

# SMART CARD NEWS



Subscribers will receive Oberthur's **Mediatic Card** free with this issue of Smart Card News.



## Smart Card 2001

### Lifetime Achievement Awards for Industry Security Pioneers

Visionaries Peter Hawkes and the late Dr Donald Davies, were honoured with Advanced Card lifetime achievement awards for their joint and individual contributions to the success of open network security and public key encryption.

They were honoured with the ORGA Advanced Card Hall of Fame Award at a dinner during the Smart Card 2001 Show in London last month in the climax to presentations to winners in 14 categories.

Both Dr Davies and Peter Hawkes became Editorial Consultants to Smart Card News at its launch 10 years ago.

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**The ORGA Advanced Card Hall of Fame Awards - a  
dinner during the Smart Card 2001 Show in London.  
Peter Hawkes is featured bottom left.**

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### Don't Forget!

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of SCN services, can be found at the following address: [www.smartcard.co.uk](http://www.smartcard.co.uk)

## Lifetime Achievement Awards

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Today, BTG plc, a global leader in commercialising early stage technologies, uses Hawkes' expertise as e-commerce security advisor building on the early projects with Davies. Hawkes sits on BTG's applications advisory panel, working on new biometric technology and its applications for automatic identification. He has been responsible for creating and developing Smart Card, RFID tag and biometric inventions, projects and investments at BTG. He is also Chairman of the Association for Biometrics and sits on a DTI information security advisory panel.

In 1979, the two pioneers realised that as computer networking grew in popularity, higher levels of security would be needed to prevent malicious use of the networks. One of the crucial breakthroughs that make modern computer communications possible is the work in packet-switching, which enables the exchange of information between computers - essential to the Internet infrastructure used today.

The duo pursued the Smart Card's potential as a network access control device and as an authorisation token for secure transactions over large scale open networks such as the Internet. By applying public and private key cryptography, they achieved message privacy and integrity as well as the ability to authenticate people and networked computers participating in transactions. Under their guidance new protocols were created to ensure secure messaging.

Other joint developments included the signature token (commonly referred to as a multi-application Smart Card) gave birth to digital signatures which support many electronic purse schemes today; and the design of contactless Smart Cards, helping to achieve e-mail privacy using the DES encryption standard.

Donald Davies received the award posthumously as the cryptography consultant who worked with Hawkes in the development of public key encryption. One of his most prominent achievements was in packet data switching, which was rapidly taken up in the USA to enable the ARPANET.

## Advanced Card Awards Winners

**Most Innovative Products of the Year** were awarded jointly to Omnikey for CardMan Dongle; and Bull for Oversoft Technology - iSimplify!.

**Card Technology Most innovative Implementation** went to easi Solutions for e@si Card.

**Best Loyalty Implementation** went to Schlumberger for the UK's first live multi-application Smart Card with innovative co-branding between Internet bank Egg and Boots the Chemist and combining loyalty points and credit.

**Best Payments Implementation** went to KEB Technology for the Digital Pusan Card.

**Best Transport or Travel Implementation** went to ASK for e-Ticket.

**Best Communications Implementation** went to Schlumberger for its Simera Airflex Smart Card.

**Mondex International Best e-Business Implementation** went to Banksys for Banxafe.

**MIPS Technologies Best m-Commerce Implementation** went to Entrust Technologies for its getAccess Mobile Server used by Internet bank Egg.

**Smart Card 2001 Best Security or Biometric Implementation** went to STMicroelectronics for its ST19 Smart Card IC platform.

**Oberthur Card Systems Best New Chip award** went to Atmel Smart Card ICs for its latest AT90SC6464C-USB Flash microcontroller.

**STMicroelectronics Best Security Product** went to Raytheon Company for Secure IT.

**RNIB Usability Award** went to Gemplus for Gem Utilities.

**The Judges' Award** went to American Express for Amex Blue, their Smart payment card.

For more details of these awards please visit our website:  
<http://news.smartcard.co.uk/freepages.html>

## News from the Show

### New Chipset from STMicroelectronics

STMicroelectronics introduced a new chipset that provides a complete solution for low-cost contactless Smart Card readers.

Suitable for a wide range of contactless Smart Card applications such as access control, ticketing systems, electronic purse and ID cards, the ST16-19RFRDCS910 chipset comprises an Analog Front-End, a Coder/Decoder/Frame Formatter, and an optional ST92163 high performance 8/16 bit microcontroller.

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### Smartworld Campus Solution

EMOS Information Systems and Gemplus announced a partnership to launch Smartworld, a new multi-application university or college campus card system for students and staff to purchase goods or services with electronic cash.

Gemplus said that the scheme offered the facility for cardholders to revalue cards via a secure Internet site, and delivered a campus card for a single monthly fee, based on the number of cardholders.

The campus card can be used for a variety of applications such as personal cash, meal plans, bookshop accounts, student ID, loyalty and security.

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### Certification for MagIC 6000 Terminal

Schlumberger announced that its MagIC 6000 point-of-sale terminal has been approved for EMVCo Level 2 by Europay International.

The approval means that the terminal application complies with EMV 3.1.1 standards opening the way for global banking Smart Card interoperability.

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### Smart Compensation from BA

Customers entitled to cash compensation from British Airways for inconvenience can receive the cash payment on a Smart Card and redeem it in any of 25 currencies at any participating exchange bureaux worldwide.

Details of the scheme, called ChipCASH, were revealed at the Show by CardBASE Technologies who developed the electronic purse system working with BA. The scheme uses CardBASE's multi-application Smart Card management software with the Internet and the airline industry private SITA network.

If a customer is entitled to compensation, the value and details of the transaction are loaded onto the Smart Card via the ChipCASH PC application or a portable reader device. The card is then presented by the customer at any of the participating exchange bureaux.

The customer can choose to receive the cash in any currency, irrespective of the currency loaded onto the card.

Once the full amount on the card has been redeemed, the bureau returns the card to the British Airways station to be recycled for future use.

ChipCASH transactions are processed via the CardBASE Processing Centre in Dublin, Ireland which is equipped to accept transactions from 70 countries and 250 locations worldwide.

The solution is said to offer substantial saving in cash handling and provide a more efficient system with central reporting on compensation and cash management.

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### Fingerprint Security on Smart Cards

A compact Smart Card reader from UK distributor Flint comes with a fingerprint sensor and is aimed at reducing fraud from misuse of PIN numbers and access codes. Called the GemPC-Touch440 Biometric solution it was developed by Gemplus.

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## Smart Cards in Homecare Services

Essex Social Services in the UK are using Smart Cards to improve homecare services. Using Care Pass, a new Smart Card system developed by Adicarte Technology and Gemplus, Essex County Council will be able to monitor care services to users, eventually across the entire county.

Roger Sinden, county manager, provider services, Essex Social Services, explained: "Providing care services to the community is a complex task. Here in Essex some 1,200 internal care staff deliver services to nearly 4,000 users."

Through Care Pass most of the paper work is eliminated, making the system quick and easy to administer. Care staff have personalised Smart Cards identifying their agency as well as the services they are qualified to deliver. Similar cards provided to users detail the services they are assessed to receive. Care staff carry handheld card readers that display the services to be provided and can record activities completed during each visit as well as travel details, then send the stored information to the Adicarte data centre automatically at the end of each day.

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## Samsung Enters European Market

Samsung SDS Europe chose the Show to announce its entry into the European Smart Card solutions market. Samsung specialises in customised Smart Card solutions such as K-Cash - the Korean electronic cash system - e-commerce, information security and multi-purpose card applications

Managing Director, GB Oh, said: "We have set up Samsung SDS Europe (in Brentford, Middlesex, England) to specifically adapt our extensive knowledge in this business to a European market. We are already in discussions with a number of large European customers who are looking for an experienced global player to partner with."

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## ID Card for Dutch Football Club

Bell ID revealed it is developing a multi-application ID Smart Card for first division football club Roda

JC in Kerkrade, The Netherlands. The company is working with a number of partners, including CMG and Ericsson, to develop an integrated system for secure access and identity control, electronic payment and loyalty.

Examples of applications include access control using biometrics, access control and payment with mobile phones, access control and payment for parking areas and creating semi-open payment possibilities for local partners such as retail stores. Some of the applications will be realised by means of Smart Cards and e-purse cards already in use within Roda JC.

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## Design Smart Cards With Flint

Flint have launched a new service that will enable customers to order fully customised Smart Cards online. The cards can include custom text and graphics and can be ordered in batches of 1 to 1,000.

Gemplus and Burrell Infocard will be supplying the cards which can be memory cards, standard contact and/or contactless Smart Cards or magnetic. By visiting Flint's web site ([www.flint.co.uk/smart](http://www.flint.co.uk/smart)) a customer can choose the card colour, type and text; photographs can also be added if desired. Originally created files can be accepted or Flint's card design service can be used. Customers will be able to receive an instant online quote for the order.

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## Datacard and Logica Partnership

Datacard Group and Logica announced they are to jointly market and maintain Datacard's multi-application Smart Card pma (platform management architecture) system which enables card issuers to handle the card's entire lifecycle from preparation and issuance to tracking and maintenance of multiple applications. The pma system automates the loading, deleting and changing applications without needing to recall or replace the cards.

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## Ingenico Fortronic Bluetooth Terminal

Ingenico Fortronic demonstrated for the first time in the UK a prototype Bluetooth enabled terminal based on the Elite 700 series.

The inclusion of a terminal incorporating Bluetooth technology, the new short-range radio transmission standard, will expand Ingenico Fortronic's marketplace to include merchants whose businesses depend on wireless technology.

All Elite terminals comply with the Europay, MasterCard and Visa (EMV) industry specifications guaranteeing Smart Card interoperability and payment security. The terminals can be upgraded to accommodate electronic purse and other Smart Card applications via four internal SIM cards.

## NBS and Matica Aim at Italian Market

NBS Technologies has partnered with Italian plastic card specialists Matica System, to market its medium and high volume card personalisation solutions in Italy.

Announcing the deal at the Smart Card Show, NBS said the dealer agreement would see Matica market and service NBS's Horizon, Advantage and Image Master card personalisation systems targeting banks and other financial institutions considering migrating to chip cards. NBS also has solutions for high volume ID card programmes common in the government, education and health sectors.

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## Lloyds TSB Internet Banking Pilot

Lloyds TSB announced it had selected Schlumberger to provide public key infrastructure (PKI) for its new Internet-based business to bank services. The project, currently in the pilot stage, is the first large-scale Smart Card-enabled Internet banking project in Europe and is scheduled for roll-out to business customers by late Summer 2001.

Schlumberger will provide Smart Cards and readers for customers and handle the complete supply chain,

from UK-based card manufacturing, personalisation and fulfilment through to solution installation.

Schlumberger is working with ActivCard, provider of digital identity solutions, to integrate advanced Cryptoflex Smart Cards within the Lloyds TSB certificate issuing authority using in-house Entrust Direct PKI software.

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## Schlumberger on Acquisition Trail

Schlumberger is in a predatory mood launching itself on the acquisition trail to take over companies that will further its strength and influence in its core markets and extend its influence worldwide.

### Take over of Bull CP8

A key take over finalised last month was Bull's Smart Card activity (Bull CP8) for 350 million euros, plus an amount relating to royalties on associated patents. The transaction includes Bull CP8's operating subsidiaries (Mexico, The Netherlands, Sweden, UK and the US) as well as its equity interest in several subsidiaries including Cardsoft, Cyber-COMM, SPOM, Trusted Logic and Xiring.

Schlumberger says the acquisition will provide it with complementary R&D and Smart Card technology capabilities, especially in banking where Bull CP8 holds a worldwide position.

"Schlumberger will gain further time-to-market advantage in new-generation mobile telecommunications Smart Card applications and reinforce its presence in the banking and network security segments."

### Acquisition of PCS Innovations

Schlumberger also acquired PCS Innovations (PCSI), a provider of platforms, tools and services for the mobile Internet.

Stephane Legentil, Vice President, Wireless Services, said: "We will incorporate PCSI's strong R&D group into a North American technical centre focused on developing wireless applications and solutions."

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## Plan to Purchase Sema

Schlumberger also announced an agreement with the board of directors of Sema plc on the terms of its offer for the entire issued and to be issued share capital of Sema - a transaction valued at about \$5.2 billion (around £3.6 billion).

Euan Baird, Chairman and Chief Executive Officer of Schlumberger, explained: "The acquisition of Sema will enable us to accelerate significantly our existing information technology strategy.

"It will enhance our capabilities and critical mass in systems integration, widen our IT skills and create revenue synergies in many of our core competencies."

Schlumberger expects to complete this transaction in the second quarter of 2001.

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## ActivCard Acquires Authentic8

ActivCard SA, a leader in digital identity and electronic certification solutions for e-Business communications and transactions, has announced an agreement to acquire Authentic8 International, a developer of Internet Authentication Service (IAS) technology.

The acquisition, valued at approximately \$42 million, will enable ActivCard to address new channels and broaden exposure for Smart Card-based digital identity and secure network access products.

(Earlier this year, Schlumberger invested \$3 million in ActivCard. It has been providing Smart Cards to the company for several years and also using ActivCard's digital identity technology.)

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## Gemplus and IBM Join Forces

Gemplus and IBM have formed a services and technology agreement to collaborate on providing Smart Card solutions to customers of both companies

worldwide. Gemplus will combine its strength in card personalisation, issuance and logistics, with IBM's systems integration capabilities and Chip Management System solution to offer leading Smart Card solutions across every industry sector.

A major part of the companies' agreement will focus on the deployment of a Smart Card Life Cycle Management application. Using IBM's Chip Management System solution (CMS-e), subscribers will be able to update authorised data elements and add or delete entire applications directly onto the Smart Card. It will also allow issuers to control, monitor, update, or delete card applications such as the addition of new public and private keys and payment or loyalty applications.

Coupling the CMS-e system with the manufacturing, personalisation, issuance, logistics and customisation services of Gemplus will provide customers with a complete managed solution.

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## Scottish Golfers Handicaps Card

Around 250,000 golfers will be able to update their handicaps using Smart Cards at over 500 golf clubs throughout Scotland.

The first scheme of its kind in the world, it has been developed by the Scotcomms Technology Group using Xchequer Smart Card terminals from Dione.

The scheme is being introduced by Scottish Golf - a partnership between The Scottish Golf Union, the Scottish Ladies Golfing Association and Scotland Online - and is expected to reduced administration time and benefit golfers with both quick, easy handicap updating and loyalty points.

The terminals will download all new information from handicap qualifying competitions at the end of each day to a centralised server operated by Scotland Online.

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## New Smart Card Interface Chip

Infineer, a subsidiary of PubliCARD, has launched a new Smart Card interface chip, the TSB2750, which integrates a keyboard controller, a USB hub, and a fully certified Smart Card interface.

It has also announced a substantial first order for the new product. PubliCARD says that Dallant Bank, in partnership with BTC Korea Co and KDE, is developing a USB keyboard implementing the TSB2750 solution. The contract involves a roll-out of 540,000 units for a country-wide Smart Card project.

Jan-Erik Rottinghuis, PubliCARD's President and CEO, commented: "We are pleased to introduce this innovative chip, which combines the features of three conventional chips into one, and positions Infineer as a cutting-edge supplier for the rapidly growing market for keyboards and other products with a Smart Card interface."

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## Kookmin Card in Korea

MasterCard International and Kookmin Card Company in Korea have started issuing Smart Cards with two payment functions - Mondex electronic cash and M/Chip (MasterCard's credit/debit application for chip) functions.

The Kookmin Trade Pass cards will have credit, debit and Mondex e-cash functions, allowing cardholders to choose the payment program they wish for specific financial transactions. In addition, the cards have RF (Radio Frequency) capabilities to enable cardholders to use their cards throughout Korea's bus and train transportation network.

Over 1,500 merchants in Seoul have already signed up to accept the cards and Kookmin cardholders can also use the credit function in other countries.

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## Upgrade / Pathways Merger Off

Upgrade International Corporation has delivered notice to The Pathways Group terminating the merger agreement between the two companies.

Commenting on the termination, Daniel Bland, President of Upgrade, said: "After a careful review of the past performance and the future prospects of Pathways, our Board of Directors made the strategic determination to terminate our merger agreement with Pathways."

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## Datakey \$4.8m Private Placement

Datakey has completed a \$4.8 million private placement of 1,600,000 shares of common stock at \$3.00 per share with accredited investors. Carl Boecher, President and CEO of Datakey, said the proceeds would support growth of the company's Information Security Solutions (ISS) business unit.

Web site: [www.datakey.com](http://www.datakey.com)

## Medical Card in South Africa

On Track Innovations (OTI) EYECON dual interface (contact and contactless) Smart Card platform is to be introduced by OTI Africa with technology from MediKredit Integrated Healthcare Solutions in a pilot project. The first phase, starting in Q2, 2001, will involve pharmacies and be followed by general practitioners in phase two, scheduled for Q3.

MediKredit Integrated Healthcare Solutions' HealthNet Superior Technology (HealthNet ST) offers, speed, accuracy and reliability via on-line real time claims processing of prescriptions in pharmacies and dispensing GP practices. MediKredit currently manages the private insurance of 3.4 million lives in South Africa. Used by over 95% of pharmacies, it processes more than 60,000 on-line real-time transactions per day.

🌐 [www.oti.co.il](http://www.oti.co.il)

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## Datakey Order for Smart Systems

Datakey has announced that an unnamed UK-based financial services leader has placed a substantial order for its Smart Card-based information security solutions and is using Datakey's Smart Card, readers and client software within a Public Key Infrastructure (PKI) environment to add privacy and security to day-to-day operations.

Initially, the company is deploying Datakey's Smart Card systems to some 9,000 employees who will use the cards for everything from logging on to their corporate network to encrypting and digitally signing private documents, electronic mail and electronic transactions.

 [www.datakey.com](http://www.datakey.com)

## RSA SecurID Card Studio

RSA Security has announced RSA SecurID Card Studio, a cryptographic Smart Card personalisation system that enables a single card to be programmed for network access, digital credentials, physical building access and corporate ID.

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## Launch of Proton Prisma

Proton World has announced details of Proton Prisma, its new generation of Smart Card products previously known by its development code-name of Proton R4.



The core of Proton Prisma is the CALC (Card Application and Life Cycle manager) platform and the DFM (Data File Manager) toolbox which will be mandatory on all Proton Prisma cards.

CALC is designed to be a spearhead implementation of the forthcoming Open Platform 2.1 specifications for card application management. Prisma also includes a single e-purse application that can have two interfaces: one to a domestic system and one to a CEPS (the Common Electronic Purse Specifications) interoperable system.

In addition, Prisma includes a Europay, MasterCard and Visa (EMV) compliant credit/debit application. Proton World has also created ASPIC (Application

for Secure Personal Identification and Communications) as a standard Proton Prisma application toolkit for PKI (Public Key Infrastructure) based applications

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## New Smart Card Module Facility

Philips has set up a new chip card module assembly line at its Bangkok semiconductor assembly plant. It has a production capacity of 100 million modules per year and will produce Smart Card microcontroller chips, including advanced security and cryptocontroller ICs, as well as modules for MIFARE dual interface Smart Cards.

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## RFID Single Door Controller

Motorola has introduced an intelligent single door access controller designed to offer a simple and cost-effective security solution for small businesses. Called the FlexPass SDC1000 Single Door Controller System, it works with contactless radio frequency identification (RFID) technology and can link to fire alarms and motion detectors.

“The single door controller turns an individual door into a security system controller with all of the advantages of RFID security technology. This eliminates the need to issue lockset keys to employees and completely sidesteps the costs and hassles of key changeovers with personnel changes, lost keys, and other unavoidable business realities.”

The controller has a built-in contactless RFID reader that can operate in several different modes to offer added security, using any combination of an RFID card and/or a four to six digit PIN number.

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## Atmel Opens New Clean Room



George Foulkes, Minister of State at the Scotland Office, last month opened Atmel's newly purchased and extended 345 square metre clean room at East Kilbride, Scotland. The facility will enable Atmel to wafer test and do back end processing, as well as design and market Smart chips.

Last year Atmel obtained security certification under the new ISO 15408 standard (Common Criteria) which identifies seven assurance levels.

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## Auto Detection of Protocols

Litronic, a provider of public key infrastructure (PKI) based Internet security solutions, has been awarded patent 6,168,077 for technology that enables automatic detection of communication protocols in Smart Card environments. The technology recognises both ISO (International Standards Organisation) 7816 and USB (Universal Serial Bus) standards, and automatically selects one or both modes to process Smart Card data.

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## End of ERG Motorola Alliance?

ERG has approached Motorola Worldwide Smart-card Solutions Division to acquire Motorola's interest in the ERG Motorola Alliance for A\$46 million (US \$24.15 million) in cash, subject to ERG shareholder approval.

## Croatia \$2.5m Contract for SCM

SCM Microsystems has been awarded a \$2.5 million contract as part of a comprehensive Internet banking implementation in Europe. Dalmatinska Bank Zadar (DBZ) in Croatia has selected SCM to supply Smart Card readers for its PKI solution.

DBZ is rolling out Smart Card-based Internet banking to its 120,000 business and private customers.

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## OTI Toll Collection Test in China

Israeli company OTI (On Track Innovations) has announced that e-Smart System, its joint venture with Cheung Kong Infrastructure Holdings (CKI), will field test OTI Smart Cards and readers in a toll collection system on the Beidou bridge in Panyu, Guangdong province.

The test will start next month with 5,000 OTI combined contact/contactless Smart Cards operating in ten toll stations. Users will present their card to a reader installed at each toll station and the fee will be deducted automatically from the reloadable e-cash purse stored on the chip.

✉ [www.oti.co.il](http://www.oti.co.il)

## USB Smart Cards

Gemplus has announced the first generation of Universal Serial Bus (USB) Smart Cards to have full speed capability, enabling them to communicate directly with Personal Computers.

Until now, says Gemplus, Smart Cards and PCs did not use the same communication standards, limiting transaction speeds. The new card solves this by supporting both communications protocols - USB, which is standard for PCs and ISO 7816, which is standard for Smart Cards.

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## Breakthrough in US Market?

“2001 could be a breakthrough year in the US market for Smart Cards,” says Olivier Piou, President, Schlumberger Smart Cards, in the company’s annual review of the industry which pin-pointed three drivers for strong growth in North America as information security, financial applications and mobile communications.

Last year saw the introduction of the first major roll-out of Smart Cards in the financial sector with the Blue card from American Express, followed by announcements of Smart banking programs from Visa, MasterCard and their member banks.

The Department of Defense and the US Postal Service also defined Smart Card projects including identification cards for physical access to buildings and logical access to computer networks.

Although the US market has grown more slowly than the rest of the world, this year has three major forces for change: the demand for IT security, the stimulus to the bank card market to follow the American Express Blue initiative, and the growing adoption of SIMs for TDMA (Time Division Multiple Access) and CDMA (Code Division Multiple Access) platforms. Combined, these forces could result in sustained growth rates of over 50% for the next three years.

Also, US law now mandates that electronic signatures are as legally binding as personal ones. Schlumberger sees this as another key driver for increased demand for PKI (Public Key Infrastructure)-based Smart Card applications.

## Worldwide growth

Worldwide, Schlumberger forecast continued double-digit growth in demand in 2001 driven largely by wireless applications, with the emergence of mobile commerce adding a new dimension.

Mobile communications - which represents close to 70% of microprocessor-based card shipments - remains the key focus for the larger players. The market for financial cards is expected to grow strongly at around 25%, driven primarily by a number of national programs to replace existing magnetic stripe bank cards with secure Smart Cards built on the EMV (Europay MasterCard Visa) standard. These include the UK - with its current EMV replacement program; Mexico, which is

starting to see the first volumes of Proton cards; and Brazil and China.

## World Smart Card Consumption and Forecast for 2000 - 2003

By Market (in millions)	2000	2001	Growth 2000/01	2003
Payphone	1080	1190	10%	1410
Mobile comms	350	500	43%	800
Banking	120	150	25%	310
Healthcare	65	70	8%	110
Transport	30	45	50%	80
Others (IT, Pay-TV...)	145	215	48%	390
Totals	1790	2170	21%	3100

By Region (in millions)	2000	2001	Share of total	2003
Europe/Middle East/Africa	890	976	45%	1240
Asia Pacific	485	652	30%	1024
Latin America	350	434	20%	620
North America	65	108	5%	216
Totals	1790	2170	n/a	3100

By Technology (in millions)	2000	2001	Share of total	2003
Memory cards...	1250	1432	66%	1840
... of which have contactless interfaces	... 43	... 72	... 5%	... 155
Microprocessor cards ...	540	738	34%	1260
... of which are multi-application cards	... 80	... 250	... 34%	... 600
Totals	1790	2170	n/a	3100

Source: Schlumberger

### Contact

■ Emmanuelle Saby Schlumberger

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## Motorola GSM Contracts in China

Motorola has been awarded two digital wireless infrastructure contracts worth nearly US\$13 million from China Mobile Communication Corporation (China Mobile).

Motorola will build its first GSM1800 network in Heilongjiang Province for Heilongjiang Mobile Communication Corporation, a subsidiary of China Mobile, and deploy a GSM 1800 system overlay to an existing GSM900 network in two major cities in Heilongjiang Province.

The second project is the expansion of an existing GSM900 network in Yunnan Province for China Mobile's Yunnan Mobile Communication Corporation subsidiary,

- [www.motorola.com](http://www.motorola.com)
- [www.chinamobile.com](http://www.chinamobile.com)

## New Products from Infineon

Infineon Technologies has introduced a power amplifier module for mobile phones used in 900, 1800 and 1900 MHz mobile networks. The new module will enable end-users to roam between GSM, PCN and PCS networks.

The company also announced a 16-bit Smart Card controller called the SLE66C640P with 64K bytes EEPROM.

In another development, Infineon announced a design platform called System Platform 2001 for dual band and triple band GSM cell phones with GPRS (General Packet Radio Service) and Bluetooth functionality.

### Contact

- **Monika Sonntag** Infineon Technologies  
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✉ [monika.sonntag@infineon.com](mailto:monika.sonntag@infineon.com)

## Schlumberger SFR Development

Schlumberger has announced that with French mobile operator SFR they are developing a service enabling a consumer with a dual-slot phone to reload a prepaid card using a Smart credit card.

### Contact

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## ACG License Contract with Microsoft

Microsoft and ACG, the Wiesbaden based high-tech broker for chips and Smart Cards, have concluded an OEM (Original Equipment Manufacturer) license contract under which ACG will globally market Smart Card products based on the Microsoft Windows for Smart Cards operating system.

### Contact

- **Harriet Sihm** ACG  
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## Unwire Order for 1,300 GSM Servers

CellPoint subsidiary Unwire has received an order for 1,300 GSM Servers for AP Trans SA, a Belgian ticketing provider which runs the ticket handling machines for the public transportation company Vasttrafik AB in Western Sweden. The terminals will be installed in the Gothenburg area in Vasttrafik's passenger vehicles such as commuter trains, buses, trams and ferries.

Unwire's servers can store and transfer all traffic information from the ticket handling system and also make payment possible through mobile phones.

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- **David Ericksson** Unwire  
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## Bluefish to Target Italian Market

SIM card and solutions provider Bluefish Technologies has signed a partnership agreement with Italian systems house Jazzware to become Bluefish's representative in Italy which has more than 35 million mobile phone subscribers.

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✉ [roberto.digiulio@jazzware.it](mailto:roberto.digiulio@jazzware.it)

## Winners of SIMagine Competition

Bull CP8 has announced the winners of the SIMagine competition, organised by Bull CP8, Sun Microsystems, STMicroelectronics and Europay International to encourage innovative applications for tomorrow's mobile phones. The applications were developed in Java and integrated in SIM cards.

**Companies/independent developers category:** first prize, together with 25,000 euros, was awarded to Ofye, France, for its application which enables a mobile phone to process images via its SIM card.

**Schools category:** first prize and a cheque for 25,000 euros to the University of the Balearic Islands for an application which gives users a complete directory on their mobile phone, for example of hotels and restaurants for a place being visited, a company directory, etc.

### 5000 euros prizes

**Cegetel Prize** awarded to a team from the Eurecom Institute based in Sophia-Antipolis, France, for an application enabling personalised advertisement messages to be added directly to the list of standard menus according to the subscriber's profile.

**Optimus Prize** to Indonesian start-up INTI with an application that enables a subscriber in a car accident to press one of the keys on their phone to send a message to their insurance company which can then provide services such as mechanic, another car, etc.

**Swisscom Prize** to Turkish start-up Moya for Mylist which allows the subscriber to filter all incoming calls or messages.

**Orange Prize** to Spanish start-up WhatEverNet for a multi-player interactive role-playing game application, offering simulated virtual worlds.

### 2000 euros prize

**Innovation Prize** to Russian start-up Novasoft for a GSM home automation application enabling a subscriber to control, start or stop his/her video recorder, washing machine, heating, provided these devices are connected to the Internet.

**M-commerce Prize** to a team from the University of Malaga for a secure ticketing application. Subscribers can use their mobile phone for the secure purchase of electronic tickets for transport, concerts, etc as the tickets integrate encryption algorithms. Once received, they are validated by the seller's mobile phone.

**Java Prize** to Japanese start-up Nettime for an i.mode application enabling the subscriber to receive i.mode pages even without an i.mode phone.

**B to B Prize** to Polish start-up Mobile IT for a mobile phone agenda application enabling users to have a personal agenda in which they can add or delete meetings and appointments on their phone.

All teams retain the intellectual property of their applications.

### Website

www.cp8.bull.net

## Schlumberger / AT&T Wireless Team

Schlumberger has signed a memorandum of understanding with AT&T Wireless to provide SIM (Subscriber Identification Module) Smart Cards and related OTA (over the air) technology to support AT&T Wireless' new GSM network platform.

AT&T Wireless recently announced that it will introduce wireless data services by overlaying a GSM/GPRS (General Packet Radio Service) platform to its existing nationwide TDMA (time division multiple access) digital network beginning this year.

### Contact

■ **Brittany Jedrzejewski** The Bernard Group

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## Interoperability for SIM Cards

Gemplus, Oberthur Card Systems and Schlumberger have been working together in collaboration with Sun Microsystems to develop interoperable SIM cards based on the Java Card technology 2.1 specifications.

### Contact

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■ **Stephanie de Labriolle** Oberthur CS

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■ **Emmanuelle Saby** Schlumberger

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## IDDEAS for GSM

ID Data has launched IDDEAS (ID Data Direct Easy Application System) to bring versatility, flexibility and ease of use to manufacturers of GSM SIM products. Coupled with the introduction of flash silicon IDDEAS will enable customers to choose which applications to add to the card without the need to define memory segments in EEPROM.

### Contact

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  - ✉ paul.knight@id-data.co.uk

## Setec Launches 32K SIM

Smart Card company Setec has launched a 32K GSM SIM card based on PKI security technology and the MicroBrowser application that enables the use of WAP type services with an ordinary mobile phone.

Setec has delivered the first PKI MicroBrowser SIM cards to Norway's largest telecom operator Telenor.

Setec's PKI MicroBrowser SIM card generates the keys for the digital signature internally, i.e. the secret keys are never handled outside the card. The security algorithm is based on RSA and the secret key is 1024 bits long - the same as used as a security feature in the national electronic ID cards in Finland.

Setec also announced that it has entered the Italian GSM SIM card market in a supply deal with the telecom operator Blu SpA.

### Contact

- **Pekka Santanen** Setec
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  - ✉ www.setec.fi

## Award for Smart Communication

The Most Innovative Wireless GSM Service for Customers' award presented at the 3GSM Congress in Cannes, France, last month went to Philippine-based, Smart Communication for its multi-application, mobile portal which has attracted over 150,000 subscribers.

Based upon Oberthur's award-winning SIMphonIC 32K Card and Rapsodia Software's SIMphonIC platform, the mobile banking service allows customers to check their balance, request statements and cheque books, transfer funds and pay bills.

The portal includes Mobile Banking and prepaid over-the-air reload services for postpaid and prepaid users, one of the first multi-bank services in the world. It also features Smart Money, a MasterCard mobile payment application.

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## Multi-bank Mobile Banking

Slovakia's leading mobile operator EuroTel Bratislava is partnering with Schlumberger to deliver a new, highly-secure mobile banking service to multiple banks, based on Schlumberger Simera Java SIMS. Customers of three of Slovakia's banks - VUB, Tatrabanka and Istrobanka - will be able to review their accounts, make payments and access stock market information.

Unlike most m-banking applications, which are based on a one operator/one bank partnership, EuroTel is offering the m-banking service to multiple banks, greatly expanding its scope for revenue generation and staking out its territory as an m-banking leader in Eastern Europe.

### Contact

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## CTI Group Agreement with WCC

CTI Group (Holdings) has announced that its subsidiary, CTI Billing Solutions, has entered into a Global Wireless and Paging Billing Services Agreement with World Communication Center LP which is launching commercial satellite communications services over the Iridium Satellite System. The Iridium phones have a Smart Card Subscriber Identity Module (SIM).

### Contact

- **Anthony P Johns** CTI Group (Holdings)
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## Smart Project in Malaysia

Keyware has signed an agreement with Waterside IT Solutions to develop e-payment and authentication tools based on Smart Card and biometric technology for the state government real estate project called The Tanjung Puteri Development, a waterfront development in Johor, the southern Malaysian state bordering with Singapore.

The development consists of 147 acres for residential, commercial, administrative and recreation facilities. Waterside - a Kuala Lumpur based company - will design and co-ordinate the implementation of the technologies. Keyware will be responsible for providing, through its partners, the overall technology mapping of the city enabling secure e-payment solutions and integrated authentication tools for the Internet as well as physical access applications.

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 ✉ global21@tm.net.my

## Voice Authentication Agreement

Consult Hyperion, a UK IT management consultancy, has announced a licensing agreement to use Domain Dynamics' TESPAP (Time Encoded Signal Processing and Recognition) technology to develop and demonstrate a range of solutions that combine voice authentication and other security processes to deliver Smart Card and Personal Digital Assistant (PDA) based systems that positively verify a user's claimed identity.

Martin George, Sales Manager at Domain Dynamics explained: "After successfully porting our voice authentication code and user templates to standard 8 bit, 8K Java Cards, we were looking for an expert partner to integrate and demonstrate our identity verification with emerging security technologies."

### Contact

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- **Dr Neil Garner** Consult Hyperion  
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 ✉ neilg@consult.hyperion.co.uk

## New Security Solution

SafeGuard Biometrics is the base module of Utimaco Safeware's new biometric security technology that provides Smart Card-based access control for PC operating systems, including single sign-on and desktop lock. Instead of a PIN, the Smart Card authenticates its legitimate user by a fingerprint using "match on card" technology.

Finnish company Miotec contributed the new MioCOS card operating system which enables the user to be authenticated by any combination of PINs and fingerprints. The card features a 1024 bit RSA co-processor and on-card key generation.

Precise Biometrics, of Sweden, contributed the combined fingerprint/Smart Card reader and the matching algorithm. A new fingerprint verification method developed by Precise (Precise Pattern Matching) enables the accurate checking of fingerprints.

SafeGuard Biometrics will be available in the second quarter of 2001.

### Contact

- **Miotec, CEO**  
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## Keyware Security for Euronext

Keyware has revealed that it has equipped the Euronext building in Brussels with a new security access control system using advanced proximity cards. This system is linked to Keyware's Central Authentication Server (CAS) which enables companies to manage multiple biometric and non-biometric authentication techniques (PKI, proximity cards, Smart Cards, PINs, passwords, etc.) from one central server for physical access control applications as well as e-commerce, network, Smart Card and telecommunication applications.

Euronext Brussels - born from the merger of the stock exchanges of Amsterdam, Brussels and Paris - is already evaluating the integration of biometrics for physical access control into the existing security infrastructure.

### Contact

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 ✉ emarshall@keyware.com

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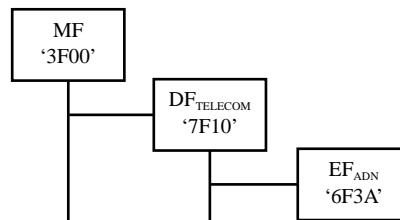
## Briefing Notes on Multi-Application Smart Cards - Part 13

### Exploring GSM SIM Cards Part 1 - Stored Numbers

In this month's tutorial we will start to look at GSM SIM cards by reading the phone numbers stored on one. Before we look at the code to do this we need a quick look at how the numbers are stored on a GSM SIM.

GSM SIM cards store a lot of different data, and these data are organised in different files, much as data is stored on a PC. The top of the file hierarchy is a node referred to as the MF, or master file. When a card is initially powered up this node is automatically selected.

The MF node has several directories, or DF files, beneath it. The DF we are interested in has the identifier 0x7F10, and is referred to as DF<sub>TELECOM</sub>. This DF stores many EF, or Elementary Files, which contains data related to the telecoms provided by the phone. One particular file in the DF<sub>TELECOM</sub> stores the name and numbers the user chooses to keep on the SIM for quick access. This file has the identifier 0x6F3A and is called EF<sub>ADN</sub> (ADN stands for Abbreviated Dialling Numbers).



EF<sub>ADN</sub> stores the name and numbers in a predefined format, which is defined in the GSM standard. The name and numbers are stored as records which must be read individually from EF<sub>ADN</sub>. Each record is a fixed length, which explains why there is a limit on the length of both the name and number you can store on the SIM. However, these limits vary from card to card, and as the memory available on SIMs increases these limits will expand.

So how do we know how many records there are and how big each record is? These details are given to us when we issue the command to select EF<sub>ADN</sub>. Each time a file is selected on the card data about it is returned. When the card is first powered up we must traverse the tree above to get to EF<sub>ADN</sub>. We do this by selecting DF<sub>TELECOM</sub> followed by selecting EF<sub>ADN</sub>.

For EF files at least 16 bytes of data is returned upon selection. Bytes 3 and 4 are the size of the file, with the 15th byte being the size of a record. Dividing the size of the file by the record size gives us the number of records in the file.

One more fact we need to know is that each record in EF<sub>ADN</sub> starts with a 'Alpha identifier', or the name associated with the number. The length of this field is not fixed from card to card, but the remainder of the record is fixed at 14 bytes. This knowledge enables us to calculate the length of the name. We will look at the data each record holds below.

We are now in a position to examine a SIM card. The following sequence was issued on a SIM card when the PIN had been disabled; if a PIN is needed an extra step not detailed is required. If you wish to use your own SIM you will need an adapter so the SIM will fit in the card reader. If you do not have one, contact Smart Card News.

The Python code we will use is quite long, and so it is best to save it in a file and then import it into the console. In a text editor (such as Wordpad), enter the following. Please be careful to ensure indenting is correct (4 spaces or a tab per indent) as these are important in Python.

```

from opencard.core.service import CardRequest
from opencard.core.service import SmartCard
from opencard.core.terminal import CommandAPDU
from opencard.opt.util import PassThruCardService
  
```

```

DF_TELECOM = [0x7f,0x10]
EF_ADN = [0x6F,0x3A]

def start():

    # Start OpenCard
    SmartCard.start()

    cr = CardRequest()
    cr.setWaitBehavior (CardRequest.ANYCARD)

    print 'Waiting for a card'
    global sm
    sm = SmartCard.waitForCard(cr)

    global pcs
    pcs = sm.getCardService(PassThruCardService().getClass(),1)

def selectFile(fileName):
    command = CommandAPDU([0xa0,0xa4, 0, 0]+ [len(fileName)] + fileName)
    return sendAPDU(command)

def readADNrecord(recordNumber,size):
    command = CommandAPDU([0xa0,0xb2, recordNumber, 4, size])
    return sendAPDU(command)

def sendAPDU(command):
    response = pcs.sendCommandAPDU(command)

    sw1 = response.sw1() & 0xff

    if sw1 == 0x61 or sw1 == 0x9f:
        command = CommandAPDU([0xa0,0xc0, 0, 0, response.sw2()])
        response = pcs.sendCommandAPDU(command)

    return response

def stop():
    return SmartCard.shutdown()

```

Save this file somewhere on your hard disk. Start up the BeanShell, and import the code as follows (for this example I'll assume you saved the file as `gsml.py` in a directory `c:\python\scripts`):

```

import sys
sys.path.append('c:/python/scripts')
from gsml import *

```

(Note the formatting of the directory name). Now to initialise the Smart Card reader enter:

```
>>> start()
```

Now we can start the process to select the  $EF_{ADN}$ . Enter the following command to select  $DF_{TELECOM}$ :

```
>>> selectFile(DF_TELECOM)
```

This causes the following APDU to be sent to the card: `A0 A4 00 00 02 7F 10` (Class = `0xA0` Instruction = `0xA4` P1 = `00` P2 = `00` Length of data = 2 Data = `0x7F 0x10`). This is the GSM select file command, with the file ID for  $DF_{TELECOM}$  being the data.

(N.B. The ISO 8716-4 select command allows P1 to signify different types of selection, but the GSM standard allows only one kind).

When I ran this with my SIM card I saw :

```

opencard.core.terminal.ResponseAPDU@c80f0afb
0000: 85 18 00 1C 7F 10 02 00 01 F1 11 83 0D 93 00 08 .....
0010: 02 00 82 8A 00 00 00 00 00 00 90 00 .....

```

We can ignore this data, as long as the last 2 bytes are 90 00, indicating success. Now we can select EF<sub>ADN</sub>:

```

>>> selectFile(EF_ADN)
opencard.core.terminal.ResponseAPDU@c6970afe
0000: 85 10 09 48 6F 3A 04 00 11 F4 22 01 05 01 18 00 ...Ho:....".....
0010: 00 00 90 00 .....

```

Now we can start to read the record as again the last 2 bytes are 90 00, indicating success. First, though, we can work out how many records there are. Bytes 3 and 4 above give the size as 0x0948 (2376 decimal), with the record size indicated at byte 15 as 0x18 (24 decimal). A simple calculation gives is the number of records:

$$2376 / 24 = 99 \text{ records.}$$

We can also now work out the length reserved in each record to the name, which is the record size minus the fixed data length of 14, giving us 10 in this case. To read the first record we issue the command :

```
>>> readADNrecord(1,24)
```

This reads record number 1 telling the routine it is 24 bytes long. (On this SIM card the first record is for Smart Card News using the name 'SCN' for the number 01273515651)

```

opencard.core.terminal.ResponseAPDU@d2030ae5
0000: 53 43 4E FF FF FF FF FF FF FF 07 81 10 72 53 51 SCN.....rSQ
0010: 56 F1 FF FF FF FF FF FF 90 00 V.....

```

We worked out that the name field was 10 bytes in length. In the data above the first 3 characters are the ASCII codes for SCN, with the remainder of the field being made up of 0xFF. 0xFF is an indicator in GSM of blank data. Byte 11 indicates the length of the telephone number. Note that this field is set in the GSM standard as being a maximum of 10 bytes – any unused space in this field is set to 0xF.

The first byte of the telephone number field holds various flag fields that are outside the scope of this article. The remaining bytes are the actual number, but note that the bytes are swapped. For example, in the data we got the length byte and number is :

```
07 81 10 72 53 51 56 F1
```

This indicates the number is 7 bytes long, including a leading byte that holds extra information before the number starts. The number itself is 01273515651, which is held in the last 6 bytes with the digits being swapped around. Note that the last digit is set to 0xF – this is because the number is an odd length, and the 0xF indicates the last space is unused.

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Try issuing the same command but with different record numbers to examine the other records (i.e. to read record 10: readADNrecord(10,24))

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To close down the Smart Card send:

```
>>> stop()
```

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**Jon Barber**

## People on the Move

**Sherron Eves** has joined ORGA Card Systems as Marketing Manager. Previously she was e-business Marketing Manager at Computeraid and Marketing Manager for Internet service provider Technocom.

3-G International (3GI), a provider of authentication software and services, has appointed former PSINet executive **J B Rauch** as its new President to further its transition to a products-based company.

American Express has appointed **Nigel Harrison**, who has been working for Amex in a variety of sales and client management roles, as Vice President, Head of Establishment Services Group (ESG) UK. The company has also appointed **Michael Donald**, Head of Merchant Profitability for the EMEA region, as its new Head of Retail for the UK market.

Telstra, Australia's premier electronic information and communications company and a leading carrier in the Asia Pacific region, has announced the appointment of **Andrew Morawski** as Eastern Regional Vice President for the US and to oversee Telstra's offices in New York, Chicago and Philadelphia. Previously, he was Regional VP of Sales and Director of Sales Operations at Prism Communications Services, a subsidiary of Comdisco.

CardBASE Technologies has appointed **Brian Kearney** as Chief Executive Officer. Previously he was Chief Executive of Powerscreen International. **Aonghus Geraghty**, founder of CardBASE, has become President of the company, focusing in particular on its partnerships and strategic alliances.

**Jeffrey Doyle** has been named Director of Sales and Business Development for Smartix International, a New York-based sports and entertainment marketing firm specialising in Smart Card-based affinity programs. Previously he was at AIM Technologies where he served as senior sponsorship manager.

Lifestream Technologies, which recently launched the first at-home cholesterol monitor with embedded Smart Card technology, has appointed **Robert A Presutti** as Vice President, Professional Sales. Previously, he served as Director of Professional Sales for Optiva Corporation.

## Collector's Corner

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KLAUS FINKENZELLER  
Giesecke & Devrient GmbH, Munich, Germany

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