IFIP

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*International Federation
for Information Processing*

About TC8 and its Working Groups

IFIP Technical Committee 8 (TC8) is responsible for the field of information systems. TC8 has eight working groups (WGs) and each covers a different aspect of information systems:

WG8.1 - Design and evaluation of information systems
WG8.2 - The interaction of information systems and the organization
WG8.3 - Decision Support Systems
WG8.4 - Office Information Systems
WG8.5 - Information Systems in Public Administration
WG8.6 - Diffusion, transfer and implementation of information technology
WG8.7 - Informatics in International Business Enterprises
WG8.8 - Smart Cards

Further details on each of the working groups and their activities can be found by accessing TC8's home page http://ifiptc8.cis.gsu.edu/ifip/ and following the links.

As foreshadowed in the last IFP TC8 column, we would like to take the opportunity over the next few issues of *DATA BASE* to introduce each of the IFIP TC8 Working Groups in turn. In this issue my colleague, Vincent Cordonnier, provides an overview of TC8's newest working group, WG8.8 Smart Card. Vincent is the founding chair of WG8.8.

History

A proposal to create a group on smart card technology and applications was first put to the IFIP General Assembly in 1991. This led to the creation in 1992 of the Smart Card Task Force. The Task Force had two goals: to be a meeting group for experts from as many countries as possible and to organize scientific events on smart cards under the IFIP label. The Task Force began its work in 1993. It began with approximately 12 members. They observed that many conferences, exhibitions, and symposia already existed at the national and international levels. But all of them were mostly commercial and concerned with business more than research and advanced projects. It was decided:

• Not to work on current problems such as standards or regular applications.
• To initiate a working conference with authentic

scientific goals. The name of that conference will be CARDIS.
• To extend the group to a program committee with about 20 members.

Under the TC8 umbrella, the first working conference took place in Ottawa, Canada, in 1993 under the TC8 umbrella. About 50 persons attended the conference. In 1994, CARDIS 1 took place in Lille, France, and attracted 70 attendees. It was the first scientific conference on smart cards technology and advanced applications.

The Task Force group decided that CARDIS must be a permanent event and proposed to have this conference in various countries every second year. Three countries applied for CARDIS 2 and the steering committee selected. In September 1996, CARDIS 2 was held in Amsterdam, The Netherlands. It attracted some 100 participants. At a meeting held during that conference, it was agreed to accept the proposition of IFIP to join a permanent WG. For many participants, TC 8 looked like the best possibility. The first meeting with TC8 took place at the Ambleside, UK, at the TC8 annual meeting in June 1997. This resulted in the formation of WG8.8. In 1998, CARDIS 3 took place in Louvain la Neuve in Belgium and attracted 100 participants. The first official meeting of WG8.8 will take place in association with CARDIS 4 in Bristol, UK, in 2000. At that meeting, the initial Working Group members will be nominated.

WG8.8 Aims and Goals

Smart cards cannot easily be considered as a precise technical issue. By referring to the papers presented to the three CARDIS conferences, one can identify the following themes.

Architecture

For many reasons, the chips which are embedded in smart cards present original features, including special-purpose microprocessors; cryptographic and possibly biometric co-processors; security features; specific devices for tamper resistance; memory management in charge of the RAM, the ROM, and the EEPROM or Flash memory; and communication devices including contactless cards.

Operating system

Many of the presently available cards do not make a clear distinction between the operating system and the application software. It is likely that future cards will require a well identified operating system. The first reason is standardization and interoperability. Another reason is the requirement for the card issuers to be independent from manufacturers. Eventually, the trend of multi-application cards will impose to design the operating system before importing any application.

Application software

The embedded software of an application is responsible for organizing appropriate data management and an efficient security scheme that can take in account the specific requirement of the application. This part of the software is also responsible for providing a set of primitives which allows the card to be personnalized by taking into account any information related to the bearer such as PIN code, biometrics, individual profile and privileges, and so forth.

Integration of smart cards as components of information systems

A set of smart cards for a given application may be seen as a widely distributed data base or as a large network with dynamic connection. In many circumstances, the decision to store data either in the card or somewhere else in the information system is not simple and relies on a specific methodology of application design. Furthermore, the rapid development of networks leads to new requirements in security. The card looks like the best tool for representing individual profiles, personal data, and requirements in a distributed system.

Security

Security appears as a key topic of smart cards and the major argument for choosing this technology. It has to be studied from many different points of view. Tamper resistance, protection of data, and privileges management when more than one sort of services is provided. Security is also mandatory for communication between the card and the information system. Many well identified techniques such as authentication, signature, and encryption will apply in the smart card area. However, the smart card context is a specific one which cannot cover the whole spectrum of applications.

Application design

As smart cards are used for an increasing number of various applications, the need for a design

methodology is obviously required by application designers. This theme will also include application management and dynamic application loading.

Smart cards and the society

So far, this theme has not been approached, either in the group or in the conferences. However, it could represent an interesting topic as the card becomes a new and widely distributed tool for accessing a large spectrum of distributed services. This theme could lead to a study of the common and general aspects of applications related to the economy and some sociological or political issues.

Future Activities

It is quite evident that these aims and goals cover a wide spectrum of techniques and the activities of WG8.8 will partly be organized with other groups within IFIP.

WG8.8 Events

For the moment, the Working Group members unanimously agree that CARDIS should remain a biannual conference. However, there have been a few proposals for specialized workshops:

•Physical, electrical, and logical resistance of smart cards
•Design methodologies for smart cards applications

As a result of these workshops, WG8.8 could be involved in publishing monographs.

TC8 Events

During the last TC8 meeting, there were a few preliminary and informal discussions about some themes that could be shared by more than one TC8 WG.

•Electronic commerce
•Information systems and mobility

IFIP Events

WG8.8 can also share some events with other IFIP Technical Committees on the following topics: distributed systems, distributed databases, security, specialized architectures, or computers and society.

Further Information about WG.8 Smart Card

Further information on WG8.8 can be obtained by contacting one of the following officers:

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About the Authors

Bernard Glasson is Director of Curtin University's Electronic Commerce Network, an industry sponsored teaching and research centre in Perth, Western Australia. Dr. Glasson has been active within IFIP since the mid '80s. He is currently Chair of IFIP's Technical Committee 8 which has responsibility within IFIP for the field of information systems. E-mail: glassonb@cbs.curtin.edu.au

Vincent Cordonnier is a professor at the University of Sciences and Technology of Lille, France. He created and currently chairs the research group RD2P on smart cards and mobility in this university. He has worked with IFIP since 1970, and, as a TC10 member, for 12 years. He then proposed to IFIP the creation of a group on smart cards. This group was originally established as a Task Force and became a Special Group in 1993. He presently chairs the newly created WG8.8 on smart cards.