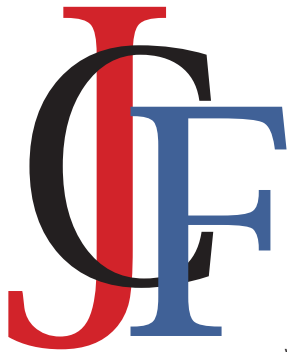


# THE ROAD TO THE NEXT GENERATION



The Java Card Forum (JCF) was established to promote Java™ as the preferred programming language for multi-application smart cards. To maintain, improve and further develop Java Card™ technology, the JCF is structured to integrate business and technical expertise to assist Sun Microsystems in the delivery of fit-for-purpose Java Card APIs. Since the JCF was formed, members have worked on six iterations of the Java Card API enhancement specifications. The group is currently working on the Next Generation Java Card specifications.

JCF members include Gemalto, Giesecke & Devrient, Incard, Infineon Technologies, NXP, Oberthur Card Systems, Renesas, Sagem Orga, Sermepa, STMicroelectronics, Trusted Logic and Visa.

With over 3 billion delivered units, the Java Card platform is the biggest success story and the leading technology in the global smart card market. In 1996 the aim of the introduction of Java Card technology was to overcome the constraints of closed and non-interoperable solutions, and to pave the way for a true multi-application environment. Java Card technology provides the industry – smart card manufacturers as well as smart card issuers – with an open, secure and standardized platform for all fields of application, such as telecommunications, financial services, IT security, public services or access control.

Typical benefits in these different usage scenarios are:

- Interoperability: applications can be executed on every Java powered smart card independently of hardware or origin – “write once, run anywhere™”.
- Flexibility: Java Card technology products can be updated and reloaded with new applications even after issuance in the field thanks to secure and efficient loading mechanisms.
- Multi-application support: Java Card technology can host several independent applications on a single smart card.
- Security: Java Card technology offers sophisticated security features based on the characteristics of the Java programming language and an integrated firewall concept.
- Standardized technology: the Java Card platform is aligned with all major international standardization bodies.

Today Java Card technology benefits are more important than ever: Industry analysts predict that the success of the Java Card platform will continue on a large scale, rising to an annual shipping volume of 4 billion units in 2011 (Frost & Sullivan 2006).

Primarily driven by the mobile telecommunication, Government and Corporate ID and the financial services sectors, integration in a connected IT environment is a big challenge to deal with. Card manufacturers, as well as card issuers are facing the challenge of an increasingly complex Internet-based world. The card needs to develop from a security token to a fully-fledged personal computing device, leaving many still existing technology limitations behind.

In particular, smart cards need to meet new technical demands for integration into an internet environment:

- Higher speed,
- Connectivity convenience (USB, NFC etc.),
- Internet ready,
- Seamless integration in current and future IT networks,
- Support for more innovative end user services,
- Processing concurrent applications.

Additionally it is of crucial importance while offering all the technological benefits, to reduce infrastructure costs as far as possible by eliminating unnecessary system components (middleware).

Sun Microsystems, in a strong partnership with the Java Card Forum, recognized these requirements very early on, which has led to the introduction of the Next Generation Java Card platform:

- Java Card technology Classic edition: an evolutionary development of Java Card 2.2.2,
- Java Card technology Connected edition: addressing the demands of future networks- connected implementations.

In addition to the many technological enhancements, Next Generation Java Card technology is addressing the requirements already mentioned by offering the following features:

- Smart Card Web Server: browser-like interface to card services,
- True multitasking: parallel execution of different services,
- Enhanced connectivity: no need for specific software on the card reader,
- Enhanced, scalable security model: security for trusted as well as non-trusted environments.

The business benefits of Next Generation Java Card technology are obvious:

- Enabling complete new consumer oriented use cases,
- Cost reduction through easy and cost efficient integration and deployment in current and future IT environments.

Next Generation Java Card technology will take the capabilities and possible use cases for smart cards to a whole new level – based on the reliability of a mature and proven technology.

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