

AppleDirections

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APPLE NEWS

Apple Announces Newton Subsidiary

Apple Computer just announced the formation of a wholly owned Newton subsidiary, Newton, Inc., that will focus on the computing and communications needs of corporate mobile users. In conjunction with its licensees, value-added resellers, and systems integrators, the new company will provide customers with market-driven products and technologies based on the award-winning Newton operating system.

The new company will be led by a CEO to be named and newly appointed Chief Operating Officer Sandy Benett. Benett was previously vice president of the Newton Systems Group and has been responsible for managing the group for the past few years.

Newton, Inc. will focus on developing products as well as licensable technologies targeted at meeting the needs of mobile users in corporate markets—initially concentrating on health care, sales force automation, and field service industries. The company will provide platform technologies, including the Newton operating system, development tools, APIs (application programming interfaces), and documentation, to enable the development of products for such markets.

Products built on the Newton operating system include the MessagePad 2000 handheld computer and the eMate 300 mobile computer for the education market.

The new subsidiary, which will remain based in Northern California, will continue to support, sell, and market the current MessagePad 2000 in the retail channel and deliver the MessagePad 2000 and follow-on products to corporate markets. Apple will continue to support, sell, and market the eMate family of portable computer products in the education

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STRATEGY MOSAIC

QuickTime 3.0: The Way to Do Digital Media

New Version Is Fully Cross-Platform

*By Gregg Williams,
Apple Directions staff*

It has been just over six years—several lifetimes ago in the computer industry—since I wrote the *Apple Direct* cover story about QuickTime 1.0. Since then, QuickTime has more than proven its worth and has helped usher in an industrywide era of media-rich computing. With the inclusion of the QuickTime Media Layer as part of Apple's Yellow Box strategy, its continuation into the future is assured.

It's time to take another look at QuickTime. By this September, Apple will release a major revision of the technology, called QuickTime 3.0. If you aren't using QuickTime in your products, you should take a look at it—there's more there than you think. Even if you have been using QuickTime, the new features and scope of QuickTime 3.0 will present you with new opportunities.

Here are the most important things you need to remember about QuickTime:

- *QuickTime 3.0 is fully cross-platform between Mac OS, Windows 95, and Windows NT.* This means that you can use all of QuickTime's features in your products, regardless of whether you write applications for the Mac OS, Windows, or both.

- *QuickTime 3.0 gives you extensive support for the most commonly used still-image, video, sound, and MIDI music file formats.* By using QuickTime 3.0, you can

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STRATEGY MOSAIC

QuickTime 3.0

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easily support the ever-increasing number of "standard" media formats that your customers expect, and QuickTime's modular design and extensibility mean that today's QuickTime-enabled applications will automatically support tomorrow's popular media formats—even those that haven't been invented yet.

- *QuickTime 3.0 can save you time and money, even if your products don't manipulate video.* If you've ignored QuickTime because your products don't play movies, you're leaving money on the table. QuickTime 3.0 is your best choice for displaying any kind of still image, for playing sound (including multiple sounds playing simultaneously), and for doing lossless compression of any kind of data. QuickTime 3.0 is highly optimized and debugged code. Use it, and you don't have to write, improve, debug, and maintain code that does the same thing—instead, you can spend your time adding new features that differentiate your product from the competition.

- *QuickTime is here to stay.* QuickTime is one of Apple's most important technologies, and it will continue to be the vehicle through which Apple will drive innovation in bringing rich media experiences to customers on the Mac OS, Yellow Box, and Windows platforms.

Apple will release QuickTime 3.0 for the Mac OS and Windows 95/NT by the end of September 1997. To get the latest information about QuickTime 3.0, periodically check the QuickTime web site at <http://quicktime.apple.com/dev/>. If you're interested in learning more about QuickTime 3.0 now, just keep reading.

QuickTime for Windows—Finally!

Arguably, the most important thing about QuickTime 3.0 is that it is truly cross-platform. Apple will soon offer equivalent implementations of QuickTime 3.0 for the Mac OS and Windows 95/NT. On the Mac OS, QuickTime 3.0 will be implemented as a set of system

extensions and will run under System 7.0 or later on most Mac OS computers (68020 processor or better, or any PowerPC processor); on Windows 95/NT, it will be implemented as a dynamically linked library (DLL). Users will be able to obtain both implementations over the Internet free of charge, and you can license them to ship with your products.

What does "equivalent implementations" mean? It means that the API (application programming interface) of QuickTime 3.0 is the same on both platforms, that the same QuickTime-related source code will compile and run correctly on both platforms, and that anything you can do with QuickTime on a Mac OS-based computer, you can also do on a computer running Windows 95/NT. (Previously, computers running Windows could only play back QuickTime movies. QuickTime 3.0 will make it possible for Windows applications to do media capture and manipulation as well.)

The availability of QuickTime 3.0 for Windows marks a new beginning for Apple's flagship media technology, one that will result in even greater acceptance of it by customers and developers alike. This will happen for the following reasons:

- If you are a QuickTime tool vendor, you will be able to port your Mac OS QuickTime tools to Windows, thus introducing a new market of customers to a variety of sophisticated media manipulation tools. Windows users will prefer these tools because of their power and ease of use, their compatibility with various other QuickTime tools, and their ability to work with industry-standard QuickTime movie files.

- If you are using QuickTime for other things or are thinking about doing so, the high quality of the QuickTime 3.0 implementation on both platforms will enable you to take full advantage of all of QuickTime 3.0's features in your products. (Previous versions of QuickTime for Windows implemented some features imperfectly and omitted nonplayback features entirely, thus encouraging developers to use only a common subset of QuickTime features in their cross-platform products.) The more QuickTime features you use, the more

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The September issue of *Apple Directions* will be available by August 15 on the web at <http://www.devworld.apple.com>.

that customers on both platforms will come to prefer and depend on QuickTime.

Extensive Support for Media Formats

If we use the word *media* to refer to such things as audio, video, animation, text, 2D still images, 3D objects, MIDI music, and VR (virtual reality) panoramas and objects, it's safe to say that people are finding more and more ways to use computers for editing media. Different types of media are handed from person to person in different formats, and each medium can be represented in a variety of formats that exist because of such factors as intended use, computer platform, personal preference, and the influence of industry-standard applications. In fact, if your application manipulates media, you're probably aware of how difficult it is to support all the formats you need to.

QuickTime has always provided extensive support for different media formats, and QuickTime 3.0 adds even more media formats than before. (See "QuickTime 3.0's Support for Media," on page 4, for a list of media types and formats supported.)

QuickTime's extensive support for different media formats saves you time—time that you can use to add differentiating features to your product. The important thing to remember is that *if you use QuickTime to access a given media type (for example, video), the same code can access any supported media format containing that media type (for example, JPEG or AVI)*. Furthermore, when a future version of QuickTime adds support for new media formats, the QuickTime-enabled application you create today will be able to access them automatically.

Going hand-in-hand with QuickTime 3.0's parity support for Windows 95/NT is its new support for various formats that are popular on that platform, including the following:

- The AVI (Audio/Video Interleaved) video file format (see the screen shot on page 5)
- The OpenDML video format, an open, industry-standard extension of the AVI format designed to meet the needs of the professional video editing market
- The WAV ("Wave") digital audio file format (including common compressed audio formats)
- The FLC ("Flic") animation file format
- The BMP 2D still-image file format
- The Windows RLE compressed video format

To provide for the high-end video and audio editing markets, QuickTime 3.0 will add support for such popular formats as the OMF (Open Media Framework) video format, the Sound Designer II audio format, and the IEEE 32-bit and 64-bit floating-point audio formats.

In addition, QuickTime 3.0 will support the new DV digital video format (used by a new generation of digital video cameras) and will allow software to export any QuickTime movie in DV format. DV digital video cameras will make it easier for consumers to edit their movies on their computers, and QuickTime-based video editing programs will be in great demand because of their ability to import, edit, and export DV video.

Other QuickTime 3.0 Features

I've already discussed the two most important features of QuickTime 3.0: its availability on both the Mac OS and Windows platforms and its strong support for many different media formats. Here are some additional features you may find of interest:

- QuickTime 3.0 gives Windows 95 and Windows NT the ability to capture, edit, and compress digital media.
- QuickTime 3.0 adds an architecture for flexible real-time visual effects and transitions. This architecture provides a standardized way to describe any visual effect, thus encouraging more creative use of visual effects through video hardware and software solutions. Visual effects can be used on any type of QuickTime media that has a visual component—for example, a still-frame image of a fishbowl can have an "undulating water" effect added to it, making the water appear to move. In addition, effects can be asynchronous and can be triggered by user events—for example, a mouse click can cause a concentric set of circles to ripple across an image wherever the click occurs, giving the effect of an object being dropped into water.
- QuickTime 3.0 adds a vector animation data format that allows users to create object-based images and animations that can be stored in a very compact form. This format provides a standard way for applications to create, render, and exchange vector-based, antialiased images and animations.
- A new high-level movie creation API in QuickTime 3.0 enables you to create QuickTime movies by writing one-third as much code as was previously necessary. In addition, a more powerful movie export API allows you

to translate QuickTime movies to several industry-standard formats.

- A number of audio and video file formats include encoded data, called *metadata*, that somehow describes or comments on the contents of the file (for example, copyright data in an audio file). QuickTime 3.0 uses one simple API to extract any file's metadata, regardless of the file's format.

One additional feature of QuickTime, though not specific to QuickTime 3.0, is that existing QuickTime-enabled applications "inherit" the enhancements made in new versions of QuickTime. If you are an application developer, this means that (for example) the QuickTime 2.x video editing application you're currently selling will be able to open and edit DV digital video files on any computer that's running QuickTime 3.0, even though the DV format didn't exist when you wrote your application. On the other hand, if you're creating content (for example, animation) using QuickTime 3.0, you can add vector animation tracks and QuickTime 3.0 transitions to your content, knowing that pre-QuickTime 3.0 applications will still be able to play and manipulate your content (given, of course, that the user has upgraded to QuickTime 3.0).

Everyday Uses for QuickTime 3.0

"But," you argue, "my products don't have anything to do with video, and I don't need to play movies. That means I can ignore QuickTime, right?" Yes, you can, but you may be passing up an opportunity to let QuickTime 3.0's highly optimized and debugged code do something that you would normally end up writing, debugging, maintaining, porting to other platforms, and extending yourself.

Here are three areas where QuickTime can do the work for you:

- *2D still images and audio*. Many applications need to open still-image and audio files, display images, and play sounds. QuickTime 3.0's extensive support for still-image and audio file formats makes this easy—and saves you the trouble of having to add support for new formats as they become popular.
- *Data compression*. QuickTime 3.0 adds a new lossless data *codec* (compressor/decompressor) that you can use for compressing and decompressing data of any type. (Most QuickTime codecs, meant for audio and video, lose some data in the compression process but decompress acceptably well for practical

purposes. A lossless codec decompresses an exact copy of the original data.) The QuickTime 3.0 data codec uses the same technology used for compressing disk images; it's high-quality code, optimized and debugged by Apple, and it usually compresses data to between one-half and one-fourth its original size. You can use the data codec to reduce the size of your data files or of your data in memo-

ry. This data codec capability is extensible, and you can substitute other compression algorithms if you wish.

- *Playing multiple sounds simultaneously.* It's difficult to play overlapping sounds, especially on the Windows platforms, but QuickTime provides the infrastructure that makes this easy. Why not use it and save yourself a lot of grief?

QuickTime 3.0 and the Internet

Everyone wants media-rich web pages, but most users don't want to wait for sounds, graphics, and movies to download. Many features make QuickTime an excellent technology for delivering media "punch" in web pages without taxing the viewer's patience (or the Internet's bandwidth). Since the free QuickTime Plug-in for the Internet works with the

QuickTime 3.0's Support for Media

The following lists detail QuickTime 3.0's support for different media types and formats. Items followed by an asterisk (*) represent features new to QuickTime 3.0.

Media Types

- Video/still image
- Sound
- Text
- Timecode
- 3D
- MIDI music
- Sprite/animation
- Tween (control data)
- MPEG
- VR

Compressed Data Formats

Video

- JPEG
- Motion JPEG Format A
- Motion JPEG Format B
- AVR (Avid Video Resolution)*
- OpenDML Motion JPEG*
- YUV 4:2:2
- YUV 4:1:1
- RGB
- ARGB
- Windows Uncompressed*
- Apple Video
- Animation
- Apple Graphics
- Cinepak
- Windows RLE*
- GIF
- Photoshop
- Vector Animation*
- DVCam*
- H.263*
- MPEG
- CCIR 601

Supported through additional third-party extensions:

- ClearVideo*
- TrueMotion
- Indeo 3.2
- Indeo Video Interactive*
- H.261*

Audio

- PCM
- IMA ADPCM
- MACE 3:1
- MACE 6:1

- 32-bit IEEE Floating Point*
- 64-bit IEEE Floating Point*
- μ Law
- DVCam*

Supported through additional third-party extensions:

- G.723*
- G.728*
- GSM*

Digital Media File Formats

Digital Video

- AVI*
- OpenDML*
- OMF*
- MPEG
- DVCam*

Digital Audio

- AIFF/AIFC
- WAV
- Sound Designer II*
- AU
- MPEG Layer 2

Still Image

- QuickTime Image File
- Photoshop
- QuickDraw Picture
- BMP*
- GIF
- JPEG/JFIF
- SGI
- MacPaint
- PNG*

Animation

- FLC/FLI*
- PICS
- 3DMF

MIDI

- General MIDI
- Karaoke MIDI

Digital Capture Media Types

- Video
- Sound
- DVCam*
- MIDI
- Text
- Timecode

Export File Formats

- AIFF/AIFC
- WAV
- MIDI
- QuickDraw
- Picture
- Text
- DVCam*

major web browsers (including Netscape Navigator™ and Microsoft Internet Explorer) and exists on both the Mac OS and Windows 95/NT platforms, users on all these platforms can view your web content.

Here are some of the ways in which QuickTime 3.0 helps in the creation of media-rich web pages, while minimizing downloading times:

- You can use the new vector animation data format to create both still images and animations. QuickTime's sprite graphics give you another way to create compact animations. In addition, you can decrease download times further by using the lossless data codec on your QuickTime movies.

- Use the new QuickTime 3.0 visual effects and transitions within your QuickTime movies. Because these effects and transitions are specified programmatically, they don't add much to the size of the movie—but they replace effects and transitions that would greatly increase the movie's size if rendered conventionally.

- You can add music to your QuickTime movies by adding a MIDI track. Since MIDI stores music data abstractly (for example, a MIDI file specifies only when a note starts and stops) instead of as a digitized audio stream, MIDI music sounds great (because of the digitized musical instruments that are a part of QuickTime) and uses only a fraction of the space.

- QuickTime 3.0 includes a number of low bit-rate audio and video codecs. By using the right one for a given movie, you can achieve acceptable playback with much less overhead.

- When a QuickTime movie is embedded in a web page, users can start playing it as soon as it begins downloading from the Internet. This gives them a much better user experience and allows them to concentrate on what the web page is trying to communicate, not the download delays.

What QuickTime 3.0 Means for You

Feature parity between the Mac OS and Windows 95/NT means you can make richer use of media in your Mac OS and Windows products using the same API. QuickTime 3.0 provides a much richer solution than competing technologies on the Windows 95/NT platform. By using QuickTime 3.0, you can create more compelling Windows products than your competition—and reach the Mac OS market as well.



QuickTime 3.0 Does AVI. This screen shot shows QuickTime 3.0 playing a standard AVI movie file on a computer running Microsoft Windows 95.

Automatic support for so many still-image, audio, and video file and compression formats means that, as QuickTime architect Peter Hodie put it, “your development costs go through the floor” and you don't have extra work to do when new formats become popular. QuickTime 3.0 supports ten different media types and dozens of media and compression formats, and you can use its architecture to implement many different authoring functions, including content capture, editing, compression, and output.

If your products are heavily into media manipulation, QuickTime 3.0's support for the vast majority of media formats enables you to create applications that your customers will value greatly. The marketplace forces them to deal with clients that give them media in many different formats and demand finished content in a variety of output formats. Because QuickTime 3.0 supports all those formats automatically, your QuickTime-enabled application will allow customers to concentrate on their core work instead of wrestling with

format problems—and they will thank you for it with brand loyalty, repeat sales, and recommendations to other users.

If you are planning a product that uses still images, audio, video, data compression, or any combination of these, QuickTime 3.0 is the one technology that is more powerful than any combination of technologies meant to do the same things, and you can write one set of code that works equally well on the Mac OS and Windows 95/NT. Here are just two of the many examples of QuickTime 3.0's superiority over competing technologies:

- A competing video-playback technology, Microsoft's ActiveMovie, provides limited audio and video playback; the popular AVI format can handle only one audio and one video track. QuickTime 3.0 can handle multiple audio and video tracks, is scalable from highly compressed movies for the Internet up to broadcast-quality video, is totally cross-platform, and adds numerous other forms of time-based media: text (for subtitles, closed captioning, or keyword indexing of video),

sprites, vector graphics, MIDI music, 3D objects, and VR panoramas and objects. In addition, a QuickTime movie can contain any combination of these media types, and some of them are ideal for playback over the Internet.

- QuickTime 3.0 takes existing standards and makes them better. As I stated earlier, the AVI format allows only one audio and one video track. By editing with QuickTime, however, customers can enhance AVI movies in ways not possible when using traditional AVI editing applications—for example, by adding additional audio and video tracks and by doing arbitrary content cutting and pasting within the AVI movie.

Similarly, QuickTime provides a richer environment for MPEG movies than you can find elsewhere. MPEG movies achieve their high level of compression by storing changes between frames instead of complete frames; as a result, most MPEG playback implementations allow movie playback but not frame-by-frame positioning. Since the QuickTime MPEG Extension does provide this feature, customers can do arbitrary cutting and pasting of MPEG video, a feature that most MPEG implementations do not allow.

By adopting QuickTime, your products can weather the changes that are inevitable in a world that is becoming increasingly media-rich. Future versions of QuickTime will add support for emerging industry-standard file formats, media types, compression standards, and hardware devices—and your QuickTime-enabled software will automatically inherit support for them.

What You Can Do Now

Although QuickTime 3.0 will bring a number of significant new features to the QuickTime architecture, the important thing to remember is that QuickTime 3.0 simply enhances an

already robust and versatile architecture for handling a variety of digital media.

Perhaps the most important thing you can do right now is to take a new look at QuickTime:

- Study the QuickTime documentation—*Inside Macintosh: QuickTime* and *Inside Macintosh: QuickTime Components*.
- Learn about QuickTime 3.0 by reading the *QuickTime 2.5 Developer's Guide*, which contains information on most of the new features in QuickTime 3.0. On the web, you can download an Adobe™ Acrobat version of the document from <http://quicktime.apple.com/dev/devsw.html>. If you receive the Developer CD Series, you can find this document on disc 1 of the April 1997 Mac OS SDK.
- For the latest breaking information on QuickTime 3.0, go to the Apple QuickTime development site, <http://quicktime.apple.com/dev/>.
- You can read a more in-depth description of QuickTime 3.0's support of media types and file formats at <http://quicktime.apple.com/qt30/specsheet/>.
- A press release summarizing the features of QuickTime 3.0 is available at <http://product.info.apple.com/pr/press.releases/1997/q3/970408.pr.rel.quicktime.html>.
- Subscribe to Apple Developer News to get the latest news on QuickTime 3.0 and other developer-related subjects. (To do so, send an e-mail message to requests@thing1.info.apple.com; in the body of the message, type the string "subscribe adirections".)

The more you know about QuickTime (and QuickTime 3.0), the more opportunities you will find to use it in your products and to build new products around it.

In addition, here are some more things that you may want to consider doing:

- Use QuickTime lossless compression where it makes sense in your application.
- If you're looking for new products, you may want to consider developing applications that create QuickTime media files optimized for display across the Internet—in particular, drawing or animation programs based on the new vector animation format.
- One way to begin working with sprite movies is to use Macromedia Director 5.0 and the QuickTime Sprite Export Xtra (available at <http://quicktime.apple.com/dev/sprite.html>). This extension to Director enables it to export a Director score as a QuickTime sprite movie.
- If you have designed a media-related PCI card, create the appropriate QuickTime component for it so that QuickTime users can automatically take advantage of it. You will most commonly create video digitizer, image compressor, image decompressor, sound input, sound output, and text digitizer components. (A text digitizer component captures a video signal's closed captioning information and stores it as text.)

The Future of QuickTime

QuickTime is one of Apple's most successful technologies, and in the future it will be even more so. By providing equivalent versions of QuickTime 3.0 for the Mac OS and Windows 95/NT, Apple has removed a barrier that has prevented some developers from adopting QuickTime. By supporting the vast majority of media formats your customers are likely to encounter on both the Mac OS and Windows platforms, Apple has turned QuickTime into the only tool you'll ever need for accessing and manipulating digital media. And with Apple's recent pledge to continue the evolution of QuickTime on the Yellow Box platform as well, QuickTime becomes a tool you can use with confidence both now and in the years to come. Now *that's* what I call a technology with a future. ♣

APPLE NEWS

Newton Subsidiary

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community based on technology delivered by the new company.

Current Newton licensees include Schlumberger, Sharp, Digital Ocean, and Harris Corporation. Technology allies include ARM Limited, Digital Equipment Corporation, Paragraph International, and Cirrus Logic.

For additional details, see the complete press release at <http://product.info.apple.com/pr/press.releases/1997/q3/970522.pr.rel.newton.html>.

For questions and answers about Apple's Newton subsidiary, see http://www.newton.apple.com/announce/announce_QnA.html.



Newton, Inc. Team Exhibits at PC Expo Alongside Developers

The Newton, Inc. team made its first major industry appearance at PC Expo, less than a month after spinning out from Apple to

become a wholly owned subsidiary. In addition to its presence at the show, the company held a launch press reception at the World Trade Center, at which Chief Operating Officer Sandy Bennett talked about the company's vision for the future.

"We are thrilled that our first official appearance as Newton, Inc. is at a major forum like PC Expo," said Bennett. "We will be working hard at the show to communicate our mission, which is to be a leader in fulfilling the needs of the mobile user by providing products and technologies that harness the power of the Internet, and embody the flexibility and performance of computing with the freedom and intuitiveness of communications."

Developers at the Newton booth included AllPen Software, Balcones Software, EZSHOW, LandWare, NetStrategy Software, NS Basic Corporation, PelicanWare, PenVision, SplitRock Corporation, Symantec Corporation, TeleType, TrueNorth, Wright Strategies, and Wireless Global Networks.

You can read the full press release at <http://product.info.apple.com/pr/press.releases/1997/q3/970616.pr.rel.newton.html>.



Apple Bundles Leading "Push" Technology and News and Information Service With Mac OS 8

Apple recently announced its plans to bundle Marimba's Castanet Tuner and the PointCast Network with Mac OS 8. Apple also announced it will have a dedicated Apple channel on the PointCast Network, so you can get the latest news from Apple delivered straight to your desktop.

The Marimba Castanet Tuner and the PointCast Network complement Mac OS 8's already outstanding Internet integration. Mac OS 8 includes an easy Internet setup feature that steps you through choosing an Internet Service Provider (ISP) or network connection, access to market-leading browsers from Microsoft Corporation and Netscape Communications, and new Internet features such as Personal Web Sharing and Personal Net Finder.

In addition to its Internet capabilities, Mac OS 8 boasts a number of features that increase the system's ease of use, including the QuickTime Media Layer, a new 3D look and feel, a multi-threaded native PowerPC processor-based Finder, and "spring-loaded" folders and pop-up windows.

Marimba's Castanet Technology

Marimba products are designed to allow you to create, distribute, and manage network applications within enterprises and across the Internet. Marimba's Castanet technology automatically distributes and maintains software applications and content. The Castanet Transmitter (server) and Castanet Tuner (client) work together to keep software and content always up-to-date. The bundling of the Castanet Tuner with Mac OS 8 will allow you to view any type of "channel," including internal corporate applications, multimedia consumer channels, and more.

"Apple has a longstanding history of providing its customers with leading technology," said Dave Cope, vice president of marketing for Marimba. "By including Castanet with Mac OS 8, millions of Macintosh users join the Marimba Castanet family and can take advantage of the Internet by subscribing to rich sources of applications and information that automatically deploy, install, and update themselves. The functionality that Marimba and Apple now provide fulfills the promise of the Internet becoming a true utility for both businesses and consumers."

The PointCast Network

The PointCast Network is the first news and information service to broadcast up-to-the-minute news directly to a viewer's computer screen. Headlines scroll across the screen in animated "SmartScreens." PointCast broadcasts national and international news, stock information, industry updates, weather from around the globe, sports scores, and more from sources such as CNN; *Time*, *People*, and *Money* magazines; Reuters; PR Newswire; BusinessWire; SportsTicker; and AccuWeather. Local U.S. newspapers such as the *Los Angeles Times*, *New York Times*, *Boston Globe*, and *San Jose Mercury News* appear on the PointCast Network. Because it is advertiser supported, the PointCast Network is completely free of charge.

The Apple version of the PointCast Network will include an Apple channel, which will

bring you information on breaking Apple-related news stories, software updates, product enhancements, new product announcements, customer support news, and other special information. Apple will provide all the content for its PointCast Network channel, including press releases, executive summaries, partner solutions, and customer stories. With the PointCast Network from Apple, it will be easier for you to efficiently access the kind of updated news that is important to running your business or organization.

"We're delighted to work with Apple to integrate the PointCast Network with their new Mac OS. We see this collaboration as a strategic move to offer Macintosh users instant access to the breadth of news and information available on the PointCast Network," said Jim Wickett, senior vice president of Worldwide Business Development at PointCast. "In addition, we believe offering a dedicated Apple channel on the PointCast Network is an exciting endeavor that will enhance communications between Apple and the Mac community."

Availability

Apple expects Mac OS 8 to be available in July 1997, with the Apple channel on the PointCast Network being available around the same time. Initially, the Apple channel will be available to users of the PointCast Viewer included with Mac OS 8. The viewer will also be available for downloading from Apple's web site. Later the channel will be made available to all users of the PointCast Network for Mac OS.



Apple Announces WebObjects Training Agreements

Apple recently announced agreements for delivering training programs on Apple's WebObjects web development platform with Agiliti, a leader in authorized technology training in the Midwest, and Tensor Information Systems, a provider of WebObjects and OpenStep consulting services. As certified training partners, Agiliti and Tensor have exclusive training rights in the Minneapolis/St. Paul area of Minnesota and in the Dallas/Fort Worth area, respectively. Both companies have the

option to conduct private classes in North America.

For more information on "Introduction to WebObjects, a five-day class for software developers and corporate programmers and analysts on building web applications using WebObjects, visit Agiliti's web site at <http://www.Agiliti.com/courses/NeXTCourseList.htm> or Tensor's web site at <http://www.tensor.com>.



PC Expo Marks First Major Trade Show Demonstration of Rhapsody

This year's PC Expo marked the first trade show appearance for an early version of Rhapsody. Executive Vice President of Advanced Technology Ellen Hancock's keynote address featured a demonstration of Rhapsody, Apple's next-generation operating system, in addition to demonstrations of Mac OS 8 and the new cross-platform capabilities of QuickTime 3.0.

Rhapsody—Apple's Next-Generation OS

PC Expo marks the first trade show outing for an early version of Rhapsody. Scheduled for customer release in 1998, Rhapsody is Apple's second mainstream operating system, joining the Mac OS as an option for both users and developers. For developers, Rhapsody provides a breakthrough software development platform for building reliable and media-rich applications, while still handling the huge library of existing Macintosh applications. Rhapsody will initially appeal to professionals in a variety of businesses, especially customers in fields such as publishing and multimedia, Internet/intranet content development and publication (web authoring), corporate application development, higher education, and engineering/science, that require the highest system performance and throughput.

Cross-Platform QuickTime Demonstrated

QuickTime technology, now in its seventh year of development, is the industry-standard digital media system software for Windows and Mac OS. QuickTime 3.0 is the newest release of Apple's widely adopted software

architecture for creating and publishing digital media. Scheduled for introduction later this year, QuickTime 3.0 is significant as it marks the first time the full power of QuickTime—including the ability to capture, edit, compress, and play back digital media—is available for all major personal computer platforms, including Windows 95, Windows NT 4.0, Mac OS 7, and Mac OS 8. For more information on QuickTime 3.0, see Gregg Williams's Strategy Mosaic, "QuickTime 3.0: *The Way to Do Digital Media*," on page 1 of this issue.

Mac OS Pavilion at PC Expo

Apple, IBM, and Motorola (the AIM Alliance) worked together with PC Expo show managers to create the Mac OS Expo, an entire trade show within PC Expo. Half the Mac OS Pavilion at PC Expo was dedicated to the Mac OS Applications Showcase, which featured 26 Apple developers dedicated to promoting the Mac OS and its solutions. At the Mac OS theater, customers could view presentations about Mac OS 8; cross-platform development tools, including Rhapsody, Yellow Box, and WebObjects; and Apple hardware advantages.

The Mac OS Pavilion showcased the latest hardware from Apple, including the Power Macintosh 6500/300, the PowerBook 3400, and Apple's server and professional Power Macintosh products. Also on display for the first time at a U.S. trade show was Apple's new PowerBook 2400c, codeveloped with IBM Japan. Apple also demonstrated its new family of ink-jet printers—including its first Windows-based ink-jet printer, the Color StyleWriter 6500—along with Apple's range of LaserWriter printers and digital imaging products.

For more information on PC Expo, see <http://product.info.apple.com/pr/press.releases/1997/q3/970617.pr.rel.pcxexpo.html>.



Macintosh Again Leads PC Industry in Brand Loyalty

For the third year in a row, the Macintosh led the PC industry in repurchase loyalty in 1996, according to a new research survey conducted by Computer Intelligence (CI). The findings emerged from CI's recently released spring 1997 Consumer Technology Index (CTI), the largest and most comprehensive survey of technology ownership and usage among home, workplace, and self-employed users in the United States. For each brand, the repurchase rates measured the percentage of users who bought a personal computer in 1996 that was the same brand of computer they previously owned. According to the CTI results, about four in five Apple Macintosh users who purchased a personal computer in 1996 bought another Macintosh (see the table on this page). This means that 81.4 percent of users who owned a Macintosh and purchased an additional system in 1996 remained loyal to the Apple brand and purchased a Macintosh.

"Apple's 'three-peat' came in a year when the company was starting to come under intense pressure," said CI Senior Industry Analyst Dave Tremblay. "Our research confirms that one of Apple's key corporate assets is the loyalty of its user base to the Macintosh."

Macintosh Leads in Repurchase Loyalty in 1996

Company	Percent of owners buying same brand
Apple Macintosh	81%
Gateway 2000	72%
Acer	69%
Compaq	60%
Hewlett Packard	58%
Dell	58%

Source: CI's Consumer Technology Index, 1997

Not surprisingly, the CTI survey found that respondents who purchased computers for personal use generally showed lower brand loyalty than individuals who work on employer-provided computers. In fact, Apple's Macintosh was the only brand to have a repurchase rate above 50 percent in the home market, while nine of the top eleven brands have loyalty above 50 percent in the workplace segment. The differences are due mainly to price sensitivities among home computer users, who are spending their own funds rather than company funds, and to the fact that home users do not need to go through the purchase-approval cycles present in many corporations.

Relative strengths of the top brands varied among the market segments. For Dell, Compaq, Hewlett-Packard and Acer, repurchase loyalty in the workplace segment was substantially higher than in the home segment. Apple Macintosh loyalty was more nearly equal across the segments, ranging not more than five points from its overall score. Although Gateway 2000 was the number-two brand in all segments, its repurchase loyalty was more than twenty points higher in the workplace segment than in the home or self-employed segments.

For more information, visit Computer Intelligence's web site at <http://www.ci.zd.com>.



Free PowerBook Location Utility

Designed for PowerBook users, the Apple Location Manager (ALM) is a unique technology that makes it easy to specify and switch sets of user interface settings.

If you're a developer, the ALM notification system is an alternative to the process of creating software modules that allow users to set up and restore an entire "environment" as they move a PowerBook from place to place. With the ALM notification system, your software is fully "location-savvy."

ALM works with any PowerBook computer that runs System 7.6 and is available free of charge for downloading from the PowerBook web site at <http://www.powerbook.apple.com>.



Apple and Frogdesign Win Design Awards

Apple recently won two silver awards in the 1997 Industrial Design Excellence Awards for its eMate 300 school-oriented computer (in the Business and Industrial Equipment category) and its Athena Mac concept (in the Design Explorations category). These awards are the design industry's equivalent of the Pulitzer prize.

Frogdesign, a design consulting firm, won a bronze award for the Enterprise Macintosh prototype designed for Macworld's September 1996 issue. The Enterprise Macintosh was created with Macworld for the magazine's special "The Macintosh Reborn" project, which set a goal for a futuristic Macintosh design that could be achieved in 1997.

Other Macintosh industry winners included the PowerPort Platinum Pro Fax/Modem Connector from Global Village Communication (which won a bronze award in the Business and Industrial Equipment category) and the Apple Advanced Chinese Input Suite (which won a silver award in the Packaging and Graphics category) from the Apple-ISS Research Center in Singapore, a joint venture between Apple and the Institute of Systems Science (ISS).

For more information, see the June 2 issue of *Business Week* at <http://www.businessweek.com/1997/22/b35298.htm>.



Power Macintosh Beats MMX Pentium Systems in Photoshop Showdown

MacUser magazine recently published results of a comparison between Power Macintosh and MMX Pentium systems running Adobe™ Photoshop software. The following systems were used in the benchmark tests. (The Power Macintosh system-bus speed was 50 MHz; the PCs had 66-MHz buses.)

- Apple Power Macintosh 9500 with a 200-MHz PowerPC 604e processor
- Gateway 2000 G5-200, built around a 200-MHz Pentium processor equipped with MMX

- Gateway 2000 G6-266, built around a 266-MHz Pentium II processor

The Power Macintosh 9500/200 beat the stock 200-MHz MMX-equipped Pentium system in 16 of 17 tests. In 14 tests, the Power Macintosh 9500/200 was faster by more than 19 percent, to a maximum of 82 percent.

For more details, see *MacUser's* May 1997 issue at http://www1.zdnet.com/macuser/mu_0797/features/mmx.html.



"Prelude to Rhapsody" Self-Support Web Site

Apple has set up a new web site to help you learn as much as possible about OpenStep 4.2, the software on which Rhapsody, Apple's future operating system, will be based. This site provides an informal collection of pointers, references, and starting points for those of you who are using the unsupported "Prelude to Rhapsody" bundle. The Prelude to Rhapsody CD-ROM, which was distributed at this year's Worldwide Developers Conference, is intended to give you a chance to familiarize yourself with the OPENSTEP tools and development environment prior to the Rhapsody Developer Release, scheduled for later this year.

You can find documentation, sample code, installation instructions, and other information at the Prelude to Rhapsody self-support site at <http://devworld.apple.com/dev/prelude.html>.

For pointers to other self-help resources for OpenStep and Rhapsody, check out the following web sites:

- Newsgroups—http://devworld.apple.com/dev/prelude/external_sources.html#Newsgroups
- Installation—<http://devworld.apple.com/dev/prelude/installation.html>
- FAQs—<http://www.next.com:80/NeXTanswers/HTMLFiles/1470.html#1470.html>
- The Mach 4.x Compatibility Guide—<http://www.next.com/NeXTanswers/HTMLFiles/1002.html#1002.html>
- Rhapsody information—<http://devworld.apple.com/rhapsody.html>

- Third-party shareware—<ftp://next-ftp.peak.org/pub/>
- Stepwise—<http://www.stepwise.com>



New Software Releases

Here are some of the new software releases Apple recently announced:

- *MessagePad 2000 System Update 2.1.* This is an update of the Newton operating system that runs on the Apple MessagePad 2000. You can download version 2.1 from the Newton web site at http://newton.info.apple.com/product_info/SW/system_updates.html.
- *Sun's Java™ 3D API specification.* Sun Microsystems has released the beta specification for the Java 3D API for a 30-day public comment period. Sun's Java 3D API is an open-standard, object-oriented interface that extends the Java core language with advanced 3D graphics capabilities. Java 3D, which is scalable and can be layered on top of existing 3D APIs, makes it easier for you to build, render, and control 3D Java applications while optimizing performance. The specification is posted to the Sun web site at <http://java.sun.com/products/java-media>.
- *British Mac OS 7.6.1 Update.* Mac OS 7.6.1 Update is a set of software enhancements that deliver improvements in stability for Macintosh and Mac OS–based computers running Mac OS 7.6. You can download the British Mac OS 7.6.1 Update at the FTP site ftp://ftp.info.euro.apple.com/Apple.Support.Area/Apple.Software.Updates/Worldwide/Macintosh/System/Mac_OS_7.6.1_Update/British/.
- *Mac OS 8 beta 5.* If you are a registered Apple developer, you can download the Mac OS 8 beta 5 release from the Developer World web site. You must enter your Developer World ID to access the “members only” area at <http://gemma.apple.com/bin/login.pl?Tag=/&URI=/GS/index.html>.
- *Button Disabler 1.2.* This updated control panel is used to disable the buttons on the front of the computer so that users cannot adjust the volume or brightness. You can download the update at ftp://ftp.info.apple.com/Apple.Support.Area/Apple.Software.Updates/US/Macintosh/System/Other_System/Button_Disabler_1.2_Info.txt.

- *eMate Classroom Exchange 1.0.* This software allows you to connect one or several eMate devices to a Mac OS computer and transfer information between eMate devices and the computer simultaneously. You can download this software at ftp://ftp.info.apple.com/Apple.Support.Area/Apple.Software.Updates/US/Newton/For_MacOS/Other_Newton_Updates/eMate_Classroom_Exchange.img.hqx.
- *Newton Connection Utilities 1.0.* This software updates Newton Connection Utilities 1.0b6 for Mac OS to the final release, version 1.0. This software is only for MessagePad 2000 and eMate 300 customers who received the 1.0b6 release. You can download a copy of this software at <http://support.info.apple.com/ftp/sw/home.html>. Click on “Apple software and updates,” “Newton,” “For Mac OS,” and “Other Newton Updates.” Find the software by looking for it alphabetically—it is listed as “NCU 1.0 Updater info” and “NCU 1.0 Updater.img.” (We’re sorry for the bothersome instructions, but we can’t seem to access it any other way.)



“WWDC Essentials” at MACWORLD Expo/Boston, August 5 to 8

If you missed Apple’s 1997 Worldwide Developers Conference (WWDC)—or if you need a refresher course on what you learned there—Apple Developer Relations, in conjunction with Mitch Hall Associates (the sponsors of MACWORLD Expo), will be offering nine hours of Mac OS and Rhapsody development sessions during MACWORLD Expo/Boston, August 5 to 8.

This new conference track recaps the technical highlights of the May 1997 WWDC. To participate, you can register online for “Package One” at the MACWORLD Expo web site <http://www.mha.com/macworld/mwbos97/registration.html>. Registering for the conference package entitles you to admission to the trade show (which includes access to Developer Central, the developer tools area), conference tracks, half-day tutorials on August 5, and

keynote sessions; the cost of Package One is U.S. \$170 in advance, U.S. \$195 at the door. Apple will also be hosting special Rhapsody development labs during MACWORLD Expo.

The current line-up of sessions follows.

Apple’s Hardware Roadmap for Developers

Session 39, Wednesday, August 6, 1:00 to 2:15 P.M. Speaker: Richard Schlein.

Apple makes the fastest personal and notebook computers in the world. For a preview of what’s next, come to this session.

Apple’s AV Technologies for Developers

Session 59, Wednesday, August 6, 2:30 to 3:45 P.M. Speaker: Steve Bannerman.

Get the details on the AV technologies implemented on Macintosh hardware. At this session you can learn how to take advantage of these capabilities to create new solutions.

WebObjects: A Technical Introduction

Wednesday, August 6, 4:00 to 5:15 P.M. Speaker: Wiley Hodges.

WebObjects is an open platform for building and deploying dynamic network applications. Learn the basics of designing and implementing applications for the web using WebObjects, as well as tips and tricks used by the WebObjects “masters.”

Apple’s Internet and Web Technologies for Developers

Session 69, Thursday, August 7, 11:30 A.M. to 12:45 P.M. Speaker: Shaan Pruden.

Apple, together with its developers, is uniquely positioned to take advantage of the explosive growth of the Internet. In this session, you’ll find out how Apple is leveraging its strengths to provide the best platforms for Internet/intranet development.

Mac OS Runtime For Java

Session 79, Thursday, August 7, 1:00 to 2:15 P.M. Speaker: Shaan Pruden.

In this session, you’ll discover how to combine the strengths and power of Java with the richness of the Macintosh environment. This session will discuss Mac OS Java directions, JDK 1.1 support, accessing the Toolbox from Java, and embedding Java content in applications.

Rhapsody Technical Overview for Developers
Session 99, Thursday, August 7, 2:30 to 3:45 P.M.
Speaker: Ken Bereskin or Leon Baranovsky.

Rhapsody is Apple's powerful new operating system that features a state-of-the-art operating system foundation, great support for the Mac OS, an advanced look and feel, the Yellow Box object-oriented programming model based on OpenStep and Java, and best-of-class multimedia with QuickTime Media Layer. In this session, you'll learn about the Rhapsody technical strategy, along with the business opportunities that the cross-platform Yellow Box makes possible.

Java in Rhapsody

Session 89, Thursday, August 7, 4:00 to 5:15 P.M.
Speaker: Leon Baranovsky.

You've heard the Java hype; now find out how Apple is embracing Java in Rhapsody. Learn how Rhapsody allows you to leverage standard Java libraries and additional Apple technologies.

Rhapsody's Core Operating System

Session 109, Friday, August 8, 11:30 A.M. to 12:45 P.M. Speaker: John Signa.

Rhapsody provides a robust, high-performance operating system foundation designed to support the needs of Blue Box and Yellow Box applications. Learn the basics of this operating system platform through the architecture and design of the kernel, run-time environment, plug-and-play I/O system, and flexible file system.

Yellow Box Development

Session 119, Friday, August 8, 1:00 to 2:15 P.M.
Speaker: Jordan Dea-Mattson.

The Yellow Box provides a rich platform suitable for building next-generation applications across multiple platforms. The Yellow Box is also a great platform for developing Java-based products. Learn how you can enjoy huge increases in productivity by exploiting the rich collection of prebuilt objects and rapid application development made possible by Rhapsody's Yellow box.



Apple Unveils New Color Ink-Jet Printer Line

Apple recently unveiled three new color ink-jet printers for home, education, and small-to-medium business settings. The entry-level Color StyleWriter 4100 offers Mac OS customers a high-quality, affordable, four-color printing solution. The midrange Color StyleWriter 4500 provides Mac OS users with high-quality, photorealistic color and multimedia printing capabilities. The Color StyleWriter 6500 offers professional quality ink-jet printing capabilities to both Mac OS and Windows users—a first for Apple. Apple also introduced the StyleWriter EtherTalk Adapter II, an easy-to-use printer networking device that lets Mac OS users share Apple's color ink-jet printers on an EtherTalk network.

The new ink-jet line is the product of a recent OEM (original equipment manufacturer) licensing agreement with Hewlett-Packard (HP), the industry's largest ink-jet printer manufacturer. The agreement provides Apple access to state-of-the-art printer engine technologies. The products also incorporate printer driver technology licensed from Palomar Software, technology that HP had previously used in its own printer drivers.

"It is the continuing goal of Apple's Imaging group to provide customers with best-of-class products that use state-of-the-art imaging technologies, and with this new line of ink-jet printers, I think we did just that," said Ron Vitale, director of Imaging at Apple. "The agreement with HP gives Apple access to printer engine technology that, when combined with Apple's commitment to ease of use, quality, compatibility, and technologies such as ColorSync and Color PhotoGrade, enables us to provide our customers with high-performance, feature-rich products at competitive prices."

"We are very pleased to be working with Apple in providing the best ink-jet printer solutions available to customers of the Mac OS," said Robert E. Granger, Apple business program manager for HP's Consumer Products Group. "We believe this new product line represents the start of a long-term business relationship that will benefit Apple and HP, as well as Apple customers looking for high-quality ink-jet printer products."

Color StyleWriter 4100

The Color StyleWriter 4100 provides easy-to-use, affordable four-color printing. Apple expects this printer to be the lowest-cost Mac OS-based printer available at time of introduction. It is sold complete with printer driver software, high-capacity black and color ink cartridges, and a serial cable included. The Color StyleWriter 4100 offers laser-quality black text at resolutions up to 600 x 600 dpi, and it can print up to 4 pages per minute in black and up to 1.5 pages per minute in color. Paper-handling features are versatile enough to accommodate a wide range of paper types (up to 100 sheets, 50 transparencies, 20 envelopes, or 30 cards), and the printer also includes a slot for single envelopes.

Color StyleWriter 4500

The Color StyleWriter 4500 features high-quality, photorealistic color and multimedia printing capabilities already installed. It includes Apple's Color PhotoGrade Ink Cartridge, which includes six color inks that allow you to print output in millions of colors, along with the color ink cartridge and black ink cartridge. The Color StyleWriter 4500 offers a resolution of up to 600 x 300 dpi for Color PhotoGrade on plain paper and up to 600 x 300 dpi for color on coated, glossy paper or transparencies; it can print laser-quality black text at up to 600 x 600 dpi on plain paper. It also provides print speeds of up to approximately 4 minutes per page for Color PhotoGrade, 1.7 pages per minute for color, and 5 pages per minute for black. It includes all of the versatile paper-handling features of the Color StyleWriter 4100, as well as the unique ability to print 20-page continuous-feed banners.

Color StyleWriter 6500

Representing a new product category for Apple, the Color StyleWriter 6500 provides complete, high-performance, versatile color printing capabilities for both Mac OS and Windows users in education and small-to-medium business environments. The Color StyleWriter 6500 can print up to eight pages per minute in black, and up to four pages per minute in color. It provides resolutions of up to 600 x 600 dpi for black and up to 600 x 300 dpi for color, and uses Apple's ColorSync technology to provide consistent high quality—even when using plain paper. It offers laser-quality black printing that is also water-resistant and light-resistant for more reliable archival storage of

documents. It can handle up to 150 sheets, 50 transparencies, 30 cards, 25 labels, and 15 envelopes.

"Apple's new line of ink-jet printers focuses well on its targeted customer segments," said Alyson Frasco, senior analyst at IDC Research. "Industry trends are moving toward affordable, color ink-jet solutions with laser-quality output, and Apple seems to be keeping up with that trend."

Printer Software and

Third-Party Software Bundles

The Color StyleWriter 4100 and Color StyleWriter 4500 provide printer software that includes a custom paper size editor, print preview, manual two-sided printing, and back-to-front printing capabilities. Printer software for the Color StyleWriter 4500 also includes Color PhotoGrade for photorealistic and banner printing capabilities. The Color StyleWriter 6500 includes new Mac OS driver software based on the LaserWriter 8.4 graphical user interface, which features visual selection feedback, desktop printing, two- or four-up pages, and watermarks. The Color StyleWriter 6500 also includes software drivers that support computers running Windows 95 or Windows 3.1. All printers are optimized for Apple's ColorSync technology, a state-of-the-art color-matching system that provides the closest possible match between the color on the monitor and the color that comes out of the printer.

Each printer also comes with a host of bundled software. The Color StyleWriter 4100 includes Mindscape's PrintMaster Gold, Nova's Art Explosion Sampler, and Bitstream TrueType fonts. In addition, the Color StyleWriter 4500 includes PictureWorks' PhotoEnhancer Plus photo-editing software and Kaetron's Stencil It! and Web It! packages. The Color StyleWriter 6500 includes all the above packages with the exception of PictureWorks' PhotoEnhancer Plus, but adds business software, Now

Software's Now Up-to-Date and Now Contact, and Nolo Press's Personal Record Keeper.

Availability and Price

All three Color StyleWriter printers and the StyleWriter EtherTalk Adapter II are expected to be available through Apple authorized resellers worldwide; pricing and availability may vary per region. The Color StyleWriter 6500 is available now, in the United States, at an estimated retail price ranging from \$450 to \$480. Both the Color StyleWriter 4100 and Color StyleWriter 4500 are expected to be available in the United States in July 1997 at estimated retail prices ranging from \$230 to \$250 and from \$330 to \$350, respectively. The StyleWriter EtherTalk Adapter II is expected to be available in the United States in August 1997 at an estimated retail price ranging from \$180 to \$200.

You can find more information on Apple's printers at <http://imaging.apple.com/printers/pr-main.html>.



Apple Customers Win Smithsonian Technology Awards

Two applications based on important Apple technologies walked away with awards at the ninth annual Computerworld Smithsonian Awards (CWSA) held on June 9 and 10 in Washington, D.C. Cosponsored by *Computerworld* and the Smithsonian's National Museum of American History, the CWSA program recognizes outstanding achievements in real-world application of information technologies to the general benefit of society.

The Quality Care Tracking Project, developed by InterMountain Health Care (IHC) of

Salt Lake City, was the winner in the Medicine category. IHC developed its winning application using Apple's WebObjects software. The Quality Care Tracking Project links quality improvement teams with a vast storehouse of medical and other related data, and provides instant communication to a network of 24 hospitals, more than 70 clinics, and 750,000 insured individuals.

The Virtual Alphabet Book, a CD-ROM/Internet application developed by Susan Abdulezer of New York City, was the winner in the Education and Academia category. Abdulezer utilized Apple Media Tool, QuickTime, and QuickTime VR tools to build her winning application. The Virtual Alphabet Book presents the traditional alphabet in a nontraditional, interactive way, using sign language, Braille, Soundscapes, and virtual objects. While the application is designed for all children, it is geared especially toward those with learning disabilities.

Apple Media Tool, QuickTime, and QuickTime VR proved essential to Abdulezer's project, because, as she explained, "I've always been more interested in developing concepts and ideas than programming. That's the real significance of this technology: It's just me, an Apple computer, software, peripherals, and some good ideas. These tools give people really powerful ways to express themselves and make a significant difference."

Also nominated by Apple for this year's awards were The Sharper Image for its WebObjects online catalog system and CyberSlice for Cyberslice, its online marketplace program, in the Business and Related Services category; Colorado-based KN Energy for the application KN's Energy Market, developed with WebObjects, in the category of Environment, Energy, and Agriculture; and Abita Springs Elementary School for its Hypertext Folklife Curriculum Project in the Education and Academia category. ♣

Technology

CD HIGHLIGHTS

Tool Chest Edition, August 1997

This month's CD features a little bit of everything. It's a smorgasbord of sample code, software development kits, updates, seeds, developer notes, and screen savers—with Mac OS 8 as the main entree.

Mac OS 8 System Software

This U.S. version of Mac OS 8 offers a dramatically improved user experience and the most complete and easy-to-use Internet services. It will run on any 68040 or PowerPC-based Macintosh compatible with 12 or more megabytes of physical RAM. Among its features are a multi-tasking, PowerPC-native Finder, various user-interface improvements, and better integration of Internet services.

Macintosh PowerBook 2400c

This developer note describes the features of the Macintosh PowerBook 2400c, a new computer based on the same architecture as the PowerBook 3400 but smaller and lighter.

JSaver

JSaver is a screen saver module for Berkeley Systems After Dark that uses the JManager API (application programming interface) to run Java applets as screen saver modules.

Universal Interfaces 3.0 and Libraries

This folder contains the 3.0 Universal Interfaces that integrate all the latest Mac OS headers into one release. This release has a consistent style that, among other things, allows the interface files to work across platforms.

Display Manager Development Kit

The Display Manager Development Kit has all the information you need to begin taking advantage of the Display Manager API.

Sample Code

- `ControlBackground` is a simple code sample that demonstrates how to temporarily alter

an entry in the window color table so that a control draws with a particular background color without affecting any other drawing.

- `OffScreenControlUpdate` is a simple code sample that demonstrates how to draw controls into an off-screen GWorld so that you can draw them back to the screen without causing flickering.

- `SetDeskCPatDemo` is a simple code sample that demonstrates how to call `SetDeskCPat` properly.

- `SetWindBackColor` is a code sample that demonstrates how to programmatically set the background color of a window without causing the screen to flicker.

- `Sound PreMixer Effect` is a code sample that shows how to make a pre-mixer component, which allows you to examine or modify the sound data for a particular sound channel before it is mixed with the sound data from all the other currently playing sound channels.

ColorSync SDK

This SDK folder includes ColorSync 2.x sample code, documentation, ColorSync 2.1.2 libraries, interfaces, sample profiles, and extensions—and a Goodies folder that contains cool applications such as ColorSync Profile Inspector, CreateMonitor Profile, and Drop • ColorSyncProfile.

Color Picker SDK

This SDK package includes the Color Picker 2.1 extension, new headers, 2.1 sample code, and updated Color Picker documentation.

Async Driver Tester

This is a simple utility for testing whether a driver supports asynchronous reads. The Async Driver Tester shows how to "walk" the driver table and relate a volume to a disk driver.

Mac OS Runtime for Java 1.5b1 and MRJ 2.0 Early Access Release 1

Mac OS Runtime for Java (MRJ) 1.5b1 implements version 1.0.2 of Sun's Java. This beta software is a major upgrade to MRJ 1.0.2 and significantly improves the performance of Java graphics on the Mac OS. It includes Apple's just-in-time (JIT) compiler, which provides further speed improvement.

MRJ 2.0 Early Access Release 1 is Apple's implementation of the Java Development Kit (JDK) 1.1 Java Runtime and Class Libraries. This package contains a prerelease, "as is" version of MRJ 2.0, which will allow you to get a jump start on developing JDK 1.1 Java applications, applets, and class libraries.

PC Card SDKs

This package contains SDKs for PC Card Manager 2.0 and 3.0. PC Card Manager 2.0 supports PC Card and Socket Services on 680x0 PowerBook computers (520, 540, and 190) and some PowerPC processor-based PowerBook computers (5300 and 1400 series). PC Card Manager 3.0 supports PC Card and Socket Services on PowerPC processor-based PowerBook computers that have a PCI architecture. As of press time, this includes the PowerBook 3400 and PowerBook 2400 series.

PCI Sound Input Driver

This package shows you how to make a PCI sound input driver for your hardware rather than the classic 680x0-only sound input driver. You'll learn how to register a driver with the Sound Input Manager and respond to the Sound Input Manager.

Zoomed Video Driver v1.0 SDK

This SDK allows you to build a driver for your Zoomed Video PC-Card. It contains the Quick-Time video digitizer used to enable Zoomed Video.

—The Developer CD Team

Directory of Online European Market Resources

The following is a list of online market resources for statistical and economic data on European countries. The information in this article was compiled by Louk Janssen, Developer Communications and Events manager for European Developer Relations. You can send comments, suggestions, and ideas to Louk by e-mail (ljanssen@apple.com).

General Information About Europe

CIA World Factbook

The best source of general statistical background information on subjects such as geography, people, government, economy, transportation, and communications. Just click on the country of your choice.

<http://www.odci.gov/cia/publications/nsolo/factbook/eur.htm>

The World Bank

An excellent source for general information on world economies by region.

<http://www.worldbank.org/html/extdr/offrep/ecal/ecab.htm>

Organization for Economic Cooperation and Development (OECD)

Another good source for general economic information by region.

<http://www.oecd.org/statlist.htm>

United Nations Website Search

A search engine that provides country profiles, in addition to an avalanche of other information.

<http://www.un.org/search/>

National Statistics and Trends in Europe

STAT-USA/Internet

A subscription service of STAT-USA (U.S. Department of Commerce) that is an

extensive source for government-sponsored business, economic, and trade information.

<http://www.stat-usa.gov/>

National Trade Data Bank (NTDB)

The U.S. government's most comprehensive source of international trade data and export promotion information.

<http://www.stat-usa.gov/BEN/databases.html>

European Information Technologies Observatory (EITO) 1997 Figures and Tables

A comprehensive and up-to-date overview of information and communications technology in European markets.

<http://www.fvit-eurobit.de/pages/eito/eito008.htm>

INTECO in Europe

A worldwide organization that specializes in research centering on consumer behavior and preferences in the interactive technology market.

<http://www.inteco.com/euindex.html>

Europa (the European Union)

A good source for political, economic, social, and financial information on 15 European member countries.

<http://europa.eu.int/>

EuroStat

A statistical information service of Europa.

<http://www.europa.eu.int/en/comm/eurostat/eurostat.html>

PC Europa

This market research firm, which specializes in the European personal computer channel, just published a database on European personal-computer channel distributors. The database contains breakdowns of distributor sales, e-mail addresses, 1996 sales figures, 1997 forecasts, product lists, and staff details on

Europe's top 800 distributors. The database is available in floppy disk and hardcopy formats.

<http://www.pceuropa.co.uk/distributors/index.html>

Statistics on Specific Countries

(*Note:* Many of the following sites provide some of their services in local languages.)

Belgium

<http://www.besig.com/infotech.htm>

France

National Institute of Statistics and Economic Studies (INSEE)

<http://www.insee.fr/va/index.htm>

Italy

<http://www.istat.it/>

Netherlands

<http://www.cbs.nl/indexeng.htm>

Spain

<http://www.ine.es/~joseba/espa/escpifin.htm>

Sweden

Department of Economic Statistics

<http://www.hhs.se/stat/>

B2B Marketing Research

<http://www.b2b.se/english.htm>

United Kingdom

Government Statistical Service (GSS)

<http://www.ons.gov.uk/ukinfigs/index.htm>

Foreign Trade Agencies

Austria

Austrian Federal Economic Chamber

http://www.wk.or.at/aw/aw_intl/index.htm

Belgium

Belgian Foreign Trade Board

<http://www.obcebdbh.be/>

Belgian third parties in the commercial software industry

<http://www.obcebdbh.be/en/Pubblic/122.html>

Netherlands

Ministry of Economic Affairs (EVD)

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

United Kingdom

CCTA Government Information Service (GIS)

<http://www.open.gov.uk/>

International Monetary Fund (IMF)

<http://www.imf.org/>

European Bank for Reconstruction and Development (EBRD)

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

Personal Computing News and Analysis

Gartner Group

<http://www.gartner.com/newsletters/pc.html>

DEMO Web

<http://www.pcletter.com>

Infoworld Publishing

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

PC Europa Newsletter

<http://www.pceuropa.co.uk/europa/>

IM Europe

A service of DGXIII of the European Commission, this site presents information on multimedia content and electronic information services.

<http://www.echo.lu>

Marketing Services

Geoffrey Moore

Geoffrey Moore's books *Crossing the Chasm* and *Inside the Tornado* are designed to help companies understand and take advantage of technology adoption life cycles. (He has also written several excellent *Apple Directions* articles.) To subscribe to Moore's mailing list, send an e-mail message to listserv@umslvma.umsl.edu. In the body of the message, type "subscribe crosschs <first-name last-name >"; leave the subject line blank.

<http://www.chasmgroup.com/moore.html>

MediaMap

Software and media information services for the public relations industry.

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

Master-McNeil

Product and company naming and nomenclature systems.

<http://www.naming.com/naming.html>

McLaren Associates

Software demos for sales and user trainings.

<http://www.teleport.com/~tmclaren/>

Jamison/Gold Interactive Agency

Electronic selling, tips, techniques, and online contact information.

<http://www.jamisongold.com/publishedworks.html>

Going Global 1996 Multimedia Marketing and Distribution

A limited-edition, 225-page white paper report by the Multimedia Development Group (MDG) and Apple Computer on 26 interactive media markets around the world.

<http://www.dnai.com/~dareid/mdg/gg96two.html>

The Mac Zone

Online distribution channels.

<http://www.maczone.com>

Market Access Information on Apple Web Sites

Apple Developer World Web Site

The following marketing guides, particularly those for France, Germany, and the United Kingdom, provide links to local publications' web pages that are sources of information about products and users, channels and buyers, events, and market trends.

Europe

<http://devworld.apple.com/con/intlmarkets/europe.html>

France

<http://devworld.apple.com/con/intlmarkets/france.html>

Germany

<http://devworld.apple.com/con/intlmarkets/germany.html>

United Kingdom

<http://devworld.apple.com/con/intlmarkets/uk.html>

General Regional Profiles

<http://devworld.apple.com/mkt/marketinfo.shtml>

Apple Technology Group (ATG)

The group that oversees development of new products and technologies.

<http://www.research.apple.com>

Apple Media Program (AMP)

The program that commissions and licenses research for members of the interactive media industry.

<http://amp.apple.com/resources/marketresearch.html>

<http://www.amp.apple.com/resources/marketresearch.html>

1996 Macintosh User Profile

An *Apple Directions* special marketing report.

<http://devworld.apple.com/mkt/informed/appledirections/aug96/userprofile.html>

Apple Facts OnLine

<http://product.info.apple.com/productinfo/datasheets/>

Marketing Using Internet Technologies

<http://www.enterprise.apple.com/inetcentral/solutions/marketing.html>

Apple Internet/Intranet Resources

<http://www.enterprise.apple.com/inetcentral/resources.html>

Mac OS Software and Hardware Guide

<http://www.macsoftware.apple.com> ♣

Note: Mention of non-Apple resources does not in any way imply an endorsement by Apple Computer, Inc.

Internet Resources

- Newton Subsidiary—<http://product.info.apple.com/pr/press.releases/1997/q3/970522.pr.rel.newton.html> and http://www.newton.apple.com/announce/announce_QnA.html
- Newton, Inc. at PC Expo—<http://product.info.apple.com/pr/press.releases/1997/q3/970616.pr.rel.newton.html>
- OpenStep classes—<http://www.Agiliti.com/courses/NeXTCourseList.htm> or <http://www.tensor.com>
- PC Expo—<http://product.info.apple.com/pr/press.releases/1997/q3/970617.pr.rel.pcxpo.html>
- Computer Intelligence—<http://www.ci.zd.com>
- PowerBook site—<http://www.powerbook.apple.com>
- *Business Week* on design awards—<http://www.businessweek.com/1997/22/b35298.htm>
- *MacUser* on Power Macintosh vs. MMX—http://www1.zdnet.com/macuser/mu_0797/features/mmx.html
- Prelude to Rhapsody—<http://devworld.apple.com/dev/prelude.html>
- Rhapsody-related newsgroups—http://devworld.apple.com/dev/prelude/external_sources.html#Newsgroups
- OpenStep installation—<http://devworld.apple.com/dev/prelude/installation.html>
- NEXTSTEP FAQ—<http://www.next.com:80/NeXTanswers/HTMLFiles/1470.html#1470.html>
- Mach 4.x Compatibility Guide—<http://www.next.com/NeXTanswers/HTMLFiles/1002.html#1002.html>
- Rhapsody information—<http://devworld.apple.com/rhapsody.html>
- OpenStep-related shareware—<http://next-ftp.peak.org/pub/>
- Stepwise—<http://www.stepwise.com>
- MessagePad 2000 System Update 2.1—http://newton.info.apple.com/product_info/SW/system_updates.html
- Sun's Java 3D API specification—<http://java.sun.com/products/java-media>
- British Mac OS 7.6.1 Update—[ftp://ftp.info.euro.apple.com/Apple.Support.Area/Apple.Software.Updates/Worldwide/Macintosh/System/Mac_OS_7.6.1_Update/British/](http://ftp.info.euro.apple.com/Apple.Support.Area/Apple.Software.Updates/Worldwide/Macintosh/System/Mac_OS_7.6.1_Update/British/)
- Mac OS 8 beta 5—<http://gemma.apple.com/bin/login.pl?Tag=/&URI=/GS/index.html>
- Button Disabler 1.2—ftp://ftp.info.apple.com/Apple.Support.Area/Apple.Software.Updates/US/Macintosh/System/Other_System/Button_Disabler_1.2_Info.txt
- eMate Classroom Exchange 1.0—ftp://ftp.info.apple.com/Apple.Support.Area/Apple.Software.Updates/US/Newton/For_MacOS/Other_Newton_Updates/eMate_Classroom_Exchange.img.hqx
- Newton Connection Utilities 1.0—<http://support.info.apple.com/ftp/swhome.html>
- Apple printers—<http://imaging.apple.com/printers/pr-main.html>
- QuickTime site—<http://quicktime.apple.com/dev/>
- QuickTime 2.5 Developer's Guide—<http://quicktime.apple.com/dev/devsw.html>
- QuickTime development site—<http://www.quicktime.apple.com/dev/>
- QuickTime 3.0 types and formats—<http://quicktime.apple.com/qt30/specsheet/>
- QuickTime 3.0 press release—<http://product.info.apple.com/pr/press.releases/1997/q3/970408.pr.rel.quicktime.html>
- QuickTime Sprite Export Xtra—<http://quicktime.apple.com/dev/sprite.html>