Selling and Promoting on the Web

Drive eCommerce Sales with Live Picture Zoom™ Images

A White Paper

LIVE PiCTURE
Zoom in for a closer look™

Contents

Introduction

The Internet is fast becoming a profitable medium for sales and promotional efforts, also known as "eCommerce." Sales and promotion Web sites include:

- sites that offer merchandise for sale (online stores, auctions, eCatalogs)

- sites that promote products or services bought online or offline (cars, real estate, travel, flowers, etc.)

- sites that offer other businesses the opportunity to research and buy parts and services (business-to-business commerce)

Putting together an effective sales and promotion site is not as simple as putting up a Web site and adding transaction processing. You also have to entice your site visitors to examine the product, or aspects of the product or service, that you are trying to sell. Customers need detailed images to make informed buying decisions, and informed buyers are less likely to return merchandise. A Web site can offer highly detailed images to simulate the activity of picking up a product, checking its material and texture, and looking closely at its details. Highly detailed images can be convincing in showing the quality of a product—for example, stitching and interwoven patterns in fabric.

This is where Live Picture helps to make sales and promotion sites effective. Live Picture is the inventor of Zoom™ images for the Internet that site visitors can examine for a closer look. Businesses selling merchandise on the Web can deliver a more life-like shopping experience with images of products that visitors can zoom in on and examine in detail. Zoom images are a powerful way of revealing the quality of merchandise, allowing shoppers to make online purchases with much more confidence.

This white paper is intended for:

- marketing, sales, and corporate executives exploring ways to make a profit with Web sales and promotion efforts

- consultants, photographers, and graphic artists working on the design of an eCommerce or promotional site

- Web site managers or Webmasters setting up eCommerce applications

- Internet Service Providers (ISPs) offering services for sales and promotion on the Web

Zoom Images

Some things have to be seen to be believed. Others need to be experienced—picked up, held, turned over, and examined in close detail. Yet on today's Web, images are slow to download, not very detailed, static, dull, and generally worse than printed images. Web images are trapped at low resolution.

Live Picture solves these problems, so that you can display highly detailed images on your Web site that are actually better than printed images. The Live Picture$^{®}$ Image Server changes the way images work on the Internet: they are much faster to download, higher in resolution, and "zoomable" with multiple resolutions (you can zoom in for a closer look). Visitors to a Web site can zoom into a multi-resolution image—a photograph, image object, or panorama—to see as much detail as they want, without having to download image data they don't want.

Initial view

JPEG or GIF in detail

Live Picture zoomable image in detail

Example of how a customer can zoom into a detailed image

Live Picture sells client applications and servers based on its Zoom image technology for creating, managing, and rapidly delivering high-quality images at multiple resolutions across the Internet. Live Picture's client applications let you create multi-resolution images, panoramas and image objects combined with

sound and video, and the Live Picture Image Server lets you put these mixed media projects on your Web site for visitors to experience with amazingly fast performance, even over standard modem connections.

Live Picture offers its patent-pending Universal Viewing technology, which lets site visitors immediately zoom into multi-resolution images without any plug-ins or clients other than a standard Web browser. Live Picture's Zoom technology introduces new kinds of images for the Internet and accelerates image delivery. With Live Picture's solution, images are highly detailed yet fast to download. They are interesting—you can zoom in for a closer look at details and textures, and "pick up" an item and spin it around to see all sides of it. You can immerse yourself in a panoramic image that offers a full view—left, right, sky, and ground—of a beach or mountain vista, with sounds and even video clips to make you feel like you are actually there.

A navigable panorama can include sound and video clips and links to more panoramas and other information

Image objects can be rotated and viewed from any angle, and you can zoom in to see more detail

High-resolution photographs, 360-degree panoramic images, and image objects are elements that, when combined, can create an immersive experience that is far better than the printed image in helping to sell a product or service.

Zoom Images

Expanding Markets

The forecast for Web sales and promotion growth is extremely positive. Consumer retail revenues in 1998 are estimated at $4.5 billion and are expected to jump to $26 billion by 2002, while business-to-business commerce revenues in 1998 are estimated at $15.9 billion and are expected to jump to $268 billion, according to eStats (Sept. 1998).

IDC's Internet Commerce Market Model reports that 92 million Internet users worldwide tallied nearly $2.3 billion in all Web commerce during the month of May, 1998, alone. IDC calculates the growth, compared to the previous May, to be 205 percent. Analysts at Ernst & Young, Forrester Research, and Jupiter Communications (Sept., 1998) have estimated anywhere from $220 million to $1.1 billion in Internet sales during the fourth quarter of 1998.

Merchandise Sales

Currently, computer equipment, CDs, books, and gift items such as flowers make up a little over half of all online consumer revenues. Some of these categories will grow exponentially once zoomable images are widely used. For example, apparel is the largest category for print catalog-based sales (at roughly $30 billion a year, out of $70 billion in catalog sales). But the lack of zoomable images is an impediment to online sales, as customers are not able to examine the products closely before they buy. Bloomingdale's is one of many major apparel stores that have adopted Live Picture's Zoom technology to display their wares. According to Tony Spring, executive VP of marketing at Bloomingdale's, "Live Picture allows us to give the customer the ability to study the details of merchandise in a way that was not previously possible in the Internet shopping experience."

Zoomable images can be extremely effective for online apparel sales, as well as for other kinds of merchandise, such as jewelry, sporting goods, consumer electronics, gifts, flowers, and lifestyle accessories. For example, SportSite.com[1] is an online sporting goods superstore offering over 7,400 products. Customers can search for products, such as baseball gloves, and zoom in to see various features, colors, even stitching details—a quantum leap from the static print catalog experience. By providing zoomable images of their products, SportSite.com makes it easier for customers to buy online. "It's a huge advantage," said Brett Allsop,

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1. http://www.sportsite.com

president of SportSite.com. "Live Picture's zoomable images deliver a level of intimacy and detail that printed catalogs or other online images simply can't match."

Auction sites that sell merchandise can also be more effective with zoomable images. The eBay site reported 325,000 auctions every day, with 600,000 registered users and 8 million page views every day. The Universal Studios Online special 10-day auction of "Seinfeld" memorabilia[2] offered zoomable images of merchandise, and traffic to the site increased more than 65 percent, while the average site visit time doubled. "Thanks in part to Live Picture's Zoom technology, participation in the online auction was at an all-time high with record traffic rates and heavy bidding," said Lisa Crane, VP of sales and marketing for Universal Studios Online.

Promotion and Marketing

While eCommerce involving online sales is the most often cited category of Internet commerce, there are other categories, such as cars, real estate, manufactured parts, vacation destinations, and services that are researched online but purchased off the Web.

For example, market researcher J.D. Power and Associates (Sept. 1998) reported that 25 percent of all new vehicle buyers in the U.S. use the Internet to arm themselves with car product and pricing information. Zoomable, navigable panoramas of car exteriors and interiors are effective in helping consumers decide to buy and save time for both consumers and salespeople on the showroom floor. Several car manufacturers, such as Lexus, are using Live Picture's Zoom technology to provide incredibly detailed images, image objects, and panoramas to promote their cars. "We haven't seen anything on the Web that comes close to the image quality possible with the Live Picture Image Server," said Paul Ratzky of Team One Advertising, the advertising agency for Lexus.

According to Jupiter Communications (Dec., 1997), the Web travel market is expected to grow from $827 million in revenues in 1997 to $8.9 billion by 2002—making this one of the fastest-growing eCommerce categories. Travel agencies and booking services use images and especially panoramas that provide a sense of place for vacation destinations and hotel sites. For example, Emerald Coast Vacation Rentals[3] uses panoramas to promote their vacation homes. According to Michael Balzer, CEO of Emerald Coast Vacation Rentals, "displaying a vacation home on the Web so customers can 'walk through' it and

2. http://www.livepicture.com/zr/solutions/auctions/
3. http://www.accommodations.com/destin/tropicana.html

Expanding Markets

see the views for themselves gives them a real feel for a property's attractions. With the addition of Live Picture panoramas, units that were once rented only on occasions are now booked for the summer."

Realtors are starting to leverage the Internet to reach buyers of homes directly. According to Forrester Research (Nov. 1997), realtors will increase spending for tools and servers from $5 million currently to $187 million by the year 2002, when all home listings will be online. Real estate sites are attracting prospective buyers that want to "walk through" the homes for sale and view the home's interior, exterior, landscape, and community. For example REALTY WORLD of Alberta, Canada offers virtual tours of its homes on its Web site[4]. According to A.K. Thomas, president of REALTY WORLD, "we can directly attribute a tenfold increase in Web site traffic and a 10 percent increase in our business as a result of using Live Picture panoramas."

Traffic on the Internet doubles every 100 days, according to the recent U.S. Commerce Dept. report. Advertising made up 91 percent of the total revenue for content sites in 1997, and this is expected to rise to 95 percent in 2002, according to Forrester Research (Dec. 1997). Revenue from Web advertising on content sites will expand at an exponential pace from $900 million in 1997 to $18 billion through 2001, according to the Gartner Group (Dec. 1997). As a result of intense competition, U.S. Web ad spending is projected to grow from $650 million in 1997 to $8.0 billion by 2002, according to eStats (Dec. 1997).

As spending increases, so also does the need to differentiate promotional content with interesting special effects and experiences. Advertising depends a great deal on the use of images and the ability to capture attention. For example, the gallery section of Rolling Stone Magazine's Web site[5], developed by JAMTV, offers zoomable images of popular musicians and celebrities. "The Rolling Stone Network draws tremendous traffic to its exclusive gallery of rock photo images," said Howard A. Tullman, CEO of JAMTV Corp. (developer of the Rolling Stone Network). "Live Picture Image Servers empower users to view images the way they prefer and it increases the amount of time users stay on the site."

The bottom line for sites that sell or promote products or services is that zoomable images make a difference. Consumers shop on the Web because it is convenient and easy to do research. Live Picture's zoomable images, panoramas, and image objects make it convenient and easy to do this research, and give customers the opportunity to try products and services before they buy them.

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4. http://www.forthomes.com/
5. http://www.rollingstone.com/sections/gallery/text/gallerymain.asp?afl=rs

Expanding Markets

Components of the Live Picture Solution

The combination of Live Picture's applications and the Live Picture Image Server can turn a Web site into a powerful channel for communication. Live Picture's solution for distributing multi-resolution zoomable images rapidly over the Internet can be scaled up from a site that offers a few images with unrestricted access to a site that offers thousands of images with controlled access, image tracking, and site monitoring. The Live Picture Image Servers take the burden of processing images away from the Web server, so that overall performance is not degraded by additional images.

Content Applications

Live Picture offers applications for creating multi-resolution zoomable images, panoramas, image objects, and panoramic scenes that combine all these elements with sound, video, and links to other elements and Web pages.

Live Picture Reality Studio™

Live Picture's professional applications are bundled together into the award-winning Live Picture Reality Studio package to give Web developers the ability to produce zoomable photorealistic scenes. Reality Studio includes:

- Live Picture PhotoVista™ SE—Stitch photos effortlessly into 360-degree panoramas for viewing or printing.

- Live Picture Object Modeler—Create zoomable image objects that can be rotated and examined closely from any angle.

- Live Picture Image Server Standard Edition (single user license)—Distribute images, panoramas, and image objects over the Web. This version allows a single user to put up Reality Studio content and examine it. See the following section for more information about the Live Picture Image Server Editions.

- Live Picture Viewer—Examine panoramic scenes, image objects, and zoomable images, and view and print high-resolution images.

- Flashpix™ Photoshop® Plug-in—Use Adobe® Photoshop® to open and save Flashpix zoomable images.

Reality Studio's intuitive user interface and project management tools work together to provide an integrated workspace, in which designers can combine panoramas, image objects, 3D models, and zoomable photographs with hotspots to other panoramas, text, URLs, movies, and sound.

Live Picture Object Modeler is one of the most powerful photo-based 3D tools on the market. It offers key features for creating image objects, including automatic masking to remove the background (with chroma key support for removing specific colors), real-time centering, and image stabilization.

Live Picture also offers the following image creation tools that can be used separately from Reality Studio:

Live Picture PhotoVista™

PhotoVista is an award-winning program that turns a series of photographs into a seamless panorama automatically. Panoramic files are high-quality, compact, and bandwidth-friendly—typically less than 100K in size. This inexpensive program includes built-in support for popular cameras and lenses, and direct control of image alignment and orientation.

Live Picture® 2.6

With Live Picture 2.6, photographers and artists can edit and composite high-resolution images with real-time performance. Fully integrated with other desktop applications like Adobe Photoshop, Illustrator®, and QuarkXPress®, Live Picture offers a flexible environment for image editing that delivers the best quality images in the shortest time possible.

Live Picture 2.6 includes the FITS (Functional Interpolating Transformation System) technology, which provides fast resolution-independent image editing—only the pixels required for display are computed, which accelerates productivity and lets you edit extremely large images without sacrificing speed.

Live Picture Batch Converter

The Live Picture Batch Converter provides batch conversion of images to the zoomable Flashpix multi-resolution format. It supports the standard image file formats including JPEG, TIFF, and Photo CD. The Batch Converter can process up to a thousand images per batch.

Components of the Live Picture Solution

Servers and Viewers

Live Picture Image Servers are the center of a virtual imaging network that lets anyone with a standard Web browser zoom into multi-resolution images without the need for plug-ins or special client software. The Live Picture Image Servers also distribute zoomable panoramas, image objects, and linked panoramic scenes combining these elements with audio and video clips.

Live Picture Image Server editions are available to meet the needs of customers ranging from small businesses to large enterprises. Each edition includes a high-performance image server with administration tools and file conversion utilities. Each edition offers the same viewing options so that you can tailor your site to offer the appropriate viewing option for the most flexibility.

Live Picture Image Server Standard Edition for Unlimited Image Access

The Standard Edition offers the base functionality available in all editions, with rapid distribution, unrestricted access to zoomable images, panoramas, image objects and linked mixed-media panoramic scenes, and Universal Viewing technology (described later in this section). The Standard Edition is scalable by the number of server CPUs (processors).

The Standard Edition is ideal for small businesses and catalog publishers who allow images to be accessed by anyone, with no restrictions. Sites for catalogs, auctions, real estate, travel, events, and business-to-business commerce can benefit by having images available to customers without image-level access restrictions.

The Standard Edition integrates well with Web and eCommerce servers and dynamic HTML servers. Image-level access restrictions are typically not needed if access to the site itself is controlled (as in business-to-business sales sites). For sites that need image-level access restrictions, the Enterprise Edition offers a complete set of security and tracking/logging features.

Live Picture Image Server Enterprise Edition for Controlled Image Access

The Enterprise Edition is designed primarily for applications requiring controlled or monitored access to large image collections, high-value images, or extensive Web catalogs. It offers all the features of the Standard Edition, plus image-level access control with authentication and digital watermarking, tracking and logging, and the ability to save images locally. The Enterprise Edition is scalable by the number of server CPUs, and is suitable for managing up to 500 user profiles (for simultaneous controlled access).

The Enterprise Edition is ideal for businesses that want to track image usage and serve images based on this information. Stock photo agencies find the Enterprise Edition ideal because it offers authentication and watermarking, allowing these vendors to control access to images they sell while also allowing the vendors' customers to save and print images locally, so that the entire transaction can occur online, with vendors distributing images electronically.

The Live Picture Image Server Enterprise Edition offers application level security modeled on the HTTP/1.0 RFC 2069 standard for Internet security, in which the user name and password are sent as encrypted text. With this method of security, users must provide satisfactory identification before they are given access to images. Furthermore, they must supply their names and passwords with each visit to the secured site.

Live Picture Image Server Open Enterprise and Open-Runtime Editions

The Open Enterprise Edition offers all the features of the Enterprise Edition, plus open application program interfaces (APIs) to support integration with enterprise application servers, eCommerce servers, and databases, including image asset management and document management systems.

The Open Enterprise Edition is:

- suitable for managing greater than 500 user profiles (for simultaneous controlled access)

- ideal for sites that need custom monitoring and tracking facilities, such as online magazines, online catalogs, medical image databases, and databases of satellite images

- provides a higher level of access control at the image resolution level

- provides watermarking for copy protection

A digital watermark is invisible to the naked eye. It hides in the naturally occurring variations throughout an image. Stock photography agencies can embed a digital watermark into their images as a copyright communication device—anyone who views a watermarked image containing an agency's unique identifier can view the watermark and contact the agency.

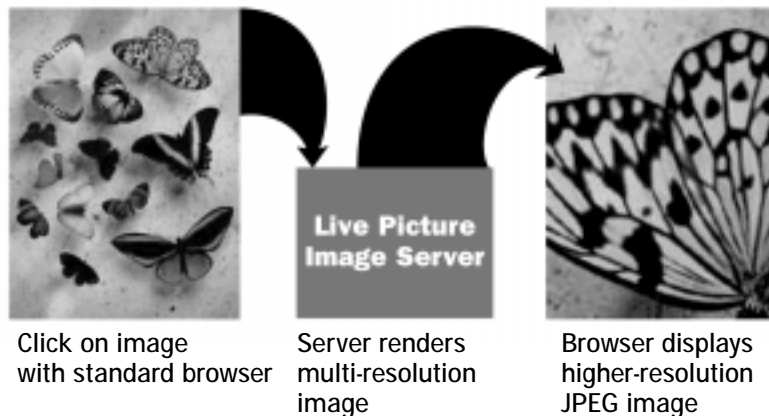Live Picture offers the Digimarc technology for both dynamic and permanent watermarking of images as an extension to the Open Enterprise Edition. Digimarc's MarcSpider crawls the Web looking for watermarked images and reports image use back to the owners of those images, effectively providing copyright protection. Dynamic Digimarc watermarking is based on the session ID. It

Components of the Live Picture Solution

changes the displayed image during transmission, based on real-time values, leaving the original image unchanged. This solution is effective for stock photography agencies that need to display watermarked images but deliver an unaltered original image to a paying customer.

The Open-Runtime Edition is available for customers who need one or more pre-written extensions to run with the Enterprise Edition, but do not want to create their own extensions with the Open Enterprise Edition. The Open-Runtime Edition builds on the capabilities of the Enterprise Edition, and lets you run customized Open-Runtime extensions which you can acquire from Live Picture or third party vendors. Open-Runtime extensions provide additional functionality; for example, you can generate lists of images being hit most frequently on the server.

Live Picture Universal Viewing

Live Picture's patent-pending Universal Viewing technology lets users zoom into and examine multi-resolution images without the need for client software or plug-ins. The user does not have to download or install anything. Universal Viewing works with standard Web browsers (Netscape Navigator, Microsoft Internet Explorer, America Online, and Windows CE devices).

Click on image with standard browser

Server renders multi-resolution image

Browser displays higher-resolution JPEG image

The Universal Viewing feature of the Live Picture Image Servers allows anyone with a Web browser to zoom into multi-resolution images without having to download or install anything.

Components of the Live Picture Solution

The patent-pending Universal Viewing technology uses the Internet Imaging Protocol (IIP) to handle requests to the server to render in high resolution a section of a multi-resolution image. The IIP includes the CVT (convert) command to convert the requested part of a particular image at a specified resolution to a JPEG image. The server returns an HTML page, which contains the requested image.

Universal Viewing is a high-performance solution for distributing multi-resolution images to as many site visitors as possible. The server itself does the "heavy lifting" of rendering the image tiles at the appropriate resolution for display as the visitor clicks on the image to zoom in. Universal Viewing is easily integrated into Web pages using simple HTML scripts.

Viewer Options

In addition to Universal Viewing, Live Picture offers several options for viewing a wide range of media types.

The Live Picture Viewer—Java Versions let users zoom into and examine multi-resolution images, image objects, and panoramas. With the Java Versions, the appropriate Java viewer downloads automatically the first time the user clicks on an image that requires it, and stays in the user's cache while viewing multiple pages. No installation is necessary. It works with standard Web browsers that support Java.

The Live Picture Viewer—Plug-in Version (all browsers for Mac and Windows) lets users examine, zoom into, navigate, and print multi-resolution images, panoramas and image objects, as well as linked panoramic scenes combining these elements with audio and video clips. The ActiveX Version offers the same features but downloads and installs itself automatically (Internet Explorer only).

The Live Picture solution fits right in with typical Internet servers for Windows NT and Solaris (Unix), including the latest commerce servers, because it runs over standard HTTP. The content applications are compatible with other applications for the Windows and Macintosh platforms, support the major multimedia file formats, and work with a variety of digital and film cameras, Photo CD discs, and scanners.

The Live Picture suite of applications and servers use industry-standard formats and protocols for multi-resolution images and image streaming over networks, so that other applications and servers can be used in conjunction with Live Picture's solution.

Components of the Live Picture Solution

Standard Formats and Protocols

Live Picture's Zoom technology uses standard file formats and network protocols, including the Flashpix™ format for multi-resolution images, and the Internet Imaging Protocol (IIP) for streaming image data over networks. Other capabilities can easily be added to this solution, such as streaming audio and video for multimedia presentations, Dynamic HTML for database-generated Web pages, and Java applets or JavaScript scripts for custom Web applications.

Flashpix Multi-resolution Images

Live Picture invented a graphics format called Flashpix with Eastman Kodak, Hewlett Packard, and Microsoft. Flashpix has evolved into an open standard endorsed by the Digital Imaging Group (DIG[6]), which includes Kodak, Hewlett-Packard, Microsoft, IBM, Fuji, Adobe, Canon, Intel, and more than 50 other companies involved in digital imaging.

Two major advantages that Flashpix has over other formats are the capability to address sections of an image (tiles), and to select the appropriate resolution for your application. The Flashpix format offers a hierarchy of multiple independent resolutions. The capture device determines the highest base resolution level, and each consecutive lower level is the image reduced in resolution by half (horizontal and vertical). The lowest level is 64 pixels square.

Thumbnail ~20K

Screen ~100K

Print ~1M

Base resolution
~3-100M
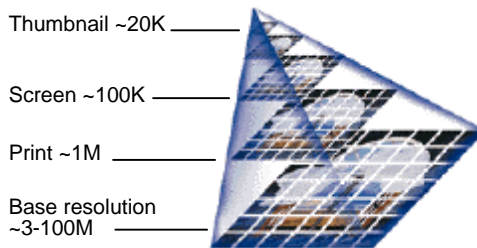
Resolution levels in a Flashpix image

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6. http://www.digitalimaging.org

Internet Imaging Protocol (IIP)

The Live Picture Image Server uses the Internet Imaging Protocol (IIP), co-developed by Live Picture, Hewlett-Packard, and Kodak, and adopted by the Digital Imaging Group, to quickly "stream" images to the Web browser. IIP provides fast and easy downloading of high-resolution images within the framework of the HTTP protocol or direct socket communication. It is a format-independent protocol for tiled, multi-resolution imaging over the Internet.

With IIP, you can provide users with a dynamic experience. As users pan across images or zoom in and out, the server sends only the tiles needed for each request. IIP also lets users view an image at one resolution on their computer screens, and download a higher resolution for printing. This speeds up the viewing and printing processes, and produces high-quality images.

Standard Formats and Protocols

Summary

Live Picture, Inc., offers a complete solution for creating and distributing zoomable images, including highly detailed photographs, panoramas, and image objects, without the wait associated with JPEG and GIF images, and without the hassle of plug-ins.

Live Picture offers applications for creating, converting, and editing high-resolution images, panoramas, and image objects, along with servers for distributing this content, and viewing technology that enables Web browsers to offer zooming capabilities and immersive experiences. Secure image access, site monitoring, watermarking, and image use tracking are important components of this solution for large sites and enterprises, and are offered in the Live Picture Image Server Enterprise and Open Enterprise Editions.

The goal of using the Live Picture imaging solution is to make Web-based sales and promotion efforts more effective. Live Picture's solution puts the customer into the picture, and lets them zoom in for a closer look.

Links to eCommerce Sites and Information

The following Web sites show zoomable images used in eCommerce applications:

The GAP online store:
http://www.gap.com/

Bloomingdale's dept. store online:
http://www.bloomingdales.com

The Men's Wearhouse online store:
http://www.menswearhouse.com/

The Spiegel online catalog:
http://www.spiegel.com/

SportSite.com:
http://www.sportsite.com

Universal Studios "Seinfeld" Auction:
http://www.livepicture.com/zr/solutions/auctions/

Emerald Coast Vacation Rentals:
http://www.accommodations.com/destin/tropicana.html

REALTY WORLD:
http://www.forthomes.com/

Rolling Stone Network:
http://www.rollingstone.com/sections/gallery/text/gallerymain.asp?afl=rs

Four Seasons Hotels and Resorts
http://www.fshr.com/

Live Picture's ZoomZone:
http://www.livepicture.com/zr/content.html

For more information about Live Picture's products:
http://www.livepicture.com/products/

For more information about the Live Picture Image Server:
http://www.livepicture.com/products/servers/

For information on Flashpix and the Internet Imaging Protocol (IIP):
http://www.digitalimaging.org