by Jonathan Sidener

After several delays, Microsoft has released the latest version of its Windows operating system, Vista. While not revolutionary, the upgrade offers many new features.

Windows upgrades are known more for integrating existing, popular functions into the operating system than for major innovations. In the past, those copycat upgrades included such features as desktop icons, a media player and a Web browser. In the Vista upgrade, it means improved data backup, speech recognition and photo editing included in the operating system.

VISTA GRANDE? - After years of design, Microsoft has launched its new Vista operating system. CNS Photo Illustration.Some critics say Vista mimics Apple's 0S X far too much; others say it makes Windows more competitive with OS X. Either way, the upgrade offers features that are new to Windows users.

We tested the system on a Hewlett-Packard Pavilion laptop with a pre-installed version of Vista Home Premium. Here's what we found:

VISUALLY

One of the biggest differences in Vista is the more sophisticated look on its desktop. The familiar start-button menu has been cleaned up to eliminate those cumbersome drop-down menus that branched to the right when an item was selected.

The most striking example of the new look comes in the Windows Flip 3-D feature, which allows you to tab through your open applications and see screen shots of each as they cascade like a 3-D Rolodex.

Placing the mouse over an item on the taskbar produces a pop-up thumbnail screen shot of that application. The upgraded Windows Explorer, now called Vista Explorer, gives similar thumbnail views of files instead of just listing their names. These little screen shots make it easier to find the right program when multiple copies of Word or Internet Explorer are open, or when looking through a host of similar documents.

SECURITY

In the five years since the release of Windows XP, security has become a hot-button topic. Microsoft says its new system is more secure. The company has tightened security over the core, or kernel, of Vista. In previous versions, other programs, including viruses and spyware, could modify this key section of the operating system. This is a good step, but it remains to be seen how effective it will be. As the most popular operating system, Windows also is the system most often targeted by hackers and virus writers.

SEARCH

Early on, Microsoft talked about how searching for files anywhere on the computer would be a core function of Vista. Google beat it to the punch, adding those search functions to its free download, Google Desktop. Ultimately, users will determine whether it's easier to search from the start menu or the Google toolbar. Vista does add the ability to save searches as "search folders," a nice feature.

SIDEBAR

Microsoft has added an area on the side of the desktop that it calls the Sidebar, where users can add small programs or gadgets, including clocks, calculators, weather information, photo slide shows and news tickers. On a wide screen, it puts otherwise excess space to use during non-movie-viewing hours. It's an attractive addition on any monitor.

PERFORMANCE

With every upgrade of Windows, Microsoft has promised improved performance, and with Vista, the company renews the claim. Past performance hasn't always lived up to marketing hype.

SLEEP

One of the performance upgrades is the new Sleep function. In the past, Windows computers had two ways of saving information when inactive: standby and hibernation.

In standby, computers store information from active programs in random-access memory, where it can be quickly accessed. In hibernation, computers store that information on the hard drive, where it's safe even if the computer loses power.

Vista adds a sleep mode that combines the two. Information from active programs is saved in both the RAM and the hard drive on a desktop computer. The version on the drive protects data from loss during a power failure. The version in memory allows the computer to quickly resume where it left off.

On a laptop, the information is first saved to memory during sleep. After long periods of inactivity, information is written to the hard drive before the laptop hibernates. The sleep mode is designed to reduce power use, protect data and enable users to quickly resume working. With half a dozen open programs, the Vista machine jumped back into action noticeably faster than my Windows XP laptop.

SUPERFETCH

This feature pre-loads frequently used programs into memory. It also controls background tasks, such as virus scans, to limit their use of system memory when you're trying to use other programs.

READYBOOST

A computer can read and write to flash memory more quickly than to a hard drive. A new breed of hybrid hard drives includes flash to take advantage of the speed difference. Vista does the same thing by letting users put a USB flash drive to work supplementing the computer's RAM. Plug in a flash drive, and Vista will ask if you want to use ReadyBoost to speed performance.

The performance features are welcome additions.

On the downside, Vista has a ravenous appetite for system resources, particularly RAM and graphics memory. There are some reports of Vista struggling on machines that meet but don't exceed the system's minimum hardware requirements. While 1 gigabyte of RAM is the official minimum, Microsoft shipped review units that had 2 GBs of memory, which is probably a more realistic amount.

NETWORKING

Networking with XP, wireless networking in particular, was an awkward process. In the first upgrade since Wi-Fi became popular, Vista greatly improves the process, easily and reliably locating and connecting to public and home wireless networks.

FAMILY SETTINGS

Vista allows parents to control the amount of time children spend on their computers, the sites they can visit, the types of games they can play and the software they can install. It also can provide detailed reports on children's computer activities, including alerts when there's an attempt to access restricted Web sites, games or software.

SOFTWARE FREEBIES

Vista overhauls Windows' backup software, allowing scheduled backups to CDs, DVDs or external, internal or networked drives.

XP added photo management to Windows. Vista revamps the old My Pictures (folders are now called Pictures, Documents, Music, etc.), adding a basic photo editor, a photo gallery and the ability to add tags and other "meta data," such as title, date taken and rating.

SPEECH RECOGNITION

While not perfect, Vista's voice-recognition software works surprisingly well. After about 20 minutes of training - a tutorial for the user, which at the same time helps the software learn nuances of the user's voice - I was able to reel off several paragraphs of text with only a few mistakes.

For anyone planning to buy a new PC, Vista offers a number of improvements over XP. To take advantage of the aesthetic features such as Flip 3-D or the transparent border at the top of windows, called "Aero," you'll need the Vista Premium edition. Media Center features to share music, movies and photos throughout the home also require the premium edition.

Upgrading an existing Windows machine to Vista may be a riskier proposition. If your computer is more than a year old, you may be facing memory- and graphic-card updates, or more. Older printers, scanners and other peripheral devices may not be Vista-compatible.

To see whether your computer meets Vista upgrade requirements, visit www.microsoft.com/windowsvista/getready/upgradeadvisor/default.mspx, where you can test your machine's

hardware for compatibility.

The bottom line on Vista is that it makes good on the marketing hype that XP didn't quite live up to five years ago. And it does a few other tricks, too.

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HARDWARE REQUIREMENTS

VISTA HOME BASIC: $100-$199

Processor: 800 megahertz

System memory: 512 megabytes

VISTA HOME PREMIUM: $159-$239

Processor: 1 gigahertz

System memory: 1 gigabyte

Graphics: Vista-compatible graphics processor with 128 megabytes of graphics memory.

Note: PC systems that don't meet the minimum requirements will not run some of the features of the Home Premium version.

More information: http://technet.microsoft.com/en-us/windowsvista/aa905075

A look under the hood of Windows' Vista by Jonathan Sidener