PART I

Getting to Know Flash

Flash began its career humbly as a great tool for adding low-bandwidth animations to websites. To say the least, the application has grown by leaps and bounds! Yes, Flash can still animate, but it can also be used to create complex, interactive navigational schemes, dynamic and data-driven websites, cartoon serials, games, music videos, music players…the list goes on and on. Flash has evolved from "simple animator" to "multimedia authoring juggernaut." In fact, it would be hard to imagine the Internet today without Flash and what it offers to contemporary digital media.

Part I of this book will take you on a guided tour of Flash. You'll learn about the history of the software, explore its role in digital media today, and get a glimpse of how the application may evolve in the future. And of course, you'll be introduced to Macromedia's latest addition to the Flash pedigree: Flash MX. This sixth version of the application also has a terrific new interface that makes working with the program more intuitive than ever before. Whether you're a veteran Flash developer or a first-time user, this section of the book will show you the now, then, and possibly tomorrow of Flash.

CHAPTER 1

Introduction to Flash

As one of the most popular and versatile applications for creating digital multimedia, Flash wears (and has worn) many hats. Flash has always been at the cutting edge of technology for the delivery of compelling animated content. And, as a vector-based medium, Flash is able to deliver the goods at a fraction of the bandwidth required by other animated media. What many people don't know is that Flash can do much more that simply create bandwidth-efficient vector animation. As the application continues to evolve, its scope broadens more and more. Flash is now one of the more flexible authoring tools available, offering the capabilities to run not only on the Internet and contemporary desktop computer platforms, but on game consoles and mobile devices as well. It is truly, *multi*media.

To get a sense of what Flash really is, it can be helpful to know its lineage, makeup, and current scope of possibilities. In this chapter, you will learn:

- **The history of Flash**
- **The differences between raster and vector formats**
- **The many faces of Flash**

A History of Flash

Before you dig into today's Flash, it's a good idea to cast your eye back and get an idea of how this virtual revolution in interactive multimedia came about. Besides, it's a cool story.

So, turn the "way back" machine to the late 1980s. The stage for our little story has been set with four companies. The first, Macromind, was a Chicago-based software company whose primary product was an application called VideoWorks. The second, Paracomp in San Francisco, was best known for its Macintosh 3D application, Swivel3D. The third company was Authorware, a Minnesota-based company best known for its CBT/multimedia authoring application, Authorware. In 1991, Macromind, which had moved to San Francisco, merged with Paracomp to form Macromind-Paracomp. Authorware then moved from Minnesota and joined Macromind-Paracomp in Redwood Shores, California, to found the mighty Macromedia—the beginning, so to speak.

As you may have noticed, this accounts for only three of the four players in our story. To learn about the fourth member of the cast, we look back to January 1993. Jonathan Gay, who had put himself through college writing such venerable early Mac games as *Dark Castle* and *Beyond Dark Castle,* convinced his buddy Charlie Jackson (founder of Silicon Beach Software) to invest some money and help form a company called FutureWave. The whole point of the company, whose first product was an application called Go, was to produce software that would dominate the pen computer market. Well, unfortunately, the early pen computers failed to really catch on, and there was some corporate interference by AT&T, so Go became an application without a market.

So FutureWave found itself in serious trouble. It was a small software company with no income and had spent a year developing an application that would never see the light of day. Their salvation came in the form of a small drawing program called SmartSketch that they had developed as a sideline to Go. FutureWave began marketing SmartSketch as a computer-based drawing solution for both Macintosh and Windows platforms. It wasn't long before people were asking why FutureWave didn't turn SmartSketch into a 2D animation program. In perhaps one of the most stunning examples of technological foresight, FutureWave shifted the focus of SmartSketch from a static image–creation program to an animation program. This shift was based solely on the hope that the Internet—something that everyone was beginning to talk about—would be a great medium for delivering 2D animation.

After both Adobe and Fractal Design declined to buy the technology (they must be kicking themselves now!), FutureWave shipped its FutureSplash Animator in the summer of 1996. FutureSplash Animator was a relatively simple application for creating linear vector-based animations. After its release, the application gained some attention when it was used in the design of both Microsoft's web version of MSN, and Disney's subscription-based Disney Daily Blast. In November 1996, Macromedia approached FutureWave about the possibility of the two firms working together. For FutureWave, which was still a tiny company with only six

employees, this was an astonishing opportunity. So, in December 1996, FutureWave sold the technology to Macromedia, which released the first Flash in early 1997. The rest, as they say, is history.

Once it was picked up by Macromedia, Flash began to evolve as a software tool. Each new version offered significant advances in the application's capabilities and usability:

Flash 1 Flash 1, which was really just a rebranded version of FutureWave's FutureSplash, featured very basic (by Flash MX's standards) timeline-based vector animation. Its primary strength was that, with the help of either a Netscape plug-in or an Internet Explorer ActiveX control, the user could mount animations on the Web for anyone to view and enjoy.

Flash 2 Flash 2 was a major step for the application. Generally speaking, it began the transformation of Flash from a straight linear-vector animation program to an interactive media-design program. The shift resulted from the integration of such features as reusable button symbols, embedded graphics, vector fonts, very basic actions, and stereo audio. Flash 2 also supported the import of an impressive selection of file formats, including EPS, GIF, JPEG, AutoCAD DXF, BMP, Enhanced Metafile, AIFF, Windows Metafile, and Shockwave.

Flash 3 One of the most significant additions to Flash 3, besides the continual improvement to the user interface, was the increasing importance and integration of actions. Based loosely on JavaScript, actions (which would later evolve into ActionScript) enabled users to add a certain measure of control and interactivity into their movies. In addition, the integration of masks, shape tweening, and transparency allowed users to exert much more control over how their Flash creations actually looked.

Flash 4 One of the most exciting improvements in Flash 4 was the ability to implement compressed MP3 audio files in the context of a Flash movie. Flash 4 also boasted improved ActionScript, which made it easier to create interactive games and interfaces. Other enhancements included editable text fields, an improved user interface, and a simplified publishing process.

Flash 5 The greatest advance in Flash 5 was definitely ActionScript. By aligning itself with the ECMA-262 standard, Macromedia announced to the world that Flash and ActionScript were ready to compete with the "big dogs." Other changes in this version were in the user interface: additional art tools, the introduction of panels, the Movie Explorer, the Macromedia Dashboard (for online help and updates), and user-customizable keystrokes for common tasks and functions.

Flash has clearly come a long way. Features that once seemed amazing and unbelievable in one version pale in comparison to the possibilities offered in subsequent upgrades. As you will soon discover, Flash MX is another significant step forward. Like the upgrades that came before it, Flash MX offers options and features that will continue to keep Flash at the forefront of digital media and Internet development.

FLASH MX: WHAT'S IN A NAME?

One of the most startling changes to this latest version of the Flash software is the departure from its traditional naming scheme. According to Macromedia, they made the switch to *MX* in order to inform developers that the software presents integrated solutions to Internet-based digital media. Because Macromedia's tools (Flash, Dreamweaver, ColdFusion, and so on) can be so tightly integrated, the company felt it was only appropriate that the authoring applications carry the same moniker. *MX* is simply a label used for this family of Macromedia tools. The Flash Player (the application that hosts any Flash movie, either as a plug-in or stand-alone) still carries the current version number in its title (Flash Player 6), but the software does not.

The initials MX don't seem to "stand for" anything in particular, and the Flash community simply has to accept this change at face value. Whether you like the name change or not, it's a moot point at this stage of the game. The good news is, regardless of Macromedia's master plan for marketing, Flash MX is a fine upgrade and will serve you well until the next version comes along. The title of that one is anybody's guess!

Raster vs. Vector Formats

Computers can store and display graphics in two main formats: *vector* and *raster.* To better understand how Flash works and why it presents advantages over other kinds of animation applications, it's helpful to understand the differences between these two graphic formats.

One of the aspects of Flash that makes it unique is its use of *vectors* to display much of its animated content. Vectors are line representations of an image. Like cartoons, they resemble an actual image but don't look completely realistic. The vectors that create an image give it shape and color. The curves of the vectors give an object its shape and contour. Every vector has two color properties: stroke (or outline) and fill; these properties (see Figure 1.1) give a vector image both its outline and overall color.

The kicker about vector images is that stroke and fill are calculated mathematically. This is very important when it comes to animation.

Raster images are very different from vector images. A raster image is created by a collection of pixels. *Pixel,* a hybrid word combining *picture* and *element,* is a colored dot or tile. A raster image, which can contain millions of pixels, works like a mosaic. Each little colored tile, which consumes a fixed amount of memory, plays a role in creating the overall color makeup and detail of the image. For an illustration of raster format, see Figure 1.2.

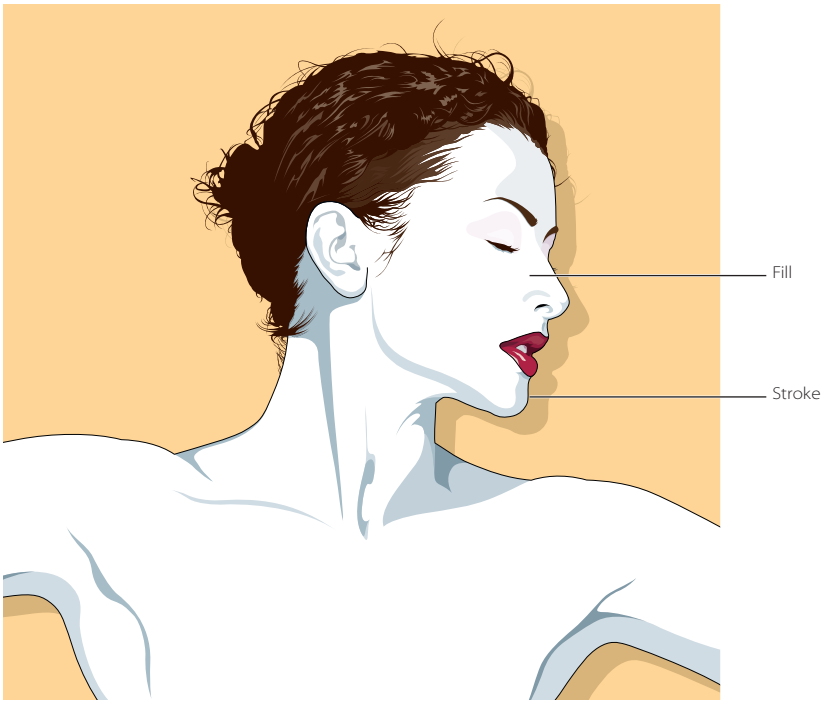
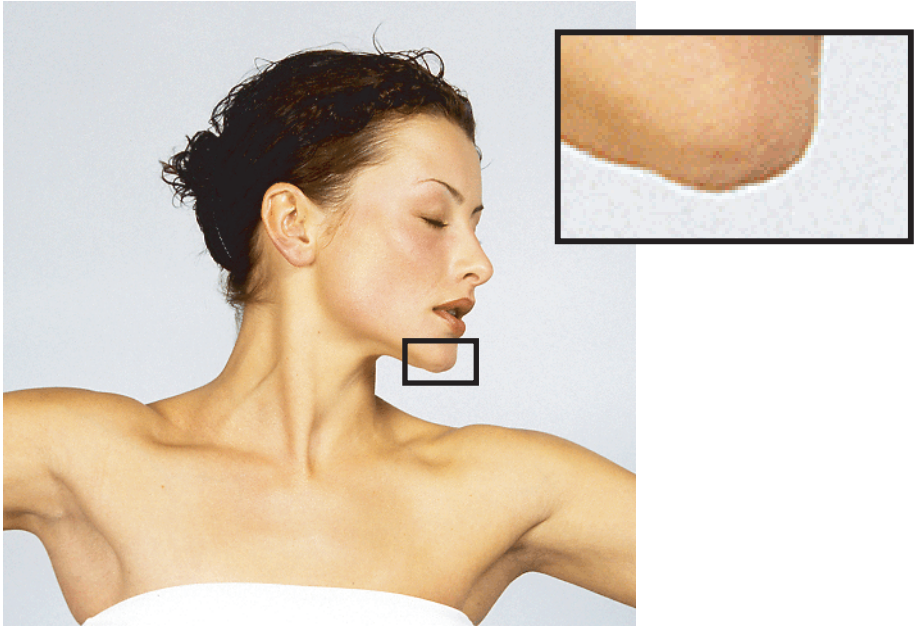


ILLUSTRATION BY TIM ARROYO, © 2001

Figure 1.1

The stroke and fill of a vector image give it its overall graphic properties.



PHOTOGRAPH BY TIM ARROYO, © 2001

Figure 1.2

A raster image is created using a series of colored tiles, or pixels, arranged in a grid format.

One of the major differences between vector and raster graphics is in their scalability. Because the components of a vector image (stroke, fill, and so on) are calculated mathematically, they can be scaled, stretched, and manipulated by the computer without any loss of the image's clarity or resolution. The same is not true for raster images, however. They have a preset grid configuration, so any change in size alters the grid. When the size of a raster image is increased, the computer must interpolate (make an educated guess for) the additional pixels needed to make a larger grid. This can result in unwanted "chunkiness" or "blockiness" in the enlarged raster graphic.

The Many Faces of Flash

As you probably know by now, Flash isn't just an animation tool. So, what *is* it, then? Rather than try to define Flash, it's better to exemplify what it can do. Its presence and application around the world speak volumes.

Broadcast Media

Even though Flash is probably most "at home" on the Web, it has also made its way to broadcast media in recent years. This transition shouldn't come as a surprise. After all, Flash has proven to be a powerful animation tool and can be exported to a variety of file formats.

Flash has been used for several broadcast applications, both in Europe and the United States. In the U.K., the web design firm Kerb developed one of the first broadcast cartoon series that was created entirely in Flash. You can read more about the series, *Hellz Kitchen*, an irreverent and hilarious look at a group of slightly deranged talking vegetables, in the "Inspirational Design Model" of Chapter 28.

In the United States, Flash can be seen in the intro animation of *The Rosie O'Donnell Show.* For more information on this and other uses of Flash as a "convergent media," see `www.macromedia.com/macromedia/proom/pr/2000/converge.html`

Mobile Computing/Communications

As computers continue to become both smaller and more communicative, Flash will be part of the revolution. The Flash Player is poised to deliver content to a wide variety of Web-ready gadgets and devices. This includes business applications and commerce, news, entertainment—the works!

One of the first platforms to support Flash was Microsoft's Pocket PC. You can read more about Flash for the Pocket PC platform at `www.macromedia.com/software/flashplayer/pocketpc`.

The science fiction doesn't stop there. Flash is also being developed for implementation on mobile phones and other handheld or portable computing devices. For more information, see `www.macromedia.com/software/flashplayer/resources/devices`.

Gaming Consoles

Arguably one of the most unexpected applications of Flash has been in the interactive entertainment industry—console games, to be precise.

The most noteworthy example was the use of Flash to create the user interface for LucasArts's popular "Star Wars: Starfighter" game for PlayStation 2 and Xbox. Although LucasArts had designed the in-game interface for "Starfighter," they encountered a serious problem near the end of their development cycle when they realized that they were lacking a functional out-of-game user interface. Enter Macromedia Flash. LucasArts partnered with two companies, Secret Level (`www.secretlevel.com`) and Orange Design (`www.orangedesign.com`), to design the out-of-game interface using Flash. Released in February of 2001, the game serves as a milestone in Flash history. Hopefully such future collaborations will open new avenues for Flash and its development community. For more information on how Flash was used in "Star Wars: Starfighter," see the Gamasutra article at `www.gamasutra.com/features/20010801/corry_01.htm`.

Interestingly, in May 2001, Macromedia and Sony announced a partnership geared toward bringing the Flash Player to the Sony PlayStation 2. Facilitating in-game visual design, like that featured in "Star Wars: Starfighter," was high on the partnership's list of goals. Offering a complete range of Flash-facilitated connected entertainment experiences in the emerging broadband era is also an important focus for the new partners.

The Internet

Flash started as a tool for deployment of animated content on the Internet, and, well, some things will never change. No matter how Flash continues to advance in the areas of connectivity, media authoring, and audience interactivity, it will always be a web development tool at heart. To get a sense of this tradition, see the Inspirational Design Model sections throughout this book. Most of these projects are web-based and present a very rounded view of the possibilities that this application presents.

In addition to delivering information and entertainment, Flash is used for advertising. To read how Flash can track advertisements, see the article at `www.macromedia.com/resources/richmedia/tracking`.

Web Games and Cartoons

Flash is great for creating multimedia and interactive navigation, but it is *superb* for creating fun stuff! Why do we try to pass Flash off as such a "serious" application, when a large portion of its development community is dedicated to doing work that is meant to be anything but serious! Games and cartoons are another important part of the Flash oeuvre.

It's fair to say that these kinds of Flash movies provide some of the most stimulating and memorable Flash work on the Internet today. This book contains several excellent examples for you to discover, including "Goodnight Mr. Snoozleberg" (Chapter 14), "Radiskull & Devil

Doll" (Chapter 20), the Mondo Media website (Chapter 11), the Atomic Cartoons website (Chapter 7), and the Camp Chaos website (this book's Color section).

Kiosk Development

A *kiosk* is a piece of custom computer hardware that delivers a fixed body of information, usually through a very user friendly interactive interface. Kiosks are most commonly used in situations where an organization wants to let the user control the access to information (usually through a touch screen or a mouse-driven interface) that would traditionally be delivered by a receptionist or another such individual. Because Flash can create powerful interactive experiences that are both complex and beautiful, it naturally lends itself to creating kiosks.

Although it would be difficult to provide a representative list of all the kiosks that have been developed with Flash, there is one very noteworthy example that we absolutely must mention. In late 2000, Moccu (whose corporate website is featured in the Color section of this book) presented the prototype for a touch screen, Flash-based petrol pump at CeBit in Hannover, Germany. Designed to let motorists search for information on travel routes and traffic situations, browse special shop offers, and even send e-mail while they're filling their tank, the CeBit pump prototype has yet to be implemented. It will be an outstanding and exciting example of the possibilities of merging Flash content with nontraditional computing environments such as kiosks (and even Web-enabled appliances).

Digital Art

Some Flash work defies description and needs no explanation. As the audience, you can take away from the experience whatever you like. Works of this nature can only be called one thing: art.

There are many individuals who are pushing the boundaries of Flash in ways that challenge current thinking about interactive, digital media. Two of these individuals are featured in this book: Maruto (Josh Davis), and Yugo Nakamura. See the Color section for a glimpse into their work and for links that will allow you to experience it firsthand at your computer.

Summary

In this chapter, you had a chance to make a closer examination of Flash as an application. This look at the range of its possibilities will be a helpful framework for your learning experience as you work through the lessons of *Flash MX Savvy.* Not only do you get to learn the history and tradition of the software and its community, but you'll be given hands-on experience with the amazing possibilities Flash has to offer. Now that you're prepared, you're ready to dig into the rest of this book and learn how to make the application work for you. Good luck, and have fun!