Solutions for Secure Image Management to be launched this year

OKI Electric Industry Co. Ltd., Japan’s leading telecommunications and computer manufacturer, and Signum Technologies, Europe’s leading supplier of digital watermarking systems, recently announced a strategic partnership which will integrate Signum’s digital watermarking into OKI’s range of document management systems, aimed initially at the Japanese financial services sector. Using Signum’s VeriData technology, which enables digital documents and image files to be authenticated against fraudulent or accidental alteration, OKI has developed a suite of products, ‘Secure Image Management’, which ensures that the integrity of digital images is safeguarded permanently.

“We have been working in close collaboration with Signum for the past year” said Masayuki Suto, Product Manager of OKI’s Information Technology R&D Division. “Through joint development efforts, VeriData has been refined to enable the authentication of all types of digital documents, including black-and-white and colour files, both compressed and uncompressed. VeriData also allows us to embed a unique message into the authenticated image, which can be used to identify, for example, the original capture device.”

“We have been delighted to work closely with OKI on this project” said Graham Shaw, Managing Director of Signum. “OKI have put VeriData through a rigorous testing programme to ensure that it fully meets users’ demanding requirements. We feel this is a major endorsement of our unique digital watermarking technology.”

The Secure Image Management system developed by OKI builds on the company’s integrated image platform, which provides a full range of digital image processing systems - scanning/capture, viewing, correction, OCR and compression. Using VeriData in conjunction with sophisticated encryption and key management, the integrity of mission critical documents can be assured against both internal and external fraud.

VeriData secures the integrity of digital documents through a unique process of embedding hash calculations of document areas directly into the data file such that, should a single pixel in the file be subsequently altered, the VeriData detection system can detect both the change and its precise location. This process does not rely on external metadata such as digital signatures and the embedding is permanent. The authentication process uses unique permutations to apply the embedded data and these permutations can themselves be encrypted to provide further security against attack. VeriData supports use of a wide range of industry-standard security programmes such as MD5 hashing and RSA encryption.

Masayuki Suto continued: “In addition to immediate applications in financial services, notably banking and insurance, the need for secure image and document management extends into other major sectors such as medical imaging, law enforcement and the public sector. Increasing use of the Internet for the delivery of mission critical documents will place even greater emphasis on securing information integrity.

David Hilton, Signum’s Technical Director, commented: “We have perfected VeriData for use with images and documents, thanks to the close collaboration with OKI. We are now moving VeriData into additional areas, particularly audio and video, where the need for authentication is equally strong.”

Solutions for Secure Image Management to be launched this year

Cumulus and Signum on Cloud 9

Canto, the leading supplier of asset management products and services, has announced a partnership with Signum to provide integrated reading of watermark information within Cumulus 5, Canto’s latest product release. Users of Cumulus 5 will be able to automatically track if an image is owned by a third party and check the ownership details via a live connection from Cumulus to the Registry on Signum’s Web site.

This new integration will be available as a filter to Cumulus 5 and has been made possible through the new Cumulus 5 SDK architecture and Signum’s SureSign SDK.

Graham Shaw, Managing Director of Signum Technologies said “Signum has already established a leading solution for commercial use of SureSign digital watermarks to protect ownership and ensure document security in the UK, Europe and Japan. Through the integration with Canto, over 75,000 Canto users around the world will be able to benefit directly from SureSign digital watermarking of their media assets.”

Talking on the partnership, Jennifer Neumann, CEO of Canto, explained “The ability to add ownership and usage rights information to a digital file has been an important topic to our customers. It has prevented many from exploring new revenues via the Web. With SureSign technology, it is now safe and easy for Cumulus users to ready images for commercial use and track ownership details. We believe this is a very powerful solution and we are the first to make it a standard feature of an Asset Management product.”

Users can embed their own SureSign watermark to any image using popular graphic arts applications such as Adobe Photoshop. Cumulus 5 will automatically read and track the information. Cumulus 5 is also integrated into the Signum owner information database on the Web, where an unknown watermarked image or file can be tracked back to the owner via a menu command in Cumulus.

Further cooperation between the two companies is planned in the near term whereby SureSign watermarks will be embedded directly by Cumulus 5. Using the Signum flexible architecture, it will be possible to automatically embed SureSign watermarks into media assets at various points in the workflow process: creation, archiving, publication to the Web and just some examples of the options available to Cumulus users. The ability of SureSign to embed not only copyright ownership but also transaction details will enable closer tracking of copyright abuse.

SURE SIGN OF SUCCESS

Signum’s SureSign continues to be the watermarking software of choice amongst a growing number of the world’s leading photographic content providers. Working to be your favourite source of imagery is how the world famous Robert Harding image library promotes itself (see separate story). As well as Robert Harding, other content providers that have implemented SureSign recently have included the National Army Museum in London, Istituto Beni Culturali in Bologna, the Finnish National Gallery in Helsinki and SpeedPix of Wickham.

THAILAND MONKS © ADVENTA – ROBERT HARDING

HARDING GOES DIGITAL PG2 • DIGITAL COPYRIGHT PG3 • FIGHTING PHOTO FRAUD PG4
TRANSPARENCIES A THING OF THE PAST

Within five years, most picture libraries will be digital and transparencies will be a thing of the past. This is the view of Paul Henning, acting Managing Director of the Robert Harding picture library, which is moving fast into the digital age and recently signed up for Signum watermarking software.

The Library was founded by Robert Harding, a Canadian, who came to London in his early 20’s and worked as an apprentice photographer before setting up on his own and starting the library when he began to get requests for his pictures.

He knew other photographers gathered them together and opened the library in the early 1970’s said Paul. “It is a general subject library which serves both the commercial and editorial marketplace with revenues split equally between the two.”

The library has two million images in dozens of filing cabinets filled with transparencies.

“The impetus to digitise came with the commitment to a web-site made a little over two years ago said Paul. “Robert saw the future of the industry changing, and realised that if the company didn’t make a commitment to go digital, then it would not succeed.”

The company established an IT department, purchased the latest in scanning equipment and computers, then got experts on board who could carry out scanning, re-touching and sending pictures by ISDN to customers.

Paul explained that when things first started to go digital there was great fear. “People assumed that, if a picture was put into a digital environment someone could make a million copies of it in China and then send it all over the world.”

He added: “In fact, in the digital age, we are going to have much more control over our images. The SureSign software gives us a great tool to use and something that there was no hope of having in the traditional world.”

“It allows us to prove that an image is ours, and as we move ahead, it is going to become easier to police. Before, staff had to rely on a hit or miss system of finding infringements of our work and uses that hadn’t been licensed. Now, it will be much easier to police that type of incident because we will be able to track it back from the information that is included in the digital watermark.”

Paul said: “I would be shocked if we are still dealing with transparencies in five years. There is a liability issue that is huge. When you send out transparencies, the customer is responsible for returning them to us and in good condition. That is a tremendous burden especially for customers who may be using thousands of images every month. Each image may have a loss value of £500 to £600. With digital files, there is no burden. The ease of using pictures from a web-site is only going to get simpler. Bandwidth will increase significantly which will make working with libraries like ours, even easier.”

The library is trying to drive as much business to the web-site as possible. It is digitising images as fast as it can, and believes that in the future the vast majority of business will be conducted over the web.

Founder Robert Harding, who is looking to expand the library into new areas and is currently seeking new funding, said: “Signum’s expertise means that as we move into new and interesting areas we can do so knowing that digital information is safeguarded once and for all.”

The Robert Harding picture library collection can be found at: http://www.robertharding.com

Paul

OSP Increases the Volume

OSP Media (www.ospmedia.com) create systems for clients that allow them to manage media assets. It is becoming easier to create large volume media material, be it video, film, images, or audio. The problem faced by their clients is organising this ever-increasing volume of material. It is quite common, for example, for a broadcaster to spend thousands of pounds on creating a single piece of video material that is used once and then effectively lost. If that material was captured onto a computer system such that it could be easily retrieved and re-used, the savings could be considerable.

The explosive growth of the World Wide Web has also meant that material created for one purpose, be it for broadcast television or radio, video games or print, needs to be repackaged and reformatted. In many cases this means rescanning images, or using specialist hardware to reformat video tapes, again at great expense. If the material is digitised at an early stage in its life, this process is much less labour-intensive.

Once the material has been digitised, however, it is clearly much easier to copy. OSP clients are becoming increasingly concerned at the very real possibility of their valuable material being illicitly duplicated, and the lost revenue this would cause. That is why OSP Media have partnered with Signum Technologies to allow media creators to prove ownership of their content in the digital domain.

IDEM SUCCESS STORY

VeriData iDem joins the crime fighters

For the best part of a century, police and forensic scientists have routinely relied on evidence recorded on film to fight crime. More recently however, they have realised that the considerable operational and cost advantages offered by digital photography and have started to replace film cameras with digital cameras.

In spite of the significant benefits on offer, proving that a digital image has not been altered has been a key factor in the widespread adoption of this cleaner, cheaper and time saving technology – until recently that is. Launched earlier this year, Signum’s VeriData iDem data integrity software is fast becoming a hit with law-enforcers around the world. The software has meant that they can now confidently use digital cameras and photographic systems in their investigations since the new software helps prove that digital images used as evidence have not been tampered with.

In the last two months alone, four British police forces have purchased the new software. Now, going digital for the City of London Police, Bedfordshire Police, British Transport Police and Sussex Police has become a reality. This means they can look forward to improving their efficiency and increasing crime detection rates as Wiltshire Police, the first force to use the VeriData iDem, have already shown.

Judging by the interest expressed at Signum’s highly successful police seminars held in Bristol and Manchester recently, many more police forces plan to go digital in the near future, with the help of VeriData iDem. The feedback from crime support staff attending these seminars confirmed that the software provides vital additional support to the chain of evidence and is attractively priced.

As well as police, other users have seen the benefits of using VeriData iDem too. Glaxo Wellcome, the world famous pharmaceutical company, has recently started using the software to validate digital images used as evidence in prosecutions involving counterfeit products. A diverse range of other sectors is becoming increasingly interested in using VeriData iDem with digital cameras to include environmental protection, medical imaging, quality assurance and trading standards.

So, look out law-breakers – digital photography is ready to go digital.

GLOSSARY

STEGANOGRAPHY – hiding both the content and existence of a message.

DIGITAL WATERMARK – technology which enables messages or data (e.g. copyright ownership) to be embedded into a digital media file.

FRAGILE WATERMARK – a watermark which is damaged or destroyed if an object is tampered with (as used in VeriData ™).

ROBUST WATERMARK – watermarks which cannot be removed without unacceptably degrading the cover object (as used in SureSign and VeriData ™). GIF – G L YPh A RCH I E N C E C H A N G E F O R M A T T I O N ) – one of the two most common file formats for graphic images on the worldwide Web. The other is JPEG.

PDF (PORTABLE DOCUMENT FORMAT) – a file format that has captured all the elements of a printed document as an electronic image that can be viewed, navigated, printed or forwarded to someone else. PDF files are created using Adobe Acrobat, Adobe Capture or similar products.

DIGITAL ASSET MANAGEMENT (DAM) – a tool for organising Digital Media Assets for storage and retrieval. Sometimes also known as Media Asset Management.

CRYPTOGRAPHY – The art of writing or solving codes.

ENCRYPTION – To encrypt is to convert data into code. The aim is to prevent Access to the data.
Digital Rights Management

Digital rights management (DRM) technologies provide the distribution of digital content while protecting against unauthorized copying. The lack of secure, reliable content protection has hindered efforts to build an electronic market in copyrighted materials. The challenge for the industry has been to find a way to signum’s technology, which provides a high-tech business such as digital water-marking has a vital role to play in the protection of digital images – have been made to Luciano Testi and Luciano Saporito.

**The circle is closed on unscrupulous users**

**SIGNUN EXPANDS IN EUROPE**

**E**urope 2000 Multimedia was recently appointed to market Signum’s unique digital watermarking solutions in the rapidly expanding high technology market in Italy. Europe 2000 is specialized in selling digital communications solutions and business Internet connectivity into the Italian Graphic Arts and Publishing communities. Isabella Cataletto, director of Europe 2000, brings her considerable experience in the pre-press and publishing sector to enhance Signum’s profile in Italy. Isabella has high-level connections with important publishers, photo agencies, government institutions and software houses developing digital image communication solutions. The first sales of SureSign – Signum’s solution for the copyright protection of digital images – have been made to Luciano Testi and Luciano Saporito.

**From Strength to Strength**

In January 2000, Advent Venture Partners and 3i made an investment of over £1million into Signum Technologies.

The funding will allow Signum to further expand its product range and sales activity over the Internet, particularly as the use of watermarking software is expected to grow significantly with the increased pay-per-use subscription and time-locked or functionality- limited licences. SureMedia technology allows content to flow freely around the Web, sealed within hard-to-copy content, with embedded links that route unauthorised users to the content owner and the licensing service. In the context of digital rights management, digital watermarking provides a means of uniquely and permanently marking content with user-specific information. When content is unlocked by an authorised user, watermarks can be applied automatically which reflect the specific parameters of the transaction. In this way, where subsequent copyright abuse occurs, digital watermarks provides an audit trail back to the original purchase. “This adds an extra dimension to the use of DRM solutions,” commented Alan Bartlett, Signum’s Head of Marketing, “By permanently marking digital content at the point of licensing, the circle is closed on unscrupulous users.”

**ME DAGE FROM THE WD**

Welcome to the third edition of the “Hidden Agenda” where we keep you abreast of the latest developments at Signum and provide details of the rapidly growing number of users of Signum’s digital watermarking technology. In this issue, you will read about the partnerships we have formed with major companies in different fields of operation. Our work with OKI Electric in Japan, which is integral to OKI’s major initiative in the secure management of high-value documents, has been the highlight of these past few months. More recently, we have established partnership programmes with Canto Software – a leader in digital asset management – and with Broca Graphics, whose high-performance Security Design Systems are strongly positioned in packaging and personal identification markets. Each of these partnerships emphasises both the breadth of Signum’s digital watermarking technology and its ability to add real value to customer solutions in specific target markets and applications. As a result of investment made in the company in January of this year, Signum is financially stronger than ever to support our market development activities. Our primary financial backer – 3i plc – has been joined by Advent Ltd., a leading UK investor in early-stage high technology businesses. We welcome Nick Teasdale of Advent to our Board of Directors where he’s already providing keen insight into the best way to develop a high-tech business such as Signum.

It is evident from our growing user base, that digital watermarking has a vital role to play in the protection of digital media files, be it music, video, e-commerce or e-commerce, in financial services, in the medical field – places greater emphasis on the security and protection of such information. Signum is uniquely placed to work with you and your customers to ensure that protection is in place.

**CONTACTS**

**Graham Shaw, Managing Director**

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The Internet offers huge potential for publishers but reliance on traditional technological solutions to the issue of copyright protection have stunted the sector’s growth. A number of new initiatives are now underway which are likely to galvanise this area. Established vendors of DRM systems – InterTrust, Sunhawk, IBM – have just lately been joined by the recent formation of a spin-off company – with an IPO planned in the near future – to galvanize this area. Established vendors of DRM systems – InterTrust, Sunhawk, IBM – have just lately been joined by the recent formation of a spin-off company – with an IPO planned in the near future – to galvanize this area.

Digital rights management (DRM) technologies provide the distribution of digital content while protecting against unauthorized copying. The lack of secure, reliable content protection has hindered efforts to build an electronic market in copyrighted materials. The challenge for the industry has been to find a way to protect its intellectual property so that, once paid for and downloaded by a buyer, music, videos or documents can be stored and used only by the buyer without the threat of piracy. Signum’s digital watermarking adds a new dimension to DRM solutions by ensuring that, even after authorised purchase, content can be permanently ‘tagged’ with specific user information.

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Barco Graphics, the world leading provider of integrated pre-press and personalization solutions to the security printing market, and Signum Technologies have announced a strategic partnership to offer Signum’s digital watermarking security - VeriData ID - to contravene fraud and counterfeiting in Photo ID documents. The first results of the partnership were on show at Drupa 2000.

Issuers of personal identification documents, such as passports and driving licenses, have been looking for some time to add sophisticated security features to these documents, to stem the ever increasing threat from counterfeitors who attack or duplicate visible security marks with high skills and computer imaging technology that is widely available and increasingly affordable.

Signum’s digital watermarks are invisible to the human eye and, with Signum’s patented technology, can only be detected with scanning devices and/or computer software that has been programmed with a strongly encrypted secret key.

VeriData ID embeds confidential data into a personal document photograph, which can comprise a passport number, date of expiry, date of birth or other information specific only to that individual. As the watermark is applied using secret permutation keys, only lawf ul authorities would be able to embed and detect the hidden watermark. No matter how skillfully a counterfeiter duplicates other visible security marks, the absence of the hidden watermark proves that the document is counterfeited or has been tampered with.

Barco has addressed the need to add covert security features to existing methods of fraud prevention by pioneering the use of VeriData ID, available as a module within SureSign’s pre-press solution, to document design solutions, that are recognized as world leaders within the security printing industry. Signum VeriData ID technology were presented at the Barco Graphics booth to the security printing community at the Drupa exhibition in May.

“Our VeriData watermarking technology forges an indissoluble link between data in the passport or ID card and the photo itself, so that any substitution or change may readily be detected”, said Olaf Jensen, Signum’s European Sales Manager, “providing further defence against forgeries that are at least intended to pass scrutiny in high pressure situations, such as at busy airport checkpoints.”

Says Rob Haak, Barco’s Division Manager Digital and Special Printing, “Security Design Systems from Barco already offer unique security solutions that combine to produce a significant deterrent to counterfeiters. Signum’s digital watermarking very well complements our solutions in the digital print personalization of security documents, adding a formidable layer of security to the document without the need to change production flows or the added cost of special features such as special inks or holograms.”

Barco Graphics, with centres of competence in Belgium, the USA and Singapore, provides integrated pre-press solutions for specific graphic arts applications, focusing on high productivity, and workflow automation. Barco Graphics targets specialized markets: packaging designers and printers, magazine and book printers, newspapers, variable information publishers, high-volume or large-format commercial printers, and decorative & textile, cartography, ceramics, and security printers, as well as high-end photo retouchers and design bureaus. The Digital & Special Printing Business Unit focuses on digital and variable imaging, pre-press, and provides solutions for the decorative & textile printing market, ceramics, and security printers.

“The Security Printing Solutions division is active on the security design market, with FORTUNA for currency and similar documents, and SECUSEAL to provide packaging designs for better protection. Its SDVIP products cover the digital personalization of travel and ID documents.”

The British Museum is to use SureSign software to safeguard high quality images of some of their best artefacts which have been put onto the Internet.

“Until now, the Museum has been reluctant to put up high quality images in case they are stolen by unscrupulous publishers around the world, for use in books, games, and other electronic media. The watermarking of electronic images means that people will be able to visit the British Museum web-site and see famous items in far greater quality.”

The Museum has a 30-strong photographic department and employs some 20 photographers on a full-time basis to take photographs of the million or so items it has on show and in store.

New software creates opportunities for imaging bureaus.

Professional photo-finishing laboratories and digital imaging service bureaus will soon be able to offer a low-cost SureSign watermarking service to their clients.

“The new service will be made possible by the development of a new software program called SureSign Bureau. This highly-productive watermark embedding application has been specifically designed for busy professional imaging bureaus and is based on Signum’s SureSign Server and works silently in the background, so it can be used by photo libraries and picture archives to protect their valuable images against copyright abuse.

Offering new services is paramount in the highly competitive world of digital imaging bureaus and SureSign Bureau will help labs and bureaus keep ahead of the game. You need only look at the classified pages of professional photographic journals, with the production of ads for film scanning, digital retouching and digital printing services, to see just how cut-throat this sector has become.

Protecting digital images with an invisible watermark is just plain common sense for thousands of imaging professionals around the world. Users such as the BBC (Natural History Unit), Oxford Scientific Films, Contact Directors, Robert Whittaker, the Library, Agence France-Presse, the V&A Museum and many more all use SureSign to protect their valuable images.

If you watermark your images with SureSign, you have the added protection of Euro- pean Law too. The EU Directive states: ‘Member States shall provide adequate legal protection against the circulation without authority of any effective technological measures designed to protect any copy of a work or other subject matter by copyright as provided by law or the sui generis right provided for in chapter III of European Parliament and Council Directive 96/9/EUC’. This means that if anyone tries to render an invisible watermark deliberately undetectable, the law recognises that this in itself is a criminal act.

Whilst digital imaging technology is so widely available, it is easy to believe that everyone has ’gone digital’. However, the reality is that the majority of creative professionals have yet to invest in the new digital technology and instead rely heavily on bureaus for digital services.

Once installed, SureSign Bureau can be quickly set up by process technicians to process the number of clients’ images. For maximum flexibility, the software can be set to work in its ‘watermark’ or ‘destroy’ folder modes. Whichever mode is selected, once running, the program is capable of processing thousands of digital images a day and can work around the clock without operator intervention.

SureSign Bureau will work with most popular imaging formats for both high-resolution images intended for print media and Web pages.

SureSign’s head of marketing, Alan Barrett, commented, “We have spoken to a number of leading photo-labs who are very keen to introduce new digital services and watermarking is an obvious choice for them. From the outset it was clear that a dedicated bureau product would be needed to fit into a service environment. We are currently in the process of development and look forward to conducting beta trials with some of the key labs in the currency design and similar documents, and SECUSEAL to provide packaging designs for better protection. Its SDVIP products cover the digital personalization of travel and ID documents.”