Smart card technology breakthrough spells good news for European consumers

The development of generic smartcard open platforms in EUREKA Cluster projects ensures secure, high-speed e-commerce transactions

Imagine how convenient it would be to use everyday dead time stuck in a traffic jam or a train to pay bills, purchase tickets and make money transactions securely using your mobile phone without anyone else overhearing or seeing your personal details. The technology breakthroughs achieved by the EUREKA Cluster Project A302 (Esp@ss-is) on smartcard platform development now make secure transactions viable given the new generation of mobile phones.

Smartcards are so-called because of the small microprocessor chips embedded in them that can hold and process data. MEDEA+ is the industry-initiated pan-European programme for advanced co-operative Research and Development (R&D) in microelectronics and a leading EUREKA Cluster. Before the technology breakthroughs of this EUREKA Cluster Project, a smartcard chip could only hold and transmit 424 Kb of data per second through a radio frequency interface (contactless interface). However, the ten partners of the MEDEA+ A302 Project on smartcard platforms have succeeded in achieving 1.7Mb of data per second on a smartcard chip, which is ample to perform transactions requiring high security, such as paying bills, when connected to the Internet through a wireless interface.

Yet, electronic commerce is only viable when consumers can be guaranteed the highest level of data security and privacy. The quality and type of data that can now be processed by this new generation of smartcard reduces the risk of identity theft. "Because of its nature, and because of the data a smartcard can now hold, it can be more secure. It can hold more proof that you are a person and not a server or a machine. For instance through biometric data such as fingerprinting." says project leader Jean-Paul Thomasson of STMicroelectronics, at 20 billion euros in Europe. The market is set to expand rapidly, with analysts forecasting that within the next four years, the number of users accessing the internet from mobile phones, television set top boxes, pen and digital diary based devices will heavily outnumber users accessing the Internet through a laptop or desk based computer. This is attributed predominantly to the lower price and greater ease of use of these appliances when compared to a PC, coupled with the fast internet access

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one of the technology providers in the project consortium.

Market growth

The project breakthrough allows the consortium to exploit the card based e-commerce market, currently estimated that is now being facilitated through wireless, cable, satellite and ADSL (asynchronous digital subscriber line) technologies.

The MEDEA+ consortium members, from France, Italy and the Netherlands, are in

the process of seeking ISO (International Organisation for Standardisation) and ETSI (European Telecommunications Standards Institute) standardisation for their achievements. They expect the memory capacity embedded on smartcards to rise eight fold in the next three years, in the light of their ground-breaking work. This paves the way for the growth of new markets, for instance, in medical applications with the safe storage of medical histories and x-rays on personal health-cards, or the ability to download whole sporting events such as football matches, to your phone, video or television to watch at your convenience. "The market will take 2 to 6 years to develop," estimates Thomasson, given the fast pace at which wireless and contactless technologies are advancing.

factories.

Although the partners have been working primarily to meet the needs of operators and services in the mobile telecommunications, banking and pay-TV sectors, their achievements also correspond to the requirements of new global sectors in public administration, for the development of highly secure ID cards, driving licenses, e-passports and travel visas. Thomasson foresees that "Growth in these areas will be slower", adding that, "It takes time to change institutional thinking." Having said that, STMicroelectronics is already involved in developing e-government and ID card projects especially in Asia.

Vision

The project consortium spanned the length of the smartcard value chain, from the manufacturing of chips to

The project has fulfilled its prime objective to deliver the hardware and software to form a basis for open platforms permitting the development of secure value-added services in telecommunications, banking, pay-TV, health and other sectors. It has also gone further, in defining the basic technological building blocks to high-speed wireless and contactless protocols, defined as a secondary objective of the MEDEA+ Project consortium. With its wide vertical partnership and global reach, the EsP@ss-is A302 Project has become the flagship for all Eureka smartcard projects.

The project partners included a university and SMEs, as well as Europe's leading system providers such as Philips and Thomson. Although all the partners knew each other well before starting
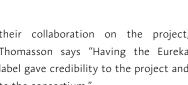
> "Having the Eureka label gave credibility to the project. It was proof that the project and technology were designed for market orientation.
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European advantage

Europe is well placed to take advantage of the developments with its domination of the world smartcard market. This is true for card software suppliers as well as manufacturers of micro-controllers for smartcards, with well over half of all the cards currently in use around the world produced in European smartcard

the provision of content, and network operation. The vision of the project was not limited to expanding the data parsing and storage capability of cards, but to provide the smartcard service-provider and service-user communities with a generic platform equivalent to longstanding Windows/Intel platforms.

their collaboration on the project, Thomasson says "Having the Eureka label gave credibility to the project and to the consortium."

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