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THE time of the PENGUIN

At 10, Linux finds growing up is hard to do

By CNET News.com Staff
CNET News.com

On Aug. 25, 1991, Finnish computer science student Linus Torvalds sent an announcement that he was creating an operating system for Intel-based computers-- "just a hobby, won't be big and professional," he said.

Ten years later, Torvalds continues to release new versions of Linux every few weeks, but he was wrong when he predicted it would be just a hobby. The operating system has lured countless programmers, spawned numerous start-ups, clawed its way into the product lines of the biggest computer sellers, and won a place in the center of the most entrenched computing company of them all, IBM.

<p style="text-align: center;">Linus Torvalds The Finnish programmer created and still leads development of the Linux "kernel," the fundamental part of an operating system. Torvalds has since gone to work for Intel challenger Transmeta.</p>	
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It's a rags-to-riches story, but in the next decade, Linux fans will have to work to keep their momentum.

Microsoft has begun waging serious war and is working to undermine Linux's legal foundation. Many of the companies trying to capitalize on Linux's popularity aren't surviving the economic downturn. Linux still doesn't pose a threat to Microsoft's dominance in ordinary desktop computers. And the loosely organized band of programmers who lifted Linux to the level of competing operating systems now must find how to push Linux ahead.

Why Linux caught on where others failed Page 2

Linux hasn't come close to writing Microsoft Windows' obituary, but in the 10 years since the operating system was born, it has carved out a growing position where others have fallen by the wayside.

Linux Stocks burn out, fade away Page 5

The stocks looked bright two years ago, but as the general tech market tumbled, Linux companies followed.

Readers' turn: Is Linux a threat to Microsoft? Page 7

Many say Linux is a contender to Microsoft in the server-software market but has little hope on the desktop. Others hope Linux can disrupt the giant's juggernaut, though maybe not in the short term.

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THE time of the PENGUIN

Why Linux caught on where others failed

By Stephen Shankland
Staff Writer, CNET News.com
August 24, 2001, 4:00 a.m. PT

Linux has attained a rare distinction among operating systems: Through a combination of technology and culture, the Unix clone has given Microsoft serious worries.

Linux hasn't come close to writing Microsoft Windows' obituary, but in the 10 years since the operating system was born, it has carved out a growing position where other operating systems have fallen by the wayside or been relegated to niche status.

That success stemmed from a variety of factors that came together at the right time, analysts and Linux community members say: a backlash against Microsoft, the growing power of Intel computers, the excitement of a band of programmers able to work together via the Internet, the flexibility of the operating system, and the pragmatic approach and folksy personality of creator Linus Torvalds.

While Linux has gained a foothold on the computers of every large server maker, technically respected operating systems such as BeOS, Amiga and OS/2 have faltered, and Apple's Mac OS and various versions of Unix largely have been consigned to smaller niche markets.

Programmers, dissatisfied with Windows and looking for a change, saw in Linux a way to make a difference, said Giga Information Group analyst Rob Enderle.

"It became a counterculture offering. Apple dropped out of that role and something had to fill it," Enderle said. "Part of what made it alternative was its open-source nature. It made them about as different

from Windows as you could possibly get."

Over the years, Linux caught on with companies as well as volunteers. First came a raft of Linux companies such as now-leading Red Hat, Caldera International, SuSE and Turbolinux. Next came the support of companies such as Oracle that sold database software. Then the server makers arrived and began offering their own improvements, culminating in IBM's commitment to spend \$1 billion on its own Linux programs.

"Linux is maturing faster than any operating system in history," said Dan Frye, director of IBM's Linux Technology Center and the one who three years ago this month began IBM's evaluation and eventual backing of Linux.

One strength of Linux--and one of the main reasons IBM likes it--is that it can run on many different computer designs. That includes IBM's four major server lines as well as numerous specialty systems used for "embedded" systems such as handheld computers and network routers.

It didn't start that way. Torvalds initially designed Linux only for Intel's 386 processors. But at the same time that Microsoft was abandoning non-Intel chips such as the PowerPC, MIPS and Alpha, Linux redesigned so chip-specific components were generally separate from most of the operating system's workings.

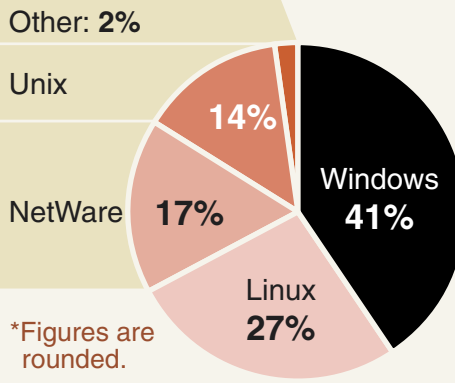
Amiga, BeOS, Mac OS, OS/2 and the various versions of Unix largely have been locked to a specific hardware platform.

"The Amiga guys, Apple guys and OS/2 guys all came from a hardware-centric" viewpoint, said McDonald Investments

Servershare

Four operating systems divvied up the bulk of the OS server market last year.

Market share*



*Figures are rounded.

Source: IDC

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A decade of development

January 1984
Richard Stallman launches the Gnu's Not Unix effort to clone Unix, leading to key operating system components Linux eventually will use, as well as the General Public License that ultimately will govern Linux.

April 1991
Finnish computer science grad student Linus Torvalds begins working on an open-source clone of the Unix operating system.

Aug. 25, 1991
Torvalds announces his project in an Aug. 25 newsgroup posting to fellow programmers, saying the software is "just a hobby, won't be big and professional."

Oct. 5, 1991
Torvalds releases the first version--labeled version 0.02--of the core, or kernel of Linux. He calls on fellow programmers to expand and improve the operating system.

March 1993
Linux software company Red Hat founded under the name ACC.

March 1994
Version 1.0 of the Linux kernel is released. Linux is estimated to have some 500,000 users.

October 1994
Linux start-up Caldera formed to sell packaged versions of Linux and associated applications.

June 1996
Version 2.0 of the Linux kernel is released. The community of Linux users is estimated at 3.5 million.

May 1998
Struggling software maker Corel announces plans to create Linux office software products.

September 1998
Microsoft lists Linux as a possible competitive threat in a filing with the Securities and Exchange Commission.

October 1998
Red Hat receives financial backing from Intel, Netscape and two venture capital firms, signaling growing corporate interest in Linux.

continued...

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Why Linux caught on where others failed

analyst Brent Williams. "Even though they were talented software guys, they were designed by hardware companies."

Linux also has accommodated growing corporate interest. "A majority of key players in Linux today are paid to work on Linux," Frye said.

Keeping developers entertained
One key reason for Linux's success is that its open nature meant that curious programmers could influence the operating system--something not possible with proprietary alternatives.

"Developers hate using poor software," said Michael Tiemann, chief technology officer of Linux leader Red Hat. "Any software development model that gives you permission to make changes to the source code" lures programmers and leads them to create better software.

Linux technically refers to just the kernel, or core, of the operating system, but the term is used to include many higher-level components as well--for example, the Xfree86 graphics system, the Glibc library of supporting software, and the GNOME and KDE user interfaces.

With all these packages to choose from, and nothing prohibiting developers from starting new projects, there's plenty of room for projects to keep programmers interested--a key factor in ensuring the longevity of a software project.

"The developer community is like the middle class," Tiemann said. "If you don't have a good middle class, you're going to end up with a highly unstable nation-state."

And despite the large number of companies and individuals backing Linux, the software project has largely retained its cooperative nature. That's been key in avoiding Unix's fate of "fragmentation," in which several companies work independently on different versions.

"Most Unix is failing because it's tied to a single vendor; it varies a lot by vendor and because there was a lack of investment in it," said Alan Cox, second-in-command of Linux after Torvalds. "Each vendor duplicated the development, the costs

went through the roof, and both compatibility and progress suffered."

In contrast, Linux is "about sharing, working together and building something where everyone gains," Cox said.

One long-touted advantage of open-source software, in which anyone may freely modify and redistribute a program, is that customers aren't beholden to the company that sold them the software.

"I can't imagine many customers...doing that, but it's a big safety net," said McDonald Investments' Williams. "If you buy a proprietary operating system and there's a bug in it, you probably have to wait four, five, six months for a patch to come out. If you've got the source code, you can hire somebody who knows about these things to fix it."

Added IBM's Frye: "One percent of customers really take advantage that the source code is there."

Tiemann gave a minor example of how well it can work: He found the open-source Mozilla Web browser and e-mail program had a needlessly sluggish search method, so he wrote a patch, installed the modified version, and sent the results off to the Mozilla team.

"Wow, the CTO of Red Hat still cuts code," came the surprised response from Mozilla.

Linux strong where competition is weak
Linux also attacked Microsoft and Unix where they had weaknesses. Microsoft is dominant in desktops, but competition is stronger in servers, where Linux is most widely used. And Linux was cheap, while Unix customers had to pay a premium.

Linux programmers didn't have to start from scratch to build this success. Linux plugged into the GNU's Not Unix (GNU) effort to clone Unix, adopting many of the design and utilities of Unix if not its exact software code. But the programmers did have to struggle for years without support from those who designed chips, network cards, and just about every other computer component that requires a software "driver" to work with an operating system.

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A decade of development continued...

November 1998
Linux powers an off-the-shelf, ranked as one of the most powerful computers in the world.

December 1998
Researcher IDC reports Linux use on servers is growing fast, with more than 17 percent of new servers shipped with the OS.

January 1999
Hewlett-Packard, Compaq and other computing heavyweights announce they will begin selling Linux systems.

Feb. 16, 1999
Linux users demand a refund for having to buy PCs pre-installed with Windows software they don't use in a poorly attended but widely publicized protest.

March 1999
The LinuxWorld Conference and Expo, the first major trade show devoted to the OS, kicks off. Corel announces plans to create and sell a version of Linux.

April 1999
Dell Computer invests in Red Hat, joining Oracle, SAP, IBM, Compaq, Novell, and earlier investors Netscape and Intel.

May 1999
Kleiner Perkins Caufield invests in Linuxcare, a company that aims to sell services for Linux.

July 1999
Caldera Thin Clients renames itself Lineo and becomes one of the earliest companies to focus on using Linux in "embedded" computing gadgets such as network routers and set-top boxes.

Aug. 11, 1999
Red Hat becomes the first Linux company to go public. Shares more than triple in price on their first day of trading, kicking off a brief but heady Wall Street love affair with the OS.

Nov. 15, 1999
Corel releases a desktop version of Linux designed to compete with Microsoft's Windows.

Dec. 9, 1999
--VA Linux shares jump nearly eightfold in their first day of trading, the biggest IPO jump in Nasdaq history. Linux firms big and small are lining up with IPO plans to get a piece of the investment

Feb. 3, 2000
VA Linux spends \$800 million to acquire open-source information site Andover.Net.

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software "driver" to work with an operating system.

"Early on, Linux developers wrote drivers without help from the hardware manufacturers," said Bryan Sparks, founder of Caldera and now chief executive of embedded Linux company Lineo. "Now that's flipped. Now the hardware peripheral manufacturers are writing drivers that support Linux themselves."

Sparks also praised Torvalds as a practical leader who didn't suffer from the arrogance of some others. "He was in the right place at the right time with the right personality," and thus the group that became Caldera decided to use Linux, not NetBSD or other alternatives.

Challenges remain
But other operating systems have risen and fallen, and Linux isn't guaranteed success. Many of the companies backing Linux have suffered or expired altogether in today's unforgiving financial environment, failing to convert Linux's popularity into corporate profits.

"It's easier to write a clone of Unix than to be in the lead and say, 'Where do we go from here?'" Sparks said.

IBM's Frye said Linux's biggest challenge is to increase the number of business software companies supporting the operating system.

And Microsoft, once trying to dig into the Unix server market at a more leisurely pace, now has a full-court press on Linux and the General Public License (GPL) that underlies it.

"Microsoft and others are moving quickly," Sparks said. "The fact is, (Microsoft has) \$30 billion to spend and a whole bunch of engineers to put on the problem."

Still, Microsoft must worry, particularly because Linux is such a popular learning tool in schools.

"The trend is not good" for Microsoft, Enderle said. "More and more kids are coming out of school with a Linux bent. People doing open source are often at the top of their class--similar to the people

"The trend is not good" for Microsoft, Enderle said. "More and more kids are coming out of school with a Linux bent. People doing open source are often at the top of their class--similar to the people who drove Windows into the market a decade ago." ■

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A decade of development continued...

April 7, 2000
Linuxcare withdraws its IPO plan and begins a long period of management turmoil.

April 2000
Shares in Caldera Systems, VA Linux and other Linux companies sink below their IPO prices, signaling a souring investment climate.

June 12, 2000
IBM adds Linux to its laptop offerings.

Dec. 12, 2000
IBM CEO Lou Gerstner pledges the company will spend \$1 billion on Linux in 2001.

Jan. 5, 2001
After numerous delays, Torvalds releases version 2.4 of the Linux kernel, which includes support for many new peripherals and processors and the ability to handle larger amounts of memory.

Feb. 15, 2001
Microsoft begins a war of words against Linux and open-source software in general. The software giant claims the open-source model is un-American and threatens the entire software business. Open-source advocates say Microsoft is scared and arrogant.

Feb. 20, 2001
VA Linux cuts a quarter of its more than 500 jobs, as Linux companies feel the heat from the high-tech slump.

Feb. 28, 2001
IDC estimates Linux's share of the worldwide server market at 27 percent.

April 2001
Linux makes inroads into non-PC embedded devices.

April 2001
Indrema, which planned to sell a Linux-powered video game console, folds.

May 2001
A former rival becomes an ally as Caldera completes the acquisition of Santa Cruz Operations' Unix products.

June 22, 2001
LynuxWorks, the last Linux company with plans to go public, scraps its IPO.

July 2001
French Linux seller MandrakeSoft braves the IPO waters.

August 2001
Linux loyalists plan to celebrate the operating system's 10th birthday with a BYOB barbecue.

THE time of the PENGUIN

Linux stocks burn out, fade away

By Sergio G. Non
Staff Writer, CNET News.com
August 24, 2001, 4:00 a.m. PT

Linux's future on Wall Street looked bright two years ago, but so did just about everything else related to the technology industry. But as the general tech market tumbled, Linux companies fell down the hill with it.

Specialists such as Red Hat, VA Linux and Caldera International sank much faster than the Nasdaq, but they had reached much higher peaks in a short period of time, so they had more room to fall.

Now Red Hat--which began its Nasdaq run so strongly that it enacted a 2-for-1 stock split only five months after going public--trades 97 percent below its all-time closing high and hasn't traded at a double-digit stock price since November.

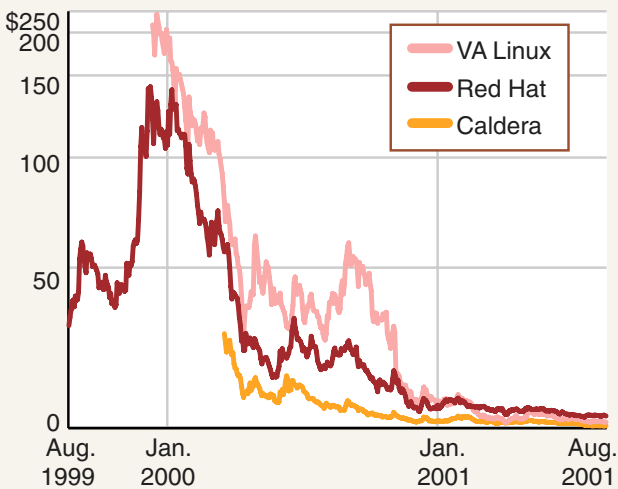
VA Linux, the greatest opening hit in stock market history, is now worth barely 1 percent of its peak market capitalization and was expected to report a loss of 32 cents share Thursday for its fiscal fourth quarter. Caldera, a latecomer to the Nasdaq party, never regained the heights it reached on its first day and has been trading below a dollar for the past month.

At least Caldera made it to the market. Linuxcare withdrew its initial public offering in May of last year, not long after the Nasdaq began a plummet from which it has yet to recover. LinuxOne disappeared without generating much in the way of product, revenue or anything besides press releases. And the last Linux-related company in the IPO pipeline, LynuxWorks, pulled its offering two months ago.

A pair of Linux companies found a buyer before the market dissolved. Cobalt Networks and its Linux-powered server appliances now reside within Sun Microsystems. Andover.Net sold out to VA Linux; in fact, the group of Linux information sites that came with Andover.Net could end up being an

The rise and fall

Linux stocks have gone from riches to rags, cheering investors with record-breaking IPOs but falling swiftly amid a sour market.



important part of VA Linux's latest strategy.

The race to survive

VA Linux's experience is a microcosm of Linux's business run in the past few years.

The company began as a maker of Linux servers but couldn't profitably grow in a field dominated by larger rivals such as Dell Computer. A couple of months ago, VA Linux announced plans to quit the hardware business and to focus on service and support.

The company's shift came long after other competitors had staked their claim. Market studies generally have established Red Hat as the clear leader among Linux companies, largely because it was among the first to recognize that the real money in Linux comes with ancillary offerings. Red Hat didn't rely on commodity industries, unlike Caldera, which focused on the kernel itself, and VA Linux and Cobalt, which sold machines.

Although Red Hat tried other businesses, such as a Linux news network, the that's what Red Hat did with embedded systems."

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THE time of the PENGUIN

Linux stocks burn out, fade away

Although Red Hat tried other businesses, such as a Linux news network, the company was quick to back off from unprofitable ventures.

"These guys were not nailed to a particular business model...that was difficult to extricate themselves from," said Brent Williams, a McDonald Investments analyst who earlier this month began coverage of the operating system industry.

Red Hat's revenue engine isn't its OS distribution; after all, the Linux kernel can be had for free. The real money is in the company's Red Hat Network, used to provide patches, updates and other technical support to subscribers.

Other companies, such as Linuxcare, also revolved around support. But having a relatively easy-to-install kernel early on helped Red Hat build a brand name. And Red Hat honed its services in non-PC "embedded" devices, a smaller market, before aggressively pushing them to larger companies.

"If you're born in Indianapolis, get really good at selling in Indianapolis before selling nationwide," Williams said. "And that's what Red Hat did with embedded systems."

The big and small of it

Some analysts believe the biggest winners in Linux will be established corporate names, like IBM and Hewlett-Packard, both of which have announced Linux support. But the Big Blues of the world tend to concentrate on Fortune 500 companies; midmarket and smaller companies are largely left to Red Hat and its peers. And IBM itself has announced partnerships with Red Hat.

With its stock below \$4, Red Hat hardly looks inspiring to investors. Red Hat and VA Linux also have been targeted for class-action lawsuits. Yet Red Hat remains the most highly valued member of its peer group, with a market capitalization worth more than four times as much as VA Linux and Caldera combined.

Red Hat in its latest quarter turned a profit for the first time, if amortization and one-time charges are excluded. Analysts don't expect much revenue growth from Red Hat--or almost any seller of business software--in the next couple of quarters because of the economic slowdown that has decimated technology spending. According to earnings-tracking firm First Call, three of five brokerages that follow Red Hat rate the stock the equivalent of a "hold."

But the company's future remains promising, analysts said.

"Near-term flat prospects for Red Hat appear to be diverging from the increasingly positive long-term potential of open source/Linux and Red Hat's leading position," Merrill Lynch analyst Peter von Schilling wrote recently. "Evidence continues to build supporting the fact that enterprises are adopting open-source/Linux solutions and that open-source/Linux will be a significant platform--but patience will be required."

The stock market's decline has weeded out or discouraged weak performers, analysts said. The disappearance of the technology-investing bubble lets rational investors find the strongest players, Williams added.

"We believe the 1999 Linux feeding frenzy is over," he said. "A valid investment case for quality Linux names can now emerge."

Where those quality names will come from is anyone's guess. One thing is certain: The time for succeeding based largely on a well-known name, as Red Hat did at first, has passed.

"The initial Linux wave was pure branding," Williams said. "Now you have to go back and...add features to your offering." ■

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THE time of the PENGUIN

Readers' turn: Is Linux a threat to Microsoft?

We recently asked our readers whether Linux poses a threat to Microsoft. Many responded that Linux is a viable contender in the market for server software, but has little hope of gaining a foothold on the desktop. Others were hopeful that Linux could disrupt the Microsoft juggernaut, although maybe not in the short-term.

Here is a sampling of the responses, which have been edited for content and clarity:

Yes, Linux will prevail over Windows as the preferred OS--once people are able to grasp the concept of being able to configure your own operating system. Computer companies should offer Linux completely pre-loaded and bug tested and hacker approved for mass consumption. The open-source community needs to band together and refine the OS to make it user-friendly.

Waitsfield, Vt.
Linux user

If Linux were not a threat to Microsoft, then why would Microsoft steal top software designers from a "major" competitor that makes development tools that can be used to port Microsoft applications to Linux and other competing operating systems? When I asked a software developer why his Windows application had not been ported to Linux yet, his answer was that he was waiting for Borland to come out with a Linux version of the development tools he was using

Ray Kane
Middlesex, N.J.
Computer services provider

People tend to not favor change. If they actually took the time to experience Linux, they would probably consider the change. It's cheaper, performs better, has less downtime, and is more interesting.

Britton Scritchfield
North Little Rock, Ark.
Unix/NT/GIS systems administrator, First Electric Cooperative

It will heat up when Linux becomes more user-friendly. It has the potential to disrupt Microsoft's plans, but not for a while. I like it mainly for developing. It uses less resources and even works better on my old Compaq 233MHz PC than Windows 95.

Kevin J. Sewell
Chicago
Remedy administrator

Hopefully, Linux, as well as other OSes, will grow to become real alternatives to Windows, just to have more options, competition, and therefore benefits to the consumer.

Rodney Kock
Oranjestad, Aruba
Web designer

Microsoft is basically a Windows and Office company. Linux is no match for Windows on the desktop and won't be a for a long time. Linux will keep Microsoft from owning the data center. Although Microsoft is somewhat manageable by a GUI, it has a long way to go before the configurability and manageability of Windows matches the Unix heritage of Linux.

Richard Cardona
Austin, Texas
IBM advisory engineer

I would like an OS that is easy to use. Windows is difficult to configure for the average user, but Linux is damn near impossible.

David Hollis
Sydney, Australia
Tradesman

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Names behind the code

From the beginning, the Linux revolution has been about a community of programmers working toward a common goal. Here are some of the personalities that flamed interest in Linux and some who have carried the torch forward.



One of the leading thinkers of the open-source software movement, Eric S. Raymond wrote the influential treatise The Cathedral and the Bazaar. He was also one of the main creators of the popular Fetchmail e-mail program.



Richard Stallman created the concept of "free software"--defined as software that may be freely distributed as long as its source code remains open--and began an effort at cloning Unix that was the foundation of much of Linux. His Free Software Foundation created what is now known as the GCC compiler, a critical piece of software that converts programs written by humans into instructions a chip can understand.

THE time of the PENGUIN

Readers' turn: Is Linux a threat to Microsoft? continued...

A resounding yes. Linux will grow faster in the server/enterprise market. A great example is that Google uses 8,000 Red Hat servers. What kind of message does that send to Microsoft? I predict that Linux will not grow as fast in the home-use market.

*Clay Price
Winston-Salem, Ore.
Unix system administrator*

Linux will certainly become a larger part of my operations in the near future. So the answer is, Microsoft poses a threat to itself. Linux is a refreshing alternative and frees people from Microsoft's dysfunctional corporate society.

*Rodney Wise
Boca Raton, Fla.*

Linux is most certainly a threat to Microsoft. It has faster development times, greater stability and reliability, and is significantly cheaper. Critical mass has been reached in the server market, and it will be reached on the desktop all too soon. Microsoft may have more features, but Linux has the features people need and want.

*Rodd Clarkson
Melbourne, Australia
Programmer*

Yes, it does. Microsoft has been given time to defend itself against Linux. And Linux has earned greater industry trust and has met industry quality standards. Microsoft has even had to "improve" its products because of the quality concerns raised to it by Linux's superior performance.

*Joe Waliga
Detroit
System administrator*

The benefits Linux allows me are freedom and choice. Freedom because all my software carries a free license as defined by the Free Software Foundation. Choice because I determine what appears on my monitor, not some corporation's marketing department. I use a unique graphical user interface for each of my three computers, because each has a unique purpose and duty to perform for me.

*David Emile Lamy
Belfast, Maine
Mathematician*

Comparing Linux to Windows is like comparing apples to oranges. Linux will not touch Microsoft's desktop dominance. At the same time, Windows is not as serious a contender in the server space as Linux. The world right now is split between Windows on the desktop and Unix on the back end. I don't see that changing anytime soon.

*Sharif Abdallah
Cincinnati
Internet architect*

By word of mouth and by the fact that you get the operating system plus the software in one package for less than a 10th the price of Windows and required software, things will gradually change.

*Alfie Lee
Hobart, Tasmania, Australia
Web designer/registered nurse*

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Names behind the code continued...



As co-founder, chairman and former chief executive of Linux software leader Red Hat, Robert Young helped establish Linux as a commercial force. The University of Toronto graduate ran a computer-leasing company and worked in other financial positions in the tech industry before championing Linux.



As founder of the Gnome project to create a polished user interface for Linux that wasn't bound by proprietary software constraints, programmer Miguel de Icaza has played a leading role in the effort to make the operating system more friendly to nontechnical users. He is also chief technical officer of Ximian, a start-up working on e-commerce applications for Gnome.

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Readers' turn: Is Linux a threat to Microsoft? continued...

Linux runs on most of my systems now. I do not want to be forced to pay annual subscriptions to Microsoft for my operating system and applications. Linux gives me choice and freedom. When the U.S. courts break up Microsoft, maybe then we can have Microsoft Explorer and Office for Linux--and many other things besides.

*Steve Withers
Wellington, New Zealand
Asia-Pacific client solution manager,
AT&T Business Solutions*

Here is the score at a fairly large company with over a thousand computers, both PCs and Unix-based machines. Linux is doing the job that about 30 Microsoft servers would have been doing if there were no Linux. Perhaps surprising is that there are about 40 Linux computers taking the place of Sun workstations. So while Linux is a growing threat to Microsoft, it is an even bigger threat to Sun in my little corner of the world.

*Mark Holbrook
Pocatello, Idaho
TIS manager, AMI Semiconductor*

IBM labs have hundreds of PCs that are running Linux only. Many of these Linux machines also have a Windows 2000 license. Next year, we'll try to order our Linux PCs without Windows to reduce costs. That represents money Microsoft will not have. And it's a growing trend.

*Anonymous
Poughkeepsie, N.Y.
IBM software engineer*

Open source is a real threat to Microsoft, not Linux specifically. More and more programmers and development companies are supporting open source, and Microsoft is showing signs of deep concern and worry. It's a threat to Microsoft's monopoly, and we all know what that means.

*Bill Fant
Miami Beach, Fla.
President/creative director,
New Media Studio Studio*

Until my grandmother can use Linux in a user-friendly way like Windows, Microsoft doesn't have to worry about the underground-rebel-without-a-cause Linux OS.

*Frank Diaz
Naples, Fla.
Network administrator*

Linux is a threat to Microsoft particularly in the server and networking markets. As Linux becomes progressively more stable and efficient, more companies will realize the enormous cost savings with the system. Linux is not yet a significant threat in the market for consumer PCs, though, and may never be. The software just isn't there.

*James Russell
Ontario, Calif.
Freelance author*

On the desktop, Linux is clearly not a threat to Windows. In the server environment, especially Web servers, file servers and print servers, Linux is a serious contender. It is also a threat to HP-UX, AIX and Solaris.

*Steven Cohn
Torrance, Calif.
Software engineer*

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Names behind the code

continued...



Second only to Torvalds in the development of the operating system, British programmer Alan Cox oversees much of the Linux kernel. He works as a programmer at Red Hat, with a focus on testing new updates and making sure Linux is usable by real-world customers.

*Comments on
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THE time of the PENGUIN

Readers' turn: Is Linux a threat to Microsoft? continued...

It completely depends on the market segment. High-end corporate: No, but Microsoft isn't even a serious player here. Midrange corporate: No. Microsoft is too entrenched. Low-end corporate: Yes. Linux is making serious inroads here. High-end consumer (techno-geek): Of course! Low-end consumer (average Joe): No. Not until Grandma can use it.

*Chris Stoffel
Houston
Web developer*

Linux does pose a threat to Microsoft in the area of networking and servers because of cheap, reliable network services. But Microsoft will retain its edge on the desktop for the near future because of Microsoft Office and the improvements to the Windows line.

*Michael Streeter
Elkhart, Ind.
Programmer*

Linux has the potential of being a threat to Microsoft. The only bottleneck here is schools and retailers in all their forms.

*Robert Hansson
Uppsala, Sweden
Computer technician*

Linux is a better platform for servers but has work left in the desktop arena. Linux's stability

Linux is a better platform for servers but has work left in the desktop arena. Linux's stability is a real positive for both markets but will be really evident for users (something not seen with Windows). In the real world, Linux powers more users per box than Windows.

*Jeremy M. Guthrie
Fitchburg, Wis.
Network engineer*

Linux is great but still not earth shaking. It still takes a techie to get it up and running properly. And you can't find many preinstalled Linux machines either. If Microsoft wants to take over the server OS market, then Linux is a problem. But consumers and software makers aren't yet ready to give up on Windows-based PCs.

*Jake Munson
Kuna, Idaho
Network technician*

And all my home computers (six of them) are Linux computers. I write e-mail, surf the Web, type documents, make business cards, listen to MP3s, chat, and keep track of my bank accounts from Linux. I do all of my programming from Linux

*Carl Parrish
Mesa, Ariz.
Web programmer*

The big point that most people miss with the Linux/Microsoft fight is not whether Linux will replace Microsoft. The big point is the choice Linux offers end users. Competition between the OSes breeds innovation and will eventually force Microsoft to write stable software that is more user-oriented.

*David McLean
Liverpool, England
Student*

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