one of the most interesting deployments in the government sector in the US is with the US Army, which manages the personnel records of 1.2 million soldiers using Red Hat Enterprise Linux. The *Personnel Electronics Management System* (*Perms*) they use is a key part of their infrastructure and weeds out performance issues. "Our tests proved that we could accomplish our goal of lowering costs without sacrificing reliability," says David Lambert, a senior engineer at the Northrop

Linux in manufacturing

One area that has not seen nearly as much penetration in the US market is in industry – as indicated by the unusually minimal number of case studies shown by Red Hat and Novell, and the fact that there are hardly any clear examples of manufacturing facilities using Linux. This could have more to do with the fact that the manufacturing industry does not make for exciting case studies, or it could be because this sector is slow to adopt new technology and has relied on Windows for years.

Federal Aviation Administration

Who?
The FAA is the branch of the US Department of Transportation that oversees all matters to do with aviation, from certifying new aircraft to responsibility for on-board security. If you've been on a plane to or from the US, you've been served by the FAA.
What do they use?
Strongmail Enterprise and *Oracle* running on Red Hat, to add email to its existing CRM system.

Grumman army base. "Today the *Perms* serves as the access point for over a million soldiers."

Still, even with these advances, Linux has not made as much of an impact in the US government as it has in the UK or other countries around the world. Once reason might have to do with a long legacy of choosing Windows as a replacement for Unix, and the mentality that "if the budget is there, you should spend it" that drives some government bodies, as opposed to the business sector where the cost of entry is a major selling point for Linux as an OS and for open source software.

A new hope

Only time will tell if these important trends in Linux continue in the US. It's clear that other countries, most notably the UK, take advantage of the low cost of the operating system, especially for client computing, and that Microsoft continues to dominate in many large and small businesses. Some experts say the Linux adoption in the US for big business is in the low single digit percentages, even while new examples of its impact are appearing steadily. The main focal point for 2008 is the adoption of Linux laptops such as the Asus EEE and lower-priced models from Dell and HP, which could usher in a whole new invasion of Linux in the US that could take over the computing landscape for good. **LXF**

❯ **The City of Chicago has migrated to Linux from a mixed OS infrastructure.**