



The Enhanced CD
Fact Book

media



The Enhanced CD Fact Book

Version 1.0.1

by Josh Warner

Sponsored by Apple Computer, Inc.
Entertainment Industry and New Media Group
for the Apple Multimedia Program
Interactive Music Track

Produced and Edited by Mira Crisp



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Introduction

Last year, new artists Sheryl Crow and Green Day topped the pop charts, and MTV continued to bring us new bands. It's hard to imagine what more could go right for music makers this year. However, a new form of compact disc that adds multimedia features to a regular audio CD has the industry buzzing again.

This new enhanced compact disc is being called **mixed-mode**, **pre-gap**, and **CD Plus**, which are different names for essentially the same thing: an audio CD with multimedia content that can be played on both audio CD *and* computer-based **CD-ROM** players. Whatever the name, this new **enhanced CD** promises to change the way we think about music.

The Enhanced CD Fact Book is for everyone who wants to know about this exciting new digital format. So whether you're a recording artist, record label or software developer, you'll find valuable information here. When you see a word that's highlighted, you'll find its definition in the Glossary. And we talk with industry pioneers who are as excited as we are about the new format. These are the parts of the book we like best, where debate is encouraged and ideas are exchanged. Just what you'd expect from a company like Apple.



Evolution of Enhanced CD

It's important to know where you came from to know where you are. Until recently, most multimedia discs targeting the music market were full-blown CD-ROMs, such as *Xplora1: Peter Gabriel's Secret World* or *JUMP: The David Bowie Interactive CD-ROM*. These discs are meant to be played on the CD-ROM drive of your computer. That's the only way you'll get at what is important—the multimedia.

Enhanced CDs are different. The primary focus of enhanced CD is the music. The multimedia part is the bonus. For this reason, the name is revealing. It recognizes the format as an enhancement of the popular audio CD, which follows an industry standard referred to as the **Red Book**.

Technically speaking, a regular audio CD can hold up to 74 minutes of Red Book audio, or 650 **megabytes** (MB) of digital audio data. Typically, many CDs contain only 50 minutes of audio. So this leaves about 24 minutes or 200MB of remaining space for interactive content—music videos, song lyrics or anything you and your favorite artist dreams of. The interactive content follows standard CD-ROM guidelines, the **Yellow Book**.

Refer to the CD-ROM Case Study: Bob Dylan on page 38.

MIXED-MODE SOLUTION

The big issue for enhanced CD developers has been where to place the interactive data or Yellow Book on the disc. Several developers have put the multimedia on the front, or first track, of the enhanced audio CD. These discs are generally called mixed-mode enhanced CDs (also referred to as track zero discs). Mixed-mode reflects the fact that a CD Red Book audio track and CD-ROM Yellow Book track share space on the same disc. *The Freedom Sessions* from Canadian singer Sarah McLachlan is an example.

Refer to the Mixed-Mode Case Study: Sarah McLachlan on page 40.

The technology to develop mixed-mode discs exists now. But a mixed-mode CD requires you to manually skip over the first track of interactive data when playing the disc in a regular audio CD player, otherwise you'll get no sound at all or, worse yet, a nasty noise which may harm your speakers. The disc only starts to act like a regular audio CD from the second track on. Mixed-mode enhanced CDs are commonly stickered with an alert like "SKIP TRACK ONE OR ELSE." Warning labels are OK if you're a pack of cigarettes, but imagine how artists and record labels feel. That's why you don't see very many mixed-mode discs. But kudos to early enhanced CD developers. Until recently, it was the only way you could get large amounts of audio and CD-ROM data on the same disc.

Red Book: The document specifying the audio CD format developed by Sony and Philips.

Yellow Book: The document specifying the CD-ROM format developed by Sony and Philips.

Stamped Multisession: Describes compact discs on which data can be recorded on more than one occasion. CD Plus uses stamped multisession technology to combine audio and CD-ROM data on same compact disc.

PRE-GAP SOLUTION

Recently, developers have been able to place the CD-ROM portion of the enhanced disc in the pre-gap area just before the first track of audio. Now you don't have to manually skip the first track when playing the disc in your CD player, because the interactive data in the pre-gap area is generally unnoticed by the audio CD player.

Yet there are drawbacks. You can back into the CD-ROM data on the disc if you press rewind long enough on your CD player, which will get you to that nasty noise again (although before you get to the noise, you're likely to hear a recorded message telling you to stop). Additionally, several older CD players won't play pre-gap discs and only a few developers have been able to create pre-gap discs. So, to create the discs, you need to develop your own solution or make arrangements with a developer who has proprietary pre-gap technology.

Both mixed-mode and pre-gap discs have a major advantage for the consumer. You don't have to install any additional software or drivers to play the disc on your computer's CD-ROM drive. That means you can release these types of discs today, as several developers and labels have successfully done.

Refer to the Pre-Gap Case Studies: *gf4*, Moby, Bush, Kitaro, Big Tent Revival on page 42.

MULTISESSION SOLUTION

You've probably heard of another form of enhanced CD—CD Plus. CD Plus is believed to be almost 100 percent compatible with existing audio CD players, something pre-gap and track zero discs can't match. CD Plus is favored by record labels and artists who prefer a solution which doesn't require you to make any adjustments when playing the disc in your audio CD player. You play the CD Plus the same way you play a regular audio CD with exactly the same result. And you don't have that loud warning sticker plastered on the front of your favorite CD!

Technically speaking, CD Plus uses **Stamped Multisession** technology, which allows two separate sessions to be placed, or pressed, on the same disc. The first session for audio, the second session for ROM data. The audio CD player then automatically reads the first portion of the compact disc that is regular audio. The audio CD player never gets to the interactive data (which now follows the audio session), virtually eliminating the chance for CD Plus discs to play improperly in a regular audio CD player.



But to play a CD Plus title in the CD-ROM drive of your computer, you'll need to install new software, or **multisession drivers**, on your hard drive. These new drivers instruct the CD-ROM drive to look beyond the audio session to find the data session. Without these new drivers, a computer won't be able to see the disc's multimedia features. If this seems like a big deal, it's not. Especially if you've spent any time with computers, in which case you've probably installed new software many times before.

NEW MULTISESSION DRIVER DISTRIBUTION

Apple's multisession driver software can be downloaded right now from the Apple **QuickTime Continuum** Web site (<http://quicktime.apple.com>) at no charge. The multisession driver software will also be available through Apple's eWorld and CompuServe. Additionally, Apple will include the drivers in the soon-to-be-released Apple **QuickTime Music Toolkit**. The new software will also be included on all Macintosh computers beginning this summer.

Apple will be distributing the multisession drivers to **Apple Multimedia Program (AMP)** members, more than 14,000 Apple Associates and Partners worldwide, and to music fans through concert events and record label cross-marketing efforts. Interested parties can also contact Apple software licensing for a no-charge license to distribute the Apple multisession drivers. Contact: Apple Software Licensing, Phone (512) 919-2645.

There are other ways to get the new multisession driver software. **The Recording Industry Association of America (RIAA)** is sponsoring an enhanced CD sampler that will contain the new driver software. Rev, a New York-based company, is developing the sampler which will include one recording artist from each of the six major labels. The sampler and driver software is scheduled for a Fall '95 release.

Corel, a leading PC software developer, will also be distributing a driver package for Windows 3.1, 3.11 and Macintosh environments this summer. Contact: Corel Corporation, CD Plus Product Manager, 1600 Carling Avenue, Ottawa, Ontario, Canada K1Z 8R7, Phone (613) 728-8200.

MULTISESSION CD-ROM DRIVES

Besides the new drivers, you'll need one more thing—a multisession capable CD-ROM drive. That's the only way your CD-ROM drive knows it's reading a CD Plus disc. If you have a Macintosh, you probably have a multisession CD-ROM drive: 95 percent of Apple CD drives read multisession discs. All 2X Apple CD drives and beyond are multisession capable, and the first Apple 2X drives were shipped in October '92.

On the other hand, only 50 percent of current multimedia-capable PCs are estimated to support multisession. This means if you already own a multimedia PC you may have to wait for Windows 95 before enjoying CD Plus discs. However, most multimedia PCs on sale today handle multisession discs. And most popular multimedia kits, such as Sound Blaster, support multisession. Soon every personal computer you buy will be able to play CD Plus discs.



CD Plus as New Industry Standard

Obviously, the music and computer industries want a single standard for enhanced CD. With that goal in mind, Apple has been working closely with **Sony** and **Philips** (the original patent holders of the CD audio Red Book and CD-ROM Yellow Book standards), and with Microsoft and the Recording Industry Association of America (RIAA) to define the enhanced CD specification.

Blue Book: The document which specifies the CD Plus format as defined by Sony and Philips.

In June 1995, Sony and Philips, Apple and Microsoft formally announced the new specifications, or book, for enhanced multisession CD and CD Plus. The new book—the **Blue Book**—defines the exact data formats that can be contained on an enhanced multisession CD or CD Plus disc. The RIAA will be the official registration office for operating systems and platforms which support this format and will assist in its implementation. For a copy of the Blue Book enhanced CD specifications and logo information, contact: Philips Electronics, N.V. (Eindhoven, NL) Coordination Office Optical & Magnetic Media Systems via fax at 31-40-732113.

Tim Sites

Tim Sites
Senior Vice President,
Recording Industry Association
of America

Tim Sites has been actively involved in the industry's adoption of an acceptable standard for enhanced CD.

Is it important that the standard be “multisession” as Sony-Philips suggests or will the record industry accept other standards?

Each individual record company will choose the approach that best meets the needs of its artists as a creative medium and best satisfies its customers' desires. We believe, however, that three basic criteria should be met:

- that the disc is playable in all CD players and begins to play music with track #1
- that it provide high-quality sound reproduction identical to the audio CD
- that its multimedia features enhance and expand the consumer's musical experience.

What is the RIAA doing to promote an industry standard?

The RIAA is moving forward with its plans to release an enhanced CD music sampler. We'll be celebrating the release with a major public relations and consumer information campaign.

How long will it take for the public to accept enhanced CDs?

We believe customers will be excited about the extra features enhanced CD offers. We expect the format will be a permanent fixture in the market, moving rapidly from a product for early adopters to a product for a broader audience.



What Developers Need To Know About Labels

If you're a graphic designer or video producer, you already know a lot about what it takes to make enhanced CDs. If you're a computer programmer, you know how to make an enhanced CD title run. The best part of any new industry is there's plenty of room for everyone. But is the music industry ready to fund enhanced CDs? What will the budgets be? What is the best way to approach a record company?

For music companies, more value for customers means more sales. Music companies only have to look back to the audio CD to see how enhanced CD will help their business. The public saw extra value in the shiny new disc. Now consumers get an added boost with enhanced CD: superb music plus state-of-the-art multimedia.

NEW MARKETING OPPORTUNITIES

There's one particular scenario that has captured the music industry's attention:

a CD-ROM owner buys an enhanced CD version of a previously released album because of the addition of an unseen video, a special backstage glimpse of the artist, or a new creative treatment only available on the interactive music disc. This attraction will help stimulate **back catalog** sales. Many of the label's marketing elements, like music videos, will get a second life. Now record labels and artists have a powerful, new marketing tool. This is especially important for developing artists who have experienced difficulty getting their video played on traditional outlets. Many record labels are also putting interactive releases on World Wide Web sites on the Internet.

For an industry getting its legs, you'll need a mixture of patience and perseverance. Re-releases of popular albums and 'best of' compilations in the enhanced CD format are likely. Focus on artists, or categories of artists, likely to get funding for enhanced CD. Established artists who release albums over a long period of time are sometimes referred to as **catalog** or 'career' artists. These artists have existing assets, such as concert footage, photographs, lyric sheets, and a catalog of albums that continue to sell to a group of dedicated fans. Pink Floyd, Frank Sinatra, and Metallica are members of this eclectic group.

Yet record labels know younger music fans are computer savvy. These younger fans have multimedia capable computers and will want to see and learn more about their favorite artists. So keep an eye on the breaking bands getting a push from their labels. Know what bands are on schedule, what's up for release. If their last record was on MTV's **Buzz Bin** and on the radio, pay attention. Record labels will mine the classics. But the future is on the radio now—or in the studio.

Back Catalog: Describes a group, or body, of older recordings or musical copyrights by one common owner or author, such as 'Tom Petty has a back catalog of wonderful recordings.'

“Enhanced CDs are another creative avenue for artists to explore,” says Steve Stewart, manager of multi-platinum rock group Stone Temple Pilots. “We can do things with it that fans can’t find anywhere else. Home-made videos of the band on the road, special lyrics, different pictures of the band. It’s really up to our imagination.”

Platinum: As in platinum record, representing over a million units in sales of a particular artist, or group, as determined and certified by the RIAA.

NEW CREATIVE EXPRESSION

Recording artists are a big reason why the enhanced CD format will succeed. Artists now have a new creative palette to express themselves. For this reason, enhanced CD has similarities to what made MTV popular. Music fans will get to see and hear their favorite artists in a new creative setting. Artists will also be able to present information of a personal interest that might not get a proper showcase otherwise. The Beastie Boys feature the Milarepa Fund, a non-profit organization for the Tibetan people, on their new enhanced CD. Additionally, fans get to interact with the different media of the enhanced CD—graphics, animation, text, video—providing an even closer bond with the artist. This brings back benefits lost when artist **liner notes** on an LP reduced to fit the smaller CD-size **jewel box**.

“We’ve never been afraid to utilize technology,” says Steve Thomas of technopop group New Order. “We’ve enjoyed its benefits and we have a healthy respect for technology’s evolving nature. We want to use it to enhance the listening experience. Our approach is to entertain.”

“This is a totally new creative arena,” says Peter Christopherson, award-winning director of music videos from rock groups such as Van Halen and Nine Inch Nails. “Enhanced CD allows us to think about video in a new, non-linear format. This hasn’t been possible because of the specific needs of traditional video and TV.”

“The technology is improving so fast,” says Jerry Jaffe, manager of British alternative mainstay The Jesus and Mary Chain. “What we’re looking at now is going to seem like a Model T Ford three years from now.”

As a developer, the record company with the most bands on MTV is ideally the best place to find a partner for your first enhanced CD project. There are six major label groups: Warner Music Group, Capitol/EMI, Sony Music, Polygram, Uni/MCA, and BMG. Each has a large number of affiliate labels. In the early days of music video, not every artist got to do a video. MTV was in its infancy and its impact on record sales was still unclear. Then came breakthrough videos from Peter Gabriel, Devo, and Michael Jackson and the record labels had proof of how important the new medium was to their business.

So, not every record label will want to develop enhanced CDs right away. Smaller record labels have smaller pockets and may wait before investing in the new format. Yet it would be wrong to ignore the independents. Many of the first enhanced CDs are from independent labels. Independents are often quick to promote new musical trends, such as rap and alternative, and are able to move faster to take advantage of new marketing opportunities. “Independent labels like Nettwerk are artist driven. We need to find different ways to market and promote our artists,” says Terry McBride, president of Nettwerk Records and manager of Canadian singer Sarah McLachlan. “We can’t always afford four-color spreads in *Rolling Stone*. Enhanced CD is a great thing for us.”

Section Three

What Developers
Need to Know
About Labels



Don Passman
Author/Lawyer

Don Passman

Don Passman is the author of *All You Need To Know About The Music Business*, a music industry primer published by Simon & Schuster that is in its 14th printing. He also practices law with the Los Angeles firm of Gang, Tyre, Ramer & Brown. His clients include Janet Jackson, Bryan Adams, Bonnie Raitt, and Tina Turner among others.

On Music Industry Guides

There are many guides that have information on the record companies—who works where, what they do there. One I like that's very comprehensive is called the *Yellow Pages of Rock*. It's pretty expensive, but you might also find it at your local library.

On Finding the Right Person to Talk With

Almost all record labels have someone who is in charge of new technologies. They're the people who will be most receptive to your presentation. They'll also speak your language. Most of the people at the label won't. At least not yet.

On the Right Artist to Pitch

You've got to figure what artists are being pushed by the label. Who will get this type of investment. The labels won't be spending money on enhanced CD where it doesn't make sense. Like rap and street music. Many of those sales are still for singles and cassettes. They don't have a large CD player penetration.

On Target for CD Plus

It's for people who are not intimidated by computers, who are in their late 20's and have disposable income and are willing to try a new thing.

On Trade Shows

Trade shows are good if you want to get a feel for the business.

On Reading the Trade Publications

If you follow the trades, you'll spot the trends. What labels are talking about. What the marketing issues are. *Hits*, *Billboard* and *Radio & Records* are a few publications you should read.

On a Good Demo

If you can get a referral, it'll help. It gives the label some reference point for who you are. A demo is probably even better. It's the same as a manager having a demo of an artist. But there's a big difference. Each week there are 400 tapes coming through an A& R department of a major label. We're not at that level yet. The field is much more wide open. Many of the people heading up the new technology departments don't have that much to do yet.

Liz Heller

Liz Heller
Senior Vice President of
New Media,
Capitol Records

Liz Heller produced the film based on punk poet Jim Carroll's *Basketball Diaries* starring Leonardo DiCaprio for Island Pictures. When Heller's not counting overseas box office, she spends her time meeting with developers and planning the next Megadeth Web page. Capitol Records is the home to the Beastie Boys, Frank Sinatra, and Mazzy Star.

On Understanding the Artist

Developers have to understand what appeals to a music artist. Sometimes you see titles or demos that are really well executed. But you know when it goes to the artist, it won't translate. It's the same thing with music videos. If you're a music video director and you're pitching Nine Inch Nails, you're not going to show them the Mariah Carey video you did. It doesn't matter how well it's shot. Many artists are unsure of this new medium. They first want to be sure developers understand them creatively. This is hard for developers who spend a lot of time making sure that what they create can actually work from a technical point-of-view. It's a balance.

On Mixing and Matching

If I know someone who can write a great program or has this great engine, I can bring in a designer who might have a better understanding of the artist. They might have done the album package, know the artist or know creatively what the artist is all about. This is extremely important because a music artist is not an inanimate object, a storyboard or game title. It's a living person who makes his or her living as a musician. They're not going to hand that over to someone who doesn't 'get them' creatively.

On Remembering Developer Skills

I've had experiences where developers show these incredible 3D models of futuristic houses that would make any game company swoon. But the artist says 'I don't have any houses like that. How does that apply to me?' You feel for the developer. They're sitting on the other side of the room going 'But I made it in 3D Model Pro.' I look at the particular skill sets of a developer and although they may not be right for a particular project right now, I remember what they did. We'll bring them in when the time is right.

On Being Patient with Labels

There's no efficient system that's been developed to get assets and music to developers. Record labels have made records for years. Enhanced CD and Web development are brand new. Developers have to understand this is an imperfect system. We're doing different things to promote our artists than waiting for their call. There has to be patience and understanding on both sides.



Frank Balogh

As director of one of the most elaborate and popular CD-ROM music titles, Frank Balogh knows budgets but can't give us a straight answer on enhanced CD (and we don't blame him).

Frank Balogh
Interactive Director
Bob Dylan: Highway 61

On Budgeting

It's very hard to estimate a budget for an enhanced CD title. It's like saying 'How much does a movie cost?' It depends on so many variables. Are you producing art? Is the label supplying the art? Is the art ready to plug into a shell? Do you have a shell? I think the budgets will run from \$20,000 to \$150,000. You've also got to factor in the amount of the Red Book on the disc. If you've got five minutes of space on the disc it's going to be different than if you have twenty.

APPROACHING A RECORD COMPANY

Tips from enhanced CD developers who have been there, done that.

Don't Go Fishing—

"A focused pitch with a point-of-view is a necessity. Do your homework. Make a case for why you're right for the project. Have conviction in your idea (and have an idea). Be confident in your ability to deliver on budget and on time."

— Jim Martone, Highway One Media Entertainment; Bush, YES

Storyboard Your Idea—

"Present a treatment or concept that shows your ideas. It gives the label a sense of your approach to the artist. It also helps your supporters sell your idea and the project to the people who can sign the checks."

— Caitlin Curtin, Luminare; Monster Magnet

They've got to see it to believe it—

"Don't come empty handed. Show demos. And if you don't have a commercial project, make something up."

— Peter Fierlinger, Turntable Media; HeadTravel, Beastie Boys

Get the job and don't get ahead of yourself—

"Get your foot in the door. You're not going to get the band you necessarily want on the first try. But if you do a good job, they'll want you to do more. You might even make some money."

— David Karam, Post Tool Design; Lush, Jimi Hendrix, Michael Jackson

Get the artist involved—

"It's very important to get the artist involved early. This is, after all, about the artist. If you don't, the title will reflect that. The fans will know and the record company won't support it."

— David Benson, independent; Moby

Rich Shupe

Rich Shupe
Fischer Multimedia Arts

*“Leave something behind.
A business card. A screen
capture or two with your name
and phone number. Or, better
yet, an interactive press kit on a
floppy of their choice. Something
is better than nothing.”*

RAM (Random Access Memory):
Describes principle memory used
by computer in which data and
instructions are momentarily used.

Rich Shupe is developing the *Horde Tour* CD-ROM with Blues Traveler, The Black Crowes, and Ziggy Marley among others. Shupe also created the *Squeeze QuickTime Music Toolkit* demo CD Plus which debuted at Apple’s Music Industry Day.

On Development—Working With a Team

The best programmer isn’t always the best designer, and vice versa. Try to work with a team with individual specialists in programming, audio, video, and design. Be prepared to work with a designer or other team member the client prefers.

On Development—Respect the Client’s Design Needs

Labels spend lots of time and money on developing a band’s image. Include that effort instead of starting from scratch. Emphasize good photography and typography. Not only has that material already been approved, you will reinforce a consistent design aesthetic the client has already created.

On Development—Don’t Ever Forget...

Establish a naming convention (eight-dot-three) early on and stick to it. Use an Ultimatte machine during the shoot for a digital background. This makes keying *much* easier. Pay strict attention to good palettes—especially for cross-platform development. Invest in the most important part of your title: good code—particularly memory management. Develop for the lowest common denominator *first* (transitions, data rates, clock speeds, sound formats, etc.)—especially for hybrid disks.

On Testing—Burn Test CDs Often

Override the standard file placement architecture on the CD and keep related files together to reduce seek time. If you can’t burn CDs often, use a mini Ethernet network to simulate seek times and slower data transfer rates.

On Demos—Bringing Your Own Equipment

Whenever possible, bring your own equipment to have better control over your demo. Don’t use super-fast machines with tons of RAM. A tech-savvy audience will be very impressed if your demo runs quickly and smoothly running on a slower machine with an average amount of RAM. If you can’t use your own machine, use your own hard drive to minimize missing font and extension problems, maximize available RAM with *your* Extension Manager settings, and leave your client’s System Folder untouched.

On Demos—Burning Your Demo on CD

You will have fewer missing file or path name problems, you will prove to that tech-savvy audience that you can make your demo work from an actual CD, and, ideally, you can show your title is cross-platform. Put all the necessary Install files on the CD so if you must use an unknown machine you will be prepared if there is software missing. When your demo is almost over, pull the CD out of the ROM drive and play it in an audio player to prove your CD Plus really works.

Section Three

What Developers
Need to Know
About Labels



Ty Roberts

Two years ago, Ty Roberts, CEO and co-founder of ION, was touting the company's enhanced CD demo for *The Crash Test Dummies* (Arista). In the meantime, the company developed and produced CD-ROMs, including David Bowie's *JUMP*, *HeadCandy*, and The Residents' *Gingerbread Man*. ION has formed an alliance with Macromedia, the software tools company, in the development of the Macromedia Director Enhanced CD Toolkit, a CD Plus authoring software package. ION also created the world's first album released exclusively in the enhanced CD format—*The Individualist*—from Todd Rundgren. Here are Ty's "Top Ten Tips."

QuickTime: The stuff multimedia is made of. Apple's multimedia standard makes it possible for users to view and edit video, music, text, animations and other dynamic information on their computers.

On Having Black as Your Friend

Black compresses out completely so when you have dark areas make sure you use a tool like After Effects to crush the black levels to absolute black. Things that are almost black take up valuable data space and there is often noise contained within the signal that you can't see that Cinepak will spend lots of data space trying to represent. Ask your subjects to wear black, shoot against a black background, etc. Also it's very useful to surround your subject with black and then when you window them onto a black computer screen there is no perceivable movie box. You can also apply the same logic to white.

On Always Using Component Video

Bringing video into your Digitizer card through a component input cable (available for Radius VideoVision cards) and using a component tape deck (like Beta SP) will make a huge difference in your ability to get good quality video. The secret is in low noise sources as noise is seen by QuickTime as picture detail and it spends valuable data space trying to represent it.

On Getting Rid of the Box

Matte your edges. Do something, anything that gets rid of the 240x180 or 320x240 box. Why must everything be inside a box. Look at *Xplora* or *Freak Show*. They use all kinds of shapes and sizes for video playback. By sticking with a box, you are reminding us how far QuickTime has to go before it competes with television.

On After Effects Scaling

Scaling algorithms in Adobe Premiere are not very great. Use After Effects to do all your scaling.

On Blue Screen

Use Adobe Premiere for Blue/Green screen matting. We have found it performs very well. After Effects is too complex and it takes much more time to get it right.

Operating System (OS):

The software in a computer that contains general instructions to manage processes, memory, communications and other system level responsibilities.

On Playback in Director

Try comparing MoviePlayer's playback of QuickTime video with Director's playback of the same file. You will find that Director is spending way too many cycles running scripts and giving time to the **operating system (OS)**. Use Apple's MultiMedia Tuner to fix this problem until Director 5.0 comes out.

On PC Data Rate Problems

PCs that use combination sound card/CD-ROM controller/interface will never play movies over about 150 **Kbytes** per second. The bottleneck is the data coming back to the CPU from the CD-Player colliding with the data going to the sound card from the CPU. If you try to use high-quality audio (44.1kHz or 16-bit) it gets even worse. No known fix except to tell users that they should get a SCSI drive interface. Unfortunately, there are tons of cards out there.

On Lame 8-Bit Sound

This is a pet peeve of mine. Do not expect good sound from 44kHz digitizing and down sampling to 22kHz 8-bit. There are special tools from a company called WAVES that you should know about if you care about trying to make good 8-bit sound. You need to use these digital noise gate plug-ins for Sound Designer.

On Frame Rate du Jour

What's the optimal frame rate for a movie that has to play on PCs and Macs at 320x240 using Cinepak? It's no more than 150kps at 12fps if you really want it to work on everything.

On PCIMA

It's a little known sound compression method that's included with QuickTime 2.0. It gives you 4:1 compression, so we can ship 44kHz stereo, 16-bit in the space of 8-bit, 22kHz. Check it out. You need an unsupported utility called Sound Converter that's hard to find to make the sounds. Ask Apple. (Please note that Sound Converter will be included in the QuickTime Music Toolkit, available to members of the Interactive Music Track. See pages 34-35 for more information.)

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David Pakman

'Evangelist' fits David Pakman, whether he is spearheading Apple Computer's East Coast music and multimedia efforts or playing drums for Change. Here's his ideal CD Plus production station:

- PowerMac 8100/100 or 110 "av" CD
- 17" color monitor
- Radius VideoVision Studio with 4GB SCSI-2 Studio Array
- External powered speakers (such as Apple Design Powered Speakers)
- Philips CDD522 Multisession CD writer or equivalent
- Astarte Toast CD-ROM Pro 2.5.1 Mastering software
- Digidesign ProTools (882 interface) or Digidesign AudioMedia II card, or PowerMac "av" digital audio I/O
- QuickTime 2.0, Adobe Premiere or Avid VideoShop, Adobe Photoshop, Sound Designer II, OMI Disc-to-Disc

David Pakman
East Coast Music and
Multimedia Evangelist,
Apple Computer

Jaron Lanier

Jaron Lanier
Virtual Reality Pioneer

Jaron Lanier is best known as a pioneer of virtual reality, a phrase he coined. Lanier is also an accomplished composer, visual artist and author.

On Not Forgetting the Fan

My first piece of advice is involve the fans. If you look on the Web, the fan-produced pages have more energy than what's been done professionally. The future of the music and computer industries is their ability to enable the masses to communicate with each other, to express their own creativity. Certainly there's a role for professional content developers. Otherwise we'll end up with a lot of well-meaning junk. But fans are more than an audience. They should be treated as a resource.

On Obsessing About Information

There's certain kinds of records for people who have absolutely no interest in computers. Obviously you want to stay away from them. On the other hand, there's a large block of people who are rich enough to have computers and also incredibly obsessive about information. The natural impulse of the labels will be to put their biggest acts on enhanced CD. You can't blame them. But there may be more revenue in an opposite approach. There's an obsessive audience out there that will eat up information. An anthology of classic blues, jazz or classic music that's cross referenced. It sounds simple but it may be overlooked.

On What About the Children

There's a big market with children's music that hasn't been tapped yet, which is surprising. You only have to look at the software model to see that it makes sense. A new Peter, Paul & Mary release based around *Puff The Magic Dragon* is a good example of that.

On Being Courageous

The college market is very interesting. Computers are rational, organized. Music for this market, rap and alternative, is very physical and angry. From a cultural point-of-view it would be interesting to bridge that gap. If you listen to Trent Reznor, the music is often about external things—emotion, politics, sexuality. Labels must be courageous. If labels do enhanced CDs for that kind of music, the information attached to it should be daring. There might be a solid block of information that means something to the artist and his fans. A political manifesto, some statement for dissection. If it's only about what guitar was used on the record, we'll be losing an opportunity. The fan will be disappointed.

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Don Was & Douglas Gayeton

Don Was has worked with a stellar range of artists such as The Rolling Stones (*Voodoo Lounge*), Bob Dylan, Bonnie Raitt (4-Grammy Award Winner *Nick of Time*) and Iggy Pop. Was just directed his first film, a documentary on Beach Boy legend Brian Wilson: *Brian Wilson: I Just Wasn't Made For These Times* for Palomar Pictures.

Don Was
Record Producer

Douglas Gayeton, a former music video director, recently co-wrote and directed the Sony Imagesoft interactive CD-ROM title *Johnny Mnemonic*, based on William Gibson's popular short story. He is currently writing and directing *Big Brother*, the interactive sequel to George Orwell's *1984* and collaborating on an interactive adaptation of Alan Lightman's bestseller *Einstein's Dreams* with Don Was.

Douglas Gayeton
Interactive Director

In a recent interview, Don and Douglas share insights and views on the industry.

Why did you decide to get involved with interactive media and films?

Don Was: "I got interested in multimedia and film because it expands the marketing possibilities for music I'm involved in. A lot of great artists are restricted creatively by the way their art is marketed. For musicians, you get on the radio or get in a van. If you can't do that, you're not heard. That's important because I do projects I enjoy that might not get the attention I think they deserve. I'll give you an example. I recorded this album called *Rhythm, Country & Blues* which was a series of duets with soul and country artists. None of the songs ever got played on the radio in any big way even though we had great artists like Lyle Lovett and Al Green on the record. But we filmed the recording sessions. Then we added some musicological side bars to what was shot and it ran on PBS. It ran nine times during pledge week and sold two million records. I realized I didn't have to depend on traditional methods of marketing."

Why did you and Doug get together?

Don Was: "When I met Doug I got excited because he's spent time figuring out how to fit dramatic structure organically into an interactive experience. Getting involved with Doug is the next step for me, another possibility that goes along with the film, the TV show, the soundtrack album."

Douglas Gayeton: "We've both had similar experiences in terms of combining music with visuals. The same principles directors apply to music videos, namely giving a narrative structure to a song, can be applied to making a good CD Plus product."

Don, you and your band were involved in music videos from the beginning, back in the early 80's. Did you approach them the same way you're approaching your work now—from a lot of different angles?

Don Was: "We had a hit in the '80s with *Walk Like A Dinosaur* because we had a lot of cute girls in our video but, to be honest, it wasn't thought out. There was some genuine creativity at the outset of music videos. Peter Gabriel is an example of that. He got personally involved and used videos to extend his artistic vision. But most musical artists don't think in visual terms, even after 20 years of MTV. What do you expect when you tack this artist, this stranger to the end of something which should be about the artist. It's important for musicians to extend their artistic vocabulary and I think multimedia is a second chance for many artists."

Doug, as a director who used to make music videos, how has it been moving into interactive media?

Douglas Gayeton: "The way I see it, no one seems to be asking the right questions. Why hasn't there been a really successful, breakthrough interactive music title? I'm not sure if anyone has figured out the paradigm of placement, where and how is the best place to get an interactive music experience. Do you want a story on your computer, or on your TV? Do you want to listen to music on your stereo, in your car or on your computer? How do you want to experience something, and in what environment? Does technology make it better? In many cases, less is more. Just because the technology is there doesn't mean you have to kludge it onto every entertainment experience."

Someone is going to figure it out. Don and I have interests in music and film, in media that aren't going away. We're developing projects and models that involve interactivity and music but go beyond the cookie cutter model of liner notes, discographies, the names of all the children of the second guitarist and his email address. That's fine for some people but we are, I think, more interested in the function music plays in the emotional experience of a story."

What about some of the other artists you've worked with, Don? What are their reactions to the possibilities for interactive music?

Don Was: "I had an interesting experience with the Rolling Stones. I brought a prototype of *Xplora* to Ronnie Wood's farm when we started *Voodoo Lounge*. Mick was interested. He's in the film business. He watched the title and tried to figure out how the Stones would be able to go into that world in the right way. Keith walked in while a tech was explaining some screen and said 'This is a load of bollocks' and threw his Guinness at the computer. The analogy is the Moog synthesizer. In 1972, or whenever it first caught on, it wasn't the hip artists like William Orbit who were into it. It was for broken-down jazz players at the Holiday Inn who wanted to beef up the act. They would play the Moog exactly the way

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they played the piano but add some bogus cello. That happened for five or six years until a new generation of kids came in and at 12 years old this was the instrument they played. They didn't start with the piano or a Hammond B3. They didn't want the cello sound. They wanted a new sound. They had what the Buddhists called 'beginners mind'."

Douglas Gayeton: "The do-it yourself talent, a Phil Spector melded with John Cassavettes, someone who knows both music and film and applies it to interactivity, hasn't appeared yet."

Don Was: "You can't ask someone who has made audio-only records for 20 years with a certain kind of stage show to embrace something this radical. I don't think it's going to be the domain of traditional artists. The kids who are in film schools unburdened by the past will move this thing forward. Everyone is trying to make *Sgt. Pepper* and I haven't seen Howlin' Wolf yet, the raw gritty stuff. Do a multimedia single, make it organically driven."

Douglas Gayeton: "There's a misconception that every new market is driven by technology. They forget the importance of content. The ability to create new types of content for an emerging technology comes from understanding what is universal and at the root of an experience. That type of street-level, subversive understanding doesn't happen in a corporate board room with talk about synergy and technology agreements. It happens with individuals finding inventive new uses for the technology that's there. It's why the Net won out over Interactive Television. CD Plus will, for example, have music content on the disc, plus the ability to launch directly into an on-line experience where you can have a live dialog with other devoted listeners or visit a Web site dedicated to the band and maybe buy additional goods. Who knows? CD Plus could be a gateway to something that overwhelms MTV and the concept of what we traditionally think of as a record store."

Do you support giving the listener or viewer direct control?

Douglas Gayeton: "Yep. Giving people control will be a good thing."

Don Was: "I'm doing this thing with Todd Rundgren which is really cool. We're working with a record that Brian Wilson made in 1965 called *Smile*. Brian made this record in modules. He would record music in 40-second modules that were unrelated to each other. Then he would take these different modules, which were in fact acetates that he would play on a turntable, and match them up with each other. That's how he was making the record. He had seven hours of modular music that just got away from him toward the end and the record never came out. We have all this music and boot-leggers and fans have been putting together their versions of what they think *Smile* should be. We're taking Todd's engine and logging in all of Brian's music so people can have the opportunity to create their own versions of *Smile*. We hope even Brian will use it to finally come up with his version of *Smile*."

Douglas Gayeton: “Allowing people to mix their own record is tricky. In the beginning of Sega CD, they released a few interactive music videos, these CD-ROMs which let you cut your own Marky Mark video or whatever. They stunk. There’s a specific reason why a music video is cut the way it is. If you stay in a singer’s close-up two frames too long, for example, the shot may start to fall apart. Their nose might start to look weird, the camera might pan over to reveal that you’re shooting off the edge of the set, or you may see a face shot of the bass player which the band’s manager doesn’t want you to see because the guy’s been kicked out of the band and they haven’t told him yet. That’s why, for me, a lot of this music interactivity works more in theory than practice. I mean, Don, as a music producer, do you really think people can mix their own music?”

Don Was: “I think it will only work with records you’re incredibly fond of. The Rolling Stones’ *Beggars Banquet* or the Beatles’ *White Album*. I spent a lot of time with these records. If you can highlight a nuance in the music that you weren’t familiar with, it might be really cool. When I talk to those guys, I’m amazed at how haphazard their choices for particular mixes was. I heard *Satisfaction* once in my car at a time when my balance was all the way over on the driver’s side. I got unplugged *Satisfaction* and heard this incredible acoustic guitar. Who would know that the song is completely acoustic driven. So if you have music that means a great deal to you and you’re used to hearing it a certain way, the remix approach works really well. On new music it’s a different story. Who cares if it’s different. There’s no attachment there. I think Todd’s approach is really cool. He learned a lot of things on his TRI record that he’s going to apply here.

What’s an album going to be like ten years from now?

Don Was: “Music will always be about the song, the individual who felt something and wants to express it to someone else. Good art will always be decoded in essentially the same way. No matter what technology enables us to do in terms of presenting and delivering art, it’s still going to be about the song, the story and a really great communicator.

Douglas Gayeton: “Music is about a mood, a feeling. The same can be said for images. You’ll see more of a synchronous relationship between the two, one that’s orchestrated to hit all your senses and totally envelop you. In the future, music product will be a completely immersive experience sold across every conceivable delivery platform.”

What are you doing together now?

Douglas Gayeton: “Don and I met because of *Einstein’s Dreams*. In the interactive community, the book has always been the title to do. Don bought the rights early on and approached me. The fact that from the beginning of this whole interactive thing he intuitively saw the book’s value made me want to work with him. *Einstein’s Dreams* perfectly combines our interests. It’s about music, about narrative, and what interactive storytelling could be. Music is an integral aspect of the experience but it goes along with other things as well.”



What Labels Need to Know About Developers

ON THE DEVELOPMENT TEAM AND THEIR TOOLS

The development of professional multimedia requires teamwork. Usually a smaller production will require people to fill several roles and larger productions will have more specifically defined roles. Although the official job titles may vary from place to place, the roles are generally the same. Here, we will divide roles into Management, Design, and Production, assuming the label or other client will handle marketing and sales. You should consider how many of the responsibilities listed below are covered when evaluating your development team. In each case, it is assumed that basic computer hardware and software, word processing, spreadsheet, database and email, etc., are part of each team member's suite of tools. Where specific tools are used, a representative package is listed in italics, however usually a variety of choices will fulfill most needs.

Management

These team members perform the tasks associated with the business end of development.

Executive Producer

The executive producer arranges the financing of the project and acts as liaison between client and development team. Often, this person provides content, gives developmental input, and has final approval.

Producer

The producer determines the staff required for each project, assembles the team, and oversees budgets, schedules, and staffing. Helps team in acquisition process where needed. Further oversees attorneys in pursuit of all rights and clearances issues handled by legal team.

Project Manager

In larger groups, many administrative duties are handled by a project manager. This person is in constant communication with all members of the team, and reports the progress to the producer or client. Also responsible for acquisition and asset management, tracking files from all team members.
Inspiration or Microsoft Project (flowcharting/project management)

Design

The individuals who fill these roles are responsible for developing and implementing the project vision.

Writer

Responsible for writing concept, treatment, script, dialog, etc. Also makes revisions in these areas when interface or technical aspects require changes. Creates "interplay" all team members work from.

Creative Director

The creative director is responsible for making design decisions and creating the project vision. This person balances creative goals with technical feasibility. On smaller projects the creative director will assume the duties of the project manager. *Adobe Photoshop (image editing), Adobe Illustrator or Macromedia Freehand (illustration), MoviePlayer (QuickTime video), SoundEdit 16 (audio)*

Art Director

Conceives overall look and feel of title and maintains graphic consistency throughout. Manages color schemes, illustration and modeling styles, typeface choices, etc. *Adobe Photoshop, Adobe Illustrator, StrataStudioPro or Infini-D (3D), QuarkXPress or Pagemaker, Macromedia Fontographer (type design), Equilibrium DeBabelizer (overall graphics and color palette utility)*

Graphic/Interface Designer

Works with 2D and 3D artists to create all graphic elements, including interfaces, backgrounds, and buttons, with special emphasis on interaction between title and user. *Adobe Photoshop, Adobe Illustrator, StrataStudioPro or Infini-D (3D), Quark XPress or Pagemaker, Apple Media Tool or Macromedia Director (interface scripting)*

Production

These individuals transform the concepts into realized material.

2D Artist

Graphic artist specializing in 2D art and illustration. *Adobe Photoshop, Adobe Illustrator, Quark XPress or Pagemaker, Macromedia Fontographer (type design), Equilibrium DeBabelizer (overall graphics and color palette utility)*

3D Artist

Graphic artist specializing in 3D modeling and rendering art and environments. *Form • Z, Electric Image Animation Systems, StrataStudioPro, Specular Infini-D, Macromedia MacroModel, etc.*

Audio Specialist

Digitizes, normalizes, equalizes, dithers, compresses and otherwise treats all audio ranging from effects, to ambient audio, to narration, to feature assets. Can also be responsible for writing, recording, or performing audio or MIDI parts if role includes audio design. *QuickTime 2.0, Opcode OMS, Macromedia Sound Edit 16, OSC Deck II, for "av" machines, Opcode StudioVision, Digidesign ProTools, Digidesign AudioMedia II card, Sound Designer II, OMI Disc-to-Disc*

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Video Specialist

Digitizes, edits, and compresses all digital video for optimized CD-ROM playback. Can also be responsible for shooting or arranging video shoots. *Adobe Premiere or Avid Videoshop, Adobe CoSA After Effects, Movie Shop, QuickTime 2.0, Movie Player.*

Animator

Uses 2D and 3D assets and animates them into PICS, QuickTime or other formats. *Macromedia Director, Electric Image Animation System, Autodesk 3D Studio*

Programmer

Typically writes code for title's interactivity, memory management, operating system concerns, etc. May author segments using consumer authoring tools or write new code in C++ or similar language. Usually responsible for cross-platform development either solely or with partner program for each platform. *Apple Media Tool, Macromedia Director, Symantec C++, Metrowerks Code Warrior, HyperCard (programming tools)*

CD ROM Manager/Tester

Can also be programmer. Typically manages CD-ROM optimization including file placement, one-off burning of test CDs, etc. Also responsible for in-house testing and coordinating off-premises testing. *Philips CDD522 Burner and Astarte Toast 2.5.1 or JVC Personal ROM Maker (CD-ROM burning), 68030 Mac, 68040 Mac, PowerMac, 486DX2/25, /33, /66, Pentium PCs.*

DEVELOPMENT TIPS AND HINTS

On Knowing Your Content

Assemble or catalog your content before screening developers. That way developers will give a more accurate estimate of the scope, time and cost for a particular job.

On Knowing What You Want

The type of project will determine which particular skill sets are important. Make sure your classical title doesn't end up with the team who did *Virtua Fighter*.

On Experience

Everybody has a little, but few have a lot. Go with experience, you'll sleep better. Developers will be more than happy to furnish you with references.

On Building a Blueprint Before You Build the House

Identify all key issues and activities of a project or title before you begin. Put it on paper and make sure everyone has a copy *and* reads it. Items to include: Concept, Budget, Production Schedule, Key Features, Content Used, Delivery Platform, Production Tools, Roles, Testing.

On Budgets

Have the developer cost out each primary element or unit of the job. Go through the budget together. If there's a change to the original design, you'll know how the budget will change.

On Meeting Deadlines

You know how things take twice as long as you think. Try three times, then plan for it.

On Testing

Testing is part of the development process and shouldn't be left for last. Set aside explicit time and budget for testing or you'll pay for it later.

On Production Milestones

Milestones are more than deliverables. Boost developer morale after long stretches of late nights and see your work-in-progress.

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Stefanie Henning

A true platform agnostic, Stefanie Henning gets excited about closing a deal for one of her sought-after interactive clients, regardless of the platform. ICM is one of the largest Hollywood talent agencies.

Stefanie Henning
New Media Agent,
International Creative Management

How do you find development talent if you're a record company?

Go to trade shows. Look and see and feel what's out there. Talk to the talent. Spend time with them. Spend time with the technology too, what makes a great design. A good A&R person knows a great group when they hear one. They've heard and seen thousands of bands. They know what to compare this or that group to. As a label, you've got to know if what you're seeing is special or not. The only way to do that is to be educated. Do your A&R and research now. That way you'll be able to spot the talent before the other guy.

How does a record company hire technical talent?

Do you hire a technical consultant, someone who oversees the technical aspects of a production? Maybe. But, frankly, I'd rather put the money into production. It's a tough question. It's really about working closely with your developer. Be honest and learn from each other. Have an open relationship. Of course, check references before you start. Ask around and know the advantages and disadvantages of working with this developer over that developer. And whatever you do, don't disappear after you write the check. Follow the production and have things explained to you.

What do you ask for from the developer who is pitching a job?

Something in writing is not going to do it. If I have a breaking band, I might give the developer some video and ask them to come back with a 30-second interface design and what the different avenues to explore throughout the CD Plus are. Am I going to get the band members when they were five or six years old, do I get merchandising, tour dates, inspirations behind the songs? What am I going to get if I'm the consumer and how am I going to get it? I've seen some great demos for CD Plus. The production quality is amazing. The design, style, interface and how they present the artist is thought out. Then I've seen some horrible ones, too. They need to show you they have the skills to do the job. They also need a point-of-view. What's going to be different about this title that will make it stand out on the shelf? That's something the entire industry must figure out if it's going to succeed.

Are there other attributes that one should look for in a developer other than development skill sets?

Well, I think the CD Plus technology is fairly simplistic. It doesn't take a rocket scientist to program the stuff. A lot of it is off the shelf. It helps if the developer has a good marketing sense, too. Someone who can compliment your CD Plus with a Web site so you get tour updates and have a merchandising section. Someone who recognizes the importance of those things without being told: Who understands what the artist is about, what's important to the fan and the label from a

marketing point-of-view. If you can find a developer that can do it all and help you set up technical support, you're doing OK. There's going to be a huge business here. Not only with straight music titles but with soundtracks, too. I spend a lot of time getting people excited about enhancing their marketing and doing CD Plus with their film soundtracks. The cross-marketing opportunities are terrific. It's going to be very interesting to see how it all turns out.

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Steve Nelson

Steve Nelson, founder and president of Brilliant Media, created the award-winning and top-selling CD-ROM music title *Xplora I: Peter Gabriel's Secret World* in collaboration with the artist and his Real World label. Recognized as one of the industry's most creative interactive designers, Nelson recently premiered PowerView, an advanced intelligent agent and visualization system, at Warner Bros. Studios. Nelson is also creating enhanced CDs for Atlantic and Reprise Records.

Steve Nelson
Founder and President,
Brilliant Media

How did you approach cataloging information and presenting it in a compelling manner?

Xplora has a massive amount of information—text, videos, songs, animation. The first thing we did was sit down with Peter and his people from Real World. We brainstormed on ideas, things we wanted to have in the title. That ranged from materials, like video, to experiences. A lot of it was in the original prototype but Peter and the studio added a lot. Peter, for example, wanted people to get a hands-on-look at the creative process. After brainstorming and looking through the archives, I looked for patterns in the information and the experiences we wanted to create. We created a diagram in a way that seemed to make sense: four elements—earth, wind, fire and water were added to help structure the information and make the title more navigable. You always know where you are. I think it's going to be difficult for labels to make little *Xplora*'s. It's very tough to create something of great depth when you're working against a record production schedule. Also not many artists have that much information. But you can come up with other kinds of experiences, other things that can be produced before hand. You can also put out the regular album as is and then put out a CD Plus single. That will give you a couple of extra months to produce the CD Plus and use some of the materials from the album.

What should record labels expect from a developer's demo?

I might have a different point of view here. I'd want to see a completed product. A demo can show aesthetic and programming skills but otherwise it's smoke and mirrors. There's no guarantee it'll work. There are so many people who think they can pull this off but can't. There's the actual production, management, and testing. A demo may be an indication but is it enough? Labels will have to take risks, but a company with a track record is actually going to get it done.

What should labels be looking for?

Record labels should be looking for interactive designers. That's more than how it looks on the screen. Design has nothing to do with the graphics per se. It's how the information is structured, how it fits together. It's why some people play one title for 60 seconds and another for six hours. It's how you're drawn into the title and how it keeps your attention. The interactive designer is in charge of everything. He's like a director on a music video. The designer or director works with other members of the development team who may work with more traditional media- album cover designers, video directors.

What about testing?

You want to hire a professional tester. If you're working with a company who does interactive media for a living, they should have testers on staff or access to those people to do the testing for you. Ultimately, a label will want to get a test department going. They'd want to look at how software companies do it. It's very formalized. It's not like an album that you just listen to. Testers have certain steps to insure the product, trying everything out and recording the problems they encounter. You also want to test during the production process. You'll need to fix bugs along the way and ideally you'll want to do a Beta test. But testing for the labels is not going to be the same as it is for the software world. The timetables are different. You're probably going to do a functional test at the end of the production cycle to make sure everything works and if it doesn't, you'll fix it then ship it out. You probably won't have the luxury of time to do a full Beta test. But if you're doing a title like *Dylanor Xplora*, you have to take a couple of months for testing and repair. You have to send it out to the field who would try it out and report back to you. Whether it worked, whether it worked with their system, what problems they had installing it and using it.

How about budgets?

It comes down to production values, the talent that's involved, how deep the title is. The labels aren't talking about spending a lot of money, at least not in the interactive world. But what they spend is what they'll get in return. I think it's important that there are realistic expectations on all sides. A CD-ROM costs hundreds of thousands of dollars to make. Having formats like Apple's Music Toolkit, our format, or Macromedia's will help because it puts a structure on the information. It will help labels produce discs that won't be too expensive to make. That's important for the discs that have minimal content because you don't want to have to charge extra for these things. But for titles that are more extravagant the labels can charge more. We have a responsibility to set realistic audience expectations. We've got to find out what consumers want. The whole industry has its work cut out for it."

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Jim Jonassen

Jim Jonassen is founder of Larkin Associates, an executive search firm that places interactive talent for companies such as Sony Imagesoft, WarnerActive, Activision, and MGM Interactive. Jonassen is also the executive director and founder of LAwnMoweR, the Los Angeles New Media Roundtable, a monthly conference for interactive and entertainment executives and aspirants.

Jim Jonassen
Founder,
Larkin Associates

How does the music industry evaluate technology talent?

Frankly, we see projects and companies fail where there seemed to be a surplus of technology and tools. At the same time, we've seen successful titles come in on time and on budget by people who might not have the big technology resume. It's a bit of a science really and I guess that's why companies come to us. I feel the business takes a certain kind of figure-it-out an get-it-done kind of person. Music companies shouldn't wait for the committee to decide or the perfect tool. Find people who have passion and desire for what they do and something to show for it. And if it's music titles, they should know as much about music as they do about Photoshop.

What can music companies learn from your clients who out source their development?

I've seen clients spend millions of dollars and end up with patents and copyrights that aren't salvageable. I'm sure many would do it differently if they could do it over again. Music companies should take baby steps. Don't race to invent technology or bring everything in house. Develop talent and ideas rather than technology. Ultimately technology will be a commodity purchase. It's what you can do with the tools that matter. Record companies are in a great position. They're great at attracting and nurturing talent, and talent is the scarcest element. Music companies are like the studios we represent. They're in the financing, marketing and production business. If I was a music company, I'd stick to my knitting.

How do record companies evaluate programming and technical skills?

Programming is a highly technical art. Invest in the knowledge of people who know more about it than you. There are excellent consultants who can help minimize the risk. They should look for technically-oriented people but also executives who can nurture talent, understand the music industry and what consumers want. And they can always call us.

How does a record company judge if the development team will work successfully together?

Many projects fail because the designer and programmer are unable to work together. A successful project begins with the producer. The producer must be able to 'walk-the-walk' with the technical and artistic members of the team. Otherwise you're headed for disaster. Have technical consultants interview the producer before they start the project. Find out what tools and methodologies and technologies they know. You also need to look for chemistry in the team. Don't start production until you feel the team is a team.





Enhanced CD Solutions

Multimedia developers are constantly under pressure to deliver compelling content at an affordable cost. This pressure to perform is even more strongly felt in the growing interactive music market. After all, this is an audience that wants, and gets, its MTV. So recording artists, record labels, and interactive music developers face a traditional dilemma. They must keep development costs down while exceeding consumer expectations.

With that cost-saving goal in mind, most of the labels and developers in *The Enhanced CD Fact Book* chose to author their titles on the Macintosh. This isn't surprising when you realize that most creative service departments at the major labels use Macintosh computers, and nearly two-thirds of all multimedia development worldwide is done on the Mac platform (according to a 1995 Dataquest study). But if the Macintosh is the platform of choice for developers of interactive music, what about the authoring tools used to create enhanced CDs?

Until recently, Macromedia Director and Apple Media Tool have been the most popular authoring packages for developing mixed-mode and pre-gap enhanced CDs. But now Macromedia, Apple and Brilliant Media are all introducing their own cross-platform enhanced CD authoring tool kits. These tool kits are being designed to help create CD Plus discs that follow the new Blue Book specification. A pre-release version of Apple's QuickTime Music Toolkit is currently being used to develop several enhanced CD titles, and a Beta version will be made available to members of the Interactive Music Track in Fall 1995. The final version is expected to ship early in 1996. The Macromedia Director Enhanced CD Toolkit will be available before the end of this year, and is the result of the company's partnership with cutting-edge developer, ION. Brilliant Media plans to introduce its own Enhanced CD Toolkit based on Oracle Media Objects in Fall 1995.

To find out more about the Macromedia Director Enhanced CD Toolkit, call Macromedia at 415-252-2000. To find out more about the Enhanced CD Toolkit from Brilliant Media, call the company at 415-777-1479.

QUICKTIME MUSIC TOOLKIT

Apple's QuickTime Music Toolkit, like the other toolkits, is designed to reduce the amount of time it takes to develop enhanced CDs based on the new Blue Book specifications. The Apple Toolkit offers distinct advantages for different development audiences. If you're a recording artist, you spend a lot of time making the best records you can. You realize the multimedia component of an enhanced CD shares intimate space with your recorded work. You would like to maintain control, or possibly even direct the development of your own enhanced CD title but may be overwhelmed by today's complicated authoring tools.

The QuickTime Music Toolkit is an easy way for recording artists to develop their own CD Plus discs. You can assemble different creative elements, such as music videos, audio files, and lyrics, without having to pass the title over to a programmer. So, as the artist, you get to maintain creative control and add value to your work without investing a lot of time and money. You also get a product to market that has more value for your fans. Apple's QuickTime delivers a media-rich environment that will insure high-quality playback of your title once it is released.

Record labels have a huge mechanism in place for getting records out on time. From a set recording schedule, to mastering, to manufacturing and placing product orders, every step in a label's production process is fine-tuned to meet the album release date. Record labels and developers cannot afford to have release dates pushed back because of delays in enhanced CD productions. Apple's Toolkit is an easy-to-use, object oriented authoring tool designed to accommodate the label's fast-paced production schedule.

Specifically, the QuickTime Music Toolkit will:

- shorten the overall time required to develop an enhanced CD title
- improve content quality by allowing graphic designers to spend more time on media creation and less time on programming
- reduce the cost of the title by reducing programming time

The QuickTime Music Toolkit has several features which make these advantages possible:

- Incorporates industry standard, cross-platform solution QuickTime. This allows labels to develop on the Macintosh and deliver to both Macintosh and Windows-based computers.
- Has an object-oriented authoring environment that allows creative service departments to compile different media- such as QuickTime movies, graphics, and text, or lyric, files- and add interactivity without writing a single line of programming code.



- Incorporates Apple Media Tool for development of full-screen interactive content without the need for a complicated scripting language such as Lingo
- Due to the open architecture of QuickTime, current codecs such as Cinepak and MPEG as well as future encoding schemes are supported.

The QuickTime Music Toolkit includes:

- the run time software for creating enhanced CDs
- the Enhanced Audio CD Player which lets you play back enhanced CDs in background and full-screen mode on both Apple Macintosh and Microsoft Windows-based computers
- multisession driver software for Mac and Windows
- the QuickTime Music Munging Tool which takes media assets such as album covers, QuickTime VR scenes and song lyrics and combines, or 'munges,' them into a single QuickTime Audio CD (QuAC) file to be played by the QuickTime Audio CD Player

INTERACTIVE MUSIC TRACK

How can you get a copy of the QuickTime Music Toolkit? Apple recently established the Interactive Music Track (IMT), an extension of the Apple Multimedia Program designed specifically for musicians, music industry members, and interactive music developers. A variety of music-related material is distributed to IMT members, and several events will be held in the upcoming year. The IMT provides market information, advice on enhanced CD authoring techniques, and access to new tools, including the QuickTime Music Toolkit. A guide to developers, independent contractors and production houses who are able to develop interactive music titles is also currently being compiled. The IMT is Apple's way of ensuring your access to the most up-to-date information and tools for developing interactive music titles.

In addition to music-focused materials, IMT members also receive all the Apple Multimedia Program (AMP) mailings and benefits, providing you with one-stop shopping for all your multimedia needs. Members receive quarterly mailings which include essential technical and marketing resources, hardware and software discounts, co-marketing opportunities, invitations to special networking events, access to a Members Only area on AppleLink (and soon on eWorld), and seeding opportunities. AMP also keeps you plugged in by providing the latest information on all of Apple's multimedia-related technologies.

How do you become a member of AMP's Interactive Music Track? The annual fee for the Apple Multimedia Program is \$300. For more information or an application kit, call (408) 974-4897 or send an AppleLink message to DEVSUPPORT (via the Internet send to devsupport@applelink.apple.com). Be sure to mention the Interactive Music Track.

What if I am already a member of AMP? If your specific area of development is interactive music, you may choose to be identified as a member of the Interactive Music Track. Please be aware that the mailings you receive will differ from the regular AMP mailings, with a specific focus on interactive music. If you wish to convert your AMP membership, please call the Developer Support Center at (408) 974-4897 and tell them that you are an existing AMP member and wish to be identified as an Interactive Music Track member.

If you have any more questions, please call the Developer Support Center at the number listed above.

There's one more thing. Because the QuickTime Music Toolkit incorporates QuickTime, artists, labels, and developers will be able to use Apple's most recent technology, Apple **QuickTime VR**. With QuickTime VR, users can enjoy 360-degree virtual reality environments without the use of high-end computers, goggles or specialized playback devices. As an artist, this means your fans can experience the feeling of walking through your recording studio or sharing the stage with you. QuickTime VR is already being used by artists such as the Beastie Boys and Seal.

Initially, the QuickTime VR Authoring Tools Suite version 1.0 is available from Apple in three configurations:

- As a stand-alone product for \$495.
- With a substantial discount on MPW Pro for those who do not have it at the time they buy the QuickTime VR Authoring Tools Suite. \$695 (a \$295 discount).
- As a bundle including: QuickTime VR Authoring Tools Suite, MPW Pro (normally \$495), and one seat in a QuickTime VR three-day training by Apple's Developer University (normally \$1,500) . \$1,995.

Royalties for distributing the run-time software that allows consumers to play back enhanced CDs using QuickTime VR are:

- Less than 50,000 units—no royalty
- Over 50,000 units—\$750/25,000

For more information on QuickTime VR, see the QuickTime Continuum World Wide Web site on the Internet at <http://QuickTime.apple.com>.



Enhanced CD Solutions Case Studies

The Enhanced CD Solutions Case Studies reviews enhanced CD titles, describing the format, solution, hardware, and software used along with quotes from members of the development team.

The titles and companies reviewed are:

Company	Artist and Title	Format/Solution
Graphix Zone	Bob Dylan <i>Highway 61 Interactive</i>	CD-ROM
Netzwerk	Sarah McLachlan <i>The Freedom Sessions</i>	Mixed-Mode
PAMS	gf4 <i>Sooner Or Later</i>	Pre-Gap/ActiveAudio TrackZero
AIX Entertainment	Kitaro <i>Live: An Enchanted Evening</i>	Pre-Gap/i-Trax
The Charly Prevost Co.	Moby <i>The Moby Disk</i>	Pre-Gap/ECD
Highway One	Bush <i>Little Things Interactive</i>	Pre-Gap/ECD
Ardent	Big Tent Revival <i>Big Tent Revival</i>	Pre-Gap/AVCD

CD-ROM

Creative Team

Executive Producers

Chuck Cortright

Angela Aber

Producer

Mitchell Rubinstein

Director

Frank Balogh

Creative Consultant

Jeff Rosen

Line Producer

Frank Balogh

Associate Producer

Diane Lapson

Art Director

Julie "Jules" Wittig

Technical Director

Sean P. Dunn

Writers

Charles Payne

Mike Riveria

Jon Sidoli

Multimedia Artists

Stewart Daniels

Sonserae Leese

Marc "D. Rivers" Mosel

Tim Randall

Julie "Jules" Wittig

GRAPHIX ZONE

38 Corporate Park, Suite 100

Irvine, CA 92714

Phone: 714-833-3838

Fax: 714-833-3990

Developer Background

Graphix Zone produces multimedia products for both corporate and consumer uses. One of the company's most popular CD-ROMs is the *Guided Tour of Multimedia*, a reference guide that uses multimedia to teach multimedia. But the company is better known for having produced two of the most popular music CD-ROM titles for two unique artists, the artist formerly known as *Prince Interactive* and *Bob Dylan: Highway 61 Interactive*.

Artist/Title

Bob Dylan: *Highway 61 Interactive*

Title Description

Highway 61 Interactive is a hybrid CD-ROM disc playable on both Windows and Macintosh which features the music, lyrics and influences of music legend Bob Dylan. The title was developed using Apple Media Tool and features seven fully navigable 3D environments, over 120 classic song clips, 10 full length songs, 60 video clips, and an unabridged lyric compendium of all of Dylan's 41 albums. An unreleased audio track of an electric version of *House of the Rising Sun* is also included for play on audio CD players.

Format/Solution

Hybrid CD-ROM

Software Used

Authoring—Apple Media Tool, MPW, Microsoft Visual C++ ; *Graphics*—Autodesk 3D Studio, Adobe Illustrator, Adobe Photoshop, QuarkXpress, ImSpace Kudos Image Browser, Fractal Design Painter x2, HSC Kai's Power Tools; *Video*— Radius VideoVision Studio, Avid Media Composer, Adobe Premiere, Adobe CoSA After Effects; *Animation*—Electric Image Animation System, Autodesk 3D Studio, Animator Pro, Macromedia Director; *Morphing*—ASDG Elastic Reality, Gryphon Morph II; *Audio*— Disc-to-Disk, Radius VideoVision Studio, Alaska Digitrax; *Database*—Claris FileMaker Pro.



Hardware Used

PowerMac 8150 Server, Power Mac 8100, Power Mac 7100, Power Mac 6100, Quadra 840AV, Quadra 800AV, Quadra 650AV, Quadra 810, LaserWriter, Avid Media Composer, Creative Labs sound cards, Digidesign 8-track audio interface, FWB Jackhammer card, 4200 FMF-W Array, Hewlett Packard Vectra computers, MDB hard disks, Microtek Scanmaker 45T, Microtek Scanmaker II, Microtek 600ZS scanner, NEC MultiSync monitors, Pentium 90, Pentium 60, 486/66 PC, Radius monitors, LeMans GT graphics cards, Precision Color Graphics cards, Video Vision Studio, Sony TCRX 370 Cassette Deck, PVM-1342Q, SVO-160, MPU-F100, EVO-9800A, LVR-5000A, LVS-5000A, VO-9850, MXP-290, RM-450, UVR60, UVW-1800, Wacom digitizing tablets

Comments

Frank Balogh

Apple Media Tool Bonus for Conceptual Team

“We use Apple Media Tool for every music project we do. You can make the entire shell of a project with links and everything without having to go to a programmer. You can also make a runtime of it and all the media elements—audio, text pict, or whatever—are in place. As the writers and designers, we’re the conceptual team and want to do as much work as we can before passing it over to the programming team.”

Sean Dunn

QuickTime IMA Support and Open Architecture

“On the Dylan CD we did 16-bit, 11kHz mono. That’s a QuickTime capability. It supports the IMA 4:1 compression, so you get to fit better sound on the disc with almost zero quality loss. QuickTime also has an open architecture. So if someone creates a hot, new compression algorithm or codec you can take advantage of it right away.”

Graphic Artists Benefit Using Apple Media Tool

“The Apple Media Tool allows a graphic artist to create a prototype without having to involve the programmer. It’s a drag-and-drop oriented environment. So a graphic artist can design a simple set of features and links and give the shell to a programmer for any deeper coding that’s required.”

“We use it because it allows our graphic artists to do what they do best. They don’t have to know Lingo or Director or write any code. They can concentrate on interface design and art. Our programmers can concentrate on programming. Media Tool allows each group to work together doing what they do best.”

Mixed-Mode

Creative Team

Art Director

John Rummen

Project Manager

Crystal Head

Producer/Programmer

Jay Daunheimer

Director of New Media

Lane Dunlop

NETTWERK

Nettwerk Records and Productions

1250 West 6th Avenue

Vancouver, BC Canada

V6H 1A5

nettmedia@nettwerk.com

<http://www.nettwerk.com/>

Phone: 604-654-2929

Fax: 604-654-1993

Developer Background

Nettwerk Records is one of Canada's largest independent record labels. The label has a 13-act roster which includes Sarah McLachlan and bands with great sounds and strange names like Grassy Knoll and Single Gun Theory. In August 1994, the company also launched Nettweb., one of the first label-driven Web sites worth a second visit. The Sarah McLachlan disc was the first mixed-mode release by a contemporary artist through Arista Records, better known for pop diva Whitney Houston.

Record Label

Nettwerk/Arista

Artist/Title

Sarah McLachlan: *The Freedom Sessions*

Title Description

The Freedom Sessions is an EP collection of 8 songs, newly recorded, live and acoustic, as well as an interactive multi-media track that includes over 30 minutes of additional music, videos, and interviews.

Format/Solution

Mixed Mode/CD + MM

Software Used

Macromedia Director 4.0, Macromedia SoundEdit 16, QuickTime 2.0, Photoshop 3.0, QuarkXPress 3.31, Toast CD-ROM Pro 2.5.1 software, Adobe Premiere 4.0

Hardware Used

Centris 660av (40MB/3GB), Quadra 950 (40MB/9GB), RasterOps Media Time Video Capture Board, PowerMac 7100 (70MB/1GB), Playwrite 4000 4x CD-R drive



Comments

Jay Daunheimer

Ask Yourself What Kind of Disc You Want

“You’ve got to ask yourself what standard are you going to use? Is it Mac, Windows or a hybrid? Our discs have been hybrid, so we lay out all our Mac content, the Windows content and the shared content.”

Make Something Out of Something

“Making QuickTime movies is an art. We’re very happy with Sarah’s. They’re not full frame but they look great. Quality of content is so important. We were lucky with Sarah. She had a great video library. We could pick and choose what we wanted and what editing we needed. We had Sarah do some narration which glued the whole project together. Without that, it would have been much harder for us. This sounds obvious but don’t try to make something out of nothing. Make sure the content is there first.”

Do Your Math and be Flexible

“Anything that can be shared saves you space. Your QuickTime files, your audio files. I constantly do the math in my head up to the final burn. With Sarah’s album we had eight–nine songs. That left us with 210 megs. You fill it right up. When you’re story boarding and cataloging your assets, you almost immediately have to make compromises, what do you need to keep or drop. You have to be flexible and communicate that to the artist.”

Going for the Burn

“Your software always looks great when it’s on your hard drive. But where do you go from there? You obviously want a nice clean CDR of your software. You don’t want it fragmented. There’s ways to avoid that. Some people like Speed Disk by Norton. But I use burning software from Germany called Toast. It lets me set up a fake drive. I copy all of my content over to that drive. By doing that, it lays everything out sequentially. That’s really important because more fragmentation means more disc searching over the CD . That slows you down.”

Project Management Will Keep You Alive

“Working with record companies is tough. By the time it comes to you, they’re done. They’ve set their release date and you have no time. Make sure you have proper project management. Otherwise you’re in trouble.”

The Start-Up System for Under \$15,000

“I’m setting up my own system at home. A Power Mac 7100, a burner, a good QuickTime video capture card, whatever software I need. You can get everything you need for \$10,000 to \$15,000. Obviously, if you want to get into 3D and animations you need to upgrade. But that should cover your start-up.”

Pre-Gap/Active Audio

Creative Team

Project Manager & Creative

Director

Michael Fronzek

Technical Director & Video

Production

Brett Crossley

Digital Rendering

Sean Flanagan

Executive Producer

Chris Gilbey (BMG)

PACIFIC ADVANCED MEDIA PTY, LTD. (PAMS)

Pacific Advanced Media Pty Ltd. (PAMS)—production company

ActiveAudio Pty Ltd.—enhanced CD company

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Crows Nest 2065

Sydney, New South Wales Australia

bcrossley@pams.com.au, PAMS@AppleLink.apple.com

(Attn: Brett Crossley or Chris Perkins)

Phone: 61-2-439-8700

Fax: 61-2-439-5486

Developer Background

PAMS was the first company to market a proprietary hidden track or track zero mastering solution, ActiveAudio TrackZero. PAMS has released or contributed their proprietary technology to four major artist releases in Australia this year. Apart from gf4, ActiveAudio releases include *Born* from Boom Crash Opera (BMG), a self-titled debut album from *Kulcha* (WEA), and *Fusebox*, an AC/DC tribute album from various Australian alternative groups.

Record Label

BMG/Ariola Australia

Artist/Title

gf4: *Sooner or Later*

Title Description

A track zero disc which features six audio mixes of the single, *Sooner or Later*, from Australian pop group gf4, along with an interactive data track. The title opens up with objects on a desk, such as a video camera and press pass, which take the user through a variety of interactive experiences. Highlights include the group's video, backstage views, an interactive press conference, biographies and band discography.

Format/Solution

Pre-Gap/ActiveAudio TrackZero

Software Used

Authoring—Apple Media Tool, Macromedia Director 4.0; *Video*—Adobe Premiere 4.0, VideoFusion 1.5, and Avid VideoShop 3.0 (“an extremely underrated package, especially when working with PAL video”); *Audio*—Sound Designer and “every other software tool known to mankind.”



Hardware Used

Apple Quadra 840AV for digitization; 8100 PowerPC for production and crunching.

Comments

Brett Crossley and Michael Fronzek

Conserve Disc Space by Optimizing Video Files

“Watch your disc space. You’ll always run out sooner than you think. With enhanced CDs, you’re limited even further by the amount of audio on the CD. If you can keep your video files down, you’ll be able to fit more on the disc. So pay attention to video content, window size, frame rates, brightness, contrast, black and white clipping levels, optimization settings and so on. The best-looking videos are the ones that are properly digitized and optimized. Videos are what the public sees and remembers most about interactive presentations, like it or not.”

Understand the Importance of Audio to a Music Client

“It’s important to understand audio. We have been in the recording business for over 12 years. We understand the sensitivity record labels, record producers and artists have toward their product. Active Audio Track Zero is a process that ensures the audio on the stamped product is identical bit for bit with the original CD-R.”

Pre-Gap/i-Trax

Creative Team

Producer/Programmer

Mark Waldrep

Design

Pacific Coast Sound Works

AIX ENTERTAINMENT

8455 Beverly Blvd.

Suite 500

Los Angeles, CA 90048

<http://kspace.com>

Phone: 213-655-4771

Fax: 213-655-8893

Developer Background

AIX Entertainment is one of a select group of developer/labels with its own proprietary pre-gap technology, called i-Trax. i-Trax has been used on a number of high-profile releases including *Jimmy Cliff—Rhythm of the Pridelands* inspired by Disney's *The Lion King*, and the Bush *Little Things Interactive* in collaboration with Highway One Media Entertainment. AIX Entertainment is also releasing i-Trax enhanced CDs through its own in-house label.

Record Label

Domo, an independent label (distributed through Navarre)

Artist/Title

Kitaro: *Kitaro Live—An Enchanted Evening*

Title Description

Live recording of Japanese new age artist Kitaro along with interactive data track which includes live concert video, interview footage, discography, career highlights, photographs and merchandising section. Title follows enhanced liner note model and is priced the same as a regular audio CD.

Format/Solution

Pre-gap/i-Trax

Software Used

Apple Media Tool, Adobe Premiere 4.0, Adobe Photoshop 3.0

Hardware Used

Quadra 950, Quadra 650

Section Six

Enhanced CD
Solutions
Case Studies



Comments

Mark Waldrep

Apple Media Tool Saves Time and Money

“Apple Media Tool allows us to develop titles quickly. It makes sense to use Media Tool when creating simple point and click environments. I know I’m going to get solid code for both the Mac and the PC. I spend the time I need to on the title without going over budget with a more complicated authoring tool.”

Pre-Mastering Solution Creates Plant Ready CD-R

“A developer sends us a CD-R of the ROM data and a DAT tape, a 1630 or CD-R for the audio component. We optimize the data components and compact the data in the smallest partition on the disc, so it’s not fragmented. Then we create a hybrid disc combination of the Macintosh and Windows. It may have already been in that state but if it’s not we do that preparation too. Then we put that disc into a CD-ROM drive. Then we mount the audio portion onto a hard disc drive editing system with the ability to place PQ code. This way we can match the tracks and indexes from the audio from track one, index one on. Then we burn a CD-R with the pre-gap data and the audio tracks together. Then we test the disc and send it off to the plant.”

Pre-Gap/ECD

Creative Team

Conceived and Produced

The Charley Prevost Company

Programming, Direction and Design

Dave Benson

Todd Herman

in association with

Media Vortex

THE CHARLEY PREVOST COMPANY

4170 Kraft Avenue

Studio City, CA 91604-3040

himat@earthlink.net

Phone: 818-762-4194

Fax: 818-762-5883

Developer Background

The Charley Prevost Company is run by the company's namesake, a former president of Island Records. As an independent, Prevost builds virtual teams to create enhanced CD projects.

Record Label

Elektra Entertainment

Artist/Title

Moby: *The Moby Disk*

Title/Description

The Moby Disk is the first ECD/Super Single to be released through the Warner Music Group. It uses Method2, a pre-gap mastering solution and features three Red Book audio tracks along with an interactive component.

Format/Solution

Hybrid/ECD

Software Used

Mac OS system 7.5.1/7.1, Macromedia Director 4.0.4, Opcode Studio Vision 2.0, Digidesign Sound Designer II, Adobe Photoshop 3.0, Avid VideoShop 3.0, Specular LogoMotion, Windows 3.11, Director for Windows 4.0

Hardware Used

PowerMac 8100/80, Centris 650, Quadra 650, Mac IICI, PowerBook Duo 280c, PowerBook 160, Packard Bell Pentium 60Mhz 128/230Mb MO drives, APS DAT, Wacom 17" tablet, Umax flatbed scanner, Agfa transparency scanner, Digidesign ProTools audio interface, Beta, 3/4", VHS, Hi-8 video decks, Akai DD 1000 digital audio recorder



Comments

Dave Benson

Capturing the Energy of the Artist

“Since Moby is a techno artist, we wanted to capture the energy of his live shows. Everything had to constantly change. We didn’t use any static screens. We also wanted to reflect his latest release, *Everything is Wrong*. So we gave the user randomly-generated experiences where things seem wrong, or at least constantly different. Moby gave us the idea for the remix approach. He put musical ‘bytes’ on his CD single, *Feeling So Real*, so his fans could do remixes. Marc Canter and MediaBand gave us the idea for a visual and aural environment where users could ‘klikmix’ to create their own versions of the single *Every Time You Touch Me* .

Hard Disc to CD-ROM

“It’s a big challenge going from hard disc to CD-ROM. Things change drastically due to access times, data rates, and so on. Pushing the envelope really becomes difficult when you have to author for the lowest common denominator.”

Hardware and Software Approach

“You’ve got to ask yourself what tool will get you to the most machines. Now it’s Director but coming from the music production world, we know no one tool will get it done. We’re looking at other solutions now and will find or create the tools needed to create the things we see and hear in our heads.”

QuickTime is Cool

“We’ve had great success with QuickTime. People still comment on how cool it is to see video on a computer. Sound Manager has also been a lifesaver, and we use the IMA 4:1 compression to pack a lot of music on this disc. And talk about timing, the new PC Exchange package that came with System 7.5.1 arrived just in time to make our cross-platform porting doable without having to invest more time and money into Ethernet or other solutions.”

Know Your Buddy

“This is a relationship business. It’s difficult to get work from people unless you live nearby or in the same city. Also invest your time in projects you believe in, not just to make money. Record companies are in business to find people who have ideas that transcend straight dollars. Otherwise our music scene would consist of 7-11s and McDonalds.”

Pre-Gap/ECD

Creative Team

Executive Producers

Ken Caillat
Rob Kahane
Paul Palmer
Jim Martone

Producer

Dave Antil

Director

Ken Caillat

Director of Technology

Leo Rossi

Programming

Louis Rodriguez/Go-Go

Graphic Design/Screen Art

Kim Holt/Unleashed

Program Coordinators

Eric Fischer
Bob Levy

Sound Editing

Dennis Mays

Production Assistants

Jennifer Engle
Amber Ogle

HIGHWAY ONE MEDIA ENTERTAINMENT

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Fax: 310-319-2421

Developer Background

Highway One Media Entertainment has produced interactive music titles from *Virtual Graceland*, a digital tour of the King's castle, to the Bush interactive CD single. The company also assisted Crunch Media in the creation of *Stephen Hawking: A Brief History of Time CD-ROM*.

Record Label

Trauma/Interscope

Artist/Title

Bush: *Little Things Interactive*

Title Description

Bush Interactive is a CD single with a CD-ROM interactive section attached. The disc includes three audio tracks—*Little Things*, *Little Things live*, and an unreleased song, *Bud*. On the interactive side, the CD-ROM portion offers *Everything Zen* and *Little Things* videos, home video and exclusive live performance footage, interviews, photos, lyrics, audio clips, game and Internet info.

Format/Solution

Hybrid/ECD Super Single

Software Used

Macromedia Director 4.0, Adobe Photoshop 3.0, Adobe Premiere 4.0, Adobe CoSA After Effects 2.0

Hardware Used

Quadra 840AV, Quadra 650, PowerMac 7100; 486/66; Radius VideoVision, FWB Jackhammer, Sony PVW2800 Beta Video Deck, miscellaneous audio players, speakers, equalizers and compressors.



Comments

Leo Rossi

QuickTime and Director

“We used QuickTime, QuickTime for Windows, Photoshop for graphics, Director for the assembly program. Director was one of the first development tools that came around. It has a strict learning curve. We invested a lot of time in Director and it’s been an effective tool for us. But any of the programs can do most of what Director does. You get stuck in your ways.”

Down Developing for Windows

“We learned a lot on Graceland. Graphics, color palettes. Each production is unique and there’s always a better mousetrap. The biggest challenge is down-developing for Windows. With the Macintosh we get full screen, half motion or we make bigger windows sizes. But we’ve got to develop backwards to Windows. We’re stuck from a developer point-of-view because we have to put out hybrid discs. We have a responsibility not to confuse the consumer with two discs.”

Mac Rules

“To capture video I like the 840 because of the transfer rates between the CPU and the hard drive. I’d recommend the 8100 for compressing the video and Photoshop for graphics. Right now, I wouldn’t develop on Windows. It’s not as reliable as the Macintosh. 95 percent of the development community develops on the Macintosh with a Windows port. In the developer world, Macintosh rules.”

Protect Your Red Book

“Ken Caillat spends a lot of time with the assets before it gets near the computer. He produced Fleetwood Mac and he’s very cognizant of the how the music should sound. For your audio, if you try to master off the hard drive, you’re going to have some sound loss. We’d master it like a record. Use WEA or a traditional plant to protect the integrity of your Red Book audio.”

Pre-Gap/AVCD

Creative Team

Executive Vice President

Kim Jenkins

Executive Producer & Creative

Director

Claire Boger

Authoring & Project Director

David Ciske

Video Producer & Director

Jeff Drzycimski

Video Editor

Baco Bryles

Photography

Ben Fink

Designers

Craig Thompson

David Terry

Jeff Kratschmer

Cathy Daniel

ARDENT RECORDS

2000 Madison Avenue

Memphis, TN 38104

ArdentS@aol.com

Phone: 901-725-0855

Fax: 901-725-7011

Developer Background

In the 1970's, Ardent Records was the home of alternative cult hero Alex Chilton of Big Star fame. In the 1980's, Ardent Studios had a client list that included Led Zeppelin, R.E.M., Al Green and ZZ Top. Ardent returned to the record business this year with the AudioVision Compact Disc (AVCD), a line of enhanced CDs which use the company's proprietary pre-gap technology. Ardent released two AVCD albums this year from alternative groups 2 Minutes Hate and Techno Squid Eats Parliament. Big Tent Revival is from the company's Christian label and will be released this summer.

Record Label

Ardent, distributed through Philips New Media

Artist/Title

Big Tent Revival: *Big Tent Revival*

Title Description

Self-titled debut album from Christian band Big Tent Revival features 11 songs plus an interactive data track. Title has a proprietary 'continuous audio' feature which allows the interactive audio track to continue while QuickTime movies are running. Eleven complete songs are included in the interactive portion of the disc along with three full-length videos, 15 video clips and complete control over the discs' audio sections.

Format/Solution

Pre-gap/AudioVision CD (AVCD)

Software Used

Macromedia Director 4.01, Adobe Premiere 4.0, Adobe Photoshop 3.0, Adobe Illustrator 5.0, Equilibrium DeBabelizer, Digidesign Sound Designer 2.0, Macromedia Sound Edit Pro 1.6, Avid Media Composer 5.2

Hardware Used

Quadra 950, Quadra 650, Pentium 90s



Comments

Kim Jenkins

Record of the Future Here Now

“This is a new industry scattered with lots of little problems. Track one is a problem but it’s no bigger than any other problem. We’ve got to develop products consumers want at attractive price points. We’re a record company. We act like a record company. We sign bands through our A&R department, make records, shoot videos, create interface designs, and pre-master our own discs. For us, this is part of making the record of the future but it’s here now.”

Four Phases to Making Enhanced CDs

“There’s four phases in making enhanced CDs. First you’ve got to gather all your audio and visual assets and screen design. Second you’ve got to put that into an interactive environment. The third phase is the pre-mastering phase which goes hand-in-hand with the development phase. You need to actually see how the disc is going to work when it’s inserted into various drives. The issues are physical access times, whether your QuickTime movies and visual data are reading off the disc correctly. We have developed a set of proprietary tools that allows us to pre-master our discs properly. Finally, you’ve got to pre-master the discs which is your final phase.”

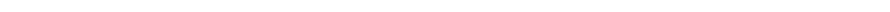
Claire Boger

Challenges

“To come up with the continuous audio play was not easy for us. We were able to do it for the Macintosh but not for the PC, at least not yet. But we also had to develop a rich environment. You don’t want to disappoint the consumer. You want to make sure the disc plays on as many machines as possible.”

What the Bonus Should Be

“We don’t believe in games. It’s bonus material on an audio CD. You shouldn’t have to solve a puzzle to see the band’s video. We try to stick to the band’s vision. We involve them. We use artwork from the album.”





Directory of Resources

MUSIC INDUSTRY

Directories

The following music industry source books provide invaluable information on whom to call and how to reach them.

The Yellow Pages of Rock

120 North Victory Blvd., Third Floor
Burbank, CA 91502
Phone: 818-955-4000
Fax: 818-955-8048

Commonly known as the “music industry bible”, the *Yellow Pages of Rock* 15th edition features names, addresses, telephone numbers of record companies, artist management companies, talent agencies, CD manufacturing plants and other valuable industry contacts.

The Recording Industry Sourcebook

6400 Hollis Street, Suite 12
Emeryville, CA 94608
Phone: 510-653-3307
Fax: 510-653-5142

The Recording Industry Source Book is a comprehensive directory of record labels, producers, managers, attorneys, talent agencies and other industry contacts. Similar to *The Yellow Pages of Rock* in scope.

Pollstar Contact Directories

4333 North West Avenue
Fresno, CA 93705
Phone: 800-344-7383 (except in CA) or 209-224-2631
Fax: 209-224-2674

Record Company Rosters—Complete artist rosters and list of executive contacts for every major label. Published bi-annually.

Talent Agency Rosters—Complete listing of all major talent agencies and their artist rosters. Contains over 6,200 artists.

1995 Mix Master Directory

6400 Hollis Street, #12
Emeryville, CA 94608
Phone: 800-233-9604
Fax: 510-653-5142

A master list for the audio industry. Includes names, addresses, and telephone numbers of recording, mastering, duplication and CD replication facilities. Also independent producers, engineers, and trade organizations.

Reference Books

The following music industry reference books give a deeper understanding of the business side of the music business, including information such as standard record royalty provisions, artist management contracts, talent agency fees and other general music industry information.

All You Need to Know About the Music Business

Donald Passman
1994, Simon & Schuster

Networking in the Music Industry

Jim Clevo & Eric Olsen
1993, RockPress

More About this Business of Music, 4th Edition

Sidney Shemel & M. William Krasilovsky
1989, Billboard Books

Sound Advice: The Musician's Guide to the Record Industry

Wayne Wadhams
1990, Schirmer Books

The Music Address Book

Michael Levine
1994, Harper Collins

This Business of Music: A Practical Guide to the Music Industry

Sidney Shemel & M. William Krasilovsky
Billboard Books



Conferences

July '95

The Macintosh Music Festival

July 17–22, 1995

New York, NY

Apple Computer, Inc.

153 East 53rd Street, 29th Floor

New York, NY 10022

Phone: 212-339-3700

Fax: 212-339-3790

A 6-day concert festival highlighting new artists and Apple technologies such as QuickTime VR. Includes an interactive showcase and performances from over 300 bands at 14 venues around New York City. A must for those who want to be a part of the music and technology convergence.

September '95

CMJ Music Marathon

September 6–9, 1995

New York, NY

11 Middle Neck Road, Suite 400

Great Neck, NY 11021

Phone: 516-466-6000

Fax: 516-466-7159

Industry conference for college music radio stations and record labels. Known for spotlighting new talent 'waiting in the wings.'

North By Northwest Music & Media Conference

September 28–30, 1995

Portland, OR

PO Box 4999

Austin, TX 78765

Phone: 512-467-7979

Fax: 512-451-0754

The Northwest's largest annual conference. Includes several multimedia panels.

November '95

Billboard Music Video Conference

November 8–10, 1995

Santa Monica, CA

1515 Broadway, 14th Floor

New York, NY 10036

Phone: 212-536-5002

Fax: 212-536-5055

Music video industry's largest annual conference. Includes several multimedia panels.

March '96

South By Southwest Music & Media Conference

March 13–17, 1996

Austin, TX

PO Box 4999

Austin, TX 78765

Phone: 512-467-7979

Fax: 512-451-0754

South By Southwest features artist showcases, industry panels and seminars, and networking over a 5-day period. One of the most popular and well attended music industry conferences.

NARM

March 22–25, 1996

Las Vegas, NV

9 Eves Drive, Suite 120

Marlton, NJ 08053

Phone: 609-596-2221

Fax: 609-596-3268

Recommended for developers who want to preview enhanced CD titles for the largest gathering of record retailers, distributors, merchandisers, and manufacturers.

Trade Organizations

American Society of Authors, Composers and Publishers (ASCAP)

One Lincoln Plaza

New York, NY 10023

Phone: 212-621-6000

Fax: 212-724-9064

Broadcast Music, Inc. (BMI)

320 West 57th Street

New York, NY 10019

Phone: 212-586-2000

Fax: 212-582-5972

Recording Industry Association of America (RIAA)

1020 19th Street NW, Suite 200

Washington, DC 20036

Phone: 202-775-0101

Fax: 202-775-7253



Magazines*Album Network*

120 North Victory Blvd., 3rd Floor
Burbank, CA 91502
Phone: 818-955-4000
Fax: 818-955-8048

Alternative Press

6516 Detroit Avenue, Suite 5
Cleveland, OH 44102
Phone: 216-631-1212
Fax: 216-631-1016

BAM Magazine

3470 Buskirk Avenue
Pleasant Hill, CA 94523
Phone: 510-934-3700
Fax: 510-934-3958

Billboard

1515 Broadway
New York, NY 10036
Phone: 212-764-7300
Fax: 212-536-5358

CMJ New Music Report

11 Middle Neck Road, Suite 400
Great Neck, NY 11021
Phone: 516-466-6000
Fax: 516-466-7159

Hits Magazine

14958 Ventura Blvd.
Sherman Oaks, CA 91403
Phone: 818-501-7900
Fax: 818-789-0259

Musician

1515 Broadway, 11th Floor
New York, NY 10036
Phone: 212-536-5208
Fax: 212-536-6616

Pollstar

4333 North West Avenue
Fresno, CA 93705
Phone: 209-224-2631
Fax: 209-224-2674

Radio & Records

10100 Santa Monica Blvd., 5th Floor
Los Angeles, CA 90067
Phone: 310-553-4330
Fax: 310-203-9763

Rolling Stone

1290 Avenue of the Americas
2nd Floor
New York, NY 10104
Phone: 212-484-1616
Fax: 212-767-8203

Spin Magazine

6 West 18th Street
New York, NY 10011
Phone: 212-633-8200
Fax: 212-633-2666

MULTIMEDIA RESOURCES

Directories

The Multimedia Directory

717 South Cochran Avenue, Suite 9

Los Angeles, CA 90036

Phone: 213-935-7600

Fax: 213-939-6705

A directory that lists and profiles major software producers, publishers, service firms and tool developers.

Trade Organizations

International Interactive Communications Society (IICS)

14657 SW Teal Blvd., Suite 119

Beaverton, OR 97007

Phone: 503-579-4427

Fax: 503-579-6272

Electronic Frontier Foundation (EFF)

1667 K Street NW, Suite 801

Washington, DC 20006

Phone: 415-668-7007

Multimedia Development Group (MDG)

2601 Mariposa Street

San Francisco, CA 94110

Phone: 415-553-2300

Fax: 415-553-2403



Trade Conferences**July '95****Multimedia Expo East**

July 25–27, 1995
110 Greene Street, Suite 703
New York, NY 10012
Phone: 212-226-4141
Fax: 212-226-4983

September '95**Multimedia Expo West**

September 12–14, 1995
110 Greene Street, Suite 703
New York, NY 10012
Phone: 212-226-4141
Fax: 212-226-4983

November '95**Viscomm East**

November 2–4, 1995
New York, NY
PO Box 200
Norwalk, CT 06856
Phone: 800-243-3238
Fax: 203-857-4075

COMDEX Fall '95

November 13–17, 1995
Las Vegas, NV
300 First Avenue
Needham, MA 02194
Phone: 617-449-6600
Fax: 617-449-2674

January '96**Midem '96**

January 22–25, 1996
Cannes, France
475 Park Avenue South, 2nd Floor
New York, NY 10016
Phone: 212-689-4220
Fax: 212-689-4348

February '96**Milia '96**

February 9–12, 1996
Cannes, France
475 Park Avenue South, 2nd Floor
New York, NY 10016
Phone: 212-689-4220
Fax: 212-689-4348

Digital Hollywood

February 20–22, 1996
Los Angeles, CA
110 Greene Street, Suite 703
New York, NY 10012
Phone: 212-226-4141
Fax: 212-226-4983

March '96**Intermedia**

March 5–7, 1996
San Francisco, CA
381 Main Avenue
Norwalk, CT 06851
Phone: 203-840-5634
Fax: 203-840-9634

New Media Expo

March 12–14, 1996
Los Angeles, CA
300 First Avenue
Needham, MA 02194
Phone: 617-449-6600
Fax: 617-449-2674

May '96**E3**

May 16–18, 1996
Los Angeles, CA
951 Mariner's Island Blvd., Suite 700
San Mateo, CA 94404
Phone: 415-349-4300
Fax: 415-349-7482

June '96

COMDEX Spring '96

June 3–6, 1996
Chicago, IL
300 First Avenue
Needham, MA 02194
Phone: 617-449-6600
Fax: 617-449-2674

Viscomm West

June 21–23, 1996
San Francisco, CA
PO Box 200
Norwalk, CT 06856
Phone: 800-243-3238
Fax: 203-857-4075

Digital World

June 24–28, 1996
Los Angeles, CA
303 Vintage Park Drive
Foster City, CA 94404
Phone: 415-578-6900
Fax: 415-525-0199

Magazines

Access

945 Hornblend, Suite G
San Diego, CA 92109
Phone: 619-270-2054
Fax: 619-270-2159

Electronic Musician

PO Box 41525
Nashville, TN 37204
Phone: 800-888-5139
Fax: 615-377-0525

Interactive Week

100 Quentin Roosevelt Blvd.
Suite 508
Garden City, NY 11530
Phone: 516-229-3700
Fax: 516-229-3777

InterActivity

411 Borel Avenue, Suite 100
San Mateo, CA 94402
Phone: 415-358-9500
Fax: 415-655-4360

Keyboard

411 Borel Avenue, Suite 100
San Mateo, CA 94402
Phone: 415-358-9500
Fax: 415-358-9527

MacWorld

501 Second Street
San Francisco, CA 94107
Phone: 415-243-0505
Fax: 415-442-0766

Morph's Outpost

PO Box 469066
Escondido, CA 92046-9822
Phone: 510-254-4234

Mondo 2000

PO Box 10171
Berkeley, CA 94709
Phone: 510-845-9018
Fax: 510-649-9630

Multimedia World

501 Second Street, Suite 600
San Francisco, CA 94107
Phone: 415-281-8650
Fax: 415-281-3915

Music and Computers

411 Borel Avenue, Suite 100
San Mateo, CA 94402
Phone: 415-358-9527
Fax: 415-358-9527

Wired

520 Third Street, 4th Floor
San Francisco, CA 94107
Phone: 415-222-6200
Fax: 415-222-6209



Enhanced CD Pressing Plants

Almost all plants listed accept CD-R discs in multisession and pre-gap formats. Check to see what other formats are accepted, such as Exabyte 8 millimeter tapes, 4 millimeter DAT tapes, and removable hard drives. Factors affecting cost will be turn-around time, quantity of discs, complexity of artwork, and type of packaging. Request test discs from the manufacturer to confirm the finished disc replicates the original master.

EMI Manufacturing (USA)

1 Capitol Way
Jacksonville, IL 62650
Phone: 217-243-5162
Fax: 217-243-1215
Technical Contact: Keith Thomas
Sales Contact: Tom Peterson

WEA Manufacturing Specialty Records

1444 East Lackawanna Avenue
Olyphant, PA 18447
Phone: 717-383-3291
Fax: 717-383-3496
Technical Contact: Jerry Warnero
WEA Marketing and Sales—East Coast: 212-399-8831
WEA Marketing and Sales—West Coast: 818-953-2941
WEA Manufacturing replicates audio compact discs, CD-ROMs, multimedia optical discs, video cassette tapes, audio cassette tapes, and vinyl records.

Nimbus Records Inc.

PO Box 7427
Charlottesville, VA 22906
Phone: 800-782-0778
Fax: 804-985-4692
CompuServe: GO NIMBUS
Technical Contact: Randy Robinson
Sales Contact: Joe Cannariato
Nimbus offers pre-gap and multisession replication in addition to full-service CD-ROM production capabilities.

Disc Manufacturing Inc.

4905 Mooresmill Road
Huntsville, AL 35811 *or*
3400 East LaPalma Avenue
Anaheim, CA 92806
Phone: 800-433-3472
Fax: 302-479-2527

Request sales by your region

Audio East Sales: 212-599-5300

Audio West Sales: 818-953-7790

DMI currently manufactures pre-gap and multisession format enhanced CDs. DMI is the largest independent manufacturer of CD formats and provides technical support, consultation, fulfillment and drop shipment services.

KAO Optical Products

800 Corporate Way
Fremont, CA 94539
Phone: 800-288-4526
Fax: 510-657-8427

Technical: Scott Ketteler

Sales: Ron Silzer

KAO currently manufactures CDs in the CD-ROM ready (pre-gap) and multi-session formats as well as all other compact disc formats. KAO has multiple pressing plants and offers worldwide fulfillment and distribution services.

Sony Music Entertainment

400 North Woodbury Road
Pittman, NJ
Phone: 609-589-8000
Fax: 609-589-3007



Glossary

Apple Multimedia Program (AMP) Developed by Apple to meet the needs of multimedia developers using Apple products.

Back Catalog A series of recordings released by an artist over a given time frame in the history of the artist. Usually refers to titles issued prior to the current release.

Bit Binary (zero and one) values. The smallest piece of data recognizable to a computer.

Blue Book The document which specifies the CD Plus format as defined by Sony and Philips.

Buzz Bin Name of show on MTV showcasing popular, up-and-coming recording artists.

C Code Used to describe high-level programming language.

Catalog Describes a group, or body, of recordings or musical copyrights by one common owner or author.

CD Plus Name used by Sony and Philips and the RIAA for type of enhanced CDs using stamped multisession technology.

CD-ROM A format for storing computer data or compressed audio and video data on a compact disc in a digital format. Also used to refer to CDs containing multimedia data to be played back on the CD-ROM drive of your computer.

Enhanced CD Term generally used to describe an audio compact disc that also includes multimedia data. The disc can be played on both audio CD and CD-ROM players attached to a computer. Enhanced CD is sometimes referred to as a CD Plus, mixed-mode, pre-gap, or hybrid disc.

Fps (Frames per second) A frame is a single unit of media data. Usually refers to the number of frames of QuickTime video shown in one second. In NTSC video, a frame is a measure of the two fields that make up 1/30th of a second.

IMT (Interactive Music Track) A subsection of the Apple Multimedia Program providing the latest technology, tools, and information to recording artists, record labels and interactive music developers.

Jewel Box The plastic case enclosing an audio CD.

Kbytes or Kilobytes A unit of computer memory equal to 1,024 bytes.

kHz or Kilohertz A unit of frequency used to measure sound.

Kps (Kbytes per second)
Usually refers to transfer rate of data.

Liner Notes The printed text or copy, on the back or inside of albums, cassettes, and CDs. Used primarily for album credits and additional commentary provided by artist, record label or other sources.

Megabyte (MB) A unit of computer memory equal to about a million bytes.

Mixed Mode Describes type of enhanced CD where Red Book audio and CD-ROM data share space on the same compact disc. Generally requires audio CD user to manually skip over CD-ROM data which is in the first track of disc.

Multisession Driver Software extension which allows a CD-ROM driver to properly read multisession compatible compact discs such as CD Plus.

Operating System (OS) The software in a computer that contains general instructions to manage processes, memory, communications and other system level responsibilities.

Philips One of the two hardware manufacturers, with Sony, that jointly developed the original patent for the 'Red Book' audio CD, 'Yellow Book' CD-ROM and new 'Blue Book' enhanced CD specification.

Platinum As in 'platinum record', representing over a million unit sales by a particular artist or group, as determined and certified by the RIAA.

Pre-Gap Type of enhanced CD which places CD-ROM data in the pre-gap area of the compact disc between index point 0 and index point 1. Allows disc to play Red Book audio from track one.

QuickTime The stuff multimedia is made of. Apple's multimedia standard makes it possible for users to view and edit video, music, text, animations and other dynamic information on their computers.

QuickTime Continuum Web site established by Apple Computer allowing consumers to obtain information on QuickTime software such as QuickTime 2.0 and QuickTime VR.

QuickTime Music Toolkit Suite of interactive music tools from Apple Computer used to develop enhanced CDs that follow Blue Book standard as specified by Sony and Philips.

QuickTime VR Apple's new technology for creating 360-degree Virtual Reality (VR) panoramas, or navigable objects, on your computer without any specialized hardware, software, or accessories.

RAM (Random Access Memory) Describes principle memory used by a computer in which data and instructions are momentarily used.



Red Book The document which specifies the audio CD format developed by Sony and Philips.

RIAA (Recording Industry Association of America) The main trade organization representing the record industry and music retailers of America.

Sony One of the two hardware manufacturers, with Philips, that jointly developed the original patent for the 'Red Book' audio CD, 'Yellow Book' CD-ROM and new 'Blue Book' enhanced CD specification.

Stamped Multisession Describes compact discs on which data can be recorded on more than one occasion. CD Plus uses stamped multisession technology to combine audio and CD-ROM data on the same compact disc.

Yellow Book The document which specifies the CD-ROM format developed by Sony and Philips.

About The Author

Josh Warner is a frequent contributor to *The Hollywood Reporter* Interactive Special Issues and has also written for *Billboard* and *Hits*. Josh was the first writer to report on CD Plus and is also a consultant to Apple Computer, Virgin Records and Westwood One Radio Network. Josh comes to interactive media from a career in artist management where he helped reintroduce the English rock group, Yes, and worked with major record labels including Columbia and Geffen. Prior to 1988, Josh was the Director of Marketing at the Marketing Entertainment Group of America, one of the first firms to secure sponsorships for recording artists such as The Beach Boys, The Who, and Duran Duran.