# Playing the game

Linux has had a huge impact on businesses and their software suppliers in the last two years. Rob Buckley takes a look behind the scenes to discover why

For a free operating system, Linux has made surprising inroads into the enterprise. According to analyst group IDC, Linux now powers 32 per cent of all new servers sold, and the last year has also seen a rapid increase in enterprise adoption of Linux for mission-critical systems. Many enterprise software suppliers are porting or have already ported their software to Linux. So why is it proving so popular to so many supposedly conservative groups?

Linux's boom among enterprise customers is predominantly down to one main reason – cost. "Every now and then, you see something appear at the right time," says Marcel Den Hartog, systems vendor Computer Associates'

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Dr Joseph Reger, Chief Technology Officer, Fujitsu Siemens
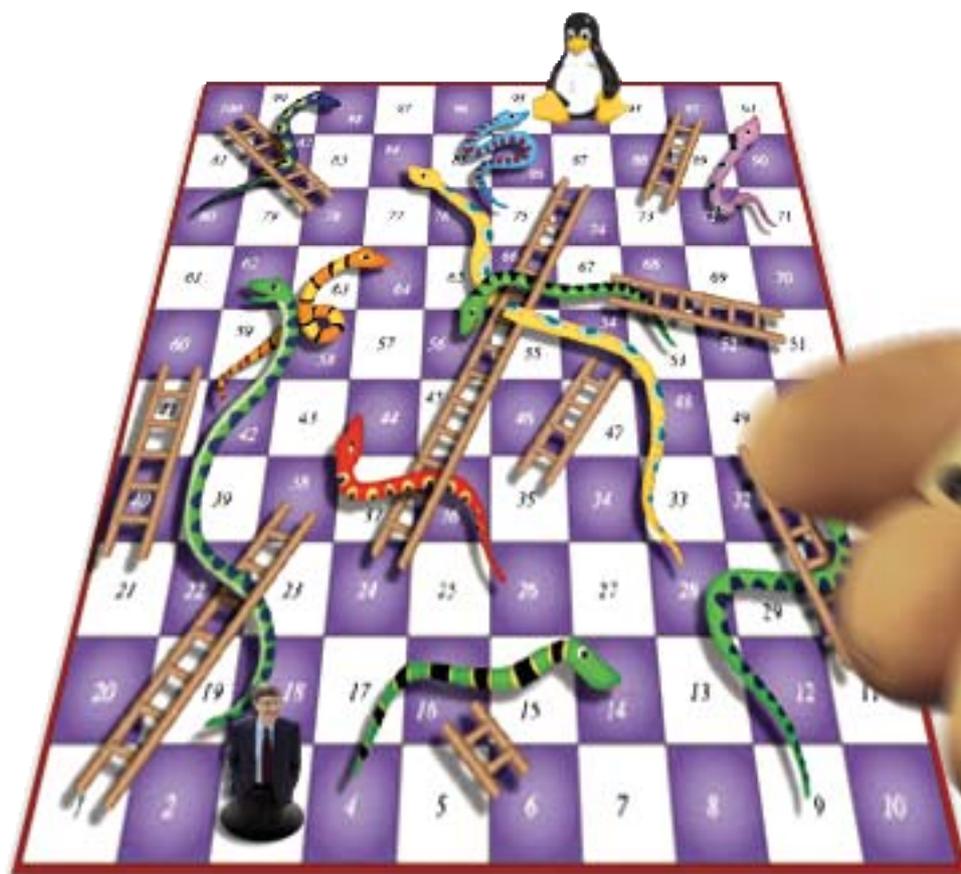
chief executive in the European, Middle-East and Africa region of its Linux Technology Group. "Linux came at a time when everyone was looking at their investments and their IT costs. It's a lot cheaper and so very attractive, and that's given Linux an enormous boost."

But Bob Griswold, VP and general manager for enterprise application vendor BEA's Java runtime products group, says that improvements in Linux itself have also contributed to the increased interest in the enterprise.

"Linux represents freedom from being bound to a certain vendor," he says, "and it has changed a lot, with the introduction of the 2.4 kernel and its scalability benefits. The widespread view among our customers and at BEA is that Linux is serious and ready for primetime."

Griswold says that through communication with its customers, BEA became aware two or three years ago of an increase in Linux's popularity. This was as a result of these factors and the performance provided by the combination of Linux and Intel hardware. So it chose to embrace the Linux explosion.

Confronted with this surging popularity, other suppliers have done likewise or have chosen to oppose Linux. Even former opponents have had to come terms with and even ship products based on Linux, while trying to protect their core products.

Vend-o-matic

Systems vendors have traditionally fallen into two camps – those that ship machines with their own operating systems, and those that produce hardware with another company's OS on it. For the likes of Dell, which falls into the latter camp, a Windows machine is no different from a Linux machine bar the licensing cost associated with Windows. Fujitsu Siemens, which sells Windows on Intel, Linux on Intel, Solaris on Sparc and Linux on mainframes, started working with Linux initially as "a technology affair, but it quickly became a business affair", says the company's CTO Joseph Reger.

"We relaunched our Linux efforts a couple of months ago," he continues. "It's been paying off and growing like crazy." Now 30-40 per cent of Fujitsu Siemens' Intel server business is Linux-based. "We wish to do a lot more with Linux," concludes Reger.

But for IBM, Sun and HP, each of which has its own Unix-based operating system, Linux is a potential threat. However, IBM has championed Linux and invested billions of dollars in advancing its features for enterprise customers, while Sun has begrudgingly introduced Linux-based machines into its product line.

IBM, with machines ranging from Intel-based xSeries servers running Windows 2000 through Power4-based iSeries and pSeries servers running AIX and zSeries mainframes running zOS, is keen to have a single, widely-used operating system that can run on all of its machines, reducing its development costs and letting customers have

access to a wider range of applications.

"What Linux gives you is a cross-platform operating system," says Adam Jollans, IBM's worldwide Linux software strategy manager. Linux is the 'one-size fits all' panacea IBM needs to heal the rift between its disparate systems while simultaneously curing customers' fears of being locked in to one vendor by their hardware choice. "You can decide to run on one server today and then in the future decide you need to run on a mainframe. You keep that choice."

In common with other high-end Unix vendors, IBM is still keen to promote its own operating system, AIX, at the expense of Linux. "For big operations, AIX is still better than Linux," says Jollans. "In the next few years, Linux will be able to do eight-way processing. AIX can do 32-way at the moment."

Craig Churchill, Sun's edge volume and solution manager for Europe, the Middle East and Africa, also argues that while the company has "always been very positive towards Linux" – an attitude he agrees the market may not always have picked up on. "We've always felt able to beat it with Solaris."

Linux's main appeal is its low purchase price, Churchill argues, rather than any technical superiority. "It rates very highly on total cost of acquisition – the jury's still out on the cost of ownership scale," he adds.

Despite Solaris's superiority, however, Sun has felt compelled by some of its customers' demands to port its software over to Linux and sell low-cost Lintel systems, and now regards itself as a key Linux proponent.

Churchill claims that by offering Linux systems, the company has retained customers and even attracted some, supplementing the company's Solaris sales rather than gutting them. This is a positive move as far as he's concerned.

However, Russell Coombes, HP's Linux director, says Sun's Linux message still is not enough to keep customers from moving to a company that whole-heartedly endorses Linux, such as his own. He claims that 90 per cent of the interest in HP's Linux servers comes from Solaris users, rather than Windows migrators or those using its own HP-UX Unix operating system.

HP draws a line between the high-end and the low-end, pitching Linux as a good choice for machines with two or four processors, with HP-UX a more advisable choice for involved work.

"We have to be careful," Coombes explains. "We could really promote Linux and it could be seen as cannibalising our HP-UX installed base or it could be seen as attacking Microsoft. Linux is very strategic to HP now. We are evangelising it. We have many customers and ISVs moving to Linux, so we have to make sure we are part of that whole movement."

And while Coombes mainly sees Sun's customers leaving Solaris on Sparc for Linux on Intel, he foresees a time when Linux's ever-improving performance and feature-set affects HP-UX and AIX as well.

The three companies, aware that by removing their hardware lock-in they are opening themselves up to the possibility of dissatisfied customers being able to migrate to

a competitor's servers with relative ease, are hoping to differentiate themselves through their hardware, services and support. Other vendors are doing likewise.

"What we offer on Intel are enterprise features, such as systems management tools of heterogeneous environments," says Fujitsu Siemens' Reger. The reasoning is clear. "There will be a part of the Intel server market – the low-end, price-sensitive portion – where differentiation will not be possible, not asked for and not required by customers," he says. "In the part where we can't differentiate, we just do the same things as the others are doing. But for those parts where it really makes a difference, it's important that we differentiate."

Software side

Equally, software developers have been watching Linux's progress with a mixture of happiness, interest and dismay. For most, Linux is just an operating system.

"CA has always had a credo of supporting whatever hardware our customers use," says Marcel Den Hartog. "Linux is just another platform." Martin Tenk, SAP UK's head of technology, says that the company mainly sees it as another platform to support to give its customers choice, while technology consultant Steve Curtis of PeopleSoft, which has decided to port of all of its applications to run on Linux, says that the company is merely reacting to customer demand. "PeopleSoft has always said that it is being driven by the market, not leading the market. We look at where the market is going and we've seen a big shift in the last 12 months in the potential for use of Linux, with a lot more institutions actively looking at it."

Others, however, see Linux as an opportunity. For a long time the champion of closed, proprietary standards, Novell lost its dominance with its NetWare product of the network operating system market to Microsoft after its rival embraced open networking standards and ease of use in Windows NT. Now it hopes to make a comeback via open standards by allowing customers to run all its network operating system functions on top of Linux.

"We're giving customers independence around the operating system," says MD Steve Brown. "Customers can run NetWare in a Linux-only environment, or in a mixture, with the robustness, scalability and reliability of NetWare." New customers will not have to worry about being locked into NetWare, and will have Novell's support and engineering organisations behind them to ensure enterprise-level reliability. The company is also attempting to create a portfolio of Linux-based applications, a move that has already started with the purchase of Ximian, developer of the Linux-based Evolution alternative to Microsoft Outlook.

Oracle, with no operating system of its own and a long-standing rivalry with Microsoft, sees Linux as a positive matter.

"It's a really great operating system. A really great solution," says Wim Coaekaerts, principal member of Oracle's Linux kernel group. "We have full deployments around Linux and it saves us a lot of money."

While Oracle does not promote one operating system

over another, says Coaekaerts, and it does not want to push its customers onto one particular platform, the company has been doing all it can to assure its customers that a move to Linux is not only technically possible but practical as well.

"There was still a fear in big customers," recalls Coaekaerts. "They needed something supported in the long-term. They weren't sure if Red Hat or the United Linux group were going to be around in the next few years. So we created 'Unbreakable Linux', in which we support both Oracle products and the operating system."

Oracle customers using Linux can go directly to Oracle rather than their Linux distributors and Oracle will help them, even to the extent of getting Coaekaerts' group to rewrite Linux to fix problems. "Now our customers are no longer worried about the other companies."

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This ability of application and hardware vendors to provide operating system support poses problems for Linux distributors. Two years ago, as Linux was starting to look a serious possibility for enterprise, fear of a repetition of the great Unix fragmentation of the 1980s drove many potential customers away from Linux and encouraged many would-be resellers such as IBM and Oracle to look for a *de facto* standard distribution.

"We went to all the Linux distributors and asked which of them was serious about the enterprise," says Coaekaerts. "Red Hat was the first to come forward."

But after Linux distributors clubbed together to develop the Linux standards base, a way of ensuring that distributions and software remain compatible through constraints on what may be altered in a Linux distribution, the fear subsided. The result now, according to SuSE Linux's strategic alliance director, Malcolm Yates, is that no one in the enterprise really worries about which Linux distribution they use. "Fragmentation concerns disappeared about two years ago. People don't ask that question any more."

Differentiation

But if no one worries about which distribution they use, how can distributors make their products more interesting to enterprises than those of other distributors?

Linux distributors have few fundamental ways to differentiate themselves technically in the mainstream enterprise market, with some smaller distributors choosing to specialise as a way of making themselves more attractive. Red Flag is more popular in the Far East because of its enhanced text-handling capabilities for eastern languages, for instance, and Connectiva fares equally well in South

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Bob Griswold, VP Java Runtime Products Group, BEA

S M E L L   T H E   J A V A

Having a Java virtual machine and J2EE application server suitable for the enterprise means that companies that would not have been able to move their products to Linux are finally able to do so. Customer relationship management software specialist Siebel, which remained closed-mouthed about Linux until the start of the year, announced a deal with IBM to integrate its software with IBM's WebSphere J2EE platform. The company's vice president and general manager of alliances, Jeff Scheel, acknowledges that IBM's decision to bring WebSphere to Linux is key to the company's own Linux strategy.

"It insulates us to the issue of individual operating systems," he says, "so we can run wherever the application runs, including Linux. This is the only way we could go to Linux. With IBM's help, we could get there sooner than with our own app server."

Scheel also hints that if customer demand is enough, it will also move its application server to Linux. "When it becomes a critical component of customer demand, absolutely we will have it."

The biggest potential loser in the onrush of Linux is Microsoft, which has everything to lose from Linux overturning its dominance of the Intel market. It has already promoted Linux to Public Enemy Number Two – second only to a depressed US economy, according to CFO John Connors.

Aware that cost is Linux's biggest appeal, the company argues that with its products, "customers and partners benefit from a business advantage that helps people to be more productive – all at a lower total cost of ownership."

Nevertheless, Microsoft "recognises that customers have choices and that in some cases, Linux may be one of them."

But it has still been forced to share the Windows source code with some of its trusted partners, offer massive discounts to avoid losing large deals, and even offer some of its own software for free in an effort to make Windows more attractive than Linux. It has even appointed a ten-year veteran of the company, Martin Taylor, to head up a unit looking at ways to fight Linux. He, in turn, is running Microsoft products head-to-head against open source products to see where Microsoft's are lacking.

In contrast to operating systems vendors, software developers have little to lose and much to gain from Linux's adoption. But with Linux now an almost unstoppable movement, even companies whose products are jeopardised by Linux's success are having to include it in their product catalogues, while downplaying its capabilities.

As Martijn Dekkers, technical architect at services company Computacenter, suggests, "I think every vendor has its own agenda. Vendors with a stake in the data centre are pushing Linux primarily at the edge. Vendors with an investment in the desktop say it only works in the data centre. They're all trying to push Linux away from where they're trying to play. But I think if you take an objective view of the market, you will see Linux is playing a good game everywhere."

America thanks to its support for Brazilian Portuguese.

The larger vendors, Red Hat and SuSE being the current enterprise favourites, work with hardware vendors to ensure their distributions are shipped with their servers and have features that the server vendors need. These are, of course, then fed back into the open source community where any other vendor can take advantage of them. Thus SuSE has taken some of the code from the Linux 2.6 kernel, including the new asynchronous I/O and granular resource control, and rewritten it for its Enterprise Server based on the 2.4 kernel. Since these changes are open source, Red Hat is now likely to include them in the next version of its server.

If other vendors provide support to their enterprise customers, support is no longer a way to penetrate the market at the top-end. Instead, distributors use partnerships with hardware vendors to establish footholds in large enterprises. But support is how they intend to penetrate the small to medium-sized market. The small and medium-sized business with only a few servers or perhaps just one is not often interested in support from the likes of IBM Global Services – they want costs as low as possible, and they are perfectly happy to go with the distribution that keeps their costs down while offering the most benefits. Red Hat and SuSE are both duelling for enterprise interest with ever better support deals; SuSE now offers to provide unsupported patches to customers the second they fix a bug, with support coming once the patches have been thoroughly checked; and Red Hat includes five years of support with its enterprise servers.

Equally important to distributors are the vendors who are platform-neutral who may not have the resources, the inclination or the customer-interest to justify a Linux support department.

"You've got to bear in mind that PeopleSoft is fairly early on," admits PeopleSoft's Curtis. "We have had Linux support on three out of four layers of our architecture for quite some time and through our new partnership with IBM, we can now support the application server – the fourth layer. But we've not got a customer in the UK running PeopleSoft on Linux all the way through."

Similarly, SAP's Tenk confesses that although 1,000 of the 60,000 SAP installations worldwide run on Linux – enough to warrant full support globally – only one of those is in the UK and Ireland. SAP and SuSE have now agreed a deal whereby SAP customers running their software on SuSE Linux Enterprise Server will now receive centralised support from engineers specifically trained in the software combination.

One reason for this platform agnosticism is many enterprise applications are written to run on virtual machines or J2EE application servers – wherever the virtual machine or application server can run, their application can run. So as long as there is a Linux virtual machine or J2EE application server, their application will run on Linux with minimal effort.

While SAP has its own virtual machine and Linux's similarity to Unix makes it an easy port (Linux has the free J2EE application server JBoss), IBM and other vendors have ported their own application servers and virtual machines to run on Linux.

"In our experience, people will play with open source programs (such as JBoss) but deploy on enterprise class ones," claims BEA's Griswold. "The main roadblock to mass adoption of Java in the enterprise was the lack of a good Java virtual machine for the Intel architecture. Intel knew it was going to make a big move into the enterprise. So 18 months ago, we signed a deal to bring jRocket to Linux. We now have the highest performing Java virtual machine in the world."

Linux is also now the fastest growing platform for BEA's products as a result. "It's remarkable, the degree of change in the Linux market over the last 12 months or so," Griswold concludes. There's been a dramatic increase in interest as well as full-scale enterprise deployments of Linux. It's almost like in the last 12 months or so most of our customers are now viewing Linux as ready for prime-time."