Random Thoughts
from William Blinn Communications
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Forcing Users into the Future

Apple has forced its users into the future twice and Microsoft has almost done it once. Now it's time for Microsoft to push its users from 32-bit computing to 64-bit computing. The past is the past and it's time to adopt an operating system that is, if not the future, at least the present.

Apple forced users to adopt Unix by releasing OS X in 2000. It was painful and many users complained; still, within a year, it was clear that Apple had made the right choice.

Your computer becomes like a clerk in an understaffed toy store on the day after Thanksgiving: Everyone wants something immediately, so the clerk tries to help everybody at once and ends up helping nobody at all.

More recently, Apple stopped selling systems based on Motorola CPUs and switched to Intel processors. Applications developed for the new systems won't work on the old systems; applications developed for the old systems will work, but not very well, on the new. Again there was pain, but most users have upgraded to the Intel CPU.

By contrast, Microsoft has maintained backward compatibility from Windows 95 through the 32-bit version of Windows 7. That ends with the 64-bit version of Windows and it's time for Microsoft to kick 32-bit systems to the curb and plant itself firmly in 64-bit land.

Primary Benefit: Speed

Memory is the key to speed and 32-bit operating systems can address no more than 4GB of RAM. In Windows, any single process is limited to about 2GB of RAM. This changes dramatically with 64-bit systems.

The theoretical limit for 64-bit hardware is 16 exabytes, but Windows limits the maximum allowable memory to 128GB of RAM. You'd be hard pressed to find any hardware that will accept that much memory today and, if you find it, you'll need deep pockets to pay for it. But modest increases in RAM will deliver exciting improvements in performance.

A 64-bit operating system makes working with large data sets that are common in applications such as digital video, digital photo editing, scientific calculations, and large databases faster.

Earlier this month, I made an investment in the future by replacing an aging (4-year-old) 32-bit system. The new 64-bit system is far faster and more responsive than the computer it replaced. The retired computer had specifications that were impressive 4 years ago and, even today, are more than reasonable: Dual-core 3GHz CPU with 2GB of RAM. Even so, this system frequently ground to a halt with excessive disk activity. By *ground to a halt*, I mean that sometimes several seconds would elapse between the time I pressed a key in Microsoft Word or Adobe InDesign and the time the letter appeared on the screen.

The resource monitor told me that Windows process ID 4 (PID 4) was attempting to write 50 to 100MB of data per second to one or more of the hard drives. PID 4 is owned by the system, so I didn't have much visibility into what was making the system calls, but it looked like swapping.

Swapping Kills Performance

Every running process needs RAM. When the system is loaded down and the running processes need more RAM than the system has, the operating system writes one application's operating state to memory so that it can free RAM for an application that needs it.

This is called *swapping* and it's perfectly normal for operating systems to do it. Trouble begins when so many applications are active that many of them simultaneously call on the operating system to provide more memory.

Consider the plight of a clerk in an understaffed toy store on the day after Thanksgiving. Every customer wants something immediately. The clerk tries to help everyone at once and serves nobody well. That's essentially what happens when the computer starts swapping continuously.

I multi-task and normally have a lot of processes running. The Bat (e-mail), Firefox (10 sites open and 28 add-ins active), Opera (4 sites open), Dreamweaver, Outlook (office e-mail), Excel, Ultra Edit, SnagIt, Groove, One Note, and an IM conversation using Digsby. Background tasks include Norton Internet Security, Unlocker, KeePass, Huey,

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Law of Bag/Box Occupancy: All bags and boxes must contain a cat at the earliest possible moment.

LogMeIn server mode, Flicks, Macro Express Pro, Google Calendar Sync, AllwaySync, and Carbonite. In addition to these, Windows is running dozens of services.

No wonder the system ground to a halt!

Although some of the extra speed and responsiveness are the result of the 64-bit processor, some of the extra speed and responsiveness are the result of an I7 quad-core processor that uses hyperthreading to simulate 8 cores, and some of the extra speed and responsiveness are the result of the faster CPU, the primary driver is the increase in system RAM from 2GB to 8GB.

On the 32-bit system, PID 4 could consume 100% of drive C and sometimes 100% of drives C and D for 5 to 10 minutes at a time. Now PID 4 rarely exceeds 90% for any one drive and then only momentarily; normally it's around 3% or less.

One test, for example, showed PID 4 to be running more than 100 threads, but consuming less than 5% of disk capacity and less than 1% of CPU capacity.

Although I paid more for the I7 processor than the more modest I5, I don't have a supercharged gamer-style machine. What I have is a computer that is optimized for graphical applications, website development, and the like.

Work, in other words.

It's Not All Joy in 64-Bit Land

Mostly, but not entirely. The computer is clearly a lot faster and, for someone like me who spends a lot of time in front of the computer, this is important.

Nearly all of the applications I used under 32-bit Windows work properly on the 64-bit system. In some cases, I needed to obtain 64-bit updates to replace the 32-bit version. Other applications, such as the Adobe Creative Suite 4 automatically detect a 64-bit system at installation and install 64-bit components.

Ubuntu Linux is available in a 64-bit version, so I can enjoy 64-bit processing in both operating systems.

But I've encountered some problems. In many cases, there are solutions; the solution for others is to wait for the software developer to create a 64-bit version.

- Apple has a 64-bit version of Itunes, but Itunes cannot detect my Ipod because of an incompatibility between the main board hardware and the Ipod. Although I might be able to resolve this with a BIOS update, the easy solution was to sync the Ipod with my notebook computer.
- Microsoft Groove cannot synchronize files and folders on a 64-bit system. This is a problem that only Microsoft can solve, and it seems that they have little desire to do so. I knew about this problem before changing to a 64-bit OS, but it's still annoying because Groove is a wonderful tool for keeping files in sync on several computers. Instead, I use AllwaySync and an FTP site to accomplish the same thing.
- I have been unable to get the sound system's ASIO driver to be recognized by Aobe Audition. I'm still working with Adobe support, but for now I'm using a Sennheiser USB headset microphone to record *TechByter Worldwide*.
- No 64-bit driver exists for the Epson Perfection 3200 scanner. Although I could buy an application that will fix the problem, I found that the scanner is recognized by Linux. Problem solved.
- Google Calendar Sync doesn't work with the 64-bit version of Windows and my HP Windows Mobile device isn't properly detected. Solution: Sync both Google Calendar and the Ipaq to the notebook computer and then use AllwaySync to update the desktop. This is ugly but functional.
- Type 1 typefaces will not work under the 64-bit version of Windows 7. This would be painful for a graphic designer who may be required to buy all new typefaces. This day has been coming for a long time and most designers have probably updated to TrueType or OpenType versions of all essential faces over the past decade.
- Oh ... and WordPerfect 5.1 won't run under Windows 7 64-bit. End of the line. I've been able to run this version of Wordperfect on every computer I've owned since it was released in 1989. I knew this day would come and it truly marks the end of an era. Although I haven't used it at all since the mid 1990s, WordPerfect 5.1 was the best word processor ever made for DOS and its absence saddens me just a bit.

Is Windows 64-bit Right for You?

If you're buying a new computer, it would be worth asking about migrating to a 64-bit operating system. You need to be aware that some hardware may not work because the manufacturer won't have drivers for it. Printers and scanners are the most likely candidates. If you're buying a new computer, the external devices are all that you would need to be concerned about.

The time has come to consider a 64-bit system.

I'm not suggesting that you should abandon your current computer and buy all new hardware, but when you purchase a new computer, the time has come to consider a 64-bit system.

Everybody doesn't need the advantages of 64-bit computing today, but eventually software developers will stop supporting 32-bit operating systems. It's been 20 years since the first 64-bit desktop systems went on the market and 64-bit computing has been used on mainframe computers since the 1960s.

Upgrading an existing computer is more challenging and I can't recommend it for most people. You would need to replace the main board, the CPU, and (probably) the memory. Your existing video card might not be compatible and some sound cards won't work. Be cautious and do your homework if you're thinking about upgrading an existing computer. ß