ITEA

INFORMATION TECHNOLOGY FOR EUROPEAN ADVANCEMENT

PROJECT RESULTS

Creating a new generation of smart cards

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For a long time, smart cards with limited computing power and storage capacity hosted a single application with all the program code embedded at time of manufacture. With their closed proprietary software, they were seen as a 'black box', beyond the scope of the programming community. Recently, a new generation of open smart cards has arrived with powerful processors, sufficient memory for multiple applications, and the potential to add services via downloadable programs.

Enabling multi-application smart cards

TASSC has designed and developed an architecture and software components for a Card Management System (CMS), based on robust standards, enabling multi-application smart cards to be easily integrated into large networked systems. Users will be able to connect anywhere, anytime to all the value-added services they have subscribed to with a single card.

These new-generation smart cards allow applications to be downloaded, offering access to multiple services. Sharing space requires management of

the TASSC platform architecture was designed to hide complexity using a middleware based on Sun Microsystem's J2EE platform.

Novel combinations of services

To develop a leading position in the electronic commerce and secure transaction processing markets Europe must advance in network transaction processing and capitalise on its current leadership in smart cards. With the new generation of high-performance, open, secure cards, the traditional barriers between domains such as GSM, Pay-TV, banking, and access will be overcome, opening the way to novel combination of services. Typically a card will be able to handle communication services (GSM, Internet), conditional access (Pay-TV), payment services, e-commerce applications (such as shopping, betting, and loyalty cards), access rights to virtual assets (software, sound and image files or streams), interactive services (information, games, directories) and personal files. If overall ease-of-use and security can be convincingly demonstrated, consumers will want to use such a card with their PC, PDA, mobile phone or set-top-box.

resources, both on the card itself and on servers owned by different service providers as well as secure access to confidential data. Responding to these requirements,

Card management platform

TASSC has demonstrated the validity and feasibility of a Card Management System (CMS) architecture for multi-application

smart cards in three domains: banking, mobile telephony and Pay TV-based e-commerce.

The main results of this project:
- Definition of the system characteristics, architecture and Application Programming Interfaces (APIs) needed to support added-value services.
- Porting of CMS architecture composed of modular software components from different partners (including the card-embedded software) onto two Java platforms running Windows NT.
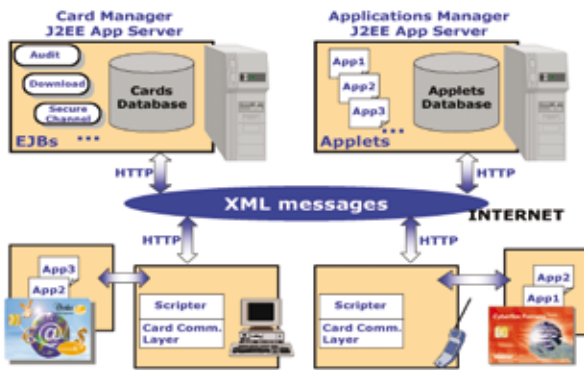
- Prototype platforms from two competing manufacturers demonstrating smart cards supporting the same loyalty application, based on common standards.
- Methods and tools for application and middleware development during the life cycle of a multi-application smart card.

TASSC has actively contributed to standards in consortia such as GlobalPlatform, JavaCard Forum, and IETF (RFC for card communication on TCP/ IP submitted).

Main application areas
Thanks to its intrinsic authentication capabilities, the TASSC multi-application smart card platform is particularly appropriate for:
- information brokerage and trusted data management
- payment and billing services
- electronic banking
- micro payments.

Its multi-application capabilities also offer potential in areas such as:
- Customer Relations Management (CRM)
- reputation management
- privacy, identification and authentication
- profile management (user, service) and context awareness
- support for 'nomadicity'.

Furthermore, smart cards allow complex and sophisticated loyalty application and as their memory size increases ('Jumbo' cards), they will be able to securely host local micro databases from different service providers. Such facilities are well suited to CRM (tracking customers' habits) in Cyber Enterprise applications.

The TASSC partners will exploit the results of the project in various products and services, including:
- embedded software modules (card manufacturers CP8, Oberthur Card Systems SAS)
- off-card software modules (end-users, server manufacturers and system integrators Philips DVS, Bull SA platform, CP8, Oberthur Card Systems SAS, Telecom Italia Lab)
- architecture, methods and tools for application development (operators Telecom Italia Mobile & Banksys)
- design of added-value services (various niche opportunities for SMEs such as Trusted Logic).