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Thin is In

By Steven Lohr

In the world of information technology, the future often arrives as predicted but rarely on time. The big things that ignite new markets and change people's behavior, like the personal computer and the Internet, are actually collections of related technologies rather than single breakthroughs — symphonies rather than solo performances.

The PC revolution was the crest of a long wave of advances in chip design and software. The Internet, through decades of incubation, exploded only after millions of people began using newly affordable PCs with faster communication links and souped-up browsers.

The Internet shook the business world, but about a decade later than forecast. A similarly late though potentially revolutionary trend may finally be getting its day.

A decade ago, the network computer — also called the thin-client computer — was promoted as a replacement for personal computers and desktop software. Thin clients have no hard drives to store desktop applications, like Microsoft's Word or Excel, permanently. The leading supporters of the inexpensive, terminal-style machines were Microsoft's archrivals at Oracle and Sun Microsystems.

The market never took off in the 1990s. But the vision of a decade ago now seems within reach. Years of progress in hardware, software and networking have enabled thin computers to mimic the user experience of PCs for most tasks. Evidence that thin computing may really be catching on came in July, when Hewlett-Packard announced it would buy Neoware, a thin-client maker. The \$214 million deal sent a message: thin-client computing was a market that could not be ignored.

Several forces are rekindling the interest in thin clients, money being the most obvious. An estimated three-fourths of the annual cost of a corporate PC is attributable to technical support, software upgrades, security patches and other maintenance. Thin computing now offers an alternative. Maintenance and software fixes can be handled more efficiently on central server computers.

Without a hard drive and less need for local processing, thin computers use far less power than PCs. The yearly savings in electric bills can be \$150 or more for each desktop.

Thin computers are also far less susceptible to viruses and spyware than PCs, which store the programs that are subject to attacks by malicious codes.

"All these pieces are falling into place, and all the big guys are looking at this, both vendors and corporate customers," said Bob O'Donnell, a vice president at IDC, a technology research firm. Thin-client shipments, IDC estimates, will more than double over the next five years to 7.2 million worldwide.

The business strategy behind the thin-client push is different than it was a decade ago. Today, thin computing is not part of an anti-Microsoft crusade. The technology has "matured, by and large, around delivering the Microsoft desktop experience remotely," said Tad Bodeman, the global director of Hewlett-Packard's thin-client business.

Virtual software versions of Windows desktops, including audio and video, can be streamed to thin clients.

No one expects PCs to go away: more than 200 million are sold worldwide each year. But thin clients have strong support. Telecommunications companies in India, China and elsewhere are considering supplying households with inexpensive thin computers and selling computing as a service. And Google, Salesforce.com and others that want to deliver software applications over the Internet are also allies.

People like graphic designers, engineers and financial analysts who need lots of computing horsepower at their fingertips are not candidates for thin computers. But these devices, industry executives and analysts say, will work well for many. Over the next decade, thin computers could replace as many as 30 percent of all business PCs, Mr. Bodeman of Hewlett-Packard predicted.

In some places, the potential is even greater. To curb costs and improve patients' care by computerizing operations and records, Kaiser Permanente, the health-maintenance organization, has tripled the number of PCs it uses in its offices, clinics and hospitals to 210,000. A recent internal study concluded that half of those PCs could be replaced with thin computers, said David Watson, a consultant who was Kaiser's chief technology officer until this summer. Even two years ago, Mr. Watson said, thin-client machines did not have the graphics processing power to display X-ray and M.R.I. images.

"Now, with the latest generation of thin clients, you can do it," he said. "To be able to deliver a good clinical computing experience in the exam room could be a real cost-saving milestone."

Thin-client machines start around \$200 and can go up to \$1,000, not much lower than inexpensive PCs. Thin-computing converts speak of the lower maintenance costs of the machines, as well as greater security and flexibility.

Jenny Craig, the weight-loss company, is upgrading the computerized record-keeping and analysis tools that are available to its consultants at 500 centers around the country. It chose a thin-client approach to replace PCs.

Since November, it has put the thin computers in 380 centers. **Alessandra Nicoletti**, the company's director of technology, said the company was pleased with "the speed we can do things and the simplicity of managing our computer systems."

There are even notebook thin computers. In Marysville, Calif., the police force has been using them in patrol cars for more than a year. Officers can write reports, send and receive messages and tap into law enforcement Web sites.

The 32 notebooks the police bought, from Neoware, cost far less than the PCs they replaced, and the department is saving about \$1,000 a month in technical support and repair costs, estimated Lt. **Mike Kostas**, support division commander.

No sensitive information, like criminal records, is stored on a notebook, which could be lost or stolen. "From a security standpoint, it's wonderful," Lieutenant **Kostas** said.