CONVERGENCE 2000

BROADBAND, DVD, WEB, AND OTHER HYBRID MEDIA IN THE NEAR FUTURE

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Introduction

Since the late 1980's, we've been hearing about the coming "convergence" of existing media with emerging media. From Hypercard hype, to George Gilder's groundbreaking treatise on new media, *Life Beyond Television*, to the present day hype fest surrounding convergence, broadband, interactive, and other flavor of the month terms, there has been a hope and promise of media one day "bridging the proscenium" of the broadcast model and delivering true narrowcast content. Until very recently, this promise has fallen flat on its face when it comes to actual delivery.

The landscape is littered with the corpses of abandoned interactive T.V., integrated "tele-puter", and on demand media projects.
Is it any wonder that interactive media professionals, investors, and consumers alike are jaded to the near quarterly output of the mainstream media's "next biggest thing?" However, media professionals should not let the media's proclivity to drive terms and concepts into the ground cause them to lose sight of the fact that a lot of these ideas are fundamentally good, potentially profitable, and moreover, almost certainly ripe with the potential of changing the way we communicate with each other, receive and process information and entertainment, and by extrapolation, view and relate to the world around us.

What I've attempted to present here is part one of an ongoing series or E-Docs, complete with active web-links, to explain, examine, and explore the new emerging landscape of mass communication as it undergoes its most fundamental change, similar in scope to the effects of the invention of the printing press, rail, telegraph, radio, telephone, and television on our weltanschauung.

Part one is a primer, a roadmap if you will. Hopefully, current and aspiring New Media executives, producers, marketing, sales and engineers will all find it useful in one way or another to plot out their new course in this new frontier. Later chapters will go in depth and dissect competing technologies or methodologies as they emerge. I will also supply marketing and demographic information and/or resources when and where it is available. I will endeavor to have later chapters available on mightywords.com on a quarterly basis, as time and the market allows. My corporation, iMMERSION New Media (http://www.immersion-media.com) will also be making a discussion board available later this year where readers may gather and discuss current trends and recommend subjects for later chapters.

Hopefully you will find this "active-whitepaper" helpful. Feel free to contact me with any feedback, suggestions, or corrections, by emailing me: joe@immersion-media.com.

Thanks for reading.
Thanks for dreaming.
Thanks for helping to make it real.

Joseph Matheny
President/CEO
IMMERSION New Media, Inc.

Convergence: What is it?

Theory

In information technology, convergence is a term for the combining of personal computers, telecommunication, and television into a user experience that is accessible to everyone. In the U.S., an estimated 30% of homes have computers with modems. Virtually, 100% of homes have a TV set. Studies show a large populace of TV users who would embrace the Internet, video-on-demand, and greater interaction with content, but who are diffident about buying and using a personal computer. For these reasons, both the computer and the television industries are embarked on bringing digital TV and the Internet to a larger market.
Convergence is not simply an issue of technology, but also of culture and life style. In general, TV is visual, not very interactive (except for changing channels), oriented primarily toward entertainment and news. Displays are large and TVs are easy to operate, requiring almost no education to use. On the other hand, personal computers, in spite of their graphical user interfaces (GUIs) tend to be more text-oriented, highly interactive, as well as oriented toward business and education in content and purpose. Displays are smaller. Computers can be very challenging to use and usually require formal education or a certain personal learning curve. Merging these technologies represents a tremendous leap in communications and the transference of information.

Convergence between TV and personal computers is already underway with WebTV, which pipes the World Wide Web to a slightly modified TV set with a set-top box from an ordinary phone line and provides a degree of interactivity. A number of interactive games designed for the TV environment can also be played over the Internet. Broadcasting companies such as NBC have partnered with computer companies such as Microsoft for TV program content. A consortium of leading computer and telecommunication companies including Compaq, IBM, and Microsoft are working toward common standards that will help speed up convergence and hope to sponsor a standard for a relatively low-cost digital TV. They have endorsed a subset of the recommendations of the Advanced Television System Committee (ATSC) that would speed up a transition to digital TV and so that personal computers could have the ability to receive digital video and data; however, a major barrier to more rapid convergence is the large investment required to bring cable TV to households, both by cable access providers and individual households.

Satellite wireless service is another approach that is only beginning to bring its subscribers access to the Internet. Digital Subscriber Line (DSL) technologies offer the possibility of sufficient bandwidth connections over ordinary phone wires for streaming video to TV sets. As networking technology becomes pervasive, opportunities arise for using it in new and more creative ways. One example is that of using data networks, rather than the traditional circuit switched networks, to carry voice and video traffic. The generic term for this kind of use is converged networking. Converged networking offers many benefits, including cost savings and the enabling of new, tightly integrated, multimedia applications.

The World Wide Web has permanently changed the nature of networking. Before its appearance, networking was the province of specialized applications running in private corporations and research institutions. Today, networking is used by millions of people around the world. The Internet has become the backbone for small business communications. Networking has permanently changed the way organizations do business.

Like most revolutionary technologies, the Web has drawn together previously separate activities and integrated them under a common framework. Web pages no longer provide only text and static graphics; they also provide animated graphics, audio, video, and other multimedia content. Consequently, the Web supports the convergence of content delivery over networks. The Web is to content delivery what backplane buses are to computer systems. The Web is one example of a larger trend in networking. Formerly distinct activities are undergoing integration into a common framework. Integration is occurring at a number of different levels, most noticeably at the application level, where users expect ease of use between different applications (such as Web browsing, calendaring) as well as applications that incorporate a diversity of data types (such as documents that embed spreadsheets, graphics, and voice

annotation). The motivation behind this trend includes ease of use, reduced cost, and increased functionality. Similarly, users are showing interest in solutions that provide a diverse range of functionality in a single network (voice/data/video integration) and offer the possibility of reduced cost (less capital equipment acquisition, less need for a range of technical experts in different areas). The concept of convergence describes this trend toward tighter integration. Converged networking encompasses several aspects, all of which are related to the aggregation of networking activity.

Practice

Convergence Industry Newsletter Email: mailto:Richard.Rehman@QuadriviumResearch.com
Compaq, Intel, Microsoft, and Lucent Technologies share a Web site about convergence called The DTV Team.
The Advanced Television Systems Committee provides standards, a DTV bibliography, and other information.
The European Community's Green Paper for Convergence of the Telecommunication, Media and Information Technology sectors and the implications for regulation, addresses the opportunities and challenges among European Community members.
British Telecom offers a response to the Convergence Green Paper that considers the regulatory challenges for convergence in Europe.

PC Magazines Editor-in-chief Michael J. Miller, Wrote an article informing readers of what the convergence of PCs and TVs means and how far along we are. It is published in *ZDNet's* "Jesse Berst's Anchor Desk: Your source for tech Intelligence."

In this article by John G. Spooner, hear what Microsoft Corp. Chairman and CEO Bill Gates say about convergence. This article is published in *PCWeek Online*

A slide presentation on "Bringing the Web to the TV: Convergence Scenarios," put together by Warner ten Kate, Hayder Radha from Philips Research

This next resource is a little fun. It seems like author H. L. Siddons Jr. is whining about who thought up of convergence first, but he actually gives some helpful history of convergence. He also added links to some big company names involved in the "convergence race."

Author David Dadekian, from Fox News, wrote a great article on the 1997 COMDEX show, which is a show "showcasing the technology world converging with the consumer electronics world." Convergence just happened to be the technology in the spotlight of the show. Dadekian discusses some of the problems that convergence is faced with and who is dealing with the problems and how.

Consumer Electronics Manufacturers Association (CEMA) took a survey of 752 adults to get their response about the latest advancements in convergence technology. The article describes what they found and presents the latest information on convergence technology.

This is the products page of NetTv. I thought some would be interested in looking at some of the latest convergence products that have already been manufactured and are on the market. I suggest you take a look at the DVD--Explorer 3000, and check out the cool Hot Keys Wireless Keyboard on the NetTV Accessories page.

This page, set up by *InterNetOnTV.Com*, is another resource page with a collection of four informational reports on convergence. The most valuable link is the in-depth detailed report from two Harvard Business School students Stephen P. Bradley and David J. Collis and P. William Bane from Mercer Management Consulting entitled "Winners and Losers: Industry Structure In The Converging World Of Telecommunications, Computing And Entertainment."

This site is actually an on-line book about convergence. There are four chapters. The first is on "Politics and policy", chapter two; "A changing marketplace", chapter three; "The networked society" and the forth chapter is titled "Technology." This site has a wealth of data and information about convergence.

This is another story from *ZDNet's* "Jesse Berst's Anchor Desk: Your source for tech Intelligence." This article, "Massive Convergence Race Is On FCC Ruling on Digital TV Is Starter Gun," discusses what lies ahead for us with the convergence of TV and PC. The story isn't what I wanted to really focus on, but it is the TalkBack section at the bottom of the story. It is a list of messages from readers to Berst voicing their concerns about the latest convergence technologies, marketing problems and effects convergence may have.

WebTV has been around for a while, but due to failure in marketing some believe, it is just not as popular as they had hoped. But with the latest convergence technologies popping up on the market, television and the Internet is becoming an unavoidable marriage. Companies are doing what ever they can to lead the market in convergence. Read about Microsoft's moves to get the jump on PC/TV technology

This link to *Reul's TV Net pages* is for television fanatics. This site gives you all the latest links, companies, news and information pertaining to PC/TV technology and interactive television. It also has a list of books that will help you in your search for understanding the latest evolution of the television

The Web: Now that we're beyond the hype

You don't really need me to tell you what it is, do you?
Face it. In North America and European markets, the web is nearly as ubiquitous as dialtone.

EXPANDED INTERNET USAGE AND COMMERCE
The Web's explosive commercial growth is causing users in record numbers to employ it in all aspects of their day-to-day lives, from research and education, to entertainment and shopping. According to the Survey, the number of Internet users in the U.S. and Canada increased 16% in just nine months, totaling more than 92 million users.
How these users access the Internet is also changing: 72 million users access the Internet from home, 46 million from work, 28 million from school and 32 million from other locations, including a friend's home or workplace, a library or cybercafe.

INFORMED SHOPPERS PURCHASE MORE ONLINE
The Survey stressed the importance of the Web for shopping, as experienced users are discovering new ways to use it as an online shopping and buying tool. A total of 55 million people, or 60% of the Internet population, have used the Web to shop.   The Survey defines "shopping" as researching and comparing the price and features of products and services online, regardless whether or not an actual online purchase was made.
"The Web is changing the rules, both on the consumer as well as the business side," explained Loel McPhee, Director of Strategic Partnerships at CommerceNet. "In competing for consumers in business and at home, we are seeing many companies adapt their strategies to respond to a more informed consumer. This proves especially challenging, as the majority of these companies are just beginning to understand the nature of electronic commerce."
Books, computers, clothing and CDs/videos top the list of items shopped for online, but they are all distant seconds to automobiles and automotive parts, with 18.2 million online shoppers as of April 1999.

Among users who purchase online, 9 million made purchases once a month, and 1 million made purchases at least once a week.

WOMEN GAINING MOMENTUM
This is the first time in two years that we have seen a major increase in the number of women purchasing online, reflecting in a 9 percentage point growth since last summer. Women represented 29% of online purchasers in both the September 97 and June 98 studies. The new findings reveal that women now comprise 38% of those that have purchased online.
"Nearly half of the Internet users are women. With online purchasing becoming easier, the majority of online shoppers are very likely to become online purchasers. Women have played a major role in that trend, and we expect to see them continue to lead the way," added Resch.
Women and men generally purchase the same types of products online, with books and CDs/videos occupying the top spots. However, gender differences are more visible in online shopping trends. Clothing and books are the top shopping destinations for women, whereas automobiles/automotive parts and computers top the shopping destinations for men.

Numbers
The number of Internet users over the age of 16 in the U.S. and Canada has reached 92 million up from 79 million just 9 months ago.
The number of women purchasing online increased 80% from the last survey.
13% of all online buyers made their first purchase in the preceding month.
The number 1 category of items shopped for online was cars and car pats, with 18.2 million shoppers

World Wide Total: 171.25 Million
North America | South America | Europe | Africa | Middle East | Asia/Pacific Rim

Estimating the worldwide Internet population is, at this point in time, an inexact science. The information that is displayed on this map is compiled from a number of sources worldwide.
The results for U.S. & Canada are population projections based on the CommerceNet/Nielsen Demographic survey.

1999	
World Total	**171.25 Million**
Africa	1.14 Million
Asia/Pacific	27 Million
Europe	40 Million
Middle East	.88 Million
Canada & USA	92 Million
South America	5.3 Million
Source: Various; Methodology	

Europe
eCommerce Revenue
International Data Corporation (IDC) reports in the article, "The Western European Forecast for Internet Usage and Commerce," that the total value of electronic commerce in Europe will reach USD 30 billion by 2001. Last year Europe spent USD 1 billion buying goods and services online.

UK:
The third BT-sponsored Durlacher Quarterly Internet Report found that 39 percent of small to medium enterprises have established an Internet presence, and that 29 percent intend on developing a presence

during the next 12 months. 81 percent recognize that the Internet will become an intrinsic part of their businesses' future.

An Inteco survey conducted of 4,810 workers in the UK found that email is used by about 5 million people at work in the UK while 3.1 million have an Internet email address. The survey also found that Web access is growing rapidly and varies greatly by industry. The same survey also found that the UK is well ahead of France and Germany in both internal and external use of email.

Germany:
According to the International Data Corporation (IDC) report, "The Western European Forecast for Internet Usage and Commerce," there are currently 4 million people online in Germany. This number is expected to grow to 17 million by the end of 2001.

Asia/Pacific Rim
eCommerce Revenue:
The Singapore Business Times, citing an International Data Corporation (IDC) report, released the following figures of expected revenue from ecommerce:
Singapore: US $800 million
Malaysia: US $1 billion
Thailand: US $200 million
Indonesia and the Philippines: expected to generate just short of US $200 million

China:
Xinhua, the official news agency of China, has reported that the number of Internet users in China is expected to reach 2 million by the year 2000, and 7 million by 2001.
Currently, there are 620,000 Internet users in China. More information from the article is available at NUA.

Japan:
Japanese Internet Usage Profile:
Has second largest number of Internet hosts in the world:
734,306 hosts, 1,645 ISP's (January '97)
Access from home is increasing:
Home use went up from 48% in December '96 to 54% in June '97
Intranets, on the other hand, will emerge in the near future:
12% already have intranets, and 41% are under planning.
(source: Internet Magazine July '97, Nikkei Multimedia for Business July '97)
Japanese Internet User Profile (June '97):
89% male, 11% female
34% have already shopped on-line, 42% would like to try. Women shop more often and spend more.
Average spending per shopping session:
Men Y1000-5000($8-40)
Women Y5000-10000($40-80) (June '97)
(Source: Internet Magazine July '97)
Singapore:
41% of all households in Singapore have computers.
14% of these households have Internet accounts.
The growth in Internet users' accounts has been about 1400% since 1995.
(Source: National IT Industry Summit 1997 - Opening speech by RAdm Teo Chee Hean, Chairman, National IT Committee, on 27 November 1997.)
The Singapore Business Times, citing an International Data Corporation (IDC) report, reported the following figures of expected Internet user growth in Malaysia and Singapore by the year 2001:
Singapore: from 250,000 now to 1.5 million by the year 2001
Malaysia: from 250,000 now to 2.2 million by the year 2001
Africa
According to an analysis on NUA, there are currently between 800,000 and 1 million people online in Africa. 700,000 of these people are in South Africa.

Internet Domain Survey

Network Wizards has been conducting the Internet Domain Survey since 1987. This survey, conducted every six months, attempts to count the number of Internet hosts, or rather, every computer connected to the Internet.

The Network Wizards survey has been changed. The new survey counts the number of IP addresses assigned a name, rather than counting the number of hosts by walking the domain name tree. The methodology of the survey was changed because the old method of walking the domain tree was unable to count all the Internet hosts. This was because of some companies restricting the download of this information (called zone transfers). For example, in the July 1997 survey, Network Wizards was only able to download 75% of the domains discovered.

Survey Date	New Survey Results	Old Survey Results
Jan-95	5,846,000	4,852,000
Jul-95	8,200,000	6,642,000
Jan-96	14,352,000	9,472,000
Jul-96	16,729,000	12,881,000
Jan-97	21,819,000	16,146,000
Jul-97	26,053,000	19,540,000
Jan-98	29,670,000	n/a
Jul-98	36,739,000	n/a

However, counting the number of IP addresses assigned names pose their own problems: there are potentially 4.3 billion possible addresses. Sending a query to each of these addresses would take too much time. Network Wizards starts instead with a list of all network numbers that have been delegated within the IN-ADDR.ARPA domain, a special part of the domain name space used to convert IP addresses into names. Each network number is then queried for further sub-delegations. These results are then randomized to prevent any one server getting too many queries at one time, and queried using a common UDP-based PTR query.

The old numbers, as far back, January 1995 have been adjusted to reflect the new survey methodology. However, Network Wizards warns that comparing data from the old survey and the new survey is unreliable because while the two different surveys were both trying to determine the total host count, they are counting different things. It would appear from the new data and the adjusted data that previously, if anything, the numbers were underestimated. Unfortunately, this also means that gaining an accurate view of the rate of Internet growth is still an inexact science.

Broadband: What is it, really?

What, exactly, is broadband? Webster's defines it as "having, or operating with uniform efficiency over a wide band of frequencies."

However unhelpful that answer is, the picture gets even murkier as more and more communications companies claim they are in the broadband arena, including, but not limited to cable operators, long distance suppliers, TV broadcasters, local exchange carriers and satellite companies, but also PC manufacturers, software designers, content producers and Internet service providers.

Without question, cable is broadband. Setting aside special connections such as T1 lines, the fattest and fastest pipe belongs to the cable industry. Broadband and cable are so tied together that in Washington lingo, broadband access to the Internet is virtually synonymous with cable modem access. In the wake of the recent cable mergers, one cable lawyer suggested that cable adopt the acronym **RBOC** (which really doesn't apply to the super-regional local telephone companies anymore), short for Regional Broadband Operating Company.

Yet the whole cable industry doesn't fall into the broadband category, at least not yet. Virtually all of cable's revenues come from selling one-way video news and entertainment and however interesting you find plain old cable service, you won't see much in-depth analysis of it here.

Traditional TV broadcasting, in engineering terms, is broadband --- most video broadcast signals occupy a six megahertz slice of the spectrum, broad by anyone's definition, and HDTV signals take up even more space. And yet, most of broadcasting's revenues come from point to multipoint mass-market transmission of programming. That's not broadband.

But when broadcaster's ship their video content to PCs via the Internet or offer high-speed multicasting services with their digital spectrum or otherwise push past the technological limitations of their medium to offer something new, we'll take a look.

Conversely, traditional telephony is the very essence of narrowband, the status quo everyone is trying to surpass, even the telcos themselves through digital subscriber line technology. With speeds of less than one megabit per second, DSL - or its mass market version, ADSL - fails to make the broadband grade in the eyes of most cable operators. Certainly ADSL is broader band, and any student of telecom history knows never to underestimate the telcos. DSL could be the most promising broadband technology around.

Without the Internet, no one would care about bandwidth. Most Internet users, however, and virtually all Internet sites don't need broadband capability. Ebay addicts, email users and Amazon.com browsers get along fine with 28.8 or 56 kbps connections. Broadband will no doubt bring bells and whistles to those sites, but their fundamentally successful premises were forged in a narrowband world.

Still, most Internet companies are betting on cable modems or telco DSL or wireless broadband access to change everything. Movies over the web and net-delivered CD's are conjuring up all kinds of visions of broadband riches over the Internet and the grandest dream is to bring the Internet to the TV.

Wireless cable and Satellite Company forays into Internet access and other new services certainly constitute broadband. But neither medium can quite yet effectively deliver reliable interactivity, which is almost as important in defining broadband as bandwidth. Nevertheless, cable and satellite are making strides in overcoming that obstacle.

That's our first take on defining broadband, a topic that we will revisit. Broadband is new cable service, broadcasting that has a technology twist, telephony of tomorrow but not today, Internet content that expands upon text, graphics, audio and still-frame video content, and interactive services delivered by wireless cable and satellite systems.

Here's the rub: many investors are buying into the current broadband investment craze without full knowledge of its true limitations. The truth is, there is not a technology currently available that will allow true broadcast quality video to be pushed over the wire, and definitely not an on demand version. Also, current Internet infrastructure would be overwhelmed by the data throughput even if a pipe capable of such a feat were available to the household POE.

Look in our general resources for more info.

DVD: The disc format of the near future?

Ok, I can already hear you saying, "An interview with yourself, how narcissistic! Nonetheless, I have included this interview because I feel that the journalist helped me uncover my immediate views on the current state of DVD. Having defended myself, let us move on…

Theory and Practice
Interview with Rod Amis for IT Manager's Journal
Tuesday -22/Feb/2000

Part-1
Joseph Matheny, founder and CEO of Immersion New Media has been something of a legend in the multimedia
arena of San Francisco/Silicon Valley for almost a decade now. During his three years with Adobe Systems,
Matheny went from being the Webmaster of their Internet Products Division to being the company's Web Strategy
Manager. He is author of the book *Why DVD? A Meat and Potatoes Guide for the Uninitiate*d, and has appeared
on both CNet TV and CBS Marketwatch. When the opportunity arose to chat with Joe about his new
DVD research and development firm, I leaped for it. I believe you will see why as I share our conversation here.
Joe brings an energy and excitement to his work, which even comes across on the page.

ITMJ - Joe Matheny, thanks for taking the time to talk with ITMJ. Let's start with why IT managers would be
interested in DVD technology. What is the potential here?

MATHENY - Let's start with the what's of DVD and then move on to the whys. In my book, *Why DVD? 2000,* I point
out a few of the what's. DVD is two things. Number one, it's the storage medium. As I say in *Why DV*D:
"The foundation of DVD technology is incredible storage capacity (the media) coupled with interactive video (the
medium). A single CD-sized DVD disc has enough storage space for the text of 20,000 novels, 100,000 digital photos,
seven hours of CD-quality stereo audio or a high-resolution version of a theater-quality feature-length film. This
enormous capacity makes DVD the ideal platform for a broad range of applications, particularly multimedia."
Now that alone is pretty revolutionary. But wait, there's more! DVD is also a random access video specification.
DVD uses as its assets, full screen capable, MPEG-2 (broadcast) video, and most theater quality sound formats,
like Dolby 5.1 Surround, DTS, et cetera, combined with a "command-wrapper" that makes it interactive and random
access. What does this mean, really? Think of it this way: DVD ROM is the final stepping-stone to a fully interactive
(on-demand) rich video experience. What's lacking in CD ROM? Video and Disc space. What

does DVD have that CD ROM doesn't have? Video and disc space. What's the new mandate with some of the applications that you could build. Not to blow any single horn here, but if you're really interested in this stuff go get the Microsoft Interactive Toolkit and look at some of the examples! (You'll need a DVD ROM drive, of course). You could, for example, have a multi-chapter movie about installing switching equipment. As the student watches
each chapter, they could be prompted to take an online test. Using any number of profiling methods (score being
an obvious one) you could either allow or disallow the student access to the next chapter. In other words, if they
fail the test on chapter one, you could require them to retake it and pass it before unlocking access to chapter
two.

Part-2
In the previous Journal entry we began a conversation with Joseph Matheny, founder and CEO of Immersion New
Media about the nature of DVD technology and its implications. Today we delve into some the issues DVD
raises for the future of interactive multimedia. **ITMJ** - I downloaded your pdf. file on DVD and what you
have to say there makes a lot of sense. But isn't this technology a threat to the film industry as large as MP-3
has been to record companies?

MATHENY - Not at all. The film industry, unlike the record industry, has actually been the first to embrace DVD. If not
for the deep pockets and vision of the studios all this might not be happening as quickly as it is. The record industry is finally coming around on MP-3, aswell. The murmur in the rank and file is, "We're going on-line". Think about the implications of some of the recent mergers. Think about the "broadband" hoo-ha going on as
we speak. Sure, any IT person with a modicum of knowledge knows that DSL and cable modem are not really "broadband" in the sense that neither is a pipe capable of pumping any kind of decent resolution video on demand. Also, the same people know that the current IT infrastructures are not sufficient to withstand such an onslaught of traffic requirements. So, that being said, where are we? We are at the very head of the convergence point of media. We're kind of standing on the threshold. Personally, I like it here, it feels like a frontier. Like the early days of the BBS and then Internet movements. We have a method for delivering rich video with connectivity and interactivity built in. It's called WebDVD. When the infrastructure is finally in place and working, we simply point everything from DVDPlayer.OBJ to VideoSource.OBJ and then of course eventually to FooPipe.OBJ (whatever the two-way all comm-pipe becomes). So, record companies are sitting on a gold mine! They have all this video, which was good PR but didn't actually produce a profit in and of itself. They have MP-3s to sell. They now have the perfect medium to repurpose the videos and sell MP-3s and merchandising. Think about it! A Web-enabled DVD ROM of music video with web connections to MP-3s, merchandising, and other artists on the same labels...ad infinitum! This is gonna rock! (Pun intended).

ITMJ - Okay, it's a given that the large entertainment companies already have the inventory, but --- as you mention --- there are "murmurs among the rank and file." You have artists like rapper Ice T, for example, setting up their own Web and music production companies. These people

are murmuring that they want of the action, monetarily, and they want to bring their MP-3s, CD and eventually DVD directly to their fans via the Web. Your thoughts?

MATHENY - Taking off my WebDVD software hat for a moment and putting on my other favorite hat, that of an independent media producer, I totally concur. The low cost of DV, NLE editing tools, DVD authoring tools, et cetera allow for the independent producer to create and distribute totally interactive, high quality projects. The convergence of all this media at a low cost will only help to take the control of quality interactive media from the hands of the Lucases and Spielbergs of the world and empower the "Billy Bob in the Basement" crowd. The world's largest distribution channel is virtually free. Namely, the Internet. I think both the music and film industries are starting to concede that they can't continue to impede or delay the inevitable. They are in fact scrambling not to get left behind, having ignored the obvious for so long. Anyone can produce and distribute an MP-3. We're just now at the point where the same can be said for WebDVD. Expect to see more and more "written for DVD" and "direct to DVD" projects hitting the shelves (I know I have one in the works). It will be similar to the home video explosion and the direct-to-video houses like Pacific Arts (Mike Nesmith) that sprung up as a result of that market exploding. Remember how groundbreaking "Elephant Parts" was for its time? We haven't seen anything compared to what we will see in the next two years when it comes to inventive, original, written for interactive/movie/Web/desktop hybrids.

Market Scope

A DVD-ROM drive is a computer peripheral whose main purpose is to play DVD-ROM discs. As with DVD-Video discs, DVD-ROM discs can hold 4.7 GB or more of data. It is my opinion that this market has the largest growth potential.

CEMA (Consumer Electronics Manufacturers Association) reported a final tally of **5.5** Million DVD-Video players shipped to dealers by end 1999. After two years of DVDs, they're in more than 15 million American homes, and optimistic industry sources claim that number will quadruple by the year 2000, with 30 million players in American homes by 2002. Already, all of the major Hollywood studios have announced DVD movie releases. By November 1998, 1691 titles had been released on DVD-Video. As of January 31, 2000, 5,309 titles were available, with more being announced almost daily.
DVD has broad-based applications, opening new vistas for:
• Hollywood movie studios;
• independent movie producers;
• education and training;
• corporate communications.

DVD-ROM Drives
By the end of 1999 over 30 million households will have DVD-ROM drives.
DVD Express
http://www.dvd.com/stories/scoop/feature/story_346.asp
Freeman predicts that DVD-ROM will beat out CD-ROM by 2001, with 68 million DVD drives shipped as opposed to 60 million CD drives. Three years later, new CD-ROM drives will stop selling, and 140 million DVD-ROM drives will be produced, he says.

May 1999
http://www.emediapro.net/news99/news518.html

DVD-ROM Discs
1998 3 Million
1999 5 Million
2000 30 Million - Source: Tape Disc December 1999
DVD-Recorders (DVD-RAM)
Panasonic has issued a statement reporting that industry-wide demand for
DVD-RAM drives has grown from 120,000 units last year to nearly 600,000 this
year, of which Panasonic claims about 60 to 65 percent. The company
optimistically predicts that sales will reach 1.5 million in 2000.
http://www.emediapro.net/news99/news1121.html

DVD Players
In 1999, DVD players became the fastest selling product in the history of
consumer electronics, with more than 4 million units sold during the year.
That figure is up 371 percent over 1998 sales, far surpassing CEAs original
estimate of 1.6 million units. CEA projects sales of roughly $1.5 billion
in 2000 with some 6.5 million units expected to be sold.
Consumer Electronics Association Press Release Jan 6, 2000 -
http://www.cesweb.org/

Resources

Jim Taylor's FAQ
DVD Demystified site, home of the DVD FAQ
http://dvddemystified.com/

TechWeb
A good place to search and retrieve DVD related news.
http://www.techweb.com/

DVD Forum
The DVD Forum (formerly called DVD Consortium) is an ad-hoc association
of hardware manufacturers, software firms and other
users of Digital Versatile Discs (the "DVD Format"), created for the
purpose of exchanging and disseminating ideas and information about
the DVD Format and its technical capabilities, improvements and innovations.
http://www.dvdforum.com/

DVD Insider
DVD Insider delivers daily, concise news stories aimed at executives
in the DVD industry. It will keep you on the leading edge of the
DVD market.
http://www.dvdinsider.com/

Microsoft's DVD Resource Page
Specifications. White Papers. Presentations

http://www.microsoft.com/hwdev/dvd/

Immersion New Media
New Technology and information for DVD creators.
http://www.immersion-media.com/

About the Author

Joseph Matheny is a self styled 'Renaissance Man in Training' specializing in New Media since the 80s.
His work and ideas have been featured in media sources such as CNET, Harper's Review, Videography,
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About iMMERSION New Media

Founded in 1999 in San Jose, CA iMMERSION New Media is a New Media Studio specializing in
Independent Media releases on DVD, WebDVD, DVD ROM, Web, CD ROM, and any other format that
the Matrix may spit out next. It has been said that their esthetic makes them 'more like a rock band than a
corporation' and they do not disagree with that assessment.
Information may be found at http://www.immersion-media.com

Title of Articles	Keywords	Web Address	Source	Date
Rental DVD Players Arriving in Specified Airports	DVD, Rentals	http://www.dvdinsider.com/news/database/view.asp?ID=1557	DVD Insider	4/11/00
Sony Edges Toward Broadband Wireless	broadband	http://news.cnet.com/news/0-1004-200-1681945.html?tag=st.ne.1002.tgif.1004-200-1681945?st.ne.fd.gif.f	CNET	4/11/00
Sony Palm To Team on Handhelds	merger, handhelds	http://news.cnet.com/news/0-1006-200-1438332.html	CNET	4/11/00
Sony in $1billion Deal for TV Set Top Boxes	Cable, communications	http://news.cnet.com/news/0-1006-200-120695.html	CNET	4/11/00
Extreme Technology Pact Puts High Speed Strategy in Gear	networks, fibre optics	http://news.cnet.com/news/0-1004-200-1683006.html?tag=st.ne.1002.thed.1004-200-1683006	CNET	4/11/00
Very Important Page: CNET's Big Picture	networks, fibre optics	http://news.cnet.com/news/0-1004-204-1683006.html?tag=st.ne.ni.bpbotxt.bp-1004	CNET	4/11/00
Extreme Benefits From 3Com's Shift	networks, fibre optics	http://news.cnet.com/news/0-1004-200-1579986.html?tag=st.ne.1004-203-1683006..1004-200-1579986	CNET	4/11/00
Latest Version		http://news.cnet.com/news/0-1004-204-1544493.html?tag=st.ne.ni.bpbotxt.bp-1004	CNET	4/11/00
Apple Acquires Astarte	DVD Authoring Acquisition	http://www.dvdcreation.com/HTM/HomeFrame1.htm	DVD Creation	4/10/00
Sonic Solutions and ICE Team to Accelerate MPEG-2 Transcoding	DVD Authoring	http://www.dvdcreation.com/HTM/HomeFrame1.htm	DVD Creation	4/10/00
Nu-Wave Photonics Completes $40 Million in Financing	fibre optics	http://lw.pennwellnet.com/home/articles.cfm?ARTICLE_ID=66680&PUBLICATION_ID=13&VERSION_NUM=1&Section=Subscriber&LoginReq=No		4/7/00
Sonic and RAVISENT Collaborate to Bring Streaming DVD to Desktop	authoring, broadcasting, playback	http://www.dvdcreation.com/HTM/HomeFrame1.htm	DVD Creation	4/3/00
Facts, Figures and Findings	DVD, Sales, Figures	http://www.emediapro.net/news00/news04facts.html	Emedia	4/1/00
IndieDVD Acquires Award Winning Films for Initial Distribution	DVD, distribution	http://www.dvdcreation.com/HTM/HomeFrame1.htm	DVD Creation	3/27/00
Dental School Stuffs 4 years worth of manuals and books into 1 DVD	DVD, Education, Digital Texts	http://search.nytimes.com/search/daily/homepage/bin/fastweb?getdoc+cyber-lib+cyber-lib+10470+0+wAAA+DVD	New York Times	3/2/00
Tough Court Fight Expected Over DVD Code	DeCSS, DVD, Divx	http://search.nytimes.com/search/daily/homepage/bin/fastweb?getdoc+cyber-lib+cyber-lib+10299+3+wAAA+DVD	New York Times	2/11/00
Do Viewers Even Want to Interact with TV?	TV, Interactivity	http://search.nytimes.com/search/daily/homepage/bin/fastweb?getdoc+cyber-lib+cyber-lib+10011+5+wAAA+Television	New York Times	2/7/00
Turning on the TV May Soon Require Real Expertise	DVD, Television	http://search.nytimes.com/search/daily/homepage/bin/fastweb?getdoc+cyber-lib+cyber-lib+9940+6+wAAA+DVD	New York Times	2/3/00
Convergence Raises Concerns About Access	Broadband	http://search.nytimes.com/search/daily/homepage/bin/fastweb?getdoc+cyber-lib+cyber-lib+9859+2+wAAA+broadband	New York Times	1/31/00
Broadband Internet: How Broadly? How Soon?	Broadband	http://search.nytimes.com/search/daily/homepage/bin/fastweb?getdoc+cyber-lib+cyber-lib+9631+3+wAAA+broadband	New York Times	1/17/00
DVD Lawsuit Questions Legality of Linking	DVD, WWW	http://www.nytimes.com/library/tech/00/01/cyber/cyberlaw/07law.html	New York Times	1/7/00
Why the Blind Faith in Media Convergence	Convergence	http://search.nytimes.com/search/daily/homepage/bin/fastweb?getdoc+cyber-lib+cyber-lib+9226+0+wAAA+Convergence	New York Times	12/27/99
The Internet May Precipitate a Tempest for Traditional Brands and Advertising	web immediacy, market demographics	http://search.nytimes.com/search/daily/homepage/bin/fastweb?getdoc+cyber-lib+cyber-lib+9749+10+wAAA+Convergence	New York Times	12/20/99
Film's Digital Potential Has Hollywood on Edge	entertainment, technology	http://search.nytimes.com/search/daily/bin/fastweb?getdoc+cyber-lib+cyber-lib+9752+8+wAAA+entertainment%7Ecopyright%7Epower		12/20/99
Technology Could Soon Hand TV Controller to the Viewer	TV, Interactivity	http://www.nytimes.com/library/tech/99/12/biztech/articles/122099outlook-tele.html	New York Times	12/20/99
On New DVD Format, the Sound of Good Things to Come	DVD,	http://search.nytimes.com/search/daily/homepage/bin/fastweb?getdoc+cyber-lib+cyber-lib+9256+13+wAAA+DVD	New York Times	12/9/99
In AT&T Deal, Microsoft Buys Stake in Future of Cable TV	Cable TV	http://search.nytimes.com/search/daily/homepage/bin/fastweb?getdoc+cyber-lib+cyber-lib+5107+9+wAAA+broadband	New York Times	5/7/99

Freeware Edition

Relevant Sites

http://www.atvef.com/
http://www.c-cube.com/technology/dvd.html
http://www.zpub.com/dv/
http://www.dvdcreation.com
http://dvddemystified.com/
http://www.dvddigital.com/news.html
http://www.dvdforum.org/
http://www.dvdinsider.com/
http://www.emediapro.net/
http://www.garage.com/newsroom.shtml
http://www.cnet.com
http://www.dvdresource.com/
http://www.internetnews.com
http://www.cisco.com/univercd/cc/td/doc/product/voice/rel_cfg/7830cfn.htm
http://www.businessweek.com/smallbiz/0001/dd000117.htm
http://www.zdnet.com/zdtv/freshgear/products/jump/0,3681,2419489,00.html
http://www.winsock2.com/broadband/

Technology/Trend	Source	Product	Product Announcement	Company	Product Website	Source Website
DVD Authoring	BetaNews	DivX codec	3/20/00			BetaNews - New Threat to DVD?
DVD-Web Convergence	DVDfile.com	iDVD	5/15/00	Eisa.com	http://home.eisa.com/about/our_concept.htm	http://www.dvdfile.com/editorial/2000/04/04/pc/0000-5910-KEYWORD.Missing.html
Broadband Entertainment Gateway	Internet Product Watch	Panja 1000		Panja	http://www.panja.com/index.asp	http://ipw.internet.com/networking/internet_access/948823148.html
Media Convergence	PR Newswire	MediaBZ		bluezone	http://www.bluezone.net/bz_html	http://www.prnewswire.com
DVD Authoring	PR Newswire	DVD Toolbox	6/17/99	Vitec Multimedia	http://www.vitecmm.com/index2.htm	
Video Streaming	BusinessWire.com	MXProDV	4/7/00	Videonics, Inc.	http://www.videonics.com/press-releases/00.04-eclipsnow.html	http://www.businesswire.com/entertainmentlink/
DV Cable	Videonics.com	DistanceDV	4/6/00	Videonics, Inc.	http://www.videonics.com/press-releases/00.04-ddv.html	
Digital Television		DigiTV	4/3/00	Divicom,Inc.	http://www.divicom.com	http://www.multichannel.com/b2.shtml
Cable/Satellite		STB032xx	4/3/00			http://www.multichannel.com/b3.shtml
DVD Storage		DVD Raid		Net Source, Inc.	http://www.asaca.com	http://www.dvdshrine.com/story.shtml?id=1290&cat=current
DVD Authoring	videoguys.com	DVDit		Sonic Solutions	http://www.sonicsolutions.com	http://www.videoguys.com/new.htm
DVD	DVD Creation	Streaming DVD	7/1/00	Sonic Solutions/RAVISENT		http://www.dvdcreation.com/HTM/HomeFrame1.htm
DVD Authoring	DVD Insider	Matrox DigiSuite DTV	4/11/00	Daikin/Matrox	http://www.matrox.com/videoweb/products/enduser/digisuite.htm	http://www.dvdinsider.com/news/database/view.asp?ID=1554
DVD Player	Emedia Live	Linux DVD Player	4/5/00	InterVideo	http://www.intervideo.com//default.asp?	http://www.emediapro.net/news00/news0402.html
fibre optics, networking	CNET	MRV Technology	4/11/00	Extreme Networks		http://news.cnet.com/news/0-1004-200-1683006.html?tag=st.ne.1002.thed.1004-200-1683006
ethernet chip set	CNET	gigabit Ethernet Chip	5/11/99	Broadcom		http://news.cnet.com/news/0-1003-200-342355.html?tag=st.ne.1004-203-1544493.
internet radio	internetnews.com	iM Software Tuner		SonicBox Inc.	http://www.sonicbox.com/	http://www.internetnews.com/prod-news/article/0,2171,9_338631,00.html
Microsoft X-Box (DVD-Web)		X-Box	3/24/00	Microsoft	http://www.microsoft.com	
Sony Playstation-2		Playstation	Dec-99	Sony	http://www.playstation.com/	http://www.playstation.com/

Freeware Edition

Shout outs:

Editing, formatting, and research help – Jaime Perkins

For all of their help, support and for making this medium possible – Judy Kirkpatrick, Gloria Robles, and the Mightywords gang.

For inspiring me to keep doing this kind of crazy stuff – the iMMERSION posse.

Last minute additions:

As usual, here's a few more last minute links:

DV Digital Video

Videomaker Magazine

DVD Digital Domain News Around The Web

Microsoft DirectX - What's New

DVD Technology

SIGGRAPH 99 Online Submission Panels

DVD info

DVD Insider Home Page

VARIETY.COM

Yahoo! EntertainmentVideoDVD

Welcome to the 1st Annual Peoples Choice DVD Awards

Reel.com - DVD Update

Welcome to Total E

DVD Forum

KNOWLEDGE INDUSTRY PUBLICATIONS, INC.

Entertainment Directory - Business-to-business resources and information for production of Movies, Television, Commercial & Video

Your Daily News presented by DVD Expression

Columbia House Online DVD Club Join

A list of curent magazine articles for filmmakers.

[Used DVD Empire - We Pay Top Dollar for your Used DVD's](#)

[C-Cube Microsystems Digital Video Disc (DVD) Technology](#)

[Advanced TV Enhancement Forum](#)

[EMedia Professional Computer, Multimedia, CD-ROM, CD-R and DVD Information](#)

[IDMA MainPage](#)

[DVD Creation](#)

[DVD Support in Windows 98](#)   Freeware Edition

[DVD Demystified](#)

[DVD Soft](#)

[DVD Reviews, DVD News, DVD UBB Forum, DVD Contests, DVD Chat](#)

[CEMACITY The Consumer Electronics Manufacturers Association](#)

[CEMA DVD Player Sales](#)

[United States Government Electronic Commerce Policy](#)

[CommerceNet Home Page](#)

[Jupiter - Consumer Internet Technologies](#)

[The Industry Standard The Newsmagazine of the Internet Economy](#)

News

Vital Statistics

According to VideoScan's First Alert Reporting Retailers, for the week ending April 30, 2000, DVD title sales were slightly down from last week at 604,000, bringing the year-to-date total up to 12,885,000.

DVD player sales were spectacular for the week. In fact, they exceeded all other previous sales for the year. According to the Consumer Electronics Association (CEA), for the week ending April 28, 2000, DVD player unit sales to dealers were a record-breaking 241,357, up significantly from previous weeks and a 101.2 percent increase from 1999. Month-to-date, DVD player sales are 409,192, a 52.1 percent increase over 1999 and year-to-date sales are at 1,592,817, a 134.2 percent increase over 1999.

However, VCR deck sales remain low. Sales for the week were only 855,345, a (-5) percent decrease from 1999. Month-to-date, VCR sales are 1,813,281, (-4.3) decrease from 1999 and year-to-date sales are 6,410,583, a mere 8.3 percent increase over 1999.

Projection television sales are fair. Sales for the week were 41,403, a 10.8 percent increase over 1999. Month-to-date sales are 89,052, a 8.4 percent increase over 1999 and year-to-date sales are 414,528, a 30 percent increase over 1999 sales

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Sports
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Energy
Education
Government/Legal

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Advanced Search

Services
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affiliate program
partnerships
advertising
distribution lists

About Us
company info
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now hiring

DVD Wows Consumers

eBrain Survey Shows Owners Pleased With Format

ARLINGTON, VA -- (INTERNET WIRE) -- 03/03/2000 -- DVD players experienced a tremendous year in 1999, becoming the fastest selling consumer electronics product in history, and achieving a household penetration level of approximately 5 percent after only three years in the market. Now, in 2000, consumers have overwhelmingly voiced their satisfaction with those purchases, according to the results of the first and most comprehensive DVD Owner Study released today by eBrain Market Research a service of the Consumer Electronics Association (CEA).

The results of the study indicate a remarkable 85 percent of owners surveyed expressed satisfaction with their DVD player. That satisfaction stems from several key buying expectations, but most important was enhancement of the viewing experience. Overall, 92 percent of owners stated that picture quality was very or somewhat important to their purchase decision, followed closely by sound quality and interest in digital technology.

eBrain vice president of market research, Todd Thibodeaux, commented, "The fantastic growth of DVD sales in 1999 was due in large part to consumers' increasing interest in digital technologies. The results of this study indicate a great deal of satisfaction with the digital format, which we believe will lead to further digital entertainment product purchases, stimulating growth across all categories."

In terms of content, the average DVD household owns 13 titles. However, 31 percent of owners who have had their player for at least one year have more than 20 titles, demonstrating that many owners are still in the process of building their libraries. The tremendous DVD sales Have also impacted the rental market. Approximately seven out of 10 DVD player owners rent between one and 10 titles per month, and 15 percent of owners stated an increase in their number of movie rentals.

The growth of DVD has also had a tremendous effect on complimentary purchases in the home theater market. DVD led to the creation of, or helped account for, 16 percent of all new home theater systems during the 1997-1999 period. Prior to buying DVD players, approximately 35 percent of current DVD households had a home theater system, a penetration rate that confirms many DVD owners have room to further invest in home theater equipment. That fact, combined with the 44 percent of DVD owners who have only recently bought their player, indicates a solid future for retailers in terms of complimentary purchases of audio/video equipment among owners lacking a full scale home theater system.

The survey was designed and formulated by eBrain Market Research, a service of CEA. eBrain is smarter research. The most comprehensive source of sales data, forecasts, consumer research, international research, and historical trends for the consumer electronics industry.

The DVD Owners survey was conducted online with a sample of 1,056 DVD player owners during January 2000. The complete study is available free to CEA member companies. Non- members may purchase the study for $499 by visiting eBrain.org or sending an e-mail to info@ebrain.org.

CEA is a sector of the Electronic Industries Alliance (EIA), the 76-year-old Arlington, Virginia-based trade organization representing all facets of electronics manufacturing and connecting the industries that define the digital age. CEA represents more than 600 U.S. companies involved in the development, manufacturing and distribution of audio, video, mobile electronics, communications, information technology, multimedia and accessory products, as well as related services, that are sold through consumer channels. Combined, these companies account for more than $60 billion in annual sales.

CEA also sponsors and manages the International CES   Your Source for Workstyle and Lifestyle Technology[SM]. All profits from CES are reinvested into industry services, including technical training and education, industry promotion, engineering standards development, market research and legislative advocacy.

UPCOMING EVENTS

- CEA Technical Workshop: PCs/Peer-to-Peer Networking
  March 6-8, 2000, Arlington, VA
- EIA/CEA Spring Conference
  March 12-15, 2000, Washington, DC
- CEA Technical Workshop: Monitor/TV Servicing
  April 10-12, 2000, Arlington, VA
- CEA Technical Workshop: PCs/Peer-to-Peer Networking
  May 15-17, 2000, Arlington, VA

- CEA Business Solutions Series 2000: Proven Methods to Lower Product Returns; Growing Your Business Through the Internet
  May 17-18, 2000, Los Angeles, CA
- CEA Technical Workshop: DVD Servicing
  June 7-8, 2000, Arlington VA
- CEO Summit
  June 21-23, 2000, San Diego, CA
- CEA Technical Workshop: Monitor/TV Servicing
  August 14-16, 2000, Arlington VA
- CEA Technical Workshop: PCs/Peer-to-Peer Networking
  October 11-13, 2000, Arlington, VA
- CEA Fall Conference
  October 15-18, 2000, San Francisco, CA
- CEA Technical Workshop: DVD
  November 15-16, 2000, Arlington VA
- 2001 International CES   Your Source for Workstyle and Lifestyle Technology^{SM}
  January 6-9, 2001, Las Vegas, NV

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