GRAPHIC EXCHANGE

Face To Face

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The power

Toolsets and technologies define page design on the desktop, and the interface is everything.

BY DAN BRILL

THE FACE OF THE DESKTOP IS CHANGING

In 1992, publishing ran on a triumvirate of desktop applications. *QuarkXPress*, which was peaking with its definitive version 3.32r5, had swept away *Aldus PageMaker* in the high end printing and publishing sector; *Adobe Illustrator* and *Adobe Photoshop* were the yin and yang of drawing and creative imaging, feeding *QuarkXPress* page design and assembly to the press. *CorelDraw* gamely competed for control of the PC market in page creation and design.

Ten years later, not much has changed. *QuarkXPress* is still the de facto standard for designing print pages, *Photoshop* virtually owns the creative imaging market, and *Illustrator* is still the favourite of artists. *CorelDraw* still maintains its loyal PC base, with aspirations to fill a niche for specialty creative products for the Mac user through its sister company, procreate.

Ten years ago, the 33 MHz Macintosh Quadra 950 running on a 68040 processor was the cream of the Apple lineup; fully loaded it cost around $10,000. Today, your top-of-the-line Power Mac has gone through four generations of microprocessors (not counting the 603) and boasts dual 1000 MHz G4 chips that run 150 to 300 times faster than that Quadra, and at a cost of $4,800. A G5 model may be seen as early as this summer.

So, what's wrong with this picture?

IN THE BEGINNING, THERE WERE VECTORS AND BITMAPS...

We can credit Scitex for defining the two basic formats for artwork over twenty years ago. Scitex called them linework and continuous tone (LW and CT), but in the desktop world we know them as vectors and bitmaps.

Vectors—the algorithms for fonts and line art—must be interpreted and rasterized at the RIP (a tip of the hat to John Warnock at Adobe, who settled on Pierre Bézier's vectors for the original version of PostScript). Small vector file sizes let users work more quickly, enabling early desktop technologies. But they were also a potential nightmare when the time came for first generation PostScript RIPs to interpret them (who remembers the hairpulling that went on throughout service bureaus of the late 80s and early 90s when they tried to rip *CorelDraw* and *Illustrator* files?).

Bitmap files, on the other hand, were more predictable. The problem wasn't so much with interpretation as it was with file sizes that could grow large enough to choke a RIP—especially if they came from one of the Unix-based proprietary prepress systems.

Vector art and bitmap art have carried desktop technologies for the past fifteen years. *Adobe Illustrator* assumed the position of prime vector art application, while *Adobe Photoshop* became the toolset for bitmap image manipulation and processing. *QuarkXPress* brokered vectors and bitmaps through page layouts, adding two vital missing functions: excellent typography and color separations.

# of two

And the Macintosh platform led the revolution which in a few short years wiped out proprietary page composition systems.

Vectors and bitmaps addressed the technological limitations which the desktop faced in its formative years. But do designers and photographers and artists and publishers think in vectors and bitmaps?

IT'S YOUR INTERFACE—WHAT DO YOU WANT?

Our brains are capable of two ways of thinking. Linear logic (the dominant "left brain") supplies the ordered analytical thinking we use for processes like reading, writing and arithmetic, and inventing workflows like print production; geometric or artistic thinking (the passive "right brain") provides the creative conceptualization we need to produce pictures and interpret emotional responses (thank 1981 Nobel Prize winner Roger Sperry for contributing to this notion). Together, working jointly or separately, the two hemispheres form the human thinking process.

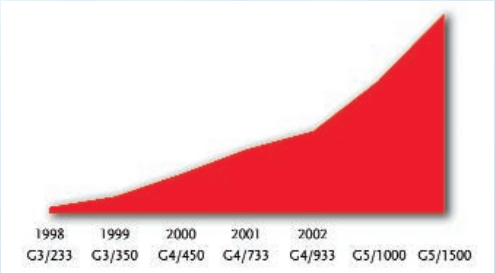
The personal computer is an extension of our thinking process. It allows us to extend our analog capabilities for producing words and pictures far beyond anything we could do with just our opposable thumbs and fingers; it handles virtually any arithmetic or geometric problem with ease; it provides a digital environment which can be easily and quickly shared with others.

Why, then, is it that the personal computer environment isn't modelled after the human thinking process?

Jef Raskin, who was responsible for designing the original graphical user interface for the Macintosh, recently wrote about his 1967 university thesis on the future of computing: "The most heretical statement I made was that my work was based on a 'design and implementation philosophy which demanded generality and human usability over execution speed and efficiency.'" This was Raskin's attitude toward creating the interface for Apple computers, and it is more true now than then.

The currency of the pagemaking population is the "page", an archetypical communication interface with a history thousands of years old. Pages are composed of words and pictures. We all know that a picture communicates its message faster than words. Each of us also instinctively recognizes (or must learn) the mix of toolsets with which we are most comfortable.

I always thought that the best user interface model was formulated in early 90s discussions of object-oriented architecture: one unified customizable personal working environment, one application—*Dan's Personal Digital Space*—that incorporates all the functions of page creation (from which I could choose the ones I want), and also lets me fully and invisibly integrate my business files, personal files and the web. And I should never double click on a file and have to guess which application will open it.



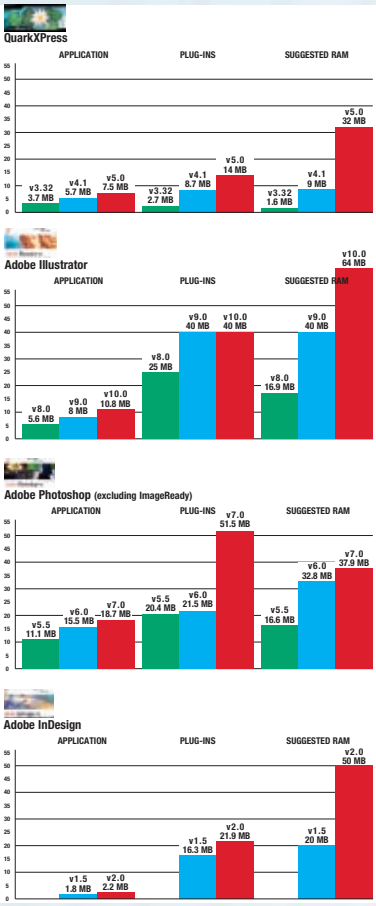
Illustrating the increase in *RAW COMPUTING POWER* of a single processor Mac since 1998, this graph shows that a 933 MHz G4 is roughly six times faster than a 233 MHz G3 (based on a straight line calculation for megahertz increases and an estimate of fifty per cent more speed for each generation of processor upgrade). Projecting forward, a G5/1.5GHz model would more than double computing power again.

I don't have that yet—in fact, it's not even close. I work every day with seven to ten applications open at the same time. Just for page layout and print production, I use *QuarkXPress*, *Photoshop*, *Acrobat*, and (occasionally) *Illustrator*. That's not counting my web browser, my font manager (*Font Reserve*), my normalizer for PDF creation (*Apogee Create*), or *Microsoft Word*, or *QuickTime Player*, or *Filemaker Pro* for accessing my contact database, or disk maintenance software like *Disk First Aid* and *Norton Utilities*. And they all demand RAM and processing power.

The personal computer is an extension of our thinking process.

Okay, so Dan can't have his *Personal Digital Space* application. But I *can* have a modular, transparent GUI desktop like Mac OS X or Windows XP. And I can have a suite of applications which all understand and integrate with each other, and pick the ones I want—if I stick to the flavours engineered by the likes of Microsoft or Apple or Adobe or Macromedia or Corel.

But how many ways do people approach their workstyles and digital environments? And how many applications should it take to do graphic design and print publishing?



How much have application files, plug-in folders and "suggested" RAM grown in recent versions of QuarkXPress, Illustrator, Photoshop and InDesign? Quite a bit, according to these graphs. However, look at InDesign—newer, more compact and written for current CPUs, its extensible object-oriented architecture can support many more future plug-ins and toolsets—including anything Illustrator currently offers. New Adobe apps demand 128-256MB RAM or more for real world high end graphics (that's two to four times suggested); G3/Pentium II is the minimum, but G4/Pentium 4 is what you need to run them at cruising speed. Note that Adobe has used Apple's new "application program package" structure for Photoshop 7 and Illustrator 10 (control-click to open them). This is actually a folder of files which holds the application, plug-ins, and related program files. So although the Finder reads 54.5 MB for Photoshop 7, the application itself makes up only 18.7 MB.

MODERN ARCHITECTURE FOR THE MASSES

Along with spiffier graphics, both Microsoft Windows XP and Apple OS X continue to blend more capabilities into their new operating systems. The interfaces aren't just prettier and more customizable, they're also more efficient.

In OS X, for example, Apple has borrowed from its Unix roots to implement a bundling technology for applications called the "application program package". If you check the *Photoshop 7* and *Illustrator 10* application files, they appear to be four and five times bigger than previous versions. But what has really happened is that Adobe has re-engineered these two applications to capitalize on Apple's new architecture (control-click to open the program package). *Illustrator 10* runs in both OS X and OS 9 from a single application file; *Photoshop 7*'s package, however, includes two 23 MB application folders, one for OS X and one for OS 9.

Ten or fifteen years ago, there was no object-oriented programming in desktop applications, nor were there any standards for PostScript developers to follow. Resolving the compatibilities and incompatibilities between platforms, technologies, applications and user interfaces has been a decade-long process.

But old PostScript code won't run as well as new code on new hardware and operating systems, unless money is invested in rewriting it (in which case, I guess it's not "old code" any more).

Today we work with standards which the industry has evolved to overcome the chaos of open architecture. They're still far from perfect, but at least there is a general agreement on what constitutes "workable" file formats, fonts and applications—even desktop color is almost manageable. Common standards not only allow users to work more smoothly but also provide more control over personal working environments.

The *QuarkXPress* page is a "standard", but most of its feature sets have not changed appreciably since version 3, and Quark has struggled with integrating new features and file formats (just look at its difficulties with PDF). Adobe, on the other hand, owns *Photoshop* and *Illustrator* and *Acrobat*; it controls the specs for Type 1 fonts and TIFF and EPS; it invented PostScript and PDF.

Technology standards lubricate the collaborative creative workflow, allowing content creators to work together more easily; better interface consistency and design fuels the individual creative process; faster machines make everyone more productive.

But who will be the standard bearers?

WHAM, BAM, THUD!

The first quarter of 2002 was a significant one for major design software releases, with *Adobe InDesign 2* and *QuarkXPress 5* both hitting the market within days of each other, and *Photoshop 7* all but delivered in official form.

Photoshop is probably the most popular graphics program on the planet, and OS X native version 7 will only reinforce that position. The new Healing Brush alone makes it worth the upgrade price; and like *InDesign*, it continues to integrate more of *Illustrator*'s tools (get a complete look at *Photoshop 7* on pages 36-40 in our review by GX cover artist Ron Giddings).

Illustrator 10 has already established itself as a full notch above version 9 (see GX Nov/Dec 2001) in terms of both improved interface and more intuitive transparency controls.

InDesign 2 finally looks like everything it was supposed to be in version 1. Its printing controls and interfaces are vastly improved and no longer is it bound to the AdobePS driver only. Bleeds can be defined independently on all four sides. PDF 1.3 or 1.4 files can be exported directly. A new Overprint Preview shows spot colors or overprints.

Following along the same path as *Illustrator*, *InDesign* adds a full suite of transparency settings so that users can create soft drop

shadows and feathered edges or use a variety of blending modes right inside the program—and native *Photoshop* and *Illustrator* files placed in *InDesign* also retain their transparency (no more clipping paths). New table-building and import functions solve the problem of creating charts. Multi-line Composer has been revised into a Paragraph Composer which only examines a paragraph at a time (a far more logical approach). It runs faster than before, *and* it's OS X native. The familiar Adobe toolsets make it easy to transfer working knowledge from *Illustrator* or *Photoshop*.

QuarkXPress 5, on the other hand, is more worthy of a "4.5" designation than a full version number. Additions like layers, a table import function, selective spellchecking and a handful of AppleScripts cannot make up for a long list of missing but basic modern design tools. Soft drop shadows or other transparency tools, multi-color gradients, high resolution picture display, multiple undos, expanded H&J controls, multiple master pages, tabbed tool palettes, a shortcut for double page spread display, paragraph style sheet creation from a character style sheet, crash-and-save recovery, save directly as PDF, built-in preflighting—not one of these features is to be found in *QuarkXPress*, although they are all incorporated into *InDesign*.

And it's not OS X native. Quark points a finger at Apple, saying they couldn't deliver because "*QuarkXPress* 5 was well along in the development process when Apple provided us with the Mac OS X code." Quark says that a native OS X upgrade will be available, but with no indication of when or at what cost.

WHY QUARKXPRESS WILL SLOWLY FADE AWAY

QuarkXPress is a reliable, proven, predictable application for page assembly and output, with a great deal of market inertia on its side. It has been the de facto standard for print pages for more than a decade. But *InDesign* is a much more robust, feature-rich throughput engine.

Adobe is helping its cause with very aggressive marketing. *QuarkXPress* 5 continues to sell for US$899 (but no printed manual—that's $50 extra)—unless you upgrade from *InDesign*, in which case it's only $499. While Quark tries to pry $299 out of its users for its v5 upgrade, Adobe is offering Quark users the chance to move to *InDesign* 2 for $399. Or you can buy the whole Adobe Design Collection of *InDesign*, *Photoshop*, *Illustrator* and *Acrobat* for only $999. *QuarkXPress* requires any number of QuarkXTensions to match the functionality which *InDesign* builds right in. And output support is not an issue; at only $99, the *InDesign* 2 upgrade will be automatic for every printer and prepress shop.

While Adobe continues to build more powerful and versatile applications that take advantage of current personal computing environments, Quark remains tied to old architectures and old systems. It's true that two and a half million *QuarkXPress* users won't all jump ship overnight, but unless Quark overhauls its flagship program by year end to include OS X and Windows XP compatibility, full PDF integration, transparency features, and the functionality that users have now come to expect in a modern professional page layout program, I predict that designers and printers will begin migrating to *InDesign*. Millions of *QuarkXPress* files won't suddenly be converted into *InDesign* files, but many of them may be distilled to PDF for archiving and reuse, as over time *QuarkXPress* becomes a legacy application.

The original desktop triumvirate is ready for a shakeout. Adobe's vision is a new order consisting of *Photoshop*, *Illustrator* and *InDesign*. But is this what we really need?

WHY ILLUSTRATOR SHOULD BE RETIRED

For fifteen years, *Illustrator* has enjoyed its position as one-third of the Big Three desktop apps. It is a very strong brand with a mature, stable user base, and Adobe will certainly continue to support this product for many years, just as many artists will continue to use it. Like *PageMaker*, its long term survival is guaranteed as long as even a portion of its substantial user base remains active.

But what role does *Illustrator* really play on the new desktop? Does a program that only produces single page vector art belong in the modern page layout and print publishing workflow?

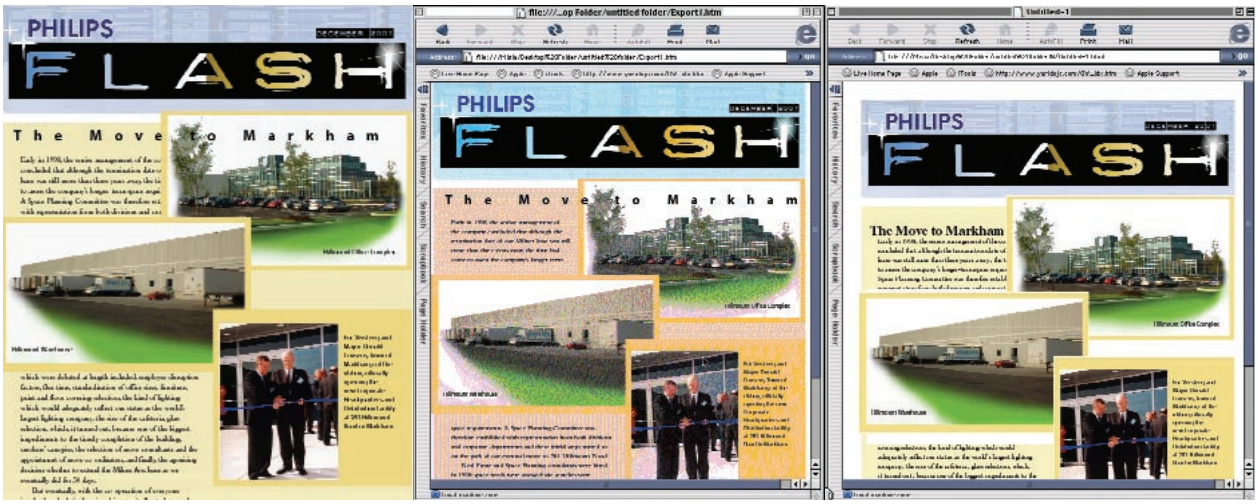
There was a time (before version 9) when *Illustrator* was an indispensable prepress utility as well as a drawing program. It could be used to tame wild EPS files from other programs, and it almost always delivered reliable PostScript.

But new transparent features in *Illustrator* 9 handed artists the power to stall the prepress workflow. The PostScript imaging model simply does not support transparency—it must be rendered at the RIP. But control begins in the application, and because of this, prepress rippers suffer with unprintable transparent effects while designers learn how to flatten and rasterize (try separating transparent colored type with a soft drop shadow on a spot color gradient on a transparent process color image). PDF 1.4 and new PostScript 3 RIPs now in development may address this problem better (although this ties users into a PDF workflow), but no longer is *Illustrator* the predictable prepress haven it once was.

The original desktop triumvirate is ready for a shakeout.

Adobe makes much of *InDesign*'s ability to understand native *Illustrator* files. In fact, selection tools, pen tool and curve editing tools, text palettes, transform tools, gradients, strokes and fills, soft drop shadows and other transparency features, and Web links are among the common features already in both applications. Add a few more toolsets to *InDesign*—like a full set of object blending tools, a gradient mesh tool, some image manipulation and draw-

PRINT AND THE WEB: GOING STEADY, BUT NOT ENGAGED YET



(left to right) Original print document, *HTML PAGE* from QuarkXPress, HTML page from InDesign. One of our contributors suggested (only half-jokingly) that all printed pages should be rotated and designed in landscape to conform to screen pages. For now, pages designed for print and converted for the web with either application are still not good enough. Quark has no control over formatting images as GIF or JPEG, no compression settings, and no Index color palette. InDesign at least allows basic choices for image formats, compression and loading.

ing filters, Pathfinder tools, and a graphing utility—and *Illustrator* could gracefully be put out to pasture as specialty software for sketch artists or technical designers.

An application that demands a large chunk of RAM and has no prepress or preflighting controls belongs upstream. With one more generation jump in processing speed, concerns about being able to juggle any kind of vectors and bitmaps in one application should be resolved for good. When that happens, it will be time for this old warhorse to be folded into a newer architecture.

AND THEN THERE WERE TWO

InDesign and *Photoshop*—one for working with words and pictures, one for manipulating pictures and words. Or perhaps what's really called for is *PhotoDesign* and *Inshop*—the option to customize personal versions of creative and production toolsets.

Moving between *Photoshop* and *InDesign* is akin to switching between right brain thinking and left brain thinking. Having specialized toolsets for text handling and page geometry in *InDesign* but not in *Photoshop* seems logical; *InDesign* is dedicated to layout and throughput. Having a labyrinth of creative imaging and color manipulation tools in *Photoshop* but not in *InDesign* also seems appropriate; *Photoshop*'s strengths are in producing art and illustrations and preparing pictures.

It all depends on what mode of thinking you want to be in.

Ask prepress departments if they'd like to deal with less types of job files—that's an easy one. As tools and technologies grow in complexity, a more streamlined software base is in order. A pair of modern applications should be all that is needed to create and deliver almost any kind of printed page. With *Photoshop* for image manipulation, a souped-up *InDesign* for page creation, and PDF binding them together, the workflow is almost complete.

WHY WE NEED THOSE THIRD PARTY DEVELOPERS

One of the benefits of using *QuarkXPress*, *Photoshop* and *Illustrator* is the wealth of third party plug-ins available to users. *InDesign*'s acceptance will likewise depend on how well plug-in developers fill the gaps with specialized toolsets. Especially important is how quickly and how successfully the many providers of Quark XTensions can port their products to the new environment.

We must also hope that the few companies who are still left in the professional desktop graphics market—which includes Canada's Corel—continue to fight for supporting roles with well-engineered cross-platform applications and utilities.

But everywhere I look, graphics standards and technologies belong to Adobe Systems—and our interface is theirs to hold.

Many thanks to Peter Dudar, Lidka Schuch and Ron Giddings who all contributed valuable research and feedback for the preparation of this article.