

# Beyond Personal Computing



## The Penguin That Saved the World?

*By Gordon Young*

Does Linux hold out hope for a hungry world?

The experience of Mexico City may tell the tale, as administrators say *adios* to Microsoft Windows, switching to Linux so they can spend money on social programs.

Mexico City is in Mexico's central highlands, an area populated for 20,000 years, and the center of Mexican political culture since 200 BC. Through the reigns of the Toltecs, Aztecs, Spaniards, French, Spaniards again, and (since independence in

1810) the Mexicans themselves, Mexico City has been the seat of power and administrative hub of the land.

Today, with a population of 22 million—making it the largest urban center on the planet—Mexico City concentrates the chaos and turmoil of the Third World in one sprawling metropolis. Problems of poverty, pollution, overpopulation and poor healthcare plague the city's administrators. Struggling to cope, they have turned to computerization to try to organize what borders on bedlam.

### A Movement Toward Linux

Mexico's move toward the Linux system started three years ago, when the Mexican government started installing Linux in student labs for 140,000 elementary and middle schools. Web and e-mail service comes to the schools through a system called Scholar Net and, so far—since Microsoft Windows NT and Office would have cost \$885 per school—savings are about \$124 million. To put that into perspective, it's enough in pesos to pay more than 27,000 public school teachers their wages for a year.

"For the good of all, the poor must come first," promised Andrés Manuel López Obrador, as he campaigned to be mayor of Mexico City—the second most powerful position in the country, after president Vicente Fox. Winning in December 2000, López Obrador started a program of social reform, vowing a thrifty government free from corruption. Three months later, he announced the city's overall switch to Linux, which had already been adopted by its motor vehicle licensing department. Now, midway through a planned two-year transition period, the city staff is being trained in the new system in a process of gradual assimilation.

Microsoft Office costs \$440 in Mexico—almost two months' income for the average Mexican. A programmer in Mexico may take home less than the equivalent of \$15 a day, but

within his own economy this can provide a comfortable lifestyle. Governments can hire people to develop software applications much more cost-effectively than they can purchase foreign software to do the same job. Linux gives them the tools they need.

The strength of the U.S. dollar is a keystone in poorer nations needing to choose Linux instead of Windows. A secure currency in an uncertain world, the U.S. dollar always comes out ahead when matched against the weak and unstable currencies of developing nations. American software priced in U.S. dollars may throw up a barrier either impossible to climb, or simply not worth the effort. In China, Microsoft wants \$480 for an installation of Office, which represents five and a half months' salary for an average white-collar worker. As a result, a domestic Chinese-language version of Linux called Red Flag made strong inroads into the market, coming pre-installed on four out of 10 machines.

Linux has important advantages for developing nations besides its lack of licensing costs. It installs easily onto older computers that newer Windows versions would balk at, making it possible to work with hardware donations from First World countries. And, since it can still be run from a simple DOS-like text interface, computer networking is possible over slow phone lines—a common problem in Third World communication systems. Distributed freely over the Internet, Linux is available anywhere there is a

phone line; limitless copies can be manufactured on-site once it has been downloaded.

Still, there are still some significant downsides to the computerization of poorer countries. Small “mom-and-pop” businesses can find themselves forced to spend money on computer equipment when governments require documentation in electronic form, when paper is cheaper and more familiar. Electricity supplies can be unstable enough to damage computers with shocks and surges. And money spent on computers may have to be taken away from social services, like healthcare—in a world where 7 million children die each year from easily preventable diseases.

### **Not Just for Geeks**

Linux used to have the reputation of a geek-only operating system, with a steep learning curve and high requirements for technical sophistication. But these barriers are falling as user-friendly open-source interfaces are developed. The Gnome project (GNU Network Object Model Environment, [www.gnome.org](http://www.gnome.org)) manufactures and distributes Gnome Office—an integrated graphical user interface-based program suite with a word processor, spreadsheet, database, graphics, etc.—all the applications needed by Third World administrators. It is similar enough to Windows in look, feel and function to make switching over straightforward. Gnome supports an ever-widening range of printers and other peripherals, addressing

what has been one of Linux's worst shortcomings.

Miguel Icaza, a 29-year-old Mexican, heads up the project from a windowless Boston office. When he started on the project seven years ago, he was a systems administrator at a Mexico City university who started writing programs when he found that his school couldn't afford to purchase them. Today, residing in the United States under a visa class reserved for wunderkinds of one kind or another—and with an MIT Innovator of the Year award under his belt—he works with a paid staff of about 45—and with a global community of 800 engineers linked by the Net.

“The idea is to make a free software system for the desktop,” says de Icaza. “This was a problem with UNIX for a long time, and while there are proprietary solutions out there, there was no liberated, free (desktop) software.”

The lessons learned in Mexico City will hold important implications for the developing world. Africa and South America—two entire continents—have the same problems, and face the same economic obstacles as Mexico City. And the city's example will certainly influence reform-minded president Vicente Fox, as he starts his “e-Mexico” initiative, designed to take 96 percent of his nation online. □