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Concise Guide to Worldwide Implementations of GlobalPlatform Technology

Since its inception in 1999, GlobalPlatform has rapidly grown to become the leading worldwide smart card industry standards body, creating, maintaining, and driving adoption of an open technology framework for the global deployment of smart card programs by service providers across all industries.

GlobalPlatform's technical committees have defined requirements and technology standards for smart cards, card acceptance devices and back-end systems, creating a foundation for future smart card growth. As of January 2002, there were in excess of 20 million GlobalPlatform smart cards in circulation across the world and an additional 200 million GSM cards that utilize

GlobalPlatform technology for Over-The-Air (OTA) application download. Current figures for 2005 show the number of GlobalPlatform smart cards in circulation to exceed 75 million and GSM cards 650 million. These figures are expected to increase significantly over the next few years.

Following are examples of GlobalPlatform's implementations in different industries and markets around the world, including the names of GlobalPlatform Member issuers and solution providers involved. Please refer to the GlobalPlatform website for additional information and featured case studies on the implementation programs at: <http://www.globalplatform.org>.

GlobalPlatform: Proven Technology Australia New Zealand (ANZ) Bank

In November 2001, ANZ introduced its first branded GlobalPlatform credit cards, which deploy the GlobalPlatform Card Specification version 2.0, to upgrade one million existing ANZ First and ANZ Gold Visa credit cards to chip technology. The program also aimed to replace 80,000 merchant credit card terminals with a new chip-enabled electronic payment terminal network called MultiPOS.

By the end of 2005, over 900,000 GlobalPlatform cards have been issued to ANZ customers and approximately 50,000 terminals have been upgraded to MultiPOS, throughout Australia and New Zealand.



The applications on the smart cards include EMV payment, chip loyalty/electronic coupons and secure e-commerce. The card can also be used in the 3-D Secure environment over the Internet for cardholder authentication.

ANZ is the first bank in Australia to introduce a fully functioning, end-to-end chip technology system for customers and retailers. This project is effectively the first smart credit card system in Australia supported by chip-enabled merchant terminals.



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By upgrading customer cards and replacing terminals, ANZ is putting in place the foundation for a broad-based introduction of chip cards in Australia.

GlobalPlatform Member solution providers involved in this project include *Cards Etc., Datacard Group, Giesecke & Devrient, Ingenico and Visa International.* ■

BC Card Project: Bell ID's ANDiS Management System

BC Card, Korea's largest credit card issuer, selects Bell ID's ANDiS Management System for roll-out and management of their multi-application smart card program. The ANDiS Management System supports the issuance and management of BC Card's multi-application EMV smart cards, whose underlying platform is based on MULTOS and GlobalPlatform technology. Bell ID's ANDiS is the only Smart Card Management System (SCMS) that allows BC Card to effectively manage approximately 17 million EMV-compliant credit cards for 11 Korean banks and credit card companies over the next three years. Since the live launch of this project in January 2005, BC Card has issued over 300,000 cards.

Credit and debit are the initial on-card applications. Other applications such as electronic cash and transit are available via the ANDiS Post-Issuance Personalisation (PIP). PIP is a service that enables card issuers and cardholders to add or delete

Austrian Citizen Cards: Bell ID's ANDiS Management System

In the first quarter of 2005, Bell ID's ANDiS Management System facilitated the issuance and management of 8 million social insurance citizen smart cards in Austria. Based on GlobalPlatform Systems Technology, the new "e-card" system replaces the need to issue and process an annual 40 million current paper-based healthcare vouchers. In addition to the e-cards, ANDiS also issues and manages more than 25,000 o-cards which are for authorized staff in doctors' practices.



Bell ID's web-based ANDiS Management System manages the complete life-cycle of all e-cards and o-cards with the integrated GlobalPlatform based Post-Issuance Personalization (PIP) functionality. This added feature not only allows cardholders to download and reload applications at a later date, but also enables the Main Association of Austrian Social Insurance Institutions to change on-card data via their own e-portal, the Karten Service Portal. In addition, the PIP feature assists the Karten Service Portal in allowing citizens to apply for and download digital certificates.

Used as citizen cards, the new multi-application e-cards managed by the ANDiS solution, contain personal cardholder data as well as up to four digital certificates for data security and verification of the cardholder's identity.

GlobalPlatform Member solution providers for this project include *Bell ID.* ■

on-card content via the internet and mobile handsets, and thus eliminates the need for BC Card to reissue the entire card base if and when changes occur.

ANDiS involvement in BC Card provides for leading edge SCMS with the greatest level of flexibility in the competitive banking market of South Korea. Cardholders use BC Card more often than any other cards in

the market. As a result, BC Card has become the leading and largest credit card company in Korea that uses an effective SCMS. BC Card could further expand ANDiS through market movement such as loyalty and membership services.

GlobalPlatform Member solution providers involved in this project include *Bell ID.* ■



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Cassis: MobileMatrix Solution

In 2004, Singapore based Cassis International launched its MobileMatrix solution that enables customers of SK Telecom, the #1 mobile phone service provider in South Korea, to download a credit application onto the SIM over-the-air. It's the world's first over-the-air download of an EMV payment application onto a USIM enabled 3G phone. The SIM card communicates with SK Telecom's back-office network and sends commands to drive the handset, allowing the mobile phone to act like a credit card. Customers can use the downloaded applications to make purchases with their phones via infrared waves or radio frequencies at point-of-sale terminals equipped with dongles to accept the transmissions.

Standardized GlobalPlatform software on the cards and back-end systems technology allow for secure downloads and keeps the applications separate with security firewalls. This implementation of GlobalPlatform brings new functionality to the ubiquitous mobile phone and transforms its traditional use into a one-stop payment device. SK Telecom customers can decide the type of applications to be loaded into their handset, which include CAS (Conditional Access System) for DMB (Digital Multimedia Broadcasting through satellite) and T-Money (Public Transportation).

Today, over four million handsets support the "Moneta" m-commerce project, which can utilize Cassis'



MobileMatrix solution. The GlobalPlatform technology that makes the download, addition, and post-issuance of applications possible is the GlobalPlatform Card and Key Management Specification as well as the Smart Card

Management Functional Requirements.

The deployment of MobileMatrix to SK Telecom is the first eco-system that supports GlobalPlatform cards in the mobile environment and is the first remote personalization of a Visa EMV application into the 3G SIM cards.

GlobalPlatform Member solution providers involved in this project include *Cassis International*. ■

Citibank CitiSmart

In December 2001, Citibank launched a MasterCard branded card in the US called CitiSmart. Citibank projected it would issue four million smart cards through the program.

The CitiSmart card is a combination charge and revolving credit card, which enables cardholders to use the card to securely shop on the internet and make purchases in stores



with a credit application stored on both the card's chip and magnetic stripe.

Citibank's smart card functionality includes an EMV payment application, an electronic wallet that stores frequently visited website URLs and other data such as payment account numbers and shipping addresses as well as a loyalty application.

GlobalPlatform Member solution providers involved in this project include: *ActivCard, Datacard Group, MasterCard International and Axalto*. ■



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Daejeon Project

In October 2003, Visa Cash and Hana Bank launched a project to transform the city of Daejeon into a "digital city" and issue GlobalPlatform smart cards with transit functions. The first phase of the project targets a customer base of 500,000 cardholders between the ages of 14-24. Hana Bank plans to issue multi-functioned cards to customers over the age of 18 and single cash applet only cards to its customers under

the age of 18. Both cards will carry the Visa Cash, membership, loyalty, ID, and Internet applications. Only the multi-function cards targeted at 18 and over will carry the Visa Smart Debit Credit application.

In addition to payment capabilities, the GlobalPlatform smart card will allow for personal portable storage capabilities in the area of online transaction certification, ID student cards, and medical card functions.

Visa's role in the project is to provide the e-purse system and servic-

es, installing the infrastructure for Hana Bank, reloading the card, and coordinating with City Hall, Hana Bank, and other vendors. Hana Bank is responsible for issuing and personalizing the cards, settlement, installing the infrastructure, and arranging for the system provider. City Hall is responsible for service planning, policy and regulation, and coordination.

GlobalPlatform Member solution providers include *IBM, Phillips Semiconductors, and Visa International.* ■

Finnish National Smart Card Payment Program

Luottokunta is the leading payment card service company in Finland. In 2000, Luottokunta decided to implement a smart card issuing, management and processing solution. The solution incorporates an open systems technology that enables migration from single application EMV smart cards to multi-application GlobalPlatform smart cards.

In the spring/summer of 2005, Luottokunta plans to launch the first phase of its national smart card payment program - the first of its kind in Finland. Completion of the project is expected by end of 2005. The smart cards will enable EMV payments and will provide a platform for issuing other applications such as government programs, ID,



advanced loyalty and travel. Post-issuance capabilities are planned for 2006. The initiative will support 1.5 million cards.

GlobalPlatform Member solution providers involved in this program include *Datacard Group.* ■

First Investment Bank of Bulgaria: Bell ID's ANDiS4EMV

In September 2005, First Investment Bank, one of Bulgaria's fastest developing banks, implemented Bell ID's ANDiS4EMV solution based on GlobalPlatform systems technology to drive EMV compliance for the issuance and management of its multi-application smart cards. The solution enables issuers, such as First Investment Bank, with the advantages of fast data preparation, cryptographic key management, EMV parameter management, EMV scripting, Post Issuance Personalization (PIP), and a basic card management environment for single application cards that can be migrated to multi-application cards in later phases.

GlobalPlatform Member solution providers for this project include *Bell ID.* ■



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First National Bank of Omaha

First National Bank of Omaha became the fifth US Issuer to offer a Visa smart card, based on GlobalPlatform technology, in September 2002. First National's smart card is branded *smartOneSM* and is issued with a free card reader and reader software to each cardholder account. Once the reader and software are installed on the cardholder's PC, with the card inserted in the reader, the cardholder retrieves a Passcode for the card.



Upon subsequent visits to the Bank's website, the cardholder inserts their card and Passcode to authenticate the user to the site for secure online transactions.

Currently the *smartOneSM* card incorporates the Visa smart debit & credit application (VSDC).

All First National smart cards also currently offer fileItSM Convenience Storage, a data storage application that the cardholder can use to store and port personal information.

The data is kept secure by the same Passcode access the cardholder uses for web authentication. First National will continue to develop card features that will provide added value and conveniences for their smart card customers.

GlobalPlatform Member solution providers involved in this program include *Datacard Group, Gemplus, Oberthur Card Systems and Visa International.* ■



KT Corporation (formerly Korea Telecom)

In association with a number of South Korean banks, KT Corporation, South Korea's largest telecommunications provider, has undertaken a program of issuing co-branded smart cards to subscribers, which initially include up to seven applications in the field of electronic payment (EMV credit/debit application and I-Cash electronic purse application), loyalty and ticketing.

By doing so, KT Corporation becomes the first card issuer / telecoms provider to take the step away from magnetic stripe cards to offer its subscribers multi-application EMV smart cards in Korea. Currently 200,000 GlobalPlatform cards are in circulation and the total pro-

jected number of cards to be issued under this scheme is estimated at 10 million.

In the third quarter of 2002, KT Corporation selected Bell ID's ANDiS Management System to enable the central life cycle management of its EMV smart cards, applications and cryptographic keys. This Smart Card Management System (SCMS) from Bell ID has enabled KT Corporation to issue both GlobalPlatform and MULTOS cards with post issuance personalization capabilities, allowing cardholders to load or remove up to five additional applications from their card after it has been issued. KT Corporation has full control over all card, application and key-related processes, whereas application providers and legacy systems are connected to KT Corporation's central ANDiS Management System, running in a Unix environment.

GlobalPlatform Member solution providers for this project include *Bell ID.* ■



Macau Special Administrative Region (SAR) Project

In 2003, the Macau Government's Identification Department (DSI) commissioned the distribution of multi-application, smart-card based identity cards to all of Macau's 460,000 citizens, resident within the Chinese Special Administrative Region (SAR), with a target completion date of 2007.

In January 2003, distribution of the 460,000 GlobalPlatform multi-functional cards began. The cards have built-in security features to prevent forgery, such as the use of fingerprint matching for automated identity verification. They also allow the uploading of other applications to



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realize Macau's e-government goals among others.

The ultimate vision for the smart card is for it to serve as an all-in-one card combining, for example, ID card, driving license, student card, medical card, social security card and possibly e-purse functionality for secure electronic transactions.

GlobalPlatform Member solution providers for this project include *Bell ID, Giesecke & Devrient, and NEC.* ■

Moscow Social Card

In 2001, a joint initiative was launched between the Moscow Underground, the Bank of Moscow and various government departments, to issue a smart social card to over 3 million Moscow citizens as a way of controlling the distribution of over 350 social benefits from the Moscow government.

The advantages of a smart card system would be to quickly and accurately distribute benefits to Moscow residents, aid the maintenance of a list of benefit recipients (including which benefits they are entitled to) and to reduce fraud and black market activity.

The current cards in the project contain travel applications on a contactless chip and payment and benefits applications on the mag-stripe. A pilot was launched in the third quarter of 2003 to migrate from the current contactless and mag-stripe cards to a dual interface smart card utilizing contact and contactless

Mobile Banking Project

In 2004, Korea launched a mobile banking initiative that allows citizens to perform bank related activities, such as money transfer and balance checking, with their handsets. All Korean telco companies and banks are all involved in this project which targets a customer base of 35 million citizens over time who will have the banking function incorporated into the handset.

As of today, three million mobile subscribers are using this mobile banking function. The mobile banking chip application is based on the GlobalPlatform Card Specification v2.0.1 and is embedded in

Samsung, LG, Motorola and Pantech&Curitel handsets.

This new service provides the telco companies with increased market share and profit as consumers are more likely to increase usage of their handsets. Visa reports that banks are also able to increase their market share and reduce costs by providing improved quality customer service and decreasing the need for direct customer care. The Korean telcos and banks will continue to support and promote the program throughout 2005.

GlobalPlatform Member solution providers involved include *Visa International and Phillips Semiconductors.* ■



chip technology. The dual-interface GlobalPlatform cards will enable EMV payment and benefits via the contact chip interface and transit via the contactless interface to further encourage cardholders to make use of the payment application on the card. The key applications on the card comprise metro ticketing/mass transit, health and medical insurance/pharmacies clinics, and medicine. The applications on the card will also provide access to government subsidies and discounts at specified retail stores.

The initial pilot comprised 40K dual interface GlobalPlatform cards, and since these were successful, the cards have begun to be issued enMasse in September 2005, bringing the total number of Moscow Social cards to an estimated 4.5 million.

GlobalPlatform Member solution providers for this project include *IBM, Phillips Semiconductors and Visa International.* ■

Nordea Bank Finland

In spring 2003, Nordea Bank in Finland became the first Scandinavian Bank to migrate to an EMV card program implementing GlobalPlatform technology in its migration. Nordea issued EMV cards based on GlobalPlatform's Card Specification 2.0 and Visa's EMV application, VSDC 2.4.0. The aim of this project was to reduce fraud, find a more secure card platform, and one that could handle the addition of applications at a later stage.

It took two years for Nordea to migrate its entire card base into Visa Electron EMV GP cards on a normal monthly renewal basis. Through 2005, Nordea has issued approximately 630,000 cards to young consumers and corporate customers.

GlobalPlatform Member solution providers involved on this project were *Setec Oy and Visa International.* ■



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Royal Bank of Canada Avion Card

In June 2003, the Royal Bank of Canada (RBC) introduced an enhanced Avion VISA card that features GlobalPlatform chip technology. It is Canada's first nationally available chip enabled VISA credit card.

The chip technology will increase international credit card security for Canadian users and will incorporate travel and loyalty programs, for example allowing cardholders to redeem loyalty points for over 200 merchandise items, gift certificates and even cash vouchers for RBC registered rewards.

GlobalPlatform Member solution providers for this project include *Gemplus, TSYS and Visa International*. ■

Saudi Arabia's King Fahd University: Bell ID's ANDiS CMS/AMS & KMS

In 2005, Saudia Arabia's King Fahd University implemented Bell ID's ANDiS Card and Application Management System (CMS/AMS) and Key Management System (KMS) solutions to manage over 15,000 smart ID cards that have been distributed to students and staff at the University. This is the first smart card management system of its kind deployed in the Middle East region. Bell ID's CMS/AMS solution is based on the GlobalPlatform Smart Card Management System (SCMS) Functional Requirements and the ANDiS KMS solution is based on the GlobalPlatform Key Management Systems Functional Requirements Specification.

The smart ID cards serve as identification cards by providing a digital fingerprint for identity verification, which can be used for library applications and for use of the university's medical center. They also feature a contactless chip that includes e-purse functionality for electronic payments in cafeterias and restaurants throughout the campus. The embedded chip's open electronic purse acts as prepaid stored value



and also allows for the download of digital certificates, securing transactions conducted on the web.

In addition to the management of multi-applications, the use of GlobalPlatform systems technology in Bell ID's solution supports future applications like logical access control and electronic voting for students. With the incorporation of Post-Issuance Personalization functionality, and the use of biometrics to access certain parts of the university building, the university can manage the complete life-cycle of all cards by adding, changing and deleting applications after the cards have been issued.

GlobalPlatform Member solution providers for this project include *Bell ID*. ■

Scotiabank Card

In November 2003, Scotiabank announced its partnership with Paymentech Canada to launch GlobalPlatform cards that contain a "chip" that is both protected by a Personal Identification Number (PIN), and will provide new and convenient payment options.

In the pilot program, consumer participants will receive a chip card, which they can use at chip-enabled,



point-of-sale terminals as well as the common magnetic swipe terminals that most other merchants accept. The new chip card will authenticate the customer via a PIN instead of a

signed transaction receipt.

Paymentech Canada's participation in the pilot program includes the deployment of special chip-enabled, point-of-sale terminals to Paymentech merchants. In subsequent phases of the pilot, Scotiabank and Paymentech plan to add additional payment options and enhancements.

GlobalPlatform Member solution providers include *Visa International*. ■



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SK Telecom (SKT)

In conjunction with five South Korean Issuers, SK Telecom launched the Moneta Mobile Card at the end of 2001. The smart card is based on GlobalPlatform technology and supports several applications including EMV credit, Visa Cash e-purse, SKT membership functions and the SKT OK Cashbag loyalty application. In addition, the card contains a separate 'Mifare' contactless chip, which can be used for public transportation in Seoul.

In this program, all cardholders are issued with a mobile phone incorporating a full-size smart card slot, into which the cardholder can insert the

Moneta card to make transactions over SKT's mobile network.

As of March 2003, SKT has redesigned the phone, so that the cardholder can insert the SIM-size Moneta chip on the back of the phone to make transactions at the offline merchants. Since the service, known as Moneta, was launched, SKT installed 400,000 'dongles' or contactless card readers and anticipate over 4.8 million handsets to be fitted with the payment chip through the life of the program.

For 2004, SKT has added a check card function to the existing chip and handset, which they anticipate will increase the demand for hand-



sets to 1.5 million. SKT also plans to incorporate Over-The-Air (OTA) personalization and post-issuance download capabilities onto the card in the future.

GlobalPlatform Member solution providers for this project include *Gemplus, Phillips Semiconductors, and Visa International.* ■

Smart Card Management System - ACI's Smart Chip Manager

In 1996 ACI Worldwide created a Smart Card Management System, called ACI Smart Chip Manager, to manage multi application smart card schemes and to handle the large scale migration to the EMV global standard for their banking clients. In this implementation, ACI's client requested for the implementation of the GlobalPlatform Card Configurator and Script Builder Specifications, the Key Management System Functional Requirements and the Smart Card Management System Functional Requirements. (ACI is in the process of implementing the Profile and Scripting Specifications v1.1.). In their migration to EMV, they made the decision to use the

GlobalPlatform Systems technology as a future-proof solution to allow them to add applications to the card post-issuance.

ACI's Smart Chip Manager allows issuers to track smart cards from the point at which they are personalized in the production environment, or at the point of sale through normal use, the downloading of data up to the point at which they expire and must be replaced. ACI implemented GlobalPlatform System technology to be able to provide their clients with a modular approach to smart card management. The following features describe this modular approach:

- Managing different application life cycles on smart cards
- Managing post-issuance activities including post issuance of new applications to multi-application card schemes

- Managing application parameters including EMV risk parameters in the field
- Minimizing credit risk and achieve cost savings through adjustable risk parameters
- Personalizing smart cards

The ACI Smart Chip manager has been implemented in various industries including Banking and Government.

GlobalPlatform Member solution providers involved include *ACI Worldwide Inc., Axalto, Cryptomathic, Datacard Group, Gemplus, Giesecke & Devrient, Infineon, MasterCard International, Oberthur, Sun Microsystems, Thales, and Visa International.* ■



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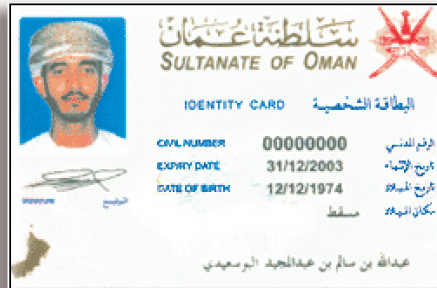
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Sultanate of Oman National ID Card

In October of 2002, the Sultanate of Oman and the Royal Omani police launched a project to deploy a GlobalPlatform smart card based national ID program to the 2.7 million citizens of Oman. This GlobalPlatform implementation is the first smart card based citizen ID solution ever to be deployed in the Middle East.

The objectives of the GlobalPlatform identity solution developed for the Royal Omani Police (ROP) is to modernize the National Registry System, simplify and speed up administrative processes, provide better qualitative public services to Omani citizens and



residents, promote the usage of IT technology, and provide better Homeland Security.

The contract to develop and launch the project was awarded to Gemplus who selected GlobalPlatform's secure Card and Systems technology to address the objectives and provide the best overall solution for the citizens of Oman.

The national ID card supports three

applications which include an identity application, a drivers license application, and a border control application. This scope will be extended with a PKI application to secure e-Government applications. The ID cards also include biometric recognition that allows for verification by portable terminals and by automatic electronic validation, for example at airport immigration checkpoints.

The first issuance of the Sultanate of Oman's national ID cards took place in January 2004. A nationwide roll-out is planned for the summer of 2004 and a complete rollout for the entire population is planned for the next five years.

GlobalPlatform Member solution providers for this project include *Datacard Group, Gemplus, and Sagem.* ■

Sumitomo Mitsui Card Company, Limited

In October 2002, Sumitomo Mitsui Card Company Limited became the world's first Issuer to launch a GlobalPlatform smart card that enables new applications to be added to the card after card issuance. The innovative new service from the Japanese Issuer allows cardholders to download PC network access functions to GlobalPlatform multi-application smart cards. To download an application, cardholders need only insert the card into a reader connected to their PC and enter an ID and password for cardholder identification.

Sumitomo Mitsui Card Company Limited expects strong demand for this type of card, due to the flexibility for card issuers to react to changing market conditions

and cardholder needs without the expense and effort of re-issuing the card. The organization issued 129,000 cards through 2005 and expects to issue approximately 135,000 through 2006.

GlobalPlatform Member solution providers involved in the project include *Datacard Group, Axalto and Visa International.* ■

Taiwan National Health Insurance Card

The Bureau of National Health Insurance of Taiwan (BNHI) began rolling out 22 million Integrated Circuit (IC) health cards to Taiwan citizens in July 2001, replacing its original paper-based system, which was accompanied by high fraud rates and high administration costs. The smart card solution will result in significant time and cost savings for the BNHI as well as greater transparency.



The smart cards used in the project utilize GlobalPlatform technology, specifically the GlobalPlatform Card Specification v2.0. It is the first and largest healthcare smart card project in the world.

The cards are able to store up to 32K of information related to health insurance programs, data concerning past medical services, details of the patient's public health administration and recent medical expenses.

GlobalPlatform Member solution providers involved in this program include *Giesecke & Devrient, Hitachi, Infineon and Sun Microsystems.* ■



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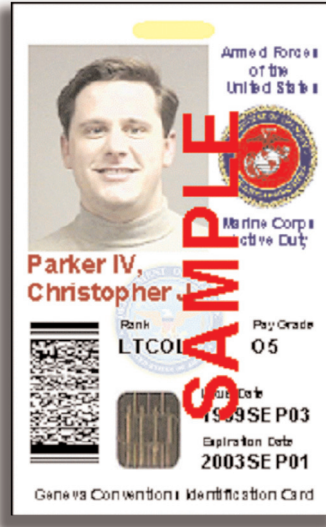
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US Department of Defense

In 1999, the US Department of Defense began work on a program to issue a smart, common-access identification card to 4.5 million active duty, Selected Reserve, Department of Defense (DoD) civilian and eligible contractor personnel with a target completion date of April 2004.

The Common Access Card (CAC), is a smart card standard established by the Government Services Administration (GSA), a key purchasing arm of the US government, in conjunction with various military departments. The CAC card utilizes GlobalPlatform technology to



simplify the process of multiple government agencies deploying an interoperable smart card. The ultimate goal is to be able to use a CAC

anywhere that the cards are accepted, regardless of which Government Agency issued it.

The CAC is the principal card used to enable physical access to buildings and controlled spaces and is used to gain access to the DoD's computer network and systems.

As of October 2005, approximately 8.2 million CAC cards have been issued at a rate of approximately 10K cards per day. The cards have been issued on a decentralized basis at 900 sites in 27 countries and in 2,000 workstations.

GlobalPlatform Member solution providers involved in this program include *ActivCard*, *Oberthur Card Systems* and *Axalto*. ■

US smart Visa

'smart Visa' is a multi-application smart card program, which was launched in September 2000. The smart Visa technology platform enabled Member banks and Merchant customers to combine traditional payment cards with value added applications such as downloadable coupons, secure access to private internet information and, ultimately, the ability to download new card applications via the PC.

'smart Visa' was deployed by five Issuers in the US - First National Bank of Omaha, First

USA (Bank One Corporation), Fleet Credit Card Services, Providian Financial Corp, Target



Corporation's Retailers National Bank, and estimated over

12 million in circulation. In addition, key components of the acceptance infrastructure included US processors upgrading their systems to process chip payment and US device manufacturers making EMV-compliant stand alone and multi-lane POS solutions available to merchants.

GlobalPlatform Member solution providers involved in this program include *Gemplus*, *Giesecke & Devrient*, *IBM*, *Oberthur Card Systems*, *ORGA*, *Axalto*, *UBIQ* and *Visa International*. ■



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Visa International - Systems Profiles & Scripts

In March 2004, Visa International released a package of the GlobalPlatform Profiles and Scripts in conjunction with the availability of Visa's VSDC v2.5 applet, marking the official public adoption of the GlobalPlatform Systems technology for Visa's smart card applets. VSDC is Visa's implementation of the EMV payment application, and is used for a large segment of all Visa EMV smart cards issued in the marketplace today.

Prior to v2.5 of VSDC, Visa provided illustrative personalization scripts not based on GlobalPlatform technology, which were useful for issuers and personalization bureaus to understand the requirements and process for personalizing the VSDC applet. However, these scripts had limited usefulness as they could not easily be utilized in

commercially available personalization solutions.

Starting in 2003, while working on Profile and Script development prototypes for an earlier version of VSDC, Visa solicited industry feedback to ensure the resultant data preparation and personalization instructions could be executed on a variety of personalization systems supporting the GlobalPlatform Systems standards. The resultant Profiles and Scripts were eventually used in Visa's Smart Breakthrough marketing program for personalization vendors in 2003, and represented some crucial first steps in Visa's move towards releasing GlobalPlatform standard components with its chip card applications.

One of the payment organization's aims with providing GlobalPlatform personalization components to the card issuing public is to make it easier for EMV chip issuers to personalize their smart cards. The strategy of supplying GlobalPlatform Profiles and Scripts with their applications is also consistent with other efforts by Visa to close the gaps in the card personalization lifecycle for the EMV application.

The GlobalPlatform Profiles and Scripts were specifically designed to work directly with input from Visa's online tool, the VSDC Personalization Assistant. Also, by supporting the EMV CPS (Common Personalization Specification) personalization method implemented in VSDC v2.5, the profiles and scripts available on the visa.com website are useful not only for the Visa developed EMV application but for all EMV payment applications developed according to the EMV CPS standard adopted by both MasterCard and Visa.

By making these GlobalPlatform Systems components available, Visa International addressed the complete personalization lifecycle, from beginning to end, for its member institutions wishing to offer EMV payment solutions using GlobalPlatform card and system solutions.

GlobalPlatform Member solution providers who have worked with Visa in testing and providing feedback on the VSDC GlobalPlatform personalization components include *Datacard Group, UbiQ, Gemplus, Thales e-Security, and NTT Data.* ■

Visa Wave

In April 2004, Visa Asia Pacific announced the national roll out of a contactless smart card program in Malaysia called Visa Wave. It's the world's first commercial implementation of a Visa contactless smart card program that utilizes GlobalPlatform's interoperable multi-application technology and builds on the global EMV smart card standard.

Visa Wave is a new form of contactless payment that removes the need to swipe the card into a reader. Payments are made via radio



frequency similar to the 'tap and go' cards used in mass transit environments. Customers can wave the card in front of the reader and payment is securely deducted from the consumers account. The Visa Wave card contains a Visa Smart Debit Credit payment chip and a single chip with contact and contactless interfaces. The worlds first Visa

Wave cards were issued by MBF Cards in Malaysia to over 2000 consumers.

Throughout 2005, various Malaysian card issuers will participate in the program and offer Visa Wave to an estimated 500,000 cardholders. These figures are expected to double by February 2006. Visa is also working with its member banks to expand the Visa Wave merchant network. Starting from June 2005, Visa Wave cardholders will be able to make contactless payments at 4,000 merchant locations.

GlobalPlatform Member solution providers include *Visa International.* ■



GLOBALPLATFORM



THE STANDARD FOR SMART CARD INFRASTRUCTURE



ZERO-Mass Project, India

Since mid 2002, GlobalPlatform-based smart card technology has been delivered in India, through the ZERO-Mass Project. The ZERO-Mass Consortium supplies smart card services, allowing Indian banks to issue smart cards with several active payment and related applications.

The ZERO-Mass Project is based on a PROTON PRISMA MATRIX card management infrastructure and therefore utilizes GlobalPlatform standards for cards, devices and systems. The Proton purse and payment applications on the smart card allow issuing

banks to service an important part of the population with secure payment functions. This brings major added value to a country with limited retail banking infrastructure. A particular business requirement of this project involves support and service provision for people that do not have access to a bank account and who do not have a banking relationship.

ZERO-Mass is the first major implementation of the Common Electronic Purse Specifications (CEPS) standard, the internationally accepted standard for interoperable E-purse. It is also the first implementation of CEPS on a GlobalPlatform based multi-application card.

In its initial phase, the project will target card-issuing financial institutions. The pilot will run until through

2004, after which time a roll out of 2-3 years will follow. The targeted card base over time is 70 million.

GlobalPlatform Member solution providers include *Bell ID* and *STMicroelectronics*. ■

For further information

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