

# Single Wire Protocol - SWP

Overview of the SIM Centric Model for  
Contactless Mobile Payment





## Agenda

- Oberthur and NFC
- Mobile Contactless Options
- SIM Centric Approach
- Single Wire Protocol (SWP) Overview
- Advantages of the SIM Centric Model
- SWP in Today's Market





## Oberthur and NFC

### ● Oberthur Technologies: Card Systems Division

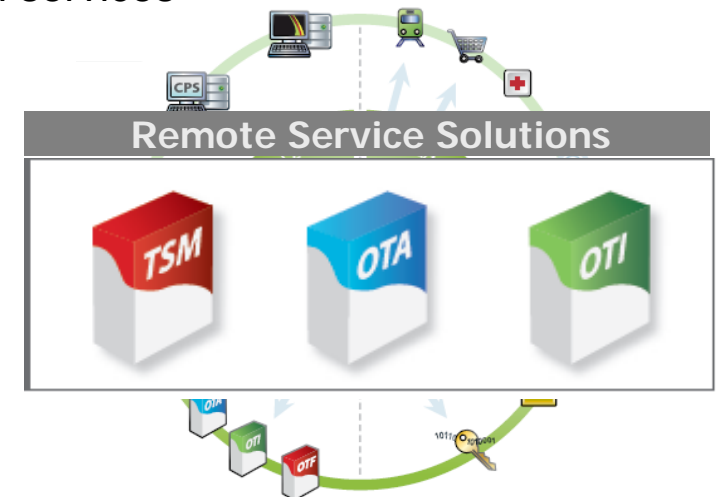
- Payment Product Line: #1 contactless card provider in the US
- Mobile Product Line: #2 card provider worldwide
- Convergence Product Line: Leading Convergence Initiatives

### ● Oberthur Contactless Offering

- Mobile: SIM Platforms for mobile, payment and transit, application and services
- Payment: contactless card and sticker, personalization services
- Convergence: Trusted Service Manager platform

### ● Oberthur Contactless Initiatives

- Standardization efforts
- Global and regional pilots
- “NFC in the box” package





## Mobile Contactless Options

### ● Sticker

- A sticker containing the chip and the antenna with no link to the SIM or application processor



### ● Device Centric

- The contactless application runs on an SE chip. This chip is embedded in the phone



### ● SIM Centric

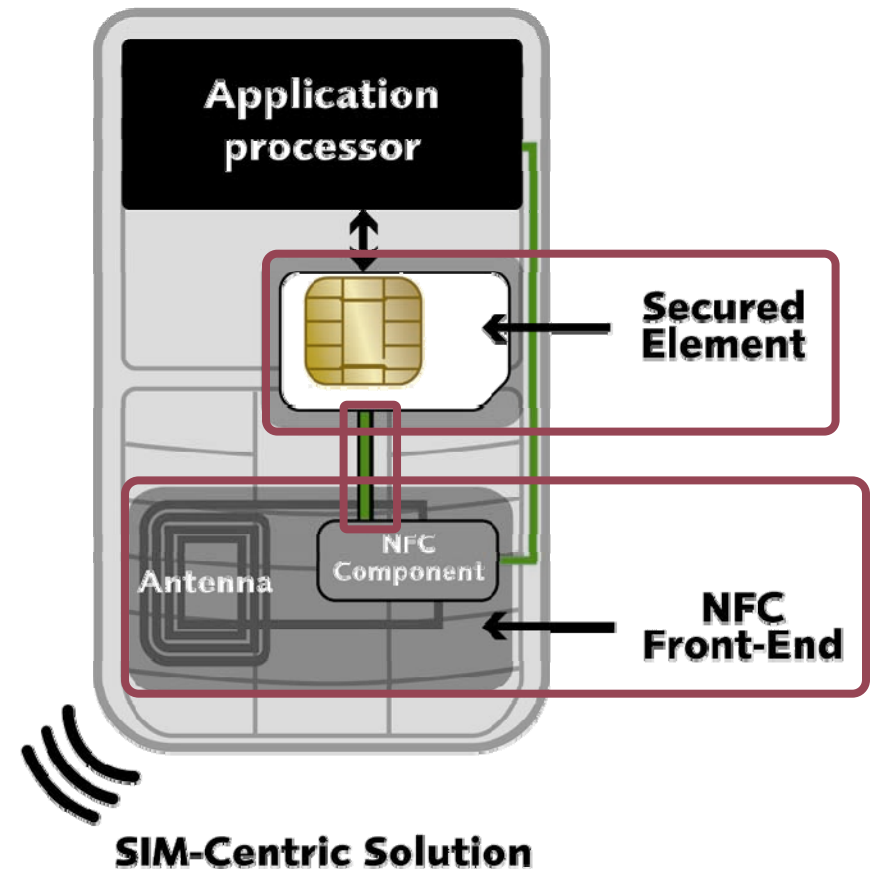
- The contactless application runs on the SIM which acts as the Secure Element of the NFC Front end





## SIM Centric Approach

- The Secure Element is the SIM
- The SIM stores the secure applications (such as the payment applications)
- The contactless front-end is embedded on the handset (compliant with the ISO 14443 standard)
- The contactless front-end is connected to the device
- The SIM is connected to the contactless front-end





## Single Wire Protocol

- **SIM Centric endorsed by the industry: GSMA NFC white paper says**



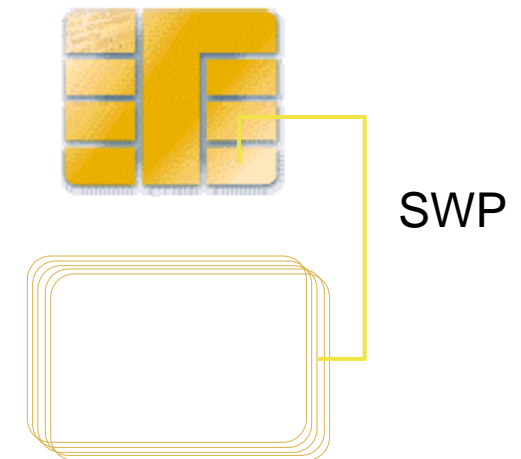
“Mobile NFC applications need to be performed in a secure environment (SE). The UICC provides both logical security (i.e. command encryption) and physical security (i.e. tamper proof and copy protection).”

- **Two options for the SIM centric approach**

- SWP – Single Wire Protocol
- NFC-WI – Wired Interface

- **Only 1 made it at the standard (Oct 2008)**

- ETSI : SWP and HCI release 7
- Global Platform: GP2.2 amendment C
- Mifare: Mifare for mobilev1





## SIM Centric Advantages

- **Universal:** The SIM is widely deployed (more than 2 billion users worldwide). Using the existing SIM platform as the SE is cost effective.
- **Portable:** Easy transfer of applications and rights from one NFC enabled mobile device to another.
- **Dynamic Remote Management:** Already existing secure remote SIM management systems and processes can be leveraged to manage mobile NFC services during the card life cycle
- **Service continuity:** Being battery independent, the SIM-Centric solution allows NFC services to work when the battery is off.
- **Standardized:** SIM Security is based on global, well-established standards (ETSI-SCP, 3GPP, Global Platform)
- **Business synergies:** Smart Card manufacturers that already supply contactless cards (for payment and transit) will leverage their expertise and operational excellence.



## 2008: A Year of Transition

- First SIM-centric handsets (available since mid 2007) and CLFs were based on a SWP/HCI specification issued before ETSI's standard
  - Sagem My700x
  - Motorola L7
  - LG L600V
  - Nokia 6131 SWP (proto)
- Handset manufacturers have been waiting for the final release of SWP and HCI standards (October 2008)
- Thus, 2008 has been dedicated to many experimentations all over the world but no commercial roll out

payez mobile

**NFC Mobile Payment**  
Largest and most Advanced  
Project

*Oberthur*  
Card Systems  
The Key to an Open World



## 2009: Endorsement by Technology Providers

- Major standards for marketable solutions are now available:

Two last steps

- GP2.2 amendment C (March 09)
- NFC APIs (June 09)

- New NFC capable chips on their way

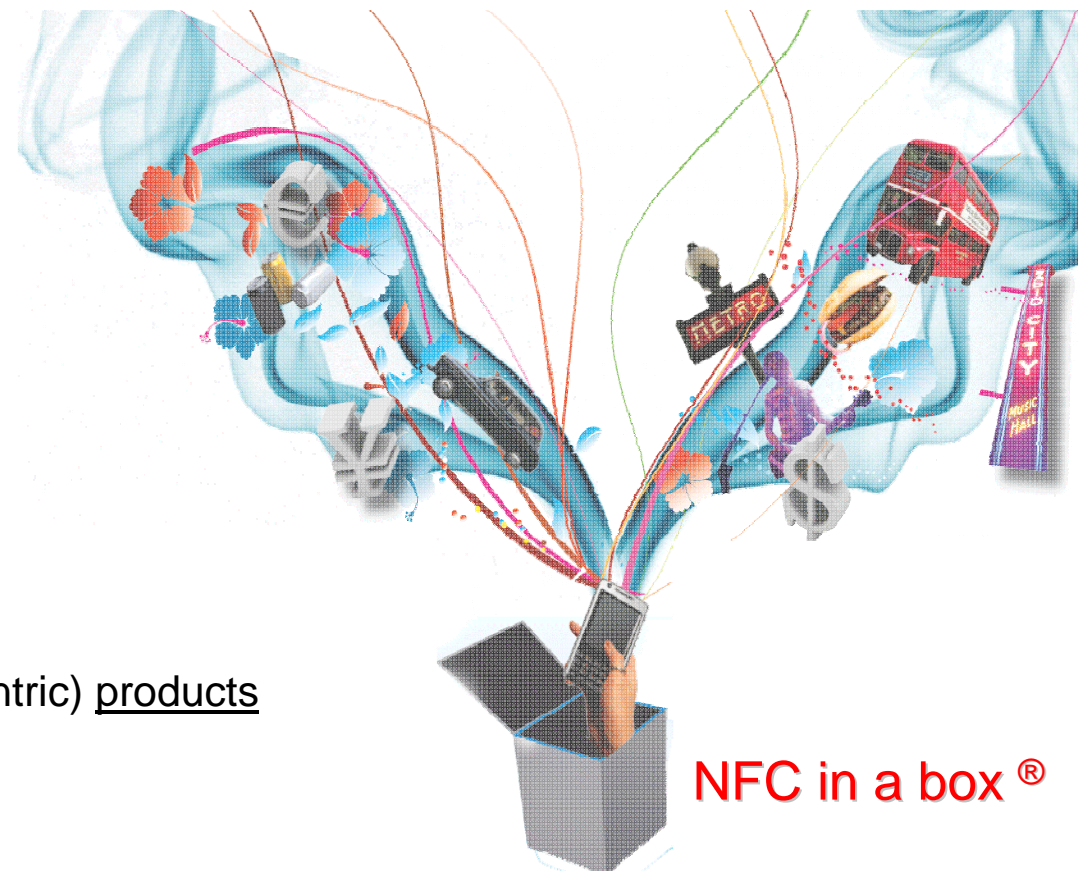
- Infineon (Mifare compliant)
- Samsung
- ST
- Atmel

- Several contactless front-ends available:

- Inside Contactless MR3.0
- NXP PN544
- ST ST21

- Handset manufacturers announced (SIM-centric) products

- Nokia Samsung
- LG / ST
- SonyEricsson
- ...





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Thank you for your attention

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# Appendices – Standardization Roadmap





## ETSI's NFC standards

### Single Wire Protocol

TS SWP 102 613

Purpose: SIM / CLF physical interface

*Release 7 available (October 2008)*

### Host Controller Interface

TS HCI 102 622

Purpose: SIM / CLF / Handset logical interfaces

*Release 7 available (October 2008)*

### NFC APIs

TS NFC APIs 102 xxx

Purpose: Possibility for an applet to access in a standard way to HCI events (for MMI for example)

*Requirements phase (release expected in Q4 2009)*

### Specialist Task Force

TS STF 102 xxx

Purpose: A test suite to ensure SIM / CLF / Handset interoperability at SWP & HCI levels

*Release expected in Q2 2009*



## Global Platform's standards

### **GP2.2**

Purpose: compared to GP2.1.1, brings more flexibility (hierarchy / privileges of SDs, PKI, new Secure Channel Protocols)

*Available (March 2006)*

### **Amendment A**

Purpose: Confidential Card Content Management

*Available (September 2007)*

### **Amendment B**

Purpose: Remote File Management & Remote Applet Management (RFM / RAM)

*Available (November 2008)*

### **Amendment C**

Purpose: More mechanisms particularly for NFC: NFC registry, quotas mechanisms

*Release expected in Q2 2009*

### **UICC Config**

Purpose: Implementation guidelines of GP standard in a SIM

*Available (October 2008)*