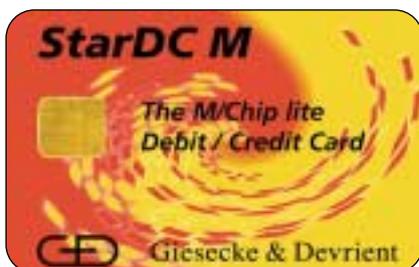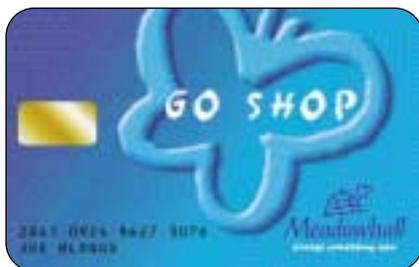# SMART CARD NEWS

Subscribers will receive the **British Racing Drivers Club Card** free with this issue of Smart Card News.

New Era for the Smart Card Industry, says F&S Report

A new era for the Smart Card industry is heralded by increasing mobile-Internet convergence and the arrival of multi-application Smart Cards, according to a new report from Frost & Sullivan. It says that Smart Cards have evolved from a secure means of payment to become a universal tool for authentication and security, as well as host to a multitude of applications.

It also reports that despite a slow start, the US Smart Card market is picking up speed, and that banks faced a serious threat from the telecommunications companies.

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News

Special Features

Smart Card Tutorial

Cards on the Cover
British Racing Drivers Club -
this issue's Collector's Corner Card

Main Photograph
A new era for the Smart Card industry?

New Era for Smart Card Industry

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However, Anoop Ubhey, Industry Analyst at Frost & Sullivan, warns that vendors in the Smart Card arena must bring more benefit to customers through a wider range of products and applications, and expanded support organisation in order to grab a bigger share of this fast growing market.

Profound transformation

As signalled by the wave of merger and acquisition activity, the Smart Cards market is undergoing profound transformation as its fortunes increasingly depend on the ability to provide one-stop secure, integrated solutions. This trend will, in turn, accelerate the development of competitive e-business offerings. The repositioning of Smart Card manufacturers as end-to-end solution providers will put market participants in pole position to capitalise on developments in the flourishing e-payment solutions industry.

In 2000, the Smart Card market's star performer was the GSM SIM card sector, accounting for 15.2 per cent of total unit shipments. A slowing business environment and downturn in the European GSM market and subscriber growth continue to exert pressure on SIM card sales and contribute to the further deterioration of the mobile phone business.

Despite a slow start and trailing behind at a meagre two per cent of global Smart Card sales, growth in the US market is picking up speed, aided by the mushrooming of small regional Smart Card manufacturers. Europe continues to lead the field with a massive 53 per cent share in 2000.

Threat to banks

Ubhey continued: "Events of the past 12 months show just how volatile relations between banks and telcos have become. We believe banks should have realised there was trouble ahead when privatisation began. The telcos had the networks, billing systems and a growing diverse card base as well as knowledge of their customers. The threat to banks was apparent."

Increasing mobile phone usage to conduct micropayments will inevitably introduce higher value payments and billing services. "The E-purse was a reaction from the banking community. In Denmark, the Netherlands and the UK, these schemes were launched in partnership with telcos, while banks in Belgium and Germany were spearheading projects without the involvement of telcos. The costs for banks associated with these schemes were enormous and generally e-purse schemes have failed to take off. The parallel rise in mobile phone networks and the Internet presented an even more serious threat to the banking arena," the study says.

Chip technology is the key enabler for mobile telephony. Telcos can leverage chips under their control to capture parts of the payment value chain, including origination, authentication and settlement. By creating a more streamlined payments infrastructure, telcos will be able to transform the access device into a mobile wallet that offers seamless payment services to consumers both in the online and offline worlds.

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More Jobs to go at Motorola

Motorola is to slash a further 2,000 jobs worldwide by the end of the year. Global Telecoms Solutions (GTSS), which makes its infrastructure for mobile phone companies, will be the sector to fall under the cuts, putting the company's plant in Swindon, UK, at risk.

The news follows the announcement that Motorola was to close its factory at Bathgate in East Lothian, Scotland, with the loss of more than 3,000 jobs (*SCN Vol 10, No.5, p. 81*)

In a statement, Motorola blamed the latest cuts on "slower growth in the wireless infrastructure market, resulting from delays in capital expenditures by wireless service providers."

The move came as Motorola revised forecasts for sales of telecom infrastructure equipment for Q3. They will remain the same as Q2 figures, rather than increasing five per cent as the company had previously predicted. However, the company expects to make a smaller loss of five to eight cents per share for Q3, compared to 11 cents lost in Q2.

SCA to Measure Smart Card Usage

The Smart Card Alliance is to conduct a survey to determine the usage of Smart Cards in the US and Canada. The research will be conducted by KPMG and results from the initial phase will be presented at the Alliance's Annual Meeting on 9-12 October.

"As a strong voice for Smart Card adoption, the Alliance is proud to sponsor this original research that will provide the first concrete data on our industry in the 21st century," said Bill Randle, the Alliance Chairman.

The top 10 Smart Card manufacturers supplying the US and Canadian markets will be asked to report on shipments according to 10 specific industry categories, such as wireless, financial and retail. The initial survey will cover shipments made in 1999, 2000 and the first half of 2001. A follow-up survey covering the last half of 2001 will be made in the first quarter of 2002.

    ⌨ www.smartcardalliance.org

Home Banking Pilot in Hungary

Oberthur Card Systems has won a contract to supply Smart Cards, software and readers for the pilot phase of Hungary's Internet Home Banking application.

The order was placed by Cardnet, one of the contractors for the project, on behalf of K&H Bank, a leading Hungarian retail bank and MATAV (Hungarian Telecom), K&H Bank's major partner.

Oberthur is to provide 5,000 AuthentIC Smart Cards and ActivCard readers for use within the K&H Bank network as part of a fully operational pilot programme which began in December 2000. The Smart Cards generate digital signatures, which authenticate the user, creating a secure and controlled environment for home banking.

Marc Bertin, Oberthur's Director of e-Business, said: "The solution chosen, AuthentIC, is quite unique in the market, being a true multi-application, EMV compliant, RSA-capable card."

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Fargo Technology Alliance

Five more firms have joined the Fargo Technology Alliance (FTA), a global technology group promoting advanced Smart Card solutions. Fargo Electronics announced the new members as: CASI-RUSCO, Boca Raton, Fla.; Leapfrog Smart Products, Maitland, Fla.; Lexington Technology, Huntington Beach, Calif.; Synercard Corp., Quebec, Canada; and Unicard Systems, Sydney, Australia.

"The Fargo Technology Alliance unites Smart Card solutions with Fargo's international and domestic network of distribution partners. With 17 Alliance members now working together with our global distribution system, Fargo is able to provide a wider range of complete solutions for end users," said Gary R Holland, President and CEO of Fargo.

The other 12 members of the Alliance are: Bull CP8; CardLogix; CardSmart Technologies; Gemplus; IDenticard Systems; ImageWare; Intraproc GmbH; NFive Software; Schlumberger; SmartDynamics; Supercom Smart Cards and UbiQ.

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Loyalty Application for Amex Blue

Gemplus has announced that it has been the prime contractor of a consortium of vendors responsible for development of a turnkey, loyalty Smart chip application for American Express's Blue credit card.

The solution involves provision of chip application, backend server and terminal software. In addition Gemplus has been responsible for the initial embedding of the Smart chip onto the credit card.

The card features a magnetic stripe to allow cardholders to shop wherever they want, regardless of whether merchants have chip readers or not.

IVI-Checkmate Now Ingenico Corp

Groupe Ingenico has acquired IVI-Checkmate, the third-ranked American electronic payments systems supplier, which had been the group's distributor since 1996.

Health Insurance Card for Austria

Austria is to roll-out 8 million health insurance Smart Cards by 2003. In addition to issuing cards to insured persons, the contract involves the supply of 12,000 desktop Smart Card terminals, 6,000 mobile terminals and 12,000 Smart Cards to doctors.

The contract, worth £31 million (US $44 million) has been awarded to Smart Card company ORGA and IT services company EDS by the Board of the Austrian Insurance Agencies with the agreement of the Federal Ministry for Social Security and the Generations as well as the Federal Finance Ministry.

Initially, the system will replace Austria's current paper-based insurance cheque system with the aim of speeding up the processing and checking of insurance claims, and reducing paperwork and administration.

The card is being designed as a universal card that can also be used as an electronic signature across a number of government-related applications.

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Security for m-Commerce

Visa International EU has announced the Mobile 3D Secure specification for the security of Internet payments made from mobile phones. Based on existing payment technologies, it was developed in conjunction with some 15 major industry players, including Ericsson, Motorola and Oracle Mobile.

The specification is part of Visa Authenticated Payment, a comprehensive e-commerce program designed to ensure safe and secure on-line payment transactions. The Mobile 3D-Secure specification extends payment authentication initiatives into mobile commerce, enabling Visa to validate the identity of cardholders in real time. It ensures that payment data sent over the open networks is not compromised and allows consumers to actively protect their Visa accounts from unauthorised use when shopping on-line over mobile devices.

The Mobile 3D-Secure specifications can be obtained from Visa at mobile3d@visa.com

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Bank-issued e-purses in Europe

Country	Austria	Belgium	Denmark	Finland	France	Germany	Italy	Luxembourg	Netherlands	Portugal	Spain	Sweden	Switzerland
Population Scheme	8,131,00	10.241,000	5,500,00	5,200,000	60,000,000	82,000,000	56,000,000	400,000	16,000,000	10,000,000	40,000,000	9,000,000	7,000,000
name	Quick	Proton	Danmont	Avant	Monéo	Geldkarte	Minipay	MiniCASH	Chipknip	PMB	Euro600, Monedero & TIBC	CASH	CASH
Starting date	1994	1995	1992	1994	1999	1996	1996	1999	1995	1995	1994–6	1996	1996
No of cards: issued	5,500,000	7,714,000	n/a	500,000	75,000	50,000,000	240,000	240,000	13,000,000	2,900,000	7,392247	7,714,000	3,545,000
active	330,000	2,571,000	n/a	n/a	37,5,00	686,000	n/a	n/a	n/a	300,000	n/a	601,716	n/a
% active	6%	33%	n/a	n/a	50%	1·4%	n/a	n/a	n/a	10·3%	n/a	7·8%	n/a
Terminals: PoS	45,000	49,204	–	2,000	1,000	67,000	–	1,000	131,438	49,000	98,896	37,800	21,800
phone	–	15,000	4,000	5,000 600	–	–	–	350	16,866	–	123,000	–	2,000
vending	1,200	5,641	–	–	200	–	4,469	115	1,218	700	476	3,000	8,480
other	1,100	–	–	2,000	–	–	–	–	–	–	–	6,000	–
Loading points: ATM	2,500	–	10	–	–	38,800	–	37	6,000	6,500	19,077	6,905	4,500
PoS	–	·	–	200	1,000	–	–	–	–	–	–	–	–
other	2,500	101,405	–	10,000	150	–	1,312	113	1,000,000	100	139	20,000	–
Tx/month: loading	33,300	693,608	650,000	80,000	12,000	307,936	1,661	5,085	225,000	52,000	93,451	20,200	98,000
purchases	366,660	4,377,983	50,000		2,206,060	18,004	37,605	1,600,000	495,000	340,739	110,000		
Tx/month/				n/a								1,675,784	
active card: loading	0·1	0·27	n/a	n/a	0·32	45	n/a	n/a	n/a	0·173	n/a	0·3	n/a
purchases	1·11	1·7	n/a		2·13	3·22	n/a	n/a	n/a	1·65	n/a	0·18	n/a
Average value in €:													
load	51·6	26·43	19	17	35	31·5	45·73	42·81	23·14	13	16-34 25-68	27·36	53
purchase	4·09	6·13	1·2	2	4·2	2·75	3·12	4·7	2·94	13	2·03–3·1	5·84	3·3

Figures kindly provided by **Proton World**

Card Fraud Capital of Europe

Britain is still the card fraud capital of Europe, with losses last year of nearly £293 million - up 55 per cent on 1999 - according to research by Datamonitor. However, with the introduction of chip cards there should be a significant reduction when roll-out is completed by 2003.

The fastest growing fraud by organised gangs is skimming the magnetic stripe for information. APACS, the Association for Payment Clearing Services in the UK, said that measures to fight the gangs were starting to work. British banks are preparing to spend £750m replacing signatures with PINs at retail outlets, but agreements with retailers are still not finalised as to how to share the costs involved. (*SCN, Vol.10, No.8, p. 144*)

In its latest briefing publication, APACS reports that most of the bank-owned cards, cash machines and point of sale terminals are on schedule to be ugraded to accept chip cards by the end of 2002.

Purse case not compelling

APACS also said that the prospects for the electronic purse in the UK were subject to "considerable uncertainty." While the potential market for a coin substitute was huge, the business case for banks to establish purse schemes was currently not compelling. However, opportunities could arise from partnerships between banks and Smart Card issuers such as local authorities and transport companies.

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Visa Takes a Swipe at Amex Blue

Visa USA's new television commercial promoting Smart Visa, its chip-based credit card, takes a swipe at rival American Express. The advertisement says Smart Visa is accepted in "millions more locations worldwide than Amex Blue," a reference to the American Express Blue card - the first chip-based credit card introduced in the United States.

An American Express Company spokesperson declined to comment.

Keycorp Contract in Korea

Keycorp, based in Sydney, Australia, reports a multi-million dollar contract with Mondex Korea for the provision of 300,000 MULTOS chip cards. The new payment card will incorporate Keycorp's MULTOS Smart Card operating system and additional applications such as M/Chip Select (MasterCard credit and debit application) and digital certificates. Roll-out is expected to be completed by the end of the year.

The payment card is a cooperative effort between Mondex Korea, Kookmin Bank Credit Card Co and KTF (Korean Telecom Freetel).

Mobile Internet Access Surge

The mobile Internet access market is expected to increase from 2.9 million subscribers in 2000 to approximately 136 million by the end of 2007, according to the *US Mobile Internet Access Market Report* from Frost & Sullivan.

The report says that carriers generated revenues of $417.6 million from Internet traffic in 2000 - a figure projected to surge to $25.89 billion by 2007.

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French Car has Smart Locks

French car manufacturer Renault has made the Laguna 11 into a Smart Car and drivers no longer have to carry a key.

The system uses a personal card with a card reader and starting button built into the vehicle's dashboard. When the driver carrying the card touches the handle of the vehicle the doors unlock. Inserting the card into the reader on the dashboard deactivates the immobiliser and the steering lock.

The card also stores information such as the vehicle identification number and the registration number at the time of sale.

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Court Protection for CardBASE

CardBASE Technologies, a leading provider of Smart Card solutions for secure e-commerce, is reported to be under the protection of the Irish Court, which enables the Directors of the company to carry on running it whilst the Examiner appointed looks to see if the company can refocus and restructure the business.

Brian Kearney, CEO, CardBASE, said: "The appointment of an Examiner and the protection of the Court is a proven methodology for many companies. We believe it will give us sufficient time to successfully resolve our funding requirement in a difficult technology environment."

Existing shareholders, ICC and Eastbound, are funding the examination period, investing IR£1.3m. CardBASE management is currently preparing a revised business plan which will include the restructuring of the company and reflect the current outlook for business in its sectors of security and electronic payments.

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EMV Card Program in N America

Hypercom Corporation, Visa USA, Vital Processing Services (Vital) and National Processing Company (NPC) have teamed up to introduce EMV certified card payment terminals in North America that support Smart Card based Visa credit and cheque card transactions.

"This roll-out is the first of its kind in North America, and follows successful international EMV Smart Card roll-outs," said Jairo E Gonzalez, President, Hypercom Transaction Systems Group.

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MasterCard Inc Proposal

MasterCard last month filed with the Securities and Exchange Commission (SEC) a registration statement formally proposing the conversion of MasterCard International from a membership association to a private share corporation, to be known as MasterCard Incorporated. The registration statement details plans for the conversion and the integration of MasterCard International and its European alliance partner, Europay International, under MasterCard Incorporated.

Upon completion of the transactions, MasterCard principal members and Europay shareholders will receive shares of MasterCard Incorporated and a revised membership interest in MasterCard International, which will continue as MasterCard Incorporated's key operating subsidiary. Closing of the transactions is subject to customary closing conditions, including receipt of all necessary regulatory approvals.

Consumer BenefitCard

The Investment Freedom Club is offering the Consumer BenefitCard, a Smart Card programmed for a variety of uses for $49.

The new debit card gives access to ATM and cash transfer services at 850,000 locations worldwide and saves cardholders up to 60% on travel, dental, prescriptions, vision care, legal services, entertainment and POS charges.

Dr George Belanger, founder of the six-year-old investment club, said: "The benefits far outweigh the annual fee. Many of our investment club members are churches and small organisations. It is an excellent solution for college students and military personnel who send or receive money from home. It also serves the community of individuals who do not have bank accounts."

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Smart Cards for Drug Offenders

Smart Card technology from Netsmart Technologies has been selected by San Joaquin County to manage the county's Proposition 36 initiative - a new California initiative that mandates treatment instead of incarceration for first and second time non-violent drug offenders. The new law went into effect on 1 July.

County officials knew that recording all of the Proposition 36 substance abuse treatment, education and health program information for drug offenders was going to be a daunting task. George Feicht, administrator of the San Joaquin County Office of Substance Abuse's alcohol and drug program, said that without the innovative program, his staff would have to compile the complex records manually. "The beauty of this is the data goes right into the data bank," he said.

He explained that the Office of Substance Abuse, the lead agency for the county's Proposition 36 program, is responsible for collecting data on all the offenders and submitting it to the State's Department of Alcohol and Drug Programs - which in turn submit a report on participant performance to the Governor. The Smart Card tracks every class, medical appointment, counselling session, and treatment appointment each participant attends, which could involve as many as 30 different agencies and organisations.

  ⌨ www.netsmartech.com

Hypercom US $7m Contract

Hypercom Corp has been awarded a US $7 million contract from Visanet Brasil to install Smart Card readers and software on tens of thousands of Hypercom T7 terminals throughout the country.

"This agreement represents one important part of Visanet Brasil's efforts to upgrade its card reader base to accept Smart Cards," said Fernando Castejon, Vice President of Products, Visa do Brasil. "Our goal is to Smart Card enable 100% of our terminal base. When we achieve that, we will have more than 200,000 Smart Card capable terminals."

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Datacard Expands in London

Datacard Group has announced the relocation and expansion of its London operations. The Group's London team specialises in software solutions for multi-application Smart Card systems and also serves as the central facility for Datacard Consult p7, a team of mathematicians, cryptographers and Smart Card chip experts.

Martin Kearsley, Senior Vice President and Managing Director of Datacard's Software and Solutions Division, said: "As Smart Cards are now emerging as the preferred platform for financial transactions and virtual identity, demand for Datacard solutions has grown significantly. This has led to growth within our team of Smart Card specialists and support staff in order to meet the demands of the market."

Datacard's London address is now
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  ▢ www.datacard.com

People on the Move

Datacard Group has appointed **Kent Shields** as Senior Vice President and General Manager of the company's hardware systems division. Previously he was General Manager for the power generator business at Onan, a subsidiary of Cummins.

Leapfrog Smart Products has appointed **Randall Schrader**, former President and CEO of Realistic Solutions, as CEO and President, taking over from **Dr Les Bromwell**. Co-CEO and co-founder **Dale Grogan** will assume the position of President of Leapfrog Healthcare Solutions.

IOCard Group has appointed **Tore Uberg Alve** as head of its Nordic division. Former Managing Director of CEKAB, the bank-owned national payment processing centre in Sweden, he has executive-level payment systems experience in Sweden, Norway, Belgium and the UK.

Artisan Components, a provider of semiconductor intellectual property (IP), has appointed **Neal Carney** to lead its worldwide marketing. Previously, he was Vice President of Marketing for Tripath Technology.

Gemplus Sells Tags Subsidiary

Gemplus International SA has sold its TAG subsidiary, a leading provider of electronic Smart labels solutions based on RFID (Radio Frequency Identification) to Axa Private Equity. The terms of the agreement have not been disclosed.

Gemplus explained that it is focused on three core marketplaces: telecommunications, financial services and e-business security. The sale of the TAG subsidiary allows it to intensify its market driven approach within its strategic competencies and dedicate more resources to their growth.

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Planar Display for Cubic AFC

Planar Systems has announced that it will provide the colour display technology for Cubic Transportation Systems' new automated bus fare collection system. CTS are initially supplying the systems to be used on buses throughout Germany.

Planar integrated a 3.8-inch AMLCD screen and specially developed video display software into the CTS module, which is designed to mount on a pole beside the bus driver. Riders pass their Smart Cards by the module, which then displays information and advertising while payment of fare is being electronically verified.

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Campus Solution for N America

SchlumbergerSema is partnering with CyberMark to market, sell and support its entire range of Smart Card-based solutions to the college and university campuses of North America.

The cards will be used across a variety of functions, including physical ID, building access, network access and security, cashless payments, personal credentials and other applications.

Single Sign-on Access

Oberthur Card Systems is partnering with Intelligent Environments Group (iE) to give financial institutions the technology to offer their customers single sign-on access to multiple online accounts.

The solution combines Oberthur's AuthentIC Web Pack - an open-platform based Smart Card package featuring PKI applet developments, chip readers and security client software - with iE's NetFinance security infrastructure software. In practice, the package requires banks to issue multi-application cards to their customers who will then access their online accounts using a PIN-based card reader attached to a PC.

Ericsson Technology for Xiring

Ericsson is to license its technology for wireless chip-based transactions to Schlumberger affiliate Xiring, which specialises in the design and marketing of personal Smart Card readers and secure payment solutions for consumers.

Under the agreement, Xiring receives exclusive rights to further develop the Ericsson Wireless Wallet technology platform. Ericsson first demonstrated an early prototype of the technology in 1999 at CeBIT in Hannover, Germany. It is designed to meet the needs for authentication, digital signature and secure payment on the Internet.

Oberthur/Baltimore Partnership

Oberthur Card Systems has partnered with Baltimore Technologies to provide secure e-commerce transactions for financial institutions. The first implementation of the Identrus solution is now underway in the Nordic region.

Baltimore is supplying Nordea, the Nordic financial services group with Oberthur's black box for Identrus users, comprising Smart Card, reader and client software as part of its PKI-based Financial Trust Solution. The card acts as a secure and portable storage facility for the user's digital identification for e-commerce.

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Plan for Smart Card use Speedup

The UK government is to launch a consultation programme to speed the uptake of Smart Cards and digital signatures in consumer and business transactions. It is concerned at the low rate of commercial penetration of the technology and the implications for its own timetable for bringing the UK on-line.

Logica and Actica Consulting have been appointed to organise a series of Policy Working Groups to develop a coherent programme for linking independent public and private sector initiatives.

The government e-Envoy, Andrew Pinder, explained: "Digital signatures are fundamental to the development of trust in e-commerce and e-government - but for a variety of reasons they are not yet in widespread use. The Policy Working Groups will address the barriers to wider take-up, and consider how the technology should best be used to enhance on-line privacy."

Public consultation papers will be produced in November and December and will be available on www.govtalk.gov.uk. The papers will cover:

- Digital signatures for citizens - including issues of privacy and social inclusion;
- Digital signatures for businesses - including issues of liability and wider take-up;
- The future of Smart Cards - how to gain maximum benefit from the many schemes.

Depending on the results, the government may take action to ensure that cards developed for one purpose - for example banking - could be used for others, including public sector programmes.

Pinder added: "There are a number of different public and private sector Smart Card schemes being developed for UK citizens. It is an open question as to whether these schemes need to move forward in tandem to ensure that maximum benefit is gained from them all. People will expect to be able to use their cards with different systems and so the Government wants to consider its role as a potential catalyst in helping schemes co-operate with each other."

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New Singapore CashCard Reader

Smart Silicon Systems has released the CashCard reader developed for consumers to take advantage of the Singapore CashCard in the home or office.

The reader pack includes a CardPro Smart Card reader designed by Smart Silicon Systems in Australia, CashCard software provided by NETS Singapore, bonus SIM Manager software developed by Smart Silicon, and a SIM card holder.

The Singapore CashCard's main function is for the Electronic Road Pricing (ERP) system all around the island. A Smart Card reader resides inside every car, and when the car drives through a tolling point the cash is deducted off the CashCard. Other functions of the card include on-line payment transactions.

The CardPro reader enables CashCard to be read using a normal PC at home or in the office. It enables users to top-up their cards and to shop on-line and pay with CashCard instead of sending credit card details over the Internet.

In addition, non-credit card holders can also enjoy the convenience of cashless payments for on-line services such as buying cinema tickets, groceries or retrieving information and applying for permits from Government sectors' websites.

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Multi-function Terminals

Flint Smart, a UK distributor of electronic components, has introduced a range of standalone multi-function Smart Card terminals from Gemplus, which operate with both memory-type and microprocessor cards.

The EPAD-500MS4 is designed to upgrade existing POS terminals to Smart Cards for electronic purse and loyalty schemes. Applications requiring a dual Smart Card interface are enabled by the GEMSELF-700MS2. The third, reader, the GEMSELF-800MS2 is a hand-held reader with dual Smart Card interface.

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Hypercom $30m Contract

Hypercom Corporation has announced a contract valued at an expected $30 million with TASQ Technology, a subsidiary of First Data Corporation for its ePOS-infocommerce (epic) ICE payment terminals. The company says that the forecasted volume reflects the escalating demand for consumer-activated, EMV Smart Card capable, touch screen payment terminals.

Ron Chaisson, president of TASQ, said: "TASQ must respond to the market demand and our own rapid growth, and this agreement enables us to provide leading banks, processors and retail merchants with advanced and cost-effective card payment terminals and peripherals at the point-of-sale."

ICE terminals incorporate Hypercom's TranSafe operating system, which incorporates, multi-tasking, firewall-protected multi-application functionality, along with EMV chip card capability, a secure PIN pad, built-in HTML/HTTP Web browser and integrated receipt printer.

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PrePayGo Division Launched

Ingenico Fortronic has created a new business division named PrePayGo to address the global opportunities of the pre-payment market.

Based at its headquarters in Dunfermline, Fife, in Scotland, it will market the company's electronic top up (e-TopUp) payment solution which was developed to address the mobile phone pre-payment market and includes the terminal, pre-payment application, host communication system and management software.

The company says that its solutions can also be applied to automate many other pre-paid systems such as international calling cards, pre-pay transportation, pre-pay television, utilities bill payment and Internet pre-pay.

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Oberthur Certification from Visa

Oberthur Card Systems has achieved Visa approval for version 2 of its GalactIC 2.1 payment card, a Java-based, open platform, multi-application Smart Card for secure multi-channel payment. This is the second certification from Visa this year. At the beginning of the year Oberthur announced the certification of its GalactIC 2.1 version 1 card. This latest news means that Oberthur currently owns two of the four RSA Java-based cards compliant with the highest Visa certification, level 3.

Based upon Open Platform 2.0.1 specifications and compliant with Common Criteria specifications (EAL1+), this latest multi-application card to join the Visa Smart range provides a secure payment channel for card holders from any terminal including the PC, mobile phone, TV or face-to-face at a point-of-sale.

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Cubic Cards for Chicago Transit

The Chicago Transit Authority (CTA) has awarded a $1.5 million contract to Cubic Transportation Systems to supply more contactless Smart Cards for its automatic fare collection system.

Cubic is the supplier of the CTA's integrated ticketing and automated payment system that has been operational since 1997. Initially a magnetic ticket-only system, CTA last summer began offering full-fare customers a Smart Card that also links CTA's bus and rail operations and neighbouring suburban bus operator Pace and supplied 3,500 cards for the trial launch.

Walter C Zable, President and CEO, Cubic Transportation Systems, said: "Passengers like the fact they do not have to remove their cards from their wallet or purse to enter a faregate or board a bus, and for those passengers with limited dexterity and other physical disabilities, Smart Cards have delivered a dimension of freedom and independence that was not available before."

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New Range of US Smart Cards

SSP Solutions has announced a range of US designed and manufactured Smart Card solutions for consumers, industry and high-level government security. The new family known as SSP Universal Secure Access Smart Cards (USA Cards) has the ability to support multiple applications.

There are four models:

■ a secure sound wireless card that works with PCs without requiring the additional cost and installation of a Smart Card reader;

■ a biometric card that stores personal data on the card, not on the server, so the information always remains under the control of the user;

■ a healthcare card for HIPAA compliancy using the SSP XNS applet to control and authorise the use of sensitive data; and

■ an ultra high assurance card, designed in conjunction with the NSA and Atmel to be FIPS 140-1 level three compliant with a 32 bit cryptographically enabled RISC processor, a math co-processor, 96K ROM and 64K EEPROM.

SSP is also announcing a range of Smart Card readers.

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Oberthur Consolidates in US

Oberthur Card Systems USA is to transfer its Smart Card personalisation services from its Livermore, California, plant to its facilities in Los Angeles and Naperville, Illinois. The Livermore, Oakland, California, facility will shut down in early 2002.

Philippe Tartavull, President and CEO of Oberthur's operations in the Americas, said: "The consolidation of these facilities will save approximately $1 million annually and allow us to offer more competitive services to our customers."

Oberthur acquired the Livermore plant when it took over De La Rue's Smart Card operations in 1999.

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Miotec EMV Cards for Nordea

Nordea in Finland will be the first Nordic customer for Miotec's chip-based EMV (Europay/MasterCard/Visa) specification payment cards complying with the Open Platform specifications. The Smart Cards for the pilot will be supplied in co-operation with French manufacturer Gemplus.

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BoA Teams with Visa and Vital

Bank of America has teamed up with Visa USA and Vital Processing Services to enable Visa and Vital employees to make chip card payments in their cafeterias using their Smart Visa cards.

BoA's Merchant Services Group is providing Smart Card acceptance services at the employee cafeterias at Visa's offices in Foster City, CA. and Vital's in Tempe, AZ.

Bank of America and Vital will be able to accept and process Europay/MasterCard/Visa (EMV) consumer credit Visa payment transactions.

New Laundry Products from GE

GE Appliances has introduced a new line of washers and dryers suitable for any commercial application - from coin stores, apartments and retirement homes, to college campuses and health clubs. The new line includes units with Smart Card technology as well as coin-operated and non-coin models.

GE is also the only appliance manufacturer to offer two different factory installed Smart Card systems. The systems are supplied by ESD and BridgePoint.

With a Smart Card, consumers utilise a card with a pre-paid amount, eliminating the need to carry a pocketful of change and the Smart Card technology enables property owners to reduce costs, track machine usage and cycle usage, easily set vend prices for special promotions and market loyalty programs between stores at different locations.

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Gemplus Share Repurchase Plan

Gemplus International plans to start repurchasing up to 10 million shares of its outstanding common stock, under the repurchase program approved by shareholders during the company's Annual General Meeting on 18 April, 2001. The repurchased shares are intended for use under the company's employee stock option program.

This repurchase, which will take place over the next nine months, represents only a portion of the total number of shares authorised under the program. The company generally plans to use existing cash to finance the repurchases.

Gemplus says it will consider several methods for the purchase of the shares including direct or open market purchase transactions, option or other forward transactions and other potential methods, in accordance with the terms of the repurchase program and applicable regulations.

The repurchase plan does not obligate Gemplus to repurchase any specific number of shares and may be suspended at any time.

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SESAMES 2001 Nominees

The following companies have been nominated for the SESAMES 2001 awards taking place during CarteS in Paris, October 23-25.

Best Software: Proton World, Trusted Logic and Cards Etc

Best Technological Innovation: Banksys, Proton World/Iris Technologies and Infineon

Best Application in:
IT Security: Schlumberger, Oberthur and Xiring
Transportation: Ask, OTI and Gemplus
Banking & Finance: Schlumberger, Xiring and Gemplus
Healthcare: Sephira and Moneyline
GSM: Banksys, Oberthur and Schlumberger
E-commerce: Schlumberger, AmaTech and SEP Technology
Loyalty: Banksys, Hitachi and TeleCash

Off-the-shelf EMV Cards

Giesecke & Devrient and Welcome Real-time are to collaborate on providing off-the-shelf EMV payment and loyalty cards for card issuers and retailers. The agreement will focus on ensuring the compatibility of Welcome's XLS (eXtended Loyalty System) within Giesecke & Devrient's range of EMV debit and credit Smart Cards.

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Shopping Centre Loyalty Scheme

Meadowhall, a leading retail and leisure centre in Sheffield, UK, has launched GO SHOP, the first interactive shopping centre loyalty scheme. It was developed in conjunction with Inter-Act Systems, a UK electronic marketing company, responsible for successful loyalty kiosks in branches of Sainsbury's and Boots stores nationwide.

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Cholesterol Monitor in Drug Stores

Lifestream Technologies' home cholesterol monitor is now available over the counter at more than 2,800 Eckerd drug stores in the US.

Eckerd is the first national chain to place orders for the hand-held testing device with embedded Smart Card reader. The monitor has a suggested retail price of $129.95.

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Sony PKI-enabled Chip

Sony Corporation of Japan has developed a new microchip with a Public Key Infrastructure (PKI) capability for contactless IC cards.

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Infineon Unveils my-d Chip

Infineon Technologies has introduced my-d, the first chips in the IdentSystem product family. Marking Infineon's entry into the market for Radio Frequency Identification (RFID) solutions compliant with the global standard for Vicinity Cards and Smart Label applications (ISO 15693), the my-d ICs feature flexibility for writing user data to the chip, large memory capacity and enhanced security features.

The my-d IC is a 13.56 MHz RF device with a unique ID code and up to 10 Kilobit of secure, writable memory that can be divided into multiple sectors for different users, including sectors protected by cryptographic keys. A my-d chip can be attached to physical goods in a variety of form factors and, when accessed by a standard compliant reader device, the chip memory provides data about that specific object or asset.

Production quantities will be available beginning October 2001 and shipped as wafers (unsawn) and pre-cut inlays on a PET carrier, with aluminium antenna.

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Infrastructure for Roll-out

ECard Pty has selected Arterium, a Smart Card infrastructure management solution developed by Sydney-based Cards etc. Chris Fendley, CEO of ECard, said that Arterium would become a key component in ECard's on-going development and roll-out of the infrastructure required to service Australia's rapidly growing Smart Card market.

"ECard's mission is to implement and operate infrastructure that supports multiple card issuers deploying a diverse range of Smart Card applications," he said.

"This announcement formalises the months of joint work by ANZ, ECard and Cards etc in supporting ANZ's recently announced plans to roll-out the first major multi-application Smart Card and supporting terminal infrastructure in Australia and New Zealand."

FIPS Certification for Rosetta

SPYRUS has announced that its Rosetta USB token is the first USB-based cryptographic token to receive the NIST Federal Information Processing Standard (FIPS) Pub 140-1 Level 3 certification. In addition, the Rosetta USB token was Windows Hardware Qualification Lab (WHQL) qualified having met Microsoft standards for compatibility on Windows 98, 2000, ME, and XP beta.

NIST, the National Institute of Standards and Technology, responsible for assuring conformance of commercial products to government security standards, issued the FIPS certificate this month.

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Leapfrog Hospital Contract

Conduit Healthcare Solutions, a subsidiary of Leapfrog Smart Products, has installed another Smart Card-enabled management and tracking solution at Bronson Methodist Hospital in Kalamazoo, Michigan. The system is used for managing member population, scheduling events as well as providing detailed marketing information.

Last year, Bronson had 321,343 outpatient visits and 653,535 Emergency Room visits. The Bronson system employs over 2,597 and serves a population over 1 million people in Kalamazoo.

- 🖥 www.leapfrog-smart.com

Oberthur and Microcell i5 Partner

Oberthur Card Systems has announced an alliance with Microcell i5, a provider of wireless personal communications services (PCS) in Canada, allowing Oberthur to offer Masq to GSM carriers. Masq provides a platform for secure user identification and authentication, based on proven security protocols (Triple DES), appropriate for today's SIM-card based networks.

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Mobile Phone Growth Slows

The Australian mobile telephony market has grown exponentially since the introduction of competitive digital services in 1993, but is now slowing substantially, according to a new study by International Data Corporation. It says that the combination of competition and the launch of second generation GSM mobile services drove market growth over the 1990s.

Senior analyst Peter Lemon said at the start of 2000 mobile subscribers were seen as the key to growth for the telecommunications market. Mobile users were prepared to pay a premium for the service and Australia attracted a relatively large number of operators for its fairly small population. However, subscriber growth slowed sharply in both the first and second quarters of 2001. "IDC does not expect growth to reach its former levels as penetration goes above 60 per cent," he said.

Security for Mobile Phones

Diversinet Corp and SchlumbergerSema are collaborating to deliver end-to-end security solutions for m-commerce applications. They will combine the SchlumbergerSema Simera Java technology with Diversinet's Public Key Infrastructure (PKI) products and services, enabling advanced PKI security over GSM phones for secure Short Message Service (SMS) messaging.

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Nokia Euro 800m Contracts

Nokia has signed contracts with Orange UK for the supply of 3G UMTS and GSM network expansion and 3G infrastructure. The estimated investments under these contracts are worth over EUR 800 million over three years.

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Support for New WAP 2.0 Protocol

Ericsson, Nokia and Motorola have announced support for WAP 2.0, the latest version of the Wireless Application Protocol (WAP) standard as developed by the WAP Forum. They also intend to develop products, content and services based on the new standard.

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Contracts in the Philippines

Nokia has signed a US $200 million agreement with Smart Communications for the expansion of its nationwide GSM network in the Philippines, enabling it to handle a subscriber base in excess of six million subscribers by the end of 2001, and up to 10 million subscribers by 2002.

Alcatel has also announced a $200 million turnkey contract with the fixed-line operator Digitel to roll-out the operator's first mobile network in the Philippines by 2002. The network will be able to support 500,000 subscribers.

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New GSM Network in Algeria

Alcatel and Orascom Telecom Holding have signed a 420 million euros contract for the delivery of a significant portion of a new nationwide GSM network in Algeria. Installation will start in October.

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Information on the Move

Maptuit Corporation, a provider of wireless and wireline eGeo services (services that combine telephony systems with digitised maps) has teamed up with Singapore-based Agis and Connectopia to launch a system that will allow Singaporeans to locate businesses and local attractions via GSM mobile phones and get directions to those locations.

Agis is a Geographical Information Systems (GIS) company specialising in the collection of map data and has a database of places of interest such as restaurants, pubs, clinics, ATMs and coffee shops throughout Singapore. Connectopia is the owner of Zeepee, a Short Message System (SMS) entertainment and people finder.

Maptuit will soon be offering directions, traffic and weather conditions to mobile phones through alliances with local communication companies.

    💻 www.maptuit.com

Launch of GSM Service in Macau

Motorola and Hutchison Telecommunications (Hong Kong) have commercially launched a second-generation (2G) dual band wireless mobile network in Macau, a special administrative territory of the People's Republic of China. The system can be upgraded later to General Packet Radio Service (GPRS) technology.

SmartTrust Partners with Pulso

SmartTrust US has teamed up with Pulso, Brazil's leading technology firm, to bring its mobile e-services solutions to the Latin American marketplace. Pulso, based in Sao Paulo, will serve as a value-added reseller for SmartTrust's solutions, which allow mobile operators and content providers to bring their end-users advanced mobile e-services and PKI security for Internet transactions.

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Sony and Ericsson Phone Merger

Sony and Ericsson have agreed to merge their mobile phone businesses subject to approval from both company boards. Based in London, the joint venture company Sony Ericsson Mobile Communications, will have an initial workforce of 3,500 employees and the companies hope the move will push their lossmaking handset units back into the black and enable them to challenge market leaders Nokia and Motorola.

Fast-track to Mobile e-Services

AU-System has developed a solution to cut the time-to-market for mobile operators looking to deploy mobile e-services by reducing delivery time to six weeks. Built around SmartTrust's Wireless Internet Gateway technology, it uses pre-built applications, including 'ready-to-launch' news, weather, information and commercial services.

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One-button Internet Access

Ericsson has unveiled the T65, a new GPRS phone with one-button access to the mobile Internet. The WAP phone will be available in GSM900/1800 markets in fourth quarter 2001.

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Bluetooth PC Card

Norwood Systems, developer of wireless office networks, has announced that EnterpriseMobility is now able to interoperate with PC cards from PC communications card manufacturer, Brain Boxes, enabling voice connectivity to cordless headsets and mobile phones as well as data connectivity to PDAs.

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Fujitsu Fingerprint Sensors

Fujitsu Microelectronics has announced plans to start supplying silicon fingerprint sensors following its licensing of fingerprint sensor technology and fingerprint authentication software from Veridicom and the creation of a development centre at FMI dedicated to fingerprint sensor technology.

Fujitsu and FMI plan to develop, manufacture, and market the sensors and authentication software packages for the multi-function IC card and mobile telephone markets, according to Douglas McArthur, Director of FMI's new Biometric Sensor Product Group.

"Sophisticated authentication systems already use fingerprint sensor technology, and the rapid growth of broadband Internet will create demand for fingerprint sensors in Smart Cards and mobile phones," he said.

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Biometric Security in Law Network

Identix says that the Attorney's office for a major Arizona County has selected its fingerprint biometric security solution to replace passwords across its 1,000 seat network to ensure that only authorised attorneys are able to access sensitive court records. The security solution includes Identix's BioLogon software for Windows 2000 and Compaq FIT reader with Identix's optical fingerprint reader technology.

V-Smart Physical Access Device

Bioscrypt has unveiled the latest addition to the VeriSeries access control product line, the V-Smart which is a contactless MIFARE read/write device integrated with a biometric fingerprint reader.

The user presents the Smart Card and places a finger on the reader. V-Smart then compares the presented fingerprint with the fingerprint template stored on the Smart Card to verify the user's identity.

🖳 www.bioscrypt.com

Ask the Experts

Q: How many types of Smart Cards are there?

A: Smart Cards are classified in two ways, by their resource capabilities:
- memory only
- memory with access control
- microprocessor card
- microprocessor with cryptographic co processor.

and by their interface type:
- contact card
- contactless card
- combined contact and contactless card

Although strictly speaking a Smart Card refers to a card with a microprocessor chip, the term is generally applied to all cards. The GSM phone contains a SIM (Subscriber Identity Module) card that may be a full size ISO ID 1 card (as per the magnetic stripe card) but is more commonly seen as a much smaller form factor referred to by ETSI as ID 000. Although these SIM cards are much smaller their functionality is the same as the larger ID 1 cards.

**Q: Why would I use a Smart Card?**

A: A Smart Card is a secure portable store and processor of data. It is much better than the traditional magnetic stripe card that neither offers secure storage nor is it capable of processing data. The Smart Card with state of the art chips is capable of storing 32K bytes of non volatile memory whilst a three track magnetic stripe card can only store about 1000 bits.

The Smart Card acts as an ideal identity and authentication token because it can securely store reference data and cryptographic keys by which means it can prove its authenticity. It is also capable of authenticating financial transactions by calculating a digital signature using cryptographic algorithms such as RSA.

Another major use of Smart Cards is in electronic cash applications such as Mondex, Proton and Visa Cash. Here the Smart Card can securely store and manage the data that represents a user's electronic cash balance.

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Access Control and the Smart Card

Authorised access to controlled resources is the cornerstone of modern security whether obtaining access to ones home or secret information stored in the company's computer. In our working day environment we are constantly requiring access to controlled resources both physical and electronic. In all cases the underlying processes are the same,
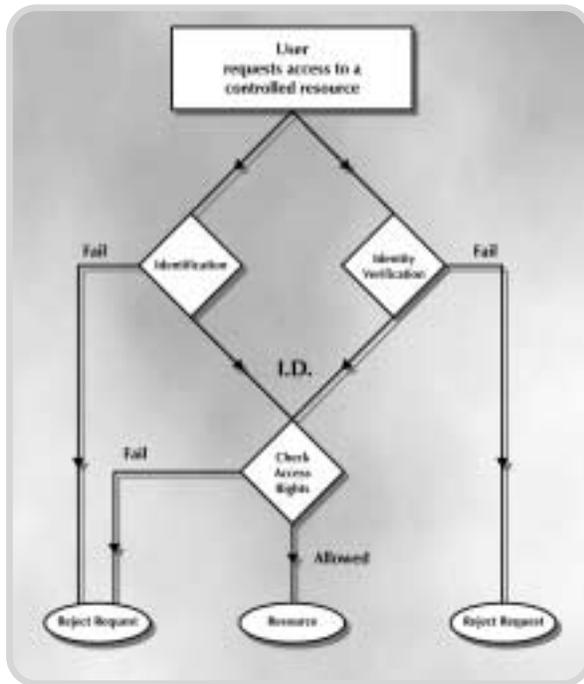
The process starts with the user requesting access to a controlled resource, it may be access to a building or safe or access to a computer and its data. The next step is for the access control system to check the identity of the user. Assuming the authentication rules have been pre-established then the system checks the access rights for this identity before allowing access to the requested resource.

The apparent simplicity of this process disguises a number of practical difficulties which often leaves the system particularly vulnerable to attack. The first option of identity falls into two classes:

- Identification (identity not provided)
- Identity Verification (identity provided)

In the first case it is necessary to identify a user from a known population (which may be very large) where no other assistance is provided. Of course this is the ideal situation when we walk up to the door and the system immediately identifies us before opening. It always seems to happen in Star Trek but in practice we are still some way off from such a user friendly system.

Identification requires the system to confirm some property of the user against data stored in the system. This property is usually referred to as Biometrics and may be a persons fingerprint, voiceprint, iris scan, signature or any other conceivable measurable characteristic. A persons smell is just one example of other more esoteric measurements. The success of such an approach is directly related to the variance of the property against the total population and the measurement variance for a particular individual. Clearly the population variance needs to be much wider than the individual variance. In practice of course the separation is never adequate and we end up with a situation where we have an error resulting in either a false accept or a false reject. Part of the problem relates to our own variability as individuals and to the measurement error related to a particular biometric. Some techniques such as Iris scan are more reliable than others but none the less always result in some error rate. You may compare this to a PIN (Personal Identity Number) or password, which has no measurement error and can have an arbitrarily wide information space. In practice of course people don't like passwords being too long and often choose codes that are vulnerable to various dictionary type searching attacks.

In a forensic type situation where you are trying to identify a person from a large population errors can be high but when the population is small such identity techniques can be made to work.

In general, access control systems operate in an environment where the user provides his purported identity and the system undertakes an authentication process to link the user to this identity. Such authentication is usually chosen to invoke one or more of the following,

- Something a person knows (PIN or password)
- Something a person owns (e.g a Smart Card or token)
- Some property of the person (e.g Biometrics such as fingerprint)

Identity verification is easier in that we know the properties of the individual and now we only need to achieve adequate assurance that the credentials provided by the individual match the information stored in our system. We have mentioned passwords and biometrics and it goes without saying that it should not be possible for an impostor to masquerade with the user's real characteristics. If a user gives you his password then of course the system is defeated but hopefully he would be less inclined to give you his personal body parts.

So now we come to the Smart Card or token. Here we are interested in a component that can not be easily copied or emulated. This leads to a requirement for an active device that can respond to some cryptographic challenge and is contained in a tamper resistant module.

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This is really a statement of the properties of a Smart Card which is therefore an ideal component in the authentication process. Authentication of the token is usually undertaken by a challenge/ response mechanism,
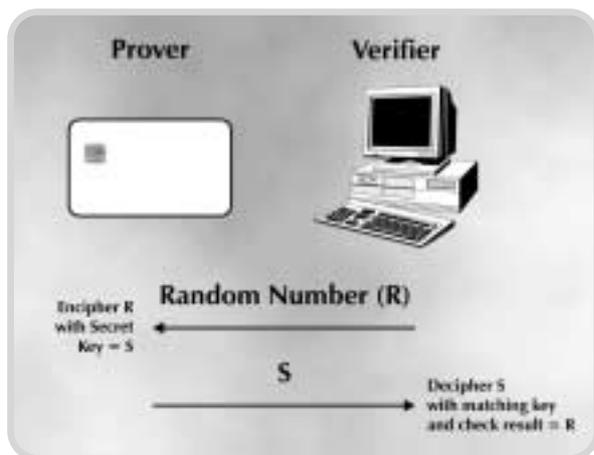
The verification terminal sends a random number to the Smart Card, which then encrypts this number with its secret key. The Smart Card then sends this cryptogram to the terminal, where it is deciphered and checked against the original random number. For a symmetric cryptographic scheme such as DES the encryption and decryption keys are the same, while for a public key scheme such as RSA the verification terminal uses the public key matching the secret key in the Smart Card.

This process only authenticates the Smart Card, what you would really like to do is to get the Smart Card to authenticate the user first. With a suitable application in the Smart Card this is a perfectly viable process, it is relatively straightforward to get the Smart Card to check the user's PIN or password. The capability of a modern Smart Card would also allow it to check a person's biometric since there is often adequate memory and processing capability available.

So what are the problems? Well the use of the Smart Card overcomes most of the problems if you have a Smart Card reader available as part of your access control system, unfortunately such readers are still relatively rare items on the PC today but the incorporation of the optional Smart Card access control in Windows 2000 may change all this. Given the availability of the Smart Card and reader the really important process is to link the user with the Smart Card by means of a password (PIN) or biometric. Ideally this relationship should be checked by means of a secure Smart Card reader. Although such products are available it seems more likely that in the future we may see the use of mobile phones or PDA's with a wireless interface such as Bluetooth. Then we can achieve a really secure authentication process.

Dr David B Everett

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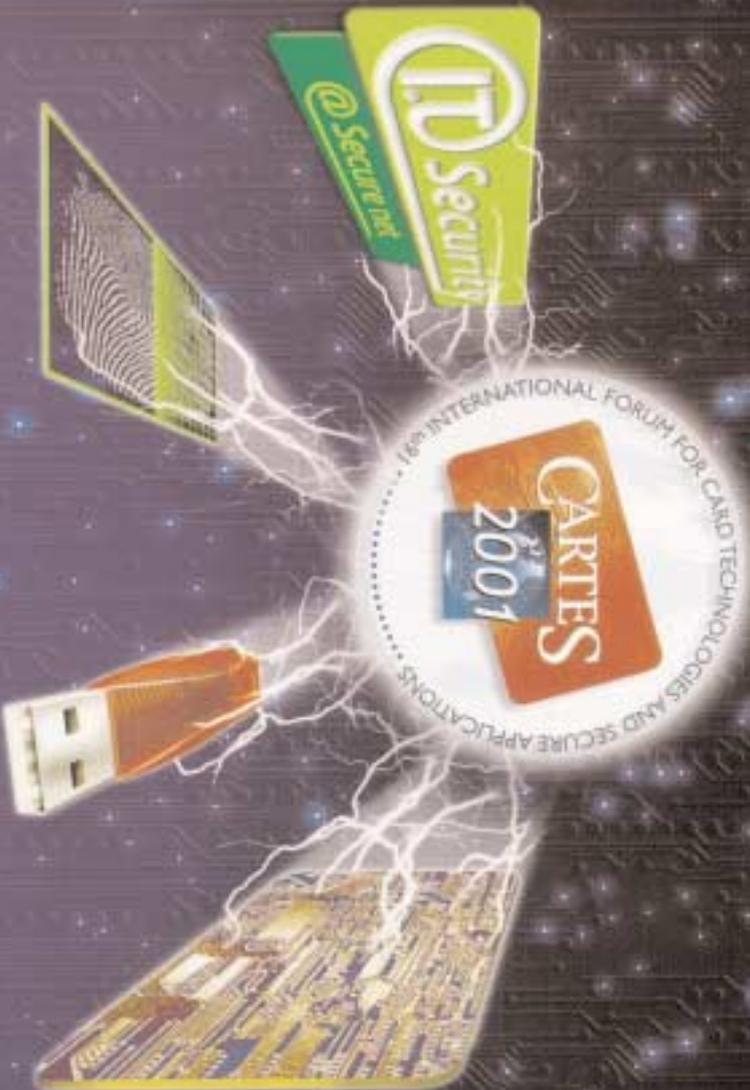
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