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A Peek Into the Near Future of Electronics Technology

By Terry Mitchell

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How long do you think DVDs have around? 20 years? 10 years? Actually, they have only been around for about seven years, but it seems like they have been around much longer. Many of us can hardly remember life before DVDs. That can be attributed to how rapidly we can become acclimated to some innovations in electronics technology. I believe there are other electronics technologies, either just getting ready to take off, not widely available yet, or just around the corner, that are going to become adopted just as quickly in the near future.

Once such item is Voice over Internet Protocol, also known as VoIP. This innovation renders the whole concept of long distance virtually obsolete. It bypasses the traditional telephone company infrastructure and delivers phone service over a broadband internet connection to a regular phone. Similar to cell phones, this service is purchased based on a fixed and/or unlimited number of minutes. However, geographical divisions are generally made by country or continent, rather than by local calling areas or area codes. For example, a typical VoIP contract in the U.S. would stipulate unlimited calling to North America and 300 monthly minutes for calls to everywhere else. Unlike cell phone service, you are not charged for incoming calls. With VoIP service, area codes are not much of an issue, although you still must have one. However, some providers offer plans in which you can select any area code in your country or continent! The area code you choose mainly comes into play for those with traditional phone service who make calls to you. If you pick a California area code, for example, someone calling you from a traditional phone line would be billed as if they called California, even if they lived next door to you in New York.

One of the major advantages of VoIP is that it is less expensive than traditional phone service. Since it bypasses most of the phone companies' infrastructure, it also bypasses many of the taxes associated with it. So far, Congress has maintained a hands-off approach when it comes to taxing VoIP services. Most of the major phone companies are either now offering VoIP or plan to start by mid-2005. However, there are some smaller companies that are offering it at a much lower cost. Vonage (www.vonage.com) is a small company that was one of the pioneers of VoIP. Lingo (www.lingo.com) and Packet8 (www.packet8.com) are two other small companies offering VoIP at a cut-rate price.

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Another such technology is Broadband over Power Line, or BPL. Already in wide use in many other countries and currently being tested in the U.S., BPL is the delivery of broadband internet service over traditional power lines. A computer is connected to a special modem which is simply plugged into an electrical outlet. This kind of service could prove useful for those who cannot get traditional broadband services like cable modem or Digital Subscriber Line (DSL), as almost everyone has access to electricity now. Once refined, BPL could eventually prove to be cheaper and faster than these more established services and attract away some of their customers. By the way, be careful when you're discussing BPL and make sure people don't think you're saying, "VPL." Otherwise, you might encounter quite a bit of snickering!

While we're on the subject of broadband internet services, several technologies just around the corner are going to make them much faster than they are today. The typical download speeds for broadband

ranges from 1.5 to 10 megabits per second (mbps) today. Within the next year, speeds of 15–20 mbps will be available to the average consumer. Then, shortly thereafter, speeds of up to 25, 50, 75, and even 100 mbps will be available in some places. In the not-so-distant future, speeds of 25–100 mbps is will be quite common. "Fast TCP", which is currently being tested, has the potential to turbo-charge all forms of currently available broadband internet connections without requiring any infrastructure upgrades. It will better utilize the way in which data is broken down and put back together within traditional internet protocols.

All the major phone companies are currently in the process of replacing their copper wires with high capacity fiber optic lines. One example is Verizon's Fiber-to-the-Premises (FTTP) initiative. Fiber optic lines will greatly increase the amount of bandwidth that can be delivered. Fiber optics will allow phone companies to deliver video, either via a cable TV-type platform or a TV over Internet Protocol (TVIP) platform (see my October 7 column), and faster DSL speeds. At the same time, the phone companies are working with Texas Instruments to develop a new, more technically efficient form of DSL, called Uni-DSL. Eventually, the current internet as we know it will be scrapped and completely replaced with a whole new internet called "Internet 2." This new internet is expected to provide speeds of up to 6000 times faster than current broadband connections!

Another technology item that you've probably heard a lot about recently is digital television. Digital TV uses a different wavelength than traditional analog TV and has a much wider bandwidth. It also has a picture that never gets "snowy" or "fuzzy." If the signal is not strong enough, you get no picture at all, rather than the fuzzy picture you sometimes get with analog. In order to receive digital signals over the airwaves, you must have a digital TV set (one with a digital tuner inside) or an analog TV with a set-top converter. Cable and satellite TV also use digital formats, but unlike broadcaster signals, their non-High Definition digital signals are automatically converted to a format an analog TV can process, so a digital TV or converter is not needed. High Definition Television formats, even on cable to satellite, require a digital TV or a converter (more on High Definition later).

All broadcasters are now doing some broadcasts on their digital channels in addition to their normal broadcasts on their analog channels, but they were originally supposed to completely convert over from analog signals to digital signals by the end of 2006. However, there is an exception that allows them to wait until 85% of the television sets in their market are digital. This could take 10 years or more

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to happen. Congress and the FCC are now looking at imposing a hard deadline on all broadcasters to convert to digital signals by 2009. Once they all convert to digital signals, their analog channels will be taken back by the FCC and used for other purposes like emergency signals.

High Definition Television (HDTV) is one possible use of digital signals. HDTV uses the entire digital bandwidth and is the crystal clear format you've probably seen on TVs in electronics stores. It has no visible lines on the screen. Someone once described it as being like "watching a movie in the theater." Keep in mind that all HDTV is digital, but not all digital is HDTV. Along those same lines, not all digital TVs are HDTVs. Since digital TVs are very expensive and those with HDTV capability are even more expensive, consumers really need to keep this in mind.

The other possible use of digital signals is channel compression, often referred to as "multicasting." Non-HDTV programming does not utilize the entire width of a digital signal. Therefore, it is possible to compress two or more channels of programming into one digital signal. Satellite and cable operators do this all the time with their non-HDTV digital channels, but this process is transparent so many people don't realize it. Many broadcasters plan to use their digital signals this way during times when they are not being used for HDTV programming. For example, some plan to air all news and all

weather channels in addition to their regular channels of programming.

TV recording and playback technology is changing as well. DVD recorders, which debuted about four years ago, have now become affordable to the average family. A couple of years ago, they were priced above \$1000, but now you can get them for around \$250, in many cases. The main sticking point now with DVD recorders is that not all of them will record/play all three of the competing formats: DVD-RAM, DVD-RW, DVD+RW. They will have difficulty gaining wide acceptance from the public until one format is settled on or all recorders can record and play all three formats.

On the other hand, digital video recorders (DVRs) and personal video recorders (PVRs), just two names for something that is really the same thing, seem to be gaining quickly in popularity. DVRs/PVRs utilize a hard drive to record programs, without the need for discs or tapes. DVRs/PVRs with larger hard drives are becoming available and less expensive all the time. These devices can record one show while you are watching another. They can record more than one show at a time. They allow you to watch the part of a show that has already been recorded while the remainder of that show is still being recorded. They allow for easy scanning, searching, and skipping through recorded programs and even allow you to skip commercials with one touch of a button. They allow you to pause live programs while you answer the door or go to the restroom and then pick up where you left off when you get back. With these devices, recording can be automatic, i.e., you can program them to automatically record every episode of your favorite shows, no matter when they air. You can also have them automatically find and record programs that match your interests. In addition, video can be automatically downloaded to the device via a phone connection. TiVo, the leading brand in the industry, has announced that it will be teaming up with Netflix next year to allow downloading of movies on demand via a broadband internet connection (see my October 7 column for more details).

DVRs/PVRs are becoming so popular that cable and satellite TV providers have begun including them as add-ons to their receivers, either at no extra cost or for a small additional monthly fee. About the

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only shortcoming of DVRs/PVRs is the fact that they can't play pre-recorded DVDs or tapes, so you would still need your DVD player or VCR if you rent or purchase movies. However, hybrid devices which combine DVRs/PVRs with a DVD player/recorder and/or VCR are now hitting the market. Those devices would not only get rid of that problem but would also give you the option of permanently transferring a recorded show/movie from a hard drive to a recordable DVD.

Flat screen and flat panel TV technology is also starting to boom. Many people are confused about the difference between flat screen TVs and flat panel TVs. A flat screen TV uses the old cathode ray tube (CRT) technology for their picture tubes and are therefore bulky like traditional TV sets. However, they are different from traditional TV sets in that they have a flat screen. They deliver a picture that doesn't have as much glare as traditional, more round screens. Also, the picture will look the same to everyone in the room, no matter where they are sitting. The picture on a traditional screen looks distorted when viewing it from an angle.

Flat panel TVs, on the other hand, utilize either liquid crystal display (LCD) or plasma technology instead of the old CRT technology and are generally just a few inches thick. Many of them can be hung on a wall. In fact, flat panel TVs that are flatter than a credit card will be coming soon! What's the difference between LCD and plasma? LCD is generally used for flat panel TVs with a display of less than 30 inches and usually has a brighter picture and better contrast than plasma. LCD is used for flat panel computer monitors as well. Plasma is generally used for flat panel TVs with a display of more than 30 inches and has a better color range than LCD. Plasma is becoming more common as TVs get bigger and flatter.

Although I'm not so sure about this one, I will include "entertainment PCs" because of their tremendous potential to revolutionize home entertainment. The concept of "entertainment PCs" is being hailed right now by both Microsoft and Intel. In fact, Microsoft has developed a special operating system for them. They could be used as the hub for all home entertainment and could enhance a family's experience of television, radio/music, and internet and actually help to combine all of these into one. They could be used to download content from the internet and play it on a TV. They could provide such sophisticated TV recording interfaces that VCRs, DVDs, and DVRs/PVRs could all eventually become obsolete. In addition, they could be a better source for photograph and home video editing and processing than regular PCs. With that being said, I'm not so sure that people will be willing to accept PCs as a source of home entertainment. Bill Gates begs to differ and is willing to put his money where his mouth is.

Obviously, not all of the cutting edge electronics technologies mentioned above will meet with great success. Some of them might actually go the way of Betamax, digital audio tape (DAT), and DIVX. However, many of them are sure to catch fire and become such an intricate part of our everyday lives that we'll wonder how we ever got along without them. Which ones will they be? Only time will tell.

Terry Mitchell is a software engineer from Hopewell, VA. He operates a website, <http://www.commenterry.com>, on which he posts commentaries on various subjects such as politics, technology, religion, health and well-being, personal finance, and sports. His commentaries offer a unique point of view that is not often found in mainstream media. Mr. Mitchell is also a trivia buff.

Women are major electronics consumers

By Alison White

Women are taking a greater interest in, and have a more sophisticated understanding of electronics than ever before.

Women actually spent more on technology last year than men, according to the Consumer Electronics Association. It says women accounted for \$55 billion of the \$96 billion spent on electronics gear (statistic from a January 6 CEA press release).

Women are increasingly interested in gadgets, from DVD players to digital cameras, for themselves or birthday gifts for their families.

Almost a third of women consider themselves early adopters willing to buy cutting-edge consumer technology.

CEA reported that women in the United States are becoming more likely to use consumer electronics. CEA's study provides detailed information about the attitudes, purchase considerations, decision influences, purchase channels, current product ownership, and future purchase intent. Here are some of the findings:

- Women are involved in 89 percent of all consumer electronics purchase decisions.

- 84% of women believe that new technologies can improve their lives.

- 48% of women age 18-34 own a digital camera.

The CEA survey noted that women have very positive reactions to specific technology areas, like HDTV, cell phones, and digital photography.

Women have more buying power and they increasingly use technology to manage their busy schedules. Women's comfort level with technology is at an all-time high.

Women want products that make it easy to connect and make it easy to operate; limited wiring or no wires at all; slim, well-designed products; making electronics available in different colors is not very important; low on setup and high on usability. Usability often is an important factor to women when they buy technology;

At CES, organizers hung big pink banners saying "Technology is a Girl's Best Friend," even though the group's own research found a third of women surveyed don't like products with girlie colors.

Nearly three-quarters of women surveyed complained about being ignored or patronized by sales people when shopping for electronics.

A growing number of companies are starting to target their wares toward female buyers.

Sony is outfitting its electronics with features that many women seek and is designing Sony Style retail stores to appeal to women's preferences by creating an environment where women feel comfortable. Many of Sony's efforts are focused on functionality.

Women are becoming informed and involved in technology areas where they once had little or no presence.

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