JCF WEBINAR:

How Java Card fits into the SDO landscape

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OVERVIEW

WHY JAVA CARD ?

WHY JAVA CARD

A look back into history……

› **At the beginning of the 1990s GSM became a huge success**

› **But…..**

› **Some MNOs saw the need and also the possibility to put more value on the SIM card**
  • Additional features allowing to build applications hosted by MNOs and providing additional value

› **SIM Toolkit was invented and specified in GSM specification 11.14 as part of GSM Phase 2+ (Rel1996)**

› **First published version of 11.14 I could find was V5.2.0 from Dec 1996**

WHY JAVA CARD?

› Okay, now there is a specification of commands….

› And the possibility to download something over the air…..   **But……**

WHY JAVA CARD?

A look back into history……

> How to build applications out of this that run on a smart card?

> Every smart card manufacturer had its own ideas and different types of ‚interpreters'
have been developed.

> Those interpreters were basically providing an interface between the operating system
and the applications …. An application programming interface ….. A kind of an API

> But, every interpreter was different and there was no possibility to easily use an
application developed for an interpreter from manufacturer A on a smart card from
manufacturer B. A lot of porting effort was required – time consuming and expensive

> Wouldn't it make sense to define a standardised interpreter / API ???

WHY JAVA CARD?

A look back into history……

› **A standardised API….. Great idea, but which one?**

› **And then the fight began…..and also the Java Card Forum was founded…..**

› **There were at least 4 different proposals:**
- Multos
- Windows for Smart Cards
- C language for smart cards
- Java for smart cards, Java Card

› **As a first step the requirements for the API were defined in GSM 02.19 for Rel1998 V7.1.0 in a neutral way. Thus allowing any of the API candidates.**

› **At the end, 2 proposals have made it to define a technical solution for an API, Java Card (3GPP TS 31.130) and C-language (3GPP TS 31.131)**

› **But C-language has rarely been implemented…..there was only one company fighting for it.**

WHICH OTHER STANDARDS ?

IDEMIA

JAVA CARD Forum

WHAT ELSE?

Where is Java Card positioned?

› **Telecommunication market**
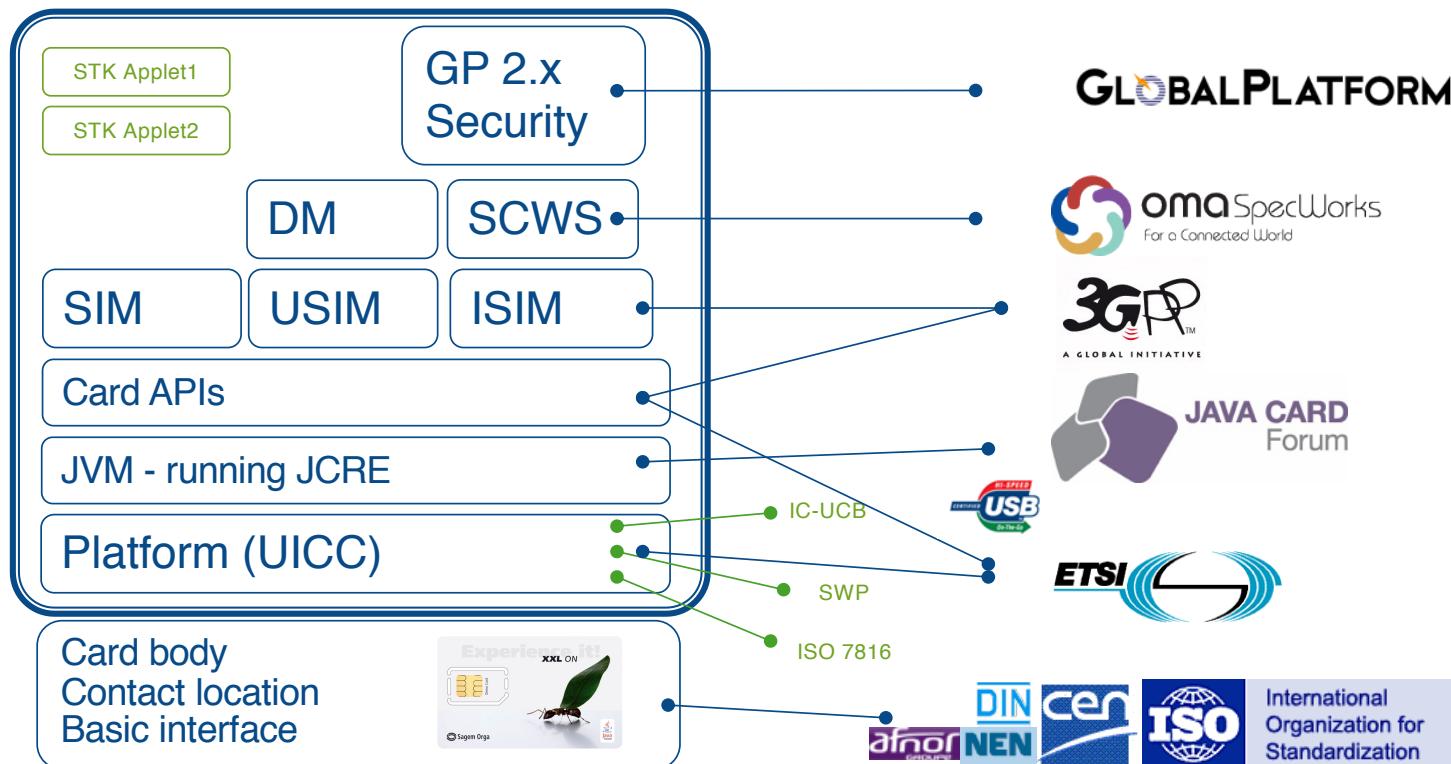
WHAT ELSE?

Where is Java Card positioned?

› **Banking market**

GP 2.x Security	**GLOBALPLATFORM**
Application 2 / Application 1	**GP only in case several applications on one card**
Platform	**Project Specification**
	e.g. EMVCo.
	ISO 7816
Card body / Contact location / Basic interface	DIN CEN afnor NEN ISO International Organization for Standardization
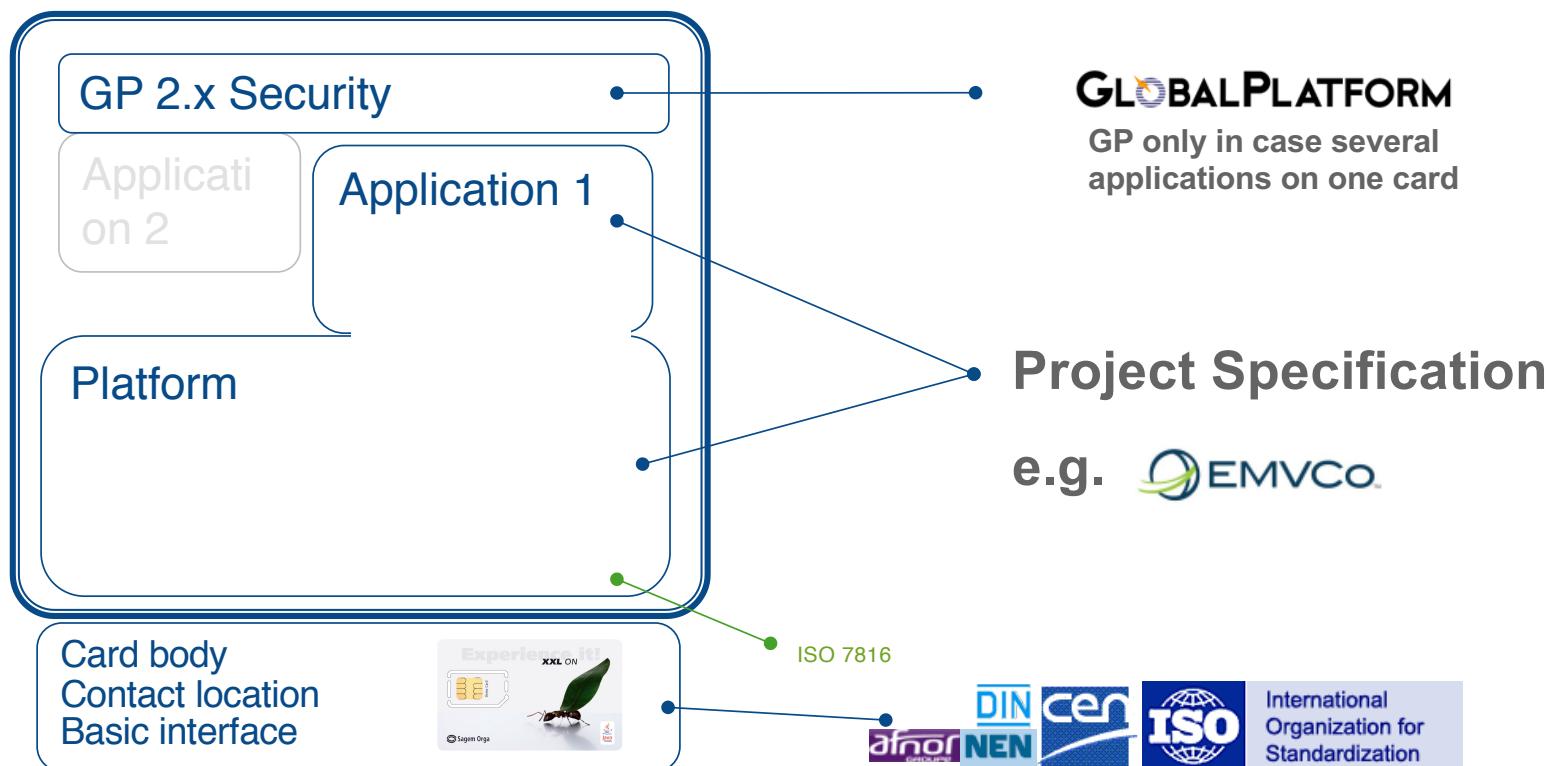
WHAT ELSE?

Where is Java Card positioned?

> **ID market**

GP 2.x Security

Application 2

Application 1

Platform

Card body
Contact location
Basic interface

GLOBALPLATFORM

GP only in case several applications on one card

Project Specification

e.g. A national ID scheme

ISO 7816

DIN CEN
afnor NEN
ISO International Organization for Standardization
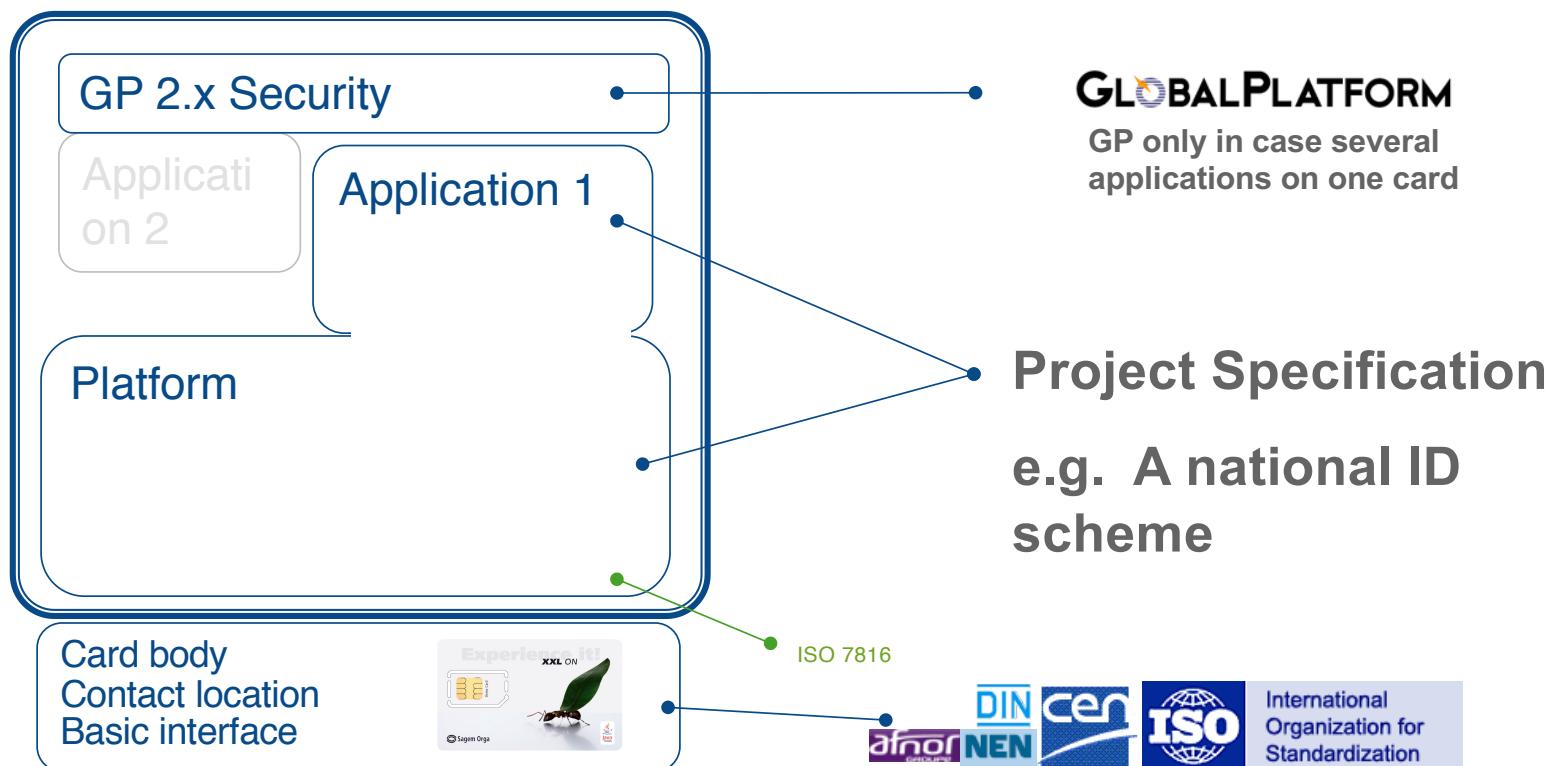
WHAT IS THE JAVA CARD FORUM ?

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A comparison…..

› **Official Standards Development Organisations**
  - ISO, ETSI, 3GPP, ATIS, CCSA,…..
  - Internatonal like e.g. ISO and regional like e.g. ETSI (Europe), ATIS (US),…

› **Marketing Organisations**
  - GSMA, Trusted Connectivity Alliance, ….

› **Java Card Forum is a marketing organisation.**

› **Java Card Forum does not publish specifications of Java Card.**

› **Java Card Specifications and related IPRs are not owned by JCF but by Oracle.**

› **Java Card doesn't come for free….licensed from Oracle and license fees to be paid.**

WHERE IS JAVA CARD USED ?

WHERE IS JAVA CARD REFERENCED ?

An overview

› **Java Card APIs are specified by**

› **ETSI SET (TS 102 241 (UICC), TS 102 705 (contactless), TS 102 588 (SCWS), TS 102 267 (CAT-TP))**

› **3GPP (TS 31.130 (USIM), TS 31.133 (ISIM), TS 43.019 (SIM), TS 31.221 (Contact manager))**

› **GlobalPlatform (GP API)**

› **Plus the related test specifications.**

› **Java Card is also referenced in the remote APDU specification TS 102 225 and TS 102 226.**

› **GSMA references Java Card in the eSIM specifications.**

› **OneM2M references Java Card via ETSI TS 102 225 and TS 102 226.**

SUMMARY

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› **Java Card is not an open specification but owned by a company (Oracle).**

› **Java Card is not mandated by either ETSI nor 3GPP.**

› **It is also not mandated by GSMA for eSIM.**

› **But, it is the only specification for an interoperable platform for smart card applications fully specified and with related test specifications.**

› **The Java Card Forum is the organisation working on further evolution of the Java Card technology together with Oracle as the owner of the technology.**

THANK YOU !

QUESTIONS?

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