



Apple Design & Publishing Market Guides

Apple Internal Distribution Only



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FOR INTERNAL APPLE DISTRIBUTION ONLY

These guides are reference tools designed to help you understand and sell to customers in Design and Publishing markets. Each guide describes a single Design & Publishing solution, and then addresses “supply chain” configurations, business considerations, typical problems, questions and objections for the major market categories most in need of the solution.

The Design & Publishing Market Guides are works-in-progress, as our solutions and market environments are always changing. We welcome your additions and ideas for improvement to this knowledge base. Please direct comments and contributions to David Pease, dpease@apple.com, 4-5885.

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Using the Design & Publishing Market Guides

If you're new to the D&P markets, the guides will give you insight into customers' needs and concerns, and the infrastructure of their businesses—a base-level education on the key market environments for Apple Design & Publishing solutions.

Feel free to excerpt appropriate portions of the guides for your own use in:

- customer presentations
- customer proposals
- creative briefs
- collateral
- channel and partners communications
- solution training
- marketing plans

Improving on the Market Guides

If you're an expert in any or all of these solutions, *pick up a red pen!*

- correct or qualify our claims
- add Apple benefits, especially product-related ones
- add resources (books, articles, web sites, collateral, presentations) both within Apple and outside the company
- specify “Apple-favorable” products, developers, and associations for each solution or market segment
- provide answers to the customer questions and objections
- identify and describe competitive threats

Return your marked up version to David Pease, MS 303-1DP.

Dynamic Media

Solution overview

In the fifteen years since Apple and the MIT Media Lab pioneered the concept of media-rich, interactive communication enabled by personal computers, uses of digital dynamic media have grown increasingly widespread. As Nicholas Negroponte wrote in 1993, “Ultimately, multimedia will be as obvious as air; namely, you will be aware of it only when it is missing.”¹

Dynamic media in business applications

For business applications, use of dynamic media enhances the impact of information and facilitates learning and retention. Not surprisingly, business needs drive—and corporate budgets fund—the great majority of dynamic media applications today. Key participants in the corporate “dynamic media ecosystem” include: designers, communications, and training professionals; specialists in a particular medium such as photography, videography, or music; and so-called “new media producers,” many of whom have migrated from another media-related specialty.

Communications professionals and new media specialists, staunch Apple loyalists for the most part, have embraced digital dynamic media because:

- They can create and deliver compelling, immersive, interactive experiences
- They can combine video, audio, text, graphics, animations and 3D into a seamless integrated message for either “push” (e.g. CD-ROM presentation) or “pull” (e.g. kiosk or webcast) distribution
- They can marry extensive creative possibilities with tight creative control—from conception, to capture, to editing, to distribution and viewing
- They enjoy greater control over the editing process and, with QuickTime 3, can postpone quality/size trade-offs until just prior to delivery
- They can adapt static or dynamic images for re-expression in other environments, and re-purpose media files for multiple uses in multiple formats
- They can execute engaging new types of content without their imagination being constrained by their tools

What’s more, with QuickTime 3-compatible tools, creative professionals can enjoy the benefits of an integrated dynamic media workflow no matter what their final delivery destination—tape, film, an Internet Webcast, a PowerPoint presentation, or the new DVD format.

¹ Nicholas Negroponte, “Foreword: The Message Is the Medium,” in *Mainstream Multimedia: Applying Multimedia in Business*, Roger L. Fetterman & Satish K. Gupta, Van Nostrand Reinhold, 1993.

*Dynamic Media Solutions**Dynamic media in consumer applications*

For consumer applications, where parents, children, and/or students serve as creators and producers, use of dynamic media provides similar benefits. Dynamic media elements can help consumers tell a story, dramatize a work of imagination, or record important family experiences.

Dynamic media in business communications

Although dynamic media will play a slowly growing role in the day-to-day communications of business people who are not graphics professionals, such applications have so far been impeded by two factors: the complexity of working with dynamic media, and the constraints on delivering it across computer platforms. Creating dynamic media components is perceived as too difficult and expensive to justify its potential for improving “casual” business communications.

For the time being, therefore, most business people will use dynamic media only for simple point-and-shoot or cut-and-paste applications—for example, for shooting “talking head” videos, taking digital photographs, or incorporating clip media from in-house creative services or outside commercial providers. They’ll distribute their work primarily as PowerPoint or browser-based presentations projected from a laptop computer or downloaded from corporate Intranets. Dynamic media won’t take off in business communications until working with it is easier and business people are willing to invest in the skills required to use it effectively.

Trends and obstacles to adoption

By providing a ubiquitous, relatively low-cost distribution medium, the Internet has significantly accelerated the adoption rate of dynamic media. Nonetheless, at least two additional, related obstacles to widespread adoption remain—how long leading Macintosh and Wintel developers take to support QuickTime 3 within their products, and how quickly the installed base of mainstream computers becomes truly multimedia-capable.

Not surprisingly, given Apple’s longstanding commitment to multimedia, Apple’s own installed base is not the constraining factor—the large installed base of “multimedia-deprived” Wintel computers is. As a simple example, even though sound output has been a feature of every Macintosh sold in the last several years, the same is not true of Wintel products. In fact, many Wintel machines have been sold without graphics accelerators, sound cards, internal or external speakers, and/or CD-ROM drives. Even today sound remains an optional feature of many mainstream computers.² Because multimedia playback capabilities are not yet pervasive, anyone considering communicating with dynamic media must still carefully analyze their audience’s technical capabilities.

² For example, see the March 1998 Business Catalog from Dell Computer.

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*Clarifying what QuickTime 3 is and does—
a PostScript-equivalent for dynamic media*

Variously billed as a component software architecture, a media layer, a video compression technology, a file format, a browser plug-in, and so on, QuickTime 3 is possibly best positioned as a “universal container” for integrating time-based and non-time-based media. But even this term, “universal container,” bears explanation. When it comes to dynamic media, what does “universal” mean? What, in this context, is a “container? And why would a customer want one?

Perhaps the best way to explain this concept—especially to customers with print production experience—is by analogy to how the PostScript page description language facilitated the desktop publishing revolution.

In the late 70s and early 80s, prior to the Macintosh, the LaserWriter, and Aldus PageMaker, print production relied on a mixture of digital and analog technologies such as proprietary computer systems (for typesetting and image manipulation) and photographic devices (such as the photostat camera), along with labor-intensive manual processes (such as building the camera-ready mechanical) to bridge the numerous, wide gaps between these technologies. Prepress vendors such as Scitex and Agfa developed sophisticated, expensive solutions built exclusively from their own hardware and software components. As a result, an image scanned and color-corrected on a Scitex system could not easily be integrated into an ad composed on an Agfa system, and vice versa. Print production took lots of people, lots of time, and lots of money.

Enter PostScript, a “universal” or “device-independent” language for describing the contents of printed pages. PostScript pages and their ingredients could be built in any PostScript-compliant application on any platform (Adobe Illustrator, PageMaker, QuarkXPress, etc.; Macintosh or Windows), and output on any PostScript-compliant output device (LaserWriter, Linotronic, etc.). PostScript enabled print production to evolve from a series of discontinuous tasks into an increasingly integrated, fluid, efficient, and hence more cost-effective, workflow. As the *lingua franca* of print publishing, PostScript put formerly expensive specialty tools in the hands of a much wider range of users, resulting in lowered cost and increased demand for printed communications.

Like print production in the early 80s, dynamic media production—especially film and video—has until very recently relied on the use of expensive proprietary workstations composed of dedicated hardware and software components. Likewise, it has been plagued by a veritable Babel of proprietary OS technologies and file formats for working with and describing multimedia components. The result? Creating dynamic media products has been expensive and confusing, with a frustratingly low ratio of creative time to technical production and troubleshooting time.

Just as PostScript served as the “universal container” that transformed print publishing, QuickTime is the “universal container” or *lingua franca* of dynamic media. By using QuickTime products to develop and distribute time-based communications, customers can enjoy much simpler, faster, and lower-cost creative and production workflows (“drag-and-

Dynamic Media Solutions

drop media integration”), along with trouble-free cross-platform delivery. Wintel-based producers can use QuickTime 3 for Windows to liberate themselves from the confusing proliferation of Microsoft multimedia technologies and file formats—and reach virtually any audience, no matter what their computer or Internet browser.

This chapter outlines the business considerations and implications of dynamic media solutions for people in corporate and marketing communications, creative services; new media professionals and Web developers; as well as consumers, prosumers and semi-pros who are beginning to explore digital video and simple dynamic media projects.

Corporate & marketing communications, corporate creative services

Market overview

Making the case for dynamic media to corporate customers isn't hard in today's clamorous communications environment. Few customers will disagree with propositions such as these—that use of dynamic media can:

- Yield communications, from kiosks to web sites, that more easily capture and retain consumers' attention;
- Effectively convey complex technical or subtle behavioral information (installation procedures, selling techniques, etc.);
- Support “foolproof” guidance for consumer self-help applications; and so forth.

The real challenge lies not in selling multimedia *per se*, but in using QuickTime 3 (and all the rest of Apple's treasures, from the Mac OS to the G3 processor) to make the case for the Macintosh as the premier platform for authoring, delivering, and “consuming” dynamic media content. This requires communicating clearly the benefits of QuickTime—from a strategic, business perspective rather than a tactical, technical perspective. For print customers especially, the QuickTime-as-the-PostScript-of-dynamic-media analogy should be readily understood and appreciated.

Most customers accept that using multimedia makes good communications sense. The case for Apple dynamic media solutions is even stronger when linked to popular business trends, such as:

- *Integrated marketing communications.* QuickTime 3 yields efficient, scalable output from broadcast to webcast. Capture and maintain the highest quality video possible, then “downsample” as needed for delivery on TV, videotape, CD-ROM, or the web.
- *1:1 marketing.* Economically incorporate QuickTime dynamic media elements customized to individual customers' needs and preferences, served up with the support of WebObjects technology.
- *Digital brand-building.* Leverage QuickTime 3 and ColorSync in powerful communications that reinforce your brand consistently, no matter where or how it's reproduced.

Marketing and corporate communications are obviously not the only potential corporate buyers of multimedia products. Although not covered in detail in this chapter, corporate training and general intra-company communications are two additional activities that can benefit from strategic use of dynamic media.

*Dynamic Media Solutions***Dynamic media creative and production partners**

Following are the types of companies and individuals who may interact with corporate / marketing communications staff as creative or technical resources, and who may therefore affect or be affected by decisions related to the use of dynamic media. While these vendors may influence or unilaterally make particular decisions about file formats, etc., the overarching choice of a delivery platform will of course be dictated by the corporate client (e.g. marketing or corporate communications department).

<i>Customer segment or business type</i>	<i>Requirements & business considerations</i>
<ul style="list-style-type: none"> • Design studios involved in design for web, CD-ROM, and/or print (creative partners) • Webmaster and other web-related technical resources (internal or external) • <i>[For a fuller discussion, see the later section of this chapter on New media producers]</i> 	<ul style="list-style-type: none"> • Create and manage production of dynamic media components for distribution over the Web and/or CD-ROM • May also provide integrated collateral design and production • Cost-effectively deliver components that meet all client aesthetic and technical requirements • Provide resourceful, flexible technical solutions that enable clients to get maximum cross-media impact from their investment in dynamic media assets • Manage burgeoning quantities of digital media assets • Balance communications ideals with technical constraints to keep web site functioning efficiently and viewers satisfied with pace of interaction
<ul style="list-style-type: none"> • Video/audio production and post-production companies; independent videographers, sound recordists; 2D and 3D animation and special effects resources (independent artists and/or companies) 	<ul style="list-style-type: none"> • Cost-effectively deliver components that meet all client aesthetic and technical requirements • Support client desire to reuse digital assets for different delivery media—without performing costly and time-consuming conversion services • Maximize profit by lowering overhead and leveraging proportionately large investment in capital equipment
<ul style="list-style-type: none"> • Event marketing communications/presentation firms (corporate / creative partners) 	<ul style="list-style-type: none"> • Create and manage production of presentations, event videos
<ul style="list-style-type: none"> • Advertising agencies (creative partners) 	<ul style="list-style-type: none"> • Create and manage production of commercials • Also provide integrated print advertising and collateral design and production

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| <ul style="list-style-type: none"> • Other external communications resources, including direct marketing, PR firms, etc. (creative partners, suppliers) | <ul style="list-style-type: none"> • Leverage dynamic media elements in what they offer their clients, ranging from dynamic, online press kits to CD-ROM-based direct mail |
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Other potential corporate consumers of QuickTime-based dynamic media solutions

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|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • Shareholder/investor relations | <ul style="list-style-type: none"> • Commission high-production-value shareholder presentations, interactive annual reports, etc. |
| <ul style="list-style-type: none"> • Employee training (managerial, sales, technical) | <ul style="list-style-type: none"> • Effectively provide technical and “soft” (behavioral) instruction • Includes traditional CBT (computer-based training) classroom applications as well as newer intranet-distributed training |
| <ul style="list-style-type: none"> • Customer training | <ul style="list-style-type: none"> • Effectively communicate technical information to novice users • Includes traditional CBT as well as newer web-based “virtual classroom” applications |
| <ul style="list-style-type: none"> • Internal employee communications | <ul style="list-style-type: none"> • Bridge time and distance by distributing low-cost, low-production-value video of key players and events |
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Current infrastructure

- Varies widely with size and industry, but most likely consists of networked PCs and/or Macs (particularly in specialty graphics departments) with 16-bit color monitors
- Many large companies have an in-house video post-production facility, which may reside either in corporate training department or in corporate/marketing communication department, or both.
- Small- to mid-sized companies hire outside resources to shoot and produce video
- Minimal MIS support, both political/budgetary and technical, for design- and media production-related, Macintosh-based applications
- Most corporate training departments (as distinct from marcomm and creative services) are heavily invested in Wintel products
- Multimedia project budgets may range from \$20-100,000 for a corporate presentation to \$500,000-\$1,000,000 or more for a corporate web site

*Dynamic Media Solutions***Typical problems**

- Need to create high-impact communications to reach customers and other external audiences who are increasingly overburdened by claims for their attention
- Need to preserve integrity of corporate and product brands as effortlessly, efficiently, and cost effectively as possible
- Need to ensure that corporate and product brands are reinforced through consistent application, no matter where and in what media they appear
- Need to communicate effectively by optimizing digital assets for an increasing variety of production media and delivery channels
- Need to protect against costly digital assets becoming obsolescent because of issues related to file formats, and software and hardware delivery issues—want to invest in “raw materials” with long shelf life
- Need to get maximum return on costly digital assets by using them across media.
- Need to distribute same source material on videotape, web movies, CD-ROM, and frame grabs in printed pieces
- Need to build self-service websites and kiosks that effectively serve customers with different preferences for information formats—visual, aural, and written
- Need to communicate effectively with customers via the web, no matter what computer, browser, or bandwidth they’re using
- Need to employ dynamic media on the web without frustrating viewers by requiring them to download special helper applications or endure long delays and prolonged download times
- Need incremental dynamic media strategies, especially for video—a middle path between expensive, professional-quality and none
- Need to get maximum leverage from current investments in multimedia equipment, extending hardware life through software upgrades
- Need to develop sales and marketing support materials for multi-tiered distribution channels
- Need to develop materials to effectively facilitate complex sales, service, and support operations
- Need to quickly produce and distribute “knock-off” marketing communications pieces (derived from existing digital assets) to take advantage of changing market opportunities

The following problem isn’t confined to corporate or marketing communications departments, but does provide opportunities for the creative use of dynamic media, especially video

- Need to support intra-company communication (and reduce corporate travel expenses) through use of low-cost, low-production-value video (for example, videotaping a product manager’s demo for distribution to the field sales force)

*Dynamic Media Solutions***Benefits of dynamic media solutions**

- Support integrated marketing communications initiatives
- Support corporate and product brand-building efforts
- Create high-impact, cost-effective communications
- Improve cross-media and cross-platform distribution of dynamic media communications

Apple promise for dynamic media solutions*Macintosh as dynamic media authoring platform*

- Use Power Macintosh and PowerBook G3 computers with built-in advanced multimedia features for everything from desktop digital video editing to delivering compelling portable presentations
- Benefit from integration within Mac OS of QuickTime with other Apple technologies, such as ColorSync, that enable efficient workflows resulting in high-quality content

QuickTime 3 as a “universal container”

- Exchange files between different computers using different operating systems without costly and time-consuming file format conversions
- Stretch creative boundaries by being able to integrate and synchronize virtually all types of dynamic and static media
- Develop digital assets within framework that assures maximum portability—across media, authoring platforms, and delivery mechanisms
- Enjoy unparalleled ease of use—drag-and-drop media integration within many popular Macintosh applications

QuickTime 3 for delivering a richer Web experience

- Create web pages containing a wide variety of media components that can be viewed directly in place instead of in a separate playback window
- Retain viewer interest by providing continuous flow of information
- Serve streaming video without special server software
- Enable your customers to view a wide variety of media within all popular browsers without time-consuming and confusing downloading of helper applications
- Enjoy automatic selection of video data streaming rates based on viewer’s connection bandwidth

QuickTime 3 new features for unparalleled flexibility

- Create dynamic media content once, then easily downsample using a wide selection of compatible “codecs” (compression/decompression engines) to yield versions ranging from broadcast quality to VHS tape to CD-ROM to webcast
- Upgrade existing QuickTime movies to embed new Fast-Start feature

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- Create content optimized for the newest QuickTime features without shutting out users of older versions of QuickTime

QuickTime 3 for Windows users

- Exchange files between different computers using different operating systems without costly and time-consuming file format conversions
- Develop digital assets within framework that assures maximum portability—across media, authoring platforms, and delivery mechanisms

Purchase decision influencers

- Directors and managers of marketing communications, corporate communications, product marketing, corporate marketing, investor relations
- Managers of in-house production facilities
- Directors and managers of training departments

Objections, fears, biases, misunderstandings

What to anticipate from prospective customers and purchase decision influencers

We don't use any video because it's too costly, so why do we need QuickTime?

A: Even without the instant impact of video, the cost of producing it has dropped to the point where it's attractive for even home use. Professional-quality, inexpensive technology such as the Macintosh G3, QuickTime, FireWire data transfer and easy-to-use video editing applications allow people to deliver a first-hand perspective. Outside of video, QuickTime is a format that supports still images and audio tracks.

We already have a huge investment in digital assets produced in various Windows formats, like AVI. We can't afford to complicate things even more by introducing yet another file format.

A: QuickTime is the foundation of MPEG4, and it supports over 60 different Macintosh and Windows file formats across video, animation and audio. The short-term answer is that QuickTime is a good tool for moving AVI-based assets to an editable format that is in widespread use on many operating systems. QuickTime is a solution for the complications and confusion surrounding "too many file formats." The long-term view shows QuickTime to be the creative producer's insurance policy for media-rich content. No one can afford to lose content produced and saved in file formats that might disappear from the marketplace. In the past, this has left companies locked out of their own assets. There are more potential costs and pitfalls by not adopting QuickTime.

We produce and deliver our multimedia applications on Wintel machines—why should we care about an Apple technology?

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A: Supporting over 60 file formats on Macintosh and Windows platforms, QuickTime is the creative professional's content insurance policy; work done in QuickTime today on either Macintosh or Windows platforms will be usable and editable in the future. Since its March 30, 1998 introduction, over one million Macintosh and Windows users are now using QuickTime 3.

We don't use any video on our website because our customers and their clients don't have high bandwidth connections and we don't want to frustrate them by making them download large files.

A: QuickTime 3 movies are capable of being streamed so that the user starts seeing video content before the file has completed transfer. QuickTime delivers variable data rate content that is optimized for the bandwidth of the client's connection. This helps reduce waits on the web.

Most of our corporate clients' customers use Microsoft Internet Explorer on Wintel machines, so how can they view QuickTime content?

A: Microsoft Internet Explorer 4.01 supports QuickTime playback from within the application. No plug-in is required. All Windows users should be able to download the current version of Internet Explorer from Microsoft if they don't already have it on their hard drives. Alternatively, you can provide it on CD-ROM products.

Our outside video production house tells us that QuickTime can't provide the quality we need for our professional corporate video.

A: QuickTime delivers full screen, broadcast quality video. HBO, ShowTime and MTV are some user examples. One of its strengths is that a video editor can work from one, maximum resolution file and then downsample to lower resolutions and smaller file sizes once a delivery medium has been determined.

Key customer questions

How will increased use of multimedia in general, and QuickTime in particular, support our business?

A: Effective use of media to deliver your company's marketing messages should expand business by removing customer objections and helping to sell more goods and service faster. Seeing is believing, and QuickTime video is one of the least expensive, easiest to produce, and most ubiquitous formats in the world.

Can we be confident that Apple will continue to support QuickTime?

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A: Apple is highly committed to QuickTime on multiple platforms.

Can we upgrade our existing AVI files for integration into QuickTime-based products?

A: QuickTime 3 supports AVI files among many others, so the answer is "yes," you integrate them into QuickTime products.

What does it take to get into digital video production? Are there incremental strategies for getting involved?

A: Components include a camcorder (FireWire preferred), a fast Macintosh with FireWire or an analog video capture board, non-linear video editing software, and output recorder, an NTSC monitor and QuickTime 3. To produce smaller projects using existing footage, buy a fast Macintosh G3 and a basic non-linear video editor such as Adobe Premiere, Avid Cinema or Radius's EditDV. For those continuing to work with an analog camera, use Iomega's Buz connected to a Macintosh G3 to digitize the signal for editing.

What's the difference between all the file formats? What can QuickTime offer us that other video file formats such as AVI cannot?

A: QuickTime is a multi-layered media architecture; AVI is a file format. QuickTime has been adopted as the standard on which MPEG4 will be based. It delivers the best compromise in compression technology. QuickTime's strength is in its ability to work with many media and file types simultaneously. The differences in file types become transparent to the user.

New media producers

Market overview

Today's "new media producers" need hardly be sold on the idea that "dynamic media" is good for business—after all, this *is* their business. What's more, Apple has been largely responsible for enabling their efforts: Apple has evangelized and supported the new media market exceptionally well, both through products and through services, such as the Apple Multimedia Program.

In many ways, new media producers are Apple's staunchest supporters. These are the customers most likely to embrace cool new features, because such features enable them to create more compelling work for their clients. These are the customers who respond strongly to power-plus-ease-of-use messages, because streamlined workflow means higher profits. And these are the customers who benefit most directly from QuickTime 3's cross-platform parity, because they can continue to enjoy authoring on Macintosh while meeting their clients' cross-platform delivery requirements.

Apple messages with special appeal for this market:

- *Macintosh as the premier platform for integrated dynamic media production.* The Macintosh provides unparalleled power, tight integration between hardware and software, and the widest selection of application software for working creatively and efficiently with dynamic media. In addition, compatibility among Macintosh applications enables an efficient, relatively seamless workflow: a file created in one application can be easily handed off for subsequent production tasks in another. (Most people in this audience are already convinced of this.)
- *QuickTime 3 as a flexible "create once, deliver many times" medium.* With QuickTime 3, content can be created to meet the highest technical requirements of a variety of potential uses. The result (whether video, audio, 3D rendering, etc.) can be stored as raw digital data, then packaged and compressed for distribution channels ranging from broadcast to webcast. This workflow eliminates the need to make limiting quality-versus-size trade-offs early in the production process.
- *QuickTime 3 as the "universal container" or PostScript-equivalent for dynamic media.* The new media team is often a project-based assemblage of specialized contributors using specialized tools. To complicate matters more, new media production typically entails combining ingredients developed in different media, on different platforms, with different applications, and saved in different file formats. QuickTime simplifies this complexity by providing a single format for cross-media, cross-platform file exchange. The less time and money required to overcome technical hurdles, the more there is for creativity (and profit).
- *QuickTime 3 as the universal delivery format.* With full feature parity across platforms and support from all popular Web browsers, QuickTime enables dynamic media content to be distributed efficiently to almost any destination.

*Dynamic Media Solutions***Dynamic media creative and production partners**

Dynamic media production teams are often composed of a combination of internal and external resources brought together for a single client-funded project. Team composition varies with project requirements. Project scope, timetable, and budgets vary widely, from a one-month, \$20,000 corporate presentation to a six-month, \$1 million Web site.

<i>Customer segment or business type</i>	<i>Requirements & business considerations</i>
<ul style="list-style-type: none"> • Corporate brand, marketing, marcomm, and communications managers and departments (client) • [For a fuller discussion, see the earlier section of this chapter on Corporate and marketing communications] 	<ul style="list-style-type: none"> • Commission high-impact communications to reach customers and other external audiences who are increasingly overburdened by claims for their attention • Support integrated marketing communications initiatives by leveraging related and/or derivative media components across media and over time
<ul style="list-style-type: none"> • Corporate training departments (client) 	<ul style="list-style-type: none"> • Commission videos and other instructional media that effectively provide technical and/or “soft” (behavioral) information
<ul style="list-style-type: none"> • “Traditional” graphic designers, illustrators (creative partners) 	<ul style="list-style-type: none"> • Create static elements (illustrations, typographic treatments, etc.) for efficient integration into dynamic media projects
<ul style="list-style-type: none"> • Video/audio production and post-production companies; independent videographers, sound recordists; 2D and 3D animation and special effects resources (independent artists and/or companies) 	<ul style="list-style-type: none"> • May be contracted directly by clients as part of creative/production team, or may be subcontractors to new media producers • Cost-effectively deliver components that meet all client aesthetic and technical requirements • Support client desire to reuse digital assets for different delivery media—without performing costly and time-consuming conversion services • Maximize profit by lowering overhead and leveraging proportionately large investment in capital equipment
<ul style="list-style-type: none"> • Web software and hardware experts (technical partners) 	<ul style="list-style-type: none"> • Advise design teams on technical options and trade-offs for producing dynamic media components for web delivery • Balance designers’ creative ideals with realistic technical constraints to yield smoothly functioning web sites and keep viewers satisfied with pace of interaction • Establish and maintain internal project server to facilitate collaboration among team members

*Dynamic Media Solutions***Current infrastructure**

- New media producers is a heterogeneous category encompassing firms ranging in size from 1 to 50 people or more
- Firms that have migrated from print into new media production will be heavily invested in Macintosh workstations
- Firms that do in-house animation and/or video production may have additional specialized equipment such as SGI and Avid workstations
- Technology budgets may be small and/or hard-won; the timing of hardware and software purchases may be determined by the award of project budgets
- Larger studios may have dedicated technical resources; smaller shops typically get by on a combination of fee-for-service external support and a self-appointed or internal “guru”
- Multimedia project budgets may range from \$20-100,000 for a corporate presentation to \$500,000-\$1,500,000 or more for a corporate web site

Typical problems

- Need to streamline production processes to profit as much as possible from the core value of their services (creatively and effectively solving their clients’ communications problems)
- Need to streamline internal workflow to increase capacity
- Need to produce an ever-widening array of dynamic media-intensive deliverables in different media, on shorter timetables
- Need to create high-impact communications to help their clients reach customers and other external audiences who are increasingly overburdened by claims for their attention
- Need to meet clients’ needs to communicate effectively with customers via the web, interactive kiosk, or CD, no matter what computer, software, browser, or bandwidth they’re using
- Need incremental dynamic media strategies, especially for video—a middle path between expensive, professional-quality and none
- Need to quickly produce and distribute “knock-off” marketing communications pieces (derived from existing digital assets) to respond to clients’ desire to take advantage of changing market opportunities
- Need to help clients optimize their digital assets for an increasing variety of production media and delivery channels
- Need to get maximum leverage from current investments in multimedia equipment, extending hardware life through software upgrades
- Need to distribute same source material on videotape, web movies, CD-ROM, and frame grabs in printed pieces
- Need to quickly respond to client’s changing demands and accommodate new ideas and new information

*Dynamic Media Solutions***Benefits of dynamic media solutions**

- Support clients' integrated marketing communications initiatives
- Support clients' corporate and product brand-building efforts
- Create high-impact, cost-effective communications
- Improve cross-media and cross-platform distribution of dynamic media communications

Apple promise for dynamic media solutions*Macintosh as dynamic media authoring platform*

- Use Power Macintosh and PowerBook G3 computers with built-in advanced multimedia features for tasks ranging from desktop digital video editing to delivering compelling portable presentations
- Benefit from integration within Mac OS of QuickTime with other Apple technologies, such as ColorSync, that enable efficient workflows resulting in high-quality content
- Increase the number of jobs you can complete by streamlining production workflows
- Spend more time creating and less time producing

QuickTime 3 as a "universal container"

- Exchange files between different computers using different operating systems without costly and time-consuming file format conversions
- Stretch creative boundaries by being able to integrate and synchronize virtually all types of dynamic and static media
- Develop digital assets within framework that assures maximum portability—across media, authoring platforms, and delivery mechanisms
- Enjoy unparalleled ease of use, including drag-and-drop media integration within many popular Macintosh applications
- Create dynamic media content once, then easily downsample using a wide selection of compatible "codecs" (compression/decompression engines) to yield versions ranging from broadcast quality to VHS tape to CD-ROM to webcast

QuickTime 3 for delivering a richer Web experience

- Create web pages containing a wide variety of media components that can be viewed directly in place instead of in a separate playback window
- Retain viewer interest by providing continuous flow of information
- Enable viewers to experience a wide variety of media within all popular browsers without time-consuming and confusing downloading of helper applications
- Enjoy automatic selection of video data streaming rates based on viewer's connection bandwidth
- Serve streaming video without special server software

*Dynamic Media Solutions**QuickTime 3 features for unparalleled flexibility*

- Choose an optimal tradeoff between file size and quality for every application
- Upgrade existing QuickTime movies to embed new Fast-Start feature
- Create content optimized for the newest QuickTime features without shutting out users of older versions of QuickTime
- Spend more time creating and less time producing

Purchase decision influencers

- General business management: General manager, creative director, partner, principal, vice president, studio manager, etc.
- Creative: Design director, creative director, designer, producer, new media producer, art director, etc.
- Technical: Technology director, director of interactive technologies, technologist, web programmer, etc.

Objections, fears, biases, misunderstandings

What to anticipate from prospective customers and purchase decision influencers

We're devoted to Apple, to the Macintosh, and to QuickTime, but we're getting more and more pushback from our corporate clients to provide deliverables in Wintel-compatible formats. Inspire our confidence.

A: The Macintosh is the best platform for authoring content, and QuickTime is quickly becoming the de facto standard for distributing media-rich content across platforms. Supporting over 60 file formats on Macintosh and Windows platforms, QuickTime is the creative professional's content insurance policy; work done in QuickTime today on either Macintosh or Windows platforms will be usable and editable in the future. Since its March 30, 1998 introduction, over one million Macintosh and Windows users are now using QuickTime 3.

Most of our corporate clients' customers use Microsoft Explorer on Wintel machines, so how can they view QuickTime content?

A: Microsoft Internet Explorer 4.01 supports QuickTime playback from within the application. No plug-in is required. All Windows users should be able to download the current version of Internet Explorer from Microsoft if they don't already have it on their hard drives. Alternatively, you can provide it on CD-ROM products.

Key customer questions

Can we be confident that Apple will continue to support QuickTime?

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A: Apple is highly committed to QuickTime on multiple platforms.

If we create QuickTime content for our website, how will all our Wintel/Explorer customers be able to view it?

A: Microsoft's Internet Explorer 4.0 browser supports playback of QuickTime movies.

Can we upgrade our existing AVI files for integration into QuickTime-based products?

A: QuickTime 3 supports AVI files among many others, so the answer is "yes," you integrate them into QuickTime products.

What does it take to get into digital video production? Are there incremental strategies for getting involved?

A: Components include a camcorder (FireWire preferred), a fast Macintosh with FireWire or an analog video capture board, non-linear video editing software, and output recorder, an NTSC monitor and QuickTime 3. To produce smaller projects using existing footage, buy a fast Macintosh G3 and a basic non-linear video editor such as Adobe Premiere, Avid Cinema or Radius's Edit DV. For those continuing to work with an analog camera, use Iomega's Buz connected to a Macintosh G3 to digitize the signal for editing.

What's the difference between all the file formats? What can QuickTime offer us that other video file formats such as AVI cannot?

A: QuickTime is a multi-layered media architecture; AVI is a file format. QuickTime has been adopted as the standard on which MPEG4 will be based. It delivers the best compromise in compression technology.

What's streaming video? Fast-start video? Do we need special server software to deliver it?

A: Fast-start video shows the first frame of a QuickTime movie almost immediately and then begins playing it before entire file has been downloaded. With Fast-start files, the movie resource is stored in the resource fork and also at the beginning of the data fork. In order for the movie to play while the sound and video data is being downloaded (streaming) from a CD or the internet, it must be interleaved and saved in "fast start" format. No special server or software is required. This capability is provided via any standard http server and works through firewalls.

Consumers, prosumers, and semi-pros

Market overview

Advances in consumer electronics, digital imaging, QuickTime technology, and digital media software, combined with dramatic price/performance improvements in personal computers and peripherals, have begun to fuel an emerging market for digital videography. Given today's prices and the relative complexity of current DV solutions, new media professionals, professional videographers, and post-production facilities will be the first to exploit these new capabilities. As price points fall and solutions become simpler, more reliable and better integrated, video enthusiasts will also embrace this new opportunity for creative expression.

The all-digital approach appeals to people who need near-broadcast quality resolution and no generation loss, no matter how many copies are made from the original footage or post-production version of a project. Today's DV-format recordings offer more than twice the visual detail and clarity of VHS format. Using a \$4500 3-CCD digital camcorder, a skilled operator can record video footage that comes very close to broadcast quality. A \$2500 single-CCD digital camcorder—today's entry-level device—can achieve similar resolutions but without the detail and definition.

Assuming the original footage is shot on DV tape, and then transferred to an AV-capable hard drive or other high capacity storage media, digital videos are almost infinitely malleable and reusable. With help from QuickTime 3 compatible editing tools, video clips and digital media projects can be transferred and distributed across a broad variety of platforms and media, ranging from VHS tape to CDs to e-mail attachments to Web browsers. Individual frames, frame sequences, or digital footage can be reused and combined with other digital media in a myriad of ways, limited only by the imagination of the producer (and the rights associated with the content).

Segment-specific needs

Semi-pros. Outside the realm of new media or video professionals, these possibilities will appeal first to semi-pros, largely for financial reasons. Semi-pros aspire to produce high quality videos (and the occasional new media project), even though they earn their living through means other than videography or new media. Semi-pros vary in terms of how much effort or time they can or will invest in post-production to achieve a desired result.

Some semi-pros produce videos as a means of competitive advantage for their business—such as the plastic surgeon who uses digital imaging for visualization, patient education and persuasion. Or the realtor who creates videos to sell one-of-a-kind properties to busy executives moving from another state.

Semi-pros in corporate environments shoot videos to record business meetings, training sessions, product demonstrations, etc. Semi-pros produce videos for situations when video is more effective than telephone or written communications, or when attending a meeting is not possible for key members of the intended audience.

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If their corporate infrastructure includes high-bandwidth networking and appropriate server technology, the digital videos or new media projects produced by semi-pros can be viewed on demand or downloaded from the corporate Intranet. Co-workers can then copy clips from these corporate videos, perhaps for inclusion in a PowerPoint or browser-based presentation. In this scenario the digital video has become a category of reusable corporate assets, assuming appropriate rights (if required) have been secured.

In most cases, the semi-pro's emphasis is on information content and ease of production and reuse, not Hollywood glitz. The company will retain professionals and post-production specialists if they need a high-impact video for an important outside audience.

Consumers. Unlike semi-pros, consumers and prosumers do not have the luxury of a business justification to subsidize the cost of acquiring DV-capable computers and consumer electronics devices.

Today's consumer is primarily interested in "capturing the moment": taking videos as a means of preserving family memories or sharing precious moments with friends and extended family. Consumers want simple, inexpensive cameras, camcorders and playback devices; and generally have only limited desires to edit the resulting footage or images. For them, the appeal of digital video is its noticeable improvement in color and resolution; and the promise of making unlimited copies with no generation quality loss.

For the time being, the relatively high price and complexity of DV components will put digital videography out of reach of all but the most status-conscious or affluent households—until prices decline and the components are better integrated and easier to buy.

Prosumers. By definition, prosumers are consumers who are actively creative—people whose need for personal expression drives them to do more than just shoot family videos and distribute copies of the footage. They want to tell a story, make a personal mini-documentary, or share their creativity with people they care about.

For prosumers digital videography is appealing not just because of its superior quality, but also its promise for easier editing and more extensive creative options. They are attracted to what they perceive as unlimited possibilities for mixing digital video with photos and graphics, titles, music and voice-over narration. Their need for creative expression will help them rationalize the higher prices for DV equipment—as long as the total investment fits within their discretionary income.

Potential purchase decision influencers

Unlike the other solutions described in these guide, people in these segments make independent purchase decisions. Choices are not constrained by their role in "supply chain" networks. Even so, their decisions are influenced by other people's opinions, sales-oriented communications from vendors and retailers, and published sources such as enthusiast magazines or buyers' guides. Examples of these influence sources include:

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- *Personal sources.* Family members, friends and neighbors, co-workers and business associates.
- *Vendor and channel sources.* Advertising, sales literature, packaging, and in-store merchandising.
- *Independent or editorial sources.* Review articles in enthusiast magazines, books, or consumer buying guides.
- *Experiential sources.* Handling or examining the product in-store, or hands-on trial experiences courtesy of friends or rental shops. Net-savvy users may browse video-focused newsgroups seeking testimonials from other video enthusiasts. (See rec.video.desktop for almost daily examples of this behavior.)

Purchase considerations

Consumer purchases are driven by emotion, and then rationalized to justify the choice of a particular brand or model. Factors include:

- Product feature and brand attributes
- Cost, promotions, perceived value, financing possibilities—can the household budget afford it, now or ever
- Utility considerations such as portability, battery consumption, handling and operating comfort, or time limits for recording (60-minute tapes, 90-minute, etc.)
- Perceptions about ease-of-use or training time needed to become first capable and then proficient
- Compatibility with existing home entertainment components, such as VCRs, home theater, or audio inputs
- Compatibility with existing computer configurations (a consideration for semi-pros and bleeding-edge prosumers who want to do editing on their computer)
- Fears about committing too early to the wrong digital format (anxieties linger, given Betamax and 8-track tape—not to mention old home movies that are no longer transferable to other media)
- Hopes about what they can personally achieve, whether they seek point-and-shoot playback simplicity or aspire to create their own digital media

Except for people with prior work experience, or those who research big-ticket items before purchasing, QuickTime and FireWire technologies do not yet figure in consumer purchase considerations. Consumer awareness of the impact of these technologies is low.

*Dynamic Media Solutions***Current infrastructure***End-user*

- High household penetration of VCRs, but fewer camcorders
- Almost 100 percent of analog formats within the installed base of video recording and playback devices; multiple formats in use for video recording
- Only one to two percent of US camcorders purchased today have digital capabilities, unlike Japan where 55 percent of consumer camcorders are sold with the mini DV format³
- Few if any consumers or prosumers own personal computers with the power or storage capacity to digitize videos, edit full-motion videos, or render them to other formats for distribution
- Few consumers have acquired scanners or digital cameras for use with their home computer, but photo-realistic printers are starting to appear

Capturing and digitizing video footage is time-consuming, frustrating, and an obstacle to ease of use. Users must install a video capture board to digitize the footage, a large AV-capable hard drive, and a lot more RAM. Judging from the online discussion groups for video enthusiasts, today's video capture boards and AV-capable storage devices are prone to bugs, incompatibility problems, and frequent crashes. Video editing software is also somewhat fragile and generally appears designed for more experienced producers. Today's solutions are not geared for consumer use, as they lack simplicity or reliability.

Channel

It is neither easy nor convenient to buy DV-capable consumer electronics, Macs or PCs. Often one or more critical components can be purchased only from specialty resellers—which complicates the process for consumers. Because solutions are not well integrated, this puts more of a burden on the shopper to know what and where to buy.

- In consumer electronics stores, DV devices are the high-end, high-priced models—often twice or more the price of their analog counterparts
- Sales expertise in selling DV components or justifying FireWire upgrades is limited
- Personal computers with the wherewithal—out of the box—to handle full-motion video editing are not stocked in the retail stores frequented by consumers
- FireWire connectors are an extra cost option for DV camcorders and DV tape decks. This option adds another \$500-700 to the price of each device
- Video capture cards and FireWire interfaces are after-market products for personal computers. So are high-capacity AV-capable hard drives with UltraSCSI drivers. Consumers need to know where to go to buy these specialty components

³ 1997 camcorder market survey by Warren Publishing, cited by Videomaker magazine, March 1998.

*Dynamic Media Solutions**Industry*

- Industry disputes over DV formats and copyright protection have delayed standardization on a common DV format; this increases consumers' risk of buying a dead-end product
- DVD is caught in the industry crossfire as well
- Meanwhile the consumer electronics industry is on the verge of adopting FireWire (IEEE 1394 interface) to speed digital input and output, and simplify inter-device connectivity; this will eventually benefit all digital consumer electronics components and computers

Typical problems*Consumers*

- Consumers want broadcast quality videos with point-and-shoot simplicity, and no loss in quality no matter how many copies they make
- Consumers do not want to have to pay attention to lighting conditions, contrast, background noise, camera jiggle, and so on; they expect the technology to compensate as necessary for these irritating real-life factors
- Consumers don't want to have to throw away their existing VCR or home entertainment devices, just because they've decided to upgrade to a digital camcorder
- Consumers want to distribute their videos or digital movies on media compatible with what their family members and friends currently own: today this means either VHS or S-VHS tape

Prosumers & semi-pros

- Everyone wants the highest possible quality results at all times; meanwhile people want their digital media to consume as little storage space as possible
- Prosumers and semi-pros want hassle-free video capture and digitizing; they want easy but powerful editing capabilities, so that nothing gets in the way of their creative vision; like consumers they want point-and-shoot simplicity for video capture
- People on the bleeding-edge are starting to experiment with digital media for their personal home page; having cut their teeth with GIF or JPEG graphics, they are now confronting the challenges of dynamic media; few know how to make dynamic media "Internet-ready"
- Some want to composite full-motion video with photos and graphics, add titles and special effects, and then share the final results with other people; while creating, they want instant feedback to see how things will turn out, before committing to time-consuming rendering activities
- Prosumers and semi-pros want broadcast quality results and post-production capabilities at consumer price points; they have little time or patience for problematic video capture, or time-consuming or difficult editing or rendering activities

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- Prosumers and semi-pros distribute their finished product on a variety of analog and digital media; some may consider CD-R, knowing friends and colleagues are likely to have computers with CD drives; others may look to the Net
- Both groups want to postpone size-versus-quality compromises until the last possible moment, when producing a finished project for distribution via a specific medium; they don't want their long-term options for reuse to be precluded by project-specific constraints such as compression schemes, streaming protocols, or frame rates
- Semi-pros may collaborate with others on digital media projects; they may get graphics, audio, and video clips in many incompatible formats—and they have little time or patience to mess around with file format conversions.

Benefits of dynamic media solutions

- No generation quality loss from digital camcorder to computer to digital playback device, as long as all components in the stream have IEEE 1394 interfaces (“FireWire”)
- Ability to combine new elements and reuse digital copies of favorite video clips, still images, music or sound effects, while retaining their original digital quality
- Ability to distribute digital media projects across a broad variety of computer platforms and distribution media, optimizing size versus quality trade-offs for the eventual playback device—whether Net-based, analog or digital media
- Ability to postpone quality-versus-size trade-offs until the last possible moment
- Cross-platform and cross-product compatibility for digital media components and finished projects created using software that supports QuickTime 3

Apple promise for dynamic media solutions*Customer satisfaction*

- Use a Power Mac and/or PowerBook G3 computer with built-in advanced multimedia features for everything from desktop digital video editing to delivering compelling, home-grown home entertainment
- Using a Power Mac G3 computer and an Apple FireWire card provides the fastest, simplest, and most affordable consumer platform for digital video capture and editing
- Using a QuickTime 3 compatible system simplifies capture, use and integration of digital media of all kinds, for an infinite variety of creative projects
- Non-professionals using low-cost mainstream computers can now emulate what professionals do with high-priced specialty workstations
- Once digital media have been captured on a Macintosh, the producer's imagination is the only real limit to what can be created and shared with other people—no matter what playback medium the audience prefers
- Using QuickTime 3 allows people to postpone quality versus size trade-offs until the last possible moment—without compromising long-term opportunities for other projects

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Cost reduction

- Less time required to transfer digital media across devices, or to a Mac [requires FireWire]
- QuickTime may offer adequate performance using software-only approaches, avoiding the cost of hardware accelerators
- [Semi-pros only]: Compared to the costs of professionally produced videos (at \$500–1000 per minute of finished footage), in-house videos can be far less costly

Objections, fears, biases, misunderstandings

What to anticipate from prospective customers and purchase decision influencers

If all we want to do is make a home movie and edit the footage so the grandparents can see how our kids are growing, what do we need to buy?

A: Parents can film and edit video using segments using Hi8 camcorders they already own combined with the family VHS VCR to record the final tape. Basic editing, using consumer-level software such as Avid Cinema, can be done effectively on a Macintosh G3 having a large hard drive and an Iomega Buzz (\$300) to grab the video signal.

For those who don't already own a camera or who are interested in better quality and more creative control in editing, it would be a better investment to purchase a DV camera with FireWire connectivity. Non-linear video editing software lists for \$100 up to \$51,000.

Application Level	Typical DV Camcorders <small>* with FireWire</small>	Software/ Editing method	Typical end use	List Price Ranges
Basic	Sony DCR-VX700*; JVC GR-DV1; Panasonic PV-DV1000;	Avid Cinema, Radius EditDV Unplugged	Home entertainment, web authoring	Editing software = \$100-130; Camera = \$1,000 - \$4,000
Intermediate	Sony DCR-VX1000*; Panasonic AG-EZ1U; Canon Optura XL1*	Media 100+ Adobe Premiere, Radius EditDV + 1394/FireWire Card	Home entertainment, web authoring, corporate/industrial training	Editing software = \$1,000-\$2,000; Camera = \$4,000-\$4,500
Advanced	Sony DSR-200*; Panasonic AJ-D200*	Radius EditDVPro	Corporate marketing, event videography	Editing software = \$2,000; Camera = \$6,400-\$8,100
Professional	Sony DSR-130*; JVC ENG-1910U*; Panasonic AJ-D700*	Avid Media Composer 1000/9000; Scitex Sphere family of products;	Advertising, Broadcast environments	Editing solution = \$60,000+; Camera = \$10,000-\$22,900

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My friends tell me that video capture is just too hard: too confusing, too many settings to choose in the menus. They also say that the computer crashes a lot when digitizing a video. Who's going to help me make all this stuff work together?

A: The process will be much more simple and straightforward with the "better mousetrap," a DV camera and FireWire (IEEE 1394) for getting the information to your Macintosh G3. Once there, QuickTime-savvy applications will get you into editing. Without the new solutions, limit the number of active system extensions in use while capturing video using existing equipment to reduce the chance of a crash.

How can the computer keep up with the speed of the digital camcorder, when we're trying to load a video into our Macintosh? Won't it just hiccup or drop frames?

A: Fast hard drive access is the key to no dropping frames. Look for disk writing speed of 5 MB/second or better. The standard IDE hard drives included with current Power Macintosh G3 computers exceed this speed requirement, writing at 8-9 MB/second.

You have to be a computer wizard to buy a configuration that works! How can we know for sure that the video capture board will be compatible with the camcorder, or that the video capture board will work with our Macintosh and the video editing software?

A: Editors at New Media magazine reported in the March 1998 issue that setting up digital video editing on a Mac is "no sweat." The solutions have been tested to be plug and play. They went on to say that Windows configuration is very difficult (involving trial-and-error IRQ, I/O and memory settings) and recommended buying a turn-key system from a reputable dealer as Wintel-based video is a tricky proposition. Yet all current Macintosh G3 computers are capable and easy to set up for capture and editing. QuickTime and FireWire are the elements that make video editing on the Macintosh easy to do. Integrators such as ProMax in the Los Angeles area can help put together Macintosh-based solutions.

If it's so cool, why are so few DV camcorders or digital cameras sold with a built-in FireWire interface? And why doesn't my Macintosh already have one?

A: More of the new digital video cameras from Canon, Sony, Sharp, Panasonic and JVC are incorporating FireWire. Prices have already started declining towards \$999 (Canon ZR) and lower; this trend should continue. There is a higher-quality, three-CCD Sony camera, the TRZ-900 at \$2,100.

It's awfully expensive, if you're not shooting wedding videos for extra income!

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A: Video editing capabilities and quality production only existed in post-production houses at significantly higher prices until now. When you consider that there's no quality degradation of the video with successive copies, the image quality and the ease of setup as there's less hardware, the case for Hi-8 video is not very compelling just to save a little money.

If we buy a digital camcorder, will we have to replace all of our components?

A: No; the DV camera can augment your system. The DV camera (camcorder) plus FireWire connectivity allow for fewer components and cables and a leap in speed and ease of use. And some cameras allow for the connection of analog equipment (in), accounting for use of existing systems.

It's getting confusing. What's the difference between a digital camera, a digital camcorder, a DV camcorder, or a mini DV camcorder? If I get a digital camcorder, will it also capture still images so I can mix still images and motion video in my home videos?

Image Capture Device	Storage Medium	Use	Picture resolution
Digital camera	Hard drive, diskette	Still photography	Varies, up to 8000 x 10,000 pixels
DV camcorder (DV, DVCAM, DVPRO)	DV cassette	Still photography, motion video, audio	720 x 480
Mini DV camcorder	Mini DV cassette (thinner tape medium – less durable tapes – compact form factor)	Still photography, motion video, audio	720 x 480

People say that image quality from digital cameras is disappointing compared to photos recorded on film. How will digital videos compare in quality to those we've been shooting with our existing camcorder? What if we can't afford to replace our VCR until next year?

A: Digital camera resolution can surpass the eye's ability to discern the difference between it and film. Rest assured that today's digital video camcorders will capture resolution that exceeds what you normally watch on television each day. Digital Video tape accepts 500 lines of resolution, 50 percent more than the 330 line of resolution of NTSC broadcast television and twice that of VHS tape. The Canon Optura and the Sony TRV-900 use a progressive scan to further enhance image resolution by capturing a frame in one pass instead of two; they do not use an interlaced frame. DV has no generation loss associated with editing and copying processes. Film does. Last, the inexpensive price of media

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coupled with normal price depreciation of consumer electronics should push the players into most people's reach in the near future.

If I'm using a digital video camera, does that mean I have to buy a DVD drive?

A: No. DVD is a read-only storage format ideal for playback. The medium looks like a CD-ROM, but it holds substantially more information, up to 15.9 GB (12 cm, double-sided, 2 layers of data) as opposed to a CD-ROM's 650 MB. Video authored recorded on DV tape can be played back to a television from the tape, recorded on VHS tape or recorded to DVD disks.

Isn't it safer just to wait until the industry stops fighting over DV formats, so I don't end up buying a dead-end product (like my 8-track tape player)?

A: DV is an agreed upon standard. Over five major vendors sell DV camcorders that use the same tape formats.

Key customer questions**If we buy a digital camcorder, will we have to replace our entire Macintosh if we want to edit full-motion videos on our computer?**

A: Digital Video requires some processing horsepower and a fast connection between camera and computer. A minimum configuration would include a Macintosh having at least a 604e processor and a large hard drive. The recommended configuration would include one of the G3 models with a FireWire connection which is supported on more and more cameras.

If we want to keep our Macintosh for another year, so we can afford a new digital camcorder this year, what will it take to upgrade the Macintosh for digital video editing?

A: Buy a FireWire-capable camcorder and a FireWire/IEEE 1394 card, associated software (ProMax, Premiere + plug-ins, EditDV from Radius) and a cable for the Macintosh. An alternative strategy would be to purchase a new Macintosh G3 this year and get the fast processing benefits for all your work immediately while DV camcorder prices continue to drop.

Can I shoot DV footage and show it right away on our big screen TV? Can I make a tape and play it later through the VCR, even if we're still using VHS tapes?

A: Many DV cameras support RCA and/or S-video output which can be shown on television or recorded on VHS tape.

Must we replace all of our components at once if we want the benefits of digital video?

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A: Just replace the camera. Even without a camera, users could benefit from DV's absence of generation loss when editing. Any video editor that supports QuickTime supports DV.

If we're editing videos on our Macintosh, how can we share them with friends and family members who use PCs? What if their computer isn't powerful enough for video playback?

A: QuickTime movies must be created as single-fork files. Interleaving and saving as fast-start is not necessary. QuickTime player lets viewers on Macintosh and Windows platforms view movies. Also, Microsoft's Internet Explorer 4.0 supports playback of QuickTime movies on either platform.

What does it take to prepare a movie that other people can download from my personal home page? What steps do I have to go through, and where can I go for help?

A: QuickTime 3 Pro is a good place to start, and it only costs about \$30. With QuickTime 3 Pro, users can make movies that will stream from any <http://> internet server and be viewable to Mac and Windows-based browsers. The new Sorensen CoDec allows the user to create high-quality web video. Qdesign provides the best CoDec for web audio. To upgrade to Pro and get more information on QuickTime, visit its web site at <http://www.apple.com/quicktime>.

References, tools & resources for making the case

- *QuickTime 3* (data sheet)
- *QuickTime VR 2.0* (data sheet)
- *QuickTime on the Internet: A QuickTime Technology Brief* (white paper)
- *QuickTime and the Internet* (data sheet)
- *Dynamic Media: Mac OS Dynamic Media Guide*: (solutions guide)
- *The Power Behind the Mask: How Apple Computer's technologies are helping Warner Bros. create, manage and extend the Batman™ and Robin™ brand* (brochure)
- *Driving the Brand Home: How Apple technologies are helping BMW marketing partners in digital brand-building* (brochure)
- *FireWire: The new high-performance serial bus technology for peripherals* (data sheet)
- *QuickTime and Movie Player Pro 3.0: Visual QuickStart Guide*, book from Peachpit Press
- *Return-on-Investment: Macintosh vs. Windows* (GISTICS ROI TechBrief)
- www.apple.com/quicktime
- www.apple.com/publishing
- "Testing Digital Camcorders for Web and Print Photography," *Seybold Report on Internet Publishing*, February 1998.
- www.adobe.com/studio/casestudies/premiere.html (for a series of case studies on digital video)
- www.adobe.com/newsfeatures/pretille/page1a.html (for a primer on how to prepare video for the Internet)
- www.adobe.com/prodindex/premiere/PDFS/firewire.pdf (FAQs on FireWire, DV)
- www.adobe.com/supportservice/custsupport/SOLUTIONS/c092.htm (a comprehensive listing of resources for digital video)
- See rec.video.desktop — an Internet newsgroup aimed at video enthusiasts who use what used to be called "desktop video"
- Enthusiast magazines, such as *Videomaker* or *Camcorder & Computer Video*

Color Management

Solution overview

Over the last few years, relatively low-cost color printers and color monitors have enabled more and more color to be applied in “documents” ranging from web pages to marketing collateral to internal corporate communications. Along with increasing demand for color comes the problem of managing color: how can you make informed decisions during the production process so that the final result matches your intentions—especially when production involves multiple contributors in multiple locations using a variety of tools?

Companies throughout the “color management ecosystem” are growing more aware of the obstacles to managing color effectively and are therefore interested in tools that help them minimize unintended results. Sheer volume of color consumption is not the only trend fueling interest; other sources of pressure for optimizing color management practices include:

- *Integrated marketing communications: need to preserve brand integrity across media and over time.* Not only is color a major component of brand identity, courts are beginning to grant companies copyright protection of their brand colors—but only when these colors have been applied consistently over time. Integrated marketing communications requires that strategic brand colors (and others) be reproduced as accurately as possible no matter what the means—PMS colors on coated stock, SWOP inks on newsprint, or “Internet-safe” browser palettes.
- *All-digital workflows to support custom, variable-data, on-demand, and just-in-time publishing solutions.* Film and plates will gradually be eliminated as prepress workflows go all digital, taking with them the analog color proof. What’s more, the shorter print runs typical of custom publishing applications change the economies of press makeready, including using press ink dials to compensate for inaccuracies in film and plate. Getting color right early in the workflow—and keeping it right to the end—will grow more critical, both to the economics of the printing process and to customer satisfaction.
- *Distributed production and distribution.* Another related trend, away from the traditional “print-store-distribute” model to a “store-distribute across networks-display-print if needed” model, also requires that color fidelity be built into the workflow early and maintained throughout.
- *Geographical dispersion of communication project teams.* The ongoing globalization of business means corporations must increasingly coordinate the creative and managerial contributions of people in many locations. Internet-based on-screen proofing can cut days off production timetables, especially when participants are working in different parts of the country—or the world.

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- *Ongoing shift from proprietary to open prepress systems.* Color prepress shops and commercial printers, especially those that want to move into newer digital production processes, continue to replace older, proprietary color management systems with lower-cost, off-the-shelf solutions that provide greater flexibility.

Color management is a relatively complex topic that is not yet well understood. Today, the primary obstacles to adoption of color management tools include:

- *Lack of familiarity with the issues and what's required to address them.* Many customers are aware that there's a better way to manage color, but don't have the time, resources, or motivation to do the still relatively difficult work of research and learning. They need quick and easy answers to basic questions such as: What will we be able to do with a ColorSync solution that we can't do today? What do we need to buy in order to do it? What changes to our workflow, if any, are required? Will any of our suppliers (or customers) need to buy into this, and in what ways?
- *Perception (and reality) that color management is difficult to implement.* Market education has so far focused primarily on color theory on the one hand and the nitty-gritty of creating color profiles on the other. What's missing is simple, actionable information about workflows and benefits.
- *Inconsistent implementation within applications.* Fueling confusion is the fact that no two graphics software programs have implemented ColorSync in the same way. Customers are confused about where to find and how to "turn on" ColorSync within their applications.
- *Interdependent adoption.* Most color management solutions require cooperation among "color partners." For example, in order for a design studio to correctly spec colors for a printed piece on screen, their commercial printer must supply them with a ColorSync profile for the press on which the piece is to be printed. Lack of participation by one member of a given "color network" may defeat other members' efforts to adopt color management practices.

Solutions that can provide full benefit within one location are probably the easiest to sell and implement. For example,

- A design studio that can use a calibrated, profiled scanner, monitor, and printer to make "good-enough" color decisions based on a monitor and a laser proof (and ColorSync profiles of a final output device such as a printing press).
- A commercial printer that can set up a ColorSync viewing station to perform on-screen color corrections at lower cost than with traditional proprietary components.

More complex systems may require persuading several sites or companies to adopt ColorSync simultaneously—for example, a corporate marketing department, their ad agency, and their printing vendors. The business considerations of these markets are outlined in this chapter.

Corporate brand, marketing, marcomm, and communications managers

Market overview

As content specifiers and “keepers of the brand,” corporate brand managers, supported by their marketing and marcomm departments, have a very high stake in the quality of the color that their suppliers provide—especially if those colors are, or could be, protected by legal copyright.

Integrated marketing communications as a strategy to strengthen corporate branding demands consistent application of color, no matter what the medium. Shorter product development cycles, increased competition, proliferating communication channels, and shrinking budgets make marketers’ jobs more demanding and complex, and increase the appeal of any solution that supports brand integrity and shortens production time.

Unless a corporation employs an in-house creative department (whose color management needs are similar to those of design studios and ad agencies), brand, marketing, and marcomm managers are most likely to participate in a color management “supply chain” by reviewing the work of outside suppliers on-screen or as color laser proofs, and by mandating color management practices as part of an internal corporate style guide. The primary benefits they’re likely to enjoy from ColorSync are:

- Reduced time to market because of faster review-and-approval cycles
- Consistency of brand colors over time and across media, both in professionally designed documents (whether internally or externally created), and in materials produced for external audiences (such as presentations) by managers who are *not* design professionals

While corporate brand management departments may not be likely to buy as many Apple products as other firms in the color “supply chain,” their support for Apple’s color management value proposition may facilitate sales to their “color partners.”

The key qualifying question to pose is: “Who is responsible for the quality of your brand image?”

Color Management Solutions

Potential partners in a color management network (“supply chain”)

Other players may be involved in using color, directly or indirectly, to represent the company. A key question to consider is: In order to achieve this benefit, who else needs to participate and in what way(s)? For example, to review an on-screen “soft proof” of a brochure, a marcomm manager would need not only a profiled color monitor but also the appropriate ColorSync profile from their commercial printer.

<i>Partner (relationship)</i>	<i>Requirements & business considerations</i>
<ul style="list-style-type: none"> • Other employees, such as sales managers, who represent the company externally (content creators, users) 	<ul style="list-style-type: none"> • Create presentations using components such as templates with built-in support for brand integrity (color palettes, fonts, etc.) • Make simple color decisions on-screen and using inexpensive networked color printers
<ul style="list-style-type: none"> • IT department (support for internal access to information) 	<ul style="list-style-type: none"> • Help set up media asset management system to provide access to digital brand components
<ul style="list-style-type: none"> • Design studios, ad agencies (content creators) • <i>[For a fuller discussion, see the following section of this chapter on Design studios, ad agencies]</i> 	<ul style="list-style-type: none"> • Provide clients with browser-based access to works in progress for on-screen review and approval (soft proofing) • Provide “blessed” digital brand components, including standard color palettes for different media
<ul style="list-style-type: none"> • Commercial printers (suppliers) • <i>[For a fuller discussion, see the following section of this chapter on Commercial printers]</i> 	<ul style="list-style-type: none"> • Provide clients with browser-based access to works in progress for on-screen review and approval (soft proofing) • Provide proofs and final printed materials either directly to the corporation, or to the corporation’s creative vendors • Provide ColorSync profiles for specing colors targeted to a particular printing press
<ul style="list-style-type: none"> • Web designers, webmasters (internal or external) 	<ul style="list-style-type: none"> • Integrate “blessed” digital brand components into Web pages • Use “Internet-safe” colors without compromising quality of color brand elements • Use technology to support integrity of color brand components

Color Management Solutions

Current infrastructure

- Varies widely with size and industry, but most likely consists of networked PCs and/or Macs (particularly in specialty graphics departments) with 16-bit color monitors and at least one networked color device (color laser printer and/or copier), possibly with restricted access
- Heavy, if not exclusive, reliance on hard-copy proofing methods
- Minimal MIS support, both political/budgetary and technical, for design-related, Macintosh-based applications
- While a brand, marketing, or marcomm manager may support a color management initiative, will likely not have the resources (especially “bandwidth”) to follow through without the support of an internal MIS department and/or external consulting expertise
- Corporations that value their brand may publish a printed and/or electronic corporate identity manual to guide design and production practices (including use of color), and/or provide server-based access to digital brand components (logos, fonts, color palettes, presentation templates, etc.)

Typical problems

- Need to preserve integrity of the brand as effortlessly, efficiently, and cost effectively as possible
- Need to ensure that the corporate brand is reinforced through consistent application, no matter where and in what medium it appears
- Need to coordinate activities of distributed teams comprising employees in many different locations (including international) and outside vendors
- Need timely approval by decision-makers who may travel frequently and therefore have to review documents while on the road
- Need to minimize cost overruns resulting from design and production errors and inefficiencies
- Need to shorten the time from initial concept to finished deliverable

Benefits of color management

- Increase brand recognition through consistent cross-media application
- Preserve quality of brand reproduction, both in materials produced professionally and in those produced by corporate managers for public consumption
- Speed time to market for communication campaigns
- Minimize color-related surprises—what they approve is what they get, whether on paper or on screen
- Facilitate color decision-making through on-site proofing using monitors and networked color printers

Color Management Solutions

Apple promise for color management

Customer satisfaction

- Dramatically shorten production timetables by streamlining review-and-approval cycles
- Ensure that all external corporate communications reinforce your brand
- Protect your legal claim to copyrighted colors

Cost reduction

- Reduce the number (and therefore cost) of paper proofs
- Reduce the cost of rework resulting from problems in color quality assurance

Revenue opportunities

- Use consistent color to build brand loyalty and support customer retention
- Use cost-efficient color management practices to design and deliver high-impact color communications

Purchase decision influencers

- VP, director of marketing
- VP, director of corporate communications
- VP, director of product marketing
- Brand manager, product line manager, product manager
- Marketing manager, product marketing manager, marcomm manager

Objections, fears, biases, misunderstandings

What to anticipate from prospective customers and purchase decision influencers

- **Color Management is much too complicated—I can't even quite figure out what it could do for me.**

A: The purpose of ColorSync is to give the user predictable, reproducible color from scan to display to color proof to offset press. Color is intuitive and easy for humans to see but difficult to control on devices because of their limitations in producing or maintaining it. ColorSync provides a "behind the scenes," operating system-level method of compensating for device limitations and capabilities. There is software and hardware that helps keep devices operating at a known state and service providers that provide device characterizations and training to demonstrate how the process works. The process can be as easy as selecting pop-up field values in the ColorSync control panel and the appropriate settings for RGB and CMYK set up in Adobe Photoshop or in the print dialog box of page layout applications.

- **I know it would help us, but we don't understand how to implement it.**

Color Management Solutions

A: Most color reproduction workflows for video, print or internet delivery are made up of segments—input source (camera, scanner) to computer display and computer display to output device. Start with one segment; it's usually easier to start with the input-to-display. Assess the equipment. Ensure that it is calibrated to factory specifications; characterize devices electronically or have a service provider do it. Consulting fees are usually under \$100 to characterize a scanner and under \$200 for an output device. Use the characterization information, called a "profile," when acquiring or exporting images or graphics. Maintain the system by keeping your devices calibrated. Products and/or services are available for each of these segments.

- **It's just too costly and not practical for us to set up an optimal environment for soft proofing (giving approval to print based on an image viewed with a color display).**

A: Soft proofing cuts time in the color production process, thereby allowing more for creative work. Soft proofing also saves money in materials and express shipping charges. So it's an investment in color predictability and consistency that can be accounted for and even built into the cost of jobs. Apple ColorSync displays (self-calibrating), ColorSync (free) and soft proofing software pay for themselves in savings quickly—often in one or two jobs.

- **Most of the computers we use are PCs. How can we manage color across platforms?**

A: With the introduction of ICM 2.0 in Windows 98 and Adobe Photoshop 5, Macintosh users who embed ICC profiles in image files using Photoshop 5 or other supporting applications on the Macintosh see the same color on PCs provided that devices are calibrated. Unlike the PC where color management is new and most users are not graphic arts-oriented, the Macintosh platform has over 100 applications that support ColorSync

- **There's no way our MIS department is going to support our buying Macintosh computers for anybody in the marketing department.**

A: Macintosh computers co-exist well with PCs. They have in common internet technology (TCP/IP, Ethernet, same browsers/plugin-ins); application cross-platform compatibility (MS Office, Adobe Distiller, Photoshop, Illustrator, PageMaker, FrameMaker, QuarkXPress); network compatibility (NT, Novell, and Unix servers for file service, print service, and other functions); major router vendors like Cisco handle AppleTalk in addition to TCP/IP; both can run Windows (using Virtual PC or SoftWindows, they Macintosh can run any Windows application) and media compatibility (read/write PC floppies, Zips, etc.). Macintosh computers excel in publishing because of the following design attributes: true plug & play, application interface consistency, few support problems a user cannot handle, built-in SCSI expansion, cross-platform multi-media authoring using QuickTime 3, built-in color management, superior font handling, automation using AppleScript, superior performance for the price, longer useful life than a PC.

Color Management Solutions

- **Microsoft has licensed the same Linotype-Hell LinoColor color matching module (CMM) for their Image Color Management (ICM) system as Apple uses in ColorSync. Why should I buy more Apple equipment?**

A: The default CMM for both ICM 2.0 and ColorSync 2.5 is the same, LinoColor. Microsoft has validated Apple's lead, again. Reasons to purchase Apple equipment include a superior color management implementation that includes possible use of many color matching modules (from Adobe, Agfa, Heidelberg, Imation, and Kodak), price/performance, AppleScript automation capabilities, and ease of authoring many media for any platform. Apple provides an operating system that best integrates solutions for the creative and publishing communities.

Key customer questions

- **Why is managing color necessary? How will a color management system improve our business?**

A: It is a tool for ensuring long-term business in color output for print, video and computer display. Service providers now need to go beyond controlling color from RGB to CMYK. Clients publish to a variety of media, and those who have a solution for color across all have an advantage.

- **How do we implement a ColorSync color management system? Can we take an incremental approach?**

A: Start by visiting the ColorSync web site at www.apple.com/colorsync and downloading the latest version. Use it to calibrate and make a profile for your monitor. Begin system-wide implementation by breaking the workflow into segments. Image content usually follows a path from image capture using a camera or scanner to display on a monitor to an output device. Start with "image capture to display" because it is easier. Then move from display to output.

-Image capture to display—Scan an IT8 target supplied with a color management package such as LinoType-Hell's ScanOpen or ColorSolutions ColorBlind. After the scan, follow software directions to compare the TIFF file scanned with an IT8 image file supplied. The software will find the differences and generate a third file, an ICC profile that describes the color capture characteristics of the scanner.

-The display-to-print segment involves having a service provider output a color test target that is larger than an IT8. Use a software and a spectrophotometer (color measurement instrument) to capture readings on all color patches. The resulting file will be an ICC profile that describes to the operating system the full range of reproducible color from that device.

Color Management Solutions

-The last step is to place the profiles generated in the ColorSync Profiles folder of the system's folder and to enable ColorSync in print dialog boxes within an application and in the MacOS Monitors&Sound control panel

- **How do we know when it's appropriate to make color decisions based on the screen, and when only a paper proof will do?**

A: After a number of iterations of client comparing color on screen to that on a proof to that which comes off the press, the day will come when confidence in a calibrated, predictable system leads to dropping the paper proof to save time and money. The client will know that if color looks right on the display, it will look right in print. A PressMatch proof takes about an hour to produce. Soft proofs display in a matter of minutes or less and require no materials.

- **How can we work most effectively with our clients and suppliers?**

A: Integrate the process from start to finish. Adopt standard procedures for handling images, importing them in a page layout application, specifying known ICC profiles and writing PostScript. As long as publishers work consistently using agreed-on methods and these are known to all involved, the process should work. When the time comes to refine, single elements can be addressed with confidence all other variables remain constant.

- **What kind of results can I expect from using ColorSync?**

A: Users can expect to get consistent, reproducible color from a scanner or image source, from a display and from color proofers and commercial printers. ColorSync cannot guarantee color matching, but it does provide the best infrastructure available for controlling it while managing people's expectations and saving much time and money in the process.

- **Who else is using ColorSync, and what has it done for them?**

A: PhotoDisc, Quad Graphics, New York Times, Simon & Schuster —It saves these companies an undisclosed sum of money, freeing up cash for their own business development. It also strengthens relationships with customers because the companies can count on consistent quality.

- **Where can I get more information about ColorSync?**

A: Visit our web site at <http://www.colorsync.com>. It provides information on related products, a database of service providers who can help, samples and demos, the latest ColorSync software, and a mailing list full of knowledgeable users.

Color Management Solutions

- **Who can help us implement a ColorSync color management solution that will meet our particular needs?**

A: There is a database of service providers on the ColorSync web site. Go to <http://www.colorsync.com>.

Design studios, ad agencies

Market overview

Design studios and ad agencies constitute middle links in the color management “supply chain”—accountable to content specifiers such as corporate brand managers, marketing, and marcomm departments, but depending for their ultimate success on suppliers such as photographers, stock houses, color trade shops, and commercial printers.

Agencies further depend on whoever produces or reproduces the media in which ads run—newspapers, TV, and, increasingly, the Internet. Thus their adoption of ColorSync may likely be prompted by partners on either side—by a far-sighted brand manager in search of brand integrity or by a printer providing value-added services such as color profiling or remote viewing.

In response to their clients’ need for integrated marketing communications, studios and agencies are beginning to recognize cross-media competence (along with the color management skills this requires) as an increasingly urgent strategic imperative. In addition, many firms are exploring how to leverage the Internet to provide superior customer service (for example, for Web-based soft proofing).

Although relatively quick to recognize the benefits of new technology, studios and agencies often struggle to find the resources (both time and money) to adopt them. What’s more, only larger firms are likely to have a dedicated expert who can champion and help implement color management practices.

Key to selling color management solutions to these customers is making the solutions (and their benefits) as easy to understand and as simple to implement as possible. Working with their “color management relationships” (that is, their partners in the color “supply chain”) may provide additional leverage.

Color Management Solutions

Potential partners in a color management network (“supply chain”)

Design studios and ad agencies are caught in the middle, accountable to their clients’ demands for accurate color but dependent on the skills of their production partners (especially color trade shops and commercial printers).

<i>Partner (relationship)</i>	<i>Requirements & business considerations</i>
<ul style="list-style-type: none"> Marketing, brand, marcomm managers (business drivers, content specifiers) <i>[For a fuller discussion, see the earlier section of this chapter on Corporate brand managers]</i> 	<ul style="list-style-type: none"> Initiate, fund, and approve design projects Review and approve creative and production, including color May engage in some form of “policing” of the brand
<ul style="list-style-type: none"> Digital photographers (creative partners, suppliers) 	<ul style="list-style-type: none"> Provide images as film or, increasingly, in digital format Can “shoot for print,” previewing a shot as it’s composed and lit Can solicit remote art direction using calibrated, profiled displays at both photographer’s and art director’s locations, and a digital phone connection
<ul style="list-style-type: none"> Illustrators (creative partners, suppliers) 	<ul style="list-style-type: none"> Create original art, either digital or paper May need to work with “blessed” color palette May want to be able to make on-screen color decisions and/or proof color on a local color printer
<ul style="list-style-type: none"> Color trade shops (suppliers) 	<ul style="list-style-type: none"> Scan and color correct individual images; provide low-res FPO images to clients for use in layouts Provide film separations for platemaking
<ul style="list-style-type: none"> Commercial printers (suppliers) <i>[For a fuller discussion, see the following section of this chapter on Commercial printers]</i> 	<ul style="list-style-type: none"> May provide other color partners (including studios/agencies, corporate clients, and color trade shops) with press profiles to streamline upstream color decision-making Responsible for delivering on contract proofs—ensuring that printed color matches legally binding, client-approved proof At greatest risk for failures in color quality control process, including cost of press reruns and, occasionally, legal action
<ul style="list-style-type: none"> Web programming experts (technical partners) 	<ul style="list-style-type: none"> Provide HTML and other programming support for web design projects May implement specs, including colors, established by studios and agencies

Color Management Solutions

Current infrastructure

- May scan images in-house for position only, then typically send film transparencies to color trade shop/printer for high-res scans
- May work with high-res images to create special effects such as image montages; otherwise, typically leaves image color correction to specialty service
- Typically have some sort of color laser printer and/or laser copier
- Very few studios and agencies use calibrated monitors
- Although expert in the aesthetic use of color, most art directors and designers don't view themselves as experts in color reproduction and therefore rely on the technical color expertise of supplier/partners in color trade shops and commercial printers
- In design studios, especially smaller ones, individual designers (backed by a creative director/principal and/or production manager) are typically responsible for color quality
- Agencies, particularly larger ones, are likely to have a dedicated production department responsible for "pre-press" (preparing files for a color trade shop and/or printer)
- Larger agencies and studios may have dedicated technical resources; smaller shops typically get by on a combination of fee-for-service external support and a self-appointed or involuntary internal "guru"
- Technology budgets may be small and/or hard-won

Typical problems

- Need to be able to serve their clients as "partners in brand integrity" by providing consistent color across media and over time
- Need to provide accurate color (color that meets customer expectations) as efficiently and cost effectively as possible
- Need to keep production timetables on schedule even when clients are difficult to reach for timely review of project components
- Need to foster the clearest possible communication between players representing the business, creative, and production perspectives on a particular job to ensure the best possible match between intent and execution
- Need to enable their clients to protect their corporate and brand images through the use of templates with accurate, built-in color
- Need to minimize time-consuming hard-copy review-and-approval cycles
- Need to streamline internal workflow to increase capacity
- Need to automate production processes to profit as much as possible from the core value of their services (creativity—creating intellectual assets)
- Need to produce an ever-widening array of color-intensive deliverables in different media, on shorter timetables

Color Management Solutions

Benefits of color management

- Improve client satisfaction with convenience and quality of service
- Minimize color-related surprises—closest possible match between a designer’s intent, a client’s expectations, and the final product
- Enjoy higher profit margin by reducing labor costs
- Increase studio/agency capacity by operating with highest possible ratio of creative to production time

Apple promise for color management

Customer satisfaction

- Help clients preserve the integrity of their brand (including copyrighted colors)
- Improve your ability to provide color that meets your customers’ expectations

Cost reduction, improved workflow efficiencies

- Spend more time leveraging the power of color to communicate and less time worrying about reproducing color accurately
- Confidently choose reproducible colors for any output media
- Increase profit margin or lower prices by substituting low-cost soft-proofing methods for hard-copy proofs (use your Web site as a “virtual proofing booth”)
- Minimize the need for rework due to color management problems
- Enable print, web, and multimedia design teams within the same studio or agency to provide clients with consistent color across media

Revenue opportunities

- Increase the number of jobs you can complete by accelerating production workflows

Purchase decision influencers

- Studio or agency principal or partner, creative director
- Technology manager (if there is one)
- Production manager

Objections, fears, biases, misunderstandings

What to anticipate from prospective customers and purchase decision influencers

- **Color Management is much too complicated—I can’t even quite figure out what it could do for me.**

A: The purpose of ColorSync is to give the user predictable, reproducible color from scan to display to color proof to offset press. Color is intuitive and easy for humans to see but difficult to control on devices because of their limitations in producing or maintaining it. ColorSync provides a "behind the scenes," operating system-level method of compensating for device limitations and capabilities. There is software and hardware that

Color Management Solutions

helps keep devices operating at a known state and service providers that provide device characterizations and training to demonstrate how the process works. The process can be as easy as selecting pop-up field values in the ColorSync control panel and the appropriate settings for RGB and CMYK set up in Adobe Photoshop or in the print dialog box of page layout applications.

- **I don't have time to learn all this stuff about color theory and CIELAB—it's acronym city and way too academic for me.**

A: The principles and acronyms are academic, but in practice ColorSync is straightforward. The four steps are calibrate, characterize, use profiles, and maintain the system. Calibration means getting devices to a known state of operation, such as that defined by the factory. Characterization means measuring the color capture or reproduction capabilities of a device. The results are usually written to a file, called an ICC (international Color Consortium) Profile. Once your system is working, all that is required is maintenance; this usually means periodic calibration and less frequent characterization. A relatively small investment of time and money up front can return consistent quality output, time and money savings, and a high quality reputation in the market leading to more business.

- **It's just too costly and not practical for us to set up an optimal environment for soft proofing (giving approval to print based on an image viewed with a color display).**

A: Soft proofing cuts time in the color production process, thereby allowing more for creative work. Soft proofing also saves money in materials and express shipping charges. So it's an investment in color predictability and consistency that can be accounted for and even built into the cost of jobs. Apple ColorSync displays (self-calibrating), ColorSync (free) and soft proofing software pay for themselves in savings quickly—often in one or two jobs.

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A: Most color reproduction workflows for video, print or internet delivery are made up of segments—input source (camera, scanner) to computer display and computer display to output device. Start with one segment; it's usually easier to start with the input-to-display. Assess the equipment. Ensure that it is calibrated to factory specifications; characterize devices electronically or have a service provider do it. Consulting fees are usually under \$100 to characterize a scanner and under \$200 for an output device. Use the characterization information, called a "profile," when acquiring or exporting images or graphics. Maintain the system by keeping your devices calibrated. Products and/or services are available for each of these segments.

Color Management Solutions

- **Our suppliers don't want to work with us on this. Our printer [or trade shop] tells me ColorSync won't provide the kind of quality we're used to—something about the black channel and CMYK workflow.**

A: If service providers achieve good quality, then this can be made very consistent and repeatable using ColorSync. The advantage to both service provider and client is better turnaround and communication; one proof will need to be made, not two or three. Regarding black channel generation, various CMMs that are addressable via ColorSync allow adjustment of black channel generation. The appropriate setting would be determined by a service provider, factoring in the content of graphics and images. It's a matter of a service provider learning to work with a new tool providing color control to all media versus the existing ones leading only to print.

- **Every application we use has a different interface for ColorSync. Half the time I can't figure out where to look for the color management features. How do I even tell if it's "turned on"?**

A: Application developers differ in the way ColorSync is handled within user interfaces. Apple is always trying to influence their choices to be consistent with one another so that Macintosh users have a good user experience; part of that is ease of navigation. ColorSync functions take place when an image is acquired for viewing and output. For image acquisition, look for plug-ins that specify ColorSync or menus that specify "RGB Setup", "CMYK Setup," or "Profile Setup." For output, check the printer dialog box. In all cases, especially page layout software, check preferences dialog boxes to make sure ColorSync is enabled.

- **Microsoft has licensed the same Linotype-Hell LinoColor color matching module (CMM) for their Image Color Management (ICM) system as Apple uses in ColorSync. Why should I buy more Apple equipment?**

A: The default CMM for both ICM 2.0 and ColorSync 2.5 is the same, LinoColor. Microsoft has validated Apple's lead, again. Reasons to purchase Apple equipment include a superior color management implementation that includes possible use of many color matching modules (from Adobe, Agfa, Heidelberg, Imation, and Kodak), price/performance, AppleScript automation capabilities, and ease of authoring many media for any platform. Apple provides an operating system that best integrates solutions for the creative and publishing communities.

Key customer questions

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A: It is a tool for ensuring long-term business in color output for print, video and computer display. Service providers now need to go beyond controlling color from RGB to CMYK.

Color Management Solutions

Clients publish to a variety of media, and those who have a solution for color across all have an advantage.

- **How do we implement a ColorSync color management system? Can we take an incremental approach?**

A: Start by visiting the ColorSync web site at www.apple.com/coloursync and downloading the latest version. Use it to calibrate and make a profile for your monitor. Begin system-wide implementation by breaking the workflow into segments. Image content usually follows a path from image capture using a camera or scanner to display on a monitor to an output device. Start with “image capture to display” because it is easier. Then move from display to output.

-Image capture to display—Scan an IT8 target supplied with a color management package such as LinoType-Hell’s ScanOpen or ColorSolutions ColorBlind. After the scan, follow software directions to compare the TIFF file scanned with an IT8 image file supplied. The software will find the differences and generate a third file, an ICC profile that describes the color capture characteristics of the scanner.

-The display-to-print segment involves having a service provider output a color test target that is larger than an IT8. Use a software and a spectrophotometer (color measurement instrument) to capture readings on all color patches. The resulting file will be an ICC profile that describes to the operating system the full range of reproducible color from that device.

-The last step is to place the profiles generated in the ColorSync Profiles folder of the system’s folder and to enable ColorSync in print dialog boxes within an application and in the MacOS Monitors&Sound control panel

- **How can I use AppleScript to streamline my color production workflow?**

A: AppleScript helps companies automate repetitive tasks such as embedding ICC profiles in TIFF files, doing preflight examinations, performing file format conversions, and even formatting pages in a directory or catalog. Its uses are limited only by a company's imagination. New uses become competitive advantages and extend the useful life of existing computers.

- **How do we know when it’s appropriate to make color decisions based on the screen, and when only a paper proof will do?**

A: After a number of iterations of client comparing color on screen to that on a proof to that which comes off the press, the day will come when confidence in a calibrated, predictable system leads to dropping the paper proof to save time and money. The client will know that if color looks right on the display, it will look right in print. A PressMatch proof takes about an hour to produce. Soft proofs display in a matter of minutes or less and require no materials.

Color Management Solutions

- **How can we persuade our suppliers to work with us on this?**

A: Ask a few vendors if they would consider some ColorSync trials as a start. If a current supplier doesn't want to try, another will. Printers and prepress service bureaus are usually ready to cooperate to sustain business. Depending on the vendor, preferred clients might get to run a test or two for free.

- **How does ColorSync work with QuickTime? Are there benefits from using them together?**

A: Currently, the only real ColorSync advantage for QuickTime playback is color calibration and consistency provided by Apple ColorSync monitors. Movies played on various machines using ColorSync displays should look very similar, if not the same. The intent of the content author, then, would be preserved. In the future, application support for ColorSync within video editing applications might provide the capability for including embedded profiles within movies.

- **What kind of results can I expect from using ColorSync?**

A: Users can expect to get consistent, reproducible color from a scanner or image source, from a display and from color proofers and commercial printers. ColorSync cannot guarantee color matching, but it does provide the best infrastructure available for controlling it while managing people's expectations and saving much time and money in the process.

- **Who else is using ColorSync, and what has it done for them?**

A: PhotoDisc, Quad Graphics, New York Times, Simon & Schuster —It saves these companies an undisclosed sum of money, freeing up cash for their own business development. It also strengthens relationships with customers because the companies can count on consistent quality.

- **Where can I get more information about ColorSync?**

A: Visit our web site at <http://www.colorsinc.com>. It provides information on related products, a database of service providers who can help, samples and demos, the latest ColorSync software, and a mailing list full of knowledgeable users.

- **Who can help us implement a ColorSync color management solution that will meet our particular needs?**

A: There is a database of service providers on the ColorSync web site. Go to <http://www.colorsinc.com>.

Commercial printers

Market overview

Advances in technology and changes in communication patterns are pressuring commercial printers to reinvent their businesses and their workflows in a variety of ways. According to a 1996 market study conducted by Mills • Davis for NPES, “printers and trade services are being squeezed, with major changes needed to improve the economics of printing processes and improve value propositions to customers.” One part of the solution, the study continues, is efficient color quality control: “open networked color management will emerge as a key enabling technology for a broad range of print and non-print media applications.”

Some of these trends toward reinvention demand new methods for managing color more cost-effectively and at different points in the workflow.

- *Custom, variable-data, on-demand, and just-in-time printing.* Shorter press runs that support highly targeted, timely publishing affect printing economies of scale; extensive makeready, including tinkering with color on press, will need to give way to efficient, get-it-up-and-running-fast color management practices.
- *Growth of the Internet.* More and more printers will look for ways to leverage the Internet in order to boost client loyalty and “share of customer.” Internetworked review-and-approval services, demanding cross-media color fidelity, will become standard.
- *Computer-to-plate and computer-to-press.* New, all-digital workflows will increase pressure to achieve, proof, and maintain color fidelity digitally from concept to consumption.
- *Cross-media, integrated marketing communications.* Forward-looking printers (and color trade shops) will develop new services and revenue streams based on managing and repurposing their clients’ digital assets. These pioneers will be among the first to adopt and troubleshoot new technologies and workflows for managing color effectively across media.

A ColorSync color management solution can be positioned and implemented in either of two ways, depending on the customer:

- As a cost-effective replacement for or extension of an internal “closed-loop” proprietary color management system
- As a solution that supports a network of color management activities, some internal and some external

The first strategy affects the printing customer only; the second requires cooperation from the printer’s customers and/or suppliers.

Color Management Solutions

Potential partners in a color management network (“supply chain”)

Commercial printers can derive significant benefits from implementing ColorSync-based color management workflows internally. However, the real leverage comes when the color-related tasks performed by members of the “supply chain” are coordinated through ColorSync practices.

<i>Partner (relationship)</i>	<i>Requirements & business considerations</i>
<ul style="list-style-type: none"> • Marketing, brand, marcomm managers (business drivers, content specifiers) • <i>[For a fuller discussion, see the earlier section of this chapter on Corporate brand, marcomm managers]</i> 	<ul style="list-style-type: none"> • Initiate, fund, and approve printing projects • Review and approve press proofs • Strong candidates for cross-media authoring and digital asset management services • Strong candidates for Internet-based soft proofing services
<ul style="list-style-type: none"> • Design studios, ad agencies (content creators) • <i>[For a fuller discussion, see the earlier section of this chapter on Design studios, ad agencies]</i> 	<ul style="list-style-type: none"> • Review and approve press proofs • Strong candidates for Internet-based soft proofing services
<ul style="list-style-type: none"> • Color trade shop (supplier) 	<ul style="list-style-type: none"> • Scans and color corrects images that printer ultimately prints • Provides film for platemaking
<ul style="list-style-type: none"> • Prepress technology, workflow consultants (technology expertise) 	<ul style="list-style-type: none"> • Consult on how to use technology to streamline production workflows

Current infrastructure

- May provide full range of prepress services, including image scanning and trapping, imposition, separation, and film output; or may partner with prepress suppliers for high-end color work, doing prepress only for lower-quality jobs and for making last-minute changes
- Prepress functions are migrating from specialized color trade shops toward content creators (designers, agencies) and toward replicators (commercial printers)
- Depending on size, likely to have a mix of high-end drum scanners, proofing devices, presses; hybrid of Macintosh-based and photomechanical prepress production
- Relatively low rate of investment in business computing and internetworking
- According to Mills •Davis market study, significant printing overcapacity and low press utilization rates, relatively low rate of investment in business computing and internetworking; internal data communication systems of printers, if they exist, are often fragmented and incompatible, and not easily interoperable with customers and suppliers

Color Management Solutions

Typical problems

- Need to provide accurate color (color that meets customer expectations) as efficiently and cost effectively as possible
- Need to reduce press makeready time (unlike proofing costs, makeready costs cannot be passed on to customers and hence erode profit)
- Need to shorten proofing cycles in order to increase capacity (less time proofing means more time printing; the more presses roll, the more money printers make)
- Need to prepare for future direct-digital (direct-to-plate and/or direct-to-press) workflows
- Need to meet customer demand for digital files that can be repurposed for other media
- Need to improve the economics, performance, and value to customers of printing processes

Benefits of color management

- Improve competitiveness by providing accurate color at a reasonable price
- Increase customer loyalty by providing value-added services (press profiles, color management workflow consultation)
- Create custom profiles for clients' remote viewing systems
- Develop new revenue sources (color management workflow consultation, repurpose digital files for different media)

Apple promise for color management

Customer satisfaction

- Equip clients to specify color that's perfectly matched to your output devices ("tighten" the relationship)
- Improve ability to provide color that meets your customers' expectations
- Enable clients to accurately proof files remotely across the Internet
- Improve ability to provide accurate color at reasonable cost

Cost reduction

- Reduce cost of consumables
- Reduce the frequency of rescans needed to compensate for poor color
- Minimize the need for rework due to color management problems

Revenue opportunities

- Increase customer demand for color printing by providing color they can afford
- Provide value-added services such as color profiling and color management workflow consultation
- Streamline the process of color proofing to get more jobs on press faster
- Provide color-managed repurposing services (e.g. re-output images as color-corrected GIF files)

Color Management Solutions

Purchase decision influencers

- Prepress, technology manager
- President, owner
- Scanner operator, press operator

Objections, fears, biases, misunderstandings

What to anticipate from prospective customers and purchase decision influencers

- **ColorSync uses an RGB color space that doesn't provide black channel, hence poor quality—our scanner operators couldn't live without the black channel.**

A: With ColorSync, the black channel can be adjusted within the limits of the CMM used. If the black channel range is not to a user's or client's liking, try a different CMM or change the rendering intent. ColorSync uses a color space-independent model described by CIE Lab to get the most accurate transformations possible between color gamuts such as RGB and CMYK. In RGB, there is no "black channel." RGB and "black channel" reference two different color spaces. In the CMYK world, a color separation algorithm generates "black channel" after considering overlapping regions of yellow, magenta and cyan. When percentages of each of these pigments make a shade gray, the color pigment percentages are often reduced and black is substituted.

- **We've invested heavily in a scanner that only scans in CMYK.**

A: While large drum scanners that deliver CMYK files have been a benchmark for digital prepress, there are more image capture devices that provide files such as CCD cameras, flatbed scanners and even RGB screen captures. For these sources of color data, ColorSync provides a working solution as the images can be leveraged in other media. With a CMYK scan, the image color data has already been optimized for a particular four-color process printing device. This usually happens via software within the scanner, it should be possible to get a raw scan that is in RGB color space.

- **I'm afraid I'll lose my job if all the craftsmanship I've developed can be provided more cheaply by computer software (scanner operator).**

A: The skill of doing selective color correction, getting good tonal range and modifying casts is still within an operator's hands. Now these changes occur in pixel editing applications such as Adobe Photoshop 5. While tools change, underlying color knowledge remains valuable. The benefit of ColorSync is getting consistent color output when the client calls for no editorial changes. Trade skill has been important when the color output medium was film. Skills and judgement in dot etching fetched a high price. But the market conditions now favor smaller press runs, quick turnaround and computer-to-plate workflows. The first opportunity to see halftone dots might be on the plate as it is carried to the press, too late to effect prepress changes. ColorSync ensures that the entire system

Color Management Solutions

is stable and fast enough to bank on the fact that color values on a monitor will correspond closely with halftone dots on a page.

- **Why should we worry about a color management system? We know all our devices like the back of our hand, and besides we can always fix the color on press.**

A: Most plant managers would not agree that the place to "fix" color is on press, and people don't usually notice device drift until it gets far from calibrated ranges because the change occurs gradually. ColorSync ensures that devices are calibrated to known limits and that users get predictable, consistent results. ColorSync transcends staff, allowing a company to continue providing consistent quality output even when knowledgeable staff are not on site or leave the company.

- **Why would I want to reduce the number of MatchPrints I pull on a scan when I can charge for them?**

A: Clients will only purchase so many proofs before finding someone who can get good results in fewer tries and less time. The best long-term strategy is helping a customer get printed product to market sooner and reducing proofing cycles achieves this objective. ColorSync helps service providers get reproducible, consistent color on the first proof. This might mean fewer proofs per client, but it adds capacity for more clients, which improves a company's business mix and overall viability.

- **Microsoft has licensed the same Linotype-Hell LinoColor color matching module (CMM) for their Image Color Management (ICM) system as Apple uses in ColorSync. Why should I buy more Apple equipment?**

A: The default CMM for both ICM 2.0 and ColorSync 2.5 is the same, LinoColor. Microsoft has validated Apple's lead, again. Reasons to purchase Apple equipment include a superior color management implementation that includes possible use of many color matching modules (from Adobe, Agfa, Heidelberg, Imation, and Kodak), price/performance, AppleScript automation capabilities, and ease of authoring many media for any platform. Apple provides an operating system that best integrates solutions for the creative and publishing communities.

Key customer customer questions

- **Why is managing color necessary? How will a color management system improve our business?**

A: It is a tool for ensuring long-term business in color output for print, video and computer display. Service providers now need to go beyond controlling color from RGB to CMYK. Clients publish to a variety of media, and those who have a solution for color across all have an advantage.

Color Management Solutions

- **How do we implement a ColorSync color management system? Can we take an incremental approach?**

A: Start by visiting the ColorSync web site at www.apple.com/colorysync and downloading the latest version. Use it to calibrate and make a profile for your monitor. Begin system-wide implementation by breaking the workflow into segments. Image content usually follows a path from image capture using a camera or scanner to display on a monitor to an output device. Start with “image capture to display” because it is easier. Then move from display to output.

-Image capture to display—Scan an IT8 target supplied with a color management package such as LinoType-Hell’s ScanOpen or ColorSolutions ColorBlind. After the scan, follow software directions to compare the TIFF file scanned with an IT8 image file supplied. The software will find the differences and generate a third file, an ICC profile that describes the color capture characteristics of the scanner.

-The display-to-print segment involves having a service provider output a color test target that is larger than an IT8. Use a software and a spectrophotometer (color measurement instrument) to capture readings on all color patches. The resulting file will be an ICC profile that describes to the operating system the full range of reproducible color from that device.

-The last step is to place the profiles generated in the ColorSync Profiles folder of the system’s folder and to enable ColorSync in print dialog boxes within an application and in the MacOS Monitors&Sound control panel

- **How can we work most effectively with our clients and suppliers?**

A: Integrate the process from start to finish. Adopt standard procedures for handling images, importing them in a page layout application, specifying known ICC profiles and writing PostScript. As long as publishers work consistently using agreed-on methods and these are known to all involved, the process should work. When the time comes to refine, single elements can be addressed with confidence all other variables remain constant.

- **What kind of results can I expect from using ColorSync?**

A: Users can expect to get consistent, reproducible color from a scanner or image source, from a display and from color proofers and commercial printers. ColorSync cannot guarantee color matching, but it does provide the best infrastructure available for controlling it while managing people’s expectations and saving much time and money in the process.

- **Who else is using ColorSync, and what has it done for them?**

A: PhotoDisc, Quad Graphics, New York Times, Simon & Schuster —It saves these companies an undisclosed sum of money, freeing up cash for their own business development. It also strengthens relationships with customers because the companies can count on consistent quality.

Color Management Solutions

- **Where can I get more information about ColorSync?**

A: Visit our web site at <http://www.colorsync.com>. It provides information on related products, a database of service providers who can help, samples and demos, the latest ColorSync software, and a mailing list full of knowledgeable users.

- **Who can help us implement a ColorSync color management solution that will meet our particular needs?**

A: There is a database of service providers on the ColorSync web site. Go to <http://www.colorsync.com>.

References, tools & resources for making the case

- *How to Catch Color: An Introduction to Network Color from Apple* (brochure)
- *ColorSync 2.1: The Color Management Work Flow Standard* (white paper)
- ColorSync Starter Kit (CD-ROM)
- *How to Create Color Profiles for ColorSync 2.0* (white paper)
- *Return-on-Investment: Macintosh vs. Windows* (GISTICS ROI TechBrief)
- www.apple.com/colorsinc
- www.apple.com/publishing
- *Workflow Dynamics: A Guide to Prospering in an Era of Networked Digital Printing, Publishing and Business Communication*. Prepared for NPES, The Association for Suppliers of Printing and Publishing Technologies, Reston, Virginia, 1996.

Media asset management

Solution overview

The proliferation of media technologies and delivery channels in the last few years has whetted consumer appetite for media-rich products and services. As a result, creative and production professionals everywhere—from corporate training departments, to web design studios, to prepress production houses—are creating and managing skyrocketing quantities of digital files.

A few benchmarks: 1) a prepress shop that went digital three years ago houses 40,000 images today; 2) a single large corporate web site may incorporate thousands (if not hundreds of thousands) of digital components, including text, image, animation, video, and sound files; 3) a 1997 GISTICS study of creative professionals predicted a three-year growth rate of up to 300 percent in the number of desktop digital media asset files.

As a result, creative professionals are spending more and more time simply keeping track of what they make. In fact, according to GISTICS, they spend an average of one out of every 10 hours *managing* files instead of *creating* them. GISTICS also reports that large creative studios invest an average of nearly 10 hours a week “futzing” with files, at a total weekly labor cost of roughly \$500 and a revenue opportunity cost of nearly twice that amount. On top of that, they ultimately duplicate 42 percent of their files—often at considerable expense and often because an existing file couldn’t be found.

At the same time that companies are trying to manage unmanageable quantities of assets, they’re beginning to reflect on questions such as: How much time and money does it take us to create what we create? What is the average economic value of a digital asset? What does it cost us to re-create it simply because we can’t find it?

Not surprisingly, therefore, demand is quickly rising for products that solve the following simple but enormous problem: *How can I retrieve the file I need as quickly and easily as possible?* By enabling digital assets to be easily and efficiently catalogued, browsed, tracked, and retrieved, media asset management solutions address this fundamental problem. Because assets can quickly be found, no time is wasted looking for them and no money wasted recreating them.

Besides saving time and money, media asset management provides additional compelling benefits:

- *Support for digital brand management.* Managing a brand across media and delivery channels requires considerable production discipline—making sure that the right versions are used, that quality is preserved, etc. A media asset management system can facilitate access to the right components while preventing unauthorized access and alterations.

Media Asset Management Solutions

- *Revenue opportunities.* Companies are beginning to ask themselves: What's the potential "aftermarket" for a digital asset? Who would want to reuse an asset, if they could, and who would want to pay for it? What are the opportunity costs of *not* being able to find an asset? Such reflection usually persuades them that their digital assets *are* potentially a source of licensing or per-use/re-use fees. Realizing this potential, however, requires an efficient system for cataloging, retrieving, and tracking digital assets.

Production companies can also consider offering asset management services to their corporate clients.

Media asset management solutions vary widely, but can be roughly grouped as follows:

- Inexpensive, flat-file, single- or multi-user products such as Extensis Fetch that provide keyword searching on predefined fields
- Relational database applications such as Cumulus Media Management System that enable cross-platform collaboration and support more flexible cataloging of assets, but employ proprietary database engines
- Solutions offering Open Database Connectivity (ODBC) or SQL protocols that can run on standard database engines and can be integrated with existing databases

The sheer variety of solutions confuses many customers: this confusion (along with the expected budgetary concerns) is probably the most common obstacle to adopting a media asset management system.

Media Asset Management Solutions

Customer needs for media asset management

Although different customer segments require different types of media asset management solutions, all customers share a single overriding concern: how to quickly and efficiently access what they need when they need it. The following table summarizes particular customer requirements and opportunities.

Customer segment or business type	Requirements & business considerations
<p><i>Content specifiers</i> (may also be content creators)</p> <ul style="list-style-type: none"> • Marketing communications • Corporate communications • Corporate publishing • Corporate training 	<ul style="list-style-type: none"> • Preserve brand integrity • Realize revenue potential from re-use and/or licensing of digital assets • Provide efficient, controlled distribution of digital assets internally and externally • Reduce time and money spent searching for and/or re-creating existing assets
<p><i>Content creators</i></p> <ul style="list-style-type: none"> • Advertising agencies • Graphic design studios • Web design studios • Video production studios 	<ul style="list-style-type: none"> • Realize revenue potential from re-use and/or licensing of digital assets • Provide efficient, controlled distribution of digital assets internally and externally • Reduce time and money spent searching for and/or re-creating existing assets
<p><i>Content producers</i></p> <ul style="list-style-type: none"> • Prepress production houses • Commercial printers • Video, audio production facilities 	<ul style="list-style-type: none"> • Provide asset management services to their corporate clients • Provide customers with web-based access to production files • Integrate asset management with other production functions (OPI, color management) to automate workflows
<p><i>Publishers</i></p> <ul style="list-style-type: none"> • Newspapers • Books • Magazines • Catalogs • Web and multimedia publishers 	<ul style="list-style-type: none"> • Realize revenue potential from re-use and/or licensing of digital assets • Provide efficient, controlled distribution of digital assets internally and externally • Reduce time and money spent searching for and/or re-creating existing assets
<p><i>Individual users</i></p> <ul style="list-style-type: none"> • Digital photographers • Illustrators • Animators 	<ul style="list-style-type: none"> • Realize revenue potential from re-use and/or licensing of digital assets • Reduce time and money spent searching for and/or re-creating existing assets

Media Asset Management Solutions

Current infrastructure

- Haphazard filing systems, mostly based on Macintosh hierarchical folder/file system
- Assets stored in a variety of media and locations
- Most companies have some sort of network file server and back-up system, but few have adequate systems for cataloging digital assets

Typical problems

- Need to quickly and easily retrieve files archived in a wide variety of storage media, in many locations, using many file-naming (un)conventions
- Need to eliminate re-creating existing assets because they can't be found
- Need to provide easy access to the right file—the authorized version, the most recent version, etc.
- Need to protect against unauthorized access to and/or alteration of assets
- Need to protect brand image against dilution by unintentional alteration or misuse of digital brand assets
- Need to track usage and copyright information
- Need to provide controlled access to shared assets for efficient collaboration
- Need to increase productivity in order to increase capacity and maximize profit per project
- For content creators, need to streamline production processes to profit as much as possible from the core value of their services (creativity—creating intellectual assets)
- Need to manage digital brand assets being used and/or created simultaneously in multiple media by multiple production teams
- Need to build or defend competitive advantage by offering high quality and fast turnaround

Benefits of media asset management

- Realize the full economic value of every investment made in labor and technology
- Reduce costs, increase production efficiencies
- Shorten production cycles in order to speed time to market
- Increase capacity with no additional human resources
- Take advantage of new revenue opportunities
- Improve customer service
- Preserve brand integrity

*Media Asset Management Solutions***Apple promise for media asset management***Cost and time savings*

- Minimize time spent searching for existing assets
- Eliminate need to re-create existing assets because they can't be found
- Speed development by enabling team members to share production assets
- Reduce the cost and time of distributing digital assets by courier (with network asset management system)
- Automate asset archiving and retrieval

Revenue opportunities

- Realize potential for charging licensing or re-use fees for digital assets that can be efficiently retrieved and tracked
- Provide “corporate asset management” service—serve as custodian of your customers’ digital assets

Other

- Protect unauthorized access to digital assets
- Protect your assets against loss or alteration by controlling who can access or modify them
- Preserve the integrity of your brand by facilitating access to and use of authorized digital brand components

Purchase decision influencers

- Information technology executives, IT staff, database administrators
- Senior marketing executives
- Production managers of content creation, production, and publishing firms
- Owners and business development executives of advertising agencies, design studios, web design firm, prepress production houses, commercial printers, etc.

*Media Asset Management Solutions***Objections, fears, biases, misunderstandings****Sampling of solutions**

Prod. Name	Vendor/URL	Server	Clients	Price range	Adm Leve
Bulldog 2.0	Bulldog www.bulldog.com	(2) Oracle 7.x	Java all platforms	\$50,000 and up; custom development and integration.	Advz
Cumulus 4.0	Canto www.canto.com	Win NT, Unix, Mac OS	Mac, Win	5 users = \$2500	Basi
Enterprise Document Management System 98 (EDMS 98)	Documentum www.documentum.com	Oracle 7.x, Sybase System 10/11, Informix 7.x, MS SQL Server 6.5	Browser, custom app, SAP, PeopleSoft, multiple types per enterprise	\$50,000 and up; custom development and integration	Advz
FileMaker Pro 3.0 Server	FileMaker www.filemaker.com	Macintosh, Windows 95, Windows NT	Mac, Win	\$275; supports 100 users	Inte
MediaAssets 2.0	Mediaway www.mediaway.com	WIN NT 4.0+	Mac, WIN, browser	\$25,000 = \$5000 server 10 clients @ \$20,000	Inte
MediaBank	Bitstream www.bitstream.com	NT, Sun, SGI, IBM RS6000	Mac, Win	\$10,000 , including 5 users	Inte
MediaManager 1.5	Imation www.imation.com	Win NT	Mac, Win	5 user, NT = \$6000	Inte

Media asset management systems are expensive. What's are the major considerations when examining different solutions?

A: The least expensive solution might not meet the growing needs of an organization, making it a waste of time and money. A careful assessment of the type and quantity of files to catalog and users that will access the system is the first step. Larger companies should get the advice of a consultant experienced in these solutions. Generally, costs increase when large relational databases, multiple servers and custom application development are part of a solution.

Media Asset Management Solutions

Questions to consider in a needs assessment include:

VOLUME/SIZE	
Inventory	How many megabytes of files are there?
Users	How many people will need access?
Usage	What is the max. load of concurrent users?
Types of files	What file formats must be supported?
WORKFLOW	
File transfer	What is the average file size?
File transfer	What are the usual routes for file transfer?
Job information	Will the solution track usage of elements?
Ease of use	Is the client/browser/search interface intuitive?
SYS. ADMIN.	
Hardware Support	What types of RAID arrays and network protocols are supported?
Access	Via client application or browser? For what platforms must a client exist?
Security	Internet access? Remote administration?
Back-up	Automated back-up?

For small companies or workgroups that must organize many graphics files and images, Canto Cumulus running on a Macintosh or a Windows NT server is hard to beat at a price around \$2500 for five users. The next step up, MediaManager by Imation, is about \$6,000 for its five-user solution. For a low price of about \$300 that requires a little effort in designing a database, FileMaker Pro might fit the need.

I know we need something, but there are too many choices out there. How do we figure out what we need?

A: Many options become few after assessing needs and the budget allowed. For example, high data throughput no matter how many people are conducting searches is a capability made possible by leveraging dual servers. This is a feature for at least one high-end solution from Bulldog. Full-text search on all documents is another capability offered by a high-end product from Documentum. This capability might be more attractive to financial institutions or government agencies where “mostly text” file sizes are smaller but finding content is more difficult and time consuming. If needs include these types of

Media Asset Management Solutions

requirements, many products in the middle to lower price ranges will drop from the list of possibilities.

I've heard that setting up a media asset management system is very complicated. How do we know what categories to use to describe our assets?

A: Think like or get the help of a librarian. Alternatively, study the classification scheme of a clip art product. These companies start with file basics like "vector" or "raster" and then move on to noun descriptors like plant, animal, mineral, liquid, etc. Make these categories correspond to the content at your company. "Vector" and "Raster" hierarchies might have similar, if not mirroring, folders. If the universe of image content at a company is narrow, it can be broken into categories and subcategories. New classifications can always be added as needed.

Example:

Flora

 Trees

 Deciduous

 North American

 Central America

 South American

 Evergreens

 North American

 Central America

 South American

 Shrubs

 Herbs

 Grasses

I'm afraid it's very time consuming to maintain. Won't all our [designers, production staff, etc.] spend all their time entering keywords?

A: Key words are helpful, but not required. Most media asset management software captures basic file information —name, size, type, date created, date last modified, etc.—adding it as searchable text on the fly. Keywords only need to be assigned when an asset is added to a repository. Usually a drag and drop operation, it takes a minute or two per file.

I've heard that Apple doesn't yet have a server-grade OS that can really support an asset management system. Can an Apple server running the current Mac OS really do the job? Or should we wait for Rhapsody?

Media Asset Management Solutions

A: Currently, the Mac OS plus AppleShare IP 5.0 provides ease of administration, an excellent price/performance ratio, ColorSync , and AppleScript automation of workgroup or administrative tasks. Recently released is Canto Cumulus 4, one of the best media asset management systems available in terms of features and ease of use. This combination meets the needs of the majority of businesses. For the small number of large organizations—such as the Dept. of Defense, Boeing, etc.— a centralized system might be a good compromise for users across the entire range. But an asset management server for workgroups, divisions or departments might be a needed complementary server solution.

Which corporate databases integrate with the Macintosh?

A: There are a number of SQL clients for the Macintosh including Butler SQL, Microsoft Excel and BrioQuery that access databases from Oracle, Sybase and Informix.

Where does Macintosh fit in among Windows NT servers and workstations?

A: The Macintosh fits in as a task-oriented server or workstation. Once files are transferred, the G3 provides unsurpassed processing speed for pixel editing or any of the automated tasks found in prepress workflow solutions that stream trapping, PDF generation, and imposition. If a Macintosh server is employed, AppleShare IP 6.0 supports Windows NT as a client.

Key customer questions

How will media asset management improve my business?

A: It helps get products, information, and/or messaging to your customers sooner by decreasing or eliminating search time. It provides a rich, logical framework, beyond the file system, for organizing key digital graphic elements and providing more project-specific information via metadata that cannot be derived directly from the files. It supports version control and facilitates the approval process. It can enable and facilitate exchange of information between departments and individuals.

How do I implement a media asset management system? What's needed up front, and what kind of ongoing maintenance is required?

A: Careful planning and observation of current workflow and procedures are the most critical up-front requirements. It is often difficult to predict growth in volume or use of the system. Companies also must take stock of legacy documents that exist only on paper, deciding which ones will be converted to an electronic format such as PDF and cataloged. Selection of the most appropriate hardware and software for servers and clients will be easier once a company or its consultant evaluates needs for content access, indexing, archiving and reporting.

Media Asset Management Solutions

Who is using Apple products for media asset management, and what has it done for them?

A: Clorox, Safeway, Time magazine, R.R. Donnelley and many others have used media asset management on the Macintosh to achieve better control of content and color, consistent use of approved elements and streamlined access to graphic components in graphic design and advertising.

What do Apple technologies such as AppleScript, ColorSync, and WebObjects mean for media asset management? Can we implement a system like this just using Windows?

A: Apple advantages include control of color with ColorSync, automation and batch processing of routine tasks via AppleScript (such as entry of images to a catalog, embedding an ICC profile or assigning keywords) , and the Macintosh's ability to exist easily on any PC network—TCP/IP or Novell—using applications such as Dave 2.0 from Thursby Systems, Inc. Apple's WebObjects development environment links asset management to legacy content on mainframes to the internet, leveraging all content a company controls to its advantage. These advantages don't exist on Windows platforms.

Who can help us design and implement a media asset management system that will meet our particular needs?

A: It depends on the scale of the system. In many cases, users can do it themselves . Sometimes the vendor supplies this as part of the solution. Most of the software available is modular and configurable to meet customer needs. The design, implementation and sometimes training can be part of the package. If a consultant is preferred to handle the job, many have listings on the Apple Service Provider network at <http://www.aspn.apple.com>.

How can we be sure a media asset management system will integrate with our existing database?

A: Solution providers publish system requirements and databases they support; a common thread is Standard Query Language (SQL). A typical scenario might involve linking existing, text-based copyright/ rights and permissions information for graphics and photos to their records in a media asset management system. If a media asset application does not support a direct link, it is possible and effective to make one using AppleScript to access an SQL client, get information and write it as metadata to the media asset management records. Automatic updating routines keep information current.

Media Asset Management Solutions

References, tools & resources for making the case

- *Media Asset Management: Best Practice Primer for Executives in Charge of Advertising, Brand Management, Publishing and Creative Services, Web Development Firms, and Media Production Studios* (Masters of Media white paper)
- www.apple.com/publishing
- www.apple.com/webobjects
- *Yes MAM!* (WebWare/Apple CD)
- www.webwarecorp.com
- www.gistics.com
- *Return-on-Investment: Macintosh vs. Windows* (GISTICS ROI TechBrief)

Database Publishing

Solution overview

Database publishing solutions serve businesses and organizations that need to deliver highly targeted, if not personalized, messages to many people across a variety of media. Database publishing solutions can accommodate either push- or pull-based communications models. Unlike traditional publications, dynamically published documents and Web pages are generally assembled “just in time,” from components selected for their particular relevancy to the recipient. In most cases dynamically published documents are delivered either on-screen or printed by digital presses and digital color copiers.

Because of the complexity of matching document components to the needs and interests of individual recipients, database publishing solutions require robust and flexible data management approaches such as those offered by Apple’s WebObjects. Simpler applications can be supported by FileMaker when the production pressures of “individualizing” documents are lower or when fewer elements need to be varied within the publication. In either case a database management system needs to be coupled to an automated workflow process that links all the key players and repetitive tasks in the “supply chain” for the project.

Dynamically published documents, electronic catalogs, and Web sites are often funded by senior marketing managers, merchandising managers, or business unit leaders. Most early adopters of database publishing have been influenced by the promise of “one to one marketing” or relationship marketing. From their perspective database publishing is an enabler for one-to-one marketing. Despite their role as the funding source for database publishing, these clients often lack the technical expertise to understand what is required to design and implement a cost-effective and productive database publishing solution. They may be naive about the required start-up investments of time and money.

Such solutions require cooperation across organizational boundaries and professional disciplines. Affected specialties include IT and database specialists, designers and agency talent, production artists, webmasters and Web firms, as well as prepress and digital printing service providers. Publishing-savvy systems integrators may also play a role. Database publishing calls out for cooperation across a commercial ecosystem of entities serving a common client.

Despite the promise of database publishing, there are a number of obstacles to overcome before these solutions become prevalent. Today most database publishing projects require custom integration services in order to streamline production cycles and resolve various incompatibilities due to disparate tools from multiple vendors. The current generation of tools for design and media asset creation have limited capabilities for database publishing or high-volume customization. Postscript and current RIPs impose additional constraints on how much variability can be achieved within any given document. Mental models are also a limiting factor, the consequence of a whole generation of people who have learned to write or design one-size-fits-all documents for mass audiences.

Database Publishing Solutions

Because database publishing is still in its infancy, there are few clear best practice models. Nonetheless companies that master database publishing will benefit from a significant competitive advantage through their ability to deliver highly relevant messages to the right people, at the right time and place.

When coupled to e-commerce or transaction management systems, database publishing solutions offer the promise of shorter sales cycles, higher response rates, and improved sales conversion ratios. Database publishing can also serve as an enabler for customer retention programs, for companies committed to staying in touch with their most valued customers. Effective retention programs can increase the lifetime value of customers to a corporation. Whether database publishing serves customer acquisition or retention, its results can have a positive impact on revenues and profitability — compelling arguments for most business executives.

This chapter outlines the implications of database publishing for marketing managers and direct marketers, commercial printers and digital printing service providers, and Web developers. Considerations for creative professionals are addressed in the chapter on Dynamic Media Solutions.

Marketing managers & direct marketers

Market overview

Today's hyper-competitive business climate forces marketing professionals to be more productive: to deliver superior business results despite shrinking budgets, increasing fragmentation in mass media, and shorter development cycles. Advances in information technology, coupled with more flexible approaches to design and publishing, offer the potential to produce more customized marketing materials, with contents more directly relevant to the needs and interests of customers, prospects, and channel partners.

Companies can benefit from database publishing solutions in a variety of ways:

- As a cost-effective adjunct to traditional direct marketing tactics, enabling them to reach increasingly targeted audiences with messages that are more relevant to the recipient;
- As a coherent solution that enables them to apply direct response marketing across a variety of media, using the optimal medium for any specific niche audience;
- As a means of producing highly customized marketing collateral for their most valuable customers and prospects.

For companies moving toward one-to-one marketing, learning how to adopt database publishing is a necessary first step.

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Potential partners in a database publishing network (“supply chain”)

The key strategic question is, who will manage the central database whose contents will be used to produce marketing collateral, retail advertising, merchandising, etc. Forward-thinking commercial printers, such as R.R. Donnelley, now offer services to manage key clients’ “publishing assets” repository. Many enterprises will prefer to keep database control in-house. Wherever the database resides, access must be provided to all participants in the supply chain.

<i>Partner (relationship)</i>	<i>Requirements & business considerations</i>
<ul style="list-style-type: none"> IT professionals and database administrators (expertise on internal database structure, contents) 	<ul style="list-style-type: none"> Define business rules and logic for retrieving relevant data from corporate databases; manage security requirements Help set up media asset system, provide access to customer/product/price databases Set up secure Extranets or private networks for supply chain collaboration
<ul style="list-style-type: none"> Merchandising managers (business driver) 	<ul style="list-style-type: none"> Preview featured products with artwork and descriptive copy in the context of the proposed page layout or on-screen view Remote viewing and approval Define promotions and special offers based on measured performance results Update prices at the last possible minute
<ul style="list-style-type: none"> Designers, ad agencies (design driver) 	<ul style="list-style-type: none"> Design a consistent identity across media: catalogs, brochures, ads, Web pages, etc. Learn to design and proof dynamic layouts whose contents will come from databases
<ul style="list-style-type: none"> Production artists (manipulate content) 	<ul style="list-style-type: none"> Design variable placeholders and page templates for data-driven publications, such as catalogs, customized brochures, or dynamic Web pages Develop scripts to automate recurring tasks Learn more structured approaches for separating form from content so that digital assets can be reused effectively
<ul style="list-style-type: none"> Webmasters (internal or external) <i>[For a fuller discussion, see the later section on Web site developers]</i> 	<ul style="list-style-type: none"> “Serve up” dynamically assembled web pages or electronic catalogs with integrated e-commerce
<ul style="list-style-type: none"> Commercial printers (suppliers) <i>[For a fuller discussion, see the later section on Commercial printers]</i> 	<ul style="list-style-type: none"> Provide digital press with variable-data printing capabilities, for personalization or customization of printed pieces

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Current infrastructure

- Little-to-no integration between corporate databases and design and publishing functions for marketing activities; corporate data likely to reside within multiple, heterogeneous legacy databases accessible via SQL or ODBC
- Minimal expertise within marketing organizations on how to apply information technology and database publishing approaches to the enterprise's business challenges
- Minimal expertise within design firms on how to design flexible layouts to accommodate "pages" constructed by scripts according to conditional logic
- Few organizations have coherent media asset management strategies or processes
- Commercial printers are just beginning to invest in digital printing; fewer have variable-data printing capabilities; very few know how to sell or support information technology

Typical problems

- Need to produce a variety of documents and publications, on tight deadlines, whose contents can be customized to the needs and interests of highly targeted audiences
- Need to produce multiple versions of the same ad, brochure or catalog, tailored to the needs of different market segments or to reseller-specific preferences or requirements
- Need to produce customized in-store merchandising materials, flyers, retail ads, etc. — sometimes overnight — in response to local business conditions while retaining a consistent look and brand identity
- Need to produce highly customized sales literature for "big ticket" purchase items, sometimes personalized to an individual customer
- Need to produce direct mail pieces with contents customized to the preferences of narrowly targeted audience segments
- Need to produce smaller catalogs featuring just the products most likely to appeal to the most valuable customers, rather than huge "generic" catalogs
- Need to produce electronic catalogs with integrated "shopping carts" and e-commerce support for real-time order entry and transaction management

Benefits of database publishing

- Improve market share and competitive position by delivering marketing messages with laser-like precision: delivering the right message, to the right person, at the right time, through the optimal medium
- Improve direct marketing response rates and conversion rates, to improve cost efficiency
- Increase the share of business that is done through a company's most valuable customers
- Improve customer loyalty and retention

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Apple promise for database publishing

Customer satisfaction

- Provide more compelling and more relevant information to customers and channel partners
- Reach customers one-to-one with messages that are personalized to their individual needs and interests
- Be available to your customers when they want to hear from you, or when they are ready to make a purchase — even after-hours or on a weekend!

Cost reduction

- Reduce some of the 98 percent waste from the shotgun approach of traditional direct mail by targeting only the best prospects with a more narrowly focused message, tailored to them (“just-for-me”)
- Minimize printing, inventory, and shipping/ mailing costs by printing just the right pages, at the right time and place, for the right people

Revenue opportunities

- Increase the lifetime value of your most valuable customers by growing your share of their business
- Boost sales by delivering more focused messages to people who are ready and interested in acting on your offers
- Take advantage of untapped business potential within under-served market segments

Purchase decision influencers

- Senior marketing executives
- Sales executives
- Information technology executives, IT staff, and database administrators
- Owners and business development managers of commercial printing firms
- Account managers and business development executives of advertising agencies and direct marketing firms
- Web development firms, especially those with e-commerce implementation expertise
- Catalog publishers and merchants

Objections, fears, biases, misunderstandings

What to anticipate from prospective customers and purchase decision influencers

- **How can we integrate our corporate databases with Apple Macintosh computers?**

A: Macintoshes run SQL client applications like Butler, BrioQuery, and others. Macintoshes easily communicate via TCP/IP, Novell and AppleTalk networks. Automated links for pairing old information with new for deployment to the internet or an intranet can be done with WebObjects.

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- **We've committed to standardizing on Windows NT (or Unix). Where does Macintosh fit in this picture?**

A: While NT 4.0 and Unix make good servers, many users would rather have a Macintosh as a workstation. The Macintosh is a solid, low-maintenance network citizen. It's network hardware is ready to run out of the box, and users can plug into TCP/IP, Novell NetWare or AppleTalk networks. The Macintosh can see directory structures and files on PCs, other Macintosh and Unix servers. Macintosh users can open and edit most of the usual files coming from Windows, including Microsoft Office 98 applications. Software and hardware are designed to work together with interface attributes remaining consistent between them.

- **We're "right-sizing" our databases and committing to Unix-based servers and Internet protocols.**

A: The Macintosh is at home in a TCP/IP environment. UNIX server directories are visible on a Macintosh when the UNIX server is running an application called uShare by Information Presentation Technologies [<http://www.iptech.com>].

- **There's no way we're going to let an outside ad agency or commercial printer have access to our corporate databases.**

A: WebObjects supports security mechanisms found in many http servers. It provides for user authentication, and it also has the capacity to work in environments having firewalls so that no users get unauthorized access. Beyond security, access to data would be controlled at the server level.

- **Our corporate priorities have been set for this fiscal year. How can we possibly start a major new project like this, to integrate marketing functions with mission-critical IT activities?**

A: IT activities often involve leveraging in-house technological resources externally. WebObjects provides a way to link existing systems, even legacy content stored on mainframes, to new opportunities on the internet or on intranets. WebObjects is also the solution for delivering customized marketing information to each viewer or setting up shop online. WebObjects meets the needs of IT and marketing groups in one package. It's a way to make a one-project budget fulfill the needs of two groups.

- **Trying to get our in-house creative services department, outside ad agency, direct mail company, and a commercial printer to work together is hopeless. It will never happen in my lifetime!**

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A: This might be true. However, a robust document management application can enforce a workflow and permit access to select users. Combined with SMTP services for automatic notification, a system can be put in place that provides an internet site for file transfers and directory access limits to help drive a workflow.

- **We can't afford to spend \$100,000 to develop an electronic catalog. How can we get results while investing far less?**

A: An electronic catalog combines the challenge of posting content on the web in an organized, searchable manner and conducting electronic commerce once buyers find what they need. If the challenge seems too complicated and expensive at first, start small with a model. First build a small database in FileMaker Pro 4.0. Then make it available on the web using FileMaker HomePage 3.0. (<http://www.filemaker.com>) The model serves a function while a company prepares for a large-scale catalog. Experience will lead to a better understanding and more sophisticated questions when the time comes to invest in a more robust, scalable system.

- **Until the ROI is proven, we don't want to invest in 100% custom development. Wouldn't it be smarter to work with a company that specializes in e-commerce or online storefront development? How can we use off-the-shelf software to get started?**

A: Apple Computer's WebObjects is a shrink-wrapped, scalable development environment for this type of solution. It includes pre-fabricated modules that can be modified and integrated into a new, "semi-custom" solution that will grow as needs evolve and expand. Successful implementations include Standard & Poors (www.ratings.com), The Apple Store (www.apple.com), and Intermountain Health Care (www.ihc.com).

Key customer questions

- **How will database publishing improve my business? What kind of results can I expect?**

A: Database publishing brings the "point of purchase" to the user's home or office computer. It allows the prospective buyer more time to peruse marketing materials and product reviews supplied. It can even allow a "test drive" of sorts. By the time potential buyers enter the showroom, they will have already made a purchase decision.

- **Why is it necessary to integrate our business information systems with our design and publishing processes?**

A: It is a way for the publishing process to get information that has been traditionally hard to reach simply because it resides on a different platform. By avoiding re-keying the information, publishers get the latest version of whatever might be on a business

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information system, typographical errors from re-keying are eliminated and it takes far less time.

- **How do I implement a database publishing system? Is there an easy way to get started?**

A: Step 1. Begin with content and your audience. To publish database products, the content should include information people value that is difficult or tedious to get. It might also include new information produced by tabulating or comparing many records.

Step 2. Determine the value of the information and the price your audience might be willing to pay to have it. Determine the nature of the content. Should it be updated daily or yearly? For example, movie, stock or restaurant ratings change more frequently than secondary school test scores.

Step 3. Choose a database that meets your needs in reporting relevant information, formatting results for printed pages or posting information on the internet.

Step 4. Consider using FileMaker 4.0 and HomePage 3.0. These products provide relational database power, the ability to format text for printed output and allow for easy publishing to the worldwide web.

- **Who else is using Apple products for database publishing, and what has it done for them?**

A: See the reply to the following question for WebObjects. FileMaker-based publishers are numerous but not widely publicized.

- **Who else is using WebObjects? What has it done for them?**

A: WebObjects gives users the ability to provide true one-to-one content serving on the internet as well as the capacity for electronic commerce. By bringing meaningful content to the end user, a web site piques viewer interest, provides information necessary to make a purchasing decision and offers a mechanism to do the sales transaction. It also generates repeat business. It does this without a physical storefront, employees, store inventory, shipping costs to stores, point of purchase displays, etc. There are over 250 customers worldwide. They include The Sharper Image, Club Med, Standard & Poors, The American Stock Exchange, British Broadcast Company, and MCI among others.

- **Where can I get more information about WebObjects?**

A: Visit the WebObjects web site at <http://www.apple.com/webobjects>

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- **Who can help us design and implement a database publishing system that will meet our particular needs?**

A: There are nearly 300 solutions providers listed on Apple's web site for WebObjects. Of them, Running Start and WebWare have shown interest in publishing-oriented solutions. [<http://enterprise.apple.com/Alliances/Partners/SPListings.html>]

Commercial printers & quick printers

Market overview

Market pressures are pushing printers and publishers to add digital printing and customization capabilities to their core service proposition. Businesses affected include: commercial and quick printers, in-plant printing or repro shops, catalog and directory printers, direct mail houses, book publishers, periodical printers, forms printers, and other specialty printers such as financial printers.

Underlying all of these applications is the need for content management strategies for reusable digital assets, page layouts that can accommodate variable content; and linked databases whose contents will be applied directly to a particular publishing activity. These applications require powerful RIPs and digital print engines that can handle the demanding processing requirements of variable-data printing. In some cases they may require a company and its suppliers to re-engineer key processes in order to streamline the publishing workflow, particularly when multiple versions will be produced from the same set of publishing assets. These factors need to be addressed if commercial printers want to be productive (or profitable) when providing variable-data printing services.

Note that sophisticated applications involve a series of distributed, linked repositories rather than a single monolithic database. These repositories may be scattered across various departments and divisions of a company—or even across multiple companies in a single supply chain. The distributed nature of “the database” makes this solution area very complex—but ripe for professional service providers who can help streamline processes, and integrate tools and activities.

According to CAP Ventures, “Despite the growing acceptance of on-demand printing, the application with the greatest potential market value—the ability to version, customize, and personalize documents to reach customers on a one-to-one basis —has barely been realized.” Why? There are many barriers to widespread adoption, such as:

- a lack of understanding of the enabling technologies and how to apply them productively
- the need for designers to approach design challenges more abstractly, especially when designing dynamic publications whose page geometry will vary depending on the data being assembled for a particular version of each page
- the need for people doing content creation or content acquisition to anticipate what might someday be required so that digital assets can be used for more than one purpose (this has implications for rights management, tagging of assets, and “meta data” to be associated with each asset)
- performance issues with current RIPs and Postscript workflows, which may limit the extent of customization a digital press can handle
- the need for printers to add information technology expertise to their repertoire of core competencies

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- the need for printers to make a significant investment in capital equipment, as digital presses and their supporting software can easily cost upwards of \$400,000

What this implies for Apple and its partners is the need to engage in team selling, offering consultative problem solving designed to help customers work through and resolve the issues listed above.

Potential partners in a database publishing network (“supply chain”)

Large corporate customers in the following industries are currently driving most of the business for variable-data printing and print on demand: manufacturing, financial services, and retail/wholesale. The marketing function is likely to be the key business driver for the process.

<i>Partner (relationship)</i>	<i>Requirements & business considerations</i>
<ul style="list-style-type: none"> • Marketing managers, merchandising managers, corporate marketing communications (business driver) • <i>[For a fuller discussion, see the earlier section on Marketing managers]</i> 	<ul style="list-style-type: none"> • Define tactics for one-to-one marketing that include customized print collateral • Assess business opportunities and identify target audience for customized materials • Define variable content elements and how those will be matched to specific recipients or groups of recipients • Remote viewing and approval • Update prices or featured products at the last possible minute
<ul style="list-style-type: none"> • IT professionals and database administrators (expertise on internal database structure, contents) 	<ul style="list-style-type: none"> • Assist marketing with data mining in order to segment desired recipients of customized or personalized materials • Define business rules and logic for retrieving relevant data from corporate databases; manage security requirements • Help set up media asset system, provide access to customer/product/price databases • Set up secure Extranets or private networks for supply chain collaboration
<ul style="list-style-type: none"> • Designers, ad agencies (design drivers) 	<ul style="list-style-type: none"> • Design a consistent identity across media: catalogs, brochures, ads, Web pages, etc. • Learn to design and proof dynamic layouts whose contents will come from databases
<ul style="list-style-type: none"> • Production artists (manipulate content) 	<ul style="list-style-type: none"> • Design variable placeholders and page templates for data-driven publications, such as catalogs, brochures, or directories • Develop scripts to automate recurring tasks • Learn more structured approaches for

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	separating form from content so that digital assets can be reused effectively
<ul style="list-style-type: none"> • Print buyers (manage the relationship with the commercial printer) 	<ul style="list-style-type: none"> • Select printer, define job specifications and approval criteria, negotiate pricing • Proof templates, data forms, and output samples for customized jobs

Current infrastructure

- Commercial printers are just beginning to invest in digital printing; over 1000 digital presses have been installed; not all have variable-data printing capabilities
- Very few commercial printers know how to sell or support information technology, or how to design the infrastructure to accommodate the variable-data printing workflow
- No generally accepted trade practices for quality control or rework liability for variable-data print jobs
- No generally accepted trade practices on who should manage client's publishing repository nor where the database(s) should reside
- Few organizations have coherent media asset management strategies or processes
- Little-to-no integration between corporate databases and design and publishing functions for marketing activities
- Minimal expertise within design firms on how to design flexible layouts to accommodate "pages" constructed by scripts according to conditional logic
- Advances are needed in digital print engines, RIPs, and Postscript before high throughput can be achieved for highly personalized documents (Adobe Extreme promises some improvements, but more are needed)
- Industry experts think XML offers promise for database publishing, but XML-compatible tools will just start to appear in mid-1998 (Web publishing tools will probably precede XML tools for commercial printing applications)

Typical problems

- Need to print full-color documents, on tight deadlines, with content individualized to the recipient: where text or graphic elements vary from one copy of the document to the next
- Need to meet customer demand for personalized and/or customized printed materials, often with short press runs, at a profitable but attractive price point (often for print runs of 1000 copies or less)
- Need to deliver commercial quality output, with few quality trade-offs despite short print runs — even for single-unit print runs
- Need to adjust prepress and production workflows to maximize RIP and digital press throughput for print jobs whose pages vary from one impression to the next

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- Need to maximize usage of expensive digital presses (“keep the presses running”)
- Need to agree to specific business and technical protocols relating to database access, including security, with the client’s IT department
- Need to ensure compatibility between the personalization engine that ships with their digital press and the tools used by the page layout designers to designate where variable data fields will appear, the conditional logic to be applied, etc.
- Need to reach agreement with the client on how to proof and approve personalized print jobs, whose specific contents vary from document to document

Benefits of database publishing

Forward-thinking commercial printers will identify one or more of the following as the benefits they seek. Traditional or “old guard” printers face cultural barriers, and may focus simply on new service opportunities that will help them stay in business while introducing as little disruption as possible. The following are examples of some of the benefits that can be realized by commercial printers who make an effective transition to database-enabled customization services:

- Achieve competitive advantage by moving away from increasingly commoditized traditional printing business
- Develop long-term business relationships with key accounts, “locking” the client-supplier relationship by interconnecting the client’s database(s) with the printer’s variable-data print production processes
- Increase the share of business that is done through the most valuable accounts
- Increase profit margins
- Develop new revenue streams by delivering professional services to help clients prepare for personalized printing and one-to-one marketing

Apple promise for database publishing

Customer satisfaction

- Your clients will enjoy much higher response rates when they can cost-effectively deliver customized brochures or print collateral, tailored to their best prospects

Cost reduction

- Take advantage of your current investment in Macintoshes by adding new “digital makeready” capabilities, seamlessly integrated with your digital presses
- Increase throughput by upgrading to faster, higher capacity Macs such as the G3 PowerMac and by developing custom scripts to streamline repetitive activities
- Minimize the need for rework due to color management problems by incorporating color management facilities into your variable-data printing operation and workflow

Revenue opportunities

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- Increase the lifetime value of your most valuable customers by growing your share of their business
- Provide color-managed repurposing services, storing profiled digital assets in a publishing repository
- Set up Internet-based electronic job tickets so clients can specify and place orders for customized, digitally printed documents that need to be produced on a recurring basis
- Set up “distribute-then-print” capabilities for key accounts, to minimize inventory and shipping costs for key accounts

Purchase decision influencers

- President, owner of commercial printing concern
- Technology manager, if any
- Outside consultants helping to implement variable-data printing capabilities

Objections, fears, biases, misunderstandings

What to anticipate from prospective customers and purchase decision influencers

- **Our digital press suppliers have standardized on [Unix or Windows NT] to drive their personalization engine. How does Macintosh fit in?**

A: Digital webs in the field often use Unix platforms and fiber optic networks between server/RIP and print engine for fast data handling and efficient file management. The goal in that arena is to get data moving as fast as the print engine can handle it for best production performance. The content still has to come from somewhere, though. The fast Macintosh G3s fit into this workflow at the pre-RIP stage when variable data streams and page format need to be created, checked and corrected. “Garbage in” is still “garbage out,” and the print-on-demand expectation puts added delivery pressure on suppliers while they still get hammered when the content does not print as expected. While this is a frustration for service providers and the client, it is a big opportunity to cement a client relationship. AppleScript can be used to check a text file for proper delimiters, number of records and long string lengths that will not fit a page format. The page template can be preflighted using AppleScript to drive FlightCheck. All of these processes can be automated on multiple files using simple drag-and-drop operation. If a master page design includes color elements or photos, ColorSync ensures that these print as expected.

- **We’re working with Barco/Agfa/Scitex/Indigo/Xeikon/Xerox (etc.) to set up the internal workflow for our digital press. Where does the Macintosh fit in?**

A: High-end systems produce impressive results in merging data, allowing page elements to drift, RIPping and firing the processed pages to the print engines. In Agfa's ChromaPress solution, some of the workflow software resides on a Macintosh design workstation and a PowerPC Macintosh is used as a server. But in most cases, the Macintosh comes before these systems and remains the creative and file preparation platform of choice. It ensures

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color reproduction is consistent with what the user sees on screen; it allows for automated file checking to avoid time-consuming PostScript errors, and it provides a path for automatically checking data on smaller volumes (below 10,000 records) of variable content stored in text files.

- **We've heard that QuarkXPress (or PageMaker) is not well suited to personalized printing, and that we should be using XML instead. Are there any XML tools for Mac?**

A: One XML tool is Adobe FrameMaker 5.5. More will become available. Some high-end variable data solutions include editing software that reads page layout files and tags them to provide for variable content fields. Using these systems, existing page layout software such as PageMaker and Quark XPress have been included in the workflow.

- **Last year we spent \$400,000 to buy our digital press and it's still not busy enough. We're not getting enough demand for digital printing to stay in business.**

A: The best print industry consultants will tell you that after a certain point, the best technical people and the latest in hardware and software cannot account for better sales initiative. Agfa's ChromaPress site on the web provides a series of papers called "Digital Road Maps" that give some tips and field advice for selling on-demand print services. Some of their advice from the field recommends looking for multi-page jobs to build volume, aggressively seeking jobs with regularly scheduled runs, and not to discount prices to avoid making the step to a commodity-like pricing.

- **We're at the tail end of the chain. We're losing money because designers are still designing pages without anticipating what could happen to their layout due to variable data.**

A: The best variable printing solutions address file preparation. There's no avoiding good preparation, so they provide application extensions, plug-ins and the like to content producers so that files will process in the print-on-demand workflow. Another approach is to compensate for design inflexibility by including conditional statements that allow page elements to "float" and change depending on the amount of content. As long as a designer is mostly "in the ballpark," the software can help keep it all on the page, meeting design criteria.

- **Isn't there a simpler way to get our feet wet, and learn what it takes to do this well?**

A: Step 1. Define the format of the publication and the location of variable content, graphic or text only.

Step 2. Identify the source of raw materials for the content (pictures and text) and note whether blocks of graphic and text change with each copy or remain the same.

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- Step 3. Determine dependencies, or links, between variable text and image/graphic content.
- Step 4. Identify software (RIP-based, shrink-wrapped software, custom software) that can be used to produce (and sometimes RIP) the publication. Get the requirements for raw materials from it and see what conversions must be done with existing text files and graphics so that they work with the software solution.
- Step 5. Do the conversions, if required, on a limited set of text records and/or graphic elements.
- Step 6. Do a trial run, producing the publication containing variable content. Note processing time. Look for errors.
- Step 7. If processing time is excessive, explore a new solution to integrate raw materials. Otherwise, resolve errors looking first at inconsistencies in the text data stream.
- Step 8. Repeat steps 6-7 until the process is error free for a small number of copies. Develop text or image file filters that address errors you have encountered.
- Step 9. Then try a larger set. If it works, increase the number of records, testing a larger set.
- Step 10. (optional) Sometimes a successful prototype solution is required before a company will consider a faster or more robust software purchase. The Macintosh is the best prototype tool for automating the process of merging text, pictures and a page layout using AppleScript, QuarkXPress, FileMaker and Canto Cumulus. Apple makes a script and solution example available at <http://www.applescript.apple.com>, which helps companies learn about issues with data integrity and design. It can be modified to meet your needs or used as a model. AppleScript speed on the G3 Macintosh computer makes this a viable custom solution for shorter runs of about 10,000 or less records and a great prototype for large-scale projects.

- **Until the ROI is proven, we don't want to invest in 100% custom development. Wouldn't it be smarter to work with a company that specializes in e-commerce or online storefront development? How can we use off-the-shelf software to get started?**

A: Apple Computer's WebObjects is a shrink-wrapped, scalable development environment for this type of solution. It includes pre-fabricated modules that can be modified and integrated into a new, "semi-custom" solution that will grow as needs evolve and expand. Successful implementations include Standard & Poors (www.ratings.com), The Apple Store (www.apple.com), and Intermountain Health Care (www.ihc.com).

Key customer questions

- **How will Macintosh computers improve the overall profitability of our on-demand print operation? Our variable data printing business?**

A: Automation is a good way to ensure consistency, improve productivity of a system, and reduce operating costs thereby boosting profits. AppleScript is the tool for automation on

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the Macintosh. Its ease of use empowers existing staff, making them a digital tool foundry. These can be used to automate layout of pages bound for a digital press, collection of job files and archiving, data checking, tagging images with ICC profiles for color management using ColorSync and other support functions related to a print-on-demand or variable content workflow.

- **How can we minimize the duplication of effort associated with repurposing line art, images, etc.? How can we find the right version of the artwork at the moment we need it?**

A: Evaluate digital asset management solutions available for cost, ease of use, number of users supported and searchable information tracked. They meet these needs often without the requirement for custom development.

- **How can we get designers [or advertising agencies] to work smarter, so they deliver their jobs to us without requiring us to invest in a huge amount of rework before we can send the job to prepress?**

A: Use “preflight” file-checking procedures in house and then move this process to the client. These include making sure all fonts and graphic files are included, unused colors are not part of a file, images are of sufficient resolution, spot colors have all been named consistently, etc. Another option, provided you use supported software, is to try automated preflight software such as FlightCheck by MarkzWare. Service bureaus can offer clients better turnaround or a better price for insuring files they submit are ready for production. Production requirements for various types of jobs should be communicated to the client.

- **How do we collaborate with all the key stakeholders in the supply chain, including our client’s IT department?**

A: Many digital asset management solutions provide for internet browsing of holdings by remote clients, file transfer, security and tools for maintaining a digital workflow on a server. Providing permissions and a path for file transfer and notification allows for a method and a place for collaboration.

- **How do I implement a database publishing system? Is there an easy way to get started?**

A: Step 1. Begin with content and your audience. To publish database products, the content should include information people value that is difficult or tedious to get. It might also include new information produced by tabulating or comparing many records.

Step 2. Determine the value of the information and the price your audience might be willing to pay to have it. Determine the nature of the content. Should it be updated daily or yearly?

Database Publishing Solutions

For example, movie, stock or restaurant ratings change more frequently than secondary school test scores.

Step 3. Choose a database that meets your needs in reporting relevant information, formatting results for printed pages or posting information on the internet.

Step 4. Consider using FileMaker 4.0 and HomePage 3.0. These products provide relational database power, the ability to format text for printed output and allow for easy publishing to the worldwide web.

- **Who else is using Apple products for database publishing, and what has it done for them?**

A: See the reply to the following question for WebObjects. FileMaker-based publishers are numerous but not widely publicized.

- **Who else is using WebObjects? What has it done for them?**

A: WebObjects gives users the ability to provide true one-to-one content serving on the internet as well as the capacity for electronic commerce. By bringing meaningful content to the end user, a web site piques viewer interest, provides information necessary to make a purchasing decision and offers a mechanism to do the sales transaction. It also generates repeat business. It does this without a physical storefront, employees, store inventory, shipping costs to stores, point of purchase displays, etc. There are over 250 customers worldwide. They include The Sharper Image, Club Med, Standard & Poors, The American Stock Exchange, British Broadcast Company, and MCI among others.

- **Does Apple have any products that my clients could use to organize their data more effectively when they know they want to produce customized materials?**

A: Databases, such as FileMaker Pro 4.0, are the key to organization. Text-based databases get universal support from variable data vendors as long as they can export their contents in an ASCII, character delimited form. Digital asset management software tracks the location and file attributes for other media.

- **How can we be sure that people upstream from us will provide us with files that will be compatible with our digital presses?**

A: Publish a specification for the clients that shows the file types and delimiters (if needed) for database publishing. Provide software tools (supplied by solution vendors) to clients that ensure proper file preparation. Make it clear that deviation from the specification will cost more money.

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- **Who can help us design and implement a database publishing system that will meet our particular needs?**

A: There are nearly 300 solutions providers listed on Apple's web site for WebObjects. Of them, Running Start and WebWare have shown interest in publishing-oriented solutions. [<http://enterprise.apple.com/Alliances/Partners/SPListings.html>]

Web site developers

Market overview

Given the proliferation of increasingly sophisticated web sites, any organization that publishes a web site competes for attention and share of mind. Sites compete for attention whether they aim to entertain teenagers, support online purchasing, or provide detailed product specs on a vast array of industrial products to technical buyers. One way that sites compete is by assembling web pages dynamically through database publishing.

Cutting-edge web sites are turning to database publishing as the only feasible means of achieving either of the following editorial strategies:

- *Content rotation*: Changing text, graphics, or dynamic media elements frequently in order to encourage people to visit the site on a regular basis to see what's new. Content rotation is practiced by news and information sites, as well as sites that merchandise or sell products and services.
- *Content personalization*: Selecting and adapting "on the fly" the content to be presented, based on what is known or inferred about a person when they visit the site.

Content personalization can be applied to individuals as well as groups of people with similar characteristics. Organizations that adopt content personalization do so because they believe this approach is more relevant or appealing to their audience (or market) than the traditional one-size-fits-all alternative.

Simple forms of content personalization are triggered by information that is stored in "cookies" or reported by the user's browser to the HTTP server. For example, a number of sites deliver different ads and editorial material based on whether the user is browsing with a Macintosh or Wintel computer.

Technically sophisticated sites adapt the content that is presented based on real-time inferences made about people who are visiting at that moment. These inferences are drawn from their purchasing history, usage profile, stated preferences, click-stream behavior, answers to a form or questionnaire; or from aggregated assumptions based on people like them. Achieving real-time personalization is the holy grail of one-to-one marketing. In practice, it is still at the bleeding edge of technology.

Real-time content personalization requires a major commitment on the part of the web site owner. The web development team needs to apply business modeling, database management, and software engineering expertise to the challenge of dynamically assembling web pages in response to each visitor's profile. Additionally, the site's information design, editorial, and content management strategies must be adapted, in order to integrate what is stored in the back-end databases with the appropriate HTML page templates.

Dynamic web sites are usually funded by marketing, sales, and/or customer support; or their counterparts in catalog or periodical publishing organizations. The cost of developing and maintaining dynamic web sites ranges from hundreds of thousands to millions of dollars

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annually. Sites practicing content personalization require a much larger development investment than those using content rotation.

Whether the content is “rotated” or personalized, teams that develop dynamic web sites are complex and multi-disciplinary, as shown in the following table. (See the chapters on Media Asset Management Solutions and Dynamic Media Solutions for information specific to web authors and content creators.) The remainder of this chapter focuses on web site developers.

Potential partners in a web development team for a dynamic web site (“supply chain”)

The team responsible for a dynamic web site needs to balance very different skill sets and work styles, ranging from software engineering to information design, interactivity design, and creative expression. Best practices are still evolving when it comes to integrating corporate databases with web site content strategies and information architecture. The following table summarizes particular customer requirements and key business considerations by segment.

<i>Partner (relationship)</i>	<i>Requirements & business considerations</i>
<p><i>Content specifiers and business drivers</i></p> <ul style="list-style-type: none"> • Merchandising managers • Brand managers, product managers • Marketing managers • Marketing communications • Catalog publishers and direct marketers • Magazine and newspaper publishers • Entertainment and media companies • Build-to-order manufacturers • Online merchants 	<ul style="list-style-type: none"> • Preserve brand integrity • Seek opportunities to drive incremental revenues by extending the business’ reach to the WWW • Define promotions and special offers based on measured performance results • Update prices at the last possible minute • Design highly targeted web ad campaigns and measurement strategies matched to the profile of web site visitors • Develop editorial strategies to take advantage of emerging opportunities for personalization and interaction • Develop marketing programs and tactics designed to exploit online storefront, electronic catalog, or other content personalization opportunities • Develop personalized news or information channels for highly targeted audiences

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<p><i>Database management and IT specialists</i></p> <ul style="list-style-type: none"> • IT professionals within the enterprise • Database administrators (expertise on corporate database structure, access protocols) 	<ul style="list-style-type: none"> • Define business rules and logic for retrieving relevant data from corporate databases • Help set up media asset management system and access protocols • Provide access to customer/product/price data in corporate databases • Manage security requirements • Set up secure Extranets or private networks for supply chain collaboration
<p><i>Programming and software engineering</i></p> <ul style="list-style-type: none"> • Programmers and software developers • Software architects • Technical project managers 	<ul style="list-style-type: none"> • Design the technical architecture to map the database schema to the web templates • Develop high-performance server-side programs — often using middleware such as WebObjects — to connect corporate databases and media asset databases to dynamically assembled HTML pages • Serve as bridge between IT organizations and rest of web development team
<p><i>Web server support and operations</i></p> <ul style="list-style-type: none"> • Webmasters • System administrators 	<ul style="list-style-type: none"> • “Serve up” dynamically assembled web pages or electronic catalogs with integrated e-commerce • Ensure overall system performance and scalability while keeping hackers out of sensitive corporate databases
<p><i>Content creators</i></p> <ul style="list-style-type: none"> • Advertising agencies • Graphic design studios • Web design studios • Specialists such as musicians, sound engineers, animators, 3D and VR designers, videographers and photographers 	<ul style="list-style-type: none"> • Design user interface, information architectures and interactivity matched to the databases serving up the content and corporate data • Learn to design web layouts whose contents will be updated dynamically from databases • Reduce time and money spent searching for and/or re-creating existing content assets • Develop tagging and media asset cataloging strategies to permit asset re-use and retrieval “on the fly” from a database • Provide formal design specifications (to the production and engineering teams) to reduce time and costs associated with art production, scripting, and programming

Database Publishing Solutions

Production

- Production specialists
 - HTML coders and Java scripters
 - Production managers
- Design variable placeholders and page templates for data-driven sites, such as online catalogs, online stores, personalized e-zines, or other dynamic web sites
 - Develop client-side scripts to add special effects or additional functionality to the browser
 - Reduce time and costs associated with delivering complete HTML pages whose contents will be dynamically assembled
 - Learn more structured approaches for separating form from content so that digital assets can be reused effectively
-

Current infrastructure

- Little-to-no integration between corporate databases and design and publishing functions for marketing activities; corporate data likely to reside within multiple, heterogeneous legacy databases accessible via SQL or ODBC
- Minimal expertise within marketing organizations on how to apply information technology and database publishing approaches to the enterprise's business challenges
- Minimal but growing expertise within web design firms on how to design flexible layouts for dynamically assembled web pages personalized to the visitor's interests and browser capabilities
- Few organizations have coherent media asset management strategies or processes
- Most advertising firms and web designers have only limited experience in managing or collaborating with software engineers and programmers

Typical problems

- Need to implement highly scalable approaches that can gracefully accommodate growing traffic at a web site while keeping system performance satisfactory
- Need to leverage existing legacy databases and business applications by extending their reach to the Web while tailoring their look and feel to the audience or user
- Need to reduce the time, effort and costs associated with keeping a site's content fresh and appealing
- Need to personalize content presented to web site visitors in order to encourage them to spend more time at this site or revisit it on a regular basis
- Need to build online storefronts or electronic catalogs, with integrated e-commerce and secure transaction handling in order to drive incremental revenues

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Benefits of database publishing

- Improve online advertising revenues by achieving higher click-through rates or delivering more highly targeted prospects to the advertiser
- Delivered improved sales results through products and services purchased online, at the customer's convenience
- Improve customer loyalty and retention through build-to-order and "individualized" products that are tailored to the customer's personal requirements
- Reduce the costs of conducting business over the Web

Apple promise for database publishing

Customer satisfaction

- Provide more compelling and more relevant information to customers and channel partners
- Reach customers one-to-one with messages that are personalized to their individual needs and interests ("just-for-me")
- Be available to your customers when they want to hear from you, or when they are ready to make a purchase — even after-hours or on a weekend!

Cost reduction

- Reduce the costs and labor required to deliver dynamic web sites that leverage existing corporate databases and enterprise resources
- Accelerate the web development process through reusable software components and "database to web" development wizards to simplify database connectivity
- Reduce the time and costs of developing and maintaining complex web sites by using dynamic web templates linked intelligently to corporate databases and media assets
- Reduce risk by providing secure and controlled access to corporate databases

Revenue opportunities

- Conduct transactions online and drive incremental revenues by reaching customers who are not well served by the existing distribution channel
- Boost sales by delivering personalized messages to people who are ready and interested in acting on your offers
- Increase online advertising revenues by delivering more highly targeted prospects to advertisers
- Take advantage of untapped business potential within under-served market segments, such as narrowly targeted segments or markets in other geographic areas

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Purchase decision influencers

- Information technology executives, IT staff, and database administrators
- Technology managers within advertising agencies, direct marketing firms, catalog and periodical publishers
- Software engineers and programmers under contract to web development firms, especially those with e-commerce implementation expertise
- Senior sales and marketing executives (little direct influence on database middleware purchase decisions, but key role on overall project funding)
- Managing editors or publishers (newspapers and periodicals); similar role as senior sales and marketing executives

Objections, fears, biases, misunderstandings

What to anticipate from prospective customers and purchase decision influencers

- **How can we integrate our corporate databases with Apple Macintosh computers?**

A: Macintoshes run SQL client applications like Butler, BrioQuery, and others. Macintoshes easily communicate via TCP/IP, Novell and AppleTalk networks. Automated links for pairing old information with new for deployment to the internet or an intranet can be done with WebObjects.

- **We've committed to standardizing on Windows NT (or Unix). Where does Macintosh fit in this picture?**

A: While NT 4.0 and Unix make good servers, many users would rather have a Macintosh as a workstation. The Macintosh is a solid, low-maintenance network citizen. It's network hardware is ready to run out of the box, and users can plug into TCP/IP, Novell NetWare or AppleTalk networks. The Macintosh can see directory structures and files on PCs, other Macintosh and Unix servers. Macintosh users can open and edit most of the usual files coming from Windows, including Microsoft Office 98 applications. Software and hardware are designed to work together with interface attributes remaining consistent between them.

- **We've had a long-term relationship with Oracle/Informix/Sybase/IBM (etc.). Why should we believe that a database connectivity product from Apple is going to deliver superior performance or better integration with our legacy databases? Who is better equipped than Oracle to provide database-to-web connectivity?**

A: While the proprietary database products work well within a vendor's product line, Apple Computer's WebObjects makes it possible to link multiple databases of old and new information to create a rich, simplified experience for the user.

Database Publishing Solutions

- **But our system integrator/VAR says we should stick to the tools provided by Oracle/Sybase (etc.) when we connect our legacy databases to our web site.**

A: WebObjects is extensible and open to new scripting and programming. This provides for a larger marketplace of skilled people that can help get the system going while ensuring competition in terms of price. The proprietary system vendors provide added extensibility and support at a premium, and the buyer will be committed to paying for it.

- **Where can we find programmers or software developers who already know how to use WebObjects? We can't afford to train our programmers to use WebObjects.**

A: Apple Enterprise Systems is a first point of contact. See the following web site:
<http://enterprise.apple.com/Alliances/Partners/SPListings.html>

- **We can't afford to spend \$100,000 to develop an electronic catalog. How can we get results while investing far less?**

A: An electronic catalog combines the challenge of posting content on the web in an organized, searchable manner and conducting electronic commerce once buyers find what they need. If the challenge seems too complicated and expensive at first, start small with a model. First build a small database in FileMaker Pro 4.0. Then make it available on the web using FileMaker HomePage 3.0. (<http://www.filemaker.com>) The model serves a function while a company prepares for a large-scale catalog. Experience will lead to a better understanding and more sophisticated questions when the time comes to invest in a more robust, scalable system.

- **Until the ROI is proven, we don't want to invest in 100% custom development. Wouldn't it be smarter to work with a company that specializes in e-commerce or online storefront development? How can we use off-the-shelf software to get started?**

A: Apple Computer's WebObjects is a shrink-wrapped, scalable development environment for this type of solution. It includes pre-fabricated modules that can be modified and integrated into a new, "semi-custom" solution that will grow as needs evolve and expand. Successful implementations include Standard & Poors (www.ratings.com), The Apple Store (www.apple.com), and Intermountain Health Care (www.ihc.com).

- **But my technology manager says that database performance is always slower with middleware than with tools that are optimized for a particular RDBMS. Won't our web site be sluggish if we use WebObjects for database connectivity?**

A: Several electronic commerce sites on the internet use WebObjects, and no one has commented on speed compromises.

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- **But won't our programmers be limited to Objective C if we choose WebObjects? We've standardized on Java (C++, Visual Basic, or whatever).**

A: Programmers are not limited. WebObjects supports Sun's Java Developer Kit v1.1.3, ANSI C, C++, and Objective C. The WebObjects development environment is open to new scripting and coding languages that might evolve in the future.

- **Why can't we use WebObjects with a Macintosh? Isn't Apple the supplier?**

A: WebObjects 4.0 supports Mac OS, Windows NT, Solaris, HP/UX, and OPENSTEP Mach. On the client side, WebObjects supports all browsers, eliminating operating system dependencies.

Key customer questions

- **How will database publishing improve my business? What kind of results can I expect?**

A: Database publishing brings the "point of purchase" to the user's home or office computer. It allows the prospective buyer more time to peruse marketing materials and product reviews supplied. It can even allow a "test drive" of sorts. By the time potential buyers enter the showroom, they will have already made a purchase decision.

- **How do I implement a database publishing system? Is there an easy way to get started?**

A: Step 1. Begin with content and your audience. To publish database products, the content should include information people value that is difficult or tedious to get. It might also include new information produced by tabulating or comparing many records.

Step 2. Determine the value of the information and the price your audience might be willing to pay to have it. Determine the nature of the content. Should it be updated daily or yearly? For example, movie, stock or restaurant ratings change more frequently than secondary school test scores.

Step 3. Choose a database that meets your needs in reporting relevant information, formatting results for printed pages or posting information on the internet.

Step 4. Consider using FileMaker 4.0 and HomePage 3.0. These products provide relational database power, the ability to format text for printed output and allow for easy publishing to the worldwide web.

- **Where can I find a web development team, or firm, that has an established track record in building dynamic web sites using WebObjects?**

Database Publishing Solutions

A: There are nearly 300 solutions providers listed on Apple's web site for WebObjects. Of them, Running Start and WebWare have shown interest in publishing-oriented solutions. [<http://enterprise.apple.com/Alliances/Partners/SPListings.html>]

- **What are the benefits of using general-purpose SQL client software instead of an integrated system from Oracle (etc.)?**

A: For sites that do not already own client software for existing databases, middleware offers the opportunity to design an interface and method of access that might best suit a work group's needs. The benefits are ease of use, information presentation and data manipulation tailored for specific clients or workgroups within a company.

- **Who else is using WebObjects? What has it done for them?**

A: WebObjects gives users the ability to provide true one-to-one content serving on the internet as well as the capacity for electronic commerce. By bringing meaningful content to the end user, a web site piques viewer interest, provides information necessary to make a purchasing decision and offers a mechanism to do the sales transaction. It also generates repeat business. It does this without a physical storefront, employees, store inventory, shipping costs to stores, point of purchase displays, etc. There are over 250 customers worldwide. They include The Sharper Image, Club Med, Standard & Poors, The American Stock Exchange, British Broadcast Company, and MCI among others.

- **Where can I get more information about WebObjects?**

A: Visit the WebObjects web site at <http://www.apple.com/webobjects>

- **Why should I buy an Apple product for database connectivity? Can't we implement a system like this using a web server from Microsoft or Netscape, and database connectivity products from Oracle, Sybase, etc.?**

A: There are many good database connectivity products running on most platforms, and there are ways of making this information available on the web using servers. However, Apple's product, WebObjects, provides the advantages of ease of integration and a professional look. Pre-fabricated modules help make this possible. To a business, this might mean reduction or elimination of consultant/programmer time and an abbreviated implementation schedule.

References, tools & resources for making the case

- *WebObjects* (Apple fact sheet)
- *The Web. Sink or Swim. Apple's cross-platform approach to create dynamic, profitable websites.* (Apple brochure)
- www.apple.com/publishing
- www.apple.com/webobjects
- *Strategies for Building Digital Brands* (Masters of Media white paper)
- Digital Brand Building Workflow Solutions CD
- *Return-on-Investment: Macintosh vs. Windows* (GISTICS ROI TechBrief)
- *Media Asset Management: Best Practice Primer* (GISTICS white paper)
- *Fact-based Assessment for Technology Deployment* (GISTICS ROI TechBrief)
- *The One to One Future: Building Relationships One Customer at a Time*, Don Peppers & Martha Rogers, Doubleday, 1993.
- *Enterprise One to One: Tools for Competing in the Interactive Age*, Don Peppers & Martha Rogers, Doubleday, 1997.
- *Real Time: Preparing for the Age of the Never Satisfied Customer*, Regis McKenna, Harvard Business School Press, 1997.
- *Interactive Marketing: The Future Present*, Edward Forrest & Richard Mizerski, American Marketing Association, 1995.
- *Electronic Marketing*, Margo Komenar, Wiley Computer Publishing, 1997.
- "The Rise of Interactive Branding," by Jeannette Hanna, in *Design Management Journal*, Volume 8, Number 1, Winter 1997, Reprint # 9674HAN34.
- *Seybold Report on Publishing Systems*, Vol. 27, Number 2 (September 1997)
- *Seybold Report on Internet Publishing*, Vol. 2, Number 1 (September 1997)
- "Flexible Publishing Delivers on Business Objectives," by Rob Haimes, in *Electronic Publishing*, October 1997.
- www.efi.com/
- www.atype.com/
- www.scitex.com/
- www.splashtech.com/
- www.agfahome.com/
- www.capv.com/ (CAP Ventures home page)