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Beyond the Internet
What Technology Innovations are on the Horizon?

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Introduction

The purpose of this segment of the CLE program is to gaze into the crystal ball and to offer some predictions for the future of technology. In a few simple words, the future of technology will be faster, smaller, more integrated and wireless. Will these predictions be accurate? Only time will tell.

Internet and Software

More law firm management software will be web-based or provided by application services providers (ASP). ASPs essentially lease software hosted on web servers as opposed to law firms maintaining their own case management software in-house. The benefits of ASPs include relief from constant upgrades (upgrades are handled by the ASP) and anytime-anyplace access. Firm data will be available from any Internet connection at any time of the day.

The use of web logs or blogs or blawgs will continue to mushroom. Blogging software is currently used for providing frequently updated commentary or online diaries. (For an informative list of blogs which provides regularly updated and practical information for law practice, visit: http://www.law.com/jsp/article.jsp?id=1046833583425) Blogging software is simple to install and easily customizable. Blogging software can be easily configured to allow group collaboration, simple web page updating and effective communication. These are all functions that content management or knowledge management systems attempt to offer. However current content management systems or knowledge management systems are quite expensive to purchase and implement. In the future, blawgs will expand from novelty status to content management systems. Law firms and other business environments have spent many thousands of dollars trying to implement content or knowledge management systems.

Unfortunately, to date, very few of them have been successful. Consequently, free or inexpensive simple solutions such as blogging software will become more and more useful.

Hardware

Hardware will become faster and smaller. Notebook vendors are always in a race to deliver faster, slimmer, and lighter models. In the upcoming year, the desktop market will join this race as well. Dell's new third-generation chassis is 10 percent smaller than previous designs. Gateway's new all-in-one computers stores the processor and other components behind the flat screen monitor. The current cost of the Gateway model is approximately $1700. The market for newer and faster processing speed is not as vigorous as it has been in the past. Most software applications can run on currently available low-end new computers. Consequently, the computer manufacturers will turn the attention to giving us back more of our desk top space (literally).

Floppy drives and 3.5 inch diskettes will also disappear. Diskettes have always been notoriously subject to failure. Their storage capacity is minuscule compared to the size of most files nowadays. In February this year, Dell announced that floppy drives would no longer be standard on high-end desktop personal computers. The decision came as a result of customer focus groups. Dell asked customers, "Do you need a floppy drive?" Almost everyone answered yes. When Dell asked customers, "When is the last time you used a diskette?" Most people couldn't remember the last time they used a diskette. Flash memory and other portable storage devices will fill the void left in the storage market. The portable storage devices are small enough to fit on a key chain and yet have 100 times the capacity of a diskette. Most devices plug into the USB port on the front of your personal computer. Prices for 128 MB storage capacity

range from $75.00 - $125.00. To locate vendors for these devices, use any Internet search engine and type in the phrase “USB drive.”

Flat screen monitors will dominate sales in the upcoming year. Monitors will become thinner or slimmer. Prices will be cheaper. Flat panel monitors are on everyone’s wish list for the upcoming year. Currently 15 inch monitors are very affordable, but some users who must stare at a computer screen for several hours a day find 15 inch screens are still somewhat small. As prices drop and screens become larger, flat panels will become standard on all desktops.

Digital photography is here to stay and quality of images will continue to improve. Digital cameras will become smaller in size and offer more mega-pixels. By the end of the year 5 MB pixel camera should be less than $500.00. It has been predicted that the first 20MB pixel camera may be available by the end of the year. Another development on the horizon is disposable (or single use) digital cameras. The traditional camera manufacturers that rely on paper and processing for revenues won’t be excited about pushing disposable digital cameras, but their development is inevitable.

As mentioned above notebooks will become slimmer and faster. However, tablet personal computers are poised to make major inroads into the notebook market. Tablet personal computers are essentially a portable flat screen. One major benefit of the tablet personal computer is that you can take notes using a regular sized pen directly on the surface of the screen – just as if you were writing on paper! This might not seem revolutionary to the person who has used a personal digital assistant. However, the tablet personal computer offers a further advance...notes can be saved as an image or converted to text that can be word-processed or edited. Current purchase price for tablet personal computers is approximately $2,000 - $3,000.

If tablet personal computers don't become a dominant force in the technology market – and there are some prognosticators which predict they will not (the tablet pc has been referred to as an expensive Etch-a-Sketch by some technologists), some sort of handwriting detection device or digital paper will be successful. For example, Logitech has developed a new personal digital pen that remembers everything you write up to 40 pages. When you place the pen in its cradle, the stored data is uploaded to your personal computer. Cost for the new Logitech digital pen is only $199.00. For more information, visit: http://www.logitech.com.

Now for the "out on a limb" hardware prediction: One technologist has predicted that one of the future technology trends will be bendable personal computers and digital newspapers (See Tech Predictions for the Decade by Elisa Batista, http://www.wired.com/news/print/0,1294,57238,00.html). I researched this prediction and fairly quickly found an press release entitled "Trio teams up for bendable screens." In October 2002, Lucent Technologies, Dupont and Sarnoff announced an initiative to collectively develop a new display technology that could lead to thin, flexible monitors that can be wrapped around curved surfaces such as light poles. So it's not so far-fetched to believe that a bendable screen might be in our future. Certainly the issue of bendability will have to be resolved before many computing devices can make the transition to wearable items.

As for the claim about digital newspapers, I also set out to research this prediction on the web. Again I found an interesting article that describes how digital newspapers might look in the future. Paradoxically, the article was on the AARP web site. The article describes how E-ink is developing an electronic ink that can be displayed on a variety of mediums including paper, plastic, glass or fabric. Your newspaper of the future might look and feel very much like

your paper today yet the latest news could be beamed or downloaded to you regularly. For more information on electronic ink, visit http://eink.com.

Wireless Networking

Without a doubt, wireless networking will be faster, more secure and more media-ready. As wireless standards continue to develop, wireless will become ubiquitous. Wireless access devices will become as popular as cell phones are today. Intel's new Centrino technologies are optimized to increase wireless mobile technology. Wireless pricing models are still in a state of flux. Some places offer wireless access for free. Other vendors are still struggling with flat fee subscriptions versus amount of usage subscriptions. Nevertheless, subscription prices are expected to drop as more wireless hot spots become active. Starbucks has wired nearly 2,000 stores. Access is not free yet in those stores, but pricing models have been changing.

Currently wireless is prevalent among field force employees such as sales people and delivery people. Wireless is expected to become more popular with specialized professional fields such a law or health. With the adoption of tablet personal computers, the health field is considered a prime market for using wireless technology. Also more device to device wireless applications are expected to increase. For example, a gas tank device might contact the supplier when it is empty.

More Convergence

Technologists have been predicting convergence among devices for many years now. We're finally starting to see some of these predictions become a reality. Personal digital

assistants (pdas) are now being combined with cell phones. Cameras are being combined with cell phones.

It is safe to predict that a device that successfully combines voice, Internet access and e-mail into one unit will be available in the upcoming year. These devices will display photo images, provide games and play music. In fact, these devices will be so successful, that many people will find that they don't need a laptop or notebook personal computer.

As devices begin to merge their functions and wireless access becomes commonplace, many Internet-enabled devices will become available.

- For example, an alarm clock that can connect to the Internet, retrieve traffic reports and adjust your wake-up time is a possibility.
- Fashion shows at the March CTIA Wireless trade show featured models strutting down the catwalk with wireless accouterments promising development of items such as running shoes that use an embedded computer to adjust foot cushioning as needed, or a clip-on device for eyeglasses that beams a virtual computer monitor into the user's field of vision.
- At the same trade show, Rand McNally unveiled maps and direction-giving programs that can be downloaded over the air into cell phones. Another company demonstrated software that augments a cell phone's contact list with detailed information, gleaned over the air, about who's available to talk now and who can't be bothered.
- Power companies will offer remote control devices that can reduce energy consumption during peak periods.

- Automobiles and other devices will be equipped with more GPS technology. GPS, which stands for Global Positioning System, is a radio navigation system that allows land, sea, and airborne users to determine their exact location, velocity, and time 24 hours a day, in all weather conditions, anywhere in the world. GPS devices are able to provide safety and location information.
- Medical devices capability of monitoring your health symptoms are another possibility. Blood sugar levels, heart monitors, blood pressure and other bodily function information can be monitored by Internet connections. It has also been predicted the wireless technology devices might actually be implanted within our human bodies for health monitoring and other purposes.

Conclusion - Future Legal Aspects?

What will be the impact of these future technologies on the legal world?

Privacy and identity theft will become an even bigger issue. As more devices store personal information , the chances for abuse will proliferate. As opportunities increase, computer crime will also increase. Hacker insurance will become essential for many businesses. Spam or unsolicited e-mail will have to be regulated somehow. And finally, intellectual property will remain a hot button issue for years to come.