

Development of Common Platform for New Generation Smart Card Systems

New Media Development Association

Summary and Distinctive Features

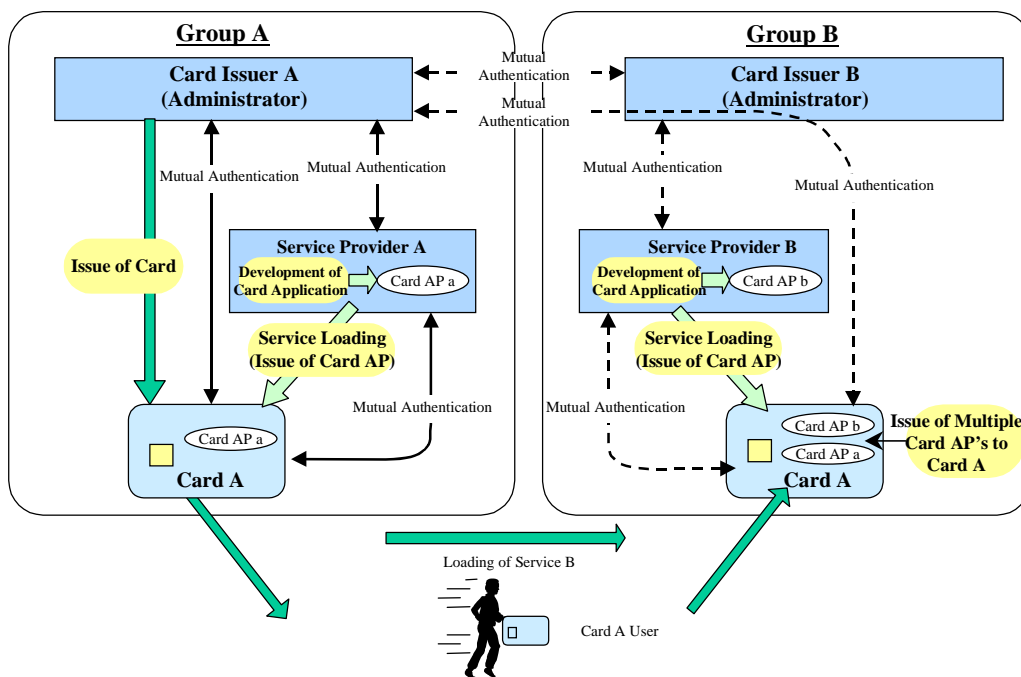
The current situation of smart cards being used is one where each industry or card issuer has their own mutually non-compatible card specifications and the mutual use among differing smart card systems is difficult.

This project will attempt to systematically unify the existing multiple card specifications. By developing a platform system for smart cards based on advanced architecture that can function with new function demands and various security levels, we aim to create an environment that can be seen as an information platform that can be used safely, conveniently, and continually by the users.

Specifically, we will realize a smart card system that will make possible mutual operation of services among multiple card issuers and card service providers that had been difficult in the existing smart card systems. We will also be able to assure compatibility with various existing smart card systems and continuity with any future smart cards. For the smart cards themselves, we will strengthen security functions by performing security processing inside the cards such as key generation and digital signatures and creating firewall functions that will secure the independence of the applications installed on the card. We will develop smart cards that contain platforms which are not issuer specific and those where the functions of the individual applications and encryption methods can be added by downloading.

By developing a platform system for new generation smart cards, we believe that there will be the following multiplier effect and social impact:

- Reduction in the unit costs of cards and system costs because the development of specific cards and systems will no longer be necessary.
- Service cooperation and area expansion between card systems is made easier.
- The loading of multiple services (for example, public and private services) on a single card can become widespread.
- Expectation of the rise of new services and businesses by coordination between multiple services.



Model of Issue of Multiple Card AP's to Different Card Issuers

Outline and Scale of Development & Testbed

In this project, development is carried out dividing the smart card system into three categories.

1) Development of card platform

With previous smart card specifications, command specifications were set down by industry such as JICSAP specifications, EMV specifications, Japanese Bankers Association specifications, and there had poor interoperability.

First, command specifications which can be shared by industries will be set down for smart card commands, and interoperability with previous smart cards ensured. For new commands not included in these command specifications, we will develop command download functions and a card platform which can deal with a broad range of purposes. Furthermore, selection of commands used for each application will be enabled to realize the optimum environment in accordance with application requests.

Next, for smart card security, we will support safe application firewall functions, and at the same time realize security functions previously performed at the terminal side such as key generation and digital signatures in the card to ensure high security.

In this way, a broad and diverse range of needs can be answered to by the development of highly general card platforms which have high interoperability with previous cards and can safely load several applications, and development of mini card platforms for special purposes to answer to the needs of users placing importance on economical features.

2) Development of smart card systems

As previous smart card systems were developed by card provider and service provider,

mutual operations of the same service have been difficult amongst several card issuers and service providers.

In this project, we will develop a system serving as the common infrastructure of smart card systems such as the card issuing management system which registers and manages the personal information, etc. of card users while taking into consideration the mutual use of services between different card issuers and service providers, and the service provision and management system which additionally issues applications to cards and manages operations, etc.

Also in this project, to enable flexible compatibility with previous cards, the card platform described in (1), and new smart cards, functions are improved at the terminal side so that card type and generation are recognized, and the corresponding optimum card driver is selected. Driver components which can add insufficient driver functions are also being developed. This will guarantee the continuity of services from previous to new cards.

3) Development of contactless smart cards

Contactless smart cards are expected to spread extensively together with contact type smart cards in the future. From amongst the close-coupling type, proximity type, and vicinity type contactless smart cards available, this project will focus on the proximity type in which is expected advantages in terms of convenience and develop proximity type smart cards satisfying the functions in (1) and (2). The proximity type smart card shall conform to ISO/IEC14443. Due to poor interoperability between manufacturers of the previous proximity type smart cards, in this project, we will invite the participation of leading Japanese manufacturers, compile implementation standards by setting down various parameters on the manufacturing level not prescribed in ISO such as antenna features and resonance features. Based on this implementation standard, we will develop proximity type smart cards with interoperability and corresponding reader and writer. Such efforts to ensure interoperability of proximity type smart cards are considered the first of its kind in the world.

Policy on Practical Application/Commercialization

This project will be collaborated with the Next Generation IC Card System Research Group. It has Keidanren (Japan Federation of Economic Organization) and 50 or more companies as its members, and is participated by 16 ministries such as the Ministry of International Trade and Industry and the Ministry of Posts and Telecommunications as its observers. Therefore, this project will broadly grasp needs from various perspectives such as card vendors, service businesses and users, and reflect these needs in specifications to develop a highly effective system.

The specifications and implementation standards of the smart cards and systems developed will be disclosed, and activities to spread the smart cards and systems through demonstrations will be carried out so that they will be recognized as the defacto standard to

smart card users and vendors. Based on the results of the many smart card system pilot tests undertaken until now, we will also perform implementation verification using the results of this project to appeal the perfection of the system even more specifically.