The change of video from analog to the digital

ASSIGN BUSTER

DVD is an exciting newtechnologybecause of the following benefits:

up to nine hours of studio-quality video and multiple channel surround sound

simultaneous multiple language support and interactivity

other digital video delivery systems, including direct broadcast satellite, wireless cable and digital cable

Digital video changes all aspects of video production. Up to this point video has been recorded and transmitted as analog electrical system. Analog video transmitters and receivers can be built inexpensively but are very expensive to transmit and store. Also, today¡s strong digital computers cannot process analog signals, so analog information cannot be easily searched, sorted or edited.

The change of video from the analog to the digital domain changes everything. Digital video can be stored and distributed more inexpensively than analog, and digital video can be stored on randomly accessible media such as a magnetic disk drive (hard discs), and optical disc media (CDs). When stored on randomly accessible media, video can be used in other applications such as games, education, training, and other applications.

Even movies can become interactive, allowing viewers to select their point of view, a plot path and the ending. Digital video also significantly increases transmission efficiency so that communications networks, everything from television systems to telecommunication satellites, are able to carry from six to ten times more channels of video programming than was possible before, thereby offering more consumer choice. The ability to transmit video over

the public phone network will also allow video conferencing, accelerating the work at home movement that is changing the way people are employed.

DVDs can hold 4. 7 to 17 billion bytes of digital data on a 120-mm (4. 75 inch) disc. This can mean up to nine hours of studio quality video and multi-channel surround-sound audio, highly interactive multimedia computer programs, 30 hours of CD-quality audio, or anything else that can be represented as digital data.

A DVD looks like a CD. It is a silvery platter, 4. 75 inches in diameter with a hole in the center. Data is recorded on the disc in a spiral trail of tiny pits, and the discs are read using a laser beam. DVDs hold more information because the pits are smaller and the spiral is tighter and can record data in as many as four layers, two on each side of the disc.

Lasers that have a shorter wavelength beam of light are more accurate aiming and focusing mechanisms. These are used to read the DVDs. In fact, the focusing mechanism is the technology that allows data to be recorded in two layers. To read the second layer, the reader focuses the laser deeper into the disc, where the second layer of data is recorded. Not only are two-layer discs possible, but double sided as well. This ability of four layers gives DVD its 17 gigabyte capacity. Since a 135-minute movie fits on a single DVD layer however, single-layer DVDs will be the most common.

Philips was founded in 1891 by Gerald Philips in Eindhoven, the Netherlands as a manufacturer of incandescent lamps and other electronics. From its small beginning, Philips has emerged as one of today¡s global leaders in electronics. As a thirty-nine billion-dollar company, Philips successfully

competes in a wide range of markets such as consumer products, lighting, semiconductors, professional products and systems.

Philips currently has a workforce of more than 250, 000. The company has 243 production facilities scattered throughout twenty-five countries. Philips sells and services its products in 150 countries and their stock is traded in 16 stock exchanges in nine countries.

The company presently has seven different product divisions and one hundred businesses in value based competitive analysis. Philips ranked first worldwide in lighting, color picture tubes, shavers, and dictation equipment. They are second in laser optics and monitors. The company is third among consumer electronics and medical imagining equipment.

To maintainleadershipin global markets through innovation, Philips reinvests 5. 3% of its sales into research and development and has research laboratories in six countries. Through its commitment in research, Philips has come up with at least ten thousand inventions in field of optical recording, digital audio coding, digital video coding and mobile telephony. The company is a holder of 60, 000 patents and design rights and almost 30, 000 trademarks registrations. Philips possesses key patents in optical recording (CD-Audio, CD-ROM, CD-R, CD-RW, DVD-Video, DVD-ROM), digital audio coding (MPEG-2 audio compression) and mobile telephony (GMS and CDMA).

Philips Magnavox was formed in 1974 when the two companies decided to join forces. Along with the Philips brand, there are several other name brands including, but not limited to, Marantz and Norelco.

Philips Magnavox released the DVD400AT video player on April 30, 1997 at a retail price of $549. The new device allows for richer sound and video quality that was found ¡V until then ¡V only in movie theaters.

In 1960 Akio Morita began Sony¡s first major overseas venture in the United States in New York City with a capital investment of $500, 000. They employed six people initially but would grow into one of the largest components of Sony¡s worldwide operations.

Currently, Sony Electronics, Inc. in North America has one-third of Sony¡s corporate assets worldwide. They are the largest geographical operation of the corporation. They rake in some $9. 6 billion sales on a given year and roughly $1. 3 billion in exports. The North American plants employ a total of 24, 000 people whose job range from manufacturing to customer service to research and development and marketing and sales.

During the 1995 Consumer Electronics show, Sony debuted the first prototype DVD player in the United States.

On January 8, 1997, Sony Electronics released their first DVD player at a retail price of about $1, 000 ¡V a big difference from today¡s $400 price tag.

John Briesch, President of Sony Electronics A/V Group said, ¡§We have designed our first DVD player, model DVP-S7000, as a high-end product to deliver not only reference-standard DVD video quality, but state-of-the-art CD sound as well.¡

Panasonic introduced its first products into the U. S. market in 1961. The founder of its parent company ¡V Matsushita Electric Industrial Company Co.

¡V Konosuke Matsushita believed that ¡§Matsushita makes people before it makes products.¡ He basically believed that valuing employees first would lead to better quality products. It seems that his successors have carried out his vision because Panasonic continues to sell high quality products in the U. S. and abroad.

The company currently employs 19, 500 people in factories, sales companies, service centers and research facilities in the U. S., Puerto Rico, Mexico and Canada.

Divx is the latest technology to revolutionize DVD players. Divx movies are synonymous with movie rentals in the sense they can be viewed for a set period of time (48 hours from the time of the initial playing). Unlike traditional movie rentals, Divx doesn¡t have any late fees tacked on to the price. In addition, there are no late night trips to the video store to return movies.

A Divx movie costs an average of $4. 50, which includes an initial viewing time of forty-eight hours from the time of pressing the play button. After that time is up, an additional forty-eight hours can be purchased for $3. 25. It is done through the internal modem to an 800 number and information is uploaded back to the CD on a very small chip. This can be repeated as often as the user likes. Also, a person may decide a movie on Divx is worth watching over and over. During this case, a Dixv can be converted into a movie that has unlimited playing time and is like a regular DVD movie.

Technological and social/cultural shifts:

With the advent of the DVD, more and more data can be stored on a single disc. In addition, the DVD is far more interactive than the traditional VHS tape. For example, on a DVD two or more languages can be stored. That couldn¡t happen on a VHS tape because of limiting recording time. Furthermore, people don¡t have to leave their house to watch a DVD. With the emergency of e-commerce on the Internet an individual can order a movie off of the web and have it delivered to the front door within days. This takes away from the social interaction with people that occurs in a store setting.

People are able to use the DVD to learn another language. Take for instance a DVD that has superstar French-Canadian Celine Dion singing her various songs. One option in the program is to change the lyrics that are displayed on the screen to French. As Celine Dion sings in English, the words matching up to what she is singing are displayed on the bottom of the screen. This is an excellent way to learn another language.

There are many different ways that are now being developed to copyright protect the movies, programs and videos etc. that are on the new DVDs. The three most common ways that were found to be used already to protect DVDs are: Regional coding, Content scrambling system and the Copy generation management system (CGMS).

When you buy your first DVD drive and install it, you now have to enter the zone in which you live. The world is divided into six sections, with Canada and the United States as zone 1. The DVD disc also has its own codes that allow it to be played in certain parts of the world and not in others. This

forces people that buy DVD discs in Zone 1 to also have to utilize discs that are coded for Zone 1. This prohibits movies that are produced in other Zones from being used where they should not be. The code can however be changed on your DVD drive. The code can only be changed a couple of times, thus prohibiting people from changing the code constantly and abusing the protection. It allows the user to change the code a couple of times so that if they move to a different zone they will not be penalized.

The second type of encryption is called the Content Scrambling System. (CSS) This is a key-based data encryption that ¡§sets up a protocol whereby your drive and the disc exchange keys.¡ The keys are legal, registered mechanism of the Content Scrambling System. Any hardware that is sold or brought into different zones must be registered. When the keys are found to be authentic, then the DVDs can be decrypted.

The third type of protection comes from the VCR technology that we are all very familiar with. The Copy Generation Management System is the technology that makes it impossible to copy two videos between two VCRs with a good resolution and brightness. This system works by embedding a signal in a part of the video that is not usually seen by the user. This signal causes the brightness of the video to vary and for the picture to be unreliable. This same technology has been implemented for use with DVDs. Although it seems possible that some people may be able to overcome these copyright traps, the user has to have at least an 8, 10 or 17 GB hard drive.