

years, proprietary software will have been driven out of the market by vendors with nothing to hide. Then again, it is only a matter of time before a GPL offering drives the merely 'free' software out of the market."

Software Improvement's success, and the US's security issues' greater publicity, have prompted even Peter Neumann to issue a somewhat optimistic statement.

"I think with the Holt bill, and with various other folks getting the mes-

sage—getting religion if you will—there is considerable hope that somebody's going to do something about it."

*Greg Goth is a freelance writer based in Connecticut.*

## Balancing Video-Game Piracy Issues

By Pam Frost Gorder

When Andrew Greenberg and Robert Woodhead created *Wizardry*, their groundbreaking computer game, in 1981, they weren't concerned about software piracy. They were having too much fun.

The two former computer science students built the game for the Apple II. The public embraced the game as the first true role-playing game for the PC. The entertainment software field was wide open, and *Wizardry* was an early financial success.

But usage statistics from various consulting firms revealed something surprising. "Depending on who you talked to, anywhere from 30 to 50 percent" of *Wizardry* players were using illegal, or pirated, copies of the game, Greenberg says. Today, the same percentage of people use illegal software copies.

The Business Software Alliance (BSA), an international software publishers' association, placed the global software piracy rate at 39 percent in 2002, down from 40 percent the year before, and from a high of 49 percent in 1994.

According to Greenberg, who will receive IEEE-USA's Citation of Honor in March 2004 for writing a US Supreme Court brief that called for a balance of rights between patent holders and new inventors, a lesson he learned in the early days still holds true: game makers must make sure their efforts to quash piracy don't impinge on legitimate customers' enjoyment. When he released a copy-protected version of *Wizardry*, for example, the software became less reliable. More customers complained,

and more returned the game.

A quick survey of piracy issues in the news in 2003 seems to bear him out: to do business, the game industry is working out a truce with pirates, and new technologies to combat piracy are taking customer enjoyment into account:

- A hacker broke into developer Valve Software's computer network in October, stealing part of the source code to the game *Half-Life 2*. Even though playable versions of the game appeared on the Internet and Valve delayed the official release until spring 2004, *Half-Life 2* is still one of the most highly anticipated games ever.
- Also in October, the *New Scientist* reported that the digital rights management company Macrovision will employ Fade to beat pirates at their own game. Created by UK software developer Codemasters, Fade lets pirates copy a game, but introduces subtle flaws that rob the game's functionality over time, giving pirates just enough time to whet their appetite for a legitimate copy.
- In November, Canadian software security company Cloakware formed a partnership with a computer science lab at Carleton University in Ottawa. The lab, led by Paul Van Oorschot, is developing innovative security strategies, including a concept called *white-box cryptography*, which embeds the key for encrypted code in the encryption algorithm itself. Cloakware claims that game developers could use its products to make code that is difficult to reverse-engineer or tamper

with, without changing a game's functionality.

- As cell-phone maker Nokia released its new N-Gage device—a combination cell phone, MP3 player, and game machine—for the holiday season, pirated versions of its games were created for other cell phones. Nokia continues to use open software standards, however, and it maintains a Web site for game developers ([www.forum.nokia.com/main/1,6566,050\\_40,00.html](http://www.forum.nokia.com/main/1,6566,050_40,00.html)).

Even game manufacturers are being proactive—Nintendo and Sony plan to launch sales of their game consoles in China, where residents have long lacked both access to legitimate software and the money to buy it, and where the piracy rate is higher than 90 percent. Most notably, The BBC news reported that Sony will sell its games at a discount in that country, to encourage customers to do the right thing. Sony has since delayed those plans, however.

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