



The numbers don't lie. According to research firm IDC, 49 percent of new PCs purchased in government and education are for mobile use. While that number lags behind business by a small margin, the increase of mobility in the public sector means that more government agencies and educational institutions are looking to replace desktops with notebooks for their computing needs.

"The majority of the installed base is still on the desktop, but the trend is toward desktop replacement to take advantage of mobility factors," says John Gawa, senior manager for business development at Sony.

It's no wonder, since research shows that when you give workers a notebook computer they actually work more.

According to Steve Kleynhans, research vice president at the tech research company Gartner, "[Workers] check e-mail after hours or go online to finish something on the weekend. The notebooks seem to encourage that activity." It also encourages more activity in the classroom and helps eliminate the "digital divide," which is why notebooks are the overriding choice for students entering college, according to Michael Schmendlen, education industry leader for the Americas at Lenovo.

Craig Marking, senior product marketing manager at Toshiba, sees similarities with private-sector use, including greater mobility and durability as well as finding the best buy for the money. But, the bigger picture involves one-to-one computing in the classroom and increased security features

Mobility on the Rise

Better performance, more security and greater mobility have created a demand for notebooks and Tablet PCs in government and education.

for traveling government workers. The increased capability of notebooks — along with better screen technology — has helped address this trend, says Sony's Gawa.

"If you look at the performance equation, especially compared with desktops, we're looking at systems that are more powerful than even servers and desktops were a year ago. You're getting the storage capacity, computing power and connectivity in a lightweight system. It makes no sense to consciously decide to be shackled to a desk," says Marking. "Notebooks can do anything a desktop machine can do, plus you have the flexibility to take them with you."

According to Gartner's Kleynhans, manufacturers are responding to the trend toward mobility by offering more

portability each year. "If you look back, most PC manufacturers would have three or four different styles of desktops and maybe two or three different styles of notebooks. Now that's flipped around and many vendors may have a couple of different types of desktops but they might have four, five or even six different models of notebooks to appeal to all types of users."

Although notebooks might be easier to lose or damage, that hasn't deterred the adoption rates. "A notebook with a 60GB hard drive contains a lot of information," says Gartner's Kleynhans. "It's being carried around and taken to different places, so not only can you damage the machine and lose information that way, but you can physically lose the machine and have someone else gain access to that data." ▶

Keep It Secure

To combat security breaches, manufacturers are finding ways to protect data, even if it is accessed by someone else. Toshiba notebooks feature EasyGuard technology, which includes several layers of protection that can preserve the reliability of your system against the daily rigors of mobility. EasyGuard consists of four elements: protect and fix, secure, connect and optimize.

Providing durability is the genesis of Toshiba's EasyGuard technology, which includes hard-drive protection. The company also provides spill-resistant keyboards and bumpers called "crumple zones" that can absorb the impact if a notebook gets dropped. The hard drive is also protected with built-in intelligence so the notebook can detect when it is operating in an unsafe environment and will instruct the hard drive to momentarily stop until it's safe to resume operation.

In addition, EasyGuard technology offers three levels of security, including theft prevention, preventing unauthorized access with biometric fingerprint readers and — in the event that an unauthorized person gains access to the system — encryption capabilities on the motherboard.

"Consistency is a factor in service and support, which is particularly important where dollars are tight," says Marking. "We've implemented customer satisfaction programs that support the abuse notebooks often take, particularly in the education environment."

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For government, EasyGuard protects against security issues. The technology prevents against unauthorized use of the system. Both the Tecra and Portege models have the capacity for multiple passwords and fingerprint security devices. The commercial grade cryptographic system will even support full-volume encryption with the upcoming Microsoft Windows Vista Operating System, making sure that users are protected when they are mobile by providing security.

Hewlett-Packard offers a hardware-integrated Smart Card for its Compaq business notebook line that allows only authorized users to access the data on the notebook where the Smart Card resides. "It's like an ATM with your unique PIN," says Jennifer Lumpkin, product marketing manager for Hewlett-Packard. HP also offers fingerprint technology, a data protection system and biometrics. "The more layers of security [you have], the better off you are.

"HP's partnership with Absolute Software offers yet another layer of security with installed software that acts as an agent if the device is stolen. "If you connect to the Internet, the software

can either erase the data or locate the notebook," Lumpkin says.

Sony's business notebook line — the VAIO BX Series — also offers built-in biometric fingerprint identification to protect the network for remote access, as well as multiple levels of security, including encrypted data-protected files, protected directories and hard-disk password protection.

According to Sony's Gawa, the desire in both education and government (particularly the federal government) is to have the latest in technology available because they know that whatever decision they make regarding product purchases, they'll have to live with it for a long time. Most educational institutions and government agencies work within tight budgets and require equipment that will not become obsolete quickly.

"Security is up to the organization," says Gregg Peters, education marketing manager for Hewlett-Packard. "HP provides flexibility with dual systems."

Embedding trusted hardware into computing systems is one way to ensure security and to determine endpoint integrity of clients. It can help protect networks against internal and external attacks. Invalidated or unauthorized systems cannot connect. Sony's VAIO notebooks have biometric fingerprint security and TPM (Trusted Platform Module) chips that store digital keys, certificates and passwords.

"It's easy to steal a notebook," says Gawa. "Biometric security is an important factor in protecting the data on that notebook." The tamper-resistant chip holds keys and certificates associated with the chip and the computing platform on which it resides. Verifiers therefore can decide when it is safe to open the network to a connecting platform.

Sony introduced its VAIO Professional BX Series last fall, offering three levels of mobility: a thin and light model with a 14.1-inch screen, a model with a 15.4-inch screen and a desktop replacement with a 17-inch screen. "The thin and light product appeals to those with less frequent need for a large screen — the more mobile users," says Gawa.

Differing Needs

"The education criteria are somewhat different from government," says Toshiba's Marking. "In K-12, you see more one-to-one computing." The Tablet PC is geared toward education, enabling new ways to interact with the computer. "There's a natural intuitiveness of the pen interface that allows students to learn while using the computer, creating a real-time learning experience," he says.

Many educational institutions are adopting programs so that each student has a Tablet PC or notebook that they own, according to Lenovo's Schmendlen. This eliminates the concern of maintaining and replacing desktop equipment in a lab setting.

Toshiba offerings that suit the education market include a 12-inch Portege M400 Tablet PC, which weighs 4.5 pounds. "It's lightweight, small and comfortable for students," says Marking. It has an integrated DVD-ROM/CDRW or DVD-SuperMulti optical drive, so there's no external drive to worry about and a battery life of five hours, with an additional battery that offers four more hours. The Tecra A7 is a 15.4-inch notebook positioned as a desktop replacement product. It integrates EasyGuard features and a spill-resistant keyboard with a wide-aspect screen and up to 256MB of dedicated video memory. Spill-resistant keyboards are a key feature for student use, says Marking. "We found that 30 percent of failures reported were spill-related," he says. Should a spill occur, the student can save the work and shut down the

system before it is damaged.


Lenovo's Schmendlen is seeing educational institutions adopt notebooks at a high rate. Many educational institutions now issue students notebook computers when they come to school to level the playing field, he says. Part of the damage control is to give everyone the same equipment to use. "It takes away the culture of haves and have-nots," he says. Some schools are even creating programs that allow for purchase of the notebooks once the students graduate.

"In higher education, many students are coming to school with consumer devices, and colleges and universities are faced with the challenge of getting those devices connected," says HP's Peters. "As a result, many schools are requiring particular brands of computers, and a smaller percentage are actually providing devices."

All Lenovo ThinkPads for education and government have ThinkVantage technology — an umbrella that includes rescue and recovery with rapid-restore data backup service and a secure data disposal program, among others. "It makes the user more self-reliant," Schmendlen says. An embedded security subsystem can also help protect government-issued notebooks from security exposure by protecting data and keeping unauthorized users from accessing systems.

HP has been testing its Compaq notebook line to ensure longevity. It's also providing accidental damage protection and a magnesium enclosure that's light but durable and can protect the notebook if it's dropped. The business notebooks also include a data protection system, which reduces vibration. HP notebooks also have extended battery life with a secondary battery that attaches to the bottom of the notebook and an automatic power-off function that's activated when it's not connected to the network.

The advent of dual-core processors (two processor cores on one die, essentially creating a dual processor system in one processor) makes it easy to replace desktops with notebooks, Schmendlen says, since dual-core processors allow notebooks to accomplish the same high-end tasks normally associated with a desktop machine by allowing multiple highly demanding applications to run simultaneously without losing speed.

"The future is looking highly mobile," says Sony's Gawa. IDC analysts agree. A recent study predicts that the number of mobile workers worldwide is expected to exceed 850 million in 2009, making corporate globetrotters more than one-quarter of the workforce. The education and government markets aren't far behind, but the issues of durability, reliability and security remain major factors because of heavy use in various environments. "We're also seeing an increased need for security as more government workers travel with notebooks," says Gawa. Manufacturers are addressing these issues with built-in security measures and technologies that combat the inevitable abuse that mobile devices will encounter. 

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Mobile PCs Moving Up

Mobile Computer Adoption by Industry

PERCENTAGE OF PCs THAT ARE MOBILE:

Business Services	34%
Manufacturing	30%
Retail and Wholesale	25%
Public Sector	19%
Finance and Insurance	19%
Media Entertainment and Leisure	21%
Utilities and Telecom	27%

SOURCE: Forrester Research Inc.

BASE: Survey of 868 infrastructure decision makers in North America

