

GSM Association (GSMA) Mobile Ticketing Initiative

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GSM World Today

Global Choice

*Over 4.2 billion
GSM/3GSM users
connected*

Global Growth

*1 million new
connections every day*

Global Data

*Nearly 7 billion text
messages are sent every
day*

Global Reach

*219 countries served by
GSM or 3GSM networks*

The GSMA

- Represents the interests of the Mobile Communications Industry Worldwide
 - Over 750 Operators Members across 219 countries/territories
 - Over 200 Associate Members (Manufacturers & Suppliers)
 - Founded 1987
 - See www.gsmworld.com
- GSMA is helping to create new business opportunities for its members
- GSMA is working to ensure that mobile services work globally
 - **Interoperability is the key**
- Several Regional Interest Groups created to support local regional activities
 - GSMA North America (NA)
- Activities take place in working groups and project teams:
 - Working groups on : Roaming, Billing, Fraud, Security
 - Large number of projects (including Pay-Buy-Mobile)
 - Mobile Ticketing and Mobile Payment are components of the Pay Buy Mobile (PBM)

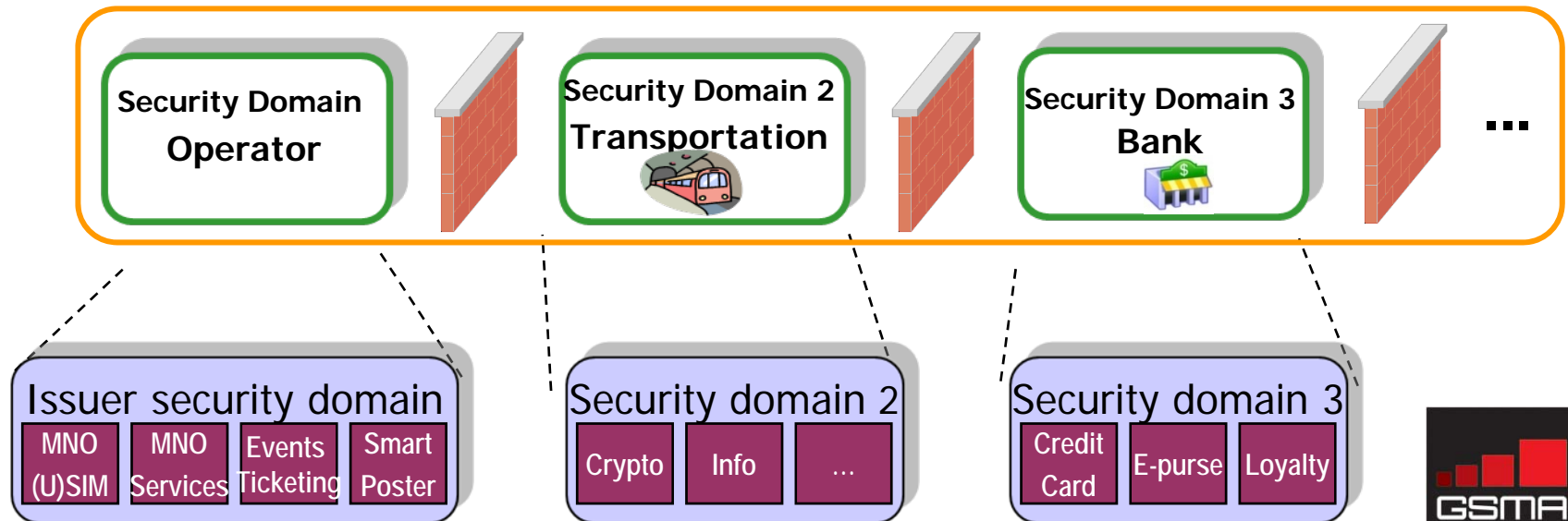
GSMA M-Ticketing Initiative

- The overall goal of the m-ticketing initiative is to build and enable the mobile ecosystem to support contactless ticketing over the existing infrastructure
 - Standards-based implementation
 - Avoid or minimize changes to current infrastructure
- **Handset** enabled with Near Field Communications (NFC) technology
 - Support ISO 14443 standard
 - Must support Card Emulation and Reader/Writer modes
 - Interoperable with current contactless technology
 - Compliant with NFC Forum compliance program (to be launched in 2010)
- The **user interface** (mobile wallet) application coupled to the NFC technology
 - Replacing the content of the physical wallet
 - Enable multiple applications on a single device



GSMA M-Ticketing Initiative – cont'd

- The **UICC (SIM card)** has been identified as the GSMA's preferred choice for the secure element (SE)
 - Secure storage of the ticketing application and user account information
 - Other contactless applications supported e.g. POS credit/debit card payment
 - Uses the ETSI Single Wire Protocol (SWP) for interfacing with the phone
- UICC must conform to GlobalPlatform Card Specification
 - Support for multiple Security Domain (SD) on single card
 - Enable application lifecycle management in SD by trusted third party – the Trusted Service Manager (TSM)



M-Ticketing: Advantages of the UICC – based SE

- **Portable:** Easy transfer of applications and customer data as the customer migrates from one NFC phone to another
- **Universal:** The UICC (SIM card) is widely deployed on a global basis across the GSM family of networks
- **Easy Provisioning:** Application management including updating can be done using over the air (OTA) facilities
- **Security:** The UICC (SIM) is a highly secure platform conforming to the GlobalPlatform smart card standards for hosting of sensitive applications; Each service provider (e.g. a Public Transit operator) has exclusive control over their assigned Security Domain (SD)
- **Standards Based:** The UICC specifications are based on well-established standards developed within 3GPP, ETSI and GlobalPlatform



M-Ticketing: Handsets – Where are we?

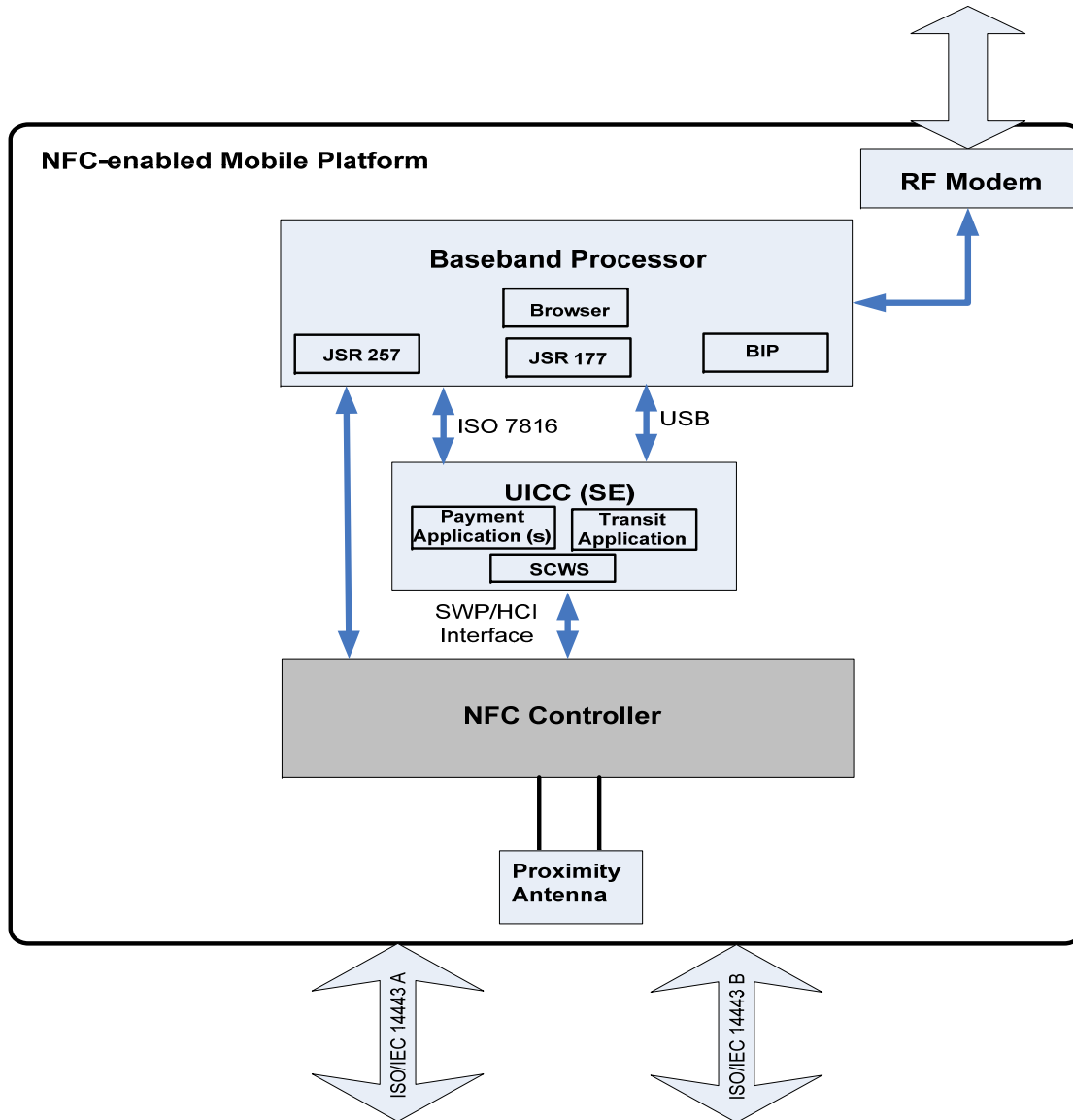
- In late 2008 GSMA issued a set of Requirements to the industry for Single Wire Protocol (SWP) NFC phone
 - Updated version to be released in Q2 2010
 - Architecture Requirements
 - UICC standardized interfaces
 - User Interface Requirements
 - Transport Protocol/Application Management Requirements
 - Power Management
 - Security Requirements
 - Certification and Type Approval Considerations
 - Performance Considerations
- Handsets starting to appear from several manufacturers

NFC Handset Players

- Several NFC Handset players (and potential players) in the market:
 - Nokia
 - Samsung
 - LG
 - ZTE
 - Sagem Wireless
 - Phonelabs
 - Apple
 - Others (not yet public)



M-Ticketing: SWP NFC Handset Architecture



User Interface - Mobile Wallet

- Will allow the customer to have easy access to a range of services:
 - Proximity Payment (credit/debit cards for NFC enabled m-payment)
 - Remote Payment (e.g. via internet)
 - Transportation services (Ticketing)
 - Remittance (P2P)
 - Event ticketing (e.g. concerts, sports events etc)
 - Other customer selected applications
- Not currently part of the M-Ticketing initiative
 - Each MNO determining its own wallet strategy



Conclusions

- NFC Mobile ticketing is real
- Contactless infrastructure exists and is growing
- Well established mobile infrastructure to support ticketing application provisioning, and lifecycle management
- NFC-enabled Mobile phones are flexible with regards to choice of electronic payment systems
 - Existing individual transit payment systems
 - Use of open loop systems (e.g. Visa, MasterCard, etc)
 - Cross-system implementation
- Use of Mobile offers several benefits for the operators
 - Operational cost savings
 - Potential new revenue-generating services to the ridership
 - use of smart posters, etc)
- Collaboration needed between transit operators and mobile operators to agree on ecosystem, business model and required standards